OTN-CXR-6000 Series

TRADITIONAL WDM SYSTEM

V1.3

DWDM Platform: OTN-CXR-6000-1

Product features

- Standard 1U rackmount design, fully front panel wiring, with 3 pluggable service card slots, 1 network management card or service card slot, 1 fan slot and 2 power supply slots
- Support all types of service WDM from 100 Mbit/s to 100Gbit/s rate to meet the requirements of multi-service access
- Support CWDM and DWDM, coarse and dense wave are common cards
- Support single-fiber unidirectional, single-fiber bidirectional and dual-fiber bidirectional application scenarios
- Support unified network management interface, which can provide perfect network and performance monitoring capability
- Support FlexEthernet (FlexE) standard interface at the hardware level
- Support 110V/220V AC, -48V DC power supply, 1+1 power input protection
- Support configuration-free installation, equipment plug-and-play
- Adopt green energy-saving design, typical configuration power consumption 120W

Product specifications

Parameter	Description
Product model	OTN-CXR-6000-1
Equipment size	1U: 44 mm (H)×442 mm (W)×220 mm (D)
Weight	4Kg
Service slots	4 Slots (with 1 slot for optional network management card)
Mounting method	19'' Standard cabinet installation
Operating temperature range	-5℃～50℃(Typical)
Operating humidity range	5~95% No condensation
Storage temperature range	-40℃～85℃
Heat dissipation	Front 1 fan single board slot, support hot-swap
Power supply mode	Back 2 power supply single board slots, support AC 110V/220V or DC -48 V power supply single board optional, 1+1 hot backup
Power consumption	120W (Full power consumption max.)

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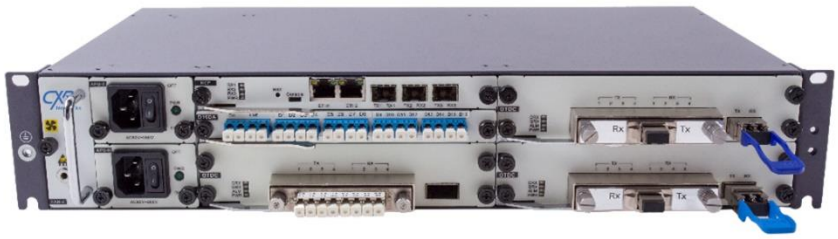
DWDM Platform: OTN-CXR-6000-2



Product features

- Standard 2U rackmount design, fully front panel wiring, with 7 pluggable service card slots, 1 network management card or service card slot, 1 fan slot and 2 power supply slots
- Support all types of service WDM from 100 Mbit/s to 100Gbit/s rate to meet the requirements of multi-service access
- Support CWDM and DWDM, coarse and dense wave are common cards
- Support single-fiber unidirectional, single-fiber bidirectional and dual-fiber bidirectional application scenarios
- Support unified network management interface, which can provide perfect network and performance monitoring capability
- Support FlexEthernet (FlexE) standard interface at the hardware level
- Support 110V/220V AC, -48V DC power supply, 1+1 power input protection
- Support configuration-free installation, equipment plug-and-play
- Adopt green energy-saving design, typical configuration power consumption 180W

Product specifications

Parameter	Description
Product model	OTN-CXR-6000-2
Equipment size	2U: 88 mm (H)×442 mm (W)×220 mm (D)
Weight	6Kg
Service slots	8 Slots (with 1 slot for optional network management card)
Mounting method	19'' Standard cabinet installation
Operating temperature range	-5℃～50℃(Typical)
Operating humidity range	5~95% No condensation
Storage temperature range	-40℃～85℃
Heat dissipation	Front 1 fan single board slot, support hot-swap
Power supply mode	Front 2 power supply single board slots, support AC 110V/220V or DC -48 V power supply single board optional, 1+1 hot backup
Power consumption	180W (Full power consumption max.)

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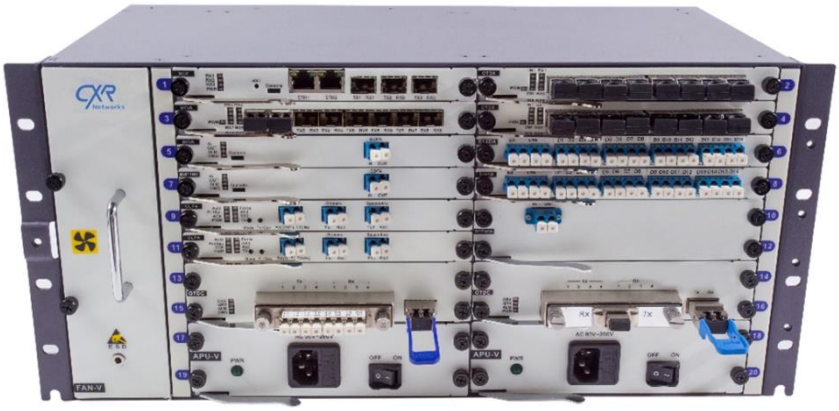
DWDM Platform: OTN-CXR-6000-5



