# 产品宣传册

## › PRODUCT INTRODUCTION

广州芯泰通信技术有限公司

SINTAI COMMUNICATION CO., LIMITED

# Contents


OTNS8600 WDM Equipment ..... 1
OTNS8600P Integrated DWDM Equipment ..... 3
200G Muxponder: 1*CFP2+2*QSFP28 ..... 4
100G OTU: 1*CFP+1*QSFP28 ..... 5
40G&100G OTU: 4*QSFP28 ..... 6
40G&100G Muxponder: 4*SFP28↔QSFP28 ..... 7
25G OTU: 8*SFP28 ..... 8
10G OTU: 8*SFP+ ..... 9
PON OTU: 8*SFP ..... 10
EDFA: Erbium-Doped Fiber Amplification Card ..... 11
OLP: Optical Line Protection Card ..... 12
MDU: 1~18 Wavelengths Multiplexing/Demultiplexing card ..... 13
AWG: 40 Wavelengths Multiplexing/Demultiplexing Card ..... 14
ITL: Interleaver ..... 15
TDC: Tunable Dispersion Compensator ..... 16
DCM: Dispersion Compensation Module ..... 17
NCP: Network Control Management Card ..... 18
OTNS2000 Network Management System ..... 19
OEO Optical Amplification Subsystem ..... 21
EDFA Optical Amplification Subsystem ..... 22
SOA Optical Amplification Subsystem ..... 23
OLP Optical Line Protection Subsystem ..... 24
OBP Optical Bypass Protection Subsystem ..... 25
CWDM Mux/Demux ..... 26
CWDM OADM ..... 27
DWDM Mux/Demux ..... 28
DWDM OADM ..... 29
AAWG Athermal Arrayed Waveguide Grating ..... 30
PLC Optical Splitter ..... 31
FBT Optical Splitter ..... 32
100G CFP-DCO Coherent Optical Transceiver ..... 33
Data Center High Speed Optical Transceiver ..... 34
5G Front-Haul Transmission Optical Transceiver ..... 34
10G~16G Optical Transceiver ..... 35
1.25G~2.5G Optical Transceiver ..... 36
Active Optical Cable (AOC) ..... 37
Direct Attach Cable (DAC) ..... 38

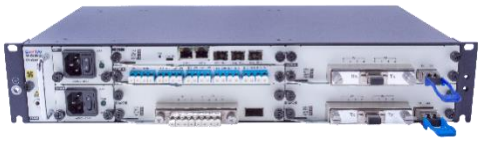
# OTNS8600 WDM Equipment

With the rapid development of the Internet, the bandwidth pressure caused by the spurt growth of data traffic makes it imperative to introduce a 100G system into the transmission network. Therefore, Sintai communication co., ltd. has introduced a new generation of high-capacity, long-distance 100G wavelength division transmission Equipment OTNS8600 series products. The product uses advanced transmission technology and high integration technology to support single-channel transmission rate from 100Mbps to 100Gbps, and provides wide bandwidth, large capacity and fully transparent transmission for 200Gbps and 400Gbps expansion, enabling smooth upgrade of capacity. It provides a stable platform for multi-service operation and future network upgrade and expansion. It is widely used in operators, broadcasting, IDC, finance, government, cloud network, big data and other industries.

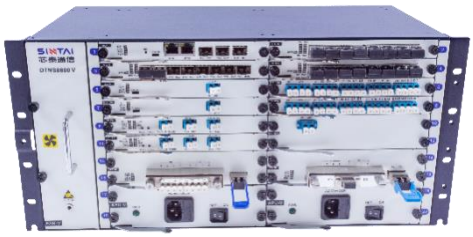
## Product Diagram

*OTNS8600 IB | 1RU*

*OTNS8600 IF | 1RU*



*OTNS8600 II | 2RU*



*OTNS8600 V | 5RU*

## Product features

- **Huge capacity transmission**

  Supports 96×100G ultra-large capacity transmissions, that is, single fiber transmission capacity up to 9.6Tb/s, and support 80/96×10G/100G hybrid transmission, supporting smooth upgrade from 40 waves to 80 waves, 48 waves to 96 waves. It ensures low investment and smooth expansion in the early stage of network construction to meet the growing bandwidth demand in the future.

- **Excellent 100G transmission performance**

  100G system adopts PDM-QPSK coding technology for coherent detection, supports SD-FEC, B2B OSNR tolerance index is excellent, adopts industry advanced DSP processing technology, dispersion tolerance is 22000 ps/nm, and supports 1200 km or more of non-electric relay transmission. Save investment and greatly facilitate operation and maintenance.

- **Flexible and comprehensive service access capability**

  Supports 100M-100G any service access: CPRI1~10, eCPRI, FE/GE/10GE/25GE/40GE/100GE, FC 1G~32G, STM-N, OTU1/2/3/4, etc. Transparent transmission reduces the cross-transmission delay of the circuit.

- **Telecom Reliable protection**

  Supports multiple 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.

  Support AC 220V, DC -48V power supply, 1+1 power protection.

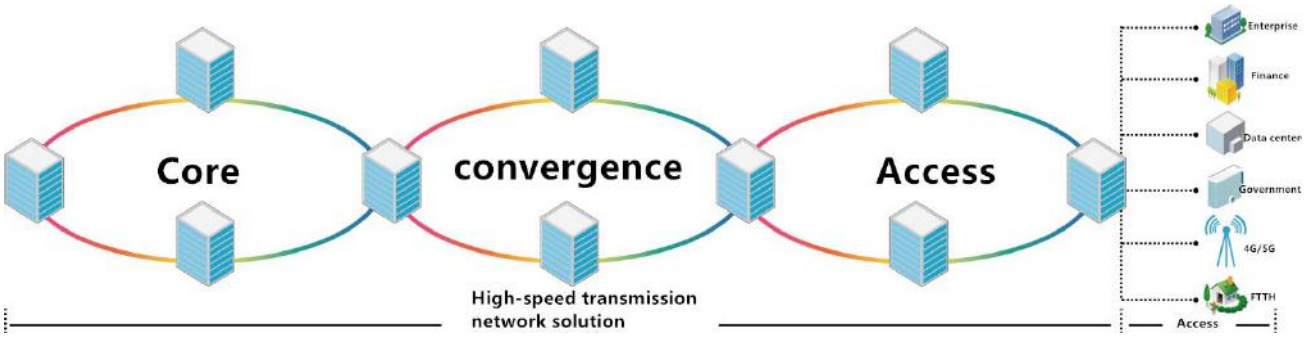
- **Excellent structure, convenient and easy to maintain**

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

## Product specification

| Function | Note | | | |
|---|---|---|---|---|
| **Product model** | OTNS8600 IB | OTNS8600 IF | OTNS8600 II | OTNS8600 V |
| **Equipment Size （H x W x D, mm）** | 1U: (back-power supply) 44×442×280 | 1U: (front -power supply) 44×442×220 | 2U: (front -power supply) 88×442×220 | 5U: (front -power supply) 220×442×220 |
| **Service slot** | 4 slots | 4 slots | 8 slots | 16 slots |
| **Power consumption** | 120W (Max) | 120W (Max) | 180W (Max) | 450W (Max) |
| **Max channel number** | CWDM: 18 wavelength, DWDM: 96 wavelength（50GHz） | | | |
| **Single channel max rate** | 100Gbit/s | | | |
| **Line side rate** | 1.25Gbit/s, 2.5Gbit/s, 8Gbit/s, 10Gbit/s, 16Gbit/s, 25Gbit/s, 40Gbit/s, 100Gbit/s | | | |
| **Support service** | ● STM-1/4/16/64/256、OC-3/12/48/192/768<br>● OTU-1/2/3/4<br>● FE/GE/10GE/25GE/40GE/100GE<br>● FC 1G/2G/4G/8G/16G/32G<br>● EPON, GPON, CPRI 1/2/3/6/7/10, eCPRI | | | |
| **Clock features** | Support IEEE 1588V2 | | | |
| **Network topology** | Point to point, chain type, star type, ring type | | | |
| **Network level protection** | Optical channel 1+1 protection, optical multiplex 1+1 protection, optical line 1+1 protection | | | |
| **Equipment level protection** | Power supply backup | | | |
| **Network management** | SNMP, Web, CLI, Telnet | | | |
| **Installation** | "19"and 23" cabinets, ETSI 300mm/600mm cabinets<br>Wireless outdoor base station cabinet, FTTX outdoor cabinet, hanging wall | | | |
| **Working temperature range** | -10℃～60℃ | | | |
| **Working humidity range** | 5~95% no condensation | | | |
| **Storage temperature range** | -40℃～85℃ | | | |
| **Heat dissipation** | Fan cooling | | | |
| **Power supply mode** | AC: 90 ~ 260V or DC: -36 ~ -72 V | | | |

## Network positioning

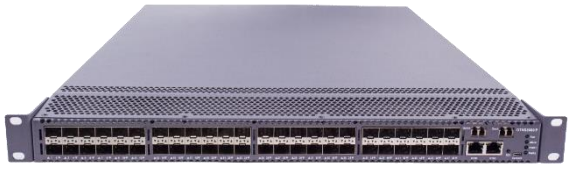


# OTNS8600P Integrated DWDM Equipment

Based on optical integration technology, Sintai Communication Co., Ltd independently developed OTNS8600 P-type integrated wavelength division equipment, 80G, 160G, 400G, 480G transmission capacity to build networks in batches, eliminating complex optical layer configuration, reducing the tedious Connected to the optical fiber, the switch-type connection is connected, the network is built quickly, and the maintenance is simple. It perfectly matches the transmission requirements of the customer's metropolitan area, and solves the customer's demands to the greatest extent.

## Product features

- 1U rack device, ultra-high integration design, compared to traditional solutions, the cabinet space saving 90%
- Single-channel access rate up to 10 Gbit/s and adaptive access to all types of services at rates of 10 Gbit/s or lower (like FE/GE/10GE LAN, 10GE WAN, STM-1~64, etc.)
- Support 1+1 line protection on the optical cable side, automatically select transmission routes, and improve network reliability
- In-band monitoring channel, optical path connectivity enables SNMP management across the connection of optical road
- Dual-server power configuration, hot-pluggable, 1+1 hot backup using Load Share
- One-box delivery by site, power-free distribution, plug and play; no fiber jump, no manual intervention



- Single device supports up to 480G transmission capacity, 80G/160G/400G/480G devices can be flexibly selected according to service requirements, and stacking is supported to increase the transmission capacity
- The networking is simple, the original network topology is not changed, no complicated optical layer design, and only the device model is selected based on the number of attenuation or kilometers.
- Service port is completely physically isolated and transparently transmitted to improve network security.

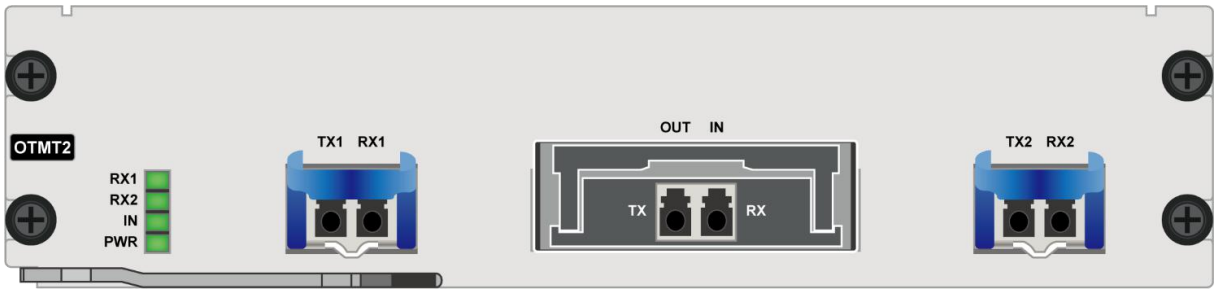
## Product specification

| Function | Note |
|---|---|
| **Equipment Size** | 1U: 44 mm (H)×442 mm (W)×560 mm (D) |
| **Max channel number** | 480G |
| **Single channel max rate** | 10Gbit/s |
| **Support service** | 100M～10G All services, including STM-1/4/16/64, OC-3/12/48/192, FE, GE, 10GE, FC100/200/400/800/1200, FICON, ESCON, CPRI 1/2/3/6/7 and others services |
| **Clock features** | Support IEEE 1588V2 |
| **Network level protection** | Support optical line 1+1 protection |
| **Installation** | 19” 600mm cabinet |
| **Working temperature range** | -10℃～60℃ (typical) |
| **Working humidity range** | 5~95% no condensation |
| **Storage temperature range** | -40℃～85℃ |
| **Heat dissipation** | Fan cooling |
| **Power supply mode** | AC: 90 ~ 260V or DC: -36 ~ -72 V (support 1+1 backup power input) |
| **Power consumption** | <400W (Max) |
| **MTBF** | ＞100000 hours |

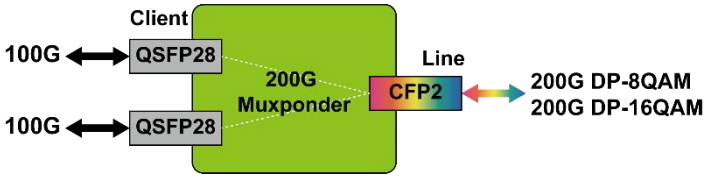
# 200G Muxponder: 1*CFP2+2*QSFP28

The 200G Muxponder service card launched by Guangzhou Sintai Communication Co., Ltd. supports 2x100G↔200G electric layer multiplexing / demultiplexing, and converted to a 200G WDM standard wavelength optical signal, so as to facilitate the wavelength division multiplexing of optical signals of different wavelengths by the wave combining unit, and realize the inverse process of the above process. The line side adopts DP-8QAM or DP-16QAM modulation mode, coherent reception and other advanced technologies to overcome the challenges of high-speed transmission system for OSNR requirements, Cd tolerance, PMD tolerance and non-linear transmission physical effects. It can achieve a maximum of 800KM of no electrical relay transmission, and support C-band 96 wave (50GHz) tunable.

