Electro Standards Laboratories
ADVANCED SYSTEMS DESIGN & SERVICES

MADE IN USA

Model 4175 Very High Speed Ruggedized ST Duplex Fiber-to-Multi-Point RS485/422 Interface Converter

▪ Ideal for RS485 Multi-Point Applications and Communications to Remote Sites

The Model **Fiber 485/422** 4175 is a high speed ruggedized ST Duplex Fiber to RS485/422 interface converter from Electro Standards Laboratories. Typical operating speeds are up to 5 Mbps for RS485/422 to fiber conversion. When operating in RS485/422 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 PC to PC long distance communications, factory automation, multi-drop data collection devices, barcode readers, time clocks, scales, data entry terminals, ATMs, toll booths and serial communications in harsh environments. The Model 4175 is designed to operate from -40°C to +85°C and is a member of Electro Standards Laboratories rugged community media converter family. The unit features ESD protection circuitry on all receivers and transmitters for RS485/422 interface. 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 10VDC-36VDC, with models also available for other voltage ranges such as 4.5VDC-9VDC and 19VDC-72VDC. Other features include user selectable fiber polarity, and also TX, RX and Power indicator LEDs.

Fiber 485/422 Model 4175

SPECIFICATIONS:

Fiber Interface:
Connectors: Fiber Optic ST Duplex
TX Power: 0.5 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 μm, 62.5/125 μm, 100/140 μm m

Fiber Polarity:
Logical 1 = Light ON/OFF: Jumper Selectable

Copper Interface:
Connectors: DB9, Female
Type: RS485 (2-wire/4-wire)
Terminations: RS485 120 Ohm jumper selectable

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

Network Configurations:
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: 10VDC-36VDC std, 4.5VDC-9VDC, 19VDC-72VDC, Others at 1.5W.
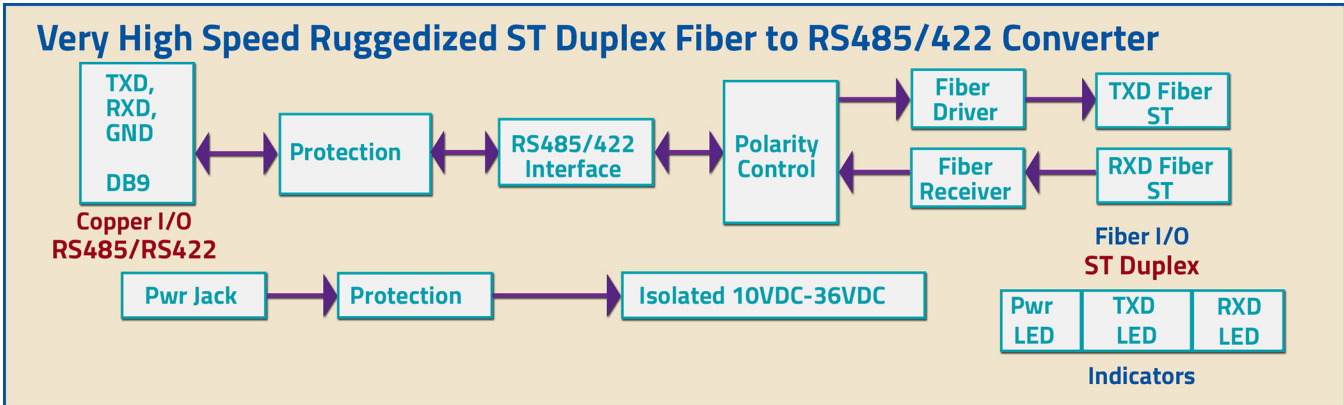Isolation: 3 kVDC

Operating Environment:
-40°C to +85°C

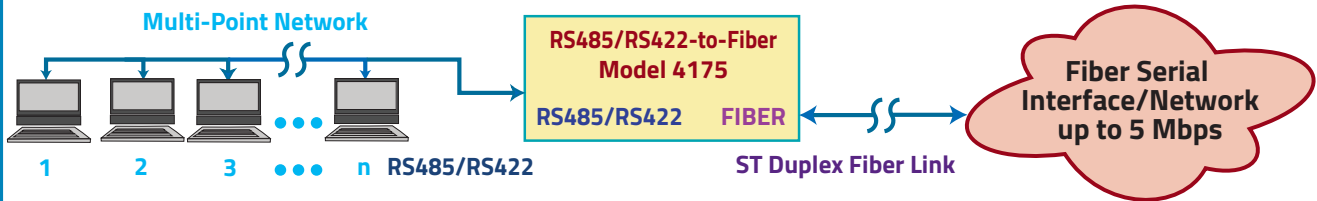### Model 4175 Mechanical (Desktop Unit):
Model / Cat No: 4175 / 538705
Size: 5" x 4.25" x 1.4"
Weight: 10.1 oz (286g)