Product features

- Standard 5U rackmount design, fully front panel wiring, with 15 pluggable service card slots, 1 network management card or service card slot, 1 fan slot and 2 power supply slots
- Support all types of service WDM from 100 Mbit/s to 100Gbit/s rate to meet the requirements of multi-service access
- Support CWDM and DWDM, coarse and dense wave are common cards
- Support single-fiber unidirectional, single-fiber bidirectional and dual-fiber bidirectional application scenarios
- Support unified network management interface, which can provide perfect network and performance monitoring capability
- Support FlexEthernet (FlexE) standard interface at the hardware level
- Support 110V/220V AC, -48V DC power supply, 1+1 power input protection
- Support configuration-free installation, equipment plug-and-play
- Adopt green energy-saving design, typical configuration power consumption 450W

Product specifications

Parameter	Description
Product model	OTN-CXR-6000-5
Equipment size	5U: 220 mm (H)×442 mm (W)×220 mm (D)
Weight	13Kg
Service slots	16 Slots (with 1 slot for optional network management card)
Mounting method	19'' Standard cabinet installation
Operating temperature range	-5℃～50℃(Typical)
Operating humidity range	5~95% No condensation
Storage temperature range	-40℃～85℃
Heat dissipation	Front 1 fan single board slot, support hot-swap
Power supply mode	Front 2 power supply single board slots, support AC 110V/220V or DC -48 V power supply single board optional, 1+1 hot backup
Power consumption	450W (Full power consumption max.)

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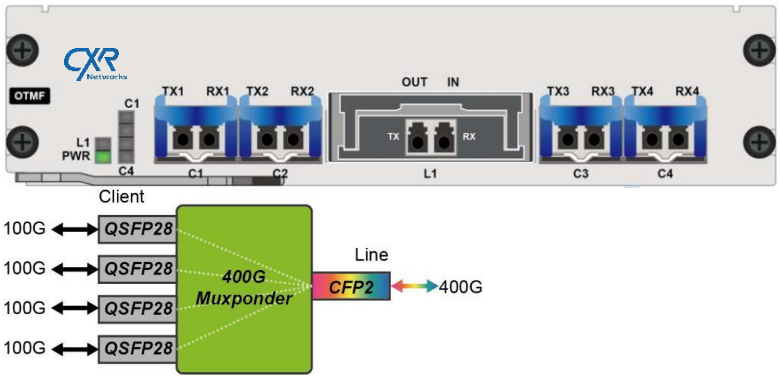
OTMF: 400G Muxponder

The 400G Muxponder service access board supports 4x100G↔400G electrical layer multiplexing/demultiplexing and converts to 1 x 400G rate WDM standard wavelength optical signal to facilitate WDM of different wavelengths in the combining unit, and to realize the inverse process of the above process. The line side adopts pluggable CFP2-DCO, based on coherent detection and other advanced technologies to achieve ultra-long-distance transmission, and support 400G, 200G rates.

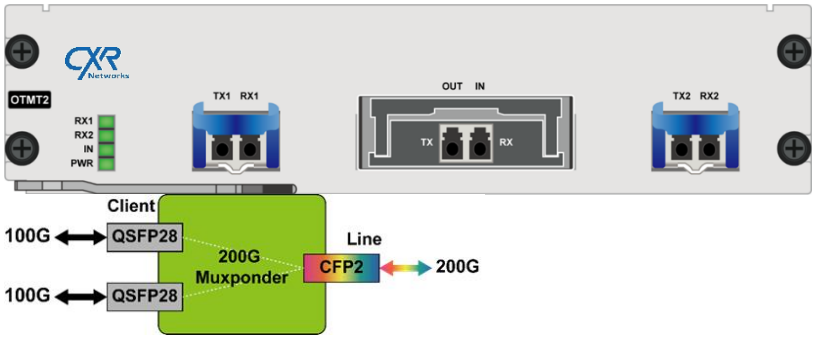


Product specifications

Parameter	Description
Product model	OTMF
Interface	Client-side interface: 4, based on QSFP28 pluggable Line-side interface: 1, based on CFP2-DCO pluggable
Line-side multiplexing structure	200G: OCh <-> OTUC2 <-> ODUC2 <-> ODU4 400G: OCh <-> OTUC4 <->ODUC4 <-> ODU4
Client-side signal mapping method	100GE <-> ODU4
Support service type	100GE, 100GE_RS-FEC
WDM technology	Support 75/100G interval adjustable, spectrum range covers 191.3~196.1THz
FEC technology	200G: SD-FEC 400G: SD-FEC
Number of occupied slots	Support OTN-CXR-6000 full series chassis, occupy 2 slots
Network management function	Support performance monitoring and alarm monitoring Support port loopback, port shutdown and ALS function
Maximum power consumption	60W (including optical module)

