

Power over Ethernet to RS-232 Converter

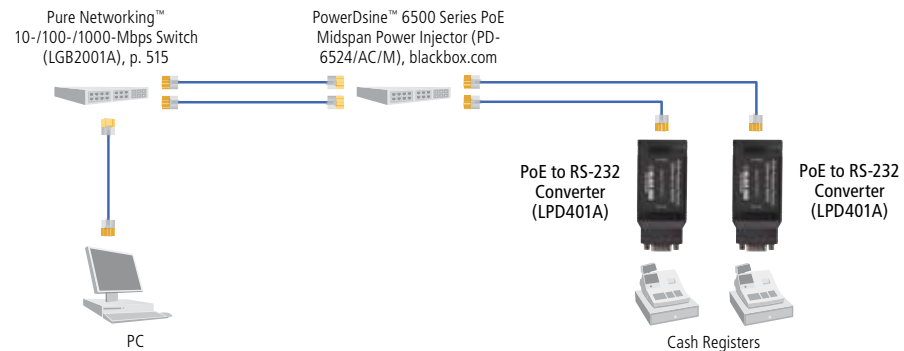
Use your network to power  
your serial devices!



## FEATURES

- » IEEE 802.3af compatible.
- » Autodetects 10- or 100-Mbps connection.
- » Configurable using a standard Web browser.
- » Simple plug-and-play operation.
- » Alarms and e-mail alerts for event notification.
- » Includes configuration and management software.
- » Supports SNMP management.

Connect cash registers or other legacy equipment to a 10/100BASE-T LAN using Power over Ethernet.



## OVERVIEW

Eliminate the cost and clutter of power supplies when you want to connect RS-232 serial devices to your LAN. With the BLACK BOX® [Power over Ethernet to RS-232 Converter](#), you can use versatile Power over Ethernet (PoE) technology to draw power through the Ethernet cable instead of separate wall transformers and power cords.

Simple and cost-effective, the converter makes it easy to connect serial printers, copiers, and other devices directly to your Ethernet network. Your serial devices are no longer limited to a physical connection to your PC COM port. Just install the device anywhere on your network running TCP/IP or UDP/IP communications, and use your Windows® PC to access them through your LAN or WAN. The converter operates transparently to network speed, detecting 10- or 100-Mbps interfaces automatically.

The converter features PoE operation. With PoE, you can use a dedicated, in-line power sourcing equipment (PSE) device in the middle of a span between your network switch and the serial server to supply the power to your connected devices. Or you can use an end-span device, such as a hub or switch with integrated PoE capability, to supply power up to 100 feet (30.5 m) from the converter.

The [Power over Ethernet to RS-232 Converter](#) is ideal for retail POS (point of sale), banking, telecom VoIP, factory automation, and security applications, or anywhere you need to provide power and data to lower-wattage devices, such as IP telephones, wireless access points, or Web cameras.

Configure the converter using a standard Web browser (the device has its own IP address), and you can obtain network addresses dynamically or manually.

The included software features a serial port configuration page that displays information on the device's operating mode and serial settings (baud rate, data bits, parity, stop bits). It can be changed to match the parameters of a specific serial device.

You can also configure a [Power over Ethernet to RS-232 Converter](#) to generate alarms and send notification e-mails to you when a certain event occurs (for instance, if it detects specified character patterns within the serial data stream).

Keep informed of activity by monitoring LEDs on the serial server. A lit Link Integrity LED on the Ethernet jack indicates that a connection has been established between the serial server and a node on the network. And when the green Network Activity LED (also on the Ethernet jack) flashes, it means data is being sent across the network.

