16E1- 4x10/100 Ethernet converter   EOP-16E1-4ETH

◆ **16E1 - 4 x 10/100 Ethernet converter with VLAN dot1Q support and professional GUI NMS**

➢ Features

For 16 E1 interface ports:

- Supports automatic removal and recovery of E1 channels that used for carrying payload. The E1 channels that have urgent alarm, such as LOS and LOF, or the Bit Error Rate (BER) exceeds 1E-6, are removed automatically, and during this period, some Ethernet packets may be lost; It will be resumed when the fault dismisses;

- Supports the embedded E1 BER Tester function, to detect any E1 channel of 16 channels. When the embedded E1 BER Tester is used via CLI command, the particular E1 channel on testing mode can't convey E1 service, while the other E1 channels are not affected by the BER test;

- Jitter tolerance and jitter transfer characteristic compliant to ITU-T G.823.

- The differential delay between any two of the 16E1 can be up to 220ms; when the factual differential delay exceeds 220ms, alarm is generated and Ethernet is cut off.

For 4 10/100 Ethernet Interface Ports:

- Provides up to 4 shared Ethernet interfaces.
- 1024 MAC address table and 5-minute aging time.
- Accepts frames with length between 64 and 1916 bytes (otherwise filtering).
- VLAN setting function based on tags compliant to IEE 802.1Q.
- Throughout statistic of the Ethernet packets based on port, such as error packets.
- Configurable pause flow control .
- Optional optical Ethernet interface compliant to IEEE 802.3u 100BASE-FX standard (can communicate with remote optical transceiver) and electrical Ethernet interface compliant to IEEE 802.3u 100 BASE-TX standard.
- By default, 4 Ethernet ports are 10/100 Base-T Based, but fiber optical FX type ports are also possible with ranges up to 120 km.

For GUI Professional Management Interfaces

- GUI via serial RS232 port and telnet.
- EOP-16E1-4ETH network management platform based on SNMP.

Special features and compliances

- GFP-F encapsulation recommendation G.7041.
- Virtual concatenation(VCAT) and Link Capacity Adjustment Scheme (LCAS) recommendation G.7042.
- Ethernet to nxE1 mapping recommendation G.7043.
- Ethernet to single E1 mapping recommendation G.8040.
- Bandwidth is increased without damaging the Ethernet data, and can be decreased no injury through management;
- E1s in the local and remote sides can be arranged arbitrarily, such as, the remote E1 port 1 can communicate with

local E1 port

- Supports bandwidth unbalanced usage – when some E1s cannot work properly (i.e. the bandwidth of the sending and receiving can be 2E1 and 5E1 respectively).
- Provides the E1 connection-ship between local and remote system (accessed via GUI).
- E1 tributary signal loopback automatic detect and cut off; when some E1 signal is detected as looped back, it will be not employed for carrying payload temporarily, and when the loopback is broken, this E1 will resume to be used.
- Remote/local E1 loopback function will be convenient for E1 line(transmission system included) testing .
- Complete alarm which is selectable to be shown between local and remote. Historical & Current alarm databases.
- Single-board design with small dimension, 1U high and low power consumption.

➢ Introduction

16E1-4x10/100 Ethernet converter with GFP-F, VC (Virtual Concatenation), LCAS support and professional GUI NMS. Besides the basic idea of bundling 16E1 to get 32 Mbps via professional GUI NMS access to wide array of user friendly features are possible now.

EOP-16E1-4ETH is the IP over TDM converter, which supports the conversion from MAC frames to 1 – 16E1 lines. The maximum bit rate is 32Mbps (16 E1 lines). With different LAN card, E1 card and power card, it can meet various requirements and can be customized to fit your network needs. It not only provides alarms and status of the E1 line and Ethernet interface together with advanced management functions, such as, throughput statistic of the Ethernet, but also supports the Unification Network Management via SNMP and GUI. Compliant to international standards, the device can communicate with products from other manufacturers adopting the same standards.

4 Fast Ethernet interfaces operate in full or half duplex with flow control, the mode can be set or monitor by management software. Unit also has a multi-port bridging capability handling up to 5 bridge ports. The Bridge supports two modes of operation: VLAN-Enable and VLAN-Disable mode. In VLAN-Enable mode, it creates sub-groups of bridge ports within the bridge. Each sub-group is associated with a unique VLAN ID (VID). Frames containing a VID can be forwarded only between bridge ports which are members of the specific VLAN, enabling a total separation between different VLAN users within the same bridge; In VLAN-Disable mode, the bridge forward frames ignoring the VID.

