



Fast Ethernet to E1/T1 converter, EXN104

EXN104 is a small, managed Fast Ethernet to 4 x E1 or 4 x T1 converter developed for rollout of EDA where no Ethernet uplink is available. A cost-effective solution to this problem is to use the Fast Ethernet converter EXN104 to transport the Ethernet traffic via legacy TDM transport. EXN104 can also be used in back-to-back solutions.

Description

The Fast Ethernet (FE) converter has a single RJ-45 port, which supports 100Base-TX on CAT 5 cables and conforms to IEEE 802.3u. On the MDF interface, EXN104 supports four 120 Ω E1 or T1 ports which conform to ITU-T G.703. EXN104 is powered via the Ethernet port (the same way as the EDA IP DSLAM) and is fully manageable via SNMP from e.g. the Public Ethernet Manager (PEM).

Transparency and prioritization

EXN104 is transparent to all kinds of traffic. Examples are IEEE 802.1Q VLAN, MAC address based VLAN, VLAN tag ID based and untagged frames. Prioritization is handled according to IEEE 802.1p with eight priority level queues. Serving the queues is done from top down, which means that as long as a higher priority signal exists, lower priority signals are not serviced. Packets will remain in the queue for up to five seconds.

The transmission queue has a capacity of 300 packets. In case of system overflow, the system will begin discarding packets starting with the lowest priority. The EXN104 SW ensures sequence order by adding a sequence number to each queue. This will introduce a maximum delay of 6.15 ms per packet.

Protocols

The Ethernet is encapsulated over the E1 through HDLC based protocol with an overhead of two bytes. The EXN104 can operate in either basic or extended mode.

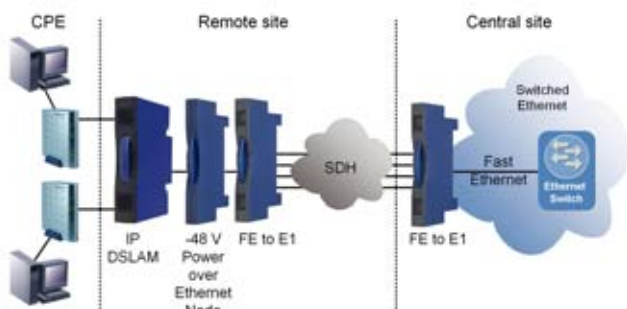
In basic mode the traffic load distribution is done on a session basis used when aggregating a number of EXN104 into one STM-1 interface of a Cisco router.

In extended mode the traffic load distribution is done on a packet basis meaning each packet is directed to the least loaded E1/T1 link. This is the default configuration and used for EXN104 back to back.

All software/firmware is upgradeable via the FE and E1/T1 ports. EXN104 can operate autonomously because firmware and configuration are stored in flash.

Installation

The EXN104 is part of the EDA solution and is intended for installation on sites with only a few IP DSLAMs and existing physical E1/T1 uplink connections towards the Central Office, as illustrated below.



Technical data

THIS DOCUMENT IS VALID FOR RELEASES

- EDA 2.0, EDA 2.1, and EDA 2.2

GENERAL

- E1/T1 lines at the physical level conform to ITU-T G.703
- E1/T1 framing conforms to ITU-T G.704
- Alarm indication through LEDs
- RED: HW fail, fan problem, temperature etc
- GREEN: Status of link, configuration and DHCP server reachable

INTERFACES

- One 100Base-TX Ethernet port
- Four E1/T1 ports, 120 Ω

MANAGEMENT

- Management is possible both via the FE port and via any available E1/T1 ports using SNMPv2c
- The four E1/T1 interfaces can be managed according to RFC2495 DS1 MIB

BASIC CONFIGURATION ITEMS

- E1 Line coding (AMI or HDB3)
- T1 Line coding B8ZS
- Framing (BFA, ESF or SF)
- CRC-4 (Enabled or disabled)
- Synchronization (Clock master or clock slave)

- Management VLAN (1-4095)

SUPPORTED ALARMS

- E1/T1 failures (AIS, RAI, LFA, LOS)
- Software restarts with post mortem information
- Link up and down
- Software processing error(s)
- Error ceasing
- Fan problem or failure
- Equipment overheated

POWER CONSUMPTION

- Max. 10 W

VOLTAGE INPUT

- -40.5 to -60 V DC (Powered over Ethernet)

DIMENSIONS

- HxWxD: 185 x 21 x 109 mm
- Weight: 276 g

EMI/EMC

- EN 300 386:2001 for Telecommunication Centers Class B and Locations other than Telecommunication Centers Class B
- FCC Part 15 May 2002; class A
- For use with indoor signal lines

ENVIRONMENTAL

- ETS 300 019-1-3 (Stationary use at weather protected locations) Class 3.2: Partly temperature-controlled locations (-5 to +55°C)
- ETS 300 019-1-2 (Transportation) Class 2.3: Public transportation
- ETS 300 019-1-1 (Storage) Class 1.2: Weather protected, not temperature-controlled storage locations
- Belcore GR-63-Core (US)

Subject to change without notice