# BLACK BOX®
NETWORK SERVICES

Async RS-232↔422/530 Interface Converters and Rackmount Cards
Async RS-232↔422/485 Interface Converters and Rackmount Cards
Async RS-232↔2-Wire RS-485 Interface Converters
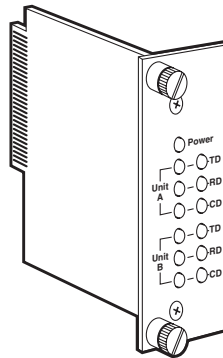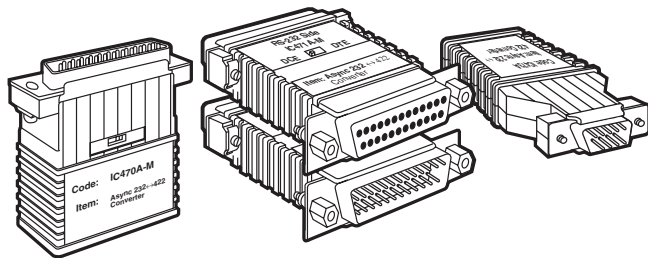
Use your PC for RS-422 or RS-485 communications, data acquisition, and control applications.

Key Features

Async RS-232↔422/530:

► *Transmits data over two twisted pairs.*

► *Use in point-to-point applications.*

► *Data rates up to 19.2 Kbps.*

► *Loops back all RS-232 handshake signals.*

Async RS-232↔422/485:

► *4-wire model transmits data and one control signal over one or two twisted pairs; 2-wire model transmits data over one twisted pair.*

► *Use in point-to-point or multipoint applications.*

► *Data rates up to 115.2 Kbps.*

Overview

All of these Converters and Cards allow bidirectional data conversion from your RS-232 machine. Since the Converters draw all necessary operating power from the RS-232 interface, you don't have to worry about changing batteries or supplying AC power. The Cards draw their operating power from the rack.

The Async RS-232↔422/530 Converter or Card lets devices with an RS-232 interface communicate with RS-422 devices. The Converter or Card transmits data up to 1219 m (4000 feet) away by passing data signals (TXD and RXD) over two twisted pairs at up to 19.2 Kbps. RS-232 handshaking signals are looped back.

The RS-232↔422/530 Interface Converter plugs directly into a DB25 (or DB9, depending on which model you ordered) serial port. A DTE/DCE switch, mounted on the front, eliminates the need for RS-232 cross-pinned adapters. (If you're using a DB9 model, you need to connect to a DTE device unless you use a null-modem cable or adapter.)

The RS-232↔422/530 Dual Rackmount Cards feature easy-to-read front-panel LEDs, which monitor the status of data transmission. If you need a rack for holding multiple cards, these were designed to fit in the MicroRACK (see the *Ordering Information* section).

Communicate with one or more RS-485 devices from your asynchronous device with the Async RS-232↔ 422/485 Converter or Card, or the Async RS-232↔ 2-Wire RS-485 Converter. The 4-Wire Converter or Card

transmits data and one control signal up to 1219 m (4000 feet) away over one or two unconditioned twisted pairs at up to 115.2 Kbps.

Use the Converter or Card to support multiple RS-485 drivers and receivers. Set the RS-485 side impedance either high (for multipoint applications) or low (for point-to-point applications), and the carrier to "constantly on" or "controlled by RTS."

The RS-232↔422/485 Interface Converter plugs directly into a DB25 serial port. A switch-selectable DTE/DCE, mounted on the front, eliminates the need for RS-232 crossover cables.

The RS-232↔422/485 Rackmount Cards feature easy-to-read front-panel LEDs, which monitor the status of data transmission. If you need a rack for holding multiple cards, these were designed to fit in the MicroRACK (see the *Ordering Information* section).

