FUJITSU

Refrigerant R410A

INVERTER

AIRSTAGE™ J-IIIL

DESIGN & TECHNICAL MANUAL





FUJITSU GENERAL LIMITED

CONTENTS

1. GENERAL INFORMATION

2. MODEL SELECTION

3. OUTDOOR UNITS

4. INDOOR UNITS

5. CONTROL SYSTEM

6. SYSTEM DESIGN

7. FUNCTION SETTINGS

8. EXTERNAL INPUT AND OUTPUT

9. NOTES

10. OPTIONAL PARTS

Refrigerant R410A
INVERTER

AIRSTAGE™
Variable Refrigerant Flow System

1. GENERAL INFORMATION

2021.02.19
DV_CH01_J3LU061EF_05

CONTENTS

1. GENERAL INFORMATION

1. Outdoor unit and indoor unit lineup 01-1

1-1. Outdoor units 01-1

1-2. Indoor units 01-2

2. Optional parts 01-5

2-1. Controllers 01-5

2-2. Adapter/Converter/Maintenance tool 01-8

2-3. Branch kit 01-9

2-4. Cassette grille 01-11

2-5. Others 01-12

GENERAL INFORMATION

1. Outdoor unit and indoor unit lineup

NOTE: Information on models not mentioned here is available on our Pocket or Pocket Portal as the back number.

1-1. Outdoor units

■ Stand-alone

Lineup from 6 ton to 10 ton in 2 ton increments.



Ton	Cooling capacity (Btu/h)	Model name
6	72,000	AOU72RLAVL
8	96,000	AOU96RLAVL
10	120,000	AOU120RLAVL

■ Model designation

Column	1	2	3	4	5	6	7	8	9	10	11
Code	A	O	U	1	2	0	R	L	A	V	L

Column	Item	Description
1	Type	AO: Outdoor unit
2		
3	Brand	U: Fujitsu
4	Capacity	72: 72,000 Btu/h 96: 96,000 Btu/h 120: 120,000 Btu/h
5		
6		
7	Function	R: Heat pump
8	Function	L: Inverter
9	Function	A: J series B: V series (230V) C: V series (460V)
10	Function	V: VRF
11	Chassis code	L

GENERAL INFORMATION

1-2. Indoor units

Type		Capacity													
	Btu/h	4,000	7,500	9,500	12,000	14,000	18,000	24,000	30,000	34,000	36,000	48,000	60,000	72,000	96,000
	Model code	4	7	9	12	14	18	24	30	36	36	48	60	72	96
Compact cassette		•	•	•	•	•	•	•							
4-way flow cassette							•	•	•		•				
Circular flow cassette							•	•	•		•	•			
Mini duct		•													
Slim duct/Slim concealed floor			•	•	•	•	•								
Medium static pressure duct								•	•		•				
High static pressure duct											•	•	•		
														•	
															•
Compact floor		•	•	•	•	•									
Floor/Ceiling					•	•	•	•							
Ceiling									•		•				
Wall mounted		•	•	•	•	•									
							•	•	•	•					
			•	•	•	•									
							•	•							

GENERAL INFORMATION

Type	Rated capacity (Btu/h)		Model name	Dimensions	Remarks
	Cooling	Heating		H × W × D	
Compact cassette	4,000	4,400	AUUA4TLAV2	9-5/8 × 22-7/16 × 22-7/16 (245 × 570 × 570)	Cassette grille: UTG-CCGVG (Grid type)
	7,500	9,500	AUUA7TLAV2		
	9,500	10,900	AUUA9TLAV2		
	12,000	13,500	AUUA12TLAV2		
	14,000	15,600	AUUA14TLAV2		
	18,000	20,000	AUUA18TLAV2		
	24,000	27,000	AUUA24TLAV2		
4-way flow cassette	18,000	20,000	AUUB18TLAV	9-11/16 × 33-1/16 × 33-1/16 (246 × 840 × 840)	Cassette grille: UTG-LCGV
	24,000	27,000	AUUB24TLAV		
	30,000	34,000	AUUB30TLAV	11-5/16 × 33-1/16 × 33-1/16 (288 × 840 × 840)	
	36,000	40,000	AUUB36TLAV		
Circular flow cassette	18,000	20,000	AUUB18TLAV2	9-11/16 × 33-1/16 × 33-1/16 (246 × 840 × 840)	Cassette grille: UTG-LCGVCW (White) UTG-LCGVCB (Black)
	24,000	27,000	AUUB24TLAV2		
	30,000	34,000	AUUB30TLAV2		
	36,000	40,000	AUUB36TLAV2	11-5/16 × 33-1/16 × 33-1/16 (288 × 840 × 840)	
	48,000	54,000	AUUB48TLAV2		
Mini duct	4,000	4,400	ARUL4TLAV2	7-13/16 × 27-9/16 × 17-11/16 (198 × 700 × 450)	
Slim duct/Slim concealed floor	7,500	9,500	ARUL7TLAV2	7-13/16 × 27-9/16 × 24-7/16 (198 × 700 × 620)	
	9,500	10,900	ARUL9TLAV2		
	12,000	13,500	ARUL12TLAV2		
	14,000	15,600	ARUL14TLAV2		
	18,000	20,000	ARUL18TLAV2	7-13/16 × 35-7/16 × 24-7/16 (198 × 900 × 620)	
Medium static pressure duct	24,000	27,000	ARUM24TLAV2	10-5/16 × 44-11/16 × 27-9/16 (270 × 1,135 × 700)	
	30,000	34,000	ARUM30TLAV2		
	36,000	40,000	ARUM36TLAV2		
High static pressure duct	36,000	40,000	ARUH36TLAV	15-3/4 × 41-5/16 × 19-11/16 (400 × 1,050 × 500)	
	48,000	54,000	ARUH48TLAV		
	60,000	67,000	ARUH60TLAV		
	72,000	81,000	ARUH72TLAV2	17-11/16 × 62-1/2 × 27-9/16 (450 × 1,587 × 700)	
	96,000	108,000	ARUH96TLAV2	21-5/8 × 62-1/2 × 27-9/16 (550 × 1,587 × 700)	
Compact floor	4,000	4,400	AGUA4TLAV2	23-5/8 × 29-1/8 × 7-7/8 (600 × 740 × 200)	
	7,500	9,500	AGUA7TLAV2		
	9,500	10,900	AGUA9TLAV2		
	12,000	13,500	AGUA12TLAV2		
	14,000	15,600	AGUA14TLAV2		
Floor/Ceiling	12,000	13,500	ABUA12TLAV2	7-13/16 × 39 × 25-13/16 (199 × 990 × 655)	
	14,000	15,600	ABUA14TLAV2		
	18,000	20,000	ABUA18TLAV2		
	24,000	27,000	ABUA24TLAV2		
Ceiling	30,000	34,000	ABUA30TLAV2	9-7/16 × 65-3/8 × 27-9/16 (240 × 1,660 × 700)	
	36,000	40,000	ABUA36TLAV2		

GENERAL INFORMATION

Type	Rated capacity (Btu/h)		Model name	Dimensions	Remarks
	Cooling	Heating		H × W × D	
Wall mounted	4,000	4,400	ASUA4TLAV2	10-9/16 × 33-1/16 × 8 (268 × 840 × 203)	
	7,500	9,500	ASUA7TLAV2		
	9,500	10,900	ASUA9TLAV2		
	12,000	13,500	ASUA12TLAV2		
	14,000	15,600	ASUA14TLAV2		
	18,000	20,000	ASUB18TLAV1	12-5/8 × 39-5/16 × 9-3/8 (320 × 998 × 238)	
	24,000	27,000	ASUB24TLAV1		
	30,000	34,000	ASUA30TLAV2	13-3/8 × 45-1/4 × 11 (340 × 1,150 × 280)	
	34,000	38,000	ASUA36TLAV2		
	7,500	9,500	ASUA7TLAV	10-13/16 × 31-1/8 × 8-7/16 (275 × 790 × 215)	
	9,500	10,900	ASUA9TLAV		
	12,000	13,500	ASUA12TLAV		
	14,000	15,600	ASUA14TLAV		
	18,000	20,000	ASUB18TLAV	12-5/8 × 39-5/16 × 9 (320 × 998 × 228)	
	24,000	27,000	ASUB24TLAV		

■ Model designation

Column	1	2	3	4	5	6	7	8	9	10	11
Code	A	U	U	A	1	2	T	L	A	V	1

Column	Item	Description
1	Type	AU: Cassette type AR: Duct type
2		AB: Floor/Ceiling or Ceiling type AG: Floor type AS: Wall mounted type
3	Brand	U: Fujitsu
4	Model	A: Standard (AU, AS) B: Large (AU, AS) L: Slim (AR) M: Middle static pressure (AR) H: High static pressure (AR)
5	Capacity	4: 4,000 Btu/h 7: 7,500 Btu/h 9: 9,500 Btu/h 12: 12,000 Btu/h 14: 14,000 Btu/h 18: 18,000 Btu/h 24: 24,000 Btu/h
6		30: 30,000 Btu/h 36: 34,000 or 36,000 Btu/h 48: 48,000 Btu/h 60: 60,000 Btu/h 72: 72,000 Btu/h 96: 96,000 Btu/h
7	Function	T: Heat pump
8	Function	L: Inverter
9	Function	A: 1 Phase
10	Function	V: VRF
11	Version	1, 2

GENERAL INFORMATION

2. Optional parts

NOTE: Information on models not mentioned here is available on our Pocket or Pocket Portal as the back number.

2-1. Controllers

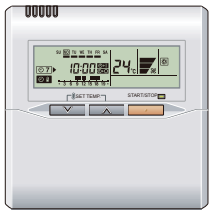
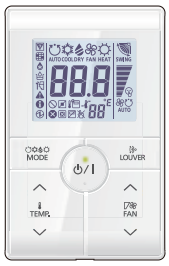
■ Central control

Exterior	Part name	Model name	Summary
	System controller	UTY-APGXZ1	System controller realizes the advanced integrated monitoring & control of VRF network system from small scale buildings to large scale buildings. Optional: UTY-PEGXZ1, UTY-PPGXP2
	System controller lite	UTY-ALGXZ1	System controller lite has standard functions sufficient for air conditioner management in small and medium scale buildings. Optional: UTY-PLGXA2, UTY-PLGXR2, UTY-PLGXE2, UTY-PLGXP2, UTY-PLGXX2
	Touch panel controller	UTY-DTGYZ1	Controls and monitors our air conditioner via LAN or Internet. Allows user or tenant to manage the air conditioning by using assigned equipment only such as their PCs or smart devices from anywhere. Optional: UTY-PTGXA
	Central remote controller	UTY-DCGY	Central control of small and medium sized buildings and tenants. The operation status of all connected indoor units can be viewed at a glance on a large LCD monitor to simplify individual control to batched control.
	Central remote controller	UTY-DCGYZ∗	Central control of small and medium sized buildings and tenants. Central remote controller realizes the trouble support function, remote monitoring, and remote operation.

■ Individual control

Exterior	Part name	Model name	Summary
	Wired remote controller (Touch panel)	UTY-RNRUZ∗	Easy finger touch operation with LCD panel. Backlight LCD enables easy operation in a dark room. Wire type: Non-polar 2-wire

GENERAL INFORMATION

Exterior	Part name	Model name	Summary
	Wired remote controller	UTY-RNKU	Room temperature can be controlled by detecting the temperature accurately with built-in thermo sensor. Wire type: Polar 3-wire
	Simple remote controller	UTY-RSRY	Compact remote controller concentrates on the basic functions such as Start/Stop, fan control, temperature setting, and operation mode. Wire type: Non-polar 2-wire
	Simple remote controller (Without operation mode)	UTY-RHRY	Compact remote controller concentrates on the basic functions such as Start/Stop, fan control, temperature setting. Wire type: Non-polar 2-wire
	Simple remote controller	UTY-RSKU	Compact remote controller concentrates on the basic functions such as Start/Stop, fan control, temperature setting, and operation mode. Wire type: Polar 3-wire
	Simple remote controller (Without operation mode)	UTY-RHKU	Compact remote controller concentrates on the basic functions such as Start/Stop, fan control, temperature setting. Wire type: Polar 3-wire
	Wireless remote controller	UTY-LNHU	Unit control is performed by wireless remote controller.

GENERAL INFORMATION

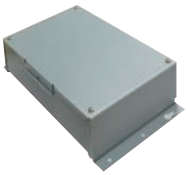
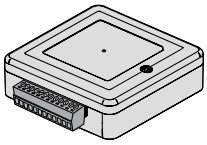
■ Model designation

Column	1	2	3	4	5	6	7	8	9	10
Code	U	T	Y	-	A	P	G	X	Z	1

Column	Item	Description
1	Series name	UTY: Control unit
2		
3		
4		
5	Type	APG: System controller ALG: System controller lite DTG: Touch panel controller DCG: Central remote controller RNR, RNK: Wired remote controller RSR, RHR, RSK, RHK: Simple remote controller LNH: Wireless remote controller
6		
7		
8	Brand	Y: Fujitsu X: Neutral brand
9	Version	Z1, Z2, Z3
10		

GENERAL INFORMATION

2-2. Adapter/Converter/Maintenance tool

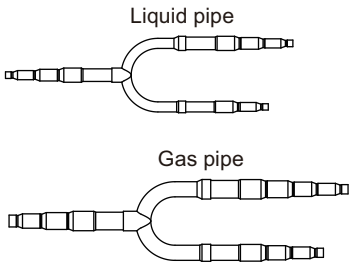
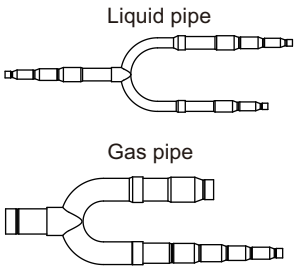
Exterior	Part name	Model name	Summary
	Network converter	UTY-VTGX	Split type systems can be controlled from a central controller via the converter.
	Network converter	UTY-VGGXZ1	Split type systems can be controlled from a central controller via the converter. Group remote controller can be controlled up to two refrigerant systems via the converter.
	Network converter for LonWorks	UTY-VLGX	For connection between VRF network system and a LonWorks open network for management of small to medium-sized BMS.
	Modbus converter for VRF	UTY-VMGX	For connection between VRF network system and a Modbus open network.
	Thermostat converter	UTY-TTRX	For Fujitsu General products using a third party thermostat.
	BACnet gateway (Hardware)	UTY-VBGX	For connection between VRF network system to the BMS system using BACnet protocol. Supports max. 128 indoor units.
	BACnet gateway (Software)	UTY-ABGXZ1	The central control of maximum 1600 indoor units can be realized by connecting the VRF network system to the BACnet, a global standard for open network.
	Niagara driver for VRF	FUJ-VRF-8000 (Tridium part No.)	JACE8000. Niagara driver for VRF is a software driver for the Niagara framework. With the driver, direct connection of VRF system to Niagara system becomes possible using JACE, or Supervisor running on PC. Required: DR-FUJ-DEVICE-25 and/or DR-FUJ-DEVICE-50, NPB-8000-LON, SMA-8005-1YR-INIT Optional: WPM-8000 Later addition: DR-FUJ-DEV-UP-50

GENERAL INFORMATION

Exterior	Part name	Model name	Summary
	Wireless LAN adapter	UTY-TFSXZ2	Remotely manage an Air Conditioning system using mobile devices such as Smartphones, and tablets.
	Signal amplifier	UTY-VSGXZ1	If the total length of transmission line exceeds 500m, or the number of units exceeds 64, a Signal amplifier will be necessary.
	External switch controller	UTY-TERX UTY-TEKX	Air conditioner switching can be controlled by connecting other external sensor switches.
	Service tool	UTY-ASGXZ1	Extensive monitoring and analysis functions for installation and maintenance. Operation status and error history can be grasped promptly and adequately.
	Web monitoring tool	UTY-AMGXZ1	Trouble free operation at all times by web monitoring system. The operation status of the VRF network system within the building can be monitored in real time over the Internet.

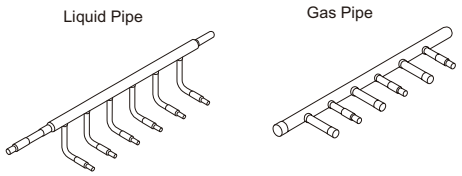
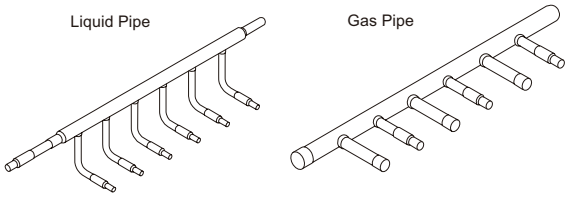
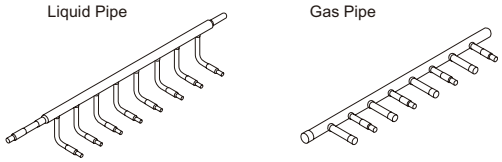
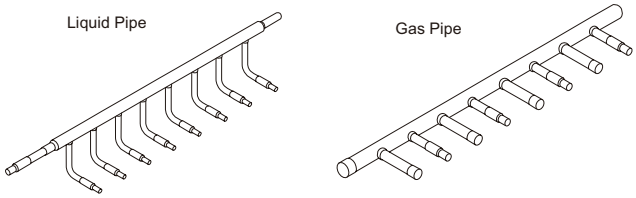
2-3. Branch kit

■ Separation tube

For 2 pipes	
Exterior	**Model name**
	UTP-AX090A
	UTP-AX180A

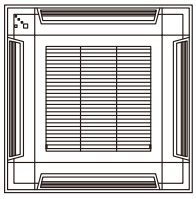
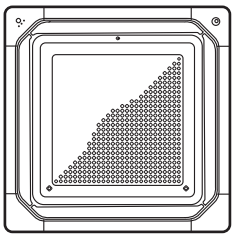
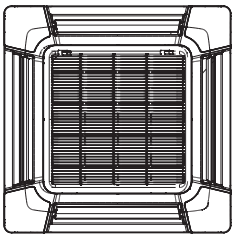
GENERAL INFORMATION

■ Header

Exterior	Model name
	UTR-H0906L
	UTR-H1806L
	UTR-H0908L
	UTR-H1808L

GENERAL INFORMATION

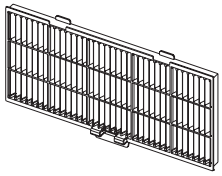
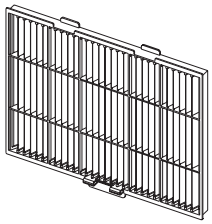
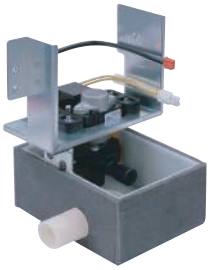
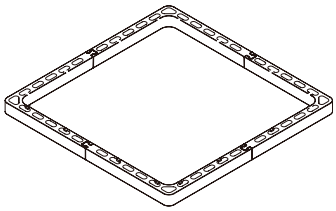
2-4. Cassette grille

Exterior	Model name	Remarks
 For Compact cassette type	UTG-CCGVG	Grid type grille
 For Circular flow cassette type	UTG-LCGVCW UTG-LCGVCB	
 For 4-way flow cassette type	UTG-LCGV	

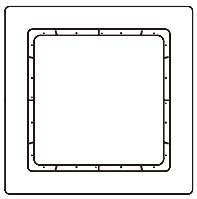
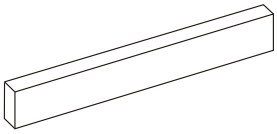
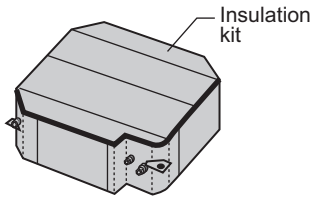
GENERAL INFORMATION

2-5. Others

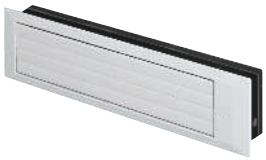
NOTE: For applicable indoor unit type, refer to "Applicable parts" in Chapter 10. OPTIONAL PARTS on page 10-21.

Exterior	Part name	Model name
	Flange (Square)	UTD-SF045T
	Flange (Round)	UTD-RF204
 × 2 pcs	Air filter	UTD-LF25NA
 × 2 pcs	Air filter	UTD-LF60KA
	Drain pump unit	UTZ-PU1NBA
	Drain pump unit	UTZ-PU1EBA
	Air outlet shutter plate	UTR-YDZB
	Air outlet shutter plate	UTR-YDZK
	Panel spacer	UTG-BKXA-W

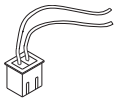
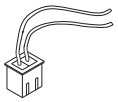
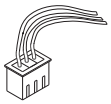
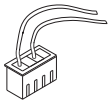
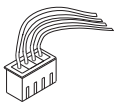
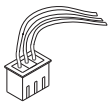
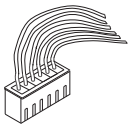
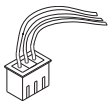
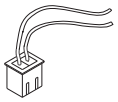
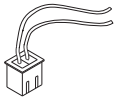
GENERAL INFORMATION

Exterior	Part name	Model name
	Wide panel	UTG-AKXA-W
	Half concealed kit	UTR-STA
	IR receiver unit	UTY-TRHX
	IR receiver unit	UTB-YWC
	IR receiver unit	UTY-LRHYB1
	IR receiver unit	UTY-LBHXD
	Human sensor kit	UTY-SHZXC
	Remote sensor unit	UTY-XSZX
Install when the condition under the roof is over 80% in humidity and over 86 °F (30 °C) in temperature. 	Insulation kit for high humidity	UTZ-KXRA

GENERAL INFORMATION

Exterior	Part name	Model name
	Fresh air intake kit	UTZ-VXAA
	Fresh air intake kit	UTZ-VXRA
	Auto louver grille kit	UTD-GXTA-W
	Auto louver grille kit	UTD-GXSA-W UTD-GXSB-W
	External power supply unit	UTZ-GXXA

GENERAL INFORMATION

Exterior	Model name
 For Outdoor unit	UTY-XWZXZ6
 For Indoor unit and Central remote controller	UTY-XWZXZ7
 For Central remote controller	UTY-XWZXZ8
 For Outdoor unit	UTY-XWZXZ9
 For Touch panel controller and Central remote controller	UTY-XWZXZA
 For Indoor unit	UTY-XWZXZB
 For Indoor unit	UTY-XWZXZC
 For Indoor unit	UTY-XWZXZD
 For Indoor unit	UTY-XWZXZE
 For Outdoor unit	UTY-XWZXZF

GENERAL INFORMATION

Refrigerant R410A
INVERTER

AIRSTAGE™
Variable Refrigerant Flow System

2. MODEL SELECTION

CONTENTS

2. MODEL SELECTION

1. Model selection and capacity calculation 02-1

1-1. Model selection procedure 02-1
1-2. Indoor unit and outdoor unit selection procedure 02-2
1-3. Capacity calculation method 02-4
1-4. Cooling capacity range of connectable indoor units 02-12
1-5. Capacity compensation coefficient 02-13

2. Cooling capacity table (Indoor unit) 02-14

2-1. Compact cassette type 02-14
2-2. 4-way flow cassette type 02-16
2-3. Circular flow cassette type 02-17
2-4. Mini duct type 02-19
2-5. Slim duct/Slim concealed floor type 02-20
2-6. Medium static pressure duct type 02-22
2-7. High static pressure duct type 02-23
2-8. Compact floor type 02-25
2-9. Floor/Ceiling type 02-27
2-10. Ceiling type 02-28
2-11. Wall mounted type 02-29

3. Heating capacity table (Indoor unit) 02-33

3-1. Compact cassette type 02-33
3-2. 4-way flow cassette type 02-35
3-3. Circular flow cassette type 02-37
3-4. Mini duct type 02-39
3-5. Slim duct/Slim concealed floor type 02-40
3-6. Medium static pressure duct type 02-42
3-7. High static pressure duct type 02-43
3-8. Compact floor type 02-45
3-9. Floor/Ceiling type 02-47
3-10. Ceiling type 02-49
3-11. Wall mounted type 02-50

4. Cooling capacity table (Outdoor unit) 02-54

4-1. Stand-alone 02-54

5. Heating capacity table (Outdoor unit) 02-63

5-1. Stand-alone 02-63

1. Model selection and capacity calculation

1-1. Model selection procedure

Selection of indoor units	Refer to following information: • "Indoor units" of "Model lineup" in Chapter 3. OUTDOOR UNITS on page 03-1 • "Indoor unit and outdoor unit selection procedure" on page 02-2
↓	
Selection of required optional parts	Refer to "Optional parts" in Chapter 1. GENERAL INFORMATION on page 01-5.
↓	
Selection of outdoor units	Refer to following information: • "Outdoor units" of "Model lineup" in Chapter 3. OUTDOOR UNITS on page 03-1 • "Indoor unit and outdoor unit selection procedure" on page 02-2
↓	
Selection of controllers	Refer to "Controllers" of "Optional parts" in Chapter 1. GENERAL INFORMATION on page 01-5.
↓	
Selection of adapter and convertor	Refer to "Adapter/Convertor/Maintenance tool" of "Optional parts" in Chapter 1. GENERAL INFORMATION on page 01-5.
↓	
Selection of branch kit	Refer to following informations: • "Outdoor unit branch kit" of "Optional parts" in Chapter 1. GENERAL INFORMATION on page 01-5 • "Separation tube" of "Optional parts" in Chapter 1. GENERAL INFORMATION on page 01-5 • "Header" of "Optional parts" in Chapter 1. GENERAL INFORMATION on page 01-5
↓	
Selection of other optional parts	Refer to "Others" of "Optional parts" in Chapter 1. GENERAL INFORMATION on page 01-5.
↓	
End	

MODEL SELECTION

1-2. Indoor unit and outdoor unit selection procedure

Confirm the design of indoor and outdoor temperature condition.

↓

Calculate heat load of each room.

↓

Select indoor unit to match the heat load for each room.

↓

[▲]
Calculate the estimated capacity of each indoor unit.

Refer to "Capacity calculation method" on page 02-4.

↓

Confirm whether satisfy the following calculation.

Estimated capacity of indoor unit ≥ heat load

If estimated capacity is lower than heat load, change to larger capacity of indoor unit and return to step marked [▲] and perform the calculation again.

↓

Calculate the total capacity of indoor units at following conditions:

- Rated condition
- Design temperature condition

Calculated total capacity of indoor units: **A**

↓

[▲▲]
Select outdoor units to match the total capacity of indoor units.

Confirm the following items:

- Cooling capacity range of connectable indoor units
- Maximum connectable indoor units number

Refer to "Cooling capacity range of connectable indoor units" on page 02-12.

↓

Calculate the compensated capacity of outdoor units.

Refer to "Capacity calculation method" on page 02-4.
Calculated compensated capacity of outdoor units: **B**

↓

MODEL SELECTION

Confirm whether satisfy the following calculation.

Total capacity of indoor units at design temperature ≥ compensated capacity of outdoor units (**A** ≥ **B**)

If **A** is lower than **B**, go to step marked [▼▼▼].

↓

System capacity = **B**

↓

Calculate actual capacity of each indoor unit by dividing system capacity proportionally.

Refer to "Capacity calculation method" on page 02-4.

↓

Confirm whether satisfy the following calculation.

Actual capacity of indoor unit ≥ heat load

If actual capacity of indoor unit is lower than heat load, change to larger capacity of outdoor units and return to step marked [▲▲].
If actual capacity of indoor unit is larger than heat load, procedure is completing.

↓

End

[▼▼▼]
System capacity = **A**

↓

Actual capacity of indoor unit = capacity of indoor unit at design temperature

↓

End

MODEL SELECTION

1-3. Capacity calculation method

The capacity calculation method which takes the effects of air temperature, pipe length, and frosting/defrosting into consideration is shown below.

(TCin)r	:	Capacity of indoor unit at rated condition
(TCin)d	:	Capacity of indoor unit at design temperature
(TCin)e	:	Estimated capacity of indoor unit
∑*(TCin)r*	:	Total capacity of indoor units at rated condition
∑*(TCin)d*	:	Total capacity of indoor units at design temperature
(TCout)r	:	Capacity of outdoor unit at rated condition
(TCout)d	:	Capacity of outdoor unit at design temperature
(TCout)c	:	Compensated capacity of outdoor unit

- **Estimated capacity of each indoor unit**
  1. Find *(TCin)r* and *(TCin)d*.
     Refer to "Cooling capacity table (Indoor unit)" on page 02-14 or "Heating capacity table (Indoor unit)" on page 02-33.
  2. Find the following compensation coefficient.
     Refer to "Capacity compensation coefficient" on page 02-13.
     – Compensation coefficient of pipe length
     – Compensation coefficient of frosting/defrosting (For heating calculation only)
  3. Calculate *(TCin)e*.
     – Cooling calculation
     (TCin)e = *(TCin)d* × compensation coefficient of pipe length
     – Heating calculation
     (TCin)e = *(TCin)d* × compensation coefficient of pipe length × compensation coefficient of defrosting/frosting

MODEL SELECTION

- **Compensated capacity of outdoor units**
  1. Find *(TCout)r*.
     Refer to the value marked blue in "Cooling capacity table (Outdoor unit)" on page 02-54 or the value marked orange in "Heating capacity table (Outdoor unit)" on page 02-63.
  2. Find the following compensation coefficient.
     Refer to "Capacity compensation coefficient" on page 02-13.
     – Compensation coefficient of pipe length
     – Compensation coefficient of frosting/defrosting (For heating calculation only)
  3. Calculate ∑*(TCin)r*.
  4. Calculate the ratio of ∑*(TCin)r* to *(TCout)r*.
     Refer to "Cooling capacity range of connectable indoor units" on page 02-12 and confirm whether satisfy the condition.
  5. Find *(TCout)d* using the value of previous step and "Cooling capacity table (Outdoor unit)" on page 02-54 or "Heating capacity table (Outdoor unit)" on page 02-63.
  6. Calculate *(TCout)c*.
     – Cooling calculation
     (TCout)c = *(TCout)d* × compensation coefficient of pipe length
     – Heating calculation
     (TCout)c = *(TCout)d* × compensation coefficient of pipe length × compensation coefficient of defrosting/frosting

- **System capacity**
  1. Calculate ∑*(TCin)d*.
  2. System capacity is the smaller value of *(TCout)c* and ∑*(TCin)d*.

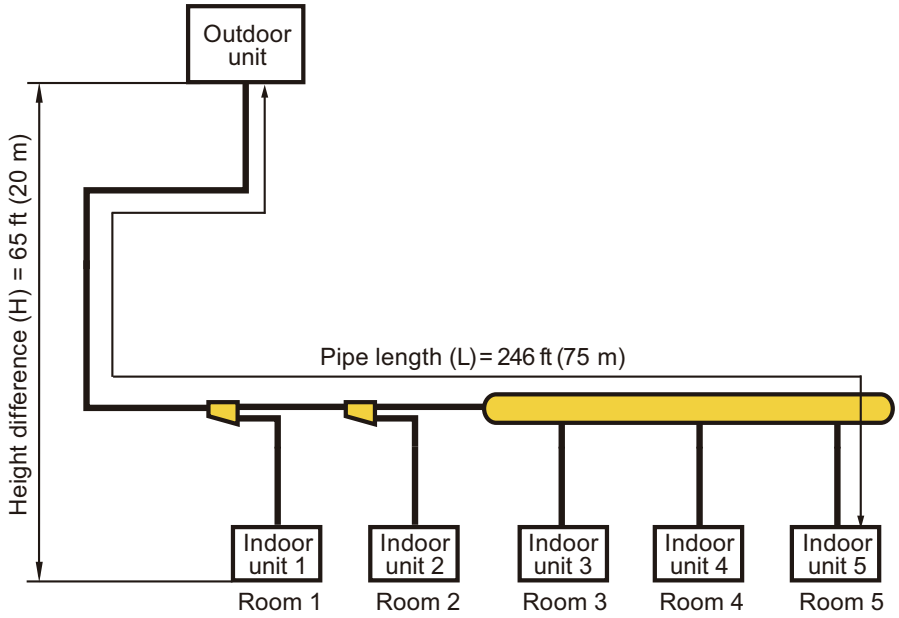
- **Actual capacity of each indoor unit**
  Calculate actual capacity of each indoor unit by dividing system capacity proportionally.
  Actual capacity of indoor unit = (System capacity) × *(TCin)r*/∑*(TCin)r*

MODEL SELECTION

■ Calculation example

● Example 1

Design conditions			
Indoor temperature	**Outdoor temperature**	**Pipe length**	**Height difference**
82°FDB/68°FWB (27.8°CDB/20°CWB)	95°FDB (35°CDB)	246 ft (75 m)	65 ft (20 m) Outdoor unit higher side



- **Selection of indoor unit**

No	Item		Room 1	Room 2	Room 3	Room 4	Room 5	Remark
A-1	Cooling heat load	kBtu/h	20.4	20.4	20.4	6.8	5.1	
A-2	Indoor unit models (Example: AU)		AUUB 24	AUUB 24	AUUB 24	AUUA 9	AUUA 7	
A-3	*(TCin)r*	kBtu/h	24.0	24.0	24.0	9.5	7.5	Refer to “Indoor units” of "Outdoor unit and indoor unit lineup" in Chapter 1. GENERAL INFORMATION on page 01-1.
A-4	*(TCin)d*	kBtu/h	25.1	25.1	25.1	9.9	7.8	Refer to "Cooling capacity table (Indoor unit)" on page 02-14.
A-5	Compensation coefficient of pipe length		0.9					Refer to "Capacity compensation coefficient" on page 02-13.
A-6	*(TCin)e*	kBtu/h	22.6	22.6	22.6	8.9	7.0	(A-4) × (A-5)
A-7	∑*(TCin)r*	kBtu/h	89.0					Sum of A-3
A-8	∑*(TCin)d*	kBtu/h	93.0					Sum of A-4

MODEL SELECTION

- **Preliminary selection of outdoor unit**

No	Item		Value	Remark
B-1	Outdoor unit model		6 Ton: AOU72RLAVL	
B-2	*(TCout)r*	kBtu/h	72.0	Refer to the value marked gray in "Cooling capacity table (Outdoor unit)" on page 02-54
B-3	∑*(TCin)r*/*(TCout)r*	%	123.6	(A-7)/(B-2)
B-4	*(TCout)d*	kBtu/h	86.2	Refer to "Calculation example of 6 Ton outdoor units: AOU72RLAVL" on page 02-8.
B-5	Compensation coefficient of pipe length		0.9	Refer to "Capacity compensation coefficient" on page 02-13.
B-6	*(TCout)c*	kBtu/h	77.6	(B-4) × (B-5)

- **Decision of system capacity**

No	Item	Value	Remark
C-1	System capacity	77.6	Smaller value of (A-8) and (B-6)

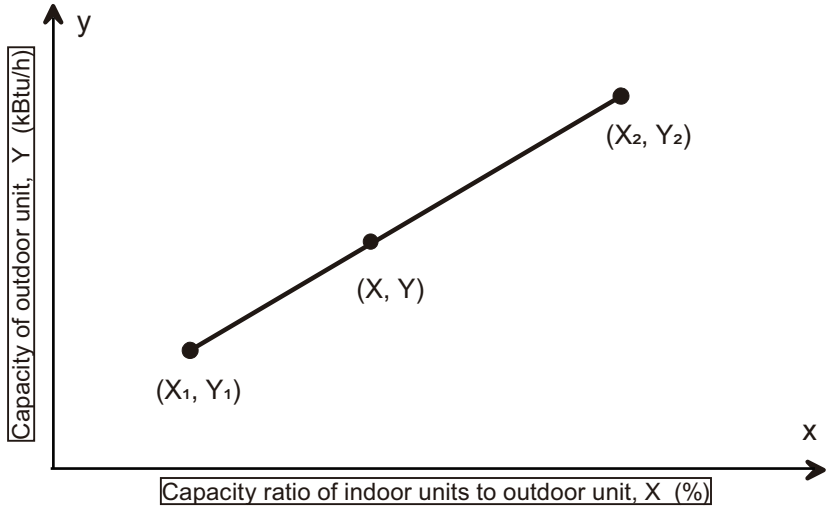
- **Calculation of actual capacity of each indoor unit**

Item		Room					Remark
		1	2	3	4	5	
Actual capacity of each indoor unit	kBtu/h	20.9	20.9	20.9	8.3	6.5	(C-1) × (A-3)/(A-7)

Actual capacity of each indoor unit ≥ cooling heat load (A-1) → OK

MODEL SELECTION

Calculation method of outdoor unit capacity from capacity tables



Equation for outdoor unit capacity calculation: $Y = (Y_2 - Y_1)/(X_2 - X_1) \times (X - X_1) + Y_1$

NOTE: Refer to "Cooling capacity table (Outdoor unit)" on page 02-54 to find values of Y_1 and Y_2 using values of X_1 and X_2.

- **Calculation example of 6 Ton outdoor units: AOU72RLAVL**

Cooling capacity at rated condition: 72 kBtu/h (6 ton)											
Total rated capacity of indoor unit	Outdoor temperature	Indoor temperature									
		68°FDB/59°FWB		80°FDB/67°FWB		82°FDB/68°FWB		86°FDB/72°FWB		90°FDB/73°FWB	
	°FDB	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP
93.6 (130%) X_2	5	59.6	3.11	93.6	4.58	97.9	4.76	108.9	5.10	110.3	5.10
	•	•	•	•	•	•	•	•	•	•	•
	•	•	•	•	•	•	•	•	•	•	•
	95	59.6	4.29	86.3	7.21	87.4	7.24	91.5	7.35	92.6	7.38
	•	•	•	•	•	Y_2	•	•	•	•	•
	115	59.6	6.68	73.3	8.35		8.35	77.3	8.35	78.1	8.35
86.4 (120%) X_1	5	55.1	2.91	86.4	4.27	90.3	4.44	106.0	5.12	107.4	5.11
	•	•	•	•	•	•	•	•	•	•	•
	•	•	•	•	•	•	•	•	•	•	•
	95	55.1	3.98	84.7	7.16	85.6	7.19	89.7	7.30	90.7	7.33
	•	•	•	•	•	•	•	•	•	•	•
	115	55.1	5.94	72.1	8.35	Y_1	8.35	76.1	8.35	76.9	8.35

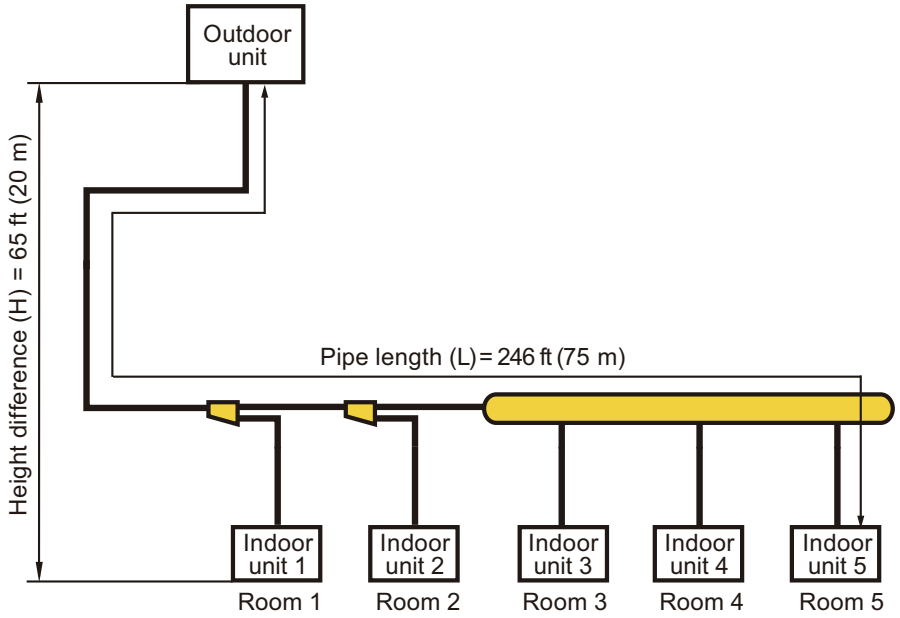
Capacity ratio of indoor units to outdoor unit (%)	$X_1 = 120$	$X = 123.6$	$X_2 = 130$
Capacity of outdoor units (kBtu/h)	$Y_1 = 85.6$	Y	$Y_2 = 87.4$

$Y = (87.4 - 85.6)/(130 - 120) \times (123.6 - 120) + 85.6 =$ **86.2 kBtu/h**

MODEL SELECTION

● Example 2

Design conditions			
Indoor temperature	**Outdoor temperature**	**Pipe length**	**Height difference**
82°FDB/68°FWB (27.8°CDB/20°CWB)	95°FDB (35°CDB)	246 ft (75 m)	65 ft (20 m) Outdoor unit higher side



- **Selection of indoor unit**

No	Item		Room					Remark
			1	2	3	4	5	
A-1	Cooling heat load	kBtu/h	25.6	25.6	25.6	2.7	2.7	
A-2	Indoor unit models (Example: AU)		AUUB 30	AUUB 30	AUUB 30	AUUA 4	AUUA 4	
A-3	*(TCin)r*	kBtu/h	30.0	30.0	30.0	4.0	4.0	Refer to “Indoor units” of "Outdoor unit and indoor unit lineup" in Chapter 1. GENERAL INFORMATION on page 01-1.
A-4	*(TCin)d*	kBtu/h	31.4	31.4	31.4	4.2	4.2	Refer to "Cooling capacity table (Indoor unit)" on page 02-14.
A-5	Compensation coefficient of pipe length		0.9					Refer to "Capacity compensation coefficient" on page 02-13.
A-6	*(TCin)e*	kBtu/h	28.3	28.3	28.3	3.8	3.8	(A-4) × (A-5)
A-7	∑*(TCin)r*	kBtu/h	98.0					Sum of A-3
A-8	∑*(TCin)d*	kBtu/h	102.6					Sum of A-4

MODEL SELECTION

- **Preliminary selection of outdoor unit**

No	Item		Value	Remark
B-1	Outdoor unit model		8 Ton: AOU96RLAVL	
B-2	*(TCout)r*	kBtu/h	96.0	Refer to the value marked gray in "Cooling capacity table (Outdoor unit)" on page 02-54
B-3	∑*(TCin)r*/*(TCout)r*	%	102.1	(A-7)/(B-2)
B-4	*(TCout)d*	kBtu/h	102.5	Refer to "Calculation example of 8 Ton outdoor units: AOU96RLAVL" on page 02-11.
B-5	Compensation coefficient of pipe length		0.9	Refer to "Capacity compensation coefficient" on page 02-13.
B-6	*(TCout)c*	kBtu/h	92.3	(B-4) × (B-5)

- **Decision of system capacity**

No	Item	Value	Remark
C-1	System capacity	92.3	Smaller value of (A-8) and (B-6)

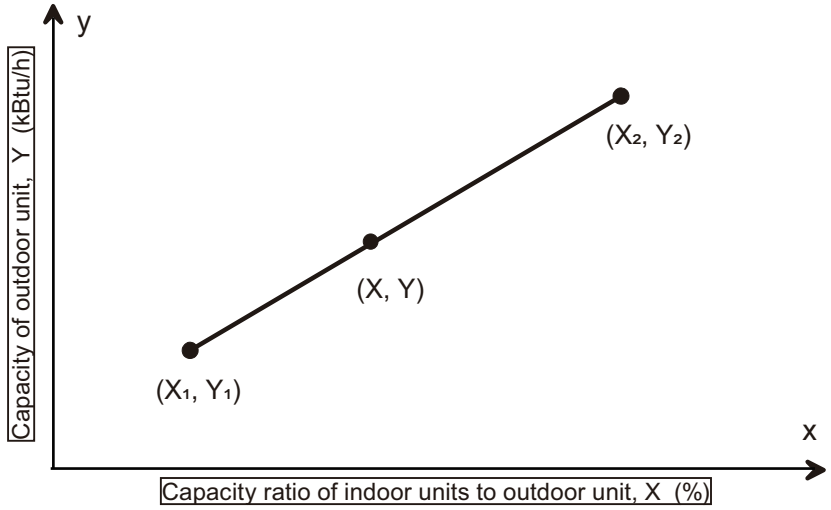
- **Calculation of actual capacity of each indoor unit**

Item		Room					Remark
		1	2	3	4	5	
Actual capacity of each indoor unit	kBtu/h	28.3	28.3	28.3	3.8	3.8	(C-1) × (A-3)/(A-7)

Actual capacity of each indoor unit ≥ cooling heat load (A-1) → OK

MODEL SELECTION

Calculation method of outdoor unit capacity from capacity tables



Equation for outdoor unit capacity calculation: $Y = (Y_2 - Y_1)/(X_2 - X_1) \times (X - X_1) + Y_1$

NOTE: Refer to "Cooling capacity table (Outdoor unit)" on page 02-54 to find values of Y_1 and Y_2 using values of X_1 and X_2.

- **Calculation example of 8 Ton outdoor units: AOU96RLAVL**

Cooling capacity at rated condition: 96 kBtu/h (8 ton)											
Total rated capacity of indoor unit	Outdoor temperature	Indoor temperature									
		68°FDB/59°FWB		80°FDB/67°FWB		82°FDB/68°FWB		86°FDB/72°FWB		90°FDB/73°FWB	
	°FDB	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP
105.6 (110%) X_2	5	67.3	3.88	105.6	5.57	110.4	5.79	129.6	6.63	134.4	6.84
	•	•	•	•	•	•	•	•	•	•	•
	•	•	•	•	•	•	•	•	•	•	•
	95	67.3	5.21	105.6	8.98	110.4	9.67	117.1	10.11	118.2	10.11
	•	•	•	•	•	•	•	•	•	•	•
	115	67.3	7.36	79.8	8.35	Y_2	8.35	84.4	8.35	85.3	8.35
96.0 (100%) X_1	5	61.2	3.61	96.0	5.15	100.4	5.34	117.8	6.11	122.2	6.31
	•	•	•	•	•	•	•	•	•	•	•
	•	•	•	•	•	•	•	•	•	•	•
	95	61.2	4.82	96.0	7.74	100.4	8.29	114.5	10.11	115.6	10.11
	•	•	•	•	•	•	•	•	•	•	•
	115	61.2	6.51	78.3	8.35	Y_1	8.35	82.8	8.35	83.7	8.35

Capacity ratio of indoor units to outdoor unit (%)	$X_1 = 100$	X = 102.1	$X_2 = 110$
Capacity of outdoor units (kBtu/h)	$Y_1 = 100.4$	Y	$Y_2 = 110.4$

$Y = (110.4 - 100.4)/(110 - 100) \times (102.1 - 100) + 100.4 =$ **102.5 kBtu/h**

1-4. Cooling capacity range of connectable indoor units

MODEL SELECTION

RELATED LINKS

"Refrigerant system" in Chapter 6. SYSTEM DESIGN on page 06-1

■ Stand-alone

Ton	Capacity (Btu/h)		Set model name	Connectable indoor unit	
	Cooling	Heating		Maximum number	Cooling capacity range (Btu/h)*
6	72,000	81,000	AOU72RLAVL	18	36,000 to 108,000
8	96,000	108,000	AOU96RLAVL	24	48,000 to 144,000
10	120,000	135,000	AOU120RLAVL	30	60,000 to 180,000

*: For conditions for cooling capacity of connectable indoor unit, refer to "Refrigerant system" in Chapter 6. SYSTEM DESIGN on page 06-1.

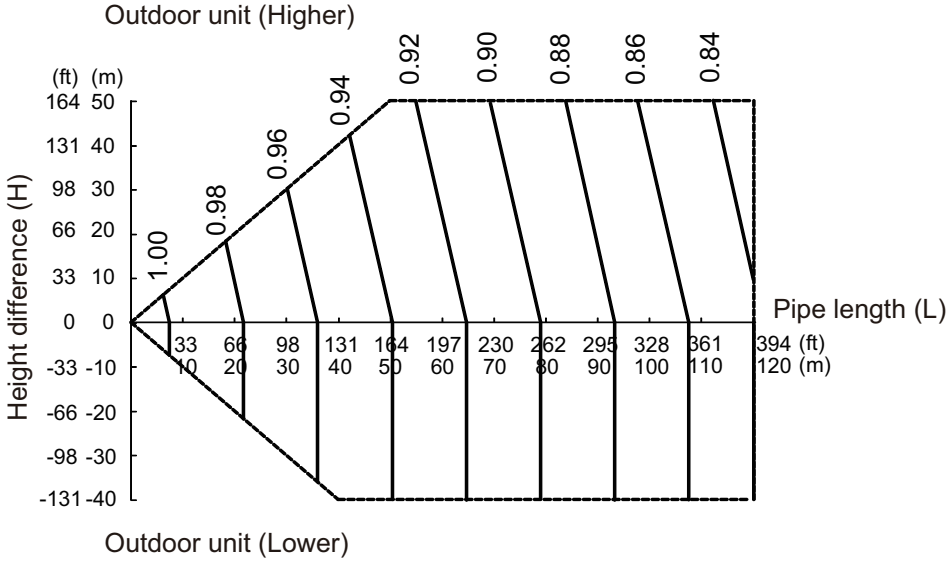
MODEL SELECTION

1-5. Capacity compensation coefficient

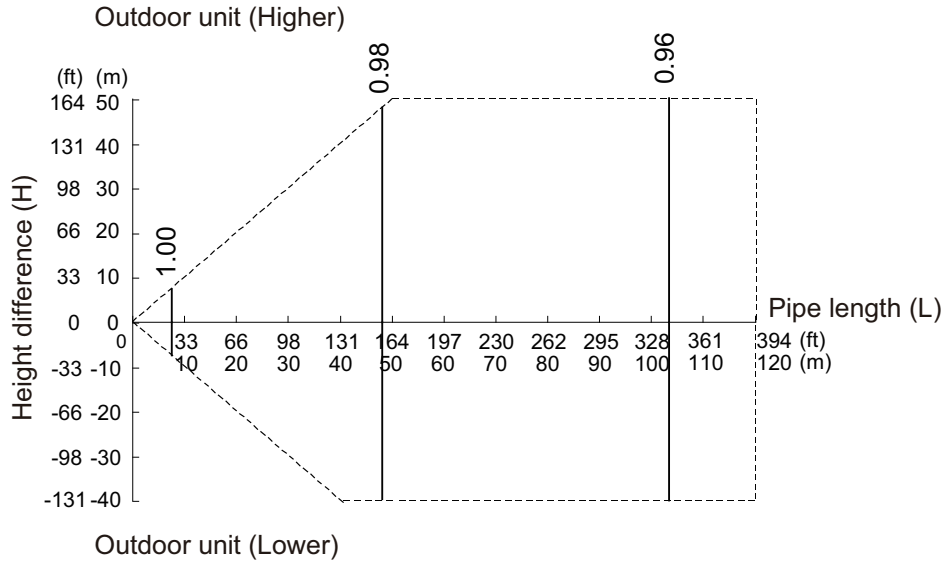
■ Compensation coefficient of pipe length

The figures give the compensation coefficient of pipe length owing to installation position (pipe length and height difference). Pipe length and height difference are the length and the height difference between master outdoor unit and indoor unit.

- **Cooling**



- **Heating**



■ Compensation coefficient of frosting/defrosting (Heating operation)

To take the effects of accumulated frost and defrosting operation on heating capacity into consideration, the capacity of outdoor units should be corrected by compensation coefficient shown in the table below.

Outdoor temperature	°FDB/ °FWB	5/3	16/14	19/18	23/21	27/25	32/30	36/34	41/39	45/43
	°CDB/ °CWB	-15/-16	-9/-10	-7/-8	-5/-6	-3/-4	0/-1	2/1	5/4	7/6
Compensation coefficient		0.96	0.94	0.92	0.89	0.86	0.83	0.84	0.90	1.00

MODEL SELECTION

2. Cooling capacity table (Indoor unit)

- TC: Total capacity (kBtu/h)
- SHC: Sensible heat capacity (kBtu/h)
- Values mentioned in the table are the values when the indoor unit's total rated capacity is 100% of the outdoor unit capacity.

2-1. Compact cassette type

■ Model: AUUA4TLAV2

Outdoor temperature	Indoor temperature															
	68°FDB/59°FWB		73°FDB/61°FWB		75°FDB/63°FWB		79°FDB/64°FWB		80°FDB/67°FWB		82°FDB/68°FWB		86°FDB/72°FWB		90°FDB/73°FWB	
°FDB	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
50	2.5	2.1	2.9	2.6	3.3	2.7	3.5	3.1	4.0	3.0	4.2	3.1	4.9	3.3	5.1	3.6
59	2.5	2.1	2.9	2.6	3.3	2.7	3.5	3.1	4.0	3.0	4.2	3.1	4.9	3.3	5.1	3.6
70	2.5	2.1	2.9	2.6	3.3	2.7	3.5	3.1	4.0	3.0	4.2	3.1	4.9	3.3	5.1	3.6
73	2.5	2.1	2.9	2.6	3.3	2.7	3.5	3.1	4.0	3.0	4.2	3.1	4.9	3.3	5.1	3.6
77	2.5	2.1	2.9	2.6	3.3	2.7	3.5	3.1	4.0	3.0	4.2	3.1	4.9	3.3	5.0	3.6
81	2.5	2.1	2.9	2.6	3.3	2.7	3.5	3.1	4.0	3.0	4.2	3.1	4.9	3.2	4.9	3.6
86	2.5	2.1	2.9	2.6	3.3	2.7	3.5	3.1	4.0	3.0	4.2	3.1	4.8	3.2	4.8	3.5
91	2.5	2.1	2.9	2.6	3.3	2.7	3.5	3.1	4.0	3.0	4.2	3.1	4.7	3.2	4.7	3.5
95	2.5	2.1	2.9	2.6	3.3	2.7	3.5	3.1	4.0	3.0	4.2	3.1	4.6	3.1	4.6	3.5
99	2.5	2.1	2.9	2.6	3.3	2.7	3.5	3.1	4.0	3.0	4.2	3.1	4.5	3.1	4.5	3.4
104	2.5	2.1	2.9	2.6	3.3	2.7	3.5	3.1	4.0	3.0	4.2	3.1	4.4	3.1	4.4	3.4
109	2.5	2.1	2.9	2.6	3.3	2.7	3.5	3.1	4.0	3.0	4.1	3.1	4.3	3.0	4.3	3.4
115	2.5	2.1	2.9	2.6	3.3	2.7	3.5	3.1	3.9	3.0	4.0	3.1	4.2	3.0	4.2	3.3

■ Model: AUUA7TLAV2

Outdoor temperature	Indoor temperature															
	68°FDB/59°FWB		73°FDB/61°FWB		75°FDB/63°FWB		79°FDB/64°FWB		80°FDB/67°FWB		82°FDB/68°FWB		86°FDB/72°FWB		90°FDB/73°FWB	
°FDB	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
50	4.8	4.1	5.4	5.0	6.1	5.2	6.5	6.0	7.5	5.7	7.8	6.0	9.2	6.3	9.6	7.0
59	4.8	4.1	5.4	5.0	6.1	5.2	6.5	6.0	7.5	5.7	7.8	6.0	9.2	6.3	9.6	7.0
70	4.8	4.1	5.4	5.0	6.1	5.2	6.5	6.0	7.5	5.7	7.8	6.0	9.2	6.3	9.6	7.0
73	4.8	4.1	5.4	5.0	6.1	5.2	6.5	6.0	7.5	5.7	7.8	6.0	9.2	6.3	9.5	7.0
77	4.8	4.1	5.4	5.0	6.1	5.2	6.5	6.0	7.5	5.7	7.8	6.0	9.2	6.3	9.4	6.9
81	4.8	4.1	5.4	5.0	6.1	5.2	6.5	6.0	7.5	5.7	7.8	6.0	9.1	6.2	9.2	6.9
86	4.8	4.1	5.4	5.0	6.1	5.2	6.5	6.0	7.5	5.7	7.8	6.0	8.9	6.1	9.0	6.8
91	4.8	4.1	5.4	5.0	6.1	5.2	6.5	6.0	7.5	5.7	7.8	6.0	8.7	6.1	8.8	6.7
95	4.8	4.1	5.4	5.0	6.1	5.2	6.5	6.0	7.5	5.7	7.8	6.0	8.6	6.0	8.7	6.7
99	4.8	4.1	5.4	5.0	6.1	5.2	6.5	6.0	7.5	5.7	7.8	6.0	8.4	6.0	8.5	6.6
104	4.8	4.1	5.4	5.0	6.1	5.2	6.5	6.0	7.5	5.7	7.8	6.0	8.2	5.9	8.3	6.6
109	4.8	4.1	5.4	5.0	6.1	5.2	6.5	6.0	7.5	5.7	7.7	6.0	8.0	5.8	8.1	6.5
115	4.8	4.1	5.4	5.0	6.1	5.2	6.5	6.0	7.4	5.7	7.5	5.9	7.8	5.7	7.9	6.4

■ Model: AUUA9TLAV2

Outdoor temperature	Indoor temperature															
	68°FDB/59°FWB		73°FDB/61°FWB		75°FDB/63°FWB		79°FDB/64°FWB		80°FDB/67°FWB		82°FDB/68°FWB		86°FDB/72°FWB		90°FDB/73°FWB	
°FDB	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
50	6.0	4.7	6.9	5.7	7.8	5.9	8.2	6.8	9.5	6.6	9.9	6.9	11.7	7.2	12.1	8.0
59	6.0	4.7	6.9	5.7	7.8	5.9	8.2	6.8	9.5	6.6	9.9	6.9	11.7	7.2	12.1	8.0
70	6.0	4.7	6.9	5.7	7.8	5.9	8.2	6.8	9.5	6.6	9.9	6.9	11.7	7.2	12.1	8.0
73	6.0	4.7	6.9	5.7	7.8	5.9	8.2	6.8	9.5	6.6	9.9	6.9	11.7	7.2	12.1	8.0
77	6.0	4.7	6.9	5.7	7.8	5.9	8.2	6.8	9.5	6.6	9.9	6.9	11.7	7.2	11.9	7.9
81	6.0	4.7	6.9	5.7	7.8	5.9	8.2	6.8	9.5	6.6	9.9	6.9	11.5	7.2	11.7	7.8
86	6.0	4.7	6.9	5.7	7.8	5.9	8.2	6.8	9.5	6.6	9.9	6.9	11.3	7.1	11.4	7.7
91	6.0	4.7	6.9	5.7	7.8	5.9	8.2	6.8	9.5	6.6	9.9	6.9	11.1	7.0	11.2	7.6
95	6.0	4.7	6.9	5.7	7.8	5.9	8.2	6.8	9.5	6.6	9.9	6.9	10.9	6.9	11.0	7.6
99	6.0	4.7	6.9	5.7	7.8	5.9	8.2	6.8	9.5	6.6	9.9	6.9	10.7	6.8	10.8	7.5
104	6.0	4.7	6.9	5.7	7.8	5.9	8.2	6.8	9.5	6.6	9.9	6.9	10.4	6.7	10.5	7.4
109	6.0	4.7	6.9	5.7	7.8	5.9	8.2	6.8	9.5	6.6	9.7	6.8	10.2	6.7	10.3	7.3
115	6.0	4.7	6.9	5.7	7.8	5.9	8.2	6.8	9.3	6.5	9.4	6.7	9.9	6.5	10.0	7.2

MODEL SELECTION

■ Model: AUUA12TLAV2

Outdoor temperature	Indoor temperature															
	68°FDB/59°FWB		73°FDB/61°FWB		75°FDB/63°FWB		79°FDB/64°FWB		80°FDB/67°FWB		82°FDB/68°FWB		86°FDB/72°FWB		90°FDB/73°FWB	
°FDB	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
50	7.6	6.0	8.7	7.3	9.8	7.6	10.4	8.7	12.0	8.5	12.6	8.9	14.7	9.3	15.3	10.3
59	7.6	6.0	8.7	7.3	9.8	7.6	10.4	8.7	12.0	8.5	12.6	8.9	14.7	9.3	15.3	10.3
70	7.6	6.0	8.7	7.3	9.8	7.6	10.4	8.7	12.0	8.5	12.6	8.9	14.7	9.3	15.3	10.3
73	7.6	6.0	8.7	7.3	9.8	7.6	10.4	8.7	12.0	8.5	12.6	8.9	14.7	9.3	15.2	10.3
77	7.6	6.0	8.7	7.3	9.8	7.6	10.4	8.7	12.0	8.5	12.6	8.9	14.7	9.3	15.0	10.2
81	7.6	6.0	8.7	7.3	9.8	7.6	10.4	8.7	12.0	8.5	12.6	8.9	14.6	9.2	14.7	10.1
86	7.6	6.0	8.7	7.3	9.8	7.6	10.4	8.7	12.0	8.5	12.6	8.9	14.3	9.1	14.4	10.0
91	7.6	6.0	8.7	7.3	9.8	7.6	10.4	8.7	12.0	8.5	12.6	8.9	14.0	9.0	14.1	9.9
95	7.6	6.0	8.7	7.3	9.8	7.6	10.4	8.7	12.0	8.5	12.6	8.9	13.7	8.9	13.9	9.8
99	7.6	6.0	8.7	7.3	9.8	7.6	10.4	8.7	12.0	8.5	12.6	8.9	13.5	8.8	13.6	9.7
104	7.6	6.0	8.7	7.3	9.8	7.6	10.4	8.7	12.0	8.5	12.6	8.9	13.2	8.7	13.3	9.6
109	7.6	6.0	8.7	7.3	9.8	7.6	10.4	8.7	12.0	8.5	12.3	8.8	12.8	8.6	13.0	9.5
115	7.6	6.0	8.7	7.3	9.8	7.6	10.4	8.7	11.8	8.4	11.9	8.7	12.5	8.4	12.6	9.3

■ Model: AUUA14TLAV2

Outdoor temperature	Indoor temperature															
	68°FDB/59°FWB		73°FDB/61°FWB		75°FDB/63°FWB		79°FDB/64°FWB		80°FDB/67°FWB		82°FDB/68°FWB		86°FDB/72°FWB		90°FDB/73°FWB	
°FDB	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
50	8.9	7.0	10.2	8.4	11.4	8.8	12.1	10.0	14.0	9.8	14.6	10.3	17.2	10.7	17.9	11.9
59	8.9	7.0	10.2	8.4	11.4	8.8	12.1	10.0	14.0	9.8	14.6	10.3	17.2	10.7	17.9	11.9
70	8.9	7.0	10.2	8.4	11.4	8.8	12.1	10.0	14.0	9.8	14.6	10.3	17.2	10.7	17.9	11.9
73	8.9	7.0	10.2	8.4	11.4	8.8	12.1	10.0	14.0	9.8	14.6	10.3	17.2	10.7	17.8	11.8
77	8.9	7.0	10.2	8.4	11.4	8.8	12.1	10.0	14.0	9.8	14.6	10.3	17.2	10.7	17.5	11.7
81	8.9	7.0	10.2	8.4	11.4	8.8	12.1	10.0	14.0	9.8	14.6	10.3	17.0	10.6	17.2	11.6
86	8.9	7.0	10.2	8.4	11.4	8.8	12.1	10.0	14.0	9.8	14.6	10.3	16.7	10.5	16.8	11.5
91	8.9	7.0	10.2	8.4	11.4	8.8	12.1	10.0	14.0	9.8	14.6	10.3	16.3	10.4	16.5	11.4
95	8.9	7.0	10.2	8.4	11.4	8.8	12.1	10.0	14.0	9.8	14.6	10.3	16.0	10.3	16.2	11.2
99	8.9	7.0	10.2	8.4	11.4	8.8	12.1	10.0	14.0	9.8	14.6	10.3	15.7	10.2	15.9	11.1
104	8.9	7.0	10.2	8.4	11.4	8.8	12.1	10.0	14.0	9.8	14.6	10.3	15.4	10.0	15.5	11.0
109	8.9	7.0	10.2	8.4	11.4	8.8	12.1	10.0	14.0	9.8	14.4	10.1	15.0	9.9	15.1	10.9
115	8.9	7.0	10.2	8.4	11.4	8.8	12.1	10.0	13.8	9.7	13.9	10.0	14.5	9.7	14.7	10.7

■ Model: AUUA18TLAV2

Outdoor temperature	Indoor temperature															
	68°FDB/59°FWB		73°FDB/61°FWB		75°FDB/63°FWB		79°FDB/64°FWB		80°FDB/67°FWB		82°FDB/68°FWB		86°FDB/72°FWB		90°FDB/73°FWB	
°FDB	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
50	11.4	8.5	13.1	10.3	14.7	10.8	15.5	12.2	18.0	12.0	18.8	12.6	22.1	13.2	23.0	14.6
59	11.4	8.5	13.1	10.3	14.7	10.8	15.5	12.2	18.0	12.0	18.8	12.6	22.1	13.2	23.0	14.6
70	11.4	8.5	13.1	10.3	14.7	10.8	15.5	12.2	18.0	12.0	18.8	12.6	22.1	13.2	23.0	14.6
73	11.4	8.5	13.1	10.3	14.7	10.8	15.5	12.2	18.0	12.0	18.8	12.6	22.1	13.2	22.8	14.5
77	11.4	8.5	13.1	10.3	14.7	10.8	15.5	12.2	18.0	12.0	18.8	12.6	22.1	13.2	22.5	14.4
81	11.4	8.5	13.1	10.3	14.7	10.8	15.5	12.2	18.0	12.0	18.8	12.6	21.9	13.1	22.1	14.2
86	11.4	8.5	13.1	10.3	14.7	10.8	15.5	12.2	18.0	12.0	18.8	12.6	21.4	12.9	21.6	14.0
91	11.4	8.5	13.1	10.3	14.7	10.8	15.5	12.2	18.0	12.0	18.8	12.6	21.0	12.7	21.2	13.9
95	11.4	8.5	13.1	10.3	14.7	10.8	15.5	12.2	18.0	12.0	18.8	12.6	20.6	12.6	20.8	13.7
99	11.4	8.5	13.1	10.3	14.7	10.8	15.5	12.2	18.0	12.0	18.8	12.6	20.2	12.4	20.4	13.6
104	11.4	8.5	13.1	10.3	14.7	10.8	15.5	12.2	18.0	12.0	18.8	12.6	19.7	12.3	19.9	13.4
109	11.4	8.5	13.1	10.3	14.7	10.8	15.5	12.2	18.0	12.0	18.5	12.4	19.3	12.1	19.5	13.2
115	11.4	8.5	13.1	10.3	14.7	10.8	15.5	12.2	17.7	11.9	17.9	12.2	18.7	11.9	18.9	13.0

■ Model: AUUA24TLAV2

Outdoor temperature	Indoor temperature															
	68°FDB/59°FWB		73°FDB/61°FWB		75°FDB/63°FWB		79°FDB/64°FWB		80°FDB/67°FWB		82°FDB/68°FWB		86°FDB/72°FWB		90°FDB/73°FWB	
°FDB	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
50	15.2	11.8	17.4	14.2	19.6	14.9	20.7	16.9	24.0	16.5	25.1	17.3	29.5	18.1	30.6	20.1
59	15.2	11.8	17.4	14.2	19.6	14.9	20.7	16.9	24.0	16.5	25.1	17.3	29.5	18.1	30.6	20.1
70	15.2	11.8	17.4	14.2	19.6	14.9	20.7	16.9	24.0	16.5	25.1	17.3	29.5	18.1	30.6	20.1
73	15.2	11.8	17.4	14.2	19.6	14.9	20.7	16.9	24.0	16.5	25.1	17.3	29.5	18.1	30.5	20.0
77	15.2	11.8	17.4	14.2	19.6	14.9	20.7	16.9	24.0	16.5	25.1	17.3	29.5	18.1	30.0	19.8
81	15.2	11.8	17.4	14.2	19.6	14.9	20.7	16.9	24.0	16.5	25.1	17.3	29.2	18.0	29.5	19.6
86	15.2	11.8	17.4	14.2	19.6	14.9	20.7	16.9	24.0	16.5	25.1	17.3	28.6	17.8	28.9	19.4
91	15.2	11.8	17.4	14.2	19.6	14.9	20.7	16.9	24.0	16.5	25.1	17.3	27.9	17.5	28.2	19.2
95	15.2	11.8	17.4	14.2	19.6	14.9	20.7	16.9	24.0	16.5	25.1	17.3	27.5	17.3	27.7	19.0
99	15.2	11.8	17.4	14.2	19.6	14.9	20.7	16.9	24.0	16.5	25.1	17.3	27.0	17.1	27.2	18.8
104	15.2	11.8	17.4	14.2	19.6	14.9	20.7	16.9	24.0	16.5	25.1	17.3	26.3	16.9	26.6	18.5
109	15.2	11.8	17.4	14.2	19.6	14.9	20.7	16.9	24.0	16.5	24.6	17.1	25.7	16.7	26.0	18.3
115	15.2	11.8	17.4	14.2	19.6	14.9	20.7	16.9	23.6	16.3	23.8	16.8	24.9	16.4	25.2	18.0

2-2. 4-way flow cassette type

■ Model: AUUB18TLAV

Outdoor temperature	Indoor temperature															
	68°FDB/59°FWB		73°FDB/61°FWB		75°FDB/63°FWB		79°FDB/64°FWB		80°FDB/67°FWB		82°FDB/68°FWB		86°FDB/72°FWB		90°FDB/73°FWB	
°FDB	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
50	11.4	10.2	13.1	12.5	14.7	13.0	15.5	15.0	18.0	14.3	18.8	15.0	22.1	15.5	23.0	17.4
59	11.4	10.2	13.1	12.5	14.7	13.0	15.5	15.0	18.0	14.3	18.8	15.0	22.1	15.5	23.0	17.4
70	11.4	10.2	13.1	12.5	14.7	13.0	15.5	15.0	18.0	14.3	18.8	15.0	22.1	15.5	23.0	17.4
73	11.4	10.2	13.1	12.5	14.7	13.0	15.5	15.0	18.0	14.3	18.8	15.0	22.1	15.5	22.8	17.4
77	11.4	10.2	13.1	12.5	14.7	13.0	15.5	15.0	18.0	14.3	18.8	15.0	22.1	15.5	22.5	17.3
81	11.4	10.2	13.1	12.5	14.7	13.0	15.5	15.0	18.0	14.3	18.8	15.0	21.9	15.5	22.1	17.1
86	11.4	10.2	13.1	12.5	14.7	13.0	15.5	15.0	18.0	14.3	18.8	15.0	21.4	15.3	21.6	17.0
91	11.4	10.2	13.1	12.5	14.7	13.0	15.5	15.0	18.0	14.3	18.8	15.0	21.0	15.1	21.2	16.8
95	11.4	10.2	13.1	12.5	14.7	13.0	15.5	15.0	18.0	14.3	18.8	15.0	20.6	15.0	20.8	16.7
99	11.4	10.2	13.1	12.5	14.7	13.0	15.5	15.0	18.0	14.3	18.8	15.0	20.2	14.9	20.4	16.6
104	11.4	10.2	13.1	12.5	14.7	13.0	15.5	15.0	18.0	14.3	18.8	15.0	19.7	14.7	19.9	16.4
109	11.4	10.2	13.1	12.5	14.7	13.0	15.5	15.0	18.0	14.3	18.5	14.9	19.3	14.6	19.5	16.3
115	11.4	10.2	13.1	12.5	14.7	13.0	15.5	15.0	17.7	14.2	17.9	14.7	18.7	14.4	18.9	16.1

■ Model: AUUB24TLAV

Outdoor temperature	Indoor temperature															
	68°FDB/59°FWB		73°FDB/61°FWB		75°FDB/63°FWB		79°FDB/64°FWB		80°FDB/67°FWB		82°FDB/68°FWB		86°FDB/72°FWB		90°FDB/73°FWB	
°FDB	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
50	15.2	12.8	17.4	15.6	19.6	16.2	20.7	18.6	24.0	17.9	25.1	18.8	29.5	19.5	30.6	21.8
59	15.2	12.8	17.4	15.6	19.6	16.2	20.7	18.6	24.0	17.9	25.1	18.8	29.5	19.5	30.6	21.8
70	15.2	12.8	17.4	15.6	19.6	16.2	20.7	18.6	24.0	17.9	25.1	18.8	29.5	19.5	30.6	21.8
73	15.2	12.8	17.4	15.6	19.6	16.2	20.7	18.6	24.0	17.9	25.1	18.8	29.5	19.5	30.5	21.7
77	15.2	12.8	17.4	15.6	19.6	16.2	20.7	18.6	24.0	17.9	25.1	18.8	29.5	19.5	30.0	21.6
81	15.2	12.8	17.4	15.6	19.6	16.2	20.7	18.6	24.0	17.9	25.1	18.8	29.2	19.4	29.5	21.4
86	15.2	12.8	17.4	15.6	19.6	16.2	20.7	18.6	24.0	17.9	25.1	18.8	28.6	19.2	28.9	21.2
91	15.2	12.8	17.4	15.6	19.6	16.2	20.7	18.6	24.0	17.9	25.1	18.8	27.9	19.0	28.2	21.0
95	15.2	12.8	17.4	15.6	19.6	16.2	20.7	18.6	24.0	17.9	25.1	18.8	27.5	18.8	27.7	20.8
99	15.2	12.8	17.4	15.6	19.6	16.2	20.7	18.6	24.0	17.9	25.1	18.8	27.0	18.6	27.2	20.6
104	15.2	12.8	17.4	15.6	19.6	16.2	20.7	18.6	24.0	17.9	25.1	18.8	26.3	18.4	26.6	20.4
109	15.2	12.8	17.4	15.6	19.6	16.2	20.7	18.6	24.0	17.9	24.6	18.6	25.7	18.2	26.0	20.2
115	15.2	12.8	17.4	15.6	19.6	16.2	20.7	18.6	23.6	17.7	23.8	18.3	24.9	17.9	25.2	19.9

■ Model: AUUB30TLAV

Outdoor temperature	Indoor temperature															
	68°FDB/59°FWB		73°FDB/61°FWB		75°FDB/63°FWB		79°FDB/64°FWB		80°FDB/67°FWB		82°FDB/68°FWB		86°FDB/72°FWB		90°FDB/73°FWB	
°FDB	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
50	19.0	16.0	21.8	19.5	24.5	20.2	25.9	23.3	30.0	22.4	31.4	23.5	36.9	24.4	38.3	27.3
59	19.0	16.0	21.8	19.5	24.5	20.2	25.9	23.3	30.0	22.4	31.4	23.5	36.9	24.4	38.3	27.3
70	19.0	16.0	21.8	19.5	24.5	20.2	25.9	23.3	30.0	22.4	31.4	23.5	36.9	24.4	38.3	27.3
73	19.0	16.0	21.8	19.5	24.5	20.2	25.9	23.3	30.0	22.4	31.4	23.5	36.9	24.4	38.1	27.2
77	19.0	16.0	21.8	19.5	24.5	20.2	25.9	23.3	30.0	22.4	31.4	23.5	36.9	24.4	37.5	27.0
81	19.0	16.0	21.8	19.5	24.5	20.2	25.9	23.3	30.0	22.4	31.4	23.5	36.5	24.3	36.8	26.8
86	19.0	16.0	21.8	19.5	24.5	20.2	25.9	23.3	30.0	22.4	31.4	23.5	35.7	24.0	36.1	26.5
91	19.0	16.0	21.8	19.5	24.5	20.2	25.9	23.3	30.0	22.4	31.4	23.5	34.9	23.7	35.3	26.2
95	19.0	16.0	21.8	19.5	24.5	20.2	25.9	23.3	30.0	22.4	31.4	23.5	34.3	23.5	34.7	26.0
99	19.0	16.0	21.8	19.5	24.5	20.2	25.9	23.3	30.0	22.4	31.4	23.5	33.7	23.3	34.0	25.8
104	19.0	16.0	21.8	19.5	24.5	20.2	25.9	23.3	30.0	22.4	31.4	23.5	32.9	23.0	33.2	25.5
109	19.0	16.0	21.8	19.5	24.5	20.2	25.9	23.3	30.0	22.4	30.8	23.3	32.1	22.7	32.4	25.2
115	19.0	16.0	21.8	19.5	24.5	20.2	25.9	23.3	29.5	22.2	29.8	22.9	31.1	22.4	31.5	24.9

■ Model: AUUB36TLAV

Outdoor temperature	Indoor temperature															
	68°FDB/59°FWB		73°FDB/61°FWB		75°FDB/63°FWB		79°FDB/64°FWB		80°FDB/67°FWB		82°FDB/68°FWB		86°FDB/72°FWB		90°FDB/73°FWB	
°FDB	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
50	22.8	18.6	26.1	22.6	29.4	23.5	31.1	27.0	36.0	26.1	37.7	27.4	44.2	28.5	45.9	31.7
59	22.8	18.6	26.1	22.6	29.4	23.5	31.1	27.0	36.0	26.1	37.7	27.4	44.2	28.5	45.9	31.7
70	22.8	18.6	26.1	22.6	29.4	23.5	31.1	27.0	36.0	26.1	37.7	27.4	44.2	28.5	45.9	31.7
73	22.8	18.6	26.1	22.6	29.4	23.5	31.1	27.0	36.0	26.1	37.7	27.4	44.2	28.5	45.7	31.6
77	22.8	18.6	26.1	22.6	29.4	23.5	31.1	27.0	36.0	26.1	37.7	27.4	44.2	28.5	44.9	31.4
81	22.8	18.6	26.1	22.6	29.4	23.5	31.1	27.0	36.0	26.1	37.7	27.4	43.8	28.3	44.2	31.1
86	22.8	18.6	26.1	22.6	29.4	23.5	31.1	27.0	36.0	26.1	37.7	27.4	42.8	28.0	43.3	30.8
91	22.8	18.6	26.1	22.6	29.4	23.5	31.1	27.0	36.0	26.1	37.7	27.4	41.9	27.7	42.4	30.4
95	22.8	18.6	26.1	22.6	29.4	23.5	31.1	27.0	36.0	26.1	37.7	27.4	41.2	27.4	41.6	30.1
99	22.8	18.6	26.1	22.6	29.4	23.5	31.1	27.0	36.0	26.1	37.7	27.4	40.4	27.1	40.9	29.9
104	22.8	18.6	26.1	22.6	29.4	23.5	31.1	27.0	36.0	26.1	37.7	27.4	39.5	26.8	39.9	29.5
109	22.8	18.6	26.1	22.6	29.4	23.5	31.1	27.0	36.0	26.1	36.9	27.1	38.5	26.4	38.9	29.2
115	22.8	18.6	26.1	22.6	29.4	23.5	31.1	27.0	35.4	25.8	35.8	26.7	37.4	26.0	37.8	28.8

2-3. Circular flow cassette type

■ Model: AUUB18TLAV2

Outdoor temperature	Indoor temperature															
	68°FDB/59°FWB		73°FDB/61°FWB		75°FDB/63°FWB		79°FDB/64°FWB		80°FDB/67°FWB		82°FDB/68°FWB		86°FDB/72°FWB		90°FDB/73°FWB	
°FDB	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
50	11.4	9.7	13.1	11.9	14.7	12.3	15.5	14.2	18.0	13.6	18.8	14.3	22.1	14.8	23.0	16.6
59	11.4	9.7	13.1	11.9	14.7	12.3	15.5	14.2	18.0	13.6	18.8	14.3	22.1	14.8	23.0	16.6
70	11.4	9.7	13.1	11.9	14.7	12.3	15.5	14.2	18.0	13.6	18.8	14.3	22.1	14.8	23.0	16.6
73	11.4	9.7	13.1	11.9	14.7	12.3	15.5	14.2	18.0	13.6	18.8	14.3	22.1	14.8	22.8	16.5
77	11.4	9.7	13.1	11.9	14.7	12.3	15.5	14.2	18.0	13.6	18.8	14.3	22.1	14.8	22.5	16.4
81	11.4	9.7	13.1	11.9	14.7	12.3	15.5	14.2	18.0	13.6	18.8	14.3	21.9	14.8	22.1	16.3
86	11.4	9.7	13.1	11.9	14.7	12.3	15.5	14.2	18.0	13.6	18.8	14.3	21.4	14.6	21.6	16.1
91	11.4	9.7	13.1	11.9	14.7	12.3	15.5	14.2	18.0	13.6	18.8	14.3	21.0	14.4	21.2	16.0
95	11.4	9.7	13.1	11.9	14.7	12.3	15.5	14.2	18.0	13.6	18.8	14.3	20.6	14.3	20.8	15.8
99	11.4	9.7	13.1	11.9	14.7	12.3	15.5	14.2	18.0	13.6	18.8	14.3	20.2	14.2	20.4	15.7
104	11.4	9.7	13.1	11.9	14.7	12.3	15.5	14.2	18.0	13.6	18.8	14.3	19.7	14.0	19.9	15.5
109	11.4	9.7	13.1	11.9	14.7	12.3	15.5	14.2	18.0	13.6	18.5	14.2	19.3	13.8	19.5	15.4
115	11.4	9.7	13.1	11.9	14.7	12.3	15.5	14.2	17.7	13.5	17.9	14.0	18.7	13.6	18.9	15.2

■ Model: AUUB24TLAV2

Outdoor temperature	Indoor temperature															
	68°FDB/59°FWB		73°FDB/61°FWB		75°FDB/63°FWB		79°FDB/64°FWB		80°FDB/67°FWB		82°FDB/68°FWB		86°FDB/72°FWB		90°FDB/73°FWB	
°FDB	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
50	15.2	11.7	17.4	14.2	19.6	14.8	20.7	16.8	24.0	16.4	25.1	17.3	29.5	18.1	30.6	20.0
59	15.2	11.7	17.4	14.2	19.6	14.8	20.7	16.8	24.0	16.4	25.1	17.3	29.5	18.1	30.6	20.0
70	15.2	11.7	17.4	14.2	19.6	14.8	20.7	16.8	24.0	16.4	25.1	17.3	29.5	18.1	30.6	20.0
73	15.2	11.7	17.4	14.2	19.6	14.8	20.7	16.8	24.0	16.4	25.1	17.3	29.5	18.1	30.5	19.9
77	15.2	11.7	17.4	14.2	19.6	14.8	20.7	16.8	24.0	16.4	25.1	17.3	29.5	18.1	30.0	19.7
81	15.2	11.7	17.4	14.2	19.6	14.8	20.7	16.8	24.0	16.4	25.1	17.3	29.2	17.9	29.5	19.5
86	15.2	11.7	17.4	14.2	19.6	14.8	20.7	16.8	24.0	16.4	25.1	17.3	28.6	17.7	28.9	19.3
91	15.2	11.7	17.4	14.2	19.6	14.8	20.7	16.8	24.0	16.4	25.1	17.3	27.9	17.5	28.2	19.1
95	15.2	11.7	17.4	14.2	19.6	14.8	20.7	16.8	24.0	16.4	25.1	17.3	27.5	17.3	27.7	18.9
99	15.2	11.7	17.4	14.2	19.6	14.8	20.7	16.8	24.0	16.4	25.1	17.3	27.0	17.1	27.2	18.7
104	15.2	11.7	17.4	14.2	19.6	14.8	20.7	16.8	24.0	16.4	25.1	17.3	26.3	16.8	26.6	18.4
109	15.2	11.7	17.4	14.2	19.6	14.8	20.7	16.8	24.0	16.4	24.6	17.0	25.7	16.6	26.0	18.2
115	15.2	11.7	17.4	14.2	19.6	14.8	20.7	16.8	23.6	16.3	23.8	16.7	24.9	16.3	25.2	17.9

■ Model: AUUB30TLAV2

Outdoor temperature	Indoor temperature															
	68°FDB/59°FWB		73°FDB/61°FWB		75°FDB/63°FWB		79°FDB/64°FWB		80°FDB/67°FWB		82°FDB/68°FWB		86°FDB/72°FWB		90°FDB/73°FWB	
°FDB	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
50	19.0	15.3	21.8	18.6	24.5	19.3	25.9	22.1	30.0	21.4	31.4	22.5	36.9	23.4	38.3	26.0
59	19.0	15.3	21.8	18.6	24.5	19.3	25.9	22.1	30.0	21.4	31.4	22.5	36.9	23.4	38.3	26.0
70	19.0	15.3	21.8	18.6	24.5	19.3	25.9	22.1	30.0	21.4	31.4	22.5	36.9	23.4	38.3	26.0
73	19.0	15.3	21.8	18.6	24.5	19.3	25.9	22.1	30.0	21.4	31.4	22.5	36.9	23.4	38.1	26.0
77	19.0	15.3	21.8	18.6	24.5	19.3	25.9	22.1	30.0	21.4	31.4	22.5	36.9	23.4	37.5	25.7
81	19.0	15.3	21.8	18.6	24.5	19.3	25.9	22.1	30.0	21.4	31.4	22.5	36.5	23.3	36.8	25.5
86	19.0	15.3	21.8	18.6	24.5	19.3	25.9	22.1	30.0	21.4	31.4	22.5	35.7	23.0	36.1	25.2
91	19.0	15.3	21.8	18.6	24.5	19.3	25.9	22.1	30.0	21.4	31.4	22.5	34.9	22.7	35.3	25.0
95	19.0	15.3	21.8	18.6	24.5	19.3	25.9	22.1	30.0	21.4	31.4	22.5	34.3	22.5	34.7	24.7
99	19.0	15.3	21.8	18.6	24.5	19.3	25.9	22.1	30.0	21.4	31.4	22.5	33.7	22.3	34.0	24.5
104	19.0	15.3	21.8	18.6	24.5	19.3	25.9	22.1	30.0	21.4	31.4	22.5	32.9	22.0	33.2	24.2
109	19.0	15.3	21.8	18.6	24.5	19.3	25.9	22.1	30.0	21.4	30.8	22.3	32.1	21.7	32.4	23.9
115	19.0	15.3	21.8	18.6	24.5	19.3	25.9	22.1	29.5	21.2	29.8	21.9	31.1	21.3	31.5	23.6

■ Model: AUUB36TLAV2

Outdoor temperature	Indoor temperature															
	68°FDB/59°FWB		73°FDB/61°FWB		75°FDB/63°FWB		79°FDB/64°FWB		80°FDB/67°FWB		82°FDB/68°FWB		86°FDB/72°FWB		90°FDB/73°FWB	
°FDB	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
50	22.8	17.5	26.1	21.2	29.4	22.2	31.1	25.3	36.0	24.7	37.7	25.9	44.2	27.1	45.9	29.9
59	22.8	17.5	26.1	21.2	29.4	22.2	31.1	25.3	36.0	24.7	37.7	25.9	44.2	27.1	45.9	29.9
70	22.8	17.5	26.1	21.2	29.4	22.2	31.1	25.3	36.0	24.7	37.7	25.9	44.2	27.1	45.9	29.9
73	22.8	17.5	26.1	21.2	29.4	22.2	31.1	25.3	36.0	24.7	37.7	25.9	44.2	27.1	45.7	29.8
77	22.8	17.5	26.1	21.2	29.4	22.2	31.1	25.3	36.0	24.7	37.7	25.9	44.2	27.1	44.9	29.6
81	22.8	17.5	26.1	21.2	29.4	22.2	31.1	25.3	36.0	24.7	37.7	25.9	43.8	26.9	44.2	29.3
86	22.8	17.5	26.1	21.2	29.4	22.2	31.1	25.3	36.0	24.7	37.7	25.9	42.8	26.5	43.3	28.9
91	22.8	17.5	26.1	21.2	29.4	22.2	31.1	25.3	36.0	24.7	37.7	25.9	41.9	26.2	42.4	28.6
95	22.8	17.5	26.1	21.2	29.4	22.2	31.1	25.3	36.0	24.7	37.7	25.9	41.2	25.9	41.6	28.3
99	22.8	17.5	26.1	21.2	29.4	22.2	31.1	25.3	36.0	24.7	37.7	25.9	40.4	25.6	40.9	28.0
104	22.8	17.5	26.1	21.2	29.4	22.2	31.1	25.3	36.0	24.7	37.7	25.9	39.5	25.2	39.9	27.7
109	22.8	17.5	26.1	21.2	29.4	22.2	31.1	25.3	36.0	24.7	36.9	25.6	38.5	24.9	38.9	27.3
115	22.8	17.5	26.1	21.2	29.4	22.2	31.1	25.3	35.4	24.4	35.8	25.1	37.4	24.5	37.8	26.9

■ Model: AUUB48TLAV2

Outdoor temperature	Indoor temperature															
	68°FDB/59°FWB		73°FDB/61°FWB		75°FDB/63°FWB		79°FDB/64°FWB		80°FDB/67°FWB		82°FDB/68°FWB		86°FDB/72°FWB		90°FDB/73°FWB	
°FDB	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
50	30.4	23.5	34.8	28.5	39.2	29.7	41.4	33.9	48.0	33.0	50.2	34.7	59.0	36.2	61.2	40.1
59	30.4	23.5	34.8	28.5	39.2	29.7	41.4	33.9	48.0	33.0	50.2	34.7	59.0	36.2	61.2	40.1
70	30.4	23.5	34.8	28.5	39.2	29.7	41.4	33.9	48.0	33.0	50.2	34.7	59.0	36.2	61.2	40.1
73	30.4	23.5	34.8	28.5	39.2	29.7	41.4	33.9	48.0	33.0	50.2	34.7	59.0	36.2	60.9	40.0
77	30.4	23.5	34.8	28.5	39.2	29.7	41.4	33.9	48.0	33.0	50.2	34.7	59.0	36.2	59.9	39.6
81	30.4	23.5	34.8	28.5	39.2	29.7	41.4	33.9	48.0	33.0	50.2	34.7	58.4	36.0	58.9	39.2
86	30.4	23.5	34.8	28.5	39.2	29.7	41.4	33.9	48.0	33.0	50.2	34.7	57.1	35.5	57.7	38.7
91	30.4	23.5	34.8	28.5	39.2	29.7	41.4	33.9	48.0	33.0	50.2	34.7	55.9	35.0	56.5	38.3
95	30.4	23.5	34.8	28.5	39.2	29.7	41.4	33.9	48.0	33.0	50.2	34.7	54.9	34.7	55.5	37.9
99	30.4	23.5	34.8	28.5	39.2	29.7	41.4	33.9	48.0	33.0	50.2	34.7	53.9	34.3	54.5	37.5
104	30.4	23.5	34.8	28.5	39.2	29.7	41.4	33.9	48.0	33.0	50.2	34.7	52.6	33.8	53.2	37.1
109	30.4	23.5	34.8	28.5	39.2	29.7	41.4	33.9	48.0	33.0	49.2	34.2	51.4	33.3	51.9	36.6
115	30.4	23.5	34.8	28.5	39.2	29.7	41.4	33.9	47.2	32.7	47.7	33.6	49.8	32.8	50.4	36.0

2-4. Mini duct type

■ Model: ARUL4TLAV2

Outdoor temperature	Indoor temperature															
	68°FDB/59°FWB		73°FDB/61°FWB		75°FDB/63°FWB		79°FDB/64°FWB		80°FDB/67°FWB		82°FDB/68°FWB		86°FDB/72°FWB		90°FDB/73°FWB	
°FDB	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
50	2.5	2.0	2.9	2.5	3.3	2.6	3.5	3.0	4.0	2.9	4.2	3.0	4.9	3.1	5.1	3.5
59	2.5	2.0	2.9	2.5	3.3	2.6	3.5	3.0	4.0	2.9	4.2	3.0	4.9	3.1	5.1	3.5
70	2.5	2.0	2.9	2.5	3.3	2.6	3.5	3.0	4.0	2.9	4.2	3.0	4.9	3.1	5.1	3.5
73	2.5	2.0	2.9	2.5	3.3	2.6	3.5	3.0	4.0	2.9	4.2	3.0	4.9	3.1	5.1	3.5
77	2.5	2.0	2.9	2.5	3.3	2.6	3.5	3.0	4.0	2.9	4.2	3.0	4.9	3.1	5.0	3.5
81	2.5	2.0	2.9	2.5	3.3	2.6	3.5	3.0	4.0	2.9	4.2	3.0	4.9	3.1	4.9	3.4
86	2.5	2.0	2.9	2.5	3.3	2.6	3.5	3.0	4.0	2.9	4.2	3.0	4.8	3.1	4.8	3.4
91	2.5	2.0	2.9	2.5	3.3	2.6	3.5	3.0	4.0	2.9	4.2	3.0	4.7	3.0	4.7	3.3
95	2.5	2.0	2.9	2.5	3.3	2.6	3.5	3.0	4.0	2.9	4.2	3.0	4.6	3.0	4.6	3.3
99	2.5	2.0	2.9	2.5	3.3	2.6	3.5	3.0	4.0	2.9	4.2	3.0	4.5	3.0	4.5	3.3
104	2.5	2.0	2.9	2.5	3.3	2.6	3.5	3.0	4.0	2.9	4.2	3.0	4.4	2.9	4.4	3.2
109	2.5	2.0	2.9	2.5	3.3	2.6	3.5	3.0	4.0	2.9	4.1	3.0	4.3	2.9	4.3	3.2
115	2.5	2.0	2.9	2.5	3.3	2.6	3.5	3.0	3.9	2.8	4.0	2.9	4.2	2.9	4.2	3.2

2-5. Slim duct/Slim concealed floor type

■ Model: ARUL7TLAV2

Outdoor temperature	Indoor temperature															
	68°FDB/59°FWB		73°FDB/61°FWB		75°FDB/63°FWB		79°FDB/64°FWB		80°FDB/67°FWB		82°FDB/68°FWB		86°FDB/72°FWB		90°FDB/73°FWB	
°FDB	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
50	4.8	4.1	5.4	5.1	6.1	5.2	6.5	6.0	7.5	5.8	7.8	6.1	9.2	6.3	9.6	7.1
59	4.8	4.1	5.4	5.1	6.1	5.2	6.5	6.0	7.5	5.8	7.8	6.1	9.2	6.3	9.6	7.1
70	4.8	4.1	5.4	5.1	6.1	5.2	6.5	6.0	7.5	5.8	7.8	6.1	9.2	6.3	9.6	7.1
73	4.8	4.1	5.4	5.1	6.1	5.2	6.5	6.0	7.5	5.8	7.8	6.1	9.2	6.3	9.5	7.0
77	4.8	4.1	5.4	5.1	6.1	5.2	6.5	6.0	7.5	5.8	7.8	6.1	9.2	6.3	9.4	7.0
81	4.8	4.1	5.4	5.1	6.1	5.2	6.5	6.0	7.5	5.8	7.8	6.1	9.1	6.3	9.2	6.9
86	4.8	4.1	5.4	5.1	6.1	5.2	6.5	6.0	7.5	5.8	7.8	6.1	8.9	6.2	9.0	6.9
91	4.8	4.1	5.4	5.1	6.1	5.2	6.5	6.0	7.5	5.8	7.8	6.1	8.7	6.1	8.8	6.8
95	4.8	4.1	5.4	5.1	6.1	5.2	6.5	6.0	7.5	5.8	7.8	6.1	8.6	6.1	8.7	6.7
99	4.8	4.1	5.4	5.1	6.1	5.2	6.5	6.0	7.5	5.8	7.8	6.1	8.4	6.0	8.5	6.7
104	4.8	4.1	5.4	5.1	6.1	5.2	6.5	6.0	7.5	5.8	7.8	6.1	8.2	6.0	8.3	6.6
109	4.8	4.1	5.4	5.1	6.1	5.2	6.5	6.0	7.5	5.8	7.7	6.0	8.0	5.9	8.1	6.6
115	4.8	4.1	5.4	5.1	6.1	5.2	6.5	6.0	7.4	5.7	7.5	5.9	7.8	5.8	7.9	6.5

■ Model: ARUL9TLAV2

Outdoor temperature	Indoor temperature															
	68°FDB/59°FWB		73°FDB/61°FWB		75°FDB/63°FWB		79°FDB/64°FWB		80°FDB/67°FWB		82°FDB/68°FWB		86°FDB/72°FWB		90°FDB/73°FWB	
°FDB	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
50	6.0	4.9	6.9	5.9	7.8	6.2	8.2	7.1	9.5	6.8	9.9	7.2	11.7	7.5	12.1	8.3
59	6.0	4.9	6.9	5.9	7.8	6.2	8.2	7.1	9.5	6.8	9.9	7.2	11.7	7.5	12.1	8.3
70	6.0	4.9	6.9	5.9	7.8	6.2	8.2	7.1	9.5	6.8	9.9	7.2	11.7	7.5	12.1	8.3
73	6.0	4.9	6.9	5.9	7.8	6.2	8.2	7.1	9.5	6.8	9.9	7.2	11.7	7.5	12.1	8.3
77	6.0	4.9	6.9	5.9	7.8	6.2	8.2	7.1	9.5	6.8	9.9	7.2	11.7	7.5	11.9	8.2
81	6.0	4.9	6.9	5.9	7.8	6.2	8.2	7.1	9.5	6.8	9.9	7.2	11.5	7.4	11.7	8.1
86	6.0	4.9	6.9	5.9	7.8	6.2	8.2	7.1	9.5	6.8	9.9	7.2	11.3	7.3	11.4	8.1
91	6.0	4.9	6.9	5.9	7.8	6.2	8.2	7.1	9.5	6.8	9.9	7.2	11.1	7.2	11.2	8.0
95	6.0	4.9	6.9	5.9	7.8	6.2	8.2	7.1	9.5	6.8	9.9	7.2	10.9	7.2	11.0	7.9
99	6.0	4.9	6.9	5.9	7.8	6.2	8.2	7.1	9.5	6.8	9.9	7.2	10.7	7.1	10.8	7.8
104	6.0	4.9	6.9	5.9	7.8	6.2	8.2	7.1	9.5	6.8	9.9	7.2	10.4	7.0	10.5	7.7
109	6.0	4.9	6.9	5.9	7.8	6.2	8.2	7.1	9.5	6.8	9.7	7.1	10.2	6.9	10.3	7.6
115	6.0	4.9	6.9	5.9	7.8	6.2	8.2	7.1	9.3	6.8	9.4	7.0	9.9	6.8	10.0	7.5

■ Model: ARUL12TLAV2

Outdoor temperature	Indoor temperature															
	68°FDB/59°FWB		73°FDB/61°FWB		75°FDB/63°FWB		79°FDB/64°FWB		80°FDB/67°FWB		82°FDB/68°FWB		86°FDB/72°FWB		90°FDB/73°FWB	
°FDB	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
50	7.6	6.0	8.7	7.3	9.8	7.6	10.4	8.7	12.0	8.5	12.6	8.9	14.7	9.3	15.3	10.3
59	7.6	6.0	8.7	7.3	9.8	7.6	10.4	8.7	12.0	8.5	12.6	8.9	14.7	9.3	15.3	10.3
70	7.6	6.0	8.7	7.3	9.8	7.6	10.4	8.7	12.0	8.5	12.6	8.9	14.7	9.3	15.3	10.3
73	7.6	6.0	8.7	7.3	9.8	7.6	10.4	8.7	12.0	8.5	12.6	8.9	14.7	9.3	15.2	10.3
77	7.6	6.0	8.7	7.3	9.8	7.6	10.4	8.7	12.0	8.5	12.6	8.9	14.7	9.3	15.0	10.2
81	7.6	6.0	8.7	7.3	9.8	7.6	10.4	8.7	12.0	8.5	12.6	8.9	14.6	9.2	14.7	10.1
86	7.6	6.0	8.7	7.3	9.8	7.6	10.4	8.7	12.0	8.5	12.6	8.9	14.3	9.1	14.4	10.0
91	7.6	6.0	8.7	7.3	9.8	7.6	10.4	8.7	12.0	8.5	12.6	8.9	14.0	9.0	14.1	9.9
95	7.6	6.0	8.7	7.3	9.8	7.6	10.4	8.7	12.0	8.5	12.6	8.9	13.7	8.9	13.9	9.8
99	7.6	6.0	8.7	7.3	9.8	7.6	10.4	8.7	12.0	8.5	12.6	8.9	13.5	8.8	13.6	9.7
104	7.6	6.0	8.7	7.3	9.8	7.6	10.4	8.7	12.0	8.5	12.6	8.9	13.2	8.7	13.3	9.6
109	7.6	6.0	8.7	7.3	9.8	7.6	10.4	8.7	12.0	8.5	12.3	8.8	12.8	8.6	13.0	9.5
115	7.6	6.0	8.7	7.3	9.8	7.6	10.4	8.7	11.8	8.4	11.9	8.7	12.5	8.4	12.6	9.3

■ Model: ARUL14TLAV2

Outdoor temperature	Indoor temperature															
	68°FDB/59°FWB		73°FDB/61°FWB		75°FDB/63°FWB		79°FDB/64°FWB		80°FDB/67°FWB		82°FDB/68°FWB		86°FDB/72°FWB		90°FDB/73°FWB	
°FDB	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
50	8.9	7.5	10.2	9.2	11.4	9.5	12.1	10.9	14.0	10.5	14.6	11.1	17.2	11.5	17.9	12.8
59	8.9	7.5	10.2	9.2	11.4	9.5	12.1	10.9	14.0	10.5	14.6	11.1	17.2	11.5	17.9	12.8
70	8.9	7.5	10.2	9.2	11.4	9.5	12.1	10.9	14.0	10.5	14.6	11.1	17.2	11.5	17.9	12.8
73	8.9	7.5	10.2	9.2	11.4	9.5	12.1	10.9	14.0	10.5	14.6	11.1	17.2	11.5	17.8	12.8
77	8.9	7.5	10.2	9.2	11.4	9.5	12.1	10.9	14.0	10.5	14.6	11.1	17.2	11.5	17.5	12.7
81	8.9	7.5	10.2	9.2	11.4	9.5	12.1	10.9	14.0	10.5	14.6	11.1	17.0	11.4	17.2	12.6
86	8.9	7.5	10.2	9.2	11.4	9.5	12.1	10.9	14.0	10.5	14.6	11.1	16.7	11.3	16.8	12.4
91	8.9	7.5	10.2	9.2	11.4	9.5	12.1	10.9	14.0	10.5	14.6	11.1	16.3	11.1	16.5	12.3
95	8.9	7.5	10.2	9.2	11.4	9.5	12.1	10.9	14.0	10.5	14.6	11.1	16.0	11.0	16.2	12.2
99	8.9	7.5	10.2	9.2	11.4	9.5	12.1	10.9	14.0	10.5	14.6	11.1	15.7	10.9	15.9	12.1
104	8.9	7.5	10.2	9.2	11.4	9.5	12.1	10.9	14.0	10.5	14.6	11.1	15.4	10.8	15.5	12.0
109	8.9	7.5	10.2	9.2	11.4	9.5	12.1	10.9	14.0	10.5	14.4	10.9	15.0	10.7	15.1	11.8
115	8.9	7.5	10.2	9.2	11.4	9.5	12.1	10.9	13.8	10.4	13.9	10.8	14.5	10.5	14.7	11.7

■ Model: ARUL18TLAV2

Outdoor temperature	Indoor temperature															
	68°FDB/59°FWB		73°FDB/61°FWB		75°FDB/63°FWB		79°FDB/64°FWB		80°FDB/67°FWB		82°FDB/68°FWB		86°FDB/72°FWB		90°FDB/73°FWB	
°FDB	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
50	11.4	9.2	13.1	11.2	14.7	11.7	15.5	13.4	18.0	13.0	18.8	13.6	22.1	14.2	23.0	15.8
59	11.4	9.2	13.1	11.2	14.7	11.7	15.5	13.4	18.0	13.0	18.8	13.6	22.1	14.2	23.0	15.8
70	11.4	9.2	13.1	11.2	14.7	11.7	15.5	13.4	18.0	13.0	18.8	13.6	22.1	14.2	23.0	15.8
73	11.4	9.2	13.1	11.2	14.7	11.7	15.5	13.4	18.0	13.0	18.8	13.6	22.1	14.2	22.8	15.7
77	11.4	9.2	13.1	11.2	14.7	11.7	15.5	13.4	18.0	13.0	18.8	13.6	22.1	14.2	22.5	15.6
81	11.4	9.2	13.1	11.2	14.7	11.7	15.5	13.4	18.0	13.0	18.8	13.6	21.9	14.1	22.1	15.4
86	11.4	9.2	13.1	11.2	14.7	11.7	15.5	13.4	18.0	13.0	18.8	13.6	21.4	13.9	21.6	15.3
91	11.4	9.2	13.1	11.2	14.7	11.7	15.5	13.4	18.0	13.0	18.8	13.6	21.0	13.7	21.2	15.1
95	11.4	9.2	13.1	11.2	14.7	11.7	15.5	13.4	18.0	13.0	18.8	13.6	20.6	13.6	20.8	15.0
99	11.4	9.2	13.1	11.2	14.7	11.7	15.5	13.4	18.0	13.0	18.8	13.6	20.2	13.5	20.4	14.8
104	11.4	9.2	13.1	11.2	14.7	11.7	15.5	13.4	18.0	13.0	18.8	13.6	19.7	13.3	19.9	14.7
109	11.4	9.2	13.1	11.2	14.7	11.7	15.5	13.4	18.0	13.0	18.5	13.5	19.3	13.1	19.5	14.5
115	11.4	9.2	13.1	11.2	14.7	11.7	15.5	13.4	17.7	12.8	17.9	13.2	18.7	12.9	18.9	14.3

2-6. Medium static pressure duct type

■ Model: ARUM24TLAV2

Outdoor temperature	Indoor temperature															
	68°FDB/59°FWB		73°FDB/61°FWB		75°FDB/63°FWB		79°FDB/64°FWB		80°FDB/67°FWB		82°FDB/68°FWB		86°FDB/72°FWB		90°FDB/73°FWB	
°FDB	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
50	15.2	12.3	17.4	14.9	19.6	15.5	20.7	17.8	24.0	17.2	25.1	18.1	29.5	18.8	30.6	20.9
59	15.2	12.3	17.4	14.9	19.6	15.5	20.7	17.8	24.0	17.2	25.1	18.1	29.5	18.8	30.6	20.9
70	15.2	12.3	17.4	14.9	19.6	15.5	20.7	17.8	24.0	17.2	25.1	18.1	29.5	18.8	30.6	20.9
73	15.2	12.3	17.4	14.9	19.6	15.5	20.7	17.8	24.0	17.2	25.1	18.1	29.5	18.8	30.5	20.9
77	15.2	12.3	17.4	14.9	19.6	15.5	20.7	17.8	24.0	17.2	25.1	18.1	29.5	18.8	30.0	20.7
81	15.2	12.3	17.4	14.9	19.6	15.5	20.7	17.8	24.0	17.2	25.1	18.1	29.2	18.7	29.5	20.5
86	15.2	12.3	17.4	14.9	19.6	15.5	20.7	17.8	24.0	17.2	25.1	18.1	28.6	18.5	28.9	20.3
91	15.2	12.3	17.4	14.9	19.6	15.5	20.7	17.8	24.0	17.2	25.1	18.1	27.9	18.3	28.2	20.1
95	15.2	12.3	17.4	14.9	19.6	15.5	20.7	17.8	24.0	17.2	25.1	18.1	27.5	18.1	27.7	19.9
99	15.2	12.3	17.4	14.9	19.6	15.5	20.7	17.8	24.0	17.2	25.1	18.1	27.0	17.9	27.2	19.7
104	15.2	12.3	17.4	14.9	19.6	15.5	20.7	17.8	24.0	17.2	25.1	18.1	26.3	17.7	26.6	19.5
109	15.2	12.3	17.4	14.9	19.6	15.5	20.7	17.8	24.0	17.2	24.6	17.9	25.7	17.4	26.0	19.2
115	15.2	12.3	17.4	14.9	19.6	15.5	20.7	17.8	23.6	17.0	23.8	17.6	24.9	17.1	25.2	19.0

■ Model: ARUM30TLAV2

Outdoor temperature	Indoor temperature															
	68°FDB/59°FWB		73°FDB/61°FWB		75°FDB/63°FWB		79°FDB/64°FWB		80°FDB/67°FWB		82°FDB/68°FWB		86°FDB/72°FWB		90°FDB/73°FWB	
°FDB	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
50	19.0	14.0	21.8	16.9	24.5	17.7	25.9	20.0	30.0	19.7	31.4	20.7	36.9	21.7	38.3	23.9
59	19.0	14.0	21.8	16.9	24.5	17.7	25.9	20.0	30.0	19.7	31.4	20.7	36.9	21.7	38.3	23.9
70	19.0	14.0	21.8	16.9	24.5	17.7	25.9	20.0	30.0	19.7	31.4	20.7	36.9	21.7	38.3	23.9
73	19.0	14.0	21.8	16.9	24.5	17.7	25.9	20.0	30.0	19.7	31.4	20.7	36.9	21.7	38.1	23.8
77	19.0	14.0	21.8	16.9	24.5	17.7	25.9	20.0	30.0	19.7	31.4	20.7	36.9	21.7	37.5	23.6
81	19.0	14.0	21.8	16.9	24.5	17.7	25.9	20.0	30.0	19.7	31.4	20.7	36.5	21.6	36.8	23.3
86	19.0	14.0	21.8	16.9	24.5	17.7	25.9	20.0	30.0	19.7	31.4	20.7	35.7	21.3	36.1	23.0
91	19.0	14.0	21.8	16.9	24.5	17.7	25.9	20.0	30.0	19.7	31.4	20.7	34.9	21.0	35.3	22.7
95	19.0	14.0	21.8	16.9	24.5	17.7	25.9	20.0	30.0	19.7	31.4	20.7	34.3	20.7	34.7	22.5
99	19.0	14.0	21.8	16.9	24.5	17.7	25.9	20.0	30.0	19.7	31.4	20.7	33.7	20.5	34.0	22.2
104	19.0	14.0	21.8	16.9	24.5	17.7	25.9	20.0	30.0	19.7	31.4	20.7	32.9	20.1	33.2	21.9
109	19.0	14.0	21.8	16.9	24.5	17.7	25.9	20.0	30.0	19.7	30.8	20.4	32.1	19.8	32.4	21.6
115	19.0	14.0	21.8	16.9	24.5	17.7	25.9	20.0	29.5	19.5	29.8	20.0	31.1	19.5	31.5	21.2

■ Model: ARUM36TLAV2

Outdoor temperature	Indoor temperature															
	68°FDB/59°FWB		73°FDB/61°FWB		75°FDB/63°FWB		79°FDB/64°FWB		80°FDB/67°FWB		82°FDB/68°FWB		86°FDB/72°FWB		90°FDB/73°FWB	
°FDB	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
50	22.8	18.0	26.1	21.9	29.4	22.8	31.1	26.1	36.0	25.3	37.7	26.6	44.2	27.7	45.9	30.8
59	22.8	18.0	26.1	21.9	29.4	22.8	31.1	26.1	36.0	25.3	37.7	26.6	44.2	27.7	45.9	30.8
70	22.8	18.0	26.1	21.9	29.4	22.8	31.1	26.1	36.0	25.3	37.7	26.6	44.2	27.7	45.9	30.8
73	22.8	18.0	26.1	21.9	29.4	22.8	31.1	26.1	36.0	25.3	37.7	26.6	44.2	27.7	45.7	30.7
77	22.8	18.0	26.1	21.9	29.4	22.8	31.1	26.1	36.0	25.3	37.7	26.6	44.2	27.7	44.9	30.4
81	22.8	18.0	26.1	21.9	29.4	22.8	31.1	26.1	36.0	25.3	37.7	26.6	43.8	27.6	44.2	30.1
86	22.8	18.0	26.1	21.9	29.4	22.8	31.1	26.1	36.0	25.3	37.7	26.6	42.8	27.2	43.3	29.8
91	22.8	18.0	26.1	21.9	29.4	22.8	31.1	26.1	36.0	25.3	37.7	26.6	41.9	26.9	42.4	29.4
95	22.8	18.0	26.1	21.9	29.4	22.8	31.1	26.1	36.0	25.3	37.7	26.6	41.2	26.6	41.6	29.2
99	22.8	18.0	26.1	21.9	29.4	22.8	31.1	26.1	36.0	25.3	37.7	26.6	40.4	26.3	40.9	28.9
104	22.8	18.0	26.1	21.9	29.4	22.8	31.1	26.1	36.0	25.3	37.7	26.6	39.5	25.9	39.9	28.5
109	22.8	18.0	26.1	21.9	29.4	22.8	31.1	26.1	36.0	25.3	36.9	26.3	38.5	25.6	38.9	28.2
115	22.8	18.0	26.1	21.9	29.4	22.8	31.1	26.1	35.4	25.1	35.8	25.8	37.4	25.2	37.8	27.8

2-7. High static pressure duct type

■ Model: ARUH36TLAV

Outdoor temperature	Indoor temperature															
	68°FDB/59°FWB		73°FDB/61°FWB		75°FDB/63°FWB		79°FDB/64°FWB		80°FDB/67°FWB		82°FDB/68°FWB		86°FDB/72°FWB		90°FDB/73°FWB	
°FDB	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
50	22.8	18.1	26.1	22.0	29.4	22.9	31.1	26.2	36.0	25.5	37.7	26.7	44.2	27.9	45.9	30.9
59	22.8	18.1	26.1	22.0	29.4	22.9	31.1	26.2	36.0	25.5	37.7	26.7	44.2	27.9	45.9	30.9
70	22.8	18.1	26.1	22.0	29.4	22.9	31.1	26.2	36.0	25.5	37.7	26.7	44.2	27.9	45.9	30.9
73	22.8	18.1	26.1	22.0	29.4	22.9	31.1	26.2	36.0	25.5	37.7	26.7	44.2	27.9	45.7	30.9
77	22.8	18.1	26.1	22.0	29.4	22.9	31.1	26.2	36.0	25.5	37.7	26.7	44.2	27.9	44.9	30.6
81	22.8	18.1	26.1	22.0	29.4	22.9	31.1	26.2	36.0	25.5	37.7	26.7	43.8	27.7	44.2	30.3
86	22.8	18.1	26.1	22.0	29.4	22.9	31.1	26.2	36.0	25.5	37.7	26.7	42.8	27.4	43.3	30.0
91	22.8	18.1	26.1	22.0	29.4	22.9	31.1	26.2	36.0	25.5	37.7	26.7	41.9	27.0	42.4	29.6
95	22.8	18.1	26.1	22.0	29.4	22.9	31.1	26.2	36.0	25.5	37.7	26.7	41.2	26.7	41.6	29.3
99	22.8	18.1	26.1	22.0	29.4	22.9	31.1	26.2	36.0	25.5	37.7	26.7	40.4	26.5	40.9	29.1
104	22.8	18.1	26.1	22.0	29.4	22.9	31.1	26.2	36.0	25.5	37.7	26.7	39.5	26.1	39.9	28.7
109	22.8	18.1	26.1	22.0	29.4	22.9	31.1	26.2	36.0	25.5	36.9	26.4	38.5	25.8	38.9	28.4
115	22.8	18.1	26.1	22.0	29.4	22.9	31.1	26.2	35.4	25.2	35.8	26.0	37.4	25.3	37.8	28.0

■ Model: ARUH48TLAV

Outdoor temperature	Indoor temperature															
	68°FDB/59°FWB		73°FDB/61°FWB		75°FDB/63°FWB		79°FDB/64°FWB		80°FDB/67°FWB		82°FDB/68°FWB		86°FDB/72°FWB		90°FDB/73°FWB	
°FDB	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
50	30.4	24.2	34.8	29.4	39.2	30.6	41.4	35.0	48.0	33.9	50.2	35.7	59.0	37.2	61.2	41.3
59	30.4	24.2	34.8	29.4	39.2	30.6	41.4	35.0	48.0	33.9	50.2	35.7	59.0	37.2	61.2	41.3
70	30.4	24.2	34.8	29.4	39.2	30.6	41.4	35.0	48.0	33.9	50.2	35.7	59.0	37.2	61.2	41.3
73	30.4	24.2	34.8	29.4	39.2	30.6	41.4	35.0	48.0	33.9	50.2	35.7	59.0	37.2	60.9	41.1
77	30.4	24.2	34.8	29.4	39.2	30.6	41.4	35.0	48.0	33.9	50.2	35.7	59.0	37.2	59.9	40.8
81	30.4	24.2	34.8	29.4	39.2	30.6	41.4	35.0	48.0	33.9	50.2	35.7	58.4	36.9	58.9	40.4
86	30.4	24.2	34.8	29.4	39.2	30.6	41.4	35.0	48.0	33.9	50.2	35.7	57.1	36.5	57.7	39.9
91	30.4	24.2	34.8	29.4	39.2	30.6	41.4	35.0	48.0	33.9	50.2	35.7	55.9	36.0	56.5	39.5
95	30.4	24.2	34.8	29.4	39.2	30.6	41.4	35.0	48.0	33.9	50.2	35.7	54.9	35.6	55.5	39.1
99	30.4	24.2	34.8	29.4	39.2	30.6	41.4	35.0	48.0	33.9	50.2	35.7	53.9	35.3	54.5	38.8
104	30.4	24.2	34.8	29.4	39.2	30.6	41.4	35.0	48.0	33.9	50.2	35.7	52.6	34.8	53.2	38.3
109	30.4	24.2	34.8	29.4	39.2	30.6	41.4	35.0	48.0	33.9	49.2	35.2	51.4	34.3	51.9	37.8
115	30.4	24.2	34.8	29.4	39.2	30.6	41.4	35.0	47.2	33.6	47.7	34.6	49.8	33.8	50.4	37.3

■ Model: ARUH60TLAV

Outdoor temperature	Indoor temperature															
	68°FDB/59°FWB		73°FDB/61°FWB		75°FDB/63°FWB		79°FDB/64°FWB		80°FDB/67°FWB		82°FDB/68°FWB		86°FDB/72°FWB		90°FDB/73°FWB	
°FDB	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
50	38.1	31.6	43.5	38.6	49.0	40.0	51.8	46.0	60.0	44.3	62.8	46.6	73.7	48.4	76.5	53.9
59	38.1	31.6	43.5	38.6	49.0	40.0	51.8	46.0	60.0	44.3	62.8	46.6	73.7	48.4	76.5	53.9
70	38.1	31.6	43.5	38.6	49.0	40.0	51.8	46.0	60.0	44.3	62.8	46.6	73.7	48.4	76.5	53.9
73	38.1	31.6	43.5	38.6	49.0	40.0	51.8	46.0	60.0	44.3	62.8	46.6	73.7	48.4	76.1	53.8
77	38.1	31.6	43.5	38.6	49.0	40.0	51.8	46.0	60.0	44.3	62.8	46.6	73.7	48.4	74.9	53.3
81	38.1	31.6	43.5	38.6	49.0	40.0	51.8	46.0	60.0	44.3	62.8	46.6	72.9	48.1	73.7	52.9
86	38.1	31.6	43.5	38.6	49.0	40.0	51.8	46.0	60.0	44.3	62.8	46.6	71.4	47.5	72.1	52.3
91	38.1	31.6	43.5	38.6	49.0	40.0	51.8	46.0	60.0	44.3	62.8	46.6	69.9	47.0	70.6	51.8
95	38.1	31.6	43.5	38.6	49.0	40.0	51.8	46.0	60.0	44.3	62.8	46.6	68.6	46.5	69.3	51.3
99	38.1	31.6	43.5	38.6	49.0	40.0	51.8	46.0	60.0	44.3	62.8	46.6	67.4	46.1	68.1	50.9
104	38.1	31.6	43.5	38.6	49.0	40.0	51.8	46.0	60.0	44.3	62.8	46.6	65.8	45.5	66.5	50.4
109	38.1	31.6	43.5	38.6	49.0	40.0	51.8	46.0	60.0	44.3	61.5	46.1	64.2	44.9	64.9	49.8
115	38.1	31.6	43.5	38.6	49.0	40.0	51.8	46.0	59.0	43.9	59.6	45.3	62.3	44.2	62.9	49.1

■ Model: ARUH72TLAV2

Outdoor temperature	Indoor temperature															
	68°FDB/59°FWB		73°FDB/61°FWB		75°FDB/63°FWB		79°FDB/64°FWB		80°FDB/67°FWB		82°FDB/68°FWB		86°FDB/72°FWB		90°FDB/73°FWB	
°FDB	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
50	45.7	34.9	52.3	42.3	58.8	44.2	62.2	50.3	72.0	49.2	75.3	51.6	88.5	54.0	91.8	59.7
59	45.7	34.9	52.3	42.3	58.8	44.2	62.2	50.3	72.0	49.2	75.3	51.6	88.5	54.0	91.8	59.7
70	45.7	34.9	52.2	42.3	58.8	44.2	62.2	50.3	72.0	49.2	75.3	51.6	88.5	54.0	91.8	59.7
73	45.7	34.9	52.2	42.3	58.8	44.2	62.2	50.3	72.0	49.2	75.3	51.6	88.5	54.0	91.4	59.5
77	45.7	34.9	52.3	42.3	58.8	44.2	62.2	50.3	72.0	49.2	75.3	51.6	88.5	54.0	89.9	58.9
81	45.7	34.9	52.3	42.3	58.8	44.2	62.2	50.3	72.0	49.2	75.3	51.6	87.5	53.6	88.4	58.4
86	45.7	34.9	52.2	42.3	58.8	44.2	62.2	50.3	72.0	49.2	75.3	51.6	85.7	52.9	86.6	57.7
91	45.7	34.9	52.3	42.3	58.8	44.2	62.2	50.3	72.0	49.2	75.3	51.6	83.8	52.2	84.7	57.0
95	45.7	34.9	52.3	42.3	58.8	44.2	62.2	50.3	72.0	49.2	75.3	51.6	82.4	51.6	83.2	56.4
99	45.7	34.9	52.3	42.3	58.8	44.2	62.2	50.3	72.0	49.2	75.3	51.6	80.9	51.0	81.7	55.8
104	45.7	34.9	52.2	42.3	58.8	44.2	62.2	50.3	72.0	49.2	75.3	51.6	79.0	50.3	79.8	55.1
109	45.7	34.9	52.3	42.3	58.8	44.2	62.2	50.3	72.0	49.2	73.8	51.0	77.0	49.6	77.9	54.4
115	45.7	34.9	52.3	42.3	58.8	44.2	62.2	50.3	70.7	48.6	71.5	50.0	74.7	48.7	75.5	53.5

■ Model: ARUH96TLAV2

Outdoor temperature	Indoor temperature															
	68°FDB/59°FWB		73°FDB/61°FWB		75°FDB/63°FWB		79°FDB/64°FWB		80°FDB/67°FWB		82°FDB/68°FWB		86°FDB/72°FWB		90°FDB/73°FWB	
°FDB	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
50	60.9	45.6	69.7	55.0	78.4	57.6	82.9	65.4	96.0	64.2	100.4	67.4	118.0	70.7	122.4	77.9
59	60.9	45.6	69.7	55.0	78.4	57.6	82.9	65.4	96.0	64.2	100.4	67.4	118.0	70.7	122.4	77.9
70	60.9	45.6	69.7	55.0	78.4	57.6	82.9	65.4	96.0	64.2	100.4	67.4	118.0	70.7	122.4	77.9
73	60.9	45.6	69.7	55.0	78.4	57.6	82.9	65.4	96.0	64.2	100.4	67.4	118.0	70.7	121.8	77.7
77	60.9	45.6	69.7	55.0	78.4	57.6	82.9	65.4	96.0	64.2	100.4	67.4	118.0	70.7	119.9	76.9
81	60.9	45.6	69.7	55.0	78.4	57.6	82.9	65.4	96.0	64.2	100.4	67.4	116.7	70.2	117.9	76.1
86	60.9	45.6	69.7	55.0	78.4	57.6	82.9	65.4	96.0	64.2	100.4	67.4	114.2	69.2	115.4	75.2
91	60.9	45.6	69.7	55.0	78.4	57.6	82.9	65.4	96.0	64.2	100.4	67.4	111.8	68.2	112.9	74.2
95	60.9	45.6	69.7	55.0	78.4	57.6	82.9	65.4	96.0	64.2	100.4	67.4	109.8	67.4	110.9	73.4
99	60.9	45.6	69.7	55.0	78.4	57.6	82.9	65.4	96.0	64.2	100.4	67.4	107.8	66.7	108.9	72.6
104	60.9	45.6	69.7	55.0	78.4	57.6	82.9	65.4	96.0	64.2	100.4	67.4	105.3	65.7	106.4	71.7
109	60.9	45.6	69.7	55.0	78.4	57.6	82.9	65.4	96.0	64.2	98.4	66.5	102.7	64.7	103.8	70.7
115	60.9	45.6	69.7	55.0	78.4	57.6	82.9	65.4	94.3	63.5	95.4	65.3	99.6	63.5	100.7	69.6

2-8. Compact floor type

■ Model: AGUA4TLAV2

Outdoor temperature	Indoor temperature															
	68°FDB/59°FWB		73°FDB/61°FWB		75°FDB/63°FWB		79°FDB/64°FWB		80°FDB/67°FWB		82°FDB/68°FWB		86°FDB/72°FWB		90°FDB/73°FWB	
°FDB	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
50	2.5	2.0	2.9	2.4	3.3	2.5	3.5	2.9	4.0	2.8	4.2	3.0	4.9	3.1	5.1	3.4
59	2.5	2.0	2.9	2.4	3.3	2.5	3.5	2.9	4.0	2.8	4.2	3.0	4.9	3.1	5.1	3.4
70	2.5	2.0	2.9	2.4	3.3	2.5	3.5	2.9	4.0	2.8	4.2	3.0	4.9	3.1	5.1	3.4
73	2.5	2.0	2.9	2.4	3.3	2.5	3.5	2.9	4.0	2.8	4.2	3.0	4.9	3.1	5.1	3.4
77	2.5	2.0	2.9	2.4	3.3	2.5	3.5	2.9	4.0	2.8	4.2	3.0	4.9	3.1	5.0	3.4
81	2.5	2.0	2.9	2.4	3.3	2.5	3.5	2.9	4.0	2.8	4.2	3.0	4.9	3.1	4.9	3.3
86	2.5	2.0	2.9	2.4	3.3	2.5	3.5	2.9	4.0	2.8	4.2	3.0	4.8	3.0	4.8	3.3
91	2.5	2.0	2.9	2.4	3.3	2.5	3.5	2.9	4.0	2.8	4.2	3.0	4.7	3.0	4.7	3.3
95	2.5	2.0	2.9	2.4	3.3	2.5	3.5	2.9	4.0	2.8	4.2	3.0	4.6	3.0	4.6	3.2
99	2.5	2.0	2.9	2.4	3.3	2.5	3.5	2.9	4.0	2.8	4.2	3.0	4.5	2.9	4.5	3.2
104	2.5	2.0	2.9	2.4	3.3	2.5	3.5	2.9	4.0	2.8	4.2	3.0	4.4	2.9	4.4	3.2
109	2.5	2.0	2.9	2.4	3.3	2.5	3.5	2.9	4.0	2.8	4.1	2.9	4.3	2.8	4.3	3.1
115	2.5	2.0	2.9	2.4	3.3	2.5	3.5	2.9	3.9	2.8	4.0	2.9	4.2	2.8	4.2	3.1

■ Model: AGUA7TLAV2

Outdoor temperature	Indoor temperature															
	68°FDB/59°FWB		73°FDB/61°FWB		75°FDB/63°FWB		79°FDB/64°FWB		80°FDB/67°FWB		82°FDB/68°FWB		86°FDB/72°FWB		90°FDB/73°FWB	
°FDB	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
50	4.8	3.7	5.4	4.4	6.1	4.6	6.5	5.3	7.5	5.1	7.8	5.4	9.2	5.7	9.6	6.2
59	4.8	3.7	5.4	4.4	6.1	4.6	6.5	5.3	7.5	5.1	7.8	5.4	9.2	5.7	9.6	6.2
70	4.8	3.7	5.4	4.4	6.1	4.6	6.5	5.3	7.5	5.1	7.8	5.4	9.2	5.7	9.6	6.2
73	4.8	3.7	5.4	4.4	6.1	4.6	6.5	5.3	7.5	5.1	7.8	5.4	9.2	5.7	9.5	6.2
77	4.8	3.7	5.4	4.4	6.1	4.6	6.5	5.3	7.5	5.1	7.8	5.4	9.2	5.7	9.4	6.2
81	4.8	3.7	5.4	4.4	6.1	4.6	6.5	5.3	7.5	5.1	7.8	5.4	9.1	5.6	9.2	6.1
86	4.8	3.7	5.4	4.4	6.1	4.6	6.5	5.3	7.5	5.1	7.8	5.4	8.9	5.5	9.0	6.0
91	4.8	3.7	5.4	4.4	6.1	4.6	6.5	5.3	7.5	5.1	7.8	5.4	8.7	5.5	8.8	6.0
95	4.8	3.7	5.4	4.4	6.1	4.6	6.5	5.3	7.5	5.1	7.8	5.4	8.6	5.4	8.7	5.9
99	4.8	3.7	5.4	4.4	6.1	4.6	6.5	5.3	7.5	5.1	7.8	5.4	8.4	5.3	8.5	5.8
104	4.8	3.7	5.4	4.4	6.1	4.6	6.5	5.3	7.5	5.1	7.8	5.4	8.2	5.3	8.3	5.8
109	4.8	3.7	5.4	4.4	6.1	4.6	6.5	5.3	7.5	5.1	7.7	5.3	8.0	5.2	8.1	5.7
115	4.8	3.7	5.4	4.4	6.1	4.6	6.5	5.3	7.4	5.1	7.5	5.2	7.8	5.1	7.9	5.6

■ Model: AGUA9TLAV2

Outdoor temperature	Indoor temperature															
	68°FDB/59°FWB		73°FDB/61°FWB		75°FDB/63°FWB		79°FDB/64°FWB		80°FDB/67°FWB		82°FDB/68°FWB		86°FDB/72°FWB		90°FDB/73°FWB	
°FDB	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
50	6.0	4.7	6.9	5.7	7.8	5.9	8.2	6.7	9.5	6.6	9.9	6.9	11.7	7.2	12.1	8.0
59	6.0	4.7	6.9	5.7	7.8	5.9	8.2	6.7	9.5	6.6	9.9	6.9	11.7	7.2	12.1	8.0
70	6.0	4.7	6.9	5.7	7.8	5.9	8.2	6.7	9.5	6.6	9.9	6.9	11.7	7.2	12.1	8.0
73	6.0	4.7	6.9	5.7	7.8	5.9	8.2	6.7	9.5	6.6	9.9	6.9	11.7	7.2	12.1	8.0
77	6.0	4.7	6.9	5.7	7.8	5.9	8.2	6.7	9.5	6.6	9.9	6.9	11.7	7.2	11.9	7.9
81	6.0	4.7	6.9	5.7	7.8	5.9	8.2	6.7	9.5	6.6	9.9	6.9	11.5	7.2	11.7	7.8
86	6.0	4.7	6.9	5.7	7.8	5.9	8.2	6.7	9.5	6.6	9.9	6.9	11.3	7.1	11.4	7.7
91	6.0	4.7	6.9	5.7	7.8	5.9	8.2	6.7	9.5	6.6	9.9	6.9	11.1	7.0	11.2	7.6
95	6.0	4.7	6.9	5.7	7.8	5.9	8.2	6.7	9.5	6.6	9.9	6.9	10.9	6.9	11.0	7.5
99	6.0	4.7	6.9	5.7	7.8	5.9	8.2	6.7	9.5	6.6	9.9	6.9	10.7	6.8	10.8	7.5
104	6.0	4.7	6.9	5.7	7.8	5.9	8.2	6.7	9.5	6.6	9.9	6.9	10.4	6.7	10.5	7.4
109	6.0	4.7	6.9	5.7	7.8	5.9	8.2	6.7	9.5	6.6	9.7	6.8	10.2	6.6	10.3	7.3
115	6.0	4.7	6.9	5.7	7.8	5.9	8.2	6.7	9.3	6.5	9.4	6.7	9.9	6.5	10.0	7.2

■ Model: AGUA12TLAV2

Outdoor temperature	Indoor temperature															
	68°FDB/59°FWB		73°FDB/61°FWB		75°FDB/63°FWB		79°FDB/64°FWB		80°FDB/67°FWB		82°FDB/68°FWB		86°FDB/72°FWB		90°FDB/73°FWB	
°FDB	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
50	7.6	6.1	8.7	7.4	9.8	7.7	10.4	8.8	12.0	8.6	12.6	9.0	14.7	9.4	15.3	10.4
59	7.6	6.1	8.7	7.4	9.8	7.7	10.4	8.8	12.0	8.6	12.6	9.0	14.7	9.4	15.3	10.4
70	7.6	6.1	8.7	7.4	9.8	7.7	10.4	8.8	12.0	8.6	12.6	9.0	14.7	9.4	15.3	10.4
73	7.6	6.1	8.7	7.4	9.8	7.7	10.4	8.8	12.0	8.6	12.6	9.0	14.7	9.4	15.2	10.4
77	7.6	6.1	8.7	7.4	9.8	7.7	10.4	8.8	12.0	8.6	12.6	9.0	14.7	9.4	15.0	10.3
81	7.6	6.1	8.7	7.4	9.8	7.7	10.4	8.8	12.0	8.6	12.6	9.0	14.6	9.3	14.7	10.2
86	7.6	6.1	8.7	7.4	9.8	7.7	10.4	8.8	12.0	8.6	12.6	9.0	14.3	9.2	14.4	10.1
91	7.6	6.1	8.7	7.4	9.8	7.7	10.4	8.8	12.0	8.6	12.6	9.0	14.0	9.1	14.1	10.0
95	7.6	6.1	8.7	7.4	9.8	7.7	10.4	8.8	12.0	8.6	12.6	9.0	13.7	9.0	13.9	9.9
99	7.6	6.1	8.7	7.4	9.8	7.7	10.4	8.8	12.0	8.6	12.6	9.0	13.5	8.9	13.6	9.8
104	7.6	6.1	8.7	7.4	9.8	7.7	10.4	8.8	12.0	8.6	12.6	9.0	13.2	8.8	13.3	9.7
109	7.6	6.1	8.7	7.4	9.8	7.7	10.4	8.8	12.0	8.6	12.3	8.9	12.8	8.7	13.0	9.6
115	7.6	6.1	8.7	7.4	9.8	7.7	10.4	8.8	11.8	8.5	11.9	8.7	12.5	8.5	12.6	9.4

■ Model: AGUA14TLAV2

Outdoor temperature	Indoor temperature															
	68°FDB/59°FWB		73°FDB/61°FWB		75°FDB/63°FWB		79°FDB/64°FWB		80°FDB/67°FWB		82°FDB/68°FWB		86°FDB/72°FWB		90°FDB/73°FWB	
°FDB	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
50	8.9	7.1	10.2	8.6	11.4	8.9	12.1	10.2	14.0	9.9	14.6	10.4	17.2	10.8	17.9	12.0
59	8.9	7.1	10.2	8.6	11.4	8.9	12.1	10.2	14.0	9.9	14.6	10.4	17.2	10.8	17.9	12.0
70	8.9	7.1	10.2	8.6	11.4	8.9	12.1	10.2	14.0	9.9	14.6	10.4	17.2	10.8	17.9	12.0
73	8.9	7.1	10.2	8.6	11.4	8.9	12.1	10.2	14.0	9.9	14.6	10.4	17.2	10.8	17.8	12.0
77	8.9	7.1	10.2	8.6	11.4	8.9	12.1	10.2	14.0	9.9	14.6	10.4	17.2	10.8	17.5	11.9
81	8.9	7.1	10.2	8.6	11.4	8.9	12.1	10.2	14.0	9.9	14.6	10.4	17.0	10.8	17.2	11.8
86	8.9	7.1	10.2	8.6	11.4	8.9	12.1	10.2	14.0	9.9	14.6	10.4	16.7	10.6	16.8	11.7
91	8.9	7.1	10.2	8.6	11.4	8.9	12.1	10.2	14.0	9.9	14.6	10.4	16.3	10.5	16.5	11.5
95	8.9	7.1	10.2	8.6	11.4	8.9	12.1	10.2	14.0	9.9	14.6	10.4	16.0	10.4	16.2	11.4
99	8.9	7.1	10.2	8.6	11.4	8.9	12.1	10.2	14.0	9.9	14.6	10.4	15.7	10.3	15.9	11.3
104	8.9	7.1	10.2	8.6	11.4	8.9	12.1	10.2	14.0	9.9	14.6	10.4	15.4	10.2	15.5	11.2
109	8.9	7.1	10.2	8.6	11.4	8.9	12.1	10.2	14.0	9.9	14.4	10.3	15.0	10.0	15.1	11.0
115	8.9	7.1	10.2	8.6	11.4	8.9	12.1	10.2	13.8	9.8	13.9	10.1	14.5	9.9	14.7	10.9

2-9. Floor/Ceiling type

■ Model: ABUA12TLAV2

Outdoor temperature	Indoor temperature															
	68°FDB/59°FWB		73°FDB/61°FWB		75°FDB/63°FWB		79°FDB/64°FWB		80°FDB/67°FWB		82°FDB/68°FWB		86°FDB/72°FWB		90°FDB/73°FWB	
°FDB	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
50	7.6	6.5	8.7	7.9	9.8	8.2	10.4	9.5	12.0	9.1	12.6	9.6	14.7	9.9	15.3	11.1
59	7.6	6.5	8.7	7.9	9.8	8.2	10.4	9.5	12.0	9.1	12.6	9.6	14.7	9.9	15.3	11.1
70	7.6	6.5	8.7	7.9	9.8	8.2	10.4	9.5	12.0	9.1	12.6	9.6	14.7	9.9	15.3	11.1
73	7.6	6.5	8.7	7.9	9.8	8.2	10.4	9.5	12.0	9.1	12.6	9.6	14.7	9.9	15.2	11.0
77	7.6	6.5	8.7	7.9	9.8	8.2	10.4	9.5	12.0	9.1	12.6	9.6	14.7	9.9	15.0	11.0
81	7.6	6.5	8.7	7.9	9.8	8.2	10.4	9.5	12.0	9.1	12.6	9.6	14.6	9.9	14.7	10.9
86	7.6	6.5	8.7	7.9	9.8	8.2	10.4	9.5	12.0	9.1	12.6	9.6	14.3	9.7	14.4	10.8
91	7.6	6.5	8.7	7.9	9.8	8.2	10.4	9.5	12.0	9.1	12.6	9.6	14.0	9.6	14.1	10.7
95	7.6	6.5	8.7	7.9	9.8	8.2	10.4	9.5	12.0	9.1	12.6	9.6	13.7	9.5	13.9	10.6
99	7.6	6.5	8.7	7.9	9.8	8.2	10.4	9.5	12.0	9.1	12.6	9.6	13.5	9.5	13.6	10.5
104	7.6	6.5	8.7	7.9	9.8	8.2	10.4	9.5	12.0	9.1	12.6	9.6	13.2	9.3	13.3	10.4
109	7.6	6.5	8.7	7.9	9.8	8.2	10.4	9.5	12.0	9.1	12.3	9.5	12.8	9.2	13.0	10.3
115	7.6	6.5	8.7	7.9	9.8	8.2	10.4	9.5	11.8	9.0	11.9	9.3	12.5	9.1	12.6	10.1

■ Model: ABUA14TLAV2

Outdoor temperature	Indoor temperature															
	68°FDB/59°FWB		73°FDB/61°FWB		75°FDB/63°FWB		79°FDB/64°FWB		80°FDB/67°FWB		82°FDB/68°FWB		86°FDB/72°FWB		90°FDB/73°FWB	
°FDB	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
50	8.9	7.6	10.2	9.3	11.4	9.7	12.1	11.1	14.0	10.7	14.6	11.2	17.2	11.6	17.9	13.0
59	8.9	7.6	10.2	9.3	11.4	9.7	12.1	11.1	14.0	10.7	14.6	11.2	17.2	11.6	17.9	13.0
70	8.9	7.6	10.2	9.3	11.4	9.7	12.1	11.1	14.0	10.7	14.6	11.2	17.2	11.6	17.9	13.0
73	8.9	7.6	10.2	9.3	11.4	9.7	12.1	11.1	14.0	10.7	14.6	11.2	17.2	11.6	17.8	13.0
77	8.9	7.6	10.2	9.3	11.4	9.7	12.1	11.1	14.0	10.7	14.6	11.2	17.2	11.6	17.5	12.9
81	8.9	7.6	10.2	9.3	11.4	9.7	12.1	11.1	14.0	10.7	14.6	11.2	17.0	11.6	17.2	12.8
86	8.9	7.6	10.2	9.3	11.4	9.7	12.1	11.1	14.0	10.7	14.6	11.2	16.7	11.4	16.8	12.6
91	8.9	7.6	10.2	9.3	11.4	9.7	12.1	11.1	14.0	10.7	14.6	11.2	16.3	11.3	16.5	12.5
95	8.9	7.6	10.2	9.3	11.4	9.7	12.1	11.1	14.0	10.7	14.6	11.2	16.0	11.2	16.2	12.4
99	8.9	7.6	10.2	9.3	11.4	9.7	12.1	11.1	14.0	10.7	14.6	11.2	15.7	11.1	15.9	12.3
104	8.9	7.6	10.2	9.3	11.4	9.7	12.1	11.1	14.0	10.7	14.6	11.2	15.4	11.0	15.5	12.2
109	8.9	7.6	10.2	9.3	11.4	9.7	12.1	11.1	14.0	10.7	14.4	11.1	15.0	10.8	15.1	12.1
115	8.9	7.6	10.2	9.3	11.4	9.7	12.1	11.1	13.8	10.6	13.9	10.9	14.5	10.7	14.7	11.9

■ Model: ABUA18TLAV2

Outdoor temperature	Indoor temperature															
	68°FDB/59°FWB		73°FDB/61°FWB		75°FDB/63°FWB		79°FDB/64°FWB		80°FDB/67°FWB		82°FDB/68°FWB		86°FDB/72°FWB		90°FDB/73°FWB	
°FDB	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
50	11.4	9.8	13.1	12.0	14.7	12.4	15.5	14.3	18.0	13.7	18.8	14.4	22.1	14.9	23.0	16.7
59	11.4	9.8	13.1	12.0	14.7	12.4	15.5	14.3	18.0	13.7	18.8	14.4	22.1	14.9	23.0	16.7
70	11.4	9.8	13.1	12.0	14.7	12.4	15.5	14.3	18.0	13.7	18.8	14.4	22.1	14.9	23.0	16.7
73	11.4	9.8	13.1	12.0	14.7	12.4	15.5	14.3	18.0	13.7	18.8	14.4	22.1	14.9	22.8	16.7
77	11.4	9.8	13.1	12.0	14.7	12.4	15.5	14.3	18.0	13.7	18.8	14.4	22.1	14.9	22.5	16.5
81	11.4	9.8	13.1	12.0	14.7	12.4	15.5	14.3	18.0	13.7	18.8	14.4	21.9	14.8	22.1	16.4
86	11.4	9.8	13.1	12.0	14.7	12.4	15.5	14.3	18.0	13.7	18.8	14.4	21.4	14.7	21.6	16.2
91	11.4	9.8	13.1	12.0	14.7	12.4	15.5	14.3	18.0	13.7	18.8	14.4	21.0	14.5	21.2	16.1
95	11.4	9.8	13.1	12.0	14.7	12.4	15.5	14.3	18.0	13.7	18.8	14.4	20.6	14.4	20.8	15.9
99	11.4	9.8	13.1	12.0	14.7	12.4	15.5	14.3	18.0	13.7	18.8	14.4	20.2	14.3	20.4	15.8
104	11.4	9.8	13.1	12.0	14.7	12.4	15.5	14.3	18.0	13.7	18.8	14.4	19.7	14.1	19.9	15.6
109	11.4	9.8	13.1	12.0	14.7	12.4	15.5	14.3	18.0	13.7	18.5	14.3	19.3	13.9	19.5	15.5
115	11.4	9.8	13.1	12.0	14.7	12.4	15.5	14.3	17.7	13.6	17.9	14.0	18.7	13.7	18.9	15.3

■ Model: ABUA24TLAV2

Outdoor temperature	Indoor temperature															
	68°FDB/59°FWB		73°FDB/61°FWB		75°FDB/63°FWB		79°FDB/64°FWB		80°FDB/67°FWB		82°FDB/68°FWB		86°FDB/72°FWB		90°FDB/73°FWB	
°FDB	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
50	15.2	11.5	17.4	13.8	19.6	14.5	20.7	16.5	24.0	16.1	25.1	16.9	29.5	17.7	30.6	19.6
59	15.2	11.5	17.4	13.8	19.6	14.5	20.7	16.5	24.0	16.1	25.1	16.9	29.5	17.7	30.6	19.6
70	15.2	11.5	17.4	13.8	19.6	14.5	20.7	16.5	24.0	16.1	25.1	16.9	29.5	17.7	30.6	19.6
73	15.2	11.5	17.4	13.8	19.6	14.5	20.7	16.5	24.0	16.1	25.1	16.9	29.5	17.7	30.5	19.5
77	15.2	11.5	17.4	13.8	19.6	14.5	20.7	16.5	24.0	16.1	25.1	16.9	29.5	17.7	30.0	19.3
81	15.2	11.5	17.4	13.8	19.6	14.5	20.7	16.5	24.0	16.1	25.1	16.9	29.2	17.6	29.5	19.1
86	15.2	11.5	17.4	13.8	19.6	14.5	20.7	16.5	24.0	16.1	25.1	16.9	28.6	17.4	28.9	18.9
91	15.2	11.5	17.4	13.8	19.6	14.5	20.7	16.5	24.0	16.1	25.1	16.9	27.9	17.1	28.2	18.6
95	15.2	11.5	17.4	13.8	19.6	14.5	20.7	16.5	24.0	16.1	25.1	16.9	27.5	16.9	27.7	18.5
99	15.2	11.5	17.4	13.8	19.6	14.5	20.7	16.5	24.0	16.1	25.1	16.9	27.0	16.7	27.2	18.3
104	15.2	11.5	17.4	13.8	19.6	14.5	20.7	16.5	24.0	16.1	25.1	16.9	26.3	16.5	26.6	18.0
109	15.2	11.5	17.4	13.8	19.6	14.5	20.7	16.5	24.0	16.1	24.6	16.7	25.7	16.3	26.0	17.8
115	15.2	11.5	17.4	13.8	19.6	14.5	20.7	16.5	23.6	16.0	23.8	16.4	24.9	16.0	25.2	17.5

2-10. Ceiling type

■ Model: ABUA30TLAV2

Outdoor temperature	Indoor temperature															
	68°FDB/59°FWB		73°FDB/61°FWB		75°FDB/63°FWB		79°FDB/64°FWB		80°FDB/67°FWB		82°FDB/68°FWB		86°FDB/72°FWB		90°FDB/73°FWB	
°FDB	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
50	19.0	16.1	21.8	19.7	24.5	20.4	25.9	23.5	30.0	22.6	31.4	23.8	36.9	24.6	38.3	27.5
59	19.0	16.1	21.8	19.7	24.5	20.4	25.9	23.5	30.0	22.6	31.4	23.8	36.9	24.6	38.3	27.5
70	19.0	16.1	21.8	19.7	24.5	20.4	25.9	23.5	30.0	22.6	31.4	23.8	36.9	24.6	38.3	27.5
73	19.0	16.1	21.8	19.7	24.5	20.4	25.9	23.5	30.0	22.6	31.4	23.8	36.9	24.6	38.1	27.4
77	19.0	16.1	21.8	19.7	24.5	20.4	25.9	23.5	30.0	22.6	31.4	23.8	36.9	24.6	37.5	27.2
81	19.0	16.1	21.8	19.7	24.5	20.4	25.9	23.5	30.0	22.6	31.4	23.8	36.5	24.5	36.8	27.0
86	19.0	16.1	21.8	19.7	24.5	20.4	25.9	23.5	30.0	22.6	31.4	23.8	35.7	24.2	36.1	26.7
91	19.0	16.1	21.8	19.7	24.5	20.4	25.9	23.5	30.0	22.6	31.4	23.8	34.9	23.9	35.3	26.5
95	19.0	16.1	21.8	19.7	24.5	20.4	25.9	23.5	30.0	22.6	31.4	23.8	34.3	23.7	34.7	26.2
99	19.0	16.1	21.8	19.7	24.5	20.4	25.9	23.5	30.0	22.6	31.4	23.8	33.7	23.5	34.0	26.0
104	19.0	16.1	21.8	19.7	24.5	20.4	25.9	23.5	30.0	22.6	31.4	23.8	32.9	23.2	33.2	25.8
109	19.0	16.1	21.8	19.7	24.5	20.4	25.9	23.5	30.0	22.6	30.8	23.5	32.1	22.9	32.4	25.5
115	19.0	16.1	21.8	19.7	24.5	20.4	25.9	23.5	29.5	22.4	29.8	23.1	31.1	22.6	31.5	25.1

■ Model: ABUA36TLAV2

Outdoor temperature	Indoor temperature															
	68°FDB/59°FWB		73°FDB/61°FWB		75°FDB/63°FWB		79°FDB/64°FWB		80°FDB/67°FWB		82°FDB/68°FWB		86°FDB/72°FWB		90°FDB/73°FWB	
°FDB	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
50	22.8	18.1	26.1	22.0	29.4	22.9	31.1	26.1	36.0	25.4	37.7	26.6	44.2	27.8	45.9	30.8
59	22.8	18.1	26.1	22.0	29.4	22.9	31.1	26.1	36.0	25.4	37.7	26.6	44.2	27.8	45.9	30.8
70	22.8	18.1	26.1	22.0	29.4	22.9	31.1	26.1	36.0	25.4	37.7	26.6	44.2	27.8	45.9	30.8
73	22.8	18.1	26.1	22.0	29.4	22.9	31.1	26.1	36.0	25.4	37.7	26.6	44.2	27.8	45.7	30.7
77	22.8	18.1	26.1	22.0	29.4	22.9	31.1	26.1	36.0	25.4	37.7	26.6	44.2	27.8	44.9	30.5
81	22.8	18.1	26.1	22.0	29.4	22.9	31.1	26.1	36.0	25.4	37.7	26.6	43.8	27.6	44.2	30.2
86	22.8	18.1	26.1	22.0	29.4	22.9	31.1	26.1	36.0	25.4	37.7	26.6	42.8	27.3	43.3	29.8
91	22.8	18.1	26.1	22.0	29.4	22.9	31.1	26.1	36.0	25.4	37.7	26.6	41.9	26.9	42.4	29.5
95	22.8	18.1	26.1	22.0	29.4	22.9	31.1	26.1	36.0	25.4	37.7	26.6	41.2	26.6	41.6	29.2
99	22.8	18.1	26.1	22.0	29.4	22.9	31.1	26.1	36.0	25.4	37.7	26.6	40.4	26.4	40.9	28.9
104	22.8	18.1	26.1	22.0	29.4	22.9	31.1	26.1	36.0	25.4	37.7	26.6	39.5	26.0	39.9	28.6
109	22.8	18.1	26.1	22.0	29.4	22.9	31.1	26.1	36.0	25.4	36.9	26.3	38.5	25.7	38.9	28.3
115	22.8	18.1	26.1	22.0	29.4	22.9	31.1	26.1	35.4	25.1	35.8	25.9	37.4	25.2	37.8	27.8

2-11. Wall mounted type

■ Model: ASUA4TLAV2

Outdoor temperature	Indoor temperature															
	68°FDB/59°FWB		73°FDB/61°FWB		75°FDB/63°FWB		79°FDB/64°FWB		80°FDB/67°FWB		82°FDB/68°FWB		86°FDB/72°FWB		90°FDB/73°FWB	
°FDB	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
50	2.5	2.0	2.9	2.4	3.3	2.5	3.5	2.9	4.0	2.8	4.2	2.9	4.9	3.1	5.1	3.4
59	2.5	2.0	2.9	2.4	3.3	2.5	3.5	2.9	4.0	2.8	4.2	2.9	4.9	3.1	5.1	3.4
70	2.5	2.0	2.9	2.4	3.3	2.5	3.5	2.9	4.0	2.8	4.2	2.9	4.9	3.1	5.1	3.4
73	2.5	2.0	2.9	2.4	3.3	2.5	3.5	2.9	4.0	2.8	4.2	2.9	4.9	3.1	5.1	3.4
77	2.5	2.0	2.9	2.4	3.3	2.5	3.5	2.9	4.0	2.8	4.2	2.9	4.9	3.1	5.0	3.3
81	2.5	2.0	2.9	2.4	3.3	2.5	3.5	2.9	4.0	2.8	4.2	2.9	4.9	3.0	4.9	3.3
86	2.5	2.0	2.9	2.4	3.3	2.5	3.5	2.9	4.0	2.8	4.2	2.9	4.8	3.0	4.8	3.3
91	2.5	2.0	2.9	2.4	3.3	2.5	3.5	2.9	4.0	2.8	4.2	2.9	4.7	3.0	4.7	3.2
95	2.5	2.0	2.9	2.4	3.3	2.5	3.5	2.9	4.0	2.8	4.2	2.9	4.6	2.9	4.6	3.2
99	2.5	2.0	2.9	2.4	3.3	2.5	3.5	2.9	4.0	2.8	4.2	2.9	4.5	2.9	4.5	3.2
104	2.5	2.0	2.9	2.4	3.3	2.5	3.5	2.9	4.0	2.8	4.2	2.9	4.4	2.9	4.4	3.1
109	2.5	2.0	2.9	2.4	3.3	2.5	3.5	2.9	4.0	2.8	4.1	2.9	4.3	2.8	4.3	3.1
115	2.5	2.0	2.9	2.4	3.3	2.5	3.5	2.9	3.9	2.8	4.0	2.8	4.2	2.8	4.2	3.1

■ Model: ASUA7TLAV2

Outdoor temperature	Indoor temperature															
	68°FDB/59°FWB		73°FDB/61°FWB		75°FDB/63°FWB		79°FDB/64°FWB		80°FDB/67°FWB		82°FDB/68°FWB		86°FDB/72°FWB		90°FDB/73°FWB	
°FDB	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
50	4.8	4.1	5.4	5.0	6.1	5.2	6.5	6.0	7.5	5.7	7.8	6.0	9.2	6.3	9.6	7.0
59	4.8	4.1	5.4	5.0	6.1	5.2	6.5	6.0	7.5	5.7	7.8	6.0	9.2	6.3	9.6	7.0
70	4.8	4.1	5.4	5.0	6.1	5.2	6.5	6.0	7.5	5.7	7.8	6.0	9.2	6.3	9.6	7.0
73	4.8	4.1	5.4	5.0	6.1	5.2	6.5	6.0	7.5	5.7	7.8	6.0	9.2	6.3	9.5	7.0
77	4.8	4.1	5.4	5.0	6.1	5.2	6.5	6.0	7.5	5.7	7.8	6.0	9.2	6.3	9.4	6.9
81	4.8	4.1	5.4	5.0	6.1	5.2	6.5	6.0	7.5	5.7	7.8	6.0	9.1	6.2	9.2	6.9
86	4.8	4.1	5.4	5.0	6.1	5.2	6.5	6.0	7.5	5.7	7.8	6.0	8.9	6.2	9.0	6.8
91	4.8	4.1	5.4	5.0	6.1	5.2	6.5	6.0	7.5	5.7	7.8	6.0	8.7	6.1	8.8	6.7
95	4.8	4.1	5.4	5.0	6.1	5.2	6.5	6.0	7.5	5.7	7.8	6.0	8.6	6.0	8.7	6.7
99	4.8	4.1	5.4	5.0	6.1	5.2	6.5	6.0	7.5	5.7	7.8	6.0	8.4	6.0	8.5	6.6
104	4.8	4.1	5.4	5.0	6.1	5.2	6.5	6.0	7.5	5.7	7.8	6.0	8.2	5.9	8.3	6.6
109	4.8	4.1	5.4	5.0	6.1	5.2	6.5	6.0	7.5	5.7	7.7	6.0	8.0	5.8	8.1	6.5
115	4.8	4.1	5.4	5.0	6.1	5.2	6.5	6.0	7.4	5.7	7.5	5.9	7.8	5.8	7.9	6.4

■ Model: ASUA9TLAV2

Outdoor temperature	Indoor temperature															
	68°FDB/59°FWB		73°FDB/61°FWB		75°FDB/63°FWB		79°FDB/64°FWB		80°FDB/67°FWB		82°FDB/68°FWB		86°FDB/72°FWB		90°FDB/73°FWB	
°FDB	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
50	6.0	5.5	6.9	6.8	7.8	7.0	8.2	8.2	9.5	7.8	9.9	8.2	11.7	8.4	12.1	9.5
59	6.0	5.5	6.9	6.8	7.8	7.0	8.2	8.2	9.5	7.8	9.9	8.2	11.7	8.4	12.1	9.5
70	6.0	5.5	6.9	6.8	7.8	7.0	8.2	8.2	9.5	7.8	9.9	8.2	11.7	8.4	12.1	9.5
73	6.0	5.5	6.9	6.8	7.8	7.0	8.2	8.2	9.5	7.8	9.9	8.2	11.7	8.4	12.1	9.5
77	6.0	5.5	6.9	6.8	7.8	7.0	8.2	8.2	9.5	7.8	9.9	8.2	11.7	8.4	11.9	9.4
81	6.0	5.5	6.9	6.8	7.8	7.0	8.2	8.2	9.5	7.8	9.9	8.2	11.5	8.4	11.7	9.3
86	6.0	5.5	6.9	6.8	7.8	7.0	8.2	8.2	9.5	7.8	9.9	8.2	11.3	8.3	11.4	9.2
91	6.0	5.5	6.9	6.8	7.8	7.0	8.2	8.2	9.5	7.8	9.9	8.2	11.1	8.2	11.2	9.2
95	6.0	5.5	6.9	6.8	7.8	7.0	8.2	8.2	9.5	7.8	9.9	8.2	10.9	8.2	11.0	9.1
99	6.0	5.5	6.9	6.8	7.8	7.0	8.2	8.2	9.5	7.8	9.9	8.2	10.7	8.1	10.8	9.0
104	6.0	5.5	6.9	6.8	7.8	7.0	8.2	8.2	9.5	7.8	9.9	8.2	10.4	8.0	10.5	8.9
109	6.0	5.5	6.9	6.8	7.8	7.0	8.2	8.2	9.5	7.8	9.7	8.1	10.2	7.9	10.3	8.9
115	6.0	5.5	6.9	6.8	7.8	7.0	8.2	8.2	9.3	7.7	9.4	8.0	9.9	7.8	10.0	8.8

■ Model: ASUA12TLAV2

Outdoor temperature	Indoor temperature															
	68°FDB/59°FWB		73°FDB/61°FWB		75°FDB/63°FWB		79°FDB/64°FWB		80°FDB/67°FWB		82°FDB/68°FWB		86°FDB/72°FWB		90°FDB/73°FWB	
°FDB	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
50	7.6	6.2	8.7	7.6	9.8	7.9	10.4	9.1	12.0	8.8	12.6	9.2	14.7	9.6	15.3	10.6
59	7.6	6.2	8.7	7.6	9.8	7.9	10.4	9.1	12.0	8.8	12.6	9.2	14.7	9.6	15.3	10.6
70	7.6	6.2	8.7	7.6	9.8	7.9	10.4	9.1	12.0	8.8	12.6	9.2	14.7	9.6	15.3	10.6
73	7.6	6.2	8.7	7.6	9.8	7.9	10.4	9.1	12.0	8.8	12.6	9.2	14.7	9.6	15.2	10.6
77	7.6	6.2	8.7	7.6	9.8	7.9	10.4	9.1	12.0	8.8	12.6	9.2	14.7	9.6	15.0	10.5
81	7.6	6.2	8.7	7.6	9.8	7.9	10.4	9.1	12.0	8.8	12.6	9.2	14.6	9.5	14.7	10.4
86	7.6	6.2	8.7	7.6	9.8	7.9	10.4	9.1	12.0	8.7	12.6	9.2	14.3	9.4	14.4	10.3
91	7.6	6.2	8.7	7.6	9.8	7.9	10.4	9.1	12.0	8.8	12.6	9.2	14.0	9.3	14.1	10.2
95	7.6	6.2	8.7	7.6	9.8	7.9	10.4	9.1	12.0	8.8	12.6	9.2	13.7	9.2	13.9	10.1
99	7.6	6.2	8.7	7.6	9.8	7.9	10.4	9.1	12.0	8.8	12.6	9.2	13.5	9.1	13.6	10.0
104	7.6	6.2	8.7	7.6	9.8	7.9	10.4	9.1	12.0	8.8	12.6	9.2	13.2	9.0	13.3	9.9
109	7.6	6.2	8.7	7.6	9.8	7.9	10.4	9.1	12.0	8.8	12.3	9.1	12.8	8.9	13.0	9.8
115	7.6	6.2	8.7	7.6	9.8	7.9	10.4	9.1	11.8	8.7	11.9	8.9	12.5	8.7	12.6	9.7

MODEL SELECTION

■ Model: ASUA14TLAV2

Outdoor temperature	Indoor temperature															
	68°FDB/59°FWB		73°FDB/61°FWB		75°FDB/63°FWB		79°FDB/64°FWB		80°FDB/67°FWB		82°FDB/68°FWB		86°FDB/72°FWB		90°FDB/73°FWB	
°FDB	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
50	8.9	7.4	10.2	9.1	11.4	9.4	12.1	10.8	14.0	10.4	14.6	10.9	17.2	11.4	17.9	12.7
59	8.9	7.4	10.2	9.1	11.4	9.4	12.1	10.8	14.0	10.4	14.6	10.9	17.2	11.4	17.9	12.7
70	8.9	7.4	10.2	9.1	11.4	9.4	12.1	10.8	14.0	10.4	14.6	10.9	17.2	11.4	17.9	12.7
73	8.9	7.4	10.2	9.1	11.4	9.4	12.1	10.8	14.0	10.4	14.6	10.9	17.2	11.4	17.8	12.6
77	8.9	7.4	10.2	9.1	11.4	9.4	12.1	10.8	14.0	10.4	14.6	10.9	17.2	11.4	17.5	12.5
81	8.9	7.4	10.2	9.1	11.4	9.4	12.1	10.8	14.0	10.4	14.6	10.9	17.0	11.3	17.2	12.4
86	8.9	7.4	10.2	9.1	11.4	9.4	12.1	10.8	14.0	10.4	14.6	10.9	16.7	11.2	16.8	12.3
91	8.9	7.4	10.2	9.1	11.4	9.4	12.1	10.8	14.0	10.4	14.6	10.9	16.3	11.0	16.5	12.2
95	8.9	7.4	10.2	9.1	11.4	9.4	12.1	10.8	14.0	10.4	14.6	10.9	16.0	10.9	16.2	12.1
99	8.9	7.4	10.2	9.1	11.4	9.4	12.1	10.8	14.0	10.4	14.6	10.9	15.7	10.8	15.9	12.0
104	8.9	7.4	10.2	9.1	11.4	9.4	12.1	10.8	14.0	10.4	14.6	10.9	15.4	10.7	15.5	11.8
109	8.9	7.4	10.2	9.1	11.4	9.4	12.1	10.8	14.0	10.4	14.4	10.8	15.0	10.5	15.1	11.7
115	8.9	7.4	10.2	9.1	11.4	9.4	12.1	10.8	13.8	10.3	13.9	10.6	14.5	10.4	14.7	11.5

■ Model: ASUB18TLAV1

Outdoor temperature	Indoor temperature															
	68°FDB/59°FWB		73°FDB/61°FWB		75°FDB/63°FWB		79°FDB/64°FWB		80°FDB/67°FWB		82°FDB/68°FWB		86°FDB/72°FWB		90°FDB/73°FWB	
°FDB	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
50	11.4	9.2	13.1	11.2	14.7	11.7	15.5	13.4	18.0	12.9	18.8	13.6	22.1	14.1	23.0	15.7
59	11.4	9.2	13.1	11.2	14.7	11.7	15.5	13.4	18.0	12.9	18.8	13.6	22.1	14.1	23.0	15.7
70	11.4	9.2	13.1	11.2	14.7	11.7	15.5	13.4	18.0	12.9	18.8	13.6	22.1	14.1	23.0	15.7
73	11.4	9.2	13.1	11.2	14.7	11.7	15.5	13.4	18.0	12.9	18.8	13.6	22.1	14.1	22.8	15.7
77	11.4	9.2	13.1	11.2	14.7	11.7	15.5	13.4	18.0	12.9	18.8	13.6	22.1	14.1	22.5	15.5
81	11.4	9.2	13.1	11.2	14.7	11.7	15.5	13.4	18.0	12.9	18.8	13.6	21.9	14.0	22.1	15.4
86	11.4	9.2	13.1	11.2	14.7	11.7	15.5	13.4	18.0	12.9	18.8	13.6	21.4	13.9	21.6	15.2
91	11.4	9.2	13.1	11.2	14.7	11.7	15.5	13.4	18.0	12.9	18.8	13.6	21.0	13.7	21.2	15.1
95	11.4	9.2	13.1	11.2	14.7	11.7	15.5	13.4	18.0	12.9	18.8	13.6	20.6	13.6	20.8	14.9
99	11.4	9.2	13.1	11.2	14.7	11.7	15.5	13.4	18.0	12.9	18.8	13.6	20.2	13.4	20.4	14.8
104	11.4	9.2	13.1	11.2	14.7	11.7	15.5	13.4	18.0	12.9	18.8	13.6	19.7	13.3	19.9	14.6
109	11.4	9.2	13.1	11.2	14.7	11.7	15.5	13.4	18.0	12.9	18.5	13.4	19.3	13.1	19.5	14.5
115	11.4	9.2	13.1	11.2	14.7	11.7	15.5	13.4	17.7	12.8	17.9	13.2	18.7	12.9	18.9	14.2

■ Model: ASUB24TLAV1

Outdoor temperature	Indoor temperature															
	68°FDB/59°FWB		73°FDB/61°FWB		75°FDB/63°FWB		79°FDB/64°FWB		80°FDB/67°FWB		82°FDB/68°FWB		86°FDB/72°FWB		90°FDB/73°FWB	
°FDB	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
50	15.2	12.2	17.4	14.9	19.6	15.5	20.7	17.7	24.0	17.2	25.1	18.0	29.5	18.8	30.6	20.9
59	15.2	12.2	17.4	14.9	19.6	15.5	20.7	17.7	24.0	17.2	25.1	18.0	29.5	18.8	30.6	20.9
70	15.2	12.2	17.4	14.9	19.6	15.5	20.7	17.7	24.0	17.2	25.1	18.0	29.5	18.8	30.6	20.9
73	15.2	12.2	17.4	14.9	19.6	15.5	20.7	17.7	24.0	17.2	25.1	18.0	29.5	18.8	30.5	20.8
77	15.2	12.2	17.4	14.9	19.6	15.5	20.7	17.7	24.0	17.2	25.1	18.0	29.5	18.8	30.0	20.6
81	15.2	12.2	17.4	14.9	19.6	15.5	20.7	17.7	24.0	17.2	25.1	18.0	29.2	18.7	29.5	20.4
86	15.2	12.2	17.4	14.9	19.6	15.5	20.7	17.7	24.0	17.2	25.1	18.0	28.6	18.4	28.9	20.2
91	15.2	12.2	17.4	14.9	19.6	15.5	20.7	17.7	24.0	17.2	25.1	18.0	27.9	18.2	28.2	20.0
95	15.2	12.2	17.4	14.9	19.6	15.5	20.7	17.7	24.0	17.2	25.1	18.0	27.5	18.0	27.7	19.8
99	15.2	12.2	17.4	14.9	19.6	15.5	20.7	17.7	24.0	17.2	25.1	18.0	27.0	17.8	27.2	19.6
104	15.2	12.2	17.4	14.9	19.6	15.5	20.7	17.7	24.0	17.2	25.1	18.0	26.3	17.6	26.6	19.4
109	15.2	12.2	17.4	14.9	19.6	15.5	20.7	17.7	24.0	17.2	24.6	17.8	25.7	17.4	26.0	19.2
115	15.2	12.2	17.4	14.9	19.6	15.5	20.7	17.7	23.6	17.0	23.8	17.5	24.9	17.1	25.2	18.9

■ Model: ASUA30TLAV2

Outdoor temperature	Indoor temperature															
	68°FDB/59°FWB		73°FDB/61°FWB		75°FDB/63°FWB		79°FDB/64°FWB		80°FDB/67°FWB		82°FDB/68°FWB		86°FDB/72°FWB		90°FDB/73°FWB	
°FDB	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
50	19.0	15.2	21.8	18.5	24.5	19.2	25.9	22.0	30.0	21.3	31.4	22.4	36.9	23.4	38.3	25.9
59	19.0	15.2	21.8	18.5	24.5	19.2	25.9	22.0	30.0	21.3	31.4	22.4	36.9	23.4	38.3	25.9
70	19.0	15.2	21.8	18.5	24.5	19.2	25.9	22.0	30.0	21.3	31.4	22.4	36.9	23.4	38.3	25.9
73	19.0	15.2	21.8	18.5	24.5	19.2	25.9	22.0	30.0	21.3	31.4	22.4	36.9	23.4	38.1	25.9
77	19.0	15.2	21.8	18.5	24.5	19.2	25.9	22.0	30.0	21.3	31.4	22.4	36.9	23.4	37.5	25.6
81	19.0	15.2	21.8	18.5	24.5	19.2	25.9	22.0	30.0	21.3	31.4	22.4	36.5	23.2	36.8	25.4
86	19.0	15.2	21.8	18.5	24.5	19.2	25.9	22.0	30.0	21.3	31.4	22.4	35.7	22.9	36.1	25.1
91	19.0	15.2	21.8	18.5	24.5	19.2	25.9	22.0	30.0	21.3	31.4	22.4	34.9	22.6	35.3	24.8
95	19.0	15.2	21.8	18.5	24.5	19.2	25.9	22.0	30.0	21.3	31.4	22.4	34.3	22.4	34.7	24.6
99	19.0	15.2	21.8	18.5	24.5	19.2	25.9	22.0	30.0	21.3	31.4	22.4	33.7	22.2	34.0	24.4
104	19.0	15.2	21.8	18.5	24.5	19.2	25.9	22.0	30.0	21.3	31.4	22.4	32.9	21.9	33.2	24.1
109	19.0	15.2	21.8	18.5	24.5	19.2	25.9	22.0	30.0	21.3	30.8	22.2	32.1	21.6	32.4	23.8
115	19.0	15.2	21.8	18.5	24.5	19.2	25.9	22.0	29.5	21.1	29.8	21.8	31.1	21.2	31.5	23.5

MODEL SELECTION

■ Model: ASUA36TLAV2

Outdoor temperature	Indoor temperature															
	68°FDB/59°FWB		73°FDB/61°FWB		75°FDB/63°FWB		79°FDB/64°FWB		80°FDB/67°FWB		82°FDB/68°FWB		86°FDB/72°FWB		90°FDB/73°FWB	
°FDB	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
50	21.6	17.3	24.7	21.1	27.8	21.9	29.4	25.1	34.0	24.3	35.6	25.5	41.8	26.6	43.4	29.5
59	21.6	17.3	24.7	21.1	27.8	21.9	29.4	25.1	34.0	24.3	35.6	25.5	41.8	26.6	43.4	29.5
70	21.6	17.3	24.7	21.1	27.8	21.9	29.4	25.1	34.0	24.3	35.6	25.5	41.8	26.6	43.4	29.5
73	21.6	17.3	24.7	21.1	27.8	21.9	29.4	25.1	34.0	24.3	35.6	25.5	41.8	26.6	43.1	29.5
77	21.6	17.3	24.7	21.1	27.8	21.9	29.4	25.1	34.0	24.3	35.6	25.5	41.8	26.6	42.5	29.2
81	21.6	17.3	24.7	21.1	27.8	21.9	29.4	25.1	34.0	24.3	35.6	25.5	41.3	26.4	41.8	28.9
86	21.6	17.3	24.7	21.1	27.8	21.9	29.4	25.1	34.0	24.3	35.6	25.5	40.5	26.1	40.9	28.6
91	21.6	17.3	24.7	21.1	27.8	21.9	29.4	25.1	34.0	24.3	35.6	25.5	39.6	25.8	40.0	28.3
95	21.6	17.3	24.7	21.1	27.8	21.9	29.4	25.1	34.0	24.3	35.6	25.5	38.9	25.5	39.3	28.0
99	21.6	17.3	24.7	21.1	27.8	21.9	29.4	25.1	34.0	24.3	35.6	25.5	38.2	25.3	38.6	27.8
104	21.6	17.3	24.7	21.1	27.8	21.9	29.4	25.1	34.0	24.3	35.6	25.5	37.3	24.9	37.7	27.5
109	21.6	17.3	24.7	21.1	27.8	21.9	29.4	25.1	34.0	24.3	34.9	25.2	36.4	24.6	36.8	27.2
115	21.6	17.3	24.7	21.1	27.8	21.9	29.4	25.1	33.4	24.1	33.8	24.8	35.3	24.2	35.7	26.8

■ Model: ASUA7TLAV

Outdoor temperature	Indoor temperature															
	68°FDB/59°FWB		73°FDB/61°FWB		75°FDB/63°FWB		79°FDB/64°FWB		80°FDB/67°FWB		82°FDB/68°FWB		86°FDB/72°FWB		90°FDB/73°FWB	
°FDB	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
50	4.8	4.2	5.4	5.1	6.1	5.3	6.5	6.1	7.5	5.8	7.8	6.1	9.2	6.4	9.6	7.1
59	4.8	4.2	5.4	5.1	6.1	5.3	6.5	6.1	7.5	5.8	7.8	6.1	9.2	6.4	9.6	7.1
70	4.8	4.2	5.4	5.1	6.1	5.3	6.5	6.1	7.5	5.8	7.8	6.1	9.2	6.4	9.6	7.1
73	4.8	4.2	5.4	5.1	6.1	5.3	6.5	6.1	7.5	5.8	7.8	6.1	9.2	6.4	9.5	7.1
77	4.8	4.2	5.4	5.1	6.1	5.3	6.5	6.1	7.5	5.8	7.8	6.1	9.2	6.4	9.4	7.0
81	4.8	4.2	5.4	5.1	6.1	5.3	6.5	6.1	7.5	5.8	7.8	6.1	9.1	6.3	9.2	7.0
86	4.8	4.2	5.4	5.1	6.1	5.3	6.5	6.1	7.5	5.8	7.8	6.1	8.9	6.3	9.0	6.9
91	4.8	4.2	5.4	5.1	6.1	5.3	6.5	6.1	7.5	5.8	7.8	6.1	8.7	6.2	8.8	6.9
95	4.8	4.2	5.4	5.1	6.1	5.3	6.5	6.1	7.5	5.8	7.8	6.1	8.6	6.1	8.7	6.8
99	4.8	4.2	5.4	5.1	6.1	5.3	6.5	6.1	7.5	5.8	7.8	6.1	8.4	6.1	8.5	6.8
104	4.8	4.2	5.4	5.1	6.1	5.3	6.5	6.1	7.5	5.8	7.8	6.1	8.2	6.0	8.3	6.7
109	4.8	4.2	5.4	5.1	6.1	5.3	6.5	6.1	7.5	5.8	7.7	6.1	8.0	5.9	8.1	6.6
115	4.8	4.2	5.4	5.1	6.1	5.3	6.5	6.1	7.4	5.8	7.5	6.0	7.8	5.9	7.9	6.5

■ Model: ASUA9TLAV

Outdoor temperature	Indoor temperature															
	68°FDB/59°FWB		73°FDB/61°FWB		75°FDB/63°FWB		79°FDB/64°FWB		80°FDB/67°FWB		82°FDB/68°FWB		86°FDB/72°FWB		90°FDB/73°FWB	
°FDB	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
50	6.0	5.0	6.9	6.1	7.8	6.4	8.2	7.3	9.5	7.0	9.9	7.4	11.7	7.7	12.1	8.6
59	6.0	5.0	6.9	6.1	7.8	6.4	8.2	7.3	9.5	7.0	9.9	7.4	11.7	7.7	12.1	8.6
70	6.0	5.0	6.9	6.1	7.8	6.4	8.2	7.3	9.5	7.0	9.9	7.4	11.7	7.7	12.1	8.6
73	6.0	5.0	6.9	6.1	7.8	6.4	8.2	7.3	9.5	7.0	9.9	7.4	11.7	7.7	12.1	8.6
77	6.0	5.0	6.9	6.1	7.8	6.4	8.2	7.3	9.5	7.0	9.9	7.4	11.7	7.7	11.9	8.5
81	6.0	5.0	6.9	6.1	7.8	6.4	8.2	7.3	9.5	7.0	9.9	7.4	11.5	7.6	11.7	8.4
86	6.0	5.0	6.9	6.1	7.8	6.4	8.2	7.3	9.5	7.0	9.9	7.4	11.3	7.6	11.4	8.3
91	6.0	5.0	6.9	6.1	7.8	6.4	8.2	7.3	9.5	7.0	9.9	7.4	11.1	7.5	11.2	8.2
95	6.0	5.0	6.9	6.1	7.8	6.4	8.2	7.3	9.5	7.0	9.9	7.4	10.9	7.4	11.0	8.2
99	6.0	5.0	6.9	6.1	7.8	6.4	8.2	7.3	9.5	7.0	9.9	7.4	10.7	7.3	10.8	8.1
104	6.0	5.0	6.9	6.1	7.8	6.4	8.2	7.3	9.5	7.0	9.9	7.4	10.4	7.2	10.5	8.0
109	6.0	5.0	6.9	6.1	7.8	6.4	8.2	7.3	9.5	7.0	9.7	7.3	10.2	7.1	10.3	7.9
115	6.0	5.0	6.9	6.1	7.8	6.4	8.2	7.3	9.3	7.0	9.4	7.2	9.9	7.0	10.0	7.8

■ Model: ASUA12TLAV

Outdoor temperature	Indoor temperature															
	68°FDB/59°FWB		73°FDB/61°FWB		75°FDB/63°FWB		79°FDB/64°FWB		80°FDB/67°FWB		82°FDB/68°FWB		86°FDB/72°FWB		90°FDB/73°FWB	
°FDB	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
50	7.6	6.0	8.7	7.3	9.8	7.6	10.4	8.7	12.0	8.4	12.6	8.9	14.7	9.2	15.3	10.2
59	7.6	6.0	8.7	7.3	9.8	7.6	10.4	8.7	12.0	8.4	12.6	8.9	14.7	9.2	15.3	10.2
70	7.6	6.0	8.7	7.3	9.8	7.6	10.4	8.7	12.0	8.4	12.6	8.9	14.7	9.2	15.3	10.2
73	7.6	6.0	8.7	7.3	9.8	7.6	10.4	8.7	12.0	8.4	12.6	8.9	14.7	9.2	15.2	10.2
77	7.6	6.0	8.7	7.3	9.8	7.6	10.4	8.7	12.0	8.4	12.6	8.9	14.7	9.2	15.0	10.1
81	7.6	6.0	8.7	7.3	9.8	7.6	10.4	8.7	12.0	8.4	12.6	8.9	14.6	9.2	14.7	10.0
86	7.6	6.0	8.7	7.3	9.8	7.6	10.4	8.7	12.0	8.4	12.6	8.9	14.3	9.1	14.4	9.9
91	7.6	6.0	8.7	7.3	9.8	7.6	10.4	8.7	12.0	8.4	12.6	8.9	14.0	8.9	14.1	9.8
95	7.6	6.0	8.7	7.3	9.8	7.6	10.4	8.7	12.0	8.4	12.6	8.9	13.7	8.9	13.9	9.7
99	7.6	6.0	8.7	7.3	9.8	7.6	10.4	8.7	12.0	8.4	12.6	8.9	13.5	8.8	13.6	9.6
104	7.6	6.0	8.7	7.3	9.8	7.6	10.4	8.7	12.0	8.4	12.6	8.9	13.2	8.6	13.3	9.5
109	7.6	6.0	8.7	7.3	9.8	7.6	10.4	8.7	12.0	8.4	12.3	8.8	12.8	8.5	13.0	9.4
115	7.6	6.0	8.7	7.3	9.8	7.6	10.4	8.7	11.8	8.3	11.9	8.6	12.5	8.4	12.6	9.3

■ Model: ASUA14TLAV

Outdoor temperature	Indoor temperature															
	68°FDB/59°FWB		73°FDB/61°FWB		75°FDB/63°FWB		79°FDB/64°FWB		80°FDB/67°FWB		82°FDB/68°FWB		86°FDB/72°FWB		90°FDB/73°FWB	
°FDB	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
50	8.9	7.1	10.2	8.6	11.4	9.0	12.1	10.3	14.0	9.9	14.6	10.4	17.2	10.9	17.9	12.1
59	8.9	7.1	10.2	8.6	11.4	9.0	12.1	10.3	14.0	9.9	14.6	10.4	17.2	10.9	17.9	12.1
70	8.9	7.1	10.2	8.6	11.4	9.0	12.1	10.3	14.0	9.9	14.6	10.4	17.2	10.9	17.9	12.1
73	8.9	7.1	10.2	8.6	11.4	9.0	12.1	10.3	14.0	9.9	14.6	10.4	17.2	10.9	17.8	12.1
77	8.9	7.1	10.2	8.6	11.4	9.0	12.1	10.3	14.0	9.9	14.6	10.4	17.2	10.9	17.5	11.9
81	8.9	7.1	10.2	8.6	11.4	9.0	12.1	10.3	14.0	9.9	14.6	10.4	17.0	10.8	17.2	11.8
86	8.9	7.1	10.2	8.6	11.4	9.0	12.1	10.3	14.0	9.9	14.6	10.4	16.7	10.7	16.8	11.7
91	8.9	7.1	10.2	8.6	11.4	9.0	12.1	10.3	14.0	9.9	14.6	10.4	16.3	10.6	16.5	11.6
95	8.9	7.1	10.2	8.6	11.4	9.0	12.1	10.3	14.0	9.9	14.6	10.4	16.0	10.4	16.2	11.5
99	8.9	7.1	10.2	8.6	11.4	9.0	12.1	10.3	14.0	9.9	14.6	10.4	15.7	10.3	15.9	11.4
104	8.9	7.1	10.2	8.6	11.4	9.0	12.1	10.3	14.0	9.9	14.6	10.4	15.4	10.2	15.5	11.2
109	8.9	7.1	10.2	8.6	11.4	9.0	12.1	10.3	14.0	9.9	14.4	10.3	15.0	10.1	15.1	11.1
115	8.9	7.1	10.2	8.6	11.4	9.0	12.1	10.3	13.8	9.8	13.9	10.2	14.5	9.9	14.7	10.9

■ Model: ASUB18TLAV

Outdoor temperature	Indoor temperature															
	68°FDB/59°FWB		73°FDB/61°FWB		75°FDB/63°FWB		79°FDB/64°FWB		80°FDB/67°FWB		82°FDB/68°FWB		86°FDB/72°FWB		90°FDB/73°FWB	
°FDB	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
50	11.4	9.2	13.1	11.2	14.7	11.7	15.5	13.4	18.0	12.9	18.8	13.6	22.1	14.2	23.0	15.7
59	11.4	9.2	13.1	11.2	14.7	11.7	15.5	13.4	18.0	12.9	18.8	13.6	22.1	14.2	23.0	15.7
70	11.4	9.2	13.1	11.2	14.7	11.7	15.5	13.4	18.0	12.9	18.8	13.6	22.1	14.2	23.0	15.7
73	11.4	9.2	13.1	11.2	14.7	11.7	15.5	13.4	18.0	12.9	18.8	13.6	22.1	14.2	22.8	15.7
77	11.4	9.2	13.1	11.2	14.7	11.7	15.5	13.4	18.0	12.9	18.8	13.6	22.1	14.2	22.5	15.6
81	11.4	9.2	13.1	11.2	14.7	11.7	15.5	13.4	18.0	12.9	18.8	13.6	21.9	14.1	22.1	15.4
86	11.4	9.2	13.1	11.2	14.7	11.7	15.5	13.4	18.0	12.9	18.8	13.6	21.4	13.9	21.6	15.3
91	11.4	9.2	13.1	11.2	14.7	11.7	15.5	13.4	18.0	12.9	18.8	13.6	21.0	13.7	21.2	15.1
95	11.4	9.2	13.1	11.2	14.7	11.7	15.5	13.4	18.0	12.9	18.8	13.6	20.6	13.6	20.8	15.0
99	11.4	9.2	13.1	11.2	14.7	11.7	15.5	13.4	18.0	12.9	18.8	13.6	20.2	13.5	20.4	14.8
104	11.4	9.2	13.1	11.2	14.7	11.7	15.5	13.4	18.0	12.9	18.8	13.6	19.7	13.3	19.9	14.7
109	11.4	9.2	13.1	11.2	14.7	11.7	15.5	13.4	18.0	12.9	18.5	13.5	19.3	13.1	19.5	14.5
115	11.4	9.2	13.1	11.2	14.7	11.7	15.5	13.4	17.7	12.8	17.9	13.2	18.7	12.9	18.9	14.3

■ Model: ASUB24TLAV

Outdoor temperature	Indoor temperature															
	68°FDB/59°FWB		73°FDB/61°FWB		75°FDB/63°FWB		79°FDB/64°FWB		80°FDB/67°FWB		82°FDB/68°FWB		86°FDB/72°FWB		90°FDB/73°FWB	
°FDB	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
50	15.2	12.2	17.4	14.9	19.6	15.4	20.7	17.7	24.0	17.1	25.1	18.0	29.5	18.7	30.6	20.8
59	15.2	12.2	17.4	14.9	19.6	15.4	20.7	17.7	24.0	17.1	25.1	18.0	29.5	18.7	30.6	20.8
70	15.2	12.2	17.4	14.9	19.6	15.4	20.7	17.7	24.0	17.1	25.1	18.0	29.5	18.7	30.6	20.8
73	15.2	12.2	17.4	14.9	19.6	15.4	20.7	17.7	24.0	17.1	25.1	18.0	29.5	18.7	30.5	20.8
77	15.2	12.2	17.4	14.9	19.6	15.4	20.7	17.7	24.0	17.1	25.1	18.0	29.5	18.7	30.0	20.6
81	15.2	12.2	17.4	14.9	19.6	15.4	20.7	17.7	24.0	17.1	25.1	18.0	29.2	18.6	29.5	20.4
86	15.2	12.2	17.4	14.9	19.6	15.4	20.7	17.7	24.0	17.1	25.1	18.0	28.6	18.4	28.9	20.2
91	15.2	12.2	17.4	14.9	19.6	15.4	20.7	17.7	24.0	17.1	25.1	18.0	27.9	18.2	28.2	20.0
95	15.2	12.2	17.4	14.9	19.6	15.4	20.7	17.7	24.0	17.1	25.1	18.0	27.5	18.0	27.7	19.8
99	15.2	12.2	17.4	14.9	19.6	15.4	20.7	17.7	24.0	17.1	25.1	18.0	27.0	17.8	27.2	19.6
104	15.2	12.2	17.4	14.9	19.6	15.4	20.7	17.7	24.0	17.1	25.1	18.0	26.3	17.6	26.6	19.4
109	15.2	12.2	17.4	14.9	19.6	15.4	20.7	17.7	24.0	17.1	24.6	17.8	25.7	17.3	26.0	19.1
115	15.2	12.2	17.4	14.9	19.6	15.4	20.7	17.7	23.6	17.0	23.8	17.5	24.9	17.1	25.2	18.9

MODEL SELECTION

3. Heating capacity table (Indoor unit)

- TC: Total capacity (kBtu/h)
- Values mentioned in the table are the values when the indoor unit's total rated capacity is 100% of the outdoor unit capacity.

3-1. Compact cassette type

■ Model: AUUA4TLAV2

Outdoor temperature		Indoor temperature						
		61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
°FDB	°FWB	TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	2.3	2.3	2.3	2.3	2.3	2.3	2.3
5.0	3.2	2.7	2.6	2.6	2.6	2.6	2.6	2.6
10.4	8.6	3.0	2.9	2.9	2.9	2.9	2.9	2.9
15.8	14.0	3.2	3.2	3.2	3.2	3.2	3.2	3.2
17.0	15.0	3.3	3.3	3.3	3.2	3.2	3.2	3.2
23.0	21.2	3.7	3.6	3.6	3.6	3.6	3.6	3.6
26.6	24.8	3.8	3.8	3.8	3.8	3.8	3.8	3.6
30.2	28.4	4.0	4.0	4.0	4.0	4.0	3.9	3.6
32.0	30.2	4.2	4.1	4.1	4.1	4.1	3.9	3.6
35.6	33.8	4.3	4.3	4.3	4.3	4.2	3.9	3.6
41.0	39.2	4.7	4.7	4.6	4.4	4.2	4.0	3.6
47.0	43.0	4.9	4.9	4.6	4.4	4.2	4.0	3.6
48.2	46.0	5.1	4.9	4.6	4.4	4.2	4.0	3.6
53.6	51.1	5.1	4.9	4.6	4.4	4.2	4.0	3.6
59.0	56.3	5.1	4.9	4.6	4.4	4.2	4.0	3.6

■ Model: AUUA7TLAV2

Outdoor temperature		Indoor temperature						
		61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
°FDB	°FWB	TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	4.9	4.9	4.9	4.9	4.9	4.9	4.9
5.0	3.2	5.7	5.7	5.7	5.7	5.7	5.7	5.6
10.4	8.6	6.4	6.4	6.3	6.3	6.3	6.3	6.3
15.8	14.0	7.0	7.0	6.9	6.9	6.9	6.9	6.8
17.0	15.0	7.1	7.1	7.0	7.0	7.0	7.0	7.0
23.0	21.2	7.9	7.9	7.8	7.8	7.8	7.7	7.7
26.6	24.8	8.3	8.3	8.2	8.2	8.2	8.2	7.8
30.2	28.4	8.7	8.7	8.6	8.6	8.6	8.5	7.8
32.0	30.2	9.0	8.9	8.8	8.8	8.8	8.5	7.8
35.6	33.8	9.4	9.3	9.3	9.2	9.0	8.5	7.8
41.0	39.2	10.1	10.1	9.9	9.5	9.1	8.6	7.9
47.0	43.0	10.6	10.5	9.9	9.5	9.1	8.6	7.9
48.2	46.0	10.9	10.6	9.9	9.5	9.1	8.6	7.9
53.6	51.1	11.1	10.6	9.9	9.5	9.1	8.6	7.9
59.0	56.3	11.1	10.6	9.9	9.5	9.1	8.6	7.9

■ Model: AUUA9TLAV2

Outdoor temperature		Indoor temperature						
		61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
°FDB	°FWB	TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	5.7	5.7	5.7	5.6	5.6	5.6	5.6
5.0	3.2	6.6	6.5	6.5	6.5	6.5	6.5	6.5
10.4	8.6	7.3	7.3	7.3	7.3	7.2	7.2	7.2
15.8	14.0	8.0	8.0	7.9	7.9	7.9	7.9	7.8
17.0	15.0	8.1	8.1	8.1	8.0	8.0	8.0	8.0
23.0	21.2	9.0	9.0	9.0	8.9	8.9	8.9	8.8
26.6	24.8	9.5	9.5	9.4	9.4	9.4	9.4	8.9
30.2	28.4	10.0	10.0	9.9	9.9	9.9	9.7	8.9
32.0	30.2	10.3	10.2	10.1	10.1	10.1	9.7	8.9
35.6	33.8	10.8	10.7	10.6	10.6	10.3	9.7	8.9
41.0	39.2	11.6	11.6	11.3	10.9	10.5	9.8	9.0
47.0	43.0	12.1	12.1	11.3	10.9	10.5	9.8	9.0
48.2	46.0	12.6	12.1	11.3	10.9	10.5	9.8	9.0
53.6	51.1	12.8	12.1	11.3	10.9	10.5	9.8	9.0
59.0	56.3	12.8	12.1	11.3	10.9	10.5	9.8	9.0

MODEL SELECTION

■ Model: AUUA12TLAV2

Outdoor temperature		Indoor temperature						
		61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
°FDB	°FWB	TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	7.0	7.0	7.0	7.0	7.0	7.0	6.9
5.0	3.2	8.1	8.1	8.1	8.0	8.0	8.0	8.0
10.4	8.6	9.1	9.0	9.0	9.0	8.9	8.9	8.9
15.8	14.0	9.9	9.9	9.8	9.8	9.8	9.8	9.7
17.0	15.0	10.1	10.1	10.0	10.0	10.0	9.9	9.9
23.0	21.2	11.2	11.2	11.1	11.1	11.0	11.0	10.9
26.6	24.8	11.8	11.8	11.7	11.7	11.6	11.6	11.0
30.2	28.4	12.4	12.4	12.3	12.2	12.2	12.1	11.0
32.0	30.2	12.7	12.6	12.6	12.5	12.5	12.1	11.0
35.6	33.8	13.3	13.2	13.2	13.1	12.8	12.1	11.0
41.0	39.2	14.4	14.3	14.0	13.5	12.9	12.2	11.2
47.0	43.0	15.0	14.9	14.0	13.5	12.9	12.2	11.2
48.2	46.0	15.5	15.0	14.0	13.5	12.9	12.2	11.2
53.6	51.1	15.8	15.0	14.0	13.5	12.9	12.2	11.2
59.0	56.3	15.8	15.0	14.0	13.5	12.9	12.2	11.2

■ Model: AUUA14TLAV2

Outdoor temperature		Indoor temperature						
		61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
°FDB	°FWB	TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	8.1	8.1	8.1	8.1	8.1	8.1	8.0
5.0	3.2	9.4	9.4	9.4	9.3	9.3	9.3	9.3
10.4	8.6	10.5	10.4	10.4	10.4	10.3	10.3	10.3
15.8	14.0	11.5	11.4	11.4	11.4	11.3	11.3	11.2
17.0	15.0	11.7	11.6	11.6	11.5	11.5	11.5	11.4
23.0	21.2	12.9	12.9	12.8	12.8	12.7	12.7	12.6
26.6	24.8	13.6	13.6	13.5	13.5	13.4	13.4	12.7
30.2	28.4	14.3	14.3	14.2	14.1	14.1	13.9	12.7
32.0	30.2	14.7	14.6	14.5	14.5	14.4	13.9	12.7
35.6	33.8	15.4	15.3	15.2	15.2	14.8	13.9	12.7
41.0	39.2	16.6	16.5	16.2	15.6	15.0	14.1	12.9
47.0	43.0	17.4	17.3	16.2	15.6	15.0	14.1	12.9
48.2	46.0	18.0	17.4	16.2	15.6	15.0	14.1	12.9
53.6	51.1	18.3	17.4	16.2	15.6	15.0	14.1	12.9
59.0	56.3	18.3	17.4	16.2	15.6	15.0	14.1	12.9

■ Model: AUUA18TLAV2

Outdoor temperature		Indoor temperature						
		61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
°FDB	°FWB	TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	10.4	10.4	10.4	10.3	10.3	10.3	10.3
5.0	3.2	12.1	12.0	12.0	11.9	11.9	11.9	11.9
10.4	8.6	13.4	13.4	13.3	13.3	13.2	13.2	13.2
15.8	14.0	14.7	14.6	14.6	14.6	14.5	14.4	14.4
17.0	15.0	15.0	14.9	14.8	14.8	14.8	14.7	14.6
23.0	21.2	16.6	16.5	16.5	16.4	16.3	16.3	16.2
26.6	24.8	17.5	17.4	17.3	17.3	17.2	17.2	16.3
30.2	28.4	18.4	18.3	18.2	18.1	18.1	17.9	16.3
32.0	30.2	18.9	18.7	18.6	18.5	18.5	17.9	16.3
35.6	33.8	19.7	19.6	19.5	19.4	19.0	17.9	16.3
41.0	39.2	21.3	21.2	20.8	20.0	19.2	18.0	16.5
47.0	43.0	22.3	22.1	20.8	20.0	19.2	18.0	16.5
48.2	46.0	23.0	22.3	20.8	20.0	19.2	18.0	16.5
53.6	51.1	23.4	22.3	20.8	20.0	19.2	18.0	16.5
59.0	56.3	23.4	22.3	20.8	20.0	19.2	18.0	16.5

■ Model: AUUA24TLAV2

Outdoor temperature		Indoor temperature						
		61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
°FDB	°FWB	TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	14.1	14.1	14.1	14.0	14.0	14.0	13.9
5.0	3.2	16.3	16.2	16.2	16.1	16.1	16.1	16.0
10.4	8.6	18.1	18.1	18.0	18.0	17.9	17.9	17.8
15.8	14.0	19.8	19.8	19.7	19.7	19.6	19.5	19.4
17.0	15.0	20.2	20.1	20.0	19.9	19.9	19.8	19.8
23.0	21.2	22.4	22.3	22.2	22.1	22.1	22.0	21.9
26.6	24.8	23.6	23.5	23.3	23.3	23.3	23.2	22.1
30.2	28.4	24.8	24.7	24.5	24.4	24.4	24.1	22.1
32.0	30.2	25.5	25.3	25.1	25.0	25.0	24.1	22.1
35.6	33.8	26.7	26.5	26.3	26.2	25.6	24.1	22.1
41.0	39.2	28.7	28.6	28.0	27.0	25.9	24.4	22.3
47.0	43.0	30.1	29.9	28.0	27.0	25.9	24.4	22.3
48.2	46.0	31.1	30.1	28.0	27.0	25.9	24.4	22.3
53.6	51.1	31.6	30.1	28.0	27.0	25.9	24.4	22.3
59.0	56.3	31.6	30.1	28.0	27.0	25.9	24.4	22.3

3-2. 4-way flow cassette type

■ Model: AUUB18TLAV

Outdoor temperature		Indoor temperature						
		61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
°FDB	°FWB	TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	10.4	10.4	10.4	10.3	10.3	10.3	10.3
5.0	3.2	12.1	12.0	12.0	11.9	11.9	11.9	11.9
10.4	8.6	13.4	13.4	13.3	13.3	13.2	13.2	13.2
15.8	14.0	14.7	14.6	14.6	14.6	14.5	14.4	14.4
17.0	15.0	15.0	14.9	14.8	14.8	14.8	14.7	14.6
23.0	21.2	16.6	16.5	16.5	16.4	16.3	16.3	16.2
26.6	24.8	17.5	17.4	17.3	17.3	17.2	17.2	16.3
30.2	28.4	18.4	18.3	18.2	18.1	18.1	17.9	16.3
32.0	30.2	18.9	18.7	18.6	18.5	18.5	17.9	16.3
35.6	33.8	19.7	19.6	19.5	19.4	19.0	17.9	16.3
41.0	39.2	21.3	21.2	20.8	20.0	19.2	18.0	16.5
47.0	43.0	22.3	22.1	20.8	20.0	19.2	18.0	16.5
48.2	46.0	23.0	22.3	20.8	20.0	19.2	18.0	16.5
53.6	51.1	23.4	22.3	20.8	20.0	19.2	18.0	16.5
59.0	56.3	23.4	22.3	20.8	20.0	19.2	18.0	16.5

■ Model: AUUB24TLAV

Outdoor temperature		Indoor temperature						
		61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
°FDB	°FWB	TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	14.1	14.1	14.1	14.0	14.0	14.0	13.9
5.0	3.2	16.3	16.2	16.2	16.1	16.1	16.1	16.0
10.4	8.6	18.1	18.1	18.0	18.0	17.9	17.9	17.8
15.8	14.0	19.8	19.8	19.7	19.7	19.6	19.5	19.4
17.0	15.0	20.2	20.1	20.0	19.9	19.9	19.8	19.8
23.0	21.2	22.4	22.3	22.2	22.1	22.1	22.0	21.9
26.6	24.8	23.6	23.5	23.3	23.3	23.3	23.2	22.1
30.2	28.4	24.8	24.7	24.5	24.4	24.4	24.1	22.1
32.0	30.2	25.5	25.3	25.1	25.0	25.0	24.1	22.1
35.6	33.8	26.7	26.5	26.3	26.2	25.6	24.1	22.1
41.0	39.2	28.7	28.6	28.0	27.0	25.9	24.4	22.3
47.0	43.0	30.1	29.9	28.0	27.0	25.9	24.4	22.3
48.2	46.0	31.1	30.1	28.0	27.0	25.9	24.4	22.3
53.6	51.1	31.6	30.1	28.0	27.0	25.9	24.4	22.3
59.0	56.3	31.6	30.1	28.0	27.0	25.9	24.4	22.3

■ Model: AUUB30TLAV

Outdoor temperature		Indoor temperature						
		61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
°FDB	°FWB	TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	17.7	17.7	17.7	17.6	17.6	17.6	17.5
5.0	3.2	20.5	20.4	20.4	20.3	20.3	20.3	20.2
10.4	8.6	22.8	22.7	22.6	22.6	22.5	22.5	22.4
15.8	14.0	25.0	24.9	24.8	24.8	24.7	24.6	24.5
17.0	15.0	25.4	25.3	25.2	25.1	25.1	25.0	24.9
23.0	21.2	28.2	28.1	28.0	27.9	27.8	27.7	27.6
26.6	24.8	29.7	29.6	29.4	29.4	29.3	29.2	27.8
30.2	28.4	31.2	31.1	30.9	30.8	30.8	30.4	27.8
32.0	30.2	32.1	31.9	31.6	31.5	31.4	30.4	27.8
35.6	33.8	33.6	33.4	33.1	33.0	32.3	30.4	27.8
41.0	39.2	36.1	36.0	35.3	34.0	32.6	30.7	28.1
47.0	43.0	37.9	37.6	35.3	34.0	32.6	30.7	28.1
48.2	46.0	39.1	37.9	35.3	34.0	32.6	30.7	28.1
53.6	51.1	39.8	37.9	35.3	34.0	32.6	30.7	28.1
59.0	56.3	39.8	37.9	35.3	34.0	32.6	30.7	28.1

■ Model: AUUB36TLAV

Outdoor temperature		Indoor temperature						
		61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
°FDB	°FWB	TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	20.8	20.8	20.8	20.7	20.7	20.7	20.6
5.0	3.2	24.1	24.0	24.0	23.8	23.8	23.8	23.7
10.4	8.6	26.9	26.8	26.6	26.6	26.5	26.5	26.4
15.8	14.0	29.4	29.3	29.1	29.1	29.0	28.9	28.8
17.0	15.0	29.9	29.8	29.7	29.5	29.5	29.4	29.3
23.0	21.2	33.2	33.1	32.9	32.8	32.7	32.6	32.4
26.6	24.8	35.0	34.8	34.6	34.6	34.4	34.3	32.7
30.2	28.4	36.7	36.6	36.3	36.2	36.2	35.7	32.7
32.0	30.2	37.7	37.5	37.2	37.1	37.0	35.7	32.7
35.6	33.8	39.5	39.2	39.0	38.9	38.0	35.7	32.7
41.0	39.2	42.5	42.4	41.5	40.0	38.4	36.1	33.1
47.0	43.0	44.5	44.3	41.5	40.0	38.4	36.1	33.1
48.2	46.0	46.1	44.5	41.5	40.0	38.4	36.1	33.1
53.6	51.1	46.8	44.5	41.5	40.0	38.4	36.1	33.1
59.0	56.3	46.8	44.5	41.5	40.0	38.4	36.1	33.1

3-3. Circular flow cassette type

■ Model: AUUB18TLAV2

Outdoor temperature		Indoor temperature						
		61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
°FDB	°FWB	TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	10.4	10.4	10.4	10.3	10.3	10.3	10.3
5.0	3.2	12.1	12.0	12.0	11.9	11.9	11.9	11.9
10.4	8.6	13.4	13.4	13.3	13.3	13.2	13.2	13.2
15.8	14.0	14.7	14.6	14.6	14.6	14.5	14.4	14.4
17.0	15.0	15.0	14.9	14.8	14.8	14.8	14.7	14.6
23.0	21.2	16.6	16.5	16.5	16.4	16.3	16.3	16.2
26.6	24.8	17.5	17.4	17.3	17.3	17.2	17.2	16.3
30.2	28.4	18.4	18.3	18.2	18.1	18.1	17.9	16.3
32.0	30.2	18.9	18.7	18.6	18.5	18.5	17.9	16.3
35.6	33.8	19.7	19.6	19.5	19.4	19.0	17.9	16.3
41.0	39.2	21.3	21.2	20.8	20.0	19.2	18.0	16.5
47.0	43.0	22.3	22.1	20.8	20.0	19.2	18.0	16.5
48.2	46.0	23.0	22.3	20.8	20.0	19.2	18.0	16.5
53.6	51.1	23.4	22.3	20.8	20.0	19.2	18.0	16.5
59.0	56.3	23.4	22.3	20.8	20.0	19.2	18.0	16.5

■ Model: AUUB24TLAV2

Outdoor temperature		Indoor temperature						
		61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
°FDB	°FWB	TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	14.1	14.1	14.1	14.0	14.0	14.0	13.9
5.0	3.2	16.3	16.2	16.2	16.1	16.1	16.1	16.0
10.4	8.6	18.1	18.1	18.0	18.0	17.9	17.9	17.8
15.8	14.0	19.8	19.8	19.7	19.7	19.6	19.5	19.4
17.0	15.0	20.2	20.1	20.0	19.9	19.9	19.8	19.8
23.0	21.2	22.4	22.3	22.2	22.1	22.1	22.0	21.9
26.6	24.8	23.6	23.5	23.3	23.3	23.3	23.2	22.1
30.2	28.4	24.8	24.7	24.5	24.4	24.4	24.1	22.1
32.0	30.2	25.5	25.3	25.1	25.0	25.0	24.1	22.1
35.6	33.8	26.7	26.5	26.3	26.2	25.6	24.1	22.1
41.0	39.2	28.7	28.6	28.0	27.0	25.9	24.4	22.3
47.0	43.0	30.1	29.9	28.0	27.0	25.9	24.4	22.3
48.2	46.0	31.1	30.1	28.0	27.0	25.9	24.4	22.3
53.6	51.1	31.6	30.1	28.0	27.0	25.9	24.4	22.3
59.0	56.3	31.6	30.1	28.0	27.0	25.9	24.4	22.3

■ Model: AUUB30TLAV2

Outdoor temperature		Indoor temperature						
		61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
°FDB	°FWB	TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	17.7	17.7	17.7	17.6	17.6	17.6	17.5
5.0	3.2	20.5	20.4	20.4	20.3	20.3	20.3	20.2
10.4	8.6	22.8	22.7	22.6	22.6	22.5	22.5	22.4
15.8	14.0	25.0	24.9	24.8	24.8	24.7	24.6	24.5
17.0	15.0	25.4	25.3	25.2	25.1	25.1	25.0	24.9
23.0	21.2	28.2	28.1	28.0	27.9	27.8	27.7	27.6
26.6	24.8	29.7	29.6	29.4	29.4	29.3	29.2	27.8
30.2	28.4	31.2	31.1	30.9	30.8	30.8	30.4	27.8
32.0	30.2	32.1	31.9	31.6	31.5	31.4	30.4	27.8
35.6	33.8	33.6	33.4	33.1	33.0	32.3	30.4	27.8
41.0	39.2	36.1	36.0	35.3	34.0	32.6	30.7	28.1
47.0	43.0	37.9	37.6	35.3	34.0	32.6	30.7	28.1
48.2	46.0	39.1	37.9	35.3	34.0	32.6	30.7	28.1
53.6	51.1	39.8	37.9	35.3	34.0	32.6	30.7	28.1
59.0	56.3	39.8	37.9	35.3	34.0	32.6	30.7	28.1

■ Model: AUUB36TLAV2

Outdoor temperature		Indoor temperature						
		61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
°FDB	°FWB	TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	20.8	20.8	20.8	20.7	20.7	20.7	20.6
5.0	3.2	24.1	24.0	24.0	23.8	23.8	23.8	23.7
10.4	8.6	26.9	26.8	26.6	26.6	26.5	26.5	26.4
15.8	14.0	29.4	29.3	29.1	29.1	29.0	28.9	28.8
17.0	15.0	29.9	29.8	29.7	29.5	29.5	29.4	29.3
23.0	21.2	33.2	33.1	32.9	32.8	32.7	32.6	32.4
26.6	24.8	35.0	34.8	34.6	34.6	34.4	34.3	32.7
30.2	28.4	36.7	36.6	36.3	36.2	36.2	35.7	32.7
32.0	30.2	37.7	37.5	37.2	37.1	37.0	35.7	32.7
35.6	33.8	39.5	39.2	39.0	38.9	38.0	35.7	32.7
41.0	39.2	42.5	42.4	41.5	40.0	38.4	36.1	33.1
47.0	43.0	44.5	44.3	41.5	40.0	38.4	36.1	33.1
48.2	46.0	46.1	44.5	41.5	40.0	38.4	36.1	33.1
53.6	51.1	46.8	44.5	41.5	40.0	38.4	36.1	33.1
59.0	56.3	46.8	44.5	41.5	40.0	38.4	36.1	33.1

■ Model: AUUB48TLAV2

Outdoor temperature		Indoor temperature						
		61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
°FDB	°FWB	TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	28.1	28.1	28.1	27.9	27.9	27.9	27.8
5.0	3.2	32.5	32.4	32.4	32.2	32.2	32.2	32.0
10.4	8.6	36.3	36.1	35.9	35.9	35.8	35.8	35.6
15.8	14.0	39.7	39.5	39.4	39.4	39.2	39.0	38.8
17.0	15.0	40.4	40.2	40.0	39.9	39.9	39.7	39.5
23.0	21.2	44.8	44.6	44.5	44.3	44.1	43.9	43.8
26.6	24.8	47.2	47.0	46.7	46.7	46.5	46.3	44.1
30.2	28.4	49.6	49.4	49.1	48.9	48.9	48.2	44.1
32.0	30.2	50.9	50.6	50.3	50.1	49.9	48.2	44.1
35.6	33.8	53.3	53.0	52.6	52.5	51.3	48.2	44.1
41.0	39.2	57.4	57.2	56.0	54.0	51.8	48.7	44.6
47.0	43.0	60.1	59.8	56.0	54.0	51.8	48.7	44.6
48.2	46.0	62.2	60.1	56.0	54.0	51.8	48.7	44.6
53.6	51.1	63.2	60.1	56.0	54.0	51.8	48.7	44.6
59.0	56.3	63.2	60.1	56.0	54.0	51.8	48.7	44.6

3-4. Mini duct type

■ Model: ARUL4TLAV2

Outdoor temperature		Indoor temperature						
		61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
°FDB	°FWB	TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	2.3	2.3	2.3	2.3	2.3	2.3	2.3
5.0	3.2	2.7	2.6	2.6	2.6	2.6	2.6	2.6
10.4	8.6	3.0	2.9	2.9	2.9	2.9	2.9	2.9
15.8	14.0	3.2	3.2	3.2	3.2	3.2	3.2	3.2
17.0	15.0	3.3	3.3	3.3	3.2	3.2	3.2	3.2
23.0	21.2	3.7	3.6	3.6	3.6	3.6	3.6	3.6
26.6	24.8	3.8	3.8	3.8	3.8	3.8	3.8	3.6
30.2	28.4	4.0	4.0	4.0	4.0	4.0	3.9	3.6
32.0	30.2	4.2	4.1	4.1	4.1	4.1	3.9	3.6
35.6	33.8	4.3	4.3	4.3	4.3	4.2	3.9	3.6
41.0	39.2	4.7	4.7	4.6	4.4	4.2	4.0	3.6
47.0	43.0	4.9	4.9	4.6	4.4	4.2	4.0	3.6
48.2	46.0	5.1	4.9	4.6	4.4	4.2	4.0	3.6
53.6	51.1	5.1	4.9	4.6	4.4	4.2	4.0	3.6
59.0	56.3	5.1	4.9	4.6	4.4	4.2	4.0	3.6

3-5. Slim duct/Slim concealed floor type

■ Model: ARUL7TLAV2

Outdoor temperature		Indoor temperature						
		61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
°FDB	°FWB	TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	4.9	4.9	4.9	4.9	4.9	4.9	4.9
5.0	3.2	5.7	5.7	5.7	5.7	5.7	5.7	5.6
10.4	8.6	6.4	6.4	6.3	6.3	6.3	6.3	6.3
15.8	14.0	7.0	7.0	6.9	6.9	6.9	6.9	6.8
17.0	15.0	7.1	7.1	7.0	7.0	7.0	7.0	7.0
23.0	21.2	7.9	7.9	7.8	7.8	7.8	7.7	7.7
26.6	24.8	8.3	8.3	8.2	8.2	8.2	8.2	7.8
30.2	28.4	8.7	8.7	8.6	8.6	8.6	8.5	7.8
32.0	30.2	9.0	8.9	8.8	8.8	8.8	8.5	7.8
35.6	33.8	9.4	9.3	9.3	9.2	9.0	8.5	7.8
41.0	39.2	10.1	10.1	9.9	9.5	9.1	8.6	7.9
47.0	43.0	10.6	10.5	9.9	9.5	9.1	8.6	7.9
48.2	46.0	10.9	10.6	9.9	9.5	9.1	8.6	7.9
53.6	51.1	11.1	10.6	9.9	9.5	9.1	8.6	7.9
59.0	56.3	11.1	10.6	9.9	9.5	9.1	8.6	7.9

■ Model: ARUL9TLAV2

Outdoor temperature		Indoor temperature						
		61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
°FDB	°FWB	TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	5.7	5.7	5.7	5.6	5.6	5.6	5.6
5.0	3.2	6.6	6.5	6.5	6.5	6.5	6.5	6.5
10.4	8.6	7.3	7.3	7.3	7.3	7.2	7.2	7.2
15.8	14.0	8.0	8.0	7.9	7.9	7.9	7.9	7.8
17.0	15.0	8.1	8.1	8.1	8.0	8.0	8.0	8.0
23.0	21.2	9.0	9.0	9.0	8.9	8.9	8.9	8.8
26.6	24.8	9.5	9.5	9.4	9.4	9.4	9.4	8.9
30.2	28.4	10.0	10.0	9.9	9.9	9.9	9.7	8.9
32.0	30.2	10.3	10.2	10.1	10.1	10.1	9.7	8.9
35.6	33.8	10.8	10.7	10.6	10.6	10.3	9.7	8.9
41.0	39.2	11.6	11.6	11.3	10.9	10.5	9.8	9.0
47.0	43.0	12.1	12.1	11.3	10.9	10.5	9.8	9.0
48.2	46.0	12.6	12.1	11.3	10.9	10.5	9.8	9.0
53.6	51.1	12.8	12.1	11.3	10.9	10.5	9.8	9.0
59.0	56.3	12.8	12.1	11.3	10.9	10.5	9.8	9.0

■ Model: ARUL12TLAV2

Outdoor temperature		Indoor temperature						
		61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
°FDB	°FWB	TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	7.0	7.0	7.0	7.0	7.0	7.0	6.9
5.0	3.2	8.1	8.1	8.1	8.0	8.0	8.0	8.0
10.4	8.6	9.1	9.0	9.0	9.0	8.9	8.9	8.9
15.8	14.0	9.9	9.9	9.8	9.8	9.8	9.8	9.7
17.0	15.0	10.1	10.1	10.0	10.0	10.0	9.9	9.9
23.0	21.2	11.2	11.2	11.1	11.1	11.0	11.0	10.9
26.6	24.8	11.8	11.8	11.7	11.7	11.6	11.6	11.0
30.2	28.4	12.4	12.4	12.3	12.2	12.2	12.1	11.0
32.0	30.2	12.7	12.6	12.6	12.5	12.5	12.1	11.0
35.6	33.8	13.3	13.2	13.2	13.1	12.8	12.1	11.0
41.0	39.2	14.4	14.3	14.0	13.5	12.9	12.2	11.2
47.0	43.0	15.0	14.9	14.0	13.5	12.9	12.2	11.2
48.2	46.0	15.5	15.0	14.0	13.5	12.9	12.2	11.2
53.6	51.1	15.8	15.0	14.0	13.5	12.9	12.2	11.2
59.0	56.3	15.8	15.0	14.0	13.5	12.9	12.2	11.2

■ Model: ARUL14TLAV2

Outdoor temperature		Indoor temperature						
		61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
°FDB	°FWB	TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	8.1	8.1	8.1	8.1	8.1	8.1	8.0
5.0	3.2	9.4	9.4	9.4	9.3	9.3	9.3	9.3
10.4	8.6	10.5	10.4	10.4	10.4	10.3	10.3	10.3
15.8	14.0	11.5	11.4	11.4	11.4	11.3	11.3	11.2
17.0	15.0	11.7	11.6	11.6	11.5	11.5	11.5	11.4
23.0	21.2	12.9	12.9	12.8	12.8	12.7	12.7	12.6
26.6	24.8	13.6	13.6	13.5	13.5	13.4	13.4	12.7
30.2	28.4	14.3	14.3	14.2	14.1	14.1	13.9	12.7
32.0	30.2	14.7	14.6	14.5	14.5	14.4	13.9	12.7
35.6	33.8	15.4	15.3	15.2	15.2	14.8	13.9	12.7
41.0	39.2	16.6	16.5	16.2	15.6	15.0	14.1	12.9
47.0	43.0	17.4	17.3	16.2	15.6	15.0	14.1	12.9
48.2	46.0	18.0	17.4	16.2	15.6	15.0	14.1	12.9
53.6	51.1	18.3	17.4	16.2	15.6	15.0	14.1	12.9
59.0	56.3	18.3	17.4	16.2	15.6	15.0	14.1	12.9

■ Model: ARUL18TLAV2

Outdoor temperature		Indoor temperature						
		61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
°FDB	°FWB	TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	10.4	10.4	10.4	10.3	10.3	10.3	10.3
5.0	3.2	12.1	12.0	12.0	11.9	11.9	11.9	11.9
10.4	8.6	13.4	13.4	13.3	13.3	13.2	13.2	13.2
15.8	14.0	14.7	14.6	14.6	14.6	14.5	14.4	14.4
17.0	15.0	15.0	14.9	14.8	14.8	14.8	14.7	14.6
23.0	21.2	16.6	16.5	16.5	16.4	16.3	16.3	16.2
26.6	24.8	17.5	17.4	17.3	17.3	17.2	17.2	16.3
30.2	28.4	18.4	18.3	18.2	18.1	18.1	17.9	16.3
32.0	30.2	18.9	18.7	18.6	18.5	18.5	17.9	16.3
35.6	33.8	19.7	19.6	19.5	19.4	19.0	17.9	16.3
41.0	39.2	21.3	21.2	20.8	20.0	19.2	18.0	16.5
47.0	43.0	22.3	22.1	20.8	20.0	19.2	18.0	16.5
48.2	46.0	23.0	22.3	20.8	20.0	19.2	18.0	16.5
53.6	51.1	23.4	22.3	20.8	20.0	19.2	18.0	16.5
59.0	56.3	23.4	22.3	20.8	20.0	19.2	18.0	16.5

3-6. Medium static pressure duct type

■ Model: ARUM24TLAV2

Outdoor temperature		Indoor temperature						
		61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
°FDB	°FWB	TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	14.1	14.1	14.1	14.0	14.0	14.0	13.9
5.0	3.2	16.3	16.2	16.2	16.1	16.1	16.1	16.0
10.4	8.6	18.1	18.1	18.0	18.0	17.9	17.9	17.8
15.8	14.0	19.8	19.8	19.7	19.7	19.6	19.5	19.4
17.0	15.0	20.2	20.1	20.0	19.9	19.9	19.8	19.8
23.0	21.2	22.4	22.3	22.2	22.1	22.1	22.0	21.9
26.6	24.8	23.6	23.5	23.3	23.3	23.3	23.2	22.1
30.2	28.4	24.8	24.7	24.5	24.4	24.4	24.1	22.1
32.0	30.2	25.5	25.3	25.1	25.0	25.0	24.1	22.1
35.6	33.8	26.7	26.5	26.3	26.2	25.6	24.1	22.1
41.0	39.2	28.7	28.6	28.0	27.0	25.9	24.4	22.3
47.0	43.0	30.1	29.9	28.0	27.0	25.9	24.4	22.3
48.2	46.0	31.1	30.1	28.0	27.0	25.9	24.4	22.3
53.6	51.1	31.6	30.1	28.0	27.0	25.9	24.4	22.3
59.0	56.3	31.6	30.1	28.0	27.0	25.9	24.4	22.3

■ Model: ARUM30TLAV2

Outdoor temperature		Indoor temperature						
		61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
°FDB	°FWB	TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	17.7	17.7	17.7	17.6	17.6	17.6	17.5
5.0	3.2	20.5	20.4	20.4	20.3	20.3	20.3	20.2
10.4	8.6	22.8	22.7	22.6	22.6	22.5	22.5	22.4
15.8	14.0	25.0	24.9	24.8	24.8	24.7	24.6	24.5
17.0	15.0	25.4	25.3	25.2	25.1	25.1	25.0	24.9
23.0	21.2	28.2	28.1	28.0	27.9	27.8	27.7	27.6
26.6	24.8	29.7	29.6	29.4	29.4	29.3	29.2	27.8
30.2	28.4	31.2	31.1	30.9	30.8	30.8	30.4	27.8
32.0	30.2	32.1	31.9	31.6	31.5	31.4	30.4	27.8
35.6	33.8	33.6	33.4	33.1	33.0	32.3	30.4	27.8
41.0	39.2	36.1	36.0	35.3	34.0	32.6	30.7	28.1
47.0	43.0	37.9	37.6	35.3	34.0	32.6	30.7	28.1
48.2	46.0	39.1	37.9	35.3	34.0	32.6	30.7	28.1
53.6	51.1	39.8	37.9	35.3	34.0	32.6	30.7	28.1
59.0	56.3	39.8	37.9	35.3	34.0	32.6	30.7	28.1

■ Model: ARUM36TLAV2

Outdoor temperature		Indoor temperature						
		61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
°FDB	°FWB	TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	20.8	20.8	20.8	20.7	20.7	20.7	20.6
5.0	3.2	24.1	24.0	24.0	23.8	23.8	23.8	23.7
10.4	8.6	26.9	26.8	26.6	26.6	26.5	26.5	26.4
15.8	14.0	29.4	29.3	29.1	29.1	29.0	28.9	28.8
17.0	15.0	29.9	29.8	29.7	29.5	29.5	29.4	29.3
23.0	21.2	33.2	33.1	32.9	32.8	32.7	32.6	32.4
26.6	24.8	35.0	34.8	34.6	34.6	34.4	34.3	32.7
30.2	28.4	36.7	36.6	36.3	36.2	36.2	35.7	32.7
32.0	30.2	37.7	37.5	37.2	37.1	37.0	35.7	32.7
35.6	33.8	39.5	39.2	39.0	38.9	38.0	35.7	32.7
41.0	39.2	42.5	42.4	41.5	40.0	38.4	36.1	33.1
47.0	43.0	44.5	44.3	41.5	40.0	38.4	36.1	33.1
48.2	46.0	46.1	44.5	41.5	40.0	38.4	36.1	33.1
53.6	51.1	46.8	44.5	41.5	40.0	38.4	36.1	33.1
59.0	56.3	46.8	44.5	41.5	40.0	38.4	36.1	33.1

3-7. High static pressure duct type

■ Model: ARUH36TLAV

Outdoor temperature		Indoor temperature						
		61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
°FDB	°FWB	TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	20.8	20.8	20.8	20.7	20.7	20.7	20.6
5.0	3.2	24.1	24.0	24.0	23.8	23.8	23.8	23.7
10.4	8.6	26.9	26.8	26.6	26.6	26.5	26.5	26.4
15.8	14.0	29.4	29.3	29.1	29.1	29.0	28.9	28.8
17.0	15.0	29.9	29.8	29.7	29.5	29.5	29.4	29.3
23.0	21.2	33.2	33.1	32.9	32.8	32.7	32.6	32.4
26.6	24.8	35.0	34.8	34.6	34.6	34.4	34.3	32.7
30.2	28.4	36.7	36.6	36.3	36.2	36.2	35.7	32.7
32.0	30.2	37.7	37.5	37.2	37.1	37.0	35.7	32.7
35.6	33.8	39.5	39.2	39.0	38.9	38.0	35.7	32.7
41.0	39.2	42.5	42.4	41.5	40.0	38.4	36.1	33.1
47.0	43.0	44.5	44.3	41.5	40.0	38.4	36.1	33.1
48.2	46.0	46.1	44.5	41.5	40.0	38.4	36.1	33.1
53.6	51.1	46.8	44.5	41.5	40.0	38.4	36.1	33.1
59.0	56.3	46.8	44.5	41.5	40.0	38.4	36.1	33.1

■ Model: ARUH48TLAV

Outdoor temperature		Indoor temperature						
		61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
°FDB	°FWB	TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	28.1	28.1	28.1	27.9	27.9	27.9	27.8
5.0	3.2	32.5	32.4	32.4	32.2	32.2	32.2	32.0
10.4	8.6	36.3	36.1	35.9	35.9	35.8	35.8	35.6
15.8	14.0	39.7	39.5	39.4	39.4	39.2	39.0	38.8
17.0	15.0	40.4	40.2	40.0	39.9	39.9	39.7	39.5
23.0	21.2	44.8	44.6	44.5	44.3	44.1	43.9	43.8
26.6	24.8	47.2	47.0	46.7	46.7	46.5	46.3	44.1
30.2	28.4	49.6	49.4	49.1	48.9	48.9	48.2	44.1
32.0	30.2	50.9	50.6	50.3	50.1	49.9	48.2	44.1
35.6	33.8	53.3	53.0	52.6	52.5	51.3	48.2	44.1
41.0	39.2	57.4	57.2	56.0	54.0	51.8	48.7	44.6
47.0	43.0	60.1	59.8	56.0	54.0	51.8	48.7	44.6
48.2	46.0	62.2	60.1	56.0	54.0	51.8	48.7	44.6
53.6	51.1	63.2	60.1	56.0	54.0	51.8	48.7	44.6
59.0	56.3	63.2	60.1	56.0	54.0	51.8	48.7	44.6

■ Model: ARUH60TLAV

Outdoor temperature		Indoor temperature						
		61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
°FDB	°FWB	TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	34.9	34.9	34.9	34.7	34.7	34.7	34.5
5.0	3.2	40.4	40.2	40.2	39.9	39.9	39.9	39.7
10.4	8.6	45.0	44.8	44.6	44.6	44.4	44.4	44.2
15.8	14.0	49.2	49.0	48.8	48.8	48.6	48.4	48.2
17.0	15.0	50.1	49.9	49.7	49.5	49.5	49.2	49.0
23.0	21.2	55.6	55.4	55.2	55.0	54.7	54.5	54.3
26.6	24.8	58.5	58.3	57.9	57.9	57.7	57.5	54.7
30.2	28.4	61.5	61.3	60.9	60.7	60.7	59.8	54.7
32.0	30.2	63.2	62.8	62.4	62.1	61.9	59.8	54.7
35.6	33.8	66.2	65.7	65.3	65.1	63.6	59.8	54.7
41.0	39.2	71.2	71.0	69.5	67.0	64.3	60.4	55.4
47.0	43.0	74.6	74.2	69.5	67.0	64.3	60.4	55.4
48.2	46.0	77.1	74.6	69.5	67.0	64.3	60.4	55.4
53.6	51.1	78.4	74.6	69.5	67.0	64.3	60.4	55.4
59.0	56.3	78.4	74.6	69.5	67.0	64.3	60.4	55.4

■ Model: ARUH72TLAV2

Outdoor temperature		Indoor temperature						
		61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
°FDB	°FWB	TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	42.2	42.2	42.2	41.9	41.9	41.9	41.6
5.0	3.2	48.8	48.5	48.5	48.3	48.3	48.3	48.0
10.4	8.6	54.4	54.2	53.9	53.9	53.7	53.7	53.4
15.8	14.0	59.5	59.3	59.0	59.0	58.8	58.5	58.3
17.0	15.0	60.6	60.3	60.0	59.8	59.8	59.5	59.3
23.0	21.2	67.2	66.9	66.7	66.4	66.2	65.9	65.7
26.6	24.8	70.8	70.5	70.0	70.0	69.8	69.5	66.2
30.2	28.4	74.4	74.1	73.6	73.3	73.3	72.3	66.2
32.0	30.2	76.4	75.9	75.4	75.1	74.9	72.3	66.2
35.6	33.8	80.0	79.5	79.0	78.7	76.9	72.3	66.2
41.0	39.2	86.1	85.9	84.1	81.0	77.7	73.1	66.9
47.0	43.0	90.2	89.7	84.1	81.0	77.7	73.1	66.9
48.2	46.0	93.3	90.2	84.1	81.0	77.7	73.1	66.9
53.6	51.1	94.8	90.2	84.1	81.0	77.7	73.1	66.9
59.0	56.3	94.8	90.2	84.1	81.0	77.7	73.1	66.9

■ Model: ARUH96TLAV2

Outdoor temperature		Indoor temperature						
		61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
°FDB	°FWB	TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	56.2	56.2	56.2	55.9	55.9	55.9	55.5
5.0	3.2	65.1	64.7	64.7	64.4	64.4	64.4	64.1
10.4	8.6	72.6	72.2	71.9	71.9	71.5	71.5	71.2
15.8	14.0	79.4	79.0	78.7	78.7	78.4	78.0	77.7
17.0	15.0	80.7	80.4	80.1	79.7	79.7	79.4	79.0
23.0	21.2	89.6	89.3	88.9	88.6	88.2	87.9	87.6
26.6	24.8	94.4	94.0	93.4	93.4	93.0	92.7	88.2
30.2	28.4	99.1	98.8	98.1	97.8	97.8	96.4	88.2
32.0	30.2	101.9	101.2	100.5	100.2	99.8	96.4	88.2
35.6	33.8	106.6	106.0	105.3	104.9	102.5	96.4	88.2
41.0	39.2	114.8	114.5	112.1	108.0	103.6	97.4	89.3
47.0	43.0	120.3	119.6	112.1	108.0	103.6	97.4	89.3
48.2	46.0	124.4	120.3	112.1	108.0	103.6	97.4	89.3
53.6	51.1	126.4	120.3	112.1	108.0	103.6	97.4	89.3
59.0	56.3	126.4	120.3	112.1	108.0	103.6	97.4	89.3

3-8. Compact floor type

■ Model: AGUA4TLAV2

Outdoor temperature		Indoor temperature						
		61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
°FDB	°FWB	TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	2.3	2.3	2.3	2.3	2.3	2.3	2.3
5.0	3.2	2.7	2.6	2.6	2.6	2.6	2.6	2.6
10.4	8.6	3.0	2.9	2.9	2.9	2.9	2.9	2.9
15.8	14.0	3.2	3.2	3.2	3.2	3.2	3.2	3.2
17.0	15.0	3.3	3.3	3.3	3.2	3.2	3.2	3.2
23.0	21.2	3.7	3.6	3.6	3.6	3.6	3.6	3.6
26.6	24.8	3.8	3.8	3.8	3.8	3.8	3.8	3.6
30.2	28.4	4.0	4.0	4.0	4.0	4.0	3.9	3.6
32.0	30.2	4.2	4.1	4.1	4.1	4.1	3.9	3.6
35.6	33.8	4.3	4.3	4.3	4.3	4.2	3.9	3.6
41.0	39.2	4.7	4.7	4.6	4.4	4.2	4.0	3.6
47.0	43.0	4.9	4.9	4.6	4.4	4.2	4.0	3.6
48.2	46.0	5.1	4.9	4.6	4.4	4.2	4.0	3.6
53.6	51.1	5.1	4.9	4.6	4.4	4.2	4.0	3.6
59.0	56.3	5.1	4.9	4.6	4.4	4.2	4.0	3.6

■ Model: AGUA7TLAV2

Outdoor temperature		Indoor temperature						
		61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
°FDB	°FWB	TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	4.9	4.9	4.9	4.9	4.9	4.9	4.9
5.0	3.2	5.7	5.7	5.7	5.7	5.7	5.7	5.6
10.4	8.6	6.4	6.4	6.3	6.3	6.3	6.3	6.3
15.8	14.0	7.0	7.0	6.9	6.9	6.9	6.9	6.8
17.0	15.0	7.1	7.1	7.0	7.0	7.0	7.0	7.0
23.0	21.2	7.9	7.9	7.8	7.8	7.8	7.7	7.7
26.6	24.8	8.3	8.3	8.2	8.2	8.2	8.2	7.8
30.2	28.4	8.7	8.7	8.6	8.6	8.6	8.5	7.8
32.0	30.2	9.0	8.9	8.8	8.8	8.8	8.5	7.8
35.6	33.8	9.4	9.3	9.3	9.2	9.0	8.5	7.8
41.0	39.2	10.1	10.1	9.9	9.5	9.1	8.6	7.9
47.0	43.0	10.6	10.5	9.9	9.5	9.1	8.6	7.9
48.2	46.0	10.9	10.6	9.9	9.5	9.1	8.6	7.9
53.6	51.1	11.1	10.6	9.9	9.5	9.1	8.6	7.9
59.0	56.3	11.1	10.6	9.9	9.5	9.1	8.6	7.9

■ Model: AGUA9TLAV2

Outdoor temperature		Indoor temperature						
		61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
°FDB	°FWB	TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	5.7	5.7	5.7	5.6	5.6	5.6	5.6
5.0	3.2	6.6	6.5	6.5	6.5	6.5	6.5	6.5
10.4	8.6	7.3	7.3	7.3	7.3	7.2	7.2	7.2
15.8	14.0	8.0	8.0	7.9	7.9	7.9	7.9	7.8
17.0	15.0	8.1	8.1	8.1	8.0	8.0	8.0	8.0
23.0	21.2	9.0	9.0	9.0	8.9	8.9	8.9	8.8
26.6	24.8	9.5	9.5	9.4	9.4	9.4	9.4	8.9
30.2	28.4	10.0	10.0	9.9	9.9	9.9	9.7	8.9
32.0	30.2	10.3	10.2	10.1	10.1	10.1	9.7	8.9
35.6	33.8	10.8	10.7	10.6	10.6	10.3	9.7	8.9
41.0	39.2	11.6	11.6	11.3	10.9	10.5	9.8	9.0
47.0	43.0	12.1	12.1	11.3	10.9	10.5	9.8	9.0
48.2	46.0	12.6	12.1	11.3	10.9	10.5	9.8	9.0
53.6	51.1	12.8	12.1	11.3	10.9	10.5	9.8	9.0
59.0	56.3	12.8	12.1	11.3	10.9	10.5	9.8	9.0

■ Model: AGUA12TLAV2

Outdoor temperature		Indoor temperature						
		61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
°FDB	°FWB	TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	7.0	7.0	7.0	7.0	7.0	7.0	6.9
5.0	3.2	8.1	8.1	8.1	8.0	8.0	8.0	8.0
10.4	8.6	9.1	9.0	9.0	9.0	8.9	8.9	8.9
15.8	14.0	9.9	9.9	9.8	9.8	9.8	9.8	9.7
17.0	15.0	10.1	10.1	10.0	10.0	10.0	9.9	9.9
23.0	21.2	11.2	11.2	11.1	11.1	11.0	11.0	10.9
26.6	24.8	11.8	11.8	11.7	11.7	11.6	11.6	11.0
30.2	28.4	12.4	12.4	12.3	12.2	12.2	12.1	11.0
32.0	30.2	12.7	12.6	12.6	12.5	12.5	12.1	11.0
35.6	33.8	13.3	13.2	13.2	13.1	12.8	12.1	11.0
41.0	39.2	14.4	14.3	14.0	13.5	12.9	12.2	11.2
47.0	43.0	15.0	14.9	14.0	13.5	12.9	12.2	11.2
48.2	46.0	15.5	15.0	14.0	13.5	12.9	12.2	11.2
53.6	51.1	15.8	15.0	14.0	13.5	12.9	12.2	11.2
59.0	56.3	15.8	15.0	14.0	13.5	12.9	12.2	11.2

■ Model: AGUA14TLAV2

Outdoor temperature		Indoor temperature						
		61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
°FDB	°FWB	TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	8.1	8.1	8.1	8.1	8.1	8.1	8.0
5.0	3.2	9.4	9.4	9.4	9.3	9.3	9.3	9.3
10.4	8.6	10.5	10.4	10.4	10.4	10.3	10.3	10.3
15.8	14.0	11.5	11.4	11.4	11.4	11.3	11.3	11.2
17.0	15.0	11.7	11.6	11.6	11.5	11.5	11.5	11.4
23.0	21.2	12.9	12.9	12.8	12.8	12.7	12.7	12.6
26.6	24.8	13.6	13.6	13.5	13.5	13.4	13.4	12.7
30.2	28.4	14.3	14.3	14.2	14.1	14.1	13.9	12.7
32.0	30.2	14.7	14.6	14.5	14.5	14.4	13.9	12.7
35.6	33.8	15.4	15.3	15.2	15.2	14.8	13.9	12.7
41.0	39.2	16.6	16.5	16.2	15.6	15.0	14.1	12.9
47.0	43.0	17.4	17.3	16.2	15.6	15.0	14.1	12.9
48.2	46.0	18.0	17.4	16.2	15.6	15.0	14.1	12.9
53.6	51.1	18.3	17.4	16.2	15.6	15.0	14.1	12.9
59.0	56.3	18.3	17.4	16.2	15.6	15.0	14.1	12.9

3-9. Floor/Ceiling type

■ Model: ABUA12TLAV2

Outdoor temperature		Indoor temperature						
		61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
°FDB	°FWB	TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	7.0	7.0	7.0	7.0	7.0	7.0	6.9
5.0	3.2	8.1	8.1	8.1	8.0	8.0	8.0	8.0
10.4	8.6	9.1	9.0	9.0	9.0	8.9	8.9	8.9
15.8	14.0	9.9	9.9	9.8	9.8	9.8	9.8	9.7
17.0	15.0	10.1	10.1	10.0	10.0	10.0	9.9	9.9
23.0	21.2	11.2	11.2	11.1	11.1	11.0	11.0	10.9
26.6	24.8	11.8	11.8	11.7	11.7	11.6	11.6	11.0
30.2	28.4	12.4	12.4	12.3	12.2	12.2	12.1	11.0
32.0	30.2	12.7	12.6	12.6	12.5	12.5	12.1	11.0
35.6	33.8	13.3	13.2	13.2	13.1	12.8	12.1	11.0
41.0	39.2	14.4	14.3	14.0	13.5	12.9	12.2	11.2
47.0	43.0	15.0	14.9	14.0	13.5	12.9	12.2	11.2
48.2	46.0	15.5	15.0	14.0	13.5	12.9	12.2	11.2
53.6	51.1	15.8	15.0	14.0	13.5	12.9	12.2	11.2
59.0	56.3	15.8	15.0	14.0	13.5	12.9	12.2	11.2

■ Model: ABUA14TLAV2

Outdoor temperature		Indoor temperature						
		61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
°FDB	°FWB	TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	8.1	8.1	8.1	8.1	8.1	8.1	8.0
5.0	3.2	9.4	9.4	9.4	9.3	9.3	9.3	9.3
10.4	8.6	10.5	10.4	10.4	10.4	10.3	10.3	10.3
15.8	14.0	11.5	11.4	11.4	11.4	11.3	11.3	11.2
17.0	15.0	11.7	11.6	11.6	11.5	11.5	11.5	11.4
23.0	21.2	12.9	12.9	12.8	12.8	12.7	12.7	12.6
26.6	24.8	13.6	13.6	13.5	13.5	13.4	13.4	12.7
30.2	28.4	14.3	14.3	14.2	14.1	14.1	13.9	12.7
32.0	30.2	14.7	14.6	14.5	14.5	14.4	13.9	12.7
35.6	33.8	15.4	15.3	15.2	15.2	14.8	13.9	12.7
41.0	39.2	16.6	16.5	16.2	15.6	15.0	14.1	12.9
47.0	43.0	17.4	17.3	16.2	15.6	15.0	14.1	12.9
48.2	46.0	18.0	17.4	16.2	15.6	15.0	14.1	12.9
53.6	51.1	18.3	17.4	16.2	15.6	15.0	14.1	12.9
59.0	56.3	18.3	17.4	16.2	15.6	15.0	14.1	12.9

■ Model: ABUA18TLAV2

Outdoor temperature		Indoor temperature						
		61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
°FDB	°FWB	TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	10.4	10.4	10.4	10.3	10.3	10.3	10.3
5.0	3.2	12.1	12.0	12.0	11.9	11.9	11.9	11.9
10.4	8.6	13.4	13.4	13.3	13.3	13.2	13.2	13.2
15.8	14.0	14.7	14.6	14.6	14.6	14.5	14.4	14.4
17.0	15.0	15.0	14.9	14.8	14.8	14.8	14.7	14.6
23.0	21.2	16.6	16.5	16.5	16.4	16.3	16.3	16.2
26.6	24.8	17.5	17.4	17.3	17.3	17.2	17.2	16.3
30.2	28.4	18.4	18.3	18.2	18.1	18.1	17.9	16.3
32.0	30.2	18.9	18.7	18.6	18.5	18.5	17.9	16.3
35.6	33.8	19.7	19.6	19.5	19.4	19.0	17.9	16.3
41.0	39.2	21.3	21.2	20.8	20.0	19.2	18.0	16.5
47.0	43.0	22.3	22.1	20.8	20.0	19.2	18.0	16.5
48.2	46.0	23.0	22.3	20.8	20.0	19.2	18.0	16.5
53.6	51.1	23.4	22.3	20.8	20.0	19.2	18.0	16.5
59.0	56.3	23.4	22.3	20.8	20.0	19.2	18.0	16.5

■ Model: ABUA24TLAV2

Outdoor temperature		Indoor temperature						
		61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
°FDB	°FWB	TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	14.1	14.1	14.1	14.0	14.0	14.0	13.9
5.0	3.2	16.3	16.2	16.2	16.1	16.1	16.1	16.0
10.4	8.6	18.1	18.1	18.0	18.0	17.9	17.9	17.8
15.8	14.0	19.8	19.8	19.7	19.7	19.6	19.5	19.4
17.0	15.0	20.2	20.1	20.0	19.9	19.9	19.8	19.8
23.0	21.2	22.4	22.3	22.2	22.1	22.1	22.0	21.9
26.6	24.8	23.6	23.5	23.3	23.3	23.3	23.2	22.1
30.2	28.4	24.8	24.7	24.5	24.4	24.4	24.1	22.1
32.0	30.2	25.5	25.3	25.1	25.0	25.0	24.1	22.1
35.6	33.8	26.7	26.5	26.3	26.2	25.6	24.1	22.1
41.0	39.2	28.7	28.6	28.0	27.0	25.9	24.4	22.3
47.0	43.0	30.1	29.9	28.0	27.0	25.9	24.4	22.3
48.2	46.0	31.1	30.1	28.0	27.0	25.9	24.4	22.3
53.6	51.1	31.6	30.1	28.0	27.0	25.9	24.4	22.3
59.0	56.3	31.6	30.1	28.0	27.0	25.9	24.4	22.3

3-10. Ceiling type

■ Model: ABUA30TLAV2

Outdoor temperature		Indoor temperature						
		61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
°FDB	°FWB	TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	17.7	17.7	17.7	17.6	17.6	17.6	17.5
5.0	3.2	20.5	20.4	20.4	20.3	20.3	20.3	20.2
10.4	8.6	22.8	22.7	22.6	22.6	22.5	22.5	22.4
15.8	14.0	25.0	24.9	24.8	24.8	24.7	24.6	24.5
17.0	15.0	25.4	25.3	25.2	25.1	25.1	25.0	24.9
23.0	21.2	28.2	28.1	28.0	27.9	27.8	27.7	27.6
26.6	24.8	29.7	29.6	29.4	29.4	29.3	29.2	27.8
30.2	28.4	31.2	31.1	30.9	30.8	30.8	30.4	27.8
32.0	30.2	32.1	31.9	31.6	31.5	31.4	30.4	27.8
35.6	33.8	33.6	33.4	33.1	33.0	32.3	30.4	27.8
41.0	39.2	36.1	36.0	35.3	34.0	32.6	30.7	28.1
47.0	43.0	37.9	37.6	35.3	34.0	32.6	30.7	28.1
48.2	46.0	39.1	37.9	35.3	34.0	32.6	30.7	28.1
53.6	51.1	39.8	37.9	35.3	34.0	32.6	30.7	28.1
59.0	56.3	39.8	37.9	35.3	34.0	32.6	30.7	28.1

■ Model: ABUA36TLAV2

Outdoor temperature		Indoor temperature						
		61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
°FDB	°FWB	TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	20.8	20.8	20.8	20.7	20.7	20.7	20.6
5.0	3.2	24.1	24.0	24.0	23.8	23.8	23.8	23.7
10.4	8.6	26.9	26.8	26.6	26.6	26.5	26.5	26.4
15.8	14.0	29.4	29.3	29.1	29.1	29.0	28.9	28.8
17.0	15.0	29.9	29.8	29.7	29.5	29.5	29.4	29.3
23.0	21.2	33.2	33.1	32.9	32.8	32.7	32.6	32.4
26.6	24.8	35.0	34.8	34.6	34.6	34.4	34.3	32.7
30.2	28.4	36.7	36.6	36.3	36.2	36.2	35.7	32.7
32.0	30.2	37.7	37.5	37.2	37.1	37.0	35.7	32.7
35.6	33.8	39.5	39.2	39.0	38.9	38.0	35.7	32.7
41.0	39.2	42.5	42.4	41.5	40.0	38.4	36.1	33.1
47.0	43.0	44.5	44.3	41.5	40.0	38.4	36.1	33.1
48.2	46.0	46.1	44.5	41.5	40.0	38.4	36.1	33.1
53.6	51.1	46.8	44.5	41.5	40.0	38.4	36.1	33.1
59.0	56.3	46.8	44.5	41.5	40.0	38.4	36.1	33.1

3-11. Wall mounted type

■ Model: ASUA4TLAV2

Outdoor temperature		Indoor temperature						
		61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
°FDB	°FWB	TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	2.3	2.3	2.3	2.3	2.3	2.3	2.3
5.0	3.2	2.7	2.6	2.6	2.6	2.6	2.6	2.6
10.4	8.6	3.0	2.9	2.9	2.9	2.9	2.9	2.9
15.8	14.0	3.2	3.2	3.2	3.2	3.2	3.2	3.2
17.0	15.0	3.3	3.3	3.3	3.2	3.2	3.2	3.2
23.0	21.2	3.7	3.6	3.6	3.6	3.6	3.6	3.6
26.6	24.8	3.8	3.8	3.8	3.8	3.8	3.8	3.6
30.2	28.4	4.0	4.0	4.0	4.0	4.0	3.9	3.6
32.0	30.2	4.2	4.1	4.1	4.1	4.1	3.9	3.6
35.6	33.8	4.3	4.3	4.3	4.3	4.2	3.9	3.6
41.0	39.2	4.7	4.7	4.6	4.4	4.2	4.0	3.6
47.0	43.0	4.9	4.9	4.6	4.4	4.2	4.0	3.6
48.2	46.0	5.1	4.9	4.6	4.4	4.2	4.0	3.6
53.6	51.1	5.1	4.9	4.6	4.4	4.2	4.0	3.6
59.0	56.3	5.1	4.9	4.6	4.4	4.2	4.0	3.6

■ Model: ASUA7TLAV2

Outdoor temperature		Indoor temperature						
		61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
°FDB	°FWB	TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	4.9	4.9	4.9	4.9	4.9	4.9	4.9
5.0	3.2	5.7	5.7	5.7	5.7	5.7	5.7	5.6
10.4	8.6	6.4	6.4	6.3	6.3	6.3	6.3	6.3
15.8	14.0	7.0	7.0	6.9	6.9	6.9	6.9	6.8
17.0	15.0	7.1	7.1	7.0	7.0	7.0	7.0	7.0
23.0	21.2	7.9	7.9	7.8	7.8	7.8	7.7	7.7
26.6	24.8	8.3	8.3	8.2	8.2	8.2	8.2	7.8
30.2	28.4	8.7	8.7	8.6	8.6	8.6	8.5	7.8
32.0	30.2	9.0	8.9	8.8	8.8	8.8	8.5	7.8
35.6	33.8	9.4	9.3	9.3	9.2	9.0	8.5	7.8
41.0	39.2	10.1	10.1	9.9	9.5	9.1	8.6	7.9
47.0	43.0	10.6	10.5	9.9	9.5	9.1	8.6	7.9
48.2	46.0	10.9	10.6	9.9	9.5	9.1	8.6	7.9
53.6	51.1	11.1	10.6	9.9	9.5	9.1	8.6	7.9
59.0	56.3	11.1	10.6	9.9	9.5	9.1	8.6	7.9

■ Model: ASUA9TLAV2

Outdoor temperature		Indoor temperature						
		61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
°FDB	°FWB	TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	5.7	5.7	5.7	5.6	5.6	5.6	5.6
5.0	3.2	6.6	6.5	6.5	6.5	6.5	6.5	6.5
10.4	8.6	7.3	7.3	7.3	7.3	7.2	7.2	7.2
15.8	14.0	8.0	8.0	7.9	7.9	7.9	7.9	7.8
17.0	15.0	8.1	8.1	8.1	8.0	8.0	8.0	8.0
23.0	21.2	9.0	9.0	9.0	8.9	8.9	8.9	8.8
26.6	24.8	9.5	9.5	9.4	9.4	9.4	9.4	8.9
30.2	28.4	10.0	10.0	9.9	9.9	9.9	9.7	8.9
32.0	30.2	10.3	10.2	10.1	10.1	10.1	9.7	8.9
35.6	33.8	10.8	10.7	10.6	10.6	10.3	9.7	8.9
41.0	39.2	11.6	11.6	11.3	10.9	10.5	9.8	9.0
47.0	43.0	12.1	12.1	11.3	10.9	10.5	9.8	9.0
48.2	46.0	12.6	12.1	11.3	10.9	10.5	9.8	9.0
53.6	51.1	12.8	12.1	11.3	10.9	10.5	9.8	9.0
59.0	56.3	12.8	12.1	11.3	10.9	10.5	9.8	9.0

MODEL SELECTION

Model: ASUA12TLAV2

Outdoor temperature		Indoor temperature						
		61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
°FDB	°FWB	TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	7.0	7.0	7.0	7.0	7.0	7.0	6.9
5.0	3.2	8.1	8.1	8.1	8.0	8.0	8.0	8.0
10.4	8.6	9.1	9.0	9.0	9.0	8.9	8.9	8.9
15.8	14.0	9.9	9.9	9.8	9.8	9.8	9.8	9.7
17.0	15.0	10.1	10.1	10.0	10.0	10.0	9.9	9.9
23.0	21.2	11.2	11.2	11.1	11.1	11.0	11.0	10.9
26.6	24.8	11.8	11.8	11.7	11.7	11.6	11.6	11.0
30.2	28.4	12.4	12.4	12.3	12.2	12.2	12.1	11.0
32.0	30.2	12.7	12.6	12.6	12.5	12.5	12.1	11.0
35.6	33.8	13.3	13.2	13.2	13.1	12.8	12.1	11.0
41.0	39.2	14.4	14.3	14.0	13.5	12.9	12.2	11.2
47.0	43.0	15.0	14.9	14.0	13.5	12.9	12.2	11.2
48.2	46.0	15.5	15.0	14.0	13.5	12.9	12.2	11.2
53.6	51.1	15.8	15.0	14.0	13.5	12.9	12.2	11.2
59.0	56.3	15.8	15.0	14.0	13.5	12.9	12.2	11.2

Model: ASUA14TLAV2

Outdoor temperature		Indoor temperature						
		61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
°FDB	°FWB	TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	8.1	8.1	8.1	8.1	8.1	8.1	8.0
5.0	3.2	9.4	9.4	9.4	9.3	9.3	9.3	9.3
10.4	8.6	10.5	10.4	10.4	10.4	10.3	10.3	10.3
15.8	14.0	11.5	11.4	11.4	11.4	11.3	11.3	11.2
17.0	15.0	11.7	11.6	11.6	11.5	11.5	11.5	11.4
23.0	21.2	12.9	12.9	12.8	12.8	12.7	12.7	12.6
26.6	24.8	13.6	13.6	13.5	13.5	13.4	13.4	12.7
30.2	28.4	14.3	14.3	14.2	14.1	14.1	13.9	12.7
32.0	30.2	14.7	14.6	14.5	14.5	14.4	13.9	12.7
35.6	33.8	15.4	15.3	15.2	15.2	14.8	13.9	12.7
41.0	39.2	16.6	16.5	16.2	15.6	15.0	14.1	12.9
47.0	43.0	17.4	17.3	16.2	15.6	15.0	14.1	12.9
48.2	46.0	18.0	17.4	16.2	15.6	15.0	14.1	12.9
53.6	51.1	18.3	17.4	16.2	15.6	15.0	14.1	12.9
59.0	56.3	18.3	17.4	16.2	15.6	15.0	14.1	12.9

Model: ASUB18TLAV1

Outdoor temperature		Indoor temperature						
		61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
°FDB	°FWB	TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	10.4	10.4	10.4	10.3	10.3	10.3	10.3
5.0	3.2	12.1	12.0	12.0	11.9	11.9	11.9	11.9
10.4	8.6	13.4	13.4	13.3	13.3	13.2	13.2	13.2
15.8	14.0	14.7	14.6	14.6	14.6	14.5	14.4	14.4
17.0	15.0	15.0	14.9	14.8	14.8	14.8	14.7	14.6
23.0	21.2	16.6	16.5	16.5	16.4	16.3	16.3	16.2
26.6	24.8	17.5	17.4	17.3	17.3	17.2	17.2	16.3
30.2	28.4	18.4	18.3	18.2	18.1	18.1	17.9	16.3
32.0	30.2	18.9	18.7	18.6	18.5	18.5	17.9	16.3
35.6	33.8	19.7	19.6	19.5	19.4	19.0	17.9	16.3
41.0	39.2	21.3	21.2	20.8	20.0	19.2	18.0	16.5
47.0	43.0	22.3	22.1	20.8	20.0	19.2	18.0	16.5
48.2	46.0	23.0	22.3	20.8	20.0	19.2	18.0	16.5
53.6	51.1	23.4	22.3	20.8	20.0	19.2	18.0	16.5
59.0	56.3	23.4	22.3	20.8	20.0	19.2	18.0	16.5

Model: ASUB24TLAV1

Outdoor temperature		Indoor temperature						
		61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
°FDB	°FWB	TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	14.1	14.1	14.1	14.0	14.0	14.0	13.9
5.0	3.2	16.3	16.2	16.2	16.1	16.1	16.1	16.0
10.4	8.6	18.1	18.1	18.0	18.0	17.9	17.9	17.8
15.8	14.0	19.8	19.8	19.7	19.7	19.6	19.5	19.4
17.0	15.0	20.2	20.1	20.0	19.9	19.9	19.8	19.8
23.0	21.2	22.4	22.3	22.2	22.1	22.1	22.0	21.9
26.6	24.8	23.6	23.5	23.3	23.3	23.3	23.2	22.1
30.2	28.4	24.8	24.7	24.5	24.4	24.4	24.1	22.1
32.0	30.2	25.5	25.3	25.1	25.0	25.0	24.1	22.1
35.6	33.8	26.7	26.5	26.3	26.2	25.6	24.1	22.1
41.0	39.2	28.7	28.6	28.0	27.0	25.9	24.4	22.3
47.0	43.0	30.1	29.9	28.0	27.0	25.9	24.4	22.3
48.2	46.0	31.1	30.1	28.0	27.0	25.9	24.4	22.3
53.6	51.1	31.6	30.1	28.0	27.0	25.9	24.4	22.3
59.0	56.3	31.6	30.1	28.0	27.0	25.9	24.4	22.3

MODEL SELECTION

■ Model: ASUA30TLAV2

Outdoor temperature		Indoor temperature						
		61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
°FDB	°FWB	TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	17.7	17.7	17.7	17.6	17.6	17.6	17.5
5.0	3.2	20.5	20.4	20.4	20.3	20.3	20.3	20.2
10.4	8.6	22.8	22.7	22.6	22.6	22.5	22.5	22.4
15.8	14.0	25.0	24.9	24.8	24.8	24.7	24.6	24.5
17.0	15.0	25.4	25.3	25.2	25.1	25.1	25.0	24.9
23.0	21.2	28.2	28.1	28.0	27.9	27.8	27.7	27.6
26.6	24.8	29.7	29.6	29.4	29.4	29.3	29.2	27.8
30.2	28.4	31.2	31.1	30.9	30.8	30.8	30.4	27.8
32.0	30.2	32.1	31.9	31.6	31.5	31.4	30.4	27.8
35.6	33.8	33.6	33.4	33.1	33.0	32.3	30.4	27.8
41.0	39.2	36.1	36.0	35.3	34.0	32.6	30.7	28.1
47.0	43.0	37.9	37.6	35.3	34.0	32.6	30.7	28.1
48.2	46.0	39.1	37.9	35.3	34.0	32.6	30.7	28.1
53.6	51.1	39.8	37.9	35.3	34.0	32.6	30.7	28.1
59.0	56.3	39.8	37.9	35.3	34.0	32.6	30.7	28.1

■ Model: ASUA36TLAV2

Outdoor temperature		Indoor temperature						
		61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
°FDB	°FWB	TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	19.8	19.8	19.8	19.7	19.7	19.7	19.5
5.0	3.2	22.9	22.8	22.8	22.7	22.7	22.7	22.5
10.4	8.6	25.5	25.4	25.3	25.3	25.2	25.2	25.1
15.8	14.0	27.9	27.8	27.7	27.7	27.6	27.5	27.3
17.0	15.0	28.4	28.3	28.2	28.1	28.1	27.9	27.8
23.0	21.2	31.5	31.4	31.3	31.2	31.0	30.9	30.8
26.6	24.8	33.2	33.1	32.8	32.8	32.7	32.6	31.0
30.2	28.4	34.9	34.8	34.5	34.4	34.4	33.9	31.0
32.0	30.2	35.8	35.6	35.4	35.2	35.1	33.9	31.0
35.6	33.8	37.5	37.3	37.0	36.9	36.1	33.9	31.0
41.0	39.2	40.4	40.3	39.4	38.0	36.4	34.3	31.4
47.0	43.0	42.3	42.1	39.4	38.0	36.4	34.3	31.4
48.2	46.0	43.8	42.3	39.4	38.0	36.4	34.3	31.4
53.6	51.1	44.5	42.3	39.4	38.0	36.4	34.3	31.4
59.0	56.3	44.5	42.3	39.4	38.0	36.4	34.3	31.4

■ Model: ASUA7TLAV

Outdoor temperature		Indoor temperature						
		61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
°FDB	°FWB	TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	4.9	4.9	4.9	4.9	4.9	4.9	4.9
5.0	3.2	5.7	5.7	5.7	5.7	5.7	5.7	5.6
10.4	8.6	6.4	6.4	6.3	6.3	6.3	6.3	6.3
15.8	14.0	7.0	7.0	6.9	6.9	6.9	6.9	6.8
17.0	15.0	7.1	7.1	7.0	7.0	7.0	7.0	7.0
23.0	21.2	7.9	7.9	7.8	7.8	7.8	7.7	7.7
26.6	24.8	8.3	8.3	8.2	8.2	8.2	8.2	7.8
30.2	28.4	8.7	8.7	8.6	8.6	8.6	8.5	7.8
32.0	30.2	9.0	8.9	8.8	8.8	8.8	8.5	7.8
35.6	33.8	9.4	9.3	9.3	9.2	9.0	8.5	7.8
41.0	39.2	10.1	10.1	9.9	9.5	9.1	8.6	7.9
47.0	43.0	10.6	10.5	9.9	9.5	9.1	8.6	7.9
48.2	46.0	10.9	10.6	9.9	9.5	9.1	8.6	7.9
53.6	51.1	11.1	10.6	9.9	9.5	9.1	8.6	7.9
59.0	56.3	11.1	10.6	9.9	9.5	9.1	8.6	7.9

■ Model: ASUA9TLAV

Outdoor temperature		Indoor temperature						
		61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
°FDB	°FWB	TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	5.7	5.7	5.7	5.6	5.6	5.6	5.6
5.0	3.2	6.6	6.5	6.5	6.5	6.5	6.5	6.5
10.4	8.6	7.3	7.3	7.3	7.3	7.2	7.2	7.2
15.8	14.0	8.0	8.0	7.9	7.9	7.9	7.9	7.8
17.0	15.0	8.1	8.1	8.1	8.0	8.0	8.0	8.0
23.0	21.2	9.0	9.0	9.0	8.9	8.9	8.9	8.8
26.6	24.8	9.5	9.5	9.4	9.4	9.4	9.4	8.9
30.2	28.4	10.0	10.0	9.9	9.9	9.9	9.7	8.9
32.0	30.2	10.3	10.2	10.1	10.1	10.1	9.7	8.9
35.6	33.8	10.8	10.7	10.6	10.6	10.3	9.7	8.9
41.0	39.2	11.6	11.6	11.3	10.9	10.5	9.8	9.0
47.0	43.0	12.1	12.1	11.3	10.9	10.5	9.8	9.0
48.2	46.0	12.6	12.1	11.3	10.9	10.5	9.8	9.0
53.6	51.1	12.8	12.1	11.3	10.9	10.5	9.8	9.0
59.0	56.3	12.8	12.1	11.3	10.9	10.5	9.8	9.0

MODEL SELECTION

■ Model: ASUA12TLAV

Outdoor temperature		Indoor temperature						
		61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
°FDB	°FWB	TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	7.0	7.0	7.0	7.0	7.0	7.0	6.9
5.0	3.2	8.1	8.1	8.1	8.0	8.0	8.0	8.0
10.4	8.6	9.1	9.0	9.0	9.0	8.9	8.9	8.9
15.8	14.0	9.9	9.9	9.8	9.8	9.8	9.8	9.7
17.0	15.0	10.1	10.1	10.0	10.0	10.0	9.9	9.9
23.0	21.2	11.2	11.2	11.1	11.1	11.0	11.0	10.9
26.6	24.8	11.8	11.8	11.7	11.7	11.6	11.6	11.0
30.2	28.4	12.4	12.4	12.3	12.2	12.2	12.1	11.0
32.0	30.2	12.7	12.6	12.6	12.5	12.5	12.1	11.0
35.6	33.8	13.3	13.2	13.2	13.1	12.8	12.1	11.0
41.0	39.2	14.4	14.3	14.0	13.5	12.9	12.2	11.2
47.0	43.0	15.0	14.9	14.0	13.5	12.9	12.2	11.2
48.2	46.0	15.5	15.0	14.0	13.5	12.9	12.2	11.2
53.6	51.1	15.8	15.0	14.0	13.5	12.9	12.2	11.2
59.0	56.3	15.8	15.0	14.0	13.5	12.9	12.2	11.2

■ Model: ASUA14TLAV

Outdoor temperature		Indoor temperature						
		61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
°FDB	°FWB	TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	8.1	8.1	8.1	8.1	8.1	8.1	8.0
5.0	3.2	9.4	9.4	9.4	9.3	9.3	9.3	9.3
10.4	8.6	10.5	10.4	10.4	10.4	10.3	10.3	10.3
15.8	14.0	11.5	11.4	11.4	11.4	11.3	11.3	11.2
17.0	15.0	11.7	11.6	11.6	11.5	11.5	11.5	11.4
23.0	21.2	12.9	12.9	12.8	12.8	12.7	12.7	12.6
26.6	24.8	13.6	13.6	13.5	13.5	13.4	13.4	12.7
30.2	28.4	14.3	14.3	14.2	14.1	14.1	13.9	12.7
32.0	30.2	14.7	14.6	14.5	14.5	14.4	13.9	12.7
35.6	33.8	15.4	15.3	15.2	15.2	14.8	13.9	12.7
41.0	39.2	16.6	16.5	16.2	15.6	15.0	14.1	12.9
47.0	43.0	17.4	17.3	16.2	15.6	15.0	14.1	12.9
48.2	46.0	18.0	17.4	16.2	15.6	15.0	14.1	12.9
53.6	51.1	18.3	17.4	16.2	15.6	15.0	14.1	12.9
59.0	56.3	18.3	17.4	16.2	15.6	15.0	14.1	12.9

■ Model: ASUB18TLAV

Outdoor temperature		Indoor temperature						
		61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
°FDB	°FWB	TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	10.4	10.4	10.4	10.3	10.3	10.3	10.3
5.0	3.2	12.1	12.0	12.0	11.9	11.9	11.9	11.9
10.4	8.6	13.4	13.4	13.3	13.3	13.2	13.2	13.2
15.8	14.0	14.7	14.6	14.6	14.6	14.5	14.4	14.4
17.0	15.0	15.0	14.9	14.8	14.8	14.8	14.7	14.6
23.0	21.2	16.6	16.5	16.5	16.4	16.3	16.3	16.2
26.6	24.8	17.5	17.4	17.3	17.3	17.2	17.2	16.3
30.2	28.4	18.4	18.3	18.2	18.1	18.1	17.9	16.3
32.0	30.2	18.9	18.7	18.6	18.5	18.5	17.9	16.3
35.6	33.8	19.7	19.6	19.5	19.4	19.0	17.9	16.3
41.0	39.2	21.3	21.2	20.8	20.0	19.2	18.0	16.5
47.0	43.0	22.3	22.1	20.8	20.0	19.2	18.0	16.5
48.2	46.0	23.0	22.3	20.8	20.0	19.2	18.0	16.5
53.6	51.1	23.4	22.3	20.8	20.0	19.2	18.0	16.5
59.0	56.3	23.4	22.3	20.8	20.0	19.2	18.0	16.5

■ Model: ASUB24TLAV

Outdoor temperature		Indoor temperature						
		61°FDB	64°FDB	68°FDB	70°FDB	72°FDB	75°FDB	79°FDB
°FDB	°FWB	TC	TC	TC	TC	TC	TC	TC
-2.7	-4.0	14.1	14.1	14.1	14.0	14.0	14.0	13.9
5.0	3.2	16.3	16.2	16.2	16.1	16.1	16.1	16.0
10.4	8.6	18.1	18.1	18.0	18.0	17.9	17.9	17.8
15.8	14.0	19.8	19.8	19.7	19.7	19.6	19.5	19.4
17.0	15.0	20.2	20.1	20.0	19.9	19.9	19.8	19.8
23.0	21.2	22.4	22.3	22.2	22.1	22.1	22.0	21.9
26.6	24.8	23.6	23.5	23.3	23.3	23.3	23.2	22.1
30.2	28.4	24.8	24.7	24.5	24.4	24.4	24.1	22.1
32.0	30.2	25.5	25.3	25.1	25.0	25.0	24.1	22.1
35.6	33.8	26.7	26.5	26.3	26.2	25.6	24.1	22.1
41.0	39.2	28.7	28.6	28.0	27.0	25.9	24.4	22.3
47.0	43.0	30.1	29.9	28.0	27.0	25.9	24.4	22.3
48.2	46.0	31.1	30.1	28.0	27.0	25.9	24.4	22.3
53.6	51.1	31.6	30.1	28.0	27.0	25.9	24.4	22.3
59.0	56.3	31.6	30.1	28.0	27.0	25.9	24.4	22.3

MODEL SELECTION

4. Cooling capacity table (Outdoor unit)

- TC: Total capacity (kBtu/h)
- IP: Input power of compressor and outdoor fan motor (kW)
- The data is based on the following conditions:
  - Pipe length: 25 ft (7.5 m)
  - Height difference: 0 ft (0 m)

4-1. Stand-alone

■ Model: AOU72RLAVL

Cooling capacity at rated condition: 72 kBtu/h (6 ton)																	
Total rated capacity of indoor unit	Outdoor temperature	Indoor temperature															
		68°FDB/59°FWB		73°FDB/61°FWB		75°FDB/63°FWB		79°FDB/64°FWB		80°FDB/67°FWB		82°FDB/68°FWB		86°FDB/72°FWB		90°FDB/73°FWB	
	°FDB	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP
108.0 (150%)	5	68.8	3.51	78.6	3.93	88.4	4.35	93.3	4.57	106.6	5.11	108.0	5.11	113.9	5.08	115.3	5.07
	14	68.8	3.51	78.6	3.93	88.4	4.35	93.3	4.57	106.6	5.11	108.0	5.11	113.9	5.08	115.3	5.07
	23	68.8	3.51	78.6	3.93	88.4	4.35	93.3	4.57	106.6	5.11	108.0	5.11	113.9	5.08	115.3	5.07
	32	68.8	3.51	78.6	3.93	88.4	4.35	93.3	4.57	106.6	5.11	108.0	5.11	113.9	5.08	115.3	5.07
	41	68.8	3.51	78.6	3.93	88.4	4.35	93.3	4.57	106.6	5.11	108.0	5.11	113.9	5.08	115.3	5.07
	50	68.8	3.51	78.6	3.93	88.4	4.35	93.3	4.57	106.6	5.11	108.0	5.11	113.9	5.08	115.3	5.07
	59	68.8	3.62	78.6	4.06	88.4	4.51	93.3	4.73	105.6	5.23	107.1	5.23	112.9	5.20	114.4	5.19
	70	68.8	3.86	78.6	4.33	88.4	4.80	93.3	5.04	102.6	5.61	103.8	5.63	108.6	5.72	109.9	5.75
	73	68.8	3.94	78.6	4.42	88.4	4.91	93.3	5.24	101.1	5.80	102.3	5.82	107.1	5.92	108.3	5.94
	77	68.8	4.06	78.6	4.56	88.4	5.23	93.3	5.70	99.1	6.05	100.2	6.08	105.0	6.17	106.2	6.20
	81	68.8	4.20	78.6	4.75	88.4	5.68	93.3	6.20	97.0	6.31	98.2	6.33	102.8	6.43	104.0	6.46
	86	68.8	4.40	78.6	5.27	88.4	6.31	91.0	6.55	94.4	6.63	95.6	6.65	100.1	6.76	101.2	6.79
	91	68.8	4.81	78.6	5.83	87.3	6.87	88.3	6.90	91.6	6.99	92.7	7.02	97.1	7.14	98.2	7.17
	95	68.8	5.20	78.6	6.38	85.0	7.17	86.0	7.20	89.2	7.29	90.3	7.32	94.6	7.44	95.7	7.48
	99	68.8	5.69	78.6	7.03	82.7	7.47	83.7	7.50	86.8	7.59	87.9	7.62	92.1	7.75	93.2	7.78
	104	68.8	6.40	77.8	7.78	79.8	7.84	80.7	7.87	83.8	7.97	84.9	8.00	89.0	8.13	90.1	8.16
	109	68.8	7.22	74.9	8.15	76.8	8.21	77.7	8.25	80.8	8.35	81.6	8.35	85.1	8.35	85.9	8.35
	115	68.7	8.35	70.3	8.35	71.9	8.35	72.7	8.35	75.1	8.35	76.0	8.35	79.3	8.35	80.1	8.35
100.8 (140%)	5	64.2	3.31	73.4	3.70	82.5	4.10	87.1	4.30	100.8	4.89	105.4	5.09	111.5	5.09	112.9	5.08
	14	64.2	3.31	73.4	3.70	82.5	4.10	87.1	4.30	100.8	4.89	105.4	5.09	111.5	5.09	112.9	5.08
	23	64.2	3.31	73.4	3.70	82.5	4.10	87.1	4.30	100.8	4.89	105.4	5.09	111.5	5.09	112.9	5.08
	32	64.2	3.31	73.4	3.70	82.5	4.10	87.1	4.30	100.8	4.89	105.4	5.09	111.5	5.09	112.9	5.08
	41	64.2	3.31	73.4	3.70	82.5	4.10	87.1	4.30	100.8	4.89	105.4	5.09	111.5	5.09	112.9	5.08
	50	64.2	3.31	73.4	3.70	82.5	4.10	87.1	4.30	100.8	4.89	105.4	5.09	111.5	5.09	112.9	5.08
	59	64.2	3.42	73.4	3.83	82.5	4.24	87.1	4.45	100.8	5.06	104.9	5.24	110.5	5.21	112.0	5.21
	70	64.2	3.64	73.4	4.08	82.5	4.52	87.1	4.74	100.8	5.57	102.1	5.60	106.8	5.69	108.0	5.71
	73	64.2	3.71	73.4	4.16	82.5	4.62	87.1	4.85	99.4	5.77	100.6	5.79	105.2	5.88	106.4	5.90
	77	64.2	3.83	73.4	4.30	82.5	4.77	87.1	5.11	97.4	6.02	98.6	6.04	103.2	6.14	104.3	6.16
	81	64.2	3.96	73.4	4.44	82.5	5.11	87.1	5.56	95.4	6.28	96.6	6.30	101.1	6.39	102.3	6.42
	86	64.2	4.14	73.4	4.76	82.5	5.66	87.1	6.16	92.9	6.59	94.0	6.62	98.5	6.72	99.6	6.75
	91	64.2	4.38	73.4	5.27	82.5	6.28	87.0	6.86	90.2	6.95	91.2	6.98	95.5	7.10	96.6	7.13
	95	64.2	4.73	73.4	5.71	82.5	6.92	84.8	7.16	87.9	7.25	88.9	7.28	93.1	7.40	94.2	7.43
	99	64.2	5.13	73.4	6.28	81.5	7.43	82.5	7.46	85.5	7.55	86.6	7.58	90.7	7.70	91.8	7.74
	104	64.2	5.76	73.4	7.09	78.6	7.80	79.6	7.83	82.6	7.93	83.6	7.96	87.7	8.09	88.7	8.12
	109	64.2	6.48	73.4	8.02	75.7	8.18	76.7	8.21	79.6	8.30	80.6	8.35	84.0	8.35	84.9	8.35
	115	64.2	7.49	69.5	8.35	71.1	8.35	71.9	8.35	74.3	8.35	75.1	8.35	78.3	8.35	79.2	8.35
93.6 (130%)	5	59.6	3.11	68.1	3.48	76.6	3.84	80.9	4.03	93.6	4.58	97.9	4.76	108.9	5.10	110.3	5.10
	14	59.6	3.11	68.1	3.48	76.6	3.84	80.9	4.03	93.6	4.58	97.9	4.76	108.9	5.10	110.3	5.10
	23	59.6	3.11	68.1	3.48	76.6	3.84	80.9	4.03	93.6	4.58	97.9	4.76	108.9	5.10	110.3	5.10
	32	59.6	3.11	68.1	3.48	76.6	3.84	80.9	4.03	93.6	4.58	97.9	4.76	108.9	5.10	110.3	5.10
	41	59.6	3.11	68.1	3.48	76.6	3.84	80.9	4.03	93.6	4.58	97.9	4.76	108.9	5.10	110.3	5.10
	50	59.6	3.11	68.1	3.48	76.6	3.84	80.9	4.03	93.6	4.58	97.9	4.76	108.9	5.10	110.3	5.10
	59	59.6	3.21	68.1	3.59	76.6	3.97	80.9	4.17	93.6	4.74	97.9	4.93	107.9	5.22	109.3	5.22
	70	59.6	3.41	68.1	3.82	76.6	4.23	80.9	4.44	93.6	5.06	97.9	5.30	104.7	5.65	105.8	5.67
	73	59.6	3.48	68.1	3.90	76.6	4.33	80.9	4.54	93.6	5.26	97.9	5.66	103.2	5.84	104.3	5.86
	77	59.6	3.59	68.1	4.03	76.6	4.46	80.9	4.68	93.6	5.73	96.7	6.01	101.2	6.10	102.3	6.12
	81	59.6	3.71	68.1	4.16	76.6	4.62	80.9	4.96	93.6	6.23	94.8	6.26	99.2	6.35	100.3	6.38
	86	59.6	3.88	68.1	4.36	76.6	5.07	80.9	5.50	91.2	6.56	92.3	6.58	96.7	6.68	97.8	6.70
	91	59.6	4.09	68.1	4.74	76.6	5.61	80.9	6.09	88.6	6.91	89.6	6.93	93.8	7.05	94.9	7.08
	95	59.6	4.29	68.1	5.13	76.6	6.12	80.9	6.69	86.3	7.21	87.4	7.24	91.5	7.35	92.6	7.38
	99	59.6	4.63	68.1	5.60	76.6	6.74	80.9	7.38	84.1	7.51	85.1	7.54	89.2	7.66	90.2	7.69
	104	59.6	5.17	68.1	6.30	76.6	7.61	78.3	7.79	81.2	7.88	82.2	7.92	86.2	8.04	87.2	8.07
	109	59.6	5.80	68.1	7.10	74.5	8.14	75.5	8.17	78.3	8.26	79.3	8.29	82.9	8.35	83.7	8.35
	115	59.6	6.68	68.1	8.24	70.1	8.35	70.9	8.35	73.3	8.35	74.1	8.35	77.3	8.35	78.1	8.35

MODEL SELECTION

Cooling capacity at rated condition: 72 kBtu/h (6 ton)																	
Total rated capacity of indoor unit	Outdoor temperature	Indoor temperature															
		68°FDB/59°FWB		73°FDB/61°FWB		75°FDB/63°FWB		79°FDB/64°FWB		80°FDB/67°FWB		82°FDB/68°FWB		86°FDB/72°FWB		90°FDB/73°FWB	
	°FDB	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP
86.4 (120%)	5	55.1	2.91	62.9	3.25	70.7	3.59	74.7	3.76	86.4	4.27	90.3	4.44	106.0	5.12	107.4	5.11
	14	55.1	2.91	62.9	3.25	70.7	3.59	74.7	3.76	86.4	4.27	90.3	4.44	106.0	5.12	107.4	5.11
	23	55.1	2.91	62.9	3.25	70.7	3.59	74.7	3.76	86.4	4.27	90.3	4.44	106.0	5.12	107.4	5.11
	32	55.1	2.91	62.9	3.25	70.7	3.59	74.7	3.76	86.4	4.27	90.3	4.44	106.0	5.12	107.4	5.11
	41	55.1	2.91	62.9	3.25	70.7	3.59	74.7	3.76	86.4	4.27	90.3	4.44	106.0	5.12	107.4	5.11
	50	55.1	2.91	62.9	3.25	70.7	3.59	74.7	3.76	86.4	4.27	90.3	4.44	106.0	5.12	107.4	5.11
	59	55.1	3.00	62.9	3.36	70.7	3.71	74.7	3.89	86.4	4.41	90.3	4.59	105.1	5.23	106.5	5.23
	70	55.1	3.19	62.9	3.57	70.7	3.95	74.7	4.14	86.4	4.71	90.3	4.90	102.4	5.61	103.5	5.63
	73	55.1	3.26	62.9	3.64	70.7	4.03	74.7	4.23	86.4	4.81	90.3	5.01	100.9	5.80	102.1	5.82
	77	55.1	3.35	62.9	3.76	70.7	4.16	74.7	4.36	86.4	5.05	90.3	5.41	99.0	6.05	100.1	6.08
	81	55.1	3.47	62.9	3.89	70.7	4.30	74.7	4.51	86.4	5.48	90.3	5.88	97.1	6.31	98.2	6.33
	86	55.1	3.63	62.9	4.07	70.7	4.52	74.7	4.89	86.4	6.08	90.3	6.53	94.6	6.63	95.7	6.66
	91	55.1	3.81	62.9	4.28	70.7	5.00	74.7	5.40	86.4	6.79	87.8	6.88	91.9	7.00	93.0	7.03
	95	55.1	3.98	62.9	4.60	70.7	5.41	74.7	5.88	84.7	7.16	85.6	7.19	89.7	7.30	90.7	7.33
	99	55.1	4.18	62.9	4.98	70.7	5.93	74.7	6.46	82.5	7.46	83.4	7.49	87.4	7.61	88.4	7.64
	104	55.1	4.63	62.9	5.59	70.7	6.68	74.7	7.29	79.7	7.84	80.6	7.87	84.5	7.99	85.5	8.02
	109	55.1	5.18	62.9	6.27	70.7	7.54	74.1	8.13	76.9	8.22	77.8	8.25	81.5	8.35	82.3	8.35
	115	55.1	5.94	62.9	7.24	69.0	8.35	69.8	8.35	72.1	8.35	72.9	8.35	76.1	8.35	76.9	8.35
79.2 (110%)	5	50.5	2.71	57.7	3.02	64.8	3.33	68.5	3.49	79.2	3.96	82.8	4.11	97.2	4.73	100.8	4.89
	14	50.5	2.71	57.7	3.02	64.8	3.33	68.5	3.49	79.2	3.96	82.8	4.11	97.2	4.73	100.8	4.89
	23	50.5	2.71	57.7	3.02	64.8	3.33	68.5	3.49	79.2	3.96	82.8	4.11	97.2	4.73	100.8	4.89
	32	50.5	2.71	57.7	3.02	64.8	3.33	68.5	3.49	79.2	3.96	82.8	4.11	97.2	4.73	100.8	4.89
	41	50.5	2.71	57.7	3.02	64.8	3.33	68.5	3.49	79.2	3.96	82.8	4.11	97.2	4.73	100.8	4.89
	50	50.5	2.71	57.7	3.02	64.8	3.33	68.5	3.49	79.2	3.96	82.8	4.11	97.2	4.73	100.8	4.89
	59	50.5	2.80	57.7	3.12	64.8	3.44	68.5	3.61	79.2	4.09	82.8	4.25	97.2	4.90	100.8	5.06
	70	50.5	2.97	57.7	3.32	64.8	3.66	68.5	3.84	79.2	4.36	82.8	4.53	97.2	5.24	100.8	5.57
	73	50.5	3.03	57.7	3.39	64.8	3.74	68.5	3.92	79.2	4.45	82.8	4.63	97.2	5.59	99.5	5.77
	77	50.5	3.12	57.7	3.49	64.8	3.86	68.5	4.04	79.2	4.59	82.8	4.78	96.6	6.00	97.6	6.03
	81	50.5	3.22	57.7	3.60	64.8	3.99	68.5	4.18	79.2	4.81	82.8	5.14	94.7	6.26	95.8	6.28
	86	50.5	3.37	57.7	3.77	64.8	4.18	68.5	4.38	79.2	5.32	82.8	5.70	92.3	6.58	93.4	6.60
	91	50.5	3.54	57.7	3.97	64.8	4.43	68.5	4.77	79.2	5.89	82.8	6.31	89.8	6.94	90.8	6.97
	95	50.5	3.69	57.7	4.14	64.8	4.79	68.5	5.17	79.2	6.46	82.8	6.96	87.6	7.24	88.6	7.27
	99	50.5	3.86	57.7	4.43	64.8	5.20	68.5	5.64	79.2	7.12	81.6	7.43	85.4	7.55	86.4	7.58
	104	50.5	4.13	57.7	4.93	64.8	5.84	68.5	6.35	78.0	7.78	78.9	7.81	82.7	7.93	83.6	7.96
	109	50.5	4.61	57.7	5.52	64.8	6.57	68.5	7.16	75.3	8.16	76.2	8.19	79.8	8.31	80.8	8.35
	115	50.5	5.26	57.7	6.35	64.8	7.60	68.4	8.31	70.9	8.35	71.6	8.35	74.7	8.35	75.5	8.35
72.0 (100%)	5	45.9	2.51	52.4	2.80	58.9	3.08	62.2	3.22	72.0	3.64	75.3	3.79	88.4	4.35	91.6	4.49
	14	45.9	2.51	52.4	2.80	58.9	3.08	62.2	3.22	72.0	3.64	75.3	3.79	88.4	4.35	91.6	4.49
	23	45.9	2.51	52.4	2.80	58.9	3.08	62.2	3.22	72.0	3.64	75.3	3.79	88.4	4.35	91.6	4.49
	32	45.9	2.51	52.4	2.80	58.9	3.08	62.2	3.22	72.0	3.64	75.3	3.79	88.4	4.35	91.6	4.49
	41	45.9	2.51	52.4	2.80	58.9	3.08	62.2	3.22	72.0	3.64	75.3	3.79	88.4	4.35	91.6	4.49
	50	45.9	2.51	52.4	2.80	58.9	3.08	62.2	3.22	72.0	3.64	75.3	3.79	88.4	4.35	91.6	4.49
	59	45.9	2.59	52.4	2.88	58.9	3.18	62.2	3.33	72.0	3.77	75.3	3.91	88.4	4.50	91.6	4.65
	70	45.9	2.75	52.4	3.06	58.9	3.38	62.2	3.54	72.0	4.01	75.3	4.17	88.4	4.80	91.6	4.96
	73	45.9	2.80	52.4	3.13	58.9	3.45	62.2	3.61	72.0	4.10	75.3	4.26	88.4	4.91	91.6	5.09
	77	45.9	2.88	52.4	3.22	58.9	3.55	62.2	3.72	72.0	4.23	75.3	4.39	88.4	5.22	91.6	5.53
	81	45.9	2.98	52.4	3.33	58.9	3.67	62.2	3.85	72.0	4.37	75.3	4.55	88.4	5.68	91.6	6.02
	86	45.9	3.11	52.4	3.48	58.9	3.85	62.2	4.03	72.0	4.64	75.3	4.94	88.4	6.30	90.8	6.55
	91	45.9	3.26	52.4	3.65	58.9	4.04	62.2	4.24	72.0	5.12	75.3	5.47	87.4	6.87	88.3	6.90
	95	45.9	3.40	52.4	3.81	58.9	4.22	62.2	4.54	72.0	5.55	75.3	5.95	85.4	7.18	86.3	7.20
	99	45.9	3.56	52.4	3.99	58.9	4.56	62.2	4.91	72.0	6.10	75.3	6.55	83.3	7.48	84.2	7.51
	104	45.9	3.79	52.4	4.34	58.9	5.09	62.2	5.50	72.0	6.87	75.3	7.39	80.6	7.86	81.5	7.89
	109	45.9	4.08	52.4	4.84	58.9	5.70	62.2	6.18	72.0	7.77	74.3	8.13	77.9	8.25	78.8	8.28
	115	45.9	4.64	52.4	5.54	58.9	6.56	62.2	7.13	69.4	8.35	70.2	8.35	73.2	8.35	73.9	8.35
64.8 (90%)	5	41.3	2.31	47.2	2.57	53.0	2.82	56.0	2.95	64.8	3.33	67.8	3.46	79.5	3.97	82.5	4.10
	14	41.3	2.31	47.2	2.57	53.0	2.82	56.0	2.95	64.8	3.33	67.8	3.46	79.5	3.97	82.5	4.10
	23	41.3	2.31	47.2	2.57	53.0	2.82	56.0	2.95	64.8	3.33	67.8	3.46	79.5	3.97	82.5	4.10
	32	41.3	2.31	47.2	2.57	53.0	2.82	56.0	2.95	64.8	3.33	67.8	3.46	79.5	3.97	82.5	4.10
	41	41.3	2.31	47.2	2.57	53.0	2.82	56.0	2.95	64.8	3.33	67.8	3.46	79.5	3.97	82.5	4.10
	50	41.3	2.31	47.2	2.57	53.0	2.82	56.0	2.95	64.8	3.33	67.8	3.46	79.5	3.97	82.5	4.10
	59	41.3	2.38	47.2	2.65	53.0	2.91	56.0	3.05	64.8	3.44	67.8	3.58	79.5	4.10	82.5	4.24
	70	41.3	2.52	47.2	2.81	53.0	3.09	56.0	3.24	64.8	3.66	67.8	3.81	79.5	4.37	82.5	4.52
	73	41.3	2.57	47.2	2.87	53.0	3.16	56.0	3.30	64.8	3.74	67.8	3.89	79.5	4.47	82.5	4.62
	77	41.3	2.65	47.2	2.95	53.0	3.25	56.0	3.40	64.8	3.86	67.8	4.01	79.5	4.61	82.5	4.76
	81	41.3	2.73	47.2	3.05	53.0	3.36	56.0	3.52	64.8	3.99	67.8	4.15	79.5	4.84	82.5	5.11
	86	41.3	2.85	47.2	3.18	53.0	3.51	56.0	3.68	64.8	4.17	67.8	4.34	79.5	5.36	82.5	5.66
	91	41.3	2.99	47.2	3.34	53.0	3.69	56.0	3.87	64.8	4.43	67.8	4.71	79.5	5.93	82.5	6.27
	95	41.3	3.12	47.2	3.48	53.0	3.85	56.0	4.04	64.8	4.79	67.8	5.09	79.5	6.50	82.5	6.91
	99	41.3	3.26	47.2	3.64	53.0	4.03	56.0	4.27	64.8	5.20	67.8	5.56	79.5	7.17	81.6	7.43
	104	41.3	3.46	47.2	3.88	53.0	4.41	56.0	4.74	64.8	5.84	67.8	6.25	78.1	7.79	79.0	7.82
	109	41.3	3.73	47.2	4.22	53.0	4.92	56.0	5.30	64.8	6.57	67.8	7.04	75.6	8.17	76.4	8.20
	115	41.3	4.10	47.2	4.81	53.0	5.63	56.0	6.09	64.8	7.60	67.8	8.17	71.3	8.35	72.1	8.35

MODEL SELECTION

Cooling capacity at rated condition: 72 kBtu/h (6 ton)																	
Total rated capacity of indoor unit	Outdoor temperature	Indoor temperature															
		68°FDB/59°FWB		73°FDB/61°FWB		75°FDB/63°FWB		79°FDB/64°FWB		80°FDB/67°FWB		82°FDB/68°FWB		86°FDB/72°FWB		90°FDB/73°FWB	
	°FDB	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP
57.6 (80%)	5	36.7	2.12	41.9	2.34	47.1	2.57	49.8	2.68	57.6	3.02	60.2	3.13	70.7	3.59	73.3	3.70
	14	36.7	2.12	41.9	2.34	47.1	2.57	49.8	2.68	57.6	3.02	60.2	3.13	70.7	3.59	73.3	3.70
	23	36.7	2.12	41.9	2.34	47.1	2.57	49.8	2.68	57.6	3.02	60.2	3.13	70.7	3.59	73.3	3.70
	32	36.7	2.12	41.9	2.34	47.1	2.57	49.8	2.68	57.6	3.02	60.2	3.13	70.7	3.59	73.3	3.70
	41	36.7	2.12	41.9	2.34	47.1	2.57	49.8	2.68	57.6	3.02	60.2	3.13	70.7	3.59	73.3	3.70
	50	36.7	2.12	41.9	2.34	47.1	2.57	49.8	2.68	57.6	3.02	60.2	3.13	70.7	3.59	73.3	3.70
	59	36.7	2.18	41.9	2.41	47.1	2.65	49.8	2.77	57.6	3.12	60.2	3.24	70.7	3.71	73.3	3.83
	70	36.7	2.30	41.9	2.56	47.1	2.81	49.8	2.94	57.6	3.31	60.2	3.44	70.7	3.95	73.3	4.07
	73	36.7	2.35	41.9	2.61	47.1	2.86	49.8	3.00	57.6	3.38	60.2	3.51	70.7	4.03	73.3	4.16
	77	36.7	2.41	41.9	2.68	47.1	2.95	49.8	3.08	57.6	3.49	60.2	3.62	70.7	4.16	73.3	4.29
	81	36.7	2.49	41.9	2.77	47.1	3.04	49.8	3.19	57.6	3.60	60.2	3.74	70.7	4.30	73.3	4.44
	86	36.7	2.59	41.9	2.89	47.1	3.18	49.8	3.33	57.6	3.77	60.2	3.92	70.7	4.52	73.3	4.76
	91	36.7	2.72	41.9	3.03	47.1	3.34	49.8	3.50	57.6	3.96	60.2	4.12	70.7	4.99	73.3	5.26
	95	36.7	2.83	41.9	3.16	47.1	3.48	49.8	3.65	57.6	4.14	60.2	4.34	70.7	5.40	73.3	5.71
	99	36.7	2.95	41.9	3.30	47.1	3.64	49.8	3.82	57.6	4.43	60.2	4.69	70.7	5.92	73.3	6.27
	104	36.7	3.14	41.9	3.51	47.1	3.88	49.8	4.07	57.6	4.93	60.2	5.25	70.7	6.67	73.3	7.08
	109	36.7	3.37	41.9	3.78	47.1	4.22	49.8	4.53	57.6	5.52	60.2	5.89	70.7	7.53	73.3	8.01
	115	36.7	3.70	41.9	4.15	47.1	4.81	49.8	5.17	57.6	6.34	60.2	6.78	69.2	8.35	69.9	8.35
50.4 (70%)	5	32.1	1.92	36.7	2.11	41.3	2.31	43.6	2.41	50.4	2.71	52.7	2.81	61.8	3.20	64.1	3.30
	14	32.1	1.92	36.7	2.11	41.3	2.31	43.6	2.41	50.4	2.71	52.7	2.81	61.8	3.20	64.1	3.30
	23	32.1	1.92	36.7	2.11	41.3	2.31	43.6	2.41	50.4	2.71	52.7	2.81	61.8	3.20	64.1	3.30
	32	32.1	1.92	36.7	2.11	41.3	2.31	43.6	2.41	50.4	2.71	52.7	2.81	61.8	3.20	64.1	3.30
	41	32.1	1.92	36.7	2.11	41.3	2.31	43.6	2.41	50.4	2.71	52.7	2.81	61.8	3.20	64.1	3.30
	50	32.1	1.92	36.7	2.11	41.3	2.31	43.6	2.41	50.4	2.71	52.7	2.81	61.8	3.20	64.1	3.30
	59	32.1	1.97	36.7	2.18	41.3	2.38	43.6	2.49	50.4	2.79	52.7	2.90	61.8	3.31	64.1	3.41
	70	32.1	2.08	36.7	2.30	41.3	2.52	43.6	2.63	50.4	2.97	52.7	3.08	61.8	3.52	64.1	3.63
	73	32.1	2.12	36.7	2.35	41.3	2.57	43.6	2.69	50.4	3.03	52.7	3.14	61.8	3.59	64.1	3.71
	77	32.1	2.18	36.7	2.41	41.3	2.65	43.6	2.76	50.4	3.12	52.7	3.23	61.8	3.70	64.1	3.82
	81	32.1	2.24	36.7	2.49	41.3	2.73	43.6	2.85	50.4	3.22	52.7	3.34	61.8	3.83	64.1	3.95
	86	32.1	2.34	36.7	2.59	41.3	2.85	43.6	2.98	50.4	3.36	52.7	3.49	61.8	4.01	64.1	4.14
	91	32.1	2.44	36.7	2.72	41.3	2.99	43.6	3.13	50.4	3.53	52.7	3.67	61.8	4.22	64.1	4.37
	95	32.1	2.54	36.7	2.83	41.3	3.11	43.6	3.26	50.4	3.69	52.7	3.83	61.8	4.50	64.1	4.72
	99	32.1	2.65	36.7	2.95	41.3	3.25	43.6	3.41	50.4	3.86	52.7	4.01	61.8	4.86	64.1	5.12
	104	32.1	2.81	36.7	3.13	41.3	3.46	43.6	3.62	50.4	4.12	52.7	4.37	61.8	5.45	64.1	5.75
	109	32.1	3.02	36.7	3.37	41.3	3.72	43.6	3.90	50.4	4.60	52.7	4.88	61.8	6.12	64.1	6.47
	115	32.1	3.31	36.7	3.70	41.3	4.10	43.6	4.35	50.4	5.25	52.7	5.59	61.8	7.06	64.1	7.47
43.2 (60%)	5	27.5	1.72	31.4	1.89	35.4	2.06	37.3	2.14	43.2	2.40	45.2	2.48	53.0	2.82	55.0	2.91
	14	27.5	1.72	31.4	1.89	35.4	2.06	37.3	2.14	43.2	2.40	45.2	2.48	53.0	2.82	55.0	2.91
	23	27.5	1.72	31.4	1.89	35.4	2.06	37.3	2.14	43.2	2.40	45.2	2.48	53.0	2.82	55.0	2.91
	32	27.5	1.72	31.4	1.89	35.4	2.06	37.3	2.14	43.2	2.40	45.2	2.48	53.0	2.82	55.0	2.91
	41	27.5	1.72	31.4	1.89	35.4	2.06	37.3	2.14	43.2	2.40	45.2	2.48	53.0	2.82	55.0	2.91
	50	27.5	1.72	31.4	1.89	35.4	2.06	37.3	2.14	43.2	2.40	45.2	2.48	53.0	2.82	55.0	2.91
	59	27.5	1.77	31.4	1.94	35.4	2.12	37.3	2.21	43.2	2.47	45.2	2.56	53.0	2.91	55.0	3.00
	70	27.5	1.86	31.4	2.05	35.4	2.24	37.3	2.33	43.2	2.62	45.2	2.71	53.0	3.09	55.0	3.19
	73	27.5	1.89	31.4	2.09	35.4	2.28	37.3	2.38	43.2	2.67	45.2	2.77	53.0	3.16	55.0	3.25
	77	27.5	1.94	31.4	2.14	35.4	2.34	37.3	2.44	43.2	2.75	45.2	2.85	53.0	3.25	55.0	3.35
	81	27.5	2.00	31.4	2.21	35.4	2.42	37.3	2.52	43.2	2.83	45.2	2.94	53.0	3.36	55.0	3.46
	86	27.5	2.08	31.4	2.30	35.4	2.52	37.3	2.63	43.2	2.96	45.2	3.07	53.0	3.51	55.0	3.62
	91	27.5	2.17	31.4	2.40	35.4	2.64	37.3	2.75	43.2	3.10	45.2	3.22	53.0	3.69	55.0	3.81
	95	27.5	2.25	31.4	2.50	35.4	2.74	37.3	2.87	43.2	3.24	45.2	3.36	53.0	3.85	55.0	3.97
	99	27.5	2.35	31.4	2.61	35.4	2.86	37.3	2.99	43.2	3.38	45.2	3.51	53.0	4.03	55.0	4.17
	104	27.5	2.48	31.4	2.76	35.4	3.04	37.3	3.18	43.2	3.60	45.2	3.74	53.0	4.40	55.0	4.62
	109	27.5	2.66	31.4	2.96	35.4	3.27	37.3	3.42	43.2	3.87	45.2	4.03	53.0	4.92	55.0	5.17
	115	27.5	2.91	31.4	3.25	35.4	3.59	37.3	3.76	43.2	4.30	45.2	4.55	53.0	5.63	55.0	5.93
36.0 (50%)	5	22.9	1.52	26.2	1.66	29.5	1.80	31.1	1.87	36.0	2.09	37.6	2.16	44.2	2.44	45.8	2.51
	14	22.9	1.52	26.2	1.66	29.5	1.80	31.1	1.87	36.0	2.09	37.6	2.16	44.2	2.44	45.8	2.51
	23	22.9	1.52	26.2	1.66	29.5	1.80	31.1	1.87	36.0	2.09	37.6	2.16	44.2	2.44	45.8	2.51
	32	22.9	1.52	26.2	1.66	29.5	1.80	31.1	1.87	36.0	2.09	37.6	2.16	44.2	2.44	45.8	2.51
	41	22.9	1.52	26.2	1.66	29.5	1.80	31.1	1.87	36.0	2.09	37.6	2.16	44.2	2.44	45.8	2.51
	50	22.9	1.52	26.2	1.66	29.5	1.80	31.1	1.87	36.0	2.09	37.6	2.16	44.2	2.44	45.8	2.51
	59	22.9	1.56	26.2	1.71	29.5	1.85	31.1	1.93	36.0	2.15	37.6	2.22	44.2	2.51	45.8	2.59
	70	22.9	1.64	26.2	1.79	29.5	1.95	31.1	2.03	36.0	2.27	37.6	2.35	44.2	2.66	45.8	2.74
	73	22.9	1.66	26.2	1.83	29.5	1.99	31.1	2.07	36.0	2.31	37.6	2.39	44.2	2.72	45.8	2.80
	77	22.9	1.71	26.2	1.87	29.5	2.04	31.1	2.13	36.0	2.38	37.6	2.46	44.2	2.80	45.8	2.88
	81	22.9	1.75	26.2	1.93	29.5	2.10	31.1	2.19	36.0	2.45	37.6	2.54	44.2	2.89	45.8	2.97
	86	22.9	1.82	26.2	2.00	29.5	2.19	31.1	2.28	36.0	2.55	37.6	2.65	44.2	3.01	45.8	3.11
	91	22.9	1.90	26.2	2.09	29.5	2.28	31.1	2.38	36.0	2.67	37.6	2.77	44.2	3.16	45.8	3.26
	95	22.9	1.97	26.2	2.17	29.5	2.37	31.1	2.48	36.0	2.78	37.6	2.89	44.2	3.30	45.8	3.40
	99	22.9	2.04	26.2	2.26	29.5	2.47	31.1	2.58	36.0	2.91	37.6	3.01	44.2	3.45	45.8	3.56
	104	22.9	2.16	26.2	2.39	29.5	2.62	31.1	2.74	36.0	3.09	37.6	3.20	44.2	3.67	45.8	3.78
	109	22.9	2.30	26.2	2.56	29.5	2.81	31.1	2.94	36.0	3.32	37.6	3.44	44.2	3.95	45.8	4.08
	115	22.9	2.51	26.2	2.79	29.5	3.08	31.1	3.22	36.0	3.64	37.6	3.78	44.2	4.42	45.8	4.63

■ Model: AOU96RLAVL

Cooling capacity at rated condition: 96 kBtu/h (8 ton)																	
Total rated capacity of indoor unit	Outdoor temperature	Indoor temperature															
		68°FDB/59°FWB		73°FDB/61°FWB		75°FDB/63°FWB		79°FDB/64°FWB		80°FDB/67°FWB		82°FDB/68°FWB		86°FDB/72°FWB		90°FDB/73°FWB	
	°FDB	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP
144.0 (150%)	5	91.8	4.96	104.8	5.54	117.9	6.12	124.5	6.41	144.0	7.27	146.5	7.29	154.4	7.26	156.4	7.25
	14	91.8	4.96	104.8	5.54	117.9	6.12	124.5	6.41	144.0	7.27	146.5	7.29	154.4	7.26	156.4	7.25
	23	91.8	4.96	104.8	5.54	117.9	6.12	124.5	6.41	144.0	7.27	146.5	7.29	154.4	7.26	156.4	7.25
	32	91.8	4.96	104.8	5.54	117.9	6.12	124.5	6.41	144.0	7.27	146.5	7.29	154.4	7.26	156.4	7.25
	41	91.8	4.96	104.8	5.54	117.9	6.12	124.5	6.41	144.0	7.27	146.5	7.29	154.4	7.26	156.4	7.25
	50	91.8	4.96	104.8	5.54	117.9	6.12	124.5	6.41	144.0	7.27	146.5	7.29	154.4	7.26	156.4	7.25
	59	91.8	5.12	104.8	5.72	117.9	6.32	124.5	6.62	143.3	7.47	145.2	7.46	153.1	7.43	155.1	7.42
	70	91.8	5.44	104.8	6.08	117.9	6.73	124.5	7.05	138.7	8.05	140.4	8.09	146.8	8.21	148.5	8.25
	73	91.8	5.55	104.8	6.21	117.9	6.87	124.5	7.32	136.7	8.32	138.3	8.35	144.7	8.48	146.3	8.51
	77	91.8	5.72	104.8	6.40	117.9	7.31	124.5	7.95	133.9	8.67	135.5	8.70	141.9	8.84	143.5	8.87
	81	91.8	5.91	104.8	6.66	117.9	7.93	124.5	8.63	131.1	9.02	132.7	9.06	139.0	9.20	140.6	9.23
	86	91.8	6.18	104.8	7.36	117.9	8.78	123.1	9.36	127.6	9.47	129.2	9.50	135.2	9.67	136.7	9.71
	91	91.8	6.74	104.8	8.12	117.9	9.80	119.4	9.85	123.7	9.98	125.2	10.02	130.6	10.11	131.8	10.11
	95	91.8	7.27	104.8	8.88	114.2	10.11	115.4	10.11	118.9	10.11	120.1	10.11	124.9	10.11	126.2	10.11
	99	91.8	7.93	104.8	9.76	108.9	10.11	110.1	10.11	113.6	10.11	114.8	10.11	119.4	10.11	120.6	10.11
	104	88.5	8.35	90.6	8.35	92.6	8.35	93.7	8.35	96.8	8.35	97.9	8.35	102.2	8.35	103.2	8.35
	109	82.9	8.35	84.9	8.35	86.8	8.35	87.8	8.35	90.9	8.35	91.9	8.35	96.0	8.35	97.0	8.35
	115	76.4	8.35	78.3	8.35	80.2	8.35	81.2	8.35	84.0	8.35	85.0	8.35	88.9	8.35	89.9	8.35
134.4 (140%)	5	85.7	4.69	97.8	5.23	110.0	5.77	116.2	6.04	134.4	6.84	140.5	7.11	151.1	7.27	153.1	7.26
	14	85.7	4.69	97.8	5.23	110.0	5.77	116.2	6.04	134.4	6.84	140.5	7.11	151.1	7.27	153.1	7.26
	23	85.7	4.69	97.8	5.23	110.0	5.77	116.2	6.04	134.4	6.84	140.5	7.11	151.1	7.27	153.1	7.26
	32	85.7	4.69	97.8	5.23	110.0	5.77	116.2	6.04	134.4	6.84	140.5	7.11	151.1	7.27	153.1	7.26
	41	85.7	4.69	97.8	5.23	110.0	5.77	116.2	6.04	134.4	6.84	140.5	7.11	151.1	7.27	153.1	7.26
	50	85.7	4.69	97.8	5.23	110.0	5.77	116.2	6.04	134.4	6.84	140.5	7.11	151.1	7.27	153.1	7.26
	59	85.7	4.84	97.8	5.40	110.0	5.96	116.2	6.24	134.4	7.08	140.5	7.36	149.8	7.44	151.8	7.43
	70	85.7	5.14	97.8	5.74	110.0	6.34	116.2	6.64	134.4	7.77	137.9	8.04	144.3	8.16	145.9	8.19
	73	85.7	5.24	97.8	5.86	110.0	6.47	116.2	6.78	134.4	8.27	135.9	8.30	142.2	8.43	143.8	8.46
	77	85.7	5.40	97.8	6.04	110.0	6.67	116.2	7.14	131.7	8.62	133.2	8.66	139.4	8.79	141.0	8.82
	81	85.7	5.58	97.8	6.24	110.0	7.14	116.2	7.75	129.0	8.98	130.5	9.01	136.6	9.15	138.2	9.18
	86	85.7	5.83	97.8	6.67	110.0	7.90	116.2	8.58	125.5	9.42	127.0	9.45	133.0	9.61	134.5	9.65
	91	85.7	6.15	97.8	7.36	110.0	8.73	116.2	9.56	121.8	9.92	123.2	9.97	128.8	10.11	130.1	10.11
	95	85.7	6.63	97.8	7.97	110.0	9.61	113.9	10.11	117.4	10.11	118.6	10.11	123.3	10.11	124.5	10.11
	99	85.7	7.18	97.8	8.74	107.6	10.11	108.7	10.11	112.2	10.11	113.3	10.11	117.9	10.11	119.1	10.11
	104	85.7	8.03	89.5	8.35	91.6	8.35	92.6	8.35	95.7	8.35	96.8	8.35	101.0	8.35	102.0	8.35
	109	82.0	8.35	84.0	8.35	85.9	8.35	86.9	8.35	89.9	8.35	90.9	8.35	94.9	8.35	96.0	8.35
	115	75.7	8.35	77.5	8.35	79.4	8.35	80.3	8.35	83.2	8.35	84.1	8.35	88.0	8.35	89.0	8.35
124.8 (130%)	5	79.5	4.42	90.9	4.92	102.2	5.42	107.9	5.67	124.8	6.42	130.5	6.67	147.5	7.29	149.4	7.28
	14	79.5	4.42	90.9	4.92	102.2	5.42	107.9	5.67	124.8	6.42	130.5	6.67	147.5	7.29	149.4	7.28
	23	79.5	4.42	90.9	4.92	102.2	5.42	107.9	5.67	124.8	6.42	130.5	6.67	147.5	7.29	149.4	7.28
	32	79.5	4.42	90.9	4.92	102.2	5.42	107.9	5.67	124.8	6.42	130.5	6.67	147.5	7.29	149.4	7.28
	41	79.5	4.42	90.9	4.92	102.2	5.42	107.9	5.67	124.8	6.42	130.5	6.67	147.5	7.29	149.4	7.28
	50	79.5	4.42	90.9	4.92	102.2	5.42	107.9	5.67	124.8	6.42	130.5	6.67	147.5	7.29	149.4	7.28
	59	79.5	4.56	90.9	5.08	102.2	5.60	107.9	5.86	124.8	6.64	130.5	6.90	146.3	7.46	148.2	7.45
	70	79.5	4.84	90.9	5.39	102.2	5.95	107.9	6.23	124.8	7.07	130.5	7.41	141.4	8.11	143.0	8.14
	73	79.5	4.93	90.9	5.51	102.2	6.08	107.9	6.36	124.8	7.35	130.5	7.89	139.4	8.37	141.0	8.41
	77	79.5	5.08	90.9	5.67	102.2	6.26	107.9	6.56	124.8	7.98	130.5	8.58	136.7	8.73	138.3	8.76
	81	79.5	5.24	90.9	5.86	102.2	6.47	107.9	6.94	124.8	8.67	128.0	8.96	134.0	9.09	135.5	9.12
	86	79.5	5.48	90.9	6.13	102.2	7.09	107.9	7.67	123.2	9.36	124.7	9.40	130.6	9.54	132.0	9.58
	91	79.5	5.75	90.9	6.64	102.2	7.83	107.9	8.48	119.6	9.86	121.0	9.90	126.7	10.07	128.1	10.11
	95	79.5	6.03	90.9	7.18	102.2	8.52	107.9	9.30	115.7	10.11	116.9	10.11	121.5	10.11	122.7	10.11
	99	79.5	6.49	90.9	7.82	102.2	9.36	107.2	10.11	110.6	10.11	111.7	10.11	116.2	10.11	117.4	10.11
	104	79.5	7.24	88.5	8.35	90.5	8.35	91.5	8.35	94.5	8.35	95.5	8.35	99.6	8.35	100.7	8.35
	109	79.5	8.09	82.9	8.35	84.9	8.35	85.8	8.35	88.8	8.35	89.7	8.35	93.8	8.35	94.7	8.35
	115	74.8	8.35	76.6	8.35	78.4	8.35	79.4	8.35	82.2	8.35	83.1	8.35	86.9	8.35	87.9	8.35
115.2 (120%)	5	73.4	4.15	83.9	4.61	94.3	5.08	99.6	5.31	115.2	6.00	120.5	6.23	141.4	7.15	145.4	7.30
	14	73.4	4.15	83.9	4.61	94.3	5.08	99.6	5.31	115.2	6.00	120.5	6.23	141.4	7.15	145.4	7.30
	23	73.4	4.15	83.9	4.61	94.3	5.08	99.6	5.31	115.2	6.00	120.5	6.23	141.4	7.15	145.4	7.30
	32	73.4	4.15	83.9	4.61	94.3	5.08	99.6	5.31	115.2	6.00	120.5	6.23	141.4	7.15	145.4	7.30
	41	73.4	4.15	83.9	4.61	94.3	5.08	99.6	5.31	115.2	6.00	120.5	6.23	141.4	7.15	145.4	7.30
	50	73.4	4.15	83.9	4.61	94.3	5.08	99.6	5.31	115.2	6.00	120.5	6.23	141.4	7.15	145.4	7.30
	59	73.4	4.28	83.9	4.76	94.3	5.24	99.6	5.48	115.2	6.20	120.5	6.44	141.4	7.40	144.2	7.47
	70	73.4	4.54	83.9	5.05	94.3	5.57	99.6	5.82	115.2	6.60	120.5	6.85	138.3	8.05	139.8	8.08
	73	73.4	4.63	83.9	5.15	94.3	5.68	99.6	5.95	115.2	6.74	120.5	7.00	136.3	8.31	137.9	8.34
	77	73.4	4.76	83.9	5.30	94.3	5.85	99.6	6.13	115.2	7.06	120.5	7.55	133.7	8.67	135.2	8.70
	81	73.4	4.91	83.9	5.48	94.3	6.05	99.6	6.33	115.2	7.65	120.5	8.20	131.1	9.02	132.6	9.06
	86	73.4	5.13	83.9	5.73	94.3	6.35	99.6	6.84	115.2	8.47	120.5	9.08	127.8	9.47	129.3	9.51
	91	73.4	5.38	83.9	6.01	94.3	6.99	99.6	7.54	115.2	9.43	118.6	9.83	124.1	9.99	125.5	10.03
	95	73.4	5.61	83.9	6.45	94.3	7.55	99.6	8.19	113.8	10.11	114.9	10.11	119.4	10.11	120.6	10.11
	99	73.4	5.88	83.9	6.97	94.3	8.26	99.6	8.99	108.8	10.11	109.9	10.11	114.3	10.11	115.4	10.11
	104	73.4	6.50	83.9	7.79	89.1	8.35	90.1	8.35	93.1	8.35	94.1	8.35	98.2	8.35	99.2	8.35
	109	73.4	7.24	81.8	8.35	83.6	8.35	84.6	8.35	87.5	8.35	88.5	8.35	92.4	8.35	93.4	8.35
	115	73.4	8.28	75.6	8.35	77.4	8.35	78.3	8.35	81.0	8.35	82.0	8.35	85.7	8.35	86.7	8.35

MODEL SELECTION

Cooling capacity at rated condition: 96 kBtu/h (8 ton)																	
Total rated capacity of indoor unit	Outdoor temperature	Indoor temperature															
		68°FDB/59°FWB		73°FDB/61°FWB		75°FDB/63°FWB		79°FDB/64°FWB		80°FDB/67°FWB		82°FDB/68°FWB		86°FDB/72°FWB		90°FDB/73°FWB	
	°FDB	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP
105.6 (110%)	5	67.3	3.88	76.9	4.31	86.5	4.73	91.3	4.94	105.6	5.57	110.4	5.79	129.6	6.63	134.4	6.84
	14	67.3	3.88	76.9	4.31	86.5	4.73	91.3	4.94	105.6	5.57	110.4	5.79	129.6	6.63	134.4	6.84
	23	67.3	3.88	76.9	4.31	86.5	4.73	91.3	4.94	105.6	5.57	110.4	5.79	129.6	6.63	134.4	6.84
	32	67.3	3.88	76.9	4.31	86.5	4.73	91.3	4.94	105.6	5.57	110.4	5.79	129.6	6.63	134.4	6.84
	41	67.3	3.88	76.9	4.31	86.5	4.73	91.3	4.94	105.6	5.57	110.4	5.79	129.6	6.63	134.4	6.84
	50	67.3	3.88	76.9	4.31	86.5	4.73	91.3	4.94	105.6	5.57	110.4	5.79	129.6	6.63	134.4	6.84
	59	67.3	4.00	76.9	4.44	86.5	4.88	91.3	5.10	105.6	5.76	110.4	5.98	129.6	6.86	134.4	7.08
	70	67.3	4.23	76.9	4.71	86.5	5.18	91.3	5.42	105.6	6.12	110.4	6.36	129.6	7.32	134.4	7.77
	73	67.3	4.32	76.9	4.80	86.5	5.28	91.3	5.53	105.6	6.25	110.4	6.49	129.6	7.80	134.4	8.27
	77	67.3	4.44	76.9	4.94	86.5	5.44	91.3	5.69	105.6	6.44	110.4	6.70	129.6	8.48	131.9	8.63
	81	67.3	4.58	76.9	5.10	86.5	5.62	91.3	5.88	105.6	6.73	110.4	7.18	127.9	8.95	129.3	8.98
	86	67.3	4.78	76.9	5.33	86.5	5.88	91.3	6.15	105.6	7.43	110.4	7.94	124.7	9.40	126.1	9.43
	91	67.3	5.01	76.9	5.59	86.5	6.22	91.3	6.69	105.6	8.21	110.4	8.78	121.2	9.91	122.5	9.95
	95	67.3	5.21	76.9	5.83	86.5	6.71	91.3	7.22	105.6	8.98	110.4	9.67	117.1	10.11	118.2	10.11
	99	67.3	5.45	76.9	6.22	86.5	7.27	91.3	7.87	105.6	9.88	107.8	10.11	112.1	10.11	113.2	10.11
	104	67.3	5.81	76.9	6.91	86.5	8.14	88.6	8.35	91.5	8.35	92.5	8.35	96.4	8.35	97.5	8.35
	109	67.3	6.46	76.9	7.71	82.3	8.35	83.3	8.35	86.1	8.35	87.0	8.35	90.8	8.35	91.8	8.35
	115	67.3	7.36	74.4	8.35	76.3	8.35	77.1	8.35	79.8	8.35	80.7	8.35	84.4	8.35	85.3	8.35
96.0 (100%)	5	61.2	3.61	69.9	4.00	78.6	4.38	83.0	4.58	96.0	5.15	100.4	5.34	117.8	6.11	122.2	6.31
	14	61.2	3.61	69.9	4.00	78.6	4.38	83.0	4.58	96.0	5.15	100.4	5.34	117.8	6.11	122.2	6.31
	23	61.2	3.61	69.9	4.00	78.6	4.38	83.0	4.58	96.0	5.15	100.4	5.34	117.8	6.11	122.2	6.31
	32	61.2	3.61	69.9	4.00	78.6	4.38	83.0	4.58	96.0	5.15	100.4	5.34	117.8	6.11	122.2	6.31
	41	61.2	3.61	69.9	4.00	78.6	4.38	83.0	4.58	96.0	5.15	100.4	5.34	117.8	6.11	122.2	6.31
	50	61.2	3.61	69.9	4.00	78.6	4.38	83.0	4.58	96.0	5.15	100.4	5.34	117.8	6.11	122.2	6.31
	59	61.2	3.72	69.9	4.12	78.6	4.52	83.0	4.72	96.0	5.32	100.4	5.52	117.8	6.32	122.2	6.52
	70	61.2	3.93	69.9	4.36	78.6	4.79	83.0	5.01	96.0	5.65	100.4	5.86	117.8	6.72	122.2	6.94
	73	61.2	4.01	69.9	4.45	78.6	4.89	83.0	5.11	96.0	5.77	100.4	5.99	117.8	6.87	122.2	7.11
	77	61.2	4.12	69.9	4.57	78.6	5.03	83.0	5.26	96.0	5.94	100.4	6.17	117.8	7.30	122.2	7.72
	81	61.2	4.24	69.9	4.72	78.6	5.19	83.0	5.43	96.0	6.14	100.4	6.38	117.8	7.92	122.2	8.38
	86	61.2	4.43	69.9	4.93	78.6	5.42	83.0	5.68	96.0	6.50	100.4	6.92	117.8	8.77	122.2	9.29
	91	61.2	4.63	69.9	5.16	78.6	5.69	83.0	5.96	96.0	7.16	100.4	7.63	117.8	9.79	119.2	9.85
	95	61.2	4.82	69.9	5.38	78.6	5.94	83.0	6.36	96.0	7.74	100.4	8.29	114.5	10.11	115.6	10.11
	99	61.2	5.04	69.9	5.62	78.6	6.40	83.0	6.87	96.0	8.49	100.4	9.11	109.7	10.11	110.7	10.11
	104	61.2	5.35	69.9	6.10	78.6	7.12	83.0	7.68	89.7	8.35	90.6	8.35	94.5	8.35	95.5	8.35
	109	61.2	5.75	69.9	6.79	78.6	7.95	81.6	8.35	84.4	8.35	85.3	8.35	89.0	8.35	90.0	8.35
	115	61.2	6.51	69.9	7.73	74.8	8.35	75.7	8.35	78.3	8.35	79.2	8.35	82.8	8.35	83.7	8.35
86.4 (90%)	5	55.1	3.35	62.9	3.69	70.7	4.04	74.7	4.21	86.4	4.73	90.4	4.90	106.0	5.59	110.0	5.77
	14	55.1	3.35	62.9	3.69	70.7	4.04	74.7	4.21	86.4	4.73	90.4	4.90	106.0	5.59	110.0	5.77
	23	55.1	3.35	62.9	3.69	70.7	4.04	74.7	4.21	86.4	4.73	90.4	4.90	106.0	5.59	110.0	5.77
	32	55.1	3.35	62.9	3.69	70.7	4.04	74.7	4.21	86.4	4.73	90.4	4.90	106.0	5.59	110.0	5.77
	41	55.1	3.35	62.9	3.69	70.7	4.04	74.7	4.21	86.4	4.73	90.4	4.90	106.0	5.59	110.0	5.77
	50	55.1	3.35	62.9	3.69	70.7	4.04	74.7	4.21	86.4	4.73	90.4	4.90	106.0	5.59	110.0	5.77
	59	55.1	3.44	62.9	3.80	70.7	4.16	74.7	4.34	86.4	4.88	90.4	5.06	106.0	5.78	110.0	5.96
	70	55.1	3.63	62.9	4.02	70.7	4.40	74.7	4.60	86.4	5.18	90.4	5.37	106.0	6.14	110.0	6.34
	73	55.1	3.70	62.9	4.09	70.7	4.49	74.7	4.69	86.4	5.28	90.4	5.48	106.0	6.27	110.0	6.47
	77	55.1	3.80	62.9	4.21	70.7	4.62	74.7	4.83	86.4	5.44	90.4	5.64	106.0	6.47	110.0	6.67
	81	55.1	3.91	62.9	4.34	70.7	4.76	74.7	4.98	86.4	5.62	90.4	5.83	106.0	6.77	110.0	7.14
	86	55.1	4.08	62.9	4.52	70.7	4.97	74.7	5.20	86.4	5.87	90.4	6.10	106.0	7.48	110.0	7.89
	91	55.1	4.26	62.9	4.74	70.7	5.22	74.7	5.46	86.4	6.22	90.4	6.60	106.0	8.26	110.0	8.73
	95	55.1	4.43	62.9	4.93	70.7	5.43	74.7	5.69	86.4	6.71	90.4	7.12	106.0	9.04	110.0	9.60
	99	55.1	4.62	62.9	5.15	70.7	5.68	74.7	6.00	86.4	7.27	90.4	7.75	106.0	9.95	107.8	10.11
	104	55.1	4.90	62.9	5.47	70.7	6.19	74.7	6.65	86.4	8.14	88.6	8.35	92.2	8.35	93.2	8.35
	109	55.1	5.26	62.9	5.94	70.7	6.89	74.7	7.41	82.5	8.35	83.4	8.35	87.0	8.35	87.9	8.35
	115	55.1	5.77	62.9	6.74	70.7	7.86	74.0	8.35	76.6	8.35	77.5	8.35	80.9	8.35	81.8	8.35
76.8 (80%)	5	48.9	3.08	55.9	3.38	62.9	3.69	66.4	3.84	76.8	4.30	80.3	4.46	94.2	5.07	97.8	5.23
	14	48.9	3.08	55.9	3.38	62.9	3.69	66.4	3.84	76.8	4.30	80.3	4.46	94.2	5.07	97.8	5.23
	23	48.9	3.08	55.9	3.38	62.9	3.69	66.4	3.84	76.8	4.30	80.3	4.46	94.2	5.07	97.8	5.23
	32	48.9	3.08	55.9	3.38	62.9	3.69	66.4	3.84	76.8	4.30	80.3	4.46	94.2	5.07	97.8	5.23
	41	48.9	3.08	55.9	3.38	62.9	3.69	66.4	3.84	76.8	4.30	80.3	4.46	94.2	5.07	97.8	5.23
	50	48.9	3.08	55.9	3.38	62.9	3.69	66.4	3.84	76.8	4.30	80.3	4.46	94.2	5.07	97.8	5.23
	59	48.9	3.16	55.9	3.48	62.9	3.80	66.4	3.96	76.8	4.44	80.3	4.60	94.2	5.24	97.8	5.40
	70	48.9	3.33	55.9	3.67	62.9	4.02	66.4	4.19	76.8	4.70	80.3	4.88	94.2	5.56	97.8	5.73
	73	48.9	3.39	55.9	3.74	62.9	4.09	66.4	4.27	76.8	4.80	80.3	4.97	94.2	5.68	97.8	5.85
	77	48.9	3.48	55.9	3.84	62.9	4.21	66.4	4.39	76.8	4.94	80.3	5.12	94.2	5.85	97.8	6.03
	81	48.9	3.58	55.9	3.96	62.9	4.34	66.4	4.53	76.8	5.09	80.3	5.29	94.2	6.04	97.8	6.23
	86	48.9	3.72	55.9	4.12	62.9	4.52	66.4	4.72	76.8	5.32	80.3	5.52	94.2	6.34	97.8	6.67
	91	48.9	3.89	55.9	4.31	62.9	4.74	66.4	4.95	76.8	5.58	80.3	5.80	94.2	6.98	97.8	7.35
	95	48.9	4.04	55.9	4.49	62.9	4.93	66.4	5.16	76.8	5.82	80.3	6.10	94.2	7.55	97.8	7.96
	99	48.9	4.21	55.9	4.68	62.9	5.15	66.4	5.39	76.8	6.21	80.3	6.58	94.2	8.26	97.8	8.73
	104	48.9	4.46	55.9	4.96	62.9	5.47	66.4	5.72	76.8	6.90	80.3	7.33	89.5	8.35	90.5	8.35
	109	48.9	4.78	55.9	5.33	62.9	5.94	66.4	6.35	76.8	7.70	80.3	8.20	84.5	8.35	85.4	8.35
	115	48.9	5.23	55.9	5.84	62.9	6.74	66.4	7.22	74.5	8.35	75.4	8.35	78.8	8.35	79.6	8.35

MODEL SELECTION

Cooling capacity at rated condition: 96 kBtu/h (8 ton)																	
Total rated capacity of indoor unit	Outdoor temperature	Indoor temperature															
		68°FDB/59°FWB		73°FDB/61°FWB		75°FDB/63°FWB		79°FDB/64°FWB		80°FDB/67°FWB		82°FDB/68°FWB		86°FDB/72°FWB		90°FDB/73°FWB	
	°FDB	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP
67.2 (70%)	5	42.8	2.81	48.9	3.07	55.0	3.34	58.1	3.48	67.2	3.88	70.3	4.02	82.5	4.55	85.5	4.69
	14	42.8	2.81	48.9	3.07	55.0	3.34	58.1	3.48	67.2	3.88	70.3	4.02	82.5	4.55	85.5	4.69
	23	42.8	2.81	48.9	3.07	55.0	3.34	58.1	3.48	67.2	3.88	70.3	4.02	82.5	4.55	85.5	4.69
	32	42.8	2.81	48.9	3.07	55.0	3.34	58.1	3.48	67.2	3.88	70.3	4.02	82.5	4.55	85.5	4.69
	41	42.8	2.81	48.9	3.07	55.0	3.34	58.1	3.48	67.2	3.88	70.3	4.02	82.5	4.55	85.5	4.69
	50	42.8	2.81	48.9	3.07	55.0	3.34	58.1	3.48	67.2	3.88	70.3	4.02	82.5	4.55	85.5	4.69
	59	42.8	2.88	48.9	3.16	55.0	3.44	58.1	3.58	67.2	4.00	70.3	4.14	82.5	4.70	85.5	4.84
	70	42.8	3.03	48.9	3.33	55.0	3.63	58.1	3.78	67.2	4.23	70.3	4.38	82.5	4.98	85.5	5.13
	73	42.8	3.08	48.9	3.39	55.0	3.70	58.1	3.85	67.2	4.31	70.3	4.47	82.5	5.08	85.5	5.24
	77	42.8	3.16	48.9	3.48	55.0	3.80	58.1	3.96	67.2	4.43	70.3	4.59	82.5	5.23	85.5	5.39
	81	42.8	3.25	48.9	3.58	55.0	3.91	58.1	4.08	67.2	4.57	70.3	4.74	82.5	5.40	85.5	5.57
	86	42.8	3.37	48.9	3.72	55.0	4.07	58.1	4.25	67.2	4.77	70.3	4.95	82.5	5.65	85.5	5.82
	91	42.8	3.52	48.9	3.89	55.0	4.26	58.1	4.45	67.2	5.00	70.3	5.19	82.5	5.93	85.5	6.14
	95	42.8	3.65	48.9	4.04	55.0	4.43	58.1	4.63	67.2	5.21	70.3	5.41	82.5	6.31	85.5	6.62
	99	42.8	3.80	48.9	4.21	55.0	4.62	58.1	4.83	67.2	5.44	70.3	5.65	82.5	6.81	85.5	7.17
	104	42.8	4.02	48.9	4.46	55.0	4.90	58.1	5.12	67.2	5.80	70.3	6.14	82.5	7.61	85.5	8.02
	109	42.8	4.30	48.9	4.78	55.0	5.26	58.1	5.50	67.2	6.45	70.3	6.84	81.6	8.35	82.5	8.35
	115	42.8	4.69	48.9	5.23	55.0	5.77	58.1	6.11	67.2	7.34	70.3	7.79	76.1	8.35	77.0	8.35
57.6 (60%)	5	36.7	2.54	41.9	2.77	47.2	3.00	49.8	3.11	57.6	3.46	60.2	3.57	70.7	4.03	73.3	4.15
	14	36.7	2.54	41.9	2.77	47.2	3.00	49.8	3.11	57.6	3.46	60.2	3.57	70.7	4.03	73.3	4.15
	23	36.7	2.54	41.9	2.77	47.2	3.00	49.8	3.11	57.6	3.46	60.2	3.57	70.7	4.03	73.3	4.15
	32	36.7	2.54	41.9	2.77	47.2	3.00	49.8	3.11	57.6	3.46	60.2	3.57	70.7	4.03	73.3	4.15
	41	36.7	2.54	41.9	2.77	47.2	3.00	49.8	3.11	57.6	3.46	60.2	3.57	70.7	4.03	73.3	4.15
	50	36.7	2.54	41.9	2.77	47.2	3.00	49.8	3.11	57.6	3.46	60.2	3.57	70.7	4.03	73.3	4.15
	59	36.7	2.60	41.9	2.84	47.2	3.08	49.8	3.20	57.6	3.56	60.2	3.68	70.7	4.16	73.3	4.28
	70	36.7	2.73	41.9	2.98	47.2	3.24	49.8	3.37	57.6	3.76	60.2	3.89	70.7	4.40	73.3	4.53
	73	36.7	2.77	41.9	3.03	47.2	3.30	49.8	3.43	57.6	3.83	60.2	3.96	70.7	4.49	73.3	4.62
	77	36.7	2.84	41.9	3.11	47.2	3.38	49.8	3.52	57.6	3.93	60.2	4.07	70.7	4.62	73.3	4.75
	81	36.7	2.91	41.9	3.20	47.2	3.48	49.8	3.63	57.6	4.05	60.2	4.19	70.7	4.76	73.3	4.90
	86	36.7	3.02	41.9	3.32	47.2	3.62	49.8	3.77	57.6	4.22	60.2	4.37	70.7	4.97	73.3	5.12
	91	36.7	3.15	41.9	3.47	47.2	3.78	49.8	3.94	57.6	4.42	60.2	4.58	70.7	5.21	73.3	5.37
	95	36.7	3.26	41.9	3.59	47.2	3.93	49.8	4.10	57.6	4.60	60.2	4.76	70.7	5.43	73.3	5.60
	99	36.7	3.39	41.9	3.74	47.2	4.09	49.8	4.27	57.6	4.80	60.2	4.97	70.7	5.68	73.3	5.87
	104	36.7	3.57	41.9	3.95	47.2	4.33	49.8	4.52	57.6	5.09	60.2	5.28	70.7	6.19	73.3	6.49
	109	36.7	3.81	41.9	4.23	47.2	4.64	49.8	4.85	57.6	5.46	60.2	5.67	70.7	6.89	73.3	7.23
	115	36.7	4.15	41.9	4.61	47.2	5.07	49.8	5.30	57.6	6.05	60.2	6.39	70.7	7.86	73.3	8.26
48.0 (50%)	5	30.6	2.27	34.9	2.46	39.3	2.65	41.5	2.75	48.0	3.03	50.2	3.13	58.9	3.51	61.1	3.61
	14	30.6	2.27	34.9	2.46	39.3	2.65	41.5	2.75	48.0	3.03	50.2	3.13	58.9	3.51	61.1	3.61
	23	30.6	2.27	34.9	2.46	39.3	2.65	41.5	2.75	48.0	3.03	50.2	3.13	58.9	3.51	61.1	3.61
	32	30.6	2.27	34.9	2.46	39.3	2.65	41.5	2.75	48.0	3.03	50.2	3.13	58.9	3.51	61.1	3.61
	41	30.6	2.27	34.9	2.46	39.3	2.65	41.5	2.75	48.0	3.03	50.2	3.13	58.9	3.51	61.1	3.61
	50	30.6	2.27	34.9	2.46	39.3	2.65	41.5	2.75	48.0	3.03	50.2	3.13	58.9	3.51	61.1	3.61
	59	30.6	2.32	34.9	2.52	39.3	2.72	41.5	2.82	48.0	3.12	50.2	3.22	58.9	3.62	61.1	3.72
	70	30.6	2.42	34.9	2.64	39.3	2.85	41.5	2.96	48.0	3.28	50.2	3.39	58.9	3.82	61.1	3.93
	73	30.6	2.46	34.9	2.68	39.3	2.90	41.5	3.01	48.0	3.34	50.2	3.45	58.9	3.89	61.1	4.00
	77	30.6	2.52	34.9	2.75	39.3	2.97	41.5	3.09	48.0	3.43	50.2	3.54	58.9	4.00	61.1	4.11
	81	30.6	2.58	34.9	2.82	39.3	3.05	41.5	3.17	48.0	3.53	50.2	3.65	58.9	4.12	61.1	4.24
	86	30.6	2.67	34.9	2.92	39.3	3.17	41.5	3.30	48.0	3.67	50.2	3.80	58.9	4.30	61.1	4.42
	91	30.6	2.78	34.9	3.04	39.3	3.31	41.5	3.44	48.0	3.83	50.2	3.97	58.9	4.50	61.1	4.63
	95	30.6	2.87	34.9	3.15	39.3	3.43	41.5	3.57	48.0	3.98	50.2	4.12	58.9	4.68	61.1	4.82
	99	30.6	2.98	34.9	3.27	39.3	3.56	41.5	3.71	48.0	4.15	50.2	4.30	58.9	4.88	61.1	5.03
	104	30.6	3.13	34.9	3.45	39.3	3.76	41.5	3.92	48.0	4.39	50.2	4.55	58.9	5.18	61.1	5.34
	109	30.6	3.33	34.9	3.67	39.3	4.02	41.5	4.19	48.0	4.71	50.2	4.88	58.9	5.57	61.1	5.74
	115	30.6	3.61	34.9	4.00	39.3	4.38	41.5	4.57	48.0	5.15	50.2	5.34	58.9	6.21	61.1	6.50

■ Model: AOU120RLAVL

Cooling capacity at rated condition: 120 kBtu/h (10 ton)																	
Total rated capacity of indoor unit	Outdoor temperature	Indoor temperature															
		68°FDB/59°FWB		73°FDB/61°FWB		75°FDB/63°FWB		79°FDB/64°FWB		80°FDB/67°FWB		82°FDB/68°FWB		86°FDB/72°FWB		90°FDB/73°FWB	
	°FDB	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP
180.0 (150%)	5	114.7	6.20	131.0	6.90	147.4	7.61	155.6	7.96	179.7	9.00	182.1	8.99	191.9	8.94	194.4	8.93
	14	114.7	6.20	131.0	6.90	147.4	7.61	155.6	7.96	179.7	9.00	182.1	8.99	191.9	8.94	194.4	8.93
	23	114.7	6.20	131.0	6.90	147.4	7.61	155.6	7.96	179.7	9.00	182.1	8.99	191.9	8.94	194.4	8.93
	32	114.7	6.20	131.0	6.90	147.4	7.61	155.6	7.96	179.7	9.00	182.1	8.99	191.9	8.94	194.4	8.93
	41	114.7	6.20	131.0	6.90	147.4	7.61	155.6	7.96	179.7	9.00	182.1	8.99	191.9	8.94	194.4	8.93
	50	114.7	6.20	131.0	6.90	147.4	7.61	155.6	7.96	179.7	9.00	182.1	8.99	191.9	8.94	194.4	8.93
	59	114.7	6.40	131.0	7.13	147.4	7.86	155.6	8.23	178.1	9.20	180.5	9.19	190.2	9.15	192.7	9.14
	70	114.7	6.78	131.0	7.57	147.4	8.36	155.6	8.76	172.6	9.89	174.7	9.93	182.7	10.08	184.8	10.12
	73	114.7	6.92	131.0	7.73	147.4	8.53	155.6	9.08	170.1	10.21	172.1	10.25	180.1	10.40	182.1	10.44
	77	114.7	7.13	131.0	7.96	147.4	9.06	155.6	9.85	166.7	10.64	168.6	10.68	176.6	10.84	178.6	10.88
	81	114.7	7.36	131.0	8.27	147.4	9.82	155.6	10.68	163.2	11.06	165.2	11.11	173.0	11.27	175.0	11.32
	86	114.7	7.69	131.0	9.12	147.4	10.86	153.2	11.48	158.9	11.60	160.8	11.65	168.3	11.84	170.2	11.90
	91	114.7	8.36	131.0	10.06	146.9	12.02	148.6	12.07	154.0	12.22	155.9	12.28	162.0	12.28	163.5	12.28
	95	114.7	9.02	131.0	10.97	141.7	12.28	143.1	12.28	147.5	12.28	149.0	12.28	154.9	12.28	156.5	12.28
	99	114.7	9.83	131.0	12.06	135.1	12.28	136.5	12.28	140.8	12.28	142.3	12.28	148.1	12.28	149.6	12.28
	104	99.1	8.61	101.5	8.61	103.9	8.61	105.1	8.61	108.7	8.61	110.0	8.61	115.0	8.61	116.1	8.61
	109	92.4	8.61	94.7	8.61	97.1	8.61	98.2	8.61	101.7	8.61	102.9	8.61	107.7	8.61	108.9	8.61
	115	84.9	8.61	87.1	8.61	89.3	8.61	90.4	8.61	93.7	8.61	94.8	8.61	99.3	8.61	100.5	8.61
168.0 (140%)	5	107.1	5.87	122.3	6.53	137.5	7.19	145.2	7.52	168.0	8.50	175.7	8.83	187.8	8.96	190.3	8.95
	14	107.1	5.87	122.3	6.53	137.5	7.19	145.2	7.52	168.0	8.50	175.7	8.83	187.8	8.96	190.3	8.95
	23	107.1	5.87	122.3	6.53	137.5	7.19	145.2	7.52	168.0	8.50	175.7	8.83	187.8	8.96	190.3	8.95
	32	107.1	5.87	122.3	6.53	137.5	7.19	145.2	7.52	168.0	8.50	175.7	8.83	187.8	8.96	190.3	8.95
	41	107.1	5.87	122.3	6.53	137.5	7.19	145.2	7.52	168.0	8.50	175.7	8.83	187.8	8.96	190.3	8.95
	50	107.1	5.87	122.3	6.53	137.5	7.19	145.2	7.52	168.0	8.50	175.7	8.83	187.8	8.96	190.3	8.95
	59	107.1	6.05	122.3	6.74	137.5	7.42	145.2	7.76	168.0	8.79	175.7	9.13	186.2	9.17	188.7	9.16
	70	107.1	6.41	122.3	7.15	137.5	7.89	145.2	8.26	168.0	9.63	171.7	9.87	179.6	10.02	181.6	10.06
	73	107.1	6.54	122.3	7.29	137.5	8.05	145.2	8.43	167.2	10.15	169.2	10.19	177.0	10.34	179.0	10.38
	77	107.1	6.73	122.3	7.51	137.5	8.29	145.2	8.87	163.9	10.58	165.8	10.62	173.5	10.78	175.5	10.82
	81	107.1	6.95	122.3	7.76	137.5	8.87	145.2	9.60	160.5	11.01	162.4	11.05	170.1	11.21	172.0	11.25
	86	107.1	7.26	122.3	8.29	137.5	9.78	145.2	10.62	156.3	11.54	158.1	11.59	165.6	11.77	167.5	11.82
	91	107.1	7.65	122.3	9.12	137.5	10.80	145.2	11.81	151.6	12.15	153.4	12.20	159.9	12.28	161.3	12.28
	95	107.1	8.24	122.3	9.87	137.5	11.87	141.3	12.28	145.6	12.28	147.1	12.28	153.0	12.28	154.5	12.28
	99	107.1	8.90	122.3	10.81	133.4	12.28	134.8	12.28	139.1	12.28	140.5	12.28	146.3	12.28	147.7	12.28
	104	98.1	8.61	100.4	8.61	102.7	8.61	104.0	8.61	107.6	8.61	108.8	8.61	113.7	8.61	115.0	8.61
	109	91.6	8.61	93.8	8.61	96.0	8.61	97.2	8.61	100.7	8.61	101.9	8.61	106.6	8.61	107.7	8.61
	115	84.1	8.61	86.3	8.61	88.5	8.61	89.5	8.61	92.8	8.61	93.9	8.61	98.4	8.61	99.5	8.61
156.0 (130%)	5	99.4	5.54	113.6	6.15	127.7	6.76	134.8	7.07	156.0	7.98	163.1	8.29	183.4	8.98	185.8	8.97
	14	99.4	5.54	113.6	6.15	127.7	6.76	134.8	7.07	156.0	7.98	163.1	8.29	183.4	8.98	185.8	8.97
	23	99.4	5.54	113.6	6.15	127.7	6.76	134.8	7.07	156.0	7.98	163.1	8.29	183.4	8.98	185.8	8.97
	32	99.4	5.54	113.6	6.15	127.7	6.76	134.8	7.07	156.0	7.98	163.1	8.29	183.4	8.98	185.8	8.97
	41	99.4	5.54	113.6	6.15	127.7	6.76	134.8	7.07	156.0	7.98	163.1	8.29	183.4	8.98	185.8	8.97
	50	99.4	5.54	113.6	6.15	127.7	6.76	134.8	7.07	156.0	7.98	163.1	8.29	183.4	8.98	185.8	8.97
	59	99.4	5.71	113.6	6.34	127.7	6.98	134.8	7.30	156.0	8.25	163.1	8.57	181.9	9.19	184.2	9.18
	70	99.4	6.04	113.6	6.73	127.7	7.41	134.8	7.76	156.0	8.78	163.1	9.19	176.0	9.95	178.0	9.99
	73	99.4	6.16	113.6	6.86	127.7	7.56	134.8	7.92	156.0	9.11	163.1	9.78	173.5	10.28	175.5	10.31
	77	99.4	6.34	113.6	7.07	127.7	7.79	134.8	8.16	156.0	9.89	162.7	10.55	170.2	10.71	172.1	10.75
	81	99.4	6.54	113.6	7.30	127.7	8.05	134.8	8.62	156.0	10.72	159.4	10.98	166.8	11.14	168.7	11.18
	86	99.4	6.83	113.6	7.62	127.7	8.80	134.8	9.51	153.4	11.48	155.2	11.52	162.6	11.69	164.4	11.74
	91	99.4	7.16	113.6	8.25	127.7	9.70	134.8	10.49	148.9	12.08	150.7	12.13	157.5	12.28	158.9	12.28
	95	99.4	7.50	113.6	8.90	127.7	10.54	134.8	11.49	143.5	12.28	144.9	12.28	150.7	12.28	152.2	12.28
	99	99.4	8.07	113.6	9.68	127.7	11.57	132.9	12.28	137.1	12.28	138.6	12.28	144.1	12.28	145.6	12.28
	104	96.9	8.61	99.2	8.61	101.6	8.61	102.7	8.61	106.2	8.61	107.5	8.61	112.3	8.61	113.5	8.61
	109	90.5	8.61	92.8	8.61	94.9	8.61	96.1	8.61	99.5	8.61	100.7	8.61	105.3	8.61	106.5	8.61
	115	83.2	8.61	85.4	8.61	87.4	8.61	88.5	8.61	91.8	8.61	92.9	8.61	97.3	8.61	98.4	8.61
144.0 (120%)	5	91.8	5.21	104.8	5.77	117.9	6.34	124.5	6.62	144.0	7.47	150.6	7.75	176.7	8.88	180.8	8.99
	14	91.8	5.21	104.8	5.77	117.9	6.34	124.5	6.62	144.0	7.47	150.6	7.75	176.7	8.88	180.8	8.99
	23	91.8	5.21	104.8	5.77	117.9	6.34	124.5	6.62	144.0	7.47	150.6	7.75	176.7	8.88	180.8	8.99
	32	91.8	5.21	104.8	5.77	117.9	6.34	124.5	6.62	144.0	7.47	150.6	7.75	176.7	8.88	180.8	8.99
	41	91.8	5.21	104.8	5.77	117.9	6.34	124.5	6.62	144.0	7.47	150.6	7.75	176.7	8.88	180.8	8.99
	50	91.8	5.21	104.8	5.77	117.9	6.34	124.5	6.62	144.0	7.47	150.6	7.75	176.7	8.88	180.8	8.99
	59	91.8	5.36	104.8	5.95	117.9	6.54	124.5	6.83	144.0	7.71	150.6	8.01	176.7	9.18	179.3	9.20
	70	91.8	5.68	104.8	6.31	117.9	6.94	124.5	7.25	144.0	8.20	150.6	8.52	172.1	9.88	174.0	9.91
	73	91.8	5.78	104.8	6.43	117.9	7.08	124.5	7.40	144.0	8.37	150.6	8.69	169.7	10.20	171.6	10.24
	77	91.8	5.95	104.8	6.62	117.9	7.29	124.5	7.63	144.0	8.76	150.6	9.36	166.5	10.63	168.4	10.67
	81	91.8	6.13	104.8	6.83	117.9	7.53	124.5	7.88	144.0	9.49	150.6	10.15	163.2	11.06	165.1	11.10
	86	91.8	6.40	104.8	7.13	117.9	7.89	124.5	8.49	144.0	10.48	150.6	11.23	159.1	11.61	160.9	11.65
	91	91.8	6.71	104.8	7.48	117.9	8.68	124.5	9.35	144.0	11.65	147.7	12.04	154.5	12.23	156.2	12.28
	95	91.8	6.99	104.8	8.02	117.9	9.36	124.5	10.14	141.2	12.28	142.5	12.28	148.2	12.28	149.6	12.28
	99	91.8	7.31	104.8	8.65	117.9	10.23	124.5	11.11	134.9	12.28	136.3	12.28	141.8	12.28	143.2	12.28
	104	91.8	8.07	97.9	8.61	100.1	8.61	101.3	8.61	104.8	8.61	106.0	8.61	110.7	8.61	111.9	8.61
	109	89.3	8.61	91.5	8.61	93.7	8.61	94.9	8.61	98.1	8.61	99.3	8.61	103.8	8.61	105.0	8.61
	115	82.2	8.61	84.3	8.61	86.3	8.61	87.4	8.61	90.6	8.61	91.7	8.61	96.0	8.61	97.1	8.61

