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Optical Solution

AMN6100

Dense Wavelength Division Multiplexing System

General Description

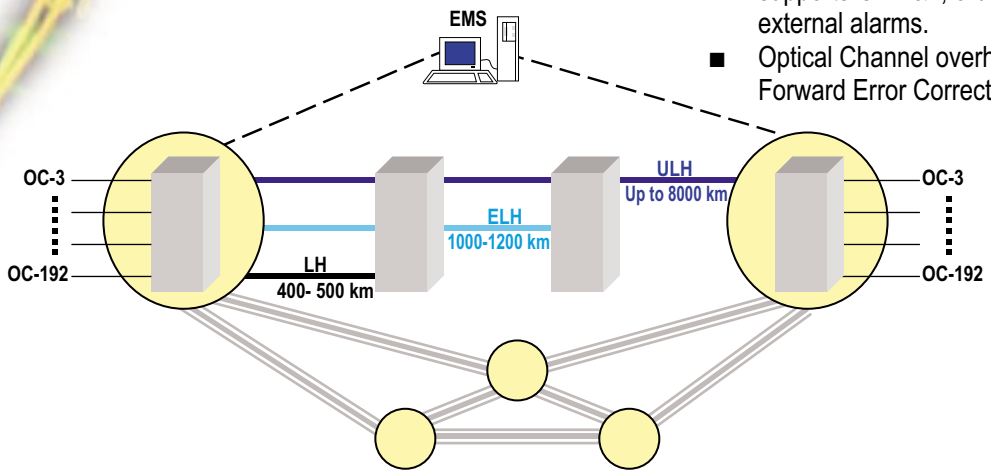
Hitachi's AMN6100 Dense Wavelength Division Multiplexing (DWDM) system offers multiple rate inputs, ultra high channel count, and ultra long haul capabilities in a single platform.
The AMN6100 system is the fundamental platform for flexible and scalable deployment of an optical services network. The optical services network will be enabled by modular application of enhanced optional components from Hitachi, such as the AMN4100 Transmux and the AMN7100 Lambda Terminal working together for a total optical networking solution. Together with these components, the AMN6100 can provide network operators with functionalities such as:

- OC-3 to OC-192 and GbE client services
- Per channel tiered/differentiated services (QOS)
- Per channel protection/restoration options
- Optical and client channel add/drop
- Optical and client channel ring/mesh
- Optical Switching (1+1 line protection)

With these functionalities, the AMN6100 offers a powerful and flexible, yet economical solution to network growth.

Features and Advantages

- Scalability to 128 10Gbit/s signals (1.28 Tbit/s) with in-service upgradability (future planning for 1.6T or 2.56Tbit/s).
- Long Haul (LH)-(400-500 km), Extended Long Haul (ELH)-(1000-1200 km), and Ultra Long Haul (ULH)- (up to 8000 km) links are supported from the same platform. Extended Long Haul is made possible through Hitachi's Gain Tilt Compensator (GTC) technology, while the Ultra Long Haul is made possible by Hitachi's Optical Signal Expander Module (OSEM) technology. Transmission capability can be selected per link and per sub-band.
- Supports 100GHz ITU grid spacing, with in-service upgradability to 50GHz ITU grid spacing with no traffic hit.
- Flexible Optical Add/Drop Multiplex (OADM) capabilities enable optimization of the network configuration according to traffic demands.
- Both ELH and ULH solutions can accommodate multiple types of fiber or mixtures of fibers along the route, unlike other solutions.
- Supports various optical fiber types, including legacy fiber such as SMF-28, LS and TW Classic.
- Output power control - automatically maintains constant per channel output power to ensure reliable, robust transmission under changing conditions. This is essential for dynamic channel conditions in optical switched networks.
- Modular design for easy, cost efficient expansion.
- Optical supervisory channel (OSC) supports OAM&P, orderwire, and external alarms.
- Optical Channel overhead bytes with Forward Error Correction (FEC).



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EMS/GLCT

Hitachi's Element Management System (EMS) provides a centralized and robust environment to manage all of Hitachi's optical network elements including SONET/SDH ADM/LRE, DWDM, Transmux, Transponder and Optical Cross Connect. The scalable architecture of the EMS and its user-friendly features for undertaking OAM&P management tasks, helps carriers to achieve their business objectives. Standards based software interfaces facilitate northbound integration with a Network Management System (NMS) or other Operational Support Systems (OSS). An easy-to-use Graphical Local Craft Terminal (GLCT) complements the capabilities of the EMS to support on-site or remote management of individual NEs.

Specifications

- HP-UX 10.x or later platform, upgradable to Sun, IBM or Win NT
- Windows 2000/NT based GLCT
- GUI based on Java or Motif/X-Windows
- Optional Redundant Configuration
- TL-1/TCP-IP or CMISE/ASN.1 based management interface between the EMS/ GLCT and NE
- Objected Oriented Database Management
- CORBA based northbound interface to NMS (planned for future release)

SPECIFICATIONS

Optical Characteristics

Wavelength Range: 1529.16 nm ~ 1544.53 nm (0.05 nm)
1546.12 nm ~ 1561.83 nm (0.05nm)
C-band (Red & Blue)
1570.01 nm ~ 1586.20 nm (0.05 nm)
L1 band
1587.88 nm ~ 1604.46 nm (0.05 nm)
L2 band
Channel Spacing: 100 GHz (Upgradable to 50 GHz)
Optical Connector Type: FC or SC

Supervisory and Control Interface Characteristics

OSS: TL-1/TCP-IP/802.3
Local/Remote: TL-1/802.3, TL-1/RS-232D
Remote (modem): TCP-IP, PPP/RS-232
Order Wire (local and express): Analog: 2 channels
Digital: 2 channels, 64 kbit/s
Optical Supervisory Channel (OSC): OC-3 (150 Mbit/s), 1510.10nm
Office Alarms: Audible, Visible, ACO
Housekeeping Alarms: Input: 32
Output: 16

Physical and Environmental Characteristics

Bay Dimensions: 7 ft (H) x 23 in (W)
Shelf Dimensions: ET: 19.2 in (H) x 21.3 in (W) x 10.6 in (D)
LA: 14.9 in (H) x 21.3 in (W) x 10.6 in(D)
Number of Shelves Per Bay: ET: 4
LA: 4
Weight: ET: 45.5 kg/shelf (fully loaded)
LA: 37.7 kg/shelf (fully loaded)
Temperature Range: Normal Operation: +5 ~ +40 ºC (+41 ~ +104 ºF)
Short-Term Operation: -5 ~ +50 ºC (+23 ~ +122 ºF)
Humidity: 5 ~ 85 %

Power Characteristics

DC Power Input: -40 ~ -57 V
Power Consumption: ET: 166W (32ch)
LA: 164W (32ch)

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