

PATTON

Cable Installers Product Guide

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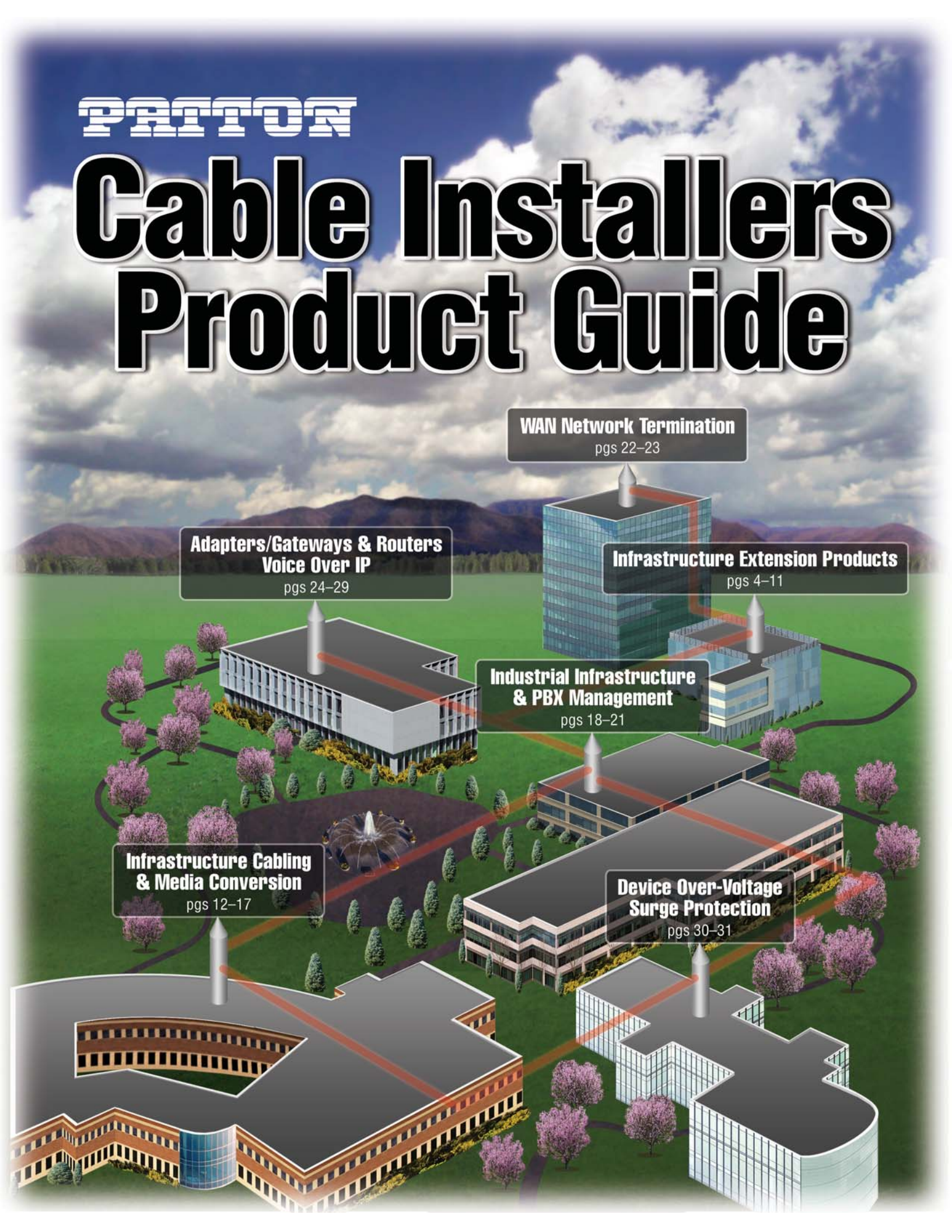
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Patton's Products for Cable Installers

Whether you are cabling a single room or an entire campus, you can count on Patton for on-schedule, under-budget installations that win repeat business from happy customers. Since 1984, Patton has provided right-priced, high quality, US-manufactured communications equipment.

Avoid costly replacements or upgrades by using Patton converters and adapters to connect legacy serial and TDM equipment to advanced IP networks. Avoid expensive fiber by using Patton infrastructure extension products to transport network data over existing voice-grade copper wiring.

With a broad portfolio including VoIP integration, WAN termination, surge protection, and more, Patton has a solution that fits your requirements.



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CopperLink™ Copper Ethernet Extenders

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

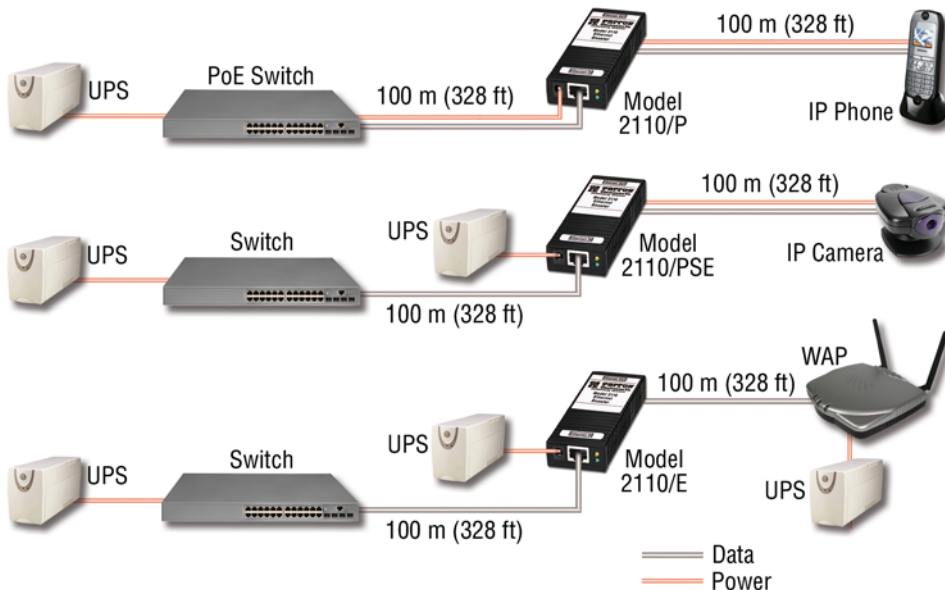
Max. Distance	Max. Speed	Distance at Max. Speed	Model	Page
2,625 feet (800 m)	N/A	2,625 feet (800 m)	Model 2110	4
1 mile (1.6 km)	50 Mbps	800 feet (243.9 m)	CopperLink™ 2172 Kit	5
1 mile (1.6 km)	15 Mbps	3,125 feet (952.5 m)	CopperLink™ 2168A Kit	6
5.7 miles (9.2 km)	4.6 Mbps	2.0 miles (3.2 km)	CopperLink™ 2157 Kit	6
4.5 miles (7.3 km)	45 Mbps	2.0 miles (3.2 km)	CopperLink™ 2160 Kit	7



Ethernet Booster

Model 2110

The CopperLink™ 2110 solution more than doubles Ethernet and PoE distances over already existing network infrastructure cabling.



FEATURES & BENEFITS

- ✓ **Ethernet & PoE Extension**—Doubles 10/100Base-TX Ethernet and PoE to 200 meters (656 feet). Multiple units can be used in series for even longer extensions.
- ✓ **Operates over CAT5**—Reduces the cost and hassles of adding switches, hubs, and wireless access points.
- ✓ **Plug and Play**—No configuration or cable hassles during installation with auto-sensing 10/100, full or half duplex, and automatic MDI-X.
- ✓ **Transparent LAN Operation**—Transparent operation ensures the highest rate possible for each extension distance.
- ✓ **No External Power Required**—Power over Ethernet (PoE) capability enables both extenders and peripheral devices to be powered over standard twisted-pair Ethernet cable.

ORDERING INFORMATION

Call for details.

802.3af Power and Distance Chart

Model	Power Delivered Class of PoE Device	13W	6.5W	3.84W	0W
		Class 3/0	Class 2	Class 1	No PoE Load
PoE Source		Maximum Distance (Quantity of Units)			
2110/P	3rd Party PoE switch	N/A	300 m / 984 ft (2 x 2110/P)	400 m / 1,310 ft (3 x 2110/P)	500 m / 1,640 ft (4 x 2110/P)
2110/PSE + 2110/P	PoE Injector 2110/PSE/EUI-48	300 m / 984 ft (1 x 2110/P)	400 m / 1,310 ft (2 x 2110/P)	500 m / 1,640 ft (3 x 2110/P)	600 m / 1,969 ft (4 x 2110/P)



**50 Mbps Multi-Rate CopperLink™ Ethernet Extender
Model 2172**

The CopperLink™ 2172 breaks distance and speed barriers with up to 50-Mbps full-duplex and distances of up to 5,500 feet (1,700 meters). Now a single twisted-pair can go the distance without sacrificing speed or cost.

The CopperLink™ Model 2172 Ultra-High-Speed Ethernet Extender leverages existing copper infrastructure to deliver high-speed Ethernet extension. Providing data rates up to 50 Mbps in each direction for an aggregated full-duplex speed of 100 Mbps, the Model 2172 is the perfect solution for delivering triple-play communications services and other bandwidth-intensive applications. CopperLink™ Ethernet Extenders easily inter-connect remote devices or remote networks to a central LAN for such applications as medical imaging, video-conferencing, Ethernet bridging, Triple Play, and VoIP.

Six user-selectable settings for symmetrical and asymmetrical rates provide the flexibility required to achieve the optimal speed-distance combination for each and every connection. Multi-rate symmetrical line rates allow each connection to be tuned for the length and gauge of the copper wire, in order to achieve the maximum possible data rate for the environment. Multi-rate 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.

Get near-fiber performance without the expense with Patton's Ultra High-Speed CopperLink™ Ethernet Extender!

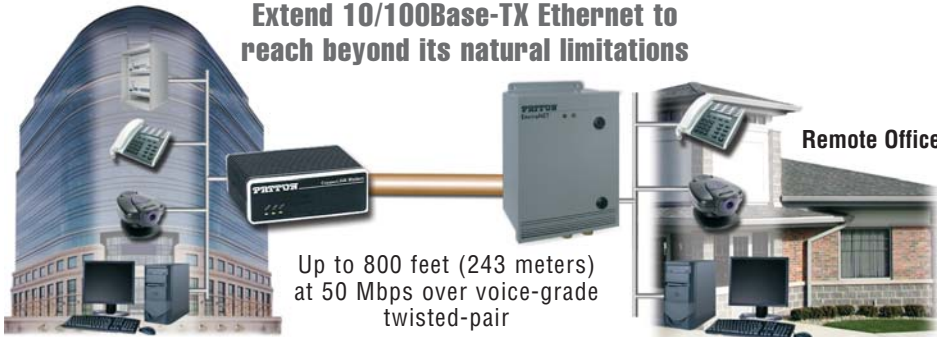
FEATURES & BENEFITS

- ✓ **Ethernet Extension**— Extends 10/100Base-TX Ethernet up to 6,000 feet over 2-wire AWG 26 unconditioned lines.
- ✓ **Operates over twisted-pair**—Reduces the cost and hassles of new installations. Utilizes installed voice-grade twisted pairs to eliminate the expense of fiber or Cat5e cabling.
- ✓ **Full-duplex data-line rate of 100 Mbps**— Provides near fiber performance for bandwidth intensive applications such as Triple Play services.
- ✓ **Plug and Play**—No configuration or cable hassles during installation with auto-sensing 10/100, full or half duplex, and auto MDI-X.
- ✓ **Multiple line rates supported**—Switch-selectable lines rates ensure the best possible line rate for each application
- ✓ **Asymmetric or Symmetric**—Adapts to service provider and enterprise applications
- ✓ **Transparent LAN Bridging**—Passes higher layer protocols and supports 802.1Q VLAN tagged and untagged traffic

Model 2172 Extension Distances

DS/US Line Settings	Throughput	26 AWG (0.4 mm)	24 AWG (0.5 mm)	22 AWG (0.6 mm)	19 AWG (0.9 mm)
50/50 Mbps	48 Mbps	600 feet (184 m)	800 (245 m)	1,000 (306 m)	1,500 (460 m)
25/25 Mbps	24.5 Mbps	1,500 feet (458 m)	2,000 (610 m)	2,500 (763 m)	2,750 (1,144 m)
10/10 Mbps	10 Mbps	3,000 feet (900 m)	4,000 (1,200 m)	5,000 (1,500 m)	7,500 (2,250 m)
4/1 Mbps	3.75/1 Mbps	4,500 feet (1,373 m)	6,000 (1,830 m)	7,500 (2,288 m)	11,250 (3,430 m)
16/2 Mbps	15/2 Mbps	3,000 feet (900 m)	4,000 (1,200 m)	5,000 (1,500 m)	7,500 (2,350 m)
50/2 Mbps	48/2 Mbps	1,500 feet (458 m)	2,000 (610 m)	2,500 (763 m)	3,750 (1,144 m)

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



Model 2172 Extenders provide Ethernet to remote buildings beyond the 328-foot (100-meter) distance limit of Ethernet. 100 Mbps throughput eliminates bandwidth concerns experienced with

other copper wired transmission technologies. By using existing voice grade copper pairs the expense and hassle of installing low capacitance or fiber cable is no longer required.

Rack, Stack, and Organize up to 10 Patton Devices with Patton's Mounting Panel.



ORDERING INFORMATION

2172/EUI: 50-Mbps Ethernet Extender, 100–240 VAC*

2172/EUI-2PK:** 50-Mbps Ethernet Extender K, 100–240 VAC*

*-12, -24, and -48 VDC power options available.
**You must specify a country specific power cord

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16.67 Mbps Multi-Rate CopperLink™ Ethernet Extender

Model 2168

Multi-rate high speed Ethernet extension over voice-grade wire

Variable symmetric or asymmetric data rates

Line rates can be set on the standalones and rack cards to differentiate services and increase the distance of the individual links.

Symmetric		
Line Rates		Distance
Upstream	Downstream	26 AWG (0.4 mm)
6.25 Mbps	6.25 Mbps	4,500 feet (1,372 m)
9.38 Mbps	9.38 Mbps	4,150 feet (1,265 m)
12.50 Mbps	12.50 Mbps	4,000 feet (1,220 m)
16.67 Mbps	16.67 Mbps	3,300 feet (1,006 m)

Asymmetric		
Line Rates		Distance
Upstream	Downstream	26 AWG (0.4 mm)
1.56 Mbps	4.17 Mbps	6,000 feet (1,829 m)
1.56 Mbps	9.38 Mbps	5,500 feet (1,676 m)
2.34 Mbps	16.67 Mbps	5,000 feet (1,524 m)

ORDERING INFORMATION

16.67 Mbps Ethernet Extender; 100–240 VAC

2168/L/EUI: Local Extender; RJ45 Line

2168/R/EUI: Remote Extender; RJ45 Line

2168/L/TB45/EUI: Local Extender; RJ45 Line + Terminal Block

2168/R/TB45/EUI: Remote Extender; RJ45 Line + Terminal Block

16.67 Mbps Ethernet Extender Kit; 100–240 VAC

2168/EUI-2PK: Local & Remote Extenders; RJ45 Line

2168/TB45/EUI-2PK: Local & Remote; RJ45 Line + Terminal Block

FEATURES & BENEFITS

- ✓ Low cost, plug-and-play solution for campus wide network extension and delivery of last-mile ISP services over Ethernet
- ✓ Switch selectable asymmetrical or symmetrical line rates up to 16.67 Mbps!
- ✓ Auto-sensing 10/100Base-TX port
- ✓ Supports full or half-duplex Ethernet
- ✓ Transparent LAN bridging (Passes 802.1Q (VLAN) packets)
- ✓ Automatic learning, aging, & filtering source address table
- ✓ Stand alone and rack mount versions



4.6 Mbps CopperLink™ Ethernet Extender with Auto-Rate Adaptation

Model 2157

High speed/long-distance LAN extension over copper wires.

