2×N (Half-Exchange) MEMS Optical Switch

The MSW-2×N optical switch (hereinafter referred to as the MEMS optical switch) is a multi-channel optical path switching module. It utilizes electrostatically actuated micro-mirror technology, featuring compact size, fast response, and stable performance. It is widely applicable in optical communication and testing systems. The optical path schematic is as follows:

Applications：

- Multi-channel optical monitoring in optical transmission systems
- LAN multi-source/detector automatic switching, dynamic multi-point optical sensing systems
- Automated testing of fibers, optical components, networks, and field engineering cables in optical testing systems
- Optical device alignment

Features::

- Fast switching speed, low loss, high reliability, and long lifespan
- Compact size, simple TTL control interface
- Modular design, low insertion loss

Specifications:：

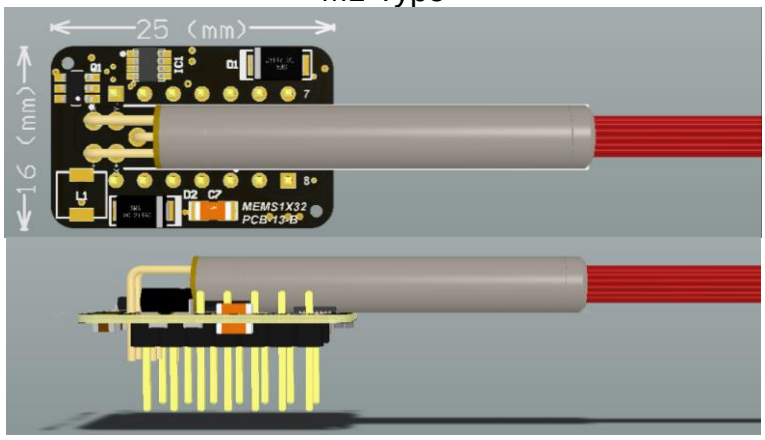
Parameter	Value	
Operating Wavelength (nm)	850/1310 ,1260~1650	
Fiber Type (μm)	Single-mode, Multi-mode, Polarization-Maintaining (PM)	
Extinction Ratio① (dB)	≥18	
Insertion Loss (dB)	≤0.8 (N=2～12),≤1.0(N=12～24) ≤1.2(N=24～32),≤1.5(N=32～64)	
Return Loss (dB)	SM：≥50　MM：≥30	
Crosstalk (dB)	SM	≥50（N≤32）,≥45（32＜N≤64）
	MM	≥30（N≤16）,≥25（16＜N≤32）
Repeatability (dB)	≤±0.02	
Switching Time (ms)	Typ ： 5ms	
Switching Lifetime	≥10^9 cycles	
Max. Optical Power (mW)	500	
Operating Temperature (° C)	-10~+70	

Storage Temperature (° C)	-40~+80
Control Interface	TTL、RS232
Operating Voltage (V)	5V
Dimensions (mm)	25*16*8

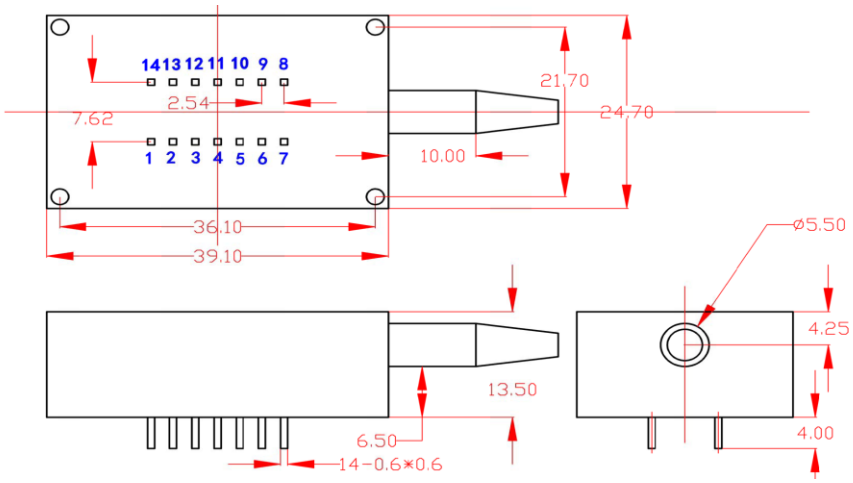
Specifications apply to polarization-maintaining (PM) models.

