

The ComNet™ FDX2HSD(M,S)(1,2)(EA,EB)/M data transceivers provide point-to-point or drop-and-repeat transmission of two independent simplex or duplex high-speed RS485 (2W) data signals over one optical fiber. The transceivers are transparent to data encoding allowing for broad-range compatibility. Models within this series are available for use with multimode or single mode optical fiber and feature built-in DIP switch-selectable bias and termination resistors for each data channel. Plug-and-play design ensures ease of installation requiring no electrical or optical adjustments. Each transceiver incorporates bi-color (Red/Green) indicating LEDs for monitoring proper system operation, including the location of fiber breaks. The FDX2HSD/M units are medium size surface mount modules, and they may be DIN-rail mounted by the addition of ComNet DIN rail adaptor plate (model DINBKT1, sold separately).

## FEATURES

- › Data Rates to 1Mbps
- › Meets RS485 (2W) specifications
- › Tested and certified by an independent laboratory for full compliance with the environmental requirements (ambient operating temperature, mechanical shock, vibration, humidity with condensation, high-line/low-line voltage conditions and transient voltage protection) of NEMA TS-1/TS-2 and the Caltrans Specification for Traffic Signal Control Equipment.
- › Robust design assures extremely high reliability in unconditioned out-of-plant/roadside environments
- › NTCIP compatible
- › Built-in Fiber Link Tester - allows for the testing of the fiber.
- › Remote Fault Indication allows the user to determine when a fiber break or loss of prime operating power has occurred, or a transceiver in the field has failed
- › Voltage transient protection on all power and signal input/output lines provides protection from power surges and other voltage transient events.

- › Wide optical dynamic range: optical attenuators are never required
- › Bi-color (Red/Green) LED status indicators provide rapid indication of critical operating parameters
- › Lifetime Warranty
- › Made in the USA

## APPLICATIONS

- › Access Control Systems
- › Building Automation and Environmental Control Systems
- › Computer/Data Equipment
- › Fire and Alarm Systems
- › Traffic Signal Control Equipment

**SPECIFICATIONS**

**Data**

Data Channels	2
Data Format	2-wire RS485 w/ Tri-State, Manchester, Bi-Phase, Sensornet
Data Rate	DC-1Mbps
Operating Mode	Asynchronous, simplex or full-duplex
Bit Error Rate	<10 <sup>-9</sup> @ Maximum Optical Loss Budget

**Wavelength**

1310/1550nm

**Number Of Fibers**

1 or 1in/1out

**LED Indicators**

Receive Data Active, Transmit Data Active, Port A Fiber Link Status, Port B Fiber Link Status

**DIP Switches**

1 - 3	Ring Length (SHR Only)
4	Master / Remote (SHR Only)
5 & 6	680 ohm Pull Up/Pull Down for Bias on RS485 bus
7 & 8	120 ohm Termination across RS485 bus

**Connectors**

Optical	ST
Power	Terminal Block
Data	Terminal Block
Contact	Terminal Block

**Power**

Operating Voltage Range	8-36VDC
Power Consumption	4W

**Electrical & Mechanical**

Current Protection	Automatic Resettable Solid-State Current Limiters
Circuit Board	Meets IPC Standard
Size (LxWxH)	4.1 × 3.7 × 1.1 in. (10.4 × 9.4 × 2.8 cm)
Shipping Weight	<2 lb./0.9 kg

**Environmental**

MTBF	>100,000 hours
Operating Temp	-40°C to +75°C
Storage Temp	-40°C to +85°C
Relative Humidity	0% to 95% (non-condensing) <sup>1</sup>

[1] May be extended to condensation conditions by adding suffix '/C' to model number for conformal coating.