Models 2157 Extension Distances

Line rate	No Noise									
	26g (0.4 mm)		24g (0.5 mm)		22g (0.6 mm)		20g (0.8 mm)		19g (0.9 mm)	
kbps	miles	km	miles	km	miles	km	miles	km	miles	km
200	4.4	7.2	5.7	9.4	8.0	13.1	10.3	16.8	12.1	19.7
392	4.0	6.6	5.4	8.8	7.5	12.3	8.7	15.8	10.8	17.5
520	3.8	6.2	5.1	8.3	7.1	11.6	9.2	14.9	9.7	15.8
776	3.5	5.6	4.6	7.5	6.0	9.8	7.8	12.7	8.8	14.3
1160	3.0	4.9	4.0	6.4	5.2	8.4	6.7	11.0	7.5	12.3
1544	2.8	4.6	3.7	6.1	4.9	7.9	6.4	10.3	6.7	11.0
2056	2.5	4.0	3.3	5.3	4.2	6.9	5.6	9.0	5.9	9.6
2312	2.3	3.8	3.1	5.0	4.0	6.6	5.3	8.6	5.6	9.1
2696	2.3	3.7	3.0	5.0	4.0	6.4	5.2	8.4	5.5	8.9
3080	2.2	3.6	3.0	4.8	3.9	6.3	5.0	8.2	5.4	8.7
3464	2.1	3.4	2.7	4.5	3.6	5.8	4.7	7.6	4.9	8.8
3848	1.9	3.1	2.5	4.1	3.3	5.3	4.3	7.0	4.5	7.4
4232	1.7	2.8	2.3	3.7	2.9	4.8	3.9	6.3	4.1	6.6
4616	1.5	2.5	2.0	3.3	2.6	4.2	3.4	5.5	3.6	5.9

FEATURES & BENEFITS

- ✓ Auto-rate adaptation gives the highest rate possible for the extension distance of your network
- ✓ 4.6 Mbps over a twisted pair of copper
- ✓ Extension distances up to 32,000 feet (10 km)
- ✓ Auto-sensing 10/100Base-TX port
- ✓ Integrated MDI-X switch to allow easy connection to any computer or LAN
- ✓ Support for 802.1 Q VLAN tagged packet transmission

ORDERING INFORMATION

2157/L/EUI: Auto-Rate CopperLink Ethernet Extender, (Local unit), 90–260 VAC UI

2157/R/EUI: Auto-Rate CopperLink Ethernet Extender, (Remote unit), 90–260 VAC UI

2157/EUI-2PK: Auto-Rate CopperLink Ethernet Extender, (Local and Remote units), 90–260 VAC UI



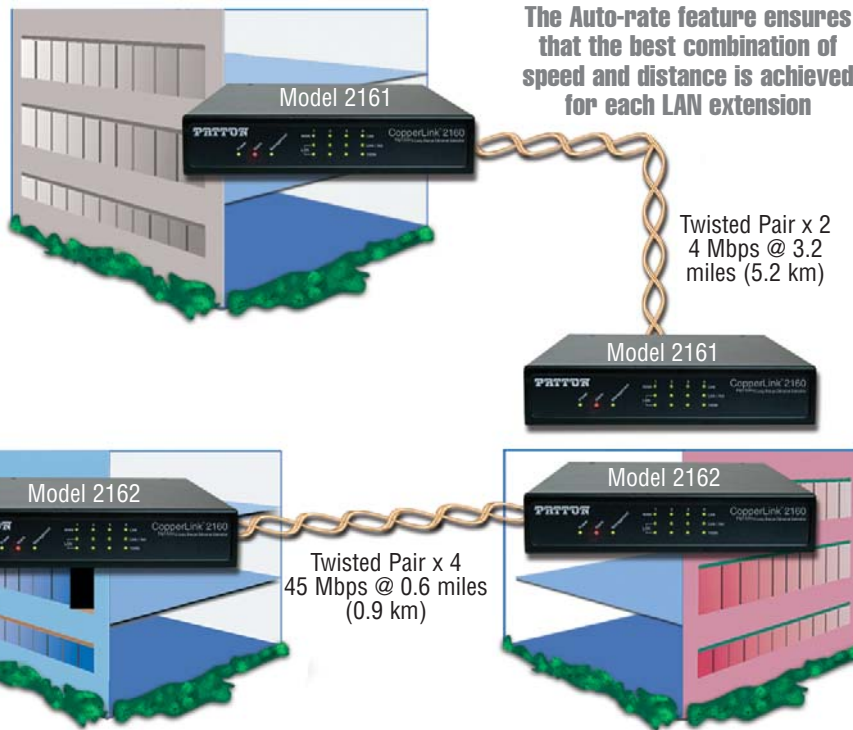
45 Mbps CopperLink™ Long Range Ethernet Extender

Model 2160 Series

With rates up to 45 Mbps and reach up to 24,000 feet (7,315 meters), the Patton Model 2160 is the most versatile Ethernet Extender offered today.

FEATURES & BENEFITS

- ✓ **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.
- ✓ **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.



ORDERING INFORMATION

- 2160/EUI-2PK:** High Speed, Long Range Ethernet Extender Kit (1 pair), 5.7 Mbps
- 2161/EUI-2PK:** High Speed, Long Range Ethernet Extender Kit (2 pair), 11.4 Mbps
- 2162/EUI-2PK:** High Speed, Long Range Ethernet Extender Kit (4 pair), 22.8 Mbps

Distance Chart 2160 Series

2-Wire Standard			2-Wire High Speed		
Line rate	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

Distance Chart 2161 Series

4-Wire Standard			4-Wire High Speed		
Line rate	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

Distance Chart 2162 Series

8-Wire Standard			8-Wire High Speed		
Line rate	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

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CopperLink™ Wall Mounted Ethernet Extenders

Max. Distance	Max. Speed	Distance at Max. Speed	Temperature Range	Model
1 mile (1.6 km)	50 Mbps	800 feet (243.9 m)	-10 to 70°C	CopperLink™ 2172 Kit
5.7 miles (9.2 km)	4.6 Mbps	2.0 miles (3.2 km)	-10 to 70°C	CopperLink™ 2157R Kit


50 Mbps Wall Mountable CopperLink™ Ethernet Extender
Model 2172R

Patton's CopperLink 2172R extends Ethernet connections at distances up to 5,500 feet (1,676 meters) over already existing infrastructure cabling. It reduces the cost and hassles of new installations, utilizing installed voice-grade twisted pairs to eliminate the expense of fiber or Cat5e cabling.

Model 2172 Extension Distances

DS/US* Line Settings	Throughput	26 AWG (0.4 mm)	24 AWG (0.5 mm)	22 AWG (0.6 mm)	19 AWG (0.9 mm)
50/50 Mbps	48 Mbps	600 feet (184 m)	800 (245 m)	1,000 (306 m)	1,500 (460 m)
25/25 Mbps	24.5 Mbps	1,500 feet (458 m)	2,000 (610 m)	2,500 (763 m)	2,750 (1,144 m)
10/10 Mbps	10 Mbps	3,000 feet (900 m)	4,000 (1,200 m)	5,000 (1,500 m)	7,500 (2,250 m)
4/1 Mbps	3.75/1 Mbps	4,500 feet (1,373 m)	6,000 (1,830 m)	7,500 (2,288 m)	11,250 (3,430 m)
16/2 Mbps	15/2 Mbps	3,000 feet (900 m)	4,000 (1,200 m)	5,000 (1,500 m)	7,500 (2,350 m)
50/2 Mbps	48/2 Mbps	1,500 feet (458 m)	2,000 (610 m)	2,500 (763 m)	3,750 (1,144 m)

FEATURES & BENEFITS

- ✓ **Full-duplex data-line rate of 100 Mbps**—Provides near fiber performance for bandwidth intensive applications such as Triple Play services.
- ✓ **Plug and Play**—No configuration or cable hassles during installation with auto-sensing 10/100, full or half duplex, and auto MDI-X.
- ✓ **Flexible installation**—Wall mount ready and optional DIN rail kit

ORDERING INFORMATION

2172R/EUI-2PK: CopperLink High Speed 50 Mbps CopperLink Ethernet Extender Kit; -10 to 70°C; RJ-45 line; External 100–240 VAC Adapter

2172R/TB/EUI-2PK: CopperLink High Speed 50 Mbps Ethernet Extender Kit; Terminal Block (2 units preset to local and remote); 110–240 VAC


4.6 Mbps Wall Mountable CopperLink™ Ethernet Extender
Model 2157R

Patton's CopperLink™ 2157R extends Ethernet connections at distances up to 32,000 feet (10 km) over already existing infrastructure voice-grade twisted pairs to eliminate the expense of fiber or Cat5e cabling

Model 2157 Extension Distances

Line rate	No Noise									
	26g (0.4 mm)		24g (0.5 mm)		22g (0.6 mm)		20g (0.8 mm)		19g (0.9 mm)	
	miles	km	miles	km	miles	km	miles	km	miles	km
200	4.4	7.2	5.7	9.4	8.0	13.1	10.3	16.8	12.1	19.7
392	4.0	6.6	5.4	8.8	7.5	12.3	8.7	15.8	10.8	17.5
520	3.8	6.2	5.1	8.3	7.1	11.6	9.2	14.9	9.7	15.8
776	3.5	5.6	4.6	7.5	6.0	9.8	7.8	12.7	8.8	14.3
1160	3.0	4.9	4.0	6.4	5.2	8.4	6.7	11.0	7.5	12.3
1544	2.8	4.6	3.7	6.1	4.9	7.9	6.4	10.3	6.7	11.0
2056	2.5	4.0	3.3	5.3	4.2	6.9	5.6	9.0	5.9	9.6
2312	2.3	3.8	3.1	5.0	4.0	6.6	5.3	8.6	5.6	9.1
2696	2.3	3.7	3.0	5.0	4.0	6.4	5.2	8.4	5.5	8.9
3080	2.2	3.6	3.0	4.8	3.9	6.3	5.0	8.2	5.4	8.7
3464	2.1	3.4	2.7	4.5	3.6	5.8	4.7	7.6	4.9	8.8
3848	1.9	3.1	2.5	4.1	3.3	5.3	4.3	7.0	4.5	7.4
4232	1.7	2.8	2.3	3.7	2.9	4.8	3.9	6.3	4.1	6.6
4616	1.5	2.5	2.0	3.3	2.6	4.2	3.4	5.5	3.6	5.9

FEATURES & BENEFITS

- ✓ **Long distance network extension**—Extension distances up to 32,000 feet (10 km) or 4.6 Mbps at 1.5 miles (2.5 km).
- ✓ **Plug and Play**—No configuration or cable hassles during installation with auto-sensing 10/100, full or half duplex, and auto MDI-X
- ✓ **Auto-rate adaption**—Ensures the highest rate possible for each extension distance.
- ✓ **Flexible installation**—Wall or DIN rail mountable

ORDERING INFORMATION

2157/L/EUI: Auto-Rate CopperLink Ethernet Extender, (Local unit), 90–260 VAC UI

2157/R/EUI: Auto-Rate CopperLink Ethernet Extender, (Remote unit), 90–260 VAC UI

2157/EUI-2PK: Auto-Rate CopperLink Ethernet Extender, (Local and Remote units), 90–260 VAC UI

CopperLink™ Environmentally Hardened (EHA) & Extended Temperature (ET) Ethernet Extenders

Temp Rating	Case Rating	Media Type	Max Line Rate	Max Distance	Std Indoor Pair	Model
-40 to 85°C	NEMA 4	2-Wire Twisted Pair	50 Mbps	2.1 km (1.3 miles)	2172/L	ET2172/R
0 to 50°C	NEMA 4	2-Wire Twisted Pair	50 Mbps	2.1 km (1.3 miles)	2172/L	EHA2172/R
-40 to 85°C	NEMA 4	2-Wire Twisted Pair	4.6 Mbps	8 km (5 miles)	2157/L	ET2157/R
0 to 50°C	NEMA 4	2-Wire Twisted Pair	4.6 Mbps	8 km (5 miles)	2157/L	EHA2157/R



50 Mbps Multi-Rate CopperLink™ Ethernet Extender
Models ET2172 and EHA2172

Available in Extended Temperature (-40 to 85°C) and Environmentally Hardened (0 to 50°C) configurations, these units break distance and speed barriers with up to 50-Mbps full-duplex and distances of up to 5,500 feet (1,700 meters) over already existing infrastructure voice-grade twisted pairs (eliminating the expense of fiber or Cat5e cabling) while operating in environments that do not have heating or cooling options.

FEATURES & BENEFITS

- ✓ **Ethernet Extension**—Extends 10/100Base-TX Ethernet at distances up to 8km over 2-wire 24 AWG unconditioned lines
- ✓ **NEMA 4 Cases**—Protection against elements such as dirt, rain, sleet, snow, dust, and that will be undamaged by the external formation of ice on the enclosure
- ✓ **All the features of our popular Model 2172 desktop unit**—See page 4.

Model ET2172/EH2172 Extension Distances

DS/US* Line Settings	Throughput	No Noise			
		26 AWG (0.4 mm)	24 AWG (0.5 mm)	22 AWG (0.6 mm)	19 AWG (0.9 mm)
50/50 Mbps	48 Mbps	600 feet (184 m)	800 (245 m)	1,000 (306 m)	1,500 (460 m)
25/25 Mbps	24.5 Mbps	1,500 feet (458 m)	2,000 (610 m)	2,500 (763 m)	2,750 (1,144 m)
10/10 Mbps	10 Mbps	3,000 feet (900 m)	4,000 (1,200 m)	5,000 (1,500 m)	7,500 (2,250 m)
4/1 Mbps	3.75/1 Mbps	4,500 feet (1,373 m)	6,000 (1,830 m)	7,500 (2,288 m)	11,250 (3,430 m)
16/2 Mbps	15/2 Mbps	3,000 feet (900 m)	4,000 (1,200 m)	5,000 (1,500 m)	7,500 (2,350 m)
50/2 Mbps	48/2 Mbps	1,500 feet (458 m)	2,000 (610 m)	2,500 (763 m)	3,750 (1,144 m)

ORDERING INFORMATION

Call for details.



4.6 Mbps CopperLink™ Ethernet Extender
Models ET2157 and EH2157

Available in Extended Temperature (-40 to 85°C) and Environmentally Hardened (0 to 50°C) configurations, these units extend Ethernet connections at distances up to 32,000 feet (10 km) over already existing infrastructure voice-grade twisted pairs (eliminating the expense of fiber or Cat5e cabling) while operating in environments that do not have heating or cooling options.

FEATURES & BENEFITS

- ✓ **Long distance network extension**—Extension distances up to 32,000 feet (10 km) or 4.6 Mbps at 1.5 miles (2.5 km).
- ✓ **NEMA 4 Cases**—Protection against elements such as dirt, rain, sleet, snow, dust, and that will be undamaged by the external formation of ice on the enclosure
- ✓ **Auto-rate adaption**—Ensures the highest rate possible for each extension distance.
- ✓ **All the features of our popular Model 2157 desktop unit**—See page 5.

