# FRM220-FOM04
## 4X E1/T1 + FE Fiber Multiplexer

The FRM220-FOM04 is a 4 channel E1/T1 fiber multiplexer with an additional wire speed 100M Ethernet trunk, plus order wire and clear channel RS-232, constructed as a two slot wide card for the FRM220 series. When the FRM220-FOM04 card is placed in the FRM220 rack with NMC, the management can view the converter card's status, type, version, fiber link status and alarms. The card can be configured to enable or disable the port, reset the port, and provide local or remote diagnostic loopback. The 1+1 redundant optical aggregate of this multiplexer employs industry standard pluggable optics (SFP) operating at OC3/STM-1 data rates (155M). The SFP modules can be chosen to support single-mode, multi-mode, single fiber bi-directional or Coarse and Dense Wave Division Multiplexing (CWDM and DWDM).

## Features

- 4 channels unframed E1/T1 (transparent)
- 10/100Base-TX Ethernet (100M wirespeed)
- Auto MDI/MDIX & Auto-Negotiation or Force Mode
- Supports flow control 802.3x & 9K jumbo packets
- Supports link fault Pass-Through for Ethernet
- One clear channel RS232 up to 250Kbps(Async)
- 1+1 fiber protection, less than 50ms

- Supports Digital Diagnostics Monitoring Interface (DDMI) SFP
- AIS on signal loss on E1/T1 and fiber port
- Loopback test on E1/T1, RS232, fiber ports
- Supports local or remote In-band management (Monitor or Configure status) by SNMP manager and console port
- Supports Order wire Ear / Microphone port
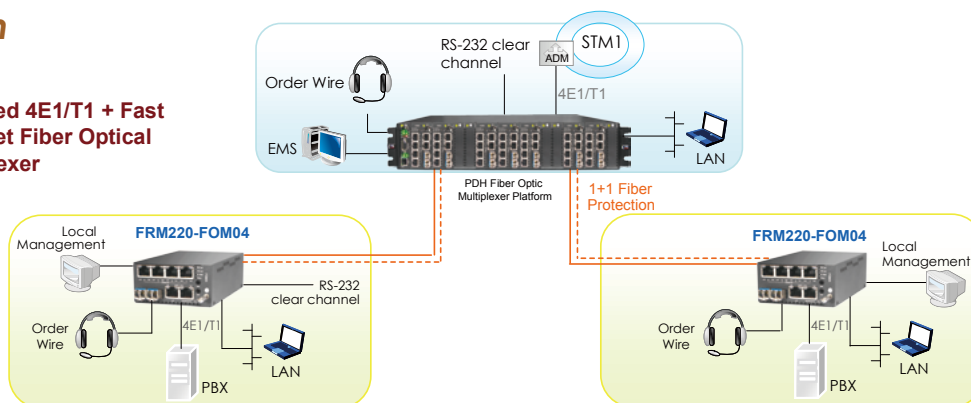- Supports On-Line F/W upgrade & Dying Gasp

## Specifications

| E1/T1 ports | | |
|---|---|---|
| Framing | Unframed (transparent) | |
| Bit Rate | E1:2.048 Mb/s , T1: 1.544Mb/s | |
| Line Code | E1:AMI/HDB3, T1: AMI/B8ZS | |
| Line Impedance | E1: Unbalanced 75 ohms (BNC cable) | |
| | E1: Balanced 120 ohms (RJ-45) | |
| | T1: Balanced 100 ohms (RJ-45) | |
| Receiver sensitivity | Short haul | |
| "Pulse" Amplitude | Nominal 2.37V+/-10% for 75 ohms | |
| | Nominal 3.00V+/-10% for 120 ohms | |
| "Zero" Amplitude | +/-0.3V | |
| Internal Timing | +/-30 ppm | |
| Jitter Performance | According to ITU-T G.823 | |
| Performance monitoring | According to ITU-T G.821 | |
| Standards | ITU-T G.703, G.704, G.706 and G.732 | |
| Interface Connectors | RJ-45 | |

| E1/T1 ports | Test Loops | LLB (Local Loop Back) |
|---|---|---|
| | | NELB (Near End Loop Back) |

| E1/T1 ports | Test Loops | RLB (Remote Loop Back) |
|---|---|---|
| | | RRLB (Request Remote Loop Back) |
| **Fiber** | Connector | SFP LC |
| | Data Rate | 155 Mbps |
| **Ethernet** | Interface Type | 10/100Base-TX |
| | Connector | RJ-45 |
| | Standards | IEEE 802.3, 802.3u |
| | Duplex modes | full/half |
| **Indications** | FX1 Link, FX2 link, E1/T1 Mode/Link/Loopback test, Order wire phone indicator, LAN Link/Speed. | |
| **Power Input** | 12VDC | |
| **Power Consumption** | < 7W | |
| **Dimensions** | 140 x 88 x 42mm (D x W x H) | |
| **Weight** | 200g | |
| **Temperature** | 0 ~ 50℃ (Operating), -10 ~ 70℃ (Storage) | |
| **Humidity** | 10 ~ 90% RH (non-condensing) | |
| **Certifications** | CE, FCC, RoHS compliant | |

## Application

**Managed 4E1/T1 + Fast Ethernet Fiber Optical Multiplexer**

## Ordering Information

| Model Name | Description |
|---|---|
| FRM220-FOM04-SR | 4 x E1/T1 RJ-45 and 100Mbps Ethernet Fiber Optic Multiplexer(optional SFP module) |
| FRM220-FOM04-SB | 4x E1 BNC and 100Mbps Ethernet Fiber Optic Multiplexer(optional SFP module) |

FRM220 – FOM04 – ☐☐

Example: FRM220 – FOM04 – SR

**Note:** This card may be locally configured by its own console when placed in CH02M with fan. When connected as a remote to a managed central chassis, this card supports in-band management and only needs a CH02M chassis.

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