



Industrial 10/100M Ethernet to Fiber Optic Converter

Part Number: FBR-Ethernet-2 (DIN-Rail/Wall-Mount)

Single-Mode (12.4miles/20km) or Multi-Mode (3miles/5km)

Connector types: ST, SC or FC

CE FC



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■ INTRODUCTION

The FBR-Ethernet-2 (DIN-Rail/Wall-Mount) is a rugged, industrial-grade 10/100M Ethernet to fiber optic media converter, which provides one channel for media conversion between 10/100BaseTX and 100BaseFX fiber optic links. The FBR-Ethernet-2 works in pair (point to point) and it runs on a light-speed fiber backbone inherently resistant to radio and electrical interference, such as EMI/RFI, transient surges, and ground loops. Depending on the fiber cable and the type of media converter used, a single-mode media converter can extend the 10/100M Ethernet's distance to 12.4 miles (20 km), while a multi-mode media converter can extend the 10/100M Ethernet's distance to 3 miles (5 km). The FRB-Ethernet-2 is a plug and play unit featuring auto-negotiation for half or full-duplex and 10 or 100Mbps data rates, it also supports MDI (straight-through) and MDIX (crossover) cables, no DIP switch or jumper settings are required.

■ FEATURES

- Enclosed in a rugged, rustless ABS housing.
- Direct DIN-Rail or wall/panel mounting without using any unsecured brackets or adapters.
- Converts 10/100BaseTX to 100BaseFX fiber optic links.
- Transmits 10/100M Ethernet data over a long distance through fiber cables.
- Auto-negotiation of speed and duplex mode on TX port.
- Auto-MDIX on TX port.
- Store-and-forward mechanism.
- Single or Multi-mode, with ST, SC or FC connectors.
- Built-in surge protection, static protection and circuit protection.
- Surface Mount Technology manufactured to RoHS and ISO-9001 standards.
- Safety: Strictly certified by TUV (Cert No. SG-CE-100005; SG-FCC-100002).
- 5 Year manufacturer's warranty.

■ SPECIFICATIONS

Compatibility:	IEEE802.3 10Base-T; IEEE802.3u 100Base-TX and 100Base-FX
Power Source:	9 to 30VDC (External AC to DC power adapter included)
External AC/DC Power Adapter:	9VDC/500mA (Input: 100~240VAC 50/60Hz, US type A plug)
Features:	Auto-negotiation for half/full-duplex and 10/100M on TX port; Auto-MDIX on TX port
Switching Method:	Store-and-forward
Speed:	10BaseT: 10/20Mbps for half/full-duplex 100BaseT: 100/200Mbps for half/full-duplex
Current Consumption:	Less than 200mA
Wavelength:	1310nm
Output Power (Fiber):	Single-Mode: -15dBm(Min); -10dBm(Typ); -8dBm(Max) Multi-Mode: -15dBm(Min); -10dBm(Typ); -8dBm(Max)
Sensitivity (Fiber):	Single-Mode: -34dBm; Multi-Mode: -34dBm
Usable Fiber Optic Cables:	Single-mode: 8.3/125, 8.7/125, 9/125, 10/125µm Multi-mode: 50/125, 62.5/125µm
Distance (Ethernet):	10BaseT: Cat. 3, 4, 5 up to 328ft (100m) 100BaseT: Cat. 5 up to 328ft (100m)
Distance (Fiber Lines):	Single-mode: 12.4 miles (20km); Multi-mode: 3 miles (5km)
Connectors (Ethernet/Power):	RJ45 (Female) / Terminal Block (9-way)
Connectors (Fiber Links):	2x ST Connector, 2x SC Connector or 2x FC Connector
Surge Protection:	600W
Electro-Static Discharge (ESD):	Up to 15KV
Dimensions (H x W x D):	ST: 4.9 x 2.9 x 1.3 in (125 x 73 x 33 mm) SC: 4.7 x 2.9 x 1.3 in (120 x 73 x 33 mm) FC: 4.6 x 2.9 x 1.3 in (117 x 73 x 33 mm)
Weight:	ST: 4.6 oz (130 g) / SC: 4.6 oz (129 g) / FC: 4.6 oz (129g)
Operating Temperature:	-40°F to 185°F (-40°C to 85°C)
Operating Humidity:	0 to 90% Non-condensing

