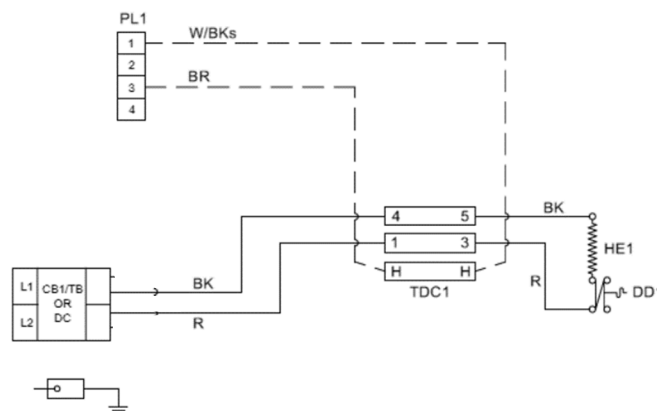
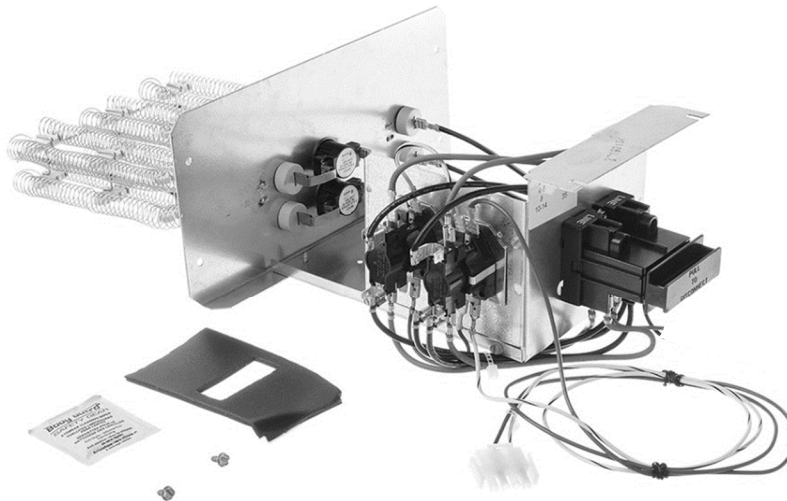


Special Electric Heat Instruction for the following models.

AMUG24LMAS	RHMOV2421M <u>N</u> ACJA
AMUG30LMAS	RHMOV3021S <u>N</u> ACJA
AMUG36LMAS	RHMOV3621M <u>N</u> ACJA
AMUG48LMAS	RHMOV4821S <u>N</u> ACJA

In the models listed above, the outdoor unit provides power and communication to the indoor unit through a 4-wire line voltage / communications cable. This cable provides power to the controls as well as the blower itself. It does NOT, however, provide power to electric heat kits that may be installed. **The RXBH heaters in this application must have a separate power source**, sized to handle the load of the electrical heating elements only.

1. Turn off power to unit.



2. Remove blower access door. (Top front panel in the up-flow position.) Retain the screws for later use.
3. Remove heater **element cover plate** and discard. Keep the screws for heater kit installation. (Fig 1)
4. Mount the heater kit through the opening with 4 screws retained in step 3. If needed, use the two screws provided in the kit bag to mount the top flange of the heater kit to the top of the unit. (Fig 3)
5. Remove the air handler control box cover and locate harness from the heater that has a 4-wire plug. This may have 2 wires (Brown, White with a Black stripe) or it may have 3 wires (an additional White wire with a Blue stripe) and connect it to the air handler control board at connector CN67.



Warning

DIP switch SW101-3 on the air handler control board must be set to ON. This switch enables the blower Off delay to maintain airflow until after the timers in the heater open, turning off the heater. Failure to set this switch to ON will result in auxiliary heat elements being energized for a period of time after the fan shuts down.