## Product diagram




## Functional structure



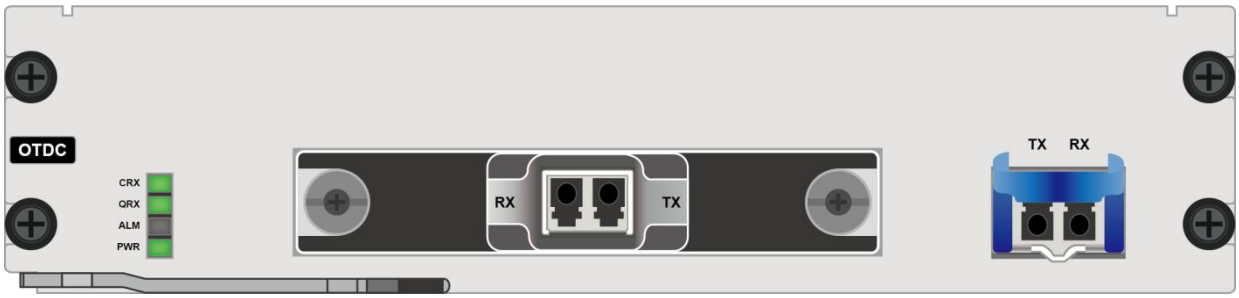

## Product specification

| Function | Note |
|---|---|
| **Interface** | ● Client side interface: 2, pluggable based on QSFP28<br>● Line side interface: 1, pluggable based on CFP2, coherent DP-8QAM or DP-16QAM |
| **Line mode** | Support 2*100G service optical signals to be multiplexed into 1*200G DWDM standard wavelength optical signal |
| **Relay mode** | Support 200G wavelength electrical relay |
| **Support service type** | ● 100GE<br>● OTU4 |
| **WDM technology** | Support DWDM: C-band 50GHz 96 wave tunable |
| **FEC technology** | Support SDFEC and G.709 FEC |
| **Occupied slot number** | Support OTNS8600 series chassis, occupy 2 slots |
| **Network management function** | ● Support real time monitoring of the port working state, including: transmitting optical power and receiving optical power, temperature, etc.<br>● Support port loopback and port shutdown |
| **Power consumption** | 30W (include the optical transceiver) |
| **MTBF** | ＞100000 hours |

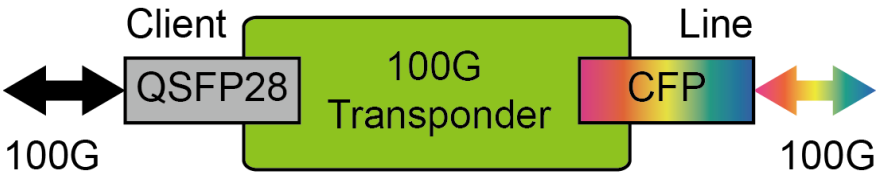
# 100G OTU: 1*CFP+1*QSFP28

100G OTU card launched by Sintai Communication Co., Ltd. supports one 100G service access, adopts advanced technologies such as PDM-QPSK modulation and coherent reception, and overcomes the OSNR requirements, CD tolerance, and PMD tolerance of high-speed transmission systems. And the nonlinear physical effects of transmission, such as 100G service 1200 km or more of non-electrical relay transmission, and the line side interface supports C-band 96-wave (50 GHz) adjustable.

## Product diagram




## Functional structure



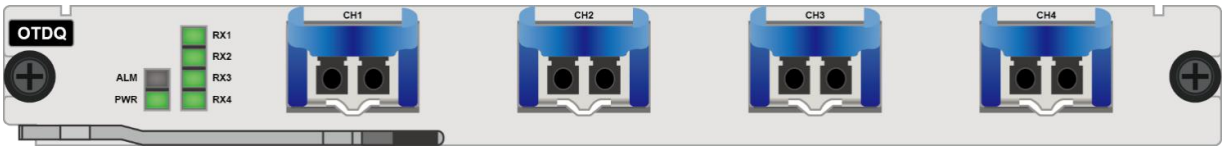

## Product specification

| Function | Note |
|---|---|
| **Interface** | ● Client-side interface: 1 QSFP28 hot-pluggable<br>● WDM-side interface: 1 CFP hot-pluggable, coherent PDM-QPSK |
| **Line mode** | Support one 100G service transmission, transform one 100G service optical signal into one DWDM standard wavelength optical signal |
| **Relay mode** | Support 100G wavelength electrical relay |
| **Support service type** | ● 100GE<br>● OTU4 |
| **WDM technology** | Support DWDM: C band 50GHz 96 wavelengths adjustable |
| **FEC technology** | Support SDFEC |
| **Occupied slot number** | Support OTNS8600 series chassis, occupy 2 slots |
| **Network management function** | ● Support real time monitoring of the port working state, including: transmitting optical power and receiving optical power, temperature, etc.<br>● Support port loopback and port shutdown |
| **Max power consumption** | 50W (including transceiver) |
| **MTBF** | ＞100000 hours |

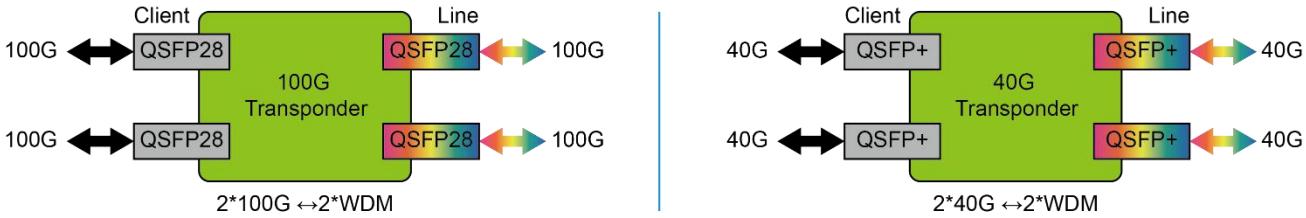
# 40G&100G OTU: 4*QSFP28

40G&100G OTU service card launched by Sintai Communication Co., Ltd. supports two 40G or 100G service access. Its main function is to perform 3R regeneration of two 40G or 100G service signals that are accessed, and can be transformed into two WDM standard wavelength optical signal, so that the multiplexer unit performs wavelength division multiplexing on optical signals of different wavelengths, and at the same time implements the inverse process of the above process. It's suitable for short-range transmission of wavelength division in metro areas at 40G or 100G rates.

## Product diagram




## Functional structure



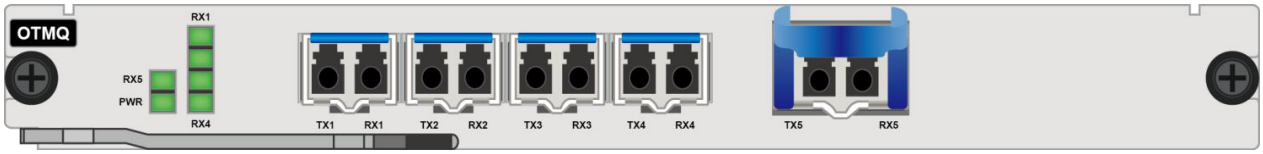

## Product specification

| Function | Note | |
|---|---|---|
| **Application** | 100G wavelengths transform | 40G wavelengths transform |
| **interface** | ● Client-side interface: 2 QSFP28 hot-pluggable<br>● WDM-side interface: 2 QSFP28 hot-pluggable | ● Client-side interface: 2, QSFP+ hot-pluggable<br>● WDM-side interface: 2, QSFP+ hot-pluggable |
| **Line mode** | Supports two 100G service transparent transmissions, which can transform two 100G service optical signals into two WDM standard wavelength optical signals | Supports two 40G services for transparent transmission, which can transform two 40G service optical signals into two WDM standard wavelength optical signals. |
| **Support service type** | ● 100GE<br>● OTU4 | ● 40GE<br>● OTU3 |
| **Relay mode** | ● Support 40G&100G wavelength electrical relay<br>● Optical signal single, multi-mode transform | |
| **WDM technology** | Support DWDM: C band 100GHz 40wavelengths | |
| **Occupied slot number** | Support OTNS8600 series chassis, occupy 1 slot | |
| **Network management function** | ● Support real time monitoring of the port working state, including: transmitting optical power and receiving optical power, temperature, etc.<br>● Support port loopback and port shutdown | |
| **Max power consumption** | 20W (including transceiver) | |
| **MTBF** | ＞100000 hours | |

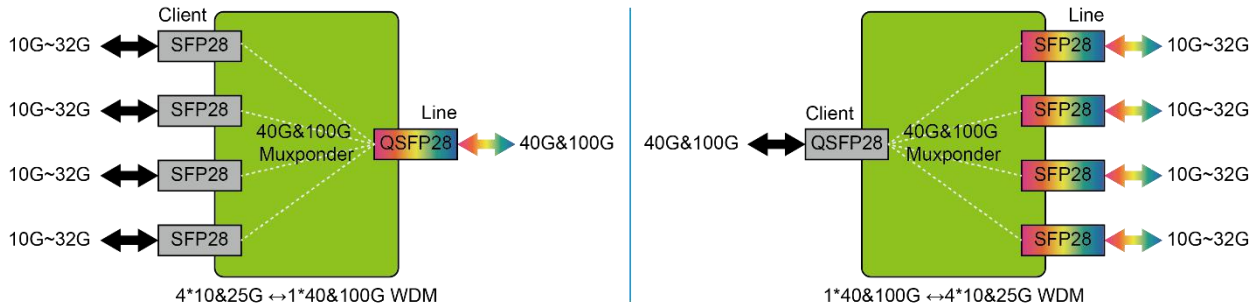
# 40G&100G Muxponder: 4*SFP28↔QSFP28

40G&100G muxponder service card launched by Sintai Communications Co., Ltd. supports 4x10G↔40G or 4x25G↔100G electrical layer multiplexing/demultiplexing, and transform the multiplexed/demultiplexed optical signals into WDM standard wavelength optical signals. It can facilitate the wavelength division multiplexing of the optical signals of different wavelengths by mux unit, and simultaneously implementing the inverse process of the above process. It's suitable for 10G~25G forward multiplexing or 40G/100G inverse multiplexing wavelength division short-distance transmission solution.

## Product diagram




## Functional structure



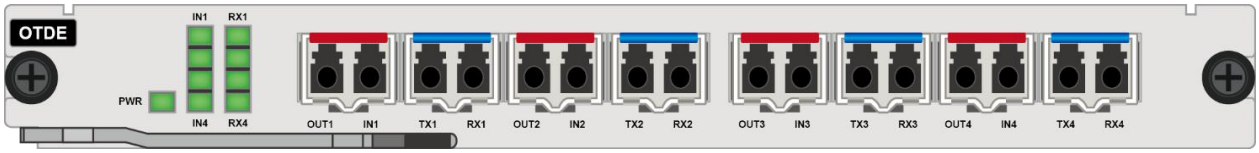

## Product specification

| Function | Note | |
|---|---|---|
| **Application** | 4x10G↔40G & 4x25G↔100G | 40G↔ 4x10G & 100G↔4x25G |
| **interface** | ● Client-side interface: 4 SFP28 hot-pluggable, compatible with SFP+<br>● WDM-side interface: 1 QSFP28 hot-pluggable, compatible with QSFP+ | ● Client-side interface: 1 QSFP28 hot-pluggable, compatible with QSFP+<br>● WDM-side interface: 4 SFP28 hot-pluggable, compatible with SFP+ |
| **Basic function** | Supports 4*10G & 4*25G service optical signals to be multiplexed into one 40&100G rate WDM standard wavelength optical signal | Supports one 40&100G service optical signal demultiplexed into 4*10G & 4*25G rate WDM standard wavelength optical signals |
| **Support service type** | ● 10GE, 25GE<br>● 8G/10G/16G FC (compatible 32G )<br>● STM-64, OTU2, CPRI/eCPRI | ● 40GE, 100GE<br>● OTU3, OTU4 |
| **WDM technology** | Support DWDM: C band 100GHz 40 waves | Support CWDM: 18 waves<br>Support DWDM: C band 50GHz 80 waves |
| **Occupied slot number** | Support OTNS8600 series chassis, occupy 1 slot | |
| **Network management function** | ● Support real time monitoring of the port working state, including: transmitting optical power and receiving optical power, temperature, etc.<br>● Support port loopback and port shutdown | |
| **Power consumption** | 13W (max, including transceiver) | |
| **MTBF** | ＞100000 hours | |

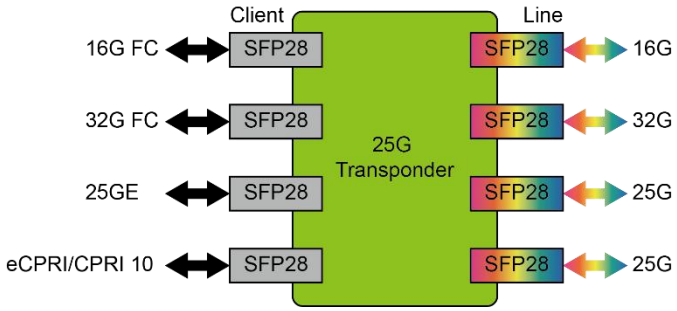
# 25G OTU: 8*SFP28

25G OTU service card launched by Sintai Communication Co., Ltd supports four types of service access with 16 to 32G rates. Its main function is to finish the 2R re-generating and re-shaping of any 4-channel signals under any protocol within the rate of 25 Gbit/s to be accessed, and then convert them to optical signals of a standard DWDM wavelength or standard CWDM wavelength, so that the multiplexing unit can conduct WDM for optical signals of different wavelengths and also achieve the inverse process of the above process. It's applicable to the wavelength division transmission solution for 25G rate services, and compatible with 16G or 32G FC.