MODEL SELECTION

Cooling capacity at rated condition: 120 kBtu/h (10 ton)																	
Total rated capacity of indoor unit	Outdoor temperature	Indoor temperature															
		68°FDB/59°FWB		73°FDB/61°FWB		75°FDB/63°FWB		79°FDB/64°FWB		80°FDB/67°FWB		82°FDB/68°FWB		86°FDB/72°FWB		90°FDB/73°FWB	
	°FDB	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP
132.0 (110%)	5	84.1	4.88	96.1	5.40	108.1	5.91	114.1	6.17	132.0	6.95	138.0	7.21	162.0	8.24	168.0	8.50
	14	84.1	4.88	96.1	5.40	108.1	5.91	114.1	6.17	132.0	6.95	138.0	7.21	162.0	8.24	168.0	8.50
	23	84.1	4.88	96.1	5.40	108.1	5.91	114.1	6.17	132.0	6.95	138.0	7.21	162.0	8.24	168.0	8.50
	32	84.1	4.88	96.1	5.40	108.1	5.91	114.1	6.17	132.0	6.95	138.0	7.21	162.0	8.24	168.0	8.50
	41	84.1	4.88	96.1	5.40	108.1	5.91	114.1	6.17	132.0	6.95	138.0	7.21	162.0	8.24	168.0	8.50
	50	84.1	4.88	96.1	5.40	108.1	5.91	114.1	6.17	132.0	6.95	138.0	7.21	162.0	8.24	168.0	8.50
	59	84.1	5.02	96.1	5.56	108.1	6.10	114.1	6.37	132.0	7.17	138.0	7.44	162.0	8.52	168.0	8.79
	70	84.1	5.31	96.1	5.88	108.1	6.46	114.1	6.75	132.0	7.62	138.0	7.91	162.0	9.09	168.0	9.63
	73	84.1	5.41	96.1	6.00	108.1	6.59	114.1	6.89	132.0	7.78	138.0	8.07	162.0	9.67	167.3	10.15
	77	84.1	5.56	96.1	6.17	108.1	6.78	114.1	7.09	132.0	8.01	138.0	8.32	162.0	10.49	164.1	10.58
	81	84.1	5.73	96.1	6.36	108.1	7.00	114.1	7.32	132.0	8.36	138.0	8.91	159.2	10.98	161.0	11.02
	86	84.1	5.97	96.1	6.64	108.1	7.32	114.1	7.66	132.0	9.22	138.0	9.84	155.3	11.52	157.0	11.56
	91	84.1	6.25	96.1	6.97	108.1	7.74	114.1	8.30	132.0	10.17	138.0	10.86	150.9	12.13	152.6	12.18
	95	84.1	6.51	96.1	7.26	108.1	8.33	114.1	8.96	132.0	11.11	138.0	11.94	145.3	12.28	146.7	12.28
	99	84.1	6.79	96.1	7.74	108.1	9.02	114.1	9.75	132.0	12.20	133.7	12.28	139.1	12.28	140.5	12.28
	104	84.1	7.24	96.1	8.57	98.6	8.61	99.7	8.61	103.1	8.61	104.3	8.61	109.0	8.61	110.1	8.61
	109	84.1	8.03	90.1	8.61	92.4	8.61	93.4	8.61	96.6	8.61	97.8	8.61	102.2	8.61	103.4	8.61
	115	81.0	8.61	83.0	8.61	85.2	8.61	86.2	8.61	89.3	8.61	90.3	8.61	94.6	8.61	95.7	8.61
120.0 (100%)	5	76.5	4.55	87.4	5.02	98.2	5.49	103.7	5.72	120.0	6.43	125.5	6.67	147.2	7.61	152.7	7.84
	14	76.5	4.55	87.4	5.02	98.2	5.49	103.7	5.72	120.0	6.43	125.5	6.67	147.2	7.61	152.7	7.84
	23	76.5	4.55	87.4	5.02	98.2	5.49	103.7	5.72	120.0	6.43	125.5	6.67	147.2	7.61	152.7	7.84
	32	76.5	4.55	87.4	5.02	98.2	5.49	103.7	5.72	120.0	6.43	125.5	6.67	147.2	7.61	152.7	7.84
	41	76.5	4.55	87.4	5.02	98.2	5.49	103.7	5.72	120.0	6.43	125.5	6.67	147.2	7.61	152.7	7.84
	50	76.5	4.55	87.4	5.02	98.2	5.49	103.7	5.72	120.0	6.43	125.5	6.67	147.2	7.61	152.7	7.84
	59	76.5	4.68	87.4	5.17	98.2	5.66	103.7	5.90	120.0	6.63	125.5	6.88	147.2	7.86	152.7	8.10
	70	76.5	4.94	87.4	5.46	98.2	5.99	103.7	6.25	120.0	7.04	125.5	7.30	147.2	8.35	152.7	8.62
	73	76.5	5.03	87.4	5.57	98.2	6.10	103.7	6.38	120.0	7.18	125.5	7.45	147.2	8.53	152.7	8.82
	77	76.5	5.16	87.4	5.72	98.2	6.28	103.7	6.56	120.0	7.40	125.5	7.68	147.2	9.05	152.7	9.57
	81	76.5	5.32	87.4	5.90	98.2	6.48	103.7	6.77	120.0	7.64	125.5	7.93	147.2	9.81	152.7	10.38
	86	76.5	5.54	87.4	6.15	98.2	6.76	103.7	7.07	120.0	8.08	125.5	8.59	147.2	10.85	152.6	11.46
	91	76.5	5.80	87.4	6.45	98.2	7.09	103.7	7.42	120.0	8.89	125.5	9.46	146.8	12.02	148.5	12.06
	95	76.5	6.03	87.4	6.71	98.2	7.39	103.7	7.91	120.0	9.60	125.5	10.26	142.0	12.28	143.4	12.28
	99	76.5	6.29	87.4	7.01	98.2	7.95	103.7	8.53	120.0	10.51	125.5	11.25	136.0	12.28	137.4	12.28
	104	76.5	6.67	87.4	7.58	96.7	8.61	97.9	8.61	101.2	8.61	102.3	8.61	106.8	8.61	108.0	8.61
	109	76.5	7.16	87.4	8.42	90.7	8.61	91.8	8.61	95.0	8.61	96.0	8.61	100.3	8.61	101.4	8.61
	115	76.5	8.09	81.7	8.61	83.7	8.61	84.7	8.61	87.8	8.61	88.8	8.61	92.9	8.61	94.0	8.61
108.0 (90%)	5	68.8	4.22	78.6	4.64	88.4	5.06	93.4	5.28	108.0	5.91	112.9	6.12	132.5	6.97	137.5	7.18
	14	68.8	4.22	78.6	4.64	88.4	5.06	93.4	5.28	108.0	5.91	112.9	6.12	132.5	6.97	137.5	7.18
	23	68.8	4.22	78.6	4.64	88.4	5.06	93.4	5.28	108.0	5.91	112.9	6.12	132.5	6.97	137.5	7.18
	32	68.8	4.22	78.6	4.64	88.4	5.06	93.4	5.28	108.0	5.91	112.9	6.12	132.5	6.97	137.5	7.18
	41	68.8	4.22	78.6	4.64	88.4	5.06	93.4	5.28	108.0	5.91	112.9	6.12	132.5	6.97	137.5	7.18
	50	68.8	4.22	78.6	4.64	88.4	5.06	93.4	5.28	108.0	5.91	112.9	6.12	132.5	6.97	137.5	7.18
	59	68.8	4.33	78.6	4.77	88.4	5.21	93.4	5.44	108.0	6.09	112.9	6.32	132.5	7.20	137.5	7.42
	70	68.8	4.57	78.6	5.04	88.4	5.51	93.4	5.75	108.0	6.46	112.9	6.70	132.5	7.64	137.5	7.88
	73	68.8	4.65	78.6	5.13	88.4	5.62	93.4	5.86	108.0	6.59	112.9	6.83	132.5	7.80	137.5	8.05
	77	68.8	4.77	78.6	5.27	88.4	5.78	93.4	6.03	108.0	6.78	112.9	7.03	132.5	8.04	137.5	8.29
	81	68.8	4.91	78.6	5.43	88.4	5.96	93.4	6.22	108.0	7.00	112.9	7.26	132.5	8.41	137.5	8.86
	86	68.8	5.11	78.6	5.66	88.4	6.21	93.4	6.49	108.0	7.31	112.9	7.59	132.5	9.27	137.5	9.78
	91	68.8	5.34	78.6	5.92	88.4	6.51	93.4	6.80	108.0	7.73	112.9	8.19	132.5	10.23	137.5	10.80
	95	68.8	5.55	78.6	6.16	88.4	6.78	93.4	7.09	108.0	8.33	112.9	8.84	132.5	11.18	137.5	11.86
	99	68.8	5.78	78.6	6.43	88.4	7.08	93.4	7.47	108.0	9.01	112.9	9.61	132.5	12.28	133.8	12.28
	104	68.8	6.13	78.6	6.82	88.4	7.70	93.4	8.25	99.0	8.61	100.1	8.61	104.4	8.61	105.6	8.61
	109	68.8	6.57	78.6	7.39	88.4	8.55	89.8	8.61	92.9	8.61	93.9	8.61	98.1	8.61	99.3	8.61
	115	68.8	7.19	78.6	8.37	82.0	8.61	83.1	8.61	86.0	8.61	87.0	8.61	91.0	8.61	92.0	8.61
96.0 (80%)	5	61.2	3.89	69.9	4.26	78.6	4.64	83.0	4.83	96.0	5.39	100.4	5.58	117.8	6.33	122.2	6.52
	14	61.2	3.89	69.9	4.26	78.6	4.64	83.0	4.83	96.0	5.39	100.4	5.58	117.8	6.33	122.2	6.52
	23	61.2	3.89	69.9	4.26	78.6	4.64	83.0	4.83	96.0	5.39	100.4	5.58	117.8	6.33	122.2	6.52
	32	61.2	3.89	69.9	4.26	78.6	4.64	83.0	4.83	96.0	5.39	100.4	5.58	117.8	6.33	122.2	6.52
	41	61.2	3.89	69.9	4.26	78.6	4.64	83.0	4.83	96.0	5.39	100.4	5.58	117.8	6.33	122.2	6.52
	50	61.2	3.89	69.9	4.26	78.6	4.64	83.0	4.83	96.0	5.39	100.4	5.58	117.8	6.33	122.2	6.52
	59	61.2	3.99	69.9	4.38	78.6	4.77	83.0	4.97	96.0	5.56	100.4	5.75	117.8	6.53	122.2	6.73
	70	61.2	4.20	69.9	4.62	78.6	5.04	83.0	5.25	96.0	5.88	100.4	6.09	117.8	6.93	122.2	7.14
	73	61.2	4.27	69.9	4.70	78.6	5.13	83.0	5.35	96.0	5.99	100.4	6.21	117.8	7.07	122.2	7.29
	77	61.2	4.38	69.9	4.83	78.6	5.27	83.0	5.50	96.0	6.17	100.4	6.39	117.8	7.28	122.2	7.51
	81	61.2	4.50	69.9	4.97	78.6	5.43	83.0	5.67	96.0	6.36	100.4	6.59	117.8	7.52	122.2	7.76
	86	61.2	4.68	69.9	5.17	78.6	5.66	83.0	5.91	96.0	6.64	100.4	6.88	117.8	7.88	122.2	8.28
	91	61.2	4.89	69.9	5.41	78.6	5.92	83.0	6.18	96.0	6.96	100.4	7.22	117.8	8.67	122.2	9.11
	95	61.2	5.07	69.9	5.62	78.6	6.16	83.0	6.44	96.0	7.25	100.4	7.59	117.8	9.35	122.2	9.86
	99	61.2	5.28	69.9	5.85	78.6	6.43	83.0	6.72	96.0	7.73	100.4	8.17	117.8	10.22	122.2	10.80
	104	61.2	5.58	69.9	6.20	78.6	6.82	83.0	7.13	96.0	8.56	97.4	8.61	101.6	8.61	102.6	8.61
	109	61.2	5.97	69.9	6.65	78.6	7.39	83.0	7.89	90.5	8.61	91.5	8.61	95.6	8.61	96.6	8.61
	115	61.2	6.53	69.9	7.28	78.6	8.36	80.9	8.61	83.8	8.61	84.8	8.61	88.7	8.61	89.7	8.61

MODEL SELECTION

Cooling capacity at rated condition: 120 kBtu/h (10 ton)																	
Total rated capacity of indoor unit	Outdoor temperature	Indoor temperature															
		68°FDB/59°FWB		73°FDB/61°FWB		75°FDB/63°FWB		79°FDB/64°FWB		80°FDB/67°FWB		82°FDB/68°FWB		86°FDB/72°FWB		90°FDB/73°FWB	
	°FDB	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP
84.0 (70%)	5	53.5	3.56	61.1	3.89	68.8	4.21	72.6	4.38	84.0	4.87	87.8	5.04	103.1	5.70	106.9	5.86
	14	53.5	3.56	61.1	3.89	68.8	4.21	72.6	4.38	84.0	4.87	87.8	5.04	103.1	5.70	106.9	5.86
	23	53.5	3.56	61.1	3.89	68.8	4.21	72.6	4.38	84.0	4.87	87.8	5.04	103.1	5.70	106.9	5.86
	32	53.5	3.56	61.1	3.89	68.8	4.21	72.6	4.38	84.0	4.87	87.8	5.04	103.1	5.70	106.9	5.86
	41	53.5	3.56	61.1	3.89	68.8	4.21	72.6	4.38	84.0	4.87	87.8	5.04	103.1	5.70	106.9	5.86
	50	53.5	3.56	61.1	3.89	68.8	4.21	72.6	4.38	84.0	4.87	87.8	5.04	103.1	5.70	106.9	5.86
	59	53.5	3.65	61.1	3.99	68.8	4.33	72.6	4.50	84.0	5.02	87.8	5.19	103.1	5.87	106.9	6.05
	70	53.5	3.83	61.1	4.20	68.8	4.56	72.6	4.75	84.0	5.30	87.8	5.49	103.1	6.22	106.9	6.41
	73	53.5	3.89	61.1	4.27	68.8	4.65	72.6	4.84	84.0	5.40	87.8	5.59	103.1	6.34	106.9	6.53
	77	53.5	3.99	61.1	4.38	68.8	4.77	72.6	4.97	84.0	5.55	87.8	5.75	103.1	6.53	106.9	6.73
	81	53.5	4.10	61.1	4.50	68.8	4.91	72.6	5.11	84.0	5.72	87.8	5.93	103.1	6.74	106.9	6.94
	86	53.5	4.25	61.1	4.68	68.8	5.11	72.6	5.32	84.0	5.96	87.8	6.18	103.1	7.04	106.9	7.25
	91	53.5	4.43	61.1	4.88	68.8	5.34	72.6	5.57	84.0	6.25	87.8	6.47	103.1	7.38	106.9	7.63
	95	53.5	4.59	61.1	5.07	68.8	5.55	72.6	5.79	84.0	6.50	87.8	6.74	103.1	7.85	106.9	8.22
	99	53.5	4.78	61.1	5.28	68.8	5.78	72.6	6.03	84.0	6.79	87.8	7.04	103.1	8.45	106.9	8.89
	104	53.5	5.04	61.1	5.58	68.8	6.12	72.6	6.40	84.0	7.22	87.8	7.63	98.2	8.61	99.2	8.61
	109	53.5	5.38	61.1	5.97	68.8	6.56	72.6	6.86	84.0	8.02	87.8	8.48	92.5	8.61	93.5	8.61
	115	53.5	5.87	61.1	6.52	68.8	7.18	72.6	7.60	81.3	8.61	82.2	8.61	86.0	8.61	86.9	8.61
72.0 (60%)	5	45.9	3.23	52.4	3.51	58.9	3.79	62.2	3.93	72.0	4.35	75.3	4.50	88.3	5.06	91.6	5.20
	14	45.9	3.23	52.4	3.51	58.9	3.79	62.2	3.93	72.0	4.35	75.3	4.50	88.3	5.06	91.6	5.20
	23	45.9	3.23	52.4	3.51	58.9	3.79	62.2	3.93	72.0	4.35	75.3	4.50	88.3	5.06	91.6	5.20
	32	45.9	3.23	52.4	3.51	58.9	3.79	62.2	3.93	72.0	4.35	75.3	4.50	88.3	5.06	91.6	5.20
	41	45.9	3.23	52.4	3.51	58.9	3.79	62.2	3.93	72.0	4.35	75.3	4.50	88.3	5.06	91.6	5.20
	50	45.9	3.23	52.4	3.51	58.9	3.79	62.2	3.93	72.0	4.35	75.3	4.50	88.3	5.06	91.6	5.20
	59	45.9	3.30	52.4	3.60	58.9	3.89	62.2	4.04	72.0	4.48	75.3	4.62	88.3	5.21	91.6	5.36
	70	45.9	3.46	52.4	3.77	58.9	4.09	62.2	4.25	72.0	4.72	75.3	4.88	88.3	5.51	91.6	5.67
	73	45.9	3.51	52.4	3.84	58.9	4.16	62.2	4.32	72.0	4.81	75.3	4.97	88.3	5.62	91.6	5.78
	77	45.9	3.60	52.4	3.93	58.9	4.27	62.2	4.43	72.0	4.94	75.3	5.10	88.3	5.77	91.6	5.94
	81	45.9	3.69	52.4	4.04	58.9	4.39	62.2	4.56	72.0	5.08	75.3	5.26	88.3	5.95	91.6	6.13
	86	45.9	3.82	52.4	4.19	58.9	4.56	62.2	4.74	72.0	5.29	75.3	5.48	88.3	6.21	91.6	6.39
	91	45.9	3.98	52.4	4.36	58.9	4.75	62.2	4.95	72.0	5.53	75.3	5.73	88.3	6.51	91.6	6.70
	95	45.9	4.12	52.4	4.52	58.9	4.93	62.2	5.14	72.0	5.75	75.3	5.96	88.3	6.77	91.6	6.98
	99	45.9	4.27	52.4	4.70	58.9	5.13	62.2	5.35	72.0	5.99	75.3	6.21	88.3	7.07	91.6	7.30
	104	45.9	4.50	52.4	4.96	58.9	5.42	62.2	5.66	72.0	6.35	75.3	6.59	88.3	7.69	91.6	8.06
	109	45.9	4.79	52.4	5.30	58.9	5.80	62.2	6.06	72.0	6.81	75.3	7.07	88.3	8.55	89.7	8.61
	115	45.9	5.21	52.4	5.77	58.9	6.33	62.2	6.62	72.0	7.52	75.3	7.94	82.5	8.61	83.5	8.61
60.0 (50%)	5	38.2	2.90	43.7	3.13	49.1	3.37	51.9	3.48	60.0	3.84	62.7	3.95	73.6	4.42	76.4	4.54
	14	38.2	2.90	43.7	3.13	49.1	3.37	51.9	3.48	60.0	3.84	62.7	3.95	73.6	4.42	76.4	4.54
	23	38.2	2.90	43.7	3.13	49.1	3.37	51.9	3.48	60.0	3.84	62.7	3.95	73.6	4.42	76.4	4.54
	32	38.2	2.90	43.7	3.13	49.1	3.37	51.9	3.48	60.0	3.84	62.7	3.95	73.6	4.42	76.4	4.54
	41	38.2	2.90	43.7	3.13	49.1	3.37	51.9	3.48	60.0	3.84	62.7	3.95	73.6	4.42	76.4	4.54
	50	38.2	2.90	43.7	3.13	49.1	3.37	51.9	3.48	60.0	3.84	62.7	3.95	73.6	4.42	76.4	4.54
	59	38.2	2.96	43.7	3.21	49.1	3.45	51.9	3.57	60.0	3.94	62.7	4.06	73.6	4.55	76.4	4.67
	70	38.2	3.09	43.7	3.35	49.1	3.62	51.9	3.75	60.0	4.14	62.7	4.27	73.6	4.80	76.4	4.93
	73	38.2	3.14	43.7	3.41	49.1	3.67	51.9	3.81	60.0	4.21	62.7	4.35	73.6	4.89	76.4	5.02
	77	38.2	3.20	43.7	3.48	49.1	3.76	51.9	3.90	60.0	4.32	62.7	4.46	73.6	5.02	76.4	5.16
	81	38.2	3.28	43.7	3.57	49.1	3.86	51.9	4.01	60.0	4.44	62.7	4.59	73.6	5.17	76.4	5.31
	86	38.2	3.39	43.7	3.70	49.1	4.00	51.9	4.16	60.0	4.62	62.7	4.77	73.6	5.38	76.4	5.54
	91	38.2	3.52	43.7	3.84	49.1	4.17	51.9	4.33	60.0	4.82	62.7	4.98	73.6	5.63	76.4	5.79
	95	38.2	3.64	43.7	3.98	49.1	4.32	51.9	4.49	60.0	5.00	62.7	5.17	73.6	5.85	76.4	6.02
	99	38.2	3.77	43.7	4.12	49.1	4.48	51.9	4.67	60.0	5.20	62.7	5.38	73.6	6.10	76.4	6.28
	104	38.2	3.96	43.7	4.34	49.1	4.73	51.9	4.92	60.0	5.50	62.7	5.70	73.6	6.47	76.4	6.66
	109	38.2	4.20	43.7	4.62	49.1	5.04	51.9	5.25	60.0	5.88	62.7	6.10	73.6	6.94	76.4	7.15
	115	38.2	4.55	43.7	5.02	49.1	5.49	51.9	5.72	60.0	6.43	62.7	6.66	73.6	7.72	76.4	8.07

5. Heating capacity table (Outdoor unit)

- TC: Total capacity (kBtu/h)
- IP: Input power of compressor and outdoor fan motor (kW)
- The data is based on the following conditions:
  - Pipe length: 25 ft (7.5 m)
  - Height difference: 0 ft (0 m)

5-1. Stand-alone

■ Model: AOU72RLAVL

Heating capacity at rated condition: 81 kBtu/h (6 ton)																
Total rated capacity of indoor unit	Outdoor temperature		Indoor temperature													
			61°FDB		64°FDB		68°FDB		70°FDB		72°FDB		75°FDB		79°FDB	
	°FDB	°FWB	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP
121.5 (150%)	-2.7	-4.0	68.5	4.92	68.3	5.17	68.0	5.50	67.8	5.66	67.6	5.83	67.4	6.07	67.0	6.40
	5.0	3.2	75.1	5.35	74.8	5.58	74.3	5.90	74.0	6.06	73.8	6.22	73.4	6.46	72.9	6.77
	10.4	8.6	80.6	5.65	80.1	5.88	79.6	6.19	79.3	6.35	79.0	6.50	78.5	6.74	77.9	7.05
	15.8	14.0	86.5	5.95	85.9	6.18	85.2	6.48	84.9	6.63	84.5	6.78	84.0	7.01	83.2	7.32
	17.0	15.0	87.6	6.00	87.1	6.23	86.4	6.53	86.0	6.68	85.6	6.84	85.1	7.06	84.3	7.37
	23.0	21.2	94.9	6.33	94.2	6.55	93.4	6.85	93.0	7.00	92.5	7.15	91.9	7.38	91.0	7.67
	26.6	24.8	99.3	6.52	98.6	6.74	97.7	7.04	97.2	7.19	96.8	7.33	96.0	7.56	95.1	7.85
	30.2	28.4	103.8	6.70	103.1	6.92	102.1	7.22	101.6	7.37	101.1	7.51	100.3	7.74	98.9	7.97
	32.0	30.2	106.1	6.79	105.3	7.02	104.3	7.31	103.8	7.46	103.3	7.60	102.5	7.83	98.9	7.78
	35.6	33.8	110.8	6.98	110.0	7.20	108.9	7.49	108.4	7.64	107.8	7.78	107.0	8.01	98.9	7.40
	41.0	39.2	118.0	7.25	117.2	7.47	116.0	7.76	115.4	7.91	114.8	8.06	108.9	7.65	98.9	6.86
	47.0	43.0	123.2	7.44	122.3	7.66	121.1	7.96	120.5	8.10	116.5	7.83	108.9	7.25	98.9	6.49
	48.2	46.0	127.4	7.60	126.5	7.82	125.2	8.11	121.5	7.88	116.5	7.50	108.9	6.94	98.9	6.22
	53.6	51.1	134.7	7.86	133.7	8.08	126.5	7.68	121.5	7.32	116.5	6.97	108.9	6.45	98.9	5.78
	59.0	56.3	142.2	8.13	136.5	7.81	126.5	7.12	121.5	6.79	116.5	6.46	108.9	5.98	98.9	5.36
113.4 (140%)	-2.7	-4.0	68.4	5.08	68.1	5.33	67.8	5.66	67.6	5.82	67.5	5.99	67.2	6.23	66.8	6.55
	5.0	3.2	74.9	5.51	74.5	5.75	74.0	6.07	73.8	6.23	73.5	6.38	73.1	6.62	72.6	6.93
	10.4	8.6	80.3	5.83	79.8	6.06	79.2	6.37	78.9	6.52	78.6	6.68	78.1	6.91	77.5	7.22
	15.8	14.0	86.0	6.13	85.5	6.36	84.8	6.66	84.5	6.82	84.1	6.97	83.5	7.19	82.8	7.50
	17.0	15.0	87.2	6.19	86.6	6.42	85.9	6.72	85.5	6.87	85.2	7.02	84.6	7.25	83.8	7.55
	23.0	21.2	94.3	6.53	93.7	6.75	92.8	7.05	92.4	7.20	92.0	7.35	91.3	7.57	90.4	7.87
	26.6	24.8	98.6	6.72	98.0	6.95	97.0	7.24	96.6	7.39	96.1	7.54	95.4	7.76	92.3	7.76
	30.2	28.4	103.1	6.92	102.4	7.14	101.4	7.43	100.9	7.58	100.4	7.72	99.6	7.94	92.3	7.39
	32.0	30.2	105.3	7.01	104.6	7.23	103.6	7.53	103.1	7.67	102.6	7.82	101.7	8.03	92.3	7.21
	35.6	33.8	110.0	7.21	109.2	7.43	108.1	7.72	107.5	7.86	107.0	8.01	101.7	7.63	92.3	6.86
	41.0	39.2	117.1	7.49	116.2	7.71	115.0	8.00	113.4	8.01	108.7	7.63	101.7	7.07	92.3	6.35
	47.0	43.0	122.2	7.70	121.3	7.92	118.1	7.96	113.4	7.59	108.7	7.23	101.7	6.70	92.3	6.01
	48.2	46.0	126.3	7.86	125.3	8.08	118.1	7.62	113.4	7.27	108.7	6.92	101.7	6.41	92.3	5.76
	53.6	51.1	133.4	8.14	127.4	7.75	118.1	7.08	113.4	6.75	108.7	6.43	101.7	5.96	92.3	5.35
	59.0	56.3	134.5	7.67	127.4	7.19	118.1	6.56	113.4	6.26	108.7	5.96	101.7	5.53	92.3	4.96
105.3 (130%)	-2.7	-4.0	68.2	5.27	67.9	5.51	67.6	5.84	67.4	6.00	67.3	6.17	67.0	6.41	66.6	6.73
	5.0	3.2	74.6	5.71	74.2	5.95	73.7	6.26	73.5	6.42	73.3	6.57	72.8	6.81	72.3	7.12
	10.4	8.6	79.9	6.03	79.4	6.26	78.8	6.57	78.5	6.72	78.3	6.88	77.7	7.10	77.1	7.41
	15.8	14.0	85.6	6.35	85.0	6.57	84.3	6.87	84.0	7.02	83.6	7.17	83.0	7.40	82.3	7.70
	17.0	15.0	86.7	6.40	86.1	6.63	85.4	6.93	85.0	7.08	84.7	7.23	84.1	7.45	83.3	7.75
	23.0	21.2	93.7	6.76	93.0	6.98	92.2	7.28	91.7	7.42	91.4	7.57	90.6	7.79	85.7	7.51
	26.6	24.8	97.9	6.96	97.2	7.18	96.3	7.47	95.8	7.62	95.4	7.77	94.4	7.95	85.7	7.16
	30.2	28.4	102.3	7.16	101.5	7.38	100.6	7.67	100.1	7.82	99.6	7.96	94.4	7.57	85.7	6.82
	32.0	30.2	104.5	7.27	103.7	7.48	102.7	7.77	102.2	7.92	101.0	7.96	94.4	7.39	85.7	6.65
	35.6	33.8	109.0	7.47	108.2	7.68	107.1	7.97	105.3	7.94	101.0	7.57	94.4	7.03	85.7	6.32
	41.0	39.2	116.0	7.77	115.1	7.99	109.6	7.71	105.3	7.36	101.0	7.02	94.4	6.51	85.7	5.86
	47.0	43.0	121.0	7.99	118.3	7.98	109.6	7.30	105.3	6.97	101.0	6.65	94.4	6.17	85.7	5.55
	48.2	46.0	124.9	8.14	118.3	7.64	109.6	6.99	105.3	6.67	101.0	6.36	94.4	5.90	85.7	5.31
	53.6	51.1	124.9	7.56	118.3	7.10	109.6	6.49	105.3	6.20	101.0	5.91	94.4	5.49	85.7	4.94
	59.0	56.3	124.9	7.01	118.3	6.58	109.6	6.02	105.3	5.75	101.0	5.48	94.4	5.09	85.7	4.58
97.2 (120%)	-2.7	-4.0	68.0	5.48	67.7	5.73	67.4	6.05	67.2	6.21	67.0	6.37	66.8	6.62	66.4	6.94
	5.0	3.2	74.2	5.93	73.9	6.17	73.4	6.48	73.1	6.64	72.8	6.79	72.4	7.02	71.9	7.33
	10.4	8.6	79.4	6.26	79.0	6.49	78.4	6.80	78.0	6.95	77.7	7.10	77.2	7.33	76.6	7.63
	15.8	14.0	85.0	6.59	84.5	6.82	83.7	7.11	83.4	7.26	83.0	7.41	82.4	7.64	79.1	7.54
	17.0	15.0	86.1	6.65	85.5	6.88	84.8	7.17	84.4	7.32	84.0	7.47	83.4	7.69	79.1	7.45
	23.0	21.2	92.9	7.02	92.3	7.24	91.4	7.53	91.0	7.68	90.5	7.82	87.1	7.64	79.1	6.89
	26.6	24.8	97.1	7.23	96.4	7.45	95.5	7.74	95.0	7.89	93.2	7.84	87.1	7.29	79.1	6.57
	30.2	28.4	101.3	7.45	100.6	7.66	99.6	7.95	97.2	7.82	93.2	7.47	87.1	6.94	79.1	6.26
	32.0	30.2	103.5	7.55	102.7	7.77	101.2	7.98	97.2	7.63	93.2	7.28	87.1	6.77	79.1	6.10
	35.6	33.8	107.9	7.77	107.1	7.98	101.2	7.60	97.2	7.26	93.2	6.93	87.1	6.44	79.1	5.80
	41.0	39.2	114.7	8.09	109.2	7.68	101.2	7.04	97.2	6.73	93.2	6.42	87.1	5.96	79.1	5.38
	47.0	43.0	115.3	7.74	109.2	7.27	101.2	6.66	97.2	6.37	93.2	6.08	87.1	5.65	79.1	5.09
	48.2	46.0	115.3	7.41	109.2	6.96	101.2	6.38	97.2	6.10	93.2	5.82	87.1	5.41	79.1	4.88
	53.6	51.1	115.3	6.88	109.2	6.47	101.2	5.93	97.2	5.67	93.2	5.41	87.1	5.03	79.1	4.53
	59.0	56.3	115.3	6.38	109.2	6.00	101.2	5.50	97.2	5.26	93.2	5.02	87.1	4.66	79.1	4.21

MODEL SELECTION

Heating capacity at rated condition: 81 kBtu/h (6 ton)																
Total rated capacity of indoor unit	Outdoor temperature		Indoor temperature													
			61°FDB		64°FDB		68°FDB		70°FDB		72°FDB		75°FDB		79°FDB	
	°FDB	°FWB	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP
89.1 (110%)	-2.7	-4.0	67.7	5.73	67.5	5.97	67.1	6.30	66.9	6.46	66.8	6.62	66.5	6.86	66.1	7.18
	5.0	3.2	73.8	6.19	73.4	6.43	72.9	6.74	72.7	6.89	72.4	7.05	72.0	7.28	71.5	7.58
	10.4	8.6	78.9	6.54	78.4	6.77	77.8	7.07	77.5	7.22	77.2	7.37	76.7	7.59	72.5	7.34
	15.8	14.0	84.3	6.88	83.8	7.10	83.0	7.39	82.7	7.54	82.3	7.69	79.9	7.62	72.5	6.89
	17.0	15.0	85.4	6.94	84.8	7.16	84.1	7.46	83.7	7.60	83.3	7.75	79.9	7.53	72.5	6.81
	23.0	21.2	92.0	7.33	91.4	7.54	90.5	7.83	89.1	7.83	85.4	7.48	79.9	6.96	72.5	6.29
	26.6	24.8	96.1	7.55	95.4	7.77	92.8	7.80	89.1	7.46	85.4	7.13	79.9	6.64	72.5	6.00
	30.2	28.4	100.2	7.77	99.5	7.99	92.8	7.43	89.1	7.11	85.4	6.79	79.9	6.32	72.5	5.71
	32.0	30.2	102.3	7.89	100.1	7.89	92.8	7.25	89.1	6.93	85.4	6.62	79.9	6.17	72.5	5.57
	35.6	33.8	105.7	7.97	100.1	7.50	92.8	6.89	89.1	6.60	85.4	6.30	79.9	5.86	72.5	5.30
	41.0	39.2	105.7	7.39	100.1	6.95	92.8	6.39	89.1	6.11	85.4	5.84	79.9	5.43	72.5	4.91
	47.0	43.0	105.7	7.00	100.1	6.58	92.8	6.05	89.1	5.79	85.4	5.53	79.9	5.14	72.5	4.65
	48.2	46.0	105.7	6.70	100.1	6.31	92.8	5.79	89.1	5.54	85.4	5.29	79.9	4.93	72.5	4.45
	53.6	51.1	105.7	6.22	100.1	5.86	92.8	5.38	89.1	5.15	85.4	4.92	79.9	4.58	72.5	4.14
	59.0	56.3	105.7	5.77	100.1	5.43	92.8	4.99	89.1	4.78	85.4	4.57	79.9	4.25	72.5	3.85
81.0 (100%)	-2.7	-4.0	67.4	6.03	67.2	6.27	66.8	6.59	66.6	6.75	66.4	6.91	66.1	7.14	65.7	7.46
	5.0	3.2	73.3	6.50	72.9	6.73	72.4	7.04	72.2	7.19	71.9	7.35	71.5	7.58	65.9	7.05
	10.4	8.6	78.2	6.86	77.8	7.08	77.1	7.38	76.8	7.53	76.5	7.68	72.6	7.35	65.9	6.66
	15.8	14.0	83.5	7.21	83.0	7.43	82.2	7.72	81.0	7.73	77.7	7.40	72.6	6.90	65.9	6.25
	17.0	15.0	84.5	7.28	84.0	7.50	83.2	7.79	81.0	7.64	77.7	7.31	72.6	6.82	65.9	6.17
	23.0	21.2	91.0	7.68	90.3	7.90	84.3	7.38	81.0	7.07	77.7	6.76	72.6	6.30	65.9	5.70
	26.6	24.8	94.9	7.92	91.0	7.64	84.3	7.03	81.0	6.74	77.7	6.44	72.6	6.00	65.9	5.43
	30.2	28.4	96.1	7.72	91.0	7.28	84.3	6.70	81.0	6.41	77.7	6.13	72.6	5.72	65.9	5.17
	32.0	30.2	96.1	7.53	91.0	7.10	84.3	6.53	81.0	6.26	77.7	5.98	72.6	5.58	65.9	5.05
	35.6	33.8	96.1	7.16	91.0	6.75	84.3	6.21	81.0	5.95	77.7	5.69	72.6	5.30	65.9	4.80
	41.0	39.2	96.1	6.64	91.0	6.25	84.3	5.76	81.0	5.51	77.7	5.27	72.6	4.91	65.9	4.45
	47.0	43.0	96.1	6.29	91.0	5.92	84.3	5.45	81.0	5.22	77.7	4.99	72.6	4.65	65.9	4.22
	48.2	46.0	96.1	6.02	91.0	5.67	84.3	5.22	81.0	5.00	77.7	4.78	72.6	4.46	65.9	4.04
	53.6	51.1	96.1	5.59	91.0	5.27	84.3	4.85	81.0	4.65	77.7	4.45	72.6	4.15	65.9	3.76
	59.0	56.3	96.1	5.19	91.0	4.89	84.3	4.50	81.0	4.32	77.7	4.13	72.6	3.86	65.9	3.50
72.9 (90%)	-2.7	-4.0	67.1	6.38	66.7	6.62	66.4	6.94	66.2	7.10	66.0	7.25	65.4	7.43	59.3	6.76
	5.0	3.2	72.8	6.87	72.3	7.10	71.8	7.41	71.5	7.56	69.9	7.47	65.4	6.99	59.3	6.35
	10.4	8.6	77.5	7.24	77.0	7.47	75.9	7.69	72.9	7.38	69.9	7.06	65.4	6.60	59.3	5.99
	15.8	14.0	82.5	7.61	81.9	7.83	75.9	7.22	72.9	6.93	69.9	6.63	65.4	6.19	59.3	5.62
	17.0	15.0	83.5	7.68	81.9	7.73	75.9	7.14	72.9	6.84	69.9	6.55	65.4	6.12	59.3	5.55
	23.0	21.2	86.5	7.58	81.9	7.15	75.9	6.60	72.9	6.32	69.9	6.05	65.4	5.65	59.3	5.13
	26.6	24.8	86.5	7.22	81.9	6.82	75.9	6.29	72.9	6.03	69.9	5.77	65.4	5.39	59.3	4.89
	30.2	28.4	86.5	6.88	81.9	6.49	75.9	5.99	72.9	5.74	69.9	5.49	65.4	5.13	59.3	4.65
	32.0	30.2	86.5	6.71	81.9	6.33	75.9	5.84	72.9	5.60	69.9	5.36	65.4	5.00	59.3	4.54
	35.6	33.8	86.5	6.38	81.9	6.02	75.9	5.55	72.9	5.32	69.9	5.10	65.4	4.76	59.3	4.32
	41.0	39.2	86.5	5.91	81.9	5.58	75.9	5.14	72.9	4.93	69.9	4.72	65.4	4.41	59.3	4.00
	47.0	43.0	86.5	5.60	81.9	5.28	75.9	4.87	72.9	4.67	69.9	4.47	65.4	4.18	59.3	3.80
	48.2	46.0	86.5	5.36	81.9	5.06	75.9	4.67	72.9	4.48	69.9	4.29	65.4	4.01	59.3	3.64
	53.6	51.1	86.5	4.98	81.9	4.70	75.9	4.34	72.9	4.16	69.9	3.99	65.4	3.73	59.3	3.39
	59.0	56.3	86.5	4.62	81.9	4.37	75.9	4.03	72.9	3.87	69.9	3.71	65.4	3.47	59.3	3.16
64.8 (80%)	-2.7	-4.0	66.5	6.82	66.2	7.06	65.8	7.37	64.8	7.37	62.1	7.07	58.1	6.63	52.7	6.04
	5.0	3.2	71.9	7.33	71.5	7.55	67.5	7.21	64.8	6.93	62.1	6.64	58.1	6.22	52.7	5.66
	10.4	8.6	76.4	7.71	72.8	7.37	67.5	6.82	64.8	6.54	62.1	6.27	58.1	5.87	52.7	5.34
	15.8	14.0	76.8	7.32	72.8	6.92	67.5	6.40	64.8	6.14	62.1	5.88	58.1	5.50	52.7	5.00
	17.0	15.0	76.8	7.23	72.8	6.84	67.5	6.32	64.8	6.06	62.1	5.81	58.1	5.43	52.7	4.94
	23.0	21.2	76.8	6.68	72.8	6.32	67.5	5.84	64.8	5.60	62.1	5.37	58.1	5.02	52.7	4.56
	26.6	24.8	76.8	6.37	72.8	6.02	67.5	5.56	64.8	5.34	62.1	5.11	58.1	4.78	52.7	4.35
	30.2	28.4	76.8	6.07	72.8	5.73	67.5	5.30	64.8	5.08	62.1	4.87	58.1	4.55	52.7	4.14
	32.0	30.2	76.8	5.92	72.8	5.59	67.5	5.17	64.8	4.96	62.1	4.75	58.1	4.44	52.7	4.04
	35.6	33.8	76.8	5.63	72.8	5.32	67.5	4.91	64.8	4.72	62.1	4.52	58.1	4.23	52.7	3.85
	41.0	39.2	76.8	5.21	72.8	4.93	67.5	4.55	64.8	4.37	62.1	4.19	58.1	3.92	52.7	3.57
	47.0	43.0	76.8	4.94	72.8	4.67	67.5	4.32	64.8	4.14	62.1	3.97	58.1	3.72	52.7	3.39
	48.2	46.0	76.8	4.73	72.8	4.47	67.5	4.14	64.8	3.97	62.1	3.81	58.1	3.57	52.7	3.25
	53.6	51.1	76.8	4.40	72.8	4.16	67.5	3.85	64.8	3.70	62.1	3.55	58.1	3.32	52.7	3.03
	59.0	56.3	76.8	4.09	72.8	3.87	67.5	3.58	64.8	3.44	62.1	3.30	58.1	3.10	52.7	2.83
56.7 (70%)	-2.7	-4.0	65.8	7.37	63.7	7.25	59.0	6.73	56.7	6.47	54.4	6.21	50.8	5.83	46.2	5.32
	5.0	3.2	67.2	7.19	63.7	6.81	59.0	6.31	56.7	6.07	54.4	5.82	50.8	5.46	46.2	4.98
	10.4	8.6	67.2	6.79	63.7	6.43	59.0	5.96	56.7	5.73	54.4	5.49	50.8	5.15	46.2	4.69
	15.8	14.0	67.2	6.38	63.7	6.04	59.0	5.59	56.7	5.37	54.4	5.15	50.8	4.83	46.2	4.40
	17.0	15.0	67.2	6.30	63.7	5.96	59.0	5.52	56.7	5.30	54.4	5.09	50.8	4.77	46.2	4.34
	23.0	21.2	67.2	5.82	63.7	5.51	59.0	5.10	56.7	4.90	54.4	4.70	50.8	4.40	46.2	4.01
	26.6	24.8	67.2	5.54	63.7	5.25	59.0	4.86	56.7	4.67	54.4	4.48	50.8	4.20	46.2	3.83
	30.2	28.4	67.2	5.28	63.7	5.00	59.0	4.63	56.7	4.45	54.4	4.27	50.8	4.00	46.2	3.65
	32.0	30.2	67.2	5.15	63.7	4.87	59.0	4.51	56.7	4.34	54.4	4.16	50.8	3.90	46.2	3.56
	35.6	33.8	67.2	4.90	63.7	4.64	59.0	4.30	56.7	4.13	54.4	3.96	50.8	3.71	46.2	3.39
	41.0	39.2	67.2	4.54	63.7	4.30	59.0	3.98	56.7	3.83	54.4	3.68	50.8	3.45	46.2	3.15
	47.0	43.0	67.2	4.30	63.7	4.07	59.0	3.78	56.7	3.63	54.4	3.49	50.8	3.27	46.2	2.99
	48.2	46.0	67.2	4.12	63.7	3.91	59.0	3.62	56.7	3.48	54.4	3.35	50.8	3.14	46.2	2.87
	53.6	51.1	67.2	3.84	63.7	3.64	59.0	3.38	56.7	3.25	54.4	3.12	50.8	2.93	46.2	2.69
	59.0	56.3	67.2	3.57	63.7	3.38	59.0	3.14	56.7	3.03	54.4	2.91	50.8	2.74	46.2	2.51

Heating capacity at rated condition: 81 kBtu/h (6 ton)																
Total rated capacity of indoor unit	Outdoor temperature		Indoor temperature													
			61°FDB		64°FDB		68°FDB		70°FDB		72°FDB		75°FDB		79°FDB	
	°FDB	°FWB	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP
48.6 (60%)	-2.7	-4.0	57.6	6.58	54.6	6.24	50.6	5.80	48.6	5.58	46.6	5.36	43.6	5.04	39.6	4.60
	5.0	3.2	57.6	6.17	54.6	5.85	50.6	5.43	48.6	5.23	46.6	5.02	43.6	4.71	39.6	4.31
	10.4	8.6	57.6	5.82	54.6	5.52	50.6	5.12	48.6	4.93	46.6	4.73	43.6	4.44	39.6	4.06
	15.8	14.0	57.6	5.46	54.6	5.18	50.6	4.81	48.6	4.62	46.6	4.44	43.6	4.17	39.6	3.81
	17.0	15.0	57.6	5.39	54.6	5.11	50.6	4.75	48.6	4.56	46.6	4.38	43.6	4.11	39.6	3.76
	23.0	21.2	57.6	4.98	54.6	4.72	50.6	4.38	48.6	4.22	46.6	4.05	43.6	3.80	39.6	3.48
	26.6	24.8	57.6	4.75	54.6	4.50	50.6	4.18	48.6	4.02	46.6	3.86	43.6	3.63	39.6	3.32
	30.2	28.4	57.6	4.52	54.6	4.29	50.6	3.98	48.6	3.83	46.6	3.68	43.6	3.46	39.6	3.16
	32.0	30.2	57.6	4.41	54.6	4.18	50.6	3.88	48.6	3.74	46.6	3.59	43.6	3.37	39.6	3.09
	35.6	33.8	57.6	4.19	54.6	3.98	50.6	3.70	48.6	3.56	46.6	3.42	43.6	3.21	39.6	2.94
	41.0	39.2	57.6	3.89	54.6	3.69	50.6	3.43	48.6	3.31	46.6	3.18	43.6	2.99	39.6	2.74
	47.0	43.0	57.6	3.69	54.6	3.50	50.6	3.26	48.6	3.14	46.6	3.02	43.6	2.84	39.6	2.61
	48.2	46.0	57.6	3.54	54.6	3.36	50.6	3.13	48.6	3.01	46.6	2.90	43.6	2.73	39.6	2.51
	53.6	51.1	57.6	3.30	54.6	3.13	50.6	2.92	48.6	2.81	46.6	2.71	43.6	2.55	39.6	2.35
	59.0	56.3	57.6	3.07	54.6	2.92	50.6	2.72	48.6	2.63	46.6	2.53	43.6	2.39	39.6	2.20
40.5 (50%)	-2.7	-4.0	48.0	5.52	45.5	5.25	42.2	4.88	40.5	4.70	38.8	4.53	36.3	4.26	33.0	3.90
	5.0	3.2	48.0	5.17	45.5	4.91	42.2	4.57	40.5	4.40	38.8	4.23	36.3	3.98	33.0	3.65
	10.4	8.6	48.0	4.87	45.5	4.63	42.2	4.31	40.5	4.15	38.8	3.99	36.3	3.75	33.0	3.44
	15.8	14.0	48.0	4.57	45.5	4.34	42.2	4.04	40.5	3.89	38.8	3.74	36.3	3.52	33.0	3.23
	17.0	15.0	48.0	4.51	45.5	4.29	42.2	3.99	40.5	3.84	38.8	3.70	36.3	3.48	33.0	3.19
	23.0	21.2	48.0	4.17	45.5	3.96	42.2	3.69	40.5	3.55	38.8	3.42	36.3	3.22	33.0	2.95
	26.6	24.8	48.0	3.97	45.5	3.78	42.2	3.52	40.5	3.39	38.8	3.26	36.3	3.07	33.0	2.82
	30.2	28.4	48.0	3.79	45.5	3.60	42.2	3.35	40.5	3.23	38.8	3.11	36.3	2.93	33.0	2.69
	32.0	30.2	48.0	3.70	45.5	3.51	42.2	3.27	40.5	3.16	38.8	3.04	36.3	2.86	33.0	2.63
	35.6	33.8	48.0	3.52	45.5	3.35	42.2	3.12	40.5	3.01	38.8	2.90	36.3	2.73	33.0	2.51
	41.0	39.2	48.0	3.27	45.5	3.11	42.2	2.90	40.5	2.80	38.8	2.70	36.3	2.54	33.0	2.34
	47.0	43.0	48.0	3.10	45.5	2.95	42.2	2.76	40.5	2.66	38.8	2.57	36.3	2.42	33.0	2.23
	48.2	46.0	48.0	2.98	45.5	2.84	42.2	2.65	40.5	2.56	38.8	2.47	36.3	2.33	33.0	2.15
	53.6	51.1	48.0	2.78	45.5	2.65	42.2	2.48	40.5	2.40	38.8	2.31	36.3	2.19	33.0	2.02
	59.0	56.3	48.0	2.60	45.5	2.48	42.2	2.32	40.5	2.24	38.8	2.16	36.3	2.05	33.0	1.90

■ Model: AOU96RLAVL

Heating capacity at rated condition: 108 kBtu/h (8 ton)																
Total rated capacity of indoor unit	Outdoor temperature		Indoor temperature													
			61°FDB		64°FDB		68°FDB		70°FDB		72°FDB		75°FDB		79°FDB	
	°FDB	°FWB	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP
162.0 (150%)	-2.7	-4.0	75.3	5.42	75.1	5.72	74.9	6.11	74.7	6.30	74.6	6.50	74.4	6.79	74.1	7.18
	5.0	3.2	83.1	5.89	82.8	6.18	82.3	6.56	82.1	6.75	81.9	6.94	81.5	7.22	81.1	7.60
	10.4	8.6	89.5	6.23	89.1	6.51	88.6	6.88	88.3	7.07	88.0	7.25	87.5	7.53	86.9	7.90
	15.8	14.0	96.5	6.55	96.0	6.82	95.3	7.19	94.9	7.37	94.6	7.56	94.0	7.83	93.3	8.20
	17.0	15.0	97.8	6.61	97.3	6.88	96.6	7.25	96.2	7.43	95.8	7.61	95.3	7.89	94.5	8.25
	23.0	21.2	106.4	6.96	105.7	7.23	104.9	7.59	104.4	7.77	104.0	7.95	103.3	8.22	102.4	8.58
	26.6	24.8	111.6	7.15	110.9	7.42	109.9	7.78	109.5	7.96	109.0	8.14	108.3	8.41	107.3	8.77
	30.2	28.4	116.9	7.35	116.2	7.62	115.1	7.98	114.6	8.15	114.1	8.33	113.3	8.60	112.3	8.96
	32.0	30.2	119.6	7.45	118.9	7.71	117.8	8.07	117.3	8.25	116.7	8.43	115.9	8.70	114.8	9.05
	35.6	33.8	125.2	7.64	124.4	7.90	123.2	8.26	122.7	8.44	122.1	8.62	121.2	8.88	120.0	9.24
	41.0	39.2	133.8	7.92	132.9	8.19	131.6	8.54	131.0	8.72	130.4	8.90	129.4	9.16	128.1	9.52
	47.0	43.0	140.0	8.11	139.0	8.38	137.7	8.74	137.0	8.92	136.3	9.09	135.3	9.36	131.9	9.47
	48.2	46.0	145.0	8.27	143.9	8.54	142.6	8.89	141.9	9.07	141.2	9.25	140.1	9.52	131.9	9.07
	53.6	51.1	153.6	8.53	152.5	8.80	151.0	9.16	150.3	9.34	149.5	9.52	145.2	9.43	131.9	8.44
	59.0	56.3	162.6	8.80	161.4	9.08	159.8	9.44	159.0	9.62	155.3	9.47	145.2	8.75	131.9	7.83
151.2 (140%)	-2.7	-4.0	75.2	5.58	75.0	5.87	74.7	6.26	74.6	6.46	74.5	6.65	74.3	6.95	74.0	7.33
	5.0	3.2	82.9	6.06	82.6	6.35	82.1	6.72	81.9	6.91	81.7	7.10	81.3	7.38	80.9	7.76
	10.4	8.6	89.3	6.40	88.9	6.68	88.3	7.05	88.0	7.24	87.7	7.42	87.3	7.70	86.7	8.07
	15.8	14.0	96.1	6.74	95.6	7.01	94.9	7.38	94.6	7.56	94.2	7.74	93.7	8.01	92.9	8.38
	17.0	15.0	97.5	6.80	96.9	7.07	96.2	7.43	95.8	7.62	95.5	7.80	94.9	8.07	94.1	8.43
	23.0	21.2	105.9	7.16	105.3	7.43	104.4	7.79	104.0	7.97	103.5	8.15	102.8	8.42	101.9	8.78
	26.6	24.8	111.0	7.37	110.3	7.64	109.4	7.99	108.9	8.17	108.4	8.35	107.7	8.62	106.7	8.97
	30.2	28.4	116.3	7.57	115.5	7.84	114.5	8.19	114.0	8.37	113.5	8.55	112.7	8.82	111.6	9.17
	32.0	30.2	119.0	7.67	118.2	7.94	117.1	8.29	116.6	8.47	116.1	8.65	115.2	8.91	114.1	9.27
	35.6	33.8	124.5	7.87	123.6	8.14	122.5	8.49	121.9	8.67	121.3	8.85	120.4	9.11	119.3	9.47
	41.0	39.2	132.9	8.17	132.0	8.44	130.7	8.79	130.1	8.97	129.5	9.14	128.5	9.41	123.1	9.24
	47.0	43.0	139.0	8.38	138.0	8.64	136.7	9.00	136.0	9.18	135.4	9.35	134.3	9.62	123.1	8.76
	48.2	46.0	143.9	8.54	142.9	8.81	141.5	9.16	140.8	9.34	140.1	9.52	135.6	9.36	123.1	8.40
	53.6	51.1	152.4	8.82	151.3	9.09	149.8	9.45	149.1	9.63	145.0	9.41	135.6	8.71	123.1	7.81
	59.0	56.3	161.3	9.12	160.1	9.39	157.4	9.62	151.2	9.17	145.0	8.73	135.6	8.08	123.1	7.25
140.4 (130%)	-2.7	-4.0	75.1	5.76	74.9	6.05	74.6	6.44	74.5	6.64	74.4	6.83	74.1	7.12	73.8	7.51
	5.0	3.2	82.7	6.25	82.4	6.54	81.9	6.91	81.7	7.10	81.5	7.29	81.1	7.57	80.6	7.95
	10.4	8.6	89.0	6.61	88.6	6.89	88.0	7.26	87.7	7.44	87.4	7.62	86.9	7.90	86.3	8.27
	15.8	14.0	95.7	6.95	95.2	7.22	94.5	7.59	94.1	7.77	93.8	7.95	93.2	8.22	92.5	8.58
	17.0	15.0	97.0	7.01	96.5	7.29	95.8	7.65	95.4	7.83	95.0	8.01	94.5	8.28	93.7	8.64
	23.0	21.2	105.3	7.39	104.7	7.66	103.8	8.02	103.4	8.20	103.0	8.38	102.3	8.64	101.4	9.00
	26.6	24.8	110.4	7.61	109.7	7.88	108.7	8.23	108.3	8.41	107.8	8.59	107.0	8.85	106.0	9.21
	30.2	28.4	115.6	7.82	114.8	8.09	113.8	8.44	113.3	8.62	112.7	8.80	112.0	9.06	110.9	9.41
	32.0	30.2	118.2	7.93	117.4	8.20	116.4	8.55	115.8	8.72	115.3	8.90	114.5	9.16	113.3	9.52
	35.6	33.8	123.6	8.14	122.8	8.41	121.6	8.76	121.0	8.93	120.5	9.11	119.6	9.37	114.3	9.18
	41.0	39.2	131.9	8.46	131.0	8.72	129.7	9.07	129.1	9.25	128.5	9.42	125.9	9.48	114.3	8.52
	47.0	43.0	137.9	8.68	136.9	8.94	135.6	9.29	134.9	9.47	134.2	9.65	125.9	8.99	114.3	8.07
	48.2	46.0	142.7	8.86	141.7	9.12	140.3	9.47	139.6	9.65	134.6	9.29	125.9	8.61	114.3	7.74
	53.6	51.1	151.0	9.16	149.9	9.42	146.2	9.50	140.4	9.07	134.6	8.64	125.9	8.01	114.3	7.20
	59.0	56.3	159.7	9.47	157.8	9.65	146.2	8.82	140.4	8.41	134.6	8.02	125.9	7.43	114.3	6.68
129.6 (120%)	-2.7	-4.0	74.9	5.97	74.7	6.26	74.5	6.65	74.3	6.85	74.2	7.04	74.0	7.33	73.7	7.72
	5.0	3.2	82.4	6.48	82.1	6.76	81.6	7.14	81.4	7.32	81.2	7.51	80.8	7.79	80.3	8.16
	10.4	8.6	88.6	6.84	88.2	7.12	87.6	7.49	87.3	7.67	87.0	7.85	86.6	8.13	85.9	8.49
	15.8	14.0	95.3	7.20	94.7	7.47	94.0	7.83	93.7	8.01	93.3	8.19	92.7	8.46	92.0	8.82
	17.0	15.0	96.5	7.27	96.0	7.54	95.3	7.90	94.9	8.08	94.5	8.26	93.9	8.52	93.2	8.88
	23.0	21.2	104.7	7.66	104.1	7.93	103.2	8.28	102.7	8.46	102.3	8.64	101.6	8.90	100.7	9.26
	26.6	24.8	109.7	7.89	108.9	8.16	108.0	8.51	107.5	8.68	107.0	8.86	106.3	9.12	105.3	9.47
	30.2	28.4	114.7	8.12	114.0	8.38	112.9	8.73	112.4	8.90	111.9	9.08	111.1	9.34	105.5	9.06
	32.0	30.2	117.3	8.23	116.5	8.49	115.5	8.84	114.9	9.01	114.4	9.19	113.6	9.45	105.5	8.84
	35.6	33.8	122.6	8.45	121.8	8.71	120.6	9.06	120.0	9.24	119.5	9.41	116.2	9.35	105.5	8.42
	41.0	39.2	130.7	8.79	129.8	9.05	128.6	9.40	127.9	9.57	124.2	9.34	116.2	8.67	105.5	7.81
	47.0	43.0	136.6	9.02	135.6	9.29	134.3	9.63	129.6	9.28	124.2	8.86	116.2	8.22	105.5	7.40
	48.2	46.0	141.3	9.21	140.3	9.47	134.9	9.32	129.6	8.90	124.2	8.49	116.2	7.88	105.5	7.09
	53.6	51.1	149.5	9.54	145.6	9.46	134.9	8.66	129.6	8.27	124.2	7.89	116.2	7.33	105.5	6.60
	59.0	56.3	153.7	9.35	145.6	8.78	134.9	8.04	129.6	7.68	124.2	7.33	116.2	6.80	105.5	6.13
118.8 (110%)	-2.7	-4.0	74.8	6.22	74.6	6.51	74.3	6.90	74.2	7.09	74.0	7.28	73.8	7.57	73.5	7.96
	5.0	3.2	82.1	6.74	81.8	7.02	81.3	7.39	81.1	7.58	80.9	7.77	80.5	8.05	80.0	8.42
	10.4	8.6	88.2	7.12	87.8	7.39	87.2	7.76	86.9	7.94	86.6	8.12	86.1	8.40	85.5	8.76
	15.8	14.0	94.7	7.49	94.2	7.76	93.4	8.12	93.1	8.30	92.7	8.48	92.2	8.74	91.4	9.10
	17.0	15.0	96.0	7.56	95.4	7.83	94.7	8.18	94.3	8.36	93.9	8.54	93.3	8.81	92.5	9.16
	23.0	21.2	103.9	7.98	103.3	8.24	102.4	8.59	102.0	8.77	101.5	8.94	100.8	9.21	96.7	9.08
	26.6	24.8	108.8	8.22	108.1	8.48	107.1	8.83	106.6	9.00	106.1	9.17	105.4	9.44	96.7	8.67
	30.2	28.4	113.8	8.45	113.0	8.71	111.9	9.06	111.4	9.23	110.9	9.41	106.5	9.15	96.7	8.26
	32.0	30.2	116.3	8.57	115.5	8.83	114.4	9.18	113.9	9.35	113.3	9.52	106.5	8.93	96.7	8.06
	35.6	33.8	121.4	8.81	120.6	9.07	119.4	9.41	118.8	9.58	113.9	9.15	106.5	8.50	96.7	7.67
	41.0	39.2	129.4	9.17	128.4	9.43	123.7	9.30	118.8	8.89	113.9	8.48	106.5	7.89	96.7	7.11
	47.0	43.0	135.1	9.42	133.5	9.60	123.7	8.81	118.8	8.42	113.9	8.04	106.5	7.48	96.7	6.75
	48.2	46.0	139.7	9.63	133.5	9.20	123.7	8.44	118.8	8.07	113.9	7.71	106.5	7.17	96.7	6.46
	53.6	51.1	140.9	9.10	133.5	8.56	123.7	7.85	118.8	7.51	113.9	7.17	106.5	6.67	96.7	6.02
	59.0	56.3	140.9	8.45	133.5	7.94	123.7	7.29	118.8	6.97	113.9	6.66	106.5	6.19	96.7	5.59

MODEL SELECTION

Heating capacity at rated condition: 108 kBtu/h (8 ton)																
Total rated capacity of indoor unit	Outdoor temperature		Indoor temperature													
			61°FDB		64°FDB		68°FDB		70°FDB		72°FDB		75°FDB		79°FDB	
	°FDB	°FWB	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP
108.0 (100%)	-2.7	-4.0	74.6	6.51	74.4	6.80	74.1	7.19	73.9	7.38	73.8	7.57	73.6	7.86	73.2	8.24
	5.0	3.2	81.7	7.05	81.4	7.33	80.9	7.70	80.7	7.89	80.5	8.07	80.1	8.35	79.6	8.72
	10.4	8.6	87.7	7.45	87.2	7.72	86.6	8.08	86.3	8.26	86.0	8.44	85.6	8.71	84.9	9.07
	15.8	14.0	94.0	7.83	93.5	8.10	92.8	8.46	92.4	8.63	92.0	8.81	91.4	9.08	87.9	8.99
	17.0	15.0	95.2	7.91	94.7	8.17	93.9	8.53	93.6	8.70	93.2	8.88	92.6	9.14	87.9	8.88
	23.0	21.2	103.0	8.35	102.4	8.61	101.5	8.95	101.0	9.13	100.6	9.30	96.8	9.09	87.9	8.22
	26.6	24.8	107.7	8.60	107.0	8.86	106.1	9.20	105.6	9.37	103.5	9.32	96.8	8.68	87.9	7.84
	30.2	28.4	112.6	8.85	111.8	9.11	110.8	9.45	108.0	9.29	103.5	8.88	96.8	8.27	87.9	7.47
	32.0	30.2	115.0	8.98	114.2	9.24	112.5	9.47	108.0	9.07	103.5	8.67	96.8	8.07	87.9	7.29
	35.6	33.8	120.0	9.23	119.2	9.49	112.5	9.02	108.0	8.63	103.5	8.25	96.8	7.68	87.9	6.94
	41.0	39.2	127.7	9.62	121.4	9.10	112.5	8.37	108.0	8.01	103.5	7.65	96.8	7.12	87.9	6.44
	47.0	43.0	128.1	9.16	121.4	8.63	112.5	7.93	108.0	7.59	103.5	7.25	96.8	6.75	87.9	6.11
	48.2	46.0	128.1	8.78	121.4	8.27	112.5	7.60	108.0	7.27	103.5	6.95	96.8	6.47	87.9	5.85
	53.6	51.1	128.1	8.16	121.4	7.69	112.5	7.07	108.0	6.77	103.5	6.47	96.8	6.02	87.9	5.45
	59.0	56.3	128.1	7.58	121.4	7.14	112.5	6.56	108.0	6.28	103.5	6.01	96.8	5.60	87.9	5.07
97.2 (90%)	-2.7	-4.0	74.3	6.87	74.1	7.16	73.8	7.54	73.7	7.73	73.5	7.92	73.3	8.21	72.9	8.59
	5.0	3.2	81.3	7.43	80.9	7.70	80.5	8.07	80.2	8.25	80.0	8.44	79.6	8.71	79.1	9.08
	10.4	8.6	87.0	7.84	86.6	8.11	86.0	8.47	85.7	8.65	85.4	8.82	84.9	9.09	79.1	8.59
	15.8	14.0	93.2	8.25	92.6	8.51	91.9	8.86	91.5	9.04	91.2	9.21	87.2	8.91	79.1	8.07
	17.0	15.0	94.4	8.32	93.8	8.59	93.0	8.93	92.7	9.11	92.3	9.28	87.2	8.80	79.1	7.98
	23.0	21.2	101.9	8.79	101.2	9.04	100.3	9.39	97.2	9.13	93.2	8.73	87.2	8.15	79.1	7.38
	26.6	24.8	106.5	9.06	105.7	9.31	101.2	9.09	97.2	8.71	93.2	8.33	87.2	7.77	79.1	7.04
	30.2	28.4	111.1	9.33	109.2	9.41	101.2	8.67	97.2	8.30	93.2	7.94	87.2	7.41	79.1	6.71
	32.0	30.2	113.5	9.46	109.2	9.18	101.2	8.46	97.2	8.10	93.2	7.75	87.2	7.23	79.1	6.55
	35.6	33.8	115.3	9.27	109.2	8.74	101.2	8.05	97.2	7.71	93.2	7.38	87.2	6.88	79.1	6.23
	41.0	39.2	115.3	8.60	109.2	8.11	101.2	7.47	97.2	7.15	93.2	6.84	87.2	6.38	79.1	5.78
	47.0	43.0	115.3	8.15	109.2	7.68	101.2	7.08	97.2	6.78	93.2	6.49	87.2	6.05	79.1	5.48
	48.2	46.0	115.3	7.81	109.2	7.36	101.2	6.78	97.2	6.50	93.2	6.22	87.2	5.80	79.1	5.26
	53.6	51.1	115.3	7.26	109.2	6.85	101.2	6.31	97.2	6.05	93.2	5.79	87.2	5.40	79.1	4.90
	59.0	56.3	115.3	6.74	109.2	6.36	101.2	5.86	97.2	5.62	93.2	5.38	87.2	5.02	79.1	4.56
86.4 (80%)	-2.7	-4.0	74.0	7.31	73.8	7.60	73.5	7.98	73.3	8.17	73.1	8.36	72.9	8.64	70.3	8.61
	5.0	3.2	80.7	7.89	80.3	8.16	79.8	8.53	79.6	8.71	79.3	8.89	77.5	8.90	70.3	8.09
	10.4	8.6	86.2	8.32	85.8	8.59	85.1	8.94	84.8	9.12	82.8	9.00	77.5	8.41	70.3	7.64
	15.8	14.0	92.1	8.75	91.6	9.01	90.0	9.21	86.4	8.83	82.8	8.46	77.5	7.90	70.3	7.18
	17.0	15.0	93.3	8.83	92.7	9.09	90.0	9.10	86.4	8.73	82.8	8.36	77.5	7.81	70.3	7.09
	23.0	21.2	100.5	9.32	97.1	9.12	90.0	8.42	86.4	8.07	82.8	7.73	77.5	7.22	70.3	6.56
	26.6	24.8	102.5	9.21	97.1	8.70	90.0	8.03	86.4	7.70	82.8	7.38	77.5	6.89	70.3	6.25
	30.2	28.4	102.5	8.78	97.1	8.29	90.0	7.66	86.4	7.34	82.8	7.03	77.5	6.57	70.3	5.96
	32.0	30.2	102.5	8.57	97.1	8.09	90.0	7.47	86.4	7.16	82.8	6.86	77.5	6.41	70.3	5.82
	35.6	33.8	102.5	8.16	97.1	7.70	90.0	7.11	86.4	6.82	82.8	6.53	77.5	6.10	70.3	5.54
	41.0	39.2	102.5	7.57	97.1	7.15	90.0	6.60	86.4	6.33	82.8	6.06	77.5	5.66	70.3	5.14
	47.0	43.0	102.5	7.17	97.1	6.77	90.0	6.25	86.4	6.00	82.8	5.75	77.5	5.37	70.3	4.88
	48.2	46.0	102.5	6.87	97.1	6.49	90.0	6.00	86.4	5.75	82.8	5.51	77.5	5.15	70.3	4.68
	53.6	51.1	102.5	6.40	97.1	6.04	90.0	5.58	86.4	5.35	82.8	5.13	77.5	4.80	70.3	4.37
	59.0	56.3	102.5	5.94	97.1	5.61	90.0	5.19	86.4	4.98	82.8	4.77	77.5	4.47	70.3	4.07
75.6 (70%)	-2.7	-4.0	73.6	7.87	73.3	8.15	73.0	8.53	72.8	8.72	72.5	8.87	67.8	8.31	61.5	7.57
	5.0	3.2	79.9	8.47	79.5	8.74	78.7	9.04	75.6	8.68	72.5	8.33	67.8	7.80	61.5	7.10
	10.4	8.6	85.2	8.92	84.7	9.19	78.7	8.55	75.6	8.21	72.5	7.87	67.8	7.37	61.5	6.70
	15.8	14.0	89.7	9.17	85.0	8.68	78.7	8.03	75.6	7.71	72.5	7.39	67.8	6.92	61.5	6.29
	17.0	15.0	89.7	9.06	85.0	8.58	78.7	7.94	75.6	7.62	72.5	7.30	67.8	6.83	61.5	6.22
	23.0	21.2	89.7	8.39	85.0	7.94	78.7	7.34	75.6	7.05	72.5	6.76	67.8	6.32	61.5	5.75
	26.6	24.8	89.7	8.00	85.0	7.57	78.7	7.00	75.6	6.72	72.5	6.44	67.8	6.03	61.5	5.49
	30.2	28.4	89.7	7.63	85.0	7.21	78.7	6.67	75.6	6.41	72.5	6.14	67.8	5.75	61.5	5.23
	32.0	30.2	89.7	7.44	85.0	7.04	78.7	6.51	75.6	6.25	72.5	5.99	67.8	5.61	61.5	5.11
	35.6	33.8	89.7	7.08	85.0	6.70	78.7	6.20	75.6	5.95	72.5	5.71	67.8	5.34	61.5	4.86
	41.0	39.2	89.7	6.57	85.0	6.22	78.7	5.75	75.6	5.52	72.5	5.30	67.8	4.96	61.5	4.52
	47.0	43.0	89.7	6.23	85.0	5.90	78.7	5.46	75.6	5.24	72.5	5.03	67.8	4.71	61.5	4.29
	48.2	46.0	89.7	5.97	85.0	5.65	78.7	5.23	75.6	5.03	72.5	4.82	67.8	4.52	61.5	4.12
	53.6	51.1	89.7	5.56	85.0	5.26	78.7	4.88	75.6	4.68	72.5	4.49	67.8	4.21	61.5	3.85
	59.0	56.3	89.7	5.17	85.0	4.90	78.7	4.54	75.6	4.36	72.5	4.19	67.8	3.93	61.5	3.59
64.8 (60%)	-2.7	-4.0	72.9	8.60	72.7	8.88	67.5	8.27	64.8	7.96	62.1	7.64	58.1	7.17	52.8	6.54
	5.0	3.2	76.8	8.83	72.8	8.37	67.5	7.76	64.8	7.46	62.1	7.16	58.1	6.72	52.8	6.13
	10.4	8.6	76.8	8.34	72.8	7.91	67.5	7.33	64.8	7.05	62.1	6.77	58.1	6.34	52.8	5.78
	15.8	14.0	76.8	7.84	72.8	7.43	67.5	6.89	64.8	6.62	62.1	6.35	58.1	5.95	52.8	5.43
	17.0	15.0	76.8	7.75	72.8	7.34	67.5	6.80	64.8	6.54	62.1	6.27	58.1	5.88	52.8	5.36
	23.0	21.2	76.8	7.16	72.8	6.79	67.5	6.29	64.8	6.05	62.1	5.80	58.1	5.44	52.8	4.96
	26.6	24.8	76.8	6.83	72.8	6.47	67.5	6.00	64.8	5.77	62.1	5.54	58.1	5.19	52.8	4.74
	30.2	28.4	76.8	6.51	72.8	6.17	67.5	5.72	64.8	5.50	62.1	5.28	58.1	4.95	52.8	4.52
	32.0	30.2	76.8	6.36	72.8	6.02	67.5	5.58	64.8	5.37	62.1	5.15	58.1	4.83	52.8	4.41
	35.6	33.8	76.8	6.05	72.8	5.73	67.5	5.32	64.8	5.11	62.1	4.91	58.1	4.60	52.8	4.21
	41.0	39.2	76.8	5.62	72.8	5.32	67.5	4.94	64.8	4.75	62.1	4.56	58.1	4.28	52.8	3.91
	47.0	43.0	76.8	5.33	72.8	5.05	67.5	4.69	64.8	4.51	62.1	4.33	58.1	4.07	52.8	3.72
	48.2	46.0	76.8	5.11	72.8	4.84	67.5	4.50	64.8	4.33	62.1	4.16	58.1	3.91	52.8	3.58
	53.6	51.1	76.8	4.76	72.8	4.52	67.5	4.20	64.8	4.04	62.1	3.88	58.1	3.65	52.8	3.34
	59.0	56.3	76.8	4.43	72.8	4.21	67.5	3.91	64.8	3.76	62.1	3.62	58.1	3.41	52.8	3.12

Heating capacity at rated condition: 108 kBtu/h (8 ton)																
Total rated capacity of indoor unit	Outdoor temperature		Indoor temperature													
			61°FDB		64°FDB		68°FDB		70°FDB		72°FDB		75°FDB		79°FDB	
	°FDB	°FWB	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP
54.0 (50%)	-2.7	-4.0	64.0	7.87	60.7	7.47	56.2	6.95	54.0	6.69	51.8	6.43	48.4	6.04	44.0	5.52
	5.0	3.2	64.0	7.38	60.7	7.00	56.2	6.51	54.0	6.26	51.8	6.02	48.4	5.65	44.0	5.17
	10.4	8.6	64.0	6.97	60.7	6.61	56.2	6.15	54.0	5.91	51.8	5.68	48.4	5.34	44.0	4.88
	15.8	14.0	64.0	6.54	60.7	6.21	56.2	5.77	54.0	5.55	51.8	5.33	48.4	5.01	44.0	4.58
	17.0	15.0	64.0	6.46	60.7	6.13	56.2	5.70	54.0	5.48	51.8	5.27	48.4	4.95	44.0	4.53
	23.0	21.2	64.0	5.98	60.7	5.67	56.2	5.27	54.0	5.07	51.8	4.88	48.4	4.58	44.0	4.19
	26.6	24.8	64.0	5.70	60.7	5.41	56.2	5.03	54.0	4.84	51.8	4.66	48.4	4.38	44.0	4.01
	30.2	28.4	64.0	5.44	60.7	5.16	56.2	4.80	54.0	4.62	51.8	4.44	48.4	4.17	44.0	3.83
	32.0	30.2	64.0	5.31	60.7	5.04	56.2	4.68	54.0	4.51	51.8	4.34	48.4	4.08	44.0	3.74
	35.6	33.8	64.0	5.05	60.7	4.80	56.2	4.46	54.0	4.30	51.8	4.13	48.4	3.89	44.0	3.57
	41.0	39.2	64.0	4.70	60.7	4.46	56.2	4.15	54.0	4.00	51.8	3.85	48.4	3.62	44.0	3.33
	47.0	43.0	64.0	4.46	60.7	4.24	56.2	3.94	54.0	3.80	51.8	3.66	48.4	3.45	44.0	3.17
	48.2	46.0	64.0	4.28	60.7	4.07	56.2	3.79	54.0	3.65	51.8	3.52	48.4	3.31	44.0	3.05
	53.6	51.1	64.0	3.99	60.7	3.80	56.2	3.54	54.0	3.41	51.8	3.29	48.4	3.10	44.0	2.85
	59.0	56.3	64.0	3.72	60.7	3.54	56.2	3.31	54.0	3.19	51.8	3.07	48.4	2.90	44.0	2.67

■ Model: AOU120RLAVL

Heating capacity at rated condition: 135 kBtu/h (10 ton)																
Total rated capacity of indoor unit	Outdoor temperature		Indoor temperature													
			61°FDB		64°FDB		68°FDB		70°FDB		72°FDB		75°FDB		79°FDB	
	°FDB	°FWB	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP
202.5 (150%)	-2.7	-4.0	88.5	6.71	88.1	7.02	87.7	7.44	87.5	7.65	87.3	7.86	86.9	8.18	86.4	8.60
	5.0	3.2	97.8	7.20	97.3	7.51	96.7	7.92	96.4	8.13	96.0	8.33	95.5	8.64	94.8	9.05
	10.4	8.6	105.6	7.56	105.0	7.86	104.2	8.26	103.8	8.47	103.4	8.67	102.7	8.97	101.9	9.37
	15.8	14.0	114.0	7.90	113.3	8.20	112.3	8.59	111.8	8.79	111.3	8.99	110.6	9.29	109.5	9.68
	17.0	15.0	115.6	7.96	114.9	8.26	113.9	8.65	113.4	8.85	112.9	9.05	112.1	9.35	111.0	9.74
	23.0	21.2	125.9	8.33	125.1	8.63	123.9	9.02	123.3	9.21	122.7	9.41	121.8	9.70	120.6	10.09
	26.6	24.8	132.2	8.54	131.3	8.83	130.0	9.22	129.4	9.42	128.7	9.61	127.8	9.90	126.5	10.29
	30.2	28.4	138.7	8.74	137.7	9.04	136.3	9.42	135.7	9.62	135.0	9.81	133.9	10.10	132.5	10.49
	32.0	30.2	142.0	8.85	141.0	9.14	139.6	9.52	138.9	9.72	138.1	9.91	137.1	10.20	135.6	10.59
	35.6	33.8	148.8	9.05	147.6	9.34	146.1	9.72	145.4	9.92	144.6	10.11	143.5	10.40	141.9	10.79
	41.0	39.2	159.2	9.34	158.0	9.63	156.3	10.02	155.5	10.21	154.7	10.41	153.4	10.70	151.7	11.09
	47.0	43.0	166.7	9.55	165.4	9.84	163.7	10.23	162.8	10.42	161.9	10.61	160.6	10.91	158.8	11.30
	48.2	46.0	172.8	9.71	171.4	10.00	169.6	10.39	168.7	10.59	167.8	10.78	166.4	11.07	164.6	11.46
	53.6	51.1	183.3	9.99	181.8	10.28	179.9	10.67	179.0	10.87	178.0	11.06	176.5	11.36	164.8	10.73
	59.0	56.3	194.3	10.27	192.7	10.56	190.7	10.96	189.6	11.16	188.6	11.35	181.6	11.09	164.8	10.01
189.0 (140%)	-2.7	-4.0	88.3	6.86	88.0	7.18	87.5	7.60	87.3	7.81	87.1	8.02	86.7	8.34	86.2	8.75
	5.0	3.2	97.6	7.38	97.1	7.68	96.4	8.09	96.1	8.29	95.7	8.50	95.2	8.80	94.5	9.21
	10.4	8.6	105.3	7.74	104.7	8.04	103.8	8.44	103.4	8.64	103.0	8.84	102.4	9.14	101.5	9.54
	15.8	14.0	113.5	8.09	112.8	8.39	111.8	8.78	111.3	8.98	110.8	9.18	110.1	9.47	109.0	9.87
	17.0	15.0	115.1	8.16	114.4	8.45	113.4	8.85	112.9	9.04	112.4	9.24	111.6	9.53	110.5	9.93
	23.0	21.2	125.3	8.54	124.5	8.83	123.3	9.22	122.7	9.42	122.1	9.61	121.2	9.90	119.9	10.29
	26.6	24.8	131.5	8.76	130.6	9.05	129.3	9.44	128.7	9.63	128.0	9.82	127.1	10.11	125.7	10.50
	30.2	28.4	137.9	8.97	136.9	9.26	135.5	9.65	134.9	9.84	134.2	10.03	133.1	10.32	131.6	10.71
	32.0	30.2	141.2	9.08	140.1	9.37	138.7	9.75	138.0	9.95	137.3	10.14	136.2	10.43	134.7	10.81
	35.6	33.8	147.8	9.29	146.7	9.58	145.2	9.96	144.5	10.16	143.7	10.35	142.5	10.64	140.9	11.02
	41.0	39.2	158.1	9.60	156.9	9.89	155.2	10.28	154.4	10.47	153.6	10.66	152.3	10.95	150.6	11.33
	47.0	43.0	165.5	9.82	164.2	10.11	162.5	10.50	161.6	10.69	160.7	10.88	159.4	11.17	153.8	11.13
	48.2	46.0	171.5	9.99	170.1	10.28	168.3	10.67	167.4	10.86	166.5	11.06	165.1	11.35	153.8	10.69
	53.6	51.1	181.8	10.29	180.4	10.58	178.4	10.97	177.5	11.16	176.5	11.36	169.5	11.05	153.8	9.99
	59.0	56.3	192.6	10.59	191.1	10.89	189.0	11.28	188.0	11.47	181.2	11.06	169.5	10.30	153.8	9.32
175.5 (130%)	-2.7	-4.0	88.1	7.05	87.8	7.36	87.3	7.78	87.1	7.99	86.9	8.20	86.6	8.51	86.0	8.93
	5.0	3.2	97.3	7.57	96.8	7.88	96.1	8.28	95.8	8.49	95.4	8.69	94.9	8.99	94.2	9.40
	10.4	8.6	104.8	7.95	104.2	8.25	103.4	8.65	103.0	8.85	102.6	9.04	102.0	9.34	101.1	9.74
	15.8	14.0	113.0	8.31	112.3	8.61	111.3	9.00	110.8	9.20	110.3	9.39	109.6	9.69	108.5	10.08
	17.0	15.0	114.6	8.38	113.8	8.67	112.8	9.06	112.3	9.26	111.8	9.46	111.1	9.75	110.0	10.14
	23.0	21.2	124.6	8.78	123.7	9.07	122.6	9.46	122.0	9.65	121.4	9.84	120.5	10.13	119.2	10.52
	26.6	24.8	130.7	9.01	129.8	9.30	128.5	9.68	127.9	9.87	127.2	10.07	126.3	10.36	124.9	10.74
	30.2	28.4	137.0	9.23	136.0	9.52	134.6	9.91	133.9	10.10	133.2	10.29	132.2	10.58	130.8	10.96
	32.0	30.2	140.2	9.35	139.2	9.63	137.8	10.02	137.0	10.21	136.3	10.40	135.3	10.69	133.8	11.07
	35.6	33.8	146.8	9.57	145.6	9.86	144.1	10.24	143.4	10.43	142.6	10.62	141.5	10.91	139.9	11.29
	41.0	39.2	156.8	9.90	155.6	10.19	154.0	10.57	153.1	10.76	152.3	10.95	151.1	11.24	142.9	10.85
	47.0	43.0	164.1	10.13	162.8	10.42	161.1	10.80	160.2	10.99	159.3	11.18	157.4	11.40	142.9	10.32
	48.2	46.0	170.0	10.32	168.6	10.61	166.8	10.99	165.9	11.18	165.0	11.37	157.4	10.95	142.9	9.92
	53.6	51.1	180.1	10.63	178.7	10.92	176.7	11.31	175.5	11.47	168.2	10.97	157.4	10.23	142.9	9.27
	59.0	56.3	190.7	10.96	189.1	11.25	182.7	11.17	175.5	10.69	168.2	10.23	157.4	9.54	142.9	8.66
162.0 (120%)	-2.7	-4.0	87.9	7.26	87.6	7.57	87.1	7.99	86.9	8.20	86.6	8.41	86.3	8.72	85.8	9.14
	5.0	3.2	96.9	7.80	96.4	8.10	95.7	8.51	95.4	8.71	95.0	8.91	94.6	9.21	93.8	9.62
	10.4	8.6	104.4	8.19	103.7	8.49	102.9	8.88	102.5	9.08	102.1	9.28	101.5	9.58	100.6	9.97
	15.8	14.0	112.4	8.57	111.6	8.86	110.7	9.25	110.2	9.44	109.7	9.64	108.9	9.93	107.9	10.32
	17.0	15.0	113.9	8.63	113.2	8.93	112.2	9.32	111.7	9.51	111.1	9.71	110.4	10.00	109.3	10.38
	23.0	21.2	123.8	9.06	122.9	9.34	121.7	9.73	121.1	9.92	120.5	10.11	119.7	10.40	118.4	10.78
	26.6	24.8	129.8	9.30	128.8	9.58	127.6	9.96	126.9	10.15	126.3	10.35	125.3	10.63	124.0	11.01
	30.2	28.4	136.0	9.53	134.9	9.82	133.6	10.20	132.9	10.39	132.2	10.58	131.2	10.86	129.7	11.24
	32.0	30.2	139.1	9.65	138.0	9.94	136.6	10.32	135.9	10.51	135.2	10.69	134.2	10.98	131.9	11.26
	35.6	33.8	145.5	9.89	144.4	10.17	142.9	10.55	142.1	10.74	141.4	10.93	140.2	11.21	131.9	10.75
	41.0	39.2	155.4	10.24	154.2	10.53	152.5	10.90	151.7	11.09	150.9	11.28	145.3	11.04	131.9	10.01
	47.0	43.0	162.5	10.49	161.2	10.77	159.5	11.15	158.6	11.34	155.3	11.24	145.3	10.49	131.9	9.53
	48.2	46.0	168.2	10.69	166.9	10.97	165.1	11.35	162.0	11.28	155.3	10.80	145.3	10.08	131.9	9.16
	53.6	51.1	178.1	11.03	176.7	11.31	168.7	11.00	162.0	10.54	155.3	10.09	145.3	9.42	131.9	8.57
	59.0	56.3	188.5	11.38	182.1	11.12	168.7	10.25	162.0	9.83	155.3	9.41	145.3	8.80	131.9	8.01
148.5 (110%)	-2.7	-4.0	87.6	7.51	87.3	7.82	86.8	8.24	86.6	8.45	86.4	8.65	86.0	8.96	85.5	9.38
	5.0	3.2	96.5	8.06	96.0	8.37	95.3	8.77	94.9	8.97	94.6	9.17	94.1	9.47	93.3	9.87
	10.4	8.6	103.8	8.47	103.2	8.76	102.3	9.16	101.9	9.35	101.5	9.55	100.8	9.85	99.9	10.24
	15.8	14.0	111.6	8.86	110.9	9.15	109.9	9.54	109.4	9.73	108.9	9.93	108.1	10.22	107.1	10.60
	17.0	15.0	113.2	8.93	112.4	9.23	111.4	9.61	110.9	9.80	110.4	10.00	109.6	10.29	108.5	10.67
	23.0	21.2	122.8	9.38	121.9	9.66	120.8	10.04	120.2	10.23	119.6	10.42	118.6	10.71	117.4	11.09
	26.6	24.8	128.7	9.63	127.7	9.91	126.5	10.29	125.8	10.48	125.2	10.67	124.2	10.95	120.9	11.07
	30.2	28.4	134.7	9.88	133.7	10.16	132.3	10.54	131.6	10.73	130.9	10.92	129.9	11.20	120.9	10.57
	32.0	30.2	137.8	10.01	136.7	10.29	135.3	10.66	134.6	10.85	133.9	11.04	132.8	11.32	120.9	10.33
	35.6	33.8	144.0	10.26	142.9	10.54	141.4	10.91	140.6	11.10	139.9	11.29	133.1	10.85	120.9	9.87
	41.0	39.2	153.7	10.64	152.5	10.92	150.8	11.29	148.5	11.29	142.4	10.81	133.1	10.11	120.9	9.20
	47.0	43.0	160.6	10.90	159.3	11.18	154.6	11.19	148.5	10.73	142.4	10.28	133.1	9.62	120.9	8.76
	48.2	46.0	166.2	11.12	164.9	11.40	154.6	10.75	148.5	10.31	142.4	9.88	133.1	9.24	120.9	8.42
	53.6	51.1	175.9	11.48	166.9	10.87	154.6	10.04	148.5	9.64	142.4	9.24	133.1	8.65	120.9	7.88
	59.0	56.3	176.1	10.73	166.9	10.14	154.6	9.37	148.5	9.00	142.4	8.63	133.1	8.08	120.9	7.38

MODEL SELECTION

Heating capacity at rated condition: 135 kBtu/h (10 ton)																
Total rated capacity of indoor unit	Outdoor temperature		Indoor temperature													
			61°FDB		64°FDB		68°FDB		70°FDB		72°FDB		75°FDB		79°FDB	
	°FDB	°FWB	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP
135.0 (100%)	-2.7	-4.0	87.3	7.81	87.0	8.12	86.5	8.53	86.3	8.74	86.0	8.94	85.6	9.25	85.1	9.66
	5.0	3.2	95.9	8.38	95.4	8.68	94.8	9.08	94.4	9.28	94.0	9.48	93.5	9.78	92.8	10.17
	10.4	8.6	103.1	8.80	102.5	9.09	101.6	9.48	101.2	9.68	100.8	9.87	100.1	10.17	99.2	10.55
	15.8	14.0	110.8	9.21	110.0	9.50	109.0	9.88	108.5	10.08	108.0	10.27	107.2	10.55	106.2	10.94
	17.0	15.0	112.2	9.29	111.5	9.58	110.5	9.96	109.9	10.15	109.4	10.34	108.6	10.63	107.5	11.01
	23.0	21.2	121.7	9.75	120.8	10.04	119.6	10.41	119.0	10.60	118.4	10.79	117.5	11.07	109.9	10.55
	26.6	24.8	127.4	10.02	126.4	10.30	125.1	10.68	124.5	10.86	123.8	11.05	121.0	11.08	109.9	10.09
	30.2	28.4	133.2	10.29	132.2	10.57	130.8	10.94	130.1	11.13	129.4	11.31	121.0	10.59	109.9	9.65
	32.0	30.2	136.2	10.42	135.2	10.70	133.7	11.07	133.0	11.26	129.4	11.05	121.0	10.35	109.9	9.43
	35.6	33.8	142.3	10.69	141.2	10.97	139.7	11.34	135.0	11.00	129.4	10.55	121.0	9.88	109.9	9.01
	41.0	39.2	151.7	11.10	150.4	11.37	140.6	10.68	135.0	10.25	129.4	9.83	121.0	9.21	109.9	8.40
	47.0	43.0	158.4	11.39	151.7	10.97	140.6	10.15	135.0	9.75	129.4	9.35	121.0	8.77	109.9	8.00
	48.2	46.0	160.1	11.15	151.7	10.54	140.6	9.76	135.0	9.37	129.4	8.99	121.0	8.43	109.9	7.70
	53.6	51.1	160.1	10.41	151.7	9.85	140.6	9.12	135.0	8.76	129.4	8.41	121.0	7.89	109.9	7.22
	59.0	56.3	160.1	9.71	151.7	9.19	140.6	8.52	135.0	8.19	129.4	7.87	121.0	7.39	109.9	6.76
121.5 (90%)	-2.7	-4.0	86.9	8.16	86.6	8.47	86.1	8.88	85.8	9.09	85.6	9.29	85.2	9.60	84.7	10.01
	5.0	3.2	95.3	8.76	94.8	9.06	94.1	9.45	93.7	9.65	93.4	9.85	92.8	10.14	92.1	10.54
	10.4	8.6	102.3	9.20	101.6	9.49	100.8	9.88	100.3	10.07	99.9	10.26	99.2	10.55	98.3	10.93
	15.8	14.0	109.7	9.63	108.9	9.92	107.9	10.30	107.4	10.48	106.9	10.67	106.1	10.96	98.9	10.39
	17.0	15.0	111.1	9.71	110.4	10.00	109.3	10.37	108.8	10.56	108.3	10.75	107.5	11.03	98.9	10.27
	23.0	21.2	120.2	10.20	119.4	10.48	118.2	10.86	117.6	11.04	116.5	11.16	108.9	10.46	98.9	9.55
	26.6	24.8	125.8	10.49	124.8	10.77	123.5	11.14	121.5	11.12	116.5	10.67	108.9	10.01	98.9	9.14
	30.2	28.4	131.4	10.78	130.4	11.05	126.5	11.06	121.5	10.63	116.5	10.20	108.9	9.57	98.9	8.74
	32.0	30.2	134.3	10.92	133.3	11.20	126.5	10.81	121.5	10.39	116.5	9.97	108.9	9.35	98.9	8.55
	35.6	33.8	140.2	11.21	136.5	11.13	126.5	10.32	121.5	9.91	116.5	9.52	108.9	8.93	98.9	8.17
	41.0	39.2	144.1	10.95	136.5	10.37	126.5	9.61	121.5	9.24	116.5	8.88	108.9	8.33	98.9	7.63
	47.0	43.0	144.1	10.41	136.5	9.86	126.5	9.15	121.5	8.80	116.5	8.45	108.9	7.94	98.9	7.27
	48.2	46.0	144.1	10.00	136.5	9.48	126.5	8.80	121.5	8.46	116.5	8.13	108.9	7.64	98.9	7.00
	53.6	51.1	144.1	9.35	136.5	8.86	126.5	8.23	121.5	7.92	116.5	7.62	108.9	7.16	98.9	6.57
	59.0	56.3	144.1	8.73	136.5	8.28	126.5	7.70	121.5	7.41	116.5	7.13	108.9	6.71	98.9	6.17
108.0 (80%)	-2.7	-4.0	86.4	8.61	86.1	8.91	85.6	9.32	85.3	9.52	85.0	9.73	84.7	10.03	84.1	10.44
	5.0	3.2	94.5	9.23	94.0	9.52	93.3	9.91	92.9	10.11	92.5	10.30	92.0	10.59	87.9	10.43
	10.4	8.6	101.2	9.69	100.5	9.97	99.7	10.35	99.2	10.54	98.8	10.73	96.8	10.81	87.9	9.89
	15.8	14.0	108.3	10.14	107.6	10.42	106.6	10.80	106.1	10.98	103.5	10.85	96.8	10.19	87.9	9.33
	17.0	15.0	109.7	10.23	108.9	10.51	107.9	10.88	107.4	11.07	103.5	10.73	96.8	10.07	87.9	9.22
	23.0	21.2	118.5	10.75	117.6	11.03	112.5	10.78	108.0	10.38	103.5	9.97	96.8	9.37	87.9	8.58
	26.6	24.8	123.8	11.06	121.4	11.11	112.5	10.32	108.0	9.93	103.5	9.54	96.8	8.96	87.9	8.21
	30.2	28.4	128.1	11.19	121.4	10.62	112.5	9.86	108.0	9.49	103.5	9.12	96.8	8.57	87.9	7.86
	32.0	30.2	128.1	10.94	121.4	10.37	112.5	9.64	108.0	9.28	103.5	8.92	96.8	8.38	87.9	7.68
	35.6	33.8	128.1	10.44	121.4	9.90	112.5	9.20	108.0	8.86	103.5	8.52	96.8	8.01	87.9	7.35
	41.0	39.2	128.1	9.73	121.4	9.23	112.5	8.59	108.0	8.27	103.5	7.95	96.8	7.48	87.9	6.87
	47.0	43.0	128.1	9.26	121.4	8.79	112.5	8.18	108.0	7.88	103.5	7.58	96.8	7.14	87.9	6.56
	48.2	46.0	128.1	8.90	121.4	8.45	112.5	7.87	108.0	7.58	103.5	7.30	96.8	6.87	87.9	6.32
	53.6	51.1	128.1	8.33	121.4	7.91	112.5	7.37	108.0	7.11	103.5	6.84	96.8	6.45	87.9	5.95
	59.0	56.3	128.1	7.79	121.4	7.40	112.5	6.91	108.0	6.66	103.5	6.42	96.8	6.06	87.9	5.59
94.5 (70%)	-2.7	-4.0	85.7	9.17	85.4	9.47	84.9	9.87	84.6	10.07	84.3	10.27	83.9	10.57	76.9	9.83
	5.0	3.2	93.4	9.81	92.9	10.10	92.2	10.49	91.8	10.68	90.6	10.72	84.7	10.09	76.9	9.26
	10.4	8.6	99.8	10.30	99.2	10.58	98.3	10.95	94.5	10.57	90.6	10.16	84.7	9.57	76.9	8.78
	15.8	14.0	106.6	10.78	105.9	11.06	98.4	10.34	94.5	9.96	90.6	9.58	84.7	9.02	76.9	8.28
	17.0	15.0	107.9	10.87	106.2	10.99	98.4	10.23	94.5	9.85	90.6	9.48	84.7	8.92	76.9	8.19
	23.0	21.2	112.1	10.75	106.2	10.21	98.4	9.51	94.5	9.16	90.6	8.81	84.7	8.30	76.9	7.62
	26.6	24.8	112.1	10.28	106.2	9.77	98.4	9.10	94.5	8.76	90.6	8.44	84.7	7.95	76.9	7.30
	30.2	28.4	112.1	9.83	106.2	9.34	98.4	8.70	94.5	8.38	90.6	8.07	84.7	7.60	76.9	7.00
	32.0	30.2	112.1	9.61	106.2	9.13	98.4	8.51	94.5	8.20	90.6	7.89	84.7	7.44	76.9	6.85
	35.6	33.8	112.1	9.17	106.2	8.72	98.4	8.13	94.5	7.84	90.6	7.55	84.7	7.12	76.9	6.55
	41.0	39.2	112.1	8.56	106.2	8.14	98.4	7.59	94.5	7.32	90.6	7.06	84.7	6.66	76.9	6.14
	47.0	43.0	112.1	8.15	106.2	7.76	98.4	7.24	94.5	6.99	90.6	6.73	84.7	6.36	76.9	5.87
	48.2	46.0	112.1	7.84	106.2	7.47	98.4	6.97	94.5	6.73	90.6	6.49	84.7	6.13	76.9	5.67
	53.6	51.1	112.1	7.35	106.2	7.00	98.4	6.55	94.5	6.32	90.6	6.10	84.7	5.77	76.9	5.34
	59.0	56.3	112.1	6.88	106.2	6.56	98.4	6.14	94.5	5.94	90.6	5.73	84.7	5.43	76.9	5.03
81.0 (60%)	-2.7	-4.0	84.8	9.90	84.4	10.20	83.9	10.59	81.0	10.29	77.7	9.92	72.6	9.35	65.9	8.61
	5.0	3.2	92.0	10.57	91.0	10.77	84.3	10.05	81.0	9.69	77.7	9.34	72.6	8.80	65.9	8.10
	10.4	8.6	96.1	10.73	91.0	10.21	84.3	9.53	81.0	9.19	77.7	8.85	72.6	8.35	65.9	7.68
	15.8	14.0	96.1	10.11	91.0	9.63	84.3	8.98	81.0	8.67	77.7	8.35	72.6	7.88	65.9	7.26
	17.0	15.0	96.1	10.00	91.0	9.52	84.3	8.88	81.0	8.57	77.7	8.25	72.6	7.79	65.9	7.17
	23.0	21.2	96.1	9.30	91.0	8.85	84.3	8.26	81.0	7.97	77.7	7.68	72.6	7.25	65.9	6.69
	26.6	24.8	96.1	8.90	91.0	8.47	84.3	7.91	81.0	7.64	77.7	7.36	72.6	6.95	65.9	6.42
	30.2	28.4	96.1	8.51	91.0	8.10	84.3	7.57	81.0	7.31	77.7	7.05	72.6	6.66	65.9	6.15
	32.0	30.2	96.1	8.32	91.0	7.93	84.3	7.41	81.0	7.15	77.7	6.90	72.6	6.52	65.9	6.03
	35.6	33.8	96.1	7.95	91.0	7.58	84.3	7.09	81.0	6.85	77.7	6.61	72.6	6.25	65.9	5.78
	41.0	39.2	96.1	7.43	91.0	7.09	84.3	6.63	81.0	6.41	77.7	6.19	72.6	5.86	65.9	5.43
	47.0	43.0	96.1	7.09	91.0	6.76	84.3	6.33	81.0	6.12	77.7	5.92	72.6	5.60	65.9	5.20
	48.2	46.0	96.1	6.83	91.0	6.52	84.3	6.11	81.0	5.91	77.7	5.71	72.6	5.41	65.9	5.03
	53.6	51.1	96.1	6.41	91.0	6.12	84.3	5.75	81.0	5.56	77.7	5.38	72.6	5.11	65.9	4.75
	59.0	56.3	96.1	6.02	91.0	5.75	84.3	5.41	81.0	5.24	77.7	5.07	72.6	4.82	65.9	4.49

Heating capacity at rated condition: 135 kBtu/h (10 ton)															
Total rated capacity of indoor unit	Outdoor temperature		Indoor temperature												
			61°FDB		64°FDB		68°FDB		70°FDB		72°FDB		75°FDB		79°FDB	
	°FDB	°FWB	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP
67.5 (50%)	-2.7	-4.0	80.1	10.19	75.9	9.72	70.3	9.09	67.5	8.78	64.7	8.47	60.5	8.01	54.9	7.39
	5.0	3.2	80.1	9.59	75.9	9.14	70.3	8.56	67.5	8.27	64.7	7.97	60.5	7.54	54.9	6.96
	10.4	8.6	80.1	9.09	75.9	8.67	70.3	8.11	67.5	7.84	64.7	7.56	60.5	7.15	54.9	6.61
	15.8	14.0	80.1	8.57	75.9	8.18	70.3	7.66	67.5	7.40	64.7	7.14	60.5	6.76	54.9	6.25
	17.0	15.0	80.1	8.48	75.9	8.09	70.3	7.57	67.5	7.32	64.7	7.06	60.5	6.68	54.9	6.19
	23.0	21.2	80.1	7.89	75.9	7.53	70.3	7.06	67.5	6.82	64.7	6.59	60.5	6.24	54.9	5.78
	26.6	24.8	80.1	7.56	75.9	7.22	70.3	6.77	67.5	6.54	64.7	6.32	60.5	5.99	54.9	5.56
	30.2	28.4	80.1	7.24	75.9	6.91	70.3	6.48	67.5	6.27	64.7	6.06	60.5	5.75	54.9	5.34
	32.0	30.2	80.1	7.08	75.9	6.76	70.3	6.35	67.5	6.14	64.7	5.94	60.5	5.63	54.9	5.23
	35.6	33.8	80.1	6.78	75.9	6.48	70.3	6.08	67.5	5.89	64.7	5.69	60.5	5.41	54.9	5.03
	41.0	39.2	80.1	6.35	75.9	6.07	70.3	5.71	67.5	5.53	64.7	5.35	60.5	5.09	54.9	4.74
	47.0	43.0	80.1	6.06	75.9	5.80	70.3	5.46	67.5	5.29	64.7	5.13	60.5	4.88	54.9	4.55
	48.2	46.0	80.1	5.85	75.9	5.60	70.3	5.28	67.5	5.12	64.7	4.96	60.5	4.72	54.9	4.40
	53.6	51.1	80.1	5.51	75.9	5.28	70.3	4.98	67.5	4.83	64.7	4.69	60.5	4.47	54.9	4.18
	59.0	56.3	80.1	5.19	75.9	4.98	70.3	4.70	67.5	4.57	64.7	4.43	60.5	4.23	54.9	3.96

MODEL SELECTION

Refrigerant R410A
INVERTER

AIRSTAGE™
Variable Refrigerant Flow System

3. OUTDOOR UNITS

2021.02.19
DV_CH03_J3LU061EF_03

CONTENTS

3. OUTDOOR UNITS

1. Model lineup 03-1
1-1. Stand-alone 03-1
2. Specifications 03-2
2-1. Stand-alone 03-2
3. Dimensions 03-4
3-1. Stand-alone 03-4
4. Installation space 03-7
4-1. Space requirement 03-8
4-2. Duct installation 03-11
5. Refrigerant circuit 03-13
5-1. Models: AOU72RLAVL and AOU96RLAVL 03-13
5-2. Model: AOU120RLAVL 03-14
5-3. Symbol description 03-15
6. Wiring diagrams 03-16
6-1. Models: AOU72RLAVL and AOU96RLAVL 03-16
6-2. Model: AOU120RLAVL 03-17
7. Operation range 03-18
7-1. Outdoor unit 03-18
7-2. Indoor unit 03-18
8. Operation noise (sound pressure) 03-19
8-1. Noise level curve 03-19
8-2. Sound level check point 03-20
9. Electrical characteristics 03-21
9-1. Stand-alone 03-21
10. Safety devices 03-22
11. Accessories 03-23
11-1.Stand-alone 03-23

1. Model lineup

1-1. Stand-alone

Lineup from 6 ton to 10 ton in 2 ton increments.



Ton	Cooling capacity (Btu/h)	Model name
6	72,000	AOU72RLAVL
8	96,000	AOU96RLAVL
10	120,000	AOU120RLAVL

OUTDOOR UNITS

2. Specifications

2-1. Stand-alone

Nominal system capacity			Ton	6		8		10	
Model name				AOU72RLAVL		AOU96RLAVL		AOU120RLAVL	
Power supply				3N 208/230 V ~ 60 Hz					
Available voltage range				187—253 V					
Combination of indoor units				Non-Duct	Duct	Non-Duct	Duct	Non-Duct	Duct
Capacity	Cooling	Nominal	Btu/h	72,000		96,000		120,000	
			kW	21.1		28.1		35.2	
		Rated	Btu/h	69,000		92,000		114,000	
			kW	20.2		27.0		33.4	
	Heating	Nominal	Btu/h	81,000		108,000		135,000	
			kW	23.7		31.7		39.6	
		Rated	Btu/h	77,000		103,000		129,000	
			kW	22.6		30.2		37.8	
	Low ambient heating	Rated	Btu/h	56,000		73,000		87,000	
			kW	16.4		21.4		25.5	
Input power*1	Cooling		kW	5.55	5.43	7.74	7.44	9.60	9.21
	Heating			5.22	5.24	7.59	7.73	9.75	9.72
Current*2	Cooling	Rated	A	14.83	14.51	20.67	19.87	25.64	24.60
	Heating			13.94	14.00	20.27	20.65	26.04	25.96
EER	Cooling		Btu/hW	12.1	11.9	11.6	11.6	11.6	11.6
COP	Heating		W/W	4.19	4.01	3.87	3.66	3.77	3.64
	Low ambient heating			2.64	2.64	2.52	2.47	2.42	2.35
Fan	Airflow rate	HIGH	CFM	5,297		6,475		7,652	
			m^3/h	9,000		11,000		13,000	
	External static pressure (Max.)		inWG	0.24					
			Pa	60					
	Type × Q'ty			Propeller fan × 2					
	Motor	Type × Q'ty		DC motor × 2					
		Motor output	W	375 × 2					
Sound pressure level*3	Cooling		dB (A)	54		59		62	
	Heating			55		60		63	
Heat exchanger type	Length		in	50-9/16					
			mm	1,285					
	Fin pitch		FPI	18					
			mm	1.45					
	Rows × Stages			3 × 76					
	Face area		ft^2	22					
			m^2	2.1					
	Pipe type (Material)			Grooved H-pin (Copper)					
	Fin	Type		Corrugate (Aluminum)					
		Surface treatment		Corrosion resistance (Blue fin)					
Compressor	Type × Q'ty			Scroll × 1					
	Motor output		kW	4.7				6.2	
	Crankcase heater		W	35				35 × 2	
Refrigerant	Type			R410A					
	Charge		lb	24.25					
			kg	11.0					
Refrigerant oil	Type			FVC68D					
Enclosure	Material			Painted galvanized steel					
	Color			Beige Approximate color of Munsell 10YR 7.5/1.0NN					
Dimensions (H × W × D)	Net		in	64-1/2 × 42-1/2 × 18-7/8					
			mm	1,638 × 1,080 × 480					
	Gross		in	69-9/16 × 46-1/4 × 23-5/8					
			mm	1,767 × 1,174 × 600					
Weight	Net		lb	470					
			kg	213					
	Gross		lb	511					
			kg	232					
Connection pipe	Pipe diameter	Liquid	in	Ø 3/8				Ø 1/2	
			mm	Ø 9.52				Ø 12.7	
		Gas	in	Ø 3/4		Ø 7/8		Ø 1-1/8	
			mm	Ø 19.05		Ø 22.22		Ø 28.58	
	Method	Liquid		Brazing					
		Gas		Brazing					
	Max. length		ft	394					
			m	120					
	Max. height difference		ft	164/131 (Outdoor unit: Higher/Lower)					
			m	50/40 (Outdoor unit: Higher/Lower)					
Electrical characteristics	MCA*4		kW	38		39		47	
	MAX. CKT. BKR*5			40		40		50	
Operation temperature range	Cooling		°FDB	5 to 115*6				23 to 115*6*7	
			°CDB	-15 to 46*6				-5 to 46*6*7	
	Heating		°FDB	-4 to 70					
			°CDB	-20 to 21					
Defrost method				Reversed cycle					
Compressor capacity control (Steps/Range)				106 steps/12.5 to 100%					
Connectable indoor units number				18		24		30	

OUTDOOR UNITS

Nominal system capacity	Ton	6	8	10
Model name		AOU72RLAVL	AOU96RLAVL	AOU120RLAVL

NOTES:

- Specifications are based on the following conditions:
  - Cooling: Indoor temperature of 80 °FDB/67 °FWB (26.7 °CDB/19.4 °CWB), and outdoor temperature of 95 °FDB/75 °FWB (35.0 °CDB/23.9 °CWB).
  - Heating: Indoor temperature of 70 °FDB/60 °FWB (21.1 °CDB/15.6 °CWB), and outdoor temperature of 47 °FDB/43 °FWB (8.3 °CDB/6.1 °CWB).
  - Pipe length: 25 ft (7.5 m), Height difference: 0 ft (0 m). (Between outdoor unit and indoor unit.)
- Protective function might work when using it outside the operation range.
- *1: Electrical data is only for outdoor unit.
- *2: Refer to "Power supply cable" in Chapter 6. SYSTEM DESIGN on page 06-50 when selecting the circuit breaker.
- *3: Sound pressure level:
  - Measured values in manufacturer's anechoic chamber.
  - Because of the surrounding sound environment, the sound levels measured in actual installation conditions might be higher than the specified values here.
- *4: Minimum Circuit Ampacity (Calculation based on UL1995)
- *5: Maximum Circuit Breaker
- *6: When installation position of the outdoor unit is lower than the indoor unit, the operation temperature range is 23 to 115 °FDB (-5 to 46 °CDB).
- *7: The cooling operation range of 5 to 115 °FDB (-15 to 46 °CDB) is allowed only when all of the connected indoor units are higher than capacity of 18,000 Btu/h (5.3 kW).

OUTDOOR UNITS

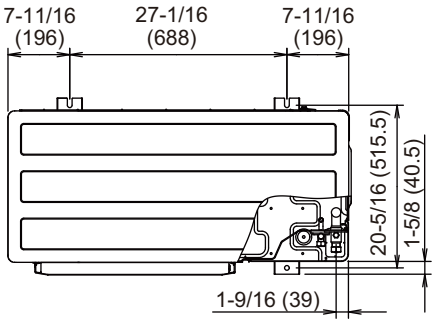
3. Dimensions

3-1. Stand-alone

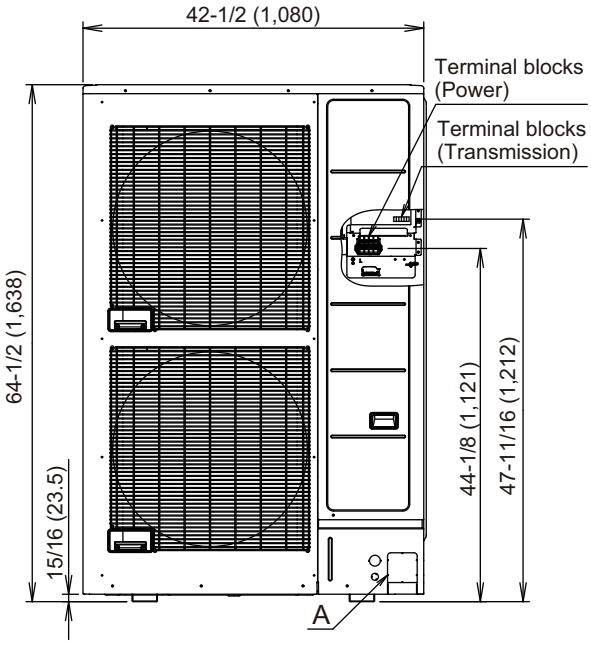
■ Models: AOU72RLAVL, AOU96RLAVL, and AOU120RLAVL

Unit: in (mm)

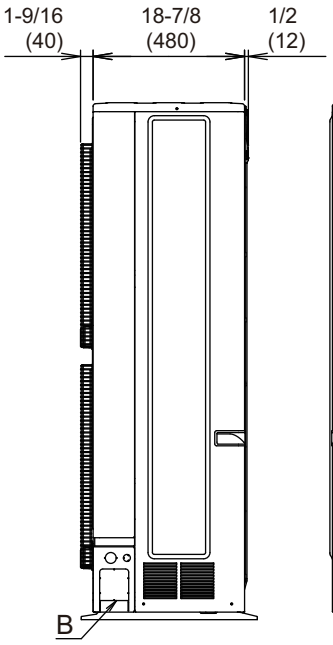
OUTDOOR UNITS



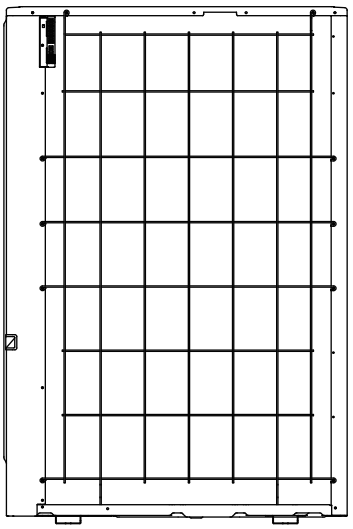
Top view



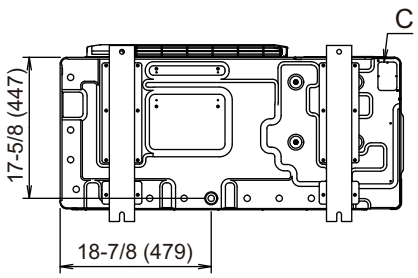
Front view



Side view

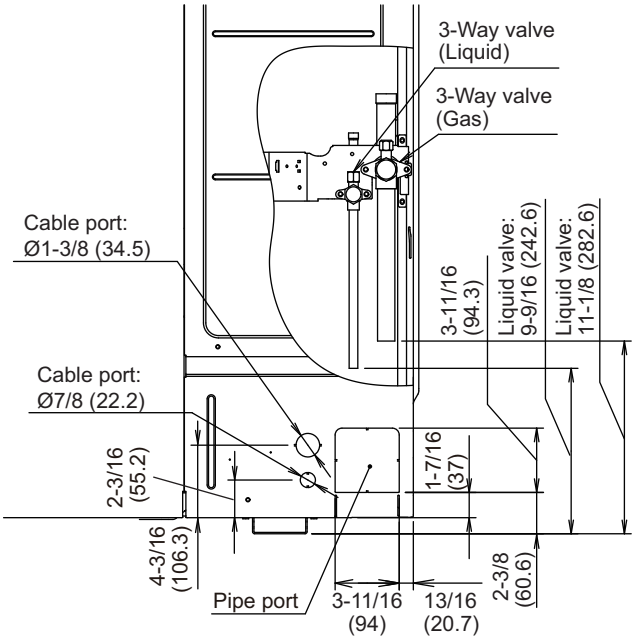


Rear view

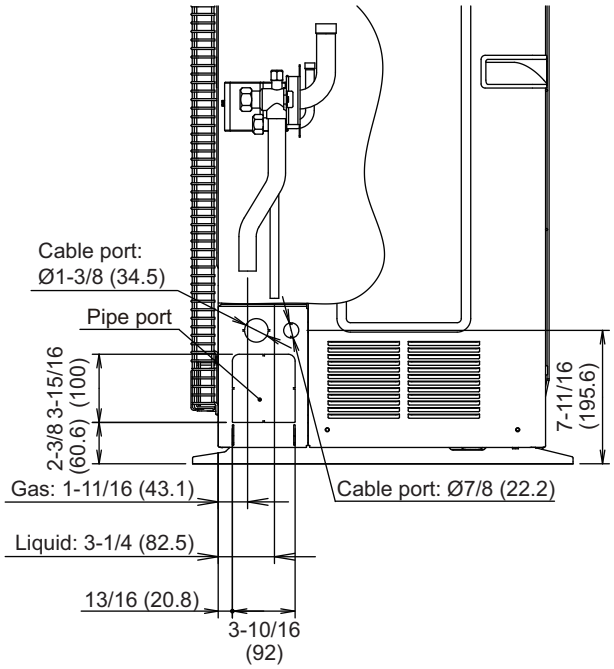


Bottom view

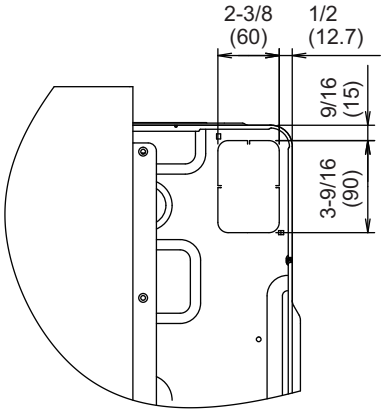
Unit: in (mm)



Detail A



Detail B

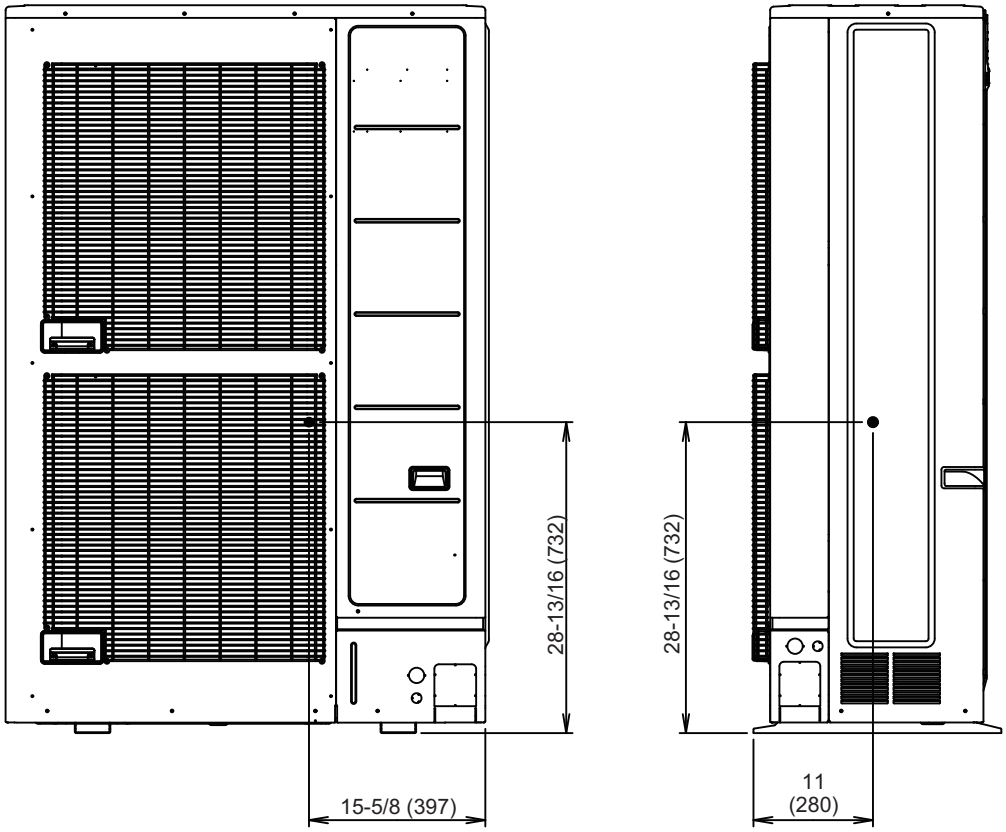


Detail C

■ Center of gravity position

● Models: AOU72RLAVL, AOU96RLAVL, and AOU120RLAVL

Unit: in (mm)



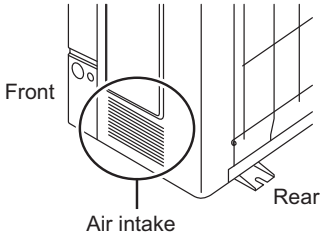
●: Center of gravity

OUTDOOR UNITS

4. Installation space

⚠ CAUTION

- The installation space shown in the following examples is based on an ambient temperature under cooling operation of 95°FDB (35°CDB) at the air intake of the outdoor unit.
  Provide more space around the air intake than shown in the examples if the ambient temperature exceeds 95°FDB (35°CDB) or if the thermal load of all of the outdoor units exceeds the capacity.
- Consider the transportation route, installation space, maintenance space, and access, and install the unit in a location with sufficient space for the refrigerant piping.
- Observe the installation space specifications that are shown in the figures.
  Provide the same space for the air intake at the rear of the outdoor unit.
  If the installation is not performed according to the specifications, it could cause a short circuit and result in a lack of operating performance. As a result, the outdoor unit might easily be stopped by high-pressure protection.
- When there is a wall at the right side of the unit, provide a space of 8 in (200 mm) or more.



- Installation methods not shown in the following examples are not recommended. Performance may drop significantly.

OUTDOOR UNITS

4-1. Space requirement

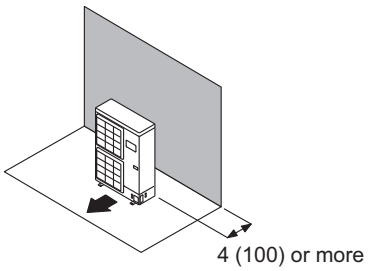
Provide sufficient installation space for product safety.

● Single outdoor unit installation

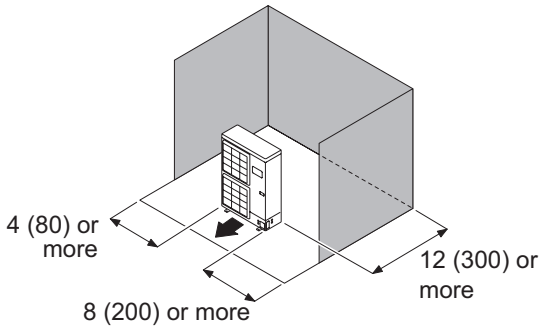
- **When the upper space is open:**

Unit: in (mm)

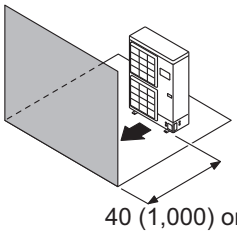
When there are obstacles at the rear only.



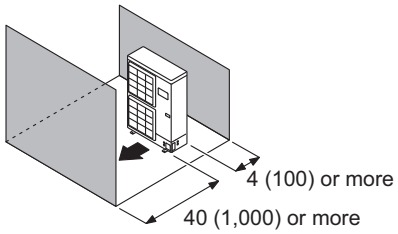
When there are obstacles at the rear and sides.



When there are obstacles at the front only.



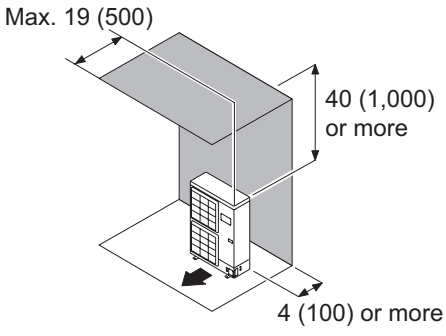
When there are obstacles at the front and rear.



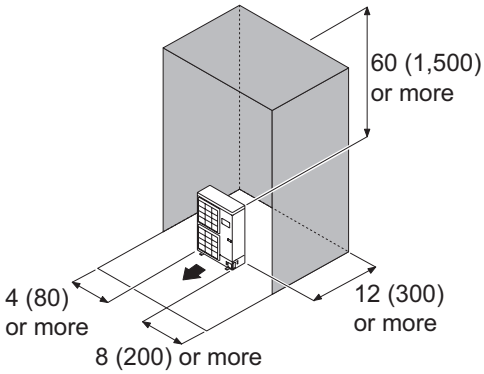
- **When there is an obstruction in the upper space:**

Unit: in (mm)

When there are obstacles at the rear and above.



When there are obstacles at the rear, sides, and above.



OUTDOOR UNITS

● Multiple outdoor unit installation

NOTES:

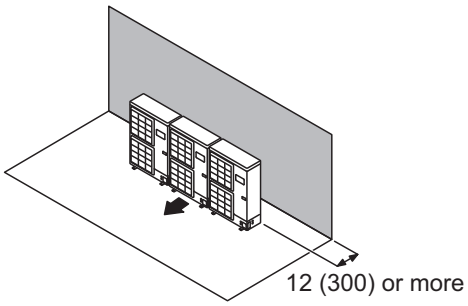
- Provide at least 8 in (200 mm) of space between the outdoor units if multiple units are installed.
- When routing the piping from the side of an outdoor unit, provide space for the piping.
- No more than 3 units must be installed side by side.
  When 3 units or more are arranged in a line, provide the space as shown in the following example when an obstruction is present also in the upward area.

OUTDOOR UNITS

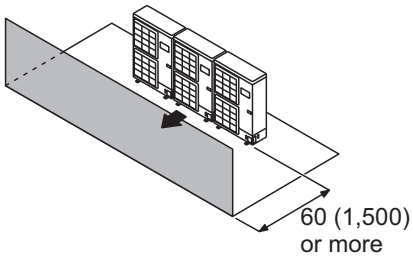
- **When the upper space is open:**

Unit: in (mm)

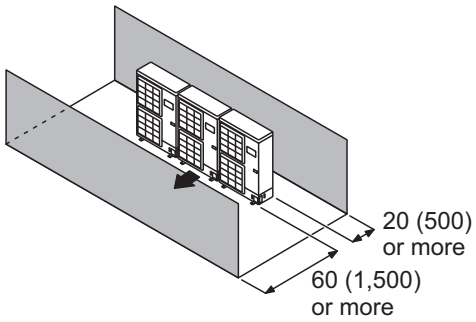
When there are obstacles at the rear only.



When there are obstacles at the front only.



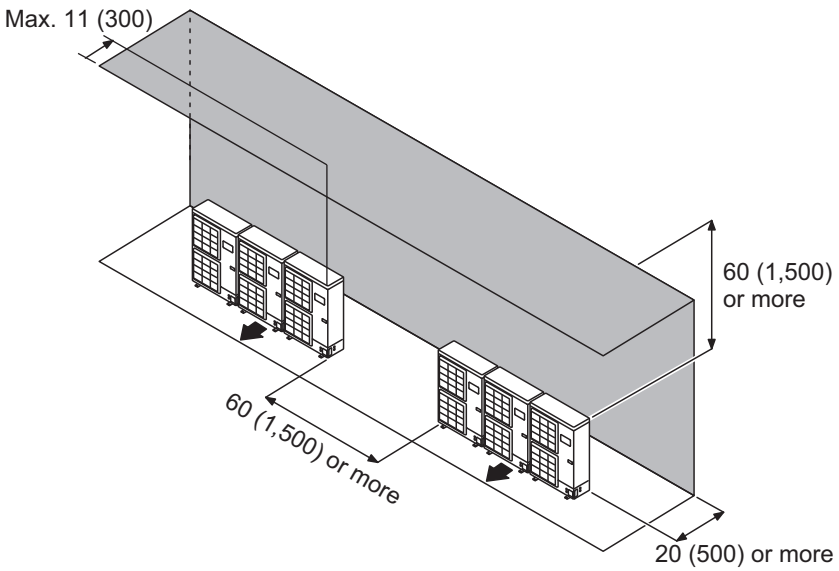
When there are obstacles at the front and rear.



- **When there is an obstruction in the upper space:**

Unit: in (mm)

When there are obstacles at the rear and above.

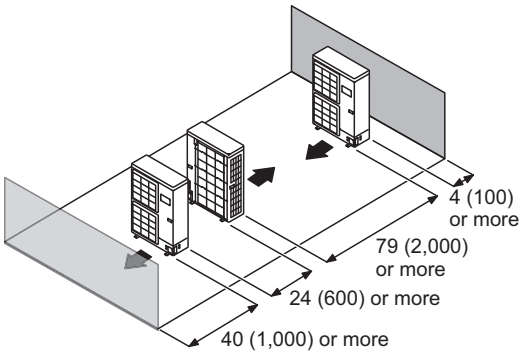


● Outdoor unit installation in multi-row

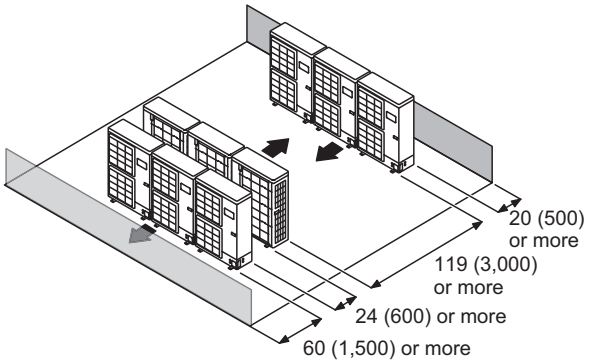
NOTE: Following settings are not recommended in case of cooling by a low outside temperature.

Unit: in (mm)

Single parallel unit arrangement

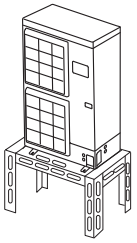


Multiple parallel unit arrangement



⚠ CAUTION

- When the outdoor temperature is 32 °F (0 °C) or less, do not use the accessory drain pipe and drain cap. If the drain pipe and drain cap are used, the drain water in the pipe may freeze in extremely cold climate. (For reverse cycle model only.)
- In area with heavy snowfall, if the inlet and outlet of the outdoor unit is blocked with snow, it might become difficult to get warm, and it is likely to cause product malfunction. Construct a canopy and a pedestal, or place the unit on a high stand that is locally installed.

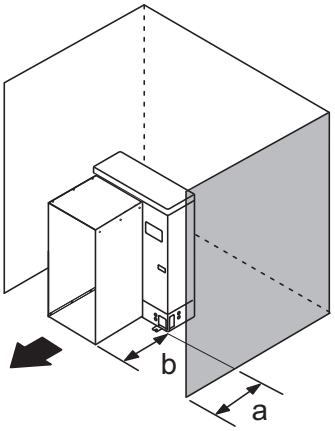


OUTDOOR UNITS

4-2. Duct installation

When there is obstacles at rear, and the side walls protruding front ward, install a duct as shown in figure below.

Installation of the unit without duct may lead capacity degradation caused by short circuit, operation stop by high pressure protection, or other malfunction.



a: Protruding distance of side walls
b: Length of the duct
a ≤ b

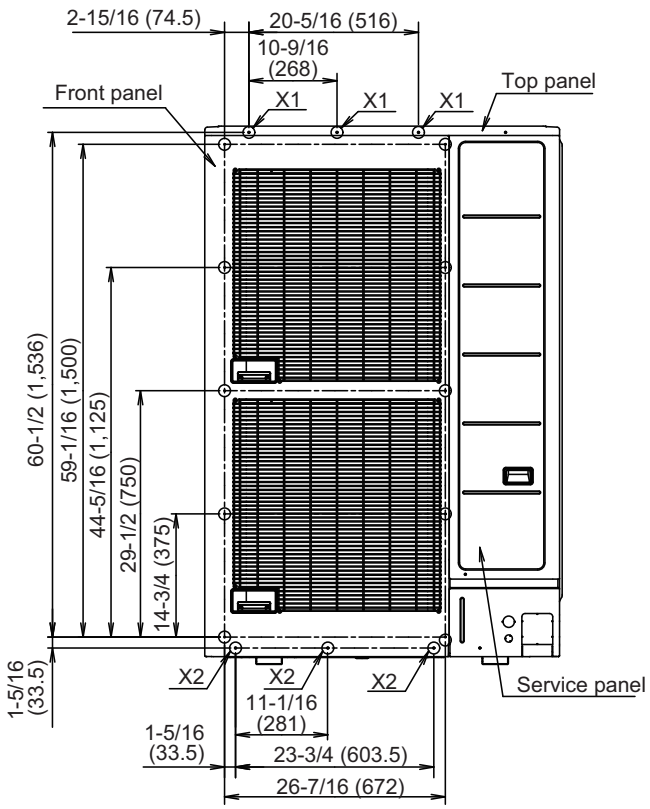
■ About the duct

The duct needs to be purchased locally. When installing the duct, be careful of the followings:

- Do not cover the service panel. If covered, the panel cannot be opened for servicing.
- Screw holes for installing the duct are placed on the front panel. Fix the duct by using a Ø5 mm tapping screw. (Refer to following diagram for the location.)

● Models: AOU72RLAVL, AOU96RLAVL, and AOU120RLAVL

Unit: in (mm)

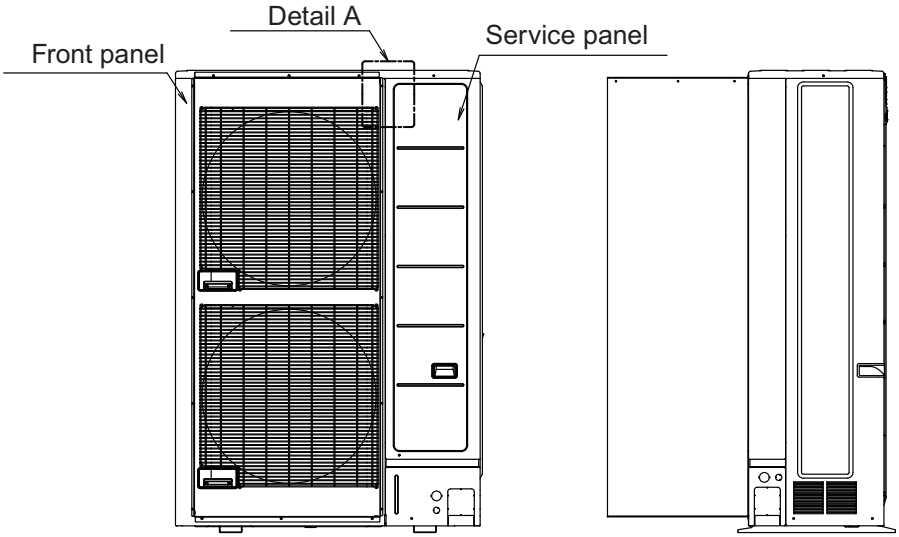


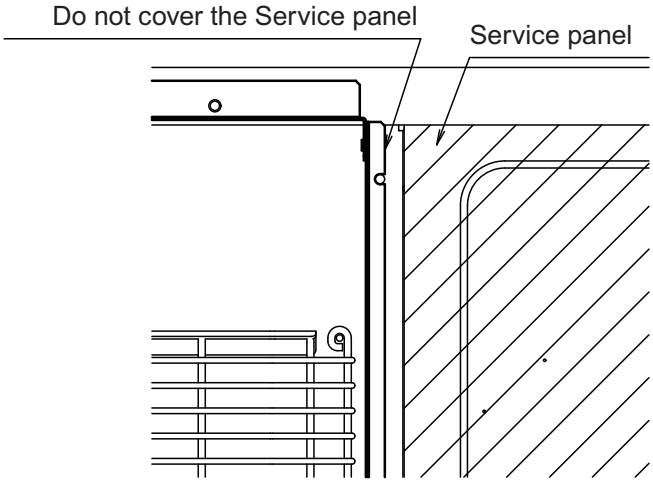
NOTES:

- X1: Remove the screw securing the top panel, and reuse it for fixing the duct.
- X2: Remove the screw securing the front panel, and reuse it for fixing the duct.

■ Duct installation example

● Models: AOU72RLAVL, AOU96RLAVL, and AOU120RLAVL



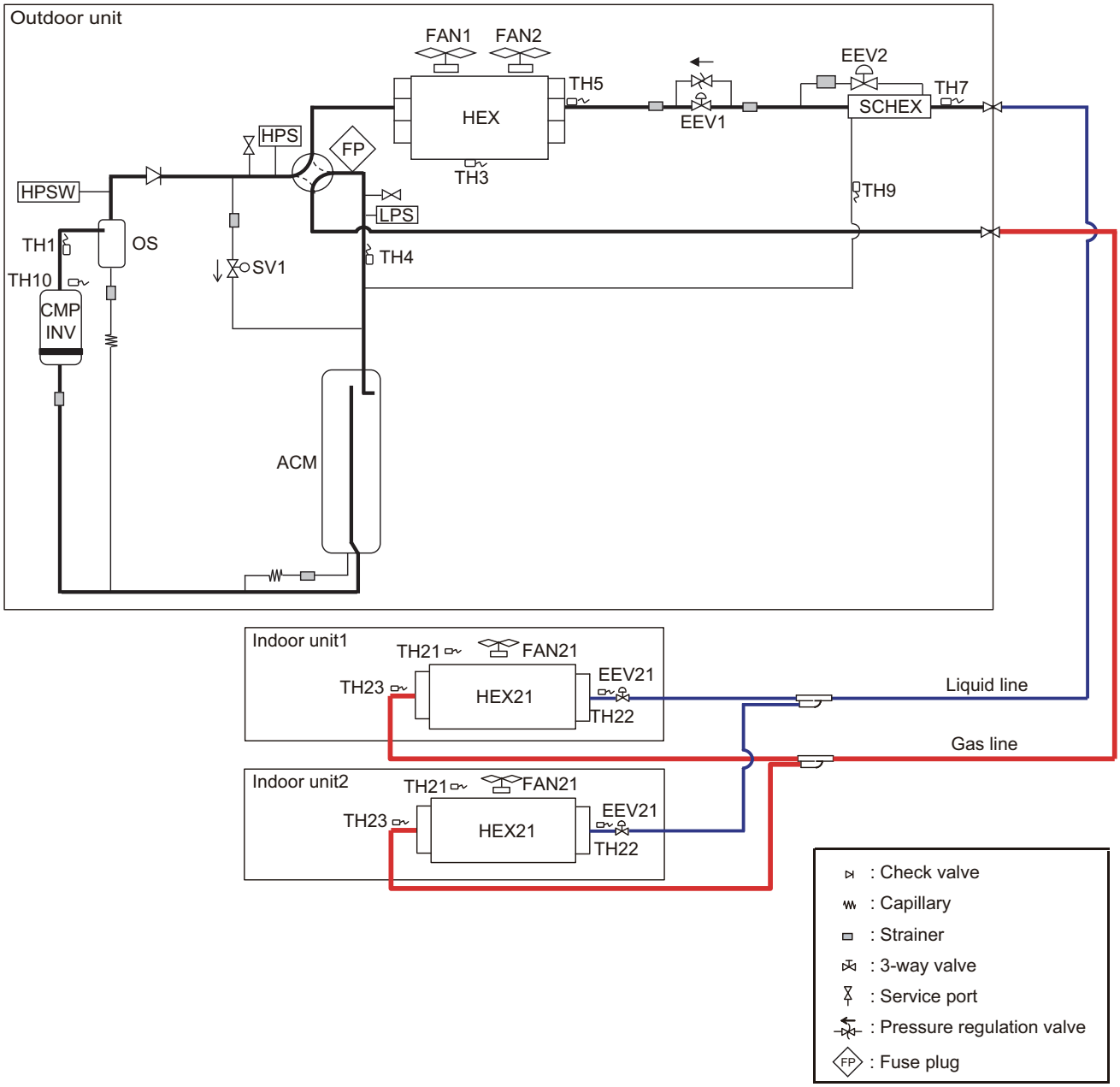


Detail A

5. Refrigerant circuit

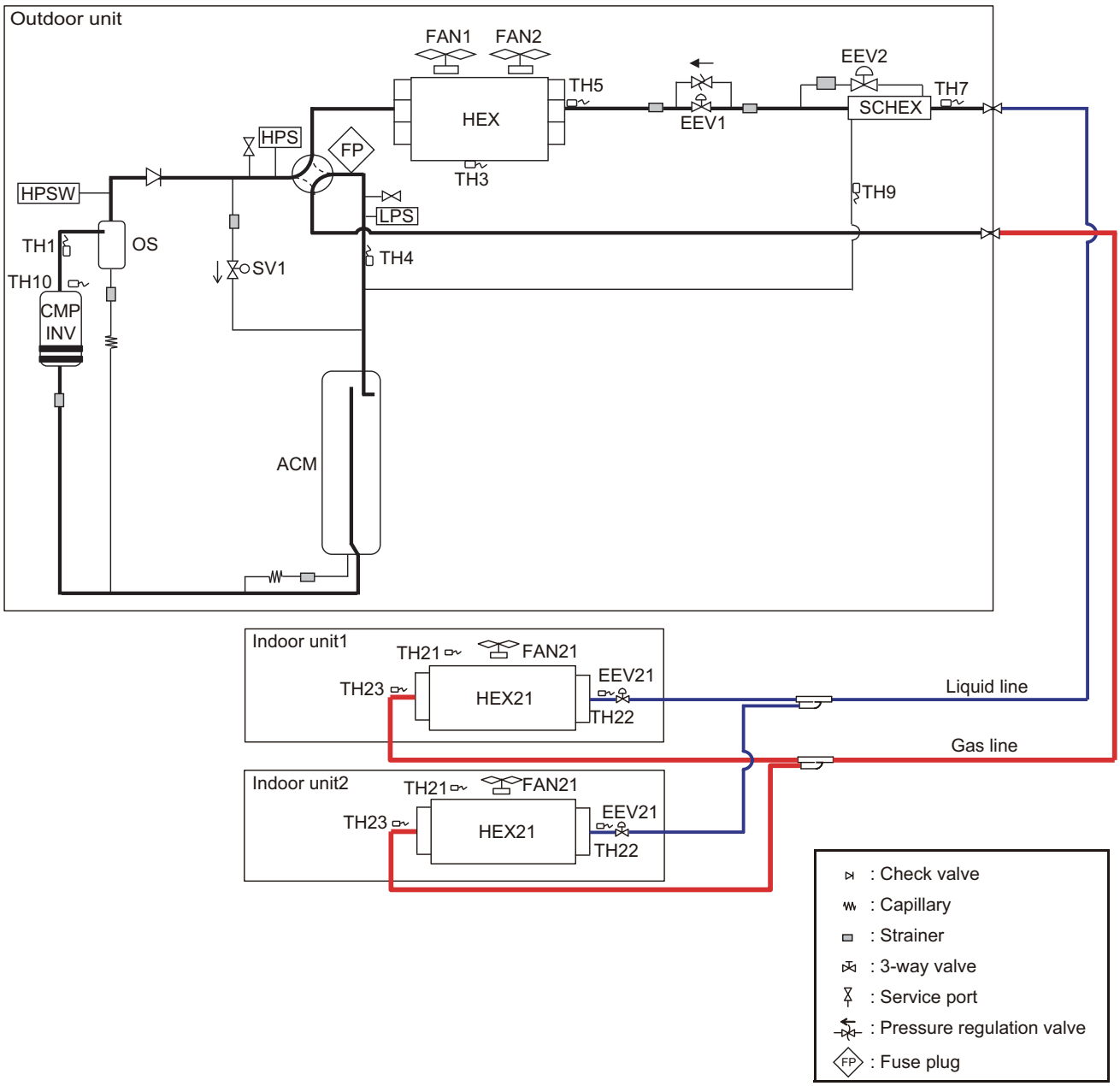
5-1. Models: AOU72RLAVL and AOU96RLAVL

OUTDOOR UNITS



5-2. Model: AOU120RLAVL

OUTDOOR UNITS



5-3. Symbol description

OUTDOOR UNITS

- **Outdoor unit**

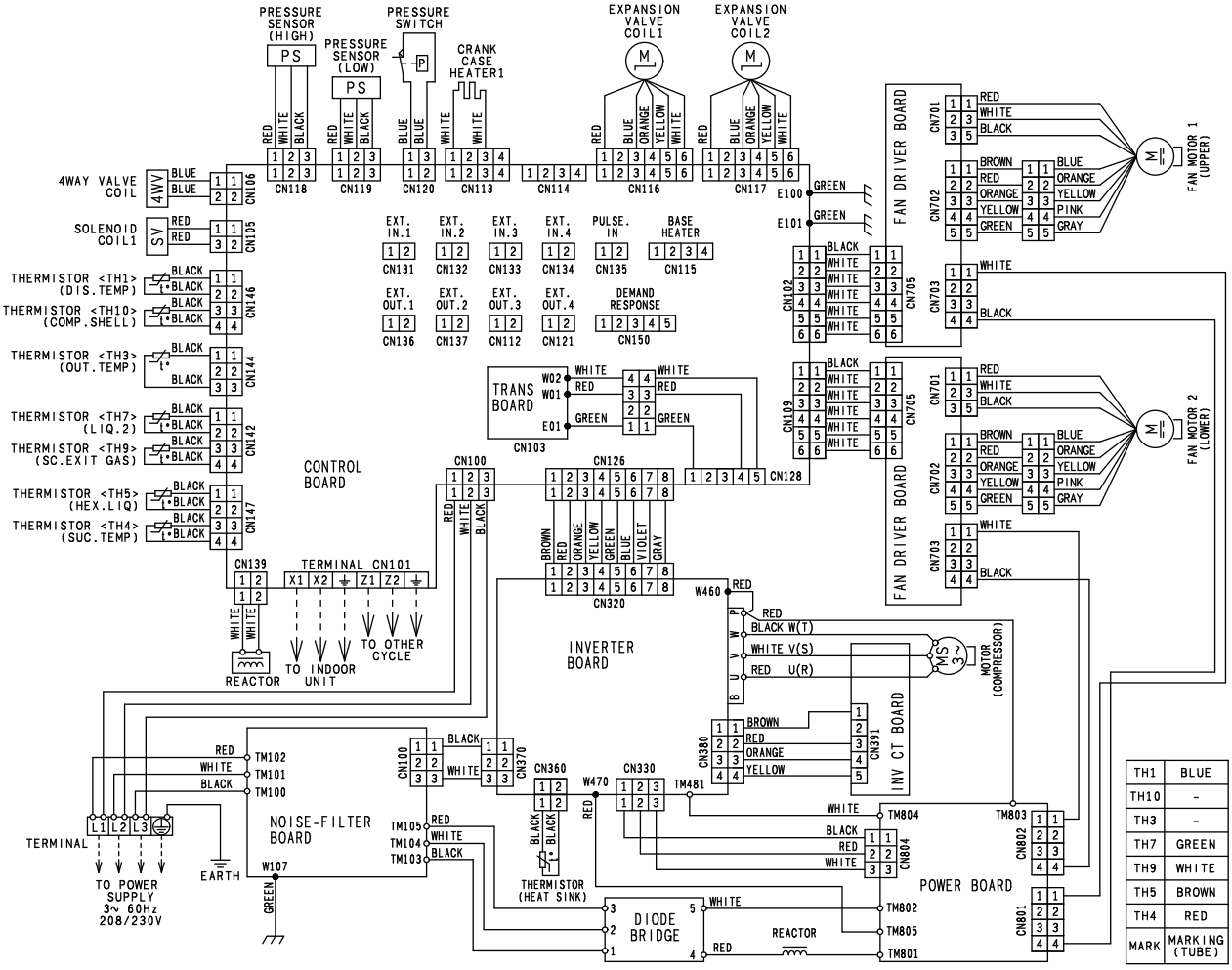
Symbol	Description	Marking color
CMP	Compressor (Inverter type)	—
HEX	Heat exchanger	—
FAN1	Fan 1	—
FAN2	Fan 2	—
ACM	Accumulator	—
OS	Oil separator	—
SCHEX	Sub-cool heat exchanger	—
HPS	High pressure sensor	—
LPS	Low pressure sensor	—
HPSW1	High pressure sensor switch 1	—
4WV	4-way valve	—
EEV1	Electric expansion valve 1	—
EEV2	Electric expansion valve 2	—
SV1	Solenoid valve 1	—
TH1	Discharge temperature thermistor	Blue
TH3	Outdoor temperature thermistor	—
TH4	Suction temperature thermistor	Red
TH5	Heat exchanger (outlet) thermistor	Brown
TH7	Liquid temperature thermistor	Green
TH9	Sub-cool heat exchanger (outlet) thermistor	White
TH10	Compressor temperature thermistor	—

- **Indoor unit**

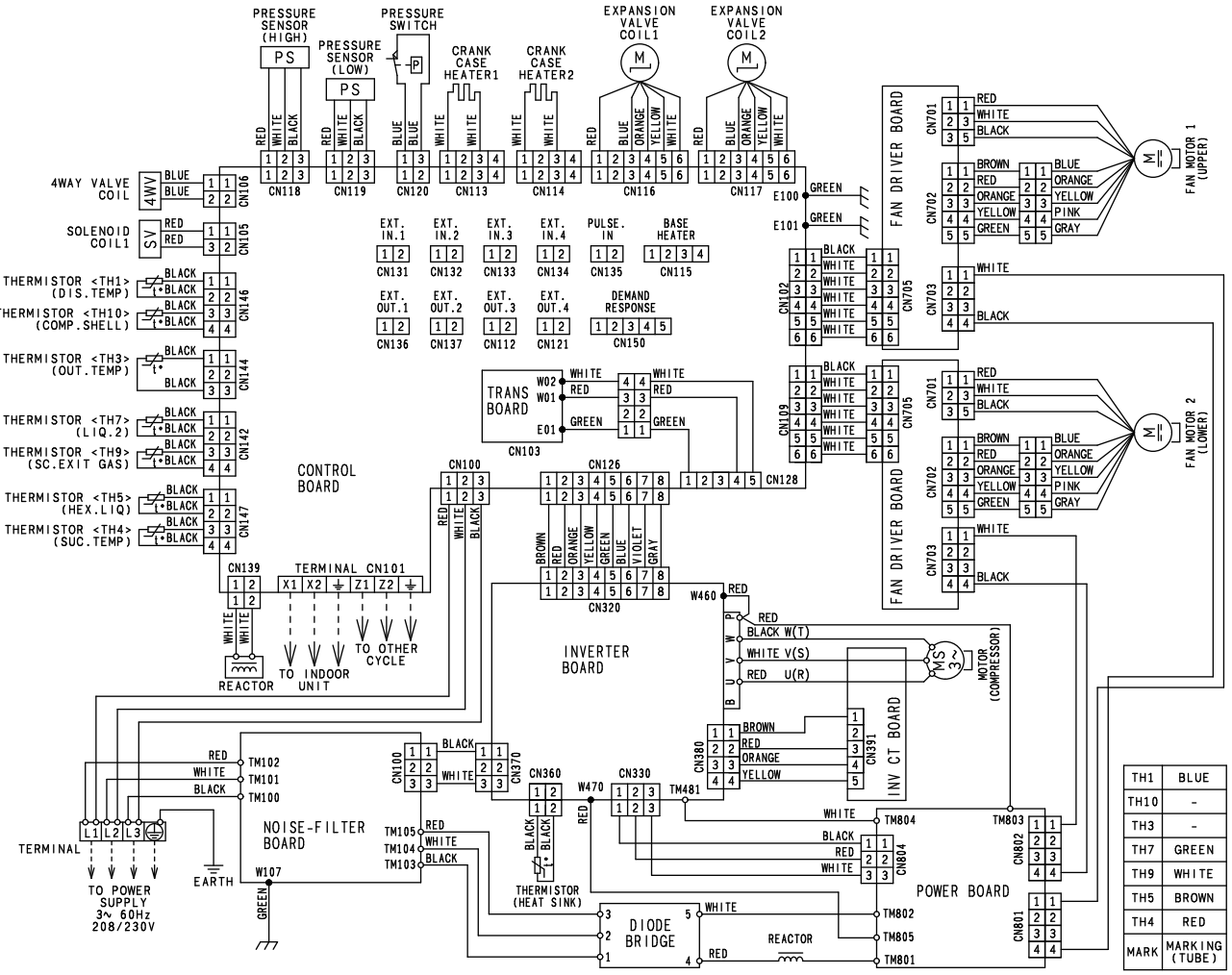
Symbol	Description
HEX21	Heat exchanger
FAN21	Fan
EEV21	Electric expansion valve
TH21	Room temperature thermistor
TH22	Heat exchanger (inlet) thermistor
TH23	Heat exchanger (outlet) thermistor

6. Wiring diagrams

6-1. Models: AOU72RLAVL and AOU96RLAVL



6-2. Model: AOU120RLAVL



7. Operation range

7-1. Outdoor unit

Operation mode	AOU72RLAVL	AOU96RLAVL	AOU120RLAVL
Cooling/Dry	5 to 115 °FDB *1 (-15 to 46 °CDB)		23 to 115 °FDB *1*2 (-5 to 46 °CDB)
Heating	-4 to 70 °FDB (-20 to 21 °CDB)		

*1: When installation position of the outdoor unit is lower than the indoor unit, the operation temperature range is 23 to 115 °FDB (-5 to 46 °CDB).

*2: The cooling operation range of 5 to 115 °FDB (-15 to 46 °CDB) is allowed only when all of the connected indoor units are higher than capacity of 18,000 Btu/h (5.3 kW).

OUTDOOR UNITS

7-2. Indoor unit

Operation mode	Operation range
Cooling/Dry	64 to 90 °FDB (18 to 32 °CDB) R.H. 80% or less
Heating	50 to 86 °FDB (10 to 30 °CDB)

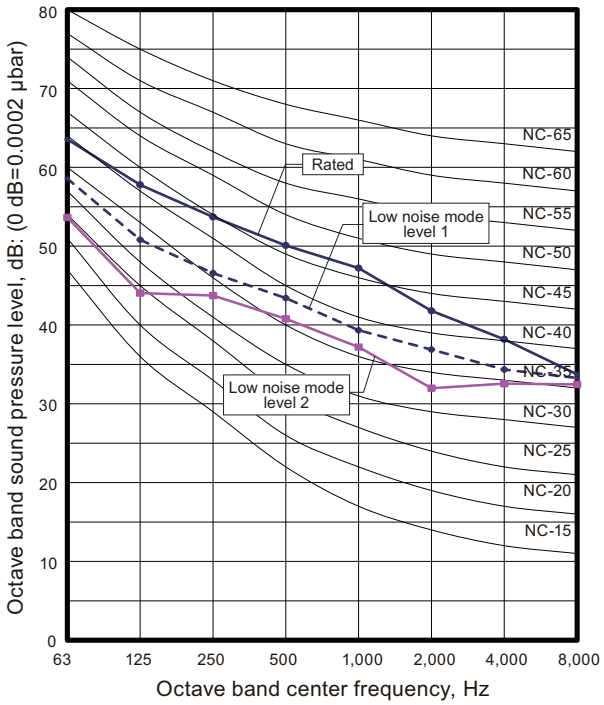
R.H.: Relative humidity

8. Operation noise (sound pressure)

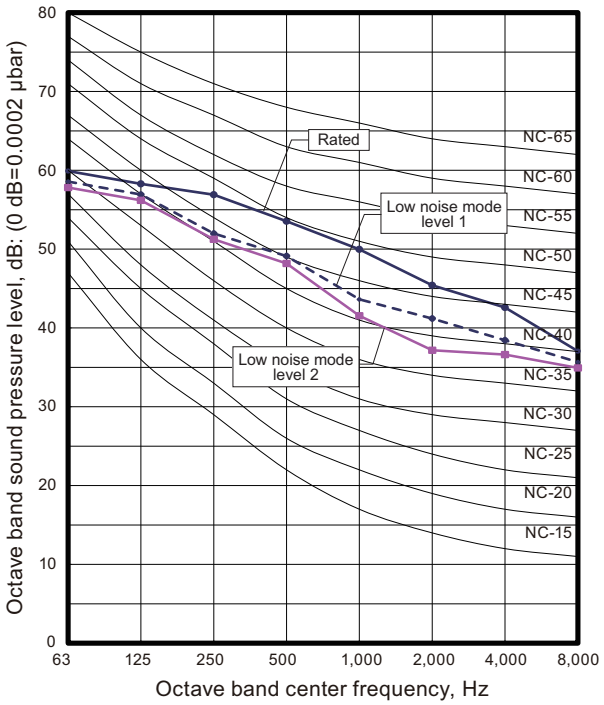
8-1. Noise level curve

■ Model: AOU72RLAVL

● Cooling

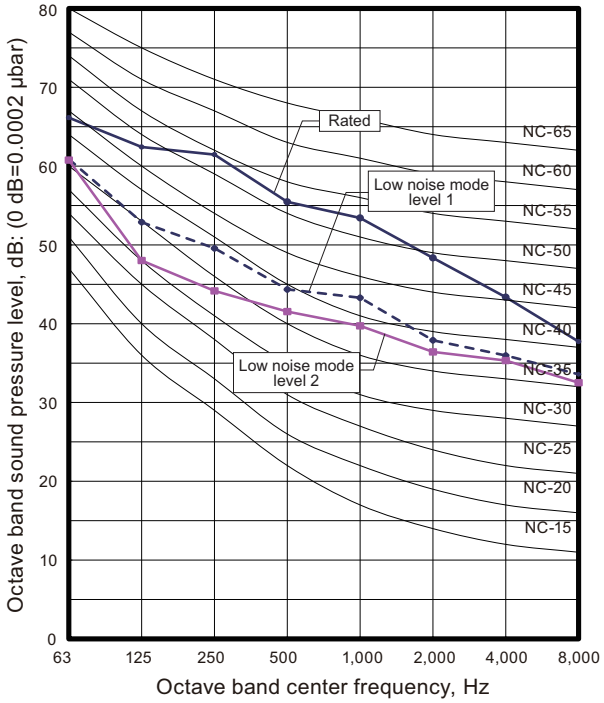


● Heating

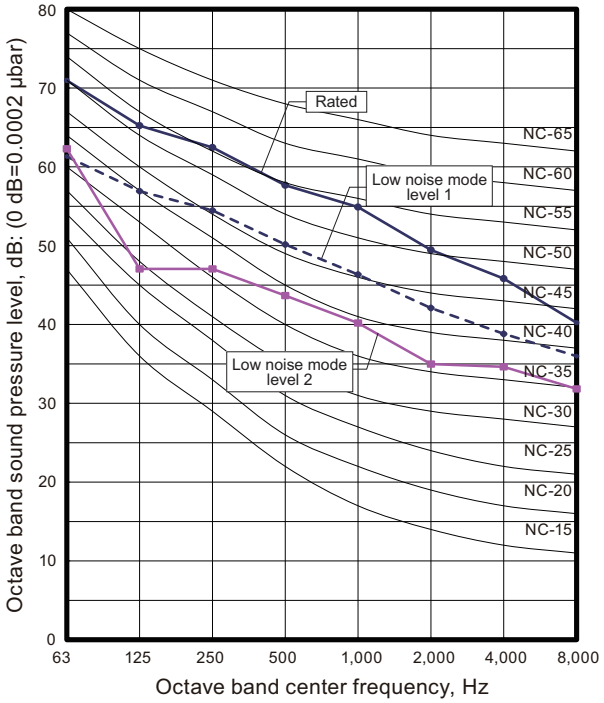


■ Model: AOU96RLAVL

● Cooling



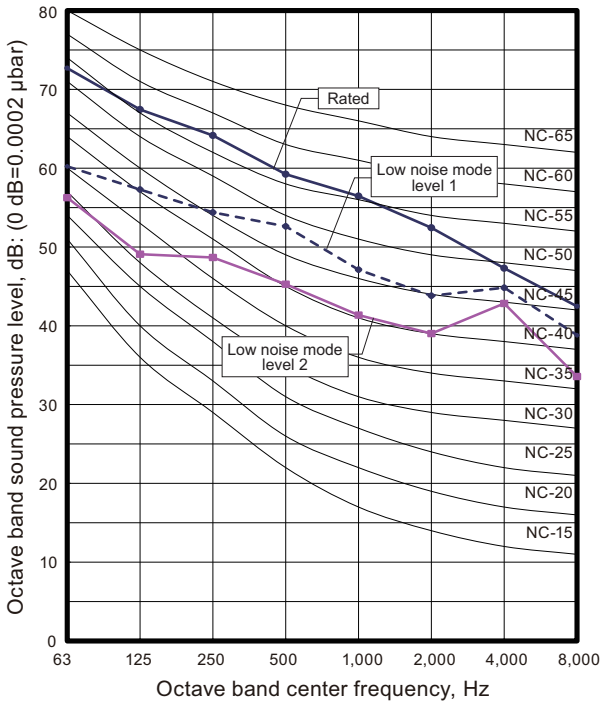
● Heating



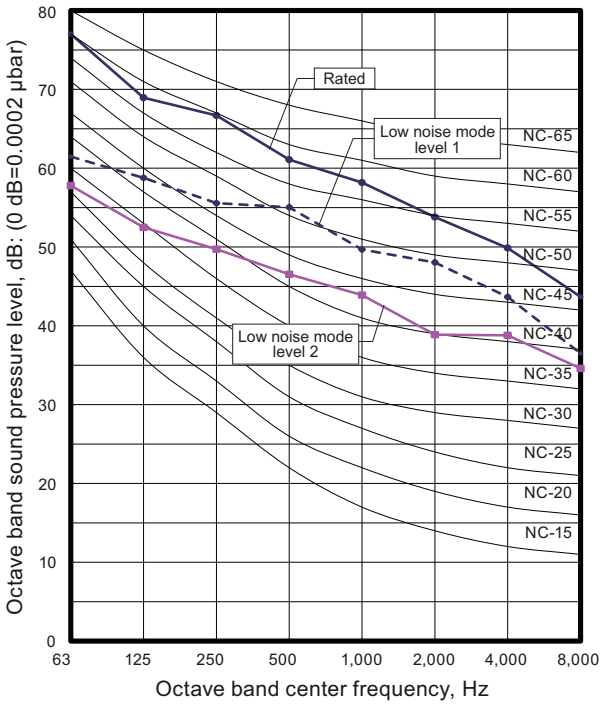
OUTDOOR UNITS

■ Model: AOU120RLAVL

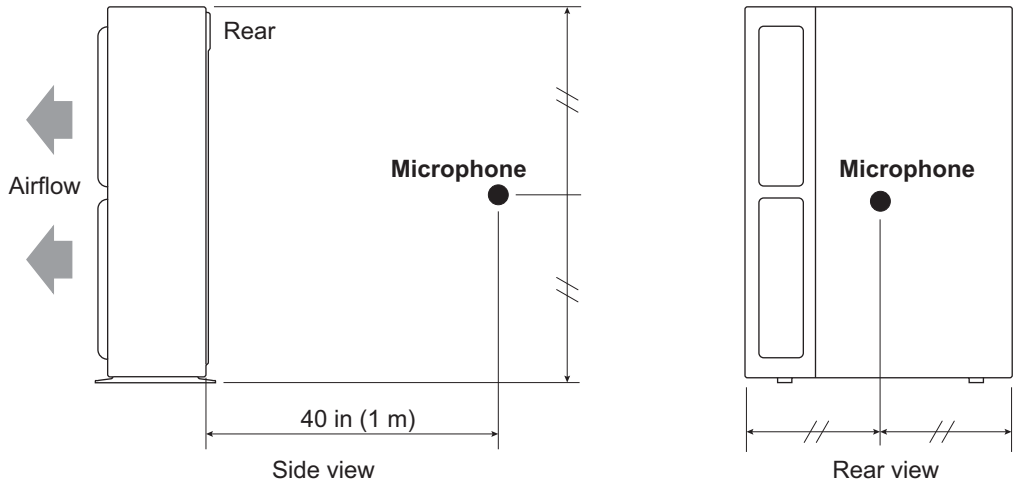
● Cooling



● Heating



8-2. Sound level check point



NOTE: Detailed shape of the actual outdoor unit might be slightly different from the one illustrated above.

9. Electrical characteristics

Select the breaker based on MCA and MAX.CKT.BKR of the following tables.
Select the wire diameter based on the larger value of MCA or TOCA of the following tables.
Select a wire diameter which withstands the breaker capacity.
Select the correct cable type and size according to the country or region's regulations.
Limited wiring length is in case voltage drop less than 2%. When wiring length extend longer, select the wiring size of larger diameter.

- RLA: Rated Load Amp of compressor under the standard condition
- MCA: Minimum Circuit Ampacity = Maximum operating current (Full load)
- MSC: Maximum Starting Current
- TOCA: Total Over-Current Ampacity
- MAX.CKT.BKR: Maximum Circuit Breaker
- GFEB: Ground Fault Equipment Breaker

OUTDOOR UNITS

9-1. Stand-alone

Ton	Model name	Power supply: 60 Hz, 208/230 V		
		Full load characteristics		
		MCA (A)	TOCA (A)	MSC (A)
6	AOU72RLAVL	38	40	30.6
8	AOU96RLAVL	39	40	31.6
10	AOU120RLAVL	47	50	38.0

Ton	Model name	Wiring specifications	Compressor	Outdoor fan motor		GFEB
		MAX.CKT.BKR (A)	RLA (A)	Output (kW)	FLA (A)	
6	AOU72RLAVL	40	26.1	375 × 2	0.8 + 0.8	100 mA, 0.1 sec or less
8	AOU96RLAVL	40	27.5	375 × 2	1.4 + 0.9	
10	AOU120RLAVL	50	33.5	375 × 2	1.6 + 1.6	

10. Safety devices

Type of protection	Protection form		Model		
			AOU72RLAVL	AOU96RLAVL	AOU120RLAVL
Circuit protection	Fuse (Main)		AC 250 V, 10 A		
	Protector (Inv)		AC 250 V, 80 A		
	Protector (Fan motor)		DC 750 V, 10 A		
	Fuse (Varistor)		AC 250 V, 3.15 A		
Compressor protector	Over current protection	Activate	—		
		Reset	—		
	Discharge pipe temperature protection	Activate	248 °F (120 °C) Compressor stop		
		Reset	185 °F (85 °C) Compressor restart		
	Compressor temperature protection	Activate	266 °F (130 °C) Compressor stop		
		Reset	194 °F (90 °C) Compressor restart		
High pressure protection		Activate	580 psi (4.0 MPa) Compressor stop		
		Reset	464 psi (3.2 MPa) Compressor restart		
Low pressure protection		Activate	7.25 psi (0.05 MPa) Compressor stop		
		Reset	—		

OUTDOOR UNITS

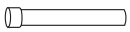
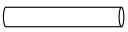
11. Accessories

The following installation parts are supplied. Use them as required. Do not discard any accessories until the installation work has been completed.

11-1. Stand-alone

The following installation parts are supplied. Use them as required. Do not discard any accessories until the installation work has been completed.

OUTDOOR UNITS

Name and shape	Q'ty	Application
 Specifications manual	1	
 Installation manual	1	
	9	For outdoor unit drain piping work
	1	For outdoor unit drain piping work
 Joint pipe A	1	For connecting gas pipe (L type) (For AOU72RLAVL, AOU96RLAVL only)
 Joint pipe B	1	For connecting gas pipe (Straight type) (For AOU72RLAVL, AOU96RLAVL only)
 Joint pipe C	1	For connecting liquid pipe (Straight type) (For AOU72RLAVL, AOU96RLAVL only)
 Joint pipe A-L	1	For connecting gas pipe (L type) (For AOU120RLAVL only)
 Joint pipe B-L	1	For connecting gas pipe (Straight type) (For AOU120RLAVL only)
 Push mount cable tie	4	For binding transmission cable

OUTDOOR UNITS

Refrigerant R410A
INVERTER

AIRSTAGE™
Variable Refrigerant Flow System

4. INDOOR UNITS

2021.04.23
DV_CH04_J3LU061EF_07

CONTENTS

4. INDOOR UNITS

1. Model lineup 04-1
1-1. Indoor units 04-1
2. Specifications 04-4
2-1. Compact cassette type 04-4
2-2. 4-way flow cassette type 04-6
2-3. Circular flow cassette type 04-8
2-4. Mini duct type 04-10
2-5. Slim duct/Slim concealed floor type 04-11
2-6. Medium static pressure duct type 04-13
2-7. High static pressure duct type 04-14
2-8. Compact floor type 04-16
2-9. Floor/Ceiling type 04-18
2-10. Ceiling type 04-19
2-11. Wall mounted type 04-20
3. Electrical characteristics 04-26
4. Dimensions 04-28
4-1. Compact cassette type 04-28
4-2. 4-way flow cassette type 04-30
4-3. Circular flow cassette type 04-33
4-4. Mini duct type 04-36
4-5. Slim duct/Slim concealed floor type 04-38
4-6. Medium static pressure duct type 04-42
4-7. High static pressure duct type 04-44
4-8. Compact floor type 04-49
4-9. Floor/Ceiling type 04-51
4-10. Ceiling type 04-53
4-11. Wall mounted type 04-55
5. Wiring diagrams 04-65
5-1. Compact cassette type 04-65
5-2. 4-way flow cassette type 04-66
5-3. Circular flow cassette type 04-67
5-4. Mini duct type 04-68
5-5. Slim duct/Slim concealed floor type 04-69
5-6. Medium static pressure duct type 04-70
5-7. High static pressure duct type 04-71
5-8. Compact floor type 04-73
5-9. Floor/Ceiling type 04-74
5-10. Ceiling type 04-75
5-11. Wall mounted type 04-76
6. Air velocity and temperature distributions 04-80
6-1. Compact cassette type 04-80

CONTENTS (continued)

6-2. 4-way flow cassette type 04-94
6-3. Circular flow cassette type....04-98
6-4. Mini duct type 04-103
6-5. Slim duct/Slim concealed floor type....04-105
6-6. Compact floor type 04-115
6-7. Floor/Ceiling type....04-119
6-8. Ceiling type....04-125
6-9. Wall mounted type....04-127

7. Fan performance curve....04-139

7-1. Mini duct type 04-139
7-2. Slim duct/Slim concealed floor type....04-142
7-3. Medium static pressure duct type 04-152
7-4. High static pressure duct type 04-158
7-5. Fresh air characteristics....04-165

8. Airflow....04-167

8-1. Compact cassette type 04-167
8-2. 4-way flow cassette type 04-168
8-3. Circular flow cassette type....04-169
8-4. Mini duct type 04-170
8-5. Slim duct/Slim concealed floor type....04-170
8-6. Medium static pressure duct type 04-171
8-7. High static pressure duct type 04-171
8-8. Compact floor type 04-172
8-9. Floor/Ceiling type....04-173
8-10. Ceiling type....04-174
8-11. Wall mounted type....04-174

9. Noise level curve....04-176

9-1. Compact cassette type 04-176
9-2. 4-way flow cassette type 04-178
9-3. Circular flow cassette type....04-179
9-4. Mini duct type 04-181
9-5. Slim duct/Slim concealed floor type....04-182
9-6. Medium static pressure duct type 04-184
9-7. High static pressure duct type 04-185
9-8. Compact floor type 04-187
9-9. Floor/Ceiling type....04-189
9-10. Ceiling type....04-190
9-11. Wall mounted type....04-191
9-12. Sound level check point....04-195

10. Safety devices 04-196

10-1.Compact cassette type 04-196
10-2.4-way flow cassette type 04-196
10-3.Circular flow cassette type....04-196
10-4.Mini duct type 04-196

CONTENTS (continued)

10-5.Slim duct/Slim concealed floor type 04-197
10-6.Medium static pressure duct type 04-197
10-7.High static pressure duct type 04-197
10-8.Compact floor type 04-197
10-9.Floor/Ceiling type 04-198
10-10.Ceiling type 04-198
10-11.Wall mounted type 04-198
11. Accessories 04-199
11-1.Compact cassette type 04-199
11-2.4-way flow cassette type 04-200
11-3.Circular flow cassette type 04-201
11-4.Mini duct type 04-202
11-5.Slim duct/Slim concealed floor type 04-203
11-6.Medium static pressure duct type 04-204
11-7.High static pressure duct type 04-205
11-8.Compact floor type 04-207
11-9.Floor/Ceiling type 04-208
11-10.Ceiling type 04-209
11-11.Wall mounted type 04-210

1. Model lineup

1-1. Indoor units

Type		Capacity												
	Btu/h	4,000	7,500	9,500	12,000	14,000	18,000	24,000	30,000	34,000	36,000	48,000	60,000	72,000	96,000
	Model code	4	7	9	12	14	18	24	30	36	36	48	60	72	96
Compact cassette		•	•	•	•	•	•	•							
4-way flow cassette							•	•	•		•				
Circular flow cassette							•	•	•		•	•			
Mini duct		•													
Slim duct/Slim concealed floor			•	•	•	•	•								
Medium static pressure duct								•	•		•				
High static pressure duct											•	•	•		
														•	
															•
Compact floor		•	•	•	•	•									
Floor/Ceiling					•	•	•	•							
Ceiling									•		•				
Wall mounted		•	•	•	•	•									
							•	•							
									•	•					
			•	•	•	•									
							•	•							

INDOOR UNITS

Type	Rated capacity (Btu/h)		Model name	Dimensions	Remarks
	Cooling	Heating		H × W × D	
Compact cassette	4,000	4,400	AUUA4TLAV2	9-5/8 × 22-7/16 × 22-7/16 (245 × 570 × 570)	Cassette grille: UTG-CCGVG (Grid type)
	7,500	9,500	AUUA7TLAV2		
	9,500	10,900	AUUA9TLAV2		
	12,000	13,500	AUUA12TLAV2		
	14,000	15,600	AUUA14TLAV2		
	18,000	20,000	AUUA18TLAV2		
	24,000	27,000	AUUA24TLAV2		
4-way flow cassette	18,000	20,000	AUUB18TLAV	9-11/16 × 33-1/16 × 33-1/16 (246 × 840 × 840)	Cassette grille: UTG-LCGV
	24,000	27,000	AUUB24TLAV		
	30,000	34,000	AUUB30TLAV	11-5/16 × 33-1/16 × 33-1/16 (288 × 840 × 840)	
	36,000	40,000	AUUB36TLAV		
Circular flow cassette	18,000	20,000	AUUB18TLAV2	9-11/16 × 33-1/16 × 33-1/16 (246 × 840 × 840)	Cassette grille: UTG-LCGVCW (White) UTG-LCGVCB (Black)
	24,000	27,000	AUUB24TLAV2		
	30,000	34,000	AUUB30TLAV2		
	36,000	40,000	AUUB36TLAV2	11-5/16 × 33-1/16 × 33-1/16 (288 × 840 × 840)	
	48,000	54,000	AUUB48TLAV2		
Mini duct	4,000	4,400	ARUL4TLAV2	7-13/16 × 27-9/16 × 17-11/16 (198 × 700 × 450)	
Slim duct/Slim concealed floor	7,500	9,500	ARUL7TLAV2	7-13/16 × 27-9/16 × 24-7/16 (198 × 700 × 620)	
	9,500	10,900	ARUL9TLAV2		
	12,000	13,500	ARUL12TLAV2		
	14,000	15,600	ARUL14TLAV2		
	18,000	20,000	ARUL18TLAV2	7-13/16 × 35-7/16 × 24-7/16 (198 × 900 × 620)	
Medium static pressure duct	24,000	27,000	ARUM24TLAV2	10-5/16 × 44-11/16 × 27-9/16 (270 × 1,135 × 700)	
	30,000	34,000	ARUM30TLAV2		
	36,000	40,000	ARUM36TLAV2		
High static pressure duct	36,000	40,000	ARUH36TLAV	15-3/4 × 41-5/16 × 19-11/16 (400 × 1,050 × 500)	
	48,000	54,000	ARUH48TLAV		
	60,000	67,000	ARUH60TLAV		
	72,000	81,000	ARUH72TLAV2	17-11/16 × 62-1/2 × 27-9/16 (450 × 1,587 × 700)	
	96,000	108,000	ARUH96TLAV2	21-5/8 × 62-1/2 × 27-9/16 (550 × 1,587 × 700)	
Compact floor	4,000	4,400	AGUA4TLAV2	23-5/8 × 29-1/8 × 7-7/8 (600 × 740 × 200)	
	7,500	9,500	AGUA7TLAV2		
	9,500	10,900	AGUA9TLAV2		
	12,000	13,500	AGUA12TLAV2		
	14,000	15,600	AGUA14TLAV2		
Floor/Ceiling	12,000	13,500	ABUA12TLAV2	7-13/16 × 39 × 25-13/16 (199 × 990 × 655)	
	14,000	15,600	ABUA14TLAV2		
	18,000	20,000	ABUA18TLAV2		
	24,000	27,000	ABUA24TLAV2		
Ceiling	30,000	34,000	ABUA30TLAV2	9-7/16 × 65-3/8 × 27-9/16 (240 × 1,660 × 700)	
	36,000	40,000	ABUA36TLAV2		

Type	Rated capacity (Btu/h)		Model name	Dimensions	Remarks
	Cooling	Heating		H × W × D	
Wall mounted	4,000	4,400	ASUA4TLAV2	10-9/16 × 33-1/16 × 8 (268 × 840 × 203)	
	7,500	9,500	ASUA7TLAV2		
	9,500	10,900	ASUA9TLAV2		
	12,000	13,500	ASUA12TLAV2		
	14,000	15,600	ASUA14TLAV2		
	18,000	20,000	ASUB18TLAV1	12-5/8 × 39-5/16 × 9-3/8 (320 × 998 × 238)	
	24,000	27,000	ASUB24TLAV1		
	30,000	34,000	ASUA30TLAV2	13-3/8 × 45-1/4 × 11 (340 × 1,150 × 280)	
	34,000	38,000	ASUA36TLAV2		
	7,500	9,500	ASUA7TLAV	10-13/16 × 31-1/8 × 8-7/16 (275 × 790 × 215)	
	9,500	10,900	ASUA9TLAV		
	12,000	13,500	ASUA12TLAV		
	14,000	15,600	ASUA14TLAV		
	18,000	20,000	ASUB18TLAV	12-5/8 × 39-5/16 × 9 (320 × 998 × 228)	
	24,000	27,000	ASUB24TLAV		

INDOOR UNITS

2. Specifications

2-1. Compact cassette type

Model name					AUUA4TLAV2	AUUA7TLAV2	AUUA9TLAV2
Power supply					1 phase ~ 208/230 V 60 Hz		
Available voltage range					187—253 V		
Capacity	Cooling			Btu/h	4,000	7,500	9,500
				kW	1.2	2.2	2.8
	Heating			Btu/h	4,400	9,500	10,900
				kW	1.3	2.8	3.2
Input power				W	23	25	
Fan	Airflow rate		HIGH	CFM (m^3/h)	312 (530)	318 (540)	324 (550)
			MED—HIGH		288/283*1 (490/480*1)	295 (500)	306 (520)
			MED		265/253*1 (450/430*1)	271 (460)	283 (480)
			MED—LOW		247/224*1 (420/380*1)	247 (420)	259 (440)
			LOW		230/200*1 (390/340*1)	230 (390)	236 (400)
			QUIET		206/177*1 (350/300*1)	206 (350)	206 (350)
	Type × Q'ty				Turbo × 1		
	Motor output			W	54		
Sound pressure level*2			HIGH	dB (A)	34	34	35
			MED—HIGH		32/31*1	32	33
			MED		30/29*1	30	31
			MED—LOW		28/26*1	28	29
			LOW		27/24*1	27	27
			QUIET		25/21*1	25	25
Heat exchanger type	Length			in (mm)	50-3/8 (1,280)		
	Fin pitch			FPI	21		
	Rows × Stages				2 × 10		
	Face area			ft^2 (m^2)	2.9 (0.27)		
	Pipe type (Material)				Grooved H-pin (Copper)		
	Fin	Type (Material)			Slit (Aluminum)		
		Surface treatment			Hydrophilic coating		
Air filter	Type				Anti-mold		
	Net material				PP honeycomb		
Enclosure	Material				Galvanized sheet iron		
	Color				—		
Dimensions (H × W × D)	Net			in (mm)	9-5/8 × 22-7/16 × 22-7/16 (245 × 570 × 570)		
	Gross				10-7/16 × 28-3/4 × 24-5/8 (265 × 730 × 625)		
Weight	Net			lb (kg)	32 (14.5)	33 (15)	
	Gross				40 (18)		
Connection pipe diameter	Liquid (Flare)			in (mm)	Ø 1/4 (6.35)		
	Gas (Flare)				Ø 3/8 (9.52)		
	Drain hose				I.D.: Ø 3/4 (19.05); O.D.: Ø 1-1/16 (26.6)		
Cassette grille (Grid type: Option)	Model name				UTG-CCGVG		
	Color				White Approximate color of Munsell 9PB 9.1/0.2		
	Dimensions (H × W × D)	Net		in (mm)	1-15/16 × 24-7/16 × 24-7/16 (50 × 620 × 620)		
		Gross			4-3/4 × 30-1/8 × 29-3/4 (120 × 765 × 755)		
	Weight	Net		lb (kg)	5 (2.3)		
		Gross			10 (4.5)		

NOTES:

- Specifications are based on the following conditions:
  - Cooling: Indoor temperature of 80 °FDB/67 °FWB (26.7 °CDB/19.4 °CWB), and outdoor temperature of 95 °FDB/75 °FWB (35 °CDB/23.9 °CWB).
  - Heating: Indoor temperature of 70 °FDB/60 °FWB (21.1 °CDB/15.6 °CWB), and outdoor temperature of 47 °FDB/43 °FWB (8.3 °CDB/6.1 °CWB).
  - Pipe length: 25 ft (7.5 m), Height difference: 0 ft (0 m). (Between outdoor unit and indoor unit.)
- Protective function might work when using it outside the operation range.
- *1: This value is “Cooling operation/Heating operation”.
- *2: Sound pressure level:
  - Measured values in manufacturer’s anechoic chamber.
  - Because of the surrounding sound environment, the sound levels measured in actual installation conditions might be higher than the specified values here.

INDOOR UNITS

Model name				AUUA12TLAV2	AUUA14TLAV2	AUUA18TLAV2	AUUA24TLAV2
Power supply				1 phase ~ 208/230 V 60 Hz			
Available voltage range				187—253 V			
Capacity	Cooling		Btu/h	12,000	14,000	18,000	24,000
			kW	3.5	4.1	5.3	7.0
	Heating		Btu/h	13,500	15,600	20,000	27,000
			kW	4.0	4.6	5.9	7.9
Input power			W	29	35	36	84
Fan	Airflow rate	HIGH	CFM (m^3/h)	353 (600)	401 (680)	418 (710)	607 (1,030)
		MED—HIGH		330 (560)	365 (620)	389 (660)	536 (910)
		MED		306 (520)	330 (560)	348 (590)	465 (790)
		MED—LOW		283 (480)	295 (500)	306 (520)	401 (680)
		LOW		253 (430)	259 (440)	271 (460)	330 (560)
		QUIET		230 (390)	230 (390)	236 (400)	265 (450)
	Type × Q'ty			Turbo × 1			
	Motor output		W	54			
Sound pressure level*		HIGH	dB (A)	37	38	41	50
		MED—HIGH		34	37	39	46
		MED		33	34	36	43
		MED—LOW		31	32	33	39
		LOW		29	30	30	35
		QUIET		27	27	27	30
Heat exchanger type	Length		in (mm)	50-3/8 (1,280)		51-9/16 (1,310)	
	Fin pitch		FPI	21		19	
	Rows × Stages			2 × 10		3 × 10	
	Face area		ft^2 (m^2)	2.9 (0.27)		3.0 (0.28)	
	Pipe type (Material)			Grooved H-pin (Copper)			
	Fin	Type (Material)		Slit (Aluminum)			
		Surface treatment		Hydrophilic coating			
Air filter	Type			Anti-mold			
	Net material			PP honeycomb			
Enclosure	Material			Galvanized sheet iron			
	Color			—			
Dimensions (H × W × D)	Net		in (mm)	9-5/8 × 22-7/16 × 22-7/16 (245 × 570 × 570)			
	Gross			10-7/16 × 28-3/4 × 24-5/8 (265 × 730 × 625)			
Weight	Net		lb (kg)	33 (15)		37 (17)	
	Gross			42 (19)		44 (20)	
Connection pipe diameter	Liquid (Flare)		in (mm)	Ø 1/4 (6.35)			Ø 3/8 (9.52)
	Gas (Flare)			Ø 1/2 (12.70)			Ø 5/8 (15.88)
	Drain hose			VP25 I.D.: Ø 3/4 (19.05); O.D.: Ø 1-1/16 (26.6)			
Cassette grille (Grid type: Option)	Model name			UTG-CCGVG			
	Color			White Approximate color of Munsell 9PB 9.1/0.2			
	Dimensions (H × W × D)	Net	in (mm)	1-15/16 × 24-7/16 × 24-7/16 (50 × 620 × 620)			
		Gross		4-3/4 × 30-1/8 × 29-3/4 (120 × 765 × 755)			
	Weight	Net	lb (kg)	5 (2.3)			
		Gross		10 (4.5)			

NOTES:

- Specifications are based on the following conditions:
  - Cooling: Indoor temperature of 80 °FDB/67 °FWB (26.7 °CDB/19.4 °CWB), and outdoor temperature of 95 °FDB/75 °FWB (35 °CDB/23.9 °CWB).
  - Heating: Indoor temperature of 70 °FDB/60 °FWB (21.1 °CDB/15.6 °CWB), and outdoor temperature of 47 °FDB/43 °FWB (8.3 °CDB/6.1 °CWB).
  - Pipe length: 25 ft (7.5 m), Height difference: 0 ft (0 m). (Between outdoor unit and indoor unit.)
- Protective function might work when using it outside the operation range.
- *: Sound pressure level:
  - Measured values in manufacturer's anechoic chamber.
  - Because of the surrounding sound environment, the sound levels measured in actual installation conditions might be higher than the specified values here.

INDOOR UNITS

2-2. 4-way flow cassette type

Model name					AUUB18TLAV	AUUB24TLAV
Power supply					1 phase ~ 208/230 V 60 Hz	
Available voltage range					187—253 V	
Capacity	Cooling			Btu/h	18,000	24,000
				kW	5.3	7.0
	Heating			Btu/h	20,000	27,000
				kW	5.9	7.9
Input power				W	39	46
Fan	Airflow rate		HIGH	CFM (m^3/h)	677 (1,150)	753 (1,280)
			MED		553 (940)	612 (1,040)
			LOW		512 (870)	512 (870)
	Type × Q'ty				Turbo × 1	
	Motor output			W	80	
Sound pressure level*			HIGH	dB (A)	36	38
			MED		30	33
			LOW		29	29
Heat exchanger type	Length			in (mm)	81-15/16 (2,082)	
	Fin pitch			FPI	21	
	Rows × Stages				2 × 10	
	Face area			ft^2 (m^2)	4.5 (0.42)	
	Pipe type (Material)				Grooved H-pin (Copper)	
	Fin	Type (Material)			Slit (Aluminum)	
		Surface treatment			Hydrophilic coating	
Air filter	Type				Anti-mold	
	Net material				PP honeycomb	
Enclosure	Material				Galvanized sheet iron	
	Color				—	
Dimensions (H × W × D)	Net			in (mm)	9-11/16 × 33-1/16 × 33-1/16 (246 × 840 × 840)	
	Gross				12-1/2 × 37-13/16 × 38-9/16 (318 × 960 × 980)	
Weight	Net			lb (kg)	49 (22)	
	Gross				60 (27)	
Connection pipe diameter	Liquid (Flare)			in (mm)	Ø 3/8 (9.52)	
	Gas (Flare)				Ø 5/8 (15.88)	
	Drain hose				I.D.: Ø 3/4 (19.05); O.D.: Ø 1-1/16 (26.6)	
Cassette grille (Option)	Model name				UTG-LCGV	
	Color				WhiteApproximate color of Munsell N9.25/	
	Dimensions (H × W × D)	Net		in (mm)	1-15/16 × 37-3/8 × 37-3/8 (50 × 950 × 950)	
		Gross			4-1/2 × 40-3/16 × 39-3/8 (115 × 1,020 × 1,000)	
	Weight	Net		lb (kg)	13 (5.5)	
		Gross			19 (8.5)	

NOTES:

- Specifications are based on the following conditions:
  - Cooling: Indoor temperature of 80 °FDB/67 °FWB (26.7 °CDB/19.4 °CWB), and outdoor temperature of 95 °FDB/75 °FWB (35 °CDB/23.9 °CWB).
  - Heating: Indoor temperature of 70 °FDB/60 °FWB (21.1 °CDB/15.6 °CWB), and outdoor temperature of 47 °FDB/43 °FWB (8.3 °CDB/6.1 °CWB).
  - Pipe length: 25 ft (7.5 m), Height difference: 0 ft (0 m). (Between outdoor unit and indoor unit.)
- Protective function might work when using it outside the operation range.
- *: Sound pressure level:
  - Measured values in manufacturer's anechoic chamber.
  - Because of the surrounding sound environment, the sound levels measured in actual installation conditions might be higher than the specified values here.

INDOOR UNITS

Model name					AUUB30TLAV	AUUB36TLAV
Power supply					1 phase ~ 208/230 V 60 Hz	
Available voltage range					187—253 V	
Capacity		Cooling		Btu/h	30,000	36,000
				kW	8.8	10.6
		Heating		Btu/h	34,000	40,000
				kW	10.0	11.7
Input power				W	59	80
Fan	Airflow rate		HIGH	CFM (m^3/h)	942 (1,600)	1,059 (1,800)
			MED		765 (1,300)	765 (1,300)
			LOW		647 (1,100)	647 (1,100)
	Type × Q'ty				Turbo × 1	
	Motor output			W	80	
Sound pressure level*			HIGH	dB (A)	40	44
			MED		38	38
			LOW		33	33
Heat exchanger type		Length		in (mm)	81-15/16 (2,082)	
		Fin pitch		FPI	19	
		Rows × Stages			3 × 12	
		Face area		ft^2 (m^2)	5.6 (0.52)	
		Pipe type (Material)			Grooved H-pin (Copper)	
		Fin	Type (Material)		Slit (Aluminum)	
			Surface treatment		Hydrophilic coating	
Air filter		Type			Anti-mold	
		Net material			PP honeycomb	
Enclosure		Material			Galvanized sheet iron	
		Color			—	
Dimensions (H × W × D)		Net	Main body	in (mm)	11-5/16 × 33-1/16 × 33-1/16 (288 × 840 × 840)	
		Gross			14-3/16 × 37-13/16 × 38-9/16 (360 × 960 × 980)	
Weight		Net		lb (kg)	60 (27)	
		Gross			73 (33)	
Connection pipe diameter		Liquid (Flare)		in (mm)	Ø 3/8 (9.52)	
		Gas (Flare)			Ø 5/8 (15.88)	Ø 3/4 (19.05)
		Drain hose			VP25 I.D.: Ø 3/4 (19.05); O.D.: Ø 1-1/16 (26.6)	
Cassette grille (Option)		Model name			UTG-LCGV	
		Color			WhiteApproximate color of Munsell N9.25/	
		Dimensions (H × W × D)	Net	in (mm)	1-15/16 × 37-3/8 × 37-3/8 (50 × 950 × 950)	
			Gross		4-1/2 × 40-3/16 × 39-3/8 (115 × 1,020 × 1,000)	
		Weight	Net	lb (kg)	13 (5.5)	
			Gross		19 (8.5)	

NOTES:

- Specifications are based on the following conditions:
  - Cooling: Indoor temperature of 80 °FDB/67 °FWB (26.7 °CDB/19.4 °CWB), and outdoor temperature of 95 °FDB/75 °FWB (35 °CDB/23.9 °CWB).
  - Heating: Indoor temperature of 70 °FDB/60 °FWB (21.1 °CDB/15.6 °CWB), and outdoor temperature of 47 °FDB/43 °FWB (8.3 °CDB/6.1 °CWB).
  - Pipe length: 25 ft (7.5 m), Height difference: 0 ft (0 m). (Between outdoor unit and indoor unit.)
- Protective function might work when using it outside the operation range.
- *: Sound pressure level:
  - Measured values in manufacturer's anechoic chamber.
  - Because of the surrounding sound environment, the sound levels measured in actual installation conditions might be higher than the specified values here.

INDOOR UNITS

2-3. Circular flow cassette type

Model name					AUUB18TLAV2	AUUB24TLAV2	AUUB30TLAV2
Power supply					1 phase ~ 208/230 V 60 Hz		
Available voltage range					187—253 V		
Capacity	Cooling			Btu/h	18,000	24,000	30,000
				kW	5.3	7.0	8.8
	Heating			Btu/h	20,000	27,000	34,000
				kW	5.9	7.9	10.0
Input power				W	20	25	49
Fan	Airflow rate		HIGH	CFM (m^3/h)	618 (1,050)	660 (1,120)	866 (1,470)
			MED—HIGH		548 (930)	618 (1,050)	683 (1,160)
			MED		530 (900)	548 (930)	630 (1,070)
			MED—LOW		512 (870)	530 (900)	548 (930)
			LOW		477 (810)	512 (870)	530 (900)
			QUIET		459 (780)	459 (780)	459 (780)
	Type × Q'ty				Turbo × 1		
	Motor output			W	81		
Sound pressure level*			HIGH	dB (A)	33	35	40
			MED—HIGH		32	33	36
			MED		31	32	34
			MED—LOW		30	31	32
			LOW		29	30	31
			QUIET		28	28	28
Heat exchanger type	Length			in (mm)	87-7/16 (2,094)		
	Fin pitch			FPI	21		
	Rows × Stages				2 × 10		
	Face area			ft^2 (m^2)	4.7 (0.44)		
	Pipe type (Material)				Grooved H-pin (Copper)		
	Fin	Type (Material)			Slit (Aluminum)		
		Surface treatment			Hydrophilic coating		
Air filter	Type				Anti-mold		
	Net material				PP honeycomb		
Enclosure	Material				Galvanized sheet iron		
	Color				—		
Dimensions (H × W × D)	Net			in (mm)	9-11/16 × 33-1/16 × 33-1/16 (246 × 840 × 840)		
	Gross				11-3/4 × 37-13/16 × 37-3/8 (298 × 960 × 950)		
Weight	Net			lb (kg)	53 (24)	54 (24.5)	
	Gross				64 (29)	65 (29.5)	
Connection pipe diameter	Liquid (Flare)			in (mm)	Ø 1/4 (6.35)	Ø 3/8 (9.52)	
	Gas (Flare)				Ø 1/2 (12.70)	Ø 5/8 (15.88)	
	Drain hose				I.D.: Ø 3/4 (19.05); O.D.: Ø 1-1/16 (26.6)		
Cassette grille (Option)	Color				UTG-LCGVCW White Approximate color of Munsell N9.25/		
					UTG-LCGVCB: Black Approximate color of Munsell N2/		
	Dimensions (H × W × D)	Net		in (mm)	2-1/16 × 37-3/8 × 37-3/8 (53 × 950 × 950)		
		Gross			4-5/16 × 39-3/8 × 39-3/4 (110 × 1,000 × 1,010)		
	Weight	Net		lb (kg)	13 (6.0)		
		Gross			22 (10)		

NOTES:

- Specifications are based on the following conditions:
  - Cooling: Indoor temperature of 80 °FDB/67 °FWB (26.7 °CDB/19.4 °CWB), and outdoor temperature of 95 °FDB/75 °FWB (35 °CDB/23.9 °CWB).
  - Heating: Indoor temperature of 70 °FDB/60 °FWB (21.1 °CDB/15.6 °CWB), and outdoor temperature of 47 °FDB/43 °FWB (8.3 °CDB/6.1 °CWB).
  - Pipe length: 25 ft (7.5 m), Height difference: 0 ft (0 m). (Between outdoor unit and indoor unit.)
- Protective function might work when using it outside the operation range.
- *: Sound pressure level:
  - Measured values in manufacturer's anechoic chamber.
  - Because of the surrounding sound environment, the sound levels measured in actual installation conditions might be higher than the specified values here.

INDOOR UNITS

Model name					AUUB36TLAV2	AUUB48TLAV2
Power supply					1 phase ~ 208/230 V 60 Hz	
Available voltage range					187—253 V	
Capacity	Cooling			Btu/h	36,000	48,000
				kW	10.6	14.1
	Heating			Btu/h	40,000	54,000
				kW	11.7	15.8
Input power				W	61	116
Fan	Airflow rate		HIGH	CFM (m^3/h)	954 (1,620)	1,202 (2,040)
			MED—HIGH		884 (1,500)	1,060 (1,800)
			MED		825 (1,400)	937 (1,590)
			MED—LOW		789 (1,340)	848 (1,440)
			LOW		754 (1,280)	766 (1,300)
			QUIET		677 (1,150)	677 (1,150)
	Type × Q'ty				Turbo × 1	
	Motor output			W	81	
Sound pressure level*			HIGH	dB (A)	41	47
			MED—HIGH		40	45
			MED		38	42
			MED—LOW		37	39
			LOW		35	36
			QUIET		33	33
Heat exchanger type	Length			in (mm)	81-1/4 (2,064)	
	Fin pitch			FPI	19	
	Rows × Stages				3 × 12	
	Face area			ft^2 (m^2)	5.6 (0.52)	
	Pipe type (Material)				Grooved H-pin (Copper)	
	Fin	Type (Material)			Slit (Aluminum)	
		Surface treatment			Hydrophilic coating	
Air filter	Type				Anti-mold	
	Net material				PP honeycomb	
Enclosure	Material				Galvanized sheet iron	
	Color				—	
Dimensions (H × W × D)	Net			in (mm)	11-5/16 × 33-1/16 × 33-1/16 (288 × 840 × 840)	
	Gross				13-3/8 × 37-13/16 × 37-3/8 (340 × 960 × 950)	
Weight	Net			lb (kg)	65 (29.5)	
	Gross				75 (34)	
Connection pipe diameter	Liquid (Flare)			in (mm)	Ø 3/8 (9.52)	
	Gas (Flare)				Ø 5/8 (15.88)	
	Drain hose				VP25 I.D.: Ø 3/4 (19.05); O.D.: Ø 1-1/16 (26.6)	
Cassette grille (Option)	Color				UTG-LCGVCW White Approximate color of Munsell N9.25/	
					UTG-LCGVCB: Black Approximate color of Munsell N2/	
	Dimensions (H × W × D)	Net		in (mm)	2-1/16 × 37-3/8 × 37-3/8 (53 × 950 × 950)	
		Gross			4-5/16 × 39-3/8 × 39-3/4 (110 × 1,000 × 1,010)	
	Weight	Net		lb (kg)	13 (6.0)	
		Gross			22 (10)	

NOTES:

- Specifications are based on the following conditions:
  - Cooling: Indoor temperature of 80 °FDB/67 °FWB (26.7 °CDB/19.4 °CWB), and outdoor temperature of 95 °FDB/75 °FWB (35 °CDB/23.9 °CWB).
  - Heating: Indoor temperature of 70 °FDB/60 °FWB (21.1 °CDB/15.6 °CWB), and outdoor temperature of 47 °FDB/43 °FWB (8.3 °CDB/6.1 °CWB).
  - Pipe length: 25 ft (7.5 m), Height difference: 0 ft (0 m). (Between outdoor unit and indoor unit.)
- Protective function might work when using it outside the operation range.
- *: Sound pressure level:
  - Measured values in manufacturer's anechoic chamber.
  - Because of the surrounding sound environment, the sound levels measured in actual installation conditions might be higher than the specified values here.

INDOOR UNITS

2-4. Mini duct type

Model name					ARUL4TLAV2
Power supply					1 phase ~ 208/230 V 60 Hz
Available voltage range					187—253 V
Capacity		Cooling		Btu/h	4,000
				kW	1.2
		Heating		Btu/h	4,400
				kW	1.3
Input power				W	26
Static pressure range				inWG (Pa)	0 to 0.12 (0 to 30)
Standard static pressure				inWG (Pa)	0.04 (10)
Fan	Airflow rate		HIGH	CFM (m^3/h)	271 (460)
			MED—HIGH		259 (440)
			MED		247 (420)
			MED—LOW		235 (400)
			LOW		218 (370)
			QUIET		200 (340)
	Type × Q'ty				Sirocco × 2
	Motor output			W	80
Sound pressure level*			HIGH	dB (A)	25
			MED—HIGH		24
			MED		23
			MED—LOW		22
			LOW		21
			QUIET		20
Heat exchanger type	Length			in (mm)	19-5/16 (490)
	Fin pitch			FPI	19
	Rows × Stages				1 × 16
	Face area			ft^2 (m^2)	1.7 (0.16)
	Pipe type (Material)				Grooved H-pin (Copper)
	Fin	Type (Material)			Slit (Aluminum)
		Surface treatment			Hydrophilic coating
Air filter	Type				Fungicide type
	Net material				PP honeycomb
Enclosure	Material				Galvanized sheet iron
	Color				—
Dimensions (H × W × D)	Net			in (mm)	7-13/16 × 27-9/16 × 17-11/16 (198 × 700 × 450)
	Gross				9-13/16 × 36-5/8 × 22-13/16 (250 × 930 × 580)
Weight	Net			lb (kg)	32 (14.5)
	Gross				40 (18)
Connection pipe diameter	Liquid (Flare)			in (mm)	Ø 1/4 (6.35)
	Gas (Flare)				Ø 3/8 (9.52)
	Drain hose				I.D.: Ø 3/4 (19.05); O.D.: Ø 1-1/16 (26.6)

NOTES:

- Specifications are based on the following conditions:
  - Cooling: Indoor temperature of 80 °FDB/67 °FWB (26.7 °CDB/19.4 °CWB), and outdoor temperature of 95 °FDB/75 °FWB (35 °CDB/23.9 °CWB).
  - Heating: Indoor temperature of 70 °FDB/60 °FWB (21.1 °CDB/15.6 °CWB), and outdoor temperature of 47 °FDB/43 °FWB (8.3 °CDB/6.1 °CWB).
  - Pipe length: 25 ft (7.5 m), Height difference: 0 ft (0 m). (Between outdoor unit and indoor unit.)
- Protective function might work when using it outside the operation range.
- *: Sound pressure level:
  - Measured values in manufacturer's anechoic chamber.
  - Because of the surrounding sound environment, the sound levels measured in actual installation conditions might be higher than the specified values here.

INDOOR UNITS

2-5. Slim duct/Slim concealed floor type

Model name				ARUL7TLAV2	ARUL9TLAV2	ARUL12TLAV2	ARUL14TLAV2
Power supply				1 phase ~ 208/230 V 60 Hz			
Available voltage range				187—253 V			
Capacity	Cooling		Btu/h	7,500	9,500	12,000	14,000
			kW	2.2	2.8	3.5	4.1
	Heating		Btu/h	9,500	10,900	13,500	15,600
			kW	2.8	3.2	4.0	4.6
Input power			W	44	50	54	92
Static pressure range			inWG (Pa)	0 to 0.36 (0 to 90)			
Standard static pressure			inWG (Pa)	0.10 (25)			
Fan	Airflow rate	HIGH	CFM (m^3/h)	324 (550)	353 (600)	353 (600)	471 (800)
		MED—HIGH		283 (480)	300 (510)	312 (530)	401 (680)
		MED		259 (440)	271 (460)	289 (490)	353 (600)
		MED—LOW		241 (410)	247 (420)	265 (450)	306 (520)
		LOW		218 (370)	218 (370)	241 (410)	259 (440)
		QUIET		188 (320)	188 (320)	200 (340)	200 (340)
	Type × Q'ty			Sirocco × 2			
	Motor output		W	80		81	
Sound pressure level*		HIGH	dB (A)	28	29	30	34
		MED—HIGH		26	27	28	32
		MED		25	25	27	30
		MED—LOW		24	24	26	28
		LOW		22	22	24	25
		QUIET		21	21	22	22
Heat exchanger type	Length		in (mm)	19-11/16 (500)			
	Fin pitch		FPI	19			
	Rows × Stages			2 × 14		3 × 14	
	Face area		ft^2 (m^2)	1.6 (0.14)			
	Pipe type (Material)			Grooved H-pin (Copper)			
	Fin	Type (Material)		Slit (Aluminum)			
		Surface treatment		Hydrophilic coating			
Air filter	Type			Fungicide type			
	Net material			PP honeycomb			
Enclosure	Material			Galvanized sheet iron			
	Color			—			
Dimensions (H × W × D)	Net		in (mm)	7-13/16 × 27-9/16 × 24-7/16 (198 × 700 × 620)			
	Gross			10-7/8 × 38-1/8 × 30-3/8 (276 × 968 × 772)			
Weight	Net		lb (kg)	37 (17)		40 (18)	
	Gross			46 (21)		51 (23)	
Connection pipe diameter	Liquid (Flare)		in (mm)	Ø 1/4 (6.35)			
	Gas (Flare)			Ø 3/8 (9.52)		Ø 1/2 (12.70)	
	Drain hose			I.D.: Ø 3/4 (19.05); O.D.: Ø 1-1/16 (26.6)			

NOTES:

- Specifications are based on the following conditions:
  - Cooling: Indoor temperature of 80 °FDB/67 °FWB (26.7 °CDB/19.4 °CWB), and outdoor temperature of 95 °FDB/75 °FWB (35 °CDB/23.9 °CWB).
  - Heating: Indoor temperature of 70 °FDB/60 °FWB (21.1 °CDB/15.6 °CWB), and outdoor temperature of 47 °FDB/43 °FWB (8.3 °CDB/6.1 °CWB).
  - Pipe length: 25 ft (7.5 m), Height difference: 0 ft (0 m). (Between outdoor unit and indoor unit.)
- Protective function might work when using it outside the operation range.
- *: Sound pressure level:
  - Measured values in manufacturer's anechoic chamber.
  - Because of the surrounding sound environment, the sound levels measured in actual installation conditions might be higher than the specified values here.

INDOOR UNITS

Model name					ARUL18TLAV2
Power supply					1 phase ~ 208/230 V 60 Hz
Available voltage range					187—253 V
Capacity		Cooling		Btu/h	18,000
				kW	5.3
		Heating		Btu/h	20,000
				kW	5.9
Input power				W	83
Static pressure range				inWG (Pa)	0 to 0.36 (0 to 90)
Standard static pressure				inWG (Pa)	0.10 (25)
Fan	Airflow rate		HIGH	CFM (m^3/h)	554 (940)
			MED—HIGH		483 (820)
			MED		430 (730)
			MED—LOW		371 (630)
			LOW		318 (540)
			QUIET		277 (470)
	Type × Q'ty				Sirocco × 3
	Motor output			W	81
Sound pressure level*			HIGH	dB (A)	34
			MED—HIGH		31
			MED		29
			MED—LOW		27
			LOW		25
			QUIET		23
Heat exchanger type	Length			in (mm)	27-9/16 (700)
	Fin pitch			FPI	19
	Rows × Stages				3 × 14
	Face area			ft^2 (m^2)	2.3 (0.21)
	Pipe type (Material)				Grooved H-pin (Copper)
	Fin	Type (Material)			Slit (Aluminum)
		Surface treatment			Hydrophilic coating
Air filter	Type				Fungicide type
	Net material				PP honeycomb
Enclosure	Material				Galvanized sheet iron
	Color				—
Dimensions (H × W × D)	Net			in (mm)	7-13/16 × 35-7/16 × 24-7/16 (198 × 900 × 620)
	Gross				10-7/8 × 46 × 30-3/8 (276 × 1,168 × 772)
Weight	Net			lb (kg)	49 (22)
	Gross				60 (27)
Connection pipe diameter	Liquid (Flare)			in (mm)	Ø 1/4 (6.35)
	Gas (Flare)				Ø 1/2 (12.70)
	Drain hose				VP25 I.D.: Ø 3/4 (19.05); O.D.: Ø 1-1/16 (26.6)

NOTES:

- Specifications are based on the following conditions:
  - Cooling: Indoor temperature of 80 °FDB/67 °FWB (26.7 °CDB/19.4 °CWB), and outdoor temperature of 95 °FDB/75 °FWB (35 °CDB/23.9 °CWB).
  - Heating: Indoor temperature of 70 °FDB/60 °FWB (21.1 °CDB/15.6 °CWB), and outdoor temperature of 47 °FDB/43 °FWB (8.3 °CDB/6.1 °CWB).
  - Pipe length: 25 ft (7.5 m), Height difference: 0 ft (0 m). (Between outdoor unit and indoor unit.)
- Protective function might work when using it outside the operation range.
- *: Sound pressure level:
  - Measured values in manufacturer's anechoic chamber.
  - Because of the surrounding sound environment, the sound levels measured in actual installation conditions might be higher than the specified values here.

INDOOR UNITS

2-6. Medium static pressure duct type

Model name					ARUM24TLAV2	ARUM30TLAV2	ARUM36TLAV2
Power supply					1 phase ~ 208/230 V 60 Hz		
Available voltage range					187—253 V		
Capacity	Cooling			Btu/h	24,000	30,000	36,000
				kW	7.0	8.8	10.6
	Heating			Btu/h	27,000	34,000	40,000
				kW	7.9	10.0	11.7
Input power				W	125	190	222
Static pressure range				inWG (Pa)	0 to 0.60 (0 to 150)		
Standard static pressure				inWG (Pa)	0.16 (40)		
Fan	Airflow rate		HIGH	CFM (m^3/h)	860 (1,460)	1,043 (1,770)	1,113 (1,890)
			MED—HIGH		807 (1,370)	948 (1,610)	1,031 (1,750)
			MED		760 (1,290)	860 (1,460)	954 (1,620)
			MED—LOW		701 (1,190)	772 (1,310)	854 (1,450)
			LOW		648 (1,100)	683 (1,160)	766 (1,300)
			QUIET		589 (1,000)	589 (1,000)	677 (1,150)
	Type × Q'ty				Sirocco × 2		
	Motor output			W	197		
Sound pressure level*			HIGH	dB (A)	36	40	41
			MED—HIGH		34	37	39
			MED		32	34	37
			MED—LOW		30	32	34
			LOW		29	30	31
			QUIET		28	28	29
Heat exchanger type	Length			in (mm)	39-3/8 (1,000)		
	Fin pitch			FPI	18		
	Rows × Stages				4 × 14		
	Face area			ft^2 (m^2)	3.1 (0.29)		
	Pipe type (Material)				Grooved H-pin (Copper)		
	Fin	Type (Material)			Slit (Aluminum)		
		Surface treatment			Hydrophilic coating		
Air filter (Option)	Model name				UTD-LF25NA		
	Type				Fungicide type		
	Net material				PP honeycomb		
Enclosure	Material				Galvanized sheet iron		
	Color				—		
Dimensions (H × W × D)	Net			in (mm)	10-5/16 × 44-11/16 × 27-9/16 (270 × 1,135 × 700)		
	Gross				11-13/16 × 51-15/16 × 31-1/8 (300 × 1,320 × 790)		
Weight	Net			lb (kg)	86 (39)		
	Gross				104 (47)		
Connection pipe diameter	Liquid (Flare)			in (mm)	Ø 3/8 (9.52)		
	Gas (Flare)				Ø 5/8 (15.88)		
	Drain hose				I.D.: Ø 3/4 (19.05); O.D.: Ø 1-1/16 (26.6)		

NOTES:

- Specifications are based on the following conditions:
  - Cooling: Indoor temperature of 80 °FDB/67 °FWB (26.7 °CDB/19.4 °CWB), and outdoor temperature of 95 °FDB/75 °FWB (35 °CDB/23.9 °CWB).
  - Heating: Indoor temperature of 70 °FDB/60 °FWB (21.1 °CDB/15.6 °CWB), and outdoor temperature of 47 °FDB/43 °FWB (8.3 °CDB/6.1 °CWB).
  - Pipe length: 25 ft (7.5 m), Height difference: 0 ft (0 m). (Between outdoor unit and indoor unit.)
- Protective function might work when using it outside the operation range.
- *: Sound pressure level:
  - Measured values in manufacturer's anechoic chamber.
  - Because of the surrounding sound environment, the sound levels measured in actual installation conditions might be higher than the specified values here.

INDOOR UNITS

2-7. High static pressure duct type

Model name				ARUH36TLAV	ARUH48TLAV	ARUH60TLAV
Power supply				1 phase ~ 208/230 V 60 Hz		
Available voltage range				187—253 V		
Capacity	Cooling		Btu/h	36,000	48,000	60,000
			kW	10.6	14.1	17.6
	Heating		Btu/h	40,000	54,000	67,000
			kW	11.7	15.8	19.6
Input power			W	496	752	806
Static pressure range			inWG (Pa)	0.40 to 0.80 (100 to 200)		
Standard static pressure			inWG (Pa)	0.40 (100)		
Fan	Airflow rate	HIGH	CFM (m^3/h)	1,324 (2,250)	1,766 (3,000)	1,972 (3,350)
		MED		1,030 (1,750)	1,589 (2,700)	1,678 (2,850)
		LOW		824 (1,400)	1,354 (2,300)	1,501 (2,550)
	Type × Q'ty			Sirocco × 2		
	Motor output		W	247	424	482
Sound pressure level*		HIGH	dB (A)	43	47	48
		MED		37	43	44
		LOW		32	40	41
Heat exchanger type	Length		in (mm)	35-1/16 (890)		
	Fin pitch		FPI	19		17
	Rows × Stages			4 × 16		
	Face area		ft^2 (m^2)	3.2 (0.30)		
	Pipe type (Material)			Grooved H-pin (Copper)		
	Fin	Type (Material)		Slit (Aluminum)		
		Surface treatment		Hydrophilic coating		
Air filter (Option)	Model name			UTD-LF25NA		
	Type			Fungicide type		
	Net material			PP honeycomb		
Enclosure	Material			Galvanized sheet iron		
	Color			—		
Dimensions (H × W × D)	Net		in (mm)	15-3/4 × 41-5/16 × 19-11/16 (400 × 1,050 × 500)		
	Gross			18-1/8 × 48-7/16 × 25-3/16 (460 × 1,230 × 640)		
Weight	Net		lb (kg)	97 (44)	101 (46)	
	Gross			108 (49)	112 (51)	
Connection pipe diameter	Liquid (Flare)		in (mm)	Ø 3/8 (9.52)		
	Gas (Flare)			Ø 3/4 (19.05)		
	Drain hose			I.D.: Ø 3/4 (19.05); O.D.: Ø 1-1/16 (26.6)		

NOTES:

- Specifications are based on the following conditions:
  - Cooling: Indoor temperature of 80 °FDB/67 °FWB (26.7 °CDB/19.4 °CWB), and outdoor temperature of 95 °FDB/75 °FWB (35 °CDB/23.9 °CWB).
  - Heating: Indoor temperature of 70 °FDB/60 °FWB (21.1 °CDB/15.6 °CWB), and outdoor temperature of 47 °FDB/43 °FWB (8.3 °CDB/6.1 °CWB).
  - Pipe length: 25 ft (7.5 m), Height difference: 0 ft (0 m). (Between outdoor unit and indoor unit.)
- Protective function might work when using it outside the operation range.
- *1: This value is “Cooling operation/Heating operation”.
- *2: Sound pressure level:
  - Measured values in manufacturer’s anechoic chamber.
  - Because of the surrounding sound environment, the sound levels measured in actual installation conditions might be higher than the specified values here.

INDOOR UNITS

Model name					ARUH72TLAV2	ARUH96TLAV2
Power supply					1 phase ~ 208/230 V 60 Hz	
Available voltage range					187—253 V	
Capacity	Cooling			Btu/h	72,000	96,000
				kW	21.1	28.1
	Heating			Btu/h	81,000	108,000
				kW	23.7	31.7
Input power				W	618	838
Static pressure range				inWG (Pa)	0 to 1.2 (0 to 300)	
Standard static pressure				inWG (Pa)	0.60 (150)	
Fan	Airflow rate		HIGH	CFM (m^3/h)	2,297 (3,900)	2,857 (4,850)
			MED		1,944 (3,300)	2,503 (4,250)
			LOW		1,767 (3,000)	2,120 (3,600)
	Type × Q'ty				Sirocco × 2	
	Motor output			W	700 × 2	
Sound pressure level*			HIGH	dB (A)	47	48
			MED		43	45
			LOW		40	42
Heat exchanger type	Length			in (mm)	49-3/16 (1,250)	
	Fin pitch			FPI	17	16
	Rows × Stages				4 × 18	4 × 20
	Face area			ft^2 (m^2)	5.0 (0.47)	6.9 (0.64)
	Pipe type (Material)				Grooved H-pin (Copper)	
	Fin	Type (Material)			Slit (Aluminum)	Louver (Aluminum)
		Surface treatment			Hydrophilic coating	
Air filter (Option)	Model name				—	
	Type				—	
	Net material				—	
Enclosure	Material				Galvanized sheet iron	
	Color				—	
Dimensions (H × W × D)	Net			in (mm)	17-11/16 × 62-1/2 × 27-9/16 (450 × 1,587 × 700)	21-5/8 × 62-1/2 × 27-9/16 (550 × 1,587 × 700)
	Gross				20-1/2 × 68-7/8 × 32-1/2 (520 × 1,750 × 825)	24-7/16 × 68-7/8 × 32-1/2 (620 × 1,750 × 825)
Weight	Net			lb (kg)	203 (92)	231 (105)
	Gross				238 (108)	276 (125)
Connection pipe	Size		Liquid	in (mm)	Ø 3/8 (9.52)	
			Gas		Ø 3/4 (19.05)	Ø 7/8 (22.22)
	Connection method				Flare	Brazing
Drain hose	Size			in (mm)	I.D.: Ø 3/4 (19.05); O.D.: Ø 1-1/16 (26.6)	

NOTES:

- Specifications are based on the following conditions:
  - Cooling: Indoor temperature of 80 °FDB/67 °FWB (26.7 °CDB/19.4 °CWB), and outdoor temperature of 95 °FDB/75 °FWB (35 °CDB/23.9 °CWB).
  - Heating: Indoor temperature of 70 °FDB/60 °FWB (21.1 °CDB/15.6 °CWB), and outdoor temperature of 47 °FDB/43 °FWB (8.3 °CDB/6.1 °CWB).
  - Pipe length: 25 ft (7.5 m), Height difference: 0 ft (0 m). (Between outdoor unit and indoor unit.)
- Protective function might work when using it outside the operation range.
- *1: This value is “Cooling operation/Heating operation”.
- *2: Sound pressure level:
  - Measured values in manufacturer’s anechoic chamber.
  - Because of the surrounding sound environment, the sound levels measured in actual installation conditions might be higher than the specified values here.

INDOOR UNITS

2-8. Compact floor type

Model name					AGUA4TLAV2	AGUA7TLAV2	AGUA9TLAV2
Power supply					1 phase ~ 208/230 V 60 Hz		
Available voltage range					187—253 V		
Capacity		Cooling		Btu/h	4,000	7,500	9,500
				kW	1.2	2.2	2.8
		Heating		Btu/h	4,400	9,500	10,900
				kW	1.3	2.8	3.2
Input power				W	12/14*1	16	17
Fan	Airflow rate		HIGH	CFM (m^3/h)	224/253*1 (380/430*1)	277 (470)	294 (500)
			MED—HIGH		206 (350)	247 (420)	265 (450)
			MED		188 (320)	230 (390)	235 (400)
			MED—LOW		182 (310)	212 (360)	212 (360)
			LOW		165 (280)	194 (330)	194 (330)
			QUIET		124 (210)	159 (270)	159 (270)
	Type × Q'ty				Crossflow × 2		
	Motor output			W	16 × 2		
Sound pressure level*2			HIGH	dB (A)	35/36*1	37	38
			MED—HIGH		33	35	36
			MED		31	33	34
			MED—LOW		30	31	31
			LOW		28	29	29
			QUIET		22	22	22
Heat exchanger type	Length			in (mm)	21-5/8 (550)		
	Fin pitch			FPI	21		
	Rows × Stages				2 × 18		
	Face area			ft^2 (m^2)	2.3 (0.21)		
	Pipe type (Material)				Grooved H-pin (Copper)		
	Fin	Type (Material)			Slit (Aluminum)		
		Surface treatment			Hydrophilic coating		
Air filter	Type				Anti-mold		
	Net material				PP plain weave		
Enclosure	Material				Plastic		
	Color				White Approximate color of Munsell 5Y 9/0.5NN		
Dimensions (H × W × D)	Net			in (mm)	23-5/8 × 29-1/8 × 7-7/8 (600 × 740 × 200)		
	Gross				27-9/16 × 32-5/16 × 12-3/16 (700 × 820 × 310)		
Weight	Net			lb (kg)	33 (15)		
	Gross				41 (18.5)	42 (19)	
Connection pipe diameter	Liquid (Flare)			in (mm)	Ø 1/4 (6.35)		
	Gas (Flare)				Ø 3/8 (9.52)		
	Drain hose				I.D.: Ø 9/16 (13.8); O.D.: Ø 5/8 to 11/16 (15.8 to 16.7)		

NOTES:

- Specifications are based on the following conditions:
  - Cooling: Indoor temperature of 80 °FDB/67 °FWB (26.7 °CDB/19.4 °CWB), and outdoor temperature of 95 °FDB/75 °FWB (35 °CDB/23.9 °CWB).
  - Heating: Indoor temperature of 70 °FDB/60 °FWB (21.1 °CDB/15.6 °CWB), and outdoor temperature of 47 °FDB/43 °FWB (8.3 °CDB/6.1 °CWB).
  - Pipe length: 25 ft (7.5 m), Height difference: 0 ft (0 m). (Between outdoor unit and indoor unit.)
- Protective function might work when using it outside the operation range.
- *1: This value is “Cooling operation/Heating operation”.
- *2: Sound pressure level:
  - Measured values in manufacturer’s anechoic chamber.
  - Because of the surrounding sound environment, the sound levels measured in actual installation conditions might be higher than the specified values here.

INDOOR UNITS

Model name				AGUA12TLAV2	AGUA14TLAV2
Power supply				1 phase ~ 208/230 V 60 Hz	
Available voltage range				187—253 V	
Capacity	Cooling		Btu/h	12,000	14,000
			kW	3.5	4.1
	Heating		Btu/h	13,500	15,600
			kW	4.0	4.6
Input power			W	22	29
Fan	Airflow rate	HIGH	CFM (m^3/h)	347 (590)	394 (670)
		MED—HIGH		306 (520)	347 (590)
		MED		277 (470)	306 (520)
		MED—LOW		247 (420)	265 (450)
		LOW		230 (390)	230 (390)
		QUIET		200 (340)	200 (340)
	Type × Q'ty			Crossflow × 2	
	Motor output		W	16 × 2	
Sound pressure level*		HIGH	dB (A)	42	46
		MED—HIGH		39	42
		MED		37	39
		MED—LOW		35	36
		LOW		33	33
		QUIET		30	30
Heat exchanger type	Length		in (mm)	21-5/8 (550)	
	Fin pitch		FPI	21	
	Rows × Stages			2 × 18	
	Face area		ft^2 (m^2)	2.3 (0.21)	
	Pipe type (Material)			Grooved H-pin (Copper)	
	Fin	Type (Material)		Slit (Aluminum)	
		Surface treatment		Hydrophilic coating	
Air filter	Type			Anti-mold	
	Net material			PP plain weave	
Enclosure	Material			Plastic	
	Color			White Approximate color of Munsell 5Y 9/0.5NN	
Dimensions (H × W × D)	Net		in (mm)	23-5/8 × 29-1/8 × 7-7/8 (600 × 740 × 200)	
	Gross			27-9/16 × 32-5/16 × 12-3/16 (700 × 820 × 310)	
Weight	Net		lb (kg)	33 (15)	
	Gross			42 (19)	
Connection pipe diameter	Liquid (Flare)		in (mm)	Ø 1/4 (6.35)	
	Gas (Flare)			Ø 1/2 (12.70)	
	Drain hose			I.D.: Ø 9/16 (13.8); O.D.: Ø 5/8 to 11/16 (15.8 to 16.7)	

NOTES:

- Specifications are based on the following conditions:
  - Cooling: Indoor temperature of 80 °FDB/67 °FWB (26.7 °CDB/19.4 °CWB), and outdoor temperature of 95 °FDB/75 °FWB (35 °CDB/23.9 °CWB).
  - Heating: Indoor temperature of 70 °FDB/60 °FWB (21.1 °CDB/15.6 °CWB), and outdoor temperature of 47 °FDB/43 °FWB (8.3 °CDB/6.1 °CWB).
  - Pipe length: 25 ft (7.5 m), Height difference: 0 ft (0 m). (Between outdoor unit and indoor unit.)
- Protective function might work when using it outside the operation range.
- *: Sound pressure level:
  - Measured values in manufacturer's anechoic chamber.
  - Because of the surrounding sound environment, the sound levels measured in actual installation conditions might be higher than the specified values here.

INDOOR UNITS

2-9. Floor/Ceiling type

Model name				ABUA12TLAV2	ABUA14TLAV2	ABUA18TLAV2	ABUA24TLAV2
Power supply				1 phase ~ 208/230 V 60 Hz			
Available voltage range				187—253 V			
Capacity	Cooling		Btu/h	12,000	14,000	18,000	24,000
			kW	3.5	4.1	5.3	7.0
	Heating		Btu/h	13,500	15,600	20,000	27,000
			kW	4.0	4.6	5.9	7.9
Input power			W	30	42	74	99
Fan	Airflow rate	HIGH	CFM (m^3/h)	389 (660)	459 (780)	589 (1,000)	589 (1,000)
		MED—HIGH		365 (620)	436 (740)	536 (910)	548 (930)
		MED		342 (580)	406 (690)	489 (830)	512 (870)
		MED—LOW		324 (550)	377 (640)	442 (750)	471 (800)
		LOW		306 (520)	353 (600)	389 (660)	436 (740)
		QUIET		289 (490)	324 (550)	342 (580)	401 (680)
	Type × Q'ty			Sirocco × 2			
	Motor output		W	80			
Sound pressure level*		HIGH	dB (A)	36	40	46	47
		MED—HIGH		34	39	44	45
		MED		33	38	42	43
		MED—LOW		31	36	40	41
		LOW		29	35	37	39
		QUIET		28	34	35	37
Heat exchanger type	Length		in (mm)	31-1/2 (800)			
	Fin pitch		FPI	21	19		
	Rows × Stages			2 × 12	3 × 12		4 × 12
	Face area		ft^2 (m^2)	2.3 (0.20)			
	Pipe type (Material)			Grooved H-pin (Copper)			
	Fin	Type (Material)		Slit (Aluminum)			
		Surface treatment		Hydrophilic coating			
Air filter	Type			Anti-mold			
	Net material			PP monofilament net			
Enclosure	Material			Plastic			
	Color			White Approximate color of Munsell N9.25/			
Dimensions (H × W × D)	Net		in (mm)	7-13/16 × 39 × 25-13/16 (199 × 990 × 655)			
	Gross			12-5/8 × 45-1/4 × 31-1/8 (320 × 1,150 × 790)			
Weight	Net		lb (kg)	55 (25)	57 (26)		60 (27)
	Gross			77 (35)	79 (36)		84 (38)
Connection pipe diameter	Liquid (Flare)		in (mm)	Ø 1/4 (6.35)			Ø 3/8 (9.52)
	Gas (Flare)			Ø 1/2 (12.70)			Ø 5/8 (15.88)
	Drain hose			I.D.: Ø 3/4 (19.05); O.D.: Ø 1-1/16 (26.6)			

NOTES:

- Specifications are based on the following conditions:
  - Cooling: Indoor temperature of 80 °FDB/67 °FWB (26.7 °CDB/19.4 °CWB), and outdoor temperature of 95 °FDB/75 °FWB (35 °CDB/23.9 °CWB).
  - Heating: Indoor temperature of 70 °FDB/60 °FWB (21.1 °CDB/15.6 °CWB), and outdoor temperature of 47 °FDB/43 °FWB (8.3 °CDB/6.1 °CWB).
  - Pipe length: 25 ft (7.5 m), Height difference: 0 ft (0 m). (Between outdoor unit and indoor unit.)
- Protective function might work when using it outside the operation range.
- *: Sound pressure level:
  - Measured values in manufacturer's anechoic chamber.
  - Because of the surrounding sound environment, the sound levels measured in actual installation conditions might be higher than the specified values here.

INDOOR UNITS

2-10. Ceiling type

Model name					ABUA30TLAV2	ABUA36TLAV2
Power supply					1 phase ~ 208/230 V 60 Hz	
Available voltage range					187—253 V	
Capacity	Cooling			Btu/h	30,000	36,000
				kW	8.8	10.6
	Heating			Btu/h	34,000	40,000
				kW	10.0	11.7
Input power				W	66	85
Fan	Airflow rate		HIGH	CFM (m^3/h)	960 (1,630)	995 (1,690)
			MED—HIGH		895 (1,520)	919 (1,560)
			MED		836 (1,420)	854 (1,450)
			MED—LOW		777 (1,320)	801 (1,360)
			LOW		719 (1,220)	748 (1,270)
			QUIET		671 (1,140)	689 (1,170)
	Type × Q'ty				Sirocco × 4	
	Motor output			W	106	
Sound pressure level*			HIGH	dB (A)	42	45
			MED—HIGH		40	41
			MED		39	39
			MED—LOW		37	38
			LOW		35	36
			QUIET		33	34
Heat exchanger type	Length			in (mm)	53-1/8 (1,350)	
	Fin pitch			FPI	17	
	Rows × Stages				3 × 12	3 × 12 1 × 8
	Face area			ft^2 (m^2)	3.7 (0.34)	
	Pipe type (Material)				Grooved H-pin (Copper)	
	Fin	Type (Material)			Slit (Aluminum)	
		Surface treatment			Hydrophilic coating	
Air filter	Type				Anti-mold	
	Net material				PP monofilament net	
Enclosure	Material				Plastic	
	Color				WhiteApproximate color of Munsell N9.25/	
Dimensions (H × W × D)	Net			in (mm)	9-7/16 × 65-3/8 × 27-9/16 (240 × 1,660 × 700)	
	Gross				12-1/2 × 70-7/8 × 31-1/8 (318 × 1,800 × 790)	
Weight	Net			lb (kg)	101 (46)	106 (48)
	Gross				130 (59)	134 (61)
Connection pipe diameter	Liquid (Flare)			in (mm)	Ø 3/8 (9.52)	
	Gas (Flare)				Ø 5/8 (15.88)	
	Drain hose				I.D.: Ø 3/4 (19.05); O.D.: Ø 1-1/16 (26.6)	

NOTES:

- Specifications are based on the following conditions:
  - Cooling: Indoor temperature of 80 °FDB/67 °FWB (26.7 °CDB/19.4 °CWB), and outdoor temperature of 95 °FDB/75 °FWB (35 °CDB/23.9 °CWB).
  - Heating: Indoor temperature of 70 °FDB/60 °FWB (21.1 °CDB/15.6 °CWB), and outdoor temperature of 47 °FDB/43 °FWB (8.3 °CDB/6.1 °CWB).
  - Pipe length: 25 ft (7.5 m), Height difference: 0 ft (0 m). (Between outdoor unit and indoor unit.)
- Protective function might work when using it outside the operation range.
- *: Sound pressure level:
  - Measured values in manufacturer's anechoic chamber.
  - Because of the surrounding sound environment, the sound levels measured in actual installation conditions might be higher than the specified values here.

INDOOR UNITS

2-11. Wall mounted type

Model name					ASUA4TLAV2	ASUA7TLAV2	ASUA9TLAV2
Power supply					1 phase ~ 208/230 V 60 Hz		
Available voltage range					187—253 V		
Capacity	Cooling			Btu/h	4,000	7,500	9,500
				kW	1.2	2.2	2.8
	Heating			Btu/h	4,400	9,500	10,900
				kW	1.3	2.8	3.2
Input power				W	13	19	34
Fan	Airflow rate		HIGH	CFM (m^3/h)	265 (450)	324 (550)	359 (610)
			MED—HIGH		253 (430)	300 (510)	330 (560)
			MED		235 (400)	277 (470)	300 (510)
			MED—LOW		224 (380)	241 (410)	259 (440)
			LOW		212 (360)		
			QUIET		182 (310)		
	Type × Q'ty				Crossflow × 1		
	Motor output			W	30		
Sound pressure level*			HIGH	dB (A)	31	34	37
			MED—HIGH		30	32	35
			MED		28	30	32
			MED—LOW		27	28	29
			LOW		26	26	26
			QUIET		22	22	22
Heat exchanger type	Length			in (mm)	24-13/16 (630)		
	Fin pitch			FPI	23		
	Rows × Stages				2 × 20	Main: 2 × 20 Sub: 1 × 4	
	Face area			ft^2 (m^2)	2.2 (0.20)		
	Pipe type (Material)				Grooved H-pin (Copper)		
	Fin	Type (Material)			Slit (Aluminum)		
		Surface treatment			Hydrophilic coating		
Air filter	Type				Anti-mold		
	Net material				PP honeycomb		
Enclosure	Material				Plastic		
	Color				White Approximate color of Munsell N9.25/		
Dimensions (H × W × D)	Net			in (mm)	10-9/16 × 33-1/16 × 8 (268 × 840 × 203)		
	Gross				10-10/16 × 34-13/16 × 13-4/16 (270 × 884 × 336)		
Weight	Net			lb (kg)	19 (8.5)	20 (9.0)	
	Gross				23 (10.5)	24 (11)	
Connection pipe diameter	Liquid (Flare)			in (mm)	Ø 1/4 (6.35)		
	Gas (Flare)				Ø 3/8 (9.52)		
	Drain hose				I.D.: Ø 9/16 (13.8); O.D.: Ø 5/8 to 11/16 (15.8 to 16.7)		

NOTES:

- Specifications are based on the following conditions:
  - Cooling: Indoor temperature of 80 °FDB/67 °FWB (26.7 °CDB/19.4 °CWB), and outdoor temperature of 95 °FDB/75 °FWB (35 °CDB/23.9 °CWB).
  - Heating: Indoor temperature of 70 °FDB/60 °FWB (21.1 °CDB/15.6 °CWB), and outdoor temperature of 47 °FDB/43 °FWB (8.3 °CDB/6.1 °CWB).
  - Pipe length: 25 ft (7.5 m), Height difference: 0 ft (0 m). (Between outdoor unit and indoor unit.)
- Protective function might work when using it outside the operation range.
- *: Sound pressure level:
  - Measured values in manufacturer's anechoic chamber.
  - Because of the surrounding sound environment, the sound levels measured in actual installation conditions might be higher than the specified values here.

INDOOR UNITS

Model name					ASUA12TLAV2	ASUA14TLAV2
Power supply					1 phase ~ 208/230 V 60 Hz	
Available voltage range					187—253 V	
Capacity	Cooling			Btu/h	12,000	14,000
				kW	3.5	4.2
	Heating			Btu/h	13,500	15,600
				kW	4.0	4.6
Input power				W	25	36
Fan	Airflow rate		HIGH	CFM (m^3/h)	406 (690)	471 (800)
			MED—HIGH		359 (610)	436 (740)
			MED		330 (560)	400 (680)
			MED—LOW		312 (530)	359 (610)
			LOW		277 (470)	324 (550)
			QUIET		194 (330)	194 (330)
	Type × Q'ty				Crossflow × 1	
	Motor output			W	30	
Sound pressure level*			HIGH	dB (A)	40	44
			MED—HIGH		37	42
			MED		35	40
			MED—LOW		33	37
			LOW		30	34
			QUIET		24	24
Heat exchanger type	Length			in (mm)	Main: 24-13/16 (630) Sub: 24-13/16 (630)	
	Fin pitch			FPI	Main: 23 Sub: 18	
	Rows × Stages				Main: 2 × 20 Sub: 1 × 4	
	Face area			ft^2 (m^2)	2.2 (0.20)	
	Pipe type (Material)				Grooved H-pin (Copper)	
	Fin	Type (Material)			Slit (Aluminum)	
		Surface treatment			Hydrophilic coating	
Air filter	Type				Anti-mold	
	Net material				PP honeycomb	
Enclosure	Material				Plastic	
	Color				White Approximate color of Munsell N9.25/	
Dimensions (H × W × D)	Net			in (mm)	10-9/16 × 33-1/16 × 8 (268 × 840 × 203)	
	Gross				10-3/8 × 34-13/16 × 13-1/4 (270 × 884 × 336)	
Weight	Net			lb (kg)	20 (9)	
	Gross				24 (11)	
Connection pipe diameter	Liquid (Flare)			in (mm)	Ø 1/4 (6.35)	
	Gas (Flare)				Ø 1/2 (12.70)	
	Drain hose				I.D.: Ø 9/16 (13.8); O.D.: Ø 5/8 to 11/16 (15.8 to 16.7)	

NOTES:

- Specifications are based on the following conditions:
  - Cooling: Indoor temperature of 80 °FDB/67 °FWB (26.7 °CDB/19.4 °CWB), and outdoor temperature of 95 °FDB/75 °FWB (35 °CDB/23.9 °CWB).
  - Heating: Indoor temperature of 70 °FDB/60 °FWB (21.1 °CDB/15.6 °CWB), and outdoor temperature of 47 °FDB/43 °FWB (8.3 °CDB/6.1 °CWB).
  - Pipe length: 25 ft (7.5 m), Height difference: 0 ft (0 m). (Between outdoor unit and indoor unit.)
- Protective function might work when using it outside the operation range.
- *: Sound pressure level:
  - Measured values in manufacturer's anechoic chamber.
  - Because of the surrounding sound environment, the sound levels measured in actual installation conditions might be higher than the specified values here.

INDOOR UNITS

Model name					ASUB18TLAV1	ASUB24TLAV1
Power supply					1 phase ~ 208/230 V 60 Hz	
Available voltage range					187—253 V	
Capacity	Cooling			Btu/h	18,000	24,000
				kW	5.3	7.0
	Heating			Btu/h	20,000	27,000
				kW	5.9	7.9
Input power				W	32	60
Fan	Airflow rate		HIGH	CFM (m^3/h)	494 (840)	647 (1,100)
			MED		453 (770)	536 (910)
			LOW		406 (690)	430 (730)
	Type × Q'ty				Crossflow × 1	
	Motor output			W	42	
Sound pressure level*2			HIGH	dB (A)	41	48
			MED		39	43
			LOW		35	35
Heat exchanger type	Length			in (mm)	Main: 32-3/16 (817) Sub1: 32-3/16 (817) Sub2: 32-3/16 (817)	
	Fin pitch			FPI	Main: 21 Sub1: 18 Sub2: 18	
	Rows × Stages				Main: 2 × 18 Sub1: 1 × 4 Sub2: 1 × 4	
	Face area			ft^2 (m^2)	3.3 (0.31)	
	Pipe type (Material)				Grooved H-pin (Copper)	
	Fin	Type (Material)			Slit (Aluminum)	
		Surface treatment			Hydrophilic coating	
Air filter	Type				Deodorization/Anti-mold	
	Net material				PP monofilament net	
Enclosure	Material				Plastic	
	Color				White Approximate color of Munsell N9.25/	
Dimensions (H × W × D)	Net			in (mm)	12-5/8 × 39-5/16 × 9-3/8 (320 × 998 × 238)	
	Gross				12-5/16 × 42-15/16 × 16-7/8 (329 × 1,090 × 429)	
Weight	Net			lb (kg)	33 (15)	
	Gross				42 (19)	
Connection pipe diameter	Liquid (Flare)			in (mm)	Ø 1/4 (6.35)	Ø 3/8 (9.52)
	Gas (Flare)				Ø 1/2 (12.70)	Ø 5/8 (15.88)
	Drain hose				I.D.: Ø 9/16 (13.8); O.D.: Ø 5/8 to 11/16 (15.8 to 16.7)	

NOTES:

- Specifications are based on the following conditions:
  - Cooling: Indoor temperature of 80 °FDB/67 °FWB (26.7 °CDB/19.4 °CWB), and outdoor temperature of 95 °FDB/75 °FWB (35 °CDB/23.9 °CWB).
  - Heating: Indoor temperature of 70 °FDB/60 °FWB (21.1 °CDB/15.6 °CWB), and outdoor temperature of 47 °FDB/43 °FWB (8.3 °CDB/6.1 °CWB).
  - Pipe length: 25 ft (7.5 m), Height difference: 0 ft (0 m). (Between outdoor unit and indoor unit.)
- Protective function might work when using it outside the operation range.
- *: Sound pressure level:
  - Measured values in manufacturer's anechoic chamber.
  - Because of the surrounding sound environment, the sound levels measured in actual installation conditions might be higher than the specified values here.

INDOOR UNITS

Model name				ASUA30TLAV2	ASUA36TLAV2
Power supply				1 phase ~ 208/230 V 60 Hz	
Available voltage range				187—253 V	
Capacity	Cooling		Btu/h	30,000	34,000
			kW	8.8	10.0
	Heating		Btu/h	34,000	38,000
			kW	10.0	11.2
Input power			W	74	103
Fan	Airflow rate	HIGH	CFM (m^3/h)	848 (1,440)	954/895*1 (1,620/1520*1)
		MED—HIGH		707 (1,200)	766 (1,300)
		MED		618 (1,050)	660 (1,120)
		MED—LOW		554 (940)	577 (980)
		LOW		524 (890)	524 (890)
		QUIET		412 (700)	412 (700)
	Type × Q'ty			Crossflow × 1	
	Motor output		W	61	
Sound pressure level*2		HIGH	dB (A)	53	55/54*1
		MED—HIGH		49	51
		MED		45	47
		MED—LOW		42	43
		LOW		39	39
		QUIET		33	33
Heat exchanger type	Length		in (mm)	Main: 35-7/16 (900) Sub1: 35-7/16 (900) Sub2: 35-7/16 (900)	
	Fin pitch		FPI	Main: 21 Sub1: 18 Sub2: 18	
	Rows × Stages			Main: 2 × 22 Sub1: 1 × 6 Sub2: 1 × 4	
	Face area		ft^2 (m^2)	4.5 (0.42)	
	Pipe type (Material)			Grooved H-pin (Copper)	
	Fin	Type (Material)		Slit (Aluminum)	
		Surface treatment		Hydrophilic coating	
Air filter	Type			Anti-mold	
	Net material			PP plain weave	
Enclosure	Material			Plastic	
	Color			White Approximate color of Munsell N9.25/	
Dimensions (H × W × D)	Net		in (mm)	13-3/8 × 45-1/4 × 11 (340 × 1,150 × 280)	
	Gross			15-5/16 × 50 × 17-11/16 (405 × 1,270 × 450)	
Weight	Net		lb (kg)	40 (18)	
	Gross			53 (24)	
Connection pipe diameter	Liquid (Flare)		in (mm)	Ø 3/8 (9.52)	
	Gas (Flare)			Ø 5/8 (15.88)	
	Drain hose			I.D.: Ø 9/16 (13.8); O.D.: Ø 5/8 to 11/16 (15.8 to 16.7)	

NOTES:

- Specifications are based on the following conditions:
  - Cooling: Indoor temperature of 80 °FDB/67 °FWB (26.7 °CDB/19.4 °CWB), and outdoor temperature of 95 °FDB/75 °FWB (35 °CDB/23.9 °CWB).
  - Heating: Indoor temperature of 70 °FDB/60 °FWB (21.1 °CDB/15.6 °CWB), and outdoor temperature of 47 °FDB/43 °FWB (8.3 °CDB/6.1 °CWB).
  - Pipe length: 25 ft (7.5 m), Height difference: 0 ft (0 m). (Between outdoor unit and indoor unit.)
- Protective function might work when using it outside the operation range.
- *1: This value is “Cooling operation/Heating operation”.
- *2: Sound pressure level:
  - Measured values in manufacturer’s anechoic chamber.
  - Because of the surrounding sound environment, the sound levels measured in actual installation conditions might be higher than the specified values here.

INDOOR UNITS

Model name				ASUA7TLAV	ASUA9TLAV	ASUA12TLAV	ASUA14TLAV
Power supply				1 phase ~ 208/230 V 60 Hz			
Available voltage range				187—253 V			
Capacity	Cooling		Btu/h	7,500	9,500	12,000	14,000
			kW	2.2	2.8	3.5	4.1
	Heating		Btu/h	9,500	10,900	13,500	15,600
			kW	2.8	3.2	4.0	4.6
Input power			W	17	18	22	34
Fan	Airflow rate	HIGH	CFM (m^3/h)	288 (490)	294 (500)	330 (560)	394 (670)
		MED		265 (450)	265 (450)	283 (480)	288 (490)
		LOW		247/218*1 (420/370*1)	247/218*1 (420/370*1)	247 (420)	247 (420)
	Type × Q'ty			Crossflow × 1			
	Motor output		W	42			
Sound pressure level*2		HIGH	dB (A)	35	36	39	44
		MED		33	33	35	37
		LOW		31/27*1	31/27*1	31	32
Heat exchanger type	Length		in (mm)	23-5/8 (600)			
	Fin pitch		FPI	21			
	Rows × Stages			2 × 16			
	Face area		ft^2 (m^2)	2.3 (0.20)			
	Pipe type (Material)			Grooved H-pin (Copper)			
	Fin	Type (Material)		Slit (Aluminum)			
		Surface treatment		Hydrophilic coating			
Air filter	Type			Antibacterial and mold proofing, ion deodorization			
	Net material			PP honeycomb			
Enclosure	Material			Plastic			
	Color			White Approximate color of Munsell N9.25/			
Dimensions (H × W × D)	Net		in (mm)	10-13/16 × 31-1/8 × 8-7/16 (275 × 790 × 215)			
	Gross			11-7/16 × 32-7/8 × 13-9/16 (290 × 835 × 345)			
Weight	Net		lb (kg)	20 (9)			
	Gross			26 (12)			
Connection pipe diameter	Liquid (Flare)		in (mm)	Ø 1/4 (6.35)			
	Gas (Flare)			Ø 1/2 (12.70)			
	Drain hose			I.D.: Ø 9/16 (13.8); O.D.: Ø 5/8 to 11/16 (15.8 to 16.7)			

NOTES:

- Specifications are based on the following conditions:
  - Cooling: Indoor temperature of 80 °FDB/67 °FWB (26.7 °CDB/19.4 °CWB), and outdoor temperature of 95 °FDB/75 °FWB (35 °CDB/23.9 °CWB).
  - Heating: Indoor temperature of 70 °FDB/60 °FWB (21.1 °CDB/15.6 °CWB), and outdoor temperature of 47 °FDB/43 °FWB (8.3 °CDB/6.1 °CWB).
  - Pipe length: 25 ft (7.5 m), Height difference: 0 ft (0 m). (Between outdoor unit and indoor unit.)
- Protective function might work when using it outside the operation range.
- *1: This value is “Cooling operation/Heating operation”.
- *2: Sound pressure level:
  - Measured values in manufacturer’s anechoic chamber.
  - Because of the surrounding sound environment, the sound levels measured in actual installation conditions might be higher than the specified values here.

INDOOR UNITS

Model name					ASUB18TLAV	ASUB24TLAV
Power supply					1 phase ~ 208/230 V 60 Hz	
Available voltage range					187—253 V	
Capacity	Cooling			Btu/h	18,000	24,000
				kW	5.3	7.0
	Heating			Btu/h	20,000	27,000
				kW	5.9	7.9
Input power				W	32	60
Fan	Airflow rate		HIGH	CFM (m^3/h)	494 (840)	647 (1,100)
			MED		453 (770)	536 (910)
			LOW		406 (690)	430 (730)
	Type × Q'ty				Crossflow × 1	
	Motor output			W	42	
Sound pressure level*			HIGH	dB (A)	41	48
			MED		39	43
			LOW		35	35
Heat exchanger type	Length			in (mm)	Main: 32-3/16 (817) Sub1: 32-3/16 (817) Sub2: 32-3/16 (817)	
	Fin pitch			FPI	Main: 21 Sub1: 18 Sub2: 18	
	Rows × Stages				Main: 2 × 18 Sub1: 1 × 4 Sub2: 1 × 4	
	Face area			ft^2 (m^2)	3.3 (0.31)	
	Pipe type (Material)				Grooved H-pin (Copper)	
	Fin	Type (Material)			Slit (Aluminum)	
		Surface treatment			Hydrophilic coating	
Air filter	Type				Deodorization/Anti-mold	
	Net material				PP monofilament net	
Enclosure	Material				Plastic	
	Color				White Approximate color of Munsell N9.25/	
Dimensions (H × W × D)	Net			in (mm)	12-5/8 × 39-5/16 × 9 (320 × 998 × 228)	
	Gross				12-9/16 × 42-15/16 × 16-7/8 (319 × 1,090 × 429)	
Weight	Net			lb (kg)	33 (15)	
	Gross				42 (19)	
Connection pipe diameter	Liquid (Flare)			in (mm)	Ø 3/8 (9.52)	
	Gas (Flare)				Ø 5/8 (15.88)	
	Drain hose				I.D.: Ø 1/2 (12); O.D.: Ø 5/8 (16)	

NOTES:

- Specifications are based on the following conditions:
  - Cooling: Indoor temperature of 80 °FDB/67 °FWB (26.7 °CDB/19.4 °CWB), and outdoor temperature of 95 °FDB/75 °FWB (35 °CDB/23.9 °CWB).
  - Heating: Indoor temperature of 70 °FDB/60 °FWB (21.1 °CDB/15.6 °CWB), and outdoor temperature of 47 °FDB/43 °FWB (8.3 °CDB/6.1 °CWB).
  - Pipe length: 25 ft (7.5 m), Height difference: 0 ft (0 m). (Between outdoor unit and indoor unit.)
- Protective function might work when using it outside the operation range.
- *: Sound pressure level:
  - Measured values in manufacturer's anechoic chamber.
  - Because of the surrounding sound environment, the sound levels measured in actual installation conditions might be higher than the specified values here.

INDOOR UNITS

3. Electrical characteristics

Indoor unit		Power supply: 60 Hz, 230 V		Indoor rated		
Type	Model name	MCA	MAX. CKT. BKR	Input power	Current	FLA
		A	A	W	A	A
Compact cassette	AUUA4TLAV2	0.29	15	23	0.17	0.23
	AUUA7TLAV2	0.51		25	0.17	0.41
	AUUA9TLAV2	0.51		25	0.17	0.41
	AUUA12TLAV2	0.51		29	0.20	0.41
	AUUA14TLAV2	0.51		35	0.24	0.41
	AUUA18TLAV2	0.51		36	0.25	0.41
	AUUA24TLAV2	0.78		84	0.62	0.62
4-way flow cassette (Slim type)	AUUB18TLAV	0.43	15	39	0.27	0.34
	AUUB24TLAV	0.43		46	0.32	0.34
4-way flow cassette	AUUB30TLAV	0.68	15	59	0.42	0.54
	AUUB36TLAV	0.68		80	0.53	0.54
Circular flow cassette	AUUB18TLAV2	0.33	15	20	0.20	0.26
	AUUB24TLAV2	0.40		25	0.24	0.32
	AUUB30TLAV2	0.68		49	0.41	0.54
	AUUB36TLAV2	0.78		61	0.47	0.62
	AUUB48TLAV2	1.40		116	0.86	1.12
Mini duct	ARUL4TLAV2	0.35	15	26	0.21	0.28
Slim duct/Slim concealed floor	ARUL7TLAV2	0.71	15	44	0.31	0.57
	ARUL9TLAV2	0.71		50	0.35	0.57
	ARUL12TLAV2	0.71		50	0.38	0.57
	ARUL14TLAV2	0.76		92	0.61	0.61
	ARUL18TLAV2	0.76		83	0.55	0.61
Medium static pressure duct	ARUM24TLAV2	1.10	15	125	0.75	0.88
	ARUM30TLAV2	1.40		190	1.12	1.12
	ARUM36TLAV2	1.74		222	1.29	1.39
High static pressure duct	ARUH36TLAV	2.70	15	496	2.16	2.16
	ARUH48TLAV	4.83		752	3.27	3.86
	ARUH60TLAV	4.83		806	3.57	3.86
	ARUH72TLAV2	8.13		618	3.61	6.50
	ARUH96TLAV2	9.40		838	4.89	7.52
Compact floor	AGUA4TLAV2	0.22	15	12/14*	0.13	0.17
	AGUA7TLAV2	0.24		16	0.14	0.19
	AGUA9TLAV2	0.25		17	0.15	0.20
	AGUA12TLAV2	0.30		22	0.18	0.24
	AGUA14TLAV2	0.38		29	0.23	0.30
Floor/Ceiling	ABUA12TLAV2	0.40	15	30	0.25	0.32
	ABUA14TLAV2	0.43		42	0.34	0.34
	ABUA18TLAV2	0.71		74	0.57	0.57
	ABUA24TLAV2	0.93		99	0.70	0.74
Ceiling	ABUA30TLAV2	0.61	15	66	0.43	0.49
	ABUA36TLAV2	0.69		85	0.55	0.55

INDOOR UNITS

Indoor unit		Power supply: 60 Hz, 230 V		Indoor rated		
Type	Model name	MCA	MAX. CKT. BKR	Input power	Current	FLA
		A	A	W	A	A
Wall mounted	ASUA4TLAV2	0.22	15	13	0.13	0.17
	ASUA7TLAV2	0.32		19	0.19	0.25
	ASUA9TLAV2	0.52		34	0.31	0.41
	ASUA12TLAV2	0.42		25	0.25	0.33
	ASUA14TLAV2	0.49		36	0.30	0.39
	ASUB18TLAV1	0.53		32	0.33	0.42
	ASUB24TLAV1	0.65		60	0.52	0.52
	ASUA30TLAV2	0.90		74	0.55	0.72
	ASUA36TLAV2	1.18		103	0.72	0.94
	ASUA7TLAV	0.51		17	0.17	0.41
	ASUA9TLAV	0.51		18	0.20	0.41
	ASUA12TLAV	0.51		22	0.20	0.41
	ASUA14TLAV	0.51		34	0.20	0.41
	ASUB18TLAV	0.53		32	0.33	0.42
	ASUB24TLAV	0.65		60	0.52	0.52

MCA: Minimum Circuit Ampacity = Maximum operating current (Full load)
MAX. CKT. BKR: Maximum Circuit Breaker
FLA: Full Load Amperes (Fan motor)
*: This value is “Cooling operation/Heating operation”.

INDOOR UNITS

4. Dimensions

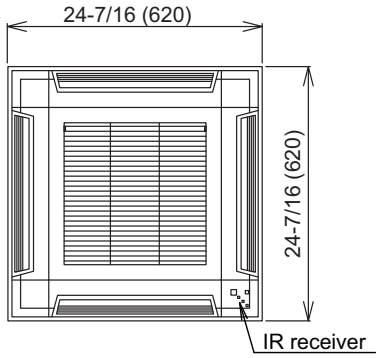
4-1. Compact cassette type

■ Models: AUUA4TLAV2, AUUA7TLAV2, AUUA9TLAV2, AUUA12TLAV2, AUUA14TLAV2, AUUA18TLAV2, and AUUA24TLAV2

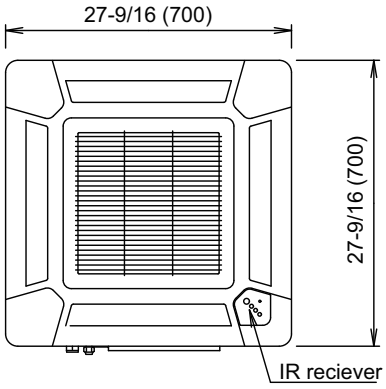
Unit: in (mm)

INDOOR UNITS

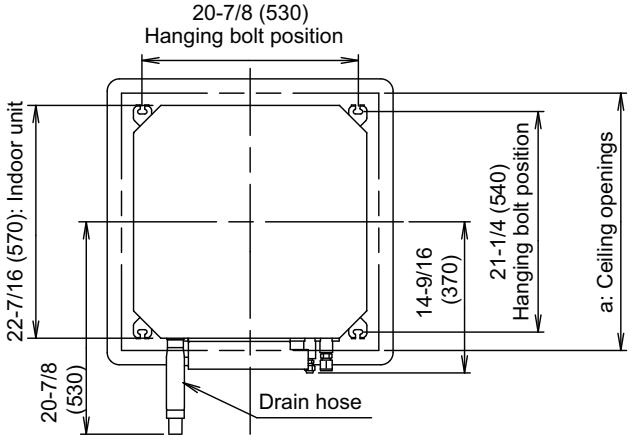
Grid type grille

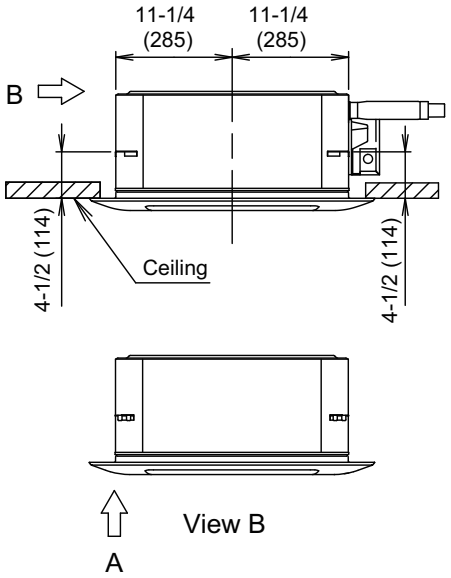


Standard type grille



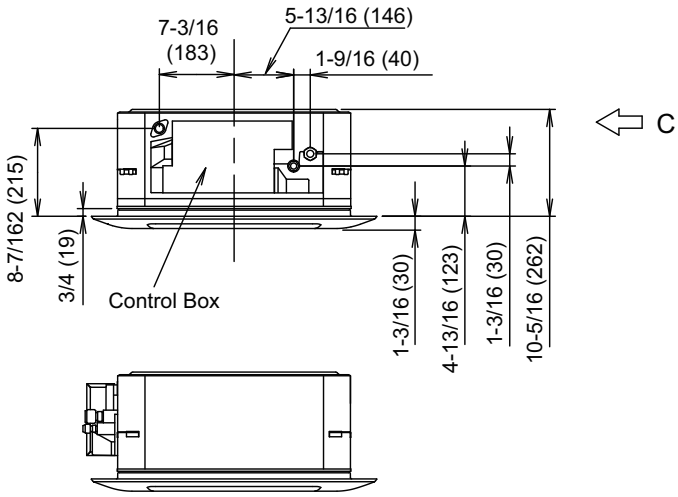
View A





View B

A

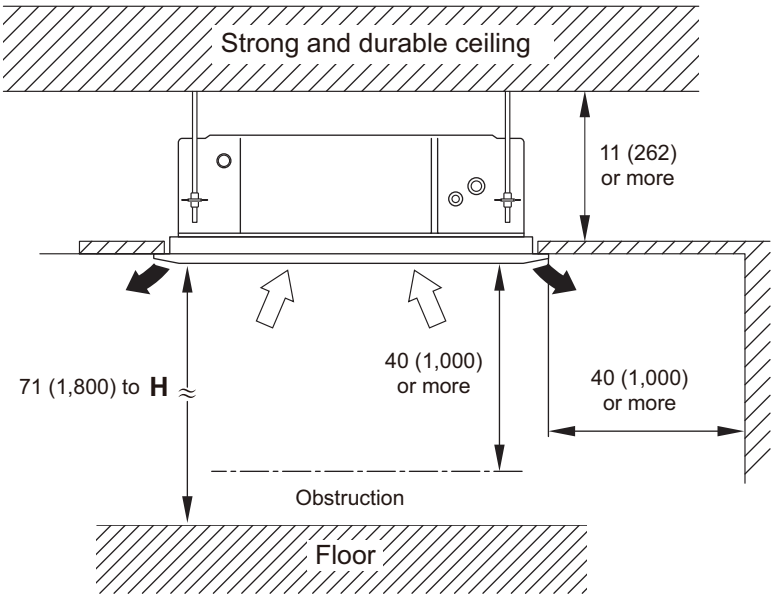


View C

a: Ceiling openings			
Cassette grille	Standard type	in (mm)	22-13/16 to 26 (580 to 660)
	Grid type		22-13/16 to 24 (580 to 610)

■ Installation space

Unit: in (mm)

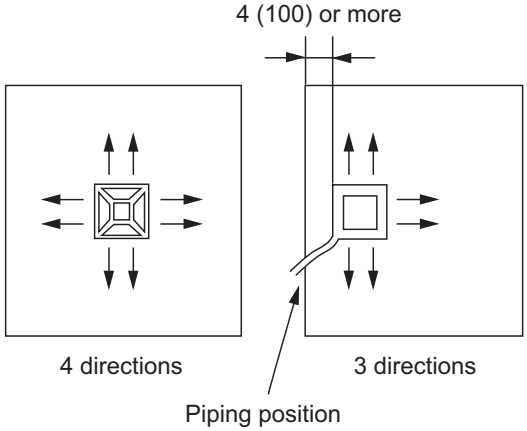


Be sure to make function setting with the remote controller according to the installed ceiling height.

H: The maximum height from floor to ceiling							
Ceiling height	Model name						
	AUUA4	AUUA7	AUUA9	AUUA12	AUUA14	AUUA18	AUUA24
Standard	106 (2,700)						
High ceiling	—			118 (3,000)			

● Installation notices

- When installing the indoor unit, be careful about the maintenance space.
- To set “3-direction”, Air outlet shutter plate (option) must be installed, and the “outlet-direction” need to be switched to “3-way” by the remote controller.



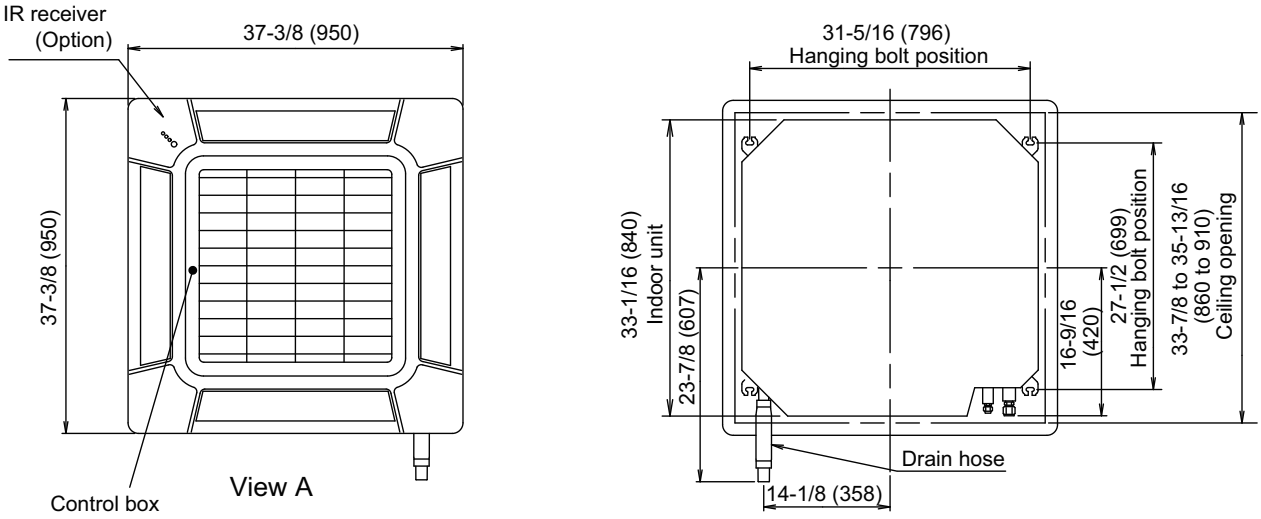
- In 3-way outlet mode, changing of ceiling height setting by function setting 20 is prohibited. (Ceiling height setting [function setting 20] is allowed to be changed only in 4-way outlet mode.)
- Use the Insulation kit for high humidity (option), when the condition under the roof is over 80% in humidity and over 86°F (30°C) in temperature. Otherwise, there is a risk of condensation on the ceiling.

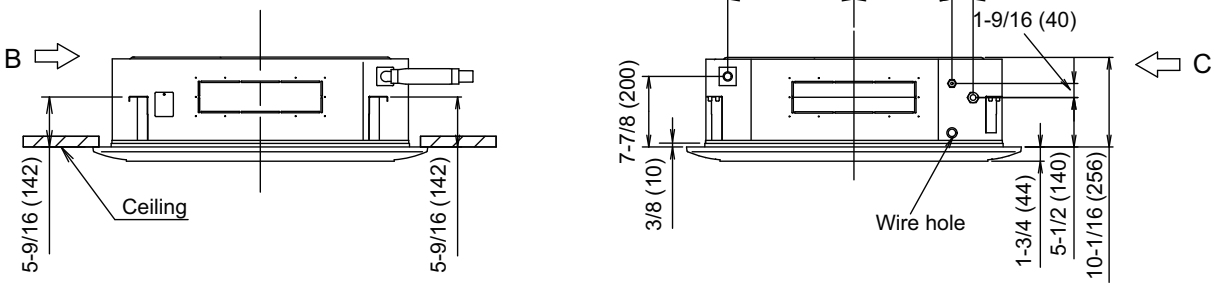
INDOOR UNITS

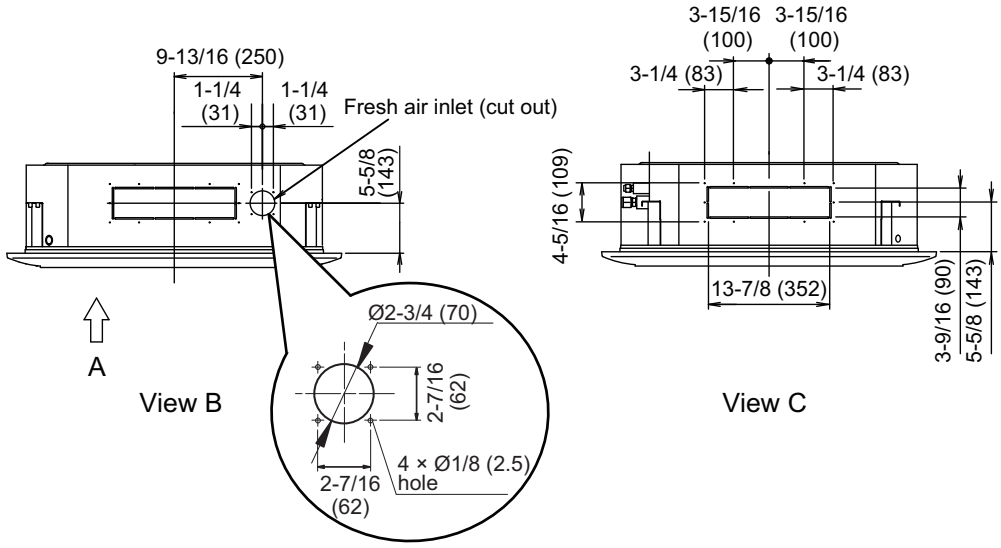
4-2. 4-way flow cassette type

■ Models: AUUB18TLAV and AUUB24TLAV

Unit: in (mm)



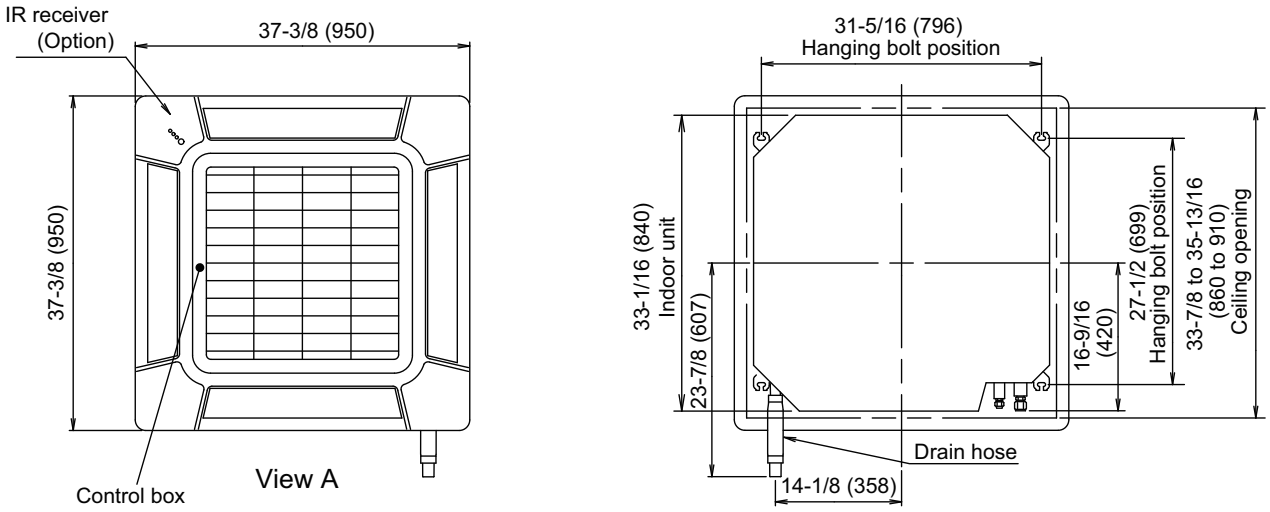


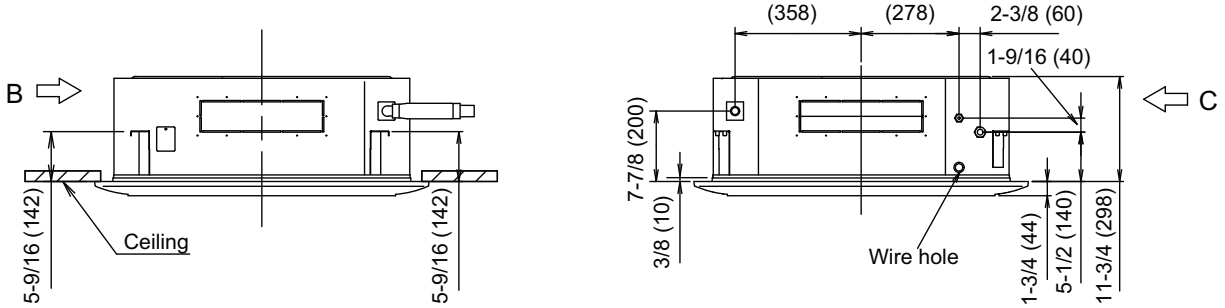


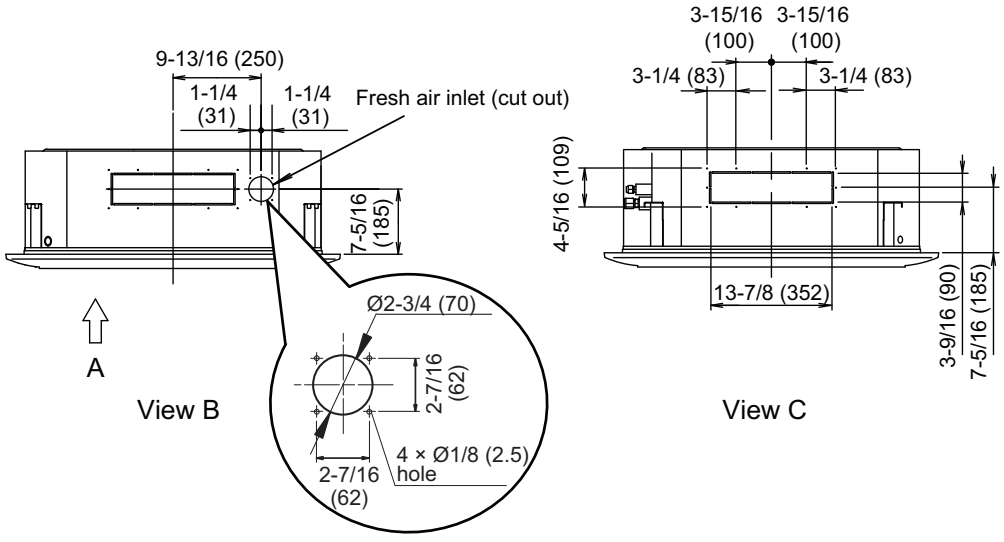
INDOOR UNITS

■ Models: AUUB30TLAV and AUUB36TLAV

Unit: in (mm)



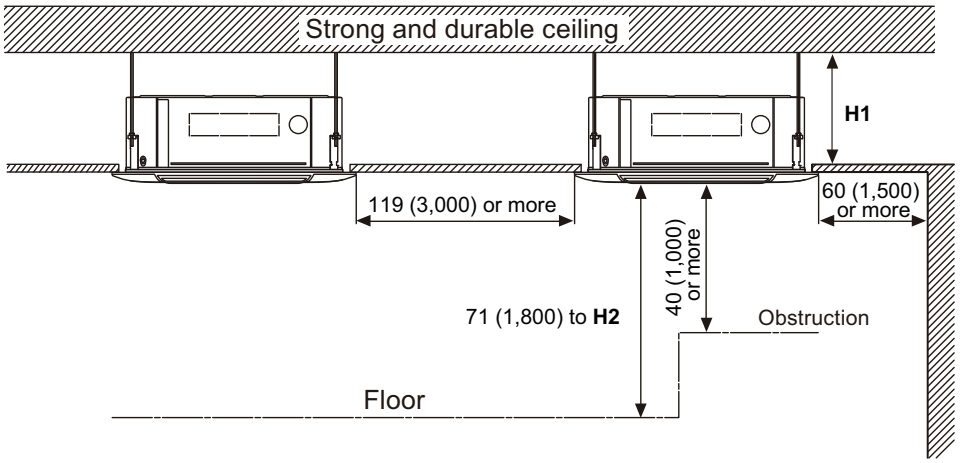




INDOOR UNITS

■ Installation space requirement

Unit: in (mm)



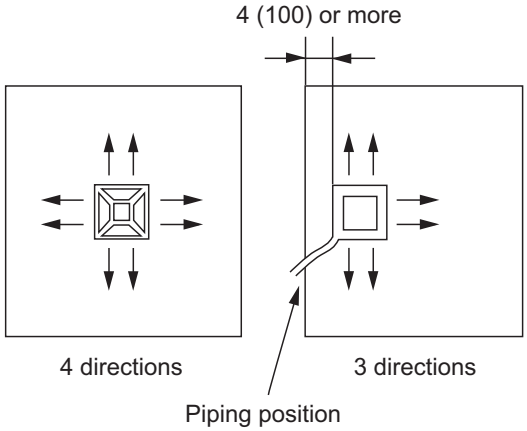
Model name	H1: Attic height
AUUB18-24TLAV	11 (256) or more
AUUB30-36TLAV	12 (298) or more

Be sure to make function setting with the remote controller according to the installed ceiling height.

H2: The maximum height from floor to ceiling			
Ceiling height	Model name		
	AUUB18-24TLAV	AUUB30TLAV	AUUB36TLAV
Standard	118 (3,000)	125 (3,200)	
High ceiling	137 (3,500)	141 (3,600)	165 (4,200)

● Installation notices

- When installing the indoor unit, be careful about the maintenance space.
- To set “3-direction”, Air outlet shutter plate (option) must be installed, and the “outlet-direction” need to be switched to “3-way” by the remote controller.



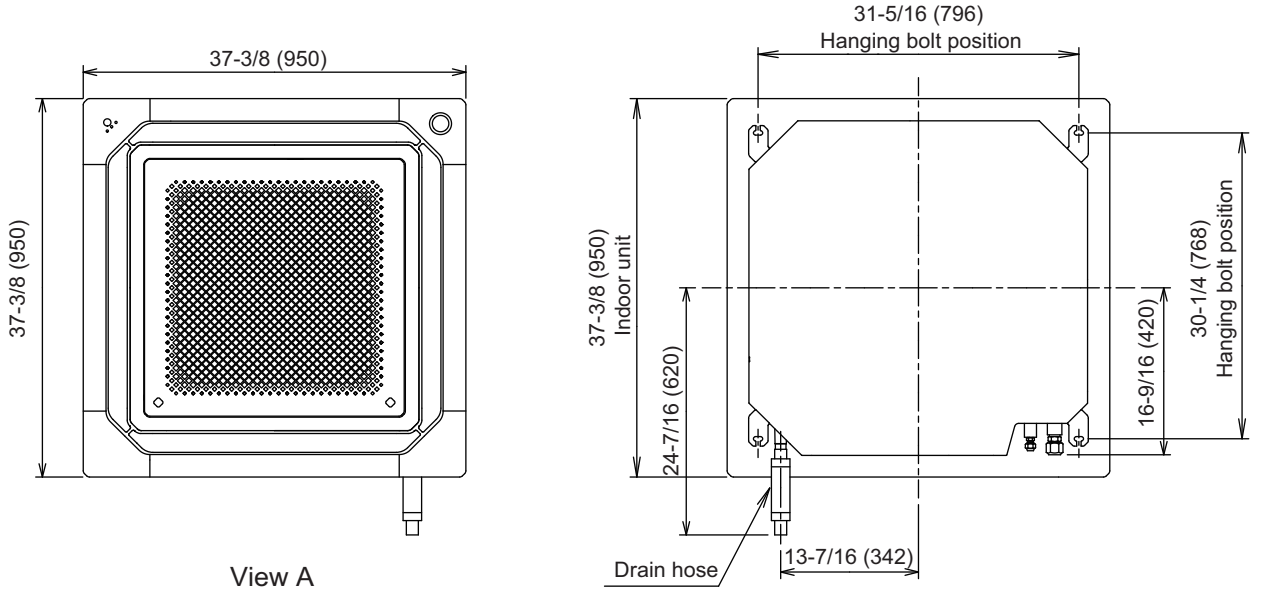
- In 3-way outlet mode, changing of ceiling height setting by function setting 20 is prohibited. (Ceiling height setting [function setting 20] is allowed to be changed only in 4-way outlet mode.)
- Use the Insulation kit for high humidity (option), when the condition under the roof is over 80% in humidity and over 86°F (30°C) in temperature. Otherwise, there is a risk of condensation on the ceiling.

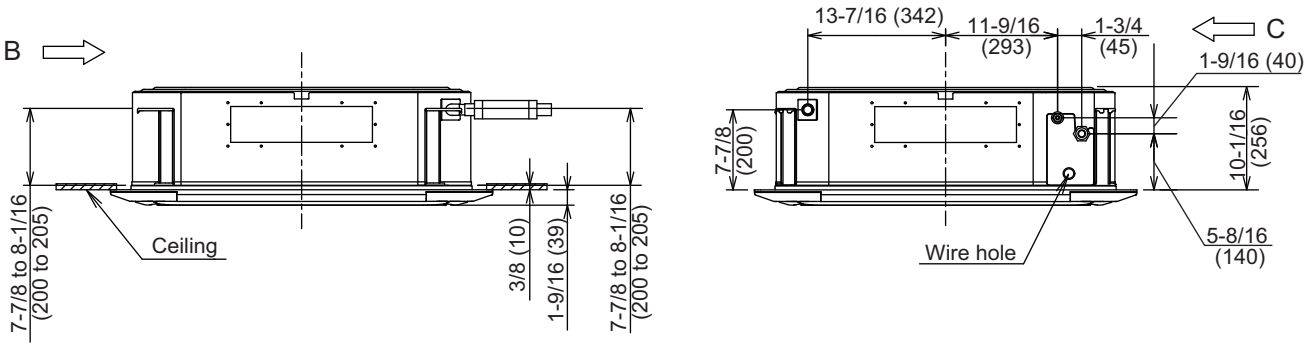
INDOOR UNITS

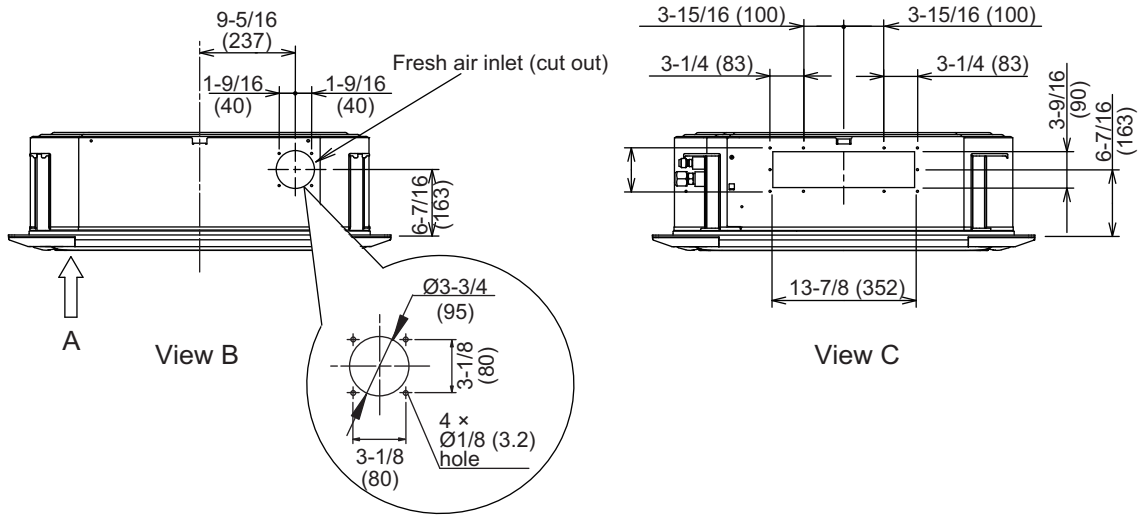
4-3. Circular flow cassette type

■ Models: AUUB18TLAV2, AUUB24TLAV2, and AUUB30TLAV2

Unit: in (mm)





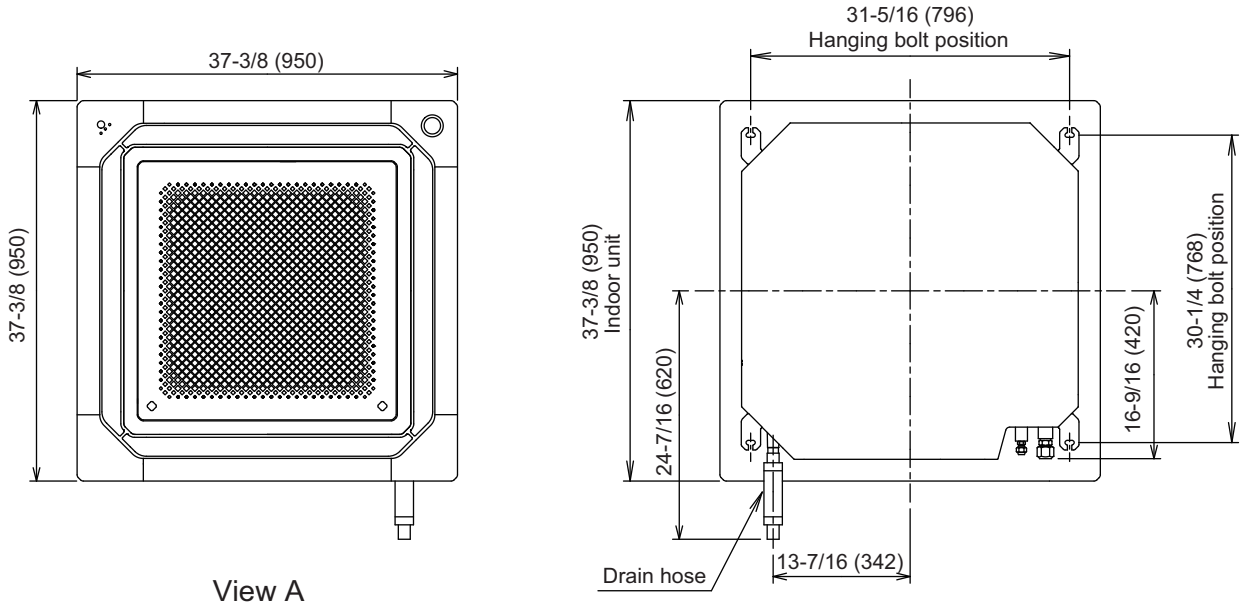


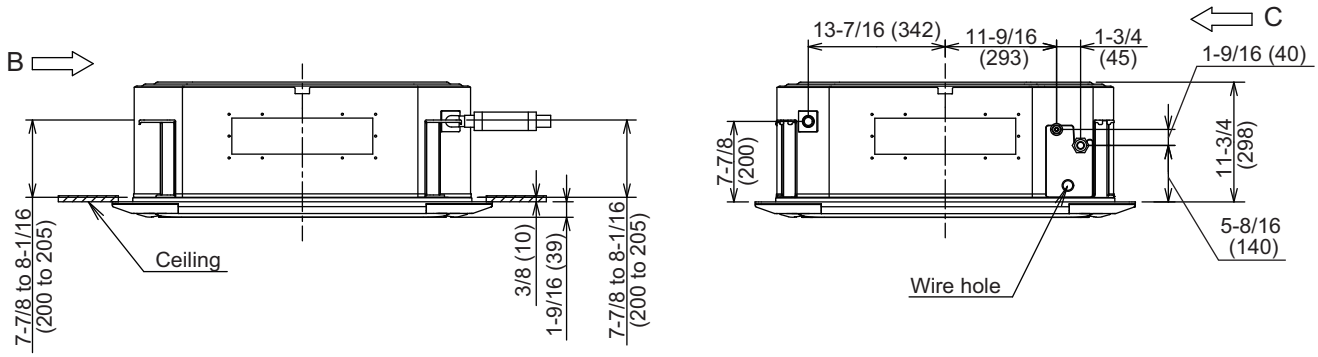
INDOOR UNITS

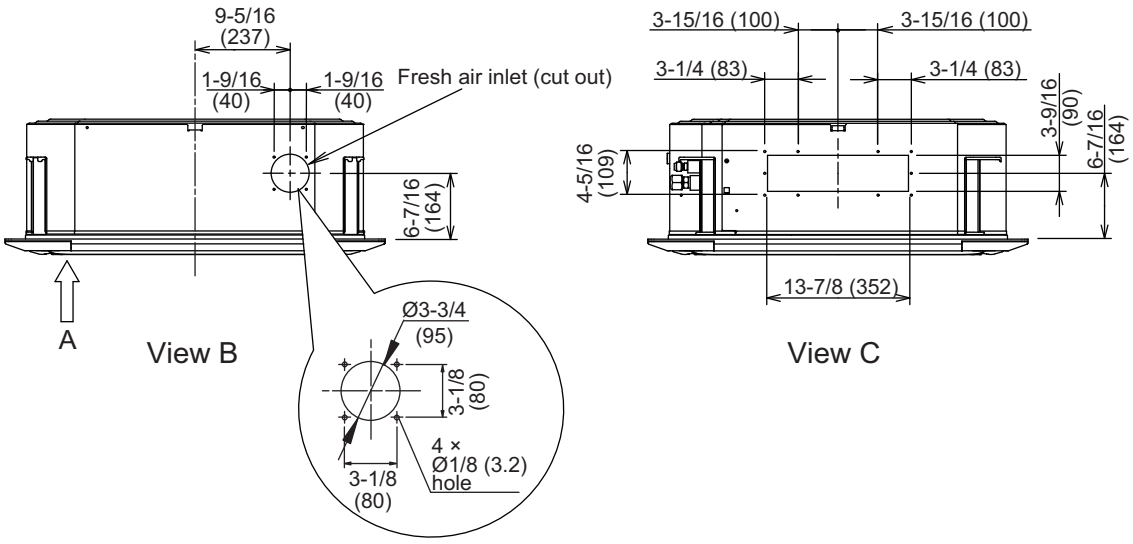
■ Models: AUUB36TLAV2 and AUUB48TLAV2

Unit: in (mm)

INDOOR UNITS

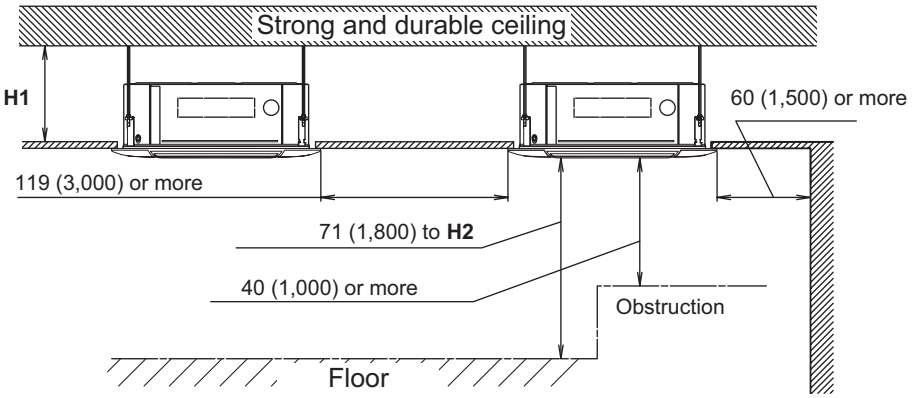






■ Installation space requirement

Unit: in (mm)



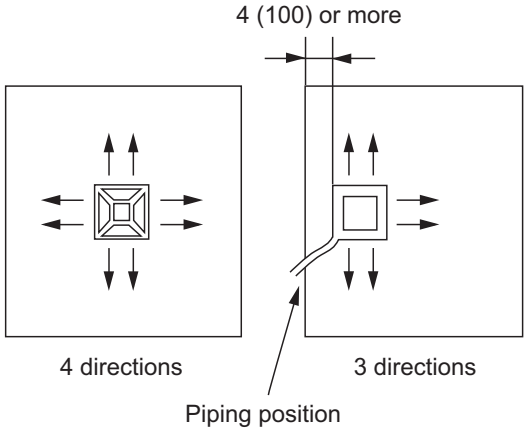
Model name	H1: Attic height
AUUB18-30TLAV2	11 (256) or more
AUUB36-48TLAV2	12 (298) or more

Be sure to make function setting with the remote controller according to the installed ceiling height.

H2: The maximum height from floor to ceiling		
Ceiling height	Model name	
	AUUB18-30TLAV2	AUUB36-48TLAV2
Standard	118 (3,000)	126 (3,200)
High ceiling	138 (3,500)	166 (4,200)

● Installation notices

- When installing the indoor unit, be careful about the maintenance space.
- To set “3-direction”, Air outlet shutter plate (option) must be installed, and the “outlet-direction” need to be switched to “3-way” by the remote controller.



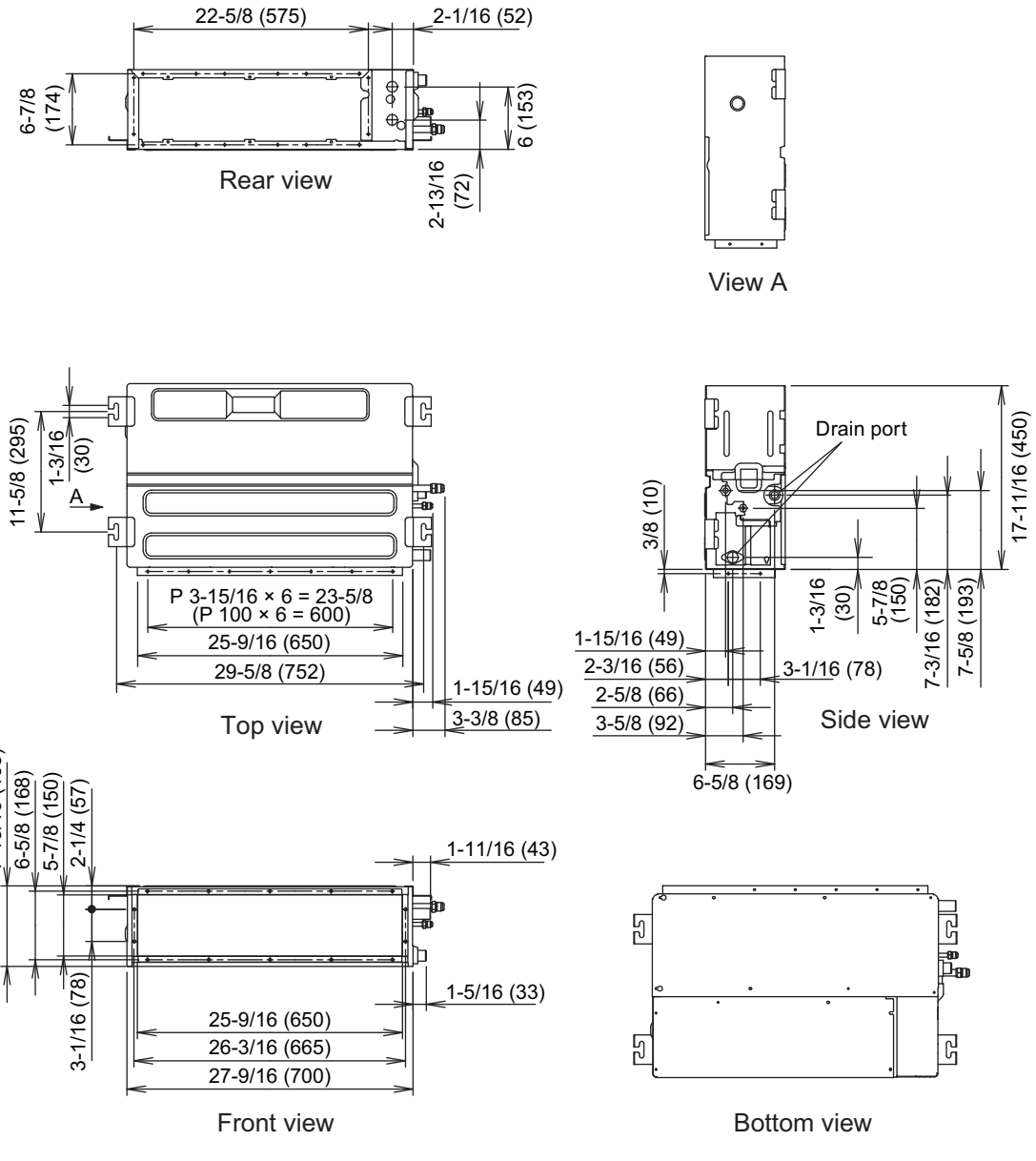
- In 3-way outlet mode, changing of ceiling height setting by function setting 20 is prohibited. (Ceiling height setting [function setting 20] is allowed to be changed only in 4-way outlet mode.)
- Use the Insulation kit for high humidity (option), when the condition under the roof is over 80% in humidity and over 86°F (30°C) in temperature. Otherwise, there is a risk of condensation on the ceiling.

INDOOR UNITS

4-4. Mini duct type

■ Model: ARUL4TLAV2

Unit: in (mm)

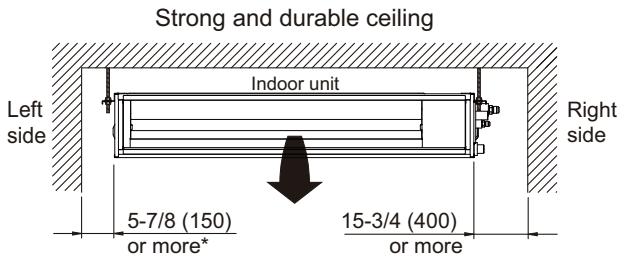


INDOOR UNITS

■ Installation space requirement

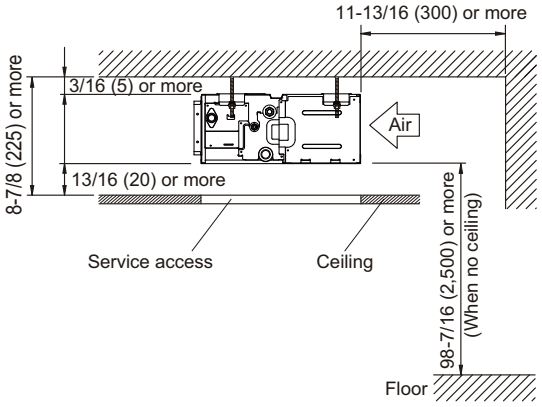
Provide sufficient installation space for product safety.

Unit: in (mm)

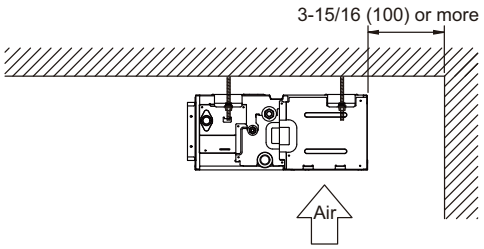


*: 15-3/4 (400) or more when drain from drain pipe

- **When intaking air from back:**



- **When intaking air from bottom:**

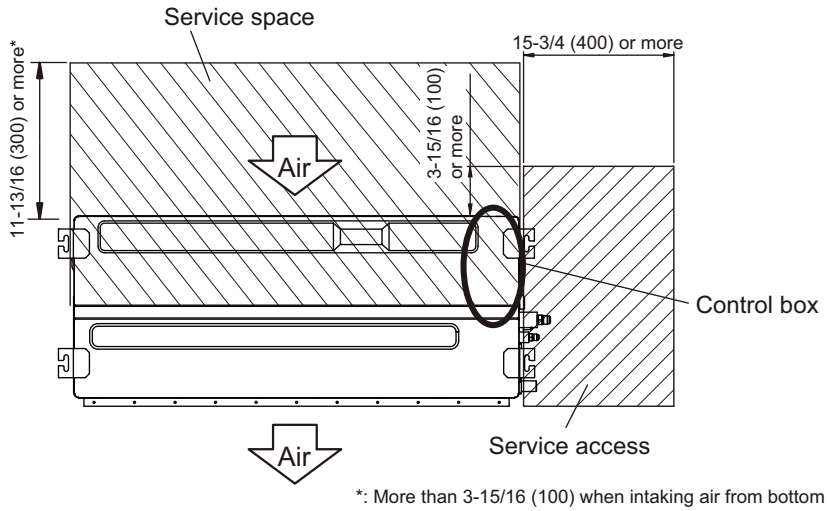


■ Maintenance space requirement

For future maintenance and service access, provide sufficient maintenance space.

NOTE: Do not place any wiring or illumination in the maintenance space, as they will impede service.

Unit: in (mm)



*: More than 3-15/16 (100) when intaking air from bottom

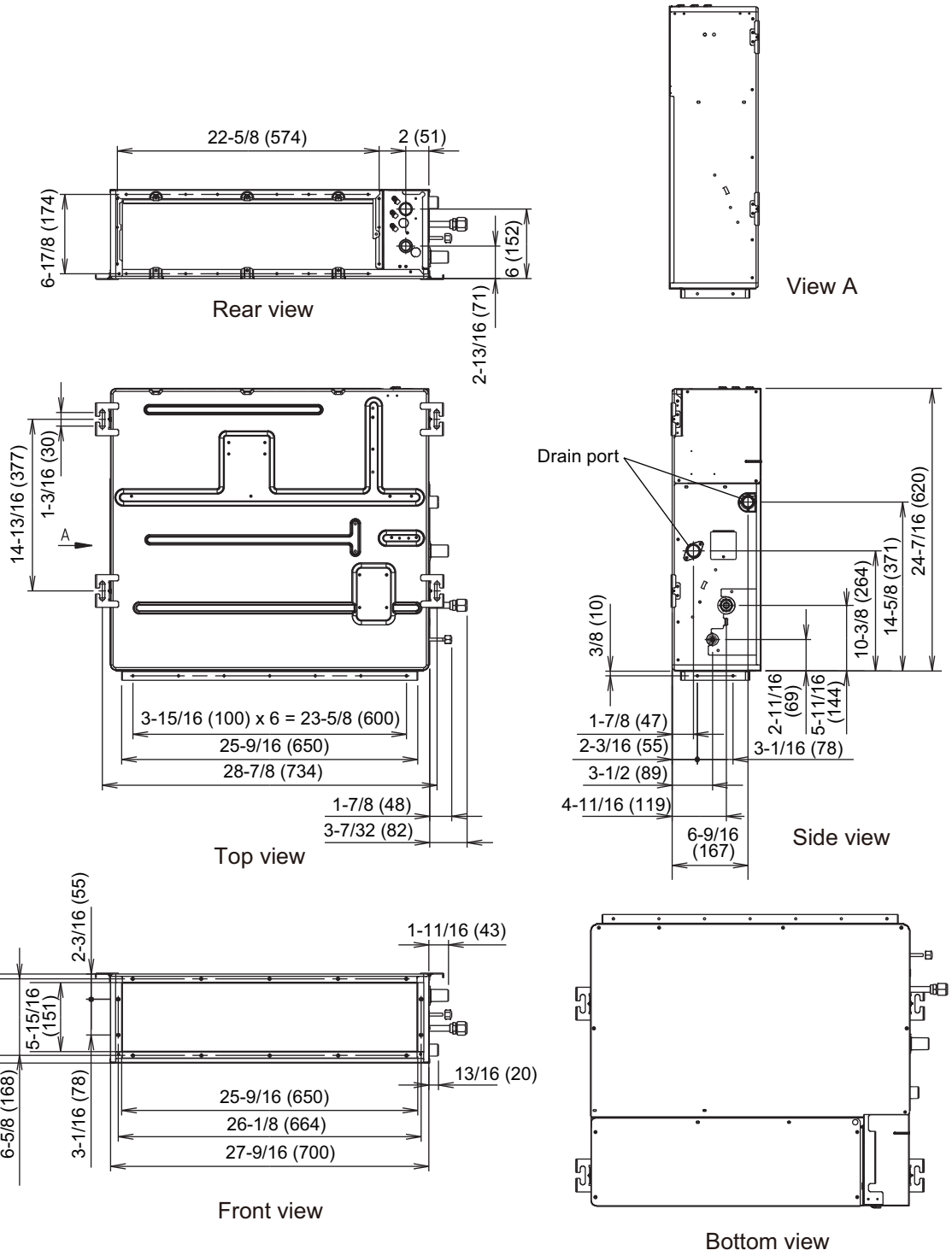
Top view

INDOOR UNITS

4-5. Slim duct/Slim concealed floor type

■ Models: ARUL7TLAV2, ARUL9TLAV2, ARUL12TLAV2, and ARUL14TLAV2

Unit: in (mm)

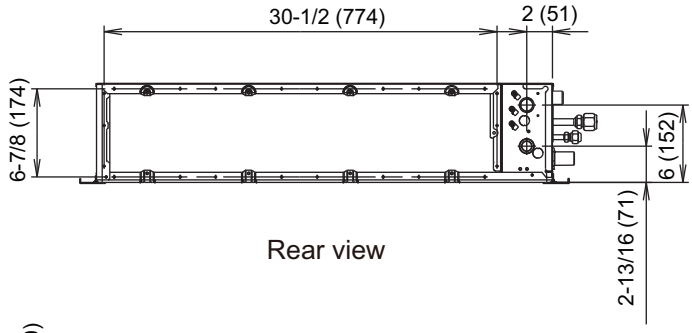


INDOOR UNITS

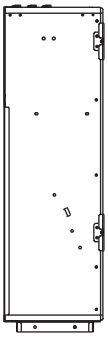
■ Model: ARUL18TLAV2

Unit: in (mm)

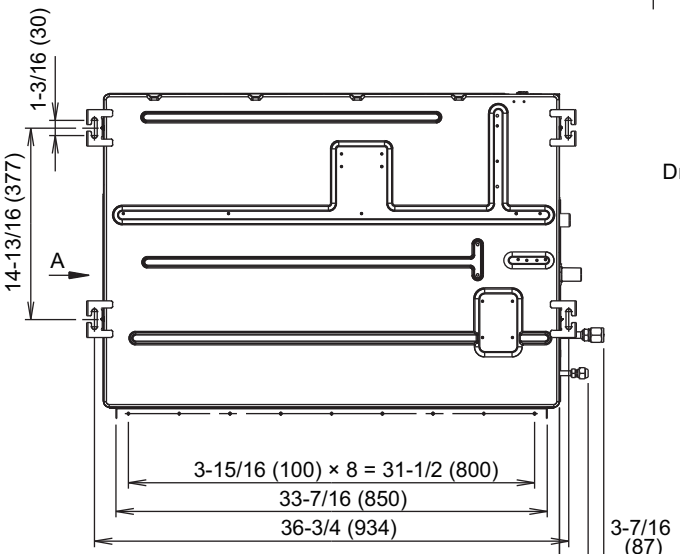
INDOOR UNITS



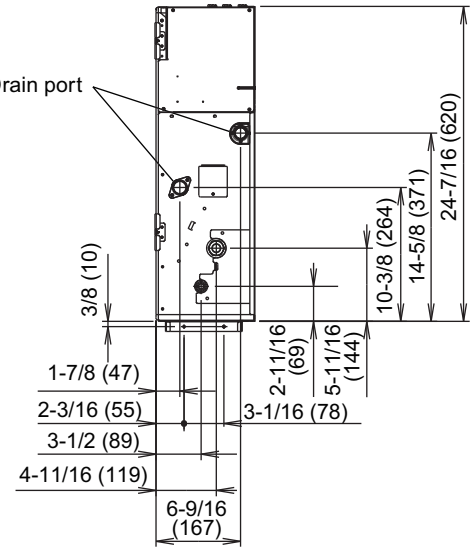
Rear view



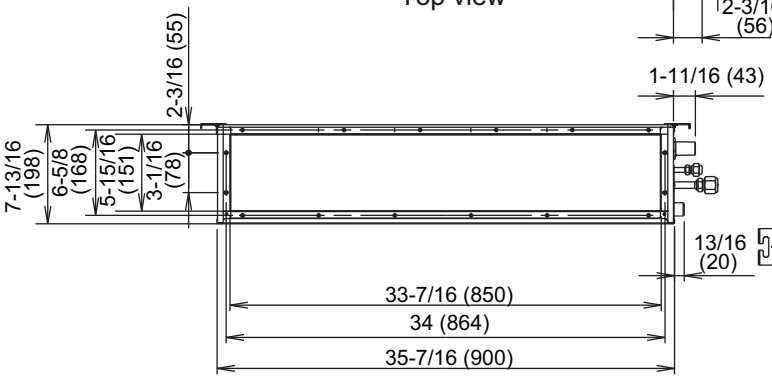
View A



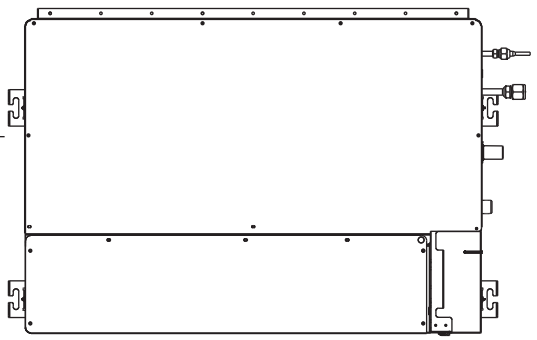
Top view



Side view



Front view

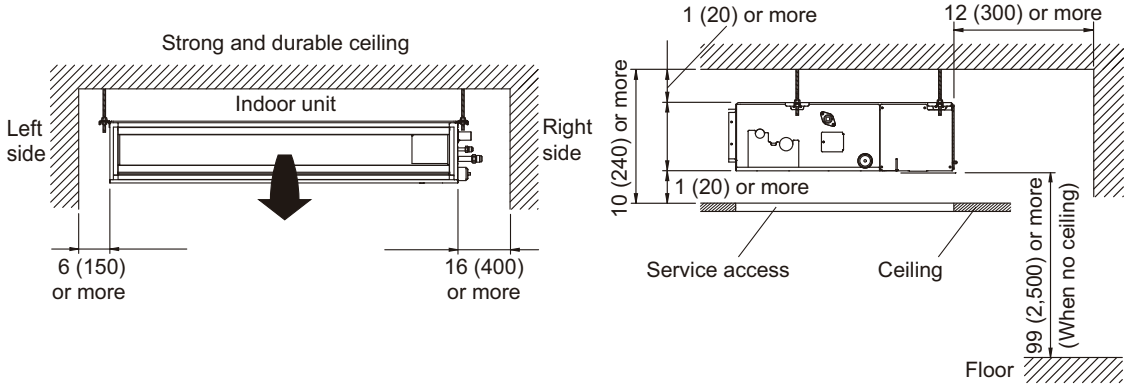


Bottom view

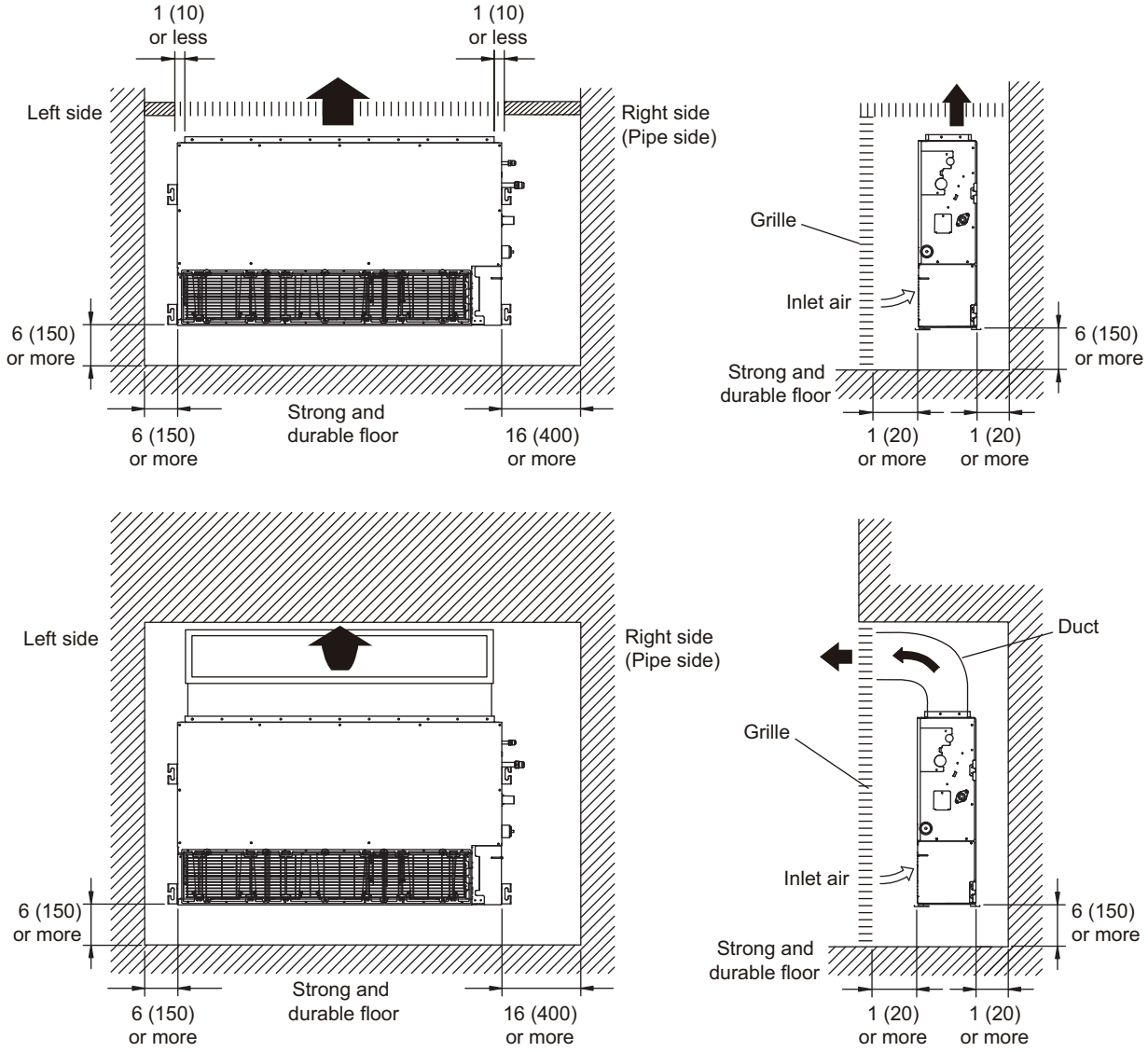
■ Installation space requirement

Unit: in (mm)

In ceiling-concealed installations:



In wall-concealed installations:



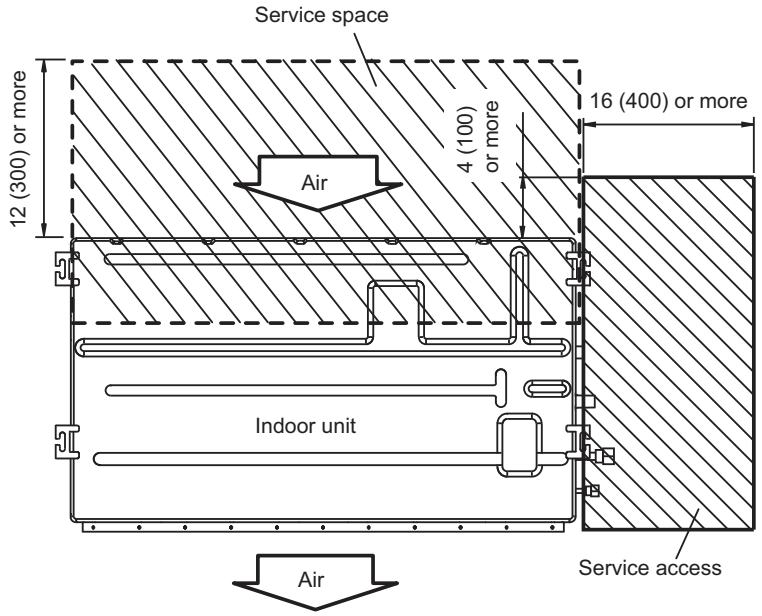
INDOOR UNITS

■ Maintenance space requirement

For future maintenance and service access, provide sufficient maintenance space.

NOTE: Do not place any wiring or illumination in the maintenance space, as they will impede service.

Unit: in (mm)



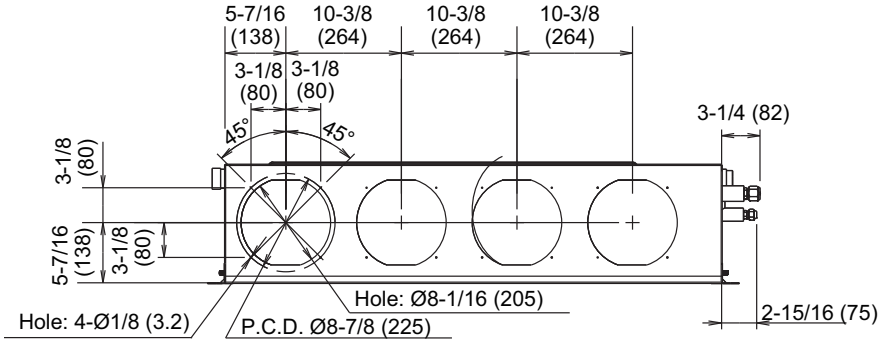
Top view

INDOOR UNITS

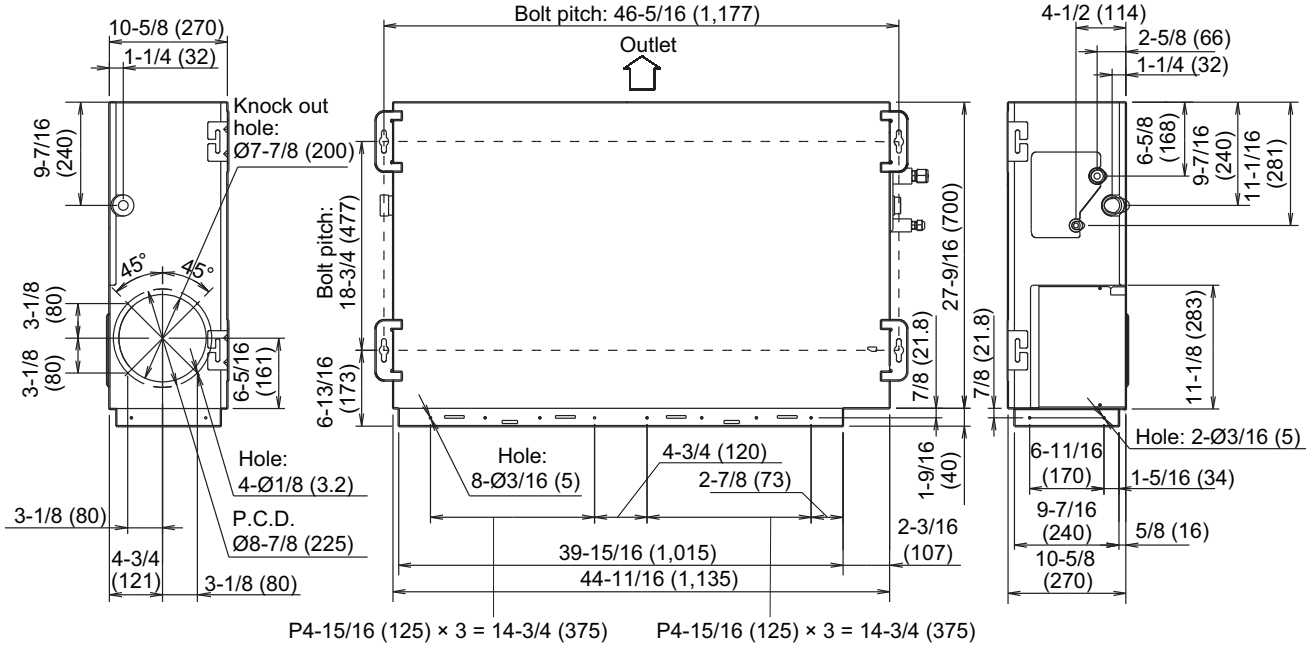
4-6. Medium static pressure duct type

■ Models: ARUM24TLAV2, ARUM30TLAV2, and ARUM36TLAV2

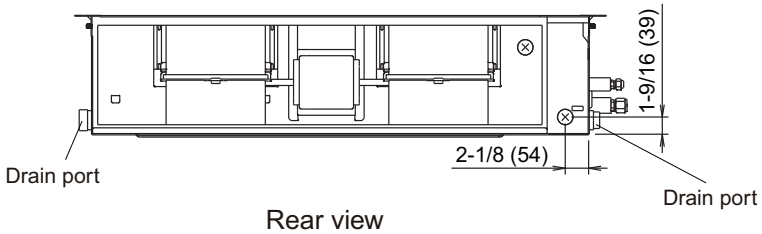
Unit: in (mm)



Front view



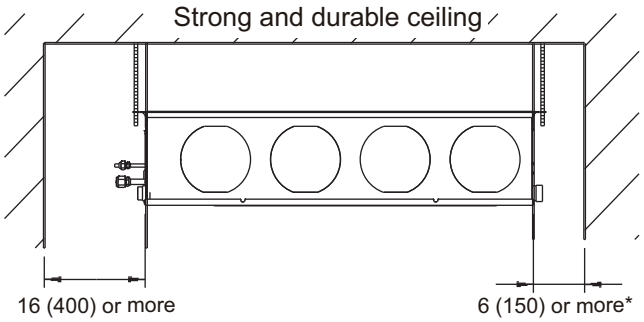
Side view (L) Top view Side view (R)



Rear view

■ Installation space requirement

Unit: in (mm)



NOTES:

- When Drain pump unit is used, leave the space requirement for service and maintenance. For details of Drain pump unit, refer to "Drain pump unit for duct type" in Chapter 10. OPTIONAL PARTS on page 10-24.
- *: When drain hose is connected, the required dimension is 16 (in) 400 mm or more.

INDOOR UNITS

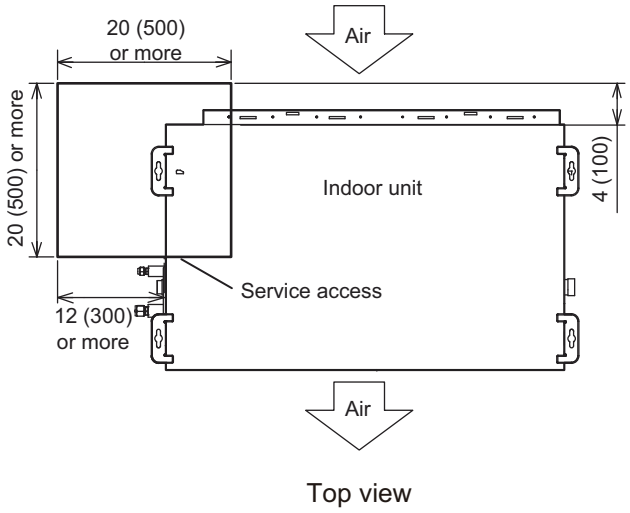
■ Maintenance space requirement

For future maintenance and service access, provide sufficient maintenance space.

NOTE: Do not place any wiring or illumination in the maintenance space, as they will impede service.

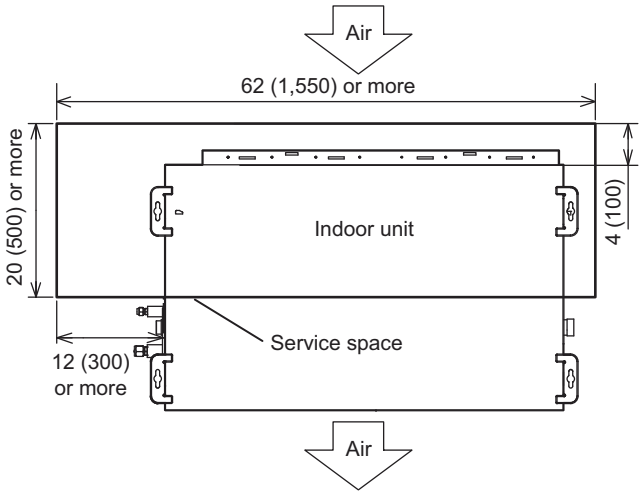
Unit: in (mm)

It shall be possible to install and remove the control box.



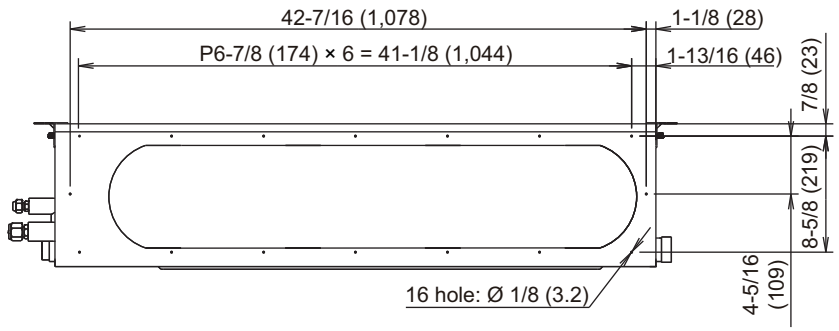
Top view

It shall be possible to install and remove the control box, fan units, and filter.



Top view

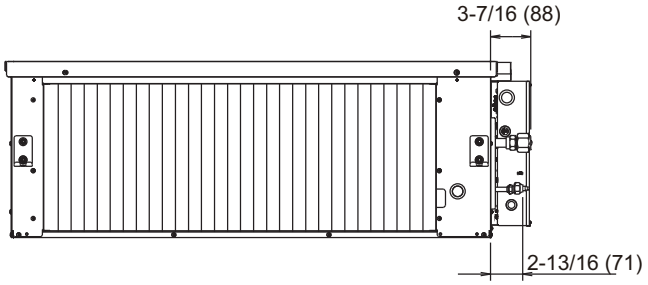
When using a square duct



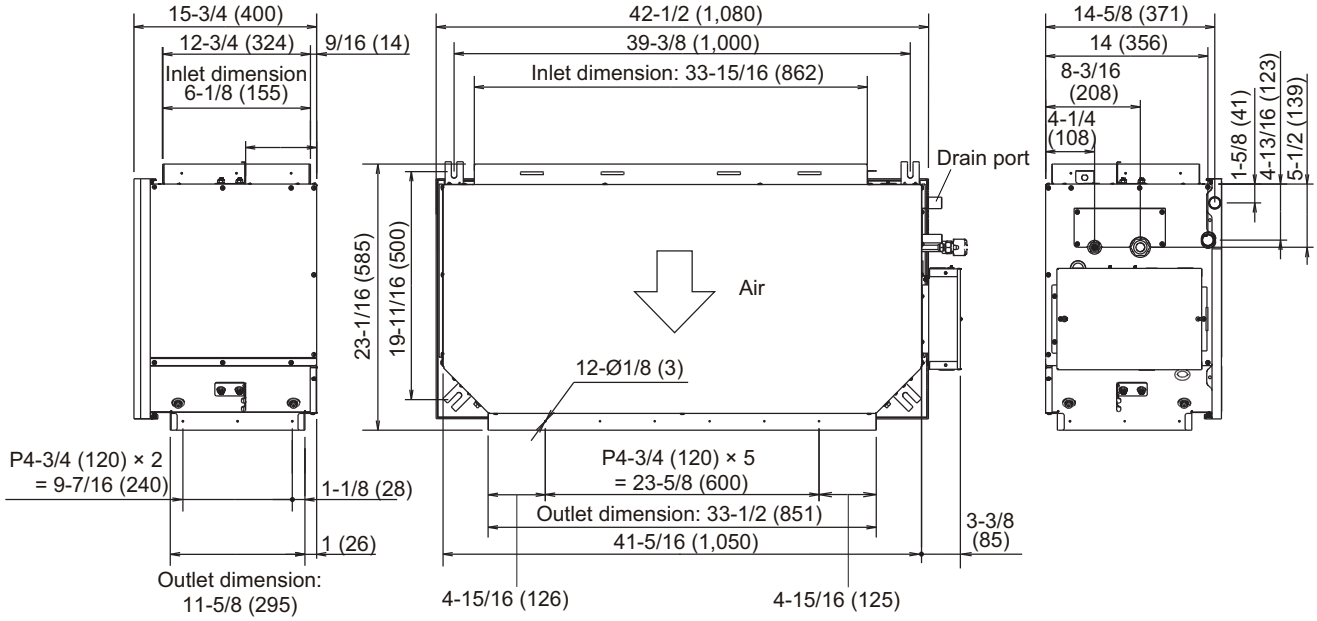
4-7. High static pressure duct type

■ Models: ARUH36TLAV, ARUH48TLAV, and ARUH60TLAV

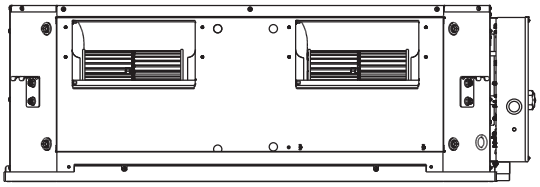
Unit: in (mm)



Rear view



Side view (L) Top view Side view (R)

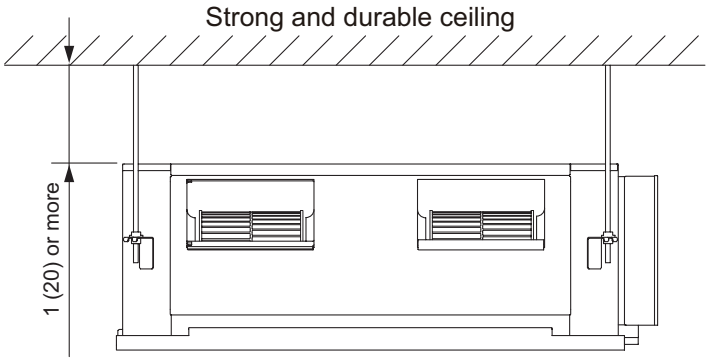


Front view

INDOOR UNITS

■ Installation space requirement

Unit: in (mm)

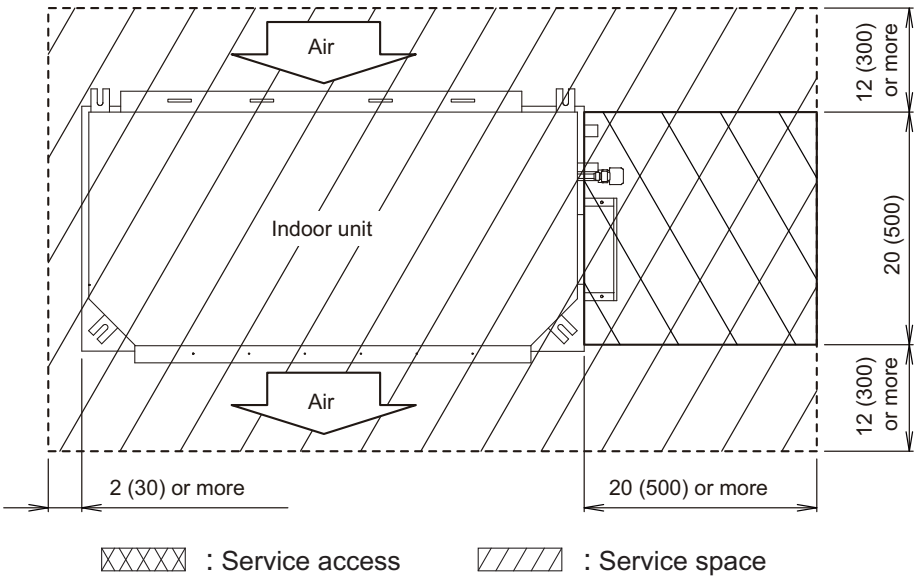


■ Maintenance space requirement

For future maintenance and service access, provide sufficient maintenance space.

NOTE: Do not place any wiring or illumination in the maintenance space, as they will impede service.

Unit: in (mm)

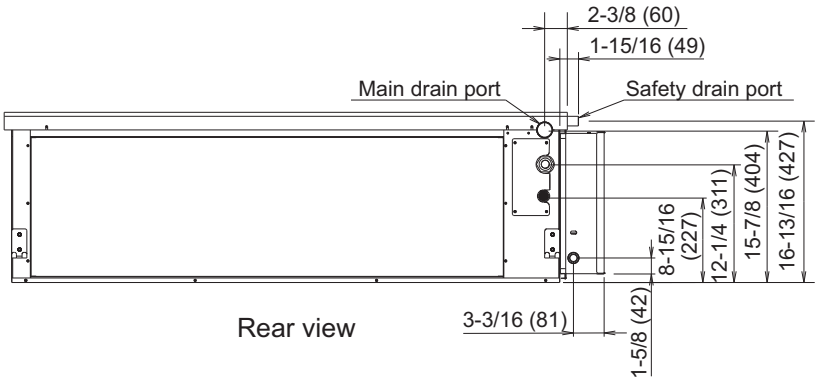


Top view

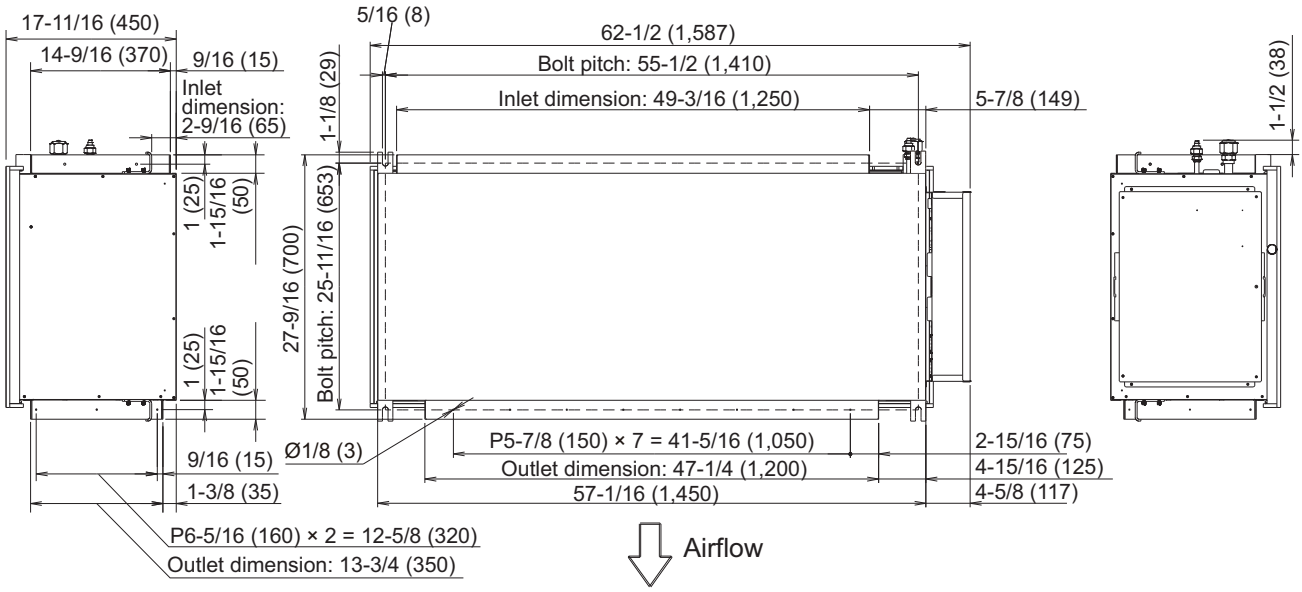
INDOOR UNITS

■ Model: ARUH72TLAV2

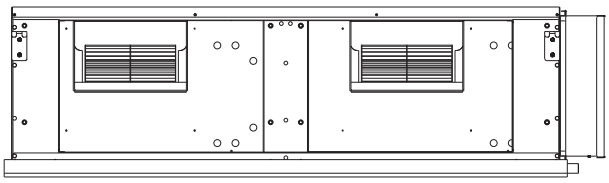
Unit: in (mm)



Rear view



Side view (L) Top view Side view (R)

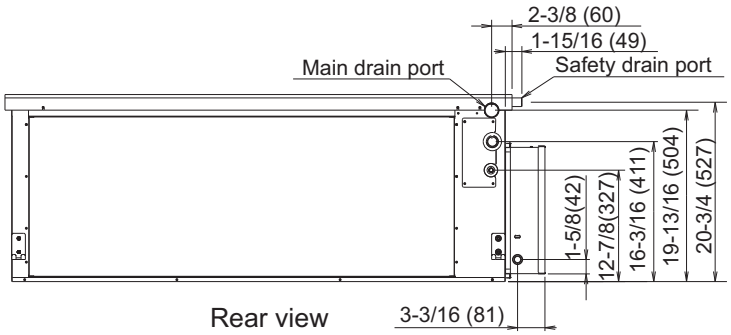


Front view

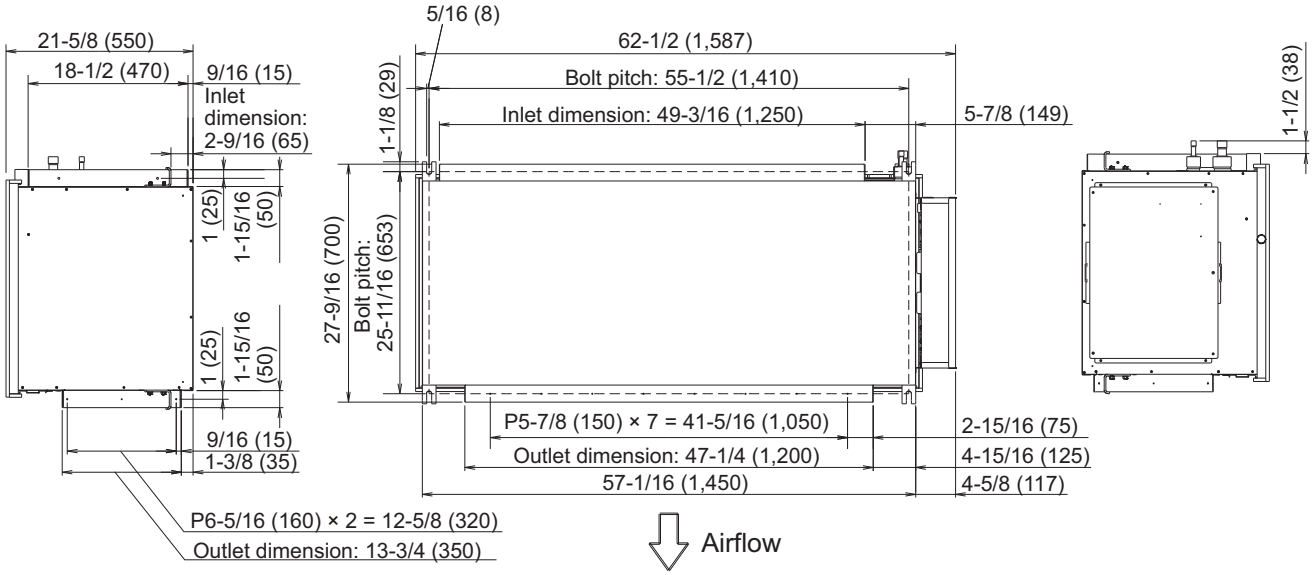
INDOOR UNITS

■ Model: ARUH96TLAV2

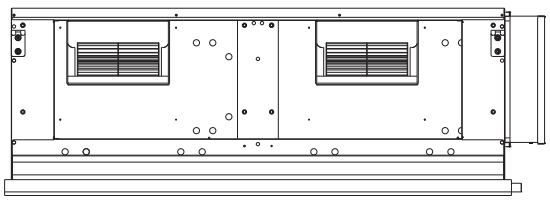
Unit: in (mm)



Rear view



Side view (L) Top view Side view (R)



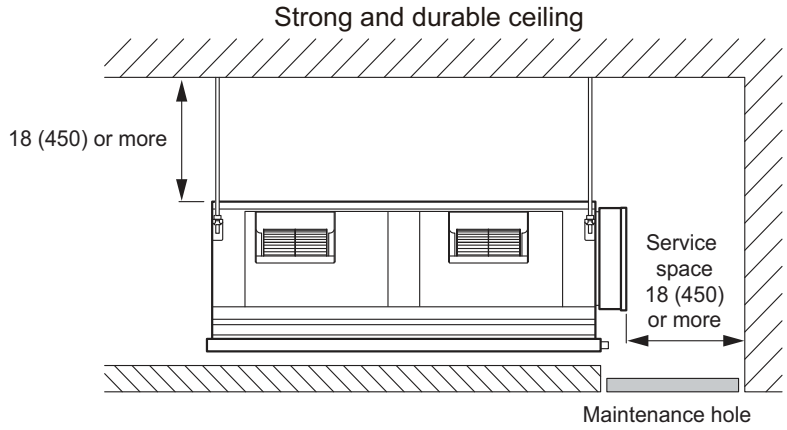
Front view

INDOOR UNITS

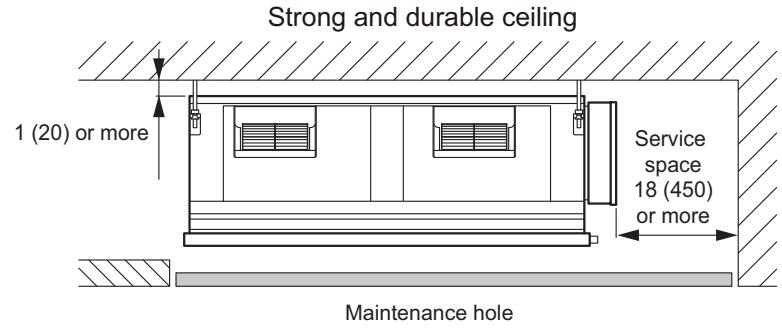
■ Installation space requirement

Unit: in (mm)

- When service access will be carried out above the indoor unit, a recommended installation space of 18 in (450 mm) is required.



- Installation by which service is carried out from the bottom of the unit.

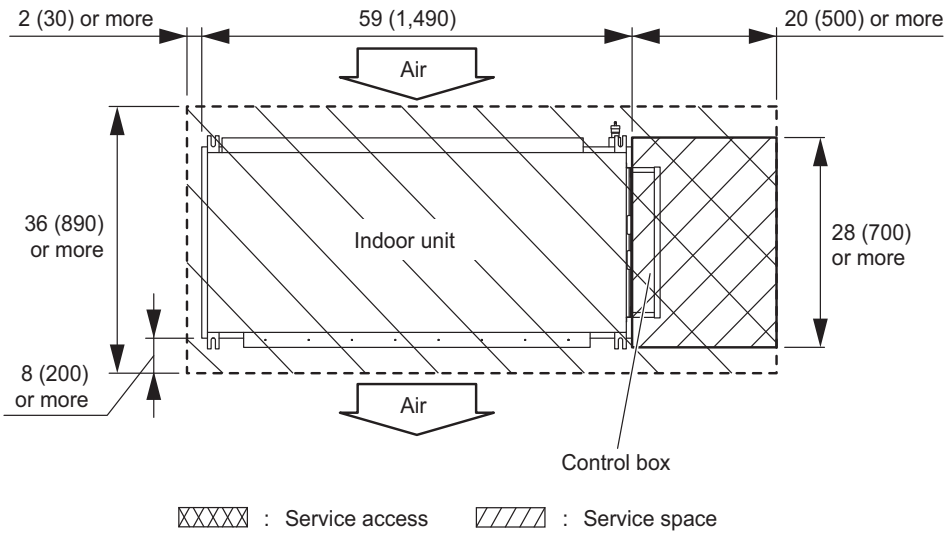


■ Maintenance space requirement

For future maintenance and service access, provide sufficient maintenance space.

NOTE: Do not place any wiring or illumination in the maintenance space, as they will impede service.

