



1 × N MEMS Optical Switch Module

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■ Key Features

- > Compact Structure
- > Fast Switching Time
- > Low Insertion Loss
- > High Reliability

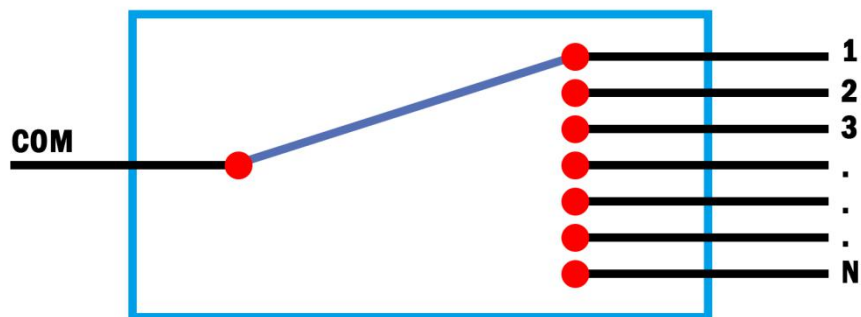
■ Application

- > PON Network
- > Protection
- > Instrumentation
- > Network Monitoring

■ Compliance

- > Telcordia GR-1221
- > Telcordia GR-1073

■ Optical Route



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■ Specifications (Single Mode)

Parameters	Unit	MFSW-1×N-SM	
Working Wavelength	nm	1260~1650	
Testing Wavelength	nm	1310 / 1550	
Insertion Loss	dB	$N \leq 16$ $16 < N \leq 64$ $64 < N \leq 144$ $144 < N \leq 256$	≤ 1.0 (A Grade), ≤ 0.8 (P Grade) ≤ 1.8 (A Grade), ≤ 1.6 (P Grade) ≤ 2.0 (A Grade), ≤ 1.8 (P Grade) ≤ 2.2 (A Grade), ≤ 2.0 (P Grade)
WDL	dB	≤ 0.3 ($N \leq 16$) ≤ 0.4 ($16 < N \leq 144$) ≤ 0.5 ($144 < N \leq 256$)	
PDL	dB	≤ 0.15	
Return Loss	dB	≥ 45	
Crosstalk	dB	≥ 50	
Repeatability	dB	$\leq \pm 0.05$	
Switching Time	ms	≤ 15	
Durability	times	$\geq 10^9$	
Input Optical Power	mW	≤ 500	
Operating Voltage	V	DC 5V $\pm$ 10%	
Operating Current	mA	≤ 50 ($N \leq 16$) ≤ 250 ($16 < N \leq 64$) ≤ 350 ($64 < N \leq 144$) ≤ 500 ($144 < N \leq 256$)	
Operating Temp.	°C	-5 ~ +70	
Storage Temp.	°C	-40 ~ +85	
Dimension (L×W×H)	mm	M1:34×24×11 $\pm$ 0.2 ($N \leq 16$, Bare Fiber) M2:60×24×11 $\pm$ 0.2 ($N \leq 16$, Loose Tube) M3:90×55×12 $\pm$ 0.2 ($16 < N \leq 64$, Loose Tube) M4:100×100×12 $\pm$ 0.2 ($64 < N \leq 144$, Loose Tube) M5:110×141×12 $\pm$ 0.2 ($144 < N \leq 256$, Loose Tube)	

Note: 1. Within operating temperature and all SOP.

2. Excluding connector, and add 0.3dB IL for a pair of connectors.

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■ Specifications (Multi-Mode)

