

PATTON

Extending, Converting & Converging Networks

Connectivity Catalog



TeleMatch™

Audio, Video & Data Adapters

Single-port and panel-mount baluns for applications including E1, E2, E3, ATM, legacy IBM 3270, 34/36/38, and AS/400, CCTV, CATV, and the latest in audio/video.



EnviroNET™

Hardened Network Routers

EnviroNET expands your boundaries. Deliver voice, video, and data communication services from NEMA 4, environmentally sealed, and thermally-controlled enclosures.



EtherBITS™

Device Servers

Patton's EtherBITS Device Server solutions link devices with serial RS-232/RS-422/RS-485 interfaces to wired and wireless Ethernet networks.



- Line Drivers •
- Fiber Modems •
- Baluns •
- Interface Converters •
- Multiplexers •
- Short Range Modems •
- Surge Protectors •
- Datcom Accessories •
- Serial Device Servers •
- Ethernet Extenders •
- Industrial Computers •
- Opto Isolators •

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Welcome to Patton's Connectivity Catalog

Welcome to Patton's Connectivity Catalog, which coincides with our company's 23rd birthday. And this year is a coming-of-age for Patton. We have established the foundation for our transition into a multinational company with extensive globalization initiatives. At the core of it all is the emergence of thrilling NEW technology, solutions and services, essential for Carrier, Enterprise, and Industry in today's fast-moving and converged networking and telecom markets.

—The Management Team of Patton

Bob Patton, CEO (x113) • Bobby Patton, President (x128) • Burt Patton, Executive VP (x127) • Bruce Patton, VP of Finance and Administration (x106) • Andreas Danuser, Chairman & CEO of Patton-Inalp (x106) (not shown) • Bryan E. DuBois, VP of Product Development (x132) • Steve Schrader, VP of Manufacturing (x149) • Craig Silver, Corporate Counsel (x176) • Scott Whittle, VP of Product Management (x166) • Kurt Quasebarth, Director of Materials (x154) • Chris Christner, Director of Marketing Communications (x109) (not shown)



What's Hot

SmartNode *More Than Just Talk*

Telephony & VoIP Solutions—SmartNode VoIP is a line of integrated voice/data routers with a wide range of port densities, interface options and software configurations enabling VoIP deployments in all networking environments.



IPLink *Link Up for Less*

WAN Gateway Routers—IPLink Router series lets users link-up-for-less to any broadband service with affordable WAN Routers with VPN, security and integrated T1, DSL or serial interfaces.



ForeFront *Leading the Edge*

Multi-Service Access—ForeFront is leading-the-edge with low cost, flexible, broadband switch/router access products for IP, VLAN, and TDM transport and aggregation.



RedRAS *More Dial-Up ...Less Dollars*

RAS/Dial-up Networking—Everything you need for any kind of dial-up network access, all in one box. Legacy modems, V.92, ISDN, and much more.



See our *Network Access Catalog* for more details on SmartNode™, IPLink™, ForeFront™, and RedRAS™ products.

Next Generation Technical Services



A World of Problem Solving

Need help with your network? Patton's expanding services organization provides system engineering, installation, operations, and maintenance for voice, data, and integrated networks. As an "integrator's integrator," Patton's new Global Solutions Group is able to build multi-vendor systems for carriers, ISPs and corporate enterprises anywhere in the world using an extensive network of local personnel and integration contractors.

EtherBITS *Connect With Confidence*

EtherBITS Device Servers — Leverage the power and flexibility of Ethernet and Wireless Ethernet to control, monitor, and collect data from all your serial devices.



CopperLink *Going the Distance*

Ethernet Extension — CopperLink Extenders are going-the-distance and turning standard LAN ports into Wide Area Ethernet by extending Ethernet ports over copper.



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Get Our Network Access Catalog



Our latest *Network Access Catalog* contains VoIP/ToIP devices, IP routers, Ethernet extenders, DSL CPE, DACS, remote access servers, NTUs, CSU/DSUs and IADs, Last-Mile access, Multi-Service access, device servers, and more!

To request your free Catalog, visit www.patton.com or e-mail sales@patton.com

Patton Highlights

Doing Business with Patton is Easy

Money-Back Guarantee

Buying from Patton means that you may return any standard Patton product within 30 days. So, you can purchase with complete confidence.

Free Top-Notch Technical Support...Forever

Buying from Patton means that you can speak directly with skilled support technicians who know the products best; so your problem will be addressed quickly and efficiently.

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Buying from Patton means you can finance the purchase of any Patton product over 24 to 36 months.

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What's HOT at Patton

www.patton.com

SmartNode VoIP

More Than Just Talk

SmartNode™ VoIP is More Than Just Talk™, it's a full range of integrated voice/data routers with a wide range of port densities, interface options and software configurations enabling VoIP deployments in any network environment.

- Seamless Converged Communications.
- An exhaustive range of VoIP products developed over 9 years.
- Robust software designed to fit even the most unique VoIP deployment scenarios.
- A strong following of satisfied Carrier and Enterprise customers.

Each product in the extensive range providing full voice compression and packetization using all the industry standard Codex and H.323, SIP and MGCP protocols. The product line has been continually developed over 9 years, representing the most comprehensive line of VoIP products in the industry.



IPLink WAN ROUTERS

Link Up for Less

IPLink™ Router series lets users Link Up for Less™ to any broadband service with affordable WAN Routers offering VPN, security, and integrated T1/E1, DSL or Sync-Serial interfaces.

- The lowest cost T1/E1 Broadband Routers on the market.
- Reduces Internet access and broadband branch office connectivity costs from day one.
- Realizes Carrier Profitability.



DialFire RAS

More Dial-Up, Less Dollars

Remote Access Servers provide More Dial-Up for Less Dollars™ by providing everything you need for any kind of dial-up network access; all in one box. Patton's RedRAS and DialFire RAS solutions supports legacy modem compatibility, V.92, ISDN and a unsurpassed set of RAS, authentication, routing and access features.

- Dial-up for ISP Internet Access.
- Dial-up for Corporate and Secure VPN Access.
- Dial-up for Remote Industrial Communications.
- Dial-up for Point of Sale and Banking.
- Dial-up for any Machine-to-Machine Communications



See our Network Access Catalog for more details on SmartNode™, IPLink™, ForeFront™, and DialFire™ products.

ForeFront **ACCESS**

Leading The Edge

ForeFront is **Leading The Edge** with low-cost, flexible, broadband switch/router multi-service access products for ADSL2+, G.SHDSL, IP, VLAN, VPN, and TDM transport and aggregation.

- The only access services delivery platform with integrated TDM and IP switch-router features.
- TriplePlay convergence by providing multiple managed services to the subscriber over a single link.

- Broadband/DSL Transport and Aggregation over both SDH/SONNET and Gigabit Ethernet.
- Fully redundant TDM and Packet Busses with embedded fail-safe processors on each card.
- Management system options for small, medium, and large scale deployments.
- A wide range of Access Line Cards from Dial-Up, ADSL2+, G.SHDSL, T1/E1 and Ethernet.
- Compact design with a low price-per-port.



EtherBITS **DEVICE NETWORKING**

Connect With Confidence

EtherBITS™ enables users to **Connect With Confidence™** by taking advantage of the versatility and reliability of Ethernet.

Device Servers

- Control, Collect, and Monitor data from virtually any serial device over any IP network.
- Provide a secure encrypted connection between your serial devices and IP network.



CopperLink **LAN EXTENSION**

Going The Distance

Ethernet Extenders are **Going The Distance™**, turning standard LAN ports into Wide Area Ethernet by extending Ethernet ports over copper.

Patton is the premier manufacturer and supplier of devices for Extending Ethernet in the world. Our comprehensive line of products enables Ethernet extensions at a variety of speeds and distances.

- Allows Ethernet to operate over existing standard phone grade twisted pair
- Extends Ethernet up to 5 miles (8 km)
- Line rates range from 144 kbps to 50 Mbps symmetrical!



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Wide Area Ethernet

Copper Ethernet Extension

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CopperLink™...Going the Distance!

Model	Max. Distance	Max. Speed	Distance at Max. Speed	Rack Card	Photo	Pg
2172	1 mile (1.6 km)	50 Mbps	800 feet (244 m)	No		9
2168	1.1 miles (1.8 km)	16.6 Mbps	3,125 feet (953 m)			10
2158	0.75 miles (1.2 km)	12 Mbps	4,000 feet (1,219 m)			11
2157	5.7 miles (1.8 km)	4.6 Mbps	2 miles (3.2 km)	No		12
2156	5.7 miles (1.8 km)	2.3 Mbps	3.1 miles (5 km)	No		12
2155	5 miles (1.8 km)	144 kbps	5 miles (8 km)	No		13

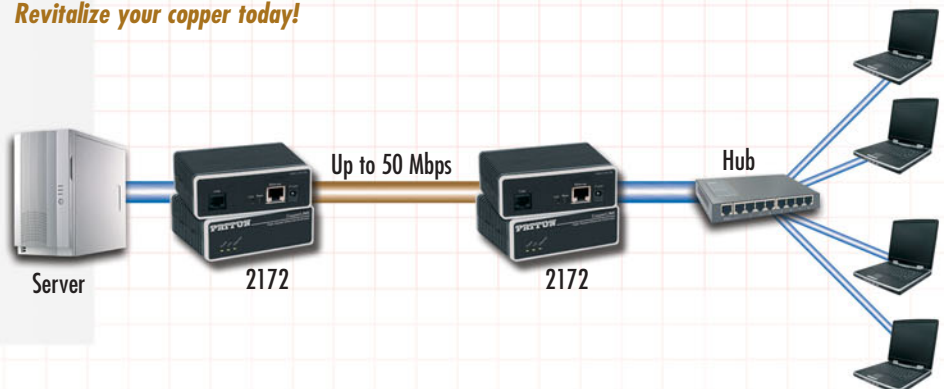
Other Ethernet Extension Applications

- ✓ Campus LAN Connectivity
- ✓ Secure IP Networks (Dark Fiber)
- ✓ Metropolitan IP Networks
- ✓ Mission-Critical IP Links
- ✓ City LANs
- ✓ Multi-Dwelling, Multi-Tenant IP Services

Our Full Range of CopperLink Ethernet Extenders

Extend your Ethernet connectivity over existing copper infrastructures with Patton's CopperLink Ethernet Extenders. Whether your requirement is sending Ethernet data over long distances or at high speeds, there is a Patton CopperLink Ethernet Extender for you. Use the table above to select the best model for you.

Revitalize your copper today!





50 Mbps Multi-Rate CopperLink™ Ethernet Extender Model 2172

The CopperLink 2172 breaks both 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!

SPECIFICATIONS

CopperLink line interface: RJ-45 (pin 4 = ring; pin 5 = tip)
Ethernet interface: 8-position shielded RJ-45. Auto-sensing 10/100Base-T with half or full-duplex operation. DIP switch capable of disabling 100-Mbps full-duplex for equipment that does not support 802.3X (Pause Packets)
Protocol: Transparent to high layer protocol. Supports 802.1Q VLAN tagging
Modulation: Quadrature Amplitude Modulation (QAM) 4-band
Duplexing Method: FDD (Frequency Division Duplexing)
Frequency Range: CopperLink: 0–12 MHz
Transmission: CopperLink line rate: Up to 50 Mbps

Surge suppression: CopperLink line maximum current surge: 20kA (8/20µs) gas tube
Front Panel Indicators: Power, Link, Ethernet
Power Supply: External AC and DC options: 120VAC, and universal input (UI)—100–240 VAC, or optional -48 VDC, -24 VDC, or -12 VDC
Compliance: FCC Part 15A, CE Mark, EMC Directive 89/336/EEC, Low-Voltage Directive 73/23/EEC
Environment: Temp.: 32–122°F (0–50°C)
Humidity: Up to 90% non-condensing
Dimensions: 1.5H x 4.13W x 3.75D in. (3.81H x 10.5W x 9.53D cm)
Weight: 0.4 lbs (0.18 kg) without power supply

FEATURES & BENEFITS

- ✓ 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 line rates ensure the best possible line rate for each application

ORDERING INFORMATION

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

- Environmentally Hardened Multi-Rate 50 Mbps CopperLink Ethernet Extender; 100–240 VAC**
- ET2172/R/UI: Extended Temp -40 to 85°C Remote Extender
- EC2172/R/UI: Environmentally Controlled 0 to 85°C Remote Extender
- EHA2172/R/UI: Environmentally Hardened 0 to 50°C Remote Extender

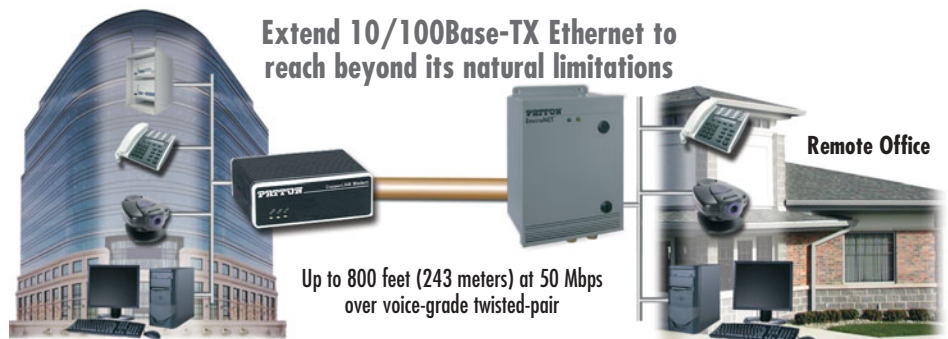
* -12, -24, and -48 VDC power options available.
 **You must specify a country specific power cord

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 (243 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)

Workgroup Ethernet extension application

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.



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

Up to 800 feet (243 meters) at 50 Mbps over voice-grade twisted-pair

visit us online
www.patton.com

FAST Delivery From Your AUTHORIZED DISTRIBUTOR!



16.67 Mbps Multi-Rate CopperLink™ Ethernet Extender

Model 2168

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



The Patton Model 2168 Multi-Rate CopperLink Ethernet Extender enables the utilization of existing copper infrastructure for high speed Ethernet extensions at data rates up to 16.67 Mbps. The Model 2168 Ethernet Extender includes seven asymmetrical and symmetrical settings which provide the flexibility to increase the distance or speed of the Ethernet connections.

CopperLink applications include Ethernet extension, medical imaging, video-conferencing, Ethernet Bridging, and inter-con-

necting remote devices or remote networks to a central LAN. The multi-rate symmetrical line rates ensure the highest possible data rate is achieved over various lengths and types of copper wire and environments. Multi-rate asymmetrical line rates make the Model 2168 the ideal solution for service providers who want to differentiate their services or extend the reach of their customer base. The Model 2168 allows service providers to offer unparalleled performance for such applications as always on Internet access, real time bi-directional video streaming, and various multimedia applications.

If you want to take your network and voice connections farther and faster over existing copper and eliminate the expense of fiber, Patton's CopperLink Ethernet Extenders are the products for you!

Just plug it in, power it on, and play!



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 10Base-T/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

Symmetric or asymmetric variable-rate VDSL

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

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)

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)

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

Environmentally Hardened 16.67 Mbps CopperLink Ethernet Extender; 100–240 VAC

ET2168/R/UI: Extended Temp -40 to 85°C Remote Extender

EC2168/R/UI: Environmentally Controlled 0 to 85°C Remote Extender

EHA2168/R/UI: Environmentally Hardened 0 to 50°C Remote Extender

16.67 Mbps Ethernet Extender Rack Card

2168RC/L: Local Extender; RJ45/TB line

2168RC/R: Remote Extender; RJ45/TB line

Workgroup Ethernet extension application



Ethernet Extender allows copper instead of fiber for vertical Ethernet spans!

These multi-rate Ethernet Extenders are ideal for bridging Ethernet spans inside buildings that are beyond the 328-foot (100-meter) distance limit of Ethernet.

For example, connecting workgroups located on different floors in a building no longer requires expensive switches or the installation of low capacitance cable.

SPECIFICATIONS

Line Interface: RJ-45 or terminal block

Ethernet Interface: Shielded RJ-45

POTS-ISDN Interface: RJ-45 (pin 4=ring, pin5=tip)

Transmission: Switch selectable async. and sync. line rates up to 16.67 Mbps

Surge suppression: CopperLink 20kA (8/20 μ s) gas tube

Power Supply: External AC: UI (100–240); DC: -48, -24, and -12; DC power supplies are optional

Dimensions:

1.5H x 4.13W x 3.75D in.
3.81H x 10.5W x 9.53D cm

Weight: 0.4 lbs (0.18 kg) without power supply



12.5 Mbps CopperLink™ Ethernet Extender

Model 2158

Efficient and cost-effective Ethernet extension over voice-grade wire.



The Patton CopperLink™ Ethernet Extender offers the fastest, most efficient and reliable solution for connecting 10/100Base-TX Ethernet LANs. With a line rate of 12.5 Mbps, the Patton Model 2158 offers premium performance

over your existing voice-grade telephone wire, eliminating the cost of installing new LAN-grade cable or expensive fiber.

CopperLink™ Ethernet Extenders are compact, easy to install, and transparent to higher layer protocols. The CopperLink Ethernet Extenders will auto-sense and configure for 10Base-T or 100Base-TX as well as full or half-duplex Ethernet operation. No configuration is required!

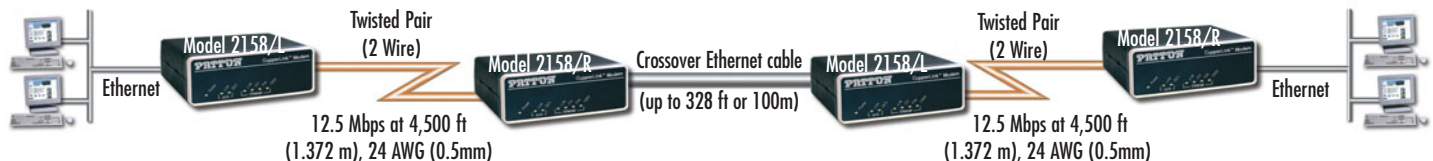
Whether you are looking to make your network connections go farther and faster, increase the efficiency of your existing wiring infrastructure, or just simply extending your LAN, Patton's CopperLink™ Ethernet Extender is one of the most simple and cost-effective solutions around!

FEATURES & BENEFITS

- ✓ Overcomes the 328-ft (100-m) limitations of Ethernet
- ✓ 12.5 Mbps line rate
- ✓ Auto-sensing 10/100Base-TX port
- ✓ Transparent LAN Bridging
- ✓ Supports 802.1 Q VLAN tagging
- ✓ Auto-sensing full or half duplex

Approximate Distances at 12.5 Mbps	
Wire Gauge	Distance
26 AWG (0.4 mm)	3856 feet (1.18 km)
24 AWG (0.5 mm)	4656 feet (1.42 km)
22 AWG (0.6 mm)	5256 feet (1.60 km)
20 AWG (0.8 mm)	5556 feet (1.69 km)
18 AWG (1.00 mm)	5756 feet (1.75 km)
16 AWG (1.29 mm)	5856 feet (1.78 km)

Back-to-Back Extension Application



SPECIFICATIONS

CopperLink Interface: RJ-45 (pin 4=TX; pin 5=RING) and two-position terminal block (supports 19–26 AWG)

Ethernet Interface: Shielded RJ-45. Auto-sensing 10/100Base-TX with half or full-duplex operation

Protocol: Transparent to high layer protocols. Supports 802.1Q VLAN tagging

Transmission: CopperLink line rate: 12.5 Mbps; Data rate: 10 Mbps

Surge Suppression: CopperLink maximum current surge: 20kA (8/20_{μs}) gas tube

External Power Supply Options:

- Universal Power Supply (100–240 VAC)
- DC: -48 VDC, -24 VDC, and -12 VDC (optional upon request)

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

Op. Temp.: 32–122°F (0–50°C)

Dimensions:

- Standalone: 1.5H x 4.13W x 3.75D in. (3.81H x 10.5W x 9.53D cm)
- Rack card: 3.0H x 0.83W x 7.84D in. (7.6H x 2.1W x 19.9D cm)

Weight:

- Standalone: 0.4 lbs (0.18 kg) without power supply
- Rack card: 0.3 lbs (0.14 kg) with rear card

ORDERING INFORMATION

12.5 Mbps CopperLink Ethernet Extender

2158/L/EU/L: Local Extender; RJ45 Line; 100–240 VAC

2158/R/EU/L: Remote Extender; RJ45 Line; 100–240 VAC

12.5 Mbps CopperLink Ethernet Extender Kit

2158/EU/L-2PK: Local & Remote Extenders; RJ45 Line;

100–240 VAC

Environmentally Hardened 12.5 Mbps CopperLink Ethernet Extender

EHA2158/U: Environmentally Hardened (external connector), 0 to 50°C Remote Extender; 100–240 VAC

Rack Card 12.5 Mbps CopperLink Ethernet Extender

2158RC/L: Local Extender; RJ45/TB line

2158RC/R: Remote Extender; RJ45/TB line



I'm John, one of Patton's Ethernet Extenders Product Group Managers. If you do not find what you need at www.patton.com or in this catalog please call me at +1 301.975.1000, x160. You can also send e-mail to jgrant@patton.com.



See Pg 102



2.3 & 4.6 Mbps CopperLink™ Ethernet Extenders with Auto-Rate Adaptation

Models 2156 & 2157

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

LAN extension doesn't have to be expensive or difficult. The Auto-Rate Adaptive LAN Extenders are easy to use and take advantage of the existing copper twisted-pair infrastructure to connect LANs at rates up to 4.6 Mbps.

Whether it's connecting corporate LANs or remote offices, the CopperLink is the simple solution for ensuring the best combination of speed and distance in the industry. Many LAN extenders are set for a single rate, or require difficult configurations in order to connect LANs at different distances. With its auto-rate adaptation feature, the Models 2157 and 2156 ensure that users get the highest speed possible for the distances they are trying to reach. To make it even simpler to use, the Models 2157 and 2156 come with a built in MDI-X switch to allow easy connection to



LANs or PCs with no need for worrying about whether you have a cross-over cable or not. Setup consists of connecting the Ethernet port, connecting the copper twisted pair, and powering up the units!

ORDERING INFORMATION

2156/L/EUI: CopperLink Ethernet Extender, (Local unit), 90–260 VAC UI

2156/R/EUI: CopperLink Ethernet Extender, (Remote unit), 90–260 VAC UI

2156/EUI-2PK: CopperLink Ethernet Extender, (Local and Remote units), 90–260 VAC UI

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

FEATURES & BENEFITS

- ✓ Auto-rate adaptation gives the highest rate possible for for the extension distance of your network
- ✓ Model 2156: 2.3 Mbps over just a single twisted pair of copper
- ✓ Model 2157: 4.6 Mbps over just a single twisted pair of copper
- ✓ Extension distances up to 32,000 feet (10 km)
- ✓ Auto-sensing 10/100 Ethernet port
- ✓ Integrated MDI-X switch to allow easy connection to any computer or LAN
- ✓ Auto-sensing full or half-duplex operation
- ✓ Support for 802.1 Q VLAN tagged packet transmission

SPECIFICATIONS

Protocol: Transparent to higher layer protocols. Supports 802.1 Q VLAN tagged packet transmission

Transmission Line: Single twisted pair

Line Rates: 2156: Auto-Rate adaptive from 64 kbps to 2.3 Mbps • 2157: Auto-Rate adaptive from 64 kbps to 4.6 Mbps

DTE Rates: 2156: All 64k steps from 64 to 2304 kbps • 2157: All 64k steps from 64 to 4608 kbps

Line Coding: TC-PAM

LED Status Indicators: WAN: Link, TD, RD, Ethernet: Link, 10/100, TD, RD, Power

Connectors: RJ-11 on copper line side, RJ-45 for Ethernet connection, shielded male IEC320 power connector;

Power: External 90–260 VAC, 50–60 Hz (Universal Input), 10 W, external 40–60 VDC, 10W (DC option)

Line Interface: Transformer coupled, 1500 VAC isolation.

Compliance: FCC Part 15, CE Mark per EMC directive 89/336/EEC and Low Voltage Directive 73/23/EEC, UL1950 UL and cUL listed (Rev A: Listing in process)

Op. Temp.: 32–122°F (0–50°C)

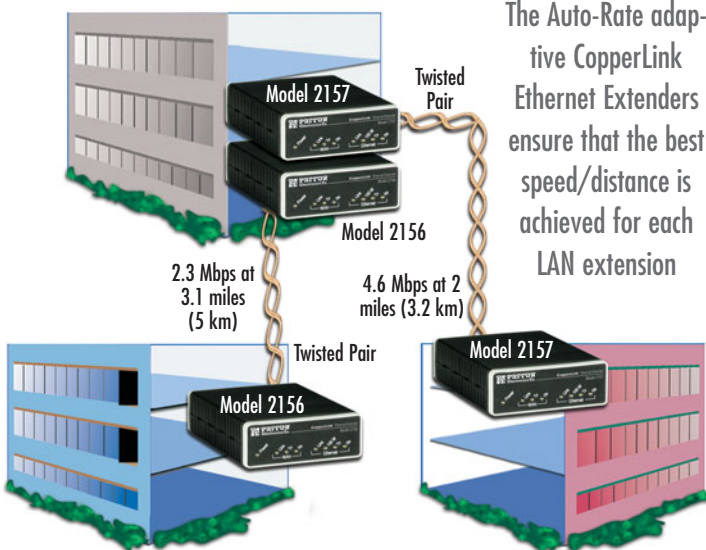
Humidity: 5–95%, non-condensing

Altitude: 0–15,000 ft (0–4,600 m)

Dimensions: 7.3 x 6.6 x 1.62 in. (185 x 168 x 41 mm)

Weight: 2.0 lbs (1.0 kg)

Corporate Campus application



The Auto-Rate adaptive CopperLink Ethernet Extenders ensure that the best speed/distance is achieved for each LAN extension

Models 2156 & 2157 Extension Distances

DSL line rate	No Noise										
	26g (0.4 mm)		24g (0.5 mm)		22g (0.6 mm)		20g (0.8 mm)		19g (0.9 mm)		
N	kbps	miles	km	miles	km	miles	km	miles	km	miles	km
3	200	4.4	7.2	5.7	9.4	8.0	13.1	10.3	16.8	12.1	19.7
6	392	4.0	6.6	5.4	8.8	7.5	12.3	8.7	15.8	10.8	17.5
8	520	3.8	6.2	5.1	8.3	7.1	11.6	9.2	14.9	9.7	15.8
12	776	3.5	5.6	4.6	7.5	6.0	9.8	7.8	12.7	8.8	14.3
18	1160	3.0	4.9	4.0	6.4	5.2	8.4	6.7	11.0	7.5	12.3
24	1544	2.8	4.6	3.7	6.1	4.9	7.9	6.4	10.3	6.7	11.0
32	2056	2.5	4.0	3.3	5.3	4.2	6.9	5.6	9.0	5.9	9.6
36	2312	2.3	3.8	3.1	5.0	4.0	6.6	5.3	8.6	5.6	9.1
42	2696	2.3	3.7	3.0	5.0	4.0	6.4	5.2	8.4	5.5	8.9
48	3080	2.2	3.6	3.0	4.8	3.9	6.3	5.0	8.2	5.4	8.7
54	3464	2.1	3.4	2.7	4.5	3.6	5.8	4.7	7.6	4.9	8.8
60	3848	1.9	3.1	2.5	4.1	3.3	5.3	4.3	7.0	4.5	7.4
66	4232	1.7	2.8	2.3	3.7	2.9	4.8	3.9	6.3	4.1	6.6
72	4616	1.5	2.5	2.0	3.3	2.6	4.2	3.4	5.5	3.6	5.9

144 kbps, LAN Extender

Model 2155

The perfect LAN extender for those long haul applications.

There are many applications for long distance LAN extension that do not require ultra-high rates. The Model 2155 is perfect for just those applications. You can connect these modems up to 5 miles (8 km) apart on a single copper twisted-pair without changing the data rate. Just plug them in and power them up, and they take care of the rest. Lots of LAN extenders require you to set up the rate and vary the data rate based on the distance. Not these modems—connect them up and you get the maximum rate at any distance up to their maximum reach of 5 miles (8 km).

The 2155 LAN extenders are completely transparent to higher level protocols, like VLAN tagging, enabling these extenders to fit into almost any location where cost-effective LAN



extension is needed. If there is ever a problem, the easy-to-read LEDs and built-in diagnostics make it a snap to verify operation. When you need the same connection to all your remote LANs, use the Patton 2155.

FEATURES & BENEFITS

- ✓ Extend your network up to 5 miles (8 km)
- ✓ 144 kbps using twisted pair of copper
- ✓ Plug-and-play—No configuration necessary!
- ✓ 10Base-T full or half-duplex Ethernet port
- ✓ Support for 802.1 Q VLAN tagged packet transmission
- ✓ LEDs provide quick status at a glance
- ✓ Test mode switch makes troubleshooting easy
- ✓ Convenient standalone desktop model

SPECIFICATIONS

Data Rate: 144 kbps

Diagnostics: V52 compliant (511/511E) pattern generator and detector with error injection mode and Remote Loopback control by a single front panel switch.

LED Status: Copper Link, 10BT Link, Ethernet Status, No Signal, Error, Test Mode

Power: External desk top transformer, 90–260 VAC, 50–60 Hz (Universal Input), 10 W or –48 VDC; shrouded male IEC-320 power connector

Transmission Line: Single Twisted Pair of Copper

Line Coding: 2B1Q

Line Interface: Transformer coupled, 1500 VAC isolation

Physical Connection: RJ-45, 2 wire, polarity insensitive pins 4 and 5

LAN Connection: RJ-45, 10Base-T 802.3 Ethernet

Protocol: Transparent to higher layer protocols. Supports 802.1 Q VLAN tagged packet transmission

Address Aging: Entries are deleted after 8 minutes of inactivity

LAN Address Table: 4096 MAC Addresses

Frame Latency: 1 Frame

Frame Buffer: 512 Frames

Physical Connection: RJ-45, pin 1 Tx Data +, pin 2 Tx Data -, pin 3 Rx Data +, pin 6 Rx Data -pins 4,5,7,8 no connection

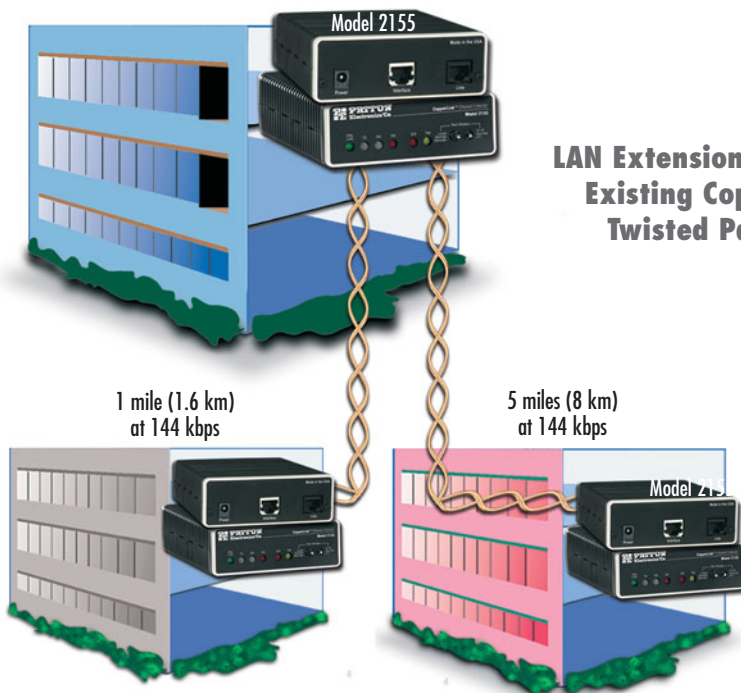
Compliance: FCC Part 15, CE Mark per EMC directive 89/336/EEC and Low Voltage Directive 73/23/EEC, CTR 1, UL1950 UL and cUL listed (Rev A: Listing in process)

Op. Temp.: 32–122°F (0–50°C)

Dimensions: 4.1 x 5.5 x 1.6 in. (105 x 140 x 41 mm)

Weight: 1.6 lbs (0.7 kg)

Typical applications



LAN Extension Using Existing Copper Twisted Pair

2-Wire Distance Table in miles (km)				
Data Rate	AWG Wire Gauge (mm)			
	19 (0.9)	22 (0.6)	24 (0.5)	26 (0.4)
All rates	10.8 (17.2)	7.2 (11.5)	7.2 (11.5)	5.0 (8.0)

ORDERING INFORMATION

2155/L/UI: CopperLink 144 kbps Ethernet Extender, (local unit), 90–260 VAC UI

2155/R/UI: CopperLink 144 kbps Ethernet Extender, (Remote unit), 90–260 VAC UI

2155/UI-2PK: CopperLink 144 kbps Ethernet Extender, Local and Remote units), 90–260 VAC UI

CopperLink™-T T1/E1 Extender

Models 2113 & 2115

This transparent, plug-and-play T1/E1 Extender solves the distance and wire limitations of TDM technology by tripling the reach and halving the number of required wire pairs.



Model 2113

Model 2113 & 2115 T1/E1 Extenders are the perfect choice for enterprises, integrators, and service providers needing to extend T1 and E1 circuits beyond their typical reach while conserving the number of wire pairs used.

With the CopperLink™-T extenders, zero configuration is required. They operate in clear-channel mode, thereby facilitating the transparent extension of data and voice bearing circuits—including the F-bit on T1 circuits. The two active pins on the RJ connector are polarity insensitive, so you don't even need to worry about which wire you connect on the line interface. Simply take them out of the box, put

them on either side of the dry copper pair, connect your T1 or E1 device and the circuit will light up immediately!

The Model 2113 extends E1 circuits to 16,100 feet (4,900 meters, nearly 5 km) while the Model 2115 extends T1 circuits to more than 3.5 miles (18,500 feet or 5,600 meters). Both models require only two wires (one pair) to extend the TDM circuits, thereby conserving and minimizing the copper plant resources used.

For these reasons, the CopperLink™-T extenders are the ideal solution for most popular applications such as T1/E1 backhaul from a remote site, T1/E1 relocation, T1/E1 extension across a campus or between buildings, and last-mile TDM delivery.



Model 2115

FEATURES & BENEFITS

- ✓ Triple the Distance—Extend T1s to over 3 miles and E1s to almost 5 km over one pair of wires.
- ✓ Half the Wires—The T1/E1 extenders only require one pair of wires to operate.
- ✓ 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 analog loopback (LAL).
- ✓ Front Panel Status Indicators—Front panel LEDs provide users with quick feedback on unit operation.

SPECIFICATIONS

Circuit Connector: Model 2113 E1 Extender: Dual 75-Ohm female BNC and single 120-Ohm female RJ-48C • Model 2115 T1 Extender: Single female RJ-48C

Supported Line Tests: V.52 511/511E Pattern Generator with RDL; LAL

Clocking: CO unit preset for Network Clock, CPE unit preset for Receive Recover

Line Coding: 16-constellation TC-PAM

Line Interface: Female RJ-11 using pins 2 & 3; Two wires (single twisted-pair)

Front Panel Indicators: **Power**—Solid green indicates unit is powered up. Slow blinking indicates unit is in POST. Fast blinking indicates unit failed POST. Dark indicates unit does not have power.

Link—Solid green indicates end-to-end link. Flashing indicates unit is training. Dark indicates link is down.

Frame—Solid green indicates valid framing. Flashing indicates signal being received, but no link established.

Power Supply: External power supply options: Universal 90–260 VAC operating from 50–60 Hz; 120 VAC/60 Hz; 240 VAC/60Hz; -48 VDC

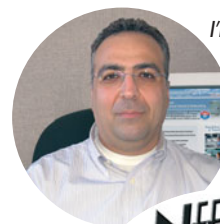
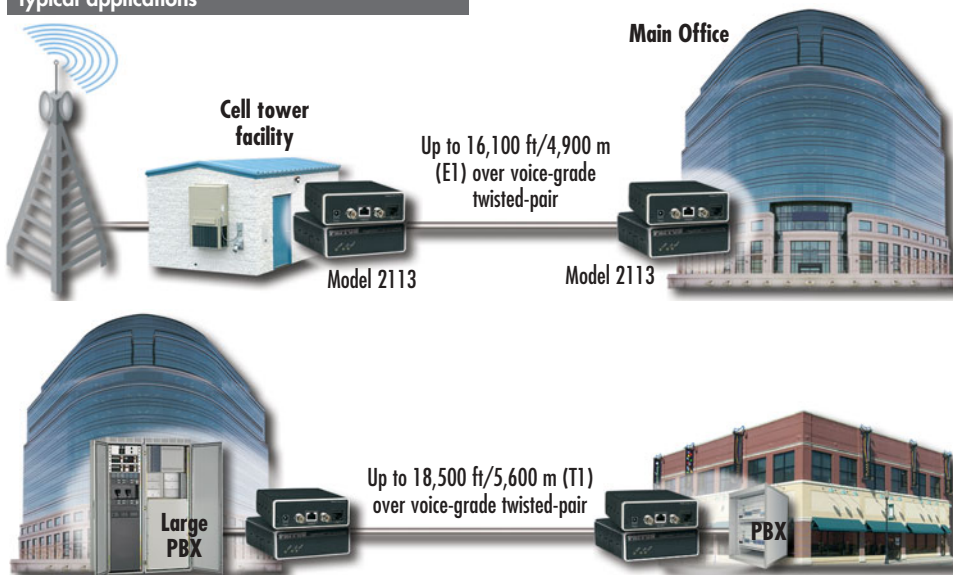
Compliance: FCC Part 15A, CE Mark, EMC Directive 89/336/EEC, Low-Voltage Directive 73/23/EEC

Operating Temp.: 32–122°F (0–50°C)

Humidity: 5–90% non-condensing

Dimensions: 4.7 x 1.52 x 5.0 in. (10.6 x 3.9 x 12.7 cm)

Typical applications



I'm Antoine, Patton's MEA Regional Manager. If you have any questions about products or applications using Ethernet Extenders, please call me at +1 301.975.1000, x251, or send e-mail to antoine@patton.com.



ORDERING INFORMATION

2113/EUJ-2PK: CopperLink-T, E1 Extender, 2 pack

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

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

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

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

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



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)

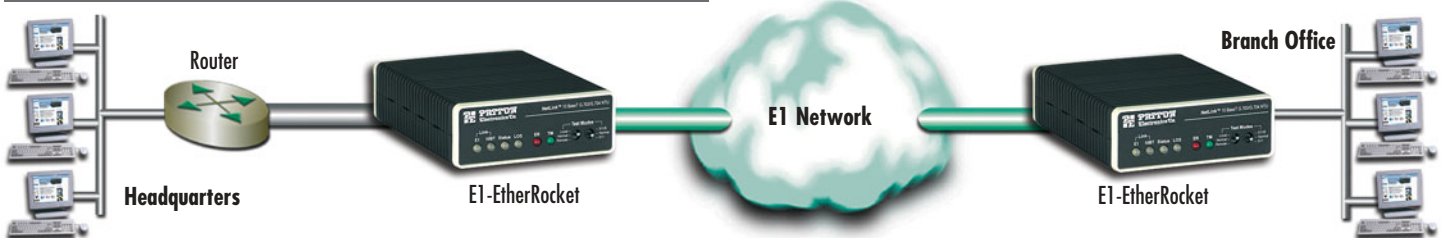
2701RC/A/I: G.703/G.704 NTU Card, V.35 interface

2701RC/C/A: 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

Remote Router Porting with Patton's Ethernet-over-E1 Bridge



SPECIFICATIONS

2701/I
Line Rate: 2 Mbps with nx64 kbps timeslot selection
Network Connector: RJ-48C and Dual Coaxial
DTE Interface: 10Base-T Ethernet
Line Coding: AMI or HDB3
Line Framing: G.703 (unframed) or G.704/G.732 (framed)

Clocking: Internal or Receive Recover
DTE Rates: 10 Mbps (10Base-T)
Indicators: E1 Link Status, TD, RD, Loss of Sync, Error, Test Mode, Ethernet Status
Diagnostics: Local/Remote Loop, 511 pattern
Line Isolation: 1500VRMS

Compliance: CE Mark, G.703, G.704, G.723, G.832, CTR-12 and CTR-13
Environment: Temp.: 32–122°F (0–50°C) • Humidity: 5–90% non-condensing
Dimensions: 5.84L x 4.16W x 1.51H in. (14.84L x 10.6W x 3.84H cm)
Weight: 2.225 lbs (1.02 Kg)

2701RC
Data Rate: Smooth Clock 2.048 Mbps
Network Connector: RJ-48C (all versions); Dual Coaxial (X.21 & Ethernet)
DTE Interface: EA-530, X.21/V.11, V.35, or 10Base-T Ethernet
Line Coding: AMI or HDB3
Line Framing: G.703 (unframed) or G.704/G.732 (framed)

Clocking: Internal, External or Receive Recover
DTE Rates: nx64kbps (EIA-530, X.21/V.11, V.35); 10Mbps (10Base-T)
Indicators: E1 Link Status, TD, RD, Loss of Sync, Error, Test Mode, Ethernet Status (on 10Base-T Version)
Diagnostics: Local/Remote Loop, 511
Line Isolation: 1500VRMS

Compliance: CE Mark, G.703, G.704, G.723, G.832, CTR-12 and CTR-13
Environment: Temp.: 32–122°F (0–50°C) • Humidity: 5 to 90% non-condensing
Dimensions: 5.84L x 4.16W x 1.51H in. (14.84L x 10.6W x 3.84H cm)
Weight: 2.225 lbs (1.02 Kg)

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Ethernet MicroBridges (X.21, RS-232, RS-530, & V.35)

Models 2121, 2124, 2130, 2135, & 2135C

Patton's MicroBridge products are the cost-effective solution for expanding your LAN—without using a router!

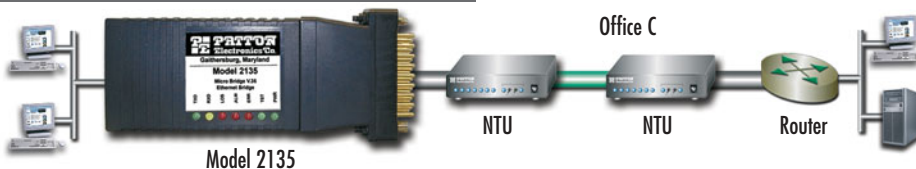


The Patton Ethernet MicroBridge provides a cost-effective solution for connecting multiple local or remote network segments. The Patton MicroBridges feature a wide variety of serial interfaces to make your WAN connections easy. All models are equipped with an 802.3 10Base-T Ethernet RJ-45 jack, which allows a direct connection to your network equipment.

The Ethernet MicroBridge works on the MAC-layer addresses and operates independent of higher layer protocols. This functionality enables Patton Ethernet MicroBridges to pass higher-layer broadcast, multicast, unicast, and data frames over the WAN with minimal to no configuration by the end-user. The MicroBridges are PPP ready supporting standards based layer-2 protocol interfacing. The MicroBridges are fully compatible with each other as well as Patton's full line of bridging products. Using PPP, the MicroBridges have the flexibility to be used in conjunction with all other third-party PPP compliant equipment.

Whether you are looking to add additional LANs, increase the efficiency of your WAN connection, or extending your router's interface, Patton's Ethernet MicroBridge is the most simple and cost-effective solution around!

Remote Router Porting



Patton's Ethernet MicroBridge Series are compliant with the RFC 1661 standard for PPP half-bridging, so you can connect our bridge to a router (instead of another bridge) which saves you money!

SPECIFICATIONS

DTE Interface: X.21, V.35, RS-232, or RS-530

Network Interface: IEEE 802.3 10Base-T (RJ-45)

Transmission: Synchronous up to 10 Mbps

Protocol: PPP (RFC 1661) with Bridging Control Protocol (RFC 1638)

Memory: 1MB RAM, 128KB FLASH memory

MAC Address Table Size: 4096 entries

MAC Address Aging: MAC addresses deleted after eight minutes inactivity

LEDs LAN Side: (1) yellow, general status; (1) green, link integrity

LEDs DTE Side: TXD, RXD and Power, (green); DTR, DCD, CTS and CLK, (yellow)

Power Supply Input: 100–240 VAC, 50–60 Hz, 0.4A; or optional - 48 VDC

Power: 500mA at 5 VDC

Temperature: 32–122°F (0–50°C)

Altitude: 0–15,000 ft (0–4,572 m)

Humidity: Up to 90% R.H., non-condensing

Dimensions: 3.5 L X 2.1 W X 0.78 H inch (9.0 L X 5.3 W X 2.0 H cm)

Weight: 0.72 lbs (0.32 kg)

Compliance: FCC Part 15A; CE Mark per EEC Directive: 89/336/EEC; Low Voltage Directive: 73/23/EEC

FEATURES & BENEFITS

- ✓ PPP Bridging Control Protocol (RFC 1638) with auto detection for compatibility with existing Patton Bridge Products and standard third-party equipment
- ✓ Transparent LAN bridging enables the MicroBridge to pass such higher layer protocols
- ✓ Industry standard, shielded RJ-45 10Base-T connection
- ✓ 802.3 Ethernet supported by transparent LAN bridging
- ✓ 1 Mbyte RAM; 128 kbyte FLASH
- ✓ Automatic learning and aging with support for up to 4,096 MAC addresses
- ✓ Nine LEDs monitor power, LAN link, and DTE interface signals
- ✓ Variety of WAN interfaces available (X.21, RS-232, RS-530, and V.35)
- ✓ Transparent to VLAN.Q tagged packets

ORDERING INFORMATION

2121/DM-X/UI: Ethernet MicroBridge, X.21 DTE with DB-15 Male, Serial Cable, 100–240 VAC

2121/DM-X/48: Ethernet MicroBridge, X.21 DTE with DB-15 Male, Serial Cable, -48 VDC

2124/AM-X/UI: Ethernet MicroBridge, V.24 DTE with DB-25 Male, Serial Cable, 100–240 VAC

2124/AM-X/48: Ethernet MicroBridge, V.24 DTE with DB-25 Male, Serial Cable, -48 VDC

2130/BM-X/UI: Ethernet MicroBridge, EIA-530 DTE with DB-25 Male, Serial Cable, 100–240 VAC

2130/BM-X/48: Ethernet MicroBridge, EIA-530 DTE with DB-25 Male, Serial Cable, -48 VDC

2135C/CM-X/UI: Ethernet MicroBridge, V.35 DTE with M/34 Male, Serial Cable, 100–40 VAC

2135C/CM-X/48: Ethernet MicroBridge, V.35 DTE with M/34 Male, Serial Cable, -48 VDC

2135/CM/UI: Ethernet MicroBridge, V.35 DTE with M/34 Male (No Serial Cable), 100–240 VAC

2135/CM/48: Ethernet MicroBridge, V.35 DTE with M/34 Male (No Serial Cable), -48 VDC

Note: X = "L" 6-foot (182.88cm) Serial Cable or "S" 6-inch (15.24cm) Serial Cable. **Example:** 2121/DM-S/UI Ethernet MicroBridge, X.21 DTE w/DB-15 Male, 6-in. (15.24cm) Serial Cable, UI

Breathing Life Into Your Copper



CopperLink Ethernet Extenders

...hassle-free plug & play Ethernet extension
using the most common inexpensive
cabling infrastructure in the world.

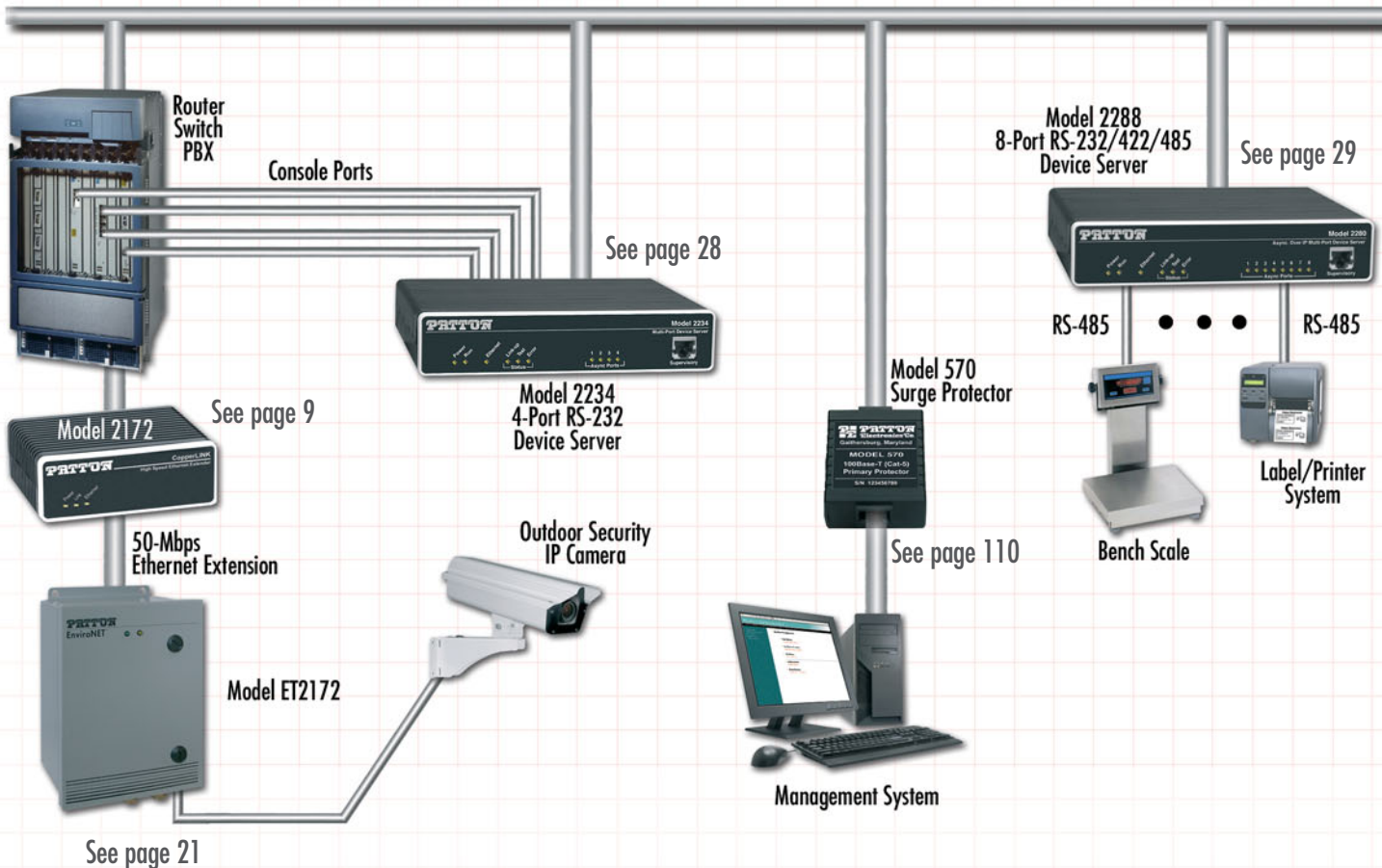
Extend your Ethernet connections up to 5 miles (8 km)
using already existing voice-grade twisted pair.

Industrial Ethernet with Patton

Ethernet is no longer a stranger to the Industrial Community. Ethernet's low cost, reliability, flexibility, and ease to migrate to more bandwidth intensive applications makes it a clear choice over traditional serial communications. Patton Electronics offers a wide variety of products to meet these Industrial Ethernet requirements. Patton's product line includes Device Servers, Ethernet LAN drivers, Wireless Networking, Ethernet/PoE Ethernet Surge Protectors, and a full range of NEMA4 and extended temperature products.

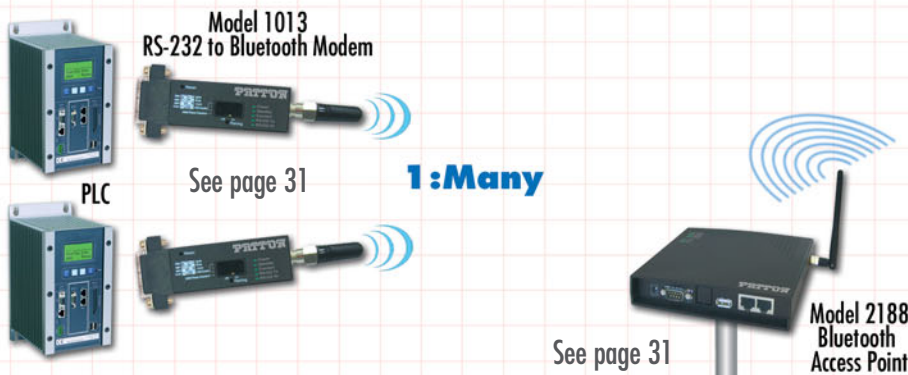
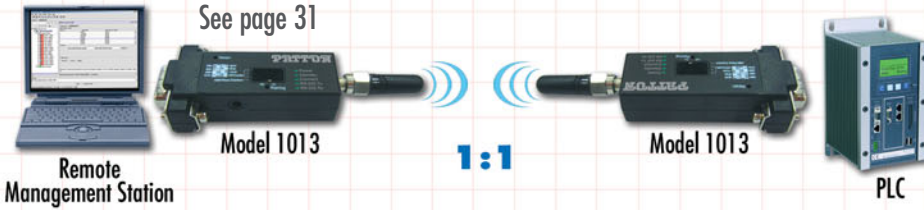
- ✓ **EtherBITS Device Servers** — Control, Monitor, and Collect RS-232/422/485 over an Ethernet LAN
- ✓ **CopperLink™ Ethernet LAN Drivers** — Extends Ethernet over standard grade twist-pair over its 328 ft (100m) limitation at line rates as high as 50 Mbps.
- ✓ **Wireless Networking** — Extend RS-232 serial devices over Bluetooth, or control, monitor, and collect RS-232 data over 802.11b WiFi.
- ✓ **LAN Protectors** — Protects valuable Ethernet and PoE Ethernet Device from Surges
- ✓ **EnviroNET™** — Ethernet extenders, Device Servers, Multiplexors, T1/E1 extenders, VoIP Gateways and Routers all meeting NEMA4 (IP65) and -40 to 85°C specifications.

802.11b Wireless



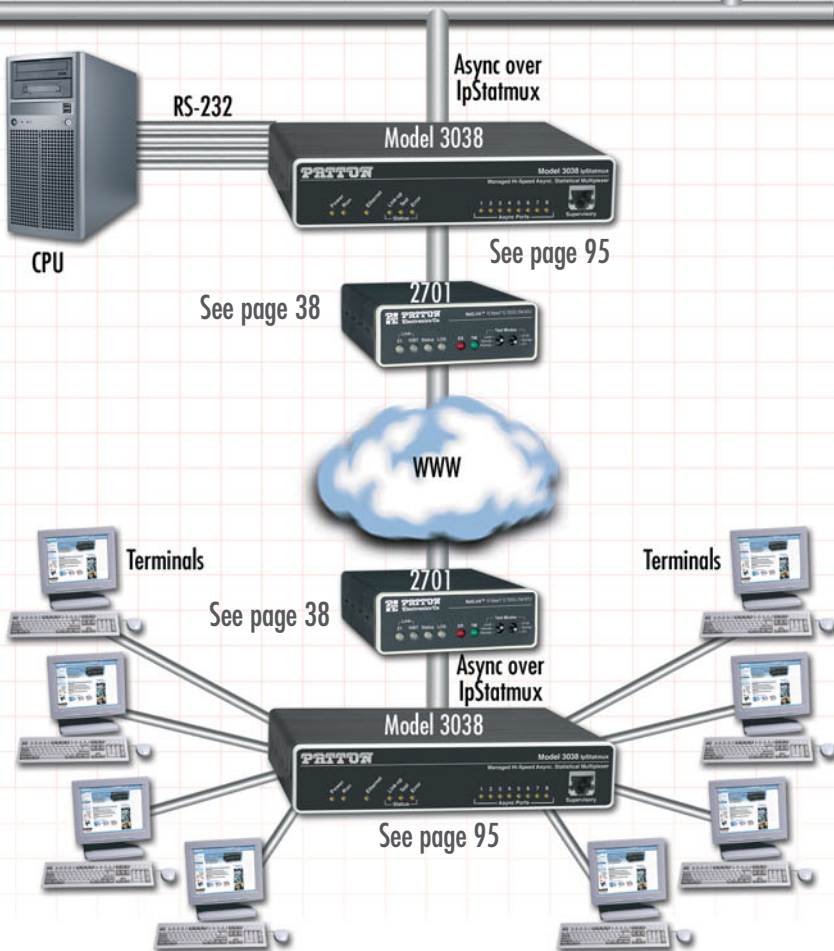
Link-Up for Less

Bluetooth



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EnviroNET™ Solutions



EnviroNET™ EH Series Environmentally Hardened

Built to NEMA 4 specs, the durable EH Series protects against rain, sleet, snow, dirt, dust, ice build-up, high humidity (moisture) and physical tampering. Designed to operate in temperatures ranging from 32 to 122°F (0 to 50°C), it is ideal for use in environments that provide controlled temperatures.



EnviroNET™ EC Series Environmentally Controlled

The EC Series offers the same protection from environmental elements as the EH Series, plus it has a temperature control system enabling it to operate in temperatures ranging from 32 to 185°F (0 to 85°C).



EnviroNET™ ET Series Extended Temperature

In addition to providing the same protection from environmental elements as the EH Series, the advanced ET Series temperature control system enables it to operate in temperature extremes of -40 to 185°F (-40 to 85°C). Potential installation locations and applications for the ET Series are virtually limitless!

Ethernet Extension

Extensive range of environmentally hardened and extended temperature solutions for extending Ethernet connections at distances up to 5 miles (8 km) over phone-grade twisted-pair!

The Patton EnviroNET™ Ethernet Extender offers a reliable and robust solutions for connecting peered 10/100Base-T Ethernet LANs; reaching remote PCs and equipment; or delivering last-mile ISP services—at line rates up to 50 Mbps! Patton's EnviroNET allows the Ethernet Extenders to operate under harsh tempera-

tures of -40 to 185°F (-40 to 85°C) and resist various environmental elements such as dust, rain, snow, sleet, etc. Just co-locate an EnviroNET Ethernet Extender at any outdoor data acquisition location and pair it up with an equivalent Patton Ethernet Extender inside the building.

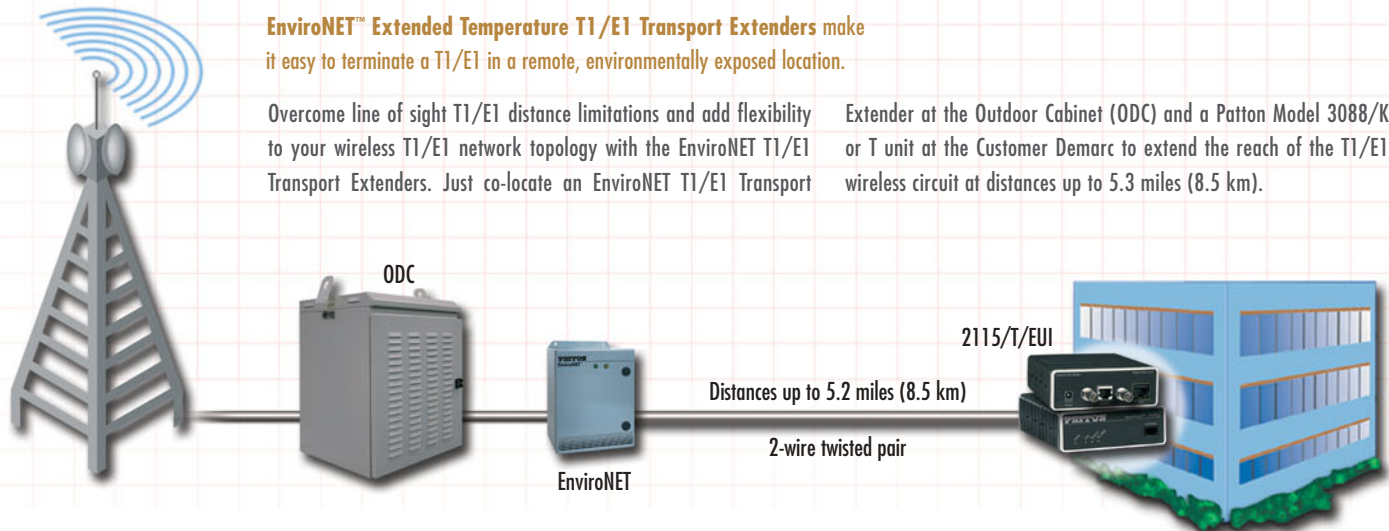


T1/E1 Transport Extension

EnviroNET™ Extended Temperature T1/E1 Transport Extenders make it easy to terminate a T1/E1 in a remote, environmentally exposed location.

Overcome line of sight T1/E1 distance limitations and add flexibility to your wireless T1/E1 network topology with the EnviroNET T1/E1 Transport Extenders. Just co-locate an EnviroNET T1/E1 Transport

Extender at the Outdoor Cabinet (ODC) and a Patton Model 3088/K or T unit at the Customer Demarc to extend the reach of the T1/E1 wireless circuit at distances up to 5.3 miles (8.5 km).