OTMT2: 200G Muxponder

The 200G Muxponder service access board from supports 2x100G↔200G electrical layer multiplexing/demultiplexing and converts to 1 x 200G rate WDM standard wavelength optical signal to facilitate WDM of different wavelengths in the combining unit, and to realize the reverse process of the above process. The line side adopts advanced technologies such as DP-8QAM or DP-16QAM modulation and coherent reception are used on the line side to overcome the physical problems of OSNR requirements, CD tolerance, PMD tolerance and nonlinearity for high-speed transmission systems. It can achieve a maximum of 800 km without electrical relay transmission and supports C-band 96-wave (50 GHz) tunable.

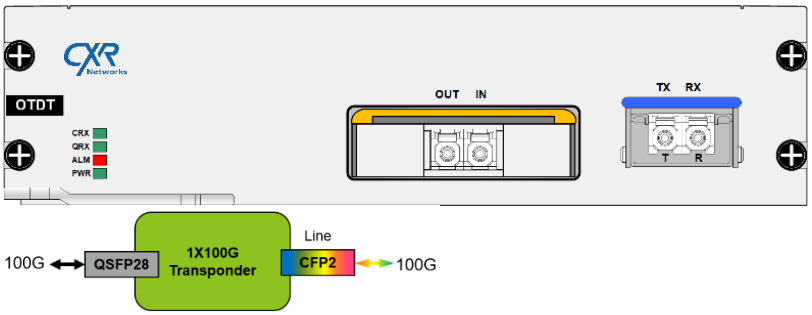


Product specifications

Parameter	Description
Product model	OTMT2
Interface	Client-side interface: 2, based on QSFP28 pluggable Line-side interface: 1, based on CFP2-DCO pluggable, coherent DP-8QAM or DP-16QAM
Line mode	Support 2*100G service optical signal multiplexed into 1*200G rate DWDM standard wavelength optical signal
Relay mode	Support 200G wavelength electric relay
Support service type	100GE, 100GE_RS-FEC, OTU4
WDM technology	Support DWDM: C-band 50GHz 96-wave tunable
FEC technology	SDFEC and G.709 FEC support
Number of occupied slots	Support OTN-CXR-6000 full series chassis, occupy 2 slots
Network management function	Support real-time monitoring of port working status, including: transmitting optical power, receiving optical power, temperature, etc. Support port loopback, port shutdown function
Maximum power consumption	30W (including optical module)
MTBF	＞100,000 hours

OTDT: 100G CFP2 Transponder

The 100G CFP2 Transponder service access board supports 1x100G↔100G electrical layer multiplexing/demultiplexing and converts to 1x100G rate WDM standard wavelength optical signal, adopts advanced technologies such as PDM-QPSK modulation and 100G CFP2 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.

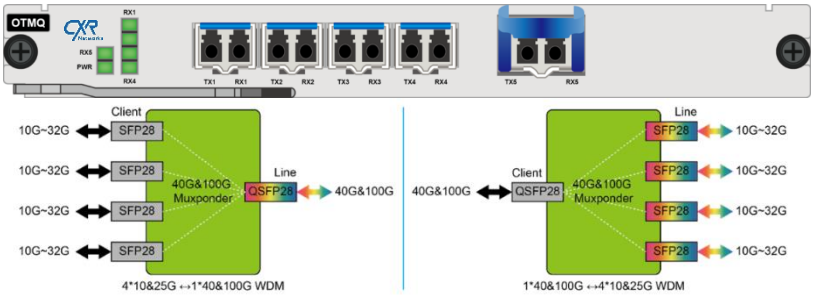


Product specifications

Parameter	Description
Product model	OTDT
Interface	Client-side interface: 1, based on QSFP28 pluggable Line-side interface: 1, based on CFP2-DCO pluggable, coherent PDM-QPSK
Line mode	Support 1*100G service optical signal multiplexed into 1*100G rate DWDM standard wavelength optical signal
Relay mode	Support 100G wavelength electric relay
Support service type	100GE, 100GE_FEC, OTU4
WDM technology	Support DWDM: C-band 50GHz 96-wave tunable
FEC technology	SDFEC support
Number of occupied slots	Support OTN-CXR-6000 full series chassis, occupy 2 slots
Network management function	Support real-time monitoring of port working status, including: transmitting optical power, receiving optical power, temperature, etc. Support port loopback function
Maximum power consumption	65W (including optical module)
MTBF	＞100,000 hours

OTMQ: 40G&100G In-coherent Muxponder

The 40G&100G In-coherent Muxponder service access board supports 4x10G↔40G or 4x25G↔100G electrical layer multiplexing/demultiplexing. It can also convert the multiplexed/demultiplexed optical signals into WDM standard wavelength optical signals, so that the combining unit can perform WDM on optical signals of different wavelengths, and realize the reverse of the above process. It is suitable for 10G~25G forward multiplexing or 40G/100G reverse multiplexing for WDM short-range transmission in metro area.

