CTC union

FRM220-E1/T1

E1/T1 over Fiber

The FRM220-E1/T1 is a fiber media transport for G.703 E1/T1 transmissions designed for point-to-point use. The BNC model provides unbalanced 75 Ohm coaxial E1 connections while the RJ-45 model provides switchable balanced 120 Ohm E1 or 100 Ohm T1 connections over twisted pair wiring. When the FRM220-E1/T1 card is placed in the FRM220 rack with in-band management, the card status, type, version, fiber link status, E1 or T1 link status and alarms for both local card and remote unit can all be displayed. When set for E1 mode, the FRM220-E1/T1 also supports fractional (structured) E1 when connected to a remote FRM220-Data, synchronous data communications converter. In an E1 transmission network where end connection requires synchronous data communication such as V.35 or RS-530 (X.21, RS-449), these units eliminate the need for an extra CSU/DSU. When placed in a single slot chassis and used standalone without management, the card may be configured by DIP switches.

Features

FRM220-E1R & FRM220-E1B

- RJ-45 (USOC RJ48C) or BNC (coaxial) to fiber converter
- Supports HDB3 or AMI Line coding
- Supports Nx64k connection to FRM220-DATA

FRM220-T1

- RJ-45 (USOC RJ48C) to fiber converter
- Supports B8ZS or AMI Line coding
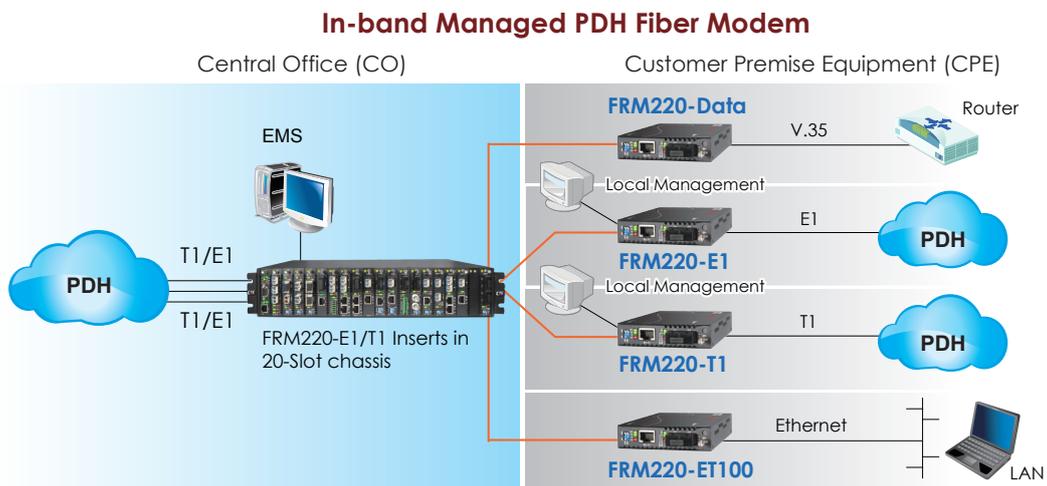- Supports unframed to FRM220-DATA

Common Features

- In-band management via terminal, web, SNMP when in managed FRM220 chassis
- Electrical and optical loop back tests
- Standalone RS232 console (when placed in CH01M)

Specifications

Optical Interface	Connector	SFP-LC / 1x9 (SC, ST, FC)
	Data rate	36.864Mbps
	Line coding	Scrambled NRZ
	Bit Error Rate	Less than 10-10
	Distance	MM 2km, SM 15/30/50km
		WDM 20/40km
	Wavelength	1310nm, 1550nm
Electrical Interface	E1	Connector: E1R: RJ-45(1) 120 Ω E1B: BNC(2) 75 Ω
		Data Rate: 2.048Mpbs
		Line Code: HDB3/AMI
	T1	Connector: RJ-45(1) 100 Ω
		Data Rate: 1.544Mbps
		Line Code: B8ZS/AMI
	Cable type	Cat.3 or higher Twisted-Pair cable

Standards	E1 ITU-T G.703, G.704, G.706, G.732, G.823
	T1 ITU-T G.703, G.704, AT&T, TR-62411, ANSI T1.403
Indications	Power, FX-Link, E1/T1 SIG, Test, SYN, RD, TD, AIS (E1/T1R) Power, FX-Link, E1 SIG, Test(E1B)
Power Input	12VDC
Power Consumption	< 6W
Dimensions	Card: 155 x 20.8 x 88mm (D x W x H)
Weight	120g
Temperature	0 ~ 50℃ (Operating), -10 ~ 70℃ (Storage)
Humidity	10 ~ 90% non-condensing
Certification	CE, FCC
MTBF	65,000 hrs

Application

In-band Managed PDH Fiber Modem

Specifications & design are subject to change without prior notice. Please visit CTC Union website for more details.

Ordering Information

Model Name	Description
FRM220-E1R	E1 RJ-45 to fiber card
FRM220-E1B	E1 BNC to fiber card
FRM220-E1R-SFP	E1 RJ-45 to fiber card (SFP module not included)
FRM220-E1B-SFP	E1 BNC to fiber card (SFP module not included)
FRM220-T1R	T1 RJ-45 to fiber card
FRM220-T1R-SFP	T1 RJ-45 to fiber card (SFP module not included)

Connector Type	Connectivity Distance
SC, ST, FC (Not Applicable for SFP Type)	002: 2km 015: 15km 030: 30km 050: 50km 20A: WDM 20km A type 20B: WDM 20km B type 40A: WDM 40km A type 40B: WDM 40km B type

Connector Type — Connectivity Distance

FRM220 – ☐☐☐ – ☐☐☐☐☐
Example: FRM220 – E1R – SC002

FRM220 – ☐☐☐ – ☐☐☐☐☐
Example: FRM220 – T1R – SC015

Note: This card may placed in CH01 chassis, or set by serial console if placed in CH01M chassis.
When connected as a remote to a managed central chassis, this card supports in-band management and only needs a CH01 chassis.

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