Dynamix UM-V2

VDSL2 LAN Extender

User Manual

Version 1.00

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Chapter 1 Introduction

Dynamix UM-V2 VDSL LAN Extender is a long reach Ethernet media converter with one Ethernet port (RJ-45 connector) and one VDSL port (RJ-45 connector) It 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, Dynamix UM-V2 VDSL 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

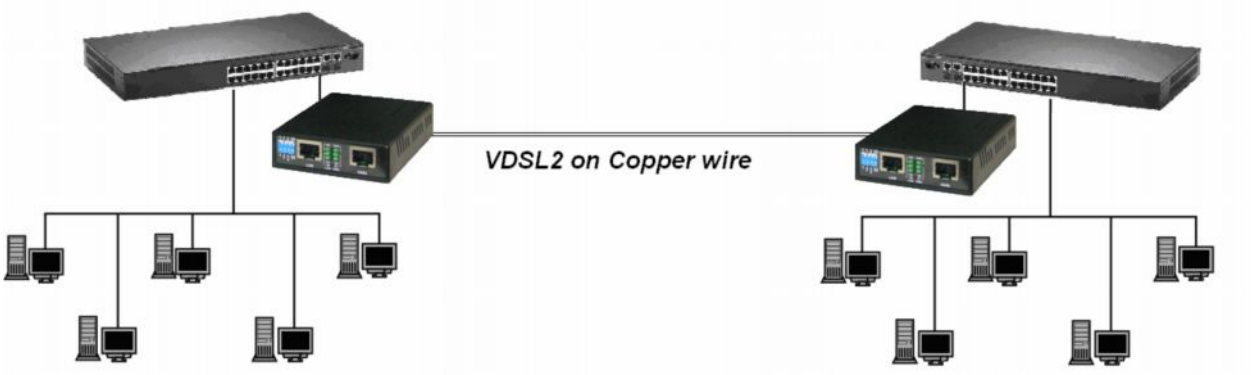
- Cost effective bridge function to connect two Ethernet LAN
- Support flow control on Fast Ethernet port via PAUSE frame or Back Pressure
- IEEE 802.1Q VLAN tag transparent
- Easy installation via simple plug-and-play
- Selectable CPE and CO mode via DIP switch:
  Two working modes are built in the 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: 4.2 Watt maximum.
- Dimension: 95.5 x 69.4 x 22mm

1.3 Applications

LAN Extender Application

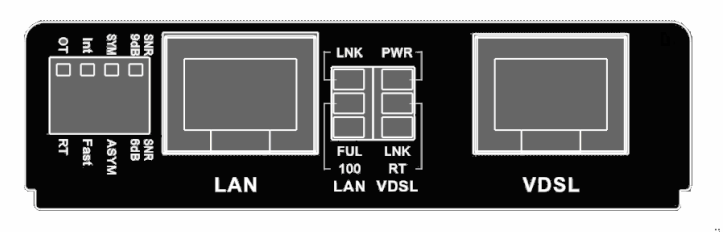


Chapter 2 Hardware Installation

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

2.1 Front Panel

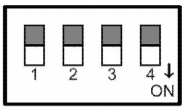
Please see the side view below configure 2.1:
Front panel can be separated into five parts fron left to right:
(1) DIP switch
(2) RJ-45 connector for Ethernet
(3) LEDs for Ethernet
(4) LED for VDSL
(5) RJ-45 connector for VDSL



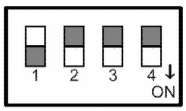
1. The RJ-45 is designed to connect to the Local Network with the Unshielded Twisted Pair (UTP) cable. The LEDs on top of RJ-45 connector show the status below:

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.



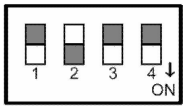
	Pin 1	Pin 2	Pin 3	Pin 4
	Side	Channel	Rate Limit	SNR
Off	CO	Interleave	Symmetric	9dB
On	CPE	Fast	Asymmetric	6dB



Pin 1: CO, CPE switch

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

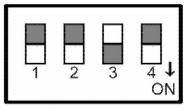
GPE: LAN Extender acts as Customer Premise Equipment (CPE) side.



