Product Model	Model 2158 12.5 Mbps CopperLink Ethernet Extender		
Product Name	12.5 Mbps CopperLink Ethernet Extender		
Product Manager	John Grant	**Contact**	Jgrant@patton.com

Who are the customers for the Model 2158?

The Patton Model 2158, 12.5 Mbps CopperLink Ethernet Extender enables the utilization of existing copper infrastructure for high-speed Ethernet extensions at data rates up to 12.5 Mbps.

The Model 2158 is targeted to users or service providers that need high-speed Ethernet data links over their existing copper infrastructure.   Primary customers the Model 2158 is targeted to include but are not limited to CLEC's, ISP's, Educational Facilities (Campus), MTU/MDU's, and corporate/government offices. Popular applications for the CopperLink include Ethernet extension, medical imaging, video-conferencing, Ethernet Bridging, and inter-connecting remote devices or remote networks to a central LAN.

Typical applications include:

LAN-to-LAN Bridging: The Model 2158 connects remote LANs over a high-speed, symmetrical or asymmetrical link. The 2158/R unit is placed at the remote location and the 2158/L unit is placed at the central or primary site to provide a LAN-to-LAN connection over a voice-grade wire. This application will generally be made over a symmetrical link.

Ethernet Extension: The Model 2158 overcomes the 328 ft (100m) limitations of Ethernet with a symmetrical data link at distances up to 6,656 ft (2.03 km) and speeds up to 16.67 Mbps. The Model 2158 plug-and-play point-to-point solution does not require the use of Ethernet repeaters.

MTU/MDU Services: Using the Model 2158 rack chassis and the standalone solution, data services can be extended to the hotel guest, apartment resident, and housing resident, etc. Patton's Model 2158 CopperLink Ethernet Extenders allow service providers to avoid the cost and trouble of wiring the individual hotel rooms with 4-wire twisted pair or Ethernet cabling by using the existing voice-grade 2-wire infrastructure. The service provider would place the 1001R rack system with multiple 2158RC/L rack cards and an Ethernet switch in the basement or closet and the standalone 2158/R in the individual hotel rooms. Once connected, the Model 2158 will automatically establish a high-speed Point-to-Point data link. Bandwidth can be limited or distance increased by choosing various asymmetrical /symmetrical data rates on the Local (L) and Remote (R) CopperLink Ethernet Extenders. This application generally will be made over an asymmetrical link.

Related Products

Patton Electronic's CopperLink Product Line

Patton provides a complete line of CopperLink Ethernet Extenders. Whether it's ultra-high speed connections with the Model 2172 or long distance Ethernet Extension with the Model 2156 Patton has the solution for you. Patton's CopperLink solutions include rack-card based solutions for MxU environments and standalone Ethernet Extenders for interconnection between remote LANs or remote network devices.

Max. Distance	Max. Speed	Distance at Max. Speed	CopperLink™ Model
1 mile	50 Mbps	800 feet	Model 2172
1.1 miles	16.6 Mbps	3,125 feet	Model 2168
0.75 mile	12 Mbps	4,000 feet	Model 2158
5.7 miles	4.6 Mbps	2.0 miles	Model 2157
5.7 miles	2.3 Mbps	3.1 miles	Model 2156
5 miles	144 kbps	5 miles	Model 2155

Model 2158 Features and Benefits	
High-Speed line rates up to 12.5 Mbps.	Fast and reliable data transmission.
Extends Ethernet beyond its current 328 ft (100m) limitation.	Inexpensively links remote devices or extends LANs up to 4,000 ft (1.2km).
Full service integration (voice, video, and data) services over voice-grade telephone wire.	Eliminates the need to install/upgrade to new LAN-grade cable or expensive fiber.
Operation transparent to high-layer protocols.	Lets higher-layer broadcast, cast and uni-cast data frames pass through, and supports VLAN tagged frames.
Auto-sensing 10 or 100Base-T and full or half-duplex Ethernet.	No configuration necessary, just Plug your Ethernet connections in and play.
Auto MDI-X	Automatically detects DCE/DTE eliminating the concern of which type of cable straight-through or crossover.
Seven status LEDs.	Monitoring your connection and operational status is made simple.

Optional parts for the Model 2158

- DC Power Supplies
- Rack cards are compatible with Patton's Model 1001R High-Density Telco Rack Chassis and Cluster Boxes.

