



Rack MxN matrix optical switch device



Product description

The matrix optical switch device is a kind of OXC optical path control device, which plays the role of controlling the optical path and switching the optical path. And play an important role in optical communication application. It is mainly used in multi-channel optical monitoring, LAN multi-light source/detector automatic switching and optical sensing multi-point dynamic monitoring system in optical transmission system, optical fiber, optical device, network and field engineering optical cable test in optical test system, and optical fiber, optical device, network and field engineering optical cable test in optical test system. Optical device assembly and adjustment.



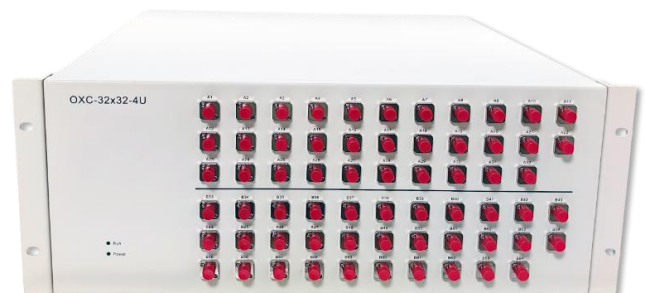
Product features

- The insertion loss is small
- High stability and reliability
- Light path switching can be set by serial port command
- The switching speed is fast



Application

- Laboratory research and development
- System monitoring
- Metropolitan Area Network
- Multi-channel optical monitoring
- Optical fiber sensing
- Remote optical fiber monitoring system





Technical Parameters

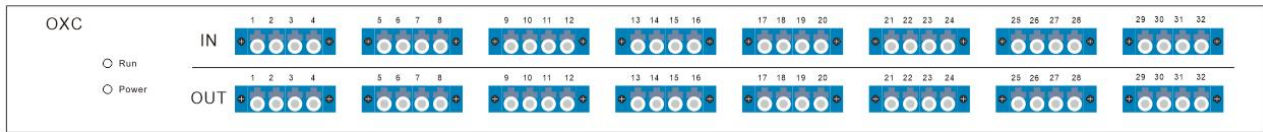
Model	OXC-M x N-SM	OXC-M x N-MM
Fiber type	SM (9/125um)	MM (50/125um or 62.5/125um)
Operating wavelength	1260~1650nm	820~880nm
Test wavelength	1310/1550/1625/1650	850
Insertion loss	≤ 2.0 dB @ M+N ≤ 16 ≤ 2.5 dB @ M+N ≤ 32 ≤ 3.0 dB @ M+N ≤ 64 ≤ 3.5 dB @ M+N ≤ 128	≤ 2.0 dB @ M+N ≤ 16 ≤ 2.5 dB @ M ≤ 16 , N ≤ 16 ≤ 4.5 dB @ M ≤ 32 , N ≤ 32
Return loss	≥ 45 dB	≥ 30 dB
Cross talk	≥ 50 dB	≥ 30 dB
Repeatability	$\leq \pm 0.1$ dB	
Switching time	≤ 15 (M ≤ 16 , N ≤ 16) ≤ 50 (M ≤ 64 , N ≤ 64)	
Number of switches	$\geq 10^9$ times	
Optical interface type	LC/UPC (customizable)	
Input optical power	≤ 500 mW	
Monitoring port	RJ45、RS-232	
Working power supply	AC: 85 ~ 264 V (50/60Hz) or DC: 36 ~ 72 V	
Operating temperature	$-5 \sim +70^{\circ}\text{C}$	
Storage temperature	$-40 \sim +80^{\circ}\text{C}$	
Chassis Dimensions 19-inch standard 1U rack (483 × 500 × 44mm) 19-inch standard 2 U rack (483 × 500 × 89mm) 19-inch standard 4 U rack (483 × 500 × 176mm)	LC flange layout 1U: M+N ≤ 64 2U: M+N ≤ 128	LC flange layout 1U: M+N ≤ 32 2U: M+N ≤ 64
	FC flange layout 1U: M+N ≤ 16 2U: M+N ≤ 32 4U: M+N ≤ 64	FC flange layout 1U: M+N ≤ 16 2U: M+N ≤ 32 4U: M+N ≤ 64

Note:

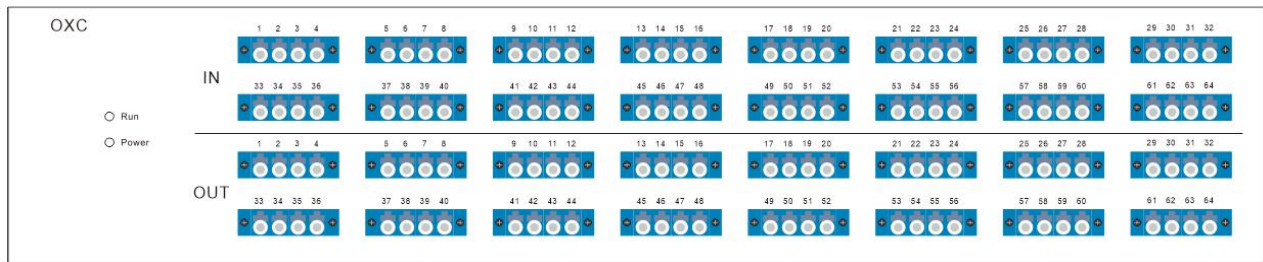
- All parameters are tested at room temperature.
- The above is the adaptive chassis size of LC and FC flange layout, and the chassis mechanism of other flanges shall be confirmed separately.
- The above is the insertion loss value without power monitoring and with power monitoring, increasing 0.5dB for each channel.

Schematic description of the structure

Front panel description:



1U

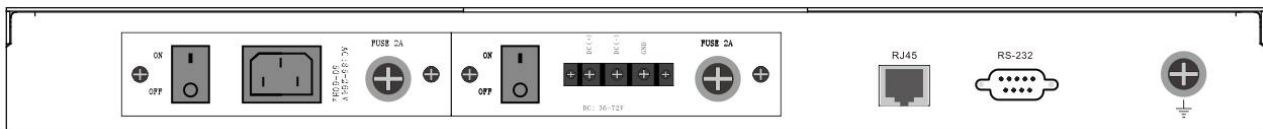


2U

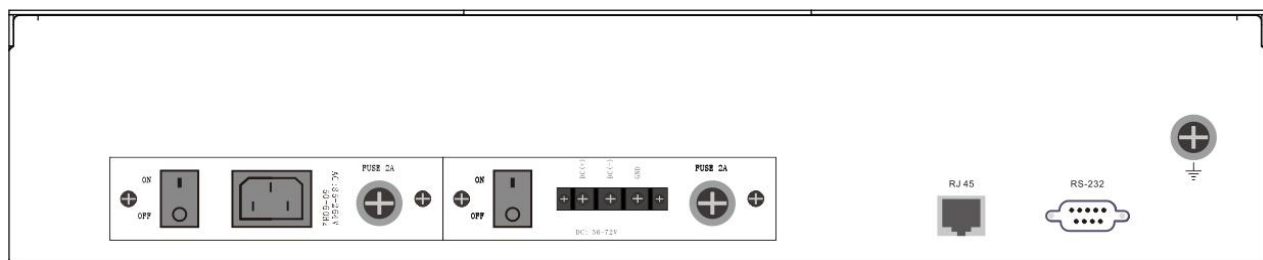
(1) Indicator light: Power indicator. If the light is on, it means the power supply is normal. Run indicates the operation of the device, which flashes once every 1 second of normal operation.

(2) Optical interface: In 1-64 is the input port, and Out 1-64 is the output port.

Back panel description:



1U



2U

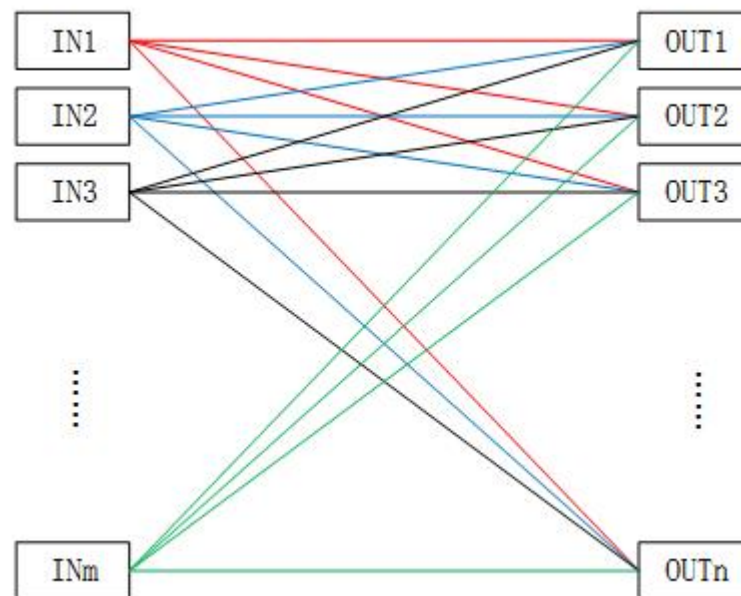
(1) AC, DC power interface: equipment working power input interface.

(2) RJ45 Ethernet interface and RS-232 serial port: communication interface for equipment monitoring data information.

(3) Wiring post: external grounding post.



Diagram of optical path



Description of programmed instructions

The equipment can receive control signals through RS-232 interface or RJ45 interface to realize automatic measurement or real-time monitoring.

