Version 1.6

Ethernet over 8 E1

XM-F8E1-4TTX

Features

- **Ethernet over PDH, EoPDH, EoE1**
- **XM-F8E1-4TTX-R**
  Ethernet over 1 to 4 E1
  G703/G704 120ohms RJ45
- **XM-F8E1-4TTX-B**
  Ethernet over 1 to 4 E1
  G703/G704 75ohms 2 BNC
- Support bounding of G703 or G704 n 64K aver DACS
- Clock from E1 or internal
- EoPDH in GFP-F/VCAT mode and LCAS protocol according to: IUT-I G.7041, G.7042, G.7043 and G.8040
- With LCAS automatic recovery of aggregation of lost/recovered E1

Ethernet side:

- Version 4 x10/100 BaseT
- Version 2 x10/100 BaseT and 1 100FX SFP (option with MOQ)
- Switch Layer2 support with VLAN 802.1q (up 32) and Q-in-Q tag/untag
- Jumbo frame 2KB transparent

Management:

- Over consol port, LAN or WAN
- CLI in Telnet/SSH*, http SNMPv1,v2c,v3*

Models

- 1 U 19'' with brackets
- Versions 120ohms w RJ45
- Version 75ohms w BNC
- Power AC or DC with automatic detection
- Hardened version –20 to 70°C (option with MOQ)

ETHERNET BRIDGING OVER 8E1—EOPDH

The **XM-F8E1-4TTX** are Ethernet Inverse Multiplexer, they provides point to point connectivity from 10/100BaseT LAN to LAN over 8 parallel E1 links. The **XM-F8E1-4TTX** is a solution for Telco's to deploy large Ethernet bandwidth over existing E1 infrastructures.

The **XM-F8E1-4TTX** use for Ethernet transport as EoPDH (or EoE1) the GFP and VCAT encapsulation mode and the protocol LCAS really performing with the automatic E1 channel failure detection and re-assign the number of E1 channels for transport of Ethernet traffic. The system is full compliant with the ITU-T G.7042, G.7043 and G.8040 standards. Then they are compatible with large EoPDH switches like XM-SW16E1 (16E1) or XM-SW2STM1-2CB (63E1) or from other vendor supporting these ITU-T recommendation.

The **XM-F8E1-4TTX** system accept 220ms of delays between E1 and can use E1 of SDH network or of Microwave Radio. The transit time due to the bounding mode is very low,

The standard system is available with 4 coppers 10/100Baset LAN ports or in option it can be delivered with 2 coppers interfaces plus one 100FX fiber optic Ethernet with SFP.

The **XM-F8E1-4TTX** system owns Layer 2 switch and each Ethernet traffic of connected customer to the 4 Ethernet ports can be tagged in VLAN 802.1q or double tagged for Q-in-Q traffic.

This equipment will use preferably the E1 unframed but can run over G704 framed n 64Kbps. Then the EoPDH can cross DACS or G704 transmission equipment. In this case the TS0 will be connect to the TS1 of the E1 links to carry the bounding information and the LCAS.

Ethernet over 8 E1

PRODUCT SPECIFICATION

Ethernet over PDH — EoPDH — EoE1:

Function	XM-F8E1-4TTX support one point to point 1 VCG over 8E1
Encapsulation	GFP-F and VCAT modes and LCAS protocol, ITU-T G.7042,G.7043.
Bounding	Maxi acceptable delay between E1 : 256ms

Compatibility of CXR range:

XM-F8E1-4TTX:	Concentrator: XM-S8E1 (8E1) , XM-SW16E1 (16E1) or XM-SW2STM1-2CB (63E1) in GFP

Line Interface:

Line Rate	2.048 Mbps ± 50 ppm
Electric	75 ohm or 120 ohm twisted pair
Connector	8 RJ48C (120 ohm) for -R- version 8 BNC (75 ohm) for –B– version,
Output signal	ITU G.703 or G.704,
Line Code	HDB3
Input Signal	ITU G.703
Jitter	ITU G.823

Unframed or Frame links: The XM-F8E1 are using preferably unframed links but in some case the transmission cross DACS or framed modems, then the XM-F8E1 can work in G704 mode.

