XM-SW16E1-2TG
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:

- 2 x10/100/1000Baset
- 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, or in SNMP V2, V3*
- Management of distant device over VLAN and E1.

Models

- 1 U - 19''
- Dual AC or DC 48v versions
- 120ohms version w 16RJ45
- 75ohms version w 32 BNC

POINT-TO-POINT OR MULTIPOINT/RING EoPDH

The XM-SW16E1-2TGTX is an Ethernet inverse multiplexer provides connectivity from 10/100/1000BaseT LAN to LAN over multiple E1 links up to 16.

XM-SW16E1-2TGTX 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-SW16E1-2TGTX is also a switch of EoPDH, a solution to concentrate 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.

POINT-TO-POINT INVERSE MULTIPLEXER EoPDH

The **XM-SW16E1-2TGTX** 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.

The **XM-SW16E1-2TGTX** use system accept a dalais of 220ms between E1 and can use E1 of SDH network or of Microwave Radio. The delay due to the bounding mode is very low,

XM-SW16E1-2TGTX support DB9S console port, Ethernet SNMP port which allows users to manage the local or distant device in CLI command or in SNMP.

Ethernet over multiple E1

RING OF INVERSE MULTIPLEXERS EoPDH
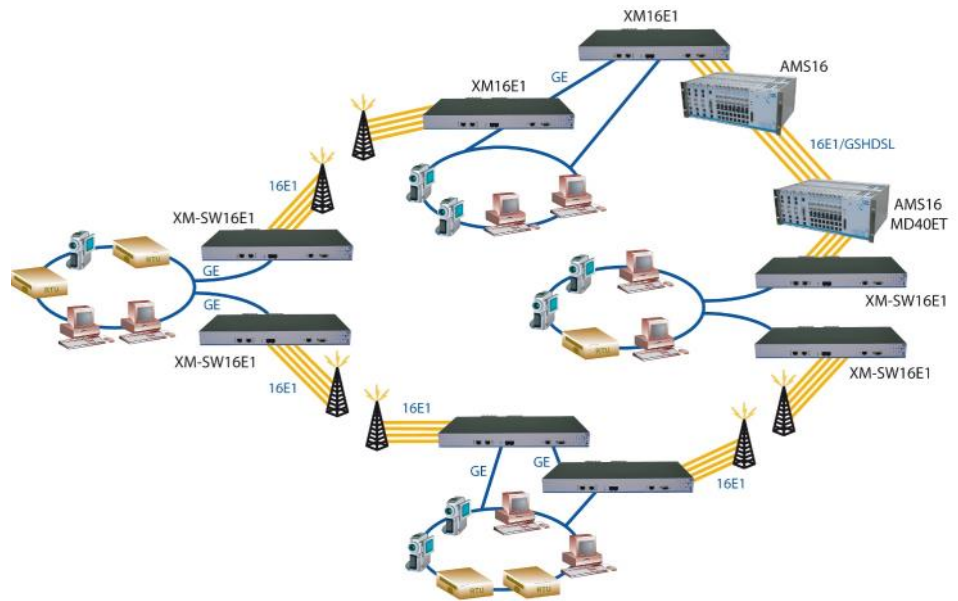
The **XM-SW16E1-2TGTX** is particularly interesting to deploy a Ethernet ring over E1 microwave radio, DSL coppers. Typically the transport domain must deploy secure Ethernet infrastructure over existing E1 infrastructure.
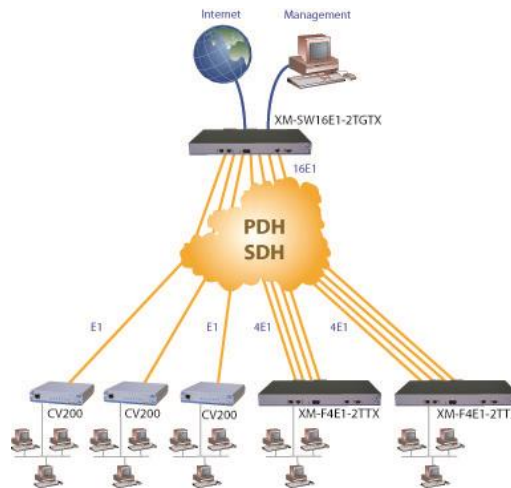
The **XM-SW16E1-2TGTX** is supporting a ring protection proprietary adapted to the E1 evens with a recovery delay of less than 5s.It support also IEEE Spanning Tree Protocol.

