SINTAI

WDM SYSTEM

OTNS8600-WDM PLATFROM

Your optical transmission expert

Original manufacturer

DATA SHEET

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OTNS8600 WDM Platform

A long with the rapid development of the Internet, the pressure on bandwidth caused by the blowout growth of data traffic makes it urgent to introduce 100G systems in transmission networks, therefore, Guangzhou Sintai Communication Co., Ltd. has launched a new generation of high-capacity, long-distance 400G wavelength-division transmission equipment OTNS8600 series products. The product applies advanced transmission technology and highly integrated technology, supports single channel transmission rate from 100Mbps to 400Gbps, and is oriented to 800Gbps and 1.2Tbps expansion, providing wide bandwidth, large capacity, fully transparent transmission function, which can achieve smooth upgrade of capacity, providing a stable platform for multi-service operation and future network upgrade and expansion, widely used in operators, broadcasting, IDC, finance, government, cloud network, big data and other industries.

Product features

- **Extra large transmission capacity**

  Supports 64×400G ultra-large capacity transmission, i.e. the maximum transmission capacity of a single optical fiber can be up to 25.6Tb/s. Meanwhile, it supports 80/96×10G/200G hybrid transmission and smooth upgrading from 40-wave to 80-wave and 48-wave to 96-wave, which ensures low investment at the initial stage of network construction and smooth expansion in the later stage to meet the growing bandwidth demand in the future.

- **Superior ultra 100G transmission performance**

  Adopts coherent detection and high-order modulation technology, supports SD-FEC, excellent B2B OSNR tolerance index, uses the industry's advanced DSP processing technology, dispersion-free compensation, and supports more than 2,000km of unelectrified relay transmission, which saves investment and greatly facilitates operation and maintenance.

- **Flexible and comprehensive service access capabilities**

  Supports 100M-100G any service access: CPRI1~10, eCPRI, FE/GE/10GE/25GE/40GE/100GE, FC 1G~32G, STM-N, OTU1/2/3/4 and other service access, all-service transparent transmission, reduce the circuit-crossing transmission delay.

- **Reliable, carrier-grade protection**

  Supporting a variety of network protection schemes, such as optical layer 1+1 channel protection and optical line side 1+1 protection, providing multiple protection for important equipment units and optical fiber lines, supports AC 220V/110V, DC -48V power supply, 1+1 power protection.

- **Superior architecture, easy to maintain**

  Adopting 1U, 2U, 5U standard 19-inch rack design, completely configuration-free installation, plug-and-play equipment, unified network management platform, providing perfect network and equipment performance monitoring capabilities.

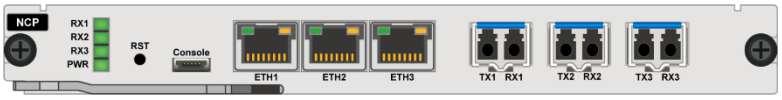
OTNS8600 II: 2U WDM Platform

Technical specifications

Parameter	Description
Product model	OTNS8600 II
Equipment size	2U: 88 mm (H)×442 mm (W)×220 mm (D)
Service slots	8 slots
Power consumption	160W (max) / 250W (max)
Maximum number of channels	CWDM: 18 waves, DWDM: 96 waves (50 GHz)
Maximum single-channel rate	400Gbit/s
Line rate	1.25Gbit/s, 2.5Gbit/s, 10Gbit/s, 25Gbit/s, 40Gbit/s, 100Gbit/s, 200Gbit/s, 400Gbit/s
Supported service types	● STM-1/4/16/64/256, OC-3/12/48/192/768 ● OTU-1/2/3/4 ● FE/GE/10GE/25GE/40GE/100GE ● FC 1G/2G/4G/8G/16G/32G ● EPON, GPON, CPRI 1/2/3/6/7/10, eCPRI
Clock characteristics	Support IEEE 1588V2 pass-through
Network topology	Point-to-point, chain, mesh, ring
Network level protection	Optical channel 1+1 protection, optical multiplex section 1+1 protection, optical line 1+1 protection
Device-level protection	Power supply 1+1 backup
Network management	● SNMP ● Visual Web interface ● OTNS8600 network management system(NMS)
Installation	19" Standard rack mount
Operating temperature range	-5℃～50℃
Operating humidity range	5 to 95% non-condensing
Storage temperature range	-40℃～85℃
Heat dissipation	Fan cooling
Power supply method	AC: 90 ~ 260V or DC: -36 ~ -72 V

NCP: Network Management Card

The NCP is a network management module card specially designed for OTNS8600 series products by Sintai Communication. Its main function is to provide an interface between the equipment and network management system, and to complete the management of each board of the network element, all kinds of maintenance and management signal transmission with the OTNS8600 network management system of OTNS8600 series, so as to realize real-time monitoring, maintenance and management of the equipment elements and the whole synchronous equipment network.