Line Voltage Wiring

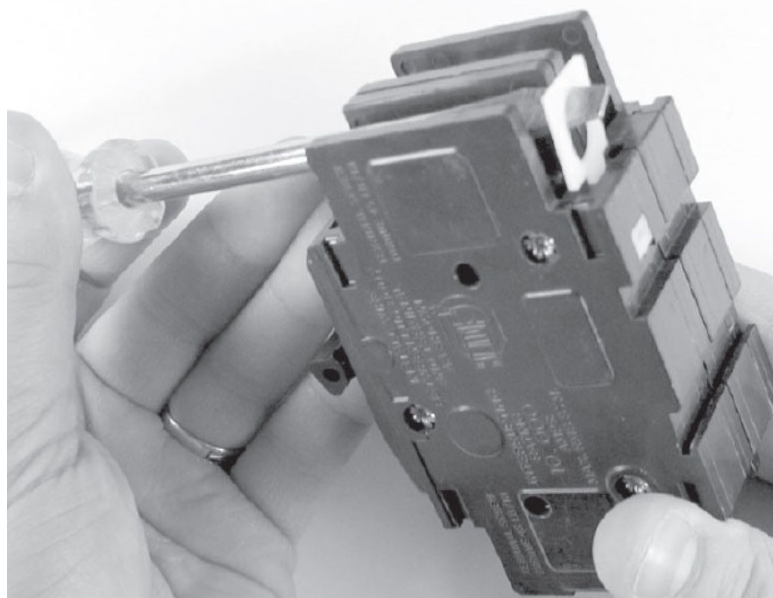
Connect high voltage power wiring as below.

6. Single-point wiring: Connect high voltage field power leads to breaker, pull-out disconnect or terminal block.
 - a. Power is connected to line side of breaker.
 - b. Connections for heaters with pull-out disconnects, Power is connected to line side of pullout socket body.
 - c. Connections for heaters with terminal blocks, Power is connected to Line Connection points on the terminal blocks.
7. 13, 15 and 18kW heaters have two breakers and require either two circuits or, the optional single circuit jumper bar kit (RXBJ-A21) so that a single circuit may be used.
8. Connect high voltage ground lead to ground lug on the bulkhead or the one on the heater kit.

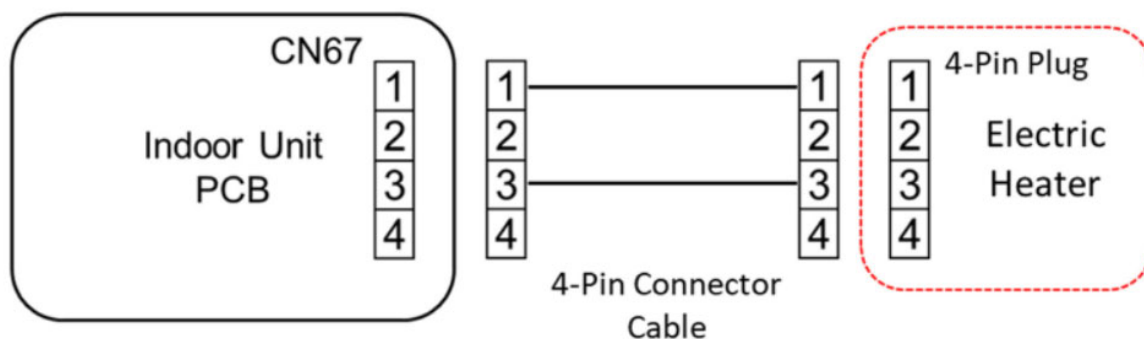
Note: Check all wiring to be sure connections are securely fastened, electrically isolated from each other and that the unit is properly grounded.

9. Skip to Step 12 if using a non-breaker version. Remove necessary knockouts on blower door to accommodate breakers on heater kits.
10. For horizontal applications, the breaker must be installed so that the ON position is up.
 - a. **IMPORTANT:** Failure to securely hold the breaker will result in the plastic mounting boss on the breaker to be broken off when the lug is tightened. Install breaker by inserting breaker mounting tab opposite white pull tab in opening, hook the mounting tab over edge in opening.

