

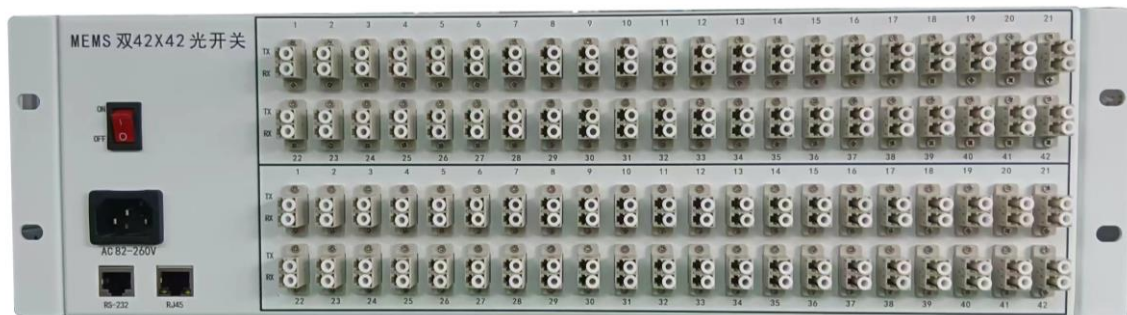
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# MEMS MXN Rack-mounted Matrix Optical Switch

## 1. Product Overview

The matrix optical switch is a high-performance, modular all-optical signal matrix switcher that utilizes MEMS technology and switching control technology. It uses light as the signal transmission medium, offering strong anti-interference capabilities and minimal signal attenuation.

The optical path implementation diagram of the M×N optical switch matrix is shown in Figure 1. It consists of M 1×N MEMS optical switches and N 1×M MEMS optical switches cascaded together, enabling arbitrary switching of M optical signals to N optical paths. The matrix provides non-blocking, fully transparent optical switching, making it an ideal solution for telecom, data centers, network security, and lab/production network operators. It supports flexible and reliable remote resource allocation and rapid path reconfiguration.



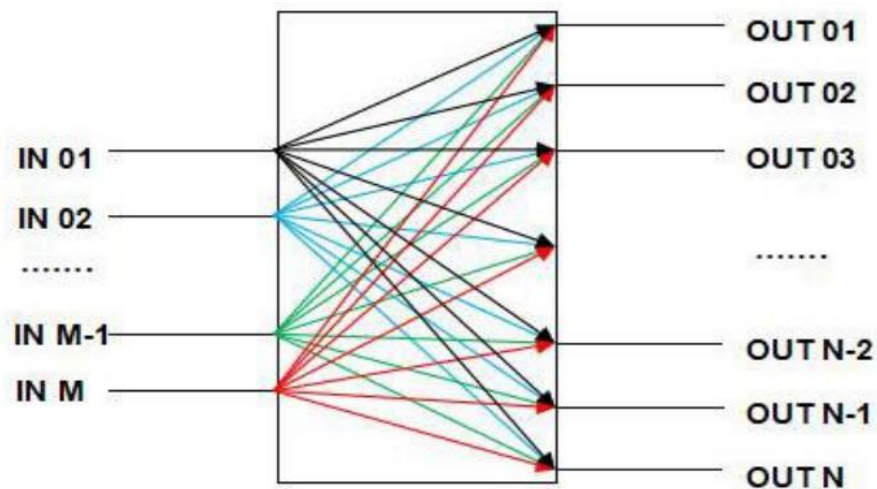
## 2、Key Applications:

- Optical Cross-Connect (OXC)
- Data Centers and Cloud Computing
- Short/Long-Distance Network Operations
- Automated Testing & Video Transmission Distribution
- Protection Switching, Network Monitoring, and Automated Fault Localization

## Features:

- Proven MEMS Technology
- Low Insertion Loss
- Non-Blocking Cross-Connect Functionality
- Full Bidirectional Operation
- Supports Symmetric or Asymmetric Matrix Configurations

