# Interface & Media Converters

## Miniature

## Stand Alone

## Rack Mount

### Industrial Communications Converters

Pages 178–183

| Miniature | Stand Alone | Rack Mount |
|---|---|---|
| RS-232 ⟷ RS-422 | RS-232 ⟷ Ethernet | RS-232 ⟷ RS-422 |
| RS-232 ⟷ TTL | RS-422 ⟷ Ethernet | RS-232 ⟷ RS-485 |
| RS-232 ⟷ RS-485 | RS-485 ⟷ Ethernet | RS-232 ⟷ Current Loop |
| RS-232 ⟷ Current Loop | | |
| RS-232 ⟷ Ethernet | | |

### Wide Area Network Converters

Pages 172–177

| Miniature | Stand Alone | Rack Mount |
|---|---|---|
| V.35 ⟷ RS-530 | RS-232 ⟷ V.35 | RS-232 ⟷ V.35 |
| V.35 ⟷ RS-449 | RS-232 ⟷ X.21 | V.35 ⟷ X.21 |
| V.35 ⟷ X.21 | Async. ⟷ Sync. | |
| 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 | | |

### Printer Converters

Pages 186–187

| Miniature | Stand Alone | Rack Mount |
|---|---|---|
| Serial ⟷ Parallel | Parallel ⟷ Serial Buffer | |
| RS-232/423 ⟷ IEEE-1284 | | |

### T1/E1 Converters

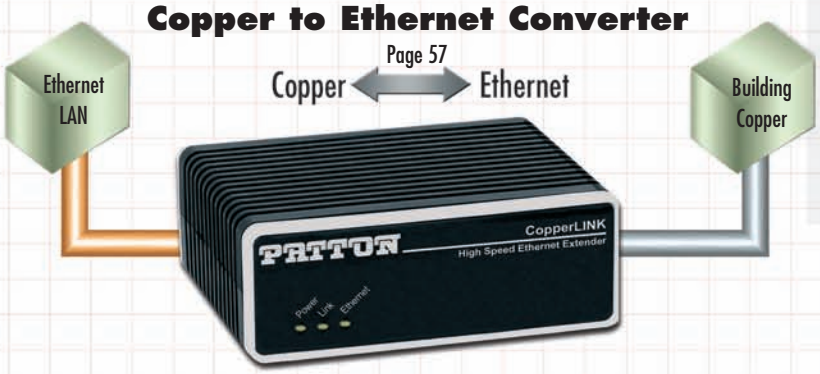
Pages 158–169

| Miniature | Stand Alone | Rack Mount |
|---|---|---|
| 64K/G.703 ⟷ X.21, V.35 or RS-232 | 64K/G.703 ⟷ V.21, V.35 or RS-232 | 64K/G.703 ⟷ X.21, V.35 or RS-232 |
| G.703/G.704 ⟷ V.35 | G.703/G.704 ⟷ V.35 | |
| T1 ⟷ V.35 | T1 ⟷ V.35 | |
| E1 ⟷ HSSI | E1 ⟷ HSSI Page 177 | |