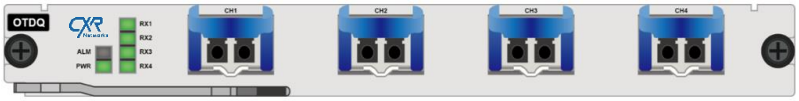


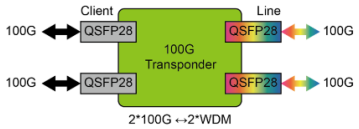
Product specifications

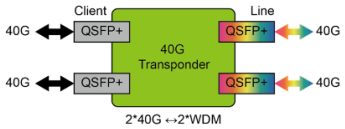
Parameter	Description	
Product model	OTMQ	
Application	4x10G↔1x40G / 4x25G↔1x100G	1x40G↔4x10G / 1x100G↔4x25G
Interface	Client-side: 4, based on SFP+/SFP28 pluggable Line-side: 1, based on QSFP+/QSFP28 pluggable	Client-side: 1, based on QSFP+/QSFP28 pluggable Line-side: 4, based on SFP+/SFP28 pluggable
Line mode	Supports multiplexing of 4*10G/25G service optical signals into 1*40/100G rate WDM standard wavelength optical signal	Support 1*40/100G service optical signal demultiplexed into 4*10G/25G rate WDM standard wavelength optical signal
Support service type	10GE, 25GE 8G/10G/16G FC (32G compatible) STM-64, OTU2, CPRI/eCPRI	40GE, OTU3 100GE, OTU4
WDM technology	Support DWDM: C-band 100GHz 40-wave	Support CWDM: 18 waves Support DWDM: C band 50GHz 80 waves
Number of occupied slots	Support OTN-CXR-6000 full series chassis, occupy 1 slot	
Network management function	Support real-time monitoring of port working status, including: transmitting optical power, receiving optical power, temperature, etc. Support port shutdown function	
Maximum power consumption	13W (including optical module)	
MTBF	＞100,000 hours	

OTDQ: 40G&100G Transponder/OEO Card

The 40G&100G Transponder service access board supports two 40G or 100G services access, its main function is to 3R regenerate the two 40G or 100G service signals and convert them into two WDM standard wavelength optical signals, so that the wave combining unit can perform WDM on the optical signals of different wavelengths, and to realize the reverse process of the above. WDM short-range transmission solution for 40G or 100G rate in metro area.







Product specifications

Parameter	Description	
Product model	OTDQ	
Application	100G wavelength conversion	40G wavelength conversion
Interface	Client-side: 2, based on QSFP28 pluggable Line-side: 2, based on QSFP28 pluggable	Client-side: 2, based on QSFP+ pluggable Line-side: 2, based on QSFP+ pluggable
Line mode	Supports 2*100G service transparent transmissions, which can transform 2*100G service optical signals into 2*WDM standard wavelength optical signals	Supports 2*40G services for transparent transmission, which can transform 2*40G service optical signals into 2*WDM standard wavelength optical signals
Support service type	100GE OTU4	40GE OTU3
Relay mode	Support 40G&100G wavelength electrical relay Optical signal single, multi-mode transform	
WDM technology	Support DWDM: C band 100GHz 40wavelengths	
Number of occupied slots	Support OTN-CXR-6000 full series chassis, occupy 1 slot	
Network management function	Support real-time monitoring of port working status, including: transmitting optical power, receiving optical power, temperature, etc. Support port loopback, port shutdown function	
Maximum power consumption	20W (including optical module)	
MTBF	＞100,000 hours	

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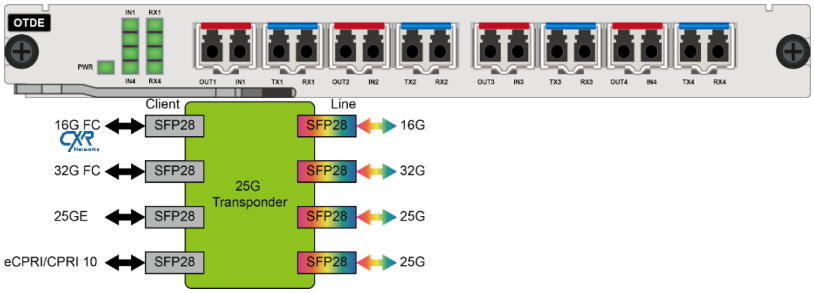
OTDE: 25G Transponder

The 25G Transponder service access board supports four 16~32G rates of any type of service access. The main function is to regenerate the incoming 4 arbitrary protocol service signals and convert them into 4 WDM standard wavelength optical signals, so that the combining unit can perform WDM on the optical signals of different wavelengths and realize the reverse process of the above. It is suitable for eCPRI wireless forwarding, 25G Ethernet and 16/32G FC service access WDM transmission solutions.