## 3、Optical Path Schematic



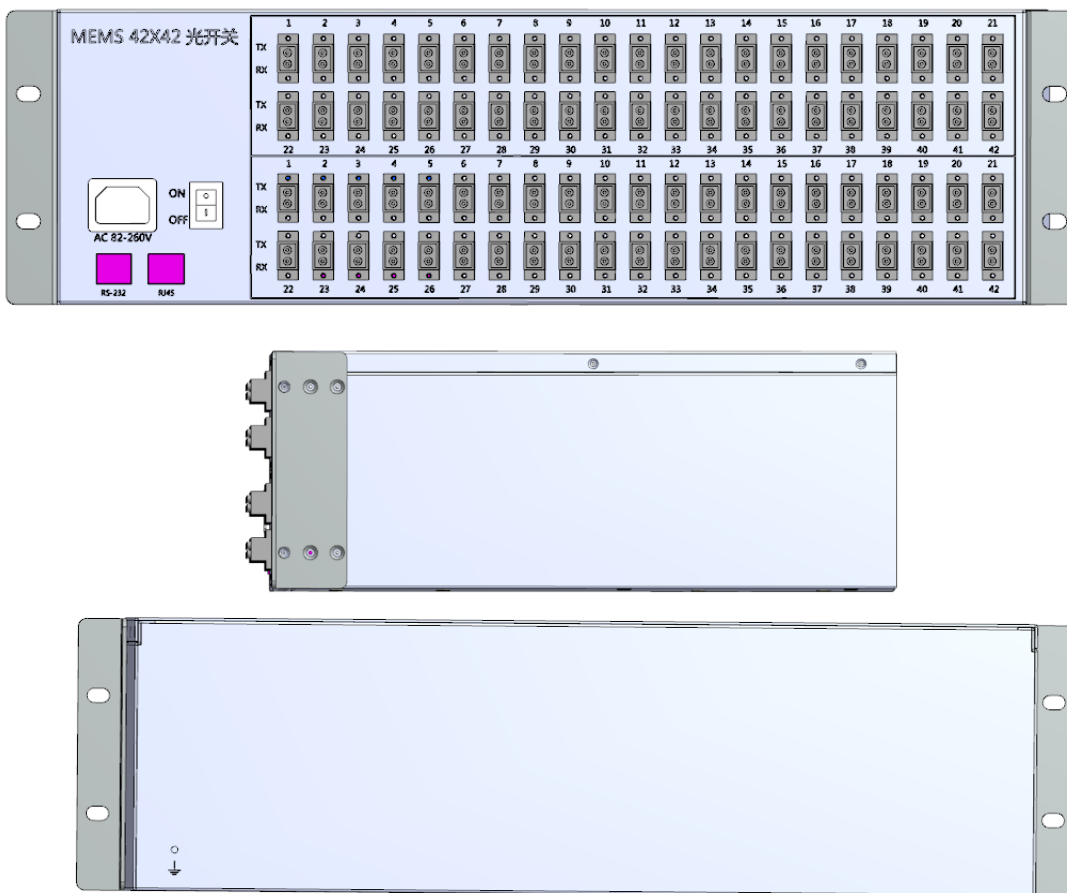
## 4、Technical Specifications

Channel Count	8x8	16x16	32x32	64x64
Operating Wavelength (nm)	850±50nm , 1310±50nm , 1550±50nm			
Insertion Loss (dB)	≤1.1	≤1.3	≤1.5	≤3.0
Return Loss (dB)	≥45			
Channel Crosstalk (dB)	≥55			
Repeatability (dB)	≤±0.05			
Lifetime (Cycles)	≥10 <sup>9</sup>			

Switching Time (ms)	≤20
Operating Temp. (° C)	-20~+70
Storage Temp. (° C)	-40~+80
Power Supply	48VDC、220VAC
Control Interfaces	RS232 and RJ45

\* Mechanical Dimensions (Dual 42×42 Switches)