- (1) The device can only execute one instruction at a time. The next instruction is usually entered after the program returns the corresponding value.
- (2) Please use capital letters.
- (3) In actual operation, input the angle bracket "<" as the start character and the angle bracket ">" as the end character.
- (4) Instruction error returns < ER >.

Program-controlled instruction set (this instruction takes 64×64 as an example, and other matrix optical paths are similar)

Command	Description	Examples
<RESET>	Restart the module	Success return: < RESET _ OK >
<RESTORE>	Restore factory settings	Success return: < RESET _ OK >
<INFO_?>	Check the device block information	Successfully returned: <OXC-MXN_VER1.00_ SN01234567890_C06.08.00110> Indicates OXC-MXN equipment, version 1.00, SN number 01234567890, product number C06.08. 00110;
<BAUD_x>	Set or query the serial port baud rate 1. X is from 1 to 9, representing baud rates 2400, 4800, and 9600, 14400, 19200, 38400, 56000, 57600, and 115200, respectively. Success return: < BAUD _ X _ OK > 2. Send < BAUD _? > Query the baud	Send: < BAUD _ 5 > Success return: < BAUD _ 5 _ OK > Set the device serial port baud rate to the 19200. Restart to take effect after the configuration is saved!



	rate	
<SET_IP_xxx_xxx_xxx_xxx>	Set/query local IP address (effective after restart) 1. If XXX is 000 ~ 255, the IP address is set. 2. Successful return: <SET_IP_OK> 3.<IP_?> to query the IP address	Send: <SET_IP_192_168_002_011> Indicates that the IP is set to: 192.168.2.11 Send: <IP_?> Return: <IP_192_168_002_011> Indicates that the current IP is: 192.168.2.11
<SET_GW_xxx_xxx_xxx_xxx>	Setup/Query Gateway (Restart takes effect) 1. If XXX is 000 ~ 255, the gateway is set. 2. Successful return: <SET_GW_OK> 3.<GW_?> indicates the query gateway address	Send: <SET_GW_192_168_002_001> Indicates that the gateway is set to 192.168.2.1 Send: <GW_?> Return: <GW_192_168_002_001> Indicates that the current gateway is: 192.168.2.1
<SET_SM_xxx_xxx_xxx_xxx>	Set/Query Subnet Mask (Restart takes effect) 1. If XXX is 000 ~ 255, the subnet mask is set. 2. Successfully returned: <SET_SM_OK> 3.<SM_?> to query the subnet mask	Send: <SET_SM_255_255_255_000> Indicates that the subnet mask is set to 255.255.255.0 Send: <SM_?> Return: <SM_255_255_255_000> Indicates that the current subnet mask is 255.255.255.0
<SET_TCPPP_xxxxx>	Set/query TCP communication port number (effective after restart) 1.xxxxx is the 00001 ~ the 65534 indicates that the TCP communication port number is set 2. Successfully returned: <SET_TCPPP_OK> 3.<TCPPP_?> to query the TCP communication port number	Send: <SET_TCPPP_04001> Indicates to set the TCP communication port number: 4001
<OSW_A_?>	Query the channel status Successfully returned: OSW _ A _ the output channel _ In4 corresponding to the output channel _ In3 corresponding to the output channel _ In2 corresponding to the output channel _ In1 _ In64 corresponding output channel >	Successfully returned: <OSW_01_02_03_04_05_06_07_08_09_10_11_12_13_14_15_16_17_18_19_20_21_22_23_24_25_26_27_28_29_30_31_32_33_34_35_36_37_38_39_40_41_42_43_44_45_46_47_48_49_50_51_52_53_54_55_56_57_58_59_60_61_62_63_64> The current optical path is: In1→Out1、In2→Out2、In3→Out3、In4→Out4、 In5→Out5、In6→Out6、In7→Out7、In8→Out8、 In9→Out9、In10→Out10、In11→Out11、 In12→Out12、In13→Out13、In14→Out14、 In15→Out15、In16→Out16、In17→Out17、 In18→Out18、In19→Out19、In20→Out20、 In21→Out21、In22→Out22、In23→Out23、 In24→Out24、In25→Out25、In26→Out26、 In27→Out27、In28→Out28、In29→Out29、 In30→Out30、In31→Out31、In32→Out32、