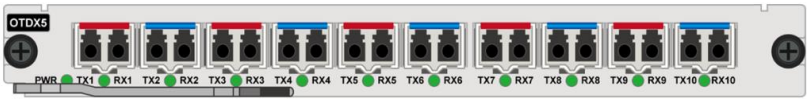


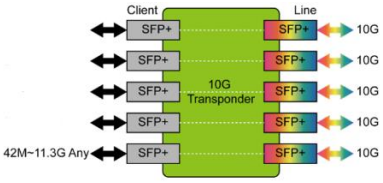
Product specifications

Parameter	Description
Product model	OTDE
Interface	Client-side interface: 4, based on SFP28 pluggable Line-side interface: 4, based on SFP28 pluggable
Line mode	Support four 16G ~ 32G rate range of any type of service transparent transmission, can convert four service optical signal into four WDM standard wavelength optical signal
Relay mode	Support 16G~32G wavelength electric relay
Support service type	25GE 16G FC (32G compatible) eCPRI, CPRI 10
Self-adaptive	16~32G rate adaptive, configuration free
WDM technology	Support CWDM: 18 waves Support DWDM: C-band 50GHz 80 waves
Number of occupied slots	Support OTN-CXR-6000 full series chassis, occupy 1 slot
Network management function	Support real-time monitoring of port working status, including: transmitting optical power, receiving optical power, temperature, etc. Support optical port ALS function
Maximum power consumption	16W (including optical module)
MTBF	＞100,000 hours

OTDX5: 5x10G Transponder

The 5x10G Transponder service access board supports five arbitrary service accesses with 42M~11.3G rate, its main function is to convert the incoming 5 arbitrary protocol service signals into 5 WDM standard wavelength optical signals, so that the combining unit can perform WDM on the optical signals of different wavelengths and realize the reverse process of the above. It is suitable for any rate service access WDM transmission scheme below 11.3G.





Product specifications

Parameter	Description
Product model	OTDX5
Interface	Client-side interface: 5, based on SFP+ pluggable Line-side interface: 5, based on SFP+ pluggable
Line mode	Support five 42M ~ 11.3G rate range of any type of services transparent transmission, can convert five services optical signals into five WDM standard wavelength optical signals
Relay mode	Support 42M~11.3G wavelength electric relay
Support service type	FE, GE, 10GE STM-1/4/16/64, OTU1/OTU2/OTU2e
WDM technology	Support CWDM: 18 waves Support DWDM: C-band 50GHz 96 waves
Number of occupied slots	Support OTN-CXR-6000 full series chassis, occupy 1 slot
Network management function	Support real-time monitoring of port working status, including: transmitting optical power, receiving optical power, temperature, etc. Support optical port ALS function
Maximum power consumption	20W (including optical module)
MTBF	＞100,000 hours

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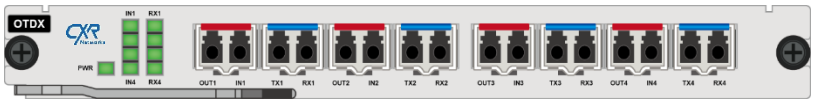
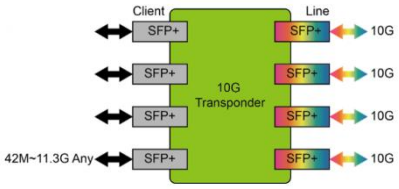
OTDX: 4x10G Transponder

The 4x10G Transponder service access board supports four arbitrary service accesses with 42M~11.3G rate, its main function is to regenerate the incoming 4 arbitrary protocol service signals into 3R and convert them into 4 WDM standard wavelength optical signals, so that the combining unit can perform WDM on the optical signals of different wavelengths and realize the reverse process of the above. It is suitable for any rate service access WDM transmission scheme below 11.3G.



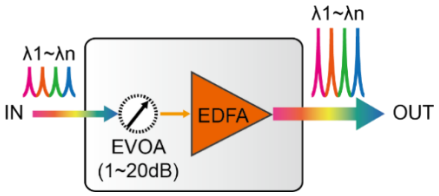


Product specifications

Parameter	Description
Product model	OTDX
Interface	Client-side interface: 4, based on SFP+ pluggable Line-side interface: 4, based on SFP+ pluggable
Line mode	Support four 42M ~ 11.3G rate range of any type of services transparent transmission, can convert four services optical signals into four WDM standard wavelength optical signals
Relay mode	Support 42M~11.3G wavelength electric relay
Support service type	1/2/4/8/10G FC CPRI-2/3/6/7
WDM technology	Support CWDM: 18 waves Support DWDM: C-band 50GHz 96 waves
Number of occupied slots	Support OTN-CXR-6000 full series chassis, occupy 1 slot
Network management function	Support real-time monitoring of port working status, including: transmitting optical power, receiving optical power, temperature, etc. Support optical port ALS function
Maximum power consumption	16W (including optical module)
MTBF	＞100,000 hours

EDFA: Optical Amplifier Unit

The EDFA is an erbium-doped fiber amplification card, 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.