### 5、Mechanical Dimensions (Dual 42×42 Switches)





## Command Set

Command Format	Description	Example
<OSWXX_OUT_AA_BB_CC_D D..._MM>	Bulk channel configuration:	<b>Host sends:</b> <OSW01_OUT_01_05_02_04..._09>  Response <OSW01_OUT_OK>  (sets IN01→OUT01, IN02→OUT05, etc.)
<OSW01_OUT_YY&YY>	Single channel pair setup:	<b>Host sends:</b> <OSW01_OUT_01&08>  Response <OSW01_OUT_OK>  (sets IN01→OUT08)
<OSWXX_OUT_?>	Query current channel config :  XX(0~99)Indicates the current address of the device.  ? representation query .	<b>Host sends:</b> <OSW01_OUT_?>  Response <OSW01_OUT_01_05_03_09_10_21_06...>
<OSWXX_ADD_YY>	Modify device address:  XX(0~99)Indicates the current address of the device.  YY (0~99) Represents the address set.	<b>Host sends:</b> <OSW01_ADD_03>  Response <OSW03_ADD_OK>
<OSW_ADD_?>	Query device address:  XX(0~99)Indicates the current address of the device.  ? representation query .	<b>Host sends:</b> <OSW_ADD_?>  Response <OSW01_OK> (current address: 01)
<OSWXX_BAUD_YYYYY>	Set Set serial port baud rate:  XX(0~99)Indicates the current address of the device.  YY (2400, 4800, 9600, 115200) Indicates setting the baud rate of the serial port, supports 4 baud rates;  ? representation query .	<b>Host sends:</b> <OSW01_BAUD_9600>  Response <OSW01_BAUD_OK>; <b>Host sends:</b> <OSW01_BAUD_?>  Response <OSW01_BAUD_9600>
<OSWXX_IP_YYY.YYY .YYY.YYY>	Set serial port baud rate:  XX(0~99)Indicates the current address of the device.  YY.YY.YY.YY Internet Protocol Address for Settings  ? representation query .	<b>Host sends:</b> <OSW01_IP_192.168.001.011>  Response <OSW01_IP_OK>; <b>Host sends:</b> <OSW01_IP_?>  Response <OSW01_IP_192.168.001.011>
<OSWXX_PORT_YYYY >	Set Ethernet port number:  XX(0~99)Indicates the current address of the device.  YYYY(1000~9999) Indicates the port number set,  ? representation query	<b>Host sends:</b> <OSW01_PORT_5000 >  Response <OSW01_PORT_OK>  <b>Host sends:</b> <OSW01_PORT_?>  Response <OSW01_PORT_5000 >
<OSWXX_TYPE_?>	Query fiber type & wavelength:  The content includes the total channel of the	<b>Host sends:</b> <OSW01_TYPE_?>  Response

	optical switch, the operating wavelength, and the type of fiber.。	<OSW01_TYPE_1x16_1310~1550NM_MM62.5/125um>
<OSWXX_RESET>	Device reboot	Host sends: <OSW01_RESET> Response <OSW01_RESET_OK>

### Important Notes !

(1) Single Command Execution:

This device can execute only one command at a time. You must wait for a response before sending the next command.

(2) Device Address Identifier (OSWXX):

The OSWXX identifier allows users to control multiple optical switches via a single serial port under limited resources.

Example: OSW01 = Switch #1, OSW03 = Switch #3.

Default address: OSW01 (factory setting).

(3) 、 Uppercase Letters Required:

All commands in the communication protocol must use UPPERCASE LETTERS.

(4) 、 Underscore Usage:

The symbol \_ represents an underscore and must be strictly followed in command syntax.

(5) 、 Response Format:

Responses start with < and end with >. [file content end]

### Order information: MSW-MxN-A-B-C-D-E

M,N	A	B	C	D	E
Chanel	Fiber	Wavelength	Shape	Power	Connector
2 ~ 128	SM: 9/125	85: 850nm	1U:1U19"	D22:Double220V	FP: FC/PC
	M5: 50/125	13: 1310nm	2U:2U19"	D48:Double48V	FA: FC/APC
	M6: 62.5/125	15: 1550nm	4U:4U19"	S24:220V+48V	SP: SC/PC
	PM:PM fiber	13/15:1310/1550nm		S22:220V	SA: SC/APC LP: LC/PC LA: LC/APC