# Cost-Effective Media Converter Solutions

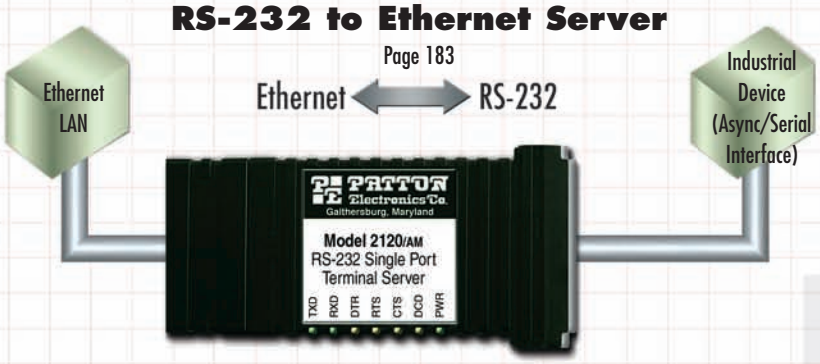
## Copper to Ethernet Converter

Page 57



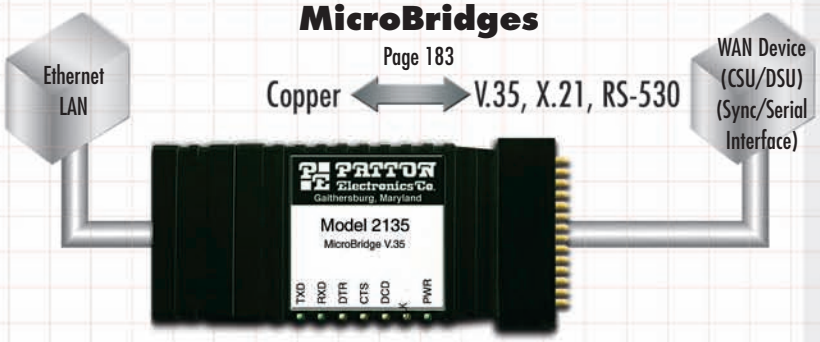

## RS-232 to Ethernet Server

Page 183




## MicroBridges

Page 183



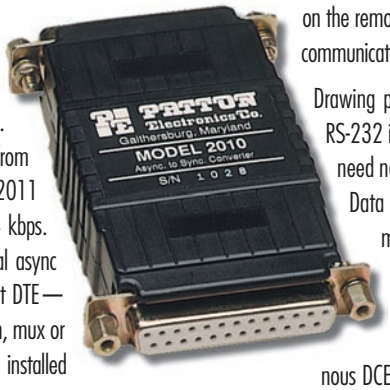

## In This Section

## RS-232, Asynchronous to Synchronous Converters

### Models 2010 & 2011

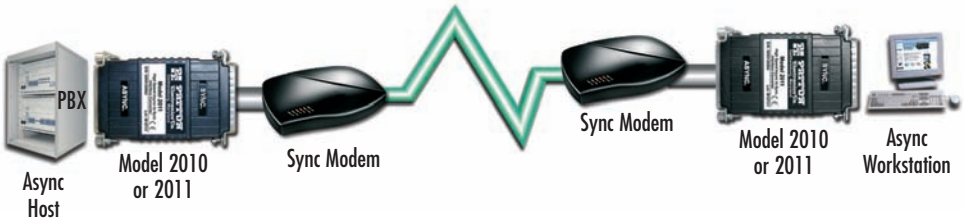
*Now Asynchronous Devices Can Access Synchronous Modems & Digital Networks*

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.

**Typical application**




### 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

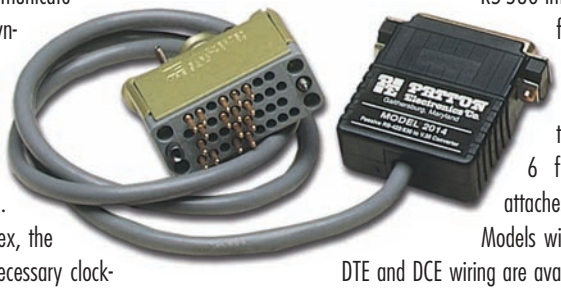
**Data Rates:** Model 2010—150 bps to 19.2 kbps; Model 2011—19.2 to 64 kbps
**Clocking:** Provided by modem or multiplexer
**Buffer:** 4 bit RTS override feature empties buffers before dropping RTS, making the Model 2011 usable in a polling environment
**Data Transmission:** Full or half duplex
**Connectors:** 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)

## 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.

### 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

### 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

2014 X X- X X
- V.35 DCE/DTE configuration†
- V.35 (M/34) gender*
- RS-530 DCE/DTE configuration†
- RS-530 (DB-25) gender*

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.

## 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:** 2.66Lx2.1Hx0.73W in.
**Weight:** 14 oz

#### ORDERING INFORMATION

**Example**

**Factory Part Number Encoding**
* M=male, F=female, †T=DTE, C=DCE

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

2016XX-XX
- V.35 configuration†
- V.35 (M/34 or DB-25) gender*
- X.21 configuration†
- 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—0.55V 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.

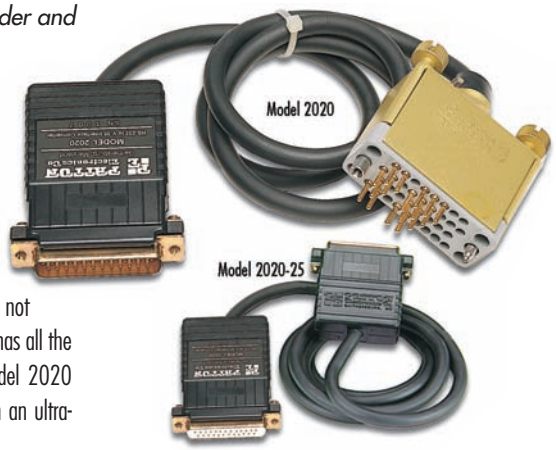

*See page 226*

## 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.



*See page 226*

16-slot rack chassis

#### 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.

## 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
- X.21 DCE/DTE configuration†
- X.21 (DB-15) gender*
- RS-232 DCE/DTE configuration†
- RS-232 (DB-25) gender*