Unit: in (mm)



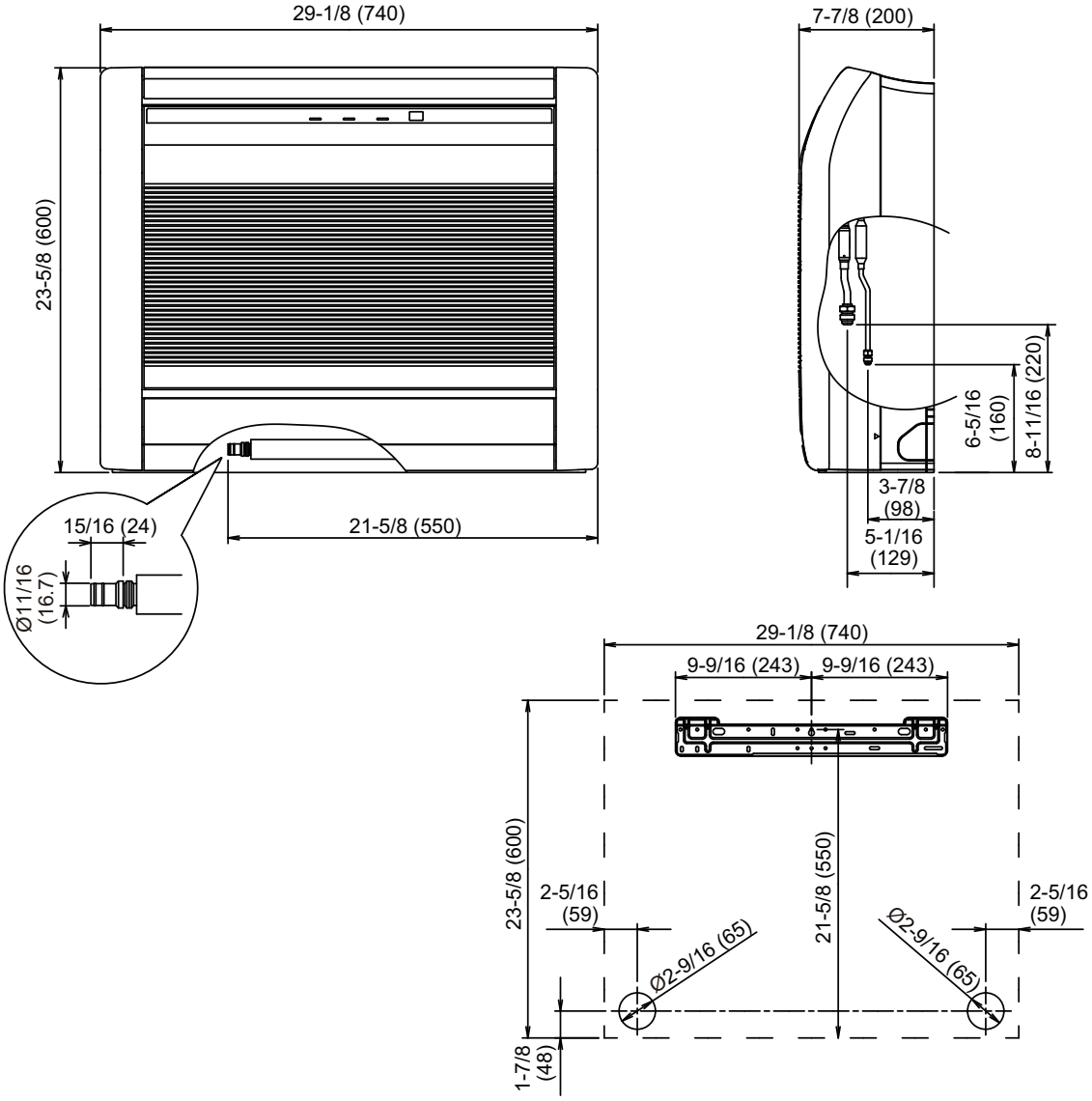
Top view

INDOOR UNITS

4-8. Compact floor type

■ Models: AGUA4TLAV2, AGUA7TLAV2, AGUA9TLAV2, AGUA12TLAV2, and AGUA14TLAV2

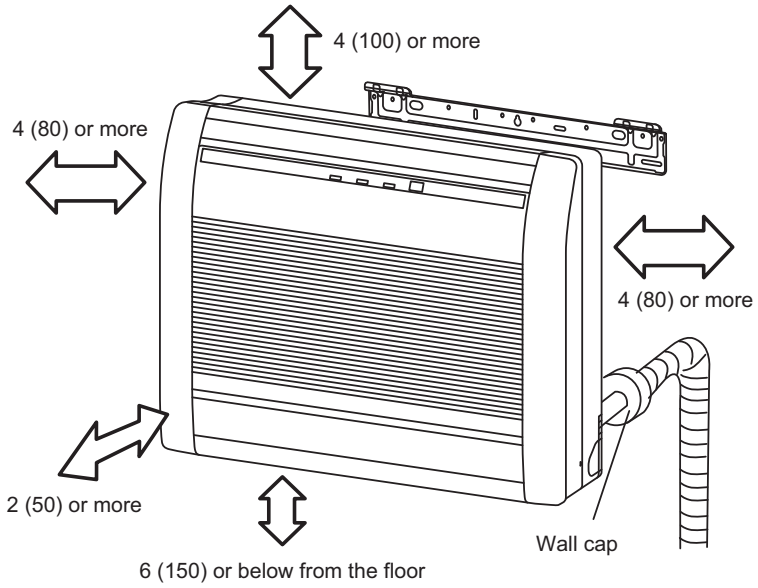
Unit: in (mm)



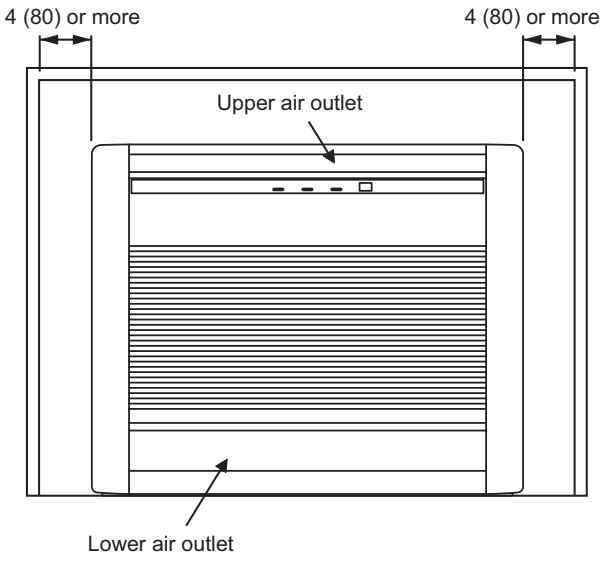
INDOOR UNITS

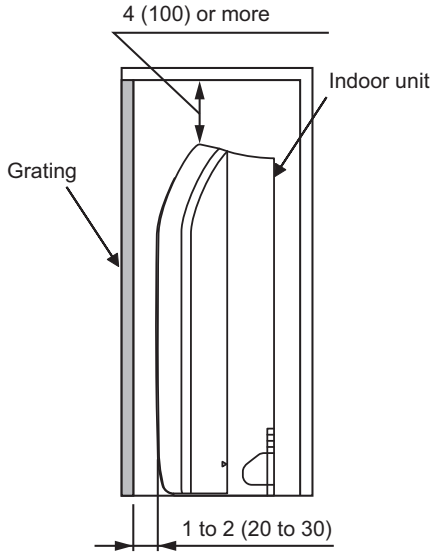
■ Installation space requirement

Unit: in (mm)



INDOOR UNITS

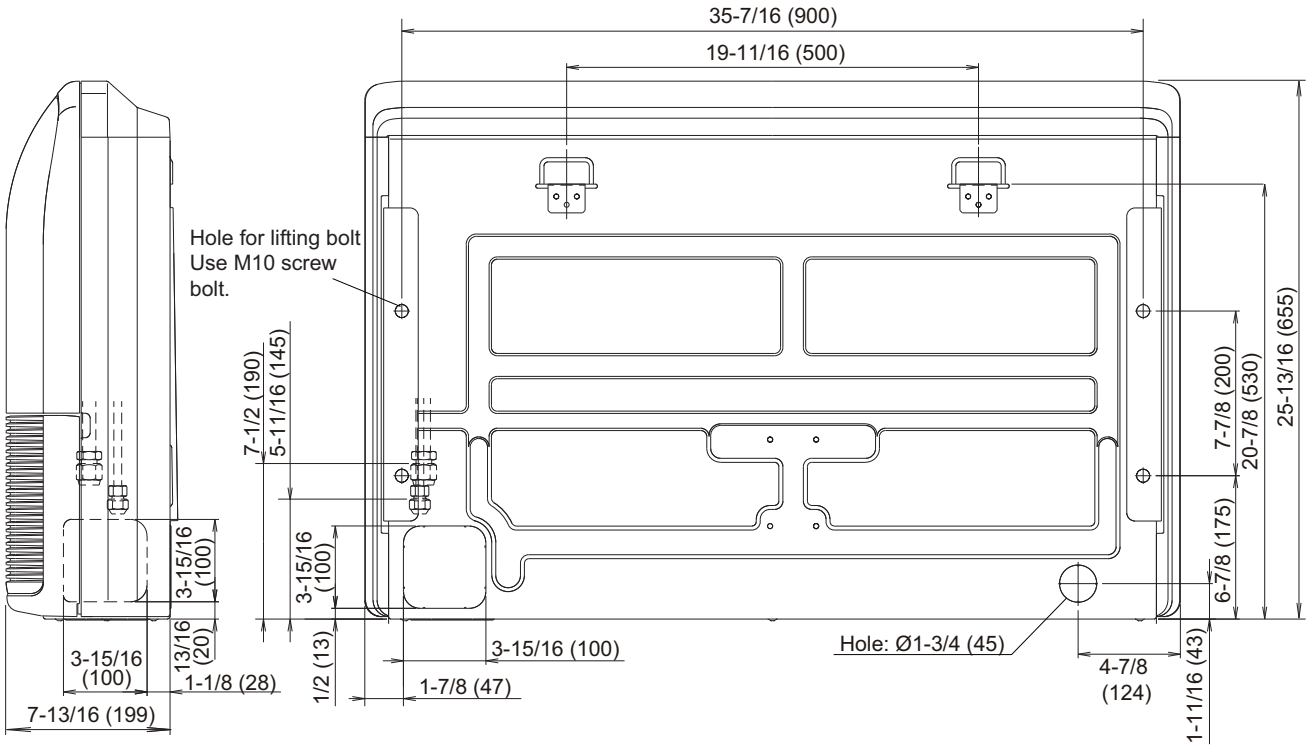




4-9. Floor/Ceiling type

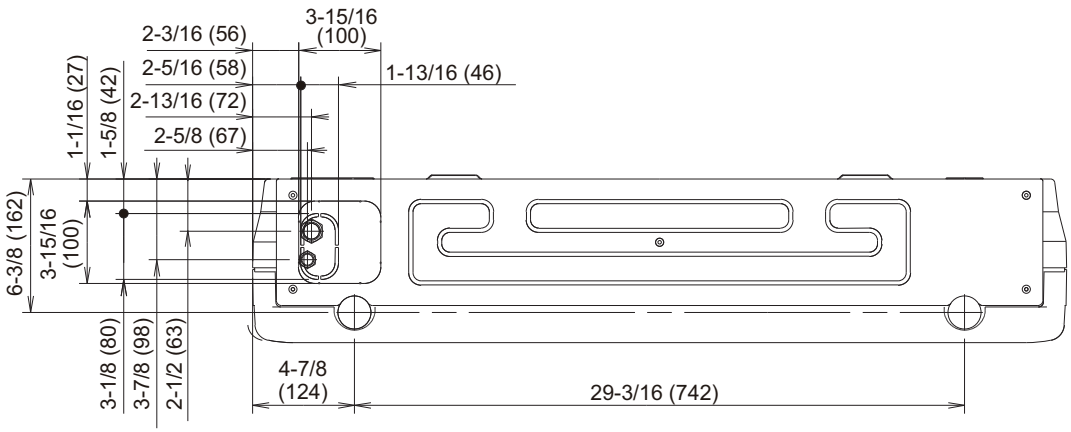
■ Models: ABUA12TLAV2, ABUA14TLAV2, ABUA18TLAV2, and ABUA24TLAV2

Unit: in (mm)



Side view

Rear view

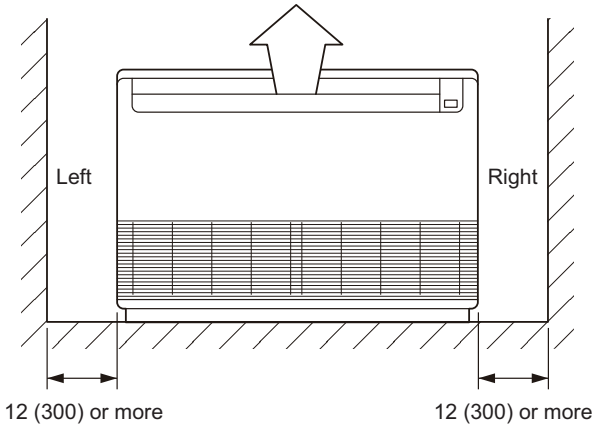


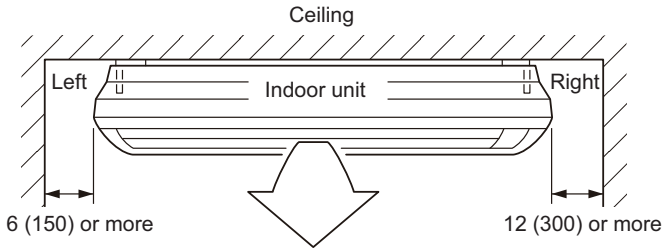
Bottom view

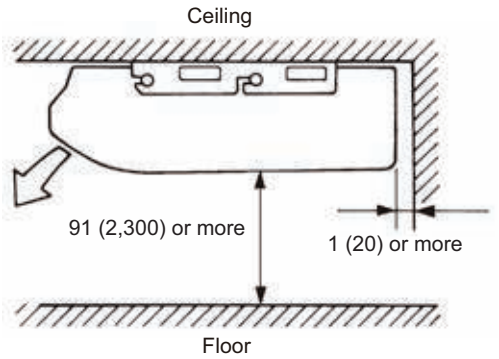
INDOOR UNITS

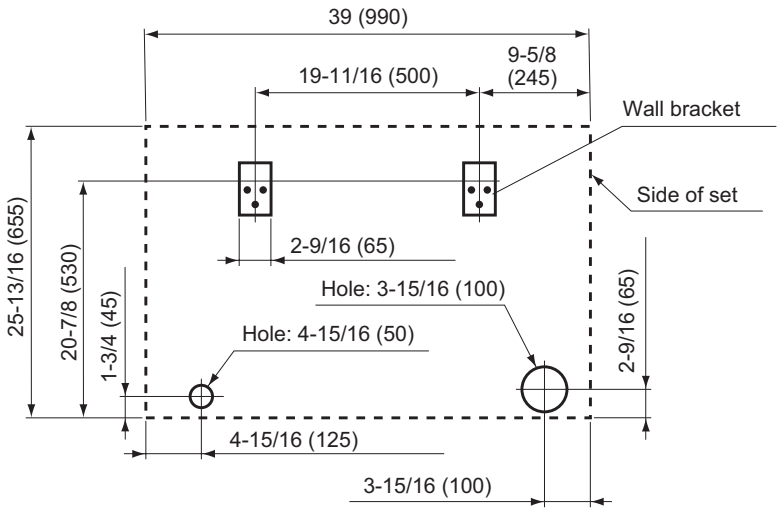
■ Installation space requirement

Unit: in (mm)





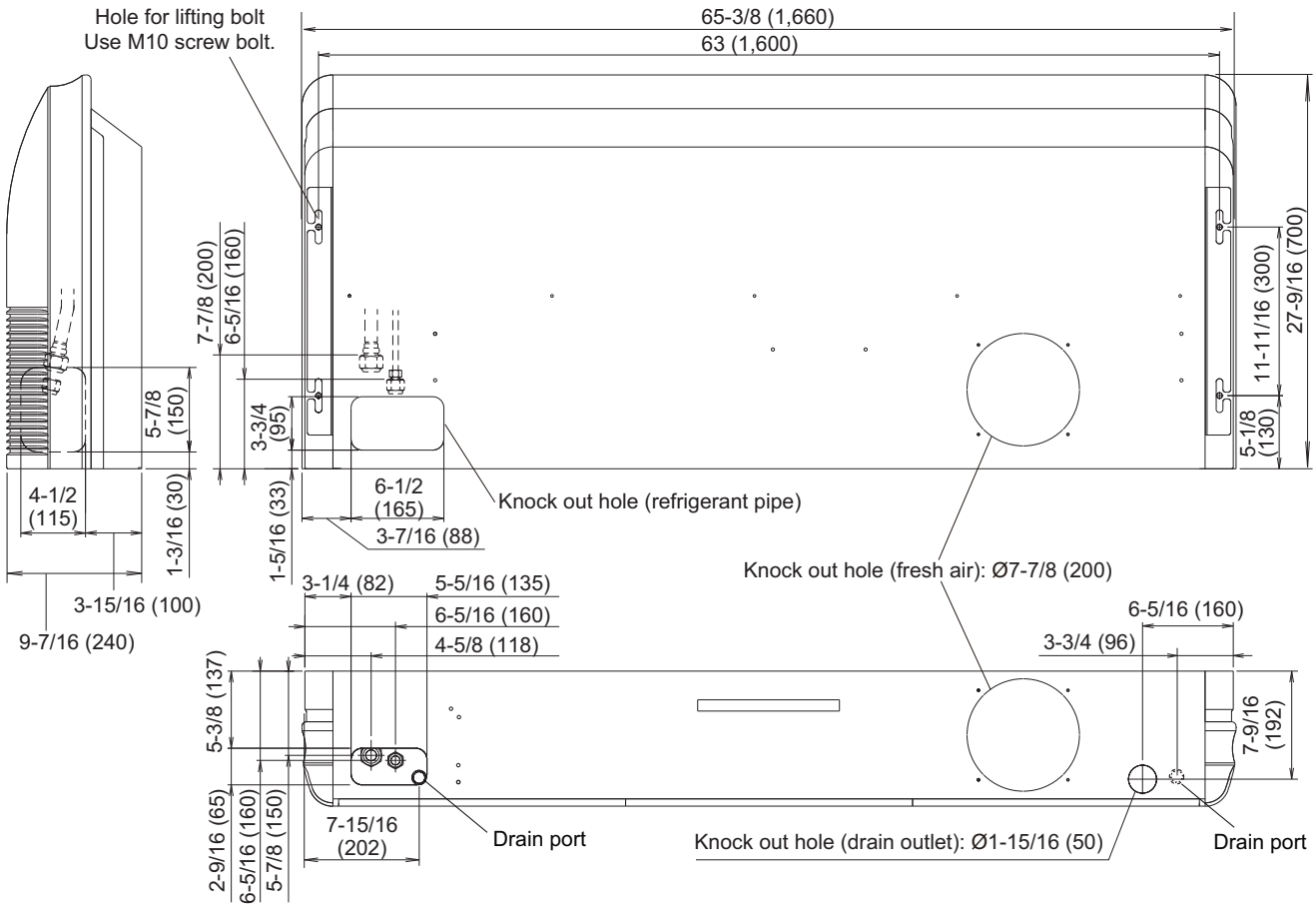




4-10. Ceiling type

■ Models: ABUA30TLAV2 and ABUA36TLAV2

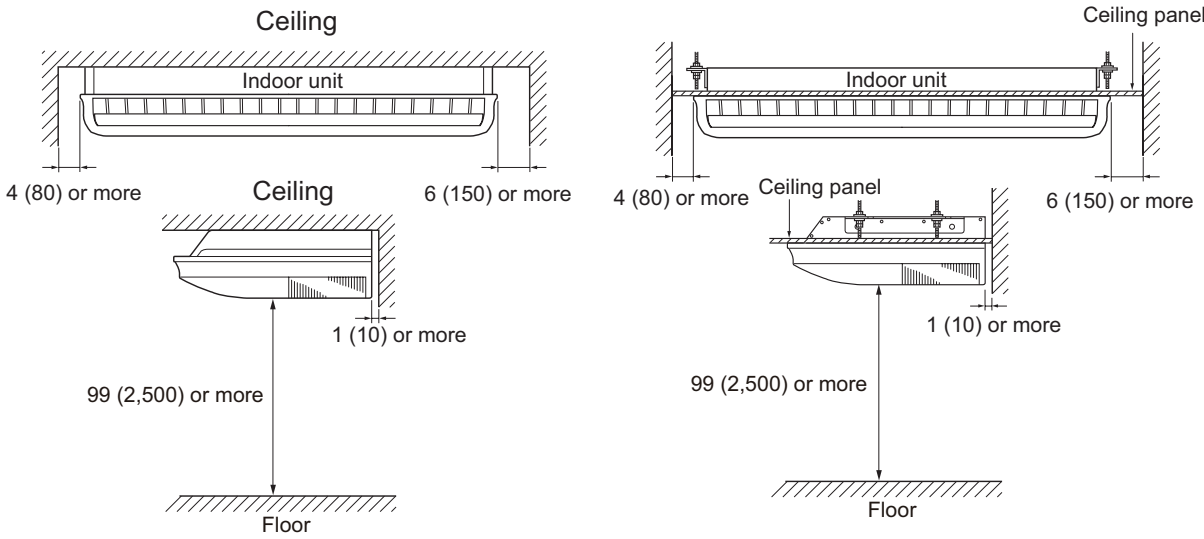
Unit: in (mm)



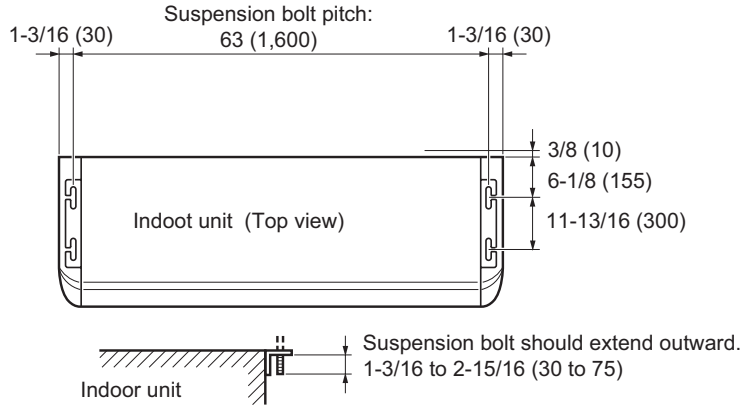
INDOOR UNITS

■ Installation space requirement

Unit: in (mm)



Dimensions (Space required for Installation)

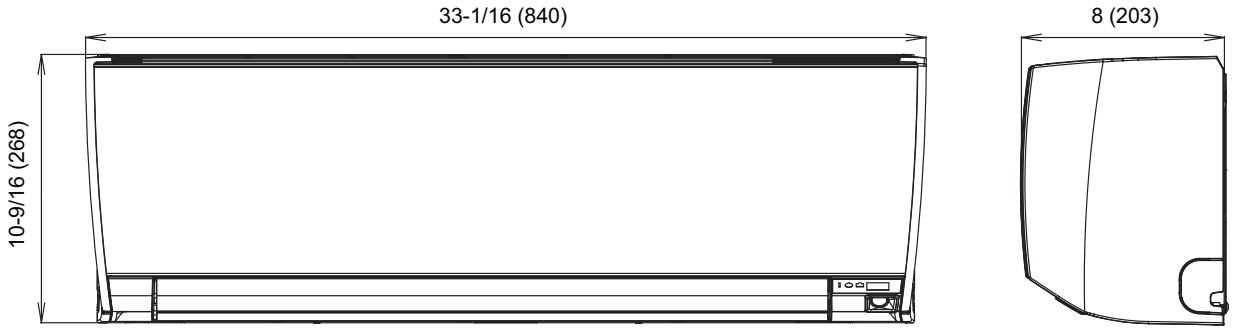


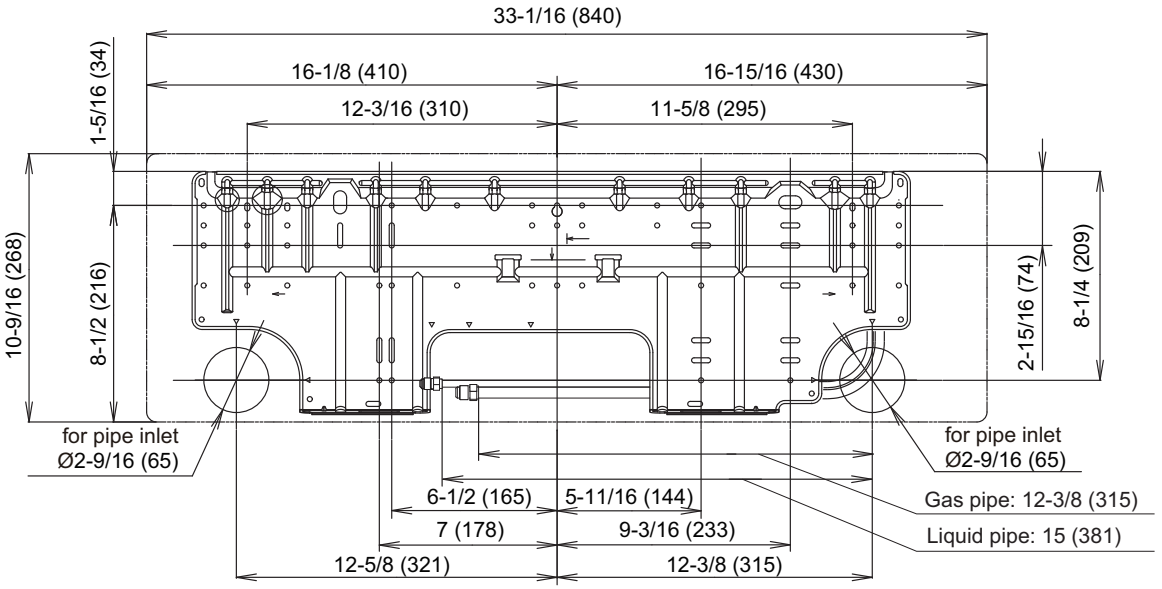
INDOOR UNITS

4-11. Wall mounted type

■ Models: ASUA4TLAV2, ASUA7TLAV2, ASUA9TLAV2, ASUA12TLAV2, and ASUA14TLAV2

Unit: in (mm)

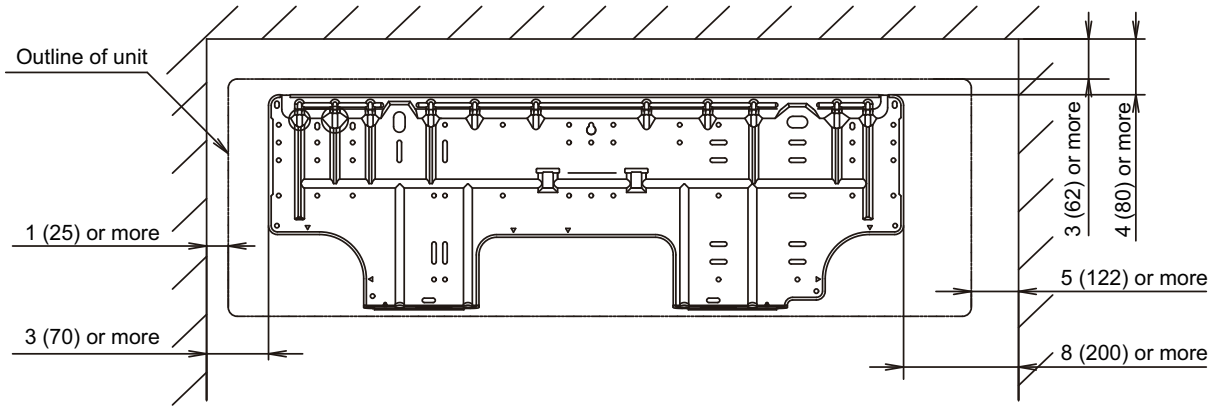




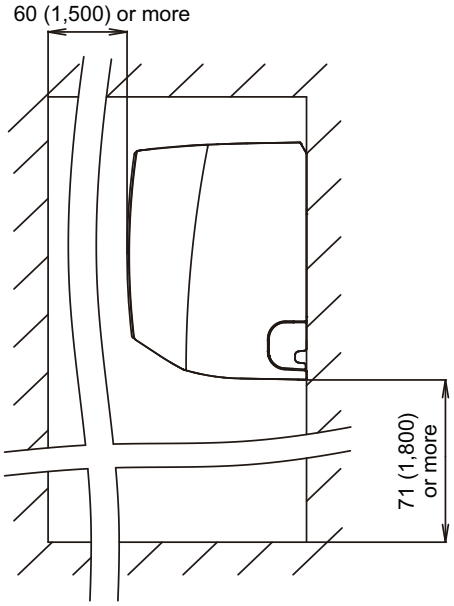
INDOOR UNITS

■ Installation space requirement

Unit: in (mm)

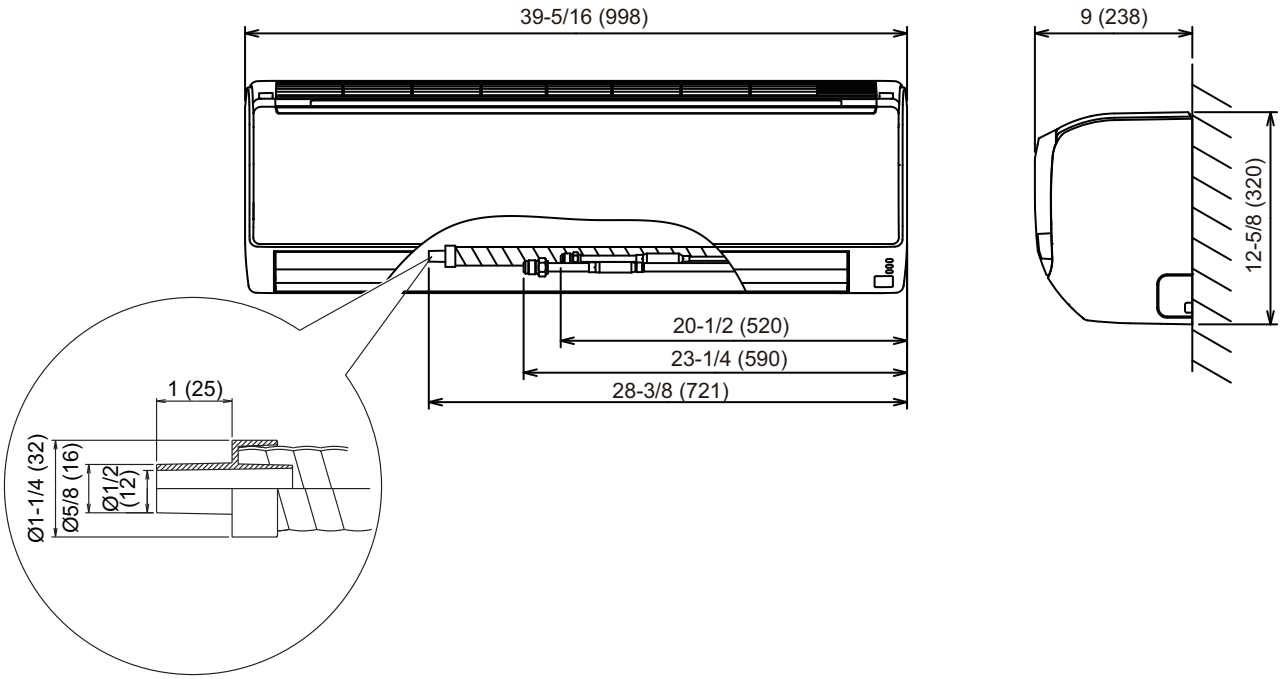


INDOOR UNITS

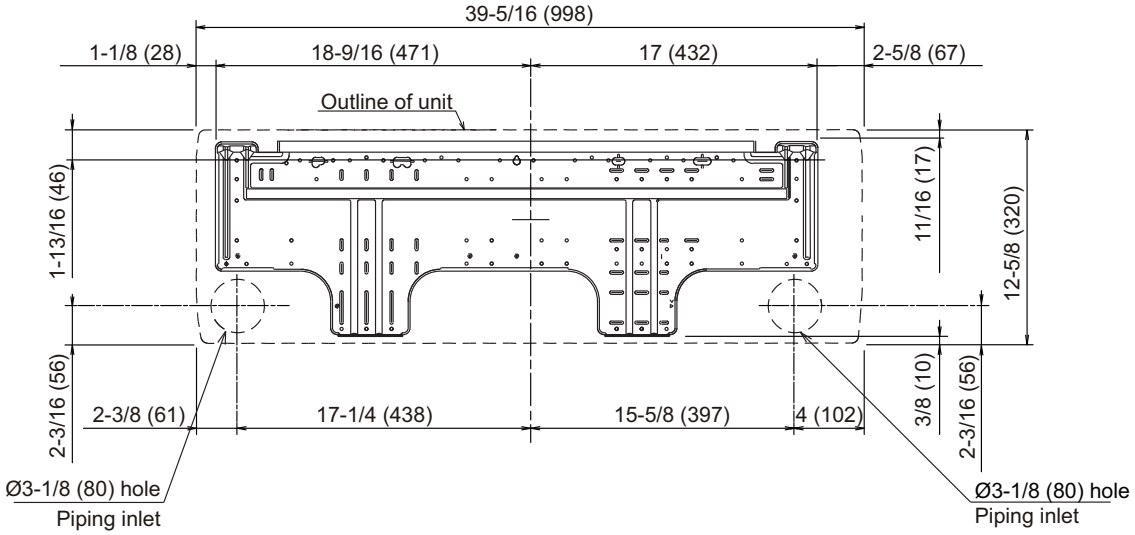


■ Models: ASUB18TLAV1 and ASUB24TLAV1

Unit: in (mm)

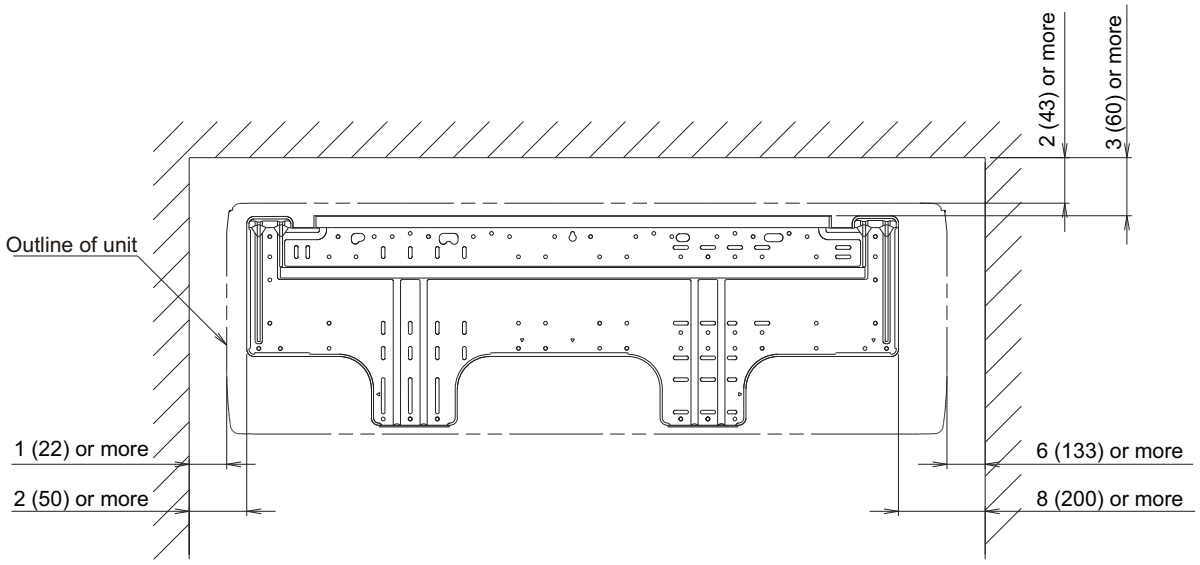


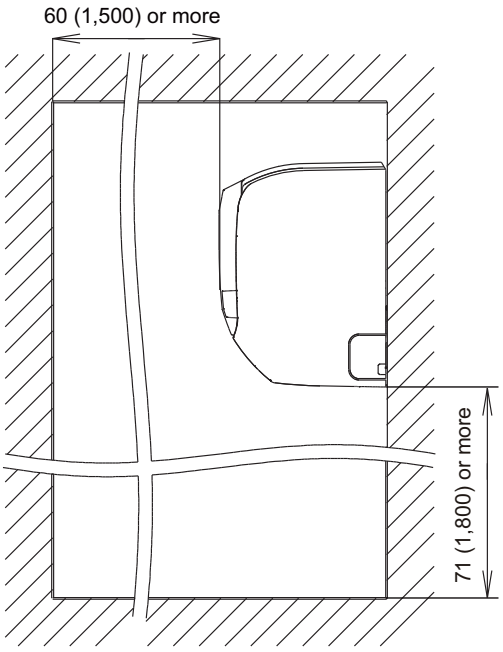
INDOOR UNITS



■ Installation space requirement

Unit: in (mm)

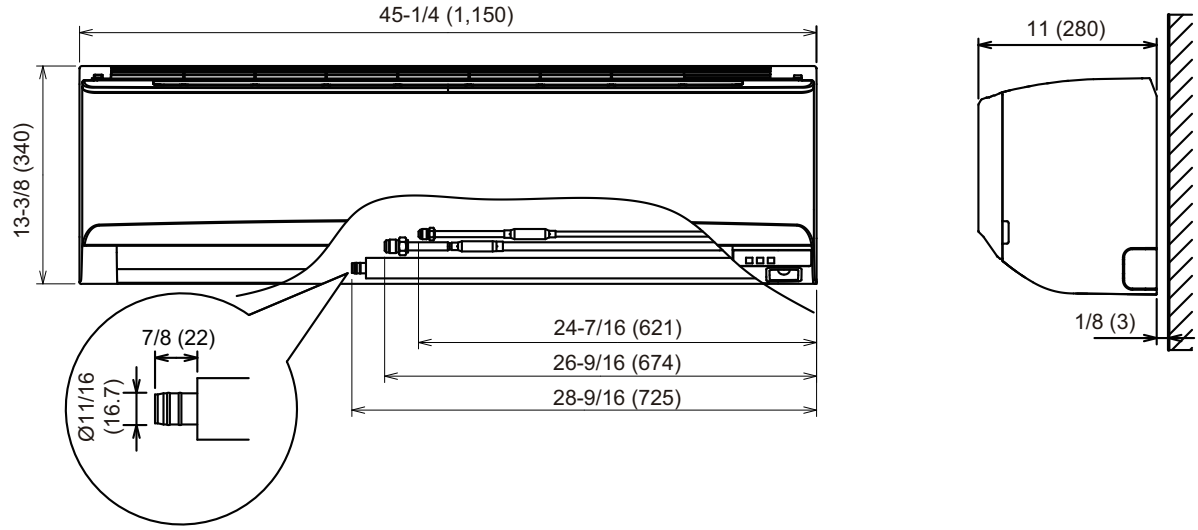


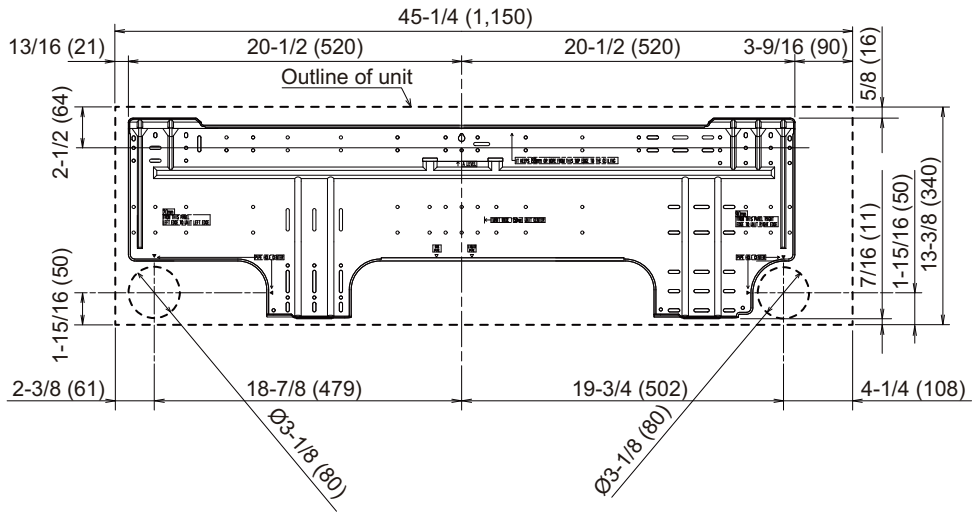


INDOOR UNITS

■ Models: ASUA30TLAV2 and ASUA36TLAV2

Unit: in (mm)

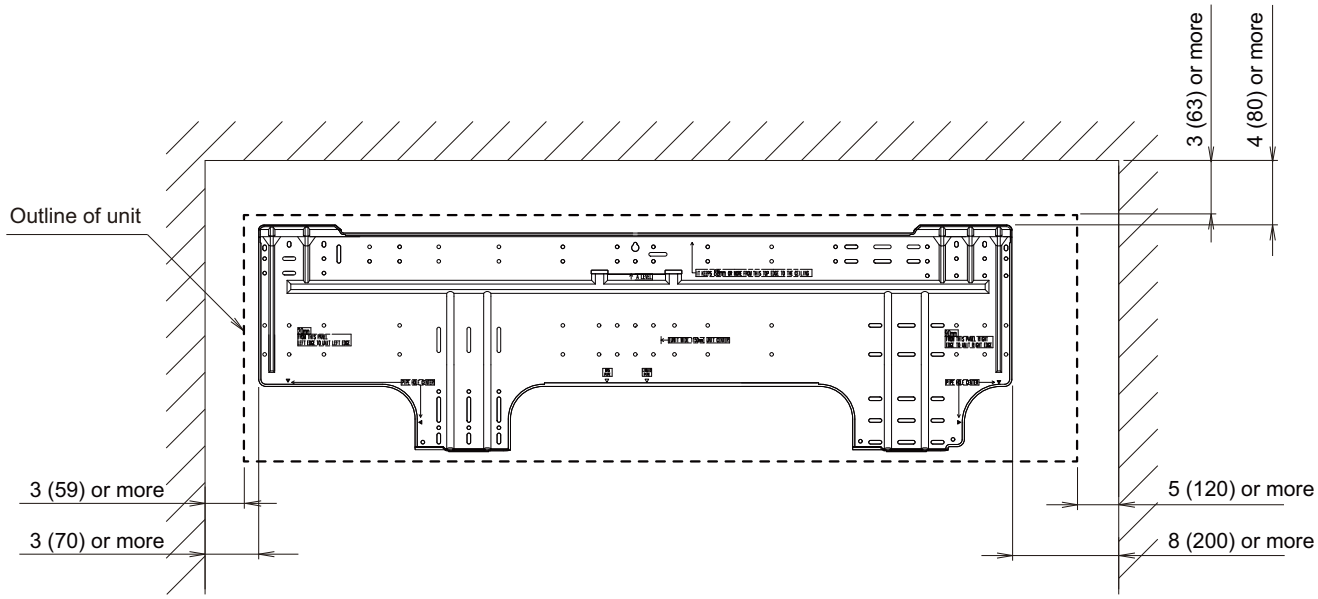


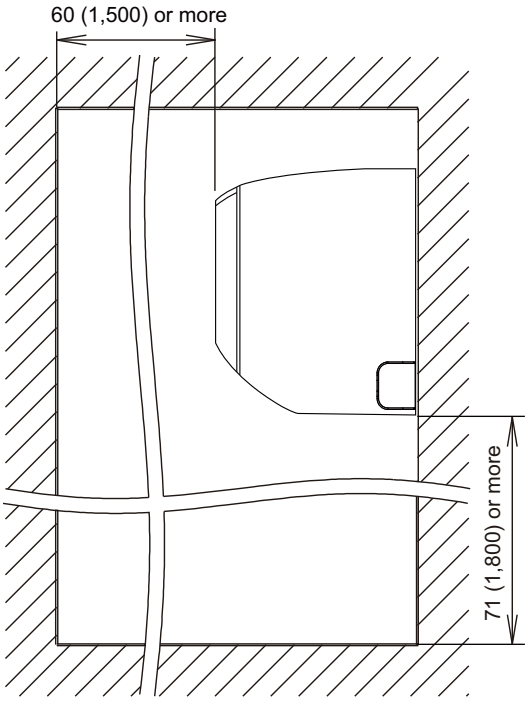


INDOOR UNITS

■ Installation space requirement

Unit: in (mm)

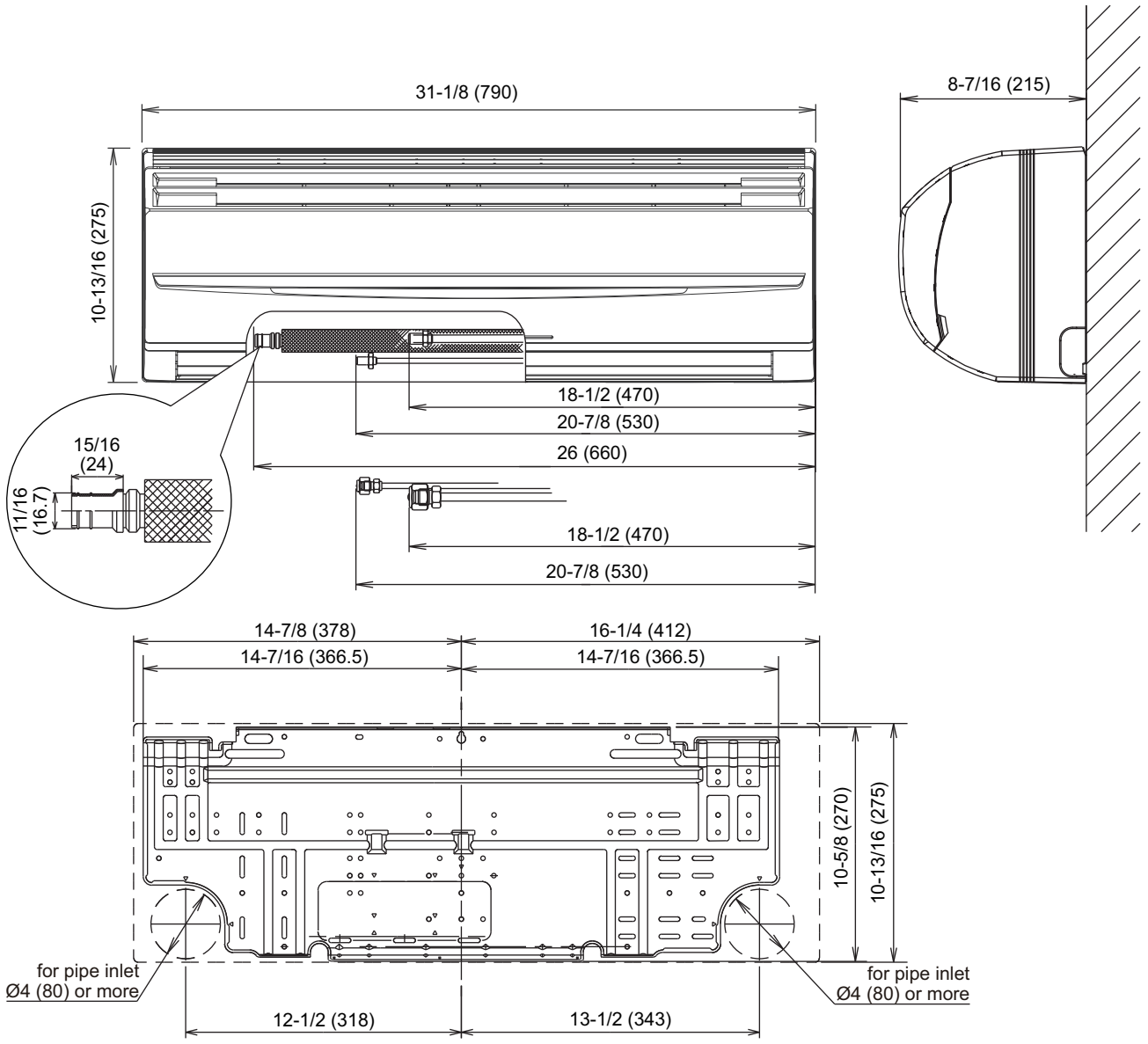




INDOOR UNITS

■ Models: ASUA7TLAV, ASUA9TLAV, ASUA12TLAV , and ASUA14TLAV

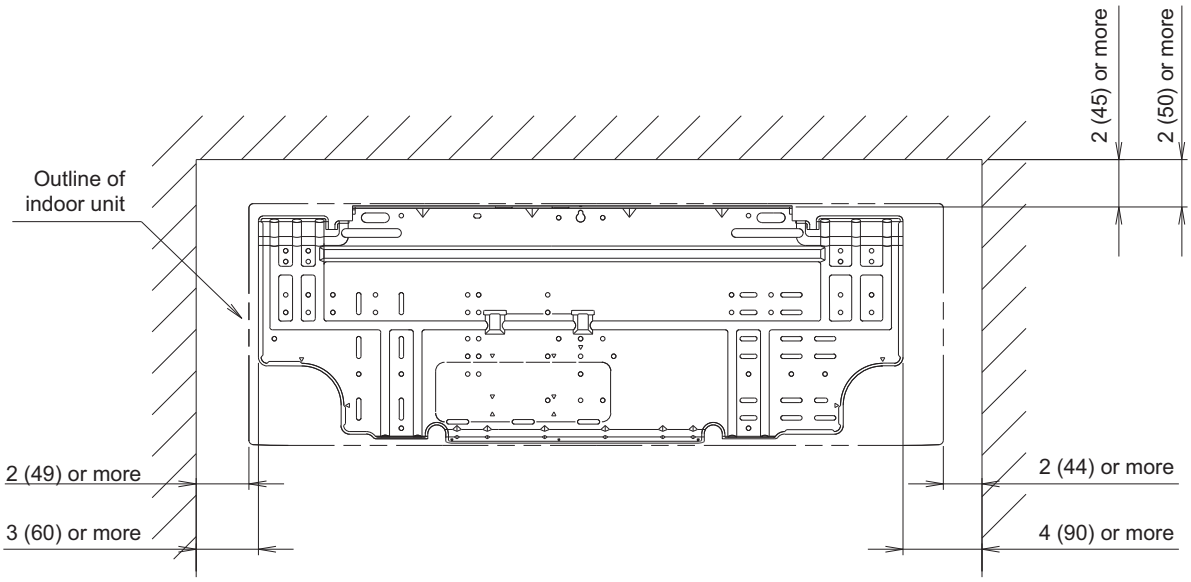
Unit: in (mm)

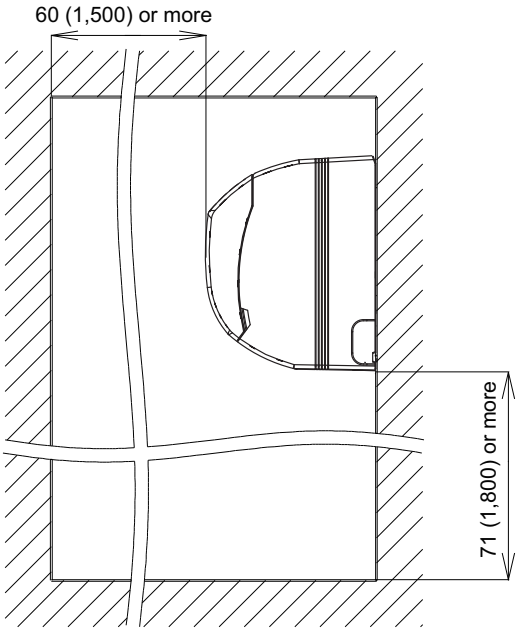


INDOOR UNITS

■ Installation space requirement

Unit: in (mm)

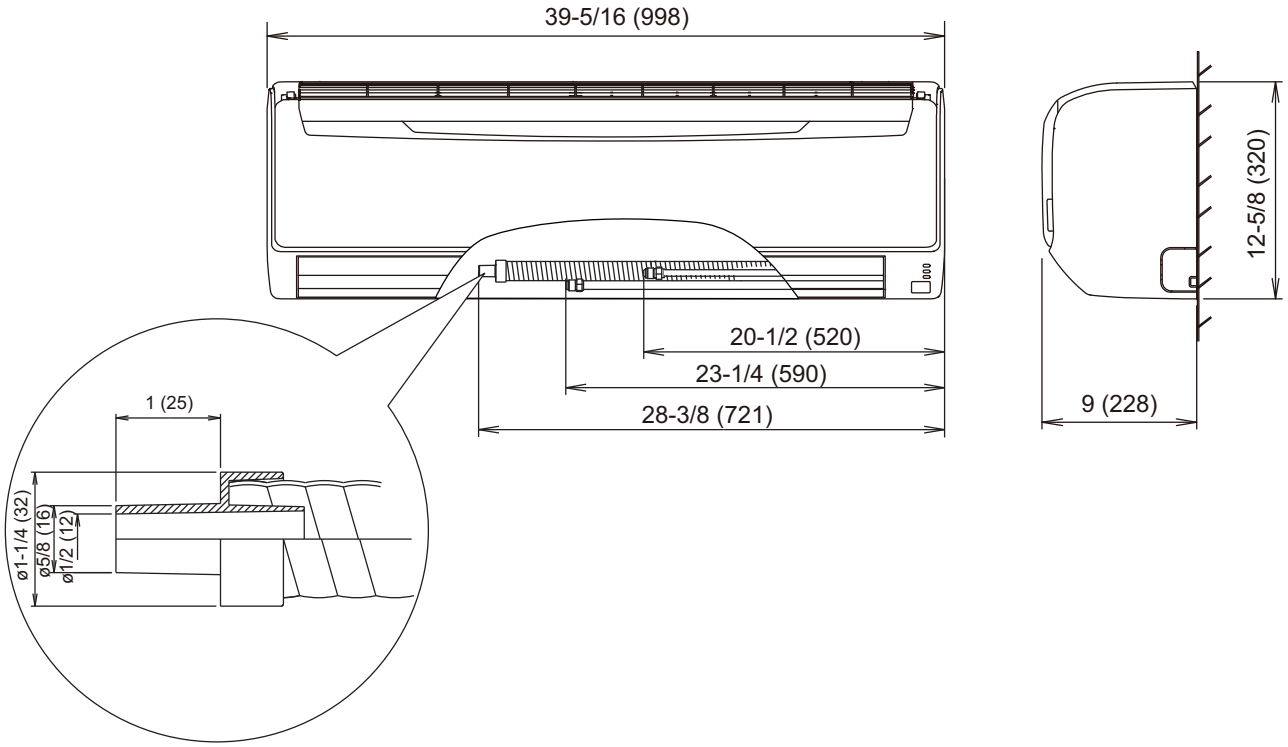


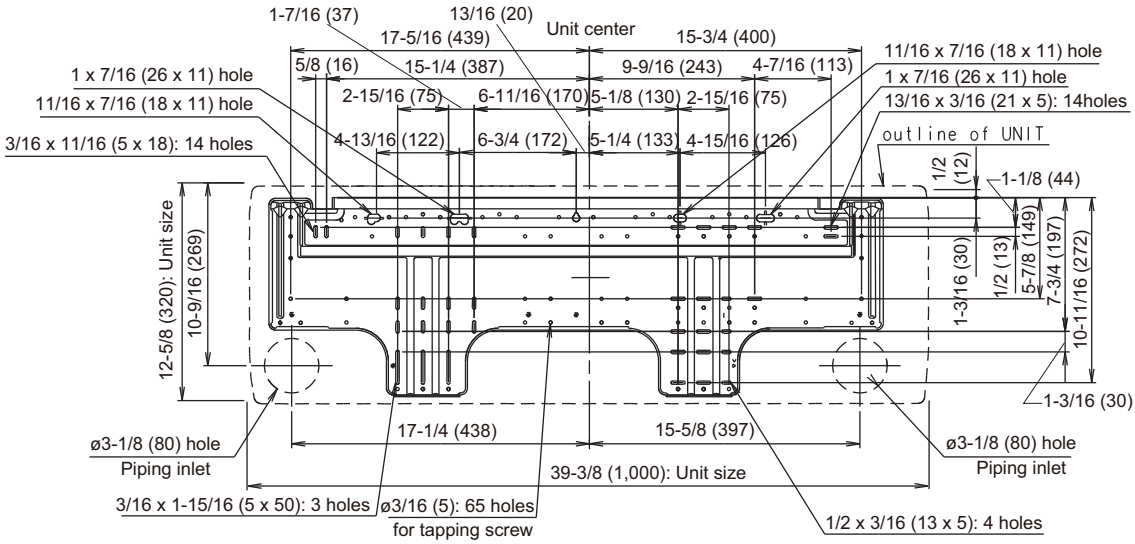


INDOOR UNITS

■ Models: ASUB18TLAV and ASUB24TLAV

Unit: in (mm)





INDOOR UNITS

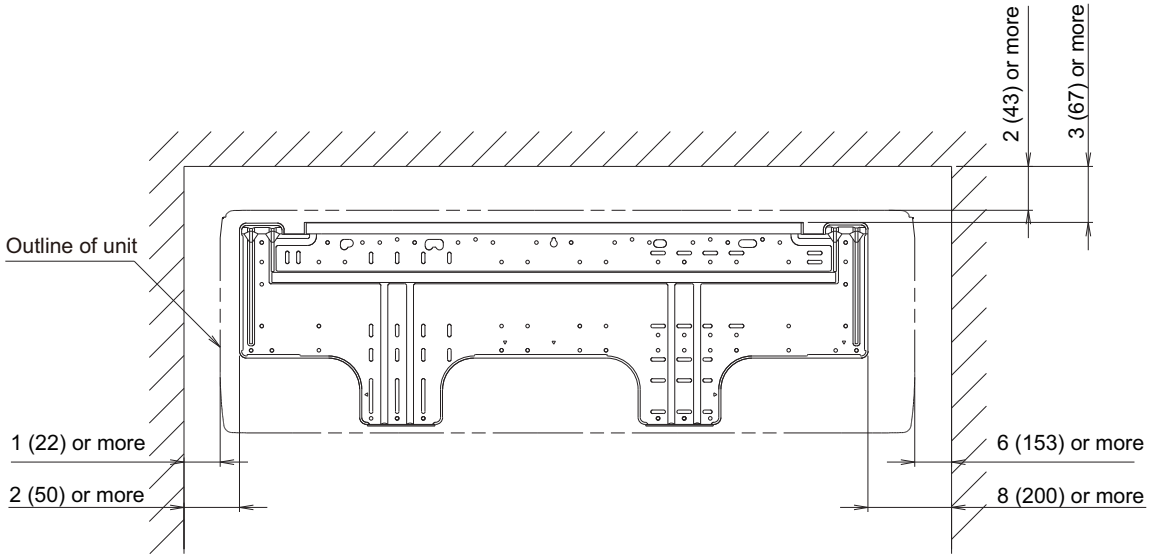
■ Installation space requirement

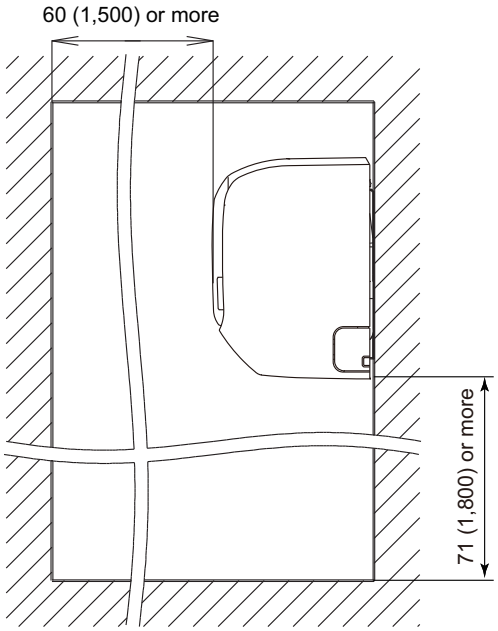
Provide sufficient installation space for product safety.

⚠ CAUTION

Do not place any other electrical products or household belongings under the product. Condensation dripping from the product might get them wet, and may cause damage or malfunction to the property.

Unit: in (mm)



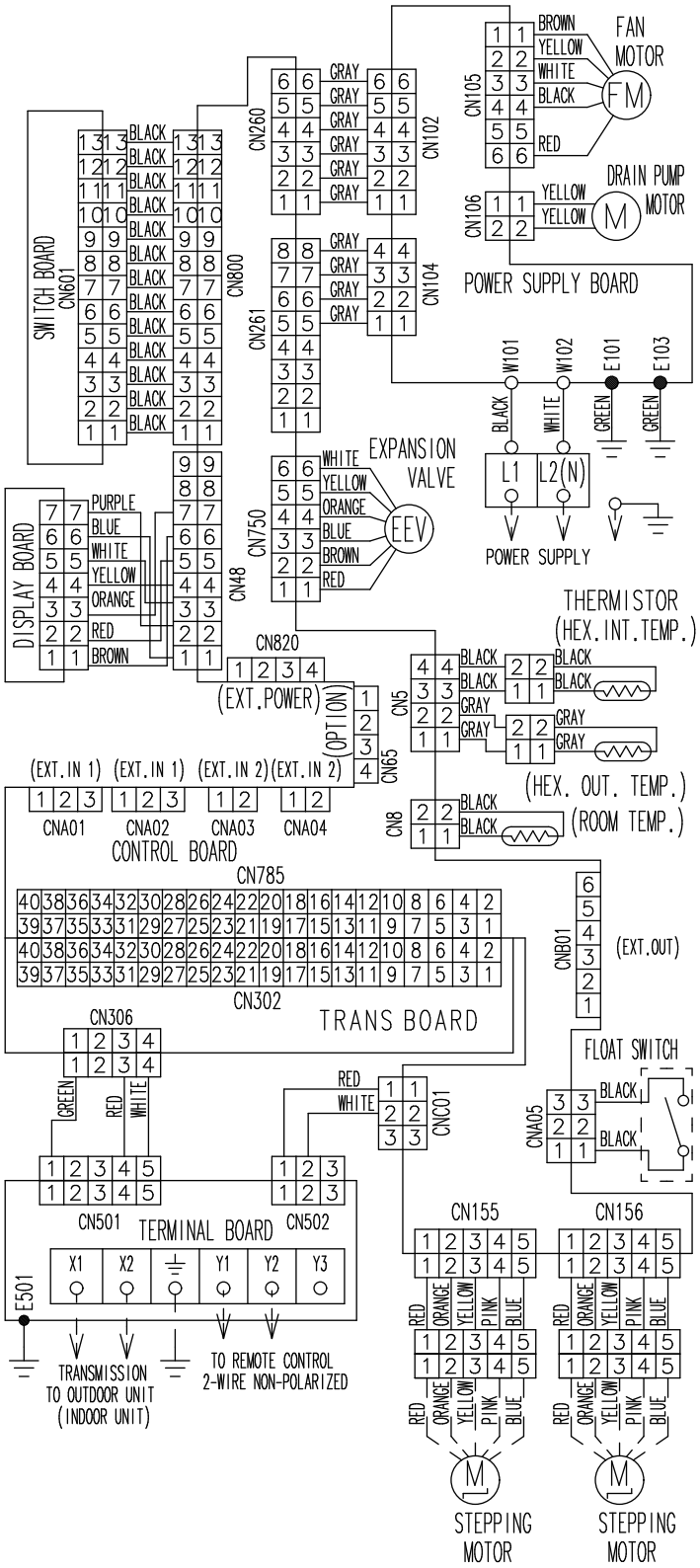


INDOOR UNITS

5. Wiring diagrams

5-1. Compact cassette type

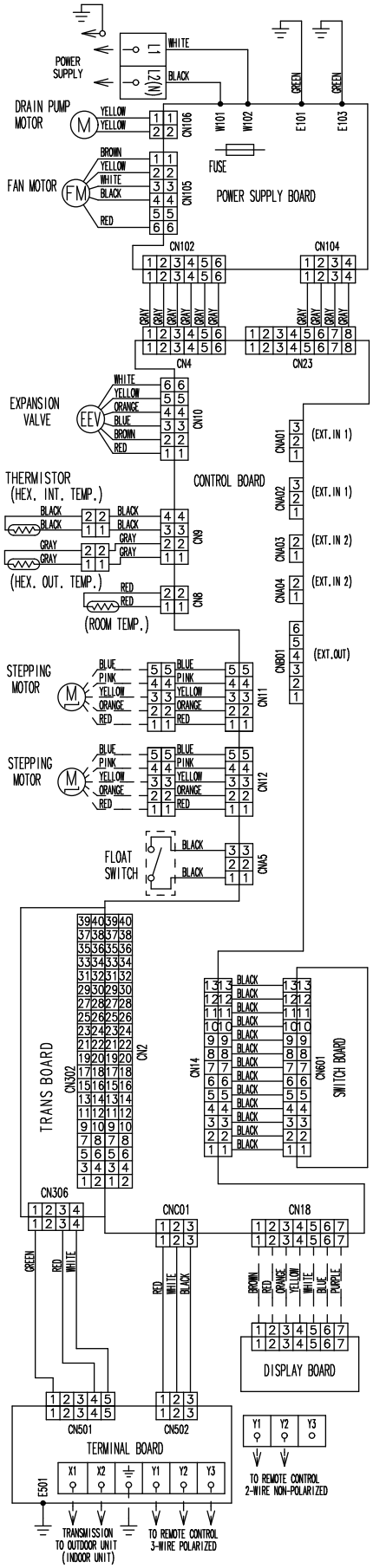
■ Models: AUUA4TLAV2, AUUA7TLAV2, AUUA9TLAV2, AUUA12TLAV2, AUUA14TLAV2, AUUA18TLAV2, and AUUA24TLAV2



INDOOR UNITS

5-2. 4-way flow cassette type

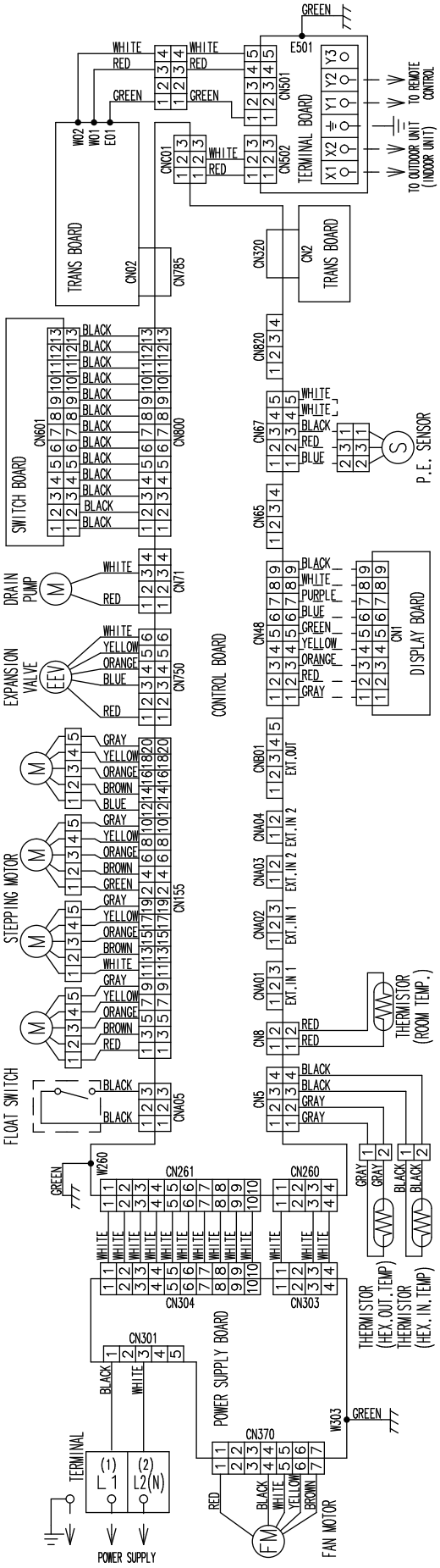
■ Models: AUUB18TLAV, AUUB24TLAV, AUUB30TLAV and AUUB36TLAV



INDOOR UNITS

5-3. Circular flow cassette type

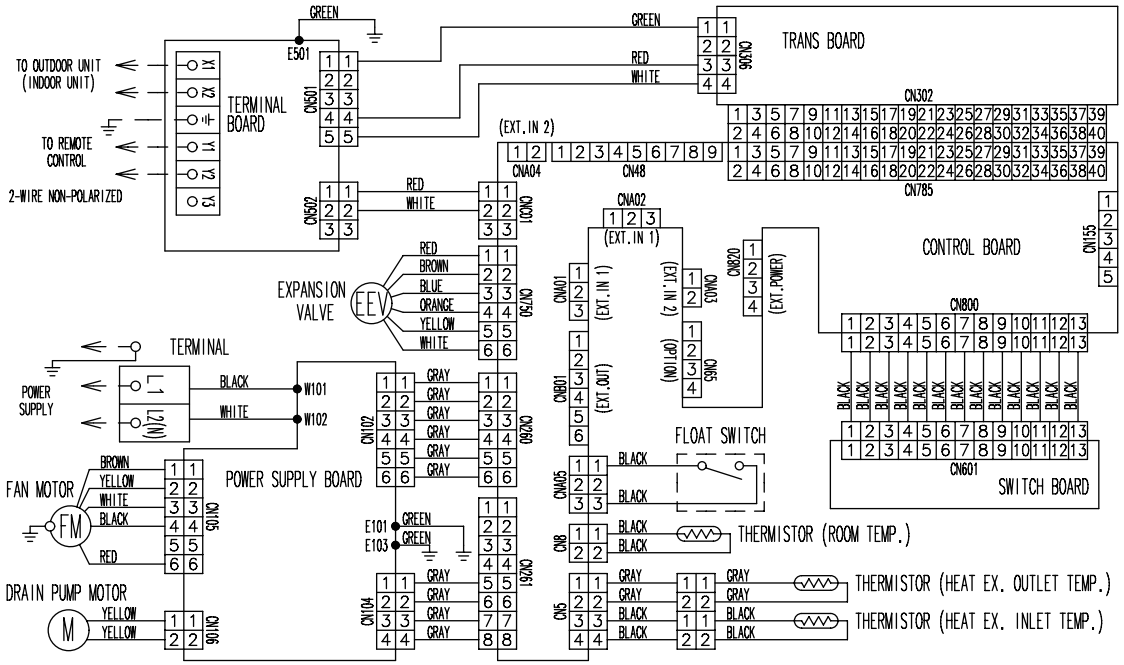
■ Models: AUUB18TLAV2, AUUB24TLAV2, AUUB30TLAV2, AUUB36TLAV2, and AUUB48TLAV2



INDOOR UNITS

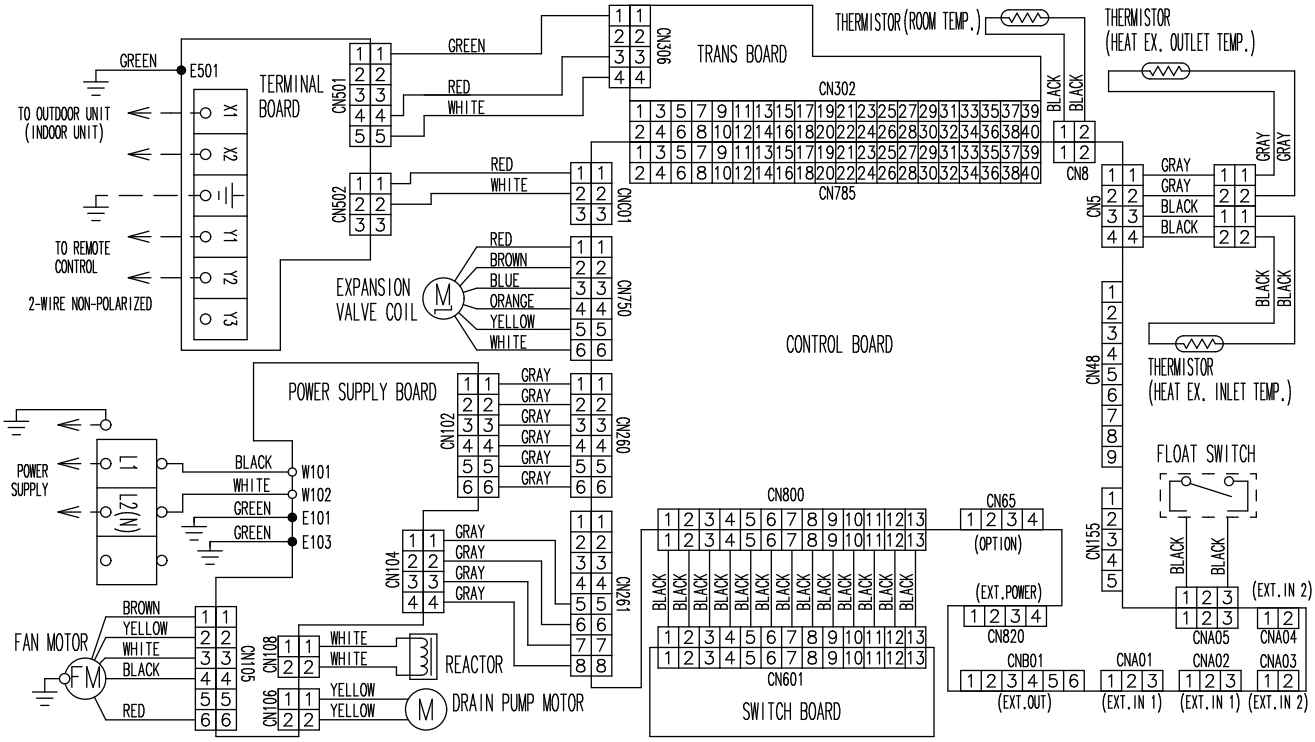
5-4. Mini duct type

■ Model: ARUL4TLAV2



5-5. Slim duct/Slim concealed floor type

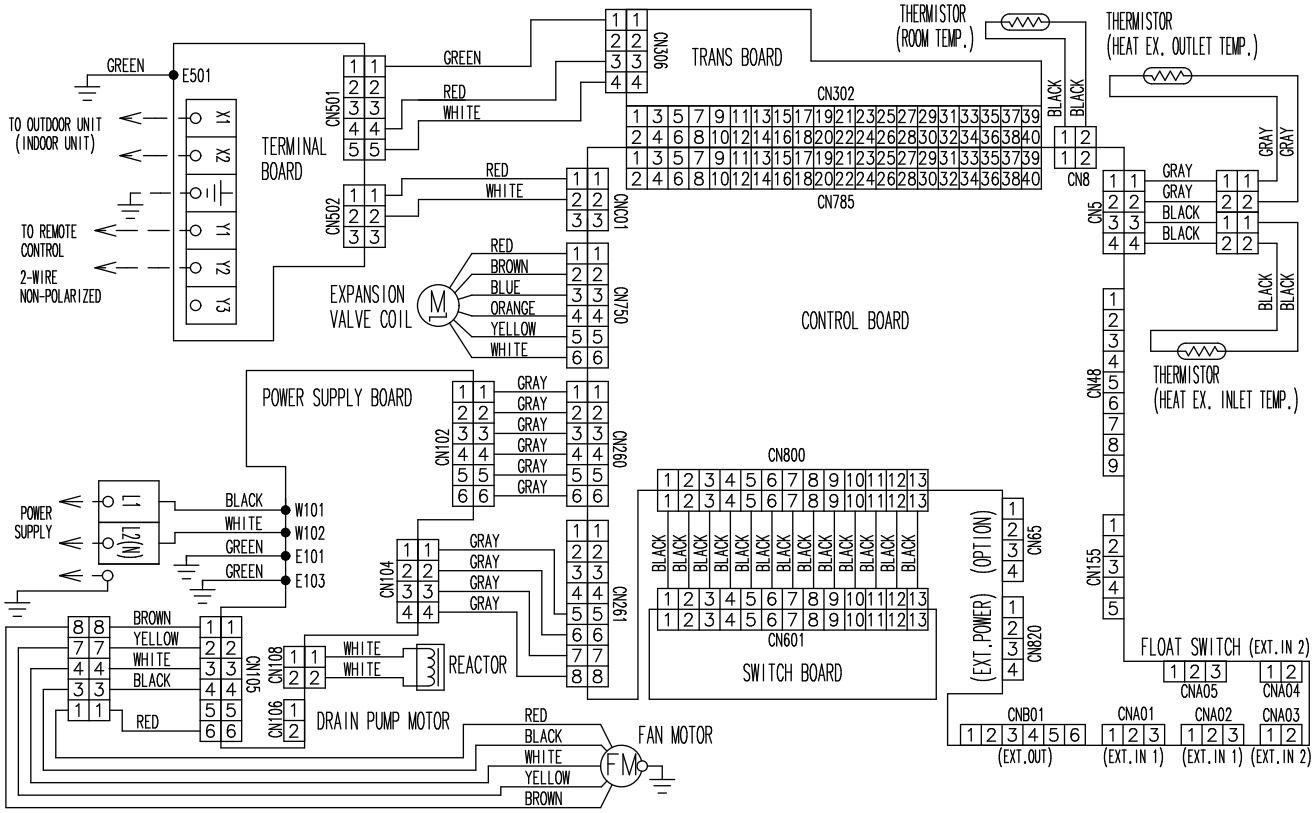
■ Models: ARUL7TLAV2, ARUL9TLAV2, ARUL12TLAV2, ARUL14TLAV2, and ARUL18TLAV2



INDOOR UNITS

5-6. Medium static pressure duct type

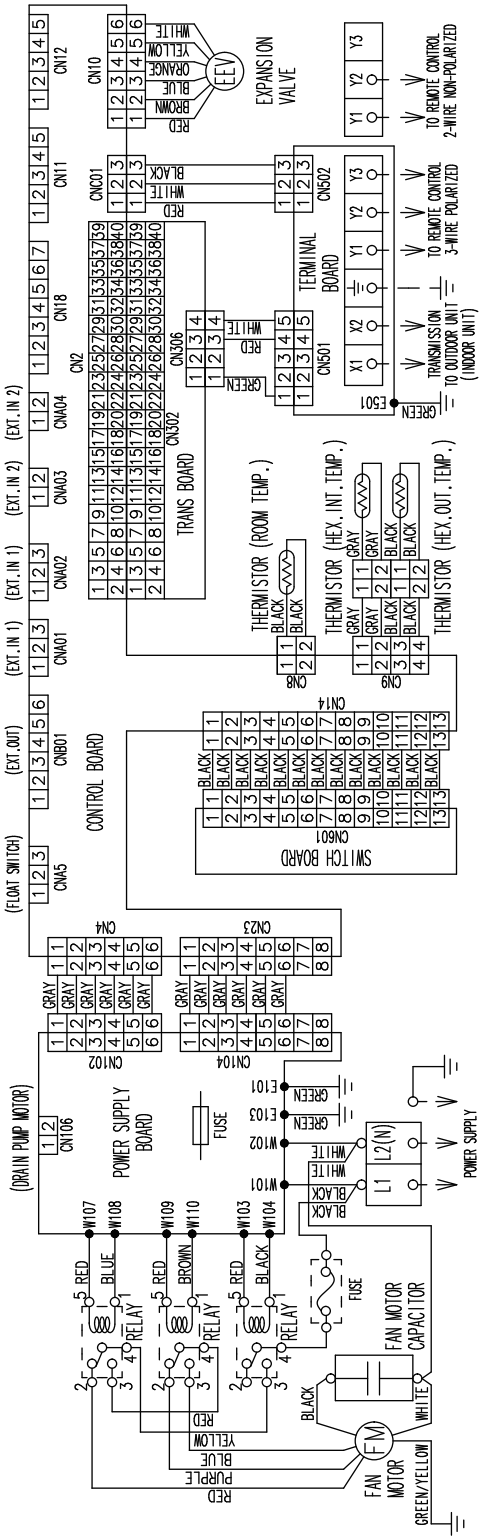
■ Models: ARUM24TLAV2, ARUM30TLAV2, and ARUM36TLAV2



INDOOR UNITS

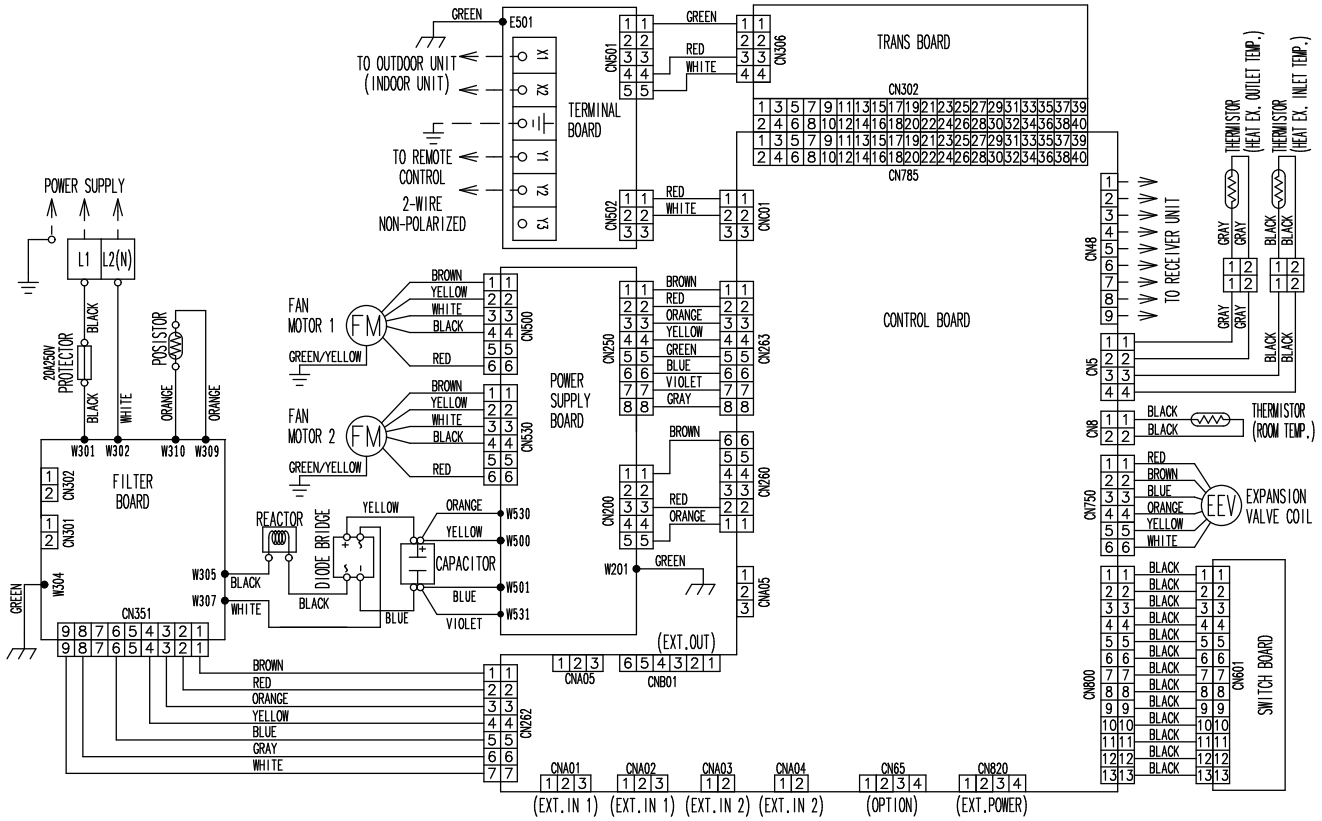
5-7. High static pressure duct type

■ Models: ARUH36TLAV, ARUH48TLAV, and ARUH60TLAV



INDOOR UNITS

■ Models: ARUH72TLAV2 and ARUH96TLAV2

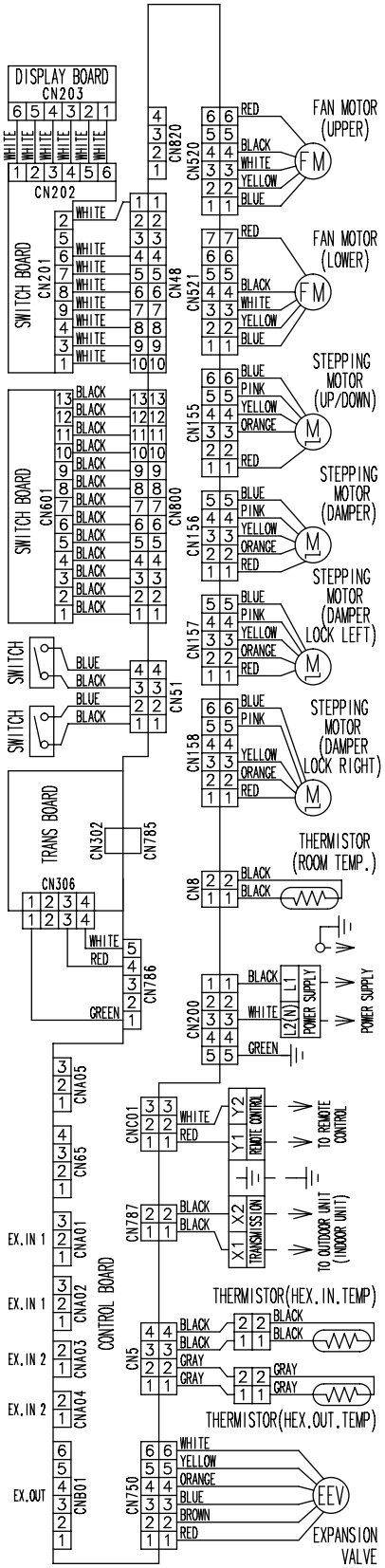


INDOOR UNITS

5-8. Compact floor type

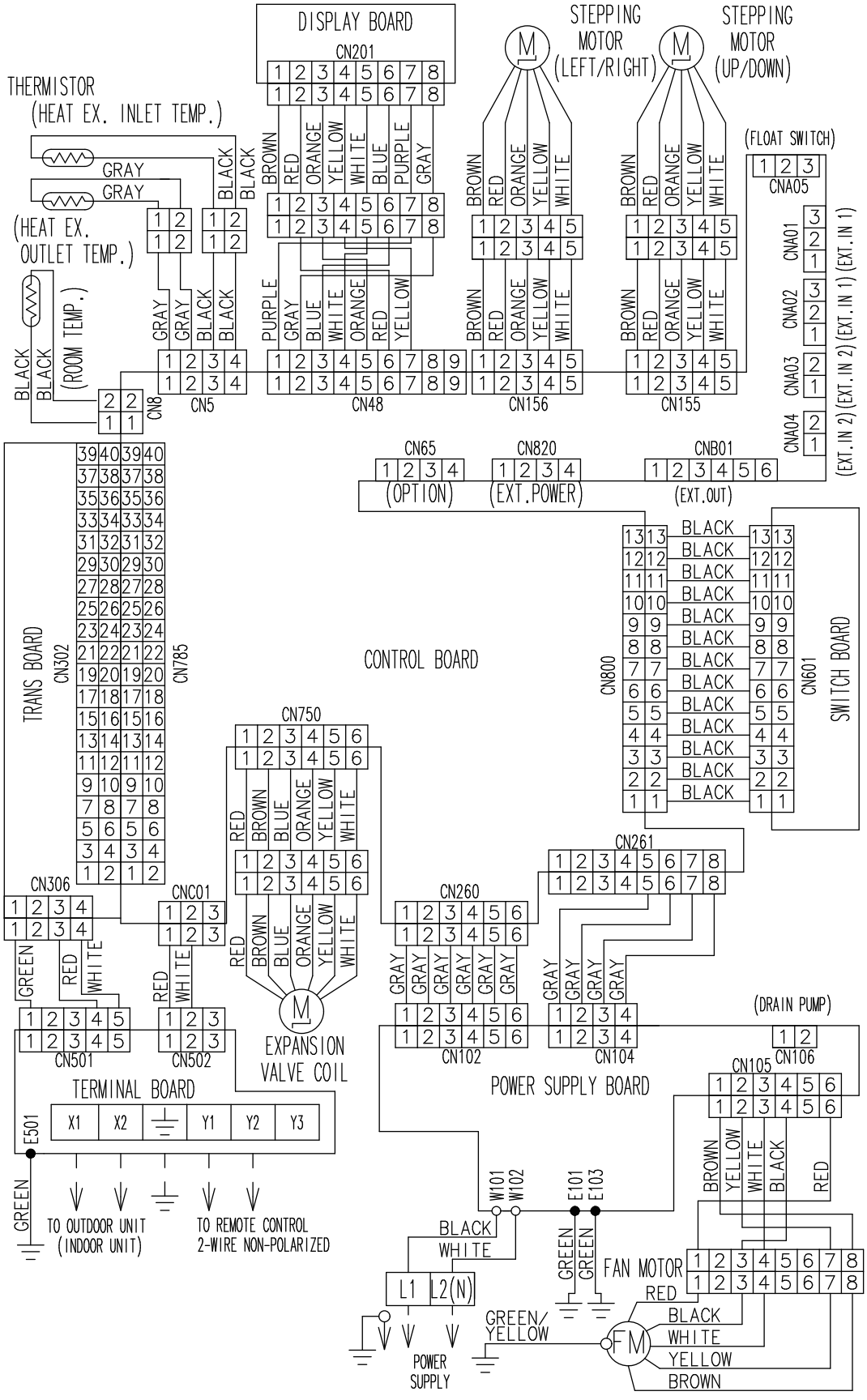
■ Models: AGUA4TLAV2, AGUA7TLAV2, AGUA9TLAV2, AGUA12TLAV2, and AGUA14TLAV2

INDOOR UNITS



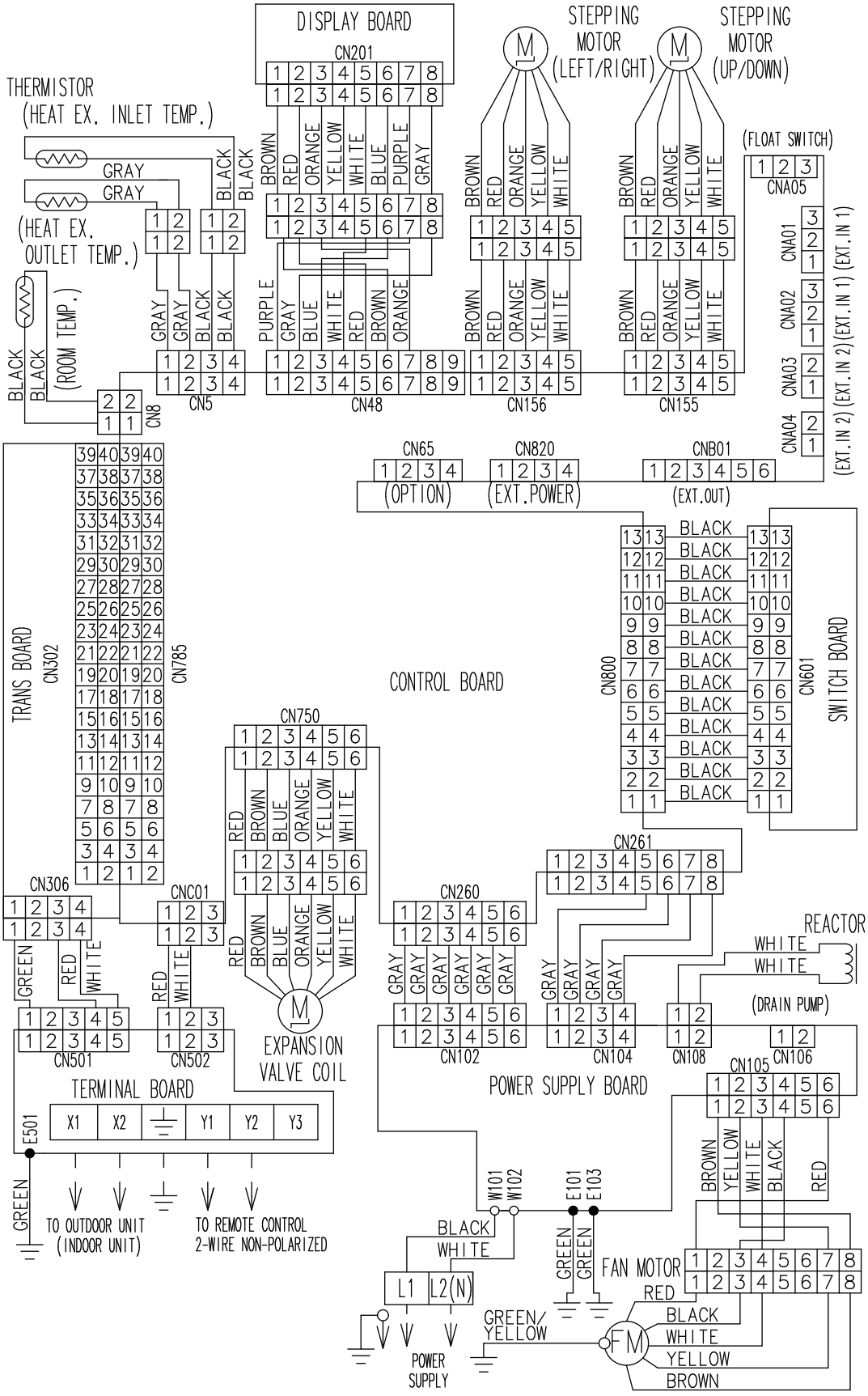
5-9. Floor/Ceiling type

■ Models: ABUA12TLAV2, ABUA14TLAV2, ABUA18TLAV2, and ABUA24TLAV2



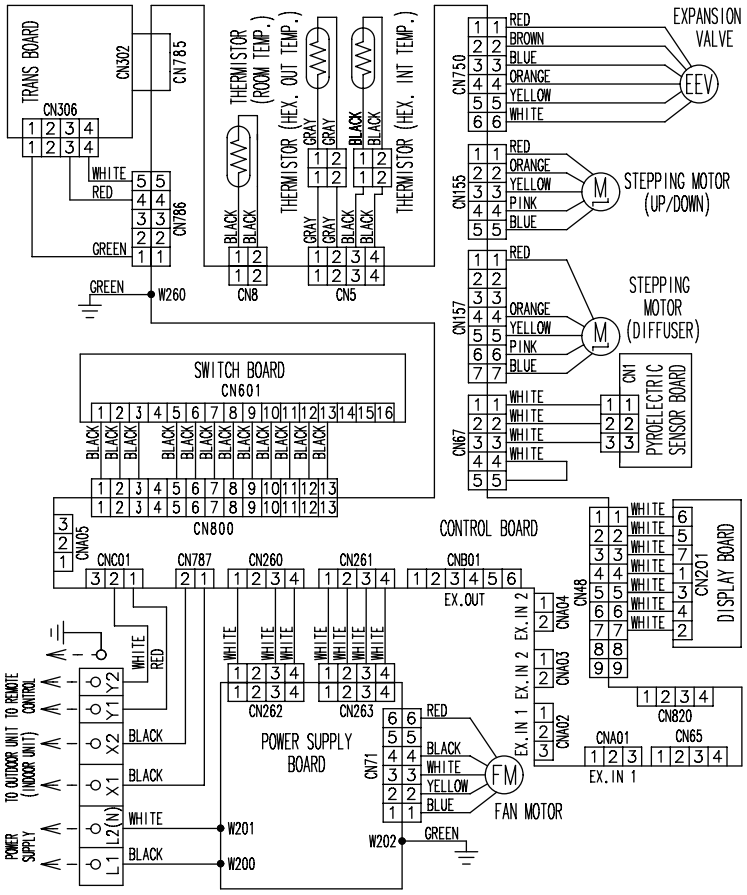
5-10. Ceiling type

■ Models: ABUA30TLAV2 and ABUA36TLAV2



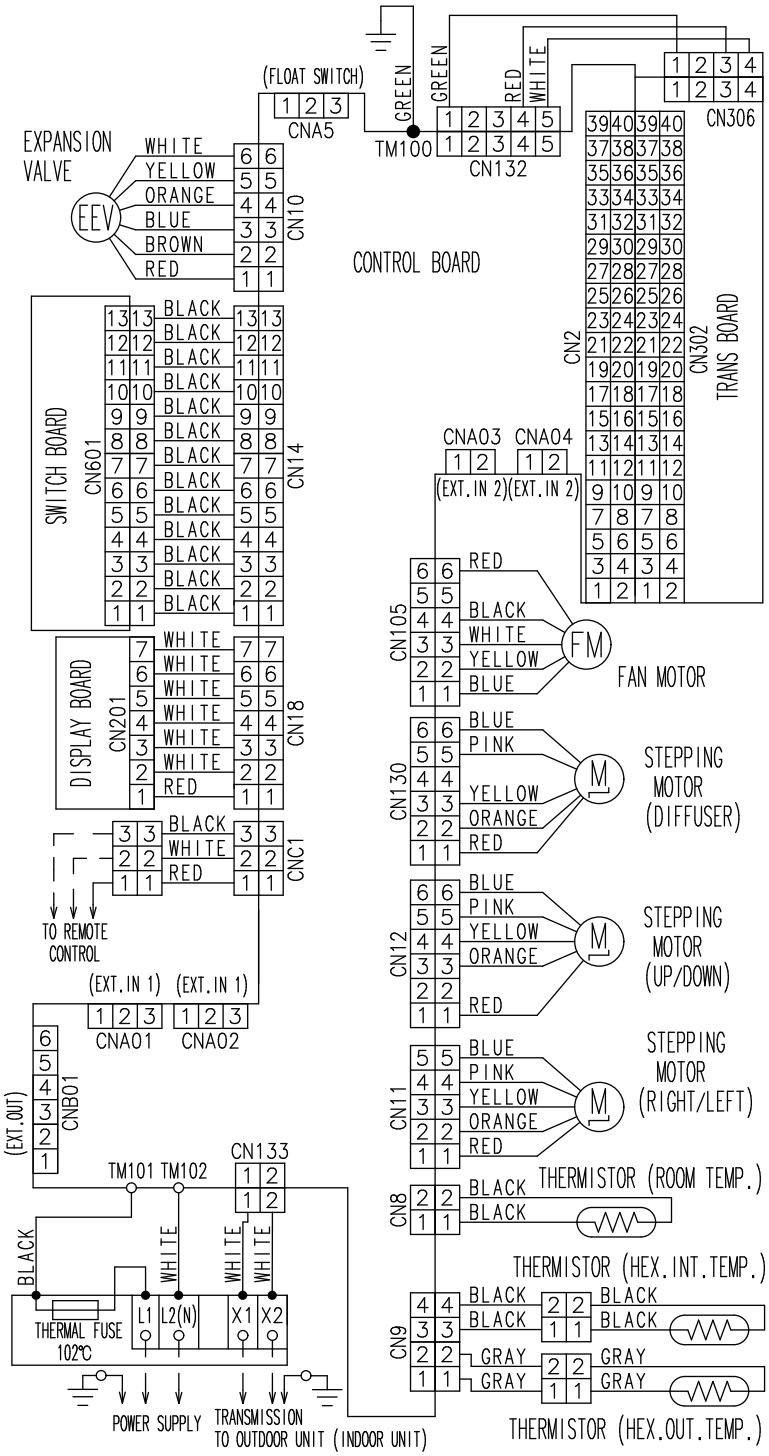
5-11. Wall mounted type

■ Models: ASUA4TLAV2, ASUA7TLAV2, ASUA9TLAV2, ASUA12TLAV2, and ASUA14TLAV2



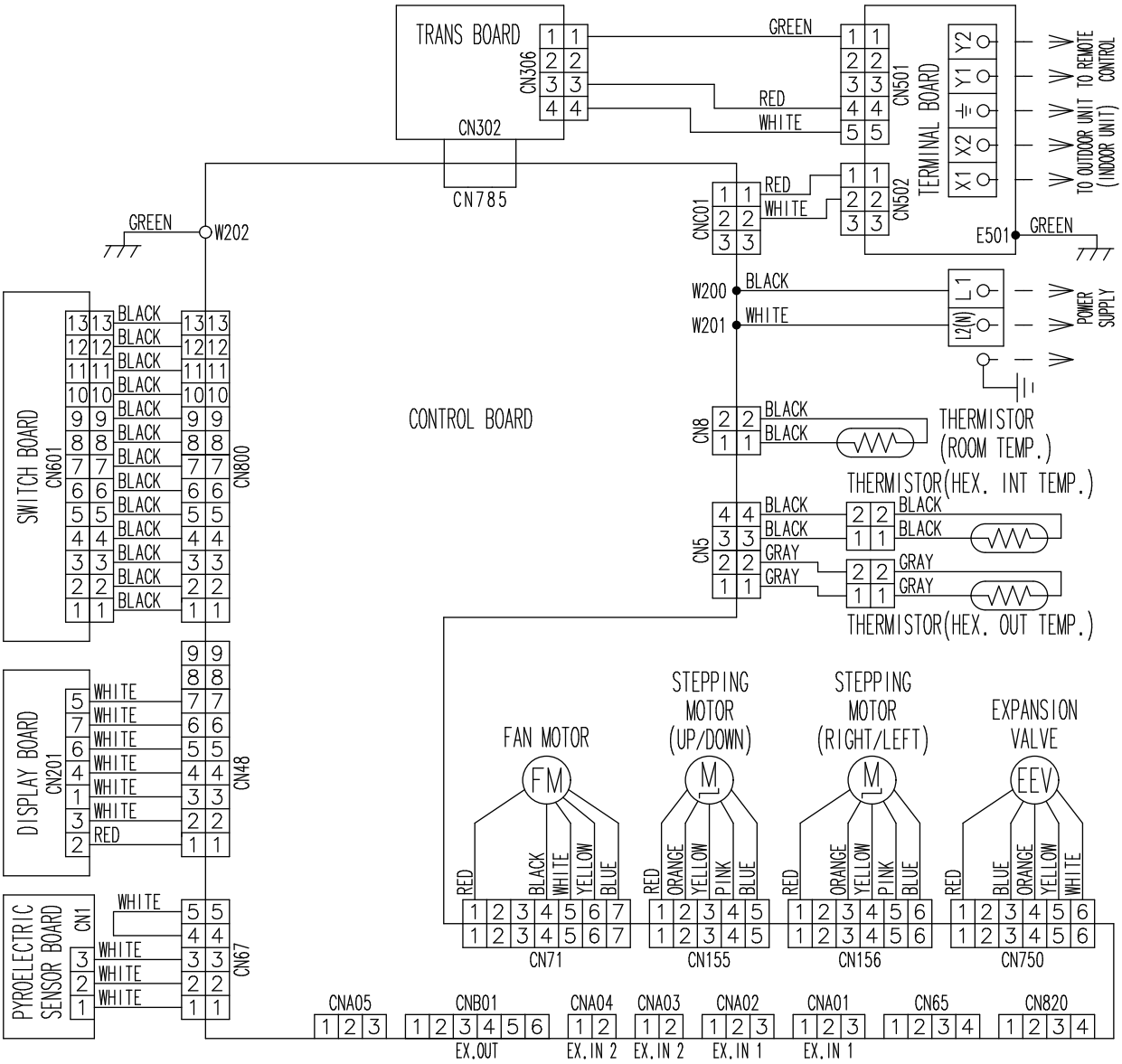
INDOOR UNITS

■ Models: ASUB18TLAV1, ASUB24TLAV1, ASUB18TLAV, and ASUB24TLAV



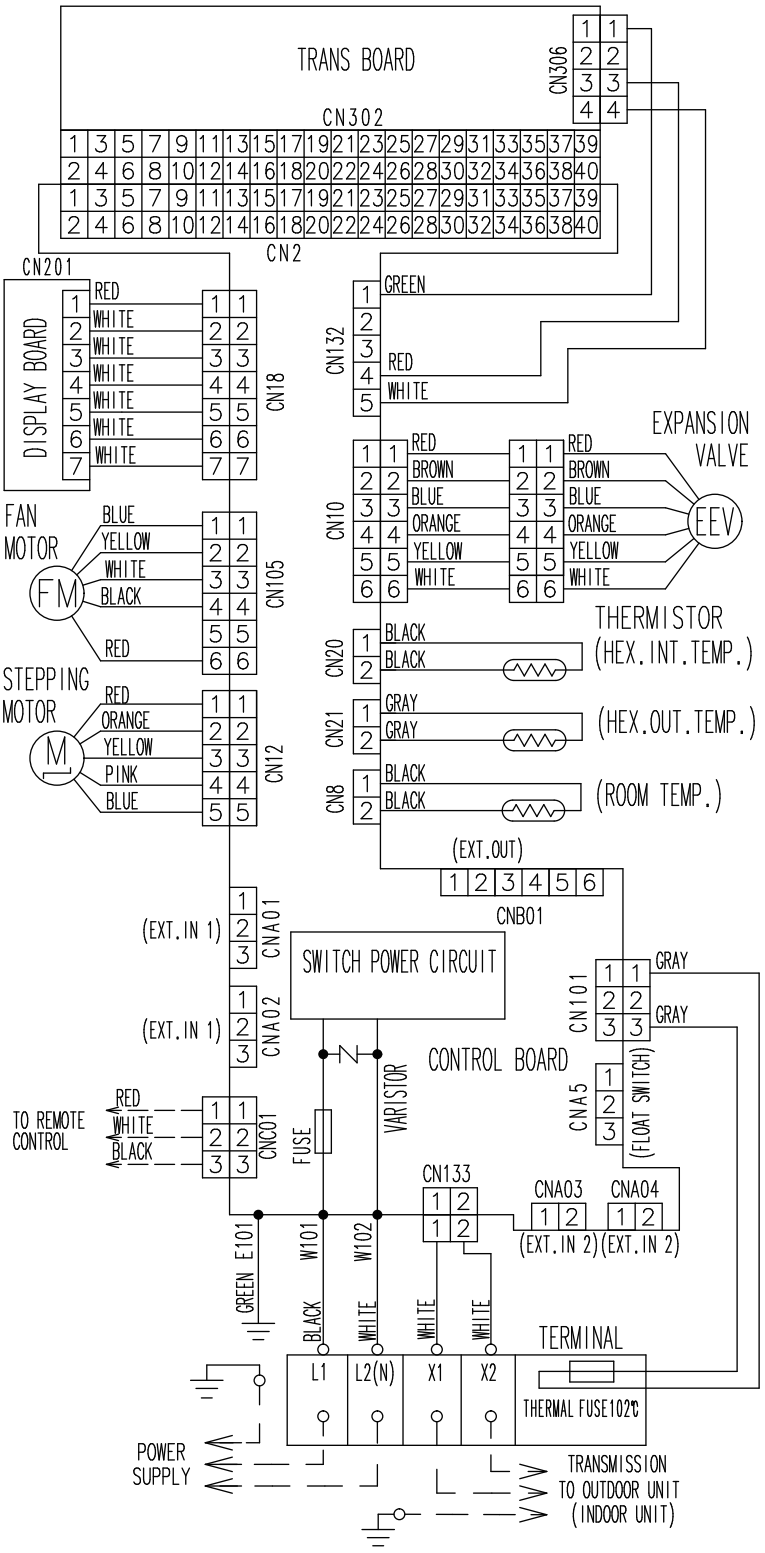
INDOOR UNITS

■ Models: ASUA30TLAV2 and ASUA36TLAV2



INDOOR UNITS

■ Models: ASUA7TLAV, ASUA9TLAV, ASUA12TLAV , and ASUA14TLAV



INDOOR UNITS

6. Air velocity and temperature distributions

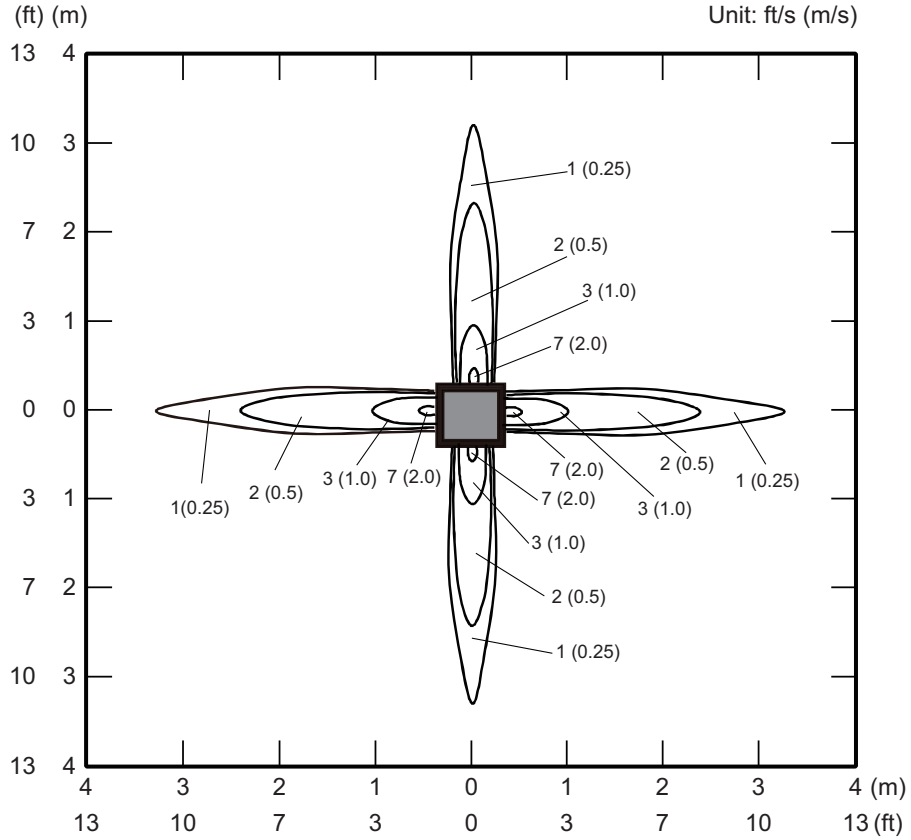
6-1. Compact cassette type

■ Model: AUUA4TLAV2

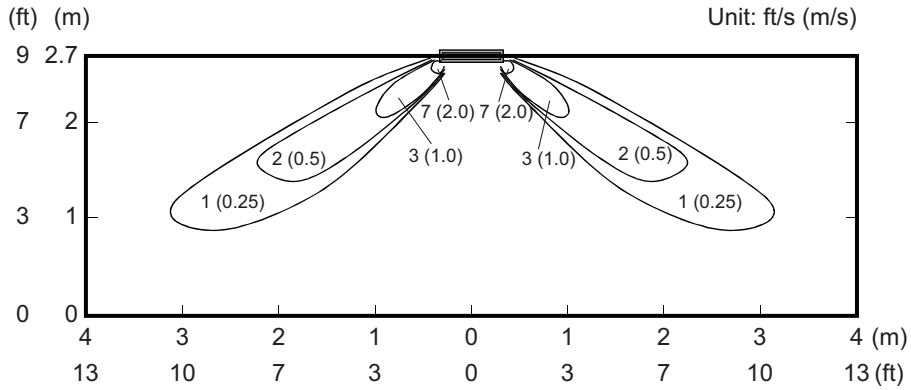
Measuring conditions	Fan speed	Operation mode
	HIGH	FAN

- **Air velocity distribution**

Top view
Vertical airflow direction louver: Up



Side view
Vertical airflow direction louver: Up

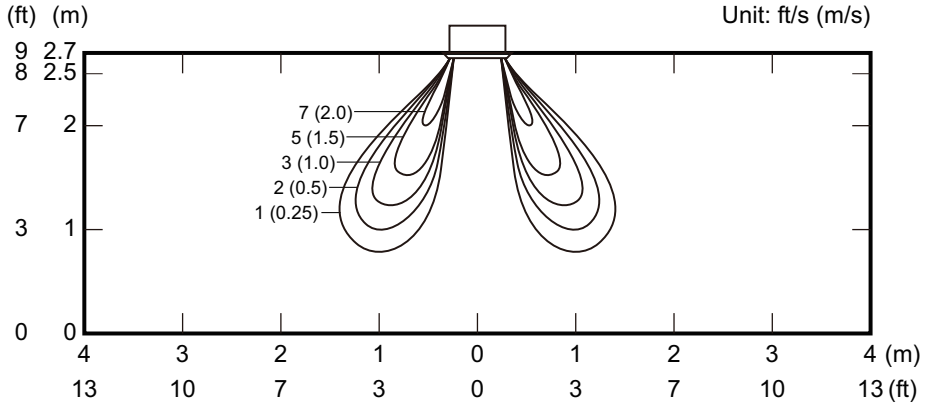


INDOOR UNITS

Measuring conditions	Fan speed	Operation mode
NOTE: Reference data	HIGH	HEAT

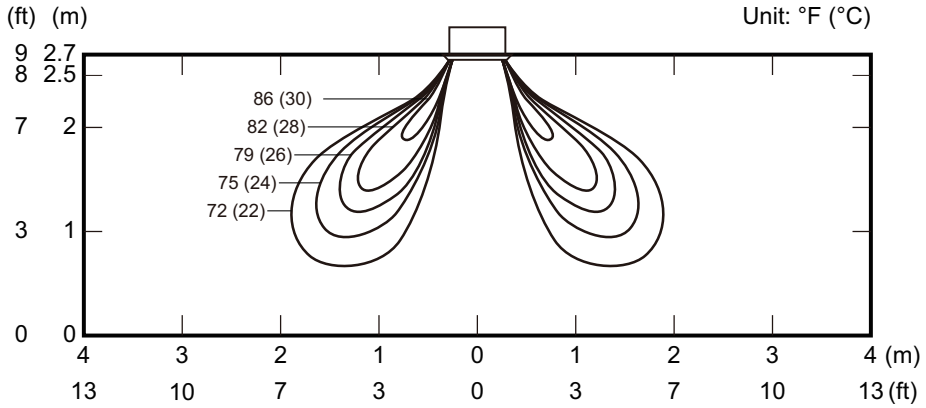
• Air velocity distribution

Side view
Vertical airflow direction louver: Down



• Air temperature distribution

Side view
Vertical airflow direction louver: Down



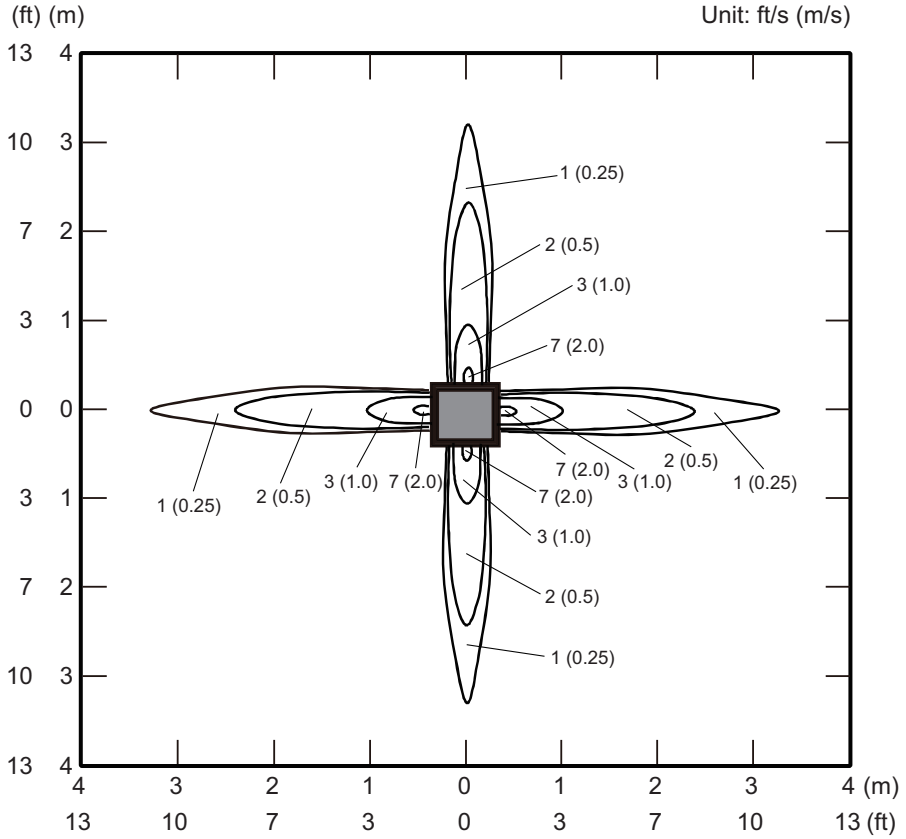
INDOOR UNITS

■ Model: AUUA7TLAV2

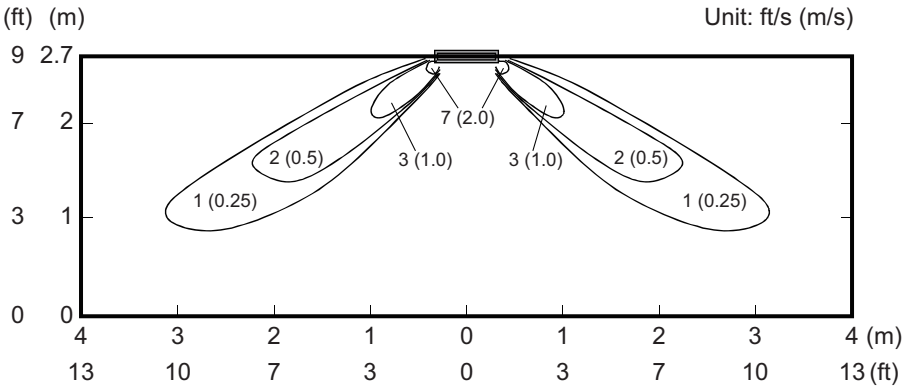
Measuring conditions	Fan speed	Operation mode
	HIGH	FAN

- **Air velocity distribution**

Top view
Vertical airflow direction louver: Up



Side view
Vertical airflow direction louver: Up

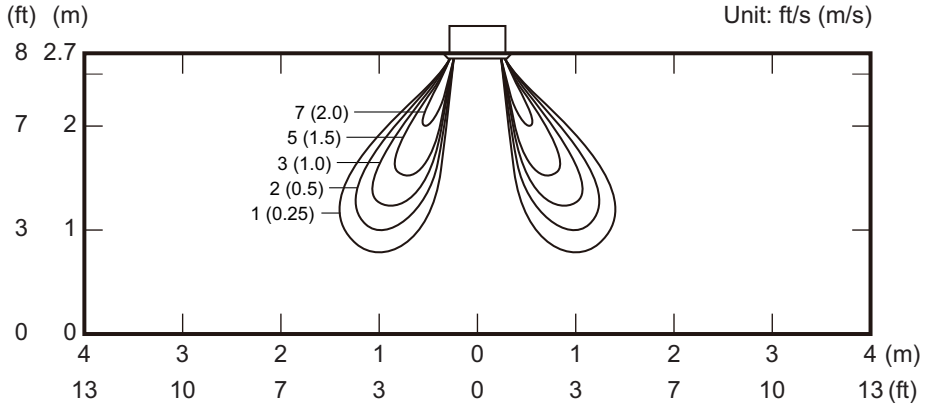


INDOOR UNITS

Measuring conditions	Fan speed	Operation mode
NOTE: Reference data	HIGH	HEAT

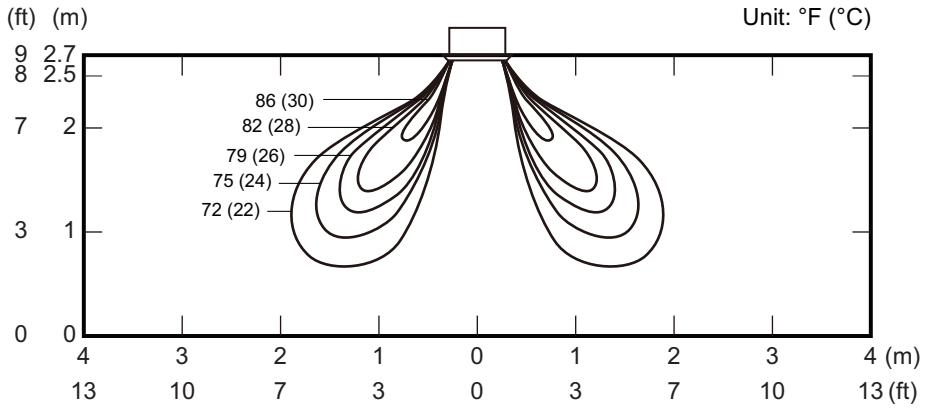
• Air velocity distribution

Side view
Vertical airflow direction louver: Down



• Air temperature distribution

Side view
Vertical airflow direction louver: Down



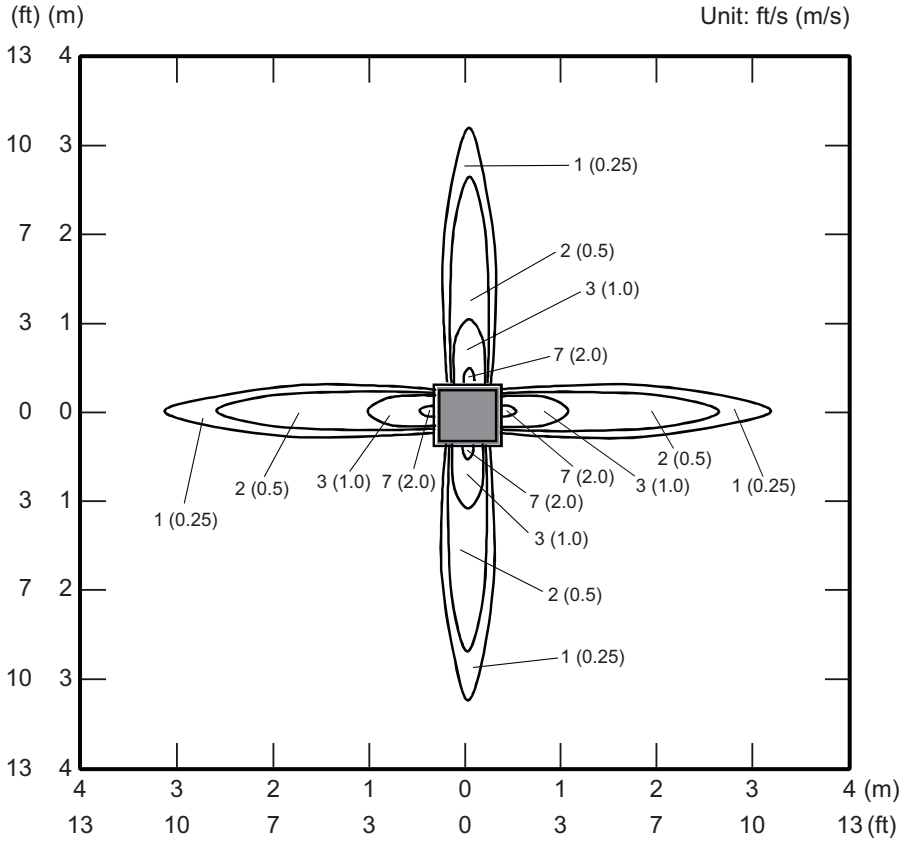
INDOOR UNITS

■ Model: AUUA9TLAV2

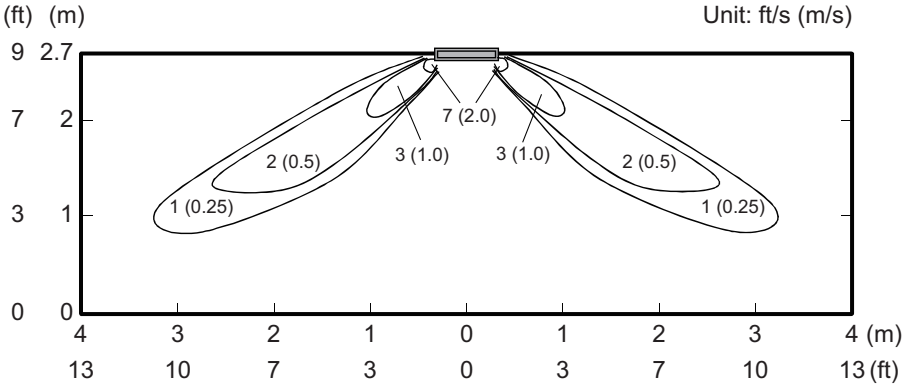
Measuring conditions	Fan speed	Operation mode
	HIGH	FAN

• Air velocity distribution

Top view
Vertical airflow direction louver: Up



Side view
Vertical airflow direction louver: Up

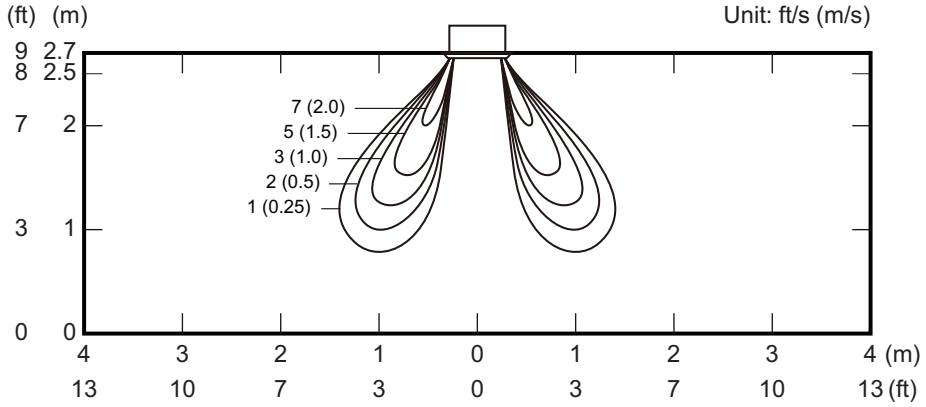


INDOOR UNITS

Measuring conditions	Fan speed	Operation mode
NOTE: Reference data	HIGH	HEAT

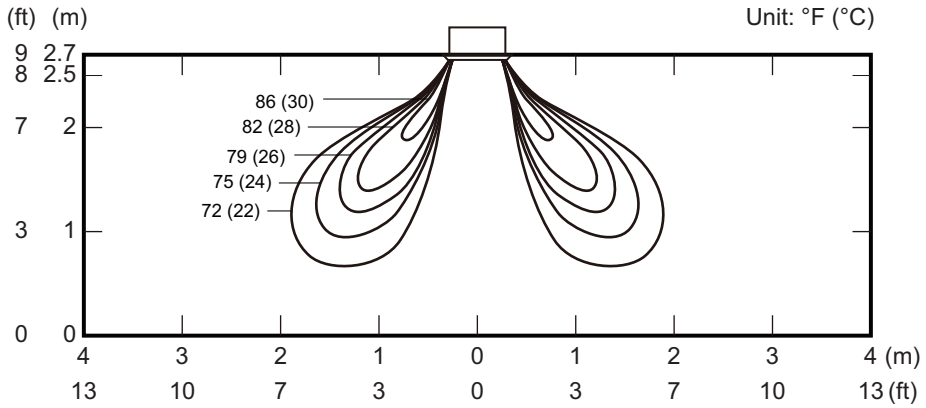
• Air velocity distribution

Side view
Vertical airflow direction louver: Down



• Air temperature distribution

Side view
Vertical airflow direction louver: Down



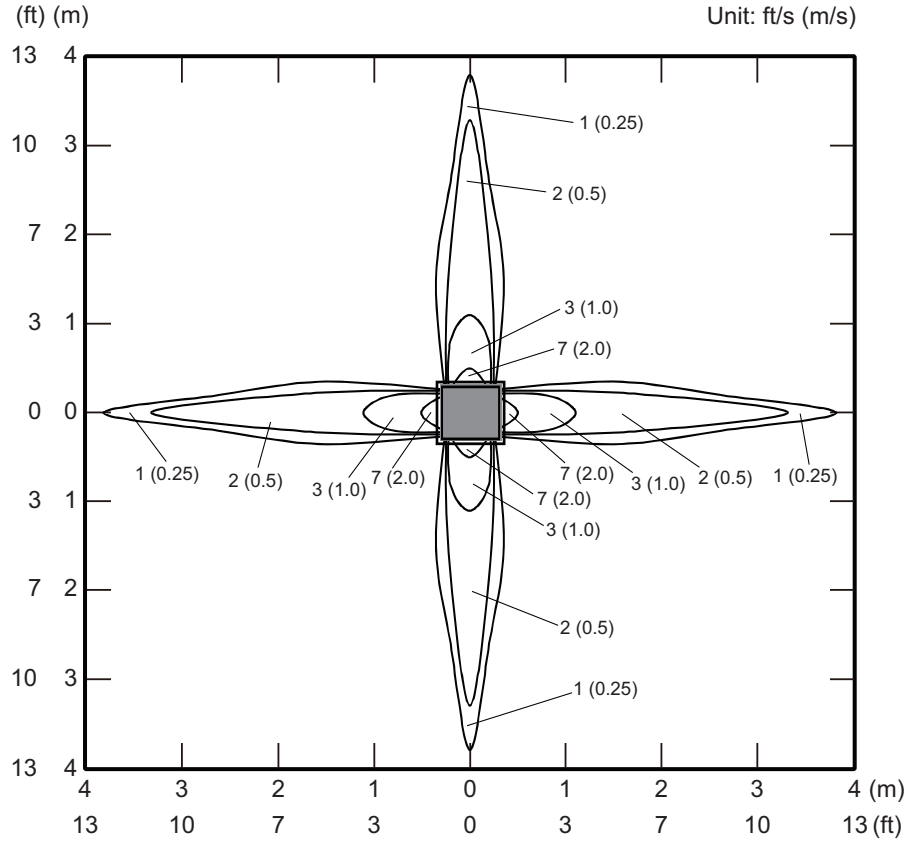
INDOOR UNITS

■ Model: AUUA12TLAV2

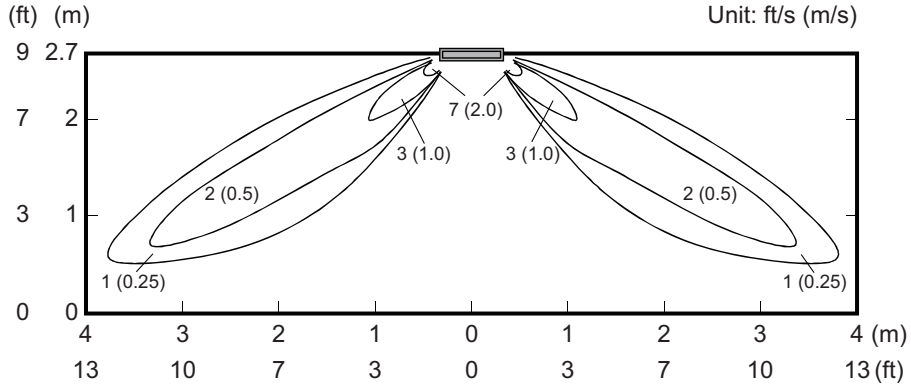
Measuring conditions	Fan speed	Operation mode
	HIGH	FAN

- **Air velocity distribution**

Top view
Vertical airflow direction louver: Up



Side view
Vertical airflow direction louver: Up

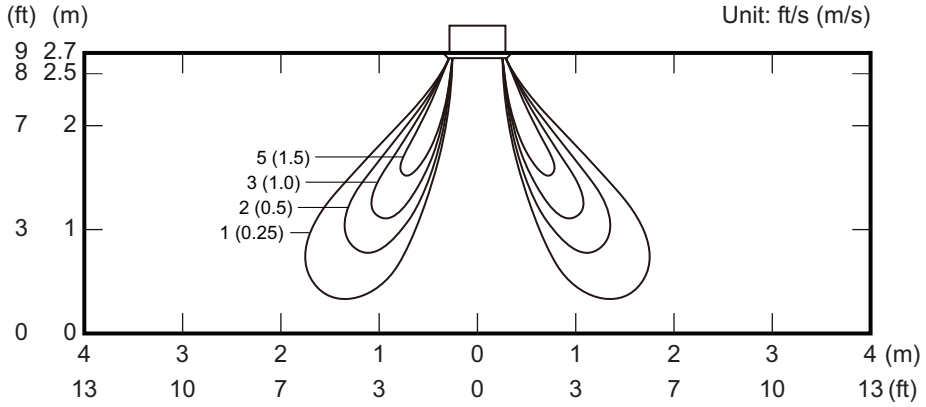


INDOOR UNITS

Measuring conditions	Fan speed	Operation mode
NOTE: Reference data	HIGH	HEAT

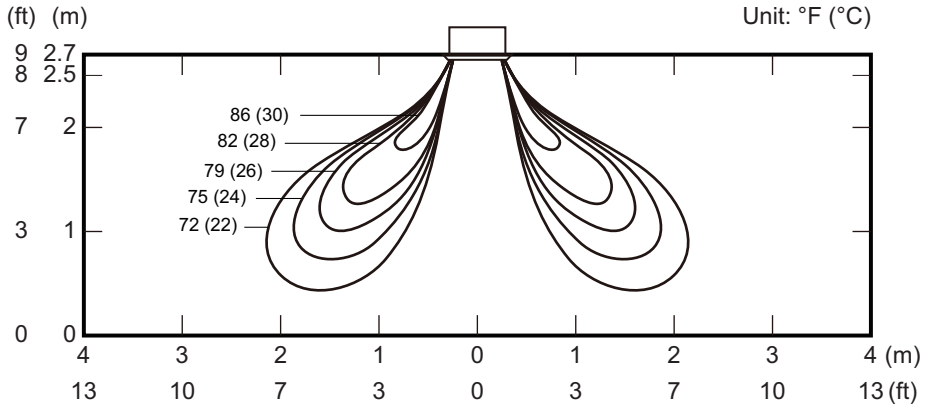
• Air velocity distribution

Side view
Vertical airflow direction louver: Down



• Air temperature distribution

Side view
Vertical airflow direction louver: Down



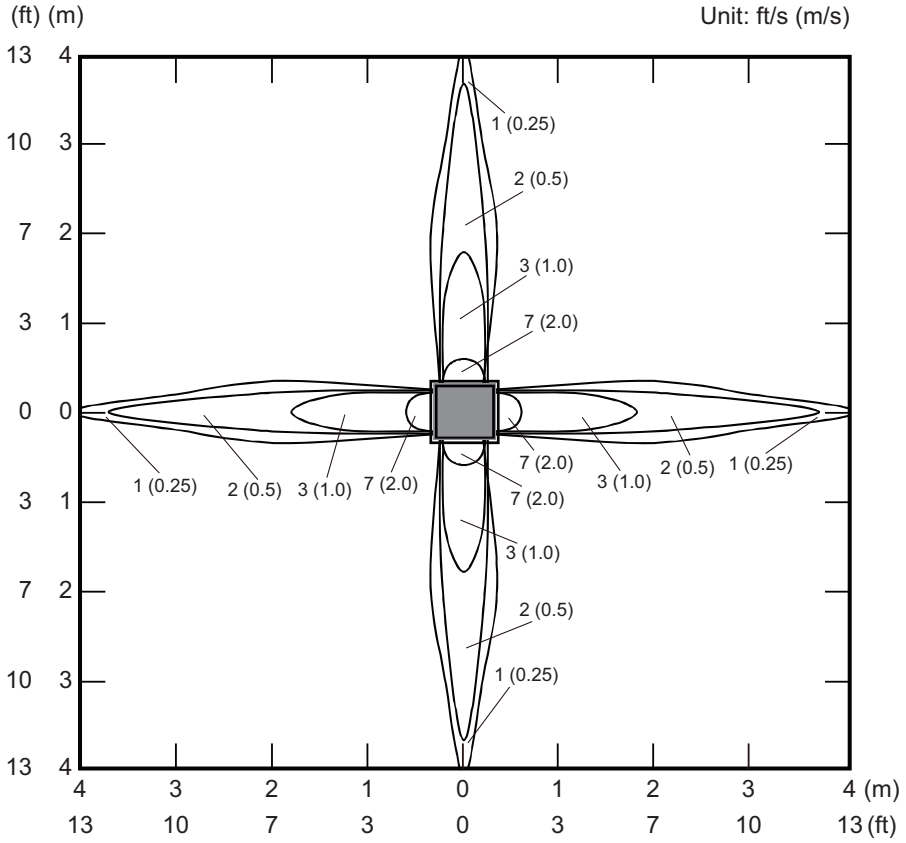
INDOOR UNITS

■ Model: AUUA14TLAV2

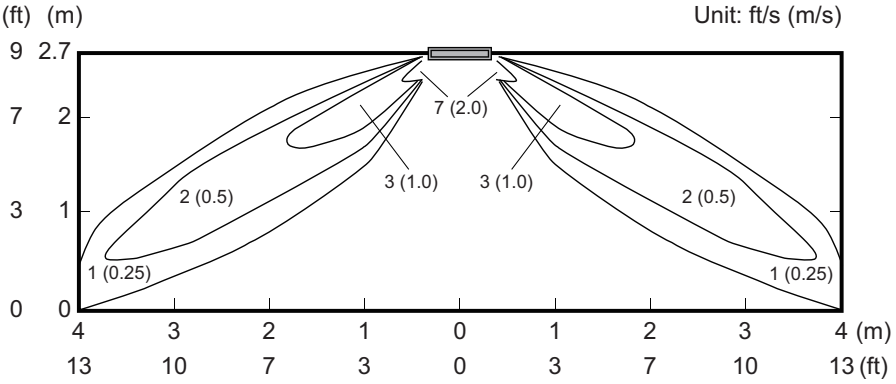
Measuring conditions	Fan speed	Operation mode
	HIGH	FAN

- **Air velocity distribution**

Top view
Vertical airflow direction louver: Up



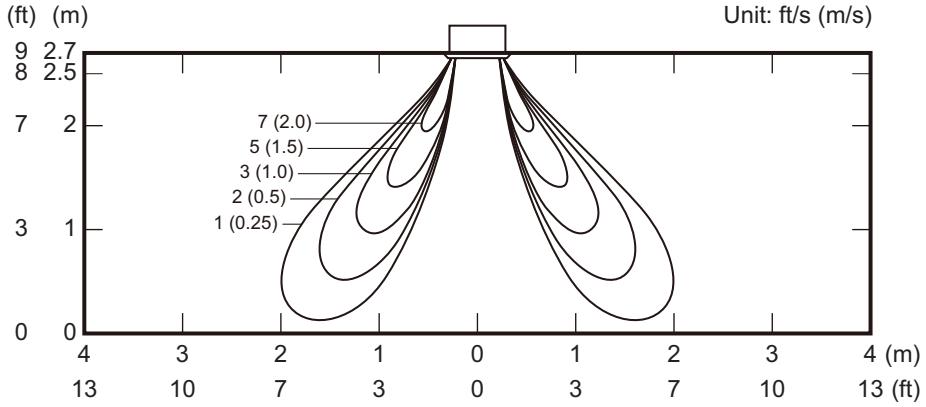
Side view
Vertical airflow direction louver: Up



Measuring conditions	Fan speed	Operation mode
NOTE: Reference data	HIGH	HEAT

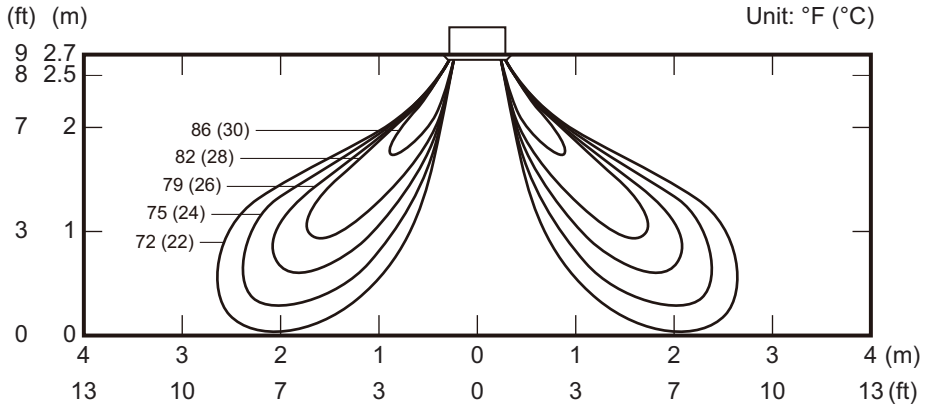
• Air velocity distribution

Side view
Vertical airflow direction louver: Down



• Air temperature distribution

Side view
Vertical airflow direction louver: Down



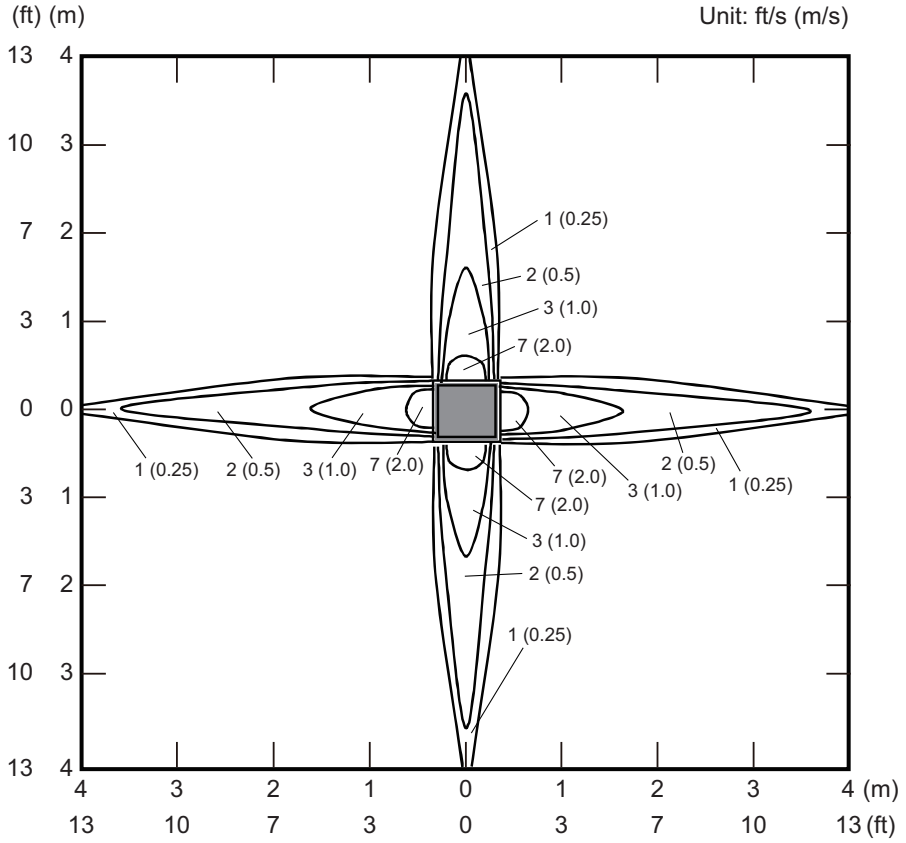
INDOOR UNITS

■ Model: AUUA18TLAV2

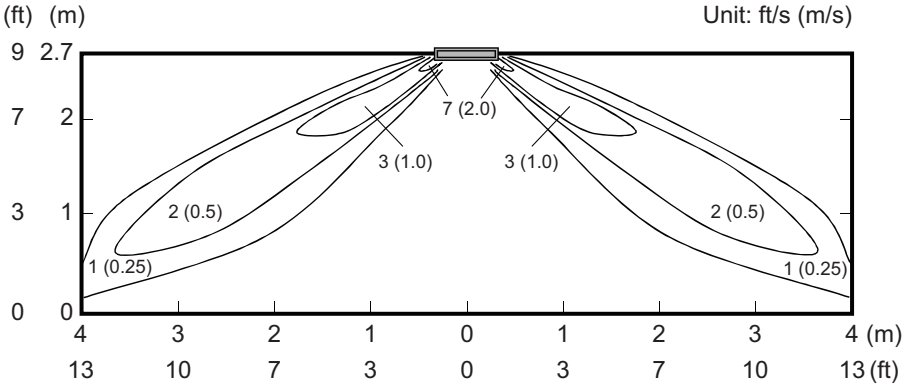
Measuring conditions	Fan speed	Operation mode
	HIGH	FAN

• Air velocity distribution

Top view
Vertical airflow direction louver: Up



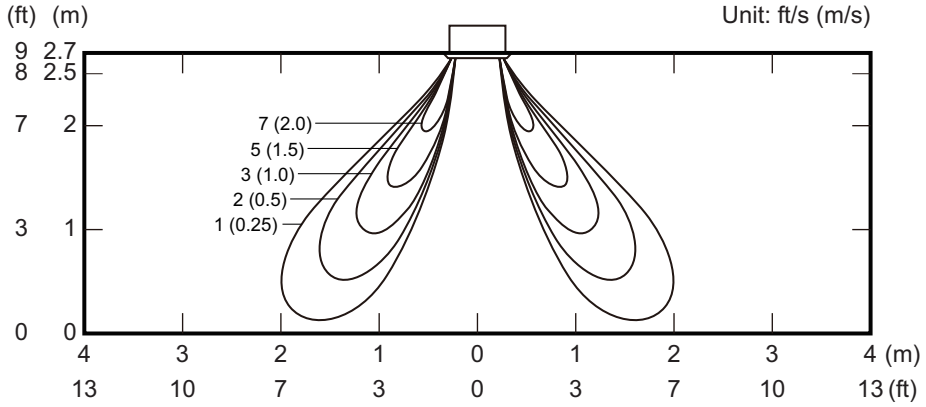
Side view
Vertical airflow direction louver: Up



Measuring conditions	Fan speed	Operation mode
NOTE: Reference data	HIGH	HEAT

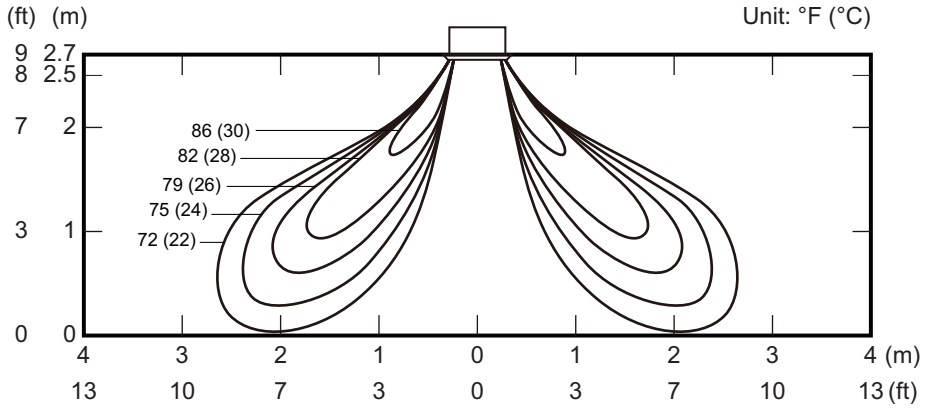
• Air velocity distribution

Side view
Vertical airflow direction louver: Down



• Air temperature distribution

Side view
Vertical airflow direction louver: Down



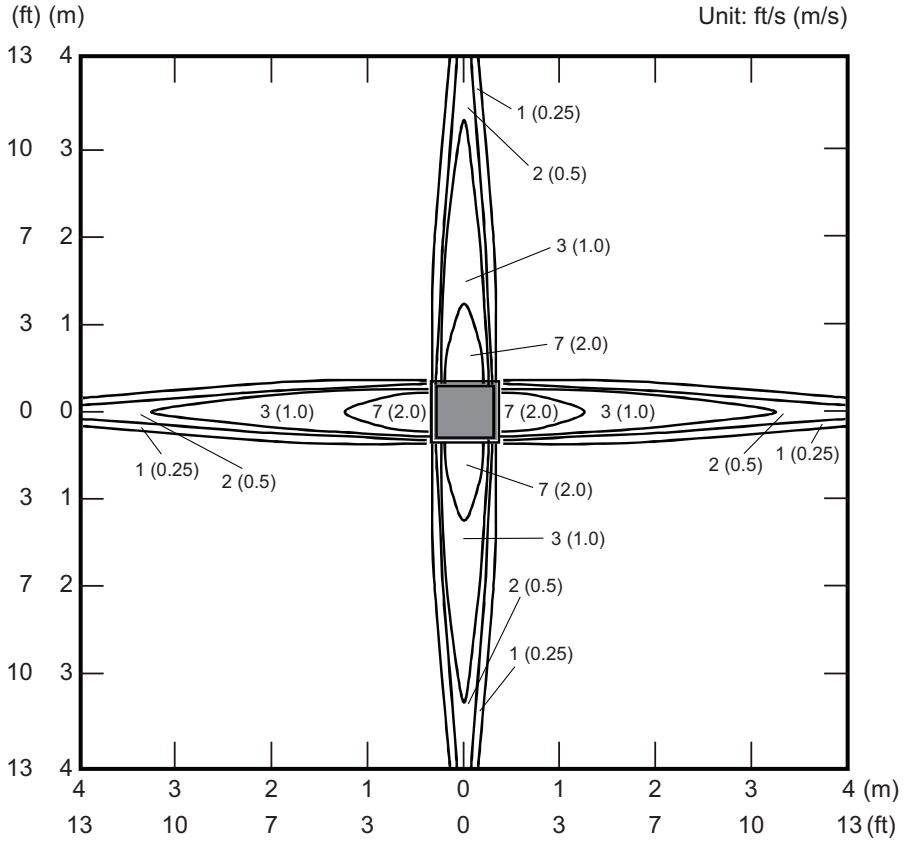
INDOOR UNITS

■ Model: AUUA24TLAV2

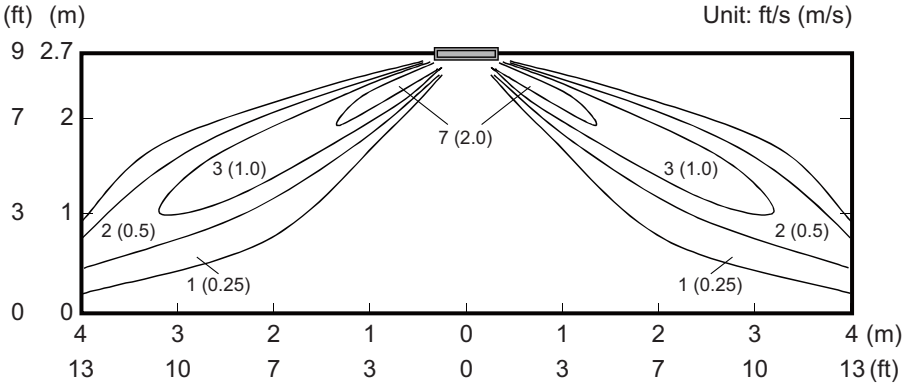
Measuring conditions	Fan speed	Operation mode
	HIGH	FAN

- **Air velocity distribution**

Top view
Vertical airflow direction louver: Up



Side view
Vertical airflow direction louver: Up

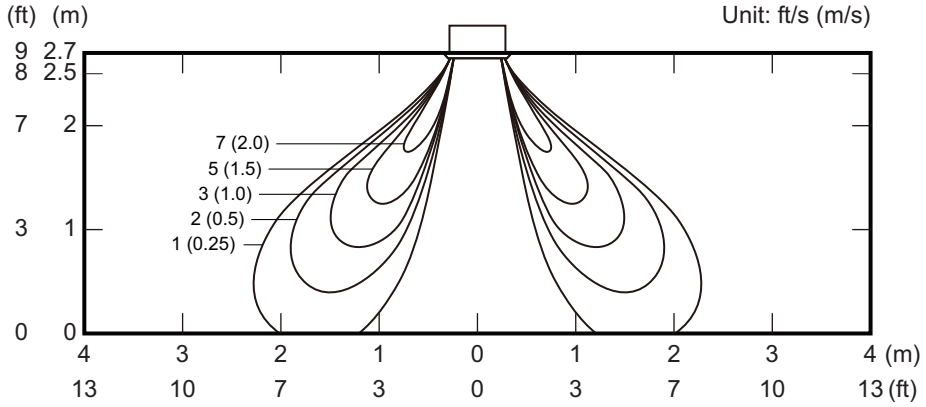


INDOOR UNITS

Measuring conditions	Fan speed	Operation mode
NOTE: Reference data	HIGH	HEAT

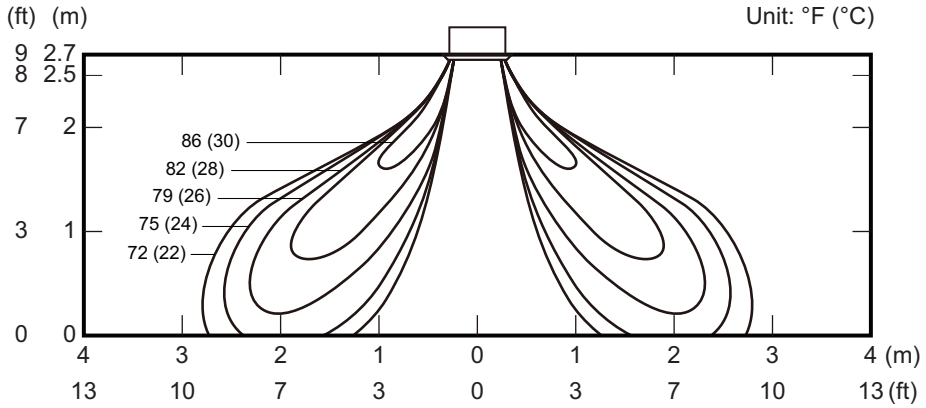
• Air velocity distribution

Side view
Vertical airflow direction louver: Down



• Air temperature distribution

Side view
Vertical airflow direction louver: Down



INDOOR UNITS

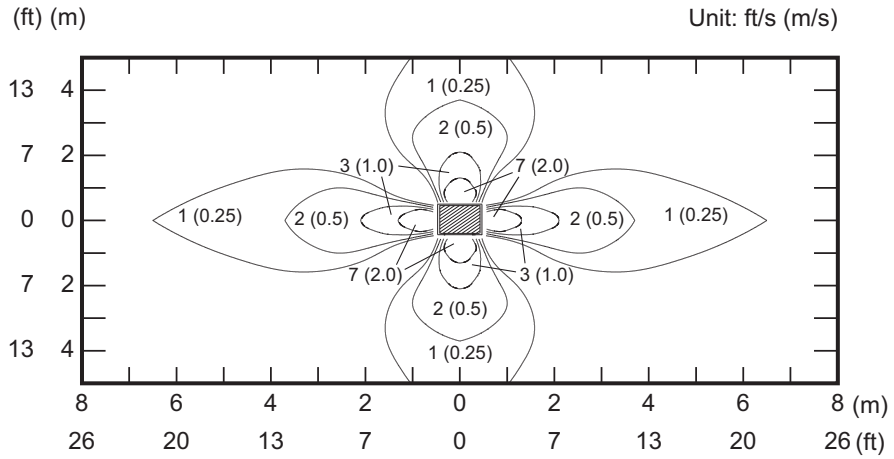
6-2. 4-way flow cassette type

■ Model: AUUB18TLAV

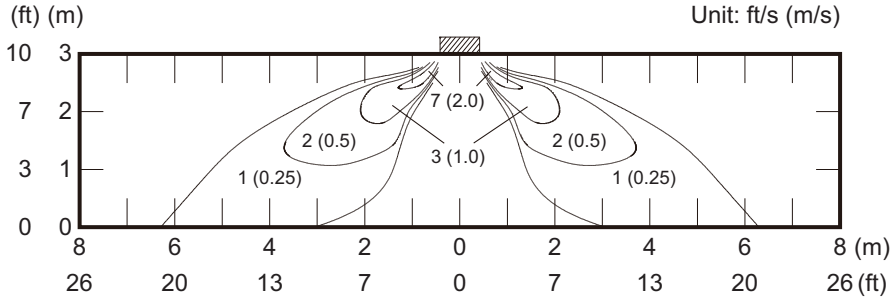
Measuring conditions	Fan speed	Operation mode
	HIGH	FAN

- **Air velocity distribution**

Top view
Vertical airflow direction louver: Up



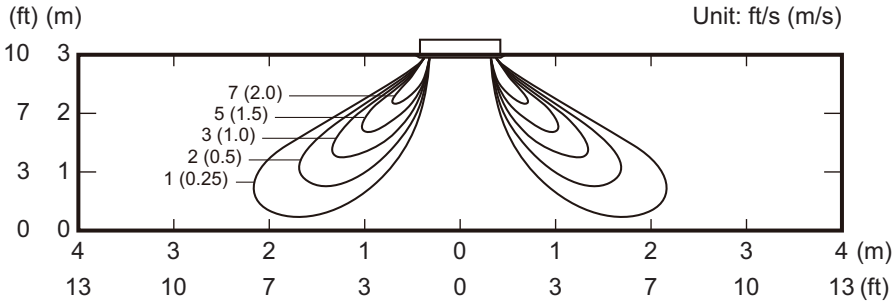
Side view
Vertical airflow direction louver: Up



Measuring conditions	Fan speed	Operation mode
NOTE: Reference data	HIGH	HEAT

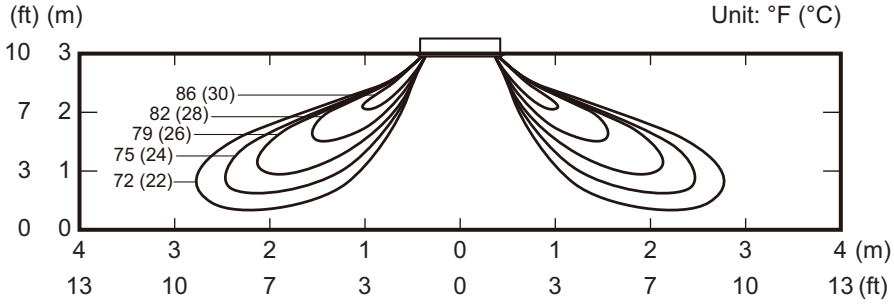
- **Air velocity distribution**

Side view
Vertical airflow direction louver: Down



- **Air temperature distribution**

Side view
Vertical airflow direction louver: Down



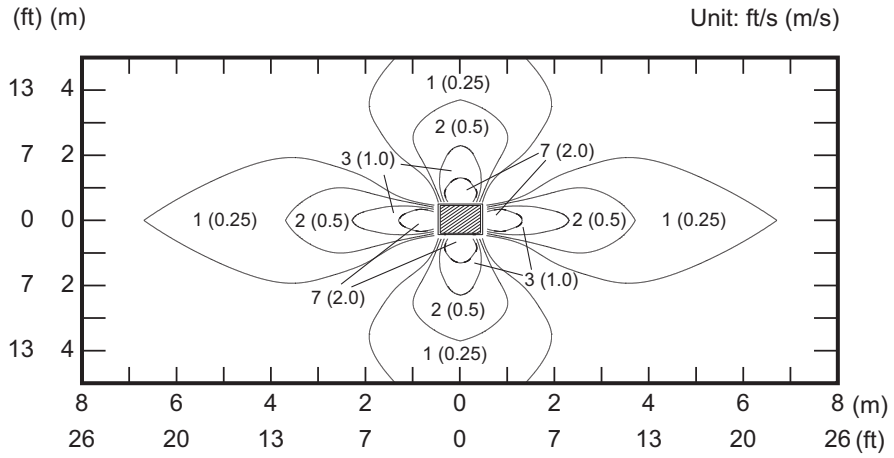
INDOOR UNITS

■ Model: AUUB24TLAV

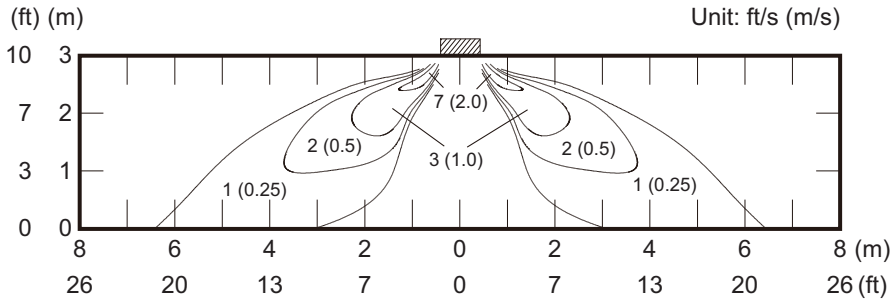
Measuring conditions	Fan speed	Operation mode
	HIGH	FAN

• Air velocity distribution

Top view
Vertical airflow direction louver: Up



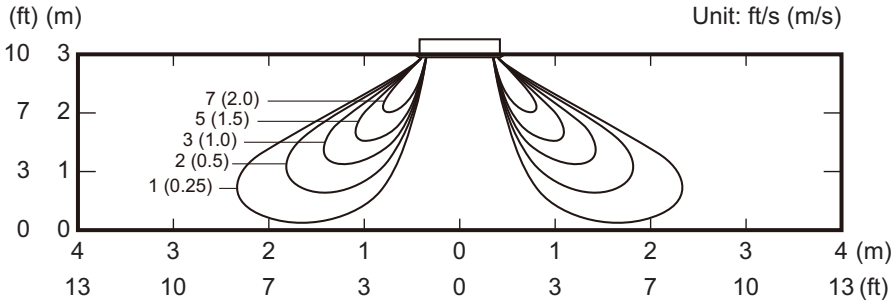
Side view
Vertical airflow direction louver: Up



Measuring conditions	Fan speed	Operation mode
NOTE: Reference data	HIGH	HEAT

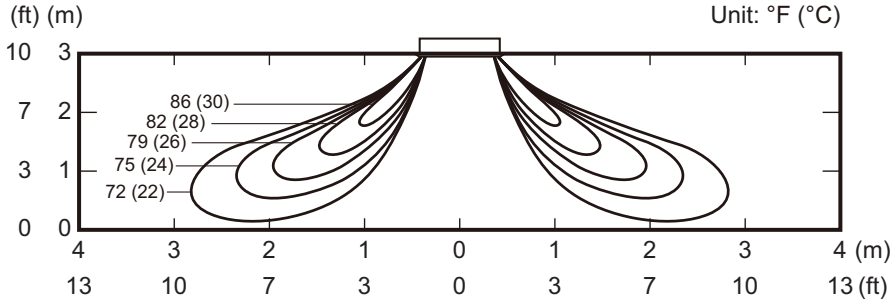
• Air velocity distribution

Side view
Vertical airflow direction louver: Down



• Air temperature distribution

Side view
Vertical airflow direction louver: Down



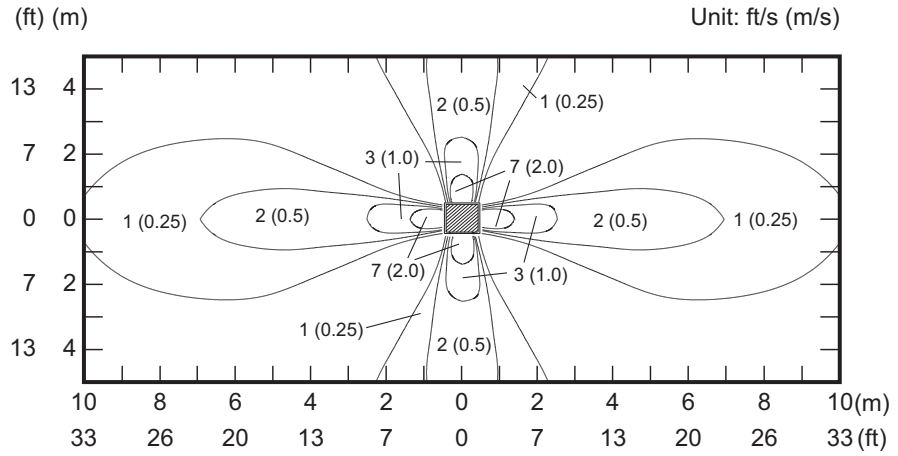
INDOOR UNITS

■ Model: AUUB30TLAV

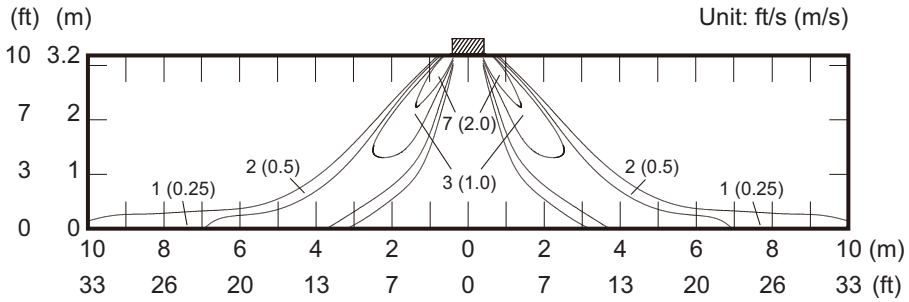
Measuring conditions	Fan speed	Operation mode
	HIGH	FAN

• Air velocity distribution

Top view
Vertical airflow direction louver: Up



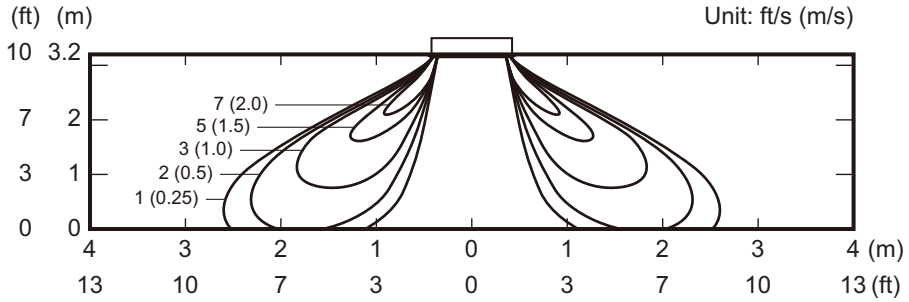
Side view
Vertical airflow direction louver: Up



Measuring conditions	Fan speed	Operation mode
NOTE: Reference data	HIGH	HEAT

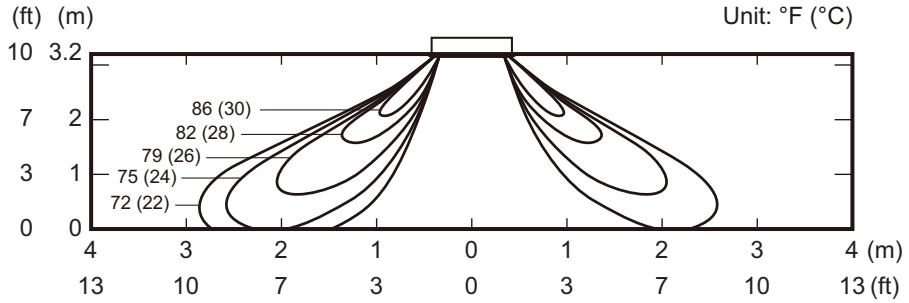
• Air velocity distribution

Side view
Vertical airflow direction louver: Down



• Air temperature distribution

Side view
Vertical airflow direction louver: Down



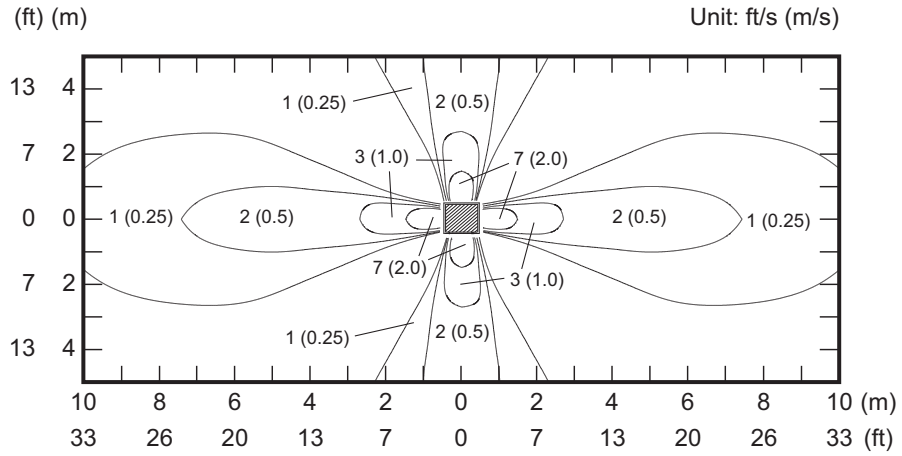
INDOOR UNITS

■ Model: AUUB36TLAV

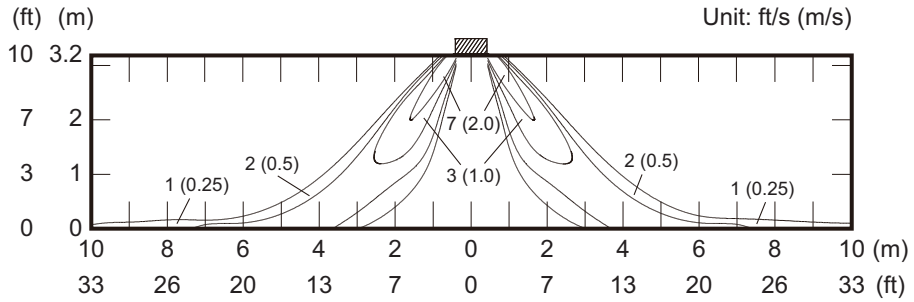
Measuring conditions	Fan speed	Operation mode
	HIGH	FAN

• Air velocity distribution

Top view
Vertical airflow direction louver: Up



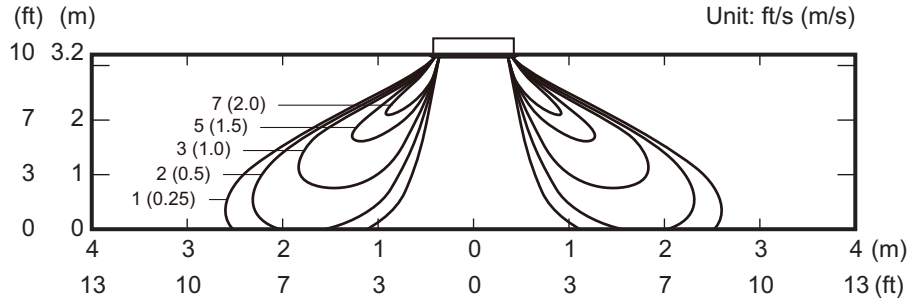
Side view
Vertical airflow direction louver: Up



Measuring conditions	Fan speed	Operation mode
NOTE: Reference data	HIGH	HEAT

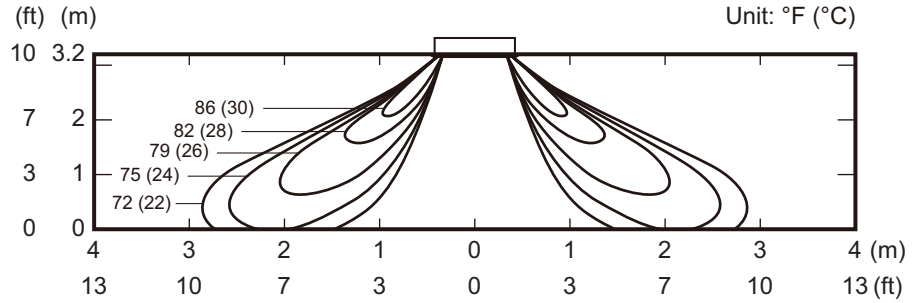
• Air velocity distribution

Side view
Vertical airflow direction louver: Down



• Air temperature distribution

Side view
Vertical airflow direction louver: Down



INDOOR UNITS

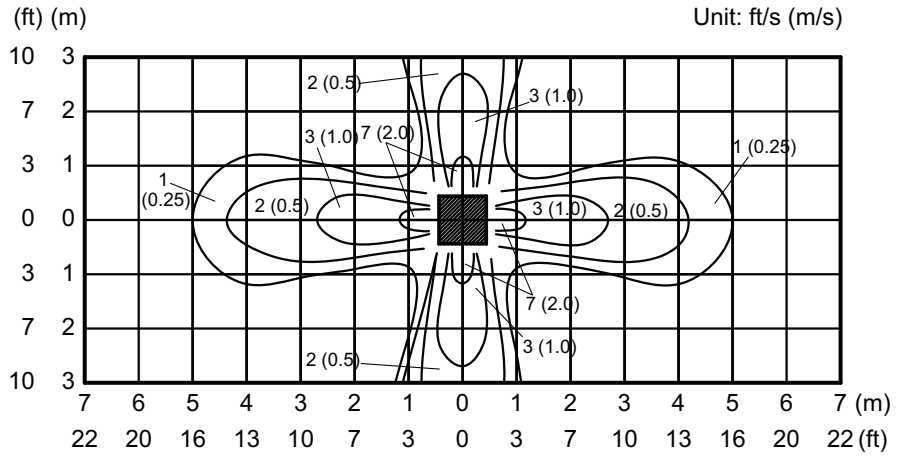
6-3. Circular flow cassette type

■ Model: AUUB18TLAV2

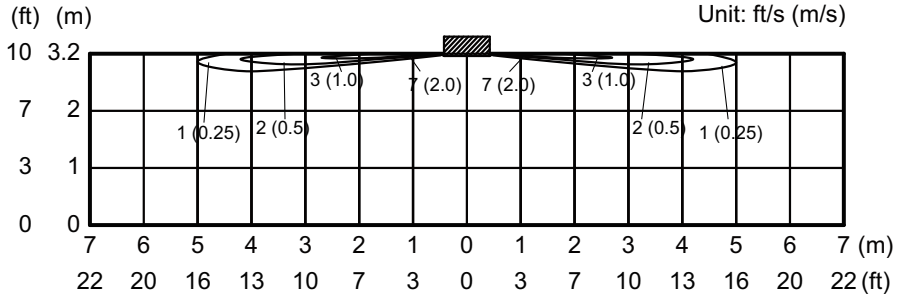
Measuring conditions	Fan speed	Operation mode
	HIGH	FAN

- **Air velocity distribution**

Top view
Vertical airflow direction louver: Position 1



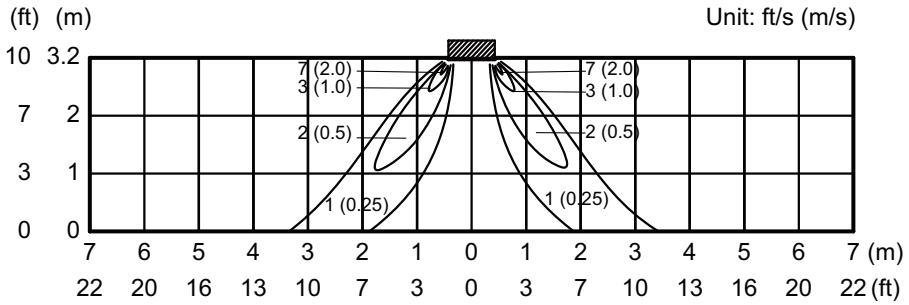
Side view
Vertical airflow direction louver: Position 1



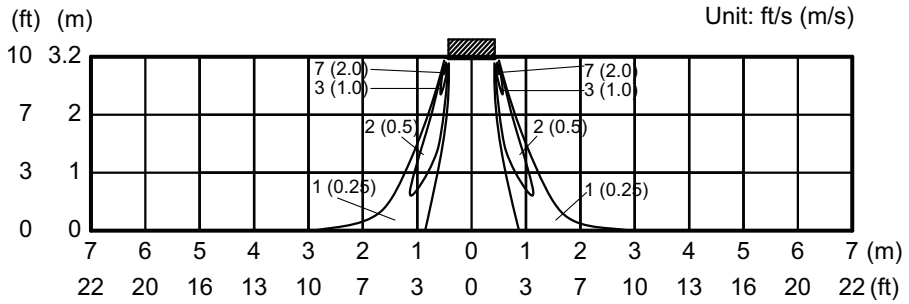
Measuring conditions	Fan speed	Operation mode
NOTE: Reference data	HIGH	HEAT

- **Air velocity distribution**

Side view
Vertical airflow direction louver: Position 2



Side view
Vertical airflow direction louver: Position 4



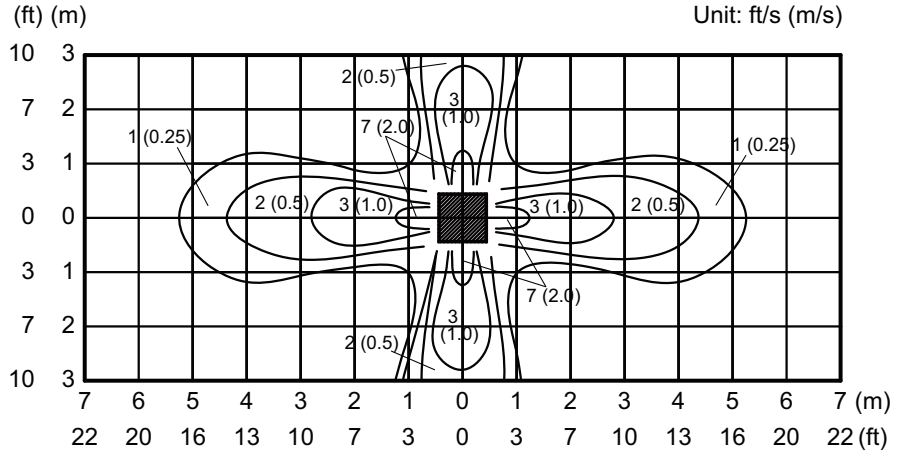
INDOOR UNITS

■ Model: AUUB24TLAV2

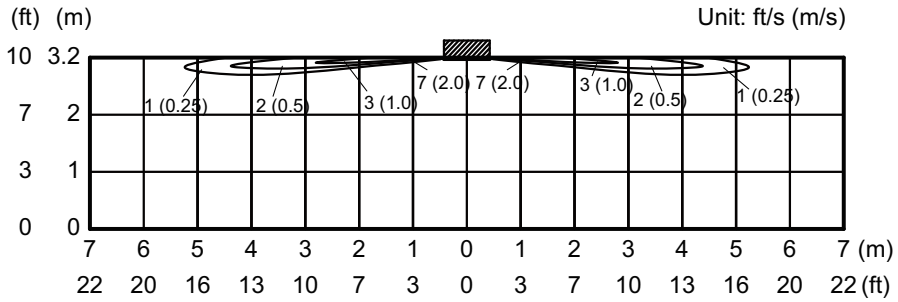
Measuring conditions	Fan speed	Operation mode
	HIGH	FAN

• Air velocity distribution

Top view
Vertical airflow direction louver: Position 1



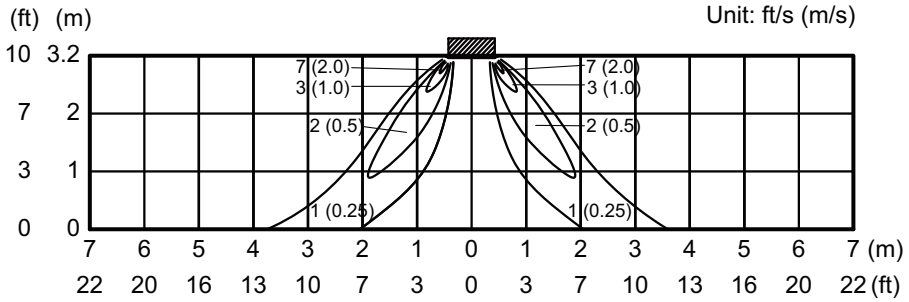
Side view
Vertical airflow direction louver: Position 1



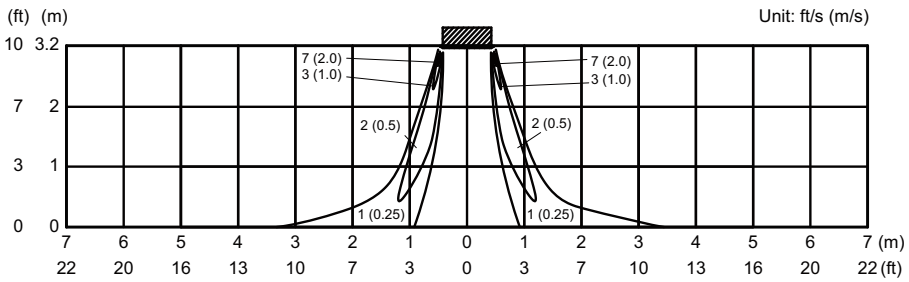
Measuring conditions	Fan speed	Operation mode
NOTE: Reference data	HIGH	HEAT

• Air velocity distribution

Side view
Vertical airflow direction louver: Position 2



Side view
Vertical airflow direction louver: Position 4



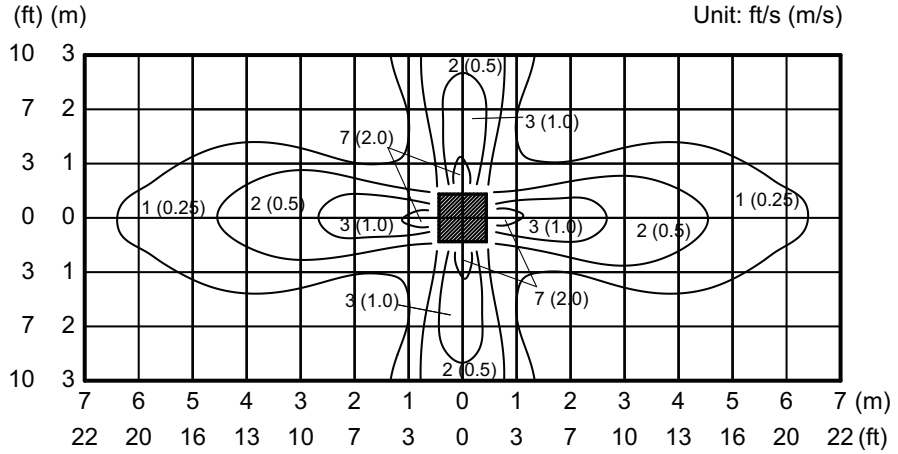
INDOOR UNITS

■ Model: AUUB30TLAV2

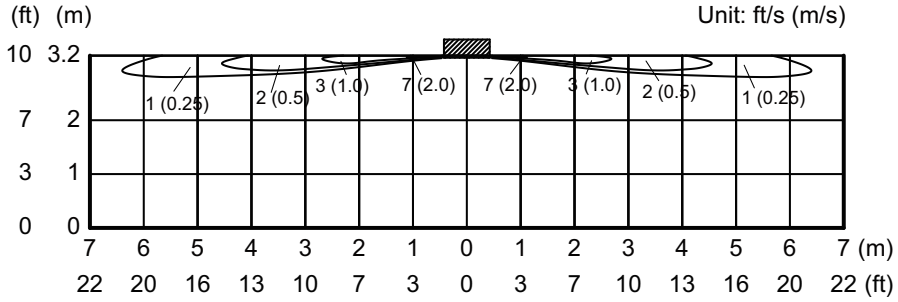
Measuring conditions	Fan speed	Operation mode
	HIGH	FAN

• Air velocity distribution

Top view
Vertical airflow direction louver: Position 1



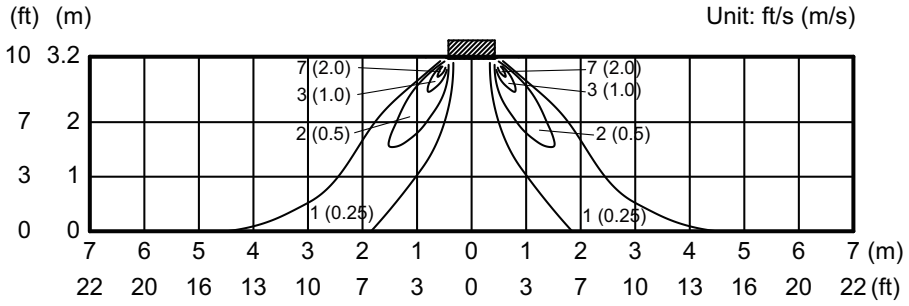
Side view
Vertical airflow direction louver: Position 1



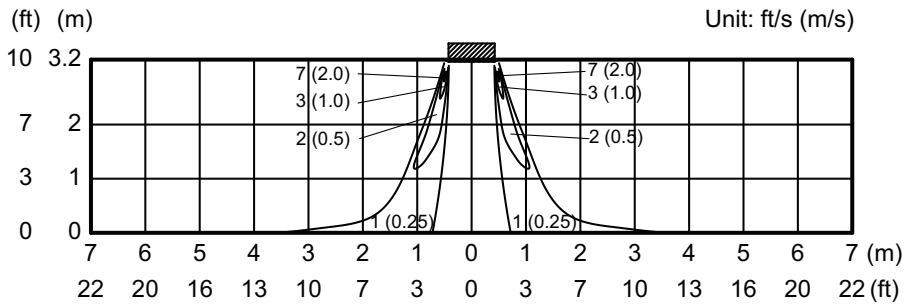
Measuring conditions	Fan speed	Operation mode
NOTE: Reference data	HIGH	HEAT

• Air velocity distribution

Side view
Vertical airflow direction louver: Position 2



Side view
Vertical airflow direction louver: Position 4



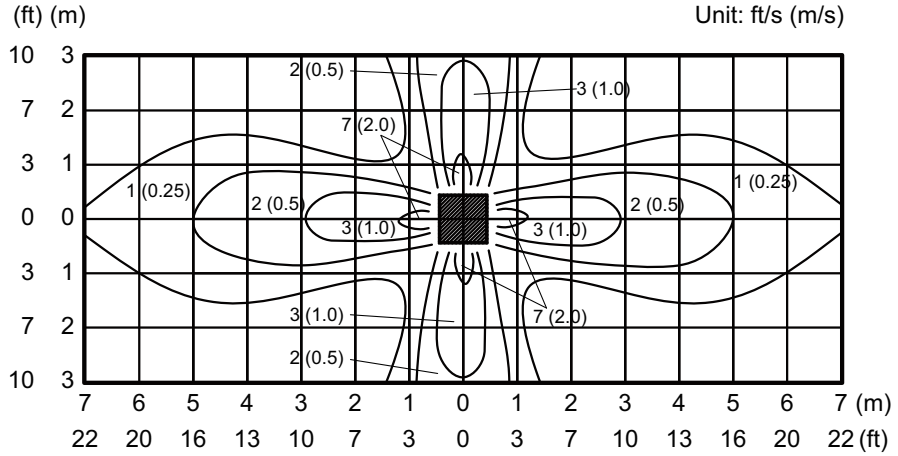
INDOOR UNITS

■ Model: AUUB36TLAV2

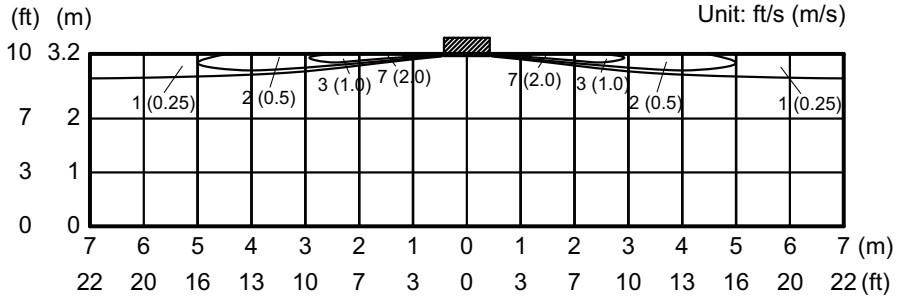
Measuring conditions	Fan speed	Operation mode
	HIGH	FAN

• Air velocity distribution

Top view
Vertical airflow direction louver: Position 1



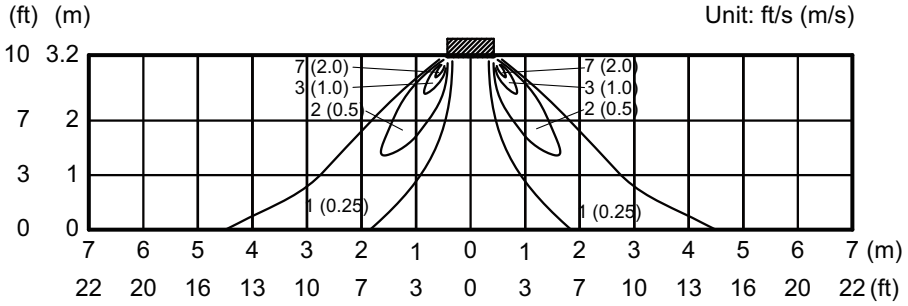
Side view
Vertical airflow direction louver: Position 1



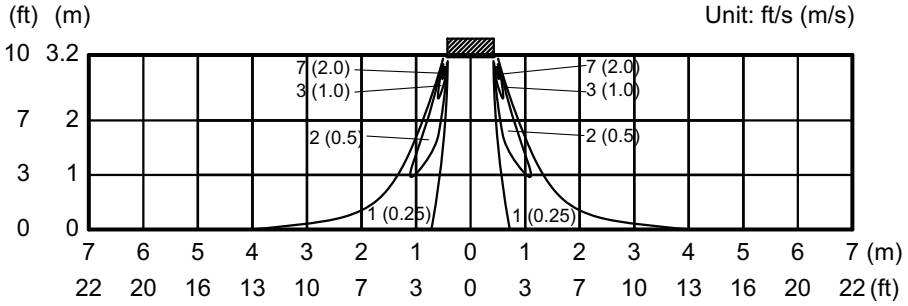
Measuring conditions	Fan speed	Operation mode
NOTE: Reference data	HIGH	HEAT

• Air velocity distribution

Side view
Vertical airflow direction louver: Position 2



Side view
Vertical airflow direction louver: Position 4



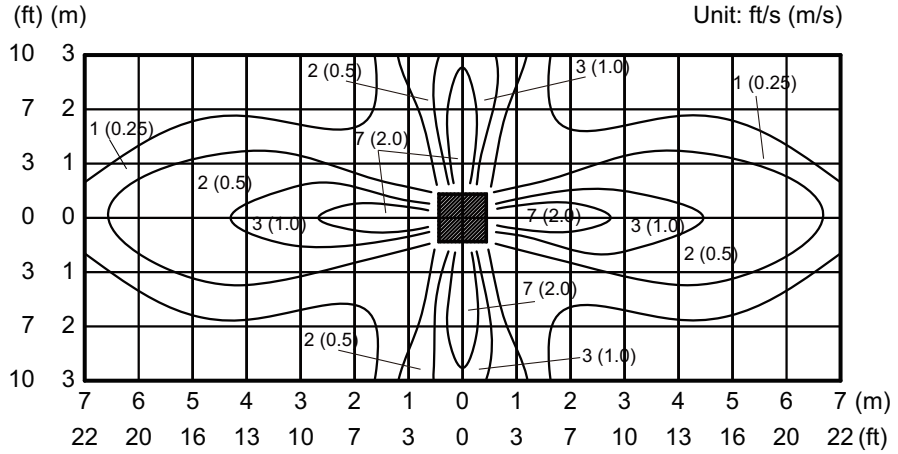
INDOOR UNITS

■ Model: AUUB48TLAV2

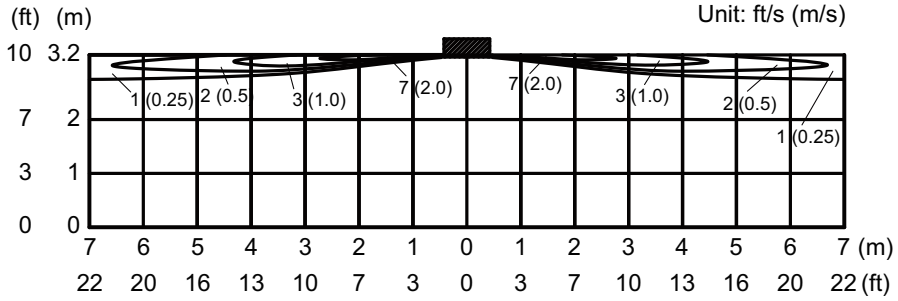
Measuring conditions	Fan speed	Operation mode
	HIGH	FAN

• Air velocity distribution

Top view
Vertical airflow direction louver: Position 1



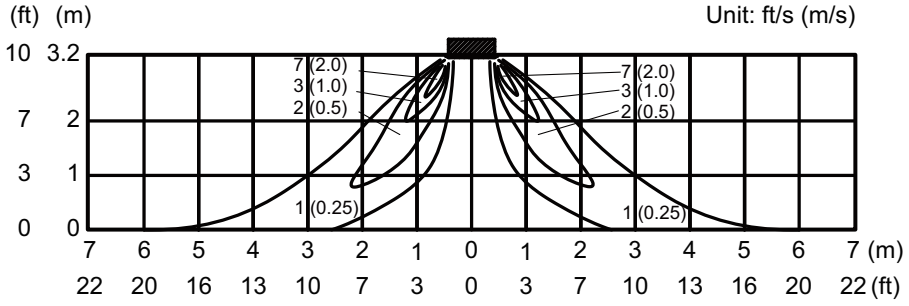
Side view
Vertical airflow direction louver: Position 1



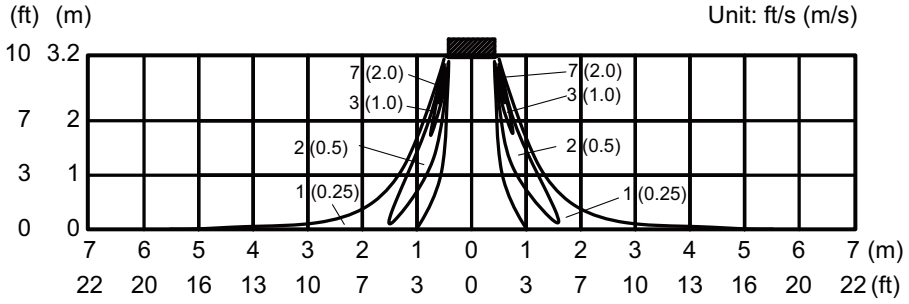
Measuring conditions	Fan speed	Operation mode
NOTE: Reference data	HIGH	HEAT

• Air velocity distribution

Side view
Vertical airflow direction louver: Position 2



Side view
Vertical airflow direction louver: Position 4



INDOOR UNITS

6-4. Mini duct type

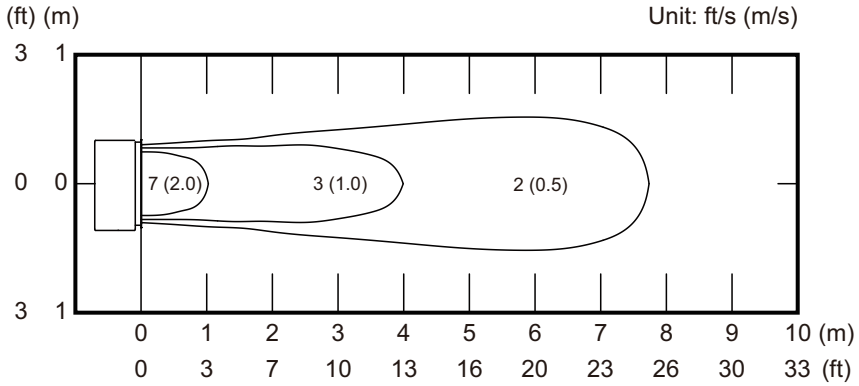
NOTE: This data is measured with Auto louver grille kit (option).

■ Model: ARUL4TLAV2 (with UTD-GXTA-W)

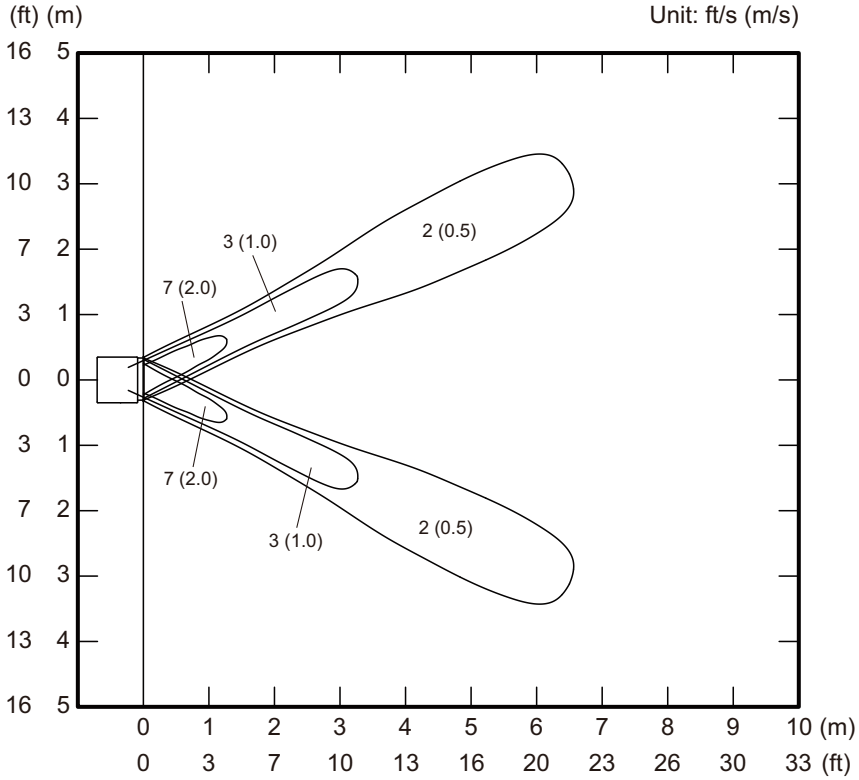
Measuring conditions	Fan speed	Operation mode
	HIGH	FAN

- **Air velocity distribution**

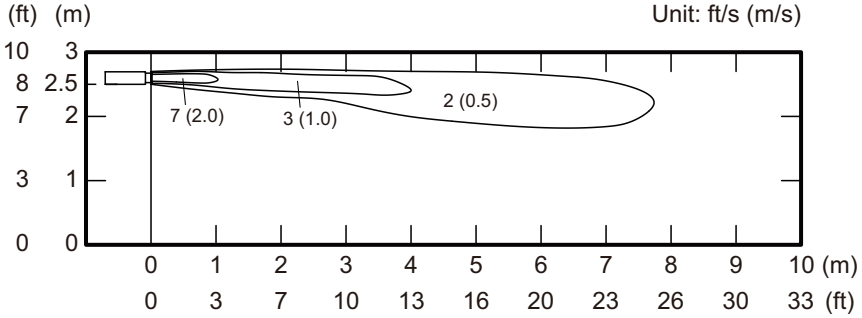
Top view
Vertical airflow direction louver: Up
Horizontal airflow direction louver: Center



Top view
Vertical airflow direction louver: Up
Horizontal airflow direction louver: Left & Right



Side view
Vertical airflow direction louver: Up
Horizontal airflow direction louver: Center

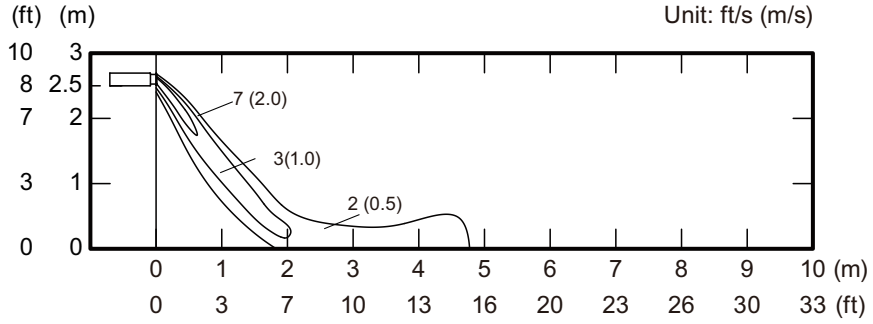


INDOOR UNITS

Measuring conditions	Fan speed	Operation mode
NOTE: Reference data	HIGH	HEAT

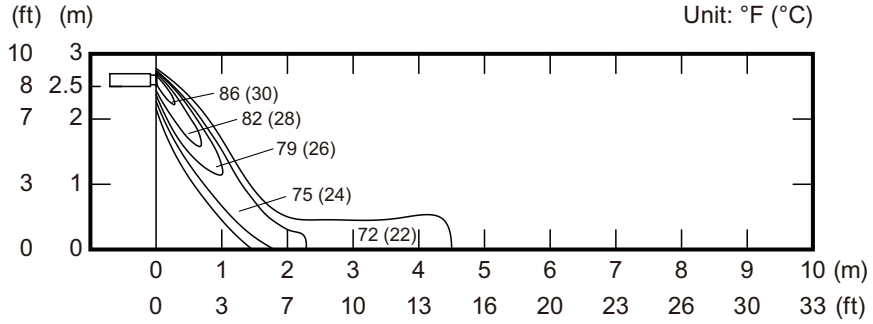
• Air velocity distribution

Side view
Vertical airflow direction louver: Down
Horizontal airflow direction louver: Center



• Air temperature distribution

Side view
Vertical airflow direction louver: Down
Horizontal airflow direction louver: Center



INDOOR UNITS

6-5. Slim duct/Slim concealed floor type

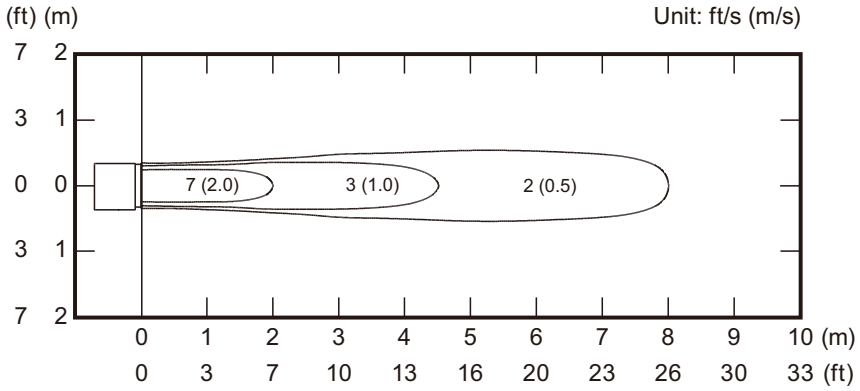
NOTE: This data is measured with Auto louver grille kit (option).

■ Model: ARUL7TLAV2 (with UTD-GXSA-W)

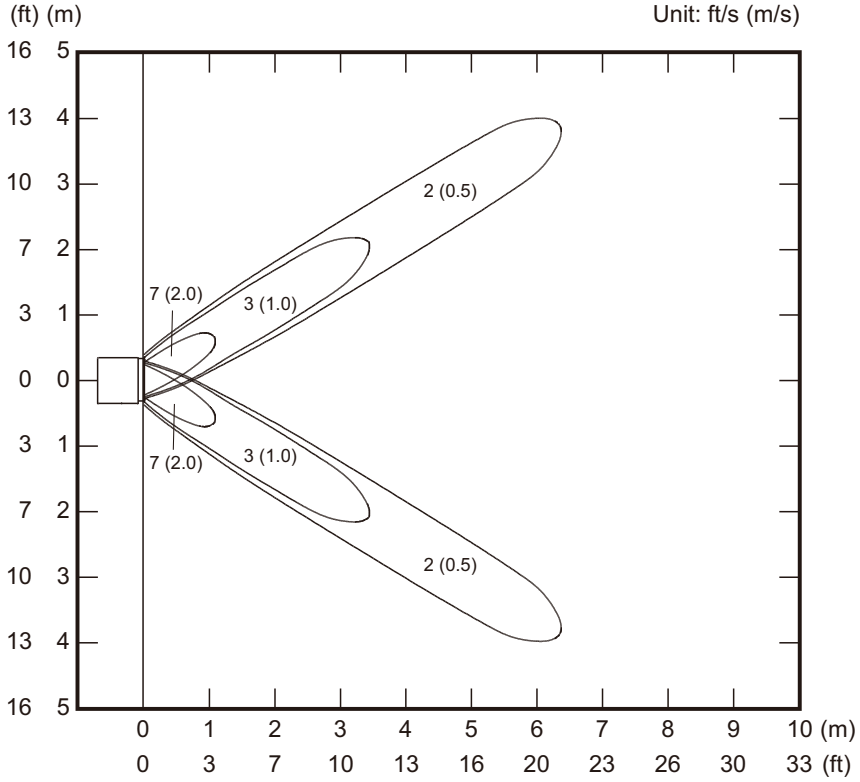
Measuring conditions	Fan speed	Operation mode
	HIGH	FAN

- **Air velocity distribution**

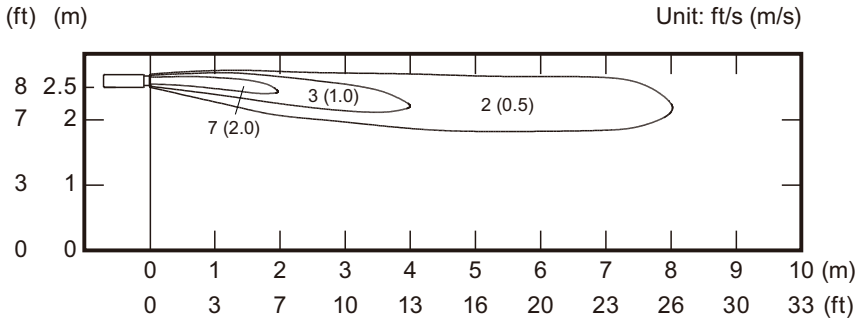
Top view
Vertical airflow direction louver: Up
Horizontal airflow direction louver: Center



Top view
Vertical airflow direction louver: Up
Horizontal airflow direction louver: Left & Right



Side view
Vertical airflow direction louver: Up
Horizontal airflow direction louver: Center

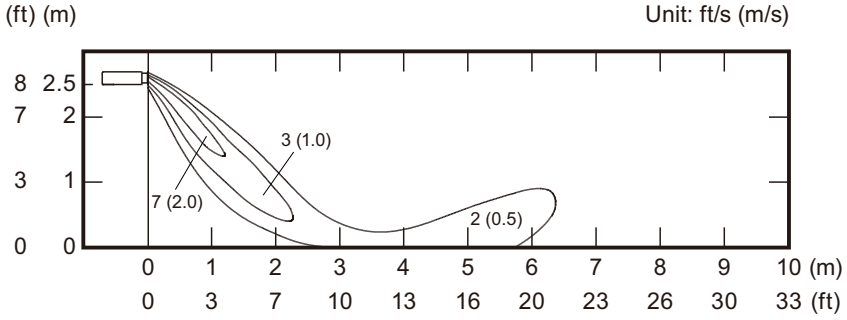


INDOOR UNITS

Measuring conditions	Fan speed	Operation mode
NOTE: Reference data	HIGH	HEAT

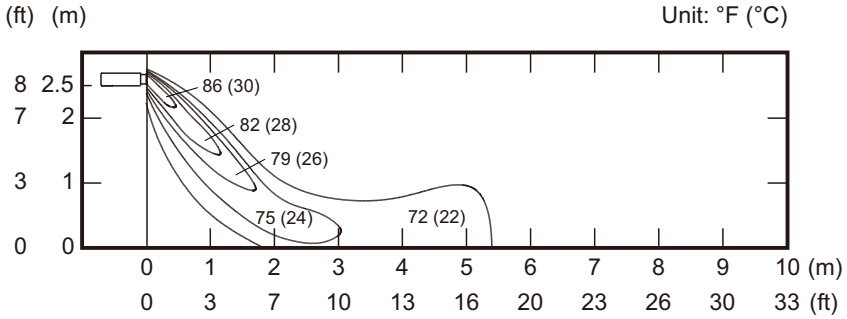
• Air velocity distribution

Side view
Vertical airflow direction louver: Down
Horizontal airflow direction louver: Center



• Air temperature distribution

Side view
Vertical airflow direction louver: Down
Horizontal airflow direction louver: Center



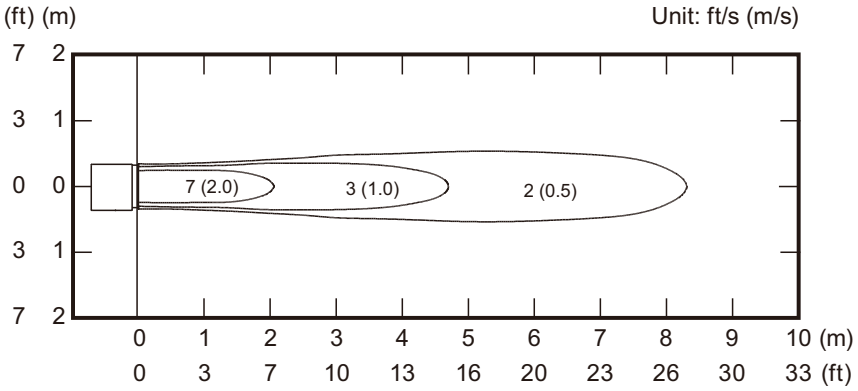
INDOOR UNITS

■ Model: ARUL9TLAV2 (with UTD-GXSA-W)

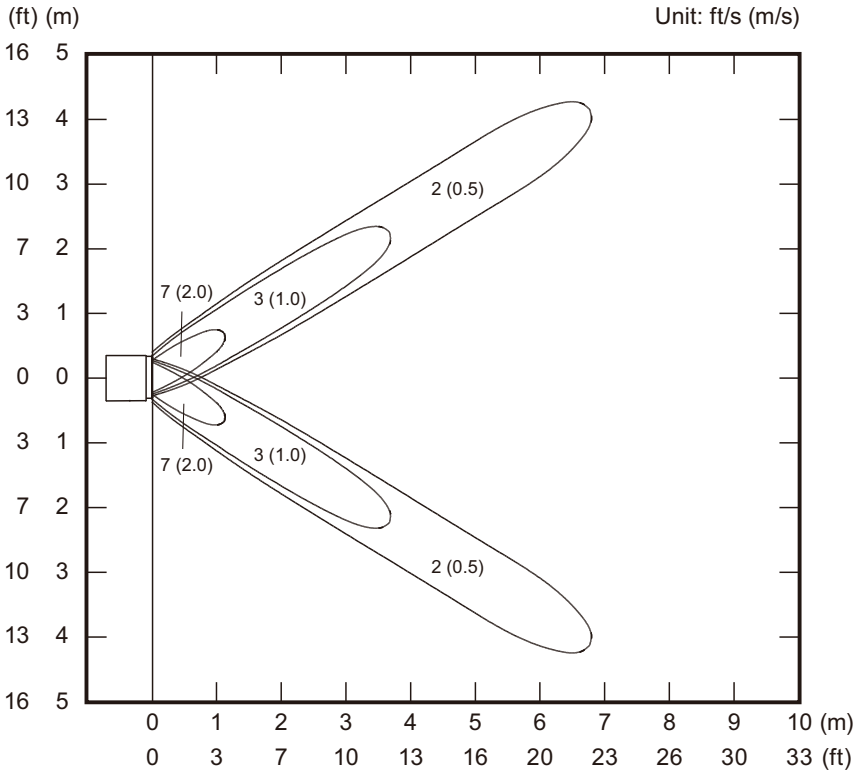
Measuring conditions	Fan speed	Operation mode
	HIGH	FAN

• Air velocity distribution

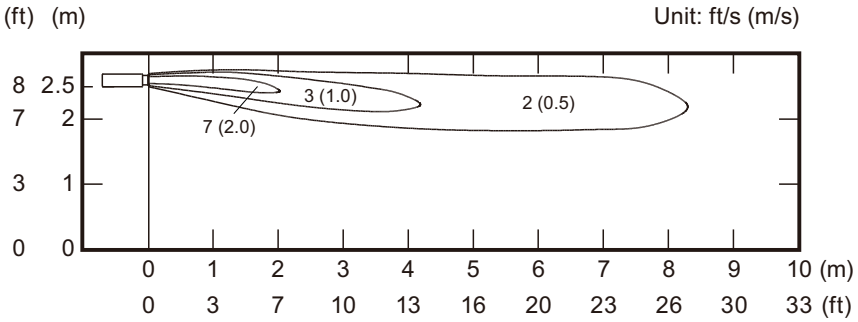
Top view
Vertical airflow direction louver: Up
Horizontal airflow direction louver: Center



Top view
Vertical airflow direction louver: Up
Horizontal airflow direction louver: Left & Right



Side view
Vertical airflow direction louver: Up
Horizontal airflow direction louver: Center

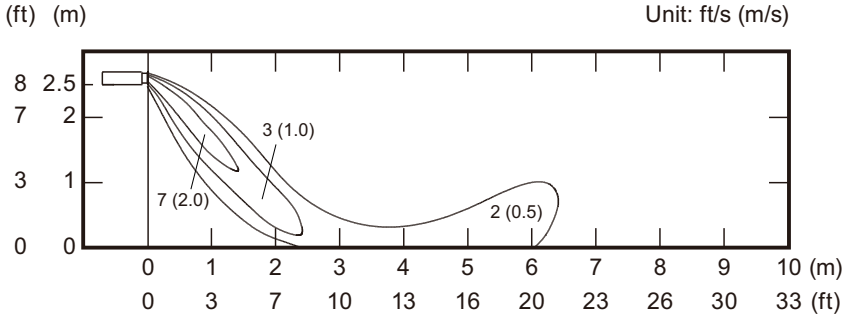


INDOOR UNITS

Measuring conditions	Fan speed	Operation mode
NOTE: Reference data	HIGH	HEAT

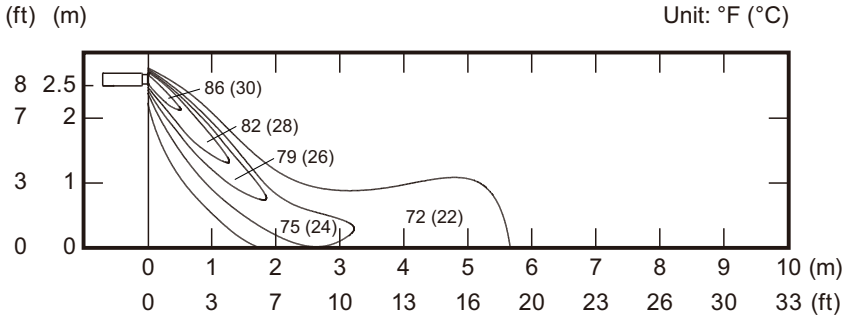
• Air velocity distribution

Side view
Vertical airflow direction louver: Down
Horizontal airflow direction louver: Center



• Air temperature distribution

Side view
Vertical airflow direction louver: Down
Horizontal airflow direction louver: Center



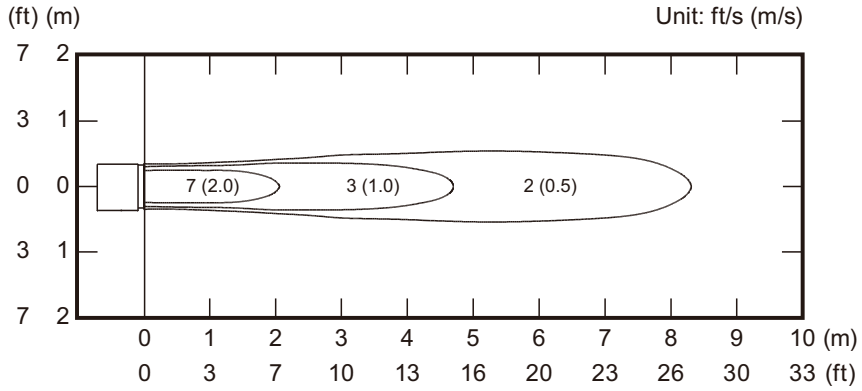
INDOOR UNITS

■ Model: ARUL12TLAV2 (with UTD-GXSA-W)

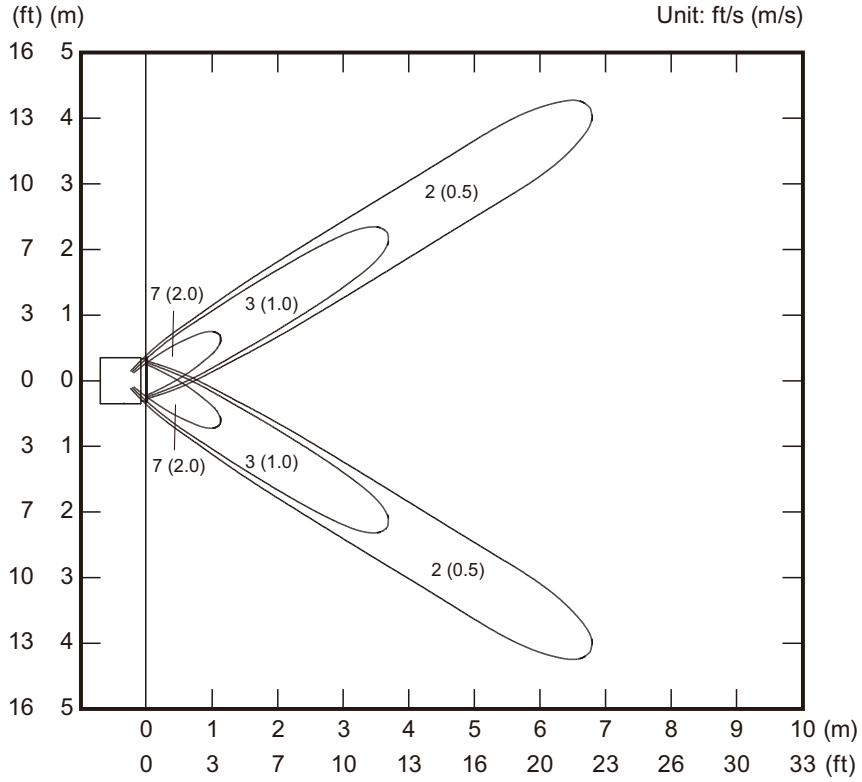
Measuring conditions	Fan speed	Operation mode
	HIGH	FAN

• Air velocity distribution

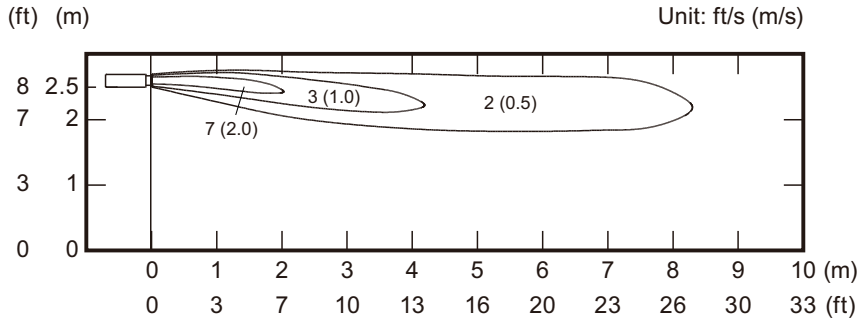
Top view
Vertical airflow direction louver: Up
Horizontal airflow direction louver: Center



Top view
Vertical airflow direction louver: Up
Horizontal airflow direction louver: Left & Right



Side view
Vertical airflow direction louver: Up
Horizontal airflow direction louver: Center

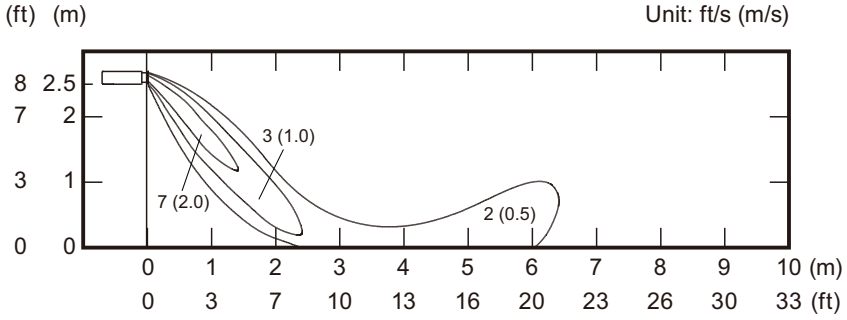


INDOOR UNITS

Measuring conditions	Fan speed	Operation mode
NOTE: Reference data	HIGH	HEAT

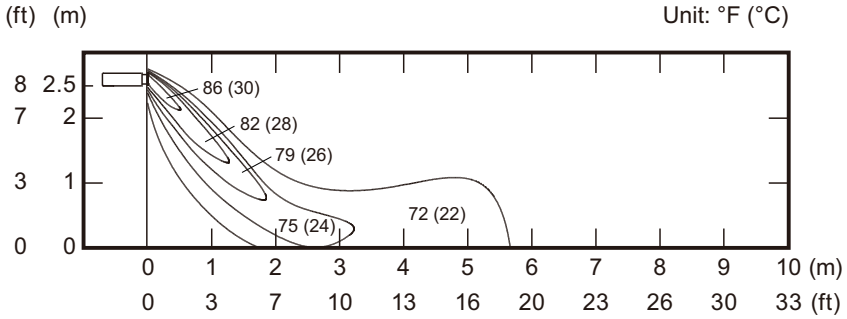
• Air velocity distribution

Side view
Vertical airflow direction louver: Down
Horizontal airflow direction louver: Center



• Air temperature distribution

Side view
Vertical airflow direction louver: Down
Horizontal airflow direction louver: Center



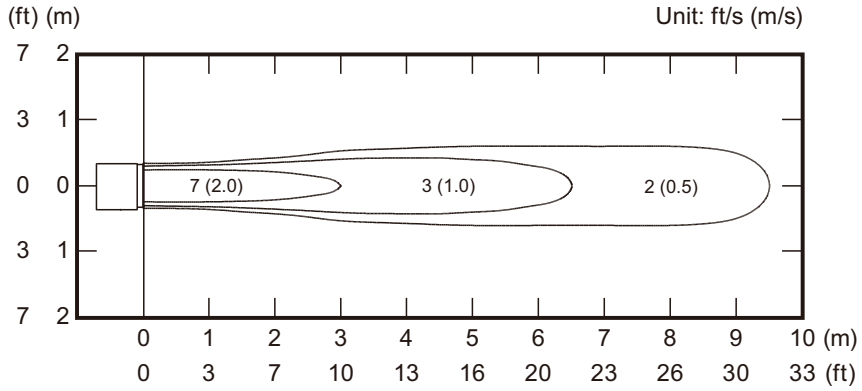
INDOOR UNITS

■ Model: ARUL14TLAV2 (with UTD-GXSA-W)

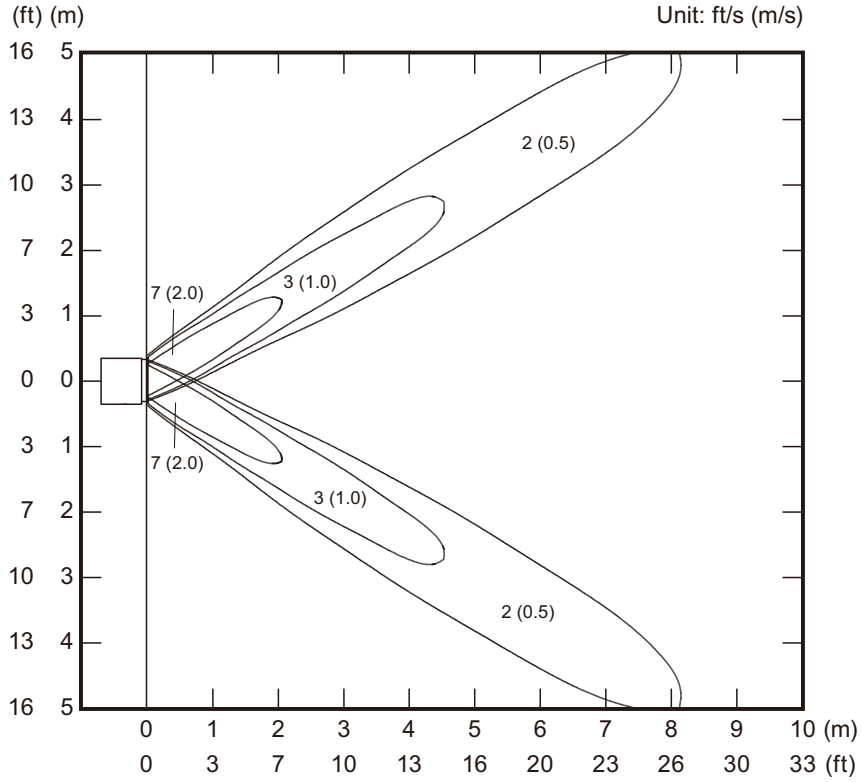
Measuring conditions	Fan speed	Operation mode
	HIGH	FAN

• Air velocity distribution

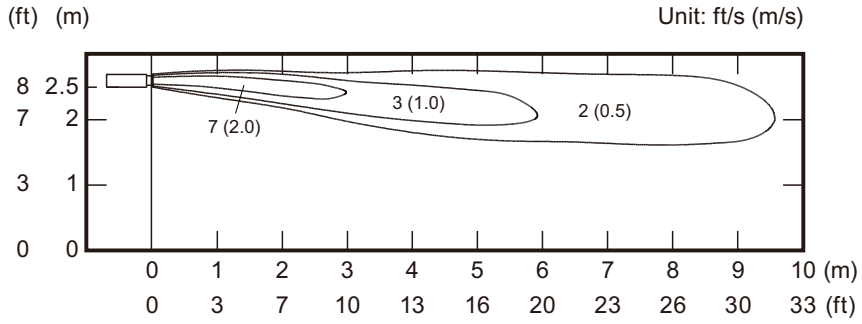
Top view
Vertical airflow direction louver: Up
Horizontal airflow direction louver: Center



Top view
Vertical airflow direction louver: Up
Horizontal airflow direction louver: Left & Right



Side view
Vertical airflow direction louver: Up
Horizontal airflow direction louver: Center

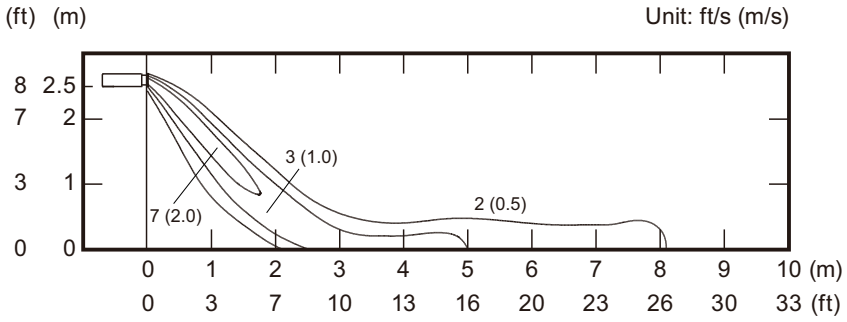


INDOOR UNITS

Measuring conditions	Fan speed	Operation mode
NOTE: Reference data	HIGH	HEAT

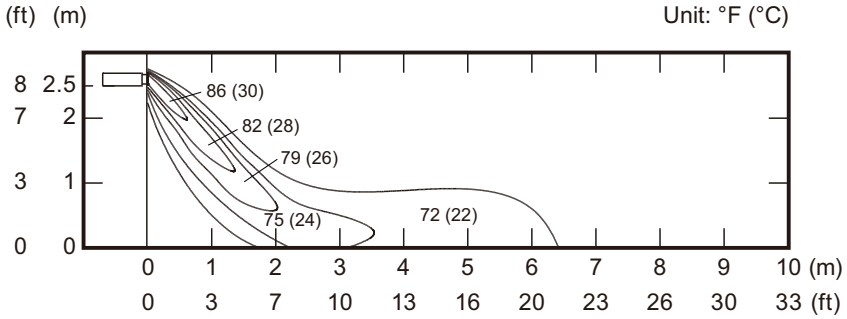
• Air velocity distribution

Side view
Vertical airflow direction louver: Down
Horizontal airflow direction louver: Center



• Air temperature distribution

Side view
Vertical airflow direction louver: Down
Horizontal airflow direction louver: Center



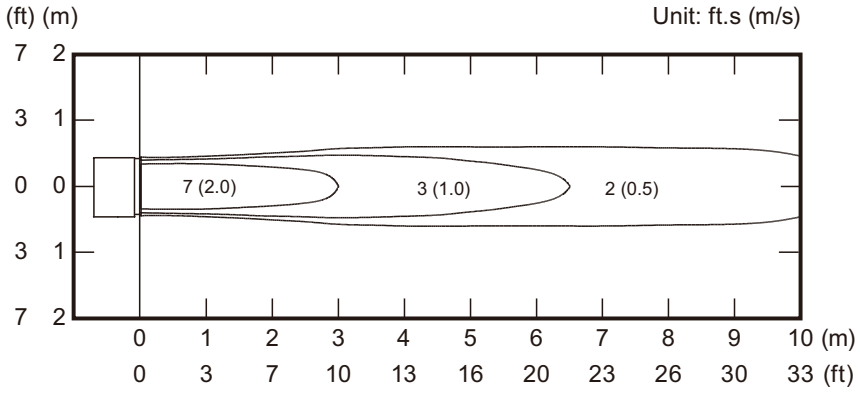
INDOOR UNITS

■ Model: ARUL18TLAV2 (with UTD-GXSB-W)

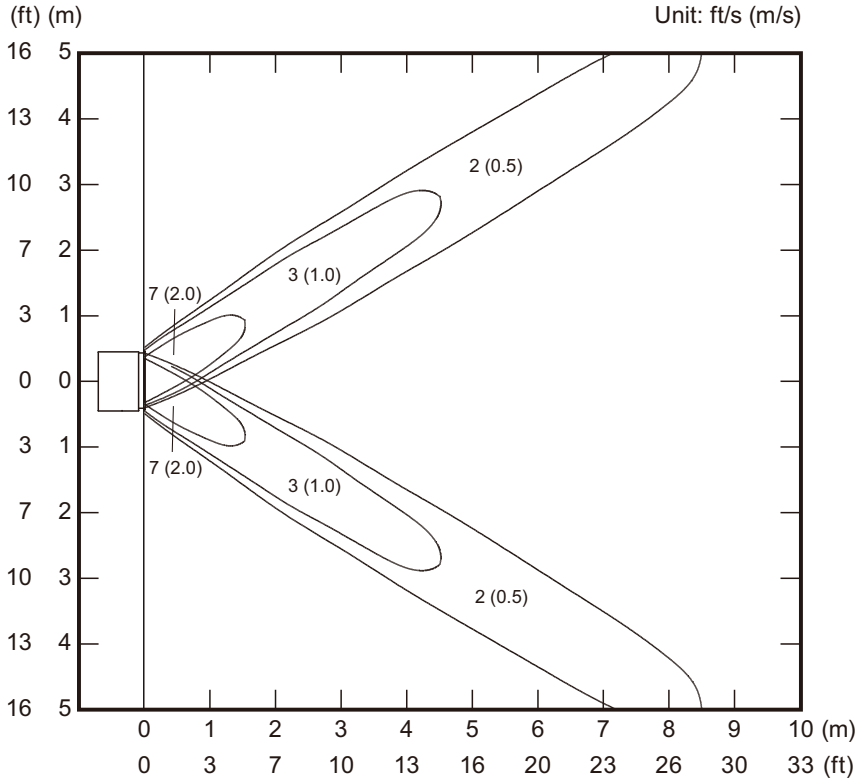
Measuring conditions	Fan speed	Operation mode
	HIGH	FAN

• Air velocity distribution

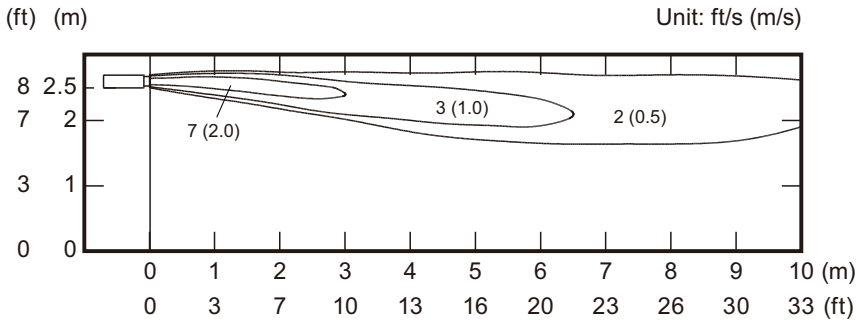
Top view
Vertical airflow direction louver: Up
Horizontal airflow direction louver: Center



Top view
Vertical airflow direction louver: Up
Horizontal airflow direction louver: Left & Right



Side view
Vertical airflow direction louver: Up
Horizontal airflow direction louver: Center

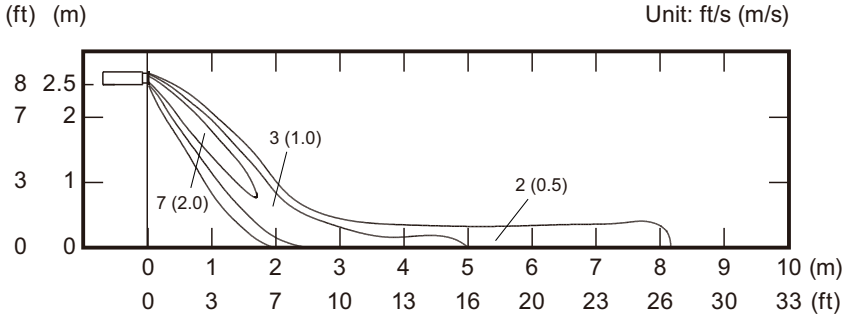


INDOOR UNITS

Measuring conditions	Fan speed	Operation mode
NOTE: Reference data	HIGH	HEAT

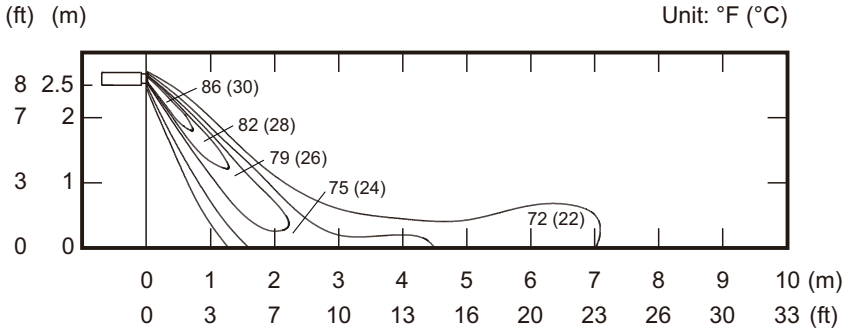
• Air velocity distribution

Side view
Vertical airflow direction louver: Down
Horizontal airflow direction louver: Center



• Air temperature distribution

Side view
Vertical airflow direction louver: Down
Horizontal airflow direction louver: Center



INDOOR UNITS

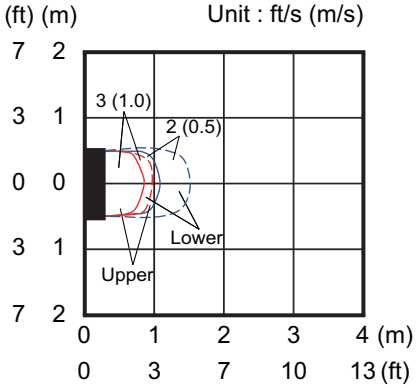
6-6. Compact floor type

■ Model: AGUA4TLAV2

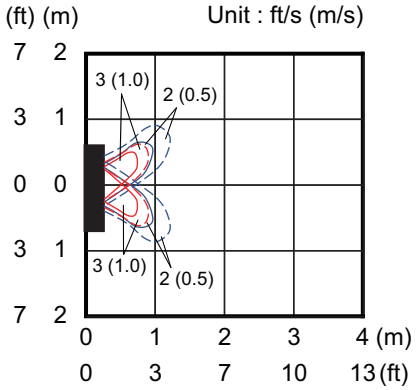
Measuring conditions	Fan speed	Operation mode	Fan select
	HIGH	FAN	Upper & Lower

- **Air velocity distribution**

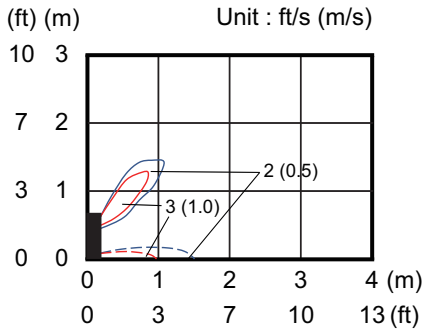
Top view
Vertical airflow direction louver: Up
Horizontal airflow direction louver: Center



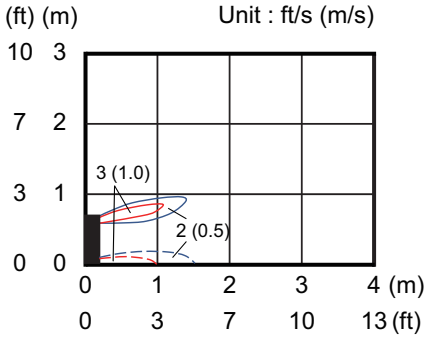
Top view
Vertical airflow direction louver: Up
Horizontal airflow direction louver: Left & Right



Side view
Vertical airflow direction louver: Up
Horizontal airflow direction louver: Center



Side view
Vertical airflow direction louver: Center
Horizontal airflow direction louver: Center



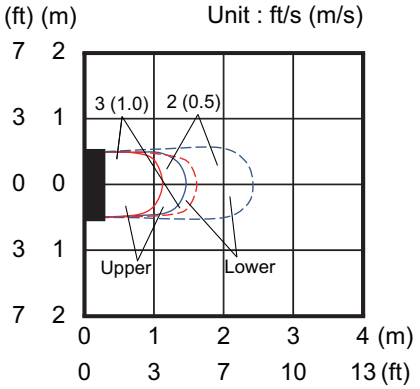
INDOOR UNITS

■ Models: AGUA7TLAV2 and AGUA9TLAV2

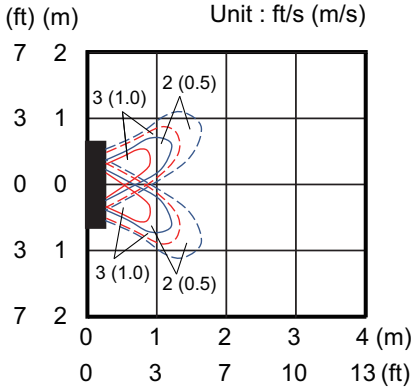
Measuring conditions	Fan speed	Operation mode	Fan select
	HIGH	FAN	Upper & Lower

• Air velocity distribution

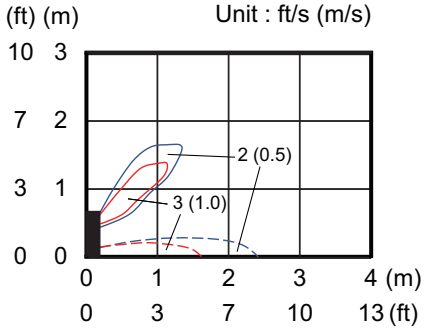
Top view
Vertical airflow direction louver: Up
Horizontal airflow direction louver: Center



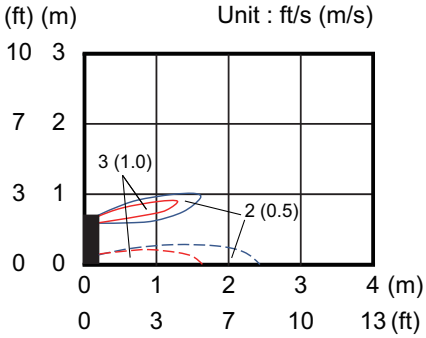
Top view
Vertical airflow direction louver: Up
Horizontal airflow direction louver: Left & Right



Side view
Vertical airflow direction louver: Up
Horizontal airflow direction louver: Center



Side view
Vertical airflow direction louver: Center
Horizontal airflow direction louver: Center



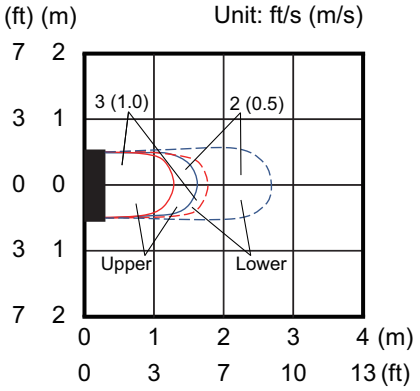
INDOOR UNITS

■ Model: AGUA12TLAV2

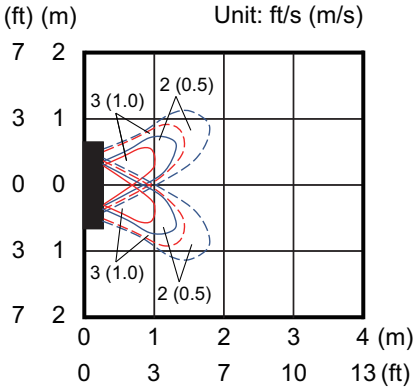
Measuring conditions	Fan speed	Operation mode	Fan select
	HIGH	FAN	Upper & Lower

• Air velocity distribution

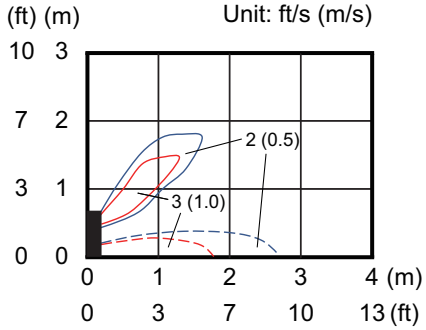
Top view
Vertical airflow direction louver: Up
Horizontal airflow direction louver: Center



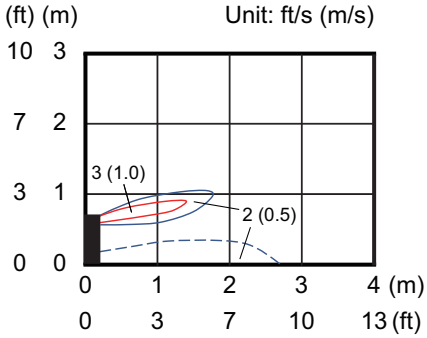
Top view
Vertical airflow direction louver: Up
Horizontal airflow direction louver: Left & Right



Side view
Vertical airflow direction louver: Up
Horizontal airflow direction louver: Center



Side view
Vertical airflow direction louver: Center
Horizontal airflow direction louver: Center



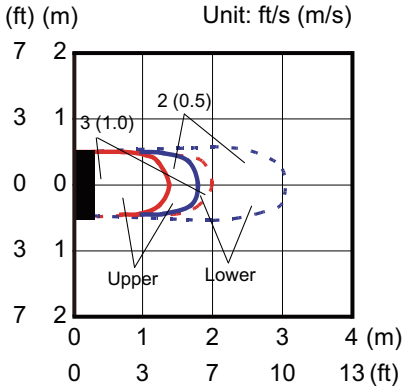
INDOOR UNITS

■ Model: AGUA14TLAV2

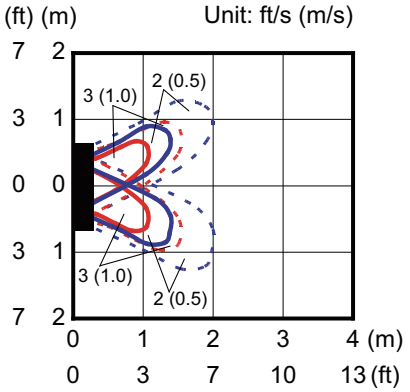
Measuring conditions	Fan speed	Operation mode	Fan select
	HIGH	FAN	Upper & Lower

• Air velocity distribution

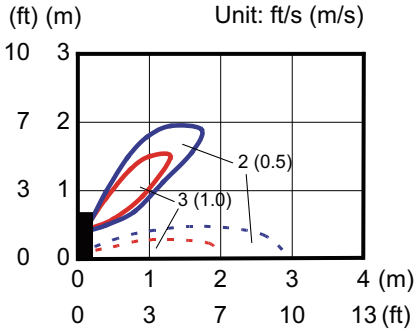
Top view
Vertical airflow direction louver: Up
Horizontal airflow direction louver: Center



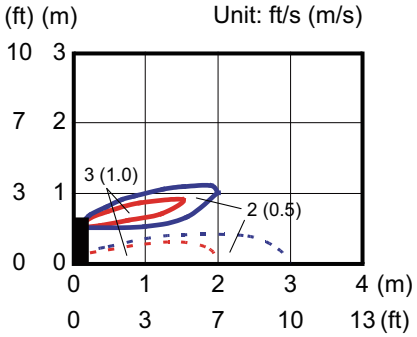
Top view
Vertical airflow direction louver: Up
Horizontal airflow direction louver: Left & Right



Side view
Vertical airflow direction louver: Up
Horizontal airflow direction louver: Center



Side view
Vertical airflow direction louver: Center
Horizontal airflow direction louver: Center



INDOOR UNITS

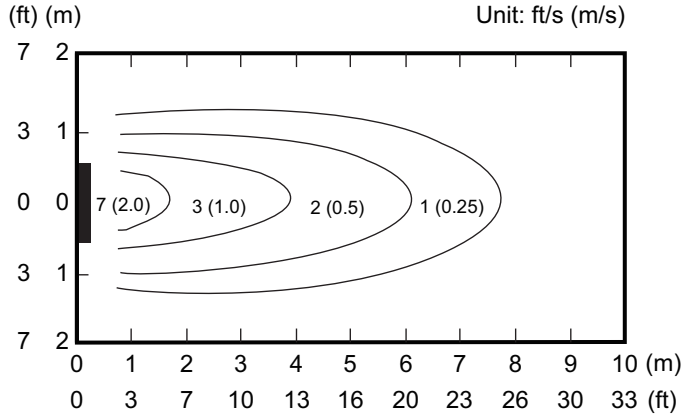
6-7. Floor/Ceiling type

■ Models: ABUA12TLAV2 and ABUA14TLAV2 (Floor console)

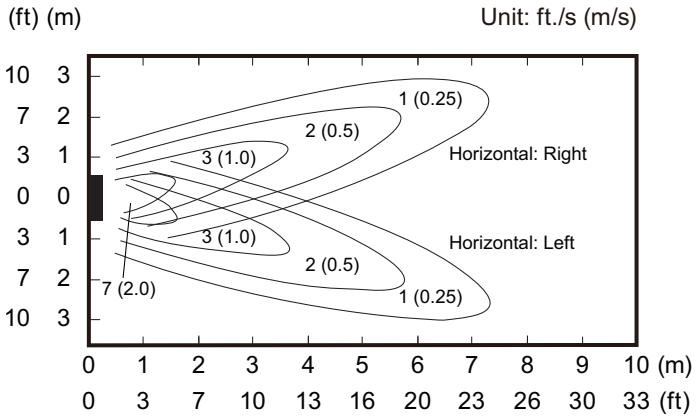
Measuring conditions	Fan speed	Operation mode
	HIGH	FAN

- **Air velocity distribution**

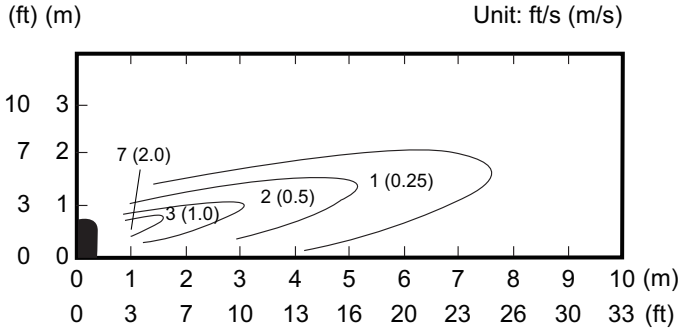
Top view
Vertical airflow direction louver: Down
Horizontal airflow direction louver: Center

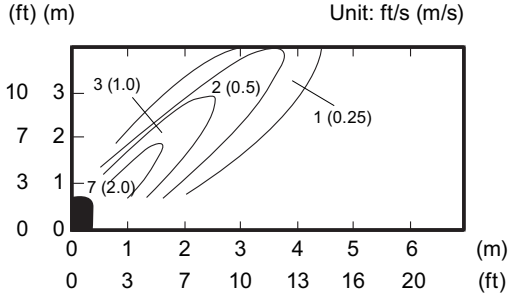


Top view
Vertical airflow direction louver: Down
Horizontal airflow direction louver: Left & Right

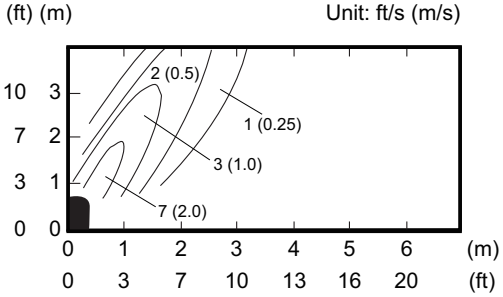


Side view
Vertical airflow direction louver: Down
Horizontal airflow direction louver: Center





Side view
Vertical airflow direction louver: Center
Horizontal airflow direction louver: Center



Side view
Vertical airflow direction louver: Up
Horizontal airflow direction louver: Center

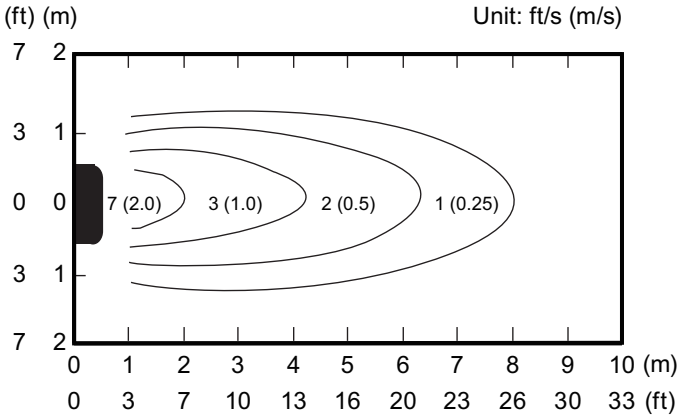
INDOOR UNITS

■ Models: ABUA12TLAV2 and ABUA14TLAV2 (Under ceiling)

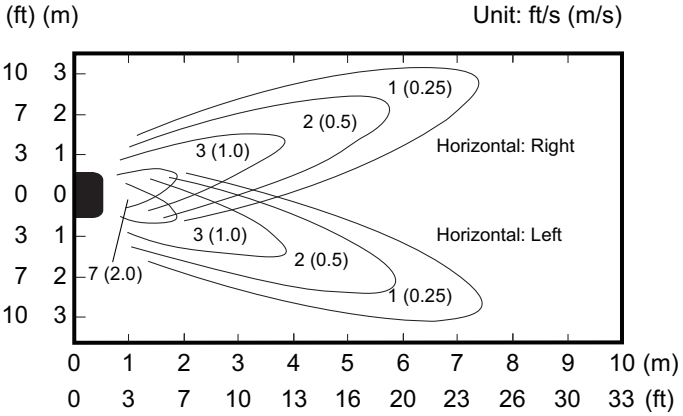
Measuring conditions	Fan speed	Operation mode
	HIGH	FAN

• Air velocity distribution

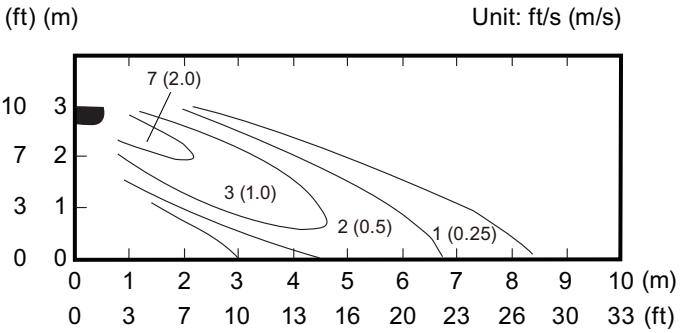
Top view
Vertical airflow direction louver: Down
Horizontal airflow direction louver: Center



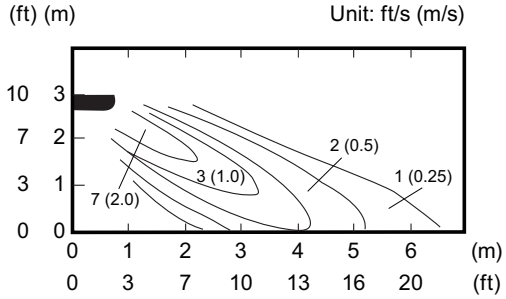
Top view
Vertical airflow direction louver: Down
Horizontal airflow direction louver: Left & Right



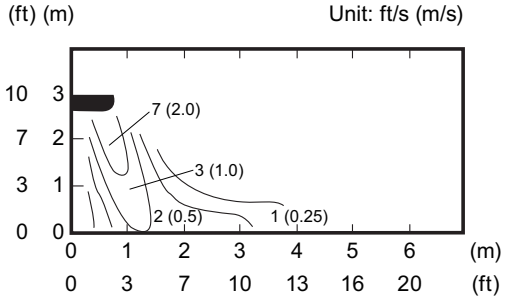
Side view
Vertical airflow direction louver: Down
Horizontal airflow direction louver: Center



Side view
Vertical airflow direction louver: Center
Horizontal airflow direction louver: Center



Side view
Vertical airflow direction louver: Up
Horizontal airflow direction louver: Center



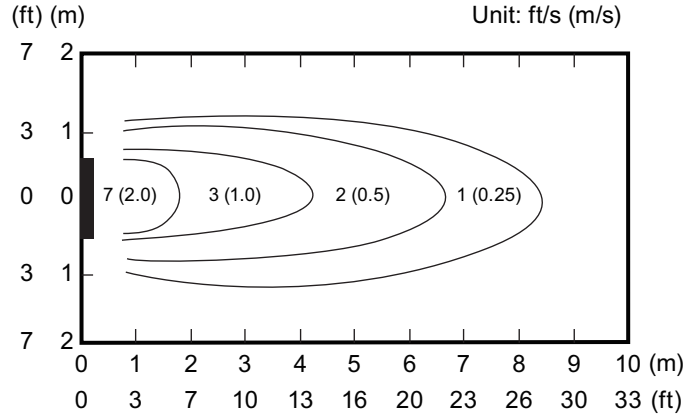
INDOOR UNITS

■ Model: ABUA18TLAV2 (Floor console)

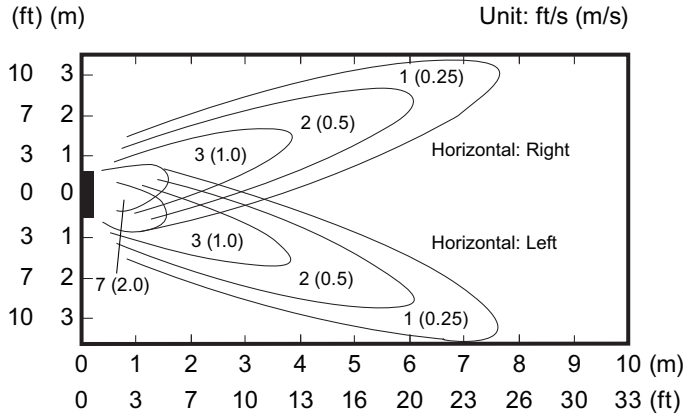
Measuring conditions	Fan speed	Operation mode
	HIGH	FAN

• Air velocity distribution

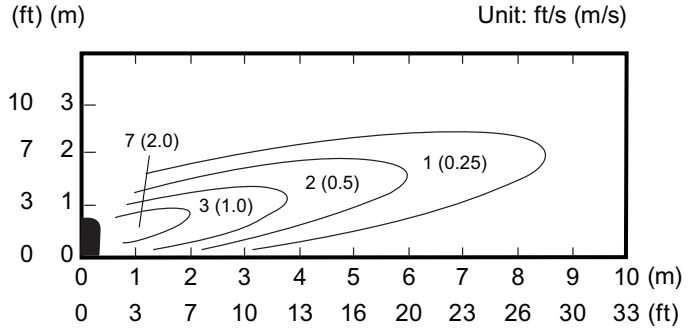
Top view
Vertical airflow direction louver: Down
Horizontal airflow direction louver: Center



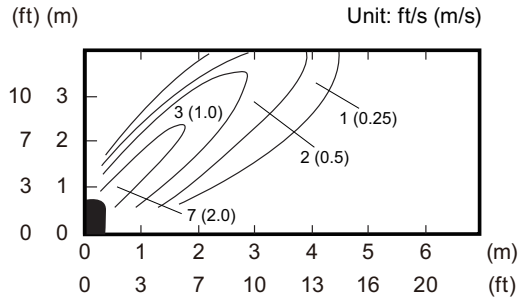
Top view
Vertical airflow direction louver: Down
Horizontal airflow direction louver: Left & Right



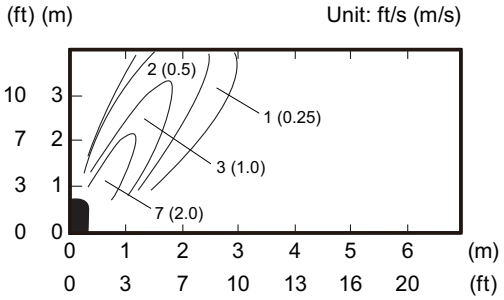
Side view
Vertical airflow direction louver: Down
Horizontal airflow direction louver: Center



Side view
Vertical airflow direction louver: Center
Horizontal airflow direction louver: Center



Side view
Vertical airflow direction louver: Up
Horizontal airflow direction louver: Center

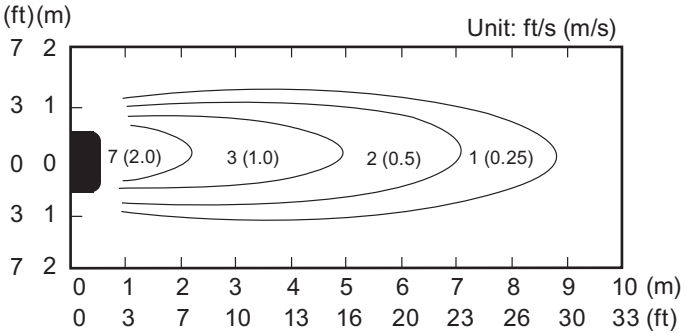


■ Model: ABUA18TLAV2 (Under ceiling)

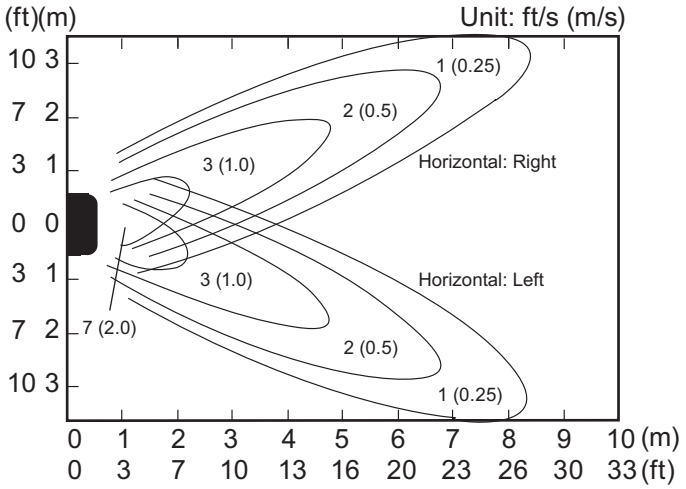
Measuring conditions	Fan speed	Operation mode
	HIGH	FAN

• Air velocity distribution

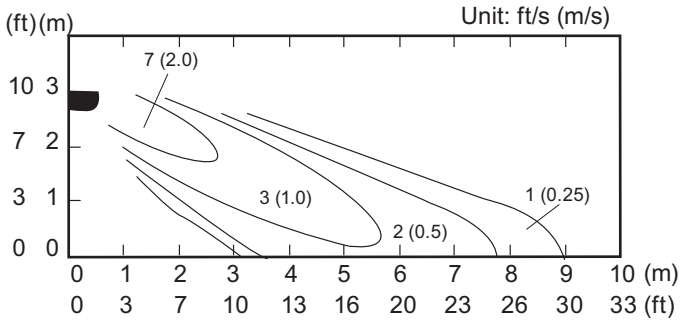
Top view
Vertical airflow direction louver: Down
Horizontal airflow direction louver: Center

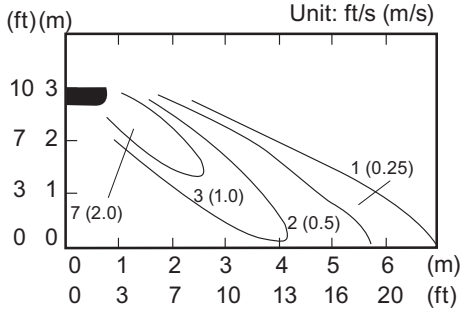


Top view
Vertical airflow direction louver: Down
Horizontal airflow direction louver: Left & Right

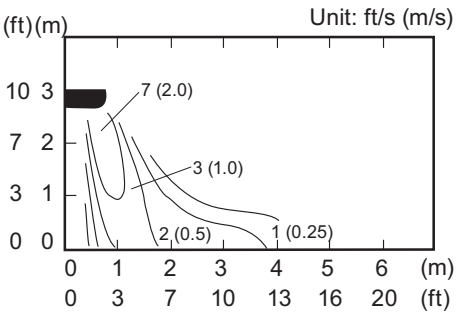


Side view
Vertical airflow direction louver: Down
Horizontal airflow direction louver: Center





Side view
Vertical airflow direction louver: Center
Horizontal airflow direction louver: Center



Side view
Vertical airflow direction louver: Up
Horizontal airflow direction louver: Center

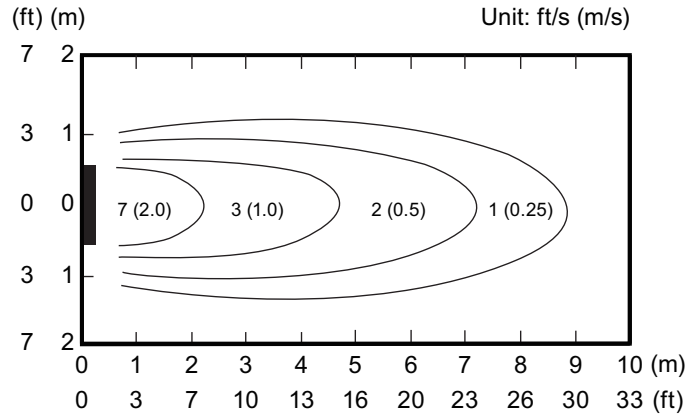
INDOOR UNITS

■ Model: ABUA24TLAV2 (Floor console)

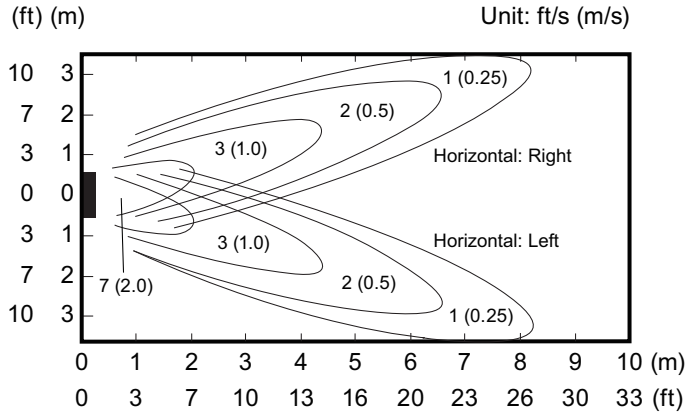
Measuring conditions	Fan speed	Operation mode
	HIGH	FAN

• Air velocity distribution

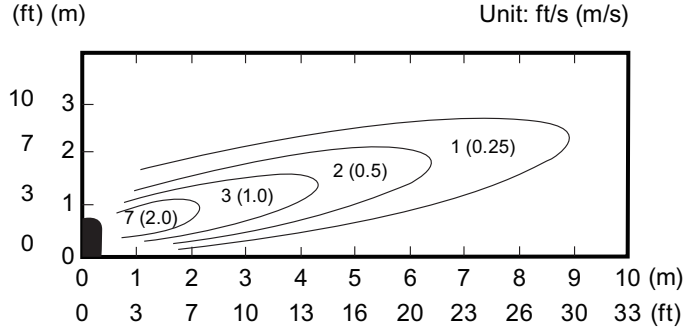
Top view
Vertical airflow direction louver: Down
Horizontal airflow direction louver: Center

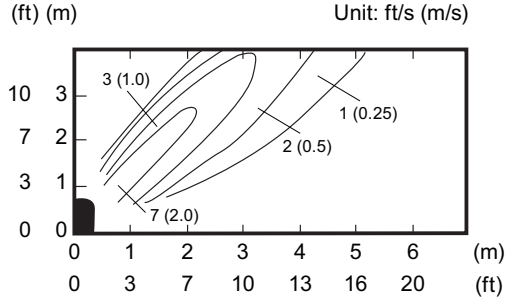


Top view
Vertical airflow direction louver: Down
Horizontal airflow direction louver: Left & Right

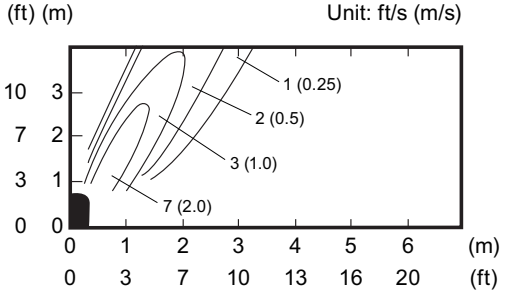


Side view
Vertical airflow direction louver: Down
Horizontal airflow direction louver: Center





Side view
Vertical airflow direction louver: Center
Horizontal airflow direction louver: Center



Side view
Vertical airflow direction louver: Up
Horizontal airflow direction louver: Center

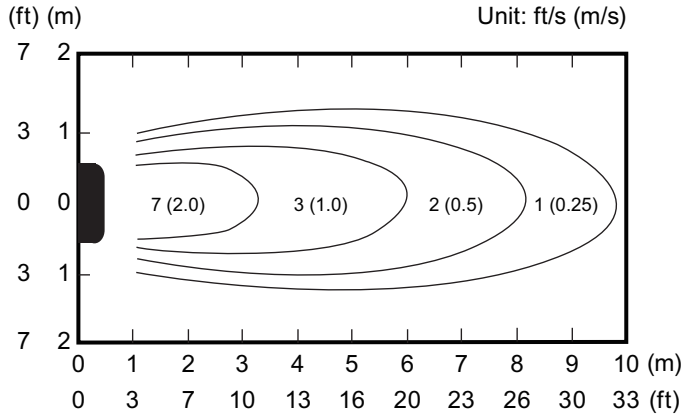
INDOOR UNITS

■ Model: ABUA24TLAV2 (Under ceiling)

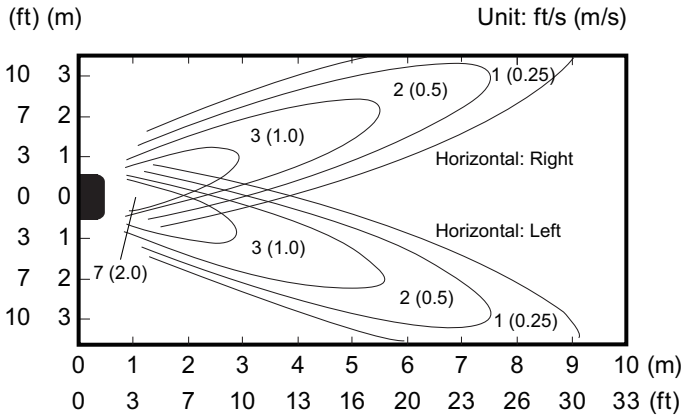
Measuring conditions	Fan speed	Operation mode
	HIGH	FAN

• Air velocity distribution

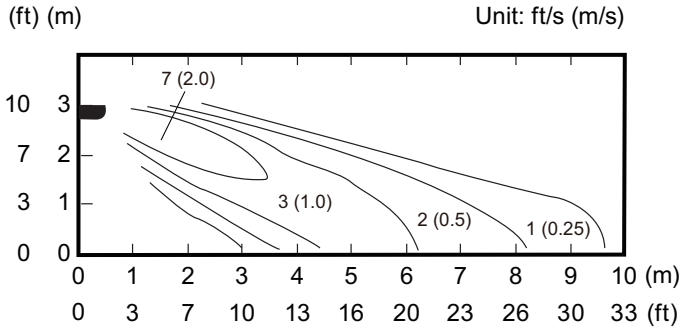
Top view
Vertical airflow direction louver: Down
Horizontal airflow direction louver: Center

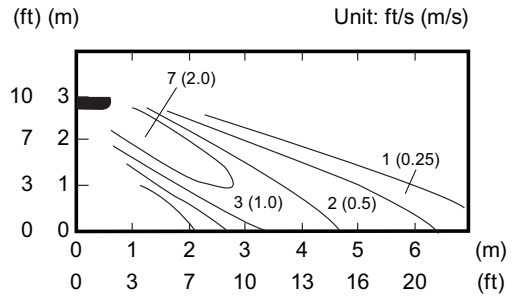


Top view
Vertical airflow direction louver: Down
Horizontal airflow direction louver: Left & Right

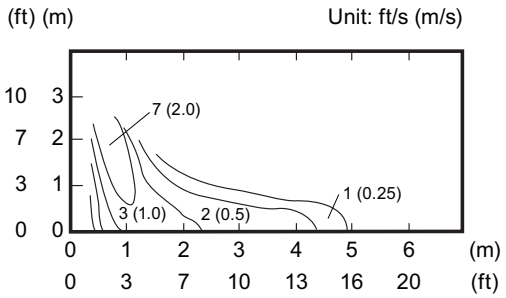


Side view
Vertical airflow direction louver: Down
Horizontal airflow direction louver: Center





Side view
Vertical airflow direction louver: Center
Horizontal airflow direction louver: Center



Side view
Vertical airflow direction louver: Up
Horizontal airflow direction louver: Center

INDOOR UNITS

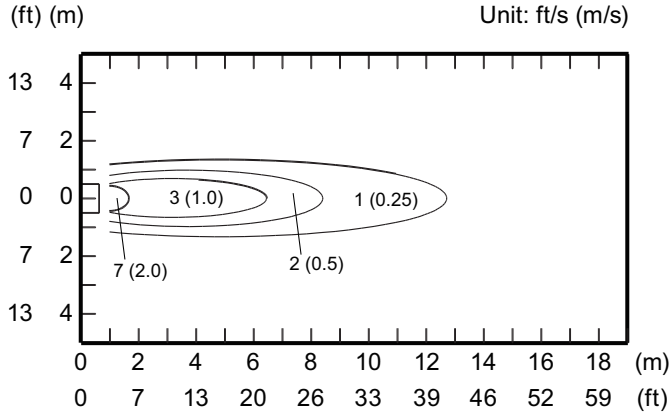
6-8. Ceiling type

■ Model: ABUA30TLAV2

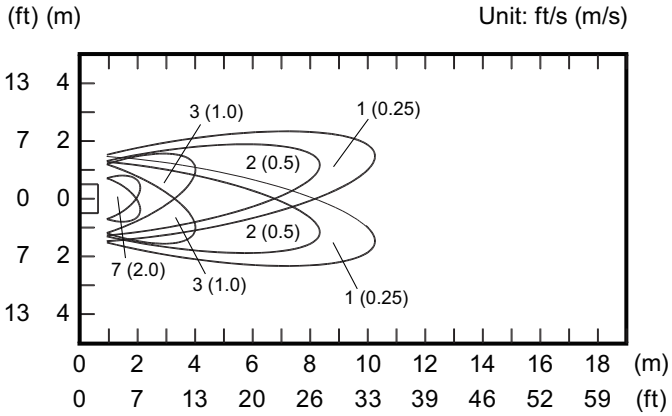
Measuring conditions	Fan speed	Operation mode
	HIGH	FAN

- **Air velocity distribution**

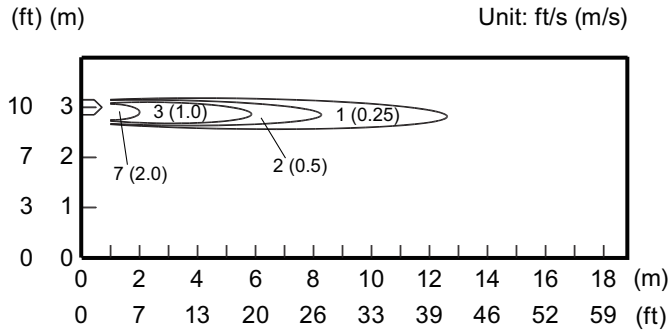
Top view
Vertical airflow direction louver: Up
Horizontal airflow direction louver: Center

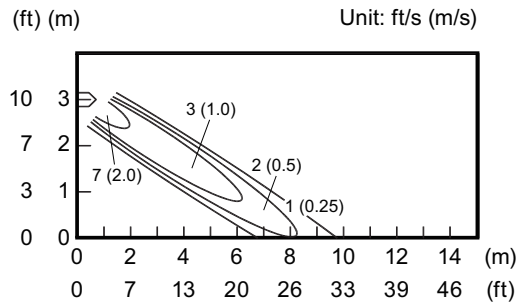


Top view
Vertical airflow direction louver: Up
Horizontal airflow direction louver: Left & Right

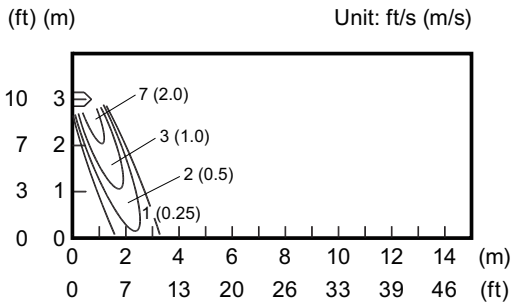


Side view
Vertical airflow direction louver: Up
Horizontal airflow direction louver: Center





Side view
Vertical airflow direction louver: Center
Horizontal airflow direction louver: Center



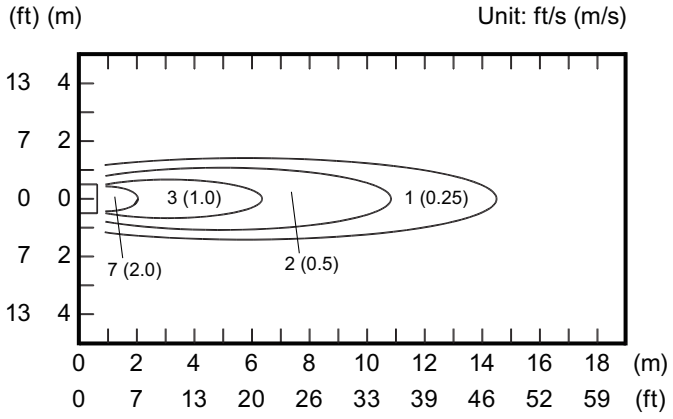
Side view
Vertical airflow direction louver: Down
Horizontal airflow direction louver: Center

■ Model: ABUA36TLAV2

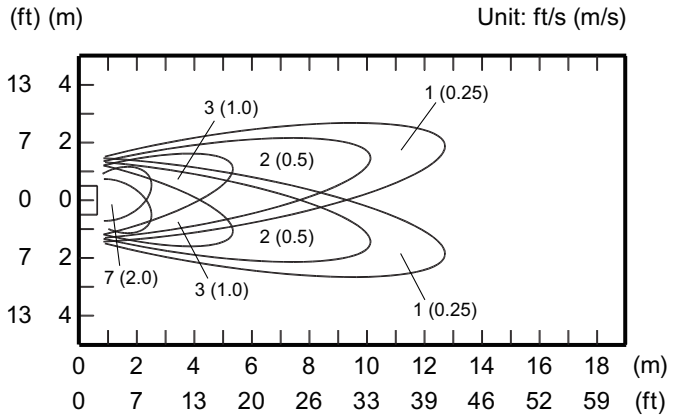
Measuring conditions	Fan speed	Operation mode
	HIGH	FAN

• Air velocity distribution

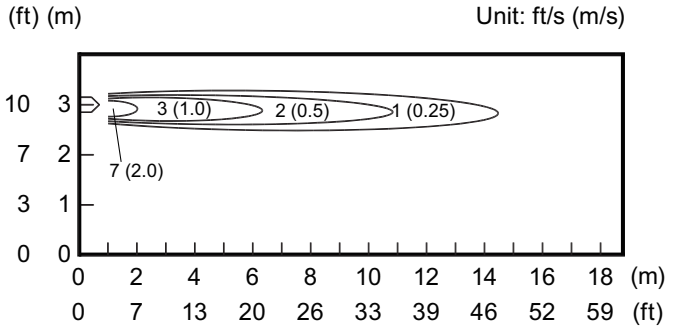
Top view
Vertical airflow direction louver: Up
Horizontal airflow direction louver: Center

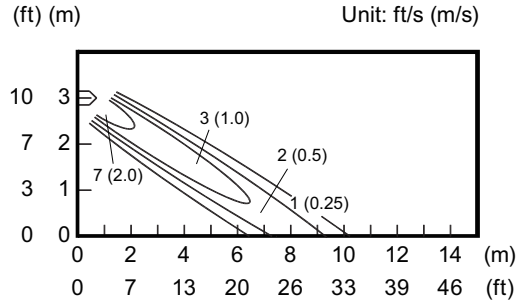


Top view
Vertical airflow direction louver: Up
Horizontal airflow direction louver: Left & Right

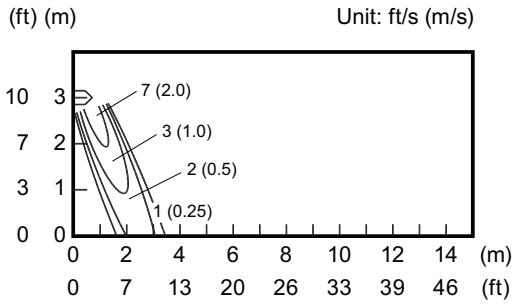


Side view
Vertical airflow direction louver: Up
Horizontal airflow direction louver: Center





Side view
Vertical airflow direction louver: Center
Horizontal airflow direction louver: Center



Side view
Vertical airflow direction louver: Down
Horizontal airflow direction louver: Center

INDOOR UNITS

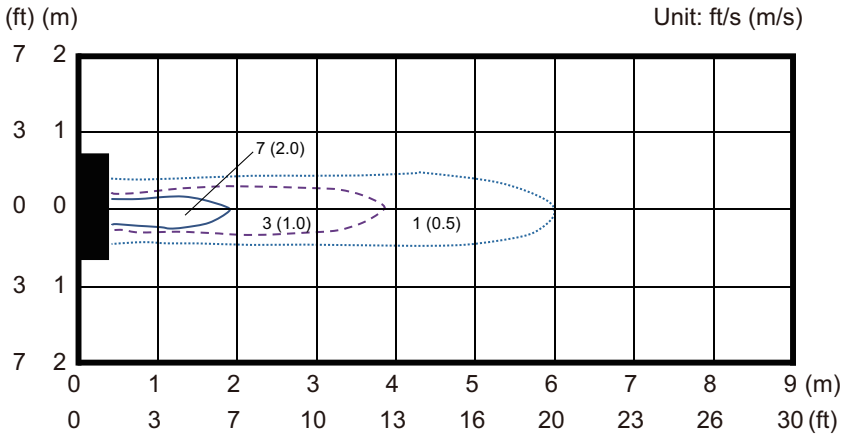
6-9. Wall mounted type

■ Model: ASUA4TLAV2

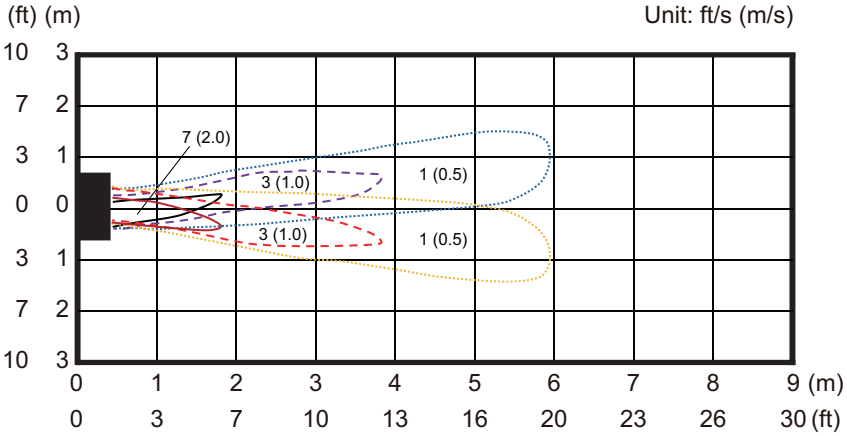
Measuring conditions	Fan speed	Operation mode
	HIGH	FAN

- **Air velocity distribution**

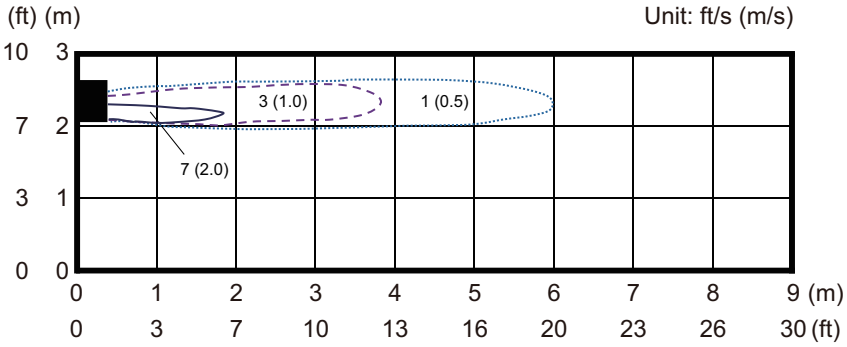
Top view
Vertical airflow direction louver: Up
Horizontal airflow direction louver: Center



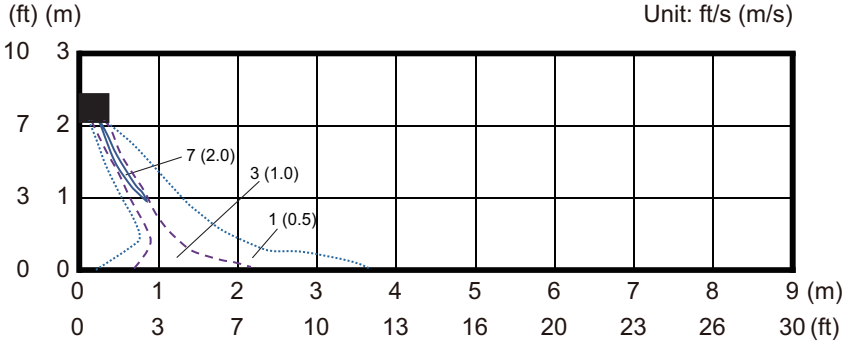
Top view
Vertical airflow direction louver: Up
Horizontal airflow direction louver: Left & Right



Side view
Vertical airflow direction louver: Up
Horizontal airflow direction louver: Center



Side view
Vertical airflow direction louver: Down
Horizontal airflow direction louver: Center



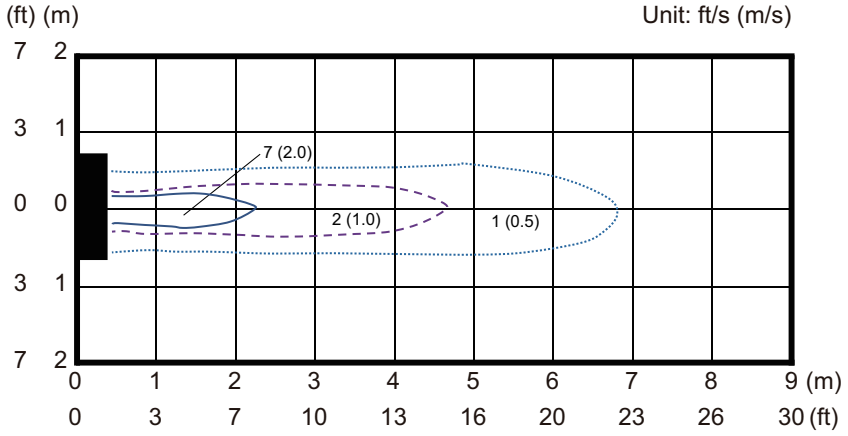
INDOOR UNITS

■ Model: ASUA7TLAV2

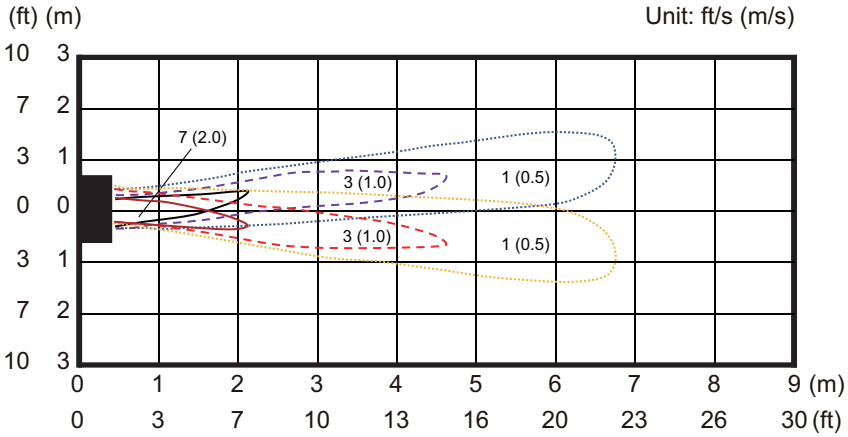
Measuring conditions	Fan speed	Operation mode
	HIGH	FAN

• Air velocity distribution

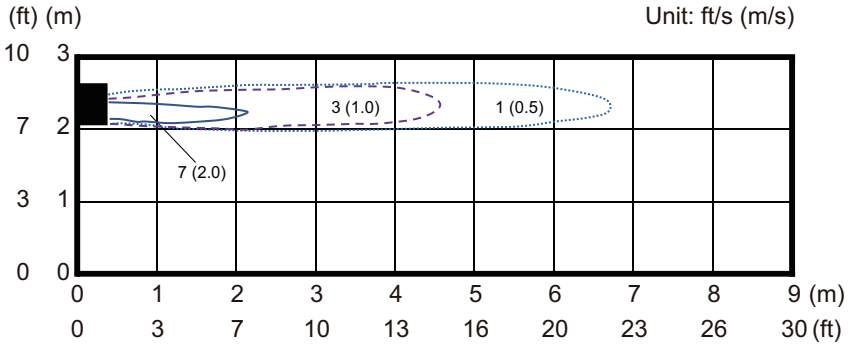
Top view
Vertical airflow direction louver: Up
Horizontal airflow direction louver: Center



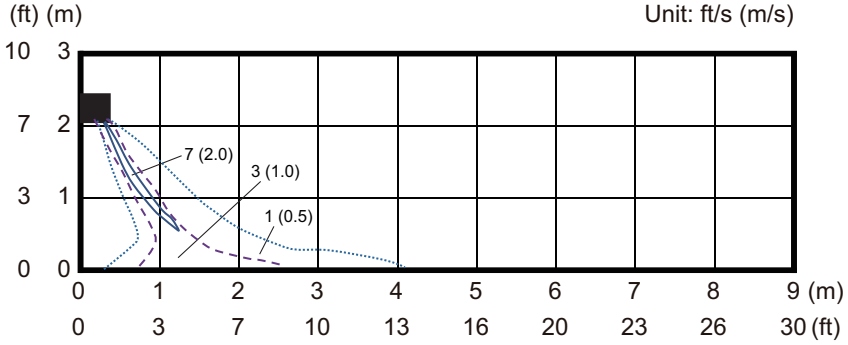
Top view
Vertical airflow direction louver: Up
Horizontal airflow direction louver: Left & Right



Side view
Vertical airflow direction louver: Up
Horizontal airflow direction louver: Center



Side view
Vertical airflow direction louver: Down
Horizontal airflow direction louver: Center



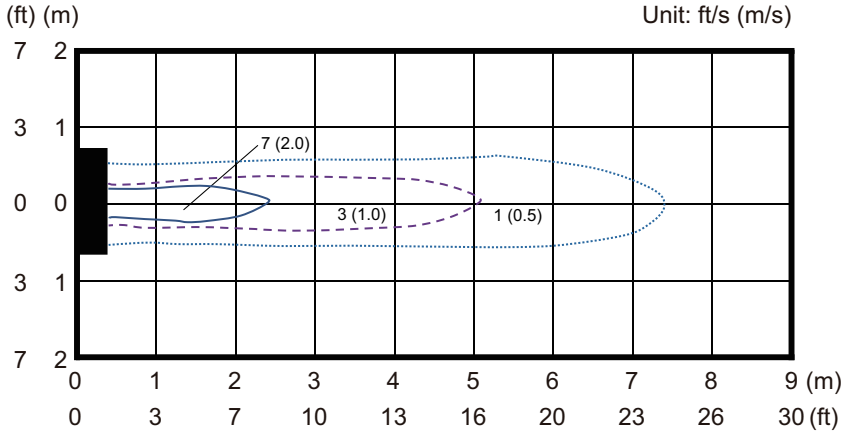
INDOOR UNITS

■ Model: ASUA9TLAV2

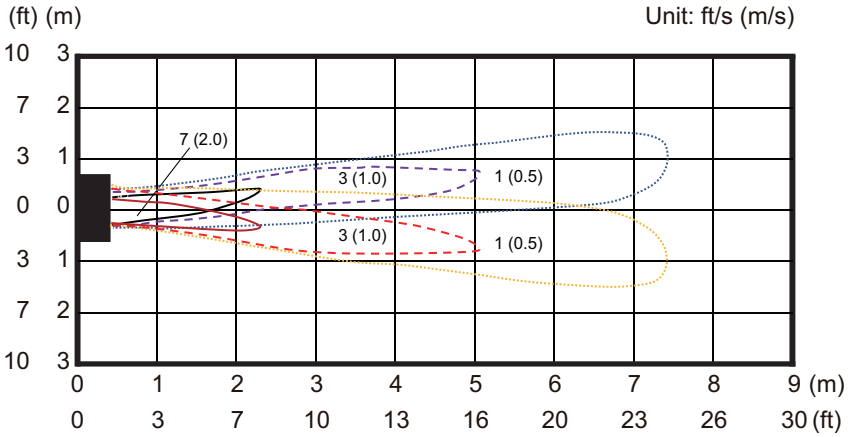
Measuring conditions	Fan speed	Operation mode
	HIGH	FAN

• Air velocity distribution

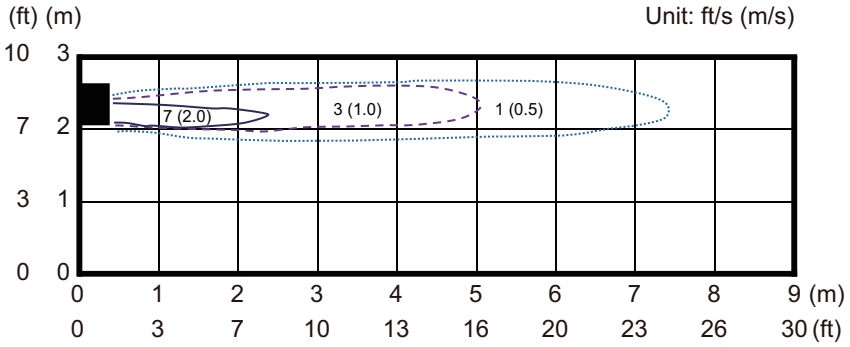
Top view
Vertical airflow direction louver: Up
Horizontal airflow direction louver: Center



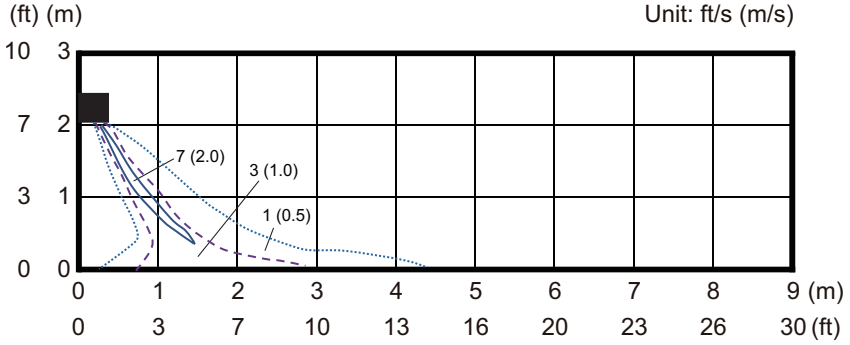
Top view
Vertical airflow direction louver: Up
Horizontal airflow direction louver: Left & Right



Side view
Vertical airflow direction louver: Up
Horizontal airflow direction louver: Center



Side view
Vertical airflow direction louver: Down
Horizontal airflow direction louver: Center



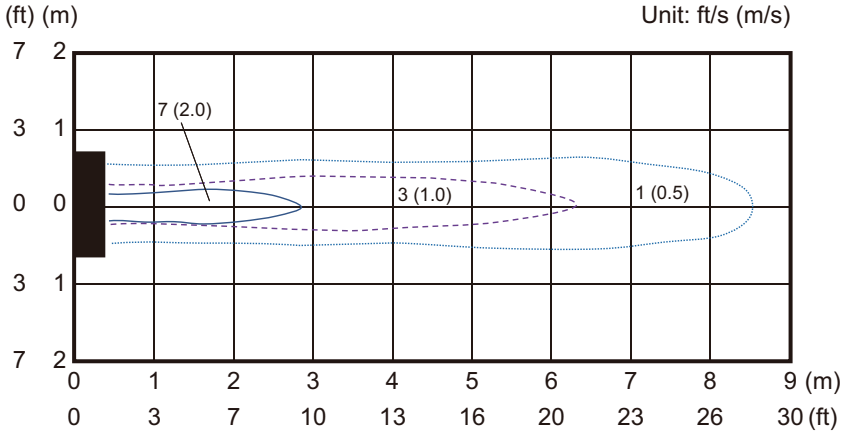
INDOOR UNITS

■ Model: ASUA12TLAV2

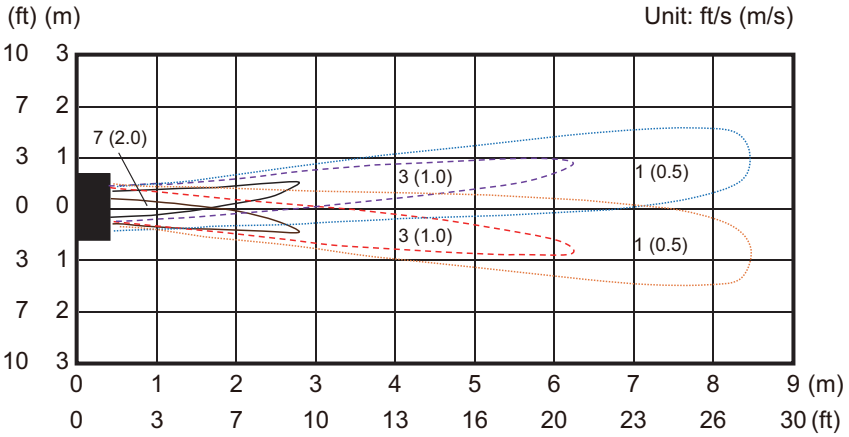
Measuring conditions	Fan speed	Operation mode
	HIGH	FAN

• Air velocity distribution

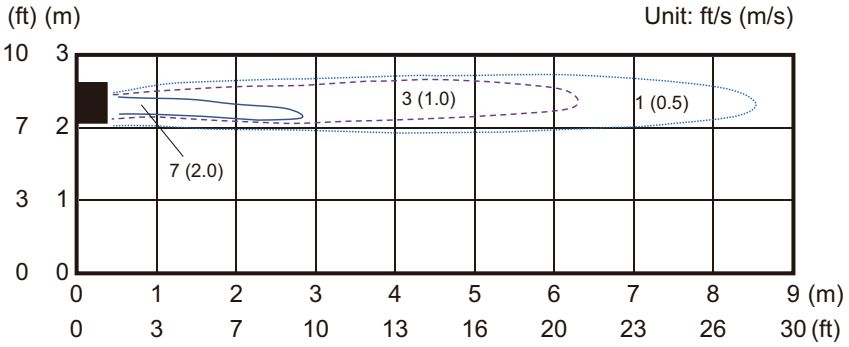
Top view
Vertical airflow direction louver: Up
Horizontal airflow direction louver: Center



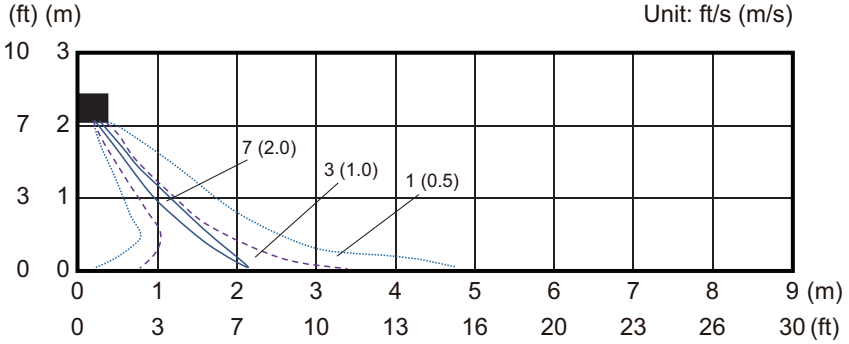
Top view
Vertical airflow direction louver: Up
Horizontal airflow direction louver: Left & Right



Side view
Vertical airflow direction louver: Up
Horizontal airflow direction louver: Center



Side view
Vertical airflow direction louver: Down
Horizontal airflow direction louver: Center



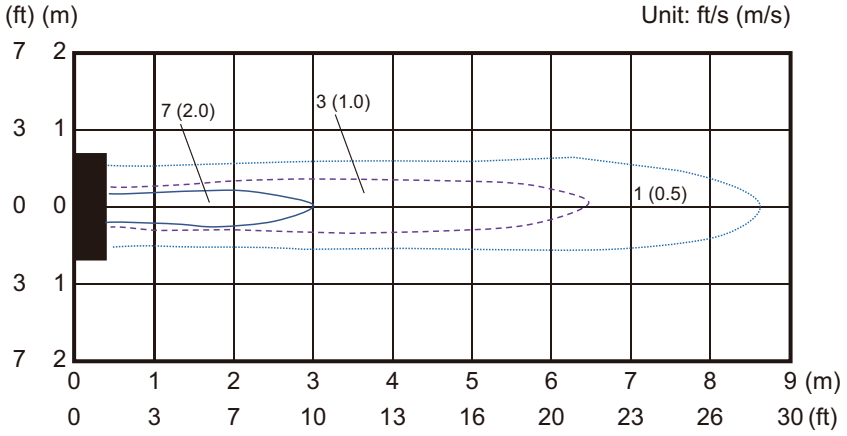
INDOOR UNITS

■ Model: ASUA14TLAV2

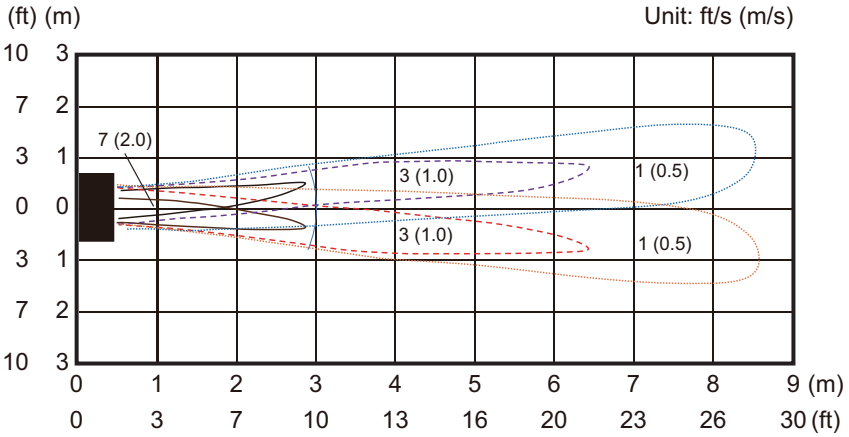
Measuring conditions	Fan speed	Operation mode
	HIGH	FAN

• Air velocity distribution

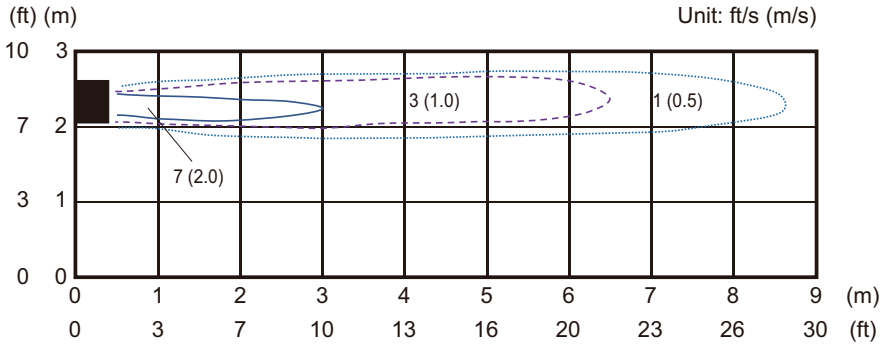
Top view
Vertical airflow direction louver: Up
Horizontal airflow direction louver: Center



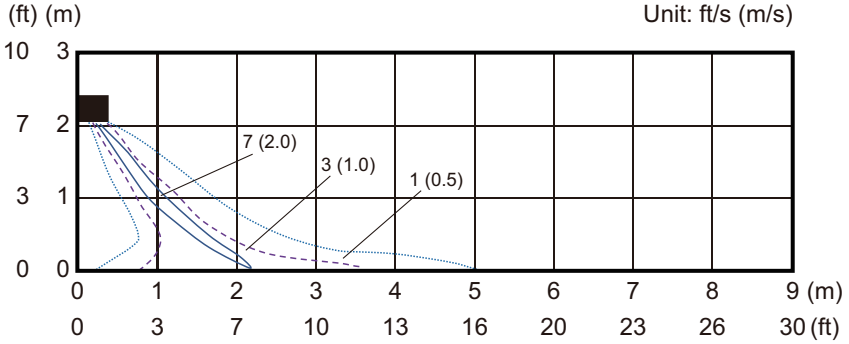
Top view
Vertical airflow direction louver: Up
Horizontal airflow direction louver: Left & Right



Side view
Vertical airflow direction louver: Up
Horizontal airflow direction louver: Center



Side view
Vertical airflow direction louver: Down
Horizontal airflow direction louver: Center



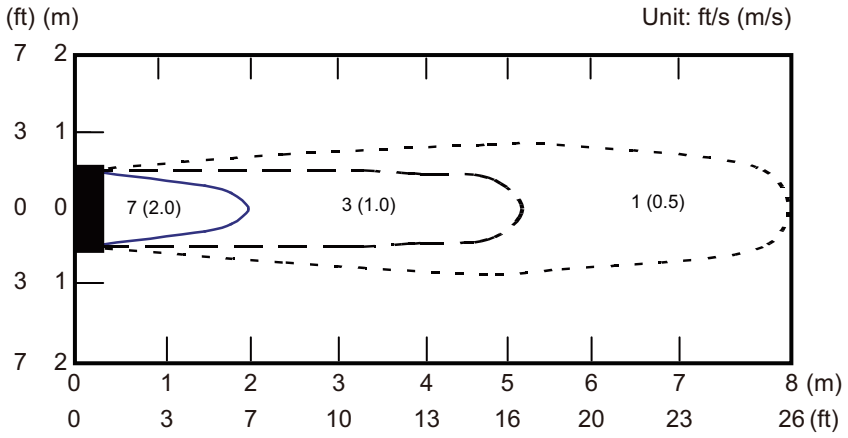
INDOOR UNITS

■ Models: ASUB18TLAV1 and ASUB18TLAV

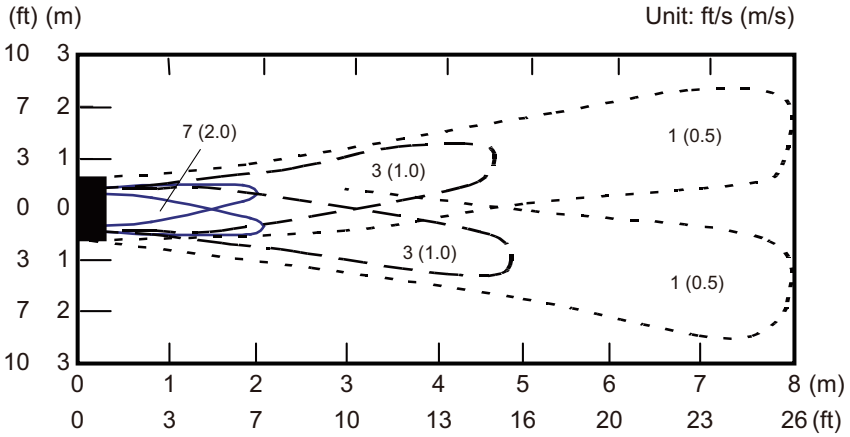
Measuring conditions	Fan speed	Operation mode
	HIGH	FAN

• Air velocity distribution

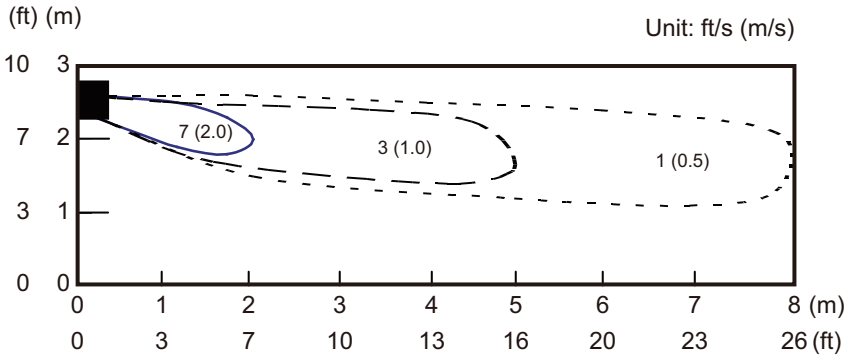
Top view
Vertical airflow direction louver: Up
Horizontal airflow direction louver: Center



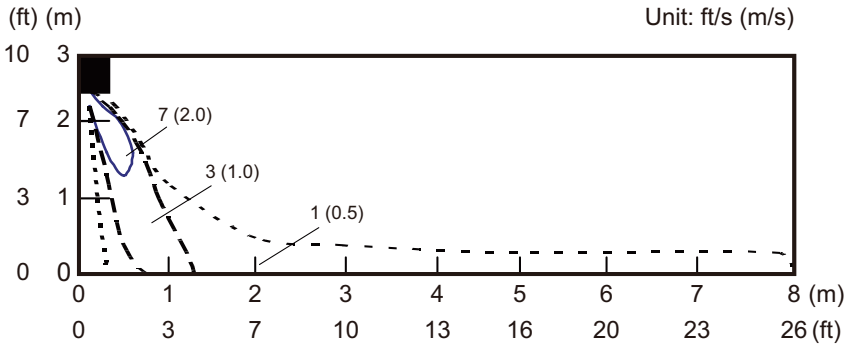
Top view
Vertical airflow direction louver: Up
Horizontal airflow direction louver: Left & Right



Side view
Vertical airflow direction louver: Up
Horizontal airflow direction louver: Center



Side view
Vertical airflow direction louver: Down
Horizontal airflow direction louver: Center



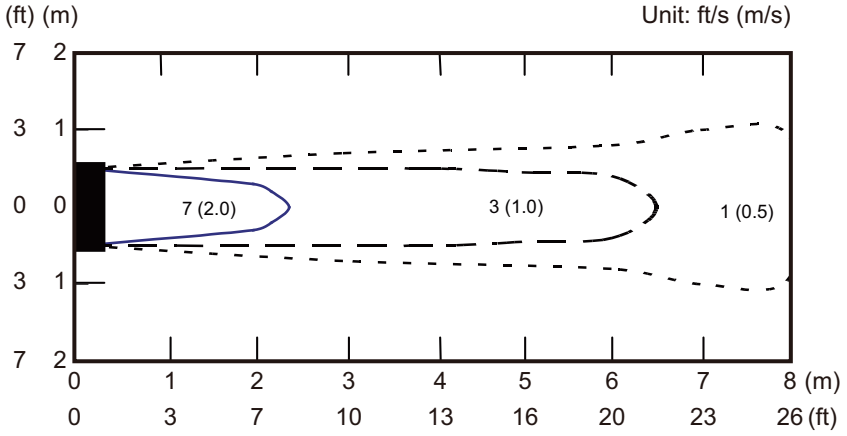
INDOOR UNITS

■ Models: ASUB24TLAV1 and ASUB24TLAV

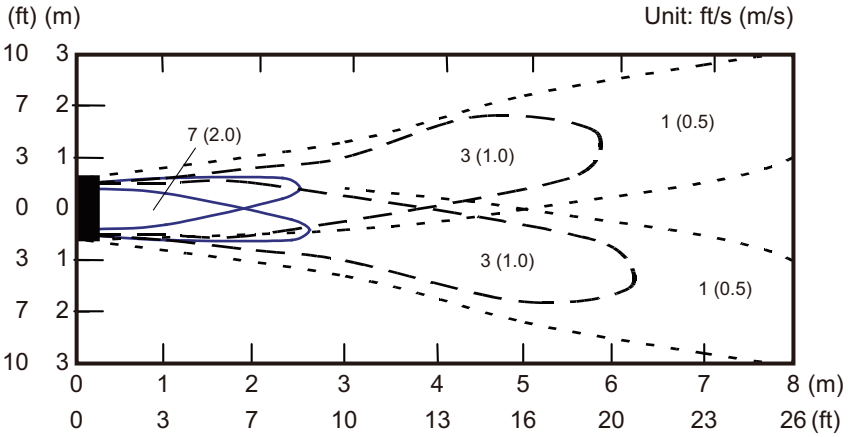
Measuring conditions	Fan speed	Operation mode
	HIGH	FAN

• Air velocity distribution

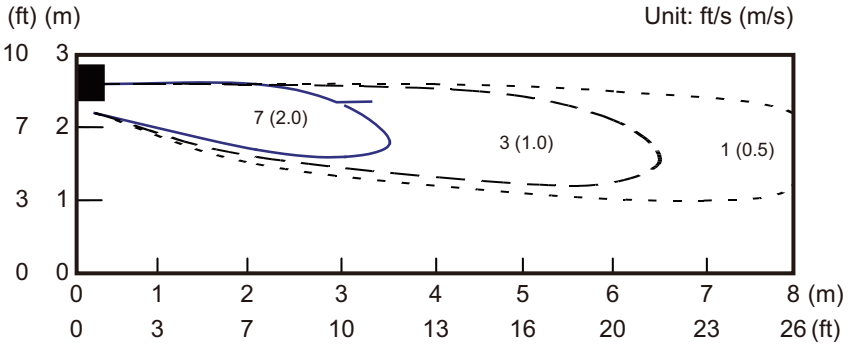
Top view
Vertical airflow direction louver: Up
Horizontal airflow direction louver: Center



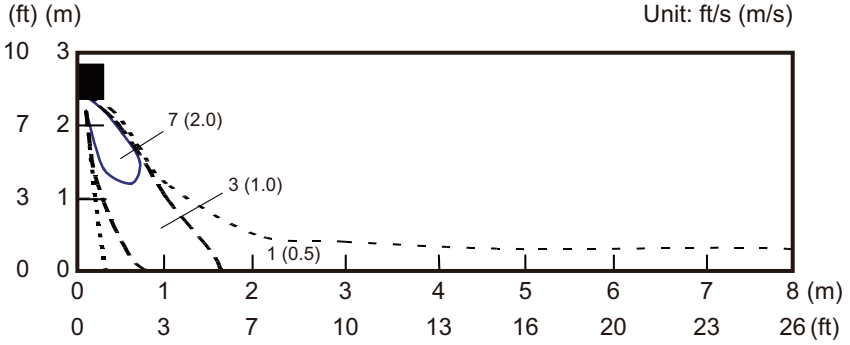
Top view
Vertical airflow direction louver: Up
Horizontal airflow direction louver: Left & Right



Side view
Vertical airflow direction louver: Up
Horizontal airflow direction louver: Center



Side view
Vertical airflow direction louver: Down
Horizontal airflow direction louver: Center



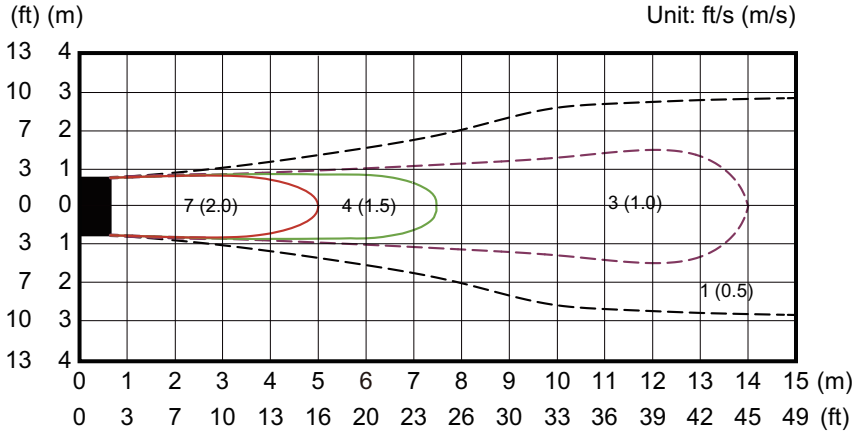
INDOOR UNITS

■ Model: ASUA30TLAV2

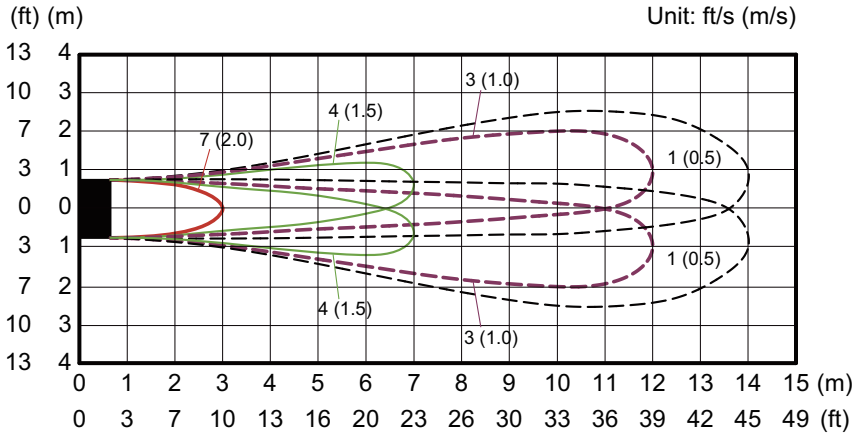
Measuring conditions	Fan speed	Operation mode
	HIGH	FAN

• Air velocity distribution

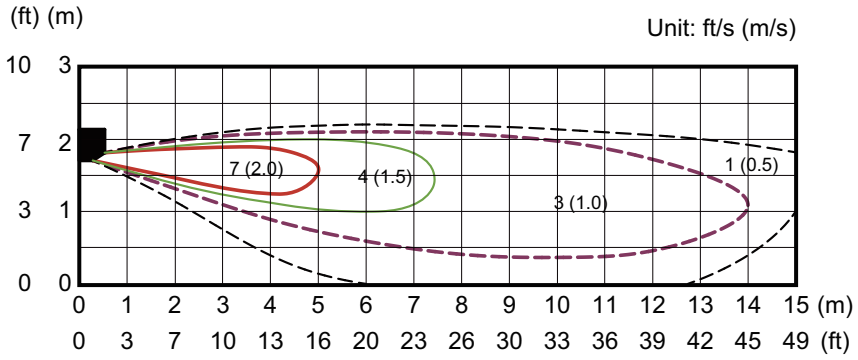
Top view
Vertical airflow direction louver: Up
Horizontal airflow direction louver: Center



Top view
Vertical airflow direction louver: Up
Horizontal airflow direction louver: Left & Right



Side view
Vertical airflow direction louver: Up
Horizontal airflow direction louver: Center



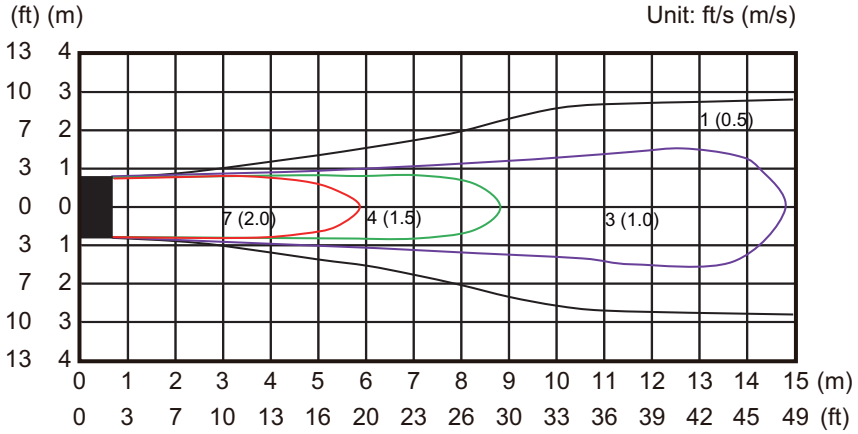
INDOOR UNITS

■ Model: ASUA36TLAV2

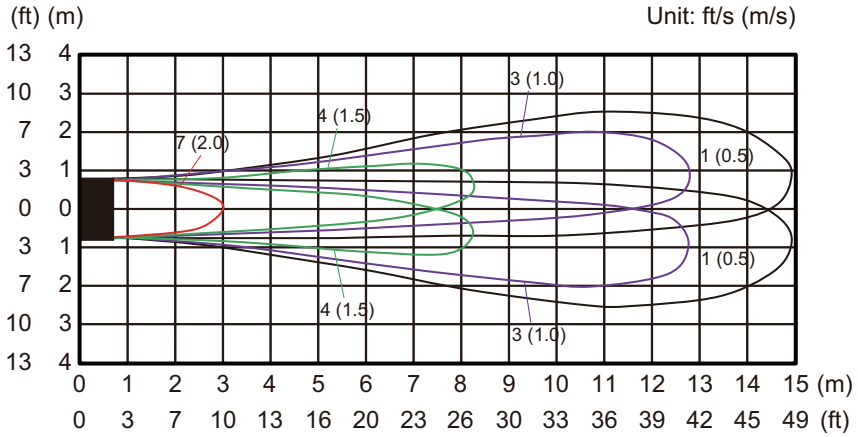
Measuring conditions	Fan speed	Operation mode
	HIGH	FAN

• Air velocity distribution

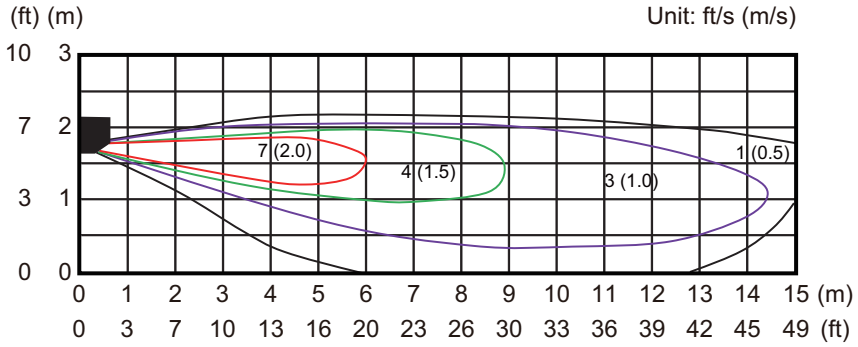
Top view
Vertical airflow direction louver: Up
Horizontal airflow direction louver: Center



Top view
Vertical airflow direction louver: Up
Horizontal airflow direction louver: Left & Right



Side view
Vertical airflow direction louver: Up
Horizontal airflow direction louver: Center



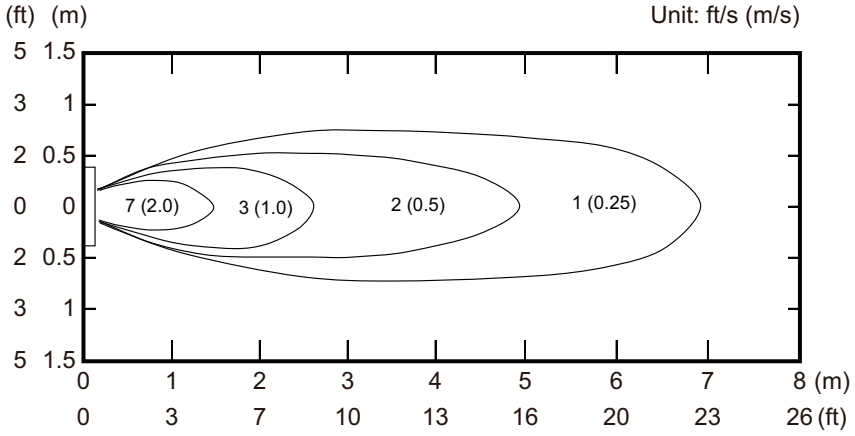
INDOOR UNITS

■ Models: ASUA7TLAV and ASUA9TLAV

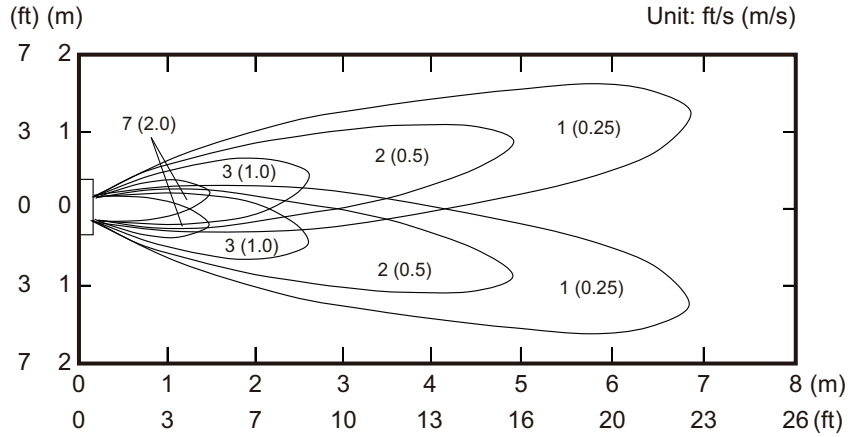
Measuring conditions	Fan speed	Operation mode
	HIGH	FAN

• Air velocity distribution

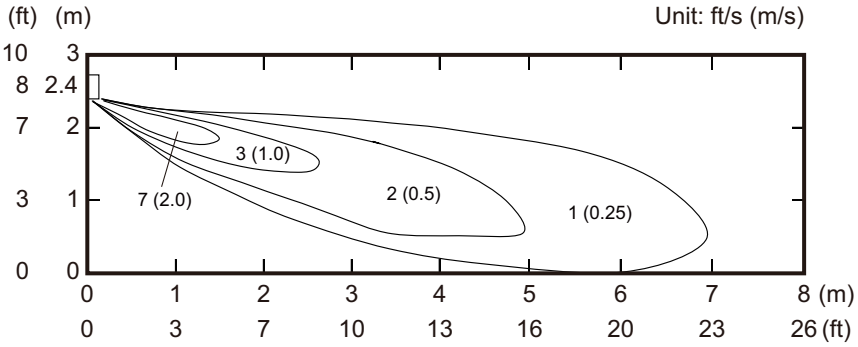
Top view
Vertical airflow direction louver: Up
Horizontal airflow direction louver: Center



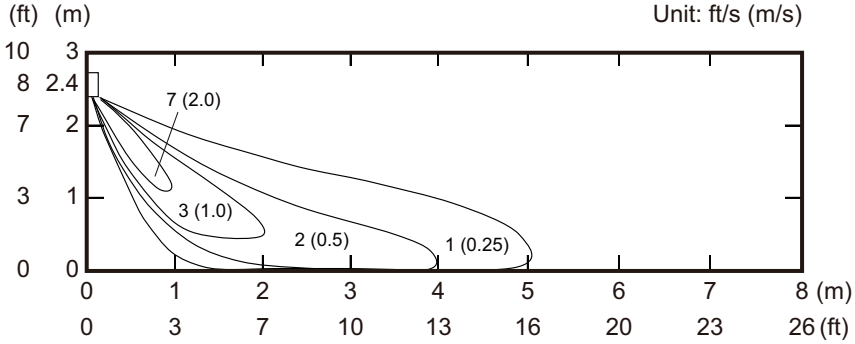
Top view
Vertical airflow direction louver: Up
Horizontal airflow direction louver: Left & Right



Side view
Vertical airflow direction louver: Up
Horizontal airflow direction louver: Center



Side view
Vertical airflow direction louver: Down
Horizontal airflow direction louver: Center



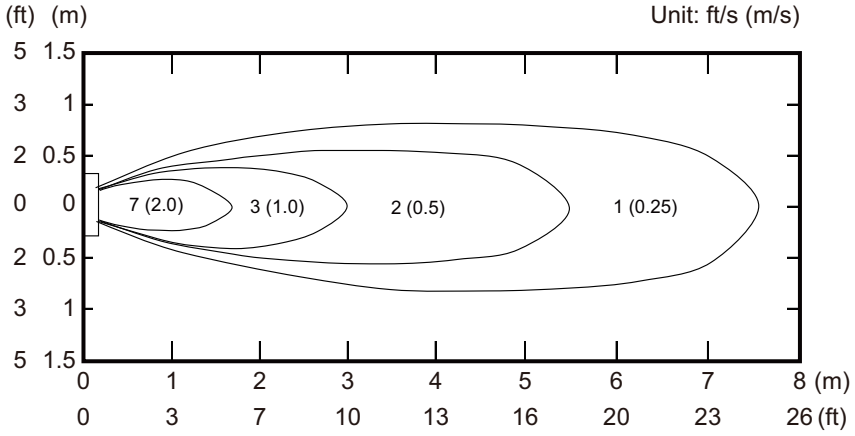
INDOOR UNITS

■ Model: ASUA12TLAV

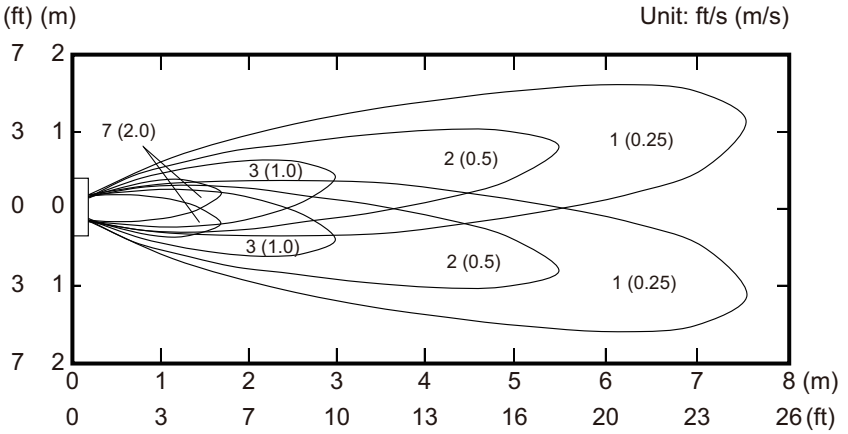
Measuring conditions	Fan speed	Operation mode
	HIGH	FAN

• Air velocity distribution

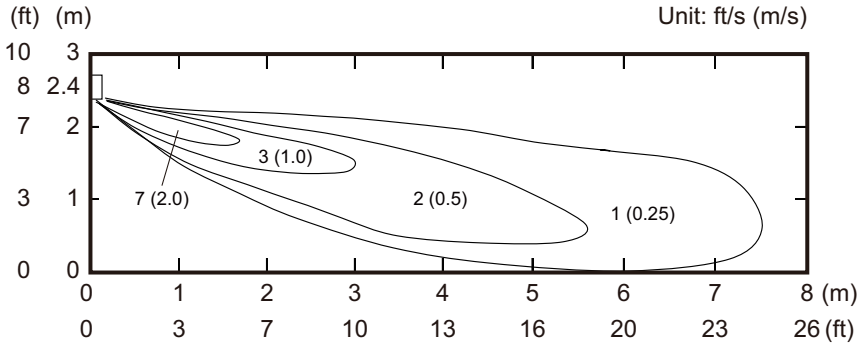
Top view
Vertical airflow direction louver: Up
Horizontal airflow direction louver: Center



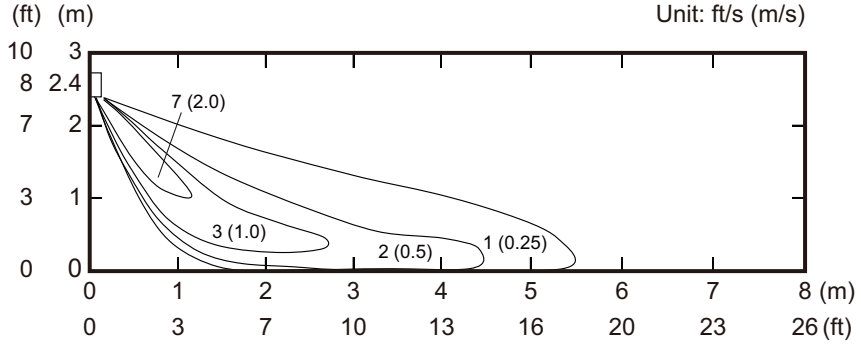
Top view
Vertical airflow direction louver: Up
Horizontal airflow direction louver: Left & Right



Side view
Vertical airflow direction louver: Up
Horizontal airflow direction louver: Center



Side view
Vertical airflow direction louver: Down
Horizontal airflow direction louver: Center



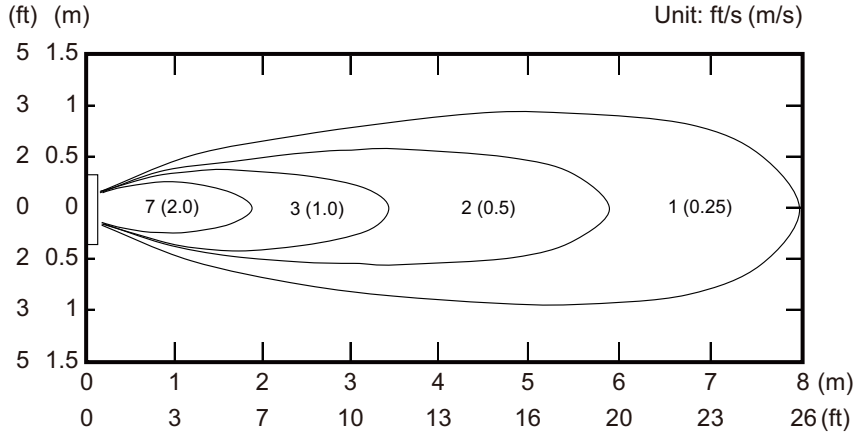
INDOOR UNITS

■ Model: ASUA14TLAV

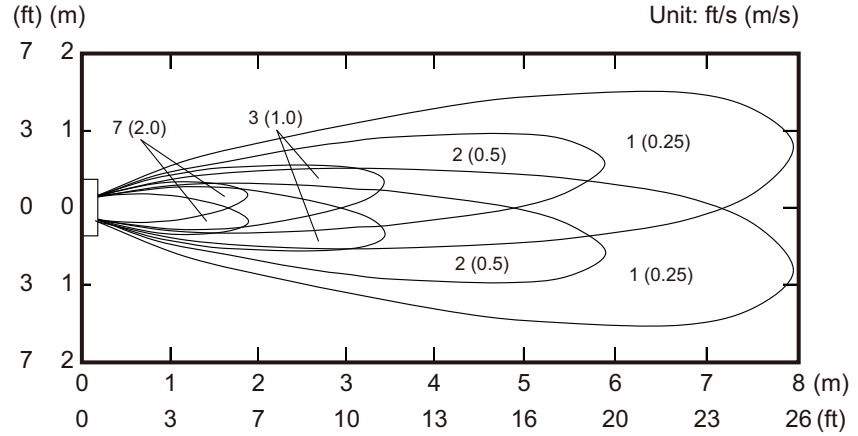
Measuring conditions	Fan speed	Operation mode
	HIGH	FAN

• Air velocity distribution

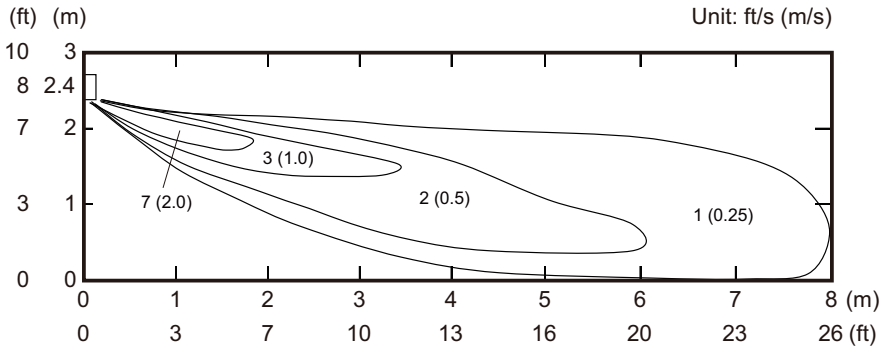
Top view
Vertical airflow direction louver: Up
Horizontal airflow direction louver: Center



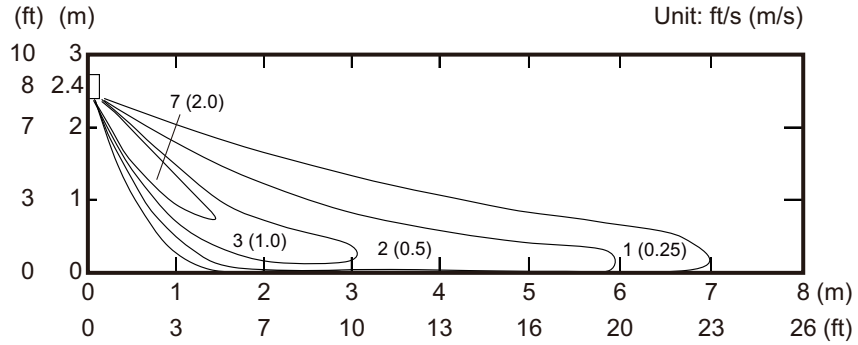
Top view
Vertical airflow direction louver: Up
Horizontal airflow direction louver: Left & Right



Side view
Vertical airflow direction louver: Up
Horizontal airflow direction louver: Center



Side view
Vertical airflow direction louver: Down
Horizontal airflow direction louver: Center



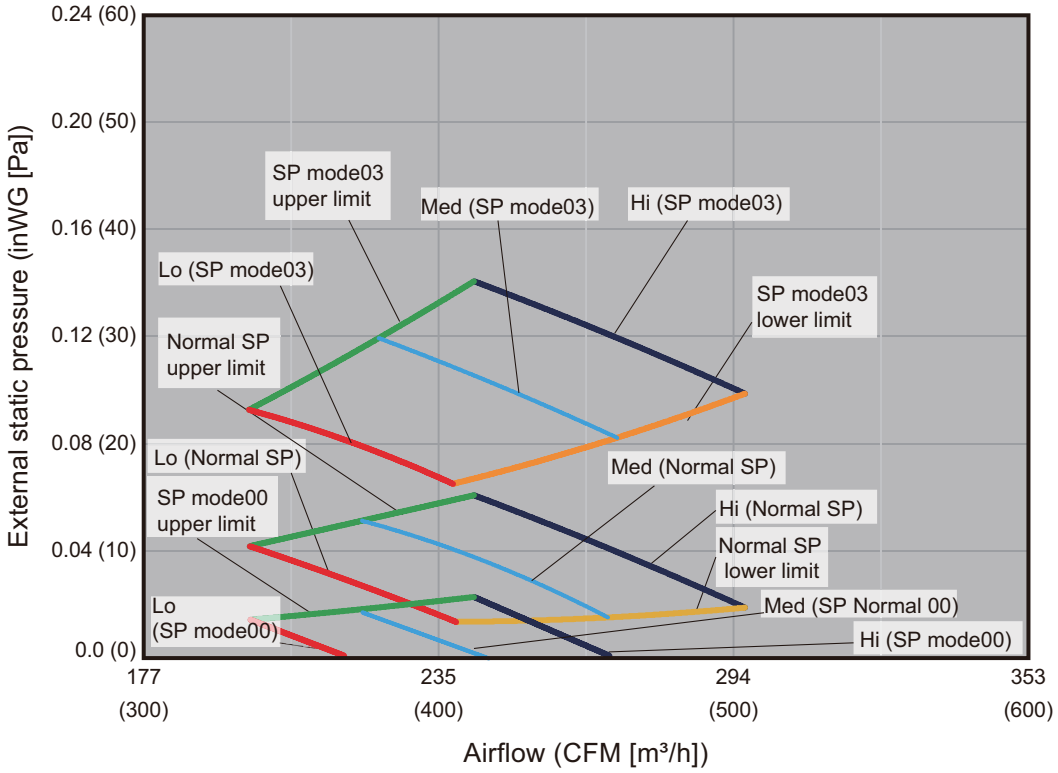
INDOOR UNITS

7. Fan performance curve

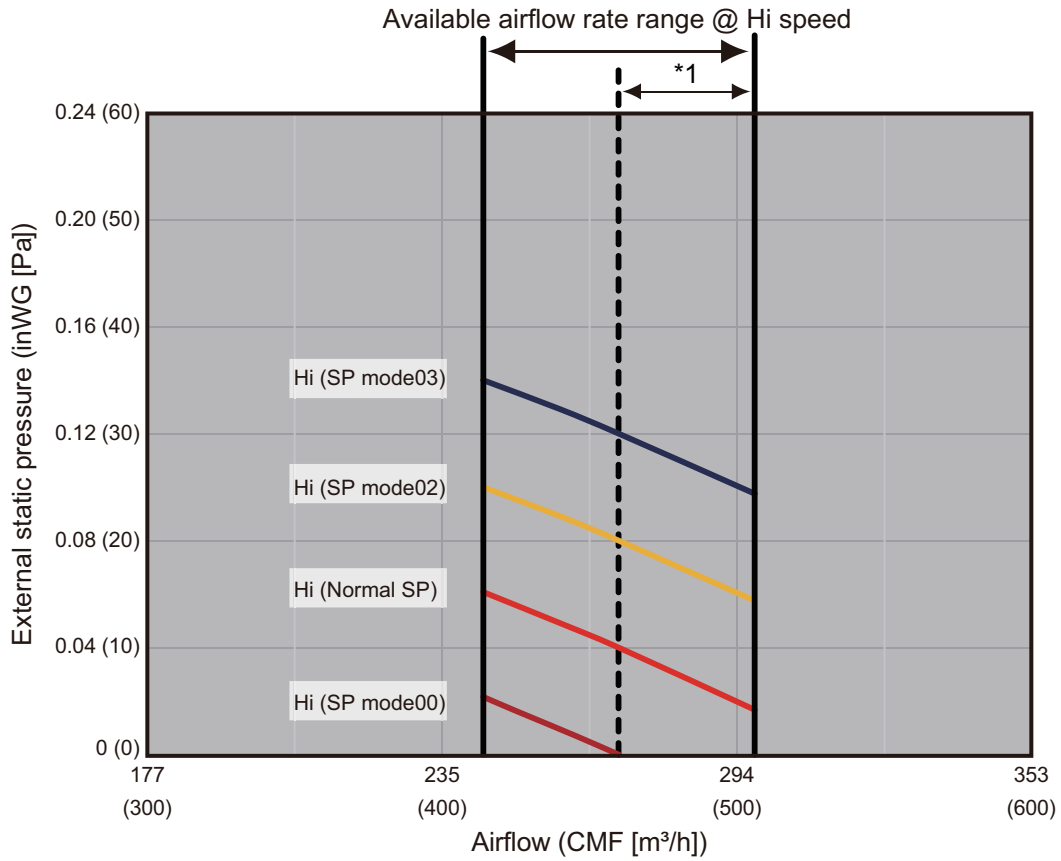
NOTE: Airflow and capacity/outlet temperature curve data are measured based on the same conditions mentioned in "Specifications" on page 04-4.

7-1. Mini duct type

■ Model: ARUL4TLAV2



INDOOR UNITS

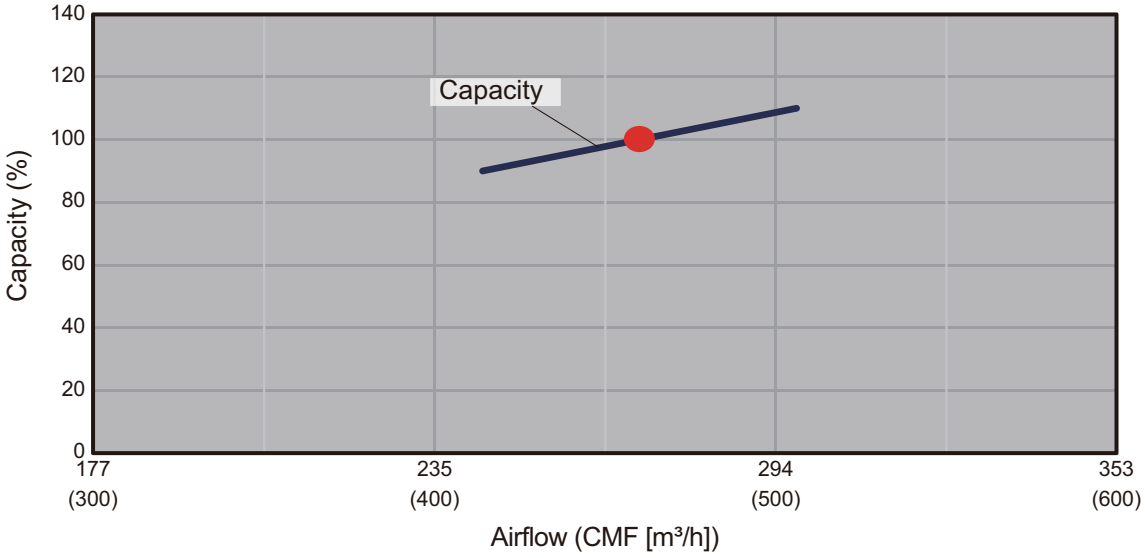


*1: Available airflow rate range when Auto louver grille kit (option) is installed.

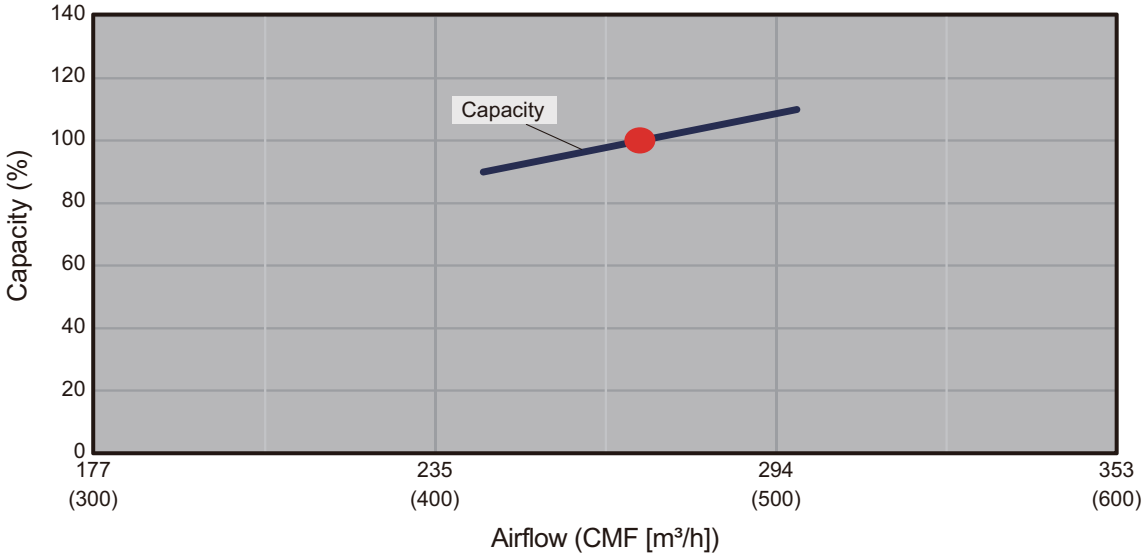
- Fan speed: HIGH
- Vertical airflow direction louver: Up

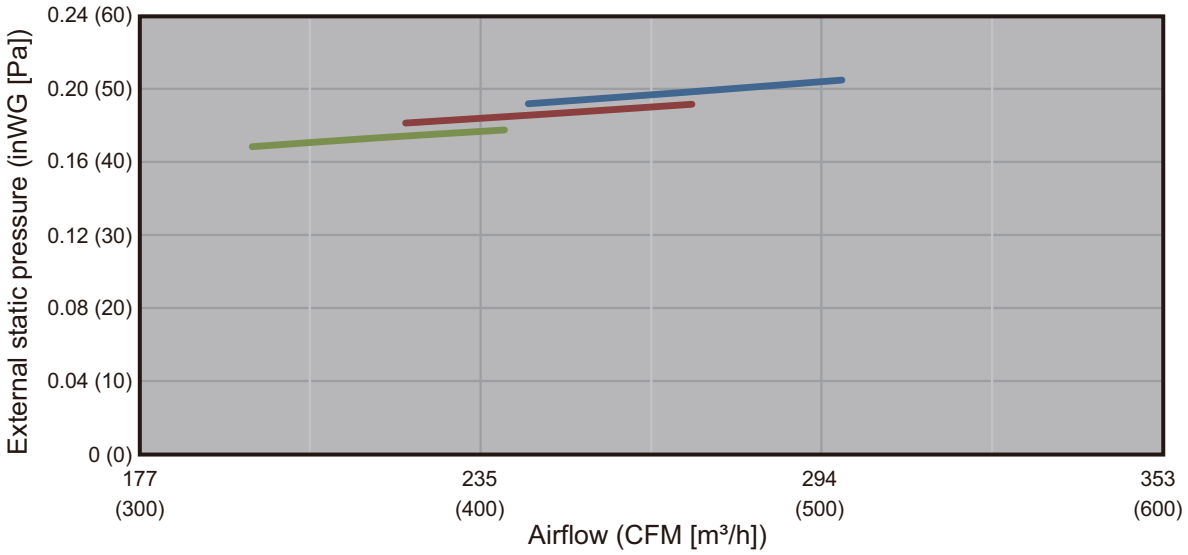
INDOOR UNITS

Cooling



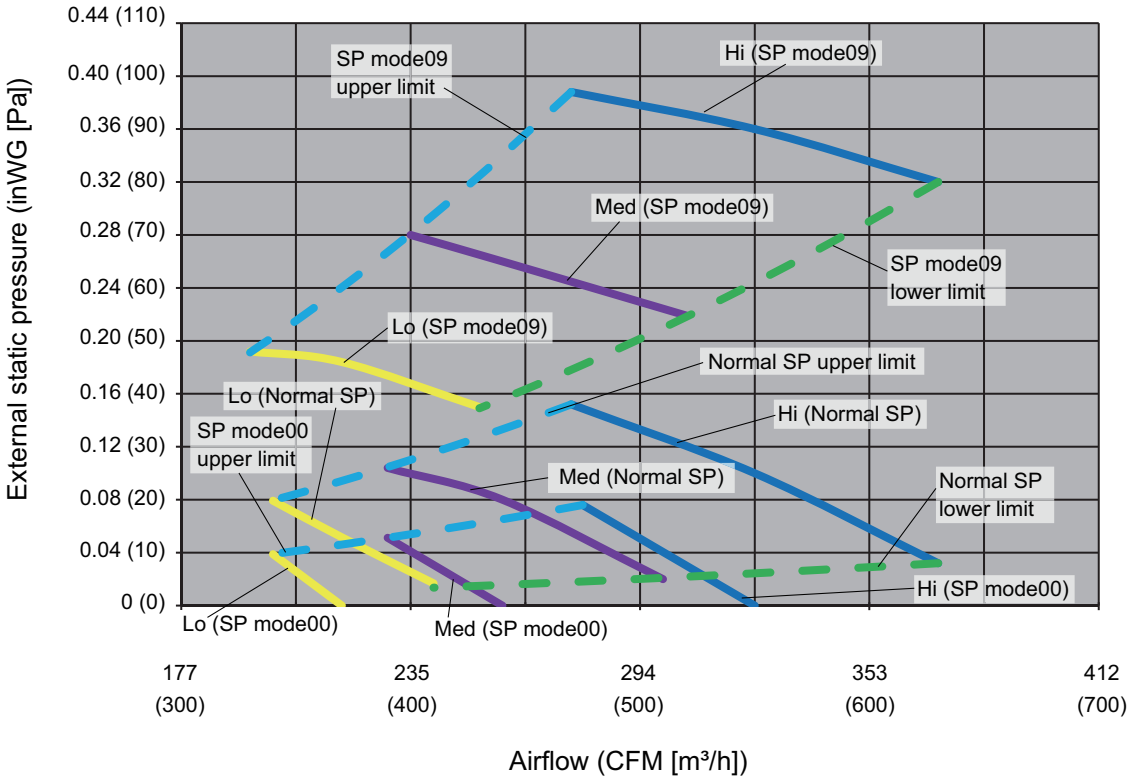
Heating

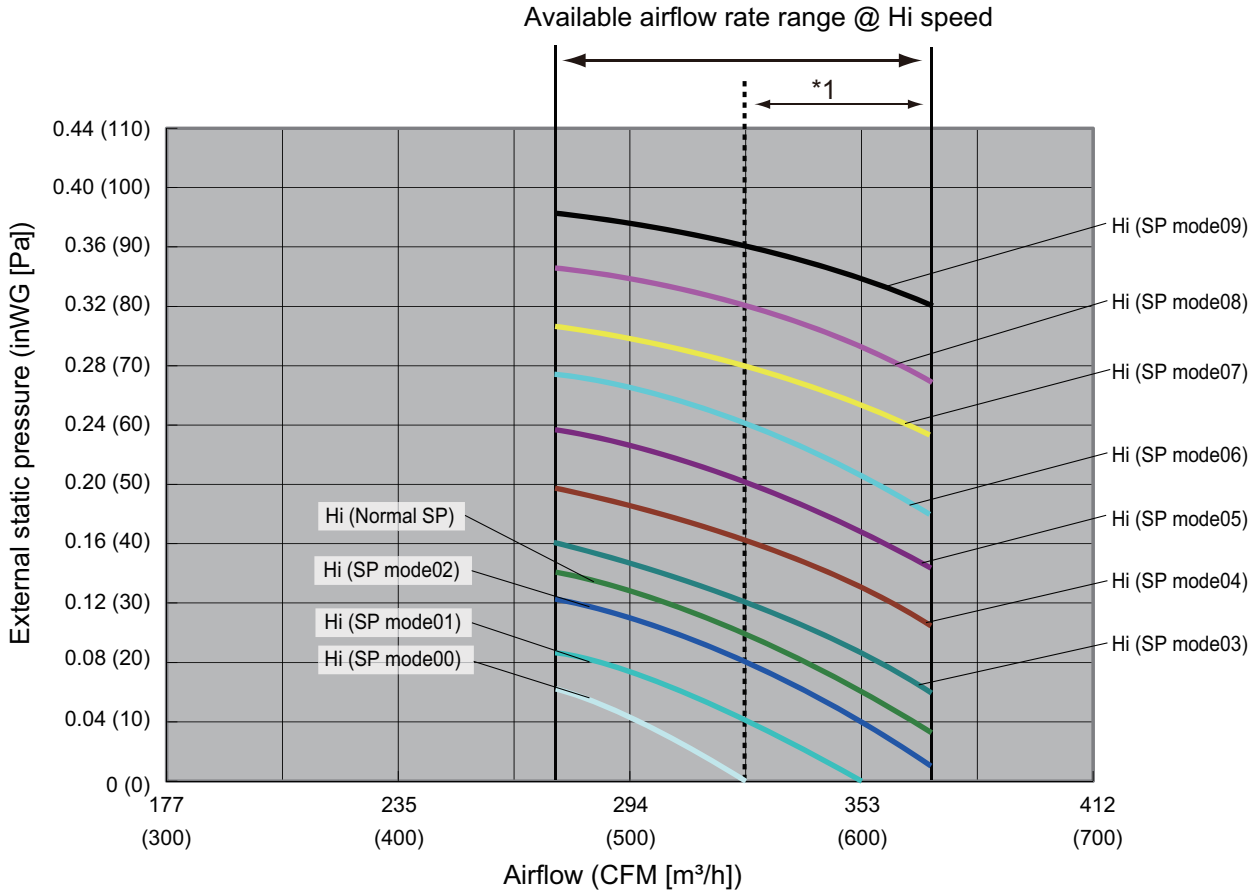




7-2. Slim duct/Slim concealed floor type

■ Model: ARUL7TLAV2

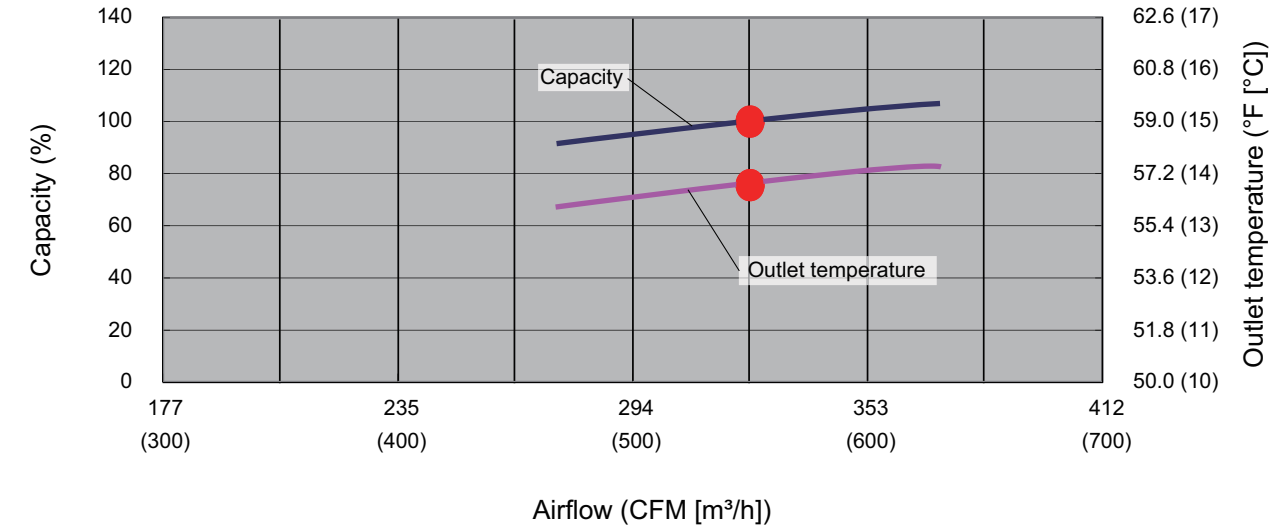




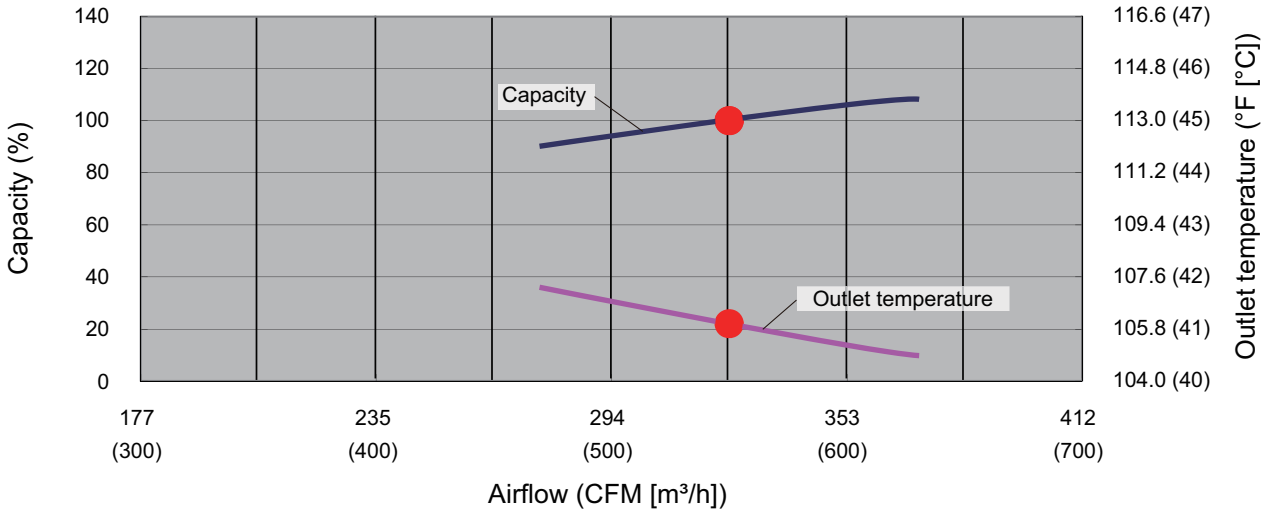
*1: Available airflow rate range when Auto louver grille kit (option) is installed.