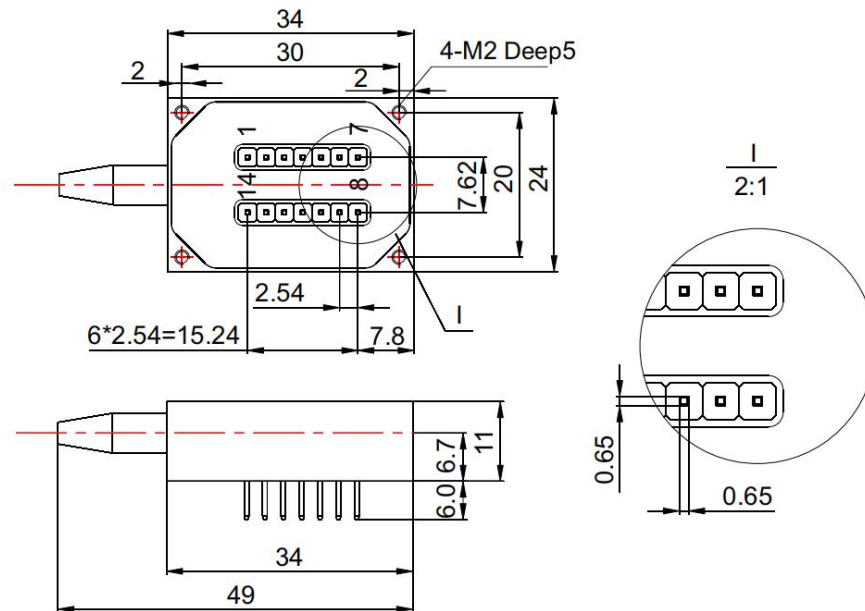
Parameters	Unit	MFSW-1×N-MM	
Working Wavelength	nm	850±20, 1310±20, 1400~1700	
Testing Wavelength	nm	850 / 1310 / 1550	
Insertion Loss	dB	N≤8	≤1.0 (A Grade), ≤0.8 (P Grade)
		8<N≤64	≤1.8 (A Grade), ≤1.6 (P Grade)
		64<N≤128	≤3.2 (A Grade), ≤3.0 (P Grade)
WDL	dB	N≤8	≤0.3
		8<N≤64	≤0.4
		64<N≤128	≤0.6
PDL	dB	≤ 0.2	
Return Loss	dB	≥ 30	
Crosstalk	dB	≥ 30	
Repeatability	dB	≤ ±0.05	
Switching Time	ms	≤ 15	
Durability	times	≥ 10 ⁹	
Input Optical Power	mW	≤ 500	
Operating Voltage	V	DC 5V±10%	
Operating Current	mA	≤50 (N≤8)	
		≤250 (8<N≤32)	
		≤450 (32<N≤96)	
		≤550 (96<N≤128)	
Operating Temp.	°C	-5 ~ +70	
Storage Temp.	°C	-40 ~ +85	
Dimension (L×W×H)	mm	M1:34×24×11 ±0.2 (N≤16,Bare Fiber) M2:60×24×11 ±0.2 (N≤16,Loose Tube) M3:90×55×12 ±0.2 (16<N≤64,Loose Tube) M4:100×100×12 ±0.2 (64<N≤144,Loose Tube) M5:110×141×12 ±0.2 (144<N≤256,Loose Tube)	

Note: 1. Within operating temperature and all SOP.

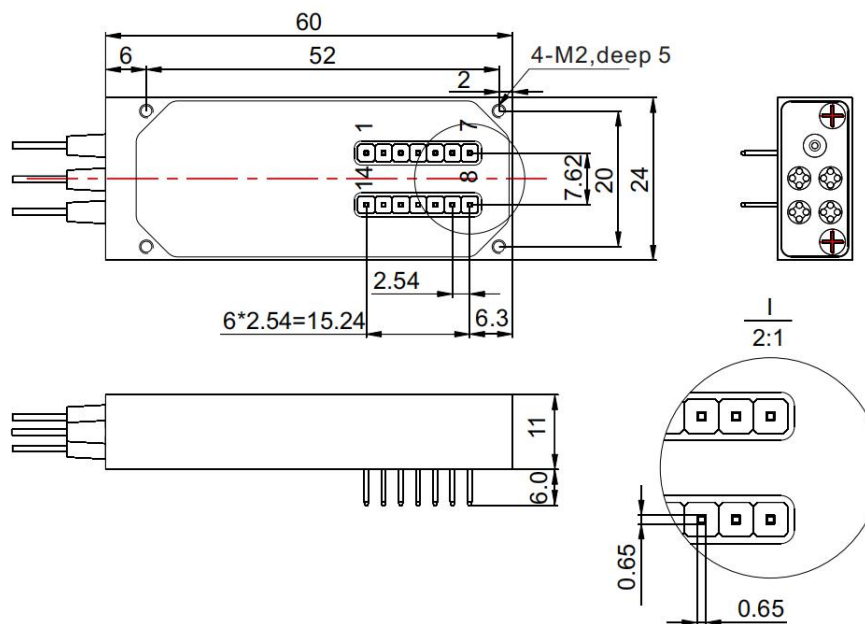
2. Excluding connector, and add 0.3dB IL for a pair of connectors.

