



Long Reach PoE Extenders

VX-701-CO & VX-701-RT

User Manual



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1. Product Introduction

1.1 Description

Versa Technology's VX-701-CO and VX-701-RT Long Reach PoE Extenders are designed to extend the reach of Data and IEEE 802.3at Power over Ethernet beyond its reach of 100m for the network infrastructure. The solution works in pairs for point-to-point connectivity. The master unit (VX-701-CO) at the central site can transmit data and power over a single pair of telephone grade UTP wires up to 1,200m or Coaxial cable up to 1,800m. On the receiving end is VX-701-RT Long Reach PoE Extender with 4 PoE (PSE) ports (CPE). Without the need for local power supply, each VX-701-RT is equip with four 10/100Base-TX IEEE 802.3at PoE Ports for total power budget of 30W that can support any remote IEEE 802.3at/af powered device (PD). It enables centralized management of power supply from a single location for easy, efficient and cost-effective installation. The VX-701-RT can provide 30W of PoE power to each ethernet interface if local power is available. Versa's Long Reach PoE Extenders are an ideal PoE extension solution for service providers to deploy networking applications in public areas that require Wireless AP, IP Phones and IP Cameras.

1.2 Features

- Complies to IEEE 802.3at PoE
- Industrial-Grade Extenders for applications in harsh environment
- Simultaneous transmission of Ethernet data and PoE Power over UTP wire or coaxial cable
- Centralized management of power supply
- Eliminated the need for local power supply at remote sites
- Easy cabling for quick installation
- Long transmission distance up to 1000 m
- Quick deployment and easy maintenance.
- Flexible and efficient power management
- Automatically switch between VDSL2 Profile 30a and 17a to utilize bandwidth performance
- Dip Switch provides 30W PoE power to ethernet interface if local power is available

1.3 Specifications

Hardware Interfaces:

- Terminal Block for Copper Port
- BNC Female for Coaxial Port
- 4 x RJ-45 10/100Base-TX IEEE 802.3at PoE Port

3 Position Dip Switch

- Selectable target band plan (Asymmetric or Symmetric)
- Selectable target SNR margin (6dB or 9dB)
- Selectable Remote Power (ON) or Local Power (OFF)

LED Indicators:

- Active: System Status
- LPWR/RPWR: Local Power/Remote Power
- PoE: PoE Port Status
- Available PoE Output (Watts): 5/15/30
- Line Speed (Mbps): Link/20/40/60/80/100

Power Supply:

- Terminal blocks for redundant DC power inputs
- Din connector for external AC to DC adaptor
- Input Voltage: 48 to 57 VDC
- Power Consumption: 65 Watts maximum
- Over current protection
- Automatic short protection

Standards Support:

- VDSL2 ITU-T G.993.2
- VDSL2 Profiles: 17a and 30a

Protocol Support

- Transparent bridging to higher layer protocols

Operating Environment

- Operating Temperature: -40°C to 75°C
- Storage Temperature: -40°C to 85°C
- Humidity: 10% - 95% (non-condensing)