- Fan speed: HIGH
- Vertical airflow direction louver: Up

Cooling

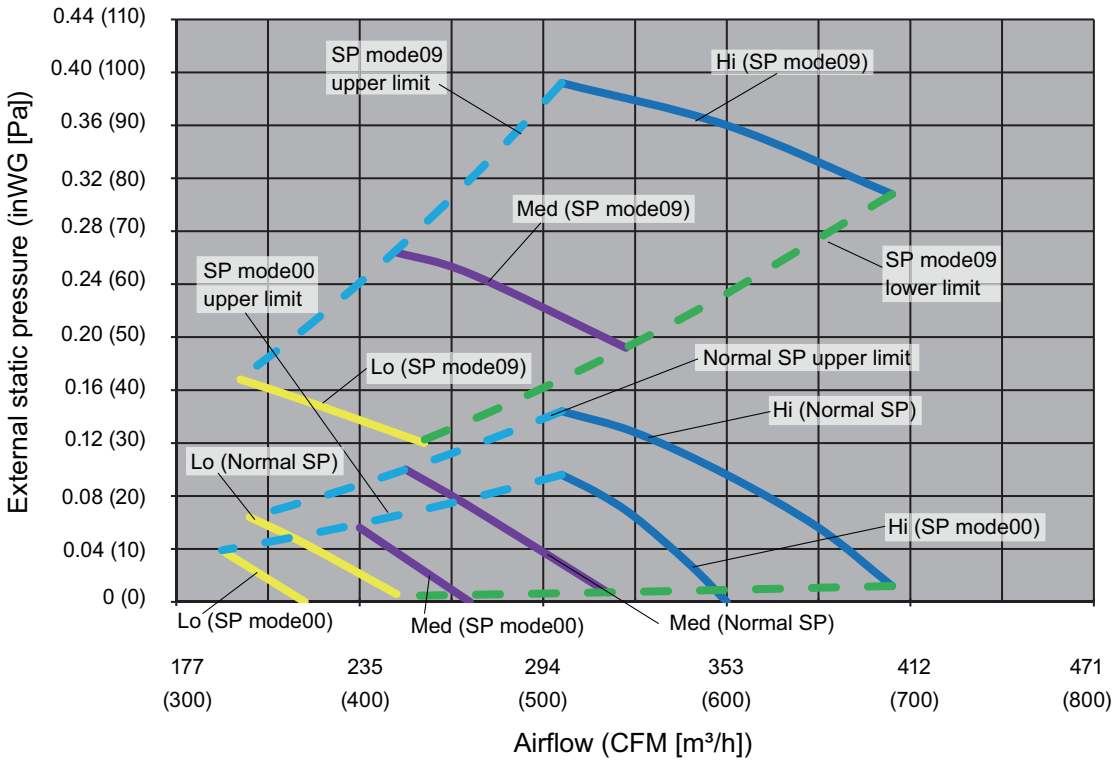


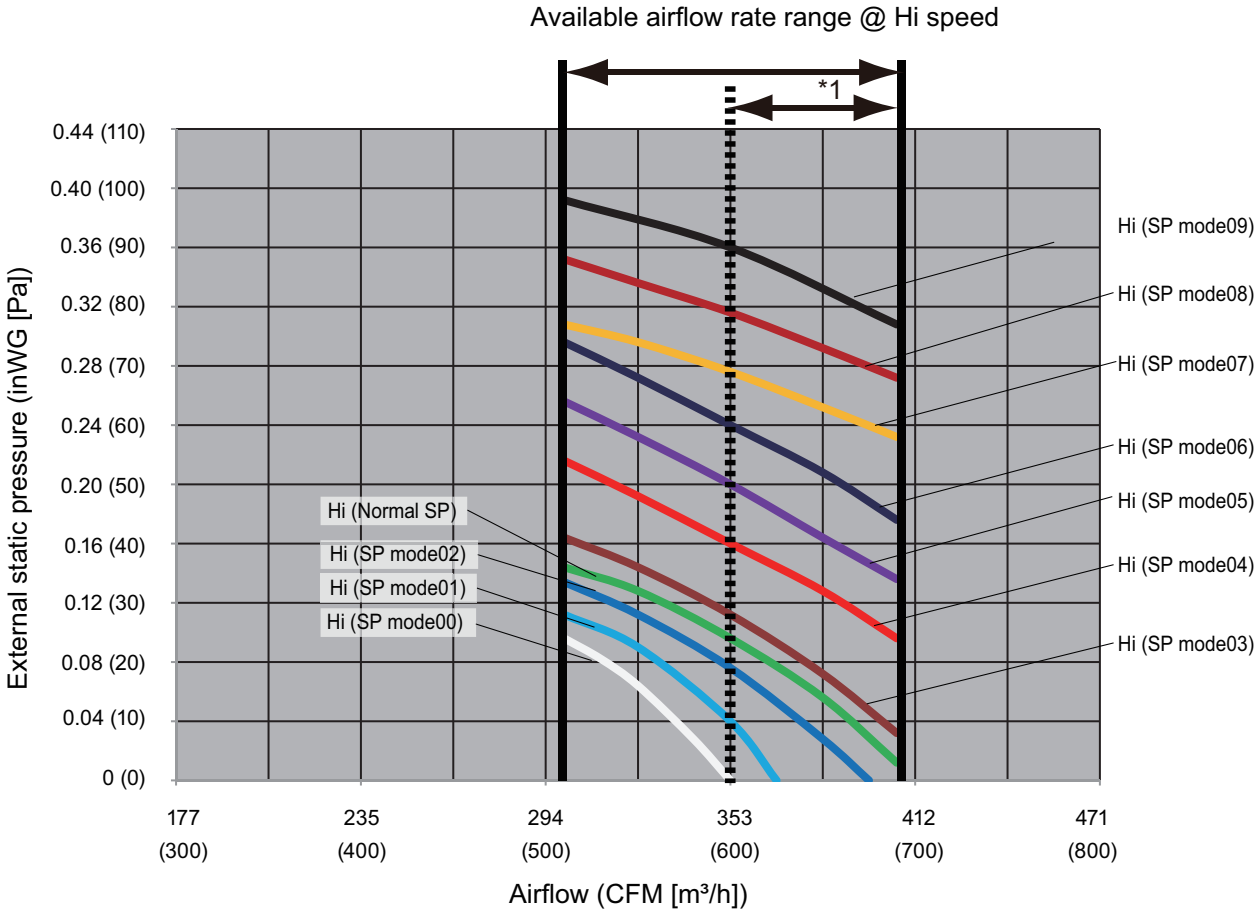
Heating



INDOOR UNITS

■ Model: ARUL9TLAV2

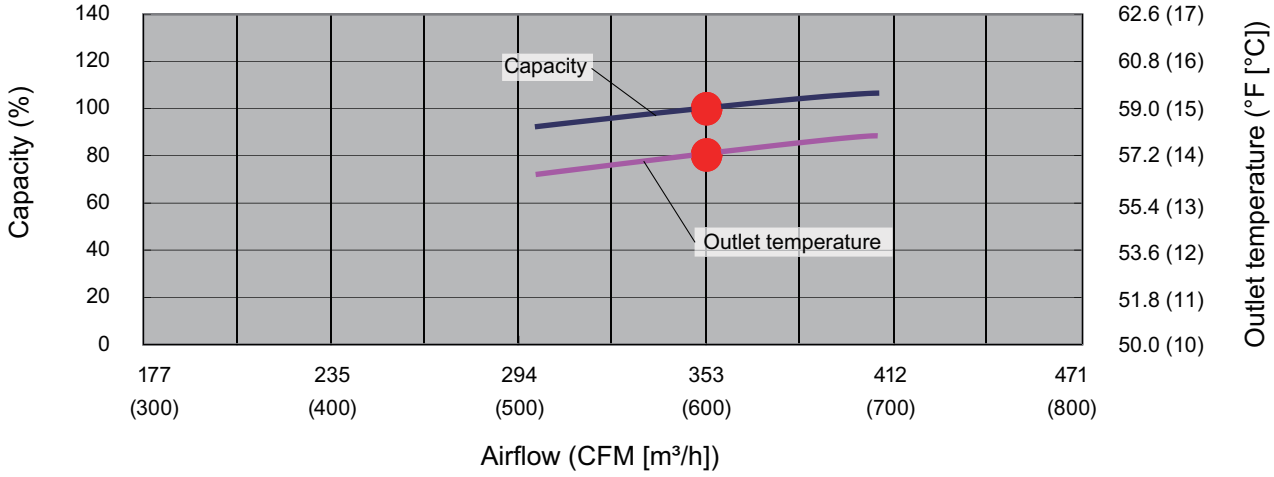




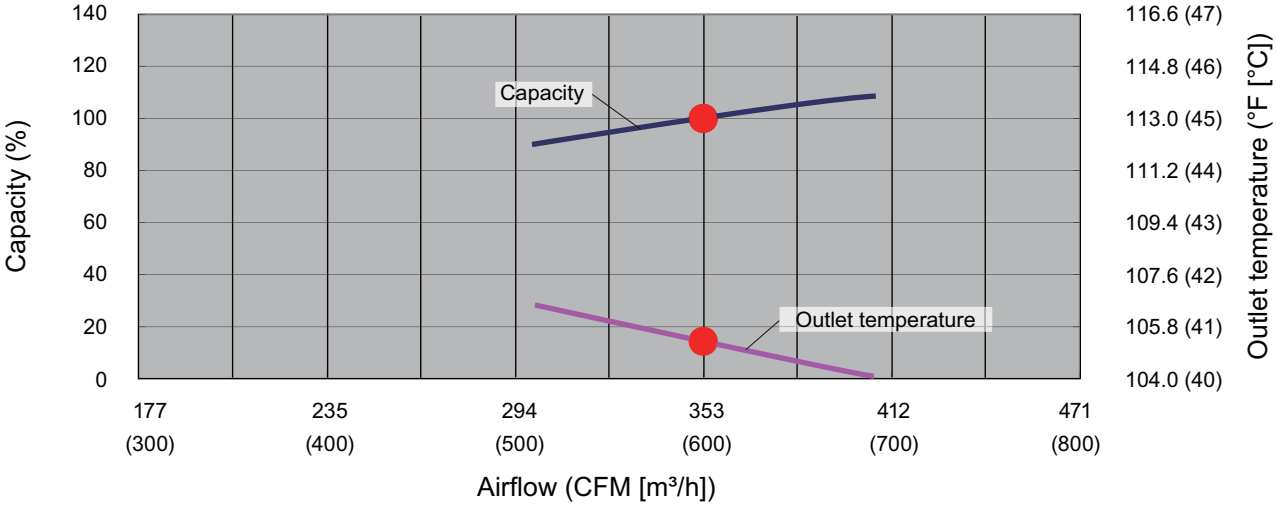
*1: Available airflow rate range when Auto louver grille kit (option) is installed.

- Fan speed: HIGH
- Vertical airflow direction louver: Up

Cooling

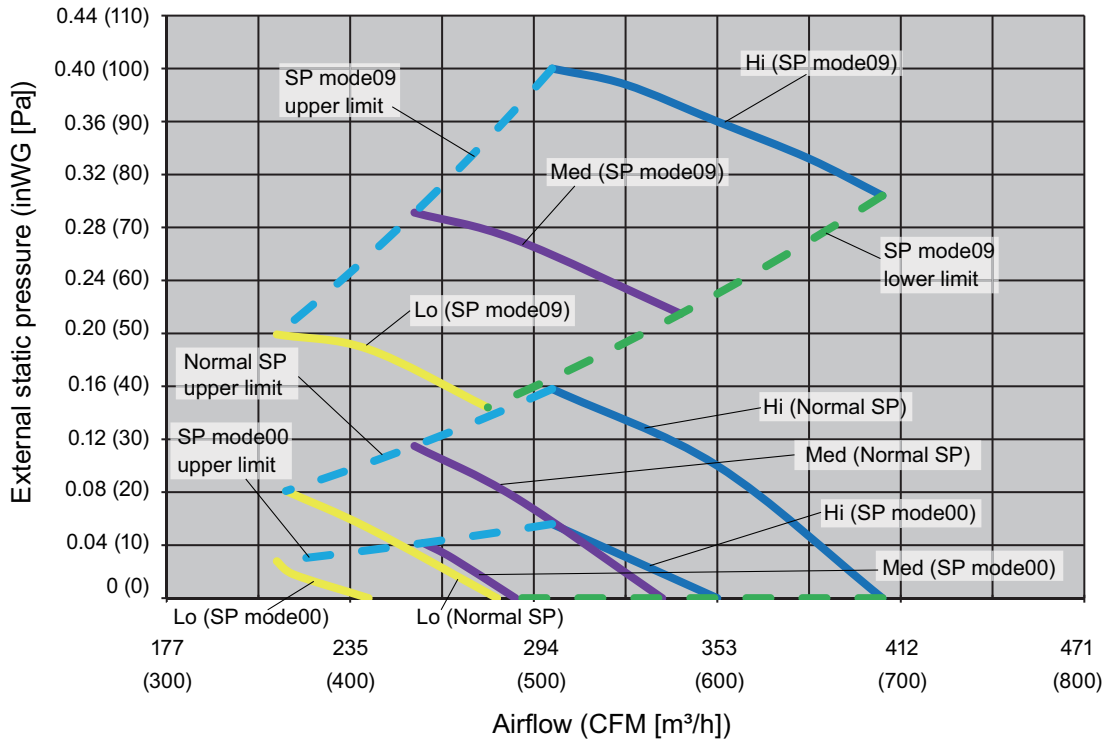


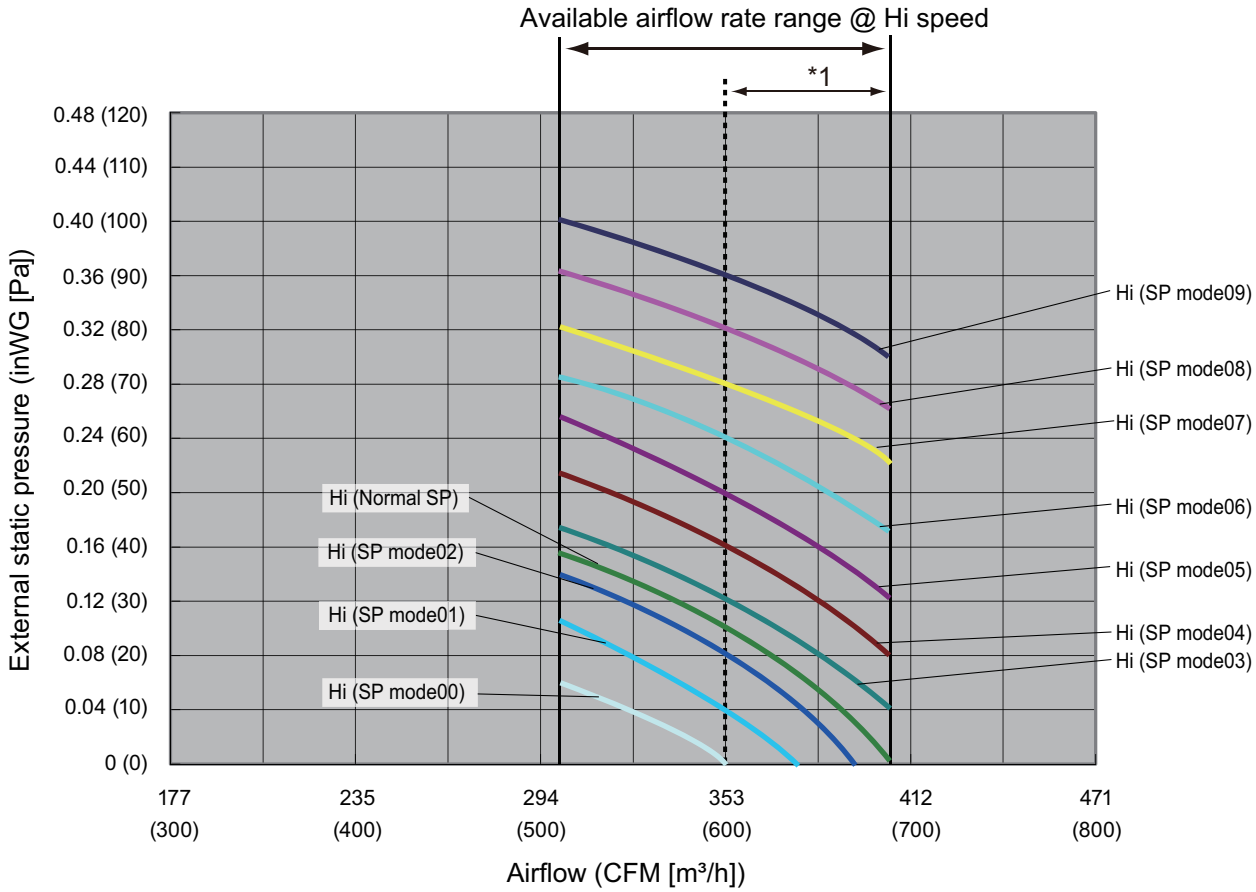
Heating



INDOOR UNITS

■ Model: ARUL12TLAV2

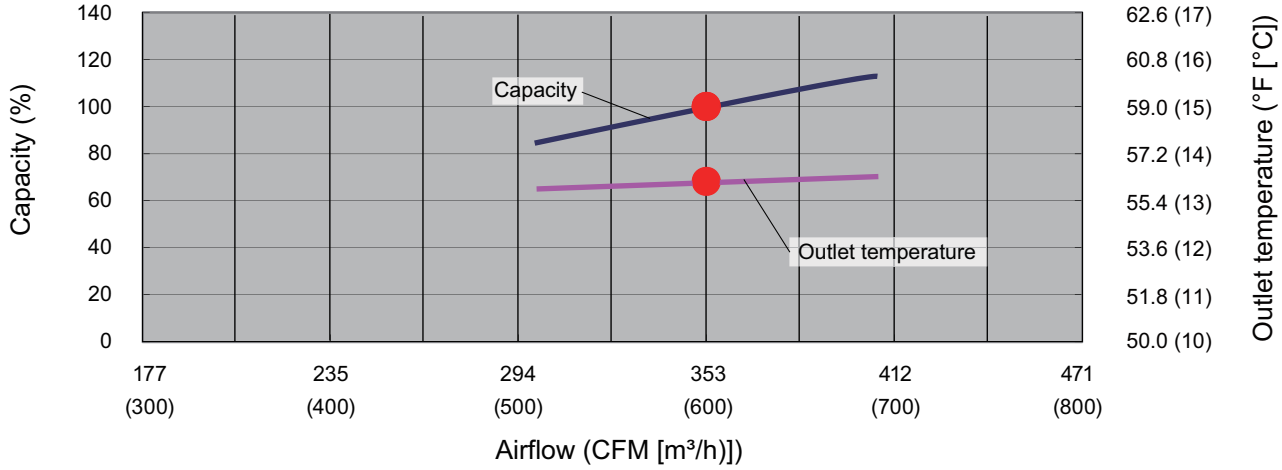




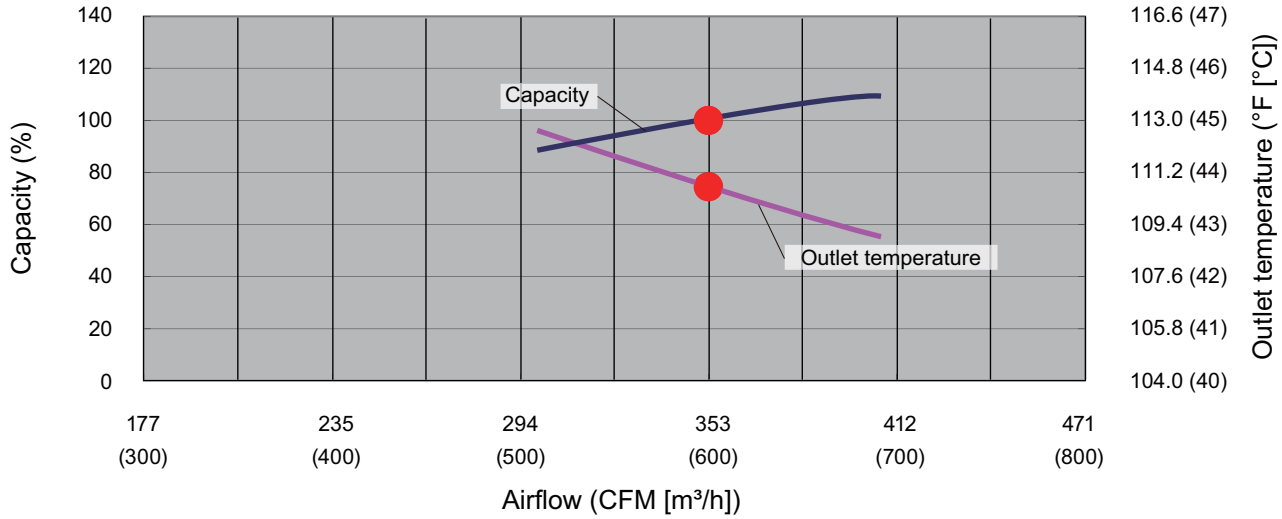
*1: Available airflow rate range when Auto louver grille kit (option) is installed.

- Fan speed: HIGH
- Vertical airflow direction louver: Up

Cooling

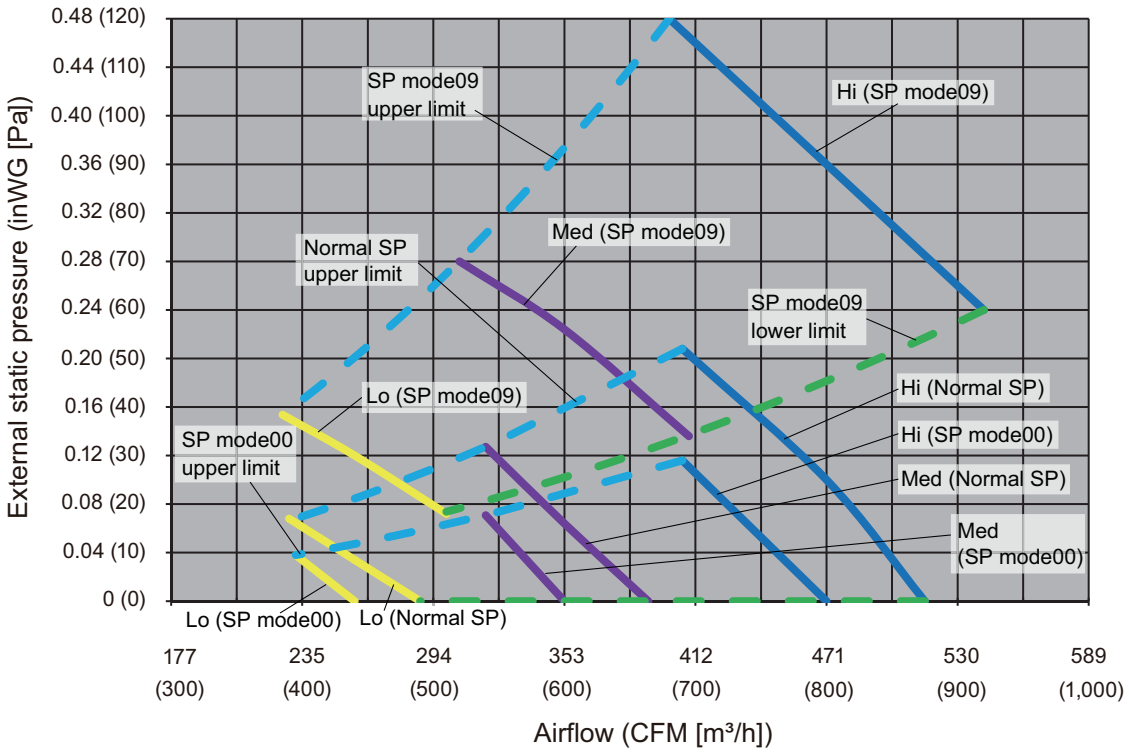


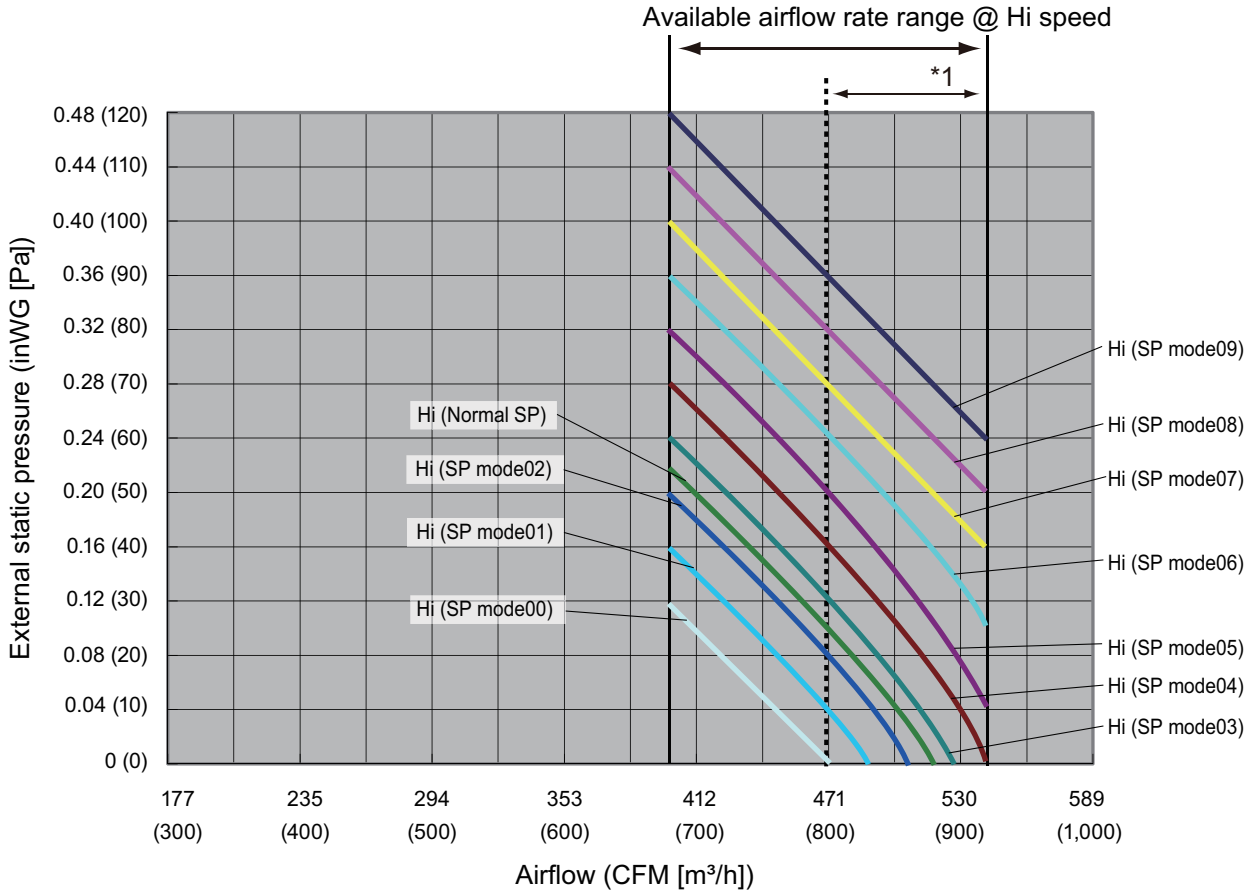
Heating



INDOOR UNITS

■ Model: ARUL14TLAV2



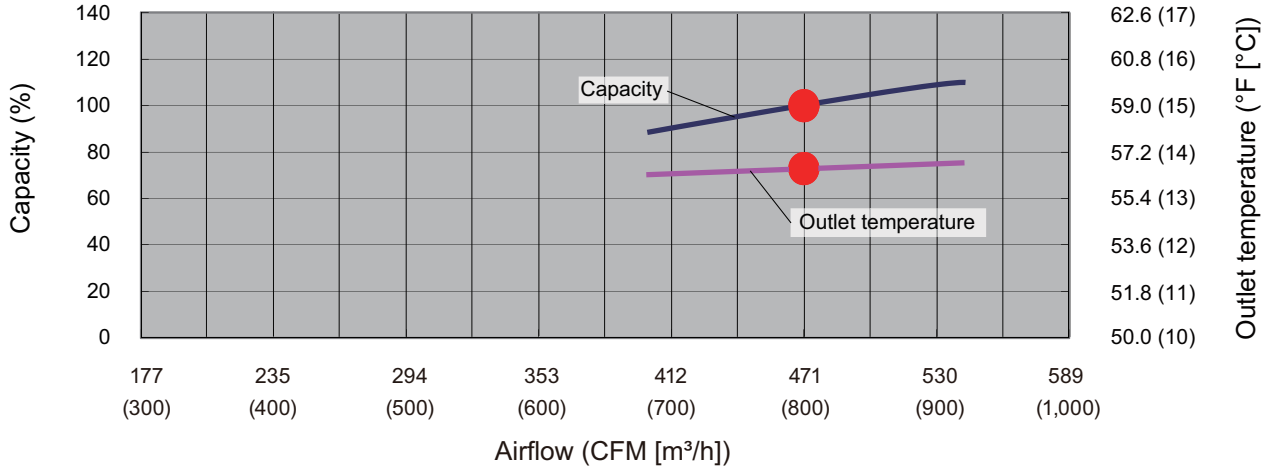


*1: Available airflow rate range when Auto louver grille kit (option) is installed.

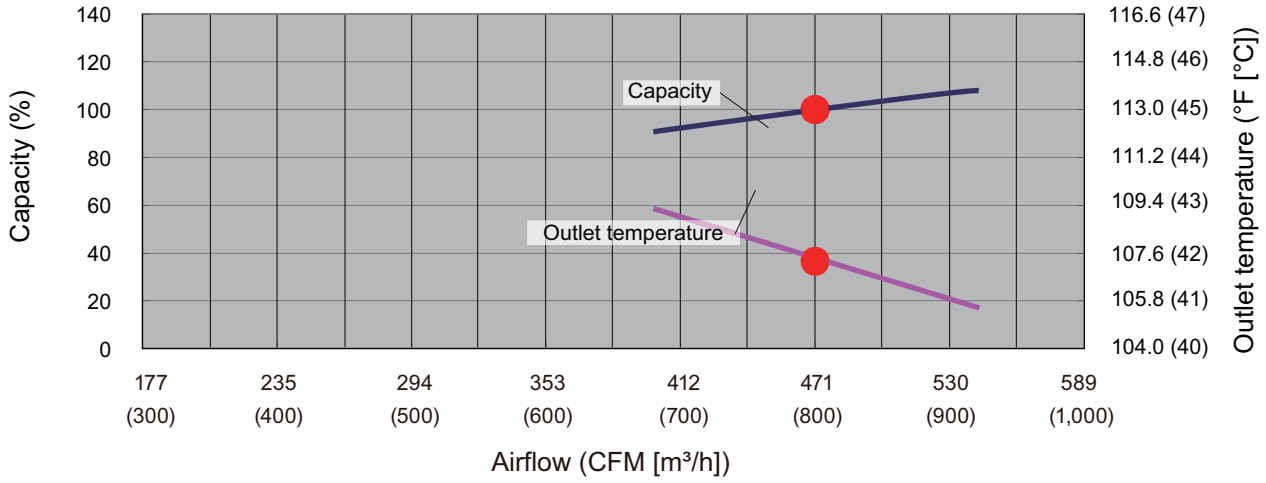
- Fan speed: HIGH
- Vertical airflow direction louver: Up

INDOOR UNITS

Cooling

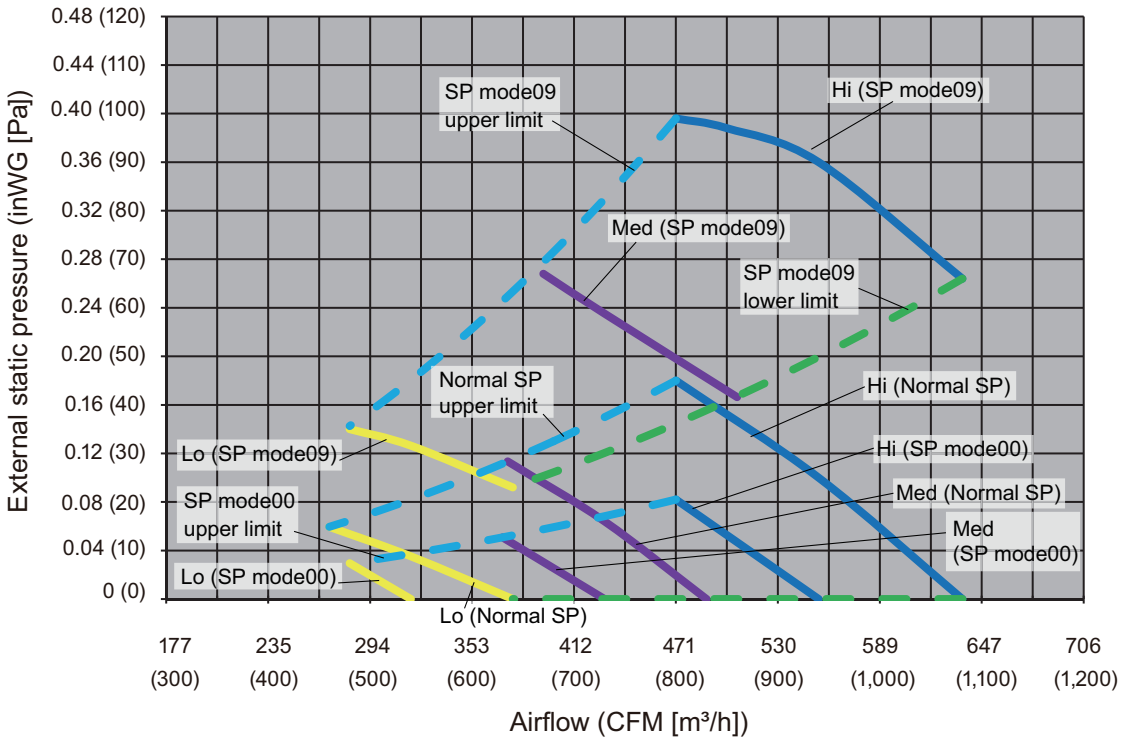


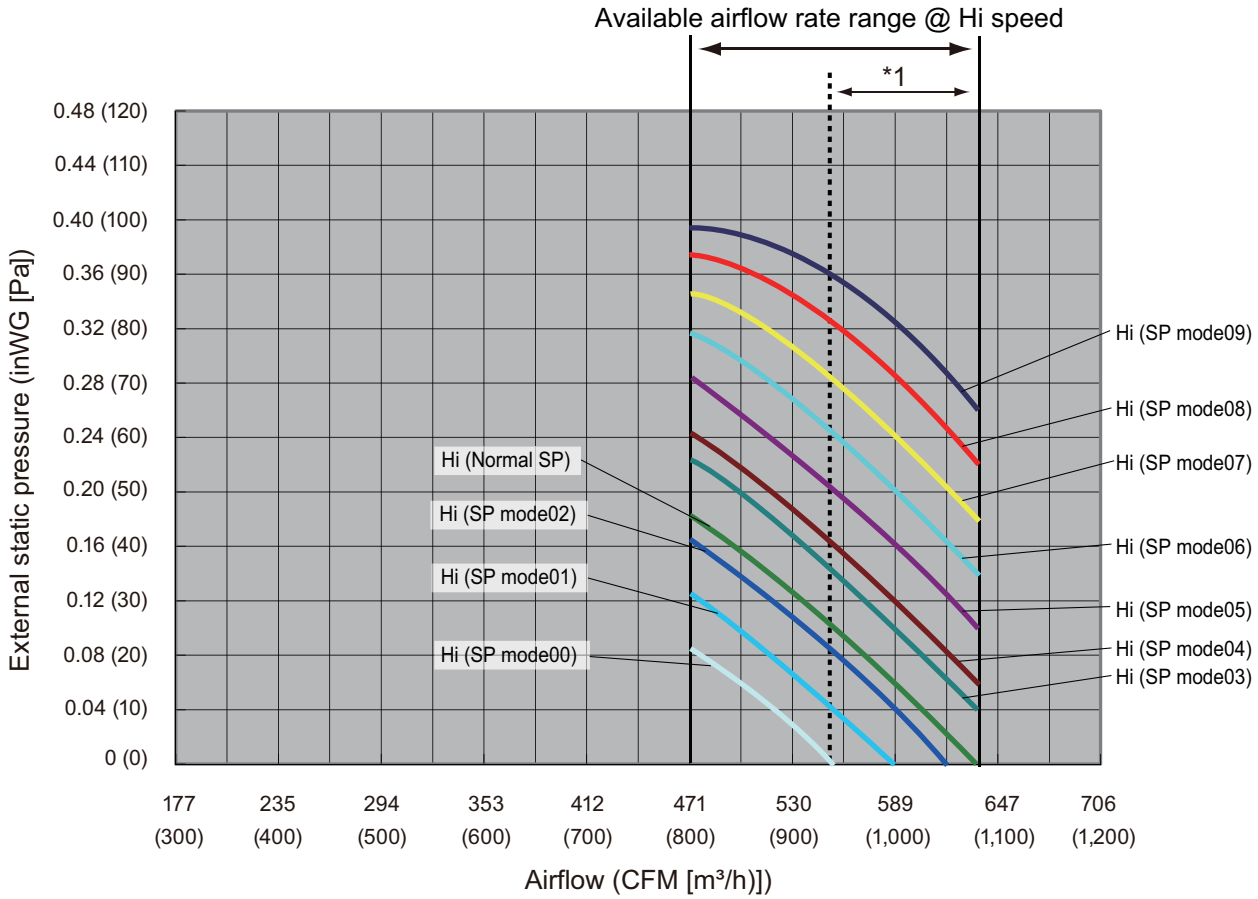
Heating



INDOOR UNITS

■ Model: ARUL18TLAV2



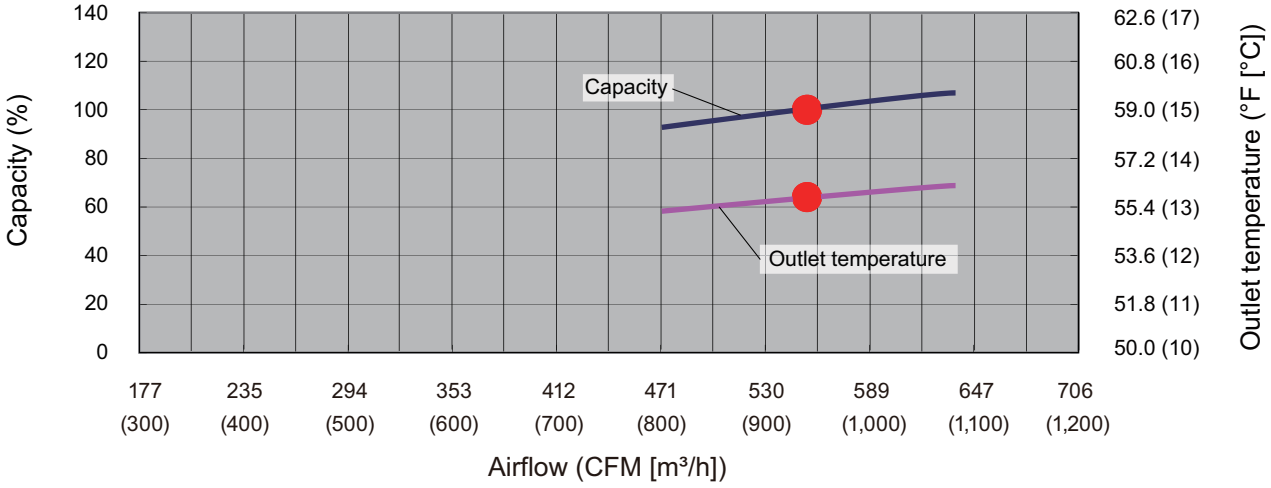


*1: Available airflow rate range when Auto louver grille kit (option) is installed.

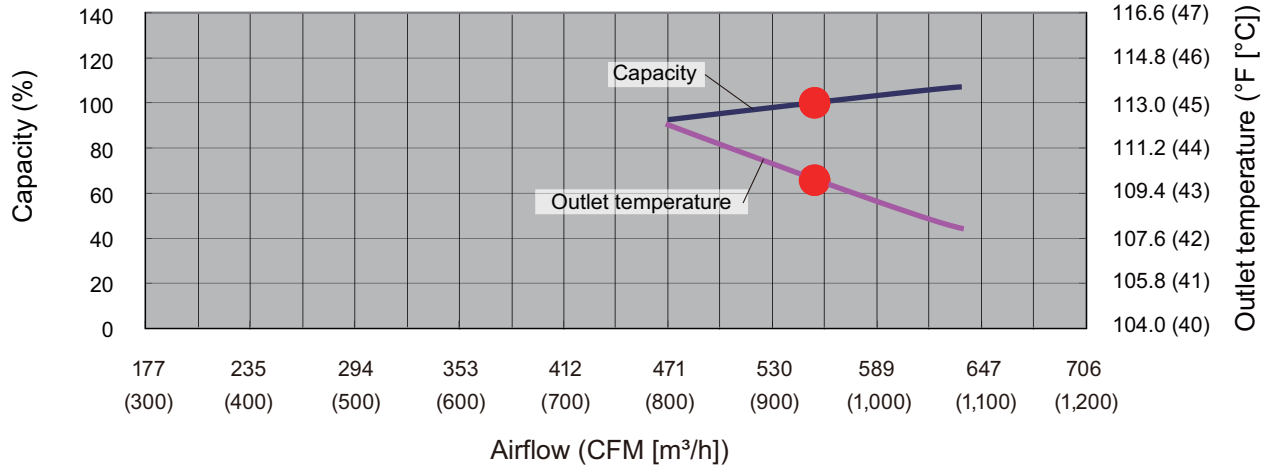
- Fan speed: HIGH
- Vertical airflow direction louver: Up

INDOOR UNITS

Cooling



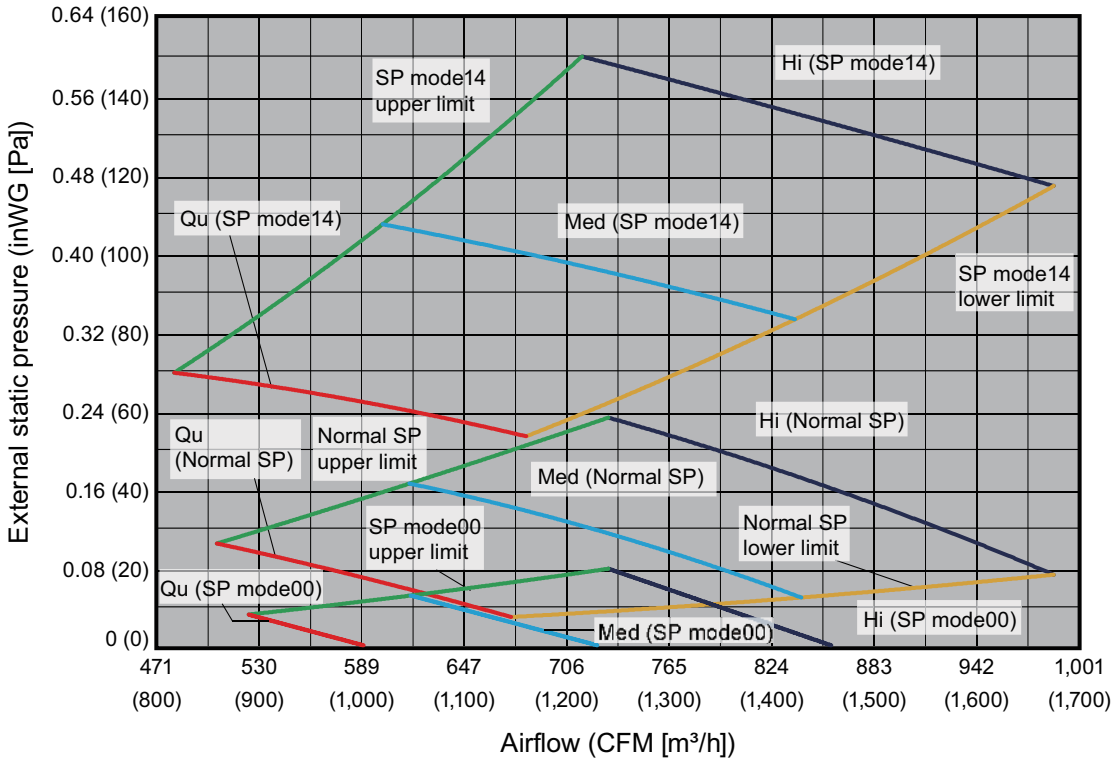
Heating

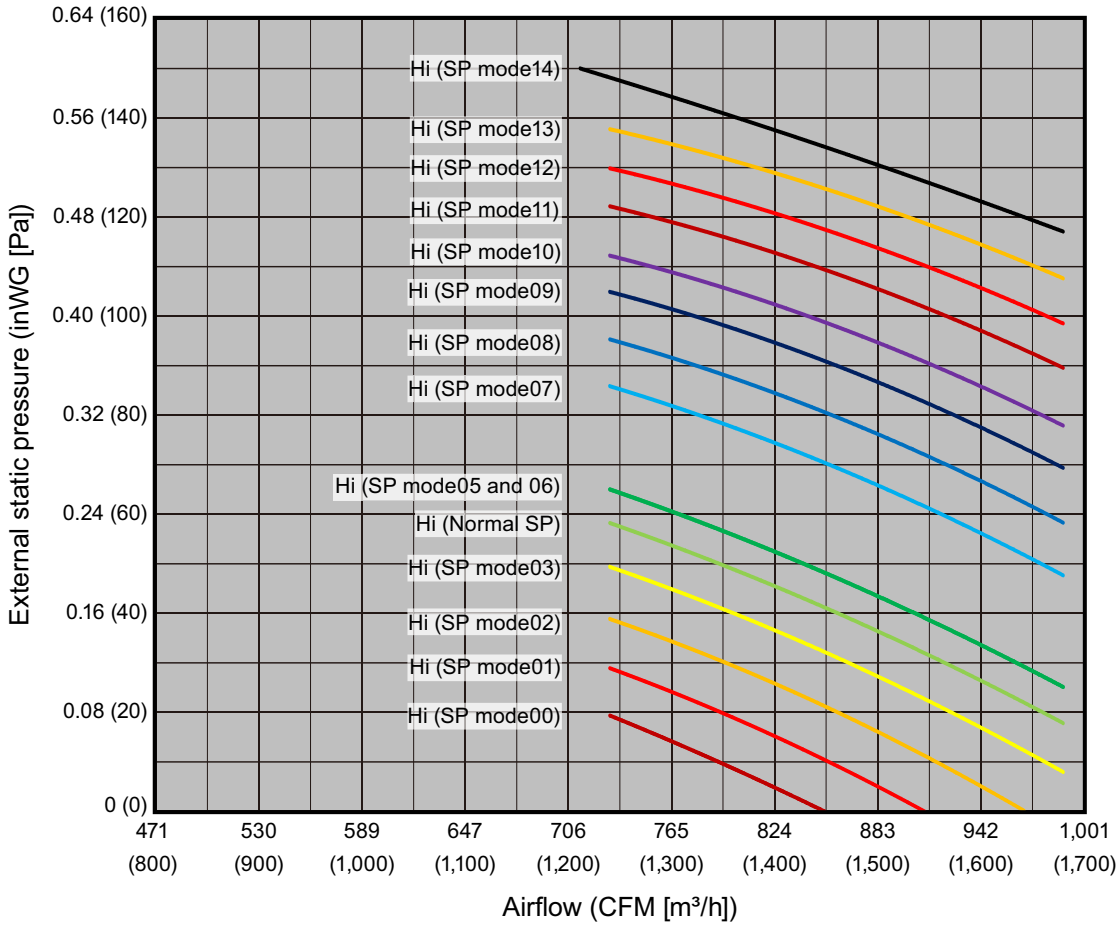


INDOOR UNITS

7-3. Medium static pressure duct type

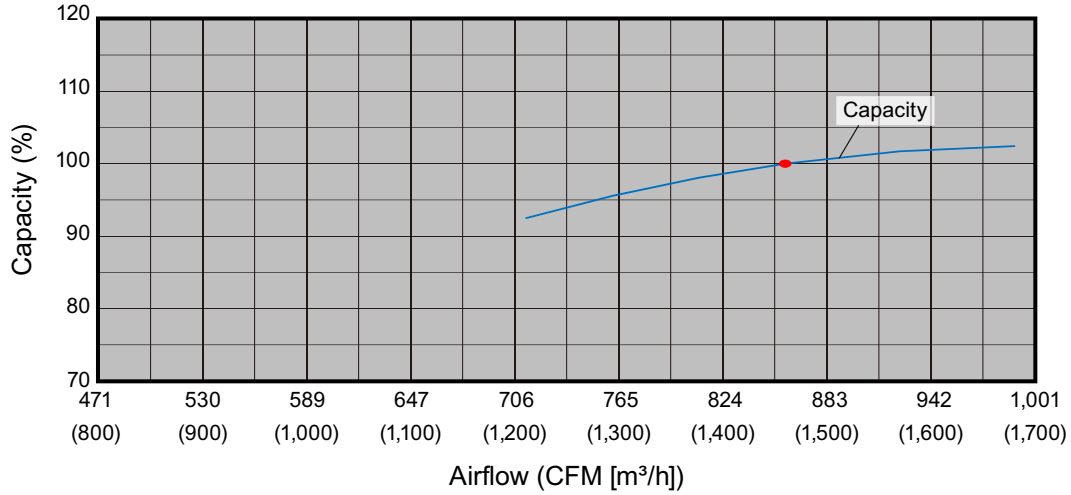
■ Model: ARUM24TLAV2



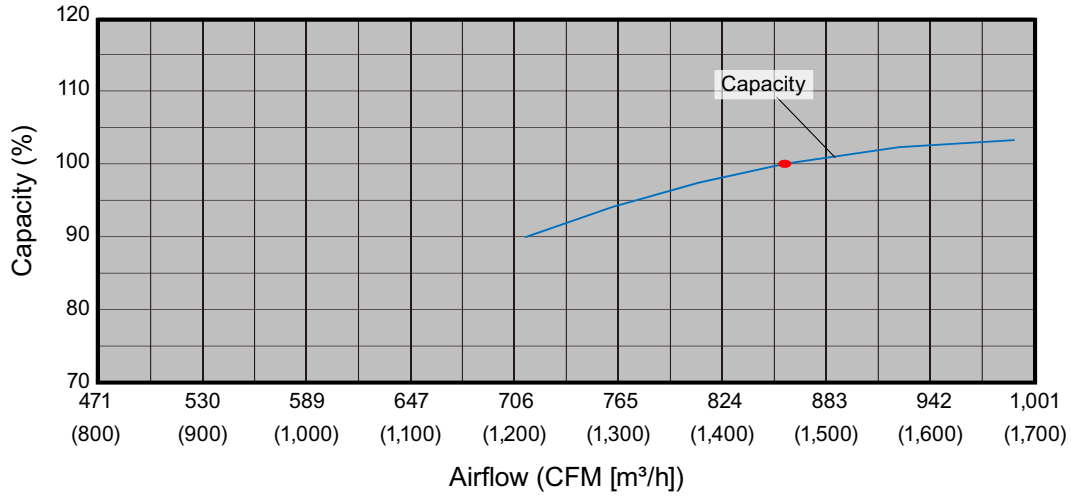


INDOOR UNITS

Cooling

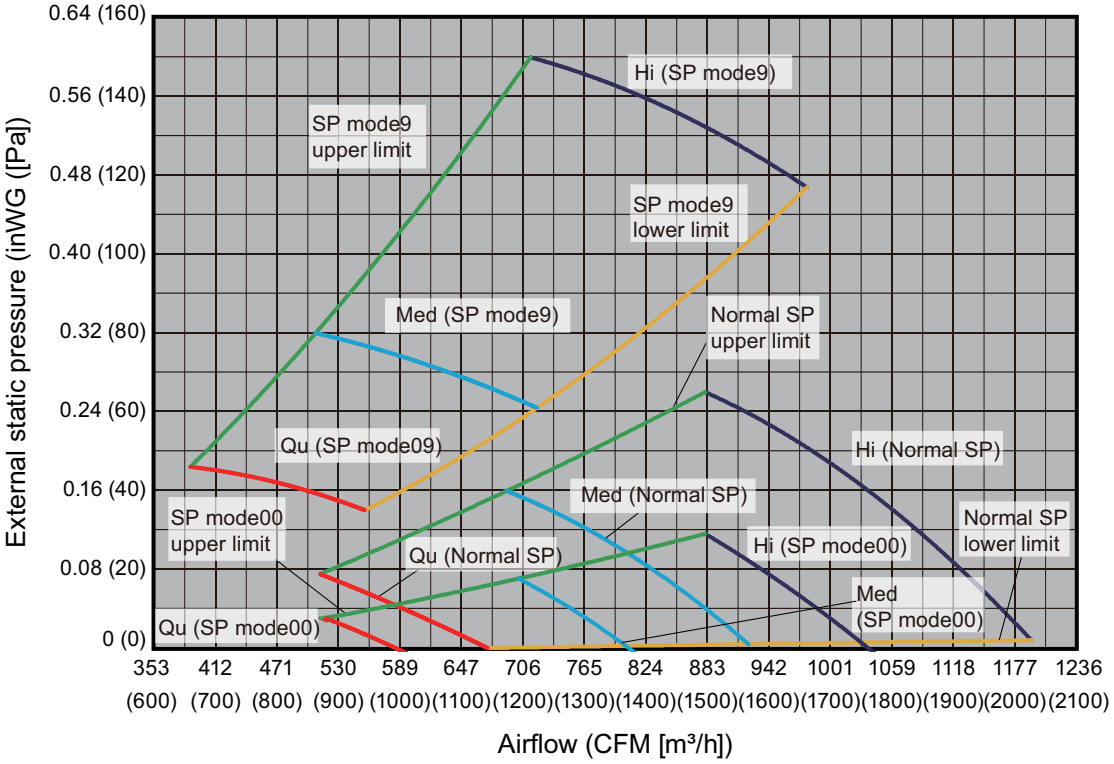


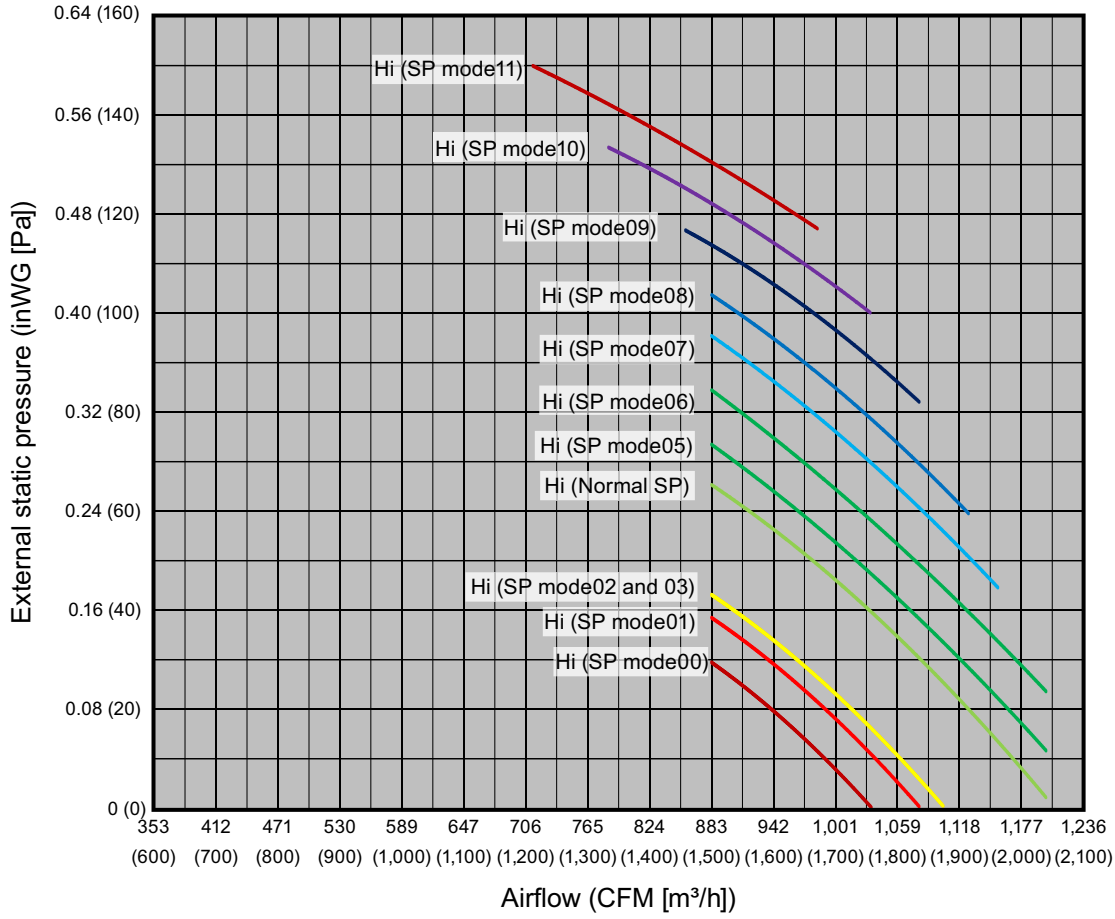
Heating



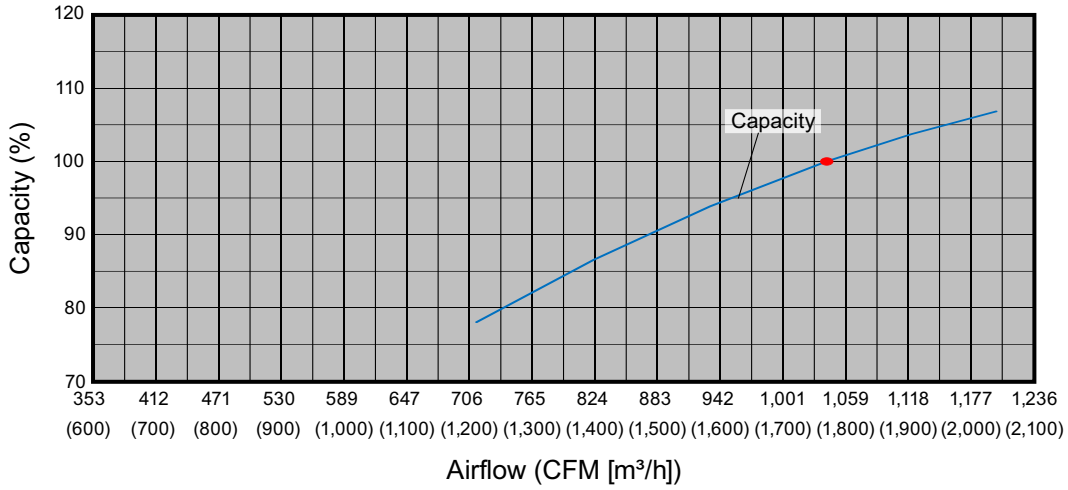
INDOOR UNITS

■ Model: ARUM30TLAV2

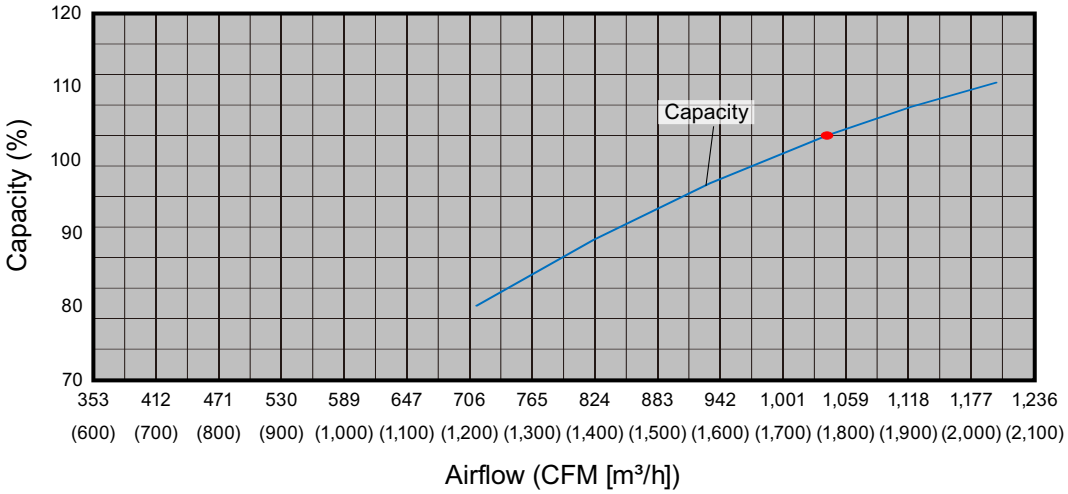




Cooling

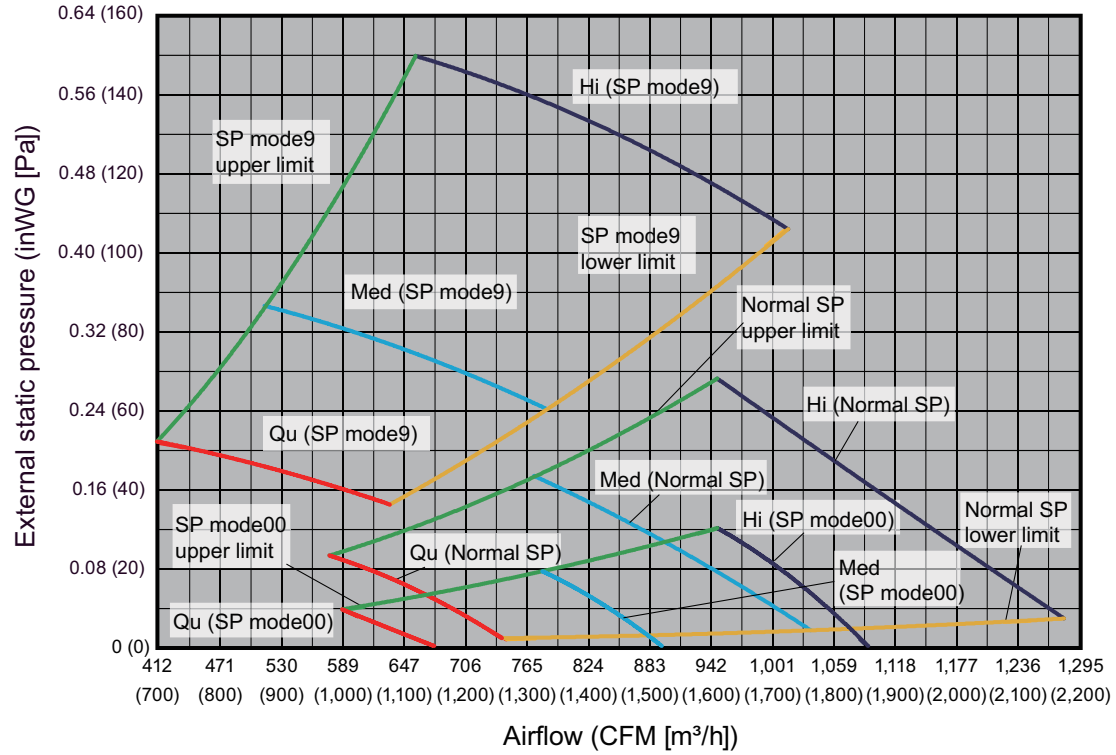


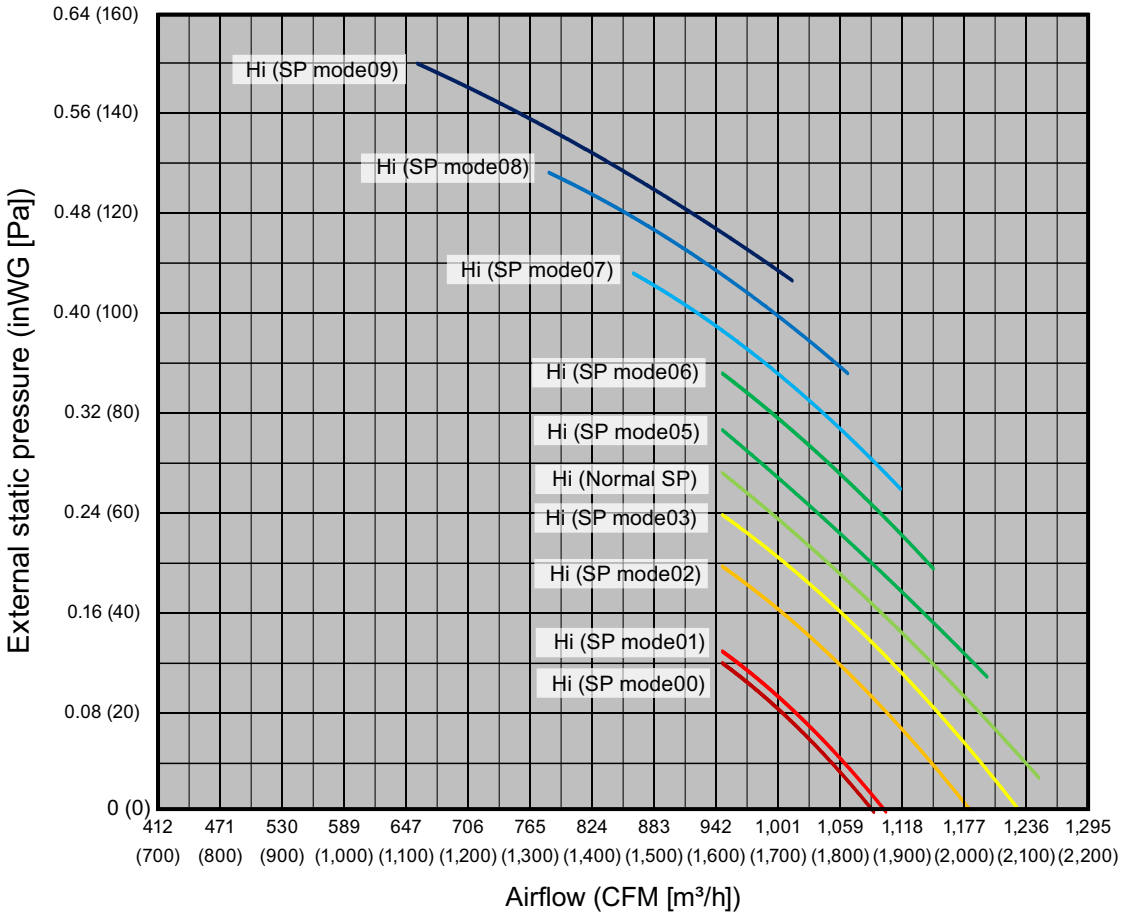
Heating



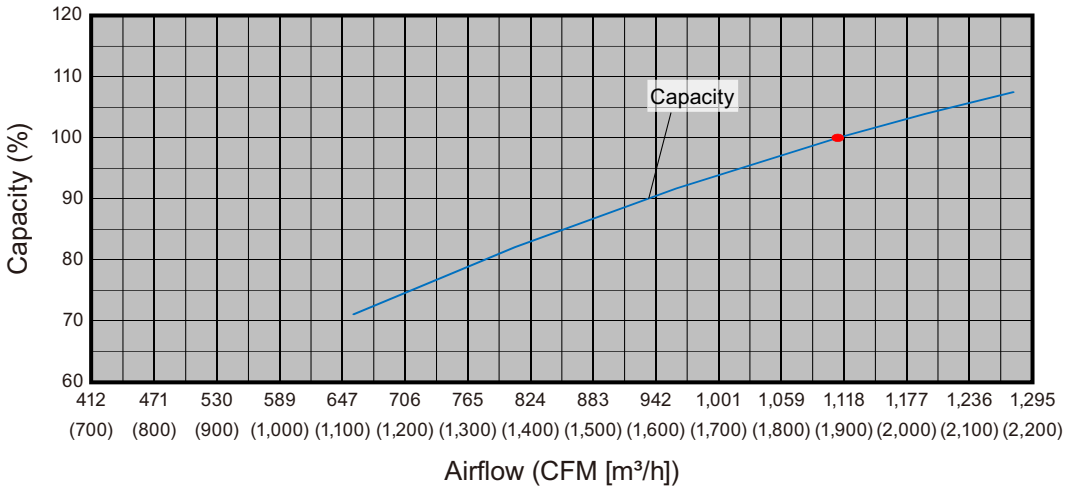
INDOOR UNITS

■ Model: ARUM36TLAV2

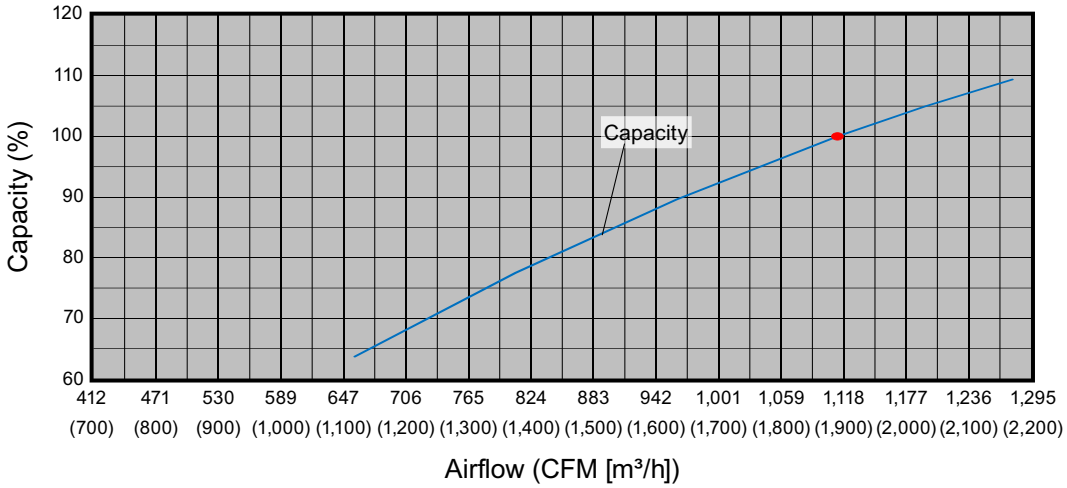




Cooling



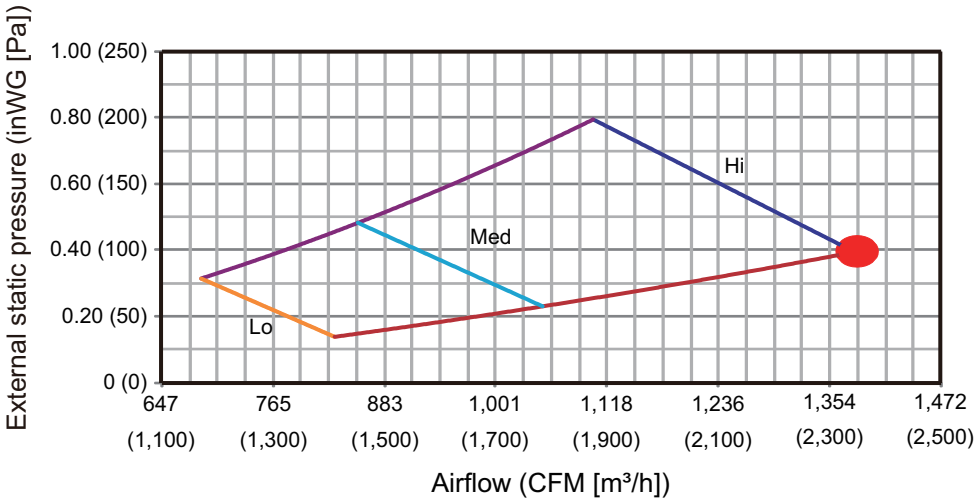
Heating



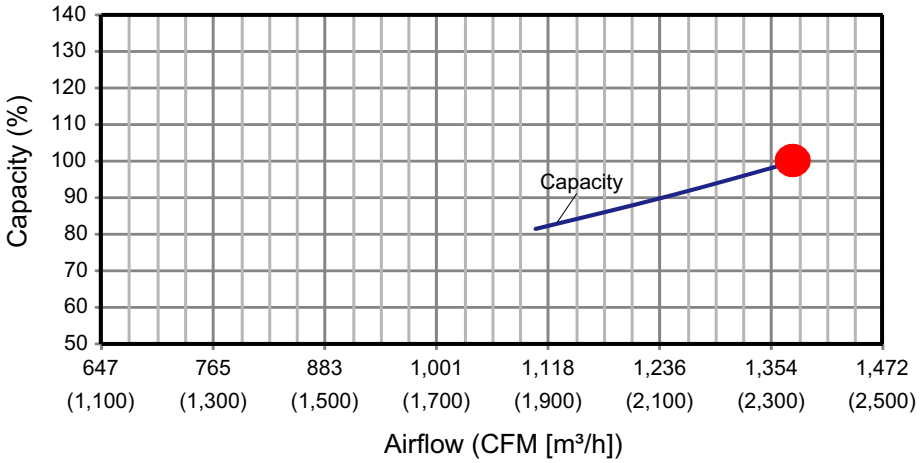
INDOOR UNITS

7-4. High static pressure duct type

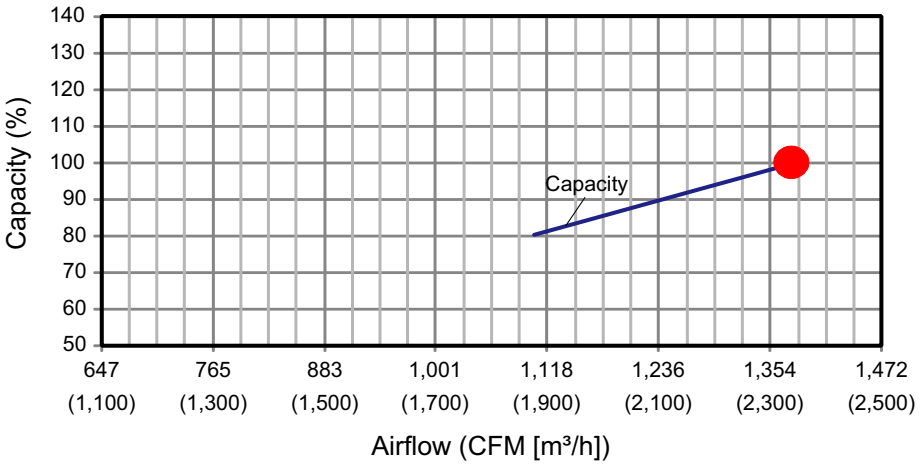
■ Model: ARUH36TLAV



Cooling

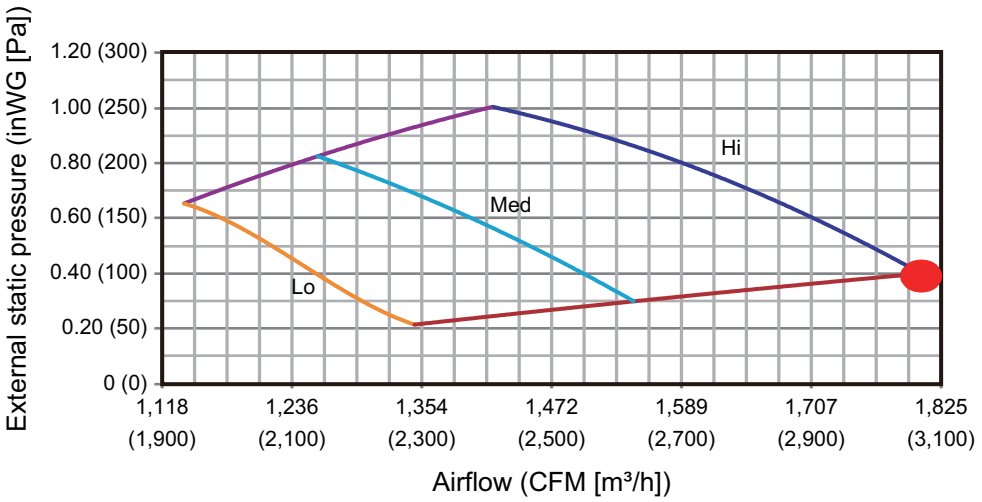


Heating

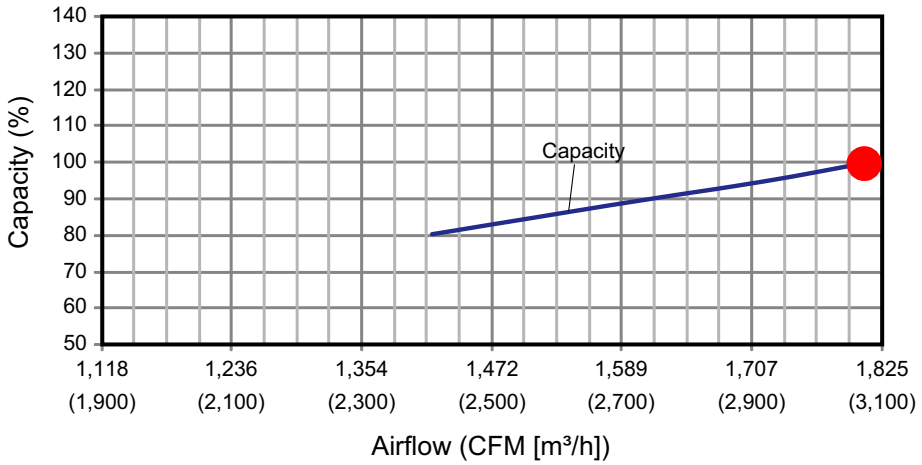


INDOOR UNITS

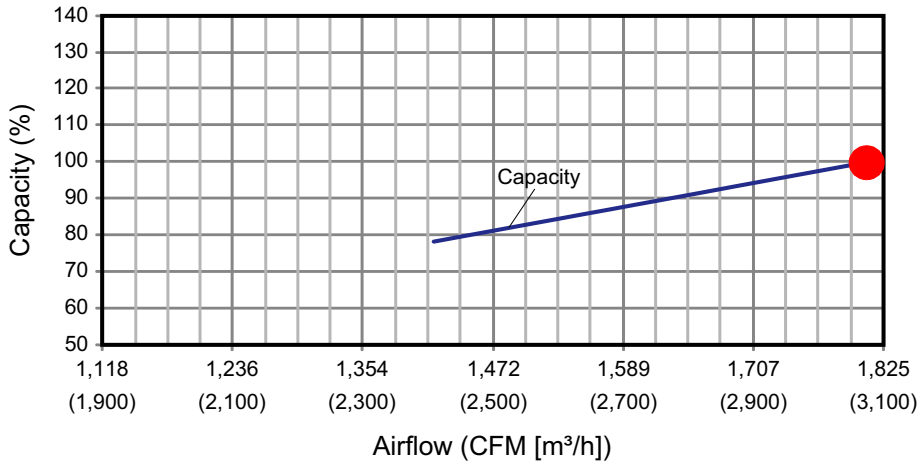
■ Model: ARUH48TLAV



Cooling

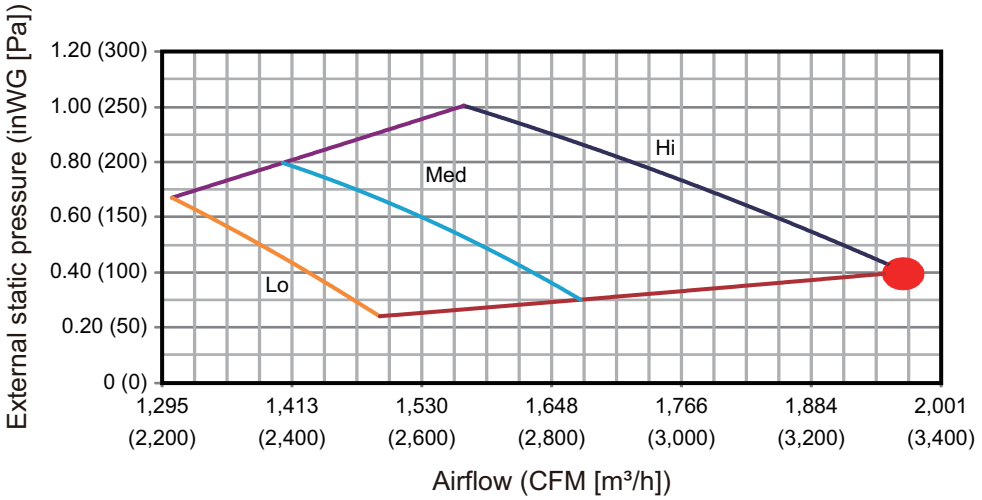


Heating

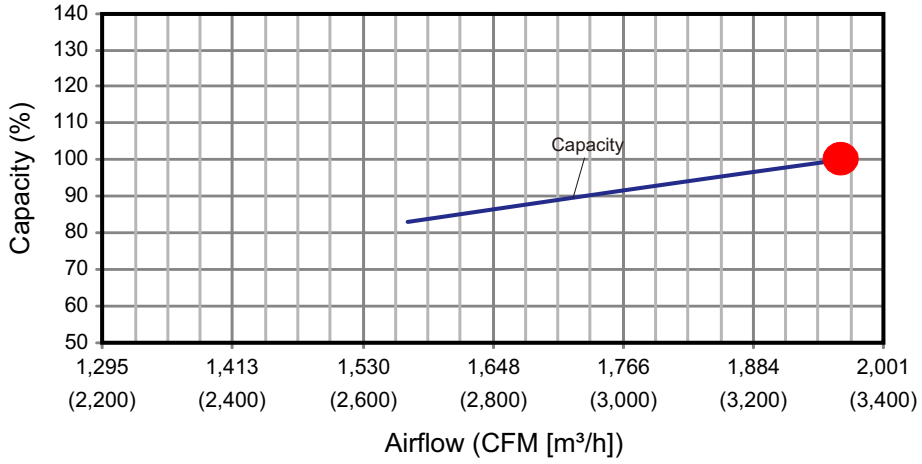


INDOOR UNITS

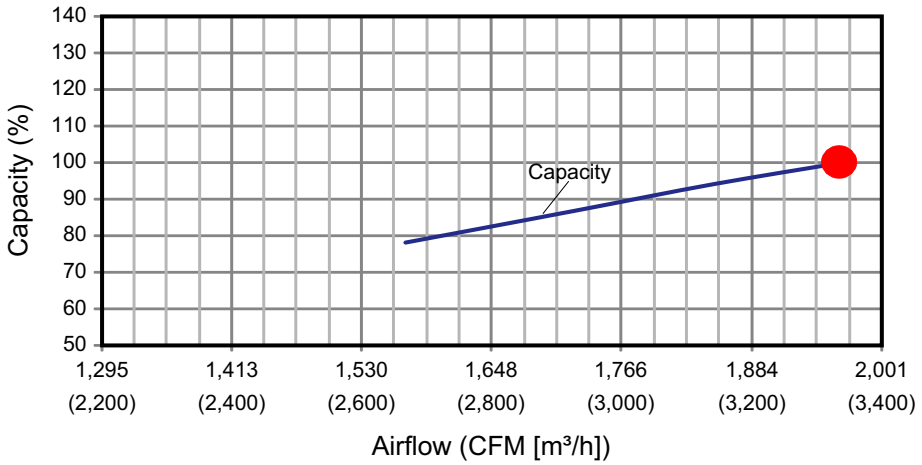
■ Model: ARUH60TLAV



Cooling

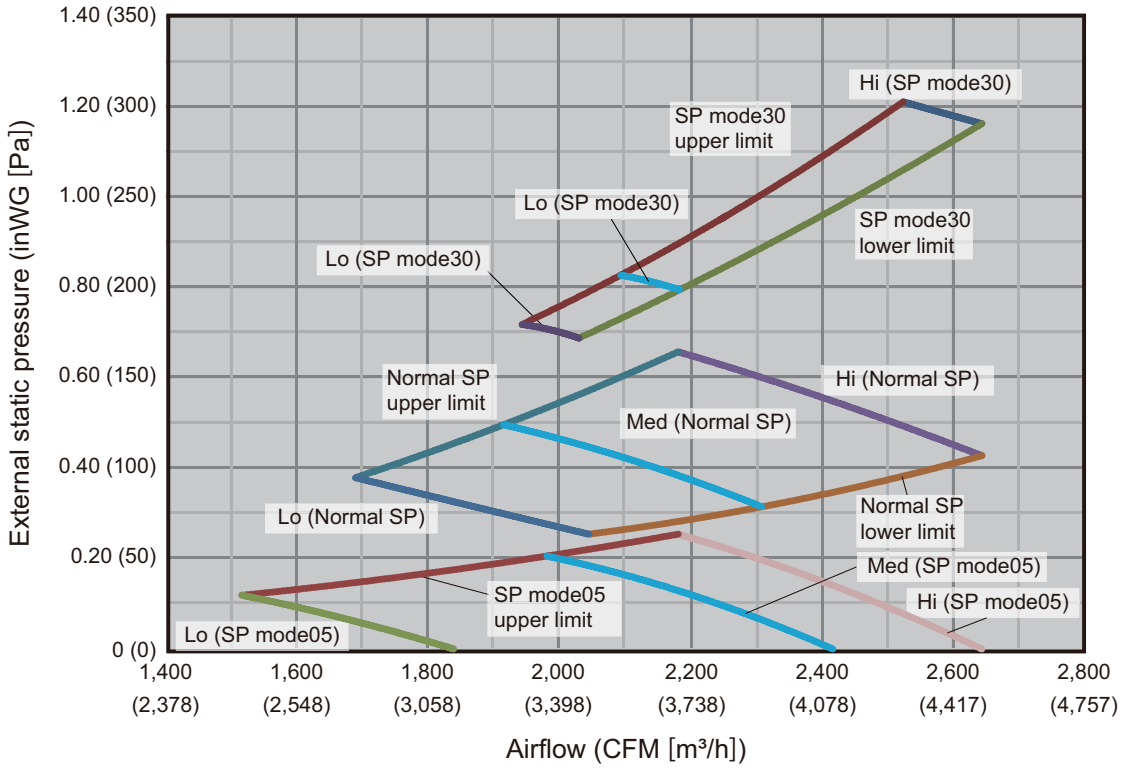


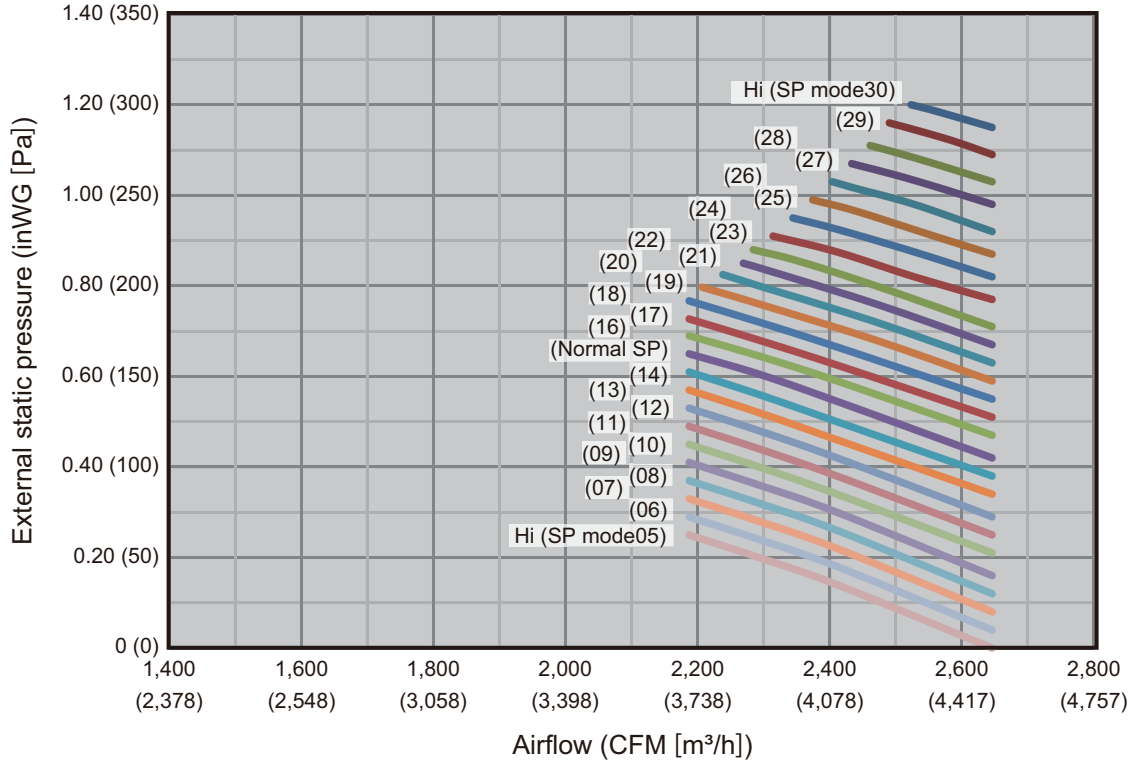
Heating



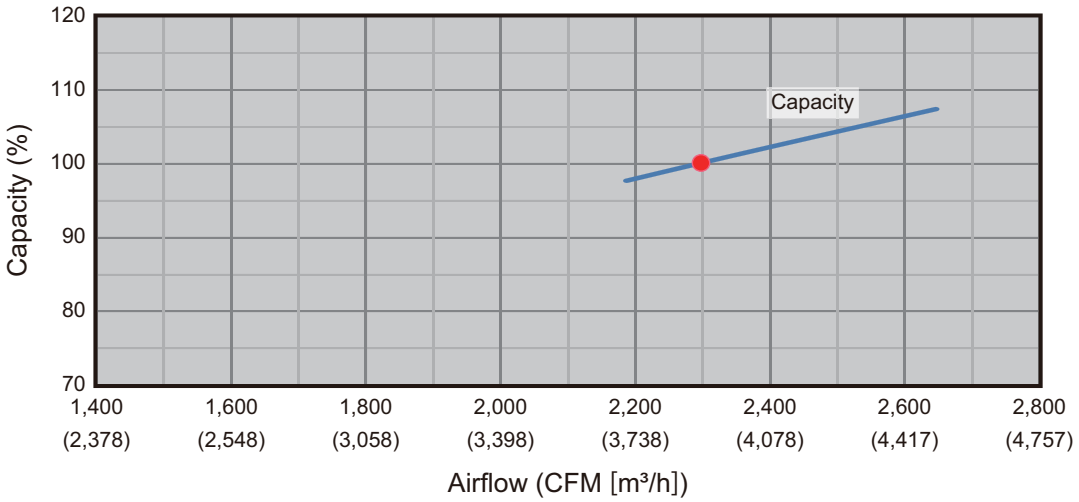
INDOOR UNITS

■ Model: ARUH72TLAV2

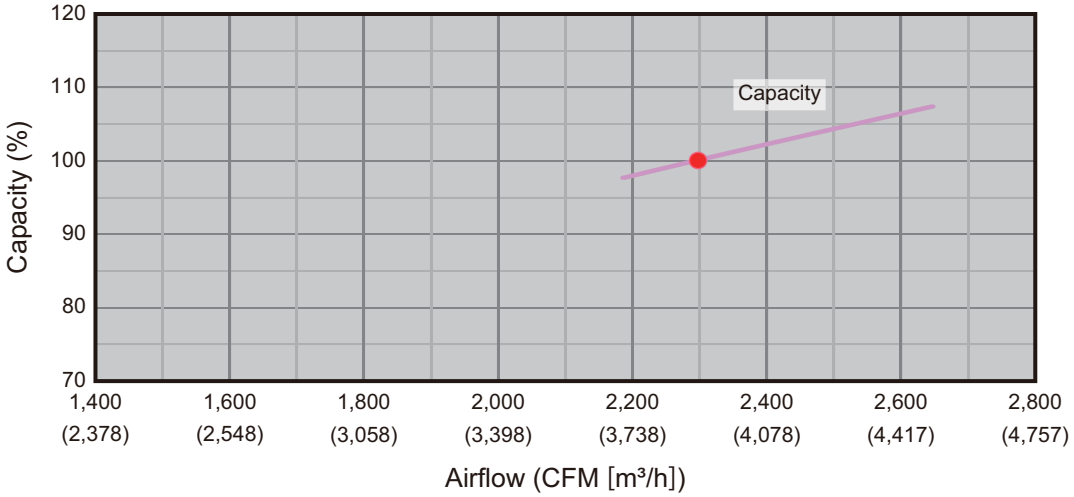




Cooling

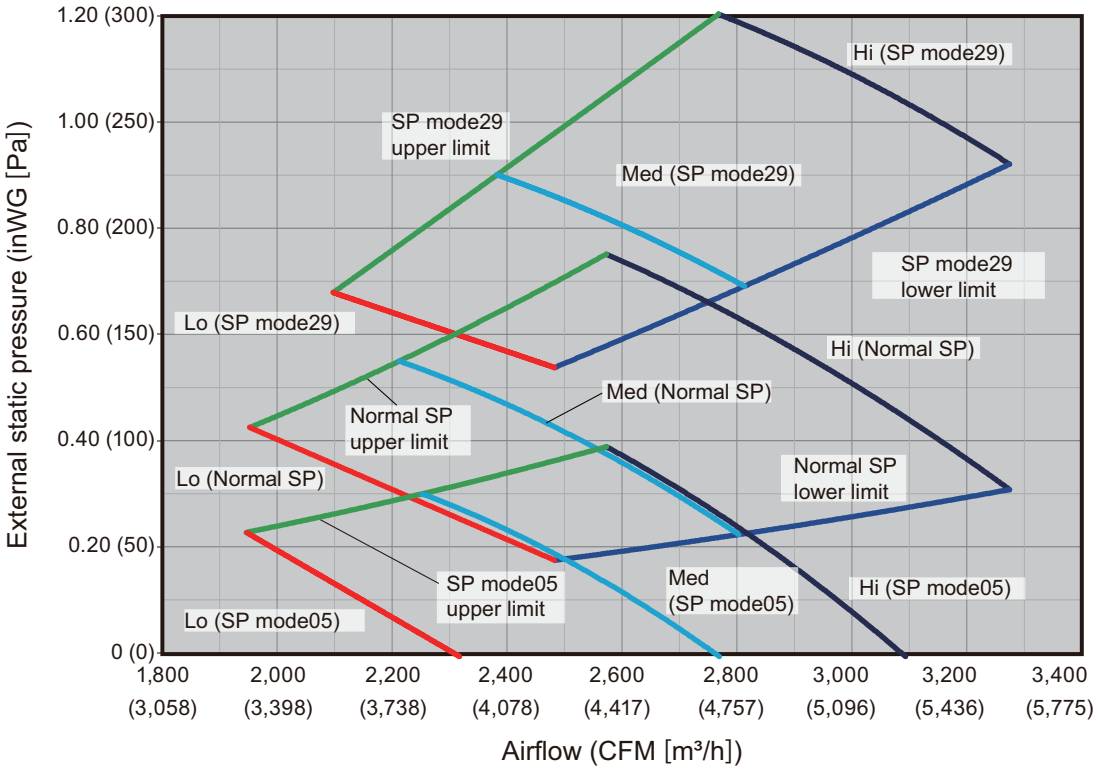


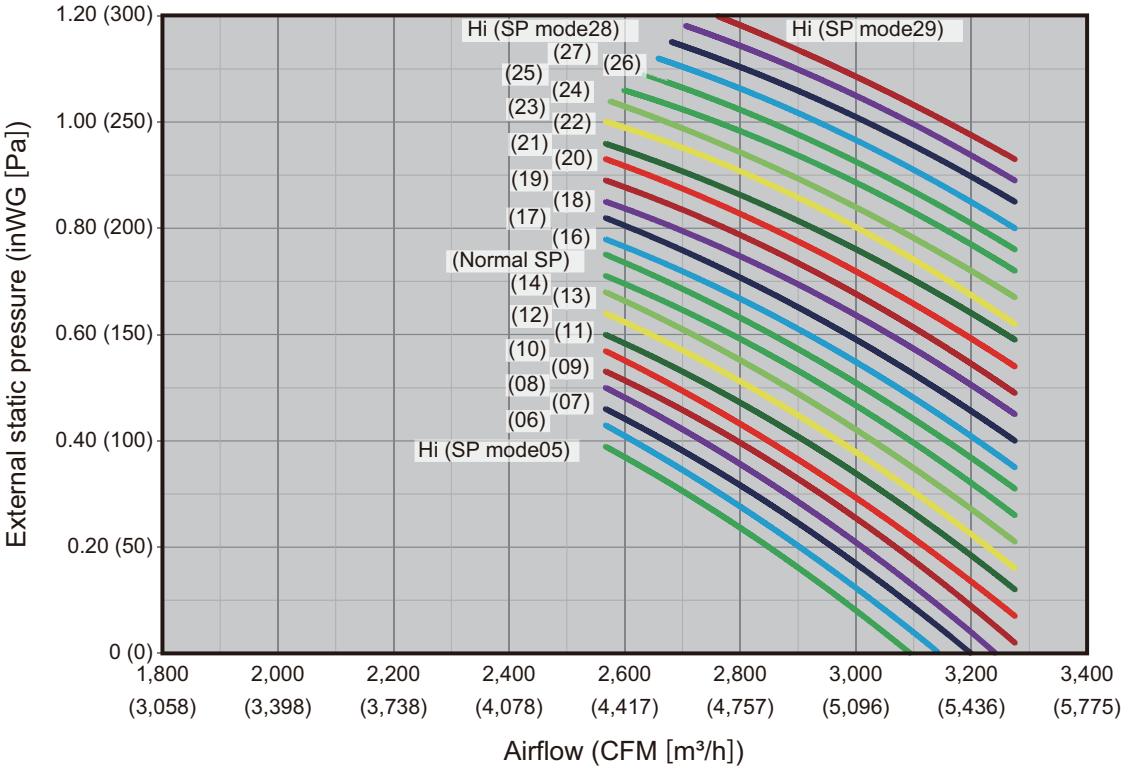
Heating



INDOOR UNITS

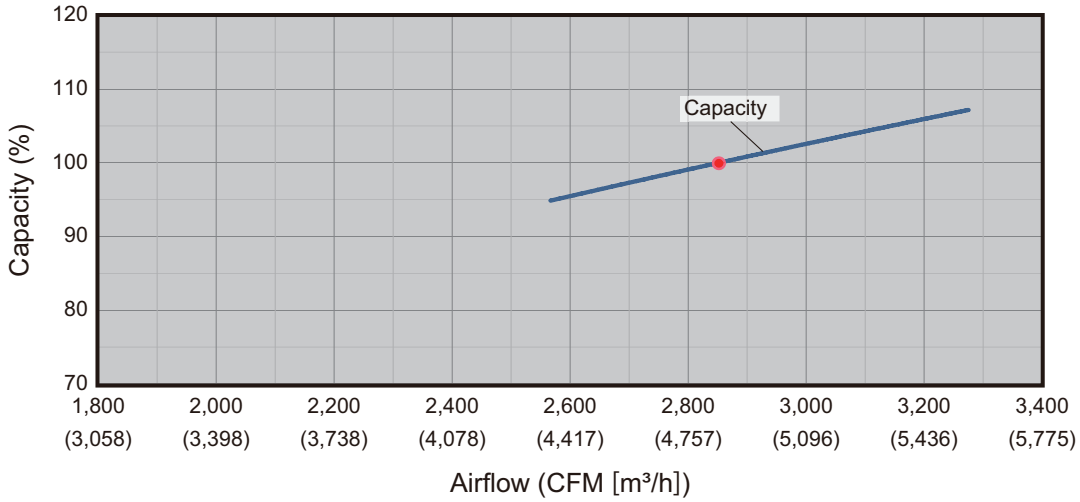
■ Model: ARUH96TLAV2



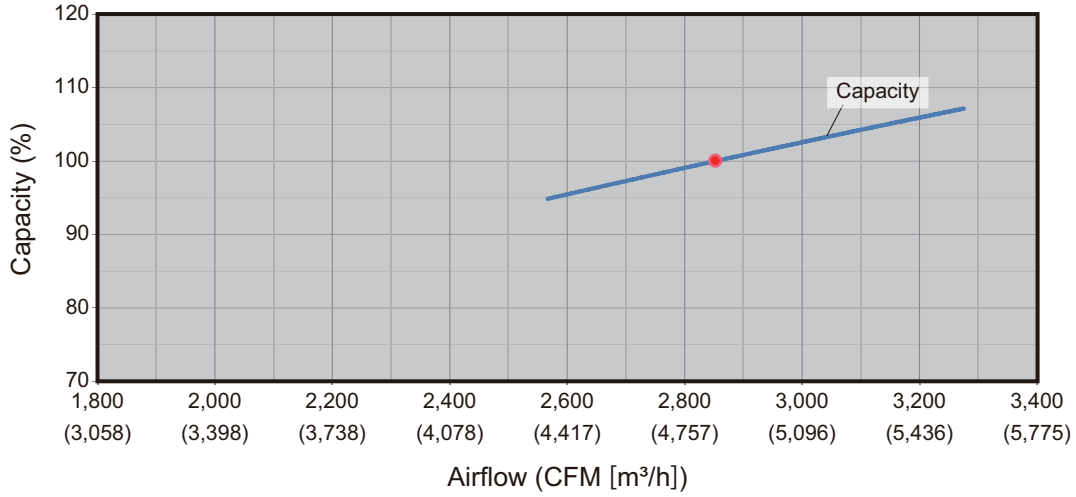


INDOOR UNITS

Cooling



Heating

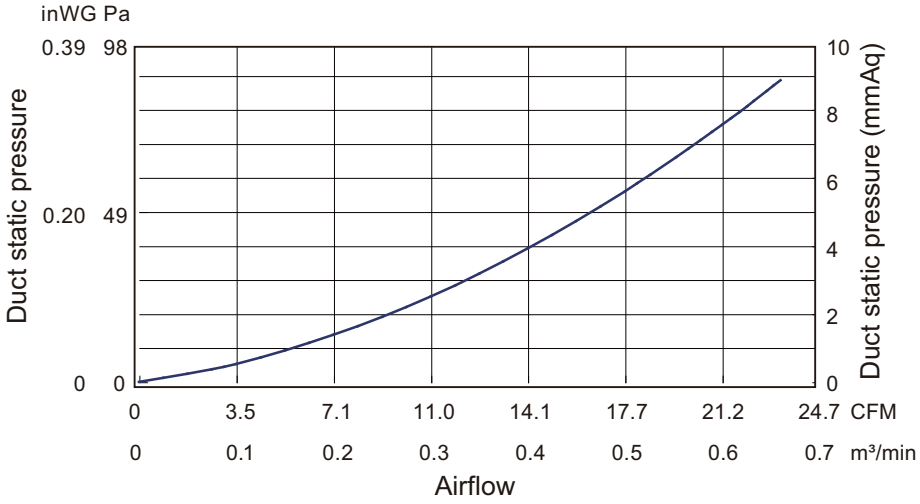


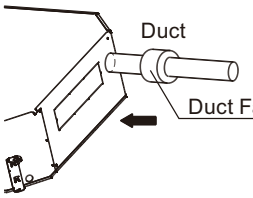
INDOOR UNITS

7-5. Fresh air characteristics

■ Circular flow cassette type and 4-way flow cassette type

● Airflow volume—Static pressure of fresh air intake characteristics

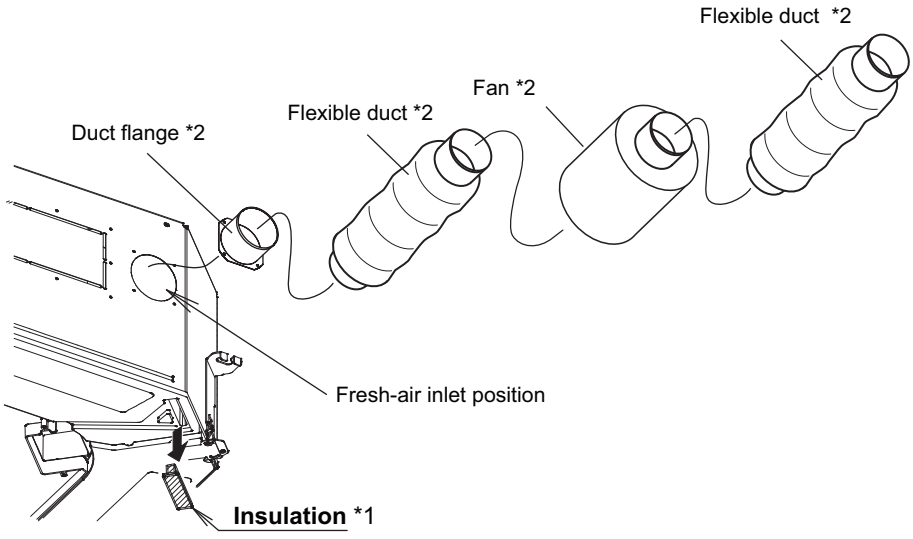




Inside Diameter
Circular flow cassette type: Ø3-3/4 in (95 mm)
4-way flow cassette type: Ø2-3/4 in (70 mm)

Static pressure required to take in fresh air

● Installation



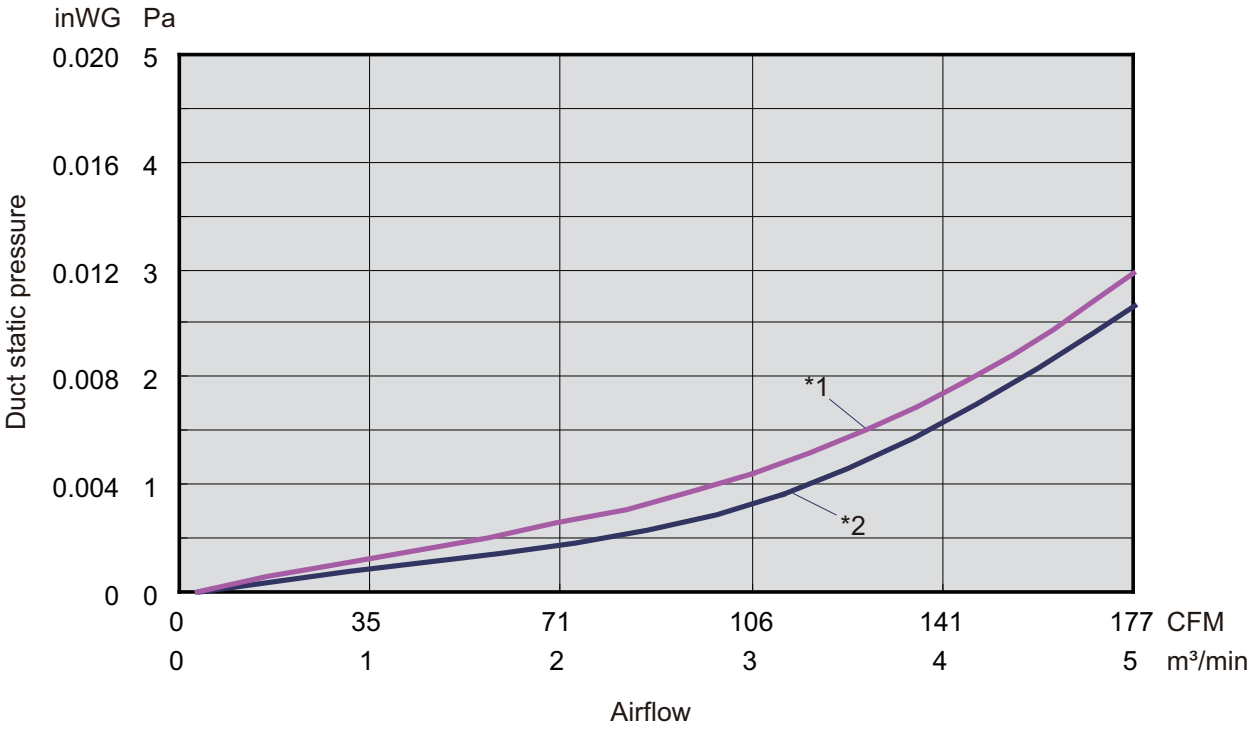
*1: In case of fresh-air intake, remove the insulation.

*2: Locally-purchased parts

For the fresh-air inlet position, refer to "Circular flow cassette type" on page 04-33 and "4-way flow cassette type" on page 04-30.

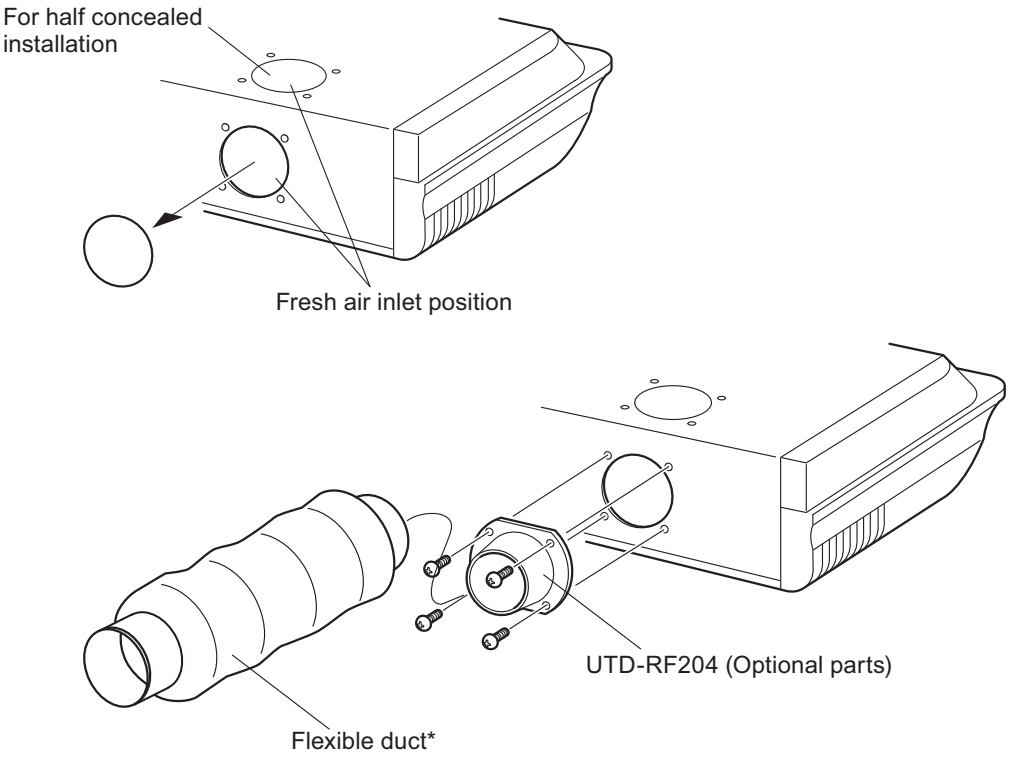
■ Ceiling type

● Airflow volume—Static pressure of fresh air intake characteristics



- *1: ABUA30TLAV2
- *2: ABUA36TLAV2

● Installation



*: Locally purchased parts

For the fresh-air inlet position, refer to "Ceiling type" on page 04-53.

8. Airflow

Conversion factor:

- 1 m^3/h = 0.2778 l/s = 0.5886 CFM
- 3.6 m^3/h = 1 l/s
- 1.699 m^3/h = 1 CFM

8-1. Compact cassette type

Model	Mode	Airflow		
		m^3/h	l/s	CFM
AUUA4TLAV2	HIGH	530	147	312
	MED—HIGH*1	490/480	136/133	288/283
	MED*1	450/430	125/119	265/253
	MED—LOW*1	420/380	117/106	247/224
	LOW*1	390/340	108/94	230/200
	QUIET*1	350/300	97/83	206/177
AUUA7TLAV2	HIGH	540	150	318
	MED—HIGH	500	139	295
	MED	460	128	271
	MED—LOW	420	117	247
	LOW	390	108	230
	QUIET	350	97	206
AUUA9TLAV2	HIGH	550	153	324
	MED—HIGH	520	144	306
	MED	480	133	283
	MED—LOW	440	122	259
	LOW	400	111	236
	QUIET	350	97	206
AUUA12TLAV2	HIGH	600	167	353
	MED—HIGH	560	156	330
	MED	520	144	306
	MED—LOW	480	133	283
	LOW	430	119	253
	QUIET	390	108	230
AUUA14TLAV2	HIGH	680	189	401
	MED—HIGH	620	172	365
	MED	560	156	330
	MED—LOW	500	139	295
	LOW	440	122	259
	QUIET	390	108	230
AUUA18TLAV2	HIGH	710	197	418
	MED—HIGH	660	183	389
	MED	590	164	348
	MED—LOW	520	144	306
	LOW	460	128	271
	QUIET	400	111	236
AUUA24TLAV2	HIGH	1,030	286	607
	MED—HIGH	910	253	536
	MED	790	219	465
	MED—LOW	680	189	401
	LOW	560	156	330
	QUIET	450	125	265

*1: This value is “Cooling operation/Heating operation”.

INDOOR UNITS

8-2. 4-way flow cassette type

Model	Mode	Airflow		
		m^3/h	l/s	CFM
AUUB18TLAV	HIGH	1,150	319	677
	MED	940	261	553
	LOW	870	242	512
AUUB24TLAV	HIGH	1,280	356	753
	MED	1,040	289	612
	LOW	870	242	512
AUUB30TLAV	HIGH	1,600	444	942
	MED	1,300	361	765
	LOW	1,100	306	647
AUUB36TLAV	HIGH	1,800	500	1,059
	MED	1,300	361	765
	LOW	1,100	306	647

INDOOR UNITS

8-3. Circular flow cassette type

Model	Mode	Airflow		
		m^3/h	l/s	CFM
AUUB18TLAV2	HIGH	1,050	292	618
	MED—HIGH	930	258	547
	MED	900	250	530
	LOW—HIGH	870	242	512
	LOW	810	225	477
	QUIET	780	217	459
AUUB24TLAV2	HIGH	1,120	311	659
	MED—HIGH	1,050	292	618
	MED	930	258	547
	LOW—HIGH	900	250	530
	LOW	870	242	512
	QUIET	780	217	459
AUUB30TLAV2	HIGH	1,470	408	865
	MED—HIGH	1,160	322	683
	MED	1,070	297	630
	LOW—HIGH	930	258	547
	LOW	900	250	530
	QUIET	780	217	459
AUUB36TLAV2	HIGH	1,620	450	954
	MED—HIGH	1,500	417	883
	MED	1,400	389	824
	LOW—HIGH	1,340	372	789
	LOW	1,280	356	753
	QUIET	1,150	319	677
AUUB48TLAV2	HIGH	2,040	567	1,201
	MED—HIGH	1,800	500	1,059
	MED	1,590	442	936
	LOW—HIGH	1,440	400	848
	LOW	1,300	361	765
	QUIET	1,150	319	677

INDOOR UNITS

8-4. Mini duct type

Model	Mode	Airflow		
		m^3/h	l/s	CFM
ARUL4TLAV2	HIGH	460	128	271
	MED—HIGH	440	122	259
	MED	420	117	247
	LOW—HIGH	400	111	235
	LOW	370	103	218
	QUIET	340	94	200

8-5. Slim duct/Slim concealed floor type

Model	Mode	Airflow		
		m^3/h	l/s	CFM
ARUL7TLAV2	HIGH	550	153	324
	MED—HIGH	480	133	283
	MED	440	122	259
	MED—LOW	410	114	241
	LOW	370	103	218
	QUIET	320	89	188
ARUL9TLAV2	HIGH	600	167	353
	MED—HIGH	510	142	300
	MED	460	128	271
	MED—LOW	420	117	247
	LOW	370	103	218
	QUIET	320	89	188
ARUL12TLAV2	HIGH	600	167	353
	MED—HIGH	530	147	312
	MED	490	136	289
	MED—LOW	450	125	265
	LOW	410	114	241
	QUIET	340	94	200
ARUL14TLAV2	HIGH	800	222	471
	MED—HIGH	680	189	401
	MED	600	167	353
	MED—LOW	520	144	306
	LOW	440	122	259
	QUIET	340	94	200
ARUL18TLAV2	HIGH	940	261	554
	MED—HIGH	820	228	483
	MED	730	203	430
	MED—LOW	630	175	371
	LOW	540	150	318
	QUIET	470	131	277

INDOOR UNITS

8-6. Medium static pressure duct type

Model	Mode	Airflow		
		m^3/h	l/s	CFM
ARUM24TLAV2	HIGH	1,460	406	860
	MED—HIGH	1,370	381	807
	MED	1,290	358	760
	MED—LOW	1,190	331	701
	LOW	1,100	306	648
	QUIET	1,000	278	589
ARUM30TLAV2	HIGH	1,770	492	1,043
	MED—HIGH	1,610	447	948
	MED	1,460	406	860
	MED—LOW	1,310	364	772
	LOW	1,160	322	683
	QUIET	1,000	278	589
ARUM36TLAV2	HIGH	1,890	525	1,113
	MED—HIGH	1,750	486	1,031
	MED	1,620	450	954
	MED—LOW	1,450	403	854
	LOW	1,300	361	766
	QUIET	1,150	319	677

INDOOR UNITS

8-7. High static pressure duct type

Model	Mode	Airflow		
		m^3/h	l/s	CFM
ARUH36TLAV	HIGH	2,250	625	1,324
	MED	1,750	486	1,030
	LOW	1,400	389	824
ARUH48TLAV	HIGH	3,000	833	1,766
	MED	2,700	750	1,589
	LOW	2,300	639	1,354
ARUH60TLAV	HIGH	3,350	931	1,972
	MED	2,850	792	1,678
	LOW	2,550	708	1,501
ARUH72TLAV2	HIGH	3,900	1,083	2,296
	MED	3,300	917	1,942
	LOW	3,000	833	1,766
ARUH96TLAV2	HIGH	4,850	1,347	2,855
	MED	4,250	1,181	2,502
	LOW	3,600	1,000	2,119

8-8. Compact floor type

Model	Mode	Airflow		
		m^3/h	l/s	CFM
AGUA4TLAV2	HIGH*1	380/430	106/119	224/253
	MED—HIGH	350	97	206
	MED	320	89	188
	LOW—HIGH	310	86	182
	LOW	280	78	165
	QUIET	210	58	124
AGUA7TLAV2	HIGH	470	131	277
	MED—HIGH	420	117	247
	MED	390	108	230
	LOW—HIGH	360	100	212
	LOW	330	92	194
	QUIET	270	75	159
AGUA9TLAV2	HIGH	500	139	294
	MED—HIGH	450	125	265
	MED	400	111	235
	LOW—HIGH	360	100	212
	LOW	330	92	194
	QUIET	270	75	159
AGUA12TLAV2	HIGH	590	164	347
	MED—HIGH	520	144	306
	MED	470	131	277
	LOW—HIGH	420	117	247
	LOW	390	108	230
	QUIET	340	94	200
AGUA14TLAV2	HIGH	670	186	394
	MED—HIGH	590	164	347
	MED	520	144	306
	LOW—HIGH	450	125	265
	LOW	390	108	230
	QUIET	340	94	200

*1: This value is “Cooling operation/Heating operation”.

INDOOR UNITS

8-9. Floor/Ceiling type

Model	Mode	Airflow		
		m^3/h	l/s	CFM
ABUA12TLAV2	HIGH	660	183	389
	MED—HIGH	620	172	365
	MED	580	161	342
	MED—LOW	550	153	324
	LOW	520	144	306
	QUIET	490	136	289
ABUA14TLAV2	HIGH	780	217	459
	MED—HIGH	740	206	436
	MED	690	192	406
	MED—LOW	640	178	377
	LOW	600	167	353
	QUIET	550	153	324
ABUA18TLAV2	HIGH	1,000	278	589
	MED—HIGH	910	253	536
	MED	830	231	489
	MED—LOW	750	208	442
	LOW	660	183	389
	QUIET	580	161	342
ABUA24TLAV2	HIGH	1,000	278	589
	MED—HIGH	930	258	548
	MED	870	242	512
	MED—LOW	800	222	471
	LOW	740	206	436
	QUIET	680	189	401

INDOOR UNITS

8-10. Ceiling type

Model	Mode	Airflow		
		m^3/h	l/s	CFM
ABUA30TLAV2	HIGH	1,630	453	960
	MED—HIGH	1,520	422	895
	MED	1,420	394	836
	MED—LOW	1,320	367	777
	LOW	1,220	339	719
	QUIET	1,140	317	671
ABUA36TLAV2	HIGH	1,690	469	995
	MED—HIGH	1,560	433	919
	MED	1,450	403	854
	MED—LOW	1,360	378	801
	LOW	1,270	353	748
	QUIET	1,170	325	689

8-11. Wall mounted type

Model	Mode	Airflow		
		m^3/h	l/s	CFM
ASUA4TLAV2	HIGH	450	125	265
	MED—HIGH	430	119	253
	MED	400	111	235
	LOW—HIGH	380	106	224
	LOW	360	100	212
	QUIET	310	86	182
ASUA7TLAV2	HIGH	550	153	324
	MED—HIGH	510	142	300
	MED	470	131	277
	LOW—HIGH	410	114	241
	LOW	360	100	212
	QUIET	310	86	182
ASUA9TLAV2	HIGH	610	169	359
	MED—HIGH	560	156	330
	MED	510	142	300
	LOW—HIGH	440	122	259
	LOW	360	100	212
	QUIET	310	86	182
ASUA12TLAV2	HIGH	690	192	406
	MED—HIGH	610	169	359
	MED	560	156	330
	LOW—HIGH	530	147	312
	LOW	470	131	277
	QUIET	330	92	194
ASUA14TLAV2	HIGH	800	222	471
	MED—HIGH	740	206	436
	MED	680	189	400
	LOW—HIGH	610	169	359
	LOW	550	153	324
	QUIET	330	92	194
ASUB18TLAV1	HIGH	840	233	494
	MED	770	214	453
	LOW	690	192	406

Model	Mode	Airflow		
		m^3/h	l/s	CFM
ASUB24TLAV1	HIGH	1,100	306	647
	MED	910	253	536
	LOW	730	203	430
ASUA30TLAV2	HIGH	1,440	400	848
	MED—HIGH	1,200	333	706
	MED	1,050	292	618
	LOW—HIGH	940	261	553
	LOW	890	247	524
	QUIET	700	194	412
ASUA36TLAV2	HIGH*1	1,620/1520	450/422	954/895
	MED—HIGH	1,300	361	765
	MED	1,120	311	659
	LOW—HIGH	980	272	577
	LOW	890	247	524
	QUIET	700	194	412
ASUA7TLAV	HIGH	490	136	288
	MED	450	125	265
	LOW*1	420/370	117/103	247/218
ASUA9TLAV	HIGH	500	139	294
	MED	450	125	265
	LOW*1	420/370	117/103	247/218
ASUA12TLAV	HIGH	560	156	330
	MED	480	133	283
	LOW	420	117	247
ASUA14TLAV	HIGH	670	186	394
	MED	490	136	288
	LOW	420	117	247
ASUB18TLAV	HIGH	840	233	494
	MED	770	214	453
	LOW	690	192	406
ASUB24TLAV	HIGH	1,100	306	647
	MED	910	253	536
	LOW	730	203	430

*1: This value is “Cooling operation/Heating operation”.

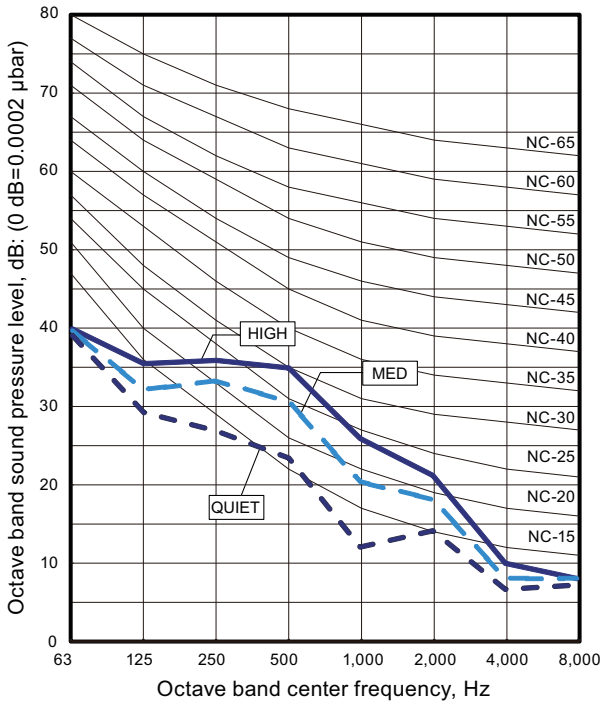
INDOOR UNITS

9. Noise level curve

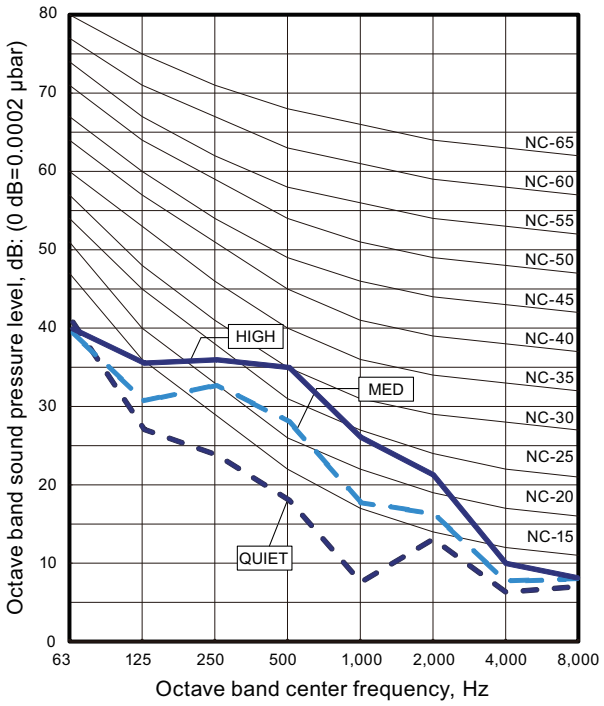
9-1. Compact cassette type

• Model: AUUA4TLAV2

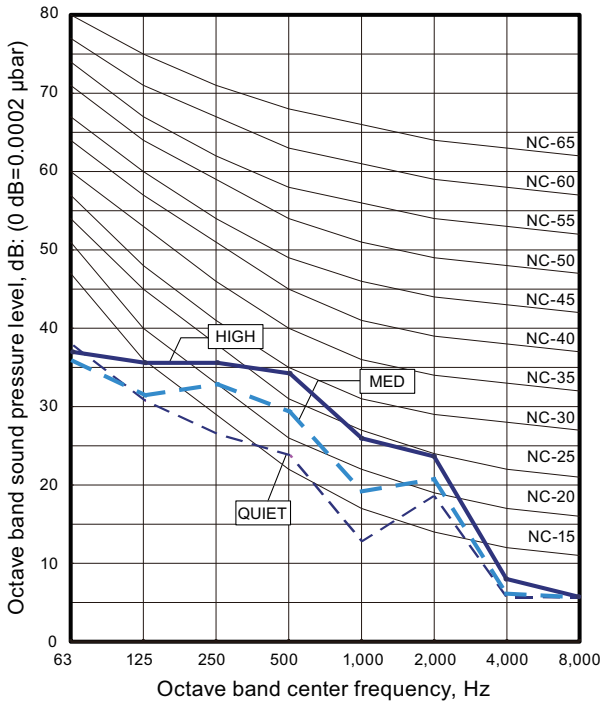
Cooling



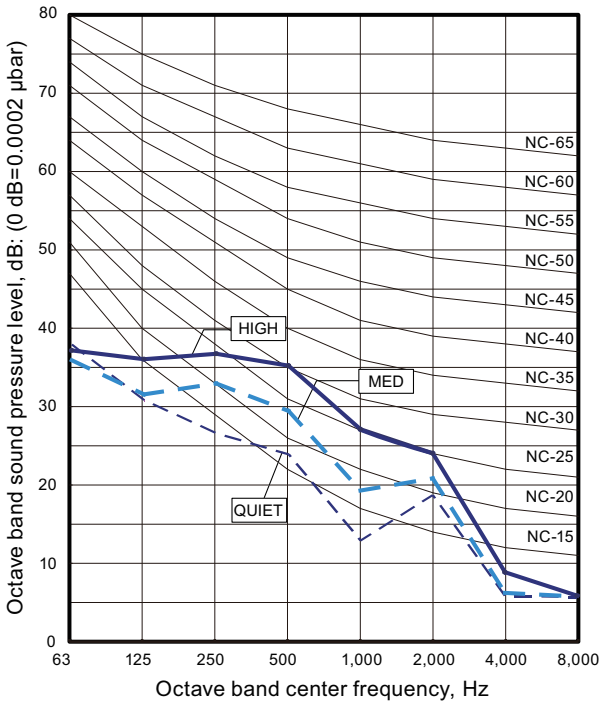
Heating



• Model: AUUA7TLAV2

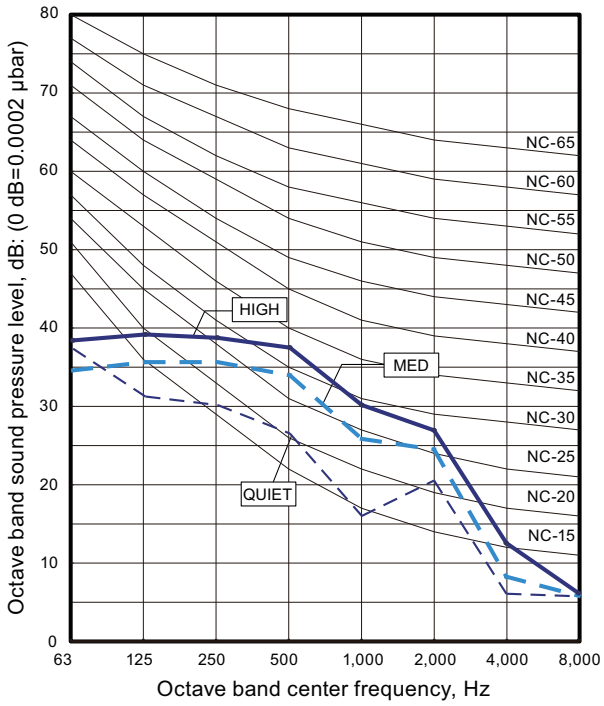


• Model: AUUA9TLAV2

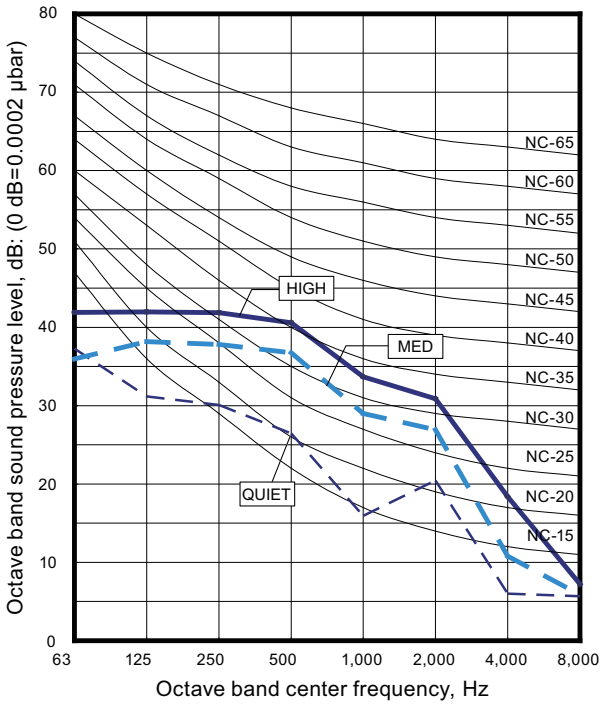


INDOOR UNITS

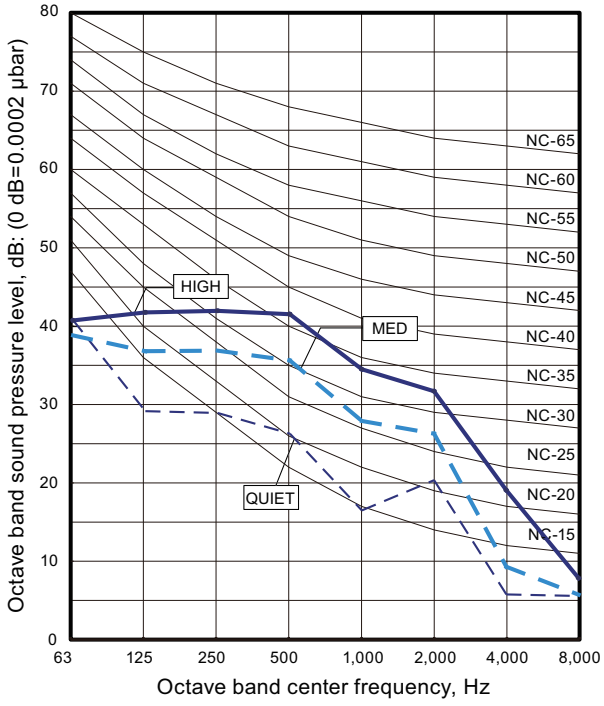
• Model: AUUA12TLAV2



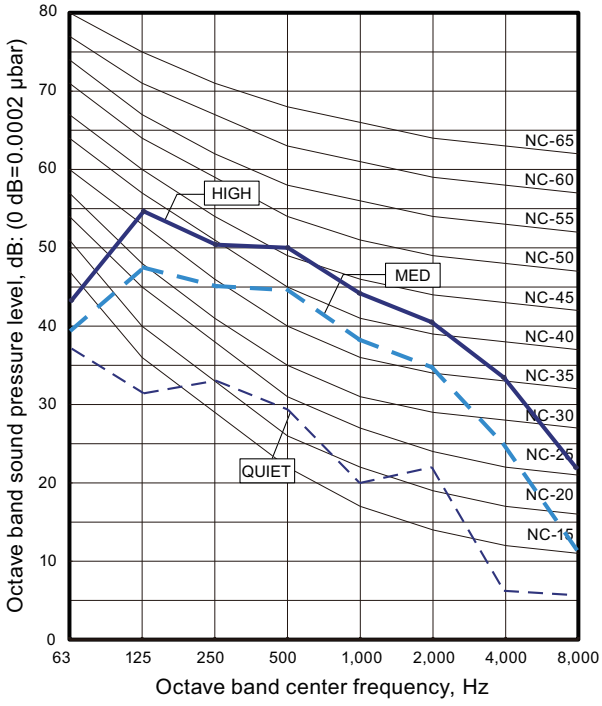
• Model: AUUA14TLAV2



• Model: AUUA18TLAV2

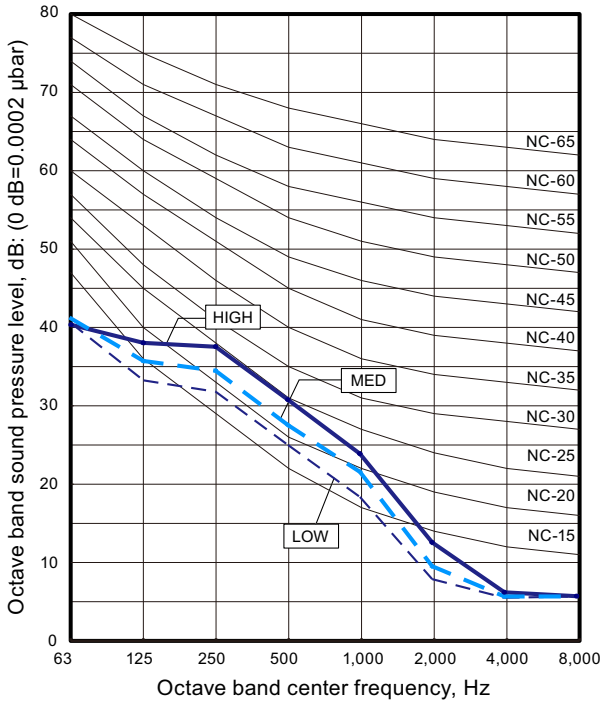


• Model: AUUA24TLAV2

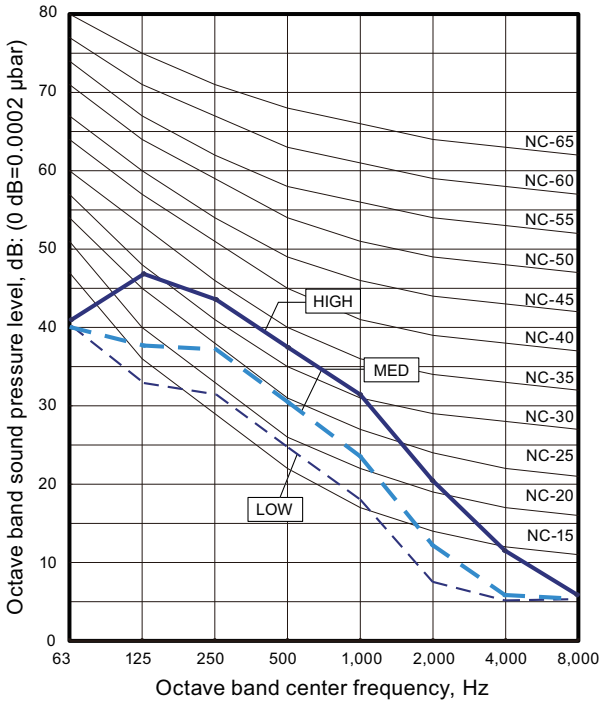


9-2. 4-way flow cassette type

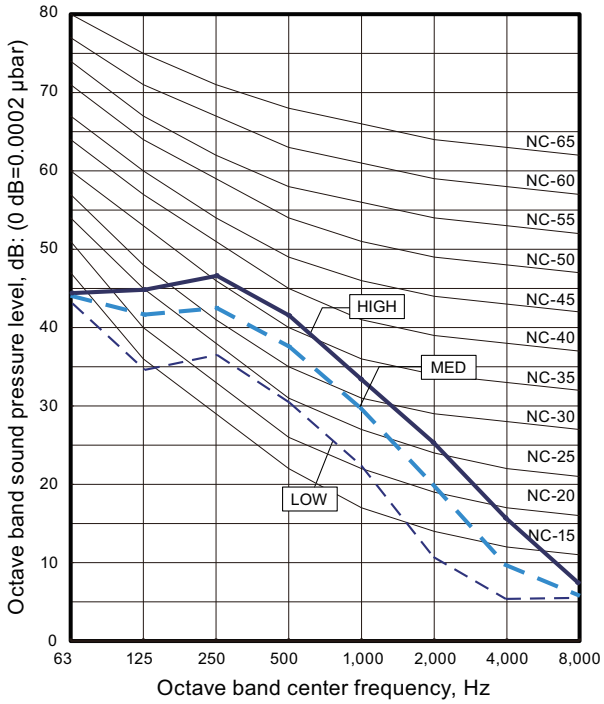
• Model: AUUB18TLAV



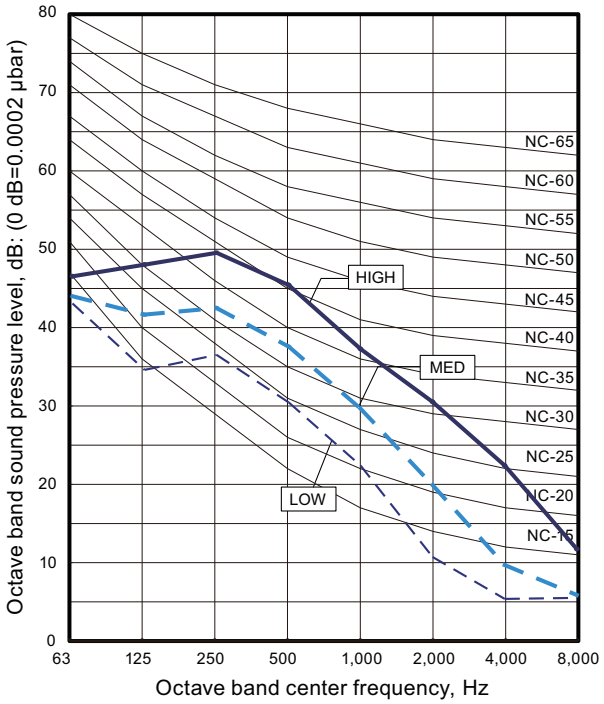
• Model: AUUB24TLAV



• Model: AUUB30TLAV



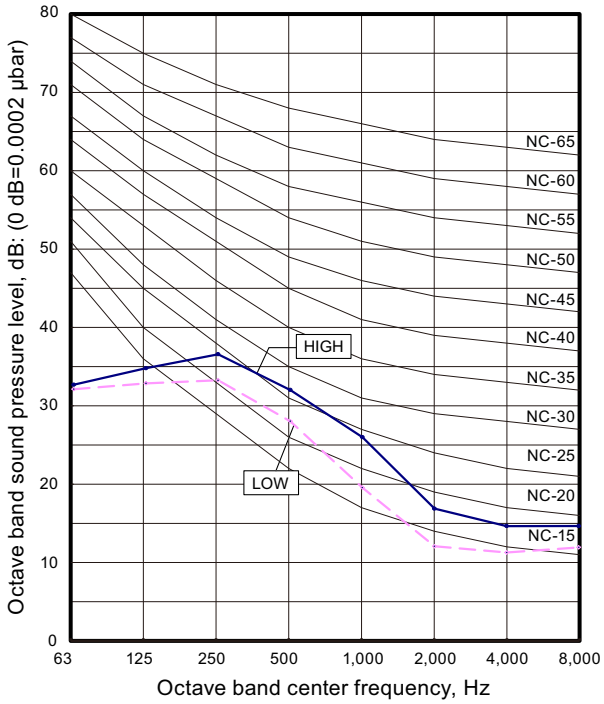
• Model: AUUB36TLAV



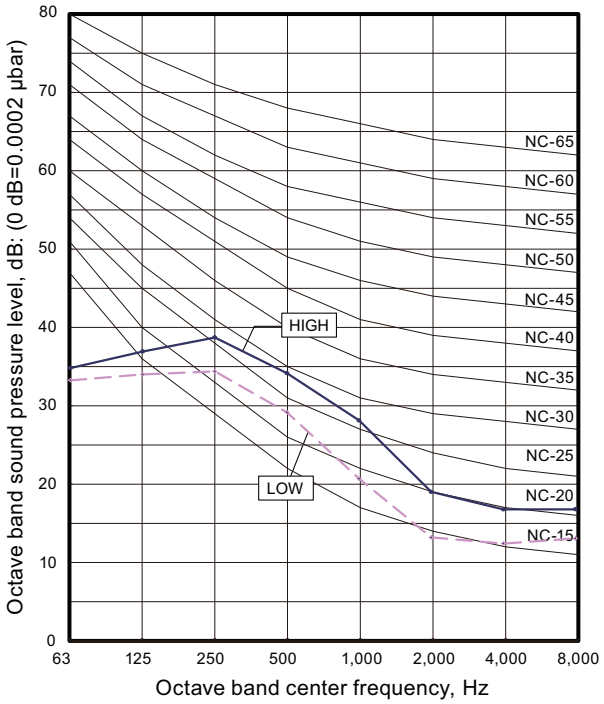
INDOOR UNITS

9-3. Circular flow cassette type

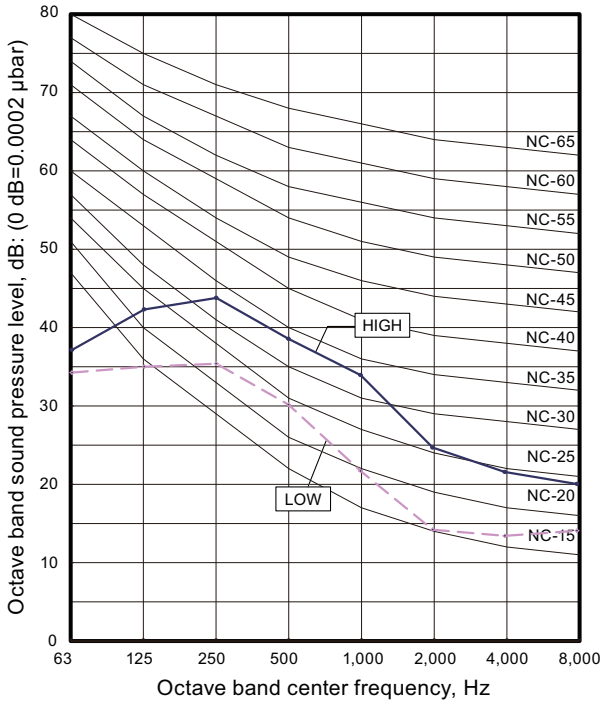
• Model: AUUB18TLAV2



• Model: AUUB24TLAV2

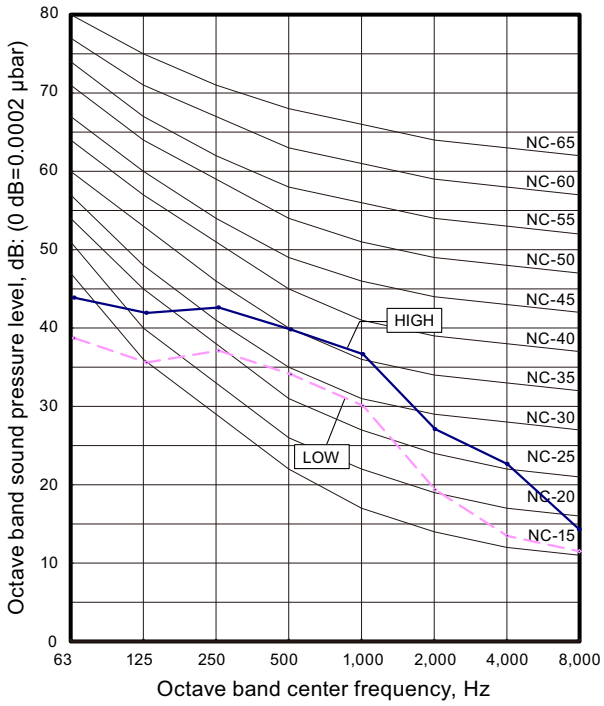


• Model: AUUB30TLAV2

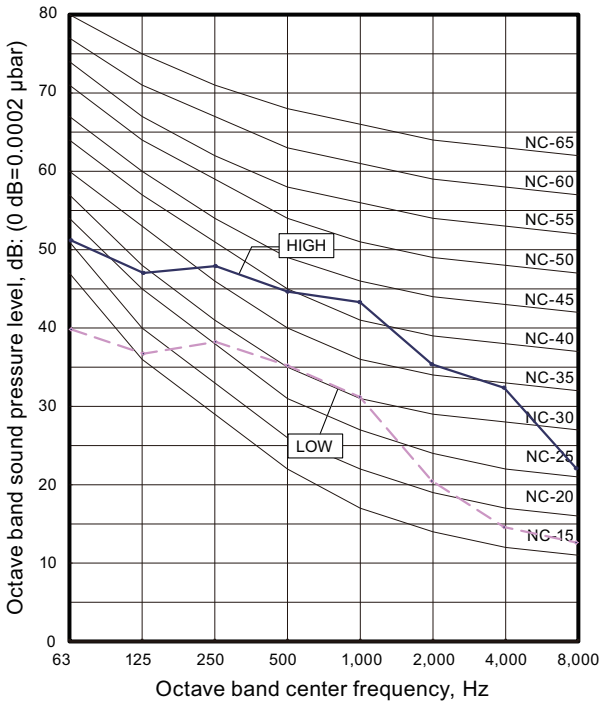


INDOOR UNITS

• Model: AUUB36TLAV2



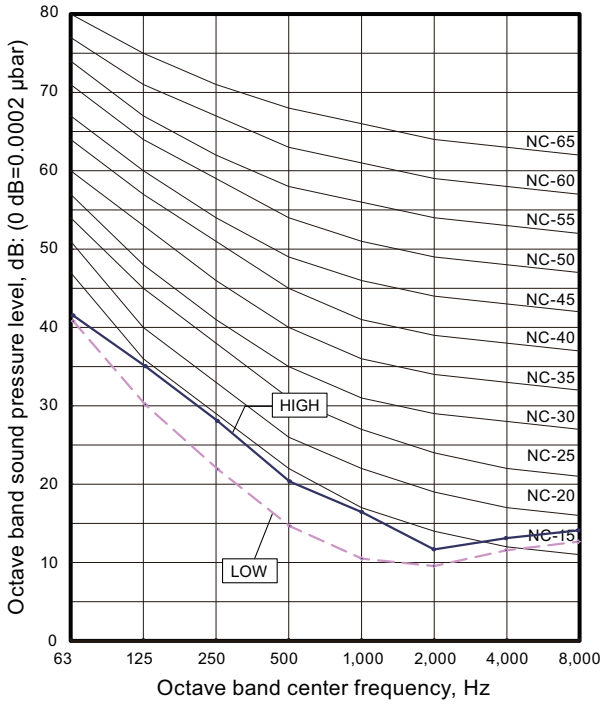
• Model: AUUB48TLAV2



INDOOR UNITS

9-4. Mini duct type

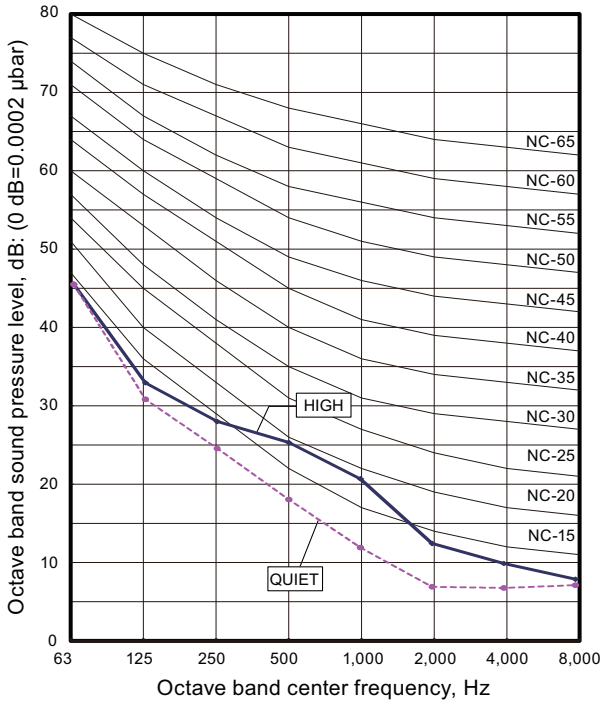
• Model: ARUL4TLAV2



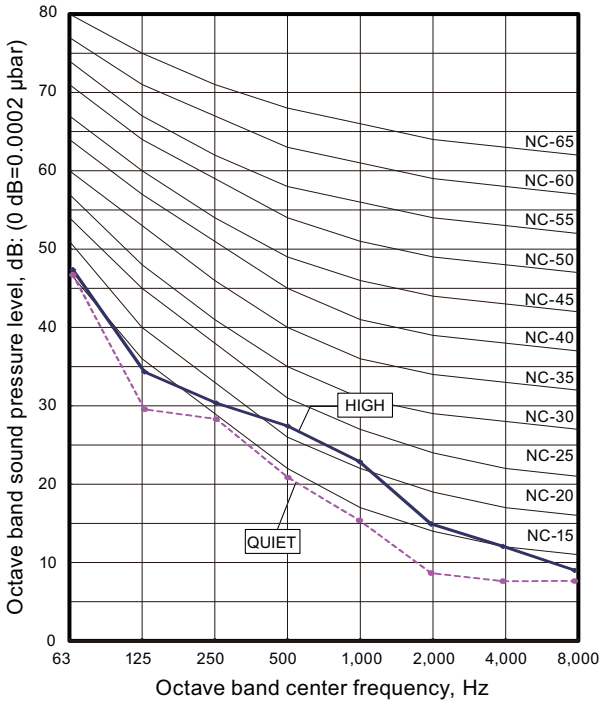
INDOOR UNITS

9-5. Slim duct/Slim concealed floor type

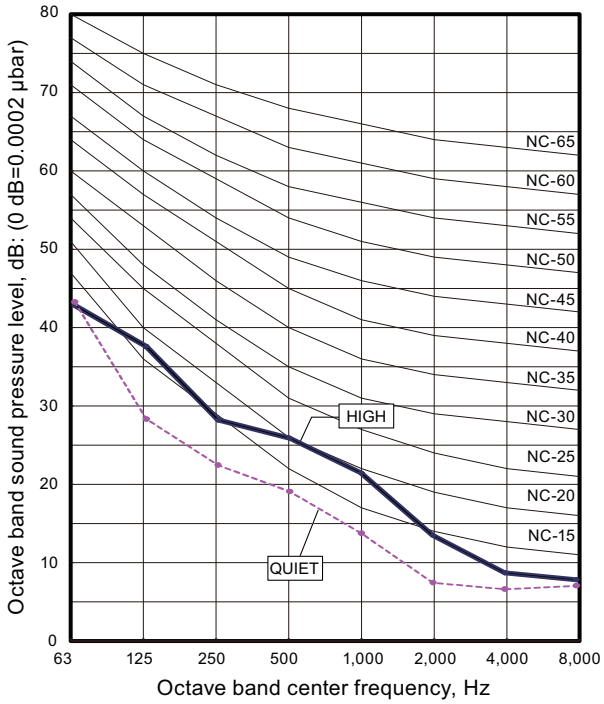
• Model: ARUL7TLAV2



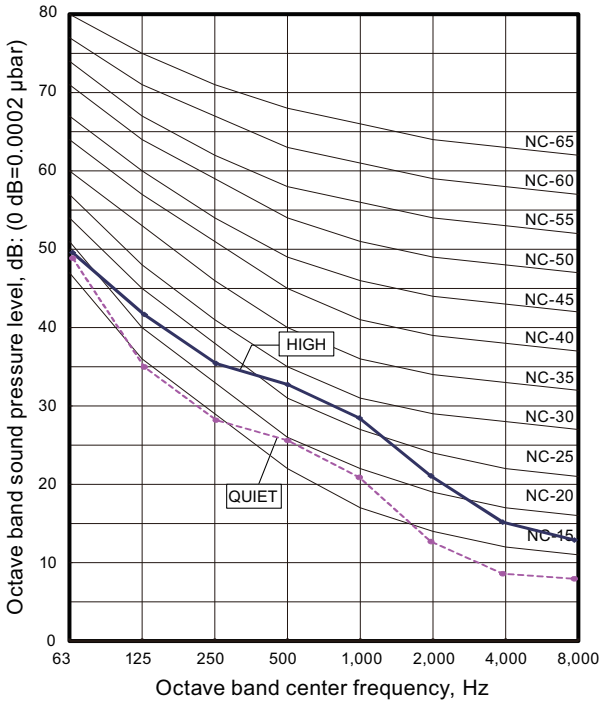
• Model: ARUL9TLAV2



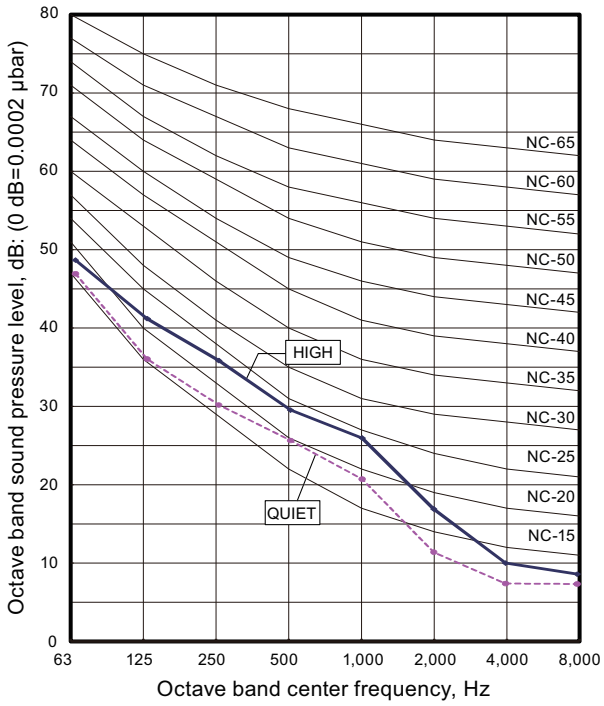
• Model: ARUL12TLAV2



• Model: ARUL14TLAV2



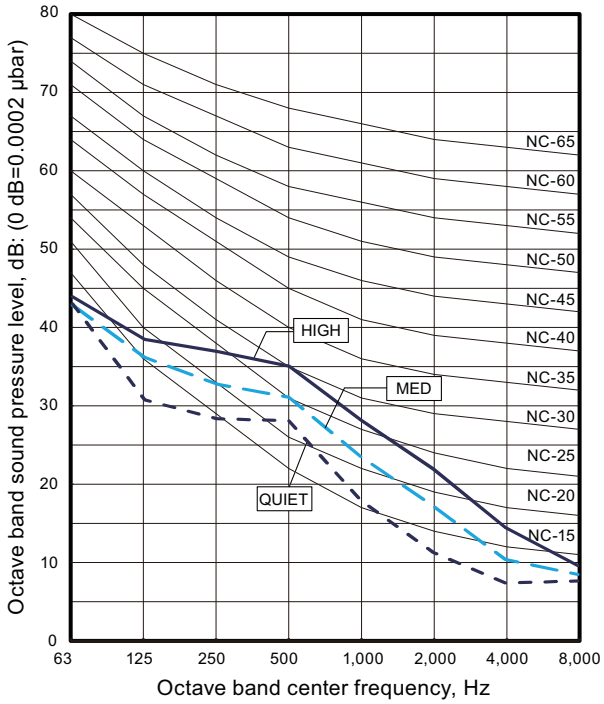
- **Model: ARUL18TLAV2**



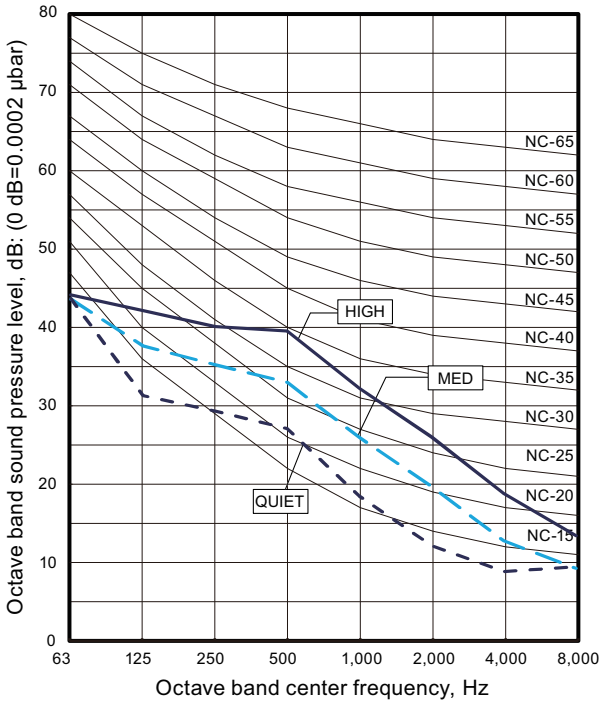
INDOOR UNITS

9-6. Medium static pressure duct type

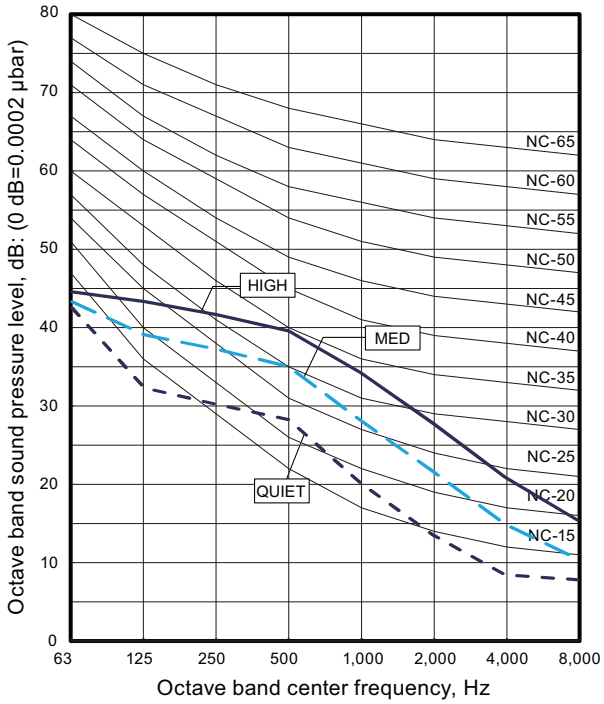
- **Model: ARUM24TLAV2**



- **Model: ARUM30TLAV2**



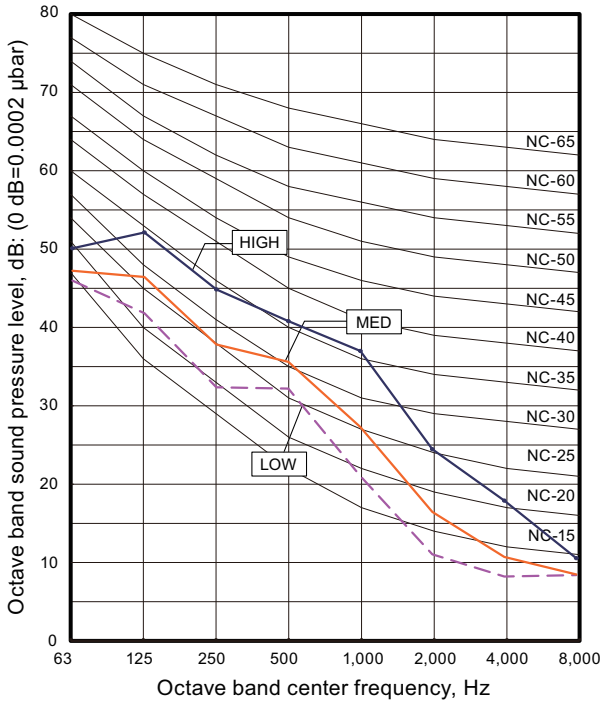
- **Model: ARUM36TLAV2**



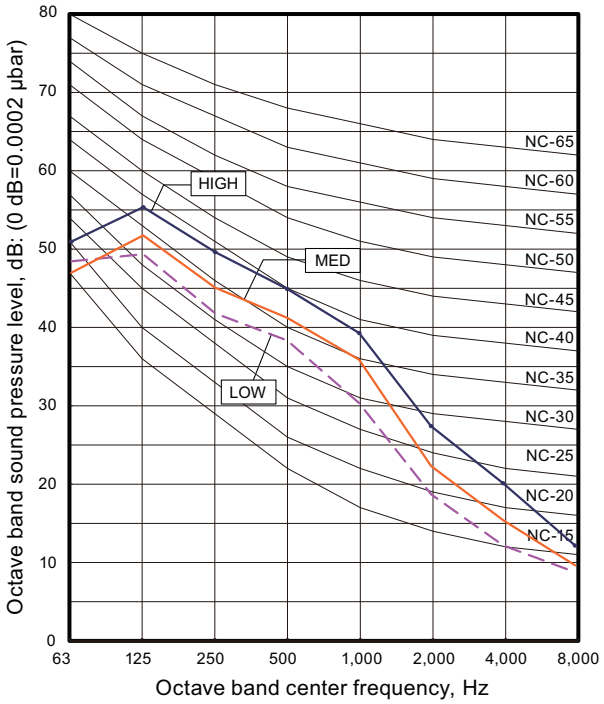
INDOOR UNITS

9-7. High static pressure duct type

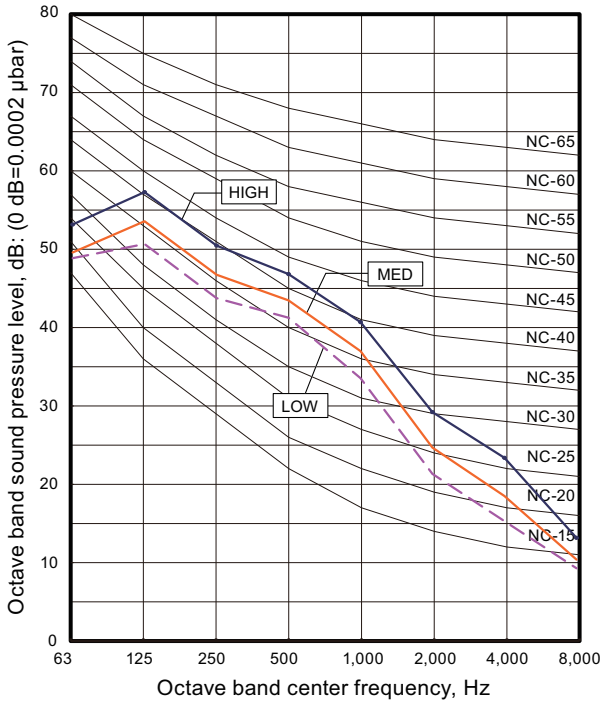
• Model: ARUH36TLAV



• Model: ARUH48TLAV

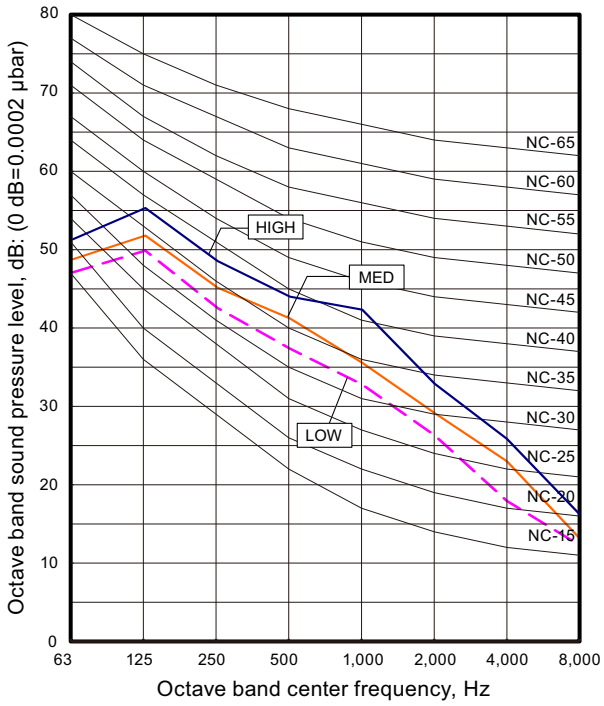


• Model: ARUH60TLAV

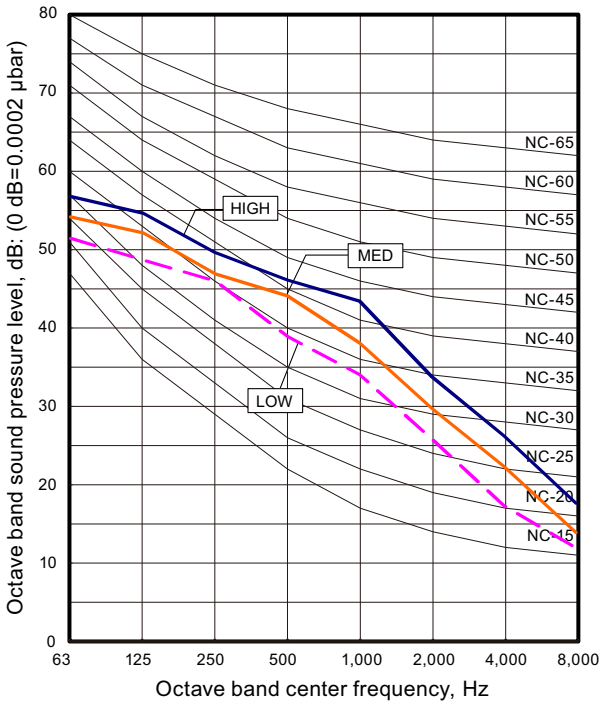


INDOOR UNITS

• Model: ARUH72TLAV2



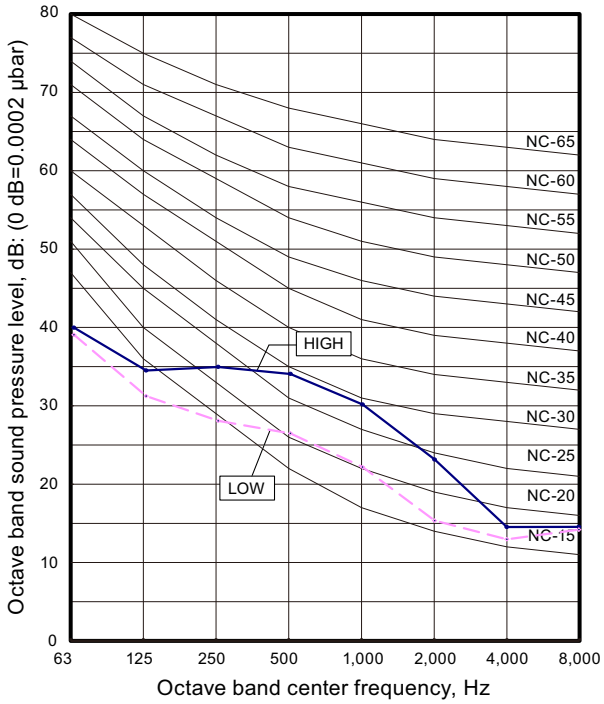
• Model: ARUH96TLAV2



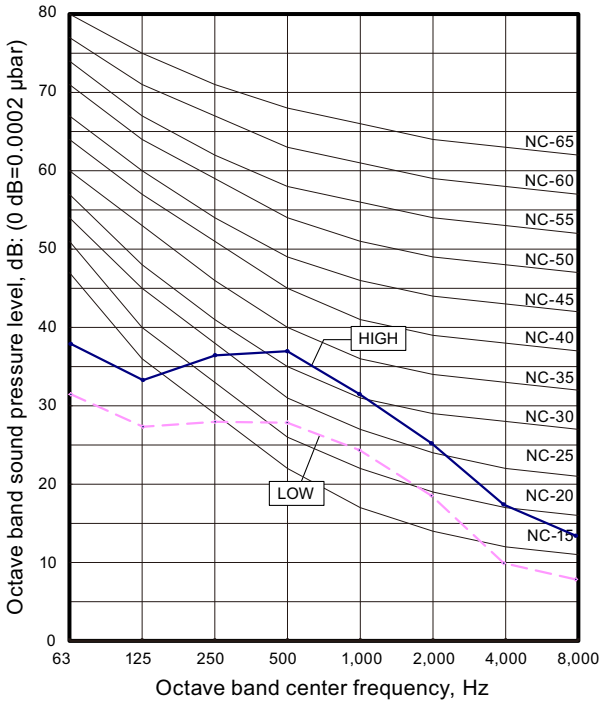
INDOOR UNITS

9-8. Compact floor type

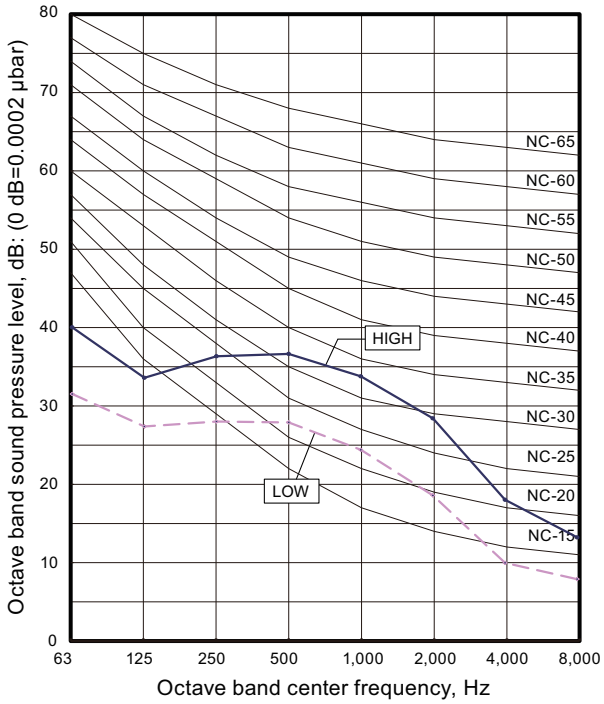
• Model: AGUA4TLAV2



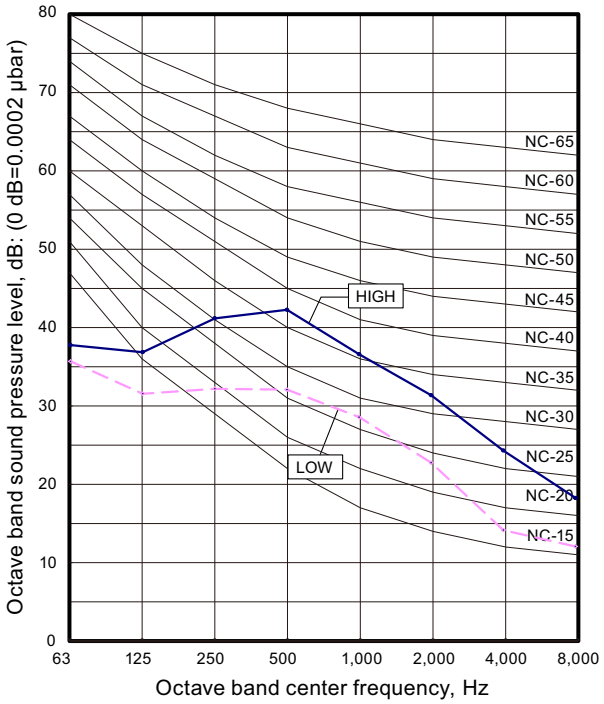
• Model: AGUA7TLAV2



• Model: AGUA9TLAV2

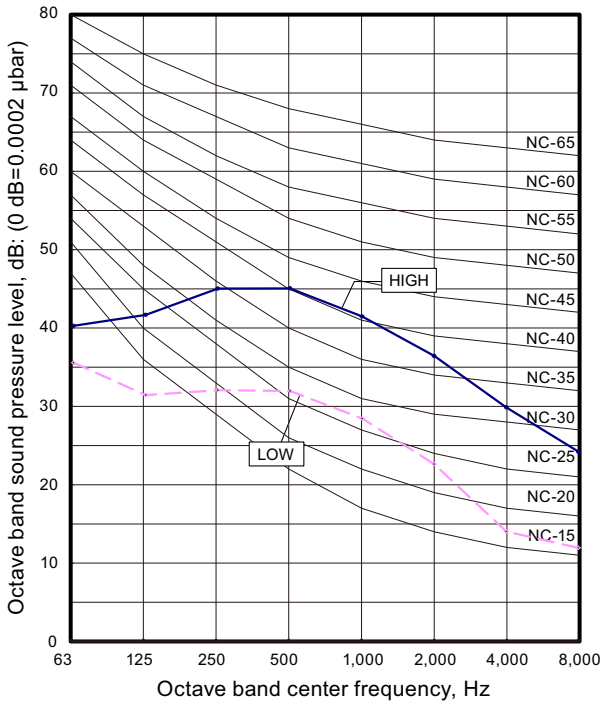


• Model: AGUA12TLAV2



INDOOR UNITS

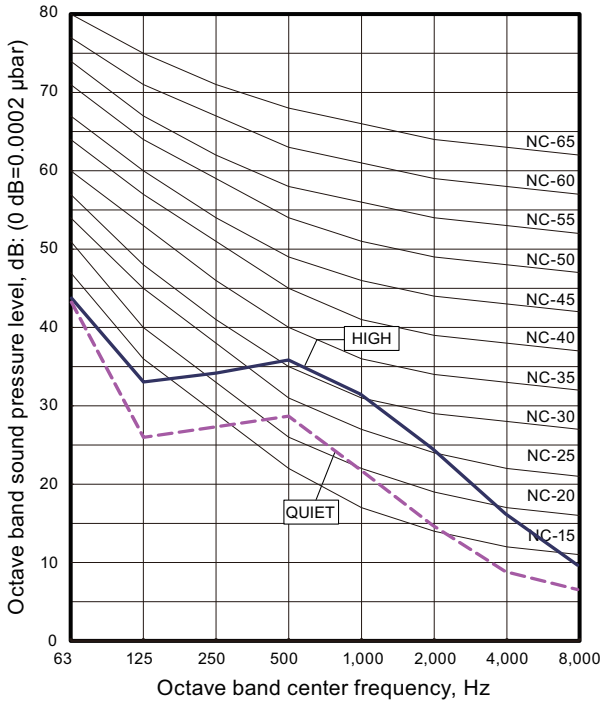
- **Model: AGUA14TLAV2**



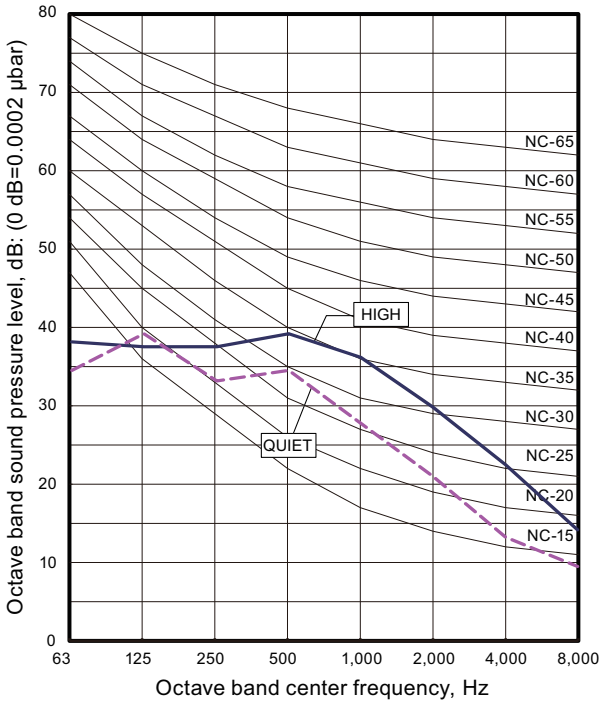
INDOOR UNITS

9-9. Floor/Ceiling type

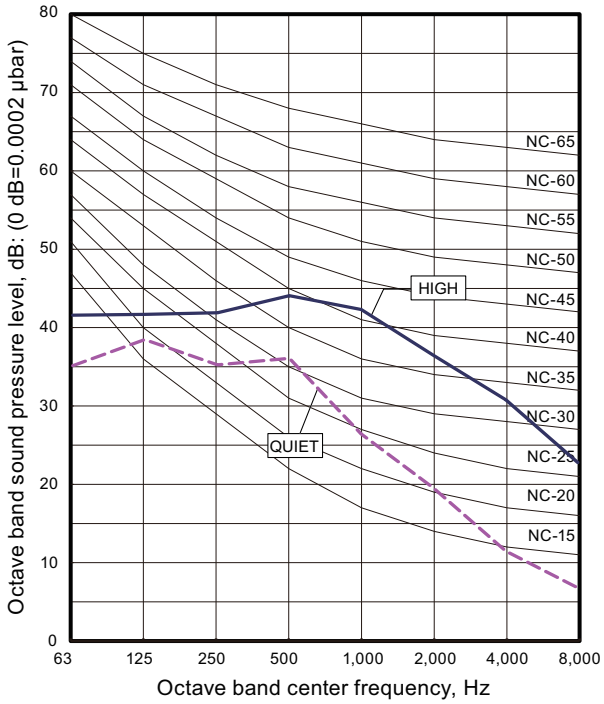
• Model: ABUA12TLAV2



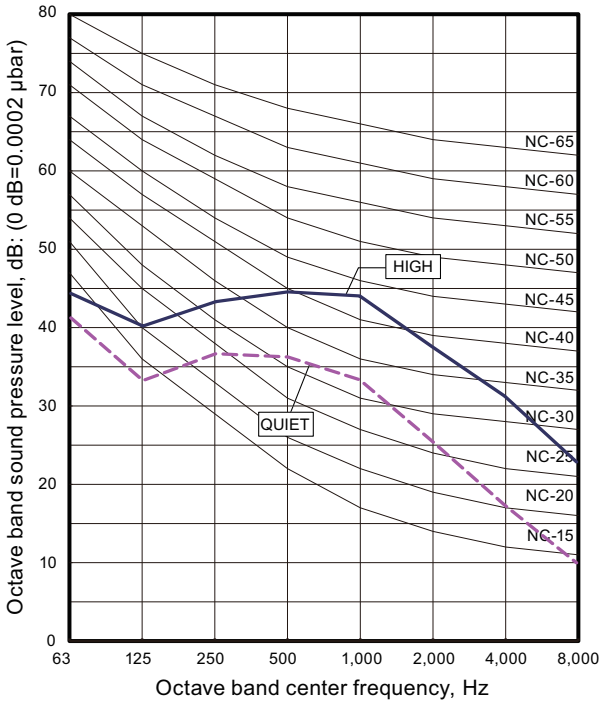
• Model: ABUA14TLAV2



• Model: ABUA18TLAV2



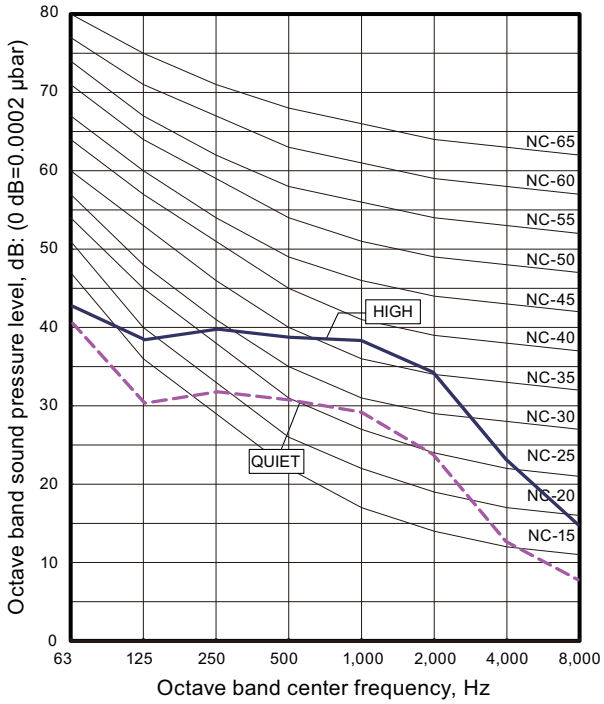
• Model: ABUA24TLAV2



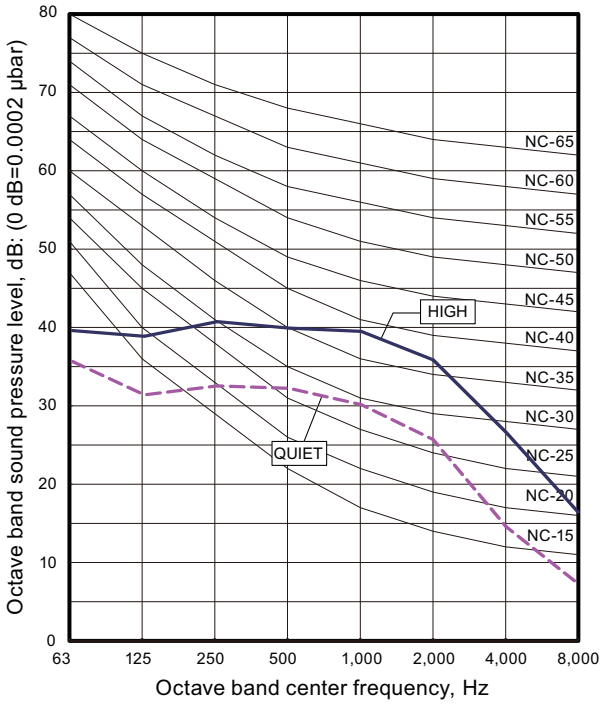
INDOOR UNITS

9-10. Ceiling type

- **Model: ABUA30TLAV2**



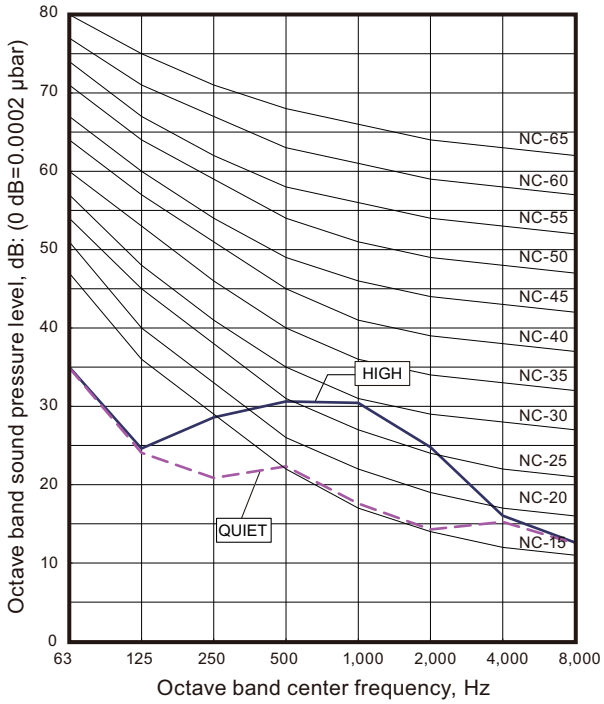
- **Model: ABUA36TLAV2**



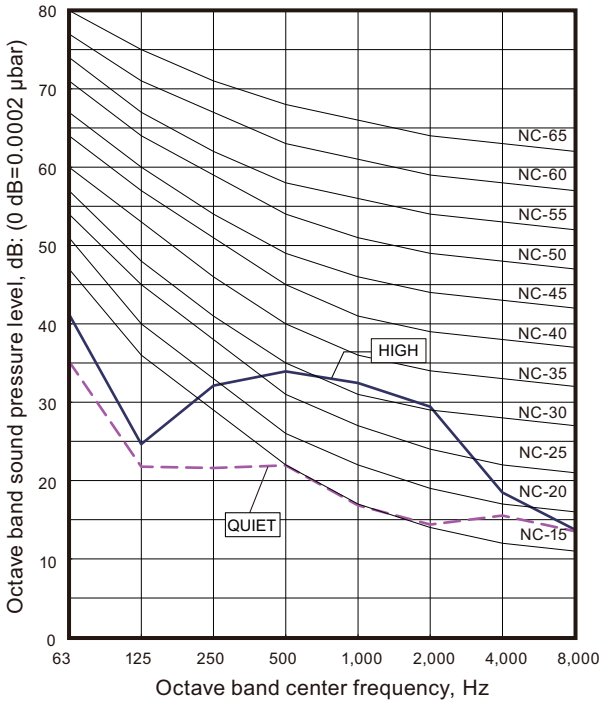
INDOOR UNITS

9-11. Wall mounted type

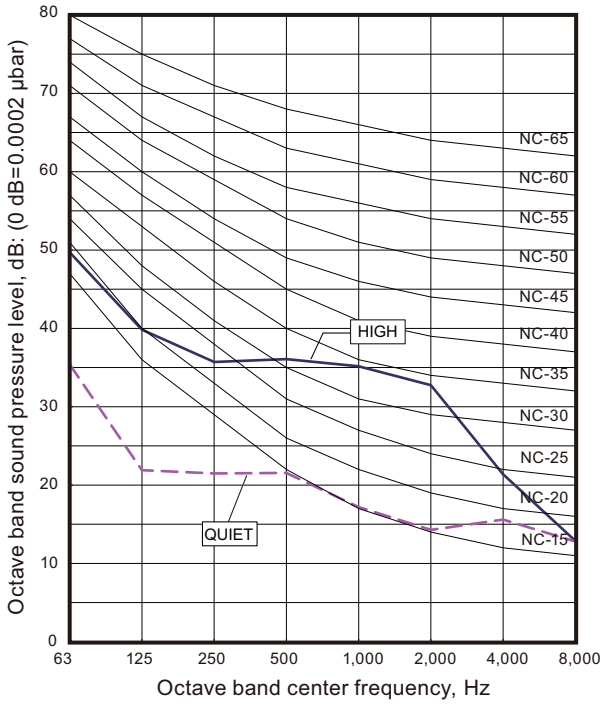
• Model: ASUA4TLAV2



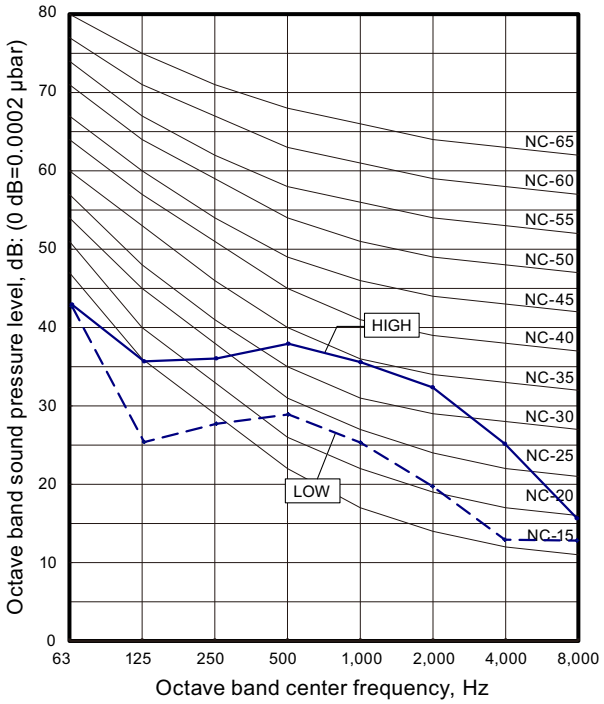
• Model: ASUA7TLAV2



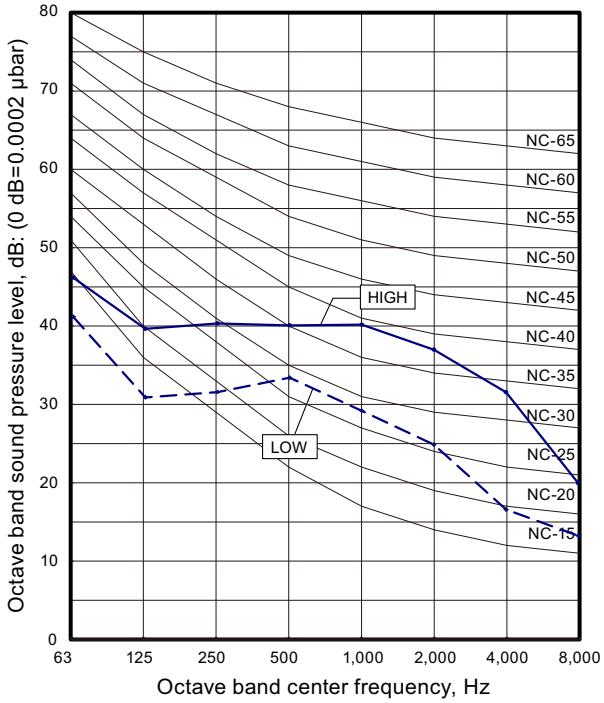
• Model: ASUA9TLAV2



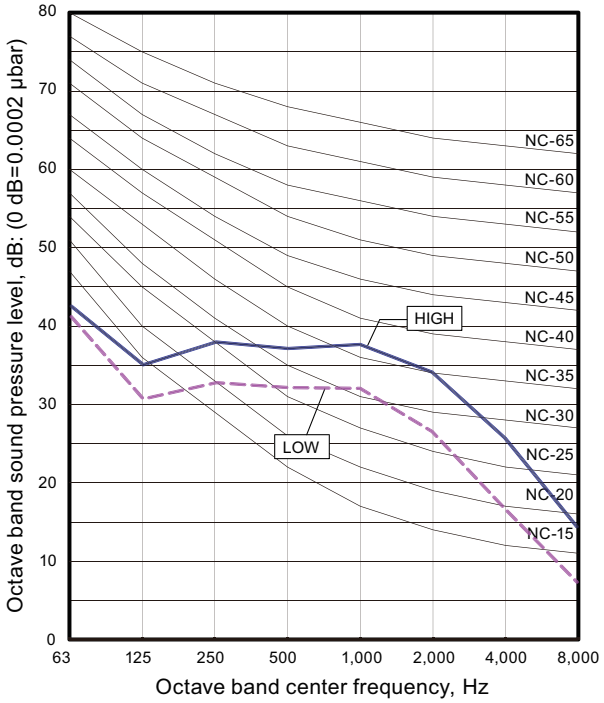
• Model: ASUA12TLAV2



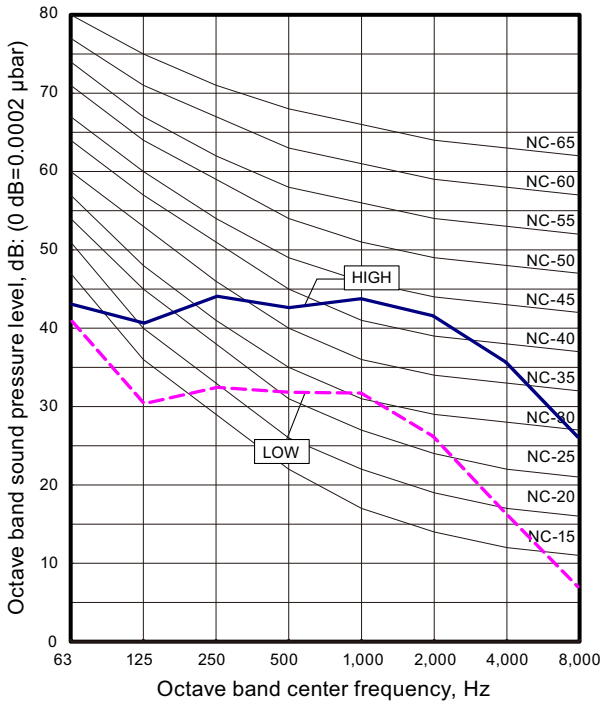
• Model: ASUA14TLAV2



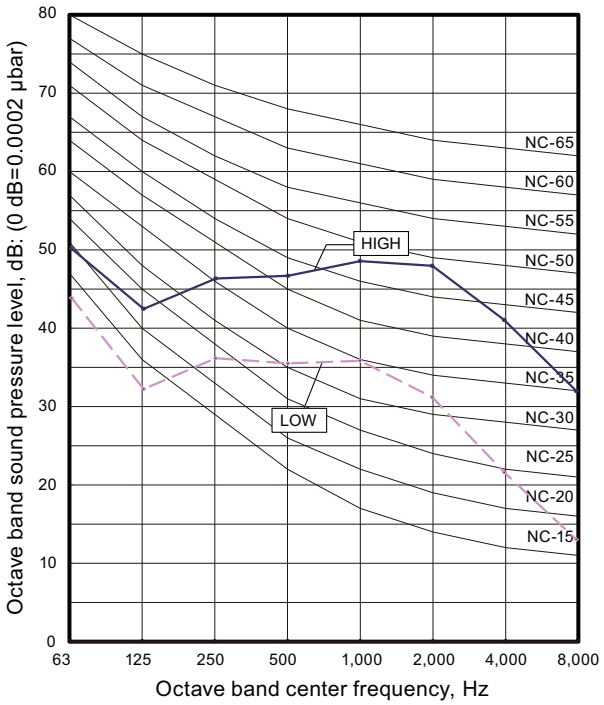
• Models: ASUB18TLAV1 and ASUB18TLAV



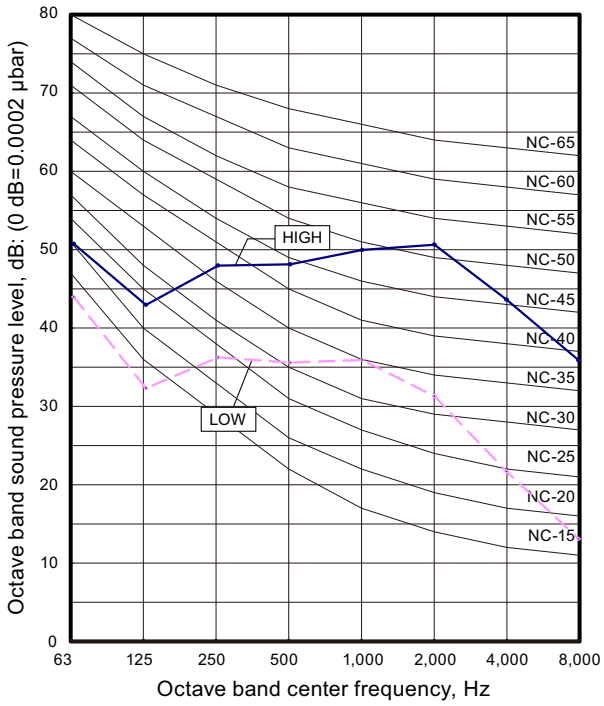
• Models: ASUB24TLAV1 and ASUB24TLAV



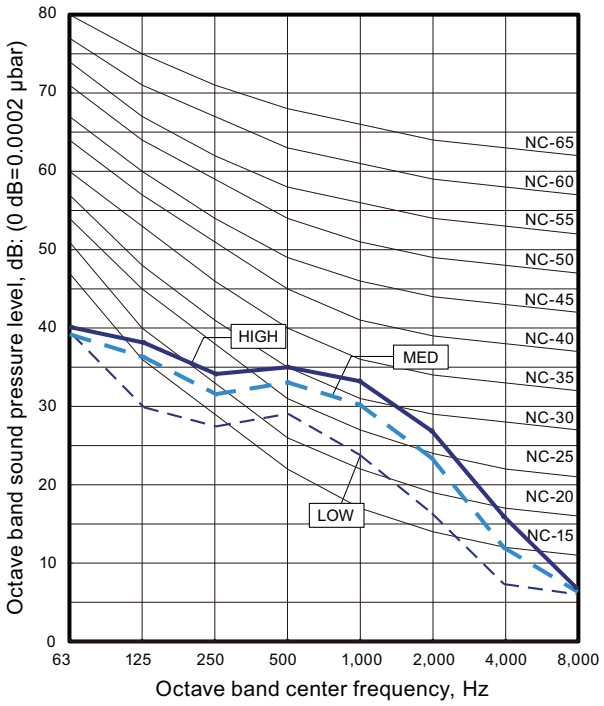
• Model: ASUA30TLAV2



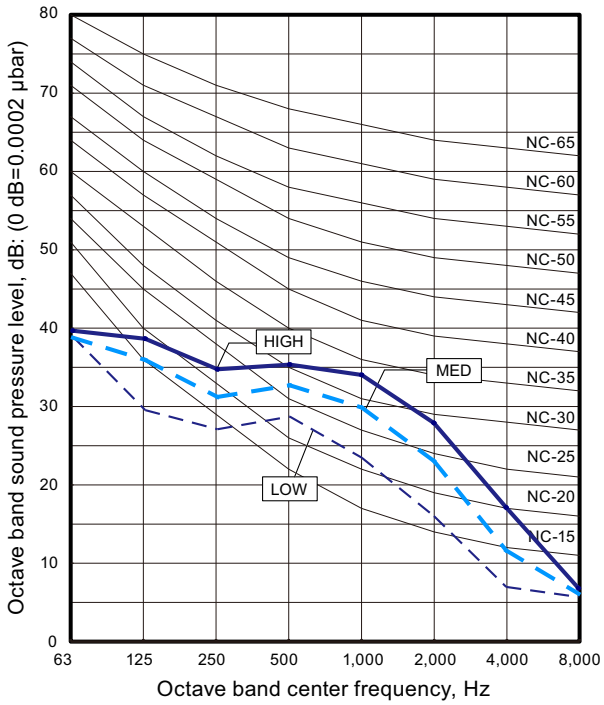
• Model: ASUA36TLAV2



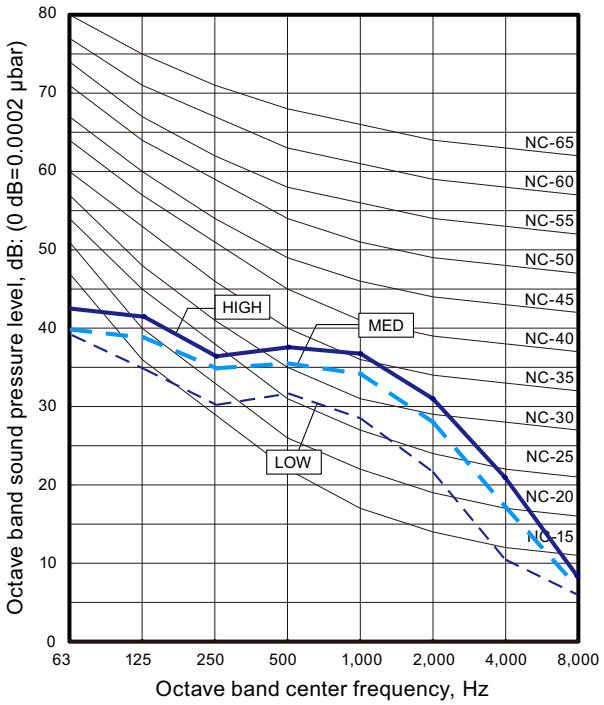
• Model: ASUA7TLAV



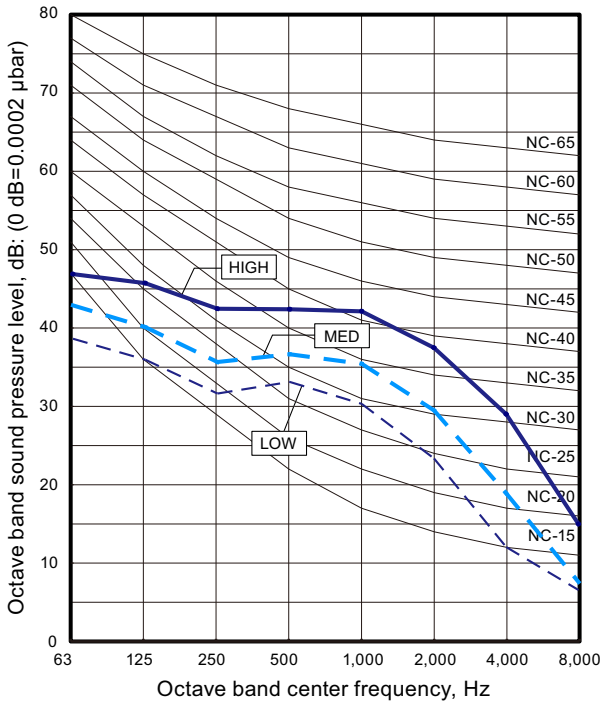
• Model: ASUA9TLAV



• Model: ASUA12TLAV



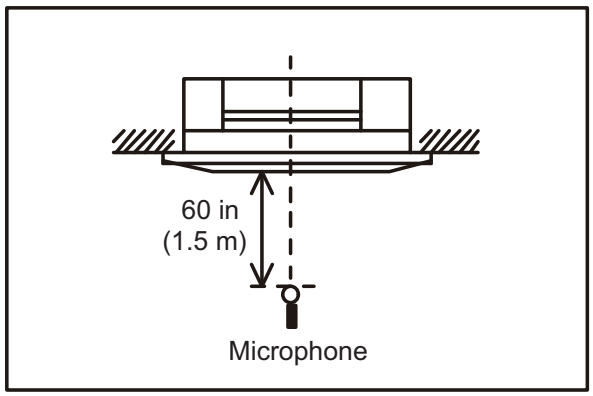
- **Model: ASUA14TLAV**



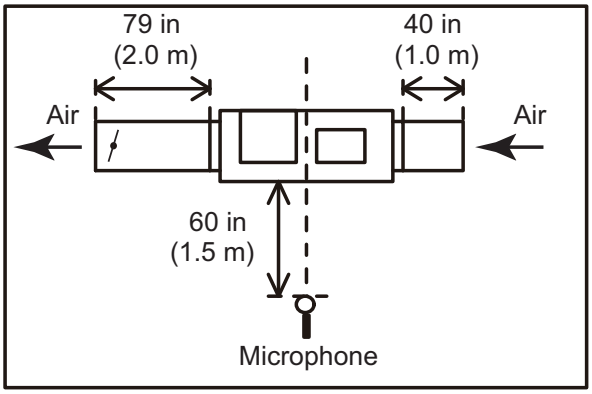
INDOOR UNITS

9-12. Sound level check point

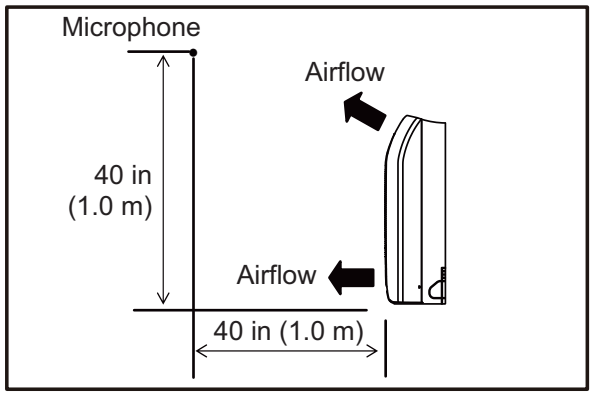
- **Compact cassette type**
- **Circular flow cassette type**
- **4-way flow cassette type**



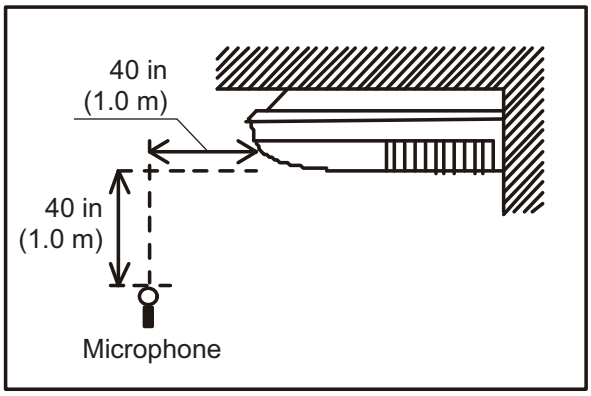
- **Mini duct type**
- **Slim duct type**
- **Medium static pressure duct type**
- **High static pressure duct type**



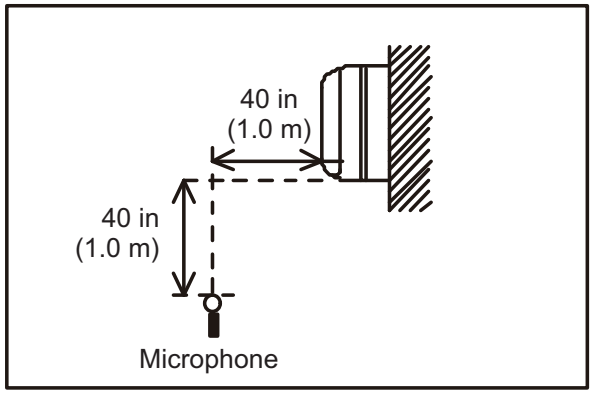
- **Compact floor type**



- **Floor/Ceiling type**
- **Ceiling type**



- **Wall mounted type**



INDOOR UNITS

10. Safety devices

10-1. Compact cassette type

Model	Fuse	Fan motor thermal protector		Terminal thermal fuse	Float switch
		Active	Reset		
AUUA4TLAV2	250 V 3.15 A	280.4±27 °F (138±15°C) Fan motor stop	221±36 °F (105±20°C) Fan motor restart	—	○
AUUA7TLAV2					
AUUA9TLAV2					
AUUA12TLAV2					
AUUA14TLAV2					
AUUA18TLAV2					
AUUA24TLAV2					

10-2. 4-way flow cassette type

Model	Fuse	Fan motor thermal protector		Terminal thermal fuse	Float switch
		Active	Reset		
AUUB18TLAV	250 V 3.15 A	230^{+27}_{-18}°F (110^{+15}_{-10}°C) Fan motor stop	221^{+27}_{-18}°F (105^{+15}_{-10}°C) Fan motor Restart	—	○
AUUB24TLAV					
AUUB30TLAV					
AUUB36TLAV					

10-3. Circular flow cassette type

Model	Fuse	Fan motor thermal protector		Terminal thermal fuse	Float switch
		Active	Reset		
AUUB18TLAV2	250 V 3.15 A	257±18 °F (125±10°C) Fan motor stop	248±18 °F (120±10°C) Fan motor restart	—	○
AUUB24TLAV2					
AUUB30TLAV2					
AUUB36TLAV2					
AUUB48TLAV2					

10-4. Mini duct type

Model	Fuse	Fan motor thermal protector		Terminal thermal fuse	Float switch
		Active	Reset		
ARUL4TLAV2	250 V 3.15 A	275±27°F (135±15°C) Fan motor stop	239±27°F (115±15°C) Fan motor Restart	—	○

INDOOR UNITS

10-5. Slim duct/Slim concealed floor type

Model	Fuse	Fan motor thermal protector		Terminal thermal fuse	Float switch
		Active	Reset		
ARUL7TLAV2 ARUL9TLAV2 ARUL12TLAV2 ARUL14TLAV2 ARUL18TLAV2	250 V 5 A	275±27°F (135±15°C) Fan motor stop	239±27°F (115±15°C) Fan motor Restart	—	○

10-6. Medium static pressure duct type

Model	Fuse	Fan motor thermal protector		Terminal thermal fuse	Float switch
		Active	Reset		
ARUM24TLAV2	250 V 5 A	275±27°F (135±15°C) Fan motor stop	239±27°F (115±15°C) Fan motor Restart	—	▲*
ARUM30TLAV2 ARUM36TLAV2		239±27°F (115±15°C) Fan motor stop	158°F (70°C) or less Fan motor Restart		

*: Including in Drain pump unit (Optional parts)

10-7. High static pressure duct type

Model	Fuse	Fan motor thermal protector		Terminal thermal fuse	Float switch
		Active	Reset		
ARUH36TLAV ARUH48TLAV ARUH60TLAV	250 V, 3.15 A 250 V, 10 A*	293±9°F (145±5°C) Fan motor stop	—	—	—
ARUH72TLAV2 ARUH96TLAV2	250 V, 3.15 A 250 V, 20 A*	212^{+27}_{-18}°F (100^{+15}_{-10}°C) Fan motor stop	203^{+27}_{-18}°F (95^{+15}_{-10}°C) Fan motor stop		

*: Fuse for fan motor

10-8. Compact floor type

Model	Fuse	Fan motor thermal protector		Terminal thermal fuse	Float switch
		Active	Reset		
AGUA4TLAV2 AGUA7TLAV2 AGUA9TLAV2 AGUA12TLAV2 AGUA14TLAV2	250 V 3.15 A	302±27°F (150±15°C) Fan motor stop	248±27°F (120±15°C) Fan motor restart	—	○

INDOOR UNITS

10-9. Floor/Ceiling type

Model	Fuse	Fan motor thermal protector		Terminal thermal fuse	Float switch
		Active	Reset		
ABUA12TLAV2 ABUA14TLAV2 ABUA18TLAV2 ABUA24TLAV2	250 V 3.15 A	275±27°F (135±15°C) Fan motor stop	239±27°F (115±15°C) Fan motor restart	—	—

10-10. Ceiling type

Model	Fuse	Fan motor thermal protector		Terminal thermal fuse	Float switch
		Active	Reset		
ABUA30TLAV2 ABUA36TLAV2	250 V 5 A	275±27°F (135±15°C) Fan motor stop	239±27°F (115±15°C) Fan motor restart	—	▲*

*: Including in Drain pump unit (Optional parts)

10-11. Wall mounted type

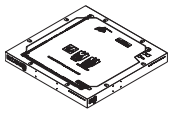
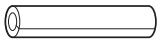
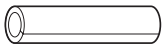
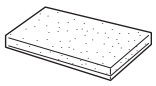
Model	Fuse	Fan motor thermal protector		Terminal thermal fuse	Float switch
		Active	Reset		
ASUA4TLAV2 ASUA7TLAV2 ASUA9TLAV2 ASUA12TLAV2 ASUA14TLAV2	250 V 3.15 A	221±18°F (105±10°C) Fan motor stop	194±18°F (90±10°C) Fan motor restart	—	—
ASUB18TLAV1 ASUB24TLAV1		302±27°F (150±15°C) Fan motor stop	248±27°F (120±15°C) Fan motor stop	Active at 215.6°F (102°C)	
ASUA30TLAV2 ASUA36TLAV2		302±27°F (150±15°C) Fan motor stop	Less than 275°F (135°C) Fan motor restart	—	
ASUA7TLAV ASUA9TLAV ASUA12TLAV ASUA14TLAV		212±27°F (100±15°C) Fan motor stop	185±18°F (85±10°C) Fan motor stop	Active at 215.6°F (102°C)	
ASUB18TLAV ASUB24TLAV		302±27°F (150±15°C) Fan motor stop	248±27°F (120±15°C) Fan motor stop		

INDOOR UNITS

11. Accessories

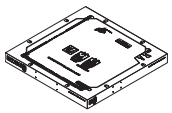
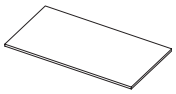
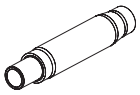
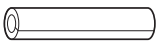
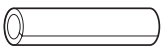
The following installation parts are supplied. Use them as required. Do not discard any accessories until the installation work has been completed.

11-1. Compact cassette type

Name and shape	Q'ty	Application	Name and shape	Q'ty	Application
 Operating manual	1		 M10 nut A (with flange)	4	For installing indoor unit
 Installation manual	1		 M10 nut B (with spring lock washer)	4	For installing indoor unit
 Cable tie (Large)	4	For fixing the connection pipe (Large and small)	 Template (Carton top)	1	For cutting opening Also used as packing
 Cable tie (Medium)	2	For transmission cable and remote controller cable binding	 Drain hose	1	For connecting drain hose
 Coupler heat insulation (Small)	1	For indoor side pipe joint (Liquid pipe)	 Hose band	1	For installing drain hose
 Coupler heat insulation (Large)	1	For indoor side pipe joint (Gas pipe)	 Drain hose insulation	1	For installing drain hose

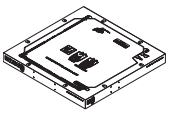
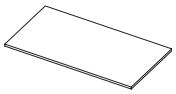
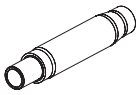
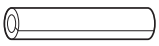
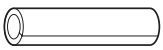
INDOOR UNITS

11-2. 4-way flow cassette type

Name and shape	Q'ty	Application	Name and shape	Q'ty	Application
 Operating manual	1		 Template (Carton top)	1	For installing indoor unit
 Installation manual	1		 Washer	8	For installing indoor unit
 Cable tie (Large)	4	For fixing the connection pipe (Large and small)	 Insulation	1	For installing drain pipe
 Cable tie (Medium)	2	For transmission cable and remote controller cable binding	 Drain hose	1	For installing drain hose
 Coupler heat insulation (Small)	1	For indoor side pipe joint (Liquid pipe)	 Hose band	1	For installing drain hose
 Coupler heat insulation (Large)	1	For indoor side pipe joint (Gas pipe)	 Drain pipe insulation	1	For installing drain pipe

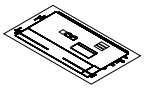
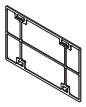
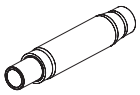
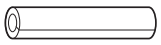
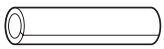
INDOOR UNITS

11-3. Circular flow cassette type

Name and shape	Q'ty	Application	Name and shape	Q'ty	Application
 Operating manual	1		 Template (Carton top)	1	For installing indoor unit
 Installation manual	1		 Washer	8	For installing indoor unit
 Cable tie (Large)	4	For fixing the connection pipe (Large and small)	 Insulation	1	For installing drain pipe
 Push mount cable tie	1	For transmission cable and remote controller cable binding	 Drain hose	1	For installing drain hose
 Coupler heat insulation (Small)	1	For indoor side pipe joint (Liquid pipe)	 Hose band	1	For installing drain hose
 Coupler heat insulation (Large)	1	For indoor side pipe joint (Gas pipe)	 Drain pipe insulation	1	For installing drain pipe

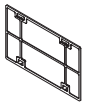
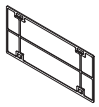
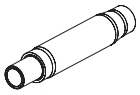
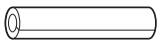
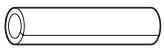
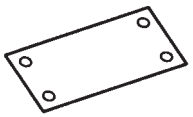
INDOOR UNITS

11-4. Mini duct type

Name and shape	Q'ty	Application	Name and shape	Q'ty	Application
 Operating manual	1		 Cable tie (Large)	4	For fixing the coupler heat insulation
 Installation manual	1		 Cable tie (Medium)	2	For transmission cable and remote controller cable binding
 Template (Carton top)	1	For cutting ceiling opening Also used as packing	 Filter	2	
 Washer	8	For installing indoor unit	 Drain hose	1	For installing drain hose
 Coupler heat insulation (Small)	1	For indoor side pipe joint (Liquid pipe)	 Hose band	1	For installing drain hose
 Coupler heat insulation (Large)	1	For indoor side pipe joint (Gas pipe)	 Drain hose installation B	1	Insulates the drain hose

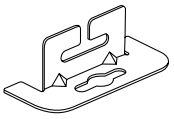
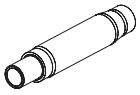
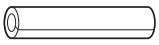
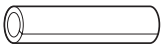
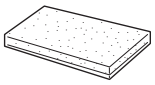
INDOOR UNITS

11-5. Slim duct/Slim concealed floor type

Name and shape	Q'ty	Application	Name and shape	Q'ty	Application
 Operating manual	1		 Filter (Small)	2	For ARUL7TLAV2, ARUL9TLAV2, ARUL12TLAV2, and ARUL14TLAV2
 Installation manual	1		 Filter (Large)	2	For ARUL18TLAV2
 Washer	8	For installing indoor unit	 Drain hose	1	For installing drain hose
 Coupler heat insulation (Small)	1	For indoor side pipe joint (Liquid pipe)	 Hose band	1	For installing drain hose
 Coupler heat insulation (Large)	1	For indoor side pipe joint (Gas pipe)	 Drain hose installation B	1	Insulates the drain hose
 Cable tie (Large)	4	For fixing the coupler heat insulation	 Installation template	1	For positioning the indoor unit
 Cable tie (Medium)	2	For transmission cable and remote controller cable binding			

INDOOR UNITS

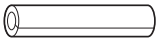
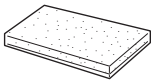
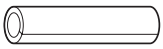
11-6. Medium static pressure duct type

Name and shape	Q'ty	Application	Name and shape	Q'ty	Application
 Operating manual	1		 M10 nut A (with flange)	4	For suspending the indoor unit from ceiling
 Installation manual	1		 M10 nut B (with spring lock washer)	4	For suspending the indoor unit from ceiling
 Cable tie (Large)	5	For fixing the connection pipe (large and small) and drain cap	 Hanger	4	For suspending the indoor unit from ceiling
 Cable tie (Medium)	3	For transmission cable and remote controller cable binding	 Drain hose	1	For installing drain hose
 Coupler heat insulation (Small)	1	For indoor side pipe joint (Liquid pipe)	 Hose band	1	For installing drain hose
 Coupler heat insulation (Large)	1	For indoor side pipe joint (Gas pipe)	 Drain hose insulation	2	Insulates drain hose and drain cap

INDOOR UNITS

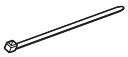
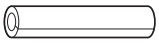
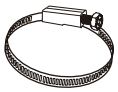
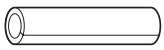
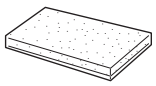
11-7. High static pressure duct type

■ Models: ARUH36TLAV, ARUH48TLAV, and ARUH60TLAV

Name and shape	Q'ty	Application	Name and shape	Q'ty	Application
 Operating manual	1		 M10 nut A (with flange)	4	For suspending the indoor unit from ceiling
 Installation manual	1		 M10 nut B (with spring lock washer)	4	For suspending the indoor unit from ceiling
 Cable tie (Large)	4	For fixing the connection pipe (large and small)	 Drain hose	2	For installing drain hose
 Cable tie (Medium)	2	For transmission cable and remote controller cable binding	 Hose band	2	For installing drain hose
 Coupler heat insulation (Small)	1	For indoor side pipe joint (Liquid pipe)	 Drain hose insulation	2	For installing drain hose
 Coupler heat insulation (Large)	1	For indoor side pipe joint (Gas pipe)			

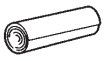
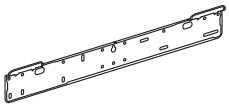
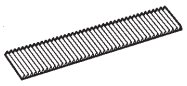
INDOOR UNITS

■ Models: ARUH72TLAV2 and ARUH96TLAV2

Name and shape	Q'ty	Application	Name and shape	Q'ty	Application
 Operating manual	1		 M10 nut A (with flange)	4	For suspending the indoor unit from ceiling
 Installation manual	1		 M10 nut B (with spring lock washer)	4	For suspending the indoor unit from ceiling
 Cable tie (Large)	4	For fixing the connection pipe (large and small)	 Drain hose (Large)	1	For installing drain hose (For main drain port)
 Cable tie (Medium)	2	For transmission cable and remote controller cable binding	 Drain hose (Small)	1	For installing drain hose (For safety drain port)
 Coupler heat insulation (Small)	1	For indoor side pipe joint (Liquid pipe)	 Hose band (Large)	1	For installing drain hose (Large)
 Coupler heat insulation (Large)	1	For indoor side pipe joint (Gas pipe)	 Hose band (Small)	1	For installing drain hose (Small)
 Washer	8	For suspending the indoor unit from ceiling	 Drain hose insulation	2	For installing drain hose

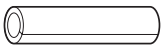
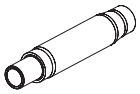
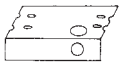
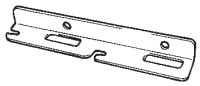
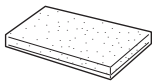
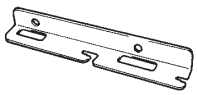
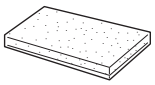
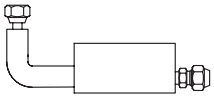
INDOOR UNITS

11-8. Compact floor type

Name and shape	Q'ty	Application	Name and shape	Q'ty	Application
 Operating manual	1		 Cloth tape	1	For indoor unit installation
 Installation manual	1		 Push mount cable tie	1	For transmission cable and remote controller cable binding
 Wall bracket	1	For indoor unit installation	 Air cleaning filter	2	For installation, refer to the "CLEANING AND CARE" in the operating manual
 Tapping screw	8	For wall hook bracket installation			

INDOOR UNITS

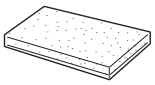
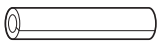
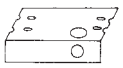
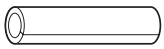
11-9. Floor/Ceiling type

Name and shape	Q'ty	Application	Name and shape	Q'ty	Application
 Operating manual	1		 Tapping screw	6	For fixing the wall bracket
 Installation manual	1		 Coupler heat insulation	2	For indoor side pipe joint
 Cover plate (Left)	1		 Cable tie (Large)	4	For fixing the coupler heat insulation
 Cover plate (Right)	1		 Cable tie (Medium)	2	For transmission cable and remote controller cable binding
 Tapping screw	2		 Drain hose	1	For installing drain hose
 Installation template	1	For positioning the indoor unit For under ceiling type	 Hose band	1	For installing drain hose
 Bracket (Left)	1	For suspending the indoor unit from ceiling	 Drain hose insulation	1	Adhesive type 3-15/16 × 8-11/16 in (100 × 220 mm)
 Bracket (Right)	1	For suspending the indoor unit from ceiling	 VT wire	1	For fixing the drain hose L = 11 in (280 mm)
 M10 nut A (with flange)	4	For suspending the indoor unit from ceiling	 Insulation (pipe)	1	Adhesive type 6-5/16 × 4-5/16 in (160 × 110 mm)
 Wall bracket	2	For suspending the indoor unit on the wall	 Silencer pipe	1	Connect the silencer pipe to the small (liquid) pipe

Optional parts		
Name and shape	**Parts No.**	**Application**
 Auxiliary pipe	9374714025	For indoor side pipe joint (For ABUA24TLAV2)

INDOOR UNITS

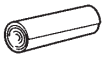
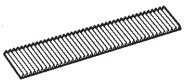
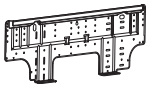
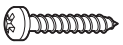
11-10. Ceiling type

Name and shape	Q'ty	Application	Name and shape	Q'ty	Application
 Operating manual	1		 Cable tie (Extra large)	4	For fixing the coupler heat insulation
 Installation manual	1		 Cable tie (Large)	2	For fixing the coupler heat insulation
 Drain hose	1	For installing drain hose	 Cable tie (Medium)	2	For transmission cable and remote controller cable binding
 Hose band	1	For installing drain hose	 Push mount cable tie	4	For transmission cable and remote controller cable binding
 Drain hose insulation	1	Adhesive type 3-15/16 × 8-11/16 in (100 × 220 mm)	 M10 nut A (with flange)	4	For installing the indoor unit
 VT wire	1	For fixing the drain hose L = 11 in (280 mm)	 M10 nut B (with spring lock washer)	4	For installing the indoor unit
 Coupler heat insulation (Small)	1	For indoor side pipe joint (Liquid pipe)	 Installation template	1	For positioning the indoor unit
 Coupler heat insulation (Large)	2	For indoor side pipe joint (Gas pipe)	 Auxiliary pipe assembly	1	For connecting the piping

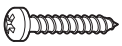
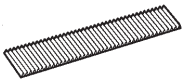
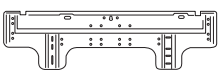
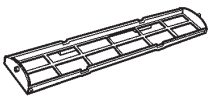
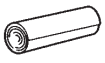
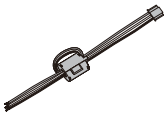
INDOOR UNITS

11-11. Wall mounted type

■ Models: ASUA4TLAV2, ASUA7TLAV2, ASUA9TLAV2, ASUA12TLAV2, and ASUA14TLAV2

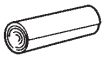
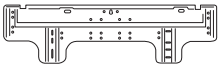
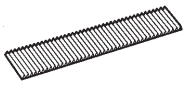
Name and shape	Q'ty	Application	Name and shape	Q'ty	Application
 Operating manual	1		 Cloth tape	1	For indoor unit installation
 Installation manual	1		 Air cleaning filter	2	For installation, refer to the "CLEANING AND CARE" in the operating manual
 Wall hook bracket	1	For indoor unit installation	 Air cleaning filter frame	2	For installation, refer to the "CLEANING AND CARE" in the operating manual
 Tapping screw	5	For wall hook bracket installation	 Seal A	1	It is used when the diameter of gas pipe is Ø1/2 in (12.70 mm) or more. It is necessary when using 014 model.

■ Models: ASUB18TLAV1 and ASUB24TLAV1

Name and shape	Q'ty	Application	Name and shape	Q'ty	Application
 Operating manual	1		 Tapping screw	8	For wall hook bracket installation
 Installation manual	1		 Air cleaning filter	2	For installation, refer to the "CLEANING AND CARE" in the operating manual
 Wall hook bracket	1	For indoor unit installation	 Air cleaning filter frame	2	For installation, refer to the "CLEANING AND CARE" in the operating manual
 Cable tie	1	For transmission and remote controller cable binding	 Drain hose insulation	1	For drain hose installation
 Cloth tape	1	For indoor unit installation	 Connecting cable	1	For wired remote controller installation

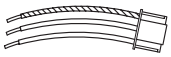
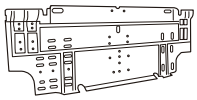
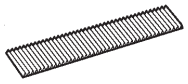
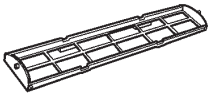
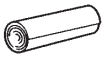
INDOOR UNITS

■ Models: ASUA30TLAV2 and ASUA36TLAV2

Name and shape	Q'ty	Application	Name and shape	Q'ty	Application
 Operating manual	1		 Cloth tape	1	For indoor unit installation
 Installation manual	1		 Cable tie	2	For transmission and remote controller cable binding
 Wall hook bracket	1	For indoor unit installation	 Air cleaning filter	2	For installation, refer to the "CLEANING AND CARE" in the operating manual
 Tapping screw	8	For wall hook bracket installation	 Air cleaning filter frame	2	For installation, refer to the "CLEANING AND CARE" in the operating manual
 Drain hose insulation	1	For drain hose installation			

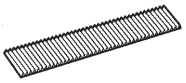
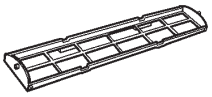
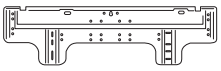
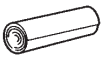
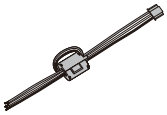
INDOOR UNITS

■ Models: ASUA7TLAV, ASUA9TLAV, ASUA12TLAV, and ASUA14TLAV

Name and shape	Q'ty	Application	Name and shape	Q'ty	Application
 Operating manual	1		 Tapping screw	8	For wall hook bracket installation
 Installation manual	1		 Connecting cable	1	For wired remote controller installation
 Wall hook bracket	1	For indoor unit installation	 Air cleaning filter	2	For installation, refer to the "CLEANING AND CARE" in the operating manual
 Cable tie	1	For remote controller cable binding	 Air cleaning filter frame	2	For installation, refer to the "CLEANING AND CARE" in the operating manual
 Cloth tape	1	For indoor unit installation	 Seal A	1	For indoor unit installation

INDOOR UNITS

■ Models: ASUB18TLAV and ASUB24TLAV

Name and shape	Q'ty	Application	Name and shape	Q'ty	Application
 Operating manual	1		 Air cleaning filter	2	For installation, refer to the "CLEANING AND CARE" in the operating manual
 Installation manual	1		 Air cleaning filter frame	2	For installation, refer to the "CLEANING AND CARE" in the operating manual
 Wall hook bracket	1	For indoor unit installation	 Drain hose insulation	1	For installing drain hose
 Cloth tape	1	For indoor unit installation	 Connecting cable	1	For wired remote controller installation
 Tapping screw	8	For wall hook bracket installation	 Cable tie	1	For transmission and remote controller cable binding

INDOOR UNITS

INDOOR UNITS

Refrigerant R410A
INVERTER

AIRSTAGE™
Variable Refrigerant Flow System

5. CONTROL SYSTEM

2021.04.23
DV_CH05_VR2E018EF_09

CONTENTS

5. CONTROL SYSTEM

1. Control system 05-1

1-1. Control system design example 05-1
1-2. System configuration examples 05-2
1-3. Features of control system 05-11
1-4. Wiring system 05-12
1-5. Control device design limitation 05-13

2. Control units 05-15

2-1. System controller (UTY-APGXZ1) 05-15
2-2. System controller lite (UTY-ALGXZ1) 05-19
2-3. Touch panel controller (UTY-DTGYZ1) 05-24
2-4. Central remote controller (UTY-DCGY) 05-37
2-5. Central remote controller (UTY-DCGYZ∗) 05-47
2-6. Wired remote controller (Touch panel: UTY-RNRUZ∗) 05-56
2-7. Wired remote controller (UTY-RNKU) 05-63
2-8. Simple remote controller (With operation mode: UTY-RSRY) 05-68
2-9. Simple remote controller (With operation mode: UTY-RSKU) 05-73
2-10. Simple remote controller (Without operation mode: UTY-RHRY) 05-78
2-11. Simple remote controller (Without operation mode: UTY-RHKU) 05-83
2-12. Wireless remote controller (UTY-LNHU) 05-88
2-13. IR receiver unit (UTB-YWC) 05-92
2-14. IR receiver unit (UTY-TRHX) 05-95
2-15. IR receiver unit (For cassette type: UTY-LRHYB1) 05-98
2-16. IR receiver unit (For circular flow cassette type: UTY-LBHXD) 05-100
2-17. Human sensor kit (For circular flow cassette type: UTY-SHZXC) 05-102
2-18. Remote sensor unit (UTY-XSZX) 05-104
2-19. Group control method 05-106
2-20. Comparison table of controllers 05-108

3. Adaptor/Convertor units 05-110

3-1. Network converter (UTY-VTGX) 05-110
3-2. Network converter (UTY-VGGXZ1) 05-116
3-3. Network converter for LonWorks (UTY-VLGX) 05-121
3-4. Modbus converter for VRF (UTY-VMGX) 05-130
3-5. Thermostat converter (UTY-TTRX) 05-137
3-6. BACnet gateway (Hardware: UTY-VBGX) 05-143
3-7. BACnet gateway (Software: UTY-ABGXZ1) 05-151
3-8. Niagara driver for VRF 05-156
3-9. Wireless LAN adapter (UTY-TFSXZ2) 05-159
3-10. Signal amplifier (UTY-VSGXZ1) 05-165
3-11. External switch controller (UTY-TERX) 05-170
3-12. External switch controller (UTY-TEKX) 05-180

4. Service and web monitoring tool 05-186

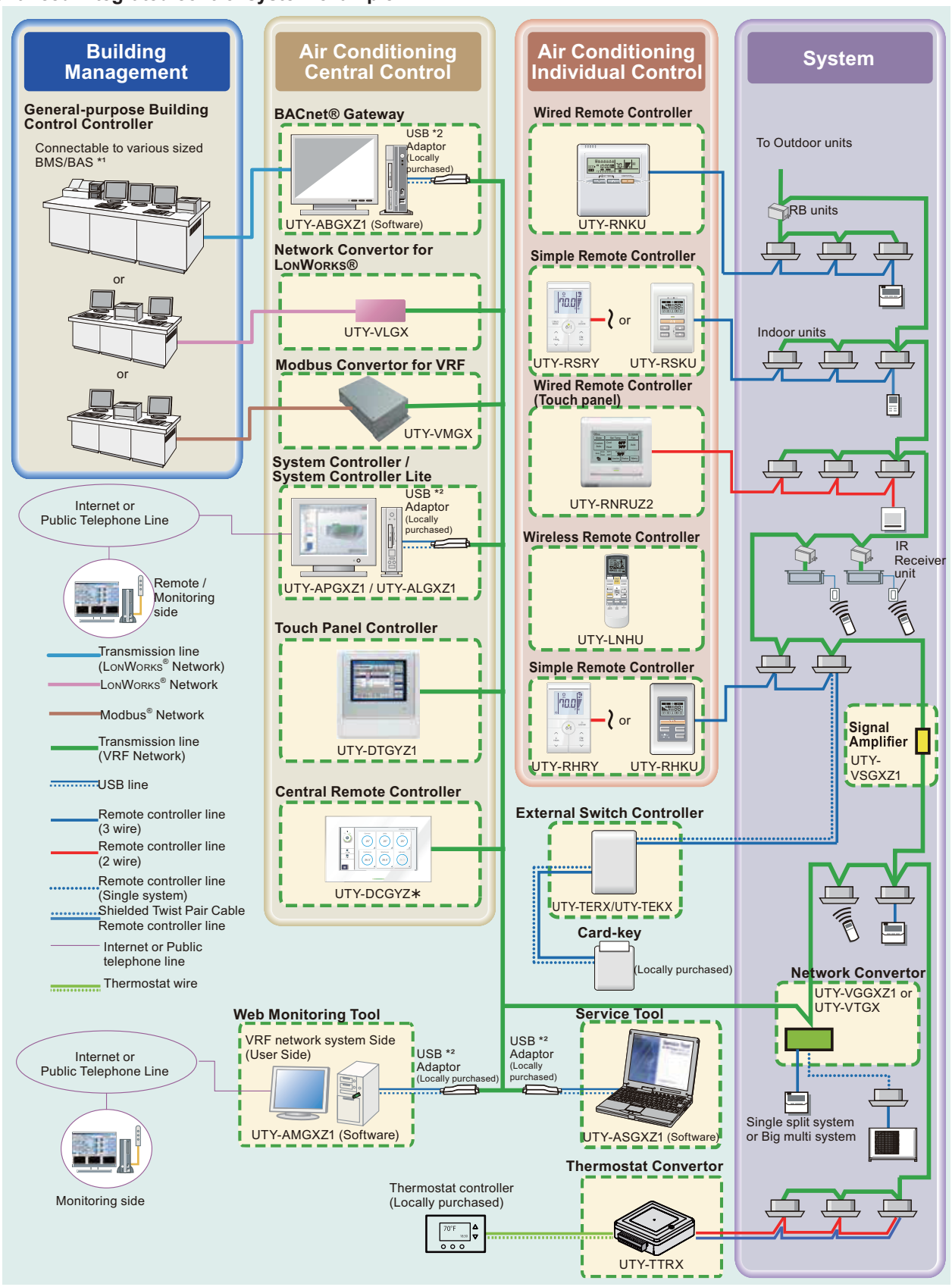
CONTENTS (continued)

4-1. Service tool (UTY-ASGXZ1).....05-186
4-2. Web monitoring tool (UTY-AMGXZ1) 05-190

1. Control system

1-1. Control system design example

Advanced integrated control system example



*1: BMS/BAS: Building Management System / Building Automation System.

*2: Echelon U10 USB Network Interface – TP/FT-10 Channel (Model number: 75010R)

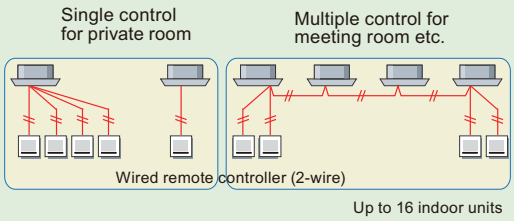
CONTROL SYSTEM

1-2. System configuration examples

■ Individual control

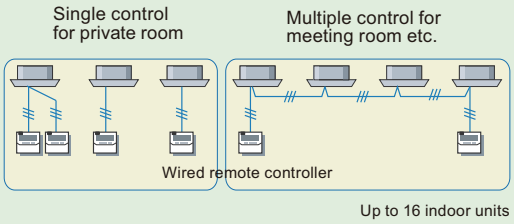
Wired Remote Controller (2-wire)

- Up to 16 indoor units can be controlled with one wired remote controller.
- Wired (Touch panel) and wireless remote controllers can be used jointly.
- 4 remote controllers can be connected with single indoor unit.



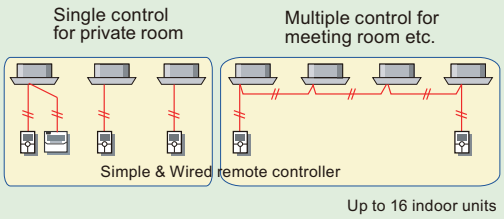
Wired Remote Controller (3-wire)

- Up to 16 indoor units can be controlled with one wired remote controller.
- Wired, simple, and wireless remote controllers can be used jointly.
- 2 remote controllers can be connected with single indoor unit.



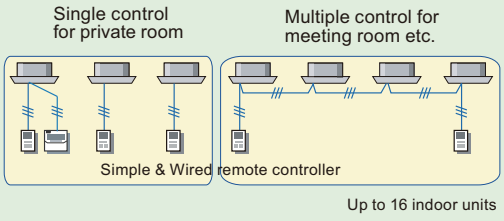
Simple Remote Controller (2-wire)

- Up to 16 indoor units can be controlled with one simple remote controller.
- Enables easy control of basic functions by the hotel or office guest.
- Wired, simple, and wireless remote controllers can be used jointly.
- 4 remote controllers can be connected with single indoor unit.



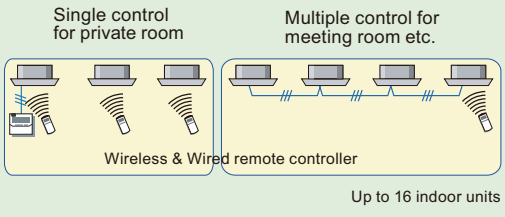
Simple Remote Controller (3-wire)

- Up to 16 indoor units can be controlled with one simple remote controller.
- Enables easy control of basic functions by the hotel or office guest.
- Wired, simple, and wireless remote controllers can be used jointly.
- 2 remote controllers can be connected with single indoor unit.



Wireless Remote Controller

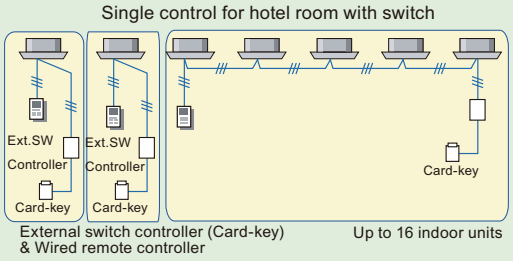
- Up to 16 indoor units can be controlled with one wireless remote controller.
- Wired, simple, and wireless remote controllers can be used jointly.



CONTROL SYSTEM

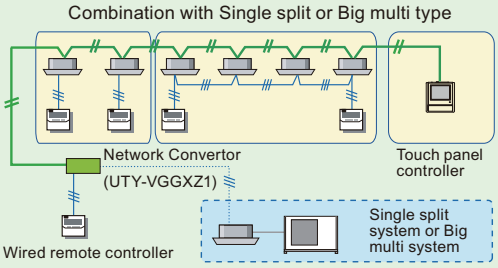
External Switch Controller

- Up to 16 indoor units can be controlled with one external switch controller.
- In combination with a locally purchased card-key switch or other sensor, External switch controller allows control of basic functions by the hotel or office guest.



Single Split or Big Multi System Connectability

- Single spilit system or Big multi system can be connected to the VRF network system and can be controlled from Touch panel controller or System controller.



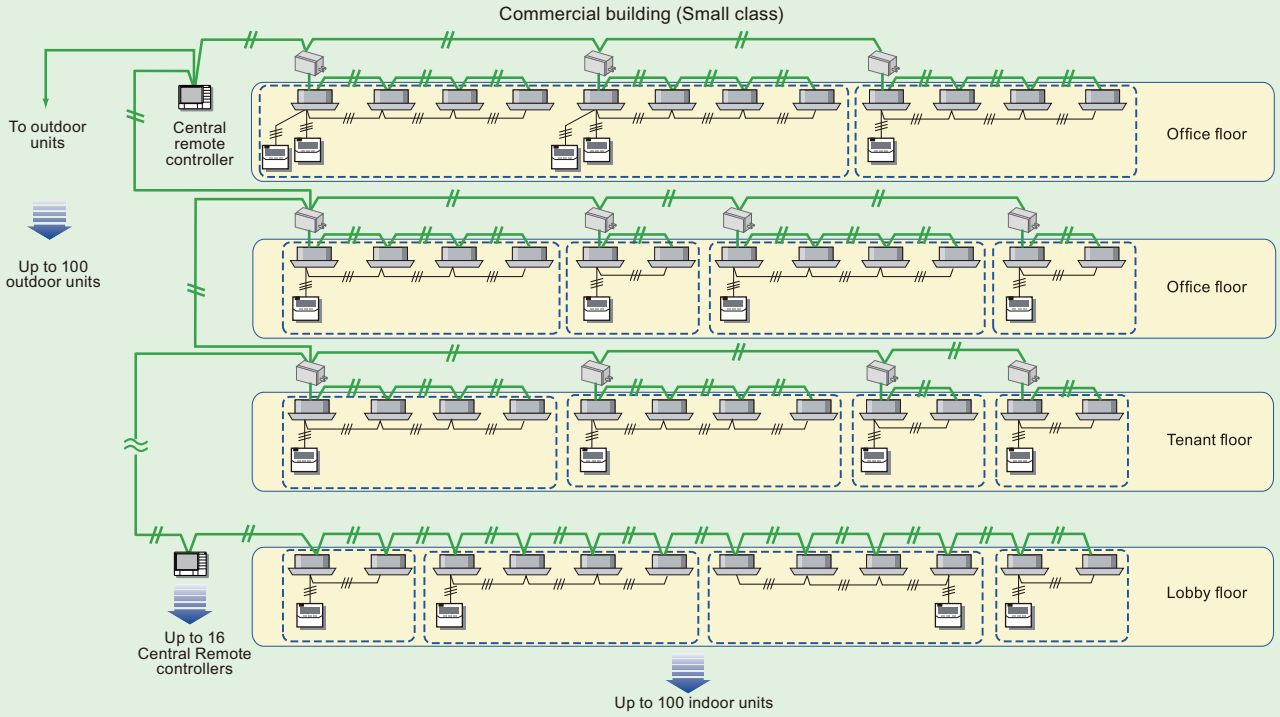
CONTROL SYSTEM

CONTROL SYSTEM

■ Central control

Central Remote Controller

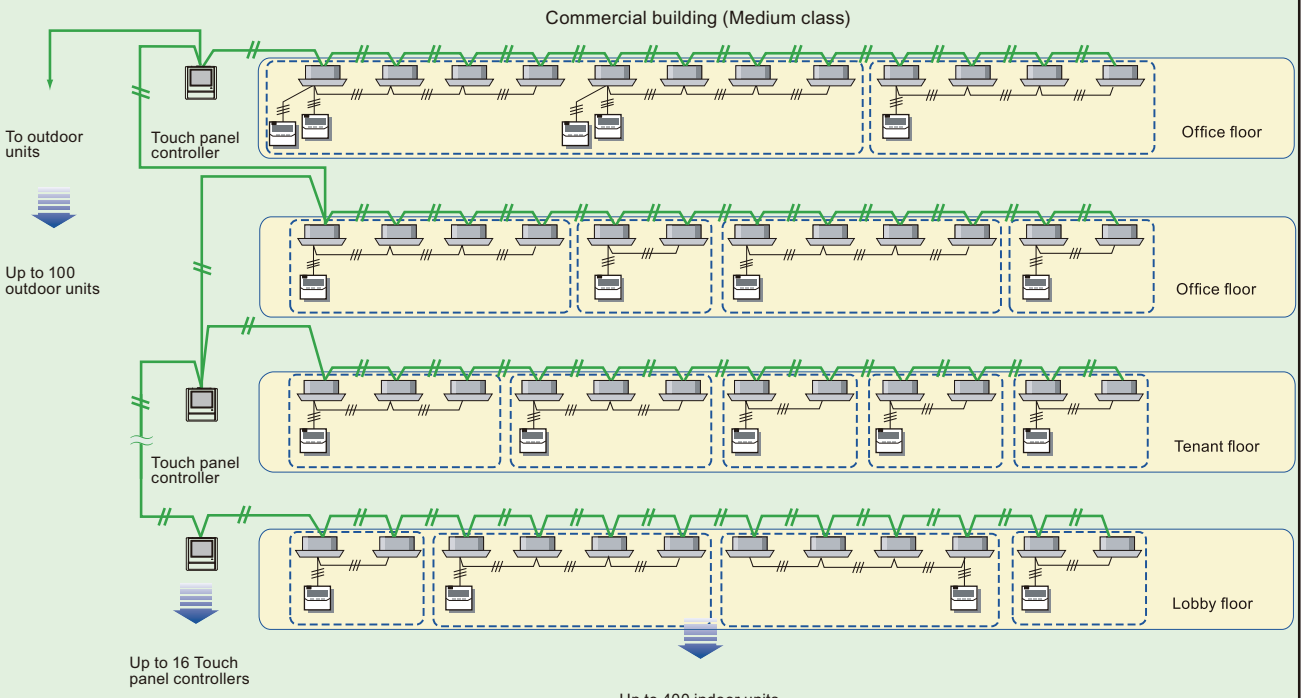
- Up to 100 indoor units / 16 groups can be controlled with one central remote controller.
- The sum total of the Touch panel controller, Central remote controller, Modbus convertor, and Network convertor for LONWORKS is a maximum of 16.



CONTROL SYSTEM

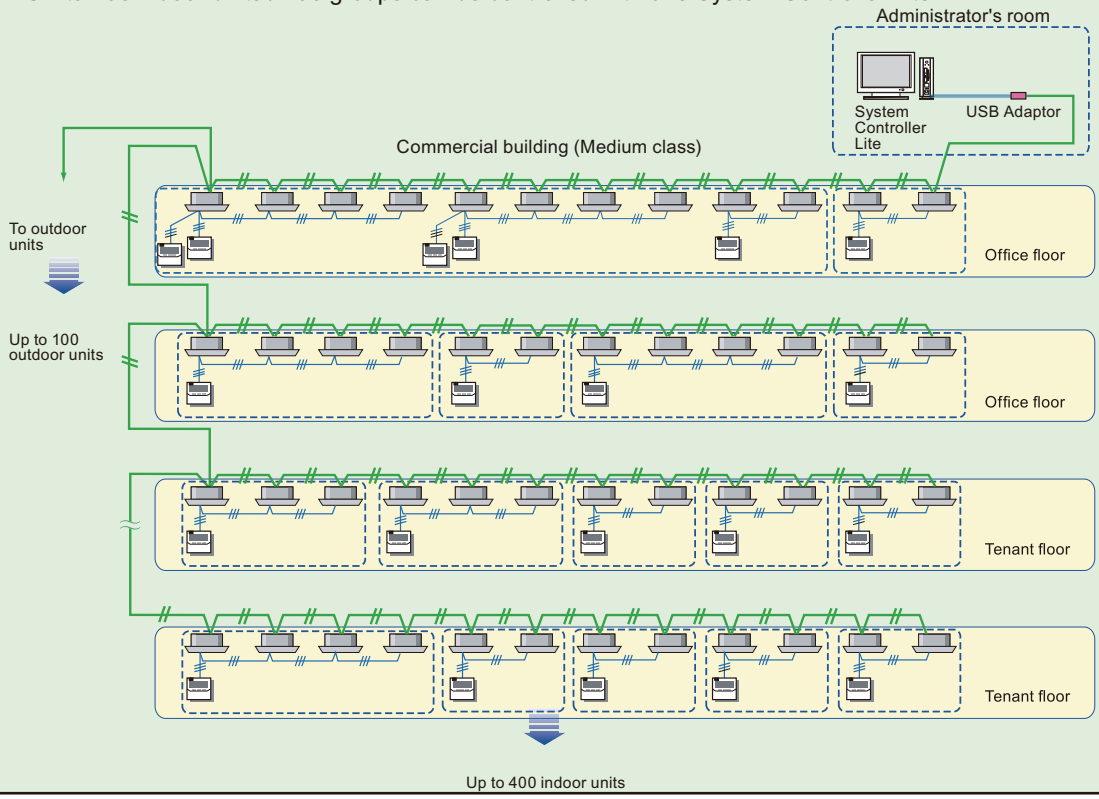
Touch Panel Controller

- Up to 400 indoor units / 400 groups can be controlled with one touch panel controller.
- Up to a total of 16 network convertors, central remote controllers and touch panel controllers, and network convertor for LONWORKS can be connected to a single VRF network system.



System Controller Lite

- UP to 400 indoor units / 400 groups can be controlled with one System Controller Lite.

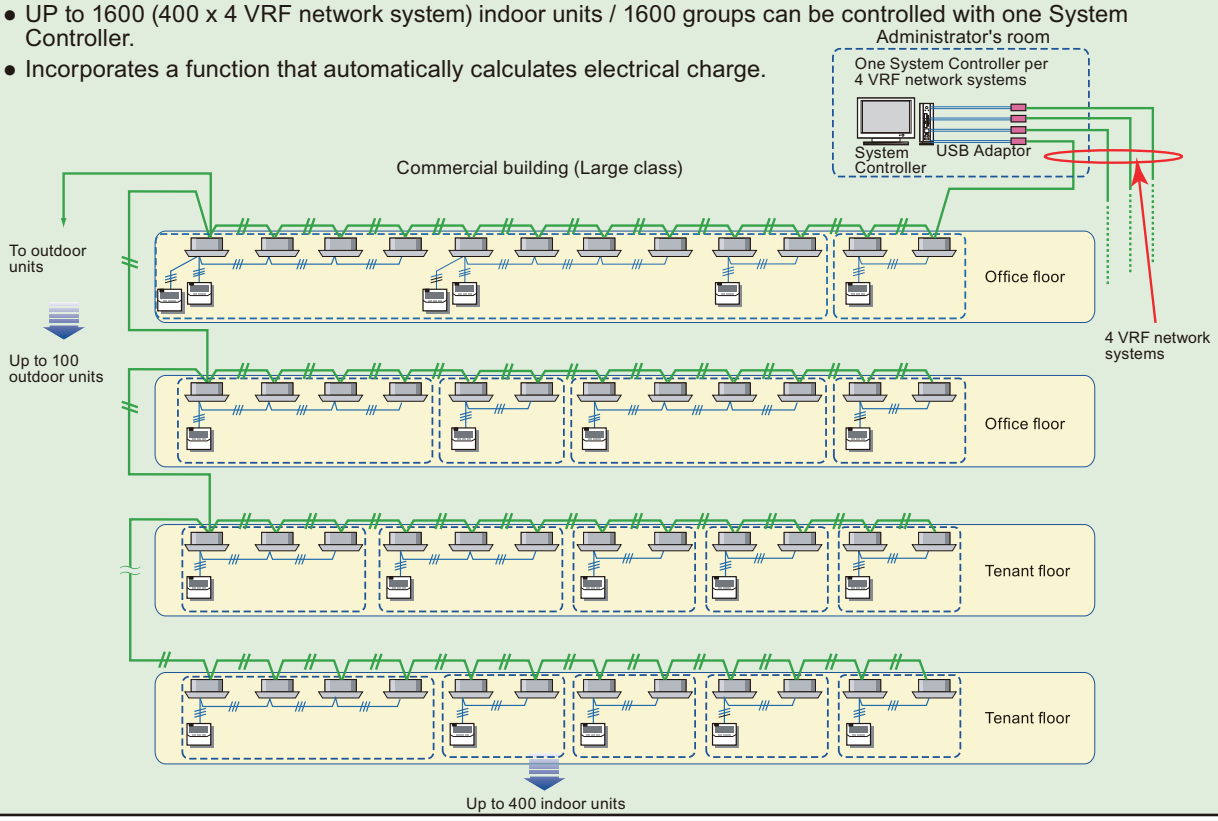


CONTROL SYSTEM

CONTROL SYSTEM

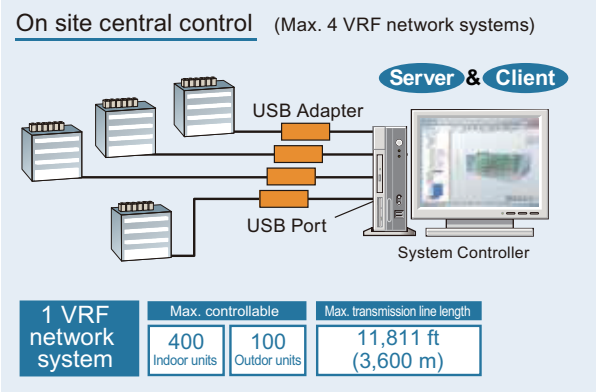
System Controller

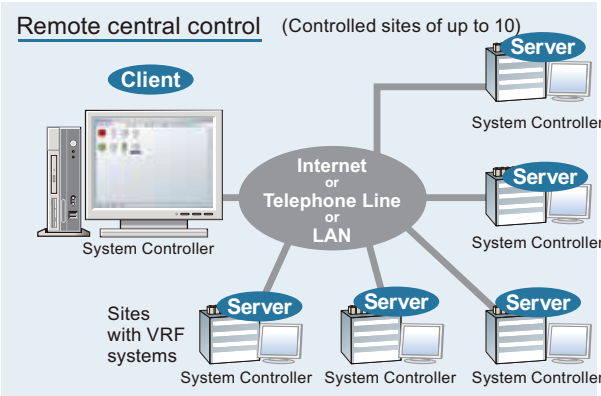
- UP to 1600 (400 x 4 VRF network system) indoor units / 1600 groups can be controlled with one System Controller.
- Incorporates a function that automatically calculates electrical charge.

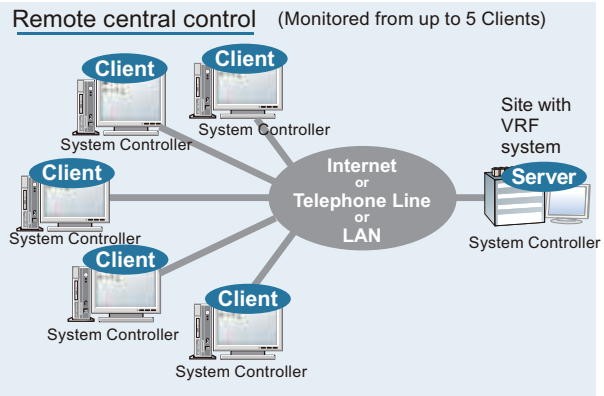


CONTROL SYSTEM

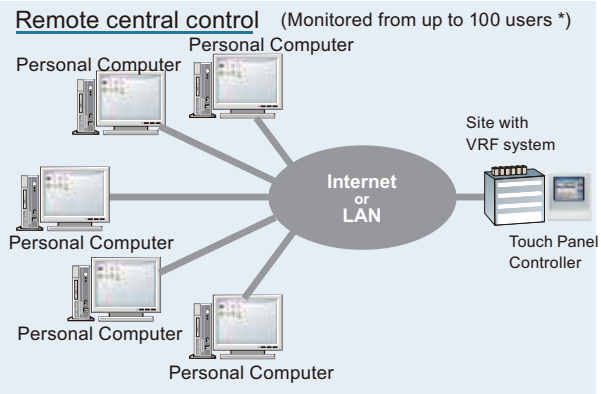
On-site central control and remote central control can be performed by system controller.







Remote central control can be performed by touch panel controller.



*: Up to 4 administrators and 10 general users can log in simultaneously.

CONTROL SYSTEM

■ Indoor unit type and applicable control method

Indoor unit type	Wired remote controller (Touch panel)	Wired remote controller	Simple remote controller	
	UTY-RNRUZ∗	UTY-RNKU	UTY-RSRY UTY-RHRY	UTY-RSKU UTY-RHKU
Compact cassette	○	—	○	—
4-way flow cassette	○	○	○	○
Circular flow cassette	○	—	○	—
Mini duct	○	○	○	○
Slim duct/Slim concealed floor	○	—	○	—
Medium static pressure duct	○	—	○	—
High static pressure duct	○	○*1	○	○*1
Compact floor	○	—	○	—
Floor/Ceiling	○	—	○	—
Ceiling	○	—	○	—
Wall mounted	○	○*2	○	○*2

- *1: It is not connectable with ARUH72/96TLAV2 in high static pressure duct type.
- *2: It is not connectable with ASUA4/7/9/12/14TLAV2 and ASUB30/36TLAV2 in wall mounted type.

CONTROL SYSTEM

Indoor unit type	Wireless remote controller	External switch controller		Wireless LAN adapter
	UTY-LNHU	UTY-TERX	UTY-TEKX	UTY-TFSXZ2
Compact cassette	○	○	—	○
4-way flow cassette	○*2	○	○	—
Circular flow cassette	○*1	○	—	○
Mini duct	○*3	○	○	—
Slim duct/Slim concealed floor	○*4	○	—	○
Medium static pressure duct	○*4	○	—	○
High static pressure duct	○*5	○	○*6	○*7
Compact floor	○	○	—	○
Floor/Ceiling	○	○		○
Ceiling	○	○		○
Wall mounted	○	○	○*8	○*9

- *1: IR receiver unit (optional part: UTY-LBHXD) is necessary.
- *2: IR receiver unit (optional part: UTY-LRHYB1) is necessary.
- *3: IR receiver unit (optional part: UTB-YWC) is necessary.
- *4: IR receiver unit (optional part: UTY-TRHX) is necessary.
- *5: Following IR receiver unit (optional part) is necessary.
  - For other than ARUH72/96TLAV2: UTB-YWC
  - For ARUH72/96TLAV2: UTY-TRHX
- *6: It is not connectable with ARUH72/96TLAV2 in high static pressure duct type.
- *7: ARUH72/96TLAV2 only.
- *8: It is not connectable with ASUA4/7/9/12/14TLAV2 and ASUB30/36TLAV2 in wall mounted type.
- *9: ASUA4/7/9/12/14TLAV2 and ASUB30/36TLAV2 only.

RELATED LINKS

"Compatibility of VRF system" in Chapter 9. NOTES on page 09-9

"Applicable parts" in Chapter 10. OPTIONAL PARTS on page 10-21

CONTROL SYSTEM

■ Convertors (Adaptors) and related devices (system)

Convertor (Adaptor)		Within VRF network system			
		System controller	System controller lite	Touch panel controller	Central remote controller
		UTY-APGXZ1	UTY-ALGXZ1	UTY-DTGYZ1	UTY-DCGYZ∗
Network converter	UTY-VTGX	—	—	—	—
	UTY-VGGXZ1	—	—	—	—
USB adapter*	Locally purchased	○	○	—	—
Network converter for LonWorks	UTY-VLGX	—	—	—	—
BACnet gateway	UTY-VBGX UTY-ABGXZ1	—	—	—	—
Niagara driver for VRF	FUJ-VRF-8000	—	—	—	—
Modbus converter	UTY-VMGX	—	—	—	—
Thermostat converter	UTY-TTRX	—	—	—	—

Convertor (Adaptor)		Within VRF network system		
		Web monitoring tool	Service tool	BACnet gateway
		UTY-AMGXZ1	UTY-ASGXZ1	UTY-ABGXZ1
Network converter	UTY-VTGX	—	—	—
	UTY-VGGXZ1	—	—	—
USB adapter*	Locally purchased	○	○	○
Network converter for LonWorks	UTY-VLGX	—	—	—
BACnet gateway	UTY-VBGX UTY-ABGXZ1	—	—	—
Niagara driver for VRF	FUJ-VRF-8000	—	—	—
Modbus converter	UTY-VMGX	—	—	—
Thermostat converter	UTY-TTRX	—	—	—

*: Echelon U10 USB Network Interface – TP/FT-10 Channel (Model number: 75010R)

Convertor (Adaptor)		VRF network system ↔ Other system		Single split system ↔ Other system
		Single split system/ Multi system	BMS/BAS	
Network converter	UTY-VTGX	○	—	—
	UTY-VGGXZ1	○	—	—
USB adapter*	Locally purchased	—	—	—
Network converter for LonWorks	UTY-VLGX	—	○	—
BACnet gateway	UTY-VBGX UTY-ABGXZ1	—	○	—
Niagara driver for VRF	FUJ-VRF-8000	—	○	—
Modbus converter	UTY-VMGX	—	○	—
Thermostat converter	UTY-TTRX	○	○	○

*: Echelon U10 USB Network Interface – TP/FT-10 Channel (Model number: 75010R)

CONTROL SYSTEM

1-3. Features of control system

■ Simple wiring system

- 1 transmission line can interlink all equipments regardless refrigerant circuit.
- Non polar 2-conductor transmission cable.
- Central control equipment can be connected anywhere on the transmission line, with no need to bring from the outdoor unit.
  - Making up the network system easily
  - Saving the total wiring length
  - Preventing incorrect connection
  - Saving installation time

■ Adaption to large scale buildings

- 1 single VRF network can control an entire building using:
  - Total transmission wiring length can be extended up to 11,811 ft (3,600 m) with signal amplifier unit.
  - Up to 400 indoor units per group
  - Up to 100 outdoor units per group
  - Touch panel controller can be used for primary central control.
  - Multiple touch panel controllers may be sued to provide convenient control for multiple convertor. (For details, refer to "Network converter (UTY-VTGX)" on page 05-110.)
  - Can control Fujitsu mini-split and HFI models using a network convertor. (For details, refer to "Network converter (UTY-VTGX)" on page 05-110.)
- System controller allows to control up to 4 VRF network systems (max. 1,600 indoor units), suitable huge scale application.

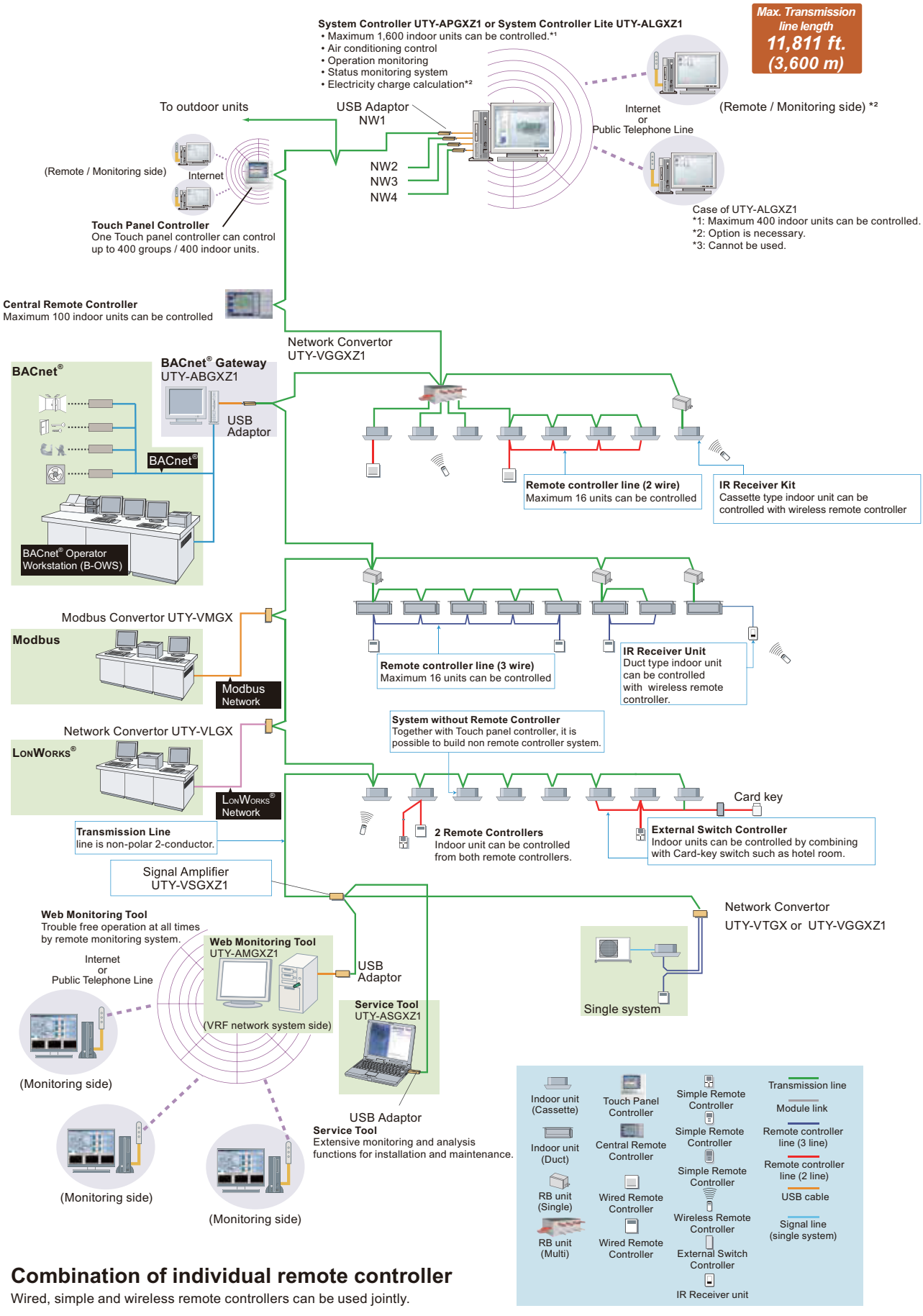
■ Reliability and easy maintenance

- Stand-alone transmission network, allows each equipment to operate individually, thus failure of the units does not affect other indoor units operation.
- When a failure occurs, the error code is displayed on the individual controller and central controller excepting wireless remote controller.
- Also error histories can memorized by each individual controller and central controller excepting wireless remote controller.
- System controller and Web monitoring tool allow to monitor operation status in real time via Internet, and enable quick diagnoses.
- Maintenance works is improved efficiency, because Service tool can be connected to anywhere on the transmission line.

CONTROL SYSTEM

1-4. Wiring system

- Wiring configuration of the control system is made of power source wiring, transmission wiring, and remote controller wiring.
- Total wiring length (total length of transmission line) can be extended up to 11,811 ft (3,600 m) by using signal amplifier.



Combination of individual remote controller

Wired, simple and wireless remote controllers can be used jointly.

CONTROL SYSTEM

1-5. Control device design limitation

● Central control

Central controller		Necessary device	Maximum units number		
			Connectable units	Manageable indoor units	Connectable outdoor units
System controller	UTY-APGXZ1	USB adapter	1/system	1,600 (4 VRF networks)	400 (4 VRF networks)
System controller lite	UTY-ALGXZ1	USB adapter	1/system	400 (1 VRF networks)	100 (1 VRF networks)
Touch panel controller	UTY-DTGYZ1	—	16/system	400	100
Central remote controller	UTY-DCGY UTY-DCGYZ∗	—		100	

Adaptor/Convertor		Necessary device	Maximum units number		
			Connectable units	Manageable indoor units	Connectable outdoor units
Network converter	UTY-VTGX UTY-VGGXZ1	—	100/system	—	—
Network converter for LonWorks*1	UTY-VLGX	—	1/system	128*2	100
BACnet gateway	UTY-VBGX	—	4/system	128*2	100
	UTY-ABGXZ1	USB adapter	1/system	1,600 (4 VRF networks)	400 (4 VRF networks)
Niagara driver for VRF	FUJ-VRF-8000	—	4 JACE/system	250 indoor and outdoor units/ JACE	250 indoor and outdoor units/ JACE
Modbus converter	UTY-VMGX	—	9/system	128*2	100
Thermostat converter	UTY-TTRX	—	—	16*3	—
Signal amplifier	UTY-VSGXZ1	—	40/system	—	—
Wireless LAN adapter	UTY-TFSXZ2	—	—	—	—

- *1: A maximum of 4 Network converters for LonWorks can be connected to 1 BMS.
- *2: Maximum controllable indoor unit number per one convertor. (For proper configuration, refer to system diagram of each device.)
- *3: Maximum connectable indoor unit number per one remote controller group.

Service and Maintenance		Necessary device	Maximum units number		
			Connectable units	Manageable indoor units	Connectable outdoor units
Service tool	UTY-ASGXZ1	USB adapter	1/system	400	100
Web monitoring tool	UTY-AMGXZ1			1,600 (4 VRF networks)	400 (4 VRF networks)

CONTROL SYSTEM

● Individual control

Individual controller		Connectable units number	Remarks
Wireless remote controller	UTY-LNHU		
Wired remote controller (Touch panel)	UTY-RNRUZ∗	4/Remote control group	2-wire type
Simple remote controller (With operation mode)	UTY-RSRY		
Simple remote controller (Without operation mode)	UTY-RHRY		
Wired remote controller	UTY-RNKU	2/Remote control group	3-wire type
Simple remote controller (With operation mode)	UTY-RSKU		
Simple remote controller (Without operation mode)	UTY-RHKU		

Adaptor/Convertor		Connectable units number	Remarks
External switch controller	UTY-TERX	2/Remote control group	2-wire or 3-wire type
	UTY-TEKX		3-wire type
IR receiver unit	UTB-YWC UTY-LRHYB1 UTY-TRHX UTY-LBHXD	1/Indoor unit	

CONTROL SYSTEM

2. Control units

RELATED LINKS

"Controllers" in Chapter 1. GENERAL INFORMATION on page 01-5

2-1. System controller (UTY-APGXZ1)

This system realizes the advanced general monitoring & control of VRF system from small scale buildings to large scale buildings.



- Maximum of 4 network systems, 1,600 indoor units can be controlled.
- In addition to air conditioning precision control function, central remote control, electricity charge calculation, schedule management, and energy saving functions are strengthened and building manager and owner needs are met.
- Corresponds to 7 different languages. (English, Chinese, French, German, Spanish, Russian, and Polish)
- Connection between VRF network system to personal computer is possible via small U10 USB interface. However, both U10 USB interface and personal computer are locally purchased items.
- Extended feature* supported by use of options.

NOTES:

- *: Electricity charge apportionment using electricity meter, energy saving control. (without V and S series)
- Different VRF series may be connected for each of the 4 VRF networks supported by the product, but different series may not coexist within the same network. (VR-II, V-II, J-II, J-IIS, J-IIIL, J-IV, and J-IVS can exist together in same network. V and S can exist together in same network, too.)

■ Accessory

Name and shape	Q'ty	Application
 WHITE-USB-KEY (software protection key with software)	1	Software protection key to be connected to an USB port on the PC that System controller is installed. System controller runs only on a PC with this WHITE-USB-KEY. However, this WHITE-USB-KEY is not required for remote VRF Explorer software.

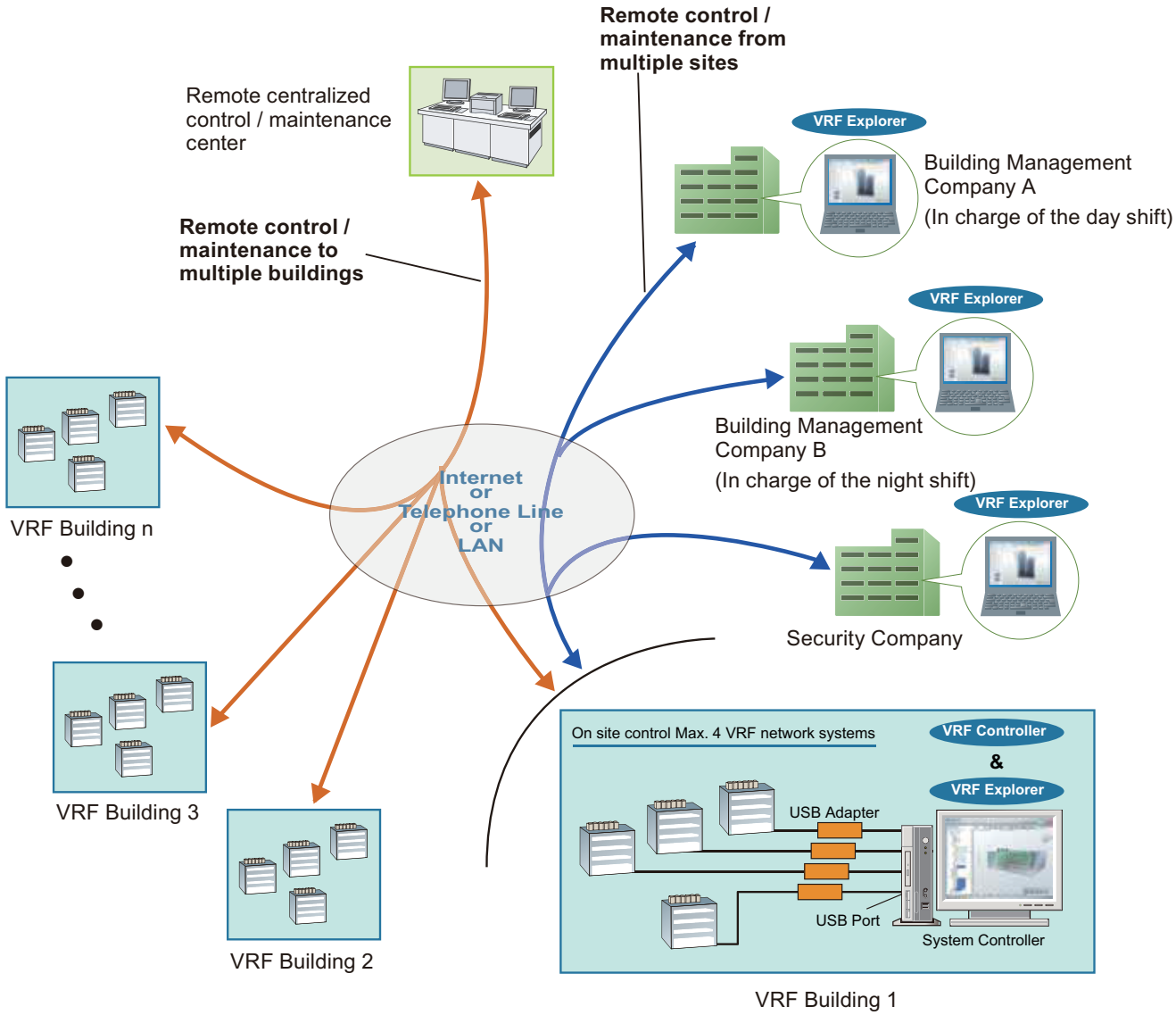
■ Available option

Option	Model name	Remark
Energy manager	UTY-PEGXZ1	Additional support for energy saving function and electricity charge apportionment using electricity meter.
Prepaid air conditioning	UTY-PPGXP2	Prepaid management of VRF air conditioner is performed and collection of charge for air conditioning is supported for building administrator.

CONTROL SYSTEM

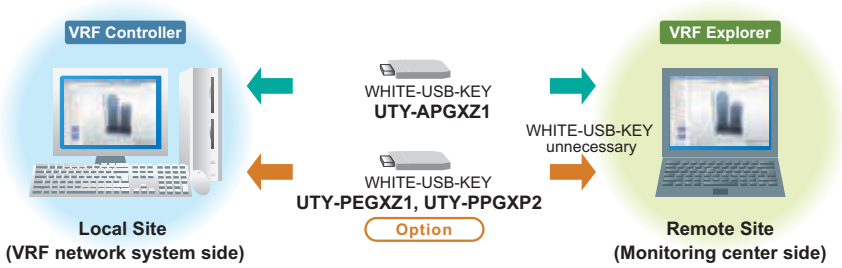
■ System diagram

- System controller may be used on site or remotely over various networks for remote central control.
- System controller consists of VRF Controller software and VRF Explorer software, both software are working together.
- VRF Controller software runs in the background and communicate with VRF System.
- VRF Explorer software provides user interface and communicate with VRF Controller.
- VRF Controller and VRF Explorer software may run in a single PC or in different PCs separated by network.
- VRF Explorer software does not require WHITE-USB-KEY (Software protection key).



CONTROL SYSTEM

■ Software configuration



- **Any number can be installed in remote site personal computers.**
  - System controller (UTY-APGXZ1) can be installed in the local site PCs (VRF controller) connected to the VRF network system.
  - Multiple remote site PCs (VRF explorer) can be connected to VRF controller via Internet or LAN.

  Just this single product creates the control, management, and monitoring environment for the customer's properties including remote operation.

  NOTES:
  - WHITE-USB-KEY is not required for PCs on the remote site.
  - Some function, such as equipment registration and input/output are invalid on the remote site.

- **Optional software to strengthen the energy saving function**
  Installing the optional UTY-PEGXZ1 will strengthen the energy saving management function.

■ Other required devices (Locally purchased)

- Personal computer that satisfies the following system requirements

Personal computer system requirement	
Operating system	• Microsoft Windows 7 Home Premium (32-bit or 64-bit) SP1 • Microsoft Windows 7 Professional (32-bit or 64-bit) SP1 • Microsoft Windows 8.1 (32-bit or 64-bit) • Microsoft Windows 8.1 Pro (32-bit or 64-bit) • Microsoft Windows 10 Home (32-bit or 64-bit) • Microsoft Windows 10 Pro (32-bit or 64-bit) Supported languages: English, Chinese, French, German, Russian, Spanish, and Polish
CPU	Intel Core i3 2 GHz or higher
Memory	• 2 GB or more (for Windows 7 [32-bit]) • 4 GB or more (for Windows 7 [64-bit], Windows 8.1, and Windows 10)
HDD	40 GB or more of free space
Display	1,024 × 768 or higher resolution
Interface	• Ethernet port (for getting access to the Internet using LAN) or Modem (for getting access to the Internet using public telephone line) • USB ports (Maximum of 5 ports) (Required only for the server PC that works as VRF controller) – Maximum of 1 USB ports are required for WHITE-USB-KEY connection – Maximum of 4 USB ports are required for Echelon U10 USB Network Interface **NOTE:** Maximum number of required USB ports depends on the applicable system configuration.
Graphic accelerator	Microsoft DirectX 9.0c compatible
Software	Adobe Reader 9.0 or later

- Echelon U10 USB Network Interface – TP/FT-10 Channel (Model number: 75010R) (Required for each VRF network)

■ Specification summary

Type		Function	UTY-APGXZ1	UTY-PEGXZ1 (Option)	UTY-PPGXP2 (Option)	Remark
System specification		Max. system controller per VRF network	1	—	—	
		Max. VRF networks supported	4	—	—	Site with up to 4 VRF networks may administrated with 1 system controller.
		Max. indoor units/remote controller groups per VRF network	400	—	—	
		Max. indoor units/remote controller groups per system controller	1,600	—	—	4 VRF networks
Site supervision		Multiple site display	10	—	—	
		2D/3D graphical layout view	●	—	—	2D: Site, Floor 3D: Building Quick control from display available
		List display	●	—	—	Quick control from display available
		Tree display	●	—	—	Quick control from display available
Operation control	Individual	Start/Stop, Operation mode, Room temperature	●	—	—	
		Fan speed, Airflow direction	●	—	—	
		Economy mode	●	—	—	
		Antifreeze	●	—	—	
		Remote control prohibition setting	●	—	—	
		Temperature upper and lower limit setting	●	—	—	
		Filter sign reset	●	—	—	
		Human sensing	●	—	—	
	Schedule	Annual schedule	●	—	—	Week of year, day of month, day of week setting Holiday special day settings
		Low noise mode weekly schedule	●	—	—	Outdoor unit control only
	Group management	Number of groups	1,600	—	—	
		Group in group	3 levels	—	—	Level 1—2—3
		Max. overlap definitions	1,600	—	—	1 unit may belong to up to 1,600 groups.
		Auto generation	●	—	—	By site, building and floor
	Others	Memory operation	●	—	—	Operation pattern memorized and reused.
		Pattern operation	●	—	—	Reuse operation pattern once used.
Operation status monitoring		Controlled status	●	—	—	See items controlled by operation.
		Special operation	●	—	—	Defrost, oil recovery
Room temperature		Room temperature	●	—	—	*
Error management		Error notification	●	—	—	
		Audible alarm	●	—	—	
		Error e-mail notification	●	—	—	
History management		Error history	1 year	—	—	
		Operation history and status history	1 year	—	—	
Energy saving management		Indoor unit rotation	—	●	—	
		Outdoor unit capacity save	—	●	—	
		Peak cut control	—	1 month	—	
		Power consumption monitor	—	●	—	
		Electricity meters supported	—	200	—	Outdoor unit required per connection.
		Power consumption information	—	3 years	—	
Electricity charge apportionment		Apportionment charge calculation	●	—	—	
		Apportionment charge bill creation	●	—	—	
		Tenant (block) setting	1,600	—	—	
		Common facilities apportionment setting	●	—	—	
		Rated power consumption allotment setting	●	—	—	
		Electricity meters supported	—	200	—	Same meters used for energy saving.
		Electricity charge apportionment period	2 years	—	—	
		Prepaid air conditioning	—	—	●	
		Cooling and heating information	●	—	—	
Remote control		Internet, telephone line support	●	—	—	
		Max. client connection per server	5	—	—	
		Max. host connection from client	10	—	—	
		Data encryption	●	—	—	SSL used.
Others		External device control function	●	—	—	
		Web operation	●	—	—	
		User control	●	—	—	Authorization level setting
		Database import/export (manual)	●	—	—	
		Periodical backup	●	—	—	
		The refrigerant systems of non-operation status function	●	—	—	
		Auto start setting	●	—	—	
		Multiple language display	●	●	—	English, Chinese, French, German, Spanish, Russian, Polish
		Floor layout editor	●	—	—	
		Floor layout import/export	●	—	—	
		Online software update	●	—	—	

NOTES:

- *: To display room temperature on monitor, connect wired remote controller to indoor unit and perform function setting for detecting temperature using mounted sensor.
- In S and V series, there are some unusable functions, such as energy saving function and electricity meter use.
- The electricity charge apportionment function of VRF system can only be performed from one equipment simultaneously.

CONTROL SYSTEM

2-2. System controller lite (UTY-ALGXZ1)

System controller lite is advanced software of central controller for small and medium buildings. It can be supported by additional options such as electricity charge apportionment, remote monitoring, and energy saving in order to meet your demands.



- Supports 1 VRF network system and maximum of 400 controllable indoor units.
- Various high level functions from individual control to annual schedule management, operation history, and error history management.
- Corresponds to 7 different languages. (English, Chinese, French, German, Spanish, Russian, and Polish)
- Connection between VRF network system to personal computer is possible via small U10 USB interface. However, both U10 USB interface and personal computer are locally purchased items.
- Units status can be monitored and operated for each site, group, or unit.*

*: 2D floor layout/3D building display are not available. If you need these functions, use System controller.

CONTROL SYSTEM

■ Accessory

Name and shape	Q'ty	Application
 WHITE-USB-KEY (software protection key with software)	1	Software protection key to be connected to an USB port on the PC that System controller is installed. System controller runs only on a PC with this WHITE-USB-KEY. However, this WHITE-USB-KEY is not required for remote VRF Explorer software.

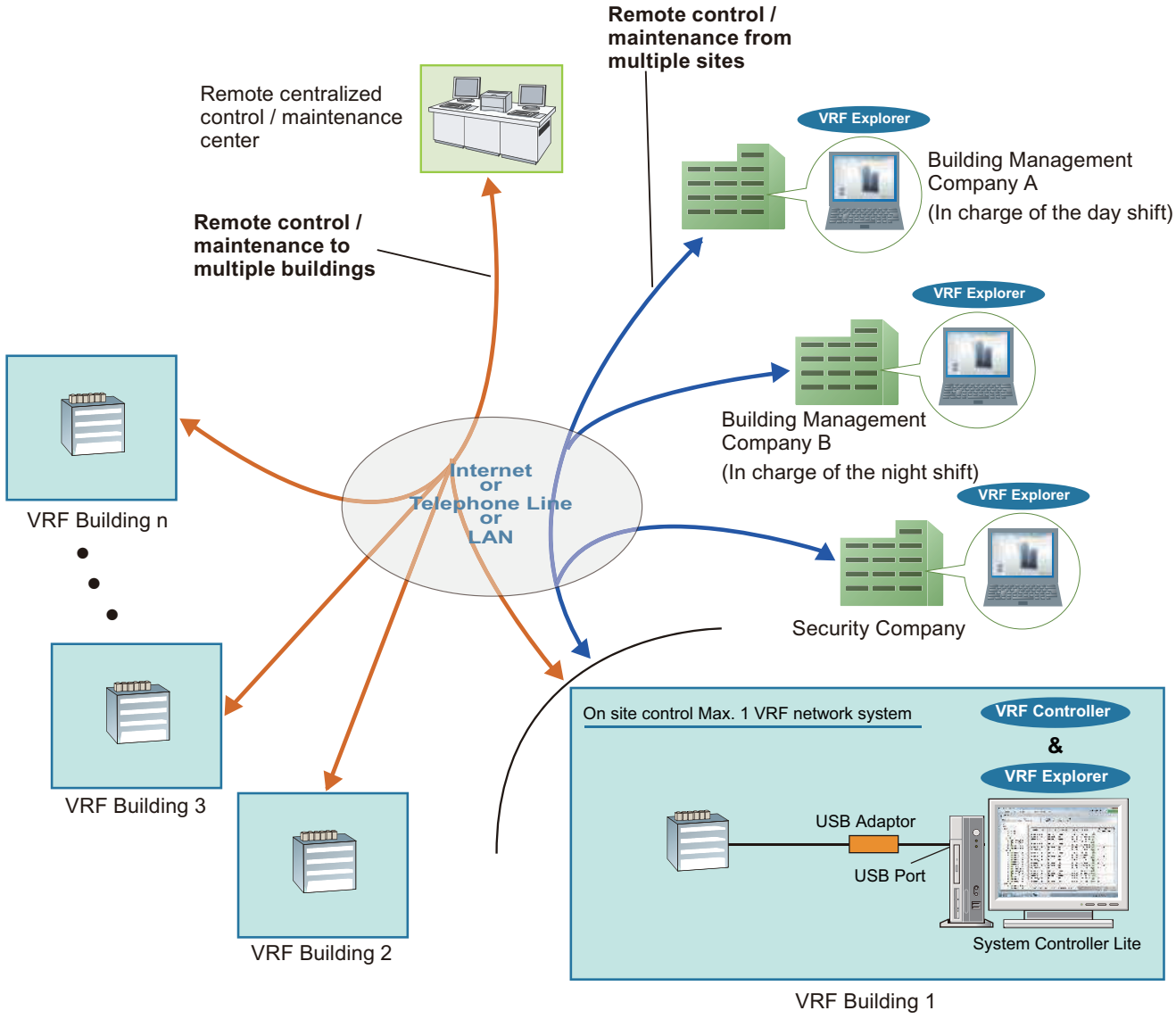
■ Available option

Option	Model name	Remark
Electricity charge apportionment option	UTY-PLGXA2	Apportions the power used by indoor and outdoor units, and automatically calculation the electricity charge such as for hotels or multi-tenant buildings. Computation linked with an electric meter is also possible.
Remote access option	UTY-PLGXR2	VRF system can be monitored remotely from multiple PCs. Multiple VRF systems can be controlled or monitored from 1 PC.
Energy saving option	UTY-PLGXE2	A variety of energy saving operations can be set and managed depending on the season, weather, and time period.
Prepaid air conditioning	UTY-PLGXP2	Prepaid management of VRF air conditioner is performed and collection of charge for air conditioning is supported for building administrator.
External device control	UTY-PLGXX2	By enabling central control by third-party external device, burden on maintenance and administration of the devices by the building administrator is reduced.

■ System diagram

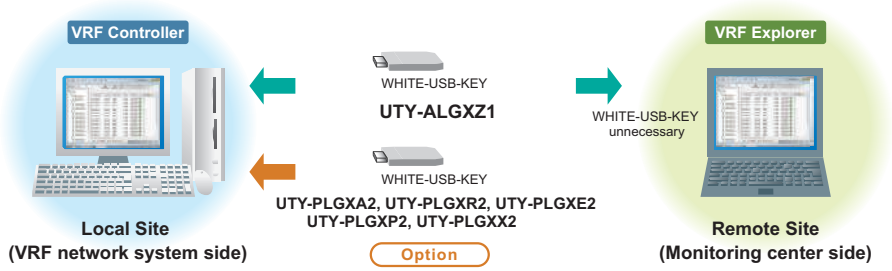
- System controller lite may be used on site or remotely over various networks for remote central control.*
- System controller lite consists of VRF Controller software and VRF Explorer software, both software are working together.
- VRF Controller software runs in the background and communicate with VRF System.
- VRF Explorer software provides user interface and communicate with VRF Controller.
- VRF Controller and VRF Explorer software may run in a single PC or in different PCs separated by network.*
- VRF Explorer software does not require WHITE-USB-KEY (Software protection key).

*: Remote access option (UTY-PLGXR2) is necessary.



CONTROL SYSTEM

■ Software configuration



- **Any number can be installed in remote site personal computers.**
  - System controller lite (UTY-ALGXZ1) can be installed in the local site PCs (VRF controller) connected to the VRF network system.
  - Multiple remote site PCs (VRF explorer) can be connected to VRF controller via Internet or LAN.

  Just this single product creates the control, management, and monitoring environment for the customer's properties including remote operation.

  NOTES:
  - WHITE-USB-KEY is not required for PCs on the remote site.
  - Some function, such as equipment registration and input/output are invalid on the remote site.

- **Optional software to strengthen various function**
  - Electricity charge apportionment function can be added by installing optional UTY-PLGXA2.
  - Remote centralized control function can be added by installing optional UTY-PLGXR2.
  - Energy saving management function can be added by installing optional UTY-PLGXE2.
  - Prepaid management function can be added by installing optional UTY-PLGXP2.
  - External device control function can be added by installing optional UTY-PLGXX2.

CONTROL SYSTEM

■ Other required devices (Locally purchased)

- Personal computer that satisfies the following system requirements

Personal computer system requirement	
Operating system	• Microsoft Windows 7 Home Premium (32-bit or 64-bit) SP1 • Microsoft Windows 7 Professional (32-bit or 64-bit) SP1 • Microsoft Windows 8.1 (32-bit or 64-bit) • Microsoft Windows 8.1 Pro (32-bit or 64-bit) • Microsoft Windows 10 Home (32-bit or 64-bit) • Microsoft Windows 10 Pro (32-bit or 64-bit) Supported languages: English, Chinese, French, German, Russian, Spanish, and Polish
CPU	Intel Core i3 2 GHz or higher
Memory	• 2 GB or more (for Windows 7 [32-bit]) • 4 GB or more (for Windows 7 [64-bit], Windows 8.1, and Windows 10)
HDD	40 GB or more of free space
Display	1,024 × 768 or higher resolution
Interface	• Ethernet port (for getting access to the Internet using LAN) or Modem (for getting access to the Internet using public telephone line) • USB ports (Maximum of 2 ports) (Required only for the server PC that works as VRF controller) – 1 USB port is required for WHITE-USB-KEY connection – 1 USB port is required for Echelon U10 USB Network Interface **NOTE:** Maximum number of required USB ports depends on the applicable system configuration.
Graphic accelerator	Microsoft DirectX 9.0c compatible
Software	Adobe Reader 9.0 or later

- Echelon U10 USB Network Interface – TP/FT-10 Channel (Model number: 75010R) (Required for each VRF network)

CONTROL SYSTEM

■ Specification summary

Type		Function	UTY-AL-GXZ1	UTY-PLGXA2 (Option)	UTY-PLGXR2 (Option)	UTY-PLGXE2 (Option)	UTY-PLGXP2 (Option)	UTY-PLGXX2 (Option)	Remark
System specification		Max. system controller per VRF network	1	—	—	—	—	—	
		Max. VRF networks supported	1	—	—	—	—	—	
		Max. indoor units/remote controller groups per VRF network	400	—	—	—	—	—	
		Max. indoor units/remote controller groups per system controller	400	—	—	—	—	—	4 VRF networks
Site supervision		Multiple site display	10	—	—	—	—	—	
		2D/3D graphical layout view	—	—	—	—	—	—	
		List display	●	—	—	—	—	—	Quick control from display available
		Tree display	●	—	—	—	—	—	Quick control from display available
Operation control	Individual	Start/Stop, Operation mode, Room temperature	●	—	—	—	—	—	
		Fan speed, Airflow direction	●	—	—	—	—	—	
		Economy mode	●	—	—	—	—	—	
		Antifreeze	●	—	—	—	—	—	
		Remote control prohibition setting	●	—	—	—	—	—	
		Temperature upper and lower limit setting	●	—	—	—	—	—	
		Filter sign reset	●	—	—	—	—	—	
		Human sensing	●	—	—	—	—	—	
	Schedule	Annual schedule	●	—	—	—	—	—	Week of year, day of month, day of week setting Holiday special day settings
		Low noise mode weekly schedule	●	—	—	—	—	—	Outdoor unit control only
	Group management	Number of groups	400	—	—	—	—	—	
		Group in group	3 levels	—	—	—	—	—	Level 1—2—3
		Max. overlap definitions	400	—	—	—	—	—	1 unit may belong to up to 400 groups.
		Auto generation	●	—	—	—	—	—	By site, building and floor
	Others	Memory operation	●	—	—	—	—	—	Operation pattern memorized and reused.
		Pattern operation	●	—	—	—	—	—	Reuse operation pattern once used.
Operation status monitoring		Controlled status	●	—	—	—	—	—	See items controlled by operation.
		Special operation	●	—	—	—	—	—	Defrost, oil recovery
Room temperature		Room temperature	●	—	—	—	—	—	*
Error management		Error notification	●	—	—	—	—	—	
		Audible alarm	●	—	—	—	—	—	
		Error e-mail notification	●	—	—	—	—	—	
History management		Error history	1 year	—	—	—	—	—	
		Operation history and status history	1 year	—	—	—	—	—	
Energy saving management		Indoor unit rotation	—	—	—	●	—	—	
		Outdoor unit capacity save	—	—	—	●	—	—	
		Peak cut control	—	—	—	1 month	—	—	
		Power consumption monitor	—	—	—	●	—	—	
		Electricity meters supported	—	—	—	200	—	—	Outdoor unit required per connection.
		Power consumption information	—	—	—	3 years	—	—	
Electricity charge apportionment		Apportionment charge calculation	—	●	—	—	—	—	
		Apportionment charge bill creation	—	●	—	—	—	—	
		Tenant (block) setting	—	1,600	—	—	—	—	
		Common facilities apportionment setting	—	●	—	—	—	—	
		Rated power consumption allotment setting	—	●	—	—	—	—	
		Electricity meters supported	—	200	—	—	—	—	Same meters used for energy saving.
		Electricity charge apportionment period	—	2 years	—	—	—	—	
		Prepaid air conditioning	—	—	—	—	●	—	
		Cooling and heating information	—	●	—	—	—	—	
Remote control		Internet, telephone line support	—	—	●	—	—	—	
		Max. client connection per server	—	—	5	—	—	—	
		Max. host connection from client	—	—	10	—	—	—	
		Data encryption	—	—	●	—	—	—	SSL used.
Others		External device control function	—	—	—	—	—	●	
		Web operation	●	—	—	—	—	—	
		User control	●	—	—	—	—	—	Authorization level setting
		Database import/export (manual)	●	—	—	—	—	—	
		Periodical backup	●	—	—	—	—	—	
		The refrigerant systems of non-operation status function	●	—	—	—	—	—	
		Auto start setting	●	—	—	—	—	—	
		Multiple language display	●	●	●	●	—	—	English, Chinese, French, German, Spanish, Russian, Polish
		Floor layout editor	●	—	—	—	—	—	
		Floor layout import/export	●	—	—	—	—	—	
		Online software update	●	—	—	—	—	—	

NOTES:

- *: To display room temperature on monitor, connect wired remote controller to indoor unit and perform function setting for detecting temperature using mounted sensor.
- In S and V series, there are some unusable functions, such as energy saving function and electricity meter use.
- The electricity charge apportionment function of VRF system can only be performed from one equipment simultaneously.

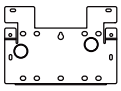
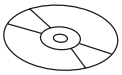
CONTROL SYSTEM

2-3. Touch panel controller (UTY-DTGYZ1)



- Large-sized 7.5 inch TFT color
- LCD easy finger touch operation
- Stylish shape and design to suit all application
- No additional component is required for installation.
- Up to 400 indoor units can be controlled.
- Selectable 2 display types (icon/list) in monitoring mode
- Corresponds to 7 different languages. (English, Chinese, French, German, Spanish, Russian, and Polish)

■ Accessory

Name and shape	Q'ty	Application
 Installation plate	1	For Touch panel controller installation (It is attached to the back of the Touch panel controller)
 Screw	8	Screw for Touch panel controller installation
 Washer	8	Washer for Touch panel controller installation
 Touch pen	1	Pen for Touch panel controller installation
 Cable tie	4	For prevention dropping off of the cable
 CD-ROM	1	Includes the operating manual and file making sheet of this controller
 Installation manual	1	
 Operation manual	1	

CONTROL SYSTEM

■ Available option

Option	Model name	Remark
Electricity charge apportionment option	UTY-PTGXA	Apportions the power used by indoor and outdoor units, and automatically calculation the electricity charge such as for hotels or multi-tenant buildings. Computation linked with an electric meter is also possible.

- Specifications

Number of sites	Max. 20
Number of contracts	Max. 400 (per site)
Number of blocks	Max. 1,600 (per site)
Data storage period	Max. 2 year

- Personal computer system requirements (for electricity charge apportionment tool)

Personal computer system requirement	
Operating system	• Microsoft Windows 7 Home Premium (32-bit or 64-bit) SP1 • Microsoft Windows 7 Professional (32-bit or 64-bit) SP1 • Microsoft Windows 8.1 (32-bit or 64-bit) • Microsoft Windows 8.1 Pro (32-bit or 64-bit) • Microsoft Windows 10 Home (32-bit or 64-bit) • Microsoft Windows 10 Pro (32-bit or 64-bit) Supported languages: English, Chinese, French, German, Russian, Spanish, and Polish
CPU	Intel Core i3 2 GHz or higher
Memory	• 2 GB or more (for Windows 7 [32-bit]) • 4 GB or more (for Windows 7 [64-bit], Windows 8.1, and Windows 10)
HDD	40 GB or more of free space
Display	1,024 × 768 or higher resolution
Interface	• USB port • Ethernet port (to communicate with TPC via LAN)
Software	Adobe Reader 9.0 or later
Optical drive	DVD-ROM drive

CONTROL SYSTEM

■ Functions

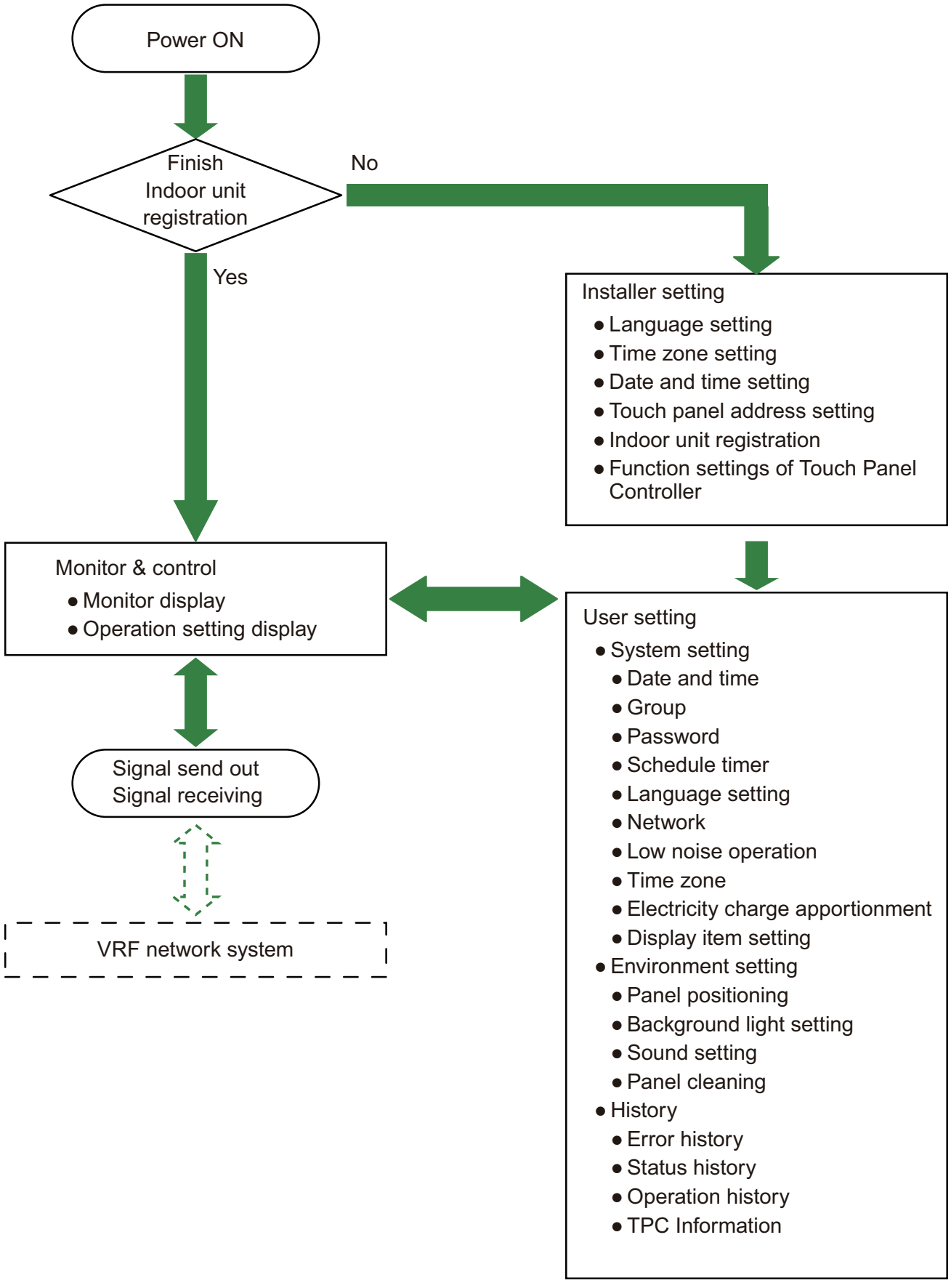
Item		Main unit	PC/Tablet	Description
Installation	Indoor unit registration	●	—	Indoor unit registration. Max. 400 units. (Set data can be written to and read from USB flash drive)
	Function settings	●	—	Temperature set point limitation, external input, central operation on/off setting
Monitor	Display switching	●	●	Icon display, List display
	Display units	●	●	All, Group, Individual (remote control group)
	Monitor contents (icon display)	●	●	Group name, operation, operation mode, set temperature, time, errors, timer setting, filter sign
	Monitor contents (list display)	●	●	Group name, operation, operation mode, set temperature, airflow, air direction, special operation, anti-freeze, time, errors, timer setting, filter sign, room temp., human sensor, set temp. range
	Error list	●	●	Group name, remote control group name, address, error code
	Special state	●	●	Display during special operation
Control	Control units	●	●	All, Group, Individual (remote control group)
	Control contents	●	●	Operation, operation mode, set temperature, airflow, RC prohibition, filter sign reset
	Detailed control contents	●	●	Air direction, energy saving, anti-freeze, test run
	Individual setting reset of airflow direction	—	●	Sets the position of indoor unit's airflow direction louver individually.
	Human sensor	—	●	Sets the human sensor on the indoor unit.
	Setting temperature limitation of room	●	●	Adjusts the upper and lower limits of temperature for the indoor unit.
Setting	Language setting*	●	●	Design considering multi-language correspondence
	Date and time	●	●	Time display switching, year/month/day display switching, system clock setting, summer time, Internet time adjustment setting
	Time zone	●	●	Set the time zone of the area where this unit is used.
	Panel cleaning and correction	●	—	Select display area for panel cleaning. User can select black screen on display.
	Group	●	●	Stages: Max. 3 stages settable up to 400 groups. (Set data can be written to and read from USB flash drive.)
	Back ground light and beep sound	●	—	Backlighting off time and brightness setting, beep sound operation setting
	Password	●	—	Management level: 3 kinds
	Schedule timer	●	●	Max. 30 items settable
	Temperature range	●	—	Celsius/Fahrenheit switching, cooling, heating, and AUTO each settable
	Network	●	●	Function of Email notification for malfunction, or electricity charge apportionment option is used via LAN
	Low noise operation	●	●	"Low noise operation" is set to all outdoor units registered by this controller.
	Electricity charge apportionment (Option)	●	●	Start/stop of ECA, importing/exporting of ECA setting, and exporting ECA data.
	Remote language additional registration	—	●	Additional language can be integrated on remote device by creating language database. Additional language is displayed on only the remote device and touch panel controller cannot be added other language.
	Auto OFF timer	—	●	Function to stop the operation automatically when a preset time lapses after turning on the operation
	Set temperature auto return	—	●	Function to restore the temperature to the original set temperature when a preset time lapses after changing the set temperature.
	Display item setting	—	●	Sets the items to be displayed on the monitor.
	Failure notification Email	—	●	Failure notification Email: Sends a notification Email to the preset Email address in the event of failure.
	Remote connection setting	—	●	Create Users: Max. 15 users, type, permissions, unit setting, automatic logout time
Maintenance	Error history	●	●	Recording of max. 10 errors for each touch panel controller and each indoor and outdoor unit
	Status history	●	●	Recording of max. 100 operations for each indoor unit Writable to USB flash drive
	Operation history	●	●	Recording of max. 10,000 operations Writable to USB flash drive
	TPC information	●	●	Version history, TPC MAC address, software version, Writing the TPC information
Others	External input/output	●	—	Input: Batch operation/stop, emergency stop, electricity meter Output: Operation monitoring, error

NOTES:

- *: Product specifications are subject to change without notice.
- When Start/Stop, operation mode setting, room temp. setting, fan speed setting, air flow direction setting, swing setting, economy mode, and anti freeze setting are changed frequently by using the central controller such as System controller, Touch panel controller, etc. or from Building Management System (BMS) via BACnet gateway or via Network converter, the number of operations for each indoor unit must not exceed 7,500 times/year.
  If the number of setting change exceeds the above specified number, the rewriting count limit of the non-volatile memory (built into the air conditioner and used for recording settings) will be exceeded, and may cause breakdown.

CONTROL SYSTEM

■ State transition diagram



CONTROL SYSTEM

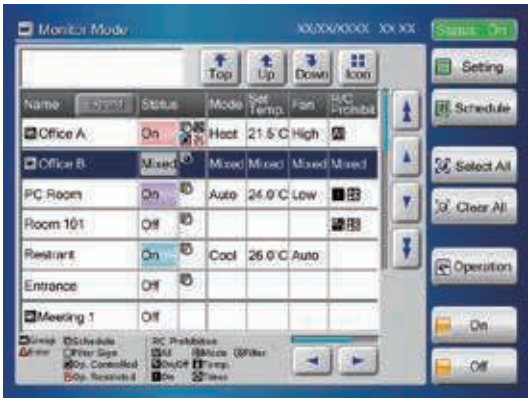
■ Main functions and screen examples

- **Monitor display example**
  An easy-to-use display mode can be selected.
  Easy-to understand GUI of adopted icon.

Icon display



List display



- **Operation mode setting example**
  Large button is designed for easy to access.

Operation setting screen

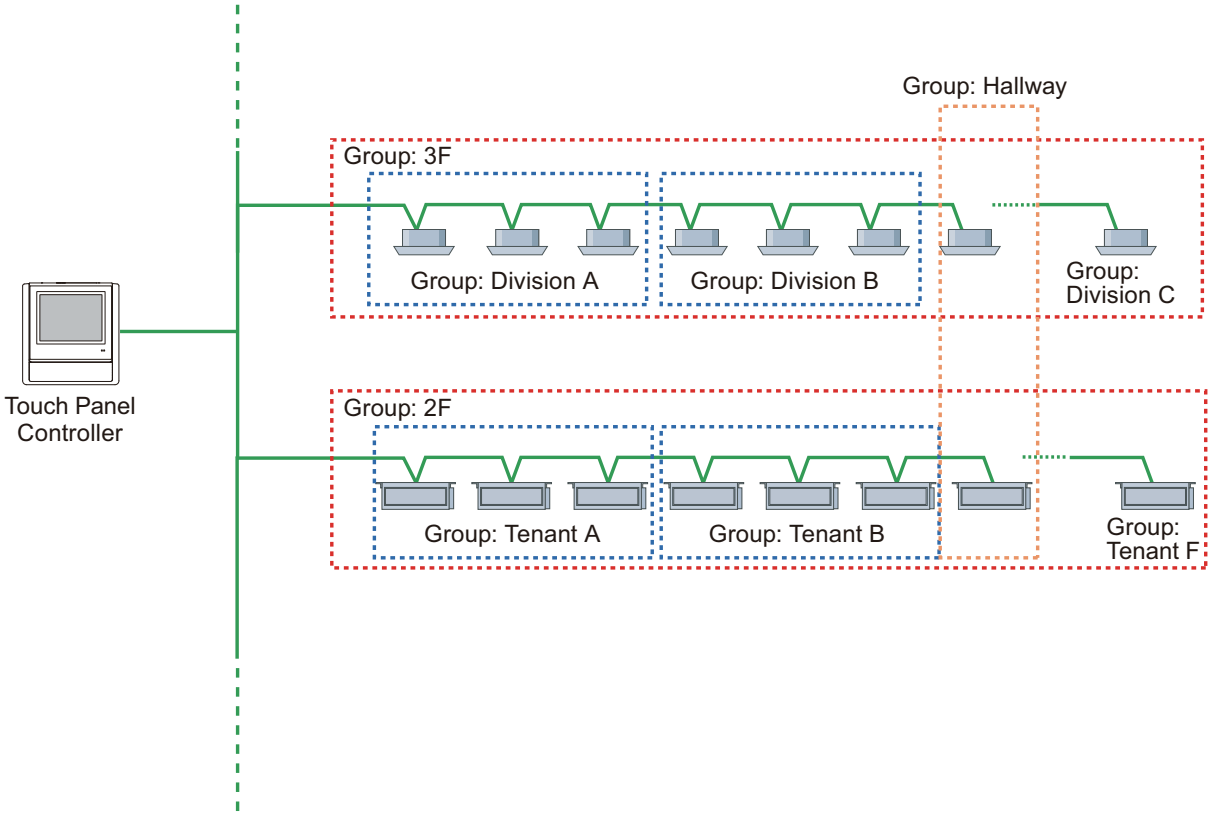


Optional setting screen

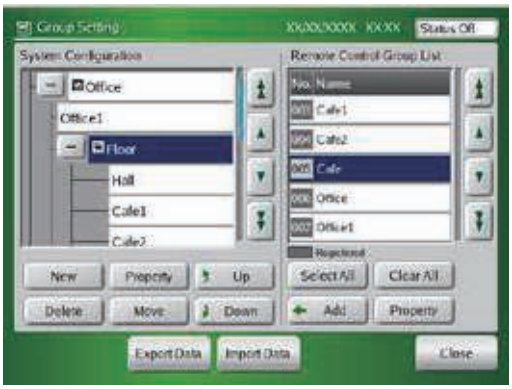


CONTROL SYSTEM

- **Group setting**
  Groups can be arbitrarily set in easy to manage units as shown in the figure.
  Control and monitoring are performed in these group units.



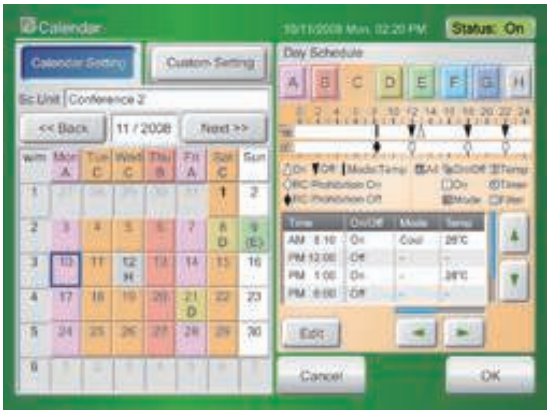
Group setting screen



CONTROL SYSTEM

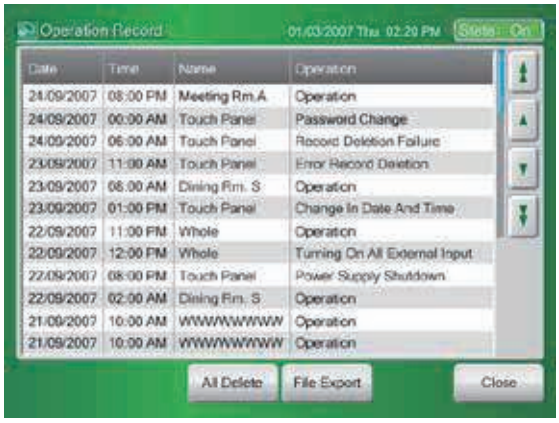
- **System schedule timer**
  Annual schedule can be set of a maximum 30 items.

Schedule setting screen



- **History recording and display**
  Error, status and operation histories can be recorded. Each recording can be also written to USB flash drive.
  – Error history: Max. 10 items recorded for each touch panel controller and each unit (indoor unit and outdoor unit).
  – Status history: Max. 100 operations recorded for each indoor unit of each room.
  – Operation hisotry: Max. 100 operations recorded.

Optional history screen



CONTROL SYSTEM

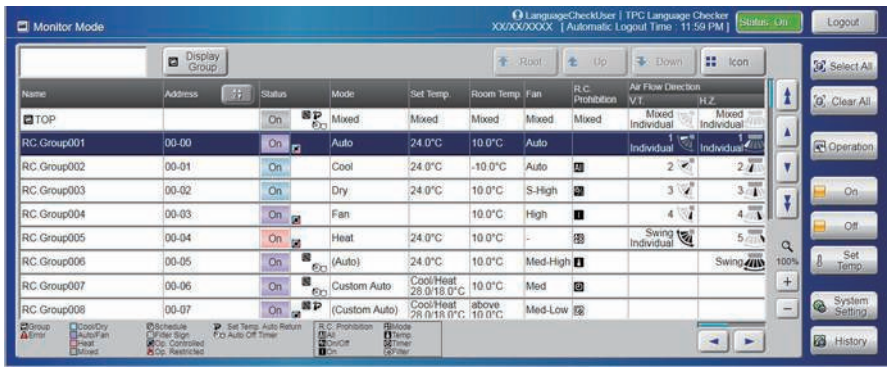
■ Screen examples (for remote monitoring)

- **Monitor mode main screen example**

Icon display



List display



- **Control main screen example**

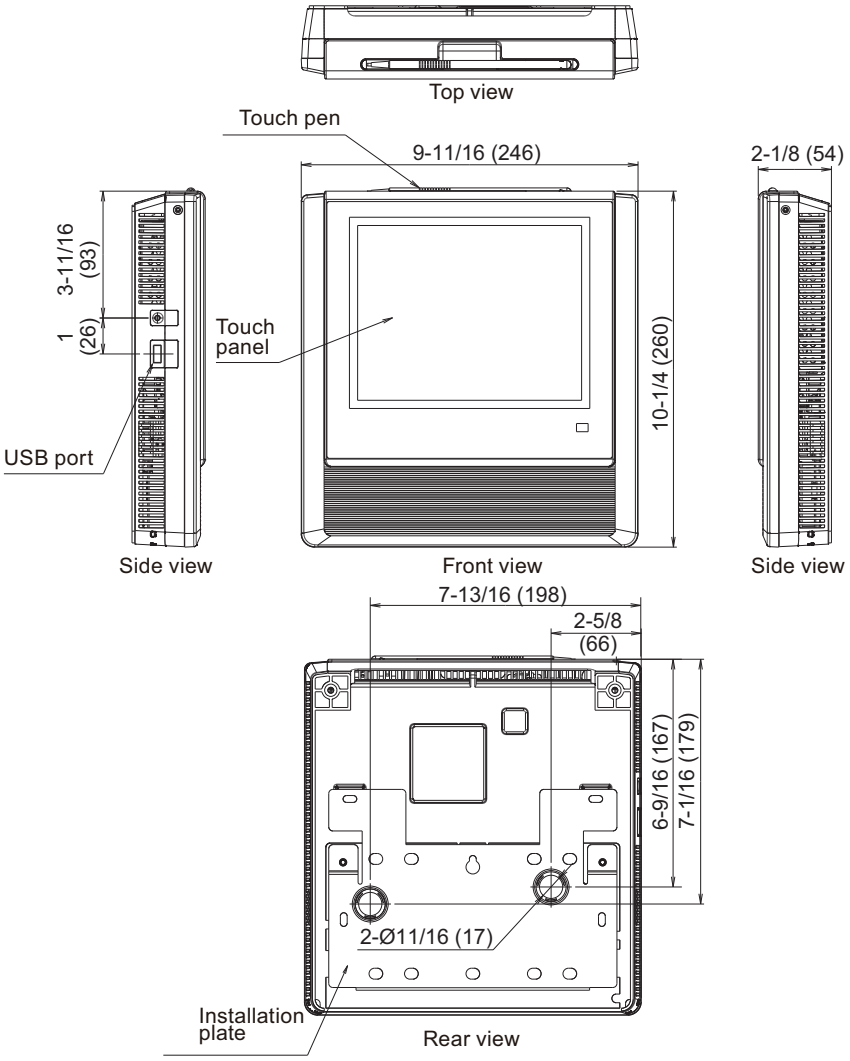
Operation setting screen



CONTROL SYSTEM

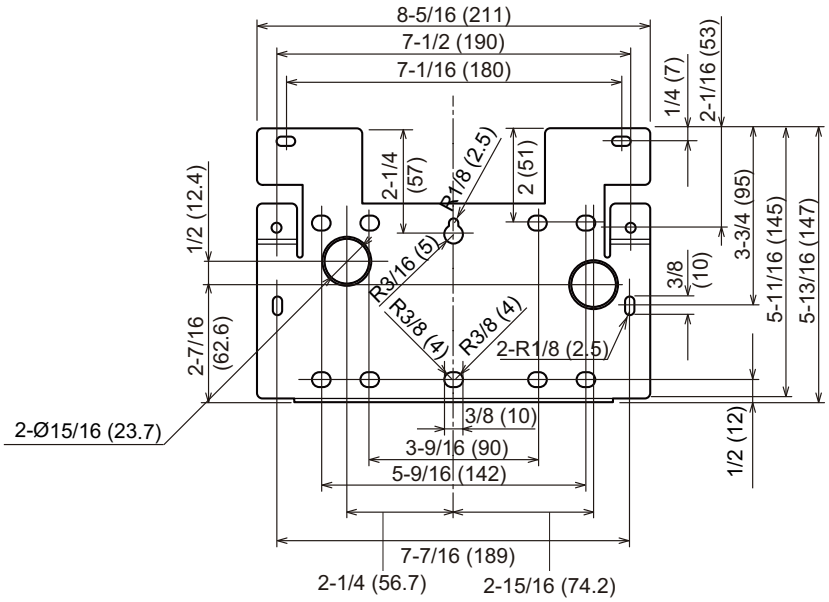
■ Dimensions

Unit: in (mm)



■ Mounting plate screw hole positions

Unit: in (mm)

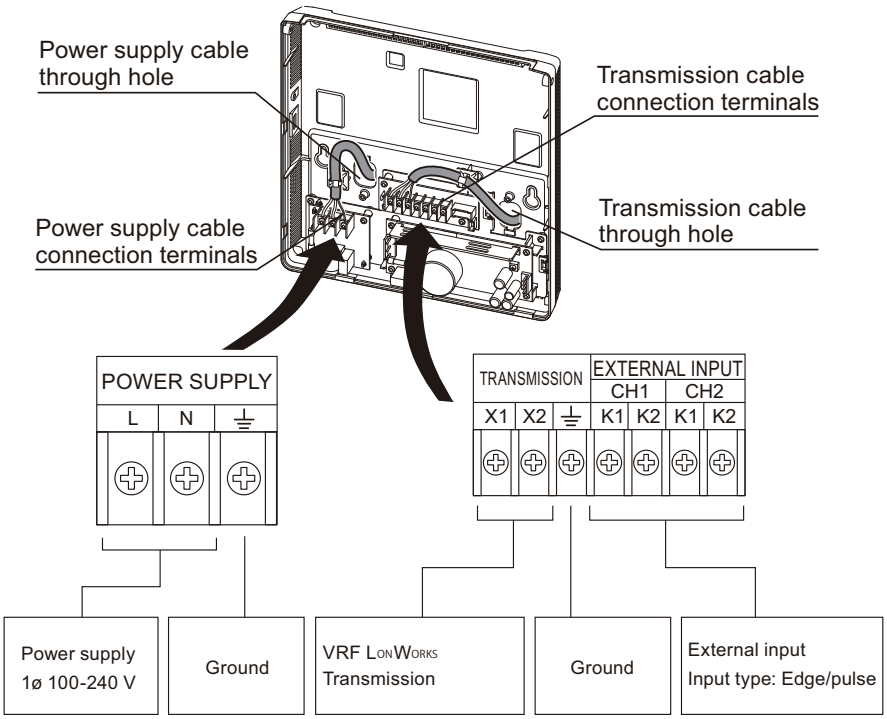


⚠ CAUTION

Refer to the mounting screw hole positions of the switch box that is to be installed in advance and check the compatibility.

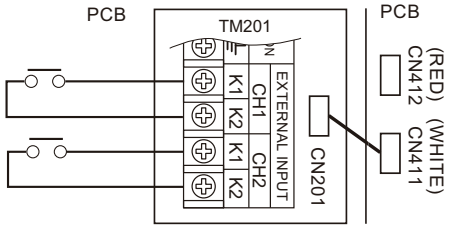
■ Terminal names

Names of connection terminals in rear cover.

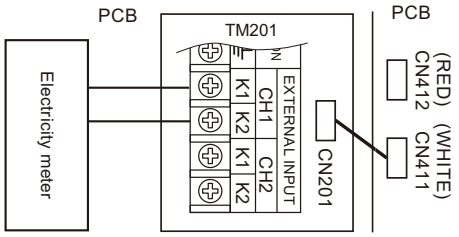


■ External input terminal

- Case 1: Batch start/stop and emergency stop commands



- Case 2: Electricity meter is connected

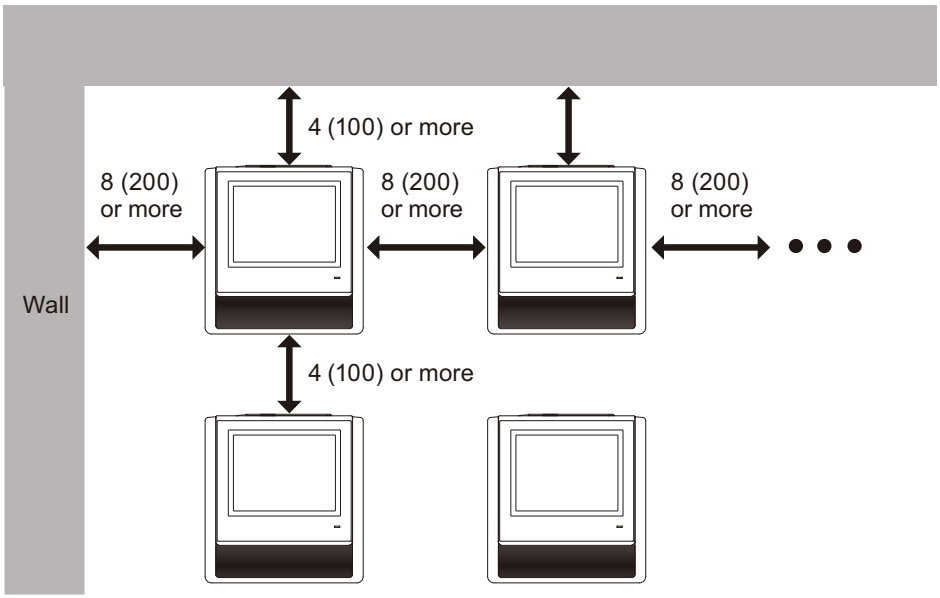


CONTROL SYSTEM

■ Installation space

When installing Touch panel controller in a row, keep the space shown below from the surrounding projecting parts.

Unit: in (mm)

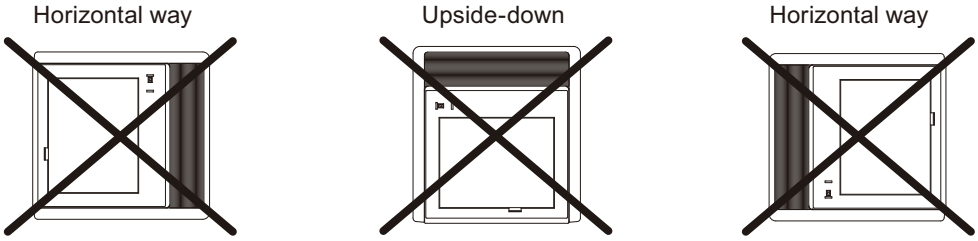


NOTE: The switch box that Touch panel controller is to be mounted to should be installed horizontally in advance.

CONTROL SYSTEM

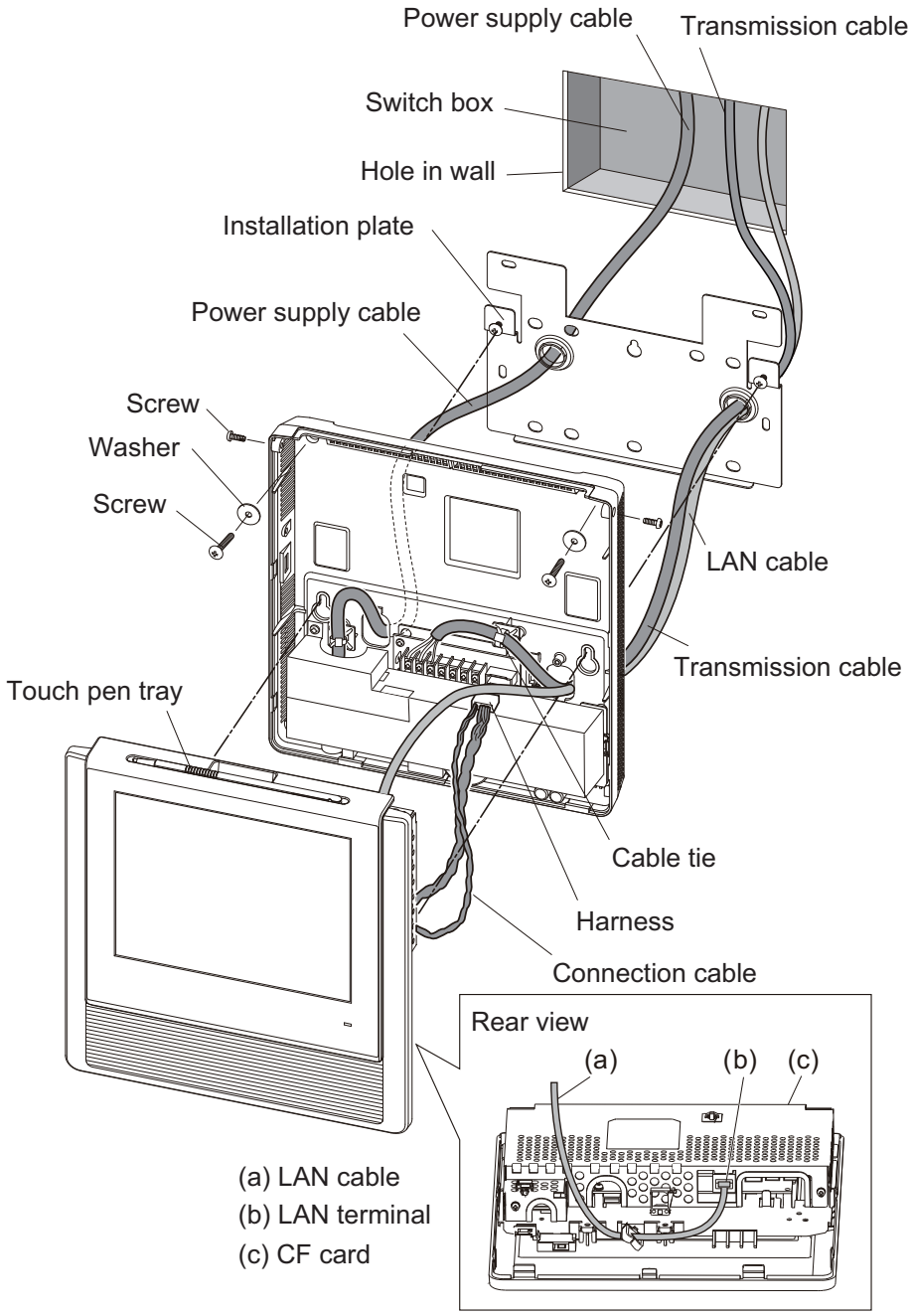
⚠ CAUTION

Following installation positions are prohibited:



■ Installation

For details, refer to installation manual.



⚠ CAUTION

In advance, install a switch box to the wall where Touch panel controller is to be installed.

CONTROL SYSTEM

■ Specifications

Power source voltage	V	1 Ø AC 100—240
Power source frequency	Hz	50/60
Input power	W	22
Display		7.5-inch TFT color LCD (640 × 480 pixels), with touch panel
LED indicator		Power LED (Green)
External interface		USB 2.0
		Transmission line
		Ethernet port (Ethernet port is required for remote connection using Internet.)
		External input: Either emergency stop, batch operation/stop, electricity meter (Either Dry contact or apply voltage can be selected.)
		External output: Operation state, error state
		Reset switch
Usage temperature range	°F (°C)	32 to 104 (0 to 40)
Usage humidity range	%	0 to 85 (no condensation)
Storage temperature range	°F (°C)	-4 to 158 (-20 to 70)
Storage humidity range	%	0 to 85 (no condensation)
Dimensions (H × W × D)	in (mm)	10-1/4 × 9-11/16 × 2-1/8 (260 × 246 × 54)
Weight	lb (g)	5 (2,150)
Fuse capacity	A	5

● Wiring specifications

Use	Cable size	Wire type	Remarks
Power supply cable	20—16 AWG (0.5—1.25 mm^2)	60245 IEC 57 or equivalent	1 Ø AC 100—240 V 50/60 Hz, 2-wire + ground (Always ground the unit)
Transmission cable	22 AWG (0.33 mm^2)	LEVEL4 (NEMA) non-polar 2-core, twisted pair solid core shielded	LonWorks compatible cable
External input/output cable	22 AWG (0.33 mm^2)	Polar 2-core, twisted pair	Use cable in accordance with local rules for cable.

■ Other required devices (Locally purchased)

- Personal computer that satisfies the following system requirements

Personal computer system requirement	
CPU	2 GHz or higher
Memory	2 GB or more
HDD	10 GB or more of free space
Display	1,366 × 768 or higher resolution
Interface	• USB port • Ethernet port (Ethernet port is required for remote connection using Internet.)
Software	• Microsoft Office Excel (2007, 2010, 2013, 2016), Microsoft Excel (2007, 2010, 2013) • Adobe Reader 10.0 or later • Internet Explorer 11

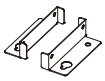
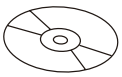
CONTROL SYSTEM

2-4. Central remote controller (UTY-DCGY)



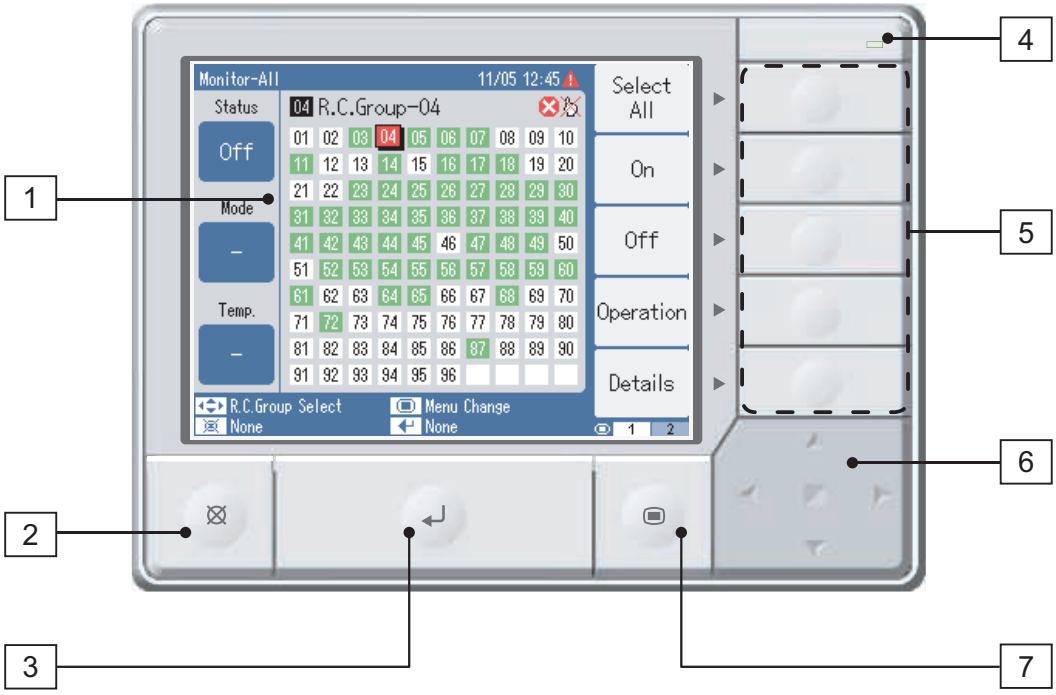
- Individual control and monitor of 100 indoor units
- 5-inch TFT color screen
- User friendly view and easy operation
- External input/output contact
- Detachable power supply unit
- Corresponds to 7 different languages. (English, Chinese, French, German, Spanish, Russian, and Polish)

■ Accessory

Name and shape	Q'ty	Application
 Power supply unit	1	
 Holder	1 (set)	For power supply unit installation (Used for separate type)
 One-touch bush	2	For protection of power supply unit cable
 Screw	8	Screw for Central remote controller installation
 Connecting cable	1	For power supply unit connection
 Cable tie	4	For prevention dropping off of the cable
 CD-R	1	Includes the operating manual for Central remote controller
 Installation manual	1	
 Operation manual	1	Instruction book for operation

CONTROL SYSTEM

■ Overview

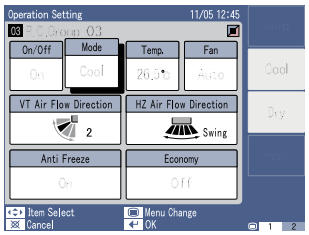


1	LCD panel	4	LED lamp
2	[CANCEL] button	5	Function buttons
3	[OK] button	6	[Arrow] button
		7	[MENU] button

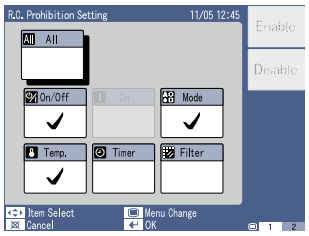
CONTROL SYSTEM

■ Main functions and screen examples

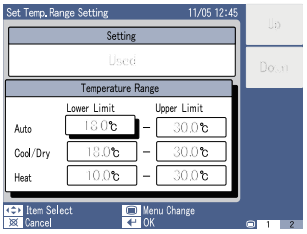
- **Individual control**
  On/Off, Mode, Set temp., Fan speed, Airflow direction, Anti freeze, and Economy.



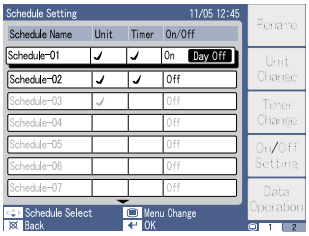
- **Remote controller prohibition**
  All, On/Off, Mode, Temp., Timer, and Filter.
  R.C prohibition setting prohibits individual remote control operation.

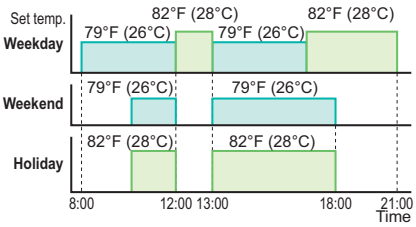


- **Room temperature set point upper and lower limitation**

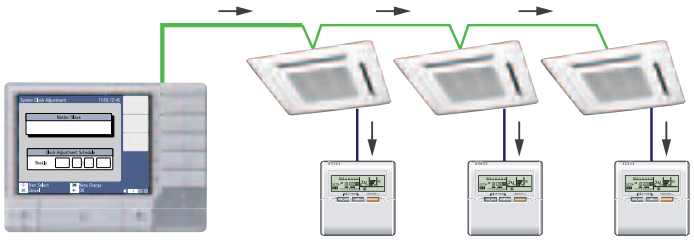


- **Weekly timer**
  Weekly timer can set the timer by various combinations.