- b. With screwdriver or pencil, pull the white tab with the hole away from breaker will setting that side of the breaker into the opening. When breaker is in place, release the tab, locking circuit breaker into location in the opening. See Image below.



- c. Repeat the above operation for remaining breakers if more than one is provided.
- d. Double check wires and lugs to make sure all are secure and tight. Make sure unit wiring matches that shown on wiring diagram.
11. Follow the procedure below to place the circuit breaker cover to the blower access door: Clean the surface with Alcohol. The surface must be clean, dry, and free of grease and oil for establishing a good bonding. Peel off the release paper on the back of the circuit breaker cover. Center the breaker cover in relation to the knock-out. Align the top of the cover to the top of the access door. Firmly press the breaker cover onto the access door for 30 seconds.
12. Connect 4 pin plug to main circuit board at CN67.



13. Replace the blower access door. Making sure that the circuit breaker is aligned evenly with the knock-out on the access door.

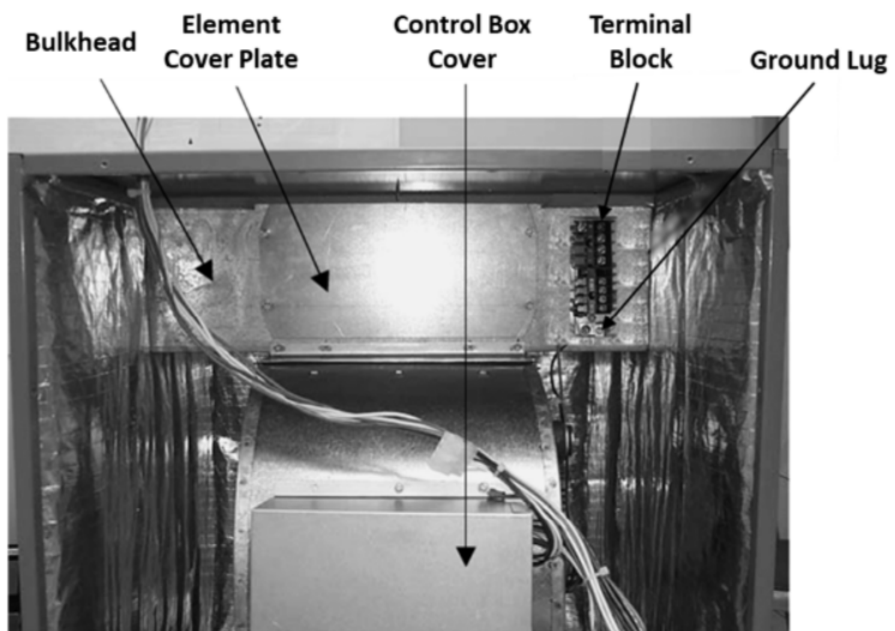


Figure 1

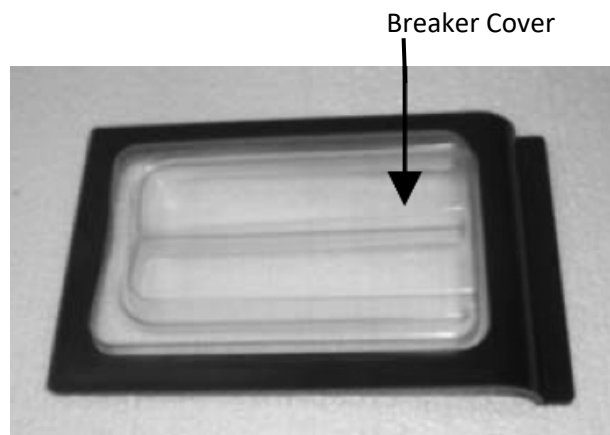


Figure 2

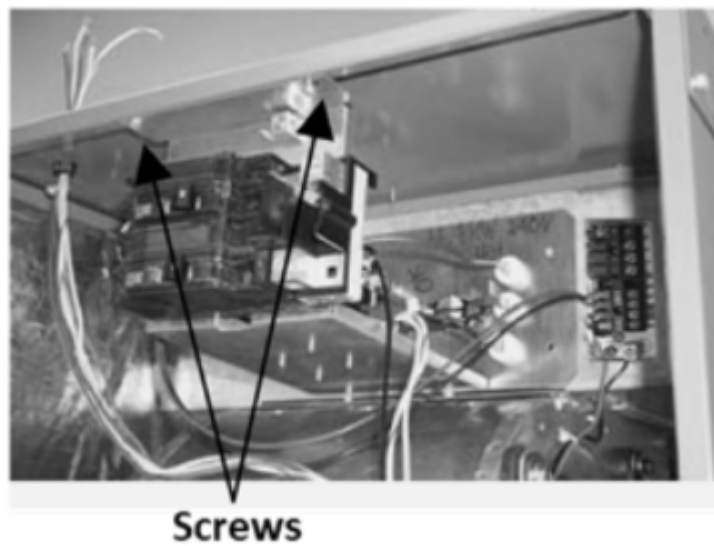


Figure 3

Applicable Heater Kit Models.

Heater Kit Part Number	Description
RXBH-1724A03J-A	3KW Electric Heat Kit with Breaker 208/230V 1PH
RXBH-1724A05J-A	5KW Electric Heat Kit with Breaker 208/230V 1PH
RXBH-1724A07J-A	7KW Electric Heat Kit with Breaker 208/230V 1PH
