

# CopperLink™ Ruggedized Ethernet Extender

## Model CL1314R



*Use the CopperLink 1314R Ruggedized Ethernet Extender to interconnect remote LANs or a network enabled device up to 6 miles (10 km) apart using single-twisted-pair cabling—and realize the best possible speed/distance combination in the industry!*

### High Speed Extension

Realize symmetrical line rates of over 30 Mbps.

### Multi-rate Selection

Just plug the units in and select the ideal user-configurable rate for your application.

### Ethernet over 2 or 4 wires

Easy 2 or 4 wire (1 to 2 twisted pairs) connection via an RJ45 port. The additional pair offers additional bandwidth and failover.

### Ruggedized

Operating temperature of -40 to 85°C and optional conformal coating to protect against condensing humidity and corrosion.

### Hardened

Aluminum enclosure designed to meet IP40 specifications; DIN rail mount included

### Extended Temperature

-40 to 85°C operation.

### Transparent LAN Bridging

Transparently pass higher-layer protocols with support for 802.1Q VLAN tagging.

### Automatic Learning, Aging, and Filtering

Keeps local traffic local, ensuring efficient utilization of the long-range link.

Ethernet extension doesn't have to be expensive or difficult. The CL1314R Ruggedized Ethernet Extenders open the door to cost-effective Ethernet extension that is easy to set up. Featuring plug-and-play installation, the CL1314R CopperLink Ethernet Extenders leverage existing copper twisted-pair infrastructure to interconnect Ethernet devices and networks at high speeds over long distances.

Patton's CopperLink Ethernet Extenders ensure hassle-free set-up and operation, while achieving the highest possible line rate for the required distance and electromagnetic environment. Users can either let the modems select the best achievable rate or they can "hard-set" the desired line rate via DIP switches, console Telnet, or HTTP.

The CL1314R comes with a built-in two-port, auto-sensing, 10/100Base-TX Ethernet switch that provides automatic medium-dependent interface crossover capability (auto-MDIX). That means you

can use cross-over or straight-through cables (whichever is handy) to connect up to four Ethernet devices. The auto-MDIX feature detects the polarity of the cabling on each port, and automatically configures the signaling to match. Absolutely no user-configuration is required.

The CL1314R transparently passes all higher-layer protocols—including VLAN tagging, multicast addressing, VPN pass-through for IPsec, and all IP-video compression schemes. All common industrial protocols are also transparently supported, including MODBUS/TCP and PROFINET IO.

Set-up is easy! Simply connect up to four LAN devices to the Ethernet switch, plug the copper twisted-pair into each extender, and apply power! For simple, cost-effective and efficient Ethernet extension, Patton's CopperLink Ethernet Extenders are the ideal solution!

## Typical Application

**Extend 10/100Base-TX Ethernet to reach beyond its natural limitations**



Chart based on 24 AWG (.5mm) one cable pair

Line Rate	K Feet	Miles	km
192K	33972	6.4	10.4
512K	33188	6.3	10.1
1024K	29453	5.6	9.0
2048K	23332	4.4	7.1
4096K	16093	3.0	4.9
5696K	12098	2.3	3.7
8192K	9710	1.8	3.0
15296K	3844	0.7	1.2

As a rule of thumb, when using the CL1324R (2 pair/4 wire) extender a user can expect 30.6 Mbps at 3,844 feet (1,172 meters).



# CopperLink™ Model 1314R Ethernet Extender



Model CL1314R ruggedized Ethernet Extenders are ideal for delivering Ethernet links to remote buildings that are beyond the 328-foot (100-meter) distance limit of Ethernet. The 15.3 Mbps throughput eliminates bandwidth concerns previously experienced with other copper wired transmission technologies.

The CL1314R includes several user configurable line rates so that a user will get a consistent link, even in noisy environments. By utilizing existing voice-grade copper pairs or legacy serial circuits the expense and hassle of installing low capacitance or fiber cable is no longer required.

## • Plug-and-Play

Just unpack a pair of extenders and plug in the cables. Apply power and your connection is up and running. It just doesn't get any easier!

## • High Speed/Long Reach

The CL1314R Ethernet extender provides the industry's ultimate combination of speed and distance!

## Specifications\*

### Protocol

Transparent to higher layer protocols

### Transmission Line

CL1314—Single Twisted Pair (2 wire)

CL1324—Two Twisted Pair (4 wire)

### Line Rates

Rates from 192 kbps to 15.3 Mbps, selectable in all 64 kbps increments starting at 192 kbps

### Front Panel LED Status Indicators

WAN: Link, LAN (Ethernet): Link/Act, Power

### Line Coding

TC-PAM 16 rates up to 2.3 Mbps

TC-PAM 32 rates up to 5.7 Mbps

TC-PAM 64 rates up to 11.4 Mbps

TC-PAM 128 rates up to 15.3 Mbps

### Connectors

RJ-45 on copper line side and 2 x 10/100 Ethernet, terminal block power connector

### Line Interface

Transformer coupled, 1500 VAC isolation

### Management

DIP switch, Telnet console

### MTBF

4.7 years

### Power

External 90–260 VAC, 50–60 Hz

(Universal Input)

(Optional) Internal +12 to +48 VDC (10–52VDC)

### Power Consumption

0.8A@5V

### Operating Temp.

-40 to 185°F (-40 to 85°C)

### Humidity

5 to 95%, non-condensing

### Altitude

0 to 15,000 ft (0 to 4,600 m)

### Enclosure

Aluminum (designed to meet IP40)

### Dimensions

2.25W x 5.62H x 4.66D in.  
(5.7W x 14.27H x 11.83D mm)

### Weight

0.7 lbs (0.30 kg)

### Compliance

FCC Part 15A, CE Mark per EMC directive 89/336/EEC and Low Voltage Directive 73/23/EEC

\* Specifications subject to change without notice.



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PLUG-IN Electronic GmbH • Am Sonnenlicht 5 • 82239 Alling • Tel.: +49 (0) 8141 3697-0 • info@plug-in.de • www.plug-in.de