Ethernet Anywhere

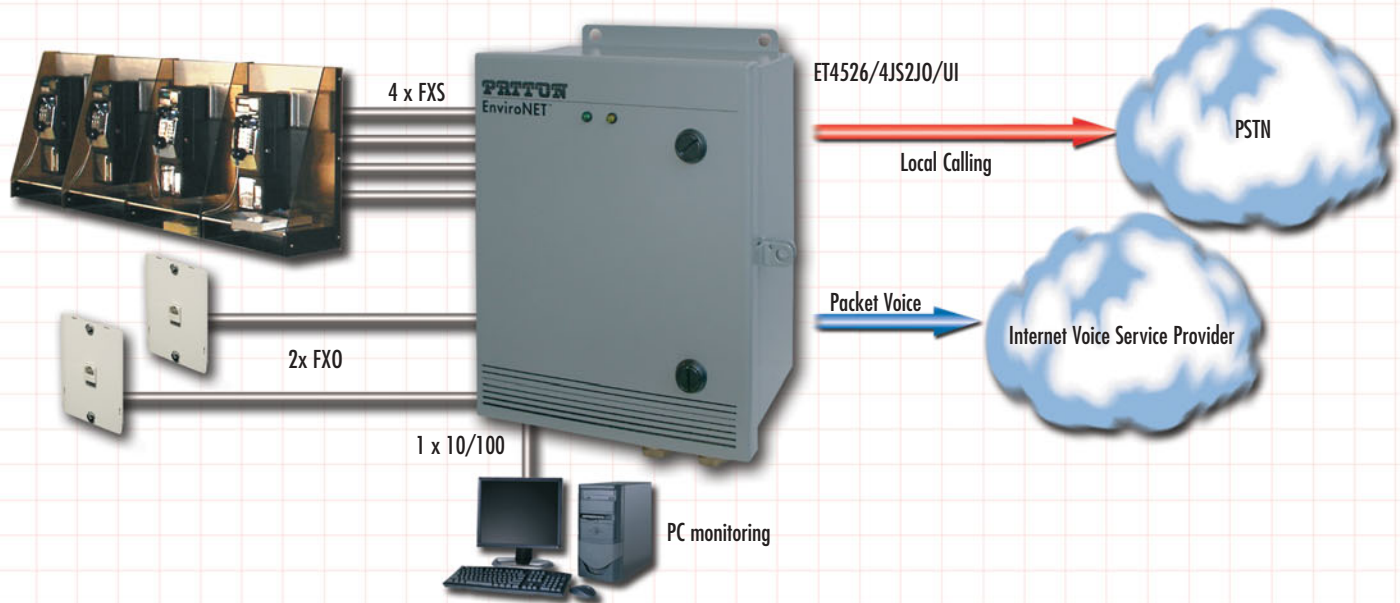
EnviroNET™ Hardened Networking Products Deliver...
Voice, Video and Data Communications Services...
In ANY environment.

Voice-over-IP Gateways

EnviroNET™ Voice-over-IP Gateways provide a reliable, robust, and secure solution for converting your Analog FXS/FXO or Digital ISDN circuits to VoIP in harsh environments.

Extending Patton's EnviroNET Voice-over-IP Gateway routers into exposed environments for seamless access between remote packet-voice and local PSTN telephony. Using ToIP call switching, distinctive ring, and Caller-ID a single handset can now access the right service at any time. With Patton's

ClearConnect™ fail-over protection, a phone call will be completed. Network health monitoring and ToIP switching ensures a clear call even if the IP network is down. Patton's EnviroNET protective enclosures give service providers unlimited installation locations.



SPECIFICATIONS

General Product Specifications for ET Extended Temperature Product

Operating Temperature: -40 to 185° F (-40 to 85°C)
Dimensions: 8.0 L x 4.5 W x 11.5 H in. (203 L x 114 W x 292 H mm)
Weight: 8.5 lbs (3.86 kg)

General Product Specifications EN Environmentally Enhanced Product

Operating Temperature: 32 to 122°F (0 to 50°C)
Dimensions: 8.0 L x 4.5 W x 11.5 H in. (203 L x 114 W x 292 H mm)
Weight: 8.5 lbs (3.86 kg)

ORDERING INFORMATION

Extended Temperature Ethernet Extender

ET2172/EUI: Multi Rate 50 Mbps

ET2168/EUI: Multi Rate 16 Mbps

ET2157/EUI: Rate Adaptive 4.6 Mbps

ET2156/EUI: Rate Adaptive 2.3 Mbps

ET2155/EUI: Long Range 144 kbps

Extended Temperature Device Servers

ET2232/EUI: RS-232 Device Server 10Base-T

ET2211/EUI: RS-232 Device Server 802.11b

ET2285/EUI: RS232/422/485 Device Server 10/100Base-TX

Extended Temperature T1/E1 Extenders & Converters

ET2115/T/EUI: T1 Extender

ET2113/K/EUI: E1 Extender

ET2720/C/EUI: T1 to V.35 Converter/NTU

ET2720/I/EUI: Ethernet Extender over T1

ET2701/C/EUI: E1 to V.35 Converter/NTU

ET2701/D/EUI: E1 to X.21 Converter/NTU

Extended Temperature xDSL Routers

ET3087/RIC/UI: 4.6 Mbps G.SHDSL V.35 Router

ET3087/RID/UI: 4.6 Mbps G.SHDSL X.21 Router

ET3087/RIK/UI: 4.6 Mbps G.SHDSL E1/T1 Router

ET3201/R/UI: 2.3 Mbps G.SHDSL Router

ET3241/R/UI: 4.6 Mbps G.SHDSL Router

Extended Temperature VoIP Gateways & Routers

ET4524/JS/UI: 4 port FXS VoIP Router

ET4524/JO/UI: 4 port FXO VoIP Router

ET4528/4JS4JO/UI: 4 port FXS plus 4 port FXO VoIP Router

ET4528/8JS/UI: 8 port FXS VoIP Router

ET4552/2BIS/UI: 2 port BRI VoIP Router

Extended Temperature Serial Extenders

ET1080A/UI: RS-232 Long Range Extender

ET3088/D/UI: X.21 Serial Extender

ET3088/C/UI: V.35 Serial Extender

ET1052/UI: RS-232 High Speed Sync Extender

ET1053/UI: RS-232 High Speed Async Extender

NanoServ Industrial PC

NanoServ™ Embedded Linux Family

Patton's NanoServ is a rugged, powerful, industrial-strength, embedded Linux server in an ultra-miniature package.



Model 6073—Diskless and fan-less

The NanoServ family of embedded Linux systems are available for specialized industrial and commercial applications, such as security, networking, and machine control. The NanoServ systems are available in a solid-state, diskless model or in a slightly larger model with a 40-Gbyte disk. Both models come with a rugged metal case suitable for the toughest environments. With no fans or other moving parts in the diskless system, the NanoServ requires no physical maintenance and has nothing to wear out over time.

The Patton NanoServ family provides the equivalent of 1.3 GHz of Pentium processing power based on the 800-MHz VIA Eden Nano CPU. The VIA processor includes support for hardware encryption that enables technologies such as advanced PGP (Pretty Good Privacy) public keys and AES

(Advanced Encryption Standard) encryption used in IPsec, enabling the creation of ultra-secure traffic flows between users. The encryption technologies will be useful in applications such as Virtual Private Networks (VPNs), corporate peer-to-peer LANs with restricted access for sensitive projects, and home wireless networks.



Applications can easily be developed to provide secure instant messaging, group chats, distributed presence, file browsing, file transfer, and support for multiple formats of ad hoc secure networking. The NanoServ family is designed to run local applications for specific vertical markets, plus allow access across a network to multi-user Linux servers.

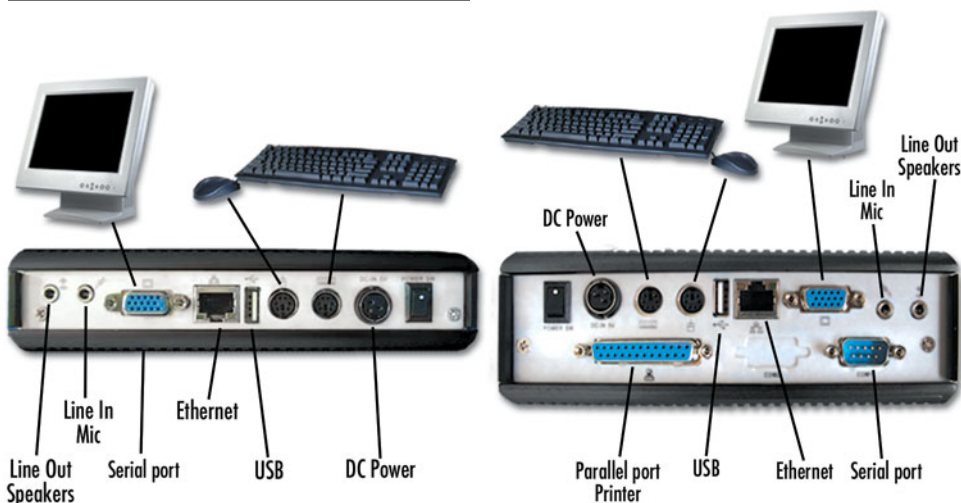
The NanoServ comes pre-installed with a Fedora Core 5 Linux system* that fully boots in under 30 seconds. Fedora Core 5 is compatible with the vast majority of Linux applications and can automatically detect and auto-configure most x86-based hardware.

FEATURES & BENEFITS

- ✓ Compact—6.7 x 4.9 x 1.5 in. (17 x 12.4 x 5.8 cm)
- ✓ Powerful—800-MHz VIA processor equal to 1.3-GHz Pentium
- ✓ Heavy Duty Metal Case—Ready for the toughest environment but attractive enough for a desktop
- ✓ Fan-less—No moving parts; nothing to break; longer life
- ✓ Compatible—The NanoServ comes equipped with all the standard external I/O interfaces (serial, keyboard, mouse, USB, Line/out, Ethernet) found on ordinary PCs.
- ✓ Comes preloaded with Linux.



NanoServ interfaces



Model 6075—Fan-less with 40-GB hard disk

ORDERING INFORMATION

6072/UI: Diskless NanoServ in a Thin Case

6073/UI: Diskless NanoServ in an Ultra-Thin Case

6074/UI: NanoServ with a 256MB Flash Drive in a Thin Case

6075/UI: NanoServ with a 40GB Hard Disk in a Thin Case

*Available with other Linux distributions. Call for availability.



**Model 2120
Terminal Server**

Today's Lesson Plan

- TCP
- UDP
- ICMP
- Telnet
- ARP
- DHCP
- FTP
- SLIP
- PPP
- IP NAT
- WINS
- DNS
- PAP

RS232 + 2120 = Ethernet

PPP + IP = Internet Access

Give your serial device an advanced degree in Ethernet

- ✓ Control and monitor any RS-232 terminal or devices over any IP/Ethernet LAN
- ✓ 802.3 Ethernet interface connects to any hub or switch
- ✓ RS-232 over IP
- ✓ Single Port RAS with any Modem
- ✓ User-selectable data rates up to 115.2 kbps
- ✓ Access your private network address through the internet



Single-Port Terminal Server

Model 2120

The versatile Patton Model 2120 brings RS-232 serial devices and control ports onto the LAN and also functions as a single-port remote access server.

Patton's Model 2120 Single-Port Terminal Server provides a quick, simple, and cost-effective solution for connecting traditional RS-232 terminals and devices to a local area network. The Model 2120 can be used just about anywhere, including the office, retail outlets, equipment rooms, and on the factory floor. When used with a dial-up modem and connected to a LAN, the Model 2120 also functions as an inexpensive single-port remote access server. The versatile and feature-rich Model 2120 can literally be used in thousands of different applications and environments.

The Model 2120 brings serial RS-232 devices onto the network by encapsulating RS-232 data into IP packets for transport over the LAN. Using Raw TCP or TELNET, the Model 2120 can connect to any user-defined IP address and port. Once connected to the remote host, data is passed transparently end-to-end. The built-in DHCP Client allows the Model 2120 to dynamically obtain an IP address and a subnet mask from a master server. Using dial-up modems and SLIP and PPP connections, remote users can access the network as if they were locally connected.



The Patton Model 2120 Single-Port Terminal Server easily and cost-effectively brings serial RS-232 equipment together with other systems on one local area network!

LAN-to-LAN Bridging



The Patton Single-Port RS-232 Terminal Server provides the ability to bring virtually any RS-232 device onto the LAN. Using industry-based TCP/IP protocol enables Patton's Single-

Port Terminal Server to provide a standard Ethernet communication link to any type of host. Above is an example of the Model 2120's role in an industrial environment.

SPECIFICATIONS

Serial Interface: DB-25 male or female; DB-9 male or female

Serial Transmission: RS-232

Asynchronous, 0 to 115.2 kbps, configured via serial port or TELNET session

DCE/DTE: Configured via serial port or TELNET session

RS-232 Status Indicators: TXD, RXD, DTR, RTS, CTS, DCD, and Power

Ethernet Interface: RJ-45 female

Ethernet Standard: 10Base-T (IEEE 802.3)

Ethernet Status Indicators: Ethernet link and status

Protocols Supported: TCP, UDP, IP, ICMP, TELNET, ARP, DHCP, FTP, TFTP, SLIP, PPP, PAP, DNS, and WINS

Management Services:

Monitoring, control, and diagnostics via serial port or TELNET session

Memory: 1 Mbyte RAM; 512 kbytes FLASH

Power Supply Options: External, universal AC (100–240 VAC) or –48 VDC

Environment: Temp.: 32–122°F (0–50°C) • Humidity: Up to 95% non-condensing

Dimensions: 3.5L X 2.1W X 0.78H in.

(9.0L X 5.3W X 1.9H cm)

Weight: 0.2 lbs (0.09 kg)

FEATURES & BENEFITS

- ✓ Enables control of any RS-232 asynchronous serial device over a LAN or via the Internet
- ✓ Asynchronous data rates up to 115.2 kbps
- ✓ DTE/DCE-selectable serial port
- ✓ RS-232 status indicators
- ✓ 802.3 10Base-T LAN connection via RJ-45 for network connection
- ✓ Ethernet link and status indicators
- ✓ User-configurable session options
- ✓ Supports standard TCP/IP protocols (TCP, UDP, IP, ICMP, TELNET, ARP, DHCP, FTP, TFTP, SLIP, PPP, PAP, DNS, and WINS)
- ✓ Comes with 1 Mbyte RAM and 512 kbytes FLASH
- ✓ Small package attaches directly to terminal equipment
- ✓ AC or DC power options
- ✓ Download new software via FTP into FLASH memory
- ✓ 64-user database for enhanced security



I'm Steve, one of Patton's Engineers designing serial device servers. To buy one of these state-of-the-art devices, call +1 301.975.1000 or send e-mail to sales@patton.com.

ORDERING INFORMATION

2120/AM/UI: Single Port RS-232 Terminal Server, Asynchronous, DB-25 Male, UI Power Supply

2120/AM/48: Single Port RS-232 Terminal Server, Asynchronous, DB-25 Male, –48 VDC Power Supply

2120/AF/UI: Single Port RS-232 Terminal Server, Asynchronous, DB-25 Female, UI Power Supply

2120/AF/48: Single Port RS-232 Terminal Server, Asynchronous, DB-25 Female, –48 VDC Power Supply

2120/A9M/UI: Single Port RS-232 Terminal Server, Asynchronous, DB-9 Male, UI Power Supply

2120/A9M/48: Single Port RS-232 Terminal Server, Asynchronous, DB-9 Male, –48 VDC Power Supply

2120/A9F/UI: Single Port RS-232 Terminal Server, Asynchronous, DB-9 Female, UI Power Supply

2120/A9F/48: Single Port RS-232 Terminal Server, Asynchronous, DB-9 Female, –48 VDC Power Supply

EtherBITS™ Device Server
Model 2232 Single Port RS-232 Device Server

Low-cost single-port device server lets you monitor, control, and collect data from any async RS-232 device over any IP network.



The Patton EtherBITS Model 2232 lets you leverage the power and flexibility of Ethernet for low-cost, hassle-free device networking.

Ethernet has far outgrown the confines of the office network. From factories and farms to railways and retail shops, credit bureaus, banks—even medical and dental offices—anywhere serial devices are found—the EtherBITS Model 2232 offers network managers the lowest-cost solution for making the transition from legacy serial infrastructure to the age of IP.

The EtherBITS Model 2232 provides both a serial RS-232 port (male or female/DB-9 or DB25) and a 10Base-T Ethernet port to link any RS-232 serial device to the Ethernet LAN at user-selectable data rates from 1200 bps to 115.2 kbps.

The Model 2232 encapsulates asynchronous serial data into IP packets for transport through the network via TCP or TELNET. The Model 2232 delivers a transparent end-to-end connection to your PC or network management host using any user-defined IP address and TCP port number. For greater flexibility, a built-in DHCP client can dynamically obtain an IP address from a master server anywhere on the network. With the included COM Port Redirector software you can use the existing COM/TTY on your PC, thus avoiding the hassle and expense obtaining an additional software license.

Connect serial devices and terminals to Ethernet quickly and easily with Patton's low-cost EtherBITS Model 2232 Single-Port Terminal Server. The Patton EtherBITS Model 2232 lets you leverage the power and flexibility of Ethernet for low-cost, hassle-free device networking.

FEATURES & BENEFITS

- ✓ Control and Monitor Serial Device—Link asynchronous serial devices and terminals to your IP network
- ✓ Supports a Wide Range of Data Rates—User-selectable async data rates up to 115.2 kbps
- ✓ Connects Directly to the LAN—10Base-T LAN connection via shielded RJ-45 connector
- ✓ Standard TCP/IP Protocols Supported—ARP, ICMP, TCP, DHCP client, Telnet
- ✓ COM Port Redirector Software Included—Windows-Tactical COM Port Redirector Linux-vrty 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

SPECIFICATIONS

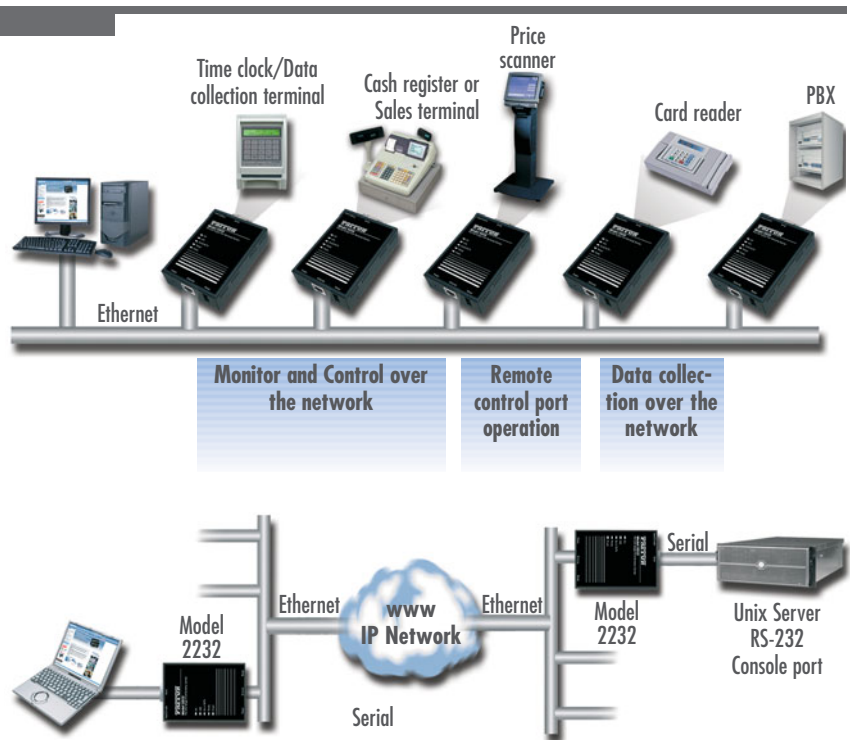
- Physical Interface:**
Serial: Serial: DB-9M/F; DB-25M/F
Ethernet: Shielded RJ-45
- Serial Transmission:** RS-232 rates from 1200 bps to 115.2 kbps
- Ethernet Transmission:** 10Base-T
- Management:** Monitoring, control, and diagnostics via serial port, TELNET session, or HTTP
- LED Indicators:** Power, Ethernet Link and Activity, Serial Receive and Transmit
- Power:** External AC: 9–30 VDC, 300 mA at 9 VDC
- Compliance:** EMC Directive 89/336/EEC, Low Voltage Directive 73/23/EEC; CE Mark
- Environment:** Temperature: 40–122°F (5–50°C)
Humidity: Up to 90% non-condensing
- Dimensions:** 4.5L x 3.2W x 1.0H in. (9.0L x 5.3W x 1.9H cm)
- Weight:** Package: 0.66 lbs (300 g)
Unit only: 0.55 lbs (250 g)

Application diagrams

The Model 2232 Single-Port Device Server is used to connect various RS-232 serial devices to the local area network through their serial control ports. The 2232 enables monitoring, control, and data collection from this equipment by remote computers located anywhere on the local or wide area network.

COM Port redirector is provided for users who choose to use their existing serial communication application programs. Using the redirector software provided on the Patton Model 2232 allows existing COM/TTY-based software to be preserved, thus no additional investment is required on additional software.

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 World Wide Web.



EtherBITS™ Universal Device Server

Model 2285 RS-485/422/232 Device 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.



Use Patton's Model 2285 universal single-port device server to control, access, interconnect, and manage RS-485/422/232 devices from any remote location as if you were there. Patton's device servers provide a new level of efficiency and affordability to a variety of application environments including industrial automation, health care, security, transportation, retail, and many others.

With built-in DHCP the Model 2285 automatically obtains an IP address and a subnet mask from the master server. With the IP address identified and the serial port attached, the Model 2285 can transparently pass data end-to-end using Telnet over TCP. Users can access management features over

telnet, serial console, or the web. Security features include static key based RC4 data encryption, SSL to provide a secure connection between client and server, HTTPS for secure data transfer over the network, and IP filter, which limits and controls access to the serial device. COM Port Redirector is included with Patton's 2285 enabling users to use their existing COM/TTY-based software, preventing the hassle and expense of investing in additional software.

The Patton Model 2285 provides physical-layer connectivity by a user selectable RS-485/422/232 serial port and 10/100Base-TX Ethernet port. Configure the serial port's data rate, ranging from 75 bps to 230 kbps, and choose from a variety of connector types including DB9 or DB25 male or female.

Easily and cost effectively bring serial devices onto one global or local area network!

FEATURES & BENEFITS

- ✓ User Selectable RS-485/422/232—Control, access, and monitor your asynchronous serial terminals and devices over the LAN
- ✓ 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

ORDERING INFORMATION

RS-232/422/485 to 10/100Base-T 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

SPECIFICATIONS

Physical Interface:

Serial: DB-9M/F; DB-25M/F
Ethernet: Shielded RJ-45

Serial Transmission: RS-485, 422, and 232 rates from 75 bps to 230 kbps (user selectable)

Ethernet Transmission: 10/100Base-TX

Management: Monitoring, control, and diagnostics via serial port, TELNET session, or HTTP

LED Indicators: Power, Ethernet Status, and Activity

Power: External AC: 9~30 VDC, 300 mA at 9 VDC

Compliance: EMC Directive 89/336/EEC, Low Voltage Directive 73/23/EEC; CE Mark

Environment: Temperature: 40~122°F (5~50°C)
Humidity: Up to 90% non-condensing
Dimensions: 4.5L x 3.2W x 1.0H in. (9.0L x 5.3W x 1.9H cm)

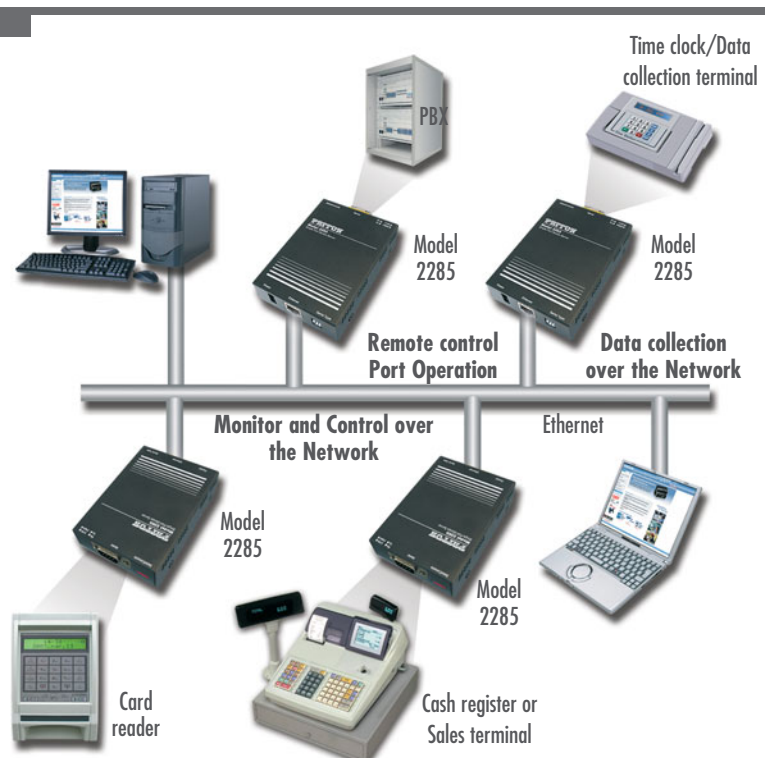
Weight: Packaged: 1.05 lbs (0.46 kg)
Unit only: 0.15 lbs (0.06 kg)

Application diagram

The Patton Model 2285 connects various RS-485/422/232 serial devices to a central location over an Ethernet Local Area Network. The device server enables monitoring, controlling, management, and data collection.

The Model 2285 enhances COM Port Redirection with the addition of encryption. Secure connections between the 2285 and the controller's COM port are implemented with the Serial/IP COM port redirector or OpenSSL Toolkit with an SSL security option.

The Model 2285 performs Serial Data Tunneling when used in pairs. The 2285's will simulate a direct serial link between two serial devices over an Ethernet connection. Using IP allows the user to extend serial connections across the building or across the world.



EtherBITS™ Wireless (802.11b) Device Server

Model 2211 Wireless Single-Port Device Server

Best, most cost-effective method to control, monitor, and collect data from your RS-232 serial devices over a wireless local area network.

Ethernet continues to be the predominant office networking infrastructure. Now, Ethernet has made its way from the office to the shop floor. Traditional serial environments require the use of multi-port serial cards, expensive cables, and the personnel to manage multiple systems. Patton's Model 2211 Single-Port Device Server provides a quick, inexpensive, and hassle-free solution for connecting legacy serial terminals and devices to a local area network (LAN).

The Model 2211 links legacy serial RS-232 devices to the network by encapsulating serial data into IP packets for transport over the wireless LAN. Using TCP or TELNET, the Model 2211 can connect to any user-defined IP address and port. Once connected to the remote host, data is passed transparently end-to-end. The built-in DHCP Client allows the Model 2211 to dynamically obtain an IP address and a subnet mask from a

master server. COM Port Redirector is included with Patton's 2211 enabling companies to use their existing COM/TTY-based software, preventing the hassle and expense of investing in additional software.

Physical layer-connectivity is provided via an RS-232 serial port and a 10Base-T Ethernet port. Configure the serial port's data rate, ranging from 1200bps to 115.2 kbps, and choose from a variety of connector types including DB9 or DB25 male or female.

Patton's Model 2211 offers the lowest transition cost in turning your serial infrastructure to IP.



FEATURES & BENEFITS

- ✓ Control and Monitor Serial Device—Control and monitor your serial asynchronous terminals and devices over the local area network
- ✓ Connects Directly to the Wireless LAN—802.11b WiFi 10Base-T LAN connection via built-in WiFi module; 64-bit WEP security
- ✓ 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 Wireless 802.11b Device Server

2211-25F/E: 802.11b; DB25F RS-232

2211-25M/E: 802.11b; DB25M RS-232

2211-9F/E: 802.11b; DB9F RS-232

2211-9M/E: 802.11b; DB9M RS-232

Accessories

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

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

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

SPECIFICATIONS

Mechanical Interface:

Serial: DB-9M/F; DB-25M/F;
Ethernet: WiFi 802.11b

Serial Transmission: RS-232

Rates from 1200 bps to 115 kbps

Ethernet Transmission:

802.11b Wireless Ad Hoc/Infrastructure
Modes; 10Base-T Ethernet

Management: Monitoring, control, and diagnostics via serial port or TELNET session

LED Indicators: Power, Ethernet Link and Activity

Power: External AC: 9–30 VDC,
300mA at 9 VDC

Compliance: EMC Directive
89/336/EEC, Low Voltage Directive
73/23/EEC; CE Mark

Environment:

Temperature: 40–122°F (5–50°C)

Humidity: Up to 90% non-condensing

Dimensions: 4.5L x 3.2W x 1.0H
in. (9.0L x 5.3W x 1.9H cm)

Weight: Packaged: 0.66 lbs (300 g)
Unit Only: 0.55 lbs (250 g)

Application diagrams

The Model 2211 Single-Port Device Server is used to connect various RS-232 serial devices to the Local Area Network through their serial control ports. The 2211 enables monitoring, control, and data collection from this equipment by remote computers located anywhere on the local or wide area network. Both Ad hoc and Infrastructure mode is supported on the 2211.

COM Port redirector is provided for users who choose to use their existing serial communication application programs. Utilizing the COM Port redirector software provided on the Patton Model 2211 allows existing COM/TTY-based software to be preserved, thus no additional investment is required on additional software.



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Electronics Co.

Multi-Port Asynchronous RS-232 Device Server

EtherBITS™ 2234 & 2238 (RS-232)

The 2230 series 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.



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 2230 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 2230 support a host of applications including industrial automation, credit bureaus, banks, point-of-sale, utilities, and any other applications that require asynchronous RS-232 serial to IP connectivity.

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 1200bps 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.

SPECIFICATIONS

Terminal/Channel Ports: Serial Asynchronous start-stop • # of Ports: 8 ports (3038); 4 ports (3034) • Max Aggregate Speed: 2Mbps • Interface: CCITT V.24 (EIA-561) on 8-pin RJ-45F • Data Communication Speed: Selectable 50bps-115.2kbps; auto-speed detection up to 115.2kbps • Data Format: Selectable 5,6,7, or 8 bits; 1, 1.5 or 2 stop bits, odd, even, or no parity • Flow Control: Software selectable (XON/XOFF) or hardware (RTS/CTS) in both directions • Break Propagation: Transparent • EIA signal propagation: Status of local DTR signal can be propagated to the remote end • Echo: Character echo can be selectively enabled for each terminal port

Ethernet Port(s): Auto-sensing 10/100BaseTX MDI-X Ethernet • Clock: Receive clock: external; Transmit clock: selectable as internal or external

Supervisory Port(s): Interface Auto-sensing 10/100BaseTX MDI-X on RJ-45 or Serial RS-232 (EIA-561) on RJ-45 • Serial Communication protocol: Asynchronous start-stop • Serial Speed: 300, 1200, 4800, or 9600 bps • Serial Data format: 7/8 bits, 2 stop bits, odd/even/no parity • Echo: Optional

Commands: Set/modify/view parameters • View status • Store

parameters in non-volatile memory • Copy parameters between ports • Provide local/remote loop backs on port • Establish connection between supervisory and terminal ports • Obtain statistic reports • Unit reset; individual port reset • Remote supervisory access • Enable/Disable remote access

IP Services Supported: IPv4 • RIPv1 and v2 (RFC 1058 and 2453) • ICMP redirect (RFC 792); packet fragmentation • DiffServ/ToS set or queue per header bits • Packet policing discards excess traffic • 802.1p/Q VLAN support with 4096 IDs • IPSEC AH & ESP Modes • Manual/IKE keying • AES/DES/3DES Encryption

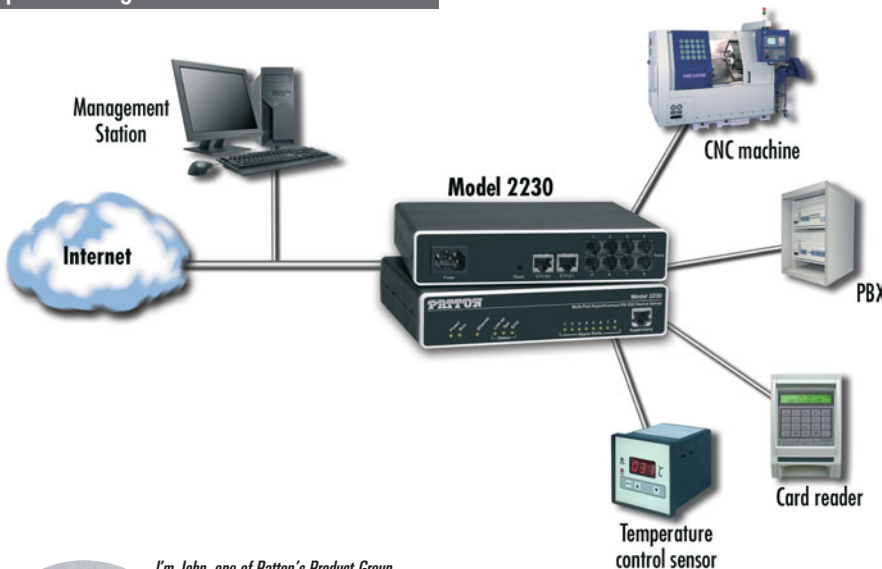
IP Connectivity Supported: TCPRAW • UDP • Telnet • DHCP • NAT

Operating Environment: Temp.: 0-40°C • Humidity: 5-80% (non condensing)

System: CPU Motorola MPC859 @ 50 MHz • Memory 16MB SDRAM/4MB Flash • Power: 100-240 VAC (50/60 Hz) • Power dissipation: 4W

Compliance: EMC compliance: EN55022 and EN55024 • Safety compliance: EN 50950 • CE compliance FCC Part 15 Class A

Application diagram



I'm John, one of Patton's Product Group Managers. If you do not find what you need at www.patton.com or in this catalog, or if you have technical questions or comments concerning Device Servers, please call me at +1 301.975.1000, x160. You can also send e-mail to jgrant@patton.com.



ORDERING INFORMATION

2234/EUI: 4 port RS-232

2234/E48: 4 port RS-232

2238/EUI: 8 port RS-232

2238/E48: 8 port RS-232

Multi-Port Async. RS-232/422/485 Device Server Models 2284 & 2288 (MEI)

The 2280 series is a versatile Multi-Port Device Server enabling user 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.

SPECIFICATIONS

Terminal/Channel Ports: Serial Asynchronous start-stop • # of Ports: 8 ports (3038); 4 ports (3034) • Max Aggregate Speed: 2Mbps • Interface: CCITT V.24 (EIA-561) on 8-pin RJ-45F • Data Communication Speed: Selectable 50bps-115.2kbps; auto-speed detection up to 115.2kbps • Data Format: Selectable 5,6,7, or 8 bits; 1, 1.5 or 2 stop bits, odd, even, or no parity • Flow Control: Software selectable (XON/XOFF) or hardware (RTS/CTS) in both directions • Break Propagation: Transparent • EIA signal propagation: Status of local DTR signal can be propagated to the remote end • Echo: Character echo can be selectively enabled for each terminal port

Ethernet Port(s): Auto-sensing 10/100BaseTX MDI-X Ethernet • Clock: Receive clock: external; Transmit clock: selectable as internal or external

Supervisory Port(s): Interface Auto-sensing 10/100BaseTX MDI-X on RJ-45 or Serial RS-232 (EIA-561) on RJ-45 • Serial Communication protocol: Asynchronous start-stop • Serial Speed: 300, 1200, 4800, or 9600 bps • Serial Data Format: 7/8 bits, 2 stop bits, odd/even/no parity • Echo: Optional

Commands: Set/modify/view parameters • View status • Store

parameters in non-volatile memory • Copy parameters between ports • Provide local/remote loop backs on port • Establish connection between supervisory and terminal ports • Obtain statistic reports • Unit reset; individual port reset • Remote supervisory access • Enable/Disable remote access

IP Services Supported: IPv4 • RIPv1 and v2 (RFC 1058 and 2453) • ICMP redirect (RFC 792); packet fragmentation • DiffServ/ToS set or queue per header bits • Packet policing discards excess traffic • 802.1p/Q VLAN support with 4096 IDs • IPSEC AH & ESP Modes • Manual/IKM keying • AES/DES/3DES Encryption

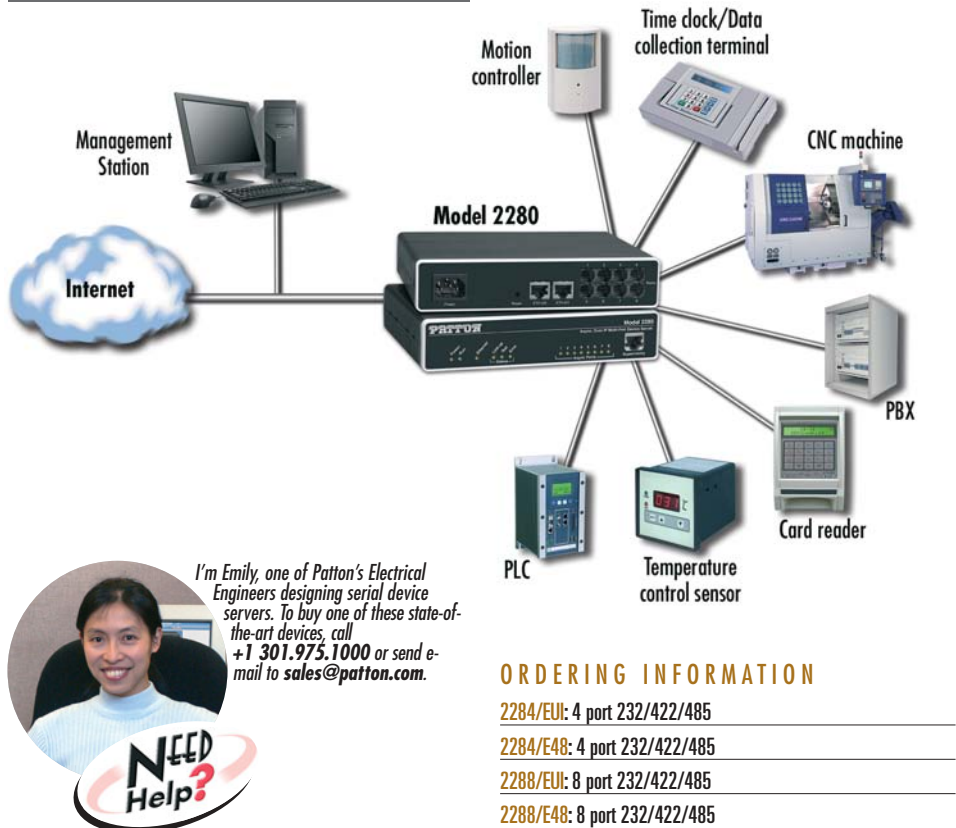
IP Connectivity Supported: TCPRAW • UDP • Telnet • DHCP • NAT

Operating Environment: Temp.: 0-40°C • Humidity: 5-80% (non condensing)

System: CPU Motorola MPC859 @ 50 MHz • Memory 16MB SDRAM/4MB Flash • Power: 100-240 VAC (50/60 Hz) • Power dissipation: 4W

Compliance: EMC compliance: EN55022 and EN55024 • Safety compliance: EN 50950 • CE compliance FCC Part 15 Class A

Application diagram



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FAST Delivery From Your AUTHORIZED DISTRIBUTOR!

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Leased-Line Extender over IP**Models 2292 & 2294**

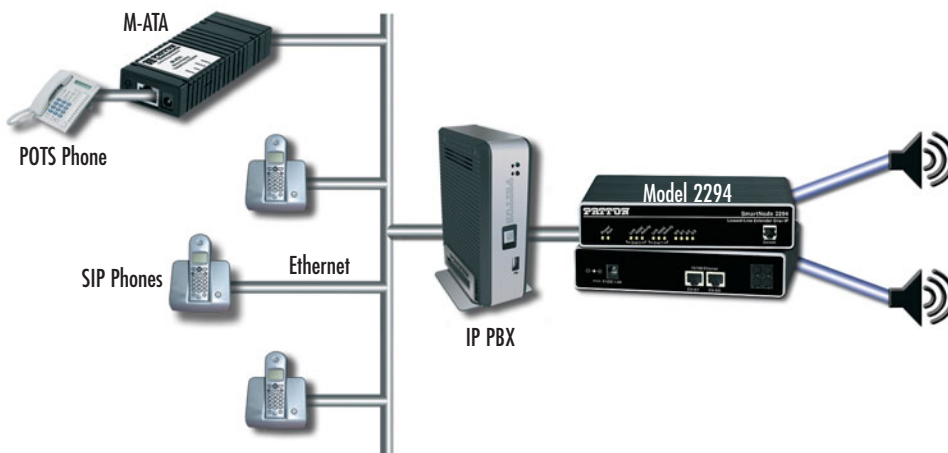
Save leased-line costs extending up to four audio lines between two locations over any IP network. Patton's Leased-line extenders provide PSTN grade voice quality and integrated QoS mechanisms enable it to work reliably even over the public Internet.



The Leased-Line Extender product family gives you the ability to save big on Leased-Line costs. Using only one Extender on each side, audio information on up to four Leased-Lines can be transported over a packet-based network. This means: Internet access in two different locations around the world is sufficient to establish up to four Leased-Lines between these two locations!

The Extenders ship as a matched pair—and after installation, the connection between the two establishes immediately. It also re-establishes after any kind of problem, should it be needed. The connection is 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.

For advanced users, the Extenders can be bought separately, and multiple Extenders can be arranged in a multi-location formation. This allows e.g. always-on direct intercom between different locations or posts. The integrated SIP and H.323 voice-over-IP (VoIP) protocols enable any VoIP phone system to talk to the Extenders—finally offering real audio interfaces. An intelligent agent inside the Patton 2292 and 2294 can assure the VoIP calls are always up.

The 2292 and 2294 extend leased lines over any IP network**The 2292 and 2294 provide audio interfaces to any VoIP system****FEATURES & BENEFITS**

- ✓ **Security**—Connections are always-on and securely encrypted with IPsec and IKE. Choose DES/3DES or AES.
- ✓ **Quality**—Advanced traffic management and shaping, combined with Patton's patent-pending DownStream QoS™ enforce uninterrupted toll-quality voice over best-effort networks.
- ✓ **Integrated access router** with NAT, Firewall, ACL, PPPoE, DHCP, DynDNS and VLAN
- ✓ **Connects analog 2-wire 600-ohm voice-grade interfaces** via a G.711 RTP stream.
- ✓ **Narrow-band FXS style 2-wire hybrid T/R.**
- ✓ **Talks SIP and H.323**—adds real audio interfaces to SIP and H.323 signaling systems.

SPECIFICATIONS

Capacity: 2 audio lines (2292) 4 audio lines (2294)

Audio connectivity: 2-wire RJ-11, Bandwidth 4kHz, Impedance 600-ohm, Narrow Band FXS style hybrid transmit/receive

Data Services: Two 10/100 Ethernet ports • Complete IP access router • DHCP Client & server • Packet fragmentation • Static firewall, NAT, NAPT RFC 1631 access control lists • DMZ port • IPsec, IKE, AES/DES/3DES Encryption

Quality of Service: Audio priority • DownStreamQoS™ • Traffic management, shaping and policing • IEEE 802.1p, TOS, DiffServ labeling • IEEE 802.1Q, VLAN tag insertion/deletion (simultaneous support of multiple VLANs) Voice Signaling: H.323v4, SIPv2 (B2BUA capable, multi-instance, simultaneous support of multiple registrars and direct IP dialing) • SIP call transfer, redirect • DTMF in-band & out-of-band

Voice Processing: CODEC G.711 a-law/mu-law, G.723, G.729ab, • G.726, G.727, T.38 fax relay (9.6 k, 14.4k) • G.711 transparent fax and bypass

Management: Web/HTTP, CLI with local console and remote Telnet access • TFTP configuration & firmware loading • SNMP MIB II and product MIB • Secure Mass provisioning for both firmware and unit configuration • Built-in diagnostic tools (trace, debug, call generator)

System: CPU Motorola MPC875 @66MHz • Memory 32MB SDRAM/8MB Flash • Power 100–240 VAC (50/60Hz) • Power dissipation 4–8W, model dependent

Temperature: 32–104°F (0–40°C)

Humidity: 5–80%, non-condensing

Compliance: EMC compliance: EN55022 and EN55024 • Safety compliance: EN 60950 • CE compliance • FCC Part 15 Class A • RoHS

ORDERING INFORMATION

2292/EUI-2PK: Dual port 2-wire Leased-Line audio over IP Extender, dual 10/100 Ethernet, UI power. Package contains two matched units.

2294/EUI-2PK: Quad port 2-wire Leased-Line audio over IP Extender, dual 10/100 Ethernet, UI power. Package contains two matched units

2292/EUI: Dual port 2-wire Leased-Line audio over IP Extender, dual 10/100 Ethernet, UI power. Single unit for integration in existing SIP or H.323 networks

2294/EUI: Quad port 2-wire Leased-Line audio over IP Extender, dual 10/100 Ethernet, UI power. Single unit for integration in existing SIP or H.323 networks.

EtherBITS™ Bluetooth IP Access Point

Model 2188

The Model 2188 provides hassle-free wireless Bluetooth to IP connections for up to 7 Bluetooth devices

Patton's Model 2188 enables up to 7 Bluetooth devices to simultaneously connect to any 10/100Base-TX Ethernet Network. Using the 2188 in conjunction with the Model 1013 eliminates the hassle and expense of running a dedicated cable connection between RS-232 devices thus giving installers, maintenance workers, and others the ability to remotely monitor and control RS-232 devices.

The Model 2188 supports multiple Bluetooth profiles for the serial port, dial-up networking, LAN access and PAN.



Versatile host modes allow for a wide variety of user applications such as, TCP Server and Client modes for TCP/IP-Bluetooth replay applications, Vertex mode for multicasting, repeater mode, serial hub mode, and RS-232 mode.

The Model 2188's flash memory allows for easy field upgradeable software upgrades. A built in web server and web interface allows for simple installation and remote configuration and management.

FEATURES & BENEFITS

- ✓ RS-232 Serial Cable Replacement—Bluetooth connections can be made over 3,280 feet (1,000 meters).
- ✓ Wide Variety of supported Bluetooth Profiles—Serial Port, LAN Access, PAN and Dial up Networking.
- ✓ Supports Many Applications & Host Modes—TCP Server & Client, Vertex mode, Repeater mode, and RS-232 modes.
- ✓ Network Protocols Supported—HTTP/FTP/Telnet/IP Sharing/DHCP/PPP/RADIUS Authentication SNMP v1/v2/v3



10-BT-PAT



10-BT-DAT



10-BT-UPA



10-BT-DPA



1013

Application diagram



Bluetooth enables wireless RS-232 connections, making installations and service calls more efficient by eliminating the time, hassle, and expense of cable runs.

Antenna Distance Chart	
Default Antenna to Default Antenna	328 feet (100 meters)
Default Antenna to Dipole Antenna	492 feet (150 meters)
Dipole Antenna to Dipole Antenna	656 feet (200 meters)
Patch Antenna to Dipole Antenna	1,312 feet (400 meters)
Patch Antenna to Patch Antenna	3,937 feet (1,200 meters)

ORDERING INFORMATION

2188/EUI: EtherBITS Bluetooth to IP Access Point

Accessories

1013: Wireless RS-232 Short Range Modem

10-BT-SAT: Bluetooth Stub Replacement Antenna

10-BT-DAT: Bluetooth Dipole Antenna

10-BT-PAT: Bluetooth Patch Antenna

10-BT-UPA: Bluetooth USB to Power Adapter Cable

10-BT-DPA: Bluetooth DC to Power Adapter Cable

10-BT-CBL-1: Bluetooth 1M Antenna Extension Cable

SPECIFICATIONS

Ethernet Interface:
10/100BaseTX connection via RJ45 • Static IP and Dynamic IP address
Bluetooth Interface: Bluetooth V1.1: Class 1 • Level: -18dBm • Profiles: Serial Port, LAN Access, PAN, Dial up Networking • Distance: 32–1,312 feet (10–400 meters) • Protocols Supported: HTTP, FTP, Telnet, DHCP client: SNMP v1/v2/v3; PPP server and PPP tunneling; RADIUS •

Management: Windows Utility; Web, Telnet, Console; Modem AT command set • Diagnostic LEDs: Power, Status, Error, NET and EXP
General Product Specifications: Operating Temperature: 40–122°F (5–50° C) • Dimensions: 5.8L x 4.4W x 1.3H inch (147 L x 112 W x 32H mm) • Weight: 0.5 lbs (225 g)

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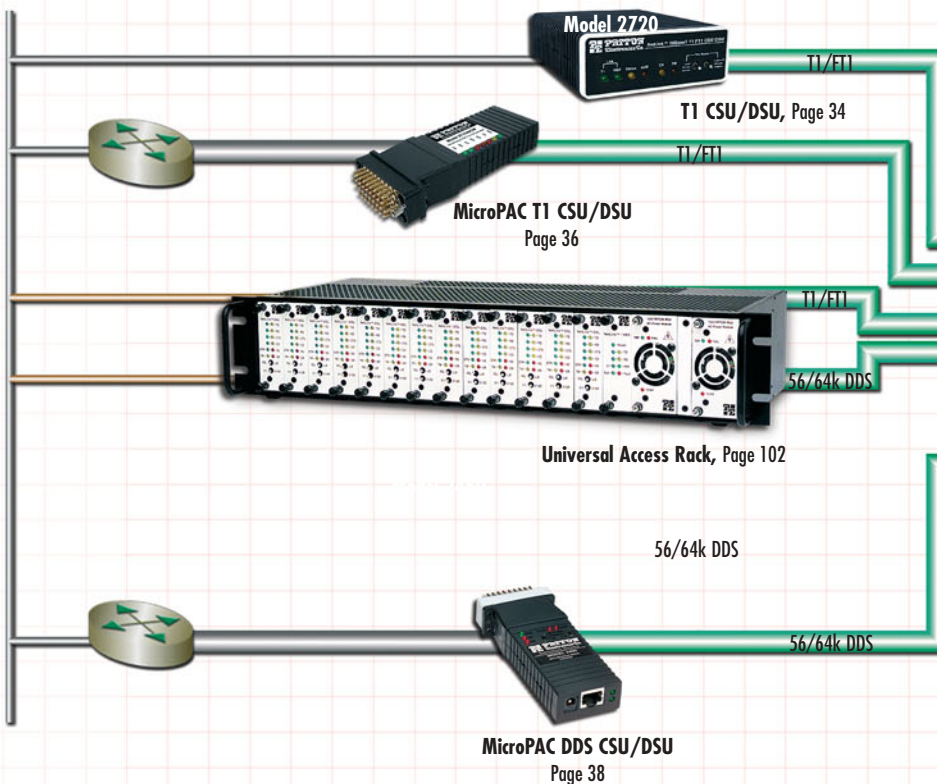
Network Termination

T1/E1, EV/FE1 CSU/DSU Products

For T1/E1 network termination, Patton's products offer flexible access and connectivity for less!

- ✓ Patton products come in a variety of packages and satisfy any requirement—from miniature, full-featured units to desktop and rack card solutions.
- ✓ Whether you need to connect to X.21, V.35, EIA-530, or Ethernet—Patton has the DTE interface solution.
- ✓ Patton T1/E1 products connect your router, multiplexer, or PBX to a variety of voice or data services: from leased-line Point-to-Point, to Frame Relay, to Internet access, all products connect at full or fractional speeds.

Domestic Series T1-Based Solutions



TERMINATING STANDARD SERVICES

- ✓ Private Leased Lines
- ✓ Frame Relay/ATM
- ✓ IP



This router supports
T1 and E1



T1/FT1, E1/FE1 CSU/DSU/Router

Both T1 and E1 CSU/DSU with full IP Routing.

Patton's new drop-and-insert DiamondLink™ Router is a low cost and robust enterprise solution for the global economy. This one router can be used anywhere in the world to offer TDM and routed services over one circuit.

Access Without Excess

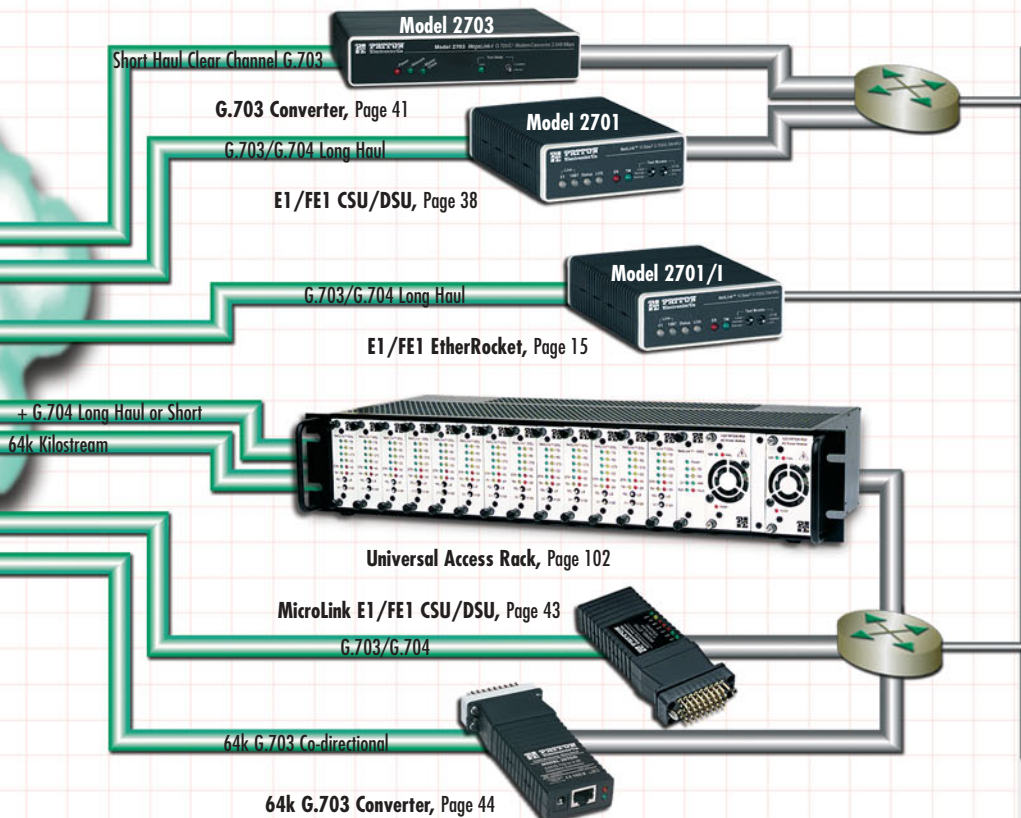
Patton's EtherRockets for T1/E1 IP Services.

Equipped with a 10Base-T Ethernet front-end and a T1 or E1 interface, the EtherRocket with Remote Router Porting (RRP) seamlessly connects your LAN to an Internet service provider (ISP) or connects a branch office to headquarters via point-to-point leased-lines. All without a router at the customer premises.

International Series E1-Based Solutions

ACCESS CONVERSION

- ✓ Mega-Stream & Kilo-Stream
- ✓ ISDN/PBX
- ✓ IP



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Protect your T1/E1 infrastructure!

Imagine the cost to your business if simple and preventable surge damage cuts your Internet life-line or damages your PBX. Use Patton's Model 552 Series WAN protectors to guard your investments today!



RACKABLE

See
Pg 102

Compact, T1/FT1, High Density, Low Cost CSU/DSU

Model 2720

New CSU/DSU makes it simple and affordable to connect to T1/Fractional T1 services.

The NetLink Model 2720 Series T1/FT1 CSU/DSU provides high speed WAN connectivity in a compact full-featured standalone package.

The NetLink 2720 is an excellent choice for terminating leased lines, Frame Relay backbones, Internet access, and LAN-to-LAN services. When terminating a T1-dedicated digital circuit, the NetLink 2720 supports nx56/nx64 kbps T1 framing and converts to V.35, RS-530, or 10Base-T Ethernet interfaces.

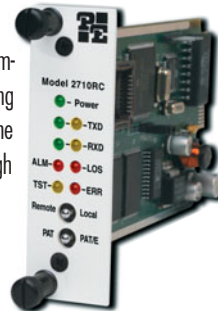
The NetLink 2720 supports D4/ESF framing options and AMI/B8ZS/B7ZS line coding. Data rates, framing, and coding options are programmed by DIP switches or from a VT-100 terminal with menu-driven software. A full range of system and diagnostic features make setup simple and easy.

The Model 2720/1 (10 Base-T Ethernet Bridge) is particularly suited for LAN-to-LAN connection without the need for routers! MAC forwarding and PPP/BCP built-in bridging provides seamless connection over the T1 link.



The PPP/BCP features also enable customers to extend a router's serial interface and connect to a remote Ethernet LAN over the T1 network.

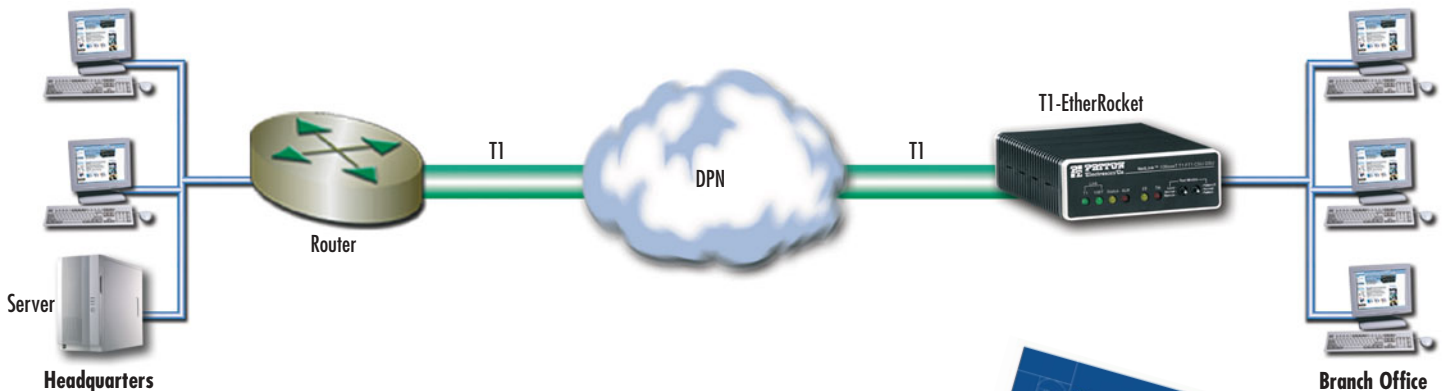
The 2710RC is the rack card companion to the Model 2720. Offering all features found in the 2720, the 2710RC fits in a 19-inch, 2U high rack housing up to 16 rack cards.



FEATURES & BENEFITS

- ✓ Terminates T1/FT1 circuits over a 4-wire RJ-48C interface
- ✓ 100–240VAC and -48VDC power options
- ✓ Connects to V.35, EIA-530, and Ethernet interfaces
- ✓ Ethernet version for LAN to LAN Bridging
- ✓ Common framed n x 56/64 kbps rates up to 1.536 Mbps
- ✓ Unstructured rates at 1.544 Mbps
- ✓ D4 or ESF framing modes
- ✓ Supports AMI or B8ZS/B7ZS line coding
- ✓ Software or DIP switch configurable
- ✓ Internal, external, or network clocking
- ✓ V.54, V.52, and CO Loop and Loop down diagnostics
- ✓ Available in Rackmount version (Model 2710RC)
- ✓ Also functions as a high speed point-to-point modem
- ✓ Made in USA

Connecting a branch office to headquarters using the 2720/1 "EtherRocket" and remote router porting



Download our free "Remote Router Porting with T1" position paper and learn how to use the EtherRocket to connect small or branch offices without the cost and headache of a remote router. Go to www.patton.com/support/library.shtml for your free copy.



Software management

In addition to DIP switch configuration, the Models 2720 and 2710RC can be easily configured, tested, and monitored via intuitive software menus. The Model 2720 includes an RS-232 port and cable for connection to a PC or terminal. Simply start a terminal program in your PC (Hyperterminal, for example) to gain access to a complete set of configuration parameters and diagnostics. Access to configuration menus in the Model 2710RC requires the use of a Patton 1001CC module card installed in the rack. A 1001CC card can access up to 15 2710RC modems per rack.

```

Timeout: 30 minutes          Patton Electronics
System Diagnostics/Statistics  Menu Management
=====
Local Loop: Idle             NI STATUS          ESF: Current & 24 Hour Data
Remote Loop: Idle           [FE] [SE]          Valid Intervals Count: [ 1]
RDL Type: V54               [LOS] [OOF]       Current Interval Time: [ 10]
Test Pattern: Idle          OK
Error Insertion: Off
Selected Pattern: QRSS
S1-1:On  S2-1:On           Rx Level, dB      Current    24 Hour
2:Off    2:On             [ < -22.5]      =====
3:Off    3:On             [ 72.369]
4:Off    4:Off
5:On     5:On
6:Off    6:Off
7:Off    7:Off
8:Off    8:Off

ACTION
Select Item = [Highlighted Letter]
Change Options = [Space Bar]
Redraw Screen = [Ctrl-L]
Model 2720 FT1 CSU>

Exit = [Esc]
Clear ESF Stats = [Ctrl-H or Backspace]
    
```

T1 network termination on V.35 or EIA-530 for data

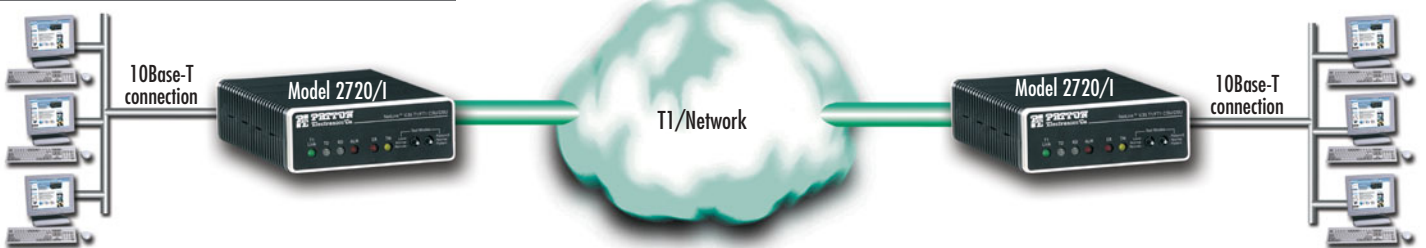


The Models 2720 and 2710RC T1 CSU/DSUs come with V.35 or EIA-530 for simple connection to routers or multiplexers at the customer or service provider premises. The 2720 and 2710RC

connects easily to your router and T1 line and provides termination to fractional or full T1 services. The CSU/DSUs work in D4 or ESF T1 framing modes, and are transparent to any WAN

protocol originating at the local router such as ATM/FR/PPP or voice services.

