USER MANUAL

VDTU2A-301

VDSL2 LAN Extender

CTC Union Technologies Co.,

LEGAL

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FCC WARNING:

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instruction manual may cause harmful interference in which case the user will be required to correct the interference at their own expense.

NOTICES:

(1) The changes or modifications not expressively approved by the party responsible for compliance could void the user's authority to operate the equipment.
(2) Shielded interface cables and AC power cord, if any, must be used in order to comply with the emission limits.
(3) This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

CISPR PUB.22 Class A COMPLIANCE:

This device complies with EMC directive of the European Community and meets or exceeds the following technical standard. EN 55022 - Limits and Methods of Measurement of Radio Interference Characteristics of Information Technology Equipment. This device complies with CISPR Class A.

CE NOTICE

Marking by the symbol CE indicates compliance of this equipment to the EMC directive of the European Community. Such marking is indicative that this equipment meets or exceeds the following technical standards: EN 55022:1994/A1:1995/A2:1997 Class A and EN61000-3-2:1995, EN61000-3-3:1995 and EN50082-1:1997

Table of Contents

Chapter 1. Introduction

CTC Union's VDTU2A-301 LAN Extender is a Long Reach Ethernet media converter with one Ethernet port (RJ-45 connector) and one VDSL port (RJ-45 connector) This model is a bridge mode modem, well accommodating VDSL2 (Very-high-data-rate Digital Subscribe Loop) technologies to extend Ethernet service over single-pair phone line. Supporting both symmetric and asymmetric transmission, it can reach up to 100/75 Mbps bandwidth (line rate) within 300M or 10/10 Mbps (line rate) for 1 Km long range connections. By providing ultra-high speed, VDTU2A-301 LAN Extender makes your telephone line achieve its best performance than before. It has the advantage of minimum installation time (simply as plug-n-play) and minimum expense by allowing video streaming and data to share the same telephone pair without interference.

1.1 Features

- ➢ Cost effective bridge function to connect two Ethernet LAN
- ➢ Support flow control on Fast Ethernet port via PAUSE frame or Back Pressure
- ➢ IEEE 802.1Q VLAN tag transparent
- ➢ Easy installation via simple plug-and-play
- ➢ Selectable CPE and CO mode via DIP switch:
  Two working modes are built in the same unit, which keep the flexibility of installation and easy provision of service but lower inventory of service provider.
- ➢ Selectable fast and interleaved mode:
  Fast mode guarantees a minimum end to end latency less than1 ms. Interleaved mode provides impulse noises protection for any impulse noise with a duration less than 250 us, Interleaved mode has a maximum end to end latency of 10 m sec. Interleaved mode is the default mode.
- ➢ Selectable target data rate and target SNR margin:
  User has the ability to select fixed SNR margin (9 dB) or fixed target data rate. When fixed SNR margin is selected, the systems will maintain the SNR margin at 9 dB across all usable loop length. When fixed target data rate is selected, the system will lock the data rate up to 50 Mbps/30 Mbps whenever the calculated SNR margin is higher than 9 dB. This gives best system stability and is the default mode.

1.2 Specification

- ➢ LAN Interface:
  RJ-45 connector
  Complying with IEEE 802.3/802.3u/802.3x
  10/100 Base-T Auto-Negotiation, Auto-MDI/MDI-X.
- ➢ VDSL Interface:
  RJ-45 connector
  DMT Encoding
  Complying with ITU-T G993.1/993.2
  On-board surge protection
- ➢ 4-position DIP Switch
- ➢ LED:
  LAN: ACT/LNK, 10/100 Mbps, Half/Full Duplex
  VDSL: Power On/Off, CO/CPE, Idle/Trained/Link
- ➢ Power supply:
  DC single 12 Volt over 35mm DC jack
  Power consumption: 42 Watt maximum.