Physical

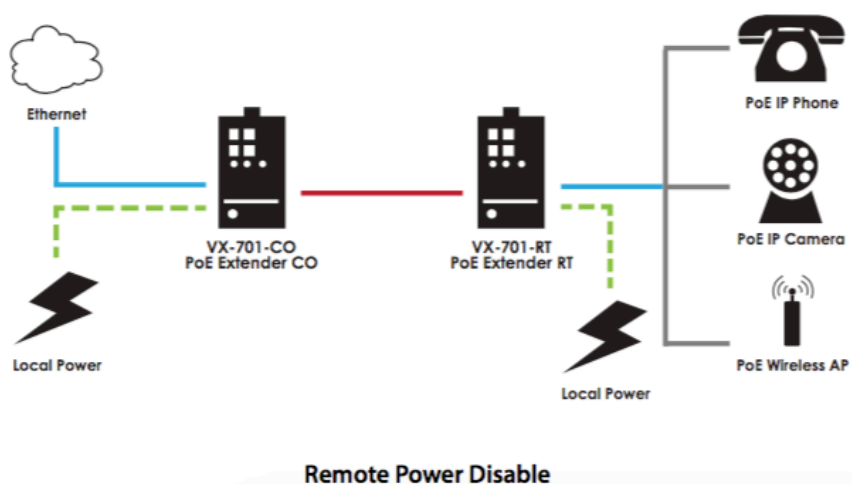
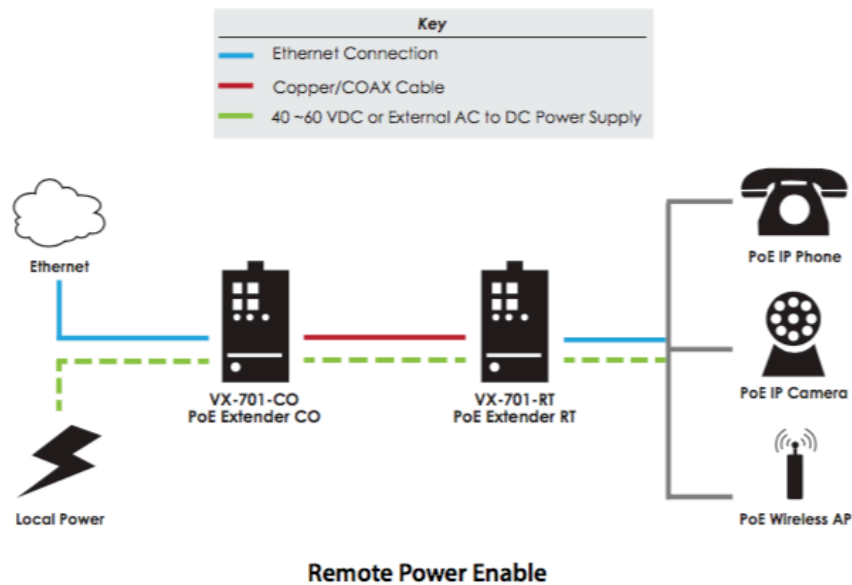
- Hardened aluminum case, IP30
- Dimensions: 62 x 135 x 106.5 mm
- Installation: DIN-Rail, Panel Rack Mounting

Regulatory Compliance

- CE
- FCC Part 15 Class B
- EN60950

1.4 Applications

The solution works in pairs for point-to-point connectivity. The master unit (VX-701-CO) at the central site can transmit data and power over a single pair of telephone grade UTP wires up to 1,200m or Coaxial cable up to 1,800m. On the receiving end is VX-701-RT Long Reach PoE Extender with 4 PoE (PSE) ports (CPE). Without the need for local power supply, each VX-701-RT is equip with four 10/100Base-TX IEEE 802.3at PoE Ports for total power budget of 30W that can support any remote IEEE 802.3at/af powered device (PD). It enables centralized management of power supply from a single location for easy, efficient and cost-effective installation. The VX-701-RT can provide 30W of PoE power to each ethernet interface if local power is available. Versa's Long Reach PoE Extenders are an ideal PoE extension solution for service providers to deploy networking applications in public areas that require Wireless AP, IP Phones and IP Cameras.



1.5 Reference Performance Data

UTP – 24AWG Copper Wire

SNR	6dB		6dB		
Profile	Asymmetrical		Symmetrical		
Distance	Upstream Line Rate (Mbps)	Downstream Line Rate (Mbps)	Upstream Line Rate (Mbps)	Downstream Line Rate (Mbps)	PoE output power
300 m	65	100	100	100	30 W
400 m	45	95	70	70	20 W
600 m	30	65	45	45	15 W
800 m	10	45	27	27	7 W
1,000 m	6	35	18	18	5 W
1,200 m	1	20	8	16	4 W