## Product diagram




## Functional structure



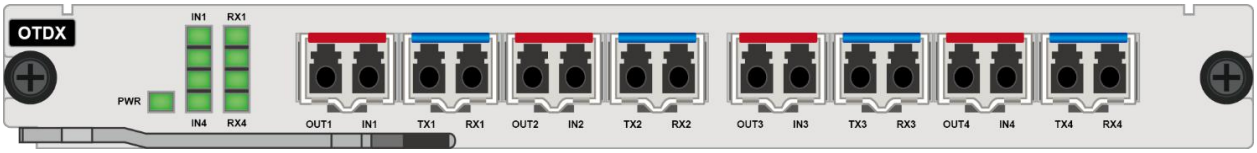

## Product specification

| Function | Note |
|---|---|
| **interface** | ● Client-side interface: 4 SFP28 hot-pluggable<br>● WDM-side interface: 4 SFP28 hot-pluggable |
| **Line mode** | Supports transparent transmission of any type of service in four 16G~32G rate ranges, and converts four service optical signals into four WDM standard wavelength optical signals. |
| **Relay mode** | Support 16G~32G wavelength electrical relay |
| **Support service type** | ● 25GE<br>● 16G FC (compatible 32G)<br>● ECPRI, CPRI 10 |
| **Adaptive** | 16~32G rate adaptive, configuration free |
| **WDM technology** | ● Support CWDM: 18 waves<br>● Support DWDM: C band 50GHz 80 waves |
| **Occupied slot number** | Support OTNS8600 series chassis, occupy 1 slot |
| **Network management function** | ● Support real time monitoring of the port working state, including: transmitting optical power and receiving optical power, temperature, etc.<br>● Support port loop back and port shutdown |
| **Power consumption** | 16W (max, including transceiver) |
| **MTBF** | ＞100000 hours |

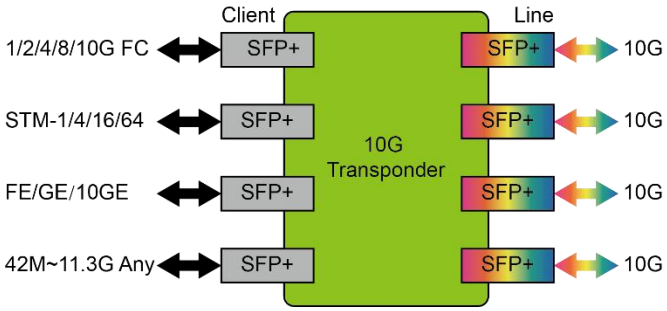
# 10G OTU: 8*SFP+

10G OTU service card launched by Sintai Communication Co., Ltd. supports four types of service access with 42M~11.3G rates.，its main function is to finish the 3R regeneration of any 4-channel signals under any protocol within the rate of 1.25 Gbit/s~11.3 Gbit/s to be accessed, and then convert them to optical signals of a standard DWDM wavelength or standard CWDM wavelength, so that the multiplexing unit can conduct WDM for optical signals of different wavelengths and also achieve the inverse process of the above process. It's applicable to the wavelength division transmission solution for any access of services with the rate of 11.3G or below.

## Product diagram




## Functional structure



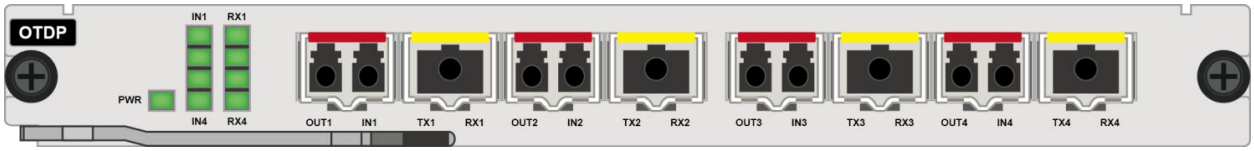

## Product specification

| Function | Note | |
|---|---|---|
| **Card type** | 10G OTU-3R | 10G OTU-2R |
| **interface** | ● Client-side interface: 4 SFP+ hot-pluggable, compatible with SFP<br>● WDM-side interface: 4 SFP+ hot-pluggable, compatible with SFP | |
| **Line mode** | Supports transparent transmission of any type of service in four 42M~11.3G rate ranges, and converts four service optical signals into four WDM standard wavelength optical signals. | |
| **Relay mode** | Support 42M~11.3G wavelength electrical relay | |
| **Support service type** | ● GE, 10GE<br>● 1/2/4/8/10G FC<br>● STM-16/64<br>● CPRI-2/3/6/7 | ● FE, GE, 10GE<br>● 1/2/4/8/10G FC<br>● STM-1/4/16/64, OTU1/OTU2/OTU2e<br>● CPRI-1~8, 42M~11.3G Any |
| **WDM technology** | ● Support CWDM: 18 waves<br>● Support DWDM: C band 50GHz 96 waves | |
| **Occupied slot number** | Support OTNS8600 series chassis, occupy 1 slot | |
| **Network management function** | Support real time monitoring of the port working state, including: transmitting optical power and receiving optical power, temperature, etc. | |
| **Power consumption** | 16W (max, including transceiver) | |
| **MTBF** | ＞100000 hours | |

# PON OTU: 8*SFP

PON OTU service card launched by Sintai Communication Co., Ltd. supports four types of EPON or GPON service access，its main function is to finish the 3R regeneration of any 4-channel PON signal to be accessed, and then converts them to optical signals of a standard DWDM wavelength or standard CWDM wavelength, so that the multiplexing unit can conduct WDM for optical signals of different wavelengths and also achieve the inverse process of the above process. It is applicable to multiple PON port aggregation remote wavelength division transmission solution to achieve wide coverage of PON and save fiber resources.

## Product diagram




## Functional structure

## Product specification

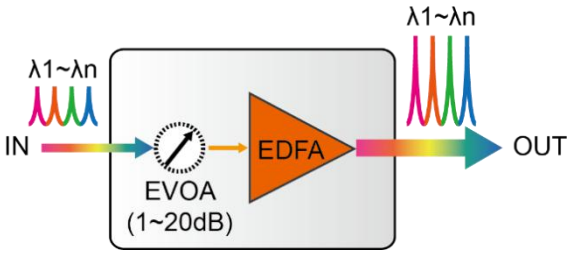
| Function | Note |
|---|---|
| **Interface** | ● Client-side interface: 4 SFP hot-plug gable<br>● WDM-side interface: 4 SFP hot-plug gable |
| **Line mode** | Supports 4 EPON or GPON services for transparent transmission, converting 4 PON service optical signals into 4 WDM standard wavelength optical signals |
| **Relay mode** | Support 4*PON wavelength electrical relay |
| **Support service type** | ● EPON<br>● GPON |
| **Adaptive** | EPON、GPON adaptive, configuration free |
| **WDM technology** | ● Support CWDM: 18 waves<br>● Support DWDM: C band 50GHz 96 waves |
| **Remote distance** | GPON max remote distance 50km, EPON max remote distance 35km |
| **Occupied slot number** | Support OTNS8600 series chassis, occupy 1 slot |
| **Network management function** | ● Support real time monitoring of the port working state, including: transmitting optical power and receiving optical power, temperature, etc.<br>● Support port loop back and port shutdown |
| **Power consumption** | 12W (max, including transceiver) |
| **MTBF** | ＞100000 hours |

# EDFA: Erbium-Doped Fiber Amplification Card

EDFA is an erbium-doped fiber amplification card launched by Sintai Communication Co., Ltd. Its main function is to compensate the power of the signal light in the transmission link, and it can amplify the optical signals of up to 48 channels (channel interval of 100 GHZ) or 96 channels (channel interval of 50 GHZ) at C band at the same time. It has characters of flat gain, locked gain, low noise figure, etc. and it's an indispensable important component for DWDM system, future high speed system and all-optical network long-distance transmission.

## Product diagram

## Functional structure



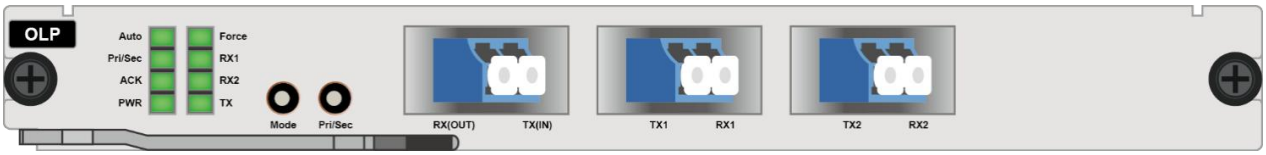

## Product specification

| Function | Note |
|---|---|
| **Working wavelength range** | **Standard type:** 1529nm~1561nm<br>Applicable to 40 wavelength(100GHz) or 80 wavelength(50GHz)DWDM system |
| | Extension type: 1528nm~1568nm<br>Applicable to 48 wavelength(100GHz) or 96 wavelength(50GHz)DWDM system |
| **Min input optical power** | -30 dBm |
| **Max output power** | +22dBm |
| **Max Gain** | 30dB |
| **Noise factor** | ＜5.5dB |
| **Gain flatness** | ＜1.5dB |
| **Secondary amplification** | Support built-in dual pump (optional) for signal secondary amplification |
| **Unique technology** | Support gain locking technology, transient control technology automatic shut-off technology of output optical power |
| **EVOA function** | Built-in EVOA(optional);network management can adjust dynamic damping range of 1dB~20dB |
| **Network management function** | ● Support real time monitoring for EDFA port working state, including: optical power, optical pumping, temperature, etc.<br>● Support pump shutdown threshold and automatic recovery time setting function |
| **Occupied slot number** | Support OTNS8600 series chassis, occupy 1 slot |
| **Optical interface** | LC/UPC |
| **Max power consumption** | 15W |
| **MTBF** | ＞100000 hours |

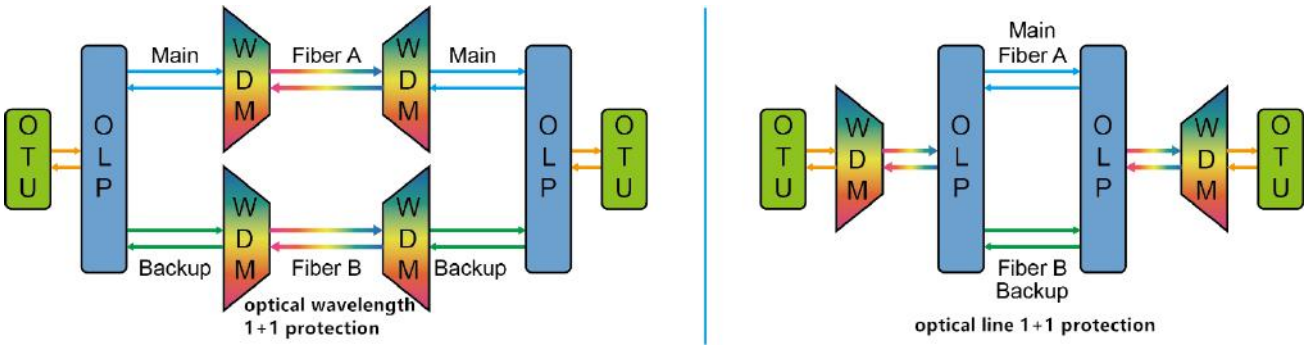
# OLP: Optical Line Protection Card

OLP optical protection card launched by Sintai Communication Co., Ltd. main function is to assist the wavelength division system to complete optical layer protection solutions such as optical line 1+1 protection and optical wavelength 1+1 protection. It can monitor the primary and backup routing optical paths in real time. In the event that the fiber core is blocked or degraded in performance, it can implement the secure rearrangement automatically in the main and standby fiber core, so as to guarantee optical signals in the system line to recover quickly. OLP technology is to complete the routing switch operation in optical layer. The optical layer protection has the incomparable advantages over the protection of upper services, and it is the best solution to provide the user with an uninterrupted communication.

## Product diagram




## Functional structure



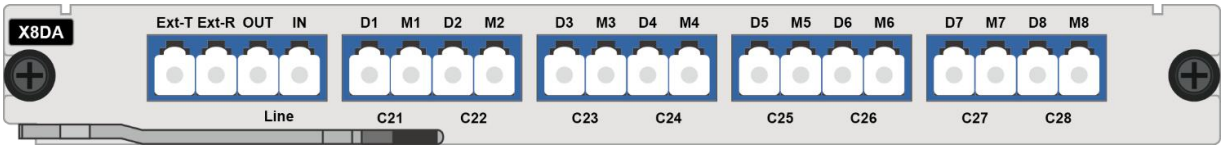

## Product specification

| Function | | Note |
|---|---|---|
| **working wavelength range** | | 1260nm~1650nm |
| **Switching mechanism** | | Selectively receipt from double transmission, and then single-ended rearrangement |
| **Switching time** | | ＜20ms |
| **Introduction loss** | **Tx port** | ＜3.8dB |
| | **Rx port** | ＜1.2dB |
| **Monitoring of optical power range** | | -50 dBm ~+25dBm |
| **Application scenes** | | ● Optical line 1+1 protection<br>● Optical wavelength 1+1 protection |
| **Network management function** | | supports the OLP optical power real-time monitoring, active switch scheduling, performance management, routing management, and other management functions |
| **Occupied slot number** | | Support OTNS8600 series chassis, occupy 1 slot |
| **Optical interface** | | LC/UPC |
| **Max power consumption** | | 5W |
| **MTBF** | | ＞100000 hours |

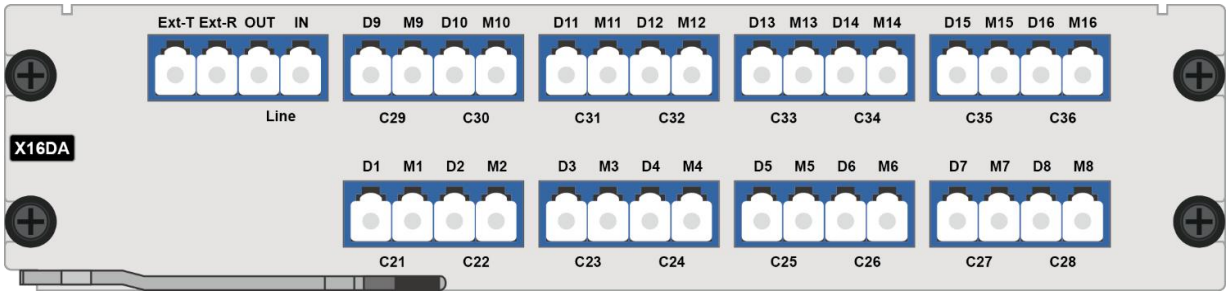
# MDU: 1~18 Wavelengths Multiplexing/Demultiplexing card

MDU is multiplexing/demultiplexing card based on WDM technology launched by Sintai Communication Co., Ltd. , is mainly used in CWDM or DWDM systems to complete the multiplexing and demultiplexing functions of 1~18 optical wavelengths. Different wavelengths of light can be multiplexed onto one fiber or multiple optical channels multiplexed in the same fiber can be separated by wavelength. Adopting advanced optical film filtering technology, it has a series of advantages such as low insertion loss, excellent channel consistency and high reliability. The number of channels can be customized according to customer requirements.