VLAN can be configured via GUI Management software.

➢ Specification

| Electrical Ethernet Interface	
Connector	RJ-45
Working mode	Auto - negotiation is the default setting
Standard	Complies with IEEE 802.3 and 10/100 Base-Tx Ethernet Protocol
E1 interface	
Bit rate	2.048Mb/s ±50ppm
Code format:	HDB3
Impedance	75 Ohm (BNC),120 Ohm(RJ45)optional
Standard	Jitter transfer, Jitter tolerance comply with ITU-T G.703、G.704、G.823 recommendations
Ethernet related parameters	

MAC address table capacity	1024
MAC aging time	5 min
Minimum frame-length	64 bytes
Maximum frame-length	1916 bytes
Working mode	Support auto-negotiation compliant to IEEE802.3u. Enabled as default
VLAN function	Disabled as default, you can set VLAN's from GUI
Flow control	Enabled as default
Bandwidth	≈n×E1（n=0～16）Default is 16×E1 ≈32Mbps
Physical	
Dimension	434mm×44mm×155mm（width×height×depth）
Weight	5kg
Power consumption	8W±10％
Power supply	DC 48V or AC96 -260V or DC&AC dual power
Operating temperature	-5℃～65℃
Storage temperature	-40℃～70℃
Humidity	≤95％，free from condensing

➢ Ordering Information

| Model NO.	Description
EOP-4E1-4ETH	4E1(75ohm&120ohm),4*10/100BASE-Tx , GUI manager,AC96-260,DC48V
EOP-8E1-4ETH	8E1(75ohm&120ohm),4*10/100BASE-Tx, GUI manager,AC96-260,DC48V
EOP-16E1-4ETH	16E1(75ohm or 120ohm),4*10/100BASE-Tx, GUI manager,AC96-260,DC48V
EOP-4E1-3ETH/Fx	4E1(75ohm&120ohm),3*10/100BASE-Tx+1*100M Fx, GUI manager,AC96-260,DC48V
EOP-8E1-3ETH/Fx	8E1(75ohm&120ohm),3*10/100BASE-Tx+1*100M Fx, GUI manager,AC96-260,DC48V
EOP-16E1-3ETH/Fx	16E1(75ohm or 120ohm),3*10/100BASE-Tx+1*100M Fx,, GUI manager,AC96-260,DC48V