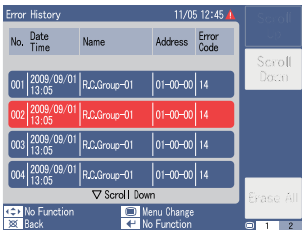


- **Automatic clock adjustment**
  The time setting of each controller can be set in batch automatically.



CONTROL SYSTEM

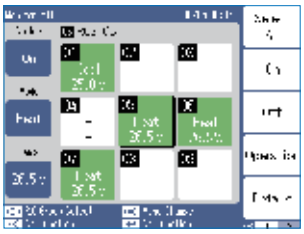
- **Error history**
  - Able to memorize max. 200 errors.
  - Suitable maintenance is possible by analysis of the error history data.



- **Main screen display auto switching**
  Main screen automatically switches at 5 steps by the number of connected indoor units.

Step	1	2	3	4	5
Connected indoor units number	1 to 9 units	10 to 20 units	21 to 40 units	41 to 80 units	81 to 100 units
Display pattern	9 units display	20 units display	40 units display	80 units display	100 units display

9/20 units display pattern



40/80/100 units display pattern

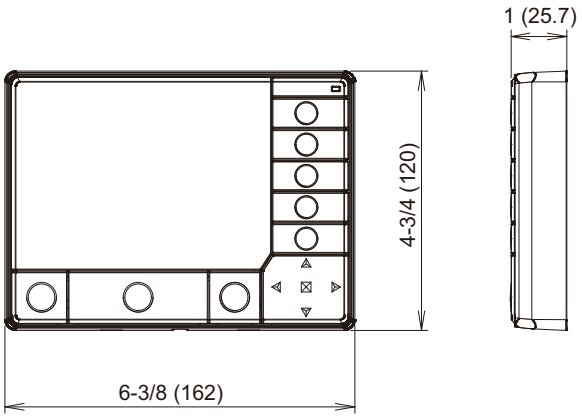


CONTROL SYSTEM

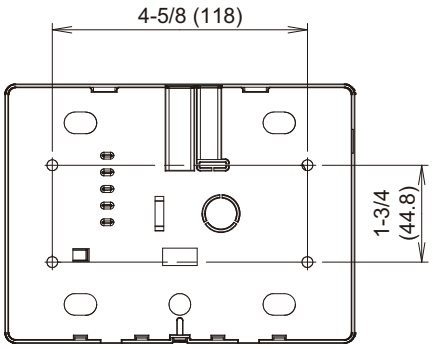
■ Dimensions

Unit: in (mm)

- **Control unit**

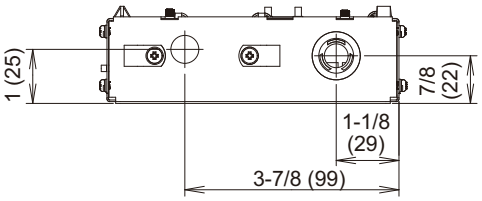


Front view　　Side view

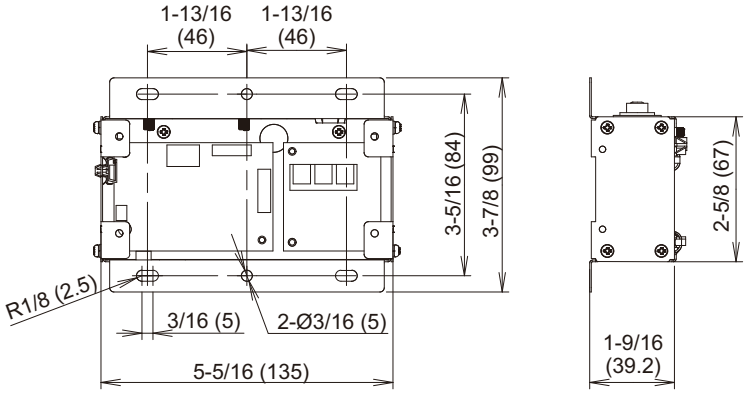


Rear view

- **Power supply unit**



Top view

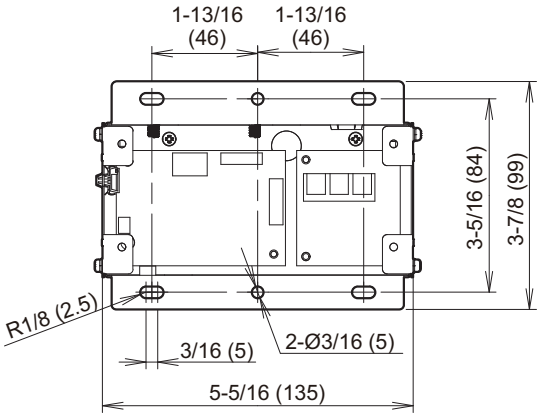


Front view　　Side view

CONTROL SYSTEM

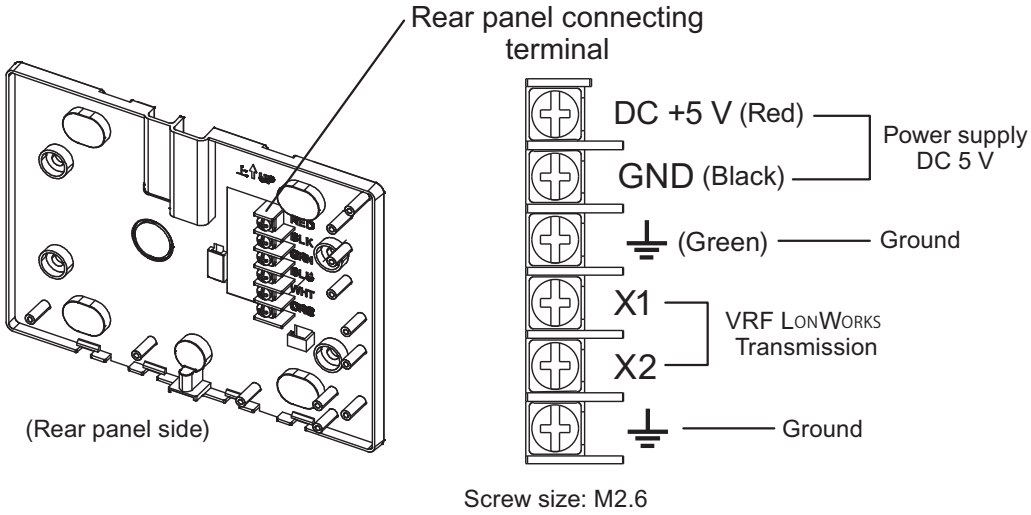
■ Mounting plate screw hole positions

Unit: in (mm)



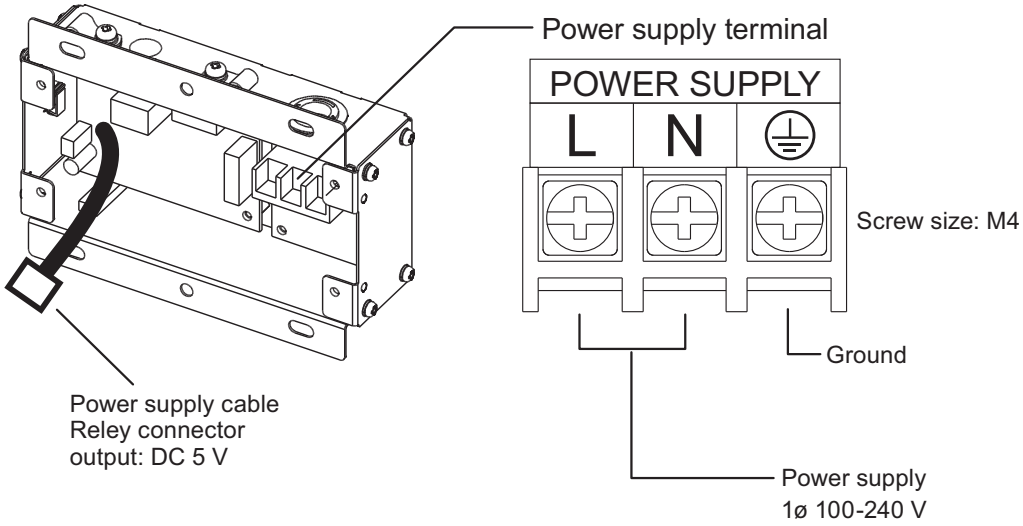
■ Terminal names

- **Control unit**



Screw size: M2.6

- **Power supply unit**

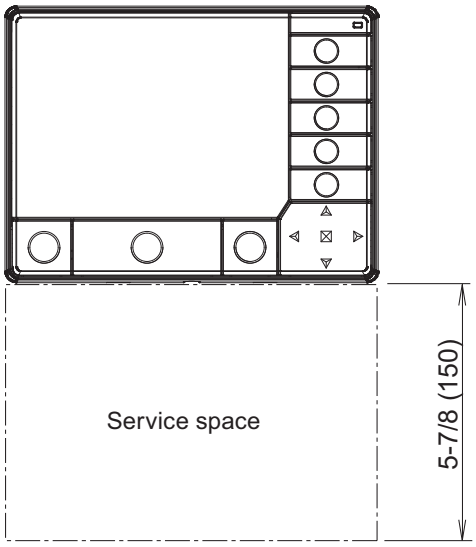


CONTROL SYSTEM

■ Installation space

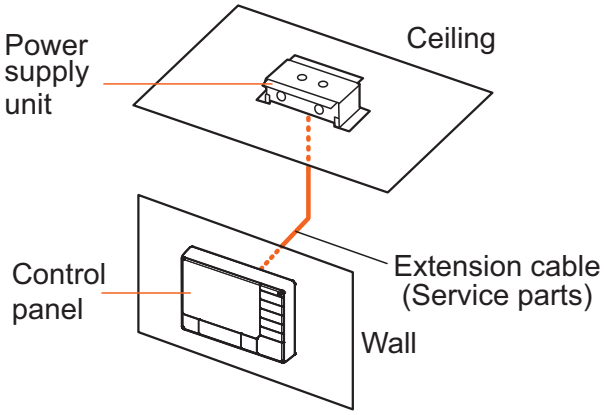
Make a service space to perform installation work.

Unit: in (mm)

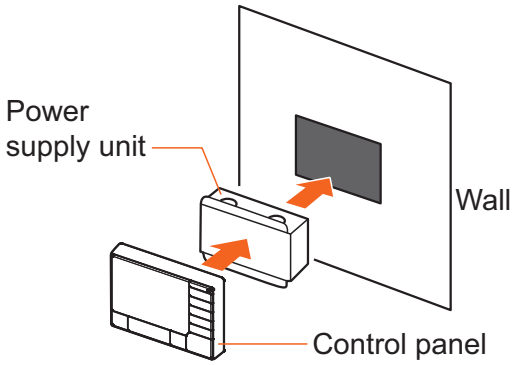


■ Installation

Setting pattern 1: Separate type

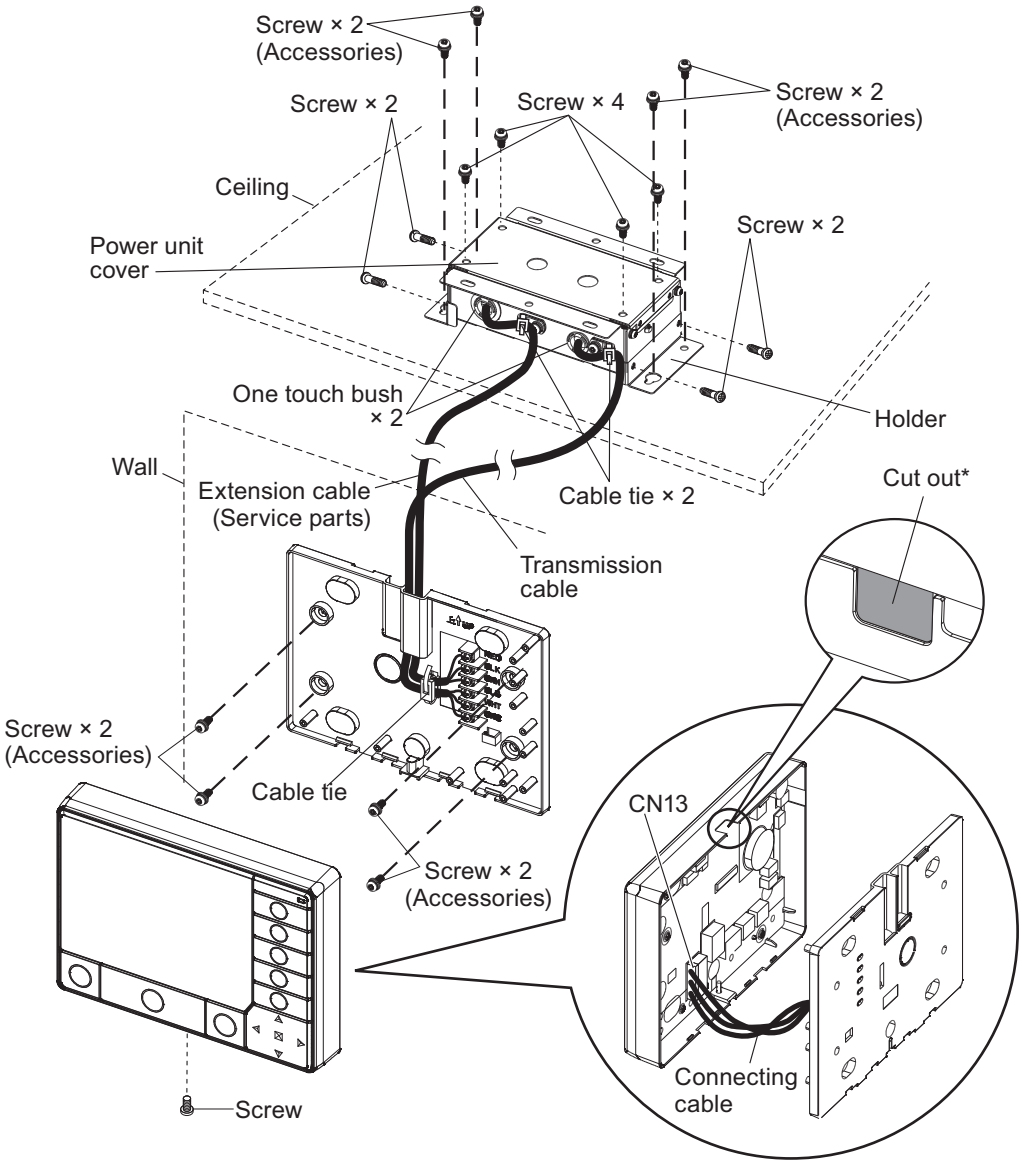


Setting pattern 2: Integrated type



CONTROL SYSTEM

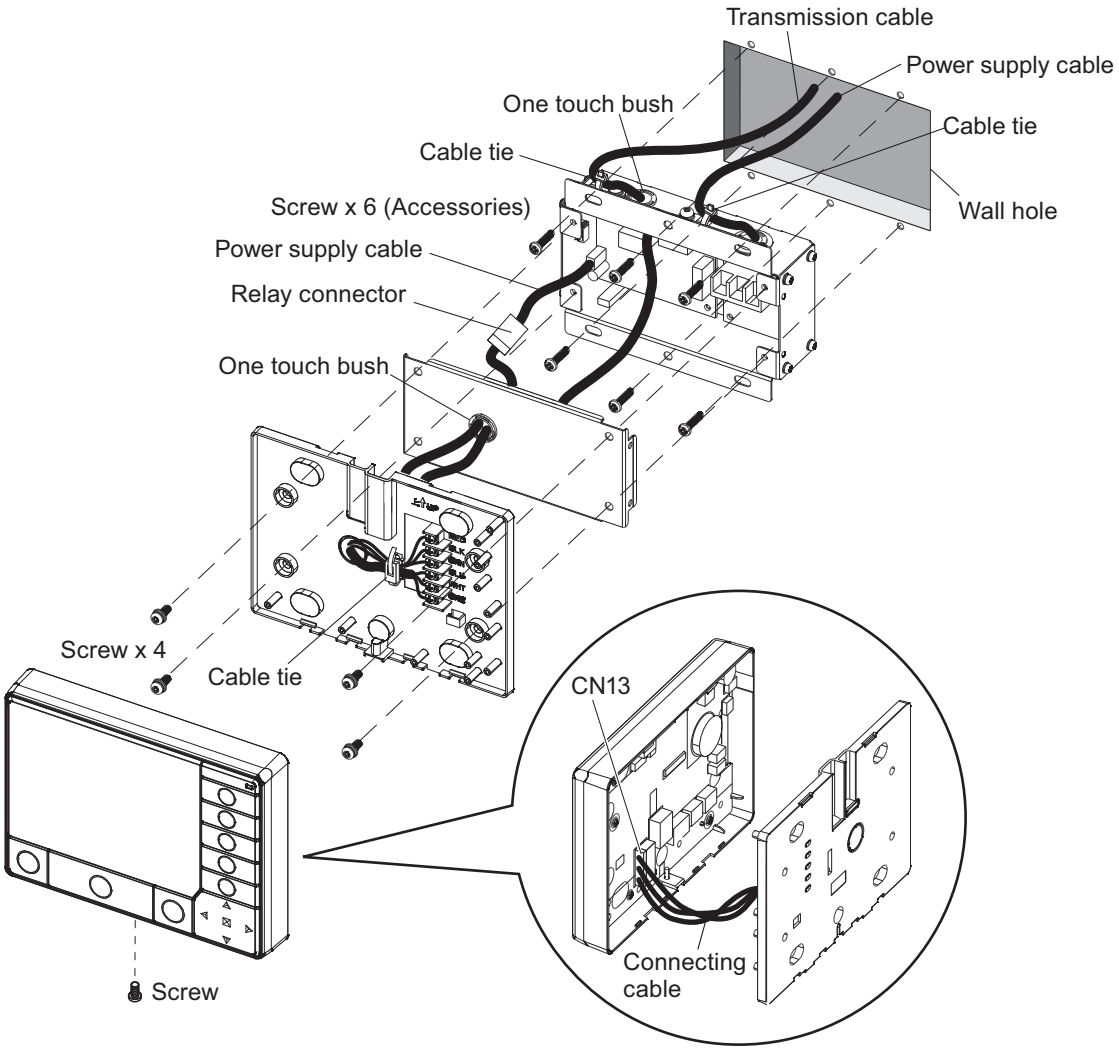
- **Separate type**



*When wiring the transmission cable in the upward direction of the front panel

CONTROL SYSTEM

- **Integrated type**
  For details, refer to the installation manual.



CONTROL SYSTEM

■ Specifications

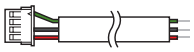
Power source voltage		V	1 Ø AC 100—240
Power source frequency		Hz	50/60
Input power		W	3
Display			5.0-inch TFT color LCD panel (QVCA)
LED indicator			Power LED (Green)
External interface			Transmission line
			External input: Either emergency stop, batch operation/stop, electricity meter (Either Dry contact or apply voltage can be selected.)
			External output: Operation state, error state
			Reset switch
Usage temperature range		°F (°C)	32 to 104 (0 to 40)
Usage humidity range		%	0 to 85 (no condensation)
Storage temperature range		°F (°C)	-4 to 158 (-20 to 70)
Storage humidity range		%	0 to 85 (no condensation)
Dimensions (H × W × D)	Control unit	in (mm)	4-3/4 × 6-3/8 × 1 (120 × 162 × 25.7)
	Power supply unit		3-7/8 × 5-5/16 × 1-9/16 (99 × 135 × 39.2)
Weight	Control unit	lb (g)	11 (308)
	Power supply unit		13 (355)
Fuse capacity		A	5

● Wiring specifications

Use	Cable size	Wire type	Remarks
Power supply cable	20—16 AWG (0.5—1.25 mm^2)	60245 IEC 57 or equivalent	1 Ø AC 100—240 V 50/60 Hz, 2-wire + ground (Always ground the unit)
Transmission cable	22 AWG (0.33 mm^2)	LEVEL4 (NEMA) non-polar 2-core, twisted pair solid core shielded	LonWorks compatible cable
External input/output cable	22 AWG (0.33 mm^2)	Polar 2-core, twisted pair	Use cable in accordance with local rules for cable.

■ Optional service part

Use the parts number shown below to order the cable from your representative.
Use the shield type connection cable in accordance with standard of your country.

Name and shape	Type	Parts No.
 Extension cable (5 m) Extension cable 16 ft (5 m)	Shielded	9708798011

CONTROL SYSTEM

2-5. Central remote controller (UTY-DCGYZ∗)



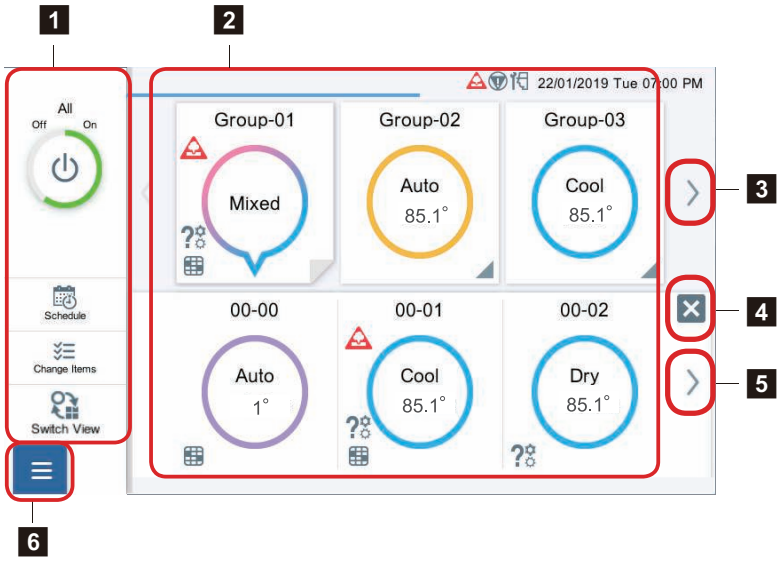
- Individual control and monitor of 100 indoor units
- 7-inch TFT color screen
- High visibility and easy operation
- External input/output contact
- Corresponds to 12 different languages. (English, Spanish, German, French, Italian, Russian, Portuguese, Turkish, Polish, Greek, Dutch, and Chinese)

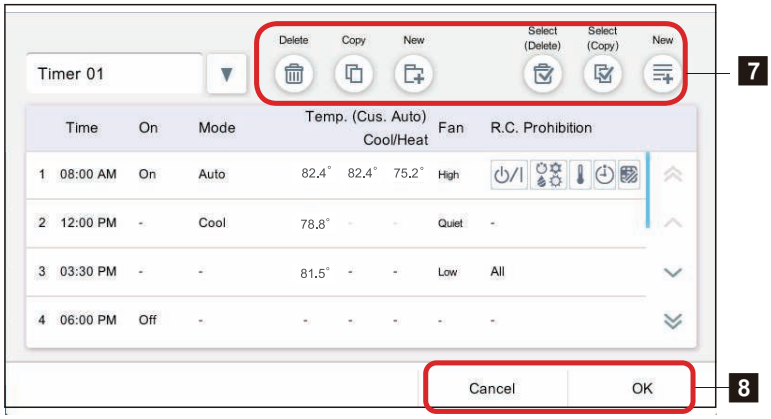
■ Accessory

Name and shape	Q'ty	Application
 Installation manual	1	
 Operating manual	1	
 Screw (M4 × 16 mm)	4	For installing
 Cable tie	4	For binding power supply cable and transmission cable

CONTROL SYSTEM

■ Overview





1 Left menu (Always display)

2 Group or R.C.G. button

3 Group scroll button

4 Group expansion cancel button

5 R.C.G. scroll button

6 Menu button

7 Icon

- Delete
  Deletes the currently displayed setting.
- Copy
  Copies the currently displayed setting.
- New
  Adds the new timer. However, when the number of settings reaches the upper limit, this button is disabled.
- Select (Delete)
  Deletes the selected line.
- Select (Copy)
  Copies the selected line.
- New
  Adds the new line. However, when the number of setting reaches upper limit, this button is disabled.

8 Button

- OK button
  Continues the appropriate process.
- Cancel button
  Cancels the process and closes the current screen.
- Reset button
  Returns the changed item to initial value.
- Close button
  Closes the current screen.
- End button
  Ends the process and closes the pop-up screen.

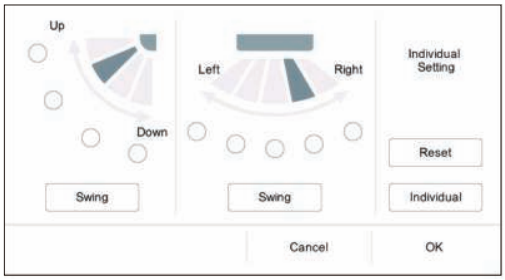
CONTROL SYSTEM

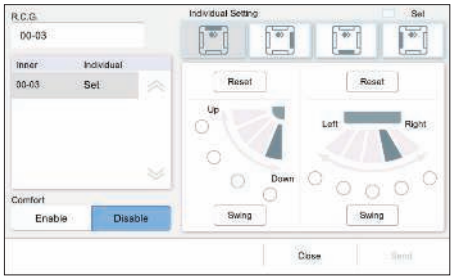
■ Main functions and screen examples

- **Individual control**
  On/Off, Mode, Set temp., Fan speed, Airflow direction, Anti freeze, Economy, and Human sensor.

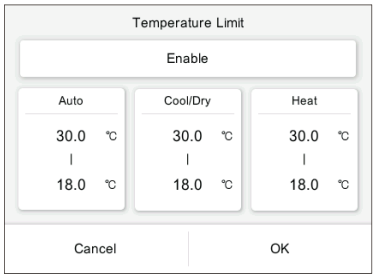


- **Vertical and Horizontal airflow direction setting**
  Vertical airflow direction, Horizontal airflow direction, and Individual airflow direction.

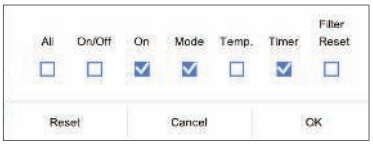




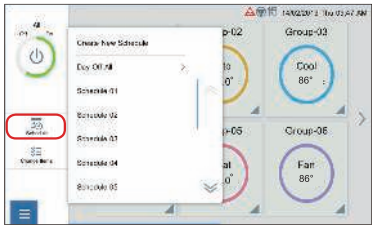
- **Room temperature upper and lower limitation setting**

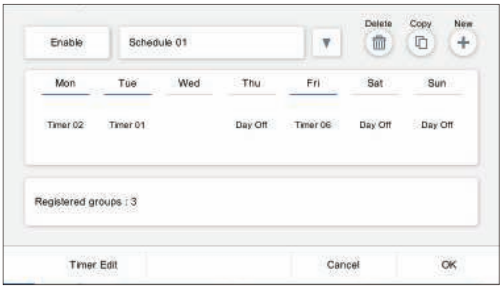


- **Remote controller prohibition**
  All, On/Off, Mode, Temp., Timer, and Filter.
  R.C prohibition setting prohibits individual remote control operation.



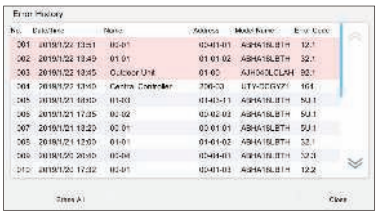
- **Schedule setting timer**





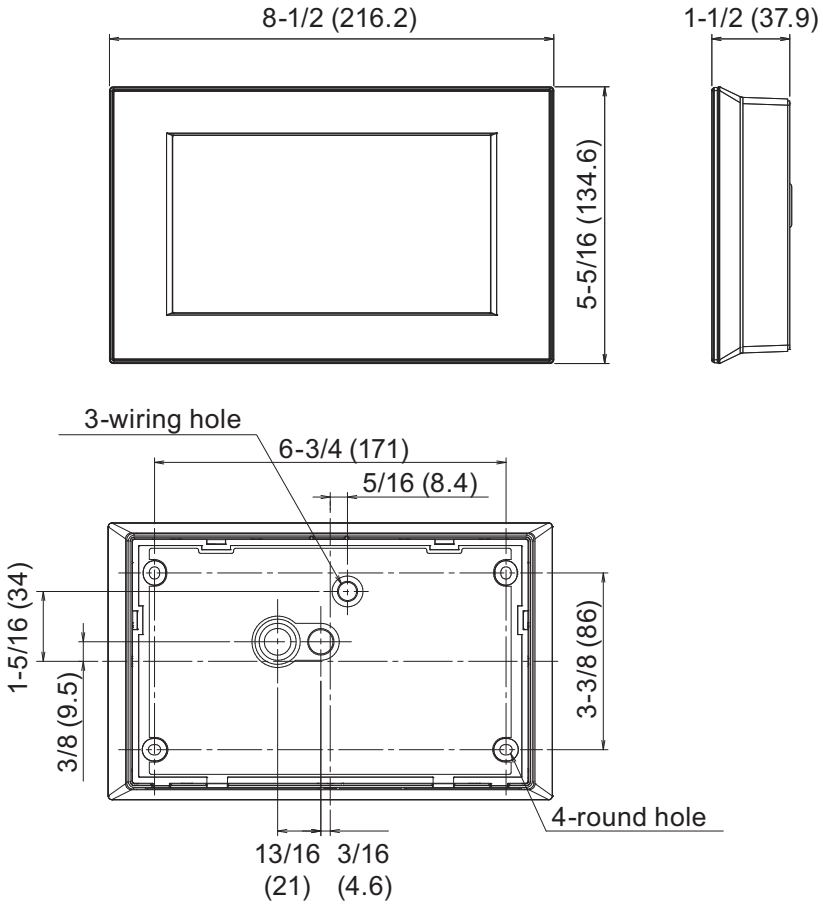
CONTROL SYSTEM

- **Error history**
  - Able to memorize max. 200 errors.
  - Suitable maintenance is possible by analysis of the error history data.



■ Dimensions

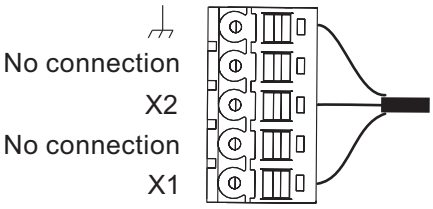
Unit: in (mm)



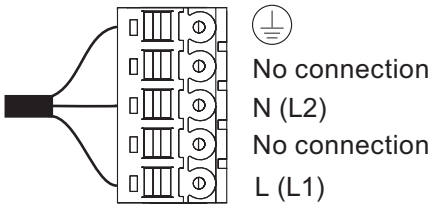
CONTROL SYSTEM

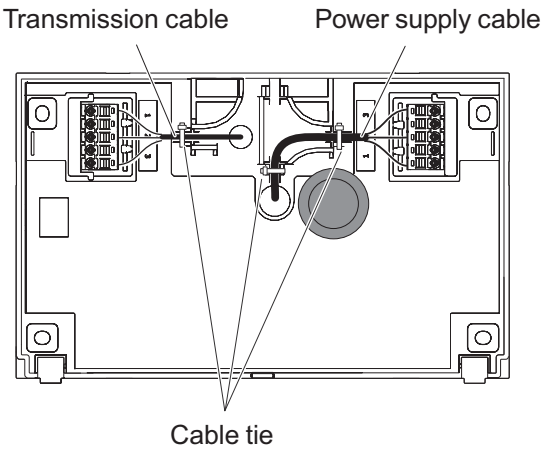
■ Terminal names

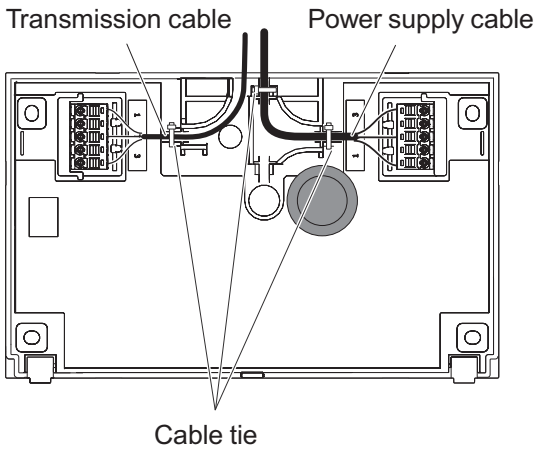
Transmission line terminal name



Power supply line terminal name



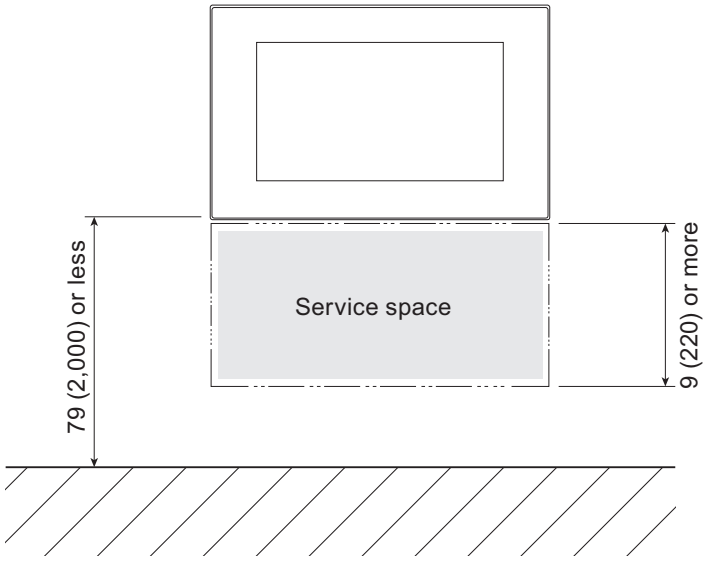




■ Installation space

Make a service space to perform installation work.

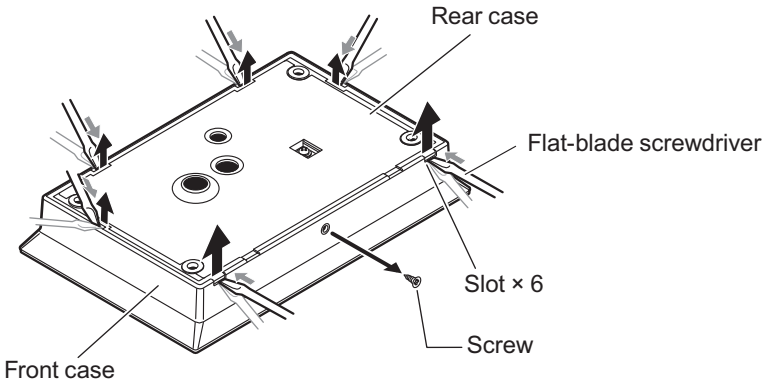
Unit: in (mm)

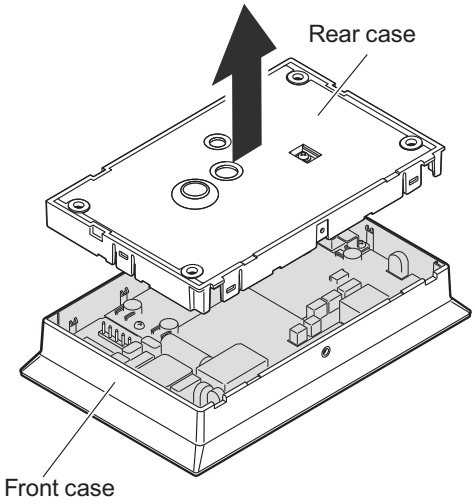


CONTROL SYSTEM

■ Installation

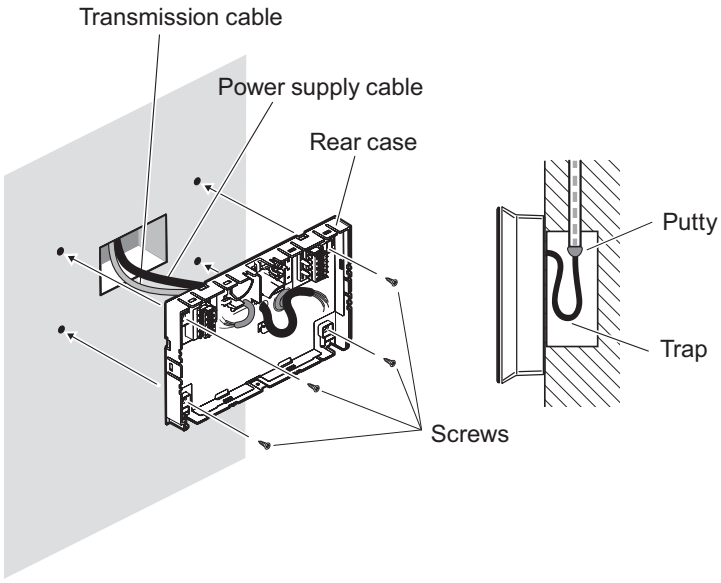
1. Separate the rear case from the front case.



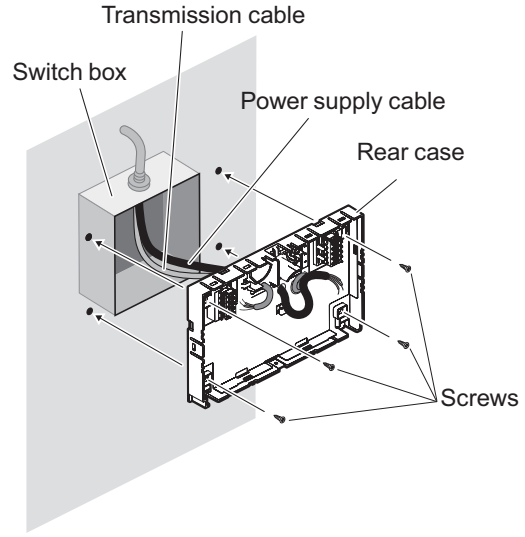


CONTROL SYSTEM

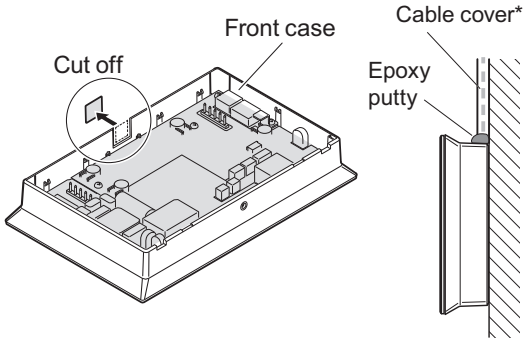
2. Install the rear case.
   - When cable is in the wall:



   - When cable is in the wall (switch box is used):



   - When cable is along the wall:



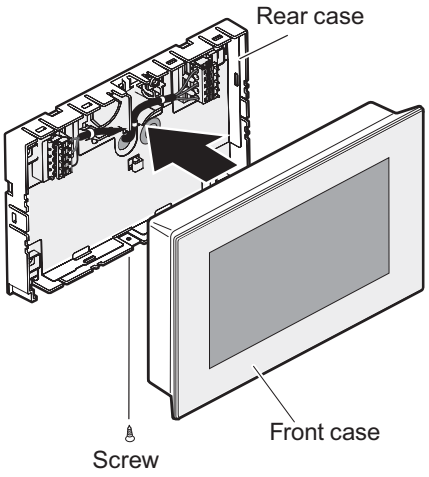
*: More than 1/16 in (1 mm) thick

NOTES:

- When central remote controller (UTY-DCGYZ∗) is installed at the wall directly, install at a flat wall so that small animals do not enter from the rear side.
- When central remote controller (UTY-DCGYZ∗) is installed at the wall directly, remove the rubber bush at the rear side.

CONTROL SYSTEM

3. Install the front case to the rear case.



NOTE: For details, refer to the installation manual of the central remote controller.

CONTROL SYSTEM

■ Specifications

Power source voltage	V	1 Ø AC 100—240
Power source frequency	Hz	50/60
Input power	W	7
Display		7.0-inch TFT color LCD panel (WVGA)
LED indicator		Power LED (Green)
External interface		Transmission line
		External input: Either emergency stop, batch operation/stop, electricity meter (Either Dry contact or apply voltage can be selected.)
		External output: Operation state, error state
		Wired LAN (100 BASE-TX)
Usage temperature range	°F (°C)	32 to 104 (0 to 40)
Usage humidity range	%	0 to 85 (no condensation)
Storage temperature range	°F (°C)	-4 to 158 (-20 to 70)
Storage humidity range	%	0 to 85 (no condensation)
Dimensions (H × W × D)	in (mm)	5-5/16 × 8-1/2 × 1-1/2 (134.6 × 216.2 × 37.9)
Weight	oz (g)	28.2 (800)
Fuse capacity	A	5

● Wiring specifications

Use	Cable size	Wire type	Remarks
Power supply cable (for stranded wire)	18—16 AWG (0.8—1.25 mm^2)	60245 IEC 57 or equivalent	1 Ø AC 100—240 V 50/60 Hz, 2-wire + ground (Always ground the unit)
Power supply cable (for solid wire)	18—14 AWG (0.8—2.0 mm^2)	—	1 Ø AC 100—240 V 50/60 Hz, 2-wire + ground (Always ground the unit)
Transmission cable	22 AWG (0.33 mm^2)	LEVEL4 (NEMA) non-polar 2-core, twisted pair solid core diameter 0.03 in (0.65 mm), shielded type	LonWorks compatible cable
External input/output cable	22 AWG (0.33 mm^2)	Polar 2-core, twisted pair Max cable length: 82 ft (25 m)	Use cable in accordance with local rules for cable.
LAN cable	—	Category 5 or more straight cable	100 BASE-TX support

CONTROL SYSTEM

2-6. Wired remote controller (Touch panel: UTY-RNRUZ∗)

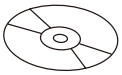


- Easy finger touch operation with LCD panel.
- Built-in Weekly/Daily time (On/Off, Temp., Mode)
- The backlit LCD enables easy operation in a dark room.
- Room temperature display
- Control up to 16 indoor units
- Corresponds to 12 different languages (English, Chinese*, French, German, Spanish, Russian, Polish, Italian, Portuguese, Greek*, Turkish, and Dutch*)

*: Following languages are not available for version 5 or later:

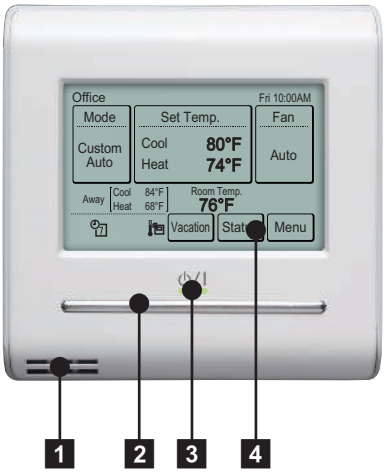
- Chinese
- Greek and Dutch (North America only)

■ Accessory

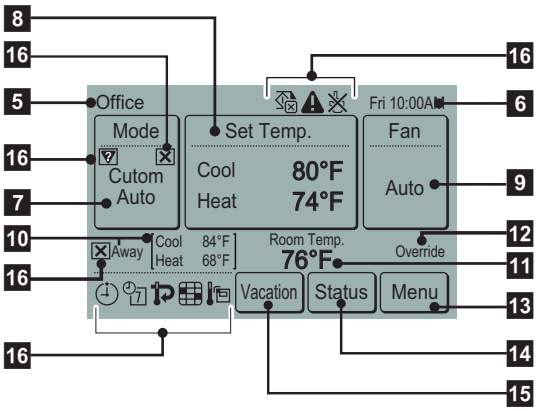
Name and shape	Q'ty	Application
 CD-ROM	1	
 Screw	2	For installing the remote controller
 Cable tie	1	For remote controller and remote controller cable binding
 Installation manual	1	
 Operation manual	1	

CONTROL SYSTEM

■ Overview



Display panel



1 **Remote temperature sensor (inside)**

2 **On/off button**

Operable only while displaying the “Monitor mode” screen.

3 **LED lamp (operation indicator)**

4 **Touch panel display**

5 **Remote controller group name**

6 **Clock**

7 **Mode**

8 **Set temperature**

9 **Fan**

10 **Away**

11 **Room temperature**

12 **Override**

13 **Menu**

Various settings can be set.

14 **Status**

Status of the indoor unit and error can be checked.

15 **Vacation**

When this is touched, the schedule is disabled and the indoor unit remains unoccupied.

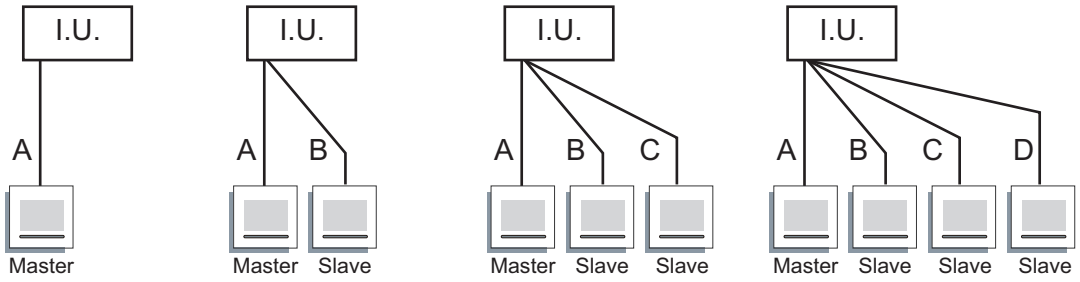
16 **Status icons**

NOTE: Functions may differ by type of the indoor unit. For details, refer to the operation manual.

CONTROL SYSTEM

■ System diagrams

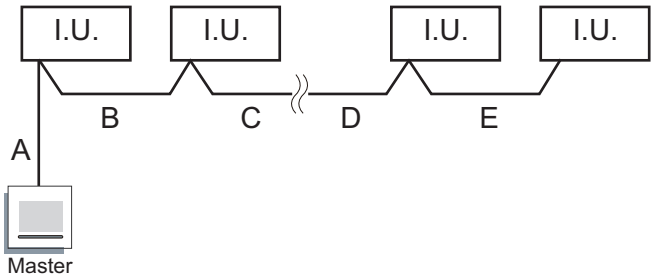
- **Multiple remote control**
  Up to 4 remote controllers can be used to operate the indoor units.



A, B, C, D: Remote controller cable (For details of controller cable specifications, refer to "Controller cable" in Chapter 6. SYSTEM DESIGN on page 06-62.)
A ≤ 1,640 ft (500 m), A + B ≤ 1,640 ft (500 m), A + B + C ≤ 1,640 ft (500 m), A + B + C + D ≤ 1,640 ft (500 m)

NOTE: Multiple installation method described above is prohibited to combine with 3-wired type remote controller (UTY-RNKU, UTY-RSKU, or UTY-RHKU) and 2-wired type remote controller (UTY-RNRUZ∗)

- **Group control**
  With a single remote controller, up to 16 indoor units can be simultaneously operated.

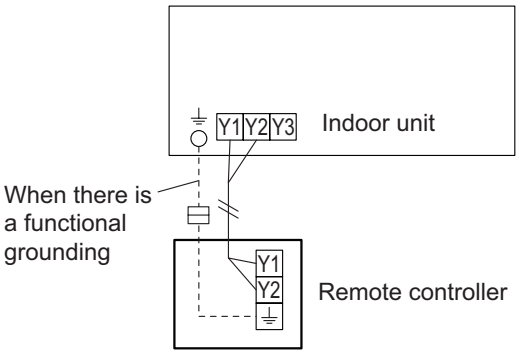


A, B, C, D, E: Remote controller cable (For details of controller cable specifications, refer to "Controller cable" in Chapter 6. SYSTEM DESIGN on page 06-62.)
A + B + C + D + E ≤ 1,640 ft (500 m)

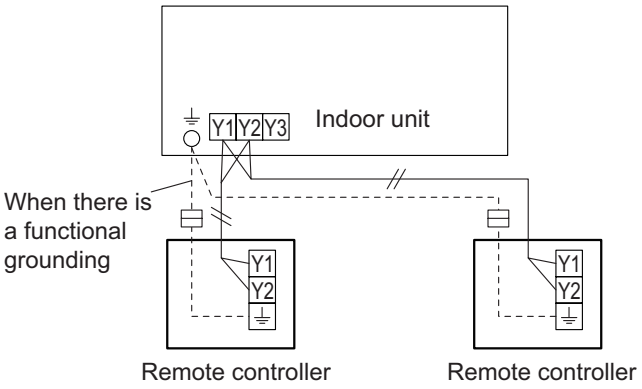
CONTROL SYSTEM

■ Electrical wiring

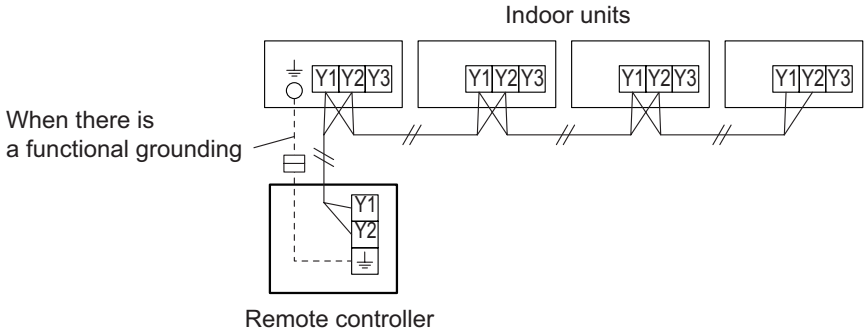
1 remote controller:



2 remote controllers:



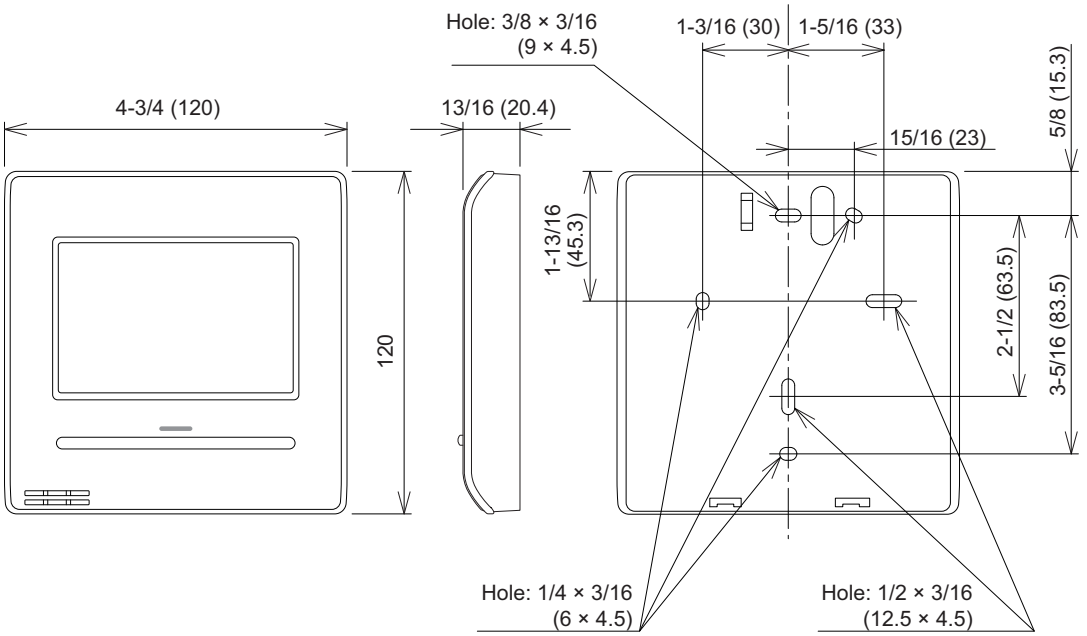
Group control:



CONTROL SYSTEM

■ Dimensions

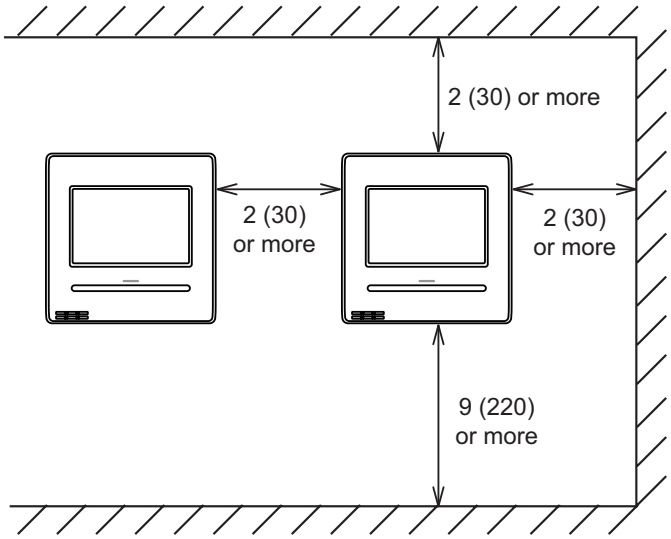
Unit: in (mm)



■ Installation space

- This product cannot be installed in wall.
- Recommendation installation height of the remote controller is 1.4 m55 in (1.4 m) from the floor surface to the bottom of the remote controller.
- Even when you install a remote controller to one of a switch box and the surface of a wall, secure the space shown in following figure. If spaces run short, it will become difficult to remove a remote controller.

Unit: in (mm)



Secure enough space where a flat-blade screwdriver to take off a case can be inserted.

CONTROL SYSTEM

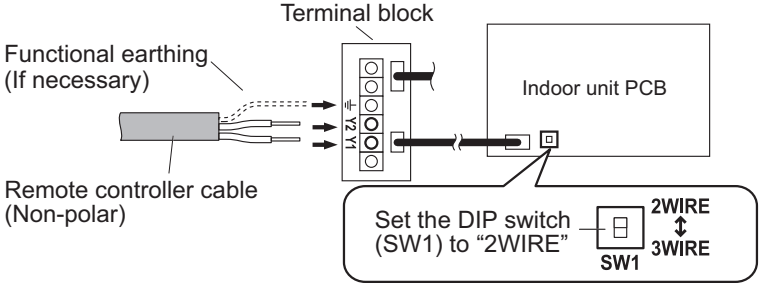
■ Installation

- **Connection pattern**

NOTE: Connection pattern is different according to type of Indoor unit.

Indoor unit type	Connection pattern
All cassette type	Pattern A
All duct type	
All floor type	
Floor/Ceiling type	
All ceiling type	
All wall mounted type	Pattern B

- **Pattern A**
  1. Connect the end of remote controller cable directly to the exclusive terminal block.
  2. Set the DIP switch (SW1) to “2WIRE” on the PCB of the indoor unit.

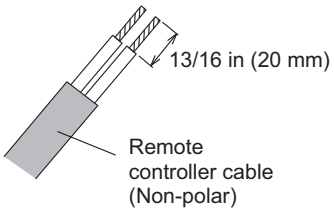


NOTES:

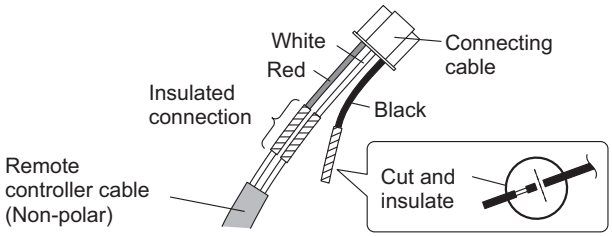
- Layout of terminal block and PCB is varies depending on the type of indoor unit.
- Operation may fail if it is connected to the outdoor unit or the terminal block for power supply.

- **Pattern B**

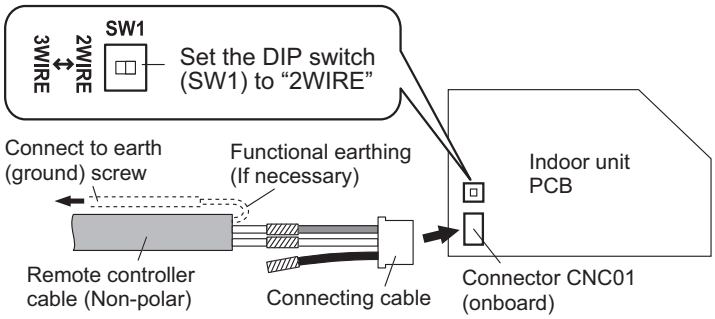
1. Use a tool to cut off the terminal on the end of the remote controller cable, and then remove the insulation from the cut end of the cable as shown below.



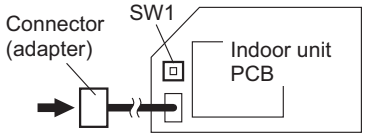
2. Connect the remote controller cable and connecting cable as shown below. Be sure to insulate the connection between the cables.



3. Connect the remote controller cable to the connecting cable, and insert it to the connector. Set the DIP switch (SW1) to “2WIRE” on the PCB of the indoor unit.



NOTE: Layout of terminal block and PCB is varies depending on the type of indoor unit.



CONTROL SYSTEM

■ Specifications

Input voltage	V	DC 12
Power consumption	W	Max. 0.3
Display		3.8-inch FSTN LCD (255 × 160 dots) with touch panel
Usage temperature range	°F (°C)	32 to 104 (0 to 40)
Usage humidity range	%	20 to 90 (no condensation)
Storage temperature range	°F (°C)	14 to 140 (-10 to 60)
Storage humidity range	%	20 to 90 (no condensation)
Dimensions (H × W × D)	in (mm)	4-3/4 × 4-3/4 × 11/16 (120 × 120 × 20.4)
Weight	oz (g)	8 (220)

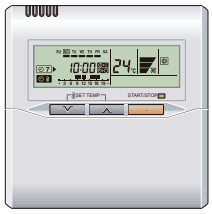
● Wiring specifications

Use	Cable size	Wire type	Remarks
Remote controller cable	22 to 16 AWG (0.33 to 1.25 mm^2)	Non polar 2-core	Use sheathed twist pair cable.*
	18 AWG	Thermostat cable 2-core	Use sheathed non twist pair cable.

*: Use shielded cable (locally purchased) in accordance with the regional cable standard.

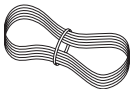
CONTROL SYSTEM

2-7. Wired remote controller (UTY-RNKU)



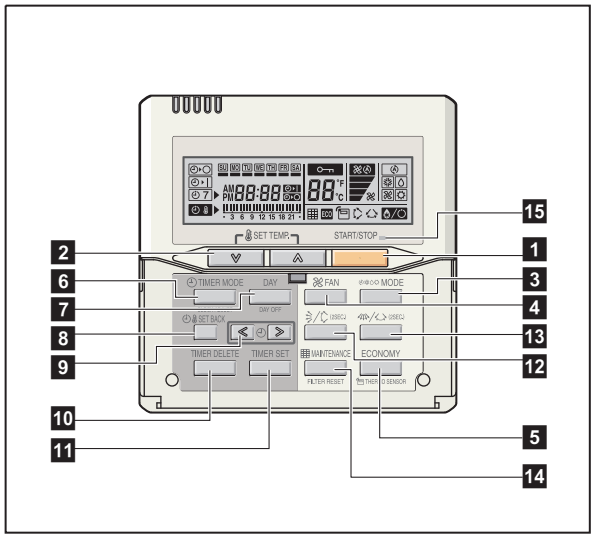
- Various time setup available (ON/OFF/WEEKLY)
- Equipped with weekly timer as standard function (Start/Stop function is twice per day for a week.)
- When setting up a time, start/stop, and the temperature setup can be changed.
- When a failure occurs, the error code is displayed.
- Error history (Last 16 error code can be accessed.)
- Up to 16 indoor units can be simultaneously controlled.
- The room temperature can be controlled by detecting the temperature accurately with built-in thermo sensor.

■ Accessory

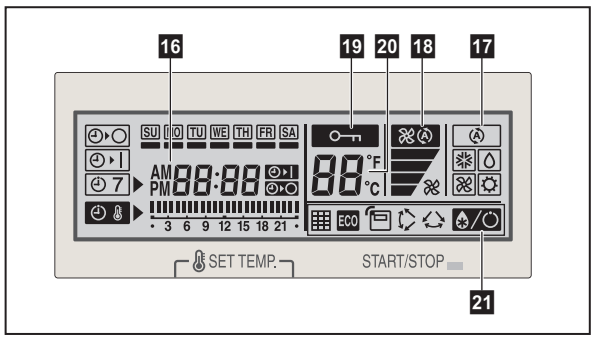
Name and shape	Q'ty	Application
 Remote controller cable	33 ft (10 m)	For connecting the remote controller
 Screw	2	For installing the remote controller
 Cable tie	1	For remote controller and remote controller cable binding
 Installation manual	1	
 Operation manual	1	

CONTROL SYSTEM

■ Overview



Display panel



NOTE: Functions may differ by type of the indoor unit. For details, refer to the operation manual.

1 START/STOP button
Starts and stops operation.

2 SET TEMP. button
Selects the setting temperature.

3 MODE button
Selects the operating mode (AUTO, HEAT, FAN, COOL, and DRY).

4 FAN button
Selects the fan speed AUTO, LOW, MED, and HIGH).

5 ECONOMY (THERMO SENSOR) button
Turns the economy-efficient mode on and off.

6 TIMER MODE (CLOCK ADJUST) button
Selects the timer mode (off timer, on timer, and weekly timer). Sets the current time.

7 DAY (DAY OFF) button
Temporarily cancels one day timer.

8 SET BACK button
Selects the set back timer.

9 Set time button
Pressed to set time.

10 TIMER DELETE button
Deletes the weekly timer schedule.

11 TIMER SET button
Sets the date, hour, minute, and on-off time.

12 Vertical airflow direction and swing button
Push for 2 seconds to change the swing mode.

13 Horizontal airflow direction and swing button
Push for 2 seconds to change the swing mode.

14 FILTER RESET button

15 Operation lamp
Lights during operation and when the timer is on.

16 Timer and clock indicator

17 Operation mode indicator

18 Fan speed indicator

19 Operation lock indicator

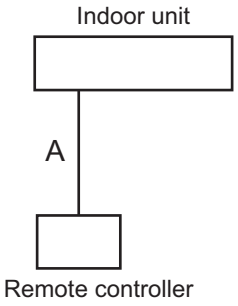
20 Temperature indicator

21 Function indicators
- Defrost indicator
- Thermo sensor indicator
- ECO Economy indicator
- Vertical swing indicator
- Horizontal swing indicator
- Filter indicator

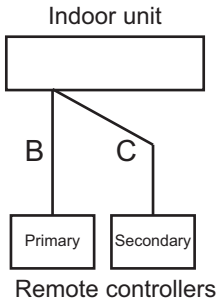
CONTROL SYSTEM

■ System diagram

1 remote controller:



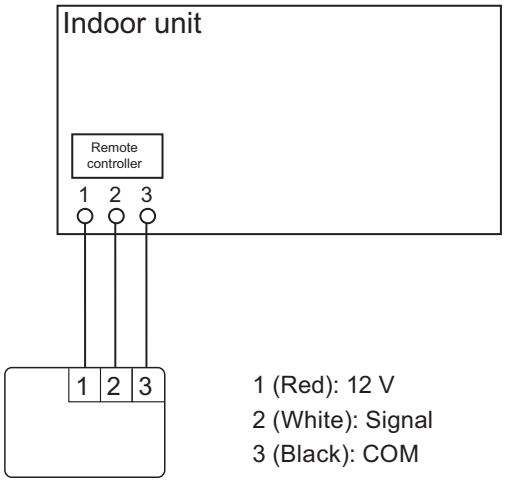
2 remote controllers:



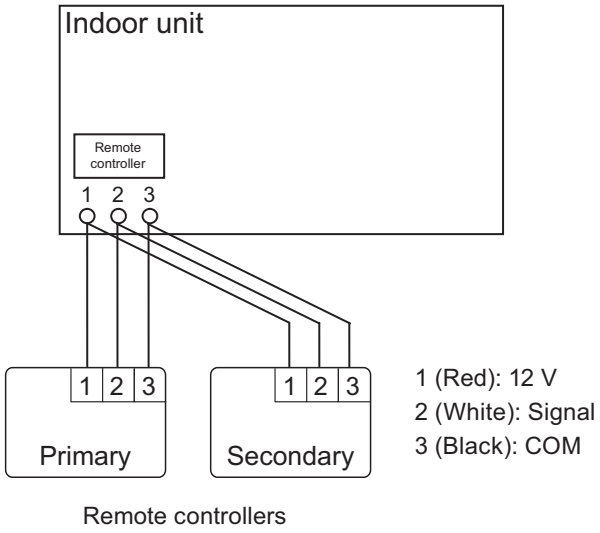
A, B, C: Remote controller cable
A ≤ 1,640 ft (500 m);B + C ≤ 1,640 ft (500 m)

■ Electrical wiring

1 remote controller:

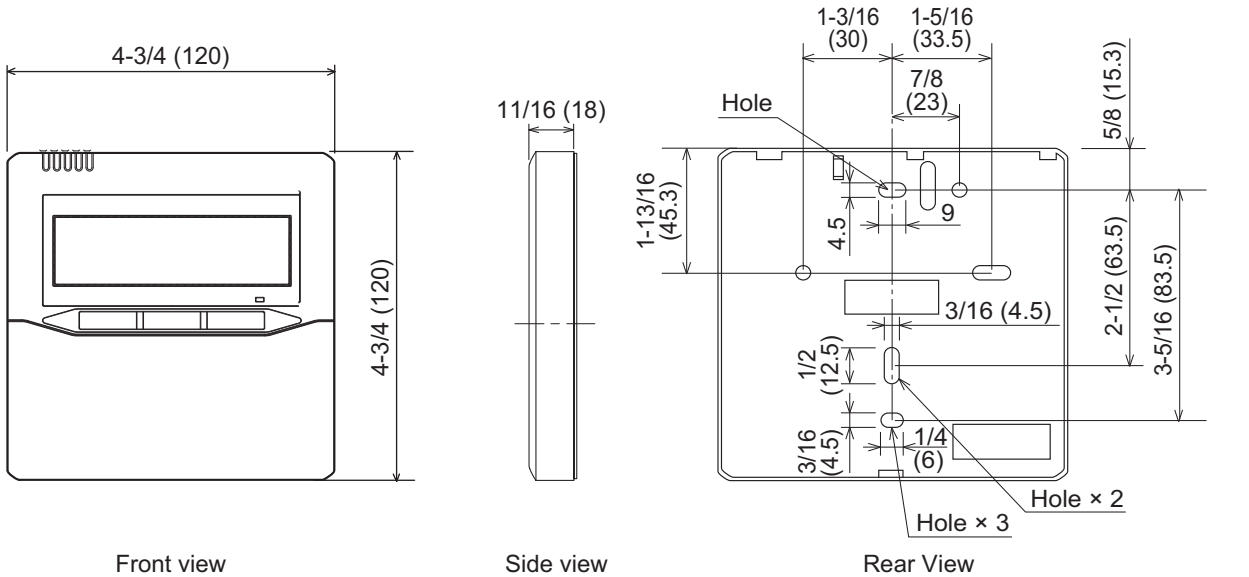


2 remote controllers:



■ Dimensions

Unit: in (mm)



CONTROL SYSTEM

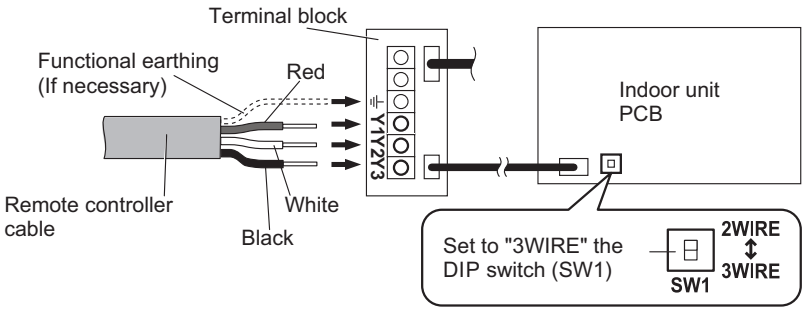
■ Installation

- **Connection pattern**

NOTE: Connection pattern is different according to type of Indoor unit.

Indoor unit type	Connection pattern
All cassette type	Pattern A
All duct type	
All floor type	
Floor/Ceiling type	
All ceiling type	
All wall mounted type	Pattern B

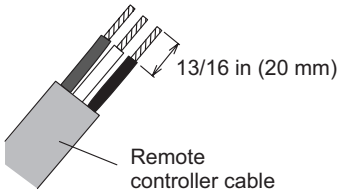
- **Pattern A**
  1. Connect the end of remote controller cable directly to the exclusive terminal block.
  2. Set the DIP switch (SW1) to “3WIRE” on the PCB of the indoor unit.



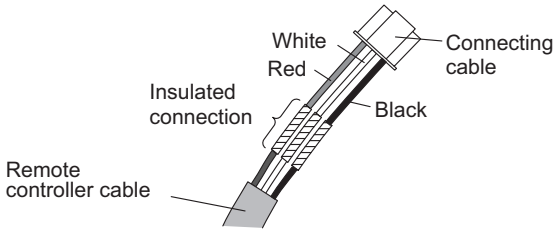
NOTES:
- Layout of terminal block and PCB is varies depending on the type of indoor unit.
- Operation may fail if it is connected to the outdoor unit or the terminal block for power supply.

CONTROL SYSTEM

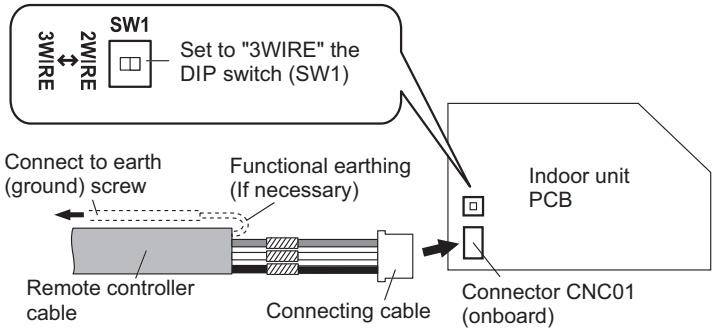
- **Pattern B**
  1. Use a tool to cut off the terminal on the end of the remote controller cable, and then remove the insulation from the cut end of the cable as shown below.



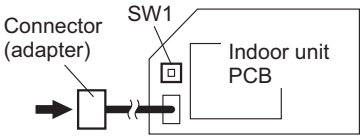
  2. Connect the remote controller cable and connecting cable as shown below. Be sure to insulate the connection between the cables.



  3. Connect the remote controller cable to the connecting cable, and insert it to the connector. Set the DIP switch (SW1) to “3WIRE” on the PCB of the indoor unit.



NOTE: Layout of terminal block and PCB is varies depending on the type of indoor unit.



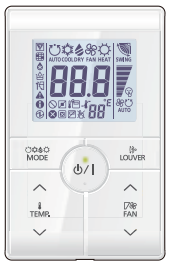
■ Specifications

Dimensions (H × W × D)	in (mm)	4-3/4 × 4-3/4 × 11/16 (120 × 120 × 18)
Weight	oz (g)	6 (160)

● Wiring specifications

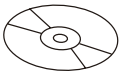
Use	Cable size	Wire type	Remarks
Remote controller cable	22 AWG (0.33 mm^2)	Polar 3-core	Use sheathed PVC cable.

2-8. Simple remote controller (With operation mode: UTY-RSRY)



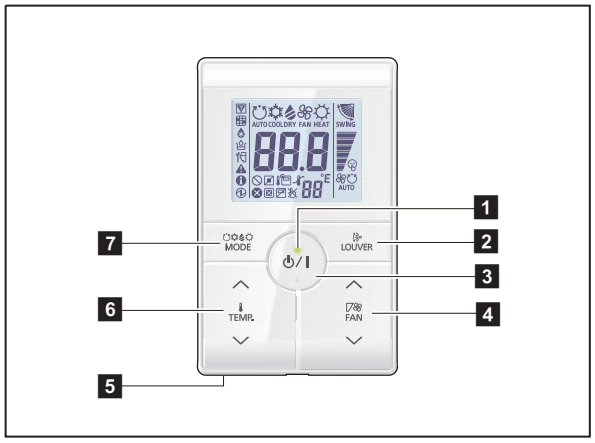
- Easy operation
- Stylish design
- Large LCD screen and simple operation buttons
- Built-in background light function
- Easy installation with a slim shape with no bulge in the back.
- Up to 16 indoor units can be simultaneously controlled.
- Can be installed onto SW-BOX. (applies European and other country's standard)

■ Accessory

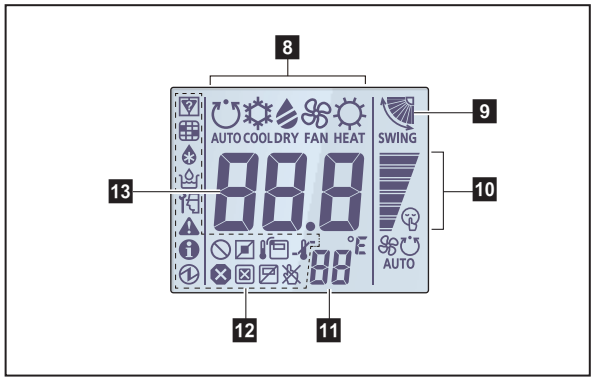
Name and shape	Q'ty	Application
 CD-ROM	1	
 Screw	2	For installing the remote controller
 Cable tie	1	For remote controller and remote controller cable binding
 Installation manual	1	
 Operation manual	1	

CONTROL SYSTEM

■ Overview



Display panel



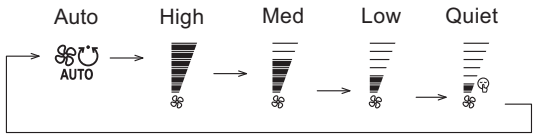
*1: Not available for a heat pump model unless it is set up as an administrative indoor unit.
*2: Not available for a heat pump model.
*3: Not available for a cooling-only model.
*4: Set the function setting of the indoor unit accordingly.
*5: During address display mode.

1 LED lamp
Lights during operation.

2 Louver button
Adjusts the airflow direction.

3 START/STOP button
Starts and stops operation.

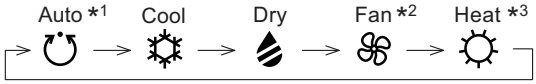
4 FAN control button
Switches the fan speed as follows:



5 Room temperature sensor (inside)
Senses ambient temperature of unit.

6 Set temperature button
Selects the setting temperature.
64.4—86 °F (18—30 °C) [COOL], 50—86 °F (10—30 °C) [HEAT]

7 Operation mode button
Switches the operation mode as follows:



8 Operating mode indicator

9 Airflow direction indicator

10 FAN speed indicator

11 Remote controller address indicator

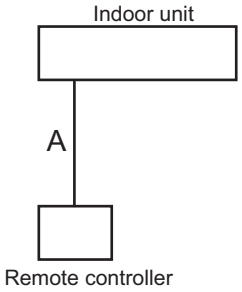
12 Status icons
- Mode mismatch
- Filter sign *4
- Defrost operation
- Oil recovery operation
- Under maintenance
- Error
- Special state
- Conducting electricity
- Emergency stop
- Operation controlled
- Forced stop
- Remote controller sensor is enabled *4
- Central controlled
- Setting temperature range is enabled
- Operation prohibited

13 Set temperature
Indicates indoor unit address. *5

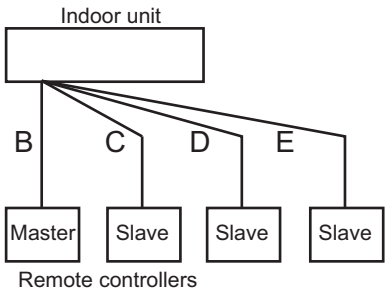
CONTROL SYSTEM

■ System diagrams

- **1 remote controller**



- **4 remote controllers**



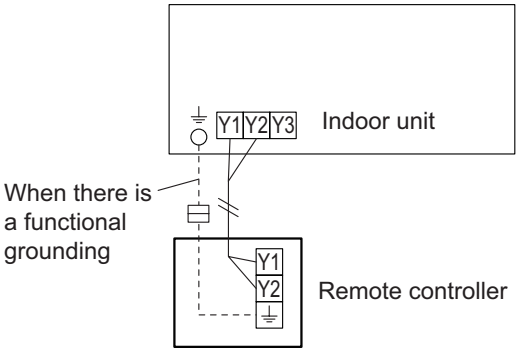
NOTES:

- A, B, C, D, E: Remote controller cable (For details of controller cable specifications, refer to "Controller cable" in Chapter 6. SYSTEM DESIGN on page 06-62.)
- A ≤ 1,640 ft (500 m), B + C + D + E ≤ 1,640 ft (500 m)

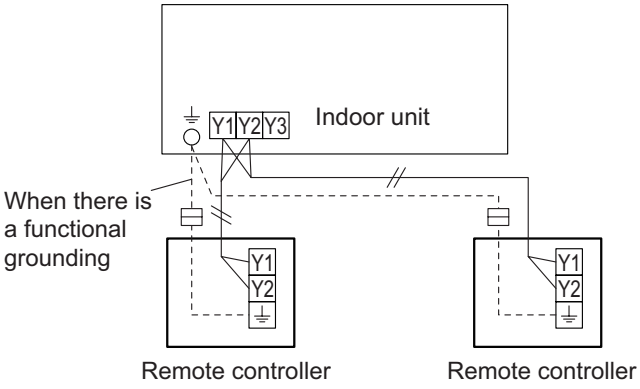
CONTROL SYSTEM

■ Electrical wiring

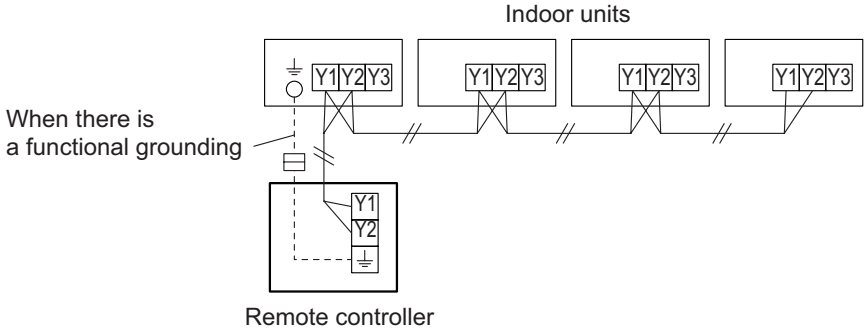
1 remote controller:



2 remote controllers:

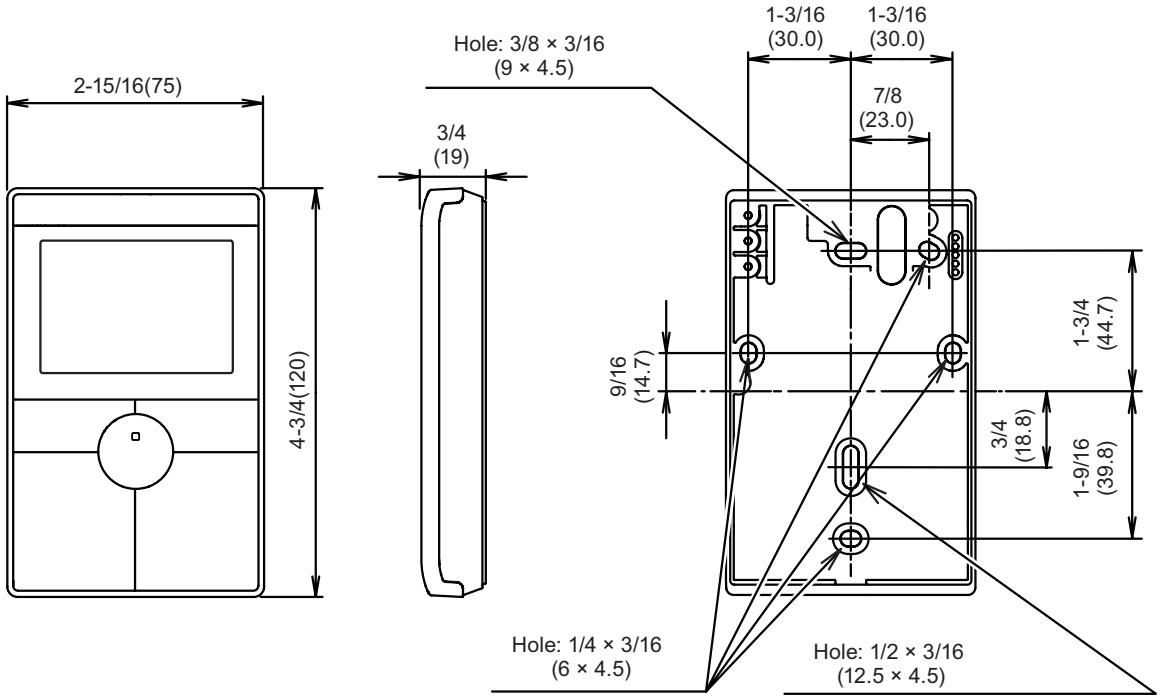


Group control:



■ Dimensions

Unit: in (mm)



Front View Side View Rear View

CONTROL SYSTEM

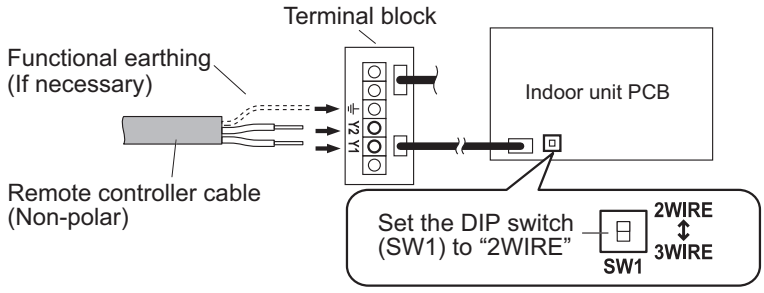
■ Installation

- **Connection pattern**

NOTE: Connection pattern is different according to type of Indoor unit.

Indoor unit type	Connection pattern
All cassette type	Pattern A
All duct type	
All floor type	
Floor/Ceiling type	
All ceiling type	
All wall mounted type	Pattern B

- **Pattern A**
  1. Connect the end of remote controller cable directly to the exclusive terminal block.
  2. Set the DIP switch (SW1) to “2WIRE” on the PCB of the indoor unit.

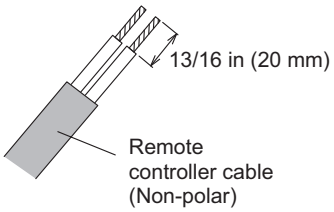


NOTES:

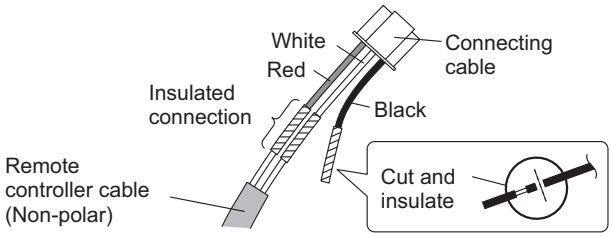
- Layout of terminal block and PCB is varies depending on the type of indoor unit.
- Operation may fail if it is connected to the outdoor unit or the terminal block for power supply.

- **Pattern B**

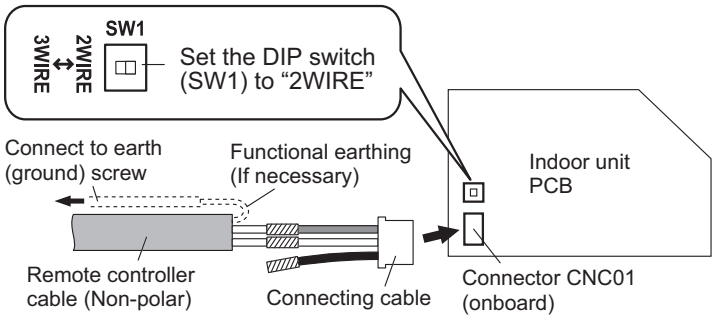
1. Use a tool to cut off the terminal on the end of the remote controller cable, and then remove the insulation from the cut end of the cable as shown below.



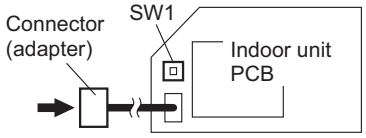
2. Connect the remote controller cable and connecting cable as shown below. Be sure to insulate the connection between the cables.



3. Connect the remote controller cable to the connecting cable, and insert it to the connector. Set the DIP switch (SW1) to “2WIRE” on the PCB of the indoor unit.



NOTE: Layout of terminal block and PCB is varies depending on the type of indoor unit.



■ Specifications

Dimensions (H × W × D)	in (mm)	4-3/4 × 2-15/16 × 3/4 (120 × 75 × 19)
Weight	oz (g)	4 (120)

● Wiring specifications

Use	Cable size	Cable type	Remarks
Remote controller cable	22 to 16 AWG (0.33 to 1.25 mm^2)	Sheathed cable	Non polar 2-core, Twisted pair
		Shielded cable*	

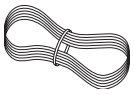
*: Use shielded cable in accordance with local rules for remote controller cable.

2-9. Simple remote controller (With operation mode: UTY-RSKU)



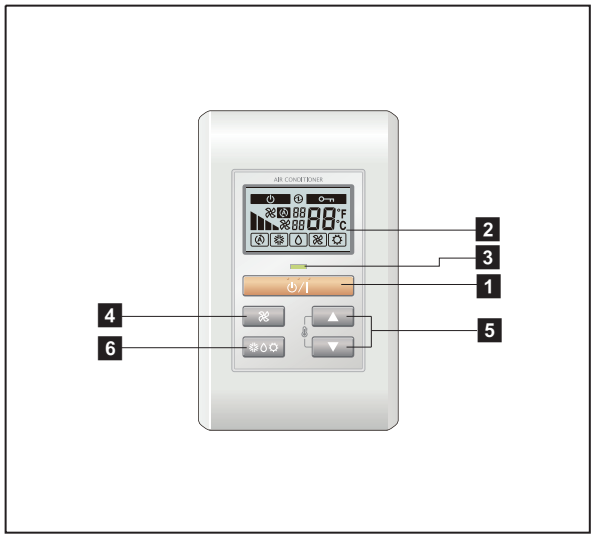
- Easy operation
- Built-in background light function
- Easy installation with a slim shape with no bulge in the back.
- Error history (Last 16 error codes can be accessed.)
- Up to 16 indoor units can be simultaneously controlled.
- Can be installed onto SW-BOX. (applies European and other country's standard)

■ Accessory

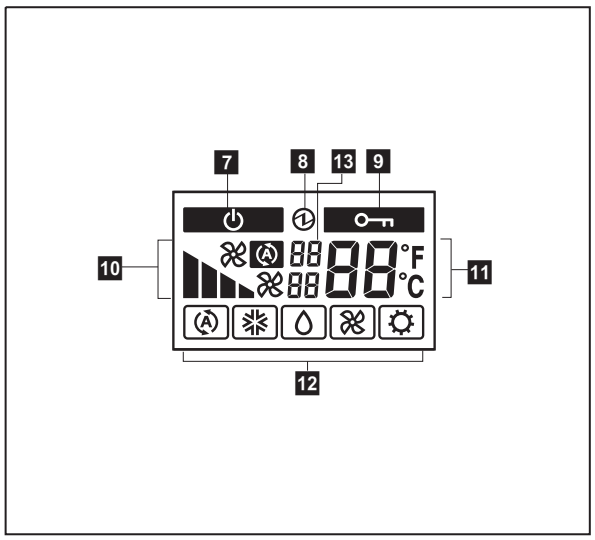
Name and shape	Q'ty	Application
 Remote controller cable	33 ft (10 m)	For connecting the remote controller
 Screw	2	For installing the remote controller
 Cable tie	1	For remote controller and remote controller cable binding
 Installation manual	1	
 Operation manual	1	

CONTROL SYSTEM

■ Overview



Display panel



1 START/STOP button

Starts and stops operation.

2 Display backlight button

Lights during operation.

3 Operation lamp

Lights during operation.

4 FAN button

Selects the fan speed (AUTO, MED, LOW, and QUIET).

5 SET TEMP. button

Selects the setting temperature.

6 MODE button

Selects the operating mode (AUTO, COOL, DRY, FAN, HEAT).

7 Standby indicator

Indicates during the oil recovery and defrosting operation.

8 Power source indicator

Indicates the main power is on.

9 Central control indicator

Indicates when function is locked.

10 Fan speed indicator

Deletes the weekly timer schedule.

11 Set temperature

- Indicates error history number in error code history display mode.
- Indicates indoor unit address in address display mode.

12 Operating mode indicator

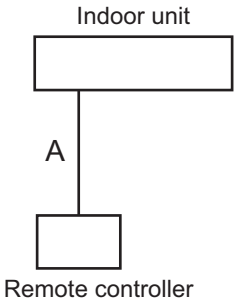
13 Indicator

- Upper:
  - Indicates the error code in error code history display mode and in self diagnosis mode.
  - Indicates the refrigerant system address in address display mode.
- Lower: Indicates the remote controller address in error code history display mode, address display mode, and self diagnosis mode.

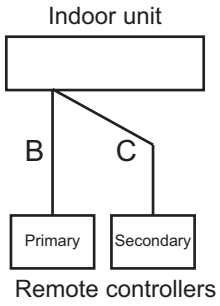
CONTROL SYSTEM

■ System diagram

1 remote controller:



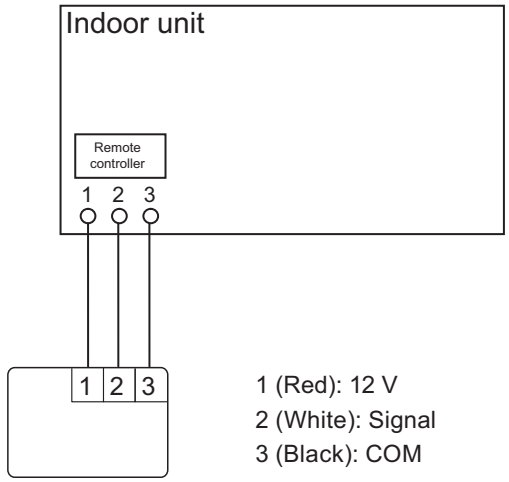
2 remote controllers:



A, B, C: Remote controller cable
A ≤ 1,640 ft (500 m);B + C ≤ 1,640 ft (500 m)

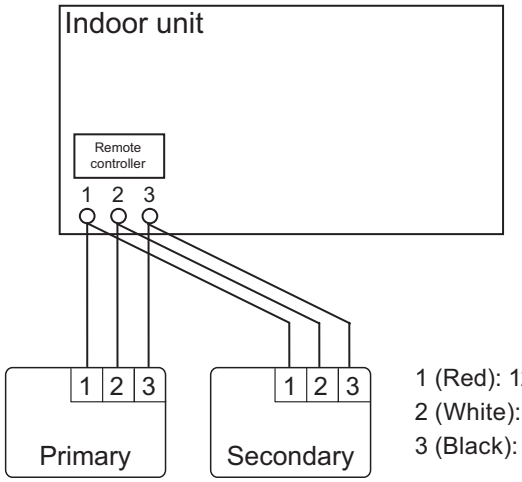
■ Electrical wiring

1 remote controller:



1 (Red): 12 V
2 (White): Signal
3 (Black): COM

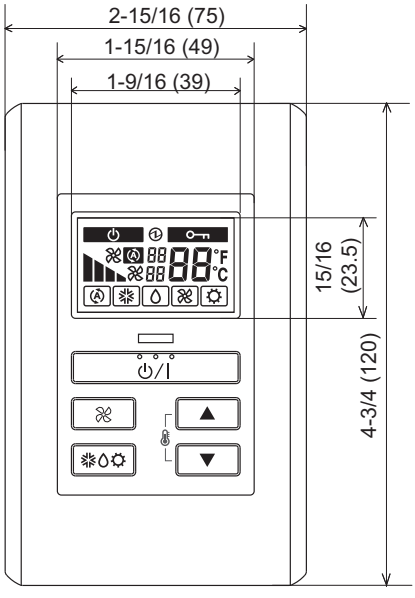
2 remote controllers:

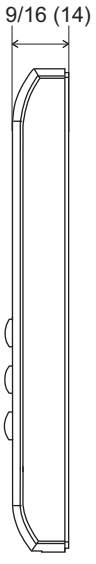


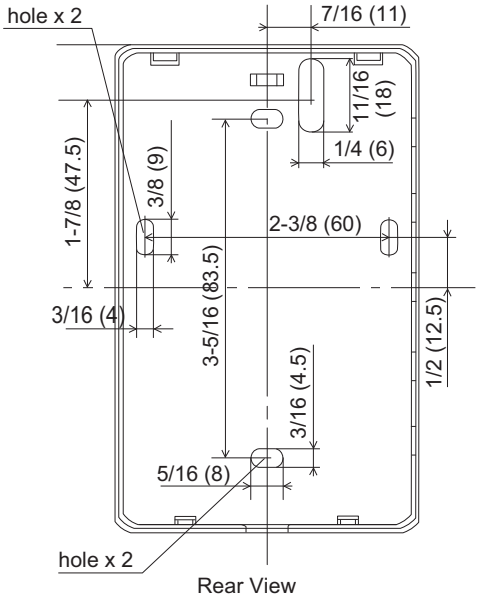
1 (Red): 12 V
2 (White): Signal
3 (Black): COM

■ Dimensions

Unit: in (mm)







CONTROL SYSTEM

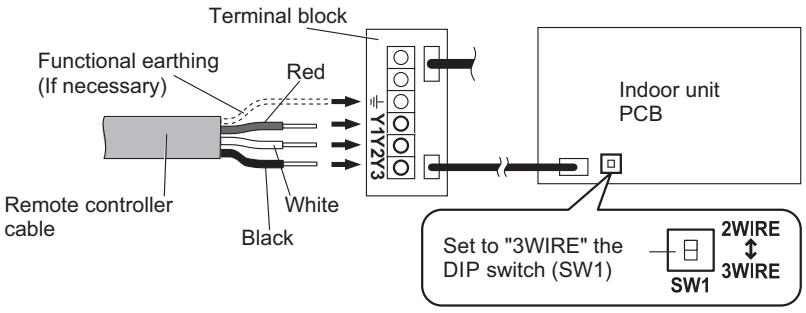
■ Installation

- **Connection pattern**

NOTE: Connection pattern is different according to type of Indoor unit.

Indoor unit type	Connection pattern
All cassette type	Pattern A
All duct type	
All floor type	
Floor/Ceiling type	
All ceiling type	
All wall mounted type	Pattern B

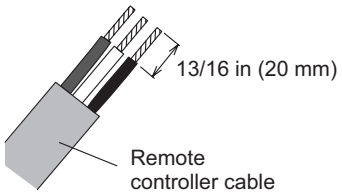
- **Pattern A**
  1. Connect the end of remote controller cable directly to the exclusive terminal block.
  2. Set the DIP switch (SW1) to “3WIRE” on the PCB of the indoor unit.



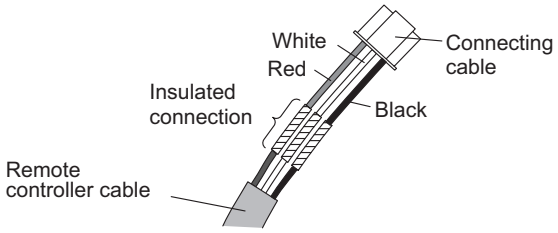
NOTES:
- Layout of terminal block and PCB is varies depending on the type of indoor unit.
- Operation may fail if it is connected to the outdoor unit or the terminal block for power supply.

CONTROL SYSTEM

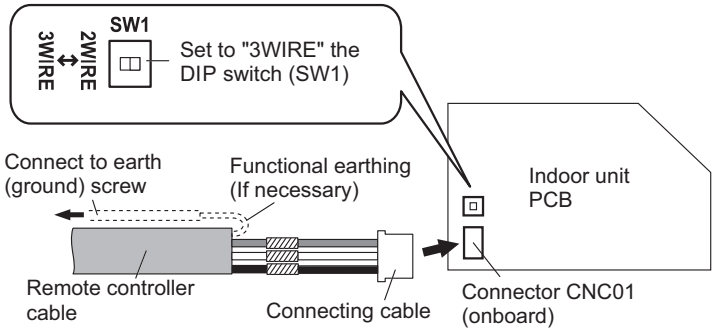
- **Pattern B**
  1. Use a tool to cut off the terminal on the end of the remote controller cable, and then remove the insulation from the cut end of the cable as shown below.



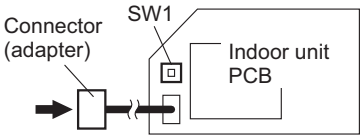
  2. Connect the remote controller cable and connecting cable as shown below. Be sure to insulate the connection between the cables.



  3. Connect the remote controller cable to the connecting cable, and insert it to the connector. Set the DIP switch (SW1) to “3WIRE” on the PCB of the indoor unit.



NOTE: Layout of terminal block and PCB is varies depending on the type of indoor unit.



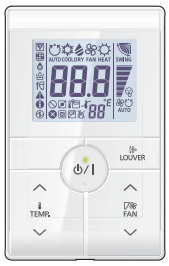
■ Specifications

Dimensions (H × W × D)	in (mm)	4-3/4 × 2-15/16 × 9/16 (120 × 75 × 14)
Weight	oz (g)	3 (90)

● Wiring specifications

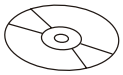
Use	Cable size	Wire type	Remarks
Remote controller cable	22 AWG (0.33 mm^2)	Polar 3-core	Use sheathed PVC cable.

2-10. Simple remote controller (Without operation mode: UTY-RHRY)



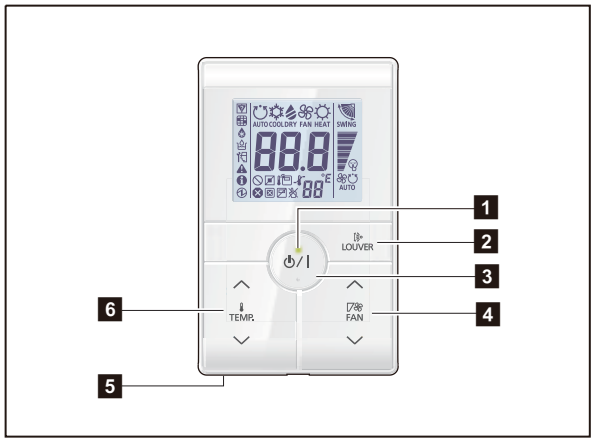
- Easy operation
- Stylish design
- Large LCD screen and simple operation buttons
- Built-in background light function
- Easy installation with a slim shape with no bulge in the back.
- Up to 16 indoor units can be simultaneously controlled.
- Can be installed onto SW-BOX. (applies European and other country's standard)

■ Accessory

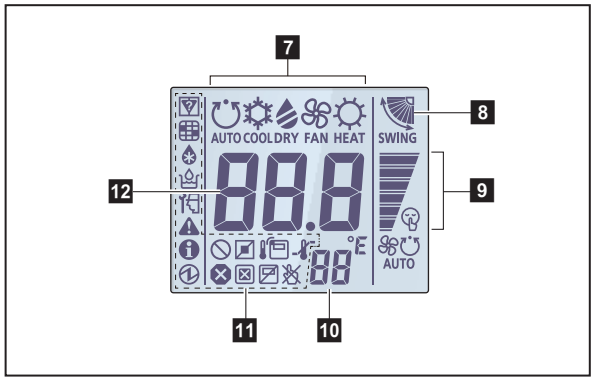
Name and shape	Q'ty	Application
 CD-ROM	1	
 Screw	2	For installing the remote controller
 Cable tie	1	For remote controller and remote controller cable binding
 Installation manual	1	
 Operation manual	1	

CONTROL SYSTEM

■ Overview



Display panel



*1: Not available for a heat pump model unless it is set up as an administrative indoor unit.
*2: Not available for a heat pump model.
*3: Not available for a cooling-only model.
*4: Set the function setting of the indoor unit accordingly.
*5: During address display mode.

1 LED lamp

Lights during operation.

2 Louver button

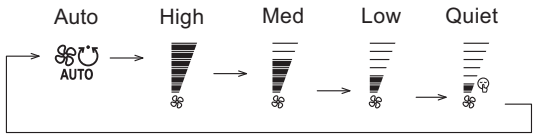
Adjusts the airflow direction.

3 START/STOP button

Starts and stops operation.

4 FAN control button

Switches the fan speed as follows:



5 Room temperature sensor (inside)

Senses ambient temperature of unit.

6 Set temperature button

Selects the setting temperature.
64.4—86 °F (18—30 °C) [COOL], 50—86 °F (10—30 °C) [HEAT]

7 Operating mode indicator

8 Airflow direction indicator

9 FAN speed indicator

10 Remote controller address indicator

11 Status icons

- Mode mismatch
- Filter sign *4
- Defrost operation
- Oil recovery operation
- Under maintenance
- Error
- Special state
- Conducting electricity
- Emergency stop
- Operation controlled
- Forced stop
- Remote controller sensor is enabled *4
- Central controlled
- Setting temperature range is enabled
- Operation prohibited

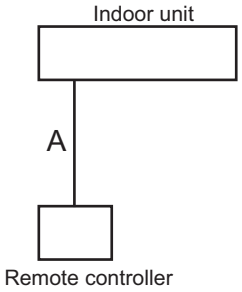
12 Set temperature

Indicates indoor unit address. *5

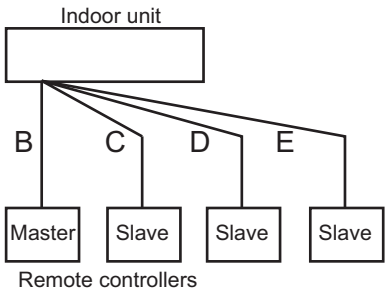
CONTROL SYSTEM

■ System diagrams

- **1 remote controller**



- **4 remote controllers**



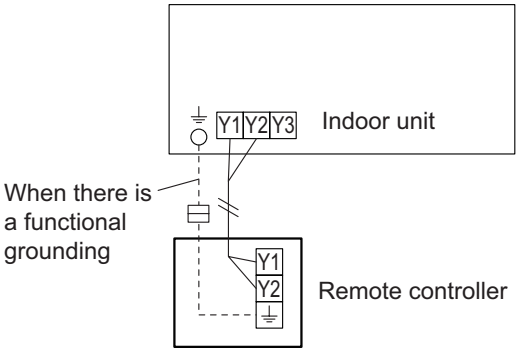
NOTES:

- A, B, C, D, E: Remote controller cable (For details of controller cable specifications, refer to "Controller cable" in Chapter 6. SYSTEM DESIGN on page 06-62.)
- A ≤ 1,640 ft (500 m), B + C + D + E ≤ 1,640 ft (500 m)

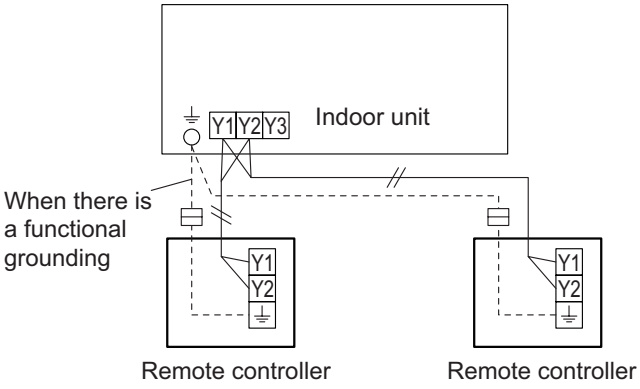
CONTROL SYSTEM

■ Electrical wiring

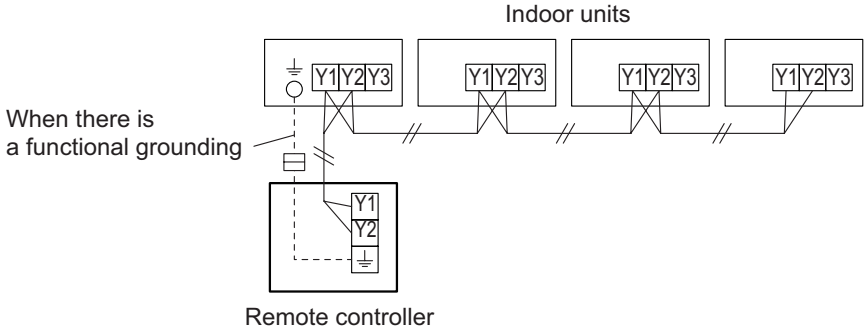
1 remote controller:



2 remote controllers:

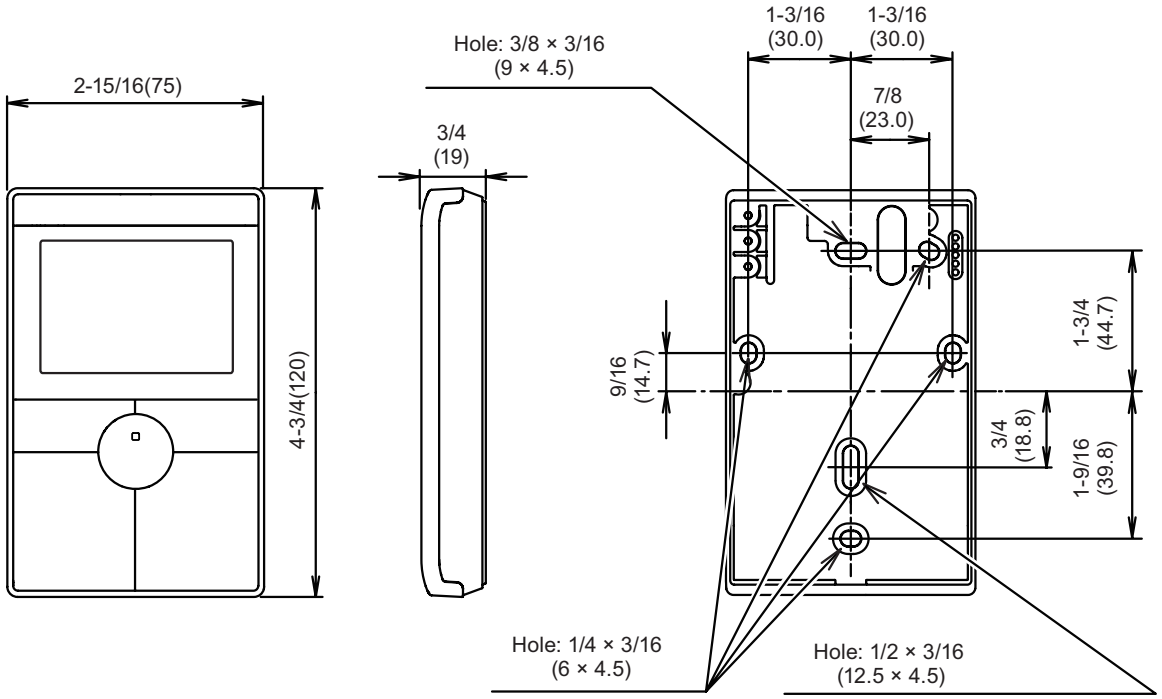


Group control:



■ Dimensions

Unit: in (mm)



Front View Side View Rear View

CONTROL SYSTEM

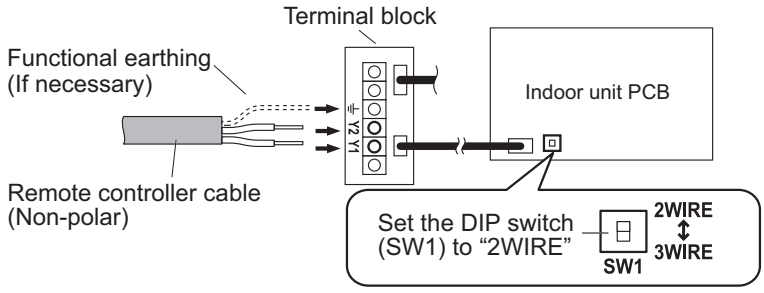
■ Installation

- **Connection pattern**

NOTE: Connection pattern is different according to type of Indoor unit.

Indoor unit type	Connection pattern
All cassette type	Pattern A
All duct type	
All floor type	
Floor/Ceiling type	
All ceiling type	
All wall mounted type	Pattern B

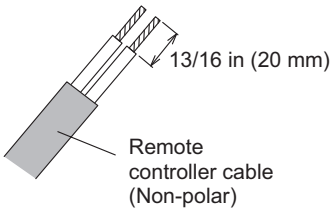
- **Pattern A**
  1. Connect the end of remote controller cable directly to the exclusive terminal block.
  2. Set the DIP switch (SW1) to “2WIRE” on the PCB of the indoor unit.



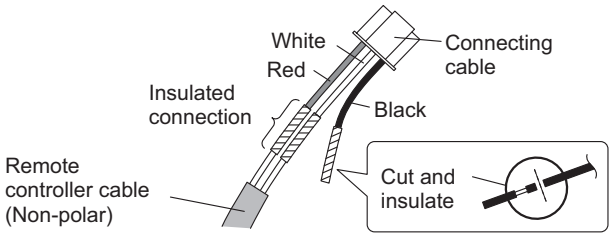
NOTES:

- Layout of terminal block and PCB is varies depending on the type of indoor unit.
- Operation may fail if it is connected to the outdoor unit or the terminal block for power supply.

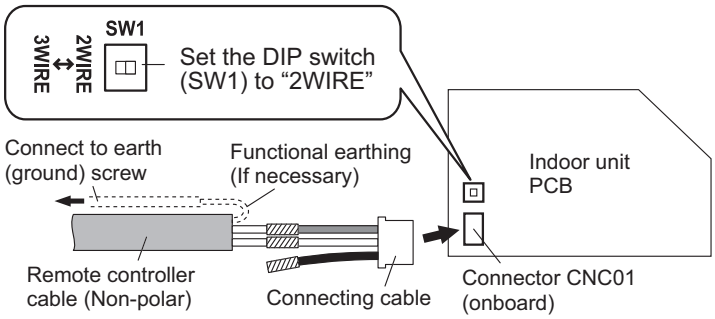
- **Pattern B**
  1. Use a tool to cut off the terminal on the end of the remote controller cable, and then remove the insulation from the cut end of the cable as shown below.



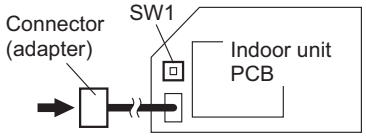
  2. Connect the remote controller cable and connecting cable as shown below. Be sure to insulate the connection between the cables.



  3. Connect the remote controller cable to the connecting cable, and insert it to the connector. Set the DIP switch (SW1) to “2WIRE” on the PCB of the indoor unit.



NOTE: Layout of terminal block and PCB is varies depending on the type of indoor unit.



■ Specifications

Dimensions (H × W × D)	in (mm)	4-3/4 × 2-15/16 × 3/4 (120 × 75 × 19)
Weight	oz (g)	4 (120)

● Wiring specifications

Use	Cable size	Cable type	Remarks
Remote controller cable	22 to 16 AWG (0.33 to 1.25 mm^2)	Sheathed cable	Non polar 2-core, Twisted pair
		Shielded cable*	

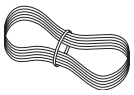
*: Use shielded cable in accordance with local rules for remote controller cable.

2-11. Simple remote controller (Without operation mode: UTY-RHKU)



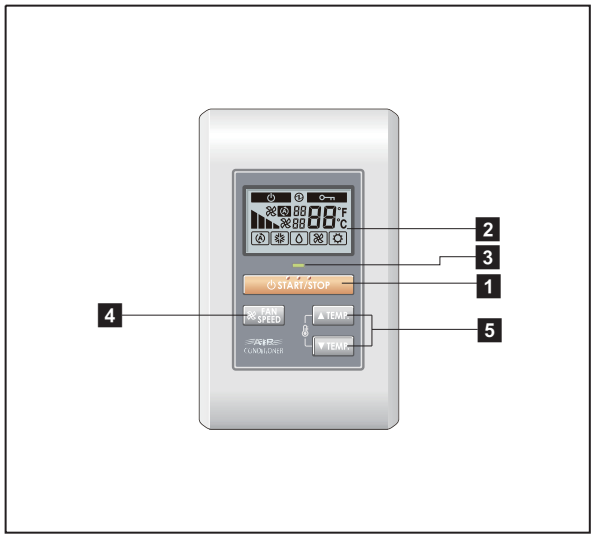
- Easy operation
- Built-in background light function
- Easy installation with a slim shape with no bulge in the back.
- Error history (Last 16 error codes can be accessed.)
- Up to 16 indoor units can be simultaneously controlled.
- Can be installed onto SW-BOX. (applies European and other country's standard)
- Concentrates on the basic operations such as Start/Stop, Fan control, and Temperature setting.

■ Accessory

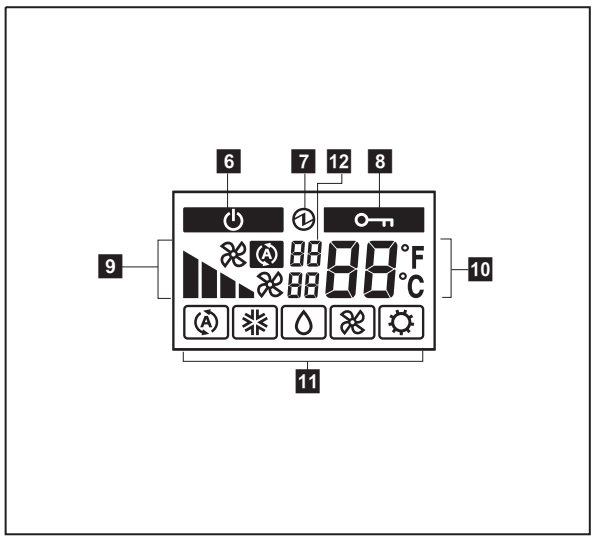
Name and shape	Q'ty	Application
 Remote controller cable	33 ft (10 m)	For connecting the remote controller
 Screw	2	For installing the remote controller
 Cable tie	1	For remote controller and remote controller cable binding
 Installation manual	1	
 Operation manual	1	

CONTROL SYSTEM

■ Overview



Display panel



1 START/STOP button

Starts and stops operation.

2 Display backlight button

Lights during operation.

3 Operation lamp

Lights during operation.

4 FAN button

Selects the fan speed (AUTO, MED, LOW, and QUIET).

5 SET TEMP. button

Selects the setting temperature.

6 Standby indicator

Indicates during the oil recovery and defrosting operation.

7 Power source indicator

Indicates the main power is on.

8 Central control indicator

Indicates when function is locked.

9 Fan speed indicator

Deletes the weekly timer schedule.

10 Set temperature

- Indicates error history number in error code history display mode.
- Indicates indoor unit address in address display mode.

11 Operating mode indicator

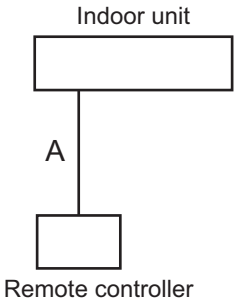
12 Indicator

- Upper:
  - Indicates the error code in error code history display mode and in self diagnosis mode.
  - Indicates the refrigerant system address in address display mode.
- Lower: Indicates the remote controller address in error code history display mode, address display mode, and self diagnosis mode.

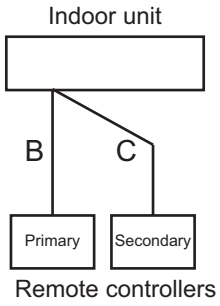
CONTROL SYSTEM

■ System diagram

1 remote controller:



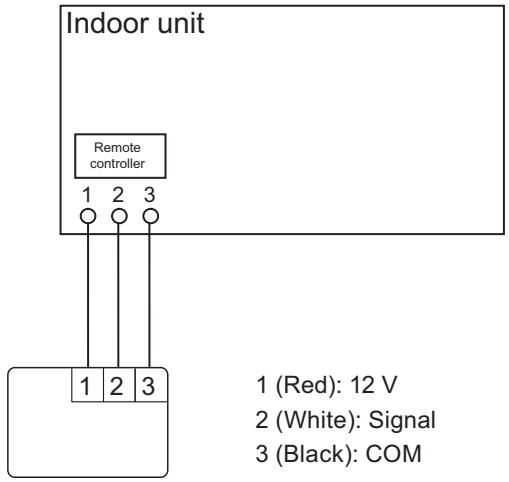
2 remote controllers:



A, B, C: Remote controller cable
A ≤ 1,640 ft (500 m);B + C ≤ 1,640 ft (500 m)

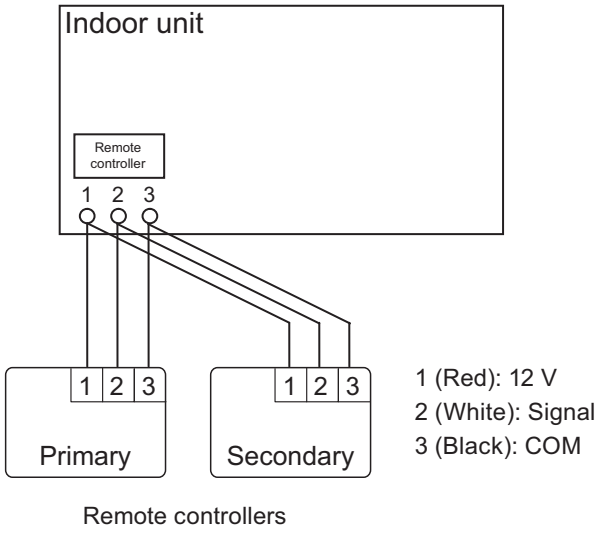
■ Electrical wiring

1 remote controller:



1 (Red): 12 V
2 (White): Signal
3 (Black): COM

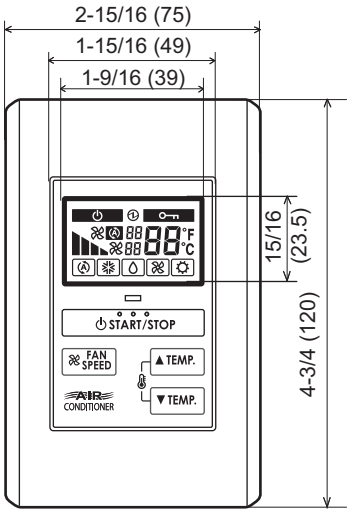
2 remote controllers:



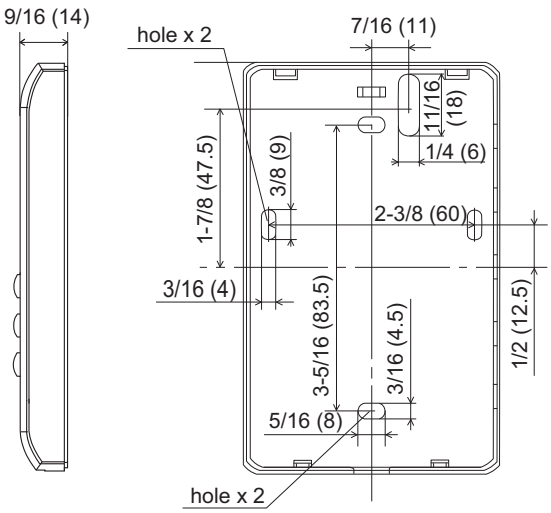
1 (Red): 12 V
2 (White): Signal
3 (Black): COM

■ Dimensions

Unit: in (mm)



Front View



Side View Rear View

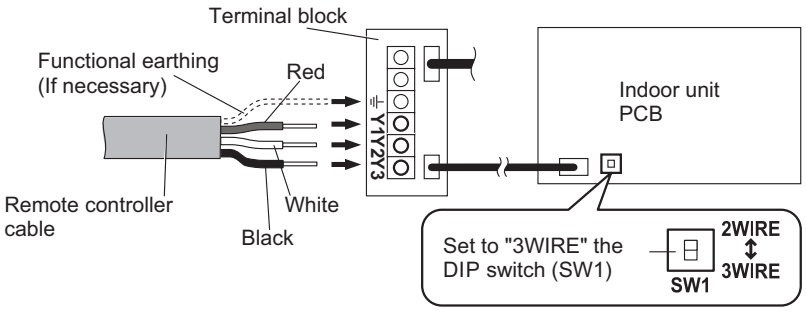
■ Installation

- **Connection pattern**

NOTE: Connection pattern is different according to type of Indoor unit.

Indoor unit type	Connection pattern
All cassette type	Pattern A
All duct type	
All floor type	
Floor/Ceiling type	
All ceiling type	
All wall mounted type	Pattern B

- **Pattern A**
  1. Connect the end of remote controller cable directly to the exclusive terminal block.
  2. Set the DIP switch (SW1) to “3WIRE” on the PCB of the indoor unit.

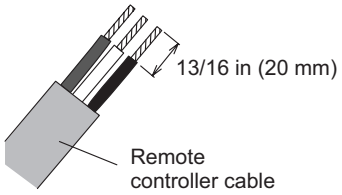


NOTES:
- Layout of terminal block and PCB is varies depending on the type of indoor unit.
- Operation may fail if it is connected to the outdoor unit or the terminal block for power supply.

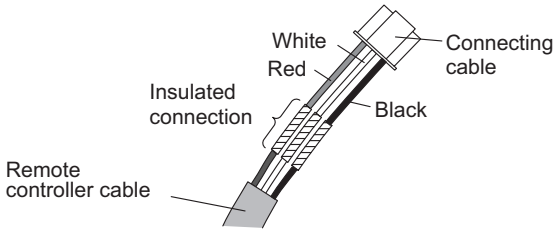
CONTROL SYSTEM

- **Pattern B**

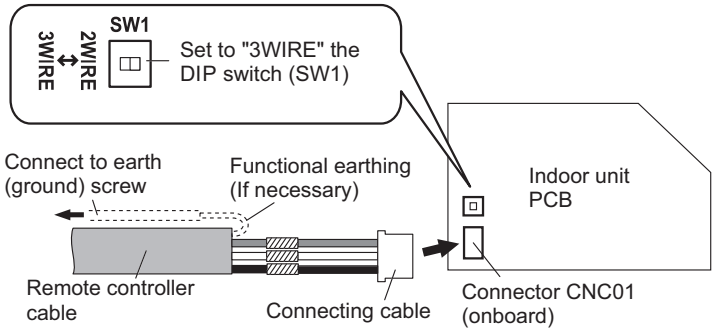
1. Use a tool to cut off the terminal on the end of the remote controller cable, and then remove the insulation from the cut end of the cable as shown below.



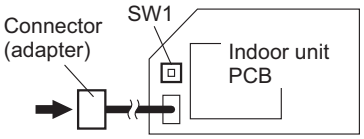
2. Connect the remote controller cable and connecting cable as shown below. Be sure to insulate the connection between the cables.



3. Connect the remote controller cable to the connecting cable, and insert it to the connector. Set the DIP switch (SW1) to “3WIRE” on the PCB of the indoor unit.



NOTE: Layout of terminal block and PCB is varies depending on the type of indoor unit.



■ Specifications

Dimensions (H × W × D)	in (mm)	4-3/4 × 2-15/16 × 9/16 (120 × 75 × 14)
Weight	oz (g)	3 (90)

● Wiring specifications

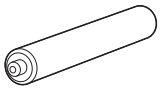
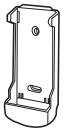
Use	Cable size	Wire type	Remarks
Remote controller cable	22 AWG (0.33 mm^2)	Polar 3-core	Use sheathed PVC cable.

2-12. Wireless remote controller (UTY-LNHU)



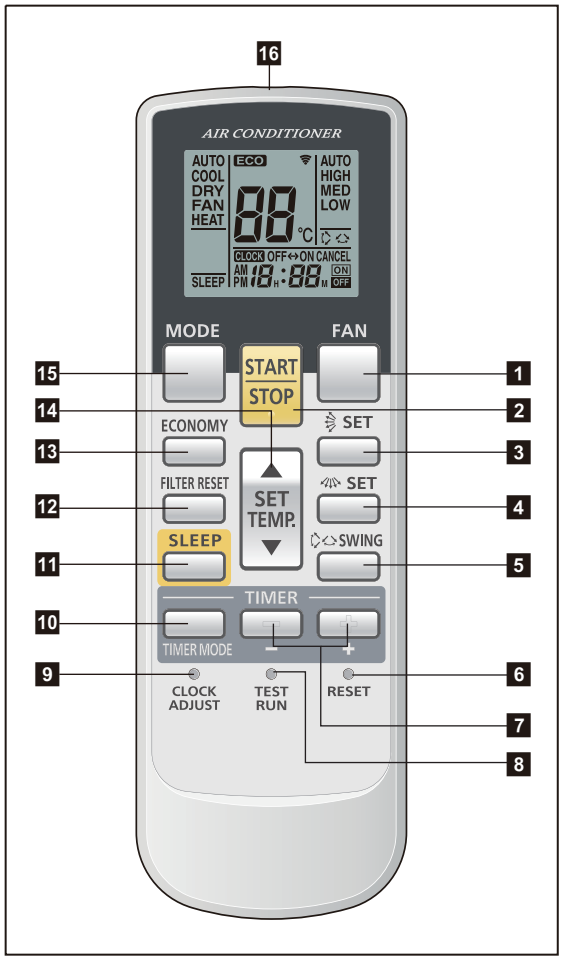
- 4 mode time setup available (On/Off/Program/Sleep).
- Up to 16 indoor units connected within the remote controller group can be simultaneously controlled.
- Can be used jointly with wired remote controllers.
- Easy to change custom code (max 4 codes)

■ Accessory

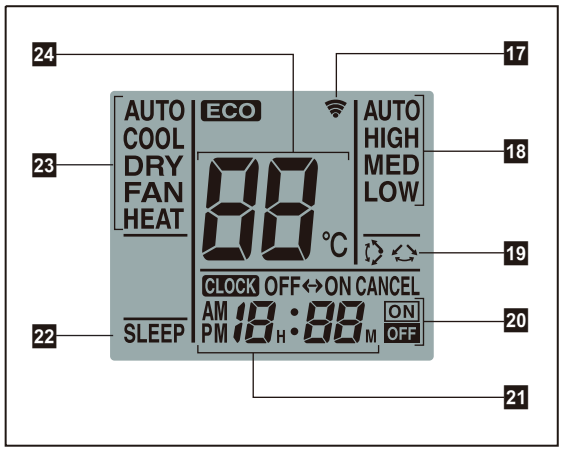
Name and shape	Q'ty	Application
 Screw	2	For installing the remote controller
 Battery (1.5 V [R03/AAA])	2	For remote controller
 Remote controller holder	1	For remote controller
 Installation manual	1	
 Operation manual	1	

CONTROL SYSTEM

■ Overview



Display panel



NOTE: Functions may differ by type of the indoor unit. For details, refer to the operation manual.

1 FAN button

Selects the fan speed (AUTO, HIGH, MED, and LOW).

2 START/STOP button

Starts and stops operation.

3 SET button (vertical)

Adjusts the vertical airflow direction.

4 SET button (horizontal)

Adjusts the horizontal airflow direction.

5 SWING button

Sets the automatic swing operation and selects swing mode (Up/down, Left/right, Up/down/left/right, and Stop swing).

6 RESET button

Used when replacing batteries.

7 Timer set (- / +) button

Sets the current time and on-off time.

8 TEST RUN button

Only used for the initial test in the unit installation.

9 CLOCK ADJUST button

Used for adjusting the clock.

10 TIMER MODE button

Selects the timer mode (off timer, on timer, program timer, and timer reset).

11 SLEEP button

Pressed to select sleep timer.

12 FILTER RESET button

13 ECONOMY button

14 SET TEMP. (temperature) (▲ / ▼) button

- Sets desired temperature.
- Sets remote controller custom code.

15 MODE button

- Switches operation mode (AUTO, COOL, DRY, FAN, and HEAT).
- Starts/ends the remote controller custom code (max. 4 types) change.

16 Signal transmitter

17 Signal transmit indicator

18 Fan speed indicator

19 Swing indicator

20 Timer mode indicator

21 Clock indicator

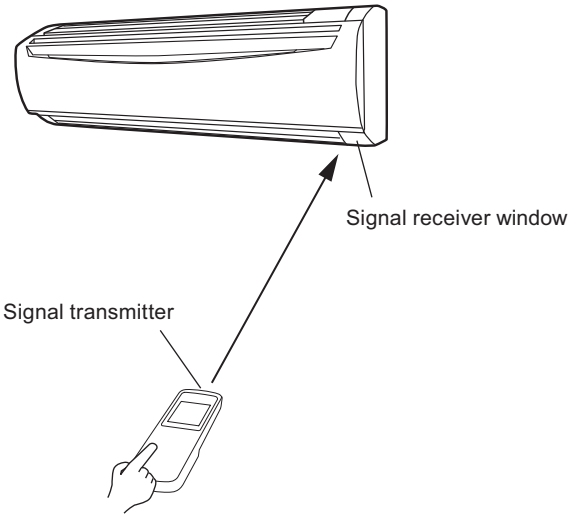
22 Sleep indicator

23 Operating mode indicator

24 Temperature indicator

CONTROL SYSTEM

■ System diagrams



- Control signal might not be recognized in following cases:
  – A curtain or wall, etc. exists between transmitter and receiver.
  – There is an instant-start type (inverter type, etc.) fluorescent lamp in the room.

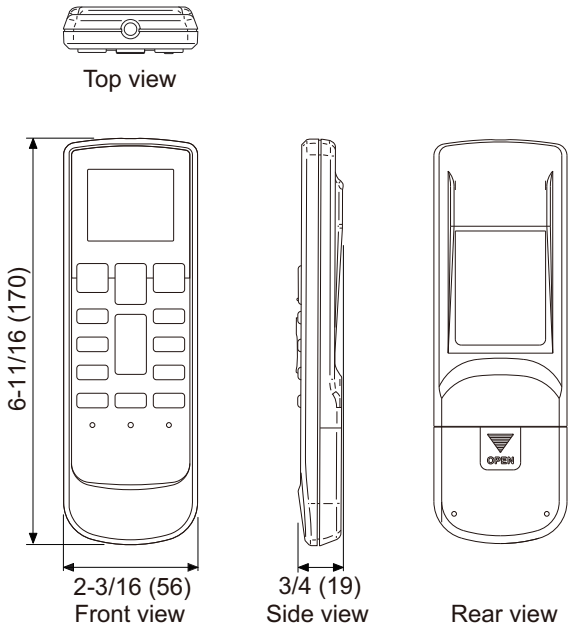
- Air conditioner might not work correctly when strong light hits the signal receiver window.
  Shut off the direct sunlight and also make illuminator far away from the signal receiver window.

CONTROL SYSTEM

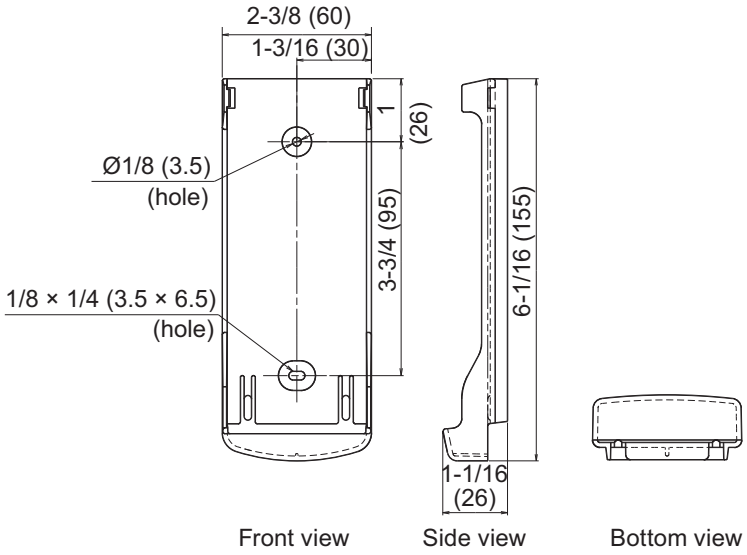
■ Dimensions

Unit: in (mm)

- **Controller**



- **Holder**



■ Specifications

Dimensions (H × W × D)	in (mm)	6-11/16 × 2-3/16 × 3/4 (170 × 56 × 19)
Weight (without batteries)	oz (g)	3 (85)

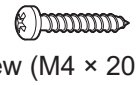
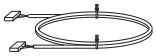
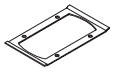
CONTROL SYSTEM

2-13. IR receiver unit (UTB-YWC)



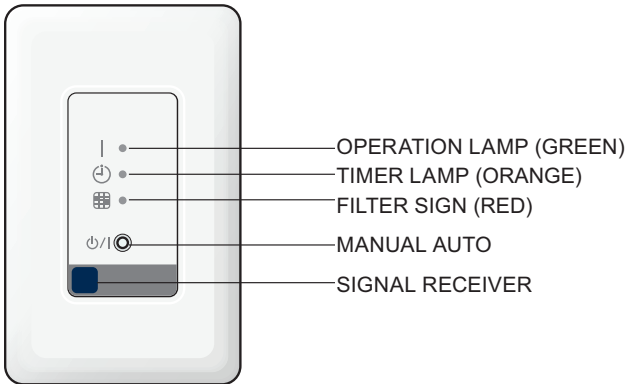
Duct type indoor unit can be controlled with Wireless remote controller if the IR receiver unit is used.

■ Accessory

Name and shape	Q'ty	Application
 Cover	1	For receiver unit
 Insulation	1	For receiver unit
 Cable tie	Small: 1 Medium: 1	For receiver unit
 Screw (M4 × 10 mm)	2	For attaching the hook metal to the indoor unit
 Screw (M4 × 12 mm)	1	For attaching the hook metal to holder cover
 Screw (M4 × 20 mm)	2	For installing receiver unit to wall, etc.
 Connection cable A (16 ft [5 m])	1	For connecting PCB of indoor unit to receiver unit
 Connection cable B (5-7/8 in [0.15 m])	1	
 Connection cable D (5-7/8 in [0.15 m])	1	For connecting PCB of indoor unit to receiver unit
 Hook metal	1	For installing receiver unit to indoor unit
 Bracket (cover)	1	For receiver unit
 Installation manual	1	

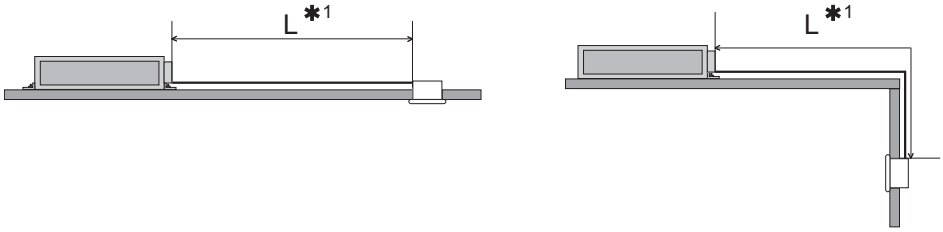
CONTROL SYSTEM

■ Overview



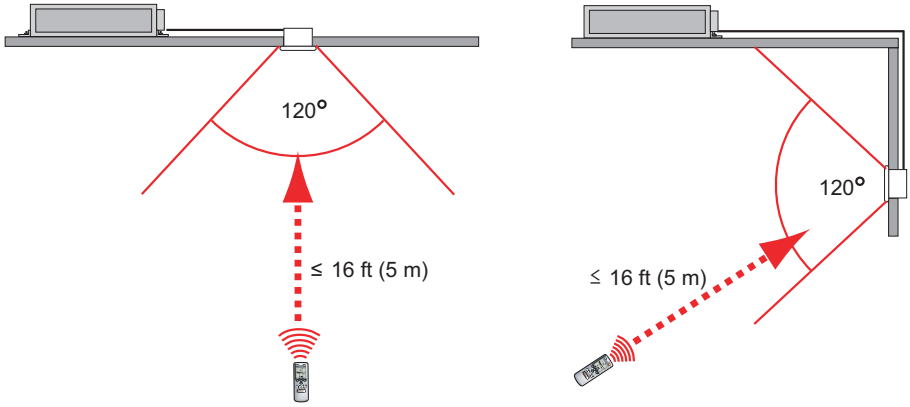
■ System diagrams

- **Attachment range**



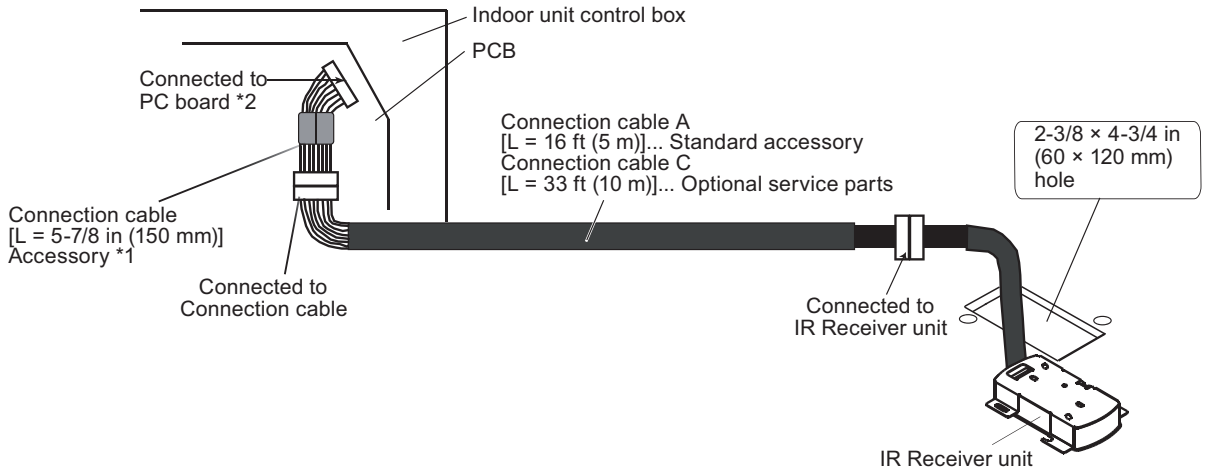
*1: Connection cable length L
– Cable A (Standard accessory): 16 ft (5 m)
– Cable C (Optional service part): 33 ft (10 m)

- **Signal angle**



CONTROL SYSTEM

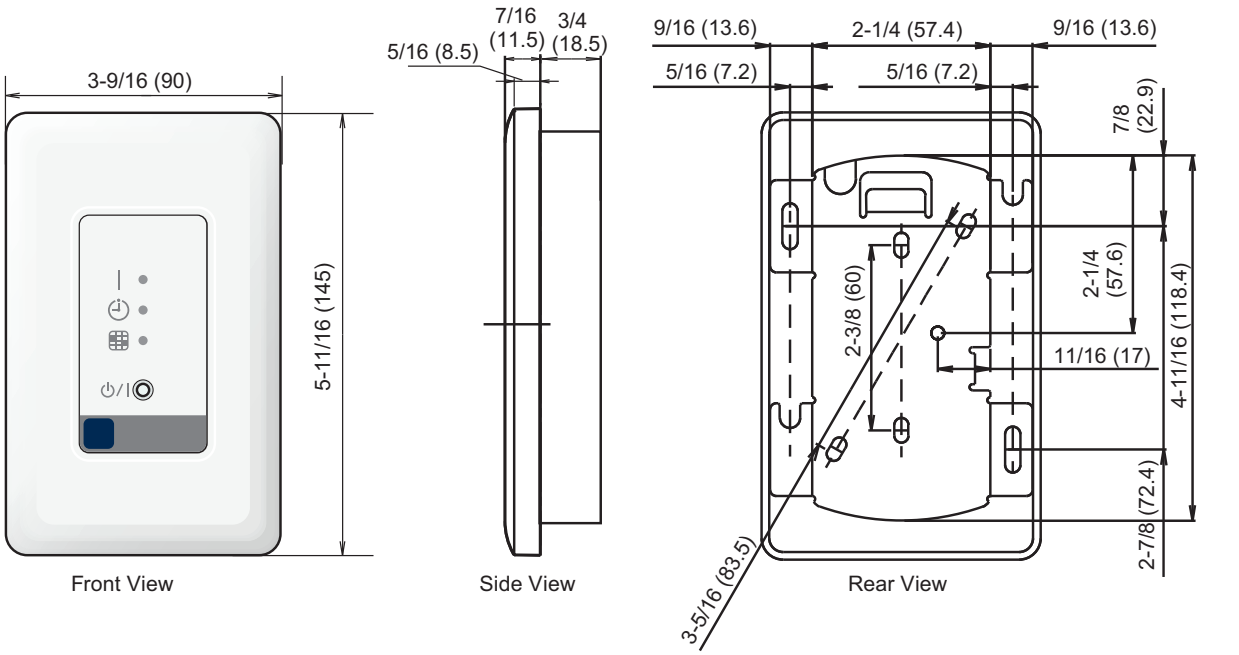
■ Electrical wiring



*1:	Connection cable	Connection cable D
*2:	Connected to PCB	CN18

■ Dimensions

Unit: in (mm)

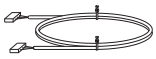


■ Specifications

Dimensions (H × W × D)	in (mm)	5-11/16 × 3-9/16 × 1-3/16 (145 × 90 × 30)
Weight	oz (g)	5 (150)

■ Optional service part

Use the parts number shown below to order the cable from your representative.
Use the shield type connection cable in accordance with standard of your country.

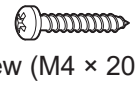
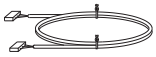
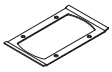
Name and shape	Type	Parts No.
 Connection cable C 33 ft (10 m)	Non-Shielded	9378143012
	Shielded	9378143036

2-14. IR receiver unit (UTY-TRHX)



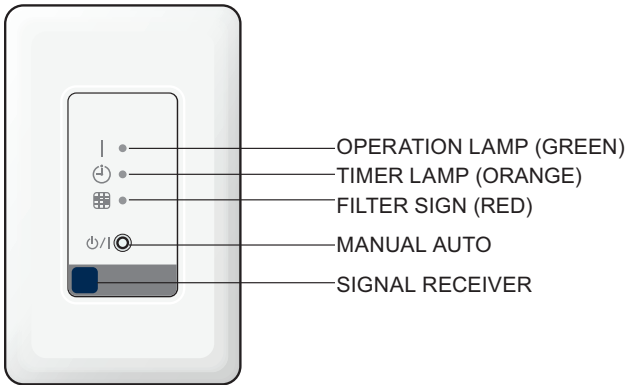
3D flow cassette type and Duct type indoor unit can be controlled with Wireless remote controller if the IR receiver unit is used.

■ Accessory

Name and shape	Q'ty	Application
 Cover	1	For receiver unit
 Insulation	1	For receiver unit
 Cable tie	Small: 1 Medium: 1	For receiver unit
 Screw (M4 × 10 mm)	2	For attaching the hook metal to the indoor unit
 Screw (M4 × 12 mm)	1	For attaching the hook metal to holder cover
 Screw (M4 × 20 mm)	2	For installing receiver unit to wall, etc.
 Connection cable A (16 ft [5 m])	1	For connecting PCB of indoor unit to receiver unit
 Connection cable B (7-7/8 in [0.12 m])	1	
 Hook metal	1	For installing receiver unit to indoor unit
 Bracket (cover)	1	For receiver unit
 Installation manual	1	

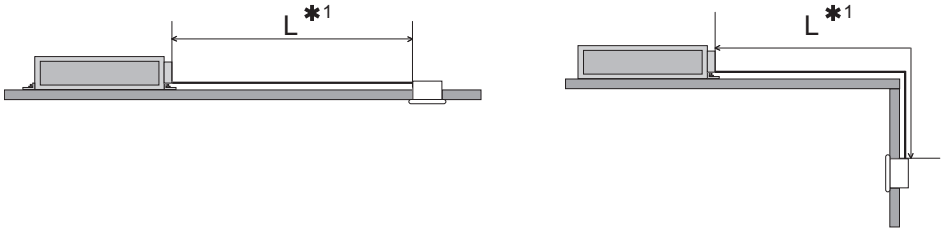
CONTROL SYSTEM

■ Overview



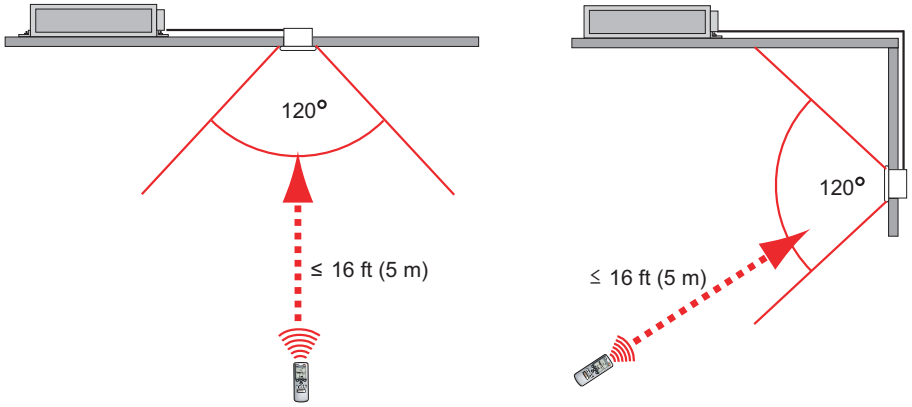
■ System diagrams

- **Attachment range**



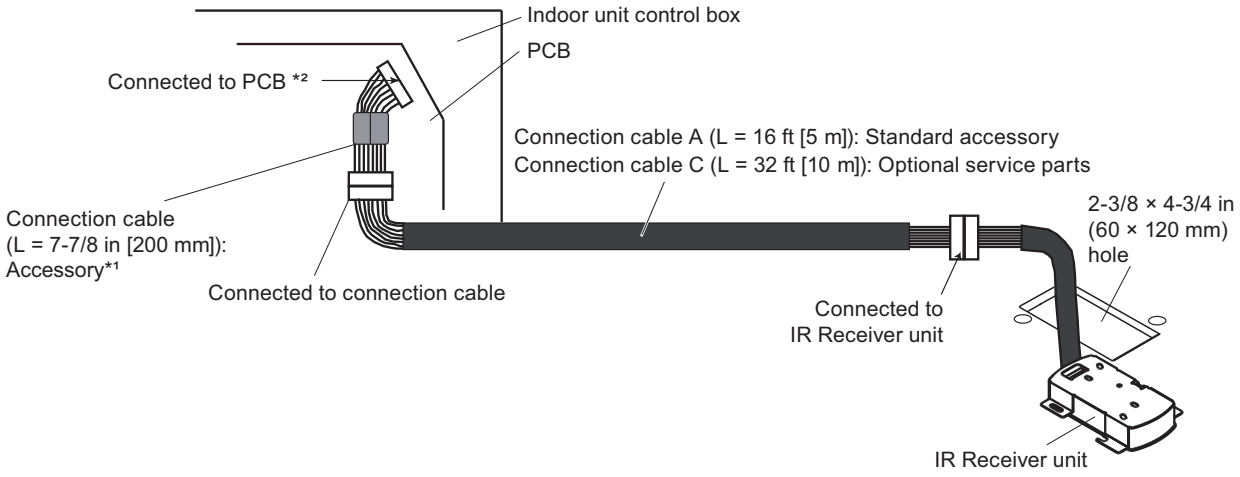
*1: Connection cable length L
– Cable A (Standard accessory): 16 ft (5 m)
– Cable C (Optional service part): 33 ft (10 m)

- **Signal angle**



CONTROL SYSTEM

■ Electrical wiring

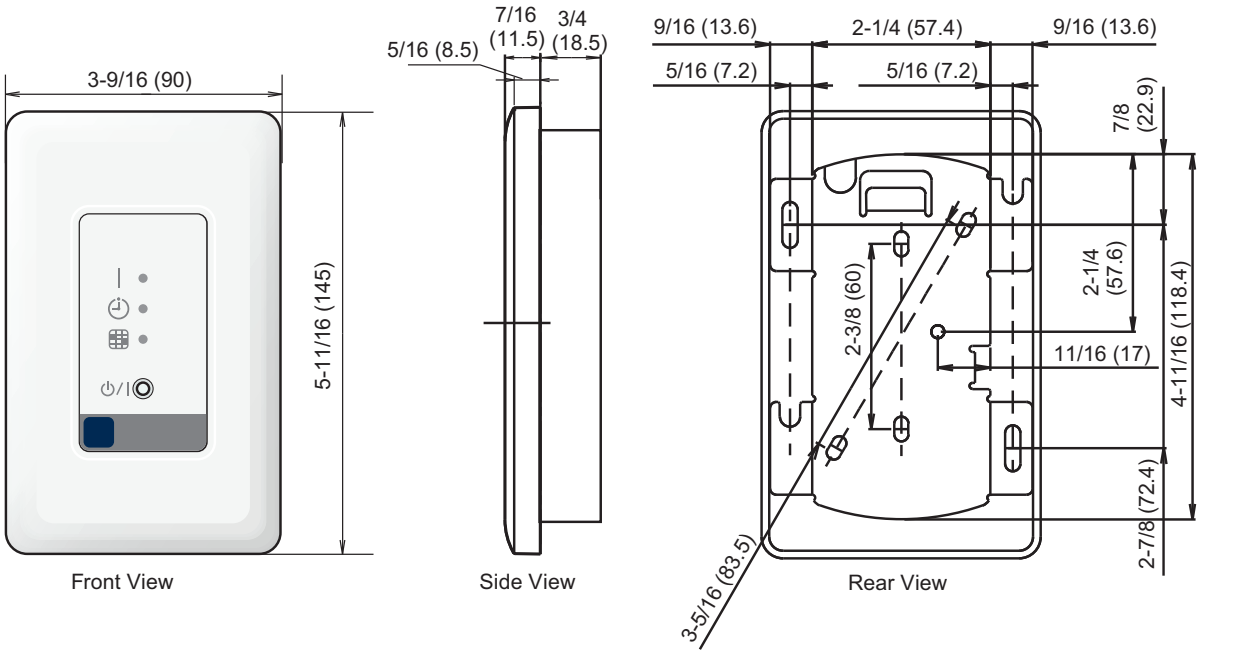


*1: Connection cable Connection cable B

*2: Connected to PCB CN48

■ Dimensions

Unit: in (mm)

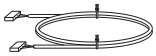


■ Specifications

Dimensions (H × W × D)	in (mm)	5-11/16 × 3-9/16 × 1-3/16 (145 × 90 × 30)
Weight	oz (g)	5 (150)

■ Optional service part

Use the parts number shown below to order the cable from your representative.
Use the shield type connection cable in accordance with standard of your country.

Name and shape	Application	Parts No.
 IR receiver unit cable C 33 ft (10 m)	For extending the IR receiver unit cable	9710358012

NOTE: This part cannot be used for 3D flow cassette type.

2-15. IR receiver unit (For cassette type: UTY-LRHYB1)

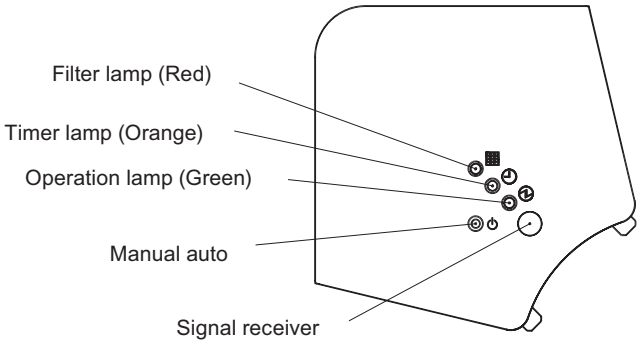


Cassette type indoor unit can be controlled with Wireless remote controller if the IR receiver unit is used.

■ Accessory

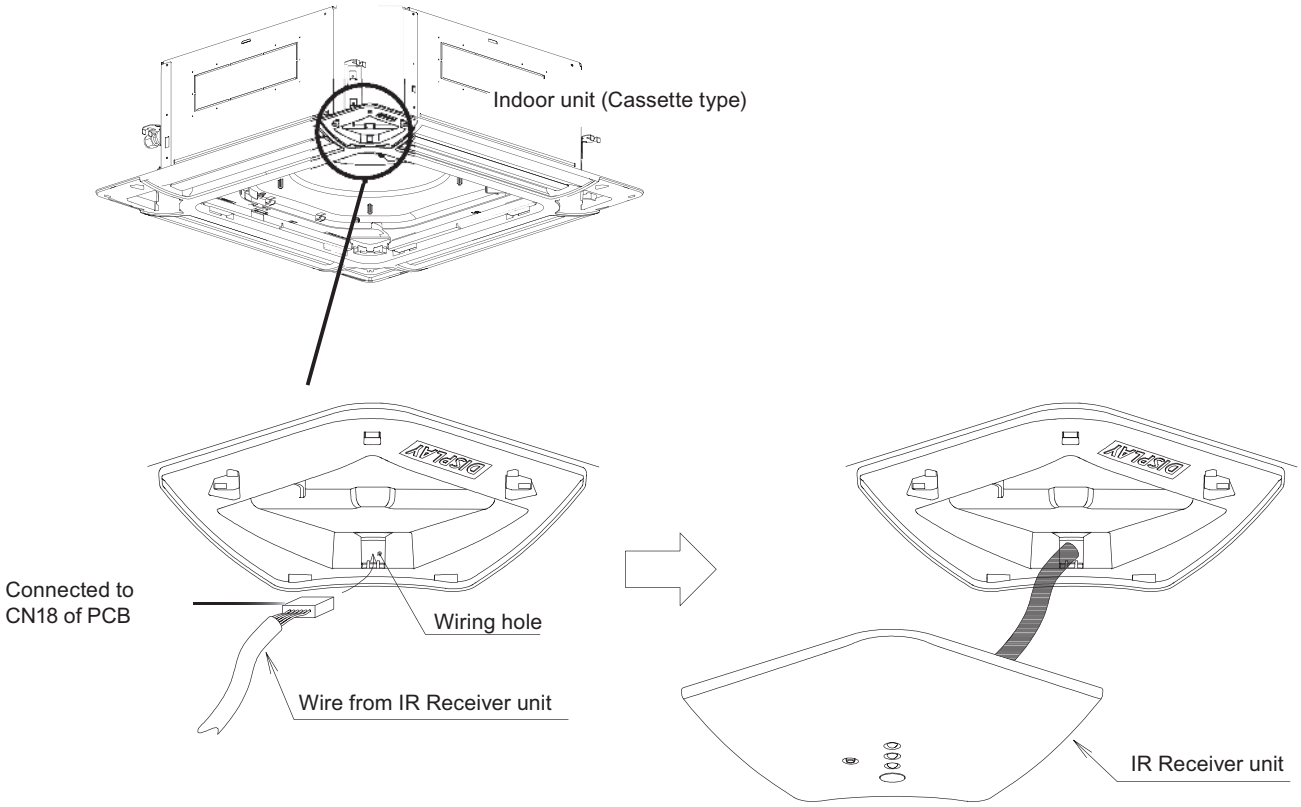
Name and shape	Q'ty	Application
 Strap	1	For preventing receiver from falling down
 Installation manual	1	

■ Overview



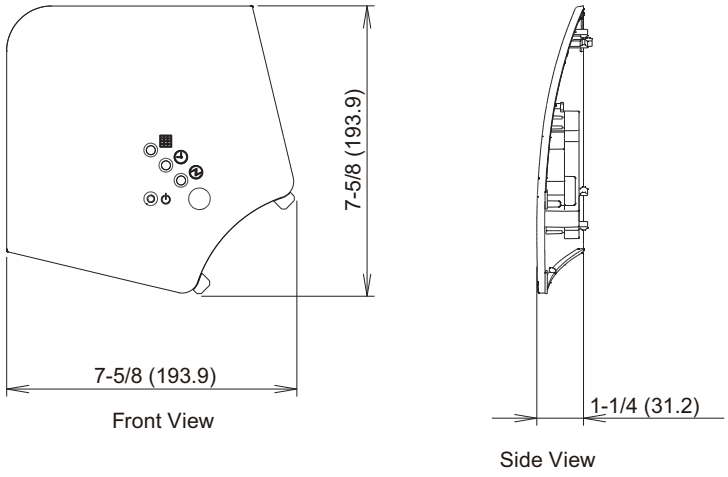
CONTROL SYSTEM

■ Electrical wiring



■ Dimensions

Unit: in (mm)



■ Specifications

Dimensions (H × W × D)	in (mm)	7-5/8 × 7-5/8 × 1-1/4 (193.9 × 193.9 × 31.2)
Weight	oz (g)	5 (140)

2-16. IR receiver unit (For circular flow cassette type: UTY-LBHXD)



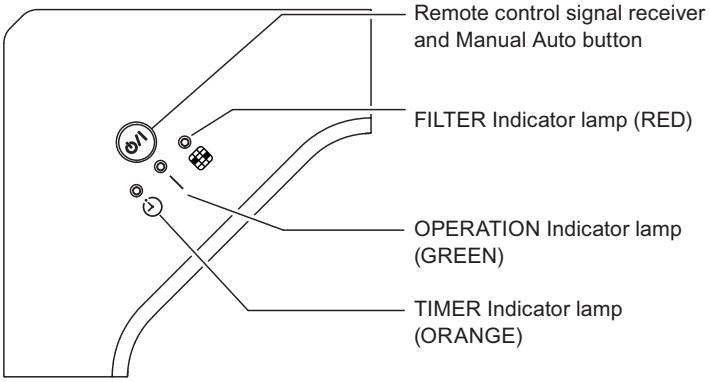
Cassette type indoor unit can be controlled with Wireless remote controller if the IR receiver unit is used.

■ Accessory

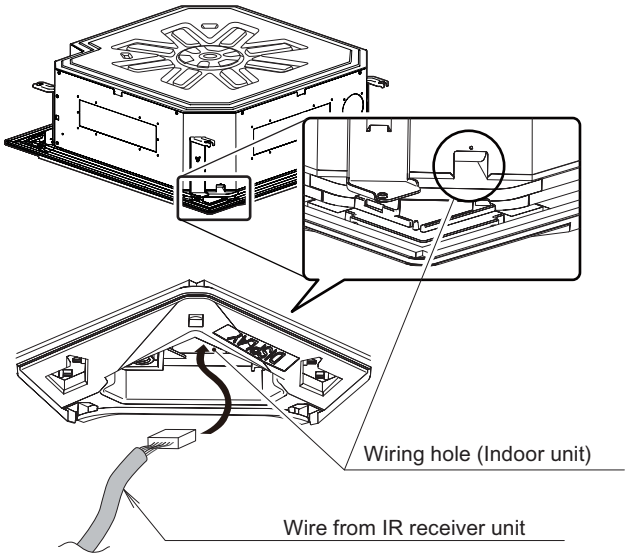
Name and shape	Q'ty	Application
 Strap	1	For preventing receiver from falling down
 Cable tie	2	For electrical wiring
 Installation manual	1	

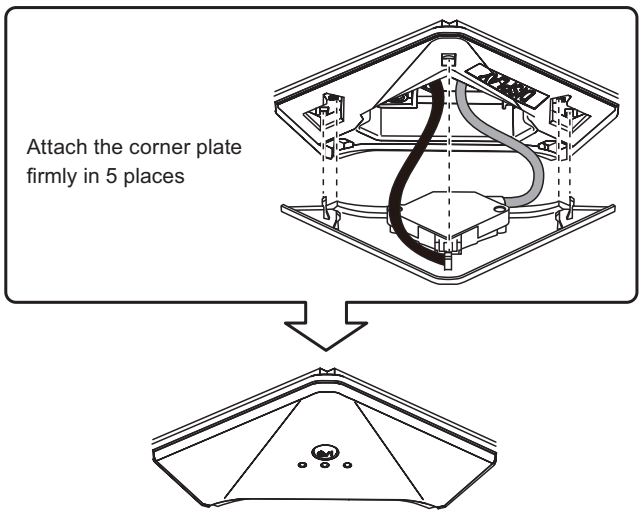
CONTROL SYSTEM

■ Overview



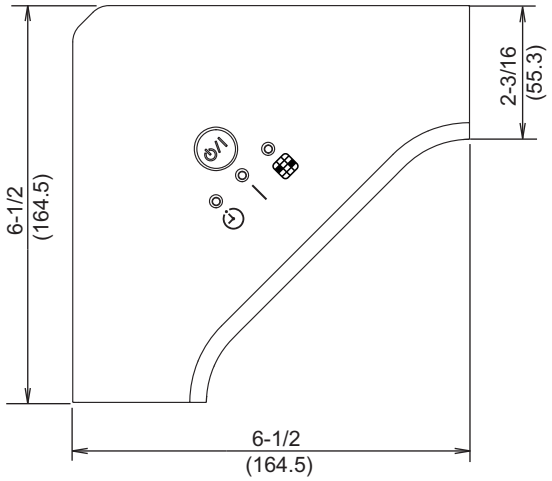
■ Electrical wiring



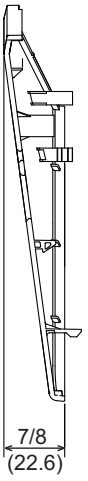


■ Dimensions

Unit: in (mm)



Front View



Side View

■ Specifications

Dimensions (H × W × D)	in (mm)	6-1/2 × 6-1/2 × 7/8 (164.5 × 164.5 × 22.6)
Weight	oz (g)	4 (110)

CONTROL SYSTEM

2-17. Human sensor kit (For circular flow cassette type: UTY-SHZXC)



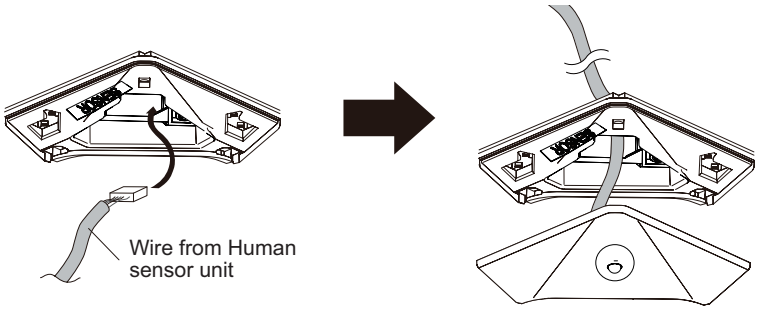
Motion sensor save operation catches the movements of people for wide area and operation stop is also judged automatically.

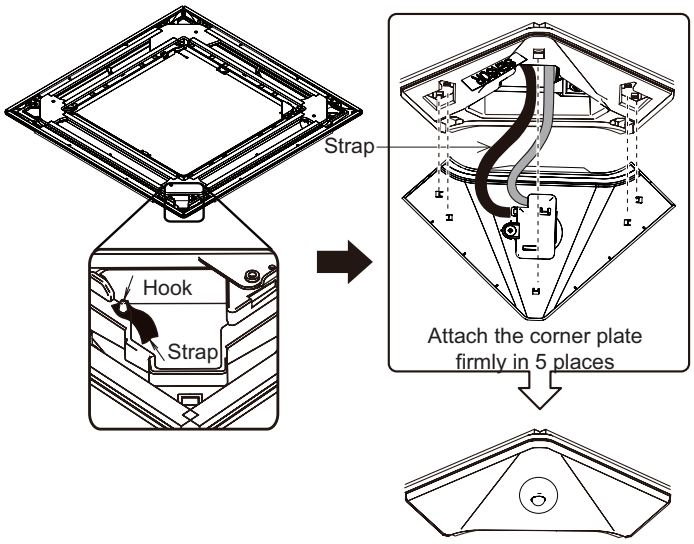
■ Accessory

Name and shape	Q'ty	Application
 Cable tie	3	For binding wires
 Strap	1	For preventing human sensor from falling down
 Insulation	3	To fasten the human sensor wire
 Installation manual	1	
 Operation manual	1	

CONTROL SYSTEM

■ Electrical wiring

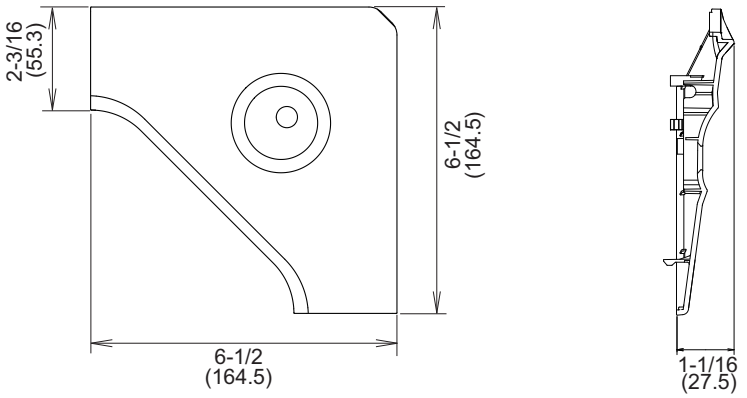




CONTROL SYSTEM

■ Dimensions

Unit: in (mm)



Front View

Side View

■ Specifications

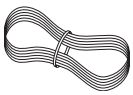
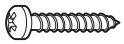
Dimensions (H × W × D)	in (mm)	6-1/2 × 6-1/2 × 1-1/16 (164.5 × 164.5 × 27.5)
Weight	oz (g)	4 (110)

2-18. Remote sensor unit (UTY-XSZX)



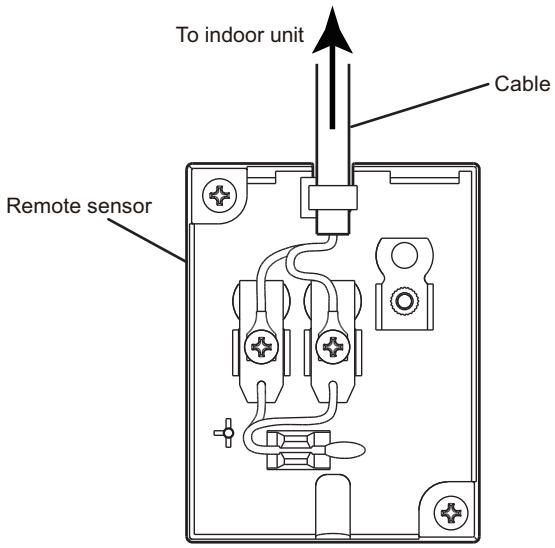
The remote sensor unit allows for flexible temperature sensing for optimum temperature control.

■ Accessory

Name and shape	Q'ty	Name and shape	Q'ty
 Cable (33 ft [10 m])	1	 Installation manual	1
 Screw (M4 × 10 mm)	2	 Cord clamp	1
 Screw (M4 × 16 mm)	2		

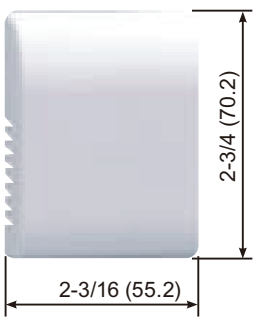
■ Electrical wiring

- Remove the screws from the remote sensor unit, and remove the cover.
- Connect the cable to the remote sensor unit as shown below.
- Ensure that the wires do not contact each other.



■ Dimensions

Unit: in (mm)

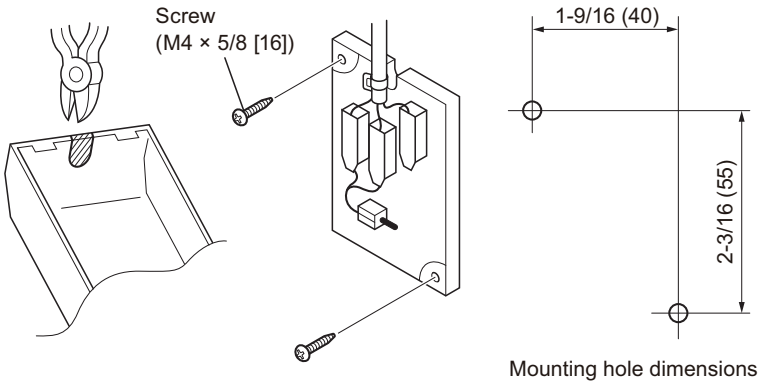


CONTROL SYSTEM

■ Installation

Unit: in (mm)

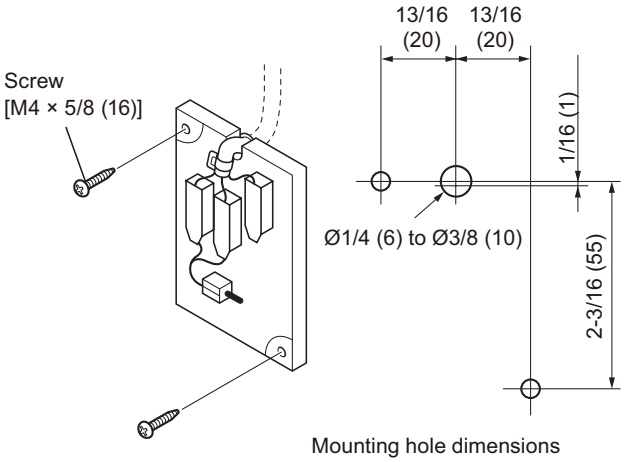
- **When the cable is attached to the wall:**
  - Remove the material covering the wiring penetration (thin material) in the cover of the sensor unit with a pair of cutters. The cable passes through this hole.
  - Attach the remote sensor unit on the wall using the screws.



Mounting hole dimensions

  - Fit the cover on the remote sensor unit and screw it in place.

- **When the cable is buried in the wall:**
  - Remove the material (thinner than the surrounding material) in the wiring hole on the remote sensor unit using a pair of cutters.
  - Drill a hole in the wall for the cable.
  - Seal the area around the cable penetration with putty.



Mounting hole dimensions

  - Fit the cover on the remote sensor unit and screw it in place.

■ Specifications

Dimensions (H × W × D)	in (mm)	2-3/4 × 2-3/16 × 11/16 (70.2 × 55.2 × 18)

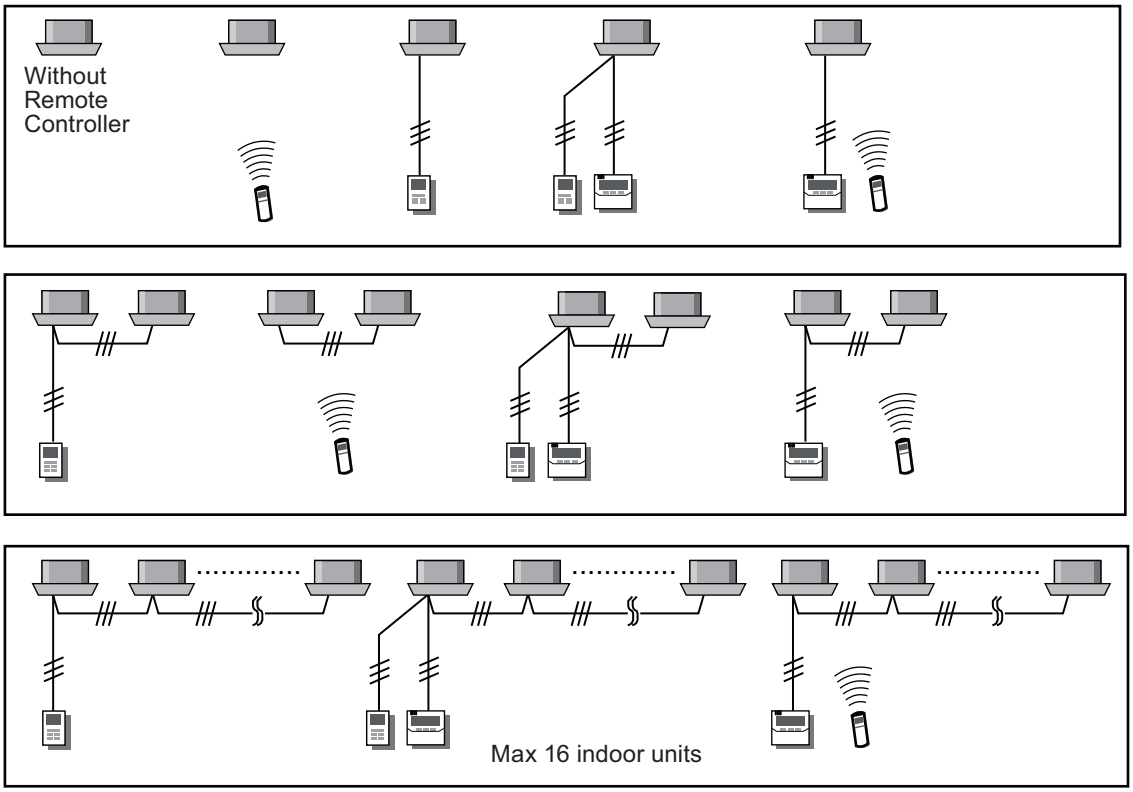
CONTROL SYSTEM

2-19. Group control method

■ Remote controller group

Wired, Simple, and Wireless remote controllers can be used simultaneously in the following combinations.

Examples of combination for remote controller group:



Connectable indoor unit number: 1 to 16

Connectable remote controller number: 0 to 2

NOTES:

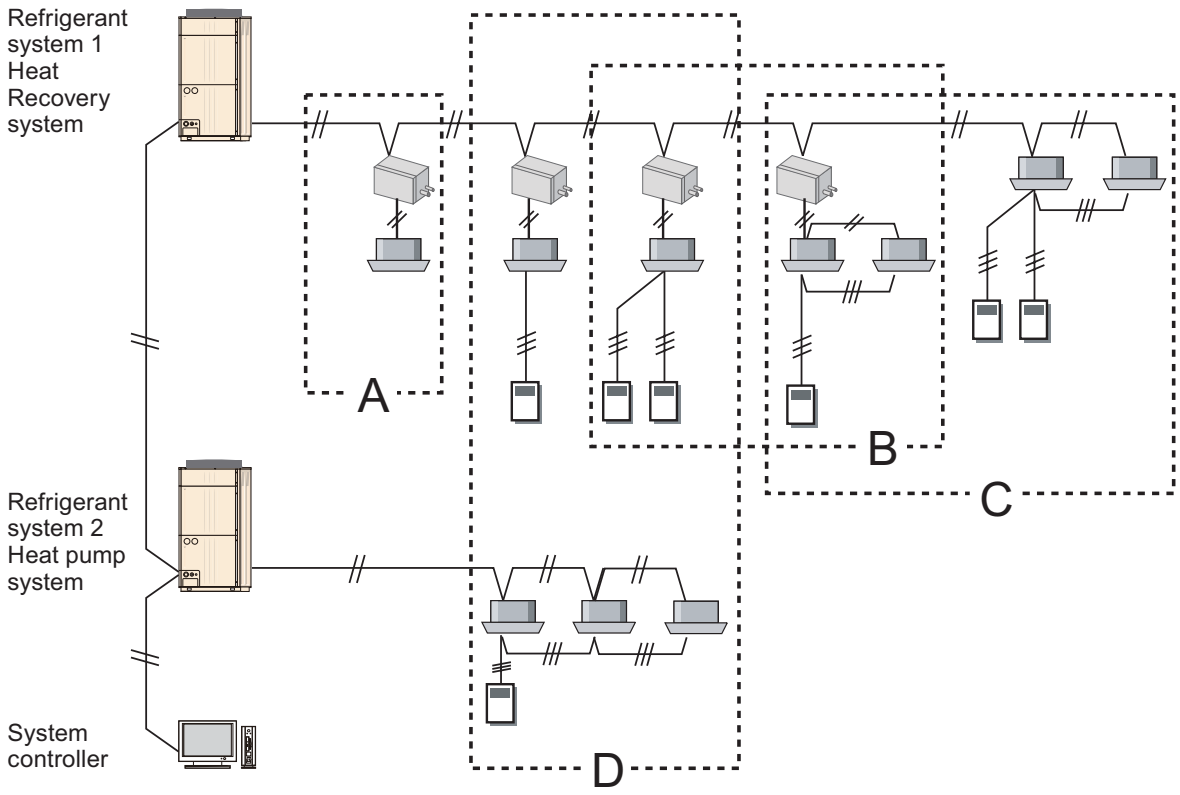
- Indoor unit in the same remote controller group will be same operation.
- Remote controller group spanning refrigerant system is not allowed.
- When using 2 remote controllers:
  - Last command is priority. (Operation mode might be fixed by system operation.)
  - Timer setting function become disable from slave remote controller or wireless remote controller.
- When the airflow direction is set with combination use of wireless remote controller and wired remote controller in the same remote controller group, airflow direction setting shown on the remote controllers may differ from actual louver position of the indoor unit.
- When using a wireless remote controller in connection with a group assignment, the airflow direction of the indoor units may not match.

CONTROL SYSTEM

■ Group

This function is used when operating a multiple number of remote controller group at a time from System controller, Touch panel controller, or Central remote controller.

Example:



Group A: “Group” is possible with only one indoor unit.
Group B: “Group” is possible with spanning the RB groups.
Group C: “Group” is possible with spanning the RB group and indoor unit of cooling only type.
Group D: “Group” is possible with spanning the refrigerant systems.

NOTE: The contents of setting may not be reflected by operation status. (B, C, D group)

CONTROL SYSTEM

2-20. Comparison table of controllers

• Central control

Item		System controller	System controller lite	Touch panel controller	Central remote controller	
Model		UTY-APGXZ1	UTY-ALGXZ1	UTY-DTGYZ1	UTY-DCGY	UTY-DCGYZ✱
Max. controllable remote controller groups		1,600	400	400	100	100
Max controllable indoor units		1,600	400	400	100	100
Max controllable groups		1,600	400	400	16	50
Air conditioning control function						
On/Off		●	●	●	●	●
Operation mode setting		●	●	●	●	●
Fan speed setting		●	●	●	●	●
Room temp. setting		●	●	●	●	●
Room temp. set point limitation		●	●	●	●	●
Test operation		—	—	●	●	●
Up/Down air direction flap setting		●	●	●	●	●
Right/Left air direction flap setting		●	●	●	●	●
Individual louver control		—	—	●	—	●
Group setting		●	●	●	●	●
RC prohibition		●	●	●	●	●
Anti-freeze setting		●	●	●	●	●
Set temp. auto return		—	—	●	—	—
Economy mode setting		●	●	●	●	●
Human sensor control		●	●	●	—	●
Display						
Failure		●	●	●	●	●
Defrosting		●	●	●	●	●
Current time		●	●	●	●	●
Day of week		●	●	●	—	●
RC prohibition		●	●	●	●	●
Cooling/Heating priority		●	●	●	●	●
Address display		●	●	●	●	●
Room temp.		●*1	●*1	●*1	—	●*1
Multi language		●	●	●	●	●
Summer time		●	●	●	●	●
Name registration		●	●	●	●	●
Backlight		—	—	●	●	●
2D floor layout/3D floor layout		●	—	—	—	—
Timer						
Schedule timer	Period	Year	Year	Year	Week	Week
	On/Off, Temp., Mode, Times per day	144	144	20	20	20
On/Off timer		—	—	—	—	—
Sleep timer		—	—	—	—	—
Program timer		—	—	—	—	—
Auto off timer		—	—	—	—	●
Day off timer		●	●	●	●	●
Min. unit of timer setting (Minutes)		10	10	10	10	10
Control						
Status monitoring system		●	●	●	●	●
Electricity charge calculation		●	○	○	—	—
Error history		●	●	●	●	●
Emergency stop		—	—	●*2	●*2	●*2
Remote management		●	○	●	—	●
Energy saving management		○	○	—	—	—
E-mail notification for malfunction		●	●	●	—	●
Key lock		● Password setting	● Password setting	● Password setting	● Password setting	● Password setting
Low noise mode		—	—	●	—	—

NOTES:

- *1: Available only when using wired remote controller.
- *2: Available only through external input control.
- ●: Supported, ○: Optional function, —: Not supported yet

CONTROL SYSTEM

• Individual control

Item		Wired remote controller (Touch panel)	Wired remote controller	Simple remote controller	Simple remote controller*1	Wireless remote controller
Model		UTY-RNRUZ∗	UTY-RNKU	UTY-RSRY (UTY-RSKU)	UTY-RHRY (UTY-RHKU)	UTY-LNHU
Max. controllable remote controller groups		1	1	1	1	1
Max controllable indoor units		16	16	16	16	16
Max controllable groups		—	—	—	—	—
Air conditioning control function						
On/Off		●*2	●	●	●	●
Operation mode setting		●	●	●	—	●
Fan speed setting		●	●	●	●	●
Room temp. setting		●	●	●	●	●
Room temp. set point limitation		●	—	● (—)	● (—)	—
Test operation		●	●	●	● (—)	●
Up/Down air direction flap setting*3		●	●	● (—)	● (—)	●
Right/Left air direction flap setting*3		●	●	—	—	●
Individual louver control		●	—	—	—	—
Group setting		—	—	—	—	—
RC prohibition		—	—	—	—	—
Anti-freeze setting		●	—	—	—	—
Set temp. auto return		●	—	—	—	—
Economy mode setting		●	●	—	—	●
Human sensor control		●	—	—	—	—
Lead lag setting		●*4	—	—	—	—
Display						
Failure		●	●	●	●	—
Defrosting		●	●	●	●	—
Current time		●	●	—	—	●
Day of week		●	●	—	—	—
RC prohibition		●	●	●	●	—
Cooling/Heating priority		●	●	●	●	—
Address display		●	●	●	●	—
Room temp.		●*5	—	● (—)	● (—)	—
Multi language		●	—	—	—	—
Summer time		●	—	—	—	—
Name registration		●	—	—	—	—
Backlight		●	—	●	●	—
2D floor layout/3D floor layout		—	—	—	—	—
Display sensor values		●*4	—	—	—	—
Timer						
Schedule timer	Period	Week	Week	—	—	—
	On/Off, Temp., Mode, Times per day	8	4	—	—	—
On/Off timer		●	●	—	—	●
Sleep timer		—	—	—	—	●
Program timer		—	—	—	—	●
Auto off timer		●	—	—	—	—
Day off timer		●	●	—	—	—
Min. unit of timer setting (Minutes)		10 to 30	30	—	—	5
Control						
Status monitoring system		—	—	—	—	—
Electricity charge calculation		—	—	—	—	—
Error history		●	●	—	—	—
Emergency stop		—	—	—	—	—
Remote management		—	—	—	—	—
Energy saving management		—	—	—	—	—
E-mail notification for malfunction		—	—	—	—	—
Key lock		● Child lock	—	—	—	—
Low noise mode		—	—	—	—	—

NOTES:

- *1: “Operation mode” setting is not available for this model.
- *2: On/Off setting of economizer can be performed simultaneously.
- *3: When the airflow direction is set with combination use of wireless remote controller and wired remote controller, airflow direction setting shown on the remote controllers may differ from actual louver position of the indoor unit.
- *4: Available only for UTY-RNRUZ∗ version 5 or later.
- *5: Room temperature correction function is available only for UTY-RNRUZ∗ version 5 or later.
- ●: Supported, ○: Optional function, —: Not supported yet

CONTROL SYSTEM

3. Adaptor/Convertor units

RELATED LINKS

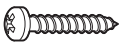
"Adapter/Converter/Maintenance tool" in Chapter 1. GENERAL INFORMATION on page 01-8

3-1. Network converter (UTY-VTGX)



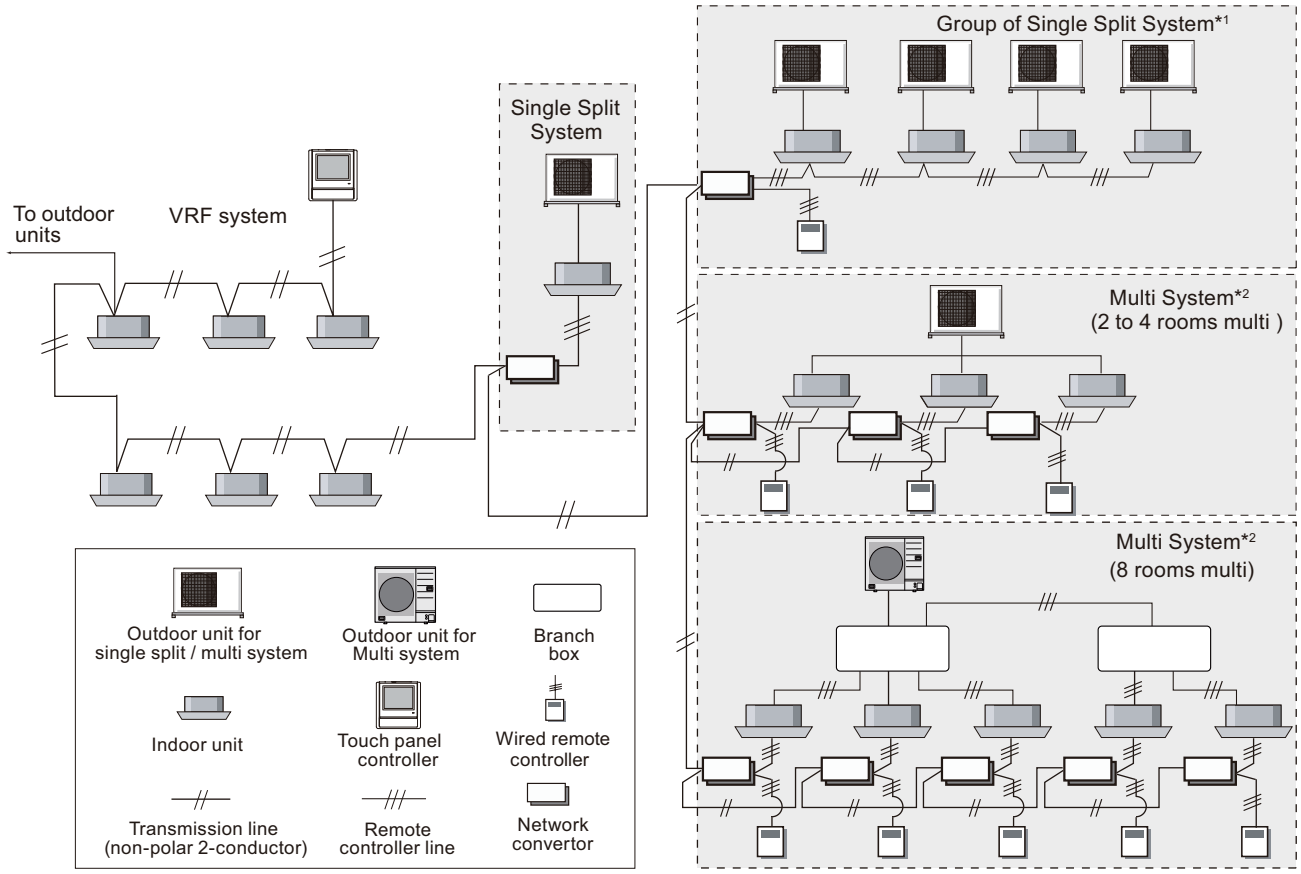
- With this Network converter, single split type and multi system air conditioners can be controlled by System controller, Touch panel controller, Central remote controller in VRF network system or by Wired remote controller connected to the Network converter.
- Start/Stop, operation mode, temperature setting, fan speed, etc. can be done with these controllers.
- One Network converter can be connected and controlled up to 16 indoor units.
- One Wired remote controller is possible for one Network converter by UTY-VTGX.
- Up to 100 Network converter can be connected in one VRF network system. (One Network converter is regarded as one refrigerant system. The total refrigerant system in one VRF network system must be within 100.)

■ Accessory

Name and shape	Q'ty	Application
 Cable tie	7	For mounting the remote controller cable and transmission cable
 Screw (M4 × 16 mm)	4	For mounting the Network converter
 Installation manual	1	

CONTROL SYSTEM

■ System diagram



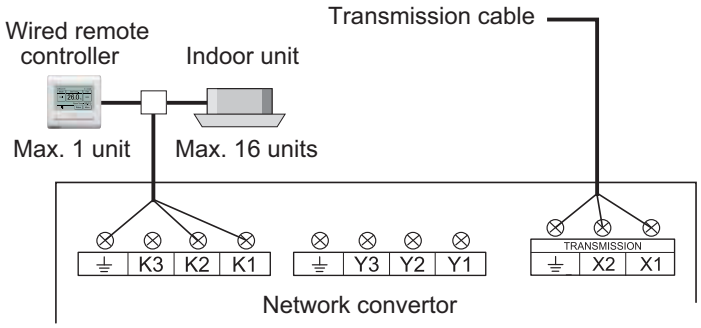
*1: All indoor units connected to a Network converter are operated under same status.

*2: Network converter is necessary for each indoor unit to control indoor unit individually.

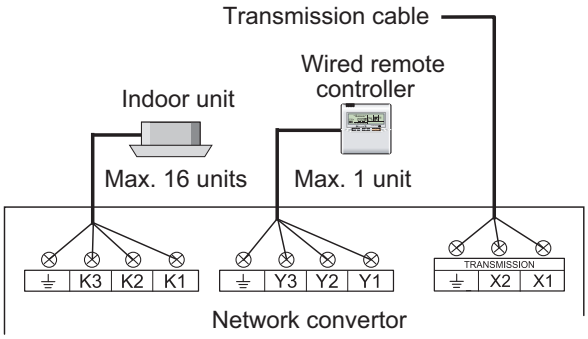
CONTROL SYSTEM

■ Electrical wiring

- **For non-polar 2 wire**



- **For polar 3 wire**



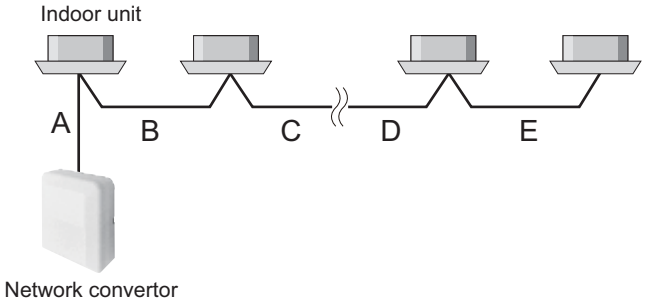
NOTES:

- Do not bind the power cable and the remote controller cable to avoid erroneous operation.
- Use shielded cable for transmission cable in accordance with the regional cable standard.
- Use sheathed PVC cable or shielded cable for remote controller cable in accordance with the regional cable standard.
- Use ground wire to ground the Network converter.

CONTROL SYSTEM

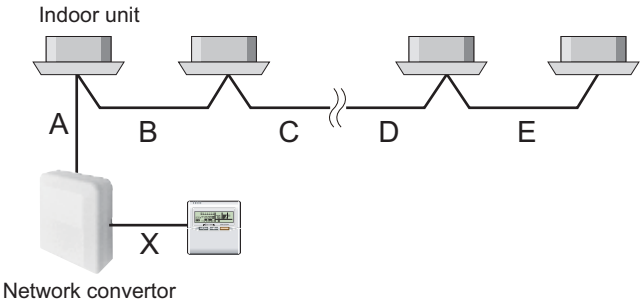
■ Limited wiring length

- **For non polar 2-wire**
  Up to 4 remote controllers can be used to operate the indoor units.



A, B, C, D, E: Remote controller cable (For details of controller cable specifications, refer to "Controller cable" in Chapter 6. SYSTEM DESIGN on page 06-62.)
A ≤ 6 ft (2 m), A + B + C + D + E ≤ 1,640 ft (500 m)

- **For polar 3-wire**



A, B, C, D, E, X: Remote controller cable (For details of controller cable specifications, refer to "Controller cable" in Chapter 6. SYSTEM DESIGN on page 06-62.)
A ≤ 6 ft (2 m), A + B + C + D + E ≤ 328 ft (100 m) and X ≤ 328 ft (100 m)

CONTROL SYSTEM

■ Connectable remote controllers

3 types of wired remote controller shown in the table below can be connected to this product.
This product is connectable to indoor units that following wired remote controllers can be connected.

Model name	RC number	Type
UTY-RNRU	AR-WEA∗∗ AR-WEB∗∗ AR-WEC∗∗	Non polar 2-wire
UTB-YUD	AR-6TC∗∗	Polar 3-wire
UTY-RNNUM	AR-WAE∗∗	

∗: Numerical character or alphabetical character

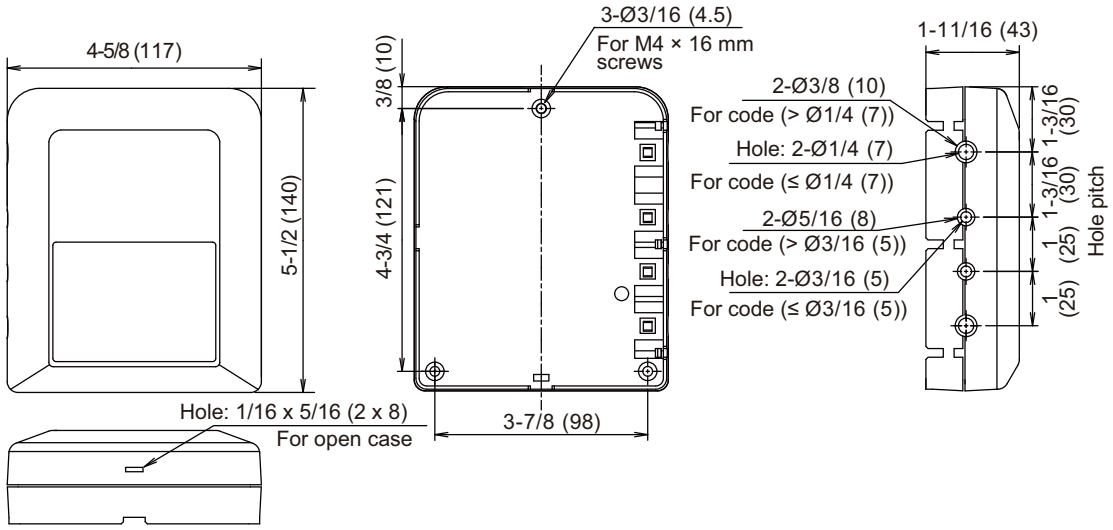
■ Functions

Operation	Non polar 2-wire	Polar 3-wire
Operation of louver from VRF	○	×
Operation of louver from wired remote controller	○	○
Restriction of wireless remote controller from central control	○	×
Restriction of wired remote controller from central control	○	○
Anti-freeze	×	×
Setting high and low temperature limit	○	×
Indoor unit rotation	×	×
Turning off indoor unit external thermostat	×	×
Outdoor unit forced stop	×	×
Outdoor unit capacity save	×	×
Outdoor unit low noise	×	×
Electricity distribution	×	×
Display model name	×	×
System time	○	×
Remote setting	×	×
Local setting by the wired remote controller	○	×

CONTROL SYSTEM

■ Dimensions

Unit: in (mm)



■ Specifications

Input power		W	2
Temperature	Operating	°F (°C)	32 to 114.8 (0 to 46)
	Packaged	°F (°C)	14 to 140 (-10 to 60)
Humidity	Packaged	%	0 to 95 (RH) No condensation
Dimensions (H × W × D)		in (mm)	5-1/2 × 4-5/8 × 1-11/16 (140 × 117 × 43)
Weight		oz (g)	9 (250)

CONTROL SYSTEM

CONTROL SYSTEM

● Wiring specifications

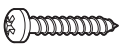
Use	Cable size	Wire type	Remarks
Transmission cable	22 AWG (0.33 mm^2)	LEVEL 4 (NEMA) Non-polar 2 core, twisted pair solid core shielded	LonWorks compatible cable
Remote controller cable (2-wire type)	22 to 16 AWG (0.33 to 1.25 mm^2)	Non-polar 2 core	Use sheathed PVC cable or shielded cable in accordance with the regional cable standard.
Remote controller cable (3-wire type)	22 AWG (0.33 mm^2)	Polar 3 core	

3-2. Network converter (UTY-VGGXZ1)



- With this Network converter, single split type and multi system air conditioners can be controlled by System controller, Touch panel controller, Central remote controller in VRF network system or by Wired remote controller connected to the Network converter.
- Start/Stop, operation mode, temperature setting, fan speed, etc. can be done with these controllers.
- One Network converter can be connected and controlled up to 16 indoor units.
- Two Wired remote controllers are possible for one Network converter.
- Up to 100 Network converters can be connected in one VRF network system. (One Network converter is regarded as one refrigerant system. Total refrigerant systems in one VRF network system must be within 100.)

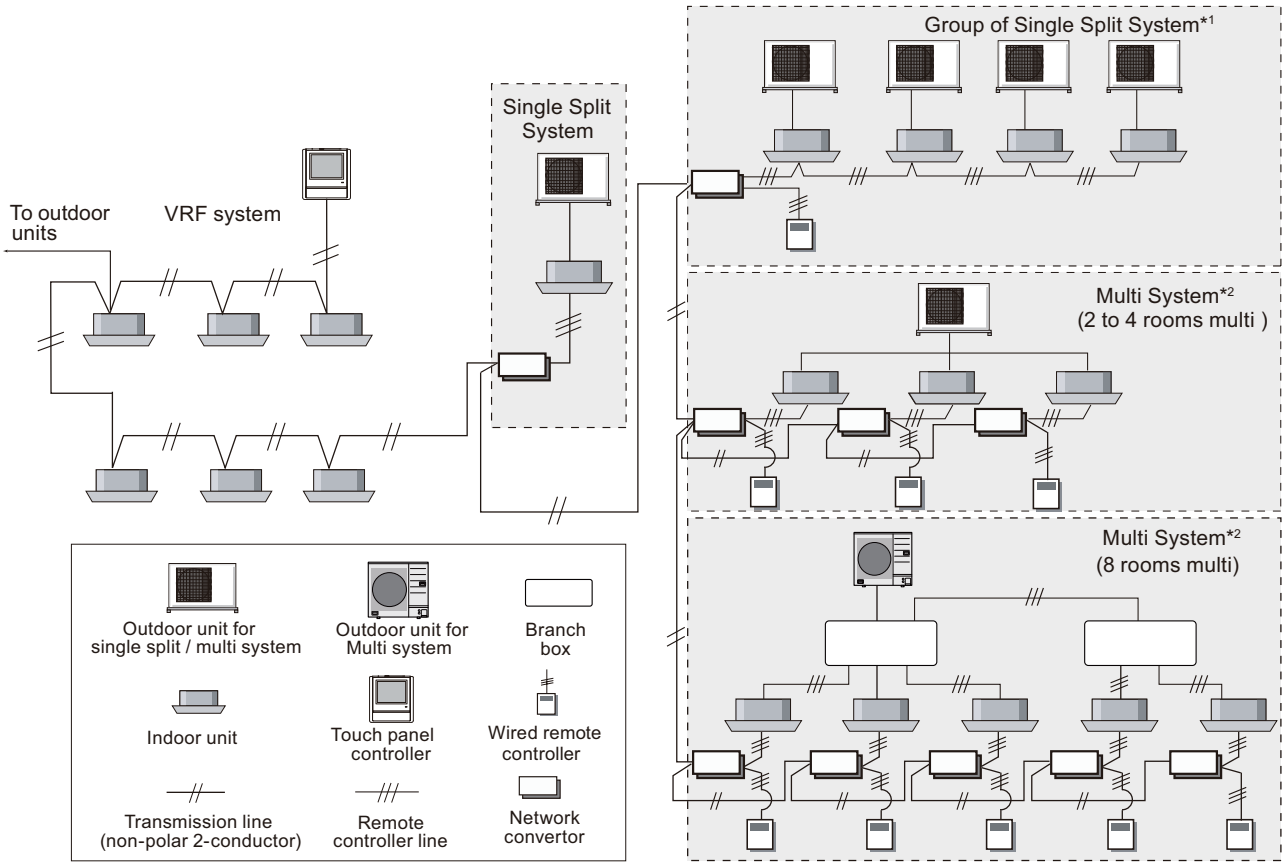
■ Accessory

Name and shape	Q'ty	Application
 Cable tie	4	For mounting the power supply cable, remote controller cable, and transmission cable
 Screw (M4 × 20 mm)	4	For mounting the Network converter
 Dust proof bushing	1	For connecting the power supply cable (Except in U.S.A. and Canada)
 Installation manual	1	

CONTROL SYSTEM

■ System diagram

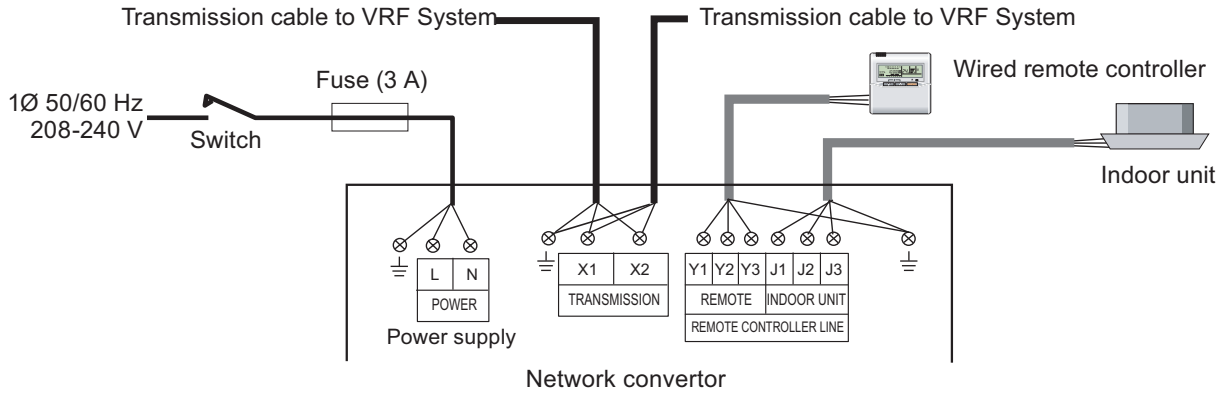
- For connecting single split type system

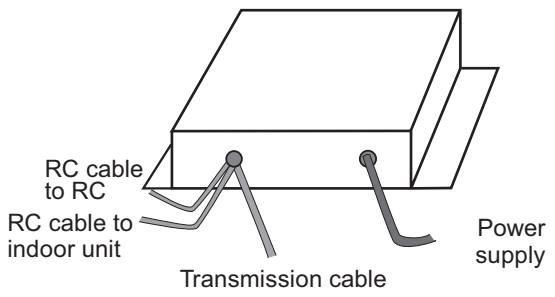


*1: All indoor units connected to a Network converter are operated under same status.

*2: Network converter is necessary for each indoor unit to control indoor unit individually.

■ Electrical wiring





CONTROL SYSTEM

NOTES:

- Do not bind the power cable and the remote controller cable to avoid erroneous operation.
- Use shielded cable for transmission line and remote controller line. The shielded metal should be grounded.
- Use ground wire to ground the Network converter.

CONTROL SYSTEM

■ Applicable models

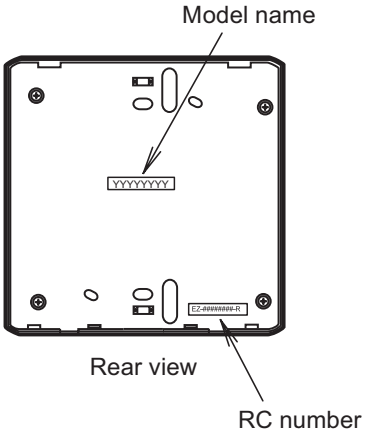
● Connectable remote controllers

In the case of connecting single split type system, Wireless remote controller cannot be connected to this product.

3 types of wired remote controller shown in the table below can be connected to this product.

Model name	RC number
UTB-UUB	AR-3TA∗∗
UTY-RNBYU UTB-YUD	AR-6TC∗∗
UTY-RNNUM	AR-WAE∗∗

∗: Numerical character or alphabetical character



CONTROL SYSTEM

● Connectable indoor units

This product is connectable to indoor units that following wired remote controllers (accessories or optional parts) can be connected.

RC number		
AR-3TA∗∗	AR-6TC∗∗	AR-WAE∗∗
EZ-099DHSE-R	EZ-000DHSE-R	EZ-0001HSE-R
EZ-000GHSE-R	EZ-00004HSE-R	EZ-00005HSE-R
EZ-0015HSE-R	EZ-0019HSE-R	EZ-099DHSEFR
EZ-0001HSEFR	EZ-000DHSEFR	EZ-000GHSEFR
EZ-0015HSEFR		
EZ-0994HSE-R	EZ-000EHSE-R	EZ-0994HSEFR
EZ-099CWSE-R	EZ-000AWSE-R	EZ-0001WSE-R
EZ-000FWSE-R	EZ-0012WSE-R	EZ-099CWSEFR
EZ-0001WSEFR	EZ-000AWSEFR	
EZ-09906WSE-R	EZ-000BWSE-R	EZ-09906WSEFR

∗: Numerical character or alphabetical character

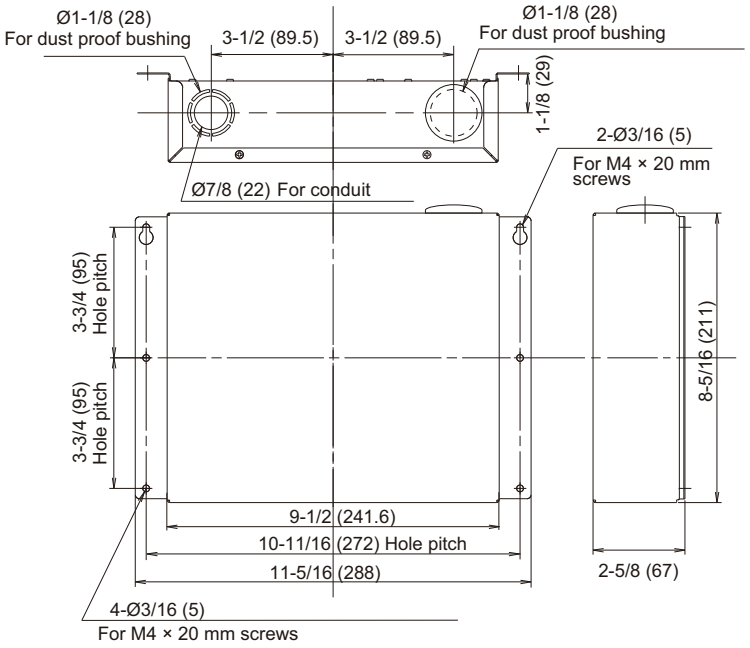
NOTE: EZ type remote controllers cannot control indoor units via this unit. When you want to operate indoor units directly by the EZ type remote controller, the optional wired remote controller must be purchased. (For applicable wired remote controller, refer to "Connectable remote controllers" on page 05-119.)

■ Functions

Start/Stop	Timer setting
Temperature control	Fan control
Operation mode	Central control (Lock the remote controller functions)

■ Dimensions

Unit: in (mm)



■ Specifications

Power supply		V	1 Ø AC 208—240
Power source frequency		Hz	50/60
Input power		W	3.0
Temperature	Operating	°F (°C)	32 to 114.8 (0 to 46)
	Packaged	°F (°C)	14 to 140 (-10 to 60)
Humidity	Packaged	%	0 to 95 (RH) No condensation
Dimensions (H × W × D)		in (mm)	2-5/8 × 11-5/16 × 8-5/16 (67 × 288 × 211)
Weight		lb (g)	3 (1,500)
Fuse capacity		A	3

● Wiring specifications

Use	Cable size	Wire type	Remarks
Power supply cable (using remote control cable)	20 to 16 AWG (0.5 to 1.25 mm^2)	60245 IEC 57 or equivalent	1 Ø AC 208—240 V 50/60 Hz, 2 wire + ground (Always ground the unit)
Transmission cable	22 AWG (0.33 mm^2)	LEVEL 4 (NEMA) Non-polar 2 core, twisted pair solid core shielded	LonWorks compatible cable
Remote controller cable	22 AWG (0.33 mm^2)	Polar 3 core	Use sheathed PVC cable or shielded cable in accordance with the regional cable standard.
External input/ output cable	22 AWG (0.33 mm^2)	Polar 2 core, twisted pair	Use shielded cable in accordance with the regional cable standard.

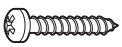
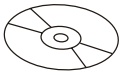
CONTROL SYSTEM

3-3. Network converter for LonWorks (UTY-VLGX)



- The convertor for connecting VRF network system to the BMS system built by LonWorks open network, for manage small to medium sized BMS and VRF network system.
- Maximum of 128 indoor units can be connected to one Network converter for LonWorks.
- VRF system can be centrally controlled or monitored from BMS via UTY-VLGX.
- Maximum 4 Network converter for LonWorks can be connected to 1 BMS.

■ Accessory

Name and shape	Q'ty	Application
 Cable tie	3	For mounting the power supply cable and transmission cable
 Screw (M4 × 20 mm)	4	For mounting the Network converter
 Dust proof bushing	1	For connecting the power supply cable (Except in U.S.A. and Canada)
 CD-ROM	1	Includes the software and manuals of tools for Network converter
 Connector cable	1	For initial setting tool
 Installation manual	1	

■ Other required devices (Locally purchased)

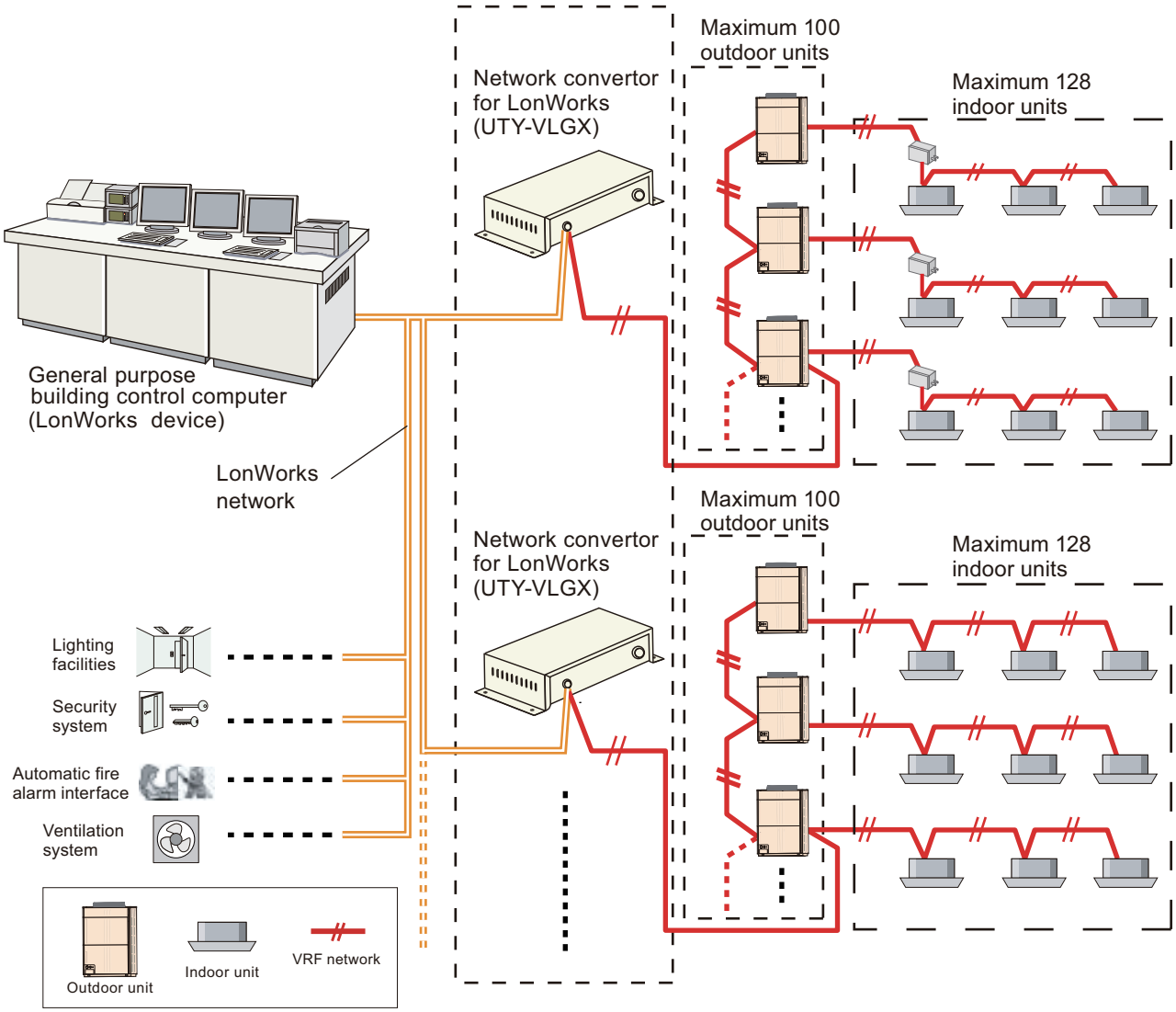
- To install tool for convertor, personal computer that satisfies the following system requirements is necessary.

Personal computer system requirement	
Operating system	• Microsoft Windows 7 Professional (32-bit) SP1 • Microsoft Windows 8.1 Pro (32-bit) • Microsoft Windows 10 Home (32-bit or 64-bit) • Microsoft Windows 10 Pro (32-bit or 64-bit) Supported Language: English and Chinese
Memory	1 GB or more
Display	1,024 × 768 or higher resolution, 16-bit or higher color
Interface	RS232C serial port × 1 (Use "COM1" port)
Software	Adobe Reader 9.0 or later
Optical drive	CD-ROM drive

CONTROL SYSTEM

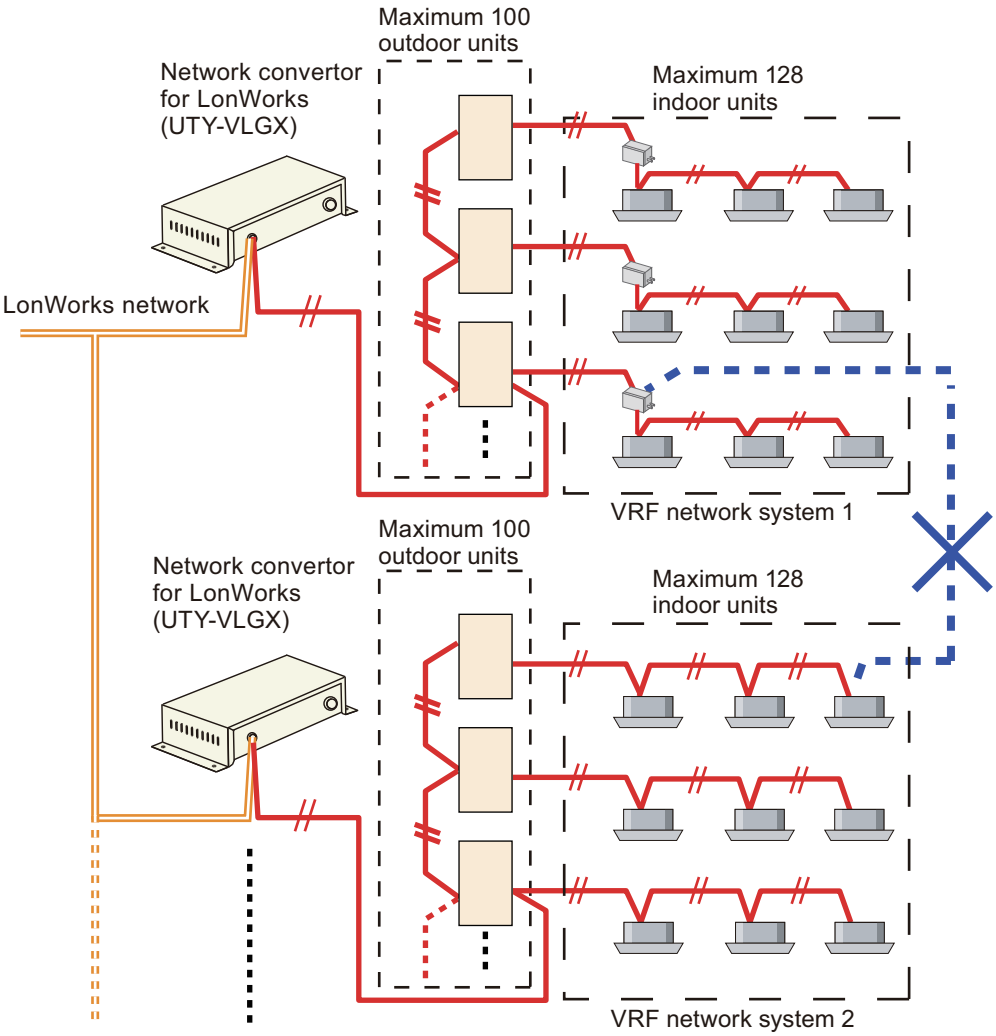
■ System diagram

- **Proper system diagram**

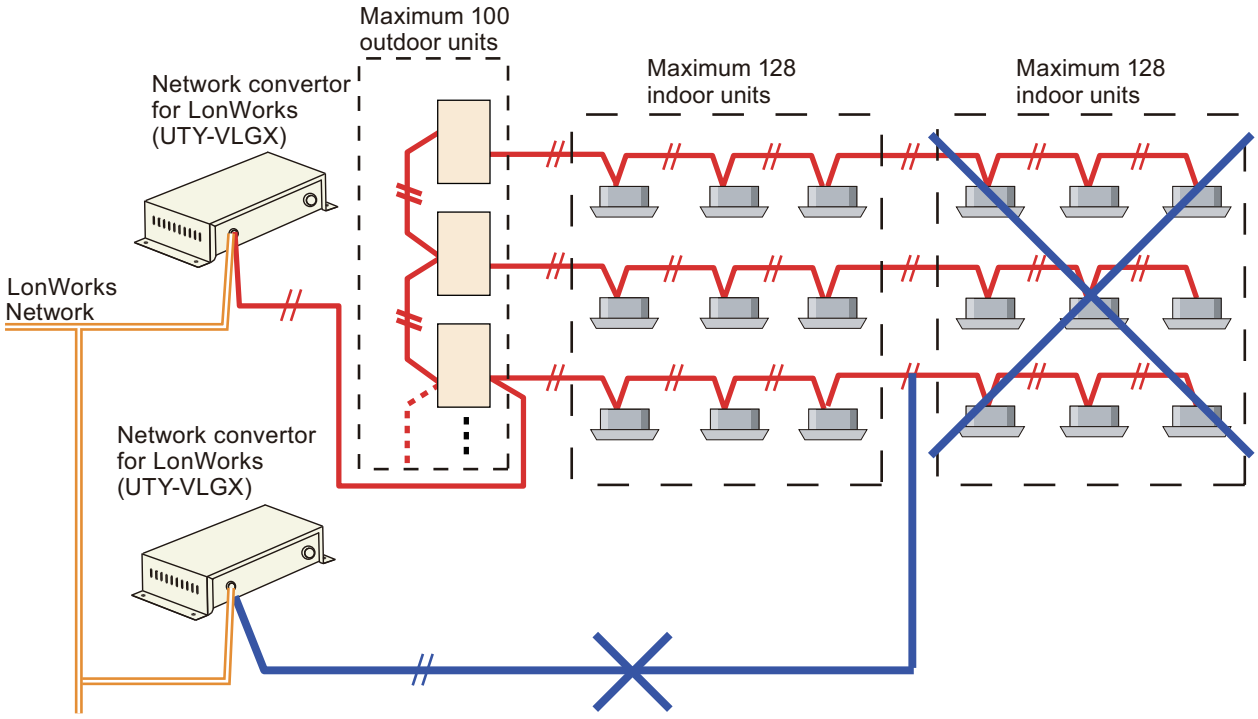


CONTROL SYSTEM

- **Improper system diagram**
  - Example 1 (Prohibited)

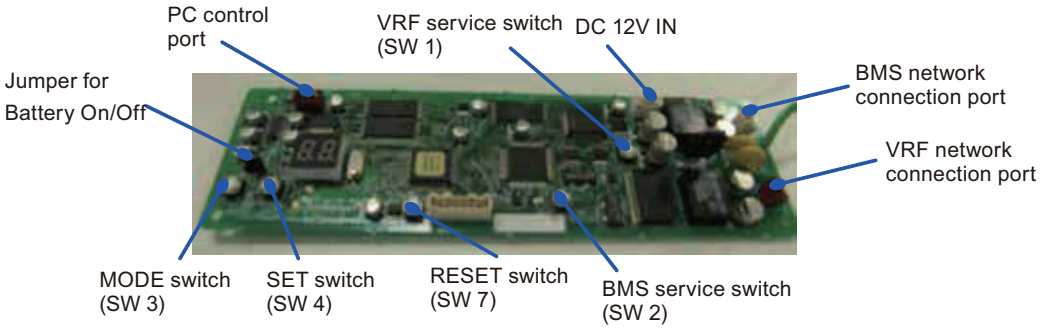


  - Example 2 (Prohibited)

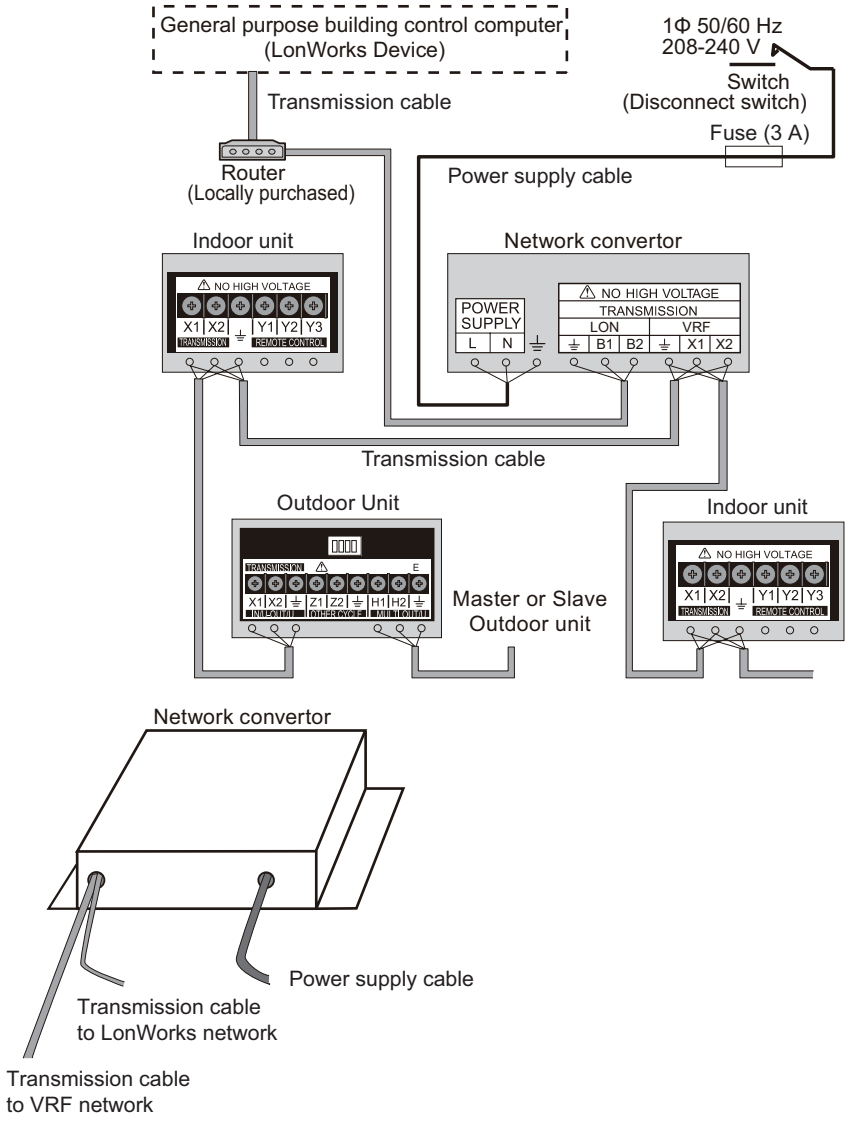


CONTROL SYSTEM

■ Component location of PCB



■ Electrical wiring



NOTES:

- Do not bind the power cable and transmission cable to avoid an errorneous operation.
- Use shielded cable for transmission cable. The shield metal should be grounded.
- Do not forget to ground the Network converter.

CONTROL SYSTEM

■ Functions

- **Indoor unit control**
  - Individual control
    Commands from LonWorks network are sent to the respective indoor units.
    (LonWorks network → respective indoor units of VRF network)

  - Batch control
    Commands from LonWorks network are sent to all indoor units connected to VRF network.
    (LonWorks network → All indoor units of VRF network)

- **Indoor unit status monitoring**
  Indoor unit status is communicated to the LonWorks network in the form of Lon network variables.
  (LonWorks network ← All indoor units of VRF network)

● Control and monitoring items

Item	Function	Description
Indoor unit control (Individual/Batch)	On/Off Command*1	Start/Stop operation
	Operation mode setting	Cooling/Heating/Auto/Fan/Dry
	Temperature setting	Set room temperature
	Airflow mode setting	Set airflow
	Set point temperature limit Setting	Set room temperature lower limit & room temperature upper limit
	Thermostat off setting*1*2	Thermostat off (Only one controller in VRF network system can do this.)
	Centrally control (Filter reset)	Prohibition of filter sign reset of remote controller
	Centrally control (All mode)	Prohibition of all mode of remote controller
	Centrally control (Timer mode)	Prohibition of timer mode of remote controller
	Centrally control (Set temperature mode)	Prohibition of set temperature mode of remote controller
	Centrally control (On/Off mode)	Prohibition of On/Off mode of remote controller
	Centrally control (On mode)	Prohibition of On mode of remote controller
	Centrally control (Operation mode)	Prohibition of operation mode of remote control
Indoor unit control (Individual)	Filter sign reset	Set filter sign reset command
	Anti-freeze setting	Set anti-freeze command
	Energy save mode setting	Set energy save command
Indoor unit control (Batch)	Time setting	Set time setting command (The controllers those are connected in VRF network system are an object.)
	Emergency stop setting	Set emergency stop command
Outdoor unit control (Individual)	Outdoor unit low noise	Outdoor unit low noise level setting
	Outdoor unit capacity save	Outdoor unit capacity save setting

CONTROL SYSTEM

Item	Function	Description
Indoor unit monitoring (Individual)	On/Off Status*1	The indoor unit which is now operating can be monitored in all indoor units
	Operation mode setting status	Cooling/Heating/Auto/Fan/Dry mode status
	Temperature setting status	Room set temperature status
	Airflow mode setting status	Airflow mode status
	Set point temperature limit status	Room set temperature limit status
	Thermostat off setting status*1*2	Thermostat off set value status
	Centrally control (Filter reset) status	Remote controller filter reset prohibition status
	Centrally control (All mode) status	Remote controller all mode prohibition status
	Centrally control (Timer mode) status	Remote controller timer mode prohibition status
	Centrally control (Set temperature) status	Remote controller set temp. prohibition status
	Centrally control (On/Off) status	Remote controller On/Off prohibition status
	Centrally control (On) status	Remote controller On prohibition status
	Centrally control (Operation) status	Remote controller operation prohibition status
	Anti-freeze setting status	Anti-freeze set status
	Energy save mode setting status	Energy save mode set status
	Filter sign reset status	Filter sign reset status
	Room temperature status	Room temperature status
	Error code status	Error code status can be monitored.
	Operation mode restriction status	Restriction item*3 can be monitored.
Indoor unit monitoring (Batch)	Maintenance mode status	Maintenance status
	Emergency stop setting status	Emergency stop setting status
Outdoor unit monitoring (Individual)	Error code Status	Error code status
Convertor unit monitoring (Individual)	Error code Status	Error code status

CONTROL SYSTEM

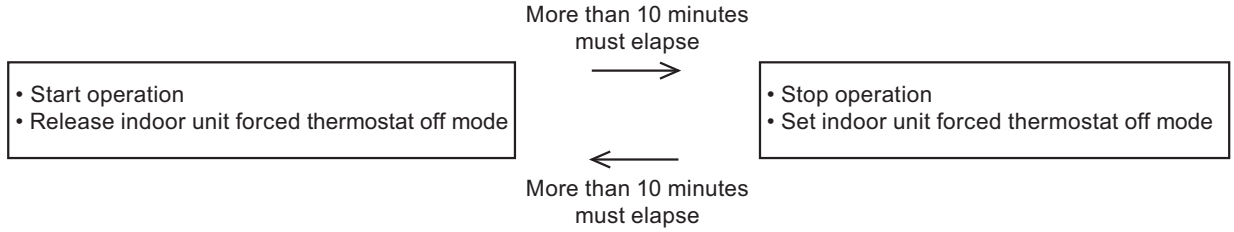
NOTES:

- For detailed information, refer to the interface specification posted on “Service & Supports” page of the web site.
  https://www.fujitsu-general.com/global/support/
- *1: To protect the compressor of the outdoor unit, carefully read and understand the following caution that may affect the operation of compressor before executing the setting.

⚠ CAUTION

When performing periodical settings like schedule settings for the following functions, perform the setting to all indoor units in the same refrigerant system simultaneously, conforming to the timing restriction described below.

<Corresponding function>

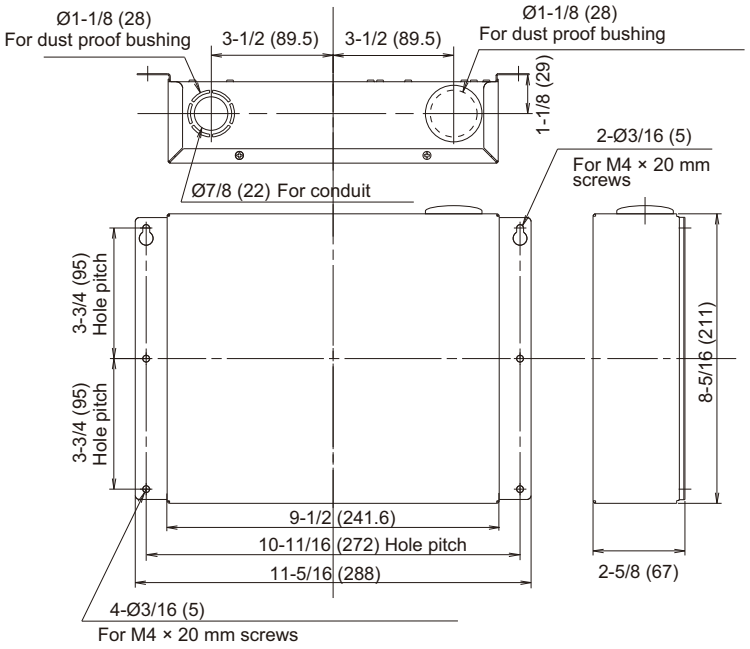


- *2: Forced thermostat off instruction
  – Only one equipment can send these instructions for each refrigerant system.
  – When these instructions are sent by multiple equipment, the system may not respond as instructed or may cause malfunction.

- *3: All operation setting, Timer setting, Room temperature setting, Operation mode setting, On/Off Operation, Filter reset operation, On operation setting

■ Dimensions

Unit: in (mm)



■ Specifications

Power supply		V	1 Ø AC 208—240
Power source frequency		Hz	50/60
Input power		W	4.5
Temperature	Operating	°F (°C)	32 to 114.8 (0 to 46)
	Packaged	°F (°C)	14 to 140 (-10 to 60)
Humidity	Packaged	%	0 to 95 (RH) No condensation
Dimensions (H × W × D)		in (mm)	2-5/8 × 11-5/16 × 8-5/16 (67 × 288 × 211)
Weight		lb (g)	3 (1,500)
Fuse capacity		A	3

● Wiring specifications

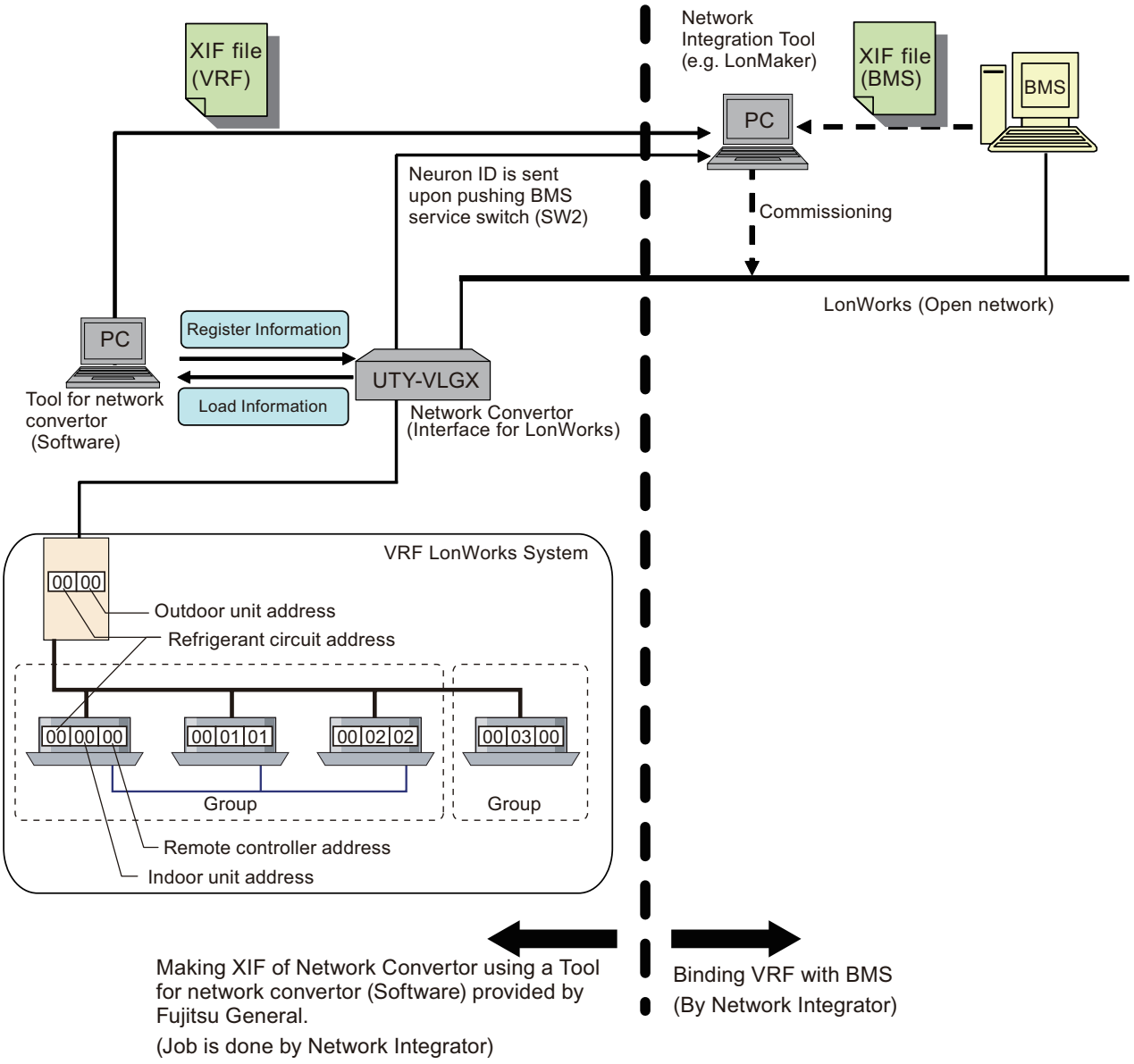
Use	Cable size	Wire type	Remarks
Power supply cable	20 to 16 AWG (0.5 to 1.25 mm^2)	60245 IEC 57 or equivalent	1 Ø AC 208—240 V 50/60 Hz, 2 wire + ground (Always ground the unit)
Transmission cable	22 AWG (0.33 mm^2)	LEVEL 4 (NEMA) Non-polar 2 core, twisted pair solid core shielded	LonWorks compatible cable

● Transmission specifications

LonWorks network		
Transmission speed	kbps	78
Transceiver		FT-X1 (Echelon corporation)
Transmission way form		Free topology
Cable		Twisted pair cable (Shield)
		22 AWG Equivalent
Network connector		One terminal
Terminal register		None attachment (It attaches at the terminal of a network)

CONTROL SYSTEM

■ Total system configuration layout



CONTROL SYSTEM

■ Simple procedure for create XIF and register data to Network converter for LonWorks

Important

Network converter will not operate if,

- VRF network system address (Outdoor and Indoor units address) allocation information are not registered to Network converter.
- XIF data information and VRF network system address allocation information must not be the same.
- Binding and commissioning are not executed. (During binding, read out the Network converter Neuron ID by pushing BMS service switch [SW2] on the main PCB of Network converter.)
- If the ID number registered to the Network converter is not same as the ID number which is included in the XIF of Network converter.

NOTE: For detailed information, refer to the application manual which is included inside packaged CD-ROM.

The following is the on-line procedure. It is also possible to create XIF and register data off-line.

1. Connect the PC and this product.
   Connection will be done by the connector cable provided as an accessory item of this product.

2. Install tool for convertor (software) in PC.
   Tool for convertor is the accessory item of this product.

3. Set this product to installation mode.

4. Setting ID number of this product on PC screen of tool for convertor.
   (ID number is required to identify this product from BMS. A maximum number of four Network converters can be connected to one BMS, and ID number allocation is like 00, 01, and so on.)

5. Initial setting of indoor unit and outdoor unit address by using the tool for convertor.

6. Register the initial setting data to this product. Click “Register” dialog.

7. Set configuration properties.
   To set the communication properties of this product, select the following communication properties and types; otherwise, the default value will be used.
   - Select communication items
     - Event driven communication or Cyclic communication (Default: Cyclic 3 minutes)
     - Communication interval time during turning on all together (Default: 3 minutes)
   - Select communication type (to communicate data with BMS)
     - Communicate only when changing network variable or communicate all network variable. (Default: Only when changing network variable)
     - Communicate only when changing room temperature value (Default: Room temperature changed value 1.8 °F [1 °C])

8. Register the configuration properties data to this product. Click the “Register” dialog.

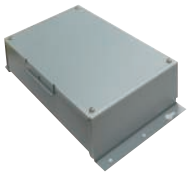
9. Creating/Modifying XIF, and transfer XIF data by USB memory or floppy disk for binding.

10. Press “Reset SW7” to reset this product.

11. Turn off the power. After that, remove the connection of PC and this product respectively.
    In this stage, Network converter is ready for binding and commissioning.

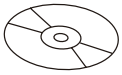
CONTROL SYSTEM

3-4. Modbus converter for VRF (UTY-VMGX)



The convertor for connecting VRF network system to the BMS system built by Modbus open network, for manage small to medium sized BMS and VRF network system.

■ Accessory

Name and shape	Q'ty	Application
 Cable tie	7	For mounting the power supply cable and transmission cable
 Screw (M4 × 16 mm)	4	For mounting the Modbus converter
 DVD	1	For initial setting
 Modbus connector	1	For connecting the cable and attaching the board connector
 USB cable	1	For initial setting tool
 Installation manual	1	

■ Other required devices (Locally purchased)

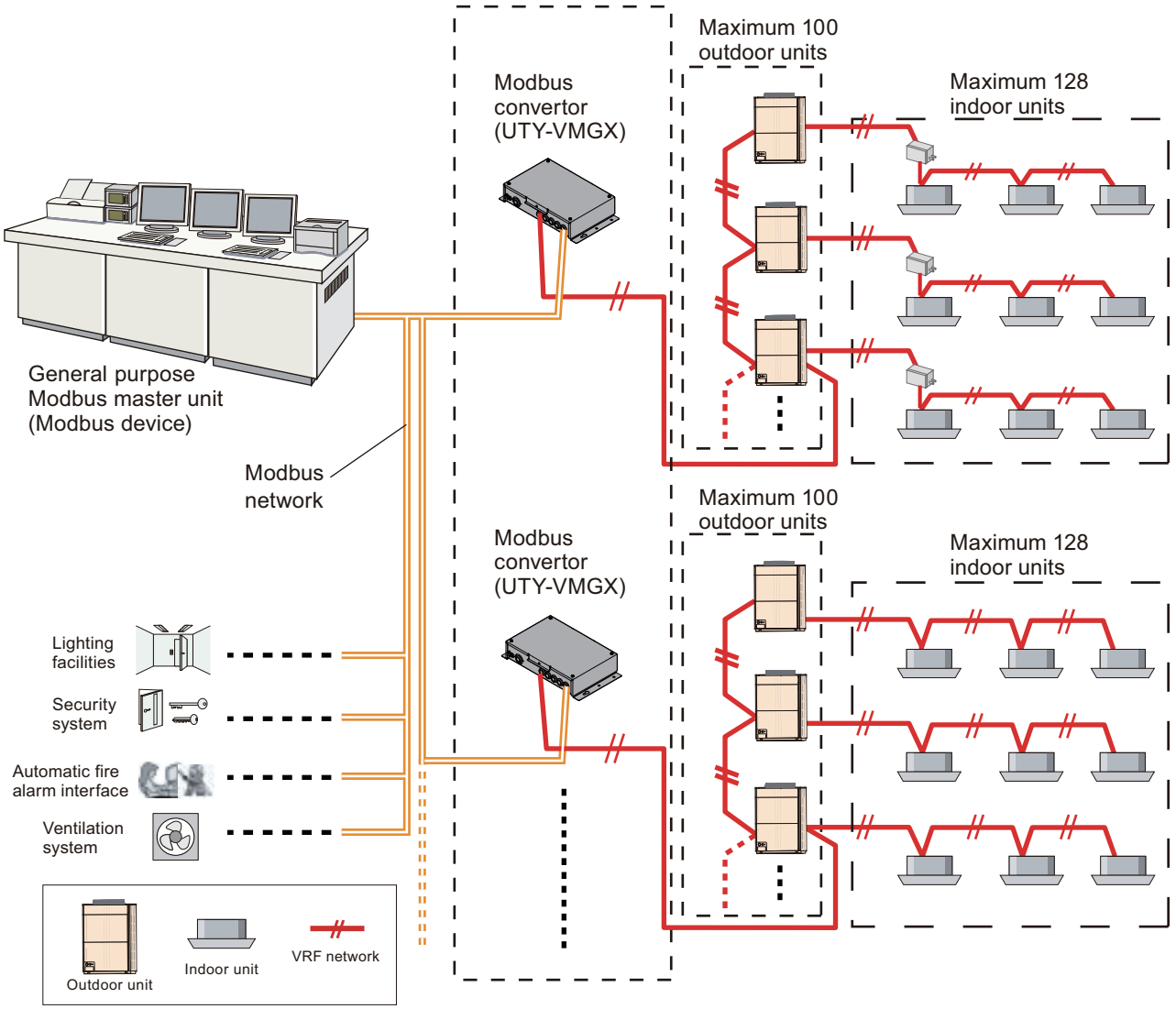
- To install tool for convertor, personal computer that satisfies the following system requirements is necessary.

Personal computer system requirement	
Operating system	• Microsoft Windows 7 Home Premium (32-bit or 64-bit) SP1 • Microsoft Windows 7 Professional (32-bit or 64-bit) SP1 • Microsoft Windows 8.1 (32-bit or 64-bit) • Microsoft Windows 8.1 Pro (32-bit or 64-bit) • Microsoft Windows 10 Home (32-bit or 64-bit) • Microsoft Windows 10 Pro (32-bit or 64-bit) Supported languages: English, Chinese, French, German, Russian, Spanish, and Polish
Memory	1 GB or more
Display	1,366 × 768 or higher resolution
Interface	USB port (× 1)
Software	Adobe Reader 11.0 or later
Optical drive	DVD drive

CONTROL SYSTEM

■ System diagram

- **Proper system diagram**

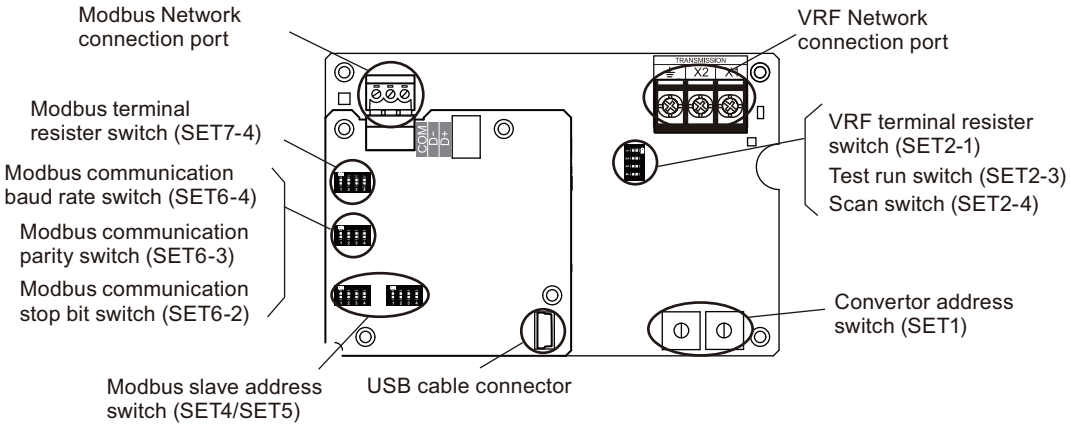


- **Connected unit**

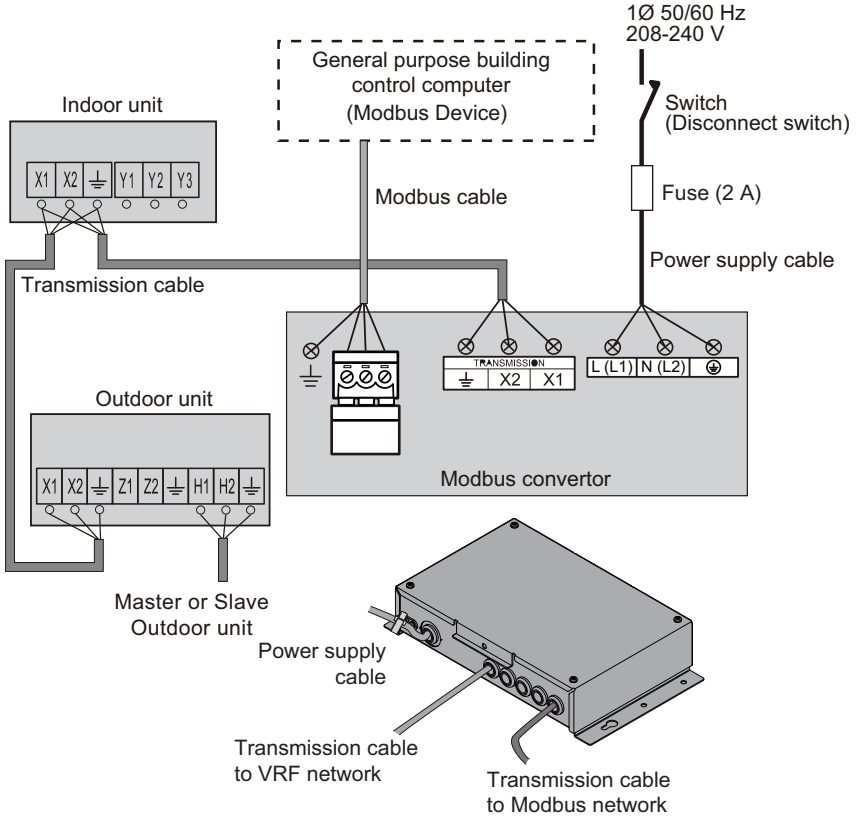
Maximum controllable indoor units number per 1 Modbus converter		128
Maximum controllable outdoor units number per 1 Modbus converter		100
Maximum connectable Modbus converter number per 1 VRF network system		9
Maximum number of connected Modbus converter units to one Modbus master unit	Without repeater	31
	With repeater	247

CONTROL SYSTEM

■ Component location of PCB



■ Electrical wiring



■ Functions

- **Indoor unit control**
  - Individual control
    Commands from Modbus network are sent to the respective indoor units.
    (Modbus network → respective indoor units of VRF network)

  - Batch control
    Commands from Modbus network are sent to all indoor units connected to VRF network.
    (Modbus network → All indoor units of VRF network)

- **Indoor unit status monitoring**
  Indoor unit status is communicated to the Modbus network in the form of Lon network variables.
  (Modbus network ← All indoor units of VRF network)

CONTROL SYSTEM

● Control and monitoring items

Item	Function	Description
Indoor unit control (Individual/Batch)	On/Off Command*1	Start/Stop operation
	Operation mode setting	Cooling/Heating/Auto/Fan/Dry
	Temperature setting	Set room temperature
	Airflow mode setting	Set airflow
	Set point temperature limit Setting	Set room temperature lower limit & room temperature upper limit
	Thermostat off setting*1*2	Thermostat off (Only one controller in VRF network system can do this.)
	Centrally control (Filter reset)	Prohibition of filter sign reset of remote controller
	Centrally control (All mode)	Prohibition of all mode of remote controller
	Centrally control (Timer mode)	Prohibition of timer mode of remote controller
	Centrally control (Set temperature mode)	Prohibition of set temperature mode of remote controller
	Centrally control (On/Off mode)	Prohibition of On/Off mode of remote controller
	Centrally control (On mode)	Prohibition of On mode of remote controller
	Centrally control (Operation mode)	Prohibition of operation mode of remote control
Indoor unit control (Individual)	Filter sign reset	Set filter sign reset command
	Anti-freeze setting	Set anti-freeze command
	Energy save mode setting	Set energy save command
	Vertical/Horizontal airflow direction louver	Set Vertical/Horizontal airflow direction louver
Indoor unit control (Batch)	Time setting	Set time setting command (The controllers those are connected in VRF network system are an object.)
	Emergency stop setting	Set emergency stop command
Outdoor unit control (Individual)	Outdoor unit low noise	Outdoor unit low noise level setting
	Outdoor unit capacity save	Outdoor unit capacity save setting
Indoor unit monitoring (Individual)	On/Off Status*1	The indoor unit which is now operating can be monitored in all indoor units
	Operation mode setting status	Cooling/Heating/Auto/Fan/Dry mode status
	Temperature setting status	Room set temperature status
	Airflow mode setting status	Airflow mode status
	Set point temperature limit status	Room set temperature limit status
	Thermostat off setting status*1*2	Thermostat off set value status
	Centrally control (Filter reset) status	Remote controller filter reset prohibition status
	Centrally control (All mode) status	Remote controller all mode prohibition status
	Centrally control (Timer mode) status	Remote controller timer mode prohibition status
	Centrally control (Set temperature) status	Remote controller set temp. prohibition status
	Centrally control (On/Off) status	Remote controller On/Off prohibition status
	Centrally control (On) status	Remote controller On prohibition status
	Centrally control (Operation) status	Remote controller operation prohibition status
	Anti-freeze setting status	Anti-freeze set status
	Energy save mode setting status	Energy save mode set status
	Filter sign reset status	Filter sign reset status
	Room temperature status	Room temperature status
	Error code status	Error code status can be monitored.
	Vertical/Horizontal airflow direction louver status	Vertical/Horizontal airflow direction louver status
	Indoor unit status	Defrost/oil recovery/pump down can be monitored.

CONTROL SYSTEM

Item	Function	Description
Indoor unit monitoring (Batch)	On/Off status*1	The indoor unit which is now operating can be monitored in all indoor units.
	Maintenance mode status	Maintenance status
	Emergency stop setting status	Emergency stop setting status
	Error status	The indoor unit which is now error can be monitored in all indoor units.
Outdoor unit monitoring (Individual)	Outdoor unit low noise	Outdoor unit low noise level can be monitored.
	Outdoor unit capacity save	Outdoor unit capacity save can be monitored.
Convertor unit monitoring (Individual)	Error code Status	Error code status
	Modbus communication setting Information	Baud rate/slave address can be monitored.
	Model name	Convertor model name can be confirmed.
	Software version	Convertor software version can be confirmed.

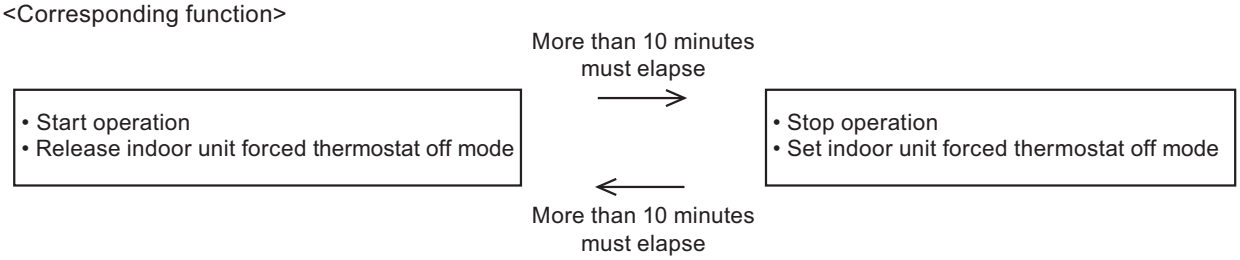
NOTES:

- For detailed information, refer to the interface specification posted on “Service & Supports” page of the web site.
  https://www.fujitsu-general.com/global/support/
- *1: To protect the compressor of the outdoor unit, carefully read and understand the following caution that may affect the operation of compressor before executing the setting.

⚠ CAUTION

When performing periodical settings like schedule settings for the following functions, perform the setting to all indoor units in the same refrigerant system simultaneously, conforming to the timing restriction described below.

<Corresponding function>

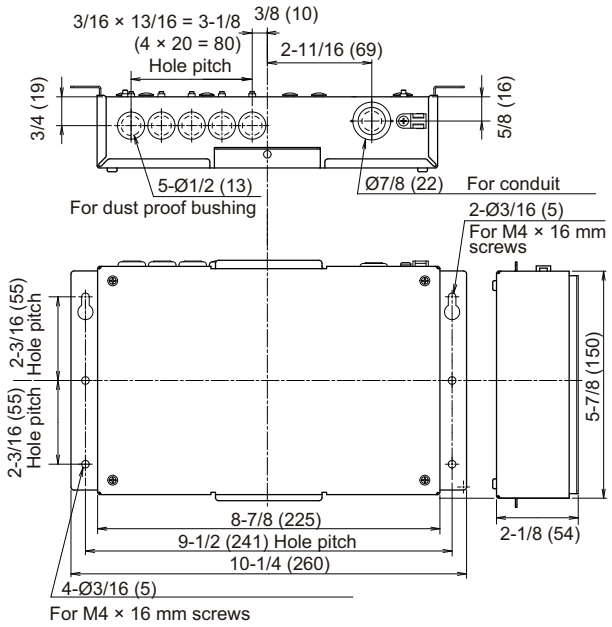


- *2: Forced thermostat off instruction
  – Only one equipment can send these instructions for each refrigerant system.
  – When these instructions are sent by multiple equipment, the system may not respond as instructed or may cause malfunction.

CONTROL SYSTEM

■ Dimensions

Unit: in (mm)



■ Specifications

Power supply		V	1 Ø AC 208—240
Power source frequency		Hz	50/60
Input power		W	2.0
Temperature	Operating	°C	32 to 114.8 (0 to 46)
	Packaged	°C	14 to 140 (-10 to 60)
Humidity	Packaged	%	0 to 95 (RH) No condensation
Dimensions (H × W × D)		mm	2-1/8 × 10-1/4 × 5-7/8 (54 × 260 × 150)
Weight		lb (g)	2 (1,100)
Fuse capacity		A	2

● Wiring specifications

Use	Cable size	Wire type	Remarks
Power supply cable	20 to 16 AWG (0.5 to 1.25 mm^2)	60245 IEC 57 or equivalent	1 Ø AC 208—240 V 50/60 Hz, 2 wire + ground (Always ground the unit)
Transmission cable	22 AWG (0.33 mm^2)	LEVEL 4 (NEMA) Non-polar 2 core, twisted pair solid core shielded	LonWorks® compatible cable
Modbus cable	26 to 16 AWG (0.128 to 1.25 mm^2)	AWG 16—26 3 Wire + Sheathed PVC cable	

● Transmission specifications

Transfer mode		RTU mode
Communication method		Half-duplex operation, Master/Slave method
Communication speed	bps	9,600/19,200
Synchronous system		Asynchronous communication method
Data bit	bit	8
Parity		even/odd/none
Stop bit	bit	2 (no parity)/1
Network		3 wire RS485
Maximum cable length	ft (m)	3,280 (1,000)

CONTROL SYSTEM

■ Simple procedure for register data to Modbus converter for VRF

Important
Modbus converter for VRF will not operate, if VRF network system address (outdoor and indoor units address) allocation information are not registered to Modbus converter for VRF.

Address initial settings are 3 methods as follows:

● Default addresses of indoor unit and outdoor unit are used (Initial setting is not necessary)

Default address value ([Ref No.—Node No.])

Indoor unit:	[00—00] [00—01] ••• [00—63]
	[01—00] [01—01] ••• [01—63]
Outdoor unit:	[00—00] [00—01] ••• [00—03]
	[01—00] [01—01] ••• [01—03]

● Scan of connected indoor units address

Scan procedure is as follows:

1. Turn on the switch of scan setting.
2. “Scan display” by LED (Address is registering inside the convertor).
3. “Number of connected indoor unit display” by LED (Scan is complete).
4. Turn off the switch of scan setting.
5. “Address update display” by LED
6. Turn on the main power again.
7. “Address rewriting display” by LED (Address are synchronized among boards).

If scan error is generated, perform the scan again.

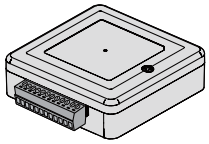
● Setting from PC

NOTE: For detailed information, refer to the application manual included inside packaged DVD.

1. Install tool for convertor (software) in PC.
   Tool for convertor is the accessory item of this product.
2. Connect the PC and this product.
   Connection will be done by the connector cable provided as an accessory item of this product.
3. Set this product to USB mode.
4. Initial setting of indoor unit and outdoor unit addresses by using the tool for convertor.
5. Register the initial setting data to this product. Click “Register” dialog.
   In this stage, this product is ready for binding and commissioning.

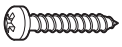
CONTROL SYSTEM

3-5. Thermostat converter (UTY-TTRX)

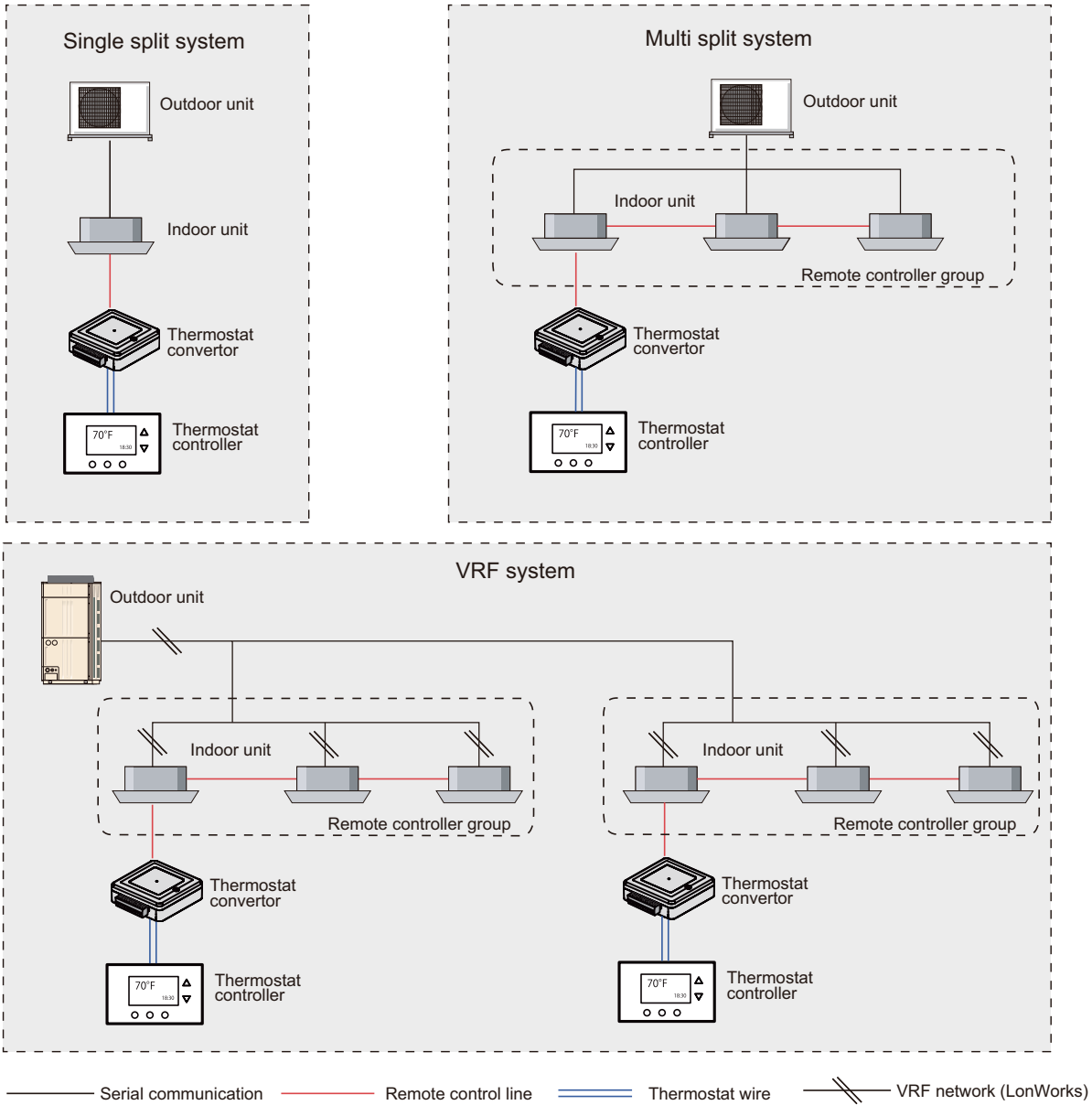


- This product can control Fujitsu General products using a third-party thermostat controller.
- Up to 16 indoor units can be connected with one thermostat convertor.

■ Accessory

Name and shape	Q'ty	Application
 Screw (M4 × 16 mm)	2	For mounting the Thermostat converter
 Installation manual	1	

■ System diagram

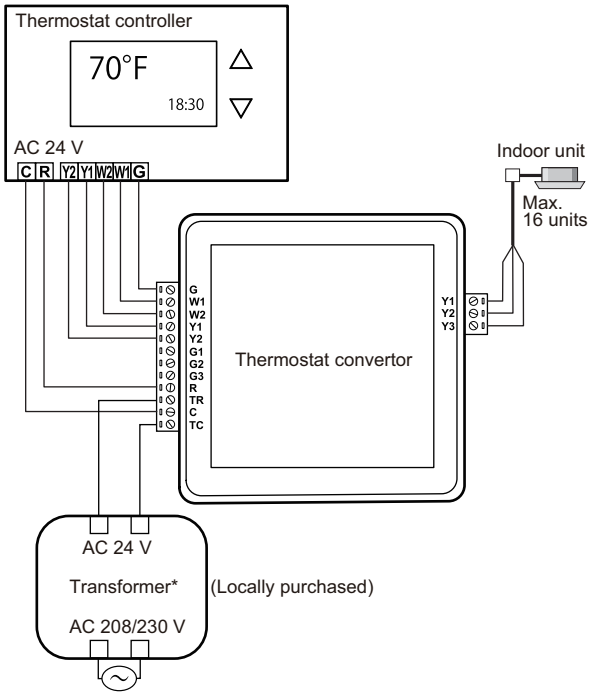


CONTROL SYSTEM

■ Electrical wiring

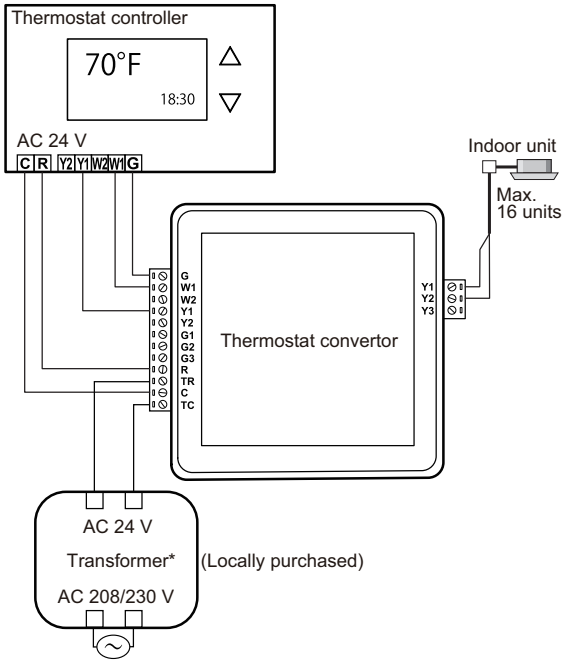
Connection method differs by the type of thermostat controller.

- **Two-stage cooling and heating**
  Example: Remote controller for 3-wire type



*: Install the transformer as necessary, per building code and manufacturer's installation instructions. (Maximum power: 5.0 VA)

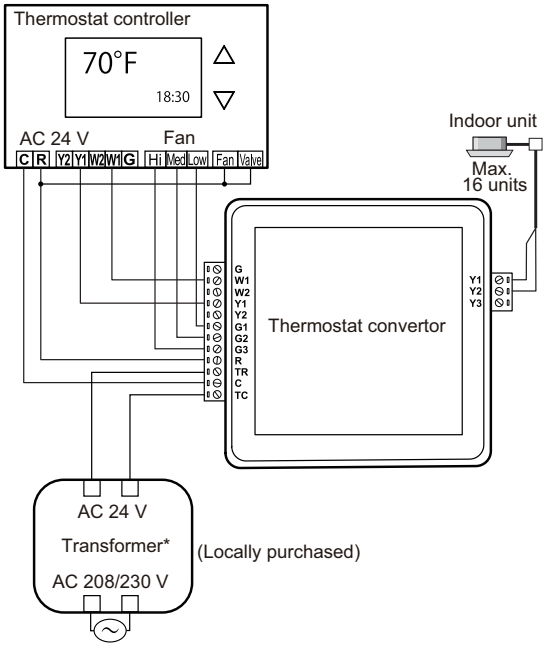
- **Single-stage cooling and heating**



*: Install the transformer as necessary, per building code and manufacturer's installation instructions. (Maximum power: 5.0 VA)

CONTROL SYSTEM

- **Single-stage cooling and heating with dedicated fan speed relays**



*: Install the transformer as necessary, per building code and manufacturer's installation instructions. (Maximum power: 5.0 VA)

Terminal name	Application
TC	Common (In) from transformer
C	Common to the thermostat controller
TR	Power supply from transformer
R	Power supply to thermostat controller
G3	Airflow High
G2	Airflow Medium
G1	Airflow Low
Y2	Cooling stage 2
Y1	Cooling stage 1
W2	Heating stage 2
W1	Heating stage 1
G	Fan

NOTES:

- For remote controller cable, 2-wire type and 3-wire type are available depending on the device to be connected.
- All wiring shown should be performed with 18 AWG thermostat wire.
- Terminals to thermostat controller on Thermostat converter support AC 20 to 30 V.
- HIGH/MED/LOW fan signals are optional, and may not be available on all thermostat controllers.
- Signals for stage 2 are optional. W2 and Y2 terminals may not be used in single-stage thermostats. To use the stage 2 signals, turn on the DIP switch SET3-1 on each convertor.
- Up to 16 indoor units be controlled with a single thermostat controller. Multiple indoor units connected to one Thermostat converter are operable by the same operating setting.
- Two or more types of VRF system, single model, or multi systems cannot be mixed together.

CONTROL SYSTEM

■ Functions

Function		Remarks
Air conditioning control function	Operation mode setting	Cooling, Heating, Fan
	Fan speed setting	HIGH, MED, LOW, AUTO
	Temperature setting	Stage 1 (Cooling), Stage 1 (Heating) Stage 2 (Cooling), Stage 2 (Heating)
Maintenance function	Indoor unit error monitoring	Communication error detection Control target error indication
	Convertor error monitoring	
Others	Two-stage cooling and heating thermostat operation	
	Delay off	

■ Limitation

- **Automatic prohibition of remote controller operation**
  Thermostat operates the indoor units according to the setting temperature by built-in temperature sensor. Since setting temperature of the remote controller may be different from the setting temperature of the thermostat, remote controller operation prohibition is automatically enabled.

- **Air direction adjustment by thermostat**

- **No fan mode is available in heat pump system.**
  Do not connect between fan signal terminals (G, G1, G2, or G3) on the convertor and the thermostat by using wire.

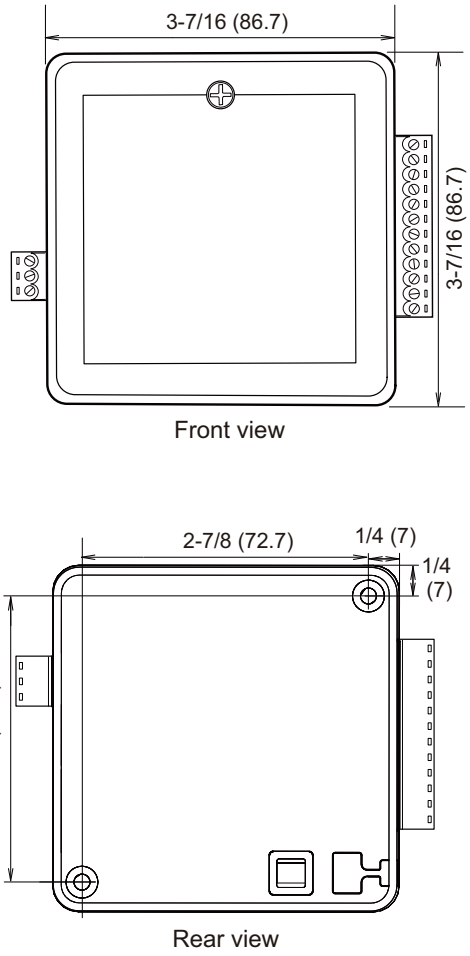
- **Error code will be displayed on the built-in LED display.**
  For indoor unit without error code indicator, confirm the LED display inside the thermostat convertor. For details of indoor unit error, refer to the "Error status (External output 2)" in Chapter 8. EXTERNAL INPUT AND OUTPUT on page 08-35.

- **For following items, use remote controller.**
  – Filter sign cancellation
  – Indoor unit function settings
  – Test run
  After all settings are completed, disconnect the remote controller, and connect the Thermostat converter.

CONTROL SYSTEM

■ Dimensions

Unit: in (mm)



CONTROL SYSTEM

■ Specifications

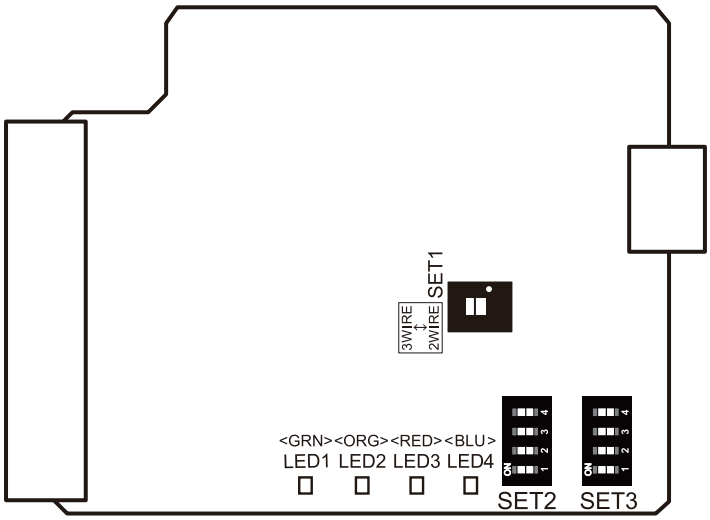
Maximum connectable indoor unit number			16
Input power		W	0.6
Temperature	Operating	°F (°C)	32 to 114 (0 to 46)
	Packaged	°F (°C)	14 to 140 (-10 to 60)
Humidity	Packaged	%	0 to 95 (RH) No condensation
Dimensions (H × W × D)		mm	1-1/16 × 3-7/16 × 3-7/16 (27 × 86.7 × 86.7)
Weight		oz (g)	4 (100)

● Wiring specifications

Use	Cable size	Wire type	Remarks
Remote controller cable (2-wire type)	22 to 16 AWG (0.33 to 1.25 mm^2)	Sheathed PVC cable*	Non-polar 2 core, twisted pair Maximum cable length: 1,640 ft (500 m)
Remote controller cable (3-wire type)	22 AWG (0.33 mm^2)		Polar 3 core Maximum cable length: 82 ft (25 m)
Thermostat wires	18 AWG (0.82 mm^2)		Maximum cable length: 1,64 ft (50 m)

*: Use shielded cable in accordance with local rules for remote controller cable.

■ LED display



- **Normal code**

LED1 (Green)	LED2 (Orange)	LED3 (Red)	LED4 (Blue)	Contents
●	●	Off	Off	During initialization sequence
On	Off	Off	Off	Normally operating

●: 1 s On/1 s Off

- **Error code**

LED1 (Green)	LED2 (Orange)	LED3 (Red)	LED4 (Blue)	Contents
● (N)	● (N)	○	Off	Thermostat converter error
● (N)	● (N)	○	On	Indoor unit error

●: 0.5 s On/0.5 s Off

○: 0.1 s On/0.1 s Off

(N): Number of flashing

For flashing number of each error code and the details, refer to “ERROR CODES” in the installation manuals of indoor units.

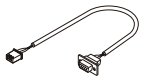
CONTROL SYSTEM

3-6. BACnet gateway (Hardware: UTY-VBGX)



- The convertor for connecting VRF network system to the BMS system using BACnet protocol.
- Maximum of 128 indoor units can be connected to one BACnet gateway.
- VRF system can be centrally controlled or monitored by BMS via BACnet gateway (UTY-VBGX).
- Maximum of 4 BACnet gateway can be connected to one BMS.

■ Accessory

Name and shape	Q'ty	Application
 USB memory	1	Includes the software and manuals of tool for BACnet gateway
 Connector cable	1	For initial setting tool
 Dust proof bushing	2	For connecting the power supply cable

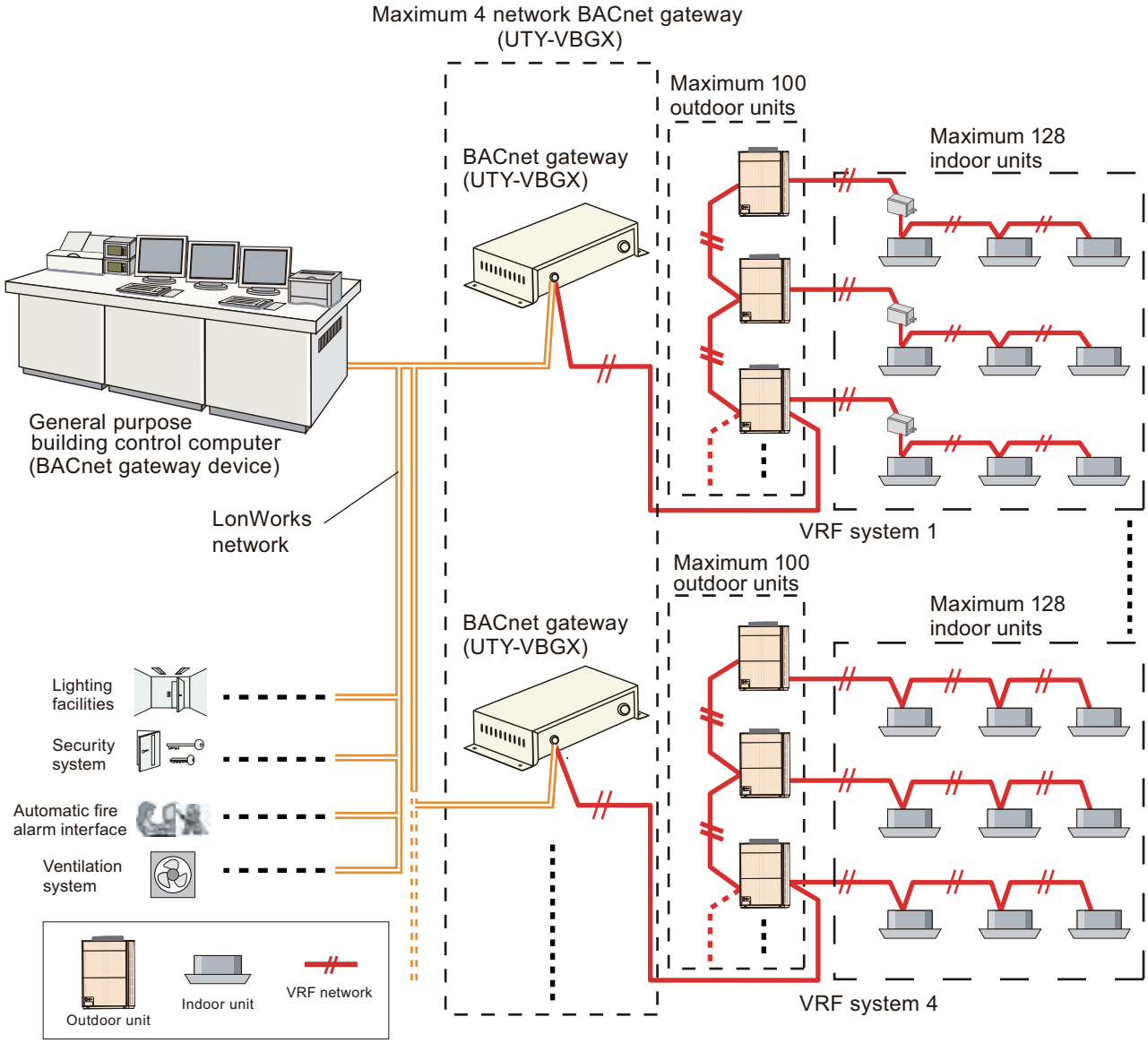
■ Other required devices (Locally purchased)

- To install tool for BACnet gateway, personal computer that satisfies the following system requirements is necessary.

Personal computer system requirement	
Operating system	• Microsoft Windows 7 Professional (32-bit or 64-bit) SP1 • Microsoft Windows 8.1 Pro (32-bit) • Microsoft Windows 10 Home (32-bit or 64-bit) • Microsoft Windows 10 Pro (32-bit or 64-bit)
Memory	1 GB or more
Display	1,024 × 768 or higher resolution, 16-bit or higher color
Interface	USB port (× 1)
Software	Adobe Reader 9.0 or later

CONTROL SYSTEM

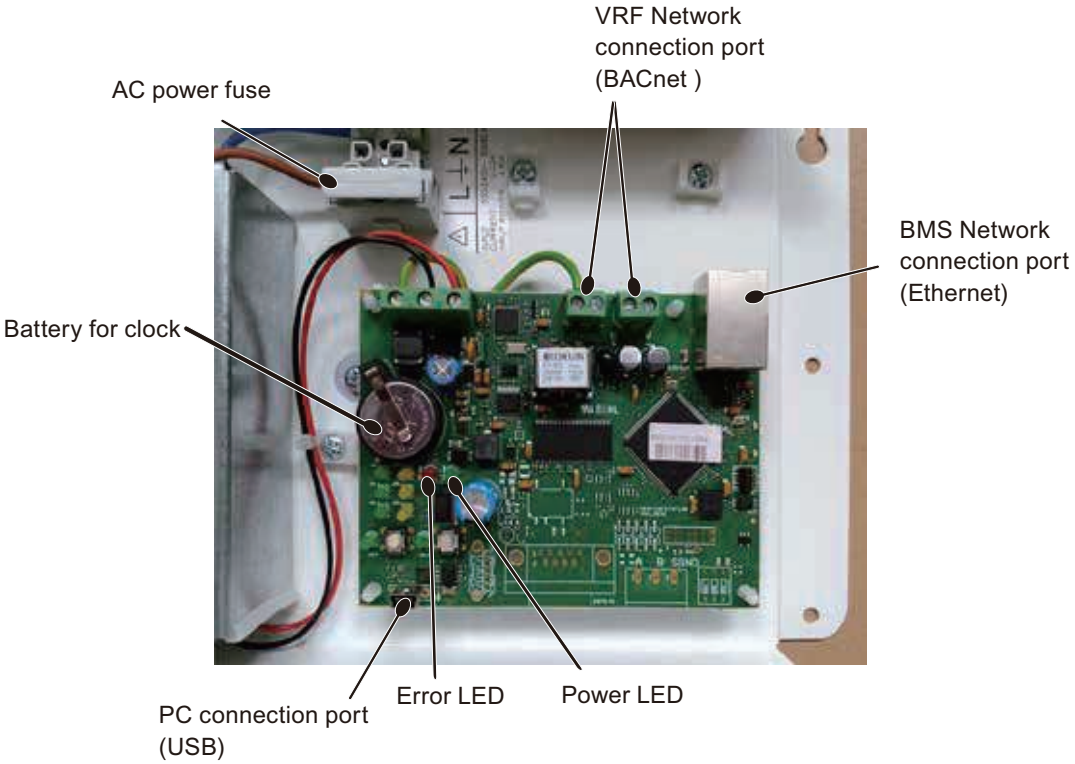
■ System diagram



NOTE: BACnet gateway (Hardware) and BACnet gateway (Software) cannot co-exist within a VRF system.

CONTROL SYSTEM

■ Component location of PCB



NOTE: Ensure proper space for all connectors when mounted.

⚠ CAUTION

Risk of explosion if battery is replaced by an incorrect type. Dispose of used batteries according to the instructions.

Important

Tight the power supply and the Lon cables to one of the 4 cable tie holes fixed to the casing with the plastic ties inside the BACnet gateway (Hardware). Do not use 2 holes to tie one cable.

- **Power supply**
  Connect mains to the power supply connector as:
  – Brown: Line (L)
  – Yellow: Earth/Ground (E)
  – Blue: Neutral (N)

- **Ethernet/BACnet IP (UDP)/Console (UDP and TCP)**
  Connect the cable coming from the IP network to the connector ETH of the gateway. Use an Ethernet CAT5 or higher cable.

- **VRF network**
  Connect the Lon bus to connectors A (+), B (-) and (SNGD) of gateway's PCB.

- **Console port**
  Connect a mini-type B USB cable from your computer to the gateway to allow communication between the configuration software and the gateway. Ethernet connection is also allowed for configuration.

CONTROL SYSTEM

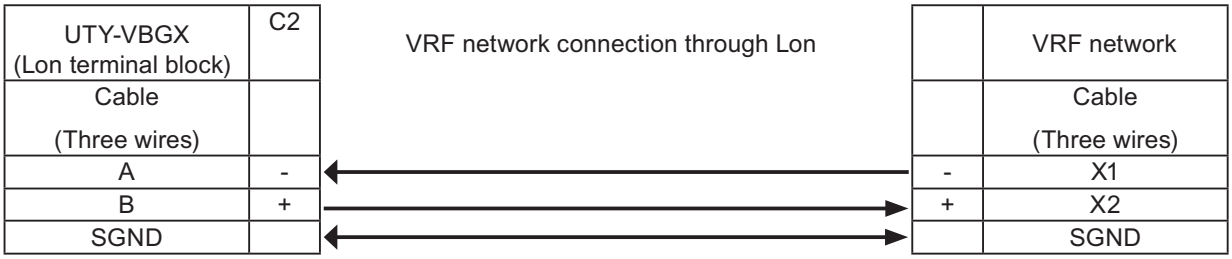
■ Configuration procedure

The following procedures presume that all VRF indoor/outdoor units are commissioned and operational, and that BACnet network toward the BMS workstation is operational.

1. Turn on the device.
   Power supply working with any of the voltage range allowed is necessary. Once connected the LED power will turn on.

2. Connect to BACnet interface.
   Connect the communication cable coming from the network hub or switch to the Ethernet port of the gateway. The cable to be used is a straight Ethernet STP CAT5 or higher cable.
   In case there is no response from the BACnet devices to the frames sent by gateway, check that they are optional and reachable from the network connection used by the gateway.
   Check the gateway Ethernet interface sending pings to its IP address using a PC connected to the same Ethernet IP network. If the problem persists communicating through the LAN of the building, contact the network administrator.
   BACnet gateway for VRF systems comes with DHCP functionality enabled by default.

3. Connect to VRF network.
   Use the Lon connector in the left bottom corner of the gateway in order to connect the VRF network to BACnet gateway.



4. Connect to PC (Configuration tool).
   This action allows the user to have access to configuration and monitoring of the device. Two methods to connect to the PC can be used:
   - USB cable: To connect the device to the PC the USB cable supplied should be plugged to USB console port. (This method is recommended.)
   - Ethernet: Using ETH port of the gateway

   NOTE: Install the configuration tool to the PC before connecting to the gateway.

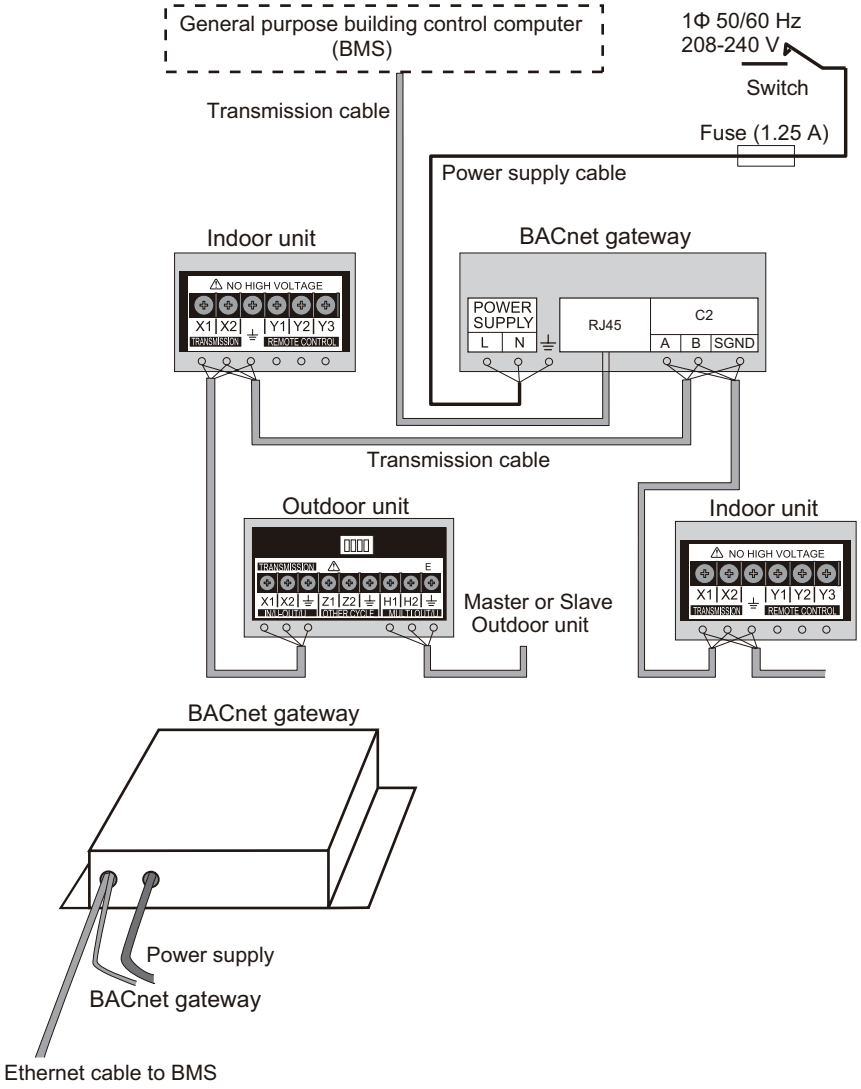
5. Execute the configuration tool from the PC and perform necessary settings.
   For details, refer to Instruction manual.

6. Perform scan from the configuration tool, and check that all VRF indoor/outdoor units are detected and available.

7. Remove the USB cable from the gateway, and close the case.
   In this stage, BACnet gateway should be accessible from the BMS workstation. Integration of BACnet system is ready to be performed.

CONTROL SYSTEM

■ Electrical wiring



NOTES:

- Do not bind the power supply cable and transmission cable to avoid an erroneous operation.
- Use shield cable for transmission cable. The shield metal should be grounded.
- Do not forget to ground the BACnet gateway.

■ Functions

- **Indoor unit control**
  - Individual control
    Commands from BACnet network are sent to the respective indoor units.
    (BACnet network → respective indoor units of VRF network)

  - Batch control
    Commands from BACnet network are sent to all indoor units connected to VRF network.
    (BACnet network → All indoor units of VRF network)

- **Indoor unit status monitoring**
  Indoor unit status is communicated to the BACnet network in the form of BACnet objects.
  (BACnet network ← All indoor units of VRF network)

CONTROL SYSTEM

● Control and monitoring items with object types

Function name	Category			BACnet object type*1	Remarks
	Target	Monitor	Control		
Operation setting*2	Bat	—	○	BO	
Operation mode	Bat	—	○	MO	
Temperature setting	Bat	—	○	AO	
Fan speed	Bat	—	○	MO	
R/C prohibition	Bat	—	○	MO	
Gateway	GW	○	—	D	No monitor/control difference
Representative error	GW	○	—	BI	Gateway, Lon communication
Error code	GW	○	—	MI	Gateway, Lon communication Error codes to signal gateway status will be agreed with FGL during development.
Energy saving status/setting	GW	○	○	BI/BO	
Existence check	In	○	—	BI	
Temperature status/setting	In	○	○	AI/AO	
Operation status/setting	In	○	○	BI/BO	
Operation mode status/setting	In	○	○	MI/MO	
Fan speed status/setting	In	○	○	MI/MO	
Suction/Room temperature	In	○	—	AI	
Representative error	In	○	—	BI	
Error code	In	○	—	MI	
Temperature H/L limit status/setting	In	○	○	AI/AO	H/L limit per 3 operation Mode: HEAT, COOL-DRY, and AUTO
Temperature limit validity status/setting	In	○	○	BI/BO	
Filter sign status/reset	In	○	○	BI/BO	Only reset for control
Forced thermo off status/setting*3	In	○	○	BI / BO	
Emergency stop	In	○	—	BI	
R/C prohibition status/setting	In	○	○	MI/MO	
Vertical fan status/setting	In	○	○	MI/MO	
Horizontal fan status/setting	In	○	○	MI/MO	
Outdoor unit save status/setting	Out	○	○	MI/MO	
Low noise operation status/setting	Out	○	○	MI/MO	Monitor not supported by all
Representative error	Out	○	—	BI	
Error code	Out	○	—	MI	
Forced off status/setting	Out	○	○	BI/BO	

CONTROL SYSTEM

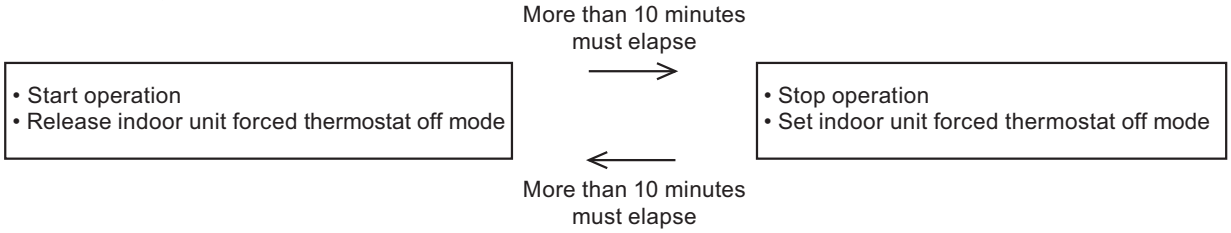
NOTES:

- For detailed information, refer to the instruction manual posted on “Service & Supports” page of the web site.
  https://www.fujitsu-general.com/global/support/
- *1: BACnet object type
  - BI: OBJECT_BINARY_INPUT
  - BO: OBJECT_BINARY_OUTPUT
  - MI: OBJECT_MULTISTATE_INPUT
  - MO: OBJECT_MULTISTATE_OUTPUT
  - AI: OBJECT_ANALOG_INPUT
  - AO: OBJECT_ANALOG_OUTPUT
  - D: OBJECT_DEVICE
- *2: To protect the compressor of the outdoor unit, carefully read and understand the following caution that may affect the operation of compressor before executing the setting.

⚠ CAUTION

When performing periodical settings like schedule settings for the following functions, perform the setting to all indoor units in the same refrigerant system simultaneously, conforming to the timing restriction described below.

<Corresponding function>

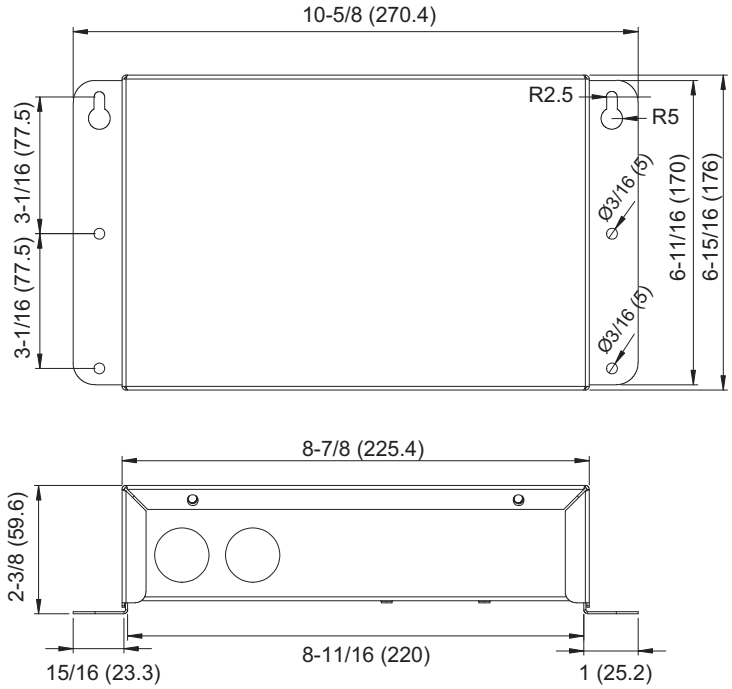


- *3: Forced thermostat off instruction
  - Only one equipment can send these instructions for each refrigerant system.
  - When these instructions are sent by multiple equipment, the system may not respond as instructed or may cause malfunction.

CONTROL SYSTEM

■ Dimensions

Unit: in (mm)



■ Specifications

Power supply		V	1 Ø AC 208—240
Power source frequency		Hz	50/60
Input power		W	4.6
Temperature	Operating	°F (°C)	32 to 114.8 (0 to 46)
	Packaged	°F (°C)	14 to 140 (-10 to 60)
Humidity	Packaged	%	5 to 95 (RH) No condensation
Dimensions (H × W × D)		in (mm)	2-3/8 × 10-5/8 × 6-15/16 (60 × 270 × 176)
Weight		lb (g)	3 (1,200)
Fuse capacity		A	1.25

● Wiring specifications

Use	Cable size	Wire type	Remarks
Power supply cable	20 to 16 AWG (0.5 to 1.25 mm^2)	60245 IEC 57 or equivalent	1 Ø AC 208—240 V 50/60 Hz, 2 wire + ground (Always ground the unit)
Transmission cable	Ethernet category 5 or higher STP LAN cable with RJ45		Straight cable

● Transmission specifications

BACnet/IP (ASHRAE 135 Annex J)		
Transmission speed	Mbps	10/100
Cable		Ethernet category 5 or higher STP 22 AWG equivalent
Network connector		RJ45

CONTROL SYSTEM

3-7. BACnet gateway (Software: UTY-ABGXZ1)

- It is possible to connect medium to large sized BMS to VRF network system via BACnet, a global standard for open networks.
- A Maximum of 1,600 indoor units with 4 VRF network systems (a maximum of 400 indoor units and 100 outdoor units for one network system) can be connected to one BACnet gateway.
- It is possible to control or monitor VRF network system from BMS via BACnet gateway.
- Compatible with BACnet (ANSI/ASHRAE-135-2012) application specific controller (B-ASC).
- Compatible with BACnet/IP over Ethernet.
- Scheduling function, alarm and event functions, electricity charge apportionment functions as well as energy saving function are provided in BACnet gateway.
- Connection between VRF network system to personal computer is possible via small U10 USB interface. However, both U10 USB interface and personal computer are locally purchased items.

■ Accessory

Name and shape	Q'ty	Application
 WHITE-USB-KEY (Software protection key with software)	1	Includes the software and manuals of tool for BACnet gateway. Additionally, it works as the software protection key. Software protection key to be connected to an USB port on the PC that the BACnet gateway is installed. BACnet gateway runs only on a PC with this WHITE-USB-KEY.

■ Other required devices (Locally purchased)

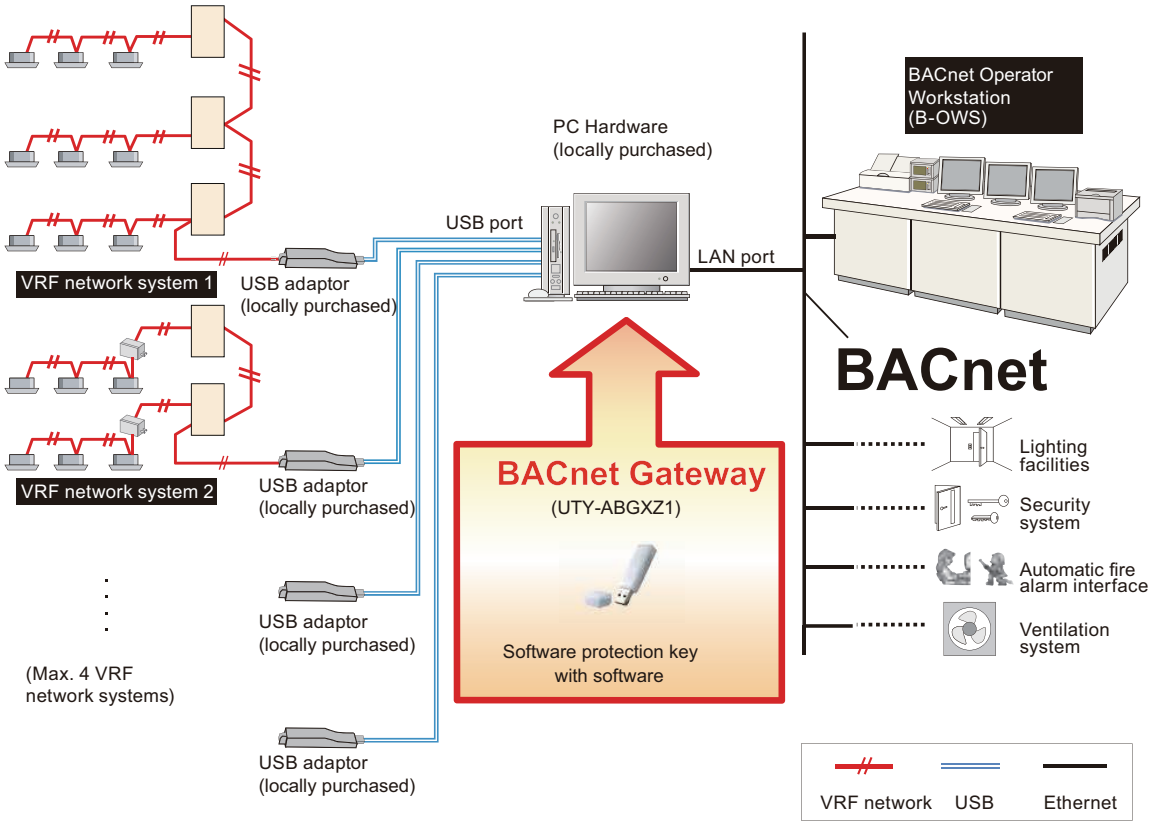
- To install tool for BACnet gateway, personal computer that satisfies the following system requirements is necessary.

Personal computer system requirement	
Operating system	• Microsoft Windows 7 Home Premium (32-bit or 64-bit) SP1 • Microsoft Windows 7 Professional (32-bit or 64-bit) SP1 • Microsoft Windows 8.1 (32-bit or 64-bit) • Microsoft Windows 8.1 Pro (32-bit or 64-bit) • Microsoft Windows 10 Home (32-bit or 64-bit) • Microsoft Windows 10 Pro (32-bit or 64-bit) Supported languages: English, Chinese, French, German, Russian, Spanish, and Polish
CPU	Intel Core i3 2 GHz or higher
Memory	• 2 GB or more (for Windows 7 [32-bit]) • 4 GB or more (for Windows 7 [64-bit], Windows 8.1, and Windows 10)
HDD	40 GB or more of free space
Display	1,024 × 768 or higher resolution
Interface	• Ethernet port (for getting access to the Internet using LAN) or Modem (for getting access to the Internet using public telephone line) • USB ports (Maximum of 5 ports) (Required only for the server PC that works as VRF controller) – Maximum of 1 USB ports are required for WHITE-USB-KEY connection – Maximum of 4 USB ports are required for Echelon U10 USB Network Interface **NOTE:** Maximum number of required USB ports depends on the applicable system configuration.
Software	Adobe Reader 9.0 or later

- Echelon U10 USB Network Interface – TP/FT-10 Channel (Model number: 75010R) (Required for each VRF network)

CONTROL SYSTEM

■ System diagram



■ Functions

- **Indoor unit control (Output object)**
  Commands from BMS are sent to the respective indoor units via BACnet gateway.
  (BMS → BACnet gateway → respective indoor units of VRF network system)

- **Indoor unit status monitoring (Input object)**
  Indoor unit status is communicated to the BMS via BACnet gateway.
  (BMS ← BACnet gateway ← respective indoor units of VRF network system)

- **Outdoor unit control (Output object)**
  Commands from BMS are sent to the respective outdoor units via BACnet gateway.
  (BMS → BACnet gateway → respective outdoor units of VRF network system)

- **Outdoor unit status monitoring (Input object)**
  Outdoor unit status is communicated to the BMS via BACnet gateway.
  (BMS ← BACnet gateway ← respective outdoor units of VRF network system)

CONTROL SYSTEM

● BACnet object list

• Type: Indoor

BACnet object type	Code (II)	Function name	Unit						
			Inactive	Active					
			Text-1	Text-2	Text-3	Text-4	Text-5	Text-6	Text-7
AI	10	Set temp. status	°F						
	11	Space temp.	°F						
	12	Auto temp. (Low limit status)	°F						
	13	Auto temp. (High limit status)	°F						
	14	Cool/Dry temp. (Low limit status)	°F						
	15	Cool/Dry temp. (High limit status)	°F						
	16	Heat temp. (Low limit status)	°F						
	17	Heat temp. (High limit status)	°F						
AO	10	Temp. setting	°F						
	11	Auto temp. (Low limit setting)	°F						
	12	Auto temp. (High limit setting s)	°F						
	13	Cool/Dry temp. (Low limit setting)	°F						
	14	Cool/Dry temp. (High limit setting)	°F						
	15	Heat temp. (Low limit setting)	°F						
	16	Heat temp. (High limit setting)	°F						
AV	10	ECA* operation data							
BI	10	Operation status	OFF	ON					
	14	Filter sign status	Unsigned	Signed					
	15	Indoor unit error status	Normal	Fault					
	16	Anti-freeze operation status	Reset	Set					
	17	SAVE operation status	Normal	SAVE					
	18	Forced thermostat off status	Reset	Set					
	19	Emergency stop status	Normal	Stop					
	20	Mode mismatch status	Normal	Mismatch					
	21	Protect anti-freeze status	Reset	Set					
	22	Temp. limit valid status	Invalid	Valid					
BO	10	Operation setting	OFF	ON					
	14	Filter sign resetting	Reset	Not reset					
	15	Anti-freeze operation setting	Reset	Set					
	16	SAVE operation setting	Reset	Set					
	17	Forced thermostat OFF setting	Reset	Set					
	18	Emergency stop setting	Reset	Set					
	19	Temp. limit valid setting	Invalid	Valid					
MI	10	Operation mode status	COOL	HEAT	FAN	DRY	AUTO		
	11	Fan speed status	LOW	HIGH	MED	AUTO	QUIET	MED-LOW	MED-HIGH
	12	Indoor unit error code	Refer to FGL original error code						
	13	R.C. prohibition status	Refer to R.C. prohibition setting chart						
	14	Vertical airflow direction status	1	2	3	4	SWING		
	15	Horizontal airflow direction status	1	2	3	4	5	SWING	
	16	Special driving status	Normal	Defrost	Oil recovery				
	17	Managed mode	None	Master	Slave	External			
MO	10	Operation mode status	COOL	HEAT	FAN	DRY	AUTO		
	11	Fan speed setting	LOW	HIGH	MED	AUTO	QUIET	MED-LOW	MED-HIGH
	12	R.C. prohibition setting	Refer to R.C. prohibition setting chart						
	13	Vertical airflow direction setting	1	2	3	4	SWING		
	14	Horizontal airflow direction setting	1	2	3	4	5	SWING	
TL	10	ECA* operation data log							

*: Electricity charge apportionment

• Type: Outdoor

BACnet object type	Code (II)	Function name	Unit							
			Inactive	Active						
			Text-1	Text-2	Text-3	Text-4	Text-5	Text-6	Text-7	Text-8
BI	30	Outdoor unit error status	Normal	Fault						
	31	Forced off status	Reset	Set						
BO	10	Forced off setting	Reset	Set						
MI	30	Outdoor unit priority operation status*1	COOL	HEAT	Neautral	None				
	31	Outdoor error code	Refer to FGL original error code							
	32	Capacity save status	Not set	100%	90%	80%	70%	60%	50%	45%
	33	Outdoor low noise operation status*2								
MO	30	Outdoor low noise operation status*3	Stop	Level-1 Quiet	Level-1 Ability	Level-2 Quiet	Level-2 Ability	Level-3 Quiet	Level-3 Ability	
	32	Capacity save setting	Not set	100%	90%	80%	70%	60%	50%	45%

- *1: Priority operation status is for Heat pump type VRF. In other types of systems, this status is not necessary.
- *2: Refer to the “Outdoor unit low nose operation value table” for the texts used with the “Outdoor low noise operation status”.
- *3: Outdoor unit firmware may need to be updated for this function to work. For details, contact your local sales company.

CONTROL SYSTEM

- **Type: Gateway**

BACnet object type	Code (II)	Function name	Unit					
			Inactive	Active				
			Text-1	Text-2	Text-3	Text-4	Text-5	Text-6
Device	—	Device information						
BI	00	Lon network adapter error status	Normal	Abnormal				
	01	Gateway status error	Normal	Abnormal				
	02	ES status	Not used	Energy saving				
BO	02	ES setting	Not used	Energy saving				
MI	00	Lon network adapter error code	Refer to FGL original error code					
	01	Gateway error code	Refer to FGL original error code					
	02	ECA* status	Invalid	Invalid (Stop)	Include indoor unit only	Exclude indoor and RB unit	Include indoor and RB unit	Include RB unit
MO	01	ECA* setting	Stop	Include indoor unit only	Exclude indoor and RB unit	Include indoor and RB unit	Include RB unit	
Notification	00—99	Notification class						
CAL	00	Calendar “Holiday-1”						
	01	Calendar “Holiday-2”						
	02—32	Calendar “Special day-1”—”Special day-30”						
Schedule	00—99	Schedule timer						
*: Electricity charge apportionment								

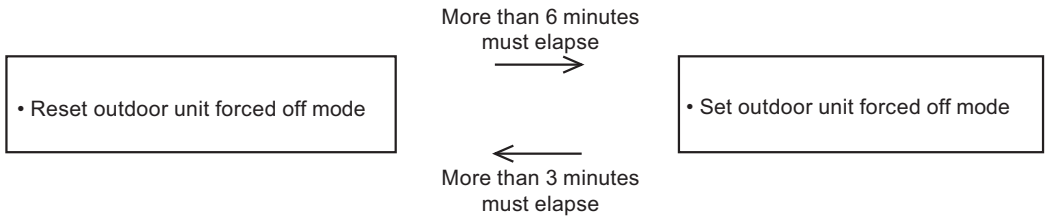
NOTES:

- To protect the compressor of the outdoor unit, carefully read and understand the following cautions that may affect the operation of compressor before executing the setting.

⚠ CAUTION

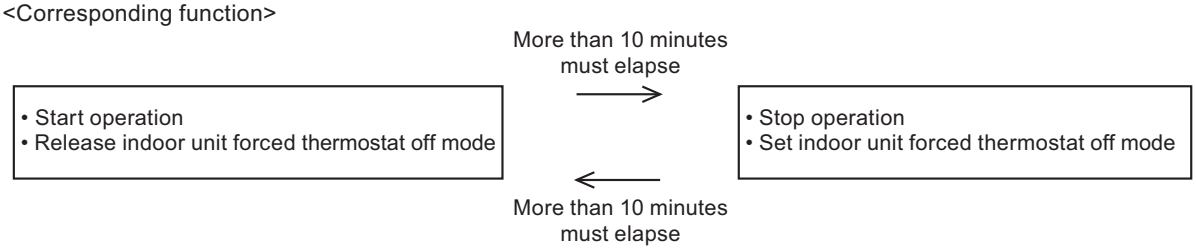
- When regularly making the following settings to the same outdoor unit by using schedule function etc., leave the following interval.

<Corresponding function>



- When performing periodical settings like schedule settings for the following functions, perform the setting to all indoor units in the same refrigerant system simultaneously, conforming to the timing restriction described below.

<Corresponding function>



- Forced thermostat off instruction, outdoor unit forced off instruction, and capacity saving setting
  - Only one equipment can send these instructions for each refrigerant system.
  - When these instructions are sent by multiple equipment (eg. from System controller and BACnet gateway at the same time), the system may not respond as instructed or may cause malfunction.

- The electricity charge apportionment function of VRF system can only be performed from one equipment simultaneously. Therefore, ECA setting, required to be set before performing electricity charge apportionment, can only be sent from one equipment simultaneously.

- The energy saving function of VRF system can only be performed from one equipment simultaneously. Therefore, ES setting, required to be set before performing energy saving, can only be sent from one equipment simultaneously.

CONTROL SYSTEM

■ Installation procedure

Before installation, connect between the VRF network system and the USB adapter.

For details of installation, refer to the instruction manual.
Brief installation steps are follows:

1. Install an appropriate driver for the USB adapter to the PC.
   In this step, do not connect the USB adapter to the PC.

2. Install the BACnet gateway (application software) to the PC.

3. Restart the PC.

4. After restarting the PC, make sure that the USB adapter, WHITE-USB-KEY, and Ethernet cable for the BACnet gateway are connected to the PC.

5. Start the application.

6. Configure necessary settings for startup operation as follows:
   a. Perform all necessary initial settings such as IP address, etc. Then, click OK button.
      Adapter setting window appears automatically.

   b. Select the connected adapter and click OK button. Then unit registration window appears and starts scanning all connected units automatically.

   c. After finishing the scanning, click OK button.
      Gateway execution window appears on the display when the startup operation is completed.

7. Arrange the information between BMS and BACnet gateway using the read property service, etc.

CONTROL SYSTEM

3-8. Niagara driver for VRF



- Niagara driver for VRF is a software driver for the Niagara framework. With the driver, direct connection of VRF system to Niagara system becomes possible using JACE, or Supervisor running on PC.
- Data in the VRF network becomes available as points/properties using the driver. These points/properties can be exported to other interfaces.
- The driver supports maximum 250 indoor/outdoor units for JACEs.
- The number of points handled by the driver is 50 multiplied by as many number of units supported by the license (licenses required separately).
- The driver supports data supported by BACnet gateway (UTY-VBGX) plus much more.
- Connection to the VRF network requires Lon adapter
- In addition to the bundled JACE, various products like stand-alone driver, Supervisor, and upgrade products are available. For details, ask your distributor.

■ Other required devices (Locally purchased) and licenses

Niagara driver for VRF requires a working environment of Niagara 4.9 or later.

Specifications and requirements			
Item		**Specification**	**Remarks**
VRF	Supported series	V-II series or later	
	Maximum VRF network	4	1 network/Lon adapter
	Maximum number of JACEs	4/Network	
	Maximum number of units	250/JACE	• Limited within the license • Maximum of 125/JACE is recommended for constant use of appliance tools as means of daily operation.
	Maximum number of points	50 points × units	
	Supported interface	NPB-8000-LON	When using JACE
Niagara	Supported version	Niagara 4.9 or later	• JACE-8000 • Supervisor (Microsoft Windows 10 64 bit)
	Maximum point to BACnet	All points on the VRF	
	Supported browser	Google Chrome™	

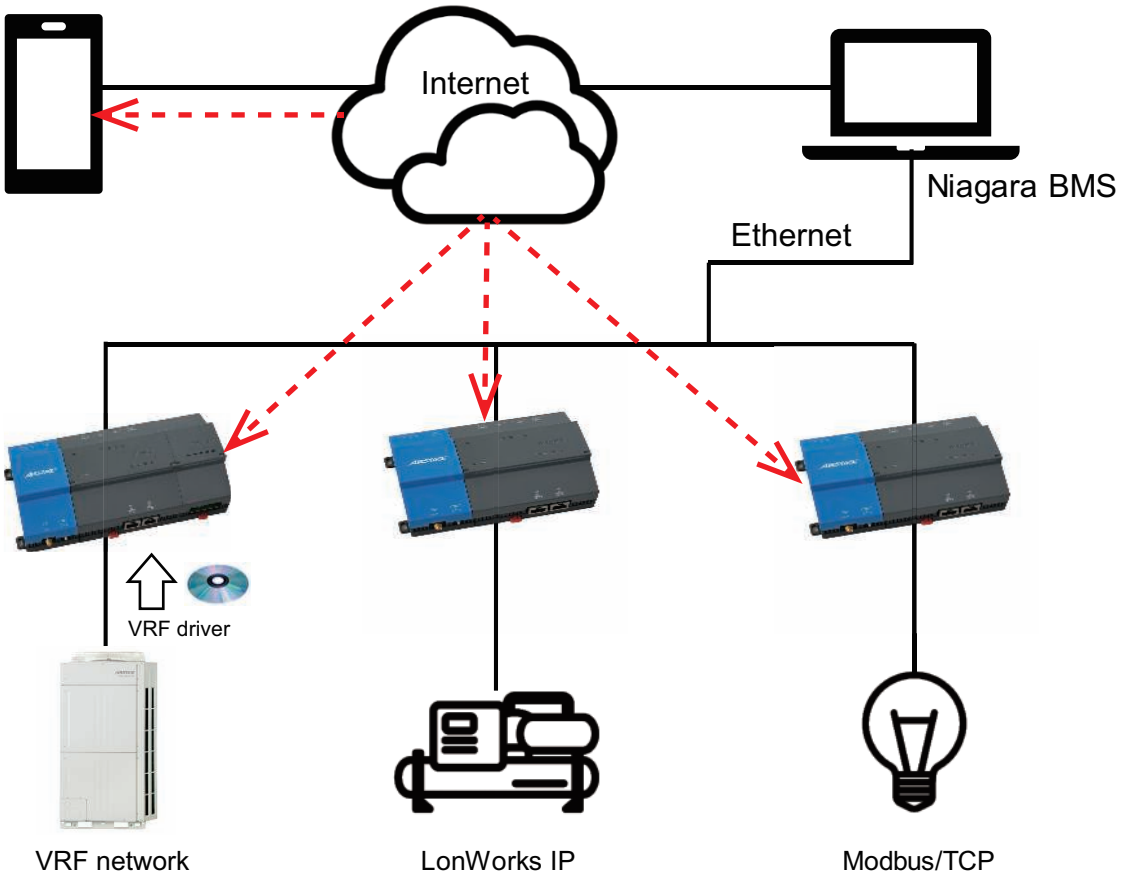
Item	Model name	Remark
License	DR-FUJ-DEVICE-25	Driver license for 25 indoor/outdoor units.
	DR-FUJ-DEVICE-50	Driver license for 50 indoor/outdoor units.
	SMA-8005-1YR-INIT	18 months maintenance, must be initially purchased.
Lon adapter	NPB-8000-LON	Lon adapter, required for each VRF network (1-4).

■ Available option

Option	Model name	Remark
Additional license	DR-FUJ-DEV-UP-50	Driver license for additional 50 indoor/outdoor units, added later.
AC adapter	WPM-8000	AC adapter for JACE8000, when power is not available on site.

CONTROL SYSTEM

■ System diagram



CONTROL SYSTEM

■ Data available as points/properties

Range	Monitor	Control
Network	Error, Error code, On/off, Mode, Fan speed, Fan direction, Set temperature, Remote controller prohibition	On/Off, Mode, Fan speed, Fan direction, Set temperature, Remote controller prohibit
Outdoor unit	Capacity save, Forced off, Low noise, Error, Error code	Capacity save, Forced off, Low noise
Indoor unit	Alive, On/Off, Mode, Fan speed, Fan direction, Set temperature, Space temperature, Remote controller prohibition, Thermostat off, Filter sign, Emergency status, Error, Error code, Setpoint limitation, Master/Slave status	On/Off, Mode, Fan speed, Fan direction, Set temperature, Space temperature, Remote controller prohibition, Thermostat off, Filter sign reset, Emergency status, Setpoint limitation

■ Installation procedure

- When installing add-on single port Lon FTT 10 A module (NPB-8000-LON), refer to the manual that comes with the module and consider following conditions.
  – Maximum of 4 add-on Lon module can be connected to one JACE.
  – Lon module can only be used to connect to VRF systems.
  – Mixed connection of VRF network and standard LonWorks from a single JACE is prohibited.
- When connecting Ethernet cable, connect it to the RPI (primary) port unless specifically instructed otherwise.
- To change the default IP address or the assignment method of IP address (Fixed/DHCP) already set to the JACE, direct connection from a terminal software running on a PC to the JACE is required. Use a cable with USB connector (Micro B type) at the JACE-end for the connection. For details, refer to the manual that comes with the JACE.

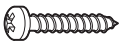
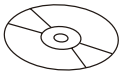
CONTROL SYSTEM

3-9. Wireless LAN adapter (UTY-TFSXZ2)



By installing FGLair on a smart device, several functions can be controlled from outside the house.

■ Accessory

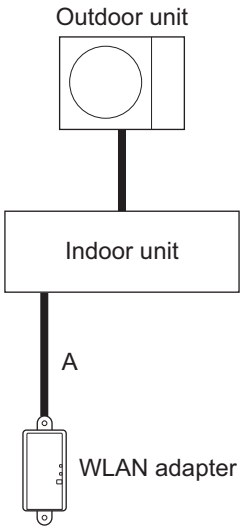
Name and shape	Q'ty	Application
 EMI core	1	
 Screw (M4 × 25 mm)	2	
 Wireless LAN label	1	
 Setting manual	1	
 Operation manual (CD-ROM)	1	

CONTROL SYSTEM

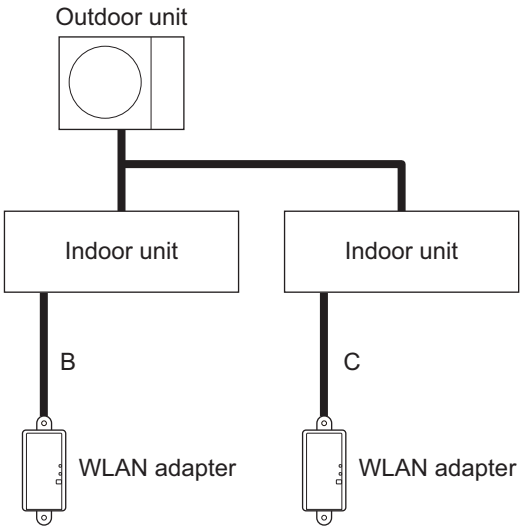
■ System diagram

One WLAN adapter can be connected to each indoor unit.

Single system



Multiple system

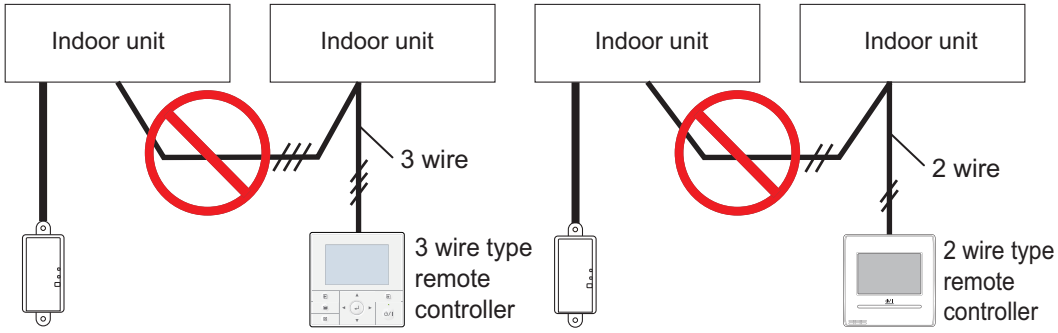


A, B, and C: Attached cable with this product.

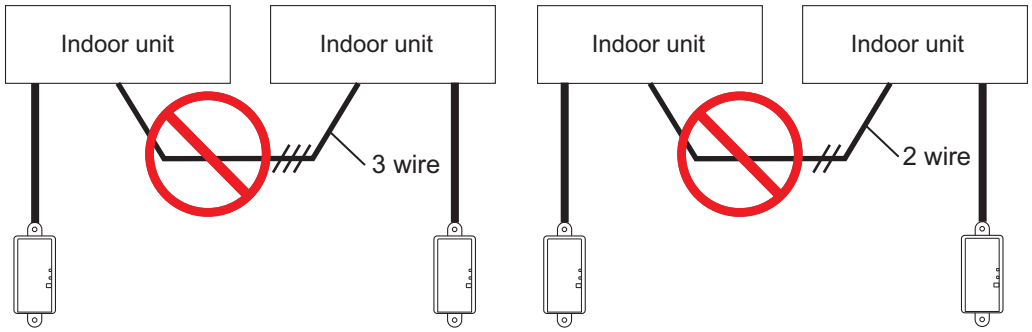
CONTROL SYSTEM

Prohibited uses:

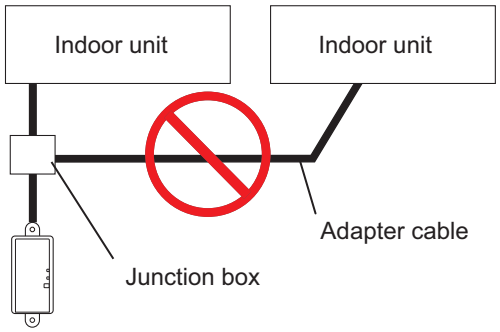
(1) Group connection of indoor units with wired remote controller



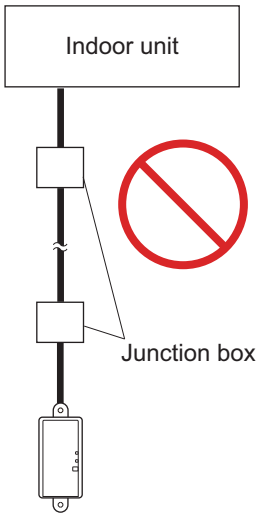
(2) Group connection of indoor units



(3) Group connection of indoor units with WLAN adapter cable.



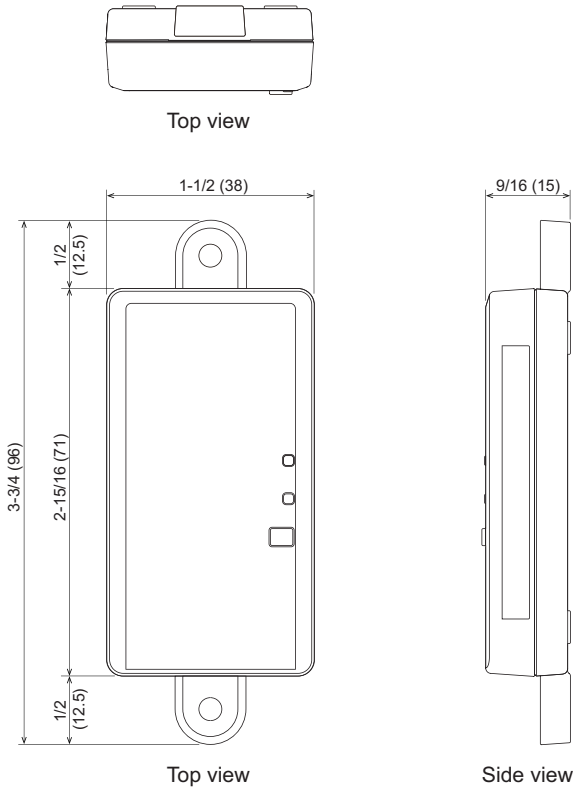
(4) Extended wiring
Extending the cable is prohibited.



CONTROL SYSTEM

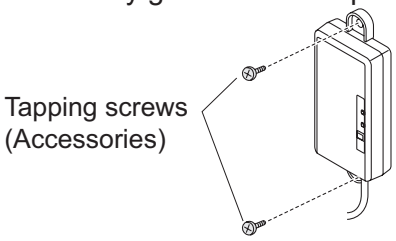
■ Dimensions

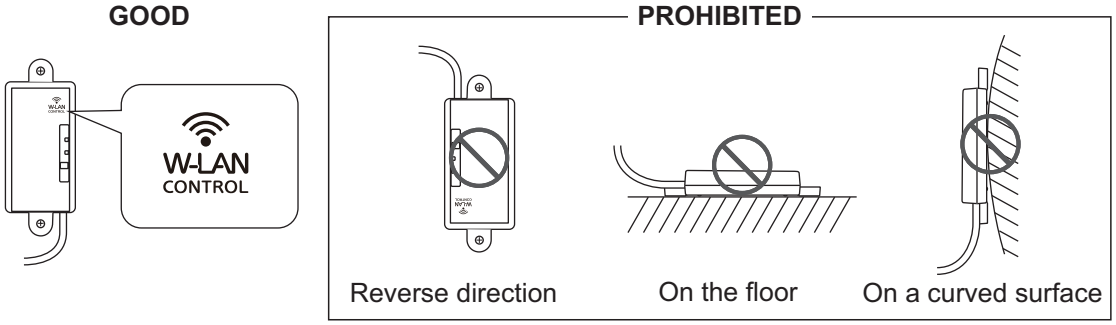
Unit: in (mm)



■ Installation

1. With referring the setting manual, perform wire connection.
2. Install the WLAN adapter in the direction as shown in this figure. If the WLAN adapter is installed in the wrong direction, water may get into the adapter through the wire, causing failure.





3. Connect the remote controller cable to the connecting cable, and insert it to the connector. Set the DIP switch (SW1) on the PCB of indoor unit to “2WIRE”.

CONTROL SYSTEM

■ Specifications

Maximum radio-frequency power		mW	80
Dimensions (H × W × D)	Net	in (mm)	8-5/16 × 1-1/2 × 9/16 (71 × 38 × 15)
	Gross		8-1/8 × 5-7/16 × 1-15/16 (207 × 138.5 × 50)
Weight	Net	oz (g)	1 (35) (without cable)
	Gross		13 (380)
Operation temperature range		°F (°C)	32 to 114.8 (0 to 46)

● System requirement

Before using this function, prepare the following items:

- **Wireless router:**

Wireless LAN standard	IEEE802.11b/g/n
Frequency bands*	• U.S.A., Canada: 2.4 GHz (1ch—11ch) • Other countries: 2.4 GHz (1ch—13ch)
Network security standard	• Open • WEP • WPA (PSK) • WPA2 Personal (PSK) • WPS for same-LAN registration

*: Usable only in the country or region where you purchased the product.
To check whether your wireless router complies with the network security standards listed above, refer to the operation manual.

- **Smartphone or Tablet PC:**

App-compliant operating system	iOS	Check the latest version of supported OS at Google Play store or App Store.
	Android	

- **FGLair™ (mobile application):**
Mobile app is available on Google Play store or on App Store.
After installation of mobile app, user registration is required. For user registration and setup information, refer to Setting Manual attached with the product.

For the latest version of the Wireless LAN (WLAN) control manuals, refer to the following web site.
https://www.fujitsu-general.com/global/support/

CONTROL SYSTEM

● Wireless LAN function list

NOTE: To use Wireless LAN control, user registration in advance and access to the wireless home network are required.

Item			Mobile app
Air conditioning control function	Operation on/off		○
	Operation mode setting		○
	Set temperature setting		○
	Fan speed setting		○
	Airflow direction setting*1	Louver position adjustment (vertical/horizontal)	○
		Swing (vertical/horizontal)	○
	Timer setting	Weekly timer*2	○
Additional function	ECONOMY operation setting		○
	Room temperature indication*3		○
App function	Air conditioner error e-mail notification		○

○: Available, —: Not available

*1: Different by the indoor unit function.

*2: Each of weekly timer of wireless/wired remote controller and mobile application has different settings. If timer settings are done from mobile application and from wireless remote controller/wired remote controller, both timer settings will be active.

*3: For using this function in VRF system, non-polar 2-wired remote controller needs to be connected to the indoor unit, and the room temperature sensor on the wired remote controller should be enabled.

CONTROL SYSTEM

3-10. Signal amplifier (UTY-VSGXZ1)

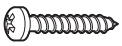
If the total length of transmission cable exceeds 1,640 ft (500 m), or the number of the elements exceeds 64 units, Signal amplifier will be required.



- Transmission cable length can be extended up to 11,811 ft (3,600 m) with multiple Signal amplifier.
- Up to 8 Signal amplifier (Filter mode is off) can be installed in one VRF network system.
- Up to 40 Signal amplifier (Filter mode is on) can be installed in one VRF network system. (For Heat recovery system)

To prevent the drop of signal level by taking distance of length or quantity of unit in VRF network with installing Signal amplifier, signal level can be recovered.

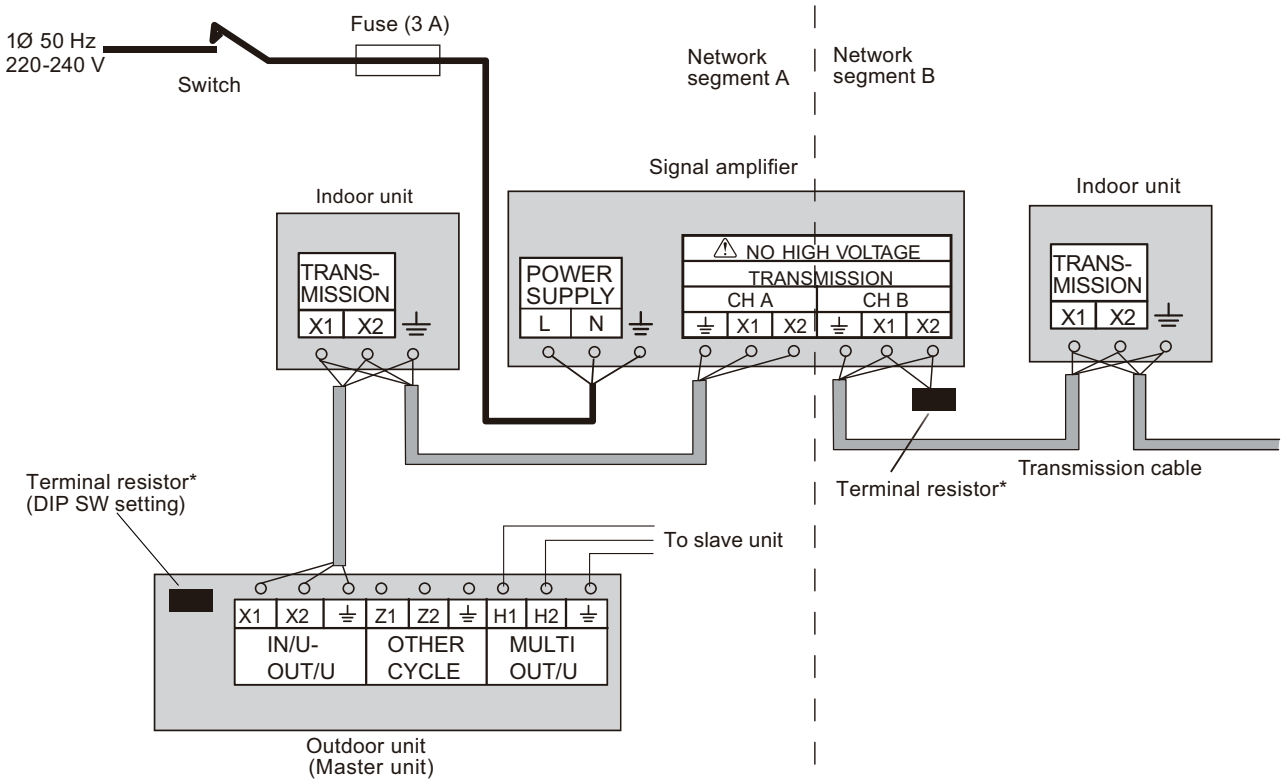
■ Accessory

Name and shape	Q'ty	Application
 Cable tie	3	For mounting the power supply cable and transmission cable
 Screw (M4 × 20 mm)	4	For mounting the Network converter
 Terminal register	1	
 Dust proof bushing	1	For connecting the power supply cable (Except in U.S.A. and Canada)
 Connecting wire	1	For setting the filter mode
 Installation manual	1	

CONTROL SYSTEM

■ Electrical wiring

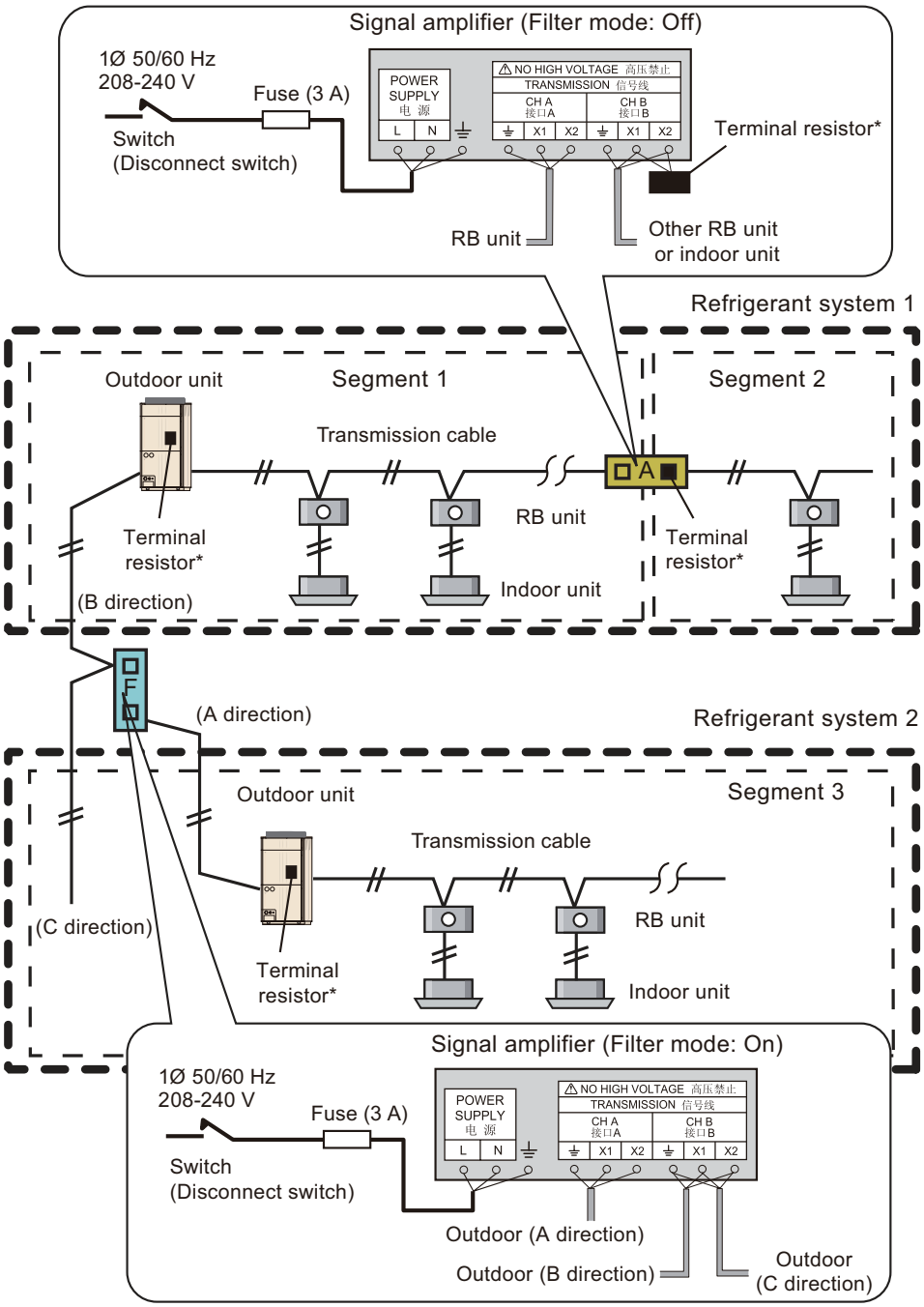
- **Except in the case of V and S series (indoor units is installed 320 units or less)**



*: Make sure to install 1 piece of terminal resistor to each segment. Terminal resistor is provided for each outdoor unit, but confirm that there is only one terminal resistor in the same segment.

CONTROL SYSTEM

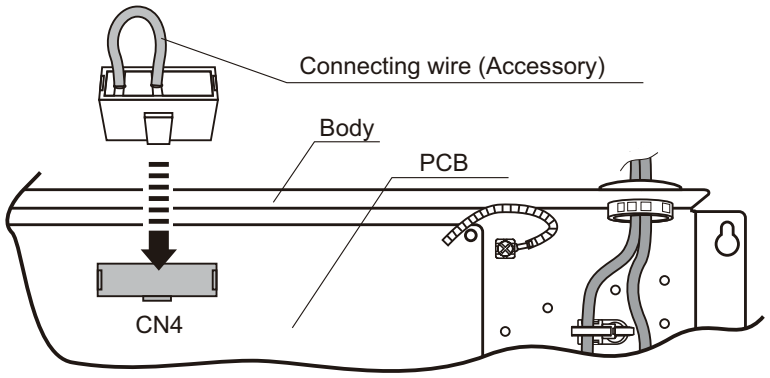
- **Case of VR-II (321 or more indoor units are installed)**



*: Make sure to install 1 piece of terminal resistor to each segment. Terminal resistor is provided for each outdoor unit, but confirm that there is only one terminal resistor in the same segment.

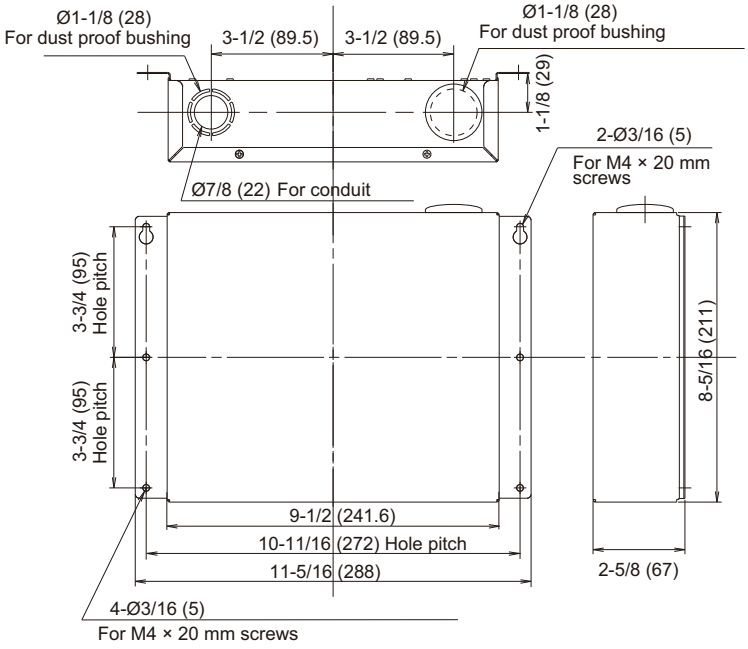
CONTROL SYSTEM

- **Filter mode setting**
  Set the filter mode to suppress an increase of the amount of communication information in the Heat recovery system.
  – Filter mode is turned on by inserting the accessory connecting wire at the CN4 connector on the PCB.
  – When the filter mode setting is changed, turn the power off once. Otherwise, the setting will not be recognized.



■ Dimensions

Unit: in (mm)



CONTROL SYSTEM

■ Specifications

Power supply		V	1 Ø AC 208—240
Power source frequency		Hz	50/60
Input power		W	4.5
Temperature	Operating	°F (°C)	32 to 114.8 (0 to 46)
	Packaged	°F (°C)	14 to 140 (-10 to 60)
Humidity	Packaged	%	0 to 95 (RH) No condensation
Dimensions (H × W × D)		in (mm)	2-5/8 × 11-5/16 × 8-5/16 (67 × 288 × 211)
Weight		lb (g)	3 (1,500)
Fuse capacity		A	3

● Wiring specifications

Use	Cable size	Wire type	Remarks
Power supply cable	20 to 16 AWG (0.5 to 1.25 mm^2)	60245 IEC 57 or equivalent	1 Ø AC 208—240 V 50/60 Hz, 2 wire + ground (Always ground the unit)
Transmission cable	22 AWG (0.33 mm^2)	LEVEL 4 (NEMA) Non-polar 2 core, twisted pair solid core shielded	LonWorks compatible cable

CONTROL SYSTEM

3-11. External switch controller (UTY-TERX)

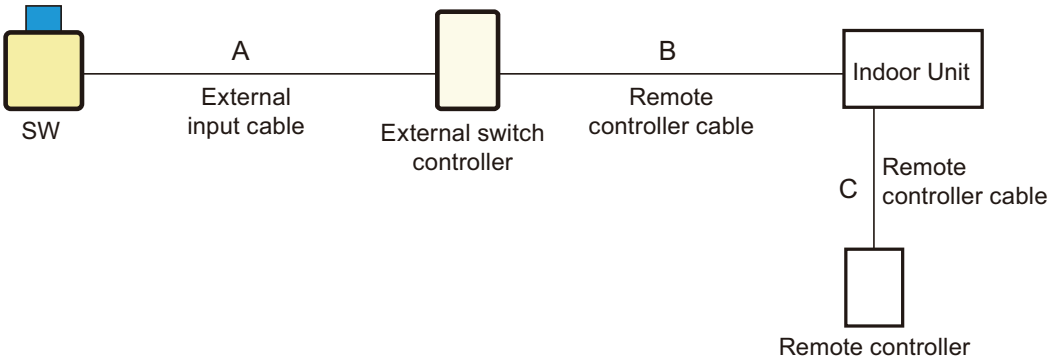


- Switching of air conditioner settings can be performed using an External switch controller and a third-party device.
- On/Off, temperature, fan speed, operating mode, and remote controller prohibition mode can be switched using external device, such as a room card-key.
- Card-key or other sensor switches are available as a locally purchased parts.

■ Accessory

Name and shape	Q'ty	Application
 Cable tie	4	For securing controller cable
 Screw (M4 × 16 mm)	3	For installing the External switch controller
 Installation manual	1	

■ System diagram

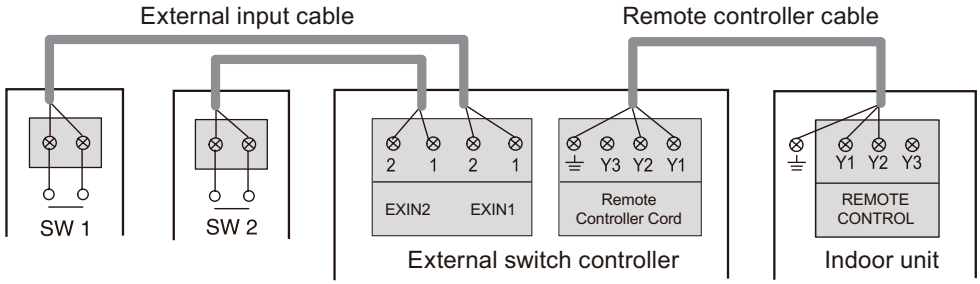


Use	A	B	B + C
2-wire type	164 ft (50 m) or less	—	1,640 ft (500 m) or less
3-wire type	164 ft (50 m) or less	82 ft (25 m) or less	1,640 ft (500 m) or less

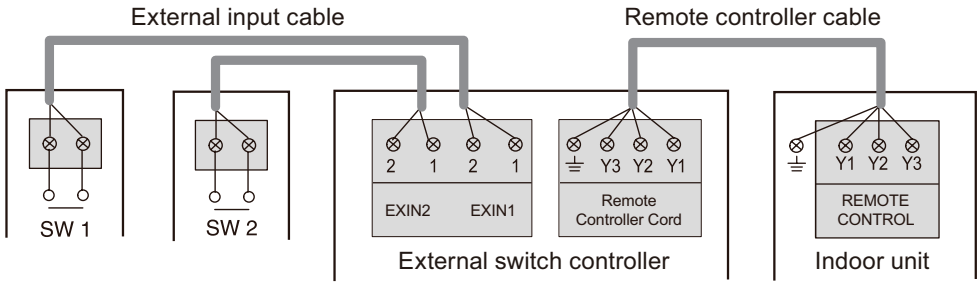
CONTROL SYSTEM

■ Electrical wiring

- **For non-polar 2 wire**

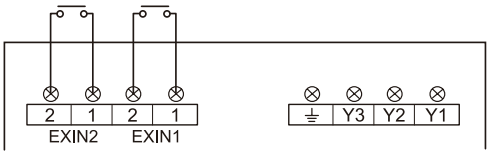


- **For polar 3 wire**



CONTROL SYSTEM

- **Connection to external contacts**



External switch controller

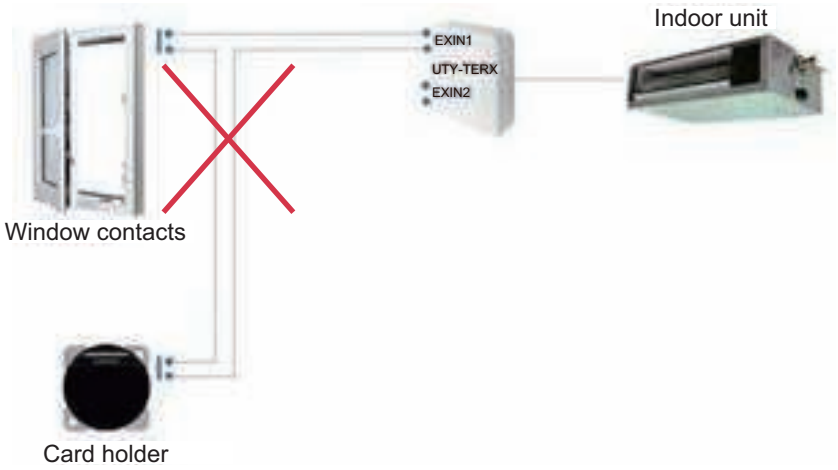
- Select low current use contacts (usable at DC 5 V, 2 mA or less).
- Short circuit detection resistance (R on): ≤ 500 Ω
- Open circuit detection resistance (R off): ≥ 100 kΩ
- A twister pair cable 22 to 16 AWG (0.33 to 1.25 mm^2) should be used.
- Maximum cable length: 164 ft (50 m)

⚠ CAUTION

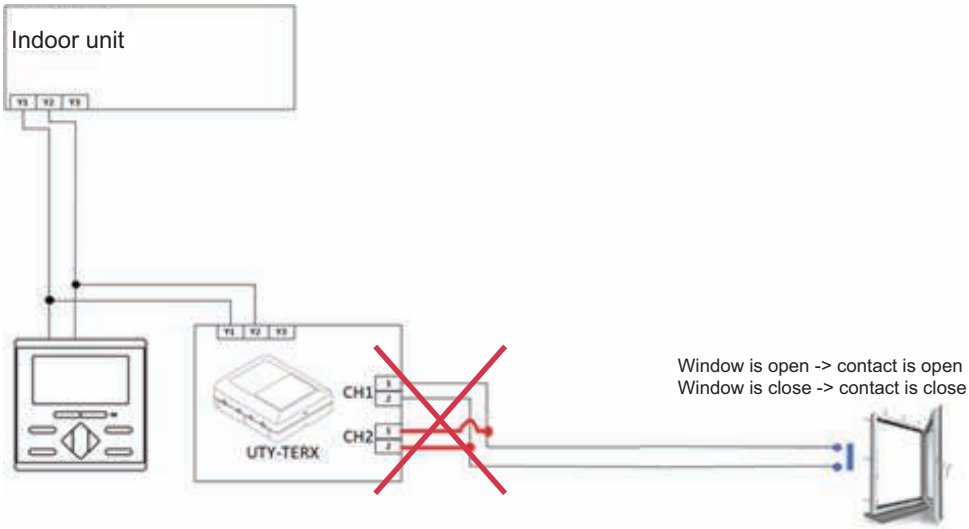
When using setback function and remote controller prohibition setting is used, leave more than 5 seconds between sensor switchings such as opening and closing the window. Otherwise, the operation signal cannot be received properly, and the control from your remote controller will not work. In such case, canceling of the setting by using Service tool is required.