Model ET2157/EH2157 Extension Distances

Line rate	No Noise									
	26g (0.4 mm)		24g (0.5 mm)		22g (0.6 mm)		20g (0.8 mm)		19g (0.9 mm)	
	miles	km	miles	km	miles	km	miles	km	miles	km
200	4.4	7.2	5.7	9.4	8.0	13.1	10.3	16.8	12.1	19.7
392	4.0	6.6	5.4	8.8	7.5	12.3	8.7	15.8	10.8	17.5
520	3.8	6.2	5.1	8.3	7.1	11.6	9.2	14.9	9.7	15.8
776	3.5	5.6	4.6	7.5	6.0	9.8	7.8	12.7	8.8	14.3
1160	3.0	4.9	4.0	6.4	5.2	8.4	6.7	11.0	7.5	12.3
1544	2.8	4.6	3.7	6.1	4.9	7.9	6.4	10.3	6.7	11.0
2056	2.5	4.0	3.3	5.3	4.2	6.9	5.6	9.0	5.9	9.6
2312	2.3	3.8	3.1	5.0	4.0	6.6	5.3	8.6	5.6	9.1
2696	2.3	3.7	3.0	5.0	4.0	6.4	5.2	8.4	5.5	8.9
3080	2.2	3.6	3.0	4.8	3.9	6.3	5.0	8.2	5.4	8.7
3464	2.1	3.4	2.7	4.5	3.6	5.8	4.7	7.6	4.9	8.8
3848	1.9	3.1	2.5	4.1	3.3	5.3	4.3	7.0	4.5	7.4
4232	1.7	2.8	2.3	3.7	2.9	4.8	3.9	6.3	4.1	6.6
4616	1.5	2.5	2.0	3.3	2.6	4.2	3.4	5.5	3.6	5.9

ORDERING INFORMATION

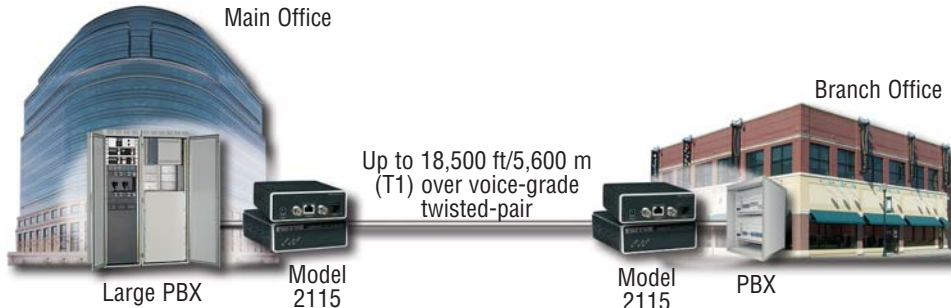
Call for details.

CopperLink™-T T1/E1 Ethernet Extenders

Max. Distance	Distance at Max. Speed	Signaling Standard	Model
18,500 ft (5,600 m)	3 miles	T1	CopperLink™-T 2115
16,100 ft (4,900 m)	4.8 km	E1	CopperLink™-T 2113


CopperLink™-T T1 Extender
Model 2115

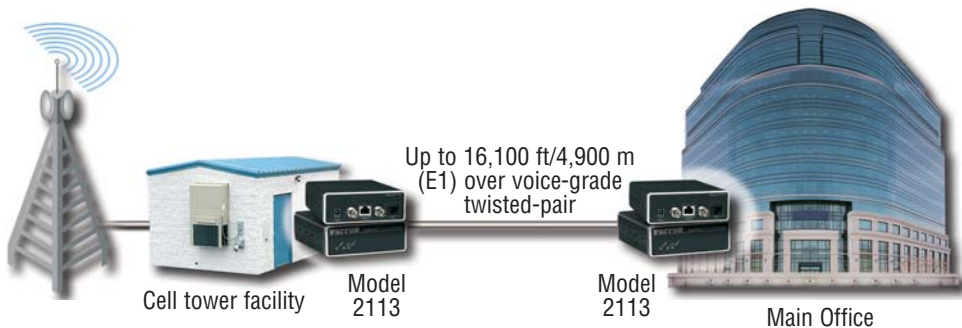
The CopperLink™-T 2115 is a transparent, plug-and-play T1 Extender that solves the distance and wire limitations of TDM technology by tripling the reach to over 3 miles over a single pair of wires.


FEATURES & BENEFITS

- ✓ **Voice and Data Extension**—The T1/E1 Extenders operate in clear channel mode allowing the transparent passing of both voice and data.
- ✓ **Plug and Play**—Plug them in and the link comes up in seconds. The line interface is even polarity insensitive, making it easier to get running.
- ✓ **Line Tests**—V.52 511/511E Pattern Generator with Remote Digital Loopback (RDL); Local Analogue Loopback (LAL).


CopperLink™-T E1 Extender
Model 2113

The CopperLink™-T 2113 is a transparent, plug-and-play E1 Extender that solves the distance and wire limitations of TDM technology by tripling the reach to almost 5 km over one pair of wires. Units operate in clear channel mode to easily transport voice and data (F-bit included).


FEATURES & BENEFITS

- ✓ **Plug and Play**—Units automatically link up when placed on opposite sides of a dry copper wire pair. The line interface is polarity insensitive, making it easier to get running.
- ✓ **Line Tests**—V.52 511/511E Pattern Generator with Remote Digital Loopback (RDL); Local Analogue Loopback (LAL).

ORDERING INFORMATION
Model 2113 E1 Extender

2113/EU-2PK: CopperLink-T, E1 Extender, 2 pack; Universal AC power

2113/L/EU: CopperLink-T, E1 Extender, Local unit

2113/R/EU: CopperLink-T, E1 Extender, Remote Unit

Model 2115 T1 Extender

2115/EU-2PK: CopperLink-T, T1 Extender, 2 pack

2115/L/EU: CopperLink-T, T1 Extender, Local unit

2115/R/EU: CopperLink-T, T1 Extender, Remote unit

Rack, Stack, and Organize up to 10 Patton Devices with Patton's Mounting Panel.


- ✓ Up to 10 independently operating slots prevents single point of failure.
- ✓ Only 4U (7 in./17.78 cm) high, it fits into any 19-in. rack.
- ✓ Rack-mount Patton products you've already purchased

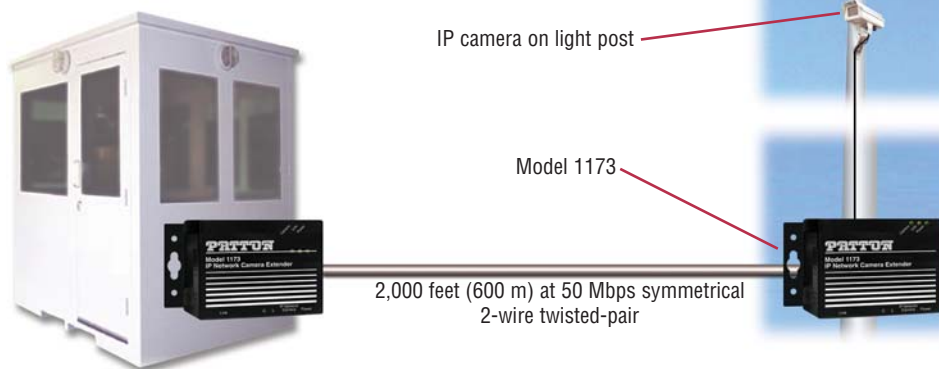


IP Network Camera Extender
Model 1173

Patton's plug-and-play IP Network Camera Extender enables users to place IP cameras almost 20 times farther away than the standard distance of 328 ft (100 meters) over standard phone-grade twisted-pair.

The Model 1173 IP Network Camera Extender's are ideal for delivering IP Video links to remote camera installations that are beyond the 328-foot (100-meter) distance limit of Ethernet. The 50 Mbps line rate eliminates bandwidth concerns previously experienced with other copper

wired transmission technologies. By utilizing existing voice grade copper pairs, alarm circuits, etc. the expense and hassle of installing new cabling is eliminated.



FEATURES & BENEFITS

- ✓ Extend high resolution IP video up to 6,000 feet (1,829 meters) over telephone-grade twisted-pair cabling
- ✓ Fully compatible with any IP camera and its managing software
- ✓ Fully transparent to compression schemes such as WMV, MPEG-4 and MJPEG
- ✓ Fully transparent to your camera's application software
- ✓ Wall or DIN mountable
- ✓ Plug and Play
- ✓ Operating temperature of -10 to 70°C

Line Rates (AWG 24/0.5 mm)	
Mbps	Distance in feet (meters)
4	6,000 (1,830)
16	4,000 (1,200)
50	2,000 (610)

ORDERING INFORMATION

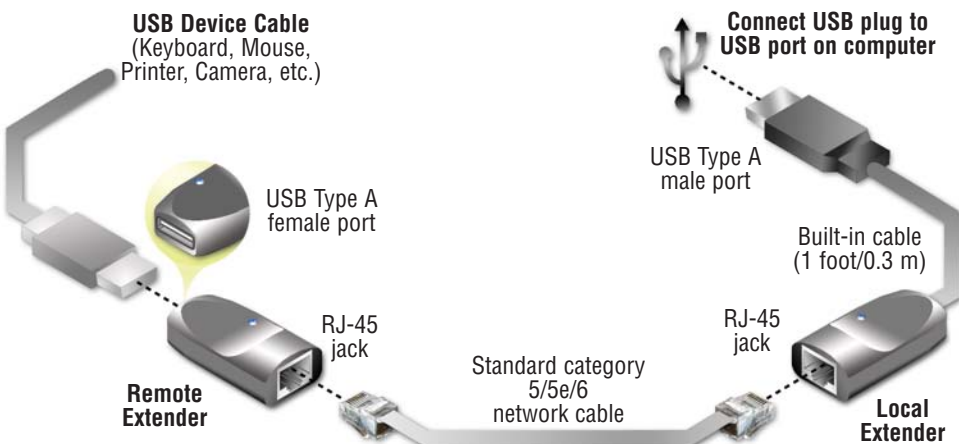
Model 1173R/EUI-2PK: IP Network Camera Extender Kit -10 to 70°C ; UI

Model 1173R/C/EUI-2PK: IP Network Camera Extender Kit; -10 to 70°C , conformal coated (humidity 85% condensing from -10 to +35°C); UI



USB 1.1 Extender Kit
Model 110

Do not let the USB distance limitations of 16 feet (5 meters) limit the placement or usefulness of your USB devices. With Patton's Model 110-KIT, you can place your USB devices up to 200 feet (60 meters) away from your PC!



FEATURES & BENEFITS

- ✓ Fully compliant with USB 1.1 specifications
- ✓ Provides support for any full speed (12 Mbps) or low speed (1.5 Mbps) USB devices
- ✓ No software required
- ✓ USB LED indicator for quick glance status checks

SYSTEM REQUIREMENTS

Windows 98SE/ME/2000/XP
Mac OS 10.X/9.X
One available USB port

ORDERING INFORMATION

110-KIT: USB Extender Kit

08055DUI-110K-EU: 220 VAC to 5 VDC USB Power Supply

08055DUI-110K-US: 120 VAC to 5 VDC USB Power Supply

Baluns

Description	Page
Single Port G.703/G.704 (E1/E2) IDC Baluns	12
Rack Mount Balun Panels	14
Video Baluns	16

Single Port E1/E2 IDC Baluns

Patton Model 430 Series G.703/G.704 Baluns

The Patton 430 Single Port E1/E2 Balun Series provides 75/120-ohm conversion in an ultra-miniature enclosure



The new G.703/G.704 insulating displacement connecting (IDC) module baluns are ideal for carriers seeking a cost-effective, space-efficient, and proven method of impedance matching 75-ohm coax to 120-ohm single-conductor connections. The baluns provide transparent bi-directional signal conversion with no AC or battery power required.

Various industry standard types of coaxial connectors (75 ohm) are available including male and female

combinations of BNC, 1.6/5.6, 1.0/2.3, and Type 43. The 3-pole IDC connector used for wrapping single-conductor connections (120 ohm) utilizes a slit in the cable anchor to allow the cable to be inserted after termination. The IDC connector is also offset so that a cable can be positioned between baluns on the DDF/patch panel as required. The IDC connector is clearly labeled A, B, and G (Ground) to make installation more convenient.

FEATURES & BENEFITS

- ✓ Convert 75Ω coax to 120Ω twisted pair—Resolves impedance mis-match between twisted pair equipment and coax cabling
- ✓ Ultra-miniature size—Provides maximum density when installed into a 19-inch (48.3cm) panel
- ✓ Industry Standard Coax Connectors—A host of coax connectors including BNC, 1.6/5.6, 1.0/2.3 and Type 43 are available
- ✓ Low Insertion Loss—Fully meets ITU-T (CTR-12) G.703 standards
- ✓ No Power Required—Operation is transparent to data, no AC/DC power is required



The Patton Model 430R houses up to 32 individual IDC baluns for 16 E1/E2 circuits. The 430R fits into standard 19-inch racks and includes a dry-erase tab for easy and clear marking.



Model 431F
Single Port BNC Female
Panel Mount to
IDC Balun



Model 431M
Single Port BNC Male
Panel Mount to
IDC Balun



Model 432F
Single Port 1.6/5.6 Female
Panel Mount to
IDC Balun



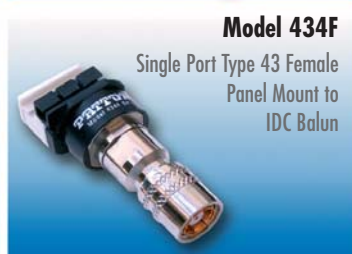
Model 432M
Single Port 1.6/5.6
Male Panel Mount to
IDC Balun



Model 433F
Single Port 1.0/2.3 Female
Panel Mount to
IDC Balun



Model 433M
Single Port 1.0/2.3 Male
Panel Mount to
IDC Balun

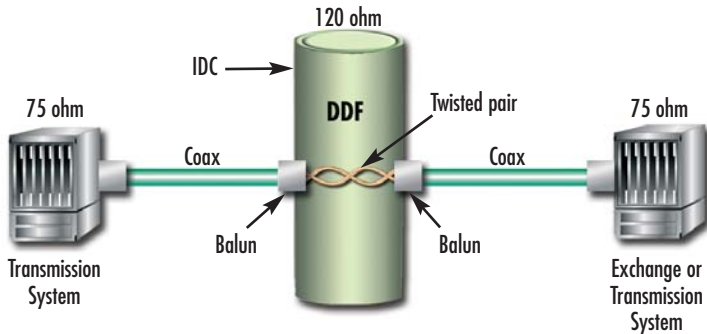


Model 434F
Single Port Type 43 Female
Panel Mount to
IDC Balun

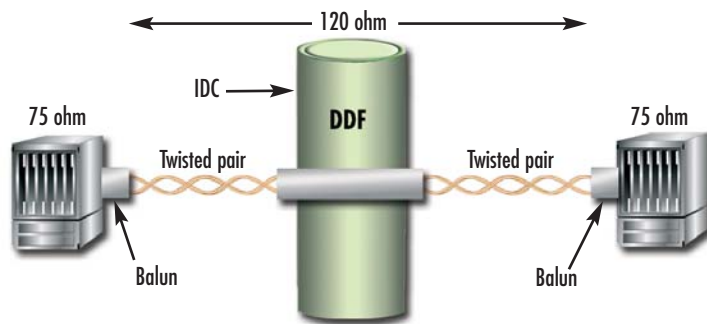


Model 434M
Single Port Type 43 Male
Panel Mount to
IDC Balun

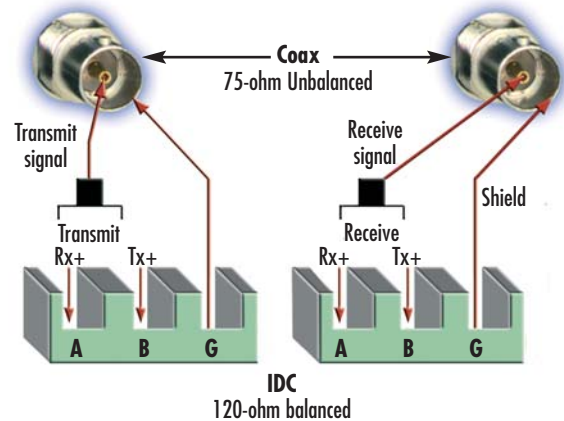
DDF jumper reconfiguration with 120 ohm



Typical DDF application



Patton's Ultra-miniature G.703 IDC baluns are fully shielded and are ideal in telecom applications where space is a premium. The Model 430 Series can be panel mounted or cable mounted and feature IDC terminations which allow installation without the need of special tools. Converting your G.703 signal from coax to twisted-pair enables the use of high density IDC modules in the Digital Distribution Frames (DDF), which significantly increases the available density.