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

GIGABIT ETHERNET SWITCH OF 16 E1 EoPDH

The **XM-SW16E1-2TGTX** 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-SW16E1-2TGTX** 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-SW16E1-2TGTX.**

The **XM-SW16E1-2TGTX** 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.

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

MD40FT *EoGSHDSL*
CV200-TTX *EoPDH E1*
XM… *EoPDH x E1*
CVE3T3-TTX *EoPDH E3*
XM-STM1 *EoPDH STM1*
HX9400S *EoSDH*

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-R-2GX**
	BNC (75 ohms) version **XM-SW16E1-B-2GX**,
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	2 x 10/100/1000Baset, IEEE802.3ab standard
Connector	2 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 V2, V3*

Physical:

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

* In development all released plan 2012 Q4

Smart Solutions for
Smart Networks

www.cxr.com

ORDERING INFORMATION

XM-SW16E1-BNC-2TG-2AC

Inverse multiplexer 16E1 G703 75ohms BNC, switch 16 E1 HDLC/BCP-PPP/GFP, 2 ports 10/100/1000BaseT, 19" 1U, dual AC power supplies.

XM-SW16E1-BNC-2TG-2DC

Inverse multiplexer 16E1 G703 75ohms BNC, switch 16 E1 HDLC/BCP-PPP/GFP, 2 ports 10/100/1000BaseT, 19" 1U, dual DC 48V power supplies

XM-SW16E1-RJ-2TG-2AC

Inverse multiplexer 16E1 G703 120ohms RJ45, switch 16 E1 HDLC/BCP-PPP/GFP, 2 ports 10/100/1000BaseT, 19" 1U, dual AC power supplies.

XM-SW16E1-RJ-2TG-2DC

Inverse multiplexer 16E1 G703 120ohms RJ45, switch 16 E1 HDLC/BCP-PPP/GFP, 2 ports 10/100/1000BaseT, 19" 1U, , dual DC 48V power supplies

THE EoPDH SOLUTIONS OVER E1, E3 AND STM-X

CV200-TTX
Ethernet over 1 E1
VLAN tagging, Q-in-Q

CV200-TTX

HDLC, HDLC-X or PPP-BCP
Over E1
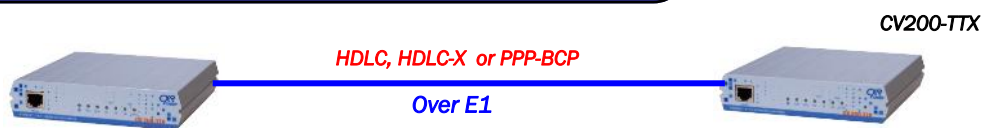
XM-F4E1-2TTX
Point to point
Ethernet over 4 E1
VLAN tagging,

XM-F4E1-2TTX

GFP/VCAT w or w/o LCAS
Over 4 E1
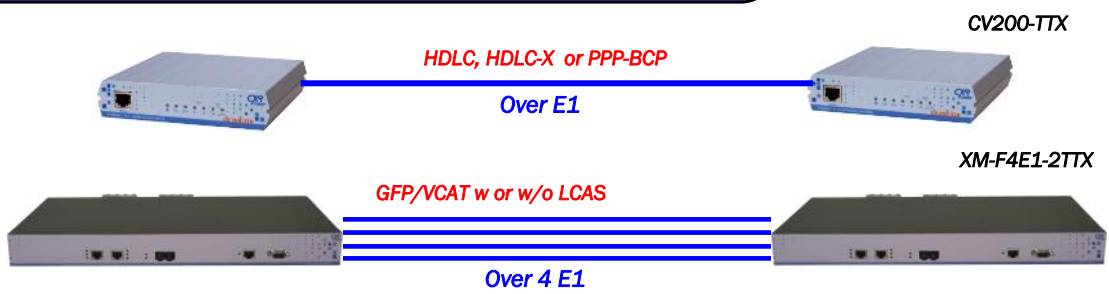
XM-F8E1-2TTX
Point to point
Ethernet over 8 E1
VLAN tagging,