Product features

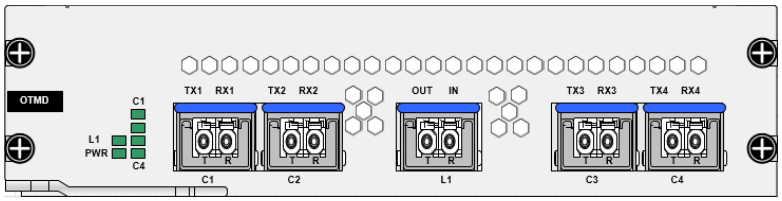
- Adopts high-speed ARM processor, it provides powerful data processing capability, collects the status information, alarm events and performance parameter of each single-board functional module, transforms, processes and stores them, and at the same time passes the control and management information to other functional blocks of the equipment.
- Provide 1 Console interface to support emulation terminal operation.
- Provide 3 RJ45 Ethernet interfaces, support IP-based graphical SNMP network management.
- Provide 3 SFP optical module interfaces to support the in-band management of the device, realize the processing of 3 optical monitoring channels, and complete the processing of receiving and transmitting optical signals of the optical monitoring channels at each site.
- Supports hot-plugging and does not affect the work of the current service module even after failure.

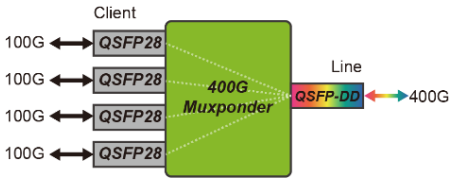
Technical specification

Parameter	Description
Product model	NCP
Local management serial port	1 Micro-USB Local Management Serial Port
Remote management Ethernet port	3*RJ45 Ethernet interfaces, interface rate 10/100/1000M adaptive
OSC optical supervisory port	3*Pluggable optical SFP ports with LC type interfaces
Network management	Support SNMP, Web, NMS centralized network management
Exchange function	Support IP communication function between devices, realizing integrated management of multiple devices
Protective function	Hot-swapping or failure of network management cards does not affect existing services
Maintenance function	Support local or remote online software upgrades
Reset function	Support hardware reset of the local NCP board by operating the keypad
Initialization function	Support operation of keys to initialize local NCP board hardware
Operating temperature	-10℃~+60℃
Operating humidity	5%~95%
Number of slots occupied	1 slot
Maximum power consumption	5W

OTMD: 400G Muxponder(QSFP-DD)

The 400G muxponder launched by Sintai Communication supports 4x100G↔400G electrical layer multiplexing/demultiplexing and converts to 1*400G rate WDM standard wavelength optical signal, so as to facilitate WDM multiplexing of different wavelengths by the multiplexing unit, and at the same time realizes the inverse process of the above process. The line side adopts pluggable QSFP-DD DCO, which realizes ultra-long distance transmission based on coherent detection and other advanced technologies, and supports 100G/200G/400G rate configurability.





Technical specification

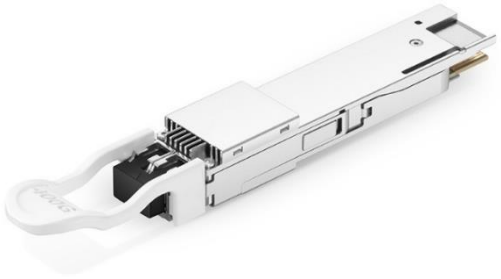
Parameter	Description
Product model	OTMD
Line side	● 1 QSFP-DD optical port: using 400G QSFP-DD DCO module, pluggable ● Support wavelength adjustable, range covering 191.35~196.1 THz ● Support adjustable light-emitting power (-10dBm~-20dBm) ● Support 100G/200G/400G programmable
Client side	4 QSFP28 optical ports pluggable
Supported service types	100GE, 100GE_RS-FEC
Loopback	Support line-side and client-side loopbacks
LLDP	100GE, 100GE_RS-FEC service support
ALS	Support automatic laser turn-off and turn-on based on optical signal inputs
Alarm delayed insertion	Support Local Fault alarm delayed insertion and delay time setting
Performance monitoring	● Support optical signal-to-noise ratio, pre-correction BER, non-correctable BER blocks and other performance monitoring ● Support optical module temperature, current, voltage, optical power and other performance monitoring ● Support Ethernet layer performance monitoring
Number of slots occupied	2 slots
Maximum power consumption	60W (with optical module)