➢ Application
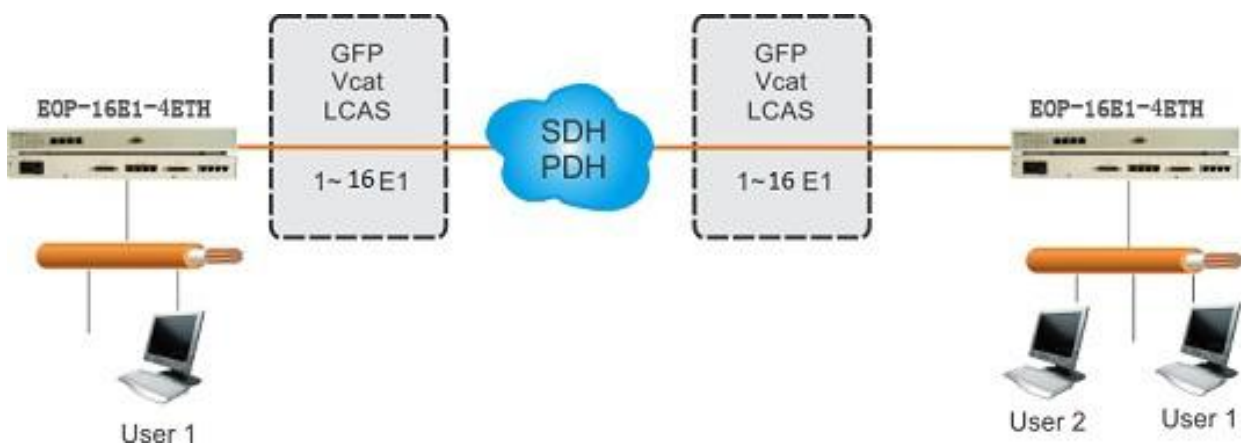
Device networking application - unit's are connected to using 16E1 lines directly to PDH or SDH network, and special interconnection features are possible at SDH level due to GFP-F, VC and LCAS technology support.
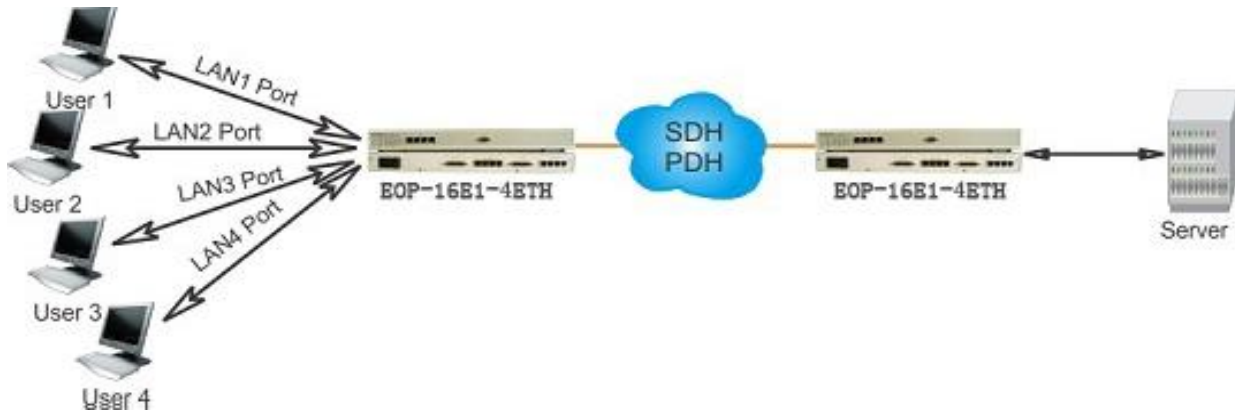
Access Server - Two EOP-16E1-4ETH devices are connected via SDH or PDH transmission network interconnection. Using GFP and VC technology get together 1~16E1 and provide 16×2Mbps transmission channel bandwidth used to transport Ethernet services. Transmission channel bandwidth dynamic adjustment using LCAS technology. 'User 1' and 'User 2' can communicate with each other and are able to access to the 'Server', 'User 3' and 'User 4' can communicate with each other and are able to access to the 'Server', But 'User 1' and 'User 2' are isolated with 'User 3' and 'User 4'.
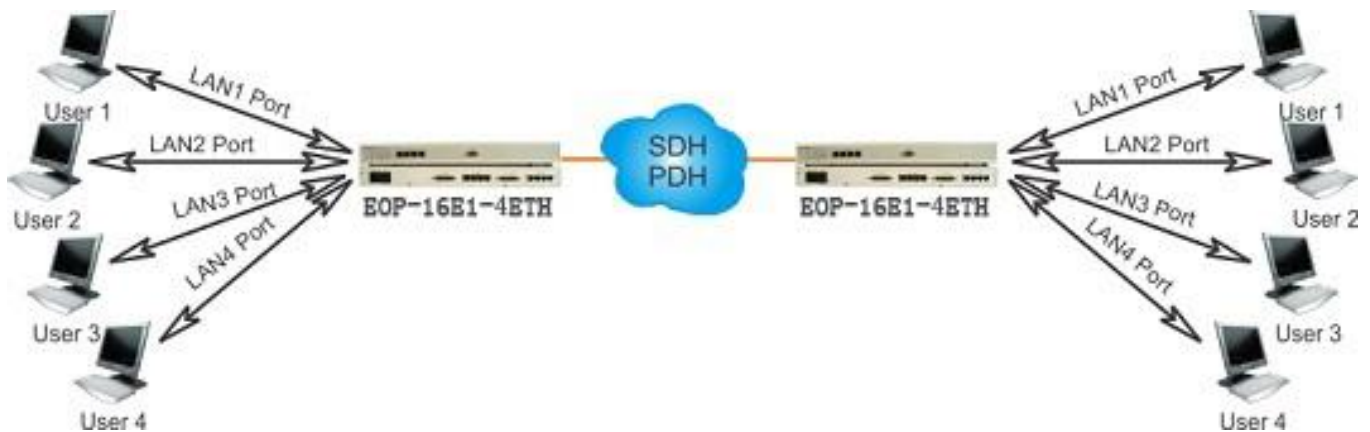
LAN interconnection:

    1. User A1 only can communicate with User B1 for each other;

    2. User A2 only can communicate with User B2 for each other;

    3. User A3 only can communicate with User B3 for each other;

    4. User A4 only can communicate with User B4 for each other.

➢ GUI Professional Manager

sales@upcomnet.com   **www.upcomnet.com**