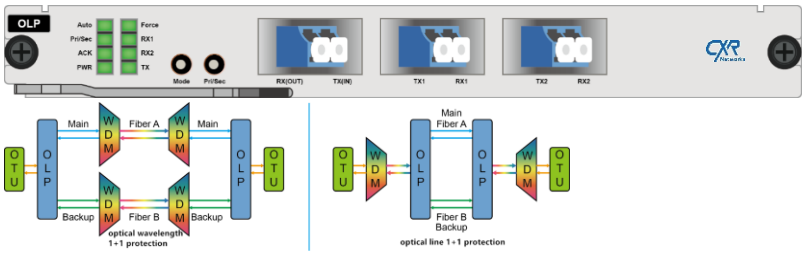


Product Specification

Function	Description
Working wavelength range	**Standard type:** 1529nm~1561nm Applicable to 40 wavelength(100GHz) or 80 wavelength(50GHz) DWDM system
	Extension type: 1528nm~1568nm 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. ● Support pump shutdown threshold and automatic recovery time setting function
Occupied slot number	Support OTN-CXR-6000 series chassis, occupy 1 slot
Optical interface	LC/UPC
Max power consumption	15W
MTBF	＞100000 hours

OLPA: Optical Protection Unit

The OLPA optical protection card's 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. OLPA 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.



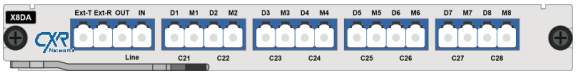
Product Specification

Function		Description
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 ● 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 OTN-CXR-6000 series chassis, occupy 1 slot
Optical interface		LC/UPC
Max power consumption		5W
MTBF		＞100000 hours

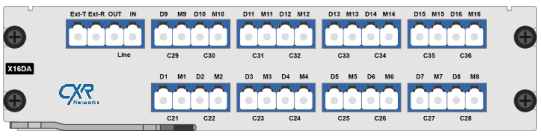
MUX/DEMUX Unit: 1~18CH

MDU: 1~18 Wavelengths Multiplexing/Demultiplexing card

The MDU is multiplexing/demultiplexing card based on WDM technology which 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.



8 CH Mux/Demux



16 CH Mux/Demux

Product Specification

Function	Description				
Part number		**X4DA**	**X8DA**	**X16DA**	
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 OTN-CXR-6000 series chassis, occupy **1 slot**			Support OTN-CXR-6000 series chassis, occupy **2 slots**	
Working wavelength range	● CWDM: 1271nm~1611nm ● 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				

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MUX/DEMUX Unit: AAWG

The AAWG (athermal arrayed waveguide grating) 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, Telcordia GR-1209-CORE-2001 standard, Telcordia GR-1221-CORE-1999 standard, 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			

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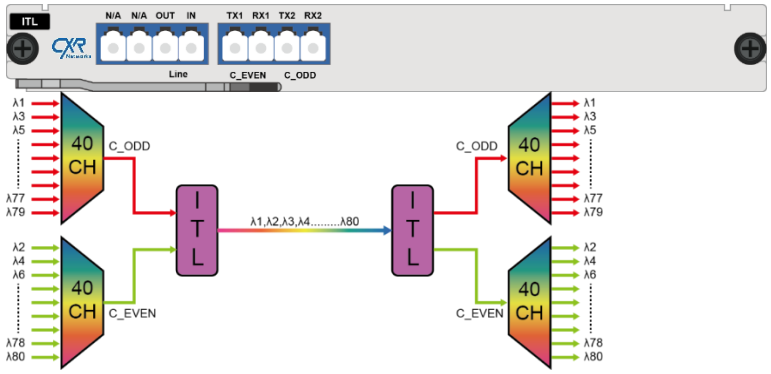
ITL: Interleaver

The ITL (Interleaver) 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 Specification

Function	Description
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 OTN-CXR-6000 series chassis, occupy 1slot
Optical interface	LC/UPC
MTBF	＞200000 hours

DCM: Dispersion Compensation Unit

The DCM (dispersion compensator modular) 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

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
1545nm wavelength dispersion (ps/nm)	-340±20	-670±30	-1000±40	-1340±50	-1670±60
1545nm relative dispersion slope (nm^{-1})	0.004±20%				
Insertion loss (dB)	≤3.5	≤5.0	≤6.8	≤8.7	≤10.7
Polarization mode dispersion (ps)	≤0.5	≤0.8	≤1.0	≤1.2	≤1.3
Polarization dependent loss (ps)	≤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 Rack mount: 1U, (D) 220mm×(W) 442mm×(H) 44mm				