Pin 2: Impulse noise protection

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

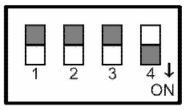
Fast mode: Direct data transmission with latency less than 1 ms.



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.

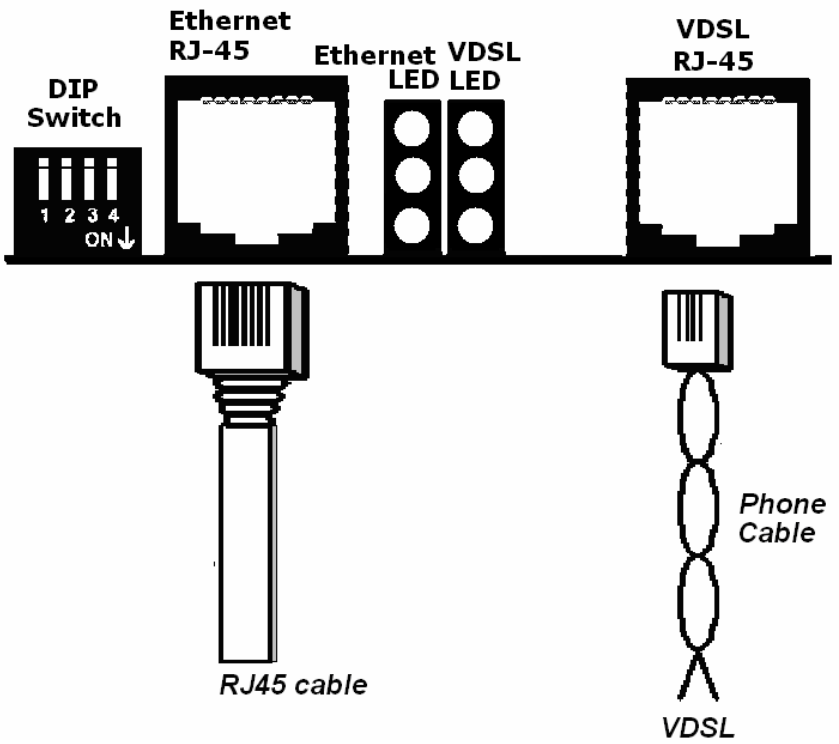
LED for **VDSL**	✹ **blinking**	● **On**	○ **Off**
○		Power **ON**	Power **OFF**
○		**CPE**-mode	**CO**-mode
○	**Slow: Idle** **Fast: Training**	**Linked**	**Off line**

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

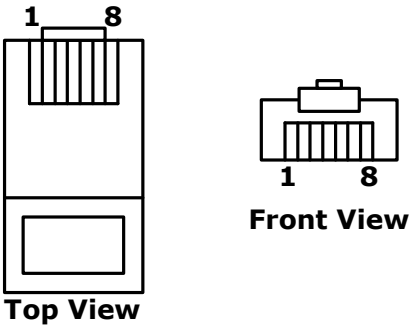


Appendix I

Connector Architecture

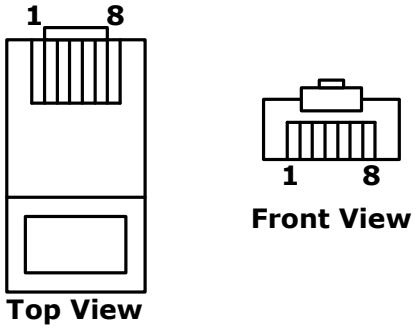
Ethernet Port Connector (RJ-45)

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	

Appendix II

Chassis Accessory

Dynamix also provide the Mini-Chassis solution for application on the rack in CO side.

The major factor of Dynamix UR-V8 is listed below:

- 2 U high
- Support 8-slot in one unit
- Two units of mini-chassis are able to fit into the 19-inch standard rack to support 16-slot in 2U height., as the illustration below
- Power Input: 90-230V AC, 47~63Hz
- Embedded 10A/230V fuse.