**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)

**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.

## 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
**Transmit Mode:** Full or half duplex
**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)

#### 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

See Pg 226

## 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

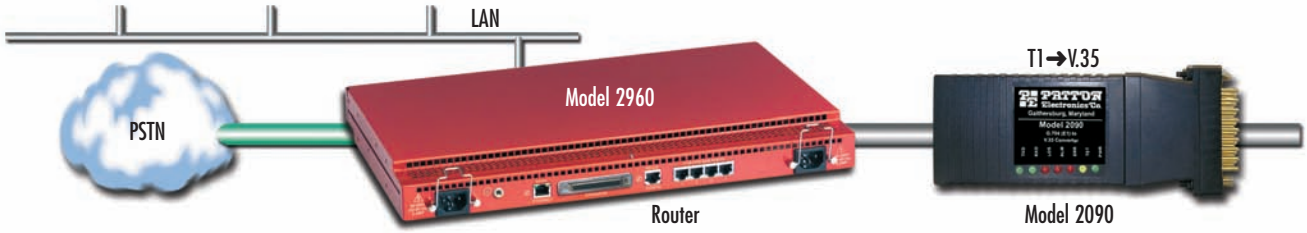
#### FEATURES & BENEFITS

- ✔ 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

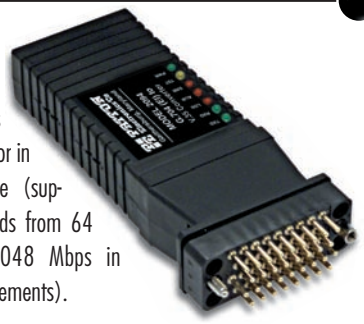
**Typical application**




## 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).



#### ORDERING INFORMATION

2094/CM/UI: V.35 (M/34 male) to G.703/G.704 (RJ-45), universal input power supply). 48 VDC power supply also available.

See Pg 226

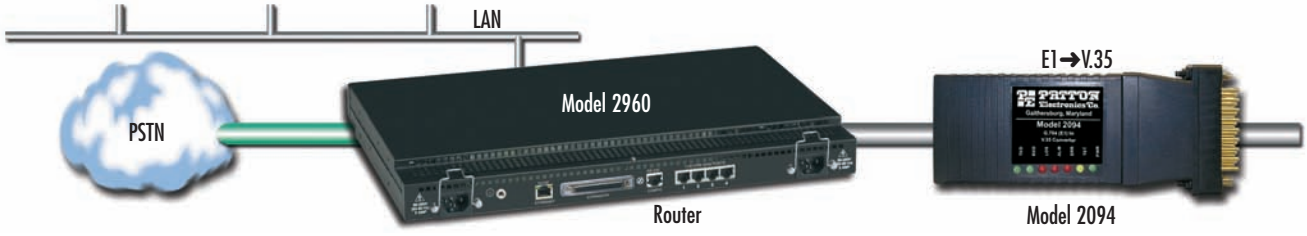
#### FEATURES & BENEFITS

- ✔ 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 2041 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.**

