# Electro Standards Laboratories
ADVANCED SYSTEMS DESIGN & SERVICES

MADE IN USA

SPECIFICATIONS
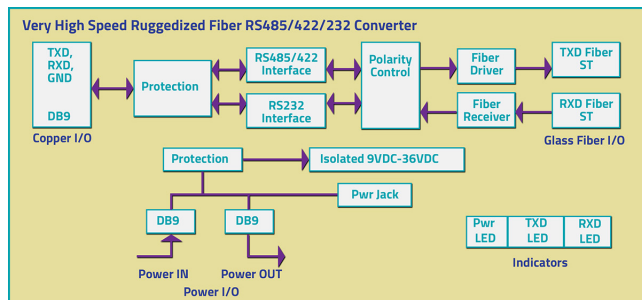Board Unit... Model 4174
(Cat No. 304174)

# Model 4174 High Speed Ruggedized ST Fiber-to-RS485/422/232 Interface Converter Board

The Model 4174 is a very high speed ruggedized, protocol independent, Fiber to RS485/422/232 interface converter from Electro Standards Laboratories. Typical operating speeds are up to 1.5 Mbps for RS232 to fiber conversion and up to 5 Mbps for RS485/422 to fiber conversion. Designed to operate from -40°C to +85°C, it is a member of Electro Standards Laboratories' (ESL) rugged community fiber-to-copper media converter family.

The unit features protection circuitry on all receivers and transmitters for both RS232 and RS485/422 interfaces. The Model 4174 Board Unit has front mounted threaded brackets for rack mounting in embedded applications.

The unit's power input is protected from transients and features 3kVDC isolation to prevent system ground loops. It can be powered from a wide input range of 4.5VDC–9VDC. Custom models are also available for other voltage ranges such as 10VDC–36VDC and 19VDC–72VDC.

Dual D9 connectors for Power Daisy Chaining.

Other features include user selectable fiber polarity, TX, RX and Power indicator LEDs.

Fiber 485/232

Glass Fiber

Copper Interface

Dual DB9 Power

**Model 4174**
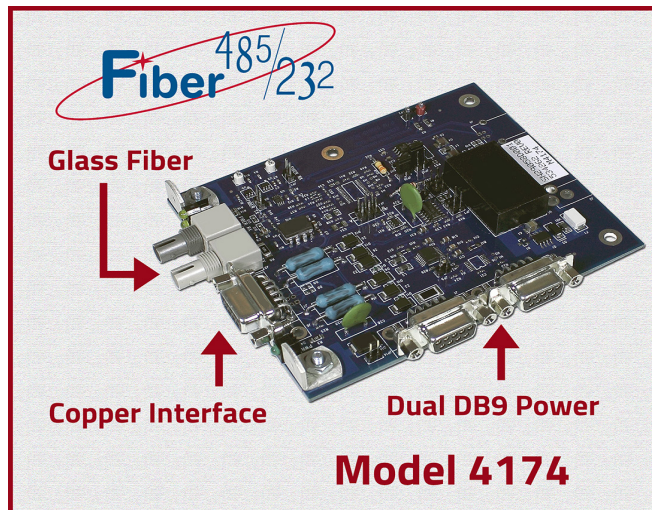
## FEATURES

- Converts ST fiber link to RS485/422/232 interface via a DB9 connector.
- Typical operating speeds are 1.5 Mbps for RS232 to fiber conversion.
- Supports constructing an optically isolated high speed communication link between a PC and a serial data network.
- Supports point-to-point and multi-point network configurations.
- LED indicators for TXD, RXD, and power.
- Fiber Interface: Fiber Optic ST connectors.
- Fiber Size: 50/125 µm, 62.5/125 µm, 100/140 µm.
- Wavelength: 820nm/850nm, multimode.
- Copper Interface: DB9 Female.
- Terminations: RS485/422 120 Ohm jumper selectable.
- Unit features ESD protection circuitry on the copper I/O connector.
- **Unit can be powered from a wide input range of 4.5 VDC - 9 VDC.**
- Power input is protected from transients and features 3kVDC isolation to prevent system ground loops.
- Dual DB9F for power daisy chaining.

### Very High Speed Ruggedized Fiber RS485/422/232 Converter

```
TXD,
RXD,         Protection      RS485/422     Polarity      Fiber        TXD Fiber
GND                          Interface     Control       Driver       ST

DB9                          RS232                       Fiber        RXD Fiber
                             Interface                   Receiver     ST
Copper I/O                                                            Glass Fiber I/O

              Protection            Isolated 9VDC-36VDC

                                    Pwr Jack

         DB9        DB9                               Pwr    TXD    RXD
                                                      LED    LED    LED

    Power IN    Power OUT                                  Indicators
          Power I/O
```

## SPECIFICATIONS:

### Glass Fiber Interface:
Connectors: Fiber Optic ST
TX Power: -12.5 dBm
RX Sensitivity: -27.5 dBm
Optical Budget: 15 dB
Max. Link Distance with 62.5/125 mm fiber:
    5.35 km at up to 5 Mbps, 25°C
    3.75 km at up to 5 Mbps, -40°C to +85°C
Wavelength: 820 nm/850 nm, multimode
Fiber Size: 50/125 mm, 62.5/125 mm, 100/140 mm