## Product diagram




8 channel Mux/Demux




16 channel Mux/Demux

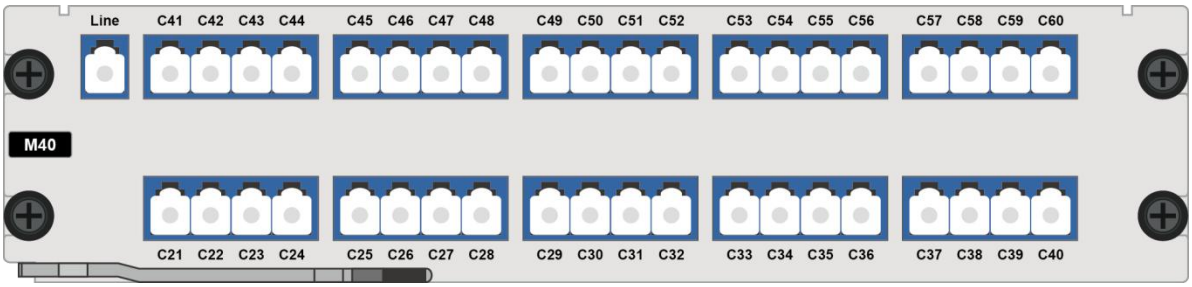
## Product specification

| Function | Note | | | | |
|---|---|---|---|---|---|
| **Optical channel number** | 2 | 4 | 8 | 16 | 18 |
| **Channel insertion loss** | ≤1.2dB | ≤1.8dB | ≤2.6dB | ≤4.5dB | ≤5.0dB |
| **Occupied slot number** | Support OTNS8600 series chassis, occupy 1 slot | | | Support OTNS8600 series chassis, occupy 2 slot | |
| **Working wavelength range** | ● CWDM: 1271nm~1611nm<br>● DWDM: C Band（100GHz） | | | | |
| **Channel center wavelength** | ITU-T Grid | | | | |
| **Line-side fiber number** | Supports single-fiber or dual-fiber application on the line side. | | | | |
| **Flatness** | ≤0.5dB | | | | |
| **Isolation ratio of adjacent channel** | ≥30dB | | | | |
| **Isolation ratio of non-adjacent channel** | ≥45dB | | | | |
| **Return loss** | ≥50dB | | | | |
| **Directivity** | ≥55dB | | | | |
| **Optical interface** | LC/UPC | | | | |
| **Max power consumption** | 3W | | | | |
| **MTBF** | ＞100000 hours | | | | |

# AWG: 40 Wavelengths Multiplexing/Demultiplexing Card

AWG split-wave card launched by Sintai Communication Co., Ltd. is mainly used in the DWDM system to complete 40 optical wavelength multiplexing and demultiplexing functions in the C-band range, which can multiplex different wavelengths of light into one. Multiple optical channels multiplexed on the same fiber are separated by wavelength on the fiber. It is based on waveguide grating technology on silicon substrates and features a unique heatless package design for precise channel coupling, low insertion loss, high channel isolation and high stability for 40- or 80-wave high-capacity DWDM systems.

## Product diagram




## Product specification

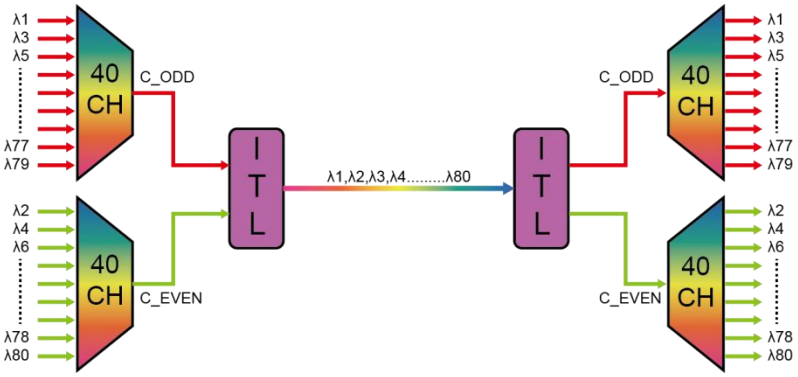
| Function | Note |
|---|---|
| **Optical channel number** | 40 channel, support C band (C_EVEN), (C_ODD) |
| **Channel spacing** | 0.8nm (100GHz) |
| **Channel frequency** | ±12.5 GHz |
| **Wavelength accuracy** | ≤0.05nm |
| **Channel insertion loss** | ≤5.5dB |
| **-1dB bandwidth** | ≤0.34dB |
| **-3dB bandwidth** | ≤0.51dB |
| **Adjacent channel isolation ratio** | ≥25dB |
| **Non-adjacent channel isolation ratio** | ≥30dB |
| **Total isolation** | ≥23dB |
| **Flatness** | ≤1.5dB |
| **Return loss** | ≥45dB |
| **Directivity** | ≥50dB |
| **Occupied slot number** | Support OTNS8600 series chassis, occupy 2 slot |
| **Optical interface** | LC/UPC |
| **Extend function** | Support C band（C_EVEN）40 channel and（C_ODD）40 channel through Interleaver extend to 80 channel |
| **Max power consumption** | 3W |
| **MTBF** | ＞100000 hours |

# ITL: Interleaver

ITL (Interleaver) launched by Sintai Communications Co., Ltd. is a new type of multiplexing/demultiplexing device that uses a cross-filtering scheme to realize two 40/48-wave (100 GHz) optical signal synthesis. An 80/96 wave (50 GHz) optical signal simultaneously implements the inverse of the above process. ITL is completely passive, requires no temperature control, excellent environmental stability, and meets Telcordia GR-1221-CORE requirements.

## Product diagram

## Functional structure




## Product specification

| Function | Note |
|---|---|
| **Working wavelength range** | C band: 1528nm~1568nm |
| **Channel spacing** | Mux: input 100GHz/output 50GHz, Demux: input 50GHz/output 100GHz |
| **Channel middle wavelength** | ITU-T Grid |
| **Insertion loss** | ≤2.2dB |
| **Bandwidth@0.5dB** | ≤0.17nm |
| **Bandwidth@25dB** | ≤0.7nm |
| **Adjacent channel isolation ratio** | ≥22dB |
| **Flatness** | ≤0.5dB |
| **Return loss** | ≥40dB |
| **Directivity** | ≥55dB |
| **Dispersion** | ±75ps/nm |
| **PMD** | 0.2ps |
| **Occupied slot number** | Support OTNS8600 series chassis, occupy 1slot |
| **Optical interface** | LC/UPC |
| **MTBF** | ＞200000 hours |

# TDC: Tunable Dispersion Compensator

TDC (tunable dispersion compensator) card launched by Sintai Communications Co., Ltd. is mainly used for dispersion compensation of high-speed transmission system. It can accurately manage the residual dispersion after segmented fixed optical compensation, and provide flexible and accurate solution for dispersion compensation. The product is independent, transparent, safe and reliable for optical transmission signals, so as to ensure normal communication of the system. It is suitable for high-speed, long-distance WDM transmission system

## Product diagram

## Product features

- Adjustable: TDC provide high precision, dynamically adjustable dispersion compensation over a wide range of dispersion value.
- Low latency: TDC latency is less than 25ns, making it ideal for time-sensitive networks
- G.652 slope matching: TDC compensates for the dispersion slope of the fiber, providing accurate and uniform residual dispersion for each channel of the C-band
- Multi-channel: TDC has a complete C-band coverage and can be used on 50GHz or 100GHz DWDM networks.
- Dispersion compensation range is large, and it can be selected from ±800ps/nm to ±1200ps/nm
- Optical path is transparent and does not change the optical signal
- Simple structure and convenient maintenance

## Product specification

| Function | Note | |
|---|---|---|
| **Working wavelength range** | C band: 1528nm~1568nm | |
| **Channel spacing** | 50GHz | |
| **Dispersion compensation range** | ±800ps/nm | ±1200ps/nm |
| **Absolute dispersion accuracy** | ±25ps/nm | ±60s/nm |
| **Introduction loss** | ＜4dB | |
| **PDL** | ＜0.3dB | |
| **PMD** | ＜1ps | |
| **Max input optical power** | +27dBm | |
| **Dispersion setting resolution** | ±10ps/nm | |
| **Button and display function** | Support local button operation dispersion compensation range setting, with the display can visually display the current status | |
| **Network management function** | Support real-time monitoring of TDC optical power, remote setting of dispersion compensation range, etc. | |
| **Occupied slot number** | Support OTNS8600 series chassis，occupy 1slot | |
| **Optical interface** | LC/UPC | |
| **Max power consumption** | 5W | |
| **MTBF** | ＞100000 hours | |

# DCM: Dispersion Compensation Module

The DCM dispersion compensator launched by Guangzhou Sintai Communication Co., Ltd. is a pure passive device. It can compensate the dispersion slope of standard single-mode optical fiber (G.652) in C-band. And it is used to repair the optical signal distorted by dispersion and compensate the damaged signal in optical transmission system, so as to improve the performance of the transmission system and achieve high-speed, large-capacity, long-distance communication. The dispersion range of the DCM can reach - 10 to - 2100ps/nm at 1550nm wavelength. And products with special requirements for central wavelength and dispersion can be also provided.

## Product Feature

- 100% slope compensation of G.652 optical fiber in C-band
- Low insertion loss
- Low polarization mode dispersion
- Wide band Dispersion Compensation for DWDM System
- Packaging and interface types can be customized
- Comply with Telcordia GR-2854-CORE standard
- Conform to RoHS-6 (lead free)

Pluggalbe Card Type

1U Pluggalbe Rack Mout

## Application Scenario

- SDH high speed optical transmission system
- DWDM optical transmission system
- G.652 Standard single-mode optical fiber long-distance and metropolitan area communication system

1U Integrated Rack Mount

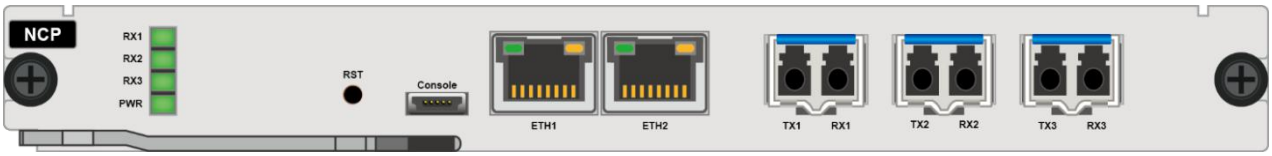
## Product Specification

| Item | Petemeter | | | | | |
|---|---|---|---|---|---|---|
| **Equivalent G.652 compensation length** | 20Km | 40Km | 60Km | 80Km | 100Km | 120Km |
| **1545nm wavelength dispersion (ps/nm)** | -340±20 | -670±30 | -1000±40 | -1340±50 | -1670±60 | -2040±60 |
| **1545nm relative dispersion slope ($nm^{-1}$)** | 0.004±20% | | | | | |
| **Insertion loss (dB)** | ≤3.5 | ≤5.0 | ≤6.8 | ≤8.7 | ≤10.7 | ≤12.9 |
| **Polarization mode dispersion (ps)** | ≤0.5 | ≤0.8 | ≤1.0 | ≤1.2 | ≤1.3 | ≤1.4 |
| **Polarization dependent loss (ps)** | ≤0.1 | ≤0.1 | ≤0.1 | ≤0.1 | ≤0.1 | ≤0.1 |
| **Optical reflection (dB)** | -27 | | | | | |
| **Maximum permissible input power (dBm)** | +23 | | | | | |
| **Working temperature range** | -5°C~70°C | | | | | |
| **Storage temperature range** | -40°C~85°C | | | | | |
| **Environmental/Reliability Testing** | Conform to Telcordia GR-2854 and GR1221standard | | | | | |
| **Interface type** | LC/PC or to be customized | | | | | |
| **Packaging** | Pluggable chassis: 1U, (D)220mm×(W)442mm×(H)44mm<br>Rack mount: 1U, (D)220mm×(W)442mm×(H)44mm | | | | | |

# NCP: Network Control Management Card

NCP is a network management module specially designed for OTNS8600 series products by Guangzhou Sintai Communication Co., Ltd. Its main function is to provide the interface between equipment and network management system. With the NS2000 network management system of OTNS8600 series, NCP completes the single card management, various maintenances and management signal transmission of network element, and realizes the real-time monitoring, maintenance and management of equipment element and the whole synchronous equipment network. It provides a good solution for equipment monitoring.

## Product Diagram




## Product Feature

- High-speed ARM processor is used to provide powerful data processing capability. It can collect the status information, alarm events and performance parameters of each single card's function module, and transform, process and store them. Meanwhile, control and management information is transmitted to other functional modules of the equipment.
- Provide a Console interface to support simulation terminal operation
- Provide two RJ45 Ethernet interfaces to support IP-based graphical SNMP network management
- Provide 3 SFP interfaces to support in-band management of equipment, realize the processing of 3 optical monitoring channels, and complete the receiving and sending of optical signals of optical monitoring channel at each station.
- The management module is hot swappable and does not affect the normal operation of current service after failure.