■ CONNECTIONS

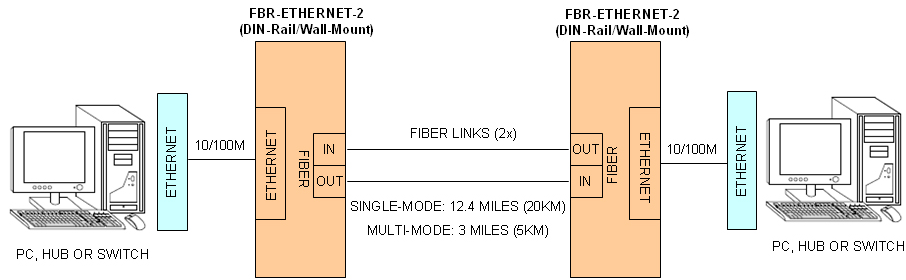
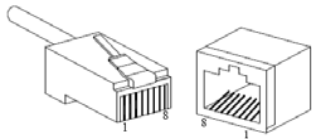


FIGURE 1: FBR-ETHERNET-2 CONNECTION DIAGRAM

■ RJ45 / TERMINAL BLOCK PIN ASSIGNMENT



RJ45	Terminal Block
1	TX+
2	TX-
3	RX+
6	RX-
4,5,7,8 (Not Connected)	-

■ INSTALLATIONS

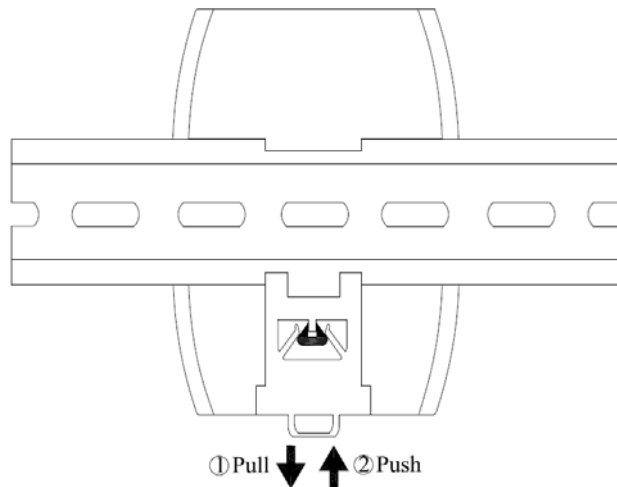


FIGURE 2: DIN-RAIL MOUNTING

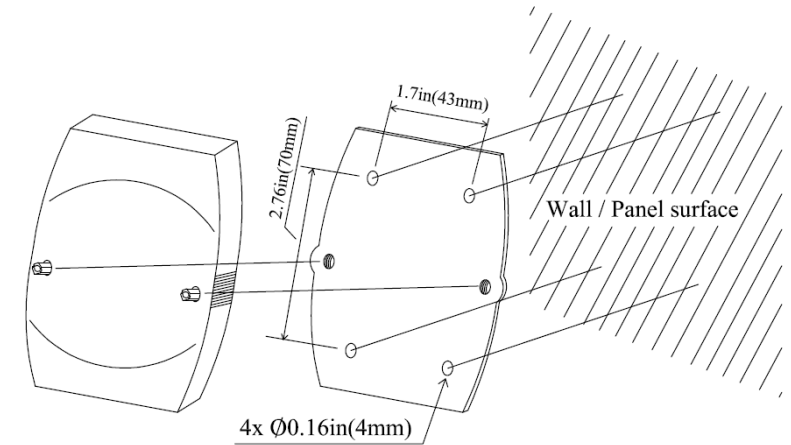


FIGURE 3: WALL/PANEL MOUNTING

■ LED INDICATIONS (FRONT VIEW)

PWR Steady: Power on Off: Power off		PWR
LNK/ACT (TX) Steady: Network connected Flashing: Transmitting or receiving data Off: Network disconnected		LNK/ACT(TX)
LNK/ACT (FX) Steady: Fiber links connected Flashing: Transmitting or receiving data Off: Fiber links disconnected		LNK/ACT(FX)
FDX Steady: Full-duplex mode Off: Half-duplex mode or network disconnected		FDX
10/100M Steady: 100M network Off: 10M network		10/100M

FIGURE 4: FBR-ETHERNET-2 LED INDICATIONS

■ TROUBLESHOOTING

- Make sure the Power is connected and turned on.
- Check the connections according to the above "CONNECTIONS" diagram (Figure 1).
- Check the LED status and identify the possible problems by using the table below:

LED	State	Indication
PWR (Power)	Steady	Power on
	Off	Power off
LNK/ACT (TX) (TX Port Link/Activity)	Steady	Network connected
	Flashing	Transmitting or receiving data
	Off	Network disconnected
LNK/ACT (FX) (FX Port Link/Activity)	Steady	Fiber links connected
	Flashing	Transmitting or receiving data
	Off	Fiber links disconnected
FDX	Steady	Full-duplex mode
	Off	Half-duplex mode or network disconnected
10/100M	Steady	100M network
	Off	10M network or network disconnected