

ETX-41

Gigabit Ethernet Layer 1 Media Converter



FEATURES

- Provides cost-effective UTP-to-fiber media conversion for Gigabit Ethernet services
- Can be installed in the following enclosures:
 - 16-slot modular rack for central site installation (LRS-20)
 - Single-slot standalone unit for remote site installation, or if a single converter is needed (LRS-1)
- Operates over multimode and single mode fiber optic cables
- Uses 850, 1310 and 1550 nm lasers
- Transparent operation without signal degradation
- Automatic MDI/MDIX crossover
- User-configurable fault propagation
- Autonegotiation
- LED indicators for the connection status

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DESCRIPTION

- ETX-41 is a media converter that provides transparent conversion of optical and electrical signals for the Gigabit Ethernet service.
- The media converter is used to extend the operation distance between two copper Gigabit Ethernet devices via fiber optic infrastructure transparently and with no performance degradation.
- The ETX-41 card can be installed in the following enclosures:
 - LRS-20, 16-slot 3U-high modular rack, accommodating up to 16 hot-swappable converter cards. The LRS-20 rack is intended for central site installation.
 - LRS-1, 1U high standalone unit, accommodating one converter card. LRS-1 is intended for installation at remote sites, or if only a single converter is required.
- The following ETX-41 cards are available (see *Table 1* for full details):
 - ETX-41/UTP/GE-M, converting between UTP and multimode fiber optic cables, 850 nm
 - ETX-41/UTP/GE-1, converting between UTP and single mode fiber optic cables, 1310 nm
 - ETX-41/UTP/GE-2, converting between UTP and single mode fiber optic cables, short haul, 1550 nm
 - ETX-41/UTP/GE-3, converting between UTP and single mode fiber optic cables, long haul, 1550 nm.
- The UTP port of the ETX-41 cards supports automatic MDI/MDIX function, correcting connection polarity errors. This allows using straight or crossed cables for the LAN connection.
- The user-configurable fault propagation mechanism automatically shuts down the UTP port if a failure is detected on the fiber optic port. The UTP link is re-established when the fiber optic connection is restored.
- The autonegotiation function automatically matches the UTP port duplex mode and data rate to the user equipment requirements.
- LEDs indicate the fiber optic link status, data transmission and duplex modes statuses of the UTP port.

APPLICATIONS

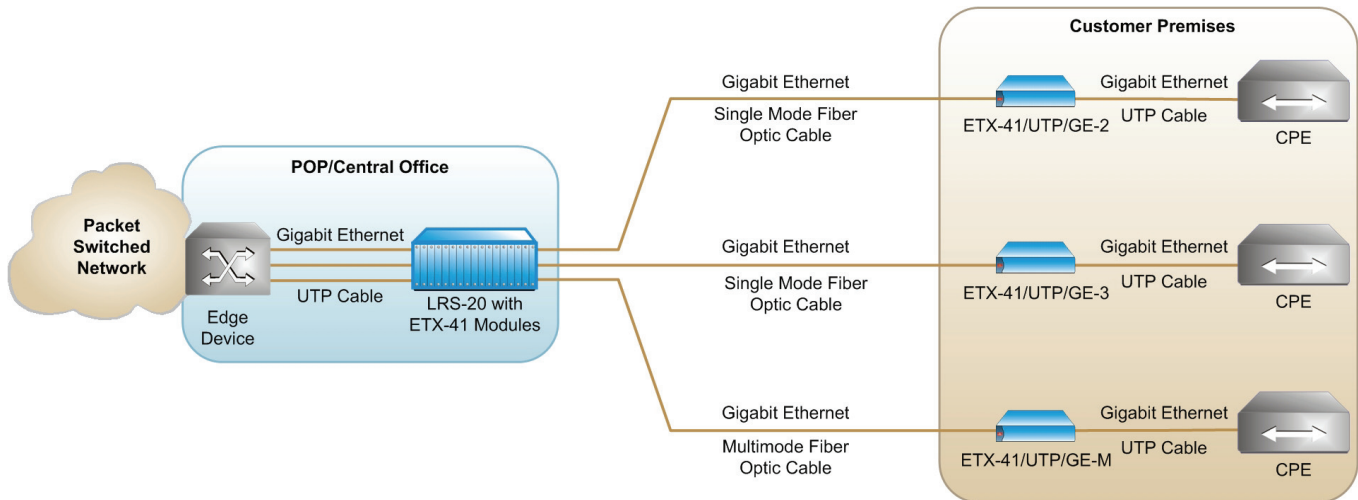


Figure 1. ETX-41 Modules Extend Ethernet Service over Fiber Optic Infrastructure, Operating opposite each other