## Product Specification

| Function | Description |
|---|---|
| **Local management serial port** | Support a Micro-USB local management serial port |
| **Remote management Ethernet port** | Supports two RJ45 Ethernet interfaces, interface rate 10/100/1000M adaptive |
| **OSC optical monitoring port** | Supports three pluggable optical SFP ports with LC interface |
| **Network management method** | Support CLI, Telnet, SNMP, Web and other network management methods |
| **Exchange function** | Support IP communication between devices to realize integrated management |
| **Protection function** | Plug out or failure of network management card will not affect existing service |
| **Maintenance function** | Support local or remote software online upgrade |
| **Reset function** | Support hardware reset of local NCP card by operating key |
| **Initialization function** | Support initialization of local NCP card hardware by operating key |
| **working temperature** | -10℃~+60℃ |
| **Working humidity** | 5%~95% |
| **Number of occupied slots** | Support OTNS8600 full range chassis, occupying 1 slot |
| **Maximum power consumption** | 5W |
| **MTBF** | ＞100000 hours |
| **Default IP address of factory** | 192.168.1.100 |

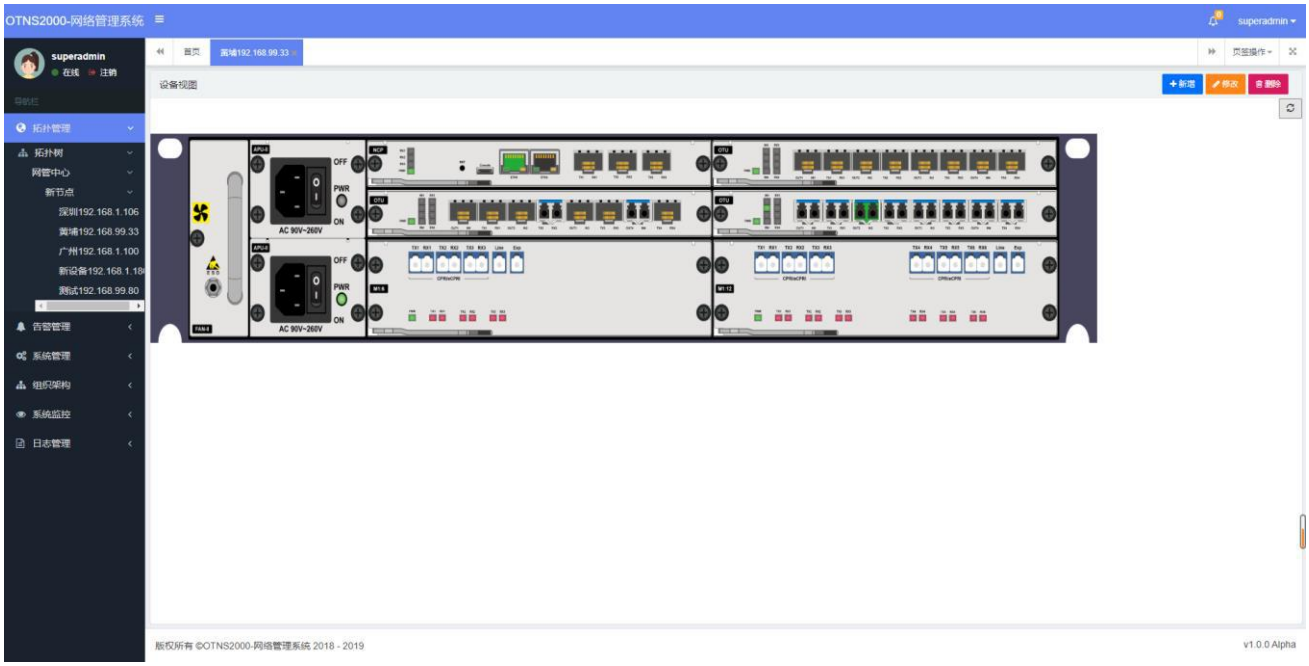
# OTNS2000 Network Management System

The OTNS2000 network management system launched by Guangzhou Sintai Communication Co., Ltd. is based on B/S architecture. It supports the unified management of the whole communication network products of Sintai, and realizes the management, maintenance and testing functions of the fault, performance, configuration and security of the whole network system. End-to-end management function can be also provided according to user's requirements. By use of network management system, it can improve the quality of network service, reduce maintenance costs, provide guarantee for the rational use of network resources, and provide standard external interfaces for upper network management. It provides a complete solution for the network management of transmission network.

## Product Feature

- **One-button automatic discovery:** Search network devices in the process of automatic discovery, identify device types and models, and generate panel diagrams of devices
- **Comprehensive equipment management:** Through the topological view, it is convenient to manage the equipment and its configuration parameters, and supports the related operation of the equipment. It supports automatic identification of the current device type and configuration parameters, real-time view of equipment operation.
- **Visual topology management:** Support tree/plane structure linkage to display network topology relationship and divide network by various layout modes; Real-time display of equipment status with different icons in the topology; Graphical and concrete topology form to manage equipment, equipment resources and links to reduce maintenance difficulty and drag layout makes configuration more flexible.
- **Timely fault management:** multiple alarm mechanisms and self-configuring alarm thresholds can quickly locate the alarm equipment; comprehensive collection of alarm information, timely alarm and a variety of alarm push modes to ensure timely fault resolution, which greatly improve the efficiency of alarm processing and reduce the loss caused by the failure.
- **Detailed report statistics:** with the statistical function of multiple data, statistical charts can be exported or printed for backup or comparison; through various types of chart display, users can have a comprehensive and intuitive understanding of the overall network. And through data analysis, the network situation can be comprehensively understood to provide a basis for decision-making.
- **Deep Control of Equipment:** Each device can be configured/backed up and the software can be upgraded to reduce the workload of administrators and improve the availability of the system. Support configuration file upgrade, backup and recovery functions for single and batch devices; configuration management, equipment software management, and equipment parameter management to help you reduce the workload.
- **Multi-level security management:** Through setting up user network and user rights, and controlling the black and white list, we can improve network security from multi-level and multi-angle, and ensure user network security.

## Network Management Interface


OTNS2000-网络管理系统
superadmin
在线
注销
拓扑管理
拓扑树
网管中心
新节点
深圳192.168.1.106
黄埔192.168.99.33
广州192.168.1.100
新设备192.168.1.18
测试192.168.99.80
告警管理
系统管理
组织架构
系统监控
日志管理
首页
黄埔192.168.99.33
设备视图
新增
修改
删除
AC 90V~260V
OFF
PWR
ON
版权所有 ©OTNS2000-网络管理系统 2018 - 2019
v1.0.0 Alpha

# OEO Optical Amplification Subsystem

The OEO optical amplification subsystem launched by Guangzhou Sintai Co., Ltd adopts the clock and data recovery (CDR) chip design with the highest performance and flexibility in the industry. It can perfectly realize the function of optical signal regeneration and amplification, signal cleaning and shaping with features of highly compact structure, flexible configuration and low power consumption. The system support the amplification of optical signals at any rate between 100M~100G with all modes and is widely applied in the field of operators, private networks and information systems.

## Product Feature

- Support the optical amplification of services at any rates, such as SDH/SONET, POS, GE, 10GE, 40GE, 100GE and so on
- Support optical signal conversion of single mode and multi-mode, single and dual fiber and wavelength conversion
- 1U platform supports as most 32 services amplifying at rate of 155M~10G or 16 service amplifying at rate of 40G~100G
- Adopt modular design with flexible configuration of each OEO function card and excellent scalability
- Support multi-kinds of graphical interface network management, such as SNMP, Web
- Support ALS function to extend the laser lifespan and avoid the damage to humans from laser leakage
- Support AC power 220V, DC power -48V, and 1+1 power input protection
- Free of configuration installation and support plug and play. All the optical interfaces are pluggable to reduce the spare parts cost

## Product Specification

| Function | Description |
|---|---|
| **Dimension** | 1U: 44 mm (H)×442 mm (W)×280 mm (D) |
| **Working wavelength range** | Multi-mode 850nm, single mode 1260nm~1650nm, CWDM/DWDM |
| **Supported service types** | STM-1/4/6/16/64/256, FE/GE/10GE/40GE/100GE |
| **Service access capability** | ● Support the OEO (optical-electrical-optical) amplification of at most 32 routes' services under any protocols within the rate of 155M~10G<br>● Support the OEO (optical-electrical-optical) amplification of at most 16 routes' services under any protocols at the rate of 40G or 100G |
| **3R function** | Support 3R function: re-amplifying), re-timing, re-shaping |
| **ALS function** | Support laser automatic turn-off alarm function. The laser will automatically turn off the emission when it receives no light |
| **Network management** | Support multi-kinds of graphical interface network management, such as SNMP, Web |
| **Optical interface** | LC/UPC |
| **Working temperature range** | -10℃~60℃ |
| **Working humidity range** | 5%~95% no condensation |
| **Storage temperature** | -40℃~85℃ |
| **Power supply** | AC: 90 ~ 260V or DC: -36 ~ -72 V (support 1+1 power input backup) |
| **Typical power consumption** | Full configuration <90W |
| **Heat dissipation** | Fan cooling |
| **MTBF** | ＞100000 hours |

# EDFA Optical Amplification Subsystem

The main function of the EDFA optical amplification subsystem launched by Guangzhou Sintai Co., Ltd is to compensate the signal's optical power in the transmission link, which can finally extend the optical signal transmission distance. It can be divided into BA, LA and PA based on the application scene. BA is usually used at the transmitting end to boost the output optical power of the system. LA is usually used at the repeater section to compensate the power loss of the line. PA is usually used at the receiving end of the system to improve the input optical power. The EDFA can amplify all the input optical signals by using the erbium-doped fiber as the gain medium and using the 980nm or 1480nm pump laser as the pump source with one-stage or two-stage amplification. It's one of the most indispensable and important part of the DWDM system, high speed transmission system and all optical network in the future.

## Product Feature

- Support the unified amplification of 48CH/96CH DWDM signal of C band
- Automatic gain control（AGC）
- Flat gain and low noise figure
- Support built-in VOA and automatic adjustment of optical power
- Support two-stage amplification with OADM or DCF modules to be configured in the line
- 1U pluggable rack, flexible capacity configuration
- Support AC power 220V, DC power -48V, and 1+1 power input protection
- Free of configuration installation and support plug and play
- Support multi-kinds of graphical interface network management, such as SNMP, Web

## Product Specification

| Item | Parameter | | | Remark |
|---|---|---|---|---|
| **Working wavelength range** | Stand type: 1529nm~1561nm, extended type: 1528nm~1568nm | | | |
| **EDFA type** | BA | LA | PA | |
| **Min input power (typical)** | -22dBm | -30dBm | -32dBm | |
| **Saturation output power (typical)** | +20dBm | +20dBm | +16dBm | To be customized with max +23dBm |
| **Rated gain (typical)** | 17dB | 25dB | 20dB | To be customized |
| **Gain flatness** | ≤1.5dB | | | |
| **Noise figure** | ≤5.5 dB | | | |
| **Working temperature range** | -10℃~60℃ | | | |
| **Working humidity range** | 5%~95% no condensation | | | |
| **Storage temperature** | -40℃~85℃ | | | |
| **Equipment dimension** | 1U: 44 mm (H)×442 mm (W)×280 mm (D) | | | |
| **Network management** | Support multi-kinds of graphical interface network management, such as SNMP and Web | | | Optional |
| **Special technology** | Built-in VOA with automatic adjustment of optical power | | | Optional |
| **Optical interface** | LC/UPC | | | |
| **Power supply** | AC: 90 ~ 260V or DC: -36 ~ -72 V (1+1 power input backup) | | | |
| **Typical power consumption** | Full configuration <60W | | | |
| **Heat dissipation** | Fan cooling | | | |
| **MTBF** | ＞100000 hours | | | |

# SOA Optical Amplification Subsystem

The SOA optical amplification subsystem launched by Guangzhou Sintai Co., Ltd is a special amplification platform for low power optical signal of 100G high-speed services in optical networks. It adopts the plug-in card type and hot-plug design with the characteristics of high integration, low power consumption and stable output power. The system is widely used in data link power amplification and extending transmission distance in various industries.

## Product Feature

- Wavelength range: 1280nm~1330nm
- Working modes: automatic power control (APC)and automatic gain control (AGC)
- Input power range：-17dBm~-4dBm
- High output power: saturated output optical power can reach +12dBm
- Double power protection: support AC power 220V, DC power -48V, and 1+1 power input protection
- Flexible architecture: 1U plug-in card design, flexible capacity configuration

- Green and easy-to-use: configuration-free installation, plug-and-play
- Unified network management platform: Support multi-kinds of graphical interface network management, such as SNMP, Web

## Product Specification

| Item | Parameter | Remark |
|---|---|---|
| **Working wavelength range** | 1280nm ~ 1330nm | |
| **Input power range (total power)** | -17dBm ~ -4dBm | |
| **Output power range (total power)** | 2dBm ~ 12dBm | |
| **Gain** | ≥14dB | |
| **Gain flatness** | ≤2dB | |
| **Noise figure** | ≤7.5 dB | |
| **Polarization dependent gain** | ≤2dB | |
| **Working temperature range** | -10℃~60℃ | |
| **Working humidity range** | 5%~95% no condensation | |
| **Storage temperature** | -40℃~85℃ | |
| **Equipment dimension** | 1U: 44 mm (H)×442 mm (W)×280 mm (D) | |
| **Network management** | Support multi-kinds of graphical interface network management, such as SNMP and Web | Optional |
| **System capacity** | 16*100G optical signal amplification | 1U full load |
| **Optical interface** | LC/UPC | |
| **Power supply** | AC: 90 ~ 260V or DC: -36 ~ -72 V (1+1 power input backup) | |
| **Typical power consumption** | Full configuration <160W | |
| **Heat dissipation** | Fan cooling | |
| **MTBF** | ＞100000 hours | |

# OLP Optical Line Protection Subsystem

The OLP optical line protection subsystem launched by Guangzhou Sintai Co., Ltd is based on the advanced development of optical switch technology. It's an automatic monitoring and protection system independent of communication transmission system and completely based on the physical link of optical cable. The system can automatically switch the signal to the optical fiber of the protection path when performance deterioration or blocking of work path is detected. In this way, an optical communication network with high reliability, safety, flexibility and strong disaster resistance is established.

