



Description

RS-232, RS-422, and RS-485 are commonly used data formats for both point-to-point and low speed non-IP networks. FiberPatrol® offers a comprehensive set of products covering these protocols, including drop-and-repeat, self-healing ring, and multiplexer products. RS-232/RS-422 units provide secondary control lines, anti-streaming, and optional battery back-up features. RS-485 products are offered in both 2-wire and 4-wire configurations. Units meet FCC Part 15, Class B requirements for radiated emissions and feature automatically resettable polymer fuses on all power rails. As with all FiberPatrol® communication units, no optical or electrical adjustments are required. Products can be mounted in a stand alone enclosure or in the RMC Communications Chassis.

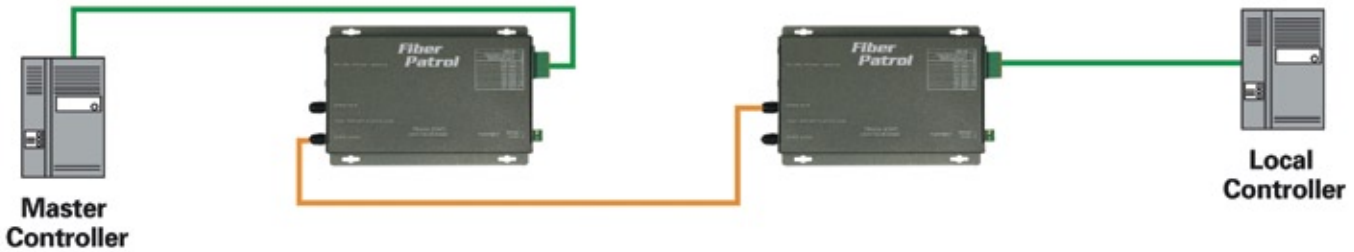
Features

- **Broad, flexible product line**
- **Point-to-point, repeater, self healing ring, and multiplexer configurations**
- **Multiple mounting options**
- **Transparent to common data encoding formats, such as Manchester and bi-phase**
- **Easily identified I/O configurations**
- **Single and dual fiber options**
- **No optical or electrical adjustments required**
- **Environmentally hardened (Exceeds NEMA TS-1/TS-2 & Caltrans Traffic Signal Control Equipment Specifications for Operating Temperature, Humidity, Mechanical Shock, Vibration, and Voltage Transient Protection)**

FIBEROPTIC LOW SPEED DATA TRANSMISSION

FDX/FDR2000 Series

RS-232/RS-422 Data Transceivers



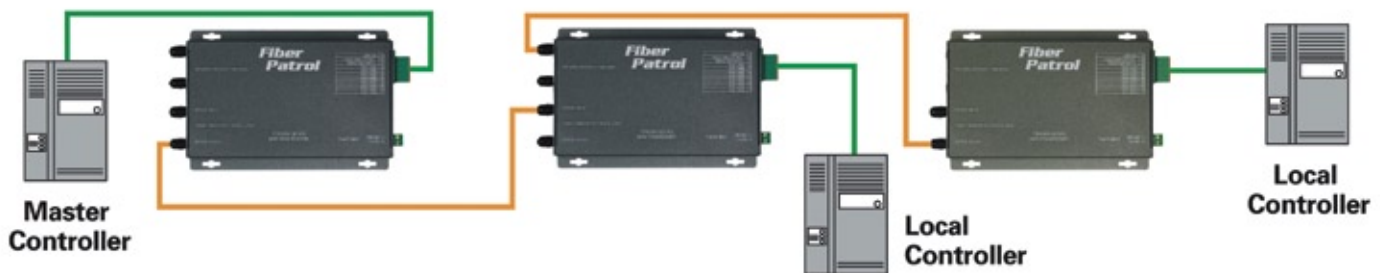
Ordering Information

FDX2000 Series - RS-232/RS-422 Data Transceivers

Description	Part Number	Fiber	# Fibers	Power Budget (dB)	Maximum Fiber Distance	# RMC Slots
Fiberoptic RS-232/RS-422 Transceiver	FDX2012	Multimode	2 (850 nm)	14	2 miles (3.5 km)	1
	FDX2031A FDX2031B		1 (1310/1550 nm)		3 miles (5 km)	
	FDX2052	Single Mode	2 (1310nm)	23	43 miles (69 km)	
	FDX2071A FDX2071B		1 (1310/1550 nm)			

Notes: Add "-25" to part number for DB-25 data connector

RS-232/RS-422 Data Repeaters



Ordering Information

FDR2000 Series - RS-232/RS-422 Data Repeaters

Description	Part Number	Fiber	# Fibers	Power Budget (dB)	Maximum Fiber Distance	# RMC Slots
Fiberoptic RS-232/RS-422 Repeater	FDR2012	Multimode	2 (850 nm)	14	2 miles (3.5 km)	1
	FDR2031		1 (1310/1550 nm)		3 miles (5 km)	
	FDR2052	Single Mode	2 (130nm)	23	43 miles (69 km)	
	FDR2071		1 (1310/1550 nm)			