Coaxial Cable

SNR	6dB		6dB		
Profile	Asymmetrical		Symmetrical		
Distance	Upstream Line Rate (Mbps)	Downstream Line Rate (Mbps)	Upstream Line Rate (Mbps)	Downstream Line Rate (Mbps)	PoE output power
400 m	100	100	100	100	30 W
600 m	50	100	50	80	20 W
800 m	50	100	50	80	15 W
1000 m	45	90	50	60	10 W
1,200 m	40	70	50	50	8 W
1,400 m	35	55	40	35	6 W
1,600 m	30	40	35	30	5 W
1,800 m	10	35	20	20	4 W
2,000 m	5	30	15	15	

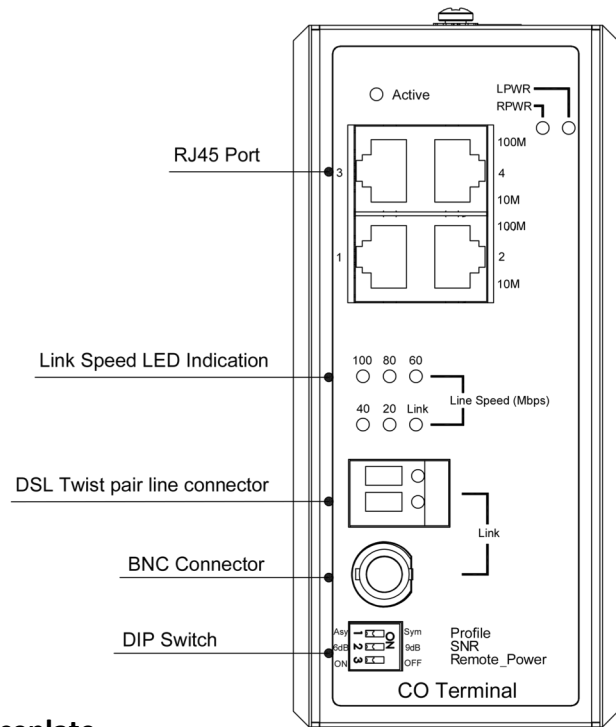
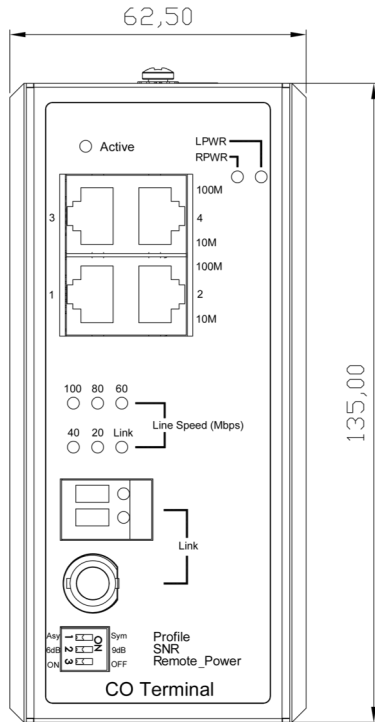
2. Hardware Description