### 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.


**Two converters in one rack card!**

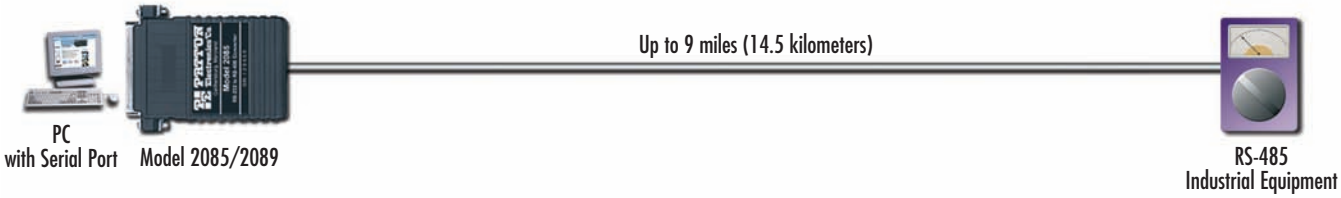
RACKABLE

*See page 226*

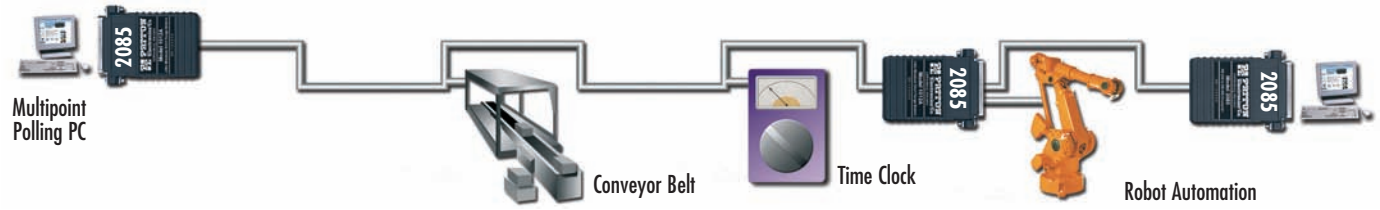
| Transmission Distances | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Line Rate (bps) | 19 AWG (0.9mm) | | | 22 AWG (0.6mm) | | | 24 AWG (0.5mm) | | | 26 AWG (0.4mm) | | |
| | feet | miles | km | feet | miles | km | feet | miles | km | feet | miles | km |
| 1200 | 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
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

**Note:** *X* = Male or female

## 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**

See Pg 226

RACKABLE

**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 protectio

**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)

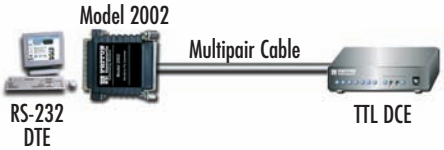
## Self-Powered RS-232 to TTL

### 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.

**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)

### 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.

# 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.

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## 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 V.24 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)


*See page 226*

### 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.

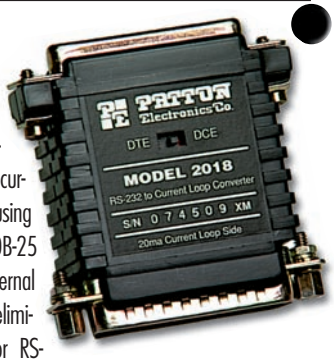
## RS-232 to 20mA Current Loop Converter (DB-25 to DB-25)

### 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 V.24 (.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 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.

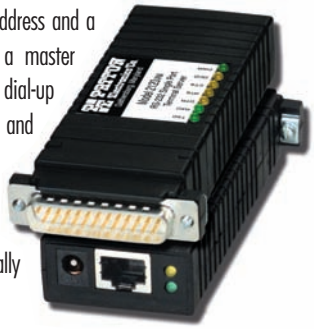
## Ethernet to RS-232 Converter/Terminal Server

### 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 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.



### 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

See Pg 226

### 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*

See Pg 226

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

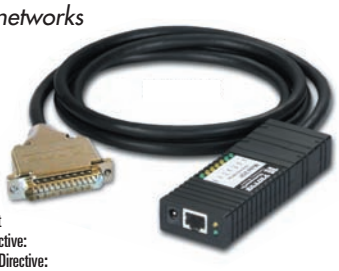
**Note:** X= "L" 6-foot (182.88 cm) Serial Cable or "S" 6-inch (15.24 cm) Serial Cable. Example: 2124/AM-S/UI Ethernet MicroBridge, V.24 DTE with DB-25 Male, 6-in. (15.24 cm) Serial Cable, UI


*I'm Danny, one of Patton's Support Engineers. If you're having a problem with a Patton product, I'll find the solution quickly. To buy one of these micro bridges, call* ***+1 301.975.1000*** *or send e-mail to* ***sales@patton.com****.*

## 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

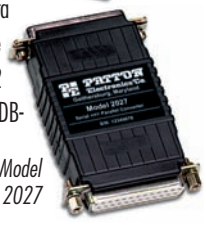
*These converters automatically sense and select parallel/serial and DCE/DTE modes*

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

## 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 communications! 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.



### 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

### SPECIFICATIONS

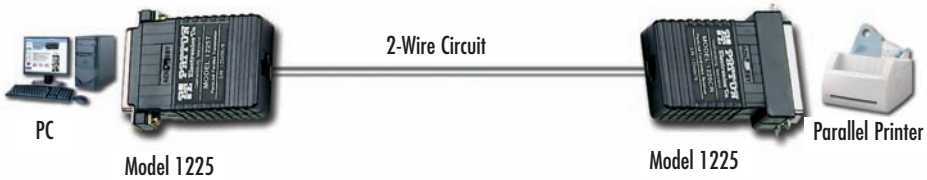
**Parallel Interface:** Centronics®/ IBM Parallel (DB-25)
**Range:** Up to 2000 feet (610m)
**Transmit Line:** One unconditioned twisted pair (2 wires)

**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




### 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
1225CRMRJ11: 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).


### 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

### 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)

*I'm Nathan, Patton's NMS Product Line Manager. 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****.*

Ask the Experts