

Description

The FRM Series gives you the option to choose from the most popular fiber cabling connectors. The FRM220-10/100 provides you with ST, SC or FC connectors for your fiber optic cables and RJ-45 port for 10/100Base-TX twisted pair cable connection. The factory default settings of Ethernet auto-negotiation may be modified by adjustment of external DIP switches to force Full/Half 10/100 or LFP function settings. The FRM220-10/100 gives you the freedom to extend your 10/100Mbps cabling distance by allowing connectivity up to 120 kilometers over fiber. Six LED indicators signal the power status of the converter, UTP port speed, Link/Act, duplex status and FX port ink/Act and FEF (Far End Fault).

Features

- 10/100Base-TX to 100Base-FX Converter
- Auto-Negotiation or forced mode
- Auto MDI/MDIX
- Forward 1600 bytes (Max.) packets
- Support flow control (Pause)
- Supports Link Fault Pass through (LFP)

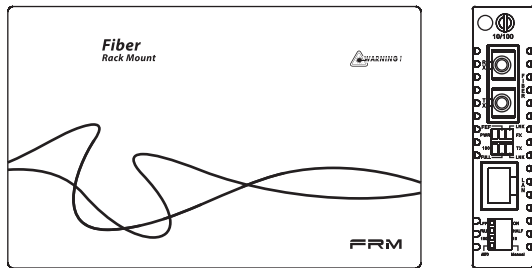
User Guide

10/100BASE-T/TX to 100BASE-FX
Fiber Media Converters - FRM220-10/100

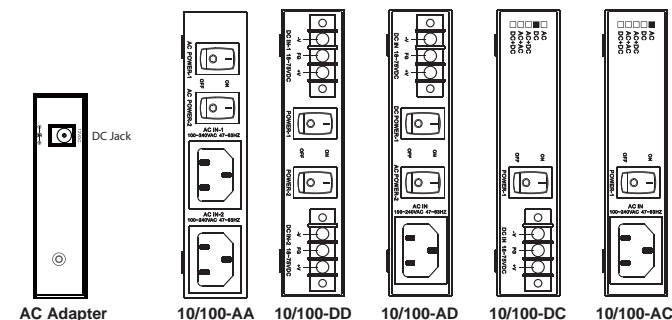


Panel

■ Figure #1. Front Panel of FRM220-10/100



■ Figure #2. Rear Panel of Stand-alone FRM220-10/100



Specifications

Standards

IEEE802.3 10BASE-T, IEEE802.3u 100BASE-TX, 100BASE-FX
Supports Full/Half Duplex Ethernet mode N-Way Auto Negotiation

10/100BASE-TX RJ-45 Connectors

One RJ-45 connector is provided for connection to MDI-X (To PC) or MDI (To HUB) equipment. Auto MDI-X allows all UTP connections to be made using only a common straight-through UTP cable.

RJ-45 Pin	MDI-X type	MDI type
1	Rx+	Tx+
2	Rx-	Tx-
3	Tx+	Rx+
6	Tx-	Rx-

100BASE-TX UTP Cable

Cable type: 100Base-Tx; Category 5 or better
Maximum cable distance: 100 meters (328 feet)

Fiber Optic Connectors

Two connectors are provided for fiber optic cable connection. One is labeled "Tx" for transmission of optical data, the other is labeled "Rx" for reception of optical data.

Environment

Operating -- -10°C – 60°C, Storage -- -20°C – 70°C,
Humidity -- 10 – 95%, (non-condensing)

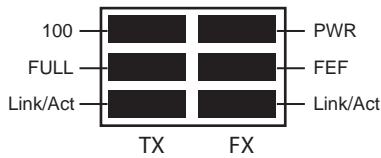
Power

Adapter: 12VDC 1A, Built-in AC Power 100~240V ±10%, Built-in DC Power 18~75VDC

Dimensions: (W x D x H) mm

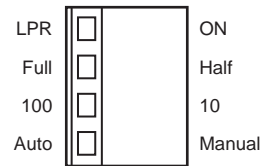
10/100-DC12 : 88 x 160 x 24
10/100-AC/DC : 135 x 201 x 35
10/100-AD/AA/DD : 135 x 201 x 35

LED Indicators



LED	Function	State	Status
PWR	Power indicator	On	Converter has power.
		Off	Converter has no power.
FX link/Act	Fiber link & activity	On	The fiber link is ok.
		Off	No link or the link is faulty.
		Blinking	Receiving data on the fiber.
FEF	Far End Fault	On	Far end is experiencing link fault.
		Off	No fault.
100	Mode display	On	Ethernet operates in 100Mbps
		Off	Ethernet operates in 10Mbps Or no devices attached.
Full	Mode display	On	Full duplex mode (200mbps)
		Off	Half duplex mode (100mbps)
TX link/Act	Ethernet link & activity	On	The UTP link is ok.
		Off	No link or the link is faulty.
		Blinking	Receiving data on Ethernet.