FEATURES

Patton's IDC Connector

- 1 Specially designed tool-less IDC connector for easy connection of unterminated cable.
- 2 IDC connector clearly marked A, B and G for easier installation
- 3 Slit in cable anchor allows cable to be inserted after termination.
- 4 Offset IDC allows cable to be positioned between baluns on DDF as required



With tool-free terminations, clearly marked connectors and well laid out spaces, the Patton IDC connector makes installations a breeze.

ORDERING INFORMATION

- 431F: Single Port BNC Female Panel Mount to IDC Balun
- 431M: Single Port BNC Male Panel Mount to IDC Balun
- 432F: Single Port 1.6/5.6 Female Panel Mount to IDC Balun
- 432M: Single Port 1.6/5.6 Male Panel Mount to IDC Balun
- 433F: Single Port 1.0/2.3 Female Panel Mount to IDC Balun
- 433M: Single Port 1.0/2.3 Male Panel Mount to IDC Balun
- 434F: Single Port Type 43 Female Panel Mount to IDC Balun
- 434M: Single Port Type 43 Male Panel Mount to IDC Balun
- 430R: IDC Balun Mounting Panel

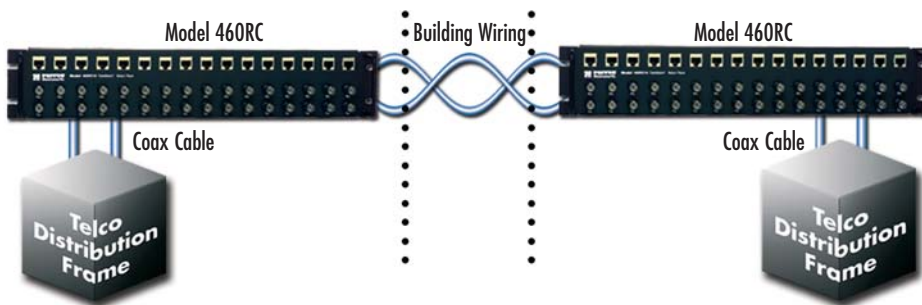
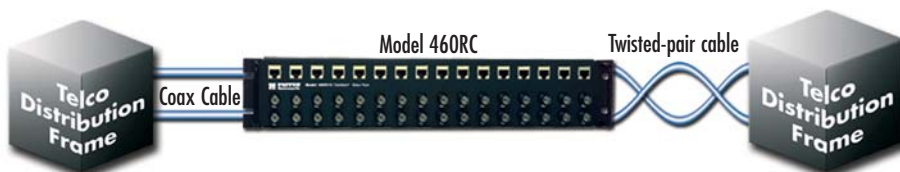
TeleMatch™ G.703 (E1) Balun Panel (75 to 120-ohm)
Models 460RC

Modular Construction Lets You Add up to 16 Separate G.703 Balun Modules

The TeleMatch G.703 rack mount balun panels let you match the connectors, impedance and signal characteristics of up to 16 dual coax connections (75 ohm) with up to 16 twisted pair connections (120 ohm). Operating in compliance with the CCITT G.703 specification, the panels occupy only 2U (3.5 in./8.9 cm) of vertical rack space in a 19 in. (48.3 cm) rack—allowing for efficient multipoint matching.

The Model 460RC rack mount balun panel comes with 16 dual coax BNC connectors.

What's more, the Model 460RC is modular, meaning that each balun can be added separately. Purchase an entire panel fully populated with 16 balun modules (Model 460RC/16/F) Or purchase the chassis separately (Model 460R/16) and add balun modules (Model 460RC/F) as you need them. On individual twisted pair ports, shield-to-pin and shield-to-ground connections are strap selectable. So you are not locked into the same configuration for every balun in the panel. If you need to do multiple 75 ohm to 120 ohm conversions, the Model 460RC is definitely the way to go!


Coax to twisted-pair building wiring conversion

Coax to twisted-pair cable conversion

FEATURES & BENEFITS

- ✓ Connects 75-ohm dual coax to 120-ohm twisted pair (or visa versa)
- ✓ Use 120-ohm twisted-pair wiring with unbalanced coaxial equipment
- ✓ Dual female coax BNC connectors
- ✓ Bi-directional signal conversion according to CCITT G.703
- ✓ Supports rates of 2 Mbps (E1)
- ✓ Strap-selectable grounding option
- ✓ Low profile design
- ✓ Mounts in standard 19 in. (48.3 cm) rack
- ✓ No AC power or batteries required
- ✓ Strap-selectable modular (RJ-45) pinouts
- ✓ No more buying expensive and space-hungry hardware for patching and distributing G.703 connections
- ✓ Low insertion loss, fully meets ITU-T (CTR12) G.703 standards
- ✓ Standard twisted-pair terminations
- ✓ Baluns are 100% tested for reliability and durability

ORDERING INFORMATION

460RC/16/F: 16-Port G.703 Balun Panel (RJ-45 Jack to Dual BNC Female)

460R/16*: Balun Chassis (Empty)

460RC/F: G.703 Balun Module, RJ-45 to Dual BNC Female

465RC/16/F: 16-port G.703 Balun Panel, RJ-45 to Dual 1.6/5.6 Female

465RC/F: G.703 Balun Module, RJ-45 to Dual 1.6/5.6 Female



Ultra High Density G.703 (E1) Balun Panel
Model 450RC24

The Patton Model 450RC24 Ultra High-Density 24 Port Balun Provides Flexible 75/120-ohm Telco Interfacing Solutions for E1 Networks

The Patton 450RC24 G.703 balun panel matches 24 sets of dual 75-ohm coax connections to 120-ohm 50-pin telco connections. This feature allows network & datacom equipment manufacturers who are selling equipment for use in COs with only 120-ohm telco interfaces to offer their equipment to G.703 countries using 75-ohm connections. This eliminates the mismatch with coax legacy equipment in many COs.

Supporting E1 data rates to 2.048 Mbps, the Patton 450RC24 panel bi-directionally matches signal impedance and pulse shapes according to the CCITT G.703 standard. The Patton 450RC24 balun panel mounts in a standard 19-inch (48.3-cm) rack, occupies only 1U of rack space, and includes a reversible top cover for front-facing BNCs or 50-pin telco connectors.

FEATURES & BENEFITS

- ✓ Connects 24 75-ohm dual BNC to 120-ohm dual 50-pin telco connectors
- ✓ Bi-directional signal conversion according to CCITT G.703
- ✓ Data rates up to 2.048 Mbps
- ✓ 1U high chassis, mounts in standard 19-in. rack
- ✓ Reversible cover with integrated mounting ears
- ✓ No AC power or batteries required
- ✓ 24 female BNC coax pairs
- ✓ Dual 50-pin telco 120-ohm connectors
- ✓ 6-inch BNC removal tool

ORDERING INFORMATION

450RC/24: E1/G.703 Ultra High Density 24-port, Dual 50-pin Telco Balun Chassis (BNC Coax)

Multiplexer



Multiplexer

G.703 (E1, E2, E3) Baluns (75-ohm to 120-ohm)

Models 460, 462, & 463

Now you can solve mismatches between coax and twisted pair G.703 terminations!



These devices are miniature G.703 baluns that enable 75-ohm coax hardware to communicate with 120-ohm twisted-pair equipment.

The baluns address ONP requirement that European PTTs offer 120-ohm twisted-pair terminations to their customers. Some PTTs and private carriers are standardized on 75-ohm coax, or have customers whose CPE

has only 75-ohm coax connections. Our baluns presents a ready solution to this termination mismatch. A balun receives 75-ohm signals and converts them to 120-ohm for transmission over a network or reception by a CPE.

The output signals from the baluns are scaled to match the pulse shape requirements specified by the CCITT G.703 standard. These baluns can perform 120-ohm to 75-ohm signal conversion as well, thereby fulfilling a dual role.

FEATURES & BENEFITS

- ✓ Data rates to 34 Mbps
- ✓ Available in E1, E2, and E3 varieties
- ✓ 75-ohm dual-coax to 120-ohm twisted-pair
- ✓ Bi-directional signal conversion
- ✓ No AC power or batteries required
- ✓ Male or female coax BNC connectors available
- ✓ Ultra-miniature enclosure

ORDERING INFORMATION

460F: 2 Mbps, 75-ohm dual-coax (BNC female): to 120-ohm UTP (RJ-45)

460M: Male BNC version of 460

460F-TBP: 2 Mbps, 75-ohm dual-coax (BNC female): to 120-ohm UTP (Terminal Block)

460M-TBP: Male BNC version of 460-TBP

462F: 8 Mbps, 75-ohm dual-coax (BNC female): to 100-ohm UTP (RJ-45)

462M: Male BNC version of 462

463F: 34 Mbps, 75-ohm dual-coax (BNC female): to 120-ohm UTP (RJ-45)

463M: Male BNC version of 463

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www.patton.com

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CCTV Passive Baluns

Model 310 Series

Why use expensive and difficult-to-manage coax cabling when you can use inexpensive twisted-pair?

The Model 310M CCTV Modular Balun allows a single composite CCTV video signal to be transmitted via a single unshielded twisted pair for more versatile security and surveillance cabling. Used in pairs, the CCTV Balun eliminates costly and bulky coax cable.

FEATURES & BENEFITS

- ✓ Communicate over existing telephone lines or other twisted pair media
- ✓ Connect twisted pair using RJ45 or terminal block
- ✓ Distances up to 2,230 feet (680 meters) over Cat5 cable
- ✓ No AC or power required and supports bi-directional signal conversion

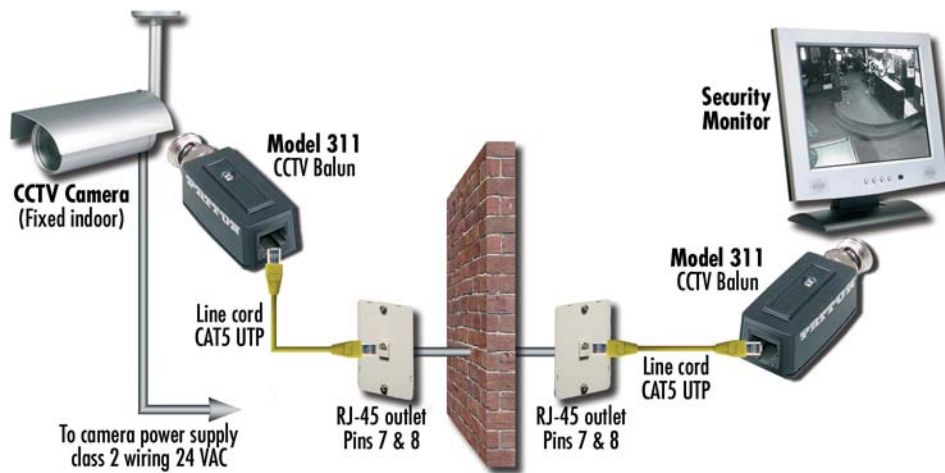
ORDERING INFORMATION

310M: CCTV BNC male to TB/RJ45; wiring 8+,7-

310F: CCTV BNC female to TB/RJ45; wiring 8+,7-

311M: CCTV std type balun for indoor BNC male to RJ45

312M: CCTV std type balun for outdoor BNC male to RJ45



CCTV Passive Pass-Thru Baluns

Model 320 Series

Pass power, PTZ, and video over a single Cat 5 cable.

Patton's CCTV Pass-Thru Balun allows video, 2-wire pan/tilt/zoom (PTZ) control and remote power to be transmitted via one 4-pair Cat5 cable eliminating the need to install multiple cables in the CCTV security and surveillance environment. The pass-thru balun may be used in pairs or in conjunction with standard twisted pair cross-connect devices and other Patton CCTV baluns.

FEATURES & BENEFITS

- ✓ Up to 2,230 feet (680 meters) over Cat5 cable

ORDERING INFORMATION

320P: CCTV Balun RJ45 Power-thru type Male w/DC power plug, 8+7- (video), 123456 (power)

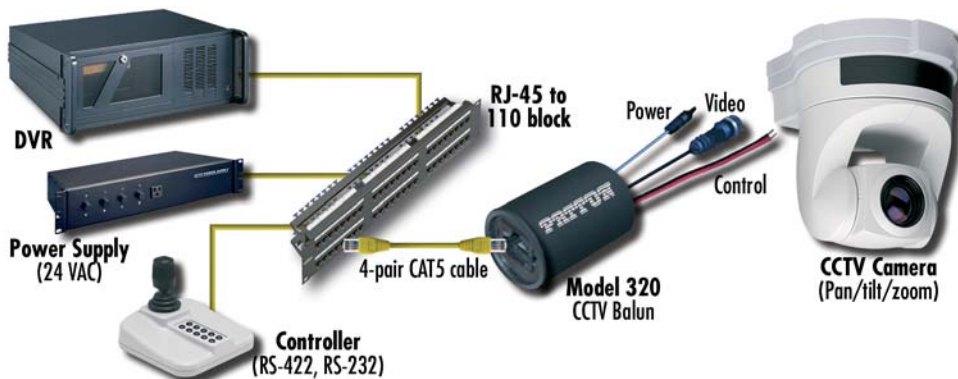
320J: CCTV Balun RJ45 Power-thru type Male w/DC power Jack, 8+7- (video), 123456 (power)

320: CCTV Balun RJ45 Power-thru type Male w/o DC power Plug and Jack, 8+7- (video), 123456 (power)

321P: CCTV Balun RJ45 Power-thru type Male w/DC power plug, 8+7- (video), 1236 (power), 4,5 (data, PTZ control)

321J: CCTV Balun RJ45 Power-thru type Male w/DC power jack, 8+7- (video), 1236 (power), 4,5 (data, PTZ control)

322: CCTV Balun RJ45 Power-thru type Male w/o DC power Jack, 8+7- (video), 4536 (data, speed dome)





Model 330MP shown

CATV Passive Baluns

Model 330 Series

Why use expensive and hard-to-manage coax cables when you can use inexpensive twisted-pair?

Patton's 330 Series CATV Baluns enable one CATV, VHF, and FM video signal to be transmitted via one twisted-pair cable in a point-to-point connection. The CATV balun saves the cost of installing expensive and bulky coax cable and is a smart, fast way of connecting RF video equipment to TVs, monitors, and other RF equipment.