RXBH-1724A10J-A	10KW Electric Heat Kit with Breaker 208/230V 1PH
RXBH-1724A13J-A	13KW Electric Heat Kit with Breaker 208/230V 1PH *
RXBH-1724A15J-A	15KW Electric Heat Kit with Breaker 208/230V 1PH *
RXBH-1724A18J-A	18KW Electric Heat Kit with Breaker 208/230V 1PH *
RXBH-1724B05J-A	5KW Electric Heat Kit No Breaker 208/230V 1PH
RXBH-1724B07J-A	7KW Electric Heat Kit No Breaker 208/230V 1PH
RXBH-1724B10J-A	10KW Electric Heat Kit No Breaker 208/230V 1PH
RXBH-1724C05J-A	5KW Electric Heat Kit Pull-out Disconnect 208/230V 1PH
RXBH-1724C07J-A	7KW Electric Heat Kit Pull-out Disconnect 208/230V 1PH
RXBH-1724C10J-A	10KW Electric Heat Kit Pull-out Disconnect 208/230V 1PH

* Heater Kits 13KW and larger are dual circuit heaters. Use an RXBJ-A21 Jumper Bar Kit to convert to a single circuit.



Image 1: RXBJ-A21 Jumper Bar Kit

14. Restore power to outdoor unit and apply power to auxiliary heat circuit and proceed to setting function codes.

REFER TO PRODUCT TECHNICAL DOCUMENTATION FOR PROPER FUNCTION SETTINGS

WARNING

THE RXHB-21 COMBUSTIBLE FLOOR BASE IS REQUIRED WHEN UNITS WITH ELECTRIC HEAT ARE APPLIED DOWNFLOW ON COMBUSTIBLE FLOORING. FAILURE TO USE THIS BASE CAN CAUSE A FIRE, RESULTING IN PROPERTY DAMAGE, PERSONAL INJURY OR DEATH. UNITS WITH ELECTRIC HEATING KW EQUAL TO OR LESS THAN 18KW DO NOT REQUIRE A COMBUSTIBLE FLOOR BASE, HOWEVER, IT IS HIGHLY RECOMMENDED. UNITS WITH ELECTRIC HEAT REQUIRE A ONE IN CLEARANCE TO COMUBSTIBLE MATERIAL FOR THE FIRST THREE FEET OF SUPPLY PLENUM DUCTWORK.

