



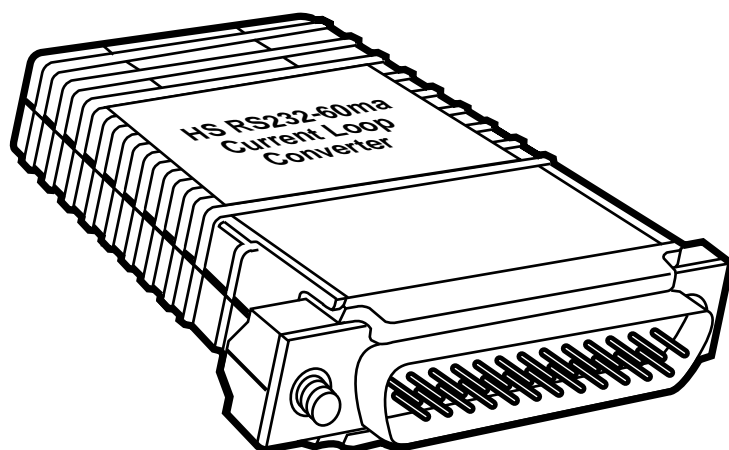
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# BLACK BOX<sup>®</sup>

## NETWORK SERVICES

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## HS RS-232 ↔ 60-MA CURRENT-LOOP CONVERTERS



***Connect an async  
RS-232 device to a  
60-mA Current-Loop device.***

### Key Features

- ▶ ***Only one converter is needed for each 60-mA conversion to RS-232.***
- ▶ ***Connect to the current loop via two twisted pairs.***
- ▶ ***External switch to set DTE/DCE configuration.***
- ▶ ***Operate in full-duplex mode only.***
- ▶ ***Support data rates up to 115.2 kbps.***
- ▶ ***Models available with male or female DB25 RS-232 connectors and terminal block, RJ-11, or RJ-45 current loop connectors.***

With the HS RS-232↔60-mA Current-Loop Converter, you can connect an asynchronous RS-232 device to a 60-mA current-loop device.

The converter requires no AC power or batteries to operate since it derives ultra-low power from the interface, and it supports data rates up to 115.2 kbps at short distances.

When operating in full-duplex mode, the converter supports communication distances up to 4 miles (at a speed of about 150 to 300 bps) over two unconditioned twisted-pair wires. To guard against data loss caused by ground loops, the converter has 2500 V RMS optical isolators on the line side.

Models are available with male or female DB25 connectors for the RS-232 side, and terminal block, RJ-11, or RJ-45 connectors for the current-loop side. And the converter connects directly to the RS-232 interface.

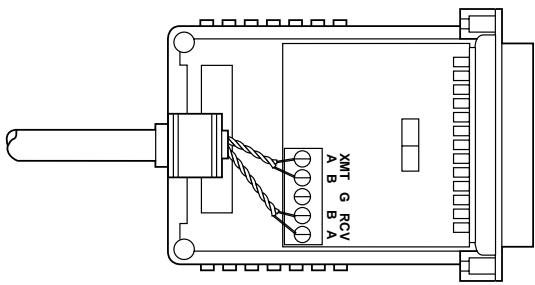
Two-pair cable running to the 60-mA current-loop device attaches to the converter via an RJ-11 jack, RJ-45 jack, or terminal blocks with built-in strain relief.

The converter is easy to use. You only have to open the case to connect the two twisted pairs on the terminal block model. On all models, there are no internal jumpers or DIP switches to set. The only configuration required is setting an external DCE/DTE switch on the converter, which eliminates the need for a crossover cable on the RS-232 interface.

### Typical Application

Connect your PC to a current-loop device with the HS Current-Loop Converter.

*The diagram at right shows the current-loop connection of the strain-relief assembly.*



# Specifications

- Transmission Line:** 19 to 26 AWG twisted pair
- Distance (Maximum):** 4 miles (6.4 km) on 24 AWG twisted pair
- Isolation:** 2500 V RMS via opto-isolators
- Maximum Speed:** 115.2 kbps
- Surge Suppression:** Over-voltage protection for opto-isolators via Silicon Avalanche Diodes
- Interfaces:** Asynchronous, EIA RS-232, ITU/CCITT V.24 full duplex, 60 mA current loop
- Connectors:**  
CL080A-F: RS-232: (1) DB25 F, Current Loop: (1) terminal block;  
CL080A-M: RS-232: (1) DB25 M, Current Loop: (1) terminal block;  
CL081A-F: RS-232: (1) DB25 F, Current Loop: (1) RJ-45;  
CL081A-M: RS-232: (1) DB25 M, Current Loop: (1) RJ-45
- Temperature Range:** 32 to 122°F (0 to 50°C)
- Humidity:** 5 to 95% noncondensing
- Altitude:** Up to 15,000 feet (4572 m)
- Power Supply:** No external power required; uses power from the RS-232 device
- Size:** 1.2"H x 0.75"W x 2.5"D (3 x 1.9 x 6.4 cm)
- Weight:** 0.1 lb. (< 0.05 kg)

# Technically Speaking

The only configuration necessary for operation of the converter is setting the external DCE/DTE switch. If the RS-232 device connected to the converter is a modem or multiplexor (or is wired like one), set the switch to DTE. This setting causes the converter to behave like Data Terminal Equipment and transmit data on pin 2.

If the RS-232 device connected to the converter is a PC, terminal, or host computer (or is wired like one), set the switch to DCE. This setting causes the converter to behave like Data Communications Equipment and transmit data on pin 3.

Only one converter is needed for each RS-232 to 60-mA current-loop conversion. The converter connects to the current loop device via two twisted pairs.

# Ordering Information

ITEM	CODE
HS RS-232↔60-mA Current Loop Converter	
DB25F Terminal Block .....	CL080A-F
DB25F RJ-45 .....	CL081A-F
DB25F RJ-11 .....	CL082A-F
DB25M Terminal Block .....	CL080A-M
DB25M RJ-45 .....	CL081A-M