FEATURES & BENEFITS

- ✓ Communicate over existing telephone lines or other twisted pair media
- ✓ Connect twisted pair using R-J45 or terminal block
- ✓ Distances up to 328 feet (528 meters) over Cat5 cable

ORDERING INFORMATION

330F: F Male to RJ45 Jack, wiring 8+/7-

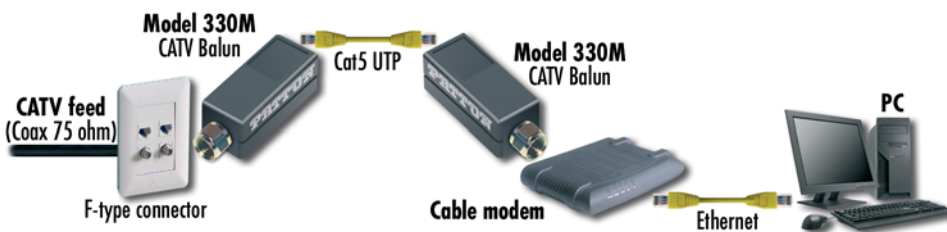
330MP: PAL Male to RJ45 Jack, wiring 8+/7-

331F: F Female to Toolless IDC with cover

331M: F Male to Toolless IDC with cover

331FP: PAL Female to Toolless IDC with cover

331MP: PAL Male to Toolless IDC with cover



Component Video Balun

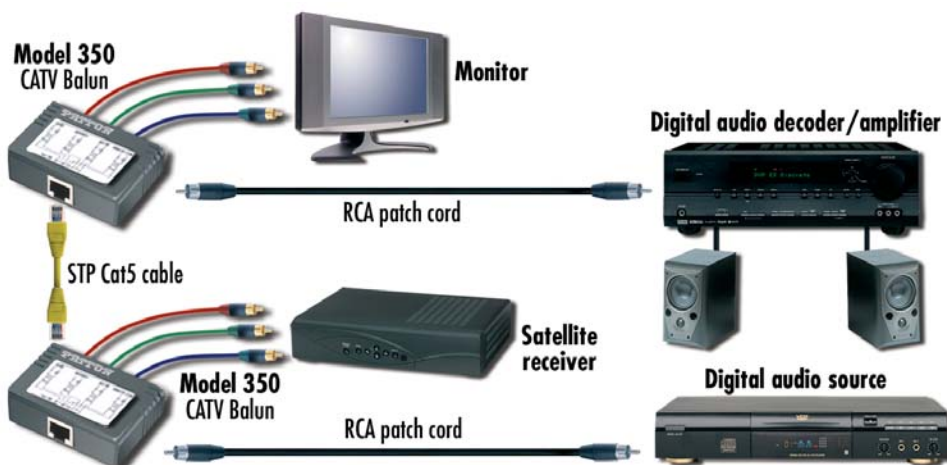
Model 350

Simplify and extend your audio/video signals over a single Cat 5 cable.

Patton component video & digital audio balun allows one component video (YPbPr or RGB) signal and one digital audio signal to be transmitted via one Category 5 Shielded twisted pair cable for more cost-efficient cabling. Used in pairs, the Model 350AV supports 480i/p, 720p and 1080i/p video formats for hi-definition (HDTV) video applications.

FEATURES & BENEFITS

- ✓ Communicate over existing telephone lines or other twisted pair media
- ✓ Supports 480i/p, and hi-definition (HDTV) formats 720p, 1080i, and 1080p
- ✓ Distances up to 1,000 feet (305 meters) over Cat5 cable



ORDERING INFORMATION

350: Component Video Balun

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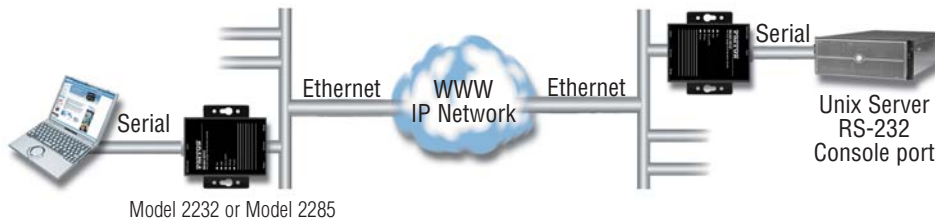
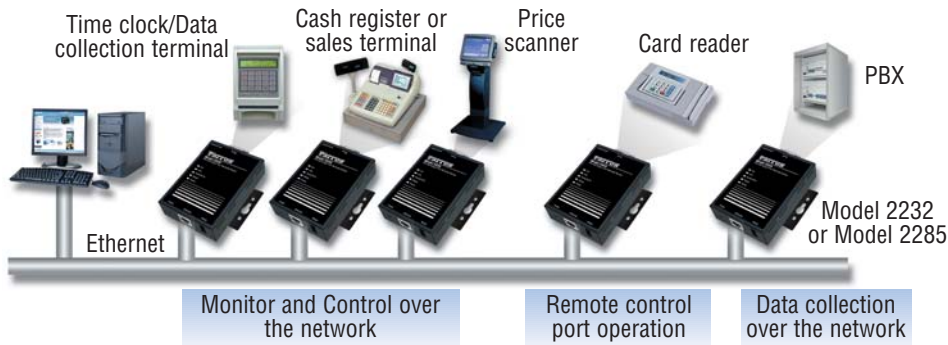

EtherBITS™ Console Port Server
Model 2232 10Base-T Console Port Server

Low-cost single-port device server lets you monitor, control, and collect data from any async RS-232 device over any IP network. It supports a wide range of user-selectable async data rates up to 115.2 kbps and connects directly to the LAN via a 10Base-T shielded RJ-45 connector.

The Model 2232 connects RS-232 devices to the LAN via serial control ports. The 2232 enables monitoring, control, and data collection from this equipment by computers located anywhere on the local or wide area network.

COM Port redirector is for users who want to continue using legacy serial COM/TTY-based programs.

The Patton Model 2232 can be used for serial data tunneling when used in pairs. When operating in pairs, the 2232s will simulate a direct serial link between two serial devices over an Ethernet connection. Using IP allows the user to extend serial connections from across the building to across the world using the Internet.


10/100Base-TX Console Port Server
Model 2285 10/100Base-TX Console Port Server with Encryption and Web Server

Control, monitor, and collect data from all your serial devices over the local network or Internet. Patton's Model 2285 universal single-port device server is cost-effective and feature-rich, linking virtually any serial RS-485/422/232 device to any IP network over a secure connection.

ORDERING INFORMATION
RS-232/422/485 to 10/100BaseT Device Server

2285-9F/E: 10/100; DB9F RS-232/422/485

2285-9M/E: 10/100; DB9M RS-232/422/485

Call for DB25 versions

Accessories

08059DC-700M-EU: EU Desktop Power Supply

08059DC-700M-NA: NA Desktop Power Supply

INS/A-DIN-35: Set of DIN rail clips

FEATURES & BENEFITS

- ✓ Control and Monitor Serial Device—Link asynchronous serial devices and terminals to your IP network
- ✓ Standard TCP/IP Protocols Supported—ARP, ICMP, TCP, DHCP client, Telnet
- ✓ COM Port Redirector Software Included—Windows-Tactical COM Port Redirector Linux-vtty drivers

ORDERING INFORMATION
RS-232 to 10Base-T Device Server

2232-25F/E: 10Base-T; DB25F RS-232

2232-25M/E: 10Base-T; DB25M RS-232

2232-9F/E: 10Base-T; DB9F RS-232

2232-9M/E: 10Base-T; DB9M RS-232

Accessories

08057R5DC-700M-EU: EU Desktop Power Supply

08057R5DC-700M-NA: NA Desktop Power Supply

INS/A-DIN-35: Set of DIN rail clips

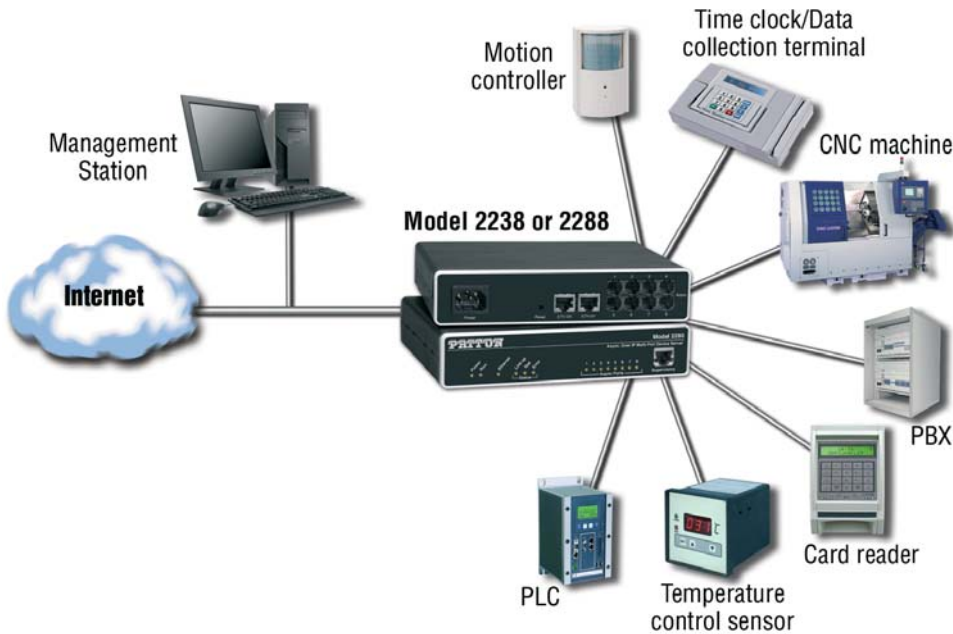
FEATURES & BENEFITS

- ✓ Secure Communication—Security features include static key based RC4 data encryption, SSL, HTTPS, and IP filtering
- ✓ COM Port Redirector Software Included—Windows®—Tactical COM Port Redirector Linux-vtty drivers
- ✓ Standard TCP/IP Protocols Supported—ARP, ICMP, TCP, Raw TCP, UDP, DHCP, Telnet/SSH, HTTPS, DNS, Dynamic DNS, SNMP v1, & v2, SSL
- ✓ Connects Directly to the LAN—10/100Base-TX LAN connection via RJ-45 connects to any hub/switch



**Multi-Port Asynchronous RS-232 Device Server
EtherBITS™ 2234 (RS-232)**

The Model 2234 is a cost-effective Multi-Port Device Server enabling user to configure, control, and monitor up to eight RS-232 devices over a Local Area Network.



FEATURES & BENEFITS

- ✓ High-density desk top box allows up to 8+1 Async RS-232 to connect to the LAN or WAN.
- ✓ Individually configurable serial channel with speeds of 1200 bps to 230 kbps
- ✓ Hardware (RTS/CTS) and software flow control (XON/XOFF)
- ✓ User configurable IP services ensure reliable connectivity to any LAN or WAN. NAT, DHCP and Firewall permits advanced networking and flexibility.
- ✓ Ensure data is secure end to end using IPsec with DES/3DES.
- ✓ Configure and control up to 8 serial devices with Web-based management, SNMP, or command line all with password protection.

ORDERING INFORMATION

2234/EUI: 4 port RS-232

2234/E48: 4 port RS-232

**Multi-Port Async. RS-232/422/485 Device Server
Models 2288 (MEI)**

The 2288 is a versatile Multi-Port Device Server enabling users to configure, control, and monitor up to eight RS-232/422/485 DCE or DTE devices over a Local Area Network.



The EtherBITS family of device servers provide easy, feature rich, secure and reliable serial to LAN, WAN or Internet connectivity. Placing serial devices on to the LAN eliminates the hassle of serial cables, dedicated PCs, and local management. Providing Ethernet connectivity to your serial devices not only protects your current hardware investments, but simplifies future expansions and the management of that hardware.

LAN connectivity of your serial devices gives you the ability to remotely manage serial devices from anywhere in the world.

The EtherBITS 2280 series encapsulates the asynchronous serial data of up to 8+1 ports into IP packets for transport through the network via TCP or TELNET. Patton's COM port redirector software makes it possible to establish a connection between the host and a networked serial device by creating a local COM or TTY port on the host computer, allowing existing software applications to work without modification.

The EtherBITS 2280 support a host of applications including industrial automation, credit bureaus, banks, point-of-sale, utilities, and any other applications that require asynchronous RS-232/422/485 serial to IP connectivity.

FEATURES & BENEFITS

- ✓ High-density desk top box allows up to 8+1 Async DCE or DTE RS232/422/485 to connect to the LAN or WAN.
- ✓ Individually configurable serial channel with speeds of 1200 bps to 230 kbps
- ✓ Per port DCE or DTE configurable
- ✓ Hardware (RTS/CTS) and software flow control (XON/XOFF)
- ✓ User configurable IP services ensure reliable connectivity to any LAN or WAN. NAT, DHCP and Firewall permits advanced networking and flexibility.
- ✓ IPsec with DES/3DES ensures data is secure end-to-end.
- ✓ Configure and control up to 8 serial devices with Web-based management, SNMP, or command line all with password protection.

ORDERING INFORMATION

2288/EUI: 8 port 232/422/485

2288/E48: 8 port 232/422/485

Multiport Asynchronous Multiplexers

Models 3038

The Model 3038 IpStatmux Managed Multiport Asynchronous Multiplexer combines up to eight EIA-232/V.24 interfaces over any composite V.35, X.21, T1/E1, or Ethernet/IP port and offers the lowest-cost, most flexible solution for multiport asynchronous terminal connectivity.



Now it is easier than ever to link up multiple asynchronous terminals, hosts, and devices. Patton's Model 3038 IpStatmux Managed Multiport Asynchronous Multiplexer consolidates up to eight asynchronous data sources onto a single synchronous WAN link or IP/Ethernet LAN connection for secure, reliable, and transparent multiplexing.

The Model 3038 offers advanced network and transmission options. The integrated composite port provides a standard synchronous link connection to NTUs, DSUs or traditional WAN services. By including an Ethernet port as a composite uplink, the Model 3038 also "future

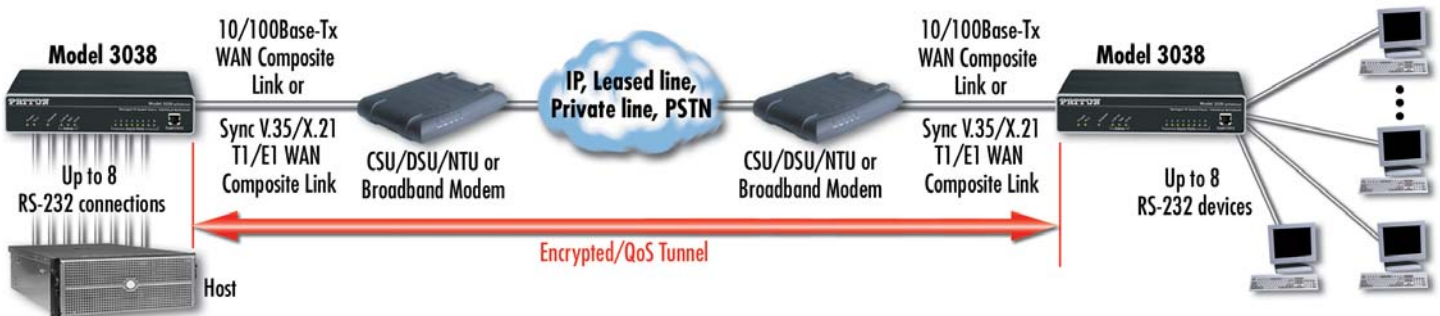
proofs" your legacy equipment. Now multiplexed data can use existing LAN, WAN and Internet connections...simultaneously. Data security and service quality is ensured with IPsec encryption as well as packet labeling and integrated data QoS with flow-control.