Prohibited connection example

– Example 1
Series connection of window contacts and card holder is prohibited.



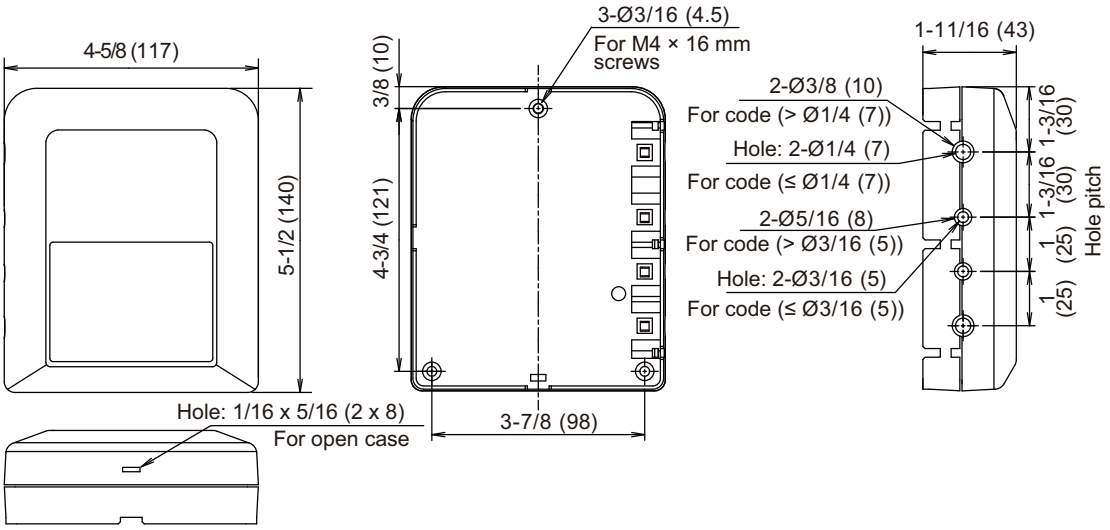
– Example 2
Parallel connection of CH1 and CH2 is prohibited.



CONTROL SYSTEM

■ Dimensions

Unit: in (mm)

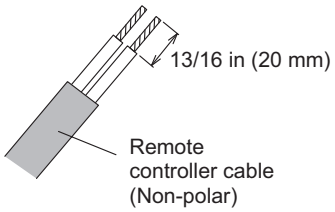


CONTROL SYSTEM

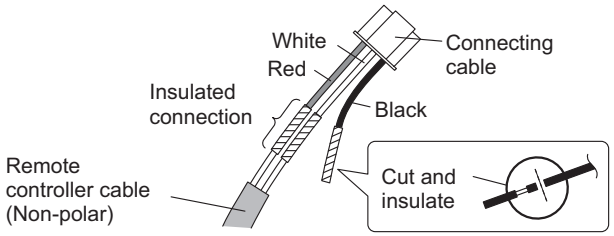
■ Installation

- **When connecting to the connector**
  - **For non-polar 2 wire**

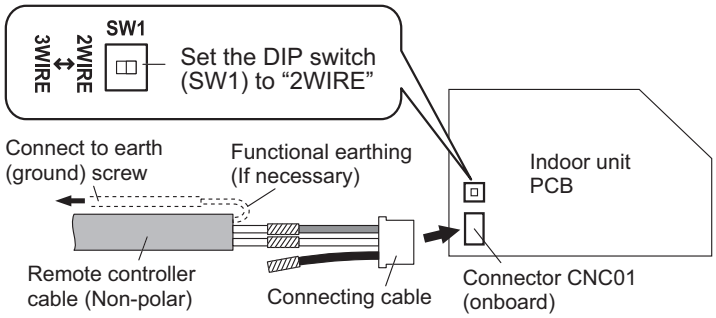
1. Use a tool to cut off the terminal on the end of the remote controller cable, and then remove the insulation from the cut end of the cable as shown below.



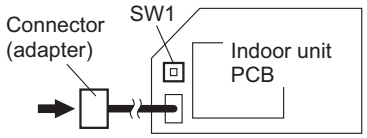
2. Connect the remote controller cable and connecting cable as shown below. Be sure to insulate the connection between the cables.



3. Connect the remote controller cable to the connecting cable, and insert it to the connector. Set the DIP switch (SW1) to “2WIRE” on the PCB of the indoor unit.



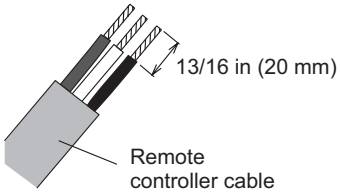
NOTE: Layout of terminal block and PCB is varies depending on the type of indoor unit.



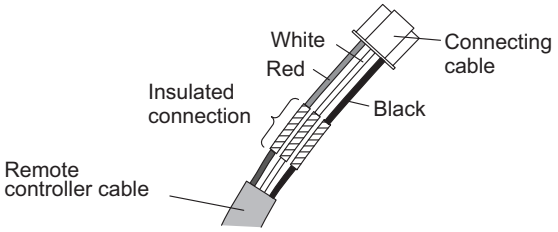
CONTROL SYSTEM

– **For polar 3 wire**

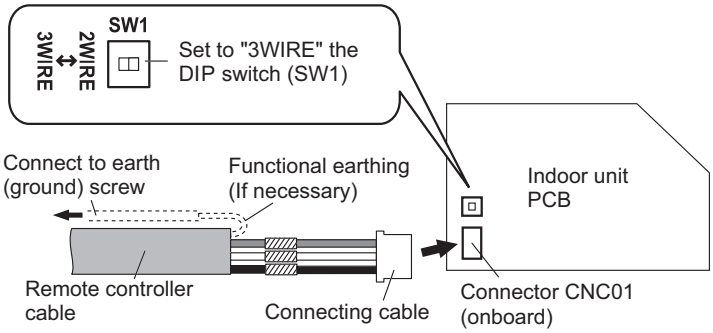
1. Use a tool to cut off the terminal on the end of the remote controller cable, and then remove the insulation from the cut end of the cable as shown below.



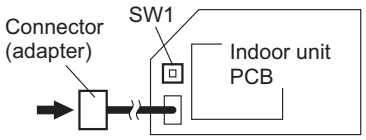
2. Connect the remote controller cable and connecting cable as shown below. Be sure to insulate the connection between the cables.



3. Connect the remote controller cable to the connecting cable, and insert it to the connector. Set the DIP switch (SW1) to “3WIRE” on the PCB of the indoor unit.

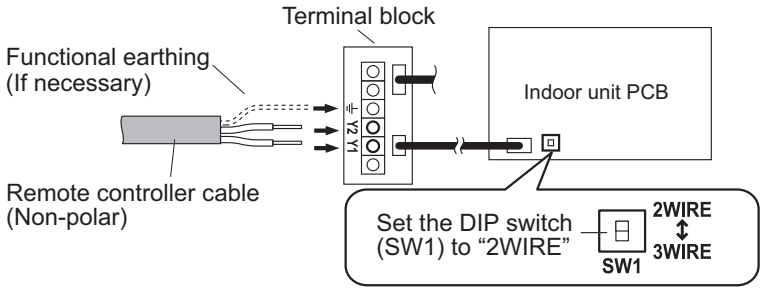


NOTE: Layout of terminal block and PCB is varies depending on the type of indoor unit.



CONTROL SYSTEM

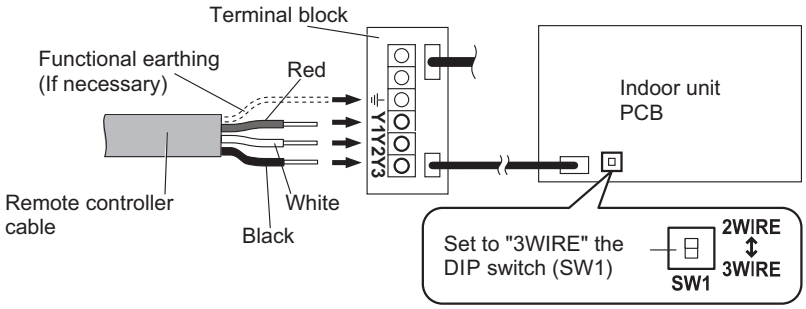
- **When connecting to the exclusive terminal block**
  - **For non-polar 2 wire**
    1. Connect the end of remote controller cable directly to the exclusive terminal block.
    2. Set the DIP switch (SW1) to “2WIRE” on the PCB of the indoor unit.



NOTES:

- Layout of terminal block and PCB is varies depending on the type of indoor unit.
- Operation may fail if it is connected to the outdoor unit or the terminal block for power supply.

  - **For polar 3 wire**
    1. Connect the end of remote controller cable directly to the exclusive terminal block.
    2. Set the DIP switch (SW1) to “3WIRE” on the PCB of the indoor unit.



NOTES:

- Layout of terminal block and PCB is varies depending on the type of indoor unit.
- Operation may fail if it is connected to the outdoor unit or the terminal block for power supply.

CONTROL SYSTEM

■ Specifications

Input power		W	0.6
Temperature	Operating	°C	32 to 114.8 (0 to 46)
	Packaged	°C	14 to 140 (-10 to 60)
Humidity	Packaged	%	0 to 95 (RH) No condensation
Dimensions (H × W × D)		mm	1-11/16 × 4-5/8 × 5-1/2 (43 × 117 × 140)
Weight		oz (g)	9 (250)

● Wiring specifications

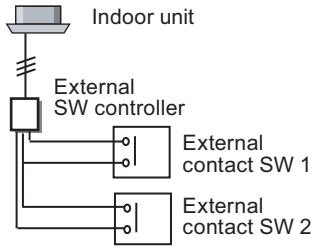
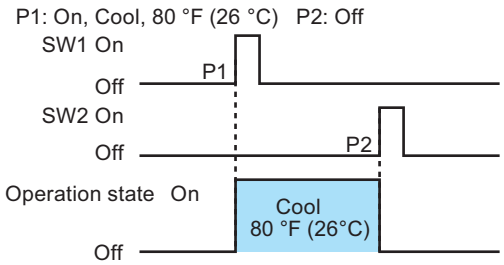
Use	Cable size	Wire type	Remarks
Remote controller cable (2-wire type)	22 to 16 AWG (0.33 to 1.25 mm^2)	Sheathed PVC cable*	Non-polar 2 core, twisted pair Maximum cable length: 1,640 ft (500 m)
Remote controller cable (3-wire type)	22 AWG (0.33 mm^2)		Polar 3 core, twisted pair Maximum cable length: 82 ft (25 m)
External input cable	22 to 16 AWG (0.33 to 1.25 mm^2)		2 core, twisted pair Maximum cable length: 164 ft (50 m)

*: Use sheathed cable in accordance with local rules for remote controller cable.

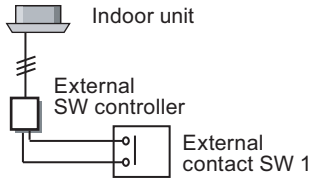
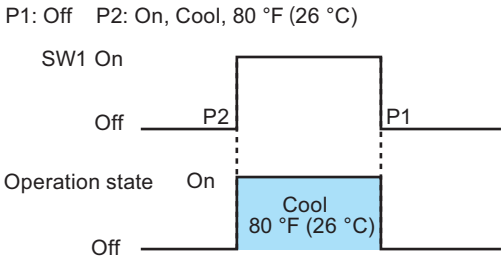
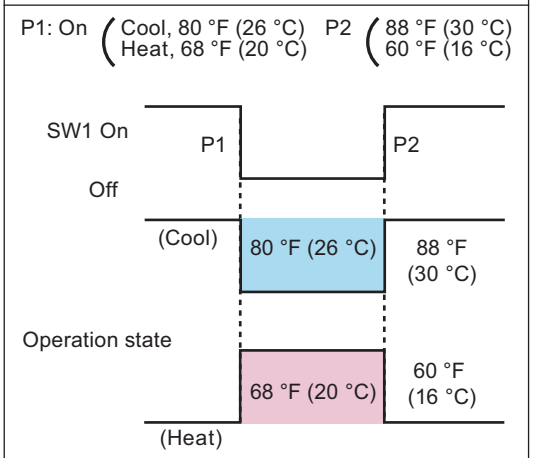
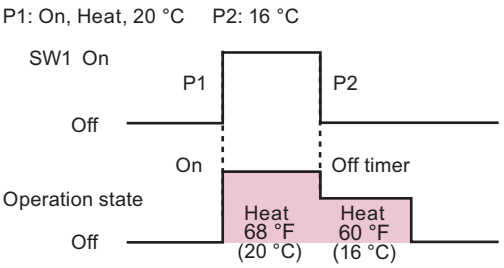
CONTROL SYSTEM

■ Example

- **Controlling the individual operation status with two external contact switch**

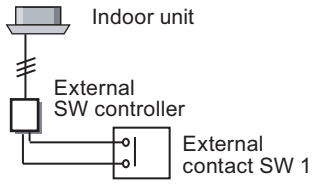
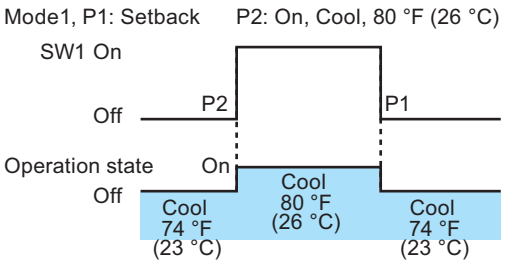
Setting	Wiring	Operation example
Mode 0 P1: Arbitrary operation state Contact Off → On P2: Arbitrary operation state Contact Off → On Other settings are arbitrary.		

- **Controlling operation by On or Off of an external contact switch**

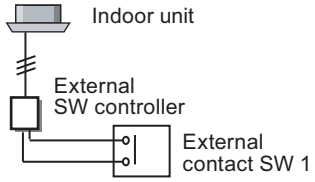
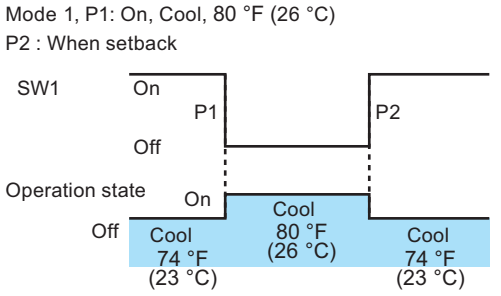
Setting	Wiring	Operation example
Mode 1 P1: Arbitrary operation state P2: Arbitrary operation state Other settings are arbitrary.		
Mode 1 P1: Arbitrary operation state P2: Arbitrary operation state Other settings are arbitrary.		
Mode 1 P1: Arbitrary operation state P2: Off timer (1, 3, 6, 12, 24 hr) Other settings are arbitrary.		

CONTROL SYSTEM

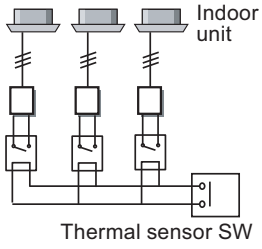
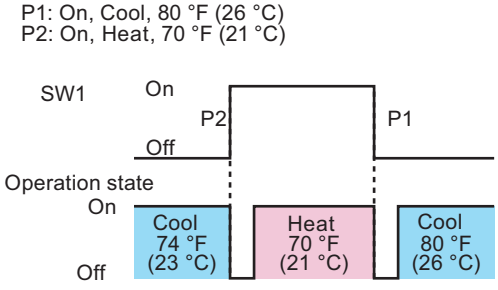
- **Operates when the external contact switch is turned on, and returns to the original operation state when the switch is turned off.**

Setting	Wiring	Operation example
Mode 1 or 0 P1: Setback P2: Arbitrary operation state Other settings are arbitrary.		

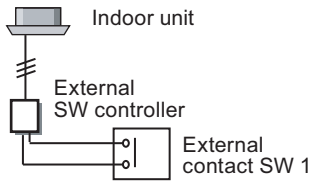
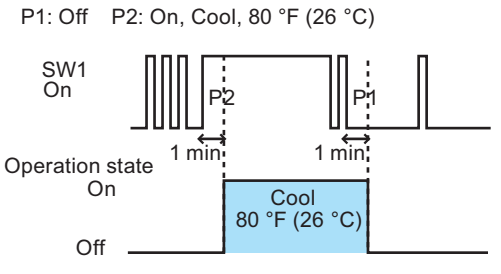
- **Operates when the external contact switch is turned off, and returns to the original operation state when the switch is turned on.**

Setting	Wiring	Operation example
Mode 1 or 0 P1: Arbitrary operation state P2: Setback Other settings are arbitrary.		

- **Thermal sensor switch is connected and cooling and heating operations are switched**.

Setting	Wiring	Operation example
Mode 1 Off output: Enabled P1: On, Cool or Heat P2: On, Cool or Heat Operation conditions: Unit operating only Other settings are arbitrary.	 External switch controller is connected to all indoor units in the same refrigerant system and cooling and heating operations are switched by one thermal sensor.	

- **Preventing chatter noise within 1 minute after external contact switch is turned on**

Setting	Wiring	Operation example
Mode 1 Delay-time setting: Delay P1: Arbitrary operation state P2: Arbitrary operation state Other settings are arbitrary.		

CONTROL SYSTEM

3-12. External switch controller (UTY-TEKX)

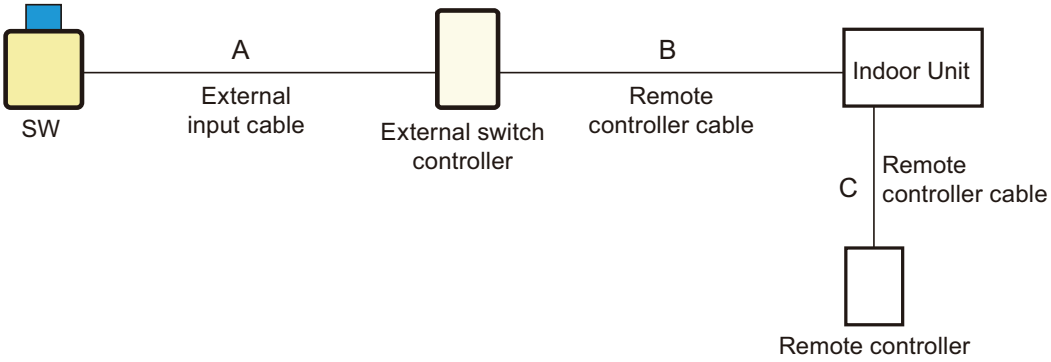


- Air conditioner switching can be controlled by connecting other sensor switches.
- On/Off, temperature, fan speed, operating mode can be switched in combination with card-key switches equipped in facilities such as hotel rooms.
- Card-key or other sensor switches are available as a locally purchased parts.

■ Accessory

Name and shape	Q'ty	Application
 Cable tie	5	For External switch controller and cable binding
 Screw (M4 × 16 mm)	2	For installing the External switch controller
 Installation manual	1	

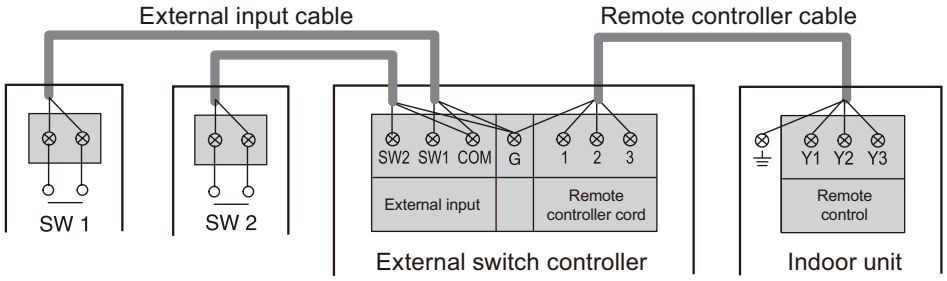
■ System diagram



A	B	B + C
164 ft (50 m) or less	82 ft (25 m) or less	1,640 ft (500 m) or less

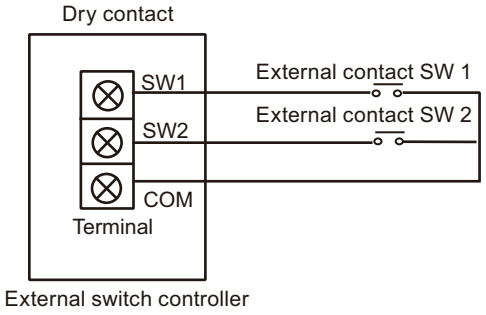
CONTROL SYSTEM

■ Electrical wiring



*Connect SW2 only when it is used.

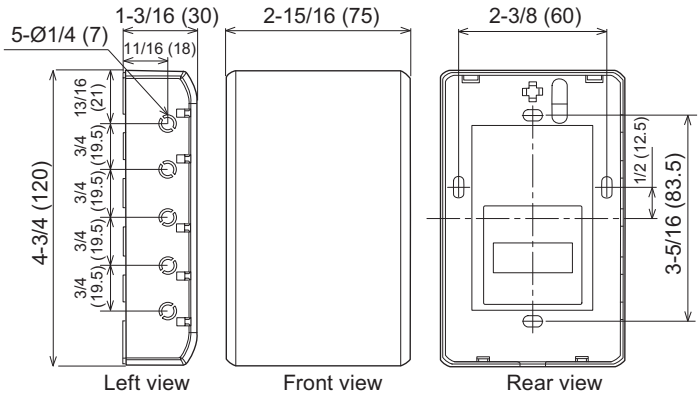
Connection to external contacts



- Open circuit voltage: 12 V ± 2 V
- Short circuit current: ≤ 2 mA
- Short circuit detection resistance (R on): ≤ 1 kΩ
- Open circuit detection resistance (R off): ≥ 50 kΩ

■ Dimensions

Unit: in (mm)



CONTROL SYSTEM

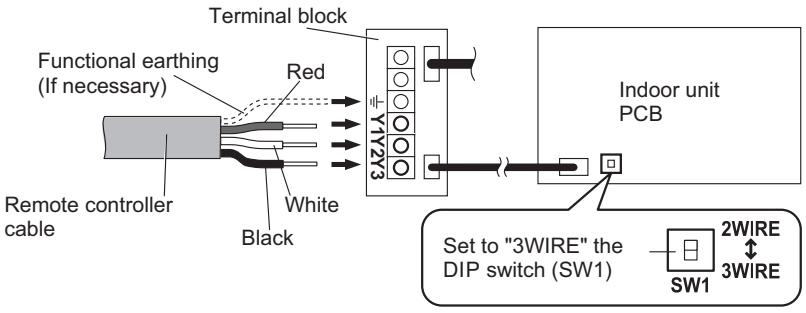
■ Installation

- **Connection pattern**

NOTE: Connection pattern is different according to type of Indoor unit.

Indoor unit type	Connection pattern
All cassette type	Pattern A
All duct type	
All floor type	
Floor/Ceiling type	
All ceiling type	
All wall mounted type	Pattern B

- **Pattern A**
  1. Connect the end of remote controller cable directly to the exclusive terminal block.
  2. Set the DIP switch (SW1) to “3WIRE” on the PCB of the indoor unit.

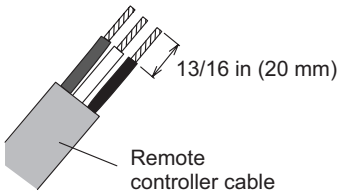


NOTES:
- Layout of terminal block and PCB is varies depending on the type of indoor unit.
- Operation may fail if it is connected to the outdoor unit or the terminal block for power supply.

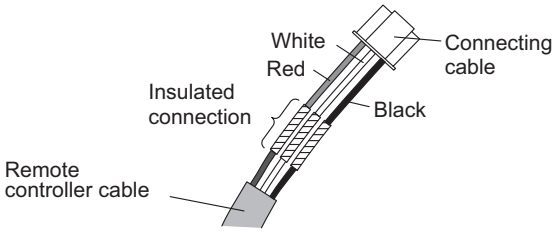
CONTROL SYSTEM

- **Pattern B**

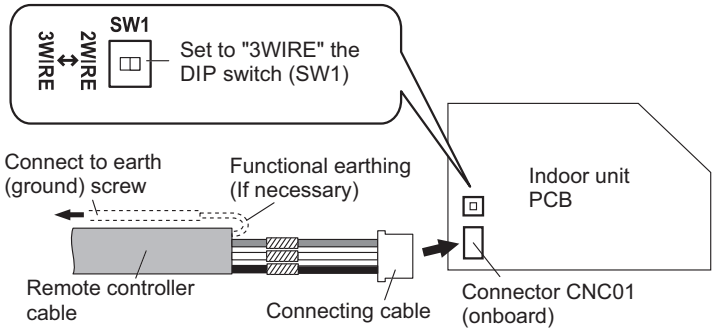
1. Use a tool to cut off the terminal on the end of the remote controller cable, and then remove the insulation from the cut end of the cable as shown below.



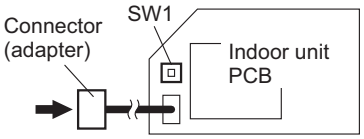
2. Connect the remote controller cable and connecting cable as shown below. Be sure to insulate the connection between the cables.



3. Connect the remote controller cable to the connecting cable, and insert it to the connector. Set the DIP switch (SW1) to “3WIRE” on the PCB of the indoor unit.



NOTE: Layout of terminal block and PCB is varies depending on the type of indoor unit.



CONTROL SYSTEM

■ Specifications

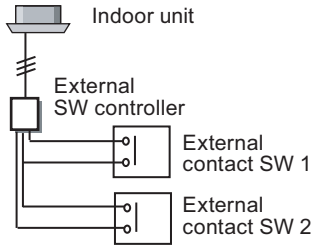
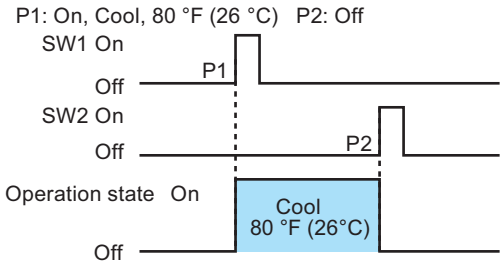
Power supply	V	DC 12
Dimensions (H × W × D)	in (mm)	4-3/4 × 2-15/16 × 1-3/16 (120 × 75 × 30)
Weight	oz (g)	4 (100)

● Wiring specifications

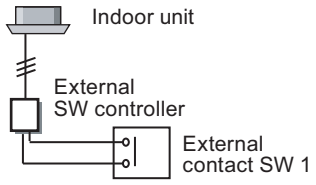
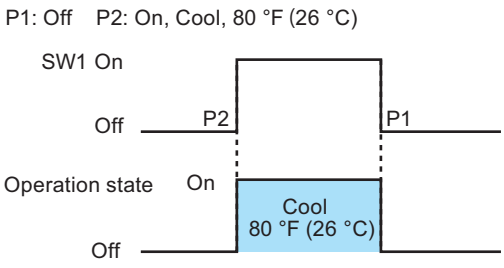
Use	Cable size	Wire type	Remarks
Remote controller cable	22 AWG (0.33 mm^2)	Polar 3 core	Use sheathed PVC cable or shielded cable in accordance with the regional cable standard
External input cable		Polar 2 core, twisted pair	Use shielded cable in accordance with the regional cable standard

■ Example

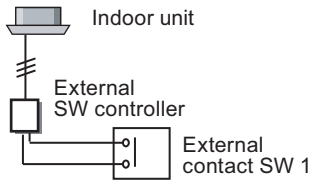
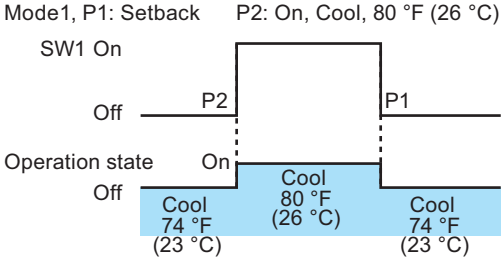
- **Controlling the individual operation status with two external contact switch**

Setting	Wiring	Operation example
Mode 0 P1: Arbitrary operation state Contact Off → On P2: Arbitrary operation state Contact Off → On Other settings are arbitrary.		

- **Controlling operation by On or Off of an external contact switch**

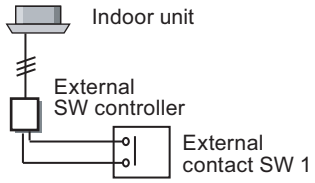
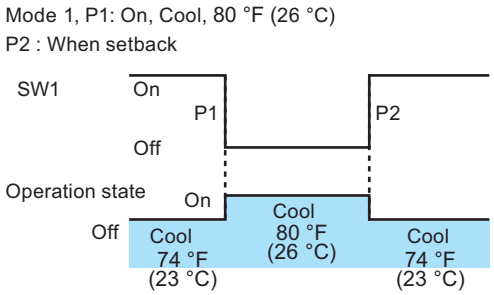
Setting	Wiring	Operation example
Mode 1 P1: Arbitrary operation state P2: Arbitrary operation state Other settings are arbitrary.		

- **Operates when the external contact switch is turned on, and returns to the original operation state when the switch is turned off.**

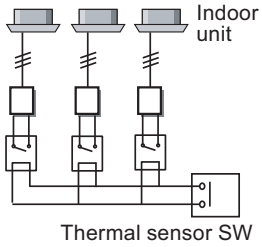
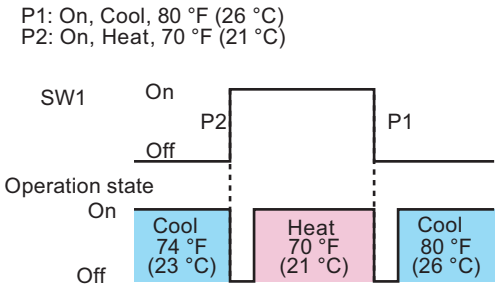
Setting	Wiring	Operation example
Mode 1 or 0 P1: Setback P2: Arbitrary operation state Other settings are arbitrary.		

CONTROL SYSTEM

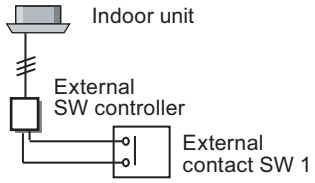
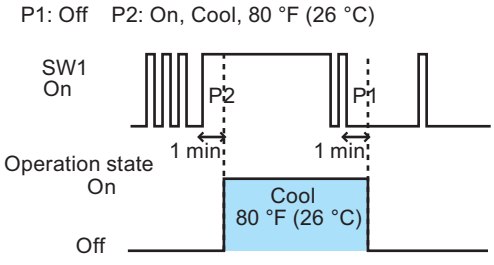
- **Operates when the external contact switch is turned off, and returns to the original operation state when the switch is turned on.**

Setting	Wiring	Operation example
Mode 1 or 0 P1: Arbitrary operation state P2: Setback Other settings are arbitrary.		

- **Thermal sensor switch is connected and cooling and heating operations are switched**.

Setting	Wiring	Operation example
Mode 1 Off output: Enabled P1: On, Cool or Heat P2: On, Cool or Heat Operation conditions: Unit operating only Other settings are arbitrary.	 External switch controller is connected to all indoor units in the same refrigerant system and cooling and heating operations are switched by one thermal sensor.	

- **Preventing chatter noise within 1 minute after external contact switch is turned on**

Setting	Wiring	Operation example
Mode 1 Delay-time setting: Delay P1: Arbitrary operation state P2: Arbitrary operation state Other settings are arbitrary.		

CONTROL SYSTEM

4. Service and web monitoring tool

4-1. Service tool (UTY-ASGXZ1)

Extensive monitoring and analysis functions for installation and maintenance.
Operation status and error history can be grasped promptly and adequately.

■ Accessory

Name and shape	Q'ty	Application
 WHITE-USB-KEY (software protection key with software)	1	Includes the software and manuals for Service tool. Additionally, it works as the software protection key. Software protection key to be connected to an USB port on the PC that Service tool is installed. Service tool runs only on a PC with this WHITE-USB-KEY.

■ Other required devices (Locally purchased)

- Personal computer that satisfies the following system requirements
  – For VRF system side PC

Personal computer system requirement	
Operating system	• Microsoft Windows 7 Professional (32-bit or 64-bit) SP1 • Microsoft Windows 8.1 Pro (32-bit or 64-bit) • Microsoft Windows 10 Pro (32-bit or 64-bit)
CPU	1 GHz or higher
Memory	• 1 GB or more (for Windows 7 [32-bit], Windows 8.1 [32-bit], and Windows 10 [32-bit]) • 2 GB or more (for Windows 7 [64-bit], Windows 8.1 [64-bit], and Windows 10 [64-bit])
HDD	40 GB or more of free space
Display	1,366 × 768 or higher resolution
Interface	• 2 USB ports – 1 USB port is required for WHITE-USB-KEY connection – 1 USB port is required for Echelon U10 USB Network Interface
Software	Adobe Reader 9.0 or later
Internet transmission rate (in remote access)	Internet environment capable for communication speed of 3 Mbps or more (for uploading) all the time (including when accessing to oversea website)

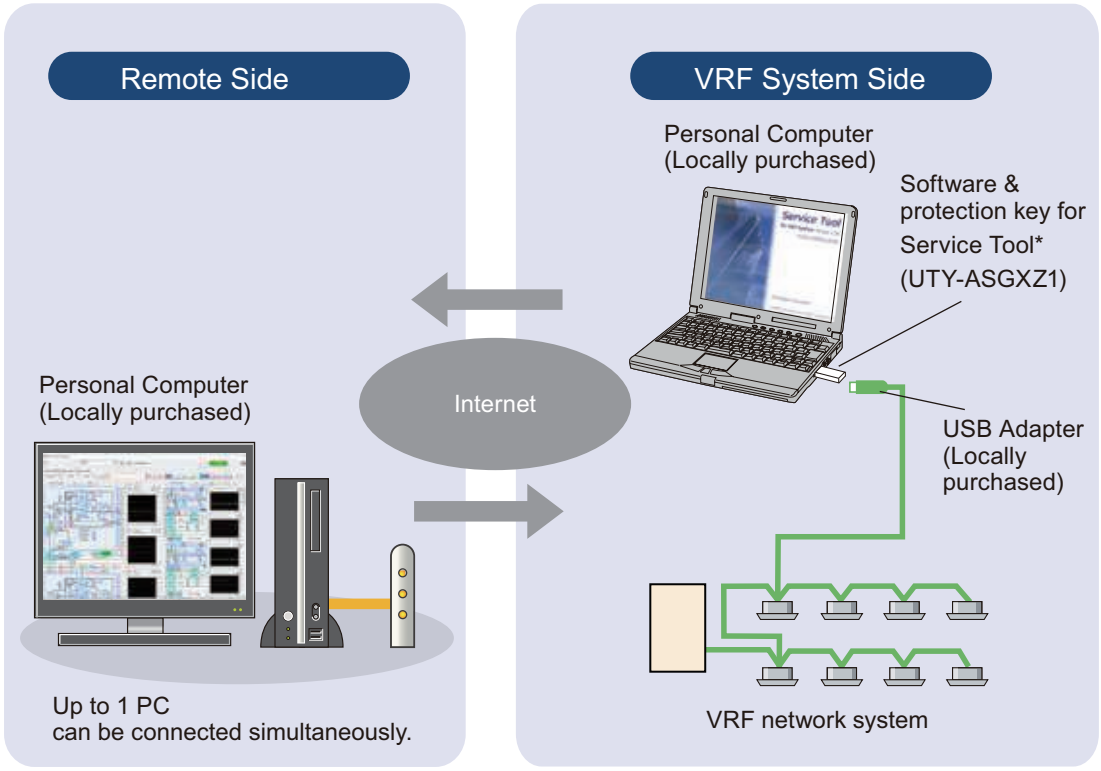
  – For remote side PC

Personal computer system requirement	
Web browser	Internet Explorer 11.0 or Microsoft Edge
Display	1,366 × 768 or higher resolution (Before use, set the resolution so that the resolution of remote side PC monitor screen is higher than that of VRF system side PC.)
Internet transmission rate (in remote access)	Internet environment capable for communication speed of 4 Mbps or more (for downloading) all the time (including when accessing to oversea website)

- Echelon U10 USB Network Interface – TP/FT-10 Channel (Model number: 75010R) (Required for each VRF network)

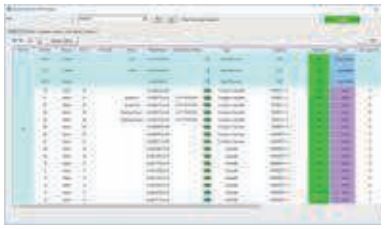
CONTROL SYSTEM

■ System diagram

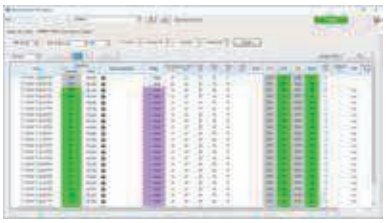
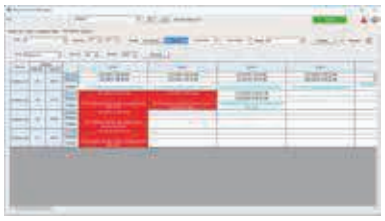
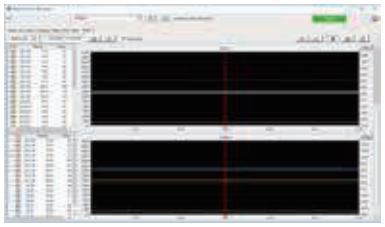
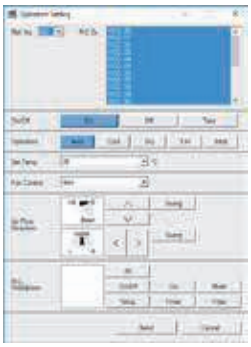
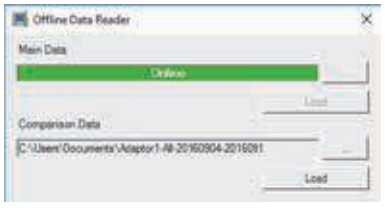


*: WibuKey of UTY-ASGX can be used.

■ Functions

Function	Summary	
System list	Displays the overall operation status of all or specified units in the system in a list form.	
Equipment detail (Diagram)	Displays the detail information for sensor values, electrical components etc. for the specified units in schematic. The information here can be used along with the detailed information in list form, to check the operation status of units and make detail analysis on the cause, in case an error occurs.	
Equipment detail (Status list)	Displays the detail information for sensor values, electrical components etc. of units in a specified refrigerant system in list form. The information here can be used along with the detailed information in diagram form, to check the operation status of units and make detail analysis on the cause, in case an error occurs.	
Equipment detail (Check list)	Judges the sensor valves of outdoor units and indoor units are appropriate, and displays the result. By saving the result as a CSV file, it can be outputted with a report format.	

CONTROL SYSTEM

Function	Summary
Operation history	The indoor units or outdoor units operation history can be recorded. The displayed operation history can be printed out and saved to a CSV file. 
Error history	Displays the error information for each unit. The error information can sequentially be displayed up to 50 items as they occur starting with the latest error. 
Graph	Displays the sensor valves of outdoor units and indoor units in more detail and more easier to see. Sensor information that the user want to check can be selected freely, and combined information can be displayed. Up to 6 graph screens can be displayed simultaneously. 
Data backup	Operation and error history data can be downloaded. Only the required data may be downloaded specifying the refrigerant system, unit, and time range. 
Operation setting	Changeable the operation status of the indoor unit individually or by group. 
Network topology analyzer	A list of units connected to the VRF system network is displayed in network segments in tree form.
Remote setting	Function (Field) setting for indoor units is realized remotely.
System time setting	An arbitrary time is set for all the remote controllers within the system.
Central control forced release	The operation setting restriction function of the indoor units set form the controller can be forcibly released. (remote controller inhibit, temperature upper/lower limit setting)
Model name writer	An arbitrary model name can be written to the target unit.
Error memory reader	When an error occurs at an outdoor unit, the operation data records before the error are acquired over a network, and saved to a CSV file. **NOTE:** To perform “Error memory reading”, Service tool and the corresponding outdoor unit must be connected directly with each other. Refer to the operation manual of the Service tool for details.
Time guard information	Reference data for judging the maintenance period of indoor and outdoor units (compressor, fan, etc. integrated time) is output to a CSV file.
Off line data reader	Displays and compares the current data and the backup data saved in the past on dual screen. 

CONTROL SYSTEM

CONTROL SYSTEM

Function	Summary
Version	Confirm the current version of the software, and it is not the latest, it can be updated to the latest version. 
Remote operation	Through the Internet, Service tool in the PC on VRF system side can be operable in real-time from remote side PC. Chat-enabled, and the acquired data by the Service tool can be downloaded by remote side PC.

CONTROL SYSTEM

4-2. Web monitoring tool (UTY-AMGXZ1)

■ Accessory

Name and shape	Q'ty	Application
 WHITE-USB-KEY (software protection key with software)	1	Includes the software and manuals for Web monitoring tool. Additionally, it works as the software protection key. Software protection key to be connected to an USB port on the PC that Web monitoring tool is installed. Web monitoring tool runs only on a PC with this WHITE-USB-KEY.

■ Other required devices (Locally purchased)

- Personal computer that satisfies the following system requirements
  – For VRF system side PC

Personal computer system requirement	
Operating system	• Microsoft Windows 7 Professional (32-bit or 64-bit) SP1 • Microsoft Windows 8.1 Pro (32-bit or 64-bit) • Microsoft Windows 10 Pro (32-bit or 64-bit)
CPU	1 GHz or higher
Memory	• 1 GB or more (for Windows 7 [32-bit], Windows 8.1 [32-bit], and Windows 10 [32-bit]) • 2 GB or more (for Windows 7 [64-bit], Windows 8.1 [64-bit], and Windows 10 [64-bit])
HDD	40 GB or more of free space
Display	1,366 × 768 or higher resolution
Interface	• USB port (for Echelon U10 USB Network Interface, Max. 4, software protection key) • Either of the following interface is required for remote connection: – Internet using LAN: Ethernet port is required.
Software	Adobe Reader 9.0 or later
Internet transmission rate (in remote access)	Internet environment capable for communication speed of 3 Mbps or more (for uploading) all the time (including when accessing to oversea website)

  – For remote side PC

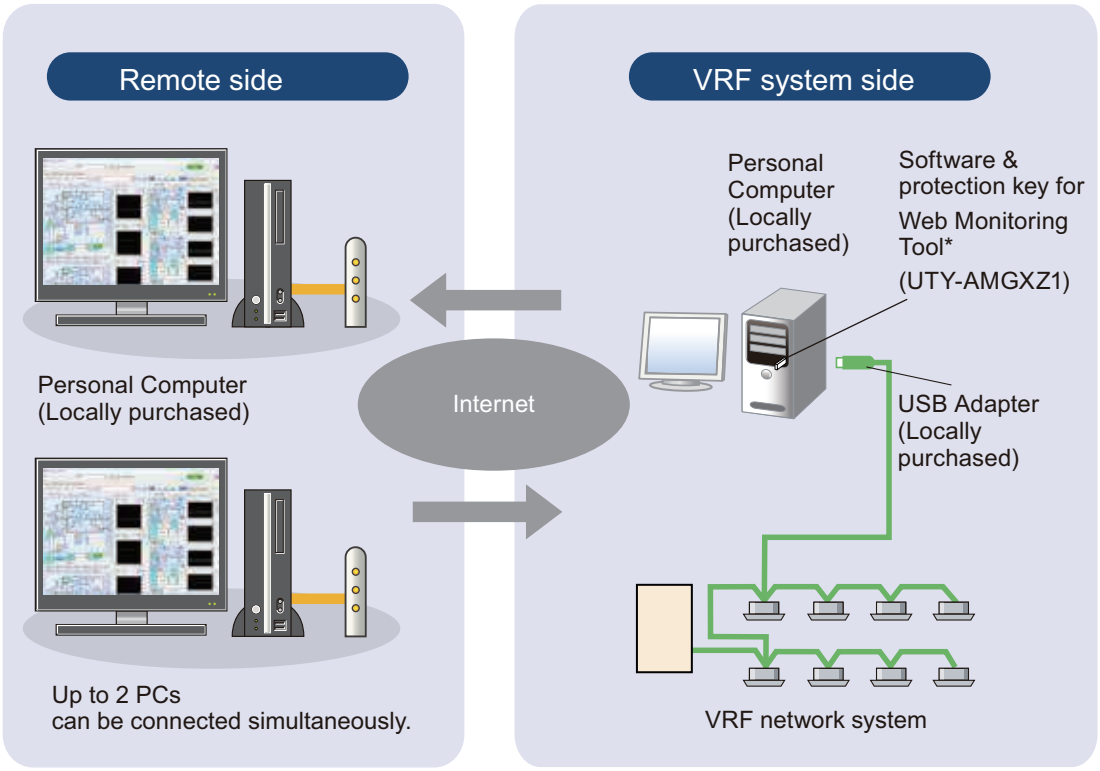
Personal computer system requirement	
Web browser	Internet Explorer 11.0 or Microsoft Edge
Display	1,366 × 768 or higher resolution (Before use, set the resolution so that the resolution of remote side PC monitor screen is higher than that of VRF system side PC.)
Internet transmission rate (in remote access)	Internet environment capable for communication speed of 4 Mbps or more (for downloading) all the time (including when accessing to oversea website)

- Echelon U10 USB Network Interface – TP/FT-10 Channel (Model number: 75010R) (Required for each VRF network)

CONTROL SYSTEM

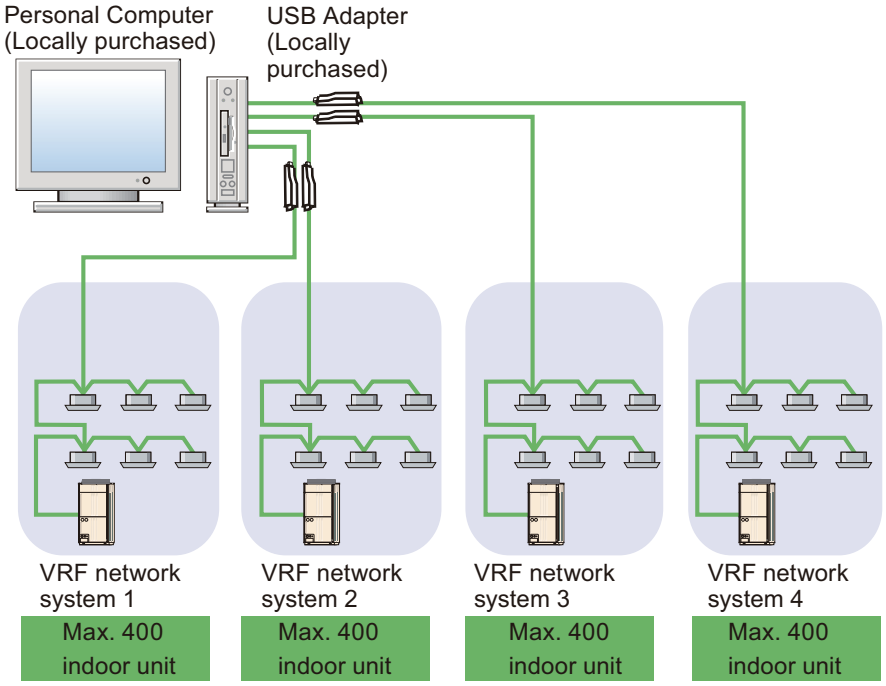
■ System diagram

- **System components**



*WibuKey of UTY-AMGX can be used.

- **Support 4 VRF network systems**
  PC USB adapters (Max. 4 ports per PC) permit control and monitoring of up to 1,600 units.
  Suitable for large-scale buildings or hotels.



CONTROL SYSTEM

■ Comparison table

Function	Service tool (UTY-ASGXZ1)		Web monitoring tool (UTY-AMGXZ1)	
	VRF system side	Remote side	VRF system side	Remote side
System list	●	●	●	●
Equipment detail (Diagram)	●	●	●	●
Equipment detail (Status list)	●	●	●	●
Equipment detail (Check list)	●	●	●	●
Operation history	●	●	●	●
Error history	●	●	●	●
Graph	●	●	●	●
Data backup	●	●	●	●
Operation setting	●	●	●	●
E-mail automatic transmission of system malfunction	—	—	●*	—
Network topology analyzer	●	●	●	●
Remote setting	●	●	●	●
System time setting	●	●	●	●
Central control forced release	●	●	●	●
Model name writer	●	●	—	—
Error memory reader	●	●	—	—
Time guard information	●	●	●	●
Off line data reader	●	●	—	—
Version	●	●	●	●
Software update	●	—	●	—

*: Available only during connection to the Internet

CONTROL SYSTEM

Refrigerant R410A
INVERTER

AIRSTAGE™
Variable Refrigerant Flow System

6. SYSTEM DESIGN

2021.02.19
DV_CH06_J3LU061EF_04

CONTENTS

6. SYSTEM DESIGN

1. System design 06-1
1-1. Refrigerant system 06-1
1-2. VRF network system 06-4
1-3. Installation place 06-11
2. Piping design 06-14
2-1. Important items when using refrigerant (R410A) 06-14
2-2. Piping limitation 06-17
2-3. Pipe size 06-19
2-4. Selection of pipe heat insulating material 06-25
2-5. Additional charge calculation 06-26
2-6. Piping design example 06-28
3. Piping connection 06-35
3-1. Piping to outdoor unit 06-37
3-2. Separation tube 06-41
3-3. Header 06-45
4. Wiring design 06-48
4-1. Electrical wiring 06-48
4-2. Power supply cable 06-50
4-3. Transmission cable 06-54
4-4. Controller cable 06-62
5. Drain connection 06-64
5-1. Outdoor unit 06-64
5-2. Indoor unit 06-65

1. System design

1-1. Refrigerant system

■ Connectable unit within 1 refrigerant system

- **Outdoor unit**

Unit	Quantity
Outdoor unit	1 unit

- **Indoor unit**

Outdoor unit			Connectable indoor unit conditions	
Ton	Model name	Cooling capacity (Btu/h)	Cooling capacity range	Connectable number
6	AOU72RLAVL	72,000	50 to 150% of outdoor unit cooling capacity	1 to 18 units
8	AOU96RLAVL	96,000		1 to 24 units
10	AOU120RLAVL	120,000		1 to 30 units

⚠ CAUTION

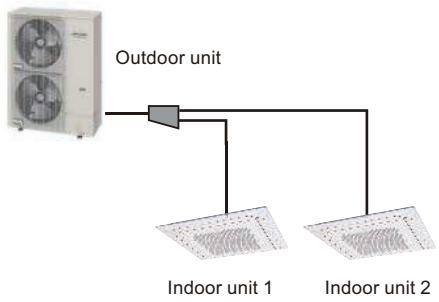
- When all indoor units are operating at maximum capacity, individual indoor unit operates at a slightly lower capacity. (When connecting more than 100%)
- Do not exceed both of connectable cooling capacity range and maximum connectable indoor unit quantity, otherwise it may cause hinder the return of the refrigerant oil and cause a compressor breakdown.

SYSTEM DESIGN

■ Refrigerant system examples

NOTE: For cooling capacity range of connectable indoor units, refer to "Refrigerant system" on page 06-1.

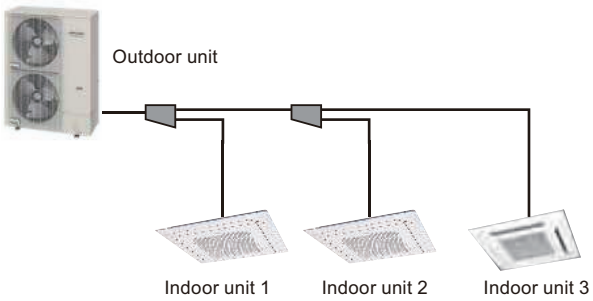
● Example 1 (OK)



Capacity ratio	83%

Model name		Cooling capacity	Total capacity	Connectable indoor unit capacity		Judge
				Min.	Max.	
		(kBtu/h)				
Outdoor unit	AOU72RLAVL	72	72	(2) 50% 36	(3) 150% 108	(2) ≤ (1) ≤ (3) 36 < 60 < 108 → OK
Indoor unit 1	AUUB30TLAV2	30	(1) 60			
Indoor unit 2	AUUB30TLAV2	30				

● Example 2 (OK)

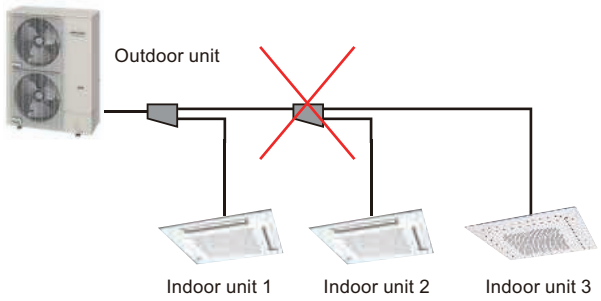


Capacity ratio	130%

Model name		Cooling capacity	Total capacity	Connectable indoor unit capacity		Judge
				Min.	Max.	
		(kBtu/h)				
Outdoor unit	AOU72RLAVL	72	72	(2) 50% 36	(3) 150% 108	(2) ≤ (1) ≤ (3) 36 < 84 < 108 → OK
Indoor unit 1	AUUB30TLAV2	30	(1) 84			
Indoor unit 2	AUUB30TLAV2	30				
Indoor unit 3	AUUA24TLAV2	24				

SYSTEM DESIGN

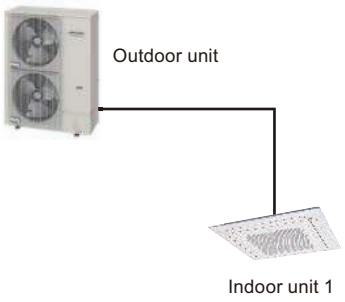
● Example 3 (Prohibited)



Capacity ratio	166%

Model name		Cooling capacity	Total capacity	Connectable indoor unit capacity		Judge
				Min.	Max.	
		(kBtu/h)				
Outdoor unit	AOU72RLAVL	72	72	(2) 50% 36	(3) 150% 108	(3) < (1) 108 < 120 → Prohibited
Indoor unit 1	AUUB36TLAV	36	(1) 120			
Indoor unit 2	AUUB36TLAV	36				
Indoor unit 3	AUUB48TLAV2	48				

● Example 4 (OK)



Capacity ratio	66%

Model name		Cooling capacity	Total capacity	Connectable indoor unit capacity		Judge
				Min.	Max.	
		(kBtu/h)				
Outdoor unit	AOU72RLAVL	72	72	(2) 50% 36	(3) 150% 108	(2) ≤ (1) ≤ (3) 36 < 48 < 108 → OK
Indoor unit 1	AUUB48TLAV2	48	(1) 48			

SYSTEM DESIGN

1-2. VRF network system

■ Definition

VRF network

VRF network means global VRF network.

Network segment (NS)

Network segment (NS) means each networks shut off by Signal amplifier.

Network segments mean divided block which has been connected with Signal amplifier within conditions that required Signal amplifier.

When a Signal amplifier is installed, network is divided into two network segments.

Element

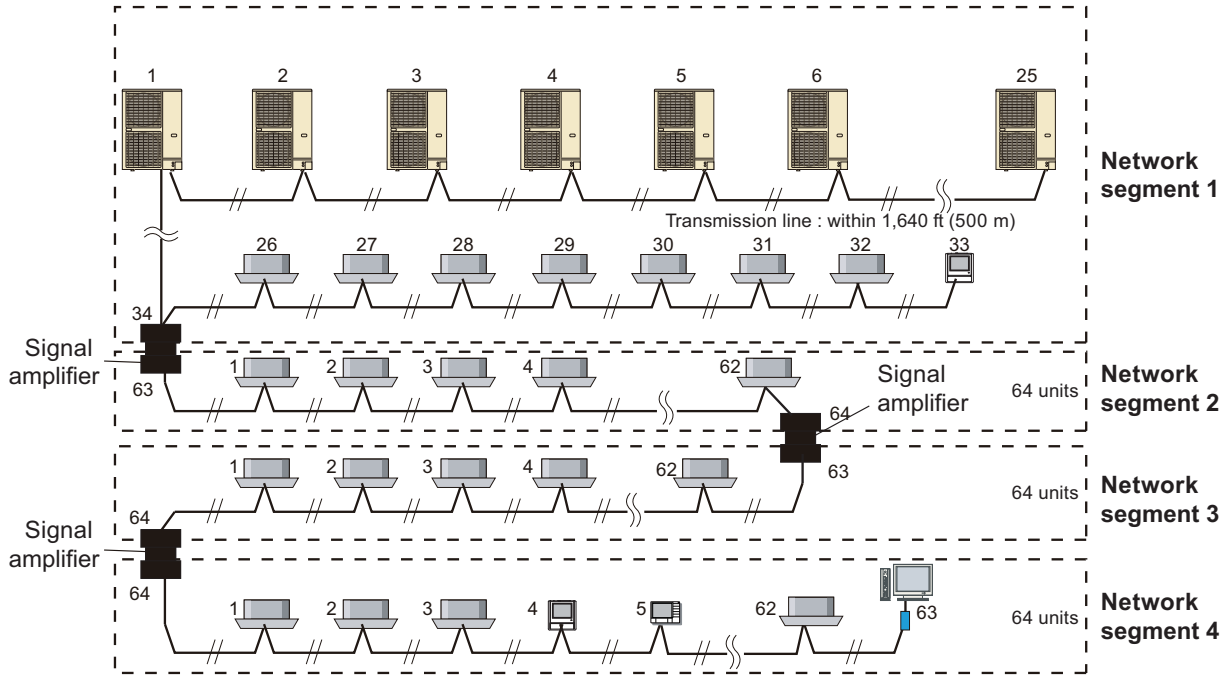
Generic name for indoor unit, outdoor unit, Signal amplifier, TPC, CRC, and so on in network segment.

Terminal resistor

Terminal resistor means resistor should set in network segment.

■ Overview

- VRF network system should keep both of number of unit and wiring length. When system exceeds either number of unit or wiring length, the system should be divided.
- Different VRF series may not coexist within the same network.



SYSTEM DESIGN

■ Maximum wiring length

Transmission cable	Maximum wiring length
Total wiring length of transmission	11,811 ft (3,600 m)
Maximum wiring length between units	1,312 ft (400 m)
Total wiring length in 1 segment	1,640 ft (500 m)

	VRF network system	Segment
Wiring length	11,811 ft (3,600 m)	1,640 ft (500 m)
Number of units	400	64

In the following case, Signal amplifier is required.

- When the total length of the transmission cable exceeds 1,640 ft (500 m).
- When transmission cable length between each units exceeds (in segment) 1,312 ft (400 m).
- When the number of total unit exceeds 64 units. (For how to count units, refer to "How to count element in a network segment" on page 06-10.

● Maximum wiring length of units

Name	Model name	Maximum wiring length		Remarks
Network converter	UTY-VGGXZ1	Total length of group remote controller cable to Network converter	328 ft (100 m)	Used for group remote controller
	UTY-VTGX	Remote controller to Network converter	328 ft (100 m)	Used for single split air conditioner
		Indoor unit to Network converter	328 ft (100 m)	
Network converter for LonWorks	UTY-VLGX	In each network segment	1,640 ft (500 m)	
Modbus converter	UTY-VMGX	In each network segment	1,640 ft (500 m)	
Signal amplifier	UTY-VSGXZ1	In each network segment	1,640 ft (500 m)	
External switch controller	UTY-TERX UTY-TEKX	External switch to External switch controller	164 ft (50 m)	Maximum connectable indoor units: 16 2 remote controllers can be used jointly.
		Indoor unit to External switch controller	82 ft (25 m)	
Wired remote controller	UTY-RNRUZ∗ UTY-RNKU	Remote controller cable	1,640 ft (500 m)	
Simple remote controller	UTY-RSRY UTY-RSKU UTY-RHRY UTY-RHKU			

SYSTEM DESIGN

■ Maximum connectable unit numbers in 1 VRF network system

Outdoor unit	100
Indoor unit	400

● Controller

- **Central controller**

Exterior	Part name	Model name	Max. connectable number	Max. controllable number			
				VRF network system	Remote controller group	Indoor unit	Group
	System controller*1	UTY-APGXZ1	1	4	1,600 per VRF network system		
	System controller lite	UTY-ALGXZ1	1	1	400		
	Touch panel controller	UTY-DTGYZ1	16*2	—	400		
	Central remote controller	UTY-DCGY	16*2	—	—	100	16
	Central remote controller	UTY-DCGYZ∗	16*2	—	100	100	50

NOTES:

- *1: Different VRF series may be connected for each of the 4 VRF networks supported by the product, but different series may not coexist within the same network. (VR-II, V-II, J-II, J-IIS, J-IIIL, J-IV, and J-IVS can exist together in same network. V and S can exist together in same network, too.)
- *2: For 1 VRF network system, total number of Touch panel controller, Central remote controller, Network converter for Group remote controller, KNX converter for VRF, Modbus converter for VRF, BACnet gateway (Hardware), Niagara driver for VRF is 16, including 1 Network converters for LonWorks.
- *3: When Group remote controller is used, Network converter (UTY-VGGXZ1) is required.

SYSTEM DESIGN

- **Individual controller**

Exterior	Part name	Model name	Max. number	Remarks
	Wired remote controller (Touch panel)	UTY-RNRUZ∗	—	Maximum controllable indoor units: 16
	Wired remote controller	UTY-RNKU	—	Maximum controllable indoor units: 16
	Simple remote controller	UTY-RSRY UTY-RSKU	—	Maximum controllable indoor units: 16
	Simple remote controller (Without operation mode)	UTY-RHRY UTY-RHKU	—	Maximum controllable indoor units: 16
	Wireless remote controller	UTY-LNHU	—	

SYSTEM DESIGN

● Adaptor/Convertor/Maintenance tool

Exterior	Part name	Model name	Max. number	Remarks
	Network converter	UTY-VTGX	100	• Total number of refrigerant system and Network converter is maximum 100. • Maximum connectable single split type or multi type: 16 units
	Network converter	UTY-VGGXZ1	For split system: 100	• Total number of refrigerant system and Network converter is maximum 100. • Maximum connectable single split type or multi type: 16 units • This Network converter covers 2 refrigerant systems.
	Network converter for LonWorks	UTY-VLGX	1*1	Maximum controllable indoor units: 128
	Modbus converter for VRF	UTY-VMGX	9*1	Maximum controllable indoor units: 128
	Thermostat converter	UTY-TTRX	—	Maximum controllable indoor units: 16
	BACnet gateway (Hardware)	UTY-VBGX	4*1	Maximum controllable indoor units: 128
	BACnet gateway (Software)	UTY-ABGXZ1	1*2	• Maximum controllable VRF network system: 4 • Maximum controllable remote controller group: 1,600 per 4 VRF network system • Maximum controllable indoor units: 1,600 per 4 VRF network system • Maximum controllable group: 1,600 per 4 VRF network system
	Niagara driver for VRF	FUJ-VRF-8000	4*4	Maximum controllable units: 250. Use under 125 units is recommended.
	Wireless LAN adapter	UTY-TFSXZ2	—	Connected to each indoor unit
	Signal amplifier	UTY-VSGXZ1	8	Signal amplifier is required when 1,640 ft (500 m) or more in transmission cable length or connected units exceed 64 units.
	External switch controller	UTY-TERX UTY-TEKX	—	Maximum controllable indoor units: 16

SYSTEM DESIGN

SYSTEM DESIGN

Exterior	Part name	Model name	Max. number	Remarks
	Service tool	UTY-ASGXZ1	1*3	• PC: Locally purchased • USB adapter is required.
	Web monitoring tool	UTY-AMGXZ1	1*2*3	• PC: Locally purchased • Up to 4 VRF network system can be observed with one Web monitoring tool.

NOTES:

- *1: For 1 VRF network system, total number of Touch panel controller, Central remote controller, Network converter for Group remote controller, KNX converter for VRF, Modbus converter for VRF, BACnet gateway (Hardware) is 16, including 1 Network converters for LonWorks.
- *2: Different VRF series may be connected for each of the 4 VRF networks supported by the product, but different series may not coexist within the same network. (VR-II, V-II, J-II, J-IIS, J-IIIL, J-IV, and J-IVS can exist together in same network. V and S can exist together in same network, too.)
- *3: 1 Service tool or 1 Web monitoring tool can be connected.
- *4: For 1 VRF network system, total number of Touch panel controller, Central remote controller, Network converter for Group remote controller, KNX converter for VRF, Modbus converter for VRF, BACnet gateway (Hardware), Niagara driver for VRF is 16, including 1 Network converters for LonWorks.

SYSTEM DESIGN

● How to count element in a network segment

Each unit must be counted in the network segment as in the table below.

Element		Model name	Count
Outdoor unit (each)		—	1
Indoor unit (each)		—	1
Controller	System controller	UTY-APGXZ1	1
	System controller lite	UTY-ALGXZ1	1
	Touch panel controller	UTY-DTGYZ1	1
	Central remote controller	UTY-DCGY	1
	Central remote controller	UTY-DCGYZ∗	1
	Wired remote controller (Touch panel)	UTY-RNRUZ∗	0
	Wired remote controller	UTY-RNKU	0
	Simple remote controller (With operation mode)	UTY-RSRY UTY-RSKU	0
	Simple remote controller (Without operation mode)	UTY-RHRY UTY-RHKU	0
	Wireless remote controller	UTY-LNHU	0
	IR receiver unit	UTY-TRHX	0
	IR receiver unit	UTB-YWC	0
	IR receiver unit for 4-way flow cassette type	UTY-LRHYB1	0
	IR receiver unit for circular flow cassette type	UTY-LBHXD	0
	Human sensor kit for circular flow cassette type	UTY-SHZXC	0
	Remote sensor unit	UTY-XSZX	0
Adaptor/ Convertor	Network converter	UTY-VTGX UTY-VGGXZ1	1
	Network converter for LonWorks	UTY-VLGX	1
	Modbus converter for VRF	UTY-VMGX	1
	Thermostat converter	UTY-TTRX	0
	BACnet gateway (Hardware)	UTY-VBGX	1
	BACnet gateway (Software)	UTY-ABGXZ1	1
	Niagara driver for VRF	FUJ-VRF-8000	1
	Signal amplifier	UTY-VSGXZ1	1*
	External switch controller	UTY-TERX UTY-TEKX	0
Maintenance	Service tool	UTY-ASGXZ1	1
	Web monitoring tool	UTY-AMGXZ1	1
Option	Other optional parts	—	0

*: Signal amplifier should be count per each network segment.

SYSTEM DESIGN

1-3. Installation place

■ Outdoor unit

For installing the outdoor unit, select a place where satisfies following conditions.

- A place where satisfies the installation space described in "Installation space" in Chapter 3. OUTDOOR UNITS on page 03-7.
- A place where the unit can be installed horizontally.
- A place with enough space for performing pipe work, service, and maintenance.
- A place where satisfies the pipe limitations of height and length between the outdoor units to be connected.

For satisfactory operation of the air conditioner, install the outdoor unit with referring the outlines described in the installation manual.

● Installation limitation

Do not install at the place of following conditions:

- A place exposed to strong or seasonal winds
- A place where the blown air accumulate
- A place where there are obstructions to the air near to the inlet and outlet
- A place exposed to radiation from other heat sources
- A place where the discharged air will affect animals or plants
- A place where the noise and hot air will disturb the neighbor
- A place that transmit noise or vibration
- A place where drain water is problem
- A place where snow accumulate
- A place where is affected easily by electrical noise
- A place where children can reach
- A place where there is danger of the generation, influx, or accumulation of flammable gas
- A place that have a special environment such as large amount of oil, vapor, or sulfide gas

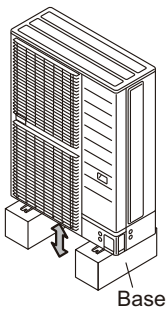
SYSTEM DESIGN

● Precaution for installation place

- Install the outdoor unit in a position where its tilts is 3 degrees or less. However, do not install the unit with it tilted towards the side containing the compressor.
- Install the outdoor unit on the place with strong installation fixings, which can sufficiently bear the product weight
- When installing the multiple units at one place, secure enough outlet space to prevent a effect of short circuit.
- In cold or snowy regions, make sure that installation position is high enough, and install a snow protection hood.
- Drain water is discharged from the outdoor unit during operation, so make sure that this drain water is possible to flow.
- Use material such as vibration-resistant rubber to prevent the transmission of vibration to the floor.
- Securely fix the unit when it may be in a position exposed to strong winds.
- When cooling operation will be conducted at outdoor air temperature below 23 °F (-5 °C), the outdoor unit must be installed in a position that is higher than or equal to those of indoor units.

⚠ CAUTION

- If the unit is installed in a region that is exposed to high winds, freezing conditions, freezing rain, snow fall or heavy snow accumulation, take appropriate measures to protect it from those elements.
- To ensure stable operation, the outdoor unit must be installed on a raised stand or rack, at or above the anticipated snow depth for the region.
- The installation of snow hoods and drift prevention fencing is recommended when blowing and drifting snow is common to the region.



SYSTEM DESIGN

■ Indoor unit

For installing the indoor unit, with considering your customer's request select a place where satisfies following conditions.

- Install the unit level on a strong wall, floor, ceiling, which is not subject to vibration.
- The inlet and outlet ports should not be obstructed. The air should be able to blow all over the room.
- Install the unit where the connection pipe can be easily installed.
- Install the unit where the drain pipe can be easily installed.
- Take servicing, etc. into consideration and leave the spaces. Also install the unit where the filter can be removed.
- Install the unit where satisfy the pipe length and height.

Also, install the unit at a place of following conditions:

- A well-ventilated place avoiding rains and direct sunlight.
- A place where air from the outlet and noise do not disturb the neighbor.
- A place that can withstand the weight of the indoor unit and install positively so that the unit will not topple or fall.
- A place where drainage does not cause any trouble.

For satisfactory operation of the air conditioner, install the indoor unit with referring the outlines described in the installation manual.

● Installation limitation

Do not install the unit the place of following conditions:

- A place where there is the danger of flammable gas leakage.
- A place near heat sources and the location with high temperature.
- A place near a source of heat, steam, or flammable gas.
- A place where there is oily smoke, machine oil (i.e. factory), salty environment with direct sea breeze, and too much of dust.

Mind the following when installing or using the unit:

- Install with the lowest moving parts at least 95 in (2.4 m) above floor or grade level.
- Install the indoor and outdoor units, power wiring, signal wiring and remote control wiring 40 in (1 m) away from televisions and radios to avoid distorted images and noise. (However, distorted images and noise may not be avoidable even if the units and wiring mentioned above are installed 40 in (1 m) away from televisions and radios depending on conditions of the electromagnetic disturbance.)
- When installing an indoor unit in a small room, a care must be taken to keep refrigerant concentrations from exceeding limitations if there is a refrigerant leak.
- Control may not operate correctly if the unit is installed near machinery which emit electromagnetic waves.
- Ducted units should be considered for rooms that require quiet operation, such as bedrooms and hotel guest rooms.
- If children may approach the unit, take preventive measures so that they cannot reach the unit.
- Welded parts may be damaged if the unit is installed where corrosive gases such as sulphuric acid are generated.
- Do not use the unit for air conditioning or saving precision instrument, food, art, plants, and animal as special place.

SYSTEM DESIGN

2. Piping design

2-1. Important items when using refrigerant (R410A)

R410A operates at higher pressure and has less solubility with mineral oil than traditional R22 refrigerant. Therefore, R410A systems use a different lubricant and have different piping requirements.

- **Refrigerant piping material and wall thickness**
  Only seamless copper tubes should be used for refrigerant piping. Thickness of tubes are shown in table below.
  Endurance pressure of the pipes must be 609 psi (4.2 MPa).

Nominal diameter	in	1/4	3/8	1/2	5/8	3/4	7/8	1-1/8
Outside diameter	mm	6.35	9.52	12.70	15.88	19.05	22.22	28.58
Material		JIS H3300 C1220T-O or equivalent*1					JIS H3300 C1220T-H or equivalent*2	
Wall thickness*3	mm	0.8			1.0	1.2	1.0	

  – *1: Allowable tensile stress ≥ 33 N/mm^2
  – *2: Allowable tensile stress ≥ 61 N/mm^2
  – *3: Endurance pressure of the pipes must be 609 psi (4.2 MPa).
  Select the pipe size in accordance with the regional standard.

- **Lubricant**

Refrigerant	R410A (Mixed refrigerant)
Lubricant	FVC68D

- **Tools**
  R410A work requires a number of special tools. The items below (with * symbol) are specialized for R410A. Make sure that R22 tools cannot be used on R410A systems.

Tool name	Process and application	
Pipe cutter	Pipe cutting	Refrigerant piping work
Flaring tool*	Pipe flaring work	
Torque wrench*	Flare nut connection	
Expander	Expansion at pipe connection	
Pipe bender	Pipe bending work	
Nitrogen gas	Pipe interior oxidation prevention	Air pressure test
Welder	Pipe brazing	
Gauge manifold*	Vacuum evacuation and refrigerant charging operation check	Air pressure test through Refrigerant additional charging
Charging hose*		
Vacuum pump (with adapter)*		Vacuum drying
Electronic scale for refrigerant charging		Refrigerant additional charging
Gas leak tester*	Gas leakage test	

*: For details, refer to the service manual.

SYSTEM DESIGN

■ Work flow example

Preparations

Prepare schedule of works

↓

Refrigerant check

- Always check the refrigerant to be used.
- Always use the specified refrigerant.
- Prepare materials/tools matched to refrigerant

↓

Operation chart preparation

↓

Start of work

Indoor unit installation

↓

Refrigerant piping work

- Use copper tube of specified material and thickness to meet endurance pressure of the pipe. (609 psi [4.2 MPa])
- Do not use pipe with dust and dirt sticking to it during piping connection work.
- Always flow dry nitrogen through piping while brazing.

↓

Drain piping work

↓

Duct work

↓

Installation work

↓

Remote controller installation

↓

Electrical wiring work — Do not connect to the power supply.

↓

Outdoor unit foundation work

↓

Outdoor unit installation

SYSTEM DESIGN

↓

Indoor unit connection check

↓

Address setting

↓

Refrigerant piping connection (Outdoor unit)

↓

Leak pressure test

- Pressurize system with 600 psi (4.2 MPa) nitrogen
- System must hold 600 psi for a minimum of 24 hours.

↓

Vacuum evacuation and drying

- Do not purge system with refrigerant.
- Use a vacuum pump with check valve to prevent the back flow of vacuum pump oil into the refrigerant system.

↓

Additional refrigerant charge

Calculate additional refrigerant charge. Add additional refrigerant with R410A gage manifold and hose.

↓

Gas leakage check

↓

Outside panel installation

↓

Test run and adjustment

End of work

↓

Hand over

↓

Customer training

SYSTEM DESIGN

2-2. Piping limitation

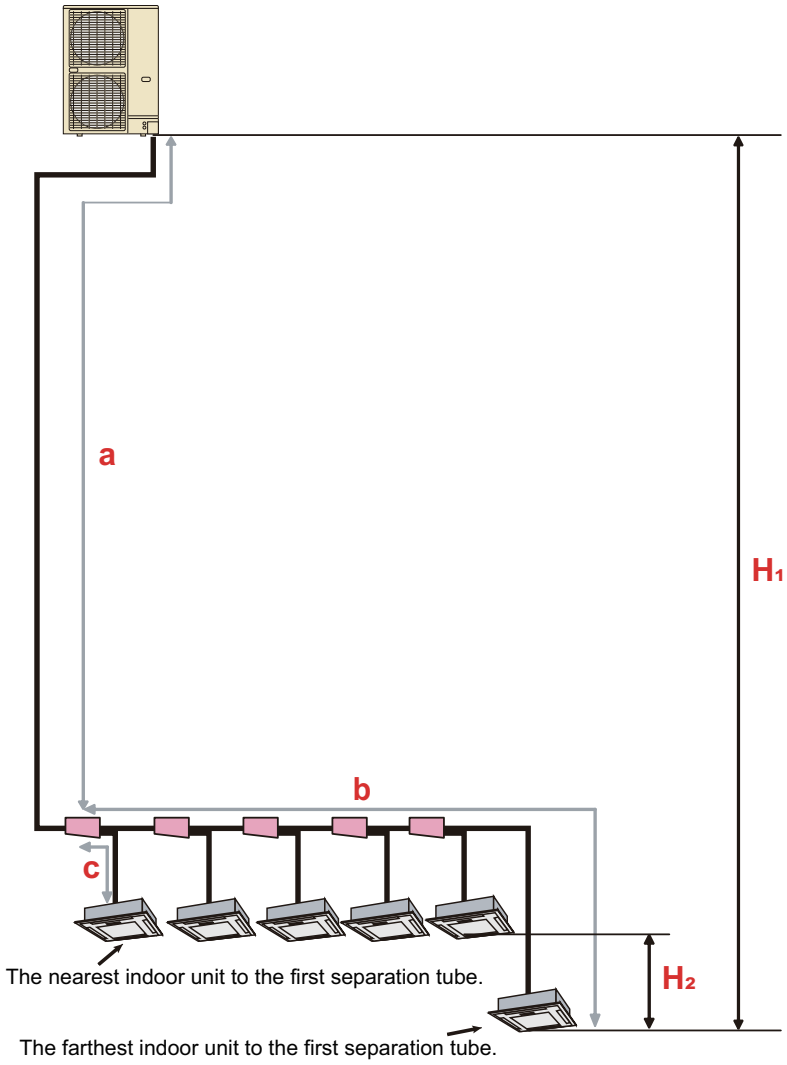
For proper system operation, keep all the piping limitation mentioned here.

⚠ CAUTION

- **Allowable height difference:**
  - If the height difference between indoor unit and outdoor unit is larger than the allowable value:
    - The pressure loss will be larger. → Insufficient cooling and heating
    - The refrigerant in liquid pipe will flush. → Refrigerant flow noise generate at indoor unit
    - The refrigerant oil will not return.
      → Insufficient refrigerant oil resulting in compressor damage
  - If the height difference between indoor units is larger than the allowable value:
    - The refrigerant flow balance will be poor. → Insufficient cooling and heating (poor balance)
    - Refrigerant oil will collect in the piping or non-operating indoor units.
      → Insufficient refrigerant oil resulting in compressor damage
- **Piping length:**
  If the piping length is longer than prescribed:
  - The pressure loss will be larger. → Insufficient cooling and heating
  - Too much refrigerant will be charged. → Liquid backs up resulting in compressor damage
  - The refrigerant oil will not return. → Insufficient refrigerant oil resulting in compressor damage
- **Pipe size:**
  - If the pipe size is larger than designated size:
    - The refrigerant flow velocity will drop. Refrigerant oil will not return to the outdoor unit.
      → Insufficient refrigerant oil resulting in compressor damage
    - The refrigerant in liquid pipe will flush easily. → Insufficient cooling and heating
  - If the pipe size is smaller than designated size:
    - The refrigerant circulation volume will drop. → Insufficient cooling and heating
    - The pressure loss will be larger. → Insufficient cooling and heating
- **Indoor unit connected capacity:**
  - If the indoor unit connected capacity is larger than the system capacity:
    - Insufficient system performance. → Insufficient cooling and heating
    - When heating, refrigerant will collect in non-operating indoor units resulting in an insufficient refrigerant circulation volume. → Insufficient cooling and heating
    - The refrigerant oil will not return. → Compressor damage
  - If the indoor unit connected capacity is too small compared to the system capacity:
    - The liquid return will be too great. → Compressor damage
    - The refrigerant will concentrate in the outdoor unit.
      → Continuous operation will become difficult due to the outdoor unit stopping due to high head pressure. Also, excessive noise will be generated by the refrigerant flow when in heating mode.

SYSTEM DESIGN

■ Limitation



Limitation			Diagram
Allowable pipe length (Actual pipe length)			
Total pipe length		1,312 ft (400 m) or less*1	Total
Between outdoor unit and the farthest indoor unit		393 ft (120 m) or less	a + b
Between the first separation tube and farthest indoor unit		295 ft (90 m) or less	b
(The farthest indoor unit to the farthest separation tube) - (The nearest indoor unit to the first separation tube)		196 ft (60 m) or less	b - c
Between outdoor unit and nearest indoor unit		17 ft (5 m) or more	a + c
Between outdoor unit and the first separation tube		10 ft (3 m) or more	a
Allowable height difference			
Between outdoor unit and indoor unit	Outdoor unit is higher than indoor unit	164 ft (50 m) or less	H1
	Outdoor unit is lower than indoor unit — O.T.*2 ≥ 23°F (-5°C)	131 ft (40 m) or less	
	Outdoor unit is lower than indoor unit — O.T.*2 < 23°F (-5°C)*3	16 ft (5 m) or less	
Between indoor unit	Outdoor unit is higher than indoor unit	164 ft (50 m) or less	H2
	Outdoor unit is lower than indoor unit	131 ft (40 m) or less	

*1: Total pipe length is limited by the condition that total refrigerant amount should not exceed the following value.

- 6/8 ton: 44.1 lb (20.0 kg), 10 ton: 56.4 lb (25.6 kg)

*2: O.T.: Outdoor temperature

*3: 6/8 ton only (For operation range of outdoor unit, refer to "Operation range" in Chapter 3. OUTDOOR UNITS on page 03-18.)

2-3. Pipe size

After referring to cooling capacity table below, select each Pipe size, Separation tube, and Header from the cooling capacity of outdoor unit and indoor unit connected in the system.

NOTE: For pipe diameter, material, and wall thickness, refer to "Important items when using refrigerant (R410A)" on page 06-14.

■ Cooling capacity table

● Outdoor unit

Ton	Model name	Cooling capacity (Btu/h)	Maximum connectable indoor unit
6	AOU72RLAVL	72,000	18
8	AOU96RLAVL	96,000	24
10	AOU120RLAVL	120,000	30

SYSTEM DESIGN

● Indoor unit

Type	Rated capacity (Btu/h)		Model name	Dimensions	Remarks
	Cooling	Heating		H × W × D	
Compact cassette	4,000	4,400	AUUA4TLAV2	9-5/8 × 22-7/16 × 22-7/16 (245 × 570 × 570)	Cassette grille: UTG-CCGVG (Grid type)
	7,500	9,500	AUUA7TLAV2		
	9,500	10,900	AUUA9TLAV2		
	12,000	13,500	AUUA12TLAV2		
	14,000	15,600	AUUA14TLAV2		
	18,000	20,000	AUUA18TLAV2		
	24,000	27,000	AUUA24TLAV2		
4-way flow cassette	18,000	20,000	AUUB18TLAV	9-11/16 × 33-1/16 × 33-1/16 (246 × 840 × 840)	Cassette grille: UTG-LCGV
	24,000	27,000	AUUB24TLAV		
	30,000	34,000	AUUB30TLAV	11-5/16 × 33-1/16 × 33-1/16 (288 × 840 × 840)	
	36,000	40,000	AUUB36TLAV		
Circular flow cassette	18,000	20,000	AUUB18TLAV2	9-11/16 × 33-1/16 × 33-1/16 (246 × 840 × 840)	Cassette grille: UTG-LCGVCW (White) UTG-LCGVCB (Black)
	24,000	27,000	AUUB24TLAV2		
	30,000	34,000	AUUB30TLAV2		
	36,000	40,000	AUUB36TLAV2	11-5/16 × 33-1/16 × 33-1/16 (288 × 840 × 840)	
	48,000	54,000	AUUB48TLAV2		
Mini duct	4,000	4,400	ARUL4TLAV2	7-13/16 × 27-9/16 × 17-11/16 (198 × 700 × 450)	
Slim duct/Slim concealed floor	7,500	9,500	ARUL7TLAV2	7-13/16 × 27-9/16 × 24-7/16 (198 × 700 × 620)	
	9,500	10,900	ARUL9TLAV2		
	12,000	13,500	ARUL12TLAV2		
	14,000	15,600	ARUL14TLAV2		
	18,000	20,000	ARUL18TLAV2	7-13/16 × 35-7/16 × 24-7/16 (198 × 900 × 620)	
Medium static pressure duct	24,000	27,000	ARUM24TLAV2	10-5/16 × 44-11/16 × 27-9/16 (270 × 1,135 × 700)	
	30,000	34,000	ARUM30TLAV2		
	36,000	40,000	ARUM36TLAV2		
High static pressure duct	36,000	40,000	ARUH36TLAV	15-3/4 × 41-5/16 × 19-11/16 (400 × 1,050 × 500)	
	48,000	54,000	ARUH48TLAV		
	60,000	67,000	ARUH60TLAV		
	72,000	81,000	ARUH72TLAV2	17-11/16 × 62-1/2 × 27-9/16 (450 × 1,587 × 700)	
	96,000	108,000	ARUH96TLAV2	21-5/8 × 62-1/2 × 27-9/16 (550 × 1,587 × 700)	
Compact floor	4,000	4,400	AGUA4TLAV2	23-5/8 × 29-1/8 × 7-7/8 (600 × 740 × 200)	
	7,500	9,500	AGUA7TLAV2		
	9,500	10,900	AGUA9TLAV2		
	12,000	13,500	AGUA12TLAV2		
	14,000	15,600	AGUA14TLAV2		
Floor/Ceiling	12,000	13,500	ABUA12TLAV2	7-13/16 × 39 × 25-13/16 (199 × 990 × 655)	
	14,000	15,600	ABUA14TLAV2		
	18,000	20,000	ABUA18TLAV2		
	24,000	27,000	ABUA24TLAV2		
Ceiling	30,000	34,000	ABUA30TLAV2	9-7/16 × 65-3/8 × 27-9/16 (240 × 1,660 × 700)	
	36,000	40,000	ABUA36TLAV2		

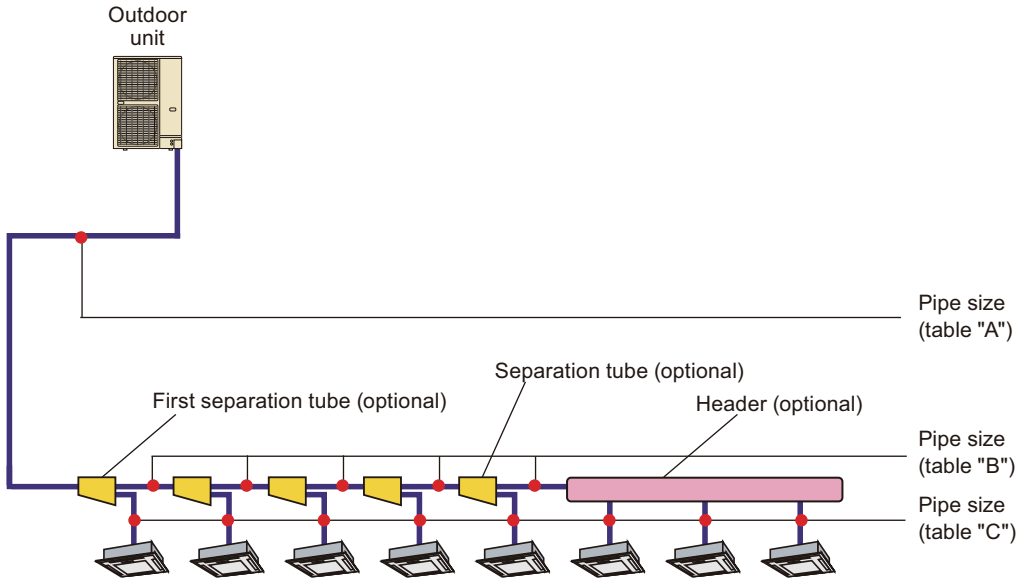
SYSTEM DESIGN

Type	Rated capacity (Btu/h)		Model name	Dimensions	Remarks
	Cooling	Heating		H × W × D	
Wall mounted	4,000	4,400	ASUA4TLAV2	10-9/16 × 33-1/16 × 8 (268 × 840 × 203)	
	7,500	9,500	ASUA7TLAV2		
	9,500	10,900	ASUA9TLAV2		
	12,000	13,500	ASUA12TLAV2		
	14,000	15,600	ASUA14TLAV2		
	18,000	20,000	ASUB18TLAV1	12-5/8 × 39-5/16 × 9-3/8 (320 × 998 × 238)	
	24,000	27,000	ASUB24TLAV1		
	30,000	34,000	ASUA30TLAV2	13-3/8 × 45-1/4 × 11 (340 × 1,150 × 280)	
	34,000	38,000	ASUA36TLAV2		
	7,500	9,500	ASUA7TLAV	10-13/16 × 31-1/8 × 8-7/16 (275 × 790 × 215)	
	9,500	10,900	ASUA9TLAV		
	12,000	13,500	ASUA12TLAV		
	14,000	15,600	ASUA14TLAV		
	18,000	20,000	ASUB18TLAV	12-5/8 × 39-5/16 × 9 (320 × 998 × 228)	
	24,000	27,000	ASUB24TLAV		

SYSTEM DESIGN

■ Pipe size selection

Use the following tables to select the Refrigeration Pipe Size, Separation tube and Header.



- **Pipe size table "A"**
  Between Outdoor unit and the first separation tube (header)
  - **Standard**

Ton	Outdoor unit model code	Outdoor unit cooling capacity	Outside diameter	
			Liquid pipe	Gas pipe
		Btu/h	in (mm)	
6	72	72,000	3/8 (9.52)	3/4 (19.05)
8	96	96,000	3/8 (9.52)	7/8 (22.22)
10	120	120,000	1/2 (12.70)	1-1/8 (28.58)

  - **Condition 1:** Total indoor unit capacity ratio > 110%

Ton	Outdoor unit model code	Outdoor unit cooling capacity	Outside diameter	
			Liquid pipe	Gas pipe
		Btu/h	in (mm)	
6	72	72,000	3/8 (9.52)	3/4 (19.05)
8	96	96,000	1/2 (12.70)	7/8 (22.22)
10	120	120,000	1/2 (12.70)	1-1/8 (28.58)

  - **Condition 2:** Between outdoor unit and first separation tube or header > 229 ft (70 m)

Ton	Outdoor unit model code	Outdoor unit cooling capacity	Outside diameter	
			Liquid pipe	Gas pipe
		Btu/h	in (mm)	
6	72	72,000	1/2 (12.70)	7/8 (22.22)
8	96	96,000	1/2 (12.70)	7/8 (22.22)
10	120	120,000	1/2 (12.70)	1-1/8 (28.58)

SYSTEM DESIGN

- **Pipe size table “B”**
  Between Separation tube and first Separation tube (Header)

Total cooling capacity of indoor unit (x)	Outside diameter	
	Liquid pipe	Gas pipe
Btu/h	in (mm)	
8,000 ≤ x < 36,000	3/8 (9.52)	5/8 (15.88)
36,000 ≤ x < 48,000	3/8 (9.52)	3/4 (19.05)
48,000 ≤ x < 66,000	1/2 (12.70)	3/4 (19.05)
66,000 ≤ x < 96,500	1/2 (12.70)	7/8 (22.22)
96,500 ≤ x	1/2 (12.70)	1-1/8 (28.58)

NOTES:

- If the selected pipe diameter between Separation tubes (based on the table “B”) becomes larger than the pipe diameter between outdoor unit and the first Separation tube (base on the table “A”), select the pipe whose diameter is equal to the one between outdoor unit and the first Separation tube.

  (If pipe diameter B > A, select pipe size from table A)

- “Total cooling capacity of indoor unit” is the total value for the cooling capacity of indoor units connected downstream.

- **Pipe size table “C”**
  Between Separation tube (Header) and indoor unit

Indoor unit cooling capacity	Outside diameter	
	Liquid pipe	Gas pipe
Btu/h	in (mm)	
4,000, 7,500, 9,500	1/4 (6.35)	3/8 (9.52)*
12,000, 14,000, 18,000	1/4 (6.35)	1/2 (12.70)
24,000, 30,000, 34,000, 36,000, 48,000, 60,000	3/8 (9.52)	5/8 (15.88)
72,000	3/8 (9.52)	3/4 (19.05)
96,000	3/8 (9.52)	7/8 (22.22)

NOTES:

- If the selected pipe diameter between Separation tube (Header) and indoor unit (based on the table “C”) becomes larger than the pipe diameter between Separation tube and Separation tube (Header), select the pipe whose diameter is equal to the one between Separation tube and Separation tube (Header).

  (If pipe diameter C > B, select pipe size from table B)
  It is necessary to change a connection pipe diameter using reducer.

- *: When the pipe length between Separation tube (Header) and indoor unit exceeds 65 ft (20 m), gas pipe diameter should be 1/2 in (12.70 mm).

SYSTEM DESIGN

■ Optional parts selection

● Indoor unit

- **Separation tube**

Total cooling capacity of indoor unit (x) (Btu/h)	Model name
x < 96,500	UTP-AX090A
96,500 ≤ x	UTP-AX180A

- **Header**

Total cooling capacity of indoor units (x) (Btu/h)	3 to 6 Branches	3 to 8 Branches
x < 96,500	UTR-H0906L	UTR-H0908L
96,500 ≤ x	UTR-H1806L	UTR-H1808L

SYSTEM DESIGN

2-4. Selection of pipe heat insulating material

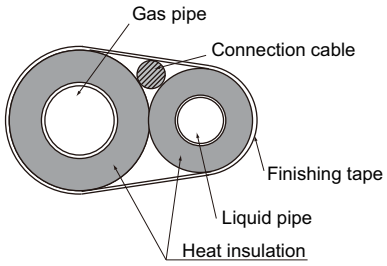
Always insulate the refrigerant pipe to prevent condensation and water droplets by the refrigerant pipe. For selection of pipe heat insulating material, refer to following items.

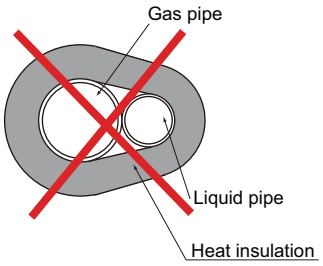
- Decide the thickness of the heat insulating material by referring to the recommended minimum thickness in Table 1. (For installation condition T = 90 °FDB [32 °CDB]), humidity ≤ 70%, humidity ≤ 75%, humidity ≤ 80%, humidity ≤ 85%)

  Table 1. Size of refrigerant pipe and recommended minimum thickness of heat insulating material
  In case a heat insulating material which thermal conductivity is equal to or less than 0.040 W/(m•k) is used.

		Recommended minimum thickness for heat insulating material in (mm)			
Relative humidity		≤ 70%	≤ 75%	≤ 80%	≤ 85%
Refrigerant pipe outside diameter (in [mm])	1/4 (6.35)	5/16 (8)	13/32 (10)	1/2 (13)	21/32 (17)
	3/8 (9.52)	11/32 (9)	7/16 (11)	9/16 (14)	23/32 (18)
	1/2 (12.70)	13/32 (10)	15/32 (12)	19/32 (15)	3/4 (19)
	5/8 (15.88)	13/32 (10)	15/32 (12)	5/8 (16)	25/32 (20)
	3/4 (19.05)	13/32 (10)	1/2 (13)	5/8 (16)	13/16 (21)
	7/8 (22.22)	7/16 (11)	1/2 (13)	21/32 (17)	7/8 (22)
	1-1/8 (28.58)	7/16 (11)	9/16 (14)	23/32 (18)	29/32 (23)

- When the outdoor unit is installed in a higher position than the indoor unit, fill the connecting part gap with putty, etc. to prevent the dew condensation water of the valve of the outdoor unit from flowing to the indoors from the gap between the pipe and the heat insulating material.
- Liquid pipe and gas pipe should be completely insulated with same specification.
- Water may leak from the refrigerant lines if the insulation is not completely sealed.
- In application where the ambient temperature and humidity exceed 90 °FDB (32 °CDB) and 95% relative humidity, increase the size of the pipe insulation. It may also be necessary to insulate the indoor unit casing. Condensation may form on the insulation in these conditions if the thickness of the insulation is not increased.
- Since the gas line gets very hot during heating operation, select a pipe insulating material rated for at least 248 °F (120 °C).





- Make sure that pipe is covered completely by the heat insulation, not exposing to air. Inadequate heat insulation may cause condensation.
- Do not cover heat insulation gas and liquid pipes together as figure below. It may cause condensation and capacity drop by heat loss.

SYSTEM DESIGN

2-5. Additional charge calculation

NOTES:

- The outdoor unit is charged refrigerant at the factory.
- Additional refrigerant required to be charged on site depending on pipe length and outdoor unit model.
- The additional refrigerant charge amount is calculated according to the following formula.
- Round up the calculated result to two decimal places.

■ Calculation formula

- **Calculation of additional amount for pipe length (A)**

Diameter of liquid pipe	a: Additional amount for pipe length
in (mm)	**lb/ft (kg/m)**
Ø1/4 (6.35)	0.014 (0.021)
Ø3/8 (9.52)	0.039 (0.058)
Ø1/2 (12.70)	0.077 (0.114)

A =	Total length of Ø1/2 in (12.70 mm) liquid pipe ft (m)	a: × 0.077 lb/ft (0.114 kg/m)	+	Total length of Ø3/8 in (9.52 mm) liquid pipe ft (m)	a: × 0.039 lb/ft (0.058 kg/m)	+	Total length of Ø1/4 in (6.35 mm) liquid pipe ft (m)	a: × 0.014 lb/ft (0.021 kg/m)
	lb (kg)			lb (kg)		=	Total lb (kg)	

A = lb (kg) Round up A to 2 decimal place.

- **Factory charge amount (B)**

Model name	Ton	b: Factory charged amount
AOU72RLAVL	6	24.25 lb (11.0 kg)
AOU96RLAVL	8	
AOU120RLAVL	10	

B = b: Outdoor unit Factory charge amount lb (kg)

SYSTEM DESIGN

- **Total refrigerant amount check (C)**

C = A + B = | lb (kg) |

NOTES:

- Check the total refrigerant amount under the following conditions.

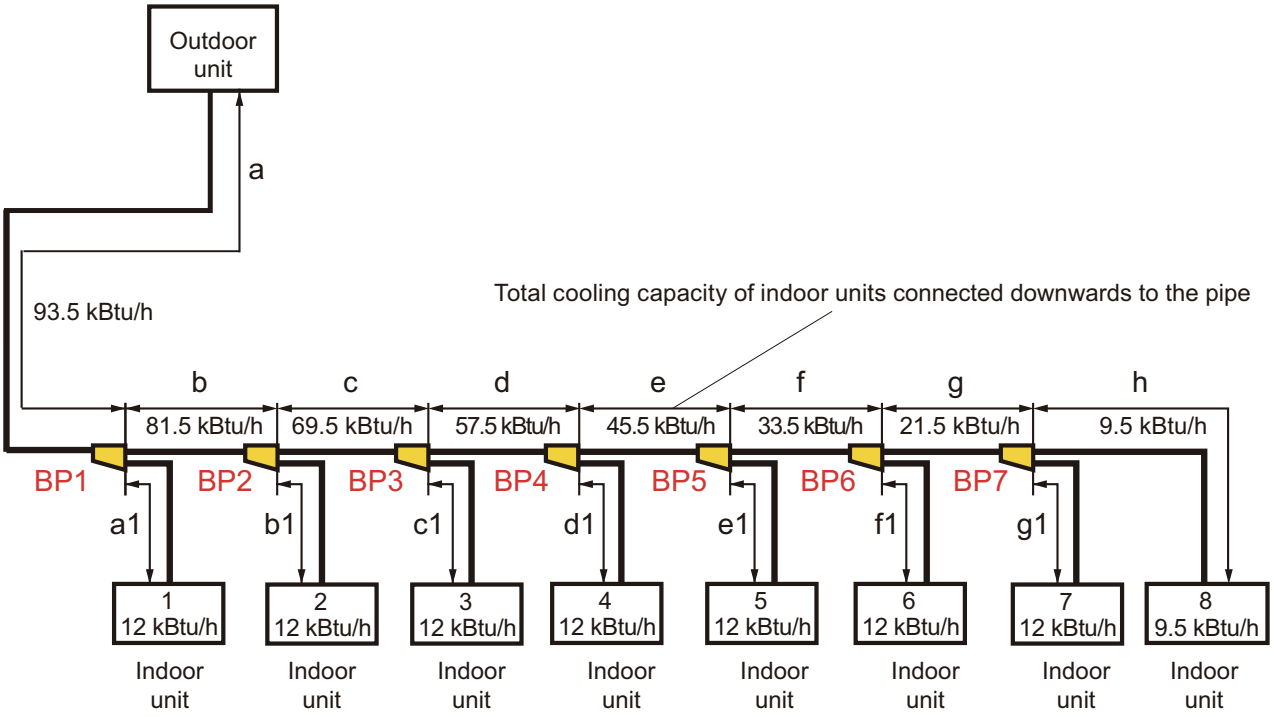
Model name	Ton	Condition
AOU72RLAVL	6	Total amount of refrigerant (C) ≤ 44.09 lb (20.0 kg)
AOU96RLAVL	8	
AOU120RLAVL	10	Total amount of refrigerant (C) ≤ 56.44 lb (25.6 kg)

- When total refrigerant amount exceed limitation:
  - Reduce pipe length for refrigerant system.
  - Change the refrigerant system configuration.

SYSTEM DESIGN

2-6. Piping design example

■ Example 1



- **System configuration**

Indoor unit	Model name	Capacity (kBtu/h)
1	ARUL12TLAV2	12.0
2	ARUL12TLAV2	12.0
3	ARUL12TLAV2	12.0
4	ARUL12TLAV2	12.0
5	ARUL12TLAV2	12.0
6	ARUL12TLAV2	12.0
7	ARUL12TLAV2	12.0
8	ARUL9TLAV2	9.5
Total capacity		93.5

Outdoor unit	Model name	Capacity (kBtu/h)
1	AOU72RLAVL	72.0
Total capacity		72.0

- **Capacity ratio**
  (Total capacity of indoor unit)/(Total capacity of outdoor unit)
  = 93.5 / 72.0 = 129.8% (Within 50% to 150%)

- **Selection of Separation tube**

Branch kit no.	Model name	Quantity
BP1	UTP-AX090A	7
BP2		
BP3		
BP4		
BP5		
BP6		
BP7		

SYSTEM DESIGN

- **Selection of pipe size**

Pipe no.	Pipe diameter: in (mm)		Length example ft (m)
	Liquid pipe	Gas pipe	
a	Ø3/8 (9.52)	Ø3/4 (19.05)	131 (40)
a1	Ø1/4 (6.35)	Ø1/2 (12.70)	49 (15)
b	Ø1/2 (12.70)	Ø7/8 (22.22)	16 (5)
b1	Ø1/4 (6.35)	Ø1/2 (12.70)	32 (10)
c	Ø1/2 (12.70)	Ø7/8 (22.22)	16 (5)
c1	Ø1/4 (6.35)	Ø1/2 (12.70)	32 (10)
d	Ø1/2 (12.70)	Ø3/4 (19.05)	16 (5)
d1	Ø1/4 (6.35)	Ø1/2 (12.70)	32 (10)
e	Ø3/8 (9.52)	Ø3/4 (19.05)	16 (5)
e1	Ø1/4 (6.35)	Ø1/2 (12.70)	32 (10)
f	Ø3/8 (9.52)	Ø5/8 (15.88)	16 (5)
f1	Ø1/4 (6.35)	Ø1/2 (12.70)	32 (10)
g	Ø3/8 (9.52)	Ø5/8 (15.88)	16 (5)
g1	Ø1/4 (6.35)	Ø1/2 (12.70)	32 (10)
h	Ø1/4 (6.35)	Ø3/8 (9.52)	22 (7)

- **Limitation check**

Pipe	Diagram	Example	Limitation	Judge
		ft (m)		
Total pipe length	Total	498 (152)	1,312 (400) or less	OK
Between outdoor unit and farthest indoor unit	a + b + c + d + e + f + g + h	252 (77)	393 (120) or less	OK
Between the first separation tube and the farthest indoor unit	b + c + d + e + f + g + h	121 (37)	295 (90) or less	OK
Between outdoor unit and the nearest indoor unit	a + a1	180 (55)	17 (5) or more	OK
Between outdoor unit and the first separation tube	a	131 (40)	10 (3) or more	OK

SYSTEM DESIGN

- **Calculation of additional charge refrigerant**
  - **Calculation of additional amount for pipe length (A)**

Diameter of liquid pipe	Additional amount for pipe length	Liquid pipe length
in (mm)	lb/ft (kg/m)	ft (m)
Ø1/2 (12.70)	0.077 (0.114)	49 (15)
Ø3/8 (9.52)	0.039 (0.058)	180 (55)
Ø1/4 (6.35)	0.014 (0.021)	269 (82)

A = (0.077 lb × 49 ft) + (0.039 lb × 180 ft) + (0.014 lb × 269 ft) = 14.559 (lb)
A = (0.114 kg × 15 m) + (0.058 kg × 55 m) + (0.021 kg × 82 m) = 6.622 (kg)

  - **Calculation of factory charge amount (B)**

Outdoor unit	Model name	Factory charge amount
1	AOU72RLAVL	24.25 lb (11.0 kg)

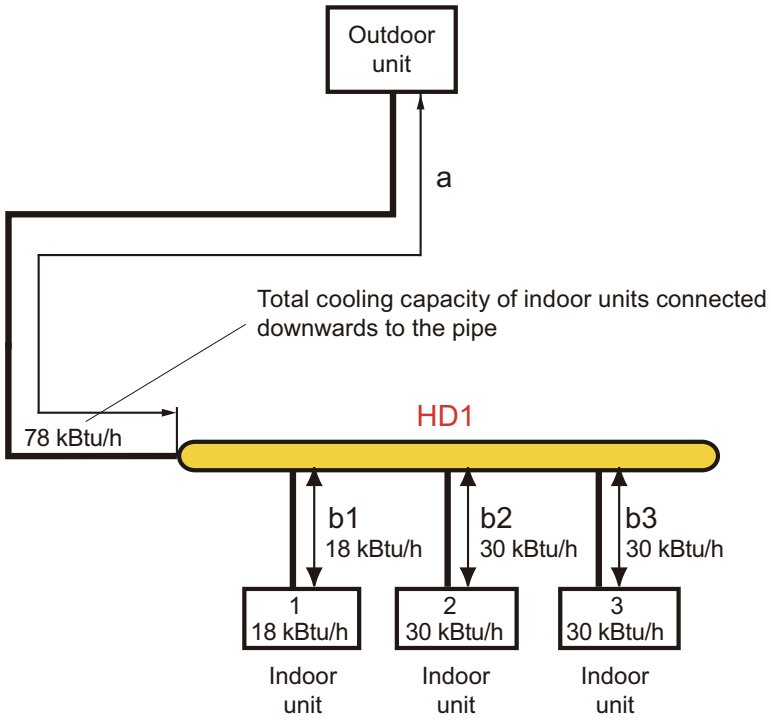
B = 24.25 lb (11.0 kg)

  - **Total refrigerant amount check (C)**
    C = A + B = 14.559 + 24.25 = 38.809 (lb) < 44.09 (lb) → OK
    C = A + B = 6.622 + 11.0 = 17.622 (kg) < 20 (kg) → OK

Check pipe length and height difference between the units by comparing with "Piping limitation" on page 06-17.

SYSTEM DESIGN

■ Example 2



- **System configuration**

Indoor unit	Model name	Capacity (kBtu/h)
1	AUUB18TLAV2	18.0
2	AUUB30TLAV2	30.0
3	AUUB30TLAV2	30.0
Total capacity		78.0

Outdoor unit	Model name	Capacity (kBtu/h)
1	AOU96RLAVL	96.0
Total capacity		96.0

- **Capacity ratio**
  (Total capacity of indoor unit)/(Total capacity of outdoor unit)
  = 78.0 / 96.0 = 81.25% (Within 50% to 150%)

- **Selection of Separation tube and Header**

Branch kit no.	Model name	Quantity
HD1	UTR-H0906L	1

- **Selection of pipe size**

Pipe no.	Pipe diameter: in (mm)		Length example ft (m)
	Liquid pipe	Gas pipe	
a	Ø1/2 (12.70)	Ø7/8 (22.22)	232 (71)*
b1	Ø1/4 (6.35)	Ø1/2 (12.70)	19 (6)
b2	Ø3/8 (9.52)	Ø5/8 (15.88)	19 (6)
b3	Ø3/8 (9.52)	Ø5/8 (15.88)	22 (7)

*: When the length of the pipe between outdoor unit and the first separation tube or header is greater than 229 ft (70 m), liquid pipe must be size up from 3/8 in (9.52 mm) to 1/2 in (12.70 mm).
For details, refer to "Pipe size selection" on page 06-22.

SYSTEM DESIGN

- **Limitation check**

Pipe	Diagram	Example	Limitation	Judge
		ft (m)		
Total pipe length	Total	295 (90)	1,312 (400) or less	OK
Between outdoor unit and farthest indoor unit	a + b3	255 (78)	393 (120) or less	OK
Between the first separation tube and the farthest indoor unit	b3	22 (7)	295 (90) or less	OK
Between outdoor unit and the nearest indoor unit	a + b1	252 (77)	17 (5) or more	OK
Between outdoor unit and the first separation tube	a	232 (71)	10 (3) or more	OK

- **Calculation of additional charge refrigerant**
  - **Calculation of additional amount for pipe length (A)**

Diameter of liquid pipe	Additional amount for pipe length	Liquid pipe length
in (mm)	lb/ft (kg/m)	ft (m)
Ø1/2 (12.70)	0.077 (0.114)	232 (71)
Ø3/8 (9.52)	0.039 (0.058)	42 (13)
Ø1/4 (6.35)	0.014 (0.021)	19 (6)

A = (0.077 lb × 232 ft) + (0.039 lb × 42 ft) + (0.014 lb × 19 ft) = 19.768 (lb)
A = (0.114 kg × 71 m) + (0.058 kg × 13 m) + (0.021 kg × 6 m) = 8.974 (kg)

  - **Calculation of factory charge amount (B)**

Outdoor unit	Model name	Factory charge amount
1	AOU96RLAVL	24.25 lb (11.0 kg)

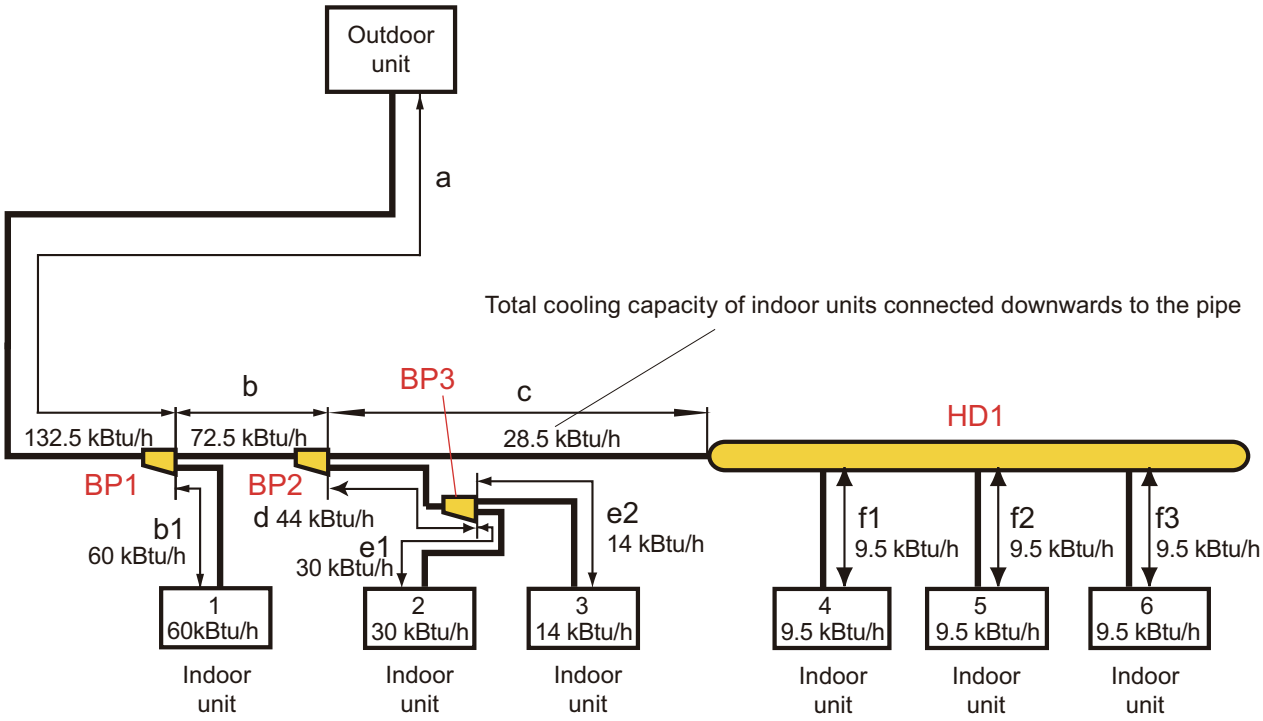
B = 24.25 lb (11.0 kg)

  - **Total refrigerant amount check (C)**
    C = A + B = 19.768 + 24.25 = 44.019 (lb) < 44.09 (lb) → OK
    C = A + B = 8.974 + 11.0 = 19.974 (kg) < 20.0 (kg) → OK

Check pipe length and height difference between the units by comparing with "Piping limitation" on page 06-17.

SYSTEM DESIGN

■ Example 3



- **System configuration**

Indoor unit	Model name	Capacity (kBtu/h)
1	ARUH60TLAV	60.0
2	ARUM30TLAV2	30.0
3	ARUL14TLAV2	14.0
4	ARUL9TLAV2	9.5
5	ARUL9TLAV2	9.5
6	ARUL9TLAV2	9.5
Total capacity		132.5

Outdoor unit	Model name	Capacity (kBtu/h)
1	AOU120RLAVL	120.0
Total capacity		120.0

- **Capacity ratio**
  (Total capacity of indoor unit)/(Total capacity of outdoor unit)
  = 132.5 / 120.0 = 110.4% (Within 50% to 150%)

- **Selection of Separation tube and Header**

Branch kit no.	Model name	Quantity
BP1	UTP-AX090A	3
BP2		
BP3		
HD1	UTR-H0906L	1

SYSTEM DESIGN

- **Selection of pipe size**

Pipe no.	Pipe diameter: in (mm)		Length example ft (m)
	Liquid pipe	Gas pipe	
a	Ø1/2 (12.70)	Ø1-1/8 (28.58)	246 (75)
b	Ø1/2 (12.70)	Ø7/8 (22.22)	65 (20)
b1	Ø3/8 (9.52)	Ø5/8 (15.88)	22 (7)
c	Ø3/8 (9.52)	Ø5/8 (15.88)	32 (10)
d	Ø3/8 (9.52)	Ø3/4 (19.05)	26 (8)
e1	Ø3/8 (9.52)	Ø5/8 (15.88)	22 (7)
e2	Ø1/4 (6.35)	Ø1/2 (12.70)	22 (7)
f1	Ø1/4 (6.35)	Ø3/8 (9.52)	19 (6)
f2	Ø1/4 (6.35)	Ø3/8 (9.52)	19 (6)
f3	Ø1/4 (6.35)	Ø3/8 (9.52)	19 (6)

- **Limitation check**

Pipe	Diagram	Example	Limitation	Judge
		ft (m)		
Total pipe length	Total	498 (152)	1,312 (400) or less	OK
Between outdoor unit and farthest indoor unit	a + b + c + f3	364 (111)	393 (120) or less	OK
Between the first separation tube and the farthest indoor unit	b + c + f3	118 (36)	295 (90) or less	OK
Between outdoor unit and the nearest indoor unit	a + b1	269 (82)	17 (5) or more	OK
Between outdoor unit and the first separation tube	a	246 (75)	10 (3) or more	OK

- **Calculation of additional charge refrigerant**
  - **Calculation of additional amount for pipe length (A)**

Diameter of liquid pipe	Additional amount for pipe length	Liquid pipe length
in (mm)	lb/ft (kg/m)	ft (m)
Ø1/2 (12.70)	0.077 (0.114)	311 (95)
Ø3/8 (9.52)	0.039 (0.058)	104 (32)
Ø1/4 (6.35)	0.014 (0.021)	82 (25)

A = (0.077 lb × 311 ft) + (0.039 lb × 104 ft) + (0.014 lb × 82 ft) = 29.151 (lb)
A = (0.114 kg × 95 m) + (0.058 kg × 32 m) + (0.021 kg × 25 m) = 13.211 (kg)

  - **Calculation of factory charge amount (B)**

Outdoor unit	Model name	Factory charge amount
1	AOU120RLAVL	24.25 lb (11.0 kg)

B = 24.25 lb (11.0 kg)

  - **Total refrigerant amount check (C)**
    C = A + B = 29.151 + 24.25 = 53.402 (lb) < 56.44 (lb) → OK
    C = A + B = 13.211 + 11.0 = 24.211 (kg) < 25.6 (kg) → OK

Check pipe length and height difference between the units by comparing with "Piping limitation" on page 06-17.

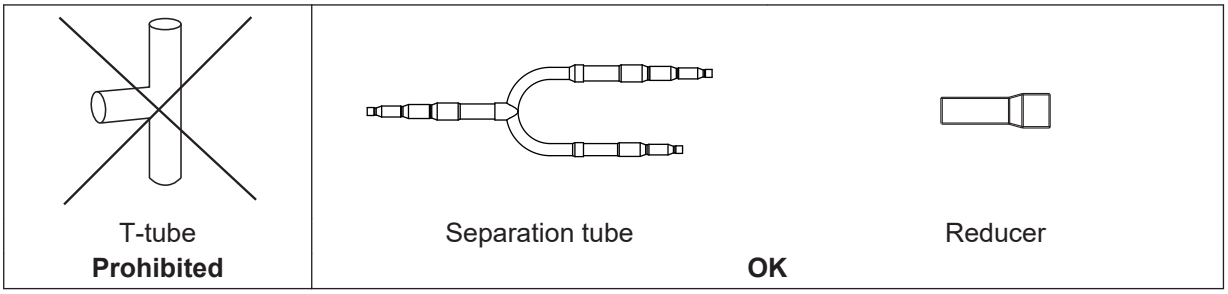
SYSTEM DESIGN

3. Piping connection

Keep the permissible length of every piping limitation to prevent a defect or cooling/heating failure.

⚠ CAUTION

- **Piping material:**
  - Use the designated size (diameter and thickness) of refrigerant pipes.
  - Those pipes purchased locally may contain dust inside. Use dry nitrogen to blow out any dust.
  - Do not use standard pipe tees for branches, these can cause uneven refrigerant flow to the indoor units. Optionally available standard branch kits should be used instead.

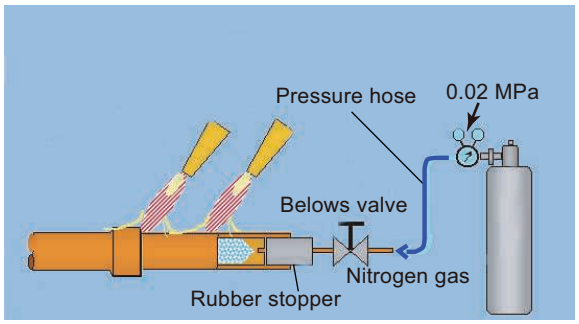


  - When replacing the unit, never use piping which has been used for previous installations. Only use the new piping.

- **Piping preparation and installation:**
  - Make sure that no dust or water enters the pipe during preparation or installation.
  - When installing the pipe, make bends as few as possible, and make radius as large as possible.
  - Cut the branch kit at the right size or use the reducer to match the pipe to the branch kit.

- **Piping treatment:**
  - The pipes vibrate, expand, and contract during operation, so if loads are concentrated in one area, it could cause cracks in the pipes. Provide the pipe supports every 6 to 9 ft (2 to 3 m).
  - Make sure to insulate the refrigeration pipes separately with appropriately sized insulation as described earlier. Make sure to overlap the ends to prevent any gap.

- **Brazing:**
  - While brazing the pipes, be sure to blow dry nitrogen gas through them.



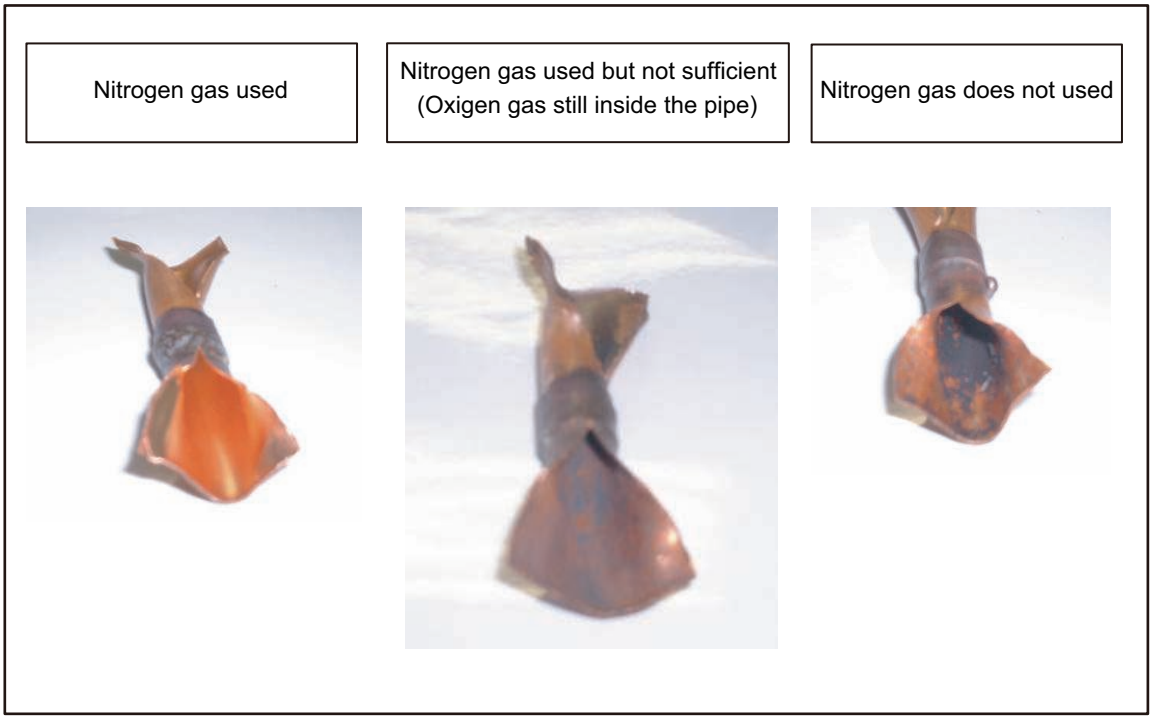
(continued)

SYSTEM DESIGN

⚠ CAUTION

- **Brazing:**
  - If nitrogen gas is not blown through the pipes while they are being brazed, an oxidized layer may form on the inside of the pipes. If this occurs, the cooling efficiency may decrease and it will be caused to damage for compressor and clog the strainer and electronic expansion valve.

    Example: Inside state of brazing pipe section



  - When brazing the pipes, do not use flux. If the flux is chlorine-based, the pipes will corrode and when the flux contains fluorine, the refrigerant oil will deteriorate, etc. Using the flux has an adverse affect on the refrigerant piping system.
  - For brazing materials, use phosphor copper solder that does not require flux.

SYSTEM DESIGN

3-1. Piping to outdoor unit

■ Piping method

● Opening the knockout hole

⚠ CAUTION

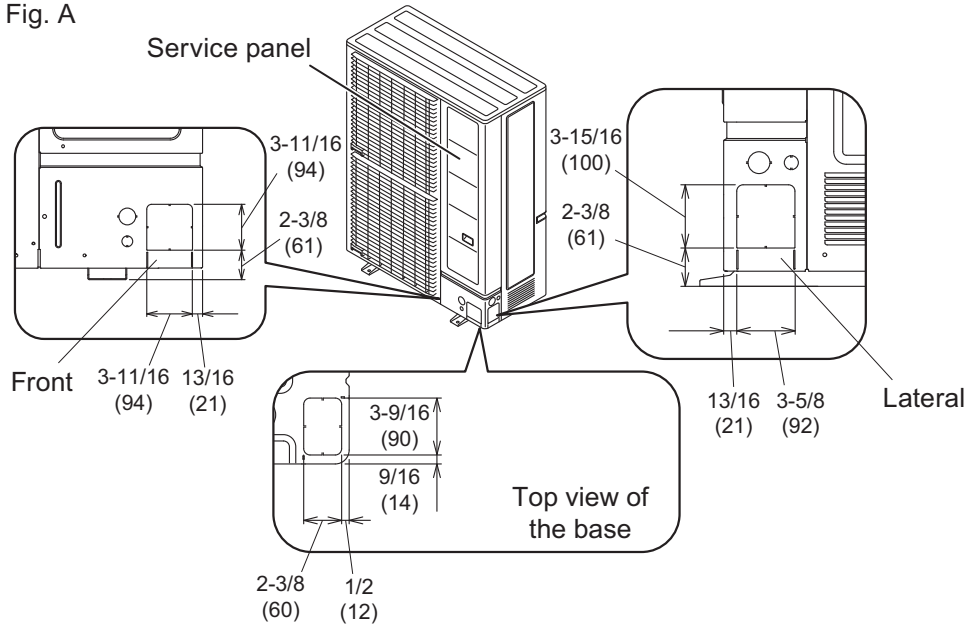
- Be careful to prevent panel deformation or damaged while opening the knockout hole.
- To prevent cutting of the wiring after the knockout hole was opened, remove the burrs along the edge. In addition, to prevent rusting, painting the edge with rust preventive paint is recommended.

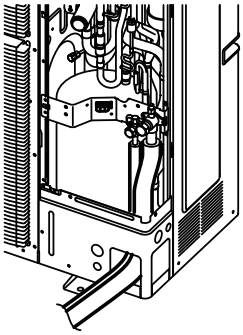
- The piping can be connected from 3 directions of the front, the lateral side, and the bottom.
- When connecting at the bottom, remove the service panel and piping cover on the front of the outdoor unit, and open the knockout hole provided at the bottom corner of the piping outlet.
- When cutting the slits, use a steel saw and cut out the 2 slits as shown in Fig. B and Fig. C.

SYSTEM DESIGN

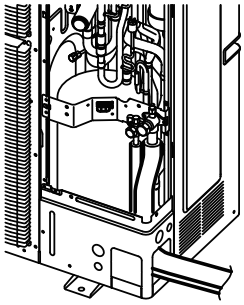
Unit: in (mm)

Fig. A

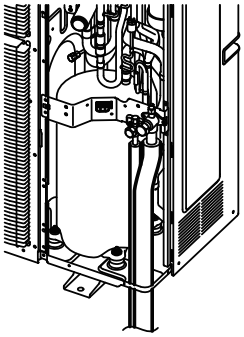




Front connection



Lateral connection



Bottom connection

Fig. B

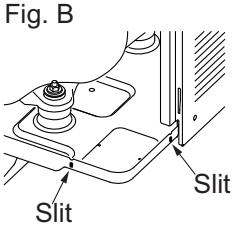
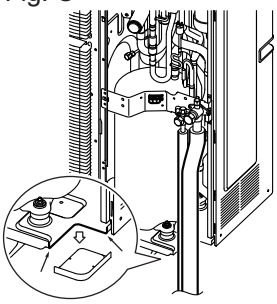


Fig. C



Bottom connection

SYSTEM DESIGN

SYSTEM DESIGN

● Removing the pinch pipe

⚠ CAUTION

- Remove the pinch pipe only when the internal gas is completely drained as shown on the below instructions.
- If gas still remains inside, the piping may crack if you melt the brazing filter of the junction area with a burner.

Before connecting the piping, remove the pinch pipe in accordance with the following instructions:

1. Verify that the liquid side and gas side 3-way valves are closed. (Fig. A)
2. Cut the end of the liquid side and gas side pinch pipe and vent the gas inside the pinch pipe. (Fig. B)
3. After all the gas is vented, melt the brazing filler metal on connecting part using a torch and remove the pinch pipe. (Fig. C)

Fig. A

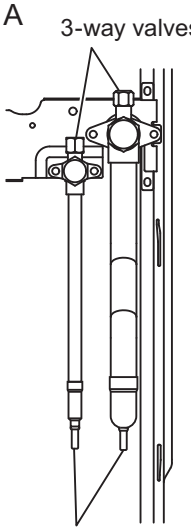


Fig. B

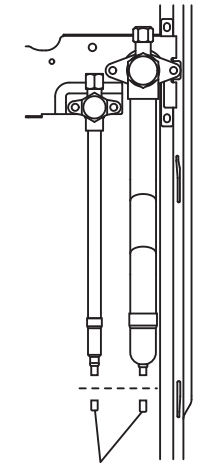
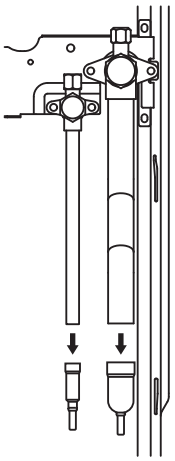


Fig. C



SYSTEM DESIGN

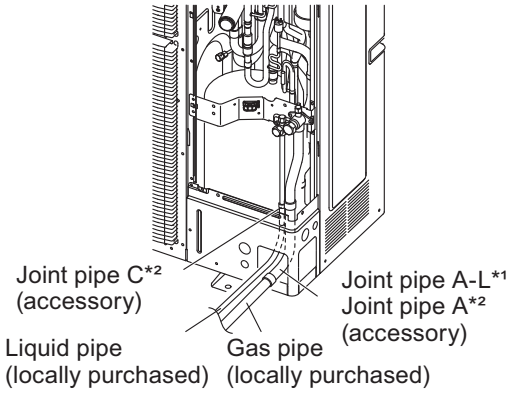
● Pipe connection

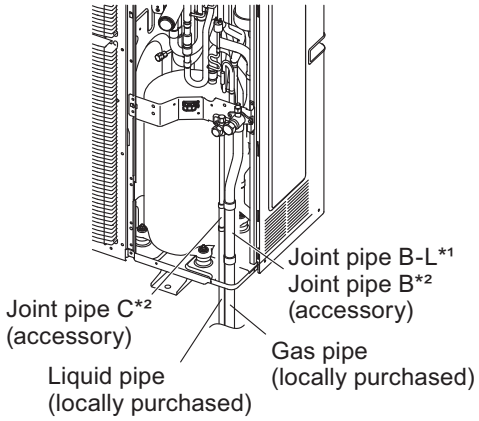
⚠ CAUTION

- Seal the pipe route hole with putty (locally purchased) such that there are no gaps. Small insects or animals that are trapped in the outdoor unit may cause a short circuit in the electrical component box.
- To prevent pipe damage: do not make sharp bends in the pipe. Bend the pipe at a radius of 2-3/4 in (70 mm) or greater.
- To prevent pipe damage, avoid bending pipe many times at same part.
- After completing all the pipe connection by brazing, perform the indoor unit pipe connection with a flare joint.
- When removing the pinch pipe or brazing the joint pipe, carry out the work while cooling down the 3-way valve sufficiently.

- Braze the joint pipe onto the 3-way valve at the liquid and gas side. Install the joint pipe appropriately so that it can be connected easily with the main pipe.
- Braze the joint pipe at the liquid and gas side with the main pipe.

NOTE: Be sure to supply nitrogen when brazing.





NOTE:
- *1: AOU120RLAVL only
- *2: AOU72RLAVL and AOU96RLAVL only

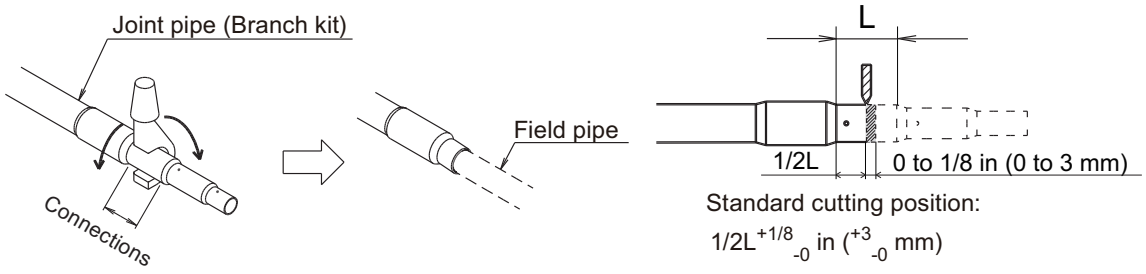
SYSTEM DESIGN

3-2. Separation tube

Total cooling capacity of indoor unit (x) (Btu/h)	Model name
x < 96,500	UTP-AX090A
96,500 ≤ x	UTP-AX180A

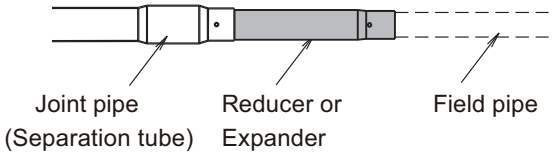
■ Installation

Select the connections with the pipe diameter that match the selected pipe sizes from the Separation tube, and cut them with a pipe cutter.



NOTE: Insert the field pipe firmly until it touches the joint pipe (Separation tube).

When the pipe size of the Separation tube itself does not match, or when piping sizes differ ever if it cuts the pipe, use attached reducer or attached expander.



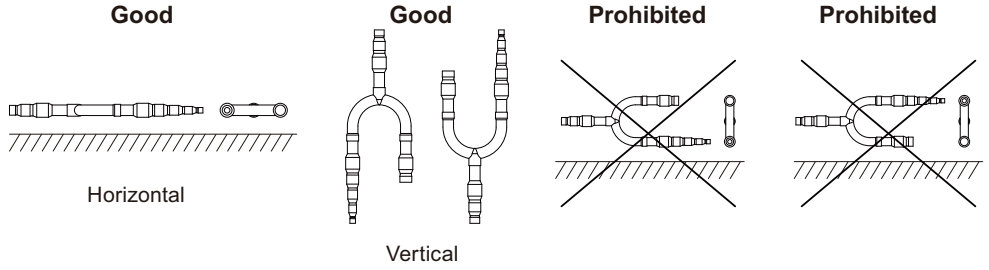
SYSTEM DESIGN

SYSTEM DESIGN

■ Restriction when install

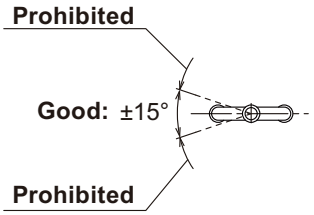
Be sure following restriction.

- **Installation angle**
  Place the Separation tube horizontally or vertically so that the refrigerant separates evenly.



⚠ CAUTION

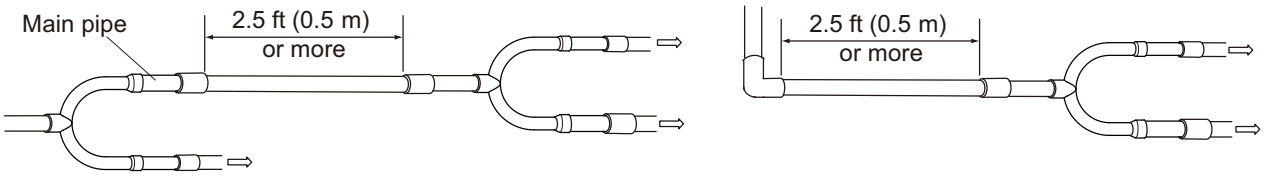
- If it is placed horizontally, keep it within allowable mounting angle below. Otherwise, it will not separate the refrigerant evenly, causing a reduction in performance.



- During piping work, apply nitrogen gas while brazing the pipes. If pipes are brazed without applying nitrogen gas, it will create a large amount of oxidation film, which will cause a critical malfunction.
- To prevent moisture or foreign matter from entering during work, do not leave the piping open.
- Refer to the installation manual supplied with the outdoor unit for airtightness test and evacuation procedures.

SYSTEM DESIGN

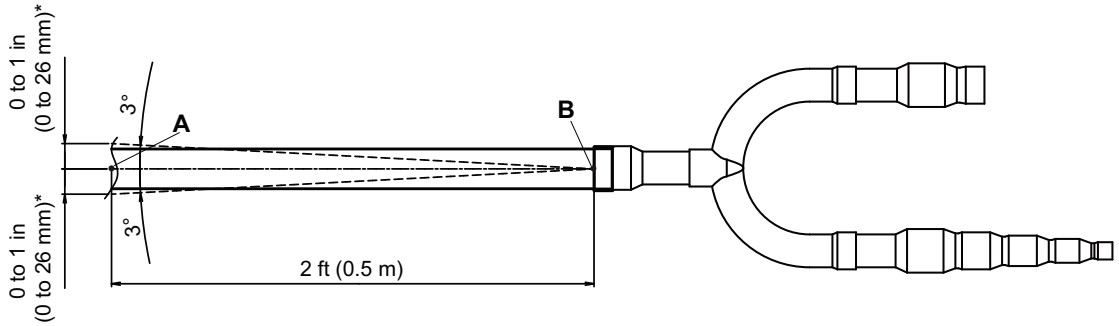
- **Straight pipe length**
  A straight pipe (minimum length 2 ft [0.5 m]) before Separation tube is necessary in order to separate the refrigerant exactly.



⇨ To indoor unit, separation tube, or header

⚠ CAUTION

- Keep the distance 2 ft (0.5 m) or more for straight part to Separation tube, in order to prevent the outdoor unit malfunction and generation of refrigerant noise.
- **About the connecting curvature of field pipe and Separation tube:**
  The filed pipe should be connected to the Separation tube so that the curved angle on each side is 3 degree or less.



*: Allowed value based on “A” (center of field pipe) at 2 ft (0.5 m) from “B” (junction of the Separation tube).

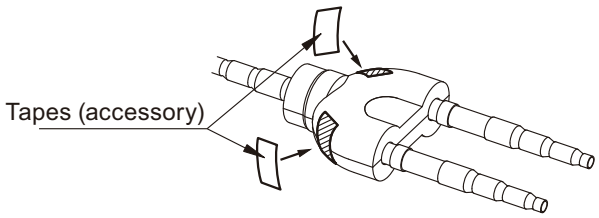
SYSTEM DESIGN

■ Heat insulation installation

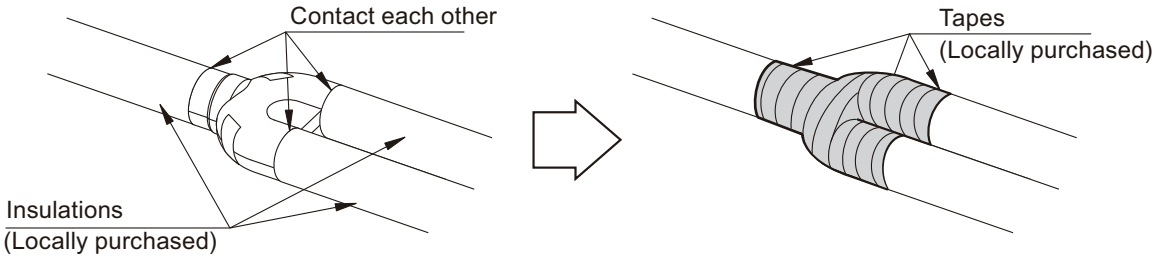
After brazing the pipes and leak check, use the supplied insulation to insulate them. (on liquid and gas pipes)

1. Remove the protective sheet from the double-stick tape that is affixed to the heat insulation.

2. Be sure to install the tape (accessory) in each heat insulation to the 2 positions as shown in the following figure.



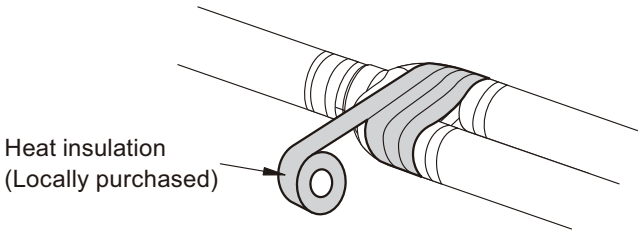
3. Use tape (locally purchased) to seal the seam so that there will be gap at the junction between the aforementioned heat insulation and the heat insulation on the local piping.



⚠ CAUTION

- Insulate the liquid and gas pipe completely. If not, it may cause the water condensation or performance reduction.
- Wrap the heat insulation with tape or pipe cover in order to extend the life time of heat insulation.
- Take proper measurement to strengthen by using another heat insulation at the following installation environment.
  - Environment temperature ≥ 95 °F (35 °C) and humidity 85%
  - Environment temperature ≥ 77 °F (25 °C) and humidity 90%

Installation example



SYSTEM DESIGN

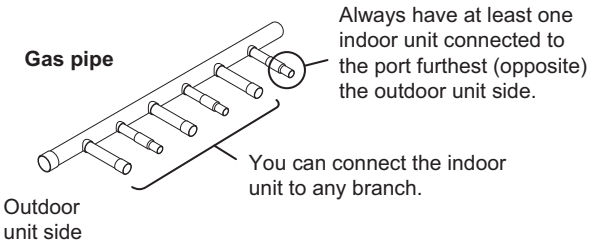
3-3. Header

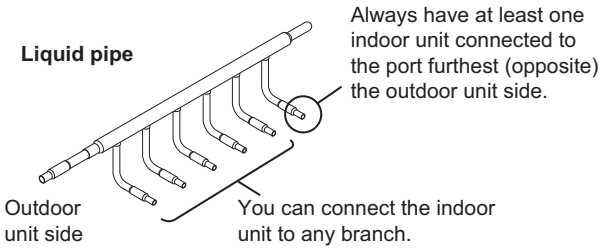
Total cooling capacity of indoor units (x) (Btu/h)	3 to 6 Branches	3 to 8 Branches
x < 96,500	UTR-H0906L	UTR-H0908L
96,500 ≤ x	UTR-H1806L	UTR-H1808L

NOTE: When separate into 2 branches, use a Separation tube instead.

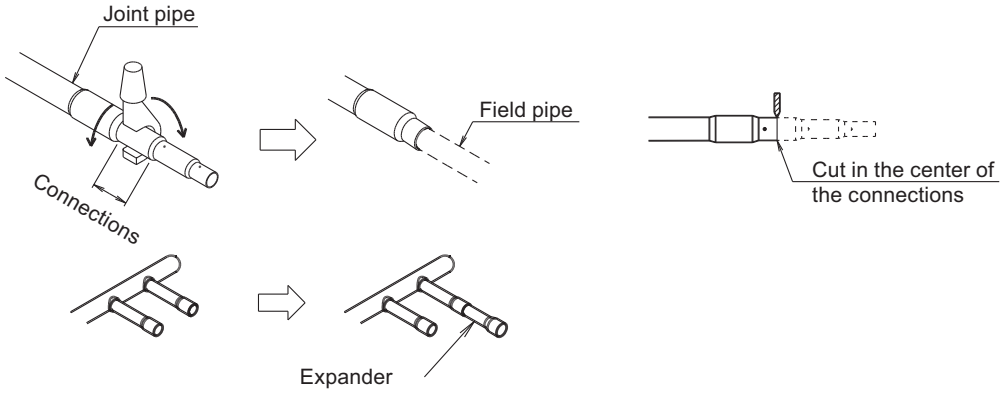
■ Installation

1. Connecting the connection pipes from the indoor units.

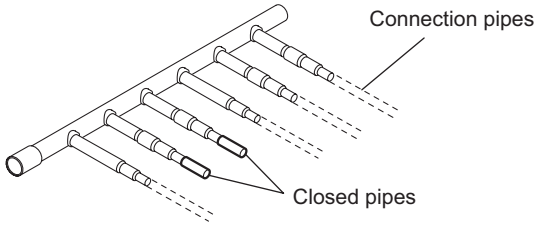




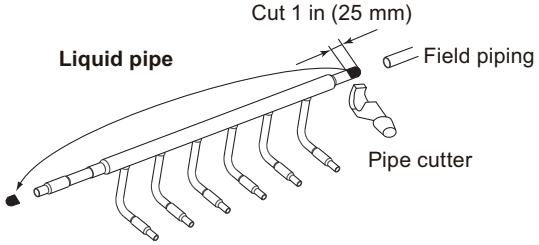
2. Use a pipe cutter to cut at the location that matches the piping size or use expanders as necessary.



3. Attach a plugging pipe provided if there is no piping connected at the Headers.



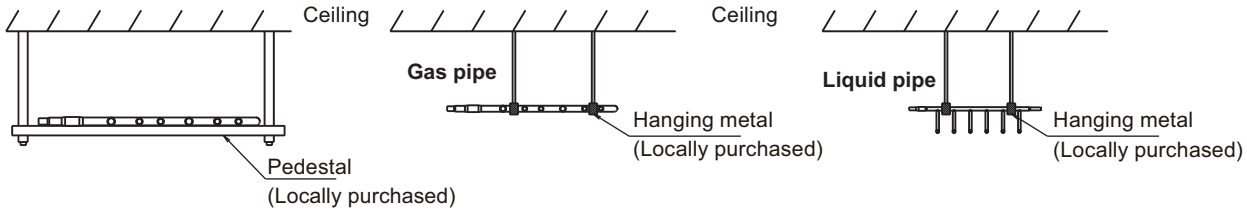
4. Connecting pipe locally purchased from outdoor unit, cut the pipe end to connect the pipe and close the opposite end.



SYSTEM DESIGN

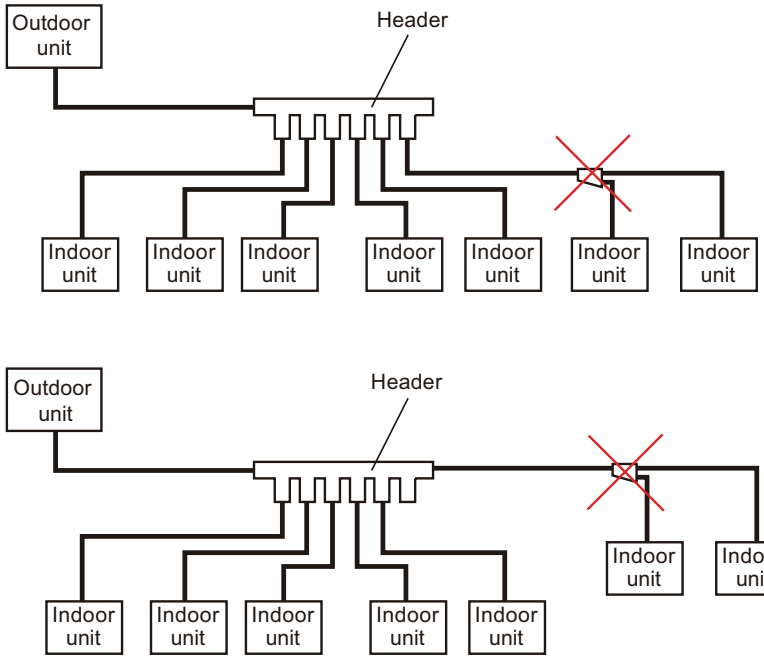
SYSTEM DESIGN

5. Use Header support as necessary.



⚠ CAUTION

Separation tube is not allowed to install Header kit.



SYSTEM DESIGN

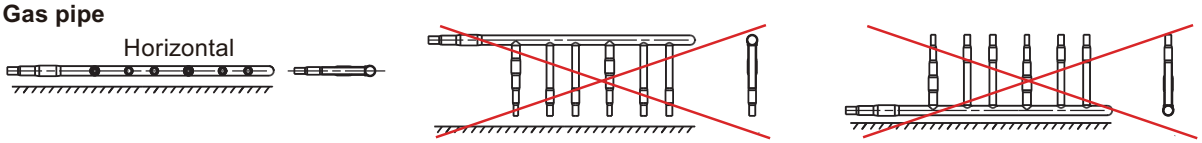
SYSTEM DESIGN

■ Restriction when install

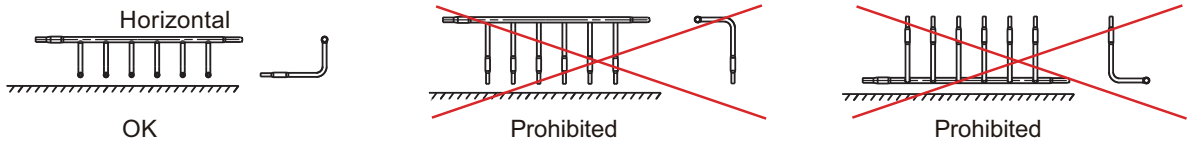
Be sure following restriction.

- **Installation angle**
  Install the Header so that it branches horizontally.

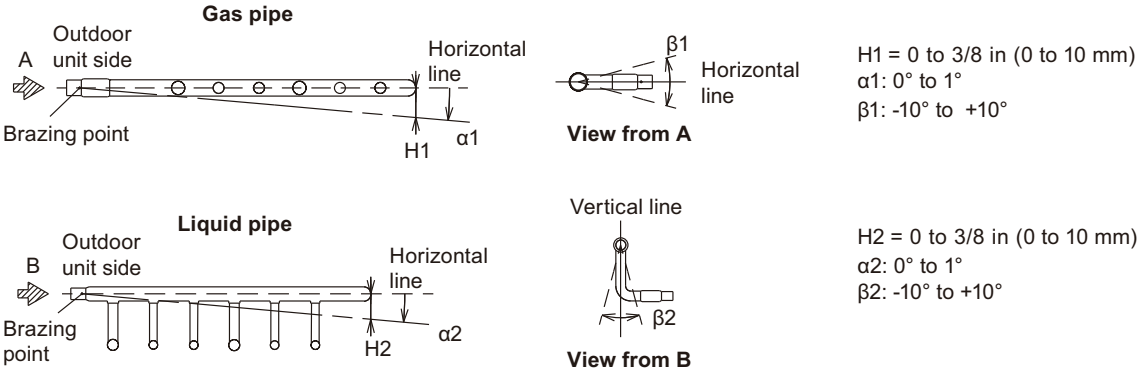
Gas pipe



Liquid pipe



Use a level to make sure that the Header is positioned as shown in following figure, and then sure it in place.

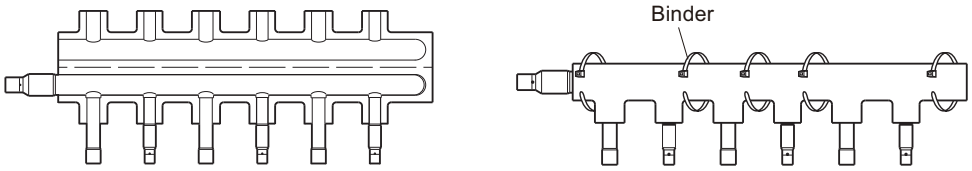


- **Straight pipe length**
  A straight pipe (minimum length 2 ft [0.5 m]) before Header is necessary in order to separate the refrigerant exactly.

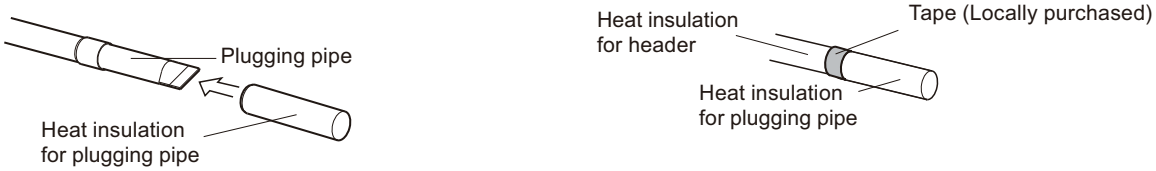
■ Heat insulation installation

After brazing the piping, attach heat insulation.

1. Remove the protective paper for the tape on the heat insulation for the header and attach it. Tighten by using binders at five locations.



2. Cover the plugging pipe with heat insulation and seal with tape.



SYSTEM DESIGN

4. Wiring design

4-1. Electrical wiring

■ Precaution

Regulations for wire diameter and selecting circuit breaker size differ from locality.
Always install in accordance with local standard.

⚠ WARNING

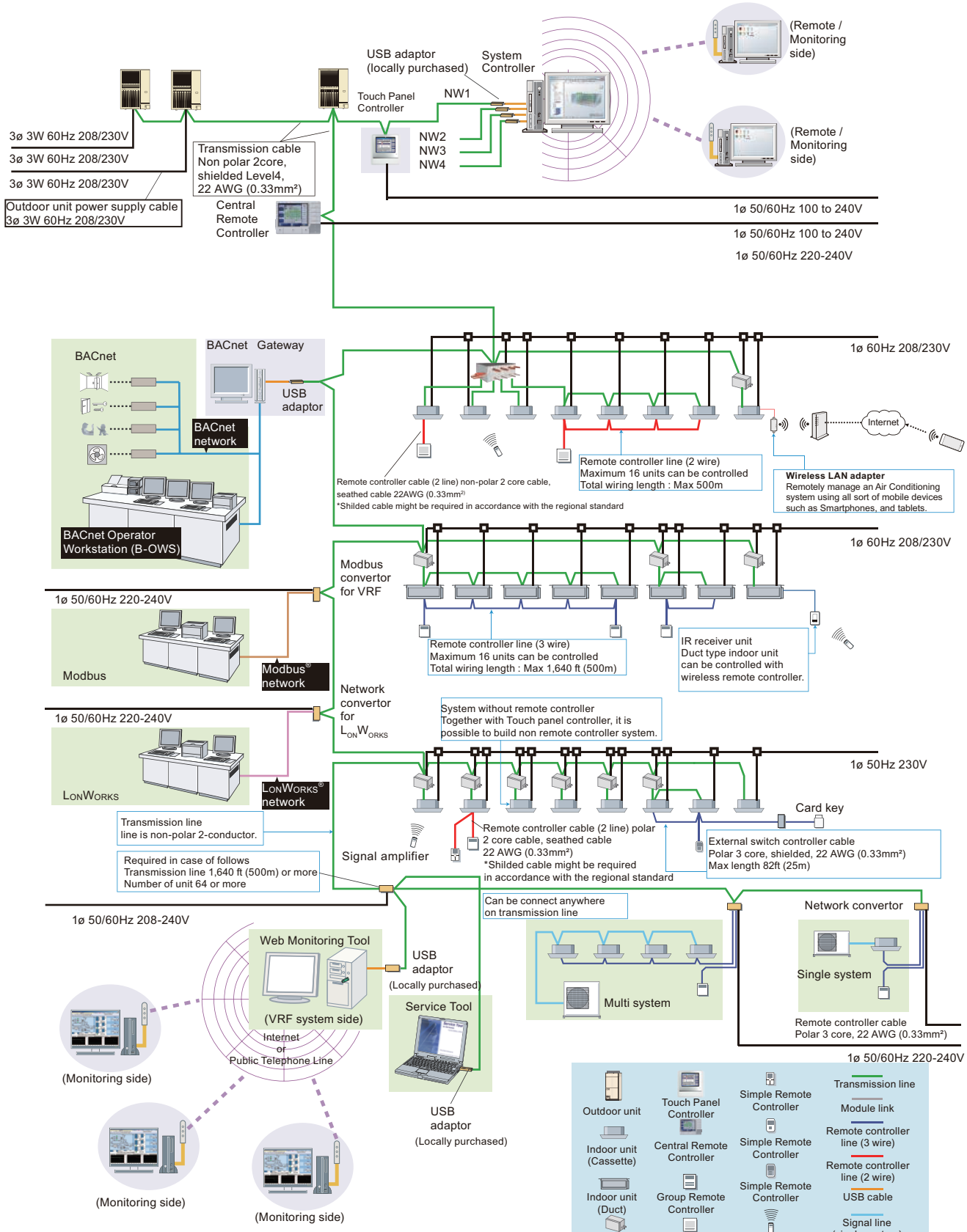
- Do not turn on the power until all installation work is complete.
- Before starting work, check the power is not being supplied to the unit.
- Connect the connection cable firmly to the terminal board. Imperfect installation may cause fire.
- Always install a circuit breaker for each power supply circuit. Failure to use a circuit breaker could result in electrical shock or fire.
- Always install a disconnect switch for each power supply circuit.
- Always connect the ground wire.
- Always fasten the outside covering of the connection cable with the cable tie. (If the insulator is chafed, electric leakage may occur.)
- Never install a condenser for improve the power factor. (It will not improve the power factor and the condenser will become abnormally hot.)
- When installing this system in high humidity locations, install using Ground Fault Equipment Breaker (GFEB) to reduce the risk of leaking current which may result in electric shock or potential fire.

⚠ CAUTION

- When approved for use in local code, we suggest installing Ground Fault Equipment Breaker (GFEB). In that case, GFEB shall be per Fujitsu recommended capacity in order to prevent malfunction of breaker device.
- Always use a dedicated power circuit for each condensing unit (outdoor unit). Never use a power supply shared by another appliance.
- “Wire size” and “Breaker” are for reference only; always install according to local regulations.
- Make the wire length between disconnect switch and unit terminal as short as possible provided that it complies with local code.
- Installation and service of this product is only to be performed by qualified professionals.
- All field wiring and components must be provided by a licensed electrician.
- Use copper conductors only.
- Use crimp-type terminals and tighten the terminal screws to the specified torques, otherwise, abnormal overheating may be produced and possibly cause serious damage inside the unit.

SYSTEM DESIGN

■ Wiring system outline



Disconnect switch might be required in accordance with the regional standard.

SYSTEM DESIGN

4-2. Power supply cable

RELATED LINKS

"Electrical characteristics" in Chapter 3. OUTDOOR UNITS on page 03-21
"Electrical characteristics" in Chapter 4. INDOOR UNITS on page 04-26

■ Specifications

Use a separate power supply for the outdoor unit and indoor unit.

● Outdoor unit

Model	MCA (A)	MAX. CKT. BKR (A)	GFEB
AOU72RLAVL	38	40	100 mA, 0.1 sec or less
AOU96RLAVL	39		
AOU120RLAVL	47	50	

- MCA: Minimum Circuit Ampacity
- MAX. CKT. BKR: Maximum Circuit Breaker
- GFEB: Ground Fault Equipment Breaker

- Select the power cable type and size in accordance with local regulations.
- Select a wire length (maximum wire length) so that the voltage drop is less than 2%.
- When the wire length is long and voltage drop exceeds this value, increase the wire diameter to stay within design limits.

● Indoor unit

Model	Recommended cable size (AWG)	MAX. CKT. BKR (A)	Breaker for leakage current	Remarks
All models	16 to 10	15	Refer to Table B	208/230 V ~ 60 Hz 2 wire + ground

Refer to the table for the breaker specifications of each installation condition.

Perform the power crossover wiring within the range of the same refrigerant system. When the power crossover wiring is done, make a connection for indoor units to satisfy conditions of Table A and B below.

- Select the power cable type and size in accordance with local regulations.
- Include at least one breaker and one disconnect per refrigerant circuit.
- Power supply circuits should only be connected to units and the same refrigerant circuit.
- Design the power supply circuit to keep the voltage drop within 2%.

SYSTEM DESIGN

- **Table A. Current breaker requirements**

Model	MCA (A)	MAX. CKT. BKR (A)
All models	Refer to "Electrical characteristics" in Chapter 4. INDOOR UNITS on page 04-26	15

– MCA: Minimum Circuit Ampacity
– MAX. CKT. BKR: Maximum Circuit Breaker

When the power crossover wiring is done, make it so that the total of the MCA of the connected indoor units does not exceed the 11 A.

- **Table B. Ground Fault Equipment Breaker requirements**

Breaker capacity	Maximum connectable “Units”
30 mA, 0.1 sec or less	36 or less
100 mA, 0.1 sec or less	37 to 121

If the total number of units connected to the breaker exceeds 36, either add a 30 mA breaker or use a breaker with a greater capacity.

NOTE: For how to count the units, refer to the table below.

Connected unit	Q’ty	Count
Indoor units Except High static pressure duct	1	1
Indoor units High static pressure duct (ARUH72TLAV2, ARUH96TLAV2)	1	3

- Example 1:
  Connected units: AUUA9TLAV2 × 4 + AUUB18TLAV × 2 + ARUL9TLAV2 × 1
  Amount of units: 1 × 4 + 1 × 2 + 1 × 1 = 7

- Example 2:
  Connected units: ARUH72TLAV2 × 1 + AUUA9TLAV2 × 2 + ARUL9TLAV2 × 2
  Amount of units: 3 × 1 + 1 × 2 + 1 × 2 = 7

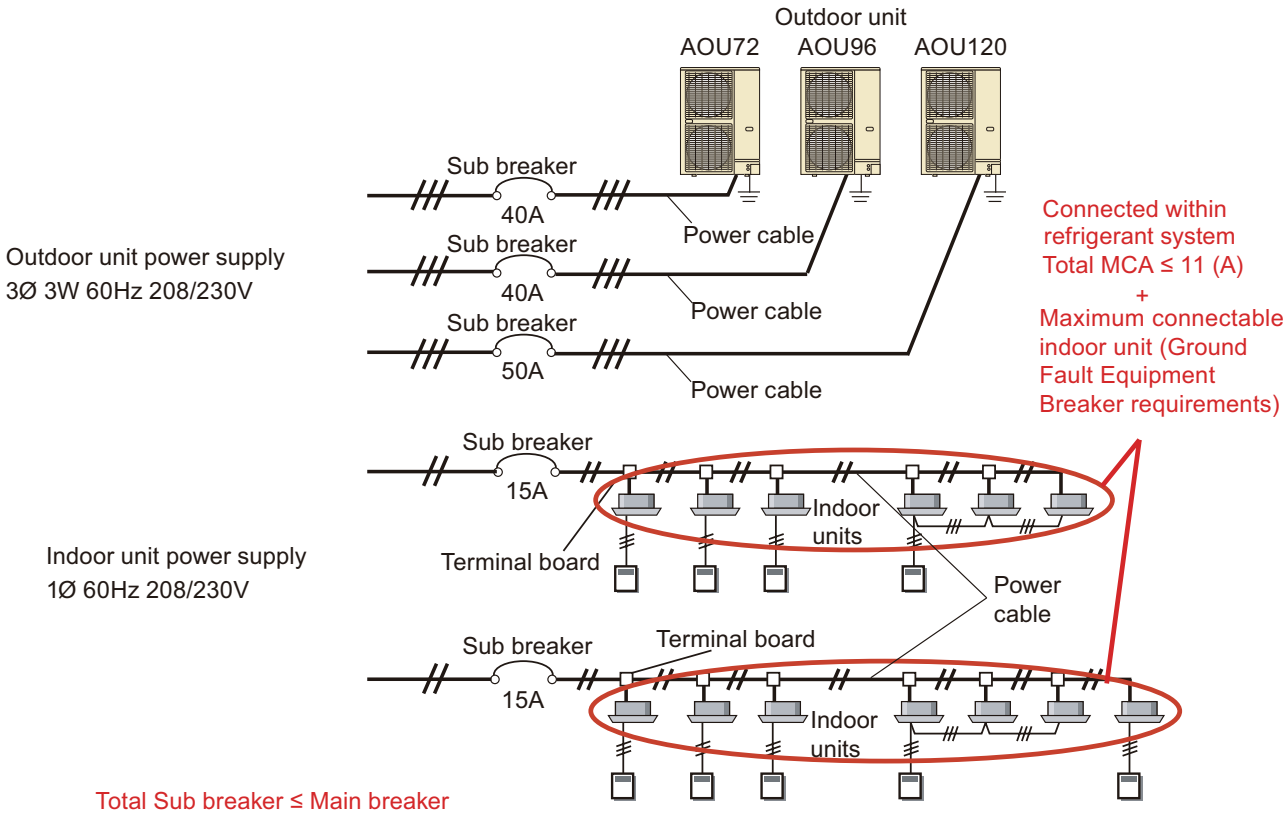
SYSTEM DESIGN

■ Wiring example

⚠ CAUTION

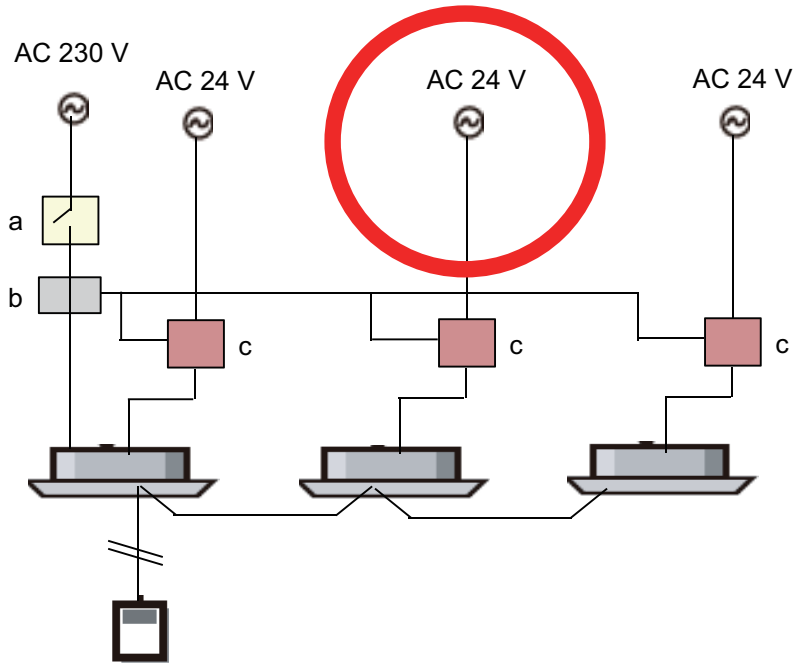
- Except for emergency, never turn off main as well as sub breaker of the indoor units during operation. It will cause compressor failures as well as water leakage.
- First, stop the indoor unit by operating the control unit, converter, or external input device, and then cut the breaker.
- Make sure to operate through the control unit, converter, or external input device.
- When the breaker is designed, locate it at a place where the users cannot start and stop in the daily work.
- Regulation of wire size and circuit breaker differs from each locality, refer in accordance with the regional standard.
- When approved for use in local code, we suggest installing Ground Fault Equipment Breaker (GFEB). In that case, GFEB shall be per Fujitsu recommended capacity in order to prevent malfunction of breaker device.

- Example 1: Using terminal board for indoor unit

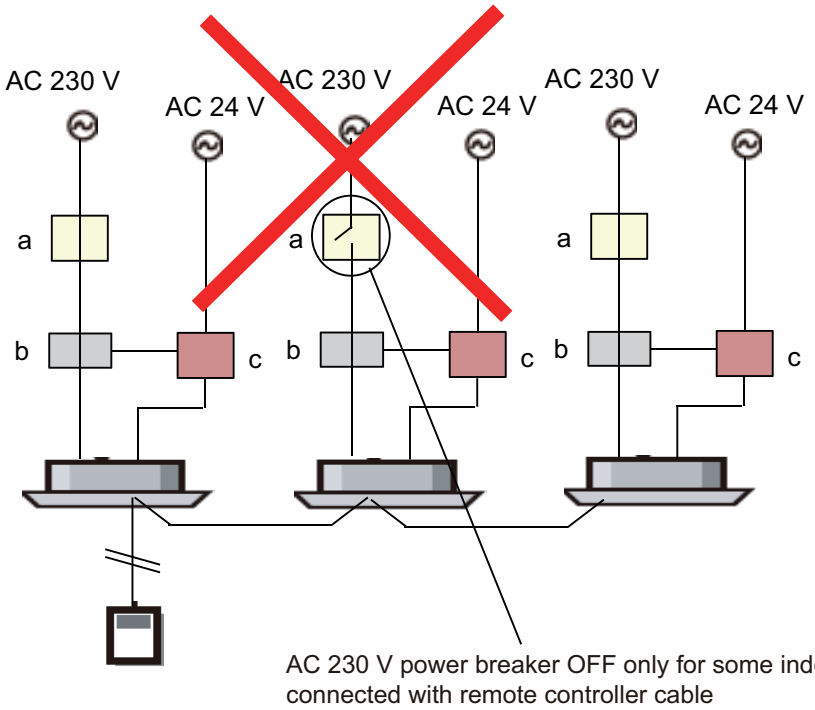


SYSTEM DESIGN

- Example 2: Using external power supply unit
  When operating multiple indoor units with one remote controller, make sure that AC 230 V power is supplied with one breaker as shown below.



a: Circuit breaker
b: Relay
c: External power supply unit



SYSTEM DESIGN

4-3. Transmission cable

RELATED LINKS

"Definition" on page 06-4

■ Wiring specifications

Use	Cable size	Cable type	Remarks
Transmission cable	22 AWG (0.33 mm^2)	LEVEL4 (NEMA) non polar 2-core, twisted pair solid core, diameter 0.65 mm	LonWorks compatible cable

Use shielded cable specified below and always ground it both end.

22 AWG (0.65 mm) LEVEL4 cable with shielded (National Electrical Manufacturers Association [NEMA]) differs from the Category 4 specification proposed by the Electronic Industries Association/ Telecommunication Industry Association (EIA/TIA).

Reference specifications for transmission cable			
Item		**Unit**	**Specifications**
Wire type		mm	0.65 dia (22 AWG) Twisted pair with shield
Pair (Twisted pair cable)*1		—	1 pair or 2 pair
Loop DC resistance (68 °F [20 °C])		Ohm/1,000 ft (Ohm/305 m)	Less than 18
DC resistance unbalancing (68 °F [20 °C])		%	Less than 5
Dielectric voltage (Between conductor and conductor)		V/min	AC 350
Insulation resistance (68 °F [20 °C]) (Between conductor and conductor)		Mohm-km	More than 500 (After charging DC 500 V 1 min)
Static capacitance between conductors	1 KHz	nF/km	Less than 56
Unbalanced static capacitance (To ground)	1 KHz	nF/km	Less than 3.28
Characteristic impedance	772 KHz	Ohm	102±15% (87 to 117)
	1 MHz		100±15% (85 to 115)
	4 MHz		
	8 MHz		
	10 MHz		
	16 MHz		
	20 MHz		
Attenuation	772 KHz	dB/1,000 ft (dB/305 m)	Less than 4.5
	1 MHz		Less than 5.5
	4 MHz		Less than 11.0
	8 MHz		Less than 15.0
	10 MHz		Less than 17.0
	16 MHz		Less than 22.0
	20 MHz		Less than 24.0
Cross talk attenuation*2	772 KHz	dB/1,000 ft (dB/305 m)	Less than 58
	1 MHz		Less than 56
	4 MHz		Less than 47
	8 MHz		Less than 42
	10 MHz		Less than 41
	16 MHz		Less than 38
	20 MHz		Less than 36

SYSTEM DESIGN

Reference specifications for transmission cable		
Item	**Unit**	**Specifications**

NOTES:

- *1: Number of twist is not specified. However, it shall satisfy the electrical specifications such as characteristic impedance, attenuation, etc. (Example: More than 40 times/m)
- *2: Cross talk attenuation is applied when the twisted cable has 2 pairs (2 P).
- Material is not specified. However, it shall be selected by considering the operating environment (temperature, humidity) and the local regulation by the environment condition (ROHS directive, etc.).
- Mechanical specification is not specified. However, it shall be selected by considering the operating environment.
- Never bundle transmission cable with power supply cable.

■ Wiring rules

- In the following cases, Signal amplifier is required.
  - When the total length of the transmission cable exceeded 1,640ft (500 m)
    AB + BC + BD + DE + EF > 1,640ft (500 m) (Fig. 1)
  - When total number of the units is over 64.
    - When the total length of the transmission cable exceeded 1,640ft (500 m)
- Transmission cable length between each unit: 1,312ft (400 m)
- Total transmission cable length: 11,811ft (3,600 m) (Fig. 2)

Fig. 1

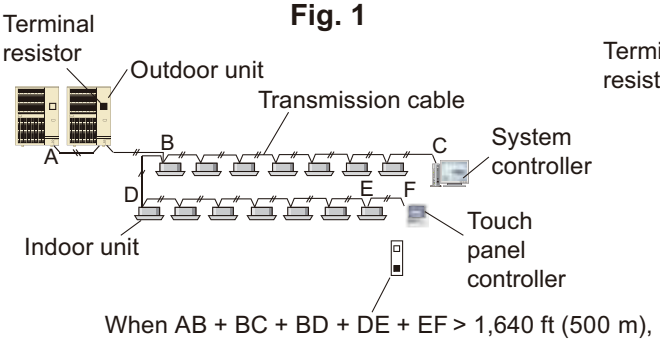
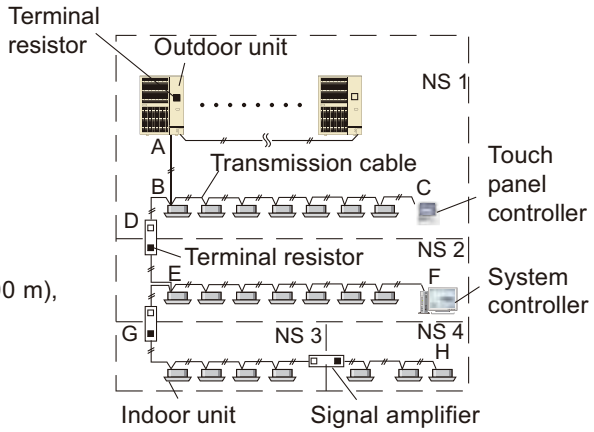


Fig. 2



NOTE: For details of maximum wiring length, refer to "VRF network system" on page 06-4.

SYSTEM DESIGN

■ Wiring flow

1. Decide to use feature of automatic address setting depending on system design.
   Decide to use automatic address setting or manual address setting.
   - Automatic address setting: Go to "Auto address setting" on page 06-56 in step 2.
   - Manual address setting: Go to "Manual address setting" on page 06-57 in step 2.

2. Confirm transmission wiring.
   - Auto address setting
     Connect the transmission cable like as Fig. 1 and Fig. 2

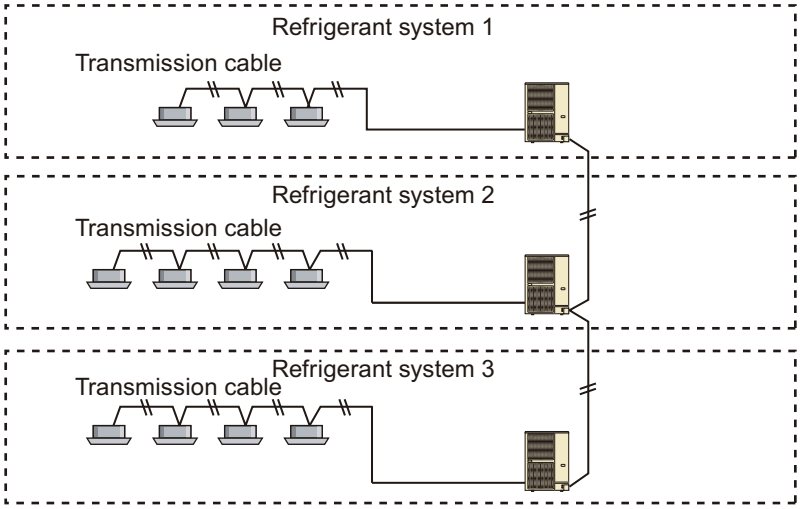


Fig. 1

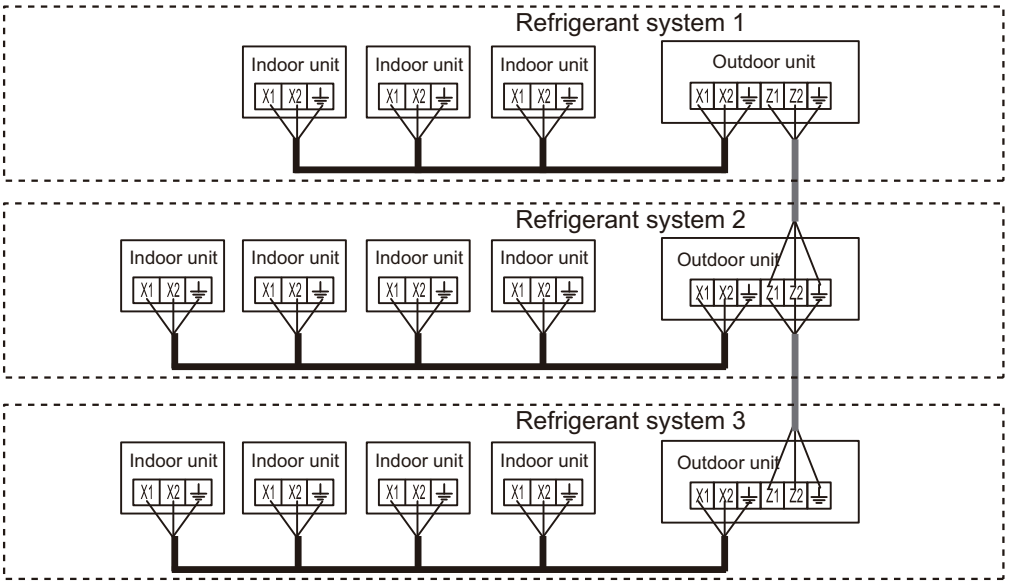


Fig. 2

   – X1, X2: Indoor units to outdoor unit
   – Z1, Z2: Connection for different refrigerant circuit of outdoor unit

SYSTEM DESIGN

- Manual address setting
  Connect the transmission cable like as Fig. 3 and Fig. 4

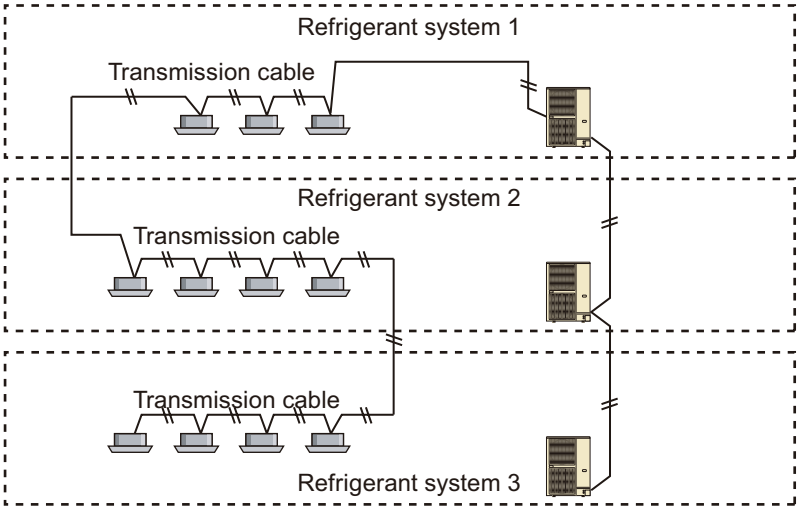


Fig. 3

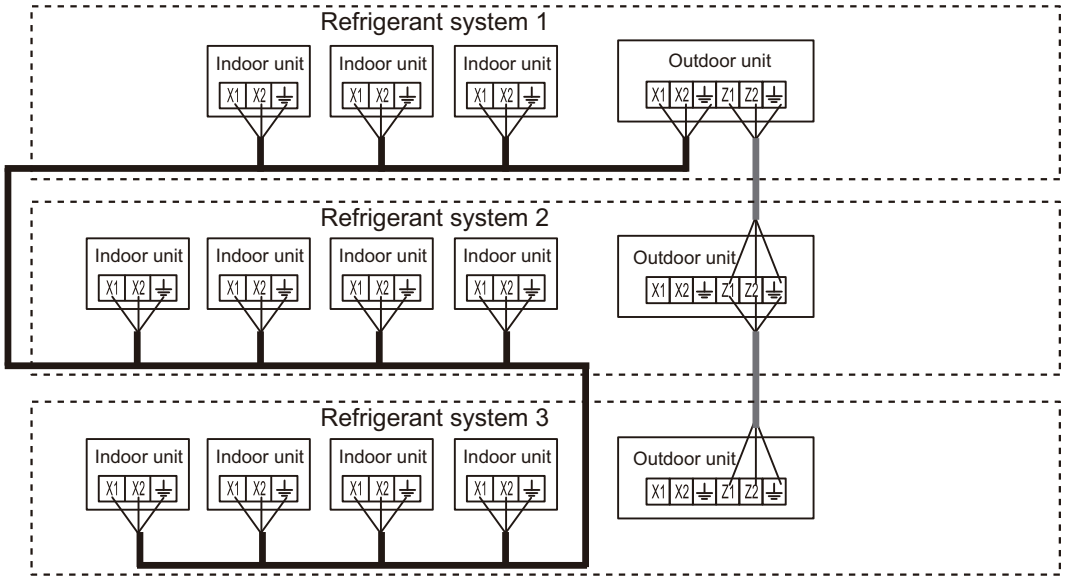


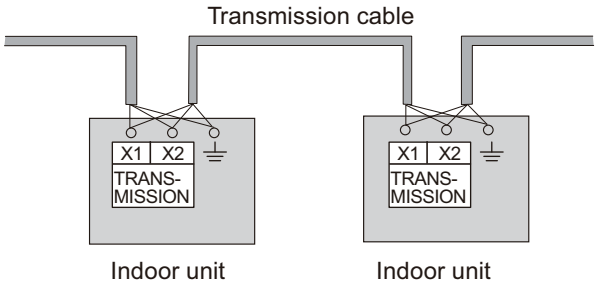
Fig. 4

  – X1, X2: Indoor units to outdoor unit
  – Z1, Z2: Connection for different refrigerant circuit of outdoor unit

3. Confirm the transmission wiring rule.
   For details of wiring rules, refer to "Wiring rules" on page 06-55.

4. Confirm how to install Signal amplifier.
   For details of wiring rules, refer to "Wiring rules" on page 06-55.

5. Confirm how to wire transmission cable.
   Confirm how to connect transmission cable between indoor units.
   - Arrange so that there is one terminal resistor for each network segment.
   - Always take a ground from both ends of transmission cable.



SYSTEM DESIGN

6. Confirm transmission wiring system.
   Confirm your transmission wiring system if transmission wiring system is ensured wiring rule.

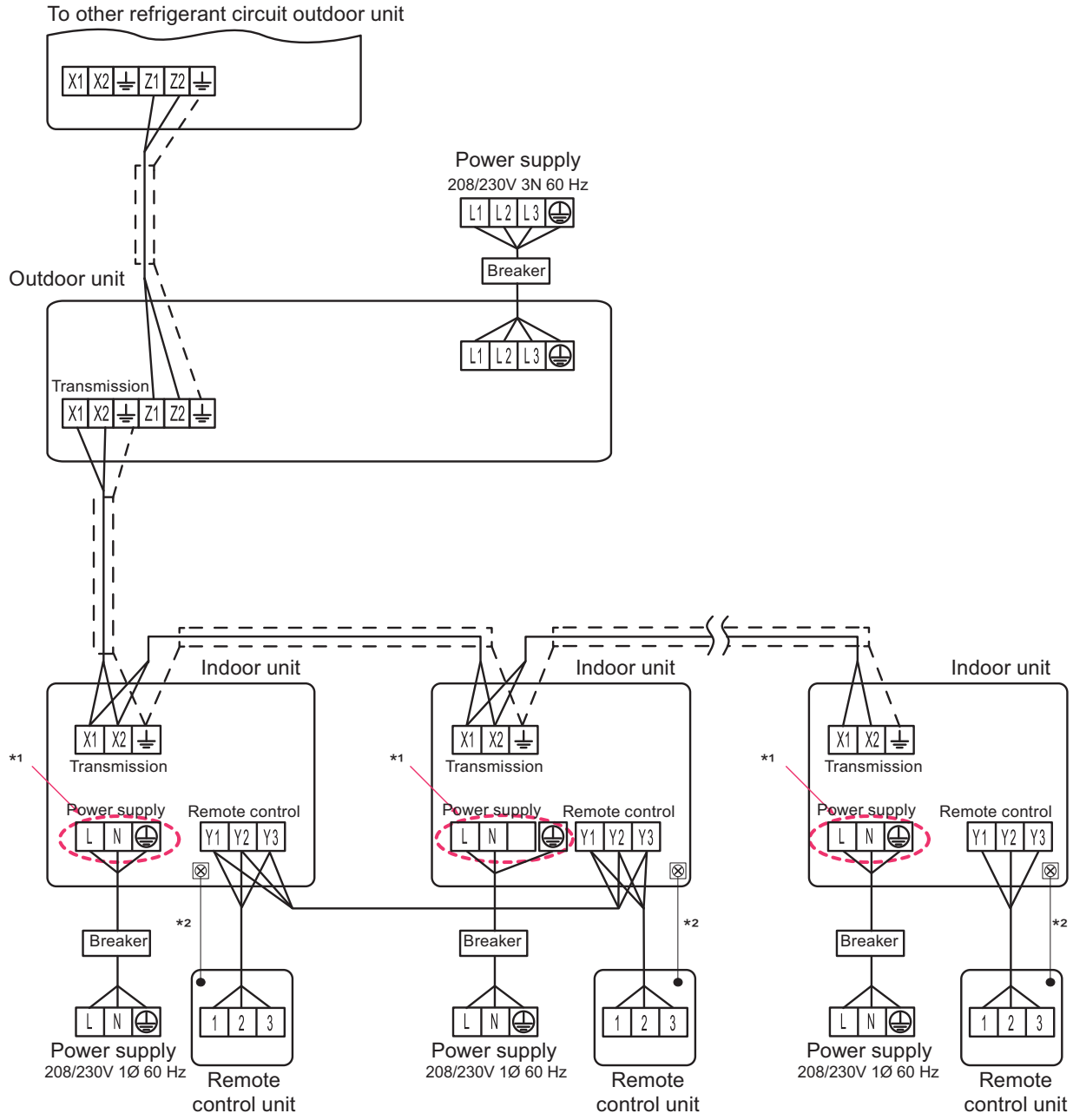
   Check list

   - □ Total transmission wiring length
   - □ Total number of unit

NOTE: For details, refer to "VRF network system" on page 06-4.

■ Wiring method

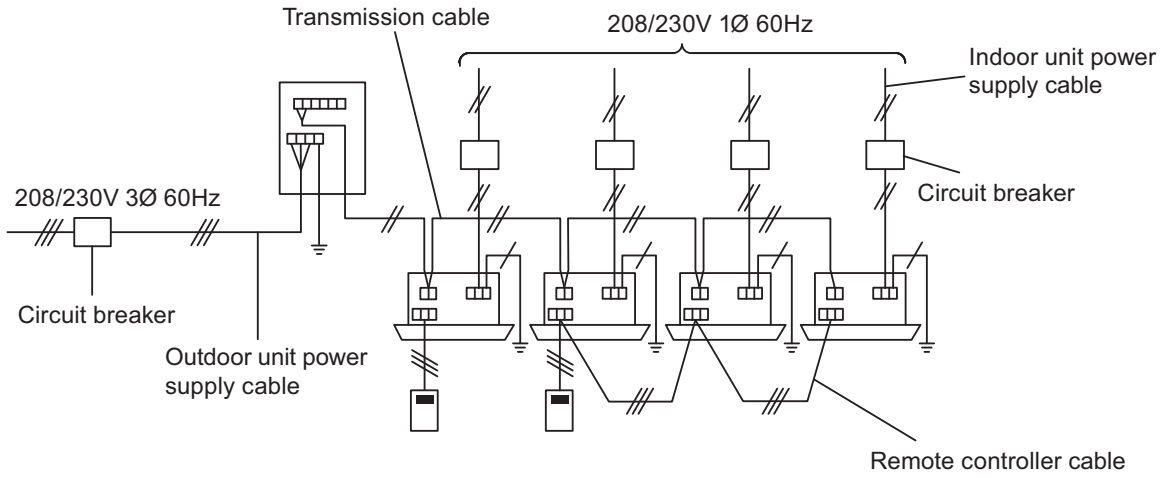
Practical transmission wiring method is shown below.
Each terminal has to be connected the following rules.



- X1, X2: Indoor units to outdoor unit
- Z1, Z2: Connection for different refrigerant circuit of outdoor unit
- *1: The number of power supply terminal is different depending on the indoor unit model.
- *2: Ground the remote controller if it has a ground wire.

SYSTEM DESIGN

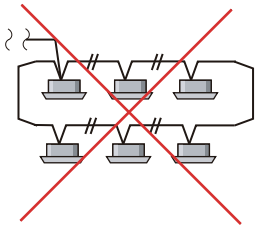
Example:



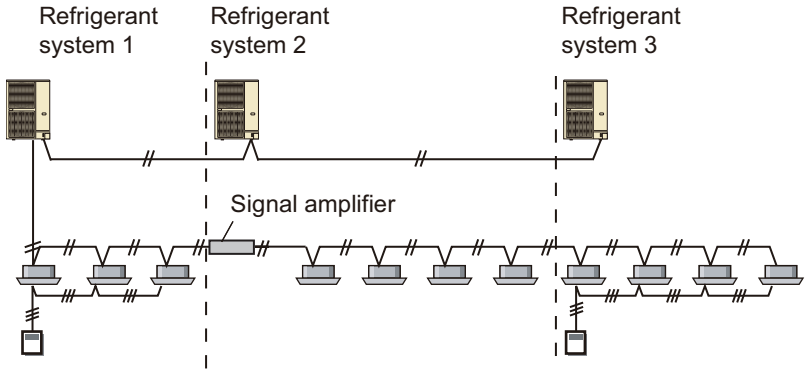
■ Separation rules

- The transmission cable between indoor units, outdoor unit, and controllers can be connected by one cable.
- Terminal board available on the market or the ones inside the indoor unit or outdoor unit should be used for transmission cable separation.
- Connection of 3 or more lines may cause poor communication for one terminal. In this case, use a terminal box.

NOTE: Do not loop.

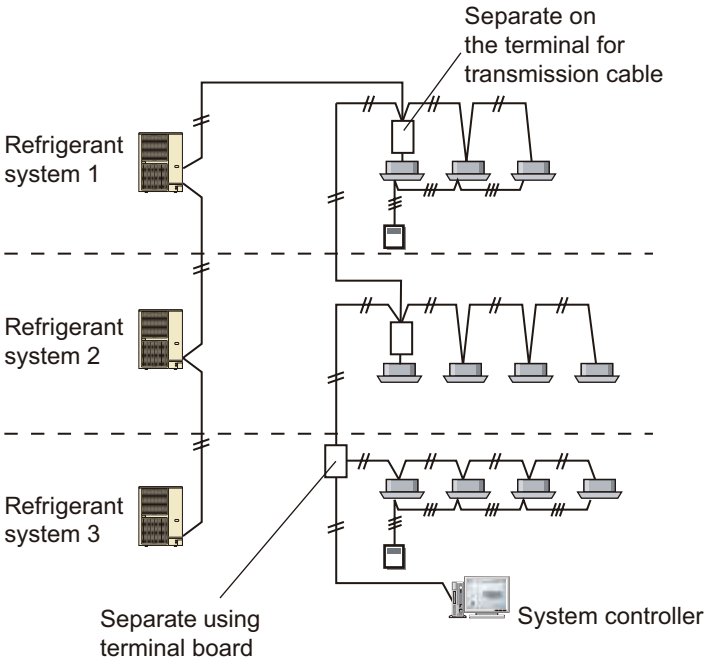


- Example 1: Connecting each outdoor unit and indoor unit with one wiring



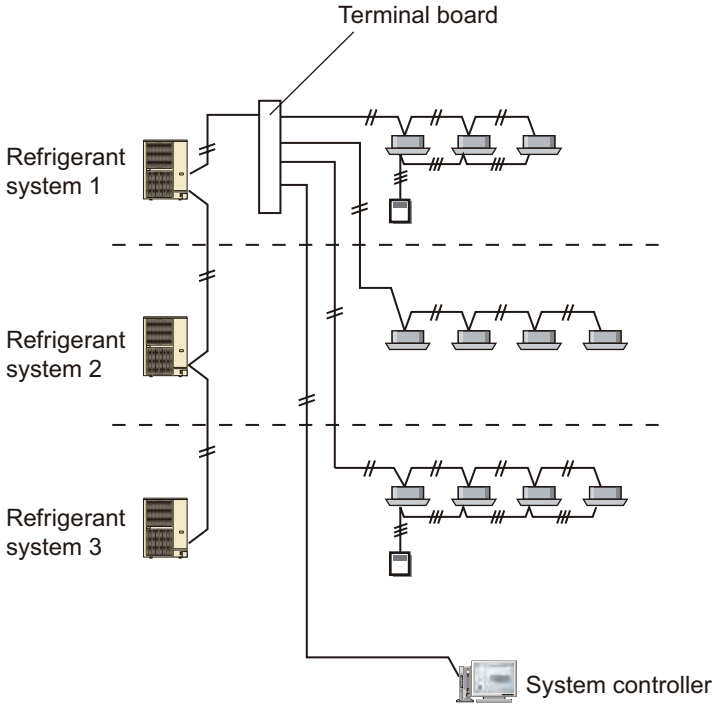
SYSTEM DESIGN

- Example 2: Separating transmission cable

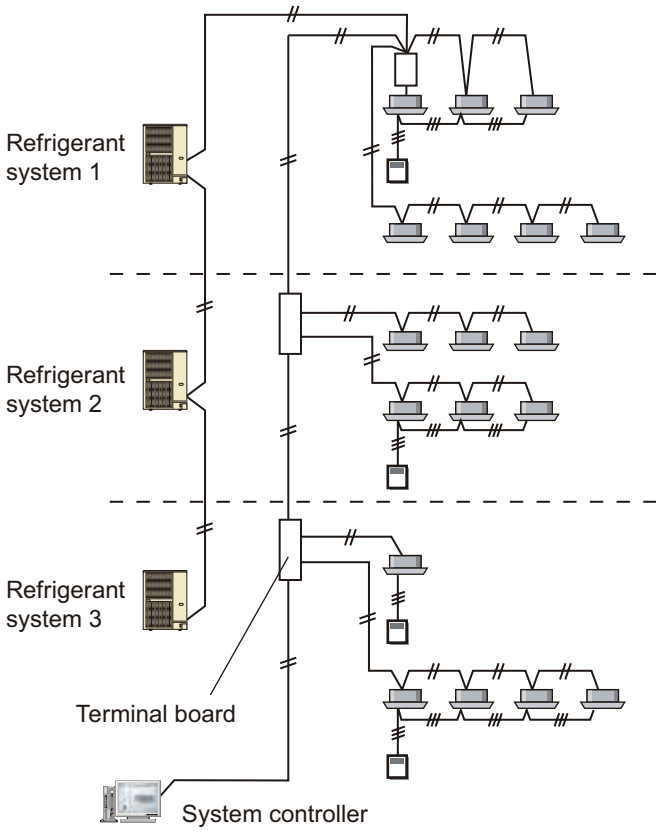


SYSTEM DESIGN

- Example 3: Separation wiring from one terminal board radially



- Example 4: Combination of example 2 and 3



SYSTEM DESIGN

4-4. Controller cable

RELATED LINKS

"Indoor unit type and applicable control method" in Chapter 5. CONTROL SYSTEM on page 05-8
"Control device design limitation" in Chapter 5. CONTROL SYSTEM on page 05-13
"Applicable parts" in Chapter 10. OPTIONAL PARTS on page 10-21

■ Wiring specifications

Model type	Connection to	Wire	Size	Specification
System controller	USB adapter	USB cable	—	
System controller lite				
Touch panel controller	Transmission cable	Refer to "Wiring specifications" on page 06-54		
Central remote controller				
Wired remote controller (2-wire type)*1	Indoor unit	Remote controller cable	22 to 16 AWG (0.33 to 1.25 mm^2)	Sheathed, non-polar 2 core, twisted pair*2
Simple remote controller (2-wire type)*1	Indoor unit	Remote controller cable	22 to 16 AWG (0.33 to 1.25 mm^2)	Sheathed, non-polar 2 core, twisted pair*2
Wired remote controller (3-wire type)	Indoor unit	Remote controller cable	22 AWG (0.33 mm^2)	Sheathed PVC cable, polar 3 core*2
Simple remote controller (3-wire type)				
External switch controller	Indoor unit	Remote controller cable	22 AWG (0.33 mm^2)	Shielded, polar 3 core
	External input		22 AWG (0.33 mm^2)	Shielded, non-polar 2 core, twisted pair
IR receiver unit (for All duct type)	Indoor unit	Connection cable	—	16 ft (5 m) cable attached
IR receiver unit (for Circular flow cassette type)				
IR receiver unit (for Cassette type)				
Human sensor kit (for Circular flow cassette type)				
Remote sensor unit				33 ft (10 m) cable attached
Drain pump unit				

*1: For maximum connectable number, refer to "Maximum connectable number of remote controller (2-wire type)" on page 06-63.

*2: Use shielded cable (locally purchased) in accordance with the regional cable standard.

⚠ CAUTION

- Install in accordance with the regional standard.
- Never bundle the power supply cable and controller cable together. Bundling these cords together will cause misoperation.
- Always ground for shielded cable both end.
- For details of specification and connection, refer to "Control system" in Chapter 5. CONTROL SYSTEM on page 05-1.
- Controller might be required to connect power supply cable and transmission cable. For power supply cable, use separate connection with other units.

SYSTEM DESIGN

SYSTEM DESIGN

■ Maximum connectable number of remote controller (2-wire type)

Maximum connectable number of remote controller (2-wire type) is limited by cable size and maximum cable length.

Maximum connectable number of remote controller (2-wire type)				
Cable size (S)		Total cable length (L)		
AWG	mm^2	L ≤ 328 ft (100 m)	328 ft (100 m) ≤ L ≤ 820 ft (250 m)	820 ft (250 m) ≤ L ≤ 1,640 ft (500 m)
16	1.25	4	4	4
18	0.75 (1.25 > S ≥ 0.75)	4	4	2
20	0.5 (0.75 > S ≥ 0.5)	4	2	2
22	0.3 (0.5 > S ≥ 0.3)	4	1	1

SYSTEM DESIGN

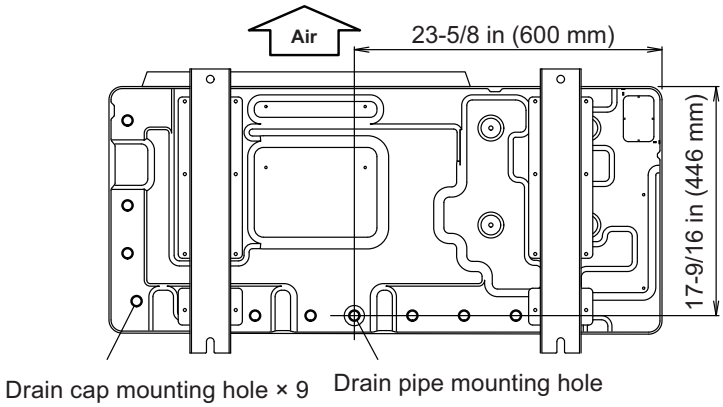
5. Drain connection

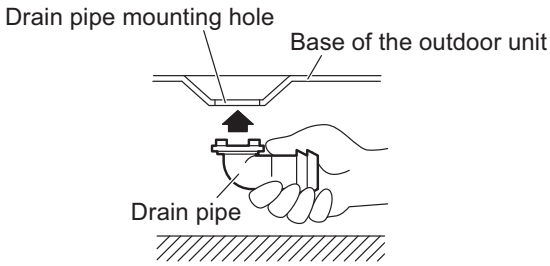
5-1. Outdoor unit

⚠ CAUTION

- Perform drain work in accordance with this manual, and ensure that the drain water is properly drained. If the drain work is not carried out correctly, water may drip down from the unit, wetting the furniture.
- When the outdoor temperature is 32 °F (0 °C) or less, do not use the accessory drain pipe and drain cap. If the drain pipe and drain cap are used, the drain water in the pipe may freeze in extremely cold weather.

- As the drain water flows out of the outdoor unit during heating operation, install the drain pipe and correct it to a commercial 5/8 in (16 mm) hose.
- When installing a drain pipe, plug all the holes other than the drain pipe mounting hole in the bottom of outdoor unit with drain cap so there is no water leakage.





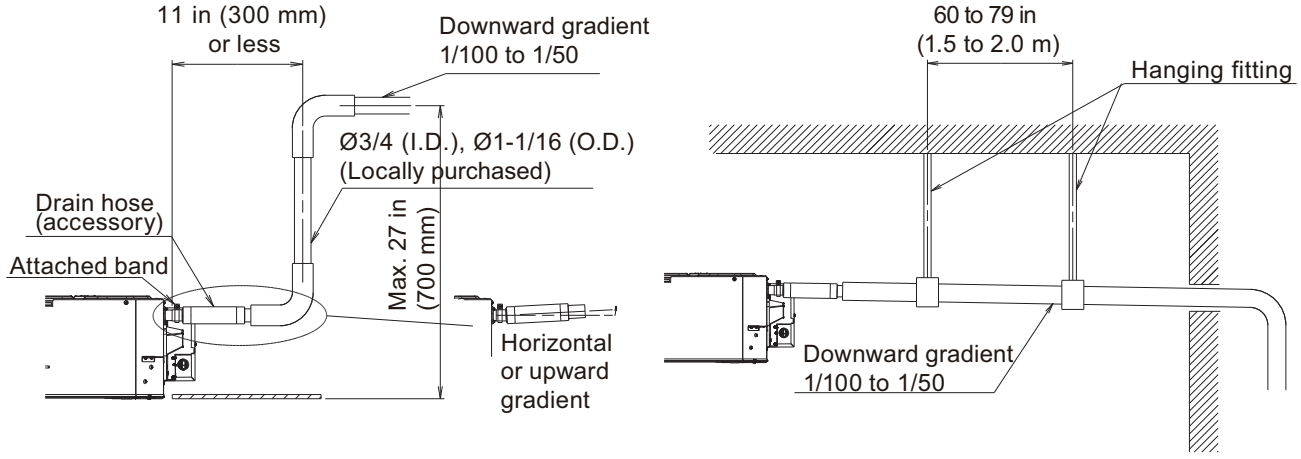
SYSTEM DESIGN

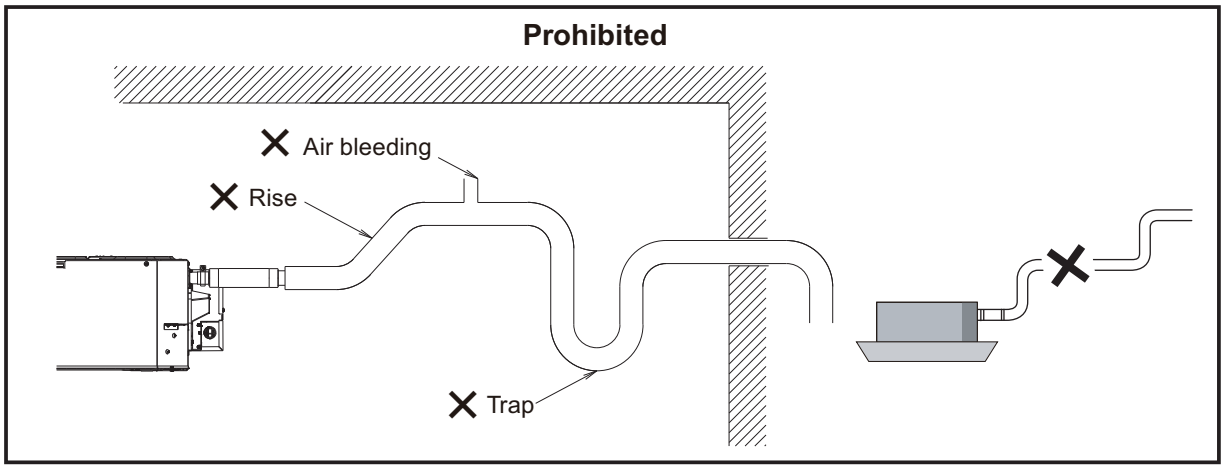
5-2. Indoor unit

■ General rules of drain piping

- Install the drain pipe with downward slope (1/100 or more) and so there are no rises in the pipe.
- Use general hard polyvinyl chloride pipe () and connect it with adhesive (polyvinyl chloride) so that there is no leakage.
- Support the drain pipe with supports each 60 to 79 in (1.5 to 2.0 m).
- Do not install any air vents or traps.
- Always insulate the drain pipe to prevent condensation.
- When connecting the drain hose to the indoor unit, use the accessory band. (Except wall mounted type)

■ Compact cassette type

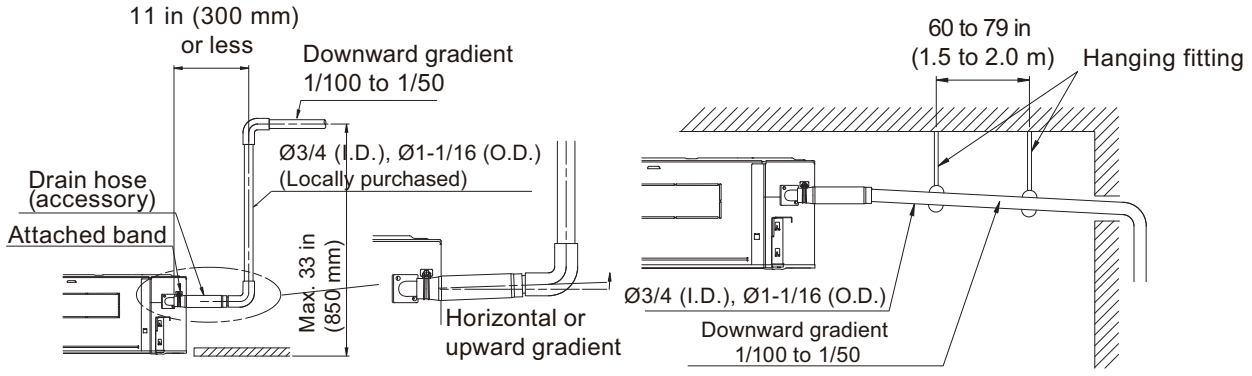


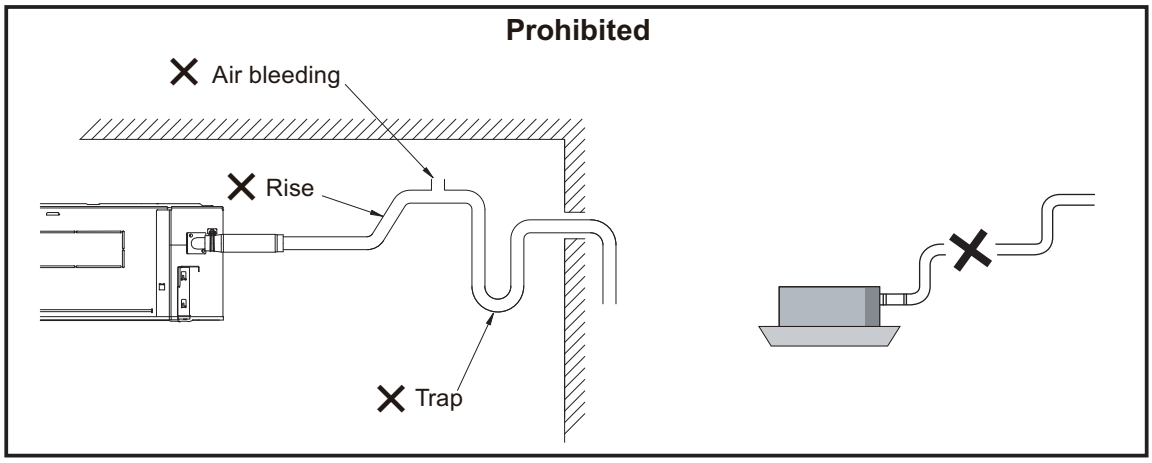


- Drain lift-up pipe restrictions:
  - Lift-up height ≤ 27 in (700 mm) (from ceiling)
  - Drain hose (pipe) length ≤ 11 in (300 mm) (between indoor unit and lift-up pipe)
- Water leakage may result from a failure to adhere to the restrictions above.

SYSTEM DESIGN

■ Circular flow cassette type and 4-way flow cassette type



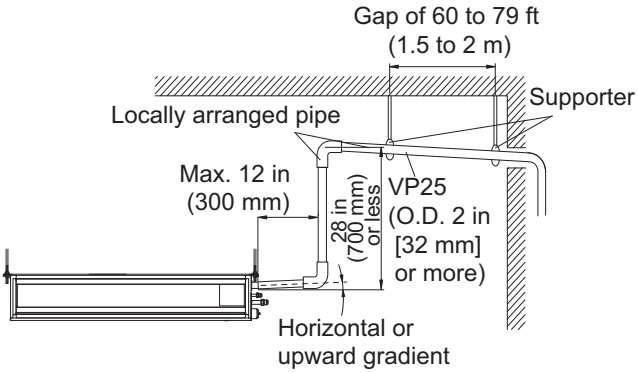


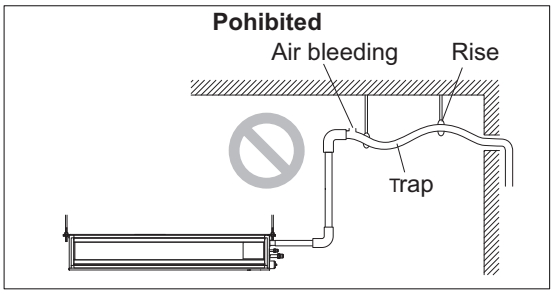
- Drain lift-up pipe restrictions:
  - Lift-up height ≤ 33 in (850 mm) (from ceiling)
  - Drain hose (pipe) length ≤ 11 in (300 mm) (between indoor unit and lift-up pipe)
- Water leakage may result from a failure to adhere to the restrictions above.

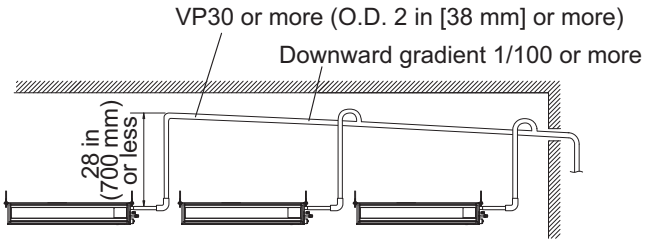
SYSTEM DESIGN

SYSTEM DESIGN

■ Mini duct type





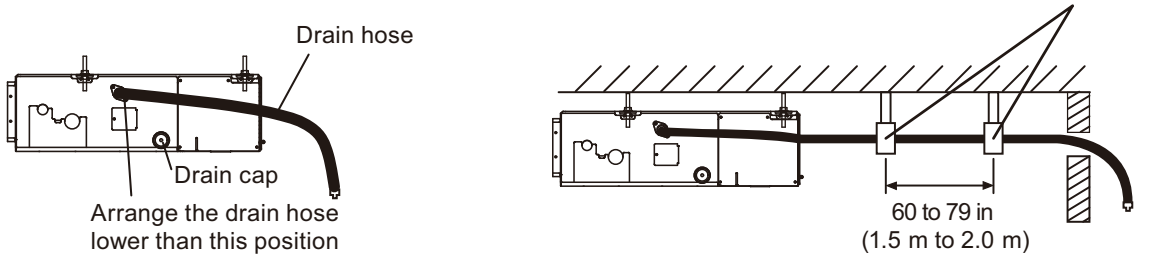


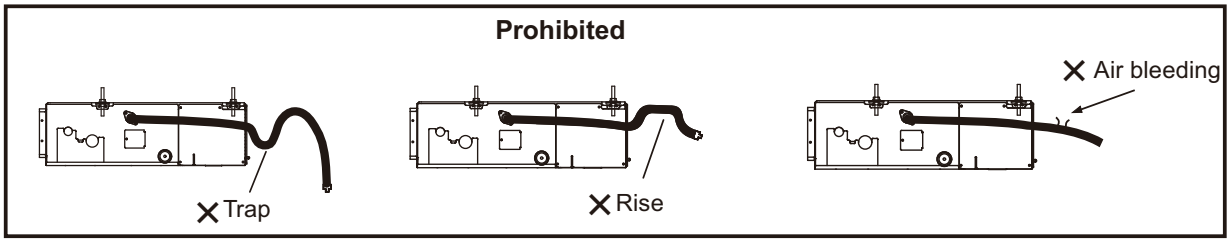
- Use general hard polyvinyl chloride pipe (VP25) (O.D. 2 in [32 mm]).
- Do not perform a rise, trap, and air bleeding.
- Provide a downward gradient (1/100 or more).
- Provide supporters when long pipes are installed.
- Use an insulation material as needed to prevent the pipes from freezing.
- Install the pipes in a way that allows for the removal of the control box.

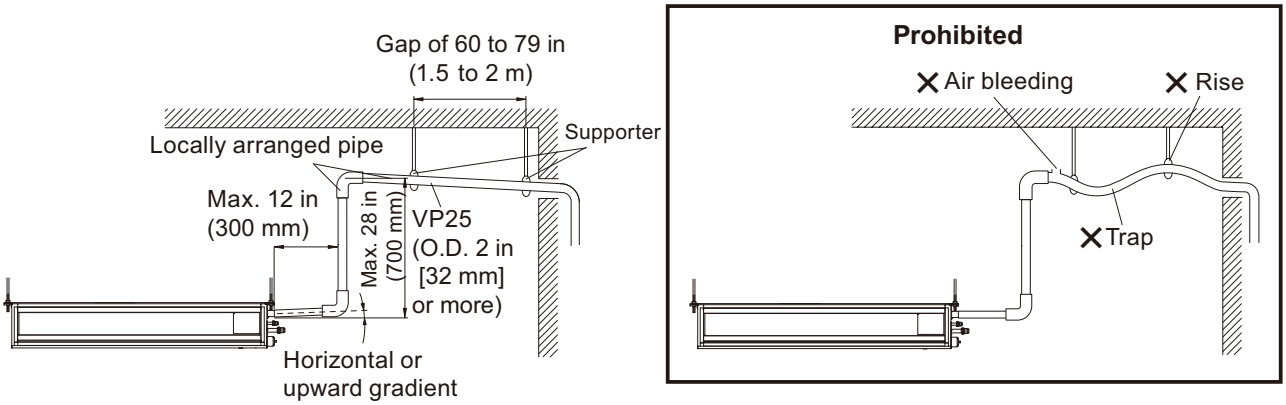
SYSTEM DESIGN

■ Slim duct/Slim concealed floor type

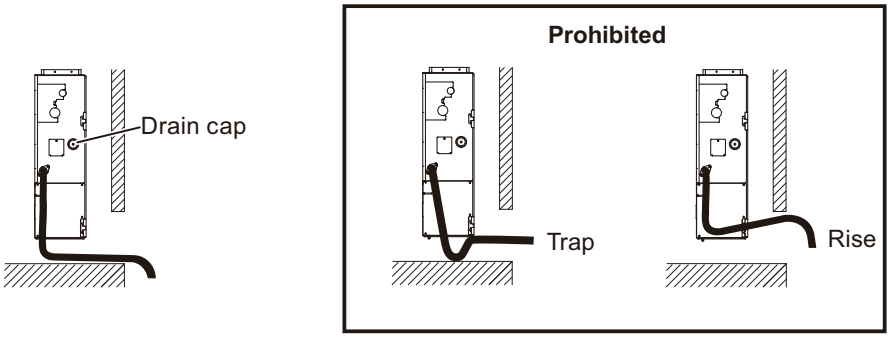
- **Ceiling concealed setting**







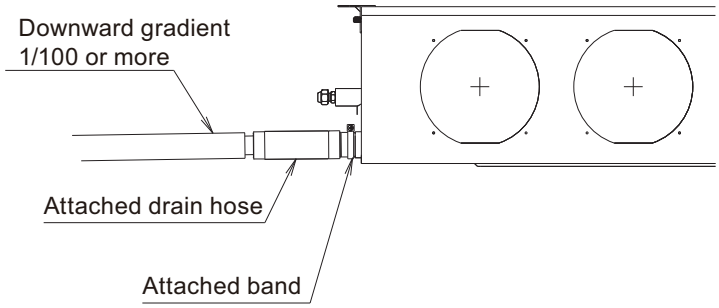
- **Floor standing concealed setting**

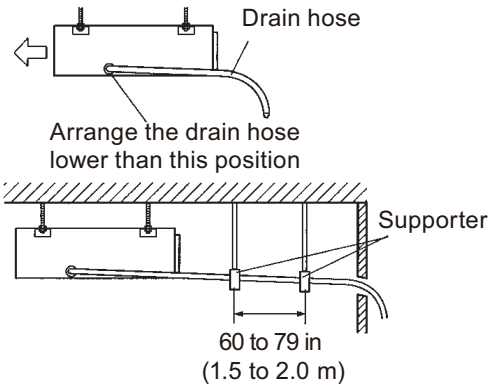


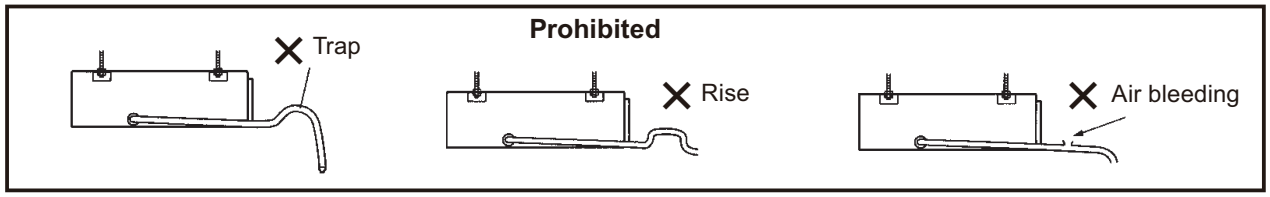
– Install the drain pipe with downward gradient (1/100 or more) and so there are no rises or traps in the pipe.
– Use general hard polyvinyl chloride pipe (VP25) (O.D. 2 in [32 mm]) and connect it with adhesive (polyvinyl chloride) so that there is no leakage.
– When the pipe is long, install supporters.
– Do not perform air bleeding.
– Always heat insulate the indoor side of the drain pipe.

SYSTEM DESIGN

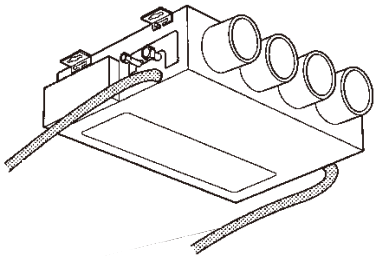
■ Medium static pressure duct type

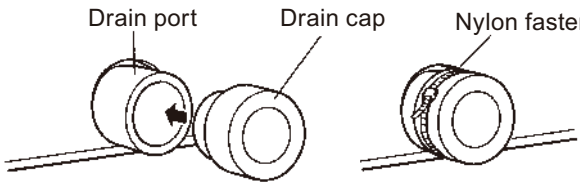






There is a drain port on the left and right sides. Select the drain port to match the local conditions.





⚠ CAUTION

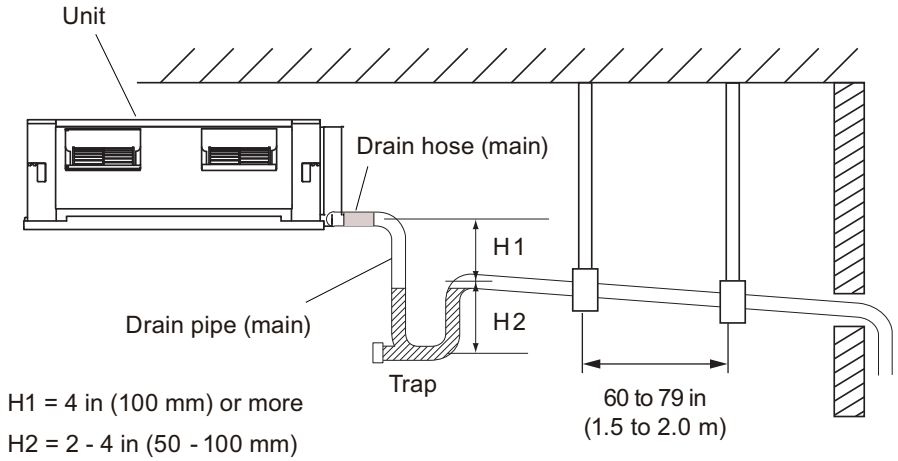
- Always check that the drain cap is installed to the unused drain port and fastened with the nylon fastener.
- If the drain cap is not installed, or is not sufficiently fastened by the nylon fastener, water may drip during the cooling operation.

SYSTEM DESIGN

SYSTEM DESIGN

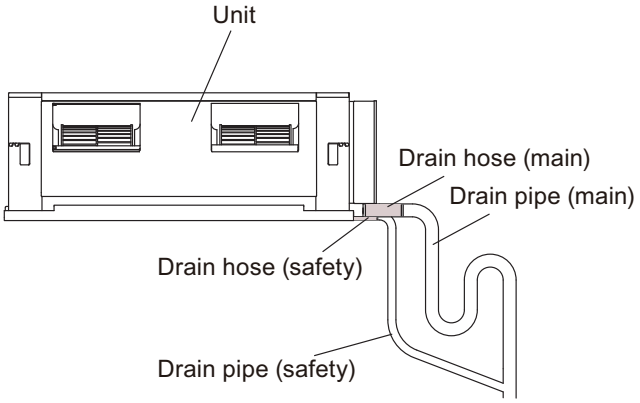
■ High static pressure duct type

- **Main drain pipe**



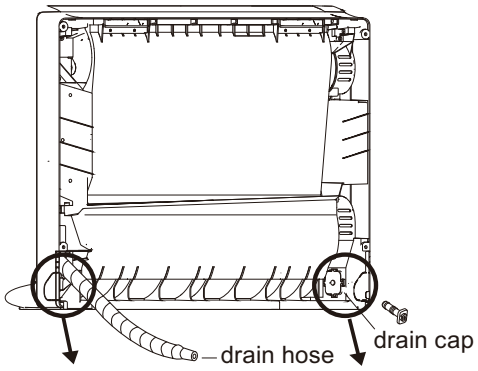
  - Be sure to provide a drain trap for each indoor units.
  - The drain trap will have no effect if placed after multiple indoor units.
  - The position of the installed drain hose should have a downward slope of 1/100 or more.
  - Make sure that the drain hose is installed without rises.
  - Make the trap near to the indoor unit, position the trap in a location where it can be cleaned.

- **Safety drain pipe**
  There is no need to provide a trap for the overflow drain. If the overflow drain is connected to the main drain pipe, make the connection below the trap on the main drain pipe. Once installation is completed, checked the flow of the drain water.

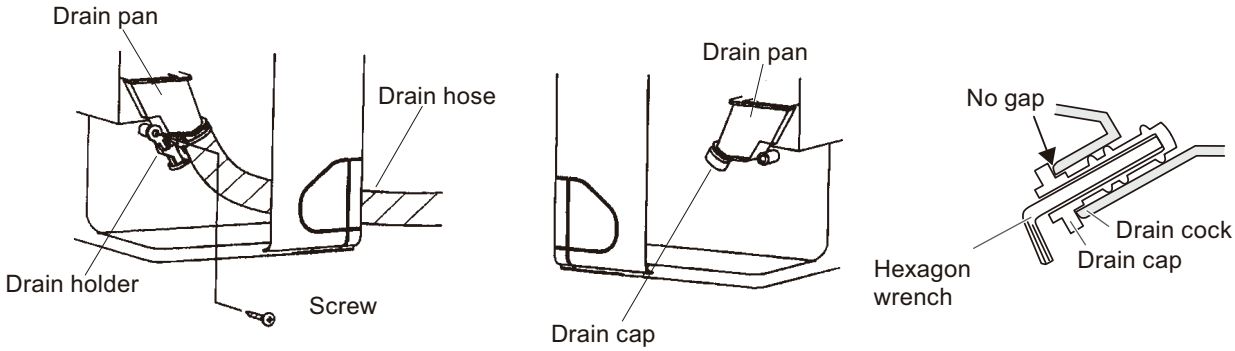


SYSTEM DESIGN

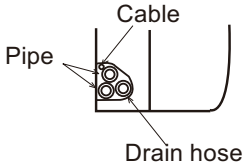
■ Compact floor type



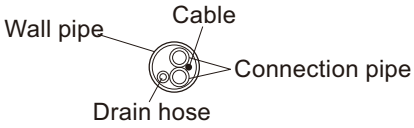
The drain hose can be connected at either side of the indoor unit.

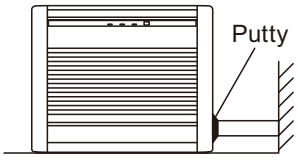


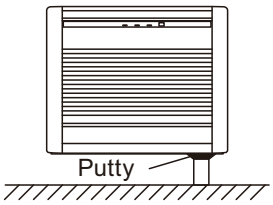
Left piping



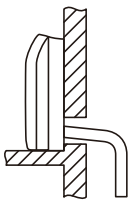
For connection from the left rear



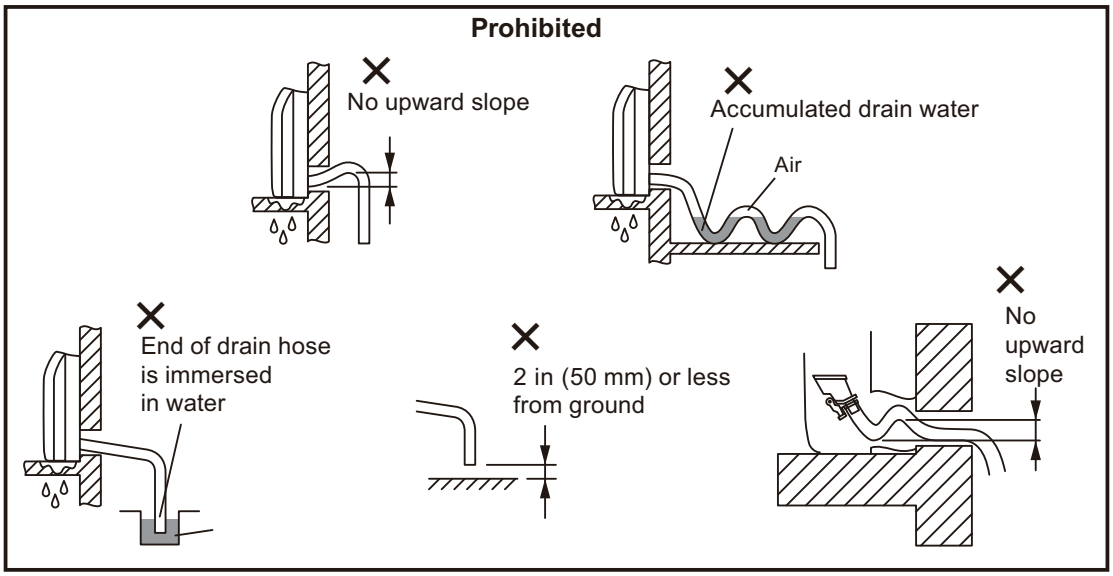




OK



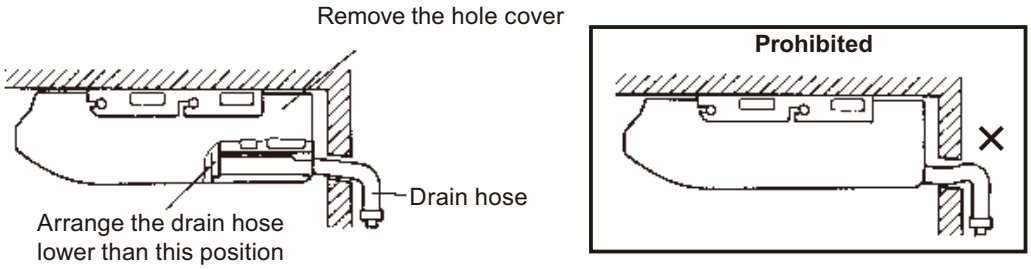
Prohibited



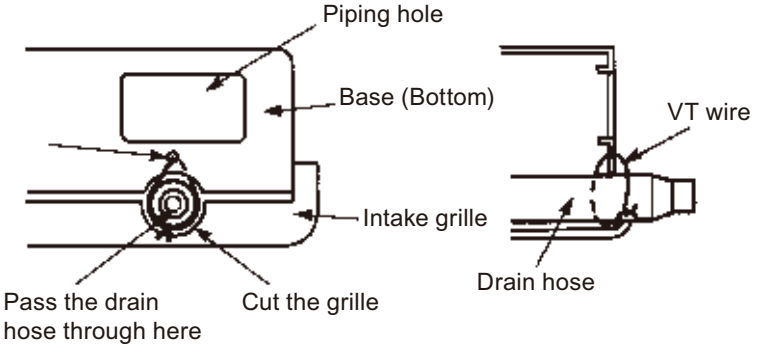
SYSTEM DESIGN

■ Floor/Ceiling type

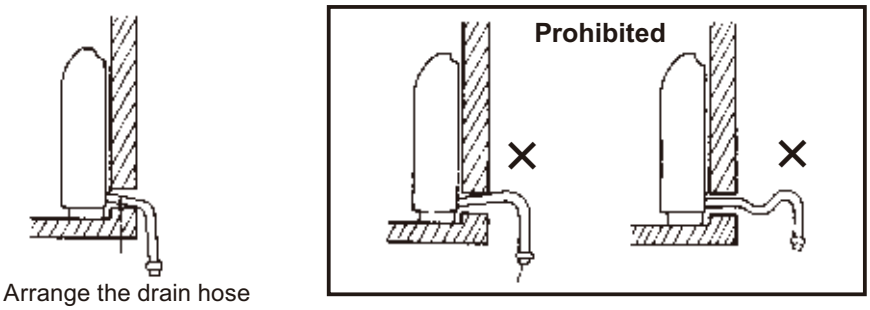
- **Under ceiling setting**

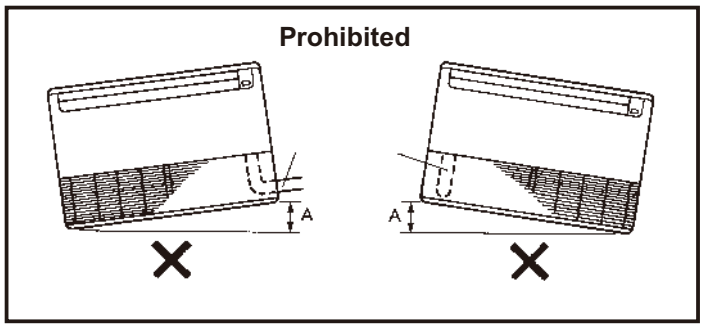


When drain hose is arranged backward, secure the drain hose with the VT wire.



- **Floor console setting**

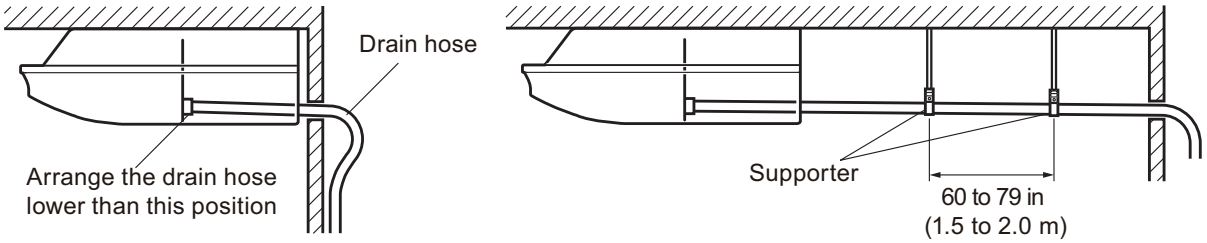


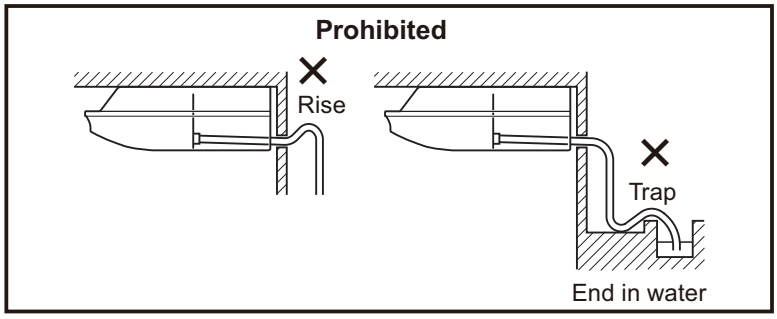


– Do not install the unit so that the drain hose side is too high.
– Height A should be less than 3/16 in (5 mm).

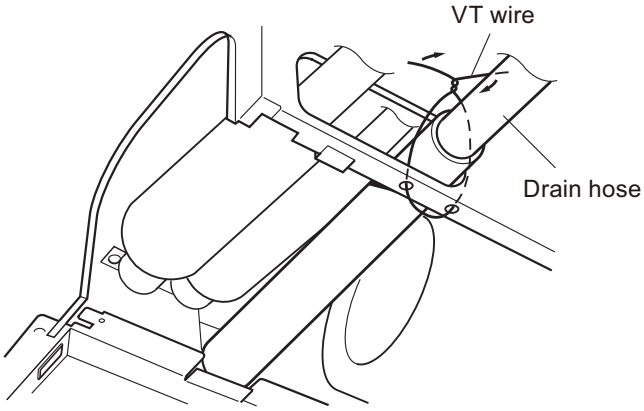
SYSTEM DESIGN

■ Ceiling type





Fasten the drain pipe with VT wire so that the pipe slopes correctly within the indoor unit.

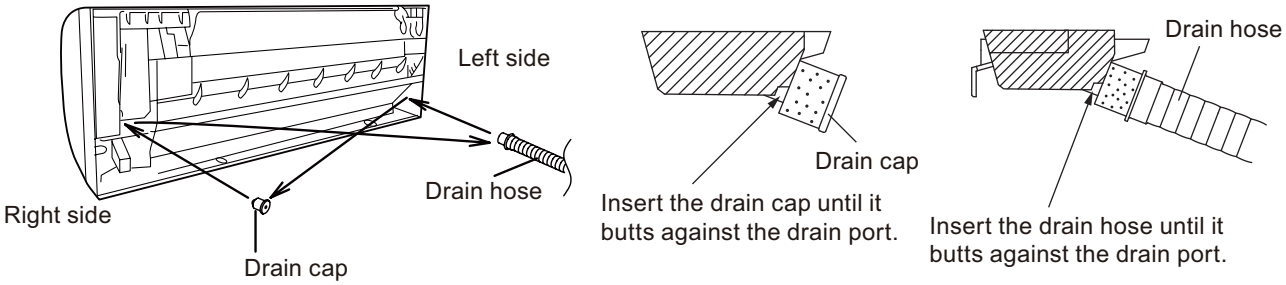


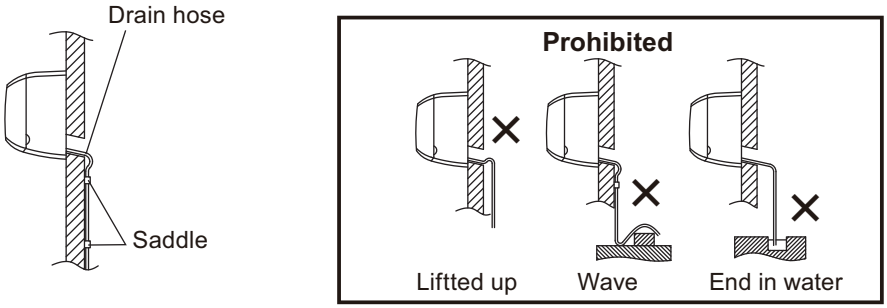
Indoor unit (rear view)

SYSTEM DESIGN

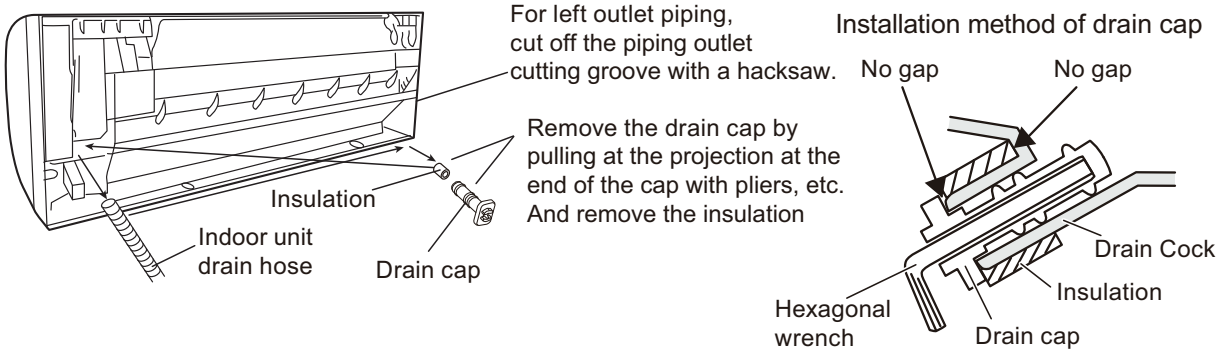
■ Wall mounted type

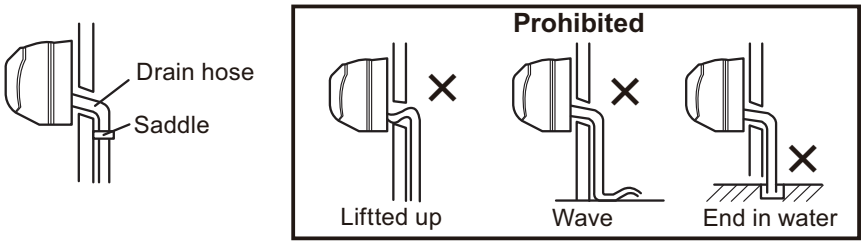
• Models: ASUB18TLAV1 and ASUB24TLAV1





• Other than ASUB18TLAV1 and ASUB24TLAV1



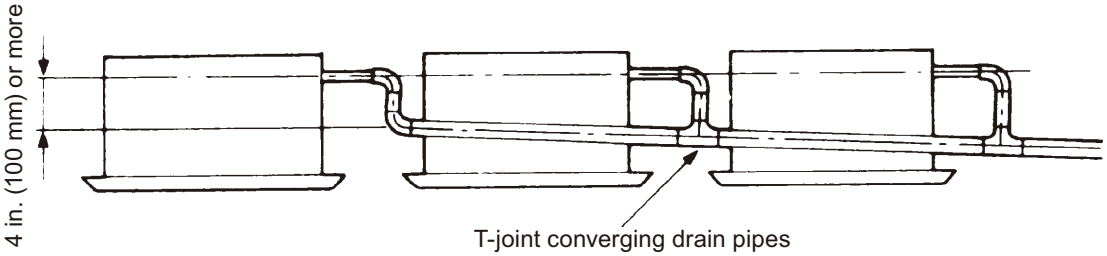


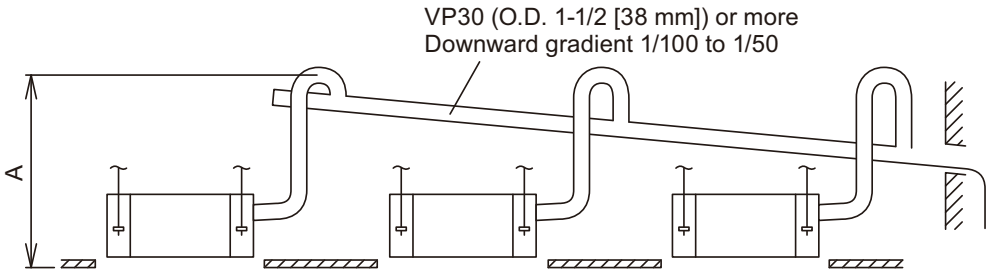
SYSTEM DESIGN

■ Central drain process

When conveying multiple drain pipes, install according to the procedure shown below.

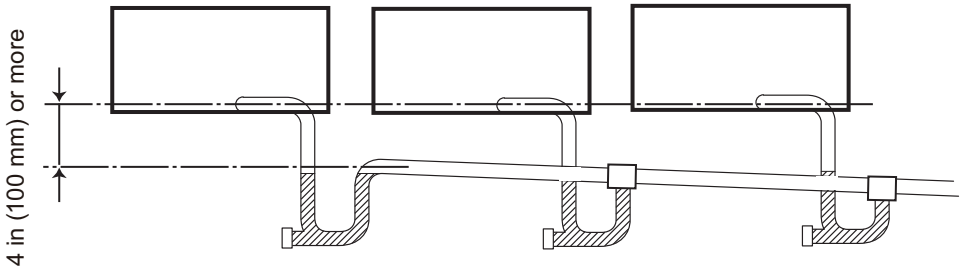
- **For Compact cassette type, and Circular flow cassette type, and 4-way flow cassette type**



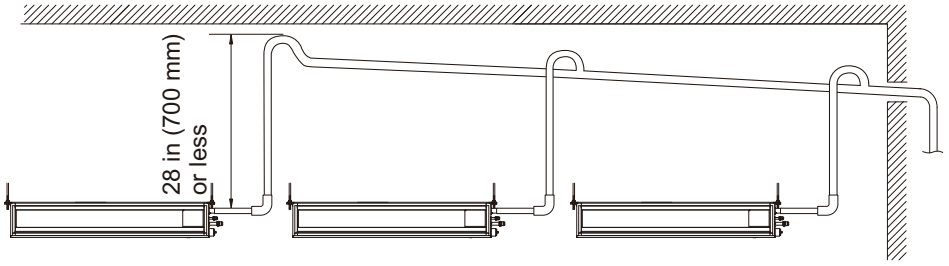


A	Compact cassette type	28 in (700 mm) or less
	Circular flow cassette type 4-way flow cassette type	34 in (850 mm) or less

- **For High static pressure duct type**



- **For Mini duct type and Slim duct type**

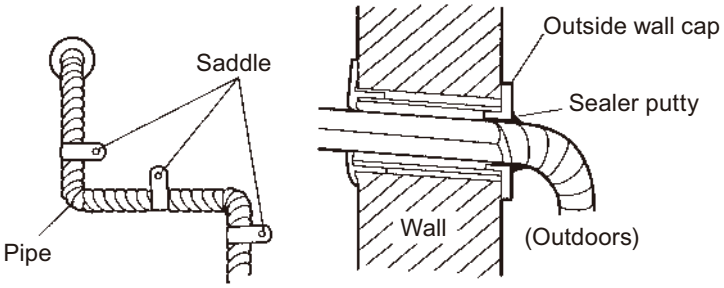


Select converging drain pipes whose diameter is suitable for the operating capacity of the unit.

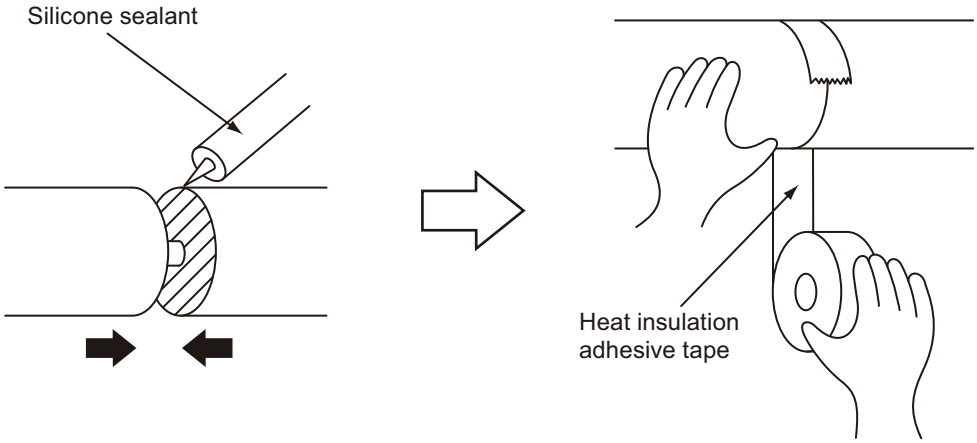
SYSTEM DESIGN

■ Drain insulation

- Confirm water flows into drain pan of the indoor unit and drains from the pan once the drain hose is connected.
- Check drain pipes for leaks.
- Insulate the drain to prevent condensation.
- Secure the drain pipe to the wall with a saddle.



- Seal the hole around drain pipe with caulk.



- Be sure to coat the entire and surface. Is there is a gap it could cause condensation.

SYSTEM DESIGN

Refrigerant R410A
INVERTER

AIRSTAGE™
Variable Refrigerant Flow System

7. FUNCTION SETTINGS

2019.11.01
DV_CH07_J3LU061EF_02

CONTENTS

7. FUNCTION SETTINGS

1. System settings 07-1

1-1. System type setting 07-2
1-2. Address setting 07-3
1-3. Manual address setting method 07-8
1-4. Address setting by remote controller 07-15
1-5. Automatic address setting 07-49
1-6. Terminal resistor setting 07-56
1-7. Indoor unit connection check 07-57

2. Function settings 07-59

2-1. Setting on outdoor unit PCB 07-60
2-2. Setting on indoor unit PCB 07-67
2-3. Setting by service tool (UTY-ASGXZ1) 07-74
2-4. Indoor unit (setting by wireless remote controller) 07-78
2-5. Indoor unit (setting by UTY-RNKU) 07-84
2-6. Indoor unit (setting by UTY-RSRY, UTY-RHRY) 07-87
2-7. Indoor unit (setting by UTY-RSKU, UTY-RHKU) 07-90
2-8. Indoor unit (setting by UTY-RNRUZ∗) 07-93
2-9. Function details 07-96
2-10. Wired remote controller (UTY-RNKU) 07-101
2-11. Simple remote controller (UTY-RSKU, UTY-RHKU) 07-103
2-12. Touch panel controller 07-105
2-13. Central remote controller (UTY-DCGY) 07-106
2-14. Central remote controller (UTY-DCGYZ∗) 07-107
2-15. Wired remote controller (Touch panel) 07-109
2-16. Simple remote controller (UTY-RSRY, UTY-RHRY) 07-113
2-17. Network convertor (UTY-VTGX) 07-115
2-18. Network convertor (UTY-VGGXZ1) 07-117
2-19. Signal amplifier 07-119
2-20. Modbus converter for VRF 07-121
2-21. Network converter for LonWorks 07-124
2-22. Thermostat converter 07-125
2-23. Duct static pressure setting 07-128
2-24. Administrative indoor unit setting 07-129
2-25. Energy saving setting on System controller 07-131
2-26. Electricity charge apportionment setting (System controller, Touch panel controller) 07-137

1. System settings

Set each switch to the corresponding system type as described in the accompanying explanation, and do not use a nonexistent switch combination.

⚠ CAUTION

- Perform the system type setting and address setting, before turning on the power.
- For proper operation of the air conditioner, perform the setting as described in the instruction.

RELATED LINKS

"System type setting" on page 07-2
"Address setting" on page 07-3
"Manual address setting method" on page 07-8
"Address setting by remote controller" on page 07-15
"Automatic address setting" on page 07-49
"Terminal resistor setting" on page 07-56
"Indoor unit connection check" on page 07-57

FUNCTION SETTINGS

1-1. System type setting

Other than the units mentioned below, refer to "Function settings" on page 07-59 and the installation manual.

■ Outdoor unit setting

<Step 1> Refrigerant circuit address setting	Set the rotary switch REF AD x10 and x1. For details of switch, refer to "Address setting" on page 07-3.
↓	
<Step 2> Terminal resistor setting	Set the DIP switch SET5-4. For details of switch, refer to "Terminal resistor setting" on page 07-56.
↓	
<Step 3> Indoor unit connection check	For details, refer to "Indoor unit connection check" on page 07-57.
↓	
<Step 4> Function setting	

■ Indoor unit setting

For the actual switch positions, refer to "Function settings" on page 07-59.

<Step 1> Refrigerant circuit address setting	Set the rotary switch REF AD x10 and x1. For details, refer to "Address setting" on page 07-3.
↓	
<Step 2> Indoor unit address setting	Set the rotary switch IU AD x10 and x1. For details, refer to "Address setting" on page 07-3.
↓	
<Step 3> Remote controller address setting	Set the rotary switch RC AD. For details, refer to "Address setting" on page 07-3.
↓	
<Step 4> Function setting	

FUNCTION SETTINGS

■ Remote controller setting

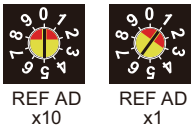
(Only for Wired remote controller and Simple remote controller.)

Dual remote controller setting	Set the SW2 of DIP switch 1. For details, refer to "Function settings" on page 07-59.

1-2. Address setting

Address for each unit should be preset before starting system operation. Refer to "System design" in Chapter 6. SYSTEM DESIGN on page 06-1 to confirm the details of each unit, and perform the setting.

■ Outdoor unit addresses and setting ranges

Setting		Setting range	Type of switch	Remarks
A	Refrigerant circuit address	00—99	Setting example 01 	Arbitrary numbers can be set in range of 00—99.
	Terminal resistor	ON/OFF	 SET5	DIP switch SET5-4 Refer to "Terminal resistor setting" on page 07-56.

FUNCTION SETTINGS

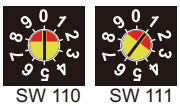
■ Indoor unit addresses and setting ranges

Setting		Setting range	Type of switch	Remarks
D	Refrigerant circuit address	00—99	**Manual address setting:** Setting example 01  REF AD x10 REF AD x1	Arbitrary numbers can be set in range of 00—99.
			Wireless R. C.: This switch is set to 00 at factory setting.	Refer to "Address setting by wireless remote controller" on page 07-15.
			Wired R. C. (3-wire type): This switch is set to 00 at factory setting.	Refer to "Address setting by wired remote controller (UTY-RNKU)" on page 07-26.
			Simple R. C.: This switch is set to 00 at factory setting.	Refer to "Address setting by simple remote controller (UTY-RSRY and UTY-RHRY)" on page 07-31.
			Wired R. C. (2-wire type): This switch is set to 00 at factory setting.	Refer to "Address setting by wired remote controller (Touch panel) (UTY-RNRUZ∗)" on page 07-44.
			Automatic address setting: This switch is set to 00 at factory setting.	Refer to "Automatic address setting of indoor unit" on page 07-52.
E	Indoor unit address	00—63	**Manual address setting:** Setting example 12  IU AD x10 IU AD x1	Arbitrary numbers can be set in range of 00—63.
			Wireless R. C.: This switch is set to 00 at factory setting.	Refer to "Address setting by wireless remote controller" on page 07-15.
			Wired R. C. (3-wire type): This switch is set to 00 at factory setting.	Refer to "Address setting by wired remote controller (UTY-RNKU)" on page 07-26.
			Simple R. C.: This switch is set to 00 at factory setting.	Refer to "Address setting by simple remote controller (UTY-RSRY and UTY-RHRY)" on page 07-31.
			Wired R. C. (2-wire type): This switch is set to 00 at factory setting.	Refer to "Address setting by wired remote controller (Touch panel) (UTY-RNRUZ∗)" on page 07-44.
			Automatic address setting: This switch is set to 00 at factory setting.	Refer to "Automatic address setting of indoor unit" on page 07-52.
F	Remote controller address	00—15	**Manual address setting:** Setting example 10  RC AD	3-wire type R. C. can be set in range of 0—15.
			Wireless R. C.: This switch is set to 0 at factory setting.	2-wire type only.

FUNCTION SETTINGS

FUNCTION SETTINGS

■ Addresses and setting ranges for controllers, convertors or other devices

Unit	Setting		Setting range	Type of switch	Setting references
Touch panel controller	G	Controller address	00—15 *1	**Automatic address setting:** This switch is set to 00 at factory setting.	"Touch panel controller" on page 07-105"Touch panel controller" on page 07-105
Network converter	H	Convertor address	00—15 *1		"Network convertor (UTY-VTGX)" on page 07-115 and "Network convertor (UTY-VGGXZ1)" on page 07-117
		Refrigerant circuit address	00—99	Setting example 01  SW 110 (10 digit) SW 111 (1 digit)	
Wired, simple remote controller (3-wire type)	J	Dual remote control	ON/OFF	Switch 2 of DIP switch 1	"Wired remote controller (UTY-RNKU)" on page 07-101 "Simple remote controller (UTY-RSKU, UTY-RHKU)" on page 07-103
Signal amplifier	K	Signal amplifier address	1—8	**Manual address setting**	"Signal amplifier" on page 07-119
				Automatic address setting: This switch is set to 1 at factory setting.	"Automatic address setting of signal amplifier" on page 07-50
Modbus converter	Q	Controller/ convertor address	00—15 *1		"Modbus converter for VRF" on page 07-121"Modbus converter for VRF" on page 07-121
Network converter for LonWorks	M				"Network converter for LonWorks" on page 07-124
Central remote controller	N				"Central remote controller (UTY-DCGY)" on page 07-106 "Central remote controller (UTY-DCGYZ∗)" on page 07-107
Wired remote controller (2-wire type)	F	Remote controller address	1—32 *2	**Manual address setting**	"Wired remote controller (Touch panel)" on page 07-109
			0—15	**Automatic address setting**	
	J	Dual remote control	ON/OFF		

*1: The sum total of the Touch panel controller, Central remote controller, Network converter for Group remote controller, Modbus converter, and Network converter for LonWorks is a maximum of 16.

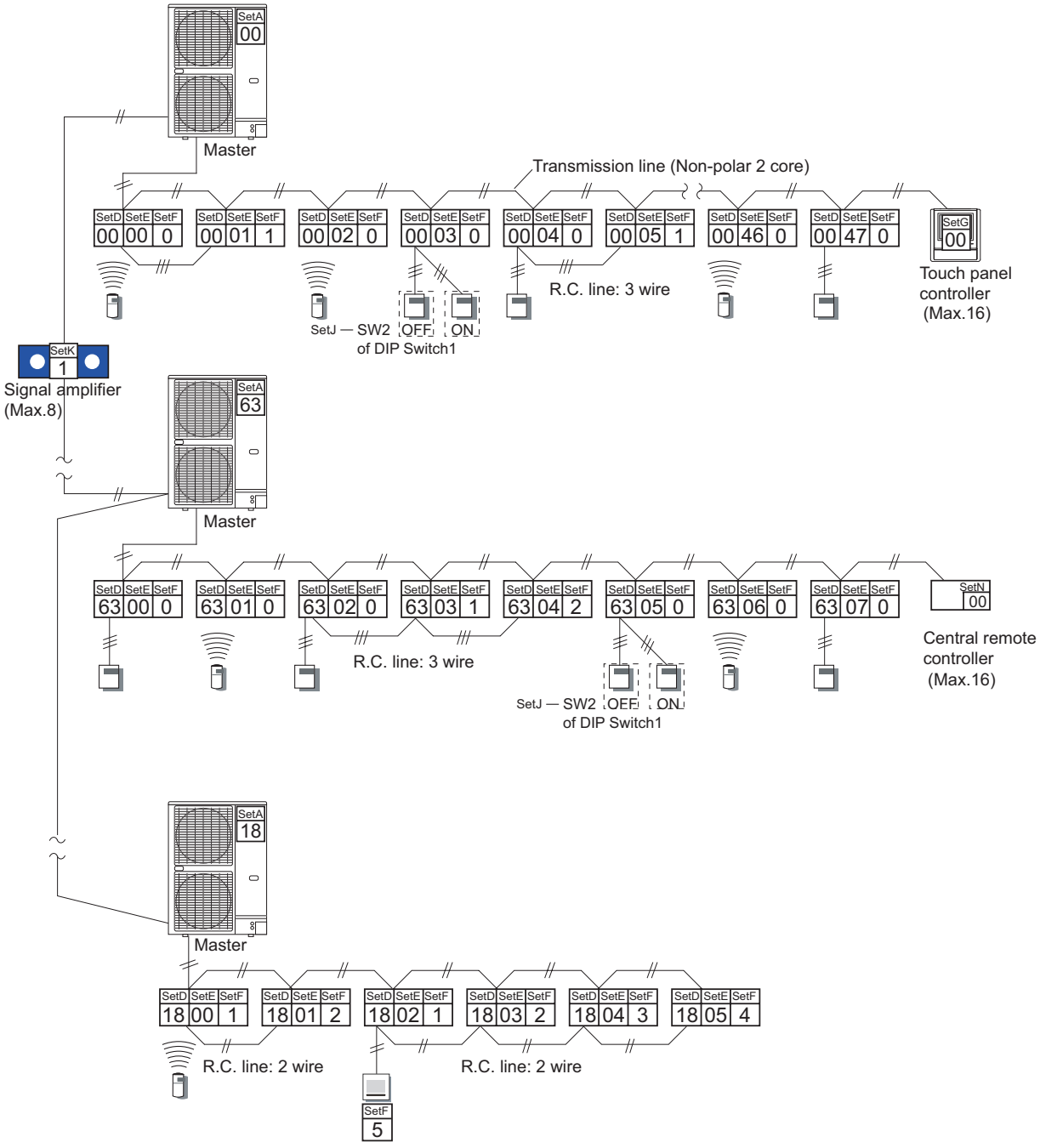
NOTE: For Touch panel controller, Central remote controller, Network converter for Group remote controller, Modbus converter, and Network converter for LonWorks connected in same VRF network system, set an exclusive address on each device.

*2: The address can be set in the range of 1 to 32. However, do not set the same number as that for the remote controller address of an indoor unit connected using the same remote-control cable.

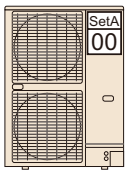
FUNCTION SETTINGS

Set the remote controller address of 2-wire type remote controller in manual address setting only. It is not necessary to set in automatic address setting.

■ Setting example



FUNCTION SETTINGS

Setting subject		Set	Application	Remarks
Outdoor unit		Set A	Refrigerant circuit address	Rotary switch REF AD x10, x1
Indoor unit	SetD: 63 / SetE: 06 / SetF: 0	Set D	Refrigerant circuit address	REF AD x10
				REF AD x1
		Set E	Indoor unit address	IU AD x10
				IU AD x1
		Set F	Remote controller address	RC AD
Wired remote controller (2-wire)		Set F	Remote controller address	Self: 0 (Fixed)
Touch panel controller		Set G	Controller address	Max. 16
Network converter		Set H	Refrigerant circuit address	For single split AC: Max. 100
Wired, simple remote controller (3-wire)		Set J	Dual remote control	Switch 2 of DIP switch 1
Signal amplifier		Set K	Signal amplifier address	
Network convertor for LonWorks		Set M	Convertor address	
Central remote controller		Set N	Controller address	Max. 16

Instructions for setting the address:

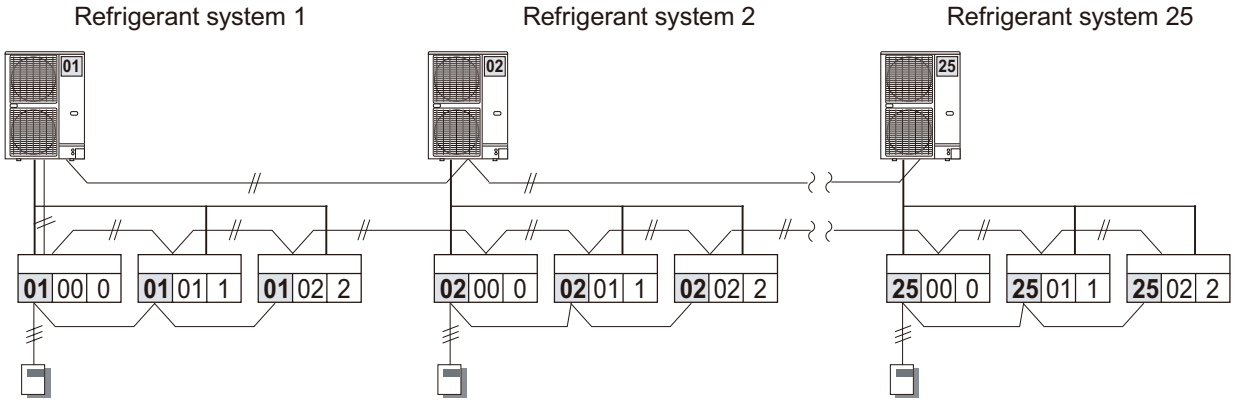
- The refrigerant circuit address of the indoor units and outdoor units can be set to arbitrary numbers in the range of 0 to 99.
- The indoor unit address can be set to arbitrary numbers in the range of 0 to 63.
- In case of 3-wire type of remote controller, set the remote controller address in the order of 0, 1, 2.....15. (Blank is not allowed.)
- In the automatic address setting of 2-wire type remote controller, the remote controller address is set to “0” automatically.
- In the manual address setting of 2-wire type remote controller, the remote controller address can be set to arbitrary numbers in the range of 1 to 15. (Setting to “0” is prohibited.)
- Touch panel controller address can be set to arbitrary numbers in the range of 0 to 15.
- The sum total of the Touch panel controller, Central remote controller, Network converter for Group remote controller, Modbus converter, and Network converter for LonWorks is a maximum of 16.
- For Touch panel controller, Central remote controller, Network converter for Group remote controller, Modbus converter, and Network converter for LonWorks connected in same VRF network system, set an exclusive address on each device.

FUNCTION SETTINGS

1-3. Manual address setting method

■ Address setting description

- **Refrigerant circuit address (Set A and Set D)**
  When there are 2 or more refrigerant systems in one VRF network system, an exclusive refrigerant circuit address should be set for each refrigerant system.
  Refrigerant system: One refrigerant circuit which has connected between outdoor unit and indoor unit by piping.



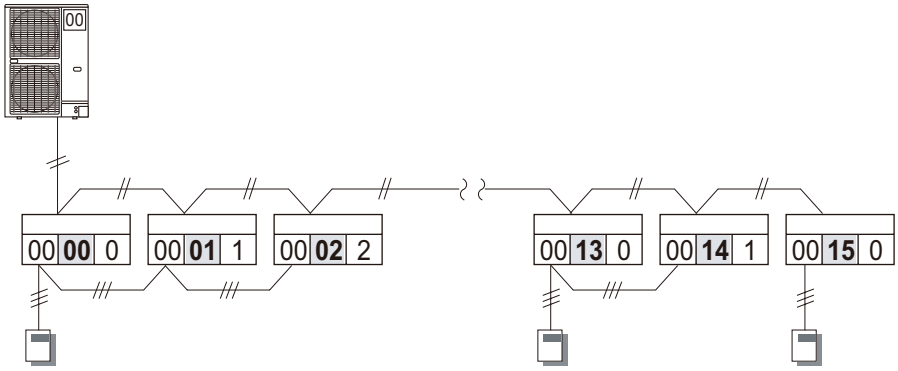
- **Setting example**

Refrigerant circuit address	Outdoor unit (Set A)		Indoor unit (Set D)	
	Rotary switch setting		Rotary switch setting	
	REF AD x10	REF AD x1	REF AD x10	REF AD x1
01	 0	 1	 0	 1
11	 1	 1	 1	 1
25	 2	 5	 2	 5
50	 5	 0	 5	 0

  – Setting range: 00—99 (Arbitrary numbers can be set.)
  – Same address should be set in all the indoor unit and outdoor unit in the same refrigerant circuit.

FUNCTION SETTINGS

- **Indoor unit address (Set E)**
  An exclusive indoor unit address should be set for each indoor unit in the same refrigerant system.

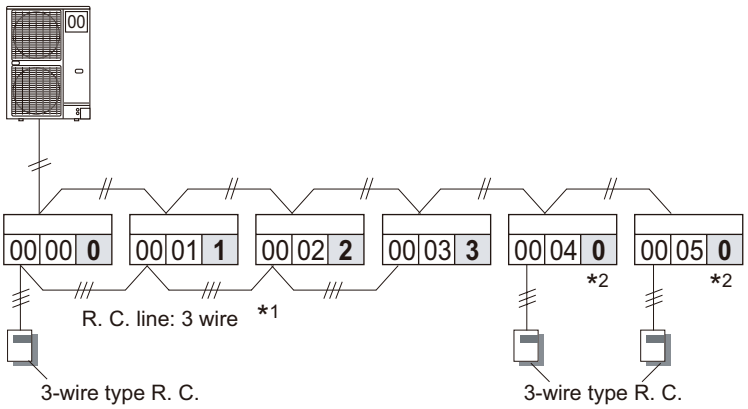


Indoor unit address	Rotary switch setting	
	IU AD x10	IU AD x1
03	 0	 3
11	 1	 1
30	 3	 0
47	 4	 7

– Setting range: 00—63 (Arbitrary numbers can be set.)
– Do not set indoor unit address to the range of 64—99.
– Do not set the same address number to 2 or more indoor units.

FUNCTION SETTINGS

- **Remote controller address (Set F)**
  Maximum of 16 indoor units can be controlled by 1 individual remote controller with connecting remote controller cable.
  Those units connected with remote controller cable are regarded as a remote controller group. Even there is only 1 indoor unit with one or no wired controller is connected, it is regarded as one remote controller group.
  – **3-wire type (Only for manual address setting):**



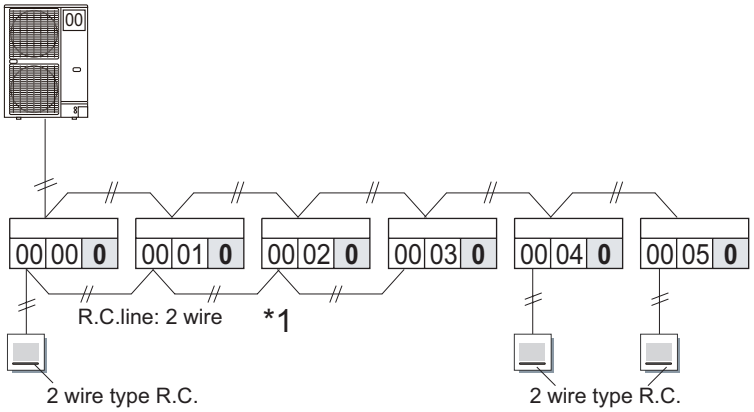
Remote controller address	Rotary switch	Switch position
	RC AD	
0	0	
1	1	
2	2	•
3	3	•
4	4	•
5	5	•
6	6	•
7	7	•
8	8	•
9	9	•
10	A	•
11	B	
12	C	•
13	D	•
14	E	•
15	F	

*1: Set the remote controller address in order of 0, 1, 2, ..., 15. (Blank is now allowed.)

*2: When remote controller group is not constructed (1:1 connection of indoor unit and remote controller), be sure that the remote controller address is set to the initial setting “0” (factory setting).

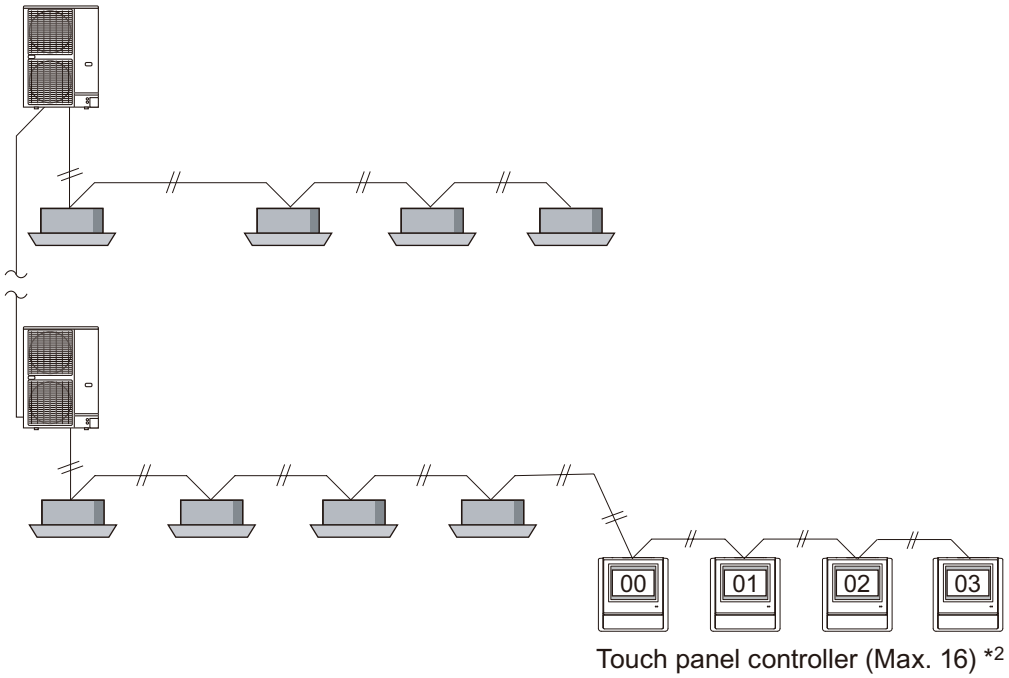
  – **2-wire type:**
  In initial starting up of this unit, addresses will be automatically set. Do not change the remote controller address for the indoor unit. (Keep it at the initial setting “0”.)

FUNCTION SETTINGS



*1: Set the remote controller address “0” only.
Address is automatically assigned from Remote controller.

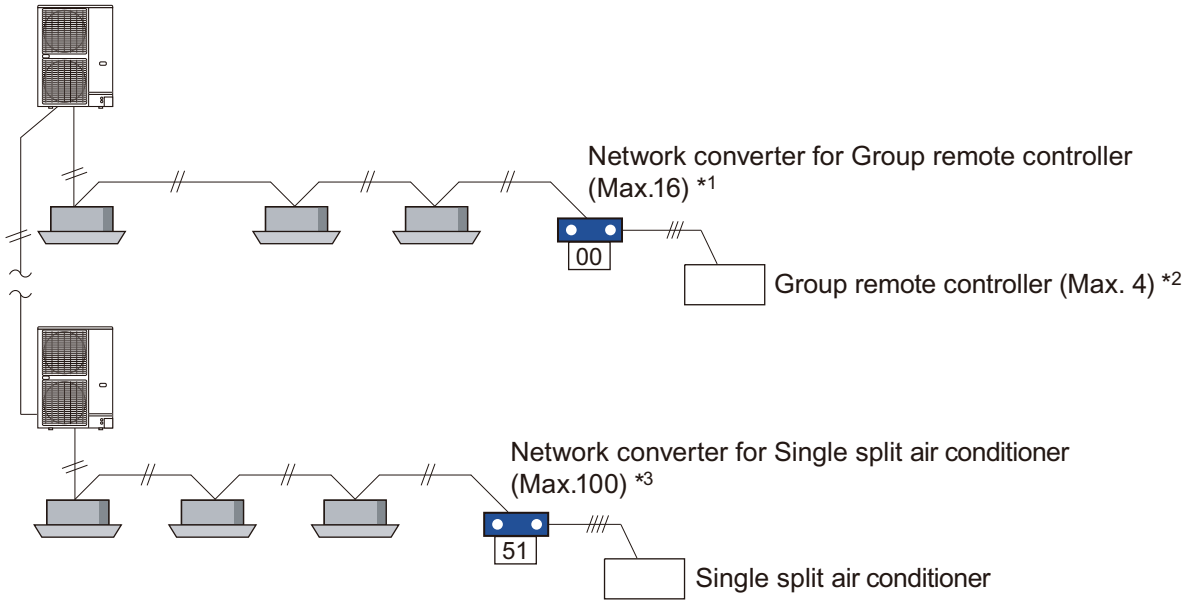
- **Touch panel controller setting (Set G)**
  Before performing the initial setting, set the Touch panel controller address first. For details, refer to the setting manual.



*: The sum total of the Touch panel controller, Central remote controller, Network converter for Group remote controller, Modbus converter, and Network converter for LonWorks is a maximum of 16.

FUNCTION SETTINGS

- **Network converter setting (Set H)**
  Set the rotary switches 110 and 111 on the Network converter PCB.

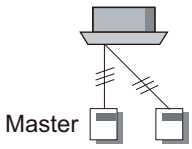
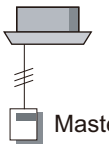


*1: The sum total of the Touch panel controller, Central remote controller, Network converter for Group remote controller, Modbus converter, and Network converter for LonWorks is a maximum of 16.

*2: Up to 64 Group remote controllers are connectable in one VRF Network system.

*3: When connecting the Network converter for single split air conditioner, set up the number so that the refrigerant circuit address number of the outdoor unit and indoor unit does not overlap. The sum total of the refrigerant circuit address of Network converter for single split air conditioner, outdoor unit and the indoor unit is a maximum of 100.

- **Dual remote control switch (Set J)**
  According to the number of connecting wired remote controller(s), turn “ON” or “OFF” the switch 2 of DIP switch 1 on the slave remote controller.

	2 wired remote controllers are connected in a remote-control group	Only 1 wired remote controller is connected in a remote-control group
		
	Switch 2 of DIP switch1	
Master controller	OFF	OFF
Slave controller	ON	—

When two wired remote controllers are connected in a remote-control group, turn the switch 2 of DIP switch 1 on the slave remote controller “ON”.

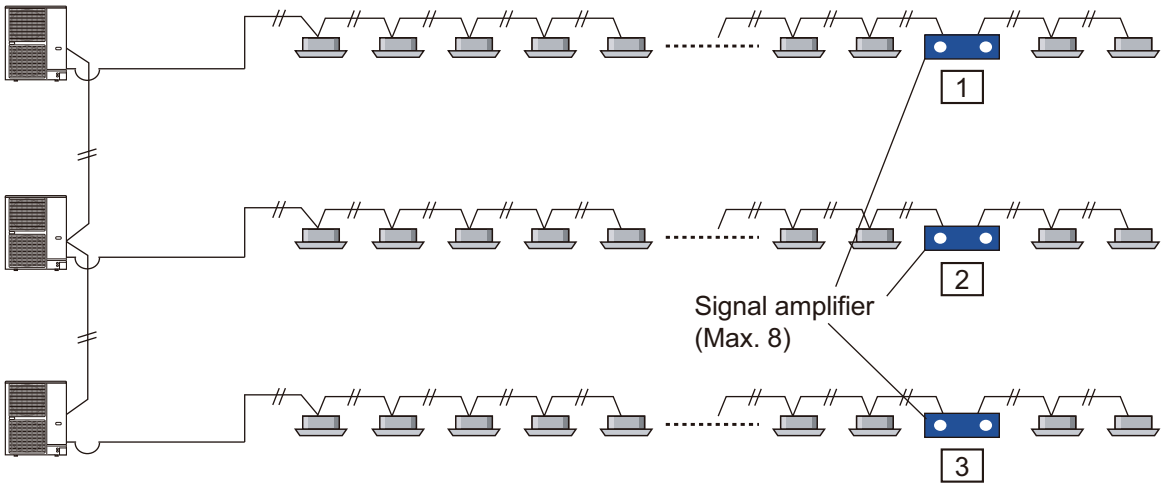
When only one wired remote controller is connected in a remote-control group, turn the switch 2 of DIP switch 1 on the slave remote controller “OFF”.

NOTES:

- Timer setting is not available on the slave remote controller.
- Last command takes priority.

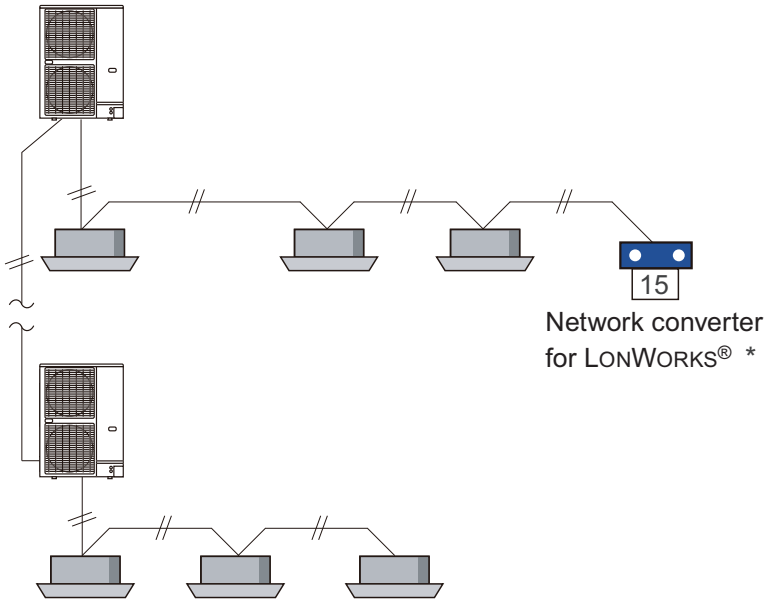
FUNCTION SETTINGS

- **Signal amplifier address (Set K)**



- **Network converter for LonWorks® setting (Set M)**

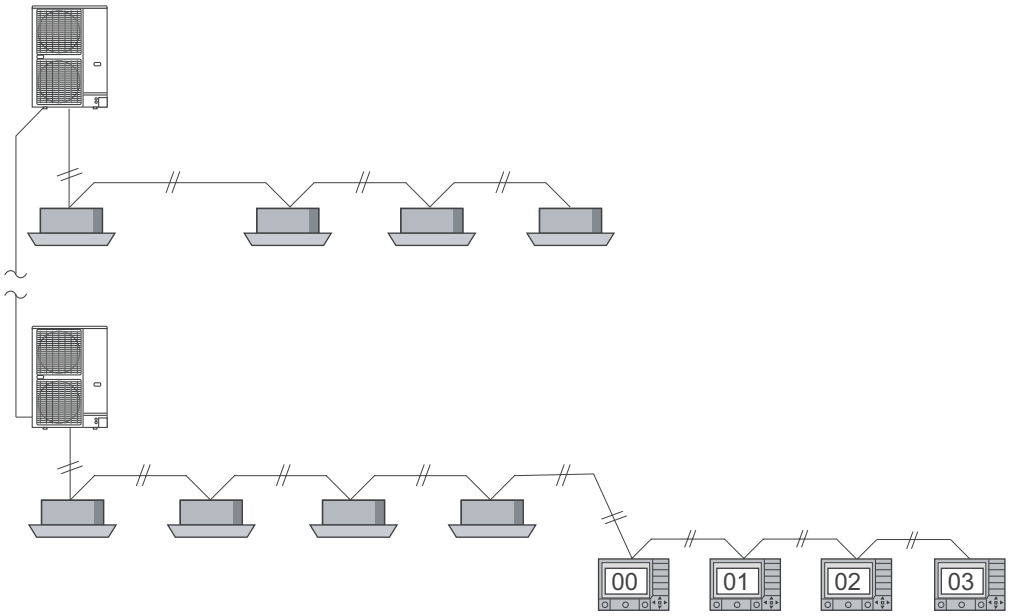
NOTE: Setting up more than one Network convertor in one VRF network system is prohibited.



*: The sum total of the Touch panel controller, Central remote controller, Network converter for Group remote controller, Modbus converter, and Network converter for LonWorks is a maximum of 16.

FUNCTION SETTINGS

- **Central remote controller address (Set N)**
  Before performing the initial setting, set the Central remote controller address first.
  For details, refer to the setting manual.



Central remote controller (Max. 16) *

*1: Setting up more than one Network converter in one VRF network system is prohibited.

*2: The sum total of the Touch panel controller, Central remote controller, Network converter for Group remote controller, Modbus converter, and Network converter for LonWorks is a maximum of 16.

FUNCTION SETTINGS

1-4. Address setting by remote controller

■ Address setting by wireless remote controller

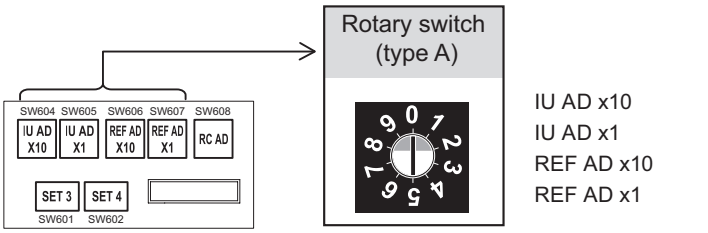
- A wireless remote controller is required to set the infrared address setting.
- Infrared address setting function is available in all indoor units with infrared signal receiver.
- Infrared address setting for duct type and cassette type models can be performed by using the optional IR receiver unit.

NOTE: The beeping sound is emitted from the Indoor unit PCB. Since the indoor unit is installed far away, the sound might not be heard. (The sound is not emitted from the IR receiver unit.)

- The indoor unit address and the indoor unit refrigerant circuit address can be set by performing the infrared address setting.
- When remote controller address setting is required, set by the rotary switch on the indoor unit PCB.

● Preparation

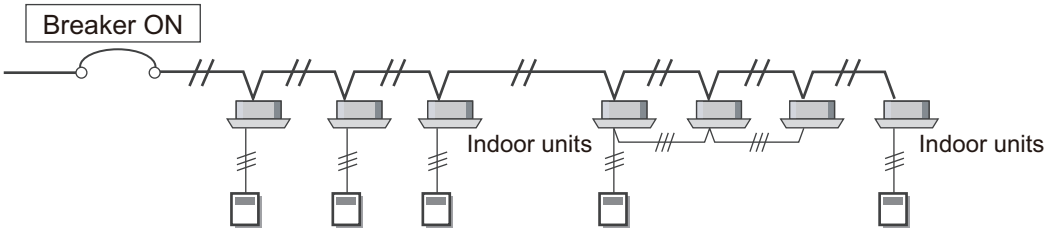
1. (This step is unnecessary for newly installed and not yet set the switch.)
   Set the rotary switch on the indoor unit PCB for manual address setting. (Initially set to “00” as factory setting.)
   The layout of the switches differs by the type of the indoor unit. For the details, refer to "Setting on indoor unit PCB" on page 07-67.



Check the switch position is set at “0”.
(Factory setting)

2. Before turning on the power of indoor unit, reconfirm following items:
   - Piping air tight test and vacuuming have been performed firmly.
   - There is no wiring mistake.

3. Turn on the power of indoor units.
   By turning on the power, the indoor units initialize EEV.



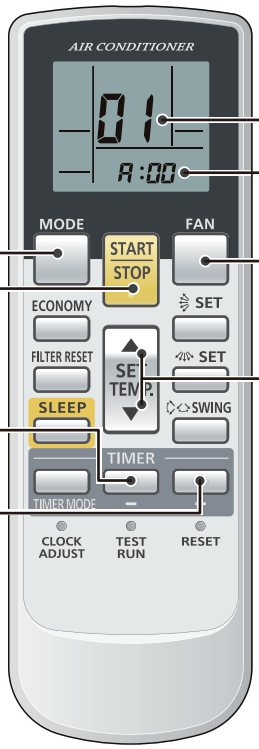
FUNCTION SETTINGS

● Button name and function

Address code indicator on the remote controller and the operation lamp on IR receiver unit and on the indoor unit are as shown in the figures below.

- For an outline of the address setting, refer to "Address setting" on page 07-3.
- For the details of function number and setting number used for the function setting, refer to "Function details" on page 07-96.
- It does not matter whether the refrigerant circuit address or indoor unit address is set first. (The method shown here sets the indoor unit address first.)
- During address setting mode, indoor unit reject the any operation command from remote controller.

Wireless remote controller



Function number
01: Indoor unit address
02: Refrigerant circuit address

MODE button
- Starts the address setting mode
- Changes the address indicator digits

Setting number
Indoor unit address valid range: 00 to 63
Refrigerant circut address valid range: 00 to 99

START/STOP button
Transmits address setting

FAN button
Switches between the setting number (bottom line) and function number (top line)

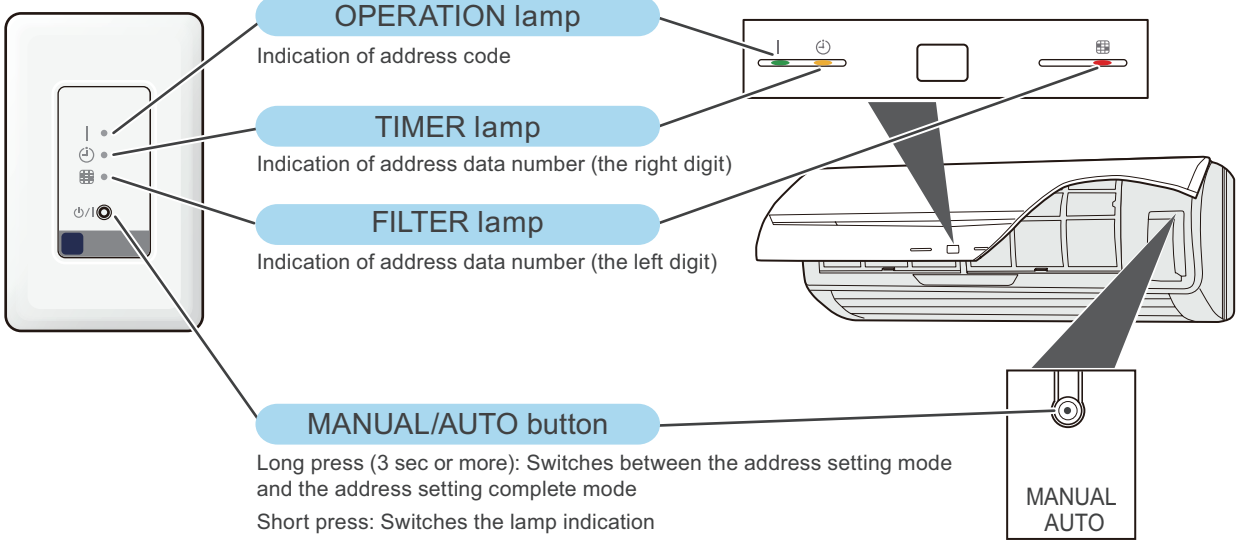
TIMER set (-) button
Used to reconfirm the address setting

TIMER set (+) button
Used to confirm the address setting

SET TEMP. "▲" and "▼ " button
Increases and decreases the displayed number

IR receiver unit

Indoor unit



OPERATION lamp
Indication of address code

TIMER lamp
Indication of address data number (the right digit)

FILTER lamp
Indication of address data number (the left digit)

MANUAL/AUTO button
Long press (3 sec or more): Switches between the address setting mode and the address setting complete mode
Short press: Switches the lamp indication

MANUAL AUTO

	Indoor unit address display	Refrigerant circuit address display
Operation lamp	ON / OFF (Light continuously)	ON / OFF (Light 1 sec. ON / 1 sec. OFF)

RELATED LINKS

"Indoor unit (setting by wireless remote controller)" on page 07-78

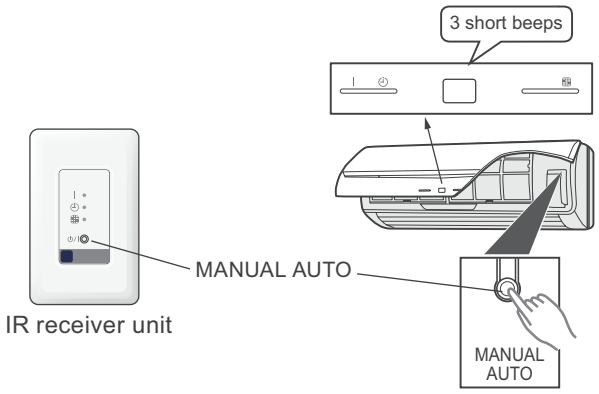
FUNCTION SETTINGS

● Entering function setting mode

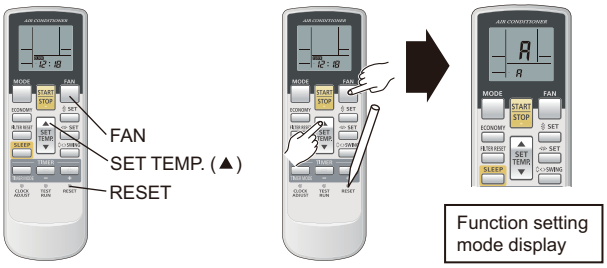
NOTE: Be sure that all the procedures described in "Preparation" on page 07-15 are completed.

- The position of the MANUAL AUTO button varies depending on the model. For the actual position of the button on each unit, refer to the operation manual.
- If the MANUAL AUTO button is pressed continuously for 10 seconds or more, the error will be displayed. In this case, release the button or turn off the power.

1. Press and hold the MANUAL AUTO button for 3 seconds.

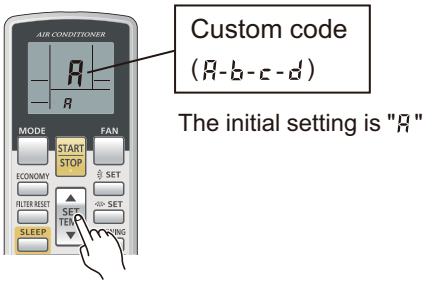


2. While holding down the FAN and the SET TEMP.▲ buttons, press the RESET button. The function setting mode will be activated.



● Selection and confirmation of custom code

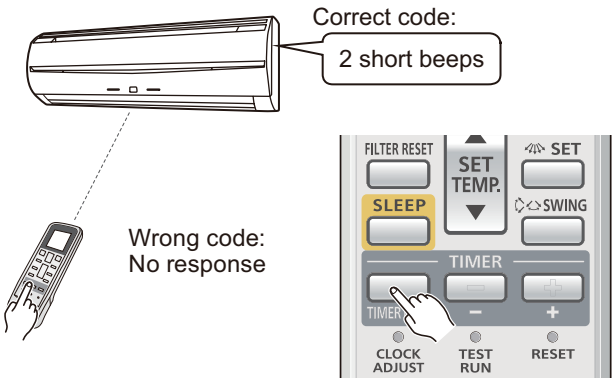
1. In function setting mode display, press the SET TEMP.▲ or ▼ button to select the custom code that matches the setting with the indoor unit. By selecting the appropriate custom code, the communication between the indoor unit and the wireless remote controller become possible.



FUNCTION SETTINGS

FUNCTION SETTINGS

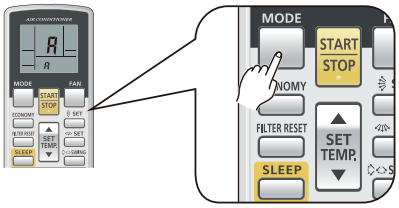
2. For confirming the custom code, press the TIMER MODE button to send the code to the indoor unit.



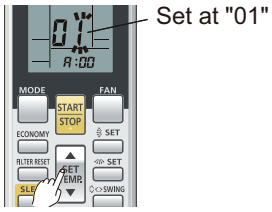
FUNCTION SETTINGS

● Indoor unit address setting

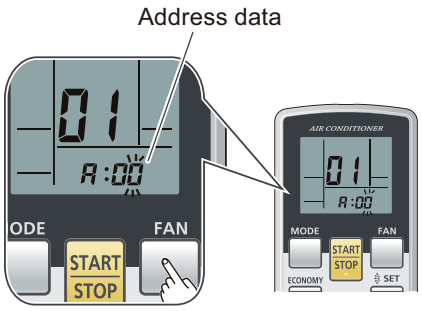
1. In the function setting mode display, press the MODE button to enter the address setting mode.



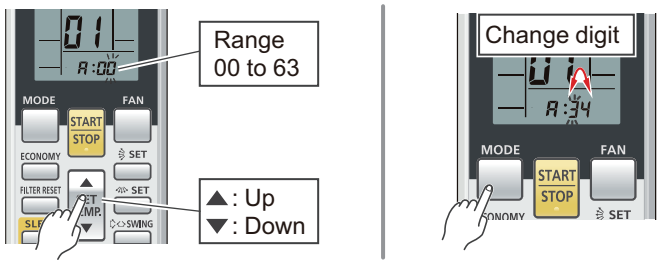
2. Make sure that the function number displayed on the remote controller LCD is “01”. If the number is other than “01”, press the SET TEMP.▲ or ▼ button to change the number.



3. Press the FAN button to enter the address data setting mode. The address data will flash when this button is pressed.

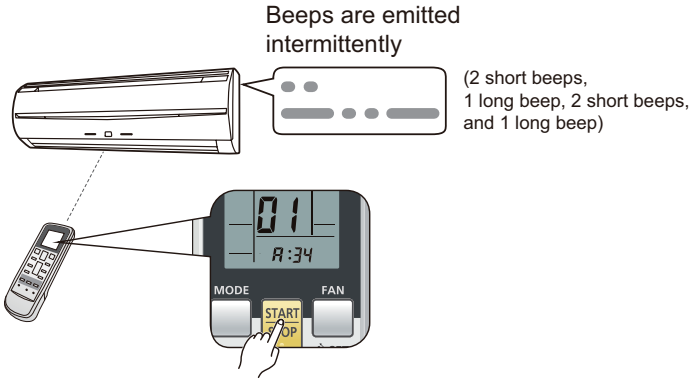


4. Press the SET TEMP.▲ or ▼ button to adjust the address data. The indoor unit address range is between “00” and “63”.
Each time the MODE button is pressed, it switches between the left digit and the right digit.



FUNCTION SETTINGS

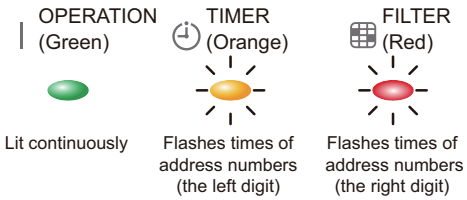
5. Send the information by pressing the START/STOP button once. A beeping sound (2 short beeps, 1 long beep, 2 short beeps, and 1 long beep) will be emitted if the command is accepted.

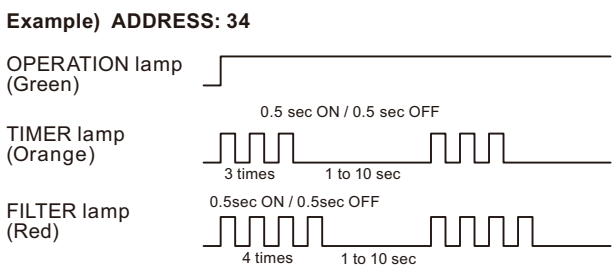


In the following cases, the setting signal will not be accepted correctly and 5 short beeps will be emitted:

- The indoor unit address number is set out of range (64 or more)
- The setting of the rotary switch on the indoor unit PCB is not set to “00”

6. Indoor unit lamps will indicate the indoor unit address data number as follows:

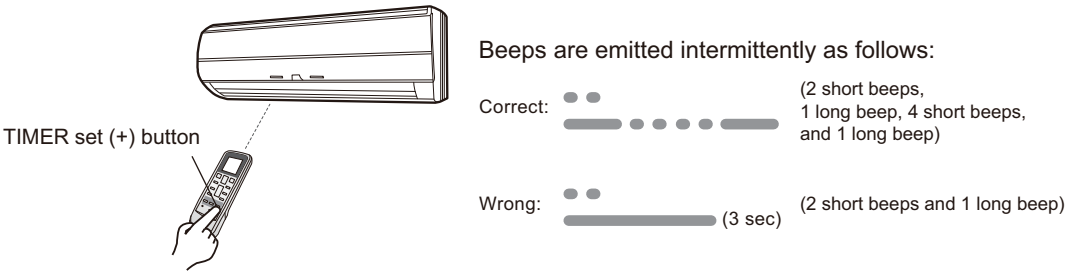




When the address setting is “0”, TIMER lamp and FILTER lamp will not flash.

● Confirmation of address setting

To confirm the address setting is properly configured, press the TIMER set (+) button.



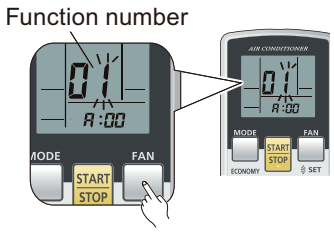
FUNCTION SETTINGS

FUNCTION SETTINGS

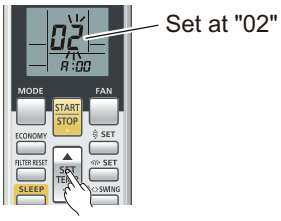
● Refrigerant circuit address setting

NOTE: Even while an indoor unit address is indicated on the indoor unit LED lamp, the indication will be switched to the refrigerant circuit address if the following operation is performed.

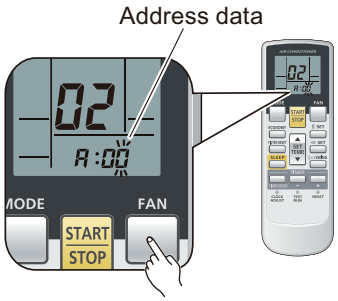
1. Press the FAN button to select the function number.



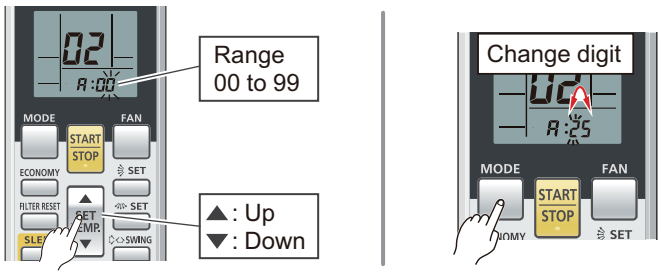
2. Press the SET TEMP.▲ or ▼ button to adjust function number “02”.



3. Press the FAN button to enter the address data setting mode. The address data will flash when this button is pressed.

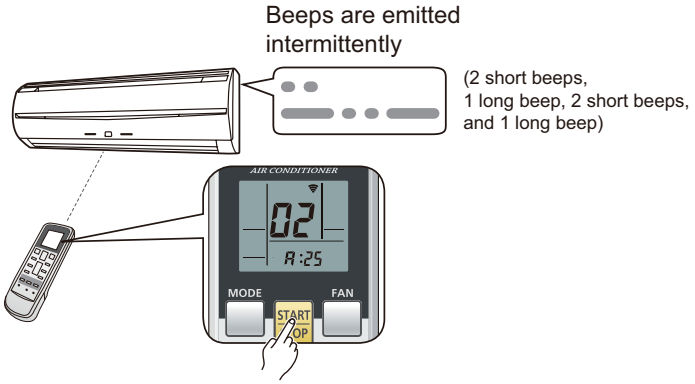


4. Press the SET TEMP.▲ or ▼ button to adjust the address data. The refrigerant circuit address range is between “00” and “99”.
Each time the MODE button is pressed, it switches between the left digit and the right digit.



FUNCTION SETTINGS

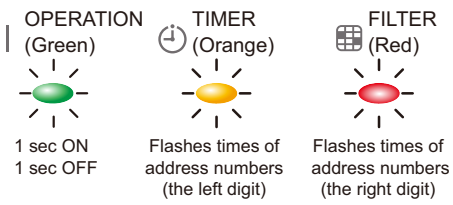
5. Send the information by pressing the START/STOP button once. A beeping sound (2 short beeps, 1 long beep, 2 short beeps, and 1 long beep) will be emitted if the command is accepted.

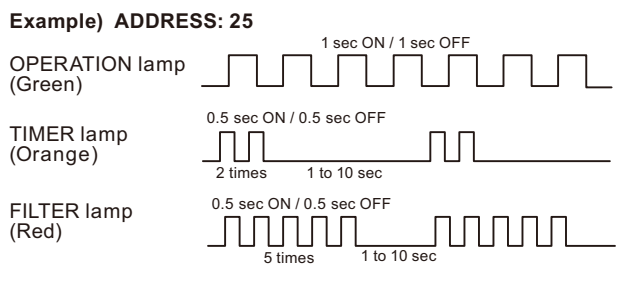


In the following cases, the setting signal will not be accepted correctly and 5 short beeps will be emitted:

- The indoor unit address number is set out of range (64 or more)
- The setting of the rotary switch on the indoor unit PCB is not set to “00”

6. Indoor unit lamps will indicate the refrigerant circuit address data number as follows:

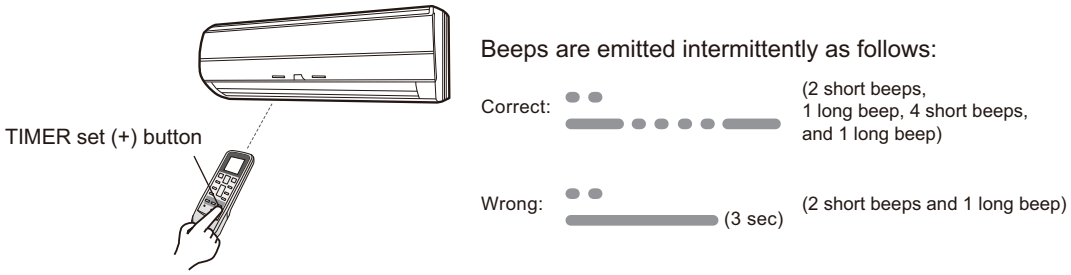




- When the address setting is “0”, TIMER lamp and FILTER lamp will not flash.
- Address indication will be switched automatically from indoor unit address to refrigerant circuit address.

● Confirmation of address setting

To confirm the address setting is properly configured, press the TIMER set (+) button.

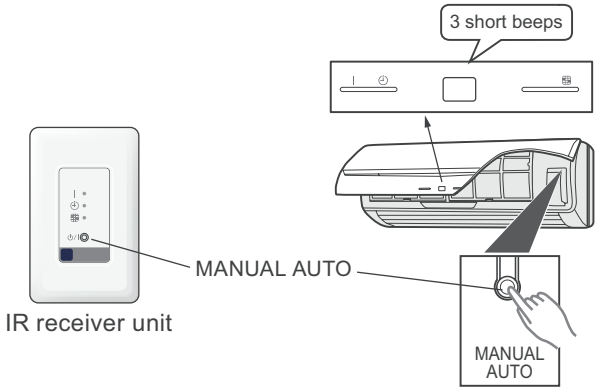


FUNCTION SETTINGS

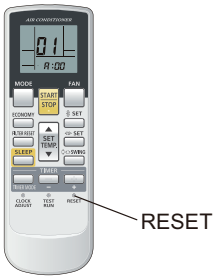
● Completion of address setting mode

- The position of the MANUAL AUTO button varies depending on the model. For the actual position of the button on each unit, refer to the operation manual.
- If the MANUAL AUTO button is pressed continuously for 10 seconds or more, the error will be displayed. In this case, release the button or turn off the power.

1. Press and hold the MANUAL AUTO button for 3 seconds. The brightness of each LED lamp is darkening though the content of the display does not change.



2. Press the RESET button.



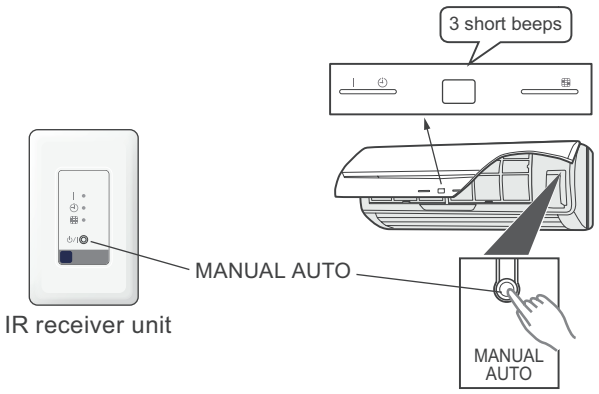
For the custom code setting of b, c, or d, perform the setting after pressing the RESET button.

- After completing the procedure above, no address setting signal is received. If the address setting signal is sent, 5 short beeps will be emitted indicating an error.
- When returning the address setting mode again, press the MANUAL AUTO button for 3 seconds.

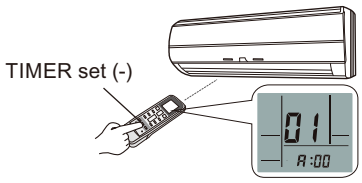
FUNCTION SETTINGS

● Reconfirmation of address setting

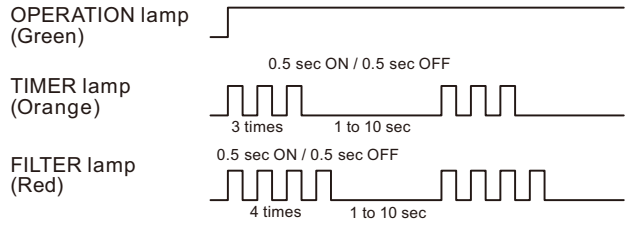
Press and hold the MANUAL AUTO button for 3 seconds.



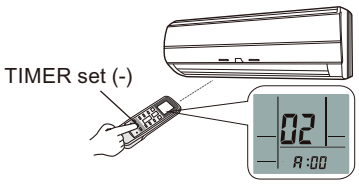
- **Indoor unit address setting**
  1. Make sure that the function number is set to “01” with referring the step 2. in "Indoor unit address setting" on page 07-19.
  2. Press the TIMER set (-) button. Associating indication will be shown on the indoor unit LED lamps.



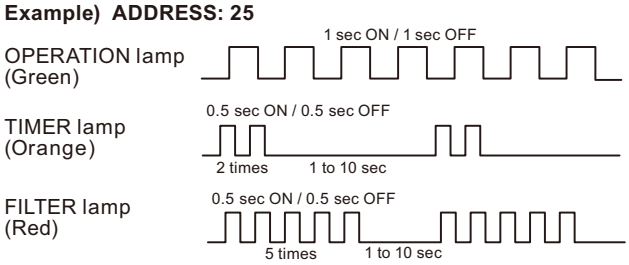
Example) ADDRESS: 34



- **Refrigerant circuit address setting**
  1. Make sure that the function number is set to “01” with referring the step 2. in "Refrigerant circuit address setting" on page 07-21.
  2. Press the TIMER set (-) button. Associating indication will be shown on the indoor unit LED lamps.



Example) ADDRESS: 25

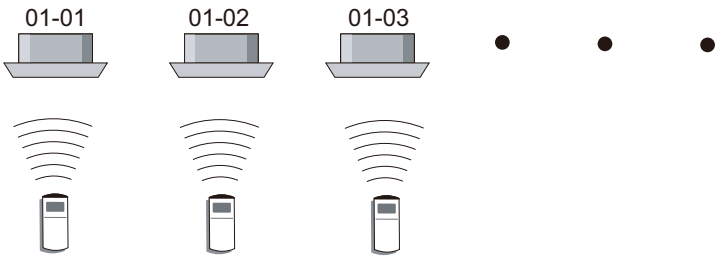


FUNCTION SETTINGS

● Setting up each indoor unit

Setting must be performed on each indoor unit by repeating following procedures:

- "Preparation" on page 07-15
- "Entering function setting mode" on page 07-17
- "Selection and confirmation of custom code" on page 07-17
- "Indoor unit address setting" on page 07-19
- "Refrigerant circuit address setting" on page 07-21
- "Completion of address setting mode" on page 07-23
- "Reconfirmation of address setting" on page 07-24



When the custom code is different to "H" (factory setting), only following procedures need to be performed.

- "Preparation" on page 07-15
- "Entering function setting mode" on page 07-17
- "Selection and confirmation of custom code" on page 07-17
- "Completion of address setting mode" on page 07-23
- "Reconfirmation of address setting" on page 07-24

● Resetting the power after setting up all indoor units

NOTES:

- If the reset is not performed, address cannot be read correctly.
- After all the addresses have been set, the circuit breaker needs to be switched off for at least 2 minutes.
  - After the 2 minutes has passed, power can be restored.
  - The set address is stored in the PCB and will remain in memory even when the power of indoor unit is turned off.
    However setting address is effective after disconnecting the power supply and then reconnecting it.
- Record the address set in the indoor unit on a label, and put the label on the unit so it can be used for after-sales service operations.

Address “0” setting will not be indicated on TIMER lamp and FILTER lamp.

Once the RESET button is pressed on the remote controller, the operation mode will be set to the AUTO MODE.

Adjust the operation mode to either cooling or heating before starting the operation of the air conditioner.

NOTE: If custom code other than "H" is set, the remote control must be set accordingly to the indoor unit setting.

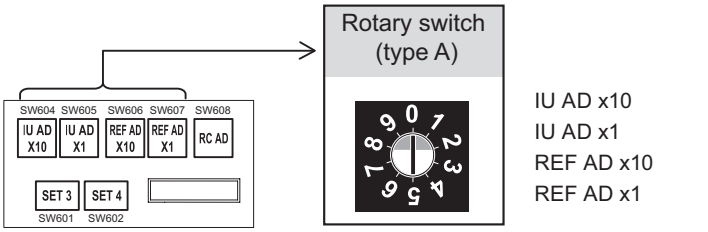
FUNCTION SETTINGS

■ Address setting by wired remote controller (UTY-RNKU)

- Indoor unit addresses and refrigerant circuit addresses can be set up using wired remote controllers.
- This function allows setting the addresses of all indoor units to which a wired remote controller is being connected.
- This function cannot be used to set up remote controller addresses.
  Be sure to set them up using the rotary switches on the PCB of each indoor unit. (Refer to "Manual address setting method" on page 07-8.)
- This function cannot be used on the slave units.
- This device is connectable to 3-wire type remote controller compatible models only. As for the compatible models, refer to "System configuration examples" in Chapter 5. CONTROL SYSTEM on page 05-2.

● Preparation

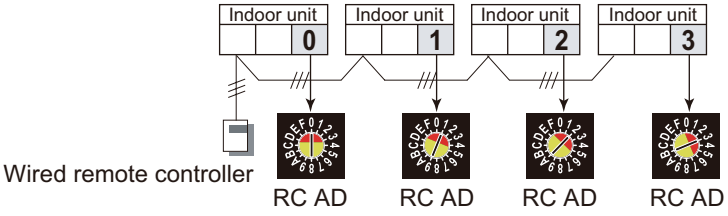
1. Make sure that all indoor unit address switches (IU AD x10, IU AD x1) and refrigerant circuit address switches (REF AD x10, REF AD x1) on the PCB of each indoor unit are set at 0 (factory setting).
   The layout of the switches differs by the type of the indoor unit. For the details, refer to "Setting on indoor unit PCB" on page 07-67.



Check the switch position is set at “0”. (Factory setting)

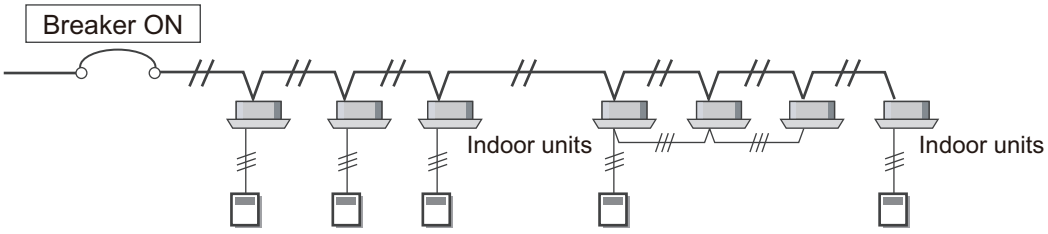
2. If multiple indoor units are connected to a single wired remote controller, set up the remote controller address (RC AD) manually on the indoor units PCBs by referring "Manual address setting method" on page 07-8.

Example: When 4 indoor units are connected



3. Before turning on the power of indoor unit, reconfirm following items:
   - Piping air tight test and vacuuming have been performed firmly.
   - There is no wiring mistake.

4. Turn on the power of indoor units.
   By turning on the power, the indoor units initialize EEV.

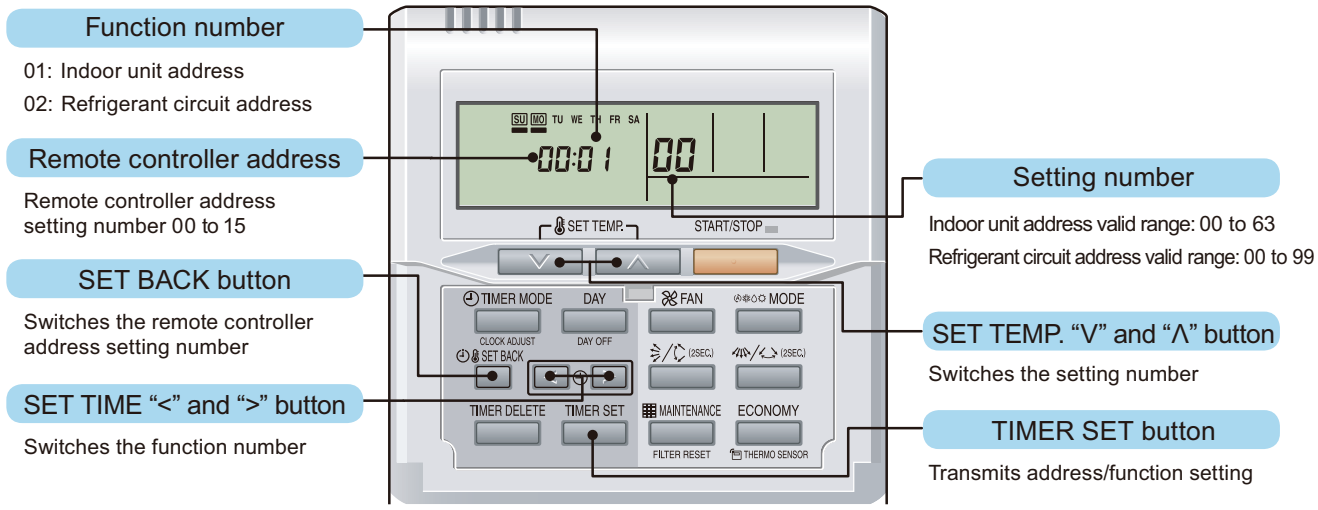


FUNCTION SETTINGS

● Button name and function

Address code or function indicator on the remote controller is as shown in the figures below.

- For an outline of the address setting, refer to "Address setting" on page 07-3.
- For the details of function number and setting number used for the function setting, refer to "Function details" on page 07-96.
- It does not matter whether the refrigerant circuit address or indoor unit address is set first. (The method shown here sets the indoor unit address first.)
- During address setting mode, indoor unit reject the any operation command from remote controller.

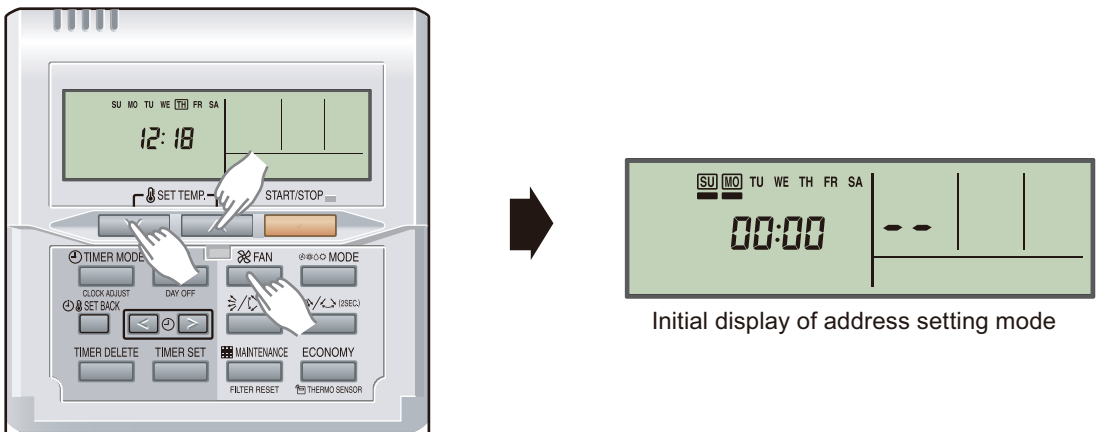


RELATED LINKS

"Indoor unit (setting by UTY-RNKU)" on page 07-84

● Entering setting mode

Hold down the 3 buttons of SET TEMP. "⋁", SET TEMP. "⋀", and FAN at the same time for 5 seconds or longer. The setting mode will be activated.

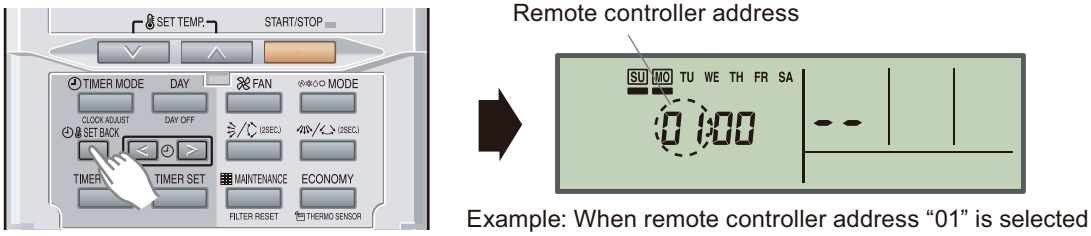


Initial display of address setting mode

FUNCTION SETTINGS

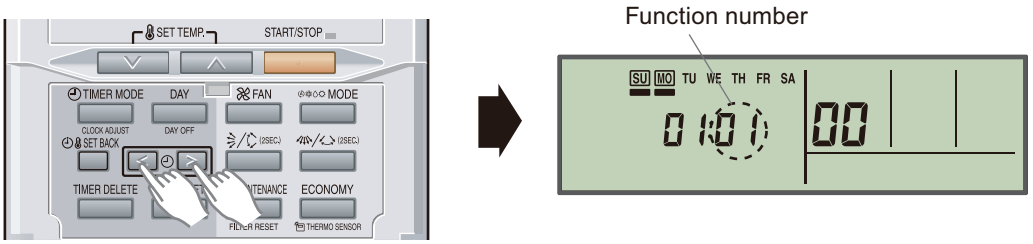
● Indoor unit address setting

1. In the initial display of setting mode, by pressing the SET BACK button, select a remote controller address. (Select the indoor unit you want to operate.)

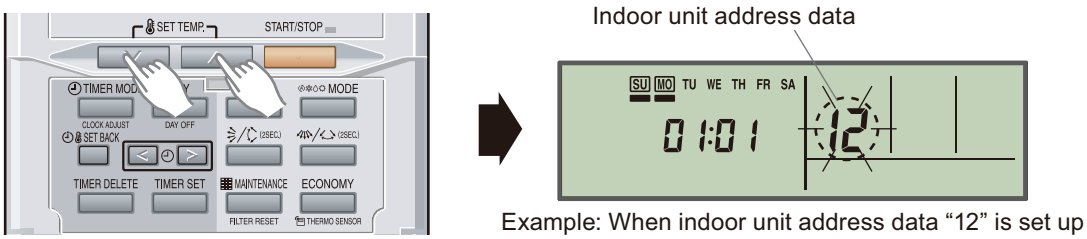


Example: When remote controller address “01” is selected

2. Display the function number “01” by pressing the SET TIME “<” button or SET TIME “>” button.

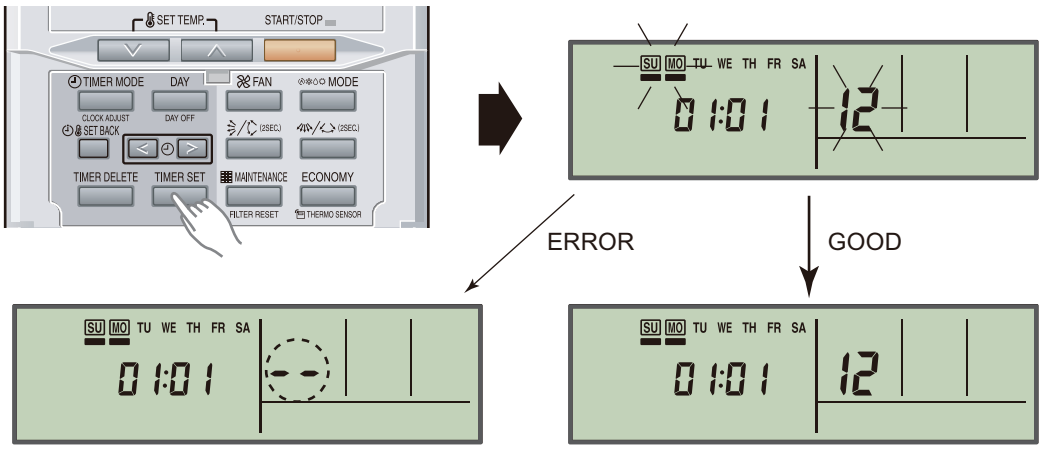


3. Set up the indoor unit address by pressing the SET TEMP. “∨” or the SET TEMP. “∧” button. (The setting range is from “00” to “63”.)



Example: When indoor unit address data “12” is set up

4. Confirm the selected indoor unit address data by pressing the TIMER SET button. The data will be transferred to the indoor unit.

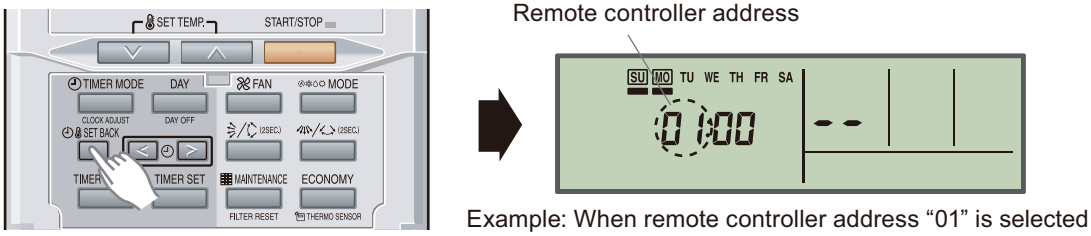


- When the address data is properly set up on the indoor unit, the flashing of the number stops and the set number will be displayed. (GOOD)
- When the address data is not set up correctly, “- -” is displayed. (ERROR) Back to the previous step and set up the indoor unit address data again.

FUNCTION SETTINGS

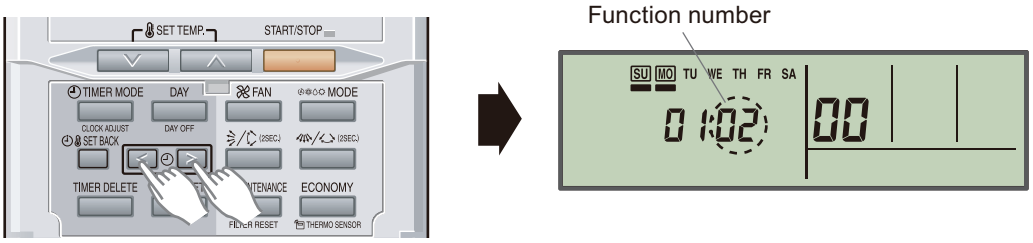
● Refrigerant circuit address setting

1. In the initial display of address setting mode, by pressing the SET BACK button, select a remote controller address. (Select the indoor unit you want to operate.)
   If the indoor unit you want to operate has already been selected, skip this step.



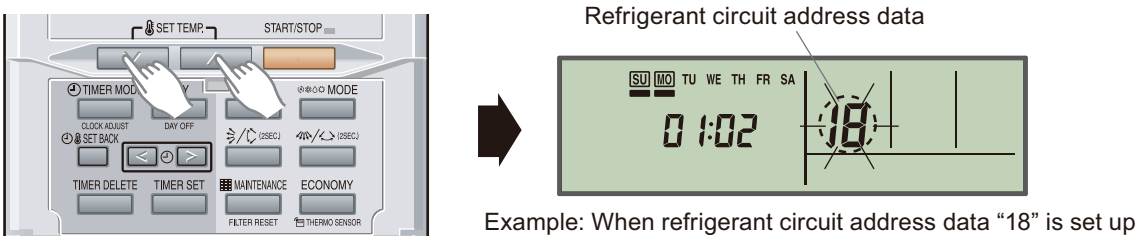
Example: When remote controller address “01” is selected

2. Display the function number “02” by pressing the SET TIME “<” button or SET TIME “>” button.



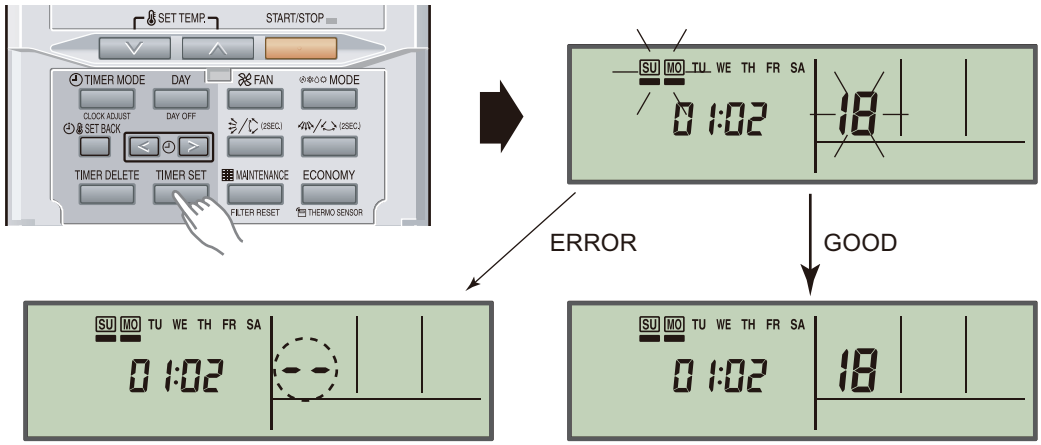
<: Down button
>: Up button

3. Set up the refrigerant circuit address by pressing the SET TEMP. “∨” or the SET TEMP. “∧” button. (The setting range is from “00” to “99”.)



Example: When refrigerant circuit address data “18” is set up

4. Confirm the selected refrigerant circuit address data by pressing the TIMER SET button. The data will be transferred to the indoor unit.



- When the address data is properly set up on the indoor unit, the flashing of the number stops and the set number will be displayed. (GOOD)
- When the address data is not set up correctly, “- -” is displayed. (ERROR) Back to the previous step and set up the indoor unit address data again.

FUNCTION SETTINGS

● Completion of setting mode

To exit the setting mode and return to the regular display, hold down the 3 buttons of SET TEMP. "﹀", SET TEMP. "﹀", and FAN at the same time.

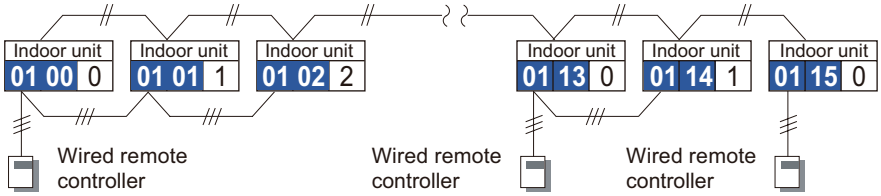
If there is no key entry for 60 seconds, even though none of the above buttons is pressed, the setting mode will be cleared automatically.

If the setting mode is automatically cleared during setting, you need to enter the setting mode again by performing the procedure in "Entering setting mode" on page 07-27.

● Setting up each indoor unit

Setting must be performed on each indoor unit requiring address setting by repeating following procedures:

- "Preparation" on page 07-26
- "Entering setting mode" on page 07-27
- "Indoor unit address setting" on page 07-28
- "Refrigerant circuit address setting" on page 07-29
- "Completion of setting mode" on page 07-30



● Resetting the power after setting up all indoor units

NOTES:

- If the reset is not performed, function cannot be read correctly.
- After all the functions have been set, the circuit breaker needs to be switched off for at least 2 minutes.
  - After the 2 minutes has passed, power can be restored.
  - The set function is stored in the PCB and will remain in memory even when the power of indoor unit is turned off.
    However setting function is effective after disconnecting the power supply and then reconnecting it.
- Record the latest configuration of the indoor unit function setting on a label, and put the label on the unit so it can be used for after-sales service operations.

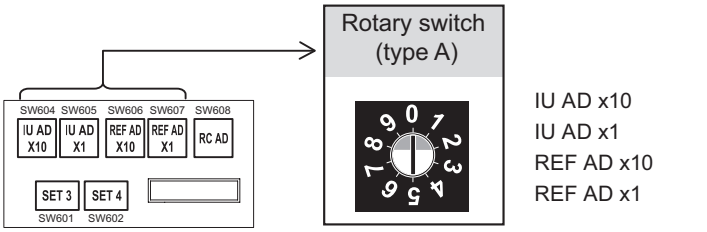
FUNCTION SETTINGS

■ Address setting by simple remote controller (UTY-RSRY and UTY-RHRY)

- Indoor unit addresses and refrigerant circuit addresses can be set up using wired remote controllers.
- This function allows setting the addresses of all indoor units to which a wired remote controller is being connected.
- This function cannot be used to set up remote controller addresses.
  Be sure to set them up using the rotary switches on the PCB of each indoor unit. (Refer to "Manual address setting method" on page 07-8.)
- This function cannot be used on the slave units.
- This function can be set up on both UTY-RSRY (with operation mode) and UTY-RHRY (without operation mode) types.

● Preparation

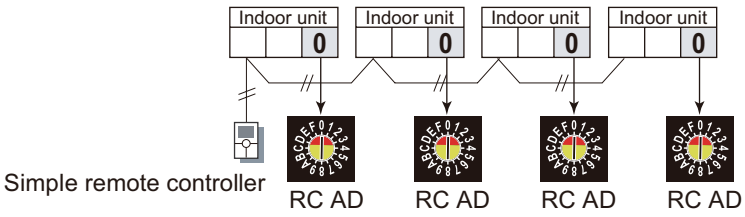
1. Make sure that all indoor unit address switches (IU AD x10, IU AD x1) and refrigerant circuit address switches (REF AD x10, REF AD x1) on the PCB of each indoor unit are set at 0 (factory setting).
   The layout of the switches differs by the type of the indoor unit. For the details, refer to "Setting on indoor unit PCB" on page 07-67.



Check the switch position is set at “0”.
(Factory setting)

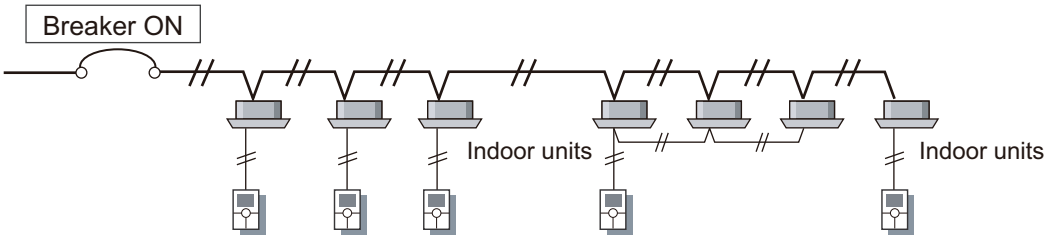
2. If multiple indoor units are connected to a single wired remote controller, set up the remote controller address with “Automatic address setting”.

Example: When 4 indoor units are connected



3. Before turning on the power of indoor unit, reconfirm following items:
   - Piping air tight test and vacuuming have been performed firmly.
   - There is no wiring mistake.

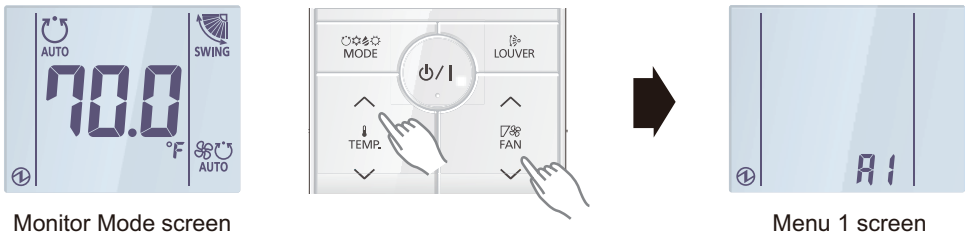
4. Turn on the power of indoor units.
   By turning on the power, the indoor units initialize EEV.



FUNCTION SETTINGS

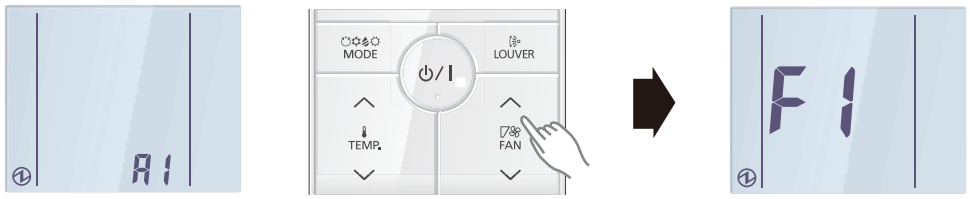
● Entering setting mode

1. While displaying Monitor Mode screen, press and hold the TEMP. "∧" button and FAN "∨" button at the same time for 2 seconds or longer. Menu 1 screen will be displayed.



Monitor Mode screen　　Menu 1 screen

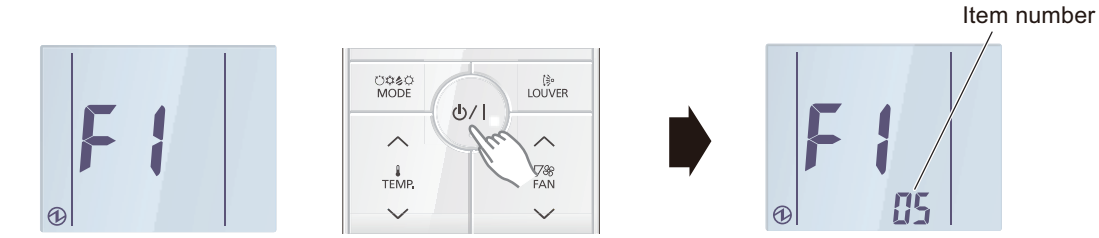
2. While displaying the Menu 1 screen, press and hold the FAN "∧" button for 2 seconds or longer. Setting mode selection screen will be displayed.



Menu 1 screen　　Setting mode selection screen

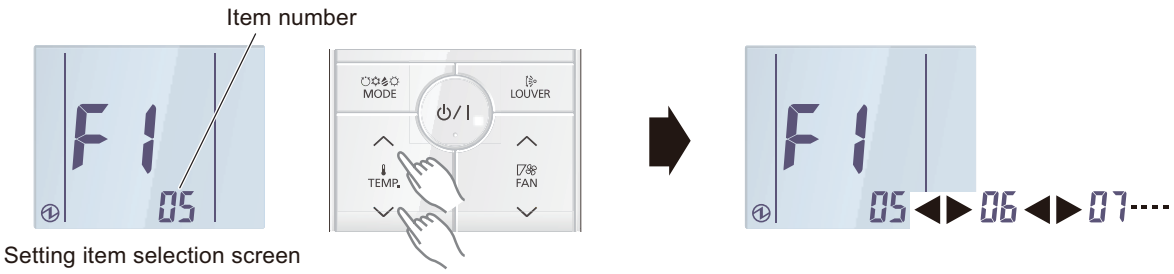
3. Press the TEMP. "∧" or TEMP. "∨" button to select "F1" (Menu 2-F1) settings mode or F2 (Menu 2-F2) settings mode.
   - F1: Initial settings mode
   - F2: Maintenance settings mode

4. While displaying the settings mode selection screen, press START/STOP⏻/I button. Setting item selection screen with item number will be displayed.



Setting mode selection screen　　Setting item selection screen

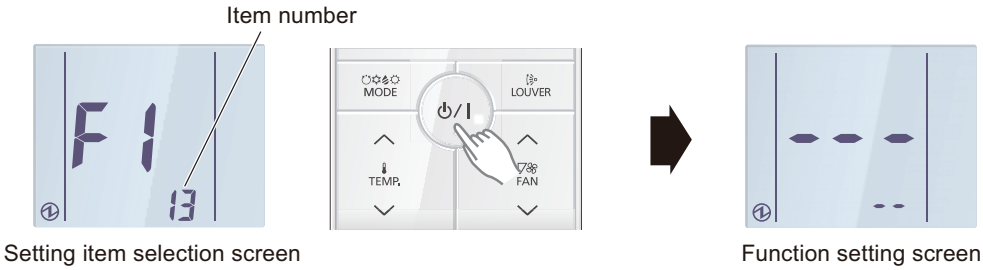
5. While displaying the setting item selection screen with item number, press the TEMP. "∧" or TEMP. "∨" button to select the item number "13".



Setting item selection screen

FUNCTION SETTINGS

6. After adjusting the item number to “13” in Menu 2-F1 settings, press the START/STOP⏻/I button to switch to the function setting screen.



Setting item selection screen

Function setting screen

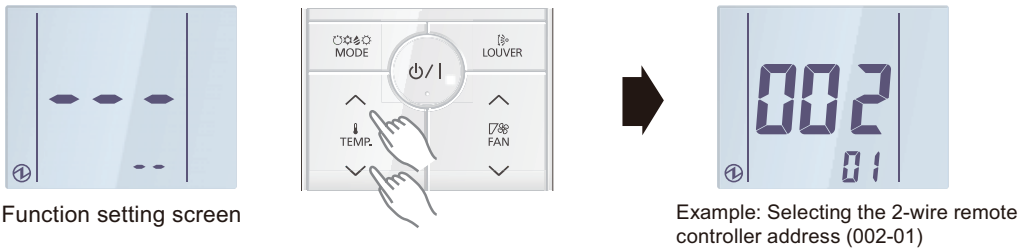
RELATED LINKS

"Indoor unit address setting" on page 07-33
"Refrigerant circuit address setting" on page 07-35
"Indoor unit function setting" on page 07-88

● Indoor unit address setting

NOTE: Perform this setting on the master remote controller.

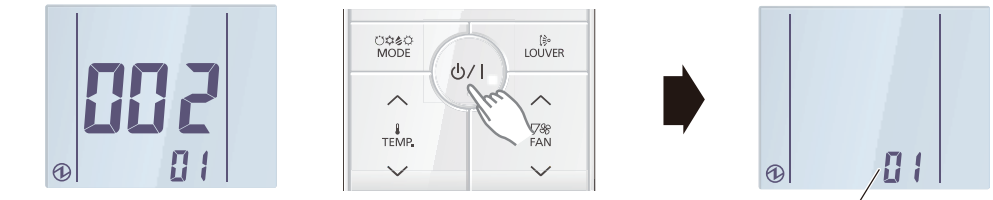
1. While displaying the function setting screen, press the TEMP. “∧” or TEMP. “∨” button to select the 2-wire remote controller address.



Function setting screen

Example: Selecting the 2-wire remote controller address (002-01)

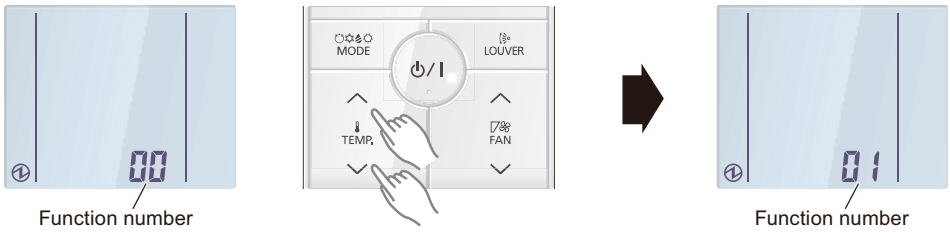
2. Press the START/STOP⏻/I button to switch to the function number setting.



Example: Selecting the 2-wire remote controller address

Function number

3. Press the TEMP. “∧” or TEMP. “∨” button to adjust the function number.

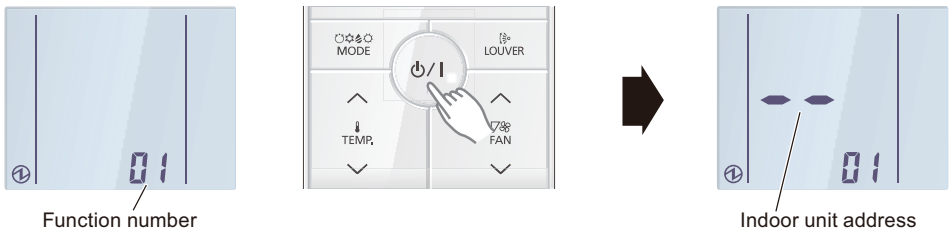


Function number

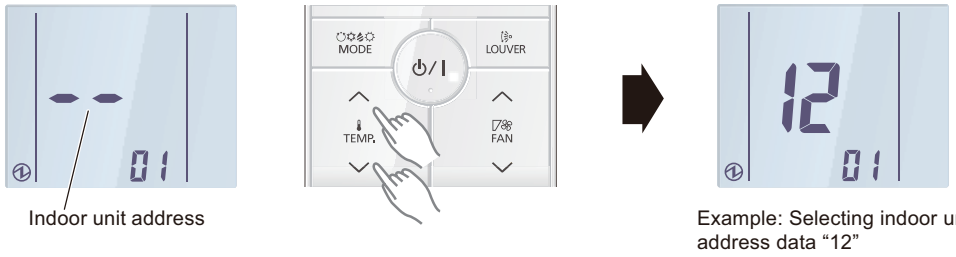
Function number

FUNCTION SETTINGS

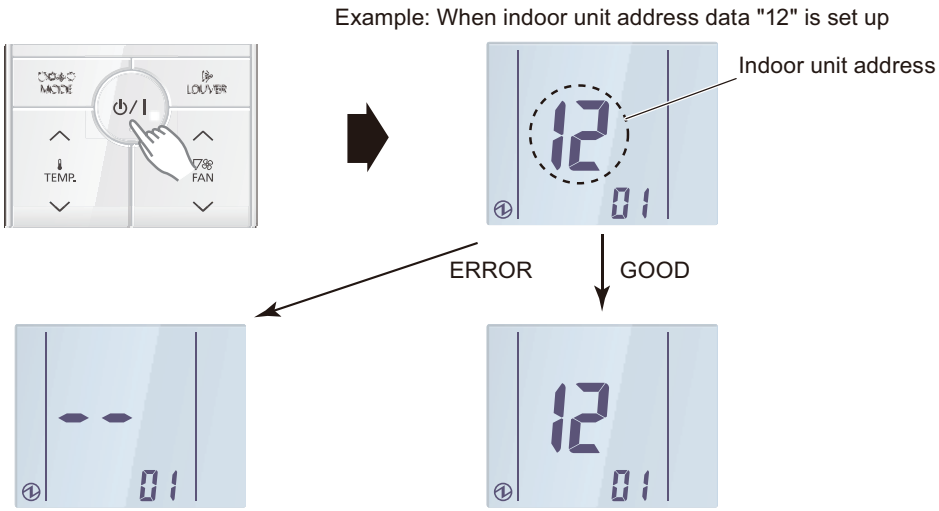
4. Press the START/STOP⏻/I button to switch to the indoor unit address setting.



5. Press the TEMP. "∧" or TEMP. "∨" button to adjust the indoor unit address number.

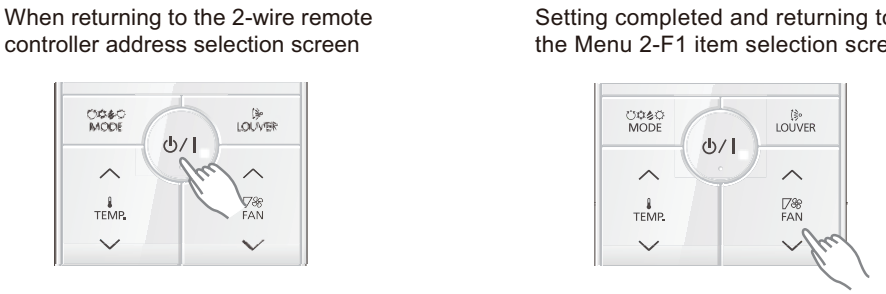


6. Confirm the selected indoor unit address data by pressing the START/STOP⏻/I button. The data will be transferred to the indoor unit.