## TECH SPECS

**Approvals** — FCC, CE

**Client PC Requirements** — Virtual COM port driver; discovery software; Windows 98/Me, Windows 2000, Windows XP, or Windows NT® 4.0 OS

**Communication Modes** — Direct IP Mode, TCP Server Mode, UDP Server Mode, Virtual COM Port Mode, Paired Mode, Terminal Mode, Modem Emulations Mode, Console Management Mode, Custom Mode

**Data Bit** — 5, 6, 7, 8

**Data Parity** — Mark, space, none, even, odd

**Flow Control** — None, RTS/CTS, X-ON/X-OFF

**Operation** — Full or half-duplex (autodetecting)

**Protocols** — TCP, UDP, DHCP, SNMP, SSL/TLS, Telnet, RLOGIN, RFC 2217, LPD, HTTP/HTTPS, SMTP, ICMP, IGMP, ARP

**Serial Baud Rate** — 50, 75, 110, 134, 150, 200, 300, 600, 1200, 1800, 2400, 3600, 4800, 9600, 14,400, 19,200, 28,800, 38,400, 57,600, 115,200, 230,400 bps

**Serial Support** — TD, RD, RTS, CTS, DTR, DCD, DSR, GND

**Speed** — 10 or 100 Mbps (autodetecting)

**Stop Bit** — 1, 2

**Interface** — LAN: IEEE 802.3, IEEE 802.3af (spare or data pair)

**Connectors** — LAN: (1) RJ-45;

Serial: (1) DB9 M

**Indicators** — LAN Link, Data Activity

**Temperature Tolerance** — Operating: 32 to 158°F (0 to 70°C);

Storage: -40 to +185°F (-40 to +85°C)

**Humidity Tolerance** — 10 to 90%, noncondensing

**Power** — Input: 48 VDC via PoE Class 3

**Size** — 0.9"H x 3.8"W x 1.6"D (2.3 x 9.7 x 4.1 cm)



LPD401A

## Technically Speaking

### Power over Ethernet (PoE).

#### What is PoE?

The seemingly universal network connection, twisted-pair Ethernet cable, has another role to play, providing electrical power to low-wattage electrical devices. Power over Ethernet (PoE) was ratified by the Institute of Electrical and Electronic Engineers (IEEE) in June 2000 as the 802.3af-2003 standard.

It defines the specifications for low-level power delivery—roughly 13 watts at 48 VDC—over twisted-pair Ethernet cable to PoE-enabled devices such as IP telephones, wireless access points, Web cameras, and audio speakers.

#### How does PoE work?

The way it works is simple. Ethernet cable that meets CAT5 (or better) standards consists of four twisted pairs of cable, and PoE sends power over these pairs to PoE-enabled devices. In one method, two wire pairs are used to transmit data, and the remaining two pairs are used for power. In the other method, power and data are sent over the same pair.

When the same pair is used for both power and data, the power and data transmissions don't interfere with each other. Because electricity and data function at opposite ends of the frequency spectrum, they can travel over the same cable. Electricity has a low frequency of 60 Hz or less, and data transmissions have frequencies that can range from 10 million to 100 million Hz.

#### Basic structure.

There are two types of devices involved in PoE configurations: Power Sourcing Equipment (PSE) and Powered Devices (PD).

PSEs, which include end-span and mid-span devices, provide power to PDs over the Ethernet cable. An end-span device is often a PoE-enabled network switch that's designed to supply power directly to the cable from each port. The setup would look something like this:

End-span device → Ethernet with power

A mid-span device is inserted between a non-PoE device and the network, and it supplies power from that juncture. Here is a rough schematic of that setup:

Non-PoE switch → Ethernet without PoE → Mid-span device → Ethernet with power

Power injectors, a third type of PSE, supply power to a specific point on the network while the other network segments remain without power.

PDs are pieces of equipment like surveillance cameras, sensors, wireless access points, and any other devices that operate on PoE.

#### PoE applications and benefits.

- Use one set of twisted-pair wires for both data and low-wattage appliances.
- In addition to the applications noted earlier, PoE also works well for video surveillance, building management, retail video kiosks, smart signs, vending machines, and retail point-of-information systems.
- Save money by eliminating the need to run electrical wiring.
- Easily move an appliance with minimal disruption.
- If your LAN is protected from power failure by a UPS, the PoE devices connected to your LAN are also protected from power failure.

#### Item

Power over Ethernet to RS-232 Converter

#### Code

LPD401A