Reliable data is ensured via multiple CRC-16 checks, transparent data checksums and in-order data delivery. In the event of an error, the Model 3038 automatically retransmits the data to ensure transparent and error free delivery. With user configurable flow control including software XON/XOFF, hardware RTS/CTS and combination provides optimal data transfer.

Integrated management offers both local and remote configuration, control and troubleshooting. Use the supervisory port for out-of-band access or use LAN based services such as Telnet, WEB/HTTP and SNMP. Per-port options allow for diagnostics loops, traffic statistics, review channel status and monitor ports and events. Link down, data loss and errors can be signal.

FEATURES & BENEFITS

- ✓ Up to 8 Ports on a Single Link—Multiplex up to 8 EIA-232/V.24 ports at 115.2kbps with individually configurable speed, flow control, echo and testing.
- ✓ V.35/X.21/T1/E1 Ethernet Composite—Connect to any synchronous dedicated WAN or lower costs using standard PPP or Frame Relay networks. Ethernet/IP can be used over any network or Internet without the expense of dedicated lines.
- ✓ Local & Remote Management—Configure and control with Web-based management, SNMP or command line supervisory port all with password protection.



ORDERING INFORMATION

3038/C/EUI: Composite V.35 Sync

3038/D/EUI: Composite X.21 Sync

3038/K/EUI: Composite E1 Sync



Interface-Powered, RS-232 to RS-422 Converters
Models 222N & 222N9

These miniature converters are no larger than a DB-25 or DB-9 backshell!

ORDERING INFORMATION

DB-25 versions

222NM: Male DB-25 with terminal block (TB)

222NF: Female DB-25 with TB

222NF RJ11: With RJ-11 jack

222NM RJ45: With RJ-45 jack

222NM-25F: With DB-25 male to female

222NF-25F: With DB-25 female to female

222NSF: With surge protection

DB-9 versions

222N9M: Male DB-9 with TB

222N9F: Female DB-9 with TB

222N9F RJ11: With RJ-11 jack

222N9M RJ45: With RJ-45 jack

222N9SF: With surge protection



FEATURES & BENEFITS

- ✓ Converts EIA-232 data to EIA-422
- ✓ Async. transmit & receive data signals only
- ✓ EIA-232 control signals wired together
- ✓ Operates at rates up to 19,200 bps
- ✓ No AC power or batteries required
- ✓ DCE/DTE selectable interfaces
- ✓ Virtually any connectorization available



Interface Powered, RS-232 to RS-485 Converters
(with Handshaking)

Models 2085 & 2089

Connect a DB-25 or DB-9 equipped PC or workstation to RS-485 data acquisition & control equipment.

Transmission Distances When Used in Pairs

Line rate	19 AWG (0.9 mm)			22 AWG (0.5 mm)			19 AWG (0.9 mm)			22 AWG (0.5 mm)		
	feet	miles	km	feet	miles	km	feet	miles	km	feet	miles	km
1200 bps	47520	9.0	14.5	34320	6.5	10.5	26400	5.0	8.0	21120	4.0	6.4
9800 bps	36960	7.0	11.2	24288	4.6	7.4	18480	3.5	5.6	14784	2.8	4.5
38.4 k	26400	5.0	8.0	15312	2.9	4.7	11616	2.2	3.5	7920	1.5	2.4
115.2 k	18480	3.5	5.6	13728	2.6	4.2	7392	1.4	2.3	4752	0.9	1.5

FEATURES & BENEFITS

- ✓ Fully conforms to the EIA-232 and EIA RS-485 standards
- ✓ Operates asynchronously, point-to-point or multipoint, over 2 or 4 wires
- ✓ Data rates to 115,200 bps
- ✓ Range up to 9 mi. (14.5 km) when used in pairs
- ✓ Selectable RTS-CTS delay
- ✓ Selectable high/low impedance
- ✓ Operates with or without "echo"
- ✓ Up to 50 terminal drops in a multi-point polling environment
- ✓ No AC power or batteries required
- ✓ 600 watts of silicon avalanche diode surge protection



ORDERING INFORMATION

Model 2085—4-wire DB-25 versions

2085M: Male DB-25 with terminal block

2085F: Female DB-25 with terminal block

2085X-RJ11: With RJ-11 jack

2085X-RJ45: With RJ-45 jack

2085X-DR11: With Dual RJ-11 jacks

2085X-DR45: With Dual RJ-45 jacks

2085X-25F: With DB-25 female

2085X-25M: With DB-25 male

Model 2089—DB-9 versions

2089M: Male DB-9 with terminal block

2089F: Female DB-9 with terminal block

2089X-RJ11: With RJ-11 jack

2089X-RJ45: With RJ-45 jack

2089X-DR11: With Dual RJ-11 jacks

2089X-DR45: With Dual RJ-45 jacks

2089X-25F: With DB-25 female

2089X-25M: With DB-25 male

Example

2085M-RJ11: Male DB-25, RJ-11 jack

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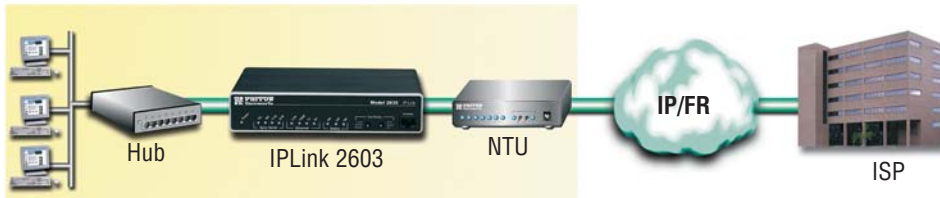
Low-cost T1/E1 WAN Access Router

IPLink™ 2603

This WAN Gateway Router is a complete all-in-one network access device which easily connects your IP/LAN to any T1/E1 network interface with routed or bridged connections

FEATURES & BENEFITS

- ✓ PPP and Frame Relay —Versatile WAN options enable deployment into any network. Use routed IP or bridged Ethernet for transparent networking. Bridge passes VLAN tagged frames (no VLAN tagging within the 2603)
- ✓ NAT/NAPT, Firewall, DHCP —Powerful routing features make shared Internet connectivity simple and secure.
- ✓ WWW/SNMP Manageable—Built-in VT-100 console port makes setup a snap, and you can use the embedded HTTP/SNMP agent to manage an IPLink router from anywhere in the world.



ORDERING INFORMATION

2603/K/EU: E1 (RJ-45/BNC) Router with external UI power supply

2603/T/EU: T1 (RJ-45) Router with external UI power supply

2603/K/48: T1/E1 (RJ-45/BNC) Router with 48-VDC power supply

2603/T/48: T1/E1 (RJ-45) Router with 48-VDC power supply



Sync. Serial WAN Routers

IPLink™ 2621 & 2635

These WAN Gateway Routers are all-in-one network access devices that connect your IP/LAN to any X.21 or V.35 network interface with routed or bridged connections

FEATURES & BENEFITS

- ✓ V.35 or X.21 WAN interfaces—Get the WAN interface you need in industry-standard connectors
- ✓ PPP and Frame Relay—Versatile WAN options enable deployment into any network. Use routed IP or Bridged Ethernet for transparent networking. Bridge passes VLAN tagged frames (no VLAN tagging within the 2635/2621)
- ✓ NAT/NAPT, Firewall, DHCP—Powerful routing features make shared Internet connectivity simple and secure.
- ✓ 10/100 Ethernet with MDI-X—Easily connect to any computer or LAN—the built-in communication crossover switch eliminates messy configuration cables.

The Models 2621 and 2635 Gateway Routers are the ideal solution for connecting any small to medium-sized enterprise or remote office to an IP/Internet network using standard telco and WAN interfaces.

Combining ease-of-use with a full suite of LAN/WAN routing features, the IPLink routers provide selectable bridging or routing functionality along with advanced IP features such as NAT/NAPT, Firewall, and DHCP. A complete set of configurable FR/PPP/IP WAN protocols allow a wide range of choices when connecting

branches via common WAN services. The IPLink Routers boast easy installation offering Console/VT-100, Telnet, and HTTP/SNMP management options.

All IPLink routers come with an auto-sensing full-duplex 10/100Base-T Ethernet port, cross-over switch, and internal power supply. The Model 2621 has an X.21 interface, and the Model 2635 comes with a V.35 interface.

Patton's new series of high-speed routers offer the versatility and reliability demanded for business-class applications at the most affordable price.

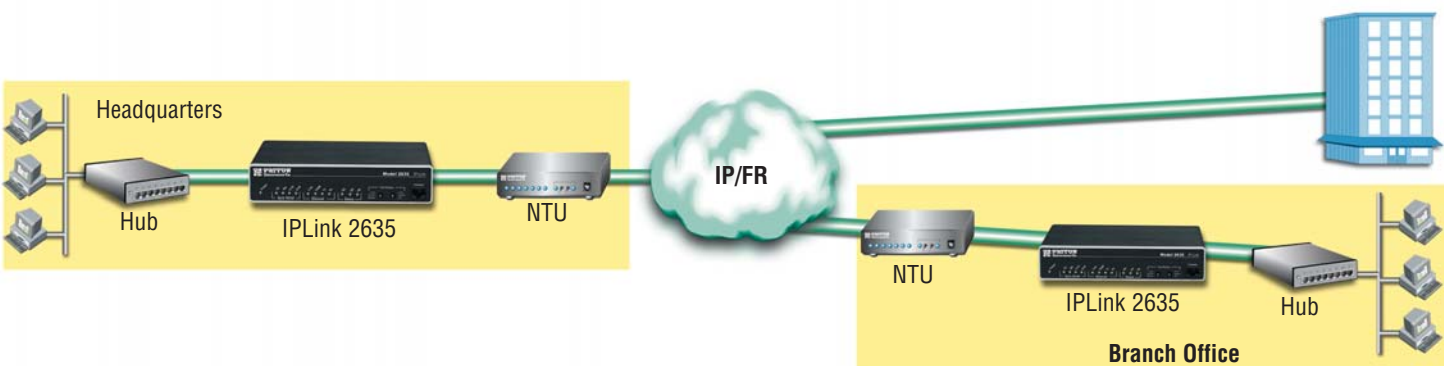
ORDERING INFORMATION

2621/EU: X.21 Router; external UI power supply

2635/EU: V.35 Router; external UI power supply

2621/48: X.21 Router; external 48-VDC power supply

2635/48: V.35 Router, 48-VDC power supply



Compact Ethernet-over-E1 WAN Bridge
NetLink 2701/I EtherRocket & 2701RC Rack Card

These devices, available in low-cost standalone or rack-mountable versions, terminate G.703/G.704 NTU with on-board transparent Ethernet Bridge extend branch-office LAN segments over E1/FE1 simply and affordably.



Patton Electronics introduces a new way of interconnecting remote branches to a Main Office LAN using the Model 2701/I Ethernet-over-E1 Bridge. Called "Remote Router Porting" (RRP), it offers network managers and integrators a simple and economical way for LAN-to-LAN deployments.

At the branch office, RRP replaces the traditional router and CSU/DSU solution with Patton's Ethernet-over-E1 Bridge, which includes integrated E1 and 10Base-T transparent bridging. This unit allows for high-speed PPP data connections across the Wide Area Network at scalable data rates of nx56/nx64kbps up to 2.048 Mbps, and also connects directly to the 10Base-T branch office LAN at 10Mbps. The 2701/I transparently forwards Ethernet packets to a headquarters LAN based on their destination MAC address.

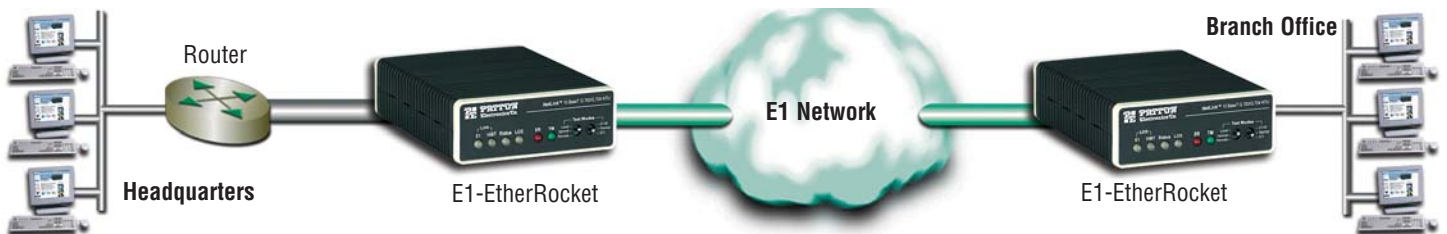
At headquarters, RRP builds on the bridging capabilities of a router to extend their serial or WAN ports across town or across the country. In order for the central routed network to connect to a remote branch Ethernet network, the serial or WAN interface of the router needs to be configured as a PPP IP half-bridge. In this configuration, the Ethernet-over-E1 Bridge sends bridge packets (BPDUs) to the router's WAN interface. The router will then look at the layer-3 address information and will forward these packets based on its IP address. The router's port, connected through the E1 network and Ethernet-over-E1 Bridge, appears as a virtual interface at the branch office network.

The Model 2701/I Ethernet-over-E1 Bridge supports G.704 framing, and AMI and HDB3 line coding. Data rates, framing, and coding options are programmed by DIP switches or from a VT-100 terminal with menu-driven software. A full range of system and diagnostic features make setup simple and quick.



FEATURES & BENEFITS

- ✓ Terminates E1/Fractional E1 service
- ✓ 10Base-T Ethernet-over-E1 Bridge
- ✓ Available in low-cost standalone or rack-mountable (2701RC) versions
- ✓ PPP (Point-to-Point Protocol, RFC 1661) with BCP (Bridge Control Protocol, RFC 1638)
- ✓ 2 Mbps E1 Line Rate with n x 64 kbps timeslot selection
- ✓ Switch-selectable AMI or HDB3 line encoding options
- ✓ 75-ohm dual coax and 120-ohm twisted-pair G.703 connections
- ✓ Local and remote loopback diagnostics
- ✓ Internal and G.703 network timing
- ✓ Conforms to ONP requirements CTR 12 and CTR 13 for connection to international Telecom networks
- ✓ Rack cards fit into Model 1001 access rack system



ORDERING INFORMATION

- 2701/I/UI: G.703/G.704 NTU, Ethernet interface; 120–220 VAC PS
- 2701/I/48: G.703/G.704 NTU, Ethernet interface; 48 VDC power supply (PS)
- 2701RC/A/I: G.703/G.704 NTU Card, V.35 interface
- 2701RC/C/IA: G.703/G.704 NTU, Ethernet/RJ-45 interface
- 2701RC/D/D: G.703/G.704 NTU Card, X.21 interface
- 2701RC/D/V: G.703/G.704 NTU Card, X.21 interface

Leased-Line Extender over IP

SmartNode™ 2290 Series

The SmartNode™ 2290 series saves on leased-line costs when extending up to four audio lines between two locations using best-effort networks, even the Internet.



The 2290 Series Leased Line Extender is a SmartNode that enables end users to deploy Leased-line applications like an always-on connection even on the Internet. Using only one Extender on each side, audio Leased-Lines can be transported over a packet-based network. This means: Internet connection in two different locations around the world is sufficient to establish up to four Leased-Lines between these two locations! Many Service Providers are moving away from their TDM backbone networks and their Analog leased lines

offerings. The 2290 series offers Service Providers a chance to offer the same services like Always ON connections on Analog leased lines over their IP based networks.

To Enterprises, it offers a chance to move to best effort networks like the Internet and enjoy the same benefits of using Analog Leased Lines on the existing LAN network they have already deployed. In addition, it allows them to use LANs to provide Intra-Office Always ON lines instead of a dedicated web of telephone wires.