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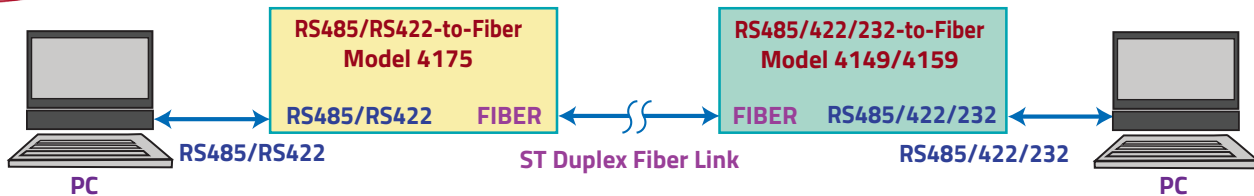# Fiber 485/422 Model 4175 Very High Speed Ruggedized ST Duplex Fiber-to-Multi-Point RS485/422 Interface Converter

Very High Speed Ruggedized ST Duplex Fiber to RS485/422 Converter

TXD, RXD, GND DB9 — **Copper I/O RS485/RS422**

Protection ← → RS485/422 Interface ← → Polarity Control

Fiber Driver → TXD Fiber ST
Fiber Receiver ← RXD Fiber ST

Fiber I/O ST Duplex

Pwr Jack → Protection → Isolated 10VDC-36VDC

Pwr LED | TXD LED | RXD LED
Indicators

Fiber 485/422 Model 4175 RS485/RS422 Multi-Point Application:

Multi-Point Network

1 2 3 ••• n   RS485/RS422

RS485/RS422-to-Fiber
Model 4175
RS485/RS422   FIBER

ST Duplex Fiber Link

Fiber Serial Interface/Network up to 5 Mbps
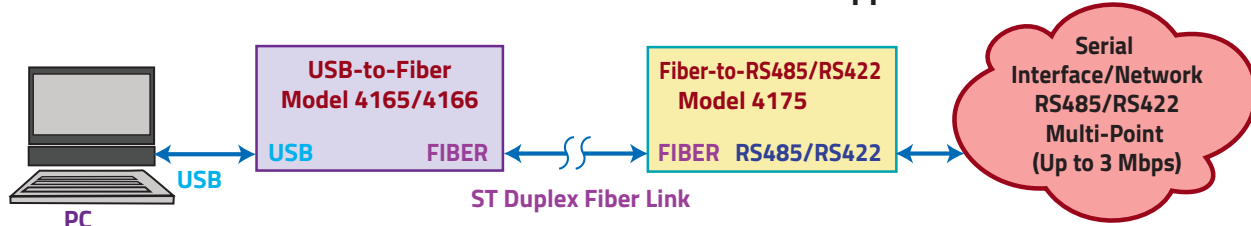
Isolated PC RS485/RS422 communications to fiber serial interface/network.

Fiber 485/422 Model 4175 to Model 4149/4159 Application:

RS485/RS422-to-Fiber
Model 4175
RS485/RS422   FIBER

ST Duplex Fiber Link

RS485/422/232-to-Fiber
Model 4149/4159
FIBER   RS485/422/232

PC   RS485/RS422   RS485/422/232   PC

Point-to-Point Isolated PC RS485/RS422 Communications.

FiberUSB Model 4165/4166 to Fiber485/422 Model 4175 Application:

USB-to-Fiber
Model 4165/4166
USB   FIBER

ST Duplex Fiber Link

Fiber-to-RS485/RS422
Model 4175
FIBER   RS485/RS422

Serial Interface/Network RS485/RS422 Multi-Point (Up to 3 Mbps)

PC   USB

Isolated PC USB to RS485/RS422 communications serial interface/network.