## Product Feature

- Applicable to all kinds of optical communication system
- Support line protection of dual fiber and single fiber transmission network
- Support multiple working modes of automatic or manual switching
- Supporting real-time monitoring of main and backup routes
- Fast response: switching time<20ms
- Support automatic non-return and automatic return functions, automatic return time can be set to adapt to a variety of application scenarios
- Support panel button operation. The system can be operated by button on site without management card
- Support power-off and power-on retention functions
- OLP card and network management card are independent of each other and have no influence on each other
- Support multi-kinds of graphical interface network management, such as SNMP, Web
- Support AC power 220V, DC power -48V, and 1+1 power input protection
- 1U pluggable rack mount, flexible capacity configuration

## Product Specification

| Item | | Parameter | | |
|---|---|---|---|---|
| **Working wavelength range** | | 1260nm ~ 1650nm | | |
| **OLP type** | | OLPA (dual fiber 1+1 protection) | OLPB (dual fiber 1:1 protection) | OLPA-BiDi (single fiber 1+1 protection) |
| **Switching time** | | ＜20ms | ＜40ms | ＜20ms |
| **Introduction loss** | **Main path** | ＜5dB | ＜3dB | ＜5.5dB |
| | **Backup path** | ＜5dB | ＜3dB | ＜5.5dB |
| **Monitoring power range** | | -50 dBm ~+25dBm | | |
| **Working temperature range** | | -10℃~60℃ | | |
| **Working humidity range** | | 5%~95% no condensation | | |
| **Storage temperature** | | -40℃~85℃ | | |
| **Equipment dimension** | | 1U: 44 mm (H)×442 mm (W)×280 mm (D) | | |
| **Network management** | | Support multi-kinds of graphical interface network management, such as SNMP, Web | | |
| **Optical interface** | | LC/UPC | | |
| **Power supply** | | AC: 90 ~ 260V or DC: -36 ~ -72 V (support 1+1 power input backup) | | |
| **Typical power consumption** | | Full configuration <30W | | |
| **Heat dissipation** | | Fan cooling | | |
| **MTBF** | | ＞100000 hours | | |

# OBP Optical Bypass Protection Subsystem

The OBP optical bypass protection subsystem (Bypass) launched by Guangzhou Sintai Communication Co., Ltd. is an intelligent optical path switching system. It belongs to the physical layer equipment and is applied to pure optical network environment. It can automatically identify the power supply status and optical signal output status of network nodes. When the local optical equipment fails (including power interruption, hardware or software failures), it can instantaneously switch to the bypass optical path, and the communication line will bypass the local equipment (i.e. the fault node), thus avoiding the total resistance obstacle caused by the fault node and ensuring the normal system connectivity.

## Product Feature

- Applicable to all kinds of gateway equipment, such as DPI equipment, firewall, IPS, UTM, IDP, spam gateway, anti-virus gateway, special DDos equipment, special logic isolation equipment in all fields, etc.
- Support power-off and power-on retention function: Bypass equipment's power-off or power-on, does not affect the switching status of work routing to ensure the normal operation, and has hot-swap function.
- Unique power storage function to ensure that no wrong switch occurs even when the bypass equipment itself is power off.
- Automatic instantaneous switch to fault nodes without human intervention, switching time < 20ms
- OBP card and network management card are independent of each other and have no influence on each other
- Support multi-kinds of graphical interface network management, such as SNMP, Web
- Support AC power 220V, DC power -48V, and 1+1 power input protection
- 1U pluggable rack mount, flexible capacity configuration

## Product Specification

| Item | | Parameter | |
|---|---|---|---|
| **Working wavelength range** | | 850nm、1260nm ~ 1650nm | |
| **OBP type** | | OBPA (dual fiber 1+1 protection) | OBPB (dual fiber 1:1 protection) |
| **Switching time** | | ＜20ms | ＜20ms |
| **Introduction loss** | **Cascade** | ＜3.5dB (typical 50%: 50% splitter) | ＜1.5dB |
| | **Bypass** | ＜4.5dB (typical 50%: 50% splitter) | ＜1.5dB |
| **Monitoring power range** | | -50 dBm ~+25dBm | |
| **Working temperature range** | | -10℃~60℃ | |
| **Working temperature range** | | 5%~95% no condensation | |
| **Storage temperature** | | -40℃~85℃ | |
| **Equipment dimension** | | 1U: 44 mm (H)×442 mm (W)×280 mm (D) | |
| **Network management** | | Support multi-kinds of graphical interface network management, such as SNMP, Web | |
| **Optical interface** | | LC/UPC | |
| **Power supply** | | AC: 90 ~ 260V or DC: -36 ~ -72 V (support 1+1 power input backup) | |
| **Typical power consumption** | | Full configuration <25W | |
| **Heat dissipation** | | Fan cooling | |
| **MTBF** | | ＞100000 hours | |

# CWDM Mux/Demux

The CWDM multiplexer/demultiplexer launched by Guangzhou Sintai Communications Co., Ltd. is designed for economical and efficient multi-wavelength CWDM network applications. It is based on thin film filter (TFF) technology and operates on ITU grids with 20nm channel spacing. The CWDM wavelength ranges from 1270 to 1610 nm, and supports at most 18 channels of optical signal multiplexing/demultiplexing. It has a series of advantages, such as multi-kind of packaging structures, low insertion loss, high channel isolation and so on.

## Product Feature

- Low insertion loss (IL)
- High channel isolation
- High stability and reliability
- Provide 1 to 18 channels with compact design
- Conform to ITU-T G.694.2
- Conform to Telcordia GR-1209-CORE-2001 standard
- Conform to Telcordia GR-1221-CORE-1999 standard
- Conform to RoHS-6 (no lead)

Steel tube

ABS box

LGX box

1U rack mount

## Application Area

- CWDM system
- CATV system

## Product Specification

| Item | CWDM MUX/DEMUX | | | | | |
|---|---|---|---|---|---|---|
| **Channel number** | 1 | 2 | 4 | 8 | 16 | 18 |
| **Operating wavelength (nm)** | 1260~1620 | | | | | |
| **Center wavelength (nm)** | ITU-T Grid | | | | | |
| **Channel spacing (nm)** | 20 | | | | | |
| **Channel insertion loss (dB)** | ≤0.8 | ≤1.2 | ≤1.8 | ≤2.6 | ≤4.5 | ≤5.0 |
| **Channel bandwidth (dB)** | ITU±6.5 | | | | | |
| **Flatness (dB)** | ≤0.5 | | | | | |
| **Adjacent channel isolation (dB)** | ≥30 | | | | | |
| **Non-adjacent channel isolation (dB)** | ≥40 | | | | | |
| **Return loss (dB)** | ≥50 | | | | | |
| **Directivity (dB)** | ≥55 | | | | | |
| **Polarization-dependent loss (dB)** | ≤0.2 | | | | | |
| **Polarization mode dispersion (ps)** | ≤0.2 | | | | | |
| **Power Handling (dB)** | ≤500 | | | | | |
| **Operating Temperature (°C)** | 0~+70 | | | | | |
| **Storage Temperature (°C)** | -40 ~+85 | | | | | |
| **Package type** | Steel tube, ABS box, LGX standard box, 1U standard 19 inch rack | | | | | |

# CWDM OADM

The CWDM optical add-and-drop multiplexer launched by Guangzhou Sintai Communications Co., Ltd. is specially designed for economical and efficient multi-wavelength CWDM network applications. It is based on thin film filter (TFF) technology and operates on ITU grids with 20nm channel spacing. The CWDM wavelength ranges from 1270nm to 1610 nm with optional ITU channel wavelength. It has a series of advantages, such as multi-kind of packaging structures, low insertion loss, high channel isolation and is widely used in CWDM system for wavelength add-and-drop multiplexing.

## Product Feature

- Low insertion loss (IL)
- High channel isolation
- High stability and reliability
- Wide operating wavelength range
- Conform to ITU-T G.694.2
- Conform to Telcordia GR-1209-CORE-2001 standard
- Conform to Telcordia GR-1221-CORE-1999 standard
- Conform to RoHS-6 (no lead)

ABS box

LGX box

1U rack mount

## Application Area

- CWDM system add-and-drop multiplexing

## Product Specification

| Item | CWDM OADM | | | | |
|---|---|---|---|---|---|
| **Channel number** | 1 | 2 | 4 | 8 | 16 |
| **Operating wavelength (nm)** | 1260~1620 | | | | |
| **Center wavelength (nm)** | ITU-T Grid | | | | |
| **Channel spacing (nm)** | 20 | | | | |
| **Channel insertion loss (dB)** | ≤0.8 | ≤1.2 | ≤1.8 | ≤2.6 | ≤4.5 |
| **Input/output channel insertion loss (dB)** | ≤0.8 | ≤1.2 | ≤1.8 | ≤2.6 | ≤4.5 |
| **Channel bandwidth (dB)** | ITU±6.5 | | | | |
| **Flatness (dB)** | ≤0.5 | | | | |
| **Adjacent channel isolation (dB)** | ≥30 | | | | |
| **Non-adjacent channel isolation (dB)** | ≥40 | | | | |
| **Return loss (dB)** | ≥50 | | | | |
| **Directivity (dB)** | ≥55 | | | | |
| **Polarization-dependent loss (dB)** | ≤0.2 | | | | |
| **Polarization mode dispersion (ps)** | ≤0.2 | | | | |
| **Power Handling (dB)** | ≤500 | | | | |
| **Operating Temperature (°C)** | 0~+70 | | | | |
| **Storage Temperature (°C)** | -40 ~+85 | | | | |
| **Package type** | ABS box, LGX standard box, 1U standard 19 inch rack | | | | |

# DWDM Mux/Demux

The DWDM multiplexer/demultiplexer launched by Guangzhou Sintai Communication Co., Ltd. is designed for multi-wavelength DWDM network applications. It works on ITU grid with 100 GHz channel spacing based on thin film filter (TFF) technology. The wavelength range of DWDM is from 1525nm to 1565 nm with optional ITU channel wavelength. It has a series of advantages, such as multi-kind of packaging structures, low insertion loss, high channel isolation and so on.

## Product Feature

- Low insertion loss (IL)
- High channel isolation
- High stability and reliability
- Wide operating wavelength range
- Provide 1 to 32 channels with compact design
- Conform to ITU-T G.694.1
- Conform to Telcordia GR-1209-CORE-2001 standard
- Conform to Telcordia GR-1221-CORE-1999 standard
- Conform to RoHS-6 (no lead)

Steel tube

ABS box

LGX box

1U rack mount

## Application Area

- DWDM system

## Product Specification

| Item | DWDM MUX/DEMUX | | | | |
|---|---|---|---|---|---|
| **Channel number** | 1 | 2 | 4 | 8 | 16 |
| **Operating wavelength (nm)** | 1525~1565 | | | | |
| **Center wavelength (nm)** | ITU-T Grid | | | | |
| **Channel spacing (nm)** | 0.8nm(100GHz) | | | | |
| **Channel insertion loss (dB)** | ⩽0.8 | ⩽1.2 | ⩽1.8 | ⩽2.6 | ⩽4.5 |
| **Channel bandwidth (dB)** | ITU±0.11 | | | | |
| **Flatness (dB)** | ≤0.5 | | | | |
| **Adjacent channel isolation (dB)** | ≥30 | | | | |
| **Non-adjacent channel isolation (dB)** | ≥40 | | | | |
| **Return loss (dB)** | ≥50 | | | | |
| **Directivity (dB)** | ≥55 | | | | |
| **Polarization-dependent loss (dB)** | ≤0.2 | | | | |
| **Polarization mode dispersion (ps)** | ≤0.2 | | | | |
| **Power Handling (dB)** | ≤500 | | | | |
| **Operating Temperature (°C)** | 0~+70 | | | | |
| **Storage Temperature (°C)** | -40 ~+85 | | | | |
| **Package type** | Steel tube, ABS box, LGX standard box, 1U standard 19 inch rack | | | | |

# DWDM OADM

The DWDM add-and-drop multiplexer launched by Guangzhou Sintai Communication Co., Ltd. is specially designed for multi-wavelength DWDM network applications. It works on the ITU grid with 100 GHz channel spacing based on thin film filter (TFF) technology. The wavelength range of DWDM is from 1525nm to 1565 nm, and the wavelength of ITU channel is optional. It has a series of advantages, such as multi-kind of packaging structures, low insertion loss, high channel isolation and so on. And it is widely used in wavelength upstream and downstream multiplexing in DWDM systems.

## Product Feature

- Low insertion loss (IL)
- High channel isolation
- High stability and reliability
- Wide operating wavelength range
- Conform to ITU-T G.694.1
- Conform to Telcordia GR-1209-CORE-2001 standard
- Conform to Telcordia GR-1221-CORE-1999 standard
- Conform to RoHS-6 (no lead)

ABS box

LGX box

1U rack mount

## Application Area

- DWDM system add-and-drop multiplexing

## Product Specification

| Item | DWDM OADM | | | | |
|---|---|---|---|---|---|
| **Channel number** | 1 | 2 | 4 | 8 | 16 |
| **Operating wavelength (nm)** | 1525~1565 | | | | |
| **Center wavelength (nm)** | ITU-T Grid | | | | |
| **Channel spacing (nm)** | 0.8nm(100GHz) | | | | |
| **Channel insertion loss (dB)** | ≤0.8 | ≤1.2 | ≤1.8 | ≤2.6 | ≤4.5 |
| **Input/output channel insertion loss (dB)** | ≤0.8 | ≤1.2 | ≤1.8 | ≤2.6 | ≤4.5 |
| **Channel bandwidth (dB)** | ITU±0.11 | | | | |
| **Flatness (dB)** | ≤0.5 | | | | |
| **Adjacent channel isolation (dB)** | ≥30 | | | | |
| **Non-adjacent channel isolation (dB)** | ≥40 | | | | |
| **Return loss (dB)** | ≥50 | | | | |
| **Directivity (dB)** | ≥55 | | | | |
| **Polarization-dependent loss (dB)** | ≤0.2 | | | | |
| **Polarization mode dispersion (ps)** | ≤0.2 | | | | |
| **Power Handling (dB)** | ≤500 | | | | |
| **Operating Temperature (°C)** | 0~+70 | | | | |
| **Storage Temperature (°C)** | -40 ~+85 | | | | |
| **Package type** | ABS box, LGX standard box, 1U standard 19 inch rack | | | | |

# AAWG Athermal Arrayed Waveguide Grating

The AAWG athermal arrayed waveguide grating launched by Guangzhou Sintai Communication Co., Ltd. is based on waveguide grating technology on silicon substrates. It adopts unique thermal-free package design. It can achieve accurate channel coupling without power supply, software or temperature control. It has a series of advantages such as low insertion loss, high channel isolation and high stability. There are Gauss type and flat top type to be optional.