1.3 Applications

LAN Extender Application

Ethernet Switch   Ethernet Switch

VDTU2A-301   VDTU2A-301
(V2MC)   (V2MC)
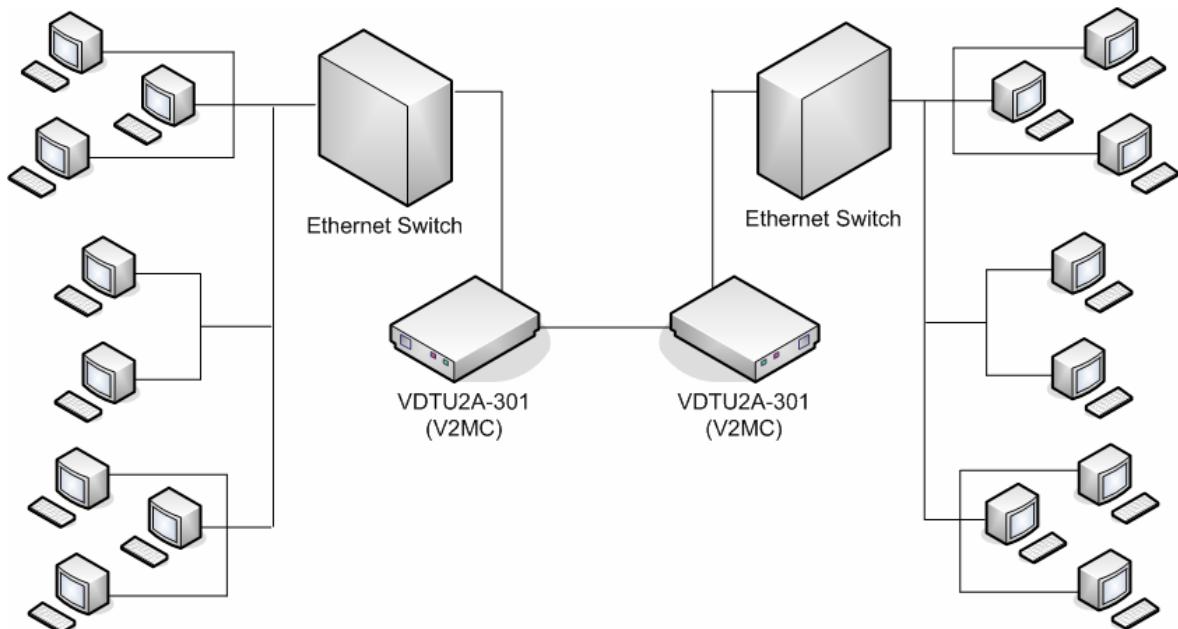
Chapter 2. Installation

This chapter shows the front panel and how to install the hardware.

2.1 Front Panel

Please see the side view below configure 2.1:

Front panel can be separated into five parts fron left to right:
(1) DIP switch
(2) RJ-45 connector for Ethernet
(3) LEDs for Ethernet
(4) LED for VDSL
(5) RJ-45 connector for VDSL
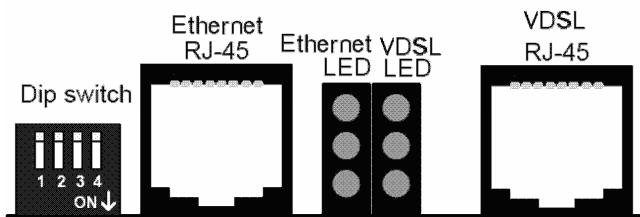
1. The RJ-45 is designed to connect to the Local Network with the Unshielded Twisted Pair (UTP) cable. The LEDs on top of RJ-45 connector show the status below:

LED for **Ethernet**	✳ Blinking	● On	○ Off
○	Activity	Link UP	Link Down
○		100Mbps	10Mbps
○		Full Duplex	Half Duplex

2. The following table describes the DIP Switchs' setting.
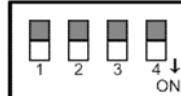
	Pin 1	Pin 2	Pin 3	Pin 4
	Side	Channel	Rate Limit	SNR
Off	CO	Interleave	Symmetric	9dB
On	CPE	Fast	Asymmetric	6dB
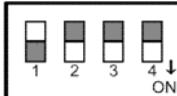
Pin 1: CO, CPE switch

GO: LAN Extender acts as Central Office (CO) side.

GPE: LAN Extender acts as Customer Premise Equipment (CPE) side.
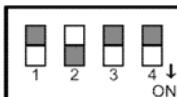
Pin 2: Impulse noise protection

Interleave mode: Provides communication protection for up to 250ms impulse noise with latency less than 6 ms.

