



# **VDSL2 LAN Extender**

## **User Manual**

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# Chapter 1 Introduction

Proscend v100M VDSL LAN Extender is a long reach Ethernet media converter with one Ethernet port (RJ-45 connector) and one VDSL port (RJ-45 connector) 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, Proscend VDSL 100M 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.

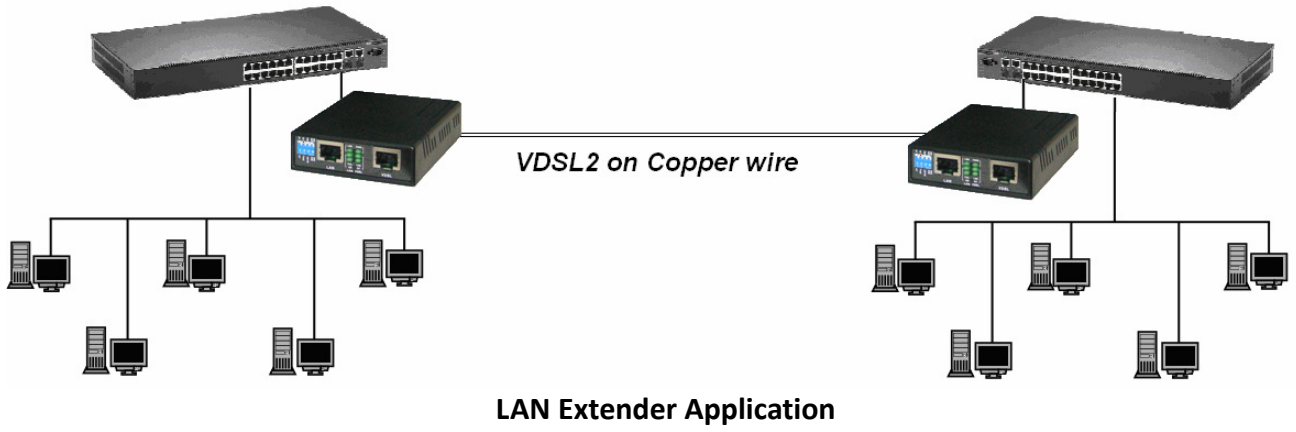
## 1.1 Features

- 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
- One box design, CO/CPE bridge solution
- Defines profile 17a band plan for long distance transmission
- 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 than 1 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.
- CO/CPE mode select
- 10Base-T: 2-pair UTP Cat.3,4,5 up to 100m(328ft)
- 100Base-T: 2-pair UTP Cat.5 up to 100m(328ft)
- Twisted-pair telephone wires(AWG24 or better) up to 1.4km
- Support quality of service(QoS) classification and queueing base on VLAN and Ethertype
- Optimized to support low latency applications, as require for voice
- Dimension: 95.5 x 72 x 22mm
- Operating Temperature: 0~50°C
- Storage Temperature: -25~70°C
- Operating Humidity: 10% to 90%,relative humidity, non-condensing
- Storage Humidity: 10% to 90%,relative humidity, non-condensing

# 1.3 Applications



# Chapter 2 Hardware Installation

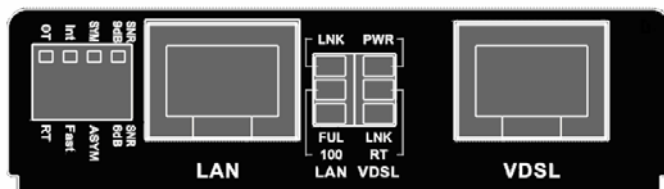
This chapter shows the front panel and how to install the hardware.

## 2.1 Front Panel

Please see the side view below figure 2.1:

Front panel can be separated into five parts from left to right:

- (1) DIP switch
- (2) RJ-45 connector for Ethernet
- (3) LEDs for Ethernet
- (4) LEDs 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 <b>Ethernet</b>	✱ blinking	● On	○ Off
	<b>Activity</b>	<b>Link UP</b>	<b>Link Down</b>
		<b>100Mbps</b>	<b>10Mbps</b>
		<b>Full Duplex</b>	<b>Half Duplex</b>

2. The following table describes the DIP Switches' setting.



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



Pin 1: OT, RT switch

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

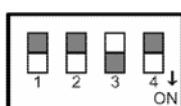
**RT:** LAN Extender acts as Customer Premise Equipment (CPE) side.



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 downstream and upstream.