Framed mode	TS0 is duplicating in TS1 to carry bounding and LCAS when crossing the G704 devices. The bandwidth of the FE1 link is TS0 to TSn with n from 2 to 31. But the real bandwidth is 60kbps + (n-1) x 64kbps

Diagnostics Test:

Loopbacks	Line Loopback, and Local Loopback
Test	Channel statistic

Ethernet:

Connector	4 x 10/100BaseT ports RJ45 or 2 x 10/100BaseT ports RJ45 + 100FX SFP (option need MOQ)
Switch	Layer 2 switch supports:
VLAN	802.1q w simple and double tag/untag; Q-in-Q
MAC	Bridge with 2000 MAC address memory
MTU	2047 Bytes Jumbo frame

Management :

Over	Consol port RS232/RJ45/115.2kbps, LAN port or WAN EoE1
Protocol	CLI in Telnet or SSH*, https and embedded SNMP v1, v2c or v3*

Physical:

Dimensions	XM-F8E1-4TTX : 432 x 203 x 44 mm (W x D x H)
Mounting	Metal desktop or 19" 1U, supply with brackets
Power	-36V to –72Vdc or 100-240Vac with automatic detection, supply with 2 cables 10W consumption
Temperature	Standard version –5 to 50°C Hardened version -20 to + 70°C option need MOQ)
Humidity	0-95% RH (NON-CONDENSING)

MODEL NUMBER

ETHERNET INVERSE MULTIPLEXER OVER x E1	
XM-F8E1-4TTX-R-ACDC	Ethernet bridge/inverse multiplexer, 4 ports 10/100BaseT over 8 E1 G703/G704 120ohms RJ45, supports 1 VCG GFP/VCAT and LCAS, VLAN 802.1q et Q-in-Q, AC or DC 48v power supply
XM-F8E1-4TTX-B-ACDC	Idem with 8 E1 G703/G704 75ohms 2 BNC
ETHERNET INVERSE MULTIPLEXER OVER x E1 and L2 SWITCH EoE1	
XM-S8E1-4TTX-R-AD	Ethernet bridge/inverse multiplexer, 4 ports 10/100BaseT over 8 E1 G703/G704 120ohms RJ45, switch Layer 2 EoE1, supports 8 VCG HDLC/BCP-PPP/GFP/VCAT and LCAS, VLAN 802.1q et Q-in-Q, DC 48v power supply. Working temperature -10/+50°C.
XM-S8E1-4TTX-B-AD	Idem with 8 E1 G703/G704 75ohms 2 BNC
XM-S8E1-4TTX-BH-DC	Idem with 8 E1 G703/G704 75ohms 2 BNC and working temperature -20/+70°C. * Need MOQ please contact us.
XM-SW16E1-R-2TG-2AD	Inverse multiplexer 16E1 G703 120ohms RJ45, switch 16 E1 and maxi 31 VCG HDLC/BCP-PPP/GFP, 2 10/100/1000BaseT ports, 19" 1U, dual universal AC & DC 48v power supply
XM-SW16E1-B-2TG-2AD	Idem with 16 E1 G703/G704 75ohms 2 BNC
XM-SW16E1-BH-2TG-2D	Idem with 16 E1 G703/G704 75ohms 2 BNC and working temperature -20/+70°C. * Need MOQ please contact us.
XM-SW16E1-RH-2TG-2D	Idem with 16 E1 G703/G704 120ohms RJ45 and working temperature -20/+70°C. * Need MOQ please contact us.
XM-SW2STM1-2CB-2AD	Inverse multiplexer or EoPDH concentrator of 63 E1 over 63 VC12 with TM(1+1) or ADM w 2 STM1 (2 SFP slots), HDLC /BCP-PPP/GFP, 2 Combo ports 10/100/1000BaseT & SFP, 19" 1U, power supply 2 AC and 2 DC48v

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