Ethernet over multiple E1

Version 1.1

XM-SW16E1-4TTX

INVERSE MULTIPLEXER 16E1
CONCENTRATOR OF 16 E1 EOPDH

Features

- Support 1 to 16 E1 G703/G704

Functions EoPDH:

- Point-to-Point inverse mux
- Ring inverse mux*
- 16 E1 EoPDH switch of 1, 2 , 4 or 8E1
- E-Tree, E-LAN and EPV-LAN switch

Layer transport on E1

- HDLC for 1 to xE1
- PPP-BCP RFC3585 for 1 E1
- GFP-F for x E1 comply with IUT-I G.7041, G.7042, G.7043

Ethernet side:

- 4 x10/100Baset
- Switch layer 2 with 10Gb fabric
- Tagging per port 802.1p or 802.1q
- Double Tagging. Q-in-Q
- 2KBytes frames transparent transport soon 10KB
- 30 WANs with maximum 4 per E1

Protection:

- Ring protection proprietary adapted to E1 1s maxi*
- STP/RSTP, MSTP *

Management:

- Over consol port or an Ethernet port
- In band over a VLAN
- By CLI command, https, SSH, SNMP V1, V2c
- Management of distant device over VLAN and E1.

Models

- 1 U - 19''
- Dual AC/DC 230vac/48vdc
- 120ohms version w 16RJ45
- 75ohms version w 32 BNC

POINT-TO-POINT OR MULTIPOINT/RING EOPDH

The XM-SW16E1-4TTX is an Ethernet inverse multiplexer provides connectivity from 10/100BaseT LAN to LAN over multiple E1 links up to 16.

XM-SW16E1-4TTX can be used with jumps of multiple E1 in ring to distribute

Ethernet with a fast protection based on E1 events. This jumps of parallel E1's are generally microwave radio or G.SHDSL in parallel.

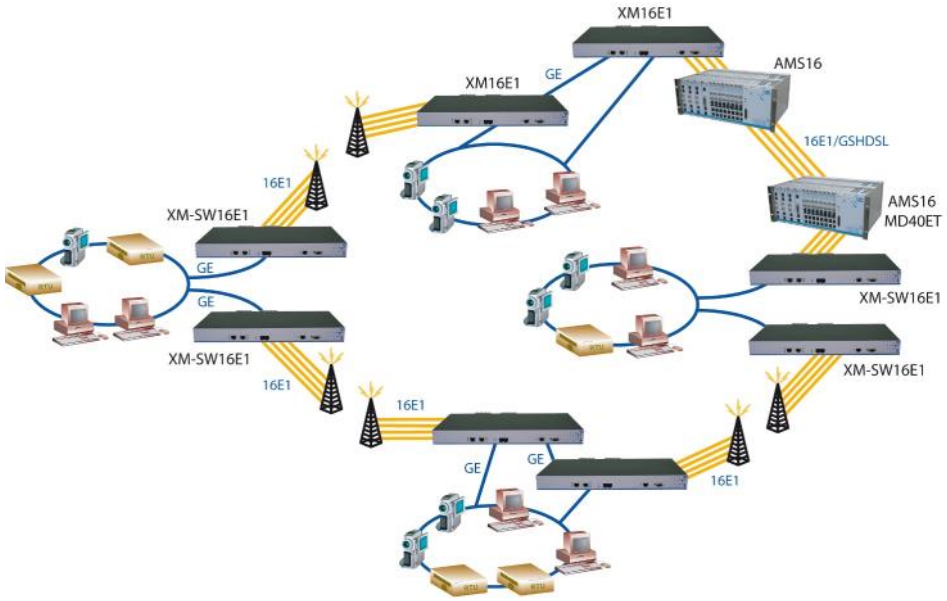
The XM-SW16E1-24TTX is also a switch of EoPDH, a solution to concentrate

POINT-TO-POINT INVERSE MULTIPLEXER EOPDH

Ethernet links of single E1, in HDLC or PPP or GFP/VCAT, or 4/8 E1, in HDLC or GFP/VCAT with LCAS protocol. This configuration is particularly used to deploy Ethernet distribution networks, with Q-in-Q services, for Telco's or large organization witch own of TDM/E1 infrastructure.

The **XM-SW16E1-4TTX** as a **point to point inverse multiplexer** use the HDLC encapsulation for Ethernet transmission over E1 TDM links in parallel. The new software will use the GFP with VCAT encapsulation modes and the LCAS protocol really performing bounding with automatic E1 channel failure detection and re-assigning the number of E1 channels for transport of Ethernet traffic. The system is full compliant with the ITU-T G.7041, G.7042, G.7043 and G.8040 standards.

RING OF INVERSE MULTIPLEXERS EOPDH



The ***XM-SW16E1-4TTX*** is particularly interesting to deploy a Ethernet ring over E1 microwave radio, DSL coppers. Typically the transport domain must deploy secure Ethernet infrastructure over existing E1 infrastructure.

