FT82011/FR82011 Ethernet Media Converter

ONE 10BASE-T/100BASE-TX PORT AND ONE 100BASE-FX FIBER PORT

Product Features

- Ethernet Media Converter:
  - One 10BASE-T/100BASE-TX Port
  - One 100BASE-FX Port
- Converts 10BASE-T/100BASE-TX Ethernet Data to 100BASE-FX Ethernet Data and Vice Versa
- Integrated Wavelength Division Multiplexing (WDM) in a Single Fiber
- Designed for Point-to-Point Applications
- User-Selectable 10BASE-T/100BASE-TX Port Functions:
  - Autonegotiation Between 10 Mbps and 100 Mbps Data Rates and Between Full-Duplex and Half-Duplex Modes
  - 10 Mbps or 100 Mbps Selectable
  - Full-Duplex or Half-Duplex Mode Selectable
  - Enabling/Disabling of Flow Control
- Auto MDI/MDI-X (Medium Dependent Interface/Medium Dependent Interface Crossover) Operation
- Link-Down Detection
- Compliant with IEEE 802.3, 802.3u, and 802.3x Standards
- Multimode Fiber Support for Distances up to 2 km
- Single-Mode Fiber Support for Distances up to 46 km
- Laser Diode for Transmission of Optical Signals
- Environmentally Hardened

- Designed to Meet NEMA TS 2 and Caltrans Traffic Signal Control Equipment Environmental Standards
- No Performance Adjustments Required
- 12 VDC or 24 VAC Power Supply
- Stand-Alone and Rack-Mountable Modular Design
- LED Indicators for Monitoring of Optic Signal/Laser Status, 100BASE-FX Port Status Including Far End Fault Indication (FEFI), 10BASE-T/100BASE-TX Port Status, and Operating Power

The **FT82011/FR82011** media converter converts 10BASE-T/100BASE-TX Ethernet data to 100BASE-FX Ethernet data and vice versa. Designed for point-to-point applications, the **FT82011/FR82011** media converter provides one 10BASE-T/100BASE-TX port and one 100BASE-FX fiber port. The **FT82011** and **FR82011** media converters are used in combination with one another to provide wavelength compatibility. Using wavelength division multiplexing (WDM), bidirectional data is transported in a single fiber.

The 100BASE-FX fiber port is automatically forced to full-duplex 100 Mbps operation. Networking functions for the 10BASE-T/100BASE-TX port (RJ-45 twisted-pair copper port) are user-selectable by means of a rotary switch. Autonegotiation allows the port to automatically negotiate between 10 Mbps and 100 Mbps data rates and between full-duplex and half-duplex modes. If autonegotiation is not desired, the port can be forced to specific modes of operation: 10 Mbps or 100 Mbps data rate, half-duplex or full-duplex mode, and the enabling/disabling of flow control.

The auto MDI/MDI-X feature allows each RJ-45 port to connect to either a straight-through or crossover RJ-45 cable.

The link-down detection feature of the media converters propagates a link-down status among all 10BASE-T/100BASE-TX and 100BASE-FX ports connected in the network when a 10BASE-T/100BASE-TX link or 100BASE-FX link goes down. As a result, all ports are disabled and data transmission halts until the faulty link is restored.

Modular in design, the **FT82011** and **FR82011** units can be rack mounted or can be used as stand-alone modules. Rack mounting is accomplished using the RK5000 Series rack mount chassis. Stand-alone modules can be placed on a desktop or can be mounted to a wall.