Dip Switch Setting



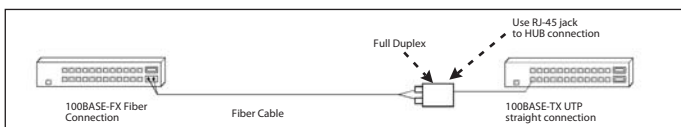
DIP	Function	State	Status
SW1	UTP Mode	Off	Auto mode.
		On	Manual mode.
SW2	UTP Speed	Off	100Mbps.
		On	10Mbps.
SW3	UTP Duplex	Off	Full Duplex.
		On	Half duplex.
SW4	Link Fault Pass-through	Off	LFP off.
		On	LFP on.

Installation

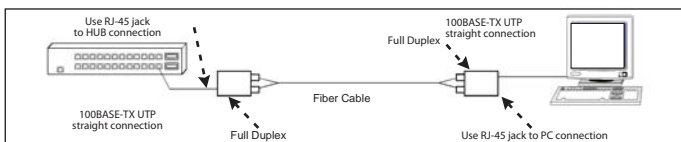
Connect the Ethernet cable to the FRM220-10/1001 Series. The converter will sense whether to operate in Full or Half mode and will be indicated on the LED. Follow the connection examples below. Install the fiber converter with the DC power adapter provided (+12VDC, 1A) and connect the adapter to an AC outlet.

Connections

The following example illustrates the connection scheme when connecting from a 100BASE-TX port of one HUB to a 100BASE-FX port of another HUB through the fiber converter.

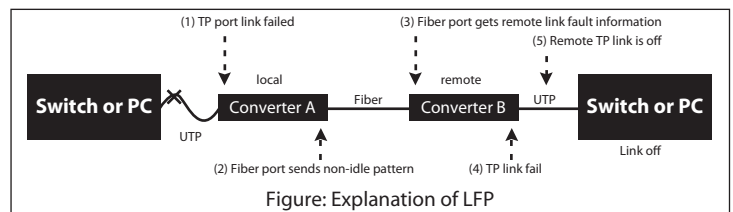


The following example illustrates the connection scheme when connecting from a 100BASE-TX port of one HUB to a 100BASE-TX Network Interface Card (NIC) in a computer through the fiber converter.



Link-Fault-Pass through (LFP) Application Note

When 'link fault pass through' function is enabled, link status on TX port will inform the FX port of the same device and vice versa. From the link fault pass through explanation in the figure below, if link fail occurson TX port (1), the local FX port sends non-idle pattern to notify the remote FX port (2). The remote FX port then forces its TX port to link failed after receiving the non-idle pattern (4). This mechanism will alert the link fault status of local TX port to the remote converter's TX port, and the link status of the remote TX port will become down. Link status LED will also be off for both. Link Fault Pass through is enabled by setting DIP switch 4 (ON).



WARNING

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instruction manual may cause harmful interference in which case the user will be required to correct the interference at his own expense. NOTICE: (1) The changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment. (2) Shielded interface cables and AC power cord, if any, must be used in order to comply with the emission limits.

CISPR PUB.22 Class A COMPLIANCE:

This device complies with EMC directive of the European Community and meets or exceeds the following technical standard. EN 55022 -Limits and Methods of Measurement of Radio Interference Characteristics of Information Technology Equipment. This device complies with CISPR Class A.

WARNING

This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

CE NOTICE

Marking by the symbol CE indicates compliance of this equipment to the EMC directive of the European Community. Such marking is indicative that this equipment meets or exceeds the following technical standards:
EN 55022:1994/A1:1995/A2:1997 Class A and EN61000-3-2:1995, EN61000-3-3:1995 and EN50082-1:1997