Notes: Add "-25" to part number for DB-25 data connector

FDX2600, FDR2600, FDS2000, FDS2600 Series

RS-485 Data Transceivers and Repeaters

Ordering Information

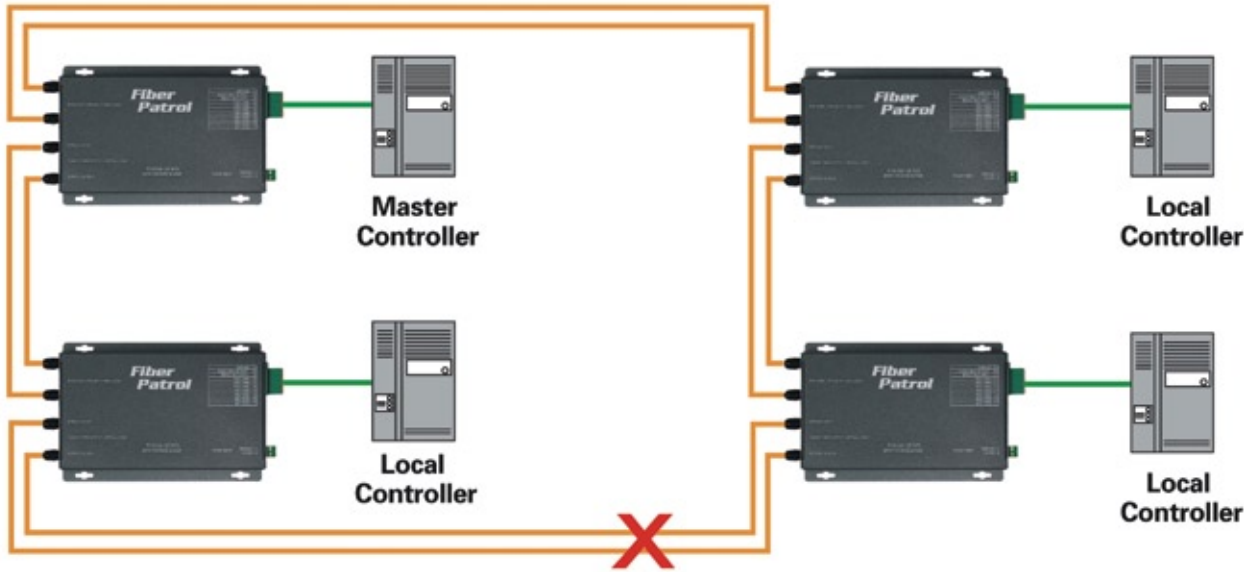
FDX2600 Series - RS-485 Transceivers

Description	Part Number	Fiber	# Fibers	Power Budget (dB)	Maximum Fiber Distance	# RMC Slots
Fiber optic RS-485 Transceiver	FDX2612	Multimode	2 (850 nm)	14	2 miles (3.5 km)	1
	FDX2631A FDX2631B		1 (1310/1550 nm)		3 miles (5 km)	
	FDX2671A FDX2671B	Single Mode	23	43 miles (69 km)		

FDR2600 Series - RS-485 Data Repeaters

Description	Part Number	Fiber	# Fibers	Power Budget (dB)	Maximum Fiber Distance	# RMC Slots
Fiber optic RS-485 Repeater	FDR2612	Multimode	2 (850 nm)	14	2 miles (3.5 km)	1
	FDR2631		1 (1310/1550 nm)		3 miles (5 km)	
	FDR2671	Single Mode	23	43 miles (69 km)		

Self Healing Ring Topologies



Ordering Information

Self-Healing Ring – FDS2000 Series, FDS2600 Series

Description	Part Number	Fiber	# Fibers	Power Budget (dB)	Maximum Fiber Distance	# RMC Slots
Fiber optic RS-232/RS-422 Self-Healing Ring	FDS2012	Multimode	2 (850 nm)	14	2 miles (3.5 km)	1
	FDS2052	Single Mode	2 (1310 nm)	23	43 miles (69 km)	
Fiber optic RS-485 Self-Healing Ring	FDS2612	Multimode	2 (850 nm)	14	2 miles (3.5 km)	
	FDS2652	Single Mode	2 (1310 nm)	23	43 miles (69 km)	

Note: Add "-25" to part number for DB-25 data connector.

Data

Interface:	
FD-2000 Series:	RS-232, RS-422 (DIP switch selectable)
FD-2600 Series:	RS-485 (2w, 4w)
Data Encoding:	NRZ, NRZI, Manchester, Bi-phase
Data Rate:	DC-115.2 kbps (NRZ)
Bit Error Rate:	<1 x10 ⁻⁹
DTE/DCE:	DIP Switch Selectable
Local-Master Configuration:	DIP Switch Selectable
Anti-streaming:	Automatically resettable
Time-out Selection:	4-124 seconds (or disable)

Connectors

Data:	Spring-cage terminal block
Optical:	ST (SC optional)
Power:	Screw terminal block

Electrical & Mechanical

Input Voltage: 8-18 VDC or from RMC (<200 mA @ 12 VDC)

Battery Back-up (optional)
FDX2000 and FDR2000 only: 12VDC, 12 hours

Protection: Automatic resettable polymer fuses

Circuit Board: Meets IPC Standard

Size (LxWxH)

Stand Alone Module: 7.0 x 4.9 x 1.0 in.
(17.8 x 12.4 x 2.5 cm)

RMC Module: 7.7 x 5.0 x 1.0 in.
(19.6 x 12.5 x 2.5 cm)

Shipping Weight: <2 lbs. (.9 kg)

Environmental

MTBF: >100,000 hours

Operating Temperature: -40 C to + 74 C, ambient

Storage Temperature: -40 C to + 85 C, ambient

Relative Humidity: 0% to 95% (non-condensing)

Certifications & Compliance

Radiated Emissions: FCC Part 15, Class B