Dimensions (mm)：

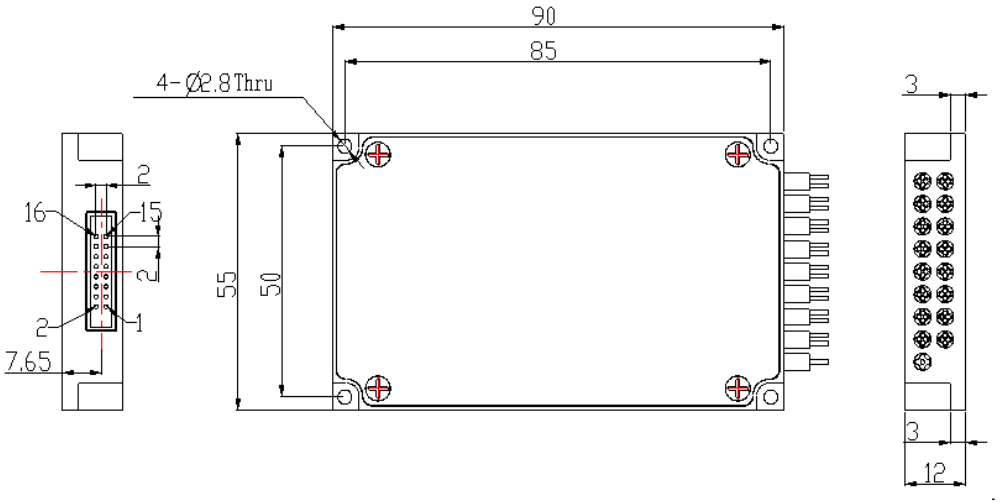
M1-Type



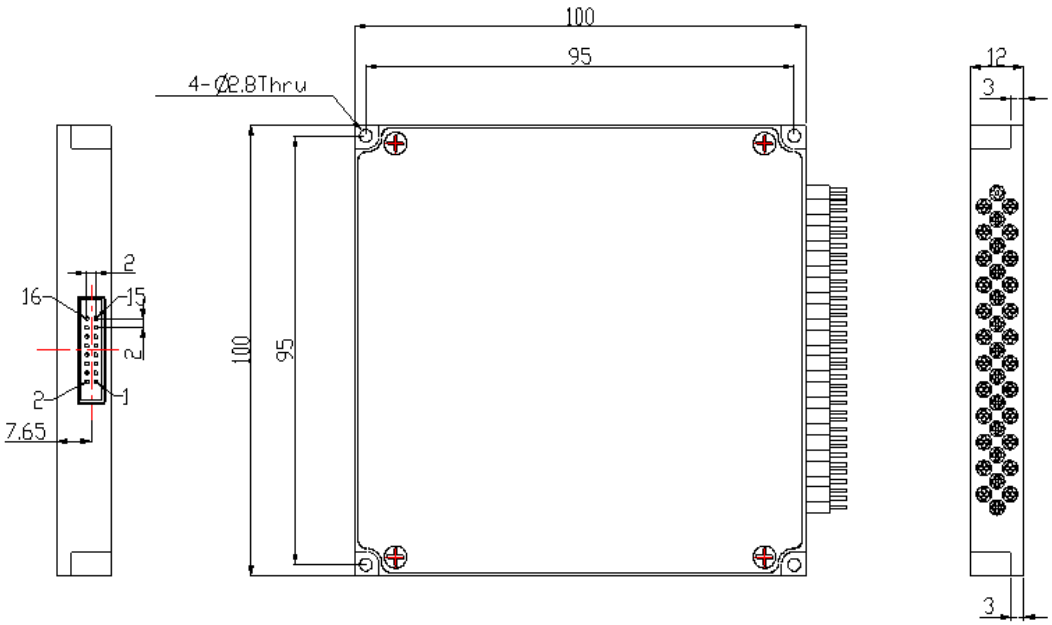
M2-Type



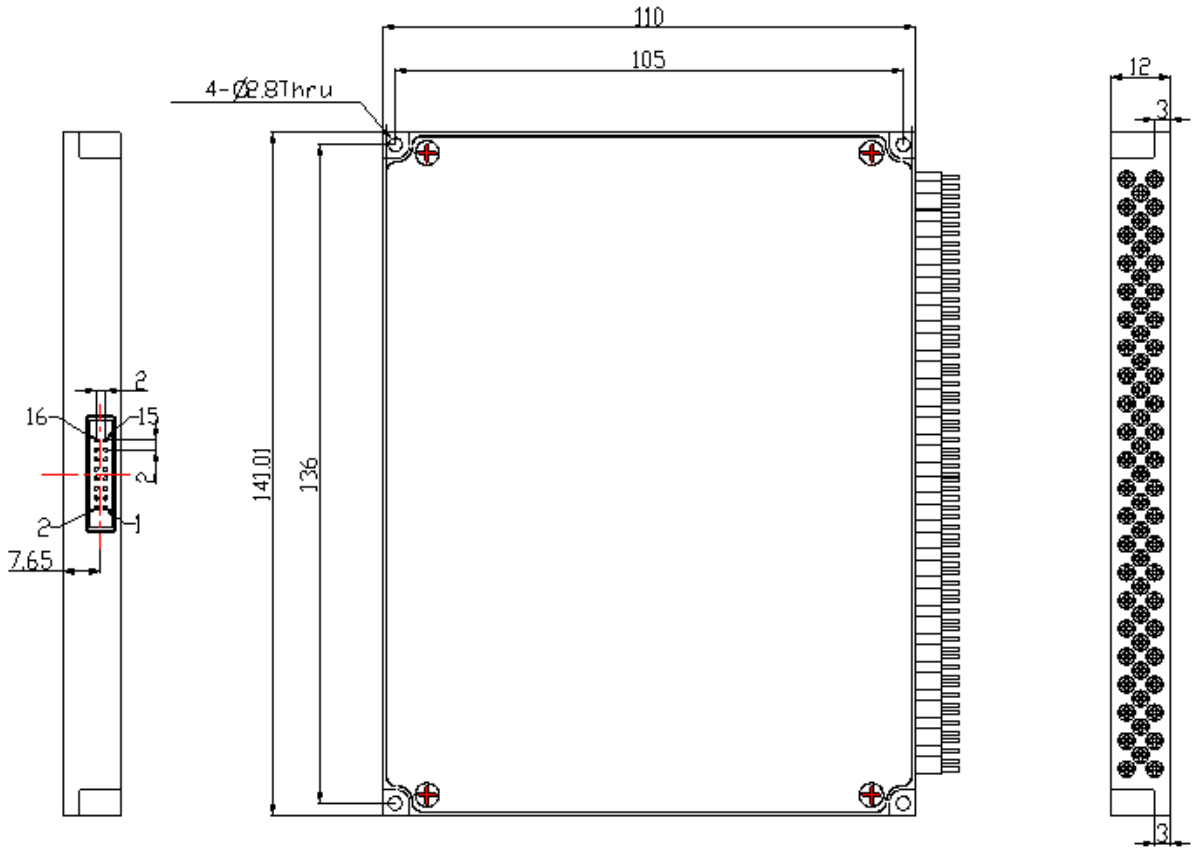
M3-Type



M4-Type



M5-Type



Pin Definitions

Pin		Pin Name	Type	Level	Description
M3,4,5	M1,2				
1	5	D0	IN	LVTTL	TTL mode: Data bit D0 input
2	/	D5	IN	LVTTL	TTL mode: Data bit D5 input
3	2	VCC	Power IN	/	DC +5V power supply
4	/	D7	IN	LVTTL	TTL mode: Data bit D7 input
5	/	D6	IN	LVTTL	TTL mode: Data bit D6 input
6	4	GND	Power IN		Ground
7	10	D4	IN	LVTTL	TTL mode: Data bit D4 input
8	12	D1	IN	LVTTL	TTL mode: Data bit D1 input
9	6	TXD	/	/	Module UART_TX
10	7	RXD	/	/	Module UART_RX
11	9	D2	IN	LVTTL	TTL mode: Data bit D2 input
12	13	D3	IN	LVTTL	TTL mode: Data bit D3 input
13	8	BUSY	OUT	LVTTL	High level indicates busy; control invalid
14	1	ALARM	OUT	LVTTL	High level indicates fault

Pin		Pin Name	Type	Level	Description
M3,4,5	M1,2				
15	3	/STROBE	IN	LVTTL	TTL mode: Falling edge trigger
16	14	/RESET	IN	LVTTL	Reset (low active, pulse width ⩾10 ms)

Model Selection: MSW-2×N-A-B-C-D-E-F

N	A	B	C	D	E	F
Ports	Fiber Type	Wavelength	Buffer Tube	Fiber Length	Connector	Package
2 ~ 256	SM:9/125um M5:50/125um M6:62.5/125um M10:105/125um PM:PM Fiber	85:850nm 13: 1310nm 14: 1490nm 15: 1550nm	25:250um 50:500um 90:900um	05:0.5m 10:1.0m 12:1.2m	OO:None FP: FC/PC FA: FC/APC SP: SC/PC SA: SC/APC LP: LC/PC LA: LC/APC MPO	M1:PCB M2:39*24*13.5 M3:90*55*12 M4:100*100*12 M5:110*141*12