

# FOM-E1/T1

## E1/T1 Fiber Optic Modem



- Extended range with optional laser diode
- Transparent to E1/T1 framing
- Compatible with RAD's DXC cross-connect systems, FCD access units, and Megaplex access multiplexers
- ITU standards compliant

The FOM-E1/T1 fiber optic modem converts E1/T1 electrical signals into optical signals for transmission over fiber optic cables to extend the E1/T1 service range of up to 144 km (89.4 miles).

FOM-E1/T1 features various optical interfaces:

- 850 nm for multimode fiber
- 1310 nm for multimode fiber
- 1310 nm for single-mode fiber
- 1550 nm for extended range over single-mode fiber.

FOM-E1/T1 operation complies with ITU G.703 and G.955 standards.

An alarm relay port transmits the following alarm conditions:

- Major alarm – Low level of E1/T1 electrical input or high bit error rate at the fiber optic interface
- Minor alarm – AIS received at electrical or fiber optic interface.

Front panel LEDs indicate system faults in the electrical and fiber optic circuits.

The modem features local and remote loopbacks.

## FOM-E1/T1

### E1/T1 Fiber Optic Modem

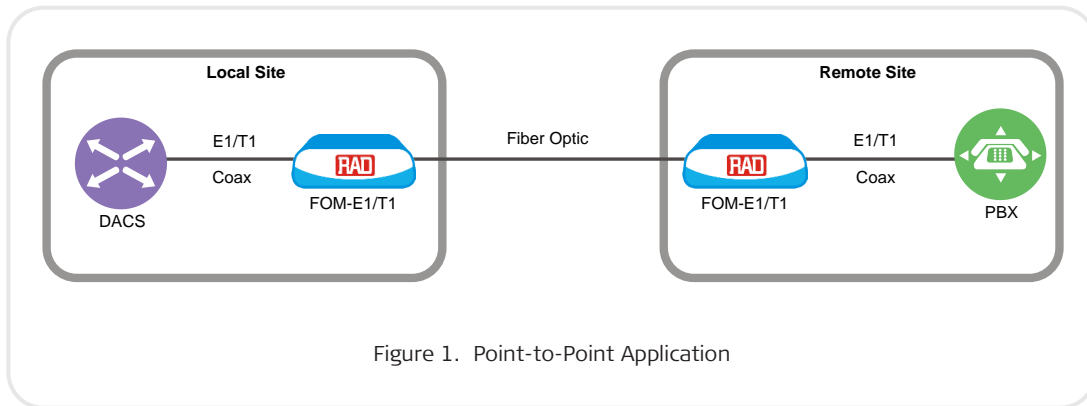


Figure 1. Point-to-Point Application

Table 1. FOM-E1/T1 Fiber Optic Interface Characteristics

Option	Wavelength	Fiber Type	Transmitter Type	Typical Power	Receiver Sensitivity	Connector	Typical Max. Range	
	[nm]						[μm]	[km]
85	850	62.5/125 multimode	VCSEL	-7	-32	FC	6.7	4.2
13MM	1310	62.5/125 multimode	LED	-18	-31	ST, SC	9.3	5.7
13L	1310	9/125 single mode	Laser	-12	-34	ST, SC, FC	42.0	26.1
13LH	1310	9/125 single mode	Laser (long haul)	-2	-40	ST, SC, FC	70.0	43.4
15L	1550	9/125 single mode	Laser	-12	-38	ST, SC, FC	92.0	57.0
15LH	1550	9/125 single mode	Laser (long haul)	-1	-40	ST, SC, FC	144.0	89.4
SF1	1310/1550	9/125 single mode	Laser (WDM), SF1	-12	-34	SC	38.0	23.6
SF2	1550/1310	9/125 single mode	Laser (WDM), SF2	-12	-34	SC	38.0	23.6
SF3	1310	9/125 single mode	Laser (single fiber), SF3	-12	-27	SC/APC	20.0	12.4

## Specifications

### E1/T1 ELECTRICAL INTERFACE

#### Transmission Rate

E1: 2.048 Mbps  
T1: 1.544 Mbps

#### Zero Suppression

E1: HDB3  
T1: B8ZS, AMI

#### Impedance

E1: 75Ω, unbalanced or  
120Ω, balanced  
T1: 100Ω, balanced

#### E1 Interface Connectors

RJ-45, balanced  
BNC, unbalanced

### FIBER OPTIC INTERFACE

See *Table 1*

### GENERAL

#### Diagnostics

Local and remote loopbacks activated via back panel DIP switch

#### Alarm Relay Port

Dry contact via 9-pin, D-type, female connector

#### Indicators

PWR (green) – power status  
LLB (yellow) – local loopback status  
RLB (yellow) – remote loopback status  
OPTICAL AIS (yellow) – **All 1s** string received at the fiber optic interface  
OPTICAL LOSS (red) – BER is over  $10^{-6}$   
ELEC LOSS (red) – electrical interface input is below G.703 level  
ELEC LOSS (red) – electrical interface input is below G.703 level  
ELEC AIS (yellow) – **All 1s** string received at the electrical interface

#### Power

Wide range: 100–240 VAC or  
–40 to –60 VDC  
DC only: 24 VDC

#### Power Consumption

AC: 8 VA max  
DC: 4W max

#### Physical

Height: 4.37 cm (1.7 in)  
Width: 24.0 cm (9.4 in)  
Depth: 17.0 cm (6.7 in)  
Weight: 0.5 kg (1.1 lb)

#### Environment

Temperature: 0°–50°C (32°–122°F)  
Humidity: Up to 90%, non-condensing

**FOM-E1/T1****E1/T1 Fiber Optic Modem****Ordering****SPECIAL CONFIGURATIONS****FOM-E1/T1/\*/#&**

E1/T1 standalone fiber optic modem

**Legend**

- \* Power supply:
- AC** 100 to 240 VAC
  - 48V** -40 to -60 VDC
  - 24V** 24 VDC
- # Fiber optic connector:
- ST** ST connector
  - SC** SC connector
  - FC** FC connector

& Optical wavelength, fiber and transmitter (see *Table 1*)

**85** 850 nm, multimode, VCSEL

*Note: Available with FC connector only.*

**13MM** 1310 nm, multimode, LED

**13L** 1310 nm, single mode, laser diode

**13LH** 1310 nm, single mode, laser diode, long haul

**15L** 1550 nm, single mode, laser diode

**15LH** 1550 nm, single mode, laser diode, long haul (standalone only)

**SF1** WDM single fiber, 1310 nm Tx

**SF2** WDM single fiber, 1550 nm Tx

**SF3** single fiber, 1310 nm Tx/Rx

*Note: When ordering SFx options, do not specify the fiber optic connector type #.*

**OPTIONAL ACCESSORY****RM-33-2**

Hardware for mounting one or two FOM-E1/T1 standalone units in a 19-inch rack

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