After installation, the connection between two 2290 extenders can establish immediately. It also reestablishes after any network disruption. The connection can also be secured with Hardware-Accelerated 3DES or AES encryption end-to-end between the extenders, preventing wiretapping and making Patton the right choice for security conscious enterprises.

FEATURES & BENEFITS

- ✓ Service Providers—Offer the same old analog leased line service on the Internet with highly reduced capital and operational expenditure even as you migrate away from TDM
- ✓ Enterprises—Enjoy the benefits of using leased lines on Enterprise IP networks without the hassles of telephone wires
- ✓ Security—Connections are always on and securely encrypted with IPsec and IKE
- ✓ Quality of Service—Advanced traffic management and shaping, combined with Patton's DownStream QOS™ enforce uninterrupted toll-quality voice over best-effort networks
- ✓ Access Router Functions—Integrated access router functions with NAT, firewall, ACL, PPPoE, DHCP, DynDNS and VLAN
- ✓ Easy to Monitor and Control—In-band (RS-232 console port) and out-of-band management capabilities (Telnet and HTTP)



Patton SmartNode Models 2292 and 2294 are equipped with two Ethernet ports and provide gateway and Voice-over-IP line extension services.

ORDERING INFORMATION

2292/EUI: 2 VoIP leased line channels, External Universal Input Power Supply

2294/EUI: 4 VoIP leased line channels, External Universal Input Power Supply

IpChannel Bank Multi-Port FXS Gateway

SmartNode™ 4400 Series

The IpChannel Bank is the perfect VoIP gateway for applications requiring 12 to 32 concurrent analog voice/fax calls within a single redundant solution.



ORDERING INFORMATION

SmartNode™ High Density VoIP Gateway, 2x10/100bTX, H.323 and SIP

SN4412/JS/UI: High Density Gateway, 12 FXS, UI Power

SN4416/JS/UI: High Density Gateway, 16 FXS, UI power

SN4424/JS/UI: High Density Gateway, 24 FXS, UI Power

SN4432/JS/UI: High Density Gateway, 32 FXS, UI Power

SN4412/JS/48: High Density Gateway, 12 FXS, 48V DC power

SN4416/JS/48: High Density Gateway, 16 FXS, 48V DC Power

SN4424/JS/48: High Density Gateway, 24 FXS, 48V DC Power

SN4432/JS/48: High Density Gateway, 32 FXS, 48V DC Power

FEATURES & BENEFITS

- ✓ 12, 16, 24 or 32 FXS—Simultaneous voice or fax calls on all ports. Advanced local call switching.
- ✓ Full SIP and T.38 support—Supports the complete range of industry standard VoIP: SIP, H.323, T.38 fax, fax and modem bypass, DTMF relay, Codecs G.729, G.723 etc.
- ✓ Secure Toll-Quality VoIP—DownStreamQoS and Voice-over-VPN with adaptive traffic management and shaping for maximum voice quality and secure voice communication.
- ✓ Complete Access Routing—Two 10/100 Ethernet ports with auto MDI-X. Access router with NAT, Firewall, PPPoE, DHCP, DynDNS, multiple VLANs & VPN with IPsec*
- ✓ Outstanding Interoperability—Interoperable for voice and T.38 fax with leading SIP service providers, soft-switch vendors and Asterisk™ IP-PBX

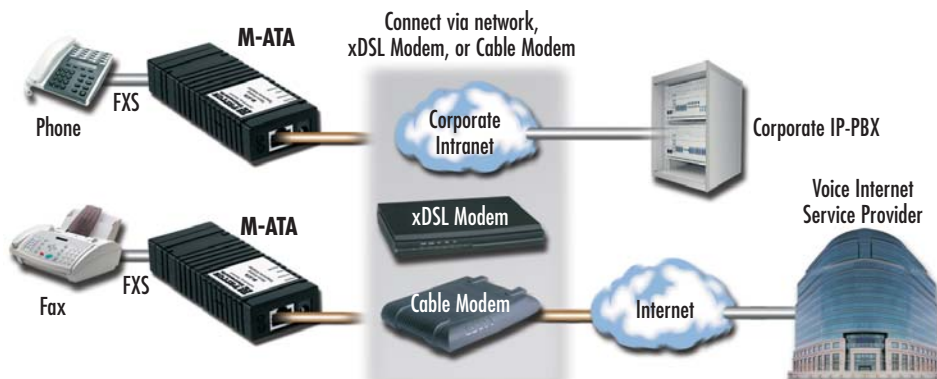


Micro-Analog Telephone Adapter

SmartLink™ M-ATA

Quickly and easily converts any phone or fax machine to VoIP for residential and telecommuter applications.

Patton's Micro-Analog Telephone Adapter provides seamless access to Internet telephony and data services. The M-ATA connects to any broadband access provider via a cable or xDSL modem.



FEATURES & BENEFITS

- ✓ Ultra-miniature—Smallest full-function analog telephone adapter available today!
- ✓ Supports over 20 voice calling features—Call waiting, call conference, caller ID, hot-line, distinctive ring and more!
- ✓ DHCP, PPPoE—Provides maximum connectivity across firewalls and transport networks.
- ✓ SIP Signaling—Deploy into any multimedia, interactive, or softswitch network with the leading call and session signaling protocols.
- ✓ Toll Quality CODECs & T.38 fax—Uses G.723 or G.729 for low-bandwidth applications or standard G.711 or G.726 CODECs for toll-quality voice.
- ✓ Centralized management—HTTP/SNMP manageable from any location.

ORDERING INFORMATION

M-ATA-1/E: Micro Analog Telephone Adapter; 1 x FXS RJ11; 1 x 10/100Base-TX

* Specifications subject to change without notice.

Multi-Port FXS/FXO VoIP Gateway Series

SmartNode™ 4110 Series

The SmartNode 4110 VoIP gateway integrates up to eight legacy PSTN, PBX or standard phone lines with next-generation IP based telephony systems. Part of the proven SmartNode family, this product is designed to provide superior technology at an optimized cost.

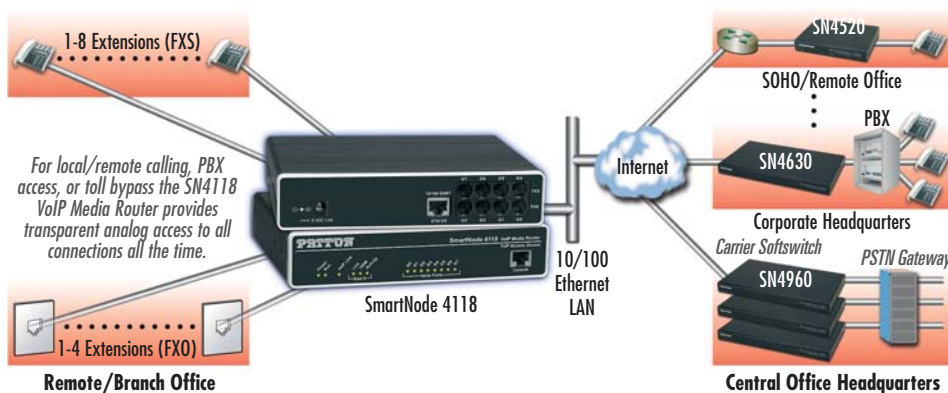


The SmartNode 4110 VoIP Media Gateway supports up to eight transparent phone calls while leveraging VoIP for lower-cost carrier and corporate access. Connecting to any analog phone, fax, or PBX, the SN4110 is an effective and flexible solution for toll-bypass, remote/branch office voice connectivity, and enhanced carrier services.

The SN4110 series is the perfect choice for phone-to-IP connectivity supporting up to 8 FXS ports or a combi-

nation of 4 FXS and 2 or 4 FXO ports. With its FXS analog ports, the SN4110 connects to any legacy telephone or PBX and provides dial-tone, ringing, and caller-ID. When equipped with FXO ports, the local PSTN can be accessed enabling local calling and enhanced toll-bypass applications while using a single connected telephone. Flexible call integration allows per-port telephone numbers, programmable call progress tones, and distinctive ringing. With Telephony-over-IP (ToIP) call switching, calls can automatically select the least-cost-route while providing flexible numbering plans and end-to-end feature transparency. PPPoE, DHCP, and VLAN offers universal IP connectivity and optional IPSEC VPN with AES/3DES guarantees secure voice over the public network.

Patton's SmartNode 4110 delivers the legacy phone interfaces, service transparency, and flexible PSTN integration required for true converged packet voice.



FEATURES & BENEFITS

- ✓ Up to 8 FXS and/or FXO ports—Compact, reliable stand-alone VoIP gateway with different port options. Supports simultaneous voice or fax calls on all ports.
- ✓ Advanced Local Call Switching—Virtual interfaces and routing tables provide industry leading flexibility in call handling programming. Local call switching, soft fallback to alternative routes. Simultaneously connects to multiple SIP services/IP PBXs.
- ✓ Complete SIP and T.38 support—Supports the complete range of industry standard VoIP: SIP, H.323, T.38 fax, fax and modem handling, DTMF relay. Codecs G.729, G.723, etc.
- ✓ Easy Management & Provisioning—Web-based management, SNMP, command line interface. Automated mass provisioning for efficient large-scale deployments.
- ✓ Outstanding Interoperability—Proven integration for voice and T.38 fax with Asterisk™, PingTel™ and other leading IP PBX systems and soft switch vendors.

ORDERING INFORMATION

SN4112/JS/EUI: 2 Port FXS VoIP Media Gateway, 100–240 VAC external power supply (PS)

SN4114/JS/EUI: 4 Port FXS VoIP Media Gateway, 100–240 VAC external PS

SN4116/JS/EUI: 6 Port FXS VoIP Media Gateway, 100–240 VAC external PS

SN4118/JS/EUI: 8 Port FXS VoIP Media Gateway, 100–240 VAC external PS

SN4114/2JS2JO/UI: 2 FXS & 2 FXO Port VoIP Media Gateway, 100–240 VAC internal PS

SN4118/4JS4JO/EUI: 4 FXS & 4 FXO Port VoIP Media Gateway, 100–240 VAC external PS

Options & Accessories

SNSW-VPN1: License Key for IPSec VPN support (DES, 3DES, AES)

ISDN BRI PSTN Gateway
SmartNode™ 4554

The SmartNode 4554 ISDN VoIP gateway enables any IP PBX to make calls to the ISDN PSTN. The compact, reliable stand-alone design allows enterprises to easily and flexibly integrate BRI lines into their VoIP system.



The SmartNode 4554 ISDN BRI PSTN Gateway converts up to four simultaneous phone or fax calls from SIP or H.323 to BRI ISDN. It is a compact, reliable stand-alone VoIP gateway for IP-based voice systems which matches up to ISDN standards in terms of performance and quality.

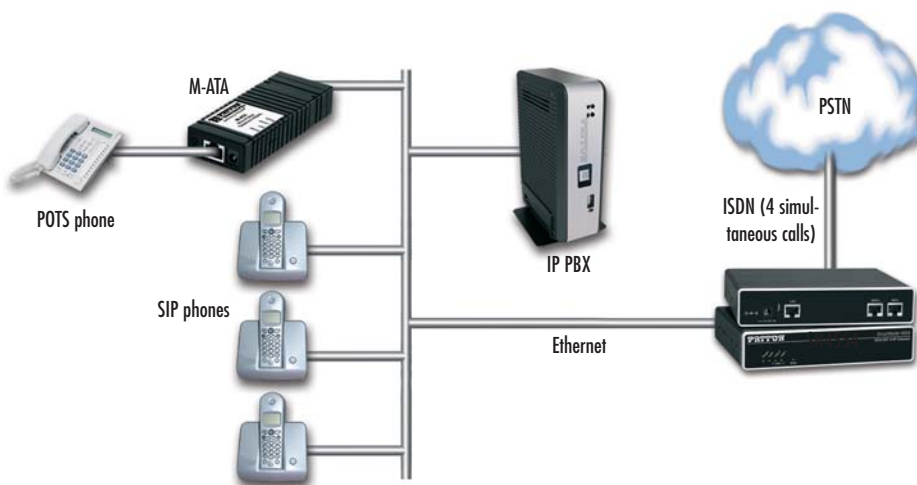
Compared to PC-based solutions that combine IP PBX and a PCI BRI card, the SN4554 has several advantages: No need to install additional drivers or software,

new services can be installed without downtime, several SN4554 can be combined and serve as redundant cluster, no ventilation or harddisk required, scalable without limitation by the amount of PCI card slots available. Also, your system administrators don't have to learn ISDN, as industry standard protocols like SIP or H.323 do the job of connecting the PSTN to your voice system.

The SN4554 perfectly integrates in today's IP PBX systems supporting their advanced functionality, while preserving the majority of ISDN comfort features. Patton, as a leader in ISDN-VoIP technology, has integrated the following ISDN specific features into the SmartNode 4554: Advice of Charge (AOC), Explicit Call Transfer (ECT), CLIP, CLIR, 64k transparent data calls, support for both MSN and DID lines, overlap dialing, call waiting, call hold.

FEATURES & BENEFITS

- ✓ Compact, reliable stand-alone gateway for VoIP systems—Connects an IP PBX or other VoIP systems to the ISDN PSTN, offering 2 BRI TE ports and 4 simultaneous voice or fax calls.
- ✓ Full SIP and T.38 support—Supports the complete range of industry standard VoIP: SIP, H.323, T.38 fax, fax and modem bypass, DTMF relay. Codecs G.729, G.723 etc.
- ✓ Transparent Telephony Features—Preserves ISDN features like caller ID and name (CLIP/CLIR), call transfer, hold, waiting, AOC. Supports DID and MSN lines in all major countries as well as complex numbering plan manipulations.
- ✓ Outstanding Interoperability—Interoperable for voice and T.38 fax with Asterisk™, PingTel™ and other leading IP PBX systems.



ORDERING INFORMATION

SN4554/2BIS/EU: ISDN BRI VoIP Gateway, 2 BRI ports, 2 Ethernet ports, 4 simultaneous calls, 100–240 VAC external power supply

Options & Accessories

SNSW-VPN1: License Key for IPsec VPN support (DES, 3DES, AES)

SNSW-QSIG1: License Key for QSIG support

Multi-Port ISDN VoIP IAD

SmartNode™ 4630 Series BRI So Gateway Router

The award-winning SmartNode 4630, with up to 5 BRI ports and 8 simultaneous voice channels, is the best way to connect ISDN networks to the world of voice over IP. It enables small offices/remote offices to lower communication costs and provides business-class Internet telephony for demanding ISDN users.



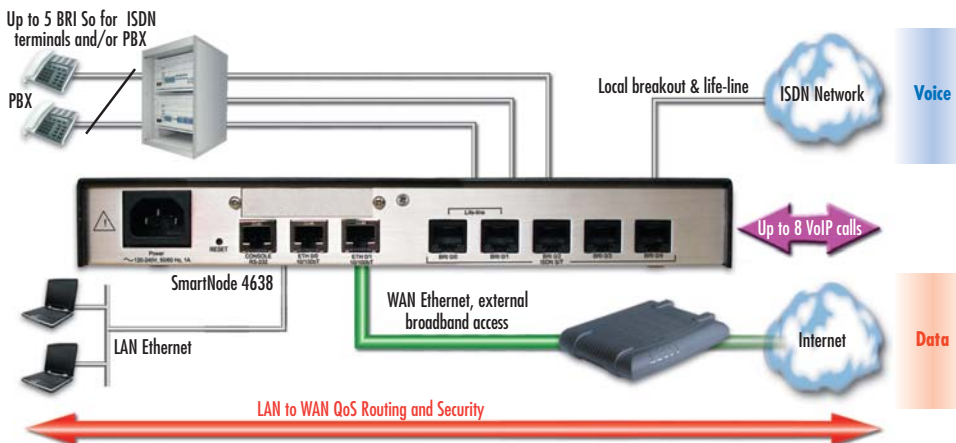
The SmartNode 4630 series are the multi-port ISDN BRI models of the proven market-leading SmartNode VoIP product family. The available 3 and 5 BRI/So port configurations fit the requirements of small and medium enterprises looking for a cost-efficient way to network PBX systems on multiple sites or connect to a public Internet telephony service.