### Fiber Polarity:
Logical 1 = Light ON/OFF: User Selectable

### Copper Interface:
Connectors: DB9, Female
Type: RS485, RS422, RS232
Terminations: RS485/422 120 Ohm insertable

### Bit Rate (nom.):
RS232:        0 to 1.5 Mbps
RS485/422    0 to 5 Mbps

### Indicators:
LEDs: TXD, RXD, PWR

### Power:
Input Power: 4.5VDC–9VDC,
Isolation: 3 kVDC
Connectors: Dual DB9F for Power Daisy Chaining
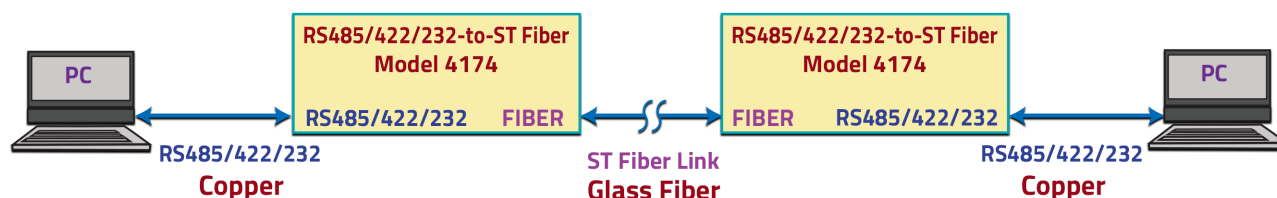
### Operating Environment:
-40°C to +85°C

### Model 4174 Mechanical (Board Only):
Model 4174, Cat No 304174
Size: 4.8" x 3.9" x 0.63" [12.2 x 9.9 x 1.6 cm]
Weight: Approx. 3.5 oz (99g)
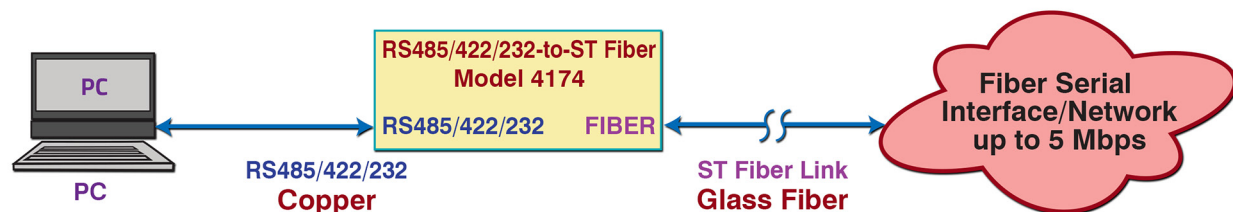Mounting: Mounting Holes, Right Angle Brackets

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## Model 4174 High Speed Ruggedized ST Fiber-to-RS485/422/232 Interface Converter Board
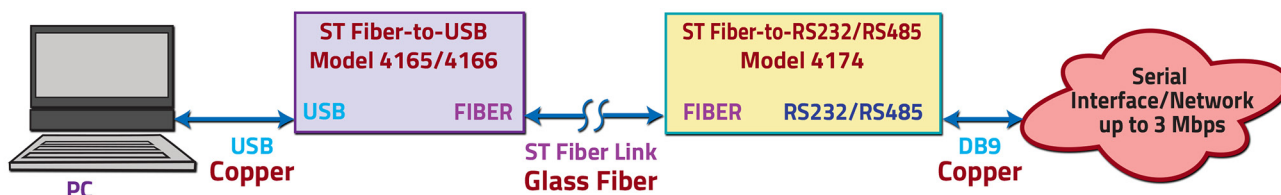
**Model 4174 Application:**



PC

RS485/422/232-to-ST Fiber
**Model 4174**

RS485/422/232      FIBER

RS485/422/232-to-ST Fiber
**Model 4174**

FIBER      RS485/422/232

PC

RS485/422/232
**Copper**

ST Fiber Link
**Glass Fiber**

RS485/422/232
**Copper**

**Point-to-Point Isolated PC RS485/422/232 Communications.**

**Model 4174 Application:**



PC

PC

RS485/422/232-to-ST Fiber
**Model 4174**

RS485/422/232      FIBER

RS485/422/232
**Copper**

ST Fiber Link
**Glass Fiber**

Fiber Serial
Interface/Network
up to 5 Mbps

**Isolated PC RS485/422/232 communications to fiber serial interface/network.**

**Model 4165/4165-DIN, & 4166 to Model 4174 Application:**



PC

ST Fiber-to-USB
**Model 4165/4166**

USB      FIBER

ST Fiber-to-RS232/RS485
**Model 4174**

FIBER      RS232/RS485

Serial
Interface/Network
up to 3 Mbps

USB
**Copper**

ST Fiber Link
**Glass Fiber**

DB9
**Copper**

**Isolated PC USB to RS232/RS485 communications serial interface/network.**