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■ Dimension

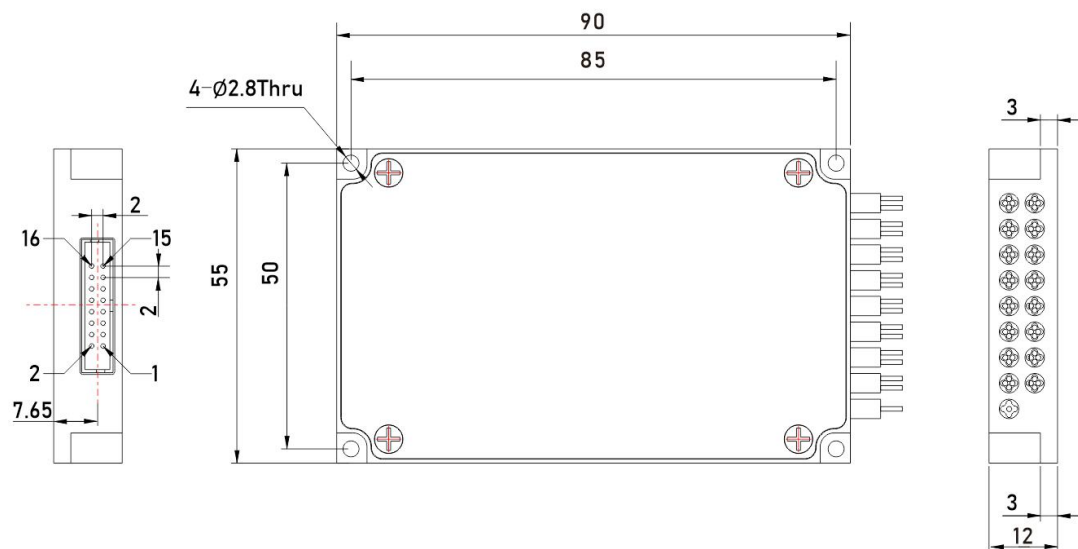


M1: 34×24×11mm

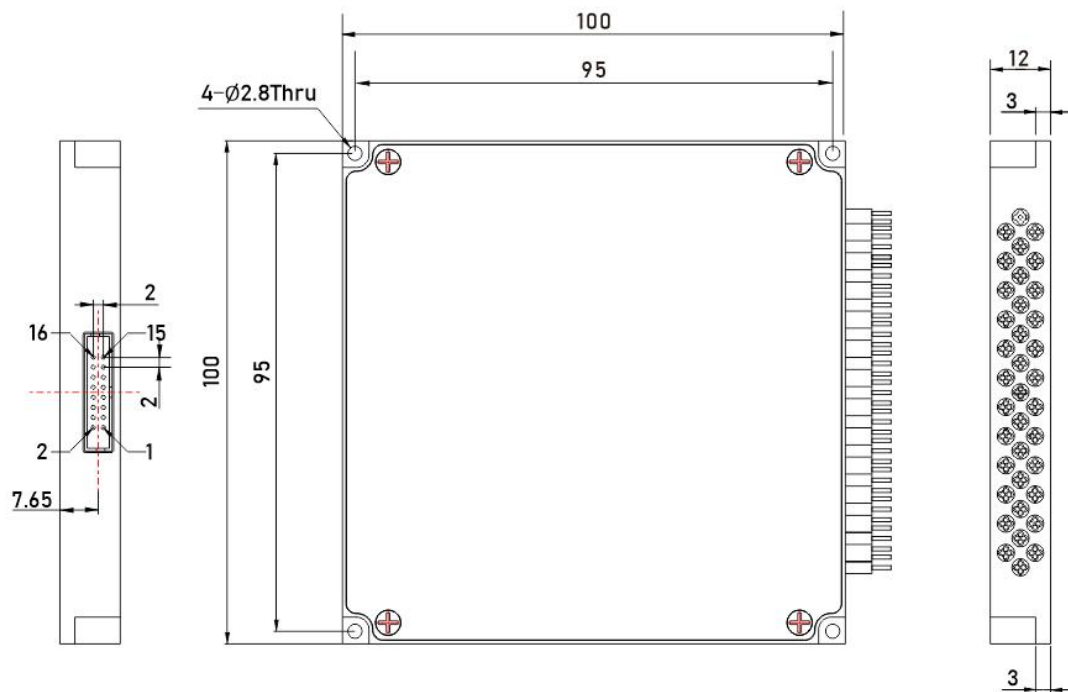


M2: 60×24×11mm

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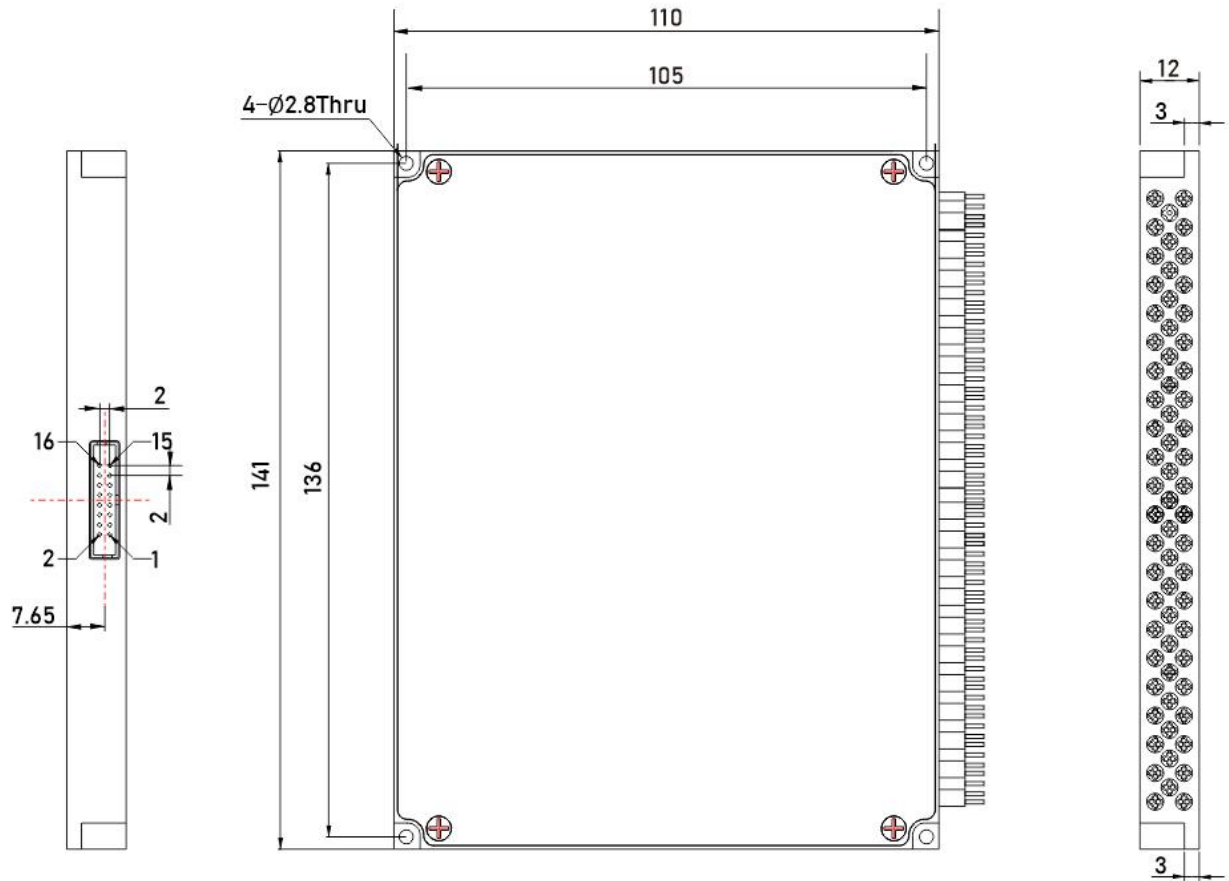


M3: 90×55×12mm



M4: 100×100×12mm

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M5: 110×141×12mm

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■ Pin Configuration

Pin No.		Pin Assignment	Signal Type	Description
M1/M2	M3/M4/M5			
5	1	D0	Input	Data bit (D0) (low-order)
	2	D5	Input	Data bit (D5)
2	3	VCC	Power	Power Supply (DC 5V,1.0A)
	4	D7	Input	Data bit (D7) (high-order)
	5	D6	Input	Data bit (D6)
4	6	GND	Power	GND
	7	D4	Input	Data bit (D4)
6	8	D1	Input	Data bit (D1)
9	9	TXD	Output	Data Transmit (TTL Level)
10	10	RXD	Input	Data Receive (TTL Level)
7	11	D2	Input	Data bit (D2)
8	12	D3	Input	Data bit (D3)