Optical Transceiver: 400G QSFP-DD ZR+ DCO E1(-10dBm)

The 400G ZR+ QSFP-DD DCO E1 is a C-band frequency tunable coherent transceiver that integrates coherent DSP ASIC functionality, industry-leading ultra narrow linewidth tunable laser, high-speed modulator, and high-sensitivity coherent receiver. This transceiver achieves the longest transmission distance with the high-performance O-FEC algorithm. The transceiver complies with the OIF MSA standard and supports multi-vendor interoperability, enabling interoperability and rapid deployment with other standard compatible components. As the core component of DCI transmission, this transceiver has the characteristics of easy operation and open architecture, which helps service providers and cloud operators smoothly transition to 400G and higher bandwidth, while reducing TCO. Suitable for access, edge, core, and data centers, supporting an open and interconnected network ecosystem.

Product features

- Standard QSFP-DD Type 2a form factor
- Duplex LC connector
- Compliant with Open ZR+ MSA and OIF 400ZR MSA, support OFEC and CFEC FEC
- Line rate 100G/200G/300G/400G
- Client rate 1/2/3/4x100GbE or 1x400GbE
- Full C-band tunable with flexible grid support
- RoHS 2 compliant



Application area

- Edge DCI with extended Reach or with OLP protection
- IP Over Metro or Long Haul DWDM

Technical specification

Parameter	OIF 400ZR	Metro	Regional	Long-haul	ULH
MSA compliance	OIF 400ZR Implementation Agreement (IA)	OpenZR+ MSA			
Speed	1x400GbE 4x100GbE	1x400GbE 4x100GbE	3x100GbE	2x100GbE	1x100GbE
Modulation format	DP-16QAM	DP-16QAM	DP-8QAM	DP-QPSK	DP-QPSK
FEC types	Concatenated FEC (CFEC)	OFEC			

Parameter	OIF 400ZR	Metro	Regional	Long-haul	ULH
Max Pre-FEC BER	1.25E-2	2.0E-2			
Channel plan wavelength range	1567.13 ~ 1528.77 nm				
Channel plan frequency range	191.3 ~ 196.1 THz				
Channel spacing	75GHz or greater				50GHz or greater
Channel tunability	6.25GHz grid tuning				
Optical transmitter output power (on)	-13 ~ -9 dBm	-13 ~ -9 dBm	-12 ~ -8 dBm	-10.5 ~ -6.5 dBm	-6 ~ -2 dBm
	Tx output power accuracy: +/–1.5dB				
Optical transmitter output power (off)	Max. -30dBm				
Range of provisionable TX power	Min. 10dB @Reduction below maximum provisionable TX power				
Optical transmitter wavelength accuracy	+/-1.5GHz				
Optical transmitter channel tuning time	200s				
Optical Transmitter OSNR (in-band)	42dB				
Optical Transmitter OSNR (out-of-band)	42dB				
Optical receiver input power range	-12 ~ +0dBm	-12 ~ +0dBm	-15 ~ +0dBm	-18 ~ +0dBm	-20 ~ +0dBm
Optical receiver damage input power threshold	Max.+13dBm				
Optical receiver input sensitivity (ROSNR > 36dB)	-20dBm	-21dBm	-23dBm	-29dBm	-32dBm
Optical receiver minimum OSNR (back-to-back), worst-case, EOL	26dB	23.1dB	19.5dB	15dB	11.8dB
Optical receiver chromatic dispersion tolerance	2400ps/nm	13000ps/nm	26000ps/nm	50000ps/nm	80000ps/nm
Optical receiver PMD tolerance	16.5ps (@ 0.5dB OSNR penalty)	30ps (@ 0.5dB OSNR penalty)	30ps (@ 0.5dB OSNR penalty)	30ps (@ 0.5dB OSNR penalty)	40ps (@ 0.5dB OSNR penalty)
Optical receiver polarization tracking	50krad/s	80krad/s	100krad/s	800krad/s	400krad/s
Receiver PDL Tolerance	3.5dB (@ 1.8dB OSNR penalty)	3.5dB (@ 1.5dB OSNR penalty)			

Parameter	OIF 400ZR	Metro	Regional	Long-haul	ULH
Latency	8us	5us	6us	7us	11us
Distance(unamplified)	40km	40km	50km	70km	80km
Distance (amplified, CD limited 17 ps/nm)	140km	500km	900km	>1400km	>2000km
Power consumption (EOL)	19.3 W	22.1W	22.3W	21.3W	18.2W
DOM temperature normal operating range	+15 ~ +75 °C (The module will turn up from cold start at ambient temperature as low as -5°C. After self-heating, the module will meet all specifications after reaching the specified low DOM operating temperature.)				
Storage temperature	-40 ~ +85 °C				