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



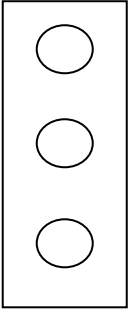
Pin 4: General protection

**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.

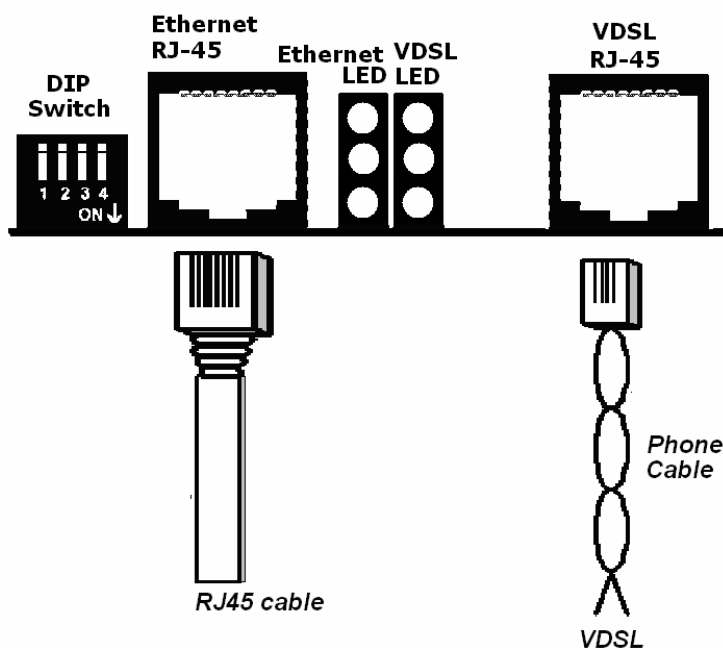
LEDs for VDSL	✱ <b>blinking</b>	● <b>On</b>	○ <b>Off</b>
		Device Power <b>ON</b>	Device Power <b>OFF</b>
		<b>CPE-mode</b>	<b>CO-mode</b>
	<b>Slow: Idle</b> <b>Fast: Training</b>	<b>Linked</b>	<b>Off line</b>

## 2.2 Rear 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 illustration below



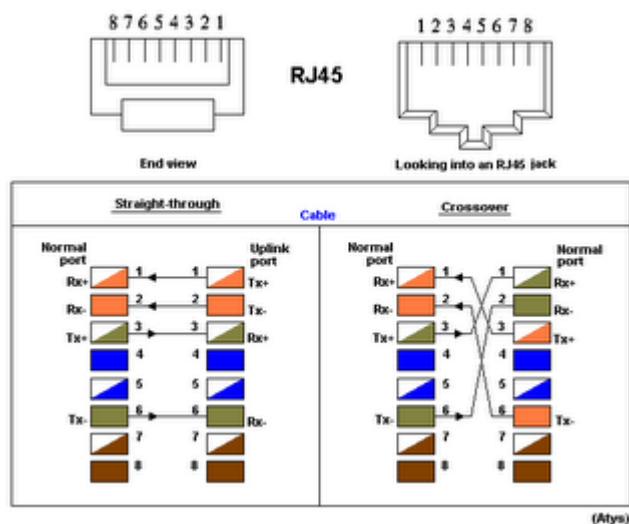
# Appendix I

## 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.

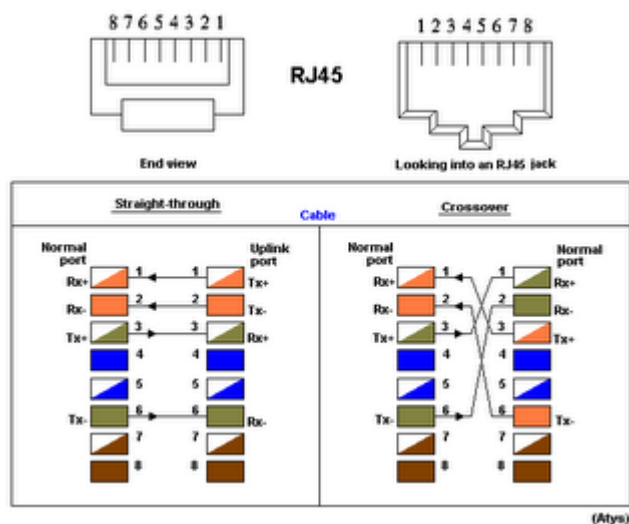
Pin Number	Assignment (MDI-X)	Figure
1	RX+; Receive data +	
2	RX-; Receive data -	
3	TX+; Transmit data +	
4	Not used	
5	Not used	
6	TX-; Transmit Data -	
7	Not used	
8	Not used	



## 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	



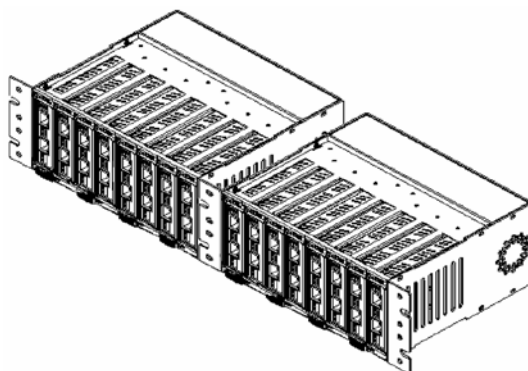
## Appendix II

### Chassis Accessory



Proscend also provide the Mini-Chassis solution for application on the rack in CO side. The major factor of Chassis 800 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.