Specifications

Protocol — Asynchronous

Operation — IC470A-IC475C: Full-duplex, 4-wire; 2 unconditioned twisted pairs;

IC476A-IC480C: Half- or full-duplex, 2- or 4-wire unconditioned twisted pair

IC520A-IC521A: Half-duplex, 2-wire unconditioned twisted pair

Speed — IC470A–IC475C: Up to 19.2 Kbps; IC476A–IC480C, IC520A-IC521A: Up to 115.2 Kbps

Maximum Distance — 1219 m (4000 feet)

Connectors — IC470A: (1) DB25 male or female, (1) terminal block;

IC471A: (1) DB25 male or female, (1) DB25 female (RS-530);

IC472A: (1) DB25 male or female, (1) DB25 male (RS-530);

IC473A: (1) DB9 male or female, (1) terminal block;

IC474C: (2) RJ-11, (2) RJ-45;

IC475C: (4) RJ-45;

IC476A: (1) DB25 male or female, (1) terminal block;

IC477A: (1) DB25 male or female, (1) DB25 female (RS-530);

IC478A: (1) DB25 male or female, (1) DB25 male

(RS-530);

IC479C: (2) RJ-11, (2) RJ-45;

IC480C: (4) RJ-45

IC520A: (1) DB25 male or female, (1) 4-screw terminal block

IC521A: (1) DB25 male or female, (1) RJ-45

Transmit Level — IC470A-IC473A, IC476A-IC478A: 2V ±10% differential output voltage; IC474C, IC475C, IC479C, IC480C: 0 dBm

Mean Time Between Failure (MTBF) — 239,906 hours

Operating Temperature — 0 to 60°C (32 to 140°F)

Humidity — Up to 95%, noncondensing

Altitude Tolerance — Up to 3048 m (10,000 feet)

Power — From the RS-232 interface (except rackmount cards)

Size — IC470A–IC473A: 5.6 x 4.6 x 2 cm (2.2"H x 1.8"W x 0.8"D); IC474C, IC475C, IC479C, IC480C: 7.9 x 2.5 x 13.7 cm (3.1"H x 1"W x5.4"D); IC476A–IC478A, IC520A-IC521A: 6.9 x 5.3 x 1.8 cm (2.7"H x 2.1"W x 0.7"D)

Weight — <0.5 kg (<1 lb.)

The complete package
What you get when you order the Interface Converter or Card

- (1) Interface Converter or Rackmount Card
- (1) User's manual

Ordering Information

This information will help you place your order quickly.

PRODUCT NAME	ORDER CODE
Async RS-232↔422/530 Interface Converter	
DB25 male/terminal block	IC470A-M
DB25 female/terminal block	IC470A-F
DB25 male/DB25 female	IC471A-M
DB25 female/DB25 female	IC471A-F
DB25 male/DB25 male	IC472A-M
DB25 female/DB25 male	IC472A-F
DB9 male/terminal block	IC473A-M
DB9 female/terminal block	IC473A-F
Rackmount Cards (Dual)	
RJ-11/RJ-45	IC474C
RJ-45/RJ-45	IC475C
Async RS-232↔422/485 Interface Converter	
DB25 male/terminal block	IC476A-M-R2
DB25 female/terminal block	IC476A-F-R2
DB25 male/DB25 female	IC477A-M-R2
DB25 female/DB25 female	IC477A-F-R2
DB25 male/DB25 male	IC478A-M-R2
DB25 female/DB25 male	IC478A-F-R2
Async RS-232↔2-Wire RS-485 Interface Converter	
DB25 female/terminal block	IC520A-F
DB25 male/terminal block	IC520A-M
DB25 female/RJ-45	IC521A-F
DB25 male/RJ-45	IC521A-M
Rackmount Cards	
RJ-11/RJ-45	IC479C
RJ-45/RJ-45	IC480C
You may also need:	
MicroRACK 2	RM202
MicroRACK 4	RM204
MicroRACK 8	RM208
MicroRACK 16	RM216
Specify one power supply for each rack:	
MicroRACK Power Supply	
AC Power	PS460AE
48-VDC Power	PS461A
24-VDC Power	PS462A
12-VDC Power	PS463A