PATTON ELECTRONICS COMPANY
PRODUCT QUICK REFERENCE
GoCard

Product Model   Model 2172 High Speed CopperLink Ethernet Extender

Product Name   High Speed CopperLink Ethernet Extender

Product Manager   John Grant   Contact   Jgrant@patton.com

Who are the customers for the Model 2172?

The Patton Model 2172 Multi-Rate CopperLink Ethernet Extender enables the utilization of existing copper infrastructure for high-speed Ethernet extensions at data rates up to 50 Mbps. The Model 2172 includes six asymmetrical and symmetrical settings, which provide the flexibility to increase the distance or speed of the Ethernet data links.

The Model 2172 is targeted to users or service providers that need high-speed Ethernet data links over their existing copper infrastructure. Primary customers the Model 2172 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. The variable symmetrical data rates ensure the highest possible data rate is achieved over various lengths and types of copper wire and environments. Variable asymmetrical line rates make the Model 2172 the ideal solution for service providers who want to differentiate their services or extend the reach of their customer base. The Model 2172 allows service providers to offer unparalleled performance for applications such as: always on Internet access, real time bi-directional video streaming, and various multimedia applications.

Typical applications include:

LAN-to-LAN Bridging: The Model 2172 connects remote LANs over a high-speed, symmetrical or asymmetrical link. The 2172 remote unit is placed at the remote location and the 2172 local 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 2172 overcomes the 328 ft (100m) limitations of Ethernet with a symmetrical or asymmetrical data link at distances up to 6,656 ft (2.03 km) and speeds up to 16.67 Mbps. The Model 2172 point-to-point solution does not require the use of Ethernet repeaters. This application will generally be made over a symmetrical link.

Dedicated Internet Services: The Model 2172 CopperLink technology enables ISP's to deliver dedicated high-speed Internet access from a Point-of-Presence (POP) to a customer premise. A 2172 local is used at the POP and a 2172 remote is used at the customer premise. The switch selectable rates (various asymmetrical and symmetrical settings) allow the ISP's to sell differentiated services as well increase the number of perspective customers due to a longer reach. 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 2172 Features and Benefits	
High-Speed line rates up to 50 Mbps.	Fast and reliable data transmission.
Switch selectable Asymmetrical or Symmetrical line rate options	Differentiated services and ability to adapt to different environments, distances, and multimedia.
Extends Ethernet beyond its current 328 ft (100m) limitation.	Inexpensively links remote devices or extends LANs up to 6,000 feet (1.83 km).
Full service integration (voice, video, and data) services over existing 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-sensing MDI-X	Automatically configures for DCE/DTE eliminating the confusion of whether to use a straight-through or cross over Ethernet cable.
Three status LEDs.	Monitoring your connection and operational status is made simple.

Switch Selectable Settings for the Model 2172:

Asymmetrical Line Rates		
Line Rates (AWG 24/0.5 mm)		
Upstream in Mbps	Downstream in Mbps	Distance in ft (m)
1	4	6,000 (1,830)
1	16	4,000 (1,200)
2	50	2,000 (610)

Symmetrical Line Rates		
Line Rates (AWG 24/0.5 mm)		
Upstream in Mbps	Downstream in Mbps	Distance in ft (m)
10	10	4,000 (1,200)
25	25	2,000 (610)
50	50	800 (245)

Optional parts for the Model 2172

- DC Power Supplies

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 2172, you must order the 2172 without power supplies and add the DC power supply as a separate line item.

EXAMPLE ORDER:

1 X 2172/E-2PK   50Mbps CopperLink Ethernet Extender Kit (2 Units); no power supply

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

Shipping/Export Information

ECCN export number: 5A991b.2

Schedule B: 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: 80,000 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)

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

Case material: **Standalone:** Plastic, Fire retardant

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. ESD EN61000-4-2	FCC part 15, Class A	
	EN55022 Class A, conducted and radiated emissions	

Power Supplies

AC: 120VAC, 50-60Hz, external or Universal input, 100-240VAC, 50-60Hz, external
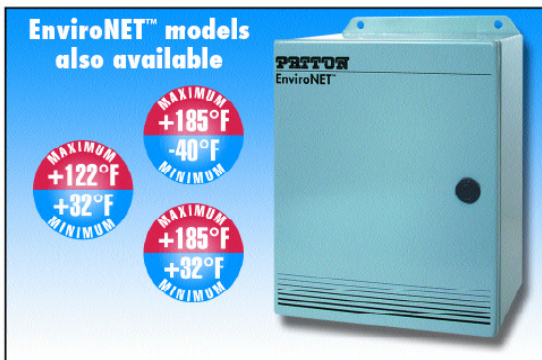
DC: -48VDC, -24VDC, or -12VDC external (optional)

Ordering Information for Model 2172

Model	Description
2172/E	50Mbps CopperLink Ethernet Extender; No Power Supply
2172/EUI*	50Mbps CopperLink Ethernet Extender; 100-240VAC desktop power supply
2172/E-2PK	50Mbps CopperLink Ethernet Extender Kit (2 Units); no power supply
2172/EUI-2PK*	50Mbps CopperLink Ethernet Extender Kit (2 Units); 100-240VAC desktop power supply

- When ordering standalone units, it is recommended that the 2172 be ordered in sets: our factory will set one unit to "Loc" local and one to "Rem" remote.

- * =You must specify a country specific power cord

Environmentally Hardened Models	
Model	**Description**
ET2172R/UI	Extended Temperature 50Mbps EnviroNET Ethernet Extender; 100-240VAC; -40 to 85C; NEMA4
EC2172R/UI	Environmentally Controlled 50Mbps EnviroNET Ethernet Extender; 100-240VAC; 0 to 85C; NEMA4
EH2172R/UI	Environmentally Hardened 50Mbps EnvrioNET Ethernet Extender; 100-240VAC; 0 to 50C; NEMA4