- When the address data is properly set up on the indoor unit, the set number will be displayed. (GOOD)
- When the address data is not set up correctly, "- -" is displayed. (ERROR) Back to the previous step and set up the indoor unit address data again.

7. To return to the 2-wire remote controller address selection screen, press the START/STOP⏻/I button. If setting has been completed, press FAN "∨" button to return to the Menu 2-F1 item selection screen.

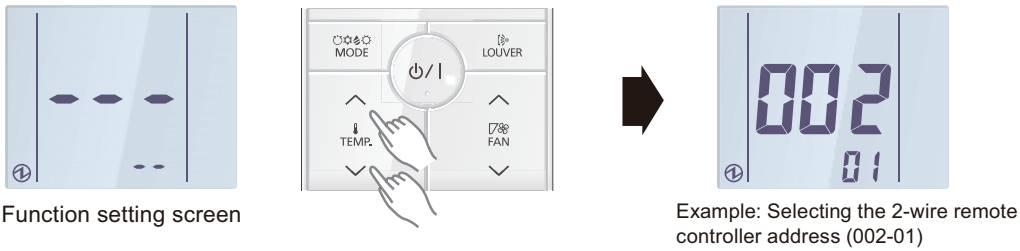


FUNCTION SETTINGS

● Refrigerant circuit address setting

NOTE: Perform this setting on the master remote controller.

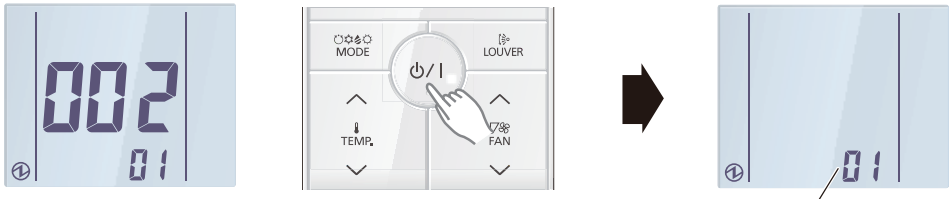
1. While displaying the function setting screen, press the TEMP. "∧" or TEMP. "∨" button to select the 2-wire remote controller address.



Function setting screen

Example: Selecting the 2-wire remote controller address (002-01)

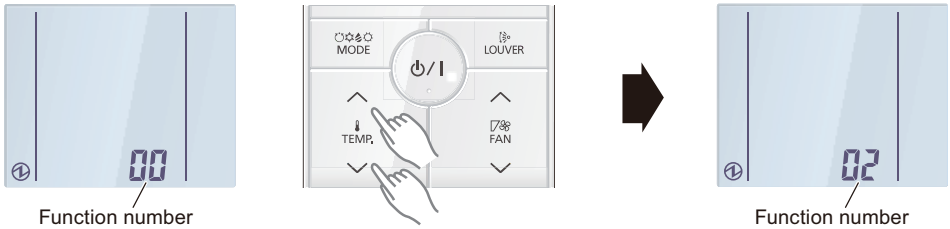
2. Press the START/STOP⏻/I button to switch to the function number setting.



Example: Selecting the 2-wire remote controller address

Function number

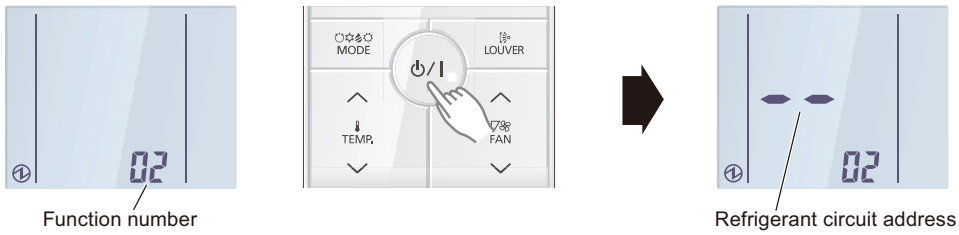
3. Press the TEMP. "∧" or TEMP. "∨" button to adjust the function number.



Function number

Function number

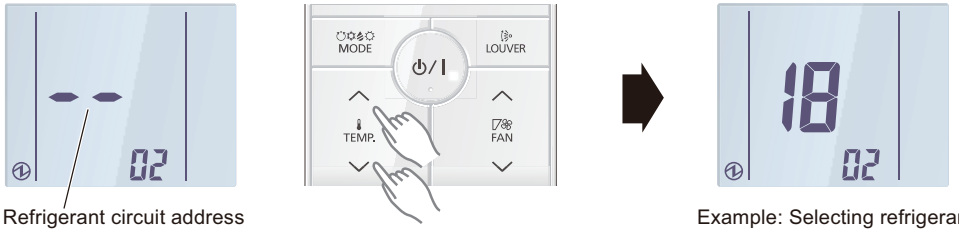
4. Press the START/STOP⏻/I button to switch to the refrigerant circuit address setting.



Function number

Refrigerant circuit address

5. Press the TEMP. "∧" or TEMP. "∨" button to adjust the refrigerant circuit address number.



Refrigerant circuit address

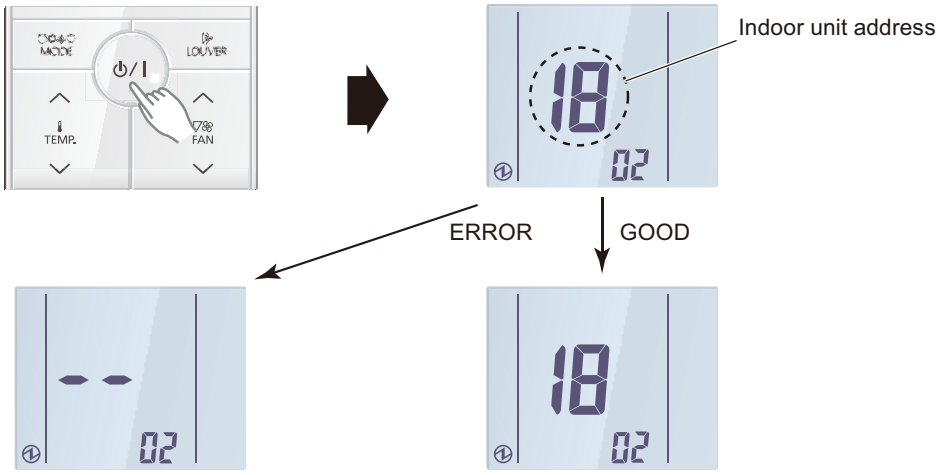
Example: Selecting refrigerant circuit address data "18"

FUNCTION SETTINGS

FUNCTION SETTINGS

6. Confirm the selected refrigerant circuit address data by pressing the START/STOP ⏻/I button. The data will be transferred to the indoor unit.

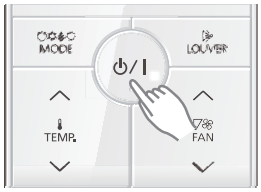
Example: When refrigerant circuit address data "18" is set up



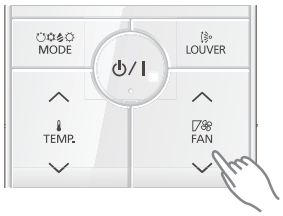
- When the address data is properly set up on the indoor unit, the set number will be displayed. (GOOD)
- When the address data is not set up correctly, "- -" is displayed. (ERROR) Back to the previous step and set up the indoor unit address data again.

7. To return to the 2-wire remote controller address selection screen, press the START/STOP ⏻/I button. If setting has been completed, press FAN "⌄" button to return to the Menu 2-F1 item selection screen.

When returning to the 2-wire remote controller address selection screen



Setting completed and returning to the Menu 2-F1 item selection screen



● Completion of setting mode

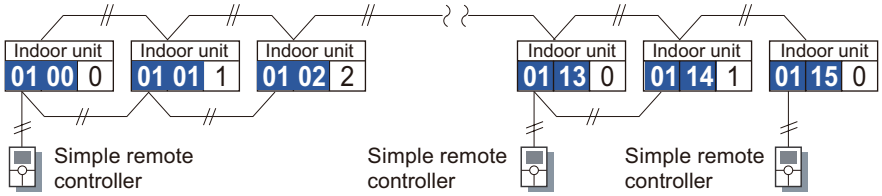
1. To exit the setting mode and return to the Menu 1 item selection screen, press and hold the FAN "⌃" button for 2 seconds or longer.
2. To return to the Monitor Mode screen, press and hold the TEMP. "⌃" button and FAN "⌄" button at the same time for 2 seconds or longer.

FUNCTION SETTINGS

● Setting up each indoor unit

Setting must be performed on each indoor unit requiring address setting by repeating following procedures:

- "Preparation" on page 07-31
- "Entering setting mode" on page 07-32
- "Indoor unit address setting" on page 07-33
- "Refrigerant circuit address setting" on page 07-35



● Resetting the power after setting up all indoor units

NOTES:

- If the reset is not performed, function cannot be read correctly.
- After all the functions have been set, the circuit breaker needs to be switched off for at least 2 minutes.
  - After the 2 minutes has passed, power can be restored.
  - The set function is stored in the PCB and will remain in memory even when the power of indoor unit is turned off.
    However setting function is effective after disconnecting the power supply and then reconnecting it.
- Record the latest configuration of the indoor unit function setting on a label, and put the label on the unit so it can be used for after-sales service operations.

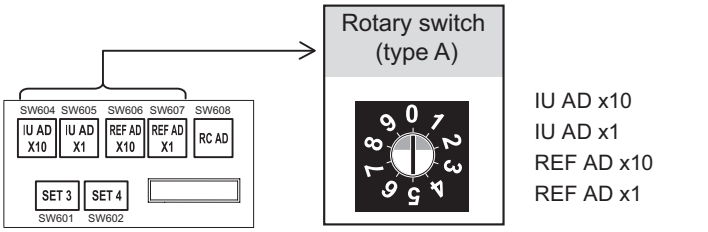
FUNCTION SETTINGS

■ Address setting by simple remote controller (UTY-RSKU and UTY-RHKU)

- Indoor unit addresses and refrigerant circuit addresses can be set up using wired remote controllers.
- This function allows setting the addresses of all indoor units to which a wired remote controller is being connected.
- This function cannot be used to set up remote controller addresses.
  Be sure to set them up using the rotary switches on the PCB of each indoor unit. (Refer to "Manual address setting method" on page 07-8.)
- This function cannot be used on the slave units.
- This function can be set up on both UTY-RSKU (with operation mode) and UTY-RHKU (without operation mode) types.

● Preparation

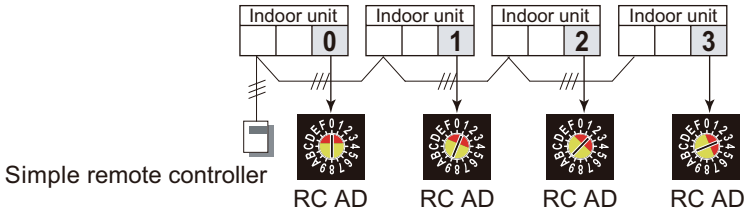
1. Make sure that all indoor unit address switches (IU AD x10, IU AD x1) and refrigerant circuit address switches (REF AD x10, REF AD x1) on the PCB of each indoor unit are set at 0 (factory setting).
   The layout of the switches differs by the type of the indoor unit. For the details, refer to "Setting on indoor unit PCB" on page 07-67.



Check the switch position is set at “0”.
(Factory setting)

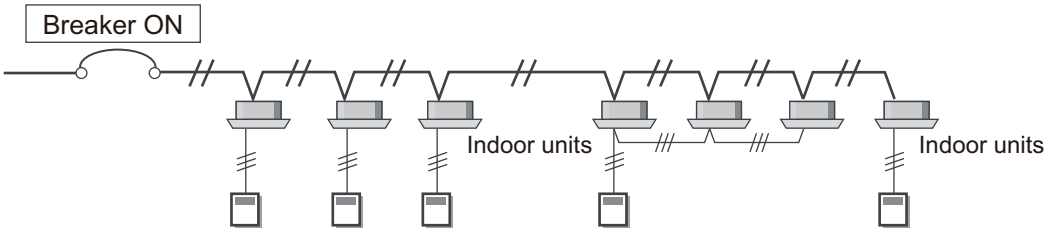
2. If multiple indoor units are connected to a single simple remote controller, set up the remote controller address (RC AD) manually on the indoor units PCBs by referring "Manual address setting method" on page 07-8.

Example: When 4 indoor units are connected



3. Before turning on the power of indoor unit, reconfirm following items:
   - Piping air tight test and vacuuming have been performed firmly.
   - There is no wiring mistake.

4. Turn on the power of indoor units.
   By turning on the power, the indoor units initialize EEV.

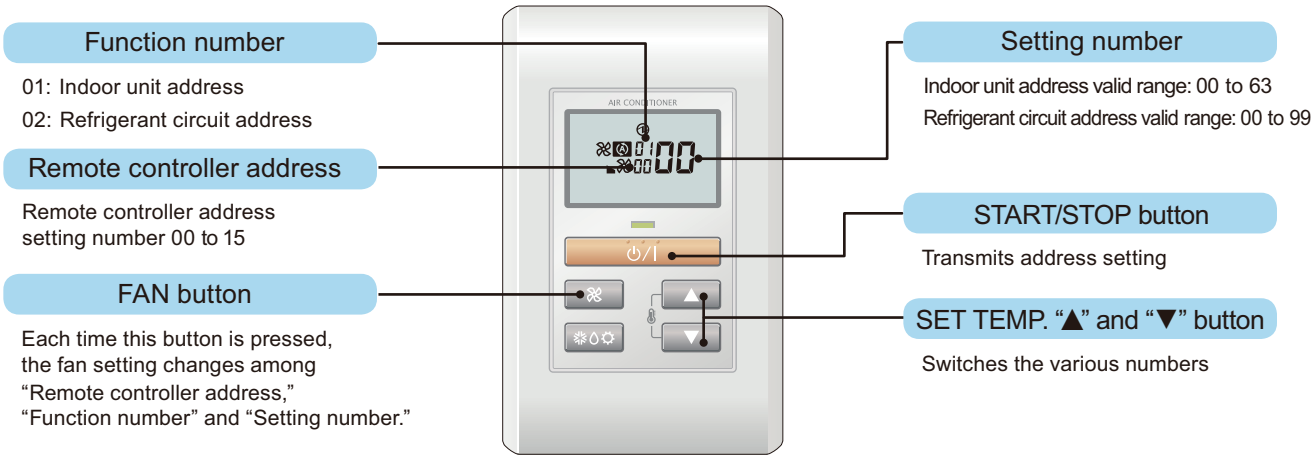


FUNCTION SETTINGS

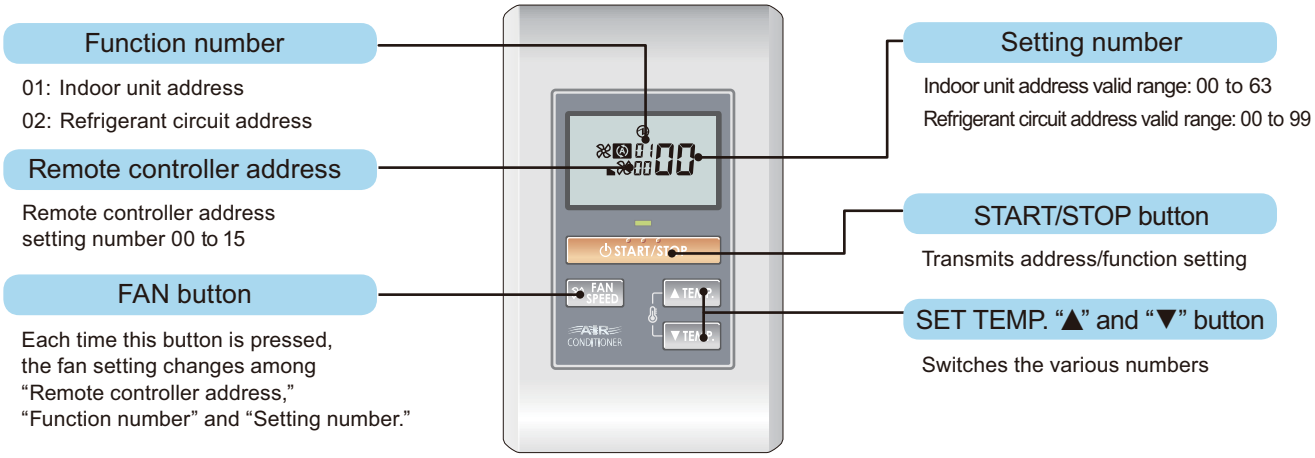
● Button name and function

Address code or function indicator on the remote controller is as shown in the figures below.

- For an outline of the address setting, refer to "Address setting" on page 07-3.
- For the details of function number and setting number used for the function setting, refer to "Function details" on page 07-96.
- It does not matter whether the refrigerant circuit address or indoor unit address is set first. (The method shown here sets the indoor unit address first.)
- During address setting mode, indoor unit reject the any operation command from remote controller.



UTY-RSK* (With operation mode)



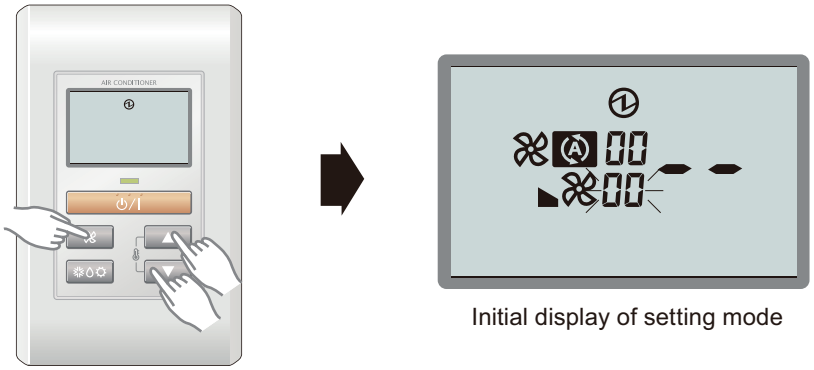
UTY-RHK* (Without operation mode)

RELATED LINKS

"Indoor unit (setting by UTY-RSKU, UTY-RHKU)" on page 07-90

● Entering setting mode

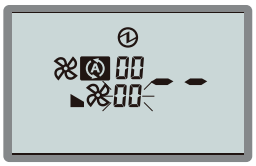
Hold down the 3 buttons of SET TEMP. "▲", SET TEMP. "▼", and FAN at the same time for 5 seconds or longer. The setting mode will be activated.



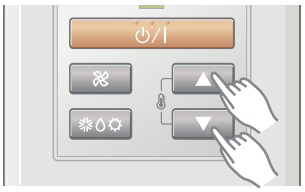
Initial display of setting mode

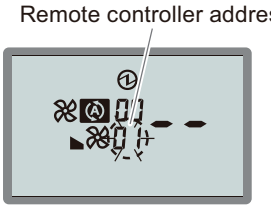
● Indoor unit address setting

1. In initial display of the setting mode, by pressing SET TEMP. "▲" button or SET TEMP. "▼" button, select a remote controller address. (Select the indoor unit you want to operate.)



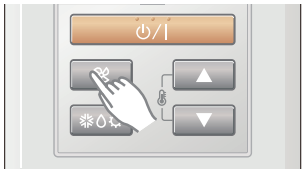
Initial display of address setting mode

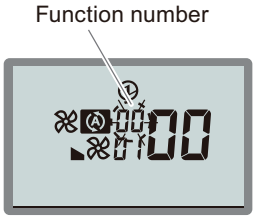




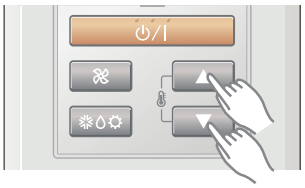
Example: When remote controller address "01" is selected

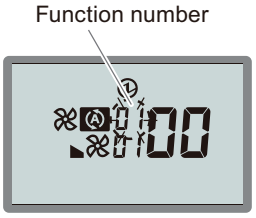
2. Press the FAN button. "Function number" indicator flashes.



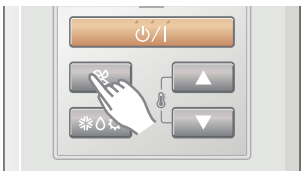


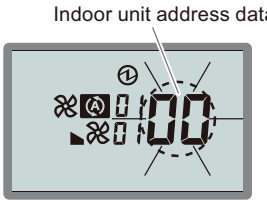
3. Display the function number "01" by pressing SET TEMP. "▲" button or SET TEMP. "▼" button.



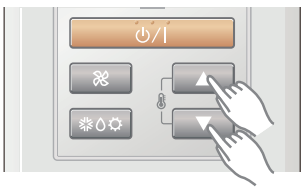


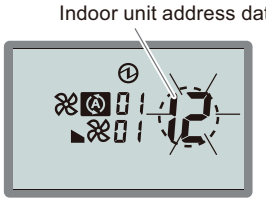
4. Press the FAN button. "Setting number" indicator flashes.





5. Set up the indoor unit address data by pressing SET TEMP. "▲" button or SET TEMP. "▼" button. (Setting range is from "00" to "63".)

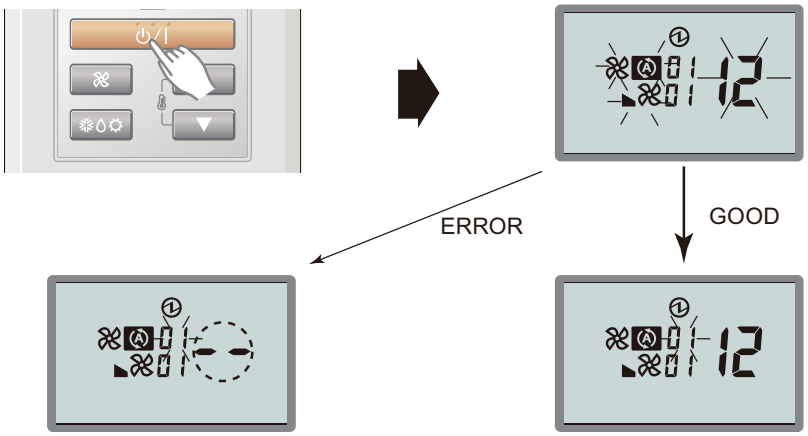




Example: When indoor unit address data "12" is set

FUNCTION SETTINGS

6. Confirm the selected indoor unit address data by pressing the START/STOP ⏻/I button. The data will be transferred to the indoor unit.

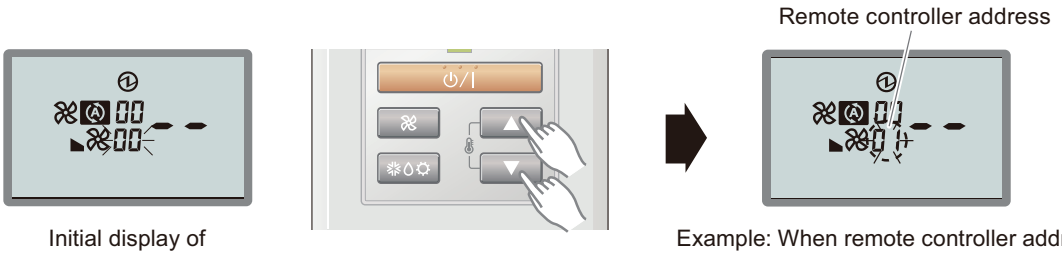


- When the address data is properly set up on the indoor unit, the set number will be displayed. (GOOD)
- When the address data is not set up correctly, "- -" is displayed. (ERROR) Back to the previous step and set up the indoor unit address data again.

● Refrigerant circuit address setting

NOTE: Perform this setting on the master remote controller.

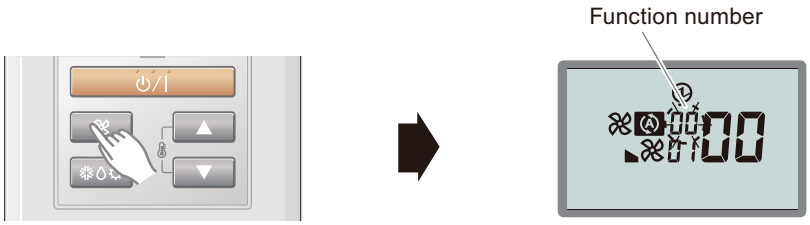
1. In initial display of the address setting mode, by pressing SET TEMP. "▲" button or SET TEMP. "▼" button, select a remote controller address. (Select the indoor unit you want to operate.)
   If the indoor unit you want to operate has already been selected, skip this step.



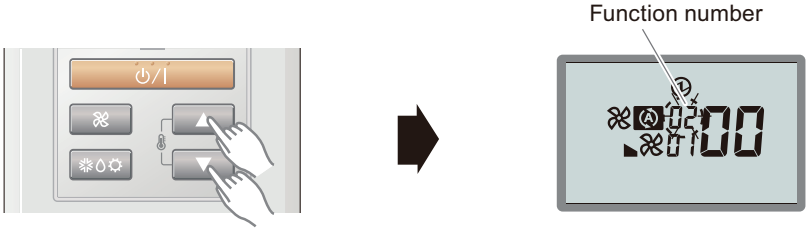
Initial display of address setting mode

Example: When remote controller address "01" is selected

2. Press the FAN button. "Function number" indicator flashes.

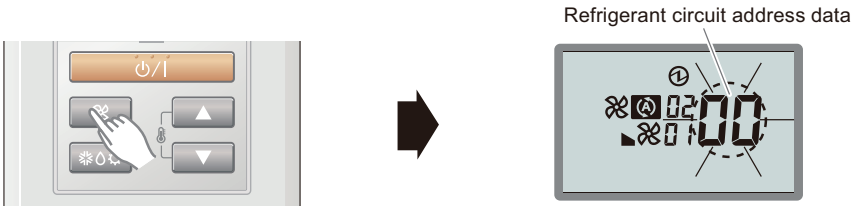


3. Display the function number "02" by pressing SET TEMP. "▲" button or SET TEMP. "▼" button.

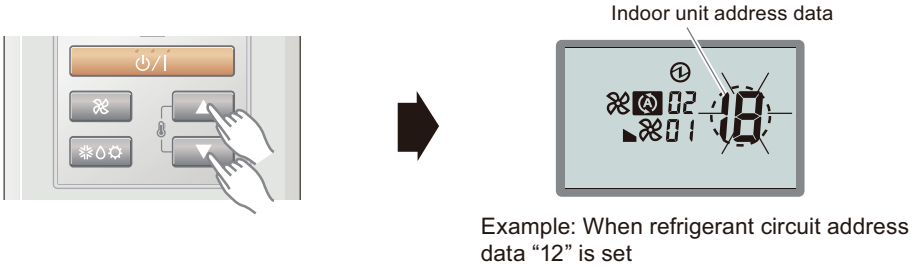


FUNCTION SETTINGS

4. Press the FAN button. “Setting number” indicator flashes.

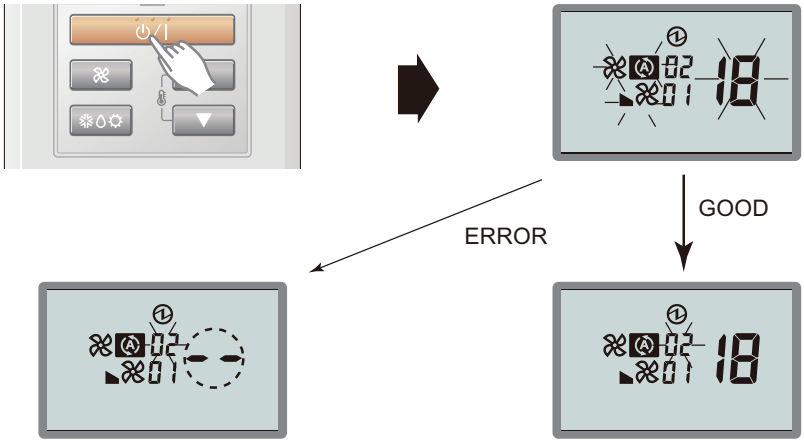


5. Set up the refrigerant circuit address data by pressing SET TEMP. “▲” button or SET TEMP. “▼” button. (Setting range is from “00” to “99”.)



Example: When refrigerant circuit address data “12” is set

6. Confirm the selected refrigerant circuit address data by pressing the START/STOP⏻/I button. The data will be transferred to the indoor unit.



- When the address data is properly set up on the indoor unit, the set number will be displayed. (GOOD)
- When the address data is not set up correctly, “- -” is displayed. (ERROR) Back to the previous step and set up the indoor unit address data again.

FUNCTION SETTINGS

● Completion of setting mode

To exit the setting mode and return to the regular display, hold down the 3 buttons of SET TEMP. "▲", SET TEMP. "▼", and FAN at the same time for 5 seconds or longer.

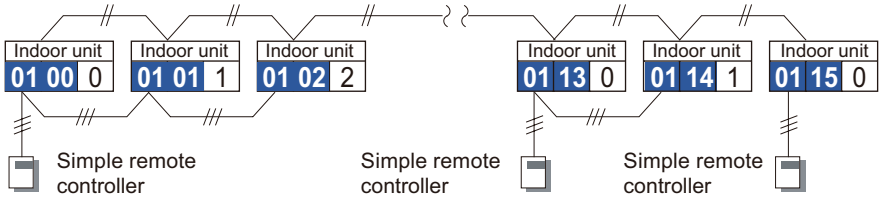
If there is no key entry for 60 seconds, even though none of the above buttons is pressed, the setting mode will be cleared automatically.

If the setting mode is automatically cleared during setting, you need to enter the setting mode again by performing the procedure in "Entering setting mode" on page 07-39.

● Setting up each indoor unit

Setting must be performed on each indoor unit requiring address setting by repeating following procedures:

- "Preparation" on page 07-38
- "Entering setting mode" on page 07-39
- "Indoor unit address setting" on page 07-40
- "Refrigerant circuit address setting" on page 07-41



● Resetting the power after setting up all indoor units

NOTES:

- If the reset is not performed, function cannot be read correctly.
- After all the functions have been set, the circuit breaker needs to be switched off for at least 2 minutes.
  - After the 2 minutes has passed, power can be restored.
  - The set function is stored in the PCB and will remain in memory even when the power of indoor unit is turned off.
    However setting function is effective after disconnecting the power supply and then reconnecting it.
- Record the latest configuration of the indoor unit function setting on a label, and put the label on the unit so it can be used for after-sales service operations.

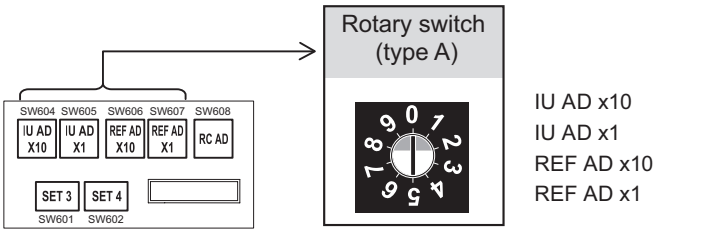
FUNCTION SETTINGS

■ Address setting by wired remote controller (Touch panel) (UTY-RNRUZ∗)

- Indoor unit addresses and refrigerant circuit addresses can be set up using wired remote controllers.
- This function allows setting the addresses of all indoor units to which a wired remote controller is being connected.
- This function cannot be used to set up remote controller addresses.
  Be sure to set them up using the rotary switches on the PCB of each indoor unit. (Refer to "Manual address setting method" on page 07-8.)
- This function cannot be used on the slave units.

● Preparation

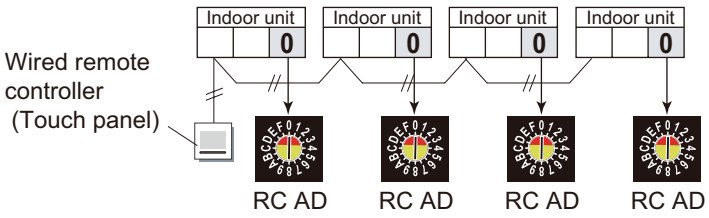
1. Make sure that all indoor unit address switches (IU AD x10, IU AD x1) and refrigerant circuit address switches (REF AD x10, REF AD x1) on the PCB of each indoor unit are set at 0 (factory setting).
   The layout of the switches differs by the type of the indoor unit. For the details, refer to "Setting on indoor unit PCB" on page 07-67.



Check the switch position is set at “0”. (Factory setting)

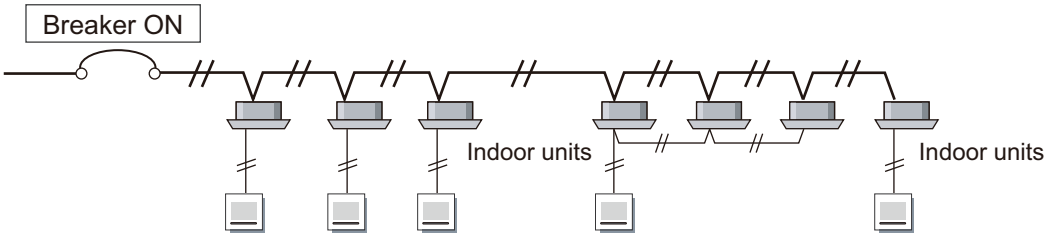
2. If multiple indoor units are connected to a single wired remote controller, set up the remote controller address with “Automatic address setting”.

Example: When 4 indoor units are connected



3. Before turning on the power of indoor unit, reconfirm following items:
   - Piping air tight test and vacuuming have been performed firmly.
   - There is no wiring mistake.

4. Turn on the power of indoor units.
   By turning on the power, the indoor units initialize EEV.

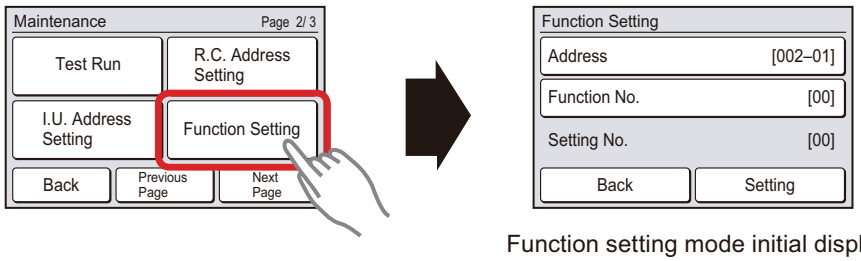


FUNCTION SETTINGS

FUNCTION SETTINGS

● Entering setting mode

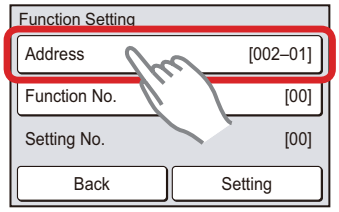
When “Function Setting” on the Maintenance screen is touched, Installer Password Verification screen is displayed.
Enter the Installer Password, and touch “OK”. Function Setting screen is displayed.



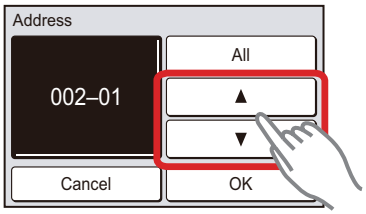
Function setting mode initial display

● Indoor unit address setting

1. Touch “Address” on the Function Setting screen.

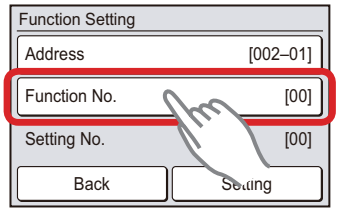


2. Address screen is displayed. Select the address of the indoor unit whose function number is to be set by touching “▲” or “▼”.

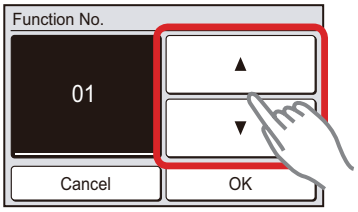


When “OK” is touched, the display returns to the Function Setting screen.

3. Touch “Function No.” on the Function Setting screen.



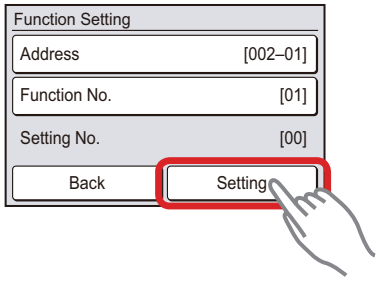
4. Function No. screen is displayed. Set the Function No. “01” by touching “▲” or “▼”.



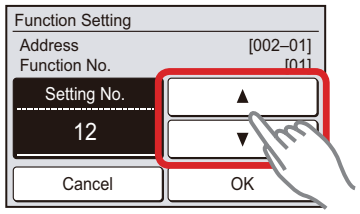
When “OK” is touched, the display returns to the Function Setting screen.

FUNCTION SETTINGS

5. Touch “Setting” on the Function Setting screen.



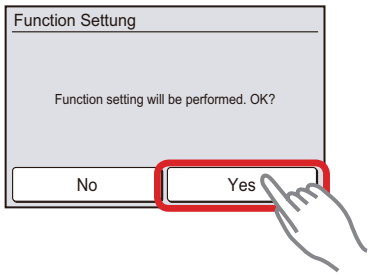
6. Setting screen of “Setting No.” is displayed. Set the Setting No. by touching “▲” or “▼”. (Setting range is from “00” to “63”.)



Example: When indoor unit address data "12" is set

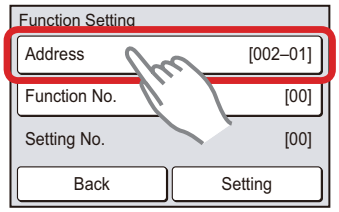
When “OK” is touched, the Function Setting verification screen is displayed.

7. Touch “Yes” on the verification screen.

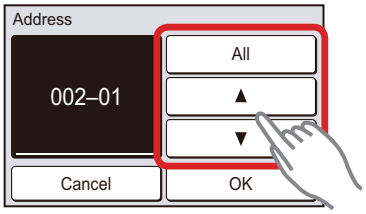


● Refrigerant circuit address setting

1. Touch “Address” on the Function Setting screen.



2. Address screen is displayed. Select the address of the indoor unit whose function number is to be set by touching “▲” or “▼”. When setting at all the indoor units, touch “All”.

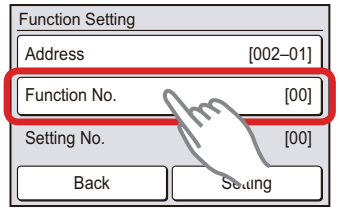


When “OK” is touched, the display returns to the Function Setting screen.

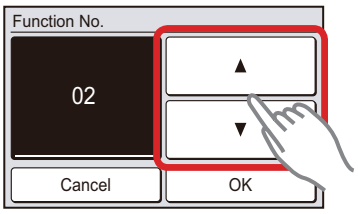
FUNCTION SETTINGS

FUNCTION SETTINGS

3. Touch “Function No.” on the Function Setting screen.

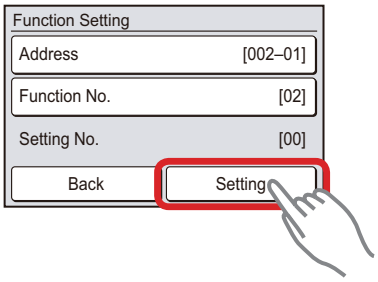


4. Function No. screen is displayed. Set the Function No. “02” by touching “▲” or “▼”.

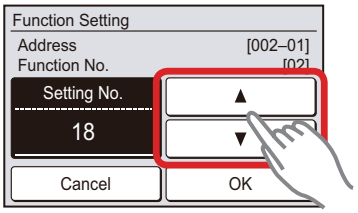


When “OK” is touched, the display returns to the Function Setting screen.

5. Touch “Setting” on the Function Setting screen.



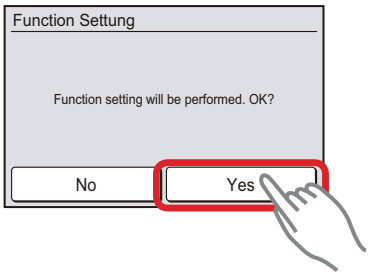
6. Setting screen of “Setting No.” is displayed. Set the Setting No. by touching “▲” or “▼”. (Setting range is from “00” to “99”.)



Example: When refrigerant circuit address data "18" is set

When “OK” is touched, the Function Setting verification screen is displayed.

7. Touch “Yes” on the verification screen.



After the Setting screen was displayed, the display returns to the Function Setting screen.

● Completion of setting mode

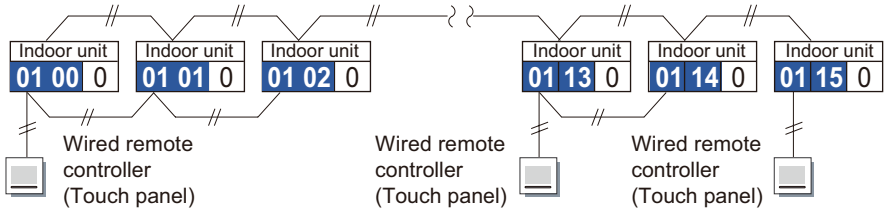
To exit the setting mode and return to the Maintenance screen, touch “Back” on the Function Setting screen.

FUNCTION SETTINGS

● Setting up each indoor unit

Setting must be performed on each indoor unit requiring address setting by repeating following procedures.

- "Preparation" on page 07-44
- "Entering setting mode" on page 07-45
- "Indoor unit address setting" on page 07-45
- "Refrigerant circuit address setting" on page 07-46
- "Completion of setting mode" on page 07-47



● Resetting the power after setting up all indoor units

NOTES:

- If the reset is not performed, function cannot be read correctly.
- After all the functions have been set, the circuit breaker needs to be switched off for at least 2 minutes.
  - After the 2 minutes has passed, power can be restored.
  - The set function is stored in the PCB and will remain in memory even when the power of indoor unit is turned off.
    However setting function is effective after disconnecting the power supply and then reconnecting it.
- Record the latest configuration of the indoor unit function setting on a label, and put the label on the unit so it can be used for after-sales service operations.

FUNCTION SETTINGS

1-5. Automatic address setting

The addresses of signal amplifiers and indoor units can be set automatically.

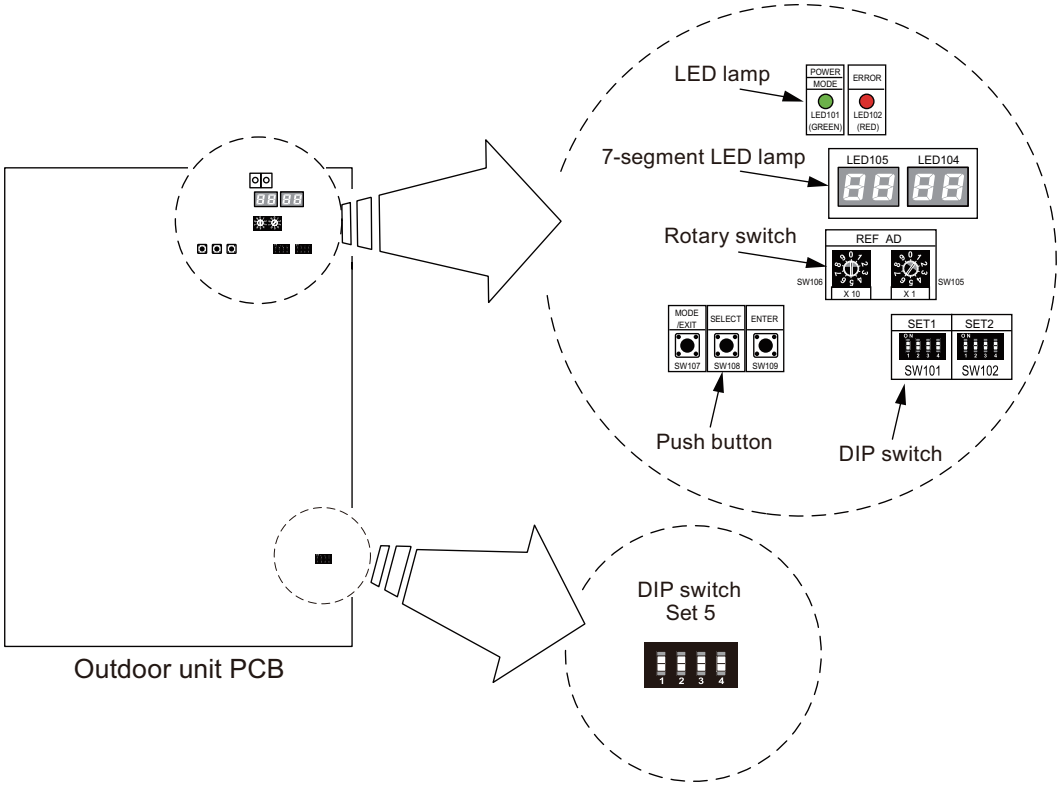
⚠ CAUTION

- Mind the following items when performing automatic address setting.
  - The controller cannot be used.
  - Automatic address setting may take about 30 minutes.
  - Emergency stop signal is not accepted.
- When setting both addresses of Signal amplifiers and indoor units automatically, be sure to always set the addresses of signal amplifiers first.

■ Components location

Components related to automatic address setting are located on the outdoor unit PCB.

Set the functions of an outdoor unit with the push buttons (SW107, SW108, and SW109) while observing the 7-segment LED lamps (LED105 and LED104) on the PCB.



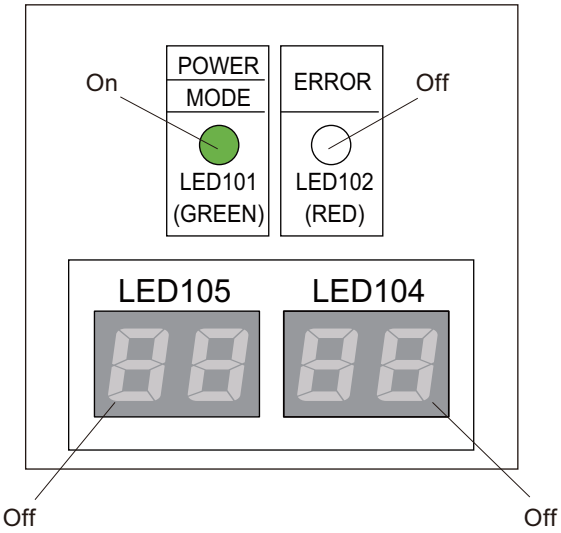
NOTE: For details of DIP switch set 5, refer to "Terminal resistor setting" on page 07-56.

FUNCTION SETTINGS

■ Preparation

Before performing the setting, be sure to conducting necessary preparations.

1. Make sure that the operation of the outdoor unit has stopped (if it is still running, stop the operation), and turn off the power.
2. Remove the front panel of the outdoor unit.
3. Remove the lid of the electrical component box to expose the PCB.
4. Turn on the power of the outdoor unit. When the system is operated normally, the indicator lamps may light as in following figure:



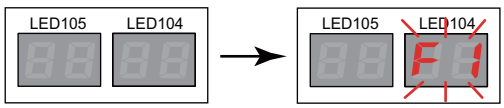
- Make sure that the POWER/MODE indicator lamp (LED101) is on and the ERROR indicator lamp (LED102) is off.
- If there is a system error, the ERROR indicator lamp (LED102) flashes. Check the wiring and power supply. After confirming the ERROR indicator lamp (LED102) has turned off, proceed to the setting procedure.

■ Automatic address setting of signal amplifier

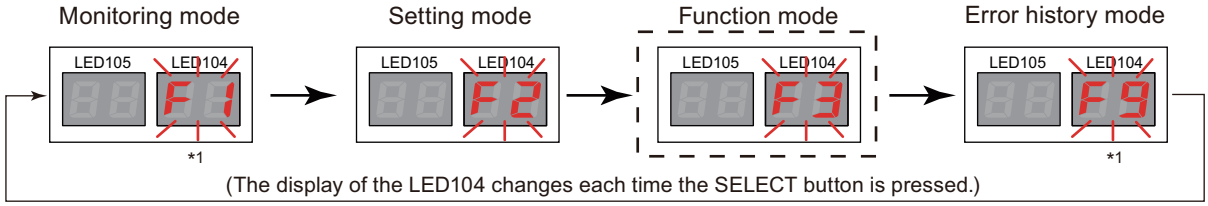
⚠ CAUTION

- This function can be used for a maximum of 8 signal amplifiers installed within a same refrigerant system.
- Perform this setting on only 1 outdoor unit (master unit) within the same network. No duplicate setting of this function from other outdoor unit is allowed.
- When setting the address of a signal amplifier automatically, be sure to always set the address on the PCB of the signal amplifier to “1” (factory setting).

1. After verifying that the system is operating normally, press the MODE/EXIT button (SW107) once.

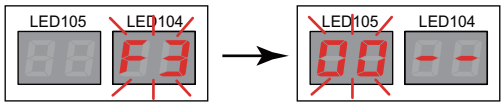


2. Press the SELECT button (SW108) to display “F3” on LED104.
   *1: Do not set “F1” and “F9” usually since they are used for maintenance.

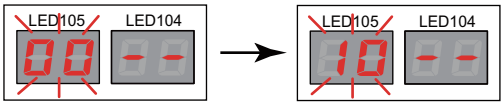


FUNCTION SETTINGS

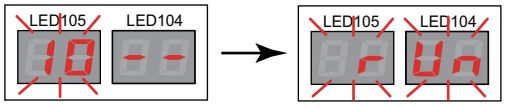
3. When “F3” is displayed on the LED104, press the ENTER button (SW109). Indicator on the LED105 flashes.



4. Press the SELECT button (SW108) to display “10” on the LED105.

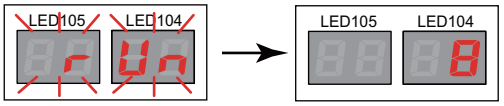


5. When “10” is displayed on the LED105, hold down the ENTER button (SW109) for 3 seconds or longer. (Unless it is held down for at least 3 seconds, the selection will not be confirmed.) When the automatic address setting function is activated, the display changes to “run.”

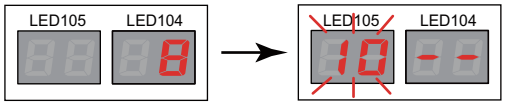


6. When the automatic address setting is completed, the number of signal amplifier is displayed on the LED104. Verify that the count matches the number of signal amplifiers being installed.

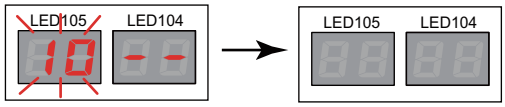
Example: When 8 signal amplifiers are being connected



7. To exit the automatic address setting, press the ENTER button (SW109) in the setting completed status shown in the previous step.



8. To exit the function mode, press the MODE/EXIT button (SW107).



RELATED LINKS

"Signal amplifier" on page 07-119

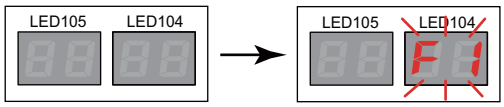
FUNCTION SETTINGS

■ Automatic address setting of indoor unit

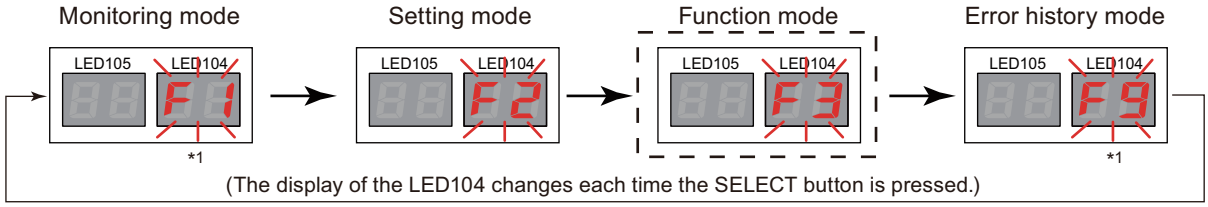
⚠ CAUTION

- This function can be used for a maximum of 64 indoor units installed within a same refrigerant system. However, a maximum of 48 indoor units can be installed within the same refrigerant system.
- This function cannot be used for indoor units being connected to other refrigerant systems via the network. For details, refer to "Transmission cable" in Chapter 6. SYSTEM DESIGN on page 06-54
- When setting the addresses automatically, make sure that the position of following switches are set at “0” (Factory setting).
  - IU AD x10 (SW6)
  - IU AD x1 (SW7)
  - REF AD x10 (SW8)
  - REF AD x1 (SW9)
- When an indoor unit address is set up, a refrigerant circuit address is also set up at the same time. (The refrigerant circuit address of an outdoor unit being connected within the same refrigerant system is set up.)

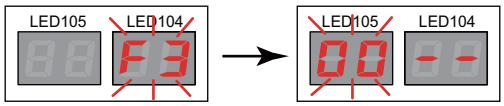
1. After verifying that the system is operating normally, press the MODE/EXIT button (SW107) once.



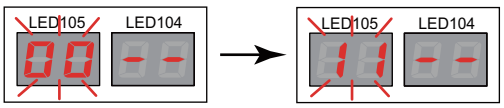
2. Press the SELECT button (SW108) to display “F3” on LED104.
   *1: Do not set “F1” and “F9” usually since they are used for maintenance.



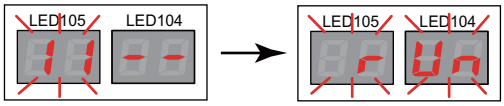
3. When “F3” is displayed on the LED104, press the ENTER button (SW109). Indicator on the LED105 flashes.



4. Press the SELECT button (SW108) to display “11” on the LED105.



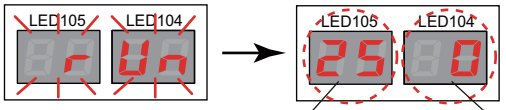
5. When “11” is displayed on the LED105, hold down the ENTER button (SW109) for 3 seconds or longer. (Unless it is held down for at least 3 seconds, the selection will not be confirmed.) When the automatic address setting function is activated, the display changes to “run.”



FUNCTION SETTINGS

6. When the automatic address setting is completed, the number of indoor units of which the automatic address setting succeeded is displayed on the LED105, and the number of indoor units of which the automatic address setting failed is displayed on the LED104.

Example: When 25 indoor units are connected, and the automatic setting of the addresses of all indoor units ended normally

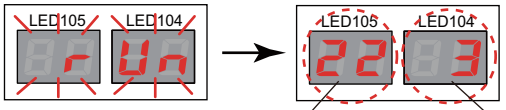


(Setting completed)

LED105: The number of indoor units of which automatic address setting succeeded

LED104: The number of indoor units of which automatic address setting failed

Example: When 25 indoor units are connected, and the automatic setting of the addresses of three indoor units failed

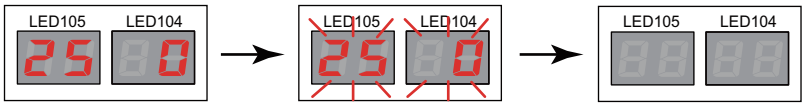


LED105: The number of indoor units of which automatic address setting succeeded

LED104: The number of indoor units of which automatic address setting failed

If automatic address setting failed, make sure that all of the rotary switches SW6 to SW9 on the PCBs of the failed indoor units are positioned at “0” and that wiring and power supply are correct, and then perform the automatic address setting again.

7. When the ENTER button (SW109) is pressed, end processing will begin and the LED displays start to blink. For completing this process will take about 30 seconds.



When the setting is completed, the LED displays go off.

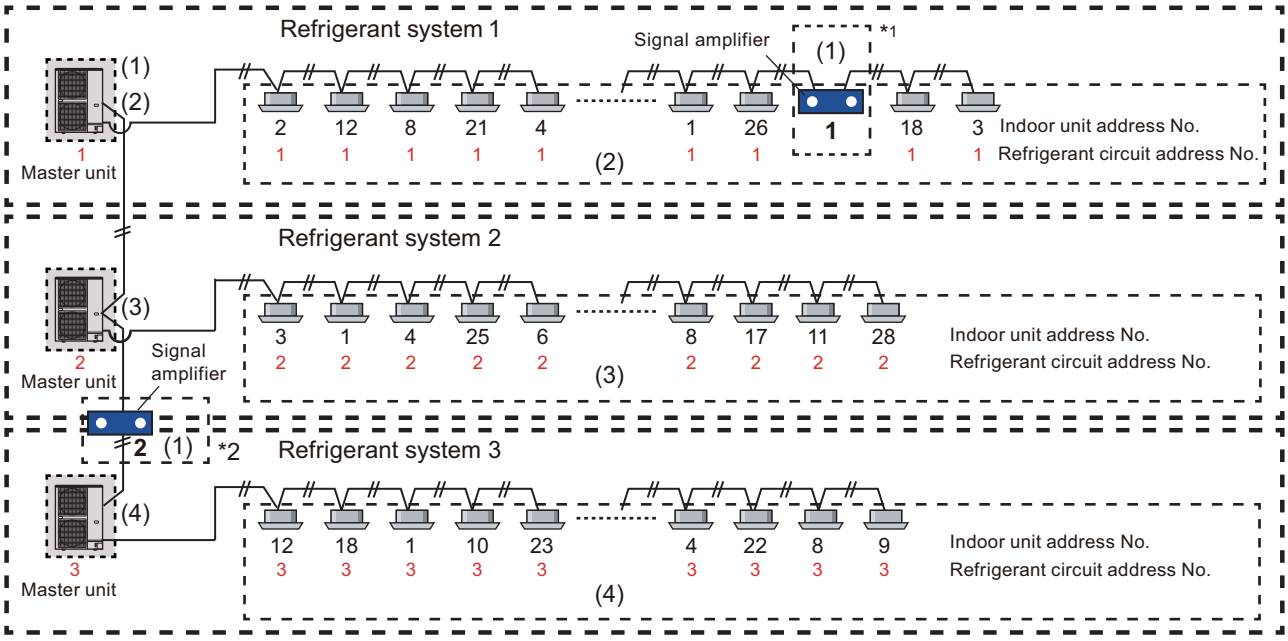
FUNCTION SETTINGS

■ Example of setting flow

● Example 1: Setting both addresses of signal amplifiers and indoor units automatically

⚠ CAUTION

- Complete the refrigerant circuit address setting of outdoor units before activating the automatic address setting function.
- Setting the indoor units addresses automatically does not necessarily mean that the addresses are assigned sequentially starting from the indoor unit which is located the closest to the outdoor units. (Instead, addresses are assigned randomly.)
  With respect to the setting of refrigerant circuit addresses, the same address numbers of the refrigerant circuit addresses of the outdoor units being connected within the same refrigerant system are assigned.
- To find out what addresses have been assigned to individual indoor units, perform a separate address check operation.



1. Activate the automatic address setting function of signal amplifier on the master unit of Refrigerant system 1. (1)
   An address is automatically assigned to all signal amplifiers on the network.
   (Because an address is also assigned to the signal amplifiers being connected in Refrigerant system 2 and3, its is not necessary to perform the automatic address setting of these signal amplifiers again on the master units of Refrigerant system 2 and 3.)

2. Activate the automatic address setting function of indoor unit on the master unit of Refrigerant system 1. (2)
   An indoor unit address and a refrigerant circuit address are automatically set up for all indoor units being connected in Refrigerant system 1.

3. Activate the automatic address setting function of indoor unit on the master unit of Refrigerant system 2. (3)
   An indoor unit address and a refrigerant circuit address are automatically set up for all indoor units being connected in Refrigerant system 2.

4. Activate the automatic address setting function of indoor unit on the master unit of Refrigerant system 3. (4)
   An indoor unit address and a refrigerant circuit address are automatically set up for all indoor units being connected in Refrigerant system 3.

FUNCTION SETTINGS

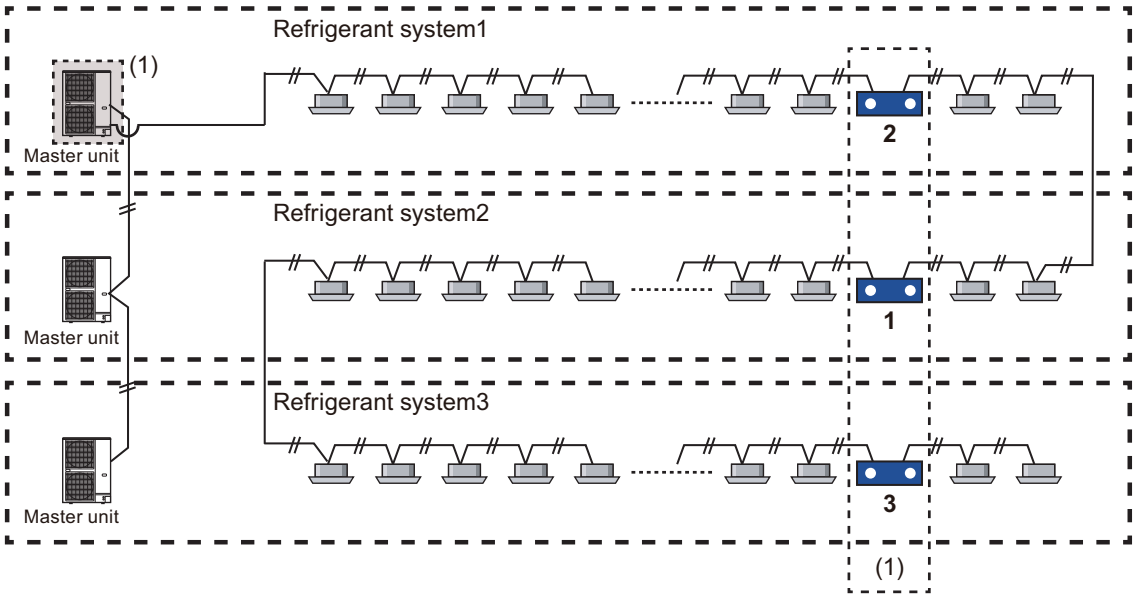
*1: If the total wiring length within a segment is expected to exceed 500 m, insert a signal amplifier. For details, refer to "Signal amplifier (UTY-VSGXZ1)" in Chapter 5. CONTROL SYSTEM on page 05-165.

*2: If the number of nodes (the number of units of indoor units, outdoor units, controllers, and others) is expected to exceed 64 (including signal amplifiers), insert a signal amplifier. For details refer to "Signal amplifier (UTY-VSGXZ1)" in Chapter 5. CONTROL SYSTEM on page 05-165.

● Example 2: Setting automatically the address of signal amplifiers only (When the addresses of indoor units will be set manually)

⚠ CAUTION

- When indoor units are being connected via different refrigerant systems, never activate the automatic address setting function of indoor unit.
- As long as master units are on the same network, any master unit can set the addresses of signal amplifiers automatically. Perform this setting on only 1 outdoor unit (master unit) within the same network. No duplicate setting of this function from other outdoor unit is allowed.



Activate the automatic address setting function of signal amplifier on the master unit of Refrigerant system 1.

An address is automatically assigned to all signal amplifiers on the network.

FUNCTION SETTINGS

1-6. Terminal resistor setting

⚠ CAUTION

- Be sure to set the terminal resistor according to specifications.
- Set the terminal resistor for every network segment (NS).
  - If terminal resistor is set in multiple devices, the overall communication system may be damaged.
  - If terminal resistor is not set in a device, abnormal communication may occur.

The layout of the switches differs by the type of the indoor unit. For the details, refer to "Setting on indoor unit PCB" on page 07-67.

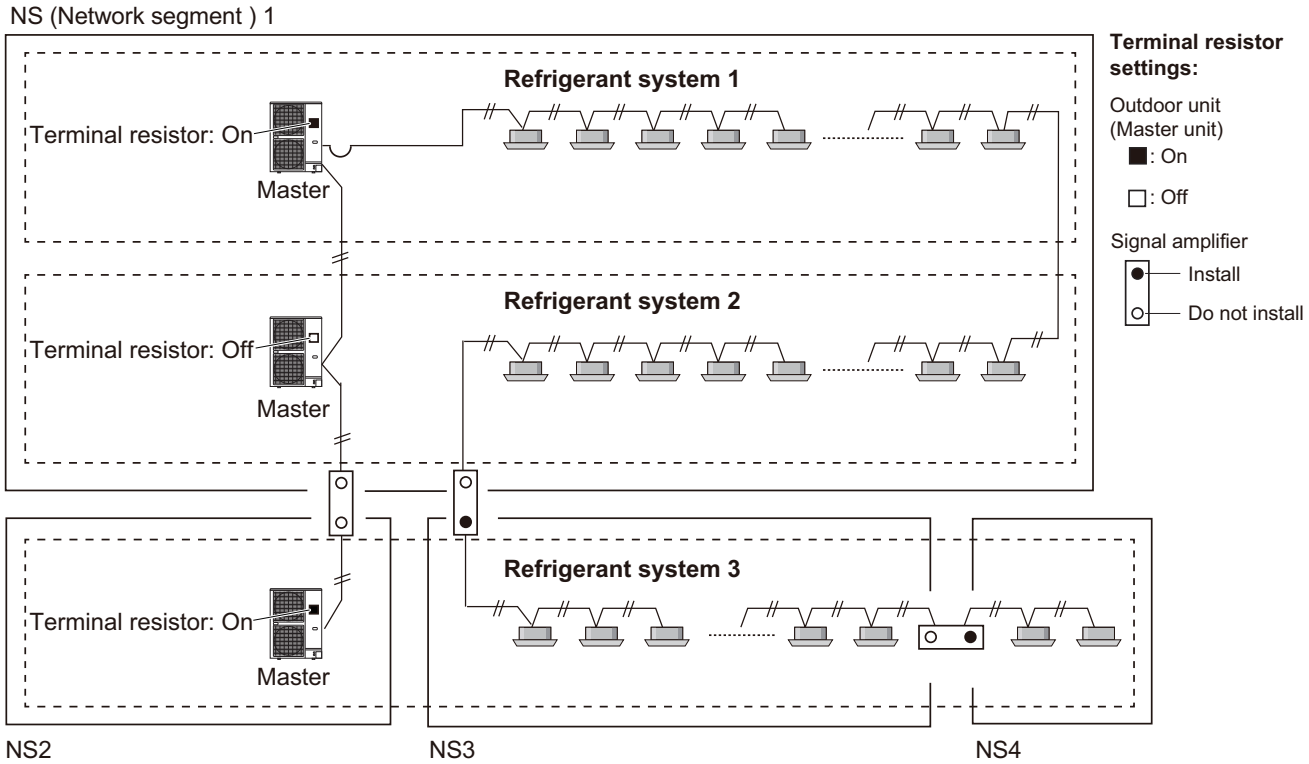
NOTES:

- Be sure to set one terminal resistor in a network segment. You can set the terminal resistor at the outdoor unit or signal amplifier.
- When setting the terminal resistor of a signal amplifier, refer to the installation manual of the signal amplifier.
- When setting multiple terminal resistors, take note of the following conditions:
  - How many network segments are there in a VRF system?
  - Where will you set the terminal resistors in a network segment?
    (Condition for 1 segment: Total number of outdoor units, indoor units, and signal amplifiers is less than 64, or the total length of the transmission line is less than 500 m)
  - How many outdoor units are connected in 1 refrigerant system?

  Based on the conditions mentioned above, set the outdoor unit DIP switch SET5-4 in accordance with the table below.

DIP switch SET5-4	Terminal resistor	Factory setting
Off	Disabled	◆
On	Enabled	

■ Setting example

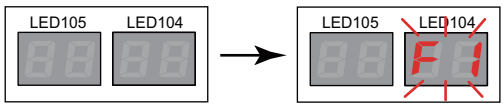


FUNCTION SETTINGS

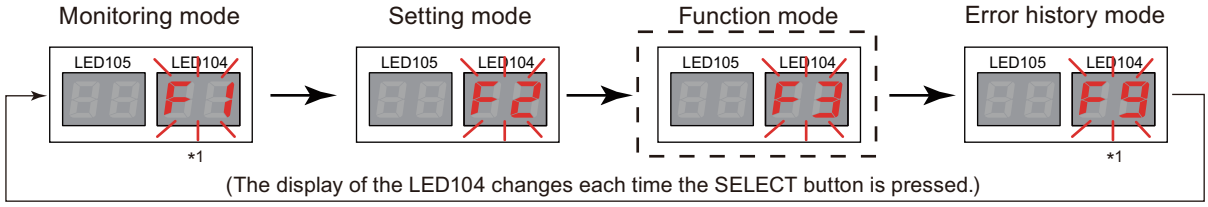
1-7. Indoor unit connection check

NOTE: When performing indoor unit connection check, Service tool and Web monitoring tool need to be stopped.

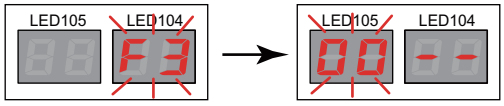
1. After verifying that the system is operating normally, press the MODE/EXIT button (SW107) once.



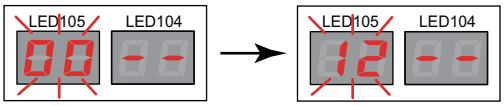
2. Press the SELECT button (SW108) to display “F3” on LED104.
   *1: Do not set “F1” and “F9” usually since they are used for maintenance.



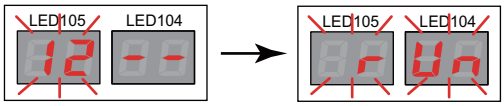
3. When “F3” is displayed on the LED104, press the ENTER button (SW109). Indicator on the LED105 flashes.



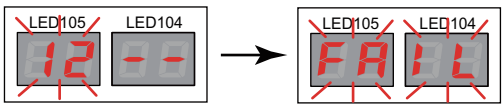
4. Press the SELECT button (SW108) to display “12” on the LED105.



5. When “12” is displayed on the LED105, hold down the ENTER button (SW109) for 3 seconds or longer. (Unless it is held down for at least 3 seconds, the selection will not be confirmed.) When the indoor unit connection check function is activated, the display changes to “run.”

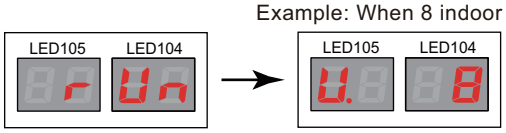


When the function is not activated (during maintenance), the display changes to “FAIL”.



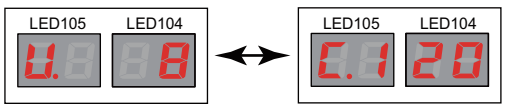
6. When the indoor unit connection check is completed, the number of indoor unit is displayed on the LED104 and LED105. Verify that the count matches the number of indoor units being installed.

Example: When 8 indoor units are being connected



7. When the number of indoor units is displayed on the LED104 and LED105, press the SELECT button (SW108). The display changes to volume ratio of the indoor units.

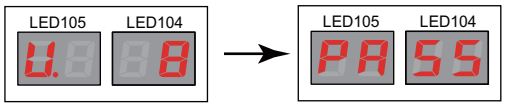
Example: When volume ratio of the indoor units is 120%



FUNCTION SETTINGS

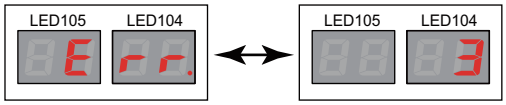
FUNCTION SETTINGS

8. When “the number of indoor units” or “volume ratio of the indoor units connection” appears on the LED104 and LED105, press the ENTER button (SW109). When indoor unit connection check is completed, the display changes to “PASS.”



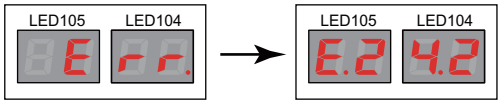
When indoor unit connection check is error, the display changes to “Err.” or “number of error” every 1 second.

Example: Shown numbers of error are three

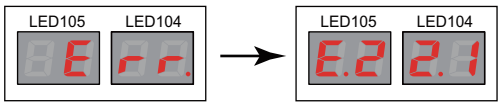


To check the contents of the error, push the ENTER button (SW109). When there are some errors, display can be changed by pushing the SELECT button (SW108).

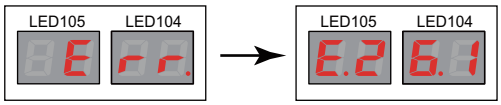
- Number of indoor unit connection is error



- Volume ratio of the indoor units connection is error

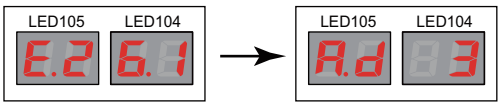


- Overlap address of the indoor unit is error

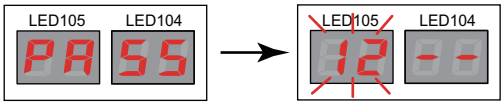


To display the address of the overlap indoor unit, hold down the ENTER button (SW109).

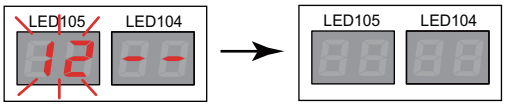
Example: Displaying overlap address to indoor unit address 3



9. To exit the indoor unit connection check, press the ENTER button (SW109) after confirming “PASS” is displayed on the LED105 and LED104.



Then, press the MODE/EXIT button (SW107) to exit the function mode.



FUNCTION SETTINGS

2. Function settings

To adjust the functions of this product according to the installation environment, various types of function settings are available.

NOTE: Incorrect settings can cause a product malfunction.

RELATED LINKS

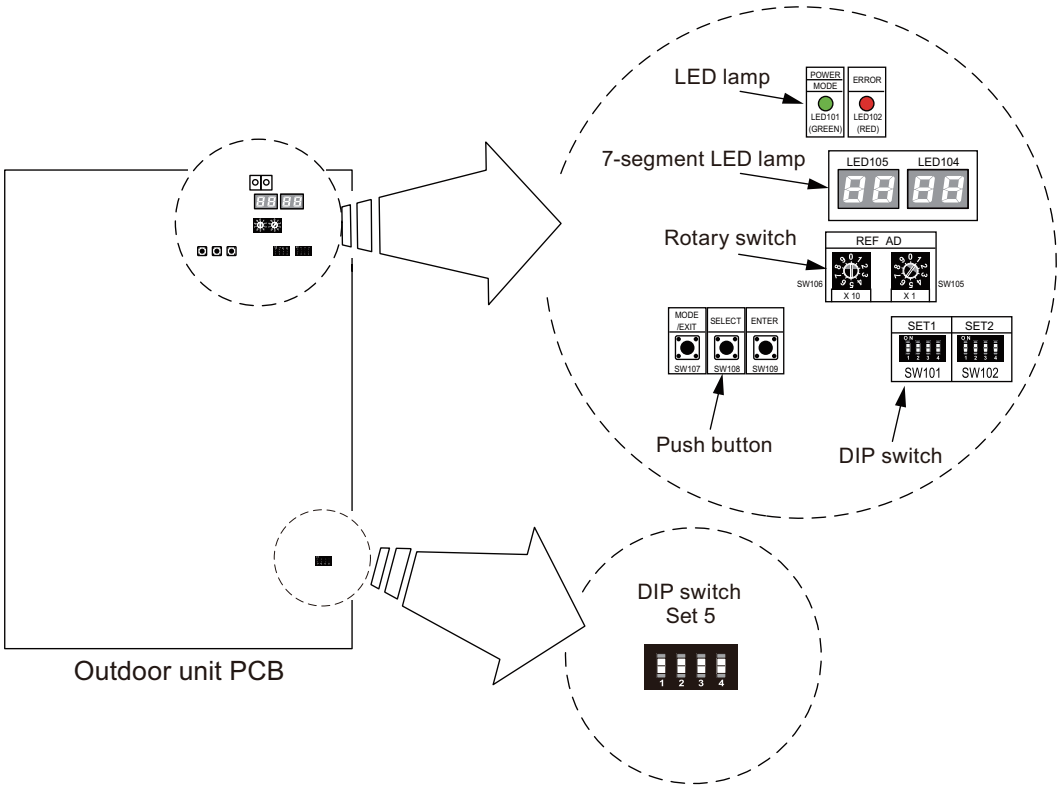
"Setting on outdoor unit PCB" on page 07-60
"Setting on indoor unit PCB" on page 07-67
"Setting by service tool (UTY-ASGXZ1)" on page 07-74
"Indoor unit (setting by wireless remote controller)" on page 07-78
"Indoor unit (setting by UTY-RNKU)" on page 07-84
"Indoor unit (setting by UTY-RSRY, UTY-RHRY)" on page 07-87
"Indoor unit (setting by UTY-RSKU, UTY-RHKU)" on page 07-90
"Indoor unit (setting by UTY-RNRUZ∗)" on page 07-93
"Function details" on page 07-96
"Wired remote controller (UTY-RNKU)" on page 07-101
"Simple remote controller (UTY-RSKU, UTY-RHKU)" on page 07-103
"Touch panel controller" on page 07-105
"Central remote controller (UTY-DCGY)" on page 07-106
"Central remote controller (UTY-DCGYZ∗)" on page 07-107
"Wired remote controller (Touch panel)" on page 07-109
"Simple remote controller (UTY-RSRY, UTY-RHRY)" on page 07-113
"Network convertor (UTY-VTGX)" on page 07-115
"Network convertor (UTY-VGGXZ1)" on page 07-117
"Signal amplifier" on page 07-119
"Modbus converter for VRF" on page 07-121
"Network converter for LonWorks" on page 07-124
"Thermostat converter" on page 07-125
"Duct static pressure setting" on page 07-128
"Administrative indoor unit setting" on page 07-129
"Energy saving setting on System controller" on page 07-131
"Electricity charge apportionment setting (System controller, Touch panel controller)" on page 07-137

FUNCTION SETTINGS

2-1. Setting on outdoor unit PCB

■ Components location

Set the functions of an outdoor unit with the push buttons (SW107, SW108, and SW109) while observing the 7-segment LED lamps (LED105 and LED104) on the PCB.



Actual switch position may differ depending on the outdoor unit.

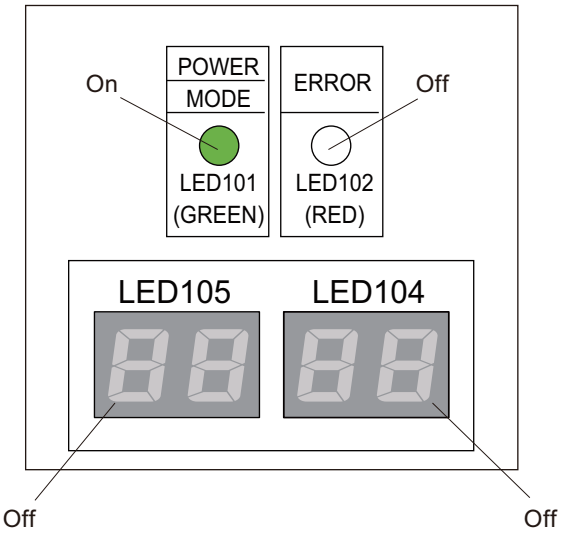
■ Preparation

Before performing the setting, be sure to conducting necessary preparations.

1. Make sure that the operation of the outdoor unit has stopped (if it is still running, stop the operation), and turn off the power.
2. Remove the front panel of the outdoor unit.
3. Remove the lid of the electrical component box to expose the PCB.

FUNCTION SETTINGS

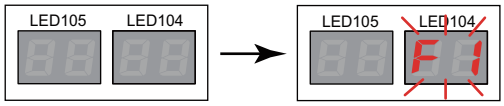
4. Turn on the power of the outdoor unit. When the system is operated normally, the indicator lamps may light as in following figure:



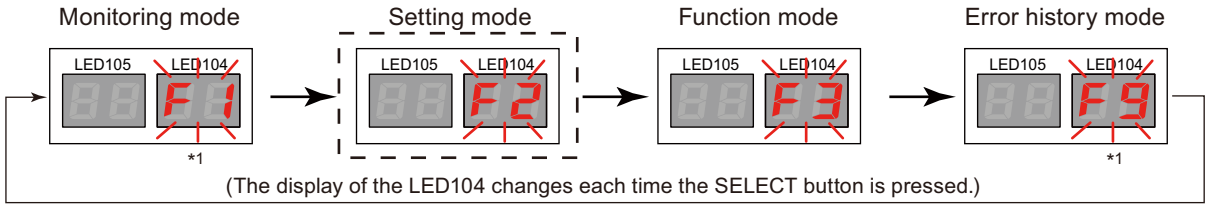
- Make sure that the POWER/MODE indicator lamp (LED101) is on and the ERROR indicator lamp (LED102) is off.
- If there is a system error, the ERROR indicator lamp (LED102) flashes. Check the wiring and power supply. After confirming the ERROR indicator lamp (LED102) has turned off, proceed to the setting procedure.

■ Function setting method

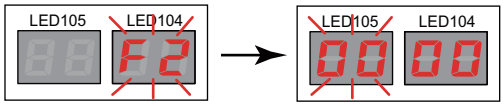
1. After verifying that the system is operating normally, press the MODE/EXIT button (SW107) once.



2. Press the SELECT button (SW108) to display “F2” on LED104.
*1: Do not set “F1” and “F9” usually since they are used for maintenance.



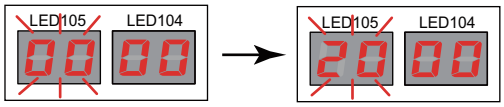
3. When “F2” is displayed on the LED104, press the ENTER button (SW109). Indicator on the LED105 flashes, and the flashing of “F2” on the LED104 stops and lights a number.



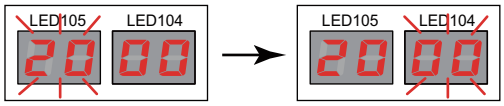
FUNCTION SETTINGS

4. With referring to "Setting list" on page 07-63, press the SELECT button (SW108) to display the code number of the mode you want to set on the LED105.

Example: To select switching between Forced stop and Emergency stop

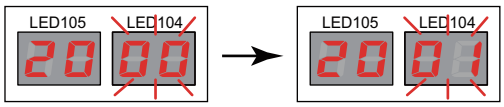


Then, press the ENTER button (SW109) to confirm the mode you want to set.
Flashing of LED105 stops and lights a number, and the lit number on the LED104 starts to flash.

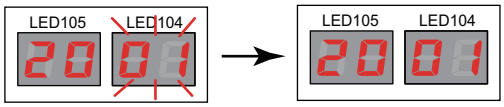


5. Again, with referring to "Setting list" on page 07-63, press the SELECT button (SW108), and display the code number of the function you want to set on the LED104.

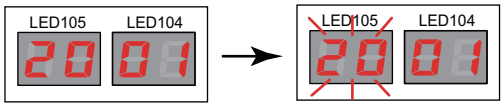
Example: To select the Emergency stop function



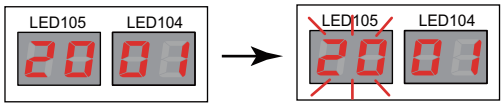
Then, press the ENTER button (SW109) to confirm the function you want to set.
Flashing of LED104 stops and lights a number.



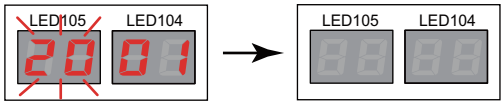
To set another function, press the ENTER button (SW109) in the completed state of current setting. Then, repeat steps 4. and 5. to set each function.



6. After all necessary function settings are completed, press the ENTER button (SW109) in the setting completed state shown in the previous step.
5 seconds after, even if the ENTER button (SW109) is not pressed, the LED105 starts to flash automatically.



Then, press the MODE/EXIT button (SW107) to exit the function setting mode.



FUNCTION SETTINGS

■ Setting list

NOTE: Code numbers not listed in the table blow are not available in this product. Do not set the unsupported code numbers.

LED105 code no.		Setting mode	LED104 code no.		Setting function	Factory setting	Remarks
0	0	Pipe length setting	0	0	Standard (131 to 213 ft) (40 to 65 m)	♦	Pipe length means the length between outdoor unit and the nearest indoor unit.
			0	1	Short (less than 131 ft) (less than 40 m)		
			0	2	Medium (213 to 295 ft) (65 to 90 m)		
			0	3	Long 1 (295 to 394 ft) (90 to 120 m)		
			0	4	Prohibited		
1	0	Prohibited	0	0	Prohibited	♦	Setting prohibited
1	1	Cooling capacity shift	0	0	Normal mode	♦	
			0	1	Save energy mode		
			0	2	High power mode 1		
			0	3	High power mode 2		
			0	4	Prohibited		
1	2	Heating capacity shift	0	0	Normal mode	♦	
			0	1	Save energy mode		
			0	2	High power mode 1		
			0	3	High power mode 2		
1	3	Prohibited	0	0	Prohibited	♦	Setting prohibited
1	4	Prohibited	0	0	Prohibited	♦	Setting prohibited
1	6	Prohibited	0	0	Prohibited	♦	Setting prohibited
1	7	Prohibited	0	0	Prohibited	♦	Setting prohibited
2	0	Switching between batch stop or emergency stop	0	0	Batch stop	♦	This mode selects the pattern of the stop function to be operated by the external input terminal (CN134). • Batch stop: The stop of all indoor units connected to same refrigerant system due to input signal coming from CN134. • Emergency stop: When emergency stop is actuated, the indoor unit does not accept the operation command from the remote controller. On the other hand, when the emergency stop is released (no input from CN134), the air conditioner does not return to the original operation until operate indoor unit by the remote controller.
			0	1	Emergency stop		

FUNCTION SETTINGS

LED105 code no.		Setting mode	LED104 code no.		Setting function	Factory setting	Remarks
2	1	Operation mode selecting method	0	0	Priority given to the first command	♦	Select the priority setting of the operation mode. • Priority given to the first command: Priority is given to the operation mode which is set first. • Priority given to external input of outdoor unit: Priority is given to the operation mode which is set by the external input terminal (CN132). • Priority given to administrative indoor unit: Priority is given to the operation mode of the administrative indoor unit which is set by the wired remote controller.
			0	1	Priority given to external input of outdoor unit		
			0	2	Priority given to administrative indoor unit		
2	2	Prohibited	0	0	Prohibited	♦	Setting prohibited
2	3	Prohibited	0	0	Prohibited	♦	Setting prohibited
2	4	Prohibited	0	0	Prohibited	♦	Setting prohibited
			0	1	Prohibited		
2	5	Prohibited	0	0	Prohibited	♦	Setting prohibited
2	6	Prohibited	0	0	Prohibited	♦	Setting prohibited
2	7	Prohibited	0	0	Prohibited	♦	Setting prohibited
2	8	Change of unit (Temperature)	0	0	Celsius (°C)	♦	
			0	1	Fahrenheit (°F)		
2	9	Change of unit (Pressure)	0	0	MPa	♦	
			0	1	psi		
3	0	Outdoor unit capacity save setting	0	0	Level 1 (Stop)	♦	The capacity limit in Energy saving peak cut control operation can be selected. With lowering the level, the energy efficiency get higher but the cooling or heating performance gets lower.
			0	1	Level 2		
			0	2	Level 3		
			0	3	Level 4		
			0	4	Level 5		
3	5	Presence of heater selection control using outdoor temperature	0	0	Disabled	♦	For heater control switching, setting of heater selection control using outdoor temperature 1 and 2 is required. (Setting value of function setting number 61 on indoor unit: 03 or 04) For details, refer to "External output" in Chapter 8. EXTERNAL INPUT AND OUTPUT on page 08-5.
			0	1	Enabled		
3	6	Outdoor temperature zone boundary temperature A	0	0	-4.0 °F (-20 °C)	♦	Setting if changing the outdoor temperature setting for heat pump prohibition zone is required when heater selection control using outdoor temperature 1 and 2 are performed on indoor unit. For details, refer to "External output" in Chapter 8. EXTERNAL INPUT AND OUTPUT on page 08-5.
			0	1	-0.4 °F (-18 °C)		
			0	2	3.2 °F (-16 °C)		
			0	3	6.8 °F (-14 °C)		
			0	4	10.4 °F (-12 °C)		
			0	5	14.0 °F (-10 °C)		
			0	6	17.6 °F (-8 °C)		
			0	7	21.2 °F (-6 °C)		
			0	8	24.8 °F (-4 °C)		

FUNCTION SETTINGS

LED105 code no.		Setting mode	LED104 code no.		Setting function	Factory setting	Remarks
3	7	Outdoor temperature zone boundary temperature B	0	0	42.8 °F (6 °C)	♦	Setting if changing the outdoor temperature setting for heat pump only zone is required when heater selection control using outdoor temperature 1 is performed on indoor unit. For details, refer to "External output" in Chapter 8. EXTERNAL INPUT AND OUTPUT on page 08-5.
			0	1	14.0 °F (-10 °C)		
			0	2	17.6 °F (-8 °C)		
			0	3	21.2 °F (-6 °C)		
			0	4	24.8 °F (-4 °C)		
			0	5	28.4 °F (-2 °C)		
			0	6	32.0 °F (-0 °C)		
			0	7	35.6 °F (2 °C)		
			0	8	39.2 °F (4 °C)		
			0	9	42.8 °F (6 °C)		
			1	0	46.4 °F (8 °C)		
			1	1	50.0 °F (10 °C)		
			1	2	53.6 °F (12 °C)		
			1	3	57.2 °F (14 °C)		
			1	4	60.8 °F (16 °C)		
			1	5	64.4 °F (18 °C)		
3	8	Prohibited	0	0	Prohibited	♦	Setting prohibited
4	0	Capacity priority setting (in low noise mode)	0	0	Off (Quiet priority)	♦	If the cooling/heating performance becomes insufficient when the low noise mode is set, it is possible to set “Capacity priority” that automatically cancels the low noise mode. (Once performance is restored, the mode will automatically return to the low noise mode.)
			0	1	On (Capacity priority)		
4	1	Low noise mode setting	0	0	Off (Normal)	♦	
			0	1	On (Low noise mode)		
4	2	Low noise mode operation level setting	0	0	Level 1	♦	Level 1: The operating sound lowers from about 3 to 5 dB (A) more than the rated value.
			0	1	Level 2		Level 2: The operating sound lowers from about 3 to 5 dB (A) more than the Level 1.
5	0	Prohibited	0	0	Prohibited	♦	Setting prohibited
5	1	Prohibited	0	0	Prohibited	♦	Setting prohibited
5	2	Prohibited	0	0	Prohibited	♦	Setting prohibited
6	0	Prohibited	0	0	Prohibited	♦	Setting prohibited
			0	1	Prohibited		
6	1	Prohibited	0	0	Prohibited	♦	Setting prohibited
7	0	Electricity meter no. setting 1 *1	0	0	Setting number x00	♦	Set the ones digit and tens digit of the number of the electricity meter connected to CN135.
			0	1	Setting number x01		
			•	•	•		
			•	•	•		
			•	•	•		
			9	8	Setting number x98		
			9	9	Setting number x99		
7	1	Electricity meter no. setting 2 *1	0	0	Setting number 0xx	♦	Set the hundreds digit of the number of the electricity meter connected to CN135.
			0	1	Setting number 1xx		
			0	2	Setting number 2xx		
7	2	Electricity meter pulse setting 1 *2	0	0	Setting number xx00	♦	Set the ones digit and tens digit of the number of the electricity meter pulse setting connected to CN135.
			0	1	Setting number xx01		
			•	•	•		
			•	•	•		
			•	•	•		
			9	8	Setting number xx98		
			9	9	Setting number xx99		

FUNCTION SETTINGS

LED105 code no.		Setting mode	LED104 code no.		Setting function	Factory setting	Remarks
7	3	Electricity meter pulse setting 2 *2	0	0	Setting number 00xx	♦	Set the hundreds digit and thousands digit of the electricity meter pulse setting connected to CN135.
			0	1	Setting number 01xx		
			•	•	•		
			•	•	•		
			•	•	•		
			9	8	Setting number 98xx		
			9	9	Setting number 99xx		
8	0	Prohibited	0	0	Prohibited	♦	Setting prohibited
8	1	Prohibited	0	0	Prohibited	♦	Setting prohibited
8	2	Prohibited	0	0	Prohibited	♦	Setting prohibited
8	3	Prohibited	0	0	Prohibited	♦	Setting prohibited
8	4	Prohibited	0	0	Prohibited	♦	Setting prohibited
8	5	Prohibited	0	0	Prohibited	♦	Setting prohibited
8	6	Prohibited	0	0	Prohibited	♦	Setting prohibited
8	7	Prohibited	0	0	Prohibited	♦	Setting prohibited
9	0	Prohibited	0	0	Prohibited	♦	Setting prohibited
			0	1	Prohibited		
			0	2	Prohibited		
			0	3	Prohibited		
			0	4	Prohibited		
			0	5	Prohibited		
			0	6	Prohibited		
			0	7	Prohibited		
			0	8	Prohibited		
			0	9	Prohibited		
			1	0	Prohibited		
			1	1	Prohibited		

*1: When electricity meter number is set to “000” and “201 to 299”, the pulses input to CN135 become ineffective. Available setting number is “001” to “200”.

*2: When the electricity meter pulse setting is set to “0000”, the pulses input to CN135 become ineffective. Available setting number is “0001” to “9999”.

FUNCTION SETTINGS

2-2. Setting on indoor unit PCB

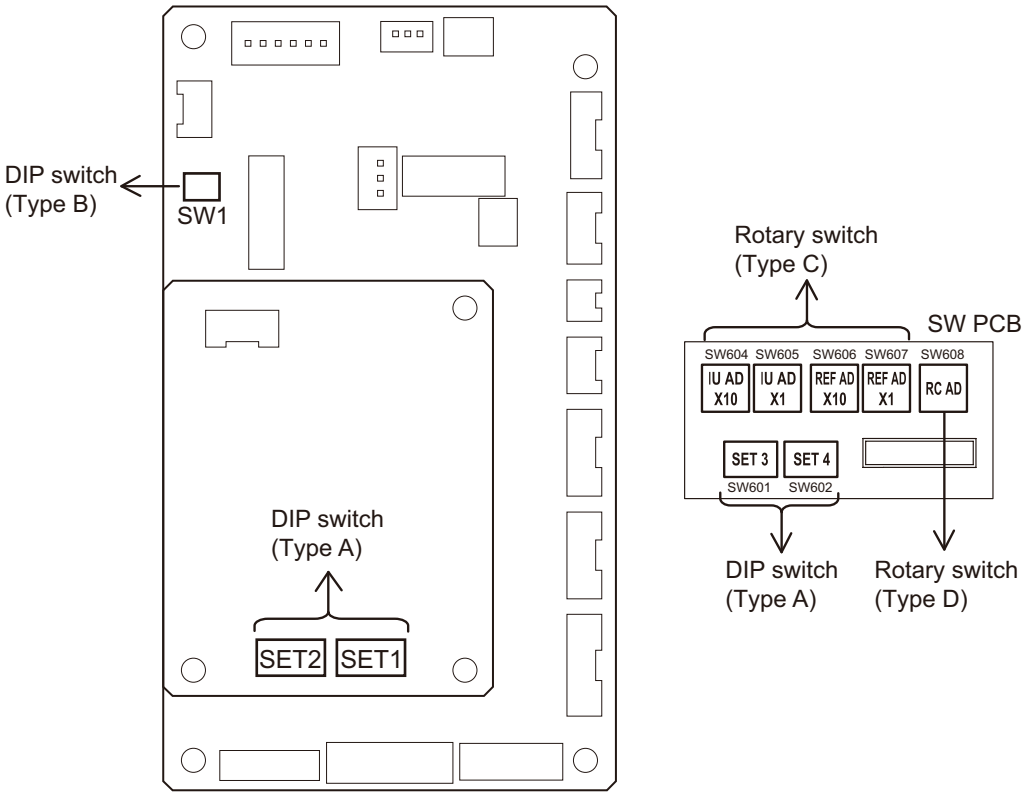
Components related to function setting are located on the indoor unit main PCB.

■ Components location

Related components location is differ depending on the type of the indoor unit as follows:

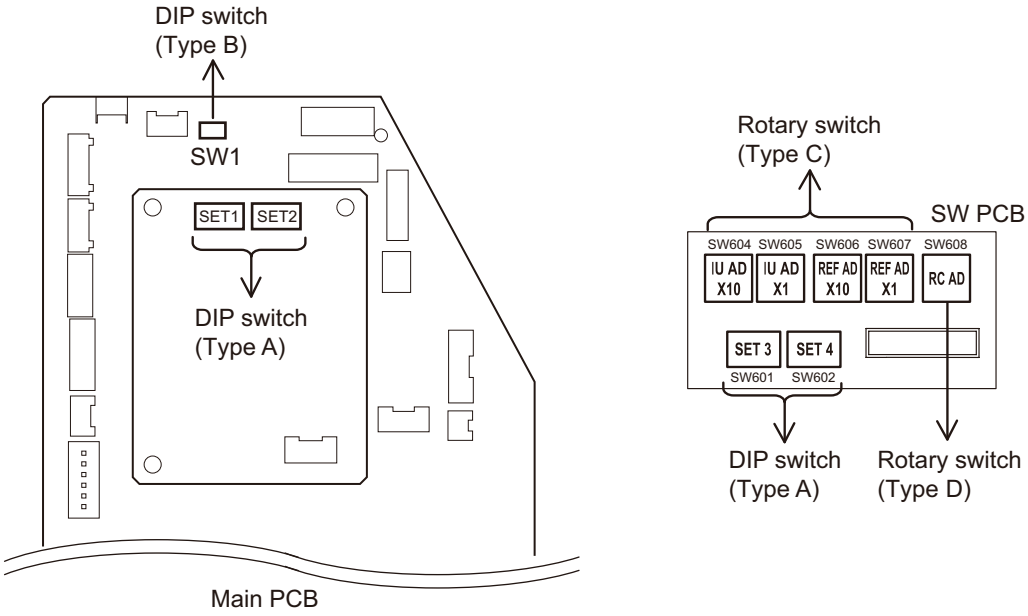
Type of PCB	Type of indoor unit
Type 1	Compact cassette, Cassette, Mini duct, Slim duct/Slim concealed floor, Medium static pressure duct, High static pressure duct, Floor/ ceiling, Ceiling
Type 2	Wall mounted (ASUB18, 24)
Type 3	Wall mounted (ASUA7, 9, 12, 14TLAV)
Type 4	Circular flow cassette
Type 5	Wall mounted (ASUA4, 7, 9, 12, 14TLAV2)
Type 6	Wall mounted (ASUB30, 36)
Type 7	Compact floor

- **Type 1:**

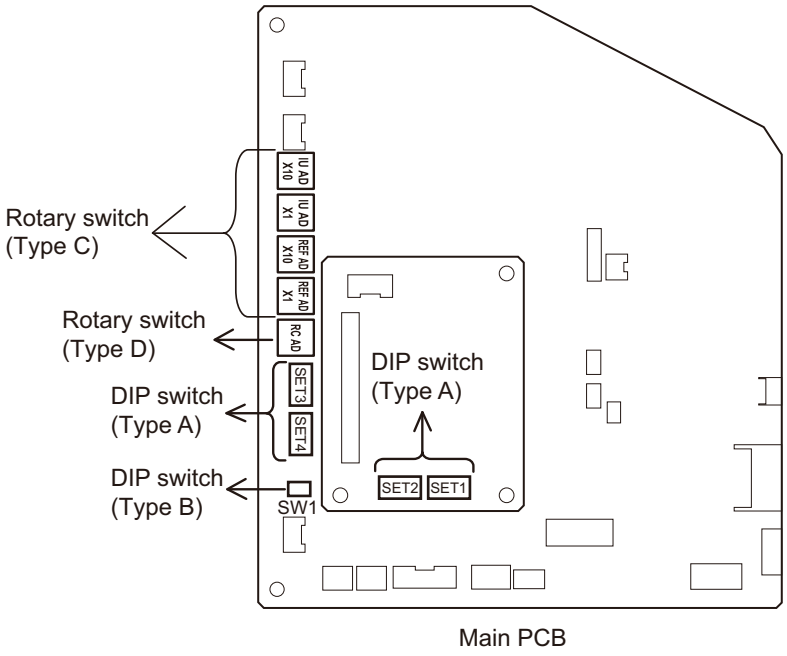


FUNCTION SETTINGS

- **Type 2:**

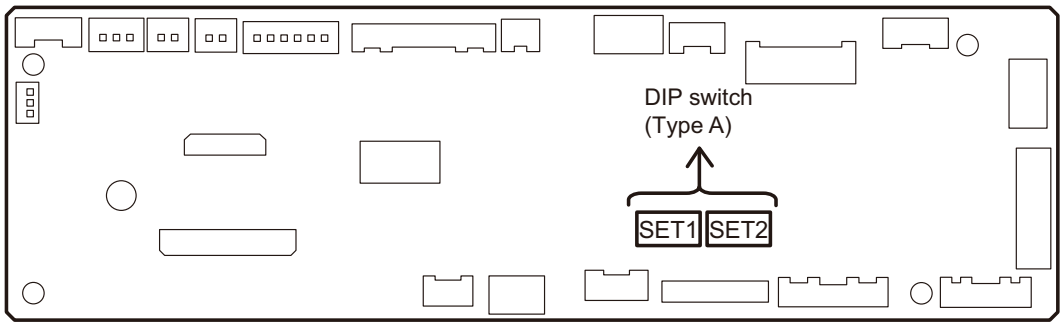


- **Type 3:**

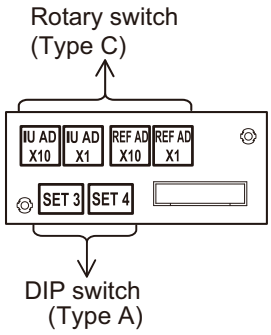


FUNCTION SETTINGS

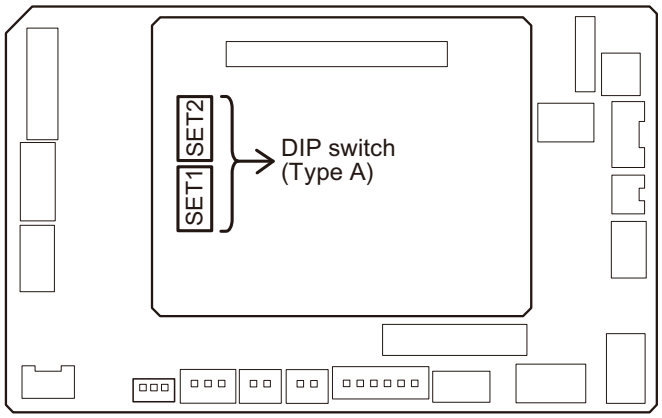
- **Type 4:**

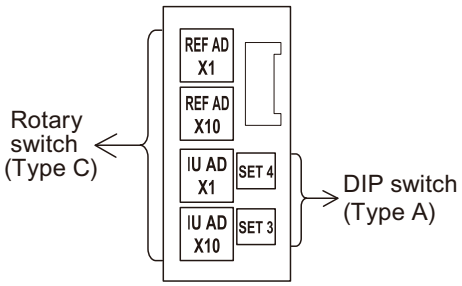


Main PCB

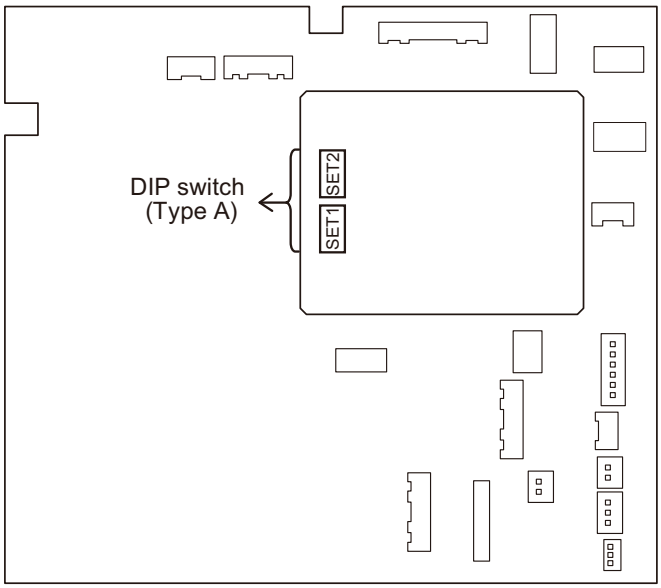


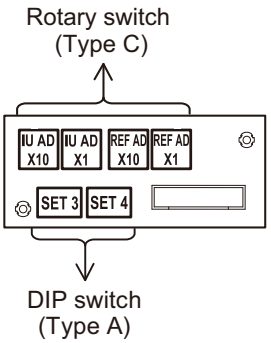
- **Type 5:**





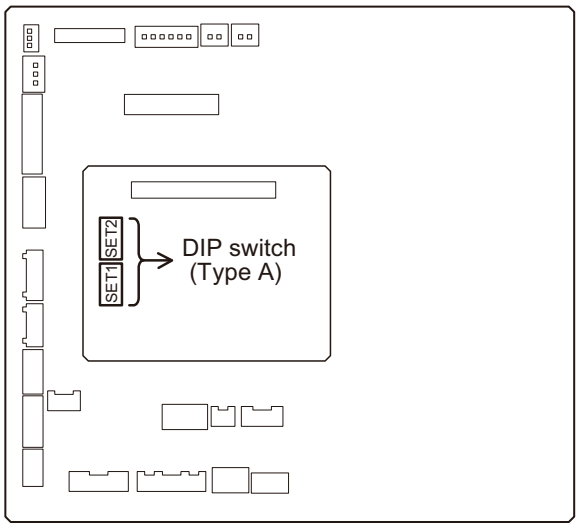
- **Type 6:**

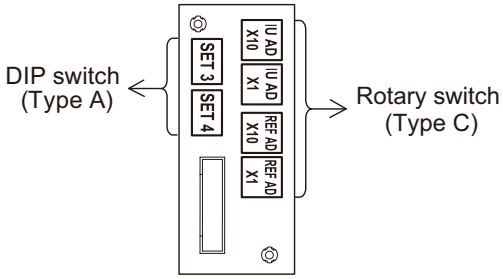




FUNCTION SETTINGS

- **Type 7:**





■ Switch type and setting item

DIP switch	Type A 	SET1	1	Prohibited (Indoor unit capacity setting)
			2	Prohibited (Indoor unit capacity setting)
			3	Prohibited (Indoor unit capacity setting)
			4	Prohibited (Indoor unit capacity setting)
		SET2	1	Prohibited (Indoor unit capacity setting)
			2	External input select “edge/pulse”
			3	Fan delay switch
			4	Prohibited
		SET3	1	Wireless remote controller custom code switch 1
			2	Wireless remote controller custom code switch 2
			3	Prohibited
			4	Prohibited
		SET3	1	Drainage function switch (Mini duct type and Slim duct type only)
			2	Auto louver grille setting switch (Mini duct type and Slim duct type only)
			3	Prohibited
			4	Prohibited
	Type B 	SW1		Remote controller wire type switch
Rotary switch	Type C 	IU AD x1		Indoor unit address switch 1
		IU AD x10		Indoor unit address switch 2
		REF AD x1		Refrigerant circuit address switch 1
		REF AD x10		Refrigerant circuit address switch 2
	Type D 	RC AD		Remote controller address switch

FUNCTION SETTINGS

■ DIP switch setting

- **SET2-2: “Edge” or “Pulse” selection of external input**

SET2-2	External input select	Factory setting
Off	Edge	♦
On	Pulse	

- **SET2-3: Switching of Fan delay function**
  Fan delay is a function to delay the stop of cooling fan when the air conditioner is stopped.
  When auxiliary heater is connected, this switch should be set at “On (Enabled)”. When connecting the auxiliary heater, be careful enough.

SET2-3	Fan delay	Factory setting
Off	Disabled	♦
On	Enabled	

NOTE: When SET2-3 is set to “Off (Disabled)”, use room temperature sensor of wired remote controller to prevent erroneous detection of room temperature.

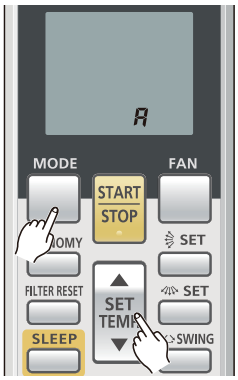
- **SET2-4: Setting prohibited**

SET2-4	Fan delay	Factory setting
Off	Off (Fixed)	♦
On	Setting prohibited	

- **SET3-1, 3-2: Custom code switching of wireless remote controller**
  This DIP switch sets the custom code of the wireless remote controller of an indoor unit.
  If multiple indoor units are being installed in the same room, switch the custom codes of the corresponding wireless remote controllers in order to prevent their signals from being mixed.
  When switching the custom code of the wireless remote controller of an indoor unit, be sure to also switch the code setting on the paired wireless remote controller at the same time.

SET3-1	SET3-2	Custom code	Factory setting
Off	Off	Type A	♦
On	Off	Type B	
Off	On	Type C	
On	On	Type D	

How to switch the code on the wireless remote controller:



1. Press the MODE button for more than 5 seconds to start the code change.
2. Press the SET TEMP. ▲ or ▼ button to select the desired code.

   A → B → C → D

3. Press the MODE button again to complete the code change.

FUNCTION SETTINGS

- **SET3-3, SET3-4: Setting prohibited**

SET3-3	SET3-4	Factory setting
Off (Fixed)	Off (Fixed)	♦
On (Setting prohibited)	On (Setting prohibited)	

- **SET4-1: Switching of Drainage function** (for Mini duct type and Slim duct type only)
  If the drain pump is not used, this switch should be set at “On (Disabled)”.

SET4-1	Drainage function	Factory setting
Off	Enabled	♦
On	Disabled	

NOTE: When set to “On” (Drainage function: Disabled), be careful not to cause water leakage by the drainage.

- **SET4-2: Switching of Auto louver grille setting** (for Mini duct type and Slim Duct type only)
  When Auto louver grille kit (optional parts) is attached, this switch should be set “On (Enabled)”.

SET4-2	Auto louver grille setting	Factory setting
Off	Disabled	♦
On	Enabled	

- **SET4-3: Setting prohibited**

SET4-3	Factory setting
Off (Fixed)	♦
On (Setting prohibited)	

- **SET4-4: Setting prohibited**

SET4-4	Factory setting
Off (Fixed)	♦
On (Setting prohibited)	

- **SW1: Switching of Remote controller wire type setting**

SW1	Remote controller wire type	Factory setting
2WIRE	2-wire	♦
3WIRE	3-wire	

FUNCTION SETTINGS

■ Rotary switch setting

- **IU AD (Indoor unit address): Switching of Indoor unit address**
  Sets the indoor unit addresses. For details, refer to the indoor unit address conversion table in "Address setting" on page 07-3.

Rotary switch	Description	Remarks	Factory setting
IU AD x1	Indoor unit address Switch 1	Indoor unit address (the first digit)	0
IU AD x10	Indoor unit address Switch 2	Indoor unit address (the second digit)	0

- **REF AD (Refrigerant circuit address): Switching of Refrigerant circuit address**
  Sets the refrigerant circuit addresses. For details, refer to the refrigerant circuit address conversion table in "Address setting" on page 07-3.

Rotary switch	Description	Remarks	Factory setting
REF AD x1	Refrigerant circuit address Switch 1	Refrigerant circuit address (the first digit)	0
REF AD x10	Refrigerant circuit address Switch 2	Refrigerant circuit address (the second digit)	0

- **RC AD (Remote controller address): Switching of Remote controller address**
  When the indoor unit is wired by remote controller group, to identity the indoor unit in the remote controller group, the number (remote controller address) in the remote controller group is set.
  – **3-wire type** (only for manual address setting)
  Set the remote controller address in order of 0, 1, 2, 3..., 15. (Blank is not allowed.)

Rotary switch	Description	Remarks	Factory setting
RC AD	Remote controller address	Remote controller address	0

  – **2-wire type**
  It can choose either automatic address setting or manual address setting.
    - When setting the automatic address:
      Set the remote controller address at “0 (Factory setting)” only.
    - When setting the manual address:
      Set the remote controller address in the 1, 2, 3..., 15.

Rotary switch	Description	Remarks	Factory setting
RC AD	Remote controller address	Remote controller address	0

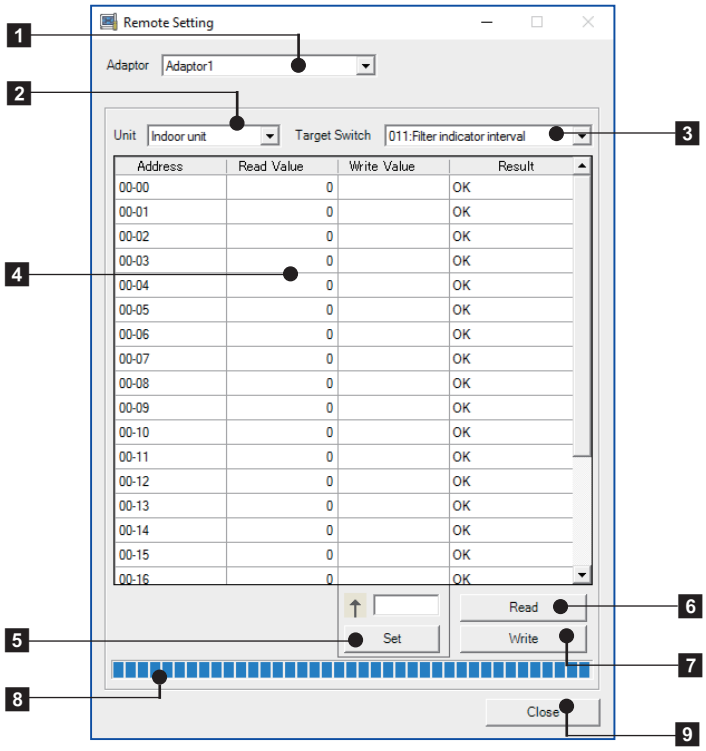
NOTE: When performing manual address setting, this setting cannot be set at “0 (Factory setting)”.

FUNCTION SETTINGS

2-3. Setting by service tool (UTY-ASGXZ1)

■ Remote setting

Function setting of the indoor unit and function setting defined as Function “F2” on the outdoor unit can be changed remotely. (Some settings are not available.)
The processed result can also be output to a CSV file.



1 Adapter selection

Selects the transmission adapter that connects the system containing units perform processing.

2 Unit type

Selects the unit type of the indoor unit and the outdoor unit that perform processing.

3 Target switch

Displays the target item of the local function setting. (No. + name)

4 Unit list

Displays a list of addresses (Refrigerant no. - Unit no.) of the target unit selected in 1 and 2.
In addition, multiple units can be handled simultaneously by arbitrary selection (background blue color) for target unit selection.This list displays the following information, in addition to address.

- Read value

  Displays the value of the item selected by combo box in 3 acquired from the target unit.
- Write value

  Displays the set value specified in 5.
- Result

  Displays the result (OK/NG) when 6 and 7 are pressed. When outside the target, ‘--’ is displayed.

FUNCTION SETTINGS

5 Write value input

The value input here is set at the write value field of the unit selected in 4.This input value becomes the setting change value of the item selected in 3.

NOTES:

- For the set value of each function setting, refer to "Function details" on page 07-96, or the Installation manual of the indoor unit or the outdoor unit.
- When clearing the write value, click the Set button with the field blank after selecting the target unit.

6 Read button

Acquires the value of the item selected in 3 from the unit selected in 4, and displays it at the read value field in 4. After the acquirement of the value is completed, subsequent processing can be canceled by clicking the button again.

7 Write button

Performs setting of the value input at the write value field of 4. for the unit selected in 4.

Thereafter, the setting contents result is displayed at the read value field of 4 for check use.

After the setting is completed, subsequent processing can be canceled by clicking the button again.

8 Progress bar

Displays the processing progress of 6 or 7.

9 Close button

Closes this screen (Remote Setting screen). However, when read/write processing for unit was performed, confirmation dialog box opens to confirm whether to save the data to a CSV file.

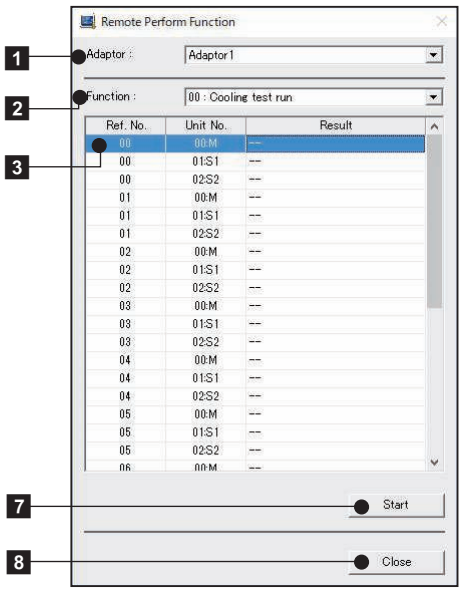
NOTES:

- When both remote setting of the outdoor unit and the setting from the push button on the PCB of the outdoor unit are performed, the setting performed later will be valid.
- When the remote setting of the outdoor unit and the setting from the push button on the PCB of the outdoor unit are performed at the same time, the remote setting will be invalid. Check that the push button is not used before starting the remote setting.

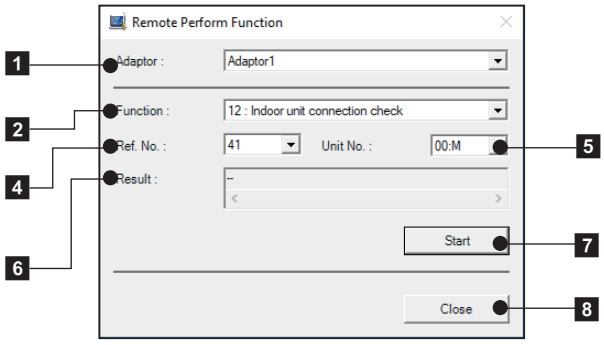
FUNCTION SETTINGS

■ Remote perform function

Function defined as “F3” on the outdoor unit can be performed remotely.



When selecting the function applied to multiple outdoor units



When selecting the function applied to one outdoor unit

1 Adapter name selection

Selects the transmission adapter that connects the target unit.

2 Function selection

Selects the function to be operated remotely. The window display varies depending on the selected function.

3 Outdoor unit selection (for the function applied to multiple outdoor units)

Specifies the outdoor unit to be operated remotely. After the function is performed, the result is displayed.

4 Refrigerant system address selection

Specifies the refrigerant system address which the outdoor unit to be operated remotely belongs to.

5 Outdoor unit selection

Specifies the outdoor unit to be operated remotely.

6 Result (for the function applied to one outdoor unit)

After the function is performed, the result is displayed.

7 Start button

Performs setting of the value input at the write value field of 4 for the unit selected in 4.

Thereafter, the setting contents result is displayed at the read value field of 4 for check use.

After setting is completed, subsequent processing can be canceled by clicking the button again.

FUNCTION SETTINGS

8 Close button

Closes this screen. (Remote Perform Function screen)

NOTES:

- Even if you perform another function by the remote perform function or the push button on the PCB of the outdoor unit while a function is operating, the function may not be changed.
- When the remote perform function and the function by the push button on the PCB of the outdoor unit are performed at the same time, the remote perform function will not be operated. Check that the push button is not used before starting the remote perform function.

FUNCTION SETTINGS

2-4. Indoor unit (setting by wireless remote controller)

⚠ CAUTION

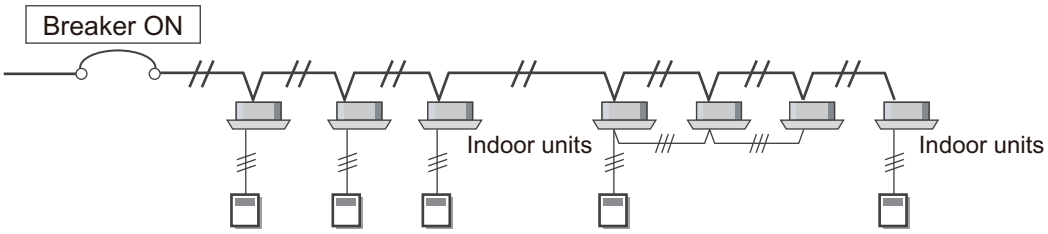
This setting changes the function settings used to control the indoor unit according to the installation conditions. Incorrect settings can cause a product malfunction.

- After the power is turned on, perform the “Function setting” according to the installation conditions using the remote controller.
- The settings may be selected between the following two: Function number or Setting number.
- Settings will not be changed if invalid numbers or setting numbers are selected.

■ Preparation

1. Before turning on the power of indoor unit, reconfirm following items:
   - Piping air tight test and vacuuming have been performed firmly.
   - There is no wiring mistake.

2. Turn on the power of indoor units.
   By turning on the power, the indoor units initialize EEV.

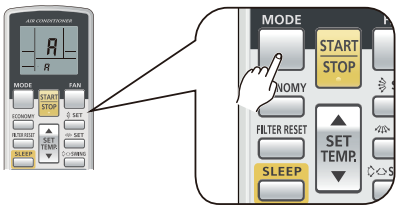


Before proceeding the function setting, refer to the following sections and perform necessary steps:

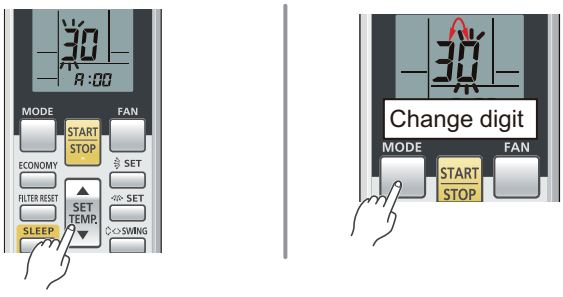
- "Button name and function" on page 07-16
- "Entering function setting mode" on page 07-17
- "Selection and confirmation of custom code" on page 07-17

■ Indoor unit function setting

1. Press the MODE button to enter the function setting mode.



2. Press the SET TEMP.▲ or ▼ button to adjust the function number.
   Each time the MODE button is pressed, it switches between the left digit and the right digit.

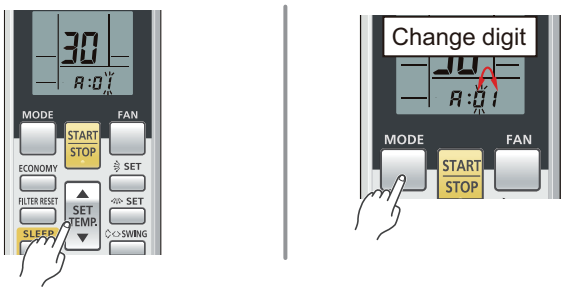


FUNCTION SETTINGS

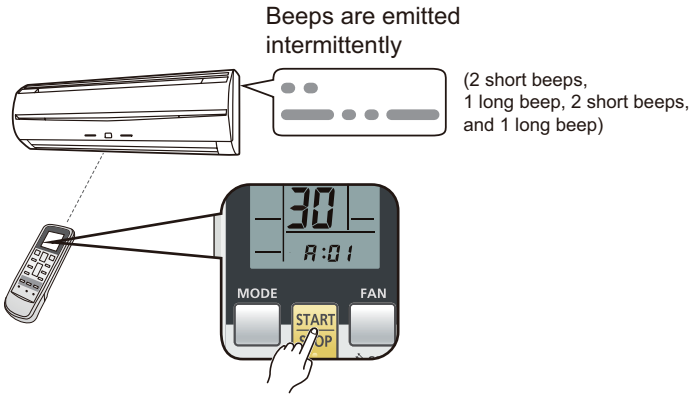
3. Press the FAN button to proceed to number setting. To return to the function number adjustment, press the FAN button again.



4. Press the SET TEMP. ▲ or ▼ button to adjust the setting number.
Each time the MODE button is pressed, it switches between the left digit and the right digit.



5. Send the information by pressing the START/STOP button once. A beeping sound (2 short beeps, 1 long beep, 2 short beeps, and 1 long beep) will be emitted if the command is accepted.



In the following case, the setting signal will not be accepted correctly and 5 short beeps will be emitted:

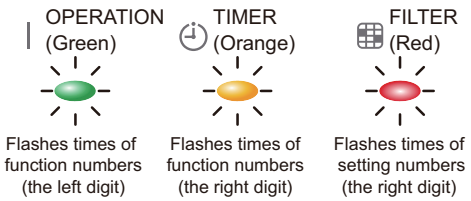
- The function setting number is set out of range

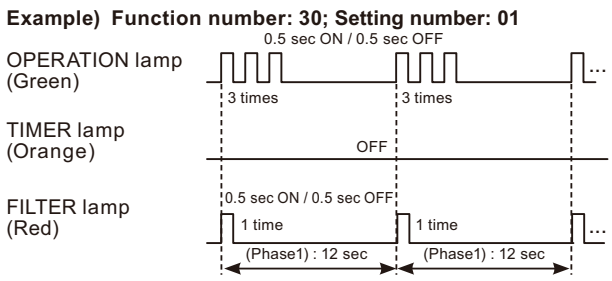
FUNCTION SETTINGS

6. Indoor unit lamps will indicate the function setting number as follows:

Case 1: When setting number is one digit

Indoor unit lamps will indicate the function setting number on the OPERATION (Green) lamp, TIMER (Orange) lamp, and FILTER (Red) lamp.

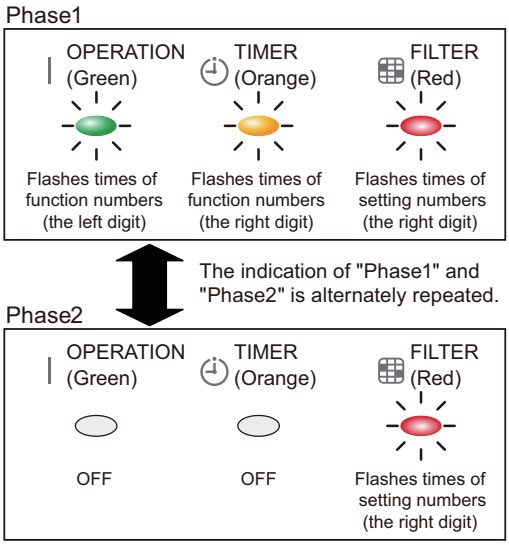


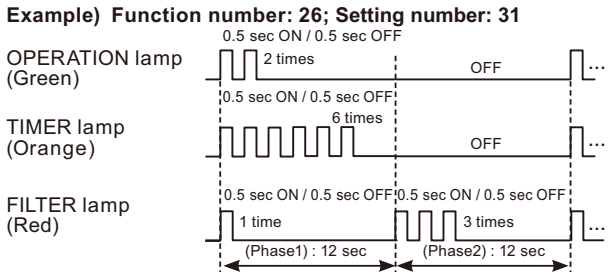


When the number setting is “0”, TIMER lamp and FILTER lamp will not flash.

Case 2: When setting number is two digits

Indoor unit lamps will indicate the function setting number on the OPERATION (Green) lamp, TIMER (Orange) lamp, and FILTER (Red) lamp.





When the number setting is “0”, TIMER lamp and FILTER lamp will not flash.

FUNCTION SETTINGS

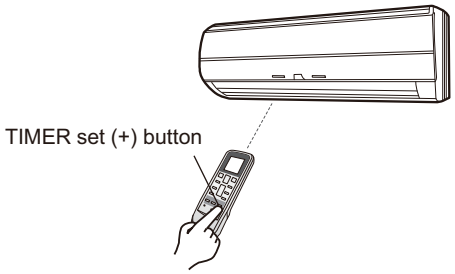
FUNCTION SETTINGS

RELATED LINKS

"Function details" on page 07-96

■ Confirmation of function setting

To confirm the function setting is properly configured, press the TIMER set (+) button.



Beeps are emitted intermittently as follows:

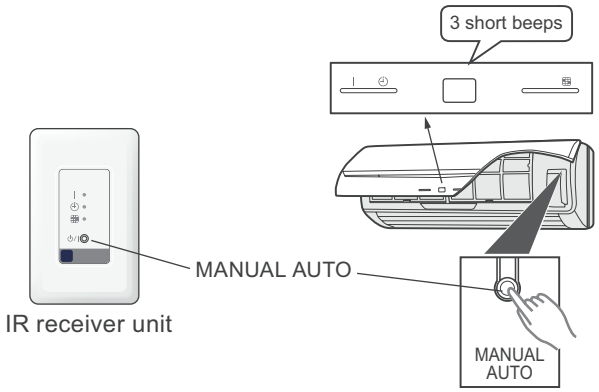
Correct: (2 short beeps, 1 long beep, 4 short beeps, and 1 long beep)

Wrong: (3 sec) (2 short beeps and 1 long beep)

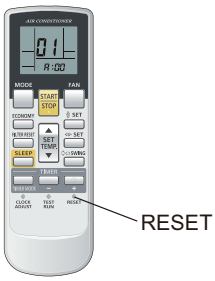
■ Completion of function setting mode

- The position of the MANUAL AUTO button varies depending on the model. For the actual position of the button on each unit, refer to the operation manual.
- If the MANUAL AUTO button is pressed continuously for 10 seconds or more, the error will be displayed. In this case, release the button or turn off the power.

1. Press and hold the MANUAL AUTO button for 3 seconds. The brightness of each LED lamp is darkening though the content of the display does not change.



2. Press the RESET button.

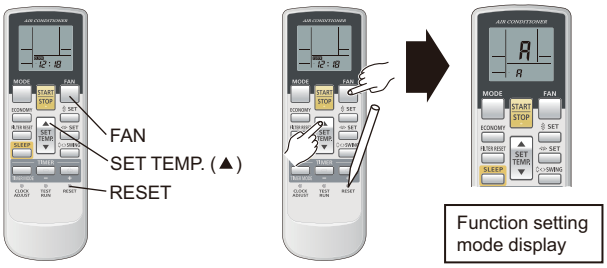


For the custom code setting of b, c, or d, perform the setting after pressing the RESET button.

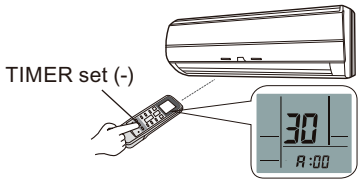
- After completing the procedure above, no function setting signal is received. If the function setting signal is sent, 5 short beeps will be emitted indicating an error.
- When returning the function setting mode again, press the MANUAL AUTO button for 3 seconds.

■ Reconfirmation of function setting

1. While holding down the FAN and the SET TEMP.▲ buttons, press the RESET button. The function setting mode will be activated.

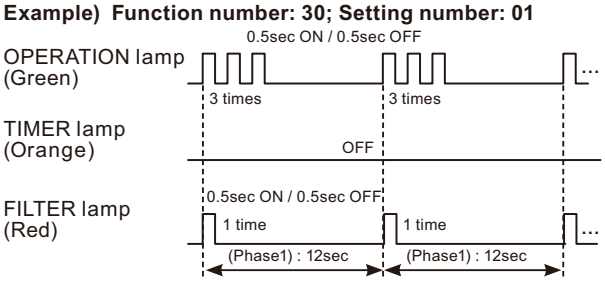


2. Function number to be confirmed is displayed on the remote controller LCD.
   Press the SET TEMP.▲ or ▼ button to adjust the setting number. Each time the MODE button is pressed, it switches between the left digit and the right digit.
   Press the TIMER set (-) button.



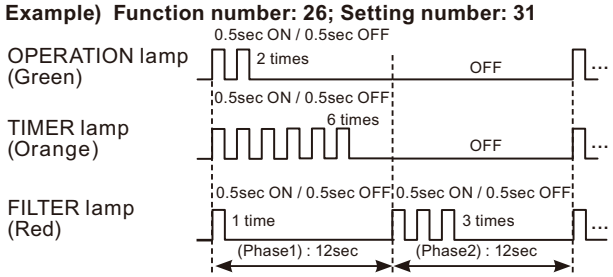
Case1: When setting number is one digit

Example) Function number: 30; Setting number: 01



Case2: When setting number is two digits

Example) Function number: 26; Setting number: 31

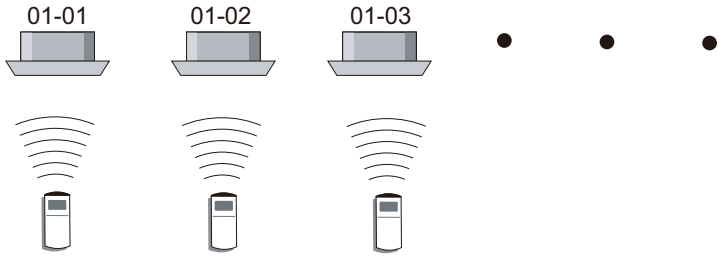


FUNCTION SETTINGS

■ Setting up each indoor unit

Setting must be performed on each indoor unit by repeating following procedures.

- "Preparation" on page 07-78
- "Indoor unit function setting" on page 07-78
- "Confirmation of function setting" on page 07-80
- "Completion of function setting mode" on page 07-81
- "Reconfirmation of function setting" on page 07-81



When the custom code is different to "H" (factory setting), only following procedures need to be performed.

- "Preparation" on page 07-78
- "Completion of function setting mode" on page 07-81
- "Reconfirmation of function setting" on page 07-81

■ Resetting the power after setting up all indoor units

Important:

- If the reset is not performed, function cannot be read correctly.
- After all the functions have been set, the circuit breaker needs to be switched off for at least 2 minutes.
  - After the 2 minutes has passed, power can be restored.
  - The set function is stored in the PCB and will remain in memory even when the power of indoor unit is turned off.
    However setting function is effective after disconnecting the power supply and then reconnecting it.
- Record the latest configuration of the indoor unit function setting on a label, and put the label on the unit so it can be used for after-sales service operations.

Number “0” setting will not be indicated on TIMER lamp and FILTER lamp.

Once the RESET button is pressed on the remote controller, the operation mode will be set to the AUTO MODE.

Adjust the operation mode to either cooling or heating before starting the operation of the air conditioner.

NOTE: If custom code other than "H" is set, the remote control must be set accordingly to the indoor unit setting.

FUNCTION SETTINGS

2-5. Indoor unit (setting by UTY-RNKU)

⚠ CAUTION

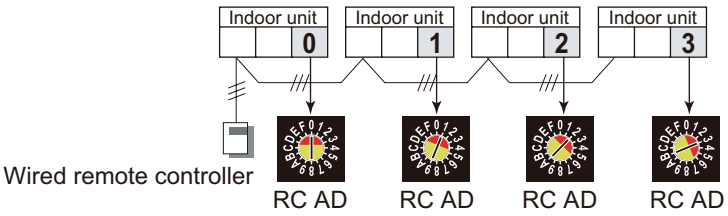
This setting changes the function settings used to control the indoor unit according to the installation conditions. Incorrect settings can cause a product malfunction.

- After the power is turned on, perform the “Function setting” according to the installation conditions using the remote controller.
- The settings may be selected between the following two: Function number or Setting number.
- Settings will not be changed if invalid numbers or setting numbers are selected.
- This function is not available on the slave units.

■ Preparation

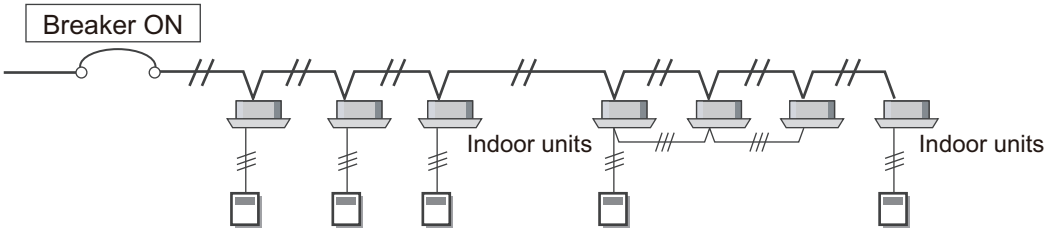
1. If multiple indoor units are connected to a single wired remote controller, set up the remote controller address (RC AD) manually on the indoor units PCBs by referring "Manual address setting method" on page 07-8.

Example: When 4 indoor units are connected



2. Before turning on the power of indoor unit, reconfirm following items:
   - Piping air tight test and vacuuming have been performed firmly.
   - There is no wiring mistake.

3. Turn on the power of indoor units.
   By turning on the power, the indoor units initialize EEV.

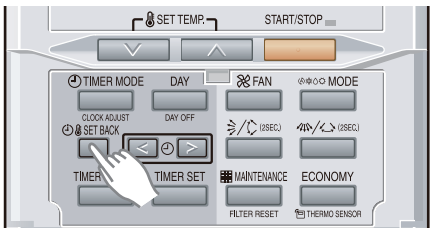


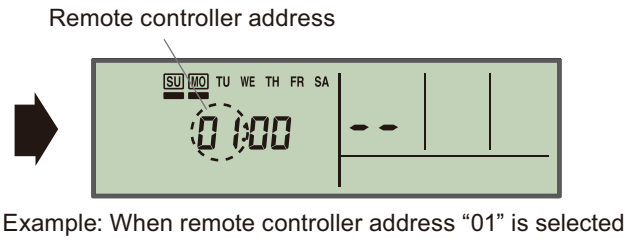
Before proceeding the function setting, refer to the following sections and perform necessary steps:

- "Button name and function" on page 07-27
- "Entering setting mode" on page 07-27

■ Indoor unit function setting

1. In the initial display of setting mode, by pressing the SET BACK button, select a remote controller address. (Select the indoor unit you want to operate.)



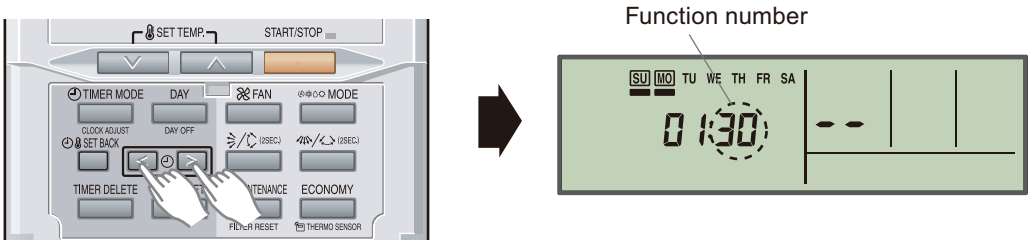


Example: When remote controller address “01” is selected

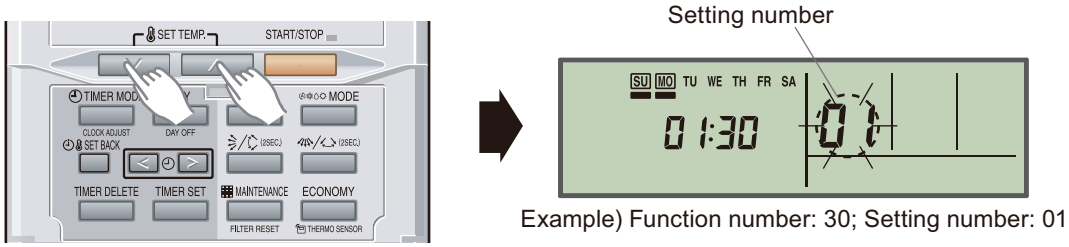
FUNCTION SETTINGS

FUNCTION SETTINGS

2. Select the function number by pressing the SET TIME “<” button or SET TIME “>” button.

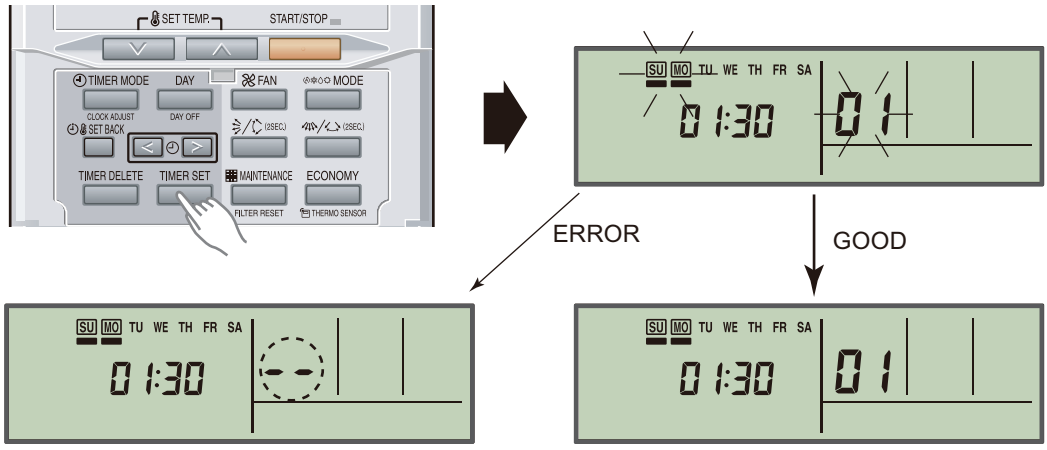


3. Select the setting number by pressing the SET TEMP. “∨” or the SET TEMP. “∧” button. The setting number indication flashes during number selection setting.



Example) Function number: 30; Setting number: 01

4. Confirm the setting by pressing the TIMER SET button. The data will be transferred to the indoor unit.



- When the address data is properly set up on the indoor unit, the flashing of the number stops and the set number will be displayed. (GOOD)
- When the address data is not set up correctly, “- -” is displayed. (ERROR) Back to the previous step and set up the indoor unit address data again.

RELATED LINKS

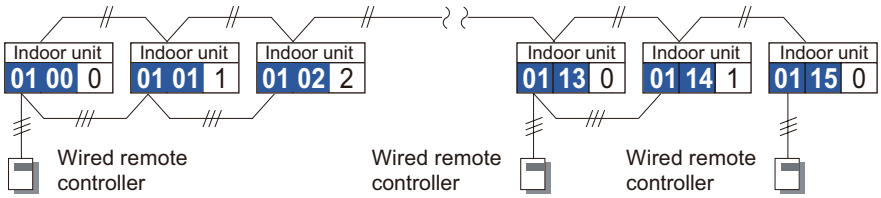
"Completion of setting mode" on page 07-30
"Function details" on page 07-96

FUNCTION SETTINGS

■ Setting up each indoor unit

Setting must be performed on each indoor unit by repeating following procedures.

- "Preparation" on page 07-84
- "Indoor unit function setting" on page 07-84
- "Completion of setting mode" on page 07-30



■ Resetting the power after setting up all indoor units

NOTES:

- If the reset is not performed, function cannot be read correctly.
- After all the functions have been set, the circuit breaker needs to be switched off for at least 2 minutes.
  - After the 2 minutes has passed, power can be restored.
  - The set function is stored in the PCB and will remain in memory even when the power of indoor unit is turned off.
    However setting function is effective after disconnecting the power supply and then reconnecting it.
- Record the latest configuration of the indoor unit function setting on a label, and put the label on the unit so it can be used for after-sales service operations.

FUNCTION SETTINGS

2-6. Indoor unit (setting by UTY-RSRY, UTY-RHRY)

⚠ CAUTION

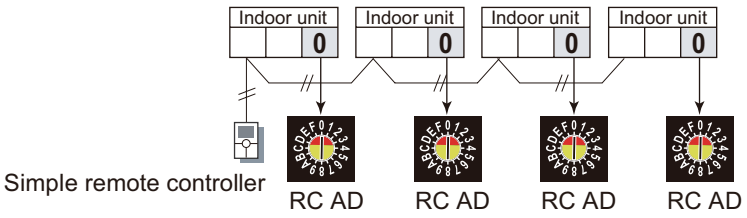
This setting changes the function settings used to control the indoor unit according to the installation conditions. Incorrect settings can cause a product malfunction.

- After the power is turned on, perform the “Function setting” according to the installation conditions using the remote controller.
- The settings may be selected between the following two: Function number or Setting number.
- Settings will not be changed if invalid numbers or setting numbers are selected.
- This function is not available on the slave units.
- Before starting the function setting, refer to the indoor unit installation manual and prepare for the setting.
- For details on the function numbers and setting numbers, refer to the indoor unit installation manual.

■ Preparation

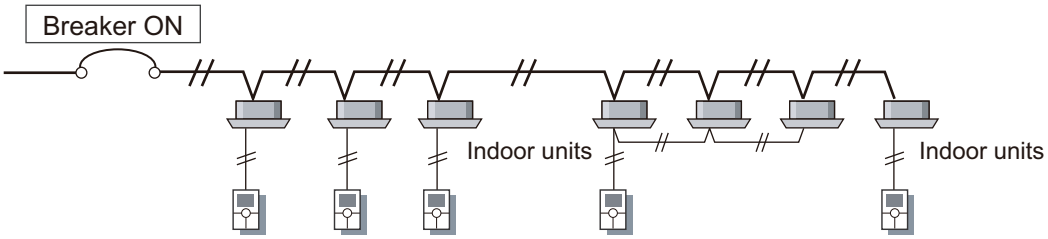
1. If multiple indoor units are connected to a single wired remote controller, set up the remote controller address with “Automatic address setting”.

Example: When 4 indoor units are connected



2. Before turning on the power of indoor unit, reconfirm following items:
   - Piping air tight test and vacuuming have been performed firmly.
   - There is no wiring mistake.

3. Turn on the power of indoor units.
   By turning on the power, the indoor units initialize EEV.



Before proceeding the function setting, refer to the following section and perform necessary steps:

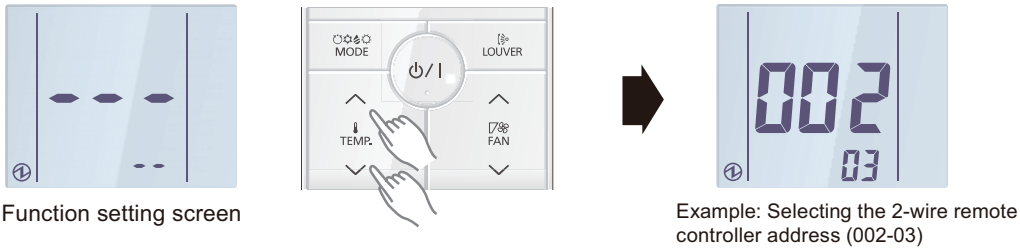
- "Entering setting mode" on page 07-32

FUNCTION SETTINGS

■ Indoor unit function setting

NOTE: Perform this setting on the master remote controller.

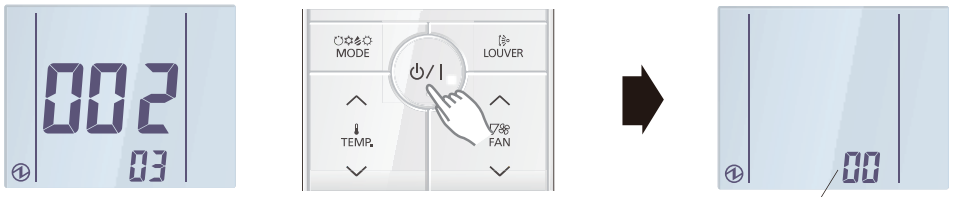
1. While displaying the function setting screen, press the TEMP. "∧" or TEMP. "∨" button to select the 2-wire remote controller address.



Function setting screen

Example: Selecting the 2-wire remote controller address (002-03)

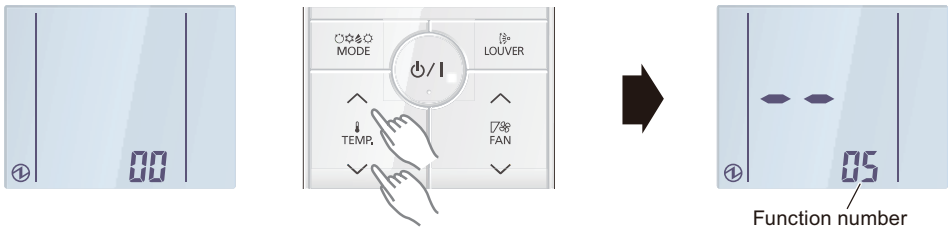
2. Press the START/STOP⏻/I button to switch to the function number setting.



Example: Selecting the 2-wire remote controller address

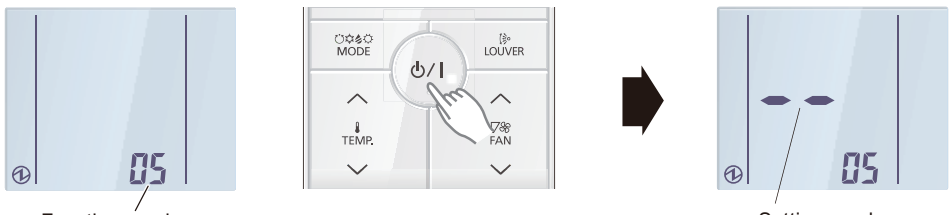
Function number

3. Press the TEMP. "∧" or TEMP. "∨" button to adjust the function number.



Function number

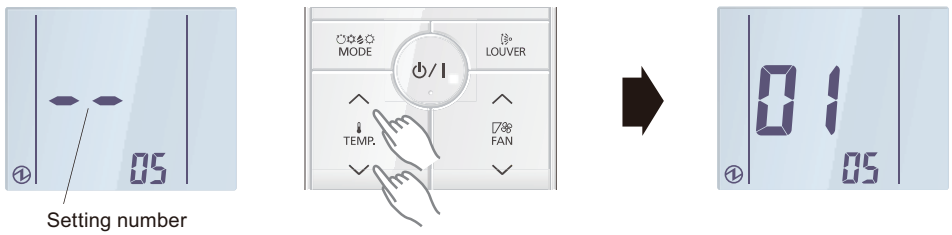
4. Press the START/STOP⏻/I button to switch to the setting number adjustment.



Function number

Setting number

5. Press the TEMP. "∧" or TEMP. "∨" button to adjust the setting number.



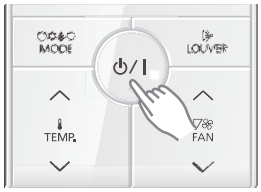
Setting number

6. Press the START/STOP⏻/I button. The data will be transferred to the indoor unit, and the setting result will be displayed.

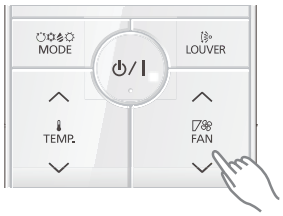
FUNCTION SETTINGS

7. To return to the 2-wire remote controller address selection screen, press the START/STOP ⏻/I button. If setting has been completed, press FAN "∨" button to return to the Menu 2-F1 item selection screen.

When returning to the 2-wire remote controller address selection screen



Setting completed and returning to the Menu 2-F1 item selection screen



RELATED LINKS

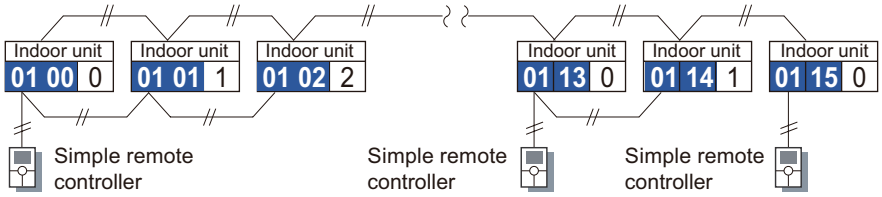
"Completion of setting mode" on page 07-36

"Function details" on page 07-96

■ Setting up each indoor unit

Setting must be performed on each indoor unit by repeating following procedures.

- "Preparation" on page 07-87
- "Indoor unit function setting" on page 07-88
- "Completion of setting mode" on page 07-36



■ Resetting the power after setting up all indoor units

NOTES:

- If the reset is not performed, function cannot be read correctly.
- After all the functions have been set, the circuit breaker needs to be switched off for at least 2 minutes.
  - After the 2 minutes has passed, power can be restored.
  - The set function is stored in the PCB and will remain in memory even when the power of indoor unit is turned off.
    However setting function is effective after disconnecting the power supply and then reconnecting it.
- Record the latest configuration of the indoor unit function setting on a label, and put the label on the unit so it can be used for after-sales service operations.

FUNCTION SETTINGS

2-7. Indoor unit (setting by UTY-RSKU, UTY-RHKU)

⚠ CAUTION

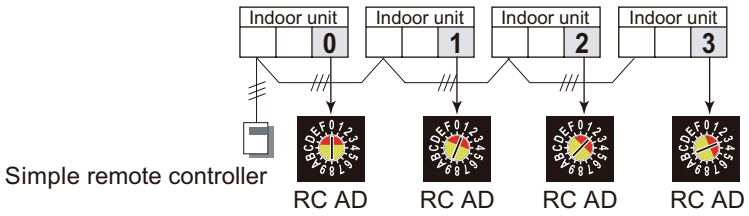
This setting changes the function settings used to control the indoor unit according to the installation conditions. Incorrect settings can cause a product malfunction.

- After the power is turned on, perform the “Function setting” according to the installation conditions using the remote controller.
- The settings may be selected between the following two: Function number or Setting number.
- Settings will not be changed if invalid numbers or setting numbers are selected.
- This function is not available on the slave units.

■ Preparation

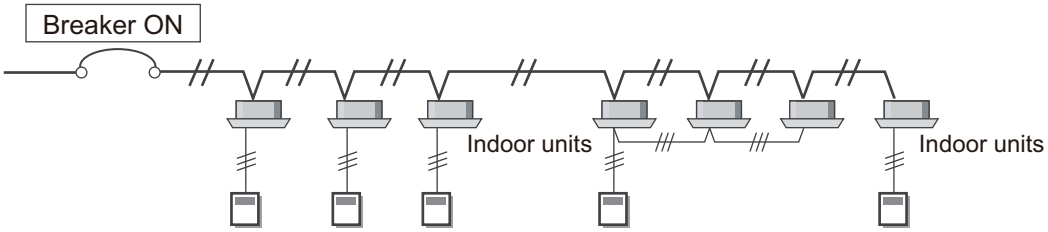
1. If multiple indoor units are connected to a single simple remote controller, set up the remote controller address (RC AD) manually on the indoor units PCBs by referring "Manual address setting method" on page 07-8.

Example: When 4 indoor units are connected



2. Before turning on the power of indoor unit, reconfirm following items:
   - Piping air tight test and vacuuming have been performed firmly.
   - There is no wiring mistake.

3. Turn on the power of indoor units.
   By turning on the power, the indoor units initialize EEV.



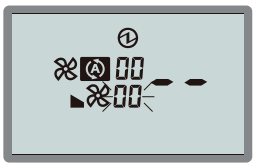
Before proceeding the function setting, refer to the following sections and perform necessary steps:

- "Button name and function" on page 07-39
- "Entering setting mode" on page 07-39

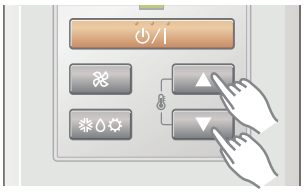
FUNCTION SETTINGS

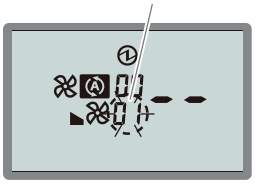
■ Indoor unit function setting

1. In initial display of the setting mode, by pressing SET TEMP. "▲" button or SET TEMP. "▼" button, select a remote controller address. (Select the indoor unit you want to operate.)



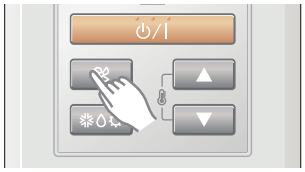
Initial display of address setting mode

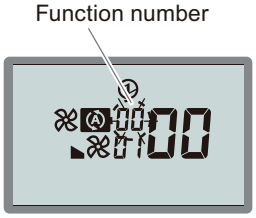




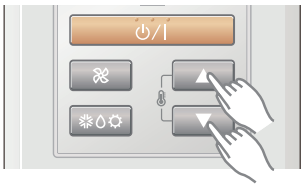
Example: When remote controller address "01" is selected

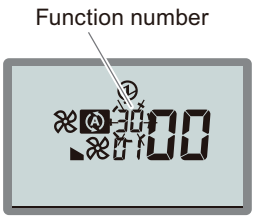
2. Press the FAN button. "Function number" indicator flashes.



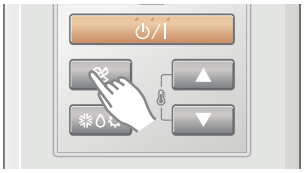


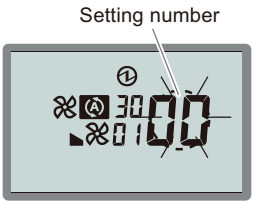
3. Set up the function number by pressing SET TEMP. "▲" button or SET TEMP. "▼" button.



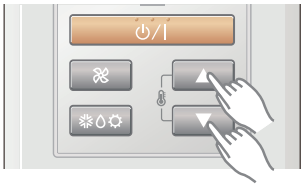


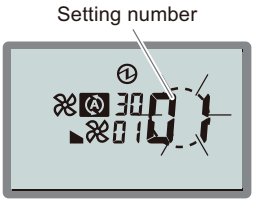
4. Press the FAN button. "Setting number" indicator flashes.





5. Set up the setting number by pressing SET TEMP. "▲" button or SET TEMP. "▼" button.

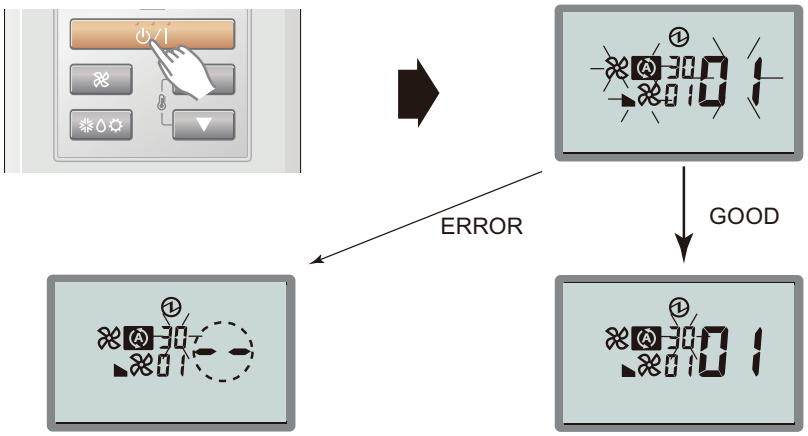




Example) Function number: 30; Setting number: 01

FUNCTION SETTINGS

6. Confirm the setting by pressing the START/STOP⏻/I button. The data will be transferred to the indoor unit.



- When the setting is properly set up on the indoor unit, the set number will be displayed. (GOOD)
- When the setting is not set up correctly, "- -" is displayed. (ERROR) Back to the previous step and perform the setting again.

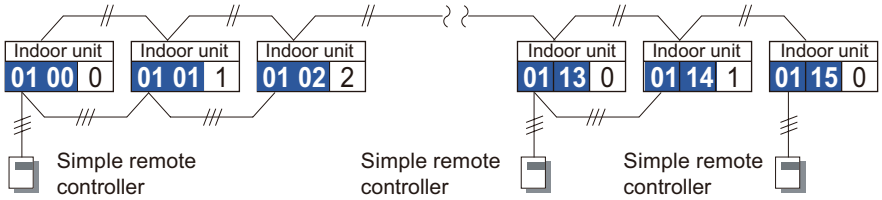
RELATED LINKS

"Completion of setting mode" on page 07-43
"Function details" on page 07-96

■ Setting up each indoor unit

Setting must be performed on each indoor unit by repeating following procedures.

- "Preparation" on page 07-90
- "Indoor unit function setting" on page 07-91



■ Resetting the power after setting up all indoor units

NOTES:

- If the reset is not performed, function cannot be read correctly.
- After all the functions have been set, the circuit breaker needs to be switched off for at least 2 minutes.
  - After the 2 minutes has passed, power can be restored.
  - The set function is stored in the PCB and will remain in memory even when the power of indoor unit is turned off.
    However setting function is effective after disconnecting the power supply and then reconnecting it.
- Record the latest configuration of the indoor unit function setting on a label, and put the label on the unit so it can be used for after-sales service operations.

FUNCTION SETTINGS

2-8. Indoor unit (setting by UTY-RNRUZ∗)

⚠ CAUTION

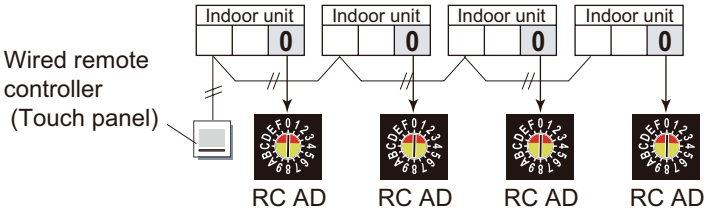
This setting changes the function settings used to control the indoor unit according to the installation conditions. Incorrect settings can cause a product malfunction.

- After the power is turned on, perform the “Function setting” according to the installation conditions using the remote controller.
- The settings may be selected between the following two: Function number or Setting number.
- Settings will not be changed if invalid numbers or setting numbers are selected.
- This function is not available on the slave units.

■ Preparation

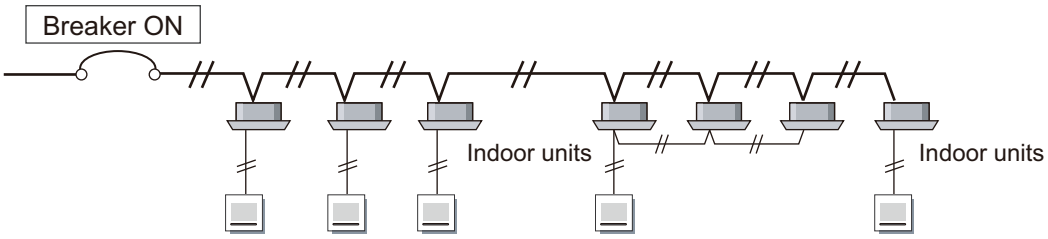
1. If multiple indoor units are connected to a single wired remote controller, set up the remote controller address with “Automatic address setting”.

Example: When 4 indoor units are connected



2. Before turning on the power of indoor unit, reconfirm following items:
   - Piping air tight test and vacuuming have been performed firmly.
   - There is no wiring mistake.

3. Turn on the power of indoor units.
   By turning on the power, the indoor units initialize EEV.

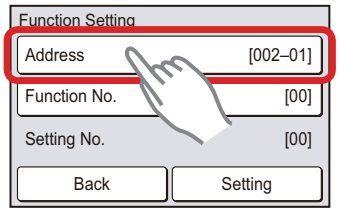


Before proceeding the function setting, refer to the following sections and perform necessary steps:

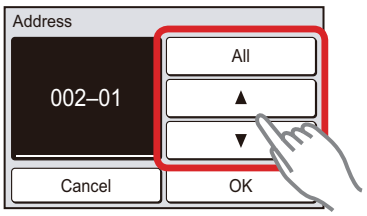
- "Entering setting mode" on page 07-45
- "Entering setting mode" on page 07-27

■ Indoor unit function setting

1. Touch “Address” on the Function Setting screen.

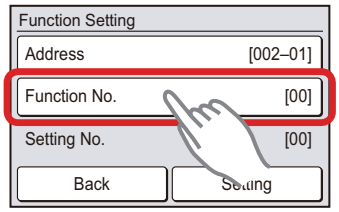


2. Address screen is displayed. Select the address of the indoor unit whose function number is to be set by touching "▲" or "▼". When setting at all the indoor units, touch "All".

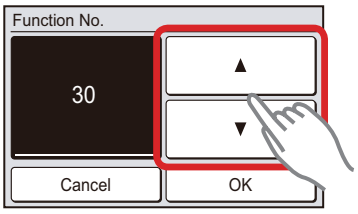


When "OK" is touched, the display returns to the Function Setting screen.

3. Touch "Function No." on the Function Setting screen.

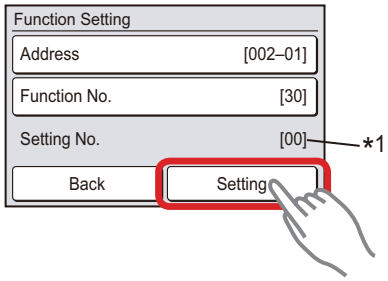


4. Function No. screen is displayed. Set the Function No. by touching "▲" or "▼".



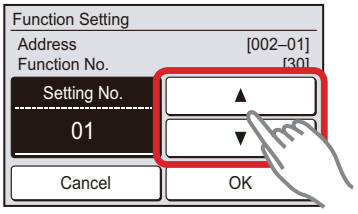
When "OK" is touched, the display returns to the Function Setting screen.

5. Touch "Setting" on the Function Setting screen.



*1: When "All" is selected in step 2, and different Setting No. is set from 2 or more indoor units, "-" is displayed here.

6. Setting screen of "Setting No." is displayed. Set the Setting No. by touching "▲" or "▼".

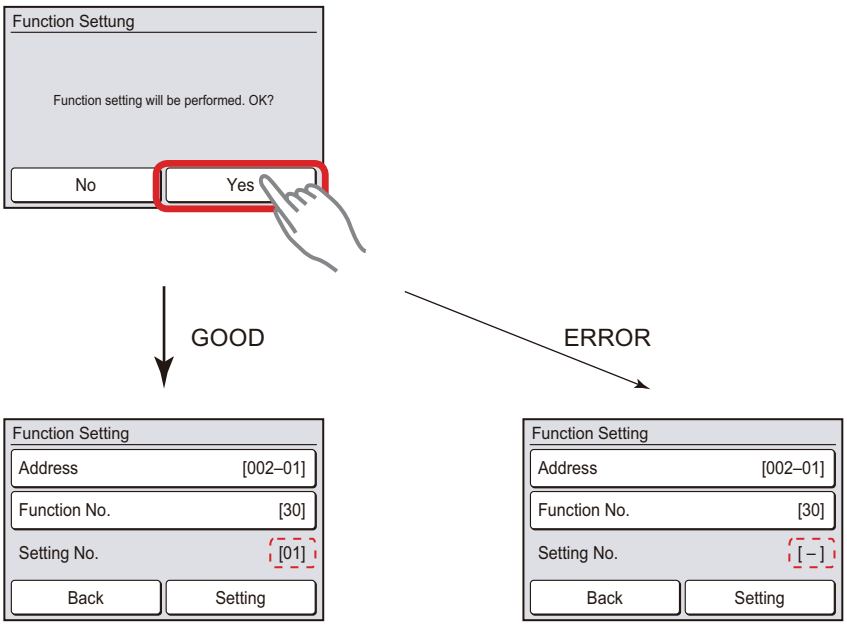


Example) Function number: 30; Setting number:01

When "OK" is touched, the Function Setting verification screen is displayed.

FUNCTION SETTINGS

7. Touch “Yes” on the verification screen.



- When the setting is properly set up on the indoor unit, the set number will be displayed in Setting No. (GOOD)
- When the setting is not set up correctly, “-” is displayed in Setting No. (ERROR) Back to the previous step and perform the setting again.

RELATED LINKS

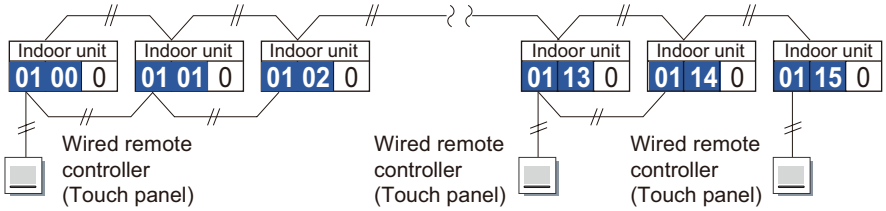
"Completion of setting mode" on page 07-47

"Function details" on page 07-96

■ Setting up each indoor unit

Setting must be performed on each indoor unit by repeating following procedures.

- "Preparation" on page 07-93
- "Indoor unit function setting" on page 07-93



■ Resetting the power after setting up all indoor units

NOTES:

- If the reset is not performed, function cannot be read correctly.
- After all the functions have been set, the circuit breaker needs to be switched off for at least 2 minutes.
  - After the 2 minutes has passed, power can be restored.
  - The set function is stored in the PCB and will remain in memory even when the power of indoor unit is turned off.
    However setting function is effective after disconnecting the power supply and then reconnecting it.
- Record the latest configuration of the indoor unit function setting on a label, and put the label on the unit so it can be used for after-sales service operations.

FUNCTION SETTINGS

2-9. Function details

Function	Function number	Setting number		Factory setting	Details
Filter indicator interval	11	00	Standard	♦	Adjusts the filter cleaning interval notification. If the notification is too early, change to setting “01”. If the notification is too late, change to setting “02”.
		01	Longer		
		02	Shorter		
Filter indicator action	13	00	Enable	♦	Enables or disables the filter indicator. Setting “02” is for use with a central remote controller.
		01	Disable		
		02	Display only on central remote controller		
Ceiling airflow	20	00	Standard	♦	Regulates the airflow according to the needs of the installation location. When set to 01, the air flow will be stronger. (Cassette type only)
		01	High ceiling		
Vertical airflow direction	23	00	Standard	♦	Adjusts the vertical airflow direction. All airflow direction louvers are adjusted together. (Cassette type only)
		01	Raise		
Horizontal swing airflow direction	24	00	Standard	♦	Adjusts the horizontal swing airflow direction. (For horizontal swing equipped models)
		01	Left half		
		02	Right half		
Static pressure	26	00	SP mode 00		Range of static pressure mode varies on the indoor unit models. (For details, refer to "Range of static pressure mode by model" on page 07-100). As for the characteristics of each indoor unit, refer to "Fan performance curve" in Chapter 4. INDOOR UNITS on page 04-139.
		01	SP mode 01		
		02	SP mode 02		
		03	SP mode 03		
		04	SP mode 04		
		05	SP mode 05		
		06	SP mode 06		
		07	SP mode 07		
		08	SP mode 08		
		09	SP mode 09		
		10	SP mode 10		
		11	SP mode 11		
		12	SP mode 12		
		13	SP mode 13		
		14	SP mode 14		
		15	SP mode 15		
		16	SP mode 16		
		17	SP mode 17		
		18	SP mode 18		
		19	SP mode 19		
		20	SP mode 20		
		21	SP mode 21		
		22	SP mode 22		
		23	SP mode 23		
		24	SP mode 24		
		25	SP mode 25		
		26	SP mode 26		
		27	SP mode 27		
		28	SP mode 28		
		29	SP mode 29		
		30	SP mode 30		
		31	Normal SP	♦	

FUNCTION SETTINGS

Function	Function number	Setting number		Factory setting	Details
Cool air temperature trigger	30	00	Standard	♦	Adjusts the cool air trigger temperature. To make the trigger temperature lower than the standard temperature, use setting “01”. To make the trigger temperature higher than the standard temperature, use setting “02”.
		01	Adjust (1)		
		02	Adjust (2)		
Heat air temperature trigger	31	00	Standard	♦	Adjusts the heat air trigger temperature. To make the trigger temperature 6 degrees C lower than the standard temperature, use setting “01”. To make the trigger temperature 4 degrees C lower than the standard temperature, use setting “02”. To make the trigger temperature higher than the standard temperature, use setting “03”.
		01	Adjust (1)		
		02	Adjust (2)		
		03	Adjust (3)		
Auto restart	40	00	Enable		Enables or disables automatic system restart after a power outage. **NOTE:** Auto restart is an emergency function such as for power failure etc. Do not start and stop the indoor unit by this function in normal operation. Be sure to operate by the control unit, converter or external input device.
		01	Disable	♦	
Cool-air prevention	43	00	Super low	♦	Restrains the cold airflow with making the airflow lower when starting heating operation. To correspond to the ventilation, set to “01”.
		01	Follow the setting on the remote controller		
External control	46	00	Start/Stop	♦	Allows an external controller to start or stop the system, or to perform an emergency stop, or to perform a forced stop. • If an emergency stop is performed from an external controller, same refrigerant system will be disabled. • If forced stop is set, indoor unit stops by the input to the external input terminals, and Start/Stop by a remote controller is restricted.
		01	Emergency stop		
		02	Forced stop		
Error report target	47	00	All	♦	Changes the target for reporting errors. Errors can either be reported in all locations, or only on the wired remote.
		01	Display only on central remote control		
Fan setting when cooling thermostat OFF	49	00	Follow the setting on the remote controller	♦	• When set “00”, indoor unit is continued operation based upon central remote controller or individual controller set. Once indoor unit received signal from external controller, indoor unit changed fan mode forcibly. • When set “01”, indoor unit is continued operation based upon central remote controller or individual controller set. Once indoor unit received signal from external controller, indoor unit stop forcibly. • Connection of the wired remote controller (2-wire type or 3-wire type) and switching its thermistor are necessary.
		01	Stop		

FUNCTION SETTINGS

Function	Function number	Setting number		Factory setting	Details
Switching functions for external inputs and external outputs terminals	60	00	Mode 0	♦	Sets this function when connected to external devices such as the VRF system ventilator, economizer, humidifier, etc. The connection terminal functions can be changed depending on the type of external device. For details of the connection terminal functions, refer to "Indoor unit" in Chapter 8. EXTERNAL INPUT AND OUTPUT on page 08-8. **NOTE:** Inappropriate setting may cause an external device malfunction. Confirm whether all setting have been performed appropriately according to the installing condition.
		01	Mode 1		
		02	Mode 2		
		03	Mode 3		
		04	Mode 4		
		05	Mode 5		
		06	Mode 6		
		07	Mode 7		
		08	Mode 8		
Control switching of external heaters	61	00	Auxiliary heater control 1	♦	Sets the control method for external heater being used. For details of the control method, refer to "External output" in Chapter 8. EXTERNAL INPUT AND OUTPUT on page 08-5. • Heater: external heater • Heat pump: VRF outdoor unit
		01	Auxiliary heater control 2		
		02	Heat pump prohibition control		
		03	Auxiliary heater control by outdoor temperature 1		
		04	Auxiliary heater control by outdoor temperature 2		
		05	Auxiliary heater control by outdoor temperature 3		
		06	Auxiliary heat pump control		
		07	Auxiliary heat pump control by outdoor temperature 1		
		08	Auxiliary heat pump control by outdoor temperature 2		
		09	Auxiliary heat pump control by outdoor temperature 3		

FUNCTION SETTINGS

Function	Function number	Setting number		Factory setting	Details
Control switching of external heaters	62	00	Setting 0	♦	Sets the temperature conditions when the external heater is on. For the temperature conditions, refer to "Temperature conditions when the external heater is on/off" on page 07-100.
		01	Setting 1		
		02	Setting 2		
		03	Setting 3		
		04	Setting 4		
		05	Setting 5		
		06	Setting 6		
		07	Setting 7		
		08	Setting 8		
		09	Setting 9		
		10	Setting 10		
		11	Setting 11		
		12	Setting 12		
		13	Setting 13		
		14	Setting 14		
		15	Setting 15		
		16	Setting 16		
		17	Setting 17		
Auto mode type	68	00	Single setpoint auto mode (traditional)	♦	Switches the setting method of auto mode to single or dual (cooling/heating). For heat pump systems, it is necessary to set the master indoor unit by using wired remote controller. **NOTE:** Auto mode type will be usable provided that the corresponding operating device is connected.
		01	Dual setpoint auto mode		
Deadband value	69	00	0 °F (0 °C)	♦	Choose the minimum temperature between cooling and heating settings (deadband) for dual setpoint auto mode (function number 68). **NOTE:** Deadband value will be usable provided that the corresponding operating device is connected.
		01	0.9 °F (0.5 °C)		
		02	1.8 °F (1.0 °C)		
		03	2.7 °F (1.5 °C)		
		04	3.6 °F (2.0 °C)		
		05	4.5 °F (2.5 °C)		
		06	5.4 °F (3.0 °C)		
		07	6.3 °F (3.5 °C)		
		08	7.2 °F (4.0 °C)		
		09	8.1 °F (4.5 °C)		
Standby time for auxiliary equipment operation	71	00	Disabled	♦	Sets the standby time until the auxiliary equipment operation starts during primary equipment operation. For details, refer to "External output" in Chapter 8. EXTERNAL INPUT AND OUTPUT on page 08-5.
		01	1 minute		
		02	2 minutes		
		•	•		
		•	•		
		•	•		
		98	98 minutes		
		99	99 minutes		
Heat pump backup setting	72	00	Disabled	♦	Enables or disables the heat pump backup instruction from the outdoor unit. This function will be usable provided that the corresponding outdoor unit is connected.
		01	Enabled		
Emergency heat	73	00	Disabled	♦	Enables or disables the emergency heat input.
		01	Enabled		
Fan delay time	74	00	1 minute	♦	Sets the fan delay time when the heater is turned off.
		01	50 seconds		
		02	40 seconds		
		03	30 seconds		

FUNCTION SETTINGS

Function	Function number	Setting number		Factory setting	Details
External heater use in defrosting	75	00	Disabled	♦	Enables or disables the external heater use in defrosting. **NOTE:** When using function number 75, inappropriate heater selection may cause cold air in defrosting.
		01	Enabled		

Range of static pressure mode by model

Model name	Range of static pressure mode	Normal static pressure
ARUL4TLAV2	SP mode 00 to 03	0.04 inWG (10 Pa)
ARUL7TLAV2	SP mode 00 to 09	0.10 inWG (25 Pa)
ARUL9TLAV2		
ARUL12TLAV2		
ARUL14TLAV2		
ARUL18TLAV2		
ARUM24TLAV2	SP mode 00 to 14	0.16 inWG (40 Pa)
ARUM30TLAV2	SP mode 00 to 11	
ARUM36TLAV2	SP mode 00 to 09	
ARUH36TLAV	Setting prohibited because of AC motor	0.40 inWG (100 Pa)
ARUH48TLAV		
ARUH60TLAV		
ARUH72TLAV2	SP mode 05 to 30	0.60 inWG (150 Pa)
ARUH96TLAV2	SP mode 05 to 29	

Temperature conditions when the external heater is on/off

Temperature (t) = Room temperature - set temperature

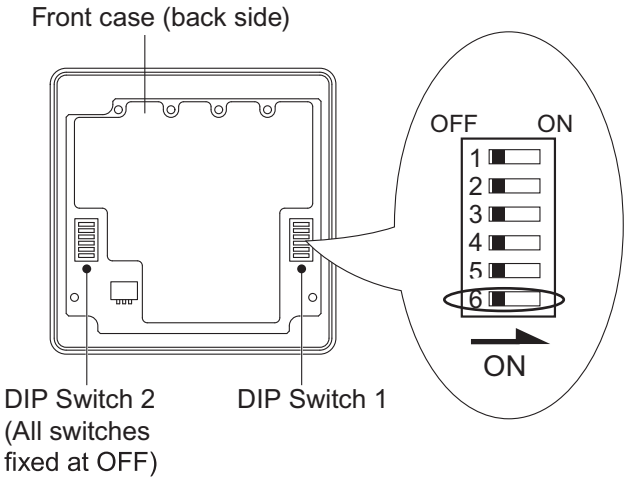
		Set value of function: 61			
		00		01 to 99	
		External heater: On	External heater: Off	External heater: On	External heater: Off
Set value of function: 62	00	t < -5.4 °F (-3 °C)	t ≥ -1.8 °F (-1 °C)	t ≤ -0.9 °F (-0.5 °C)	t ≥ 0.9 °F (0.5 °C)
	01	t < -3.6 °F (-2 °C)	t ≥ -1.8 °F (-1 °C)	t ≤ -1.8 °F (-1 °C)	t ≥ 0.9 °F (0.5 °C)
	02	t < -3.6 °F (-2 °C)	t ≥ -1.8 °F (-1 °C)	t ≤ -3.6 °F (-2 °C)	t ≥ 0.9 °F (0.5 °C)
	03	t < -5.4 °F (-3 °C)	t ≥ -1.8 °F (-1 °C)	t ≤ -5.4 °F (-3 °C)	t ≥ 0.9 °F (0.5 °C)
	04	t < -7.2 °F (-4 °C)	t ≥ -1.8 °F (-1 °C)	t ≤ -7.2 °F (-4 °C)	t ≥ 0.9 °F (0.5 °C)
	05	t < -9.0 °F (-5 °C)	t ≥ -1.8 °F (-1 °C)	t < -9.0 °F (-5 °C)	t ≥ 0.9 °F (0.5 °C)
	06	t < -5.4 °F (-3 °C)	t ≥ -0.9 °F (-0.5 °C)	t ≤ -0.9 °F (-0.5 °C)	t ≥ 0 °F (0 °C)
	07	t < -3.6 °F (-2 °C)	t ≥ -0.9 °F (-0.5 °C)	t ≤ -1.8 °F (-1 °C)	t ≥ 0 °F (0 °C)
	08	t < -3.6 °F (-2 °C)	t ≥ -0.9 °F (-0.5 °C)	t ≤ -3.6 °F (-2 °C)	t ≥ 0 °F (0 °C)
	09	t < -5.4 °F (-3 °C)	t ≥ -0.9 °F (-0.5 °C)	t ≤ -5.4 °F (-3 °C)	t ≥ 0 °F (0 °C)
	10	t < -7.2 °F (-4 °C)	t ≥ -0.9 °F (-0.5 °C)	t ≤ -7.2 °F (-4 °C)	t ≥ 0 °F (0 °C)
	11	t < -9.0 °F (-5 °C)	t ≥ -0.9 °F (-0.5 °C)	t < -9.0 °F (-5 °C)	t ≥ 0 °F (0 °C)
	12	t < -5.4 °F (-3 °C)	t ≥ 0 °F (0 °C)	t ≤ -0.9 °F (-0.5 °C)	t ≥ -0.9 °F (-0.5 °C)
	13	t < -3.6 °F (-2 °C)	t ≥ 0 °F (0 °C)	t ≤ -1.8 °F (-1 °C)	t ≥ -0.9 °F (-0.5 °C)
	14	t < -3.6 °F (-2 °C)	t ≥ 0 °F (0 °C)	t ≤ -3.6 °F (-2 °C)	t ≥ -0.9 °F (-0.5 °C)
	15	t < -5.4 °F (-3 °C)	t ≥ 0 °F (0 °C)	t ≤ -5.4 °F (-3 °C)	t ≥ -0.9 °F (-0.5 °C)
	16	t < -7.2 °F (-4 °C)	t ≥ 0 °F (0 °C)	t ≤ -7.2 °F (-4 °C)	t ≥ -0.9 °F (-0.5 °C)
	17	t < -9.0 °F (-5 °C)	t ≥ 0 °F (0 °C)	t < -9.0 °F (-5 °C)	t ≥ -0.9 °F (-0.5 °C)

FUNCTION SETTINGS

2-10. Wired remote controller (UTY-RNKU)

DIP switch 1	SW1	Prohibited
	SW2	Dual remote controller setting
	SW3	Prohibited
	SW4	Fahrenheit (°F)/Celsius (°C) setting
	SW5	Prohibited
	SW6	Memory backup setting (Only for wired remote controller)
DIP switch 2	Do not use. (All switches fixed at OFF.)	

■ Switch location



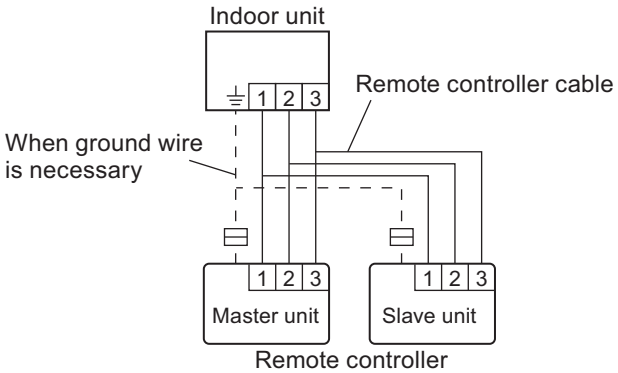
■ DIP switch 1 setting

- **SW1: Setting prohibited**

SW1		Factory setting
OFF	Fixed at OFF	♦
ON	Setting prohibited	

- **SW2: Dual remote controller setting**
  Set the remote controller SW2 according to the following table.

Number of remote controller	Primary unit	Secondary unit	Factory setting
	SW2	SW2	
1 (Normal)	OFF	—	♦
2 (Dual)	OFF	ON	



FUNCTION SETTINGS

- **SW3: Setting prohibited**

SW3		Factory setting
OFF	Fixed at OFF	♦
ON	Setting prohibited	

- **SW4: Fahrenheit (°F)/Celsius (°C) setting**

SW4		Factory setting
OFF	Celsius (°C)	
ON	Fahrenheit (°F)	♦

- **SW5: Setting prohibited**

SW5		Factory setting
OFF	Fixed at OFF	♦
ON	Setting prohibited	

- **SW6: Memory backup setting** (Only for wired remote controller)
  Set to “ON” to use batteries for the memory backup.
  If there is a power failure when this setting is enabled, all the settings stored in the memory will be saved.

SW6	Memory backup	Factory setting
OFF	Disable	♦
ON	Enable	

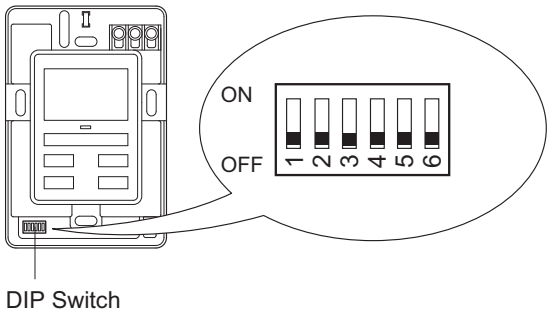
NOTE: Never turn it “ON” in the case of simple remote controller.

FUNCTION SETTINGS

2-11. Simple remote controller (UTY-RSKU, UTY-RHKU)

DIP switch 1	SW1	Prohibited
	SW2	Dual remote controller setting
	SW3	Fahrenheit (°F)/Celsius (°C) setting
	SW4	Prohibited
	SW5	Prohibited
	SW6	Prohibited
DIP switch 2	Do not use. (All switches fixed at OFF.)	

■ Switch location



* Number of buttons differs by model.

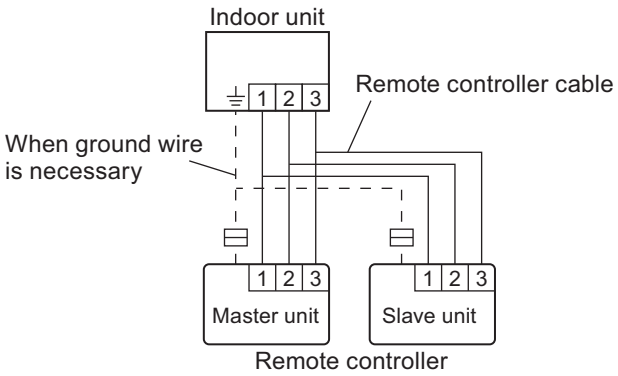
■ DIP switch 1 setting

- **SW1: Setting prohibited**

SW1		Factory setting
OFF	Fixed at OFF	♦
ON	Setting prohibited	

- **SW2: Dual remote controller setting**
  Set the remote controller SW2 according to the following table.

Number of remote controller	Primary unit	Secondary unit	Factory setting
	SW2	SW2	
1 (Normal)	OFF	—	♦
2 (Dual)	OFF	ON	



- **SW3: Fahrenheit (°F)/Celsius (°C) setting**

SW3		Factory setting
OFF	Celsius (°C)	
ON	Fahrenheit (°F)	♦

FUNCTION SETTINGS

- **SW4: Setting prohibited**

SW4		Factory setting
OFF	Fixed at OFF	♦
ON	Setting prohibited	

- **SW5: Setting prohibited**

SW5		Factory setting
OFF	Fixed at OFF	♦
ON	Setting prohibited	

- **SW6: Setting prohibited**

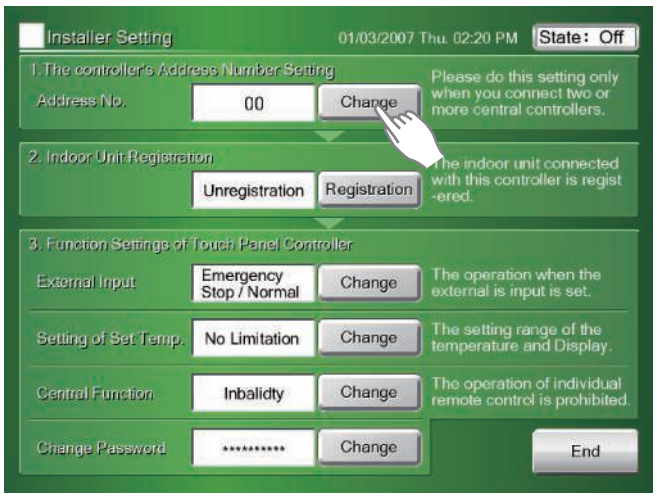
SW6		Factory setting
OFF	Fixed at OFF	♦
ON	Setting prohibited	

FUNCTION SETTINGS

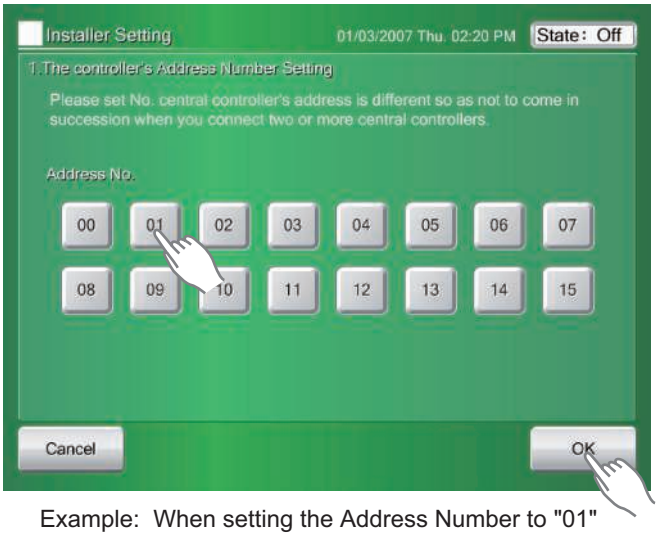
2-12. Touch panel controller

■ Address setting

1. Display the Installer Setting screen, and press “Change” button of “1. The Controller Address Number Setting”.

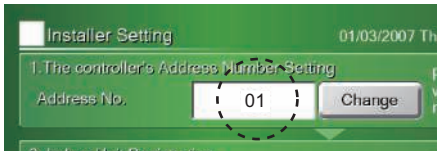


2. If it changes to “1. The controller Address Number Setting” screen, press “01” button of Address No., and then press “OK” button.



Example: When setting the Address Number to "01"

3. When it returns to Installer Setting screen, make sure that Address No. is “01”, and then complete the setting.



NOTES:

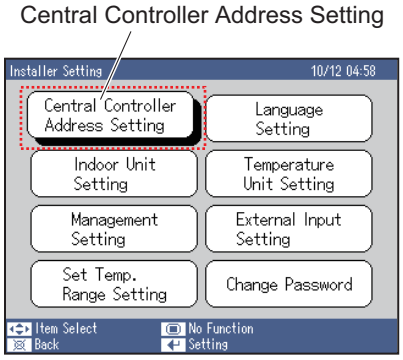
- Address No. can be set between “00” and “15”. (Up to 16 of this controller can be installed in 1 system.)
- When installing 2 or more controllers, set up so that Address No. does not overlap.
- When installing multiple controllers in the same VRF network system, avoid to overlap the Address No. of following controllers. (Even the same type of controllers, the Address No. is not allowed to overlap.)
  - Touch panel controller, Central remote controller
  - Modbus convertor
  - Network convertor for LONWORKS, Network convertor for Group remote controller
- For details, refer to the operating manual of the controller.

FUNCTION SETTINGS

2-13. Central remote controller (UTY-DCGY)

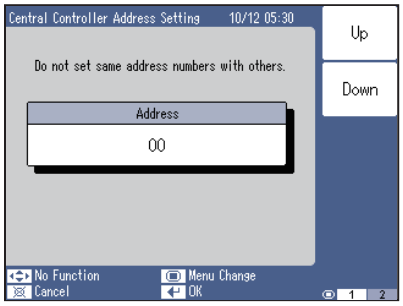
■ Address setting

1. Display the Installer Setting screen, and press the button to move the cursor to “Central Controller Address Setting”.



2. Press the button.

3. Press the UP button or Down button.



4. Set the Address value. The Address value can be set from “00” to “15”.

5. To complete the setting, press the button.

NOTES:

- Address No. can be set between “00” and “15”. (Up to 16 of this controller can be installed in 1 system.)
- When installing 2 or more controllers, set up so that Address No. does not overlap.
- When installing multiple controllers in the same VRF network system, avoid to overlap the Address No. of following controllers. (Even the same type of controllers, the Address No. is not allowed to overlap.)
  - Touch panel controller, Central remote controller
  - Modbus convertor
  - Network convertor for LONWORKS, Network convertor for Group remote controller
- For details, refer to the operating manual of the controller.

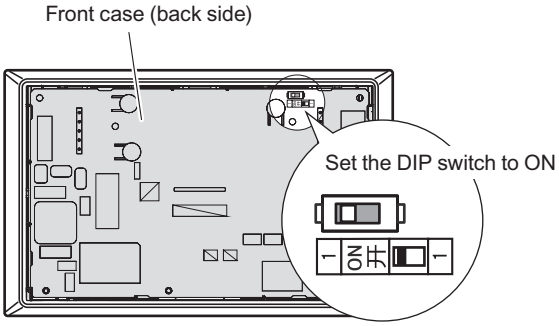
FUNCTION SETTINGS

2-14. Central remote controller (UTY-DCGYZ∗)

■ DIP switch setting

DIP switch	Memory backup setting

● Switch location



● Memory backup setting

DIP switch		Factory setting
OFF	Disabled	♦
ON	Enabled	

■ Address setting

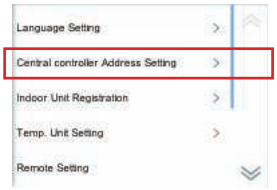
1. Tap Menu button.



2. Tap “Installer Setting”.

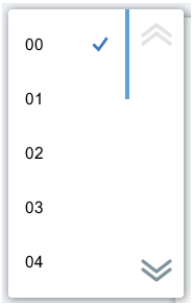


3. Tap “Central controller Address Setting”.



FUNCTION SETTINGS

4. Tap the address list “00” to “15”.



NOTES:

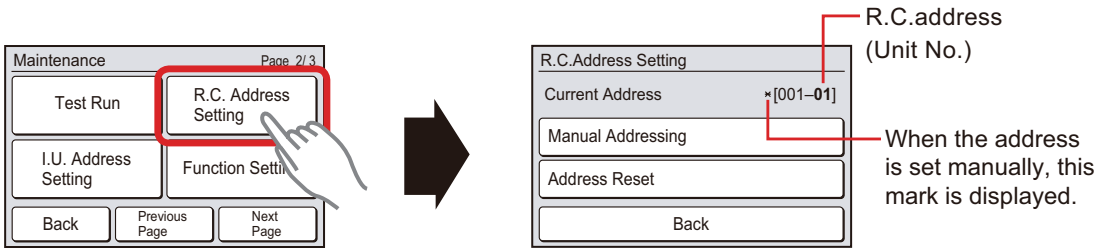
- Address No. can be set between “00” and “15”. (Up to 16 of this controller can be installed in 1 system.)
- When installing 2 or more controllers, set up so that Address No. does not overlap.
- When installing multiple controllers in the same VRF network system, avoid to overlap the Address No. of following controllers. (Even the same type of controllers, the Address No. is not allowed to overlap.)
  - Touch panel controller, Central remote controller
  - Modbus convertor
  - Network convertor for LONWORKS, Network convertor for Group remote controller
- For details, refer to the operating manual of the controller.

FUNCTION SETTINGS

2-15. Wired remote controller (Touch panel)

■ Remote controller address confirmation

When “R.C. Address Setting” on the Maintenance screen is touched, Installer Password Verification screen is displayed.
Enter the Installer Password, and touch “OK”. R.C. Address Setting screen is displayed.

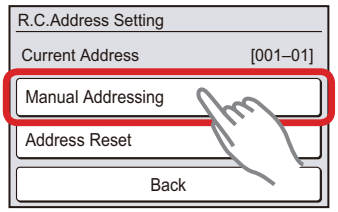


When the “Back” is touched, the display returns to the Maintenance screen.

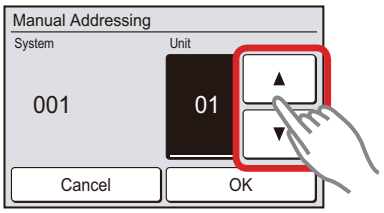
NOTE: The address of this unit is set automatically. Do not change the indoor unit remote controller address from the factory setting “0”. (Verify that the address is “0”.)

■ Manual address setting of the remote controller

1. Touch “Manual Addressing” on the R.C. Address Setting screen.

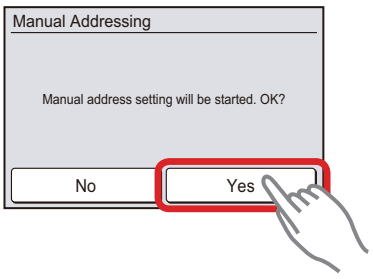


2. Manual Addressing screen is displayed. Set the address by touching “▲” or “▼”.



When “OK” is touched, a verification screen is displayed.

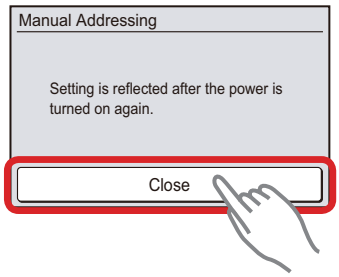
3. When the “Yes” on the verification screen is touched, a message screen is displayed.



FUNCTION SETTINGS

FUNCTION SETTINGS

4. When the “Close” on the message screen is touched, the display returns to the R.C. Address Setting screen. Turn on the power again.

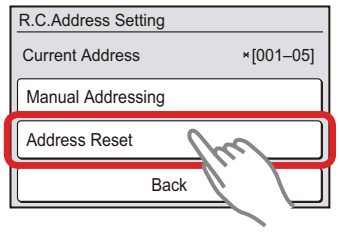


NOTES:

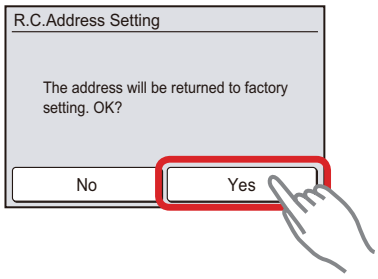
- Perform manual address setting only when setting the address with an arbitrary number. Indoor unit remote controller address setting is necessary. Set the remote controller address of indoor units connected by the same remote controller cable within a range of 1 to 9 and A (10) to F (15) so that there is no duplication. (Do not set to “0”.)
- The address of this unit is set within a range of 1 to 32, but set it so that it does not duplicate the remote controller address of an indoor unit connected by the same remote controller cable.

■ Resetting the manual address setting number

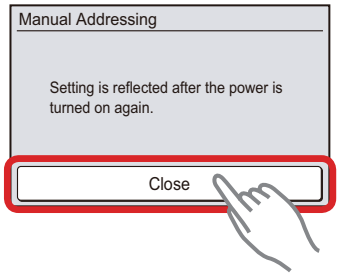
1. Touch “Address Reset” on the R.C. Address Setting screen.



2. A verification screen is displayed. When the “Yes” is touched, a message screen is displayed.



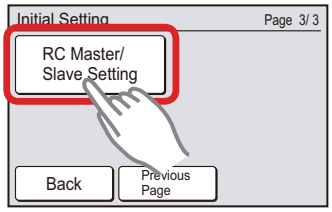
3. When the “Close” on the message screen is touched, the display returns to the R.C. Address Setting screen. Turn on the power again.



FUNCTION SETTINGS

■ Master or slave setting of remote controller

1. Touch “RC Master/Slave Setting” on the Initial Setting screen.



2. RC Master/Slave Setting screen is displayed. Select “Master” or “Slave”.

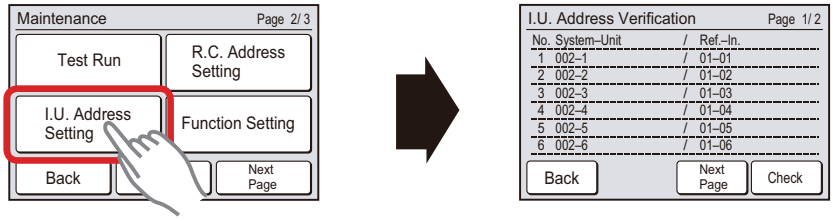


When the “OK” is touched, the display returns to the Initial Setting screen.

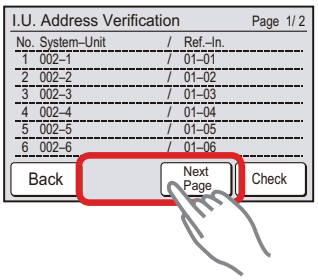
NOTE: Set only one master remote controller. Units other than “Master” are set to “Slave” automatically. Do not perform “RC Mater/Slave Setting” during setting or operating from the master unit.

■ Indoor unit address verification

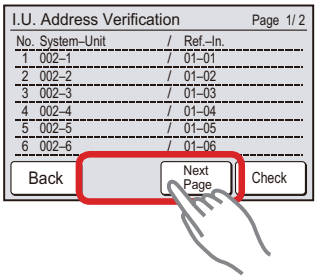
1. When “I.U. Address Verification” on the Maintenance screen is touched, Installer Password Verification screen is displayed.
Enter the Installer Password, and touch “OK”. I.U. Address Verification screen is displayed.



2. When the screen has multiple pages, they can be switched by touching the “Next Page” or “Previous Page”.

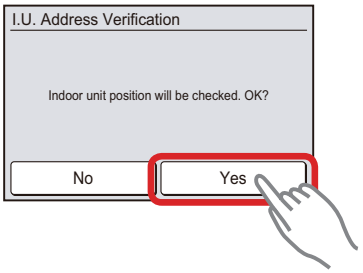


3. Touch the “Check” on the I.U. Address Verification screen.

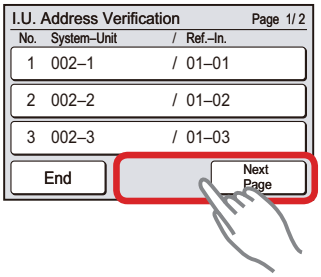


FUNCTION SETTINGS

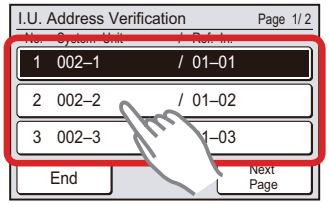
4. When the “Yes” on the verification screen of indoor unit verification is touched, all indoor units will stop, and the verification mode starts.



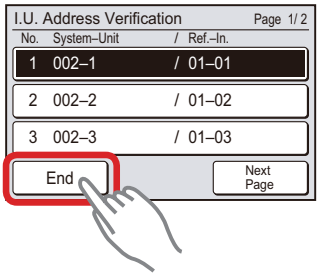
5. When indoor unit position verification ends, a screen displaying the indoor units in a list is displayed. When the screen has multiple pages, they can be switched by touching the “Next Page” or “Previous Page”.



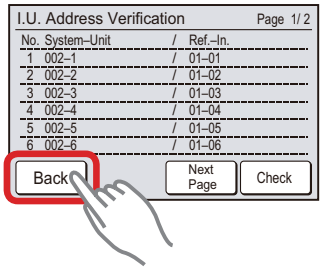
When the indoor unit address to be verified is touched, the appropriate indoor unit performs the air blow and the LED lamps blink*. (*Only when the indoor unit has that function.)



6. When the “End” is touched, the display returns to the I.U. Address Verification screen mentioned in step 2.



When “Back” on the I.U. Address Verification screen is touched, the display returns to the Maintenance screen.



FUNCTION SETTINGS

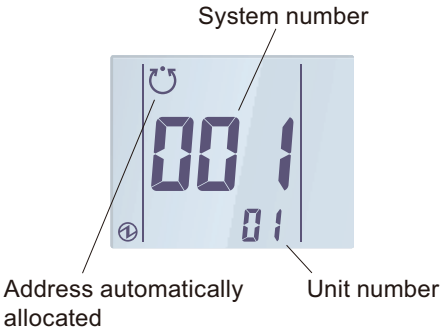
2-16. Simple remote controller (UTY-RSRY, UTY-RHRY)

■ Remote controller address confirmation

1. Select the “15” in Menu 2-F1 Settings. Then press the “⏻/I” button.



2. You can check current allocation of 2-wire remote controller address (system number and unit number).



Press the “⏻/I” button to return to the Menu 2-F1 item selection screen.

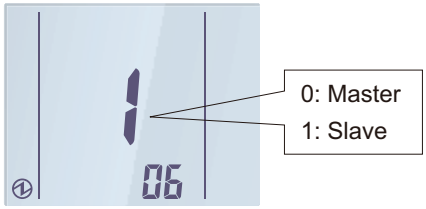
NOTE: In the case of automatic address settings, do not change the remote controller address for the indoor unit, and keep it at the initial setting of “0”. Addresses will be automatically set when initially starting up this unit.

■ Master or slave setting of remote controller

1. Select the “06” in Menu 2-F1 Settings. Then press the “⏻/I” button.

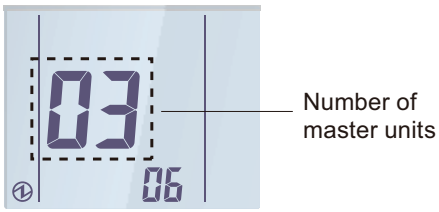


2. Select the “0: Master” or the “1: Slave” with the TEMP. “∧” or TEMP. “∨” button.



FUNCTION SETTINGS

3. Press the "⏻/I" button. If there is no problem, return to Menu 2-F1 items selection screen. In the case of settings at initial booting, display Monitor mode screen.
   If there is 0 or more than 2 Master units, the number will be displayed.
   - If "Master" is 0, press the "⏻/I" button to return to the Menu 2-F1 item selection screen.
   - If "Master" is more than 2, press the "⏻/I" button to return to the screen in previous step.
   - To suspend the settings part way through and return to the Menu 2-F1 item screen, press FAN "∨" button.



NOTE: Set only one master remote controller.

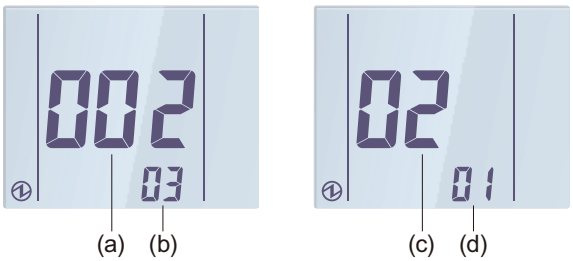
■ Indoor unit address verification

1. Select the "10" in Menu 2-F2 Settings. Then press the "⏻/I" button.



2. Display the smallest 2-wire remote controller address of indoor unit (system number and unit number) of the remote controller group. This address displayed can be switched by the TEMP. "∧" or TEMP. "∨" button. If an indoor unit other than VRF is connected, "-" is displayed.
   Press the "⏻/I" button to display the refrigerant system address and indoor unit address.

   (a) System number (002: Indoor unit)
   (b) Unit number (01 to 32)
   (c) Refrigerant system address (00 to 99)
   (d) Indoor unit address (00 to 63)



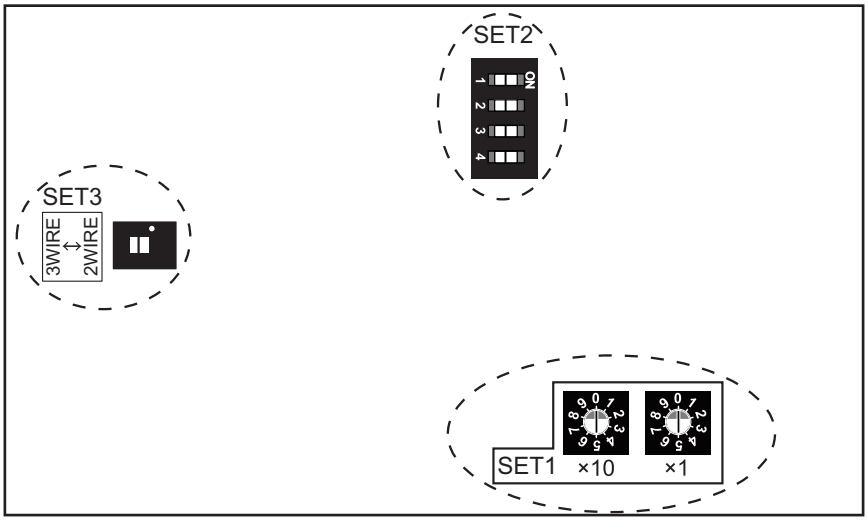
3. Press the FAN "∨" button to return to the Menu 2-F2 item selection screen.

FUNCTION SETTINGS

2-17. Network convertor (UTY-VTGX)

■ Switch location

Set the rotary switches (SET1) and DIP switches (SET2, SET3) on the network convertor PCB.



■ Rotary switch setting

- **SET1: Refrigerant circuit address setting**

Refrigerant circuit address (Example)	Rotary switch setting	
	SET1 (x10) (10 digit)	SET1 (x1) (1 digit)
01	 0	 1
99	 9	 9

NOTES:

- Setting range: 00 to 99 (Arbitrary numbers can be set.)
- When connecting the Network converter for single split air conditioner, set up the number so that the refrigerant circuit address number of the outdoor unit and indoor unit does not overlap. The sum total of the refrigerant circuit address of Network converter for single split air conditioner, outdoor unit and the indoor unit is a maximum of 100.

FUNCTION SETTINGS

■ DIP switch setting

- **SET2-1: Terminal resistance setting**
  When there is no other terminal resistance in the network segment to which the convertor is connected, set to “ON”.

SET2-1	Terminal resistance	Factory setting
ON	Enable	
OFF	Disable	♦

- **SET2-2: Setting prohibited**

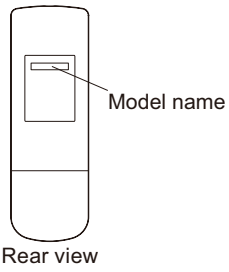
SW1		Factory setting
OFF	Fixed at OFF	♦
ON	Setting prohibited	

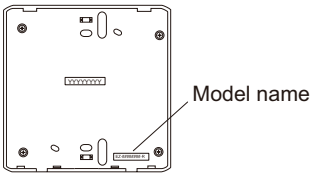
- **SET2-3: Setting prohibited**

SW1		Factory setting
OFF	Fixed at OFF	♦
ON	Setting prohibited	

- **SET2-4: Used remote controller setting**
  Change the DIP switch setting depending on the remote controller model name attached to the indoor unit.

  NOTE: When 2-wire type remote controller is connected, set to “OFF” for all models.

<table>
<tr><th>SET2-4</th><th></th><th>Factory setting</th></tr>
<tr><td rowspan="2">ON</td><td>Wireless remote controller model name:
AR-RAK1E
 

Rear view</td><td rowspan="2"></td></tr>
<tr><td>3-wire type wired remote controller model name:
AR-WAG1E (UTY-RNNGU)
 

Rear view</td></tr>
<tr><td>OFF</td><td>Other than the remote controller mentioned above</td><td>♦</td></tr>
</table>

- **SET3: Remote controller 2-wire/3-wire switching**
  Set this setting so that the configuration match with the setting of the used indoor unit.
  Also, set matched with the connection method of the remote controller cable to be connected.

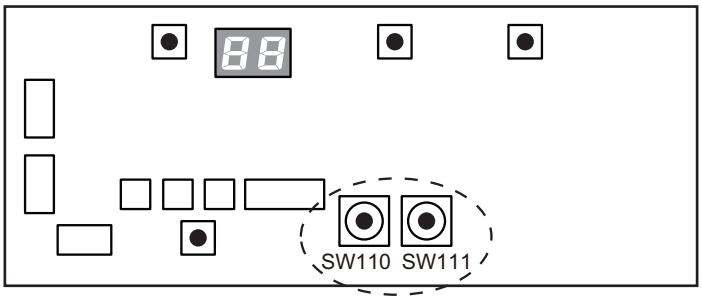
SET3	RC 2-wire/3-wire	Factory setting
2WIRE	2-wire type	♦
3WIRE	3-wire type	

FUNCTION SETTINGS

2-18. Network convertor (UTY-VGGXZ1)

■ Switch location

Set the rotary switches (SW110, SW111) on the network convertor PCB.



■ Rotary switch setting

- **Convertor address setting for Group remote controller**

Convertor address (Example)	Rotary switch setting	
	SW110 (10 digit)	SW111 (1 digit)
01	 0	 1
15	 1	 5

NOTES:

- Setting range: 00 to 15 (Arbitrary numbers can be set.)
- The sum total of the Touch panel controller, Central remote controller, Network converter for Group remote controller, Modbus converter, and Network converter for LonWorks is a maximum of 16.
- For Touch panel controller, Central remote controller, Network converter for Group remote controller, Modbus converter, and Network converter for LonWorks connected in same VRF network system, set an exclusive address on each device.

FUNCTION SETTINGS

- **Refrigerant circuit address setting for split system**

Refrigerant circuit address (Example)	Rotary switch setting	
	SW110 (10 digit)	SW111 (1 digit)
01	 0	 1
99	 9	 9

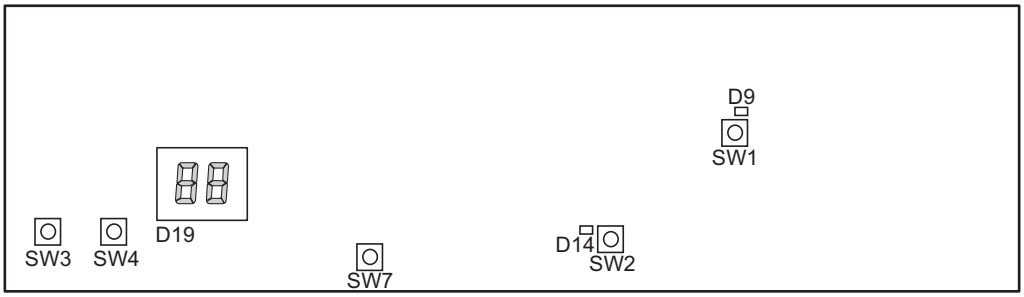
NOTES:

- Setting range: 00 to 99 (Arbitrary numbers can be set.)
- When connecting the Network converter for single split air conditioner, set up the number so that the refrigerant circuit address number of the outdoor unit and indoor unit does not overlap. The sum total of the refrigerant circuit address of Network converter for single split air conditioner, outdoor unit and the indoor unit is a maximum of 100.

FUNCTION SETTINGS

2-19. Signal amplifier

■ Switch location

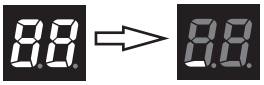


■ Automatic address setting

Refer to "Automatic address setting of signal amplifier" on page 07-50.

■ Manual address setting

1. Turn on the power for the signal amplifier.



2. While holding down SW4 (the set button), press and release SW7 (the reset button) to enter the address setting mode.
   The address setting mode is activated only if the set button is held down when SW7 released.



3. Press SW4 (the set button) to display the current address. The address is set to A1 at the factory.

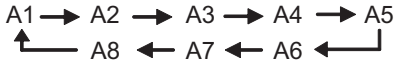


Example 1: When A1 is set Example 2: When A12 is set

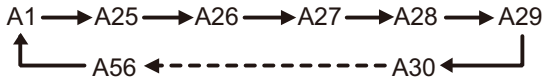
FUNCTION SETTINGS

4. Press SW3 (the mode button) to select the address. The displayed address changes as follows each SW3 button is pressed. When the manual setting is selected, the indicators change as follows:

Filter mode: OFF



Filter mode: ON





Example: Address No.5 is selected

- Press the SW3 when A9-A16 or A57-A88 is displayed, then A1 will be displayed.
- If connecting multiple signal amplifiers, be sure to select a different address for each amplifier.
- If the same address is used for different signal amplifiers, normal communication cannot be done.

5. Press SW4 (the set button) to set the selected address.



Example: Address no.5 is set

6. Turn the power off and on or press SW7 (the reset button) to exit the address setting mode and return to the normal mode. If an address setting error occurs (“26” is displayed on the D19-indicator), the address will not be set. Perform address setting again.



Normal mode



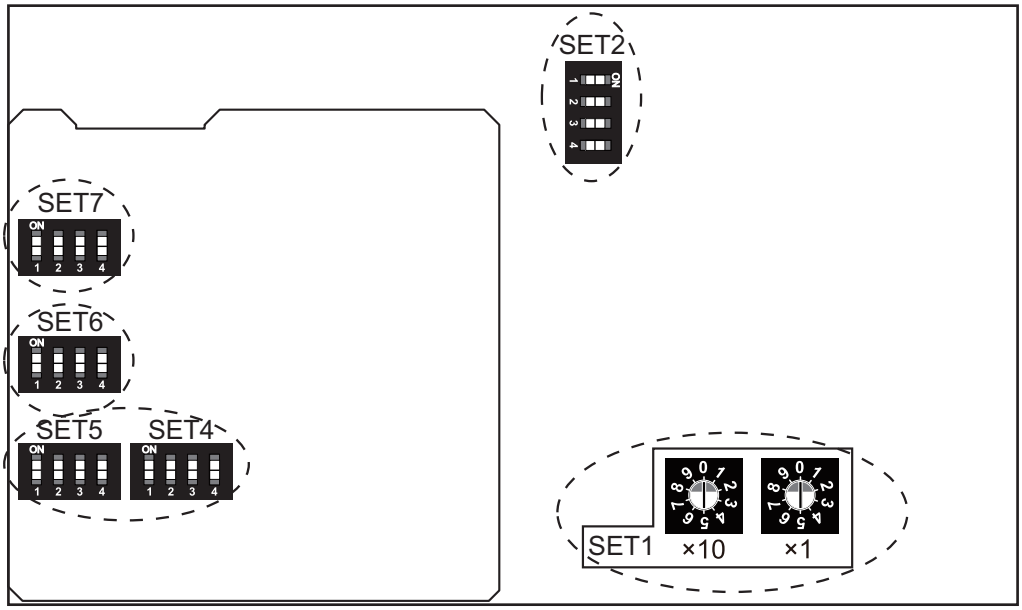
Address setting error

FUNCTION SETTINGS

2-20. Modbus converter for VRF

■ Switch location

Set the rotary switch (SET1) and DIP switches (SET2, 4, 5, 6, 7) on the PCB.



■ Rotary switch setting

- **SET1: Modbus converter remote controller address setting**

Refrigerant circuit address (Example)	Rotary switch setting	
	SET1 (x10) (10 digit)	SET1 (x1) (1 digit)
01	 0	 1
15	 1	 5

NOTES:

- Factory setting: 00
- Setting range: 00 to 15 (Arbitrary numbers can be set.)
- When the rotary switch is set to 16 or more, the remote controller address of the convertor is 15.
- The sum total of the Touch panel controller, Central remote controller, Network converter for Group remote controller, Modbus converter, and Network converter for LonWorks is a maximum of 16.
- For Touch panel controller, Central remote controller, Network converter for Group remote controller, Modbus converter, and Network converter for LonWorks connected in same VRF network system, set an exclusive address on each device.
- This convertor is connectable a maximum of 9 in 1 VRF network system.

FUNCTION SETTINGS

■ DIP switch setting

- **SET2-1: VRF terminal resistance setting**
  When there is no outdoor unit or signal amplifier in the VRF network segment to which the convertor is connected, set to “ON”.

SET2-1	VRF terminal resistance	Factory setting
ON	Enable	
OFF	Disable	♦

- **SET2-2: Setting prohibited**

SET2-2		Factory setting
OFF	Fixed at OFF	♦
ON	Setting prohibited	

- **SET2-3: Test run setting**

SET2-3	Test run	Factory setting
OFF	Reset	♦
ON	Start	

- **SET2-4: Scan setting**

SET2-4	Scan	Factory setting
OFF	Reset	♦
ON	Start	

- **SET4, SET5: Modbus slave address setting**
  Setting range: 1-247 (Arbitrary numbers can be set.)
  For details, refer to the installation manual.

- **SET6-1: Setting prohibited**

SET6-1		Factory setting
OFF	Fixed at OFF	♦
ON	Setting prohibited	

- **SET6-2: Modbus communication stop bit setting**

SET6-2	Mod bus communication stop bit	Factory setting
OFF	1 bit	♦
ON	2 bit	

- **SET6-3: Modbus communication parity setting**

SET6-3	Mod bus communication parity	Factory setting
OFF	Even	♦
ON	Odd	

NOTE: When SET6-2 (Modbus communication stop bid setting) is set to “ON” (2 bit), the parity is set to “None” regardless of the setting of this switch.

FUNCTION SETTINGS

- **SET6-4: Modbus communication baud rate setting**

SET6-4	Mod bus communication baud rate	Factory setting
OFF	9,600 bps	♦
ON	19,200 bps	

- **SET7-1, 7-2, 7-3: Setting prohibited**

SET7-1, 2, 3		Factory setting
OFF	Fixed at OFF	♦
ON	Setting prohibited	

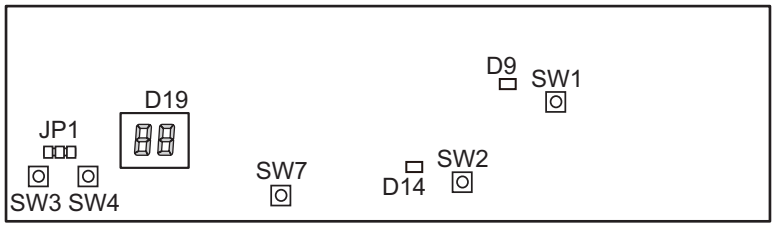
- **SET7-4: Terminal resistance setting**
  Terminal resistance of Modbus communication can be set. (Terminal resistance: 120 Ω)
  In case of circuit terminal resistance, set the terminal resistance to be enabled.

SET7-4	Terminal resistance	Factory setting
OFF	Disable	♦
ON	Enable	

FUNCTION SETTINGS

2-21. Network converter for LonWorks

■ Switch location



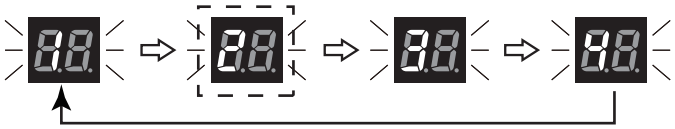
■ Address setting

Following steps are necessary for setting address of Network converter.

For Touch panel controller, Central remote controller, Network converter for Group remote controller, Modbus converter, and Network converter for LonWorks connected in same VRF network system, set an exclusive address on each device.

1. Turn on the power of the Network converter.

2. Select the special mode by pressing and releasing SW7 (reset button) while holding down SW4 (set button) until special mode “1” is displayed.
   Special mode changes from “1” to “4” as shown in the following figure.



3. Press SW3 (mode button) to set special mode “2”. Special mode “2” is the address setting mode.

4. Press SW4 (set button). Current set address is displayed.



Example: Address no. 15 (Factory setting)

5. Press SW3 (mode button) to select the address. The displayed address changes as follows each time the mode button is pressed.

A00 → A01 → A02 --------► A15



Example: Address no. 3 is selected.

6. Press SW4 (set button) to set the selected address.



Example: Address no. 3 is set

7. Turn the power off and on or press SW7 (reset button) to exit from address setting mode. Anyone of the following indication will disappear:

 : VRF Network address allocation is not registered by using Tool for Network converter

 : Binding and commissioning is not executed

 : Normal mode (Ready for operation)

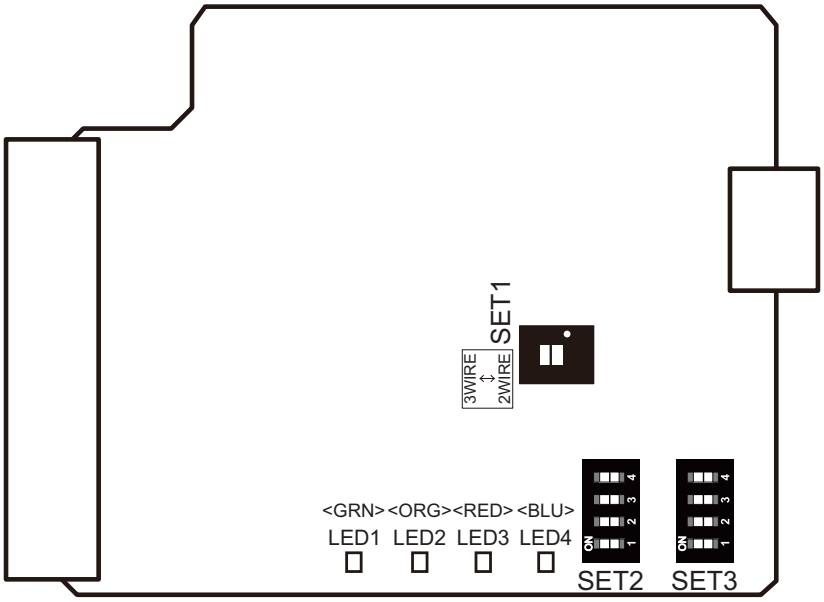
Others : Refer to the installation manual for more details.

FUNCTION SETTINGS

2-22. Thermostat converter

■ Switch location

Set the rotary switch (SET1) and DIP switches (SET2, 4, 5, 6, 7) on the PCB.



■ DIP switch setting

- **SET1: 2WIRE/3WIRE setting**
  Remote controller 2WIRE/3WIRE switching SW
  Factory setting: 2WIRE
  Set matched with the connection method of the remote controller cable to be connected.

FUNCTION SETTINGS

• **SET3-1: Single-stage or Two-stage setting**

SET3-1	Contents	Factory setting
OFF	Temperature setting: Single-stage	♦
ON	Temperature setting: Two-stage	

– **When SET3-1 is set to "OFF" (Single-stage setting)**

• **SET3-2: Cooling setting temperature**

SET3-2	Cooling setting temperature: °F (°C)	Remarks	Factory setting
	Stage 1		
OFF	64 (18)	Pattern 1	♦
ON	68 (20)	Pattern 2	

• **SET3-3, 3-4: Heating setting temperature**

SET3-3	SET3-4	Heating setting temperature: °F (°C)	Remarks	Factory setting
		Stage 1		
OFF	OFF	86 (30)	Pattern 1	♦
OFF	ON	81 (27)	Pattern 2	
ON	OFF	75 (24)	Pattern 3	
ON	ON	70 (21)	Pattern 4	

– **When SET3-1 is set to "ON" (Two-stage setting)**

• **SET3-2: Cooling setting temperature**

SET3-2	Cooling setting temperature: °F (°C)		Remarks	Factory setting
	Stage 1	Stage 2		
OFF	68 (20)	64 (18)	Pattern 1	♦
ON	72 (22)	68 (20)	Pattern 2	

• **SET3-3, 3-4: Heating setting temperature**

SET3-3	SET3-4	Heating setting temperature: °F (°C)		Remarks	Factory setting
		Stage 1	Stage 2		
OFF	OFF	81 (27)	86 (30)	Pattern 1	♦
OFF	ON	77 (25)	82 (28)	Pattern 2	
ON	OFF	75 (24)	79 (26)	Pattern 3	
ON	ON	70 (21)	75 (24)	Pattern 4	

NOTE: • Setting values are the limit temperature for cooling and heating.
• Energy saving performance is improved in the order from cooling pattern 1 to 2 and heating pattern 1 to 4.

FUNCTION SETTINGS

- **SET2-2, 2-3: Delay off setting**
  Delay off setting is the function to operate continuously even after reaching to the set temperature of thermostat. This function may make air conditioning efficient.
  Set the delay off time by SET2-3 and SET2-4.

SET2-3	SET2-4	Delay off time	Factory setting
OFF	OFF	0 minute	♦
OFF	ON	5 minutes	
ON	OFF	10 minutes	
ON	ON	20 minutes	

- **SET2-1, 2-2: Fan setting (signal on terminal G)**

SET2-1	SET2-2	Indoor unit airflow	Factory setting
OFF	OFF	AUTO	♦
OFF	ON	HIGH	
ON	OFF	MED	
ON	ON	LOW	

FUNCTION SETTINGS

2-23. Duct static pressure setting

■ Mini duct type, Slim duct/Slim concealed floor type, Medium static pressure duct type, and 72TLAV1 and 96TLAV in High static pressure duct type

When the external static pressure is different from the normal static pressure, change the airflow setting.

Setting of airflow can be changed by wireless remote controller, wired remote controller, and simple remote controller.

How to set airflow (external static pressure):

- **Wireless remote controller**
  Airflow is set by function number 26 (static pressure).
  For details, refer to the following sections:
  – "Button name and function" on page 07-16
  – "Indoor unit (setting by wireless remote controller)" on page 07-78
  – "Function details" on page 07-96

- **Wired remote controller (UTY-RNKU)**
  Airflow is set by function number 26 (static pressure).
  For details, refer to the following sections:
  – "Button name and function" on page 07-27
  – "Indoor unit (setting by UTY-RNKU)" on page 07-84
  – "Function details" on page 07-96

- **Simple remote controller (UTY-RSKU, UTY-RHKU)**
  Airflow is set by function number 26 (static pressure).
  For details, refer to the following sections:
  – "Button name and function" on page 07-39
  – "Indoor unit (setting by UTY-RSKU, UTY-RHKU)" on page 07-90
  – "Function details" on page 07-96

- **Wired remote controller (Touch panel)**
  Airflow is set by function number 26 (static pressure).
  For details, refer to the following sections:
  – "Indoor unit (setting by UTY-RNRUZ∗)" on page 07-93
  – "Function details" on page 07-96

⚠ CAUTION

- Setting of static pressure must be fall within the static pressure setting range described in "Fan performance curve" in Chapter 4. INDOOR UNITS on page 04-139.
- Static pressure setting out of the static pressure setting range may cause product malfunction such as capacity degradation or water leakage.

FUNCTION SETTINGS

2-24. Administrative indoor unit setting

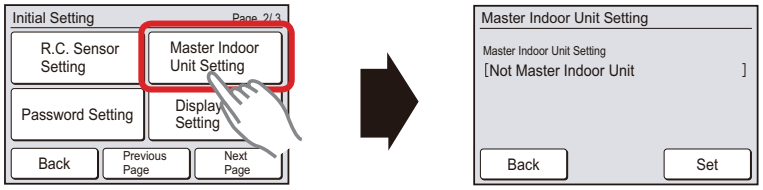
An indoor unit which decides the priority mode (cooling or heating) in a same refrigerant system can be set as an administrative indoor unit.

NOTE: Administrative indoor unit can be set to only 1 unit in a same refrigerant system.

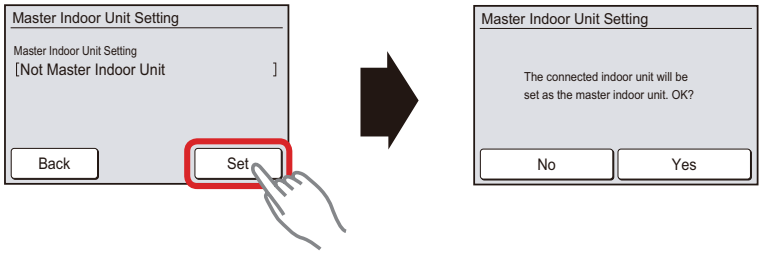
■ Setting method

Administrative indoor unit setting can be performed by outdoor unit function setting and wired remote controller setting.

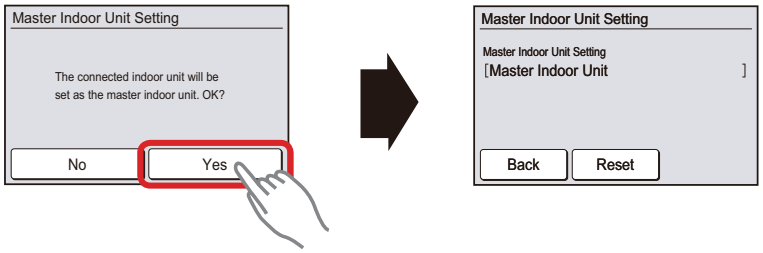
1. Perform outdoor unit function setting with referring "Setting on outdoor unit PCB" on page 07-60.
2. Perform wired remote controller setting. Depend on the type of the wired remote controller, setting method is different as follows:
   - **Wired remote controller (Touch panel)**
     a. Touch the “Master Indoor Unit Setting” on the Initial Setting screen. Master Indoor Unit Setting screen is displayed. (Master indoor unit = Administrative indoor unit)



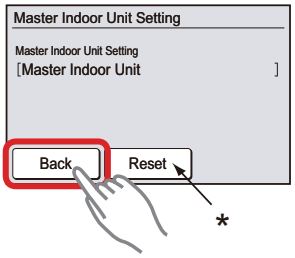
     b. When “Set” is touched on the Master Indoor Unit Setting screen, a verification screen is displayed.



     c. When “Yes” is touched on the verification screen, the setting data is transmitted to the indoor unit and the display returns to the Master Indoor Unit Setting screen.



     d. When “Back” is touched on the Master Indoor Unit Setting screen, the display returns to the Initial Setting screen.



     *: To clear the master indoor unit setting, touch “Reset”. (Resetting cannot be performed while the indoor unit is operating.)

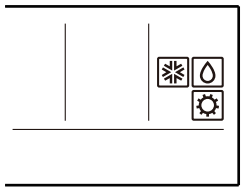
FUNCTION SETTINGS

NOTE: For canceling the existing master unit setting and applying the master unit setting to other indoor unit, always perform the resetting of current setting first. Then perform the master unit setting to the other indoor unit.

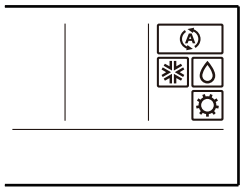
- **Wired remote controller**

a. After the indoor unit stops operation, press the MODE button of wired remote controller for 5 seconds continuously.
After 5 seconds, the operating mode indicator on the wired remote controller display lights on.

When the unit is not set as the administrative indoor unit (A):



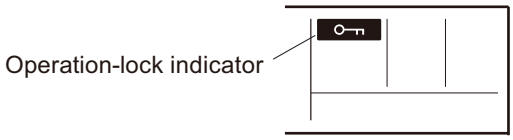
When the unit is set as the administrative indoor unit (B):



b. Press the MODE button.
   – The indicator blinks when the MODE button is pressed, and the indication of 1-(A) and 1-(B) alters whenever the MODE button is pressed.
   – The setting configured on the wired remote controller is transmitted to the indoor unit immediately after the selection of (A) or (B) is completed. It may take 10 seconds or so depending on the communication conditions. During this period, the button operation will be suspended.
   – It automatically returns to the regular display after 20 seconds if there is no button entry.
   – When the setting or canceling is completed, the indication on the wired remote controller changes to the regular indication from blinking.

NOTES:

When operation lock indicator lights on, the MODE button is locked because of the following reasons:



- “Priority on administrative indoor unit” is not selected in the setting of priority mode of the outdoor unit.
  In this case, select “Priority on administrative indoor unit” in setting of priority mode of the outdoor unit first. Then set the administrative indoor unit on the wired remote controller.
- Another indoor unit has already been set as the administrative indoor unit.
  In this case, cancel the administrative indoor unit setting of another indoor unit.

c. Complete the setting or canceling of the administrative indoor unit.
Press the MODE button of the wired remote controller again for 5 seconds continuously. The indication returns to the regular display.
(It returns to regular indication after 20 seconds even if the MODE button is not pressed.)

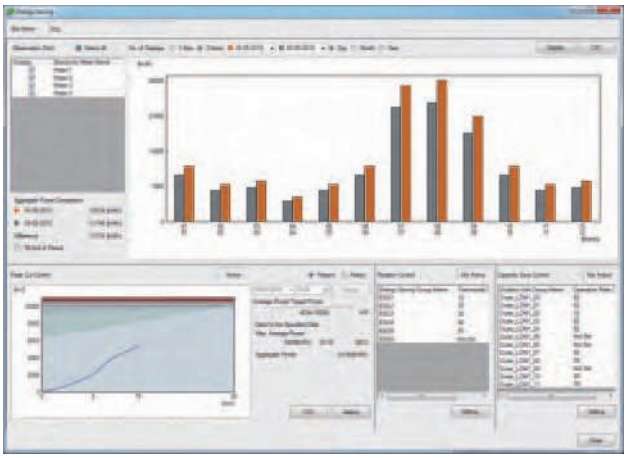
FUNCTION SETTINGS

2-25. Energy saving setting on System controller

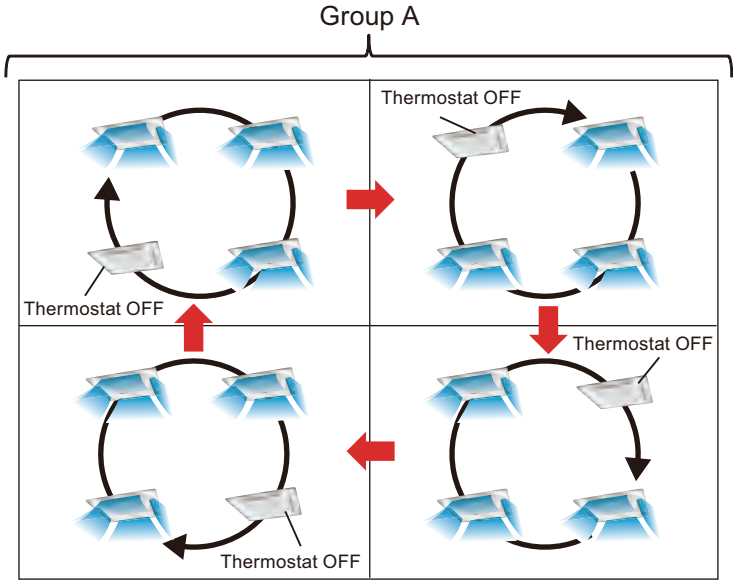
By installing System controller or System controller lite, energy saving function using electricity meters can be performed.

■ Features of energy saving function

- **Power consumption graph**
  Displays the power consumption measured by the electricity meter connected to the air conditioner by bar graph, and makes it easier to understand the power consumption conditions.
  – Power consumption data for 3 years can be saved
  – Past record can be referenced as history
  – Data of an arbitrary 2 periods can be displayed for comparison

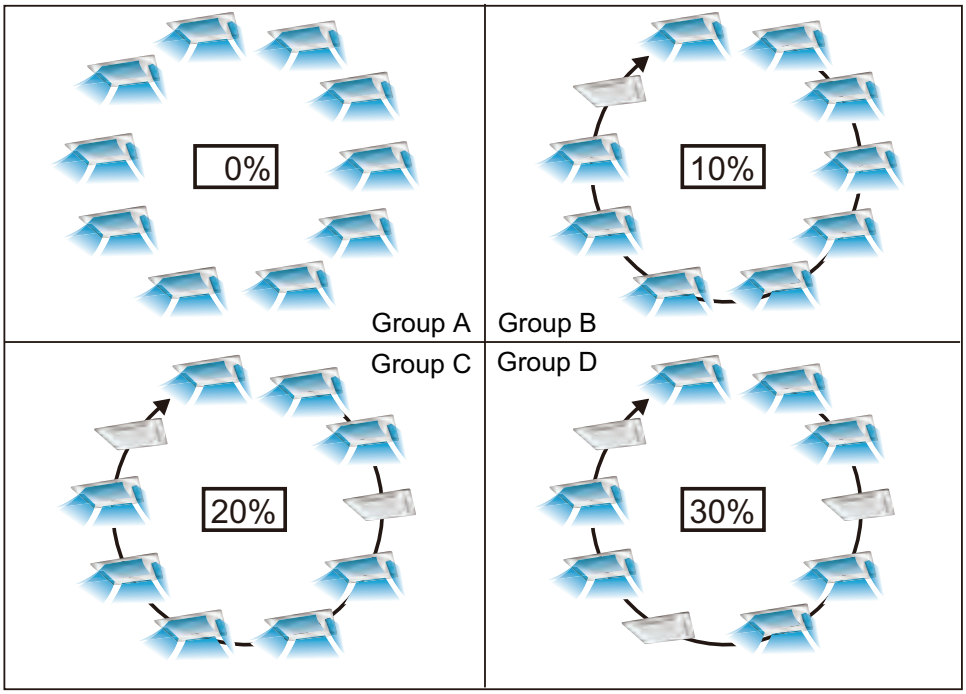


- **Indoor unit rotation operation**
  Reduces the power consumption by changing the indoor unit which is to be set forced thermostat OFF in turn.
  Operating the air conditioner even in the spring and autumn when the heat load is comparatively light may have an energy saving effect. Because it is an intermittent operation, it does not loose much comfort, and is a control which is difficult for the user of the room to sense its operation.
  – The electric power consumed in the arbitrarily defined group is reduced by changing indoor units which are set to forced thermostat OFF in turn.

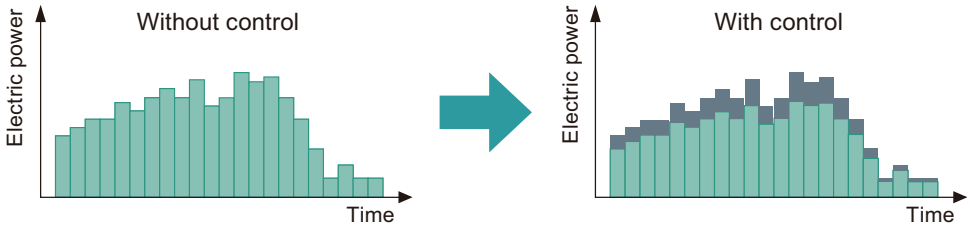


FUNCTION SETTINGS

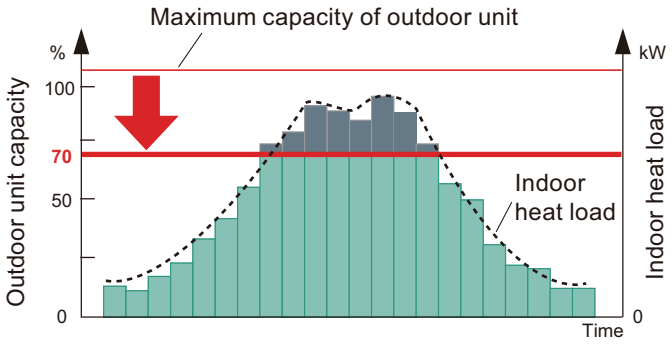
– Indoor units can be changed in turn according to the stoppage rate set for each group.



*The indoor unit operation stoppage rate can be selected from 10% to 30%.

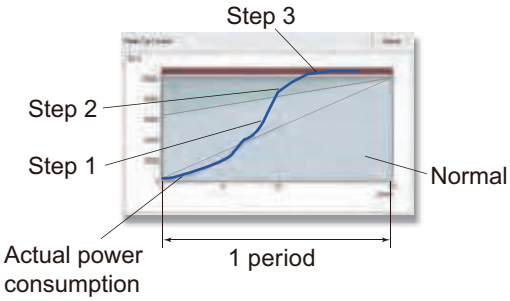


- **Outdoor unit capacity saving**
  The power consumption is reduced by limiting the upper limit of the outdoor unit capacity for each refrigerant system.
  This has a reducing effect especially in the summer, winter and other times when the heat load is high.
  In addition, because the upper limit capacity of the outdoor unit is limited directly, it is a control which easily exhibits an energy saving effect compared to rotation control. However, because the outdoor unit does not operate above the limited capacity, there may be a loss of comfort, depending on the indoor heat load. (The operation capacity upper limit rate [%] of the outdoor unit is specified for each refrigerant system.)

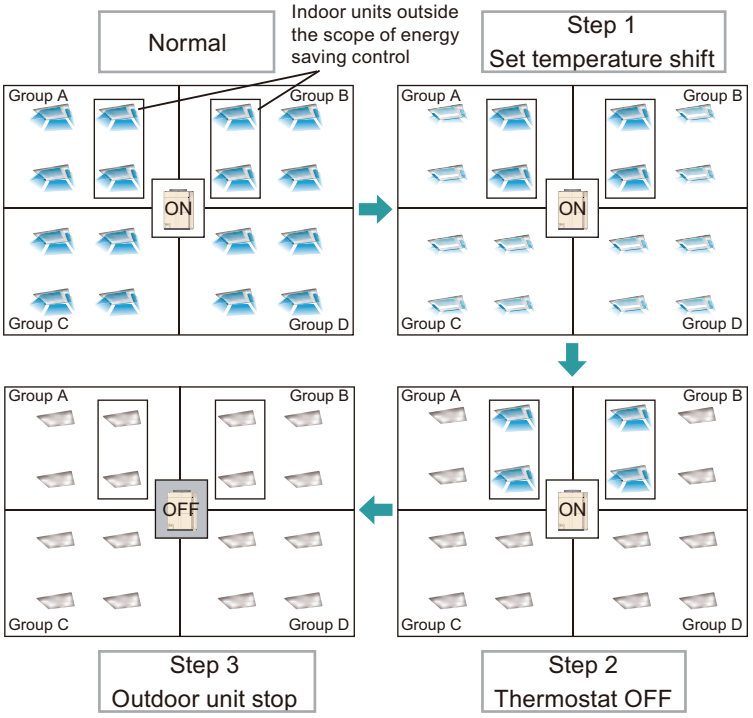


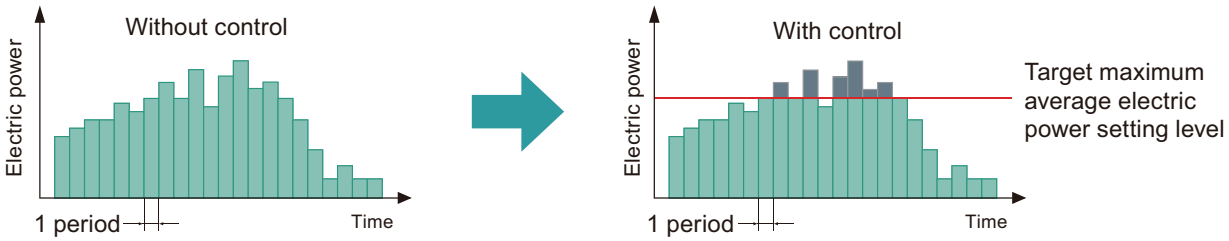
FUNCTION SETTINGS

- **Peak cut operation**
  Reduces the power consumption by setting a specific target value (maximum average power [kW]) for all the air conditioners and controlling operation so that this value is not exceeded.
  Limit control is performed in 3 steps of “Step 1: Set temperature shift” → “Step 2: Thermostat OFF” → “Step 3: Outdoor unit stop”.
  To perform this control, an electricity meter must be installed.



*Specifies the maximum average electric power [kW] for the entire air conditioning system.





FUNCTION SETTINGS

■ General setting flow for energy saving and electricity charge apportionment using electricity meter

Description mentioned here is an example of general setting flow for performing an energy saving function and an electricity charge apportionment function using an electricity meter.

NOTE: Layout of the outdoor units and indoor units, combination of the remote controller group, and other design shall be performed separately from the following steps.

1. Understand the overview of the energy saving function and electricity charge apportionment function using an electricity meter, the usage method, and restrictions, etc.
   For details, refer to:
   - "Features of energy saving function" on page 07-131
   - "Operation example" on page 07-135
   - "Notes on energy saving function" on page 07-135
   - "Installation restriction and requirement of energy saving units" on page 07-136
   - "Electricity charge apportionment and electricity meter" on page 07-137

2. Decide following items:
   - Power source supply system
   - Electricity meter installation sites, number(s), and connecting outdoor units
   - Appropriate VT/CT specifications

   For details, refer to:
   - "Electrical wiring" on page 07-138
   - "Installation restriction and requirement of energy saving units" on page 07-136
   - "Electricity meter system" on page 07-149

3. Purchase the electricity meters and related hardware and materials.
   For details, refer to:
   - "Electrical wiring" on page 07-138

4. Perform the installation of the electricity meters and related hardware or materials.
   For details, refer to:
   - "Electrical wiring" on page 07-138

5. Perform the setting of the electricity meter.
   For details, refer to
   - "Setting of outdoor unit and System controller" on page 07-149

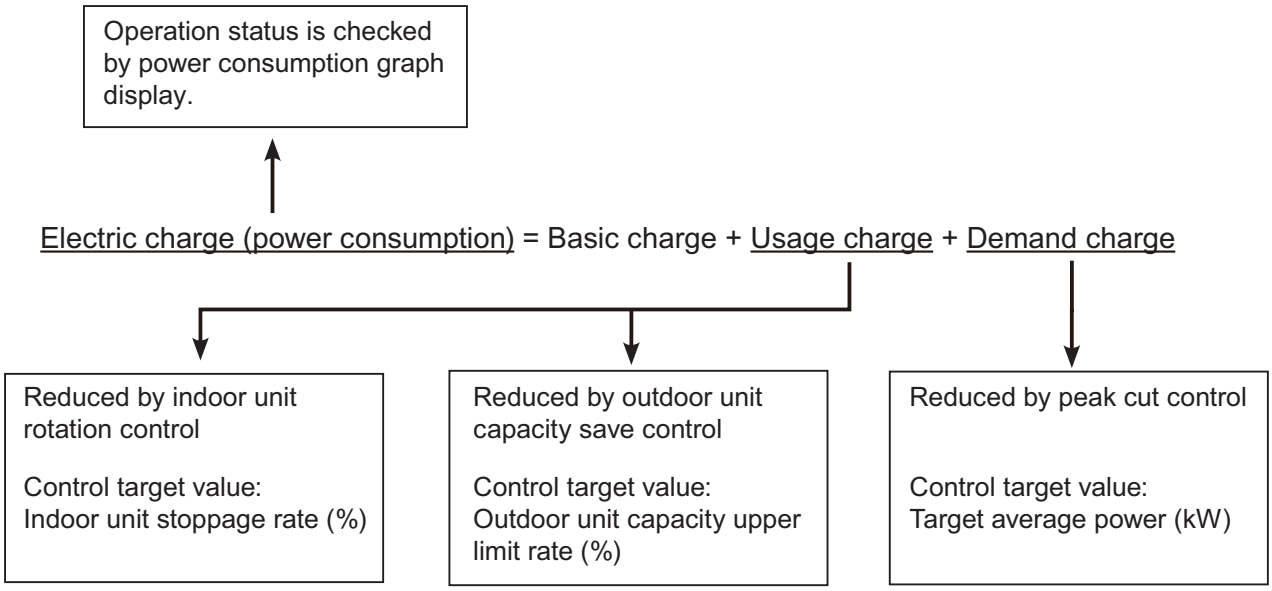
6. Perform the setting of the outdoor unit.
   For details, refer to:
   - "Setting of outdoor unit and System controller" on page 07-149
   - "Accessories" in Chapter 3. OUTDOOR UNITS on page 03-23

7. Perform the setting of the system controller.
   For details, refer to:
   - "Setting of outdoor unit and System controller" on page 07-149
   - System controller instruction manual

FUNCTION SETTINGS

■ Operation example

Breakdown of electricity charges in general and the corresponding operation of the system for each item is as follows.



Basic charge	Charge billed according to contract with the electric power company. Includes meter reading cost and billing cost.
Usage charge	Charge billed according the power consumed.
Demand charge	Charge billed according to the scale of the contract with the electric power company.

■ Notes on energy saving function

Energy saving function precautions and scope of guarantee:
The effect of the energy saving function depends on the units used in the system, usage environment, installation environment, and so forth. Each energy saving function is not guaranteed to display a fixed effect and function for operation by specific setting. Before using the function, read and understand the following precautions.

- **How to use the energy saving function:**
  Since the effect of the energy saving function depends on the units used in the system, usage environment, installation environment, and so forth, a different effect may appear according to the building and operating period even when operated with the same settings and schedule. Try to gain an understanding of the features of each energy saving function and confirm the actual effect through operation and apply appropriate settings, etc. as required.

- **Target electric power of peak cut function:**
  These are values used as target values when performing peak cut control. These values do not always guarantee that the consumed power is within the target value. For example, even if forced thermostat off and outdoor unit stoppage are activated, the control become ineffective if the outdoor unit is performing a protective operation (oil recovery and defrosting). As a result, the electric power consumed may exceed the target electric power.

- **Relationship between unit protection and energy saving function:**
  For VRF, there are operations and restrictions for protecting units. The energy saving function operates within the range of these protective operations and restrictions. When the energy saving function performs control against these protective operations and restrictions, the protective operations and restrictions have priority and the energy saving function is either restricted or may not operate. As protective operations of units, there are oil recovery, defrosting, etc. which are automatically performed periodically or under specified conditions.

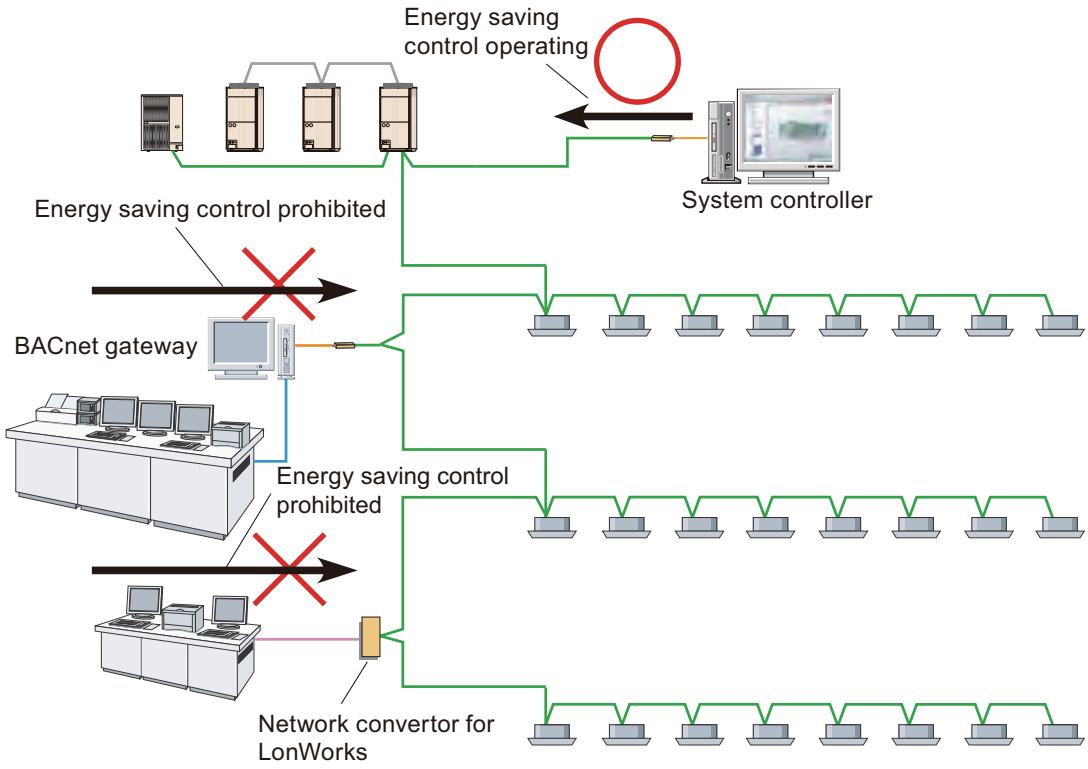
FUNCTION SETTINGS

- **Failure, etc.:**
  An energy saving function operates only when the related units are operating normally. When the power of the electricity meter and the outdoor units connected to an electricity meter and the System controller is turned off due to a failure, etc. the energy saving function will not operate normally.

- **Explaining to the building tenants:**
  During energy saving function operation, control from the remote controller may be overridden by the energy saving control. For this reason, it is recommended that the building tenants be informed of this beforehand.

■ Installation restriction and requirement of energy saving units

- **Only 1 unit may perform energy saving control at a time.**
  When energy saving control is performed by System controller (UTY-APGXZ1, UTY-PEGXZ1), stop energy saving control such as forced thermostat OFF, outdoor unit forced OFF, and outdoor unit capacity save from the building management system through the following units:
  – BACnet gateway (Software)
  – Network converter for LonWorks
  When energy saving control is performed from multiple points, trouble may occur.



- **Electricity meter installation required for some functions.**
  For using following functions under energy saving control, installation of an electricity meter is required.
  – Power consumption graph display function
  – Peak cut control
  When these functions are necessary, install an electricity meter in advance with referring the installation manual.

FUNCTION SETTINGS

2-26. Electricity charge apportionment setting (System controller, Touch panel controller)

Electricity meters are required to use an electricity charge apportionment function. To perform the functions mentioned here, one of the controller listed below is required:

- System controller
- System controller lite
- Touch panel controller

■ Electricity charge apportionment and electricity meter

When implementing the electricity charge apportionment function in a VRF System, a configuration which does not use electricity meters or a configuration which uses electricity meters can be selected. The differences between these two configurations are explained below.

The electricity charge apportionment function apportions the power consumption to each block (tenant indoor unit) defined in advance according to the usage record, after the power consumption (electricity charge) of the air conditioners is input to the System Controller. Electricity charge apportionment calculation becomes possible only after inputting the power consumption (or electricity charge).

Electricity charge apportionment when electricity meter not used

Only after the electricity bill is received from the electric power company and the billed amount is input into the System Controller, can electricity charge apportionment for the billed period be calculated.

Electricity charge apportionment when electricity meter used

Since the power consumption data is sent from the electricity meter to the System Controller at any time, basically electricity charge apportionment calculation can be performed at any time. Because an actual System Controller calculate power charge apportionment data in one day units, electricity charge apportionment calculation can be performed at an arbitrary day in one day units.

Example 1:

When the tenants of a tenant building, etc. are billed for their air conditioning electricity charge once a month, if the electricity bill arrives from the electric power company each month, the electricity charge apportionment function can be used without electricity meters because electricity charge apportionment can be performed based on that bill and the tenants can be billed. Even if there are tenants moving in and out within a month, appropriate billing can be performed after the bill was received from the electric power company. However, when the electricity bill is received from the electric power company once every 3 months, electricity charge apportionment for 3 months cannot be calculated until the bill is received. In this case, building owner can only bill the building tenants for air conditioning electricity charges every 3 months. However, if electricity meters are installed, billing at an arbitrary interval, for example, once a month, is possible.

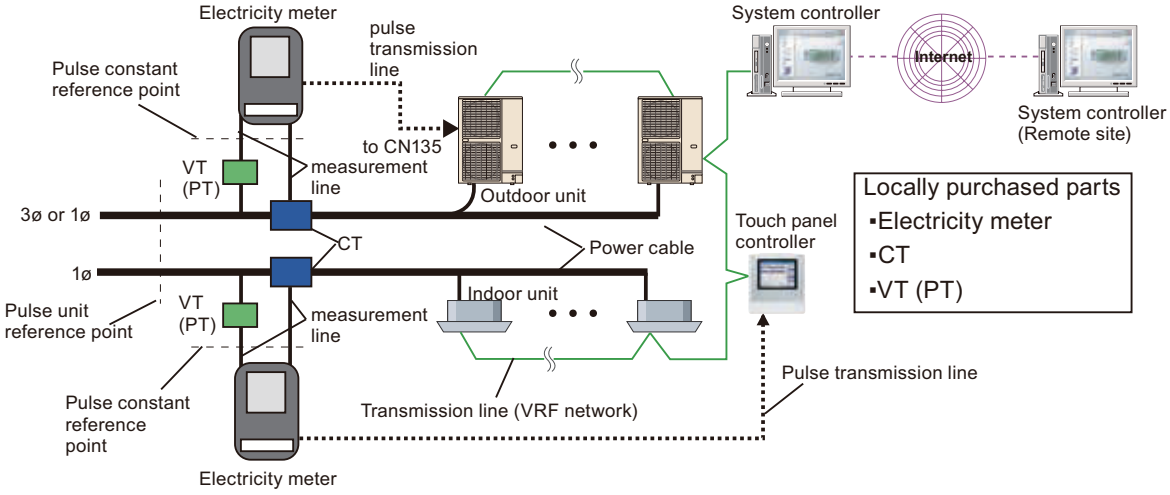
Example 2:

When air conditioning electricity charge is billed based on the electricity charge apportionment function for each room in hotels etc., because guests leave and arrive daily and the electricity charge is calculated each time, you cannot wait for the electricity bill to arrive from the electric power company. In such cases, it must be possible to be able to calculate electricity charge apportionment at any time using electricity meter.

FUNCTION SETTINGS

■ Electrical wiring

- **Electricity meter connection composition**
  To perform energy saving peak cut control, basically, electricity meters with pulse transmission function measuring all the power consumed by the air conditioner are necessary. Multiple meters installations are also possible as long as the number of electricity meters is within the specified limit. A general electricity meter installation configuration is shown below.



Item	Description
Electricity meter	Measures the voltage and current of the power cable to which measurement line is connected and finds the power consumption from these. In addition, pulses corresponding to the measured value are output to the transmission line.
Voltage Transformer (VT) Power Transformer (PT)	Transform the power source voltage to a measurable voltage. Transformation ratio is indicated by VT (PT) ratio. Normally unnecessary for the voltage value level used by outdoor units and indoor units.
Current Transformer (CT)	Transform the power line current value to a current measurable by an electricity meter. Transformation ratio is indicated by CT ratio. There are types which is inserted between power cables and types which are coupled to the power cables.
Pulse unit	Pulse unit indicates the relationship between electricity meter output pulse and measured power. The value specified in pulse unit indicates the power in kWh consumed on the power cable for 1 pulse. Units: kWh/pulse The value specified by pulse unit takes into account the VT and CT ratio used and corresponds to the actual power consumption itself.
Pulse unit reference point	Indicates the measurement point of the power consumption specified in pulse units.
Pulse constant	Pulse constant indicates the relationship between electricity meter measured power and output pulses. The value specified by pulse constant indicates how many pulses are equivalent to 1 kWh of power consumption input to an electricity meter. Units: pulse/kWh Because the ratio of VT and CT used is not taken into account in the value specified by pulse constant, to find the actual power consumption on the power cable, the pulse constant value must be multiplied by both the VT and CT ratio.
Pulse constant reference point	Indicates the measurement point of power consumption specified by pulse constant.

- **Selection of Electricity meter, CT, and VT**
  Select the electricity meter, CT, and VT by considering the following items:
  – Install electricity meters for each refrigerant system, if circumstances allow.
  – Select VT/CT with a small VT/CT ratio.
  – When using an electricity meter which is specified in pulse units (kWh/pulse), usually select a meter with a 1 kWh/pulse output.

FUNCTION SETTINGS

- **Outdoor unit connection interface (CN135) or touch panel controller connection interface (TM201 CH1) to electricity meter**

Item		Specifications	Remarks
Interface		Dry contact “a” contacts	“a” contacts: ON when shorted *1
Pulse	Specifications	Width: 50 ms or more Interval: 50 ms or more	
	Units	1 kWh/pulse (pulse units) recommended.	
	Constant	Considering the electricity meters available in some countries, use of electricity meters with 3,200 pulse/kWh (pulse constant) or less pulses are possible.	
Line length restriction		150 m or less	Between electricity meter and outdoor unit
Wiring specification		Control and instrumentation cable: CVV-S (Control-use Vinyl insulated Vinyl sheathed cable – Shielding) *2 2-conductor: 1.25 mm^2	
Line length restriction		25 m or less	Between electricity meter and touch panel controller
Wiring specifications		2 core, twisted pair, 0.33 mm^2 (22 AWG) *3	

*1 Pulse signal: normally OFF (open), ON (closed) when shorted

*2 When affected by interference by induction, select shielded CVV cable (CVV-S cable). This is because copper shielding tape is wrapped around CVV cable and induction interference from adjacent power cables is alleviated and normal communication is maintained. In addition, when the wiring is outdoors, select weather resistance cable.

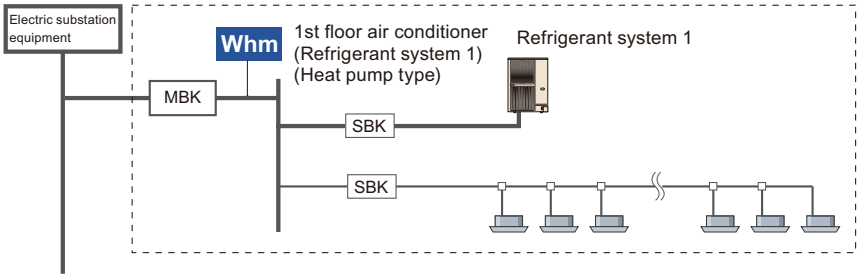
*3 Use cable in accordance with local regulations and rules for cable.

- **Number of installing electricity meters**

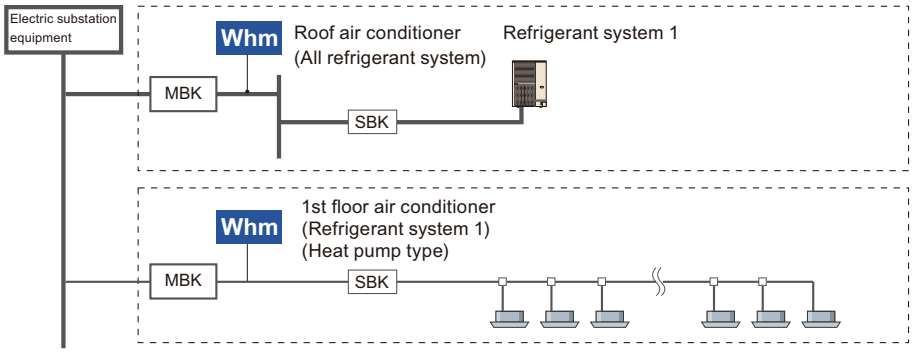
Item	Specifications	Remarks
Number of installing electricity meters	Max. 200	Per site (include Max. 4 VRF systems)

FUNCTION SETTINGS

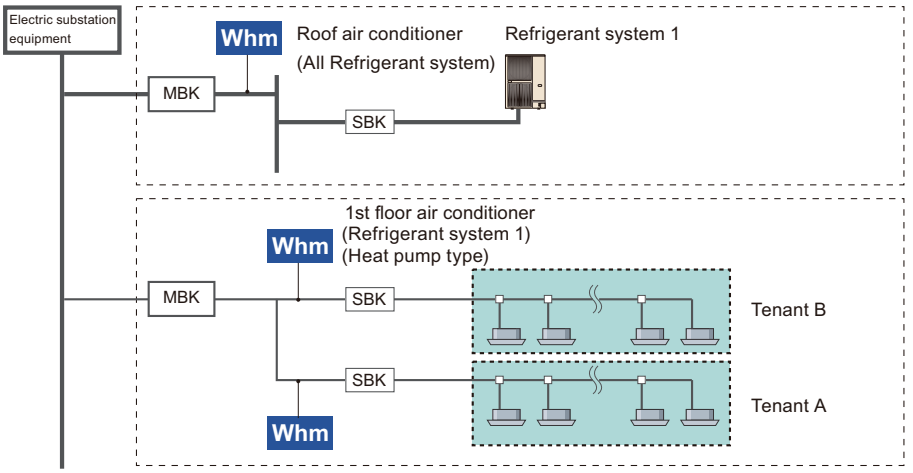
- **Installation examples of electricity meter**
  - Installation example for each refrigerant system:



  - Installation example for indoor units and outdoor units:



  - Installation example for each tenant:

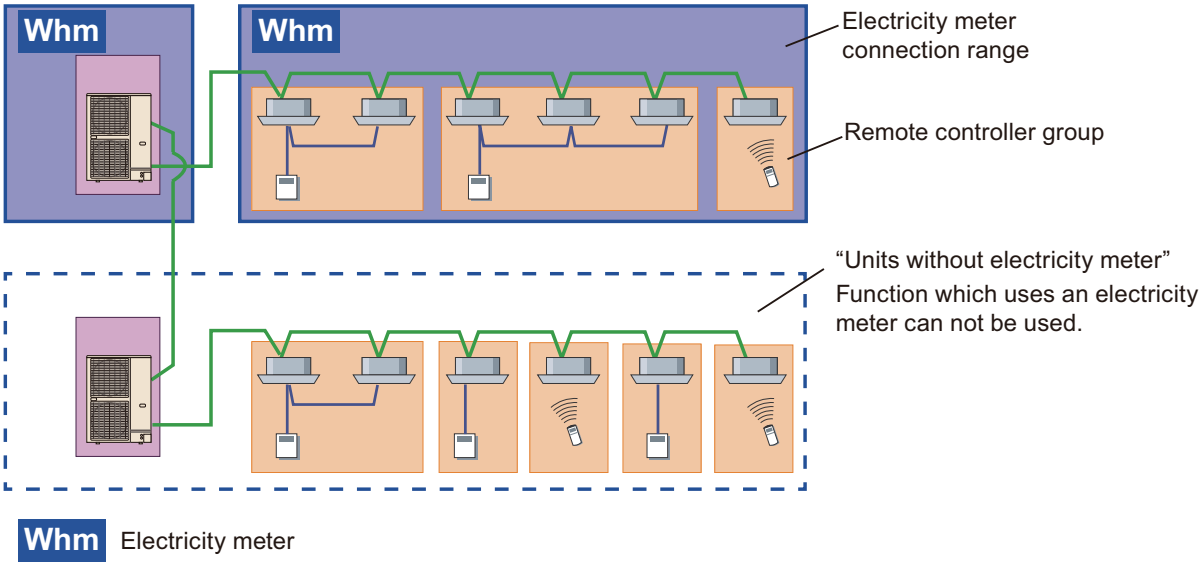


FUNCTION SETTINGS

■ Installation restriction and requirement of electricity meter

- **Functions that requires installation of electricity meter**
  To use the following functions, use an electricity meter:
  - Electricity charge apportionment
    Install for operation using an electricity meter. (Operation without an electricity meter is also possible.)
    When using an electricity meter, an electricity meter must be installed for all the units which perform apportionment calculation.
  - Peak cut control (Only for System controller)
    Installation of an electricity meter is essential.
  - Power consumption graph display (Only for System controller)
    Installation of an electricity meter is essential.

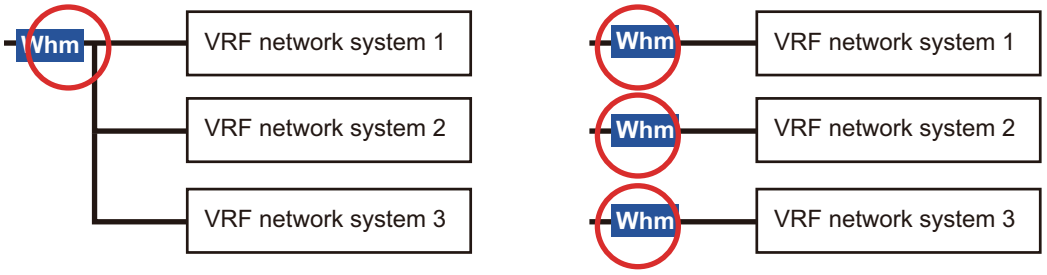
[Installation example]



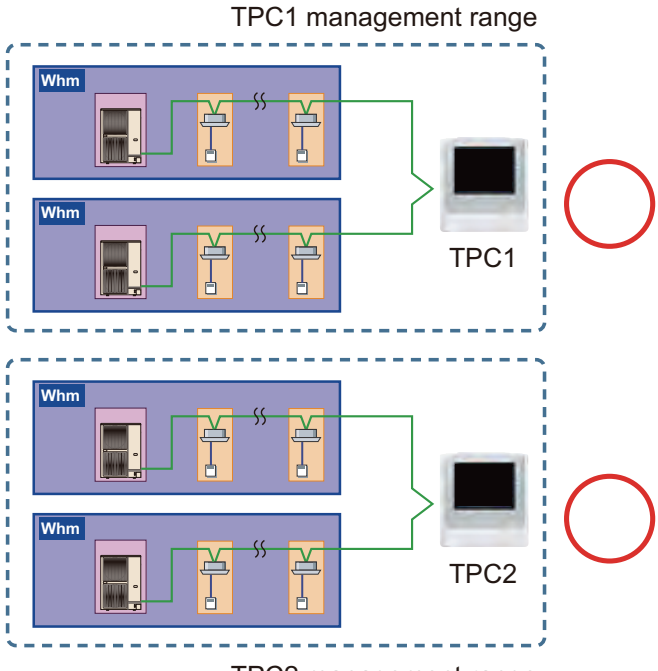
FUNCTION SETTINGS

- **Installation abstract**
  Electricity meter connection methods mentioned here can be adapted for the System controller and Touch panel controller (TPC). However, the setting restrictions mentioned here must be observed.
  – Multiple VRF networks can be connected to 1 electricity meter. (with network crossover)

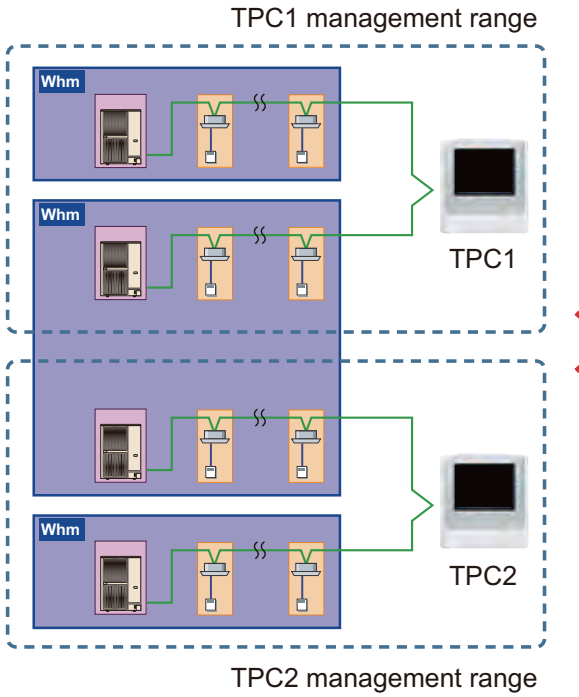
NOTE: Combination of UTY-ALGXZ1 and UTY-PLGXE2 does not multiple VRF networks.



– With the electricity charge apportionment function, an electricity meter system cannot span TPC.

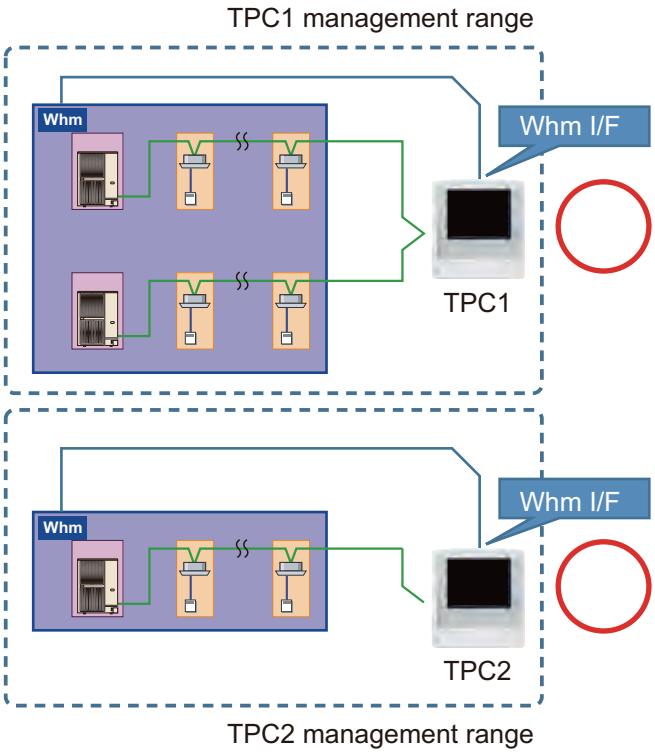


Create an electricity meter system within the range of the units managed by each TPC.

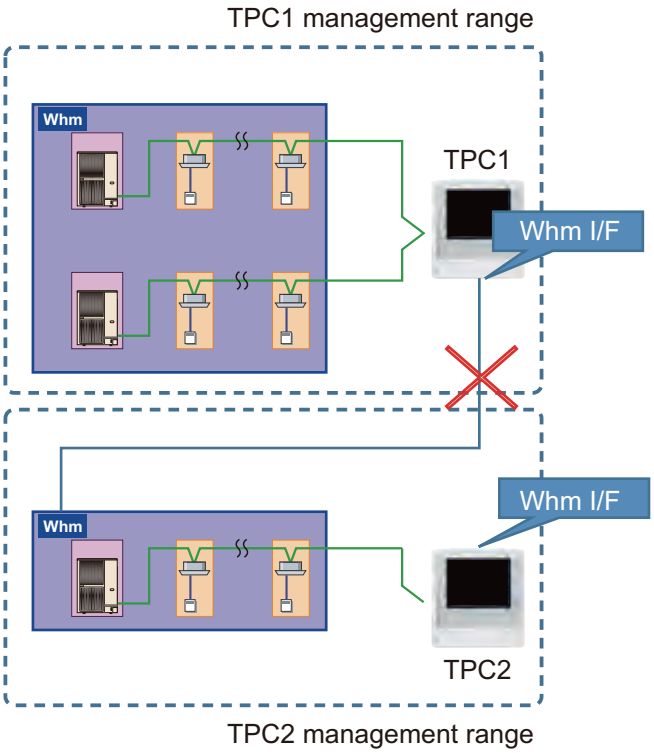


An electricity meter system spanning units managed by TPC cannot be created.

FUNCTION SETTINGS

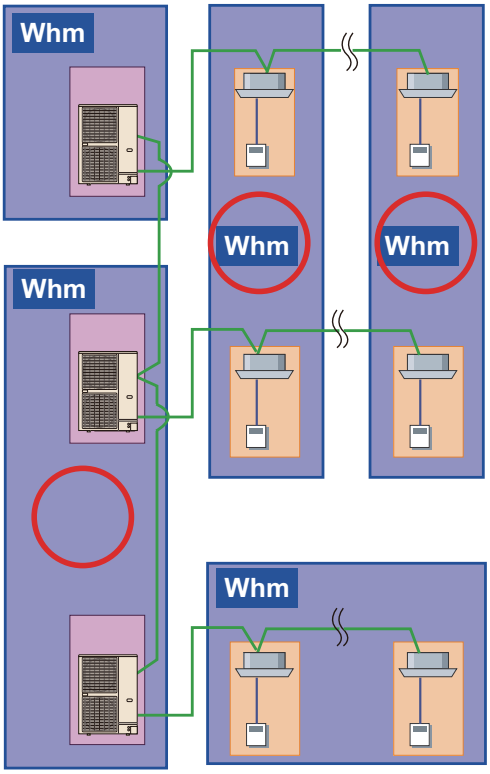


Connect the electricity meter that measures the units managed by the appropriate TPC to the electricity meter I/F belonging to the TPC main unit.

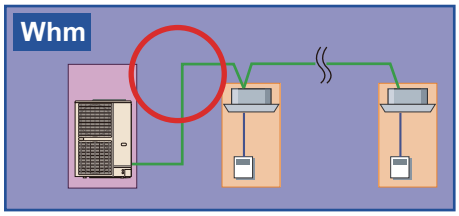


FUNCTION SETTINGS

– Installation crossing over refrigerant system is possible.



– Outdoor unit/indoor unit mixed in 1 electricity meter is possible.



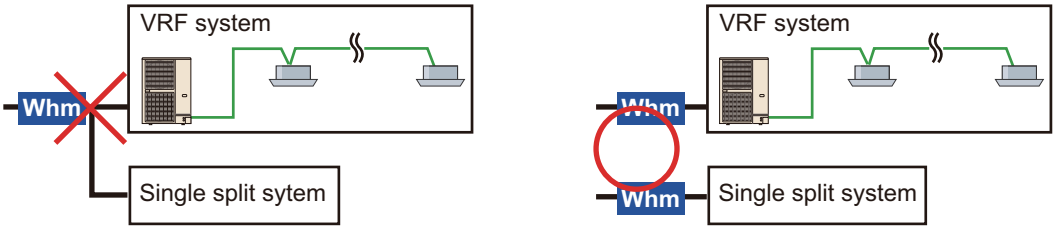
– There are no restrictions on outdoor units which connect an electricity meter.
An arbitrary electricity meter can be connected to an arbitrary outdoor unit.

FUNCTION SETTINGS

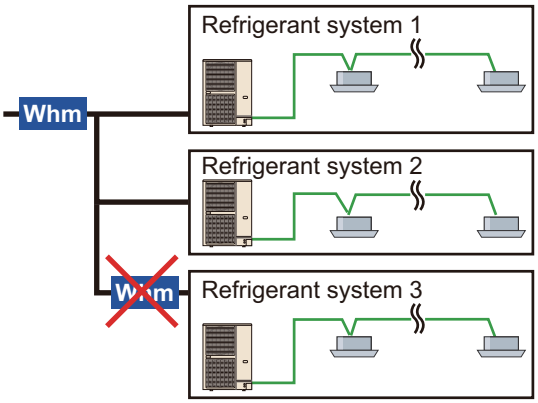
- **Installation restriction**
  Install electricity meters in accordance with the following restrictions:
  - Install an electricity meter only to air conditioners which are the target of the function. When electric lights and other OA equipment are connected to the electricity meter, also their power consumptions are calculated.
    Connect electricity meters to only the necessary air conditioners.
  - An electricity meter cannot be connected to S series and V series units because they are not electricity meter supported.
  - Electricity meter supported/unsupported units cannot be mixed under 1 electricity meter. (Because the available functions are different.)
    When connecting single type air conditioners via Network converter (UTY-VGGXZ1), separately connect the electricity meter to VRF air conditioners because there are some functions that are electricity meter unsupported such as Electricity charge apportionment function*1 or Energy saving function*2. However, UTY-VGGXZ1 which connects a group remote controller is an exception.

    *1: The electricity charge apportionment function cannot be used with single types air conditioners which are connected to a network converter.

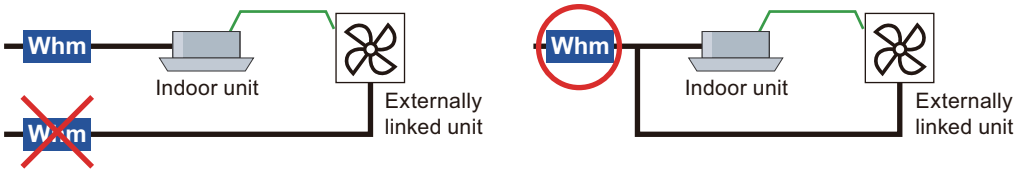
    *2: In the peak cut control, though the power will be included in the target power, the actual control will not be performed.



  - Electricity power meters cannot be nested
    Installation of the meters themselves is possible, but use only 1 electricity meter for the System controller. (If both are used, the power consumption will be measured twice.)

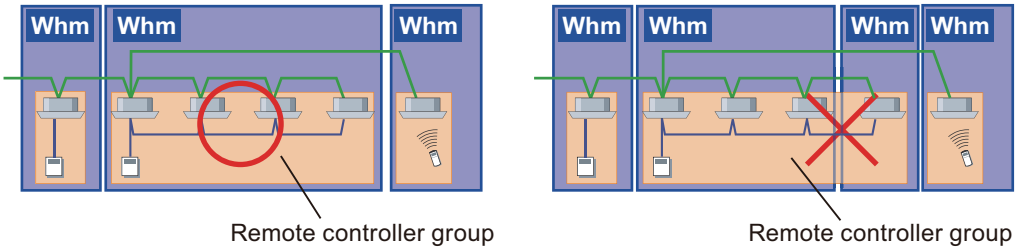


  - The externally linked units* shall be connected to the same electricity meter as the air conditioner to which they are connected.
    *: General-purpose unit which performs calculation as an externally linked unit by electricity charge apportionment function.

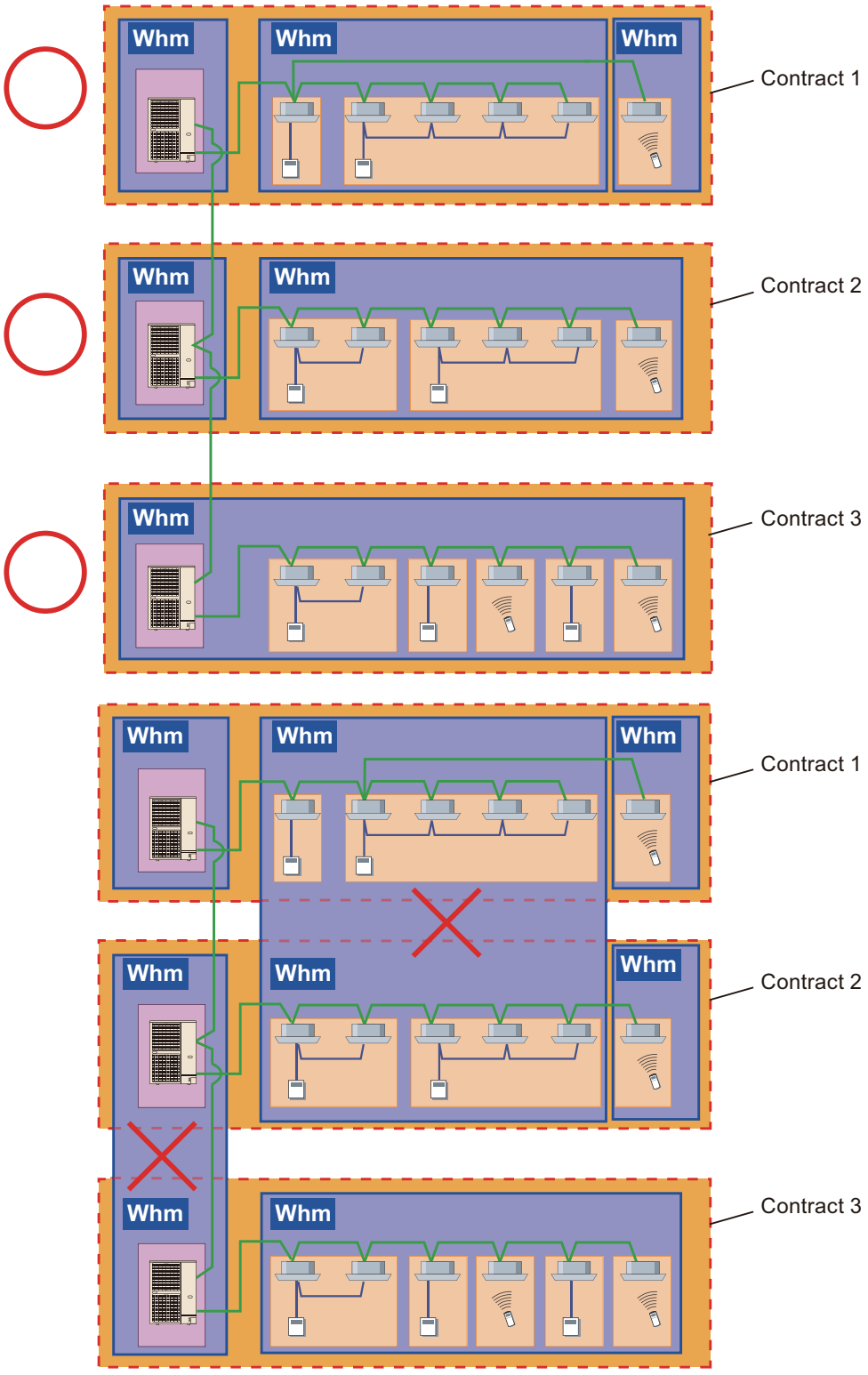


FUNCTION SETTINGS

– Installation of electricity meter which divides remote control groups is prohibited.



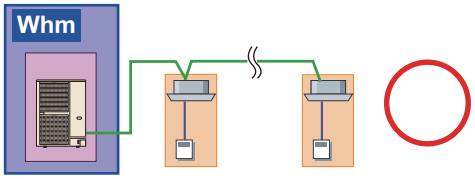
– Installation of electricity meter which crosses the contract is prohibited.
When an electricity meter is used by electricity charge apportionment function, install the electricity meter so that it does not cross over the “contract setting” set by electricity charge apportionment.

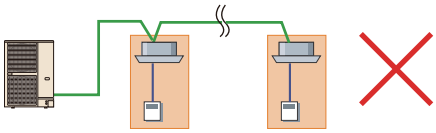


FUNCTION SETTINGS

– When performing apportionment calculation using electricity meter
The electricity meter shall be connected to the necessary air conditioners which are the target of calculation by the electricity charge apportionment function.
When an electricity meter is not connected, electricity charge apportionment calculation using an electricity meter may not be possible.

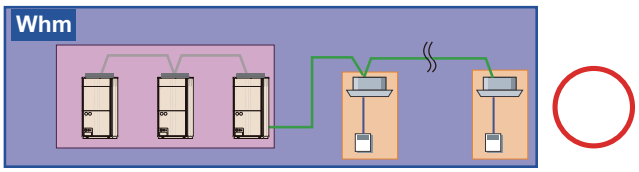
- [Electricity charge apportionment with outdoor unit only]
  --> Connect the electricity meter to the outdoor unit.

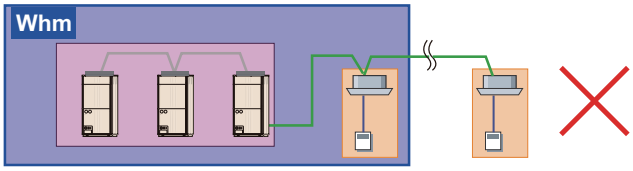




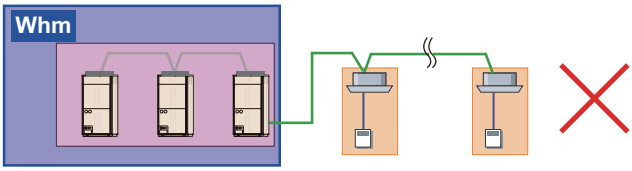
Electricity meter is not connected to outdoor unit

- [Outdoor unit + indoor unit electricity charge apportionment]
  --> Connection of an electricity meter to the outdoor unit and indoor unit is necessary.





Electricity meter is not connected to some indoor units



Electricity meter is connected to outdoor unit only even though outdoor unit + indoor unit electricity charge apportionment is performed

FUNCTION SETTINGS

– Electricity apportionment for DX kit

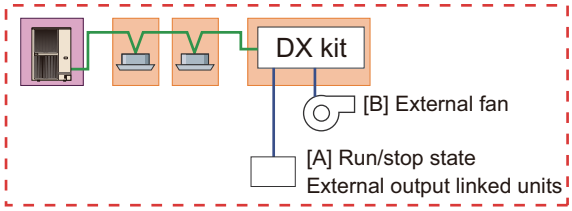
[When electricity meter not connected]

The following units can be linked to the DX-Kit, by using external output terminals.

[A]: External fan

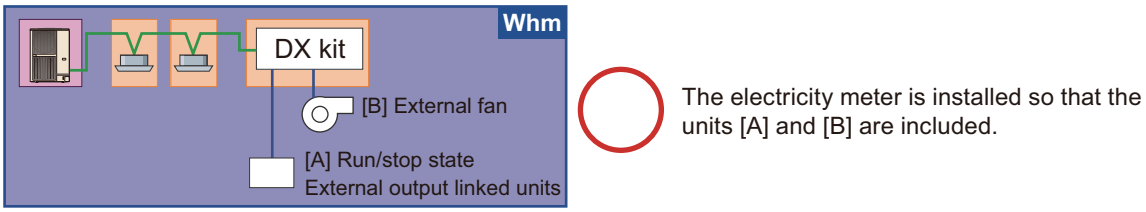
[B]: Units linked to run/stop state external output

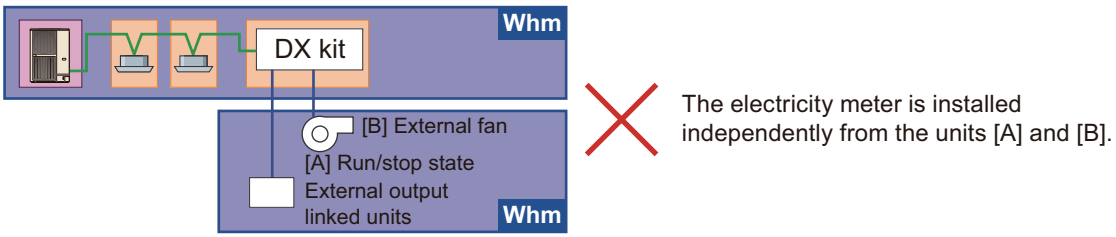
At electricity apportionment, the DX-Kit itself and units [A] and [B] mentioned above can be handled. Set the electricity value at ON beforehand for the units [A] and [B] from the “Parameter Setting” screen. The input value is included in the calculation as a constant value when the external output terminal is ON.



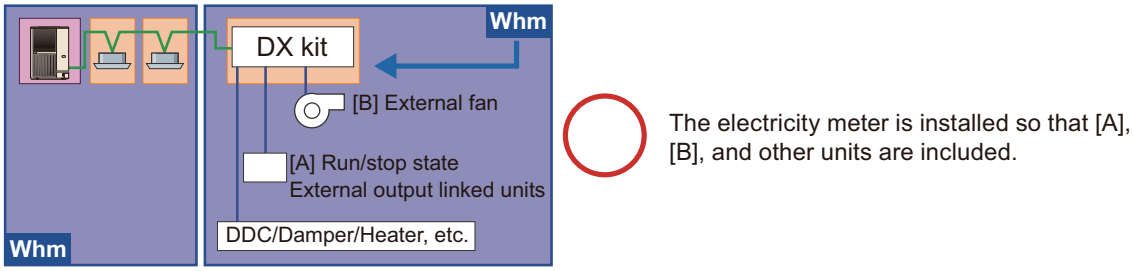
[When electricity meter is connected]

At electricity apportionment, the DX-Kit itself and units [A] and [B] mentioned above can be handled the same as when an electricity meter is not connected. Set the electricity value at ON beforehand for the units [A] and [B] from the “Parameter Setting” screen and install the electricity meter so that the units [A] and [B] are included. The input value in the calculation as a constant value when the external output value is ON is included.



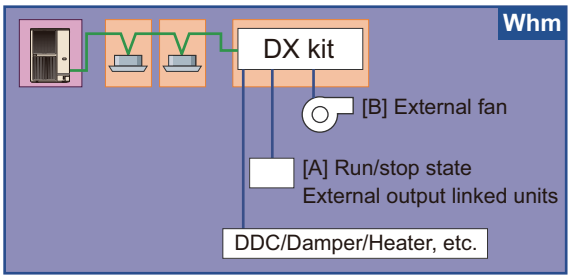


If there is a unit related to the DX-Kit other than [A] and [B], if the DX-Kit is connected as an independent electricity meter system and installed so that other units are included, it may be included in electricity charge apportionment. (All the value of that electricity meter is charged to the DX-Kit.



FUNCTION SETTINGS

Units other than [A] and [B] must not be connected to an electricity meter together with other indoor units. If connected, the electricity amount of DDC, damper and heater is also charged to the other indoor units.



The electricity meter is installed so that the units other than [A], [B] and indoor units are included.

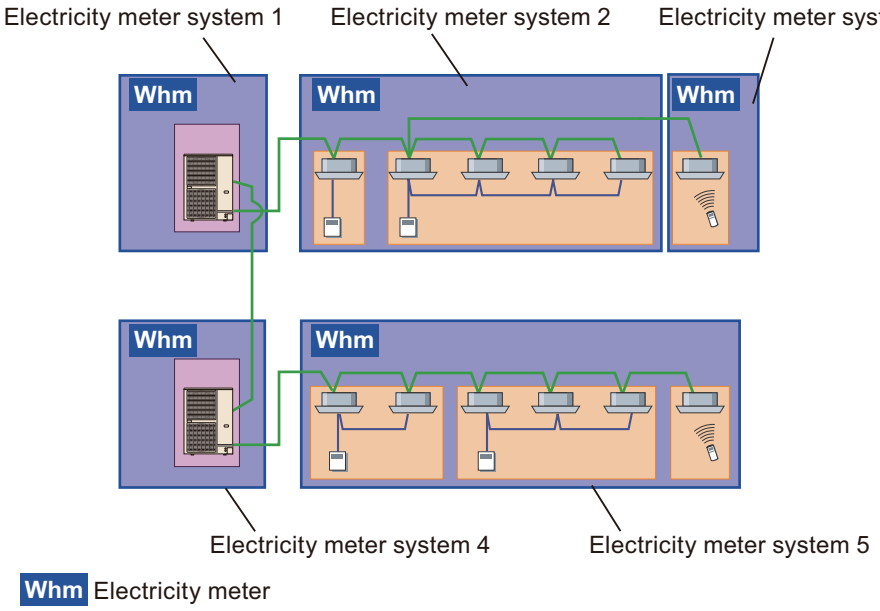
■ Electricity meter system

Electricity meter system is the connection configuration of 1 electricity meter and the air conditioner units which are connected to the power line under it. This is set on the System controller.

Set the System controller to match the actual electricity meter installation configuration.

Since the electricity charge apportionment function and energy saving function perform the control using the power consumption data from an electricity meter, it is necessary to set an electricity meter system on the System controller.

When installing electricity meters as shown below, 5 electricity meters systems are set as follows.



■ Setting of outdoor unit and System controller

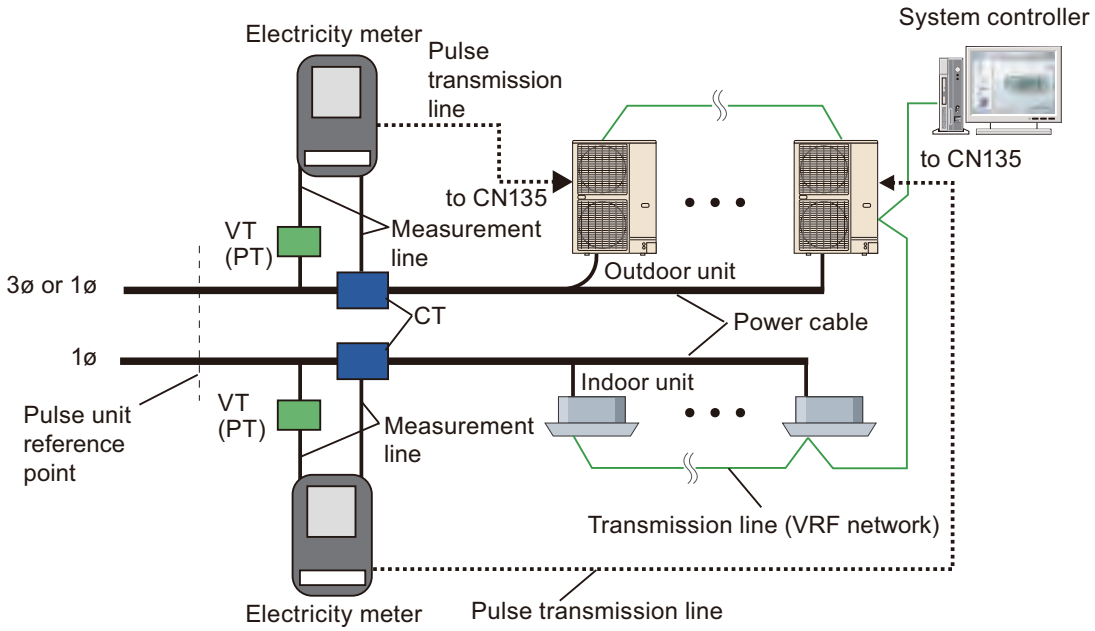
To obtain the appropriate power consumption by System controller, the power value measured by an electricity meter must be properly conveyed. To do this, appropriate setting at the electricity meter, outdoor unit, and System controller is necessary.

The method of setting the pulse from the electricity meter received by an outdoor unit and the method of setting the pulse value set by System controller are described here. When electricity meter setting is necessary, perform it in accordance with the instruction manual supplied with the electricity meter.

Below, the setting method of electricity meters specified in pulse units and that specified in pulse constant are described.

FUNCTION SETTINGS

- When electricity meter used is specified in pulse units
  The connection configuration is shown below.



For the electricity meter specified in pulse units, the output pulses are normalized in advance (normally 1 kWh/pulse) and is output. In this case, the settings are as follows:

Set point	Set item	Set value	Description	Remarks
Electricity meter	Set in accordance with the product manual.	—	When there is a product unique setting, setting is performed in accordance with the product manual. (Pulse units value, VT/CT ratio, output coefficient, etc.)	
Outdoor unit	Meter no. setting	Arbitrary	Set an unique electricity meter no. for electricity meter identification.	The information will become necessary when setting System controller later. Refer also to "Setting on outdoor unit PCB" on page 07-60.
	Electricity meter pulse setting	1	Fixed to “1”. When 1 pulse comes from the electricity meter, the outdoor unit communicates “1” to the System controller.	
System controller	Electricity meter system setting	Units measured by electricity meter	Set the outdoor unit and indoor unit, measured by the electricity meter of the meter no. set at the outdoor unit.	The value set by each outdoor unit is used.
	Pulse setting	Electricity meter pulse units value (Usually either of 1, 10, or 100 [kWh/ pulse])	Set the pulse units specified by the electricity meter as they are. Set the number of kWh that corresponds to the “1” communicated from the outdoor unit.	Refer to the value set by each outdoor unit.

[Setting example]

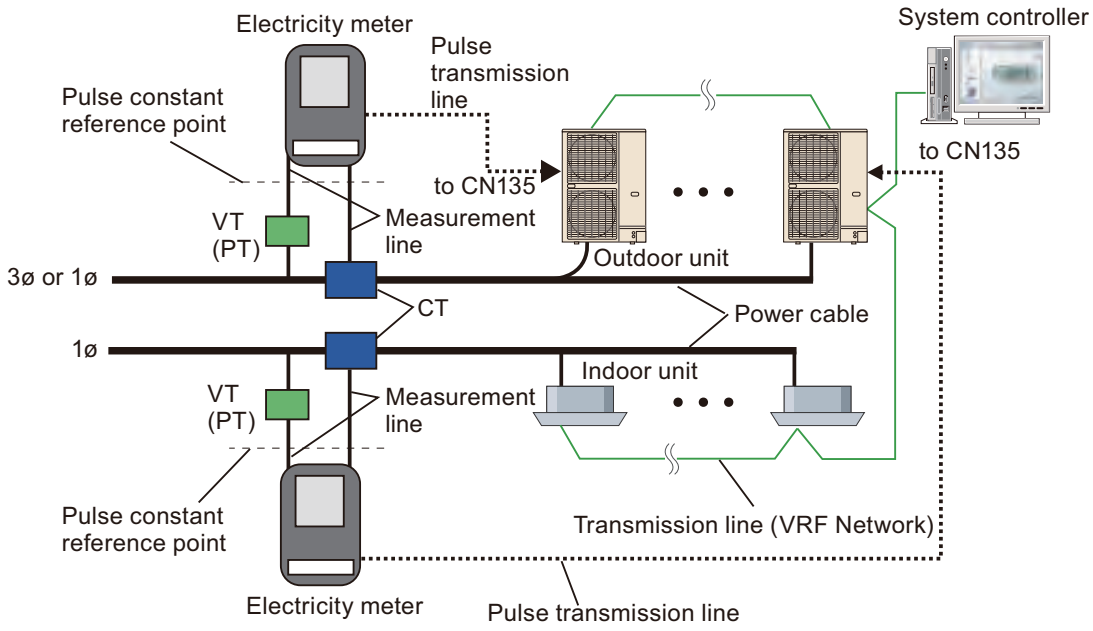
Equipment conditions:

VT ratio=1 (not used), CT ratio=50 (250/5 A), electricity meter=1 kWh/pulse

Set value:

Electricity meter pulse setting=1 (fixed), pulse setting=1 (corresponds to electricity meter used)

- When electricity meter used is specified by pulse constant
  The connection configuration is shown below.



For the electricity meter specified by pulse constant, the power consumption indicated by output pulse must be corrected by VT/CT ratio. In this case, the settings are as follows:

Set point	Set item	Set value	Description	Remarks
Electricity meter	Set in accordance with the product manual.	—	When there is a product unique setting, setting is performed in accordance with the product manual. (Pulse constant value, output coefficient, etc.)	
Outdoor unit	Meter no. setting	Arbitrary	Set an unique electricity meter no. for electricity meter identification.	The information will become necessary when setting System controller later. Refer also to "Setting on outdoor unit PCB" on page 07-60.
	Electricity meter pulse setting	The pulse constant value / (VT ratio × CT ratio). However, truncated after the decimal point	Set the approximate number of power meter pulses that are equivalent to 1kWh. When set number of pulses come from the electricity meter, the outdoor unit communicates “1” to the system controller.	
System controller	Electricity meter system setting	Units measured by electricity meter	Set the outdoor unit and indoor unit, measured by the electricity meter of the meter no. set at the outdoor unit.	The value set by each outdoor unit is used.
	Pulse setting	(Electricity meter pulse setting value) × (VT ratio × CT ratio) / pulse constant Values after the decimal point must be also input.*	Set the standard number of kWh for the value communicated from the outdoor unit. Set the number of kWh that corresponds to the “1” communicated from the outdoor unit.	Refer to the value set by each outdoor unit.

*: Input up to 6 decimal digits

[Setting example]

Equipment conditions:

VT ratio=1 (not used), CT ratio=500(2500/5 A), electricity meter=3,200 pulse/kWh

Set value:

Electricity meter pulse setting=6 (3200/ [1 × 500]), Pulse setting=0.9375 (6 × [1 × 500]/3200) For details, refer to the calculating formula of the table above.

FUNCTION SETTINGS

FUNCTION SETTINGS

Refrigerant R410A
INVERTER

AIRSTAGE™
Variable Refrigerant Flow System

8. EXTERNAL INPUT AND OUTPUT

2021.02.19
DV_CH08_J3LU061EF_03

CONTENTS

8. EXTERNAL INPUT AND OUTPUT

1. Design precautions 08-1

2. Outdoor unit 08-2

2-1. Component location 08-2
2-2. Wiring specifications 08-3
2-3. External input 08-3
2-4. External output 08-5
2-5. Optional parts 08-6
2-6. Function summary of outdoor unit external input/output 08-7

3. Indoor unit 08-8

3-1. Combination of external input and output 08-9
3-2. External input 08-10
3-3. External output 08-34
3-4. Function summary of indoor unit external input and output 08-55
3-5. Optional parts 08-56

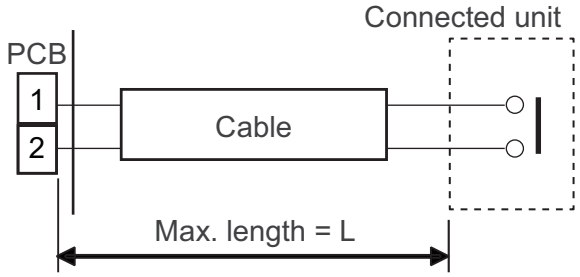
4. Controller 08-57

4-1. Touch panel controller 08-57
4-2. Central remote controller (UTY-DCGY) 08-63
4-3. Central remote controller (UTY-DCGYZ∗) 08-69
4-4. Function summary of controller external input/output 08-75

1. Design precautions

Cable length regulations:

Maximum length for each cable in-between the units are as follows:



Type	L : ft (m)	
	Input	Output
Outdoor unit	492 (150)	492 (150)
Indoor unit	492 (150)	82 (25)
Touch panel controller	82 (25)	82 (25)
Central remote controller	82 (25)	82 (25)

EXTERNAL INPUT AND OUTPUT

2. Outdoor unit

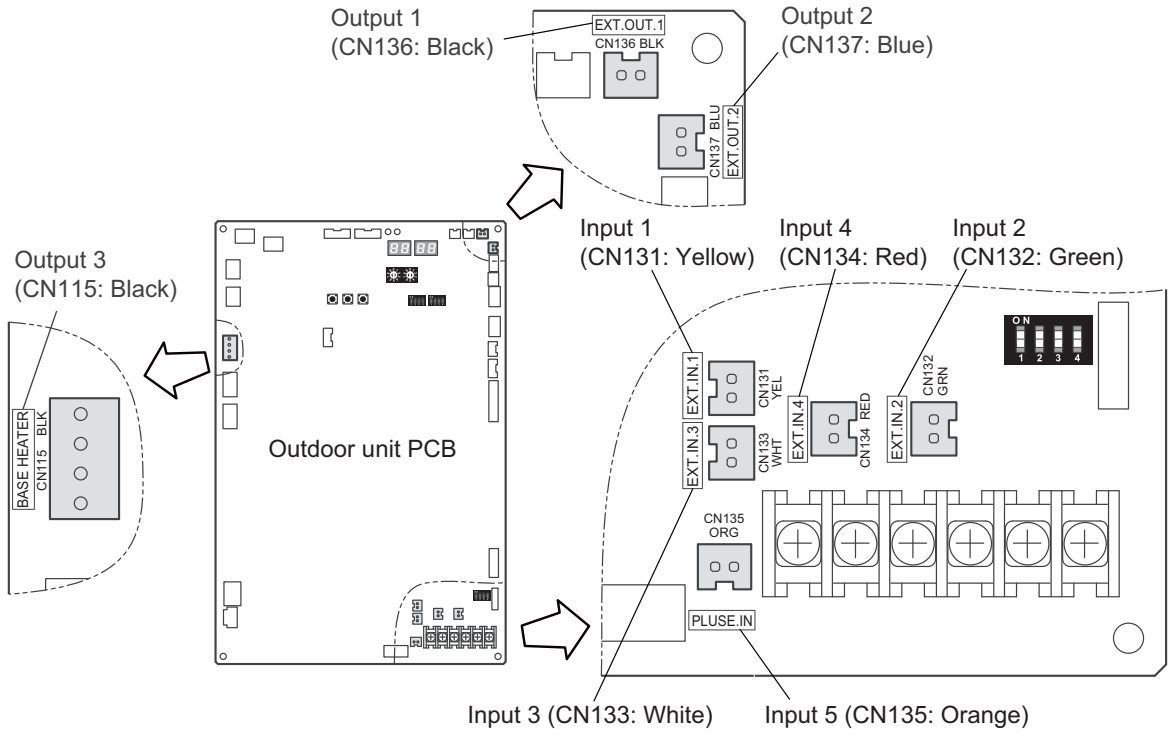
External input and output functions and related components are as follows:

		Function	Connector	External connect kit (Optional parts)
External input	1	Low noise mode	CN131	UTY-XWZXZ6
	2	Cooling/Heating priority	CN132	
	3	Outdoor unit operation peak control	CN133	
	4	Emergency/batch stop	CN134	
	5	Electricity meter pulse	CN135	UTY-XWZXZF
External output	1	Error status	CN136	UTY-XWZXZ6
	2	Operation status	CN137	
	3	Base heater	CN115	UTY-XWZXZ9

RELATED LINKS

"Component location" on page 08-2
"Wiring specifications" on page 08-3
"External input" on page 08-3
"External output" on page 08-5
"Optional parts" on page 08-6
"Function summary of outdoor unit external input/output" on page 08-7

2-1. Component location

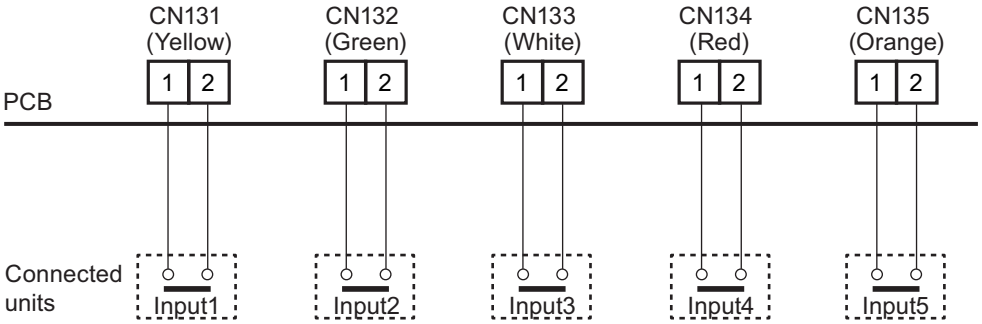


EXTERNAL INPUT AND OUTPUT

2-2. Wiring specifications

Use an external input and output cable with appropriate external dimension, depending on the number of cables to be installed.

Cable type	Cable size	Max. cable length
Twisted pair cable	22 AWG (0.33 mm^2)	492 ft (150 m)



For each input, pin no.1 is of positive polarity and pin no.2 is of ground level.

2-3. External input

Setting to Low noise mode, Cooling priority/Heating priority selection, Outdoor unit operation peak control, Batch/Emergency stop, and Electricity meter pulse are possible from the outside.

Connector	Input signal	Status	Outdoor unit
CN131 (Yellow)	Off	Normal operation	○
	On	Low noise mode operation	
CN132 (Green) *1	Off	Cooling priority	○
	On	Heating priority	
CN133 (White)	Off	Normal operation	○
	On	Outdoor unit operation peak control	
CN134 (Red)	Off	Normal operation	○
	On	Batch stop or Emergency stop operation *2,*3	
CN135 (Orange) *4	No pulse	No information from electricity meter	○
	Pulse	Power usage information from electricity meter	

*1: The external input priority mode must be set by pressing push button on outdoor unit PCB.

*2: Batch stop or Emergency stop pattern can be selected by pressing push button on outdoor unit PCB.

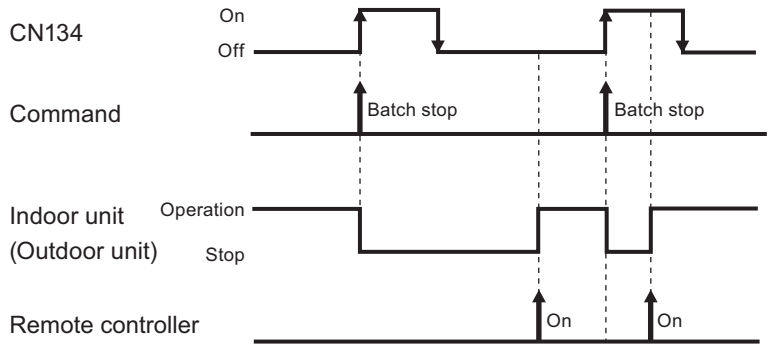
*3: The emergency stop function mounted in the equipment does not guarantee the regulations of each country. For this reason, sufficient checking is necessary regarding use. Especially, since the fact that the equipment may not be emergency-stopped in the case of breaking of the wiring to the external input terminals and communication line, communication error due to noise, VRF external input circuit trouble, etc. must be considered, the provision of double measures that add direct interruption of the power supply by switch, etc. is recommended as a precaution.

*4: The width of Pulse input signal to CN135 must be 50 ms or more, and the interval of the signal must be 50 ms or more.

EXTERNAL INPUT AND OUTPUT

- **When function setting is Batch stop mode:**

Connector	Input signal	Command
CN134	Off → On	Batch stop
	On → Off	—

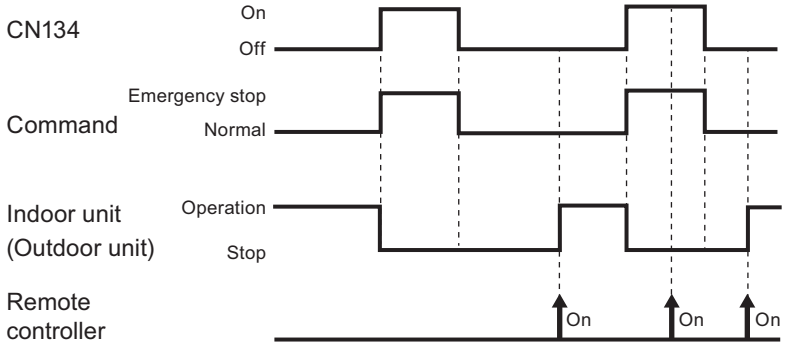


NOTES:

- All indoor units of same refrigerant system stops when Batch stop operates.
- After batch stop operates, the operation by remote controller is possible.

- **When function setting is Emergency stop mode**

Connector	Input signal	Command
CN134	On	Emergency stop
	Off	Normal



NOTES:

- All indoor units of same refrigerant system stops when Emergency stop operates.
- When the Emergency stop is triggered, indoor unit stops and Start/Stop operation by a remote controller is restricted.

EXTERNAL INPUT AND OUTPUT

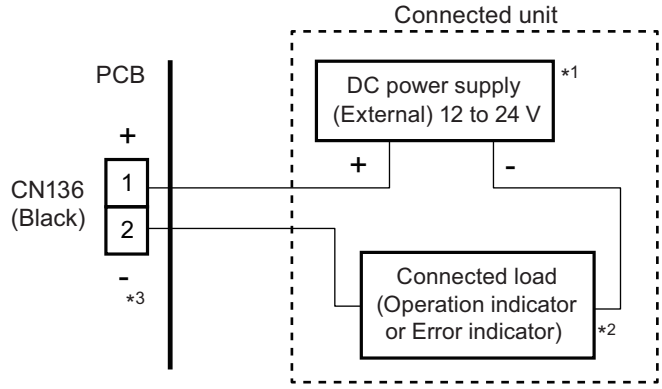
2-4. External output

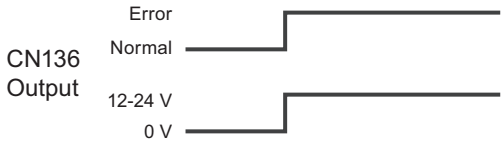
Connector	Output signal	Status
CN136 (Black)	0 V	Normal
	DC 12 to 24 V	Error
CN137 (Blue)	0 V	Stop
	DC 12 to 24 V	Operation

■ Error status

This output indicates Normal or Error status of the outdoor unit and connected indoor units.

As for the required wiring specifications, refer to "Wiring specifications" on page 08-3.





*1: Provide a DC 12 to 24 V power supply. Select a power supply capacity with an ample surplus for the connected load. Do not impress a voltage exceeding 24 V across pins 1 to 2.

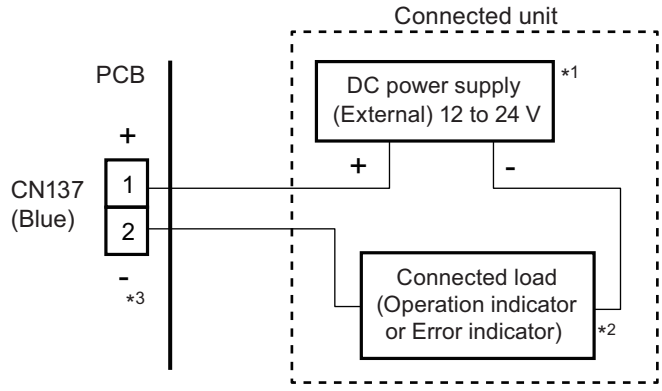
*2: The allowable current is 30 mA or less. Provide a load resistance such that the current becomes 30 mA or less.

*3: Polarity is “+” for pin no. 1 and “-” for pin no. 2. Connect correctly.

■ Operation status

This output indicates Operation status of the outdoor unit.

As for the required wiring specifications, refer to "Wiring specifications" on page 08-3.





*1: Provide a DC 12 to 24 V power supply. Select a power supply capacity with an ample surplus for the connected load. Do not impress a voltage exceeding 24 V across pins 1 to 2.

*2: The allowable current is 30 mA or less. Provide a load resistance such that the current becomes 30 mA or less.

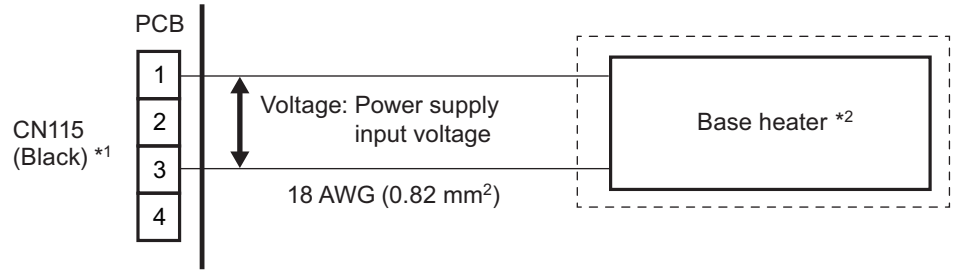
*3: Polarity is “+” for pin no. 1 and “-” for pin no. 2. Connect correctly.

EXTERNAL INPUT AND OUTPUT

■ Base heater

This is the output signal for base heater.

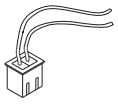
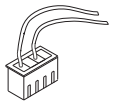
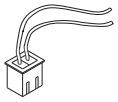
The output signal is on when the outdoor temperature goes down below 36°F (2°C), and signal is off at the outdoor temperature 39°F (4°C).



*1: Connect to pin no.1 and pin no.3. No connection to pin no.2 and pin no.4.

*2: The allowable current is 1 A or less.

2-5. Optional parts

External connect kit			
Model name	**Exterior**	**Q'ty**	**Usage**
UTY-XWZXZ6		1	For external input. (Low noise mode, Cooling/Heating priority, Outdoor unit operation peak control, Emergency/ Batch stop)
			For external output. (Error status, Operation status)
UTY-XWZXZ9		1	For external output. (Base heater)
UTY-XWZXZF		1	For external input. (Electricity meter pulse)

EXTERNAL INPUT AND OUTPUT

2-6. Function summary of outdoor unit external input/output

■ Outdoor unit external input function

Dry contact/ Apply voltage		Dry contact DC 12 V				—
Function	Emergency stop	—	—	—	● (20-01)	—
	Low noise mode operation	● *1	—	—	—	—
	Cooling/Heating priority	—	●	—	—	—
	Outdoor unit operation peak control	—	—	● *2	—	—
	Batch stop	—	—	—	● (20-00)	—
	Power usage information from electricity meter	—	—	—	—	●
Specifications	Terminal	CN131 (Pin1-2)	CN132 (Pin1-2)	CN133 (Pin1-2)	CN134 (Pin1-2)	CN135 (Pin1-2)
	Signal type	Edge				Pulse

*1: When using this function, select appropriate level from the following options:
- 42-00 Low noise level 1 (lower than rated value)
- 42-01 Low noise level 2 (lower than level 1)

*2: When using this function, select appropriate level from the following options:
- 30-00 Energy saving level 1 (Stop)
- 30-01 Energy saving level 2 (Operated at 40% capacity)
- 30-02 Energy saving level 3 (Operated at 60% capacity)
- 30-03 Energy saving level 4 (Operated at 80% capacity)
- 30-03 Energy saving level 5 (Operated at 100% capacity)

NOTES:
- For selecting relay, minimum permissible load must be less than 1 mA.
- When using Apply voltage, take “+” polarity for Pin 1.
- Number inside bracket such as “(20-00)” in the table above indicates function number and setting number.
- ●: Equipping the function.

■ Outdoor unit external output function

Dry contact/ Apply voltage			Apply voltage		Dry contact
Function	Operation status		—	●	—
	Error status		●	—	—
	Base heater		—	—	●
Specifications	Terminal		CN136 (Pin1-2)	CN137 (Pin1-2)	CN115 (Pin1-3)
	Terminal output voltage		—		AC 240 V
	External power supply	Allowable voltage	DC 12—24 V		—
		Allowable current	30 mA or less		1 A or less

NOTES:
- When using Apply voltage, take “+” polarity for Pin 1.
- ●: Equipping the function.

EXTERNAL INPUT AND OUTPUT

3. Indoor unit

External input and output functions and related components are as follows:

External input	External output	Input select	Connector	External connect kit (Optional parts)
Control input	—	Apply voltage	CNA01	UTY-XWZXZB
		Dry contact	CNA02	UTY-XWZXZD
Forced thermostat off	—	Apply voltage	CNA03	UTY-XWZXZ7
		Dry contact	CNA04	UTY-XWZXZE
—	Operation status	—	CNB01	UTY-XWZXZC
—	Error status			
—	Indoor unit status			
—	Auxiliary heater output			

RELATED LINKS

"External input" on page 08-10
"External output" on page 08-34
"Optional parts" on page 08-56
"Function summary of indoor unit external input and output" on page 08-55

EXTERNAL INPUT AND OUTPUT

3-1. Combination of external input and output

Function setting	Situation	External input		External output			
		CNA01 CNA02	CNA03 CNA04	CNB01			
		EXT. IN1	EXT. IN2	Output 1 Pins 1-2	Output 2 Pins 1-3	Output 3 Pins 1-4	Output 4 Pins 1-5
60-00	Thermostat off by external input	Operation/ Stop (46-00) or Emergency stop (46-01) or Forced stop (46-02)	Forced thermostat off	Operation status	Error status	Indoor unit fan operation status	External heater output
60-01	Fresh air conditioner for external control module		VRF cooling off	Cooling thermostat on	Error status	Indoor unit fan operation status	External heater output
60-02	Economizer 1 Cooling 1 output		Forced thermostat off	Cooling thermostat on	Error status	Remote controller output	External heater output
60-03	Economizer 2 Cooling 2 output Nothing error output		VRF cooling on	Cooling thermostat on	Cooling HIGH/LOW output	Remote controller output	External heater output
60-04	Economizer 3 Cooling 2 output Nothing heater output		VRF cooling on	Cooling thermostat on	Error status	Remote controller output	Cooling HIGH/LOW output
60-05	Humidifier 1 Nothing operation status output		Forced thermostat off	Heating thermostat on	Error status	Indoor unit fan operation status	External heater output
60-06	Humidifier 2 Nothing heater output		Forced thermostat off	Operation status	Error status	Indoor unit fan operation status	Heating thermostat on
60-07	Humidifier 3 + Fresh air conditioner for external module		VRF cooling off	Cooling thermostat on	Error status	Heating thermostat on	External heater output
60-08	Humidifier 4 + Economizer 1		Forced thermostat off	Cooling thermostat on	Heating thermostat on	Remote controller output	External heater output

EXTERNAL INPUT AND OUTPUT

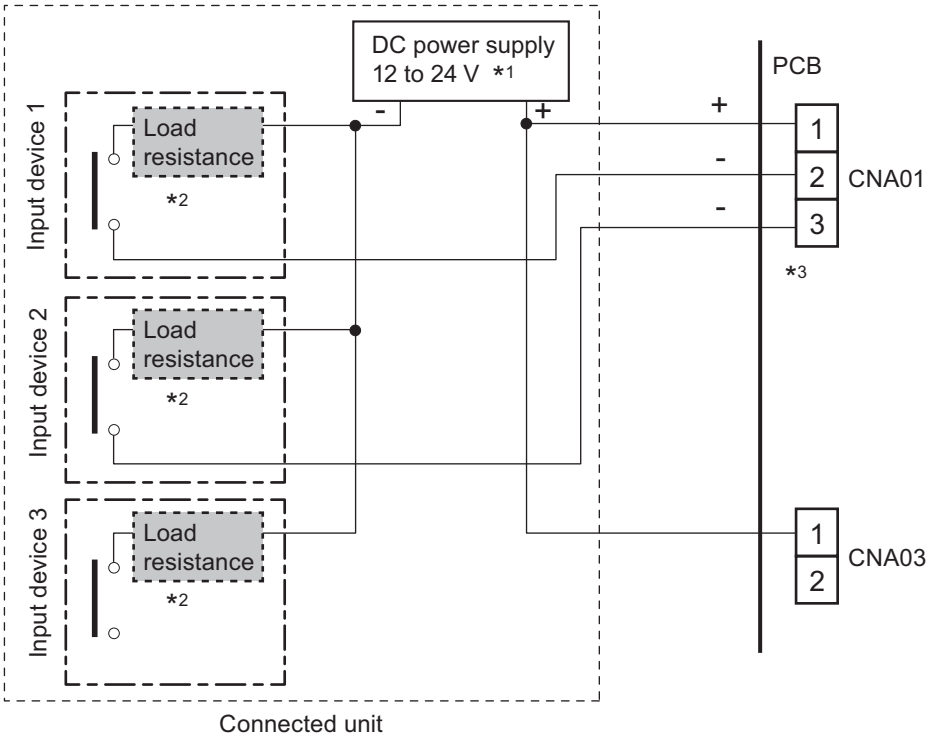
3-2. External input

- Operation/Stop, Emergency stop, or Forced stop of the indoor unit can be set by using CNA01 or CNA02 on the indoor unit PCB.
- Start/Stop mode, Emergency stop mode, or Forced stop mode can be selected with function setting of the indoor unit.
- Forced thermostat off of the indoor unit can be set by using CNA03 or CNA04 on the indoor unit PCB.
- A twisted pair cable 22 AWG (0.33 mm^2) should be used. Maximum length of cable is 492 ft (150 m).
- Use an external input and output cable with appropriate external dimension, depending on the number of cables to be installed.
- When connecting the external input wire, do not route the wire closely to the power cable line.

■ Input select

Use either one of Apply voltage terminal of Dry contact terminal according to the application. (Both types of terminals cannot be used simultaneously.)

- **CNA01, CNA03: Apply voltage terminal**
  When a power supply must be provided at the input device you want to connect, use the Apply voltage terminal (CNA01, CNA03).



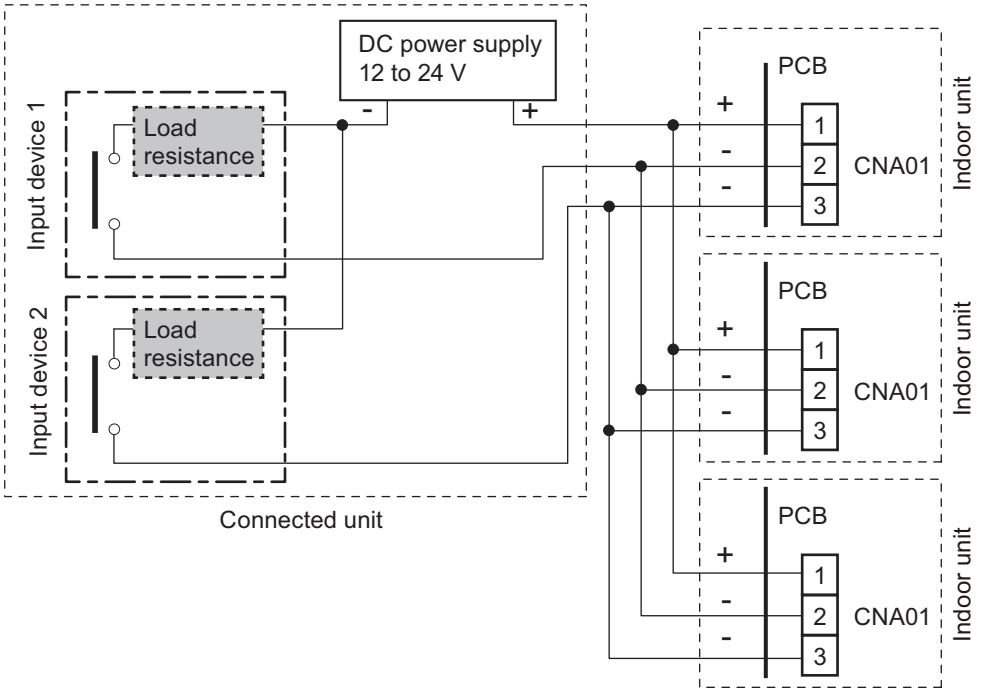
*1: Make the power supply DC12 to 24 V. Select a power supply capacity with an ample surplus for the connected load. Do not impress a voltage exceeding 24 V across pins 1-2, and 1-3.

*2: The allowable current is DC 5 mA to 10 mA. (Recommended: DC 5 mA)
Select very low current use contacts (usable at DC 12 V, DC 1 mA or less).

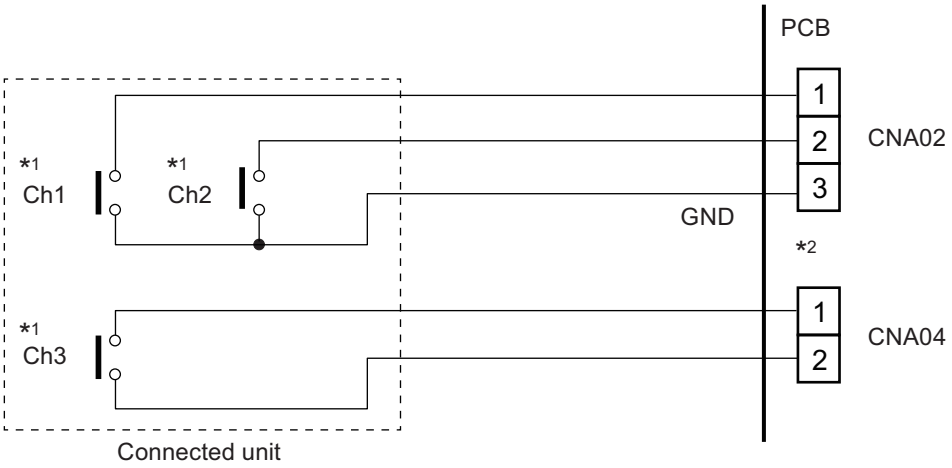
*3: The polarity is “+” for pin 1, and “-” for pin 2 and 3. Connect correctly.

EXTERNAL INPUT AND OUTPUT

When connecting to Apply voltage terminals of multiple indoor units, be sure to make a branch outside the indoor unit using a pull box, etc. as shown in example below.



- **CNA02, CNA04: Dry contact terminal**
  When a power supply is unnecessary at the input device you want to connect, use the Dry contact terminal (CNA02, CNA04).

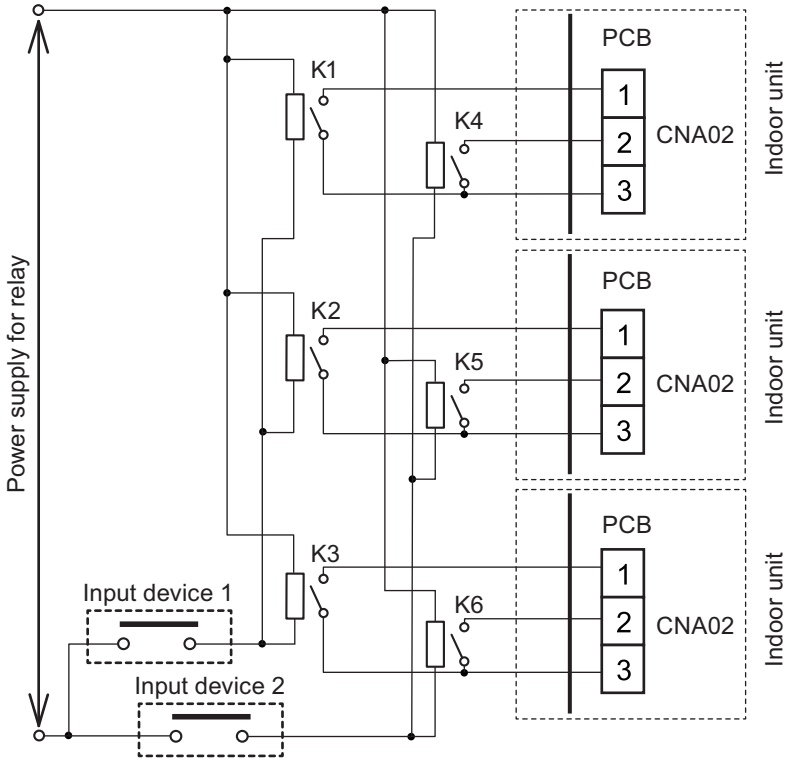


*1: Select very low current use contacts (usable at DC 12 V, DC 1 mA or less).

*2: The wiring is different from Apply voltage terminals. Be sufficiently careful when wiring.

EXTERNAL INPUT AND OUTPUT

When connecting to Dry contact terminals of multiple indoor units, insulate each indoor unit with relay, etc. as shown in example below.



K1 to K6: Relay
(Device for DC current)

⚠ CAUTION

Do not connect to multiple indoor units directly since it will cause breakdown.

■ Input signal type

The input signal type can be selected by switching the DIP switch on the indoor unit PCB.

- **DIP switch SET2-2: Edge or Pulse selection of external input**

SET2-2	External input select	Factory setting
Off	Edge	♦
On	Pulse	



NOTE: Input signal type of Ch3 (Forced thermostat off) is only Edge.

EXTERNAL INPUT AND OUTPUT

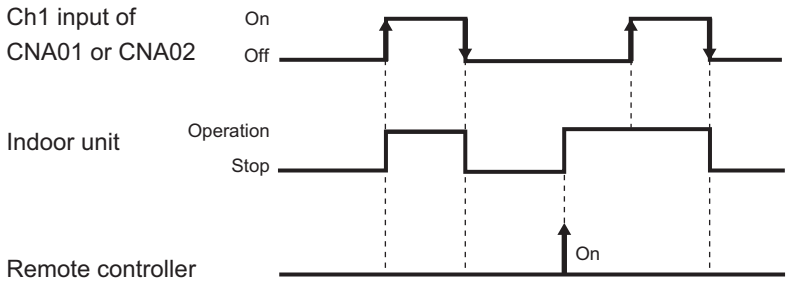
■ Control input function

NOTES:

- The latest command has priority.
- The indoor units within the same remote controller group are operated in the same mode.

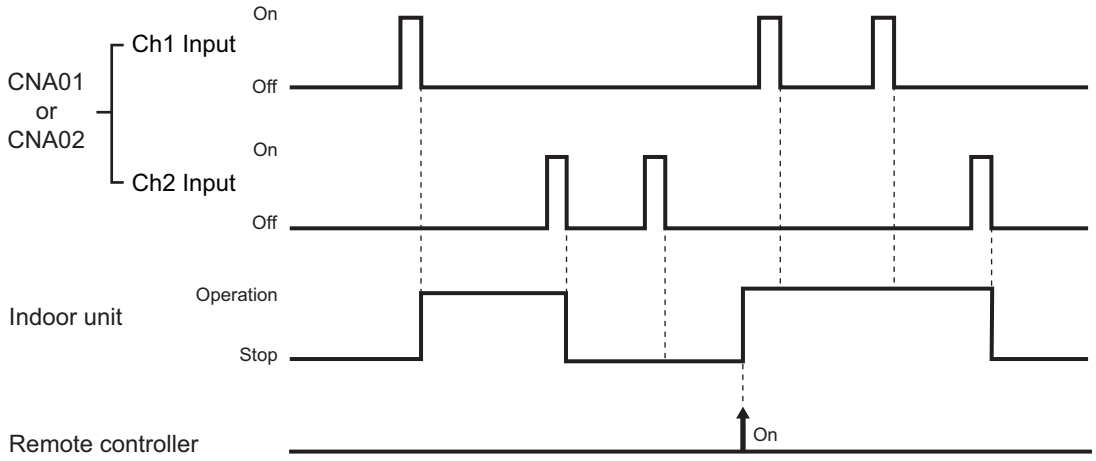
- **When function setting is Operation/Stop mode**
  - In case of Edge input:

Function setting	DIP switch	Connector	Channel no.	Input signal	Command
46-00	SET2-2: Off (Factory setting)	CNA01 or CNA02 (EXT. IN1)	Ch1	Off → On	Operation
				On → Off	Stop



  - In case of Pulse input:

Function setting	DIP switch	Connector	Channel no.	Input signal	Command
46-00	SET2-2: On	CNA01 or CNA02 (EXT. IN1)	Ch1	Off → On	Operation
			Ch2	Off → On	Stop



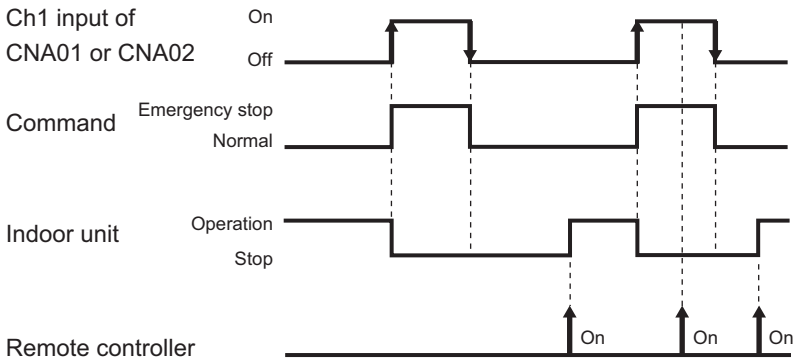
EXTERNAL INPUT AND OUTPUT

- **When function setting is Emergency stop mode**

NOTE: All the indoor units in the same refrigerant system stop when Emergency stop is operated.

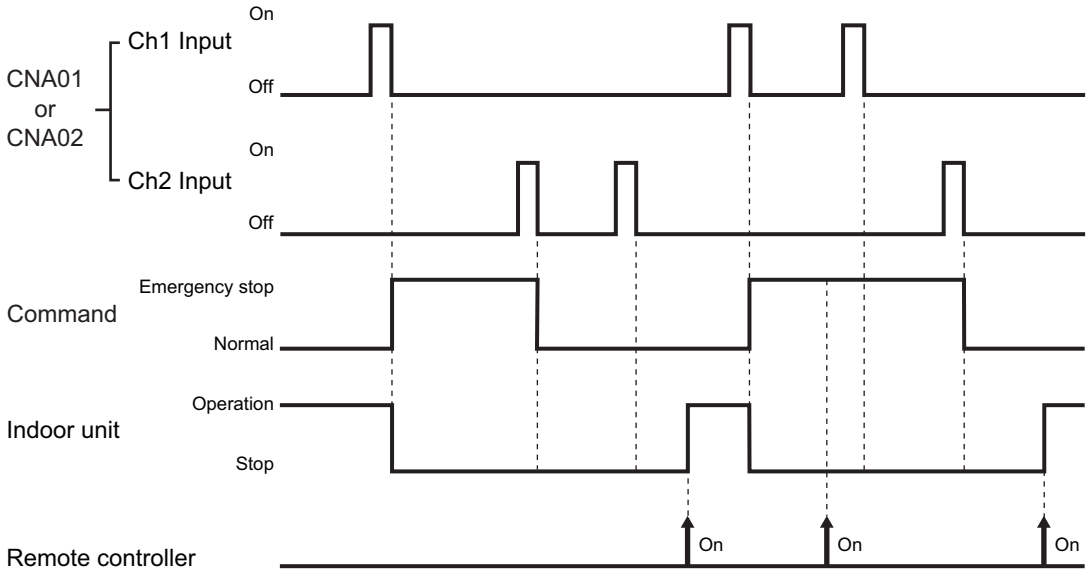
– In case of Edge input:

Function setting	DIP switch	Connector	Channel no.	Input signal	Command
46-01	SET2-2: Off (Factory setting)	CNA01 or CNA02 (EXT. IN1)	Ch1	Off → On	Emergency stop
				On → Off	Normal



– In case of Pulse input:

Function setting	DIP switch	Connector	Channel no.	Input signal	Command
46-01	SET2-2: On	CNA01 or CNA02 (EXT. IN1)	Ch1	Off → On	Emergency stop
			Ch2	Off → On	Normal



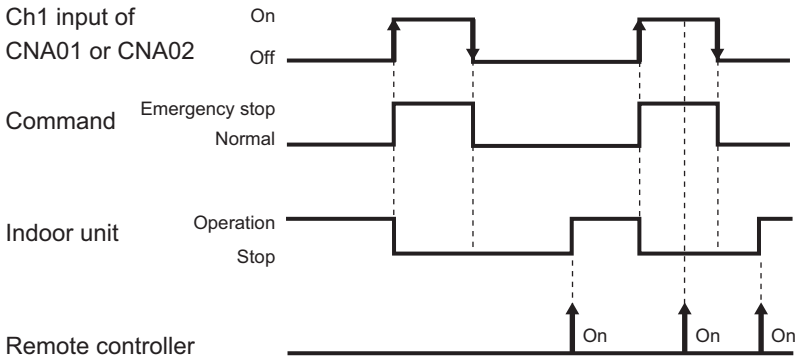
EXTERNAL INPUT AND OUTPUT

- **When function setting is Forced stop mode**

NOTE: If it enters the Forced stop mode once, the indoor unit stops and Operation/Stop operation by a remote controller will be restricted.