1. **Function Setting 61; Control Switching of Integral Heater**

a. **Setting 00 – Auxiliary Heater Control 1:**

- i. Heater is switched On/Off based on Room Temperature (T_r) deviation from Set Point (T_s)
- ii. Adjust heater switching temperature range ($Thon$) using **Function setting 62**
- iii. Heater Lockout when room temperature is -21.6°F (-10°C) below heat setpoint.

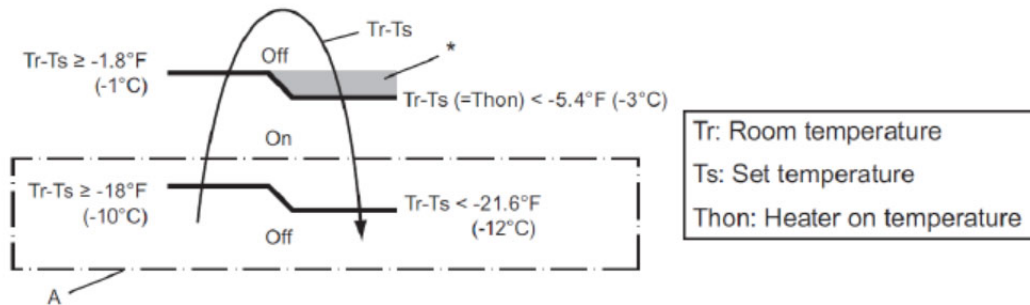


Diagram 1. Auxiliary Heater Control 1

* When Room temperature stays in this zone for a specific time, auxiliary heater is turned on. For timer setup, refer to **function number 71**.

b. **Setting 01 – Auxiliary Heater Control 2:**

- i. Similar control logic to **Setting 00**, but without heater lockout.



Diagram 2. Auxiliary Heater Control 2

* When Room temperature stays in this zone for a specific time, auxiliary heater is turned on. For timer setup, refer to **function number 71**.

c. **Setting 02 – Heat Pump Prohibition Control**

- i. Auxiliary Heater is the primary and only source of heating (heat pump is locked out).

d. **Setting 03 – Auxiliary Heater Control by OD temperature 1:**

- i. Heater switching is identical to setting 01
- ii. Heat source selection is based on outdoor ambient temperature thresholds.

Each Temperature threshold is user defined. **See Diagram 3.**

- Threshold B: Above this threshold, the heat pump only is used for heating operation. Adjustable using **Function setting 67**.
- Threshold A: Below this threshold, the heater is used for heating operation. Adjustable using **function setting 66**.
- In between threshold A and B: combination heat pump and heater are used for heating operation.

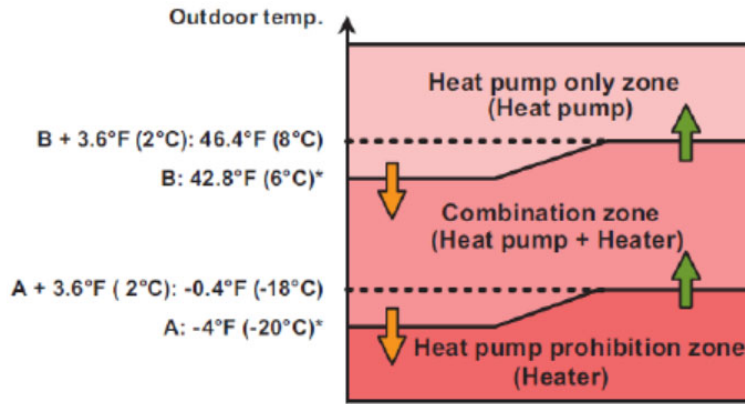


Diagram 3. Auxiliary Heater Control by OD Temperature 1

- e. **Setting 04** – Auxiliary Heater Control by OD Temperature 2:
- Heater switching is identical to setting 01
 - Heat source selection is based on outdoor ambient temperature threshold. Temperature threshold is user defined. See Diagram 4.
- Threshold A: Above this threshold, combination heat pump and heater are used for heating operation. Below this threshold, only the heater is used. Adjustable using **function setting 66**.