TECHNICAL SPECIFICATIONS

MODELS

Model Number		Fiber Optic Connector Type	Number of Fibers	Wavelength (Transmit/Receive)		Optical Power Budget	Maximum Transmission Distance	Supplied Accessories
Transmitter End	Receiver End			Fiber Port A (Transmitter End)	Fiber Port B (Receiver End)			
Multimode (62.5/125 µm)								Regulated switching power supply with multiple plug adapters (North American, Australian, United Kingdom, and European); 100-240 VAC, 50-60 Hz input, 12 VDC output **Note:** In extreme temperature conditions, it is recommended that an industrial-rated outdoor power supply be used. Wall clip for attachment of single module to wall
FT82011MSTR-1	FR82011MSTR-1	ST	1	1310/850 nm	850/1310 nm	26 dB*	2 km (1.2 mi)†	
FT82011MSCR-1	FR82011MSCR-1	SC	1	1310/850 nm	850/1310 nm	26 dB*	2 km (1.2 mi)†	
Single-Mode (9/125 µm)								
FT82011SSTR-1	FR82011SSTR-1	ST	1	1310/1550 nm	1550/1310 nm	28 dB	46 km (28.6 mi)‡	
FT82011SSCR-1	FR82011SSCR-1	SC	1	1310/1550 nm	1550/1310 nm	28 dB	46 km (28.6 mi)‡	

*When using 50/125 µm multimode fiber, subtract 3 dB from the optical power budget.

† Maximum transmission distance is limited by fiber bandwidth.

‡ Maximum transmission distance is based on attenuation of 0.5 dB/km plus a 5 dB buffer for connector and splice losses.

Notes:

- Single-mode FC connector is available upon request. Contact the factory for additional information.
- For conformal coated models, replace the first letter *F* in the model number with the letter *C*. The conformal coated version of FT82011MSTR-1, for example, is CT82011MSTR-1.
- For models with higher optical power budgets, contact the factory.

PERFORMANCE

Switch Type	Unmanaged Layer 2
Switch Method	Store and forward
Data Rate	10/100 Mbps
Compliance	IEEE 802.3, 802.u, 802.3x
Interface	Auto MDI/MDI-X
Operating Mode	Half-duplex or full-duplex
Address Table Size	1,024 MAC address entries with automatic learning and aging
Quality of Service	IEEE 802.1p priority, tag-based, 4 queues per port, weighted fair queuing scheduling
Maximum Frame Size	Untagged Ethernet frames up to 1,518 bytes Tagged Ethernet frames up to 1,522 bytes

GENERAL

Operating Temperature	-40° to 167°F (-40° to 75°C)
Input Power Requirements	12 VDC or 24 VAC, 0.50 A
LED Indicators	Power 100BASE-FX Port Status (link/activity, FEFI) Optic Fault (optic signal/laser status) 10BASE-T/100BASE-TX Port Status (2 LEDs: link/activity and speed, duplex/collision and speed)
Dimensions	8.75" D x 1.08" W x 4.81" H (22.23 x 2.74 x 12.22 cm)
Unit Weight	1.6 lb (0.73 kg)
Shipping Weight	3.0 lb (1.36 kg)

MECHANICAL

Connectors	
Rack Power/Alarm	1, 4-pin connector
Stand-Alone Power	1, 2-pin connector, screw terminal
Electrical	1, RJ-45, 10BASE-T/100BASE-TX
Fiber Optic	1, single-fiber ST or SC

CERTIFICATIONS

- CE, Class A
- UL Listed
- UL Listed to Canadian safety standards
- FCC, Class A
- C-Tick
- Complies with FDA requirements for Class 1 laser products
- Designed to meet NEMA TS 2 and Caltrans traffic signal control equipment standards for ambient operating temperature, mechanical shock and vibration, humidity with condensation, high-line/low-line voltage conditions, and transient voltage protection (certification pending)

  Note: Conformal coating is required for operation in environments with relative humidity above 95% (condensing).

OPTIONAL ACCESSORIES

WM5001-3U	Wall mount base kit for single-width module
WM5001-3UEXP	Wall mount expansion kit for single-width module
RK5000-3U	19-inch rack mount chassis for 14 slots, no power (3 RUs)
RK5000PS-3U	19-inch rack mount chassis for 12 slots with power (3 RUs)
EPS5000-120	External rack power supply, 1 RU, dual 120 W power outputs
RK5001B-3U	Blank filler panel, single width
RK5002B-3U	Blank filler panel, double width
RK5001-1UEXP	Adapter kit that allows a 3 RU single-width fiber module to be used in RK5100PS-5U rack mount chassis

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