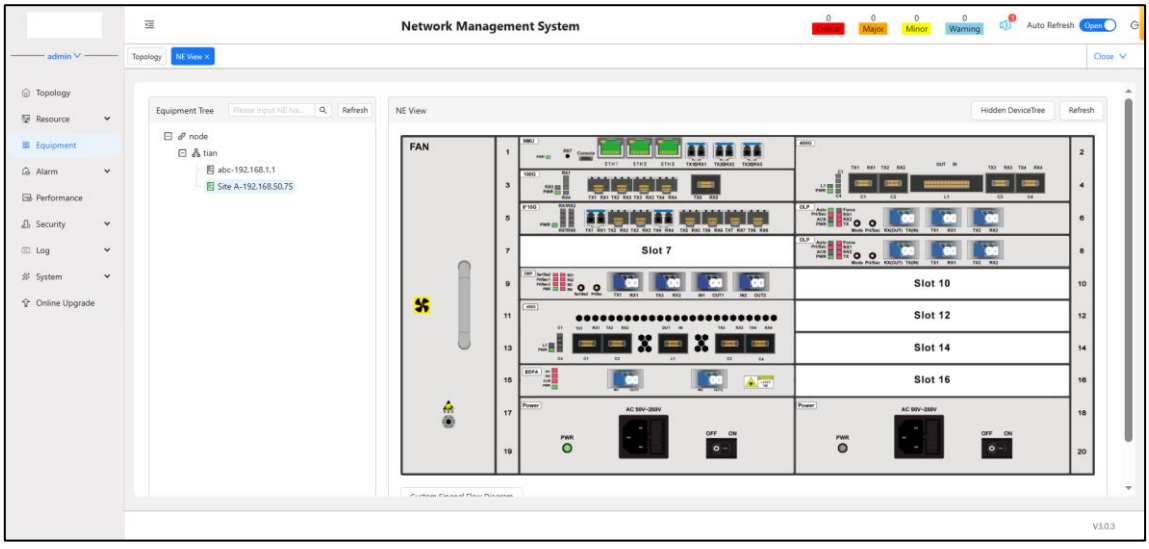
NMS: OTNS8600-WDM Network Management System

The OTNS8600 Network Management System(NMS) launched by Sintai Communication is based on the B/S architecture research and development, and supports the unified management of the entire line of communication WDM network products of Sintai Communication, realizing the management functions of the whole network system in terms of failure, performance, configuration, security, etc.; through the use of the network management system, it can improve the quality of the network service, reduce the cost of maintenance, and provide a guarantee for the rational use of the network resources. It also provides standard external interfaces for use by upper-level network management, providing a complete solution for network management of the transmission network.

Product features

- **Topology Management:** Display the status of managed network elements and their connections in a topology diagram, and understand the network organization and monitor the operation status of the whole network in real time by browsing the topology view.
- **Alarm Management:** Provide network-wide alarm monitoring, remote alarm notification and other ways to notify the maintenance personnel at the first time to ensure the real-time effectiveness of troubleshooting.
- **Performance Management:** Monitor the key performance indicators of the network through the visualized operation interface, and provide statistics on the collected performance data to facilitate users to manage the network performance.
- **Log Management:** Record information about operating network management and important events occurring in the system. By regularly querying, counting and saving the log information, it helps network administrators to discover illegal login, illegal operation or conduct fault analysis in time.
- **Security Management:** Security control of the network management system itself is achieved through user management, operation authorization (decentralized and sub-domain) management and user login management.
- **Upgrade Management:** Used for upgrading/downgrading network element software.
- **System Management:** Used to backup and restore the network management system for quick recovery when the network management system is upgraded or migrated.

Network Management Interface



About Sintai Communication

Professional optical communication products manufacturer, solution provider


150+ Staffs


260+ Overseas Clients


75+ Self-developed Products


2 R&D Center


4+ Branches

DCI/OTN System

- OTNS8600-DCI platform
- CLI, SNMP, Web, OTNS8600-DCI NMS network management system

WDM System

- OTNS8600-WDM platform
- OTNS8600-OLS Open line system
- OTNS8600P-DCI Integrated system
- EDFA /Raman /SOA amplifier subsystem
- TFF /AWG /TDCM /DCM /PLC /FBT subsystem
- OLP /OBP /OSS /OPM /OMS subsystem
- 5G Fronthaul WDM system
- 10G /100G Bypass protection device
- SNMP, Web, OTNS8600-WDM NMS network management system

Others

- 400G /200G /100G /40G / 25G/10G Transceiver
- Aggregation and distribution system
- Data center switch

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