

## SPECIFICATIONS

Desktop Unit... Model 4176 (Cat No. 304176)  
Board Unit... Model 4177 (Cat No. 304177)  
Included USB A-B Cable, 6 ft....(Cat No. 507366)

# High Speed Ruggedized USB to RS485/422/232 Interface Converter

## • Ideal for RS485 Multi-Point Applications

The Model 4176/4177 is a high speed ruggedized USB to RS485/422/232 interface converter from Electro Standards Laboratories. With its integrated rate buffering, the Model 4176/4177 converts USB 2.0 compliant data from a standard PC to a serial asynchronous data interface over RS232 or RS485/422 networks. The baud rate is user selectable with operating speeds up to 1.5 Mbps for RS232 and up to 3 Mbps for RS485/422. When operating in RS485 (RS422 compatible) mode, the converter can be configured for 2-wire half duplex or 4-wire full duplex operation. This converter provides an industrial solution for applications requiring a single point-to-point or a **multi-point communications link** over short and long distances. Typical applications include USB PC to PC long distance communications, factory automation, multi-drop data collection devices, barcode readers, time clocks, scales, data entry terminals, ATMs and serial communications in harsh environments.

The Model 4176/4177 is designed to operate from -40°C to +85°C and is a member of the Electro Standards Laboratories' rugged media converter family. The unit features ESD protection circuitry on the USB I/O connector as well as all receivers and transmitters for both the RS232 and RS485/422 interfaces. The unit's power input is protected from transients. Other features include user selectable asynchronous data format, TX, RX and Power indicator LEDs.

### BOARD UNIT

The converter is available as a board only (**Model 4177**) with front mounting threaded brackets for rack mounting in embedded applications.

### DESKTOP UNIT

It is also available in a desktop package (**Model 4176**) for applications that require an enclosure. In this configuration it can be ordered with the USB I/O connector on the front (default location) or back of the unit. Accessories include DIN rail mounting hardware.



### Specifications:

#### USB Interface:

Connectors: USB, Type B, High Retention

#### USB Data Format:

Type: USB 2.0 Compliant USB Client  
Rate: Supports Low Speed (1.5 Mbps) and Full Speed (12 Mbps) USB Data transfer rates.

#### Copper Interface:

Connectors: DB9, Female  
Type: RS232, RS485/422 (2-Wire/4-Wire)  
Terminations: RS485/422 120 Ohm jumper selectable

#### Bit Rate (user selectable):

RS232: 300 to 1.5 Mbps  
RS485: 300 to 3 Mbps

#### Network Configurations:

RS232: Point-to-Point  
RS485/422 Point-to-Point  
**Multi-Point** (Default ~280 uSec TX disable time)

(User configurable TX disable time via a single thru-hole resistor)

#### Indicators:

LEDs: TXD, RXD, PWR

#### Power:

Input Power: 5V at 250 mW (Typical)  
Connectors: USB, Type B, High Retention

#### Operating Environment:

-40°C to +85°C

#### Model 4177 Mechanical (Board Only):

Model 4177, Cat No 304177  
Size: 4.8" x 3.9" x 0.63"  
Weight: Approx. 3.5 oz (99g)  
Mounting: Mounting Holes, Right Angle Brackets