Fast mode: Direct data transmission with latency less than 1 ms.
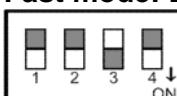
Pin 3: Band Plan

Symmetric: Support the band plan G.997 and provide the symmetric transmission on both down stream and upstream.

Asymmetric: Provides highest line rate in short range in asymmetric mode.
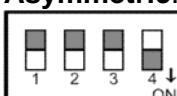

Pin 4: General protection

9dB: Better channel noise protection with SNR up to 9 dB

6dB: Original channel noise protection with 6 dB SNR.

3.   The following table describes the LEDs' function of the product.

LED for VDSL	✳ blinking	● On	○ Off
○		Power **ON**	Power **OFF**
○		**CPE**-mode	**CO**-mode
○	**Slow: Idle** **Fast: Training**	**Linked**	**Off line**

2.2 Real Panel

The DC Jack on the rear panel can be connected to power supply adaptor with the DC input.

2.3 Installation

Please see the illustation below

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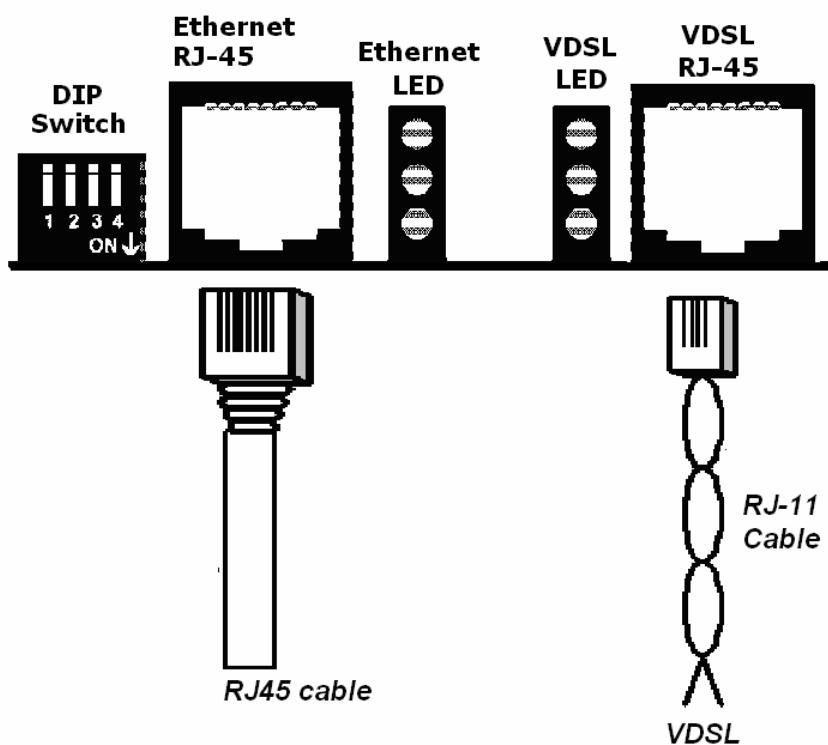
# *Appendix 1. Connector Architecture*

Connector Architecture

Ethernet Port Connector (RJ-45)

The Ethernet Port interface is a 8 position Modular Jack. The table below displays the pin out assignments.

Pin Number	Assignment (MDI-X)	Figure
1	RX+; Receive data +	
2	RX-; Receive data -	
3	TX+; Transmit data +	
4	Not used	
5	Not used	
6	TX-; Transmit Data -	
7	Not used	
8	Not used	
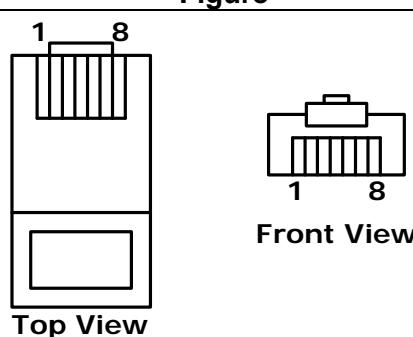
VDSL Interface Pin Assignments (RJ-45)

The VDSL interface is standard eight-pin modular jack. The table below displays the pin out assignments.

Pin Number	Description	Figure
1	Not used	
2	Not used	
3	Not used	
4	ANALOG Input/Output	
5	ANALOG Input/Output	
6	Not used	
7	Not used	
8	Not used	

Transmission Series

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