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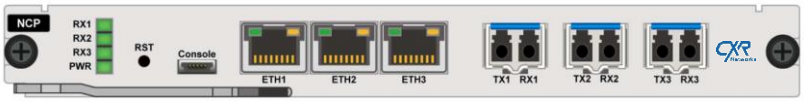
NCP: Network Management Unit

The NCP is a network management card specially designed for OTN-CXR-6000 I/II/V series, the main function is to provide the interface between the equipment and the network management system and complete the management of each single board of the network element, all kinds of maintenance and management signal transmission together with the OTN-CXR-6000 network management system of OTN-CXR-6000 series. It provides a good solution for the monitoring of equipment.



Product Feature

- Adopt high-speed ARM processor, collect status information, alarms and performance parameters of each single-board function module, transform, process and store them; meanwhile, pass the control and management information to each other function block of the equipment.
- Provide 1xConsole interface to support emulation terminal operation; 3xRJ45 Ethernet interfaces to support IP-based graphical SNMP network management; 3xSFP optical module interfaces to support in-band management of the equipment, realize the processing of 3 optical monitoring channels, and complete the receiving and transmitting processing of optical signals of each site optical monitoring channel.
- Support hot-swapping, which does not affect the normal work of the current service module even after failure.

Product Specification

Function	Description
Local management serial port	Support 1 Micro-USB local management serial port
Remote management Ethernet port	Support 3 RJ45 Ethernet interfaces, interface rate 10/100/1000M adaptive
OSC optical monitoring port	Support 3 pluggable optical SFP ports with LC interface
Network management method	Web, NMS network management system based on B/S architecture
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 OTN-CXR-6000 full range chassis, occupying 1 slot
Maximum power consumption	5W
MTBF	＞100000 hours
Default IP address of factory	192.168.1.100

NCP System: OTNS2000

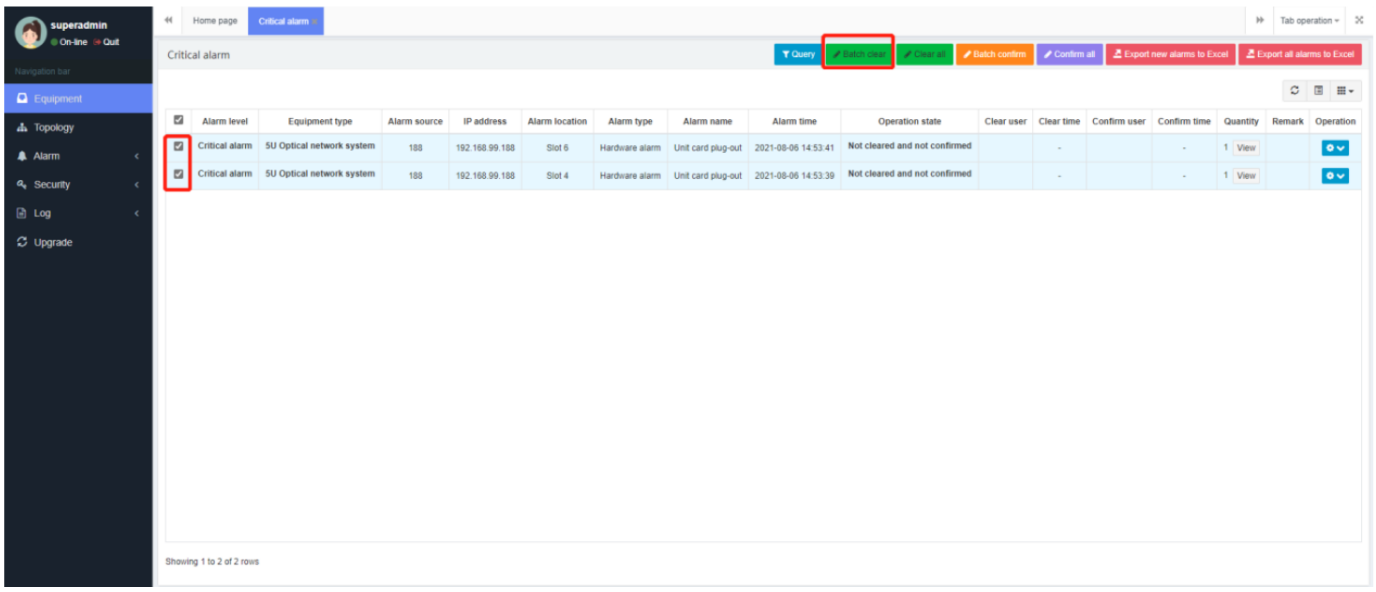
The OTNS2000 network management system is based on B/S architecture. It supports the unified management of the whole communication network products, and realizes the management, maintenance and testing functions of the fault, performance, configuration and security of the whole network system. End-to-end 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