LAN-to-LAN without a router



In the most common installations of WAN Ethernet bridging, two LAN segments are connected with a common WAN interface such as T1. Each T1 EtherRocket connects to the local

Ethernet LAN and builds a table of local hosts on that network. If an Ethernet message is not for a local host, the EtherRocket forwards it over the WAN to the remote EtherRocket. User on

a LAN segment can access hosts and applications at the far end LAN as easily as if they were located on the local LAN.

SPECIFICATIONS

WAN Speed: 1.544 Mbps
WAN Connection: RJ-48C
Nominal Impedance: 100 Ohms
DTE Interface: EIA-530, V.35, 10Base-T Ethernet
Line Coding: AMI/B8ZS
Line Framing: DA/ESF/Unframed
Clock Options: Internal, external, or network
Diagnostics: Responds to CO-initiated D4 loop-up and loop-down codes, ESF line loop and payload loop FDL messages, and universal loopback de-activate messages

Transmit LBO: Selectable—0, 7.5, 15, or 22.5 dB, plus DSX-1
Standards: AT&T TR62411, TR54016, and ANSI T1.403
Dimensions: 0.78H x 2.1W x 3.5D in. (2.0H x 5.3W x 8.9D cm)
Test Modes: Initiates and responds to V.54 and CSU remote loops; local loop Pattern Generator/Detector; User selectable 511, 2047, or QRSS
Power: Universal input (100–240 VAC), or -48VDC

ORDERING INFORMATION

2720/B/UI: Standalone T1/FT1 CSU/DSU; EIA-530 Interface (DB-25F); 90–240 VAC supply
2720/C/UI: Standalone T1/FT1 CSU/DSU; V.35 (M/34F) Interface; 90–240 VAC supply
2720/I/UI: Standalone T1/FT1 CSU/DSU; 10Base-T (RJ-45) Interface; 90–240 VAC supply

2720/B/48: Standalone T1/FT1 CSU/DSU; EIA-530 (DB-25F) Interface; 48 VDC supply
2720/C/48: Standalone T1/FT1 CSU/DSU; V.35 (M/34F) Interface; 90–240 VAC supply
2720/I/48: Standalone T1/FT1 CSU/DSU; 10Base-T (RJ-45) Interface; 90–240 VAC supply

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See Pg 102

T1/FT1 to V.35 Interface Converter/CSU/DSU with Control Port

Model 2710

Pocket-sized converter-CSU/DSU makes it simple and affordable to connect V.35 to T1 or Fractional T1 (Nx64).

The Model 2710 T1-to-V.35 interface converter/CSU/DSU connects to a 4-wire T1 circuit and plugs directly into the V.35 interface of a router, switch or multiplexer.

Connecting to an unstructured T1 circuit at 1.544 Mbps, the Model 2710 also supports nx56/64 framed connections at data rates from 128 kbps to 1.536 Mbps. In addition, the Model 2710 may be used in pairs in point-to-point applications, where it is able to connect two V.35 devices at data rates to 1.544 Mbps over distances to 6,000 ft (1.14 miles/1.82 km).

The Model 2710 supports D4/AMI or B8ZS/ESF line coding and framing, internal or network clocking, and selectable 0, 7.5, or 22.5 dB line build-out (LBO) levels. These parameters are user configurable via internal DIP switch settings, or through software commands using the Model 2710's RS-232 control port. The Model 2710 is also configurable for



clear channel (1.544 Mbps) or fractional (nx56/64 kbps) operation. Fractional settings include 2, 4, 6, 8, 12, 16, and 24 channels (for example, setting the Patton 2710 at 224/256 kbps would activate four 56/64 kbps channels).

Power is supplied to the Model 2710 through an external AC power supply.

FEATURES & BENEFITS

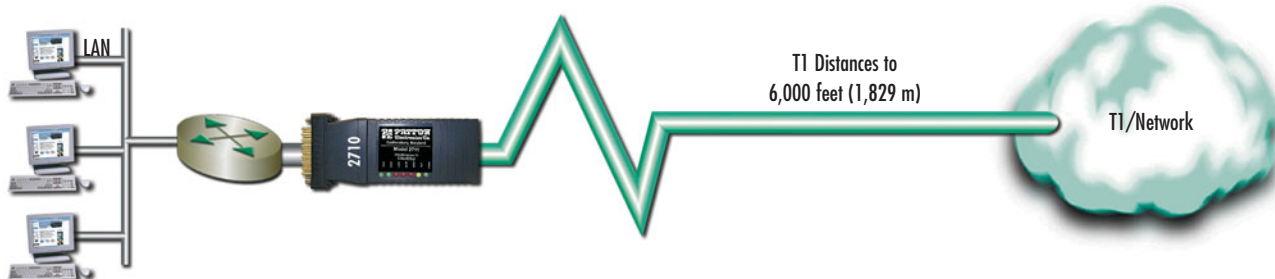
- ✓ Plugs directly into V.35 interface of router, switch or multiplexer
- ✓ Connects to an unstructured 4-wire T1 circuit at 1.544 Mbps
- ✓ Supports n x 56/64 framed T1 connections from 64 kbps to 1.536 Mbps
- ✓ Data rates, clocking and LBO levels selected by internal DIP switches or via an RS-232 software control port
- ✓ Facilitates point-to-point campus communication up to 6,000 ft (1.14 miles/1.82 km) when used in pairs
- ✓ Supports D4/AMI or B8ZS/ESF line coding, loopback diagnostics
- ✓ Seven easy-to-read diagnostic LEDs



I'm Maria, one of Patton's Sales Coordinators. If you have questions about our products, call +1 301.975.1000 or send e-mail to sales@patton.com.



Application diagram



SPECIFICATIONS

Transmission Format: Synchronous, 4-wire

Network Connection: RJ-48C

Nominal Impedance: 100 ohms

Network Line Speed: 1.544 Mbps

Distance: Up to 6,000 feet, point-to-point (when used in pairs)

DTE Data Rates: Switch selectable nx56/64, 128 kbps–1.536 Mbps

DTE Interface: Integral V.35 (M/34 male) connector

Line Coding/Framing: AMI/B8ZS or D4/ESF

Transmit LBO: Selectable—0, 7.5, or 22.5 dB

Receive LBO: Automatic

Clocking: Internal or Network

LED Status Indicators: TXD, RXD, LOS (loss of signal), ALM (alarm), ERR (error), TST (test), PWR

Power: External AC power supply

Diagnostics: Responds to CD initiated D4 loopup and loopdown codes, ESF line loop and payload loop FDL messages, universal loopback de-activate message

Compliance: CE Marked per EMC Directive 89/336/EEC and Low Voltage Directive 73/23/EEC; FCC Part 15, Class A; Canadian DOC CS 03

Standards: AT&T TR62411, ANSI T1.403, TR54016

Dimensions: 5.0 L x 2.1W x 0.81D in. (12.7L x 5.3W x 2.1D cm)

Weight: 2.02 lbs. (0.92 kg)

ORDERING INFORMATION

2710/CM/UI: T1/FT1 Nx64 with control port (V.35, M/34 male, 100–240 VAC)

2710/CM/-48: T1/FT1 Nx64 with control port (V.35, M/34 male, 48 VDC)

Note: Adapter cables are available for connecting the Model 2710 to WAN equipment that does not use a standard V.35 interface (such as the Cisco 2501 router, which uses a high density 60-pin connector).

RACKABLE

See Pg 102

T1/FT1 High-Density, Low Cost CSU/DSU Rack Card
Model 2710RC

T1/Fractional-T1 CSU/DSU rack card connects to a space-saving, SNMP-manageable platform.

The NetLink-T1 Model 2710RC Series are T1/FT1 CSU/DSUs that provide high speed WAN connectivity in a rack card package. Patton's 2U (8.9-cm) redundant AC/DC rack chassis accepts up to 16 rack cards, saving valuable space in central site locations.

NetLink 2710RC is an excellent choice for terminating leased lines, Frame Relay backbones, Internet access, and LAN-to-LAN services. When terminating a T1-dedicated digital circuit, the NetLink 2710RC supports nx56 kbps and nx64 kbps framing for T1 and V.35, X.21, RS-530, or 10Base-T Ethernet interfaces.

The NetLink 2710RC supports D4/ESF framing options and AMI/B8ZS/B7ZS line coding. Data rates, framing, and coding options are programmed by DIP switches or from a VT-100 terminal with menu-driven software. The NetLink



2710RC also supports SNMP management from a NetLink Model 1001MC SNMP/HTTP rack card. A full range of system and diagnostic features make setup simple and easy.

FEATURES & BENEFITS

- ✓ Terminates T1/FT1 circuits over a 4-wire RJ-48C interface
- ✓ Connects to standard CPE serial and Ethernet interfaces
- ✓ Common framed n x 56/64 kbps rates up to 1.536 Mbps
- ✓ Unstructured rates at 1.544 Mbps
- ✓ D4 or ESF framing modes
- ✓ Supports AMI or B8ZS/B7ZS line coding
- ✓ Software or DIP switch configurable
- ✓ Internal, external, or receive recover clocking
- ✓ Also functions as a high speed point-to-point modem
- ✓ Compatible with desktop models 2710 and 2720
- ✓ Made in USA

T1 termination application



SPECIFICATIONS

WAN Speed: 1.544 Mbps
WAN Connection: RJ-48C
Nominal Impedance: 100 Ohms
DTE Interface: EIA-530, V.35, X.21, Ethernet
Line Coding: AMI/B8ZS

Line Framing: D4/ESF/Unframed
Clock Options: Internal, external, or network
Diagnostics: Responds to CO-initiated D4 loop-up and loop-down codes, ESF line loop and payload loop FDL messages, and Universal Loopback de-activate messages

Transmit LBO: Selectable—0, 7.5, 15, or 22.5 dB, plus DSX-1
Standards: AT&T TR62411, TR54016, and ANSI T1.403
Test Modes: Initiates and responds to V.54 and CSU remote loops; local loop

Pattern Generator/Detector: User selectable 511, 2047, or QRSS
Dimensions: 0.78H x 2.1W x 3.5D in. (2.0H x 5.3W x 8.9D cm)

ORDERING INFORMATION

- 2710RC/B/B: Powered T1/FT1 CSU/DSU Card; EIA-530 Interface
- 2710RC/A/I: Powered T1/FT1 CSU/DSU Card; V.35 Interface
- 2710RC/D/V: Powered T1/FT1 CSU/DSU Card; X.21 Interface
- 2710RC/IA: Powered T1/FT1 CSU/DSU Card; 10Base-T Interface

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MicroLink™ CSU/DSU

Model 2400

Tiny 56/64 kbps CSU/DSU fits into the tightest spaces!

The Model 2400 MicroLink™ supports 64 kbps Clear Channel™ and 56 kbps DDS sync communication over two twisted-pair wires.

Available with either an M/34 (V.35) or DB-25 (RS-232) connector, the Model 2400 plugs directly into your DTE port. Clocking can be set for internal, external, or receive recover (network). Diagnostics include CSU loop and V.54 (respond) loop.

SPECIFICATIONS

DDS Type: Dedicated, 56 or 64 kbps
Transmission Format: Synchronous
DTE Interface: RS-232 or V.35
Transmission Line: 4-wire, RJ-48S

Standards: AT&T 62310 compliant
Indicators: ER (error) and TM (test mode)
Max Distance: 3.4 mi. (5.4 km) on 26 AWG (0.4mm)

Connectors: DB-25 (RS-232) or M/34 (V.35)
Clocking: Internal (master), external (slave), receive recover (network), campus
Power Supply: External AC adapter

Diagnostics: V.54 loop (respond only), CSU loop
Dimensions: 3.55 x 2.1 x .78 in. (9.0 x 5.3 x 1.9 cm) RS-232 version



FEATURES & BENEFITS

- ✓ Plugs directly into a router—just like an adapter cable!
- ✓ Operates over 56 kbps DDS, 64 kbps Clear Channel™, or private
- ✓ Your choice of V.35 (M/34) or RS-232 (DB-25) versions
- ✓ Selectable clocking: Internal (Master), External (DTE), or Receive Recover (Network)

ORDERING INFORMATION

- 2400/AM/120: MicroLink (RS-232, DB-25 male, 120 VAC power)
- 2400/AF/120: MicroLink (RS-232, DB-25 female, 120 VAC power)
- 2400/CM/120: MicroLink (V.35, M/34 male, 120 VAC power)



G.703/G.704 Network Termination Unit (NTU)

Models 2701 & 2701RC

These devices, available in low-cost standalone or rack-mountable versions, terminate G.703/G.704 lines and provide E1/Fractional-E1.



One of the smallest and most economical NTUs available, the Model 2701 is designed with features usually found in more expensive units: flexible clocking modes, AMI/HDB3 coding, V.52/V.54 diagnostics, and user-selectable nx64 kbps data rates.

The NTUs terminate G.703/G.704 services for all nx64 kbps rates and connect to the customer's router, FRAD, CODEC, and switches with a V.35, X.21, EIA-530, or 10Base-T Ethernet interface.

The Model 2701 series terminates E1/FE1 services for all nx64 kbps to 2.048 Mbps rates and connects to a router, FRAD, CODEC, or LAN with V.35, X.21, EIA-530, or 10Base-T interfaces. Front panel LEDs and switches allow for instant diagnostics and service monitoring. Convenient DIP switches support quick and concise configuration of your E1 termination. AC or DC power options make installing the Model 2701 into your network infrastructure a snap.

Today's customers require low-cost network solutions that deliver high speed connections to the Internet and corporate intranets while supporting video-conferencing and many other wide-area services. The NetLink Models 2701 and 2701RC E1/Fractional E1 NTUs satisfy those needs.



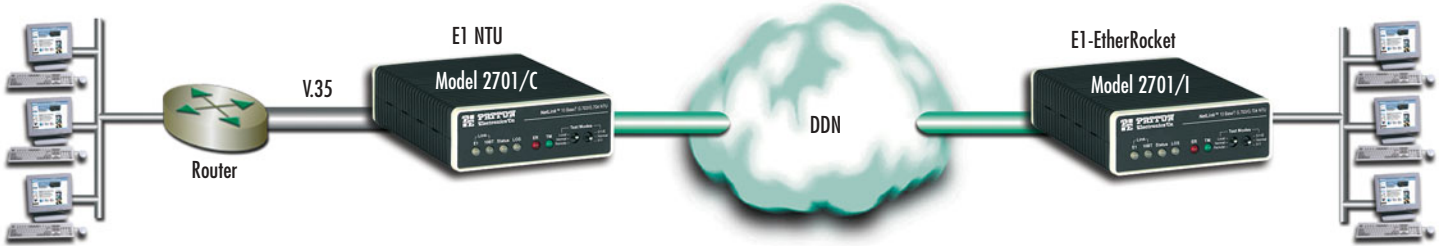
FEATURES & BENEFITS

- ✓ Terminates E1/Fractional-E1 service
- ✓ nx64 kbps data rates to 2 Mbps
- ✓ X.21, V.35, EIA-530, and Ethernet bridge options
- ✓ Switch-selectable AMI or HDB3 line encoding options
- ✓ Switch-selectable DTE/DCE modes for X.21 version
- ✓ 75-ohm dual coax and 120-ohm twisted-pair G.703 connections
- ✓ Local and remote loopback diagnostics
- ✓ Internal, external and G.703 network timing
- ✓ Conforms to ONP requirements CTR 12 and CTR 13 for connection to international Telecom networks

Model 2701R version is also available in a rugged metal case for easy closet mounting



Models 2701 & 2701RC application: Connecting branch office to headquarters with 2701/I EtherRocket and remote router porting



Models 2701 & 2701RC application: E1 network termination on X.21 or V.35 for data

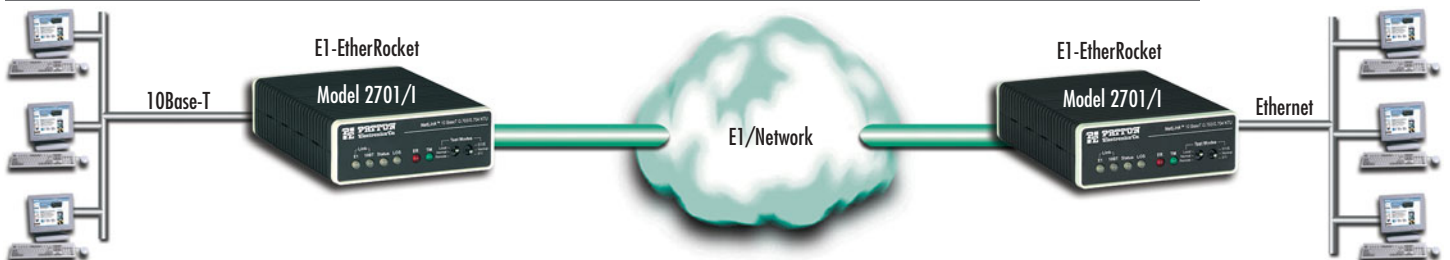


The Model 2701/D (X.21 version) provides DTE/DCE functionality in the same standalone or rack-mount package. This added versatility supports operation in X.21 DTE applications (see diagram above) where an NTU is needed to terminate G.703/G.704 and provide X.21/V.11 data to a multiplexer.

The diagram below shows how two Patton E1-EtherRockets can be used to link two Ethernet LANs over an E1/FE1 link. Each E1 EtherRocket connects to the local Ethernet LAN and build a table of local hosts on that network. If an Ethernet message is not for a local host, the bridge forwards it over the WAN to the remote

bridge. In this configuration, a user in one of the LAN segments is able to access any host and any application at the far end LAN, as easy as a local LAN connection.

Models 2701 & 2701RC application: LAN-to-LAN over E1 without a router



Check it out...No routers!

SPECIFICATIONS

- Data Rate:** Smooth clock 2.048 Mbps
- Network Connector:** RJ-48C (all versions); Dual coaxial (X.21 and Ethernet)
- DTE Interface:** EIA-530, X.21/V.11, V.35, or 10Base-T Ethernet
- Line Coding:** AMI or HDB3
- Line Framing:** G.703 (unframed) or G.704/G.732 (framed)
- Clocking:** Internal, external or receive recover
- DTE Rates:** nx64kbps (EIA-530, X.21/V.11, V.35); 10Mbps (10Base-T)
- Indicators:** E1 Link Status, TD, RD, Loss of Sync, Error, Test Mode, Ethernet Status (on 10Base-T Version)
- Diagnostics:** Local/remote loop, 511 Line Isolation: 1500 VRMS
- Compliance:** CE Mark, G.703, G.704, G.723, G.832, CTR-12 and CTR-13
- Temperature:** 32–122°F (0–50°C)
- Rel. Humidity:** 5–90% non-condensing
- Dimensions:**
Standalone unit
5.84L x 4.16W x 1.51H in.
(14.84L x 10.6W x 3.84H cm)
Rack card
3.0H x 0.83W x 7.84D in.
(7.6H x 2.1W x 19.0D cm)
Weight:
Standalone unit: 2.225 lbs (1.02 kg)
Rack card: 0.31 lbs (0.14 kg)

ORDERING INFORMATION

- Standalone NTU, Universal 100–240 VAC Supply**
- 2701/B/UI: EIA-530 (DB-25F) interface
- 2701/C/UI: V.35 (M/34F) interface
- 2701/D/UI: X.21 (DB-15F) interface
- 2701/I/UI: 10Base-T (RJ-45F) interface
- Standalone NTU, -48 VDC Supply**
- 2701/C/48: V.35 (M/34F) interface
- 2701/D/48: X.21 (DB-15F) interface
- 2701/I/48: 10Base-T (RJ-45F) interface

- Rack card NTU**
- 2701RC/A/I: RJ-45 line and V.35 (M/34F) DTE interfaces
- 2701RC/B/B: RJ-45 line and RS530 (DB-25F) DTE interfaces
- 2701RC/D/D: Dual BNC line and X.21 (DB-15F) DTE interfaces
- 2701RC/D/V: RJ-45 line and X.21 (DB-15F) DTE interfaces
- 2701RC/C/IA: RJ-45 line and Ethernet/10Base-T (RJ-45F) interfaces

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See
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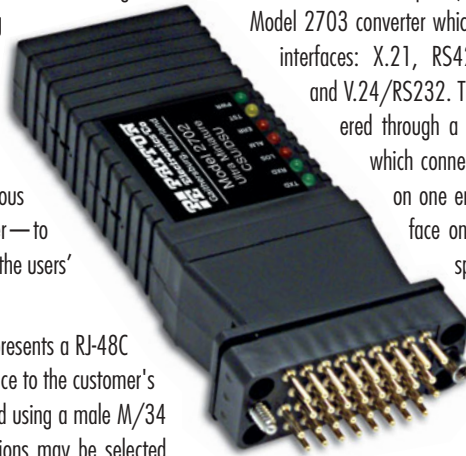
MicroPak™ G.703 Interface Converter

Model 2702

This MicroPak™ interface converter provides unstructured, clear-channel, 2-Mbps G.703 applications in a small package.

The Model 2702 fits into environments where high speed E1/G.703 services are being offered to customers with routers/FRADs and other networking devices. These G.703 interface converters convert signals from the unstructured, clear channel, synchronous line interface—delivered by the carrier—to a 2-Mbps digital interface required by the users' networking equipment.

To accomplish this, the Model 2702 presents a RJ-48C interface to the line and a V.35 interface to the customer's device. The V.35 interface is presented using a male M/34 connector. Line coding and clock options may be selected using internally accessible DIP switches.



If other interfaces are required, the user may select our Model 2703 converter which presents the following interfaces: X.21, RS422/530, V.36/RS449 and V.24/RS232. These interfaces are delivered through a standard interface cable which connects to the female DB-25 on one end and the desired interface on the other. If other DTE speeds are necessary, our Model 2094 connects Fractional E1 at nx64 speeds up to 2 Mbps.

FEATURES & BENEFITS

- ✓ Converts unframed 2-Mbps G.703 to synchronous V.35
- ✓ Integral V.35 (M/34) male connector (60-pin Cisco router adapter cable also available)
- ✓ V.54 compliant loopback diagnostics with built-in QRSS, 511 and 2047 test pattern generator
- ✓ Easy-to-read LEDs for TXD, RXD, ALM, LOS, TST, and ERR
- ✓ AMI or HDB3 line coding
- ✓ Configuration via DIP switches
- ✓ External 90–260 VAC power supply



I'm Sean, Patton's Director of Sales for North America & Japan. Call me at +1 301.975.1000 when you want to purchase Patton products or if you have questions about our products. You can also send e-mail to sales@patton.com.

Typical Model 2702 application



ORDERING INFORMATION

2702/CM/UI: Micro-Pak Version. Clear Channel E1 Access Converter (V.35, M/34 male)

SPECIFICATIONS

Network (line) connector: 8-position RJ-45 connector

Nominal impedance: 120-ohm; 75-ohm available with Model 460 Balun

Network (line) data rate: 2.048 Mbps in accordance with ITU-T G.703

DTE interface: Integral V.35 (M/34 male)

DTE rate: 2.048 Mbps

Line encoding: Selectable for AMI or HDB3

LED indicators: Transmit data (TXD), receive data (RXD), alarm (ALM), test mode (TST), loss of sync (LOS), error (ERR)

Line framing: G.703 clear channel Clocking: Selectable internal or network (receive recover) clock

Diagnostics: V.54 complaint loopbacks; built in QRSS, 511 and 2047 test pattern generator and detector with performance monitoring

Standards: Fully compliant with ITU-T G.703

Approvals: FCC Part 15, Class A; CE Mark per EMC Directive 89/336/EEC and Low Voltage Directive 73/23/EEC; Canadian DOC; BABT

Power supply: 100–240 VAC, 50/60 Hz universal input; -48 VDC optional (10 watts)

Dimensions: 9.0 x 5.3 x 1.9 cm (3.5 x 2.1 x 0.78 in.)

Weight: 0.11 kg (0.25 lb.)

Extend T1/E1 Over Copper

Extending your T1 lines over copper is easy with the Patton Model 2115, and just as easy over E1 with the Model 2113.



See page 14

MegaLink-I™ 2 Mbps G.703 Access Converter
Model 2703

Convenient network terminator, interface converter, and rate adapter...All in one box!

The Model 2703 MegaLink-I™ performs several tasks: network termination unit (NTU), interface converter, and rate adapter.

As an NTU, the Model 2703 receives unstructured, synchronous 2.048 Mbps data from a G.703 network and sends it to a router, bridge, multiplexer or other device.

As an interface converter, the Model 2703 accepts 120-ohm twisted pair or 75-ohm dual coax network connections (both types of interfaces are provided). Then it converts the signals to EIA-530 (V.36/RS-422), V.35 or X.21 formats (switchable) on a UD-26 connector.

As a rate converter, the Model 2703 lets a lower bandwidth device—256 kbps, 512 kbps, or 1.024 Mbps—connect to



a 2.048-Mbps G.703 link. The Model 2703 supports internal, external or network (receive loop) clocking. A loopback test is built-in, and front panel LEDs monitor power, network, master clock and test loop. Several power supply options and convert-er cables are available, call for details.

FEATURES & BENEFITS

- ✓ Network data rate of 2.048 Mbps
- ✓ Four selectable DTE Data Rates
- ✓ Supports V.35, RS-530 (V.36/RS-422) or X.21 terminals
- ✓ 75-ohm and 120-ohm network terminations
- ✓ Internal, external or network (receive loop) clocking

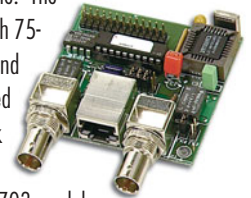
Rack card

The Model 2703RC is a 2U (3.5-inch) high rack card version of the MegaLink-I™. Built around Patton's midplane architecture, the Model 2703RC combines a front function card with a choice of two rear interface cards (120 ohm with RS-530, or 75 ohm with X.21). The Model 2703RC fits in Patton's rack chassis or ClusterBoxes™. One AC or DC power supply card provides power to up to 16 Model 2703RC converters. The Model 2703RC incorporates all basic MegaLink-I™ features, except rate adaptation.

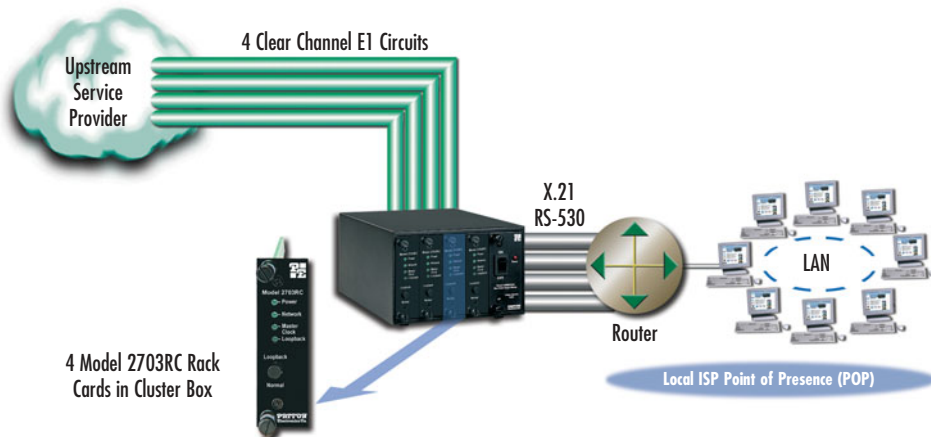


OEM Module

At the heart of the MegaLink-I™ is Patton's IM703 G.703/E1 interface module. The IM703 module provides both 75-ohm (dual-coax BNC) and 120-ohm (RJ-45 twisted pair) 2.048-Mbps network connections in one compact daughterboard. Patton's IM703 module is also available separately for OEM applications.



Local ISP with multiple G.703/E1 upstream links



ORDERING INFORMATION

Universal interface version (UD-26)

- 2703/120: 120 VAC
- 2703/230: 230 VAC
- 2703/UI: 90–260 VAC
- 2703/DC: -48 VDC

X.21 only version (DB-15F)

- 2703-X.21/120: 120 VAC
- 2703-X.21/230: 230 VAC
- 2703-X.21/UI: 90–260 VAC
- 2703-X.21/DC: -48 VDC

Rack card

- 2703RC-A/A/45: V.35 (DB-25); RJ-48C
- 2703RC-A/A/CX: V.35 (DB-15); Dual Coax
- 2703RC-A/B/45: RS-422 (DB-25); RJ-48C
- 2703RC-A/B/CX: RS-422 (DB-25); Dual Coax
- 2703RC-A/C/45: X.21 (DB-15); RJ-48C
- 2703RC-A/C/CX: X.21 (DB-15); Dual Coax

SPECIFICATIONS

Network Interface: G.703
Network Rate: 2.048 Mbps
Network Connectors: Two BNC (75 ohm) and one modular RJ-45 connector (120 ohm)
Terminal Interface: RS-530 (V.36/RS-422), V.35 or X.21 on UD-26 (V.35 not available on rack cards)
Terminal Rate: 2.048 Mbps (all models); 1.024 Mbps, 512 kbps, 256 kbps (standalone only)
Diagnostics: Loopback test

Indicators: LEDs for power, network, master clock and loop
Clocking: Internal, external, network (receive loop)
Receiver Sensitivity: -10 dB (0 dB = 2.4V)
Power: 120/240 VAC (switch selectable), 50/60 Hz; 100–240 VAC, 50/60 Hz (universal input option); 48 VDC (optional)
Dimensions: 7.3 x 6.6 x 1.62 in. (18.5 x 16.7 x 4.1 cm)

RACKABLE

See
Pg 102

Lowest Cost G.703 Network Termination Unit (NTU)

Model 2707

This device terminates G.703 lines and provides serial and 10Base-T interface conversion.

Today's customers require low-cost network solutions that deliver high speed connections to the Internet and Corporate Intranets while supporting videoconferencing and many other wide-area services. The NetLink Model 2707 E1 NTUs satisfies those needs.

The NTUs terminate G.703 and connect to the customer's router, FRAD, CODEC, and switches with a V.35, X.21, or 10Base-T Ethernet interface.



FEATURES & BENEFITS

- ✓ Terminates E1 services
- ✓ Available in low-cost standalone or rack-mountable (2707RC) versions
- ✓ 2 Mbps data and line rate
- ✓ X.21, V.35, and Ethernet bridge options
- ✓ Switch-selectable AMI or HDB3 line encoding options
- ✓ Switch-selectable DTE/DCE modes for X.21 version
- ✓ 75-ohm dual coax and 120-ohm twisted-pair G.703 connections
- ✓ Local loopback diagnostics
- ✓ Internal, external and G.703 network timing
- ✓ CE approved
- ✓ UI (100–240 VAC) 120/230 VAC & 48 VDC power options
- ✓ Conforms to ONP requirements CTR 12 for connection to international telecom networks
- ✓ 1 mile (1.6 km) distance

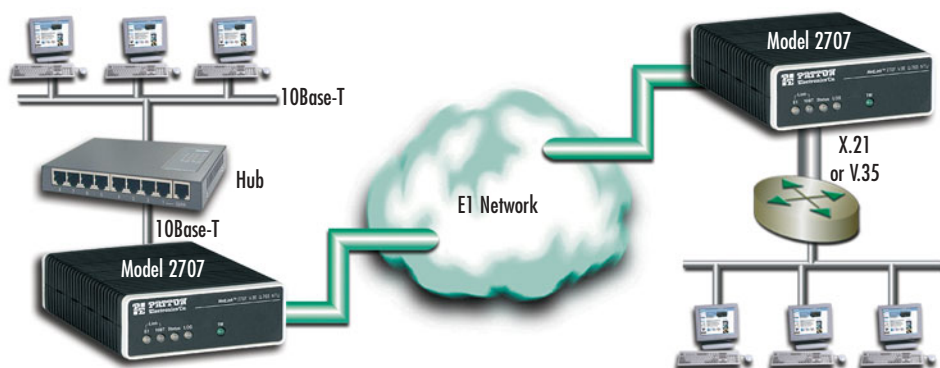
E1 network on X.21 or V.35 for data



The Model 2707/D (X.21 version) provides DTE/DCE functionality in the same standalone or rack-mount package. This added versatility supports operation in X.21 DTE applications (see diagram above) where an NTU is needed to terminate G.703 and provide X.21/V.11 data to a multiplexer.

Our Ethernet version, the Model 2707/I offers 10Base-T bridging with PPP support. This enables customers to extend a router's serial interface and connect to a remote 10Base-T Ethernet LAN (see below). The 2707/I uses MAC learning and forwarding to provide seamless LAN-to-LAN connectivity.

E1 network on X.21 or V.35 for data



SPECIFICATIONS

Data Rate: Smooth Clock 2.048 Mbps
Network Connector: RJ-48C (all versions); Dual Coaxial (X.21 and Ethernet)
Line Coding: AMI or HDB3
DTE Interface: X.21/V.11, V.35, or 10Base-T Ethernet
Line Framing: G.703 (unframed)
Clocking: Internal, External or Receive Recover

Diagnostics: Local Loop
Line Isolation: 1500VRMS
Compliance: CE Mark, G.703, and CTR-12
Op. Temp.: 32–122°F (0–50°C)
Humidity: 5–90% non-condensing
Dimensions: 5.84L x 4.16W x 1.51H in. (14.84L x 10.6W x 3.84H cm)
Weight: 2.225 lbs (1.02 kg)

ORDERING INFORMATION

G.703 Interface Converter

2707/C/UI: G.703 to V.35, 100–240 VAC

2707/D/UI: G.703 to X.21, 100–240 VAC

2707/I/UI: G.703 with 10Base-T interface 100–240 VAC

2707/C/48: G.703 to V.35, 48 VDC

2707/D/UI: G.703 to X.21, 48 VDC

2707/I/UI: G.703 with 10Base-T interface 48 VDC

2707RC/A/I: Rack G.703 to V.35

2707RC/D/D: Rack G.703 to X.21

2707RC/C/IA: Rack G.703 with 10Base-T interface



MicroLink-E1™ E1/FE1 Nx64 CSU/DSUs
Model 2715

Miniature NTU terminates framed or unframed 2-Mbps E1/FE1 (G.703/G.704) circuits.

The Patton Model 2715 Network Termination Unit (NTU) terminates 2.048-Mbps E1 (clear channel) and fractional E1 (nx64) 4-wire circuits. Housed in our MicroPak enclosure, the Model 2715 plugs directly into the V.35 DTE interface of a router, switch, FRAD, multiplexer, or other networking device.

The Model 2715 supports all necessary G.703/G.704 diagnostics, including CO line loopback (LLB), payload loopback (PLB), DTE local/remote loops, and V.54 loop up/loop down. Diagnostics are initiated via the Model 2715's control port, or through the DTE or line interfaces. Easily readable LED indicators include TD, RD, Loss of Sync (LOS), Alarm, Error, Test and Power.

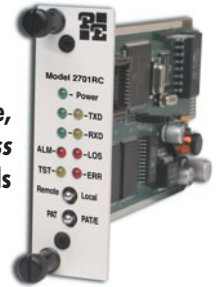


Configuration of the Model 2715 standalone is done through the control port or using DIP switches. (The Model 2701RC rack card is configured through the control port or SNMP.)

Model 2715 presents a RJ-45 120-ohm interface to the line and a V.35 interface to the customer's device using a male M/34 connector (the Model 2701RC rack card is available with a female M/34). An M/34 to DB-60 adapter cable is available for convenient connection to Cisco routers. The Model 2715 is powered by an external universal input 100–240 VAC adapter.

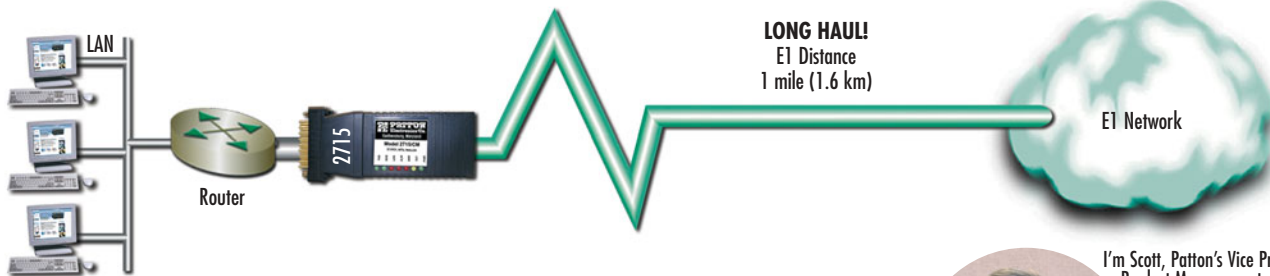
FEATURES & BENEFITS

- ✓ Terminates 2.048 Mbps E1 (clear channel) and FE1 (nx64) 4-wire digital services
- ✓ Built-in V.35 (M/34) male connector (DB-60 Cisco router adapter cable is available)
- ✓ Standalone (Model 2715) and rack mount cards (Model 2707RC) are available
- ✓ Diagnostics include LLB and PLB; DTE local and remote loops; V.54 loop up and loop down
- ✓ AMI or HDB3 line coding
- ✓ Configuration via DIP switches or control port
- ✓ External 90–260 VAC power supply



Rack card units available, see Network Access Catalog for details

Typical application



Also available with DB-60 cable for Direct Connection to Cisco Routers.



I'm Scott, Patton's Vice President of Product Management. Patton has put together the following resource listing for companies interested in this technology. If you don't find the answers you need at www.patton.com, please call me at +1 301.975.1000 x166. You can also send e-mail to support@patton.com.

Resources Available By Request
G.703/704 Powerpoint E1 Course Materials
Remote Router Porting (RRP) with E1 white paper

On-Line Resources
G.703 Products Brochure
Product Data Sheets
User Manuals

SPECIFICATIONS

WAN connection: 8-position connector (RJ-45)
Nominal impedance: 100 ohm
WAN speed: 2.048 Mbps
DTE interface: Integral V.35 (M/34 male)
Line coding: E1—AMI/HDB3
Receive LBO: Automatic

Transmit LBO: Selectable—0, 7.5, or 15 dB
Clock options: Internal, external, and network clock
Diagnostics: Respond to CO line loopback (LLB) and payload loopback (PLB) via control port and DTE initiate remote LLB and remote PLB (all loops are bi-directional with respect to the DTE);

DTE local and remote loops (bi-directional); V.54 loop-up/loop-down as detected in the data stream
Standards: G.703/704, G.732
Power: 120 VAC, 60 Hz to 5VDC 300mA wall mount transformer or UI 100–240VAC, 50 Hz to 5 VDC, 3A wall mount transformer

ORDERING INFORMATION

- 2715/CM/UI: MicroLink-E1™ E1/FE1 Nx64 CSU/DSU (V.35, M/34 male, universal input power supply)
- 2715/CM/48: Stand alone NTU; V.35 (M/34F) interface; -48 VDC supply

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Integrated TDM & IP Routers

IPLink™ 2620

Link up effortlessly with the Patton Model 2620 Dual-Port T1/E1 IPLink Router combines two T1/E1 and four 10/100 Ethernet ports to deliver drop and insert and WAN bandwidth to the most demanding access applications.



This dual-port T1/E1 router is a versatile access router supporting drop and insert T1/E1 applications as well as high-speed WAN IP network access.

Combining ease-of-use with a full suite of LAN/WAN routing features, the Model 2620 provides selectable bridging or routing functionality along with advanced IP features such as NAT/NAPT, DNS relay, and DHCP server and relay. Numerous firewall features, including the ability to filter by IP address and by IP port, support for Intrusion Detection (IDS), and the capability of “blacklisting” offending traffic flows, likewise come standard with the unit.



I'm Dave, Patton's Manager of US Technical Support. If you have technical questions or comments, please call +1 301.975.1007. You can also send e-mail to support@patton.com.

A complete set of configurable FR/PPP/IP WAN protocols allow a wide range of choices when connecting equipment via common WAN services. By supporting the latest version of PPP/BCP, the IPLink transparently negotiates the passing of VLAN traffic. Deployments can also take advantage of the Model 2620's full implementation of Frame Relay to support Frame Relay VPN deployments over switched carrier networks.

The Model 2620 boasts easy installation offering Console/VT-100, Telnet, and HTTP/SNMP management options. All IPLink Routers come with a four port auto-sensing full-duplex 10/100Base-T Ethernet switch, the choice of internal or external power supply and two T1/E1 WAN ports with built in CSU/DSU.

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

SPECIFICATIONS

WAN ports: Two software configurable ports. E1—G.703/G.704 with HDB3 and AMI encoding support. T1—ANSI T1.403 & AT&T TRS4016 with AMI coding/D4 framing or B8ZS coding/ESF framing

Ethernet Ports: Four port 10/100Base-T (RJ-45 connector) • auto-negotiating • half or full duplex operation with built-in MDI-X

Protocols: IP (RFC 741), TCP (RFC 793), UDP (RFC 768), ICMP (RFC 950), ARP

(RFC 826) • IP Router with RIP (RFC 1058) and RIPv2 (RFC 2453), integrated DHCP Server (RFC 2131) with selectable IP leases and MAC/IP pairings • DHCP relay agent (RFC 2132/RFC 1542) with 8 address pools • DNS Relay, IGMP v1 and v2, Ethernet Bridging • NAT/NAPT with integrated application support, MultiNat with 1:1 mapping, Many:1, Many:Many mapping, NAT Port/IP redirection and mapping

FEATURES & BENEFITS

- ✓ Dual T1/E1 with Drop & Insert—Easily take any DSO from one T1/E1 port and switch it to the other.
- ✓ Four 10/100 Ethernet—Easily bridge the gap between the LAN and WAN.
- ✓ Terminate nx64 data, Frame Relay, or PPP encapsulated IP traffic on channelized interfaces.
- ✓ Enhanced IP Services—DNS relay, NAT/NAPT, DHCP server and relay, make it easy to offer any service.
- ✓ Firewall with Standard DoS & Filtering—Built-in IP address and IP port filtering, intrusion detection and blacklisting capabilities make firewall services a snap.

ORDERING INFORMATION

2620/KK/EU1: E1 Router, D&I port, Quad 10/100 Ethernet, 90–260 VAC PS

2620/TT/EU1: T1 Router, D&I with Quad 10/100 Ethernet, 90–260 VAC PS

2620/KK/48: E1 Router, D&I port, Quad 10/100 Ethernet, internal 36–72 VDC PS

2620/TT/48: T1 Router, D&I with Quad 10/100 Ethernet, internal 36–72 VDC PS

Management: HTTP/SNMP, Telnet, Ethernet, RS-232 Console Port, SYSLOG Client, Software upgrade via TFTP, SMTP

Security: DoS Detection/protection • Intrusion detection, Logging of session, blocking of intrusion events and Real-Time alerts, Password protected system management with a username/password for console and virtual terminal, Packet filtering firewall for controlled access to and from LAN/WAN, Support for 255 rules in 32 filter sets, 16 individual connection

Power: Internal universal 90–260 VAC input or 48 VDC input.

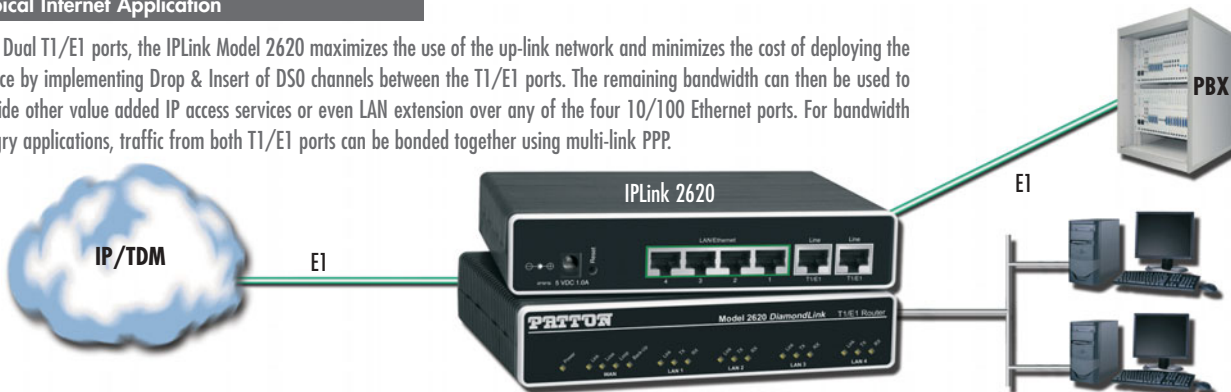
Compliance: FCC Part 15A, CE Mark, EMC Directive 89/336/EEC, Low-Voltage Directive 73/23/EEC, EN60950, EN55022 (CISPR 22) • FCC part 68

Environment: Temp.: 0–50°C (32–122 °F) • Humidity: 5–90% non-condensing

Dimensions: 7.3 x 6.6 x 1.62 in. (185 x 168 x 41 mm)

Typical Internet Application

With Dual T1/E1 ports, the IPLink Model 2620 maximizes the use of the up-link network and minimizes the cost of deploying the service by implementing Drop & Insert of DSO channels between the T1/E1 ports. The remaining bandwidth can then be used to provide other value added IP access services or even LAN extension over any of the four 10/100 Ethernet ports. For bandwidth hungry applications, traffic from both T1/E1 ports can be bonded together using multi-link PPP.





See Pg 102

Co-directional G.703 Converters

Model 2070



Plug-in access converter for G.703/64 kbps.

The Model 2070 Series interface converters allow a router—or similar WAN device—with a V.24 (RS-232), V.35 or X.21 port to connect to a G.703/64k co-directional (PCM) network.

All versions come with an RJ-45 jack for 120-ohm twisted-pair network termination (termination to a 75-ohm network can be accomplished using the Patton Model 460 balun).

Model 2070 Series converters incorporate local loopback and G.703 loopback diagnostic modes. Diagnostic modes are controlled by a switch, or by the local DTE (V.24 or V.35 versions only). Synchronous clock jitter is attenuated in accordance with the G.823 specification. For protection against ground loops and transient surges, the Patton Model 2070 Series converters incorporate both transformer isolation and surge protection.

SPECIFICATIONS

G.703 Interface: Symmetrically balanced pairs, 4 wire, 120 ohm terminated to female RJ-45

Operating Speed: Co-directional timing, Rx recovered: 64 kbits + 500ppm.

Clocking: Internal, External or Net Timing

G.703 Input Signal Level: 2.0V differential, into 120 Ohms, nominal.

Max. Cable Loss: 0 to -10dB

Line Encoding: AMI

Jitter Perf.: CTR 14, G.823

Surge Prot.: Device Response Time—100ns; Clamp Volt.—8.5V ±1V

Power: 5VDC at 300mA, supplied by external transformer or on these DTE pins: pin 9 (V.24), pin KK (V.35), pin 15 (X.21)

Isolation: 1500 VRMS, XFMR coupled.

Temp.: 32–140°F (0–60°C)

Dimensions: 2070/AM: 4.90x2.00x0.73 in. (12.45x5.08x1.85 cm); 2070/CM & 2070/DF: 3.40x2.00x0.73 in. (8.63x5.08x1.85 cm)

FEATURES & BENEFITS

- ✓ Bi-directionally converts V.24 (DB-25), X.21 (DB-15), or V.35 (M/34) to G.703/64 kbps co-directional
- ✓ Synchronous operation at 64 kbps
- ✓ Internal, external, or network clocking options
- ✓ Point-to-point distance up to 5,250 ft (1600 m) on 24 AWG (0.5mm) twisted pair
- ✓ Complies with CCITT/ITU G.823 jitter control specifications

ORDERING INFORMATION

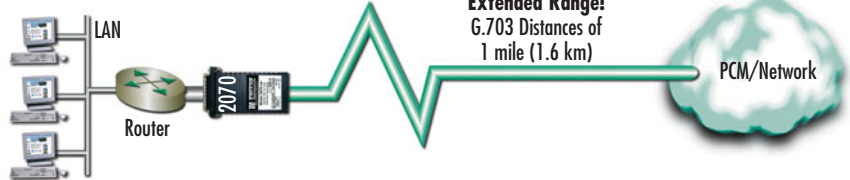
G.703/64 kbps Interface Converter

2070/AM/UI: RS-232, DB-25 male, universal input power

2070/CM/UI: V.35, M/34 male, universal input power

2070/DF/UI: X.21, DB-15 female, universal input power

Typical application



G.703/64-kbps Interface Converter

Model 2073

Standalone PCM converter supports Patton's QuikConnect™ modules.



The Patton Model 2073 KiloLink-1™ G.703/64 kbps co-directional access converter lets bridges, routers, switches, multiplexers, and other WAN hardware connect to a KiloStream™ or similar G.703 circuit. Operating in either clear channel or octet timing modes, the Model 2073 offers three clocking options and seven front panel LED status indicators. Built-in transformer isolation and surge protection guard the Model 2073 and connected hardware against data line transients and ground loops.

SPECIFICATIONS

G.703 Interfaces: 64 kbps, symmetrically balanced, 4-wire pair, 120-ohm terminated to a female RJ-45

DTE Interface: V.24/RS-232, V.35, X.21, G.703, Data+Voice, Ethernet Bridge

Data Rates: V.110 rate adaptation for asynchronous data rates from 50 bps to 57.6 kbps, and for synchronous data rates from 500 bps to 64 kbps

Operating Modes: 256 kbps rate co-directional timing, Rx recovered; 64 kbps+500ppm (clear channel); or with BPV for octet timing mode to communicate over a 128-kbps link (preservation of byte integrity)

Diagnostics: local analog loopback, remote digital loopback, V52 compliant bit error rate pattern (511/511E pattern) generator & detector with error injection mode

Line Coding: AMI

Clocking: Internal, external, or network clock

G.703 Input Signal Level: 0 to -10 dB, 2V differential, nominal

Jitter Performance: CTR14, G.823

Isolation: Minimum 3000V RMS via custom transformers

Surge Protection: 600W power dissipation

Range: 0.5 mile (0.8 km)

Power: 100–240 VAC, 50/60 Hz (universal input option); 48 VDC (option); 5 watts

Dimensions: 7.3 x 6.6 x 1.62 in. (18.5 x 16.8 x 4.1 cm)

Weight: 2.02 lbs (0.92 kg)

FEATURES & BENEFITS

- ✓ Switchable internal, external, or network clocking options
- ✓ Supports synchronous data rates of 9.6 to 64 kbps
- ✓ Supports asynchronous data rates of 9.6 to 19.2 kbps
- ✓ Clear channel or octet timing
- ✓ Accepts Patton QuikConnect modules
- ✓ Internal power supplies, 100–240 VAC, or -48 VDC

ORDERING INFORMATION

G.703/64 kbps Interface Converter

2073/A/UI: V.24, DB-25F, 100–240 VAC power

2073/B/UI: RS-422/530, DB-25F, 100–240 VAC power

2073/C/UI: V.35, M/34F, 100–240 VAC power

2073/D/UI: X.21, DB-15, 100–240 VAC power

2073/D/UI: Ethernet, RJ-45, 100–240 VAC power

Typical application



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Interface & Media Converters

Miniature



Stand Alone



Rack Mount



Industrial Communications Converters

Pages 54-59

RS-232 ↔ RS-422
 RS-232 ↔ TTL
 RS-232 ↔ RS-485
 RS-232 ↔ Current Loop
 RS-232 ↔ Ethernet

RS-232 ↔ Ethernet
 RS-422 ↔ Ethernet
 RS-485 ↔ Ethernet

RS-232 ↔ RS-422
 RS-232 ↔ RS-485
 RS-232 ↔ Current Loop

Wide Area Network Converters

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V.35 ↔ RS-530
 V.35 ↔ RS-449
 V.35 ↔ X.21
 RS-232 ↔ V.35
 RS-232 ↔ X.21
 RS-232 ↔ V.36
 HSSI ↔ V.35
 HSSI ↔ X.21
 HSSI ↔ RS-422/530
 HSSI ↔ E1
 Async ↔ Sync

RS-232 ↔ V.35
 RS-232 ↔ X.21
 Async ↔ Sync

RS-232 ↔ V.35
 V.35 ↔ X.21

Printer Converters

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Serial ↔ Parallel
 RS-232/423 ↔ IEEE-1284

Parallel ↔ Serial Buffer

T1/E1 Converters

Pages 34-45

64K/G.703 ↔ X.21, V.35 or RS-232
 G.703/G.704 ↔ V.35
 T1 ↔ V.35
 E1 ↔ HSSI

64K/G.703 ↔ V.21, V.35 or RS-232
 G.703/G.704 ↔ V.35
 T1 ↔ V.35
 E1 ↔ HSSI

Page 53

64K/G.703 ↔ X.21, V.35 or RS-232

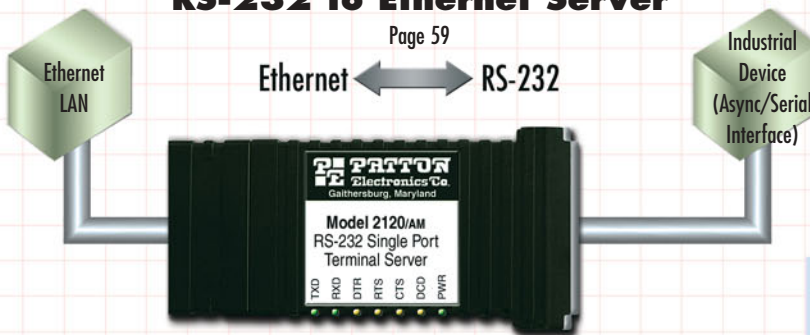
We're out to convert you

Cost-Effective Media Converter Solutions

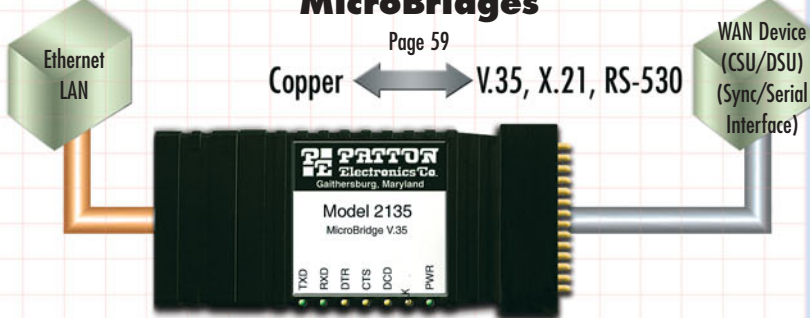
Copper to Ethernet Converter



RS-232 to Ethernet Server



MicroBridges



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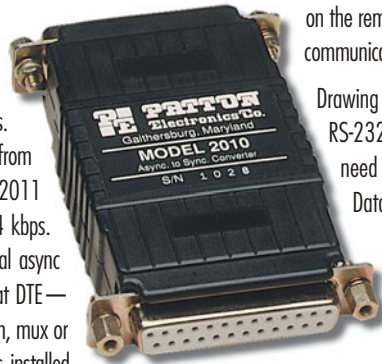
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RS-232, Asynchronous to Synchronous Converters

Models 2010 & 2011

Now Asynchronous Devices Can Access Synchronous Modems & Digital Networks

The Models 2010 and 2011 async to sync converters enable asynchronous DTEs to communicate over synchronous analog or digital connections. The Model 2010 supports data rates from 150 bps to 19.2 kbps. The Model 2011 supports data rates from 19.2 to 64 kbps. Both models plug directly into a local async terminal, PC or host and connect that DTE—via RS-232 cable—to a sync modem, mux or CSU/DSU. When the same set-up is installed



on the remote end, the local and remote DTEs can communicate over the synchronous link.

Drawing power from either the sync or async RS-232 interface, the Model 2010 and 2011 need no AC power or batteries for operation. Data rates are automatically adjusted to match the sync DCE's output rate, so no data rate strapping is necessary. The Model 2010 and 2011 derive clocking externally from the synchronous DCE, and do not limit data block size.

FEATURES & BENEFITS

- ✓ Model 2010 supports data rates from 150 bps to 19.2 kbps
- ✓ Model 2011 supports data rates from 19.2 to 64 kbps
- ✓ Conforms to CCITT V.22 and V.14 standards
- ✓ Synchronous data rates are adjusted automatically
- ✓ Small size—plugs directly into async or sync RS-232 port
- ✓ Accepts external clocking

ORDERING INFORMATION

2010: Async to Sync Converter

2011: High Speed (64 kbps) Async to Sync Converter

SPECIFICATIONS

Data Rates: Model 2010—150 bps to 19.2 kbps; Model 2011—19.2 to 64 kbps

Clocking: Provided by modem or multiplexer

Buffer: 4 bit RTS override feature empties buffers before dropping RTS, making the Model 2011 usable in a polling environment

Data Transmission: Full or half duplex

Connectors: DB-25 female on asynchronous port, DB-25 male on synchronous port

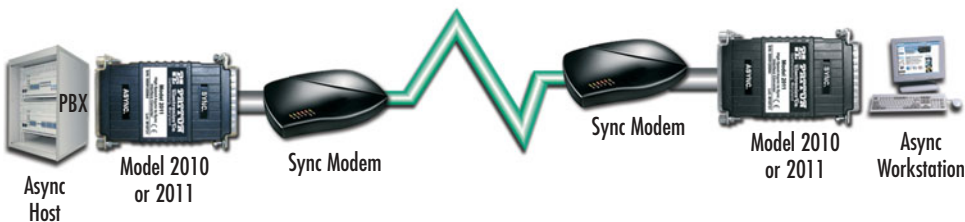
Op. Temp.: 32–122°F (0–50°C)

Power Supply: None required

Dimensions: 3.2" x 2.0" x 0.75" (8.1 x 5.1 x 1.9 cm)

Weight: 2 oz. (56 grams)

Typical application



Passive RS-530 to V.35 Converter

Model 2014

Lets a balanced, synchronous device communicate with a V.35 controller or CSU/DSU

The Model 2014 RS-530 to V.35 converters let a synchronous RS-530 device communicate bi-directionally with a synchronous V.35 device. The Model 2014 requires no AC power or batteries to operate and supports data rates to 2 Mbps. Operating full or half duplex, the Model 2014 passes all necessary clocking and control signals, and is transparent to protocol.



The Model 2014 connects directly to the synchronous RS-530 interface using a male or female DB-25 connector. A male or female M/34 connector at the end of an integral 6 foot (1.8 m) cable attaches to the V.35 device. Models with any combination of

DTE and DCE wiring are available, thus eliminating the need for special crossover cables.

FEATURES & BENEFITS

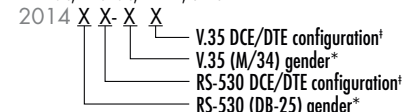
- ✓ Bi-directionally converts synchronous RS-530 to V.35
- ✓ Supports data rates to 2 Mbps, full or half duplex
- ✓ Various DCE/DTE and gender combinations available
- ✓ DB-25 and M/34 connectors with integral 6 foot (1.8m) cable (Model 2014)

ORDERING INFORMATION

Examples

Factory Part Number Encoding

* M=male, F=female, T=DTE, C=DCE



Note: DCE-to-DCE and DTE-to-DTE configurations are not possible with passive units.

2014MT-MC: (DB-25 male, DTE configuration) to (M/34 male, DCE config.)

2014FC-MT: (DB-25 female, DCE config.) to (M/34 male, DTE config.)

Note: Other models available, call for details.

SPECIFICATIONS

Interfaces: EIA RS-530/RS-422 to CCITT V.35

Data Rates: Up to 2.048 Mbps

Transmission Mode: Full or half duplex

Protocol: Transparent to protocol

Clocking: Set by connected devices

Connectors: DB-25 male or female on RS-530 side, M/34 male or female on V.35 side

Op. Temp.: 32–122°F (0–50°C)

Altitude: 0–15,000 feet

Humidity: Up to 95% non-condensing

Power Supply: None required, uses ultra low power from EIA data and control signals

Dimensions: 2.66L x 2.10H x 0.73W in. (6.8L x 5.3H x 1.9W cm)

Weight: 14 oz. (400 g) including cable

Passive RS-449 to V.35 Converter

Model 2015

Synchronous RS-449/422 Devices Can Now Access V.35 WAN Hardware

SPECIFICATIONS

Interfaces: EIA RS-449/422 to CCITT V.35 Data Rates: Up to 2.048 Mbps
Transmission Mode: Full or half duplex
Protocol: Transparent to protocol
Clocking: Set by connected devices
Connectors: DB-37 male or female on RS-449/422 side, M/34 male or female on V.35 side

Op. Temp.: 0–50°C (32–122°F)
Altitude: 0–15,000 feet
Humidity: Up to 95% non-condensing
Power Supply: None required; uses power from NIC data & control signals
Dimensions: 2.66Lx2.1HxD.73W in.
Weight: 14 oz



ORDERING INFORMATION

Example

Factory Part Number Encoding

* M=male, F=female, †T=DTE, C=DCE

2015 X X-X X
 X—V.35 DCE/DTE configuration†
 X—V.35 (M/34) gender*
 X—RS-449 DCE/DTE configuration†
 X—RS-449 (DB-37) gender*

Note DCE-to-DCE and DTE-to-DTE configurations are not possible with passive units.

2015MT-MC: (DB-37 male, DTE config.) to (M/34 male, DCE config.)

Note: Other models available, call for details.