2.1 Applications

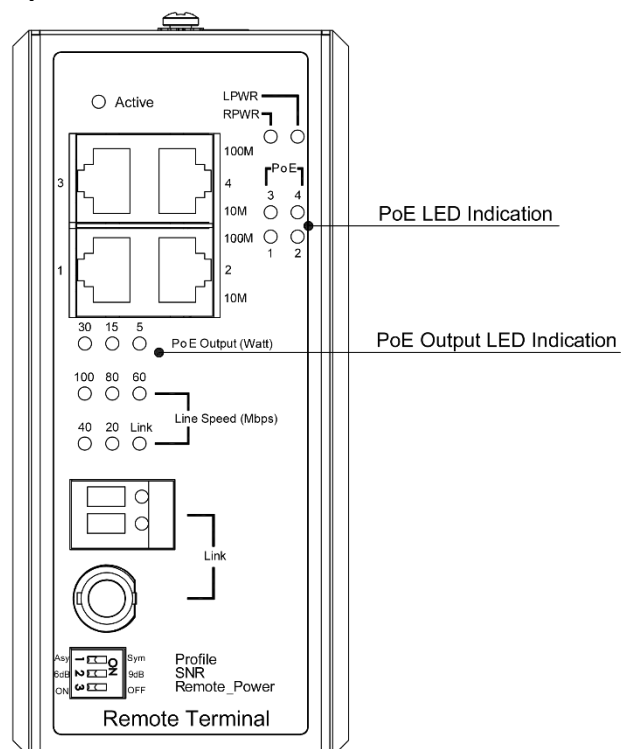
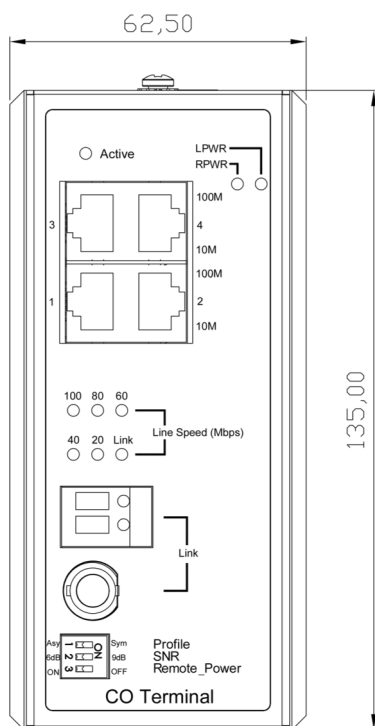
The VX-701-CO and VX-701-RT are Long Reach PoE Extenders with four 10/100Base-TX IEEE 802.3at PoE Ports. This chapter shows the product outlook and Hardware interfaces.

2.2 Product Outlook

CO Faceplate



CPE Faceplate



2.3 LED Definition

2.3.1 LED indicators

The LED indicators could provide instant feedback to users; the behaviors of the LED are given in below table:

LED Name	Indicator/Color	Condition
Local Power	Green-off	No local power input
	Green-on	Local power received
Remote Power	Green-off	No power is transmitted over VDSL interface
	Green-on	Power is transmitted over VDSL interface
4 x PoE(CPE)	Green-off	No power is transmitted over Ethernet port
	Green-on	Power is transmitted over Ethernet port
Link LED	Green-off	VDSL link not link up
	Slow flashing	VDSL port is under handshaking
	Fast flashing	VDSL port has data transmission or reviving
	Green-on	VDSL port link up
Link Speed, 5 x LEDs	Green-on	Displays VDSL link speed in Mbps (100M/80M/60M/40M/20M), if 80M LED is on then VDSL downstream link speed is in the range 80Mbps to 100Mbps.
PoE Output (Watt), 3 x LEDs, (CPE)	Green-on	Displays PoE PSE available output power in Watt (30W/15W/5W) – Remote Terminal Only
4 x RJ-45	Green	On: Ethernet link up and speed is 100M
		Flashing: data transmission or receiving
		Off: Ethernet is no link up
	Yellow	On: Ethernet link up and speed is 10M
		Flashing: data transmission or receiving
		Off: Ethernet is no link up