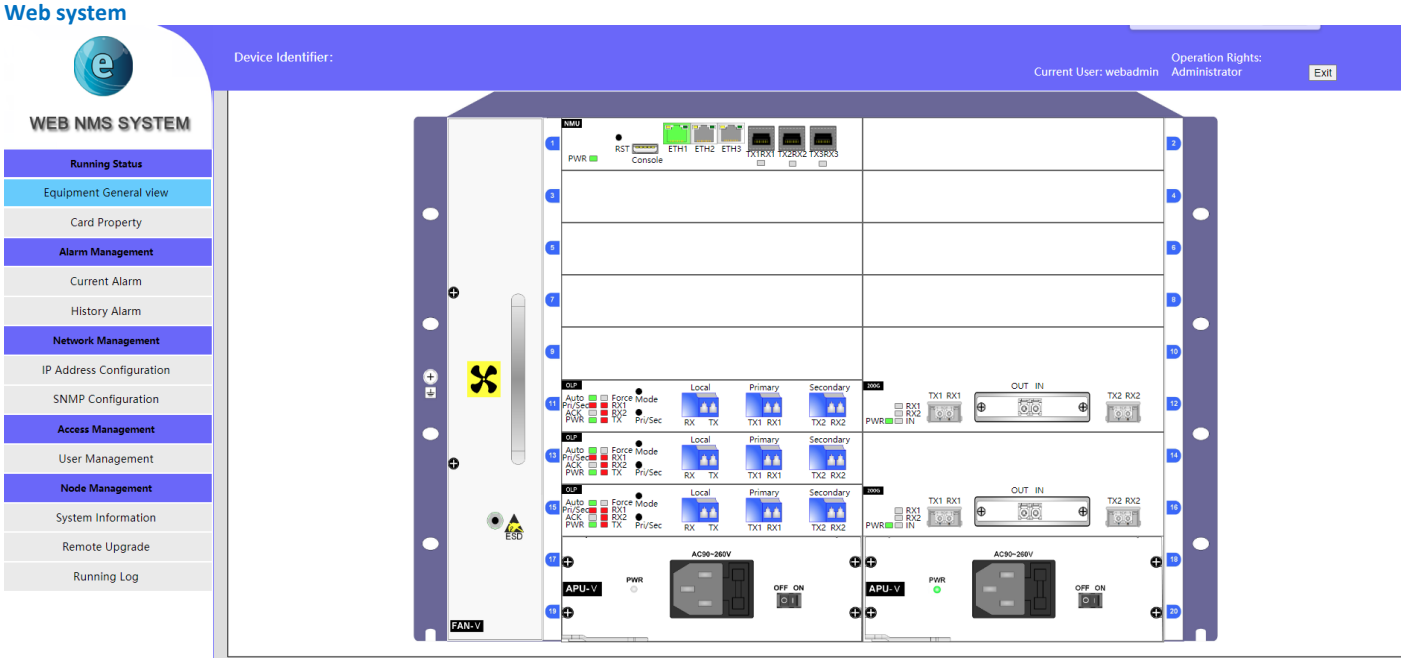
- **One-button automatic discovery:** Search network devices in the process of automatic discovery, identify device types and models, and generate panel diagrams of devices
- **Comprehensive equipment management:** Through the topological view, it is convenient to manage the equipment and its configuration 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 (The picture below shows a neutral logo, it can be customized according to customer requirements)

NMS system based on B/S architecture



Web system



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Optical Transport System

Main System

Product Name	Model	Classify
CWDM / DWDM System	OTN-CXR-6000	400G, 200G, 100G, 40G, 25G, 10G, 2.5G
DCI / OTN System	OTN-CXR-6000 DCI8/DCI4	400G, 200G, 100G, 10G
5G Fronthaul WDM System	Semi-Active / Passive	25G, 10G
OLS Open Line System	OTN-CXR-6000-OLS	Any
Integrated DWDM System	OTN-CXR-6000 P	100G, 10G
Aggregation and Distribution System	ST-X48C6, ST32C	100G, 10G

Sub-system

Product Name	Model	Classify
Network Management System	OTNS2000	Web, B/S
Optical Amplifier System	OA, VOA	EDFA, OEO, Raman, SOA
Optical Protection System	OLP, OBP	1+1, 1:1
Optical Dispersion Compensation	DCM, TDCM	5~120km
Passive Mux / Demux System	TFF, AWG	4~ 96 CHs
OADM (Optical Add-Drop Multiplexer)	FOADM, ROADM	2 directions, 9 directions
Optical Monitoring	OCM, OTDR	Optical channel/line monitoring
Optical Transceiver		CFP2, QSFP28, QSFP+, SFP28, SFP+, SFP

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