Mini X.21 to V.35 Converter

Model 2016

This “converter-in-a-cable” lets sync. X.21 hardware communicate with sync. V.35 hardware

SPECIFICATIONS

Interfaces: CCITT X.21 to CCITT V.35
Data Rates: Up to 2.048 Mbps
Transmission Mode: Full or half duplex
Protocol: Transparent to protocol
Clocking: Set by connected devices
Connectors: DB-15 male or female on X.21 side; M/34 male or female, or DB-25 male or female, on V.35 side
Compliance: CE Marked per EMC Directive 89/336/EEC

Temperature Range: 32–122°F (0–50°C)
Altitude: 0–15,000 feet (0–4,572 meters)
Humidity: Up to 95% non-condensing
Power Supply: None required; uses power from NIC data and control signals
Dimensions: 2.7L x 1.5H x 0.7W in. (6.8L x 3.8H x 1.8W cm)
Weight: 14 oz (198 g) including cable and connectors



ORDERING INFORMATION

Examples

Factory Part Number Encoding

* M=male, F=female, †T=DTE, C=DCE

2016 X X-XX
 X—V.35 configuration†
 X—V.35 (M/34 or DB-25) gender*
 X—X.21 configuration†
 X—X.21 (DB-15) gender*

2016MT-MC: (DB-15 male, DTE) to (M/34 male, DCE)

2016FC-FT: (DB-15 female, DCE) to (M/34 female, DTE)

Note: Many other models available, call for details.

RS-232/V.35 to X.21 Converter Rack Cards

Model 2066

Synchronous converter cards match high speed WAN interface

SPECIFICATIONS

Transmission Format: Synchronous
External Interface: Dual UD-26 high density connectors
Electrical Interface: X.21—EIA RS-422/V.11 compatible; RS-232—RS-232/V.28 compatible; V.35 data and clock signals: receivers—V.35 compliant, drivers—0.56V differential signal; V.35 control signals—RS-232/V.28 compatible
Data Rates: Up to 2.048 Mbps.
Clocking: RS-232/V.35 DCE or DTE receiving timing from X.21 DCE device
Controls: Switchable, custom control settings

Power Supply: Rack-mount power supply is switchable between 120 VAC and 240 VAC; chassis supplies 10 VAC to the Model 2066RC, typical consumption is 1.2 watts
DCE to DCE buffering: Dual 16-bit buffers for full duplex operation—set to 8 bits in case of under- or overflow.
Temperature: 0–50°C / 32–122°F
Humidity: 0–95%, non-condensing
Dimensions: 0.95W x 3.1H x 5.4D in. (2.4W x 7.9H x 13.7D cm)



ORDERING INFORMATION

2066RC-226: V.35 to X.21 Converter Card

2066-26M/34X*: Cable, UD-26 Male to M/34

X=Specify Male or Female gender.

*Requires a UD-26 adapter cable.



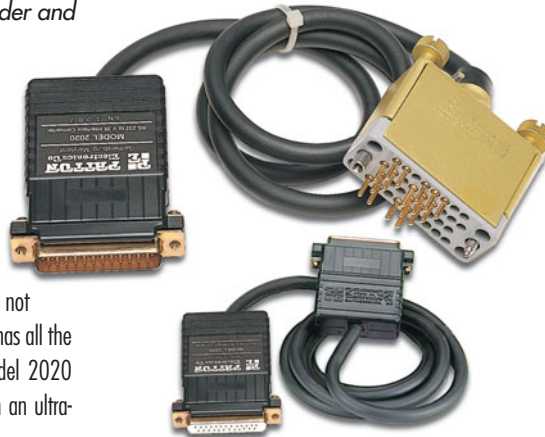
Passive RS-232 to V.35 Converters

Models 2020 Series

Connect RS-232 to V.35 using any gender and connector variation imaginable.

The Model 2020 Series solves one of the most common problems in WAN connectivity—connecting sync RS-232 hardware to sync V.35 hardware. And the Model 2020 series offers many different models to choose from.

The Model 2020N is the perfect solution for converter applications that do not require a built-in cable. It has all the features of the Model 2020 series contained in an ultra-miniature package.



FEATURES & BENEFITS

- ✓ Bi-directional RS-232 to V.35 conversion
- ✓ Support for data rates to 384 kbps
- ✓ DCE/DTE switchable
- ✓ All appropriate data, clocking & control signals passed
- ✓ Equipped with built-in 6 ft (1.8 m) cable
- ✓ Model 2020N features integral connectors

SPECIFICATIONS

Format: Synchronous, transparent to protocol, full or half duplex; passes all appropriate control signals
Data Rates: Up to 384 kbps
Clocking: Supplied by the connected devices
Connectors: DB-25 male or female on RS-232 side, M/34 or DB-25 male or female on V.35 side
Configuration: DTE-to-DCE or DCE-to-DTE, strap selectable
Regulatory Approvals: FCC 15A, UL, CE, EN60950

ORDERING INFORMATION

- 2020M-M:** DB-25 male to M/34 male
- 2020F-M:** DB-25 female to M/34 male
- 2020M-F:** DB-25 male to M/34 fem.
- 2020F-F:** DB-25 female (fem.) to M/34 female
- 2020NM-M:** DB-25 male to M/34 male (integral connectors, no cable)

- 2020NF-M:** DB-25 female to M/34 male (integral connectors, no cable)
- 2020NM-F:** DB-25 male to M/34 female (integral connectors, no cable)
- 2020NF-F:** DB-25 female to M/34 female (integral connectors, no cable)

Note: Standard 2020 models have DB-25 on the serial side and M/34 on the V.35 side on a 6-inch cable. 2020N models have integrated DB-25 and M/34 connectors. Other models available, call for details.

The following models use a DB-25 version of the V.35 interface

- 2020M-25M:** DB-25 male to DB-25 male
- 2020F-25M:** DB-25 fem. to DB-25 male
- 2020M-25F:** DB-25 male to DB-25 fem.
- 2020F-25F:** DB-25 fem. to DB-25 fem.

RS-232 to V.35 Converter Rack Card

Model 2020RC

Our rack card converter comes with extra features!



The Model 2020RC fits in Patton's 16-slot rack chassis and our unique line of 2-, 4-, and 8-slot ClusterBoxes™.

The Model 2020RC rack card includes such features as LED indicators and DTE/DCE switchability for both the RS-232 and V.35 interfaces.



FEATURES & BENEFITS

- ✓ LED indicators for TD, RD, RTS, CTS, CD, DTR and Power
- ✓ Both interfaces DTE/DCE switchable

SPECIFICATIONS

Format: Synchronous, transparent to protocol, full or half duplex; passes all appropriate control signals
Data Rates: Up to 384 kbps
Clocking: Supplied by the connected devices
Connectors: UD-26F connectors on both sides
Configuration: DTE-to-DCE or DCE-to-DTE, strap selectable
Regulatory Approvals: FCC 15A, UL, CE, EN60950

ORDERING INFORMATION

2020RC226: RS-232 to V.35 Rack Card (UD-26 female to UD-26 female)

Note: Requires UD-26 cable assemblies, call for details.



See page 102



RS-232 to X.21 Interface Converter

Model 2021

Bridge the gap between LAN and WAN hardware

The Patton Model 2021 allows a synchronous RS-232 host to communicate bi-directionally with a synchronous X.21 device. Supporting synchronous data rates to 384 kbps, the Model 2021 is the smallest converter of its kind, and requires no AC power or batteries to operate. And there's no configuration needed for the Model 2021.



Because of its high speed capabilities, the Model 2021 is typically used in WAN connectivity, video conferencing and other high speed applications.

Since it's protocol independent and passes all appropriate data, clocking and control signals, the Model 2021 is as easy to use as a patch cable. Every system integrator's toolbox should contain a Model 2021!

FEATURES & BENEFITS

- ✓ Bi-Directional RS-232 to X.21 Conversion
- ✓ No AC Power or Batteries Required
- ✓ Supports Data Rates to 384 Kbps
- ✓ Equipped with Integral 6 Foot Cable
- ✓ Passes Appropriate Control Signals

ORDERING INFORMATION

Factory Part Number Encoding

* M=male, F=female, T=DTE, C=DCE

2021 X X X
 X.21 DCE/DTE configuration¹
 X.21 (DB-15) gender*
 RS-232 DCE/DTE configuration¹
 RS-232 (DB-25) gender*

Examples

2021MT-MC: (DB-25 male, DTE) to (DB-15 male, DCE)

Note: Many other models are available, check online at www.patton.com or call for details.

Typical application



SPECIFICATIONS

Data Rate: Up to 384 kbps
Operation: Synchronous transparent to protocol
Interfaces: RS-232 and X.21
Modes: Full or half duplex

Cable: 6 feet (1.8km)
Power: None required
Dimensions: 2.66 x 2.10 x 0.73 in.
 (6.8 x 5.3 x 1.9 cm)

RS-232 to V.36 (RS-530/449) Interface Converter

Model 2022

This sync or async RS-232-to-V.36 (RS-530/449) converter bridges the gap between LAN and WAN hardware

The Model 2022 RS-232 to V.36 converter is the "missing link" between local area computing hardware and wide area communications hardware. Supporting synchronous data rates to 200 kbps, the Model 2022 is the smallest converter of its kind, and requires no AC power or batteries to operate.

With its DCE/DTE switching capability, the Model 2022 lets a V.36 host talk to a synchronous RS-232 modem; or lets a synchronous RS-232 terminal talk to a V.36 CSU/DSU. Once you've set the DCE/DTE strap, there's no other configuration needed. The 2022 is protocol independent, passing all appropriate data, clocking, and control signals, which makes it as easy to use as a patch cable. Every system integrator's toolbox should contain a Model 2022.



FEATURES & BENEFITS

- ✓ Bi-directional RS-232 to V.36 conversion
- ✓ No AC power or batteries required
- ✓ Supports data rates to 200 kbps
- ✓ Passes appropriate control signals
- ✓ DCE/DTE switchable

SPECIFICATIONS

Data Rate: Up to 200 kbps
Operation: Synchronous transparent to protocol
Interfaces: RS-232 and CCITT V.36/RS-449

Cable: 6 feet (1.8 m)
Power: None required
Dimensions: 2.66 x 2.10 x 0.73 in.
 (6.8 x 5.3 x 1.9 cm)

Transmit Mode: Full or half duplex

ORDERING INFORMATION

2022M-M: Male RS-232 to male DB-37

2022F-M: Female RS-232 to male DB-37

2022M-F: Male RS-232 to female DB-37

2022F-F: Female RS-232 to female DB-37

2022M-25M: Male RS-232 to male DB-25

2022F-25M: Female RS-232 to male DB-25

2022M-25F: Male RS-232 to female DB-25

2022F-25F: Female RS-232 to female DB-25

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See Pg 102

Micro V.35 to T1 Converter
Model 2090

Convert a T1 port to V.35 or vice versa.



The Model 2090 changes a T1 port of a multiplexer, RAS, concentrator, or other device into a standard V.35 WAN port. The 2090 is configured by internal DIP switches and can be used in either clear channel mode (supporting a single 1.544 Mbps connection) or in Fractional mode (supporting speeds from 64 bps to 1.536 Mbps in 64 kbps increments).

SPECIFICATIONS

WAN Speed: 1.544 Mbps
WAN Connection: RJ-48C
Nominal impedance: 100 ohm
DTE interface: Integral V.35, M/34 male
Line coding: AMI/B8ZS
Line framing: D4/ESF
Transmit LBO: Selectable—0, 7.5, 15, or 22.5 dB

Clock options: Internal, external and network clock
Standards: AT&T TR62411, ANSI T1.403, TR54016

Diagnostics: Responds to CO initiated D4 loopup and loopdown codes, ESF line loop and payload loop FDL messages, Universal Loopback de-activate message
Power supply: 120–240 VAC Universal input

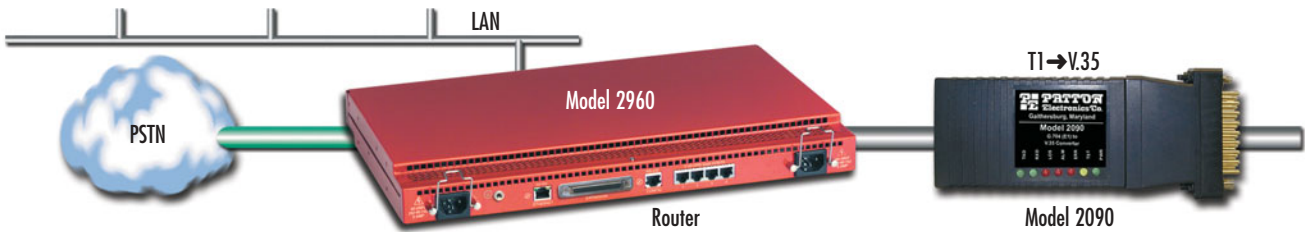
FEATURES & BENEFITS

- ✓ Supports 1.544 Mbps (Clear Channel)
- ✓ Supports framed nx56/64 rates up to 1.536 Mbps in 64-kbps increments
- ✓ Seven easy-to-read LEDs

ORDERING INFORMATION

2090/CM/UI: V.35 (M/34 male) to G.703/G.704 (RJ-45), universal input power supply

Typical application

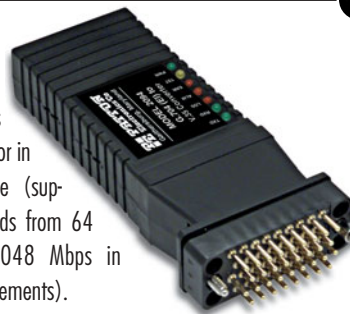


Micro V.35 to G.703/G.704 (E1) Converter
Model 2094

Micro E1 converter supports nx64 rates.

The Model 2094 enables a multiplexer or other device presenting an E1 or Fractional E1 G.703/G.704 interface to be converted to a V.35 interface, thereby letting V.35 devices connect to a G.703/G.704 network. The Model 2090 has internal DIP switches for configuration, and can be used in either clear channel mode (supporting a single

2.048 Mbps connection) or in G.704 mode (supporting speeds from 64 kbps to 2.048 Mbps in 64 kbps increments).



See Pg 102



FEATURES & BENEFITS

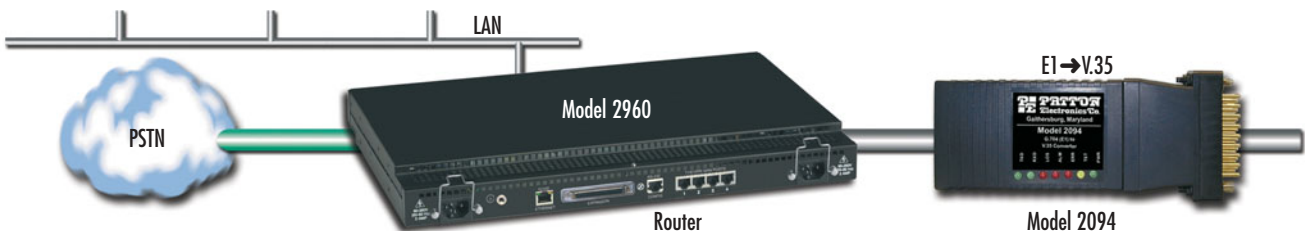
- ✓ Supports 1.544 Mbps (Clear Channel)
- ✓ Supports framed nx56/64 rates up to 1.536 Mbps in 64-kbps increments

SPECIFICATIONS

Network data rate: 2.048 Mbps
Network connector: RJ-48C
Nominal impedance: 120 ohm (75 ohm available when using Patton Model 460 balun)
DTE interface: V.35 (DCE orientation) on male M/34
Line coding: Selectable AMI or HDB3
Line framing: G.703 (unframed) or G.704/G.732 (framed) with selectable CAS and CRC-4 multiframing

Clocking: Internal, external, or receive recover
DTE data rates: selectable nx64 kbps up to 2048 kbps
DS0 start position: Arbitrary
Diagnostics: V.54 loopback; V.52 patterns: 511, 2047, and QRSS
Configuration: 8-position DIP switch and RS-232 control port
Power supply: 100–240 VAC, 50–60 Hz, 0.4 A

Typical application



V.35 to HSSI Converter

Model 2040

HSSI converter lets V.35 serial devices access the WAN.

This V.35-to-high-speed-serial-interface (HSSI) converter lets a HSSI (HD-50) device communicate bi-directionally with a V.35 (M/34) device at sync. data rates up to 10 Mbps. The Model 2040 supports all HSSI co-directional timing patterns, two loopback modes (local line and remote line), plus data and control signals.

SPECIFICATIONS

HSSI Standards: ANSI/TIA/EIA-613, & ANSI/TIA/EIA-613
Data Rate: 0–10 Mbps

Clocking: All clocking modes supported except conversion from smooth to gapped clock

Loopbacks: Local line and remote line supported

Power supply: External 100–240 VAC transformer



FEATURES & BENEFITS

- ✓ Bi-directional conversion from V.35 to HSSI (high speed serial interface)
- ✓ Support for sync. rates up to 10 Mbps

ORDERING INFORMATION

- 2040MT-MC/UI: V.35 DTE (M/34 male) to HSSI DCE (HD-50 male)
- 2040MC-MT/UI: V.35 DCE (M/34 male) to HSSI DTE (HD-50 male)

Note: Many other models are available, check online at www.patton.com or call for details.

X.21 to HSSI Converter

Model 2041

HSSI converter lets X.21 serial devices access the WAN.

The Model 2041 X.21-to-high-speed-serial-interface (HSSI) converter lets a HSSI (HD-50) device communicate bi-directionally with an X.21 (DB-15) device at sync data rates up to 10 Mbps. The Model 2041 supports all HSSI co-directional timing patterns, two loopback modes (local line and remote line), plus data and control signals.

SPECIFICATIONS

HSSI Standards: ANSI/TIA/EIA-613, & ANSI/TIA/EIA-613
Data Rate: 0–10 Mbps

Clocking: All clocking modes supported except conversion from smooth to gapped clock

Loopbacks: Local line and remote line supported

Power supply: External 100–240 VAC transformer



FEATURES & BENEFITS

- ✓ Bi-directional conversion from X.21 to HSSI (high speed serial interface)
- ✓ Support for sync. rates up to 10 Mbps

ORDERING INFORMATION

- 2041FT-MC/UI: X.21 DTE (DB15 female) to HSSI DCE (HD-50 male)
- 2041FC-MT/UI: X.21 DCE (DB15 female) to HSSI DTE (HD-50 male)

Note: Many other models are available, check online at www.patton.com or call for details.

RS-422/530 to HSSI Converter

Model 2042

HSSI converter lets RS-422/530 serial devices access the WAN.

The Model 2042 RS-422/530-to-high-speed-serial-interface (HSSI) converter lets a HSSI (HD-50) device communicate bi-directionally with an RS-422/530 (DB-25) device at sync data rates up to 10 Mbps. The Model 2042 supports all HSSI co-directional timing patterns, two loopback modes (local line and remote line), plus data and control signals.



SPECIFICATIONS

HSSI Standards: ANSI/TIA/EIA-613, & ANSI/TIA/EIA-613
Data Rate: 0–10 Mbps
Clocking: All clocking modes supported except conversion from smooth to gapped clock

Loopbacks: Local line and remote line supported
Power supply: External 100–240 VAC transformer

FEATURES & BENEFITS

- ✓ Bi-directional conversion from RS-422/530 to HSSI (high speed serial interface)
- ✓ Support for sync. rates up to 10 Mbps

ORDERING INFORMATION

- 2042MT-MC/UI: RS-422/530 DTE (DB-25 male) to HSSI DCE (HD-50 male)
- 2042MC-MT/UI: RS-422/530 DCE (DB-25 male) to HSSI DTE (HD-50 male)

Note: Many other models are available, check online at www.patton.com or call for details.

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

Models 2084, 2085, 2086, & 2089

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

The Model 208X Series of RS-232 to RS-485 converters include the Model 2085 DB-25 4-wire converter, Model 2089 DB-9 4-wire converter, Model 2084 DB-25 2-wire converter, Model 2086 DB-25 converter with built-in opto-isolation, and the Model 2085RC rack card.

The Model 2085 high speed RS-232 to RS-485 interface converter supports async RS-232 data rates to 115.2 kbps over one or two unconditioned twisted pair. Passing one control signal in each direction, the Model 2085 can handle up to 50 terminal drops in a multipoint polling environment. The Model 2085 has five configuration parameters, allowing the unit to be "fine tuned" to a variety of point-to-point or multipoint applications. In addition, silicon avalanche diodes provide 600 watts per wire of protection against harmful data line transient surges.

The Model 2089 is Patton's first high speed EIA-574 (RS-232 on a DB-9) to RS-485 interface converter.



Offering the same features as the Model 2085, except in a smaller DB-9 package, it supports async data rates to 115.2 kbps over one or two unconditioned twisted pair. The Model 2089 also handles up to 50 terminal drops in a multipoint polling environment; yet it is small enough to plug directly into a DB-9 serial port...and requires no AC power or batteries for operation. We've even managed to squeeze silicon avalanche diode surge protection into its tiny case. *Amazing!*

The Model 2084 provides 2-wire conversion of RS-232 to RS-485. Otherwise, the unit has the same features as the Model 2085.

The Model 2086 DB-25 RS-232-to-RS-485 converter provides opto-isolation.

The Model 2085RC is a dual port rack card version of the Model 2085, with two converters in one card! The front card incorporates 13 status LEDs, while the rear card presents four RJ-11 or RJ-45 connectors for hardware connection. The Model 2085RC fits in Patton's 16-slot rack chassis and our unique line of 2-, 4-, and 8-slot ClusterBoxes™.



Versions available for 2-wire RS-485 operation OR built-in opto-isolation.

Two converters in one rack card!

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 (Model 2084 is 2-wire only)
- ✓ 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
- ✓ Model 2086 features opto-isolation

SPECIFICATIONS

Transmission Format: Asynchronous

Data Rate: Up to 115,200 bps

RS-232 Interface: DB-25, male or female (DCE/DTE switchable)

DB-9, male or female (Model 2089)

RS-485 Interface Options: DB-25, male or female; RJ-11 or RJ-45 jack; terminal block with strain relief

RTS/CTS Delay: 0 or 8 msec

Carrier: The carrier is switch selected either continuous operation or controlled by RTS

Control Signals: DSR turns "ON" immediately after the terminal raises DTR; DCD turns "ON" after recognizing the receive signal from the line; CTS turns "ON" after the terminal raises RTS.

Power: Draws operating power from RS-232 data and control signals; no AC power or batteries required.

Temperature: 32–122°F (0–50°C)
Size: 2.66 x 2.10 x 0.73 in. (6.8 x 5.3 x 1.9 cm)

Rack Mountable Units, Too!

These rack cards each contain two converters, so you can fit up to 32 converters in a 19 in. rack.



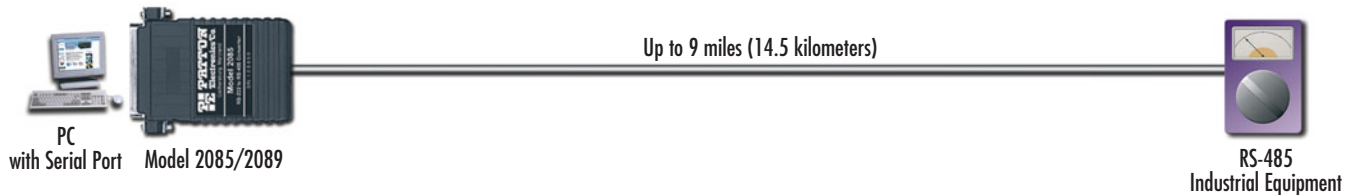
RACKABLE

See page 102

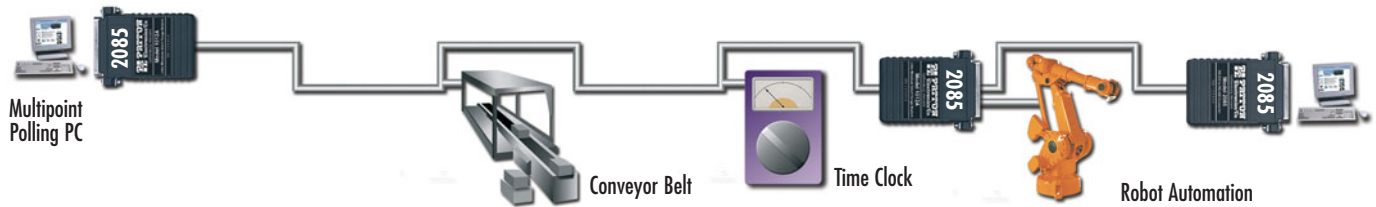
Line Rate (bps)	Transmission Distances											
	19 AWG (0.9mm)			22 AWG (0.6mm)			24 AWG (0.5mm)			26 AWG (0.4mm)		
	feet	miles	km	feet	miles	km	feet	miles	km	feet	miles	km
1200	47520	9.0	14.5	34320	6.5	10.5	26400	5.0	8.0	21120	4.0	6.4
9600	36960	7.0	11.2	24288	4.6	7.4	18480	3.5	5.6	14784	2.8	4.5
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

Distances for the Models 2085 and 2089 when used in pairs.

RS-232 to RS-485 conversion



Connecting RS-232 and RS-485 devices in a multi-drop environment



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

Example

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

Model 2089—DB-9 versions

2089M: Male DB-9 with terminal block

2089F: Female DB-9 with terminal block

Note: X = Male or female

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

Rack card versions (two converters per card)

2085RC11: Dual Rack Card, RJ-11

2085RC45: Dual Rack Card, RJ-45

Model 2084—2-wire DB-25 versions

2084M: Male DB-25 with terminal block

2084F: Female DB-25 with terminal block

2084X-RJ11: With RJ-11 jack

2084X-RJ45: With RJ-45 jack

2084X-DR11: With Dual RJ-11 jacks

2084X-DR45: With Dual RJ-45 jacks

2084X-25F: With DB-25 female

2084X-25M: With DB-25 male

Model 2086—Opto-Isolated DB-25 versions

2086M: Male DB-25 with terminal block and power supply

2086F: Female DB-25 with terminal block and power supply

2086X-RJ11: With RJ-11 jack

2086X-RJ45: With RJ-45 jack

2086X-DR11: With Dual RJ-11 jacks

2086X-DR45: With Dual RJ-45 jacks

2086X-25F: With DB-25 female

2086X-25M: With DB-25 male

**Interface-Powered, RS-232 to RS-422 Converters
 (Transmit & Receive Data Only)**

Models 222N, 222N9, & 222NRC

These miniature converters are no bigger than a DB-25 (or DB-9) backshell!

The Model 222N Series of converters comes in three versions: the Model 222N, 222N9, and 222NRC.



The **Model 222N** enables an RS-232 device with DB-25 port to connect to an RS-422 device—at distances up to 4,000 ft (1,219 m) away—over two twisted-pair wires. The **Model 222N9** does the same thing for an RS-232 device with a DB-9 port (now called EIA-574).



The **Model 222NRC** is a dual port rack card version of the Model 222N, with two converters in one card! The front card incorporates 13 status LEDs, while the rear card presents four RJ-11 or RJ-45 connectors for hardware connection. The Model 222NRC fits in Patton's 16-slot rack chassis and our unique line of 2-, 4-, and 8-slot ClusterBoxes™.

ORDERING INFORMATION

Examples of DB-25 and DB-9 versions



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

Rack card versions (two converters per card)

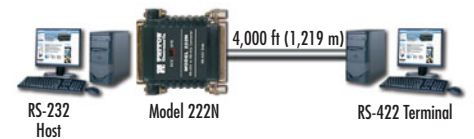
- 222NRC11:** Dual Rack Card, RJ-11
- 222NRC45:** Dual Rack Card, RJ-45

Note: Many other models are available, check online at www.patton.com or call for details.

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

RS-232 to 422 converter



SPECIFICATIONS

Data Format: Asynchronous
Data Rate: 0 to 19,200 bps (no strapping)
Control Signals: (RS-232 Side) RTS wired to CTS; DTR wired to DSR and DCD
Transmit Mode: Full duplex, 4-wire
DTE/DCE Switch: On standalone Model 222N version only
CE Approved: Yes
Power Supply: None required; uses ultra low power from EIA data and control signals

Connectors: Model 222N—Male or female DB-25 (232 side); Male or Female DB-25, RJ-11 jack, RJ-45 jack or terminal posts (422 side).
 Model 222N9—Male or female DB-9 (EIA-574 side); RJ-11 jack, RJ-45 jack or terminal posts (422 side).
Dimensions:
 Model 222N
 2.20 x 1.75 x 0.75 in.
 (5.6 x 4.4 x 1.9 cm)
 Model 222N9
 2.50 x 1.20 x 0.75 in.
 (6.4 x 3 x 1.9 cm)

Self-Powered RS-232 to TTL

Model 2002

Now async RS-232 devices can communicate bi-directionally with TTL devices

The Model 2002 RS-232 to TTL interface converter lets an async RS-232 device communicate bi-directionally with an asynchronous TTL device. Supporting data rates up to 230 kbps, the Model 2002 passes data (TD, RD) plus five control signals (CD, DTR, DSR, CTS and RTS). In addition, the

Model 2002 allows data and control signals to be independently jumper-selected as *inverting* or *non-inverting*. The Model 2002 is available DCE-to-DTE and DTE-to-DCE.



FEATURES & BENEFITS

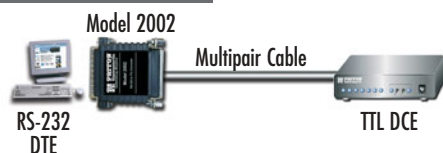
- ✓ Supports data rates to 230 kbps
- ✓ Passes TD & RD plus five control signals: CD, DTR, DSR, CTS & RTS
- ✓ Data and control signals independently selectable for inverting/non-inverting
- ✓ RS-232 interface is a DB-25 female, TTL interface is a DB-25 male

ORDERING INFORMATION

- 2002FC-MT:** RS-232 (DB-25 female/DCE) to TTL (DB-25 male/DTE)
- 2002FT-MC:** RS-232 (DB-25 female/DTE) to TTL (DB-25 male/DCE)

Note: Other models are available, check online at www.patton.com or call for details.

Typical application



SPECIFICATIONS

Humidity: Up to 95% non-condensing
Power Supply: None required; uses power from RS-232 and TTL data and control signal
Dimensions: 2.24L x 2.1H x 0.7W in. (5.6L x 5.3H x 1.8W cm)
Weight: 1.7 oz. (48.2g)

PATTON

Network Access & Connectivity Solutions for Enterprise, Carrier & Industrial Applications

Patton Electronics—a leader in the production of network access and connectivity products—is building on its expertise in integrated network access, transmission, IP and Frame Relay technologies and leading in the development of right-priced products to simplify human and machine access to the global network.

The Patton brothers, Bobby and Burt, founded Patton Electronics in 1984, while students in college. Over the succeeding 20+ years, Patton has taken those simple beginnings and expanded into a multi-national manufacturing company that today employs more than 180 people and provides a product line in excess of 1000 items.

For your next project that needs to meet aggressive price points, while delivering high performance results, call on Patton. We're ready to deliver!



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www.patton.com

RS-232 to Current Loop Converters (20mA or 60mA)

Model 2017 Series

Whether your current loop device is active or passive, we've got your converter!

The Patton Model 2017 Series of current loop converters lets an async. RS-232 device communicate with a 20mA or 60mA current loop device. The interface-powered Model 2017P (20mA) and 2017P60 (60mA) operate passively, and therefore are suitable for connection to active current loop devices. The AC-powered Model 2017A works with either active or passive 20mA current loop devices. All models support distances to 4 miles (6.4 km) and data rates to 115.2 kbps. In addition, all models are optically isolated, surge protected and DCE/DTE switchable. The Model 2017A also provides three LED indicators. Twisted pair running to the current loop device



attaches by RJ-11 jack, RJ-45 jack or terminal blocks.

The Model 2017RC is an async device that operates bi-directionally in full- or half-duplex modes. The Model 2017RC occupies one slot of the 1000R/16 front-load rack. It has dual independent converters that enable two async DTE RS-232 devices to communicate with two 20-mA current loop devices over two twisted pairs. It can be configured for active or passive transmitters.



SPECIFICATIONS

Transmission Line: 19 to 26 AWG (.9 to .4mm) twisted pair
Range: 4 miles on 24 AWG (.5mm) wire
Interfaces: Async., EIA RS-232, CCITT V24 full duplex, 20mA or 60mA current loop
LEDs: (Model 2017A only)—TD (Transmit Data) and RD (Receive Data)

Connectors: DB-25 male or female on RS-232 side RJ-11, RJ-45 or terminal posts with strain relief for current loop side
Data Rates: up to 115,200 bps
Isolation: 2500V RMS via opto-isolators

Surge Suppression: Over-voltage protection for opto-isolators via silicon avalanche diodes
Op. Temp.: 32–122°F (0–50°C)
Altitude: 0–15,000 feet
Humidity: Up to 95% non-condensing
Power Supply: Model 2017A—9V to 12V on pin 9 of RS-232 interface or

external wall mount transformer; Model 2017P and 2017P60—None required; uses power from interface data signals
Dimensions: 2.50L x 1.2H x 0.75W in. (6.4L x 3H x 1.9W cm)
Weight: 1.5 oz. (43 grams)

RS-232 to 20mA Current Loop Converter (DB-25 to DB-25)

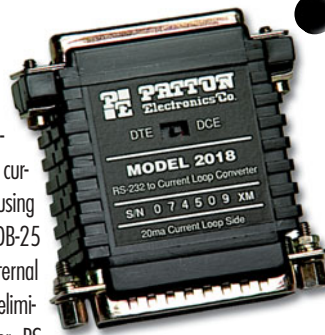
Model 2018

This optically isolated converter performs multiple functions

The Model 2018 is a multi-function converter. Connect it to an active 20mA current loop circuit and it becomes a passive converter. Attach it to a passive 20mA current loop circuit, add DC power to one of several DB-25 interface pins, and it functions as an active converter. Connect two units together, supply DC power to one interface, and you have an optically isolated RS-232 distance extender.

The Model 2018 supports data rates to 19.2 kbps, and current loop distances to 4 mi. (6.4 km) over two twisted pair. It

connects directly to the RS-232 interface or the 20mA current loop interface using a male or female DB-25 connector. An external DCE/DTE switch eliminates the need for RS-232 crossover cables.



SPECIFICATIONS

Interfaces: Asynchronous
Transmit Line: 19–26 AWG (.9–.4mm)
Range: 4 mi. (6.4 km) on 24 AWG twisted pair

Interfaces: EIA RS-232, CCITT V24 (.5 mm) full duplex, 20mA current loop
Data Rate: 50–19.2 Kbps
Isolation: 2500V RMS via opto-isolators on line side

Connectors: Male or female DB-25 on both sides
Op. Temp.: 0–50°C (32–122°F)
Humidity: Up to 95% non-condensing
Power Supply: None required; uses power from NIC data signals

Dimensions: 2.21L x 0.8H x 2.10W in. (5.6L x 2.0H x 5.3W cm)
Weight: 1.7 oz. (48.2g)

FEATURES & BENEFITS

- ✓ Data rates to 115.2 kbps
- ✓ Up to 4 mi. (6.4 km) on two 24 AWG (.5mm) twisted pair
- ✓ Model 2017P & 2017P60 work with active 20mA or 60mA receivers
- ✓ Model 2017A works with active or passive 20mA receivers
- ✓ Externally accessible DCE/DTE switch
- ✓ Optically isolated and silicon avalanche diode surge protected

ORDERING INFORMATION

2017PM: RS-232 to 20mA (passive) DB-25M with terminal block

2017PF: RS-232 to 20mA (passive) (DB-25F with terminal block)

2017P60M: RS-232 to 60mA (passive) (DB-25M with terminal block)

2017P60F: RS-232 to 60mA (passive) (DB-25F with terminal block)

2017AM: RS-232 to 20mA (active) (DB-25M with terminal block)

2017AF: RS-232 to 20mA (active) (DB-25F with terminal block)

2017XXRJ11: With RJ-11 jack

2017XXRJ45: With RJ-45 jack

Example

2017PM RJ11: Male DB-25, RJ-11 jack

Rack card versions

2017RC11: Dual 20mA rack card, RJ-11

2017RC45: Dual 20mA rack card, RJ-45

Note: Other models are available, call for details.



See page 102

FEATURES & BENEFITS

- ✓ Data rates from 50 bps to 19.2 kbps
- ✓ Range to 4 mi. (6.4 km) on two 24 AWG (.5mm) twisted pair
- ✓ No AC power required; draws necessary power for (passive) operation from RS-232 interface
- ✓ Optically isolated on line side
- ✓ DB-25 connectors on both ends
- ✓ Two units can work together as optically isolated RS-232 distance extenders

ORDERING INFORMATION

2018M-F: Male RS-232 to female 20mA

2018F-M: Female RS-232 to male 20mA

Note: Other models are available, check online at www.patton.com or call for details.

Ethernet to RS-232 Converter/Terminal Server

Model 2120

The versatile Patton Model 2120 connects serial RS-232 devices to a local area network and also functions as a single-port terminal server.

Patton's Model 2120 Single Port Terminal Server provides a quick, simple, and cost effective solution for connecting traditional RS-232 terminals and devices to a local area network.

The Model 2120 brings serial RS-232 devices onto the network by encapsulating RS-232 data into IP packets for transport over the LAN. Using Raw TCP or TELNET, the Model 2120 can connect to any user-defined IP address and port. Once connected to the remote host, data is passed transparently end-to-end. The built-in DHCP Client allows the Model 2120 to dynam-

ically obtain an IP address and a subnet mask from a master server. Using dial-up modems and SLIP and PPP connections, remote users can access the network as if they were locally connected.



SPECIFICATIONS

Serial Interface: DB-25 male or female; DB-9 male or female
Serial Transmission: RS-232 Asynchronous, 0 to 115.2 kbps, configured via TELNET or serial port
DCE/DTE: Configured via TELNET or serial port
RS-232 Status Indicators: TXD, RXD, DTR, RTS, CTS, DCD, and Power

Ethernet Interface: Shielded RJ-45 female
Ethernet Standard: 10Base-T (IEEE 802.3)
Ethernet Status Indicators: Ethernet link and status
Protocols Supported: TCP, UDP, IP, ICMP, TELNET, RLOGIN, ARP, DHCP, FTP, TFTP, SLIP, PPP, PAP, DNS, and WINS

Management Services: Monitoring, control, and diagnostics via serial port or TELNET session
Memory: 1 Mbyte RAM; 512 kbytes FLASH
Power Supply Options: External, universal AC (100–240 VAC) or -48 VDC
Temperature: 32–122°F (0–50°C)
Humidity: Up to 95% non-condensing

Dimensions: 3.5L X 2.1W X 0.78H in. (9.0L X 5.3W X 1.9H cm)
Weight: 0.2 lbs (0.09 kg)

FEATURES & BENEFITS

- ✓ Enables control of any RS-232 asynchronous serial device over a LAN or via the Internet
- ✓ Asynchronous data rates up to 115.2 kbps
- ✓ DTE/DCE-selectable serial port
- ✓ 802.3 10Base-T LAN connection via RJ-45 for network connection



ORDERING INFORMATION

- Single Port RS-232 Terminal Server, Asynchronous**
- 2120/AM/UI: DB-25 Male, UI Power Supply
 - 2120/AM/48: DB-25 Male, -48 VDC Power Supply
 - 2120/AF/UI: DB-25 Female, UI Power Supply
 - 2120/AF/48: DB-25 Female, -48 VDC Power Supply
 - 2120/A9M/UI: DB-9 Male, UI Power Supply
 - 2120/A9M/48: DB-9 Male, -48 VDC Power Supply
 - 2120/A9F/UI: DB-9 Female, UI Power Supply
 - 2120/A9F/48: DB-9 Female, -48 VDC Power Supply

Ethernet to V.35 Converter/Bridge

Models 2135 & 2135C

This device converts 10Base-T Ethernet (RJ-45) to WAN via a V.35 (M/34) connection

The Patton Model 2135 converter features a V.35 (M/34) serial interface to make your WAN connection easy. It is equipped with an 802.3 10Base-T Ethernet RJ-45 jack, which allows a direct connection to your network equipment.



SPECIFICATIONS

DTE Interface: V.35
Network Interface: IEEE 802.3 10Base-T (RJ-45)
Transmission: Synchronous up to 10 Mbps
Protocol: PPP (RFC 1661) with Bridging Control Protocol (RFC 1638)
Memory: 1MB RAM, 128KB FLASH memory

MAC Address Table Size: 4096 entries
MAC Address Aging: MAC addresses deleted after eight minutes of inactivity
LEDs LAN Side: (1) yellow, general status; (1) green, link integrity
LEDs DTE Side: TXD, RXD and Power, (green); DTR, DCD, CTS and CLK, (yellow)

Power Supply Input: 100–240VAC, 50–60Hz, 0.4A; or optional -48 VDC
Power Consumption: 500mA @ 5VDC
Temperature: 32–122°F (0–50°C)
Altitude: 0–15,000 ft (0–4,572 m)
Humidity: Up to 90%, non-condensing

Dimensions: 3.5 L X 2.1 W X 0.78 H inch (9.0 L X 5.3 W X 2.0 H cm)
Weight: 0.72 lbs (0.32 kg)
Compliance: FCC Part 15A; CE Mark per EEC Directive: 89/336/EEC; Low Voltage Directive: 73/23/EEC

FEATURES & BENEFITS

- ✓ Industry standard, shielded RJ-45 10Base-T connection
- ✓ 802.3 Ethernet supported by transparent LAN bridging
- ✓ V.35 WAN interface on an M/34 connector
- ✓ Automatic learning and aging with support for up to 4,096 MAC addresses
- ✓ Nine LEDs monitor power, LAN link, and DTE interface signals
- ✓ PPP bridging control protocol (RFC 1638) with auto detection for compatibility with existing Patton bridge products and standard third-party equipment

ORDERING INFORMATION

- 2135C/CM-X/UI: V.35 DTE with M/34 Male, Serial Cable, 100–240 VAC
 - 2135C/CM-X/48: V.35 DTE with M/34 Male, Serial Cable, -48VDC
 - 2135/CM/UI: Ethernet MicroBridge, V.35 DTE with M/34 Male, 100–240 VAC
 - 2135/CM/48: Ethernet MicroBridge, V.35 DTE with M/34 Male, -48VDC
- Note:** X= "L" 6-foot (182.88 cm) Serial Cable or "S" 6-inch (15.24 cm) Serial Cable. Example: 2135/CM-S/UI Ethernet MicroBridge, V.35 DTE with M/34 Male, 6-in. (15.24 cm) Serial Cable, UI

Ethernet to X.21 Converter/Bridge

Model 2121

This device connects your X.21 serial devices to Ethernet networks

SPECIFICATIONS

DTE Interface: X.21

Network Interface: IEEE 802.3 10Base-T (RJ-45)

Transmission: Sync up to 10 Mbps
Protocol: PPP (RFC 1661) with Bridging Control Protocol (RFC 1638)

Memory: 1MB RAM, 128KB FLASH

MAC Address Table Size: 4096 entries

MAC Address Aging: MAC addresses deleted after eight minutes of inactivity

LEDs LAN Side: (1) yellow, general status; (1) green, link integrity

LEDs DTE Side: TXD, RXD and Power, (green); DTR, DCD, CTS and CLK, (yellow)

Power Supply Input: 100–240VAC, 50–60Hz, 0.4A; or optional -48 VDC

Power: 500mA @ 5VDC

Temp: 32–122°F (0–50°C)

Humidity: Up to 90% R.H., non-condensing

Dimensions: 3.5 L X 2.1 W X 0.78 H inch (9.0 L X 5.3 W X 2.0 H cm)

Weight: 0.72 lbs (0.32 kg)

Compliance: FCC Part 15A; CE Mark per EEC Directive: 89/336/EEC; Low Voltage Directive: 73/23/EEC



ORDERING INFORMATION

2121/DM-X/UI: Ethernet MicroBridge, X.21 DTE with DB-15 Male, Serial Cable, 100–240 VAC

2121/DM-X/48: Ethernet MicroBridge, X.21 DTE with DB-15 Male, Serial Cable, -48VDC

Note: X= "L" 6-foot (182.88 cm) Serial Cable or "S" 6-inch (15.24 cm) Serial Cable. Example: 2121/DM-S/UI Ethernet MicroBridge, X.21 DTE with DB-15 Male, 6-in. (15.24 cm) Serial Cable, UI

Ethernet to V.24 Converter/Bridge

Model 2124

This device connects your V.24 serial devices to Ethernet networks

SPECIFICATIONS

DTE Interface: V.24

Network Interface: IEEE 802.3 10Base-T (RJ-45)

Transmission: Sync up to 10 Mbps
Protocol: PPP (RFC 1661) with Bridging Control Protocol (RFC 1638)

Memory: 1MB RAM, 128KB FLASH

MAC Address Table Size: 4096 entries

MAC Address Aging: MAC addresses deleted after eight minutes of inactivity

LEDs LAN Side: (1) yellow, general status; (1) green, link integrity

LEDs DTE Side: TXD, RXD and Power, (green); DTR, DCD, CTS and CLK, (yellow)

Power Supply Input: 100–240VAC, 50–60Hz, 0.4A; or optional -48 VDC

Power: 500mA @ 5VDC

Temp: 32–122°F (0–50°C)

Humidity: Up to 90% R.H., non-condensing

Dimensions: 3.5 L X 2.1 W X 0.78 H inch (9.0 L X 5.3 W X 2.0 H cm)

Weight: 0.72 lbs (0.32 kg)

Compliance: FCC Part 15A; CE Mark per EEC Directive: 89/336/EEC; Low Voltage Directive: 73/23/EEC



ORDERING INFORMATION

2124/AM-X/UI: Ethernet MicroBridge, V.24 DTE with DB-25 Male, Serial Cable, 100–240 VAC

2124/AM-X/48: Ethernet MicroBridge, V.24 DTE with DB-25 Male, Serial Cable, -48VDC

Note: X= "L" 6-foot (182.88 cm) Serial Cable or "S" 6-inch (15.24 cm) Serial Cable. Example: 2124/AM-S/UI Ethernet MicroBridge, V.24 DTE with DB-25 Male, 6-in. (15.24 cm) Serial Cable, UI



Ethernet to EIA-530 Converter/Bridge

Model 2130

This device connects your EIA-530 serial devices to Ethernet networks

SPECIFICATIONS

DTE Interface: V.24

Network Interface: IEEE 802.3 10Base-T (RJ-45)

Transmission: Sync up to 10 Mbps
Protocol: PPP (RFC 1661) with Bridging Control Protocol (RFC 1638)

Memory: 1MB RAM, 128KB FLASH

MAC Address Table Size: 4096 entries

MAC Address Aging: MAC addresses deleted after eight minutes of inactivity

LEDs LAN Side: (1) yellow, general status; (1) green, link integrity

LEDs DTE Side: TXD, RXD and Power, (green); DTR, DCD, CTS and CLK, (yellow)

Power Supply Input: 100–240VAC, 50–60Hz, 0.4A; or optional -48 VDC

Power: 500mA @ 5VDC

Temp: 32–122°F (0–50°C)

Humidity: Up to 90% R.H., non-condensing

Dimensions: 3.5 L X 2.1 W X 0.78 H inch (9.0 L X 5.3 W X 2.0 H cm)

Weight: 0.72 lbs (0.32 kg)

Compliance: FCC Part 15A; CE Mark per EEC Directive: 89/336/EEC; Low Voltage Directive: 73/23/EEC



ORDERING INFORMATION

2130/BM-X/UI: Ethernet MicroBridge, EIA-530 DTE with DB-25 Male, Serial Cable, 100–240 VAC

2130/BM-X/48: Ethernet MicroBridge, EIA-530 DTE with DB-25 Male, Serial Cable, -48VDC

Note: X= "L" 6-foot (182.88 cm) Serial Cable or "S" 6-inch (15.24 cm) Serial Cable. Example: 2130/BM-S/UI Ethernet MicroBridge, EIA-530 DTE with DB-25 Male, 6-in. (15.24 cm) Serial Cable, UI

Auto-Directional Serial to Parallel Converters

Models 2025, 2029, 2035, & 2039

These miniature converter cables automatically select parallel/serial mode

The Models 2025 & 2029 miniature converters represent a breakthrough in size and performance. They support auto-directional data conversion, serial data rates to 38.4 kbps, plus hardware and X-On/X-Off handshaking. Yet they are no larger than a DB-9 or DB-25 backshell (excluding cable), and require no AC power or batteries for operation.

The Model 2025 plugs directly into an RS-232 device with a DB-25 serial port. The Model 2029 plugs directly into an EIA-574 (RS-232) device with a DB-9 serial port. Both models use microprocessor technology to automatically orient themselves for serial-to-parallel or parallel-to-serial data conversion. A single LED indicator monitors five modes, including transmit status.



Model 2025

Model 2029

FEATURES & BENEFITS

- ✓ Data rates to 38.4 kbps (Models 2025 or 2029) or 115.2 kbps (Models 2035 or 2039)
- ✓ Integral 6 foot (1.8m) cable
- ✓ Auto-directional data conversion
- ✓ Automatic DCE/DTE mode selection
- ✓ Support for hardware *and* software X-On/X-Off flow control
- ✓ Data rates to 38,400 bps (Models 2025 and 2029)
- ✓ Data rates to 115.2 bps (Models 2035 and 2039)
- ✓ Link Status LED indicator

SPECIFICATIONS

Data Rate: 0.3, 0.6, 1.2, 2.4, 4.8, 9.6, 19.2, 38.4 kbps selected by external DIP switch (for speeds up to 115.2 kbps (2035 and 2039))

Data Format: Asynchronous serial/36-pin parallel

Characters: 7 or 8 data bits, one stop bit

Parity: Even, odd, or no parity

Cable Length: 6.0 feet (1.8m)

Power: No AC power required

ORDERING INFORMATION

DB-25 versions

2025: Serial (DB-25 female) to parallel (36-pin male)

2025-25M: Serial (DB-25 female) to parallel (DB-25 male)

2025GCM: Serial (DB-25 male) to parallel (36-pin male)

2025GCM-25M: Serial (DB-25 male) to parallel (DB-25 male)

2035: Serial (DB-25 female) to parallel (36-pin male)

2035-25M: Serial (DB-25 female) to parallel (DB-25 male)

2035GCM-25M: Serial (DB-25 male) to parallel (DB-25 male)

DB-9 versions

2029: Serial (DB-9 female) to parallel (36-pin male)

2029-25M: Serial (DB-9 female) to parallel (DB-25 male)

2039: Serial (DB-9 female) to parallel (36-pin male)

2039-25M: Serial (DB-9 female) to parallel (DB-25 male)

Note: Other models are available, call for details.

Compact Interface Serial to Parallel Converters

Models 2026, 2027, 2036, & 2037

These converters automatically sense and select parallel/serial and DCE/DTE modes

These auto-directional parallel to serial converters automatically orient themselves for parallel/serial direction and DTE/DCE orientation. In addition, all units are self-powered, support hardware and X-ON/X-OFF flow control, and can be configured from external DIP switches.

The Model 2026 supports serial data rates up to 38.4 kbps, while the Model 2036 goes all the way up to 115.2 kbps!

The 2026 and 2036 have a DB-25 and a 36-pin connector. The Model 2027 supports serial data rates up to 38.4 kbps, while the 2037 supports rates up to 115.2 kbps. The 2027 and 2037 have DB-25 connectors at both ends.



Model 2026

Model 2027

FEATURES & BENEFITS

- ✓ Auto-directional data conversion
- ✓ Automatically selects parallel-to-serial or serial-to-parallel operation
- ✓ Automatically selects DCE/DTE mode
- ✓ Supports hardware *and* software X-On/X-Off flow control
- ✓ Data rates from 300 bps to 38.4 kbps (Models 2026 & 2027) or up to 115.2 kbps (Models 2036 & 2037)
- ✓ External configuration switches

SPECIFICATIONS

Data Rate (selected by external switches): 2026 & 2027—300, 600, 1200, 2400, 4800, 9600, 19,200, 38,400 bps; 2036 & 2037—up to 115.2 kbps

Parity: Even, odd, or no parity with 7 or 8 data bits

Power: No AC power required; uses ultra low power derived from the RS-232 data and control signals

Connectors: Model 2026 & 2036—DB-25 female, 36 pin male or female; Model 2027 & 2037—two DB-25 female connectors

ORDERING INFORMATION

2026-F: Converter, serial DB-25 female and parallel 36-pin male

2036-M: Converter, serial DB-25 male and parallel 36-pin male

2036-F: Converter, serial DB-25 female and parallel 36-pin male

2027F-F: Converter, serial DB-25 female and parallel DB-25 female

2027F-M: Converter, serial DB-25 female and parallel DB-25 male

2037F-F: Converter, serial DB-25 female and parallel DB-25 female

2037F-M: Converter, serial DB-25 female and parallel DB-25 male

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Powered Serial to Parallel Printer Converter

Model 2036P

AC power supply enables operation in low power applications

The Patton Model 2036P is a self-contained printer converter that supports both hardware and X-ON/X-OFF handshaking, as well as asynchronous serial data rates up to 115.2 kbps. The Model 2036P receives operating power from the RS-232 interface, or—in the case of low-power interfaces—from an external AC power supply (included). Able to automatically configure itself for parallel/serial direction and DTE/DCE orientation, the Patton 2036P is otherwise configured using convenient external DIP switches.



FEATURES & BENEFITS

- ✓ Async data rates to 115.2 kbps
- ✓ Automatically selects parallel-to-serial or serial-to-parallel operation
- ✓ Automatically selects DCE/DTE mode
- ✓ Supports hardware and X-On/X-Off flow control
- ✓ External configuration switches

ORDERING INFORMATION

2036P: Converter, Device End DB-25 female and 36-pin male, 120 VAC

2036P/230: Converter, Device End DB-25 female and 36-pin male, 230 VAC

Note: Other models are available, call for details.

SPECIFICATIONS

Data Rates: 0–115 kbps

Interface: Asynchronous, RS-232 compatible

Data Format: 7 or 8 bits; 1 or 2 stop bits; even, odd, or no parity

Op. Temp.: 32–140°F (0–50°C)

Flow Control: Serial side as DCE = CTS (5)/DSR (6); serial side as DTE = DTR (20)

Dimensions: 4.4 x 2.9 x 0.8 in. (11.0 x 7.4 x 2.0 cm)

Weight: 2.6 oz (73.8 grams)

Typical application



RS-232/423 to IEEE-1284 Converter

Model 2030

This converter complies with the IEEE-1284 standard for Level 1 hardware.

The Patton Model 2030 RS-232/423 Serial to IEEE-1284 Bi-Directional Parallel Converter lets you connect asynchronous RS-232/423 serial hardware to a printer or other device equipped with an IEEE-1284 bi-directional parallel interface. Able to work in either Level 1 Compatible or Nibble modes (according to the IEEE-1284 Standard), the Model 2030 supports the high speeds necessary for graphics-intensive laser printer applications.



The Model 2030 supports serial data rates to 115.2 kbps and works with all IEEE-1284 Level 1 compatible hardware, (including Level 2 hardware with Level 1 backward compatibility). Nibble operations are translated into standard Hewlett-Packard™ LaserJet® IV serial printer escape sequences for operation with standard printer drivers. Power may be supplied by both interfaces, or by a plug-in AC adapter.

FEATURES & BENEFITS

- ✓ Async data rates to 115.2 kbps
- ✓ Supports two IEEE-1284 modes: compatible and nibble (switchable)
- ✓ 10KV ESD protection on serial interface
- ✓ Works with Level 1 hardware
- ✓ Power derived from both interfaces, or from external AC power supply
- ✓ LEDs for power and data mode (distinctive blinking)
- ✓ Plugs directly into 36-pin interface
- ✓ Miniature size fits in tight spaces

Typical application



SPECIFICATIONS

Transmission Format: Asynchronous, full duplex on the serial side; IEEE-1284 on the parallel side, supporting Compatibility and Nibble Modes (switchable)

Connectors: 36-pin male, RJ-45 female

ESD Protection: 10KV

Data Rates: 9.6, 19.2, 38.4 and 115.2 kbps

Range: Meets capacitive and resistive load requirements of RS-232 and RS-423

Power Supply: Power derived from RS-232/423 and IEEE-1284 Interfaces. Note: IEEE 1284 B interface must support the optional 5V on pin 18, and IEEE 1284

C must support interface pin 36 (peripheral logic high). Otherwise, power must be supplied using the optional AC wall mount power supply.

Op. Temp.: 32–122°F (0–50°C)

ORDERING INFORMATION

2030: Async RS-232/423 to IEEE-1284 Converter (120V)

2030-220: Async RS-232/423 to IEEE-1284 Converter (220V)

Self-Powered Parallel Line Extenders

Model 1225

Extend parallel communication to 2000 ft (610 m) over a single twisted pair

The Patton Model 1225 ParaLink™ answers a common office complaint: “Why can’t we move our printer further away?” The interface-powered ParaLink converts parallel signals to serial and transmits them up to 2000 feet (610m) before converting them back to parallel. This overcomes the inherent distance limitations of parallel com-



munications! What’s more, the ParaLink transmits over a single pair of cable: No more bulky 25 or 36 conductor cables! Because the ParaLink lets you choose between BUSY and ACKNOWLEDGE handshaking modes, it is compatible with most parallel printers and sharing devices on the market.



SPECIFICATIONS

Parallel Interface: Centronics®/ IBM Parallel (DB-25)
Range: Up to 2000 feet (610m)
Transmit Line: One unconditioned twisted pair (2 wires)

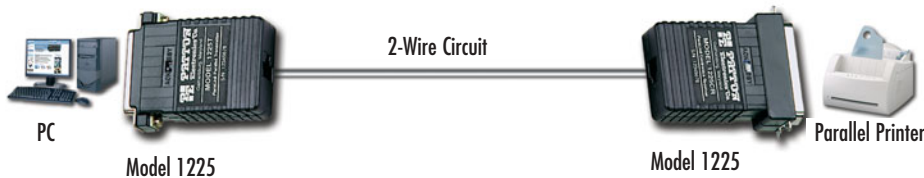
Transmit Mode: Half duplex
Line Connection: RJ-11 or RJ-45 jack or 2 position terminal post and a strain relief

Interface Signals: Data bits 0-7, ground, busy or acknowledge (external switch selectable)

Power Supply: Interface powered, no AC power or batteries required

Dimensions: 2.67”L x 2.10”W x 0.74”H (6.7 x 5.3 x 1.88 cm)

Typical Application



FEATURES & BENEFITS

- ✓ Extends parallel communication to 2000 feet (610 m) over a single twisted pair
- ✓ Interface powered—no AC needed
- ✓ Switchable ACK / BUSY handshaking enhances printer compatibility
- ✓ Accommodates low power printer interfaces
- ✓ DB-25 or Centronics connectors
- ✓ Compatible with most parallel printers and printer sharing devices
- ✓ RJ-11, RJ-45 or terminal block twisted pair connection

ORDERING INFORMATION

Note: The Model 1225 must be purchased in pairs (a transmitter and a receiver).

1225TM: Transmitter, male DB-25 with terminal block

1225CRM: Centronics receiver, male with terminal block

1225RM: Receiver, male DB-25 with terminal block

1225RF: Receiver, female DB-25 with terminal block

1225TMRJ11: Transmitter, male DB-25 with RJ-11

1225CRMJRJ11: Centronics receiver, male with RJ-11

1225RMRJ11: Receiver, male DB-25 with RJ-11

1225RFRJ11: Receiver, female DB-25 with RJ-11

AC Powered, Parallel Short Range Modem

Model 1226

Connect a parallel PC to a parallel printer 14 miles (22.5 km) away!

Use this short range modem to connect a parallel PC to a parallel printer located up to 14 miles (22.5 km) away. Interoperates with Models 1050 and 1060 modems (see page 86).



SPECIFICATIONS

Distance: See 1060 Distance Table on Page 157

Transmission Format: Asynchronous serial

Interface: DB-25 female, (IBM) parallel

Data Rate: 0 to 115.2 Kbps

Line Interface: RJ-11& terminal block (RJ-45 opt.)

Applications: Parallel distance extension; parallel to serial or serial to parallel conversion + distance extension (when used with the Model 1060)

Indicators: Tri-state indicators for Transmit Data, Receive Data, Control In and Control Out; One State for Status and Power

Power Supply: External, 10VAC, 700mA

ORDERING INFORMATION

1226-110: Parallel, Powered, Standalone Short Haul Modem(120V)

1226-220: Parallel, Powered, Standalone Short Haul Modem (230V)

FEATURES & BENEFITS

- ✓ Serial Data Rates to 115.2 Kbps
- ✓ Distances to 14 Miles over Two Unconditioned Twisted Pair
- ✓ Auto-Directional Serial <=> Parallel Data Conversion
- ✓ Fully Compatible with the Patton Model 1050 and 1060

I'm Nathan, one of Patton's Product Marketing Group Managers. If you do not find the solutions you need at www.patton.com or in this catalog, please call me at +1 301.975.1000, x129. You can also send e-mail to nathan@patton.com.



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PATTON
Electronics Co.

Baluns

High Speed Baluns

Baluns convert the G.703 interface from unbalanced 75-ohm to balanced 120-ohm terminations. Patton's baluns use dual BNC connectors (Models 460 and 464) or dual 1.6/5.6 coax connectors (Models 465 and 466) for the 75-ohm interface. An RJ-45/48C or terminal block are used for the 120-ohm or 100-ohm interfaces. Patton's balun products are available in standalone and 1U or 2U high 19-inch rack mounts (refer to the selection guides below).