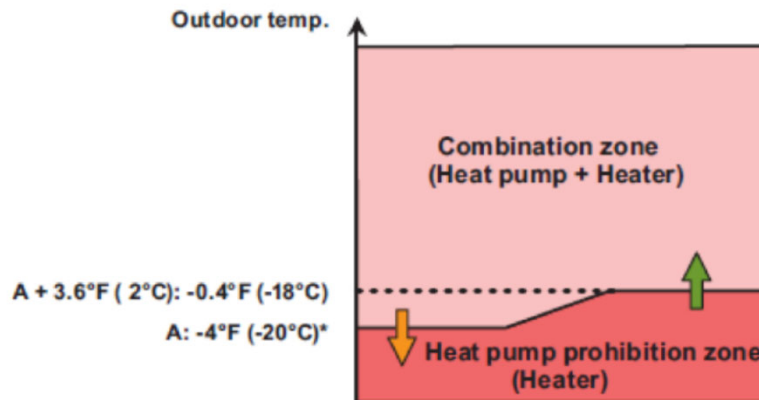


Diagram 4. Auxiliary Heater Control by OD Temperature 2

- f. **Setting 05** – Auxiliary Heater Control by OD Temperature 3:
- Heater Switching is identical to setting 01
 - Heat Source selection is based on outdoor ambient temperature threshold.

Threshold B: Above this threshold, only the heat pump is used. Below the threshold, combination of heat pump and heater are used for heating operation. Adjustable using **function setting 67**.

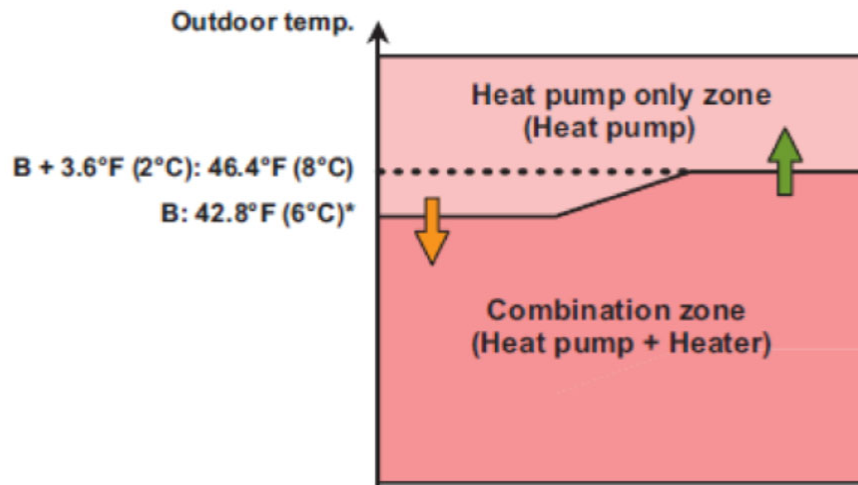


Diagram 5. Auxiliary Heater Control by OD Temperature 3

g. Setting 06 – Heat Pump Control

- i. Heater is used as primary source of heating. Heater is switched on when Room Temperature (T_r) is 0.9°F (0.5°C) below Setpoint (T_s) and off when T_r is 0.9°F (0.5°C) above Setpoint (T_s).