## Product Feature

- Low insertion loss (IL)
- High channel isolation
- High stability and reliability
- Provide 40/48/80/96 channels to be used
- Conform to ITU-T G.694.1
- Conform to Telcordia GR-1209-CORE-2001 standard
- Conform to Telcordia GR-1221-CORE-1999 standard
- Conform to RoHS-6 (no lead)

ABS box

1U rack mount

## Application Area

- DWDM system

## Product Specification

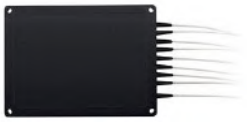
| Item | AAWG DWDM MUX/DEMUX | | | |
|---|---|---|---|---|
| **Channel spacing** | 50GHz | | 100GHz | |
| **Channel type** | Flat top | Gauss | Flat top | Gauss |
| **Channel number** | 80/96 | | 40/48 | |
| **Wavelength accuracy (nm)** | ±0.05 | | | |
| **-1dB bandwidth (nm)** | >0.34 | >0.24 | >0.38 | >0.2 |
| **-3dB bandwidth (nm)** | >0.51 | >0.3 | >0.58 | >0.4 |
| **Channel insertion loss (dB)** | <7.0 | <6.0 | <5.5 | <3.5 |
| **Adjacent channel isolation (dB)** | >26 | | >23 | >26 |
| **Non-adjacent channel isolation (dB)** | >30 | | | |
| **Total isolation (dB)** | >20 | | >21 | |
| **Flatness (dB)** | <1.5 | | | |
| **Return loss (dB)** | >40 | | | |
| **Directivity (dB)** | >50 | | | |
| **Polarization-dependent loss (dB)** | <0.5 | | | |
| **Polarization mode dispersion (ps)** | <0.5 | | | |
| **Operating Temperature (°C)** | -10~+70 | | | |
| **Storage Temperature (°C)** | -40 ~+85 | | | |
| **Package type** | ABS box, 1U standard 19 inch rack | | | |

# PLC Optical Splitter

The PLC optical splitter product launched by Guangzhou Sintai Communication Co., Ltd. is based on planar optical waveguide technology. It can realize the power distribution of optical signal with 1xN or 2xN spectral ratio. It has a series of advantages such as various packaging structures, low insertion loss, high return loss, and has excellent flatness and uniformity in the wavelength range of 1260 to 1650 nm. Its working temperature can reach - 40 C to + 85 C and integration degree can be customized according to demand.

## Product Feature

- Low insertion loss and polarization-dependent loss
- High stability and reliability
- High channel number
- Wide working wavelength range
- Wide operating temperature range
- Conform to Telcordia GR-1209-CORE-2001 standard
- Conform to Telcordia GR-1221-CORE-1999 standard
- Conform to RoHS-6 (no lead)



ABS box

Pluggable card

1U rack mount

## Application Area

- PON network
- CATV Network
- Optical network monitoring

## Product Specification

| Item | 1:N PLC Splitters | | | | | | 2:N PLC Splitters | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Port configuration** | 1x2 | 1x4 | 1x8 | 1x16 | 1x32 | 1x64 | 2x2 | 2x4 | 2x8 | 2x16 | 2x32 | 2x64 |
| **Maximum insertion loss (dB)** | 4.0 | 7.2 | 10.4 | 13.6 | 16.8 | 20.5 | 4.5 | 7.6 | 11.1 | 14.3 | 17.6 | 21.3 |
| **Uniformity (dB)** | <0.6 | <0.7 | <0.8 | <1.2 | <1.5 | <2.5 | <1.0 | <1.2 | <1.5 | <1.8 | <2.0 | <2.5 |
| **PDL (dB)** | <0.2 | <0.2 | <0.3 | <0.3 | <0.3 | <0.3 | <0.3 | <0.3 | <0.4 | <0.4 | <0.4 | <0.4 |
| **WDL (dB)** | <0.3 | <0.3 | <0.3 | <0.5 | <0.8 | <0.8 | <0.4 | <0.4 | <0.6 | <0.6 | <0.8 | <1.0 |
| **TDL(dB)** | <0.5 | | | | | | | | | | | |
| **Return loss (dB)** | >55 | | | | | | | | | | | |
| **Directivity (dB)** | >55 | | | | | | | | | | | |
| **Operating wavelength (nm)** | 1260～1650 | | | | | | | | | | | |
| **Operating (°C)** | -40~+85 | | | | | | | | | | | |
| **Storage (°C)** | -40 ~+85 | | | | | | | | | | | |
| **Interface** | LC/PC or to be customized | | | | | | | | | | | |
| **Package type** | ABS box: (D)120mm×(W)80mm×(H)18mm<br>Pluggable rack mount: 1U, (D)220mm×(W)442mm×(H)44mm<br>Integrated rack mount: 1U, (D)220mm×(W)442mm×(H)44mm | | | | | | | | | | | |

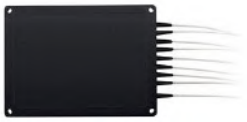
Note: The above specifications do not include loss of optical fiber connectors. The test temperature is room temperature.

# FBT Optical Splitter

The FBT optical splitter launched by Guangzhou Sintai Communication Co., Ltd. adopts unique materials and manufacturing technology, which can realize the coupling of optical signals transmitted in optical fibers in the coupling area of special structures and redistribute optical power. It supports flexible configuration according to different spectral ratios, working wavelength, connector types and packaging forms. It is convenient for design and project planning of various products. It is widely used for optical signal replication in cable TV transmission and other optical communication systems.

## Product Feature

- Low insertion loss and polarization-dependent loss
- High stability and reliability
- Wide working wavelength range
- Wide operating temperature range
- Conform to Telcordia GR-1209-CORE-2001 standard
- Conform to Telcordia GR-1221-CORE-1999 standard
- Conform to RoHS-6 (no lead)



ABS box

Pluggable card

1U rack mount

## Application Area

- CATV Network
- Optical network monitoring

## Product Specification

| Item | | SM FBT Splitters | MM FBT Splitters |
|---|---|---|---|
| **Operating wavelength (nm)** | | 1260~1620 | 850 |
| **Insertion loss of various splitter ratio (dB)** | 50:50 | 50%≤3.50 | 50%≤4.10 |
| | 60:40 | 60%≤2.70 ; 40%≤4.70 | 60%≤3.20 ; 40%≤5.20 |
| | 70:30 | 70%≤1.90 ; 30%≤6.00 | 70%≤2.50 ; 30%≤6.50 |
| | 80:20 | 80%≤1.20 ; 20%≤7.90 | 80%≤1.80 ; 20%≤9.00 |
| | 90:10 | 90%≤0.80 ; 10%≤11.60 | 90%≤1.40 ; 10%≤12.00 |
| | 70:15:15 | 70%≤1.90 ; 15%≤9.50 | 70%≤2.50 ; 15%≤10.50 |
| | 80:10:10 | 80%≤1.20 ; 10%≤11.60 | 80%≤1.80 ; 10%≤12.00 |
| | 70:10:10:10 | 70%≤1.90 ; 10%≤11.60 | 70%≤2.50 ; 10%≤12.00 |
| | 60:20:10:10 | 60%≤2.70 ; 20%≤7.90; 10%≤11.60 | 60%≤3.20 ; 20%≤9.00; 10%≤12.00 |
| **Polarization-dependent loss (dB)** | | ≤0.15 | |
| **Return loss (dB)** | | ≥55 | |
| **Directivity (dB)** | | ≥55 | |
| **Operating Temperature (°C)** | | -40 ~ +85 | |
| **Storage Temperature (°C)** | | -40 ~ +85 | |
| **Connector** | | LC/PC or customzied | |
| **Package type** | | ABS box: (D)120mm×(W)80mm×(H)18mm<br>Pluggable rack mount: 1U, (D)220mm×(W)442mm×(H)44mm<br>Integrated rack mount: 1U, (D)220mm×(W)442mm×(H)44mm | |

Note: The above specifications do not include loss of optical fiber connectors. The test temperature is room temperature.

# 100G CFP-DCO Coherent Optical Transceiver

The 100G CFP-DCO coherent optical transceiver launched by Guangzhou Sintai Communication Co., Ltd. adopts standard CFP package and advanced modulation mode based on DP-D/QPSK. It supports C-band full band adjustable (50/100GHz interval) and is compatible with 100GE interface and OTU-4 interface. It aims to support single wavelength DWDM transmission of 100Gbps and above and is suitable for various applications from data center interconnection (DCI) to long-distance transmission

## Product Feature

- DP-DQPSK modulation mode
- C band 50GHz ITU-T transmit
- Built-in client side and line OTN processing
- Compatible to OTU4 and 100GE
- Compatible to OTL4.10 and CAUI
- Conform to CFP MSA standard
- Hot swappable electrical packaging interface
- Working temperature: 0°C~+70°C
- Low power consumption: 24w
- Operating optical data rates up to 128 Gbps
- Low latency H-FEC/SD-FEC
- Optimized DSP algorithm
- Transmission distance 1200km
- Optional ZR/MR/LH support
- Conform to IEEE802.3ba MAC standard
- Double LC optical interface
- Power supply voltage: 3.3V
- Conform to RoHS-6 (no lead)

## Application Area

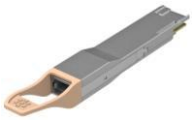
- Metropolitan DCI interconnection
- DWDM long-distance transmission

## Product Specification

| Item | CFP-DCO ZR | CFP-DCO MR | CFP-DCO LH |
|---|---|---|---|
| **Rate** | 100GE/OTU4 | 100GE/OTU4 | 100GE/OTU4 |
| **Application** | P2P DWDM ZR | Metro DWDM | Long-Haul DWDM |
| **Dispersion-free compensation tolerance** | 120km | 600km | 1200km |
| **10G/40G hybrid transmission** | √ | √ | √ |
| **Low latency SD-FEC** | √ | √ | √ |
| **Support C-band 96-wave (50GHz) tunable** | √ | √ | √ |
| **CAUI for 100GE host Interface** | √ | √ | √ |
| **OTL4.10 for OTU4 host interface** | √ | √ | √ |
| **Built-in OTN processing** | √ | √ | √ |
| **Interoperability with G.709 FEC** | √ | √ | √ |
| **PRBS generation and detection of Line and Host Interface** | √ | √ | √ |
| **Compliance with CFP MSA standard** | √ | √ | √ |

# Data Center High Speed Optical Transceiver

| Product Name | Model | Wavelength | Distance | Interface | Fiber |
|---|---|---|---|---|---|
| 400G QSFP-DD SR8 100m | ST-QMFS-85 | 850nm | 100m | MPO24 | MMF |
| 200G QSFP-DD SR8 100m | ST-QMTS-85 | 850nm | 100m | MPO24 | MMF |
| 200G QSFP-DD PSM8 2km | ST-QSTS-31 | 1310nm | 2km | MPO24 | SMF |
| 100G QSFP28 SR4 100m | ST-QMCS-85 | 850nm | 100m | MPO12 | MMF |
| 100G QSFP28 PSM4 2km | ST-QSCS-31 | 1310nm | 2km | MPO12 | SMF |
| 100G QSFP28 PSM4 10km | ST-QSCL-31 | 1310nm | 10km | MPO12 | SMF |
| 100G QSFP28 CWDM4 2km | ST-QSCS-CW | CWDM | 2km | Dual LC | SMF |
| 100G QSFP28 CWDM4 10km | ST-QSCL-CW | CWDM | 10km | Dual LC | SMF |
| 100G QSFP28 LR4 10km | ST-QSCL-LW | LWDM | 10km | Dual LC | SMF |
| 100G QSFP28 ER4 40km | ST-QSCE-LW | LWDM | 40km | Dual LC | SMF |
| 100G CFP SR10 400m | ST-CMCS-85 | 850nm | 400m | MPO24 | MMF |
| 100G CFP LR4 10km | ST-CSCL-LW | LWDM | 10km | Dual LC | SMF |
| 100G CFP2 SR10 400m | ST-TMCS-85 | 850nm | 400m | MPO24 | MMF |
| 100G CFP2 LR4 10km | ST-TSCL-LW | LWDM | 10km | Dual LC | SMF |
| 100G CFP2 ER4 40km | ST-TSCE-LW | LWDM | 40km | Dual LC | SMF |
| 100G CFP4 SR4 100m | ST-FMCS-85 | 850nm | 100m | MPO12 | MMF |
| 100G CFP4 LR4 10km | ST-FSCL-LW | LWDM | 10km | Dual LC | SMF |
| 40G QSFP+ PSM4 2km | ST-QSQS-31 | 1310nm | 2km | MPO12 | SMF |
| 40G QSFP+ LR4 10km | ST-QSQL-CW | CWDM | 10km | Dual LC | SMF |
| 40G QSFP+ ER4 40km | ST-QSQE-CW | CWDM | 40km | Dual LC | SMF |



400G QSFP-DD SR8

200G QSFP-DD PSM8

100G QSFP28 LR4

100G CFP2 LR4

100G CFP4 LR4

# 5G Front-Haul Transmission Optical Transceiver

| Product Name | Model | Wavelength | Distance | Interface | Fiber |
|---|---|---|---|---|---|
| 25G SFP28 SR 100m | ST-SMVS-85 | 850nm | 100m | Dual LC | MMF |
| 25G SFP28 LR 10km | ST-SSVL-31 | 1310nm | 10km | Dual LC | SMF |
| 25G SFP28 ER 40km | ST-SSVE-31 | 1310nm | 40km | Dual LC | SMF |
| 25G SFP28 BiDi LR 10km | ST-SBVL-XX | 1270/1330nm | 10km | Single LC | SMF |
| 25G SFP28 BiDi ER 40km | ST-SBVE-XX | 1270/1330nm | 40km | Single LC | SMF |
| 25G SFP28 CWDM LR 10km | ST-SCVL-XX | CWDM | 10km | Dual LC | SMF |
| 25G SFP28 CWDM ER 40km | ST-SCVE-XX | CWDM | 40km | Dual LC | SMF |
| 25G SFP28 DWDM LR 10km | ST-SDVL-XX | DWDM | 10km | Dual LC | SMF |
| 25G SFP28 DWDM ER 40km | ST-SDVE-XX | DWDM | 40km | Dual LC | SMF |