Stand Alone Balun Selection Guide



	Coax Type						Twisted Pair Interface			Model #
	BNC Male	BNC Female	BNC Male on 6 in. cable	1.6/5.6 Male	1.6/5.6 Female	1.6/5.6 Male on 6 in. cable	RJ-45/48C	Terminal Block	Impedance (ohm)	
E1		✓					✓		120	460F
		✓						✓	120	460F-TBP
	✓						✓		120	460M
	✓							✓	120	460M-TBP
			✓				✓		120	460MC
			✓					✓	120	460MC-TBP
					✓		✓		120	465F
				✓			✓		120	465M
						✓	✓		120	465MC
E2		✓					✓		100	462F
	✓						✓		100	462M
E3		✓					✓		120	463F
	✓						✓		120	463M
155 Mbps		✓					✓		100	470F
		✓					✓		120	471F

Rack Mount Balun Selection Guide



Coax Interface (75 ohm)		Twisted Pair Interface (120 ohm)			General Characteristics			Model #
BNC Female	1.6/5.6 Female	RJ-48C	64-Pin Telco	50-Pin Telco	Modular	# of Ports	Height	
✓		✓			Yes	16	2U	460RC/16/F
	✓	✓			Yes	16	2U	465RC/16/F
✓		✓	✓		No	16	1U	464RC
	✓	✓	✓		No	16	1U	466RC
✓				✓	No	24	1U	450RC/24

A Dual Path to Interconnect

Single Port G.703/G.704 Baluns

Single Port E1/E2 IDC Krone Baluns

The new G.703/G.704 insulating displacement connecting (IDC) module Krone 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.



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CCTV Passive Baluns	74
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CATV Passive Baluns	75
Component Video Balun	75

75 Ohm (Coax)								120 Ohm Twisted Pair	E1/E2 Balun Model #*
BNC male	BNC female	1.6/5.6 male	1.6/5.6 female	1.0/2.3 male	1.0/2.3 female	BT43 male	BT43 female	Toolless IDC Krone	
✓								✓	431M
	✓							✓	431F
		✓						✓	432M
			✓					✓	432F
				✓				✓	433M
					✓			✓	433F
						✓		✓	434M
							✓	✓	434F

* CALL for additional models.

3270 Balun Selection Guide



Model	Coax Connector		Twisted Pair Connection			
	BNC Male*	BNC Male on 6 inch cable	RJ-11 Jack	Terminal Block	RJ-45 Jack	RJ-11 Plug on 6 feet cable
400M11	✓		✓			
400MTB	✓			✓		
400M11TB	✓		✓	✓		
400M11P	✓					✓
400M45	✓				✓	
400M45TB	✓			✓	✓	
400MC11		✓	✓			
400MCTB		✓		✓		
400MC11TB		✓	✓	✓		
400MC11P		✓				✓
400MC45		✓			✓	
400MC45TB		✓		✓	✓	

* NOTE: For FEMALE BNC connectors, use "F" instead of "M" in Model Number

IBM 3270

IBM 3270 is a star-cabled topology originally designed to be installed with 93-ohm coax cable. Cost, flexibility and space constraints combined with improved balun ("balanced" twisted pair/"unbalanced" coax) technology have made unshielded twisted pair the primary media today. The 400 Series are used to connect terminals and controllers to the 100-ohm twisted-pair cabling.

Single Port E1/E2 IDC Krone Baluns

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

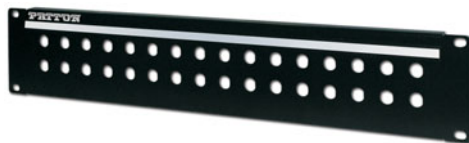
The Patton 430 Single Port E1/E2 Balun Series provides 75/120-ohm conversion in an ultra-miniature enclosure



The new G.703/G.704 insulating displacement connecting (IDC) module Krone 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 Krone 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 Krone connector is also offset so that a cable can be positioned between baluns on the DDF/patch panel as required. The IDC Krone connector is clearly labeled A, B, and G (Ground) to make installation more convenient.



The Patton Model 430R houses up to 32 individual IDC Krone 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.

FEATURES & BENEFITS

- ✓ Convert 75 ohm Coax to 120 ohm 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



I'm Ovidio, Patton's Regional Director of Latin America Operations. If you have any questions about products or applications using baluns, please call me at +1 301.975.1000, x118, or send e-mail to ovidio@patton.com.



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



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



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



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



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



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



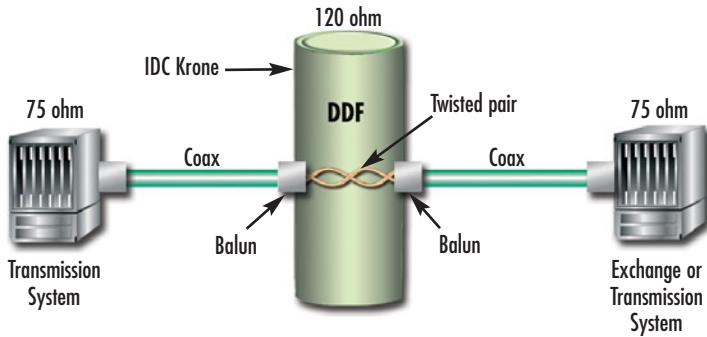
Model 434F
 Single Port Type 43 Female
 Panel Mount to IDC
 Krone Balun



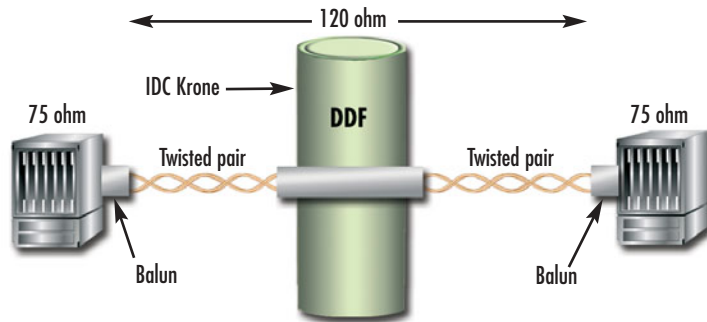
Model 434M
 Single Port Type 43 Male
 Panel Mount to IDC
 Krone Balun

Balun applications

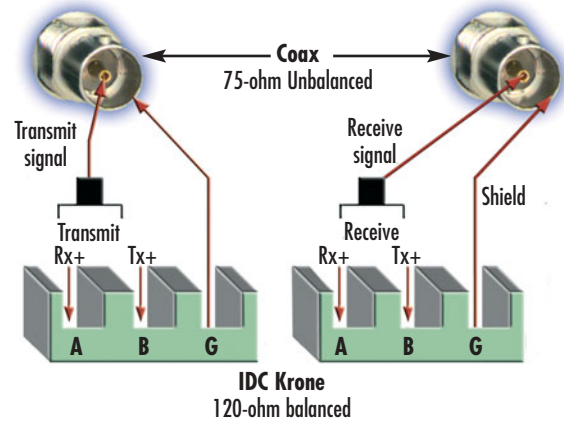
DDF jumper reconfiguration with 120 ohm



Typical DDF application



Patton's Ultra-miniature G.703 IDC Krone 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 Krone Connector

- 1 Specially designed tool-less IDC connector for easy connection of unterminated cable.
- 2 IDC Krone 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 Krone connector makes installations a breeze.

ORDERING INFORMATION

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

SPECIFICATIONS

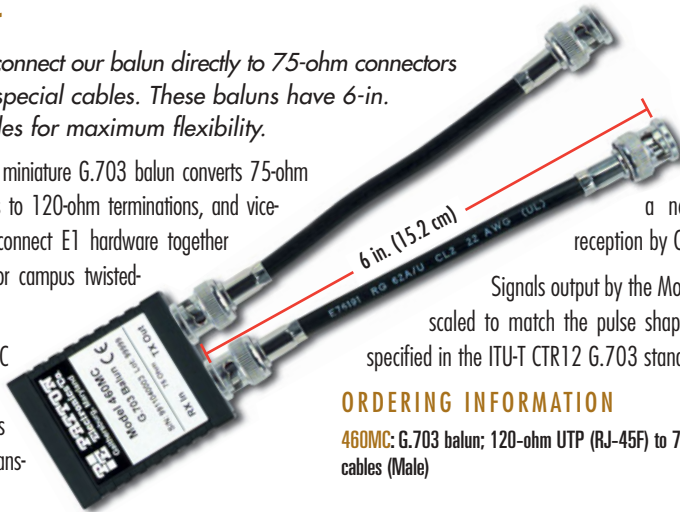
Transmission Line: ITU-T G.703/G.704 2-8 Mbps	Cross Talk: Better than -80dB from 0.1 to 12 MHz between any two baluns on a DDF strip with 15 mm centers
75-ohm Connection: BNC; 1.6/5.6, 1.0/2.3, or Type 43	Return Loss: -29 dB at 2 Mbps; -21 dB at 8 Mbps
120-ohm Connection: 3 pole IDC Krone	Dimensions: 19L x 1.5W x 3.8H in. (48.3L x 48.3W x 8.9H cm)
Insertion Loss: Max 0.2 dB at 2 Mbps; Max 0.3 dB at 8 Mbps	Weight: 0.4 lbs (0.18 kg)

G.703 Balun (E1), 2 Mbps, With Built-in Cables (75-ohm to 120-ohm)**Model 460MC**

Now you can connect our balun directly to 75-ohm connectors without using special cables. These baluns have 6-in. (15.2 cm) cables for maximum flexibility.

The Model 460MC miniature G.703 balun converts 75-ohm coaxial terminations to 120-ohm terminations, and vice-versa. It can also connect E1 hardware together over inter-building or campus twisted-pair wiring.

The Model 460MC receives 75-ohm signals and converts to 120-ohm for trans-



mission over a network or for reception by CPE equipment.

Signals output by the Model 460MC are scaled to match the pulse shape requirements specified in the ITU-T CTR12 G.703 standard.

ORDERING INFORMATION

460MC: G.703 balun; 120-ohm UTP (RJ-45F) to 75-ohm dual-BNC cables (Male)

FEATURES & BENEFITS

- ✓ Solves G.703 termination mis-matches
- ✓ Includes short cables that connect directly to equipment
- ✓ Enables G.703 equipment to use RJ-11 wall plates and operate over standard building wiring
- ✓ Low insertion loss, meets ITU-T (CTR12) G.703 standards
- ✓ Customized versions available upon request
- ✓ Enclosed in flame retardant housings.
- ✓ Baluns are 100% tested for reliability and durability

SPECIFICATIONS

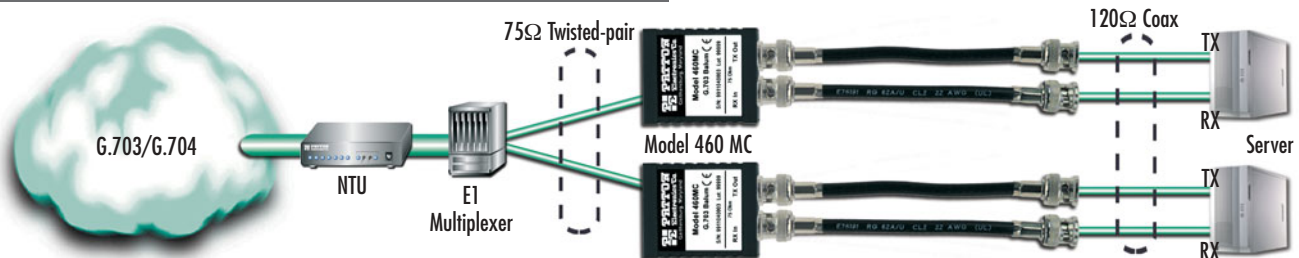
Transmission line: ITU-T CTR12 G.703

Data rate: 2.048 Mbps (models available for rates up to 155 Mbps, call for details)

Link-to-data isolation: 500 volts AC/DC

Op. Temp.: 32–122°F (0–50°C)

Dimensions:
0.8H x 1.7W x 2.7D in.
(2.0H x 4.3W x 6.9D cm)

75-ohm coaxial to 120-ohm twisted-pair cable conversion application**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 standard-

ized 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.

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

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

SPECIFICATIONS

Transmission Line: CCITT G.703 (unstructured)

Data Rate: Model 460 to 2 Mbps; Model 462 to 8 Mbps; Model 463 to 34 Mbps

Power Supply: none required
75-ohm Connection: Dual coax BNC connectors, male or female (RG 59 or 2002 coax)

120-ohm Connection: Shielded mRJ-45 jack (internal terminal block included)

Link-to-Data Isolation: 500 volts AC/DC

Op. Temp.: 0–50°C (32–122°F)

Dimensions:
2.7L x 1.7W x 0.8D in.
(6.86L x 4.32W x 2.03D cm)

G.703 (E1) Balun, 2 Mbps (1.6/5.6 Connectors)

Models 465 & 465MC

These new G.703 baluns feature 1.6/5.6 coaxial connectors and provide connection for TX and RX connections on a single twisted-pair wire.



Baluns are adapters for connecting mixed cable types or devices with mismatched interfaces. They enable carrier and large-enterprise customers to standardize on twisted-pair wiring, even though some equipment may have unique E1 terminations.

The Model 465 has the 1.6/5.6 coax connectors used extensively in telephone exchange sites. The balun has two interfaces, so that both the TX and RX coax signals can be carried over a single length of twisted-pair cabling (which is far less costly than any kind of coaxial cable).

ORDERING INFORMATION

- 465F: G.703 balun; 120-ohm UTP (RJ-45F) to 75-ohm dual-coax female 1.6/5.6 plugs
- 465M: G.703 balun; 120-ohm UTP (RJ-45F) to 75-ohm dual-coax male 1.6/5.6 plugs
- 465MC: G.703 Balun with 120-ohm UTP (RJ-45F) to 75-ohm 1.6/5.6 plugs 6-in. (15.2 cm) cables

FEATURES & BENEFITS

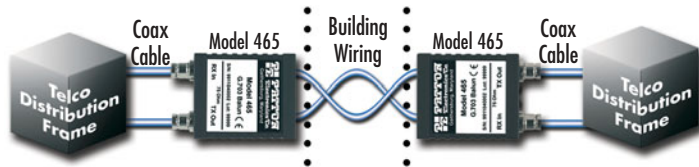
- ✓ Use 120-ohm twisted-pair wiring with unbalanced coaxial equipment
- ✓ No more buying expensive and space-hungry hardware for patching and distributing G.703 connections
- ✓ Low cost model supports rates of 2 Mbps
- ✓ Low insertion loss, fully meets ITU-T (CTR12) G.703 standards
- ✓ Standard twisted-pair terminations
- ✓ Enclosed in flame retardant housings
- ✓ Baluns are 100% tested for reliability and durability
- ✓ Customized versions available upon request

SPECIFICATIONS

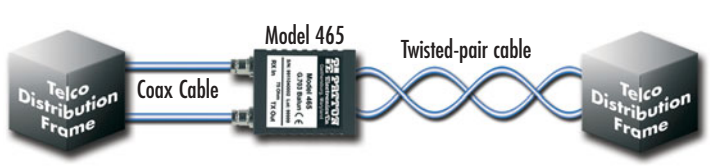
Transmission line: ITU-T CTR12 (G.703)
 Data rate: 2.048 Mbps
 Link-to-data isolation: 500 volts AC/DC
 Op. Temp.: 32° to 122°F (0° to 50°C)

Dimensions:
 0.8H x 1.7W x 2.7D in.
 (2.0H x 4.3W x 6.9D cm)

Coax to twisted-pair building wiring conversion



Coax to twisted-pair cable conversion



155-Mbps ATM Baluns Swap Coax for Twisted Pair

Models 470, 471, & 472

Match 75-ohm dual-coax with a 100-, 120-, or 150-ohm twisted-pair wiring

These baluns enable you to match the connectors, impedance, and signal characteristics of a wide variety of connections. The Models 470 (100-ohm) and 471 (120-ohm) provide RJ-45 for twisted-pair. The Model 472 (150-ohm) provides an IBM data connector on a pigtail.



ORDERING INFORMATION

- 470F: ATM Balun (75-ohm Dual-Coax BNC female to 100-ohm shielded RJ-45 jack)
- 471F: ATM Balun (75-ohm Dual-Coax BNC female to 120-ohm UTP RJ-45 jack)
- 472F: ATM Balun (75-ohm Dual-Coax BNC female to 150-ohm IDC on pigtail)

FEATURES & BENEFITS

- ✓ Support for data rates to 155 Mbps
- ✓ Bi-Directional signal conversion
- ✓ 75-ohm dual-coax BNC (female)
- ✓ Model 470 (100 ohm) & Model 471 (120 ohm) provide RJ-45 for twisted-pair; Model 472 (150 ohm) provides IBM data connector on pigtail

SPECIFICATIONS

Data rate: Up to 155 Mbps
 Link-to-data isolation: 500 volts AC/DC
 Op. Temp.: 32–122°F (0–50°C)

Dimensions:
 0.8H x 1.7W x 2.7D in.
 (2.0H x 4.3W x 6.9D cm)

TeleMatch™ G.703 (E1) Balun Panels (75 to 120-ohm)
Models 460RC & 465RC

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. The Model 465RC has the 1.6/5.6 coax connectors used extensively in telephone exchange sites.

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 465RC/16/F). Or purchase the chassis separately (Model 460R/16) and add balun modules (Model 460RC/F or 465RC/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!

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 (Model 460RC)
- ✓ Uses 1.6/5.6 coaxial connectors (Model 465RC)
- ✓ 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

SPECIFICATIONS

Transmission Line:
Model 460RC—CCITT G.703 (unstructured)
Model 465RC—ITU-T CTR12 G.703

Data Rate:
Model 460RC—2.048 Mbps
Model 465RC—2.048 Mbps

120 ohm Connection: Shielded RJ-45 jack

Power Supply: none required

75-ohm Connection:
Model 460RC—Dual female BNC connectors
Model 465RC—Dual female 1.6/5.6 connectors

Link-to-Data Isolation: 500 Volts AC/DC

Op. Temp.: 32–122°F (0–50° C)

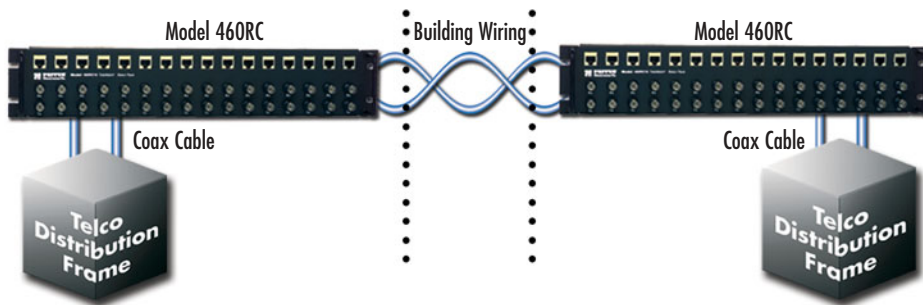
Dimensions:
19.0W x 3.5H x 1.9D in.
(48.3W x 8.9H x 4.8D cm)

ORDERING INFORMATION

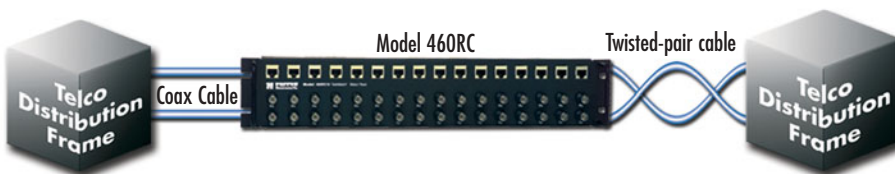
- 460RC/16/F: 16-Port G.703 Balun Panel (RJ-45 Jack to Dual BNC Female)
- 460R/16*: Balun Chassis (Empty)
- 460RC/F: G.703 Balun Module, RJ-45 to Dual BNC Female
- 465RC/16/F: 16-port G.703 Balun Panel, RJ-45 to Dual 1.6/5.6 Female
- 465RC/F: G.703 Balun Module, RJ-45 to Dual 1.6/5.6 Female



Coax to twisted-pair building wiring conversion



Coax to twisted-pair cable conversion



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



I'm Jose, Patton's Technical Solutions Manager for Latin America. If you have any questions about products or applications using these technologies, please call me at +1 301.975.1000, x142, or send e-mail to jose@patton.com.



Typical application



SPECIFICATIONS

Electrical Characteristics
Averaged between 1 MHz and 3 MHz
Av. Cross Talk: Better than 54.4 dB (Between adjacent channels (TX and RX))
Av. Insertion Loss: Less than .30dB
Av. Return Loss: Better than 31.5dB

Physical Specifications
Transmission Line: CCITT G.703 (unstructured)
Data Rate: 2.048 Mbps
75 ohm Connection: Dual coax female BNC connectors
120 ohm Connection: Dual 50-pin Telco connectors

Power Supply: none required
Link-to-Data Isolation: 500 volts AC/DC
Op. Temp.: 32–122°F (0–50°C)
Relative Humidity: 5–95% RH, non-condensing
Altitude: 0–15,000 feet (3,048 meters)

Dimensions (without handles): 19W x 3.5H x 1.9D in. (48.3W x 8.9H x 4.8D cm)
Weight: 4.46 lbs (2.02 kg)

ORDERING INFORMATION

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

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www.patton.com

FAST Delivery From Your AUTHORIZED DISTRIBUTOR!



High Density, E1/G.703 Balun Panels

Models 464RC & 466RC

Matches 16 sets of dual 75-ohm coax connections to 120-ohm twisted pair connections



The Patton 464RC & 466RC G.703 balun panels match 16 sets of dual 75-ohm coax connections to 120-ohm twisted-pair connections. This function allows carriers to provide 120-ohm G.703 service to customers retaining 75-ohm CPE hardware. It also allows carriers who have standardized on 75-ohm coax to provide 120-ohm terminations to their customers (in keeping with European ONP requirements).

Supporting E1 data rates to 2.048 Mbps, the Patton 464RC and 466RC panels bi-directionally match signal impedance and pulse shapes according to the CCITT G.703 standard. The Patton 464RC and 466RC balun panels mount in a standard 19-in. (48.3 cm) rack. Includes a reversible top cover for front-facing BNC or front-facing RJ-45/AMP Champ connectors.

FEATURES & BENEFITS

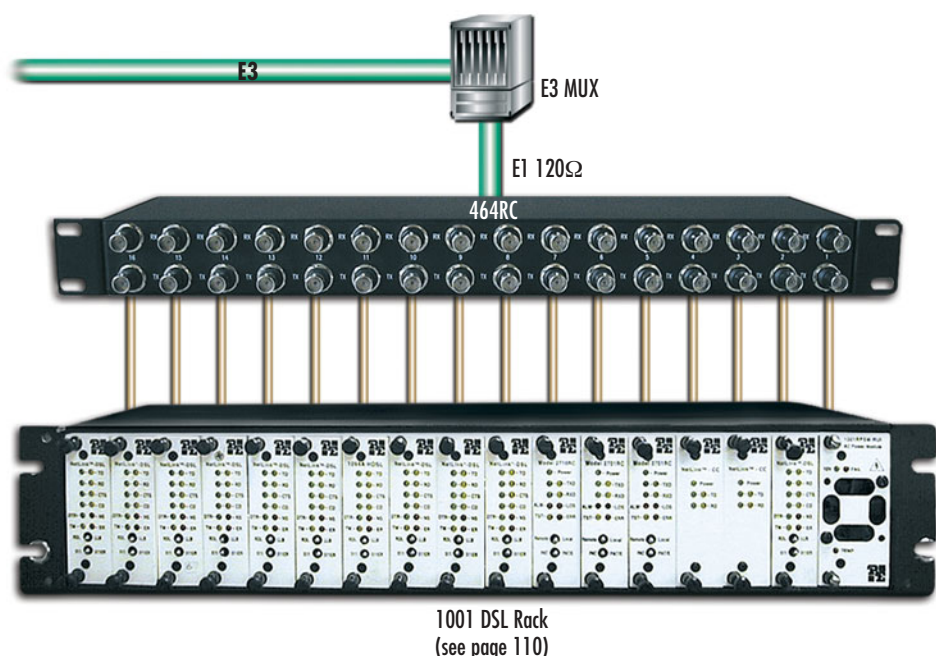
- ✓ Connects 16 75-ohm dual coax to 120-ohm twisted pair channels
- ✓ Bi-Directional signal conversion according to CCITT G.703
- ✓ Data Rates up to 2.048 Mbps
- ✓ 1U-high enclosed chassis
- ✓ Reversible cover with integrated mounting ears
- ✓ Mounts in standard 19 in. (48.3 cm) rack
- ✓ No AC power or batteries required
- ✓ Female BNC coax (Model 464RC)
- ✓ Female 1.6/5.6 connectors (Model 466RC)
- ✓ RJ-45 and 64 pin AMP Champ 120-ohm interface

ORDERING INFORMATION

464RC: High density 16-port, 19-inch, 1U (4.44 cm) balun chassis. BNC coax connector for 75-ohm connections. G.703 rack-mount

466RC: High density 16-port, 19-inch, 1U (4.44cm) balun chassis. 1.6/5.6 coax connector for 75-ohm connections. G.703 rack-mount

Typical application



SPECIFICATIONS

Transmission Line: CCITT G.703 (unstructured)

Data Rate: 2.048 Mbps

75 ohm Connection: Dual coax female BNC (464) 1.6/5.6 series (466) connectors

120 ohm Connection: RJ-45 jack or 64 pin AMP Champ

Power Supply: none required
Link-to-Data Isolation: 500 volts AC/DC

Op. Temp.: 32-122°F (0-50°C)
Dimensions (without handles): 19.0 W x 1.75 H x 1.9 D in. (48.3 W x 4.45 H x 4.8 D cm)

Looking for a *Standalone Balun Solution?* See Page 68

Check out our *Ultra-Miniature G.703 Baluns*



IBM 3270 Coax to Twisted Pair Baluns

Model 400

Why run expensive coax cable when you can use twisted pair?

With a pair of Patton Model 400 baluns, any IBM 3270 Type A device can be connected over one twisted pair telephone line at distances up to 1,200 feet (365 m). This can result in significant savings over coax!

FEATURES & BENEFITS

- ✓ Communicate over existing telephone lines or other twisted pair
- ✓ Connect twisted pair using RJ-11, RJ-45 or terminal block
- ✓ Available with 6-in (0.15 m) coax and/or 6-ft (1.8 m) twisted-pair pigtails (custom lengths are also available)
- ✓ Distances to 1,200 feet (365 m) on 24 AWG wire (1,500 ft on 22 AWG wire)



Model 400MC11
Coax Balun with
RJ-11 Jack

Model 400M11P
Coax Balun with
RJ-11 Plug on a 6-ft
(1.8 m) Modular Cable

Twinax to Twisted Pair Adapter (Balun)

Models 410

Use twisted pair instead of expensive Twinax!

Twinax cable for IBM Systems 34/36/38 and AS/400 is not only cumbersome to install, it is also costly. With the Patton Model 410, you can use standard, inexpensive twisted pair telephone wire instead of Twinax cable. It is less expensive and much easier to handle.

FEATURES & BENEFITS

- ✓ Connects Twinax AS/400 to inexpensive twisted pair
- ✓ Supports distances of 1,000 feet (3,048 m) on 24 AWG wire



ORDERING INFORMATION

Balun with BNC Male Coax Connector; twisted pair connection is shown below

400M11: RJ-11 Jack

400MTB: Terminal Block (TB)

400M11TB: RJ-11 Jack and TB

400M11P: RJ-11 Plug on 6-ft (1.8 m) Cable

400M45: RJ-45 Jack

400M45TB: RJ-45 Jack and TB

Balun with BNC Male Coax Connector on 6-in. (1.8 m) cable; twisted pair connection is shown below

400MC11: RJ-11 Jack

400MCTB: Terminal Block

400MC11TB: RJ-11 Jack and TB

400MC11P: RJ-11 Plug on 6-ft (1.8 m) Cable

400MC45: RJ-45 Jack

400MC45TB: RJ-45 Jack and TB

Note: For female BNC coax connectors, replace "M" with "F" in Model Number when ordering—Same Prices!



I'm Jen, one of Patton's Sales Associates. Call me at +1 301.975.1000 when you want to purchase Patton products or if you have questions about our products. You can also send e-mail to sales@patton.com.

ORDERING INFORMATION

Twinax Balun with 75-ohm Dual-Coax BNC (Female); twisted pair connection is shown below

410M11: RJ-11 jack

410MTB: Terminal block (TB)

410M11TB: RJ-11 jack and TB

410M11P: RJ-11 plug on 6 ft (1.8 m) cable

410M45: RJ-45 jack

410M45TB: RJ-45 jack and TB

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.

SPECIFICATIONS

UTP: 24 gauge or lower, twisted pair
Impedance: 100 ohm at 1 MHz
Max. Capacitance: 20 pF/ft
Attenuation: 6.6 dv/1000 feet at 1 MHz
BNC: Impedance: 75 ohm at 1 MHz (RG-59)
Bandwidth: Video DC to 8 MHz
Maximum Input: 1.1 Vp-p

Impedance: 75 to 100 ohm
Insertion Loss: Max 2 dB per pair over frequency range from DC to 8 MHz
Return Loss: Greater than 15 dB over the frequency range from DC to 8 MHz
Common mode rejection: Greater than 40 dB at 8 MHz
Active Pins: 8+ 7-

ORDERING INFORMATION

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

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

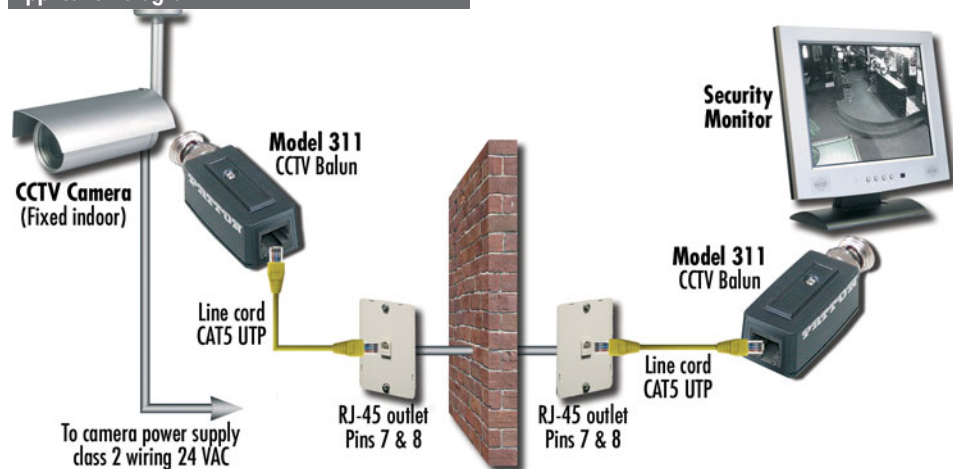
311M: CCTV std type balun for indoor BNC male to RJ45

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

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

Application diagram



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 surveil-



lance 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

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

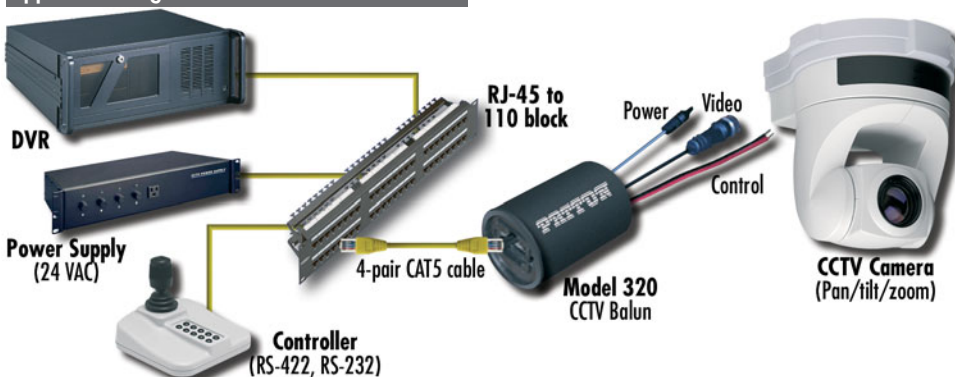
SPECIFICATIONS

Except for the following, specifications are the same for Model 320 and Model 310
Max. Distance: 24 VAC via three pairs with 10% voltage drop at camera
 5VA: 519 feet (170 meters)
 10VA: 258 feet (85 meters)
 20VA: 130 feet (43 meters)
 30VA: 86 feet (28 meters)
Max Input Voltage: 50V (AC RMS/DC)

Max Current Rating: 4.5A (AC RMS/DC)

Active Pins:
 Model 320: 8+ 7- (video), 1 2 3 4 5 6 (power)
 Model 321: 8+ 7- (video), 1 2 3 6 (power), 4, 5 (data, PTZ control)
 Model 322: 8+ 7- (video), 4 5 3 6 (data, speed dome)

Application diagram



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)

CATV Passive Baluns

Model 330 Series



Model 330MP shown

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

SPECIFICATIONS

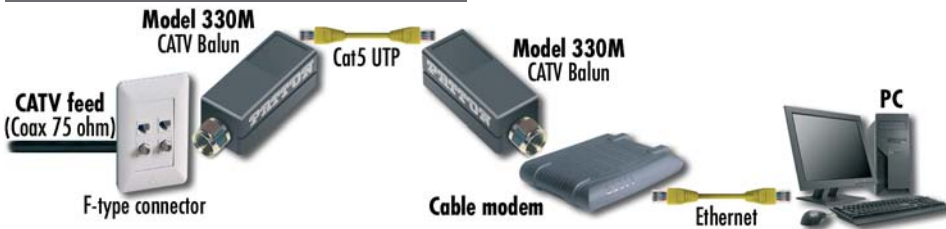
UTP: 24 gauge or lower, twisted pair
 Impedance: 100 ohm
 Pins: 7 & 8
 F Connector: Impedance: 75 ohm
 Bandwidth: 5 to 862 MHz
 Insertion Loss: Less than 3 dB (5 dB max. for CATV 2-27)

Return Loss: More than 18 dB from 10 to 862 MHz

Common mode rejection: More than 20 dV from 40 to 862 MHz

Max. Distance: 197 feet (60 meters) over Cat5; 328 feet (100 meters) with amplifier

Application diagram



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

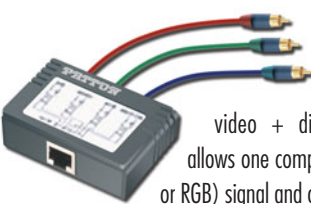
331M: F Male to Toolless IDC with cover

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 sig-

nal 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

SPECIFICATIONS

UTP: 24 gauge or lower solid copper twisted pair wires impedance: 100 ohms at 1 MHz

Max. capacitance: 20 pf per foot.

Attenuation: 6.6 dB/1000 ft at 1 MHz
 Coax (RCA): Impedance: 75 ohms at 1 MHz 30VA: 86ft (28m)

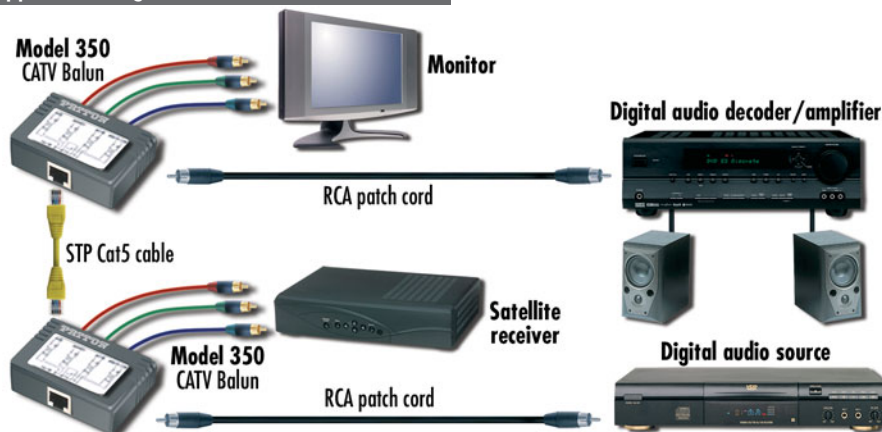
Connectors: Three RC A-M connectors: Green (Y), Blue (Pb), Red (Pr), One

(1) RCA-F connector for digital audio to RJ45 Socket for twisted pair

Pin Configuration: Red (Pr): Pins 7+, 8- Green (Y): Pins 6+, 3-; Blue (Pb): Pins 2+, 1--Digital Audio: Pins 5+, 4-

Distance: 480i/p: 1,000 feet (305 meters). 720p and 1080i: 500 feet (152 meters). Digital Audio: 600 feet (182 meters)

Application diagram



ORDERING INFORMATION

350: Component Video Balun

Line Drivers

Short-Range Modems and Modem Eliminators

Self-Powered Line Drivers

ASync

DB-25, DB-9, DB-15



to 19.2 kbps
17 miles
(27 km)

Model 1000, 1009, 1015
Page 79

ASync/MULTIDROP

DB-25, DB-9



to 115.2 kbps
9 miles
(14.5 km)

Model 1004A/1008
Page 81

Sync



to 19.2 kbps
11 miles
(17.7 km)

Model 1020
Page 83

Sync & ASync

Low Speed



to 38.4 kbps
12 miles
(19.3 km)
Multi-Drop

Model 1040
Page 82

Powered Line Drivers

LOW SPEED UNITS

Basic



to 38.4 kbps
14 miles
(22.5 km)

Model 1050
Page 86

Multipoint



to 115.2 kbps
14 miles
(22.5 km)

Model 1060
Page 86

Long Range & Multipoint



to 64 kbps
17 miles
(27 km)

Model 1080A
Page 88

Fiber Modems

ASync RS-232



to 19.2 kbps
5 miles
(8 km)

Model 1110A
Page 92

ASync RS-485



to 115.2 kbps
1.25 miles
(2.01 km)

Model 1104
Page 92

ASync/Sync RS-232



to 38.4 kbps
4 miles
(6.4 km)

Model 1140A
Page 92

Modem Eliminators

ASync



Null Modem
Adapters

Model 6
Page 117

Sync RS-232

Low Speed



300 ft (91 m)
Extension

Model 1200
Page 90

to 512 kbps



150 ft (46 m)
Extension

Model 1202
Page 90

Going the Distance

SYNC & ASYNC

High Speed



to 64 kbps
6 miles
(9.7 km)

Model 1045
Page 85

PARALLEL

Wire Speed



2,000 feet
(610 m)

Model 1225
Page 84

INDUSTRIAL MODEMS FOR OUTDOOR USE

Temp: 32 to 158°F (0 to +70°C)

Temp: 14 to 158°F (-10 to +70°C)



Environmentally
ruggedized sync./async.
baseband modems

Model 1065A (Standard Temp/Humidity)
Page 89

Model 1065E (Extended Temp/Humidity)
Page 89

USB & Wireless Modems

USB



to 196 feet
(60 m) over
Cat5e cable

Model 110
Page 78

WIRELESS



to 380 kbps
3,900 feet
(1,188 meters)

Model 1013
Page 93

V.35



to 144 kbps
300 ft (91 m)
Extension

Model 1205
Page 91

X.21



to 144 kbps
300 ft (91 m)
Extension

Model 1206
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High Speed Serial Extender & RS-232 Serial Extender

Models 1053AF & 1052AF

These miniature high-speed digital modems offer multi-rate Async/Sync while transparently passing modem control signals. Both 2-wire full-duplex modems use 2B1Q modulation for superior noise immunity.



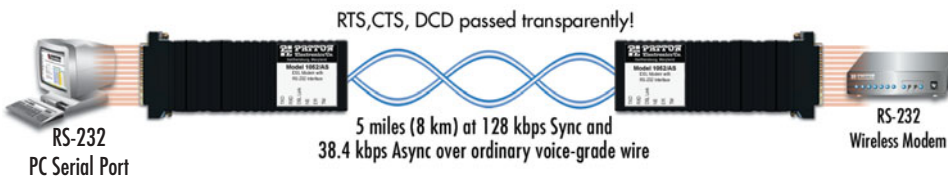
The 1053AF and 1052AF are long-range, powered, digital modems that operate synchronously or asynchronously at full duplex over a single twisted pair. The 1053AF operates at multi-rate async/sync speeds up to 115.2/128 kbps; the 1052AF at speeds up to 38.4/128 kbps. Both modems utilize 2B1Q modulation for superior signal strength, even in the noisiest environments. RS-232 serial connections with speeds

of 128 kbps can now be extended to distances over 5 miles (8 km) without the use of repeaters! Using ordinary voice-grade wire, the serial extenders provide a cost-effective solution for high speed, dedicated, end-to-end connections with synchronous line rates up to 128 kbps and asynchronous line rates up to 115.2 kbps (1053AF) or 38.4 kbps (1052AF) that include RTS, CTS and DCD modem signals.

The modems' miniature size allow for a direct connection to your transmission device's serial port. Two 8-position DIP switches enable configuration of asynchronous or synchronous line rate settings. Additionally, LEDs are conveniently located on the side of the modems to provide at-a-glance status indication of the unit.

Application diagram

The Model 1053AF and Model 1052AF offer premium performance using the most common, inexpensive cabling infrastructure in the world, voice-grade telephone wire. Using 2B1Q modulation a serial port can be extended to distances of over 5 miles (8 km).



FEATURES & BENEFITS

- ✓ Multi-Rate Speeds—**1053AS**: Full-duplex synchronous rates to 128 kbps and asynchronous rates to 115.2 kbps
1052AS: Full-duplex synchronous rates to 128 kbps and asynchronous rates to 38.4 kbps.
- ✓ Extends serial devices up to 5 miles (8 km) over ordinary grade twisted pair
- ✓ Pass RS-232 Control Signals—Transparently passes CTS, RTS, and DCD over the 2-wire line.
- ✓ Long Reach—Industry leading distances of over 26,000 feet (8 km) without repeaters.

ORDERING INFORMATION

1052/AF/UI: Async 38.4/Sync 128 kbps RS-232 Extender
1053/AF/UI: Async 115.2/Sync 128 kbps RS-232 Extender

SPECIFICATIONS

Clocking: Internal, external, or receive recover.

Line Coding: 2B1Q conforming to ANSI T1.601 and ETSI ETR-080 standards.

Line Interface: RJ-45; Two-wire twisted-pair using pins 4 & 5; Transformer coupled 1500 VRMS isolation

Maximum Line Distance for All Data Rates: 10.1 miles (16.4 km) on 19 AWG (0.9 mm) wire • 7.2 miles (11.5 km) on 22 AWG (0.64 mm) wire • 5.0 (8 km) on 24 AWG (0.5 mm) wire • 3.4 (5.5 km) on 26 AWG (0.4 mm) wire

Serial Interface: DB-25 Female or DB-9 Female depending on model ordered.

Serial Data Rates:
1083AS: Synchronous: 2, 56, 64, and 128 kbps • Asynchronous: 38.4, 57.6, 76.8, and 115.2 kbps
1052AS: Synchronous: 32, 56, 64, and 128 kbps • Asynchronous: 0–38.4 kbps.
LED Indicators: TXD, RXD, Link, NS (no signal), ER (CRC error)

Power Supplies: External wall-mount power supply with universal 90–260 VAC input or -12, -24, and -48 VDC input

Dimensions: 5.18L x 1.69W x 0.75H in. (13.16L x 4.29W x 1.91H cm)

Weight: 2.01 lbs. (<1.0 kg)

Compliance: EMC: FCC Part 15, sub-part B, class A (US) • EMC Directive 89/336/EEC (EU) • ICES-003 (Canada) • AZ/NZS 3548 (Australia C-Tick) • CISPR 22 (International)

Safety: UL 60950/CAN-ISA-C22.2 60950 (Safety—US/Canada) • EN 60950 (Safety—Europe/International)

Operating temp.: 32–122°F (0–50°C)

Humidity: 5–95% non-condensing
Altitude: 0–15,000 feet (0–4,572 meters)

USB 1.1 Extender Kit

Model 110

Extends the distance of a USB device to a host computer up to 196 feet (60 m) over Cat5e cable

Patton's Model 110 overcomes USB length limitations of 16 feet so that you have the flexibility to locate your USB printer, camera, web cam or any other USB device where you want them. The Model 110 extends the distance of a USB device to a host computer up to 196ft (60m) over Cat5e. The 110 is plug-and-play with absolutely no special software or drivers to install.

ORDERING INFORMATION

110-KIT: USB Extender Kit

0805XXX: USB Power Supply



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

SPECIFICATIONS

USB: Fully compliant to USB 1.1

Rates: Full speed (12 Mbps)/Low speed (1.5 Mbps)

Connector:

- Local Unit: USB Type A Male; RJ-45
- Remote Unit: USB Type A Female; RJ-45

Active Pins: Power 1 & 4; Data 2 & 3

Distances:

- **Cat 5**: non-powered 98 ft (30m)

• **Cat 5**: powered 165ft (50m)

• **Cat 5e/6**: non-powered 196 feet (60 m)

• **Cat 5e/6**: powered 263 feet (80 m)

Operating temp.: 32 to 104°F (0 to 40°C)

Storage temp.: -40 to 185°F (-40 to 85°C)

Basic Point-to-Point Async SRMs

Models 1000 & 1009

The Model 1000 async short range modem plugs directly into a DB-25 RS-232 port. A pair of Model 1000s supports distances up to 17 mi (27.4 km) at 1200 bps over two 19 AWG (0.9 mm) unconditioned twisted pairs.

Operating at data rates up to 19.2 kbps, this cost saving device does not require AC power or batteries to operate. The Model 1000 is DCE/DTE switchable, and is compatible with the Patton Model 1009 (DB-9) and 1015 (DB-15).



The Model 1000S incorporates 600 watts per wire of built-in Silicon Avalanche Diode surge protection.

Rack card, DB-9 (EIA-574), & DB-15 versions are also available!

The dual-port Model 1000RC rack card incorporates two Model 1000 short range modems. You can fit up to 32 SRMs in each 19-in. rack. The Model 1000RC card is available with RJ-11 or RJ-45 rear interface cards.



FEATURES & BENEFITS

- ✓ Range to 17 miles (27.4 km) on 19 AWG at 1,200 bps
- ✓ Data rates to 19,200 bps
- ✓ External DCE/DTE switch
- ✓ FCC Approved—Part 15 Class A

SPECIFICATIONS

Transmission Format: Async
Data Rate: 0 to 19,200 bps (no strapping)
Control Signal: CTS (Pin 5) turns ON immediately after the terminal raises RTS (Pin 4); DSR (Pin 6) and DCD (Pin 8) turn ON immediately after the terminal raises DTR (Pin 20)
Transmit Line: 4 wire, unconditioned line (2 twisted pair)
Transmit Mode: Full duplex, 4-wire
Transmit Level: 0 dBm

Line Connection: RJ-11 or RJ-45 jack or 5 screw terminal posts and a strain relief
Surge Protection: 600W power dissipation at up to 1 msec
Power: None required, uses ultra low power from EIA data and control signals
Dimensions: 2.20 x 1.75 x 0.75 in. (5.59 x 4.45 x 1.91 cm)

ORDERING INFORMATION

- 1000M: Male DB-25/terminal block
- 1000F: Female DB-25/terminal block
- 1000SM: DB-25, surge protected
- 1000F RJ11: DB-25/RJ-11 jack
- 1000M RJ45: DB-25/RJ-45 jack

- 1009M: Male DB-9/terminal block
- 1009F: Female DB-9/terminal block
- 1009SM: DB-9, surge protected
- 1009F RJ11: DB-9/RJ-11 jack
- 1009M RJ45: DB-9/RJ-45 jack

Rack card supports two modems per card.

- 1000RC11: Dual Rack Card, RJ-45 DTE, RJ-11 line
- 1000RC45: Dual Rack Card, RJ-45 DTE, RJ-45 line

Transformer Isolated SRMs Guard Against Ground Loops

Models 1010B, 1016 & 1019

The Patton Model 1010B async, 4-wire, transformer isolated short range modem is the best choice for data-only RS-232 connections between buildings. Capable of distances up to 9.5 miles, the Model 1010B's transformer isolation provides immunity from ground loops. 600 watts of built-in surge protection is standard. No AC power or batteries are required for operation.



Rack card, DB-9, DB-15, & RJ-11 versions are also available!

Patton has DB-9, DB-15, RJ11 and rack-card versions! And they're all compatible with the Model 1010B up to 19.2 kbps!



FEATURES & BENEFITS

- ✓ Immune to ground loops
- ✓ Range to 8 miles (12.9 km) over 2 twisted pairs
- ✓ Asynchronous data rates to 115.2 kbps (Model 1010B only)
- ✓ Surge protection is standard (on Model 1010B only)
- ✓ External DTE/DCE switch
- ✓ Support async, point-to-point, RS-232, communication over two twisted pairs
- ✓ Connects to DB-9 and DB-15 interfaces
- ✓ Compatible with Patton Model 1000
- ✓ Transformer isolated Models 1016 and 1019 for between-building applications

SPECIFICATIONS

Transmission Format: Asynchronous, full duplex
Transmission Line: Two unconditioned twisted pair 19–26 AWG

Interfaces: EIA RS-232, CCITT V.24
Data Rates: Low speed mode: 300 bps–57.6 kbps; High speed mode: 2400 bps–115.2 kbps

Isolation: Minimum 1500V RMS using custom transformers
Control Signals: DSR and DCD follow DTR from the terminal (DTE); CTS follows RTS from the terminal (DTE)

Surge Protection: 600W power dissipation
Connectors: DB-25 male or female on RS-232 side; RJ-11, RJ-45 or terminal block with strain relief on line side

Dimensions: 2.66 x 2.10 x 0.73 in. (6.7 x 5.3 x 1.9 cm)
Power Supply: None required; uses power from EIA data and control signals

Op. Temp: 32–122°F (0–50°C)
Altitude: 0–15,000 ft (0–4,572 m)
Humidity: 5 to 95% non-condensing
Weight: 2 oz. (56.8 grams)

ORDERING INFORMATION

- 1010BM: Male DB-25/terminal block
- 1010BF: Female DB-25/terminal block

- 1010BF RJ11: with RJ-11 jack
- 1010BM RJ45: with RJ-45 jack

Rack card supports two modems per card

- 1010RC11: Dual Rack Card, RJ-45 DTE, RJ-11 Line
- 1010RC45: Dual Rack Card, RJ-45 DTE, RJ-45 Line

Full-duplex RS-232 Over 2-wire Twisted Pair or Coax!

Models 1002 & 1003

The best choice for data-only applications using coax or a single twisted pair.

The **Model 1002** miniature RS-232 short range modem operates full duplex over a single twisted pair or coax cable. Requiring no AC power for operation, the Model 1002 is available with male or female DB-25 connectors, and either strain relief/terminal block, RJ-11, RJ-45 or coax line connections.

The surge-protected Model 1002S provides 600 watts per wire of protection against nearby lightning strikes and other transients.

The **Model 1003** async., 2-wire, carrier sense short-range modem combines the 2-wire capabilities of the Model 1002 with the carrier sense capabilities of the Model 1005. The result is a versatile short haul that allows RS-232 UNIX systems (and similar systems that require carrier sense handshaking) to communicate over coax or a single twisted pair.



The Model 1003 is particularly applicable to environments where coax cable is already installed, or where there is a desire to double the carrying capacity of existing twisted pair lines. Besides its usefulness in UNIX environments (where the host must see carrier to send a logon screen to a terminal), the Model 1003 is also tailored for troubleshooting in systems where the presence or absence of carrier indicates positive or negative line integrity.



The Model 1003S incorporates 600 watts per wire of silicon avalanche diode surge protection on the line side.

Model 1002 & 1003 Distance Table - Mile (Km)

Data Rate	Wire Gauge		
	19 (.9mm)	22 (.6mm)	24 (.4mm)
19,200	2.2 (3.5)	1.6 (2.6)	1.2 (1.9)
9,600	3.0 (4.8)	2.1 (3.4)	1.6 (2.6)
4,800	4.3 (6.4)	2.6 (4.2)	1.7 (2.7)
2,400	5.3 (8.5)	2.8 (4.5)	1.8 (2.9)
1,200	5.6 (9.0)	2.8 (4.5)	1.8 (2.9)

ORDERING INFORMATION

1002M: Male DB-25/terminal block

1002F: Female DB-25/terminal block

1002SM: with surge protection

1002F RJ11: with RJ-11 jack

1002M RJ45: with RJ-45 jack

1002M CX: with coax BNC connection

1003M: Male DB-25/terminal block

1003F: Female DB-25/terminal block

1003SM: with surge protection

1003F RJ11: with RJ-11 jack

1003M RJ45: with RJ-45 jack

1003M CX: with coax BNC connection

Example

1003SFRJ45: Female DB-25, surge protected, RJ-45 jack

FEATURES & BENEFITS

- ✓ Carrier sense handshaking (1003)
- ✓ Operates over coax or a single twisted pair
- ✓ Data rates to 19.2 kbps at 1 mile (2 km)
- ✓ Ideal for UNIX operating environment
- ✓ Available with BNC, RJ-11, RJ-45 or terminal block 2-wire interfaces
- ✓ 600 watts per wire of surge protection

Carrier Sense

Patton's carrier sense short range modems incorporate a special handshaking feature that allows them to "sense" the presence of a carrier signal on the line. This carrier sense feature enables the Model 1003, 1005 and 1006 to perform specialty functions not possible with "data only" SRMs. For example, in UNIX operating environments, the host often needs to see that a terminal is ON before it will send a logon screen. The Model 1003 automatically senses carrier on the line when a terminal is ON, thus fulfilling this requirement.

Coax (BNC) Connections

Available for All 2-Wire Modems

All Model 1002/1003 versions are available with coaxial (BNC) line connections. They're perfect for your installed base of coax cable.



I'm Denise, one of Patton's Sales Associates for Western Europe. Call me when you want to purchase Patton products or if you have questions about our products. You can also send e-mail to sales@patton.com.



SPECIFICATIONS

Transmission Format: Asynchronous

Transmit Line: 2 wire unconditioned twisted pair or coaxial cable

Transmit Mode: Full duplex

Transmit Level: 0 dBm

Control Signals: DSR and DCD turn ON immediately after the terminal raises DTR; CTS turns ON immediately after the terminal raises RTS

Range: Up to 1 mile (coax)

Data Rate: 0 to 19,200 bps (no strapping)

Power: None required, uses ultra low power from EIA data and control signals

Dimensions: 2.20 x 1.75 x .75 in. (5.6 x 4.4 x 1.9 cm)

Temperature: 32–122°F (0–50°C)

Humidity: 95% non-condensing

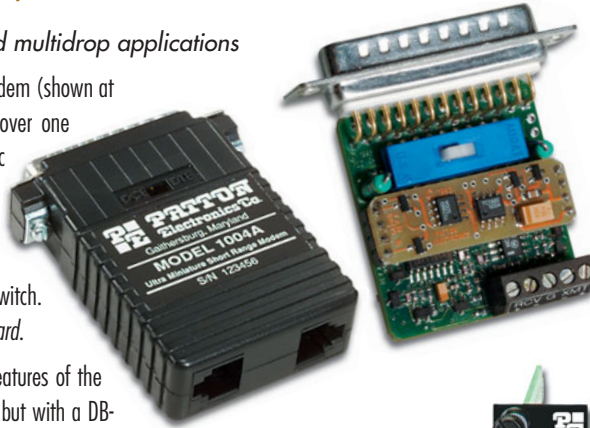
High-Speed, Multipoint Short-haul Modem

Models 1004A, 1004A Rack Card, & 1008

Still the best choice for high speed multidrop applications

The **Model 1004A** 2/4 wire short range modem (shown at right) gives you up to 50 terminal drops over one (half duplex) twisted pair, and supports async data rates up to 115.2 kbps. Great for same-building applications, the Model 1004A has high/low impedance settings, selectable RTS/CTS delay and a DTE/DCE switch. Plus, 600 watts of surge protection is standard.

The **Model 1008** modem supports all the features of the popular Model 1004A, but with a DB-9 (EIA-574) connector. Plug them directly into closely-spaced serial ports. They are even compatible with stand-alone and rack-mount versions of the 1004A!



1004A rack card houses two SRMS!

Plug 16 Model 1004A rack cards into a 2U Patton 1001 or 1000 rack system and get 32 short-range modems!



FEATURES & BENEFITS

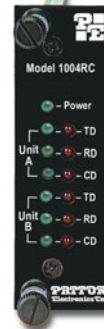
- ✓ Point-to-point full-duplex operation over 4 wires
- ✓ Multipoint (half-duplex) operation over 2 or 4 wires
- ✓ Multidrop up to 50 terminals
- ✓ Async. data rates to 115.2 kbps
- ✓ Range to 9 mi (14.5 km) on 19 AWG (0.9mm) at 1.2 kbps
- ✓ No AC power or batteries required



SPECIFICATIONS

Transmission Format: Asynchronous
Data Rate: Up to 115,200 bps
Transmit Line: 2, 4 wire unconditioned twisted pair
Transmit Mode: Full or half duplex
Transmit Level: 0 dbm
Range: Over 9 miles (14.5 km)
Dimensions: 2.66 X 2.10 X 0.73 in. (6.8 X 5.3 X 1.9 cm)
Surge Protection: 600W power dissipation for up to 1 msec
Control Signals: DSR turns "ON" immediately after the terminal raised

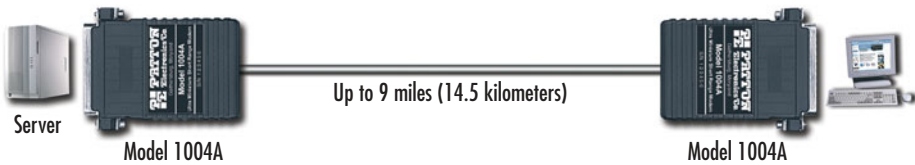
DTR: DCD turns on after recognizing the receive signal from the line; CTS turns on 8 mSec after the terminal raises RTS
Power: None required, uses ultra low power from EA data and control signals
Carrier: The carrier is a strap selected for either continuous operation or controlled by RTS



Typical application



Typical application



ORDERING INFORMATION

- 1004AM: Male DB-25/terminal block
- 1004AF: Female DB-25/terminal block
- 1004AFRJ11: with RJ-11 jack
- 1004AMRJ45: with RJ-45 jack
- 1004AMDR11: with dual RJ-11
- 1004AMDR45: with dual RJ-45
- 1004ARC11: Dual Rack Card, RJ-45 DTE, RJ-11 line:
- 1004ARC45: Dual Rack Card, RJ-45 DTE, RJ-45 line
- 1008M: Male DB-9/terminal block
- 1008F: Female DB-9/terminal block
- 1008FRJ11: with RJ-11 jack
- 1008MRJ45: with RJ-45 jack
- 1008MDR11: with dual RJ-11
- 1008MDR45: with dual RJ-45

Note: More models are available, check online at www.patton.com or call for details.

Model 1004 & 1008 distance table, in miles (kilometers)

Data Rate (kbps)	Wire Gauge			
	19 (0.9mm)	22 (0.6mm)	24 (0.4mm)	26 (0.2mm)
115.2	3.5 (5.6)	2.6 (4.2)	1.4 (2.3)	0.9 (1.4)
38.4	5.0 (8.0)	2.9 (4.7)	2.2 (3.5)	1.5 (2.4)
9.6	7.1 (11.4)	4.6 (7.4)	3.5 (5.6)	2.8 (4.5)
1.2	9.0 (14.5)	6.5 (10.5)	5.0 (8.0)	3.9 (6.3)

Multidrop Transformer-Isolated Asynchronous Short-Range Modem

Models 1012B & 1012ARC

Perfect for multidrop environments, transformer isolated for between-building applications.



The Model 1012B asynchronous short range modem is ideal for multidrop environments or for applications requiring hardware control signals.

Attaining DC isolation through custom-designed ferrite core transformers, the Model 1012B operates effectively between buildings. In a point-to-point application, the Model 1012B will operate full or half duplex up to 5.2 mi (8.4 km). Supporting data rates to 38.4 kbps, the Model 1012B

requires no AC power for operation. 600 watts per wire of silicon avalanche diode surge protection on the line side is standard.

The Model 1012ARC is a rack-mountable version of the Model 1012A. Model 1012ARC plugs into Patton's 2U high 19 inch chassis and provides you with two short haul modems per card. And, they are available with RJ-11 or RJ-45 line connectors.



Model 1012 distance table, in miles (kilometers)			
Data Rate	Wire Gauge		
	19 (0.9mm)	22 (0.6mm)	24 (0.4mm)
1,200 to 38,400	5.2 (8.4)	2.8 (4.5)	2.0 (3.2)

SPECIFICATIONS

Trans. Format: Asynchronous
Transmit Line: 4 wire unconditioned twisted pair
Transmit Mode: Full or half duplex
Transmit Level: -6 dBm

Control Signals: DSR turns "ON" immediately after the terminal raises DTR; DCD turns "ON" after recognizing the receive signal from the line; carrier is continuously "ON" or controlled by RTS; CTS turns "ON" 40 mSec after the terminal raises RTS

Surge Protection: 600W power dissipation at 1 mS
Data Rate: 0 to 38.4 kbps (no strapping)
Range: Up to 6 miles (9.7km), depending on wire gauge

Power: None required
Dimensions: 2.66" x 2.10" x 0.73" (6.8 x 5.3 x 1.9 cm)

Synchronous/Asynchronous Short-Range Modem

Model 1040

Sync/async in a compact SRM.

The Model 1040 self-powered miniature short range modem packs the features of Patton's Model 1080 into a package that requires no AC power. Operating asynchronously or synchronously, the Model 1040 supports data rates to 38.4 Kbps and distances to 12 miles (19.3 km). The Model 1040 will operate over 2 or 4 wires, in point-to-point or multipoint environments. In synchronous mode, the Model 1040 supports internal, external or receive loopback clocking.

The Model 1040 incorporates two V.54 and two V.52 BER test modes, which can be activated via the RS-232 interface. Built-in LEDs let you monitor test mode operation.

Additional peace of mind comes from knowing that the Model 1040 has both transformer isolation and surge protection to guard against data loss. The Model 1040 is designed to plug directly into the RS-232 interface.

Twisted pair wire is connected using RJ-11, RJ-45 or terminal blocks.



FEATURES & BENEFITS

- ✓ Data rates to 38.4 kbps
- ✓ Supports 15 drops in a multipoint polling environment
- ✓ Transmits and receives one control signal each way
- ✓ Transformer isolated and surge protected
- ✓ External DCE/DTE switch

ORDERING INFORMATION

1012BFR11TB: Female DB-25; RJ-11 & terminal block

1012BMR11TB: Male DB-25; RJ-11 & terminal block

1012BFR45TB: Female DB-25; RJ-45 & terminal block

1012BMR45TB: Male DB-25; RJ-45 & terminal block

1012ARC11: Dual Rack Card, RJ-45 DTE, RJ-11 Line

1012ARC45: Dual Rack Card, RJ-45 DTE, RJ-45 Line

Note: More models are available, call for details.