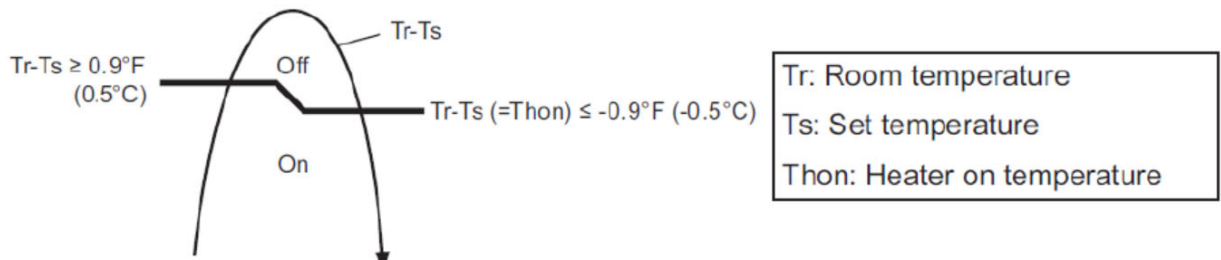


Diagram 6. Heat Pump Control

- ii. Heat pump is used as auxiliary source of heat and switched On/Off based on Room Temperature (T_r) deviation from Setpoint (T_s).
- iii. Adjust heater switching temperature range (T_{hon}) using **function setting 62**

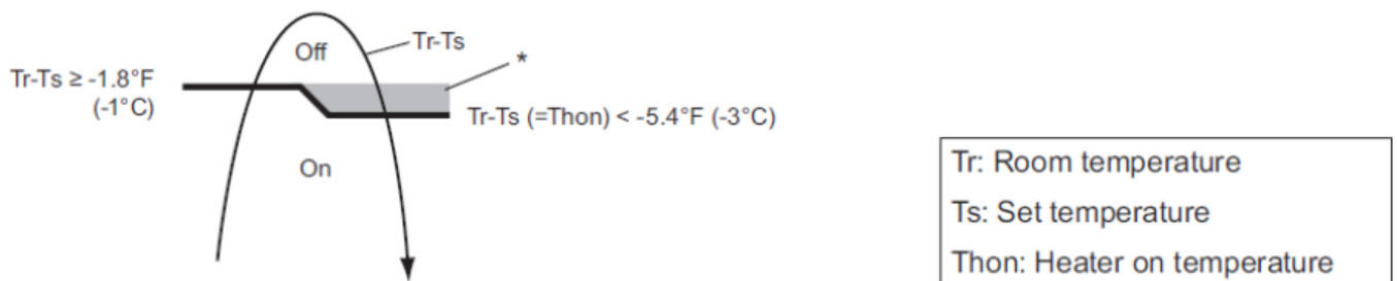


Diagram 7. Heat Pump Control

*: When room temperature stays in this zone for a specific time, auxiliary heater is turned on. For timer set up, refer to **function number 71**.

h. **Setting 07** – Heat Pump Control by OD Temperature 1

- i. Heater switching is identical to **Setting 06** (See Diagram 6 and 7)
- ii. Heat source selection is based on outdoor ambient temperature threshold.

Temperature threshold is user defined. See Diagram 4.

- Threshold A: Above this threshold, combination heat pump and heater are used for heating operation. Below this threshold, only the heater is used. Adjustable using **function setting 66**.
-

i. **Setting 08** – Heat Pump Control by OD Temperature 2

- i. Heater switching is identical to setting 06 (see diagram 6 and 7)
- ii. Heat source selection is based on outdoor ambient temperature threshold.

Temperature threshold is user defined. See Diagram 8.

- Threshold B'' Above this threshold, only the heater is used for heating operation. Below this threshold, combination heat pump and heater are used for heating operation. Adjustable using **function setting 67**.

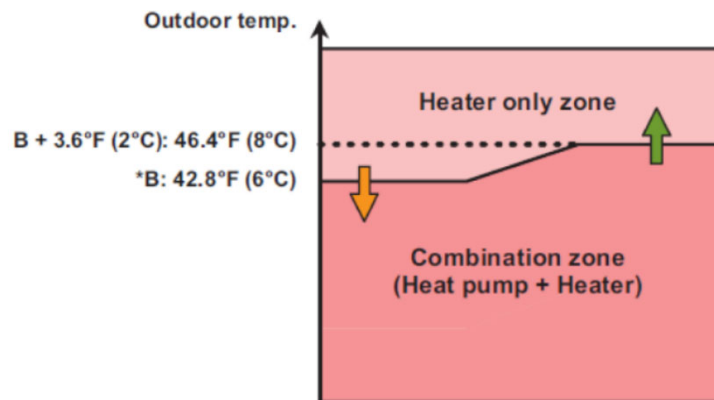


Diagram 8. Heat Pump Control by OD Temperature 2

j. **Setting 09** – Heat Pump Control by OD Temperature 3:

- i. Heater switching is identical to **setting 06** (See diagrams 6 and 7)
- ii. Heat source selection is based on outdoor ambient temperature thresholds.

