

For new-generation alternatives, please see Patton's CopperLink™ 2300 Managed Copper-Bonding Ethernet Extender with Security (http://www.patton.com/products/product_detail.asp?id=493).

Overview

The Patton CopperLink Model 2160 Series simplifies and provides cost effective network extension by utilizing pre-existing twisted pair infrastructure. LAN extension doesn't have to be expensive or difficult. Patton's Model 2160 series of auto-rate Ethernet Extenders open the door to low-cost and easy set-up LAN extension. The LAN Extenders are easy to use and take advantage of existing copper twisted-pair infrastructure to connect LANs at high speed and over long distances.

There are three models available in the 2160 series, including the flagship Model 2162 that utilizes 1 to 4 pair of voice grade wires enabling maximum transmission speeds of 22.8 Mbps at a distance of 1.6 miles (2.6km). Also available is the Model 2161 (4 wire)—11.4 at 1.6 miles (2.6 km), and the Model 2160—5.7 Mbps at 1.6 miles (2.6 km). Maximum distance achieved with all CopperLink 2160 models is 4.1 miles (6.6 km).

Whether connecting corporate LANs or remote offices, Patton Ethernet Extenders offer the best combination of speed and distance in the industry. Other LAN extenders operate at a single rate or are difficult to configure for LANs located at different distances, but the CopperLink Ethernet Extenders' auto-rate adaptation feature ensures that users get the highest speed possible for the distances they are trying to reach. Patton Ethernet Extenders include MTU support of 1,792 bytes, and come with a built-in MDI-X switch, that simplifies connection to LANs or PCs since it works correctly with a straight-through cable or a cross-over cable. Set-up is easy, just connect the Ethernet port cable and the copper twisted-pair to the Extenders, then apply power!

Patton CopperLink Auto-rate Ethernet Extenders are the perfect fit for cost effective simple and efficient LAN extension!

Features

- - Data Rates up to 45 Mbps—Get reliable broadband connectivity with full-duplex symmetric rates and distances exceeding 4.5 miles (7,300m)
- 4 x 10/100 Ethernet Switch—Make up to 4 network connections easily. Built in MDI-X auto cross over switches eliminates messy and confusing cable configurations.
- Transparent LAN Bridging—Passes higher layer protocols and supports 802.1Q VLAN tagging.
- Automatic Learning, Aging and Filtering—Only allows packets with addresses outside the LAN to be forwarded.
- MTU Support—1,792 bytes.
- QoS, CoS, and VLAN Support—Ensure mission critical network connections are of top quality with advanced traffic management features.
- WWW/SNMP Manageable—Built-in console port makes setup a snap, you can also use the embedded HTTP/SNMP agent to remote manage the unit from anywhere in the world.

CopperLink™ 2160 Series Distance Chart

Line rate	2-Wire Standard		2-Wire High Speed		
	24 AWG (0.5 mm)		Line rate	24 AWG (0.5 mm)	
kbps	miles	km	kbps	miles	km
192	5.2	8.3	384	2.0	3.2
256	4.7	7.5	512	1.9	3.0
512	4.2	6.7	1024	1.6	2.6
768	4.0	6.4	1536	1.5	2.4
1024	3.8	6.2	2048	1.4	2.3
1280	3.6	5.8	2560	1.3	2.1
1536	3.5	5.6	3072	1.3	2.1
2048	3.2	5.2	4096	1.2	2.0
2304	3.1	5.0	4608	1.2	2.0
3840	2.4	3.8	7680	1.0	1.7
4608	2.3	3.7	9216	0.9	1.5
5696	2.0	3.3	11392	0.9	1.4

CopperLink™ 2161 Series Distance Chart

Line rate	4-Wire Standard		4-Wire High Speed		
	24 AWG (0.5 mm)		Line rate	24 AWG (0.5 mm)	
kbps	miles	km	kbps	miles	km
384	5.2	8.3	768	2.0	3.2
512	4.7	7.5	1024	1.9	3.0
1024	4.2	6.7	2048	1.6	2.6
1536	4.0	6.4	3072	1.5	2.4
2048	3.8	6.2	4096	1.4	2.3
2560	3.6	5.8	5120	1.3	2.1
3072	3.5	5.6	6144	1.3	2.1
4096	3.2	5.2	8192	1.2	2.0
4608	3.1	5.0	9216	1.2	2.0
7680	2.4	3.8	15360	1.0	1.7
9216	2.3	3.7	18432	0.9	1.5
11392	2.0	3.3	22784	0.9	1.4