XM-F8E1-2TTX

GFP/VCAT w or w/o LCAS
Over 8 E1
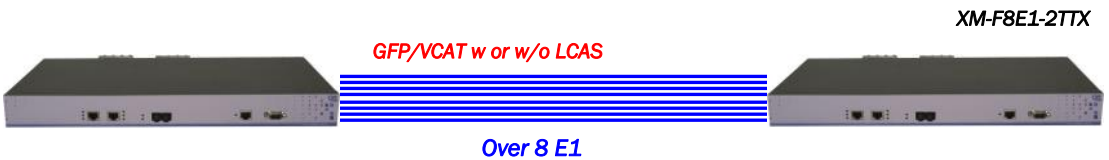
XM-SW16E1-2TGX
Point to point Ethernet
over 16 E1
VLAN tagging, Q-in-Q,

XM-SW16E1-2TGX

HDLC or GFP/VCAT w or w/o LCAS
Over 16 E1
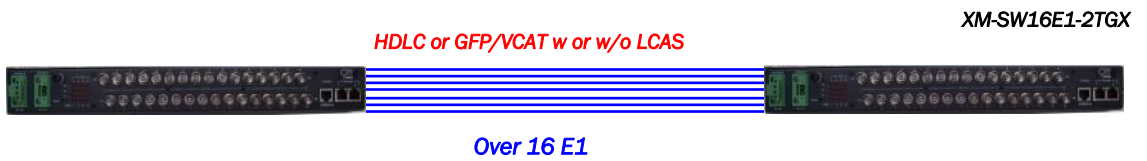
XM-SW16E1-2TGX
Ethernet switch
of 16 E1 EoPDH
VLAN tagging, Q-in-Q,

HDLC or GFP/VCAT w or w/o LCAS

XM-F8E1-2TTX

16 VC of 1, 4 or 8 E1

HDLC or PPP-BCP

CV200-TTX
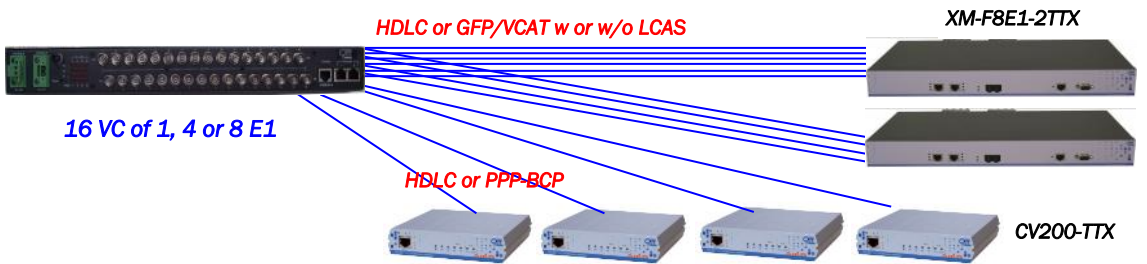
XM-SW2STM1-2CB
Point to point Ethernet
over 63 E1
Include in STM1

EoPDH HDLC & GFP

SDH

XM-SW2STM1-2CB

63 E1 over SDH STM1   STM1 w 63 VC12 EoPDH

XM-SW2STM1-2CB
Ethernet switch of 63
E1 EoPDH from CV200-
over one or two frac-
tioned STM1 TM or
ADM

EoPDH HDLC, PPP or GFP

SDH   G703

Up to 63 CV200-TTX

E1

63 E1 over SDH STM1

XM-F4E1-2TTX   XM-F8E1-2TTX

CV-E3T3-TTX
Ethernet over 1 E3

HDLC

CV-E3T3-TTX

Over E3 34Mbps or T3 45Mbps

THE EoSDH/SONET SOLUTIONS STM-1/4/16

CXR provide different solutions of Ethernet transport over New Generation SDH with the **HX9100** an STM1 ADM/TM, the **HX9400S** a compact STM1/4 ADM/TM , the **HX9400R and HX9416R** modular SDH/SONET STM1, STM4 and STM16 ADM/TM/HUB systems.

These devices are supporting the modes: E-Line as Point to Point and E-LAN as multipoint over n VC12, n VC3 and n VC4 up to 4 VC4. Transport inside SDH circuit is using GFP/VCAT mode or PPP-BCP/VCAT mode according to RFC2615 for switching networks and both with or without LCAS