FEATURES & BENEFITS

- ✓ Async or sync operation
- ✓ RS-232 data rates to 38.4 kbps
- ✓ Distances to 12 mi (19.3 km)
- ✓ Point-to-point or multipoint
- ✓ 2-wire half duplex, 4-wire full duplex
- ✓ V.54 and V.52 test modes
- ✓ Internal, external or receive recover clocking (sync. mode)
- ✓ Transformer isolation and surge protection

ORDERING INFORMATION

1040M: Male DB-25/terminal block

1040F: Female DB-25/terminal block

1040SM: with surge protection

1040F RJ11: with RJ-11 jack

1040M RJ45: with RJ-45 jack

Note: More models are available, call for details.

SPECIFICATIONS

Range: 10 miles (16.1Km) @ 1200 bps on 22 AWG 2-pair wire
Data Rates: Sync & Async: 1.2, 1.8, 2.4, 3.6, 4.8, 7.2, 9.6, 14.4, 19.2, 28.8, 38.4, externally switch selection
Operation: Point-to-point or multipoint
Transmit Mode: 2-wire/half duplex, 4-wire/full duplex

Connectors: DB-25 M, F (RS-232), RJ-11 jack and terminal block
Diagnostics: 100% V.54 compliant and 100% V.52 compliant BER tests
LED Indicators: BERT indicator, Loop/Test indicator
Interface: EIA RS-232, CCITT V.2

Carrier: Constantly ON or controlled by RTS
RTS/CTS Delay: Externally strap selected to 0.7, or 50 mS
Receive Clock: Derived from receive signal
Isolation: Transformer, 1500V RMS

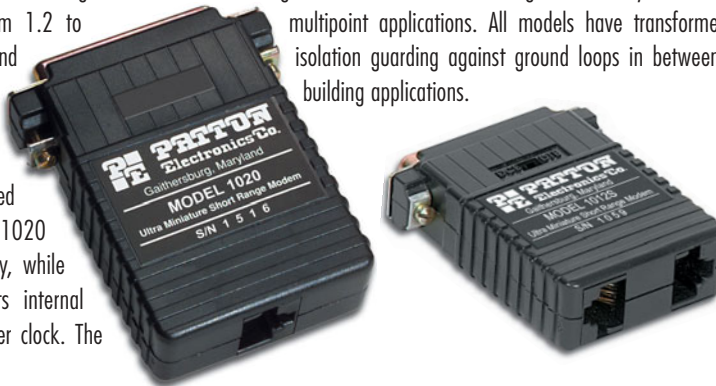
Transmit Clock: Internal, external or looped back from recovered signal
Surge Protection: 600 watts power dissipation for up to 1 msec
Dimensions: 2.6 x .73 x 2.1 in. (6.6 x 1.9 x 5.3 cm)

Self-Powered, Synchronous, Short-Range Modems
Models 1020, 1025, & 1030

The Lowest Cost Solution for Sync Applications

The Models 1020, 1025, and 1030 are our most basic self-powered, synchronous short-range modems. Supporting data rates from 1.2 to 19.2 kbps, these units extend RS-232 communication up to 11 mi (17.7 km) at 1200 bps over two 19 AWG (0.9mm) unconditioned twisted pairs. The Model 1020 provides internal clock only, while the Model 1025 supports internal external and receive recover clock. The

Model 1030 has all these features *plus* it passes a control signal in each direction—making it ideal for synchronous multipoint applications. All models have transformer isolation guarding against ground loops in between-building applications.



FEATURES & BENEFITS

- ✓ Selectable sync data rates from 1,200 to 19,200 bps
- ✓ Internal, external or receive recover clock (Model 1020, internal clock only)
- ✓ Ideal for multipoint configurations (Model 1030 versions only)
- ✓ Transformer isolation helps prevent ground loops
- ✓ Optional surge protection (Models 1020S, 1025S, and 1030S)
- ✓ FCC approved—Part 15 Class A
- ✓ No AC power required



Dual RJ-11 or RJ-45 versions (1030) for easy daisy-chain installation!



Model 1020/1025/1030 distance table, in miles (kilometers)			
Data Rate	Wire Gauge		
	19 (0.9mm)	22 (0.6mm)	24 (0.4mm)
19,200	7.5 (12.1)	3.5 (5.6)	2.5 (4.0)
9,600	10.0 (16)	3.6 (5.6)	2.5 (4.0)
4,800	10.0 (16)	7.0 (11.3)	4.0 (6.4)
2,400	10.0 (16)	8.5 (13.7)	5.0 (8.0)
1,200	11.0 (17.6)	8.5 (13.7)	6.0 (9.7)

I'm Natalie, Patton's Inside Sales Manager, US & Canada. Call me at +1 301.975.1000 when you want to purchase Patton products or if you have questions about our products. You can also send e-mail to sales@patton.com.

SPECIFICATIONS

Transmission Format: Synchronous
Clocking: Model 1020—Internal clock; Model 1025/30—internal, external, or receive recover clock (switch selectable)
Transmit Mode: Full duplex
Transmit Level: -6 dBm
Control Signals: CTS turns "ON" 8 mS after the terminal raises RTS; DSR and DCD are constantly "ON"

Surge Protection: 600W power dissipation
Data Rate: 1200 to 19,200 bps including 7.2 & 14.4
Power: None required; uses ultra low power from EIA data and control signals
Range: Up to 11 miles (17.7 km)
Dimensions: 2.86 x 2.10 x 0.73 in. (6.8 x 5.3 x 1.9 cm)

ORDERING INFORMATION

- 1020M: Male DB-25/terminal block
- 1020F: Female DB-25/terminal block
- 1020SM: with surge protection
- 1020F RJ11: with RJ-11 jack
- 1020M RJ45: with RJ-45 jack
- 1025M: Male DB-25/terminal block
- 1025F: Female DB-25/terminal block
- 1025SM: with surge protection

- 1025F RJ11: with RJ-11 jack
- 1025M RJ45: with RJ-45 jack
- 1030M: Male DB-25/terminal block
- 1030F: Female DB-25/terminal block
- 1030SM: with surge protection
- 1030F RJ11: with RJ-11 jack
- 1030M RJ45: with RJ-45 jack

Note: More models are available, call for details.

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FAST Delivery From Your AUTHORIZED DISTRIBUTOR!



High Speed, Synchronous Short-Range Modem

Models 1035

Great for Low Cost LAN-to-LAN Campus Connectivity

The Model 1035 high speed short range modem supports synchronous data rates of 32, 56 and 64 kbps, and distances up to 6 mi (9.7 km) (19 AWG at 32 kbps) over two unconditioned twisted pair. Transmit clock options are internal, external and receive recover clock.

Powered from a 7.5V wall-mount transformer, the Model 1035 incorporates two V.54 test modes and a V.52 BER test pattern generator/detector. Five easy-to-read LED indicators monitor power, transmit data, carrier detect, test mode and test pattern. For protection against ground loops and transient surges, the Model 1035 incorporates both isolation transformers and silicon

avalanche diode surge suppressors. The Model 1035 is available in an RS-232/V.24 version and a CCITT V.35/RS-530 version, both supported on a DB-25 connector. Twisted-pair connections are made using RJ-11 or RJ-45.



SPECIFICATIONS

Transmission Format: Synchronous

Transmission Line: Unconditioned twisted pair 19–26 AWG (0.7mm–0.4)

Clocking: Internal, external or receive recover

Interfaces: EIA RS-232/V.24 or CCITT V.35

Data Rates: 32, 56 and 64 Kbps (switch selectable)

Isolation: Minimum 1500 V RMS using isolation transformers

Surge Protection: 600W power dissipation for up to 1 msec

Control Signals: "Constantly on" or "Controlled by RTS"

RTS/CTS Delay: No delay, 7ms, 53ms

Power Supply: 7.5V DC wall mount transformer

Distance: To 6 mi (9.7 km)

Temperature Range: 32–122°F (0–50°C)

Dimensions: 3.6 x 2.1 x 0.8 in. (9.0 x 5.3 x 2.0 cm)

FEATURES & BENEFITS

- ✓ Sync Data Rates of 32, 56 and 64 kbps
- ✓ Distances up to 6 Miles (9.7Km)
- ✓ V.54 and V.52 Diagnostic Modes
- ✓ RS-232 or V.35 (RS-530) Versions
- ✓ Internal, External or Receive Recover Clocking Options
- ✓ Transformer Isolation and Surge Protection

ORDERING INFORMATION

RS-232/V.24 Versions

1035/24M RJ-11: Male DB-25/RJ-11 jack

1035/24F RJ-11: Female DB-25/RJ-11 jack

1035/24M RJ-45: Male DB-25/RJ-45 jack

1035/24F RJ-45: Female DB-25/RJ-45 jack

CCITT V.35 Versions

1035/35M RJ-11: Male DB-25/RJ-11 jack

1035/35F RJ-11: Female DB-25/RJ-11 jack

1035/35M RJ-45: Male DB-25/RJ-45 jack

1035/35F RJ-45: Female DB-25/RJ-45 jack

Note: More models are available, call for details.

Self-Powered Line Extenders

Model 1225 ParaLink™

Extend parallel communication to 2,000 feet (610 m) over a single twisted pair

The Model 1225 ParaLink answers a common office complaint: "Why can't we move our printer further away?" Using surface mount technology, the interface-powered ParaLink converts parallel signals to serial and transmits them up to 2,000 feet (610 m) before converting them back to parallel. This overcomes the inherent distance limitations of parallel communication! What's more, the ParaLink transmits over a single pair of wires—no more bulky 25 or 36-conductor cables. Because the ParaLink lets you choose between BUSY and ACKNOWLEDGE handshaking modes, it is compatible with most parallel printers and sharing devices on the market.



SPECIFICATIONS

Interface: Centronics/IBM parallel (DB-25)

Data Rate: 5 kbps (parallel)/40 kbps (serial)

Range: Up to 2,000 feet (610 m)

Transmit Line: One unconditioned twisted pair (2 wires)

Transmit Mode: Half duplex

Line Connection: RJ-11 or RJ-45 jack or 2 position terminal post and a strain relief

Interface Signals: Data bits 0-7, ground, busy or acknowledge (external switch selectable)

Power Supply: Interface powered, no AC power or batteries required

Dimensions: 2.67L x 2.10W x 0.74H in. (6.7L x 5.3W x 1.88H cm)

FEATURES & BENEFITS

- ✓ Interface Powered—No AC Needed
- ✓ Switchable ACK/BUSY handshaking enhances printer compatibility
- ✓ Accommodates "low power" printer interfaces
- ✓ DB-25 or Centronics connectors
- ✓ RJ-11, RJ-45 or terminal block twisted pair connection

ORDERING INFORMATION

Terminal block version

1225TM: Transmitter, male DB-25

1225CRM: Centronics receiver, male

1225RM: Receiver, male DB-25

1225RF: Receiver, female DB-25

RJ-11 version

1225TMRJ11: Transmitter, male DB-25

1225CRM: Centronics receiver, male

1225RM: Receiver, male DB-25

1225RF: Receiver, female DB-25

Note: More models are available, call for details.

High Speed, Short-Range Modem (RS-232 & RS-530)

Model 1045

Great for LAN-to-LAN or Tail Circuit Applications in Sync or Async Environments

The Model 1045 KiloModem™ is Patton's most capable plug-in short haul modem to date. The Model 1045 supports both async and sync communication at switch selectable data rates of 32, 56 and 64 kbps. Deriving power from an external AC transformer, the Model 1045 supports distances up to 6 miles/9.7Km (19 AWG @ 32 kbps) over two unconditioned twisted pair. Synchronous transmit clock options are internal, external and receive recover



clock. The Model 1045 includes V.54 loopback diagnostics and a built-in V.52 BERT pattern generator/detector. Transformer Isolation and surge protection guard against ground loops and transients. A rack mount version, the Model 1045RC, fits in Patton's 16 slot rack chassis and 2/4/8-slot ClusterBoxes™

SPECIFICATIONS

Transmission line: 19–26 AWG (0.9–0.4mm) private unloaded twisted pair or unconditioned telephone company local area data (LAD) channels; (see AT&T specification 41028)
Data Rates: Async. 32, 56 and 64 kbps. Sync. 32, 56 and 64 kbps.
Carrier: Always on or controlled by RTS (point-to-point or multipoint operation)
Interface: EIA RS-232 or CCITT V.35

RTS/CTS delay: Switch-selected to 0, 7, or 53 mS
Diagnostics: 100% compliance with V.54 test modes (switch-selectable)
BERT: 100% compliance with V.52 including 511 & 511E bit pattern generation (switch-selectable)
Receive clock: Derived from receive signal

Transmit clock: Internal, external (from pin 24) or receive recover
Indicators: Status LEDs for TD, DCD, PWR and Test
Isolation: 1500V RMS via isolation transformers
Power supply: External wallmount transformer available with 120 or 230V
Surge suppression: 600W power dissipation

Dimensions: 3.55 x 2.1 x 78 in. (9.0 x 5.3 x 2 cm)



Model 1045 distance table, in miles (kilometers)			
Data Rate	Wire Gauge		
	19 (0.9mm)	24 (0.5mm)	24 (0.4mm)
64,000	5.3 (8.5)	4.2 (6.7)	2.5 (4.0)
56,000	6.8 (10.9)	4.2 (6.7)	2.6 (4.2)
32,000	9.1 (14.6)	4.7 (7.5)	3.0 (4.8)

FEATURES & BENEFITS

- ✓ Async or sync operation
- ✓ Data rates of 32, 56 & 64 kbps
- ✓ Distances to 6 miles (9.7 km)
- ✓ V.54 loopback test modes
- ✓ Built-In V.52 BER generator/detector
- ✓ Internal, external or receive recover clocking in sync mode
- ✓ Transformer isolation and surge protection

ORDERING INFORMATION

RS-232/V.24 Versions

- 1045/24M: RJ-11 Male DB-25/RJ-11 jack
- 1045/24F RJ-11: Female DB-25/RJ-11 jack
- 1045/24M RJ-45: Male DB-25/RJ-45 jack
- 1045/24F RJ-45: Female DB-25/RJ-45 jack

CCITT V.35 Versions

- 1045/35M RJ-11: Male DB-25/RJ-11 jack
- 1045/35F RJ-11: Female DB-25/RJ-11 jack
- 1045/35M RJ-45: Male DB-25/RJ-45 jack
- 1045/35F RJ-45: Female DB-25/RJ-45 jack

Async./Sync. Rack Card

- 1045RC11: DB-25 DTE & RJ-11 Line
- 1045RC45: DB-25 DTE & RJ-45 Line
- 1045RC4511: RJ-45 DTE & RJ-11 Line
- 1045RC4545: RJ-45 DTE & RJ-45 Line

Note: More models are available, call for details.

Async Short Range Modem with Extra Controls

Model 1018

The Perfect Solution for Inexpensive SLIP/PPP Campus Internet Connections

The Model 1018 async short range modem is able to pass two discrete sets of handshaking signals: DTR & DCD are used to control the point-to-point session, while RTS & CTS are used for flow control. This capability—combined with the Model 1018's ability to support RS-232 data rates up to 57.6 kbps over two twisted pair—makes the



Model 1018 perfect for inexpensive campus Internet links. Just use a plug-in Model 1018 at each remote computer, a rack of Model 1018RC cards at the central site, and connect them with 2-pair copper wire at up to 2.4 miles (3.9 km)!

SPECIFICATIONS

DTE transmission format: Async
Transmission line: Unconditioned twisted pair 19–26 AWG (0.4mm)
Link Clocking: Internal
Distance: 2.4 miles (3.9km) at all data rates
Interfaces: EIA RS-232/CCITT V.24

DTE Data Rates: 1.2, 2.4, 4.8, 9.6, 19.2, 28.8, 38.4 and 57.6 kbps (switch selectable)
Control Signals: DTR/DCD (Session Control), RTS/CTS (Flow Control)
Carrier: "Constantly on" or "Controlled by DTR"

Surge Protection: 600W power dissipation for up to 1 msec
Isolation: Minimum 1500 V RMS using isolation transformers
Connectors: DB-25 female or male on RS-232 side; RJ-11 or RJ-45 on line side

Power: 7.5V DC wall mount transformer
Op. Temp: 32–122°F (0–50°C)
Dimensions: 3.55 x 2.1 x .80 in. (9.0 x 5.3 x 2.0 cm)

FEATURES & BENEFITS

- ✓ Async data rates from 1.2 to 57.6 kbps
- ✓ External AC power supply
- ✓ Transformer isolated and surge protected
- ✓ Passes "Session Control" (DTR/DCD) and "Flow Control" (RTS/CTS) handshaking signals

ORDERING INFORMATION

- 1018M RJ11: Male DB-25/RJ-11 jack
- 1018F RJ11: Female DB-25/RJ-11 jack
- 1018M RJ45: Male DB-25/RJ-45 jack
- 1018F RJ45: Female DB-25/RJ-45 jack
- 1018RC11: Female DB-25/RJ-11 jack
- 1018RC45: Female DB-25/RJ-45 jack

Note: More models are available, call for details.



See
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AC Powered, Asynchronous SRM (up to 38.4 kbps)

Model 1050

The Key Features You Need at a Price that Leaves a Small Footprint on Your Budget!

The Model 1050 AC Powered Asynchronous Short Range Modem is to our AC powered short haul line what the Model 1000 is to our interface powered line—a basic short haul at a great price! And the Model 1050 has the key features you need: optical isolation, a local loopback test mode, LED indicators and a DCE/DTE switch.

The Model 1050 supports asynchronous RS-232 data rates to 38.4 kbps, and supports distances up to 14 miles (22.5 km). Housed in an ultra-compact enclosure, the Model 1050 provides both an external RJ-11 jack and internal terminal block for line connection. On the RS-232 side, a female DB-25 is



standard. The Model 1050 is designed for point-to-point applications, with one unit on each end of the line. However, the Model 1050 is also compatible with the Patton Models 1060 and 1226 short hauls.

SPECIFICATIONS

Transmission Line: 19 to 26 AWG twisted pair
Range: 4 Miles (6.4 Km) on two 24 AWG pairs

Serial Interface: EIA RS-232 /CCITT V.24, DB-25 female

Line Connection: RJ-11 and internal terminal block w/ strain relief
Data Rates: 1.2 to 38.4 kbps

Diagnostics: Local Loopback
Indicators: Tri-state LEDs for RD, TD and Test

Power: External wallmount transformer available with 115 or 240V

Optical Isolation: 2500V RMS on DCE Interface

Dimensions: 1.58H x 4.16W x 3.75D in. (10.6H x 4.1W x 8.8D cm)

FEATURES & BENEFITS

- ✓ Asynchronous RS-232 operation over two twisted pair
- ✓ Data rates to 38,400 bps
- ✓ Optical isolation
- ✓ Loopback test
- ✓ Distances to 14 miles (22.5 km)
- ✓ DCE/DTE switchable
- ✓ Ultra-compact enclosure

ORDERING INFORMATION

1050-120: Async., Powered, Standalone: Short Haul Modem (120V)

1050-230: Async., Powered, Standalone: Short Haul Modem (230V)

Note: More models are available, call for details.

AC Powered, Asynchronous SRM (up to 115.2 kbps)

Model 1060

The ideal choice for async UTP or STP applications!

The Model 1060 AC Powered, Asynchronous Short-Range Modem is Patton's most sophisticated async twisted-pair short haul. The Model 1060 adapts to a wide range of applications, while providing the resources to deal with less-than-optimum conditions. Supporting hardware or software flow control, the Model 1060 operates in point-to-point and multipoint. The Model 1060 handles data rates to 115.2 kbps, and supports distances to 14 miles (22.5 km) over two twisted pair.



Because the line side is optically isolated and surge protected, you can install the Model 1060 in environments where EMR or ground loops would normally prohibit twisted pair data communications. Assignable control signals and DCE/DTE switchability complete the picture.

FEATURES & BENEFITS

- ✓ Asynchronous RS-232 operation over two twisted-pair
- ✓ Data rates to 115.2 kbps
- ✓ Optical isolation
- ✓ Loopback test
- ✓ Distances to 14 miles (22.5 km)
- ✓ DCE/DTE switchable
- ✓ Ultra-compact enclosure

ORDERING INFORMATION

1060: Async., Powered, Standalone: Short Haul Modem (120V)

1060-220: Async., Powered, Standalone: Short Haul Modem (230V)

1060RC11: Async., Powered, Rack Card: w/ DB25 DTE & RJ-11 Line

1060RC45: Async., Powered, Rack Card: w/ DB25 DTE & RJ-45 Line

1060RC4511: Async., Powered, Rack Card: RJ-45 DTE, RJ-11 Line

1060RC4545: Async., Powered, Rack Card: w/ RJ-45 DTE & RJ-45 Line

Note: More models are available, call for details.

Data Rate	Wire Gauge		
	19 (0.9mm)	24 (0.5 mm)	24 (0.4mm)
115.200*	1.8 (2.9)	0.75 (1.2)	0.38 (0.6)
57,000	2.5 (4.0)	1.3 (2.1)	0.95 (1.5)
38,400	3.7 (6.0)	1.5 (2.4)	1.33 (2.1)
19,200	4.17 (6.7)	1.9 (3.1)	1.42 (2.3)
9,600	5.41 (8.7)	2.6 (4.2)	2.08 (3.3)
4,800	7.05 (11.3)	3.8 (6.1)	2.84 (4.6)
2,400	11.5 (18.5)	7.0 (11.3)	4.83 (7.8)
1,200	14.0 (22.5)	8.5 (13.7)	5.68 (9.1)

* Model 1060 only.

SPECIFICATIONS

Transmission Format: Asynchronous
Interface: RS-232 (CCITT V.24) DB-25 female

Data Rate: 0 to 115.20 bps
Transmission Line: 4-wire, unconditioned via RJ-11 or terminal blocks (RJ-45 optional)

Diagnostics: Loop 3 and 4, local and remote analog loopback

Indicators: Tri-state indicators for Transmit Data, Receive Data, Control In and Control Out

Power: Wall-mount, 12VAC, 200mA
Dimensions: 4.17W x 1.52H x 5.0L in. (10.6W x 3.9H x 12.7L cm)

AC Powered SRM, Synchronous & Opto-Isolated

Model 1070

Ensure data integrity with loopback tests, status indicators and opto-isolation

The Model 1070 AC Powered, Synchronous Short Range Modem is designed with three RS-232 communications environments in mind: low power, high noise, and mission critical.

A low power environment is one where the RS-232 interface does not provide the necessary signal voltages to operate a self-powered short haul. The Model 1070 handles this problem by deriving power via external AC transformer—either 120 or 230 volts.

A high noise environment is one where transmission is impeded by unwanted energy on the twisted pair line. The Model 1070 counters this problem in several ways: Optical isolation eliminates ground loop currents in between-building applications. Silicon Avalanche Diode surge protection takes out data line transients from lightning strikes and other sources of EMR. Finally, a custom VLSI chip inside the Model 1070 filters out noise separately at each data rate.



A mission critical environment is one where data integrity is essential. The user needs to ensure that the modem connection is operating properly and that the data is being passed. The Model 1070 ensures data integrity, not only by using surge protection and optical isolation, but by providing local and remote loopback tests and front panel LED signal monitors.

The Model 1070 has convenience features that make it the best choice for many other sync. applications: The 1070 handles both hardware and software flow control requirements, has both a terminal block and RJ-11 jack for twisted pair hook up, and provides external access for all configuration switches.

Model 1070 Distance Table - Mile (Km)			
Data Rate	Wire Gauge (AWG/mm)		
	19 (.9mm)	22 (.6mm)	24 (.4mm)
19,200	2.5 (4.0)	2.1 (3.4)	1.3 (2.1)
9,600	3.7 (6.0)	2.3 (3.7)	1.7 (2.7)
4,800	4.9 (7.9)	4.9 (7.9)	2.5 (4.0)
2,400	5.8 (9.3)	5.8 (9.3)	4.6 (7.4)
1,200	8.3 (13.4)	8.3 (13.4)	6.8 (10.9)

FEATURES & BENEFITS

- ✓ Data Rates from 1.2 to 19.2 kbps
- ✓ Point-to-Point or Multipoint Operation
- ✓ Optically Isolated & Surge Protected
- ✓ Internal or External Clocking



ORDERING INFORMATION

- 1070: Sync., Powered, Standalone: Short Haul Modem (120V)
- 1070-220: Sync., Powered, Standalone: Short Haul Modem (230V)
- 1070RC11: Sync., Rack Card: with DB-25 DTE & RJ-11 Line
- 1070RC45: Sync., Rack Card: with DB-25 DTE & RJ-45 Line
- 1070RC4511: Sync., Rack Card: with RJ-45 DTE & RJ-11 Line
- 1070RC4545: Sync., Rack Card: with RJ-45 DTE & RJ-45 Line

Note: More models are available, call for details.

AC Powered X.21 SRM, Synchronous & Opto-Isolated

Model 1075

Our most cost effective way to extend sync X.21 connections!

The Model 1075 KiloModem II™ X.21 short range modem allows point-to-point connection of synchronous X.21 devices at distances to 7.1 miles (11.4 km) (see distance table below). Supporting switch selectable data rates of 32, 56 and 64 kbps, the Model 1075 provides internal, external or receive recovered clocking options. Diagnostics include V.54 and V.52 compliant tests. Both transformer isolation and surge protection are built into the Model 1075 as well.



FEATURES & BENEFITS

- ✓ Synchronous data rates of 32, 56 and 64 kbps
- ✓ Distances to 7.1 miles over two twisted pairs
- ✓ Built-in isolation and surge protection
- ✓ V.54 and V.52 Diagnostics

Model 1075 Distance Table - Mile (Km)				
Data Rate (kbps)	Wire Gauge (AWG/mm)			
	19 (.9mm)	22 (.6mm)	24 (.5mm)	26 (.4mm)
64	3.5 (5.6)	2.6 (4.2)	1.4 (5.6)	0.9 (1.4)
56	5.0 (8.0)	2.9 (4.7)	2.2 (3.5)	1.5 (2.4)
32	7.1 (11.4)	4.6 (7.4)	3.5 (5.6)	2.8 (4.5)

SPECIFICATIONS

Approvals: CE European Directives DTE/DCE V/F; X.21 DB15F DCE or DTE, EIA RS-422 Compliant
Compatibility: 1035, 1045, 1075, 1080A, 1090 series units
Transmission Format: Synchronous Transmission Unconditioned twisted pair 19—26 AWG
Line Interface: Externally accessible RJ-45 (RJ-11 Optional)

Clock: Internal, External and Network (Receive Recover)
Distance: Up to 7.1 miles (11.4 km)
Interfaces: CCITT/ITU X.21
Data Rates: 32, 56 and 64 Kbps (switch selectable)
Isolation: 1500V RMS via isolation transformers
Surge Protection: IEC-801-S, Level 2, 1kV Carrier Control Constantly on

or Controlled by "Control" from DTE device (DCE mode) or "Indication" from DCE device (DTE mode)
Connectors: DB-15 female (X.21); RJ-45 on line side*
Power: 9V DC transformer, 200mA
Temperature Range: 32—140°F (0—60°C)
Altitude: 0-15,000 feet (0-4,572 meters)

Humidity: 5 to 95% non-condensing
Dimensions: 1.54H x 4.1W x 3.7D in. (3.9H x 10.4W x 9.4D cm)
Power Options: 120 VAC 50/60Hz, external transformer; 230 VAC 50/60Hz, external transformer
Weight: 2.5 lbs. (1.1 kg)

ORDERING INFORMATION

- 1075/D/120: Synchronous X.21 Short Range: Modem, DB-15 Female, RJ-45* (120 VAC wall mount power)
- 1075/D/230: Synchronous X.21 Short Range: Modem, DB-15 Female, RJ-45* (230 VAC power, external)

* RJ-11 available on request

Note: More models are available, call for details.

Universal Short Range Modem

Models 1080A & 1080A-64

You can use the Model 1080A in just about any RS-232 UTP or STP application

The Model 1080A AC Powered, Universal Short Range Modem is the mainstay of our RS-232 short haul line, and it is now better than ever! Recent improvements in the Model 1080A include increased distances (up to 17 miles (27.4 km) on one or two unconditioned twisted pair), support for higher data rates (up to 57.6 kbps), and the addition of a built-in V.52 BER test pattern generator. Of course, the Model 1080A retains all the features that you have come to expect: asynchronous or synchronous RS-232 operation, half duplex communication over two wires or a choice of half or full duplex communication over four wires, support for point-to-point or multipoint applications, and fully compliant V.54 test modes (local analog loop and remote digital loop).

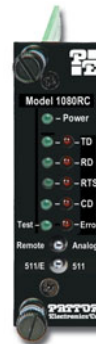
New automated features include equalization, gain control and noise filtering (a separate filter for each data rate is built into a custom VLSI chip). To combat the many nemeses of clear data transmission, the Model 1080A includes surge protection (guards against transients), transformer isolation (eliminates ground looping) and a new anti-streaming timer (stops data streaming).



The Model 1080A packs a lot of convenience into a tiny box: front panel LEDs give a clear picture of link status; V.54 tests can be activated remotely or via the front panel; and the unit can be externally configured (no need to open the case). Best of all, the Model 1080A standalone is fully compatible with the Model 1080A rack card and the new self-powered Model 1040 short haul.

Model 1080ARC rack cards are also available!

The Model 1080ARC fits in Patton's 2U high rack chassis and 2/4/8 ClusterBoxes™. Four plug-in rear interface cards are available.



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Data Rate (kbps)	Wire Gauge		
	19 (0.9mm)	22 (0.6 mm)	24 (0.4mm)
57,600	12.0 (19.3)	7.0 (11.2)	5.3 (8.5)
38,400	13.0 (20.9)	7.5 (12.1)	6.2 (10)
19,200	16.0 (25.8)	8.5 (13.7)	7.0 (11.3)
9,600	18.5 (29.8)	13.0 (20.9)	10.4 (16.7)
4,800	19.5 (31.4)	14.0 (22.5)	11.3 (18.2)
2,400	20.5 (33.0)	15.0 (24.2)	11.6 (18.7)
1,200	20.0 (32.2)	15.0 (24.2)	11.4 (18.4)

Data Rate (kbps)	Wire Gauge, in AWG (mm)		
	19 (0.9mm)	22 (0.6 mm)	24 (0.4mm)
64,000	11.0 (17.7)	6.5 (10.5)	5.0 (8.1)
32,000	13.5 (21.7)	7.5 (12.1)	6.4 (10.3)
16,000	16.5 (26.6)	10.0 (16.1)	8.4 (13.5)

SPECIFICATIONS

Range: 17.5 miles at 1200 bps, 19 AWG 2-pair wire

Data Rates: Sync or Async: 1.2, 1.8, 2.4, 3.6, 4.8, 7.2, 9.6, 14.4, 19.2, 28.8, 38.4, and 57.6 kbps, externally switch selected

Operation: Point-to-point or multipoint

Transmit Mode: Synchronous or asynchronous, 2-W/half duplex, 4-W/half or full duplex

Interface: EIA RS-232, CCITT V.24
Diagnostics: V.54 compliant local analog loopback & remote digital loopback; V.52 compliant 511 and 511E test pattern generator

LED Indicators: TD, RD, RTS, DCD, Power, Test

Carrier: Constantly ON or Controlled by RTS

RTS/CTS Delay: Strap selected: 0.0, 8.5 or 50 mS

Isolation: Transformer, 1500V RMS
Connectors: DB-25 female (RS-232), RJ-45 jack and terminal block (RJ-11 optional)

Transmit Clock: Internal, external or receive recover

Surge Protection: SAD, 600W power dissipation

Power Supply: External transformer, 120V or 230V

Dimensions: 4.17W x 1.52H x 5.0L in. (10.6W x 3.9H x 12.7L cm)

FEATURES & BENEFITS

- ✓ Async or sync operation
- ✓ 4-wire half or full-duplex/2-wire half-duplex only
- ✓ RS-232 data rates to 57.6 kbps
- ✓ Distances over 17 miles (27.4 km)
- ✓ Point-to-point or multipoint
- ✓ V.54 and V.52 test modes
- ✓ Automatic equalization/gain control
- ✓ Internal, external, or received recover clocking in sync. mode
- ✓ Custom VLSI noise filter chip
- ✓ Transformer isolation/surge protection
- ✓ Anti-streaming timer
- ✓ Fully compatible with the Model 1040 synchronous/asynchronous short-range modem



I'm Maria, one of Patton's Sales Coordinators. If you have questions about our products, call +1 301.975.1000 or send e-mail to sales@patton.com.



ORDERING INFORMATION

1080: Async./Sync. Standalone Short Haul Modem (120V)

1080A-220: Async./Sync. Standalone Short Haul Modem (230V)

1080A-64-120: Async./Sync. 64k Standalone Short Haul Modem (120V)

1080A-64-230: Async./Sync. 64k Standalone Short Haul Modem (230V)

1080ARC11: Async./Sync. Rack Card with DB-25 DTE & RJ-11 Line

1080ARC45: Async./Sync. Rack Card with DB-25 DTE & RJ-45 Line

1080ARC4511: Async./Sync. Rack Card with RJ-45 DTE & RJ-11 Line

1080ARC4545: Async./Sync. Rack Card with RJ-45 DTE & RJ-45 Line

Note: More models are available, call for details.



Industrial Short-Range Modem for Outdoor Use

Model 1065

This environmentally enhanced, async. and sync., baseband modem provides reliable data communications—even in the harshest of environments.

The Model 1065 comes housed in a ruggedized chassis that includes extended-temperature components and protective treatments that make it ideal for use in harsh industrial settings such as railways, refineries, and manufacturing facilities.

With built-in transformer isolation and surge protection, the 1065 supports data rates to 64 kbps at distances over 12 miles (19.2 km)

For centralized data centers, users can cluster up to 14 1065RC modem rack cards in the Model 1001 rack chassis. The Model 1001 rack system includes redundant power supply options that protect against power-related failures, providing fault-tolerant operation.

Typical applications for the Model 1065 include using it in automatic train control systems where the modems relay data between central control sites and track-side control/monitoring equipment. This application requires equipment that is reli-



able in all weather conditions, because the electronic interlocking systems must continuously control wayside equipment such as signals, point machines, derailleurs, etc., in such a manner that trains run on time, and passengers and cargo travel safely to their destinations.



FEATURES & BENEFITS

- ✓ Environmentally ruggedized sync./async. baseband modem
- ✓ V.14 async. to sync. conversion, standard and extended rates.
- ✓ Character lengths of 8, 9, 10, and 11 bits, start and stop bits included
- ✓ Supports point-to-point or multi-point operation
- ✓ Supports data rates up to 64 kbps at distances over 12 miles (19.2 km)
- ✓ Supports 4-wire half- or full-duplex operation, or 2-wire half-duplex operation
- ✓ Internal, external or received recovered sync clocking modes
- ✓ Compliant with V.52 BER and V.54 test modes
- ✓ High voltage transformer isolation/surge protection

ORDERING INFORMATION

Ruggedized Industrial Baseband Modems

1065A/120/z: Async/sync, ruggedized, DB25F, RS-232, RJ-45 line, desktop, 120 VAC power

1065A/230/z: Async/sync, ruggedized, DB25F, RS-232, RJ-45 line, desktop, 230 VAC power

1065RC/A/B: Async/sync, DB25F, RS-232, RJ-45 line, rack card

Extended Environmental Industrial Baseband Modems

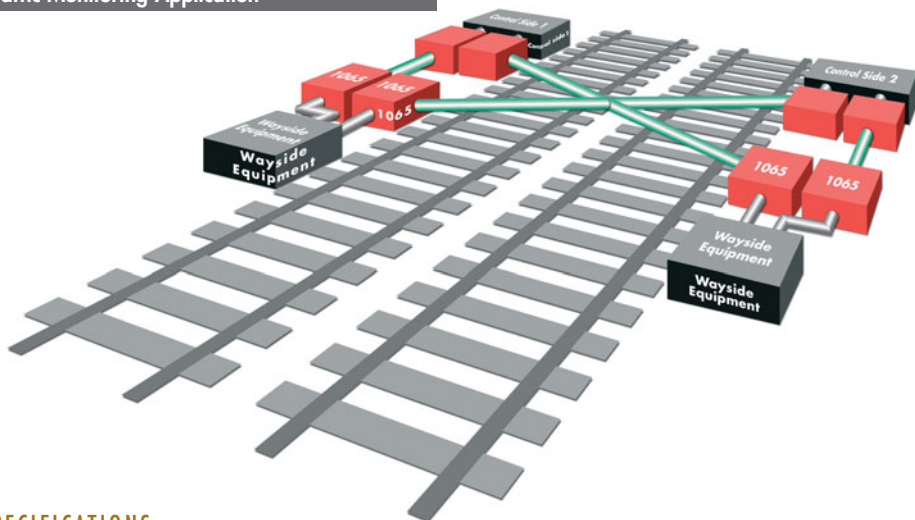
1065E/A/120/z: Async/sync, extended environmental, DB25F, RS-232, RJ-45 line, desktop, 120 VAC power

1065E/A/230/z: Async/sync, extended environmental, DB25F, RS-232, RJ-45 line, desktop, 230 VAC power

1065RCE/A/B: Async/sync, extended environmental, DB25F, RS-232, RJ-45 line, rack card

Note: More models are available, call for details.

Traffic Monitoring Application



SPECIFICATIONS

Transmission: Sync. or Async., 2-wire/half-duplex, 4-wire/full- or half-duplex, point-to-point or multi-point operation.

DTE Interface: RS-232/V.24, DB-25 female

Line Interface: 2- or 4-wire UTP, 19-26 AWG

Data Rates: Switch-selectable 1.2, 1.8, 2.4, 3.6, 4.8, 7.2, 9.6, 14.4, 19.2, 28.8, 38.4, 57.6, 64 Kbps

Clocking: Internal, external, or receive recover

RTS Anti-stream Timer: Switch-selectable for disabled, 12.5 sec, or 50 sec operation.

Diagnostics: V.52 compliant BER pattern (511/511E pattern) generator and detector with error injection mode; V.54-compliant local analog and remote digital loopbacks, activated by front panel switch or RS-232 DTE interface

Carrier: Always-on or controlled by RTS; selectable RTS/CTS delay of no delay, 7, or 53 ms

Isolation: Transformer at 2000 VRMS; Extended models 200Meg, Ohm at 500VDC

Surge protection: Immune to IEC-801-5 Level 2, 1kV

Power: 120/230 VAC switchable; IEC-320 male-shrouded connector

Temp/Humidity: Standard models: 0 to +70°C

with 5–95% relative humidity, non-condensing

Extended models: -10 to +70°C, 100% condensing humidity from -10 to +30°C; Absolute humidity from +30 to +70°C

Dimensions: 5.5W x 7.5D x 1.6H in. (13.9W x 19D x 4H cm)

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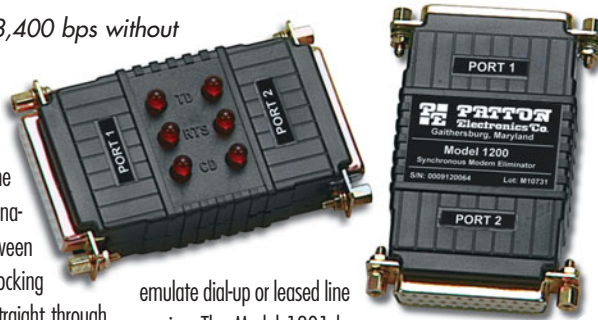


Synchronous Modem Eliminators

Models 1200 & 1201

Interconnect sync. equipment at 38,400 bps without a modem.

Have you been using synchronous modems to connect two synchronous DTEs, even though the distance between them is negligible? If so, the Patton Model 1200 synchronous modem eliminator can save you lots of money! Installing between the DTEs, the Model 1200 synchronizes their clocking and matches the wiring. All you need is two straight through RS-232 cables of 150 feet (45.7 m) or less. The Model 1200 requires no AC power or batteries. Handshaking can be set to



emulate dial-up or leased line service. The Model 1201 has LED indicators that monitor TX, RX and CD.

FEATURES & BENEFITS

- ✓ Interface powered—no AC power or batteries required
- ✓ Easy to install and configure
- ✓ Data rates up to 38.4 kbps
- ✓ Cable runs to 150 feet (22.9 m) on either side of the device
- ✓ Constant or RTS controlled carrier
- ✓ Internal or external clocking
- ✓ Variable RTS/CTS delay options

Point-to-Point Application Connecting Two Sync. Host



SPECIFICATIONS

Data Rates: Strap selectable: 1.2, 2.4, 4.8, 9.6, 19.2, 38.4 kbps

Clocking: Internal or external

RTS/CTS Delay: Strap selectable 0, 6.6, 53mS separately for each side

Grounding: Protective ground (pin 1) may be strapped to signal ground (pin 7)

Functional: Emulates half or full duplex, dial-up or dedicated lines

Range: 300 feet (91.5 meters) at 9,600 bps

Data Carrier Detect (Pin 8): "On" or controlled, strap selected separately for each side

Ring Indicator (Pin 22): Continuously "on"

LEDs: Transmit, Receive & Carrier Detect (1201)

Connectors: Choice of two male or two female RS-232 connectors

Power: Derived from RS-232 interface

Dimensions: 3 x 2 x 0.75 in (7.62 x 5.0 x 1.91 cm)

Op. Temp.: 32–122°F (0–50°C)

High Speed Synchronous Modem Eliminators

Models 1202 & 1203

Interconnect high speed synchronous hardware at up to 512 kbps—no modems!

Our Model 1202 & 1203 high speed synchronous modem eliminators let two synchronous RS-232 DTE (host) devices communicate without using expensive synchronous modems. The Model 1202 supports data rates of 16, 32, 64, 128, 256 and 512 kbps. The Model 1203 supports data rates of 17, 14, 28, 56, 112 and 224 kbps. Both models are interface powered and provide internal or external clock options. And both can be configured to emulate dial-up or leased line service. Easily visible LEDs let you monitor link status. RS-232

connections can be extended up to 75 feet (23 m) on either side of the device. Two male or two female DB-25 connectors are provided.



FEATURES & BENEFITS

- ✓ **Model 1202**—Sync data rates from 16 to 512 kbps (including 64 kbps)
- ✓ **Model 1203**—Sync data rates from 7 to 224 kbps (including 56 kbps)
- ✓ Cable runs to 75 feet (23 m) on either side of the device
- ✓ Constant or RTS controlled carrier
- ✓ Internal or external clocking
- ✓ RTS/CTS delay options of 0 msec or 6.6 msec
- ✓ No AC power required

SPECIFICATIONS

Data Rates: Model 1202—up to 512 kbps; 1203—up to 224 kbps

Clocking: Internal or external

Grounding: Protective ground (pin 1) may be strapped to signal ground (pin 7)

RTS/CTS Delay: Strap selectable 0, 6.6, 53mS separately for each side

Functional: Emulates half or full duplex, dial-up or dedicated lines

Ring Indicator (Pin 22): Continuously on

Data Carrier Detect (Pin 8): On or controlled, strap selected separately for each side

Power: Derived from RS-232 interface

Connectors: Choice of two male or two female DB-25 connectors

Dimensions: 3 x 2 x 0.75 in (7.62 x 5.0 x 1.91 cm)

Op. Temp.: 32–122°F (0–50°C)

ORDERING INFORMATION

High Speed Sync Modem Eliminator

1202 F: Two DB-25 female connectors

1202 M: Two DB-25 male connectors

1203 F: Two DB-25 female connectors

1203 M: Two DB-25 male connectors

Note: More models are available, call for details.

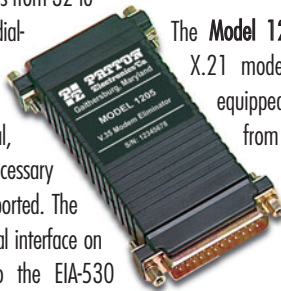
V.35, X.21 Synchronous, Modem Eliminators

Models 1205 & 1206

Don't buy expensive modems when there is a better way!

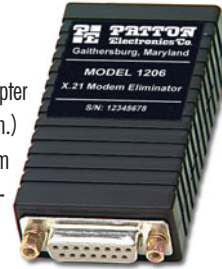
The Patton Models 1205 & 1206 sync modem eliminators enable two synchronous hosts to communicate with each other in the same room for a fraction of the cost of a pair of high speed modems or line drivers.

The **Model 1205**, supporting sync data rates from 32 to 144 kbps, can be configured to emulate dial-up or leased line service. Maximum distance between the connected hosts is 300 feet (91.4 m). Timing can be set for internal, external, or receive recover clock, and all necessary data, clocking and control signals are supported. The Model 1205 implements the V.35 electrical interface on DB-25 female connectors, according to the EIA-530



Standard (DB-25 to M/34 adapter cables are available from Patton.) Operating power is drawn from both V.35 interfaces, or provided via an AC adapter.

The **Model 1206** synchronous X.21 modem eliminator is AC powered, and comes equipped with two DB-15 female connectors. Data rates from 32 to 144 kbps are supported, as well as internal, external or receive recover clocking. Maximum distance between the connected hosts is 300 feet (91.4 m).



FEATURES & BENEFITS

- ✓ **Model 1205**—V.35 sync data rates from 32 to 144 kbps
- ✓ **Model 1206**—X.21 sync data rates to 144 kbps
- ✓ Data, clocking & control signals
- ✓ Internal, external or receive recover clocking
- ✓ AC powered

Our V.35 & X.21 Modem Eliminators are rack mountable

Now you can integrate 16 V.35 or X.21 synchronous modem eliminators into a standard 19-in. rack mount installation that's only 3.5 in. high. Or if you need just a handful of modem eliminators, make your installation ultra compact using our convenient 2, 4, or 8-slot desktop ClusterBoxes™.



SPECIFICATIONS

Data Rates: 32, 48, 56, 64, 72, 112, 128 and 144 kbps
Clocking: Internal or external
Interface: Model 1205—CCITT V.35/EIA RS-530; Model 1206—CCITT X.21
Connectors: Model 1205—Dual DB-25 female; Model 1206—Dual DB-15 female
Distance: 300 ft (91.4 m) (DTE to DTE)
Power: External wallmount transformer, 120 or 230 VAC
RTS/CTS Delay: Strap selectable, 0, 7, 53 mS (±15%)
Dimensions: 3 x 2 x 0.75 in.

ORDERING INFORMATION

- 1205F-F:** Two female DB-25 connectors
- 1205/34F:** Two female M/34 connectors
- 1205RC:** Rack card, two female UD-26
- 1205-26M/35M:** Cable, UD-26 male to M/34 male
- 1205-26M/35F:** Cable, UD-26 male to M/34 female
- 1206F-F:** Two female DB-15 connectors 120 V

- 1206RC:** Rack card, two female UD-26 connectors
- 1206-26M/15M:** Cable, UD-26 male to DB-15 male
- 1206-26M/15F:** Cable, UD-26 male to DB-15 female

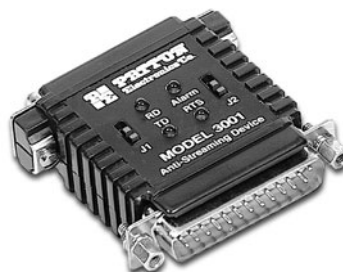
Note: More models are available, including 230-V power options and additional cable assemblies, call for details.

Anti-Streaming Device

Model 3001

Miniature device fixes streaming lockups.

This handy device operates in point-to-point or multi-point environments. Supporting any data rate or format, it prevents malfunctioning (streaming) terminal equipment from locking-up the system.



FEATURES & BENEFITS

- ✓ Operates in point-to-point or multi-point environments
- ✓ Prevents malfunctioning (streaming) terminal equipment from locking-up the system
- ✓ Any data rate or format
- ✓ User selectable timeout periods of 12.5, 25, 50 or 400 seconds

ORDERING INFORMATION

- 3001:** Anti-Streaming Device

I'm Dave, Patton's Manager of US Technical Support. If you do not find what you need at www.patton.com or in this catalog, or if you have technical questions or comments, please call me at +1 301.975.1007. You can also send e-mail to puckett@patton.com.



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FAST Delivery From Your AUTHORIZED DISTRIBUTOR!



Miniature, Async/Sync RS-232, Fiber Optic Modems**Models 1110A & 1140A**

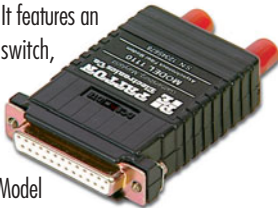
Have the noise and transient immunity of fiber optics in a miniature, self-powered package!

The Patton Model 1110A and 1140A miniature RS-232 fiber optic modems pack all the advantages of fiber into compact self-powered packages. When it comes to data communication integrity, optical fiber has several advantages over twisted pair copper:

- Copper wire requires shielding against RFI/EMI noise in many environments, whereas fiber is immune to RFI/EMI.
- In building-to-building applications, copper wire requires DC isolation to avoid ground looping. Fiber, since it does not have DC continuity, is not subject to ground looping.
- If a copper link passes through a field of energy created by a lightning strike, this transient energy will be conducted to the hardware at either end. But a fiber link will not pick up this harmful radiated energy—it is immune to transients.

The Models 1110A and 1140A fiber modems have all of these advantages. Neither modem uses AC power or batteries to operate because they draw their power from the data and control signals on the RS-232 interface. Carrier may be internally switch selected for "Continuously On" or "Controlled by RTS".

The **Model 1110A** communicates in full or half-duplex over two fibers while supporting data rates to 19.2 kbps and distances up to 5 miles (8 km). It features an external DCE/DTE switch, which eliminates the need for RS-232 crossover cables. The miniature size of the Model 1110A allows it to fit in tight installation spaces.

**ORDERING INFORMATION**

1110AM-ST: Mini Async Fiber Modem: Male DB-25 & ST Fiber

1110AF-ST: Mini Async Fiber Modem: Female DB-25 & ST Fiber

1110ARC-ST: Async Fiber Modem Rack Card: Female UD-26 & ST Fiber

1110A-26M/25M: UD-26 to DB-25 Male Cable

1110A-26M/25F: UD-26 to DB-5 Female Cable

1140AM-ST: Mini Async Fiber Modem : Male DB-25 & ST Fiber

1140AF-ST: Mini Async Fiber Modem: Female DB-25 & ST Fiber

1140ARC-ST: Async Fiber Modem Rack Card: Female UD-26 & ST Fiber



The **Model 1140A** brings all the advantages of fiber to your network, plus 100% compliant V.52 and V.54 diagnostics. Besides communication integrity, the supports distances to 4 miles (6.4 km) and data rates to 38.4 kbps over two fibers. The 1140A operates async or sync—full or half duplex. While in synchronous mode, the fiber modem supports three clocking methods: internal, external, and receive recover.

Streamline your fiber cabling with Patton's rackmount cards!

If several fiber links are running into the same location, use the 1140ARC rack card. The Model 1140ARC sits in Patton's 16 slot rack chassis, as well as Patton's 2, 4, and 8 slot ClusterBoxes™. Mid-plane architecture and "hot swapping" capability allows different function/interface modules to be plugged in while the system is running.



Uses Patton's Self-Powered Fiber Technology.
Patented: U.S. Patent 4,151,540

**Model 1104
Miniature Async
RS-485 Fiber
Optic Modem
Also Available!**

1140A-26M/25M: UD-26 to DB-25 Male Cable

1140A-26M/25F: UD-26 to DB-25 Female Cable

1104F-ST: Mini Async RS-485 Fiber Modem; Female DB-25; 100–200 VAC

1104M-ST: Mini Async RS-485 Fiber Modem; Male DB-25; 100–200 VAC

1104TB-ST: Mini Async RS-485 Fiber Modem; Terminal Block; 100–200 VAC

Note: More models are available, call for details.

FEATURES & BENEFITS**Models 1110A & 1140**

- ✓ 1110: Async., RS-232 operation/ 1140: Async/Sync RS-232
- ✓ Full or half duplex
- ✓ 1110: Data rates up to 19.2 kbps; 1140: Up to 38.4 kbps
- ✓ 1110: Range up to 5 miles (8 km); 1140: Up to 4 miles (6.4 km)
- ✓ Continuous or controlled carrier
- ✓ External DCE/DTE switch
- ✓ Very thin case (0.75 in./1.9 cm) for closely spaced computer ports
- ✓ EMI/RFI and transient immunity
- ✓ No AC power required
- ✓ ST connector options
- ✓ 1140: V.52 and V.54 loopback test modes
- ✓ 1140: Internal, external or received loopback clocking in sync mode

Model 1104

- ✓ Async. or sync. RS-232 operation
- ✓ Dual fiber optic interface
- ✓ Data rates to 38.4 kbps
- ✓ Range up to 4 miles (6.4 km)
- ✓ No AC power required
- ✓ Continuous or controlled carrier
- ✓ ST connector options

SPECIFICATIONS**Model 1110A & 1140A**

Transmission Line: Dual multi-mode optical cable

Transmission Mode: 1110:

Async., full or half duplex; 1140: Sync or

async, full or half duplex

Range: 1110: 5 miles (8 km); 1140: 4 miles (6.4 km) over continuous fiber (with attenuation 2.5 dB/km). Over continuous fiber (with attenuation 2.5 dB/km)

Receiver Sensitivity:—42 dBm

Coupled Output Power: -18 to

-24 dBm (depending on fiber specs)

Optic Wavelength: 850 nm

Indicators: One LED indicates transmission of data

Interface: EIA RS-232/CCITT, V.24

male or female connectors

Data Rates: 1110: 0–19.2 kbps;

1140: 0–38.4 kbps

Power: Derived from EIA data

and controls

Dimensions:

1110: 2.66 x 2.10 x 0.73 in.

(6.8 x 5.3 x 1.9 cm)

1140: 3.55 x 2.1 x 0.73 in.

(6.8 x 5.3 x 1.9 cm)

Model 1140A

RS-485 Serial Interface: One

DB-25 Male, DB-25 Female, or

Terminal Block

Serial Transmission: RS-485

Asynchronous, 0 to 115.2 Kbps

Fiber Interface: ST style fiber connectors (TX and RX)

Transmission Line: Dual multi-

mode optical cable, optimized to

work with 62.5/125 micron

fiber—850nm wavelength

Range: Up to 1.25 miles (2.01 km)

Power Budget: 12dB with 62.5/125

micron fiber

Power Supply Options: External

Universal Power Supply (100–240 VAC)

Temperature: 32 to 122°F

(0 to 50°C)

Altitude: 0–15,000 ft (0–4,572 km)

Humidity: Up to 95% non-condensing

Dimensions: 3.0L x 1.8W x 0.9H in.

(7.6L X 4.4W X 1.9H cm)

Weight: 2 oz. (57 g)

Note: Country specific power cords are ordered separately.

RS-232 Bluetooth Wireless Modem 2-Packs
Model 1013

The Model 1013 provides hassle-free wireless RS-232 connections with line rates up to 380 kbps at distances up to 3,900 feet (1,188 meters)!



Patton's newest short range modem, the Model 1013, is a wireless serial short range modem that connects RS-232 devices using Bluetooth V.1.1 technology. The Model 1013 eliminates the hassle and expense of running a dedicated cable connection between RS-232 devices thus giving installers, maintenance workers, and others the ability to remotely monitor and control RS-232 devices.

The Patton Model 1013 supports point-to-point and point-to-multipoint connections. Users can configure the Model 1013

through a user-friendly Windows utility application, standard AT commands, or by DIP switch and push buttons. The 1013 includes a plug-and-play auto-pairing button that will automatically link two Model 1013s for a dedicated point-to-point connection.

Serial connections are provided by an RS-232C DB-9 connector. Bluetooth transmits over the built-in stub antenna at distances up to 328 feet (100 meters). For greater distances, Patton offers optional dipole and patch antennas that can increase the wireless RS-232 range up to 3,280 feet (1,188 meters)!

Patton's wireless RS-232 short range modems effectively eliminate the expense and hassle of cables!

FEATURES & BENEFITS

- ✓ RS-232 Serial Cable Replacement—Wireless RS-232 connections can be made over 3,900 feet (1,188 meters) at line rates up to 380 kbps
- ✓ Auto-Pairing Feature—Unique feature that enables plug-and-play installations
- ✓ Windows Utility Configurable—Clear and concise tool for fine tuning your wireless RS-232 connections
- ✓ Bluetooth Protocols Supported—RFCOMM, L2CAP, SDP
- ✓ Interface Powered—No external power supply required for operation



ORDERING INFORMATION

- 1013: Wireless RS-232 Short Range Modem
- 1013-2PK: Wireless RS-232 Short Range Modem Extender Kit

Accessories

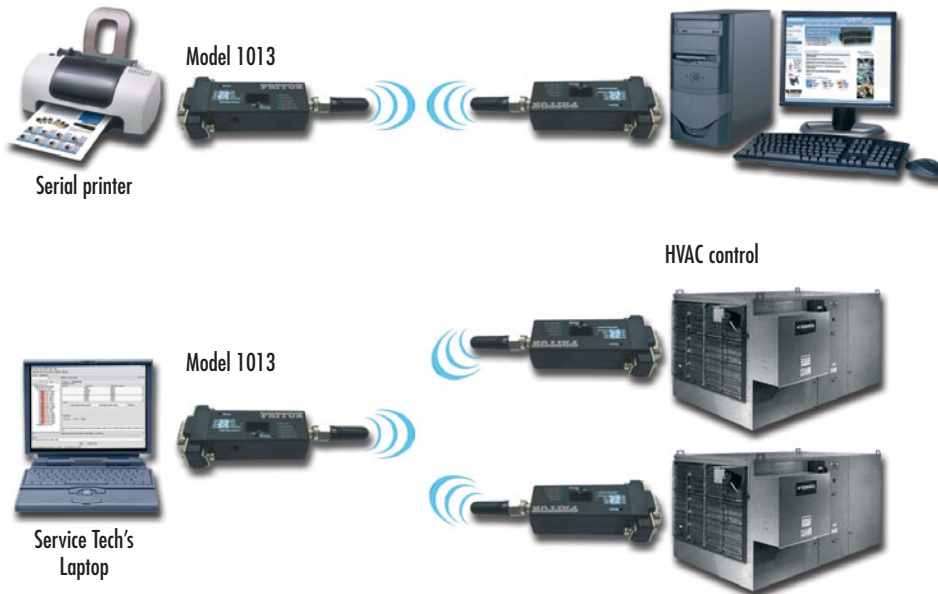
- 10-BT-SAT: Bluetooth Stub Replacement Antenna
- 10-BT-DAT: Bluetooth Dipole Antenna
- 10-BT-PAT: Bluetooth Patch Antenna
- 10-BT-UPA: Bluetooth USB to Power Adapter Cable
- 10-BT-DPA: Bluetooth DC to Power Adapter Cable
- 10-BT-CBL-1: Bluetooth 1M Antenna Extension Cable

SPECIFICATIONS

Bluetooth v1.1 Specifications:
Power Class: Class 1
RF Range: Standard stub antenna up to 328 feet (100m)
Bluetooth Protocol: RFCOMM, L2CAP, SDP
Frequency: 2.4–2.4738 GHz
Baud Rate: Up to 380 kbps
Serial Specifications
Serial Interface: EA RS-232C

Connector Type: DB-9 Female
Baud Rate: 1,200 bps to 230.4 kbps
Hardware flow control: ON/OFF
General Product Specifications
Operating Temperature: -4 to 158°F (-20 to 70° C)
Dimensions: 2.5L x 1.20W x 0.63H inch (63L x 30W x 16H mm)
Weight: 0.1 lbs (0.06 kg)

Application diagram



Bluetooth enables wireless RS-232 connections, making installations and service calls more efficient by eliminating the time, hassle, and expense of cable runs.

Antenna Distance Chart	
Default Antenna to Default Antenna	328 feet (100 meters)
Default Antenna to Dipole Antenna	492 feet (150 meters)
Dipole Antenna to Dipole Antenna	656 feet (200 meters)
Patch Antenna to Dipole Antenna	1,312 feet (400 meters)
Patch Antenna to Patch Antenna	3,937 feet (1,200 meters)

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Multiplexers

Muxes & Sharing Devices

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Multiplexers

LOW SPEED TDM

Full Duplex, 2-Channel



Connect two sync terminals, or one async and one sync terminal, to a sync modem

- ✓ Data rates up to 19.2 kbps at the sub-channels and 38.4 kbps at the composite channel
- ✓ RS-232 composite port interface and sub-channel interface

Model 3042
Page 96

STATISTICAL MUX

Powered, 8-Channel, Async/Sync



High performance and full front panel LCD control

- ✓ Channel speeds up to 19.2 kbps
- ✓ Link speeds up to 64 kbps
- ✓ Aggregate channel input up to 76.8 kbps
- ✓ RS-232 interface on all ports

Model 3028
Page 97

MINI STAT MUX

Full Duplex, Async



Our MicroStats™ statistical multiplexers double the usefulness of your existing modems!

