

MEMS 1×N Optical Switch Module

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■ Features

- > Modular Design
- > Fast Switching Time
- > Low IL, Good Repeatability
- > High Reliability and stability

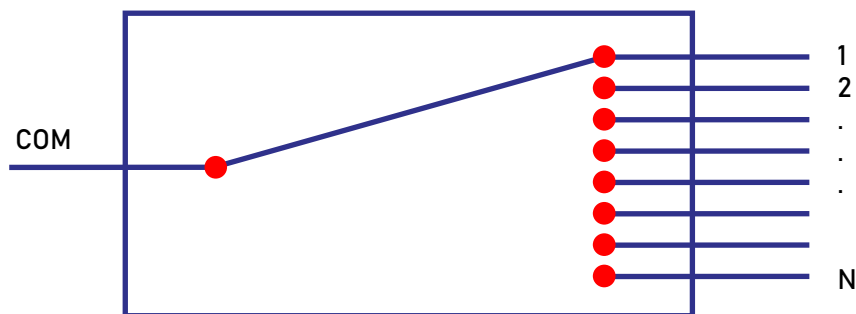
■ Application

- > MAN
- > Data Center
- > Fiber Sensing and Monitoring
- > Instrumentation

■ Compliance

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

■ Optical Route



MEMS 1×N Optical Switch Module

Specifications (Single Mode)

Parameters	Unit	MEMS 1×N-SM	
Working Wavelength	nm	O/C/L/L+ band	
Testing Wavelength	nm	1310/1550/1625/1650	
Insertion Loss	dB	@CWL Single-band	@CWL Dual-band
		≤0.8 (N≤8)	≤1.0 (N≤8)
		≤1.0 (8<N≤16)	≤1.2 (8<N≤16)
		≤1.3 (16<N≤32)	≤1.5 (16<N≤32)
		≤1.5 (32<N≤64)	≤1.7 (32<N≤64)
		≤2.0 (64<N≤144)	≤2.2 (64<N≤144)
		≤2.2 (144<N≤256)	≤2.4 (144<N≤256)
WDL	dB	≤0.3 (N≤64) ≤0.4 (64<N≤144) ≤0.5 (144<N≤256)	
PDL	dB	≤0.15	
Return Loss	dB	≥45	
Crosstalk	dB	≥50	
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≤16)	
		≤250 (16<N≤64)	
		≤350 (64<N≤144)	
		≤500 (144<N≤256)	
Operating Temp.	°C	-20 ~ +85	
Storage Temp.	°C	-40 ~ +85	
Dimension (L×W×H)	mm	M1: 34×24×11 ±0.2 (N≤64, 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)	

1. Within operating temperature and all SOP.
2. Excluding connector.
3. WDL is measured in a ±20nm range at 23°C.

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Specifications (Multi-Mode)

Parameters	Unit	MEMS 1×N-MM	
Working Wavelength	nm	850±30, 1310±30	
Testing Wavelength	nm	850/1310	
Insertion Loss	dB	@CWL Single-band	@CWL Dual-band
		≤0.8 (N≤12)	≤1.0 (N≤12)
		≤1.0 (12<N≤16)	≤1.2 (12<N≤16)
		≤1.8 (16<N≤128)	≤2.0 (16<N≤128)
WDL	dB	≤0.3 (N≤16)	
		≤0.4 (16<N≤128)	
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≤16)	
		≤250 (16<N≤64)	
		≤350 (64<N≤128)	
Operating Temp.	°C	-20 ~ +85	
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≤128, Loose Tube)	

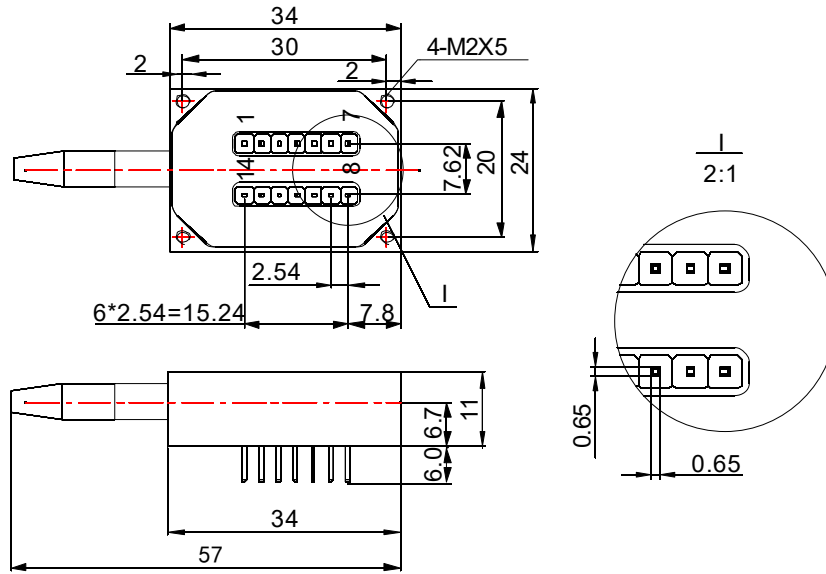
1. Within operating temperature and all SOP.