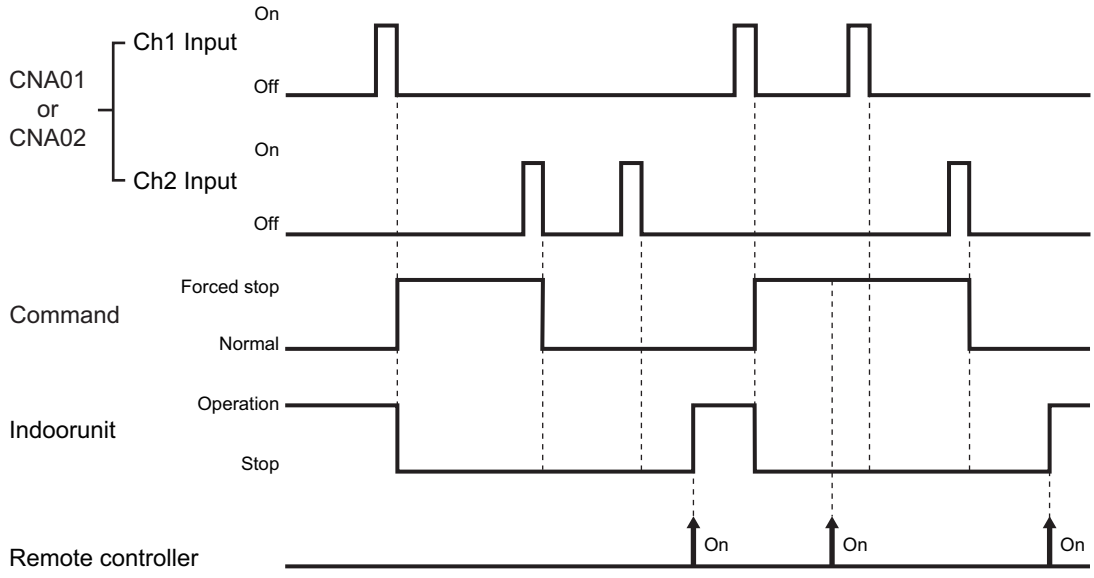
– In case of Edge input:

Function setting	DIP switch	Connector	Channel no.	Input signal	Command
46-02	SET2-2: Off (Factory setting)	CNA01 or CNA02 (EXT. IN1)	Ch1	Off → On	Forced stop
				On → Off	Normal



– In case of Pulse input:

Function setting	DIP switch	Connector	Channel no.	Input signal	Command
46-02	SET2-2: On	CNA01 or CNA02 (EXT. IN1)	Ch1	Off → On	Forced stop
			Ch2	Off → On	Normal



EXTERNAL INPUT AND OUTPUT

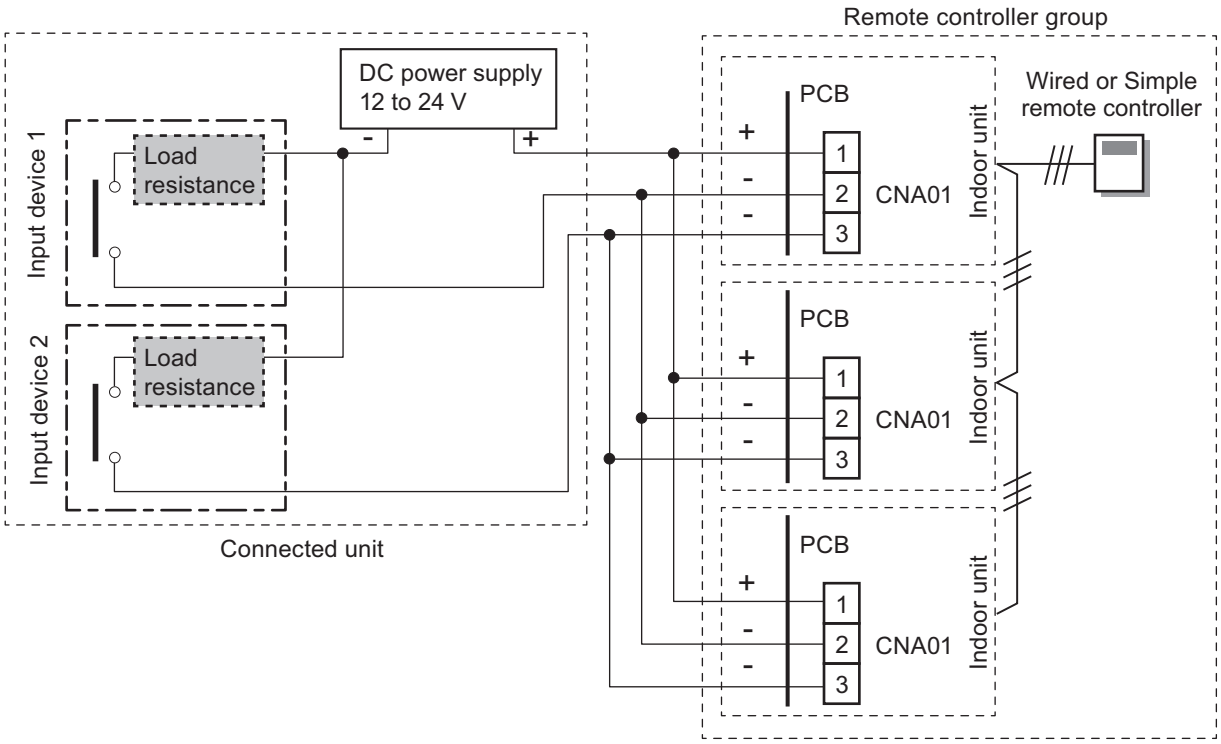
- **Considerations when setting Forced stop**

⚠ CAUTION

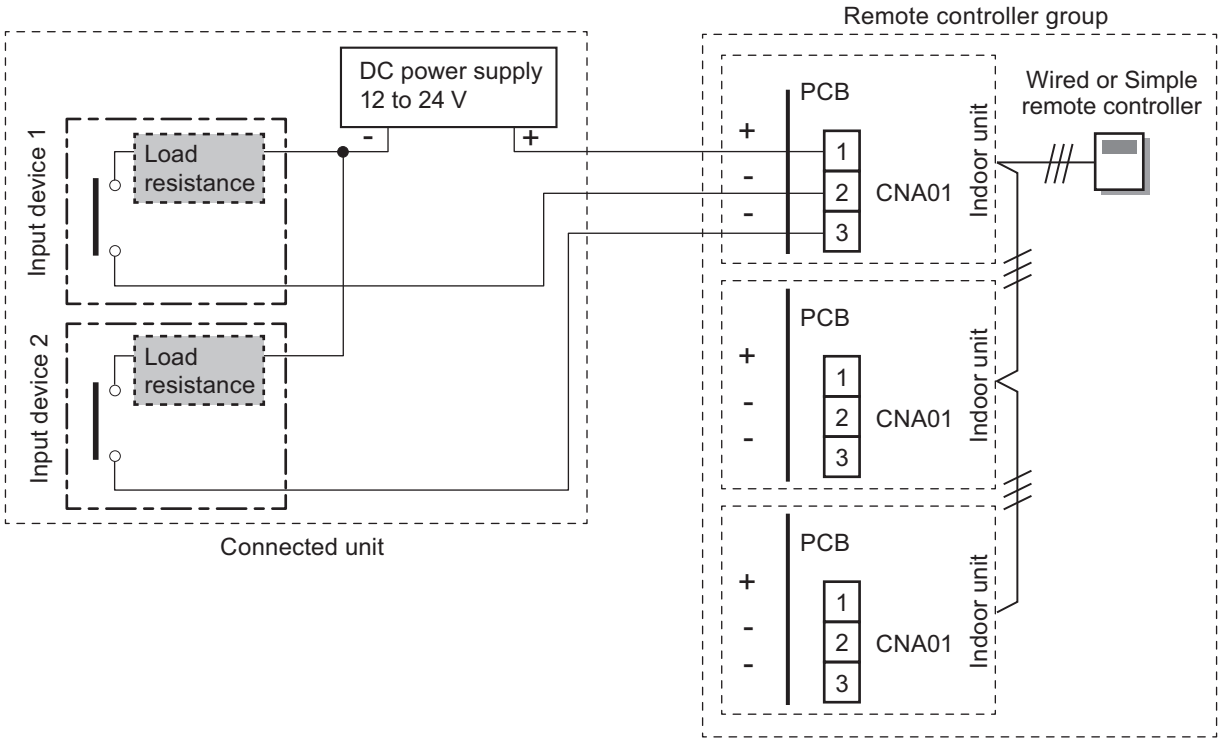
When Forced stop function is used with forming a remote controller group, connect the same equipment to each indoor unit within the group.

Connection example:

OK



PROHIBITED



EXTERNAL INPUT AND OUTPUT

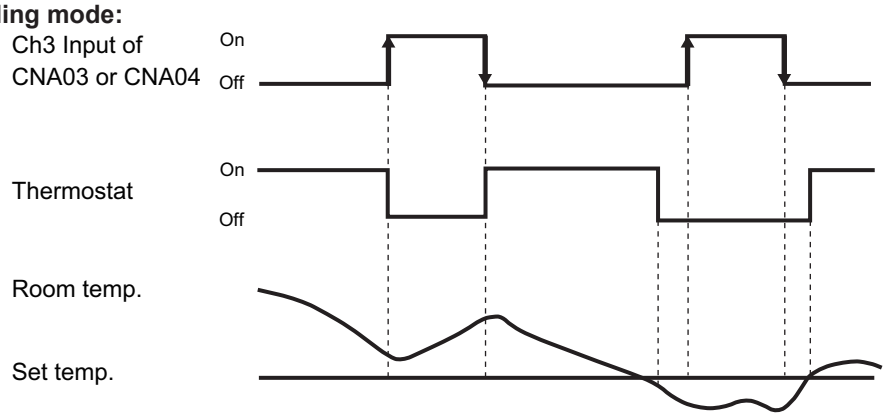
■ Forced thermostat off function

NOTE: When the signal is received from another unit on the refrigerant circuit, there may be a delay in thermostat off function at the unit.

- Edge input only

Function setting	Connector	Channel no.	Input signal	Command
60-00 60-02 60-05 60-06 60-07	CNA03 or CNA04 (EXT. IN2)	Ch3	Off → On	Thermostat off
			On → Off	Normal

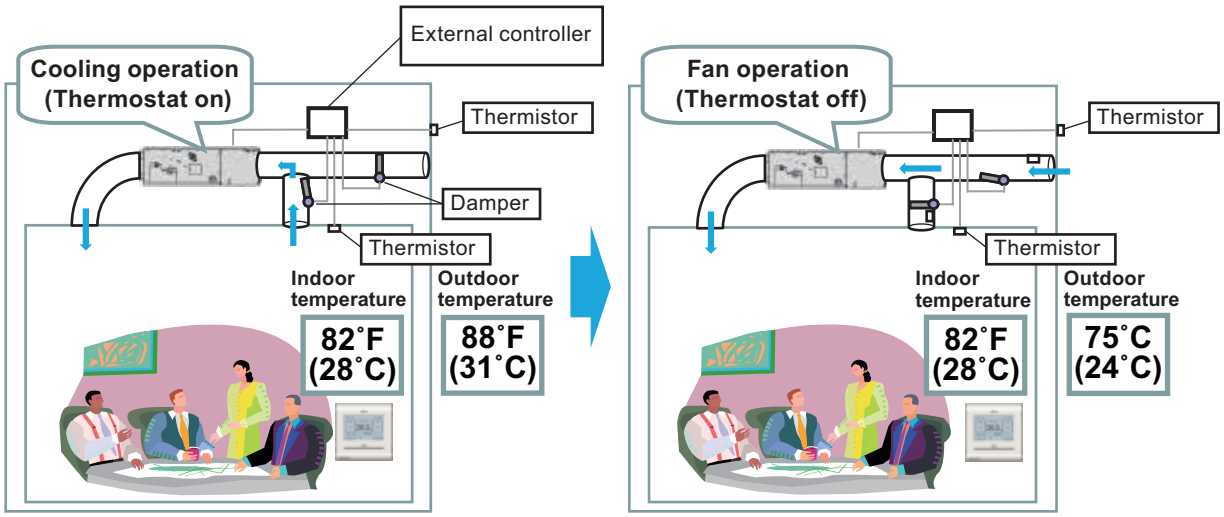
Example of cooling mode:



● Forced thermostat off examples

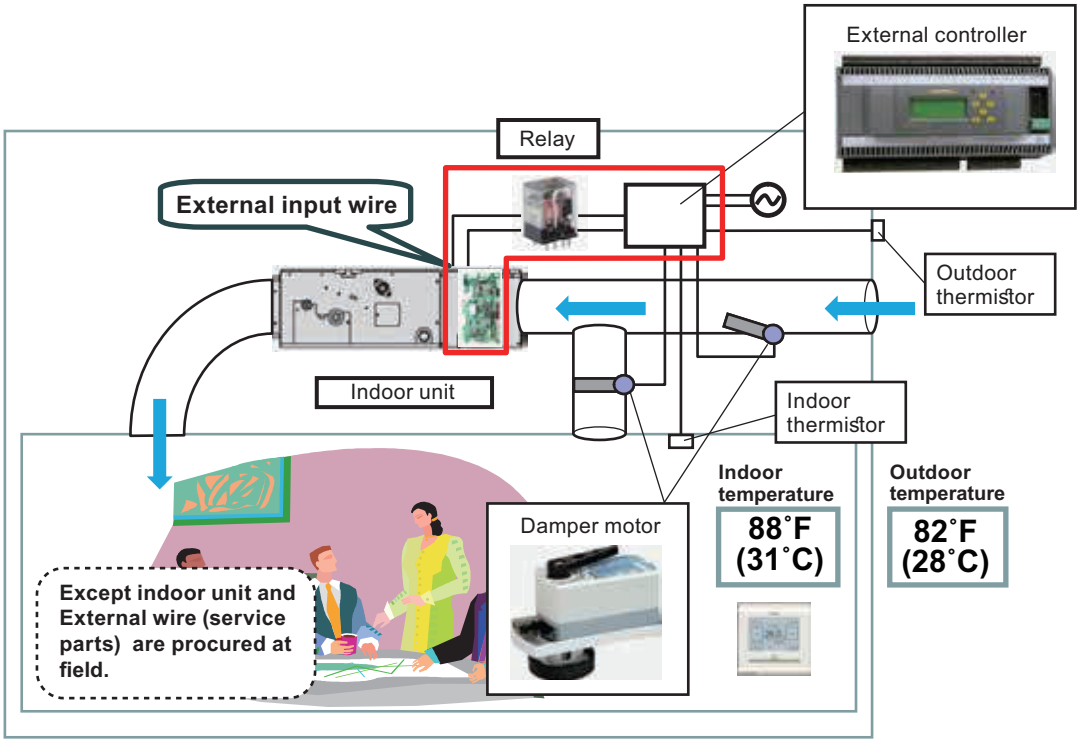
- **Example 1:**
  - **In-line connection**
  - **Function setting for Fan setting when cooling thermostat off Number 49-00 (Follow the setting on the remote controller)**

Forced thermostat off is one of the energy-saving functions. For example, when the outdoor temperature is lower than the indoor temperature, indoor unit of air conditioner perform Fan operation based on the received signal from external controller. (Cooling only)

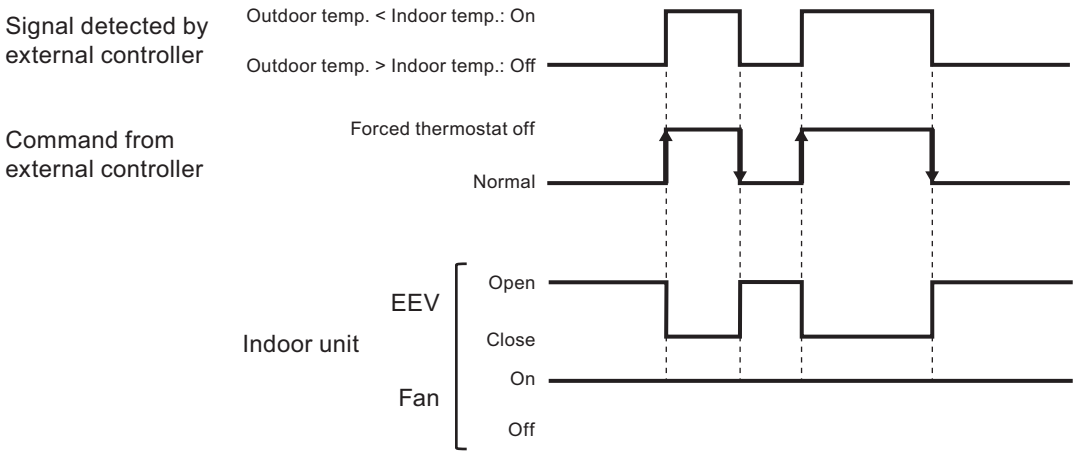


EXTERNAL INPUT AND OUTPUT

[System diagram example]



[Operation status]

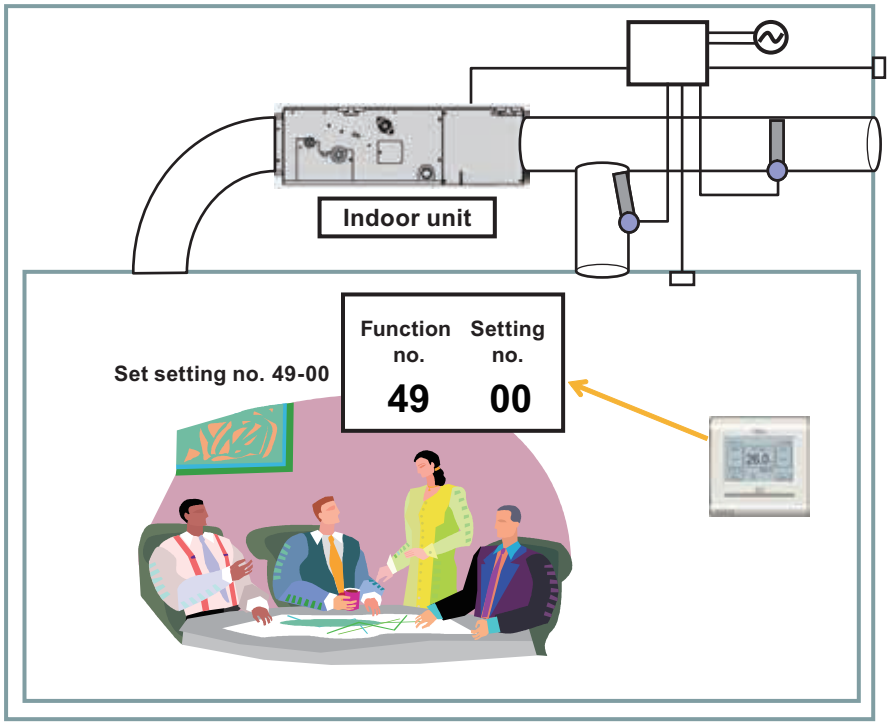


Normal means that the indoor unit continues appropriate operation until Forced thermostat off signal is received, at condition which are set by central and individual controller or detected by thermo sensors of the indoor unit.

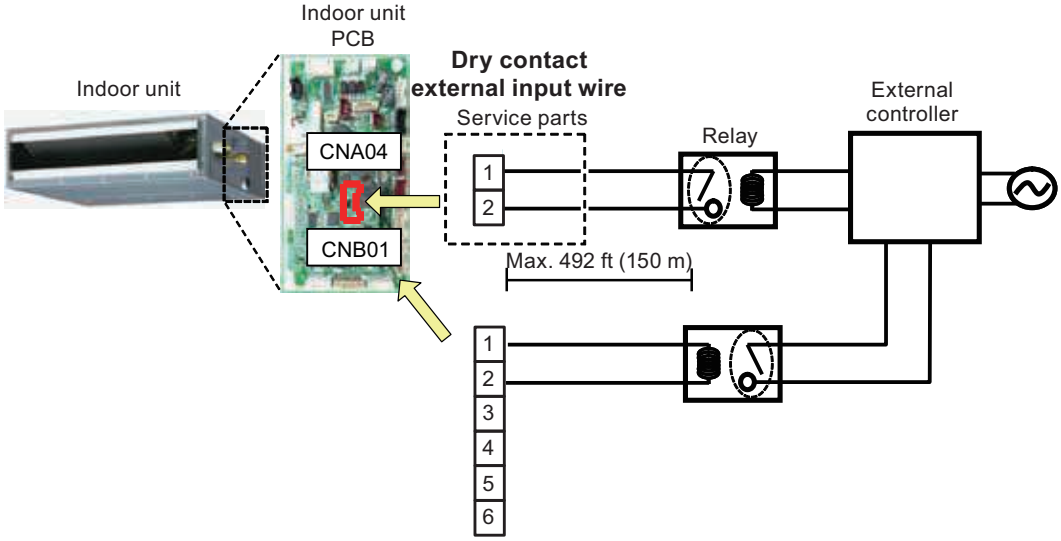
EXTERNAL INPUT AND OUTPUT

[Function setting of indoor unit]

Indoor unit continues appropriate operation until Forced thermostat off signal is received, at condition which are set by central and individual controller or detected by thermo sensors of the indoor unit. Once the Forced thermostat off signal is received, the indoor unit start operation under fan mode.



[Example of electrical circuit]



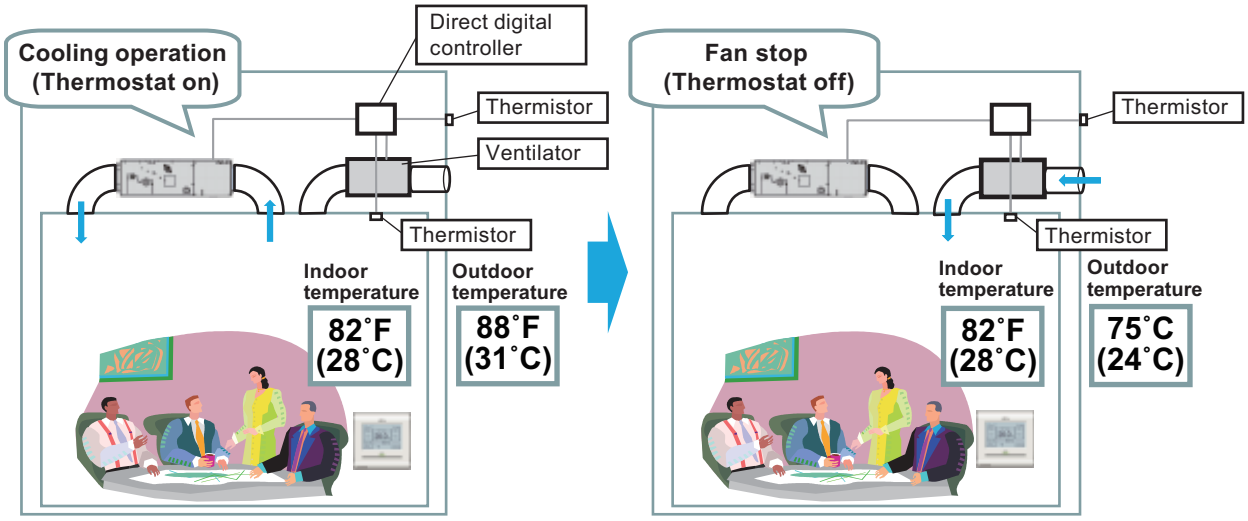
Specification of external input	Item	Specification
	Terminal	CNA04
	Output voltage	DC 12 V
	Wire diameter	22 AWG (0.33 mm^2), Twisted
	Service part no.	9368778019

Requirement for relay switch	Item	Specification
	Minimum permissible load	1 mA or less

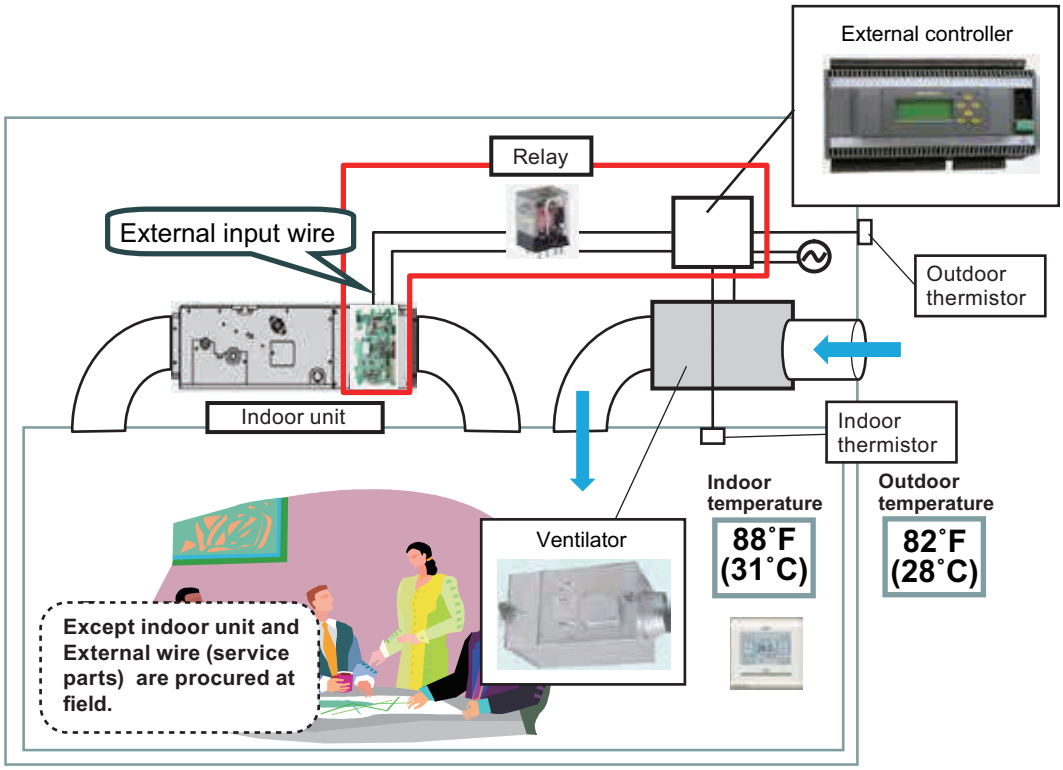
EXTERNAL INPUT AND OUTPUT

- **Example 2:**
  - **Individual connection**
  - **Function setting for Fan setting when cooling thermostat off Number 49-01 (Stop)**

Forced thermostat off is one of the energy-saving functions. For example, when using ventilator at condition of the outdoor temperature is lower than the indoor temperature, indoor unit of air conditioner stops based on the received signal from external controller. (Cooling only)

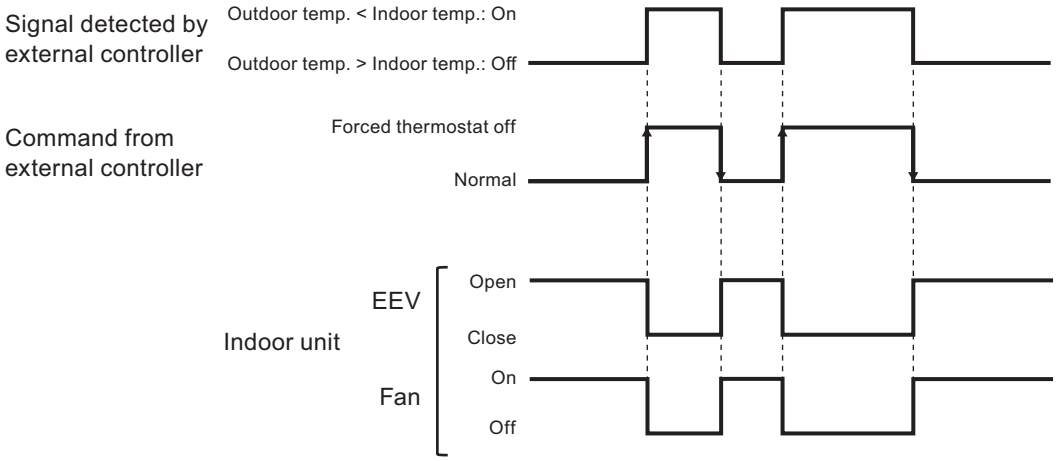


[System diagram example]



EXTERNAL INPUT AND OUTPUT

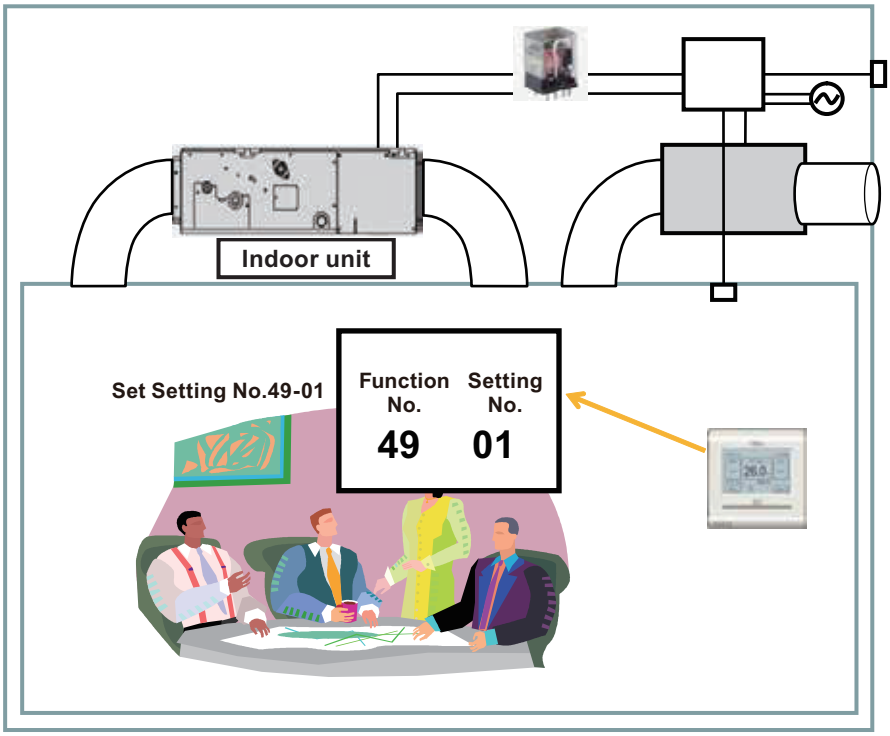
[Operation status]



Normal means that the indoor unit continues appropriate operation until Forced thermostat off signal is received, at condition which are set by central and individual controller or detected by thermo sensors of the indoor unit.

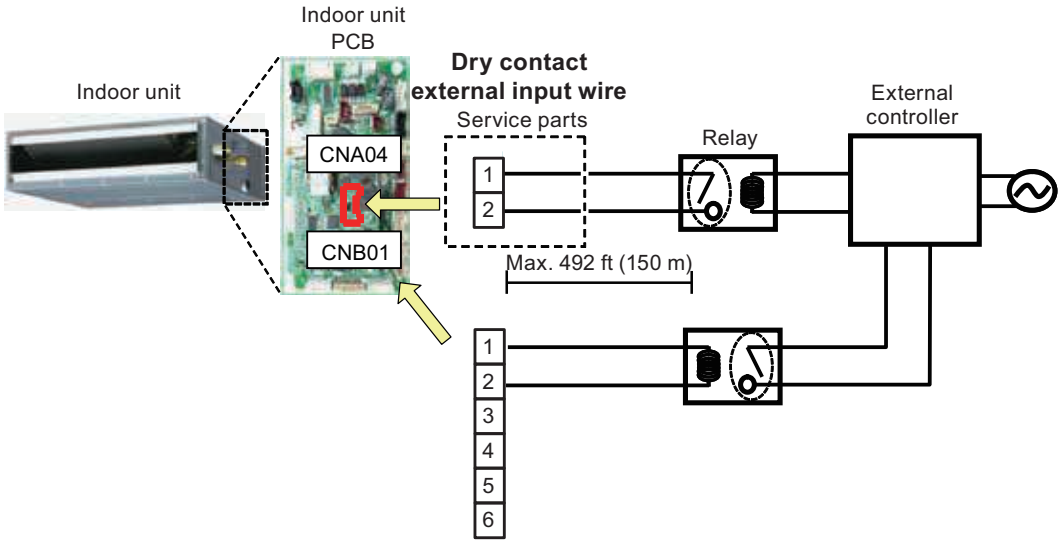
[Function setting of indoor unit]

Indoor unit continues appropriate operation until Forced thermostat off signal is received, at condition which are set by central and individual controller or detected by thermo sensors of the indoor unit. Once the Forced thermostat off signal is received, the indoor unit stops operation.



EXTERNAL INPUT AND OUTPUT

[Example of electrical circuit]



Specification of external input	Item	Specification
	Terminal	CNA04
	Output voltage	DC 12 V
	Wire diameter	22 AWG (0.33 mm^2), Twisted
	Service part no.	9368778019

Requirement for relay switch	Item	Specification
	Minimum permissible load	1 mA or less

EXTERNAL INPUT AND OUTPUT

■ Input function of fresh air conditioner for external control module

External module is the module that reduces or stops the cooling operation ratio of the air conditioner by intake fresh air. (Example: Direct digital controller)

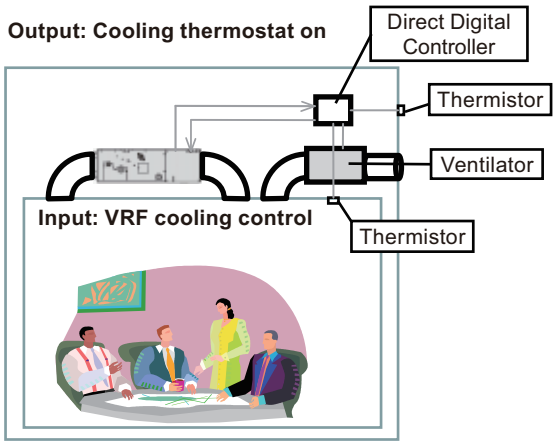
NOTE: During operations other than cooling such as heating or dry, fresh air conditioner on input is disabled.

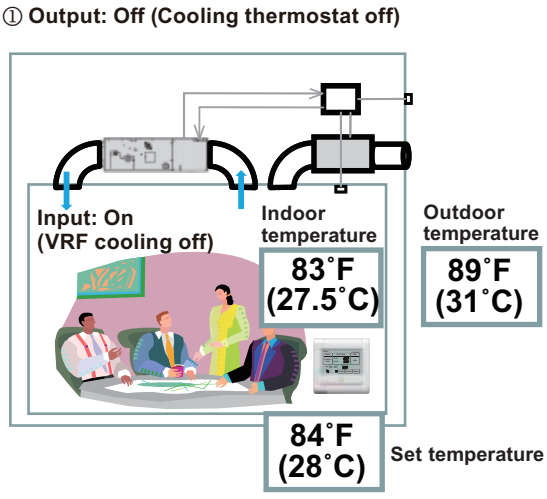
- Edge input only

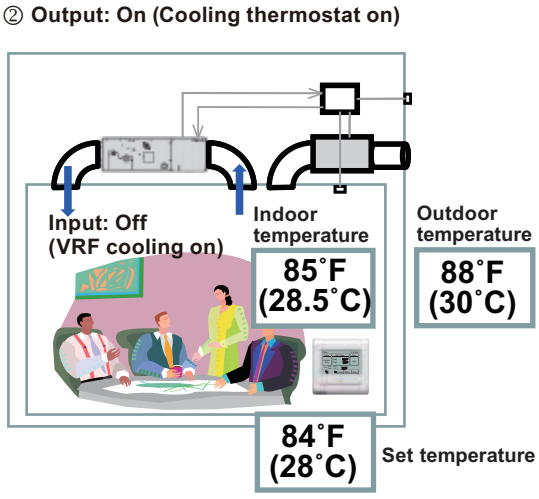
Function setting	Connector		Input signal	Command
	External input	External output		
60-01	CNA03 or CNA04 (EXT. IN2)	CNB01 (Pins 1-2)	Off → On	EEV off (VRF cooling off)
60-07	(VRF cooling off)	(Cooling thermostat on)	On → Off	Normal

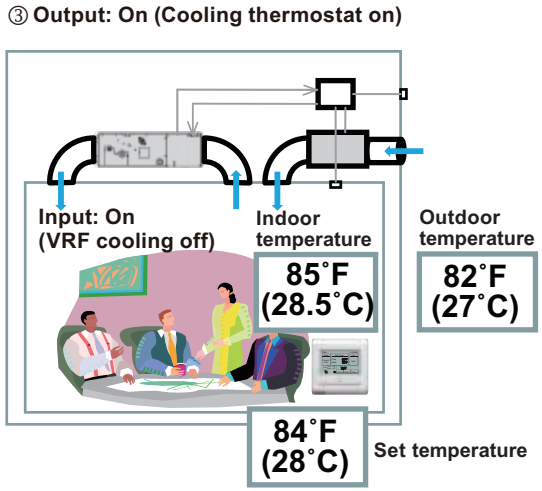
– When using fresh air conditioner input and cooling thermostat on output, external control module controls the cooling operation by the VRF.
– When fresh air conditioner on is input during cooling thermostat on, fresh air conditioner is performed with stopping the cooling operation by the air conditioner.

● Example (Individual connection)



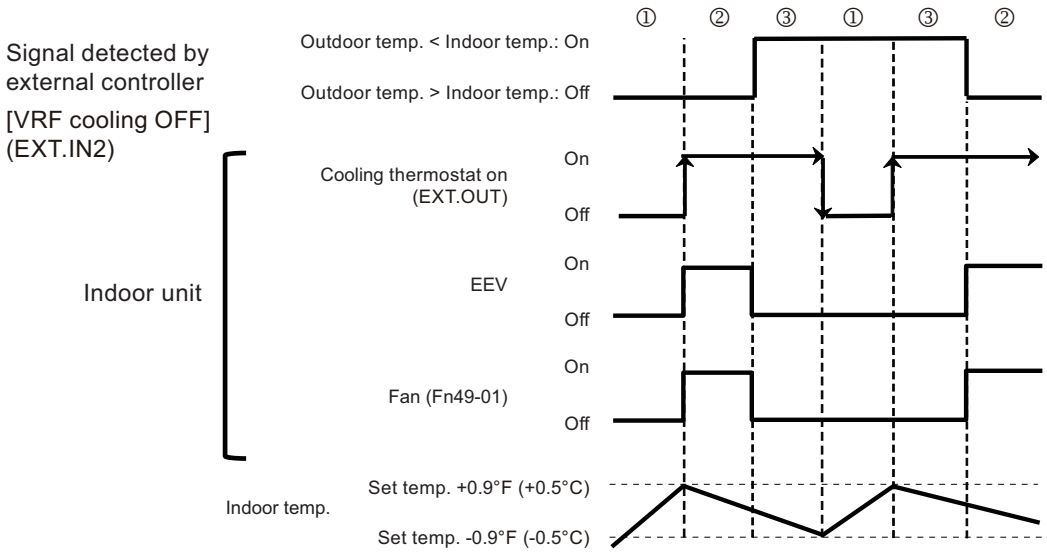




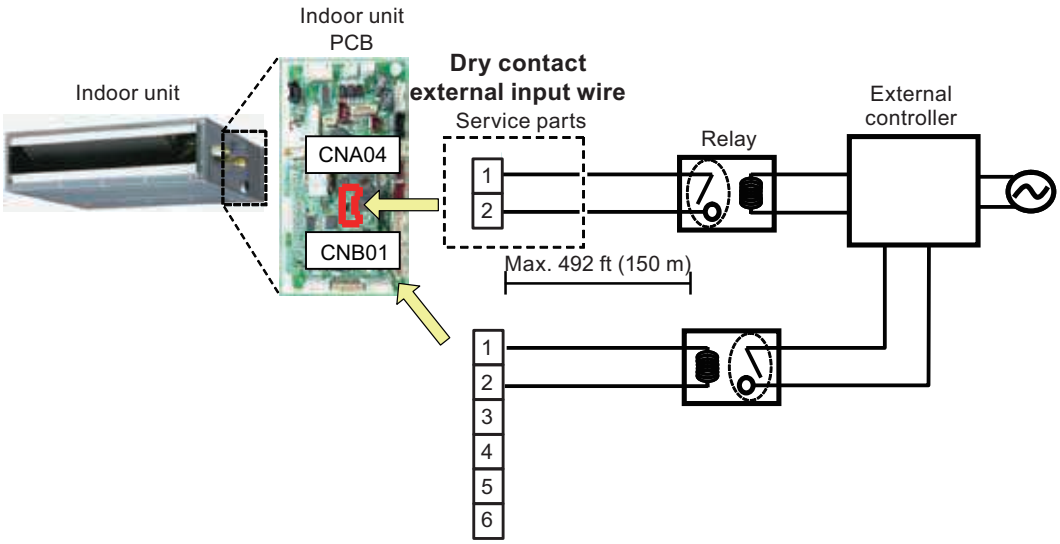


EXTERNAL INPUT AND OUTPUT

[Operation status]



[Example of electrical circuit]



Specification of external input	Item	Specification
	Terminal	CNA04
	Output voltage	DC 12 V
	Wire diameter	22 AWG (0.33 mm^2), Twisted
	Service part no.	9368778019

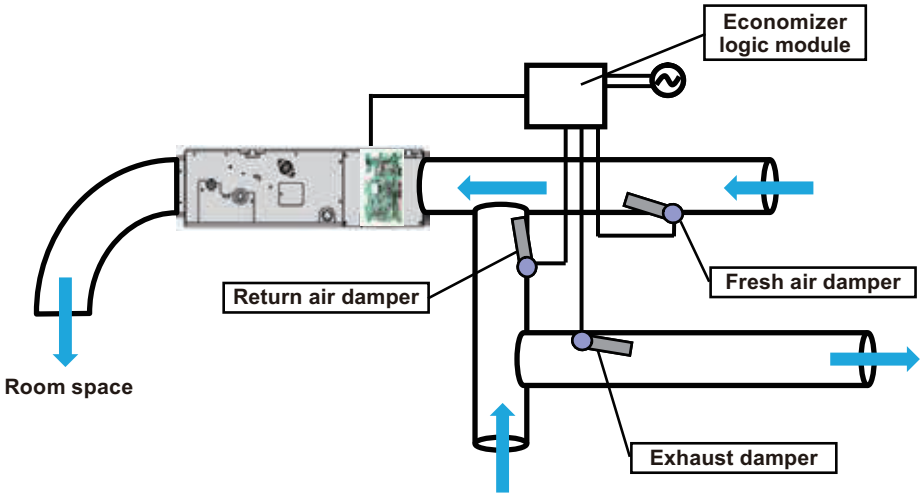
Requirement for relay switch	Item	Specification
	Minimum permissible load	1 mA or less

EXTERNAL INPUT AND OUTPUT

■ Economizer input function

Cooling economizer consists of ducts, dumpers, and automatic controling system. In cold or warm climate, the economizer reduces or stops the VRF comperssor, providing cooling using outside air.

- **Example of economizer**



- **How to use economizer**

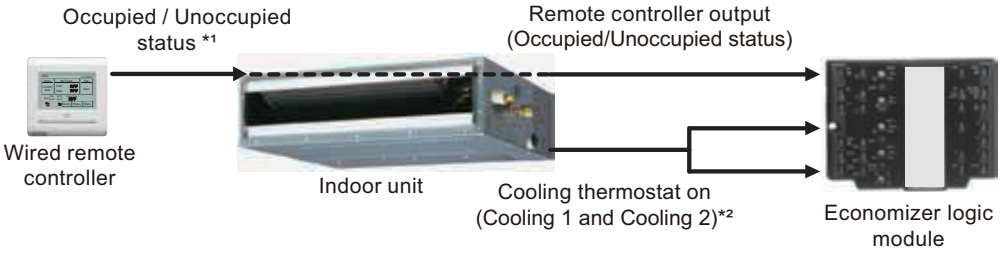
Operation mode	Environmental condition	Intaking fresh air	Air conditioner	Economizer	Remarks
Heating	Cold climate 34°F (1°C) or less	Minimum*	Heating	Disabled	Heating by air conditioner
Fresh air intake cooling	Cool climate 34 to 55°F (1 to 13°C)	Optimum	Stop	Enabled	Cooling by intaken fresh air only
Combined	Warm climate 55 to 75°F (13 to 24°C)	100%	Cooling	Enabled	Combined cooling by intaken fresh air and air conditioner
VRF cooling	Hot climate 75°F (24°C) or more	Minimum*	Cooling	Disabled	Cooling by the air conditioner

*: Minimum fresh air requirements are specified in **ASHRAE Standard 62.1**.

EXTERNAL INPUT AND OUTPUT

● Economizer 1 (Cooling 1 output + occupied)

Function setting	External output		Remote controller
	CNB01		
	Cooling thermostat on	Remote controller output	
60-02 60-08	Output 1 Pins 1-2	Output 3 Pins 1-4	UTY-RNRUZ∗ Occupied/Unoccupied status



*1: By the wired remote controller (touch panel), external output indication is transferred to economizer logic module through the indoor unit.

*2: Branches the output to economizer logic module, and connect to cooling 1 and cooling 2.

- Economizer logic module is required for economizer operation.
- Economizer logic module judges the amount of outdoor air intake depending on indoor unit output at operating condition, occupied status and outdoor temperature etc.

Operating mode	Operation		Condition (Enthalpy or Temperature)	
	VRF indoor unit	Damper (Free cooling)	Outdoor	Return
Mechanical cooling	Cooling on	Off	HIGH	LOW
Mechanical and free cooling	Cooling on	On	LOW	HIGH
Cooling thermostat off or Heating	Cooling off	Off	—	—
Off	Cooling off	Off	—	—

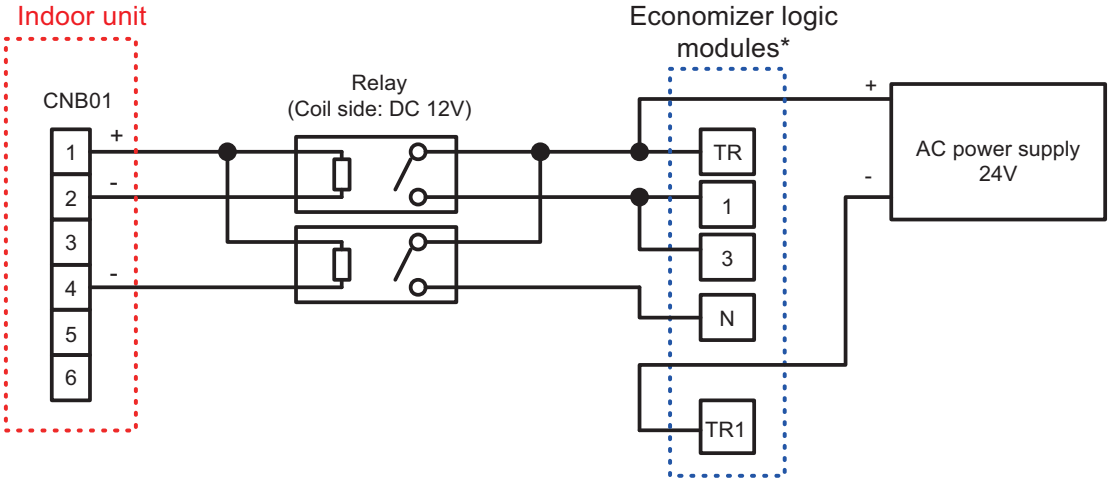
Operating mode	Indoor unit output			Indoor unit input	Outdoor air intake*
	Cooling thermostat on	Cooling HIGH/LOW	Occupied/ unoccupied (RC output)	VRF Cooling on	
Mechanical cooling	On	—	On (Occupied)	—	Minimum
Mechanical and free cooling	On	—	On (Occupied)	—	Modulating (Min—Max)
Cooling thermostat off or Heating	Off	—	On (Occupied)	—	Minimum
Off	Off	—	Off (Unoccupied)	—	None

*: When external output by remote controller is off, the amount of intaken fresh air differs as follows:

- Cooling by intaken fresh air is performed: None to maximum amount
- Cooling by intaken fresh air is not performed: None

EXTERNAL INPUT AND OUTPUT

[Wiring diagram example]

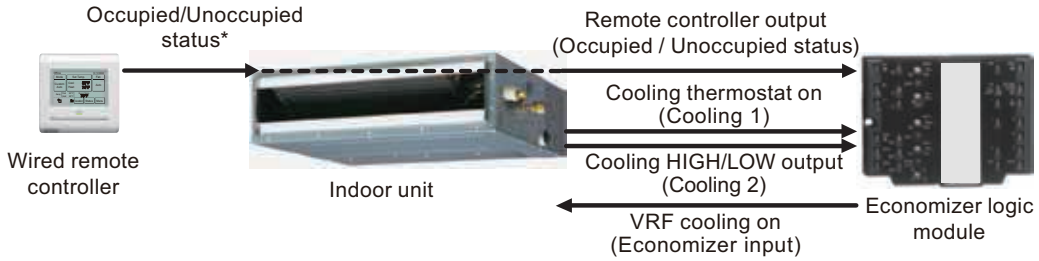


*: Only the terminals connected to the indoor unit are mentioned here for description.
As for the connected sensor or other connections to economizer logic module, refer to the manual of the module.

EXTERNAL INPUT AND OUTPUT

● Economizer 2, 3 (Cooling 2 stage output + occupied)

Function setting	External input	External output			Remote controller
		CNB01			
		Cooling thermostat on	Cooling HIGH/LOW output	Remote controller output	
60-03	CNA03 or CNA04 (EXT. IN2) VRF cooling on	Output 1 Pins 1-2	Output 2 Pins 1-3	Output 3 Pins 1-4	UTY-RNRUZ∗ Occupied/unoccupied status
60-04		Output 1 Pins 1-2	Output 4 Pins 1-5	Output 3 Pins 1-4	



*: By the wired remote controller (touch panel), external output indication is transferred to economizer logic module through the indoor unit.

- Economizer logic module is required for economizer operation.
- Economizer logic module judges the amount of outdoor air intake depending on indoor unit output at operating condition, occupied status and outdoor temperature etc.
- Cooling operation by only free cooling is possible.

EXTERNAL INPUT AND OUTPUT

Operating mode	Operation		Condition (Enthalpy or Temperature)	
	VRF indoor unit	Damper (Free cooling)	Outdoor	Return
Mechanical cooling LOW	Cooling on	Off	HIGH	LOW
Mechanical cooling HIGH	Cooling on	Off	HIGH	LOW
Free cooling only	Cooling off	On	LOW	HIGH
Mechanical and free cooling	Cooling on	On	LOW	HIGH
Cooling thermostat off or Heating	Cooling off	Off	—	—
Off	Cooling off	Off	—	—

Operating mode	Indoor unit output			Indoor unit input	Outdoor air intake*2
	Cooling thermostat on	Cooling HIGH/LOW*1	Occupied/ unoccupied (RC output)	VRF Cooling on	
Mechanical cooling LOW	On	Off (LOW)	On (Occupied)	On	Minimum
Mechanical cooling HIGH	On	On (HIGH)	On (Occupied)	On	Minimum
Free cooling only	On	Off (LOW)	On (Occupied)	Off	Modulating (Min—Max)
Mechanical and free cooling	On	On (HIGH)	On (Occupied)	On	Modulating (Min—Max)
Cooling thermostat off or Heating	Off	—	On (Occupied)	Off	Minimum
Off	Off	—	Off (Unoccupied)	Off	None

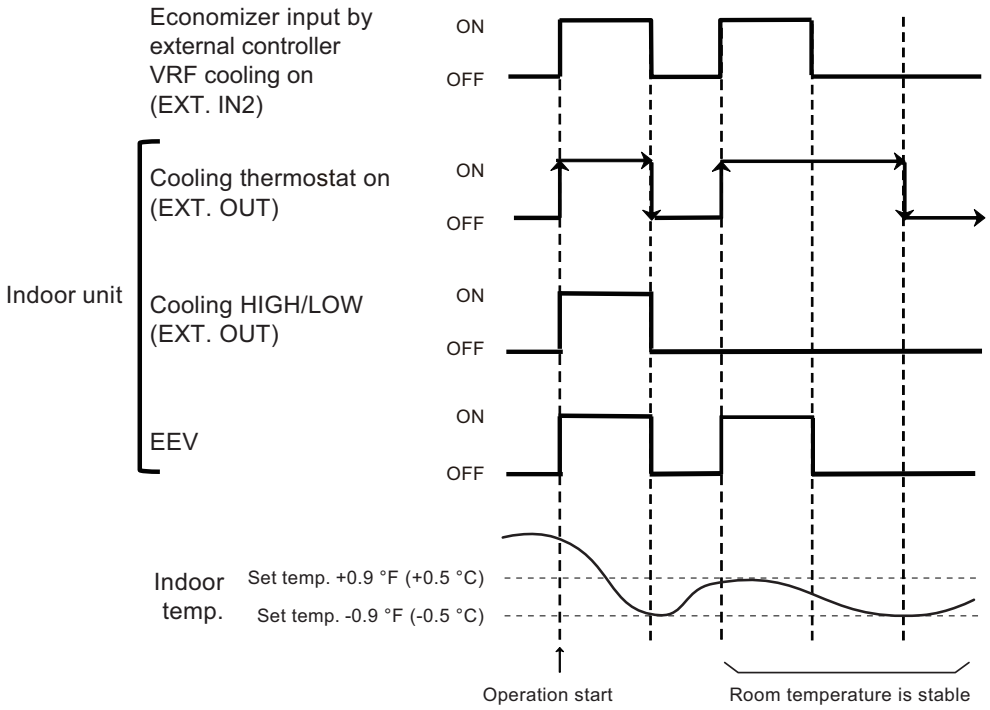
*1: Indoor unit decides the cooling HIGH/LOW based on the set temperature and the indoor temperature.

*2: When external output by remote controller is off, the amount of intaken fresh air differs as follows:

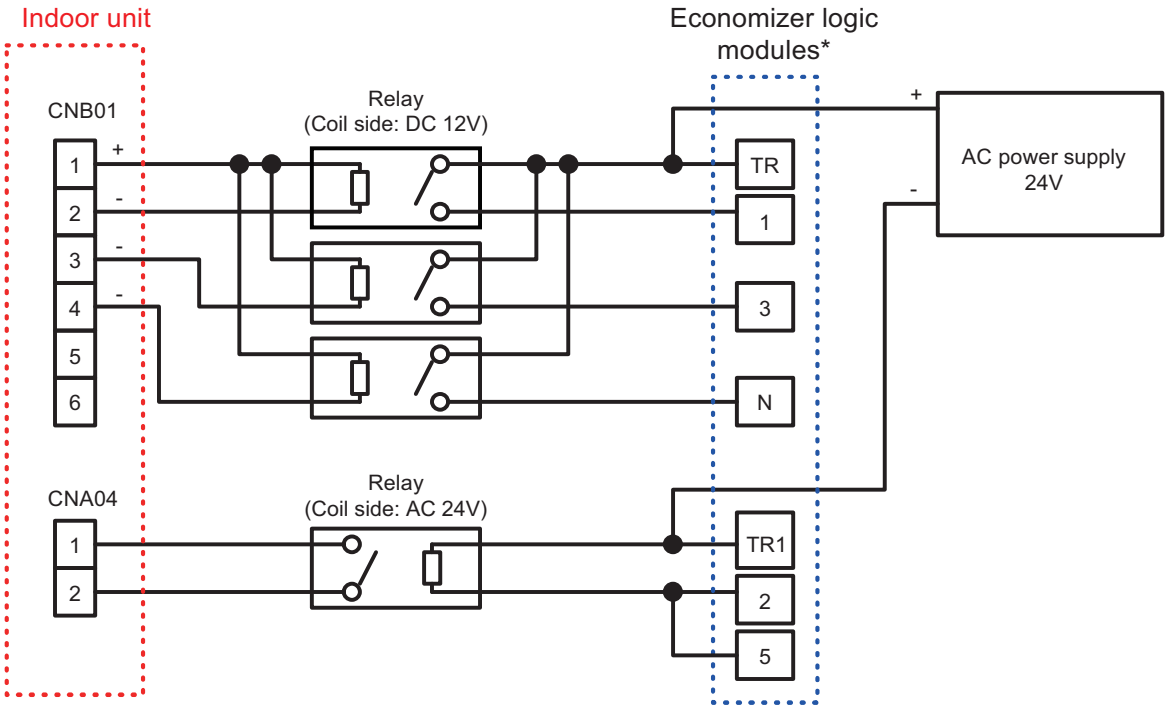
- Cooling by intaken fresh air is performed: None to maximum amount
- Cooling by intaken fresh air is not performed: None

EXTERNAL INPUT AND OUTPUT

[Operation status]



[Wiring diagram example (Economizer 2: Function setting 60-03)]

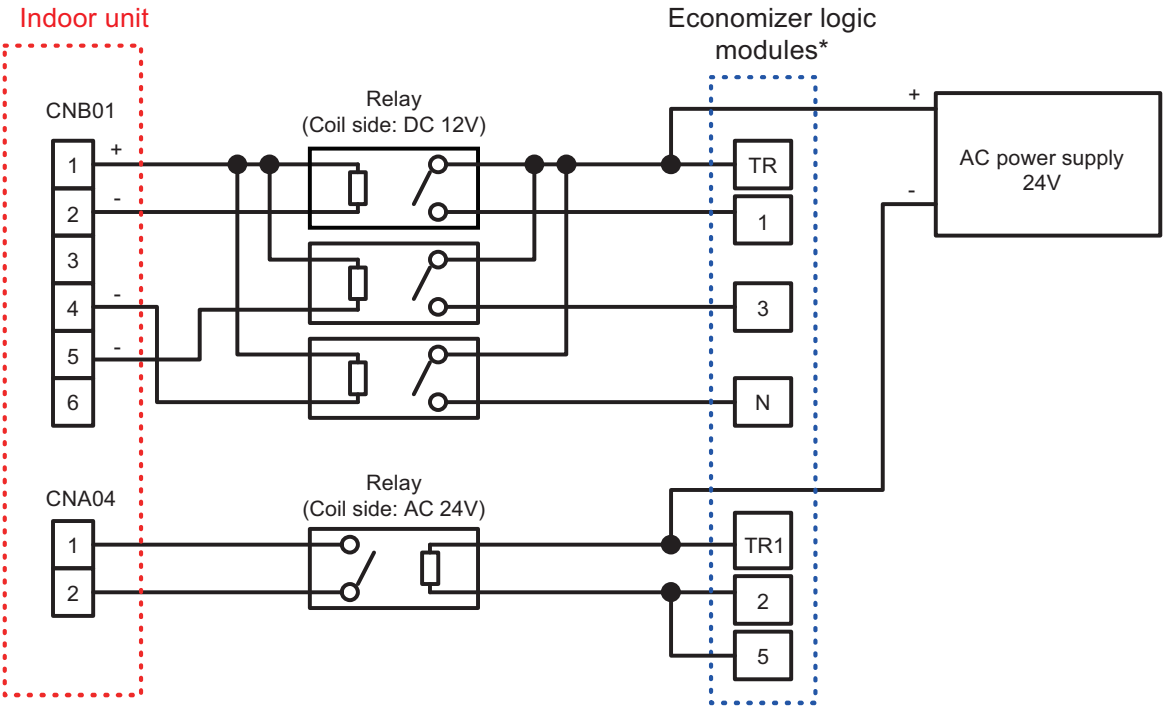


*: Only the terminals connected to the indoor unit are mentioned here for description.

As for the connected sensor or other connections to economizer logic module, refer to the manual of the module.

EXTERNAL INPUT AND OUTPUT

[Wiring diagram example (Economizer 3: Function setting 60-04)]



*: Only the terminals connected to the indoor unit are mentioned here for description.

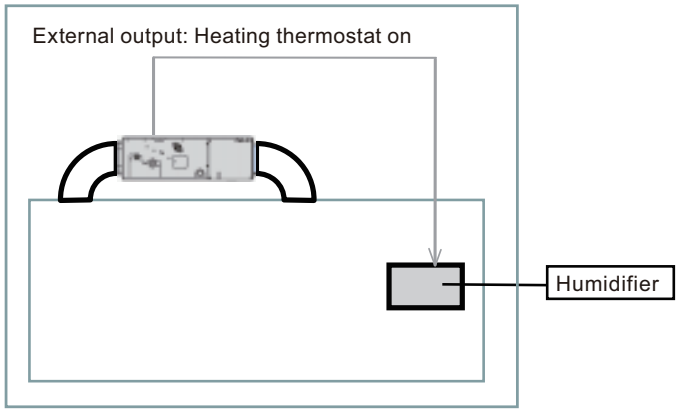
As for the connected sensor or other connections to economizer logic module, refer to the manual of the module.

EXTERNAL INPUT AND OUTPUT

■ Humidifier heating thermostat on function

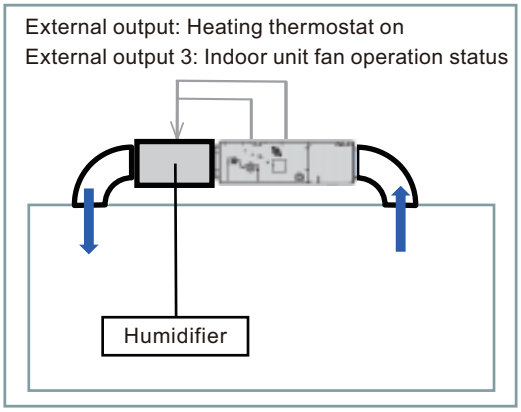
Installation configuration	Indoor unit				Situation (example)
	Function setting		External output (CNB01)		
	Heating thermostat on Function no: 60	Cool air prevention Function no: 43	Heating thermostat on	Indoor unit fan operation status	
Individual	60-05	43-00 (Enabled)	Output 1 Pins 1-2	Not used	Refer to "Example 1 (Individual connection)" on page 08-32
	60-06		Output 4 Pins 1-5		
	60-07		Output 3 Pins 1-4		
	60-08		Output 2 Pins 1-3		
In-line	60-05	43-00 (Enabled)	Output 1 Pins 1-2	Output 3 Pins 1-4	Refer to "Example 2 (In-line connection)" on page 08-33
	60-06		Output 4 Pins 1-5		
	60-05	43-01 (Disabled)	Output 1 Pins 1-2	Not used	Refer to "Example 3 (In-line connection)" on page 08-33
	60-06		Output 4 Pins 1-5		
	60-07		Output 3 Pins 1-4		
	60-08		Output 2 Pins 1-3		

- **Example 1 (Individual connection)**

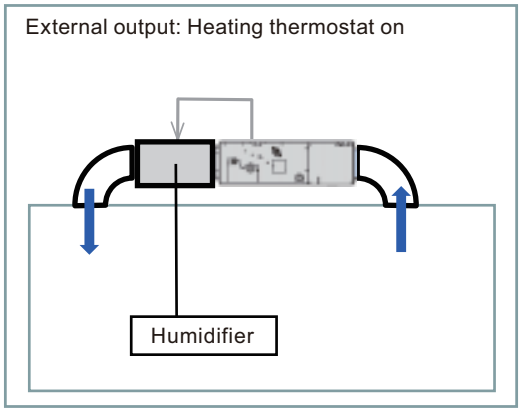


EXTERNAL INPUT AND OUTPUT

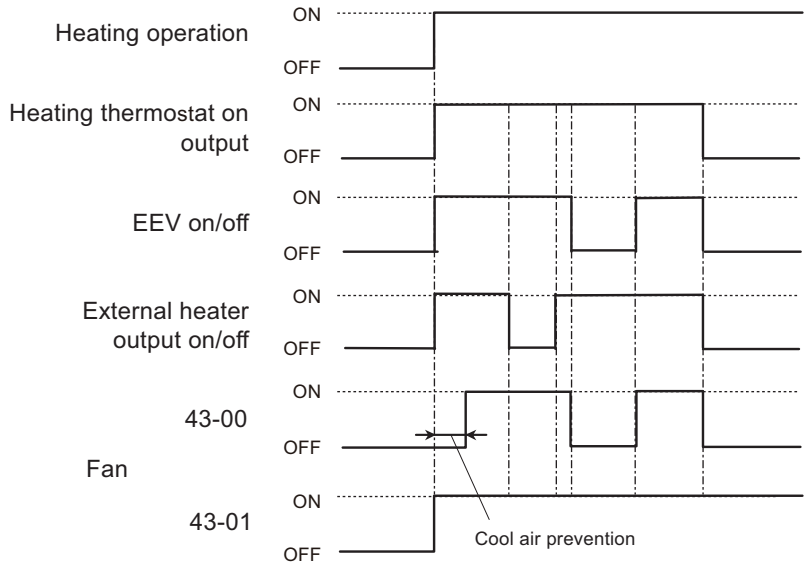
- **Example 2 (In-line connection)**
  Indoor unit fan operation status use



- **Example 3 (In-line connection)**
  Disable cool air prevention function
  The indoor unit fan is operated at the set speed continuously.



[Operation status]



The heating thermostat output for CNB01 (1-2 or 1-3 or 1-4 or 1-5) will be on when EEV on or external heater on.

The heating thermostat output will be off when EEV off or external heater off.

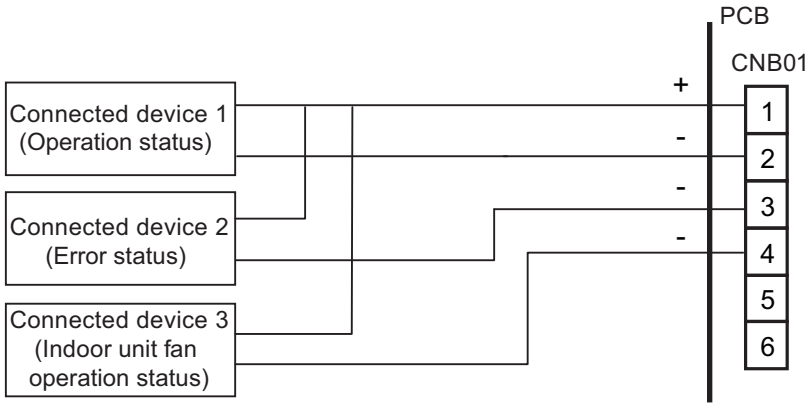
EXTERNAL INPUT AND OUTPUT

3-3. External output

- A twisted pair cable 22 AWG (0.33 mm^2) should be used. Maximum length of cable is 82 ft (25 m).
- Use an external input and output cable with appropriate external dimension, depending on the number of cables to be installed.
- Output voltage: DC 12 V at HIGH, 0 V at LOW
- Permissible current: 50 mA

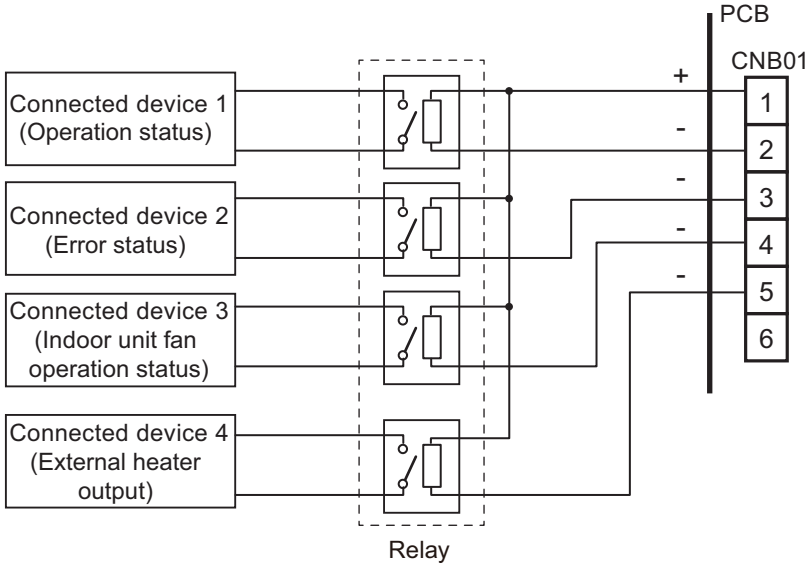
■ Output select

- **When indicator etc. are connected directly**



Actual number of pin might be different from the figure above.

- **When connecting to unit equipped with a power supply**



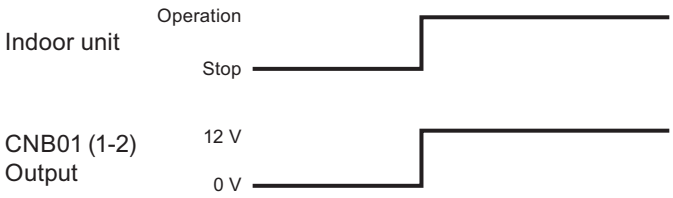
Actual number of pin might be different from the figure above.

EXTERNAL INPUT AND OUTPUT

■ Operation status (External output 1)

Function setting	Connector	Output signal	Command
60-00	CNB01 (Pins 1-2)	0 V → 12 V	Operation
60-06		12 V → 0 V	Stop

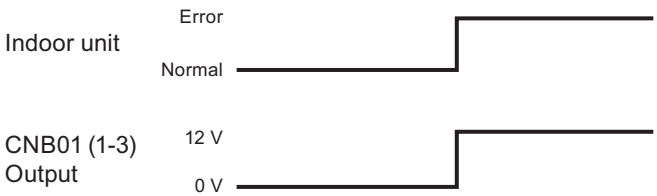
The output for CNB01 (1-2) is on when the indoor unit is operating.
The output is off when the unit is stopped.



■ Error status (External output 2)

Function setting	Connector	Output signal	Command
60-00 60-01 60-02 60-04 60-05 60-06 60-07	CNB01 (Pins 1-3)	0 V → 12 V	Error
		12 V → 0 V	Normal

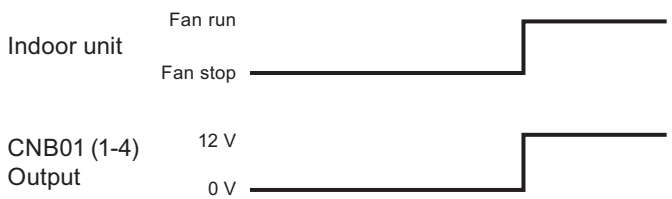
The output for CNB01 (1-3) is on when an error is generated for the indoor unit.



■ Indoor unit fan operation status (External output 3)

Function setting	Connector	Output signal	Command
60-00 60-01 60-05 60-06	CNB01 (Pins 1-4)	0 V → 12 V	Fun run
		12 V → 0 V	Fun stop

The output for CNB01 (1-4) is on when the indoor unit fan is operating.
The output is off when the fan is stopped or during cold air prevention.
The output for CNB01 (1-4) is off during thermostat off when DRY mode operation.



Ex.: Used for interlock energize for exhaust fan

EXTERNAL INPUT AND OUTPUT

■ External heater output (External output 4)

Control	Primary heater	Auxiliary heater	Installation configuration	Function setting	
				Indoor unit	
				Control switching external heaters	Indoor unit fan setting for external heater
				Function no: 61	DIP switch 2-3
Auxiliary heater control 1	VRF heat pump	External device	In-line	61-00	On (Enabled)
			Individual		Off
Auxiliary heater control 2	VRF heat pump	External device	In-line	61-01	On (Enabled)
			Individual		Off
Heat pump prohibition control	External device	None	In-line	61-02	On (Enabled)
			Individual		Off
Auxiliary heater control by outdoor temperature 1	VRF heat pump	External device*2	In-line	61-03	On (Enabled)
			Individual		Off
Auxiliary heater control by outdoor temperature 2	VRF heat pump	External device	In-line	61-04	On (Enabled)
			Individual		Off
Auxiliary heater control by outdoor temperature 3	VRF heat pump	External device*2	In-line	61-05	On (Enabled)
			Individual		Off
Auxiliary heat pump control	External device	VRF heat pump	In-line	61-06	On (Enabled)
			Individual		Off
Auxiliary heat pump control by outdoor temperature 1	External device	VRF heat pump*3	In-line	61-07	On (Enabled)
			Individual		Off
Auxiliary heat pump control by outdoor temperature 2	External device	VRF heat pump*2	In-line	61-08	On (Enabled)
			Individual		Off
Auxiliary heat pump control by outdoor temperature 3	External device	VRF heat pump*2*3	In-line	61-09	On (Enabled)
			Individual		Off

EXTERNAL INPUT AND OUTPUT

Control	Primary heater	Auxiliary heater	Installation configuration	Function setting	
				Wired remote controller	Outdoor unit
				Sensor activation	Presence of heater selection control using outdoor unit sensor
				UTY-RNRUZ∗ UTY-RSRY UTY-RHRY UTY-RNKU	Function no: 35
Auxiliary heater control 1	VRF heat pump	External device	In-line	—	—
			Individual	—	—
Auxiliary heater control 2	VRF heat pump	External device	In-line	—	—
			Individual	—	—
Heat pump prohibition control	External device	None	In-line	—	—
			Individual	On (Enabled)*1	—
Auxiliary heater control by outdoor temperature 1	VRF heat pump	External device*2	In-line	—	35-01 (Enabled)
			Individual	On (Enabled)*1	
Auxiliary heater control by outdoor temperature 2	VRF heat pump	External device	In-line	—	35-01 (Enabled)
			Individual	On (Enabled)*1	
Auxiliary heater control by outdoor temperature 3	VRF heat pump	External device*2	In-line	—	35-01 (Enabled)
			Individual	On (Enabled)*1	
Auxiliary heat pump control	External device	VRF heat pump	In-line	—	—
			Individual	On (Enabled)*1	—
Auxiliary heat pump control by outdoor temperature 1	External device	VRF heat pump*3	In-line	—	35-01 (Enabled)
			Individual	On (Enabled)*1	
Auxiliary heat pump control by outdoor temperature 2	External device	VRF heat pump*2	In-line	—	35-01 (Enabled)
			Individual	On (Enabled)*1	
Auxiliary heat pump control by outdoor temperature 3	External device	VRF heat pump*2*3	In-line	—	35-01 (Enabled)
			Individual	On (Enabled)*1	

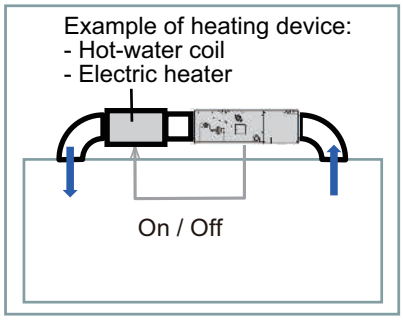
NOTES:

- Corresponding indoor units: Except wall mounted type
- After turning off the heater, 3 minutes of standby time is required by next power-on of the heater.
- For items marked "—" in the table, any of validate or invalidate of the setting are acceptable.
- For items marked in orange in the table, setting change from the factory setting is required.
- *1: Indoor unit fan setting will be on for safety reason without sensor activation of wired remote controller.
- *2: Heating operation is not performed when the outdoor temperature exceeds the boundary specified in function setting number 37.
- *3: Heating operation is not performed when the outdoor temperature is lower than the boundary specified in function setting number 36.

EXTERNAL INPUT AND OUTPUT

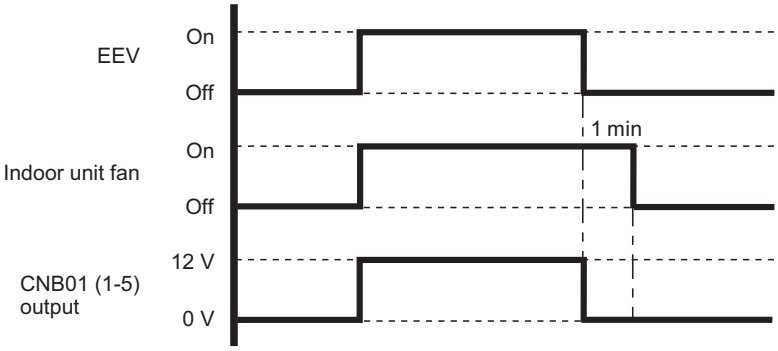
● Installation configuration of individual connection

- **In-line connection**
  Connecting the external heating device in between the indoor unit and the outlet.
  External heating device uses the indoor unit fan.

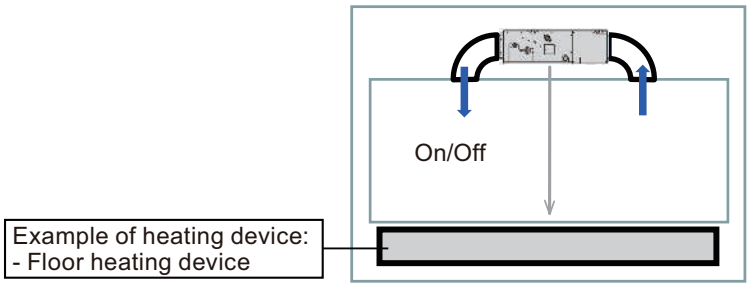


Indoor unit fan setting for external heater (DIP-SW 2-3: On)

– Activate fan control for external heater.
– Indoor unit fan stop 1 minute later after the EEV is off.

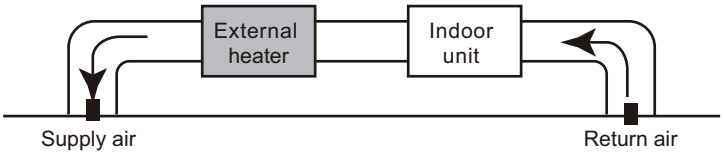


- **Individual connection**



⚠ WARNING

- For duct and cassette types, always set “indoor unit fan setting for external heater” when auxiliary heater is installed.
- Design and install external heater appropriately with considering its protection.
  For wall mounted type, combination use with an external heater as shown below is prohibited.

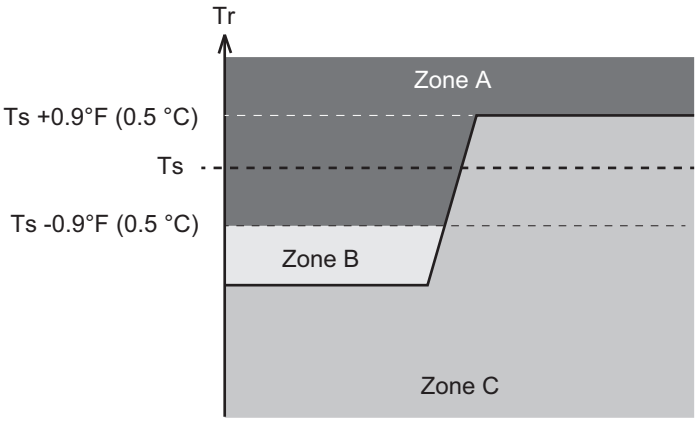


- Inappropriate designing and installation of external heater may cause a fire by emitted heat from the external heater.
- Fujitsu General Ltd. is not responsible for inappropriate designing or installation of external heating device.

EXTERNAL INPUT AND OUTPUT

● Auxiliary equipment control by room temperature

Auxiliary equipment control is switchable by room temperature. Auxiliary equipment switching is performed for each room temperature divided to following 3 zones.



Ts: Setting temperature
Tr: Room temperature

Zone	Application	When temperature dropping		When temperature rising	
		Primary	Auxiliary	Primary	Auxiliary
A	Both of primary and auxiliary equipment is unnecessary.	Off	Off	Off	Off
B	Primary heater only.When room temperature stays in zone B for a long time, auxiliary equipment also operates.	On	Off*1	—	—
C	Auxiliary equipment also operates.	On	On*2	On	On*2

*1: For standby time for auxiliary equipment operation, refer to indoor unit function number 71 "Function details" in Chapter 7. FUNCTION SETTINGS on page 07-96.

*2: When indoor unit function number 61 is set to "00", auxiliary equipment operates according to the following conditions.

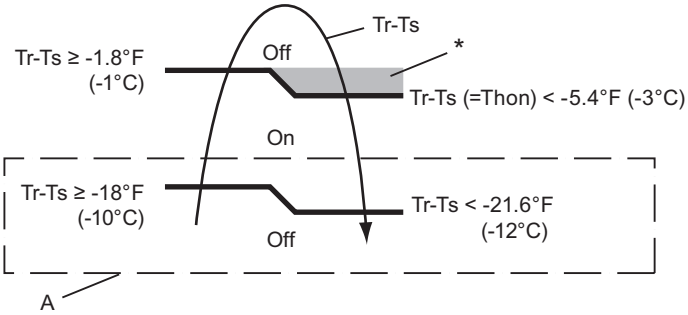
- Ts - Tr > 21.6 °F (-12.0 °C): Auxiliary equipment turn off.
- Ts - Tr > 18.0 °F (-10.0 °C): Auxiliary equipment turn on.

EXTERNAL INPUT AND OUTPUT

● Auxiliary heater control 1

Operation	Condition
Heater on	Heater is on as shown in following diagram of heating temperature.
Heater off	• Heater is off as shown in following diagram of heating temperature. • Other than heating mode • Error occurred • Forced thermostat off • Fan stop protection

- Temperature of heater on (Thon): Adjustable by function number 62 for indoor unit (Operating temperature switching of external heaters).
- All control temperatures will shift by adjusting “Thon”.



Tr: Room temperature
Ts: Set temperature
Thon: Heater on temperature

*: When room temperature stays in this zone for a specific time, auxiliary heater is turned on. For details, refer to function number 71 for indoor unit.

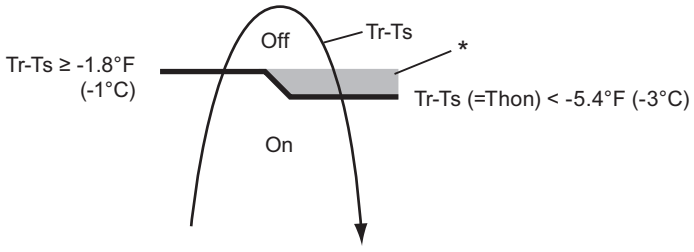
Example: When set temperature (Ts) is 72°F (22°C) (Factory setting),
- and room temperature (Tr) increases above 53.6°F (12°C), signal output is on.
- and room temperature (Tr) increases above 69.8°F (21°C), signal output is off.
- and room temperature (Tr) decreases below 66.2°F (19°C), signal output is on.
- and room temperature (Tr) decreases below 50°F (10°C), signal output is off.

● Auxiliary heater control 2

Control that excludes “A” from "Auxiliary heater control 1" on page 08-40.

Operation	Condition
Heater on	Heater is on as shown in following diagram of heating temperature.
Heater off	• Heater is off as shown in following diagram of heating temperature. • Other than heating mode • Error occurred • Forced thermostat off • Fan stop protection

- Temperature of heater on (Thon): Adjustable by function number 62 for indoor unit (Operating temperature switching of external heaters).
- All control temperatures will shift by adjusting “Thon”.



Tr: Room temperature
Ts: Set temperature
Thon: Heater on temperature

*: When room temperature stays in this zone for a specific time, auxiliary heater is turned off. For details, refer to function number 71 for indoor unit.

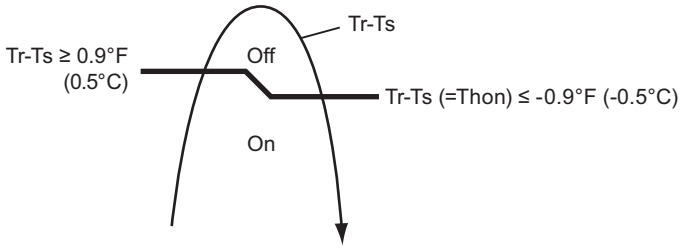
EXTERNAL INPUT AND OUTPUT

● Heat pump prohibition control

Perform heating by external heater only. Indoor unit is continuous thermostat off.

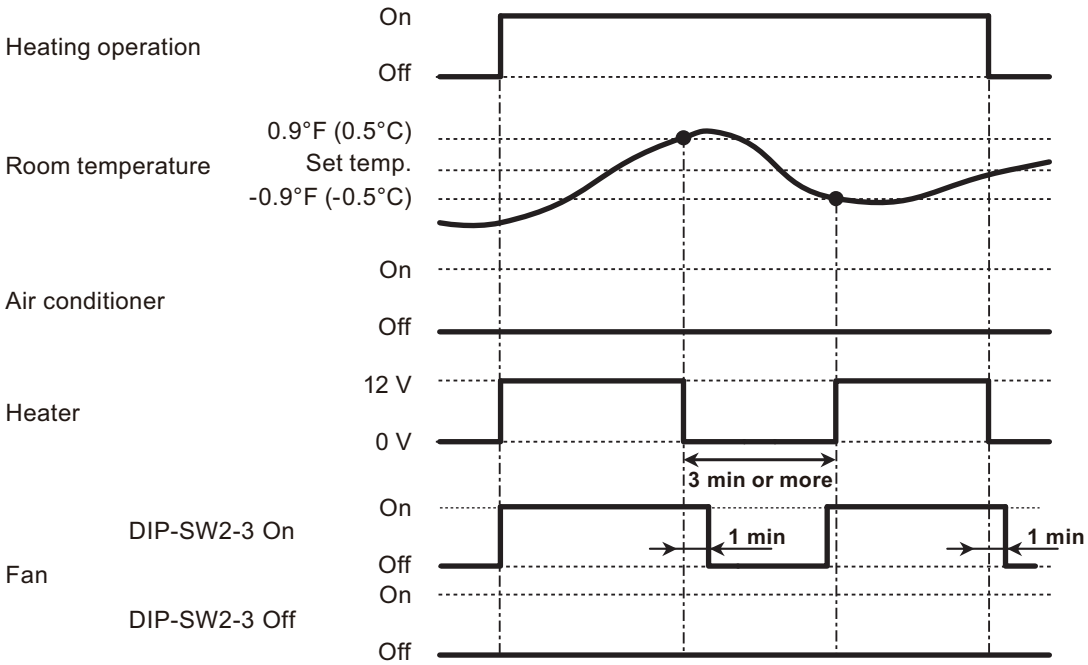
Operation			Condition
Heater on			Heater is on as shown in following diagram of heating temperature.
Heater off	DIP switch 2-3 Indoor unit fan setting for external heater	On Enabled	• Heater is off as shown in following diagram of heating temperature. • Other than heating mode • Error occurred • Forced thermostat off • Fan stop protection
	DIP switch 2-3 Indoor unit fan setting for external heater	Off Disabled	• Heater is off as shown in following diagram of heating temperature. • Other than heating mode • Error occurred • Forced thermostat off

- Temperature of heater on (Thon): Adjustable by function number 62 for indoor unit (Operating temperature switching of external heaters).
- All control temperatures will shift by adjusting “Thon”.



Tr: Room temperature
Ts: Set temperature
Thon: Heater on temperature

- **Operation status**



EXTERNAL INPUT AND OUTPUT

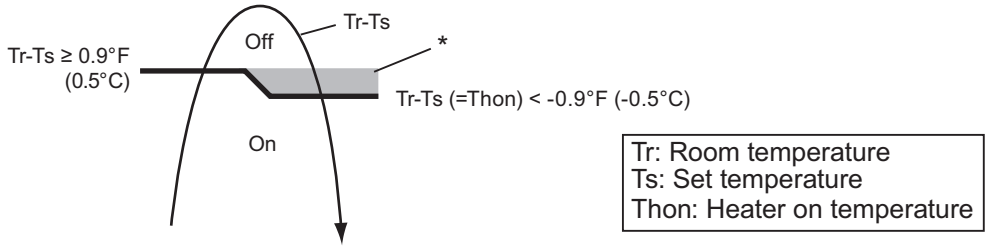
● Auxiliary heater control by outdoor temperature 1

This control selects heat pump or external heater according to the outdoor temperature. When outdoor temperature is high, the heating is performed by using heat pump only.

Operation			Condition
Heater on			Heater is on as shown in following diagram of heating temperature.
Heater off	DIP switch 2-3 Indoor unit fan setting for external heater	On Enabled	• Heater is off as shown in following diagram of heating temperature. • Other than heating mode • Error occurred • Forced thermostat off • Heat pump only zone • Fan stop protection
	DIP switch 2-3 Indoor unit fan setting for external heater	Off Disabled	• Heater is off as shown in following diagram of heating temperature. • Other than heating mode • Error occurred • Forced thermostat off • Heat pump only zone

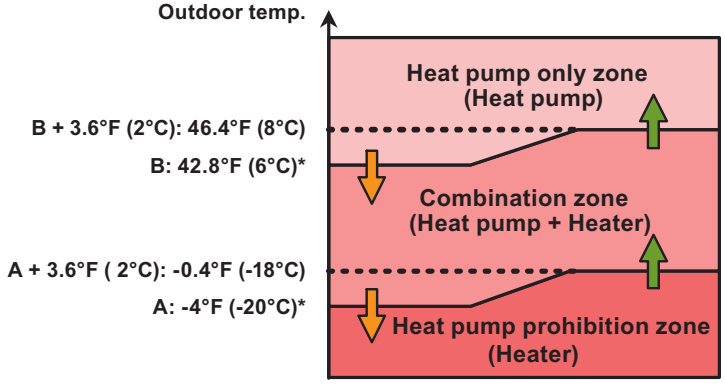
- Temperature of heater on (Thon): Adjustable by function number 62 for indoor unit (Operating temperature switching of external heaters).
- All control temperatures will shift by adjusting “Thon”.
- Outdoor temperature zone boundary A and B: Adjustable individually by function setting number 36 and 37 for outdoor unit.

- **External heater output**



*: When room temperature stays in this zone for a specific time, auxiliary heater is turned on. For details, refer to function number 71 for indoor unit.

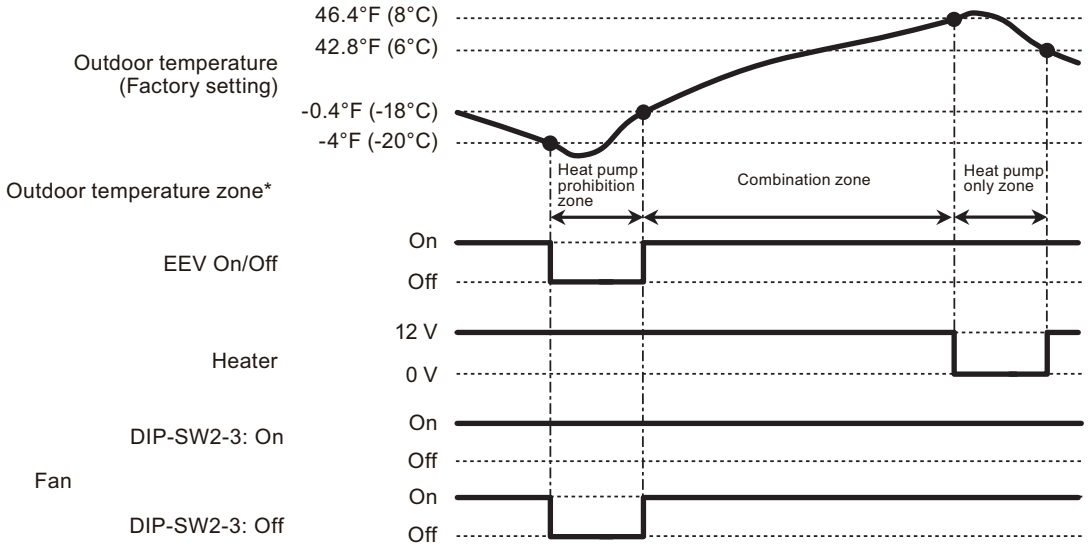
- **Outdoor temperature zone**



*: Adjustable by function setting 36 and 37 for outdoor unit

EXTERNAL INPUT AND OUTPUT

- **Operation status**



*: The outdoor temperature zone transition from one to another will stay in that zone for minimum of 30 min.

NOTE: • In following operations, EEV will be on in heat pump prohibition zone.
  – Other than heating
  – Test run
  • This control is enabled when the function setting number 35 of the outdoor unit (presence of heater selection control by outdoor temperature) is enabled.

EXTERNAL INPUT AND OUTPUT

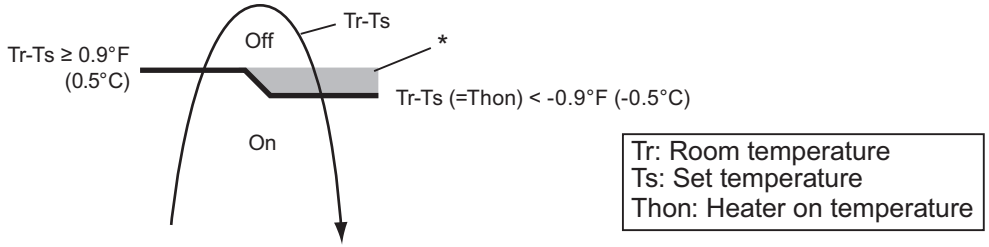
● Auxiliary heater control by outdoor temperature 2

This control selects heat pump or external heater according to the outdoor temperature. Even when outdoor temperature is high, the heating is performed by using both of heat pump and external heater.

Operation			Condition
Heater on			Heater is on as shown in following diagram of heating temperature.
Heater off	DIP switch 2-3 Indoor unit fan setting for external heater	On Enabled	• Heater is off as shown in following diagram of heating temperature. • Other than heating mode • Error occurred • Forced thermostat off • Fan stop protection
	DIP switch 2-3 Indoor unit fan setting for external heater	Off Disabled	• Heater is off as shown in following diagram of heating temperature. • Other than heating mode • Error occurred • Forced thermostat off

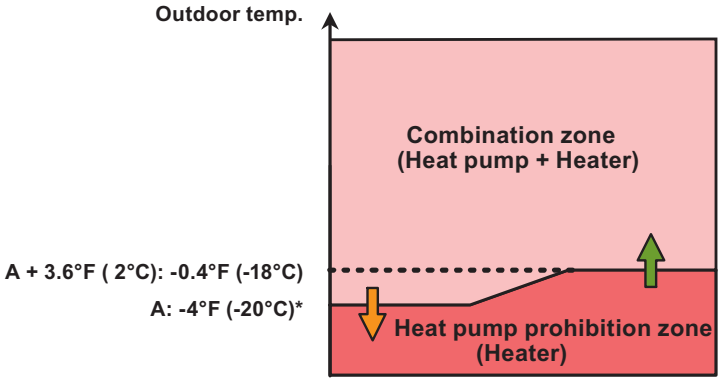
- Temperature of heater on (Thon): Adjustable by function number 62 for indoor unit (Operating temperature switching of external heaters).
- All control temperatures will shift by adjusting “Thon”.
- Outdoor temperature zone boundary A: Adjustable by function setting number 36 for outdoor unit.

- **External heater output**



*: When room temperature stays in this zone for a specific time, auxiliary heater is turned on. For details, refer to function number 71 for indoor unit.

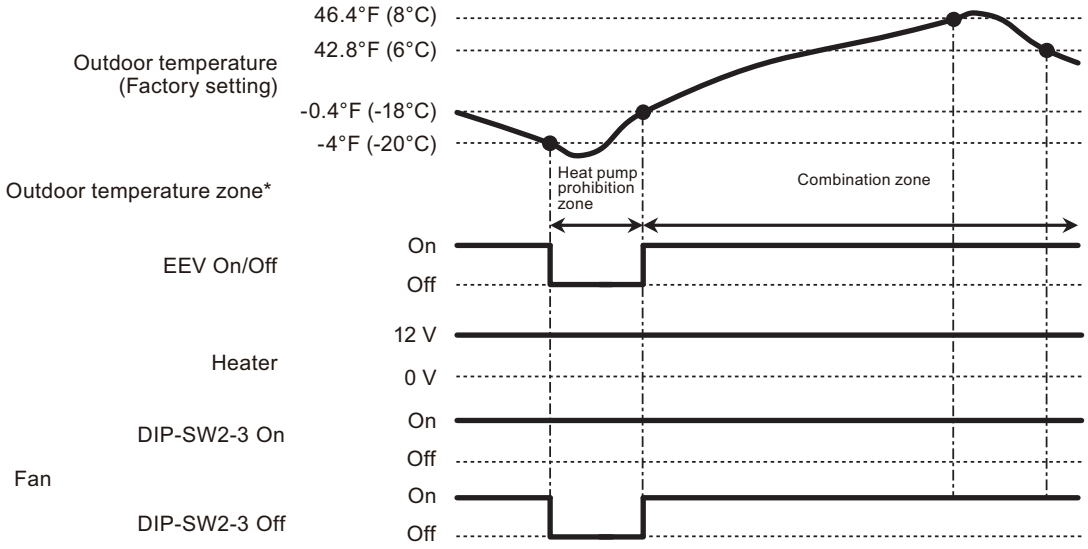
- **Outdoor temperature zone**



*: Adjustable by function setting 36 for outdoor unit

EXTERNAL INPUT AND OUTPUT

- **Operation status**



*: The outdoor temperature zone transition from one to another will stay in that zone for minimum of 30 min.

NOTE: • In following operations, EEV will be on in heat pump prohibition zone.
  – Other than heating
  – Test run
  • This control is enabled when the function setting number 35 of the outdoor unit (presence of heater selection control by outdoor temperature) is enabled.

EXTERNAL INPUT AND OUTPUT

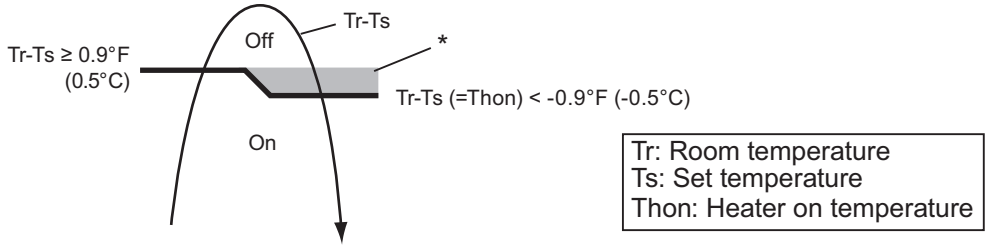
● Auxiliary heater control by outdoor temperature 3

This control selects heat pump or external heater according to the outdoor temperature. Even when outdoor temperature is high, the heating is performed by using both of heat pump and external heater.

Operation			Condition
Heater on			Heater is on as shown in following diagram of heating temperature.
Heater off	DIP switch 2-3 Indoor unit fan setting for external heater	On Enabled	• Heater is off as shown in following diagram of heating temperature. • Other than heating mode • Error occurred • Forced thermostat off • Fan stop protection
	DIP switch 2-3 Indoor unit fan setting for external heater	Off Disabled	• Heater is off as shown in following diagram of heating temperature. • Other than heating mode • Error occurred • Forced thermostat off

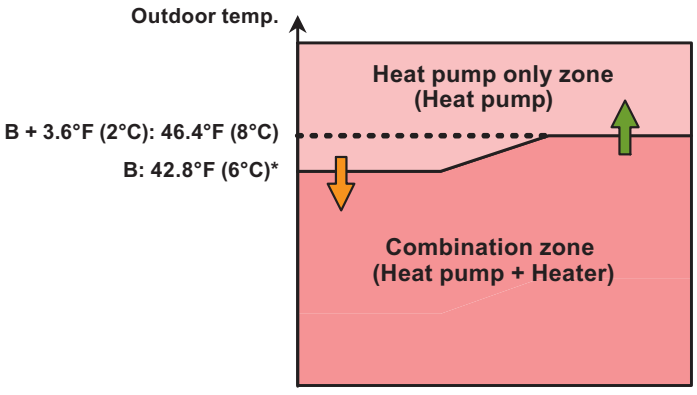
- Temperature of heater on (Thon): Adjustable by function number 62 for indoor unit (Operating temperature switching of external heaters).
- All control temperatures will shift by adjusting “Thon”.
- Outdoor temperature zone boundary B: Adjustable by function setting number 37 for outdoor unit.

- **External heater output**



*: When room temperature stays in this zone for a specific time, auxiliary heater is turned on. For details, refer to function number 71 for indoor unit.

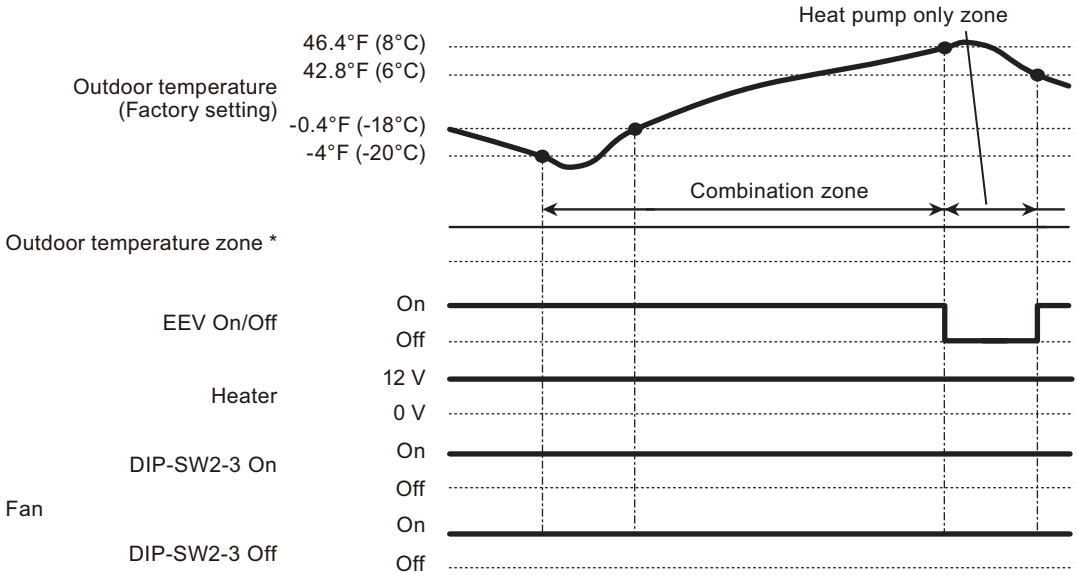
- **Outdoor temperature zone**



*: Adjustable by function setting 37 for outdoor unit

EXTERNAL INPUT AND OUTPUT

- **Operation status**



*: The outdoor temperature zone transition from one to another will stay in that zone for minimum of 30 min.

NOTE: • In following operations, EEV will be on in heat pump prohibition zone.
– Other than heating
– Test run
• This control is enabled when the function setting number 35 of the outdoor unit (presence of heater selection control by outdoor temperature) is enabled.

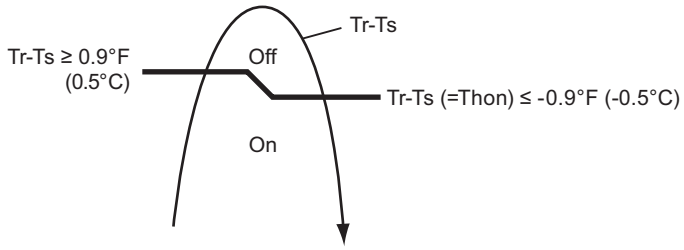
EXTERNAL INPUT AND OUTPUT

● Auxiliary heat pump control

- **External heater output**

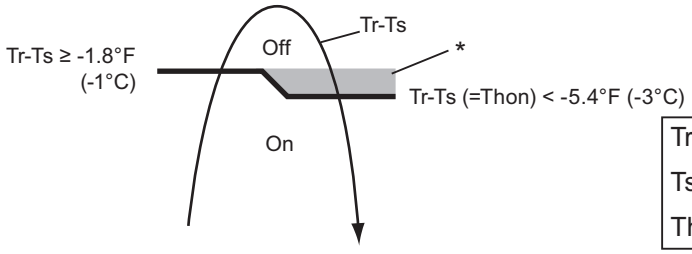
Operation			Condition
Heater on			Heater is on as shown in following diagram of heating temperature.
Heater off	DIP switch 2-3 Indoor unit fan setting for external heater	On Enabled	• Heater is off as shown in following diagram of heating temperature. • Other than heating mode • Error occurred • Forced thermostat off • Fan stop protection
	DIP switch 2-3 Indoor unit fan setting for external heater	Off Disabled	• Heater is off as shown in following diagram of heating temperature. • Other than heating mode • Error occurred • Forced thermostat off

– Temperature of heater on (Thon): Set temperature (Ts) - 0.9 °F (- 0.5 °C)
– Temperature of heater off: Set temperature (Ts) + 0.9 °F (+ 0.5 °C)



Tr: Room temperature
Ts: Set temperature
Thon: Heater on temperature

- **Auxiliary heat pump On/Off**
  – Temperature of heater on (Thon): Adjustable by function number 62 for indoor unit (Operating temperature switching of heat pump).
  – All control temperatures will shift by adjusting “Thon”.



Tr: Room temperature
Ts: Set temperature
Thon: Heater on temperature

*: When room temperature stays in this zone for a specific time, auxiliary heater is turned on. For details, refer to function number 71 for indoor unit.

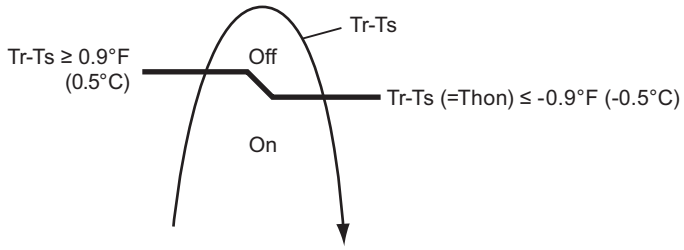
EXTERNAL INPUT AND OUTPUT

● Auxiliary heat pump control by outdoor temperature 1

- **External heater output**

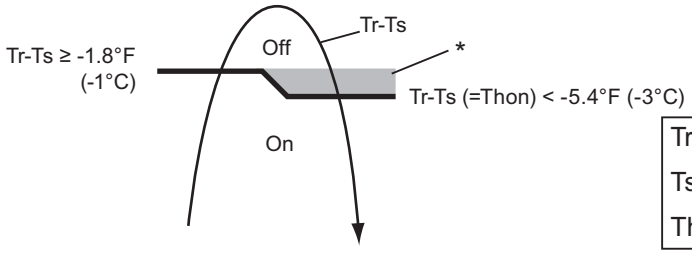
Operation			Condition
Heater on			Heater is on as shown in following diagram of heating temperature.
Heater off	DIP switch 2-3 Indoor unit fan setting for external heater	On Enabled	• Heater is off as shown in following diagram of heating temperature. • Other than heating mode • Error occurred • Forced thermostat off • Fan stop protection
	DIP switch 2-3 Indoor unit fan setting for external heater	Off Disabled	• Heater is off as shown in following diagram of heating temperature. • Other than heating mode • Error occurred • Forced thermostat off

– Temperature of heater on (Thon): Set temperature (Ts) - 0.9 °F (- 0.5 °C)
– Temperature of heater off: Set temperature (Ts) + 0.9 °F (+ 0.5 °C)



Tr: Room temperature
Ts: Set temperature
Thon: Heater on temperature

- **Auxiliary heat pump On/Off**
  – Temperature of heater on (Thon): Adjustable by function number 62 for indoor unit (Operating temperature switching of heat pump).
  – All control temperatures will shift by adjusting “Thon”.

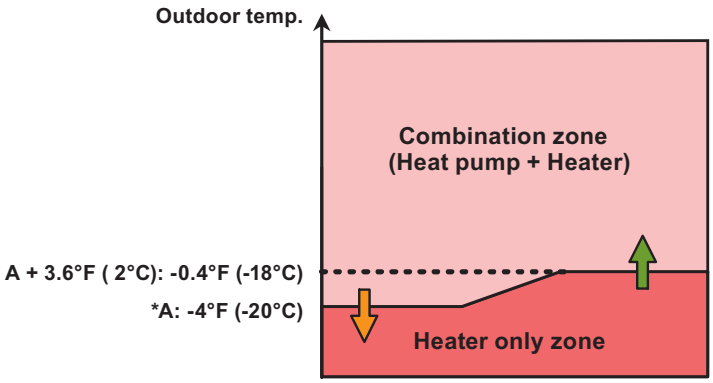


Tr: Room temperature
Ts: Set temperature
Thon: Heater on temperature

*: When room temperature stays in this zone for a specific time, auxiliary heater is turned on. For details, refer to function number 71 for indoor unit.

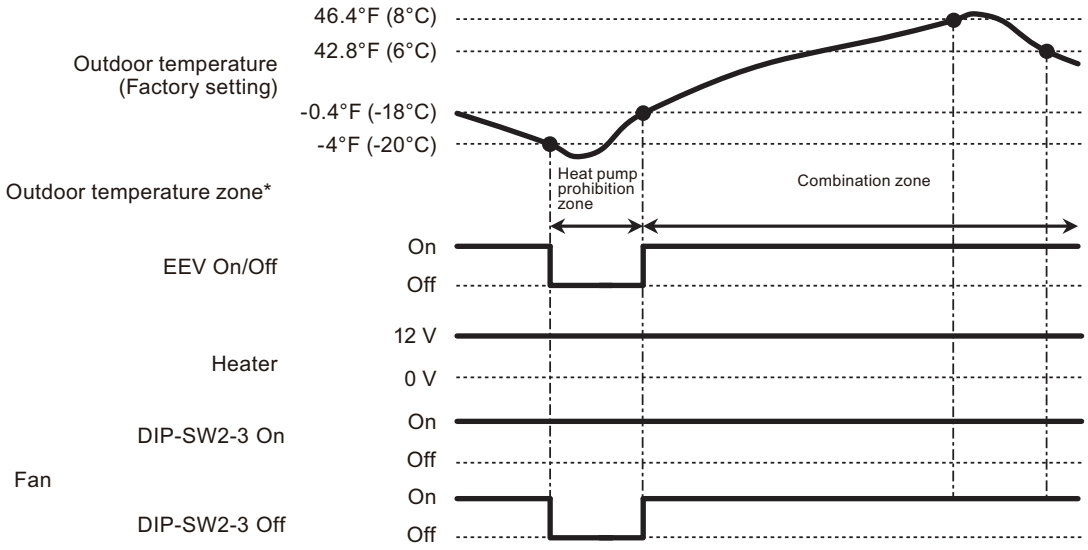
EXTERNAL INPUT AND OUTPUT

- **Outdoor temperature zone**



*: Adjustable by function setting 37 for outdoor unit

- **Operation status**



*: The outdoor temperature zone transition from one to another will stay in that zone for minimum of 30 min.

NOTE: • In following operations, EEV will be on in heat pump prohibition zone.
- – Other than heating
- – Test run

• This control is enabled when the function setting number 35 of the outdoor unit (presence of heater selection control by outdoor temperature) is enabled.

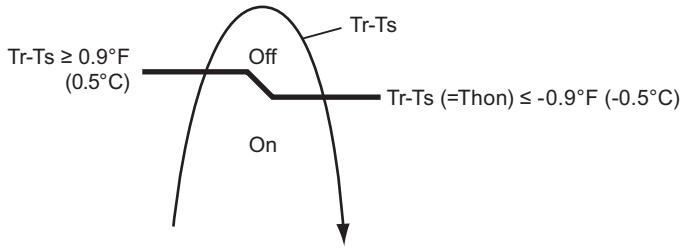
EXTERNAL INPUT AND OUTPUT

● Auxiliary heat pump control by outdoor temperature 2

- **External heater output**

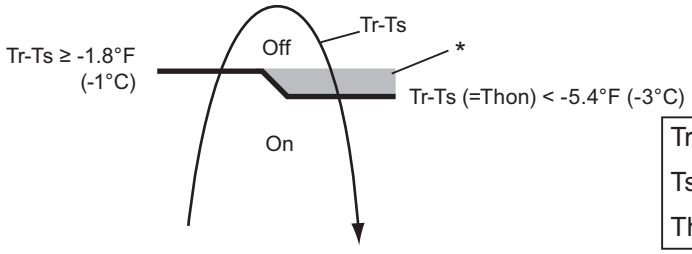
Operation			Condition
Heater on			Heater is on as shown in following diagram of heating temperature.
Heater off	DIP switch 2-3 Indoor unit fan setting for external heater	On Enabled	• Heater is off as shown in following diagram of heating temperature. • Other than heating mode • Error occurred • Forced thermostat off • Fan stop protection
	DIP switch 2-3 Indoor unit fan setting for external heater	Off Disabled	• Heater is off as shown in following diagram of heating temperature. • Other than heating mode • Error occurred • Forced thermostat off

– Temperature of heater on (Thon): Set temperature (Ts) - 0.9 °F (- 0.5 °C)
– Temperature of heater off: Set temperature (Ts) + 0.9 °F (+ 0.5 °C)



Tr: Room temperature
Ts: Set temperature
Thon: Heater on temperature

- **Auxiliary heat pump On/Off**
  – Temperature of heater on (Thon): Adjustable by function number 62 for indoor unit (Operating temperature switching of heat pump).
  – All control temperatures will shift by adjusting “Thon”.

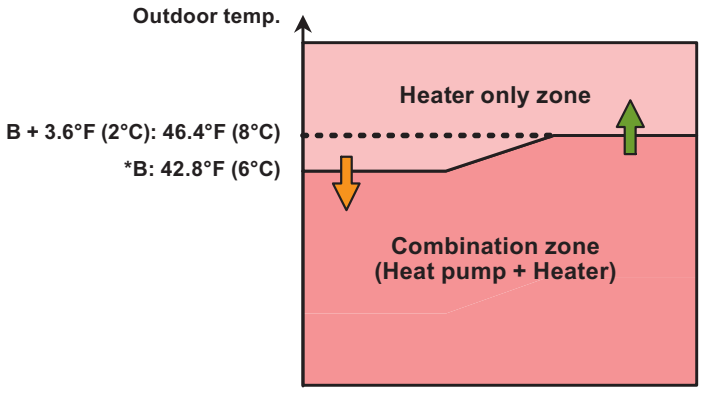


Tr: Room temperature
Ts: Set temperature
Thon: Heater on temperature

*: When room temperature stays in this zone for a specific time, auxiliary heater is turned on. For details, refer to function number 71 for indoor unit.

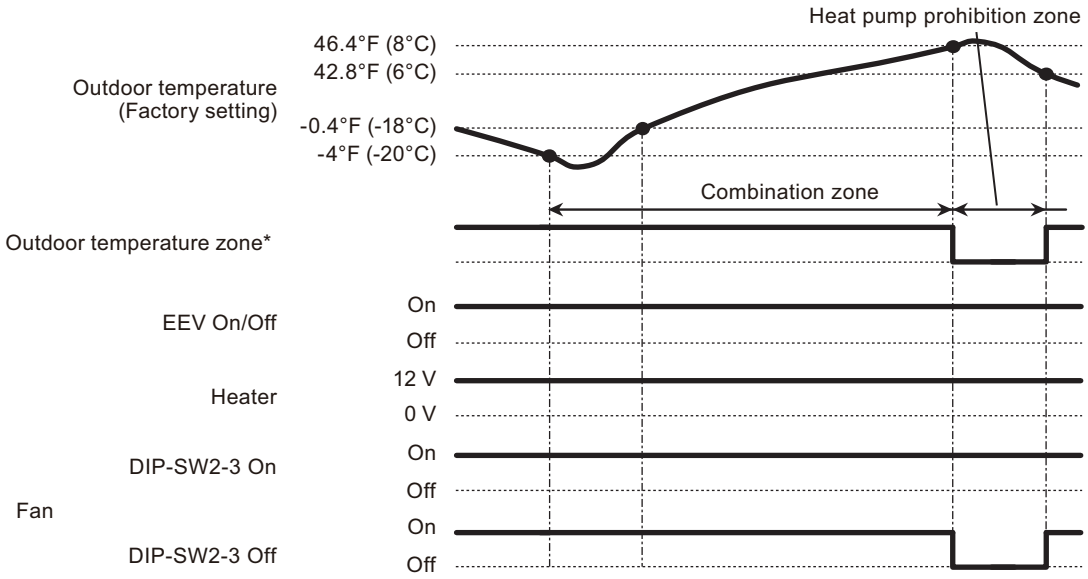
EXTERNAL INPUT AND OUTPUT

- **Outdoor temperature zone**



*: Adjustable by function setting 37 for outdoor unit

- **Operation status**



*: The outdoor temperature zone transition from one to another will stay in that zone for minimum of 30 min.

NOTE:
- In following operations, EEV will be on in heat pump prohibition zone.
  - Other than heating
  - Test run
- This control is enabled when the function setting number 35 of the outdoor unit (presence of heater selection control by outdoor temperature) is enabled.

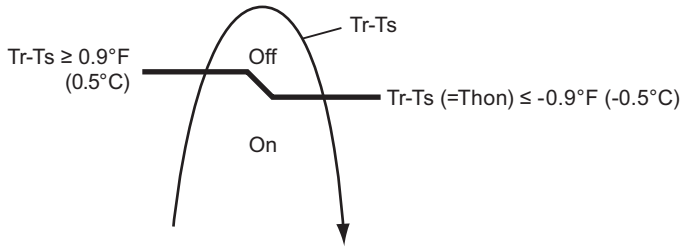
EXTERNAL INPUT AND OUTPUT

● Auxiliary heat pump control by outdoor temperature 3

- **External heater output**

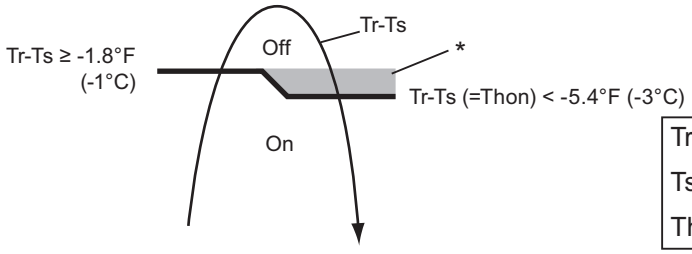
Operation			Condition
Heater on			Heater is on as shown in following diagram of heating temperature.
Heater off	DIP switch 2-3 Indoor unit fan setting for external heater	On Enabled	• Heater is off as shown in following diagram of heating temperature. • Other than heating mode • Error occurred • Forced thermostat off • Fan stop protection
	DIP switch 2-3 Indoor unit fan setting for external heater	Off Disabled	• Heater is off as shown in following diagram of heating temperature. • Other than heating mode • Error occurred • Forced thermostat off

– Temperature of heater on (Thon): Set temperature (Ts) - 0.9 °F (- 0.5 °C)
– Temperature of heater off: Set temperature (Ts) + 0.9 °F (+ 0.5 °C)



Tr: Room temperature
Ts: Set temperature
Thon: Heater on temperature

- **Auxiliary heat pump On/Off**
  – Temperature of heater on (Thon): Adjustable by function number 62 for indoor unit (Operating temperature switching of heat pump).
  – All control temperatures will shift by adjusting “Thon”.

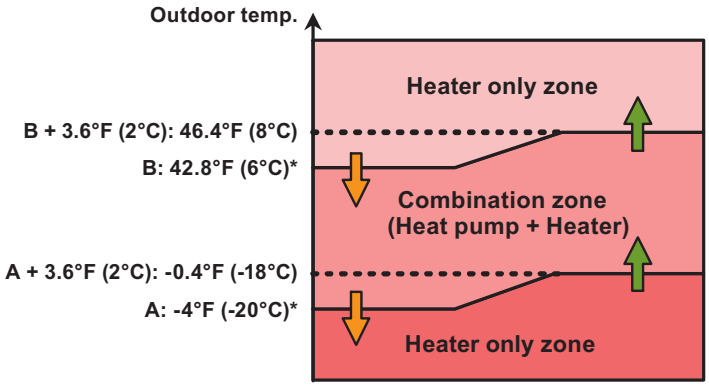


Tr: Room temperature
Ts: Set temperature
Thon: Heater on temperature

*: When room temperature stays in this zone for a specific time, auxiliary heater is turned on. For details, refer to function number 71 for indoor unit.

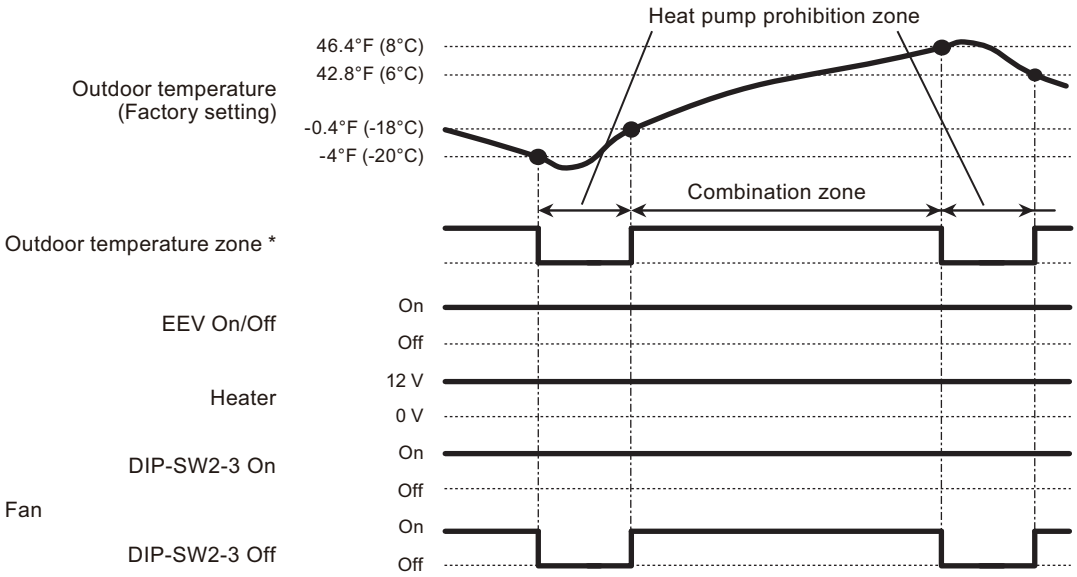
EXTERNAL INPUT AND OUTPUT

- **Outdoor temperature zone**



*: Adjustable by function setting 36 and 37 for outdoor unit

- **Operation status**



* The outdoor temperature zone transition from one to another will stay in that zone for minimum of 30 min.

NOTE:
- In following operations, EEV will be on in heat pump prohibition zone.
  - Other than heating
  - Test run
- This control is enabled when the function setting number 35 of the outdoor unit (presence of heater selection control by outdoor temperature) is enabled.

EXTERNAL INPUT AND OUTPUT

3-4. Function summary of indoor unit external input and output

■ Indoor unit external input function

Dry contact/ Apply voltage			Dry contact DC 12 V			Apply voltage		
Function	Operation/Stop		● (46-00)		—	● (46-00)		—
	Emergency stop		● (46-01)		—	● (46-01)		—
	Forced stop		● (46-02)		—	● (46-02)		—
	Forced thermostat off		—		● (60-00)	—		● (60-00)
Specifications	Terminal		CNA02 (Pin1-3)	CNA02 (Ch1: Pin1-3) (Ch2: Pin2-3)	CNA04 (Pin1-2)	CNA01 (Pin1-2)	CNA01 (Ch1: Pin1-2) (Ch2: Pin1-3)	CNA03 (Pin1-2)
	Signal type		Edge	Pulse *	Edge	Edge	Pulse *	Edge
	External power supply	Allowable voltage	—			DC 12 to 24 V		
		Allowable current	—			10 mA or less		
	Wire size		22 AWG (0.33 mm^2), Twisted					
	Max. cable length		492 ft (150 m)					

*: Default setting is Edge signal. If you use Pulse signal, DIP switch 2-2 must be set to “On”.

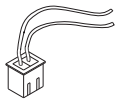
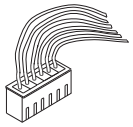
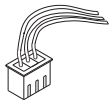
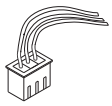
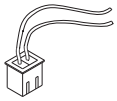
■ Indoor unit external output function

Dry contact/ Apply voltage		Dry contact			
Function	Operation status	●	—	—	—
	Error status	—	●	—	—
	Indoor unit fan operation status		—	●	—
	Auxiliary heater output	—	—	—	● *
Specifications	Terminal	CNB01 (Pin1-2)	CNB01 (Pin1-3)	CNB01 (Pin1-4)	CNB01 (Pin1-5)
	Terminal output voltage	DC 12 V			
	Wire size	22 AWG (0.33 mm^2), Twisted			
	Max. cable length	82 ft (25 m)			

*: Auxiliary heater is only available for duct type indoor unit. If you use Auxiliary heater output, DIP switch 2-3 must be set to “On”.

EXTERNAL INPUT AND OUTPUT

3-5. Optional parts

External connect kit			
Model name	**Exterior**	**Q'ty**	**Usage**
UTY-XWZXZ7		1	For forced thermostat off port. (Apply voltage terminal)
UTY-XWZXZC		1	For output port.
UTY-XWZXZB		1	For control input port. (Apply voltage terminal)
UTY-XWZXZD		1	For control input port. (Dry contact terminal)
UTY-XWZXZE		1	For forced thermostat off port. (Dry contact terminal)

EXTERNAL INPUT AND OUTPUT

4. Controller

RELATED LINKS

"Touch panel controller" on page 08-57
"Central remote controller (UTY-DCGY)" on page 08-63
"Central remote controller (UTY-DCGYZ∗)" on page 08-69
"Function summary of controller external input/output" on page 08-75

4-1. Touch panel controller

External input and output functions and related components are as follows:

External input	External output	Connector	External connect kit (Optional parts)
Control input	—	TM201 (CN411 or CN412)	—
Electricity meter	—		—
—	Operation status	CN410	UTY-XWZXZA
—	Error status		

RELATED LINKS

"External input" on page 08-57
"External output" on page 08-62
"Optional parts" on page 08-62
"Function summary of controller external input/output" on page 08-75

■ External input

This function performs “Emergency stop” or “All On / All Off” by using the signal to be input externally at external input terminals.

● Input select

Use either one of Apply voltage terminal of Dry contact terminal according to the application. (Both types of terminals cannot be used simultaneously.) For more details, refer to the operation manual of Touch panel controller.

It is possible to switch to the Dry contact terminal or the Apply voltage terminal by connecting CN201 of TM201 on the PCB to CN411 or CN412 on the PCB of the panel side.

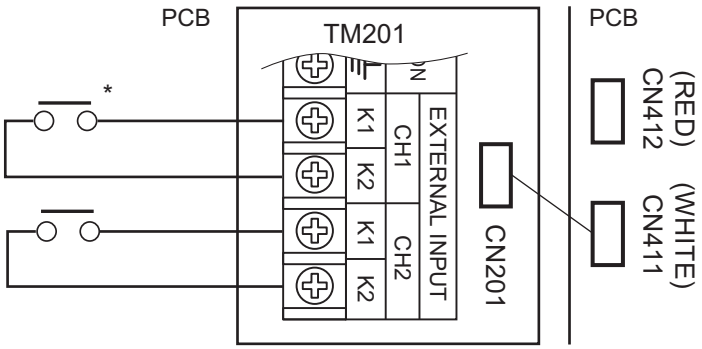
* The Dry contact terminal (connected to the CN411) is set at the time of factory shipment.

TM201 - K1, K2	Connect with the CN201
Dry contact terminal	CN411
Apply voltage terminal	CN412

EXTERNAL INPUT AND OUTPUT

- **TM201 (CN411): Dry contact terminal**
  When a power supply is unnecessary at the input device you want to connect, use the Dry contact terminal TM201 (CN411).

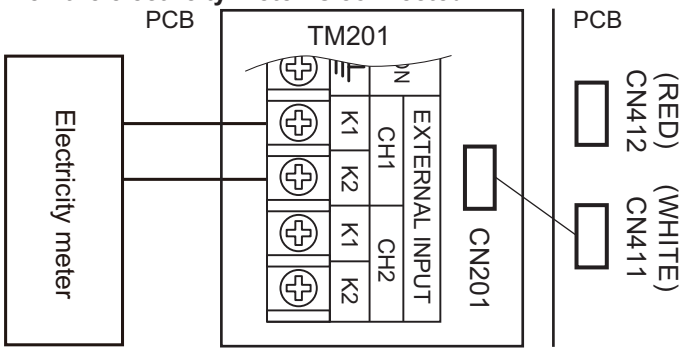
Connection example 1: When the switch is connected



*: Short circuit detection resistance (R_{ON}): ≤ 500 Ω
Open circuit detection resistance (R_{OFF}): ≥ 100 kΩ

A twisted pair cable 22 AWG (0.33 mm^2) should be used. (Maximum cable length: 82 ft [25 m])

Connection example 2: When the electricity meter is connected

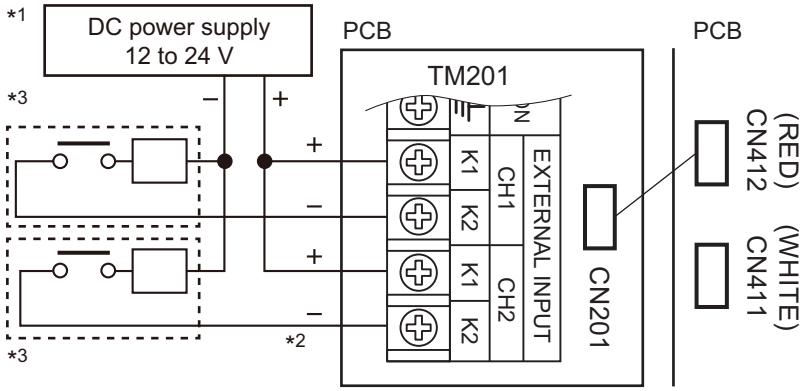


Connect the electricity meter to CH1. In this case, the use of CH2 is prohibited.

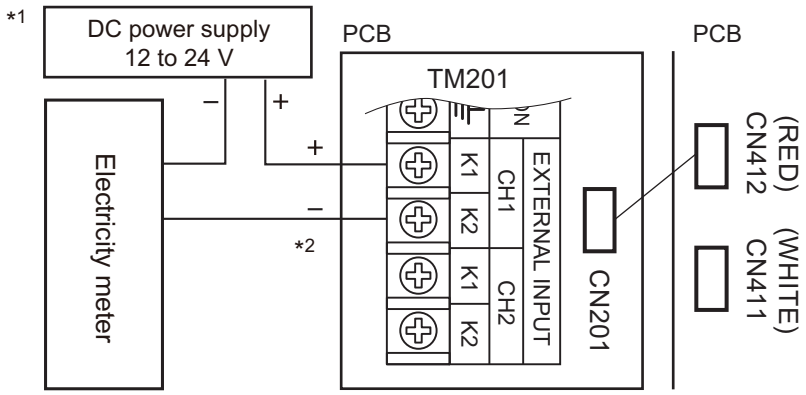
EXTERNAL INPUT AND OUTPUT

- **TM201 (CN412): Apply voltage terminal**
  When a power supply must be provided at the input device you want to connect, use the Apply voltage terminal TM201 (CN412).

Connection exampla1: When the switch is connected



Connection exampla2: When the electricity meter is connected



*1: Make the power supply DC12 to 24 V. Select a power supply capacity with an ample surplus for the connected load.

*2: Do not impress a voltage exceeding 24 V across K1-K2.

*3: The allowable current is DC 10 mA or less. (Recommended: DC 5 mA)
Provide a load resistance such that the current becomes DC10 mA or less.
Select very low current use contacts (usable at DC 12 V, DC 1 mA or less).
A twisted pair cable 22 AWG (0.33 mm^2) should be used. (Maximum cable length: 82 ft [25 m])

EXTERNAL INPUT AND OUTPUT

● Selecting the function

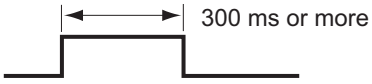
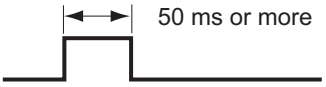
The function of the external input terminals is disabled at the time of factory shipment. Select the function to be used by installer setting of application.

Turn on the power and select by installer setting after starting the application.

Emergency stop	Edge/Pulse
All on/All off	
Electricity meter	Pulse

● Input signal type

The input signal type can be selected.

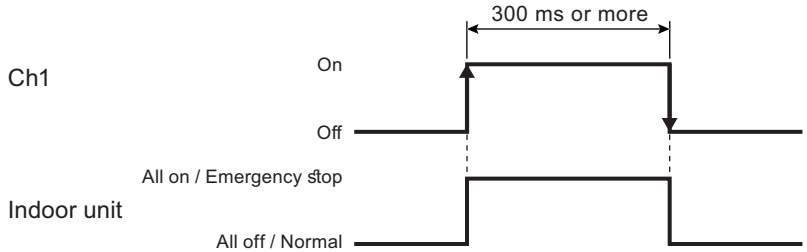
Edge	H L 	Emergency stop or All on	Ch1
	H L 	Emergency stop reset or All off	
Pulse	H L 	Emergency stop or All on	Ch1
		Emergency stop reset or All off	Ch2
	H L 	Electricity meter signal	Ch1

When Edge is selected, only Ch1 can be used.

● Control input function

- **In case of Edge input:**

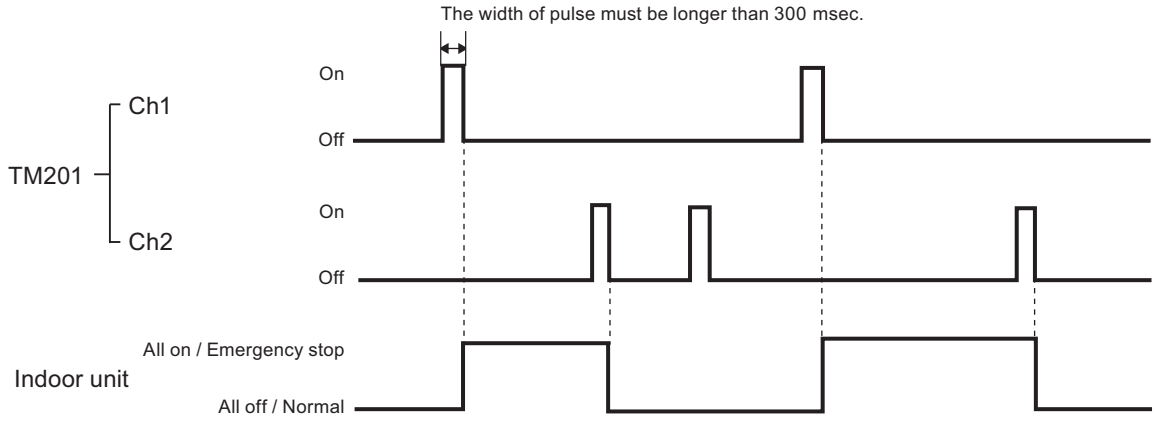
Terminal	Channel no.	Input signal	Command
TM201	Ch1	Off → On	All on / Emergency stop
		On → Off	All off / Normal



EXTERNAL INPUT AND OUTPUT

- **In case of Pulse input:**

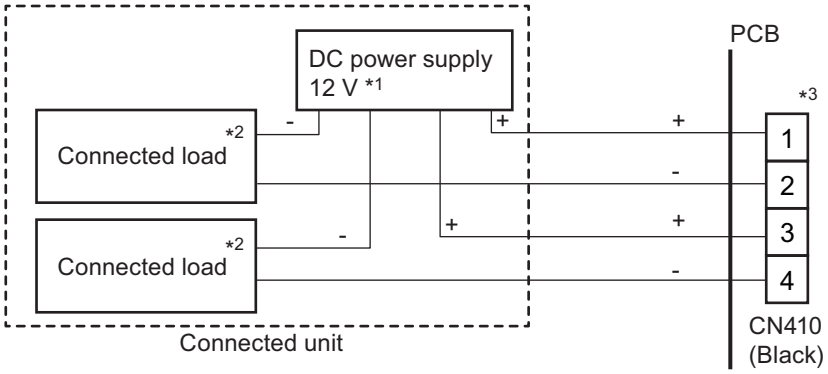
Terminal	Channel no.	Input signal	Command
TM201	Ch1	Pulse	All on / Emergency stop
	Ch2		All off / Normal



EXTERNAL INPUT AND OUTPUT

■ External output

Connector		Output voltage	Status
CN410 (Black)	Ch1	0 V	All indoor units: Stop
	Pins 1-2	DC 12 V	One or more indoor units: Operation
	Ch2	0 V	Normal
	Pins 3-4	DC 12 V	Error



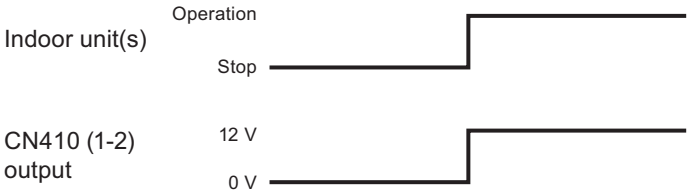
*1: Provide a DC 12 V power supply. Select a power supply capacity with an ample surplus for the connected load. Do not impress a voltage exceeding 12 V across pins 1-2 and 3-4.

*2: The allowable current is DC15 mA or less. Provide a load resistance such that the current becomes DC 15 mA or less.

*3: Polarity is "+" for pins 1 and 3, "-" for pins 2 and 4. Connect correctly.

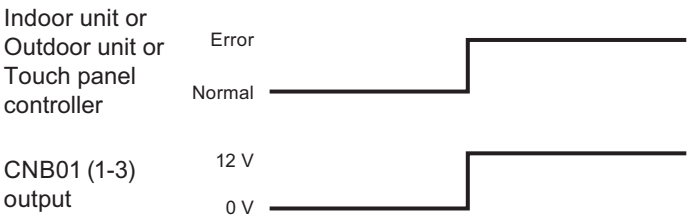
● Operation status (External output 1)

The output for CN410 (1-2) is on when one or more indoor units are operating. The output is off when all of the indoor units are stopped.



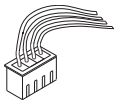
● Error status (External output 2)

The output for CN410 (3-4) is on when an error is generated at one or more indoor units, outdoor unit, or Touch panel controller.



EXTERNAL INPUT AND OUTPUT

■ Optional parts

External connect kit			
Model name	**Exterior**	**Q'ty**	**Usage**
UTY-XWZXZA		1	For output port.

4-2. Central remote controller (UTY-DCGY)

External input and output functions and related components are as follows:

External input	External output	Input select	Connector	External connect kit (Optional parts)
Control input	—	Dry contact	CN6, CN7	UTY-XWZXZ7
		Apply voltage	CN11, CN12	UTY-XWZXZ8
—	Operation status	—	CN9	UTY-XWZXZA
—	Error status			

RELATED LINKS

"External input" on page 08-63
"External output" on page 08-67
"Optional parts" on page 08-68
"Function summary of controller external input/output" on page 08-75

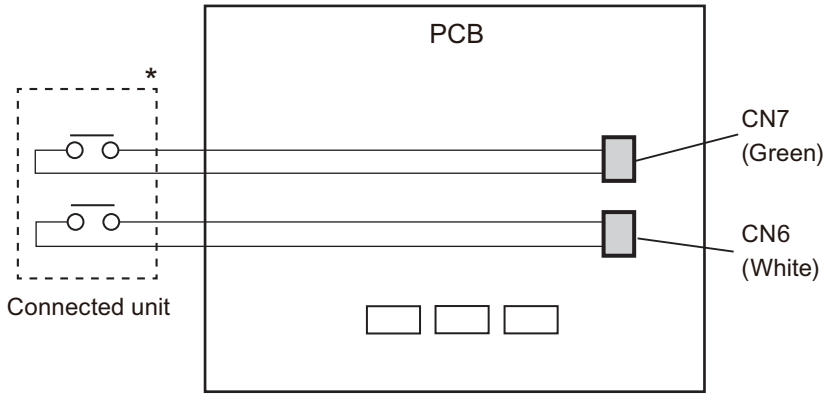
■ External input

This function performs “Emergency stop” or “All On / All Off” by using the signal to be input externally at external input terminals.

● Input select

Use either one of Apply voltage terminal or Dry contact terminal according to the application. (Both types of terminals cannot be used simultaneously.)

- **CN6 and CN7: Dry contact terminal**
  When a power supply is unnecessary at the input device you want to connect, use the Dry contact terminal CN6 and CN7.

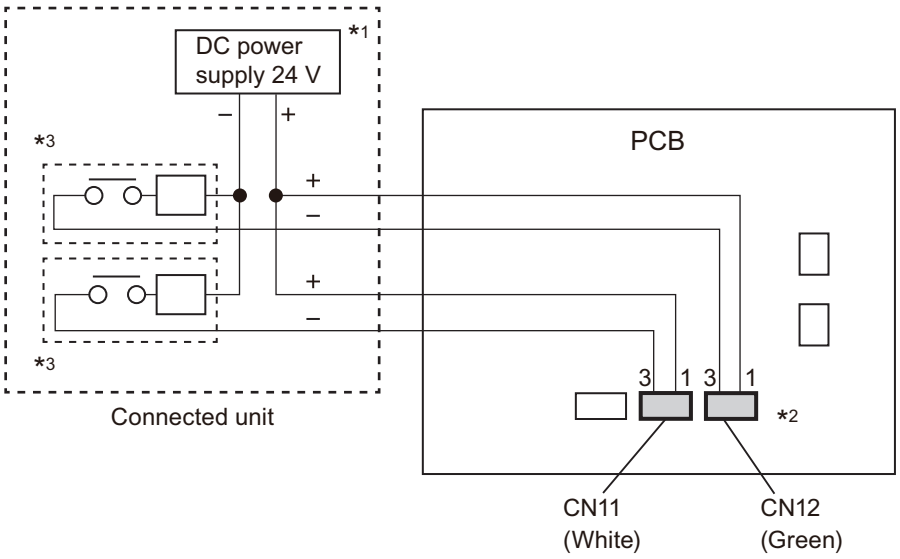


*: Short circuit detection resistance (R_{ON}): ≤ 500 Ω
Open circuit detection resistance (R_{OFF}): ≥ 100 kΩ

A twisted pair cable 22 AWG (0.33 mm^2) should be used. (Maximum cable length: 82 ft [25 m])

EXTERNAL INPUT AND OUTPUT

- **CN11 and CN12: Apply voltage terminal**
  When a power supply must be provided at the input device you want to connect, connect to CN11 and CN12.



*1: Make the power supply DC 24 V. Select a power supply capacity with an ample surplus for the connected load.

*2: Do not impress a voltage exceeding 24 V across pin 1-3.

*3: The allowable current is DC 5 mA or less. (Recommended: DC 5 mA)
Provide a load resistance such that the current becomes DC 5 mA or less.

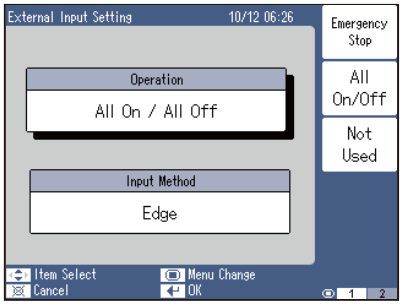
A twisted pair cable 22 AWG (0.33 mm^2) should be used. (Maximum cable length: 82 ft [25 m])

EXTERNAL INPUT AND OUTPUT

● Input signal type

The input signal type can be selected by using Central remote controller interface.

To select the input signal type, do as follows:



1. Press the button and move the cursor to the “Operation” menu.
   - Emergency Stop button: Enables Emergency stop by external input
   - All On/Off button: Enables batch operation on or off by external input
   - Not Used button: Does not receive external input signals

2. Press the button and move the cursor to the “Input Method” menu.
   - Edge button: Detects the signal rise and fall
   - Pulse button: Detects the signal level

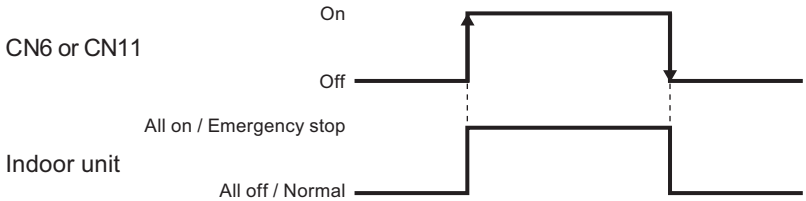


3. When the button is pressed, setting is complete.

● Control input function

- **In case of Edge input:**

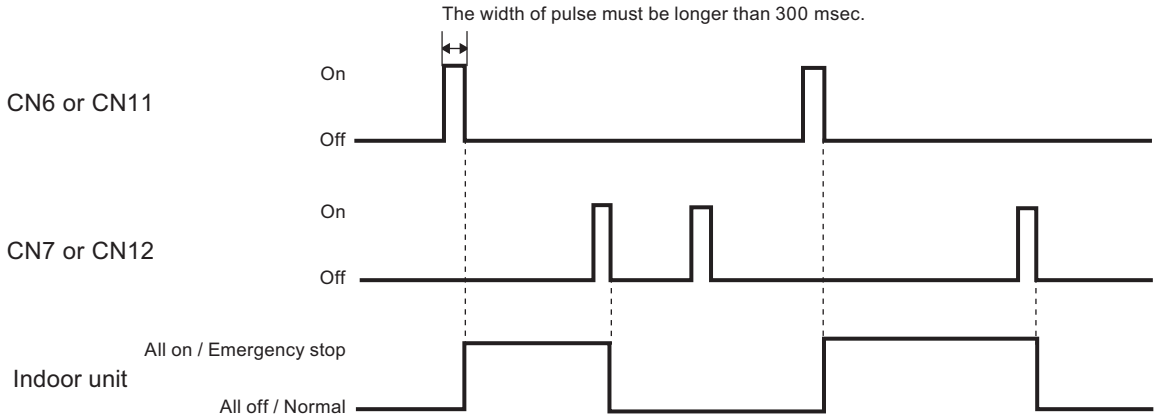
Connector	Input signal	Command
CN6 or CN11	Off → On	All on / Emergency stop
	On → Off	All off / Normal



EXTERNAL INPUT AND OUTPUT

- **In case of Pulse input:**

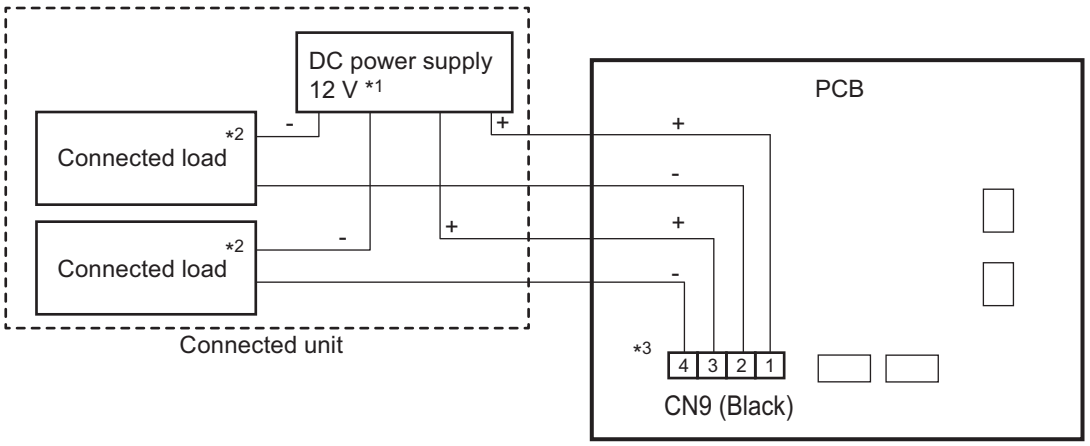
Connector	Input signal	Command
CN6 or CN11	Off → On	All on / Emergency stop
CN7 or CN12	Off → On	All off / Normal



EXTERNAL INPUT AND OUTPUT

■ External output

Connector		Output voltage	Status
CN9 (Black)	Ch1	0 V	All indoor units: Stop
	Pins 3-4	DC 12 V	One or more indoor units: Operation
	Ch2	0 V	Normal
	Pins 1-2	DC 12 V	Error



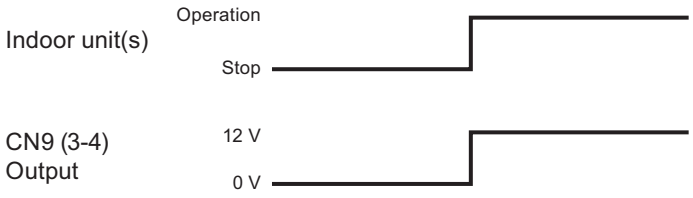
*1: Provide a DC 12 V power supply. Select a power supply capacity with an ample surplus for the connected load. Do not impress a voltage exceeding 12 V across pins 1-2 and 3-4.

*2: The allowable current is DC15 mA or less. Provide a load resistance such that the current becomes DC 15 mA or less.

*3: Polarity is "+" for pins 1 and 3, "-" for pins 2 and 4. Connect correctly.

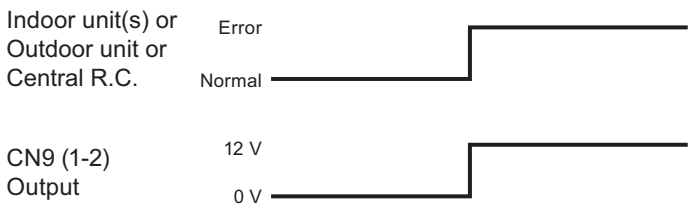
● Operation status (External output 1)

The output for CN9 (3-4) is on when one or more indoor units are operating.
The output is off when all of the indoor units are stopped.



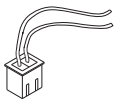
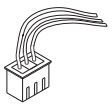
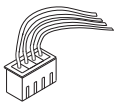
● Error status (External output 2)

The output for CN9 (1-2) is on when an error is generated at one or more indoor units, outdoor unit or Central remote controller.



EXTERNAL INPUT AND OUTPUT

■ Optional parts

External connect kit				
Model name	**Exterior**	**Q'ty**		**Usage**
UTY-XWZXZ7		Edge	Pulse	For control input port. (Dry contact terminal)
		2	1	
UTY-XWZXZ8		Edge	Pulse	For control input port. (Apply voltage terminal)
		2	1	
UTY-XWZXZA		1		For output port.

EXTERNAL INPUT AND OUTPUT

4-3. Central remote controller (UTY-DCGYZ∗)

External input and output functions and related components are as follows:

External input	External output	Input select	Connector	External connect kit (Optional parts)
Control input	—	Dry contact	CN12, CN13	UTY-XWZXZ7
		Apply voltage	CN14, CN15	UTY-XWZXZ8
—	Operation status	—	CN18	UTY-XWZXZA
	Error status			

RELATED LINKS

"External input" on page 08-69
"External output" on page 08-73
"Optional parts" on page 08-74
"Function summary of controller external input/output" on page 08-75

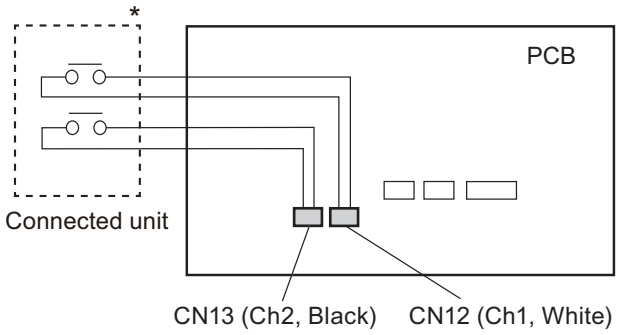
■ External input

This function performs “Emergency stop” or “All On / All Off” by using the signal to be input externally at external input terminals.

● Input select

Use either one of Apply voltage terminal or Dry contact terminal according to the application. (Both types of terminals cannot be used simultaneously.)

- **CN12 (CH1) and CN13 (CH2): Dry contact terminal**
  When a power supply is unnecessary at the input device you want to connect, use the Dry contact terminal CN12 (Ch1) and CN13 (Ch2).



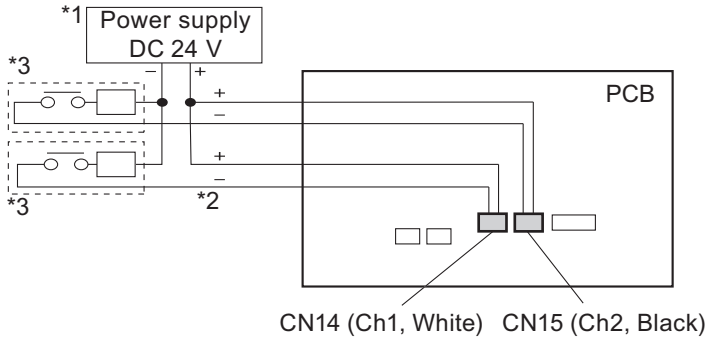
*: Short circuit detection resistance (R_{ON}): ≤ 500 Ω
Open circuit detection resistance (R_{OFF}): ≥ 100 kΩ

A twisted pair cable 22 AWG (0.33 mm^2) should be used. (Maximum cable length: 82 ft [25 m])

Input method	Terminal	Input signal	Operation
Edge	CN12 (Ch1)	Low → High	“Emergency Stop” or “All on”
		High → Low	“Emergency Stop” reset or “All Off”
Pulse	CN12 (Ch1)	Low → High	“Emergency Stop” or “All on”
	CN13 (Ch2)	Low → High	“Emergency Stop” reset or “All Off”

EXTERNAL INPUT AND OUTPUT

- **CN14 (Ch1) and CN15 (Ch2): Apply voltage terminal**
  When a power supply must be provided at the input device you want to connect, connect to CN14 (Ch1) and CN15 (Ch2).



*1: Make the power supply DC 24 V. Select a power supply capacity with an ample surplus for the connected load.

*2: Do not impress a voltage exceeding 24 V across pin 1-3.

*3: The allowable current is DC 5 mA or less. (Recommended: DC 5 mA)
Provide a load resistance such that the current becomes DC 5 mA or less.

A twisted pair cable 22 AWG (0.33 mm^2) should be used. (Maximum cable length: 82 ft [25 m])

Input method	Terminal	Input signal	Operation
Edge	CN14 (Ch1)	Low → High	"Emergency Stop" or "All on"
		High → Low	"Emergency Stop" reset or "All Off"
Pulse	CN14 (Ch1)	Low → High	"Emergency Stop" or "All on"
	CN15 (Ch2)	Low → High	"Emergency Stop" reset or "All Off"

EXTERNAL INPUT AND OUTPUT

● Input signal type

The input signal type can be selected by using Central remote controller interface.

To select the input signal type, do as follows:

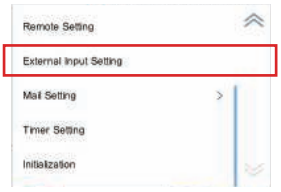
1. Tap Menu button.

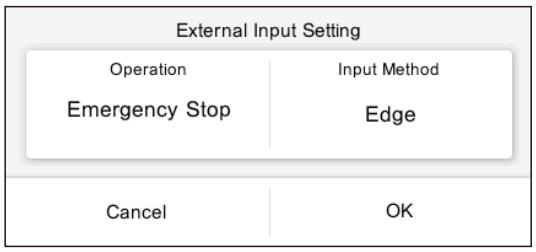


2. Tap “Installer Setting”.



3. Tap “External Input Setting”.



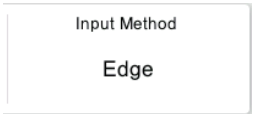


4. Tap “Operation” and select following operation for external input.



- Emergency Stop: Enables Emergency stop by external input
- All On/Off: Enables batch operation on or off by external input
- Not Used: Does not receive external input signals

5. Tap “Input method” and select following input method.



- Edge button: Detects the signal rise and fall
- Pulse button: Detects the signal level



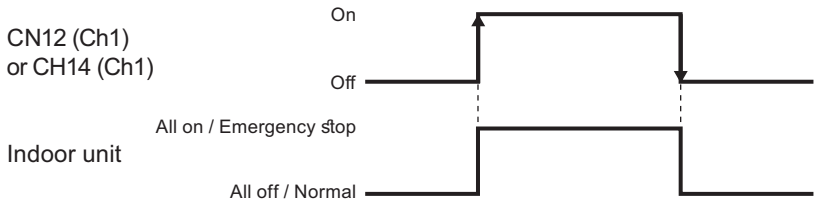
6. When “OK” button is tapped, setting is complete.

EXTERNAL INPUT AND OUTPUT

● Control input function

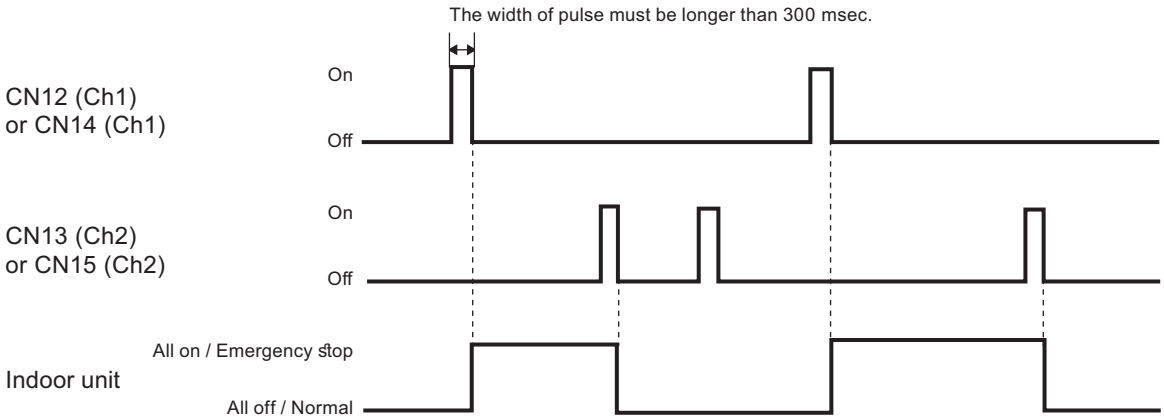
- **In case of Edge input:**

Connector	Input signal	Command
CN12 (Ch1) or CH14 (Ch1)	Off → On	All on / Emergency stop
	On → Off	All off / Normal



- **In case of Pulse input:**

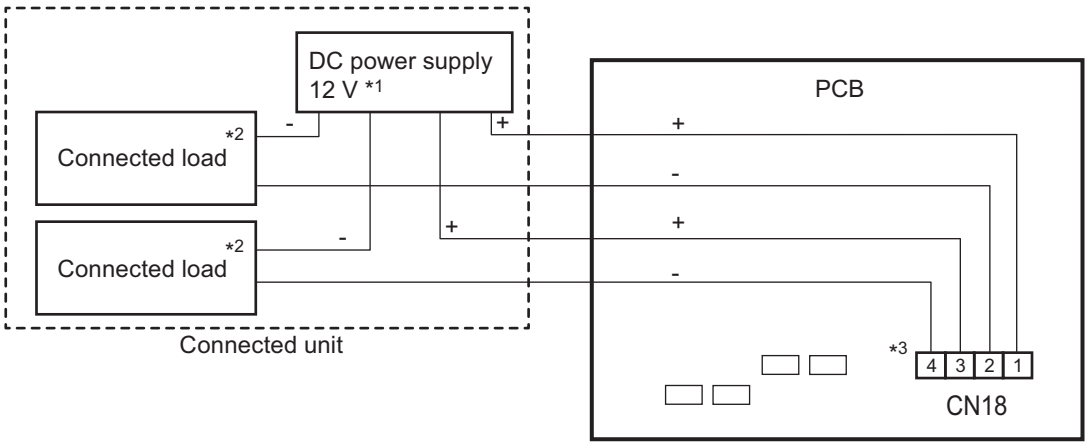
Connector	Input signal	Command
CN12 (Ch1) or CN14 (Ch1)	Off → On	All on / Emergency stop
CN13 (Ch2) or CN15 (Ch2)	Off → On	All off / Normal



EXTERNAL INPUT AND OUTPUT

■ External output

Terminal	Ch	Pin	Output voltage	Status
CN18	Ch1	4	0 V	One or more indoor units: Operation
		3	DC 12 V	All indoor units: Stop
	Ch2	2	0 V	Error
		1	DC 12 V	Normal



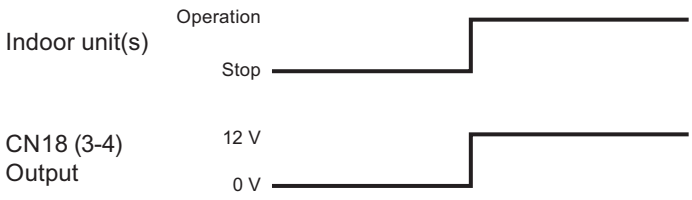
*1: Provide a DC 12 V power supply. Select a power supply capacity with an ample surplus for the connected load. Do not impress a voltage exceeding 12 V across pins 1-2 and 3-4.

*2: The allowable current is DC15 mA or less. Provide a load resistance such that the current becomes DC 15 mA or less.

*3: Polarity is "+" for pins 1 and 3, "-" for pins 2 and 4. Connect correctly.

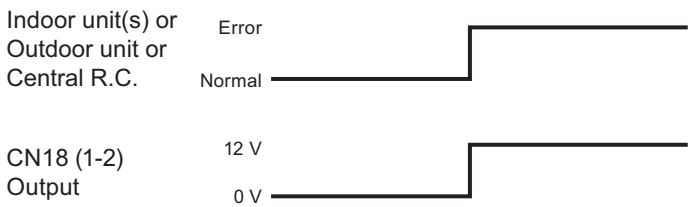
● Operation status (External output 1)

The output for CN18 (3-4) is on when one or more indoor units are operating.
The output is off when all of the indoor units are stopped.



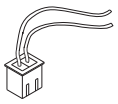
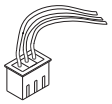
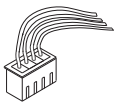
● Error status (External output 2)

The output for CN18 (1-2) is on when an error is generated at one or more indoor units, outdoor unit or Central remote controller.



EXTERNAL INPUT AND OUTPUT

■ Optional parts

External connect kit				
Model name	**Exterior**	**Q'ty**		**Usage**
UTY-XWZXZ7		Edge	Pulse	For control input port. (Dry contact terminal)
		1	2	
UTY-XWZXZ8		Edge	Pulse	For control input port. (Apply voltage terminal)
		1	2	
UTY-XWZXZA		1		For output port.

EXTERNAL INPUT AND OUTPUT

4-4. Function summary of controller external input/output

■ Controller external input function

Touch panel controller (UTY-DTGYZ1)

Dry contact/Apply voltage			Dry contact		Apply voltage	
Function	Emergency stop		● (Screen icon)		● (Screen icon)	
	All on/All off		● (Screen icon)		● (Screen icon)	
Specifications	Terminal		TM201 (Ch1-K1, K2) CN201 ↕ CN411	TM201 (Ch1-K1, K2) (Ch2-K1, K2) CN201 ↕ CN411	TM201 (Ch1-K1, K2) CN201 ↕ CN412	TM201 (Ch1-K1, K2) (Ch2-K1, K2) CN201 ↕ CN412
	Signal type		Edge	Pulse *	Edge	Pulse *
	External power supply	Allowable voltage	—		DC12 V	
		Allowable current	—		10 mA or less	
	Wire size		22 AWG (0.33 mm^2), Twisted			
	Max. cable length		82 ft (25 m)			

Central remote controller (UTY-DCGY)

Dry contact/Apply voltage			Dry contact		Apply voltage	
Function	Emergency stop		● (Screen icon)		● (Screen icon)	
	All on/All off		● (Screen icon)		● (Screen icon)	
Specifications	Terminal		CN6 (Pin 1-2)	CN6 (Ch1: Pin 1-2) CN7 (Ch2: Pin 1-2)	CN11 (Pin 1-3)	CN11 (Ch1: Pin 1-3) CN12 (Ch2: Pin 1-3)
	Signal type		Edge	Pulse *	Edge	Pulse *
	External power supply	Allowable voltage	—		DC 24 V	
		Allowable current	—		5 mA or less	
	Wire size		22 AWG (0.33 mm^2), Twisted			
	Max. cable length		82 ft (25 m)			

*: Default setting is Edge signal. If you use Pulse signal, DIP switch 2-2 must be set to “On”.

EXTERNAL INPUT AND OUTPUT

Central remote controller (UTY-DCGYZ∗)

Dry contact/Apply voltage			Dry contact		Apply voltage	
Function	Emergency stop		● (Screen icon)		● (Screen icon)	
	All on/All off		● (Screen icon)		● (Screen icon)	
Specifications	Terminal		CN12 (Ch1: Pin 1-2)	CN12 (Ch1: Pin 1-2) CN13 (Ch2: Pin 1-2)	CN14 (Pin 1-3)	CN14 (Ch1: Pin 1-3) CN15 (Ch2: Pin 1-3)
	Signal type		Edge	Pulse	Edge	Pulse
	External power supply	Allowable voltage	—		DC 24 V	
		Allowable current	—		5 mA or less	
	Wire size		22 AWG (0.33 mm^2), Twisted			
	Max. cable length		82 ft (25 m)			

■ Controller external output function

Controller			Touch panel controller	
Dry contact/ Apply voltage			Apply voltage	
Function	Operation status		●	—
	Error status		—	●
Specifications	Terminal		CN410 (Pin1-2)	CN410 (Pin3-4)
	External power supply	Allowable voltage	DC12 V	
		Allowable current	15 mA or less	
	Wire size		22 AWG (0.33 mm^2), Twisted	
	Max. cable length		82 ft (25 m)	

Controller			Central remote controller	
Model name			UTY-DCGY	
Dry contact/ Apply voltage			Apply voltage	
Function	Operation status		●	—
	Error status		—	●
Specifications	Terminal		CN9 (Pin3-4)	CN9 (Pin1-2)
	External power supply	Allowable voltage	DC12 V	
		Allowable current	15 mA or less	
	Wire size		22 AWG (0.33 mm^2), Twisted	
	Max. cable length		82 ft (25 m)	

EXTERNAL INPUT AND OUTPUT

Controller			Central remote controller	
Model name			UTY-DCGYZ∗	
Dry contact/ Apply voltage			Apply voltage	
Function	Operation status		●	—
	Error status		—	●
Specifications	Terminal		CN18 (Pin3-4)	CN18 (Pin1-2)
	External power supply	Allowable voltage	DC12 V	
		Allowable current	15 mA or less	
	Wire size		22 AWG (0.33 mm^2), Twisted	
	Max. cable length		82 ft (25 m)	

EXTERNAL INPUT AND OUTPUT

EXTERNAL INPUT AND OUTPUT

Refrigerant R410A
INVERTER

AIRSTAGE™
Variable Refrigerant Flow System

9. NOTES

CONTENTS

9. NOTES

1. Refrigerant leakage caution 09-1

1-1. Introduction.....09-1

1-2. Checking concentration limit.....09-2

1-3. Refrigerant concentration countermeasures.....09-4

2. Installation precautions 09-5

2-1. Indoor unit installation precautions 09-5

2-2. Outdoor unit installation precautions 09-8

3. Compatibility of VRF system.....09-9

3-1. Compatibility of controller system 09-9

3-2. Compatibility of adapter/convertor/maintenance tool 09-12

4. About connection between series 09-14

4-1. Piping connection 09-14

4-2. Wiring connection 09-15

1. Refrigerant leakage caution

The system designer and installer are to ensure that the system adhere to all local regulations regarding refrigerant leakage.

1-1. Introduction

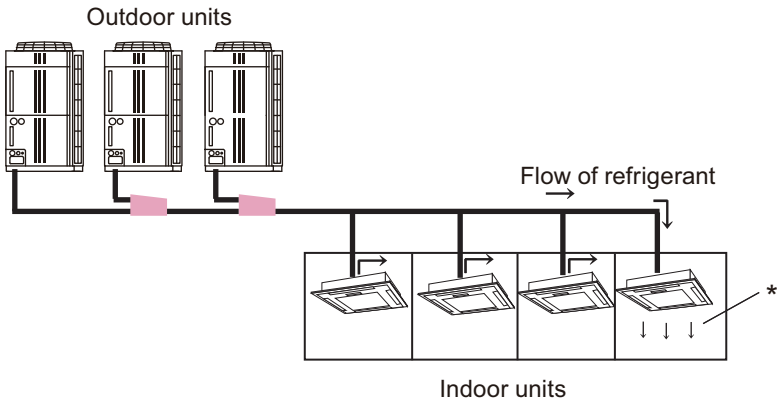
Designing VRF systems requires special attention to codes and standards relating to Refrigeration Concentration Limit (RCL). The RCL is intended to “reduce the risks of acute toxicity, asphyxiation and flammability hazards in normally occupied, enclosed spaces”. Because R410A in neither toxic nor flammable, the primary safety concern is asphyxiation due to oxygen deprivation.

Concentration limit

The purpose of the concentration limit is to protect occupants in the unlikely event that the entire refrigerant system leaks into the smallest room served by the system. To calculate the potential refrigerant concentration, divide the total refrigerant in the system by the volume of the smallest space served by the system.

Concentration limit for R410A	25 lb/1,000 ft^3 (0.40 kg/m^3)

NOTE: Based on ASHRAE 34-2007 and IMC-2009



*: Entire refrigerant charge in the system leaks into the smallest room.

NOTES

NOTES

1-2. Checking concentration limit

Check concentration limit following step 1 and 2, and take appropriate measures depending on the situation.

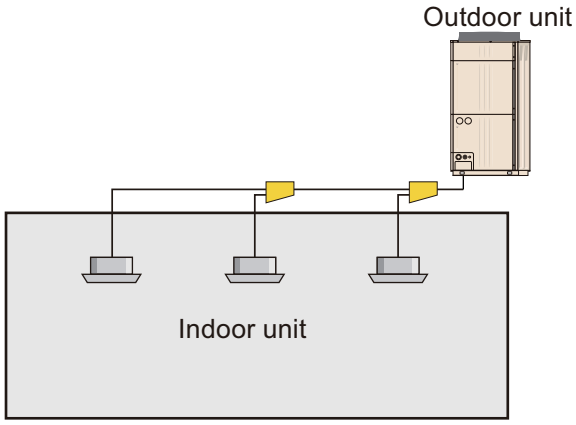
1. Calculate amount of refrigerant per refrigerant system.

Unit: lb (kg)

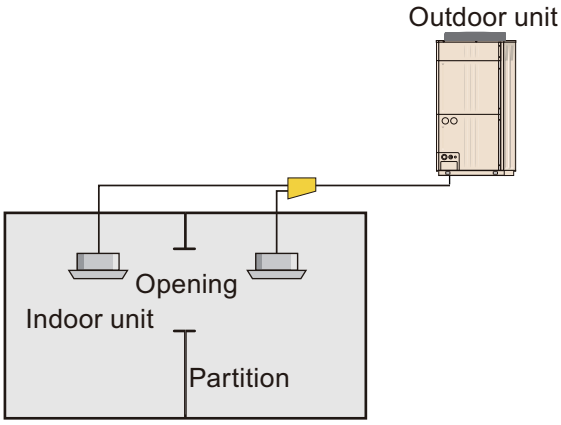
Amount of refrigerant system	+	Amount of additional refrigerant	=	Total amount of refrigerant in system
Amount of factory charge		Amount of refrigerant added to system based on pipe length, pipe size, and indoor units		When one refrigerant system is divided into 2 or more refrigerant systems and each system is independent, total amount of refrigerant of each system shall be adopted.

2. Calculate room volume by regarding portion marked in gray as one room or the smallest room.

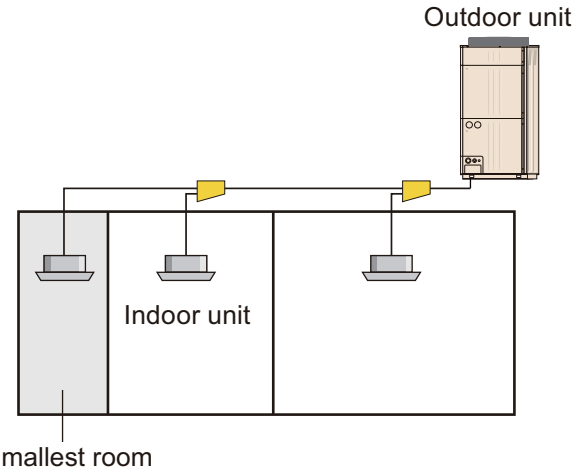
(a) Without partition



(b) When there are partitions, but there is an effective opening for ventilation between the rooms.



(c) When there are partitions, but there is an effective opening for ventilation between the rooms.



NOTES

NOTES

3. Calculate refrigerant concentration from the results of step 1 and 2.

$$\frac{\text{Total amount of refrigerant in refrigerant system (Unit: lb (kg))}}{\text{Capacity of smallest room where indoor unit is installed (Unit: ft}^3\text{ (m}^3\text{))}} \leq \text{Refrigerant concentration (R410A) (Unit: lb/ft}^3\text{ (kg/m}^3\text{))}$$

When the result of calculation exceeds the limiting concentration, perform the same calculation by shifting to second smallest, and the third smallest rooms until the final result is below the limiting concentration.

NOTES

NOTES

1-3. Refrigerant concentration countermeasures

When the concentration limit is exceeded, the designer will need to change the original design or use one of the countermeasures below to reduce potential exposure to refrigerant. Always consult local codes to ensure proper design.

- **Countermeasure 1**
  Provide opening for ventilation.
  Provide 0.15% or more opening to floor space both above and below, or provide opening without door.

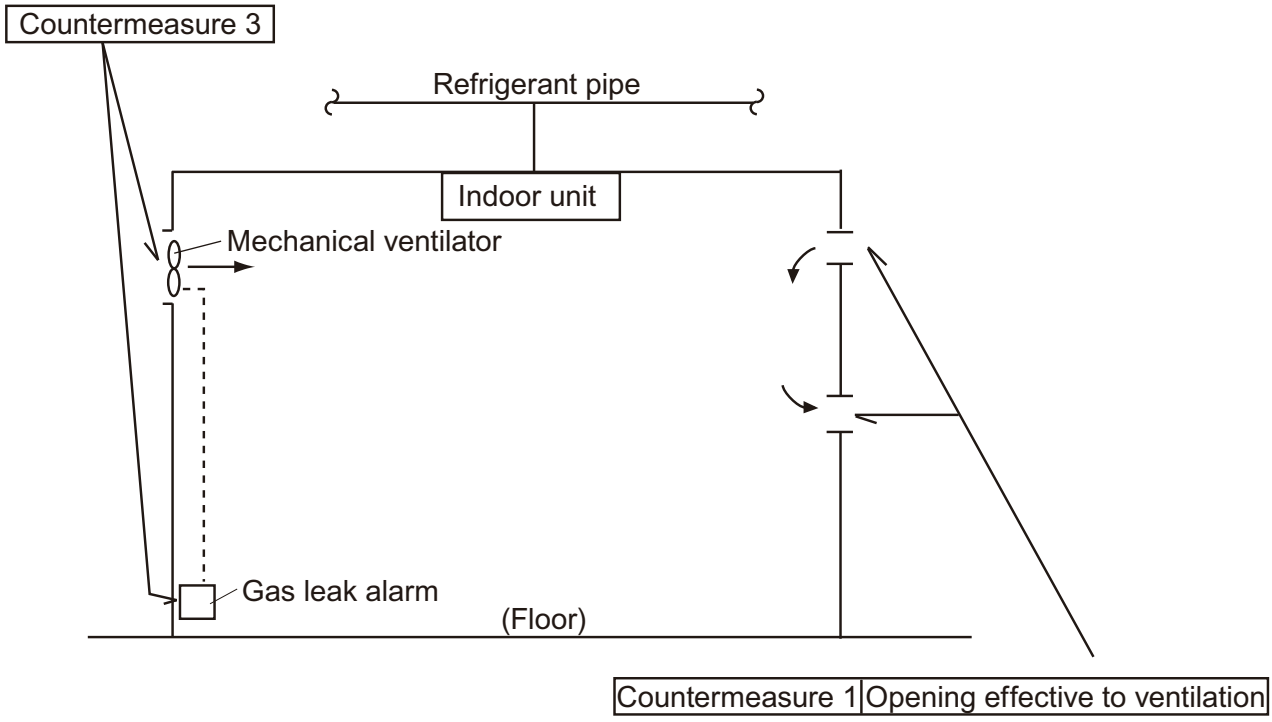
NOTE: 0.15% floor opening based on standard ceiling height of 8.8 ft (2.7 m)

- **Countermeasure 2**
  Reduce the total refrigerant charging amount of the refrigerant equipment.
  – Shorten the length of the refrigerant pipes.
  Move the location of the outdoor unit closer to the indoor unit, and reduce the total refrigerant charging amount by shortening the length of the refrigerant pipes.

  – Lower the capacity of the outdoor unit.
  Separate the outdoor unit into multiple units to lower the outdoor unit capacity for each refrigerant system and reduce the refrigerant charging amount.

  For example, by changing a 12 ton × 1 unit system to a 6 ton × 2 units system, the refrigerant amount for each refrigerant system can be reduced by about half.

- **Countermeasure 3**
  Provide gas leak alarm linked with mechanical ventilator. If using the mechanical ventilator, the backup power supply is required.



Pay special attention to the place, such as a basement, etc. Since refrigerant is heavier than air, refrigerant may accumulate.

NOTES

NOTES

2. Installation precautions

2-1. Indoor unit installation precautions

NOTE: The information listed below are general precautions.
Some models also include items that do not apply.

■ Places where prohibited for use

- Places where there is a danger of combustible gas leakage.
- Places where sulfur gas, chlorine gas, acid, alkali, or other matter which effects equipment is generated.
- Places where there is a lot of oil splash and steam such as kitchen or machinery room.
- Places where machinery which generates high frequencies is used.
- Ocean beaches and other areas where there is a lot of salt.
- Places where carbon fibers or any kind of powder suspended in the air.
- Inside of vehicles, ships, and other conveyances.
- Places where voltage fluctuations are large such as a factory.

NOTES

NOTES

■ Points to remember when installing

- The product shall be installed at a place which can withstand the weight and vibration of the indoor.
- To allow maintenance after refrigerant piping, drain piping, and electric wiring connection and installation, provide an installation service space and an inspection port, as required.
  *Installation service space is shown on "Dimensions" in Chapter 4. INDOOR UNITS on page 04-28.
- Be careful when installing the unit at the following places.

Condition	Contents	Countermeasures (Reference)
When the ceiling is high.	If the indoor unit is installed where the installation height given in the installation manual is exceeded, the temperature difference between the floor and ceiling of the room will be large and the heating effect will be poor. Moreover, even if the indoor unit is installed within the installation height, a similar phenomena will occur when installed in a room in which the doors are opened and closed frequently and hot air circulation is obstructed by furniture such as desks or chairs.	1. Switch the setting to the high ceiling mode. 2. Install a circulator. 3. Arrange the furniture in the room so that it does not obstruct the hot air.
When lower level directly contacts the outside air.	When the lower level of the room is a semi-open space such as warehouse or parking lot the surface temperature of the flooring will become low and the radiation of cold from the floor will increase. In this case, even if the room temperature is suitable, you may feel the foot level is cold.	
When the airflow distribution is poor.	When an indoor unit is installed in a position where the outlet airflow will directly contact people, a draft may be felt. In addition, when there are obstructions in the path of the intake and outlet airflow, the air distribution may become extremely bad.	1. Adjust the louver fins or take other measures matched to the site. 2. Change the indoor unit outlet.
When inside the ceiling is high temperature and high humidity.	When the indoor unit is installed where the inside of the ceiling is 86 °F (30 °C) RH80% or greater, the dew point temperature of the outer perimeter may become higher than the cabinet surface temperature and moisture will condense on the surface of the cabinet and water drops may fall inside the room. ("Figure 2-1 **Moist air curve**") In addition, the humidity may vary considerably the same as when the inside of the ceiling is close to hermetically sealed and used as the outside air intake path.	1. Add heat insulating material to the outside of the indoor unit cabinet. *Regarding the cassette type, use of optional High humidity correspondence kit is recommended. 2. Strengthen the heat insulating material of the refrigerant piping and drain piping too. ("Figure 2-2 **Work method when reinforcing the heat insulation of on-site piping**") 3. When the humidity inside the ceiling changes considerably, install a ventilation port.
When the remote controller installation site is bad.	If the cold or warm air blown out from the air conditioner directly contacts the thermostat section of the remote controller, the outlet temperature of the air conditioner may be sensed and room temperature control will be different from the room temperature, and “not cooled” or “not heated” or other trouble may occur. In addition, there is the possibility that the same kind of trouble may also occur when the remote controller is effected by direct sunlight.	1. Install the remote controller where it will not be directly exposed to the cold or hot air. 2. Install the remote controller where it will not be directly exposed to sunlight or strong lighting.
When using the wireless remote controller.	Signals may not be received when using it in a room illuminated by an inverter fluorescent lamp.	Turn on the fluorescent lamp and check if the indoor unit receives the signals from the remote controller. If the indoor unit does not receive the signals, consult an authorized service personnel.

NOTES

NOTES

Condition	Contents	Countermeasures (Reference)
When installing the inverter type.	It may generate noise in TV sets, stereos and PCs.	The inverter type should be installed at a sufficient distance from these equipments.

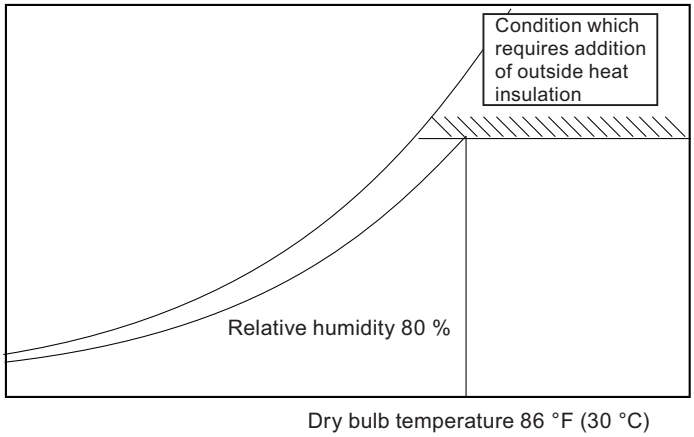


Figure 2-1 **Moist air curve**

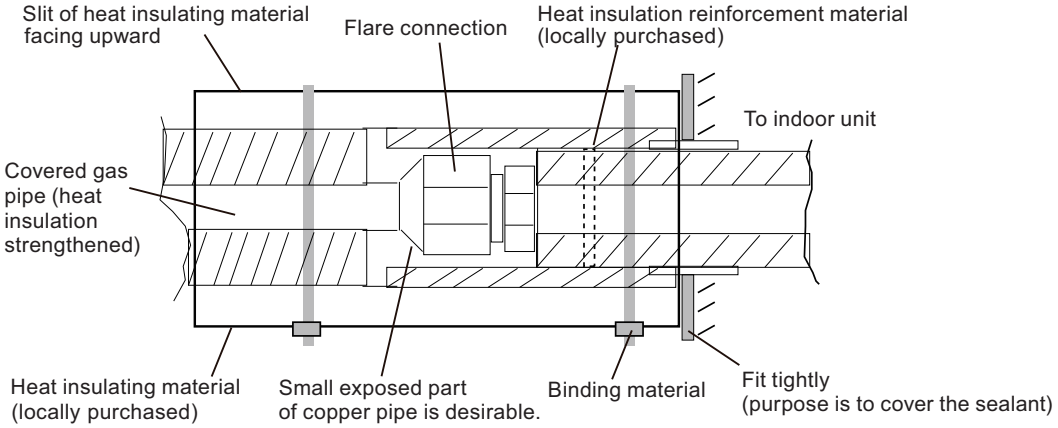


Figure 2-2 **Work method when reinforcing the heat insulation of on-site piping**

NOTES

NOTES

2-2. Outdoor unit installation precautions

NOTE: The information listed below are general precautions.
Some models also include items that do not apply.

■ Places where prohibited for use

- Places where there is a danger of combustible gas leakage.
- Places where sulfur gas, chlorine gas, acid, alkali, or other matter which effects equipment is generated.
- Places affected by heat radiation from other heat sources.
- Places where the air is stagnant.
- Places where machinery which generates high frequencies is used.
- Ocean beaches and other areas where there is a lot of salt.
- Inside of vehicles, ships, and other conveyances.
- Places where voltage fluctuations are large such as a factory.

■ Points to remember when installing

- The product shall be installed at a place which can withstand the weight and vibration of the outdoor unit.
- To allow maintenance after refrigerant piping, drain piping, and electric wiring connection, and installation, provide an installation service space.
  *Installation service space is shown in "Installation space" in Chapter 3. OUTDOOR UNITS on page 03-7.
- Be careful when installing the set at the following places.

Condition	Contents	Countermeasures (Reference)
When installed near adjacent houses.	Perform installation work so that operating sound does not disturb the neighbors.	1. Install a soundproof barrier. 2. Change the installation site.
When there is the possibility of strong wind.	• If the outdoor unit is exposed to strong wind, capacity may drop, frost may form during heating, and operation may be stopped by high pressure rise. In addition, when a very strong wind blows, the fan may be damaged. • When a very strong wind blows, there is the possibility of the outdoor unit being toppled over if held only by foundation bolts.	1. Install the outdoor unit with keeping a sufficient distance between the outlet side of the unit and a facing wall or fence. 2. Make the outlet direction and wind direction perpendicular. 3. Fasten the outdoor unit using toppling prevention hardware (purchased locally).
When snow accumulates.	If the outdoor unit is covered by accumulated snow, it may not be able to operate.	1. Make the foundation as high as possible. 2. Perform snow prevention work.
When installing the inverter type.	It may generate noise in TV sets, stereos and PCs.	The inverter type should be installed at a sufficient distance from these equipments.

NOTES

NOTES

3. Compatibility of VRF system

RELATED LINKS

"Outdoor unit and indoor unit lineup" in Chapter 1. GENERAL INFORMATION on page 01-1
"Optional parts" in Chapter 1. GENERAL INFORMATION on page 01-5
"Indoor unit type and applicable control method" in Chapter 5. CONTROL SYSTEM on page 05-8
"Applicable parts" in Chapter 10. OPTIONAL PARTS on page 10-21

3-1. Compatibility of controller system

• Central controller

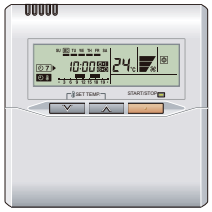
Exterior	Part name	Model name	All series of outdoor unit
	System controller	UTY-APGXZ1	○ OK*
	System controller lite	UTY-ALGXZ1	○ OK
	Touch panel controller	UTY-DTGYZ1	○ OK
	Central remote controller	UTY-DCGY	○ OK
	Central remote controller	UTY-DCGYZ∗	○ OK

*: Different VRF series may be connected for each of the 4 VRF networks supported by the product, but different series may not coexist within the same network. (VR-II, V-II, J-II, J-IIS, J-IIIL, J-IV, and J-IVS can exist together in same network. V and S can exist together in same network, too.)

NOTES

NOTES

• Individual controller

Exterior	Part name	Model name	All series of outdoor unit
	Wired remote controller (Touch panel)	UTY-RNRUZ∗	○ OK*
	Wired remote controller	UTY-RNKU	○ OK
	Simple remote controller	UTY-RSRY	○ OK
	Simple remote controller (Without operation mode)	UTY-RHRY	○ OK
	Simple remote controller	UTY-RSKU	○ OK
	Simple remote controller (Without operation mode)	UTY-RHKU	○ OK

NOTES

NOTES

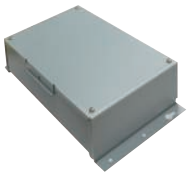
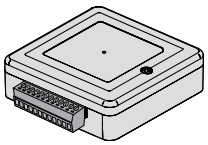
Exterior	Part name	Model name	All series of outdoor unit
	Wireless remote controller	UTY-LNHU	○ OK

*: It is not connectable with indoor units of previous model.

NOTES

NOTES

3-2. Compatibility of adapter/convertor/maintenance tool

Exterior	Part name	Model name	All series of outdoor unit
	Network converter	UTY-VTGX	○ OK
	Network converter	UTY-VGGXZ1	○ OK
	Network converter for LonWorks	UTY-VLGX	○ OK
	Modbus converter for VRF	UTY-VMGX	○ OK
	Thermostat converter	UTY-TTRX	○ OK
	BACnet gateway (Hardware)	UTY-VBGX	○ OK
	BACnet gateway (Software)	UTY-ABGXZ1	○ OK*
	Niagara driver for VRF	FUJ-VRF-8000	○ OK
	Wireless LAN adapter	UTY-TFSXZ2	○ OK*
	Signal amplifier	UTY-VSGXZ1	○ OK

NOTES

NOTES

Exterior	Part name	Model name	All series of outdoor unit
	External switch controller	UTY-TERX UTY-TEKX	○ OK
	Service tool	UTY-ASGXZ1	○ OK
	Web monitoring tool	UTY-AMGXZ1	○ OK*

- *: Different VRF series may be connected for each of the 4 VRF networks supported by the product, but different series may not coexist within the same network. (VR-II, V-II, J-II, J-IIS, J-IIIL, J-IV, and J-IVS can exist together in same network. V and S can exist together in same network, too.)

NOTES

NOTES

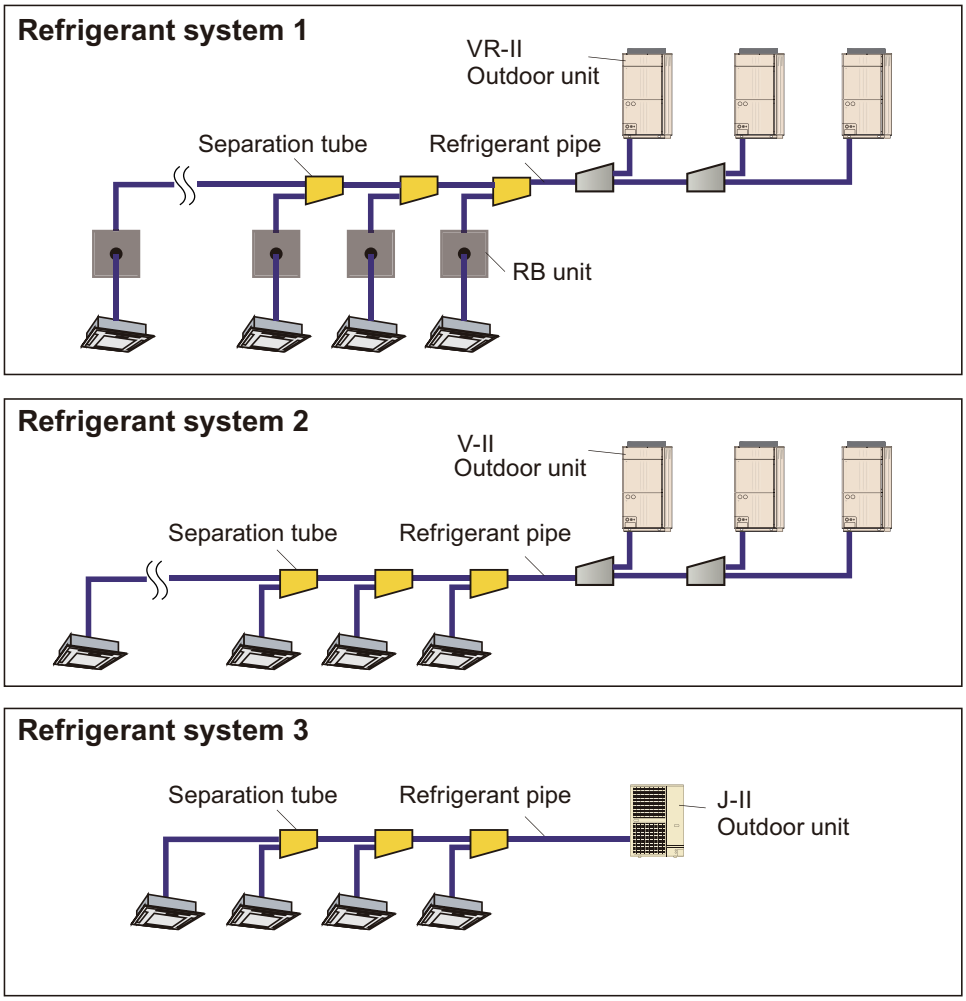
4. About connection between series

4-1. Piping connection

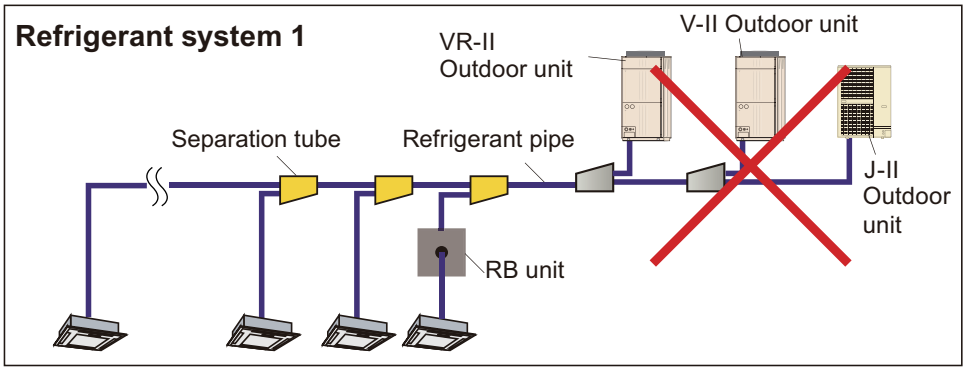
NOTES:

- Connection over different series in same refrigerant system is prohibited.
- Mixed connection of 230 V series and 460 V series is prohibited.

• Example 1 (OK)



• Example 2 (Prohibited)



NOTES

NOTES

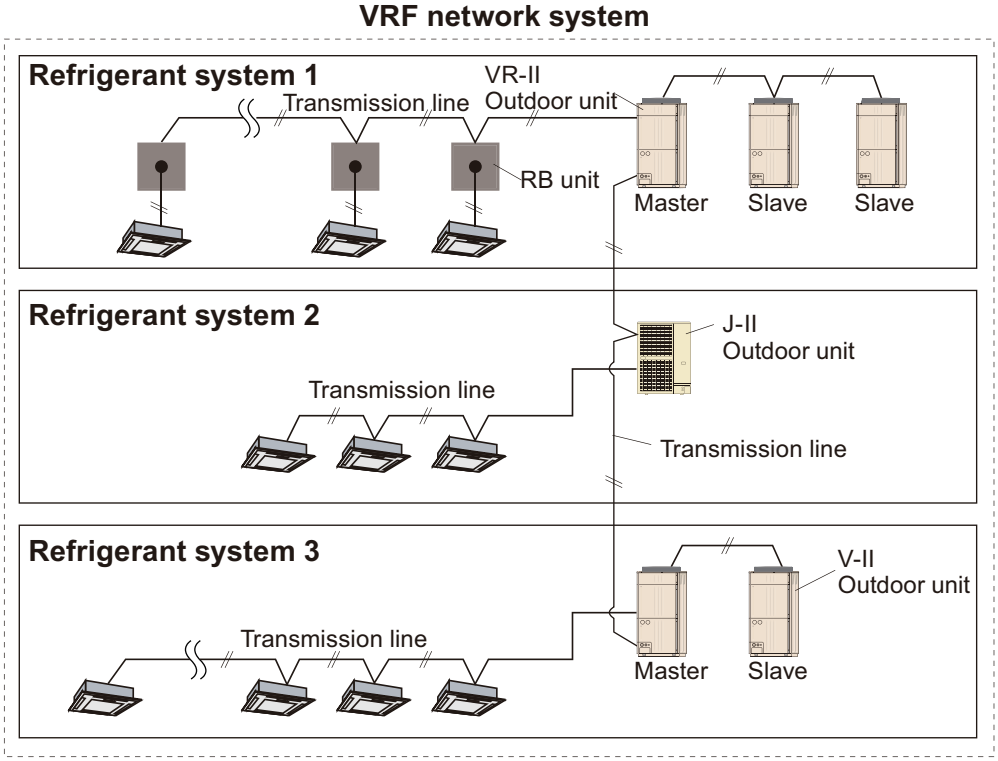
4-2. Wiring connection

NOTES:

- Connection over different series in same refrigerant system is prohibited.
- Mixed connection of 230 V series and 460 V series is prohibited.

• Example 1 (OK)

When wiring to each refrigerant system



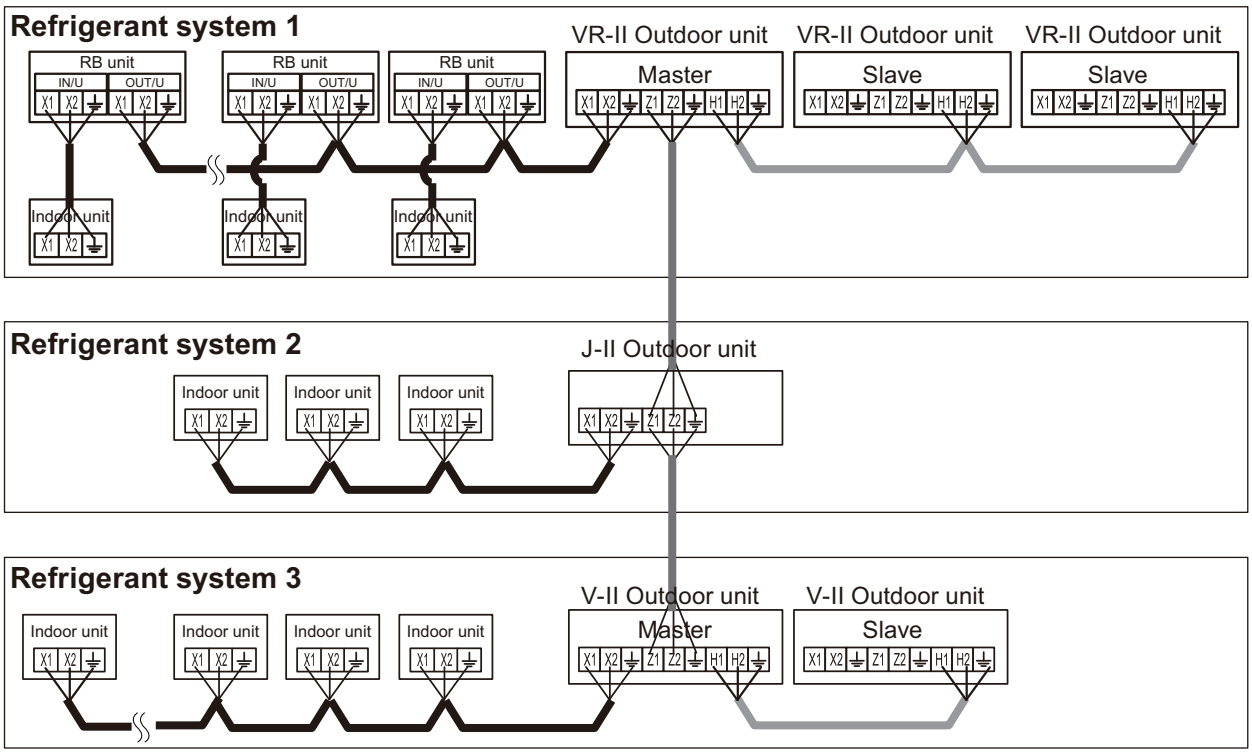
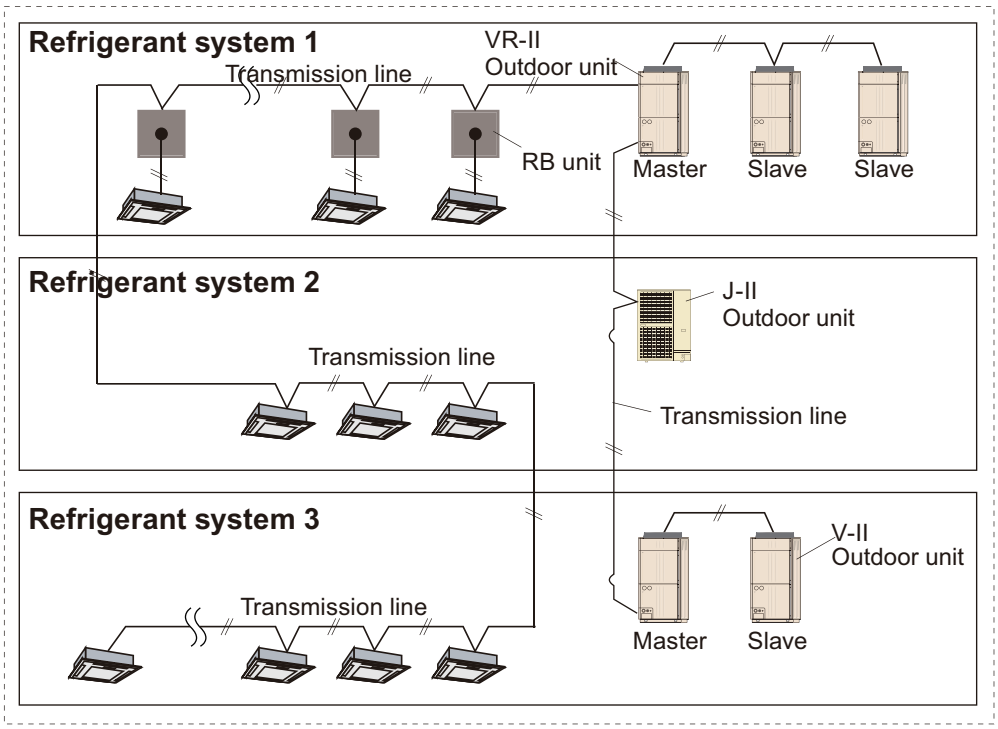


Figure 4-4 **Connection method to terminal**

• Example 2 (OK)

When stepping over, and wiring to the refrigerant system

VRF network system



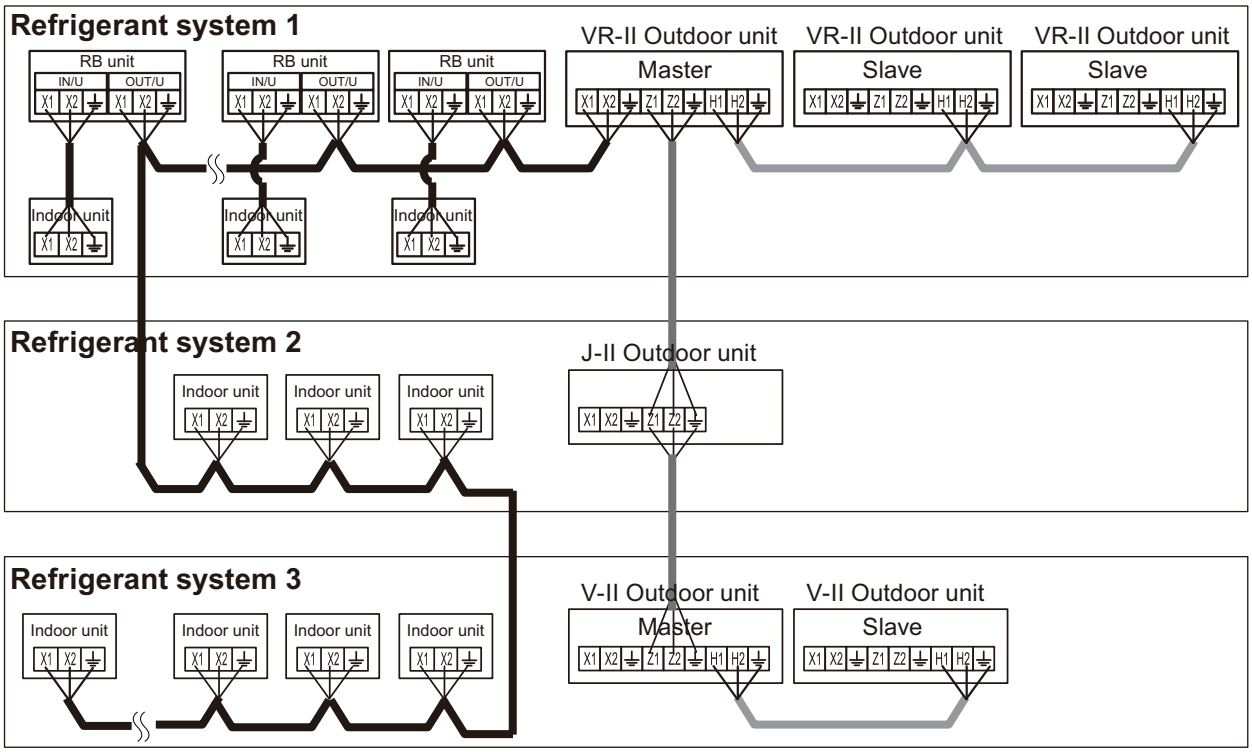


Figure 4-6 **Connection method to terminal**

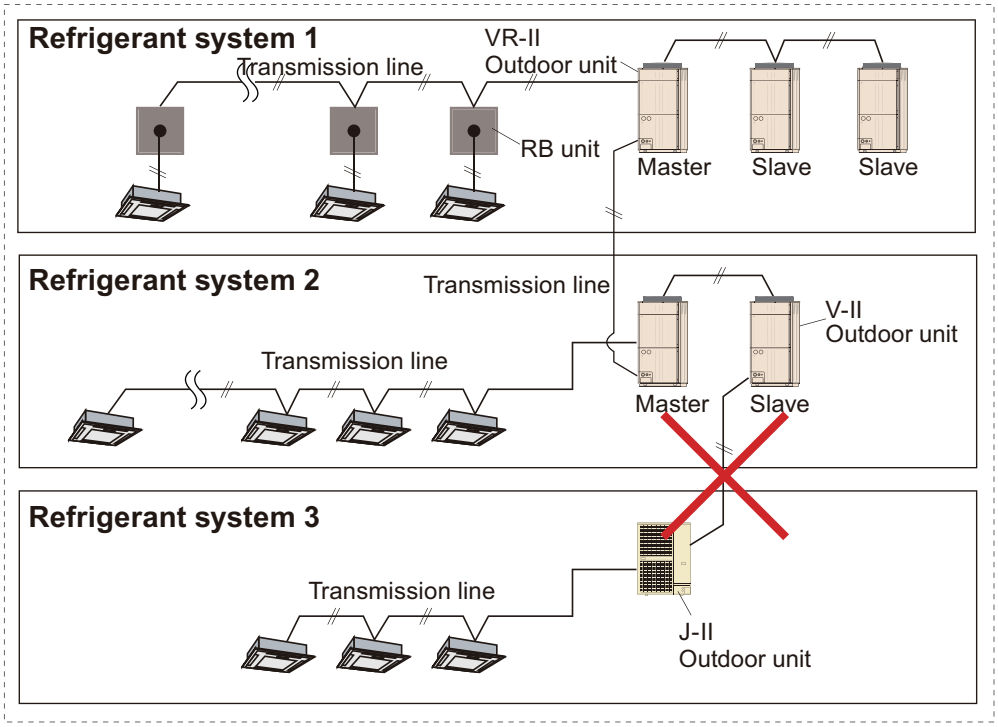
NOTES

NOTES

• Example 3 (Prohibited)

NOTE: Slave units of V series and J series cannot be connected.

VRF network system



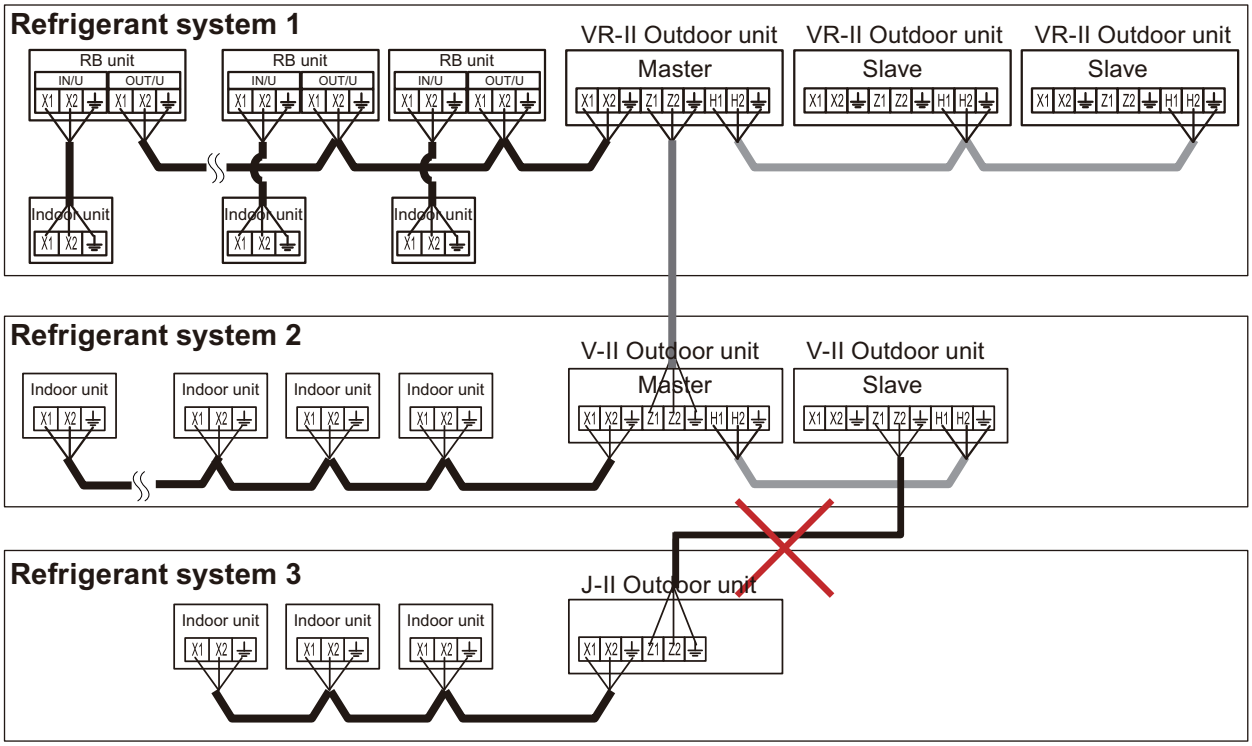


Figure 4-8 **Connection method to terminal**

NOTES

NOTES

NOTES

NOTES

Refrigerant R410A
INVERTER

AIRSTAGE™
Variable Refrigerant Flow System

10. OPTIONAL PARTS

CONTENTS

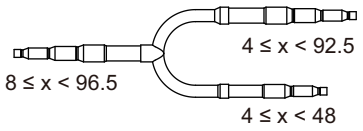
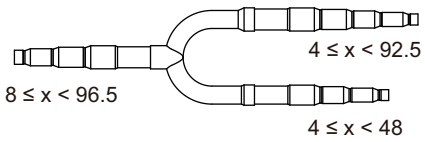
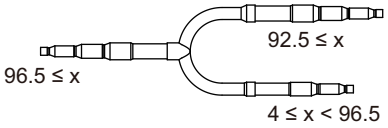
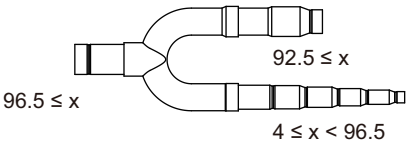
10. OPTIONAL PARTS

1. Separation tube 10-1
1-1. Connection capacity 10-1
1-2. Dimensions 10-2
2. Header 10-4
2-1. Connection capacity 10-4
2-2. Dimensions 10-5
3. Controllers 10-12
3-1. Central control 10-12
3-2. Individual control 10-12
4. Adapter/Converter/Maintenance tool 10-14
5. Cassette grille 10-16
6. Others 10-17
6-1. Parts list 10-17
6-2. Applicable parts 10-21
7. Optional parts installation 10-24
7-1. Drain pump unit for duct type 10-24
7-2. Fresh air intake kit for Compact cassette type 10-28
7-3. Fresh air intake kit for Circular flow cassette type and 4-way flow cassette type 10-38
7-4. Auto louver grille kit 10-48
7-5. External power supply unit 10-51

1. Separation tube

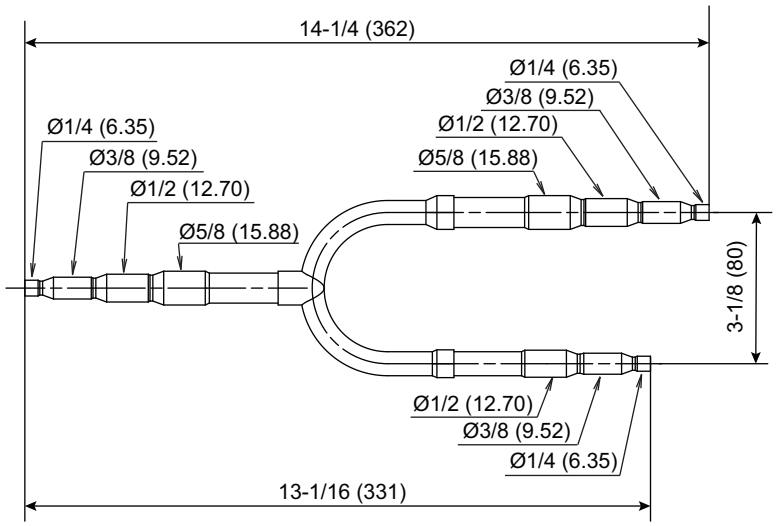
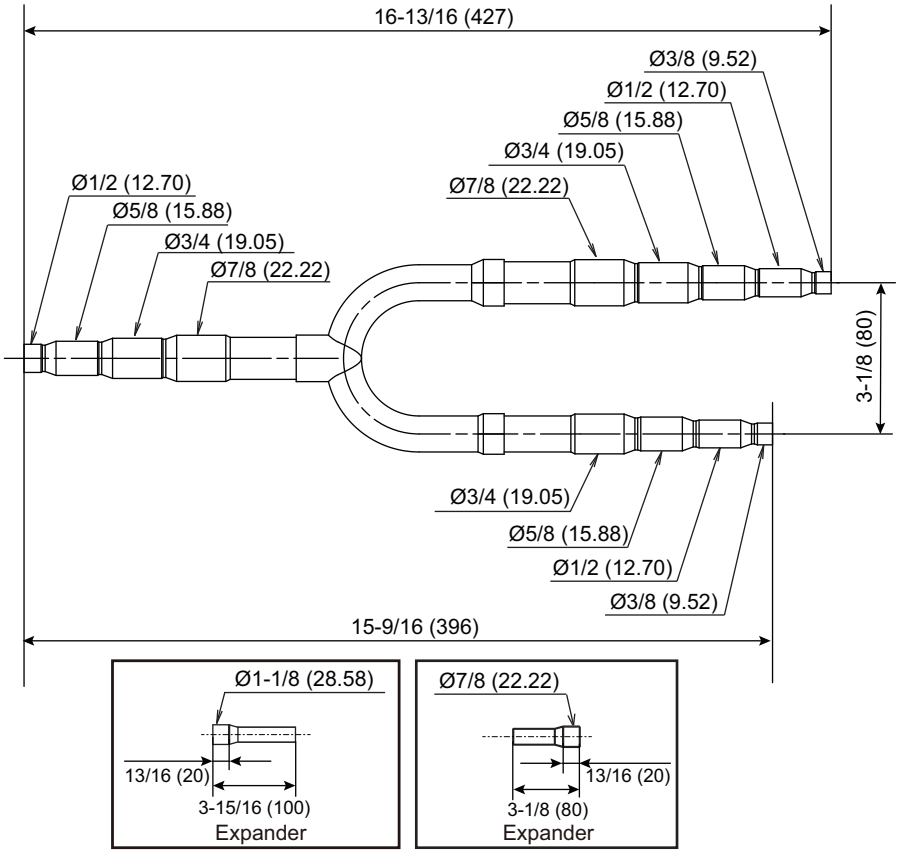
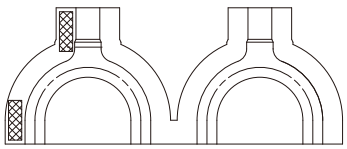
1-1. Connection capacity

Connection capacity values written in this section are reference values. For pipe designing, refer to "Piping design" in Chapter 6. SYSTEM DESIGN on page 06-14.

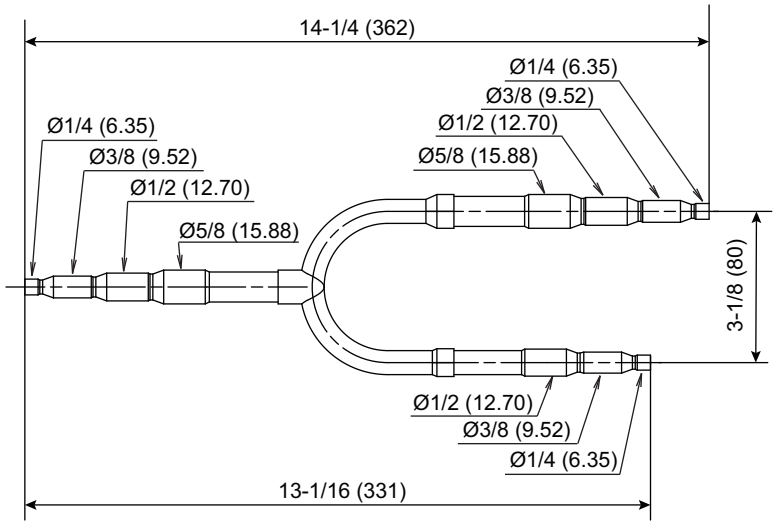
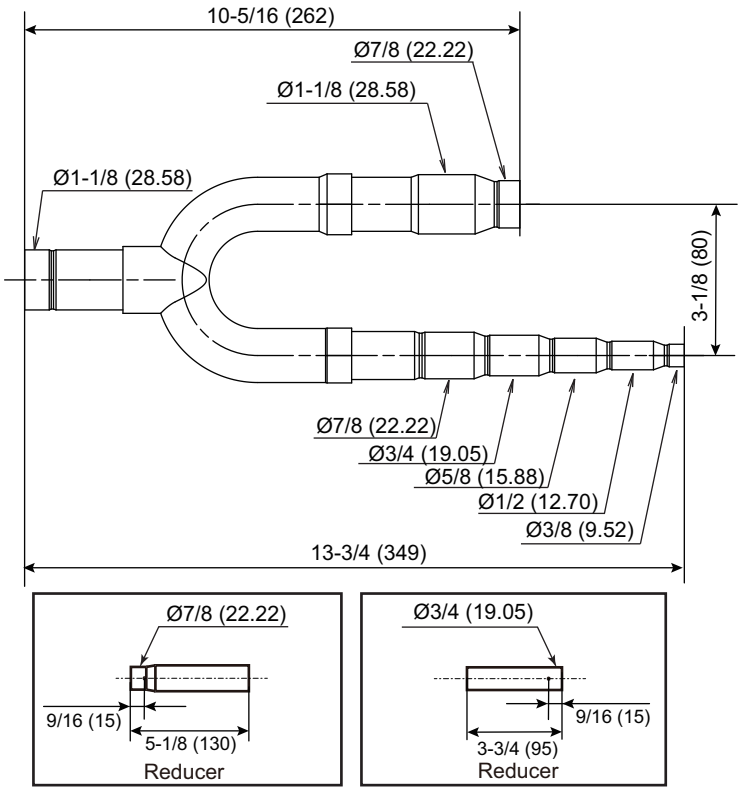
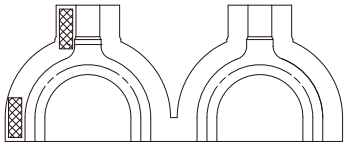
For 2 pipes		
Total cooling capacity of indoor units at rated condition (x) (kBtu/h)	**Model name**	**Connection capacity of separation tube (kBtu/h)**
x < 96.5	UTP-AX090A	Liquid pipe  Gas pipe 
96.5 ≤ x	UTP-AX180A	Liquid pipe  Gas pipe 

1-2. Dimensions

■ Model: UTP-AX090A

Exterior [Unit: in (mm)]	Part name	Q'ty
	Liquid pipe	1
	Gas pipe	1
 For liquid pipe × 1 For gas pipe × 1	Heat insulation	2
	Tape	8

■ Model: UTP-AX180A

Exterior [Unit: in (mm)]	Part name	Q'ty
	Liquid pipe	1
	Gas pipe	1
 For liquid pipe × 1 For gas pipe × 1	Heat insulation	2
	Tape	8

2. Header

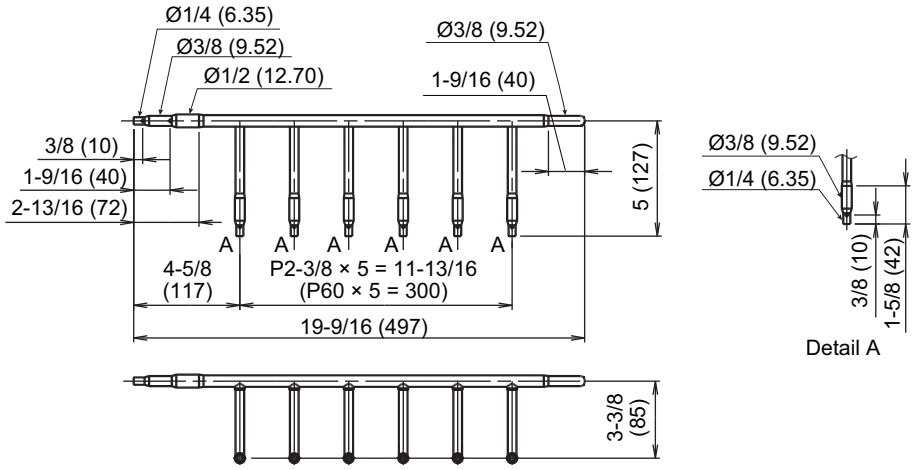
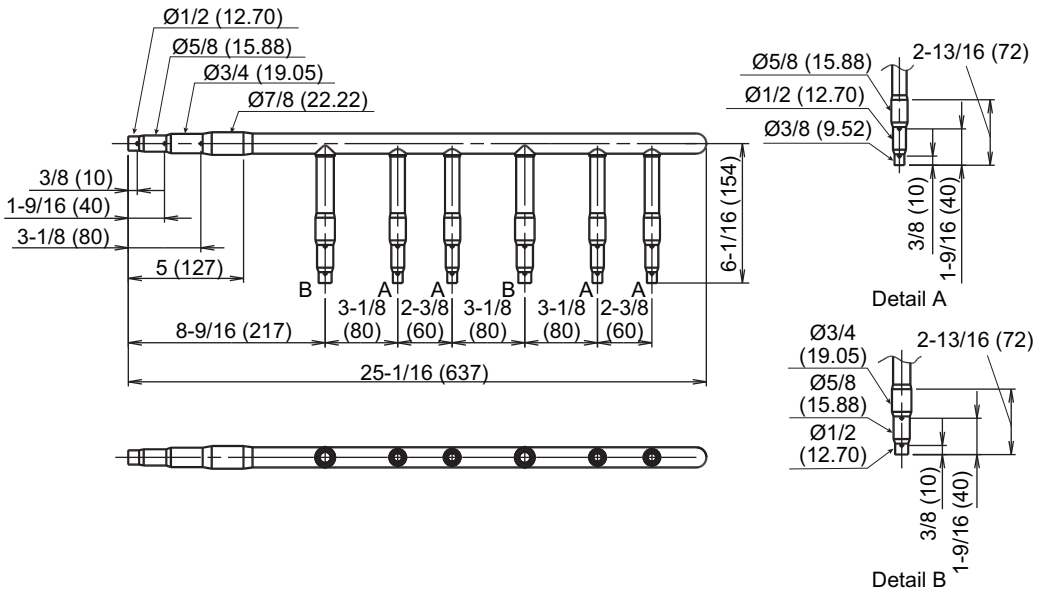
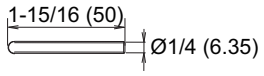
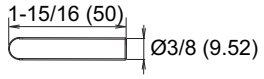
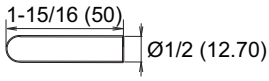
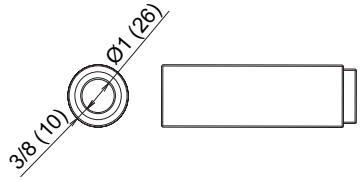
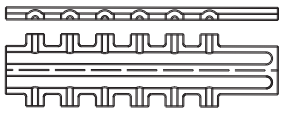
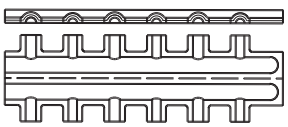
2-1. Connection capacity

For pipe designing, refer to "Piping design" in Chapter 6. SYSTEM DESIGN on page 06-14.

Total cooling capacity of indoor units (x) (Btu/h)	3 to 6 Branches	3 to 8 Branches
x < 96,500	UTR-H0906L	UTR-H0908L
96,500 ≤ x	UTR-H1806L	UTR-H1808L

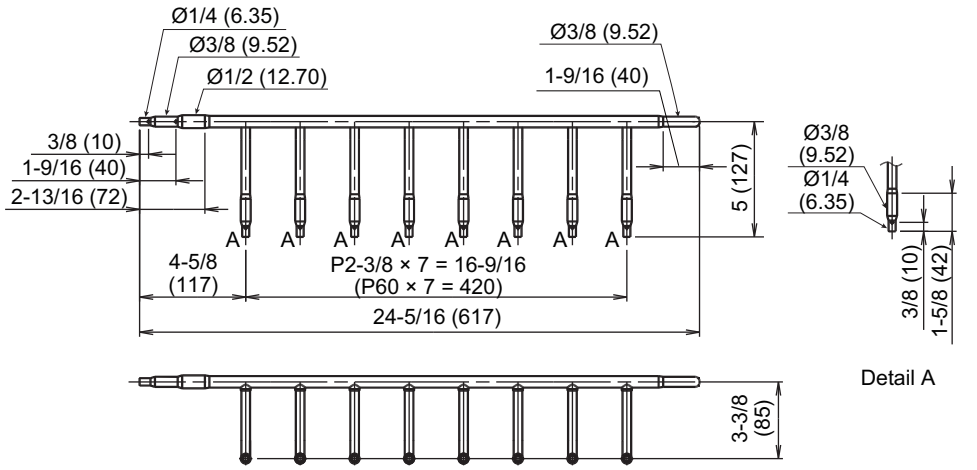
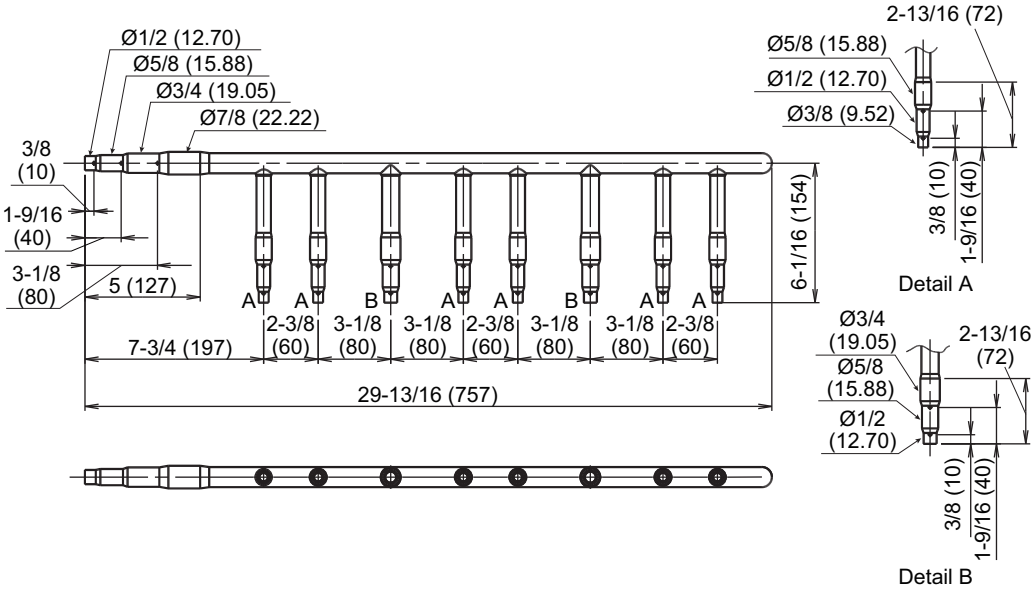
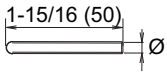
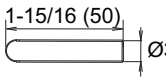
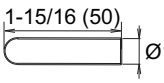
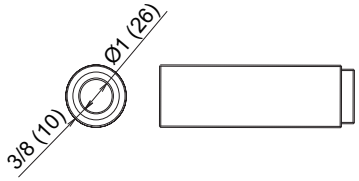
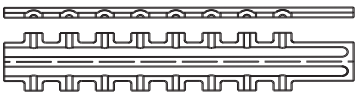
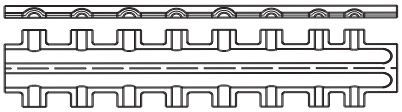
2-2. Dimensions

■ Model: UTR-H0906L

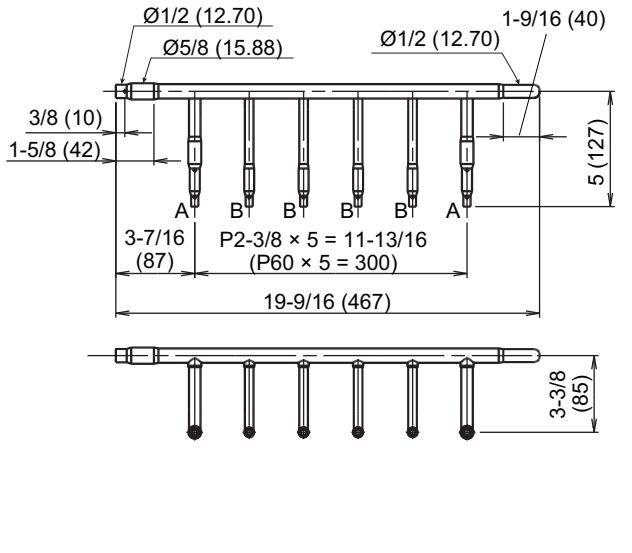
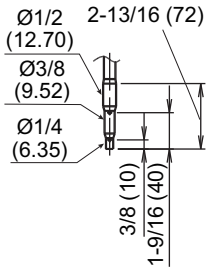
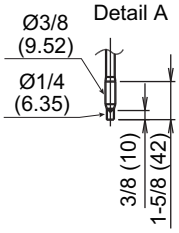
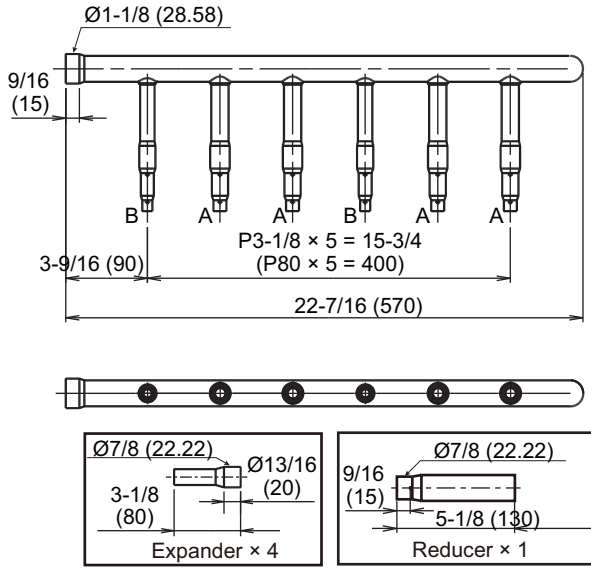
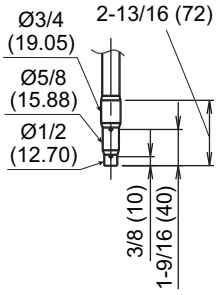
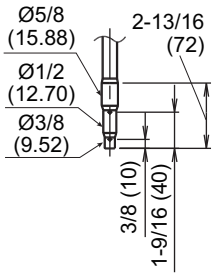
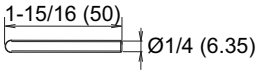
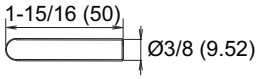
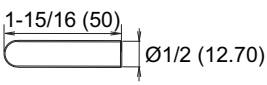
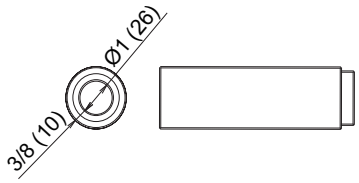
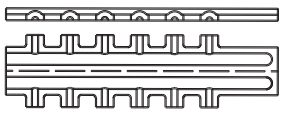
Exterior [Unit: in (mm)]	Part name	Q'ty
	Liquid pipe	1
	Gas pipe	1
	Closed pipe A	4
	Closed pipe B	2
	Closed pipe C	2
	Closed pipe insulation	6
	Heat insulation for liquid pipe	1
	Heat insulation for gas pipe	1

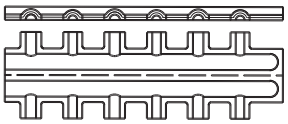
Exterior [Unit: in (mm)]	Part name	Q'ty
	Binder	10

■ Model: UTR-H0908L

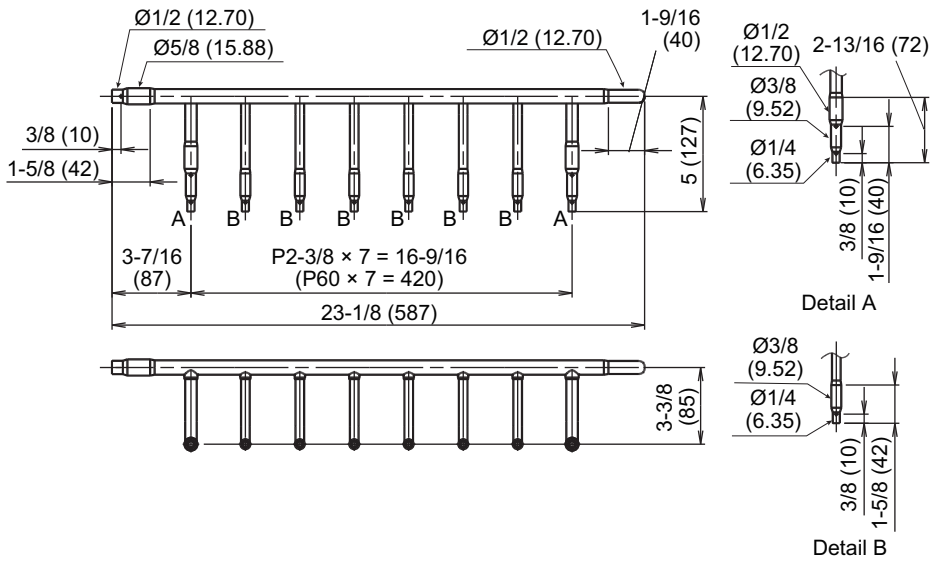
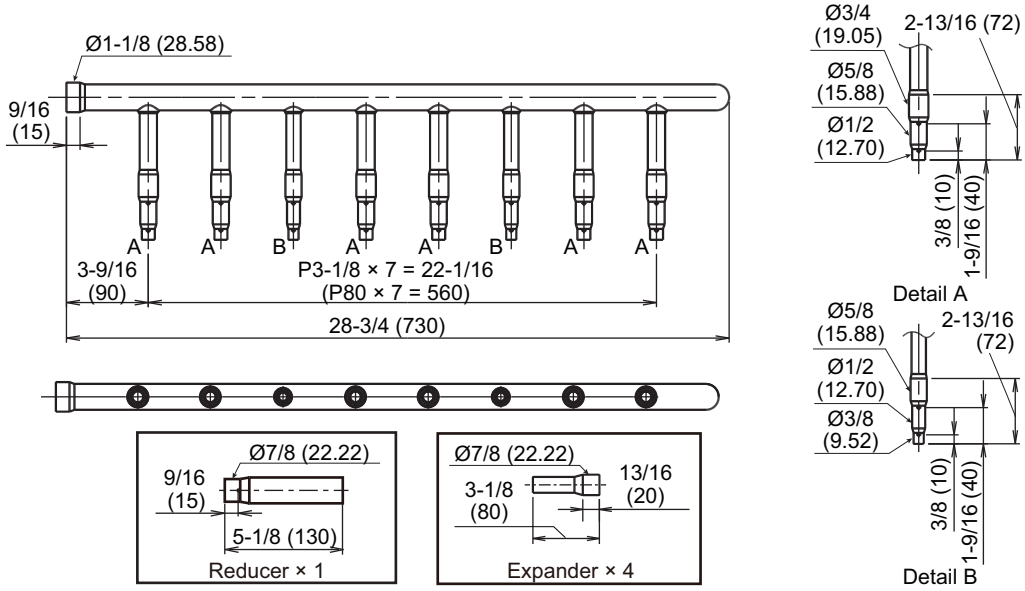
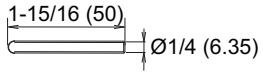
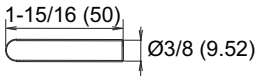
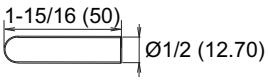
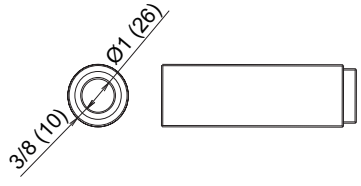
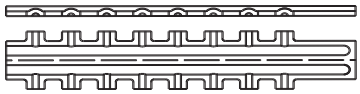
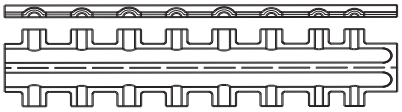
Exterior [Unit: in (mm)]	Part name	Q'ty
	Liquid pipe	1
	Gas pipe	1
	Closed pipe A	6
	Closed pipe B	4
	Closed pipe C	2
	Closed pipe insulation	8
	Heat insulation for liquid pipe	1
	Heat insulation for gas pipe	1
	Binder	10

■ Model: UTR-H1806L

Exterior [Unit: in (mm)]	Part name	Q'ty
  Detail A  Detail B	Liquid pipe	1
  Detail A  Detail B	Gas pipe	1
	Closed pipe A	4
	Closed pipe B	2
	Closed pipe C	2
	Closed pipe insulation	6
	Heat insulation for liquid pipe	1

Exterior [Unit: in (mm)]	Part name	Q'ty
	Heat insulation for gas pipe	1
	Binder	10

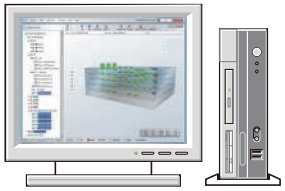
■ Model: UTR-H1808L

Exterior [Unit: in (mm)]	Part name	Q'ty
	Liquid pipe	1
	Gas pipe	1
	Closed pipe A	6
	Closed pipe B	2
	Closed pipe C	4
	Closed pipe insulation	8
	Heat insulation for liquid pipe	1
	Heat insulation for gas pipe	1

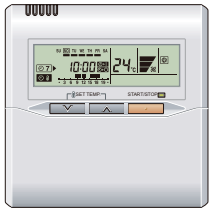
Exterior [Unit: in (mm)]	Part name	Q'ty
	Binder	10

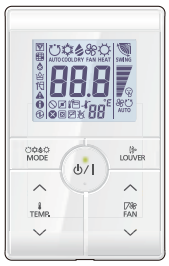
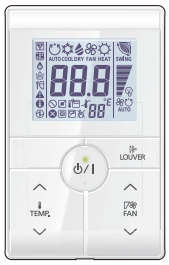
3. Controllers

3-1. Central control

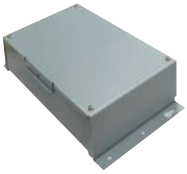
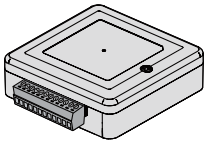
Exterior	Part name	Model name	Summary
	System controller	UTY-APGXZ1	System controller realizes the advanced integrated monitoring & control of VRF network system from small scale buildings to large scale buildings. Optional: UTY-PEGXZ1, UTY-PPGXP2
	System controller lite	UTY-ALGXZ1	System controller lite has standard functions sufficient for air conditioner management in small and medium scale buildings. Optional: UTY-PLGXA2, UTY-PLGXR2, UTY-PLGXE2, UTY-PLGXP2, UTY-PLGXX2
	Touch panel controller	UTY-DTGYZ1	Controls and monitors our air conditioner via LAN or Internet. Allows user or tenant to manage the air conditioning by using assigned equipment only such as their PCs or smart devices from anywhere. Optional: UTY-PTGXA
	Central remote controller	UTY-DCGY	Central control of small and medium sized buildings and tenants. The operation status of all connected indoor units can be viewed at a glance on a large LCD monitor to simplify individual control to batched control.
	Central remote controller	UTY-DCGYZ∗	Central control of small and medium sized buildings and tenants. Central remote controller realizes the trouble support function, remote monitoring, and remote operation.

3-2. Individual control

Exterior	Part name	Model name	Summary
	Wired remote controller (Touch panel)	UTY-RNRUZ∗	Easy finger touch operation with LCD panel. Backlight LCD enables easy operation in a dark room. Wire type: Non-polar 2-wire
	Wired remote controller	UTY-RNKU	Room temperature can be controlled by detecting the temperature accurately with built-in thermo sensor. Wire type: Polar 3-wire

Exterior	Part name	Model name	Summary
	Simple remote controller	UTY-RSRY	Compact remote controller concentrates on the basic functions such as Start/Stop, fan control, temperature setting, and operation mode. Wire type: Non-polar 2-wire
	Simple remote controller (Without operation mode)	UTY-RHRY	Compact remote controller concentrates on the basic functions such as Start/Stop, fan control, temperature setting. Wire type: Non-polar 2-wire
	Simple remote controller	UTY-RSKU	Compact remote controller concentrates on the basic functions such as Start/Stop, fan control, temperature setting, and operation mode. Wire type: Polar 3-wire
	Simple remote controller (Without operation mode)	UTY-RHKU	Compact remote controller concentrates on the basic functions such as Start/Stop, fan control, temperature setting. Wire type: Polar 3-wire
	Wireless remote controller	UTY-LNHU	Unit control is performed by wireless remote controller.

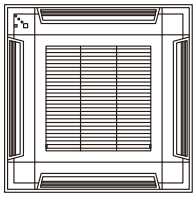
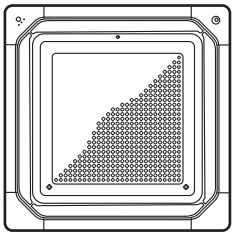
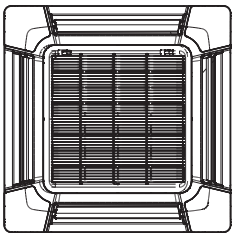
4. Adapter/Converter/Maintenance tool

Exterior	Part name	Model name	Summary
	Network converter	UTY-VTGX	Split type systems can be controlled from a central controller via the converter.
	Network converter	UTY-VGGXZ1	Split type systems can be controlled from a central controller via the converter. Group remote controller can be controlled up to two refrigerant systems via the converter.
	Network converter for LonWorks	UTY-VLGX	For connection between VRF network system and a LonWorks open network for management of small to medium-sized BMS.
	Modbus converter for VRF	UTY-VMGX	For connection between VRF network system and a Modbus open network.
	Thermostat converter	UTY-TTRX	For Fujitsu General products using a third party thermostat.
	BACnet gateway (Hardware)	UTY-VBGX	For connection between VRF network system to the BMS system using BACnet protocol. Supports max. 128 indoor units.
	BACnet gateway (Software)	UTY-ABGXZ1	The central control of maximum 1600 indoor units can be realized by connecting the VRF network system to the BACnet, a global standard for open network.
	Niagara driver for VRF	FUJ-VRF-8000 (Tridium part No.)	JACE8000. Niagara driver for VRF is a software driver for the Niagara framework. With the driver, direct connection of VRF system to Niagara system becomes possible using JACE, or Supervisor running on PC. Required: DR-FUJ-DEVICE-25 and/or DR-FUJ-DEVICE-50, NPB-8000-LON, SMA-8005-1YR-INIT Optional: WPM-8000 Later addition: DR-FUJ-DEV-UP-50

OPTIONAL PARTS

Exterior	Part name	Model name	Summary
	Wireless LAN adapter	UTY-TFSXZ2	Remotely manage an Air Conditioning system using mobile devices such as Smartphones, and tablets.
	Signal amplifier	UTY-VSGXZ1	If the total length of transmission line exceeds 500m, or the number of units exceeds 64, a Signal amplifier will be necessary.
	External switch controller	UTY-TERX UTY-TEKX	Air conditioner switching can be controlled by connecting other external sensor switches.
	Service tool	UTY-ASGXZ1	Extensive monitoring and analysis functions for installation and maintenance. Operation status and error history can be grasped promptly and adequately.
	Web monitoring tool	UTY-AMGXZ1	Trouble free operation at all times by web monitoring system. The operation status of the VRF network system within the building can be monitored in real time over the Internet.

5. Cassette grille

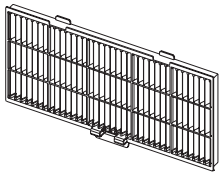
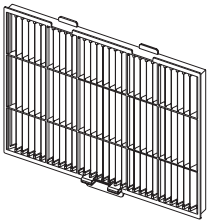
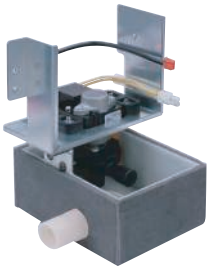
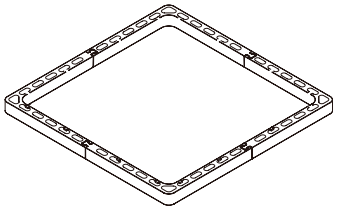
Exterior	Model name	Remarks
 For Compact cassette type	UTG-CCGVG	Grid type grille
 For Circular flow cassette type	UTG-LCGVCW UTG-LCGVCB	
 For 4-way flow cassette type	UTG-LCGV	

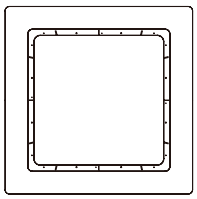
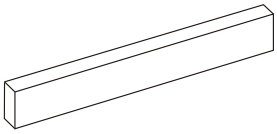
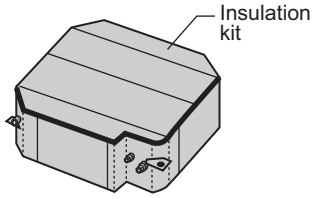
OPTIONAL PARTS

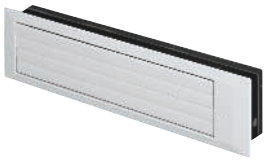
6. Others

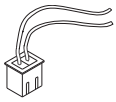
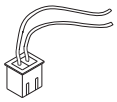
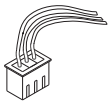
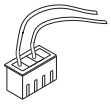
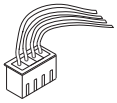
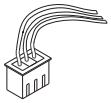
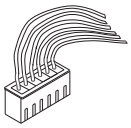
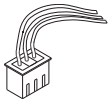
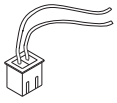
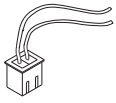
6-1. Parts list

NOTE: For applicable indoor unit type, refer to "Applicable parts" on page 10-21.

Exterior	Part name	Model name
	Flange (Square)	UTD-SF045T
	Flange (Round)	UTD-RF204
 × 2 pcs	Air filter	UTD-LF25NA
 × 2 pcs	Air filter	UTD-LF60KA
	Drain pump unit	UTZ-PU1NBA
	Drain pump unit	UTZ-PU1EBA
	Air outlet shutter plate	UTR-YDZB
	Air outlet shutter plate	UTR-YDZK
	Panel spacer	UTG-BKXA-W

Exterior	Part name	Model name
	Wide panel	UTG-AKXA-W
	Half concealed kit	UTR-STA
	IR receiver unit	UTY-TRHX
	IR receiver unit	UTB-YWC
	IR receiver unit	UTY-LRHYB1
	IR receiver unit	UTY-LBHXD
	Human sensor kit	UTY-SHZXC
	Remote sensor unit	UTY-XSZX
Install when the condition under the roof is over 80% in humidity and over 86 °F (30 °C) in temperature. 	Insulation kit for high humidity	UTZ-KXRA

Exterior	Part name	Model name
	Fresh air intake kit	UTZ-VXAA
	Fresh air intake kit	UTZ-VXRA
	Auto louver grille kit	UTD-GXTA-W
	Auto louver grille kit	UTD-GXSA-W UTD-GXSB-W
	External power supply unit	UTZ-GXXA

Exterior	Model name
 For Outdoor unit	UTY-XWZXZ6
 For Indoor unit and Central remote controller	UTY-XWZXZ7
 For Central remote controller	UTY-XWZXZ8
 For Outdoor unit	UTY-XWZXZ9
 For Touch panel controller and Central remote controller	UTY-XWZXZA
 For Indoor unit	UTY-XWZXZB
 For Indoor unit	UTY-XWZXZC
 For Indoor unit	UTY-XWZXZD
 For Indoor unit	UTY-XWZXZE
 For Outdoor unit	UTY-XWZXZF

6-2. Applicable parts

RELATED LINKS

"Indoor unit type and applicable control method" in Chapter 5. CONTROL SYSTEM on page 05-8
"Compatibility of VRF system" in Chapter 9. NOTES on page 09-9

■ For cassette type

Type	Air outlet shutter plate		Panel spacer	Wide panel
	UTR-YDZB	UTR-YDZK	UTG-BKXA-W	UTG-AKXA-W
Compact cassette	●			
Circular flow cassette		●	●	●
4-way flow cassette		●	●	●

Type	IR receiver unit		Human sensor kit	External power supply unit
	UTY-LRHYB1	UTY-LBHXD	UTY-SHZXC	UTZ-GXXA
Compact cassette				●
Circular flow cassette		●	●	●
4-way flow cassette	●			

Type	Fresh air intake kit	
	UTZ-VXAA	UTZ-VXRA
Compact cassette	●	
Circular flow cassette		●
4-way flow cassette		●

Type	Insulation kit for high humidity	
	UTZ-KXRA	UTZ-KXGC
Compact cassette		●
Circular flow cassette	●	
4-way flow cassette	●	

Type	External connect kit				
	UTY-XWZXZ7	UTY-XWZXZB	UTY-XWZXZC	UTY-XWZXZD	UTY-XWZXZE
Compact cassette	●	●	●	●	●
Circular flow cassette	●	●	●	●	●
4-way flow cassette	●	●	●	●	●

OPTIONAL PARTS

■ For duct type

Type	Flange		Drain pump unit	Remote sensor unit
	UTD-SF045T	UTD-RF204	UTZ-PU1NBA	UTY-XSZX
Mini duct				●
Slim duct/Slim concealed floor				●
Medium static pressure duct	●	●	●	●
High static pressure duct				●

Type	External connect kit				
	UTY-XWZXZ7	UTY-XWZXZB	UTY-XWZXZC	UTY-XWZXZD	UTY-XWZXZE
Mini duct	●	●	●	●	●
Slim duct/Slim concealed floor	●	●	●	●	●
Medium static pressure duct	●	●	●	●	●
High static pressure duct	●	●	●	●	●

Type		IR receiver unit		Air filter		External power supply unit
	Model name	UTB-YWC	UTY-TRHX	UTD-LF25NA	UTD-LF60KA	UTZ-GXXA
Mini duct		●				●
Slim duct/Slim concealed floor			●			●
Medium static pressure duct			●	●		●
High static pressure duct	ARUH36TLAV	●			●	
	ARUH48TLAV	●			●	
	ARUH60TLAV	●			●	
	ARUH72TLAV2		●			●
	ARUH96TLAV2		●			●

Type		Auto louver grille kit		
	Model name	UTD-GXTA-W	UTD-GXSA-W	UTD-GXSB-W
Mini duct		●		
Slim duct/ Slim concealed floor	ARUL7TLAV2	●	●	
	ARUL9TLAV2	●	●	
	ARUL12TLAV2	●	●	
	ARUL14TLAV2	●	●	
	ARUL18TLAV2			●
Medium static pressure duct				
High static pressure duct				

■ For floor type, floor/ceiling type, and ceiling type

Type	Flange	Drain pump unit	Half concealed kit	External power supply unit
	UTD-RF204	UTZ-PU1EBA	UTR-STA	UTZ-GXXA
Compact floor			●	●
Floor/Ceiling				●
Ceiling	●	●		●

Type	External connect kit				
	UTY-XWZXZ7	UTY-XWZXZB	UTY-XWZXZC	UTY-XWZXZD	UTY-XWZXZE
Compact floor	●	●	●	●	●
Floor/Ceiling	●	●	●	●	●
Ceiling	●	●	●	●	●

■ For wall mounted type

Type	External connect kit				
	UTY-XWZXZ7	UTY-XWZXZB	UTY-XWZXZC	UTY-XWZXZD	UTY-XWZXZE
Wall mounted	●	●	●	●	●

Type		External power supply unit
	Model name	UTZ-GXXA
Wall mounted	ASUA4TLAV2	●
	ASUA7TLAV2	●
	ASUA9TLAV2	●
	ASUA12TLAV2	●
	ASUA14TLAV2	●
	ASUB18TLAV1	
	ASUB24TLAV1	
	ASUA30TLAV2	●
	ASUA36TLAV2	●
	ASUA7TLAV	
	ASUA9TLAV	
	ASUA12TLAV	
	ASUA14TLAV	
	ASUB18TLAV	
	ASUB24TLAV	

■ For others

Type	External connect kit			
	UTY-XWZXZ6	UTY-XWZXZ7	UTY-XWZXZ8	UTY-XWZXZ9
Outdoor unit	●			●
Touch panel controller				
Central remote controller		●	●	

Type	External connect kit	
	UTY-XWZXZA	UTY-XWZXZF
Outdoor unit		●
Touch panel controller	●	
Central remote controller	●	

OPTIONAL PARTS

7. Optional parts installation

7-1. Drain pump unit for duct type

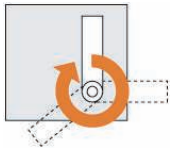
RELATED LINKS

"Applicable parts" on page 10-21

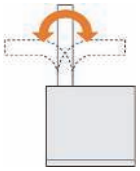
■ Specifications

Model name		UTZ-PU1NBA
Height of drain up	in (mm)	Maximum 39-3/8 (1,000)
Power source		220—240 V, 50/60 Hz
Power input (230 V, 50/60 Hz)	W	12/10.8
Current (230 V, 50/60 Hz)	mA	114/92
Dimensions (H × W × D)	in (mm)	6-15/16 × 7 × 6-1/16 (176 × 178 × 154)
Weight	lb (kg)	6 (2.5)
Connection pipe diameter	in (mm)	I.D.: 3/4 (19.05), O.D.: 1-1/16 (27)
Direction of pipe connection*1		360°
Angle of pipe connection *2		0° to 90° (Horizontal to vertical)
Control method		Control board of indoor unit
Safety device		Float switch, Thermal fuse

*1: Direction of pipe connection



*2: Angle of pipe connection

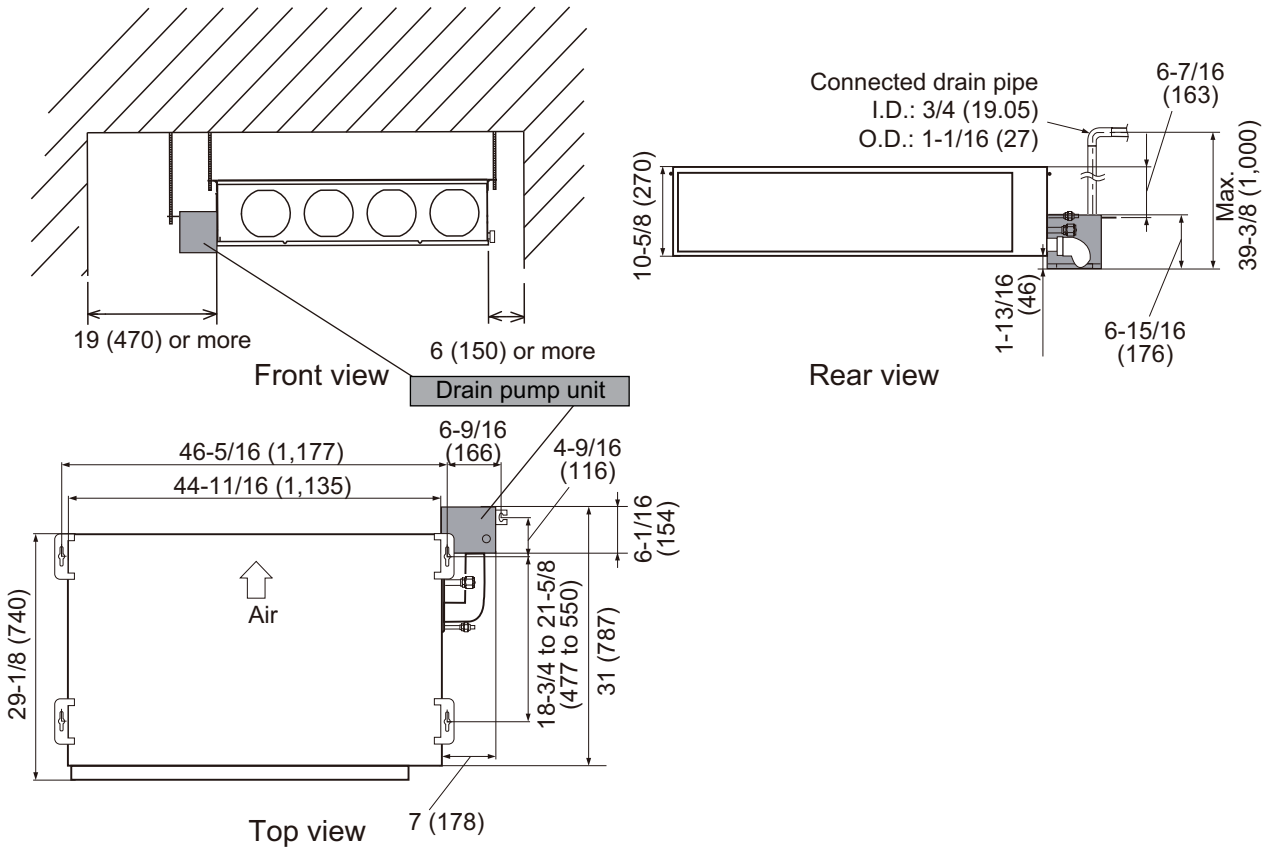


■ Installation

● Model: UTZ-PU1NBA

- **Mounting position**

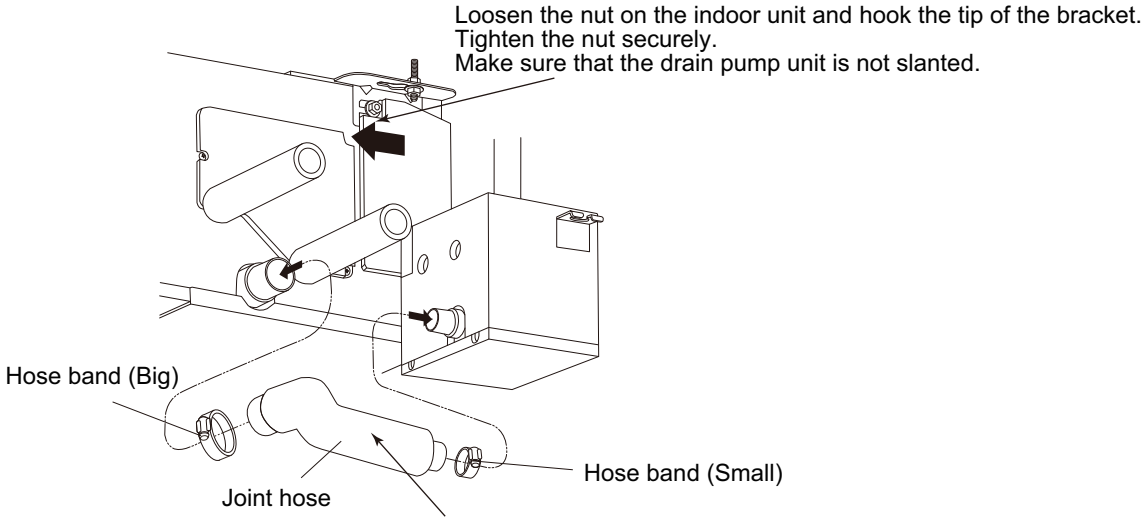
Unit: in (mm)

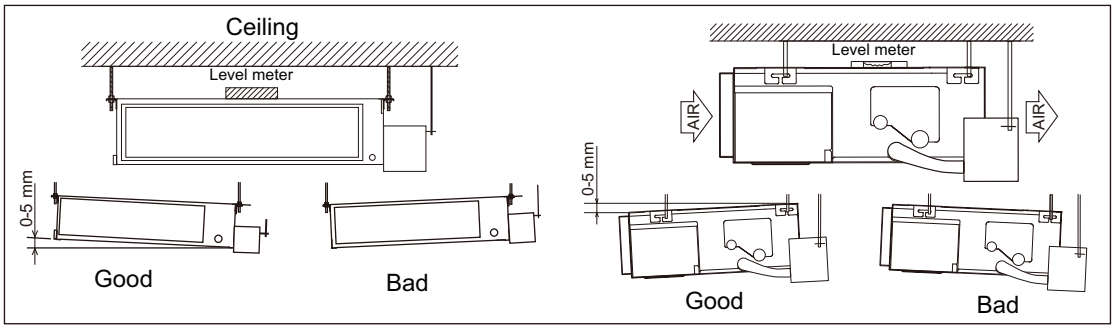


NOTES:

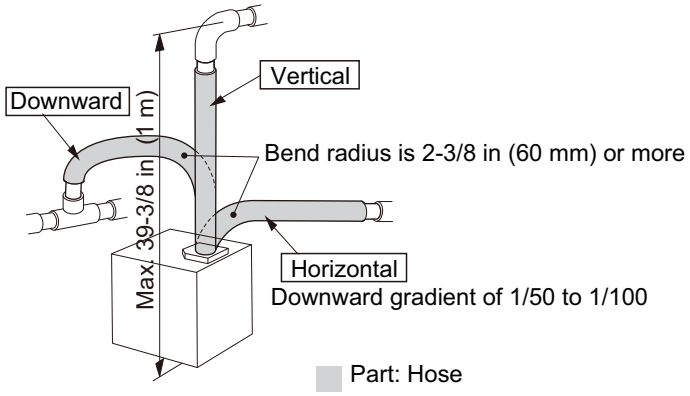
- Leave the space required to service the unit.
- Set a maintenance hole near the drain pump unit.

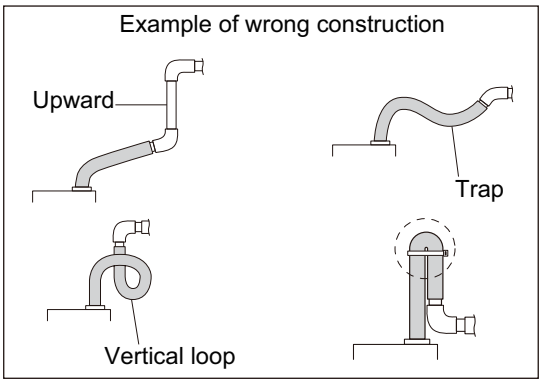
- **Installing**



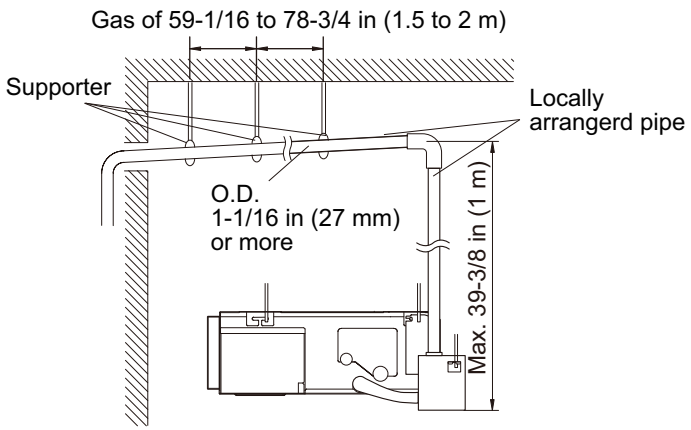


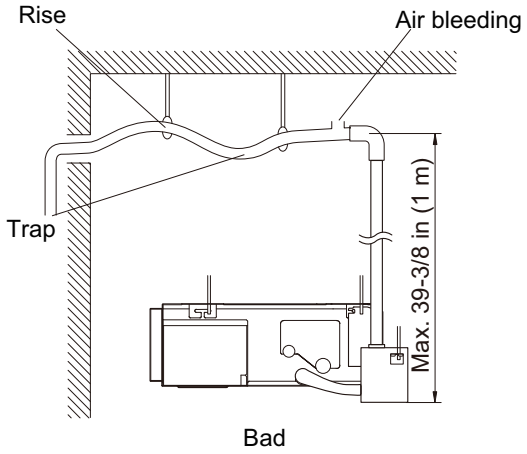
- **Installing hose**

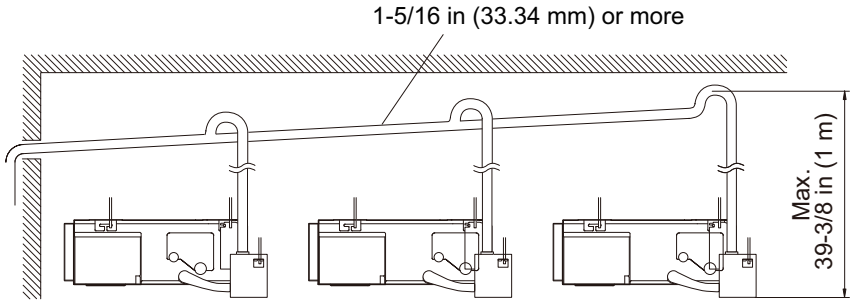




- **Installing pipe**



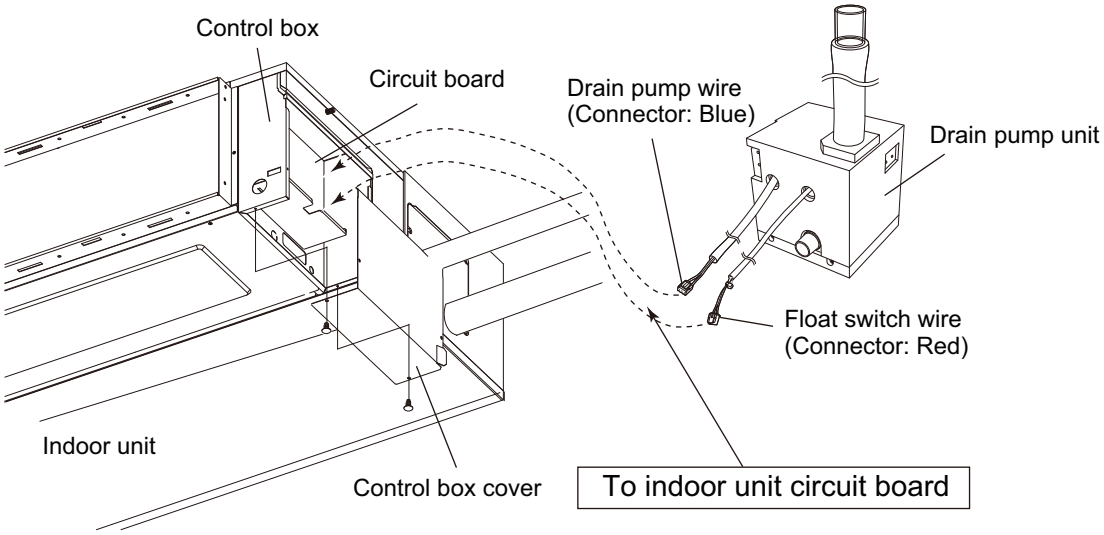




For construct centralized drain pipe fittings, refer to the electrical wiring.

■ Electrical wiring

● Model: UTZ-PU1NBA



7-2. Fresh air intake kit for Compact cassette type

RELATED LINKS

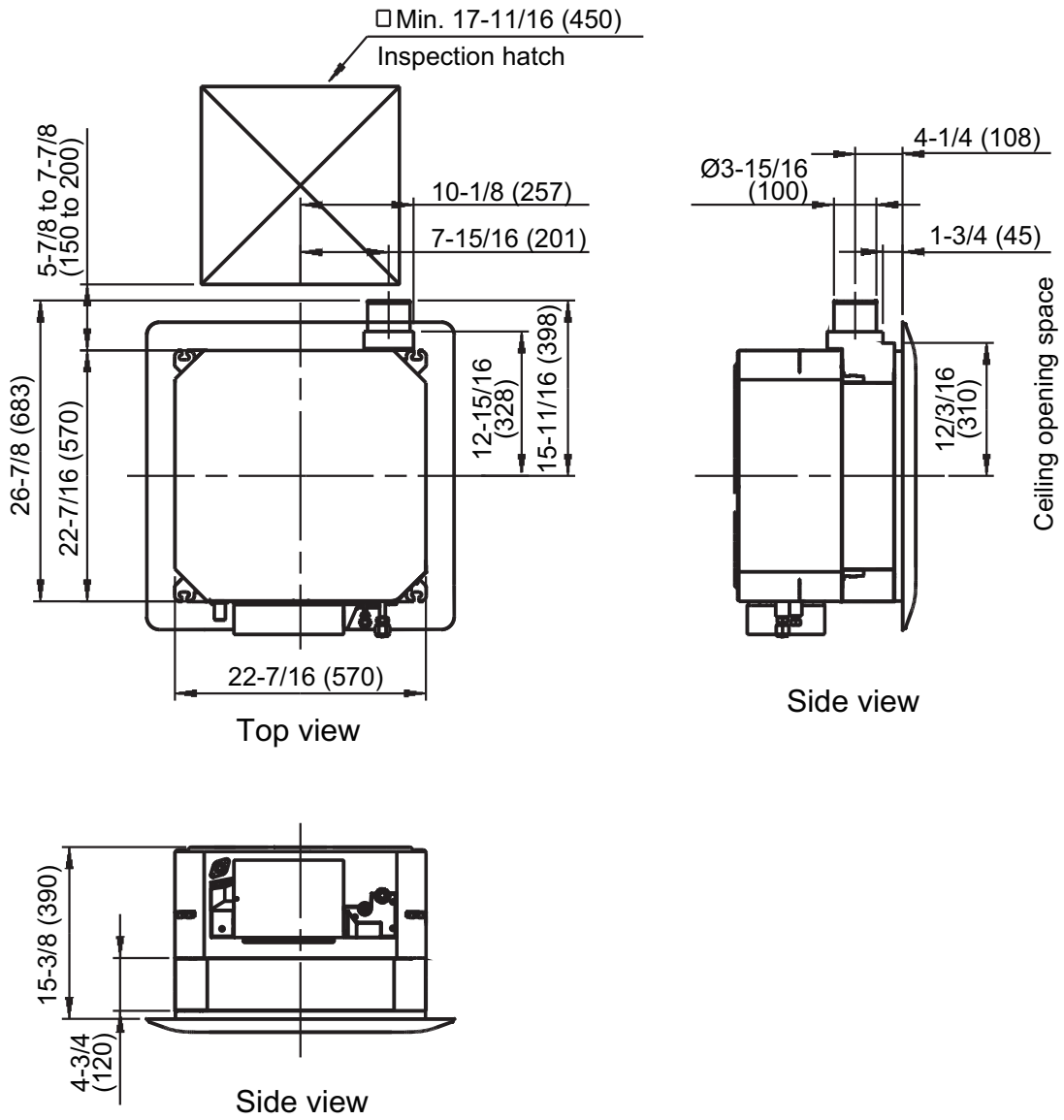
"Applicable parts" on page 10-21

■ Specifications

Model name				UTZ-VXAA
Fresh air intake	Max. fresh air intake volume		% (For High)	10
Connection duct type			in (mm)	Ø3-15/16 (100)
			Pcs	1
Dimensions (H × W × D)		Net	in (mm)	4-3/4 × 22-7/16 × 22-7/16 (120 × 570 × 570)
		Gross		6-1/2 × 23-1/16 × 23-1/16 (165 × 585 × 585)
Weight		Net	lb (kg)	8 (3.5)
		Gross		12 (5.5)

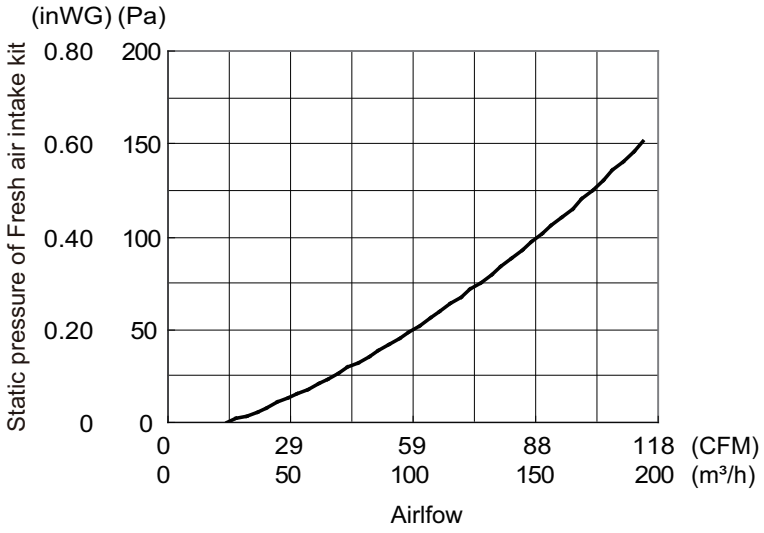
■ Dimensions

Unit: in (mm)

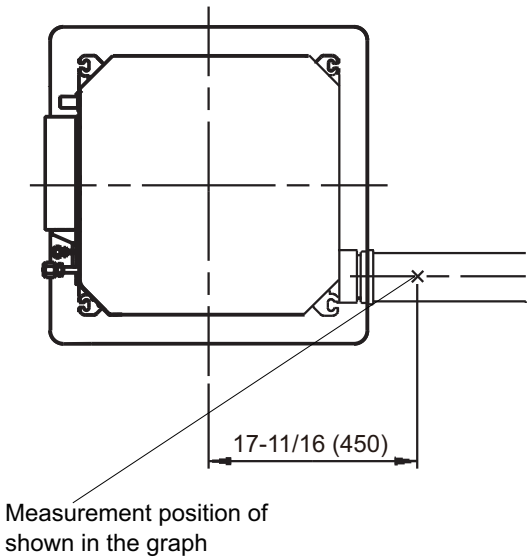


NOTE: When installing this kit, inspection hatch is necessary. (It is necessary when servicing.)

■ Airflow



Unit: in (mm)



■ Fresh air control output

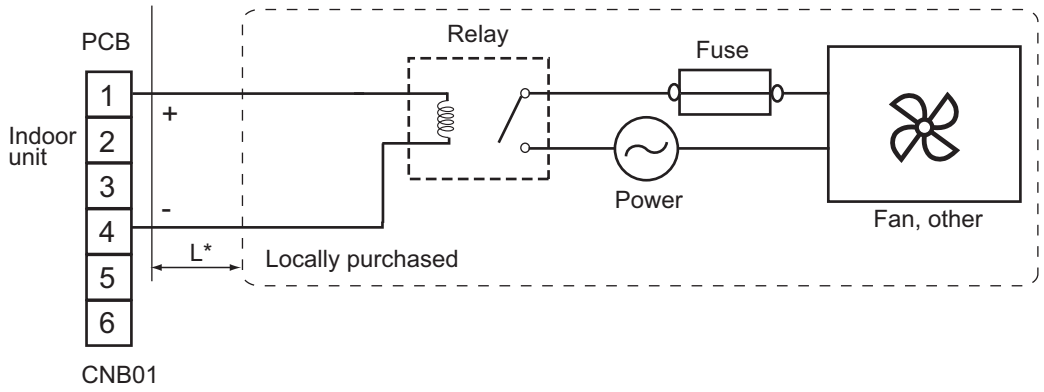
- You can control duct fan by synchronization with fan operation of indoor unit.
- Wire for fresh air control output is supplied with Fresh air intake kit.
- Extended length of the wire: Max. 82 ft (25 m).

- **Connection diagram**

For Relay

Output voltage: DC $12^{+}_{-}2$ V

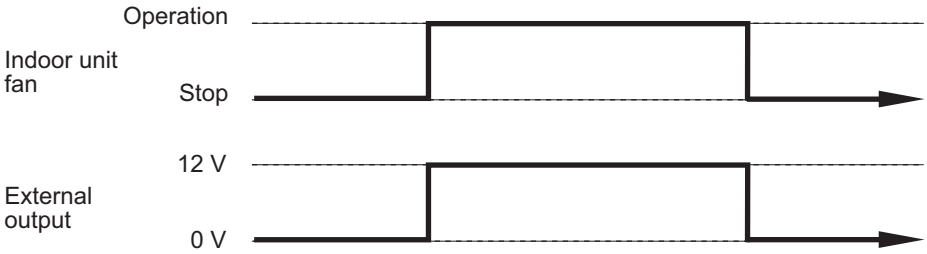
Permissible current: 50 mA



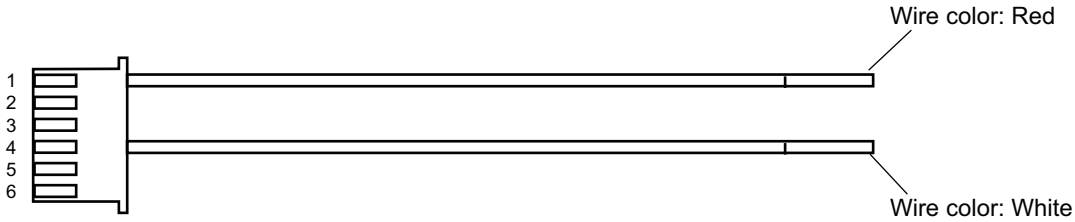
Actual number of pin might be different from the figure above.

L*: Make the distance from the PCB to the Relay unit within 82 ft (25 m).

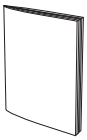
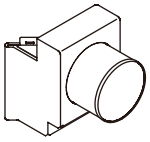
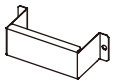
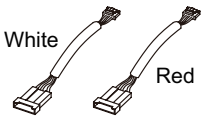
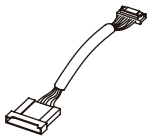
- **Operation status**



- **Wire (External output 3)**



■ Accessories

Part name	Exterior	Q'ty	Part name	Exterior	Q'ty
Installation manual		1	Wire (External output 1)		1
Chamber		1	Wire (External output 2)		1
Wire cover		1	Wire (External output 3)		1
Screw		4	Bolt		4
Extension wire for louver		1 set	Cable tie		1
Extension wire for receiver kit (For 9-pin receiver wire)		1	Extension wire for receiver kit (For 7-pin receiver wire)		1

■ Installation precautions

- **About Fresh air intake kit**
  - The Fresh air intake kit can be installed onto cassette type air conditioners.
  - The volume of ventilated air provided by the Fresh air intake kit may be unable to fulfill ventilation regulations in all countries. On such occasions we ask that this kit be used along with Energy recovery ventilators.
  - When intaking outside air, ensure correct air conditioning design as based on air conditioning load calculations. As outside air is not being processing an increase in outside air load can affect air conditioning.

- **Installation location**
  - Area that generated substances that adversely affect the equipment, such as sulfuric gas, chlorine gas, add, or alkali it will cause the copper pipes and brazed joints to corrode, which can cause refrigerant leakage.
  - Area with high salt content, such as at the seaside. It will deteriorate metal parts, causing the parts to fall or the unit to leak water.
  - Be certain to use electric dampers and shutters to avoid infiltration of cold air, wind and fog during shutdown in areas with cold climate, strong winds, or where fogs are common.
  - Ensure the product in installed a distance of at least three times the duct diameter away from exterior wall air inlets, or air exhausts for the prevention of short circuits.

- **Temperature conditions**
  - Condensation may form on the product when outside air temperature is low and the temperature and humidity surrounding the product are high. Do not intake the air of below 32 °F (0 °C) into the Fresh air intake kit.
  - Do not take fresh air at a temperature that exceeds the upper limit of the operation temperature range of the outdoor unit.

- **About duct fan**
  - When installing the duct fan, connect the drive relay (locally purchased) and operate with the indoor unit.
  - Ensure the intake air volume is below 10 % of the product’s air volume High. When the intake air volume becomes too large there the operating noise may increase and room temperature detection may be affected.

- **About the duct connection**
  - Purchase a duct with internal diameter that fits the external diameter of the duct flange.
  - Note that regulations of some countries may require the use of a nonflammable duct.
  - IF the duct penetrates a fire-retarding division or other fire-proofing measures, the installation of fire dampers, or a construction that does not adversely affect fire control measure is a regulatory requirement of some countries.
  - When using metallic ducts, ensure metals (i.e., metal lath, wire lath, stainless sheeting) are electrically insulated. (A short occurring by electrical connection can cause fire.)
  - Ensure the thermally insulate connected ducts to prevent condensation.
  - Make certain that netting or other measures are installed in parts exposed to the outside air to prevent infiltration of small animals such as birds and insects.
  - Be certain to install external air filters to parts exposed to the outside air for heat exchanger protection of indoor equipment.
  - Avoid the infiltration of rain water by installing outside ducts with an incline of at least 1/30, and fitting hoods on openings.
  - Do not branch the connecting duct into multiple rooms.

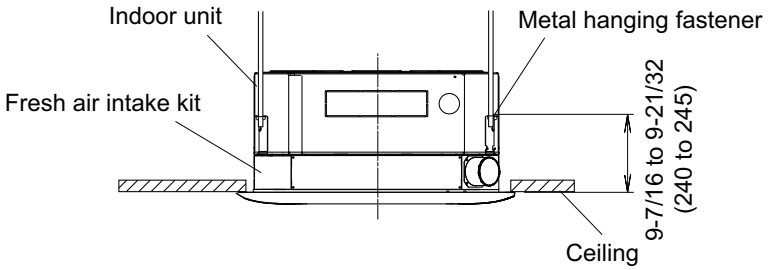
OPTIONAL PARTS

■ Installation

● Mounting of indoor unit

- For mounting, refer to the installation manual provided with indoor unit.
- When installing this product to existing indoor units, adjust the installation height of the indoor units to height 9-7/16 to 9-21/32 in (240 to 245 mm) as shown below.

Unit: in (mm)

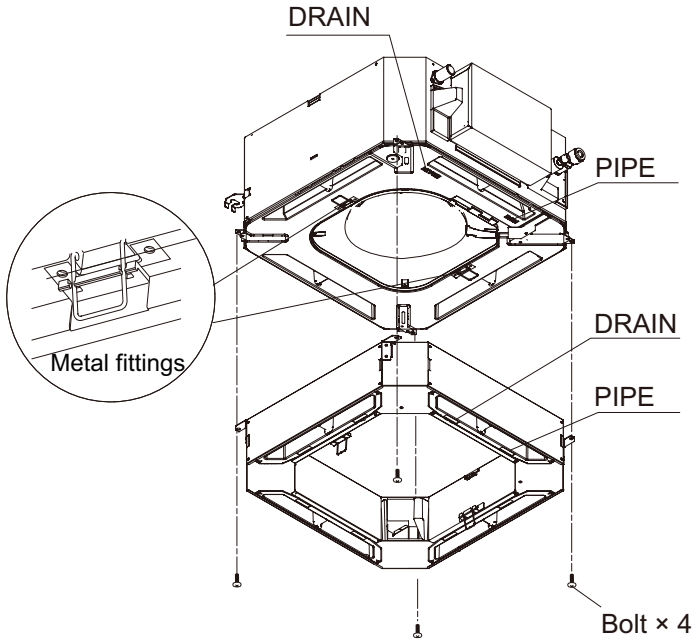


● Installation of Fresh air intake kit

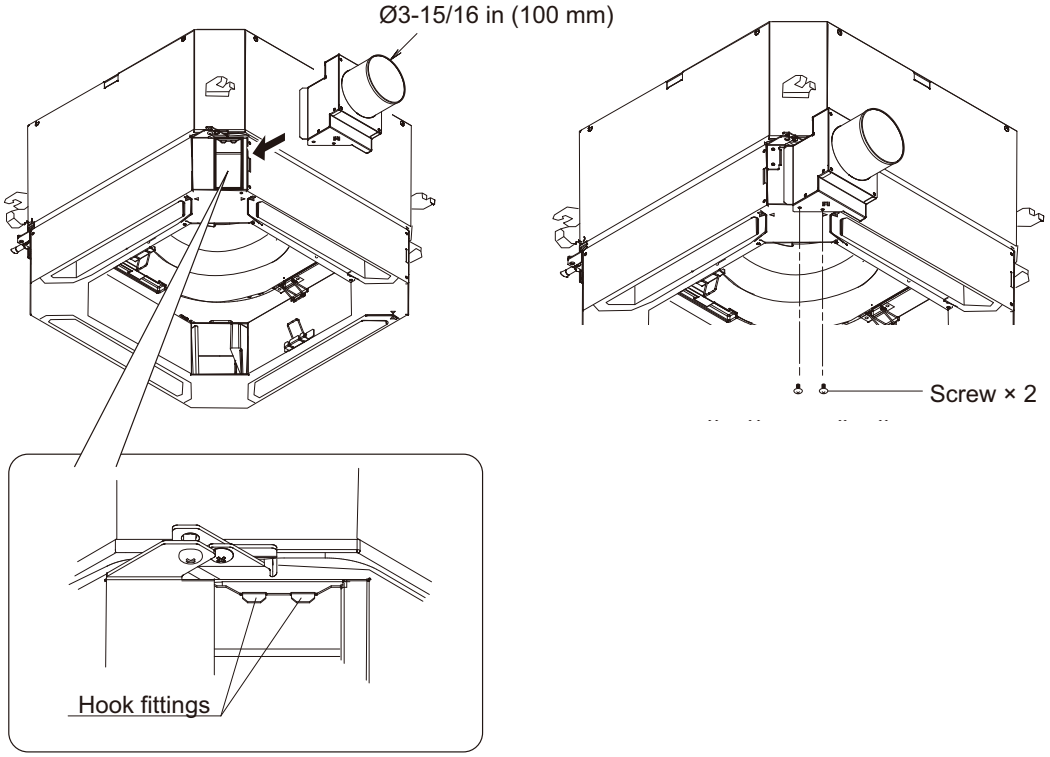
⚠ CAUTION

Installing the Fresh air intake kit with wrong direction is a cause of water leakage.

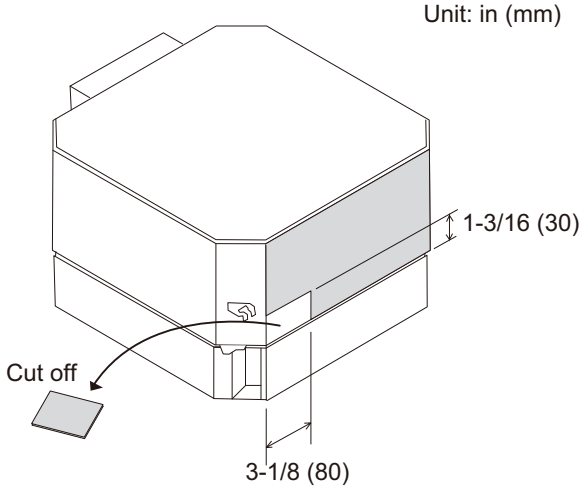
1. Attach the Fresh air intake kit to the main body using the bolts provided as shown below.



2. Install the chamber.
   Fit the four-sided holes of the chamber together with the hook fittings of the Fresh air intake kit (in two places), and secure the attached chamber in place with screws provided.



- When using the Insulation kit for high humidity (UTZ-KXGC), first cut off and remove the heat insulation as shown in the figure.
- Install the Insulation kit for high humidity according to the installation instruction sheet provided.

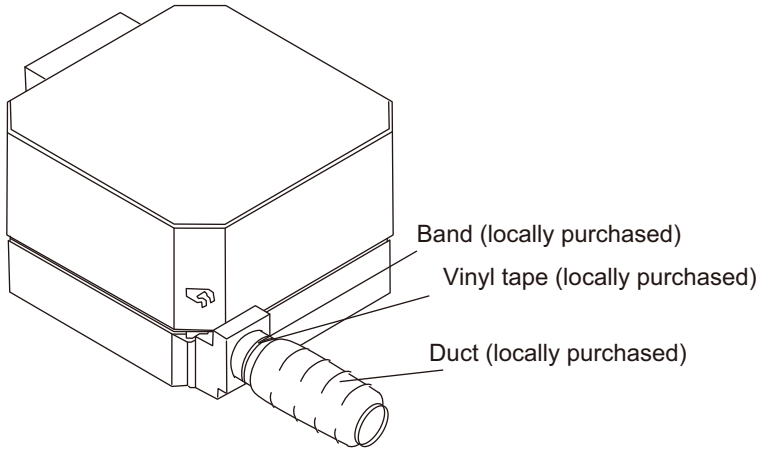


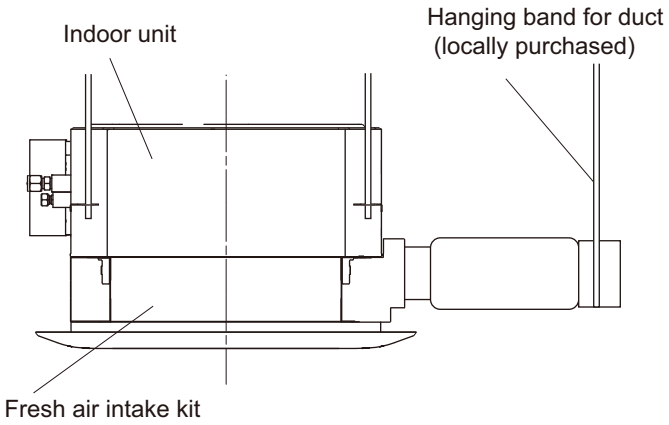
3. Install the duct.
   Fasten the connecting parts of the ducts with band, and wrap with vinyl tape to ensure no air leaks. (Carry out the work to ensure no air leakage at a pressure of 0.80 inWG [200 Pa].)

NOTE: Do not construct the duct in the manner of below.

- Extreme bends
- Highly repetitive bends
- Making the connecting duct diameters smaller

Completion figure

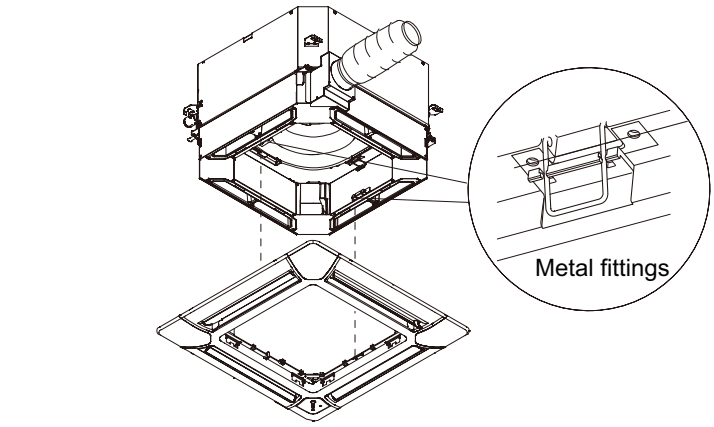


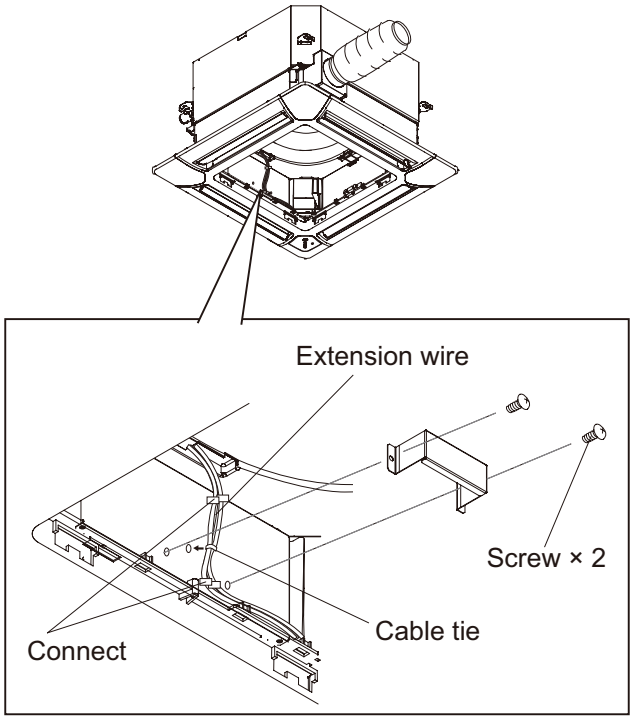


NOTE: When wiring of the duct fan is required, refer to "Fresh air control output" on page 10-30.

● Installation of Cassette grille

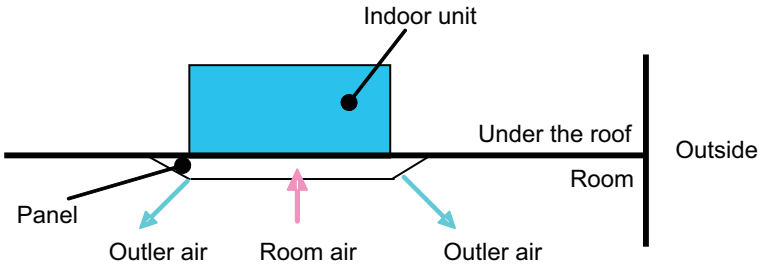
1. Connect extension wire for use with louvers, or extension wire for optical receiver after provisional attaching of the decoration panel.
2. Tie the wires together with the fasteners provided and insert into the hole of the Fresh air intake kit.
3. Install the wire-cover provided on the Fresh air intake kit.
4. Install decoration panel according to the installation instruction sheet provided.



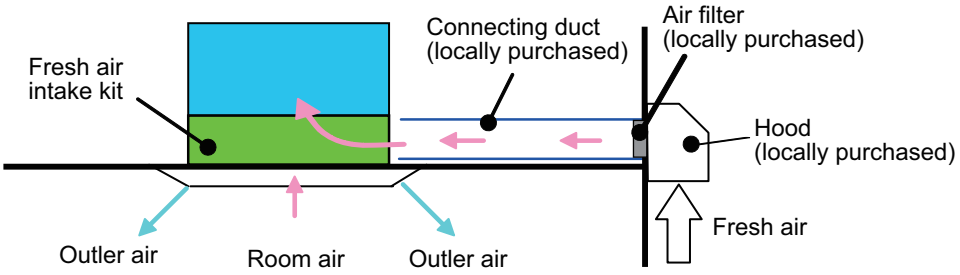


■ Installation example

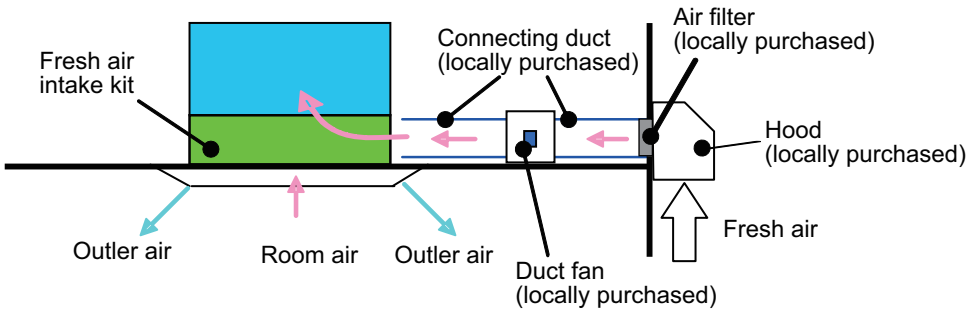
- **Standard**



- **Case 1: Intake by fan of indoor unit**



- **Case 2: Intake by duct fan**



7-3. Fresh air intake kit for Circular flow cassette type and 4-way flow cassette type

RELATED LINKS

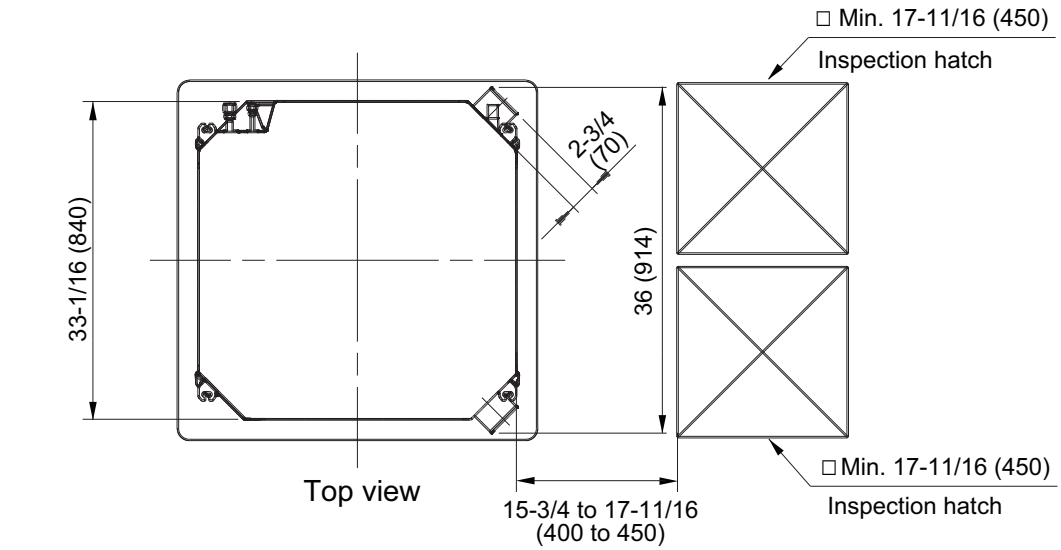
"Applicable parts" on page 10-21

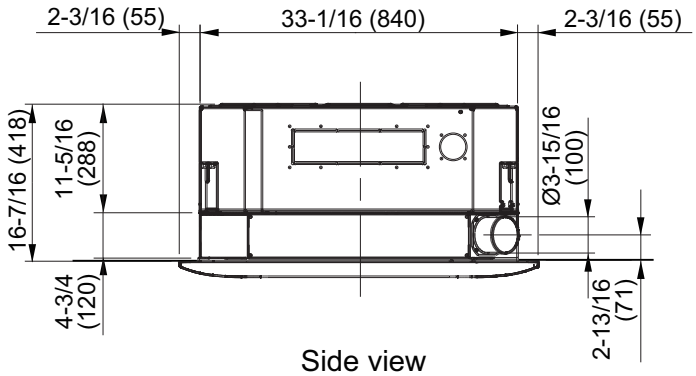
■ Specifications

Model name				UTZ-VXRA
Fresh air intake	Max. fresh air intake volume	2-way intake	% (For High)	10
		1-way intake		5
Connection duct type			in (mm)	Ø3-15/16 (100)
			Pcs	2
Dimensions (H × W × D)		Net	in (mm)	4-3/4 × 33-1/16 × 33-1/16 (120 × 840 × 840)
		Gross		6-1/2 × 33-7/8 × 33-7/8 (165 × 860 × 860)
Weight		Net	lb (kg)	13.2 (6.0)
		Gross		20.9 (9.5)

■ Dimensions

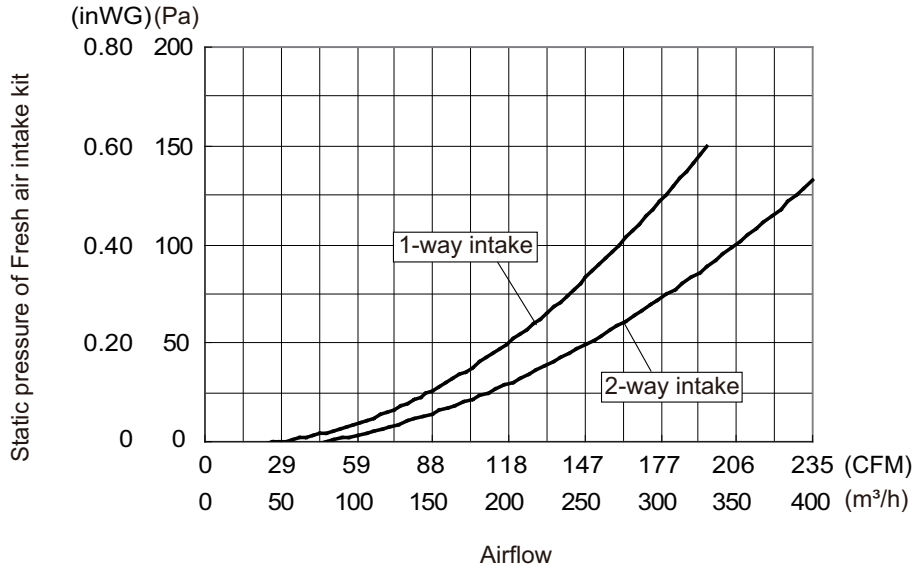
Unit: in (mm)





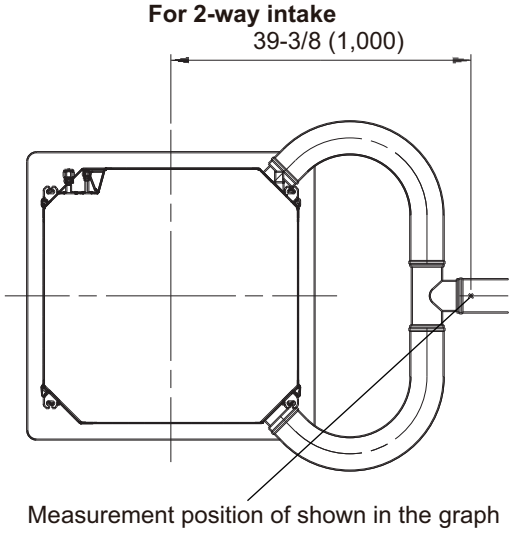
NOTE: When installing this kit, inspection hatch is necessary. (It is necessary when servicing.) Either one of inspection hatches must be installed.

■ Airflow

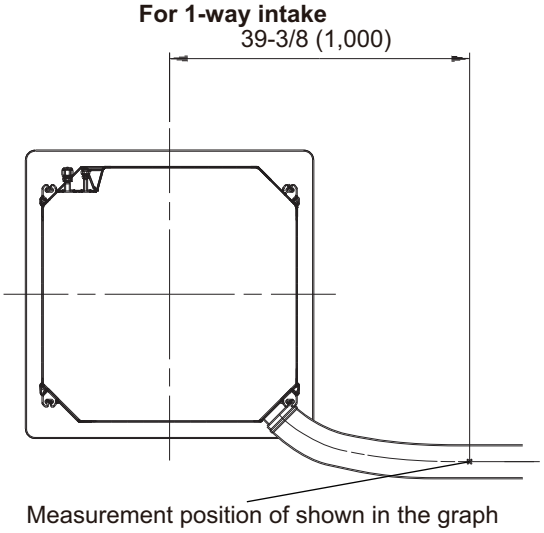


Unit: in (mm)

For 2-way intake



For 1-way intake



■ Fresh air control output

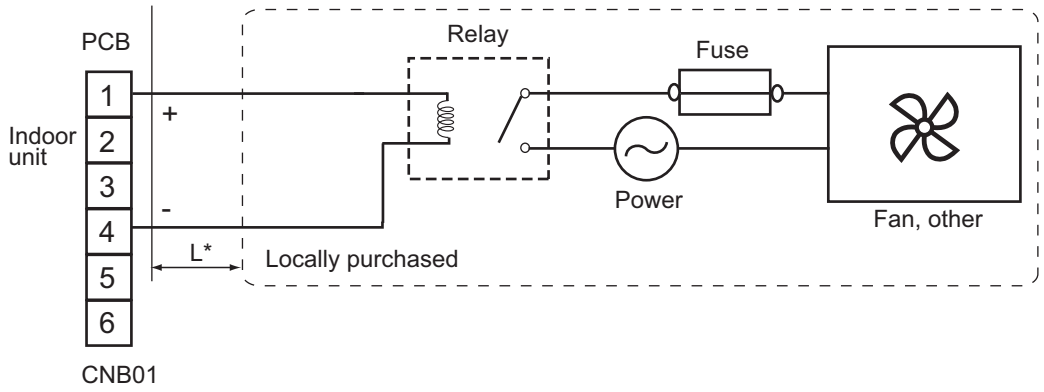
- You can control duct fan by synchronization with fan operation of indoor unit.
- Wire for fresh air control output is supplied with Fresh air intake kit.
- Extended length of the wire: Max. 82 ft (25 m).

- **Connection diagram**

For Relay

Output voltage: DC $12^{+}_{-}2$ V

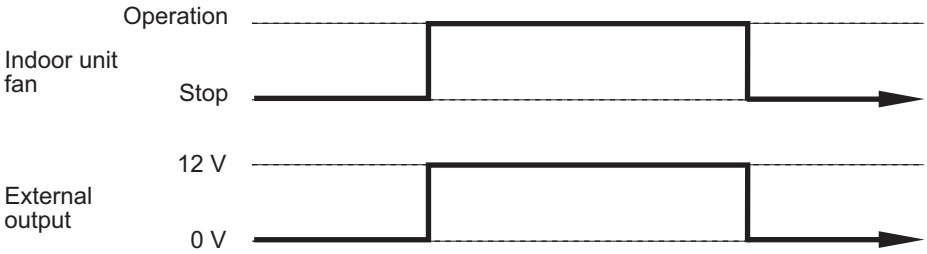
Permissible current: 50 mA



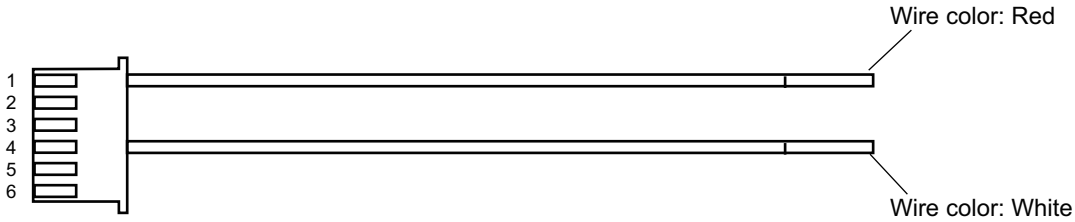
Actual number of pin might be different from the figure above.

L*: Make the distance from the PCB to the Relay unit within 82 ft (25 m).

- **Operation status**

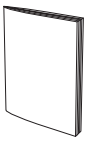
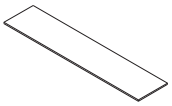
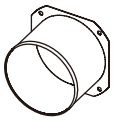
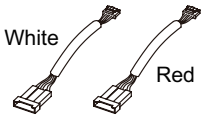
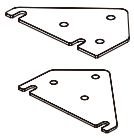
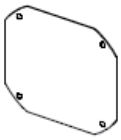
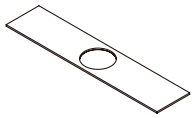
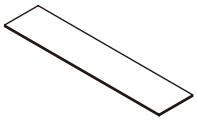


- **Wire (External output 3)**



■ Accessories

● UTZ-VXRA

Part name	Exterior	Q'ty	Part name	Exterior	Q'ty
Installation manual		1	Insulation 3		3
Installation manual (For UTZ-VXGA)		1	Insulation 4		4
Duct flange		2	Cable tie (For UTZ-VXGA)		1
Cover		2	Extension wire for louver (For UTZ-VXGA)		1 set
Screw		16	Extension wire for receiver kit (For UTZ-VXGA)		1
Hook plate		2 set	Wire (External output 1) (For Single split or Multi system)		1
Shutter plate		1	Wire (External output 2) (For UTZ-VXGA)		1
Insulation 1		2	Wire (External output 3)		1
Insulation 2		1	Bolt		4

■ Installation precautions

- **About Fresh air intake kit**
  - The Fresh air intake kit can be installed onto cassette type air conditioners.
  - The volume of ventilated air provided by the Fresh air intake kit may be unable to fulfill ventilation regulations in all countries. On such occasions we ask that this kit be used along with Energy recovery ventilators.
  - When intaking outside air, ensure correct air conditioning design as based on air conditioning load calculations. As outside air is not being processing an increase in outside air load can affect air conditioning.

- **Installation location**
  - Area that generated substances that adversely affect the equipment, such as sulfuric gas, chlorine gas, add, or alkali it will cause the copper pipes and brazed joints to corrode, which can cause refrigerant leakage.
  - Area with high salt content, such as at the seaside. It will deteriorate metal parts, causing the parts to fall or the unit to leak water.
  - Be certain to use electric dampers and shutters to avoid infiltration of cold air, wind and fog during shutdown in areas with cold climate, strong winds, or where fogs are common.
  - Ensure the product in installed a distance of at least three times the duct diameter away from exterior wall air inlets, or air exhausts for the prevention of short circuits.

- **Temperature conditions**
  - Condensation may form on the product when outside air temperature is low and the temperature and humidity surrounding the product are high. Do not intake the air of below 32 °F (0 °C) into the Fresh air intake kit.
  - Do not take fresh air at a temperature that exceeds the upper limit of the operation temperature range of the outdoor unit.

- **About duct fan**
  - When installing the duct fan, connect the drive relay (locally purchased) and operate with the indoor unit.
  - Ensure the intake air volume is below 10 % of the product's air volume High. When the intake air volume becomes too large there the operating noise may increase and room temperature detection may be affected.

- **About the duct connection**
  - Purchase a duct with internal diameter that fits the external diameter of the duct flange.
  - Note that regulations of some countries may require the use of a nonflammable duct.
  - IF the duct penetrates a fire-retarding division or other fire-proofing measures, the installation of fire dampers, or a construction that does not adversely affect fire control measure is a regulatory requirement of some countries.
  - When using metallic ducts, ensure metals (i.e., metal lath, wire lath, stainless sheeting) are electrically insulated. (A short occurring by electrical connection can cause fire.)
  - Ensure the thermally insulate connected ducts to prevent condensation.
  - Make certain that netting or other measures are installed in parts exposed to the outside air to prevent infiltration of small animals such as birds and insects.
  - Be certain to install external air filters to parts exposed to the outside air for heat exchanger protection of indoor equipment.
  - Avoid the infiltration of rain water by installing outside ducts with an incline of at least 1/30, and fitting hoods on openings.
  - Do not branch the connecting duct into multiple rooms.

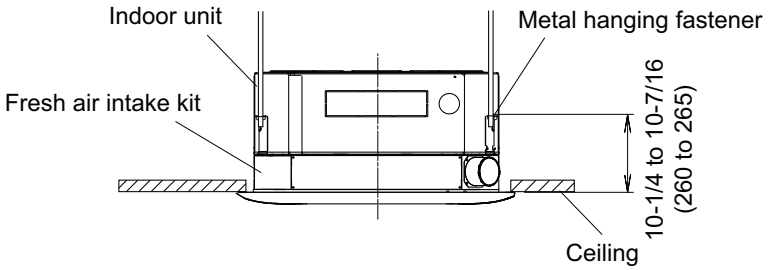
OPTIONAL PARTS

■ Installation

● Mounting of indoor unit

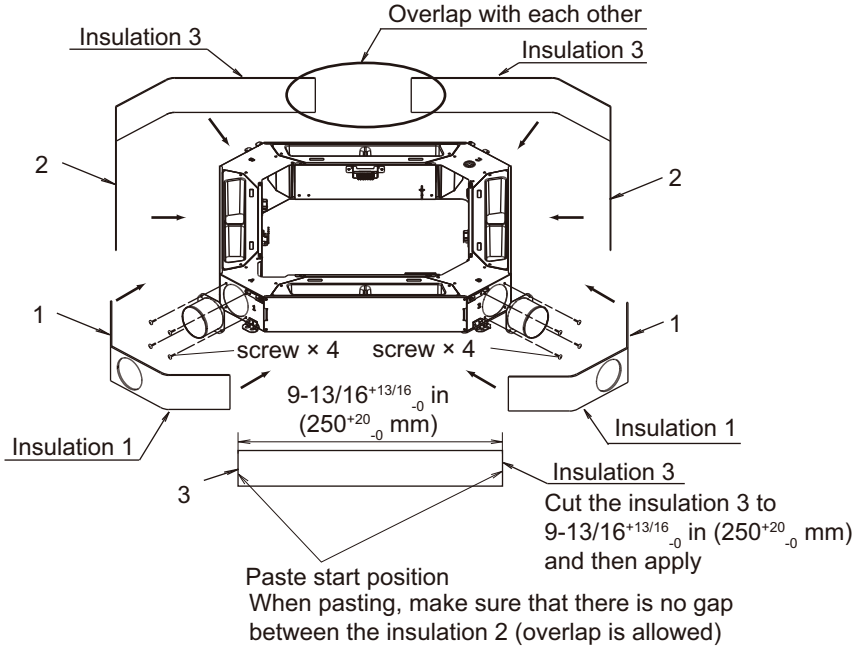
- For mounting, refer to the installation manual provided with indoor unit.
- When installing this product to existing indoor units, adjust the installation height of the indoor units to height 10-1/4 to 10-7/16 in (260 to 265 mm) as shown below.

Unit: in (mm)

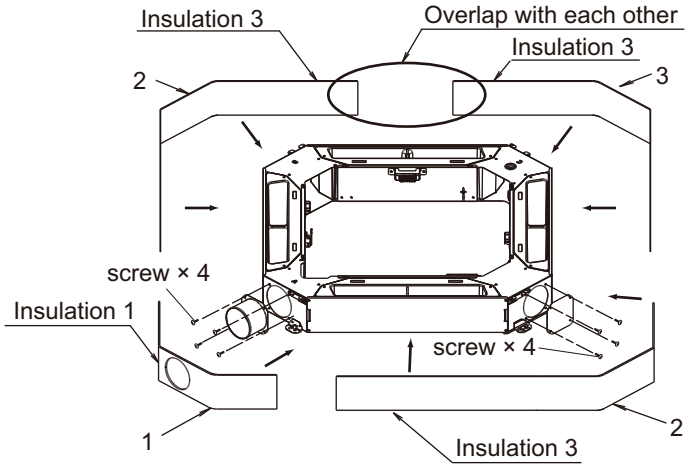


● Pre-installation preparations

- Attach the duct flange provided with screws.
- The Fresh air intake kit can be used an external air intake on just one side. Use included sealed plate to apply for different eye holes.
- Apply insulation 1 to the installed duct flange parts (Do not apply to sealed areas).

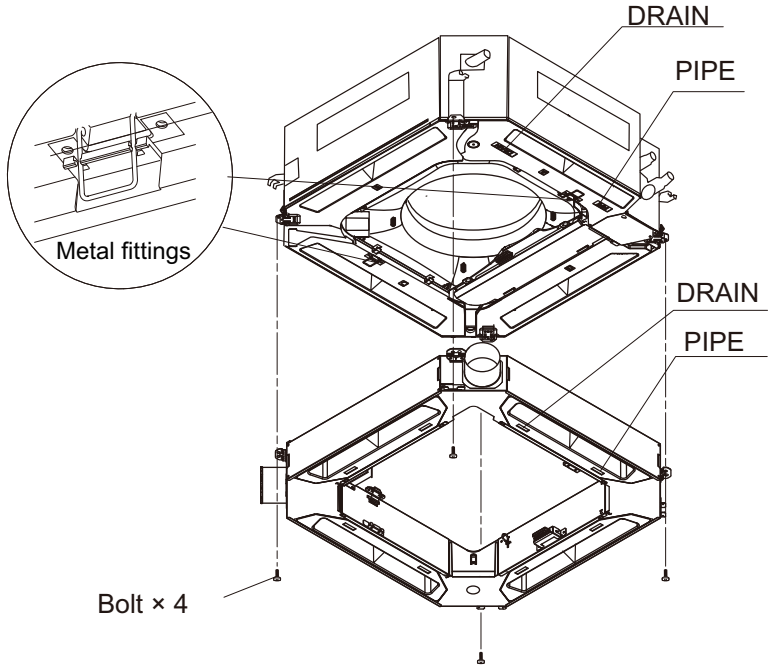


When taking in the air in one side, paste the insulation in the order as shown below.

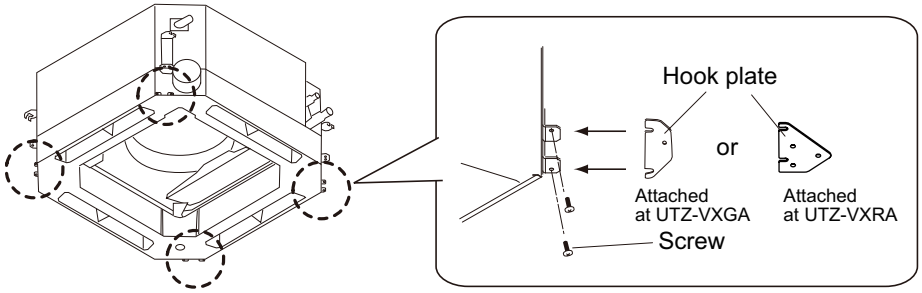


● Installation of Fresh air intake kit

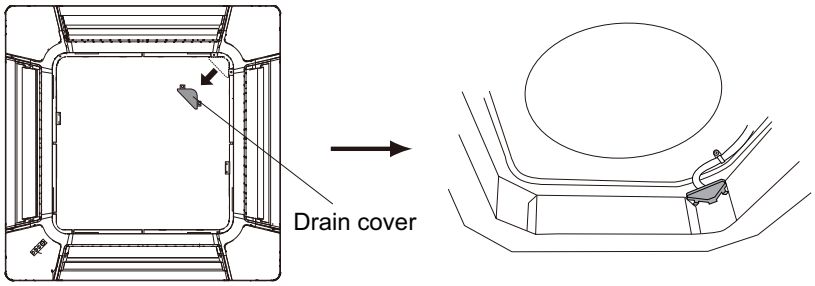
1. Attach the Fresh air intake kit to the main body using the bolts provided.



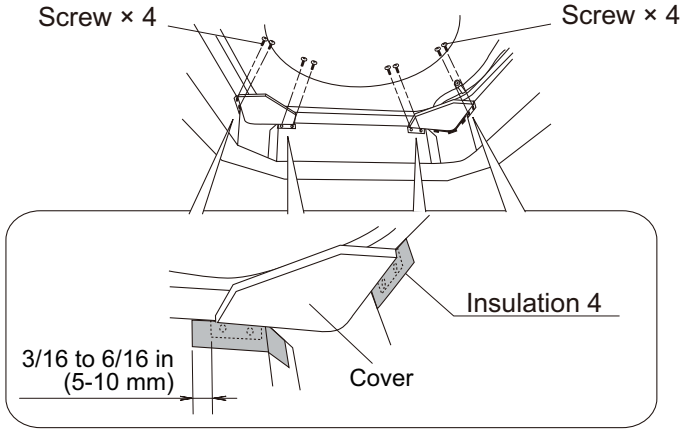
2. Attach the Hook plate by each corner of the Fresh air intake kit. (The attaching screws are attached to the body of the Fresh air intake kit and must be loosened before installing.)



3. Install the cover.
   a. Remover the drain cover attached to the decorative panel and install onto the Fresh air intake kit.



   b. Set the cover in position with screws (2 places) as shown below. Apply the Insulation 4 after installing the cover.

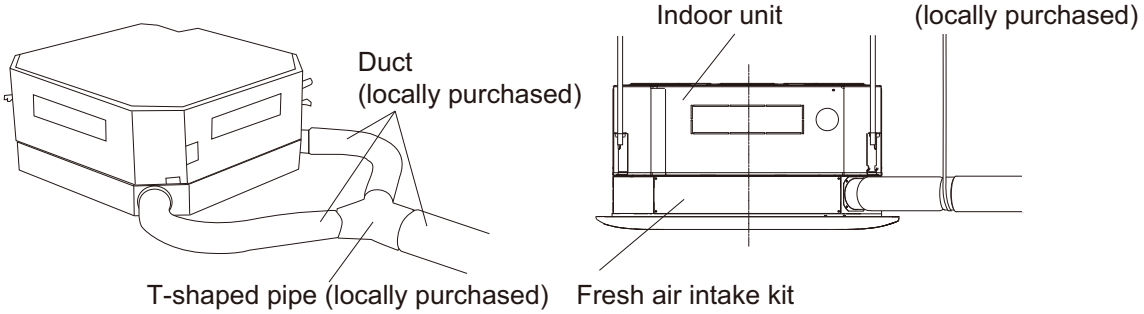


4. Install the duct.
   a. Fasten the connecting parts of the ducts with bands, and wrap with vinyl tape to ensure no air leaks. (Carry out the work to ensure no air leakage at a pressure of 0.80 inWG [200 Pa].)

      NOTE: Do not construct the duct in the manner of below.
      - Extreme bends
      - Highly repetitive bends
      - Making the connecting duct diameters smaller

   b. When using T-shaped pipe, suspend the kit with suspension bands for duct-use to avoid unnecessary load bearing.

Completion figure



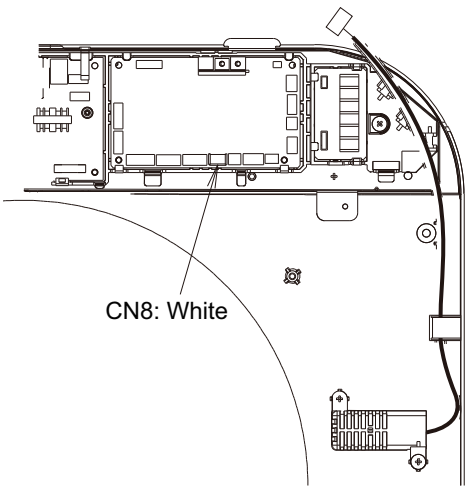
NOTE: When wiring of the duct fan is required, refer to "Fresh air control output" on page 10-40.

● Installation of Cassette grille

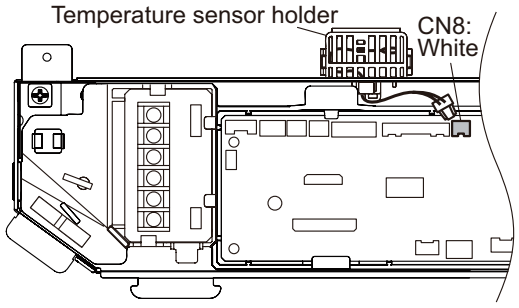
Pre-installation preparations:

1. Remove the control box cover.
2. Remove the connector from the existing temperature sensor on the circuit board of the indoor unit.

4-way flow cassette type



Circular flow cassette type

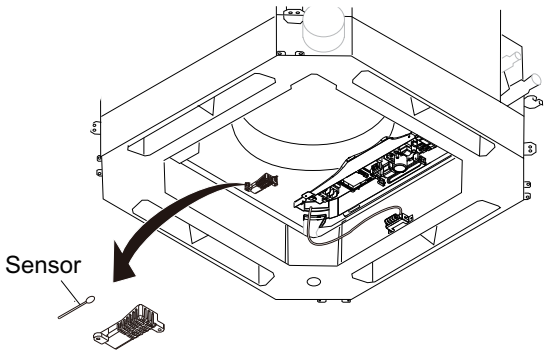


3. The existing temperature sensor will not be used so remove it from the sensor holder, and once more install the empty sensor holder (without sensor) in the control box.

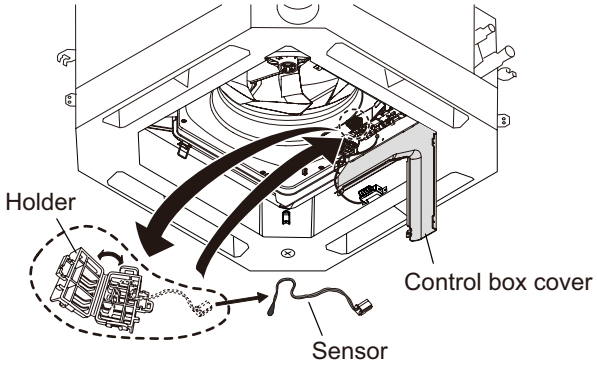
⚠ CAUTION

Make sure to install the sensor holder inside the control box, as it is a fire hazard. Otherwise, it may cause fire.

4-way flow cassette type

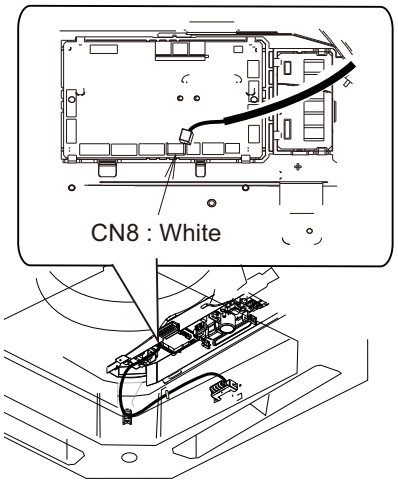


Circular flow cassette type

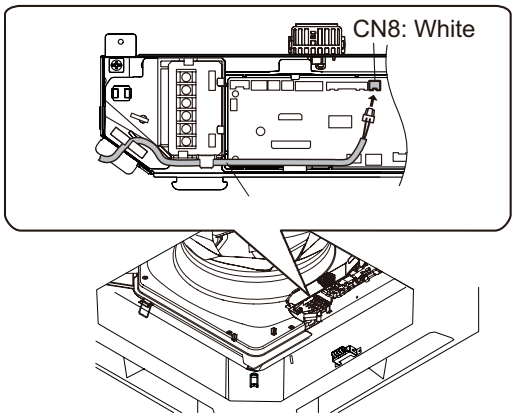


4. Insert the connector of the sensor attached to the Fresh air intake kit onto the substrate board of the indoor unit.

4-way flow cassette type



Circular flow cassette type

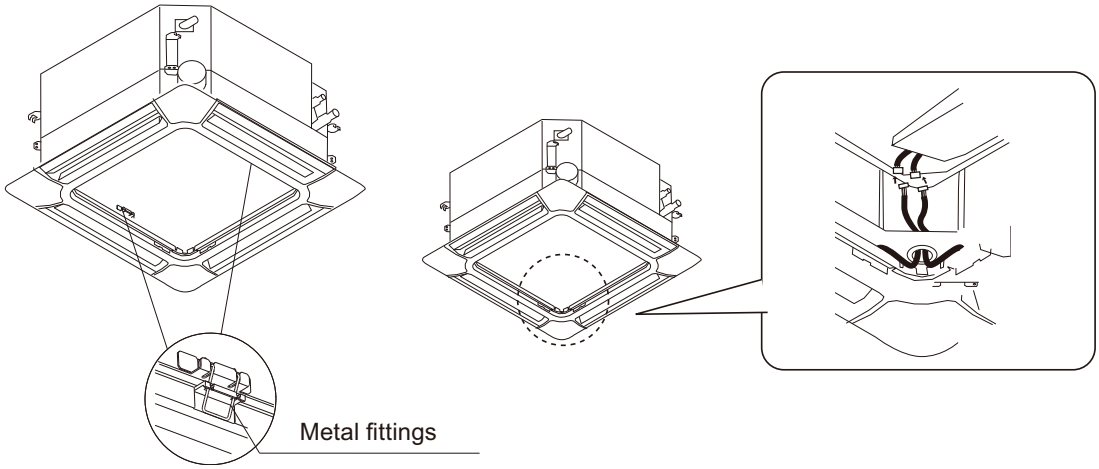


5. Insert the included extension cable for use with louver to the connector.
6. When using the optical receiver unit (option), insert the included extension wire to the indoor unit.
7. Close the control box cover when work is complete.

Installation procedure:

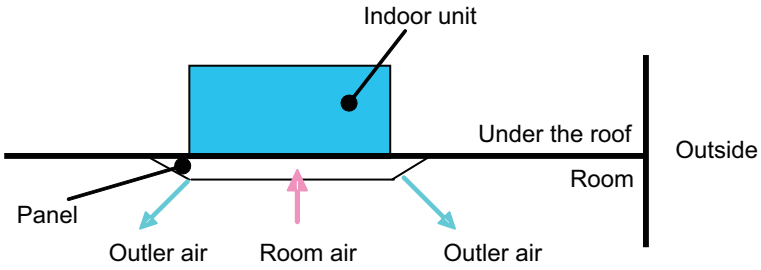
1. After provisional fixing of a cassette grille, feed the louver extension wire (and optical receiver extension wire) through the penetrating hole.
2. Connect to the connection wires coming out of the cassette grille.

3. Install cassette grille panel according to the installation instruction sheet provided.

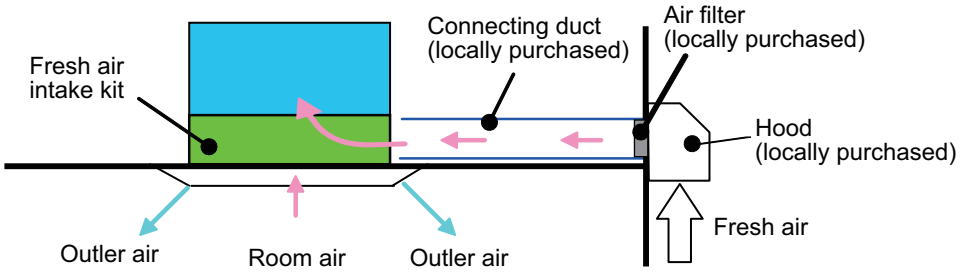


■ Installation example

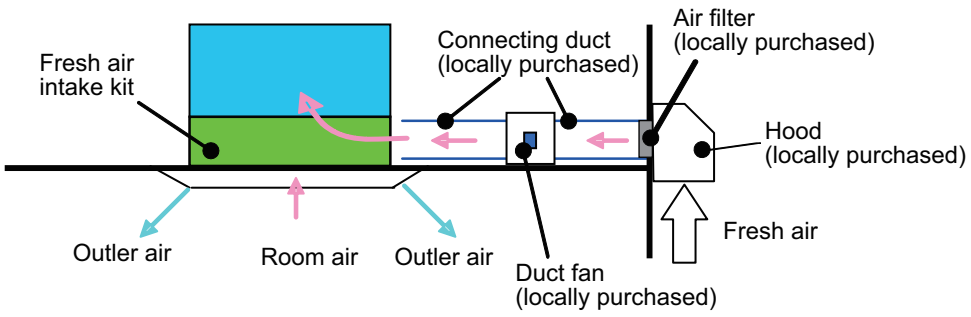
- **Standard**



- **Case 1: Intake by fan of indoor unit**



- **Case 2: Intake by duct fan**



7-4. Auto louver grille kit

RELATED LINKS

"Applicable parts" on page 10-21

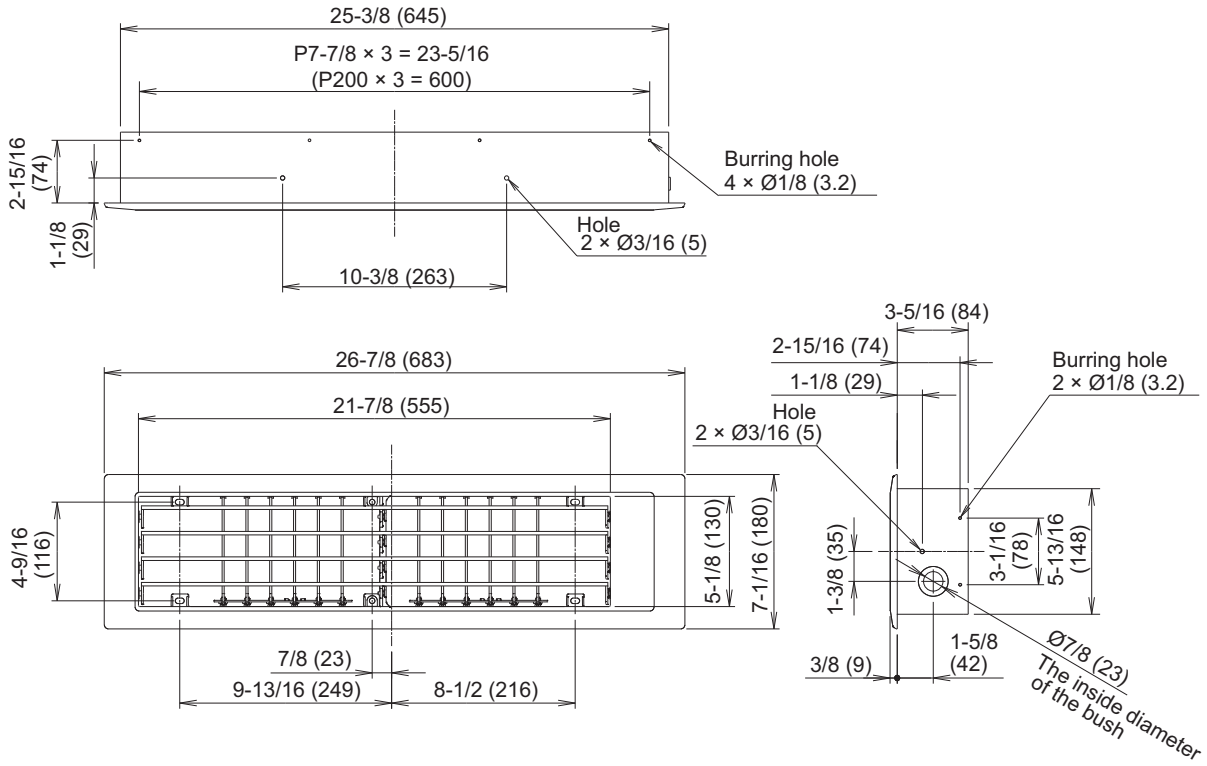
■ Specifications

Model name			UTD-GXSA-W UTD-GXTA-W	UTD-GXSB-W
Power supply			Connecting with Control box of indoor unit	
Fixing of Auto louver grille			Screw fixing to flange or rectangular duct	
Extension square duct limit			39-3/8 in (1.0 m) Max. duct length between indoor unit and grille	
Dimensions (H × W × D)	Net	in (mm)	7-1/16 × 26-7/8 × [3-5/16 + 3/8] (180 × 683 × [84+9])	7-1/16 × 34-3/4 × [3-5/16 + 3/8] (180 × 883 × [84+9])
Weight	Net	lb (kg)	4.4 (2.0)	5.6 (2.5)
	Gross		6.7 (3.0)	7.8 (3.5)
Color			White	
Louver motor			Stepping motor	
Material			Flame retardant ABS	
Accessories			Attachment flame	
Operation range	Cooling	°F (°C)	64 to 90 (18 to 32)	
		%RH	80 % or less	
	Heating	°F (°C)	60 to 88 (16 to 30)	

■ Dimension

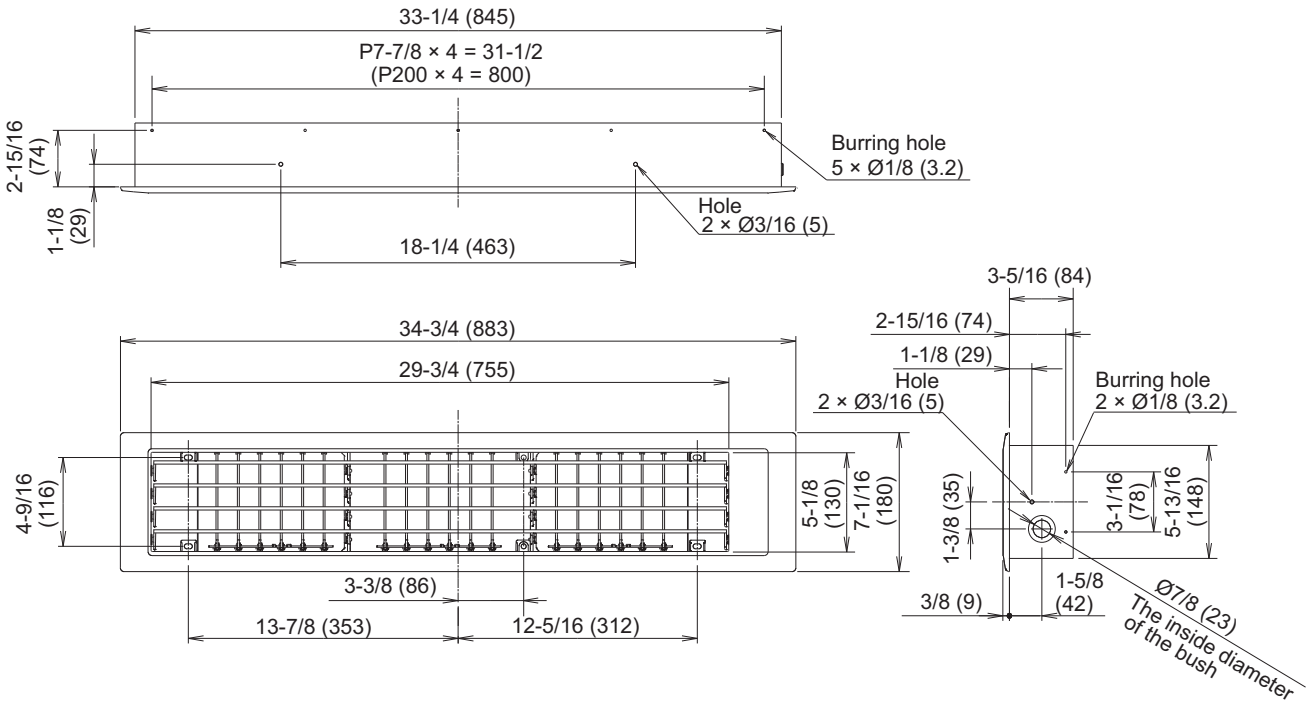
● Models: UTD-GXSA-W and UTD-GXTA-W

Unit: in (mm)

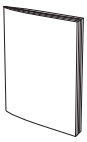
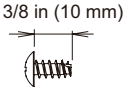
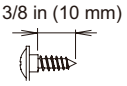
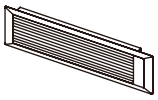
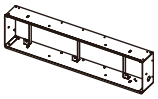


● Models: UTD-GXSB-W

Unit: in (mm)

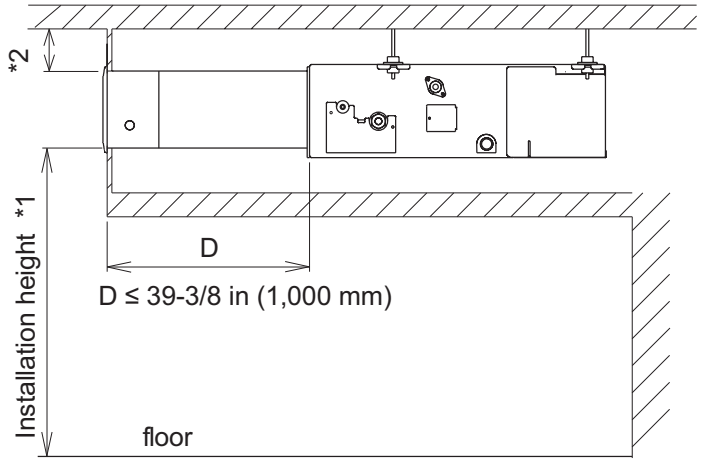


■ Accessories

Part name	Exterior	Q'ty	Part name	Exterior	Q'ty
Installation manual		1	Screw A		16
Operating manual		1	Screw B		6
Grille		1	Cable clip		2
Bracket frame		1	Cable tie		3
Bushing		1			

■ Installation precautions

- Select the installation location that meets the following requirement and that is approved by the customer.
  - Cool and warm air should reach the entire room.



NOTE:
- *1: For air velocity and air temperature distribution during heating, refer to "Air velocity and temperature distributions" in Chapter 4. INDOOR UNITS on page 04-80.
- *2: If the distance from the ceiling is not adequate, it may cause mildew stains on the wall or ceiling. Install at least 5-7/8 in (150 mm) away from any surface.

- Do not install the unit in the following areas.
  - The upper part of the vicinity of room entrance
    It may cause condensation on the outlet port.
  - Near a wall surface
    It may cause condensation on the wall during cooling.
  - Area filled with mineral oil or containing a large amount of splashed oil or steam, such as kitchen.
  - The place where it will be exposed to direct sunlight.
    It may cause change in color.

- When the installation area is exposed direct sunlight, take measure to block the light such as covering the grille surface with a sheet. Otherwise, it may cause a change in color.

- Use an appropriate grille that is compatible with the indoor unit. If not used with the correct combination, it may cause condensation.

- Perform heat insulation and field setting according to the Installation manual of indoor unit. Not installing as per the instructions may cause condensation.

7-5. External power supply unit

RELATED LINKS

"Applicable parts" on page 10-21

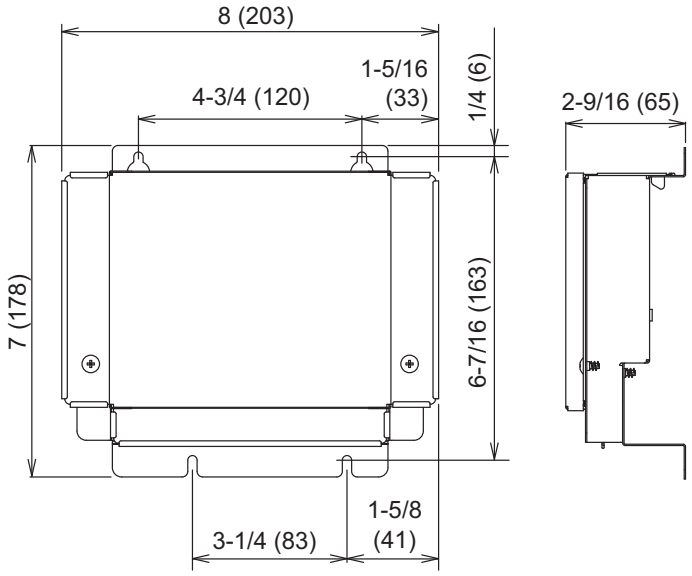
■ Specifications

Model name			UTZ-GXXA
Power supply		V	1 Ø AC 24
Power source frequency		Hz	50/60
Maximum operating current		A	1.13
Maximum power consumption		W	21
Temperature	Operating	°F (°C)	32 to 114.8 (0 to 46)
	Packaged	°F (°C)	14 to 140 (-10 to 60)
Humidity	Packaged	%	0 to 95 (RH) No condensation
Dimensions (H × W × D)		in (mm)	2-9/16 × 8 × 7 (65 × 203 × 178)
Weight		lb (g)	1 (500)

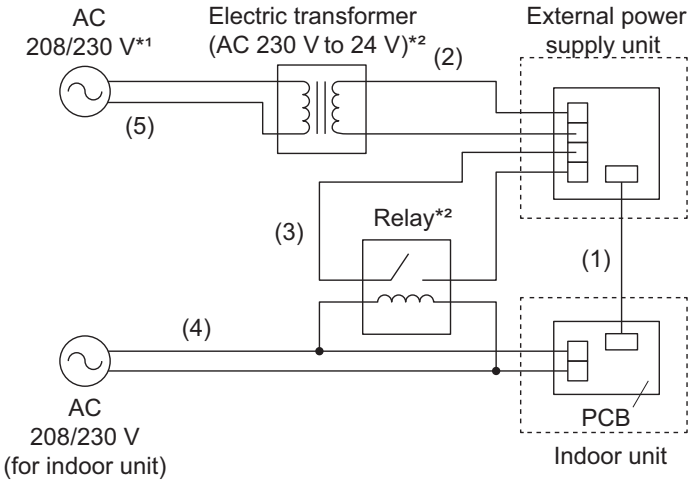
■ Dimensions

This product is comprised of a body and cover.

Unit: in (mm)



■ Wiring diagram



NOTES:

- *1: A dedicated power supply that is not shut off even if turned off the indoor units.
- *2: Locally purchased.

(1) Connect the external power supply unit and the PCB of the indoor unit with the provided connecting cable. (Depending on the model of the indoor unit, the adapter cable is also used.)

(2) Connect AC 24 V (±20%) power to the terminal of the external power supply unit.

(3) Connect the contact side of the relay (with the normally closed contact) to external power supply unit.

(4) Connect the inner and relay power lines to the circuit breaker.

(5) Connect the power line of the power transformer primary side to the circuit breaker.

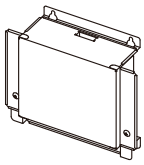
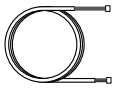
■ Electrical requirement

The following items are necessary to install this product. (These items are not included with this product and must be purchased separately.)

Name	Q'ty	Description
Relay	1	Primary side voltage: AC 208/230 V. Secondary side rated current: 3 A or more. Normally Closed contact. IEC61810-1 or 60335-1 Reinforced insulation between primary side and secondary side
Electric transformer	1	AC 24 V ±15% UL Class II

NOTE: When connecting multiple units, do not exceed the capacity of the transformer.

■ Accessories

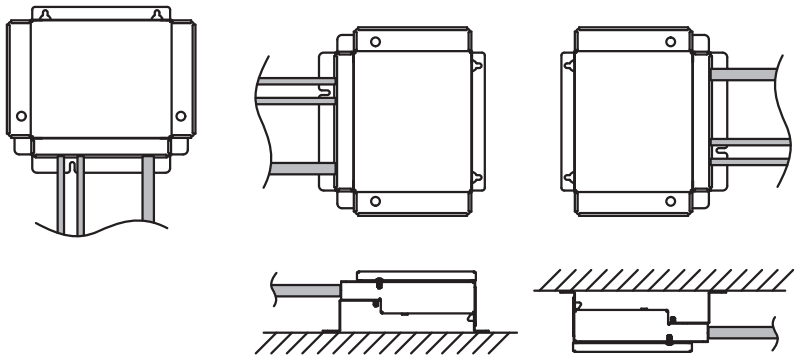
Part name	Exterior	Q'ty	Part name	Exterior	Q'ty
Installation manual		1	Adapter cable		1*1
External power supply unit		1	Cable clamp		1*1
Tapping screw		4	Cable tie (large)		3
Connecting cable (5 m)		1	Cable tie (small)		1
EMI core		1*2			

NOTES:

- *1: It is used to connect to the following indoor unit type.
  - Circular flow cassette type
  - Compact floor type
- *2: It is used to connect to the following indoor unit type.
  - Floor/Ceiling type

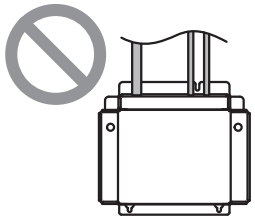
■ Installation precautions

This product can be installed in the following direction.



Prohibited

To prevent water from entering through the cable,
do not install this product in the direction shown in the following figure.



FUJITSU GENERAL LIMITED

3-3-17, Suenaga, Takatsu-ku, Kawasaki 213-8502, Japan
URL : http://www.fujitsu-general.com

- "AIRSTAGE" is a worldwide trademark of FUJITSU GENERAL LIMITED.
- Microsoft, Internet Explorer, Windows, and Windows Vista are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries.
- Adobe and Acrobat Reader are either registered trademarks or trademarks of Adobe Systems Incorporated in the United States and/or other countries.
- Intel is a trademark of Intel Corporation in the U.S. and/or other countries.
- Echelon, LONWORKS, and the Echelon logo are trademarks of Echelon Corporation registered in the United States and other countries.
- BACnet is a registered trademark of the American Society of Heating Refrigeration and Air Conditioning Engineers (ASHRAE).
- Niagara Framework, JACE and the logos used herein including such marks are trademarks of Tridium.
- Google Chrome is a trademark of Google Inc.
- Other company and product names mentioned herein may be registered trademarks, trademarks or trade names of their respective owners.

Copyright © 2019, 2021 Fujitsu General Limited. All rights reserved.

Product specifications are subject to change without notice.
Printed in Japan

DV_J3LU061EF_07
2021.04.23