CopperLink™ 2162 Series Distance Chart

Line rate	8-Wire Standard		8-Wire High Speed		
	24 AWG (0.5 mm)		Line rate	24 AWG (0.5 mm)	
kbps	miles	km	kbps	miles	km
768	5.2	8.3	1536	2.0	3.2
1024	4.7	7.5	2048	1.9	3.0
2048	4.2	6.7	4096	1.6	2.6
3072	4.0	6.4	6144	1.5	2.4
4096	3.8	6.2	8192	1.4	2.3
5120	3.6	5.8	10240	1.3	2.1
6144	3.5	5.6	12288	1.3	2.1
8192	3.2	5.2	16384	1.2	2.0
9216	3.1	5.0	18432	1.2	2.0
15360	2.4	3.8	30720	1.0	1.7
18432	2.3	3.7	36864	0.9	1.5
22784	2.0	3.3	45568	0.9	1.4

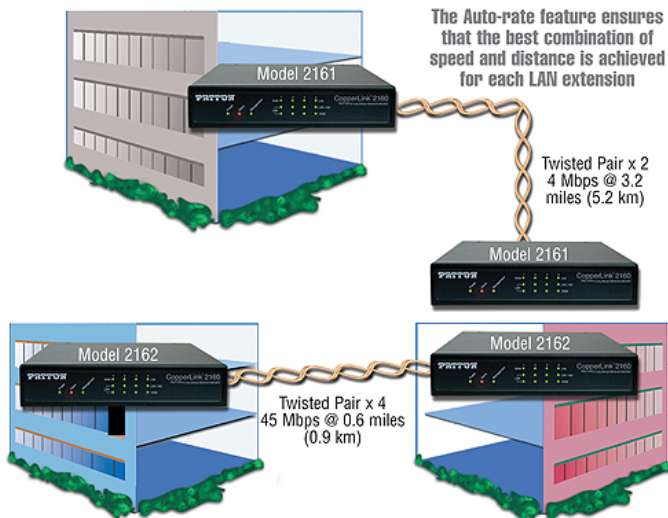
CopperLink™ Copper Ethernet Extenders

Take your network connections faster and farther over existing voice-grade wire with Patton CopperLink™ Ethernet Extenders!

# of Ethernet Ports	# of wire pairs	Max. Speed (Mbps)	Distance at Max. Speed	CopperLink™ Model
2	1	N/A	2,625 ft/0.8 km	2110 (https://www.patton.com/products/pe_products.asp?category=398)
2	1	100	500 ft/0.15 km	2173 (https://www.patton.com/products/pe_products.asp?category=424)
4	4	45.6	4,600 ft/1.4 km	2162 (https://www.patton.com/products/pe_products.asp?category=416)
4	2	22.8	4,600 ft/1.4 km	2161 (https://www.patton.com/products/pe_products.asp?category=416)
2	1	15	2,953 ft/0.9 km	2151 (https://www.patton.com/products/pe_products.asp?category=426)
4	1	11.4	4,593 ft/1.4 km	2160 (https://www.patton.com/products/pe_products.asp?category=416)
2	1	10	4,265 ft/1.3 km	2150 (https://www.patton.com/products/pe_products.asp?category=425)
1	1	4.6	10,827 ft/3.3 km	2157 (https://www.patton.com/products/pe_products.asp?category=160)
1	1	2.3	16,404 ft/5.0 km	2156 (https://www.patton.com/products/pe_products.asp?category=159)

Applications

Workgroup Ethernet extension application



Typical Deployment

Patton's CopperLink Auto-Rate Ethernet Extenders are the perfect fit for simple, cost-effective high speed Ethernet Extension. They allow customers to take advantage of the existing copper infrastructure to connect remote LAN's across distances and at speeds previously unthought-of. The auto-rate feature ensures the highest speed is achieved on each connection, and the plug-n-play operation ensures they are up and running in seconds. Add in the 4 x auto-sensing full/half duplex 10/100Base-TX Ethernet ports with the integrated crossover switch to make setup even easier. The value of these Ethernet Extenders can't be beat!

- Auto-Rate Feature—The advanced auto-rate algorithm automatically determines the best possible rate for each connection and sets up each extender without any need for user interface.
- Plug-and-Play—Just unpack the extenders, plug them into each end of the extension, power them up, and they are up and running. It doesn't get any easier!
- High Speed/Long Reach—These Ethernet Extenders provide the best combination of speed and distance seen anywhere in the industry! For example, connecting workgroups located on different floors in a building no longer requires expensive switches or the installation of low capacitance cable.