25G SFP28 C&DWDM

25G SFP28 BiDi

# 10G~16G Optical Transceiver

| Product Name | Model | Wavelength | Distance | Interface | Fiber |
|---|---|---|---|---|---|
| 16G SFP+ SR 100m | ST-SMUS-85 | 850nm | 100m | Dual LC | MMF |
| 16G SFP+ LR 10km | ST-SSUL-31 | 1310nm | 10km | Dual LC | SMF |
| 16G SFP+ ER 40km | ST-SSUE-55 | 1550nm | 40km | Dual LC | SMF |
| 16G SFP+ CWDM ER 40km | ST-SCUE-XX | CWDM | 40km | Dual LC | SMF |
| 16G SFP+ DWDM ER 40km | ST-SCUE-XX | DWDM | 40km | Dual LC | SMF |
| 10G SFP+ SR 300m | ST-SMXS-85 | 850nm | 300m | Dual LC | MMF |
| 10G SFP+ LR 10km | ST-SSXL-31 | 1310nm | 10km | Dual LC | SMF |
| 10G SFP+ ER 40km | ST-SSXE-55 | 1550nm | 40km | Dual LC | SMF |
| 10G SFP+ ZR 80km | ST-SSXZ-55 | 1550nm | 80km | Dual LC | SMF |
| 10G SFP+ BiDi LR 10km | ST-SBXL-XX | 1270/1330nm | 10km | Single LC | SMF |
| 10G SFP+ BiDi ER 40km | ST-SBXE-XX | 1270/1330nm | 40km | Single LC | SMF |
| 10G SFP+ BiDi ZR 60km | ST-SBXZ-XX | 1270/1330nm | 60km | Single LC | SMF |
| 10G SFP+ BiDi ZR 80km | ST-SBXZ-XX | 1490/1550nm | 80km | Single LC | SMF |
| 10G SFP+ CWDM LR 10km | ST-SCXL-XX | CWDM | 10~20km | Dual LC | SMF |
| 10G SFP+ CWDM ER 40km | ST-SCXE-XX | CWDM | 40km | Dual LC | SMF |
| 10G SFP+ CWDM ZR 80km | ST-SCXZ-XX | CWDM | 80km | Dual LC | SMF |
| 10G SFP+ DWDM ER 40km | ST-SDXE-XX | DWDM | 40km | Dual LC | SMF |
| 10G SFP+ DWDM ZR 80km | ST-SDXZ-XX | DWDM | 80km | Dual LC | SMF |
| 10GBase-T SFP+ | ST-STXS | - | 30m | RJ45 | |
| 10G XFP SR 300m | ST-XMXS-85 | 850nm | 300m | Dual LC | MMF |
| 10G XFP LR 10km | ST-XSXL-31 | 1310nm | 10km | Dual LC | SMF |
| 10G XFP ER 40km | ST-XSXE-55 | 1550nm | 40km | Dual LC | SMF |
| 10G XFP ZR 80km | ST-XSXZ-55 | 1550nm | 80km | Dual LC | SMF |
| 10G XFP BiDi LR 10km | ST-XBXL-XX | 1270/1330nm | 10km | Single LC | SMF |
| 10G XFP BiDi ER 40km | ST-XBXE-XX | 1270/1330nm | 40km | Single LC | SMF |
| 10G XFP BiDi ZR 60km | ST-XBXZ-XX | 1270/1330nm | 60km | Single LC | SMF |
| 10G XFP BiDi ZR 80km | ST-XBXZ-XX | 1490/1550nm | 80km | Single LC | SMF |
| 10G XFP CWDM ER 40km | ST-XCXE-XX | CWDM | 40km | Dual LC | SMF |
| 10G XFP CWDM ZR 80km | ST-XCXZ-XX | CWDM | 80km | Dual LC | SMF |
| 10G XFP DWDM ER 40km | ST-XDXE-XX | DWDM | 40km | Dual LC | SMF |
| 10G XFP DWDM ZR 80km | ST-XDXZ-XX | DWDM | 80km | Dual LC | SMF |

16G SFP+ C&DWDM

10G SFP+ Dual

10G SFP+ BiDi

10G SFP+ C&DWDM

10GBase-T SFP+

10G XFP Dual

10G XFP BiDi

10G XFP C&DWDM

# 1.25G~2.5G Optical Transceiver

| Product Name | Model | Wavelength | Distance | Interface | Fiber |
|---|---|---|---|---|---|
| 1.25G SFP 850nm 550m | ST-SMGS-85 | 850nm | 550m | Dual LC | MMF |
| 1.25G SFP 1310nm 2km | ST-SSGS-31 | 1310nm | 2km | Dual LC | SMF |
| 1.25G SFP 1310nm 20km | ST-SSGL-31 | 1310nm | 20km | Dual LC | SMF |
| 1.25G SFP 1310nm 40km | ST-SSGE-31 | 1310nm | 40km | Dual LC | SMF |
| 1.25G SFP 1550nm 40km | ST-SSGE-55 | 1550nm | 40km | Dual LC | SMF |
| 1.25G SFP 1550nm 80km | ST-SSGZ-55 | 1550nm | 80km | Dual LC | SMF |
| 1.25G SFP 1550nm 120km | ST-SSGU-55 | 1550nm | 120km | Dual LC | SMF |
| 1.25G SFP BiDi 2km | ST-SBGS-XX | 1310/1550nm | 2km | Single LC | SMF |
| 1.25G SFP BiDi 20km | ST-SBGL-XX | 1310/1550nm | 20km | Single LC | SMF |
| 1.25G SFP BiDi 40km | ST-SBGE-XX | 1310/1550nm | 40km | Single LC | SMF |
| 1.25G SFP BiDi 40km | ST-SBGE-XX | 1490/1550nm | 40km | Single LC | SMF |
| 1.25G SFP BiDi 80km | ST-SBGZ-XX | 1310/1550nm | 80km | Single LC | SMF |
| 1.25G SFP BiDi 80km | ST-SBGZ-XX | 1490/1550nm | 80km | Single LC | SMF |
| 1.25G SFP BiDi 120km | ST-SBGU-XX | 1490/1550nm | 120km | Single LC | SMF |
| 1.25G SFP CWDM 80km | ST-SCGZ-XX | CWDM | 80km | Dual LC | SMF |
| 1.25G SFP CWDM 120km | ST-SCGU-XX | CWDM | 120km | Dual LC | SMF |
| 1.25G SFP DWDM 80km | ST-SDGZ-XX | DWDM | 80km | Dual LC | SMF |
| 1.25G SFP DWDM 120km | ST-SDGU-XX | DWDM | 120km | Dual LC | SMF |
| 2.5G SFP 850nm 550m | ST-SMSS-85 | 850nm | 2km | Dual LC | MMF |
| 2.5G SFP 1310nm 2km | ST-SSSL-31 | 1310nm | 10km | Dual LC | SMF |
| 2.5G SFP 1310nm 20km | ST-SSSE-31 | 1310nm | 40km | Dual LC | SMF |
| 2.5G SFP 1310nm 40km | ST-SSSE-55 | 1550nm | 40km | Dual LC | SMF |
| 2.5G SFP 1550nm 40km | ST-SSSZ-55 | 1550nm | 80km | Dual LC | SMF |
| 2.5G SFP 1550nm 80km | ST-SSSU-55 | 1550nm | 120km | Dual LC | SMF |
| 2.5G SFP BiDi 20km | ST-SBSL-XX | 1310/1550nm | 20km | Single LC | SMF |
| 2.5G SFP BiDi 40km | ST-SBSE-XX | 1490/1550nm | 40km | Single LC | SMF |
| 2.5G SFP BiDi 80km | ST-SBSZ-XX | 1490/1550nm | 80km | Single LC | SMF |
| 2.5G SFP CWDM 40km | ST-SCSE-XX | CWDM | 40km | Dual LC | SMF |
| 2.5G SFP CWDM 80km | ST-SCSZ-XX | CWDM | 80km | Dual LC | SMF |
| 2.5G SFP DWDM 40km | ST-SDSZ-XX | DWDM | 40km | Dual LC | SMF |
| 2.5G SFP DWDM 80km | ST-SDSU-XX | DWDM | 80km | Dual LC | SMF |
| 10/100/1000Base-T SFP | ST-STGS | - | 100m | RJ45 | - |

1.25G&2.5G SFP Dual

1.25G&2.5G SFP BiDi

1.25G&2.5G SFP C&DWDM

10/100/1000Base-T SFP

# Active Optical Cable (AOC)

| Product Name | Model | Package 1 | Package 2 | Cable Length |
|---|---|---|---|---|
| 400G QSFP-DD AOC(PAM4) | ST-QDF01-AOC | QSFP-DD | QSFP-DD | 70m(OM3)/100m(OM4) |
| 400G QSFP-DD To 2x200G QSFP56 AOC | ST-QDF02-AOC | QSFP-DD | QSFP-56 | 70m(OM3)/100m(OM4) |
| 400G QSFP-DD To 4x100G QSFP56 AOC | ST-QDF04-AOC | QSFP-DD | QSFP-56 | 70m(OM3)/100m(OM4) |
| 400G QSFP-DD To 8x50G SFP56 AOC | ST-QDF08-AOC | QSFP-DD | SFP-56 | 70m(OM3)/100m(OM4) |
| 200G QSFP56 AOC(PAM4) | ST-QST01-AOC | QSFP56 | QSFP56 | 70m(OM3)/100m(OM4) |
| 200G QSFP56 To 2x100G QSFP28 AOC | ST-QST02-AOC | QSFP56 | QSFP28 | 70m(OM3)/100m(OM4) |
| 200G QSFP56 To 4x50G SFP56 AOC | ST-QST04-AOC | QSFP56 | SFP56 | 70m(OM3)/100m(OM4) |
| 200G QSFP-DD AOC(PAM4) | ST-QDT01-AOC | QSFPDD | QSFPDD | 70m(OM3)/100m(OM4) |
| 200G QSFP-DD To 2x100G QSFP28 AOC | ST-QDT02-AOC | QSFPDD | QSFP28 | 70m(OM3)/100m(OM4) |
| 200G QSFP-DD To 4x50G QSFP28 AOC | ST-QDT04-AOC | QSFPDD | QSFP28 | 70m(OM3)/100m(OM4) |
| 120G CXP AOC | ST-CXC01-AOC | CXP | CXP | 300m(OM3) |
| 120G CXP To 3x40G QSFP+ AOC | ST-CXC03-AOC | CXP | QSFP+ | 100m(OM3) |
| 100G QSFP28 AOC | ST-QSC01-AOC | QSFP28 | QSFP28 | 70m(OM3)/100m(OM4) |
| 100G QSFP28 To 2x50G QSFP28 AOC | ST-QSC02-AOC | QSFP28 | QSFP28 | 70m(OM3)/100m(OM4) |
| 100G QSFP28 To 4x25G SFP28 AOC | ST-QSC04-AOC | QSFP28 | SFP28 | 70m(OM3)/100m(OM4) |
| 50G SFP56 AOC | ST-SSW01-AOC | SFP56 | SFP56 | 70m(OM3)/100m(OM4) |
| 56G QSFP+ AOC | ST-QSW01-AOC | QSFP+ | QSFP+ | 100m(OM3) |
| 40G QSFP+ AOC | ST-QSQ01-AOC | QSFP+ | QSFP+ | 300m(OM3) |
| 40G QSFP+ To 4x10G SFP+ AOC | ST-QSQ04-AOC | QSFP+ | SFP+ | 100m(OM3) |
| 25G SFP28 AOC | ST-SSV01-AOC | SFP28 | SFP28 | 70m(OM3)/100m(OM4) |
| 10G SFP+ AOC | ST-SSX01-AOC | SFP+ | SFP+ | 300m(OM3) |

400G QSFP-DD AOC

200G QSF56 AOC

100G QSFP28 AOC

40G QSFP+ to 4x10G SFP+ AOC

25G SFP28 AOC

# Direct Attach Cable (DAC)

| Product Name | Model | Package 1 | Package 2 | Cable Length |
|---|---|---|---|---|
| 400G QSFP-DD DAC | ST-QDF01-DAC | QSFP-DD | QSFP-DD | 3m |
| 400G QSFP-DD To 2x200G QSFP56 DAC | ST-QDF02-DAC | QSFP-DD | QSFP56 | 3m |
| 400G QSFP-DD To 4x100G QSFP56 DAC | ST-QDF04-DAC | QSFP-DD | QSFP56 | 3m |
| 400G QSFP-DD To 8x50G SFP56 DAC | ST-QDF08-DAC | QSFP-DD | SFP56 | 3m |
| 200G QSFP-DD DAC | ST-QDT01-DAC | QSFP-DD | QSFP-DD | 3m |
| 200G QSFP56 DAC | ST-QST01-DAC | QSFP56 | QSFP56 | 3m |
| 200G QSFP-DD To 4x50G QSFP28 DAC | ST-QDT04-DAC | QSFP-DD | QSFP28 | 3m |
| 200G QSFP56 To 4x50G SFP56 DAC | ST-QST04-DAC | QSFP-DD | SFP56 | 3m |
| 100G QSFP28 DAC | ST-QSC01-DAC | QSFP28 | QSFP28 | 3m |
| 100G QSFP28 To 4x25G SFP28 DAC | ST-QSC04-DAC | QSFP28 | SFP28 | 3m |
| 56G QSFP+ DAC | ST-QSW01-DAC | QSFP+ | QSFP+ | 3m |
| 50G SFP56 DAC | ST-SSW01-DAC | SFP56 | SFP56 | 3m |
| 40G QSFP+ DAC | ST-QSQ01-DAC | QSFP+ | QSFP+ | 5m |
| 40G QSFP+ To 4x10G SFP+ DAC | ST-QSQ04-DAC | QSFP+ | SFP+ | 5m |
| 25G SFP28 DAC | ST-SSV01-DAC | SFP28 | SFP28 | 5m |
| 10G SFP+ DAC | ST-SSX01-DAC | SFP+ | SFP+ | 5m |

400G QSFP-DD DAC

200G QSFP56 DAC

100G QSFP28 DAC

40G QSFP+ DAC

40G QSFP+ to 4x10G SFP+ DAC