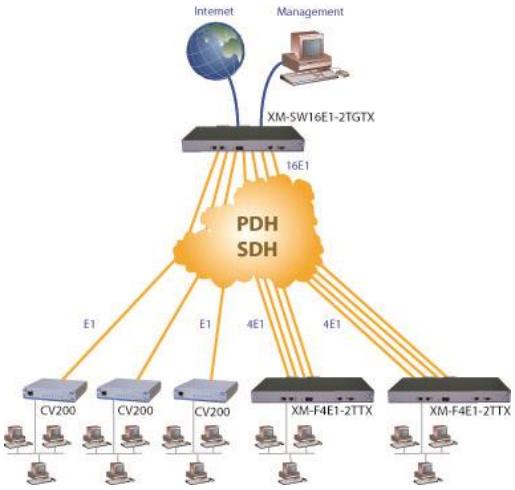
The ***XM-SW16E1-4TTX*** is supporting a ring protection proprietary adapted to the E1 evens with a recovery delay of less than 5s.It support also IEEE Spanning Tree Protocol.

The system working in HDLC or GPP/ VCAT with LCAS is managing the loss or recovery of E1 links without interruption of service.

CXR an complete offer of Ethernet transport over TDM with interoperability :

CV200-TTX *EoPDH E1*
XM… *EoPDH x E1*
CVE3T3-TTX *EoPDH E3*
XM-STM1 *EoPDH STM1*
HX9400S *EoSDH*

GIGABIT ETHERNET SWITCH OF 16 E1 EOPDH



The ***XM-SW16E1-4TTX*** is a switch of E1 carrying Ethernet over TDM EoPDH.

This application mainly used by Telco or large organization with E1 infrastructure to support an Ethernet network of transport.

The ***XM-SW16E1-4TTX*** support the concentration up to 16 ***CV200-TTX*** working in HDLC or BCP-PPP, or 4 inverses multiplexers ***XM-F4E1-2TTX*** or 2 ***XM-F8E1-2TTX*** in GFP/VCAT.

This switch can concentrate a mix of E1 links from ***CV200-TTX*** in HDLC or PPP-BCP and 4/8 E1 links connected to ***XM-F4E1-2TTX/ XM-F8E1-2TTX*** in GFP.

All of these equipments are supporting the 802.1q simple or double VLAN tagging or Q-in-Q. For strategic raison the tagging can be done in the CPE side or in the CO side ***XM-SW16E1-4TTX.***

The ***XM-SW16E1-4TTX*** is a Layer 2 switch with warranties of access security between E1 links. The management of all devices CPE+CO can be integrate in one GE uplink port within the same C-VLAN or S-VLAN to simplified the administration of the equipments.

PRODUCT SPECIFICATION

Line Interfaces:

Line Rate	16 E1 at 2.048 Mbps ± 50 ppm
Electric	75 ohm or 120 ohm twisted pair
Connector	RJ48C (120 ohms) version **XM-SW16E1-4TTX-R** BNC (75 ohms) version **XM-SW16E1-4TTX-B**
Output signal	ITU G.703
Line Code	HDB3
Input Signal	ITU G.703
Jitter	ITU G.823

Diagnostics Test:

Loopbacks	Line Loopback, Payload Loopback, and Local Loopback
Remote Loopbacks	Line Loopback, and Payload Loopback

Ethernet over PDH:

Inverse multiplexer	HDLC Protocol G704 or GFP/VCAT with or without LCAS
Concentrator E1	HDLC Protocol over single E1 G703/G704 or PPP-BCP RFC3516
Concentrator n E1	HDLC Protocol single E1 G704 only, GFP/VCAT w or w/o LCAS
Delays between E1	220ms maximum
Bounding	Selection of maximum 16 VC Virtual Channel of 0,1 or 4 E1, and 8 E1
Switch of EoPDH	E-Tree, E-LAN and EPV-LAN between E1 ports and GE ports Support up to 4 WAN per ports and 30 WAN per chassis

Ethernet:

Interfaces	4 x 10/100Baset, IEEE802.3ab standard
Connector	4 RJ45
Switch	Layer 2 Switch layer 2 with 10Gb fabric
VLAN	802.1p and q, tagging/untagging simple and double, Q-in-Q
Maximum frame	2000 bytes
Broadcast	filtering
Ring protection	Propriety ring protection based on E1 events with recovery time < 2s*, Spanning Tree Protocol.
IGMP	Support IGMP snooping V1 and V2.

Management :

Connector	DB9 and SNMP using one of the Ethernet up-link
Protocol	CLI, https, SSH V2 and embedded SNMP V1,V2c

Physical:

Dimensions	1U, 19" ETSI Chassis 432 x 44 x 300 mm (WxHxD)
Power	Dual AC/DC AC:100-240Vac, 50/60 Hz DC: 48Vdc, 0.355A Consumption 17 watts
Temperature	0 -50°C
Humidity	0-95% RH (NON-CONDENSING)
Mounting	Desk-top stackable, wall mount

ORDERING INFORMATION

XM-SW16E1-4TTX-B

Inverse multiplexer 16E1 G703 75ohms BNC, switch 16 E1 HDLC/BCP-PPP/GFP, 4 ports 10/100BaseT, 19" 1U, dual AC/DC power supplies.

XM-SW16E1-4TTX-R

Inverse multiplexer 16E1 G703 120ohms RJ45, switch 16 E1 HDLC/BCP-PPP/GFP, 4 ports 10/100BaseT, 19" 1U, dual AC/DC power supplies.

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