Each temperature threshold is user defined. See diagram 9.

- Threshold B: Above this threshold, the heater only is used for heating operation. Adjustable using **function setting 67**.
- Threshold A: below this threshold, the heater only is used for heating operation. Adjustable using **function setting 66**.
- In between threshold A and B: combination heat pump and heater are used for heating operation.

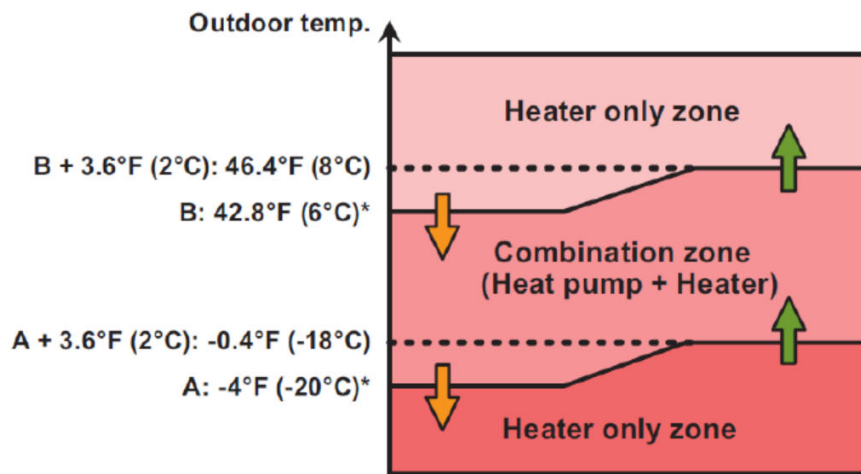


Diagram 9. Heat Pump Control by OD Temperature 3

2. **Function Code 93;** Airflow adjustment at heater only operation

- a. By Selecting the heater output in the table below at heater only operation, this function adjusts the airflow volume according to the heater output to prevent cold air feeling or limit tripping.

b.

Function Number	Setting Value	Setting Description / Output Range
93	00*	No Heater
	01	0 - 3.4 kW (Min CFM)
	02	3.4 - 6.8 kW (350 CFM)
	03	6.8 – 10.4 kW (710 CFM)
	04	10.4 – 13.7 kW (1070 CFM)
	05	13.7 – 18 kW (1410 CFM)

- c. Airflow volume is for reference.

- i. Since the airflow volume by motor has the upper limit and lower limit, the airflow volume differs depending on the models or settings even if this setting is performed.

3. **Function Code 73;** Enables or disable of emergency heat

a.

Function Number	Setting Value	Setting Description
73	00*	Disable
	01	Enable

Additional Notes:

1. External output CN67 is always set to auxiliary heat control. There is no need to set **function setting 60**, unless external input/output board is being used.
2. Auxiliary heater Control logic is selected using **function setting 61**.
3. Auxiliary heater ON/Off temperature thresholds are selected using **function setting 62**.
4. Auxiliary heater switching timer is selected using **function setting 71**.
5. Heat source selection by outdoor ambient temperature thresholds are selected by using **function setting 66 (A)** and **function setting 67 (B)**.
6. Indoor fan operation must be enabled when using integral electric heater. Fan operation is enabled by setting indoor unit control board DIP switch DIP-SW101-3 to On.
7. Please refer to the Design and technical manual (D&T) for complete installation and set-up instructions.