#### Model 4176 Mechanical (Desktop Unit):

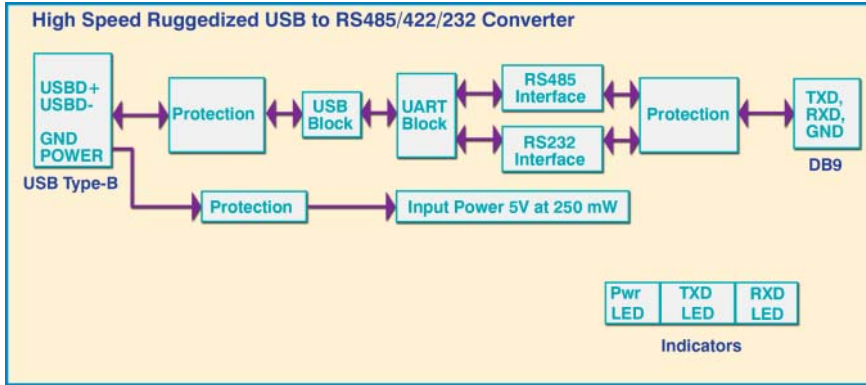
Model 4176, Cat No 304176  
Size: 5" x 4.25" x 1.4"  
Weight: Approx. 10.1 oz (286g)  
Mounting: 4 Threaded Holes Standard, DIN rail

**USB A-B Cable (6 FT):** Included with Model 4176 is the cable ESL Cat. No. 507366. (USB Type A to USB Type B)

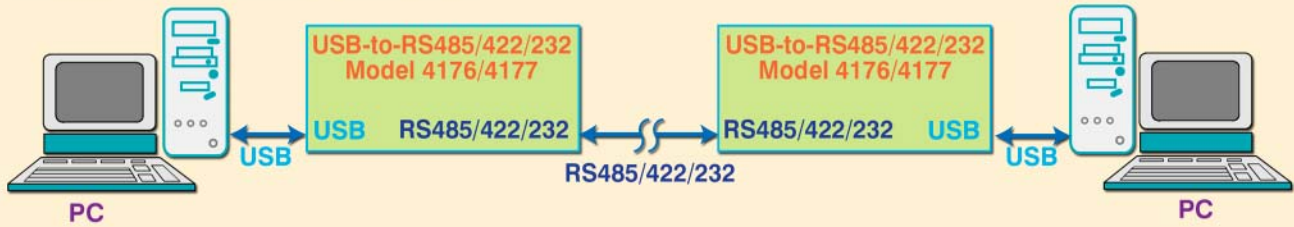
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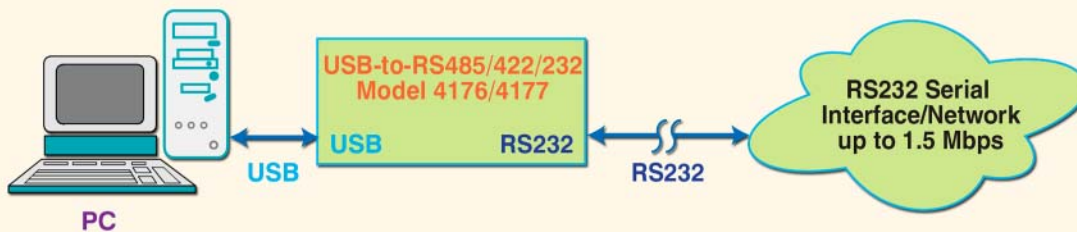


### Model 4176/4177 Application:



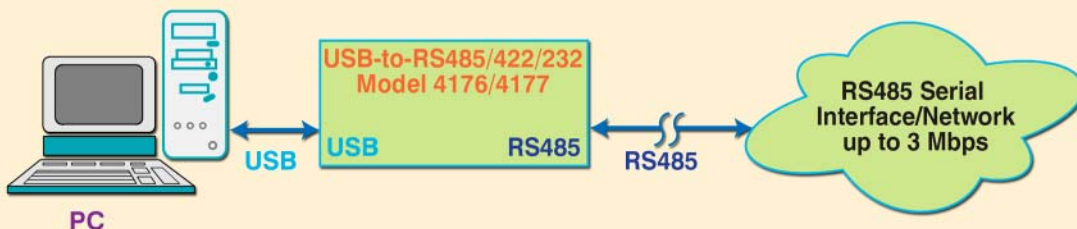
### Point-to-Point PC USB Communications.

### Model 4176/4177 Application:



### PC USB to RS232 communications to serial interface/network.

### Model 4176/4177 Application:



### PC USB to RS485 communications to serial interface/network.