- ✓ Data rates up to 115.2 kbps and sub-channel data rates to 57.6 kbps
- ✓ Power drawn from main and sub-channel devices—no AC power or batteries required

Model 3032
Page 96

RS-232 TDM

Up to 8 Channels, Limited Distance



Move up to 8 channels of RS-232 data over two twisted pairs

- ✓ Simultaneous sub-channel data rates up to 19.2 kbps
- ✓ Two-pair distances up to 6,000 ft (1.8 km) between multiplexers

Models 3054, 3056, 3058
Page 98

MULTIPOINT ASYNC MUX

Up to 8 Ports on a Single Link



Consolidate up to 8 asynchronous data sources onto a single synchronous WAN link or IP/Ethernet LAN connection

- ✓ V.35/X.21/T1/E1 Ethernet Composite—Connect to any sync dedicated WAN or use standard PPP or Frame Relay networks
- ✓ Up to 8 Ports on a Single Link—Multiplex up to 8 EIA-232/V.24 ports at 115.2kbps

Models 3034, 3038
Page 95

Modem/Port Sharing Devices

DIGITAL SHARING DEVICE

V.24, X.21, or RS-232/423



Share up to 8 ports (DCE or DTE) to 1 master DTE or DCE

Models 3040, 3060, 3080
Page 99

MODEM SHARING DEVICES

V.24, X.21, or RS-232/423



8 sync or async devices can share one modem in a polled environment

Models 3012, 3014, 3018
Page 100

RS-232



Three RS-232 DTEs can contend for access to one RS-232 modem

Model 3010
Page 101

MODEM SPLITTER

DB-25, Sync or Async



Lets three devices share a single modem

Models 305
Page 101

Multiport Asynchronous Multiplexers

Models 3034 & 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.

SPECIFICATIONS

Terminal/Channel Ports: Serial Asynchronous start-stop • # of Ports: 8 ports (3038); 4 ports (3034) • Max Aggregate Speed: 2Mbps • Interface: CCITT V.24 (EIA-561) on 8-pin RJ-45F • Data Communication Speed: Selectable 50bps-115.2kbps; auto-speed detection up to 115.2kbps • Data Format: selectable 5,6,7, or 8 bits: 1, 1.5 or 2 stop bits, odd, even, or no parity • Flow Control: Software selectable (XON/XOFF) or hardware (RTS/CTS) in both directions • Break propagation: Transparent • EIA signal propagation: Status of local DTR signal can be propagated to the remote end • Echo: Character echo can be selectively enabled for each terminal port

Composite Port(s): Auto-sensing 10/100BaseTX MDI-X Ethernet & V.35 or X.21 • Error detection & correction: 16-bit CRC-CCITT with ARQ (automatic re-transmission on error) • Speed: selectable, serial up to 1.2Mbps-2Mbps, Ethernet auto detect-10/100 • Interface: DB25, V.35; DB15, X.21 • Data Encoding: NRZ or NRZI • Clock: receive clock: external; transmit clock: selectable as internal or external

Supervisory Port(s): Interface auto-sensing 10/100BaseTX MDI-X on RJ-45 or Serial RS-232 (EIA-561) on RJ-45 • Serial Comm. protocol: asynchronous start-stop • Serial Speed: 300, 1200, 4800, or 9600 bps • Serial Data format: 7/8 bits, stop bits, odd/even/no parity • Echo: Optional

Commands: Set/modify/view parameters • View status • Store parameters in non-volatile memory • Copy parameters between ports • Provide local/remote loop backs on port • Establish connection between supervisory and terminal ports • Obtain statistic reports • Unit reset; individual port reset • Remote supervisory access • Enable/Disable remote access

IP Services Supported: IPv4 • RIPv1 and v2 (RFC 1058 and 2453) • ICMP redirect (RFC 792); packet fragmentation • DiffServ/ToS set or queue per header bits • Packet policing discards excess traffic • 802.1p/Q VLAN support with 4096 IDs • IPSEC AH & ESP Modes • Manual/IKE keying • AES/DES/3DES Encryption

IP Connectivity Supported: X.21/V.35 (Frame Relay (8PVCS); RFC1490,FRF.12 fragmentation; LMI, Q933D, ANSI 617D, Gang of Four; PPPPAPCHAPLCP/PCP; T1/E1 (ITU-T G.703,ANSI T1.403; AML, B8ZS, HDB3) • TCPRAW • UDP • Telnet • DHCP • NAT

Operating Environment: Temp.: 0-40°C • Humidity: 5-80% (non condensing)

System: CPU Motorola MPC859 @ 50 MHz • Memory 16MB SDRAM/4MB Flash • Power: 100-240 VAC (50/60 Hz) • Power dissipation: 4W

Compliance: EMC compliance: EN55022 and EN55024 • Safety compliance: EN 50950 • CE compliance FCC Part 15 Class A

ORDERING INFORMATION

Managed High-Speed RS-232 Async. 8-port Stat Mux

3038/C/EUI: Composite V.35 Sync

3038/D/EUI: Composite X.21 Sync

3038/K/EUI: Composite E1 Sync

Managed High-Speed RS-232 Async. 4-port Stat Mux

3034/C/EUI: Composite V.35 Sync

3034/D/EUI: Composite X.21 Sync

3034/K/EUI: Composite E1 Sync

Managed High-Speed RS-232 Async. 8-port Stat Mux, 2-Pack

3038/C/EUI-2PK: Composite V.35 Sync

3038/D/EUI-2PK: Composite X.21 Sync

3038/K/EUI-2PK: Composite E1 Sync

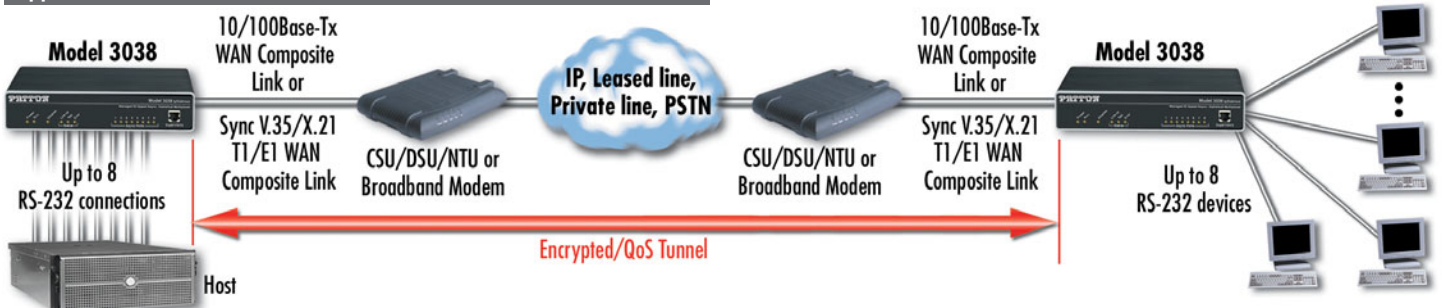
Managed High-Speed RS-232 Async. 4-port Stat Mux, 2-Pack

3034/C/EUI-2PK: Composite V.35 Sync

3034/D/EUI-2PK: Composite X.21 Sync

3034/K/EUI-2PK: Composite E1 Sync

Application—Remote Office/Branch Office Voice Extension and Access



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PATTON
Electronics Co.

Low-Speed Time-Division Multiplexer

Model 3042

Connect two sync terminals, or one async and one sync terminal, to a high speed sync modem

The Model 3042 is a full-duplex, RS-232, two-channel, time-division multiplexer (TDM) with an independent switch-selectable V.14/V.22-compliant async-to-sync interface adapter on sub-channel 1. It provides two channels that can operate as two sync channels or as one sync and one async channel. TDM techniques are used to interleave data from the two channels into a composite channel that operates at twice the rate of the sub-



channels. The composite channel is interfaced with a high speed synchronous modem via a straight-through cable.

FEATURES & BENEFITS

- ✓ RS-232 composite port interface and sub-channel interface
- ✓ Provides data rates up to 19.2 kbps at the sub-channels and 38.4 kbps at the composite channel
- ✓ Sturdy aluminum enclosure
- ✓ External wall-mounted power supply
- ✓ UL, CSA, and FCC Class A approvals

SPECIFICATIONS

Capacity: Two sync RS-232 terminals or one sync and one async RS-232 terminal multiplexed on one sync RS-232 modem

Data coding: Sync or async
Data interface: EIA RS-232-C

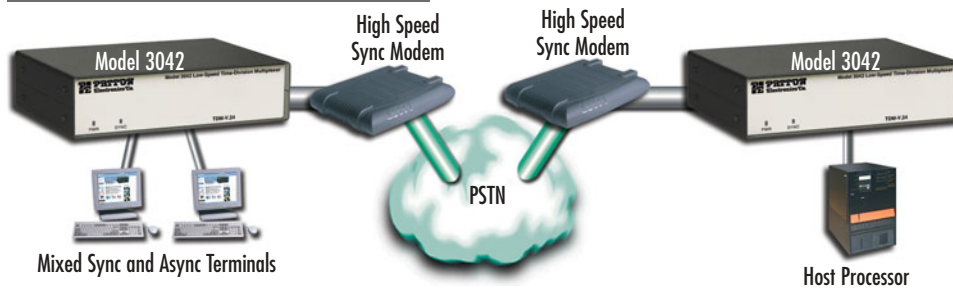
Data rates: Async—600 to 19,200 bps; Sync—up to 19,200 bps; Composite—38,400 bps

Power source: 110 or 220 VAC, 47 to 63Hz, 5 Watts, external wall-mounted transformer

Op. temp.: 32 to 122°F (0 to 50°C)
Rel. humidity: 5 to 90% non-condensing

Dimensions: 2.0H x 8.30W x 6.10D in. (5.08H x 21.08W x 15.49D cm)
Weight: 2.25 lbs (1.02 kg)

RS-232 Two-Channel Multiplexer Application



ORDERING INFORMATION

3042: Powered V.24 Micro TDM (TDM-V24)

3042-220 Same as 3042 except pre-configured for 220VAC

Miniature 2-Port Statistical Multiplexers

Models 3022 & 3032

Our MicroStats™ double the usefulness of your existing modems!

These devices enable two asynchronous RS-232 devices to communicate over a single modem link, effectively doubling the capacity of two analog (V.32, V.34, etc.) modems or two short-range modems. They also allow four async RS-232 devices to be connected together over short distances (100 ft/30 m) using just a crossover cable. The devices are configured using

extended AT commands (the local and remote mux can be configured from local port 1 or 2) and can perform auto-baud sensing. Hardware (RTS/CTS) and software (X-ON/X-OFF) flow control are supported.



FEATURES & BENEFITS

- ✓ Power drawn from main and sub-channel devices—no AC power or batteries required
- ✓ Model 3022 main and sub-channel data rates to 38.4 kbps
- ✓ Model 3032 main channel data rates to 115.2 kbps and sub-channel data rates to 57.6 kbps

SPECIFICATIONS

Sub-Channels Interface: RJ-45, V.24/RS-232C

Configuration: DCE

Transmission: Async, full duplex

Parity: Odd, even, mark, space, or none

Flow Control: Hardware (RTS/CTS), software (XON/XOFF)

Stop Bits: 1 or 2

Baud Rate: Model 3022—110, 300, 1200, 2400, 4800, 9600, 19200, 38400 bps, selectable or auto detected; Model 3032—110, 300, 1200, 2400, 4800, 9600, 19200, 38400 and 57600 bps selectable (auto detected up to 38.4 kbps)

Main Channel Interface: DB-25 male, DTE, V.24/RS-232-C

Transmission: Async, full duplex

Baud Rate: Model 3022—1.2, 2.4, 4.8, 9.6, 19.2, 38.4 kbps, selectable;

Model 3032—2.4, 4.8, 9.6, 19.2, 38.4, 57.6 and 115.2 kbps, selectable

Word Size: 7 or 8 data bits

Flow Control: RTS/CTS or no flow control

Temp Range: 32–158°F (0–70°C)

Humidity: up to 95%, non-condensing

Dimensions: 2.7 x 2.1 x 7.4 in. (6.9 x 5.3 x 1.9 cm)

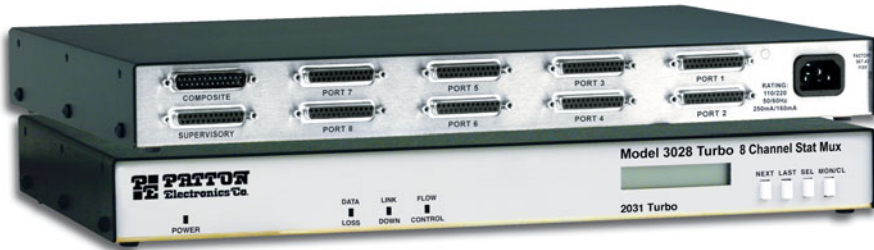
ORDERING INFORMATION

3022: 2-Channel Statistical Mux

3032: MicroStat 2-Channel Statistical Mux

Powered 8-Channel, Async/Sync Statistical Multiplexer
Model 3028

Provides high performance and full LCD configuration and management.



These multiplexers are easy to install and operate. The Model 3028 supports up to 8 RS-232 devices, and 1 composite RS-232 port.

The Model 3028 enables you to diagnose problems, check traffic statistics, review channel status and monitor events on the multiplexer and communications line—all from the front panel or a supervisory terminal. The unit combines data traffic from up to eight sources into a single high-speed composite link. Channel speeds from 75 to 19,200 bps are support-

ed with an automatic channel speed detection (AUTOBAUD) option up to 9,600 bps. There is a 16-kbyte buffer that is shared on demand by the channels. Each channel is assigned a minimum of 372 bytes of buffer space to prevent lockout. Due to this buffering action, data rates on the channel side of the multiplexer may total several times the actual link rate without data loss. The 3028 multiplexer can handle an aggregate of 76,800 bps in constant full-duplex traffic (with flow control) and a 64,000 bps link without loss of data.

FEATURES & BENEFITS

- ✓ Model 3028 Turbo—RS-232 interface on all ports
- ✓ Eight channels synchronous or asynchronous
- ✓ Channel speeds up to 19.2 kbps
- ✓ Link speeds up to 64 kbps
- ✓ Aggregate channel input up to 76.8 kbps
- ✓ Independently configurable channels
- ✓ Configurable from the front panel or from a supervisory terminal
- ✓ Local and remote supervisory capability with password protection
- ✓ Internal linear power supply configured for either 110 or 220-VAC operation

3028 Application



I'm John, one of Patton's Ethernet Extenders Product Group Managers. If you do not find what you need at www.patton.com or in this catalog please call me at +1 301.975.1000, x160. You can also send e-mail to jgrant@patton.com.

SPECIFICATIONS

Number of channels: 8
Channel speeds: Up to 19.2 kbps
Link speeds: Up to 64 kbps
Max aggregate speed: 76.8 kbps
Autobaud rate detection: 150 to 9600 bps

Interface standards: EIA RS-232-C, CCITT V.24
Protocols: SDLC/HDLC or asynchronous
Link protocol: Modified HDLC, X.25 Level 2
Error control: 16-Bit CRC
Link timing: Internal: 1.2 to 19.2 kbps; External: to 64K

EIA signal propagation: RTS=DCD, DTR=DSR, BD=RI, DRSS=CTS
Op. temp.: 32–122°F (0–50°C)
Power source: 115/230 VAC, 60/50Hz, 0.16/0.08A, switchable, UL approved

Rel. humidity: 5 to 90% non-condensing
Dimensions: 1.75H x 17.0W x 11.00 in. (4.44H x 43.18W x 18.93D cm)
Weight: 4.5 lbs (2.1 Kg)

ORDERING INFORMATION

- 3028 TURBO:** Powered statistical multiplexer, RS-232, 8-channel
- 3028-220 TURBO:** Same as 3028 Turbo except pre-configured for 220VAC

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FAST Delivery From Your AUTHORIZED DISTRIBUTOR!



4, 6 & 8 Channel Limited Distance Multiplexers

Models 3054, 3056, & 3058

These RS-232 TDMs have Built-in Short Range Modems!

The Patton Model 305X Series limited distance multiplexers combine two functions into one handy product. First, each Model 305X Series unit is a time division multiplexer (TDM), multiplexing 4, 6 or 8 individual RS-232 devices onto a single composite channel. Second, each Model 305X Series unit is a short range modem, supporting point-to-point communication at distances up to 6,000 ft (1.8 km) over two unconditioned twisted pairs. All Model 305X Series units support end-to-end software flow control, and are equipped with local and



remote loopback tests. (The Model 3054 and 3056 also support RTS/CTS hardware flow control.) In addition, diagnostic LEDs show each sub-channel's status. All data interfaces are ported to modular RJ-45 jacks.

FEATURES & BENEFITS

- ✓ Multiplexes 4, 6 or 8 async devices onto two twisted pairs
- ✓ Simultaneous sub-channel data rates up to 19.2 kbps
- ✓ Two-pair distances up to 6000 ft (1.8 km) between multiplexers
- ✓ Support for RS-232 interfaces on modular RJ-45 connectors
- ✓ End-to-end software flow control
- ✓ Hardware (RTS/CTS) flow control (Models 3054 & 3056)
- ✓ Local and remote loopback tests
- ✓ LEDs monitor TD, RD (each sub-channel), link and diagnostics
- ✓ Miniature plastic enclosure fits in tight installation spaces

Typical Application



SPECIFICATIONS

Transmission Lines: Main channel, 19 to 26 AWG twisted pair; RS-232 sub-channels, flat silver cable
Interfaces: Asynchronous RS-232, ITU/CCITT
Data Rates: 0–19.2 kbps on sub-channels
Test Modes: Local loopback, remote loop
Range: 6,000 ft (1.8 km) over twisted pair 24 AWG (0.5 mm) between multiplexers; 50 feet (15.2 m) on RS-232 sub-channels
Indicators: Transmit Data, Receive Data, Link, Local Loopback, Remote Loop
Connectors: RJ-45 female on main & sub-channels
Power Supply: 9–12 VAC
Dimensions: 8.5W x 3.5L x 1.5H in. (21.6W x 8.9L x 3.8H cm)



I'm Scott, Patton's Vice President of Product Management. If you do not find the answers you need at www.patton.com, please call me at +1 (301) 975-1000 x166. You can also send e-mail to scott@patton.com.

ORDERING INFORMATION

- 3054/A: 4-Port, RS-232
- 3054/AR: 4-Port, RS-232, w/ RTS/CTS flow control
- 3056/A: 6-Port, RS-232
- 3056/AR: 6-Port, RS-232, w/ RTS/CTS flow control
- 3058/A: 8-Port, RS-232

Note: Available with either 120V or 230V power. Please specify.

Digital Sharing Devices

Models 3040, 3060, & 3080

Expand your systems without acquiring additional data lines or modems.



Model 3040/V35, 3060/V24, 3060/X21, and 3080/V24 Digital Sharing Devices (DSD) act as combined modem and port sharing devices. With any of these high-speed bi-directional units, up to eight DCE or DTE devices can share one DCE or DTE device in a polled or contention environment. Sub-channels contend for the main channel by activating RTS, DCD, or by detecting data transitions.

Clock signals are provided either by an external modem connected on the master port, or by the internal baud rate generator (which provides rates up to 2,048kbps). In addition, any sub-channel port can be configured to provide clocking

so that if the clock signal provided by the master source fails—or if DCD on sub-channel 1 becomes inactive—the DSD will use the internal clock or a sub-channel clock.

To prevent network lockups, DSDs have anti-streaming features that automatically removing a defective sub-channel from service. Each DSD sub-channel can be configured for DTE or DCE operation. Each channel can be set for Data or Interface Lead contention.

Each DSD comes with an internal power supply that can be set by a switch for 110- or 220-VAC operation.

FEATURES & BENEFITS

- ✓ Contention via RTS, DCD or data transitions, individually selectable in each sub-channel
- ✓ 64-bit tail circuit buffer (TCBs) included
- ✓ Internal or external clock
- ✓ Dial-up modem support
- ✓ Operation is transparent to data
- ✓ Sturdy rack-mountable enclosure (rack mount kit included)
- ✓ Individual sub-channel enable/disable switches
- ✓ Internal power supply; switch selectable for 110 or 220-VAC
- ✓ UL, CSA, TÜV, and FCC Class A approvals for all models; CE approval for Models 3080/V24 and 3060/X21

SPECIFICATIONS

Capacity: Sync/async DTE or DCE devices (6 for the 3060/V24 and 3060/X21, and 8 for the 3080/V24)

Tail circuit buffering: Uni-directional 8-bit ring buffer

Anti-streaming: Automatic—selectable time-out intervals or disable

Sub-channel and modem interface: 3060/V24—RS-232 using

DB-25s; 3060/X21—V.11 using DB-25s; 3080/V24—RS-423 using DB-25s

Data rates: 3040/V35—up to 2 Mbps; 3060/V24—up to 76.8 kbps; 3060/X21—up to 2 kbps; 3080/V24—up to 128 kbps

Weight: 4.5 lbs (2.1 kg)

Timing: Internal—DIP switch selectable; Normal—from modem;

External—clock provided on any sub-channel, with fallback to internal clock or sub-channel

Power source: 100–120/200–240 VAC, 50/60 Hz, 0.16/0.08A, switch selectable

Humidity: 5–90% non-condensing

Terminal service modes: Scanning—channels are continuously

scanned for RTS/DCD or DATA on a sequential basis; Priority—channels are continuously scanned for RTS/DCD or DATA, channel 1 has highest access priority

Op. temp.: 32 to 122 °F (0 to 50 °C)

Dimensions: 1.75H x 17.00W x 11.00 in. (4.44H x 43.18W x 18.93D cm)



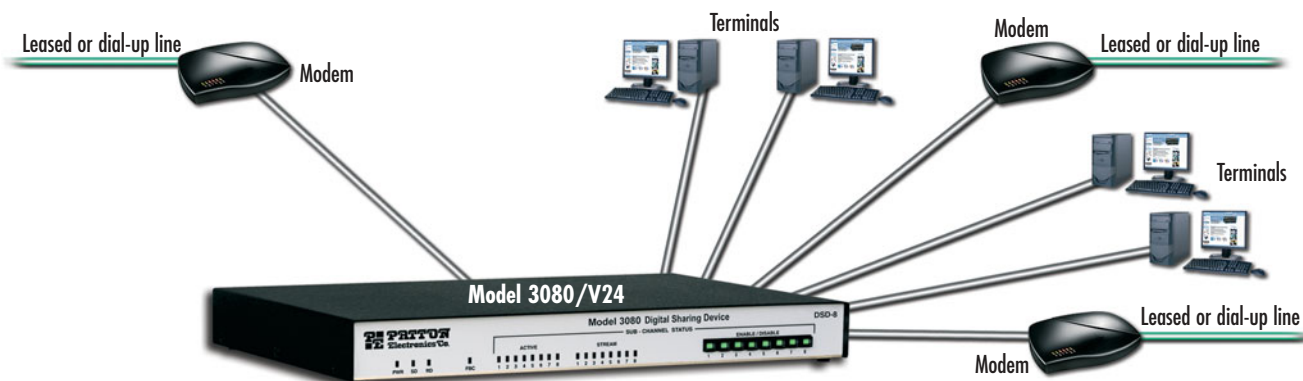
ORDERING INFORMATION

RS-232/423 DSD, 8 ports DTE or DCE to 1 master DTE or DCE

3080/V24: 120 VAC version

3080/V24-220: 220 VAC version

Typical Application



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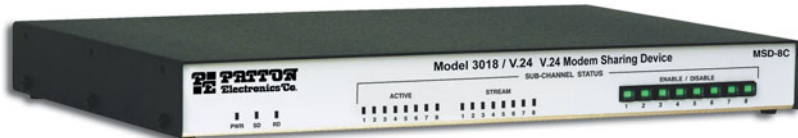
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Electronics Co.

Powered RS-232 Modem Sharing Devices

Models 3012, 3014, & 3018

Now eight sync or async devices can share one modem in a polled or contention environment.



The Models 3012/V24 and 3014/V24 Modem Sharing Devices (MSDs) enable users to expand their polled or contention networks without acquiring additional data lines or modems. DSDs act as combined modem and port sharing devices.

With any of these bi-directional units, up to eight sync or async terminal devices can share one modem in a polled or contention environment. Data arriving at the master port is continually broadcast to all sub-channels. The first sub-channel to activate RTS automatically controls the master port. When RTS is deacti-

vated, the MSD enables any other sub-channel to take control of the master port. Sub-channels contend for the main channel by activating RTS, DCD, or by detecting data transitions. Clock signals are provided by the modem connected to the master port, at data rates from 75 bps to 64 kbps (properly shielded, low capacitance cables must be used for speeds faster than 38.4 kbps) and faster.

MSDs have optional anti-streaming features that prevent network lockups by automatically removing a defective sub-channel from service.

FEATURES & BENEFITS

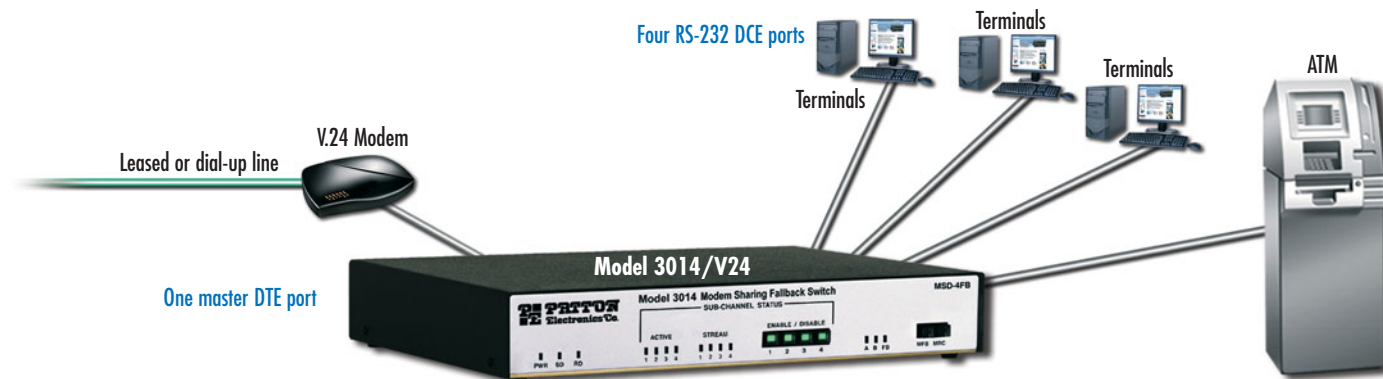
- ✓ Speed/code transparency up to 64 kbps
- ✓ Operation is transparent to data
- ✓ Individual sub-channel enable/disable switches
- ✓ Selectable RTS/CTS time delay
- ✓ Fully cascadable
- ✓ Internal power supply; switch selectable for 110- or 220-VAC



I'm Natalie, Patton's Inside Sales Manager, US & Canada. Call me at +1 301.975.1000 when you want to purchase Patton products or if you have questions about our products. You can also send e-mail to sales@patton.com.



Multiple RS-232 sync/async terminal devices sharing one RS-232 modem link in a polled environment



SPECIFICATIONS

Capacity: One to Eight RS-232 sync/async DTE devices; One RS-232 DCE master channel

Data format: Data is transparent at all data rates

Data rates: Up to 64 kbps (properly shielded, low capacitance cables must be used for speeds faster than 38.4 kbps)

Sub-channel interface: RS-232 (V.24) using female DB-25 connectors

Timing: External—from master port, sub-channel 1 pin 24 routed to master port

Modem interface: RS-232 (V.24) using a female DB-25 connector

Terminal service modes:
Scanning—channels are continuously scanned for RTS on a sequential basis;
Priority—channels are continuously scanned for RTS, channel 1 has highest access priority

Anti-streaming: Automatic—selectable time-out intervals

Power source: 100-120/200-240 VAC, 50/60 Hz, 0.16/0.08A, switch selectable

Weight:
3012/V24: 2.25 lbs (1.02 Kg)
3014/V24: 4.5 lbs (2.1 Kg)

Op. temp.: 32–122°F (0–50°C)

Rel. humidity: 5–90% non-condensing

Dimensions:

3012/V24:
1.75H x 8.90W x 10.00 in.
(4.44H x 22.60W x 25.40D cm)

3014/V24:
2.05H x 13.35W x 9.00 in.
(5.21H x 33.09W x 22.86D cm)

ORDERING INFORMATION

3012/V24: Powered RS-232 MSD, 2 V.24 DCE ports to 1 V.24 master DTE

3012/V24-220: Same as 3012/V24 except pre-configured for 220VAC

3014/V24: Powered RS-232 MSD, 4 V.24 DCE ports to 1 V.24 master DTE

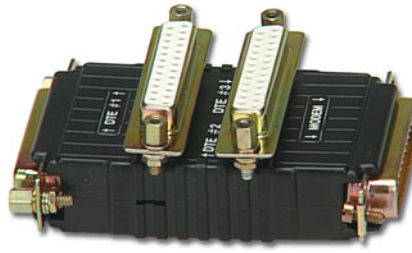
3014/V24-220: Same as 3014/V24 except pre-configured for 220VAC

Modem Sharing Device

Model 3010

Lets three RS-232 DTEs contend for access to one RS-232 modem

The Model 3010 modem sharing device lets three RS-232 DTEs contend to transmit data to one DCE such as a modem or mux. Supporting asynchronous or synchronous data rates to 38.4 kbps, the Model 3010 passes data and control signals in parallel from the modem to all three DTEs. Each DTE may also raise RTS to contend for the right to transmit exclusively to the modem. If two DTEs raise RTS simultaneously, the Model 3010 prioritizes access by port (1-2-3). The Model 3010 requires no AC power or batteries, no configuration, and plugs directly into the modem or multiplexer's DB-25 port.

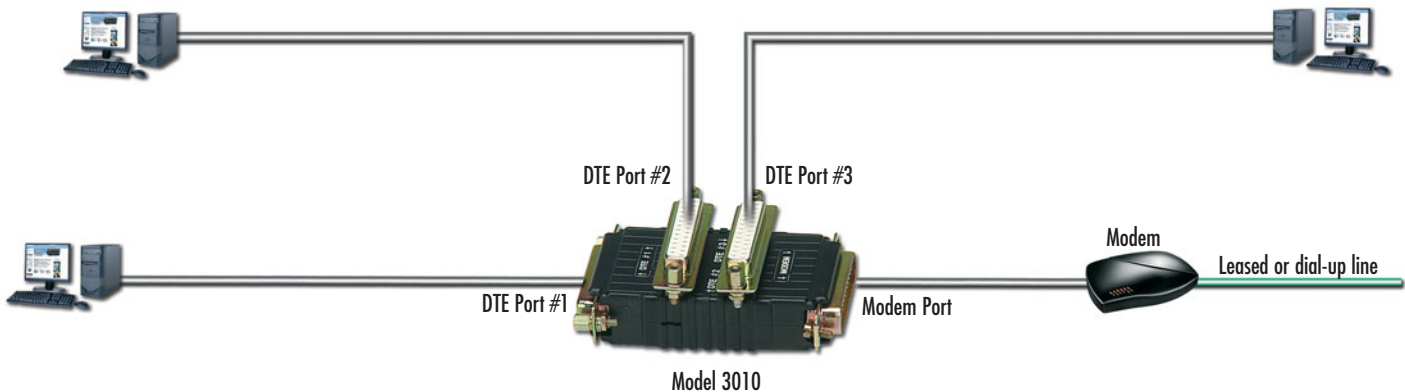


FEATURES & BENEFITS

- ✓ Async or sync operation (transparent to protocol)
- ✓ No AC power or batteries required
- ✓ Prioritized monitoring scheme uses RTS contention
- ✓ Modem transmits in parallel to each connected DTE device
- ✓ Miniature size plugs into modem port



Typical Application



SPECIFICATIONS

Data Rates: 300 bps to 38.4 kbps
Transmission Format: Async or Sync (transparent to protocol)
Transmission Mode: Full or half duplex

Contention Method: Controlled by RTS
Interface: EIA RS-232/CCITT V.24
Dimensions: 3.13 x 2.11 x 1.20 in. (8 x 5.4 x 3 cm)

Connectors: DB-25 male on modem (DCE) interface, DB-25 female on DTE interfaces
Op. Temp.: 32–122°F (0–50°C)

Power: Derived from RS-232 data and control signals, no AC power or batteries required
Humidity: Up to 95% non-condensing

ORDERING INFORMATION

3010: Modem Sharing Device

Micro Modem Splitter

Model 305

Lets three devices share a single modem

The Model 305 Micro Modem Splitter is a passive device that connects up to three computers to a single modem. The splitter is transparent to data format. The DTE pins 2, 4, and 20 are isolated to the modem port; all other pins are passed straight through. The Model 305 supports sync or async operation



FEATURES & BENEFITS

- ✓ Completely passive device
- ✓ DTE pins 2, 4, and 20 are isolated to the modem port; all other pins are passed straight through
- ✓ Transparent to data format
- ✓ Sync or async operation

ORDERING INFORMATION

305: Modem Splitter

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Mini-Rack System and ClusterBoxes™

Models 1000R16, 1000CU2, 1000CU4, & 1000CU8

Multiple datacom devices fit side-by-side in our mini-rack and ultra-compact ClusterBoxes!



Our miniature rack cards have a unique design: front function cards and rear interface cards that connect together on a midplane power bus. This configuration allows interface cables to remain connected while function cards are hot-swapped (and vice versa). Each mini-rack and ClusterBox has a power supply that services all cards in the chassis. You can configure the mini-rack and ClusterBoxes with a

variety of function cards (short-range modems or SRMs, fiber modems, converters, etc.) and you can mix-and-match function cards with different interface cards.



16 ports fit a wide variety of Patton products—from CSU/DSUs to short-range modems to converters.

Choose from a variety of rear interfaces: DB-25, RJ-11, RJ-45, UD-26, etc.

FEATURES & BENEFITS

- ✓ Multi-function—Supports interface converters, CSUs, fiber modems and virtually all Patton mini-modems.
- ✓ Hot-swappable—Replace function cards *without turning off the power*.
- ✓ Reliable—Our distributed power system gives each rack card its own power supply circuit
- ✓ Flexible—Convenient rack mount and ClusterBox versions are available to meet your needs

SPECIFICATIONS

Environmental
 Op. Temp.: 32–122°F (0–50°C)
 Humidity: 5–90%, non-condensing

24 VDC Power
 Input Voltage: 18–36 VDC
 Input Current: 2A Max at 18 VDC
 Surge Protection: Triggered at 39 VDC
 Output Voltage: 12 VAC at 2A
 Output Power: 24 W
 LED indicators: Power, DC Input

48 VDC Power
 Input Voltage: 40–60 VDC
 Input Current: 1A Max at 40 VDC
 Surge Protection: Triggered at 75 VDC
 Output Voltage: 12 VAC at 2A
 Output Power: 24 W

LED indicators: Power, DC Input
120 VAC Power
 Input Voltage: 100–230 VAC
 Input Current: 400 mA
 Output Voltage: 10 VAC at 2.4 A
 Output Power: 24 W
 LED indicator: Power
220 VAC Power
 Input Voltage: 200–240 VAC
 Input Current: 200 mA
 Output Voltage: 10 VAC at 2.4 A
 Output Power: 24 W
 LED indicator: Power

Device type	Standalone Model	Compatible Rack Card	Rack Card (RC) Description (Configuration)	Page
Plug-in Short-Range Modems (SRM)	1000 Series	1000RC	Async SRM dual RC	79
	1004A Series	1004ARC	High speed multipoint dual RC	81
	1005 Series	1000RC	Async SRM dual RC	79
	1008 Series	1004ARC	High speed multipoint dual RC	81
	1009 Series	1000RC	Async SRM dual RC	79
	1010B Series	1010RC	Trans Isolated SRM dual RC	79
	1010R Series	1010RC	Trans Isolated SRM dual RC	79
	1012A Series	1012ARC	Async., multipoint SRM dual RC	82
	1015 Series	1000RC	Async SRM dual RC	79
	1016 Series	1010RC	Trans Isolated SRM dual RC	79
	1017 Series	1010RC	Trans Isolated SRM dual RC	79
	1018 Series	1018RC	SLIP/PPP SRM RC	85
	1019 Series	1010RC	Trans Isolated SRM dual RC	79
	1020 Series	1080ARC	57.6 Async./Sync. SRM RC	88
	1025 Series	1080ARC	57.6 Async./Sync. SRM RC	88
	1030 Series	1080ARC	57.6 Async./Sync. SRM RC	88
1035 Series	1045RC	32, 56 & 64 kbps Async./Sync. SRM RC	85	
1040 Series	1080ARC	57.6 Async./Sync. SRM RC	88	
1045 Series	1045RC	32, 56 & 64 kbps Async./Sync. SRM RC	85	

Device type	Standalone Model	Compatible Rack Card	Rack Card (RC) Description (Configuration)	Page
Powered Short-Range Modems (SRM)	1050 Series	1060RC	115.2 Async. SRM RC	86
	1060 Series	1060RC	115.2 Async. SRM RC	86
	1070 Series	1070RC	Sync. SRM RC	87
	1080A Series	1080ARC	57.6 Async./Sync. SRM RC	88
Fiber Modems	1110A Series	1110ARC	Fiber SRM RC	92
	1140A Series	1140ARC	Fiber Optic Modem w/V.54 Diagnostics	92
Converters & Modem Eliminators	1205 Series	1205RC	V.35 Sync. Modem Eliminator RC	91
	1206 Series	1206RC	X.21 Sync. Modem Eliminator RC	91
	2020 Series	2020RC	CCITT V.35 to RS-232 Converter RC	50
	2016 Series	2066RC	CCITT V.35 to X.21 Converter w/Buffer	49
	2085 Series	2085RC	RS-232 to RS-485 Converter dual RC	54
	2089 Series	2085RC	RS-232 to RS-485 Converter dual RC	54
	222N Series	222NRC	RS-232 to RS-422 Converter dual RC	56
	222N9 Series	222NRC	RS-232 to RS-422 Converter dual RC	56
	2703 Series	2703RC	2 Mbps G.703 Modem Access Converter	41



1000CU2—Our 2-Slot ClusterBox™ has about the same footprint as a standalone box, but gives you the flexibility of a rack.



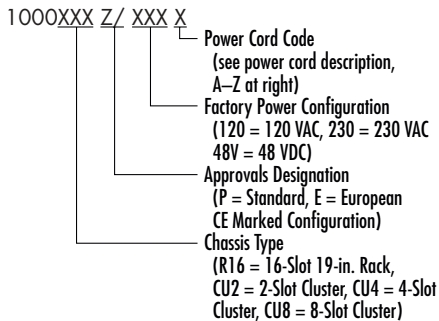
1000CU4—Our 4-slot ClusterBox™ is perfect for an office or workgroup connection. It services four to eight devices



1000CU8—When you don't need a full rack, our 8-slot ClusterBox™ gives you the power of up to 16 short hauls or converters in a single enclosure.

ORDERING INFORMATION

Factory part number encoding



Pre-Configured Rack Assemblies

Example 19-in. 2U rack chassis

1000R16P/120K: 120 VAC power module (includes power cord for U.S.A.)

1000R16E/230D: CE compliant, 230 VAC power module (includes power cord for U.K.)

1000R16P/230G: 230 VAC power module (includes power cord for India)

1000R16P/48V: 48 VDC Power Supply

1000R16P/24V: 24 VDC Power Supply

Example Desktop ClusterBoxes™

1000CU2P/120K: 2-Slot Cluster Unit with 120 VAC power module (includes power cord for U.S.A.)

1000CU2E/230D: 2-Slot Cluster Unit with CE compliant, 230 VAC power module (includes power cord for U.K.)

1000CU2P/48V: 2-Slot Cluster Unit with 48 VDC Power Supply

Rack System Parts

Empty Rack

1000R16P: 19-in. 16-Slot Rack Chassis Sub-Assembly

Empty Cluster Chassis

1000CU2: ClusterBox-II 2-Slot Desktop Cluster Sub-Assembly

1000CU4: ClusterBox-IV 4-Slot Desktop Cluster Sub-Assembly

1000CU8: ClusterBox-VIII 8-Slot Desktop Cluster Sub-Assembly

Rear Power Entry Modules

1000RPEM-DC: DC Rear Power Entry Module

1000RPEM-RDC: DC Redundant Rear Power Entry Module

1000RPEM: Standard 120/230 VAC Rear Power Entry Module

1000RPEM-V: CE Compliant 120/240 VAC Rear Power Entry Module

Front Power Supply Modules

1000RPSM-2: 120/230 VAC Front Power Supply Module

1000RPSM-V: CE Compliant Front Power Supply Module

1000RPSM-48A: 48 VDC Front Power Supply Module

1000RPSM-R48A: 48 VDC Redundant Front Power Supply Module (2 Required)

1000RPSM-24A: 24 VDC Front Power Supply Module

1000RPSM-12A: 12 VDC Front Power Supply Module

Power cord sets

0805US: "K" American Power Cord

0805EUR: "A" European Power Cord CEE 7

0805UK: "D" United Kingdom Power Cord

0805AUS: "C" Australia Power Cord

0805DEN: "E" Denmark Power Cord

0805FR: "F" France/Belgium Power Cord

0805IN: "G" India Power Cord

0805IS: "H" Israel Power Cord

0805JAP: "J" Japan Power Cord

0805SW: "L" Switzerland Power Cord

Spare parts, hardware, fuses, panels

05R16FPB1: Single-width Blank Front Panel

05R16FPB4: 4-Slot-Wide Blank Front Panel

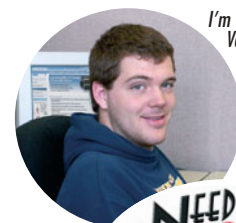
05R16RPB1: Single-Width Blank Rear Panel

05R16RPB4: 4-Slot-Wide Blank Rear Panel

0821R4: Fuse, 0.4A (5x20mm)

0821R2: Fuse, 0.2A (5x20mm)

056S1: 16 #4 pan head screws & washers



I'm Brian, one of Patton's Product Validation Engineers who makes sure your mini-rack product works reliably. To buy one of these state-of-the-art devices, call +1 301.975.1000 or send e-mail to sales@patton.com.



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PATTON
Electronics Co.

10 and 2-Slot Universal Mounting Panels

Models 1001MP10 & 1001MP2

Rack, stack, and organize up to 10 Patton devices with these multi-functional mounting panels.



Model 1001MP10

The Model 1001MP10 Universal Mounting Panel offers the ability to rack up to 10 Patton products side by side. Products that are compatible with the 1001MP10 and 1001MP2 include Ethernet Extenders, xDSL modems, short range modems, NTUs, and much more!



Model 1001MP2

The Model 1001MP10's sturdy 4U design easily installs into any standard 19-inch rack. A combination of a unique groove system and an easily installed back panel enables the 1001MP10 to securely lock the individual Patton modems and their power supplies. For lower density applications, the Model 1001MP2 offers a 1.5U-high, 2-slot panel.



1001MP10 rear view

10 rear slots for device power supplies

The Model 1001MP series offers a convenient method for converting your favorite Patton standalone product into a rack-mounted solution.

FEATURES & BENEFITS

- ✓ Multi-Functionality — Supports NTUs, xDSL Modems, Short Range Modems, and Ethernet Extenders.
- ✓ Independent Slots — Up to 10 independently operating slots to completely do away with any single point of failures.
- ✓ Rackmount — Both Universal Mounting Panels fit into any 19-in. rack. The 10-slot panel is only 4U (7 in./17.78 cm) high. The 2-slot is 1.5U (2.63 in./6.68 cm) high.
- ✓ Cost-Effective — Rack-mount products you have already purchased.



I'm John, one of Patton's Product Group Managers. If you do not find what you need at www.patton.com or in this catalog please call me at +1 301.975.1000, x160. You can also send e-mail to jgrant@patton.com.



Patton Product Compatibility Table

xDSL Modems	E1/T1 Network Extenders	E1/T1 NTU	Ethernet Extenders	Serial Short-Range Modems
1082: iDSL Modem	2113: T-Link E1 Extender	2701 Series: G.703/G.704 FE1/E1 NTU	2155: 144 kbps CopperLink Extender	1060: RS-232 115.2 kbps Asynchronous SRM
3088: G.SHDSL Modem	2115: T-Link T1 Extender	2707 Series: G.703 Clear Channel E1 NTU	2156: 2.3 Mbps CopperLink Extender	1070: RS-232 19.2 kbps Synchronous SRM
3201: 2.3 Mbps G.SHDSL Router		2720 Series: T1/FT1 NTU	2157: 4.6 Mbps CopperLink Extender	1080A: RS-232 57.6 kbps Async/Sync SRM
3241: 4.6 Mbps G.SHDSL Router			2158: 10 Mbps CopperLink Extender	1080A-64: RS-232 64 kbps Async/Sync SRM
1068: VDSL Modem			2168: 16 Mbps CopperLink Extender	1226: Parallel 115.2 kbps SRM
			2172: 50 Mbps CopperLink Extender	1075: X.21 64 kbps Sync SRM
				1226: RS-232 38.4 kbps Async SRM

SPECIFICATIONS

1001MP10

Front Panel: 10 independently operating slots

Dimensions: 19 L x 6.75 W x 7 H in. (48.3 L x 17.15 W x 17.78 H cm)

Weight: 4.15 lbs (1.90 kg)

1001MP2

Front Panel: 2 independently operating slots

Dimensions: 19.0 W x 2.63 H x 1.9 D in. (48.3 W x 6.68 H x 4.8 D cm)

Weight: 2 lbs (0.95 kg)

ORDERING INFORMATION

1001MP2: 19-in. Horizontal 2-Slot Rack

1001MP10: 19-in. Vertical 10-Slot Rack

16-Slot Universal Mounting Panel

Model 1001MP16

Rack, stack, and organize with Patton's Multi-Functional Universal Mounting Panel. Rack up to 16 Patton MicroPak Devices into a dense 2U solution.



Rack-Mount any of Patton's MicroPak Products

FEATURES & BENEFITS

- ✓ Mount any MicroPak—Supports media converters, terminal servers, Ethernet bridges, fiber modems, CSU/DSUs, interface converters, short haul modems, and surge protectors
- ✓ Low Profile-2U High—Universal Mounting Panel is only 2U (3.5 in. or 8.9 cm) high and holds up to 16 MicroPaks; Installs quickly into any standard 19 inch rack
- ✓ Dry-erase label blocks and port identification numbers for easy circuit identification
- ✓ Cost Effective—Adapt Patton MicroPak products you already own for use in a standard 19 inch rack, thereby eliminating the expense of upgrading to rack-mounted equipment

The Model 1001MP16 Universal Mounting Panel offers the ability to rack-mount any of Patton's MicroPak products side-by-side. Products that are compatible with the 1001MP16 include Device servers, Media converters, Ethernet bridges, Fiber modems, Interface converters, and many more!



The sturdy 2U design of the 1001MP16 enables quick and hassle-free installation into any standard 19-inch rack. The 1001MP16's unique bracket-and-groove mounting system enables Patton MicroPak cases to be mounted securely into the panel. Dry-erase labels and individually numbered ports are provided for easy circuit/port identification.

The Model 1001MP16 provides an economical method for converting your favorite Patton standalone MicroPak products into a customized rack-mounted solution.



Unique bracket-and-groove system fastens the MicroPak securely into the panel

Patton Product Compatibility Table

VoIP Micro-ATAs & AFAs		Device Servers		Serial Modems		Surge Protectors	
M-ATA	M-AFA	2120 Series	2120/A9	1000R Series	1012AR Series	503PC	570 Series
				1007 Series	1017 Series	534 Series	580 Series
				1010R Series	1052 Series	547 Series	552 Series
Serial/Parallel Converters		Ethernet Bridges		Data Taps		Interface Converters	
2026P	2036P	2121 Series	2135C Series				
		2124 Series	2135 Series				
		2130 Series		3/11	3/45		
Baluns		CSU/DSUs		Modem Eliminators		and many more...	
460 Series	470 Series	2710 Series	2715 Series	1205 Series	1206		
462 Series	471 Series	2711 Series	2400 Series				
463 Series	472 Series						
465 Series							

SPECIFICATIONS

Front panel: 16 Operationally independent slots
Dimensions: 19L x 1.5W x 3.8H in. (48.3L x 3.8W x 8.9H cm)
Weight: 1.1 lbs (0.5 kg)

Latching: 16 individual steel clips with hardware (Included with unit)
Power: None required. Some units may require individual power supplies

ORDERING INFORMATION

1001MP16: 19-inch, 16-Slot Mounting Panel
1001MP-PS8: 8-Barrel 5V, 4A Power Supply

Surge Protection

Workstation Port Protection

RS-232

DB-25



DB-9



These asynchronous surge protectors guard RS-232 data and control signals against harmful transients. Ideal for situations where you have equipment such as multiplexers, repeaters, concentrators, and short-range modems connected to long lengths of cable, they protect against signal noise and surges.

- ✓ Protect your expensive communications equipment from line-to-line and line-to-ground transients.
- ✓ Highly sensitive avalanche-diode circuitry
- ✓ Install quickly and easily
- ✓ Available with DB-9 and DB-25 connections

Model 501
Page 108

Model 509
Page 108

RS-232 & RS-422

RJ-11, RJ-12, & RJ-45



These ultra-miniature protectors fit almost anywhere and handle transient surges up to 600 watts per wire.

- ✓ Surge handling capacity of up to 4,800 watts
- ✓ Install quickly and easily
- ✓ 6-in. (15.2 cm) extension cable included

Model 510
Page 109

TERMINAL BLOCKS

Universal



Design your own "custom" surge protectors to fit just about any 2, 4, 6, 8, or 10-wire application.

- ✓ Surge handling capacity of 1,500 watts
- ✓ Highly sensitive avalanche-diode circuitry
- ✓ 7.5 V and 18 V clamping voltage options

Model 52X
Page 115

PARALLEL

Centronics or DB-25



When you're protecting your computer's data lines from transient surges, don't forget the parallel ports. The relatively low voltages of parallel signals make them surge-sensitive!

- ✓ Protects all parallel interface pins
- ✓ Surge handling capacity of 1,500 watts
- ✓ Centronics or DB-25 options

Model 503P
Page 109

X.21

DB-15



Protects any X.21, RS-232, RS-422/485, or T1 interface port that uses a DB-15 connector.

- ✓ Data rates up to 20 Mbps
- ✓ Clamping voltage options for RS-232/485, X.21, and T1
- ✓ Highly sensitive avalanche-diode circuitry

Model 515
Page 108

10/100 BASE-TX

CAT-5 Certified



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!

- ✓ Install at equipment locations (570) or wiring closets (580)
- ✓ Complies with transient immunity standards IEC 801-2, 801-4, & 801-5
- ✓ PoE 802.3af

Model 570/580
Page 110

WAN Port Protection

DIAL-UP

Protects Phones, Faxes, Modems



2- or 4-Wire dial-up protectors
Model 552-D
Page 114

LEASED LINE

Protects Analog Devices



4-Wire leased-line protector
Model 552-L4
Page 114

ISDN

Protects TAs & NTUs 'U' & 'ST'



8-Wire ISDN protector ST Type
Model 552-ST
Page 114

DDS

Protects 56/64k CSUs



4-Wire DDS protector
Model 552-DDS
Page 114

T1/E1

Protects 1.544 & 2.048 Mbps CSUs



4-Wire T1, E1, & ISDN PRI protector
Model 552-T1
Page 114

V.35

Protects Modems, CSU/DSUs, etc.



Plugs directly into V.35 ports, so you won't need cables
Model 546
Page 113

Surge Protectors for Every Application

In This Section

10BASE-2

BNC, ThinNet



Guard legacy Ethernet data lines—especially the long cable runs used for routers and bridges—from transient surges that can be caused by nearby lightning, AC motors, appliances or even the normal operation of UPS devices. Let our coax Ethernet protectors shield your LAN from costly downtime due to surges.

- ✓ Available for ThinNet ("thin" coax) and ThickNet ("thick" coax) Ethernet
- ✓ Highly sensitive avalanche-diode circuitry
- ✓ Low signal loss
- ✓ Install quickly and easily
- ✓ Miniature size

Model 531
Page 111

10BASE-5

N-Type, ThickNet



Model 530
Page 111

AUI

IEEE 802.3 Compliant



Let our AUI Ethernet protectors shield your LAN from costly downtime due to surges.

- ✓ Complies with the IEEE 802.3 Specification
- ✓ Highly sensitive avalanche-diode circuitry
- ✓ Install quickly and easily

Model 534
Page 112

TOKEN RING

IEEE 802.5 Compliant



These surge protectors guard 802.5 networks against data loss & hardware damage caused by data line transients. Protects repeaters, MAUs, & other Token Ring devices

- ✓ Protection for 4 Mbps or 16 Mbps Token Ring Networks
- ✓ Surge handling capacity of 1,500 watts
- ✓ Available with RJ-45, DB-9, & IBM data connectors

Models 535/6/7
Page 112

Surge Protection

106

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Multiport Protection

10/100BASE-TX

Up to 100 Mbps
(PoE 802.3af available)



Contains up to 8 10/100Base-TX protectors per enclosure
Models 57X & 58X
Page 110

10/100BASE-TX (CATEGORY-5)

Up to 100 Mbps
(PoE 802.3af available)



Protects 8 or 16-port Category-5 interfaces (including RS-422, RS-423, 10/100Base-TX, Token Ring, Fast Ethernet, and ATM) twisted-pair hubs against transients
Models 570R & 580R
Page 110

Async DB-25 Surge Protectors

Models 500 & 501

**FEATURES & BENEFITS**

- ✓ Model 500 protects pins 2, 3, 7 and 20 (pin 1 and shell connected to ground)
- ✓ Model 501 protects pins 2, 3, 4, 5, 6, 7, 8 and 20 (pin 1 and shell connected to ground)

ORDERING INFORMATION

500: Async DB-25 Surge Protector

501: Async DB-25 Surge Protector

Async DB-25 Low Capacitance Surge Protector

Model 501LC

**FEATURES & BENEFITS**

- ✓ Get maximum distance from long runs
- ✓ Protects pins 2–8, 11, 20, 22, 24 & 25
- ✓ Adds an insignificant 45 pF of capacitance to each signal

ORDERING INFORMATION

501LC: Async DB-25 Surge Protector, Low Capacitance

Sync DB-25 Surge Protector

Model 502

**FEATURES & BENEFITS**

- ✓ Protects pins 2–8, 15, 17, 22 & 24
- ✓ Diverts surge energy to pin 1 and D-shell at both ends

ORDERING INFORMATION

502: Sync DB-25 Surge Protector

Sync DB-9 Surge Protector

Model 509

**FEATURES & BENEFITS**

- ✓ Two clamping voltages: 7.5 V (RS-422) or 18V (EIA-574/RS-232)
- ✓ Combined surge-handling of 5,400 watts
- ✓ Protects all 9 pins

ORDERING INFORMATION

509/6: DB-9 Surge Protector (for RS-422/485)

509/25: DB-9 Surge Protector (for RS-232)

Sync DB-15 Surge Protector

Model 515

**FEATURES & BENEFITS**

- ✓ Support for data rates up to 20 Mbps
- ✓ Clamping voltages for RS-232 (18V), RS-422, 485, X.21, T1 (7.5V)
- ✓ 515/6 & 515/25 protect all 15 wires
- ✓ 515/T1 protects pins 1, 3, 9, and 11

ORDERING INFORMATION

515/6: DB-15 Surge Protector (for RS-422/485)

515/25: DB-15 Surge Protector (for RS-232)

515/T1: DB-15 Surge Protector

Serial DB-25 Surge Protector (All 25 Leads)

Model 503S



This universal surge protector guards any RS-232 system (synchronous or asynchronous) against data loss and hardware damage caused by data line tran-

sients. There are many sources of such transients—lighting strikes, fluorescent lights, elevator motors, even UPSs. AC protection alone is not enough! The Model 503S diverts harmful data line surges to chassis ground (through either D-shell) before they reach your hardware.

FEATURES & BENEFITS

- ✓ Protects all 25 serial pins on the DB-25 connector
- ✓ Combined surge handling capacity of 36,000 watts
- ✓ Diverts surges safely to chassis ground through D-shell connectors

ORDERING INFORMATION

503S: RS-232 Serial DB-25 Surge Protector

503S/6: RS-422/485 Serial DB-25 Surge Protector

RJ-11, RJ-12, & RJ-45 Surge Protectors

Models 510, 511 & 512

The Models 510, 511 and 512 surge protectors let you choose 4, 6 or 8 wire protection for either an RS-232 or RS-422 modular interface. These ultraminiature protectors fit almost anywhere and handle transient surge up to 600 watts per wire. Harmful surge energy is diverted safely to chassis ground using a built-in braided metal strap. Should these protectors encounter a severe surge above their rated capacity, they will divert all voltages to ground.



FEATURES & BENEFITS

- ✓ **Model 510** protects four wires on the RJ-11 connector (combined surge handling of 2400 W)
- ✓ **Model 511** protects six wires on the RJ-12 connector (combined surge handling of 3600 W)
- ✓ **Model 512** protects eight wires on the RJ-45 connector (combined surge handling of 4800 W)
- ✓ Heavy braided ground strap diverts surge energy to frame ground
- ✓ Clamping at 18 volts for RS-232 and 7.5 volts for RS-422
- ✓ "Fail-safe" design guards hardware in case of severe surge

ORDERING INFORMATION

Model 510

510/6: 4 line modular surge protector (RS-422, 6V clamping)

510/25: 4 line modular surge protector (RS-232, 25V clamping)

Model 511

511/6: 6 line modular surge protector (RS-422, 6V clamping)

511/25: 6 line modular surge protector (RS-232, 25V clamping)

Model 512

512/6: 8 line modular surge protector (RS-422, 6V clamping)

512/25: 8 line modular surge protector (RS-232, 25V clamping)

IMPORTANT

When ordering a Model 510, 511 or 512, please provide us with the following information:

- Whether your application is 4-wire (RJ-11), 6-wire (RJ-12) or 8-wire (RJ-45)
- Whether your application is RS-232 (clamps at 18V) or RS-422 (clamps at 7.5V)

Model 503 & 503PC

503PC: Centronics® 36-Pin Parallel Surge Protector

503P: DB-25 Parallel Surge Protector

Model 512 application diagram



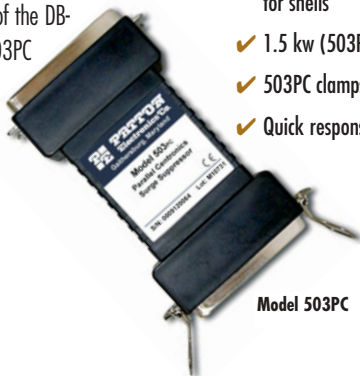
Parallel Surge Protectors

Models 503P & 503PC

When protecting your computer's data lines from transient surge, don't forget the parallel ports: The relatively low voltages of parallel signals make them surge-sensitive! The Patton Model 503P connects directly to a PC's parallel port and guards all 25 pins of the DB-25 interface. The Patton Model 503PC connects directly to a printer's parallel port and guards all 34 pins of the Centronics® interface. Both models handle repeated surges up to 1500 kW.

FEATURES & BENEFITS

- ✓ **Model 503P** protects all 25 pins on the DB-25 parallel interface
- ✓ **Model 503PC** protects 34 pins on the Centronics® parallel interface
- ✓ Surge energy diverted to chassis ground through connector shells
- ✓ 1.5 kw (503PC) surge handling capacity
- ✓ 503PC clamps at +8V -3V; 503P clamps at 6.8 V
- ✓ Quick response time of 500 nsec



Model 503PC



Model 503P

Model 503P & 503PC application diagram



I'm Bob, one of Patton's Support Engineer. If you do not find what you need at www.patton.com or in this catalog, or if you have technical questions or comments, please call me at +1 301.975.1007. You can also send e-mail to puckett@patton.com.



10/100Base-TX (Cat-5) Secondary Surge Protector**Models 570, 580, & 570-POE, 580-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).

**SPECIFICATIONS**

Environment: Category-5 Interfaces that use the RJ-45 connector, including RS-422/423, 10Base-T, Token Ring, 100Base-TX & ATM

Connectors: RJ-45 Female

Response Time: Clamped to 13 V after 0.1 μ s

Surge Clamp Voltage: Model 570—13 V max with 1 kV Input; Model 580—15 V max with 2 kV Input

NEXT Loss: Model 570—worst pair Better than -46 dB at 100 MHz; Model

580—worst pair Better than -43 dB at 100 MHz

Characteristic Impedance: 100 ohm

Surge Rating: IEC 801.5 Standard Level

DC Clamp Voltage: Common Mode to Gnd, each line 7.5 V @ 50 mA; Differential mode, per pair 8.1 V @ 50 mA

Insertion Loss: Less than 0.4 dB at 100 MHz (including connector)

Return Loss: Better than 14 dB

Group Delay: None, 1–100 MHz

Series Resistance: Less than 400 milli-ohms

Grounding: External ground strap provides separate unit-ground to chassis-ground

Dimensions: 2.25 x 1.89 x 0.75 in (5.72 x 4.29 x 1.91 cm)

570 & 580

Common mode (to ground) (each line): 7.7 V @ 10mA (pulse)

Differential mode (per pair): 8.6 V @ 10 mA (pulse)

570-POE & 580-POE

Pairs (1, 2) & (3, 6)

Common mode (to ground) (each line): 7.7 V @ 10mA (pulse)
Differential mode (per pair): 8.6 V @ 10 mA (pulse)

Pairs (4, 5) & (7, 8)

Common mode clamping voltage is 69 V @ 1 mA (pulse transient) and Differential mode clamping voltage is 70 V @ 1mA (pulse transient).

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, Hub and Panel (Rack Mount) Formats**Models 57X & 58X***Our Cat-5 protector works at speeds up to 100 Mbps.*

The Model 57X and 58X Series Category-5 hub protectors are available in 4, 6 or 8-port standalone versions, as well as 8 or 16-port rack mount panels. All Model 57X and 58X 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 4, 6, 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 (57X) or Barriers/Wiring Closets (58X)

SPECIFICATIONS

Connectors: RJ-45 Female

Response Time: Less than 5 ns

Characteristic Impedance: 100 ohm

NEXT Loss: Better than -43 dB at 100 MHz

Surge Clamp Voltage: Model 57X—13 V max with 1 kV Input; Model 58X—15 V max with 2 kV Input

Surge Rating: IEC 801.5 Standard Level

DC Clamp Voltage: Common Mode to Gnd, each line 7.5 V @ 50 mA;

Differential mode, per pair 8.1 V @ 50 mA

Return Loss: Better than 14 dB

Insertion Loss: Less than 0.4 dB (including connector) at all frequencies

Series Resistance: Less than 400 milli-ohms

Grounding: External ground strap through mounting screws

ORDERING INFORMATION

574: 4-Port, 10/100Base-TX (CAT-5) Hub Protector Point for Use

576: 6-Port, 10/100Base-TX (CAT-5) Hub Protector Point for Use

578: 8-Port, 10/100Base-TX (CAT-5) Hub Protector Point for Use

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

Call for 802.3af PoE versions.