Table 2-1 VX-701-CO and VX-701-RT LED indications

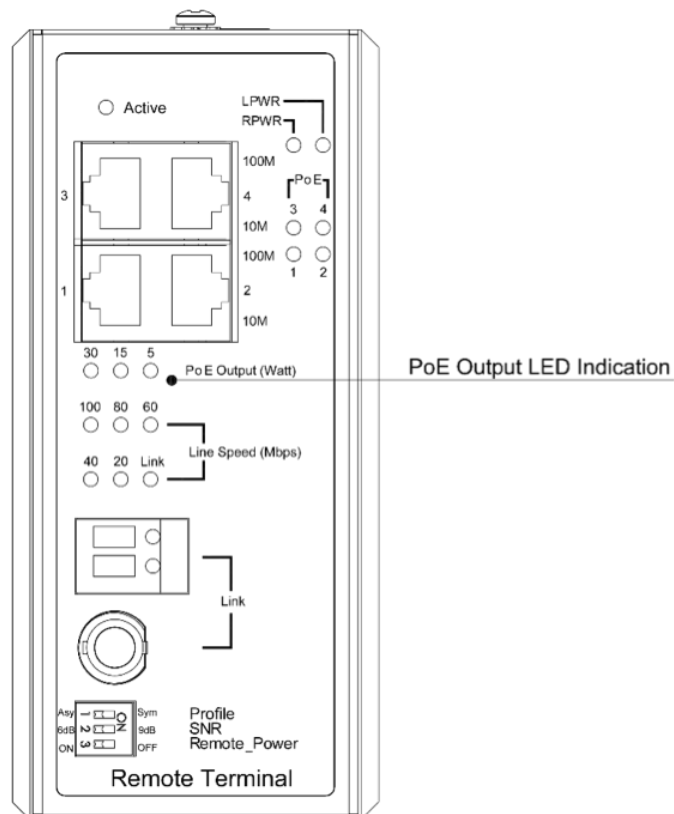
2.3.2 LED Display Status

According to your operation environment and power allocation, the display status of PoE Output LED will have three situations for VX-701-RT (CPE) device.

- (1) When the PoE power voltage is above or equal 50V ($\geq 50V$), the PoE output is normally working and LED display is stable status.
- (2) If the voltage between 44V and 50V, the PoE output is warning status and LED display is blinking. The device will cut off PoE Output in port-2, port-3 and port-4 automatically to protect the device.
- (3) When detected under 44V low voltage ($< 44V$), the PoE output is not working and LED is off status.

Voltage	PoE Output Status	LED Display	PoE Output Mode
≥ 50	Normal	Stable	Keeping working
44V-50V	Warning	Blinking	Cut off Port-2, Port-3, Port-4 Keeping Port-1
$< 44V$	No Output	Off	No working

VX-701-RT



2.4 Power

- **Input:**
 - VX-701-CO (CO): Provide two redundancy local input powers; power voltage is 48VDC to 57VDC, terminal Block.
 - VX-701-RT (CPE): Provide two redundancy local input powers; power voltage is 48VDC to 57VDC, terminal Block.
- **Output:**
 - VX-701-CO (CO): Provide 96VDC output to VDSL Line (Remote Power Feeding) to support remote power to CPE.
 - VX-701-RT (CPE): Ethernet port provide 4-port PoE PSE function to 802.3at (30W).
- **Power Consumption:**
 - VX-701-CO (CO): Max. 65W with Remote Power function enable, provide CPE PoE PSE 30W.
 - VX-701-RT (CPE): Max. 45W with Remote Power function enable, provide CPE PoE PSE 30W
- **Protection:**
 - Provide Over-Current protection and resettable smart Short-Circuit protection on both VDSL interface and PoE PSE interface.
- **Two power level output:**
 - The function is set to detect CPE function.
 - When CO cannot detect CPE, output is 48VDC to VDSL line.
 - When CO detected that the CPE is successfully connected, POV output is 96VDC to VDSL line.

2.5 3-Position DIP Switch

Versa's VX-701-CO and VX-701-RT are equipped with DIP Switch selection, which can allow users to select the parameters in order to meet the needs of different applications. The parameter options should be set identically on both CO and CPE sides.

Option	Profile	SNR	Remote Power
On	Asymmetrical	6dB	Enable
Off	Symmetrical	9dB	Disable

1. Regulatory Compliance

VX-701-CO and VX-701-RT are designed to comply with the following standards:

- CE
- FCC Part 15 Class B
- EN60950

2. Installation/Operation [**Precautions**]

IMPORTANT!

- Disconnect all power from devices before attempting installation
- Disconnect power to the devices before any I/O and DIP configuration
- **DO NOT** connect VX-701-CO and VX-701-RT to the same power source. Possible damages may be caused to devices due to power loop back through the PoE connections via copper wire.