Optional DC Power Supplies for Standalone Units	
Part Number	**Description**
48V-PSM	-48 VDC power supply, 5VDC, 1A (optional)
24V-PSM	-24 VDC power supply, 5VDC, 1A (optional)
12V-PSM	-12 VDC power supply, 5VDC, 1A (optional)

If you require a DC power supply with the Model 2158, you must order the 2158 without power supplies and add the DC power supply as a separate line item.

EXAMPLE ORDER:

1 X 2158/E-2PK   Multi-Rate CopperLik Ethernet Extender Set (Local and Remote); No Power Supply

2 x 48V-PSM   -48 VDC power supply, 5VDC, 1A

Shipping/Export Information

ECCN export number: 8517.50.1000

Country of origin: United States of America, NAFTA

Total weight boxed: .96lbs (.44kg) without power supply

Individual unit: .4lbs (.18kg); without power supply

MTBF/ Repair Information

MTBF: 126,000 Hrs. Calculation based on MIL-HDBK-217F, Notice 2 - "Parts Count Reliability Prediction"

Mean time to repair: 7–10 days

Warranty: 1-year parts and labor

Out of warranty repair rate: $150, flat rate – contact Patton's Tech Support for details.

Physical Specifications

Dimensions: **Standalone:**   1.5" H x 4.13" W x 3.75" D (3.81 H x 10.5 W x 9.53 D cm)

Rack Card: 3.00" H x 0.83" W x 7.84" D (7.6 H x 2.1 W x 19.9 D cm)

Color: **Standalone:**   **Case:** Black   **Front and Back Panel**: Black with white letters

Rack Card: **Front and Back Panel:** White with black letters

Case material: **Standalone:** Plastic, Fire retardant   **Rack Card:**   Iridite Aluminum

Environmental

Operating Temp: 32 to 122°F (0 to 50°C)   **Storage Temp:** -40 to 185°F (-40 to +85°C)

Relative Humidity: Up to 90% RH, non-condensing

Altitude: 0 –15,000 feet (3,048 meters)

Ventilation requirements: None, units do not require cooling fans.

Approvals

Safety	Emissions	Telecommunications
CE Marked per EMC directive 89/336/EEC and low voltage directive 72/23/EEC.	FCC part 15, Class A	
	EN55022 Class A, conducted and radiated emissions	
ESD EN61000-4-2		

Power Supplies

Standalone Units Only

AC: 120VAC, 50-60Hz, external or Universal input, 100-240VAC, 50-60Hz, external

DC: -48VDC, -24VDC, or -12VDC external (optional)

Ordering Information-Model 2158	
Model	**Description**
2158/L/E	**Local 12.5 Mbps CopperLink Ethernet Extender; No Power Supply**
2158/R/E	**Remote 12.5 Mbps CopperLink Ethernet Extender; No Power Supply**
2158/L/EUI*	**Local 12.5 Mbps CopperLink Ethernet Extender; 100-240VAC**
2158/R/EUI*	**Remote 12.5 Mbps CopperLink Ethernet Extender; 100-240VAC**
2158/E-2PK	**12.5 Mbps CopperLink Ethernet Extender Set (Local and Remote); No Power Supply**
2158/EUI-2PK*	**12.5 Mbps CopperLink Ethernet Extender Set (Customer Premise and Central Office); 100-240VAC**
2158RC/L	**Local 12.5 Mbps CopperLink Ethernet Extender Rack Card**
2158RC/R	**Remote 12.5 Mbps CopperLink Ethernet Extender Rack Card**

• When ordering standalone units, it is recommended that the 2158 be ordered in sets: one 2158/L/E (Local) and one 2158/R/E (Remote). When ordering rack cards it is required to match a standalone R (Remote) with an L (Local) rack card and if you order the standalone L (Local), you must match it with an R (Remote) rack card.

• * =You must specify a country specific power cord

Environmentally Hardened Models	
Model	**Description**
ET2158/UI	**Extended Temperature 12.5 Mbps EnviroNET Ethernet Extender; 100-240VAC; -40 to 85C; NEMA4**
EC2158R/UI	**Environmentally Controlled 12.5 Mbps EnviroNET Ethernet Extender; 100-240VAC; 0 to 85C; NEMA4**
EH2158R/UI	**Environmentally Hardened 12.5 Mbps EnvrioNET Ethernet Extender; 100-240VAC; 0 to 50C; NEMA4**