12	13	/BUSY	Output	Low level means ready to reset or receiving data
	14	/ALARM	Output	High level means running error
3	15	/STROBE	Input	Falling edge execution data bit
14	16	/RESET	Input	Low level reset to channel 0
11		GND	Power	GND
13		MODE		Low level: data bit control switch. High level: UART control switch
1		NC		No connection

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■ Ordering Information: MEMS 1×N-A-B-C-D-E-F-G

A	
Code	Wavelength
S	Single Mode
M	Multi-Mode

B	
Code	Wavelength
85	850nm
13	1310nm
14	1490nm
15	1550nm
162	1625nm
165	1650nm
13/15	1310/1550nm
X	other

C	
Code	Dimension
M1	34×24×11
M2	60×24×11
M3	90×55×12
M4	100×100×12
M5	110×141×12
X	other

D	
Code	Fiber Type
5	50/125
6	62.5/125
9	9/125
X	other

E	
Code	Fiber Dimension
25	Ø0.25mm
9	Ø0.9mm
X	other

F	
Code	Fiber Length
05	0.5m
10	1.0m
X	other

G	
Code	Connector
00	None
FP	FC/UPC
FA	FC/APC
SP	SC/UPC
SA	SC/APC
LP	LC/UPC
LA	LC/APC
X	other