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SPECIFICATIONS

ETX-41

UTP INTERFACE

- **Type**
Gigabit Ethernet, autonegotiation, MDI/MDIX
- **Cable Type**
Category 5 UTP
- **Cable Length**
Up to 100m (328 ft)
- **Connector**
RJ-45

FIBER OPTIC INTERFACE

- **Type**
Gigabit Ethernet
- **Characteristics**
See Table 1

GENERAL

- **Indicators**
PWR (green) – Power status
LNK (green) – Fiber optic link connection status
LNK (green) – UTP link connection status
FDX (green) – Current duplex mode
TX (green) – Data transmit status (UTP link)
RX (green) – Data receive status (UTP link)
- **Environment**
Operating temperature: 0–45°C (32–113°F)
Humidity: Up to 90%, non-condensing

LRS-1 UNIT

- **Number of Slots**
1
- **Power**
AC: 115–230 VAC, 50/60 Hz
DC: -48 VDC
- **Power Consumption**
15W max
- **Physical**
Height: 40 mm (1.5 in)
Width: 158 mm (6.2 in)
Depth: 200 mm (7.8 in)
Weight: 1.2 kg (2.6 lb)
- **Environment**
Operating temperature: -20–60°C (-4–140°F)
Storage temperature: -40–80°C (-40–176°F)
Humidity: 5–90%, non-condensing

Table 1. Fiber Optic Interface Characteristics

Module	Fiber Type [μm]	Wavelength [nm]	Transmitter Type	Attenuation [dB/km]	Power [dBm]		Receiver Sensitivity [dBm]	Typical Range		Connector Type
					Min	Max		[km]	[miles]	
ETX-41/UTP/GE-M	50/125 or 62.5/125 multimode	850	Laser	3	-10	-4	-17	0–0.5	0–0.3	SC
ETX-41/UTP/GE-1	9/125 single mode	1310	Laser	0.5	-13	-3	-26	0–25	0–15.5	SC
ETX-41/UTP/GE-2	9/125 single mode	1550	Laser	0.25	-2	0	-24	10–60	6.2–37.2	SC
ETX-41/UTP/GE-3	9/125 single mode	1550	Laser	0.25	0	5	-24	15–100	9.3–62.1	SC

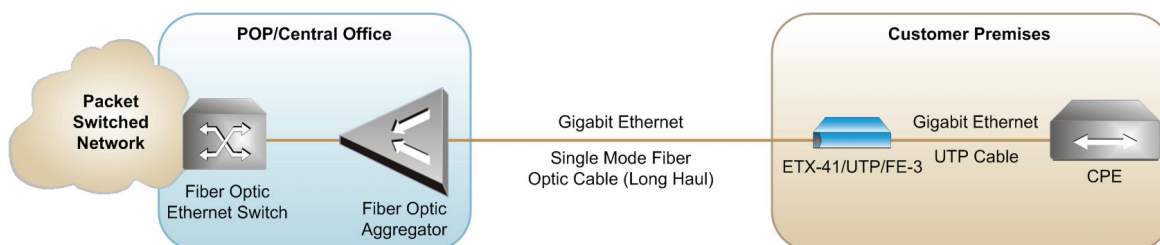


Figure 2. ETX-41 Module Extends Ethernet Service over Fiber Optic Infrastructure, Operating opposite Ethernet Switch at the POP/Central Office

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ORDERING

ETX-41/UTP/GE-M/*

UTP to multimode fiber optic converter card, 850 nm, 0–0.5 km (0–0.3 miles) typical range

ETX-41/UTP/GE-1/*

UTP to single mode fiber optic converter card, 1310 nm, 0–25 km (0–15.5 miles) typical range

ETX-41/UTP/GE-2/*

UTP to single mode fiber optic converter card, short haul, 1550 nm, 10–60 km (6.2–37.2 miles) typical range

ETX-41/UTP/GE-3/*

UTP to single mode fiber optic converter card, long haul, 1550 nm, 15–100 km (9.3–62.1 miles) typical range

***Note:** If a power supply type is specified for an ETX-41 card, the card is supplied with corresponding LRS-1 unit (AC or DC). If no power supply is specified, only an ETX-41 card is supplied.*

The LRS-1 enclosure can be ordered separately, see ordering information below.

LRS-1/*

Standalone single-slot chassis

- * Specify power supply type:
AC for 115–230 VAC
DC for -48 VDC



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419-100-06/06