		In33→Out33、In34→Out34、In35→Out35、 In36→Out36、In37→Out37、In38→Out38、 In39→Out39、In40→Out40、In41→Out41、 In42→Out42、In43→Out43、In44→Out44、 In45→Out45、In46→Out46、In47→Out47、 In48→Out48、In49→Out49、In50→Out50、 In51→Out51、In52→Out52、In53→Out53、 In54→Out54、In55→Out55、In56→Out56、 In57→Out57、In58→Out58、In59→Out59、 In60→Out60、In61→Out61、In62→Out62、 In63→Out63、In64→Out64;
<OSW_SW_a1_a2_a4 _....._a64> (A1 ~ a64 respectively represent the output ports corresponding to In1 ~ IN64 ports, and the values are 01 ~ 64 and cannot be the same. If the value is 00, it represents no output status.)	Channel switching Uccessful return: < OSW _ SW _ A1 _ A2 _ A4 _ _a64_OK>	Sen: <OSW_SW_01_02_03_04_05_06_07_08_09_10_11_ 12_13_14_15_16_17_18_19_20_21_22_23_24_25_ 26_27_28_29_30_31_32_33_34_35_36_37_38_39_ 40_41_42_43_44_45_46_47_48_49_50_51_52_53_ 54_55_56_57_58_59_60_61_62_63_64> Return: <OSW_SW_01_02_03_04_05_06_07_08_09_10_11_ 12_13_14_15_16_17_18_19_20_21_22_23_24_25_ 26_27_28_29_30_31_32_33_34_35_36_37_38_39_ 40_41_42_43_44_45_46_47_48_49_50_51_52_53_ 54_55_56_57_58_59_60_61_62_63_64_OK> Indicates that the optical path is set to: In1→Out1、In2→Out2、In3→Out3、In4→Out4、 In5→Out5、In6→Out6、In7→Out7、In8→Out8、 In9→Out9、In10→Out10、In11→Out11、 In12→Out12、In13→Out13、In14→Out14、 In15→Out15、In16→Out16、In17→Out17、 In18→Out18、In19→Out19、In20→Out20、 In21→Out21、In22→Out22、In23→Out23、 In24→Out24、In25→Out25、In26→Out26、 In27→Out27、In28→Out28、In29→Out29、 In30→Out30、In31→Out31、In32→Out32、 In33→Out33、In34→Out34、In35→Out35、 In36→Out36、In37→Out37、In38→Out38、 In39→Out39、In40→Out40、In41→Out41、 In42→Out42、In43→Out43、In44→Out44、 In45→Out45、In46→Out46、In47→Out47、

		In48→Out48、In49→Out49、In50→Out50、 In51→Out51、In52→Out52、In53→Out53、 In54→Out54、In55→Out55、In56→Out56、 In57→Out57、In58→Out58、In59→Out59、 In60→Out60、In61→Out61、In62→Out62、 In63→Out63、In64→Out64;
<SAVE_ALL>	Save the configuration Success return: < SAVE _ ALL _ OK >	Save the configuration, such as channel status save.

Factory Default Configuration

Project	Factory default configuration	Remark
IP	192. 168. 1. 178	Port: 4001
Serial port baud rate	115200	8 data bits, 1stop bit, no parity.
Working Channel	In1→Out1、In2→Out2、In3→Out3 In4→Out4、In5→Out5、In6→Out6 In7→Out7、In8→Out8、In9→Out9 In10→Out10、In11→Out11、In12→Out12 In13→Out13、In14→Out14、In15→Out15 In16→Out16、In17→Out17、In18→Out18 In19→Out19、In20→Out20、In21→Out21 In22→Out22、In23→Out23、In24→Out24 In25→Out25、In26→Out26、In27→Out27 In28→Out28、In29→Out29、In30→Out30 In31→Out31、In32→Out32、In33→Out33 In34→Out34、In35→Out35、In36→Out36 In37→Out37、In38→Out38、In39→Out39 In40→Out40、In41→Out41、In42→Out42 In43→Out43、In44→Out44、In45→Out45 In46→Out46、In47→Out47、In48→Out48 In49→Out49、In50→Out50、In51→Out51 In52→Out52、In53→Out53、In54→Out54 In55→Out55、In56→Out56、In57→Out57 In58→Out58、In59→Out59、In60→Out60 In61→Out61、In62→Out62、In63→Out63 In64→Out64	The optical path state at the time of configuration saving is maintained after the device is powered off and then powered on



 Ordering information: HC-OXC-M × N-A-B-C-D-E

A	B	C	D	E	F
Chassis dimensions	Power monitoring	Power source	Optical fiber	Operating wavelength	Flange
1U: 483×500×44mm	IP: Built-in channel power monitoring	AC: 85 ~ 264 V dual power supply	SM: Single mode 9/125	85:850nm	FP: FC/UPC
2U: 483×500×89mm	EP: Without channel power monitoring	DC: 36 ~ 72 V dual power supply	M5: Multimode 50/125	13:1310nm	FA: FC/APC
4U: 483×500×176mm		AD: 1AC + 1 DC dual power supply	M6: multimode 62.5/125	15:1550nm	SP: SC/UPC
				13/15: 1310/1550nm	SA: SC/APC
				1625:1625nm	LP: LC/UPC
				1650:1650nm	MP:MPO
				X:other	X:other