

# 4 x DS3/E3 Trunk/Access Module

4-Port Combined DS3/E3 Trunk/Access Interface for 300 Switches

## MODULE



4-Port DS3/E3 Trunk/Access Module for the Nimbra 300 Platforms.

4 x DS3/E3 Trunk/Access Module is a 4-port combined trunk and access module for the Nimbra 300 series of multiservice switches. It can be configured to either act a DS3/E3 trunk module, or as a DS3/E3 access module.

The Trunk mode enables multiservice operation over up to 4 standard DS3 or E3 links. Each port can utilize up to 42.5 Mbps (DS3) / 32.8 Mbps (E3) for user payload. Thus it is possible to carry up to 170 Mbps (DS3) / 131 Mbps (E3) of payload to and from the board.

In trunk mode it supports Time Transfer functionality, making it fit very well into solutions for transporting DVB-T/H SFN signals over E3 or DS3 circuits, as well as for other applications.

The Access mode enables an transparent transport of 4 bidirectional DS3 or E3 services over a Nimbra transport network. Typical applications are for example back-haul of traffic from UMTS base stations or for video transport from DS3/E3 network adapters.

In the Access mode the service features all the standard access functionality known from the Nimbra platform, such as support for multicast, fault and performance monitoring, fast 1+1 protection switching and more.

In both trunk and access mode the board can be configured for either DS3 or E3 operation, for the access mode E3 or DS3 can be configured per port.

The 4 x DS3/E3 Trunk/Access Module terminates transport overhead and have extensive fault and performance monitoring options. It supports in-service hot swap for higher availability. It is easily managed by means of CLI, Web GUI and SNMP.

# KEY FEATURES

## 4 independent ports.

4 bi-directional standard BNC ports.

## DS3 and E3 support.

The board can operate in either DS3 or E3 mode in both Trunk or Access mode.

## Performance monitoring.

Standard performance metrics with G.826 style presentation of performance

## Hot swap.

Supports in-service swapping of the module for low un-availability.

## Ease of handling.

Managed by CLI, Web GUI or SNMP. Can also be managed by Nimbra Vision™ NMS.

## Multicast support.

The trunk module supports QoS guaranteed multicast

## Trunk mode:

**Time Transfer.** Supporting transfer of accurate absolute time for use in for example DVB-T SFN networks.

**Topology independence.** The trunk module can be used in p-t-p, ring, bus or mesh topologies.

**High utilization.** The link overhead is about 2.7% for DS3 and 1.9% for E3. This can be compared to for example the ATM link overhead (cell tax) of 10%. Max payload per port is 42.496 Mbps (DS3) and 32.768 Mbps (E3).

**Multiservice operation.** Each port can carry any mix of data, video, audio and voice traffic.

## Access mode:

**Bandwidth effective.** 4 E3's can be mapped on a STM-1 trunk.

**1+1 protection.** Support for 1+1 protection through network, with <50ms switching time.

# TECHNICAL SPECIFICATIONS

## Physical interface:

BNC 75 Ohm: ANSI T1102 (DS3)  
ITU-T G.703 (E3)  
Reach: 900 feet / 275 m

## Framing:

DS3 Trunk: ANSI T1107  
E3 Trunk: ITU-T G.832  
DS3/E3 Access: Unframed

## Mapping:

E3 Trunk: G.832 synchronous, 65 x 0.512Mbps slots  
DS3 Trunk: 125 ms synchronous, 84 x 0.512Mbps slots  
Access: Asynchronous with bit justification (DCAP-3)  
E3: 68 x 0.512 Mbps slots  
DS3: 88 x 0.512 Mbps slots

## Fault management:

DS3: LOS, LOF, AIS, UNEQ, PLM, RDI  
E3: LOS, LOF, DEG, AIS, PLM, RDI

## Performance management:

ITU-T G.826 based, 15 min / 24 h bins

## Jitter and Wander:

DS3: ITU-T G.824  
E3: ITU-T G.823

## Timing modes:

Trunk: Network timing (locked to DTM reference)  
Access: Through-timing

## Maintenance:

Hardware: Hot-swap  
Firmware: Remote upgrade  
Access: Line/System side loopback

## Power consumption: <10W

## Network Management:

SNMP: v1/v2c/v3  
Element: Web GUI, CLI  
Manager:

## Environmental conditions:

Operating temp: 5 to 40 °C (41 to 104 °F)  
(short term): -5 to 55 °C (23 to 131 °F)  
Storage temp: -40 to 70°C (-40 to 156 °F)  
Relative humid: 10% to 90% (non-condensing)

## Regulatory compliance:

Safety: UL60950  
EN60950  
EMC: FCC 15 Class A  
EN 300 386  
CE marking: 93/68/EEC  
Environment: RoHS directive 2002/95/EC

## Ordering information:

NPM0027-TR01 DS3/E3 Trunk FW option for Nimbra One/300  
NPM0027-AC01 DS3/E3 Access FW option for Nimbra One/300

NPS0027 (HW) + NPM0027 (FW) is needed for operation of the board.

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