**ORDERING INFORMATION**

Part Number	Description	Fibers Req'd	Fiber	Optical Pwr Budget	Max Distance
FDX2HSDM1EA/M	RS485 (2W) "A" End Point	1	Multimode 62.5/125µm	16 dB	4 km (2.5 mi)
FDX2HSDS1EA/M	RS485 (2W) "A" End Point	1	Single Mode 9/125µm	23 dB	69 km (43 mi)
FDX2HSDM1EB/M	RS485 (2W) "B" End Point	1	Multimode 62.5/125µm	16 dB	4 km (2.5 mi)
FDX2HSDS1EB/M	RS485 (2W) "B" End Point	1	Single Mode 9/125µm	23 dB	69 km (43 mi)
FDX2HSDM2/M	RS485 (2W) Repeater	2	Multimode 62.5/125µm	16 dB	4 km (2.5 mi)
FDX2HSDS2/M	RS485 (2W) Repeater	2	Single Mode 9/125µm	23 dB	69 km (43 mi)
Accessories	DC Plug-in Power Supply, 90-264 VAC, 50/60 Hz (Included)				
Options	Add suffix '/C' for Conformally Coated Circuit Boards (Extra charge, consult factory)				
	DIN-Rail Mounting Adaptor Plate Kit - With mounting hardware (Optional, order model DINBKT1)				

NOTE: This product requires a fiber installation with a minimum 30 dB connector return loss. The use of Super Polish Connectors is recommended. Complies with FDA Performance Standard for Laser Products, Title 21, Code of Federal Regulations, Subchapter J. In a continuing effort to improve and advance technology, product specifications are subject to change without notice.

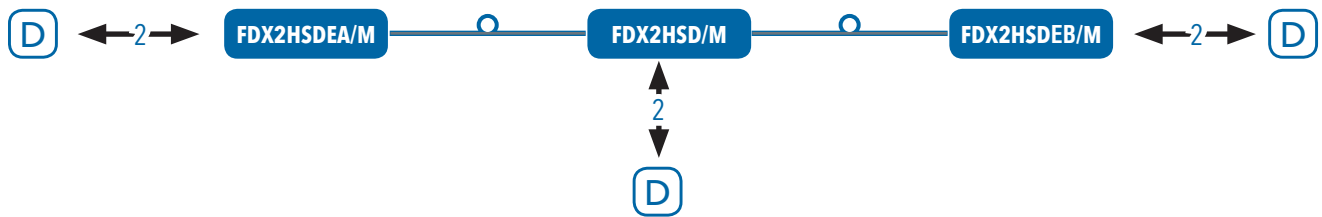
TYPICAL APPLICATIONS

— OPTICAL FIBER  
 — RS422 or RS485

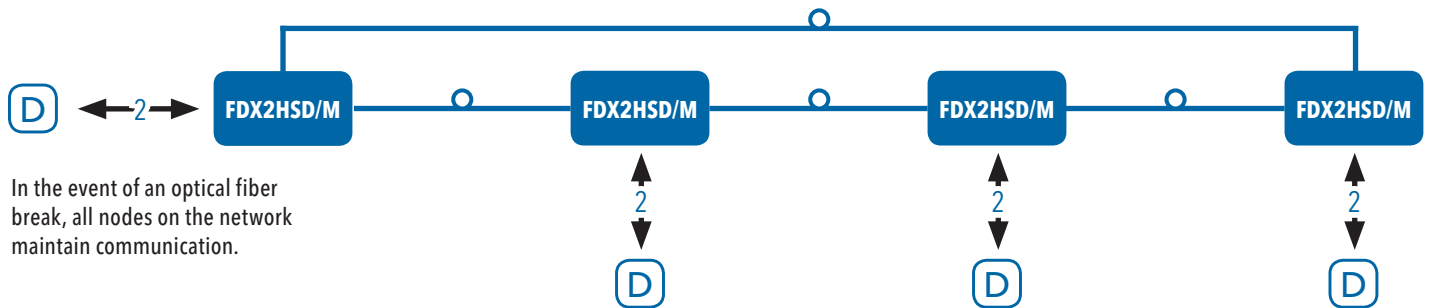
Point to Point



Linear Drop Insert Repeat



Self-Healing Ring



In the event of an optical fiber break, all nodes on the network maintain communication.