BLACK BOX®
NETWORK SERVICES

SINGLE-CHANNEL RS-232/530/422/485/ 20-MA CURRENT-LOOP INTERFACE

Add another interface to your PC—without additional line drivers or converters.

Key Features

- ***Link RS-232, RS-530, RS-422/485, or 20-mA current-loop devices from your PC.***
- ***Supports RS-232 distances of 50 ft. (15.2 m), RS-422/485 distances of 4000 ft. (1219.2 m), or 20-mA distances of 10,000 ft. (3048 m).***
- ***Interrupt can be shared with other shareable interrupts.***
- ***No additional line driver or converter is needed.***
- ***Easy to install.***

Perfect for factory-automation equipment, bar-code readers, time clocks, scales, and more, the Single-Channel RS-232/530/422/485/20-mA Current-Loop Interface lets you select the interface you want.

For basic connections, the Card can link RS-232 devices up to 50 ft. (15.2 m) away. The RS-422 is point-to-point and supports up to 10 receivers. The RS-485 has the electrical characteristics that allow up to 32 drivers and 32 receivers on one line. And with RS-422/485, you can link devices up to 4000 ft. (1219.2 m).

Choose the 20-mA interface and you get distances of up to 10,000 ft. (3048 m). And you don't have to spend money on an additional line driver or converter. The Card does it all.

The Card uses the 16550 UART (IC601C) chip. It features programmable baud rate, data format, and interrupt control, and has a 16-byte transmit and receive FIFO. And the Card can be addressed as COM1:, COM2:, or any other I/O address up to 3FF Hex, so it's compatible with most communications software and languages. Utility software is included for diagnostics.

It's easy to configure, too. Simply set the address via an on-board DIP switch and the IRQ via a jumper. Each port on the Card can be enabled or disabled. You can install the Card in any of the PC expansion slots, except J8 on the original IBM XT and Portable.

To install the card, just remove the PC case, screw, and blank metal slot cover, and insert the card. Replace the blank metal slot cover, screw, and PC case. You're ready to go!

Typical Application

Connect your factory-automation equipment to your PC with the Single-Channel RS-232/530/422/485/20-mA Current-Loop Interface.

Technically Speaking

About the standard interfaces…

• RS-232 is probably the most widely used communication standard. Sometimes referred to as RS-232C or EIA-232, this standard most often uses a DB25 or a DB9 connector. It operates at speeds up to 20 kbps at a maximum distance of 50 feet (15.2 m). However, at very short distances, it can sometimes operate at speeds up to 38.4 kbps. RS-232 is a single-ended interface, which means that a single electrical signal is compared to a common signal (ground) to determine binary logic states. A voltage of about +8 to +10 volts represents a binary 0 and a voltage of about -8 to -10 volts denotes a binary 1.

• RS-422 is a differential interface that defines voltage levels and driver/receiver electrical specifications. On this type of interface, the difference in voltage between a pair of outputs or inputs defines logic levels. Contrast this to the RS-232 interface, in which the logic levels are defined as the difference in voltage between a single signal and a common ground signal. Differential interfaces are more immune to noise or voltage spikes than other types of interfaces. RS-422 signal levels range from 0 to +5 volts. The standard does not define a physical connector.

• RS-485, similar to RS-422, is a differential interface. It allows cable lengths up to 4000 feet (1219.2 m) and data rates up to 10 Mbps. The signal levels for RS-485 also range from 0 to +5 volts. This interface is ideal for multi-drop or network environments, since it has a tri-state driver. This allows the electrical presence of the driver to be removed from the line, so that only one driver can be active at any given time.

• RS-530 and RS-449, sometimes called EIA-530 and EIA-449, are also differential interfaces. But these interfaces specify a pinout that defines a full set of modem-control signals that can be used for flow control and line status. RS-449 is defined on a standard DB37 connector, and RS-530 is defined on a DB25 connector. RS-530 is backward-compatible with and is replacing RS-449. These two interfaces do not define an electrical specification, but do provide a means of selecting a standard cabling interface.

Specifications

Communications Chip — IC601C: 16550 UART; IC172C: 16850 UART

Interrupts Supported — 3-7 and 2/9. IRQ 2 was originally available on the IBM® XT™; it has been replaced with IRQ 9 on AT® and AT compatible computers

Modem Control Signals — RS-232: All signals supported; RS-530/422/485: TD, RD, RTS, CTS, DSR, DCD, and DTR; Current Loop: Data only

Protocol — Async

Speed — RS-232: 19.2 kbps; RS-422/485, RS-530: *IC601C:* 115.2 Kbps; 20-mA Current Loop: 19.2 kbps

Maximum Distance—RS-232: 15.2m (50 ft.); RS-422/485: 1219.2 m (4000 ft.); 20-mA: 3048 m (10,000 ft.)

System Requirements — ISA bus

Connectors — (1) DB25 male

Power — From the PC bus

Size — Half-card

Ordering Information

ITEM	CODE
Single-Channel RS-232/530/422/485/ 20-mA Current Loop Interface 16550 UART	IC601C