Specifications

CopperLink Connector: Shielded RJ-45

Modulation: TC-PAM 32; 16

Ethernet Connectors: 4 x 8-position shielded RJ-45 • Auto-sensing 10/100Base-TX with half or full-duplex operation

MTU Support: 1,792 bytes

LAN Protocols: 802.1d Transparent Bridging, 2K MAC address learning bridge

VLAN Support: IEEE 802.1q VLAN Tagging • Port Based VLAN, up to 4K VLANs • VLAN Stacking (Q-in-Q)

QoS Support: Rate limiting rule-based/port-based • Traffic classification based on port/802.1p/DSCP (Differentiated Services Code Point) •

WRR (Weighted Round Robin)/SPQ (Strict Priority Queuing) scheduling algorithm

Management Connector: Web: Shielded RJ-45 • Console: Shielded RJ-45

Management Interface: Web based GUI • CLI for local and console access; password protected • SNMP v1/v2 (RFC 1157/1901/1905) agent and MIB (RFC 1213/1493) • Software upgradeable via web-browser/TFTP

Front Panel Indicators: Power, Alarm, Diagnostic, WAN Link (x4), Ethernet Link (x4), Ethernet 100M (x4)

Power Supply: AC : Universal Input (UI)—90–240 VAC (50–60 Hz)

Compliance: FCC Part 15A, CE Mark, EMC Directive 89/336/EEC, Low-Voltage Directive 73/23/EEC

Environment: Operating Temperature: 0 to 50° C; Storage Temperature: -40 to 85° C

Dimensions: 7.67L x 1.89W x 6.61D in. (195L x 48H x 168D mm)

Weight: 2.86 lbs (1.29 kg) without power supply

Ordering

# Model #	Description	Availability
1 2160/EUI-2PK	CopperLink Multi Rate 11.4 Mbps 2-Wire Ethernet Extender Kit (1 Local Unit and 1 Remote Unit); 110-240 VAC + Accessories	General Availability
2 2161/EUI-2PK	CopperLink Multi Rate 22.8 Mbps 4-Wire Ethernet Extender Kit (1 Local Unit and 1 Remote Unit); 110-240 VAC + Accessories	General Availability
3 2162/EUI-2PK	CopperLink Multi Rate 45 Mbps 8-Wire Ethernet Extender Kit (1 Local Unit and 1 Remote Unit); 110-240 VAC + Accessories	General Availability

Item Number	Item Description	Price
SVC-SmartCare-BH (/support/support.asp)	Premium Support for Business Hours	Contact us (/howtobuy/) for availability and pricing. Contact us (/howtobuy/)
SVC-SmartCare-24/7 (/support/support.asp)	Premium Support, 24 x 7 Coverage	for availability and pricing. Contact us (/howtobuy/)
SVC-SmartAssist-BH (/support/support-professional.asp)	Business Hour Support Services	for availability and pricing. Contact us (/howtobuy/)
SVC-SmartAssist-AH (/support/support-professional.asp)	After Hours Support Services	for availability and pricing. Contact us (/howtobuy/)
SVC-ENHWAR1 (/support/support-warranty.asp)	1 Year Enhanced Warranty	for availability and pricing.

SVC-ENHWAR2 (/support/support-warranty.asp)	2 Year Enhanced Warranty	Contact us (/howtobuy/) for availability and pricing.
SVC-ENHWAR3 (/support/support-warranty.asp)	3 Year Enhanced Warranty	Contact us (/howtobuy/) for availability and pricing.
SVC-ENHWAR4 (/support/support-warranty.asp)	4 Year Enhanced Warranty	Contact us (/howtobuy/) for availability and pricing.
SVC-ENHWAR5 (/support/support-warranty.asp)	5 Year Enhanced Warranty	Contact us (/howtobuy/) for availability and pricing.
SVC-EXTWAR2 (/support/support-warranty.asp)	2 Year Extended Warranty	Contact us (/howtobuy/) for availability and pricing.
SVC-EXTWAR3 (/support/support-warranty.asp)	3 Year Extended Warranty	Contact us (/howtobuy/) for availability and pricing.
SVC-EXTWAR4 (/support/support-warranty.asp)	4 Year Extended Warranty	Contact us (/howtobuy/) for availability and pricing.
SVC-EXTWAR5 (/support/support-warranty.asp)	5 Year Extended Warranty	Contact us (/howtobuy/) for availability and pricing.
SVC-NETENG-HOUR (/support/support-professional.asp)	Network technician hour rate for pre-config services, after hours support, etc.	Contact us (/howtobuy/) for availability and pricing.

Certifications

Declaration of Conformity - 3202m/xW/y EFM Bridge Modem Series, 216x/y-2PK CopperLink Ethernet Extender Kit (/certifications/09412D1-001D.pdf)

March 11, 2015

Data Sheets

Model 2160 Series Datasheet (/datasheet/2160_datasheet.pdf)
 Model 2160 Series Datasheet (A4 page size) (/datasheet/2160-A4_datasheet.pdf)

February 23, 2010
 February 23, 2010

User Manuals & Configuration Guides

Model 2160 Series User Manual (/manuals/CL2160-gsg.pdf)
 Model 2160 Series Guide, Quick Start (/manuals/2160-qs.pdf)

June 6, 2016
 February 24, 2012

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