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

584: 4-Port 10/100Base-TX (CAT-5) Hub Protector for Wiring Closets

586: 6-Port 10/100Base-TX (CAT-5) Hub Protector for Wiring Closets

588: 8-Port 10/100Base-TX (CAT-5) Hub Protector for Wiring Closets

580R8: 8-Port 10/100Base-TX (CAT-5) Panel Protector for Wiring Closets

580R16: 16-Port 10/100Base-TX (CAT-5) Panel Protector for Wiring Closets

Multiport RS-232 & RS-422 Surge Protectors

Model 51X Series

The Model 51X Series is a convenient way to provide data line surge protection for hosts, terminal servers, or other multiport devices. Guarding either RS-232 or RS-422/485 equipment, the Model 51X Series houses 4, 6, 8 or 12 surge protectors in a high density array. A choice of two different clamping voltages—11 volts for RS-422/485 devices or 27 volts for RS-232 devices—assures you of an unimpeded data flow. Matching RJ-45 input/output ports on the front and rear panels allow the Model 51X Series to connect conveniently in-line with each port on your device. All versions of the Model 51X Series support data rates up to 230 kbps. Harmful data line transients are intercepted before



they reach equipment ports and are diverted safely to chassis ground. Employing a solid state hybrid circuit, the Model 51X Series is able to handle repeated surges up to 1.5 kWatts. One 6-inch (15.2 cm) patch cable is included for each port on the unit.

FEATURES & BENEFITS

- ✓ Four Port Densities Available: 4, 6, 8 or 12 Modular Ports per Enclosure
- ✓ Two Clamping Voltages: 11 Volts (RS-422/485) or 27 Volts (RS-232)
- ✓ Data Rates up to 230 kbps
- ✓ 1.5 kW of Surge Handling Capability
- ✓ Surge Energy Diverted to Ground through Braided Metal Strap

ORDERING INFORMATION

RS-232 Surge Protector

514/25: 4-Port Modular

516/25: 6-Port Modular

518/25: 8-Port Modular

513/25: 12-Port Modular

RS-422/485 Surge Protector

514/6: 4-Port Modular

516/6: 6-Port Modular

518/6: 8-Port Modular

513/6: 12-Port Modular

Typical application



Coax Ethernet Surge Protectors

Models 530 & 531

Transient surges can be caused by nearby lightning, AC motors, appliances or even the normal operation of UPS devices. Let our coax Ethernet protectors guard your LAN from costly downtime due to surges.



Thick Ethernet
530 MF



Thin Ethernet
531 MF-F

FEATURES & BENEFITS

- ✓ Novell approved for NetWare versions 2.2 and 3.11 (Model 530)
- ✓ Meets the IEEE 802.3 specification
- ✓ Combined surge handling of 3 kW
- ✓ Direct connection to network interface cards and other LAN hardware
- ✓ "T" model replaces existing T-splitter
- ✓ Diverts surges safely to chassis ground via braided metal strap

ORDERING INFORMATION

Model 530

530 MF: Thick Ethernet Surge Protector, (N-Type, Male to Female)

Model 531

531 MF: Thin Ethernet Surge Protector, (BNC, Male to Female)

531 MFF: Thin Ethernet Surge Protector, (BNC, T-Splitter, Male, Female, Female)

SPECIFICATIONS

Connectors: N-type coaxial
Response Time: Less than 5 ns
Input Capacitance: 18 pF
Clamp Voltage: 25 V at 100 A (8/20 μ s waveform)
Surge Current: 400 A (8/20 μ s waveform)
Energy Handling: 1,500 watts per wire

Transfer Loss: -0.65 dB at 100 MHz
Group Relay: None, 1 MHz to 100 MHz
Dimensions: 2 in. L x 1 in. dia.
Op. Temp.: -67 to 212°F (-55 to 100°C)

Ethernet AUI Surge Protector (DB-15)

Model 534

Gives workstations and hubs the upper hand against transients

The Model 534 connects directly to DB-15 AUI ports on interface cards, hubs and repeaters. Protecting DB-15 pins 1 thru 6, 8, 9, 11, 12, 13 and 14 (pins 1, 4, 8, 11 and 14 are electrically connected on both ends), the Model 534 intercepts transient voltages and sends them safely to ground through both DB-15 connector shells.



FEATURES & BENEFITS

- ✓ Meets the IEEE 802.3 specification
- ✓ Combined surge handling capacity of 7,200 watts

ORDERING INFORMATION

Ethernet AUI Surge Protector
534 MF: DB-15 (Male to Female)

802.5 Token Ring Surge Protectors

Models 535, 536, & 537

Whatever your Token Ring topology, we have the right data line protector for you!

Token Ring surge protectors guard 802.5 networks against data loss and hardware damage caused by data line transients. Sophisticated solid data circuits allow our Token Ring protectors to protect transparently—while shielding your devices from surge hit after surge hit.



FEATURES & BENEFITS

- ✓ IEEE 802.5 compliant
- ✓ Protection for 4 Mbps or 16 Mbps Token Ring networks

ORDERING INFORMATION

Type 1 Token Ring Surge Protector
535 MF: DB-9 (Male to Female)

Type 3 Token Ring Surge Protector
536 FF: UTP, RJ-45 (Female to Female)

536S FF: STP, RJ-45 (Female to Female)

Type B Token Ring Surge Protector
537: IBM Data Connector

Twinax Surge Protector for IBM AS/400

Model 545

Reliable data line protection for midrange systems

The Model 545 greatly reduces the threat that transient surges pose to twinax networks. Installing directly between incoming twinax data cables and twinax data ports, the Model 545 safely diverts surge energy to chassis ground before hardware damage occurs. Our T-splitter version replaces the twinax T-splitter on your existing connection.



FEATURES & BENEFITS

- ✓ 3,000 watts energy handling
- ✓ In-line (MF, FF) or T-splitter (MFF) configurations available

ORDERING INFORMATION

AS/400 Surge Protector
545MF: Twinax, male to female

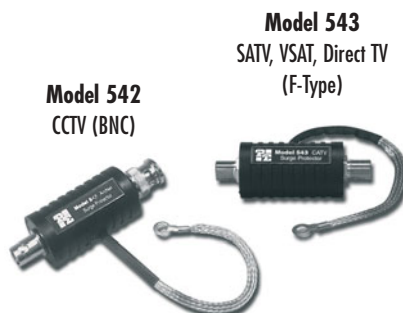
545FF: Twinax, female to female

545MFF: Twinax "T" male, female, female

Video Surge Protectors

Models 542 & 543

The Model 542 and 543 video surge protectors connect in-line between the coax video cable and the connection port on your camera, console, or other video equipment. Transient surges are intercepted and diverted to ground through a braided metal strap. The video protectors can handle repeated surges up to 1,500 watts per wire. Their "fail safe" design protects your video equipment even in the event of a severe surge.



FEATURES & BENEFITS

- ✓ 3,000 watts energy handling
- ✓ In-line (MF, FF) or T-splitter (MFF) configurations available

ORDERING INFORMATION

542: CCTV (BNC)

543: SATV, VSAT, DirecTV (F-Type)

Asynchronous RS-232 Optical Isolators

Model 590 Series

Don't let ground loops disrupt your RS-232 communications!

The Model 590 Series of RS-232 optical isolators guard your asynchronous equipment from the hazards of ground looping. Plugging directly into your DTE hardware, the Model 590 Series provides 2500V RMS peak DCE/DTE isolation. Both the Model 590A (19.2 kbps max) and Model 591A (115.2 kbps max) isolate 4 lines on the RS-232 interface—two of

which are selectable by internal jumpers. The Model 592 (19.2 kbps max) and Model 594 (115.2 kbps max) isolate 7 pre-wired lines on the RS-232 interface.



SPECIFICATIONS

Transmission Format:

Asynchronous, full or half duplex

Interface Standard: EIA RS-232E

Connectors: DB-25 female on DCE side (direct connection to DTE equipment); DB-25 male on DTE side (connects by cable to DCE equipment)

Data Rates: Model 590A/592—0 to 19.2 kbps; Model 591A/594—0 to 115.2 kbps

Lines Isolated: Model 590A/591A—TD (2), RD (3), DTR (20) or RTS (4); CD (8), DSR (6) or CTS (5). Model 592/594—TD (2), RD (3), RTS (4), CTS (5), DSR (6), CD (8) and DTR (20).

Power Supply: Model

590A/591A—RS-232 Interface powered, or user-supplied 12V DC input on pin 9 of the DCE interface (45mA); Model 592/594—External AC transformer

Isolation: 2500V RMS peak isolation
Dimensions: 3.8 x 2.1 x 0.79 in. (9.7 x 5.3 x 2.0 cm)

Op. Temp.: 32–122°F (0–50°C)

Altitude: 0–10,000 feet (0–3,078 m)

Humidity: Up to 95% non-condensing

FEATURES & BENEFITS

- ✓ 2500V RMS peak isolation
- ✓ Models 590A and 592 support async data rates to 19.2 kbps
- ✓ Models 591A and 594 support async data rates to 115.2 kbps

ORDERING INFORMATION

RS-232 Optical Isolator (DB-25M to DB-25F)
590AF: 19.2 kbps, 4 Lines Isolated

591AF: 115.2 kbps, 4 Lines Isolated

592/25F: 19.2 kbps, 7 Lines Isolated 120 V

594/25F: 115.2 kbps, 7 Lines Isolated, 120 V

230 VAC version also available, call for details.

RS-422/485 Optical Isolators

Model 593 Series

Prevent the early failure of your RS-422/485 devices!

The Model 593 series of RS-422/485 optical isolators protects your RS-422/485 equipment from the hazards of ground looping. Connect the Model 593 directly to your equipment via a DB-25 or RJ-45 connector, or a terminal block. The Model 593 supports data rates up to 115.2 kbps.



SPECIFICATIONS

Transmission Format:

Asynchronous, full- or half-duplex

Interface standard: RS-422/485, or terminal block

Data rates: Up to 115.2 kbps

Power Supply: AC external power supply

Isolation: 2500 Vrms peak isolation
Op. Temp.: 32–140°F (0–60°C)

Altitude: 0–10,000 ft (3,048 m)

Dimensions:

593/45 & 593/TB:
3.8L x 2.1W x 0.79H in.
(9.7L x 5.3W x 2.0H cm)

593/25:

4.1L x 2.1W x 0.79H in.
(10.4L x 5.3W x 2.0H cm)

Humidity: 5–95% non-condensing

FEATURES & BENEFITS

- ✓ 2500 Vrms peak isolation
- ✓ Supports asynchronous data rates up to 115.2 kbps

ORDERING INFORMATION

RS-422/485 Optical Isolator

593/45: RJ-45F to RJ-45F, 115.2 kbps 4 lines isolated

593/25F: DB-25F to DB-25F, 115.2 kbps 4 lines isolated

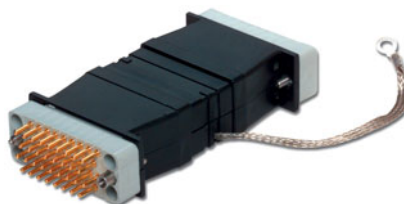
593/TB: Terminal block to terminal block, 115.2 kbps, 4 lines isolated

V.35 (M/34) Surge Protector

Model 546

Compact unit that plugs directly into your M/34 interface—no expensive adapter cables!

The Model 546 surge protector guards V.35 data ports against damage and data loss due to transient surges. It intercepts harmful surges and diverts them to chassis ground through a braided metal strap. All standard data, clocking and control signals on the CCITT V.35 interface are protected (although the Model 546 is also available with all 34 pins protected).



FEATURES & BENEFITS

- ✓ Surge handling capacity of 1,500 watts
- ✓ Supports data rates up to 20 Mbps
- ✓ Able to handle repeated surges without degrading in performance

ORDERING INFORMATION

546MF: V.35 Surge Protector (Standard Lines) M/34 (Male to Female)

546/34MF: V.35 Surge Protector (All 34 Lines) M/34 (Male to Female)

Telco Line Surge Protectors

Model 552 Series

Guard All Your Telco Lines: T1, ISDN, DDS, Leased & 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, ISDN modem (a.k.a. TA, NTU), T1/E1/PRI or DDS CSU/DSU or other termination hardware to intercept and divert telco line transients.



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-DDS: For protection of 56/64K CSU/DSU products.

Pins Protected: Pins 1, 2, 7, 8;

Protection Mode: Common Mode Pins 1, 2, 7, 8 to shielding braid; Differential Mode Pins 1, 2, 7, 8

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

Model 552-U: For protection of ISDN TAs and NTUs.

Pins Protected: Pins 3, 4, 5, 6;

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

Model 552-ST: For protection of ISDN TAs and NTUs.

Pins Protected: All 8 pins on the RJ-45 interface;

Protection Mode: All pins Common Mode to shielding braid Differential Mode Pins 1 and 2, 7 and 8; Differential Mode Pins 3 and 6, 4 and 5.

FEATURES & BENEFITS

- ✓ Seven versions 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



I'm John, one of Patton's Micro Products Group Managers. If you do not find what you need at www.patton.com or in this catalog please call me at +1 301.975.1000, x160. You can also send e-mail to igrant@patton.com.



SPECIFICATIONS

Series resistance: 0.340 ohms

In-line fuse rating: 250V, 0.75 amp, 2.95 (A² sec) nominal melting point

Approvals: UL497A Telco Specification (except E1 versions)

Connectors: Two female RJ-45 or 4 BNC jacks (552-E1CX)

Dimensions: 3L x 0.75H x 2.1W in.

(7.62L x 1.9H x 5.3W cm)

Weight: 0.1 lbs (0.045 kg)

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-DDS: 4-Wire DDS Protector (RJ-45 pins 1, 2, 7 & 8)

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

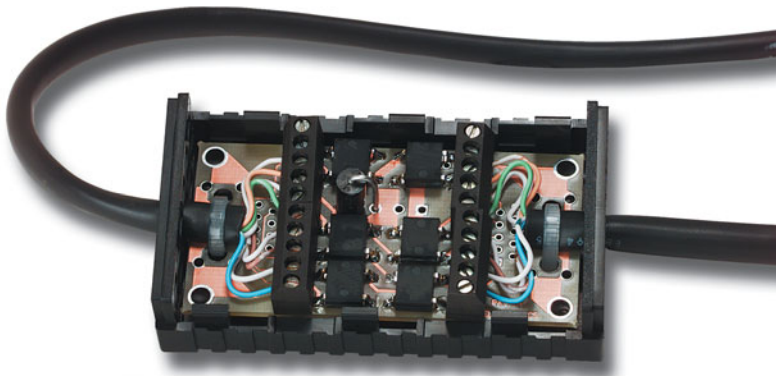
552-U: 4-Wire ISDN Protector—U Type (RJ-45 pins 3, 4, 5 & 6)

552-ST: 8-Wire ISDN Protector—ST Type (All 8 pins on the RJ-45)

Terminal Strip Surge Protectors

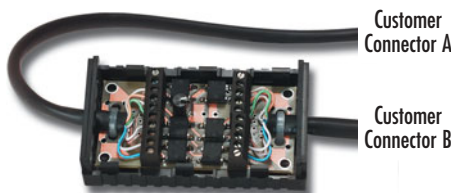
Model 52X Series

Create the surge protector you need for just about any interface.

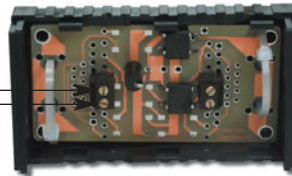


Design Your Own Protector

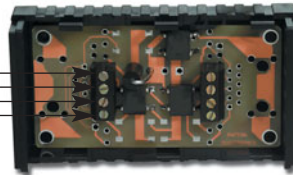
The Patton 52X Series lets you design your own "custom" surge protector to fit just about any 2, 4, 6, 8 or 10 wire application. You specify the number of lines you need protected. You specify the clamping voltage that is optimum for your application. Each surge protector comes with input/output terminal strips and strain relief straps to hold the wires.



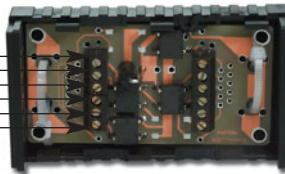
2 Wire



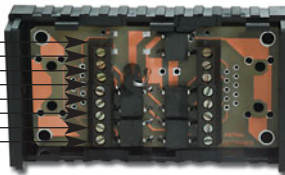
4 Wire



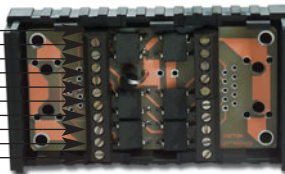
6 Wire



8 Wire



10 Wire



FEATURES & BENEFITS

- ✓ Clamping voltages for RS-232, RS-422, RS-485, Token Ring or Ethernet (call for custom options)
- ✓ Strain relief straps hold wires firmly in place
- ✓ Surge handling capacity of 1,500 watts
- ✓ Surge energy diverted to ground through braided metal strap
- ✓ You choose the number of lines to protect for your application

SPECIFICATIONS

Interface: RS-232, RS-422/485, Ethernet, Token Ring

Connectors: Terminal Strip

Wires Protected: 2, 4, 6, 8 or 10

Surge Capacity: 400A (8/20 μS)

Clamp Voltage: Residual surge[†] at 2 kV (1.2/50μS), 1 kA (8/20μS wave form [105 volts])

Maximum Speed: 20 Mbps

Construction: UL94-5V rated flame-retardant plastic

Dimensions: 3.0 x 1.67 x 0.8 in. (7.62 x 4.24 x 2.03 cm)

Humidity: 5–95%, non-condensing

Op. Temp.: -40 to +185°F (-40 to +85°C)

Dimensions: 3L x 0.75H x 2.1W in. (7.62L x 1.9H x 5.3W cm)

Weight: 0.1 lbs (0.045 kg)

[†]Residual surge is a special term defined by the IEEE and NEMA to replace the term *clamp voltage*.



I'm Ryan, one of Patton's Validation Network Engineers who makes sure your surge protector works reliably. To buy one of these state-of-the-art devices, call +1 301.975.1000 or send e-mail to sales@patton.com.

ORDERING INFORMATION

Terminal Strip

522/25-TS: 2-Wire, 19.2 V

524/25-TS: 4-Wire, 19.2 V

526/25-TS: 6-Wire, 19.2 V

528/25-TS: 8-Wire, 19.2 V

521/25-TS: 10-Wire, 19.2 V

522/6-TS: 2-Wire, 8.7 V

524/6-TS: 4-Wire, 8.7 V

526/6-TS: 6-Wire, 8.7 V

528/6-TS: 8-Wire, 8.7 V

521/6-TS: 10-Wire, 8.7 V



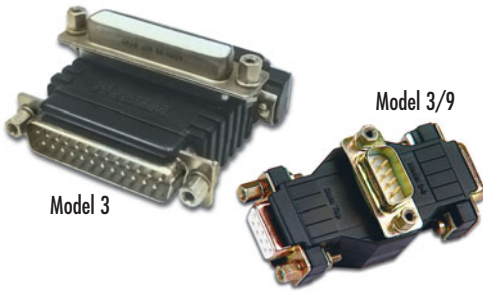
DB-25 & DB-9 Data Taps

Models 3 & 3/9

Monitor data line activity or connect 2 devices to one RS-232 port! Models 3 and 3/9 provide a simple, inexpensive way to “tap” into a data line so you can use a scope or monitor to see what is occurring without interrupting the flow of data. Three DB-25 (Model 3) or DB-9 (Model 3/9) connectors—wired straight through—make tapping into existing RS-232 lines simple and neat. These handy little devices can also be used anywhere you would use a “Y” cable, such as connecting 2 terminals in parallel to one port. Please specify gender: MF-M, MF-F, MM-M, MM-F, FF-M, or FF-F).

FEATURES & BENEFITS

- ✓ All pins wired straight through to all three connectors
- ✓ A great way to monitor data line activity or connect two devices to one RS-232 port
- ✓ Available in all gender combinations



ORDERING INFORMATION

Model 3
3XY-Z: DB-25 Data Tap (specify genders)

Model 3/9
3/9XY-Z: DB-9 Data Tap (specify genders)

Model 3/9HDX
3/9HDXY-Z: DB-9 Data Tap (Half-Duplex) (specify genders)

Example:
3/9 FM-F
X= (M) Male or (F) Female
Y= (M) Male or (F) Female
Z= (M) Male or (F) Female



Model 3/11
3/11: Data Tap with 3 RJ-11 connectors

Model 3/34
3/34MF-F: M/34 (V.35 Data Tap)
3/34MM-F: M/34 (V.35 Data Tap)

Model 3/45
3/45: Data Tap with 3 RJ-45 connectors

Model 3P-MF
3P-MF: DB-15 Modem Power Supply Adapter Supplies 9 VDC
3PMF9: DB-9 Modem Power Supply Adapter, Supplies 9 VDC

Note: More models are available, call for details.

DB-9 Data Tap (Half-Duplex)

Model 3/9HDX



FEATURES & BENEFITS

- ✓ Allows EIA-574/RS-232 Monitoring
- ✓ Top Connector Side OR Gate Allows Monitoring of TD and RD Lines in a Half-Duplex Environment
- ✓ Data Rates to 115.2 kbps

Telco Data Taps for T1, E1, or DDS

Models 3/11 & 3/45



FEATURES & BENEFITS

- ✓ A great way to tap into and monitor DDS, T1, E1 or other WAN circuits.
- ✓ All 6 or 8 pins are wired straight through to all 3 connectors
- ✓ Terminating resistors prevent the tap device from interfering with normal circuit operation.

M/34 (V.35) Data Tap

Model 3/34



FEATURES & BENEFITS

- ✓ All 34 pins wired straight through to all three connectors
- ✓ Make a V.35 “Y” cable, or tap into a network connection
- ✓ Available in all gender combinations

Power Supply Adapters

Models 3P-MF & 3PMF9



FEATURES & BENEFITS

- ✓ Provides power to any Patton self-powered short-range modem
- ✓ Plug-in DB-25 or DB-9 modules
- ✓ 120 or 230 VAC version available
- ✓ Supplies 9 VDC power

I'm Dave, Patton's Manager of US Technical Support. If you do not find what you need at www.patton.com or in this catalog, or if you have technical questions or comments, please call me at +1 301.975.1007. You can also send e-mail to puckett@patton.com.



Modular to Modular Adapter

Model 7



FEATURES & BENEFITS

- ✓ Go from RJ-11 to RJ-11 (Model 7A)
- ✓ Go from RJ-45 to RJ-45 (Model 7B)
- ✓ Go from RJ-11 to RJ-45 (Model 7C)
- ✓ Comes in a kit you can wire yourself

RS-232 Interface Connector

Model 80



FEATURES & BENEFITS

- ✓ Matches all async, RS-232 data, handshake and control lines
- ✓ Interface powered (no AC or batteries)
- ✓ Data rates to 19.2 kbps
- ✓ Model 80 uses straight cables; Model 80C comes with 3 ft (0.91 m) ribbon cables

Pin 2-3 Reverser

Model 5



FEATURES & BENEFITS

- ✓ Connect two RS-232 DTEs or DCEs
- ✓ Pins 2 and 3 “crossed over” (all other DB-25 pins passed straight through)
- ✓ All gender combinations available (MF, FF, MM)

Loopback Adapter

Model 6L



FEATURES & BENEFITS

- ✓ Loops back DB-25 Pins 2 & 3, 4 & 5, 6, 8 & 20 on both ends
- ✓ The easy way to produce a “local echo” for testing RS-232 devices
- ✓ One male, one female connector

Async Null Modem Adapters

Models 6A, 6B, & 6C

Data Terminals don't want to “talk” to each other! Neither do Personal Computers or serial printers! They will only talk to modems (DCEs), not to each other (DTEs). But these devices can be “fooled” into thinking they are connected to “modems” when they are not. Our null modem adapters (also called async modem eliminators or cross over cables) will do the job.



FEATURES & BENEFITS

- ✓ **Model 6A**—No Handshake: This is the most frequently used arrangement
- ✓ **Model 6B**—Standard Handshake: This connection allows for the most common hardware flow control
- ✓ **Model 6C**—Full Handshake: This model is for full query and response between two RS-232C devices

ORDERING INFORMATION

Model 7

7AXXK: From RJ-11 to RJ-11 solder kit

7BXXK: From RJ-45 to RJ-45 solder kit

7CXXK: From RJ-11 to RJ-45 solder kit

XX = Specify genders. K = Kit.

Model 80

80: MagiConnector™ (unit only)

80C: MagiCable™ (with 3 ft/0.91 m cables)

Model 5

5: Pin 2-3 Reverser

Specify genders

Model 6L

6L: Loopback Adapter

Model 6, Null Modem Adapter

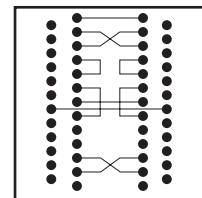
6AXX: No Handshake

6BXX: Standard Handshake

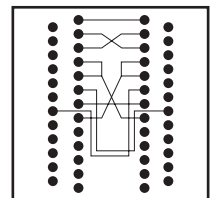
6CXX: Full Handshake

XX = Specify genders.

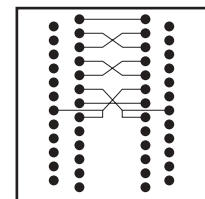
Note: More models are available, call for details.



Model 6A
No Handshake



Model 6B
Standard Handshake



Model 6C
Full Handshake



DB-25 to Modular Adapters

Models 11 & 12



FEATURES & BENEFITS

- ✓ DB-25 (Male or Female) to RJ-11/RJ-12, RJ-45, or Dual RJ-11/RJ-12
- ✓ Available as Solder Kits, Pushpin Kits
- ✓ Complete with Case, Connectors, Captive Screws and Saddle Washers

HD-15 to Modular Adapter

Model 15HD



FEATURES & BENEFITS

- ✓ High Density 15 Pin Connector (Male or Female) to RJ-11/RJ-12 or RJ-45
- ✓ Available as Solder Kits, Pushpin Kits

DB-9 & DB-15 Modular Adapters

Models 15 & 16



FEATURES & BENEFITS

- ✓ High Density 15 Pin Connector (Male or Female) to RJ-11/RJ-12 or RJ-45
- ✓ Available as Solder Kits, Pushpin Kits

DB-25 PockeTester™

Model 50

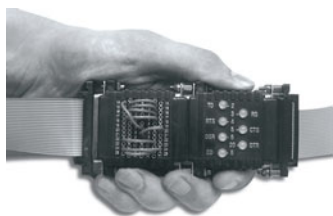


FEATURES & BENEFITS

- ✓ Monitors Async RS-232 Pins 2, 3, 4, 5, 6, 8, and 20
- ✓ All 25 Pins are Wired Straight Through
- ✓ 1 Male & 1 Female DB-25 Connector
- ✓ Interface Powered—No AC Power or Batteries Needed
- ✓ Data bias can be inferred from intensity of the colors

PocketBOB™ DB-25 Breakout Box

Model 50-9



FEATURES & BENEFITS

- ✓ No AC Power or Batteries Required
- ✓ Seven Dual Color LEDs
- ✓ All 25 Pins From Both Connectors have Easily Accessible Probe Points
- ✓ Gold-plated sockets in the shape of a DB-25 connector allow easy set up and re-configuration of pin outs
- ✓ Three sets of sockets make looping and jumpering easier

DB-9 PockeTester™

Model 51



FEATURES & BENEFITS

- ✓ Seven LEDs Monitor RS-232 Signals
- ✓ All 9 Pins are Wired Straight Through
- ✓ Data Bias can be Inferred from the Intensity of the Colors
- ✓ 1 Male & 1 Female DB-9 Connector

ORDERING INFORMATION

Model 11, DB-25 to RJ-11/12

11KS M: DB-25 Male, solder kit

11KS F: DB-25 Female, solder kit

11KP M: DB-25 Male, pushpin kit

11KP F: DB-25 Female, pushpin kit

Model 12, DB-25 to RJ-45

12KS M: DB-25 Male, solder kit

12KS F: DB-25 Female, solder kit

12KP M: DB-25 Male, pushpin kit

12KP F: DB-25 Female, pushpin kit

Model 15HD11, HD15 to RJ-11/12

15HD11KS M: HD15 Male, solder kit

15HD11KS F: HD15 Female, solder kit

15HD11KP M: HD15 Male, pushpin kit

15HD11KP F: HD15 Female, pushpin kit

Model 15HD45, HD15 to RJ-45

15HD45KS M: HD15 Male, solder kit

15HD45KS F: HD15 Female, solder kit

15HD45KP M: HD15 Male, pushpin kit

15HD45KP F: HD15 Female, pushpin kit

Model 15, DB-15 to RJ-11/12 or RJ-45

1511KPM: DB-15 Male, pushpin kit

1511KPF: DB-15 Female, pushpin kit

1545KPM: DB-15 Male, pushpin kit

1545KPF: DB-15 Female, pushpin kit

Model 16, DB-9 to RJ-11/12 or RJ-45

1611KPM: DB-9 Male, pushpin kit

1611KPF: DB-9 Female, pushpin kit

1645KPM: DB-9 Male, pushpin kit

1645KPF: DB-9 Female, pushpin kit

Model 50

50MF: DB-25 PockeTester

Model 50-9, Breakout Box

50-9: PocketBOB™ DB-25

Model 51

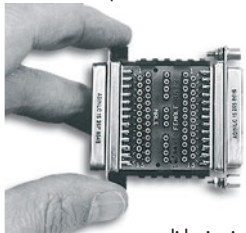
51: DB-9 PockeTester™

Cable Adapters (Solder-Type or Solderless)

Models 8 & 8x MF

Comes with one male and one female connector for universal use.

Use a regular, straight cable and our Model 8 Cable Adapter to make it into any "special" cable you need. We include a pressure-sensitive label where you can mark your wiring connections.



The 8X MF unit is identical to our Model 8 except that all the connections are made using individual pin jacks and 24 gauge,

solid-wire jumpers. Any RS-232C wiring arrangement can be made without soldering and can be easily changed by simply re-arranging the jumpers. Our new snap-together/pop-open case encloses the wiring, and has enough height (0.4 inch) to allow all 25 jumpers to be used! We also give you pressure-sensitive labels where you can draw your wiring connections, plus a clear plastic cover to stick on them for protection.

FEATURES & BENEFITS

- ✓ Easy access to all 25 pins
- ✓ High quality PCB construction
- ✓ Wiring buses for easy jumpering
- ✓ All connector hardware provided
- ✓ Model 8 (solder-type) available in MM, MF or FF gender combos
- ✓ Model 8X (solderless) has one male, one female DB-25
- ✓ Case and label included—make your own durable custom adapter!

You wire it yourself (solder connections) using the 25 jumpers we supply.



ORDERING INFORMATION

Models 8 & 8X

8-FF: DB-25 Female to DB-25 Female Solder Type Adapter

8-MF: DB-25 Male to DB-25 Female Solder Type Adapter

8-MM: DB-25 Male to DB-25 Male Solder Type Adapter

8X MF: DB-25 Male to DB-25 Female Solder-less Type Adapter



I'm Nathan, one of Patton's Product Marketing Group Managers. If you do not find the solutions you need at www.patton.com or in this catalog, please call me at +1 301.975.1000, x129. You can also send e-mail to nathan@patton.com.



DB-25 Micro Breakout Box

Model 9



FEATURES & BENEFITS

- ✓ All 25 Pins From Both DB-25 Connectors are Accessible
- ✓ Gold Plated Sockets
- ✓ Three Sets of Sockets to Make Jumpering Easy
- ✓ 25 Jumpers Supplied (19 AWG, sold)
- ✓ One Male & One Female DB-25 Connector

ORDERING INFORMATION

Model 9, Breakout Box

9MF: DB-25 Micro Breakout Box

DB-25 to Terminal Block Adapter

Model 14TB



FEATURES & BENEFITS

- ✓ Lets You Terminal Bare Wires to a DB-25 (Specify Male or Female)
- ✓ Strain Relief Collar Holds the Cable Firmly in Place—Won't Pull Out
- ✓ Printed Circuit Board Construction
- ✓ Screw Termination for **15 RS-232 Pins/Signals:** 1-GND, 2-TD, 3-RD, 4-RTS, 5-CTS, 6-DSR, 7-SG, 8-CD, 9-(+DC) Test, 15-TXC, 17-RXC, 18-LL, 20-DTR, 25-Test Mode.

ORDERING INFORMATION

Model 14TB, DB-25 to Terminal Block Adapter

14TB F: DB-25 Female

14TB M: DB-25 Male



DB-25 Gender Changer

Model 2-25

The Model 2-25 is a handy device that's priced right! All 25 pins are wired straight through using printed circuit board construction. These units are available with male or female con-



nectors, and all necessary hardware is included. Male and female units are assembled with captive screws and saddle washers on one end, and hex nuts with locking hardware on the other.

FEATURES & BENEFITS

- ✓ Printed circuit board construction
- ✓ All 25 pins are wired straight through
- ✓ Specify male–male or female–female
- ✓ Captive screws/saddle washers on one end, hex nuts/locking hardware on the other end

DB-9 & DB-15 Gender Changers

Models 2-9 & 2-15

Models 2-9 & 2-15 connect mismatched cables as well as other devices. All 9 pins are wired straight-through using



printed circuit board construction. Male units are supplied with hex nuts and saddle washers.

FEATURES & BENEFITS

- ✓ Printed circuit board construction
- ✓ All 9 pins (Model 2-9) or all 15 pins (Model 2-15) are wired straight through
- ✓ Specify male–male or female–female
- ✓ Captive screws/saddle washers on one end, hex nuts/locking hardware on the other end

DB-25 Cube Tap

Model 4

This cube tap takes the data tap one step further. As you might imagine, the Model 4 has all 25 pins of all four connectors wired straight through. It's like having a single data tap with



up to four different gender combinations. Or it's like having a "universal gender changer." You can even use it to create a DB-25 "X" cable.

FEATURES & BENEFITS

- ✓ Data junction box with all 25 pins connected straight through on all four connectors
- ✓ Available with *all possible* gender combinations (normally supplied with two male and two female connectors)

DB-9 to DB-25 Adapters

Models 18PC-M & 18PC-P



FEATURES & BENEFITS

- ✓ Printed circuit board construction
- ✓ Model 18PC-M connects a 9-pin PC serial port to a 25-pin modem cable (DB-9F to DB-25M)
- ✓ Model 18PC-P connects a 9-pin PC serial port to a 25-pin printer cable (DB-9F to DB-25F)

ORDERING INFORMATION

Model 2-25
2-25: DB-25 Gender Changer

Model 4
4: DB-25 Cube Tap (specify genders)

Models 18PC-M & 18PC-P
18PC-M: DB-9F to DB-25M Adapter for modems
18PC-P: DB-9F to DB-25F Adapter for modems

Models 2-9 & 2-15
2-9: DB-9 Gender Changer
2-15: DB-15 Gender Changer

Note: More models are available, including low profile, call for details.

Technical Reference

EIA-232, EIA-232-E, EIA-574, & EIA-561 Interfaces

In This Section

Technical Reference 121

EIA-232, EIA-574 & EIA-561 Interfaces	121
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EIA-449 (V.36) & EIA-530 Interface	123
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EIA-232 Interface Reference

EIA-232 defines the connection on a DB25 interface connector for nonsynchronous or synchronous operation.

Signal/Voltage Source	Signal Designations	Signal Designations	Signal/Voltage Source
DTE	Secondary Transmitted Data 14	1 Shield	Common
DCE	Transmit Clock 15	2 (TD) Transmitted Data	DTE
DCE	Secondary Received Data 16	3 (RD) Received Data	DCE
DCE	Receiver Clock 17	4 (RTS) Request To Send	DTE
DTE	Local Loopback 18	5 (CTS) Clear To Send	DCE
DTE	Secondary Request To Send 19	6 (DSR) DCE Ready	DCE
DTE	Data Terminal Ready 20	7 Signal Ground	Common
DTE	Remote Loopback 21	8 (CD) Rcvd Line Signal Detect	DCE
DCE	Ring Indicator 22	9 (+) DC Test Voltage	-
DTE/DCE	Data Signal Rate Selector 23	10 (-) DC Test Voltage	-
DTE	External Transmit Clock 24	11 Unassigned	-
DCE	Test Mode 25	12 (SCE/CI) Secondary CD	DCE
		13 Secondary Clear To Send	DCE

EIA-232-E (Alt A) Interface Reference (Male)

EIA-232-E defines a high density 26-pin connector called the Alt A connector.

Signal/Voltage Source	Signal Designations	Signal Designations	Signal/Voltage Source
DCE	(CTS) Clear To Send 13	26 Not Used	-
	Not Used 12	25 Test Mode	DCE
	Not Used 11	24 External Transmit Clock (XTC)	DTE
	Reserved for Testing 10	23 Data Rate Signal Selector	DTE/DCE
	Reserved for Testing 9	22 Ring Indicator	DCE
DCE	(CD) Carrier Detect 8	21 Remote Loopback	DTE
Common	(SG) Signal Ground 7	20 Data Term Ready (DTR)	DTE
DCE	(DSR) Data Set Ready 6	19 Secondary RTS	DTE
DCE	(CTS) Clear To Send 5	18 Local Loopback	DTE
DTE	(RTS) Request To Send 4	17 Receive Clock (RC)	DCE
DCE	(RD) Receive Data 3	16 Secondary RD	DCE
DTE	(TD) Transmit Data 2	15 Transmit Clock (TC)	DCE
-	(FG) Shield 1	14 Secondary TD	DTE

Is your interface a DTE or a DCE?

In general, a DTE provides a voltage on the TD, RTS, and DTR pins of the DB-25 connector, whereas a DCE has voltage on the RD, CTS, DSR, and CD pins. Determine whether you have a DTE or DCE by performing the following procedure:

Note: The point of reference for all signals is the terminal (or PC).

- Using a volt meter, connect the black lead to pin 7 (signal ground) of the DB-25 connector. Attach the red lead to pin 2 (transmit data). If the measured voltage on pin 2 (TD) is more negative than -3 volts, it is a DTE, otherwise it should be near zero volts.
- Leave the the black lead connected to pin 7. Attach the red lead to pin 3 (receive data). If the voltage on pin 3 is more negative than -3 volts, it is a DCE.
- If pins 2 and 3 show a voltage of at least 3 volts, then either you are measuring incorrectly, or your device is not a standard EIA-232 device. Call technical support for assistance.

EIA-574 Interface Reference

EIA-574 standard defines EIA-232 on a DB-9 connector. (For nonsynchronous applications only, since it does not provide for the synchronous clocking signals.)

Signal/Voltage Source	Signal Designations	Signal Designations	Signal/Voltage Source
DCE	Data Set Ready 6	1 Receive Line Signal Detector	DCE
DTE	Request To Send 7	2 Received Data	DCE
DCE	Clear To Send 8	3 Transmitted Data	DTE
DCE	Ring Indicator 9	4 Data Terminal Ready	DTE
		5 Ground/common Return	Common

V.35 Interface

CCITT V.35 uses two types of circuits: balanced and unbalanced (V.28). Recommendation V.28 is essentially the electrical equivalent of EIA-232, whereas V.24 is essentially the functional equivalent of EIA-232. This includes signal defini-

tion and use. DTE & DCE conform to the same perspective as EIA-232. V.35 signals are commonly implemented on the rectangular M/34 connector (34 pins). CCITT V.35 signals may also be implemented on the DB-25 connector (25 pins).

ELECTRICAL CHARACTERISTICS

Balanced Circuits

- Circuit 103: TD
- Circuit 104: RD
- Circuit 114: TC
- Circuit 115: RC

Cable: Balanced twisted multi-pair. Characteristic impedance = 80 to 120 ohms at the fundamental frequency

Generator: Source impedance = 50 to 150 ohms.

Voltage: With a 100-ohm load, $V(ab) = 0.55$ volts $\pm 20\%$ where terminal *a* is more positive than *b* for a binary zero, and terminal *b* is more positive than *a* for a binary one.

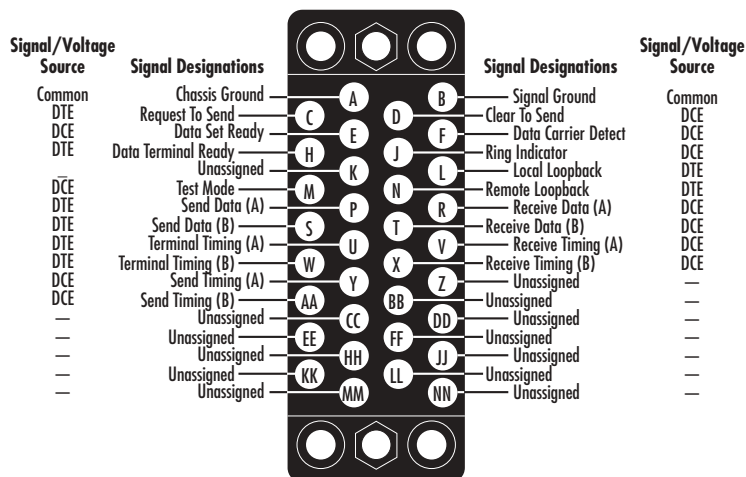
Load: Input impedance = 100 ± 10 ohms

Unbalanced Circuits (CCITT V.28)

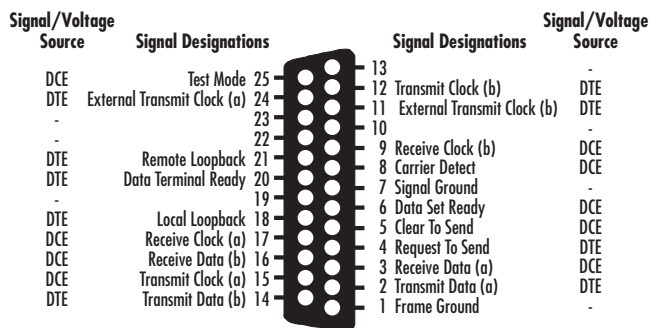
- Circuit 102: Signal Ground
- Circuit 105: RTS
- Circuit 106: Ready for Sending (CTS)
- Circuit 107: DSR
- Circuit 109: CD

V.35 (on M/34 connector) Interface Reference

EIA-561 defines RS-232 on a modular connector. (For nonsynchronous applications only, since it does not provide for the synchronous clocking signals.)



V.35 (on DB-25 connector) Interface Reference



V.35 Pinout Comparison

DB-25 Pinout	M34 Pinout	Signal
1	A	Frame ground
7	B	Signal ground
4	C	RTS
5	D	CTS
6	E	DSR
8	F	CD
20	H	DTR
18	L	LL
25	M	TM
21	N	RL
2	P	TD-a
3	R	RD-a
14	S	TD-b
16	T	RD-b
24	U	XTC-a
17	V	RC-a
11	W	XTC-b
9	X	RC-b
15	Y	TC-a
12	AA	TC-b

EIA-449 (V.36) & EIA-530 Interfaces

EIA-530 is a physical interface that uses two types of circuits: balanced (EIA-422) and unbalanced (EIA-423). EIA-530 calls out the DB-25 connector.

EIA-449 (V.36) is a physical interface that uses two types of circuits: balanced (EIA-422) and unbalanced (EIA-423). EIA-449 specifies the DB-37 connector.

EIA-530/449 Interconnection			
EIA-530 Signal Name	DB-25 Pin #	DB-37 Pin #	EIA-449 Signal Name
Shield	1	1	Shield
TD	2, 14	4, 22	Send Data
RD	3, 16	6, 24	Rcv Data
RTS	4, 19	7, 25	RTS
CTS	5, 13	9, 27	CTS
DCE Rdy	6, 22	11, 29	Data Mode
DTE Rdy	20, 23	12, 30	Term Rdy
SG	7	19	SG
CD	8, 10	13, 31	Rcvr Rdy
TSET (DCE-Src)	15, 12	5, 23	Send Tmg
RSET (DCE-Src)	17, 9	8, 26	Rcv Tmg
LL	18	10	LL
RL	21	14	RL
XTC (DTE-Src)	24, 11	17, 35	Term Tmg
TM	25	18	TM

EIA-449 (V.36) Interface Reference

Signal/Voltage Source	Signal Designations	Signal Designations	Signal/Voltage Source
Common	Receive Common 20	1 Shield	Common
-	Unassigned 21	2 Signal Rate Indicator	DCE
DTE	Send Data (B) 22	3 Signal Rate Indicator	-
DCE	Send Timing (B) 23	4 Send Data (A)	DTE
DCE	Receive Data (B) 24	5 Send Timing (A)	DCE
Return	Request To Send (B) 25	6 Receive Data (A)	DCE
DCE	Receive Timing (B) 26	7 Request To Send (A)	DTE
Return	Clear To Send (B) 27	8 Receive Timing (A)	DCE
DTE	Terminal In Service 28	9 Clear To Send (A)	DCE
Return	Data Mode (B) 29	10 Local Loopback	DTE
Return	Terminal Ready (B) 30	11 Data Mode (A)	DCE
Return	Receiver Ready (B) 31	12 Terminal Ready (A)	DTE
DTE	Select Standby 32	13 Receive Ready (A)	DCE
DCE	Signal Quality 33	14 Remote Loopback	DTE
DTE	New Signal 34	15 Incoming Call	DCE
DTE	Terminal Timing (B) 35	16 Select Frequency	DTE
DCE	Standby/indicator 36	17 Terminal Timing (A)	DTE
Common	Send Common 37	18 Test Mode	DCE
		19 Signal Ground	Common

EIA-530 Interface Reference

Signal/Voltage Source	Signal Designations	Signal Designations	Signal/Voltage Source
DTE	Transmitted Data (B) 14	1 Shield	Common
DCE	Transmit Clock (A) 15	2 Transmitted Data (A)	DTE
DCE	Received Data (B) 16	3 Received Data (A)	DCE
DCE	Receiver Clock (A) 17	4 Request To Send (A)	DTE
DTE	Local Loopback 18	5 Clear To Send (A)	DCE
Common	Request To Send (B) 19	6 DCE Ready (A)	DCE
DTE	Data Terminal Ready (A) 20	7 Signal Ground	Common
DTE	Remote Loopback 21	8 Carrier Detect (A)	DCE
Common	Data Set Ready (B) 22	9 Receiver Clock (B)	DCE
Common	Data Terminal Ready (B) 23	10 Carrier Detect (B)	Common
DTE	DTE Transmitter Clock (A) 24	11 DTE Transmitter Clock (B)	DTE
DCE	Test Mode 25	12 Transmitter Clock (B)	DCE
		13 Clear To Send (B)	Common

EIA-530 Interface Pinout DB-25					
		Pin #	Pin #	Shield	
Transmit Data-B	BA	14	2	BA	Transmit Data-A
TSET (DCE-Src)-A	DB	15	3	BB	Receive Data-A
Recv Data-B	BB	16	4	CA	RTS-A
TSET (DCE-Src)-A	DD	17	5	CB	CTS-A
Local Loop	LL(ii)	18	6	CC	DCE Ready-A
RTS-B	CA	19	7	AB	Signal Ground
DTE Rdy-A	CD	20	8	CF	RLSD-A (CD-A)
Remote Loop	RL(ii)	21	9	DD	Recv Signal Element Timing(DCE-Src)-B
DCE Rdy-B	CC	22	10	CF	RLSD-B (CD-B)
DTE Rdy-B	CD	23	11	DA	Trans Signal Element Timing (DTE-Src)-B
TSET(DTE-Src)-A	DA	24	12	DB	Trans Signal Element Timing (DCE-Src)-B
Test Mode	TM(ii)	25	13	CB	CTS-B

(ii) Indicates Category II circuits.

Category I Circuits: The circuits electrically specified as EIA-422.

Category II Circuits: Circuits electrically specified as EIA-423.

X.21 Interface

CCITT X.21 is a physical and electrical interface that uses two types of circuits: balanced (X.27/V.11) and unbalanced (X.26/V.10). CCITT X.21 calls out the DB-15 connector.

Equivalent/corresponding EIA-232 or CCITT V.35 signals

Transmit = TD

Receive = RD

Control = RTS

Indication = CD

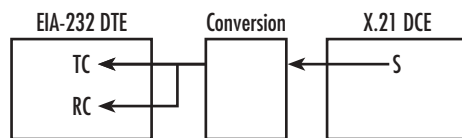
Signal Element Timing = TC & RC (see note 2)

Byte Timing = rarely used

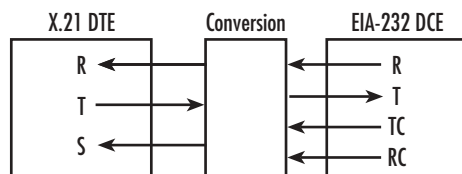
DTE Signal Element Timing: even more rarely used. Not supported (see note 4)

Clocking with X.21

How can only one clock signal be used for both data signals, T & R? With EIA-232 or V.35, the TC & RC are kept separate.



As shown in the diagram above, if the DTE is EIA-232/V.24 and the DCE is X.21, clock signal S comes from the DCE toward the DTE and both TC & RC are inputs on the DTE. After the X.21 signal is converted to the proper electrical format, connect the clock signal S to both TC & RC on the DTE.



As shown above, if the DTE is X.21 and the DCE is EIA-232/V.35, both TC & RC must be combined into one clocking signal for X.21. Insert a data buffer between the DTE and DCE which will be controlled by both clocks. This will maintain the clock frequency lock without requiring TC & RC from DCE to phase locked.

ELECTRICAL CHARACTERISTICS

Data signaling rates of 9600 bps and below.

V.27 (= V.11) & X.26 (= V.10)

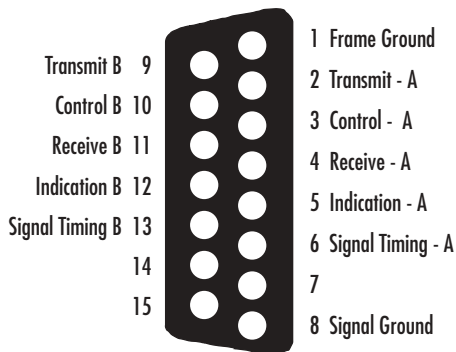
Data signaling rates above 9600 bps.

X.27 (= V.11)

[V.10 specifies an interface circuit with an unbalanced transmitter with a differential receiver.]

[V.11 specifies an interface circuit with a differential, balanced signal from transmitter to receiver which may accommodate an optional DC offset voltage. This approximates EIA-422]

X.21 Interface Reference



Functional characteristics of interchange circuits					
Interchange		Direction			
Circuits	DB15	Name	To DCE	From DCE	Remarks
G	1	Signal Ground or Common Return			See Note 1
Ga	8	DTE Common Return	X		
T	2 & 9	Transmit	X	X	
R	4 & 11	Receive		X	
C	3 & 10	Control	X	X	
I	5 & 12	Indication		X	
S	6 & 13	Signal Element Timing		X	See Note 2
B		Byte Timing			See Note 3
X		DTE Signal Element Timing	X		See Note 4

(ii) Indicates Category II circuits.

Category I Circuits: The circuits electrically specified as EIA-422.

Category II Circuits: Circuits electrically specified as EIA-423.

Note 1: This conductor may be used to reduce environmental signal interference at the interface. In the case of shielded interconnecting cable, the additional connection considerations are part of Recommendation X.24 and ISO 4903.

Note 2: Timing for continuous isochronous data transmission will be provided.

Note 3: May be provided as an optional additional facility

Note 4: The use and the termination of this circuit by the DCE is a national matter

Parallel & IEEE-1284 Interfaces

Standard Parallel

Both the 36-pin Centronics® and DB-25 connectors are commonly used for Computer-to-Printer communication. The two physical variations are electrically compatible with one another, so that only a special cable is required to allow them to operate with each other.

IEEE-1284 Bi-Directional Parallel

Standard Parallel communication sends data (in parallel) in one direction. So a host can send data to a printer, but the printer cannot send data back to the host. The only way the

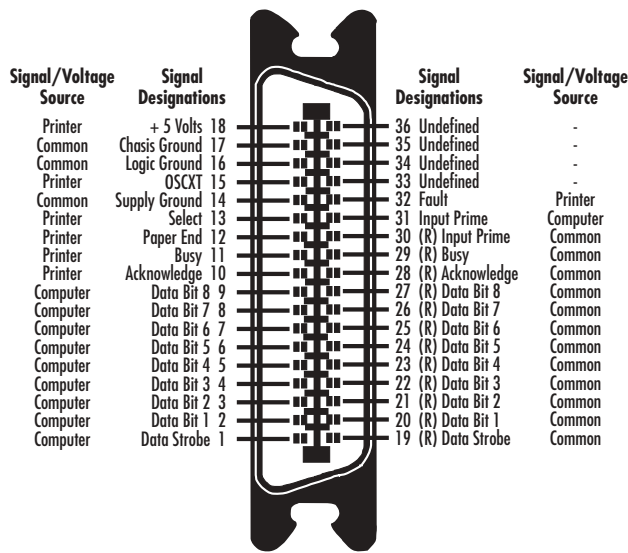
printer can communicate vital feedback to the host (“out of paper,” “buffer full,” etc.) is to raise or lower a control pin. The IEEE-1284 Standard outlines methods by which a printer can receive data from a host (*forward channel*) and communicate data back to the host (*reverse channel*)—not just raise or lower control pins.

The two primary IEEE-1284 modes (the ones used by Patton hardware) are “Compatible” and “Nibble.” *Compatible Mode* is the baseline, and is simply forward channel parallel communication as implemented in the “classic” 36-pin

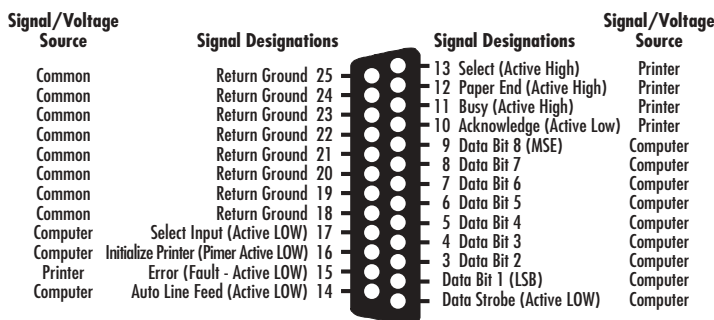
Centronics® format. *Nibble Mode* is reverse channel communication using the four status lines of the parallel interface.

Here’s how Nibble Mode works: Data is sent from the printer to the host, under the control of the host. Since only four lines are used (instead of the eight commonly required for parallel data) the byte is segmented into two 4-bit pieces and sent sequentially down the line. The byte therefore becomes two “nibbles.”

Centronics Parallel Interface



IBM PC Style Parallel Interface



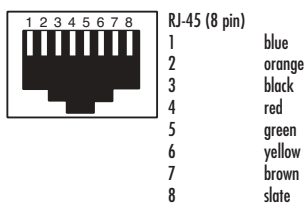
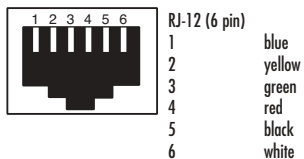
Primary IEEE-1284 Modes

DB-25 Pin #	DB-36 Pin #	Compatible Mode	Nibble Mode
1	1	nStrobe	HostClk
2	2	Data 1 (least significant bit)	
3	3	Data 2	
4	4	Data 3	
5	5	Data 4	
6	6	Data 5	
7	7	Data 6	
8	8	Data 7	
9	9	Data 8 (most significant bit)	
10	10	nAck	PtrClk
11	11	Busy	PtrBusy
12	12	PError	ActDataReq
13	13	Select	Xflag
14	14	nAutoFd	HostBusy
15	32	nFault	ndataAvail
16	31	nInit	nInit
17	36	nSelectIn	1284 Active
18	19	Signal Ground (nStrobe)	
19	20 & 21	SG (Data 1 & 2)	
20	22 & 23	SG (Data 3 & 4)	
21	24 & 25	SG (Data 5 & 6)	
22	26 & 27	SG (Data 7 & 8)	
23	29	SG (Busy & nFault)	
24	28	SG (PError, Select, and nAck)	
25	30	SG (nAutoFd, nSelectIn & nInit)	

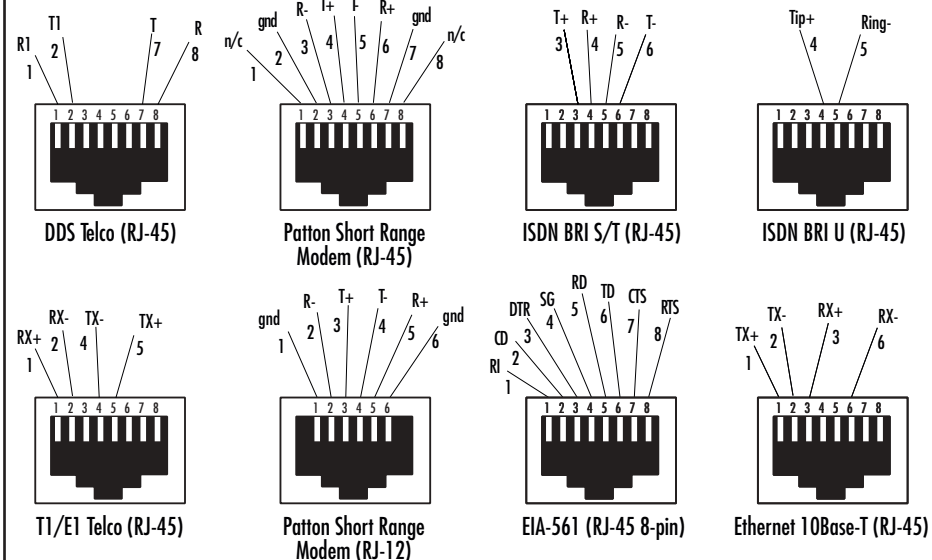
Not defined on the DB-36 connector: pins 15, 33, 34 & 35

Modular Connections and Pairing

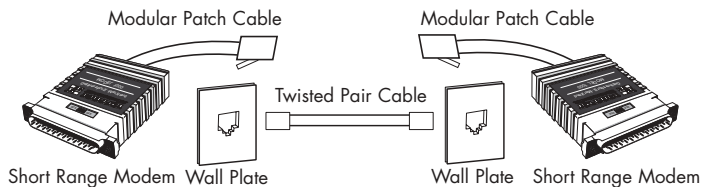
Standard color codes for modular jacks with flying leads.



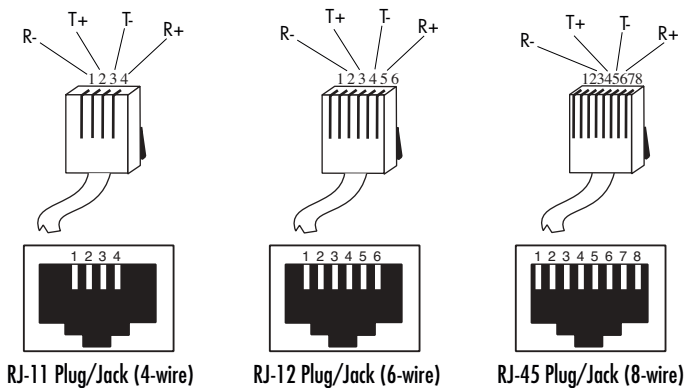
Patton product interfaces as they are implemented on various modular jacks.



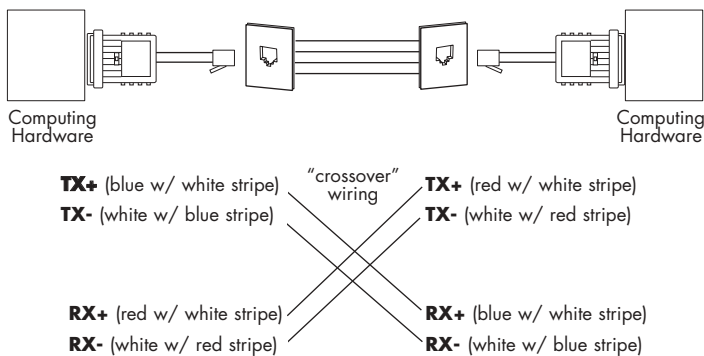
How to connect two Patton short-range modems in a point-to-point topology.



Step 1 — Pin-out the plugs on your modular patch cables so that they match one of the diagrams below. The cables are oriented with the plug pointing up and the clip to the back.



Step 2 — Make sure the wire pairing on the point-to-point connection (between wall plates) matches the diagram below. Colors may vary, but twisted pair cable must be used.



Model #	Page	Model #	Page	Model #	Page
1000	Basic Point-to-Point Async SRMs—DB-25	79	1225	Self-Powered Line Extender	84
1000CU2	2-Slot Desktop ClusterBox	102	1225	Self-Powered Parallel Line Extenders	63
1000CU4	4-Slot ClusterBox	102	1226	AC Powered, Parallel Short Range Modem	63
1000CU8	8-Slot ClusterBox	102	14TB	DB-25 to Terminal Block Adapter	119
1000R16	16-Slot 19-in. 2U Rack Chassis	102	15	DB-15 Modular Adapter	118
1001MP10	Vertical 10-Slot Universal Mounting Panel	104	15HD	HD-15 to Modular Adapter	118
1001MP16	16-Slot Universal Mounting Panel	105	16	DB-9 Modular Adapter	118
1001MP2	Horizontal 2-Slot Universal Mounting Panel	104	18PC-M	DB-9 to DB-25 Male Adapter	120
1002	Full-Duplex RS-232 over 2-wire Twisted Pair or Coax	80	18PC-P	DB-9 to DB-25 Female Adapter	120
1003	Full-Duplex RS-232 over 2-wire Twisted Pair or Coax with Carrier Sense	80	2002	Self-Powered RS-232 to TTL	56
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