The extra BRI port solves many VoIP network integration problems encountered in real-world installations. The port can synchronize the gateway and provide error-free ISDN data and fax transmissions, and it can be used as a fallback or local-breakout port for optimized call-routing and risk-free operation. With the life-line relay, the port even enables integration of an ISDN emergency terminal powered from the public ISDN.

Like every SmartNode, the 4630 Series models are state-of-the-art VoIP gateways that also provide complete access routing and IP security features. Use the SmartNode as CPE or access router on broadband access, and you can benefit from industry leading Quality of Service (QoS) features ensuring a voice quality unmatched by any IP-phone or gateway on the market.

With the ClearConnect™ dial-backup option, adaptive network monitoring recognizes WAN uplink failures and initiates an ISDN dial-up connection to guarantee interrupt-free voice and data access at all times. If the VoIP link goes down or becomes congested, the SN4630 will switch over to the PSTN and guarantee your call each time.

The SmartNode 4630 is the solution for service providers and network integrators looking for a VoIP product that matches up to ISDN standards in terms of features and quality. SmartNode products provide seamless network integration, continuous trouble-free operation and cost effective deployment to protect your investments for the future.



Whether used as a gateway or as an access router, the SmartNode 4630 provides excellent VoIP and IP QoS features for seamless network integration. All BRI ports are configurable to be TE or NT, you can thus connect your telco line(s) as well as a PBX or ISDN terminals. Terminals are powered with the built-in power supply, eliminating the need for an external box. For business class IP telephony at the tip of your fingers, the SmartNode 4630 is more than just talk!

FEATURES & BENEFITS

- ✓ 3/5 Ports Quality ISDN VoIP—3 or 5 ISDN BRI So ports, 4 or 8 low-bandwidth voice or T.38 fax calls. Advanced adaptive traffic management and shaping for maximum voice quality. Voice prioritization and DownStreamQoS™
- ✓ High Precision Unit—Supports wireless DECT PBX and improves fax performance
- ✓ Complete Access Routing—Two 10/100 Ethernet ports with auto MDI-X. Access router with NAT, Firewall, PPPoE, DHCP, DynDNS & VPN with IPsec*
- ✓ Full VoIP protocol support—SIPv2, H.323v4, MGCP/IUA, ISDN, DSS1, QSIG*, T.38, fax & modem bypass, DTMF relay.
- ✓ Interoperable for voice & T.38 fax with leading SIP service providers, soft-switch vendors, and Asterisk™ IP-PBX.

ORDERING INFORMATION

Multi-Port ISDN VoIP IAD with Dual Fast Ethernet Ports, H.323 and SIP, Passthrough Relay, and External Power Supply
SN4634/3BIS/EUI: 4 VoIP Call; 3 ISDN So Ports

SN4635/3BIS/EUI: 8 VoIP Call; 5 ISDN So Ports; High Precision 5ppm clock source

SN4638/5BIS/EUI: 8 VoIP Call; 5 ISDN So Ports

SN4639/3BIS/EUI: 8 VoIP Call; 5 ISDN So Ports; High Precision 5ppm clock source

SW Options

SNSW-VPN1: License Key for IPsec VPN (DES, 3DES, AES), IKE and Voice-over-VPN

SNSW-QSIG1: License Key for QSIG

SNSW-DB1: Dial-Backup Feature License

Note: Please indicate country specific power cord at time of ordering.

*Requires optional license.

Multi-Port T1/E1 VoIP Integrated Access Device

SmartNode™ 4960

The award-winning SmartNode 4960 integrates with legacy telephony gear to deliver VoIP and data services with QoS and encrypted-voice VPNs. The SmartNode 4960 comes with four T1/E1/PRI ports, two GigE ports, and supports up to 120 simultaneous VoIP calls, making it the ideal choice for low-cost, secure, prioritized communications.



Providing a high-density seamless link between the circuit-switched telephone network and voice-over-IP, the SN4960 is ideal for PBX business trunking or corporate VoIP access. Offering up to four software configurable T1/E1/PRI interfaces the SN4960 connects to any switch, PBX and data network with up to 120 simultaneous calls using SIP, T1, E1 or PRI signaling. With its built-in CSU/DSU, any T1/E1 port can be selected as a WAN port.

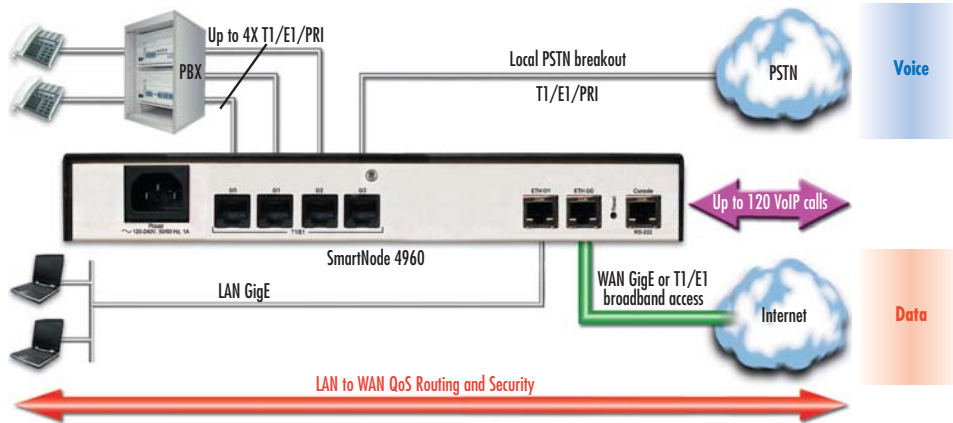
The SN4960 delivers toll-quality voice with all industry standard CODECs including low-bandwidth G.723/G.729. Business class services are supported with T.38 fax, fax bypass and modem bypass features.

With the ClearConnect™ dial-backup option, adaptive network monitoring recognizes WAN uplink failures and initiates an ISDN dial-up connection to guarantee interrupt-free voice and data access at all times. If the VoIP link goes down or becomes congested, the SN4960 will switch over to the PSTN and guarantee your call each time.

The SmartNode 4960 is ready for SIP TLS and SRTP through software upgrades. Exclusive DownStreamQoS™ and Voice-over-VPN features give the clear advantage of uninterrupted and secure voice communication for any call today.

FEATURES & BENEFITS

- ✓ Up to 120 simultaneous voice or T.38 fax calls with one to four T1/E1/PRI ports and dual Gigabit Ethernet ports. Use any CODEC or fax on any port, any time.
- ✓ Universal SIP and T.38 support—Softswitch certified signaling support between all T1 RBS CAS, ISDN PRI, Q.SIG, SIP, H.323 and MGCP/IUA protocols.
- ✓ Secure Toll-Quality VoIP—DownStreamQoS and Voice-over-VPN with adaptive traffic management and shaping for maximum voice quality and secure voice communication.
- ✓ High Precision Unit—Supports wireless DECT PBX and improves fax performance
- ✓ Management & Provisioning—Web-based management, SNMP, command line interface. Automated provisioning for easy large-scale deployments.
- ✓ ClearConnect™ dial-backup option for survivable voice and data connectivity.



ORDERING INFORMATION

SN4960/1E15V/UI: SmartNode Hi-Cap 1 T1/E1/PRI VoIP IAD, 2x GigEthernet, UI power, 15 VoIP Channels, upgradeable to 30 calls.

SN4960/1E24V/UI: SmartNode Hi-Cap 1 T1/E1/PRI VoIP IAD, 2x GigEthernet, UI power, 24 VoIP Channels, upgradeable to 30 calls.

SN4960/1E30V/UI: SmartNode Hi-Cap 1 T1/E1/PRI VoIP IAD, 2x GigEthernet, UI power, 30 VoIP Channels, non-upgradeable.

SN4960/4E15V/UI: SmartNode Hi-Cap 4 T1/E1/PRI VoIP IAD, 2x GigEthernet, UI power, 15 VoIP channels, field upgradeable to a max of 60 channels.

SN4960/4E24V/UI: SmartNode Hi-Cap 4 T1/E1/PRI VoIP IAD, 2x GigEthernet, UI power, 24 VoIP channels, field upgradeable to a max of 60 channels.

SN4960/4E30V/UI: SmartNode Hi-Cap 4 T1/E1/PRI VoIP IAD, 2x GigEthernet, UI power, 30 VoIP channels, field upgradeable to a max of 60 channels.

SN4960/4E48V/UI: SmartNode Hi-Cap 4 T1/E1/PRI VoIP IAD, 2x GigEthernet, UI power, 48 VoIP channels, field upgradeable to a max of 60 channels.

SN4960/4E60V/UI: SmartNode Hi-Cap 4 T1/E1/PRI VoIP IAD, 2x GigEthernet, UI power, 60 VoIP channels, non-upgradeable

SN4960/4E96V/UI: SmartNode Hi-Cap 4 T1/E1/PRI VoIP IAD, 2x GigEthernet, UI power, 96 VoIP channels, field upgradeable to a max of 120 channels.

SN4960/4E120V/UI: SmartNode Hi-Cap 4 T1/E1/PRI VoIP IAD, 2x GigEthernet, UI power, 120 VoIP channels.

Options & Accessories

SNSW-49V6: 6 channel Voice Upgrade Key for SN4960 VoIP IADs. Software expansion for additional voice channels.

SNSW-VPN2: Software option for IPsec VPN, including DES/3DES and AES encryption, IKE and Voice-Over-VPN.

SNSW-QSIG2: Support for ISDN Q.SIG.

SNSW-DB2: Dial-Backup Feature License

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Telco Line Surge Protectors

Model 552 Series

Guard All Your Telco Lines: T1, E1, Leased, and Dial-up!

Your telco lines are a vital data link with the outside world. But they can also carry some very undesirable transient spikes into your data ports! The Patton Model 552 installs between an incoming telco line and a dial-up/leased line modem, T1/E1/PRI or other termination hardware to intercept and divert telco line transients.



FEATURES & BENEFITS

- ✓ Each version custom-tailored to specific Telco interfaces!
- ✓ Safety tested and listed under UL 497A specification for secondary surge protectors
- ✓ Surge handling capacity of 1500 W
- ✓ Surge energy diverted to ground through braided metal strap
- ✓ "Fail-safe" design protects equipment in case of overload
- ✓ 6-in. (15.24 cm) modular cable included

THE PART NUMBER TELLS YOU THE APPLICATION:

Model 552-D2: For protection of 2-wire dial-line modems, faxes, phones.

Pins Protected: Pins 4 and 5 on the RJ-45 Interface (RJ-11 Pins 3 and 4 via 6 in./15 cm patch cable)

Protection Mode: Common Mode Pins 4, 5 to shielding braid; Differential Mode Pins 4, 5.

Model 552-D4: For protection of 4-wire dial-line modems, faxes, phones.

Pins Protected: Pins 3, 4, 5, 6 on the RJ-45 Interface (RJ-11 Pins 3, 4, 5, 6 via 6 in./15 cm patch cable)

Protection Mode: Common Mode Pins 3, 4, 5, 6 to shielding braid; Differential Mode Pins 3, 4, 5, 6.

Model 552-L4 : For protection of 4-wire leased line modems.

Pins Protected: Pins 3, 4, 5, 6 on the RJ-45 Interface; (RJ-11 Pins 2, 3, 4, 5 via 6 in./15 cm patch cable)

Protection Mode: All pins Common Mode to shielding braid; Differential 3 and 6, 4 and 5.

Model 552-T1 & E1: For protection of T1 & E1 CSU/DSUs and Multiplexers.

Pins Protected: Pins 1, 2, 4, 5

Protection Mode: Common Mode Pins 1, 2, 4, 5 to shielding braid; Differential Mode Pins 1, 2, 4, 5.

Model 552-E1CX: For protection of all shields and center pins.

Pins Protected: All shields and center pins

Protection Mode: Common Mode Center Pins and Shield to shielding braids. Differential Mode Center Pins to Shields

ORDERING INFORMATION

552-D2: 2-Wire Dial Up Protector (RJ-11 pins 3 & 4)

552-D4: Dual 2-Wire Dial-Up Protector (RJ-11 pins 2, 3, 4 & 5)

552-L4: 4-Wire Leased Line Protector (RJ-45 pins 3, 4, 5 & 6)

552-T1: 4-Wire T1 & ISDN PRI Protector (RJ-45 pins 1, 2, 4 & 5)

552-E1: 4-Wire E1 & ISDN PRI Protector (RJ-45 pins 3, 4, 5 & 6)

552-E1CX: Dual Coax E1 Protector

10/100Base-TX (Cat-5) Secondary Surge Protector

Models 570 & 570-POE

Our Cat-5 protector works at speeds up to 100 Mbps

These 10/100Base-TX surge protectors are EIA/TIA TSB-40A Category-5 certified, and can protect your RS-422/423, Token Ring, and ATM equipment too! With a NEXT spec of -43dB (worst pair), you can rest assured that these units will protect your 10/100Base-TX, RS-422 or 100VG-AnyLan data lines without hindering critical network performance. The Model 570 is designed for

use at the sensitive equipment port, while the Model 580 protects barriers (such as wiring closets).



FEATURES & BENEFITS

- ✓ EIA/TIA TSB-40A Category-5 certified
- ✓ Models for use at the equipment (570) or barriers/wiring closets (580)
- ✓ Near-end cross-talk (NEXT) better than -43 db for transparent protection
- ✓ Complies with transient immunity standards IEC 801-2, 801-4, & 801-5
- ✓ Response time of 0.1 μ s
- ✓ 802.3af compliant models available

ORDERING INFORMATION

570: 10/100Base-T (CAT-5) Protector Point of Use (8-Wire)

570-POE: 10/100Base-T PoE Protector Point of Use

580: 10/100Base-T (CAT-5) Protector Barrier (8-Wire)

580-POE: 10/100Base-T PoE Protector Barrier

10/100Base-TX (Cat-5) Secondary Multiport Protectors

Models 570R

Our Cat-5 protector works at speeds up to 100 Mbps.



The Model 57R Category-5 hub protectors are available in 8 or 16-port rack mount panels. The panel units are EIA/TIA TSB-40A Category-5 certified, and divert harmful data line transients to chassis ground through a single braided metal strap. This approach reduces the

number of ground connections required. Specifications like near-end cross-talk (NEXT) of better than -43 dB at 100Mhz, as well as insertion loss of less than 0.4 dB, insure transparent operation.

FEATURES & BENEFITS

- ✓ Provides 8 or 16 ports of protection against transients
- ✓ Guards twisted-pair interfaces at speeds up to 100 Mbps
- ✓ EIA/TIA TSB-40A Category-5 Certified
- ✓ Models for Point-of-Use

ORDERING INFORMATION

570R8: 8-Port 10/100Base-TX (CAT-5) Panel Protector Point for Use

570R16: 16-Port 10/100Base-TX (CAT-5) Panel Protector Point for Use

Call for 802.3af PoE versions.

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