Open Transport Network (OTN)

OTN-X3M-N42E NODE

Introduction
The Open Transport Network (OTN) is a private communication system providing an extension over fiber for voice, data, LAN and video communications. The system is based on "nodes" interconnected by two point-to-point fiber-optic links forming two counter-rotating rings. This topology, in combination with the system's built-in fault recovery features, ensures extremely high system availability. This sheet describes the N42E node to be used for OTN-X3M.

Description
The OTN system is completely modular. The common equipment consists of the 19" mountable chassis with one or two system power supply modules (redundant) and one or two BORA-X3M/ETX/ULM common logic cards (redundant). Two hot-swap optical transceiver modules are plugged on each BORA-X3M/ETX/ULM common logic card. The N42E nodes have eight universal interface slots for interface modules in any mixture. Moreover, two extra slots are provided for extension cards.

A Node Support Module (NSM) is part of the N42E node, but can be replaced if needed. It offers additional functionality (external alarm contacts, beeper, fan control and monitoring etc.) and is hot-swap replaceable.

The common logic card BORA-X3M/ETX/ULM is the node's central control block. It holds the connections and configuration settings that are programmed by the network operator via the OTN Management System (OMS). In case two common logic cards are installed in one node, one of them functions as a hot standby card. The Optical Transceivers convert the ring's optical signal to an equivalent electrical signal, and vice versa. The distance that can be spanned between two consecutive OTN

Features
- Very high system availability and reliability
- Wide choice of interfaces to match specific applications
- Universal interface slots
- Redundant common logic card
- Redundant AC or DC power supply
- Replaceable cooling shelf with 3 temperature controlled fans provides excellent cooling
- Choice of hot-swappable optical transceivers to meet fiber and/or distance requirements
- Extremely fast reconfiguration times in case of cable breaks or equipment failures
- Hot swap: all traffic-carrying elements can be replaced without shutting down the node
- Bit Error Rate better than 10^-9
- Standard 19" rack mountable
- For OTN-X3M networks
nodes in the network depends on the type of fiber and the types of Optical Transceivers used.

The optical transceiver modules provide an OC-12C/48C /192C (Optical Carrier) connection in SONET mode or an optical STM-4C/16C/64C (Synchronous Transport Module) connection in SDH mode.

The OTN-X3M network can extend over a couple of hundred meters or up to thousands of kilometers. In this way, OTN-X3M offers a solution for mixed transmission over medium to large distances.

All available interface cards have been designed to operate on the physical level of the various communications standards. In this way all traffic for voice, data, LAN and video is handled completely transparent for the higher protocol levels.

The N42E node can be used in OTN-X3M networks. It is compatible with N42, N42C and N415 nodes, which can work at the same backbone speeds.

For detailed information about the common logic cards, please refer to the following specification sheets:
- BORA622-X3M, Ref. No. AD-S138-E-8
- BORA2500-X3M, Ref. No. AD-S153-E-5
- BORA2500-X3M-ETX, Ref. No. AD-S154-E-5
- BORA2500-X3M-ULM, Ref. No. AD-S139-E-7
- BORA10G-X3M-ETX, Ref. No. AD-S405-E-5
- BORA10G-X3M-ULM Ref. No. AD-S410-E-2

Ordering information

N42E node
S30826-B31-X
(For OTN-X3M)

Power Supply Units
90-264 VAC and 125 VDC
V30812-A5020-A42
18-60 VDC V30812-A5020-A43

Specifications

Dimensions
This chassis is 19” rack mountable
Width 482 mm
Height (8 HU) 355 mm
Depth 329 mm

Power consumption
max. 400 W

Weight
Approx. 14.6 kg
(including 2 PSUs, and a BORA2500-X3M card)

Cooling
The cooling is realized by the combination of an air inlet at the bottom of the node and a fan tray at the top of the node. The fan tray contains 3 fans which cool the node when required. The fan speed is controlled based on the internal temperature in the node. Failure of a fan can be detected and the fan tray can be replaced while the node remains operational.

CE marking
EMC directive 2004/108/EC
LVD directive 2006/95/EC

MTBF (50°C / 122°F)
MTBF of the power supply module: 11 years

EMC tight, designed for 10 GHz radiation

The node is made in vibration resistant (according to IEC 68-2-6) Aluminum.