2. Excluding connector.

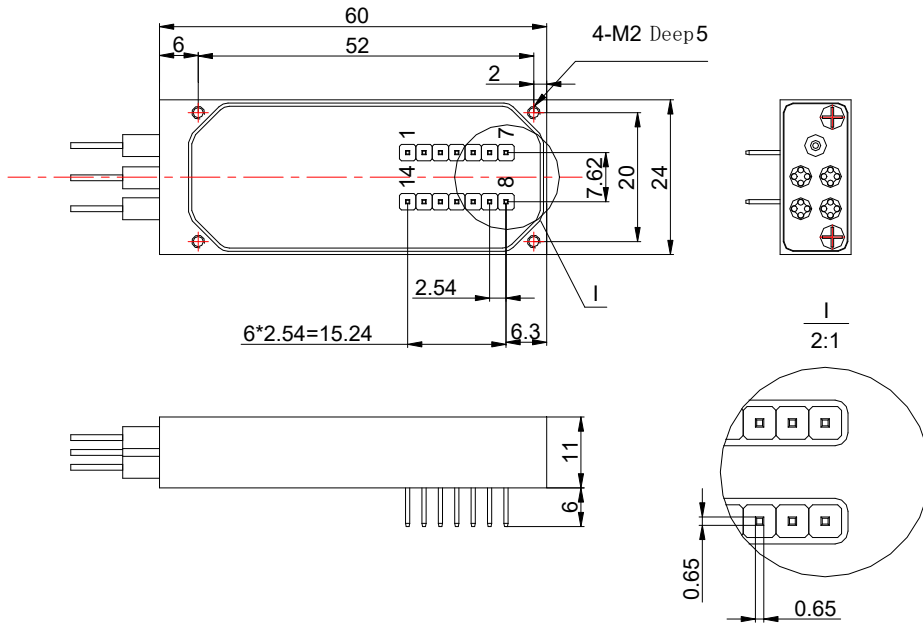
3. WDL is measured in a ±20nm range at 23°C.

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Dimension

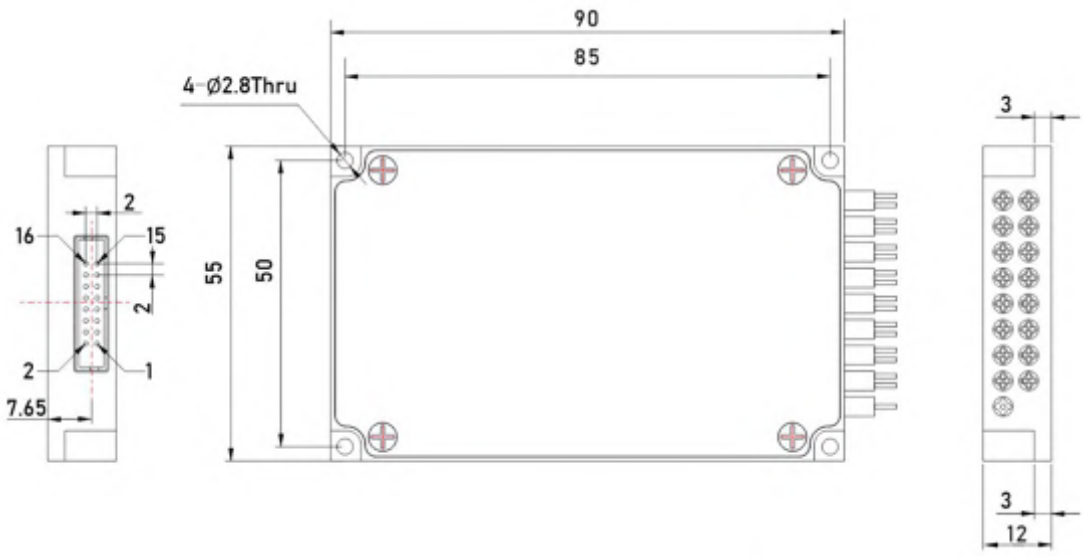


M1: 34×24×11mm

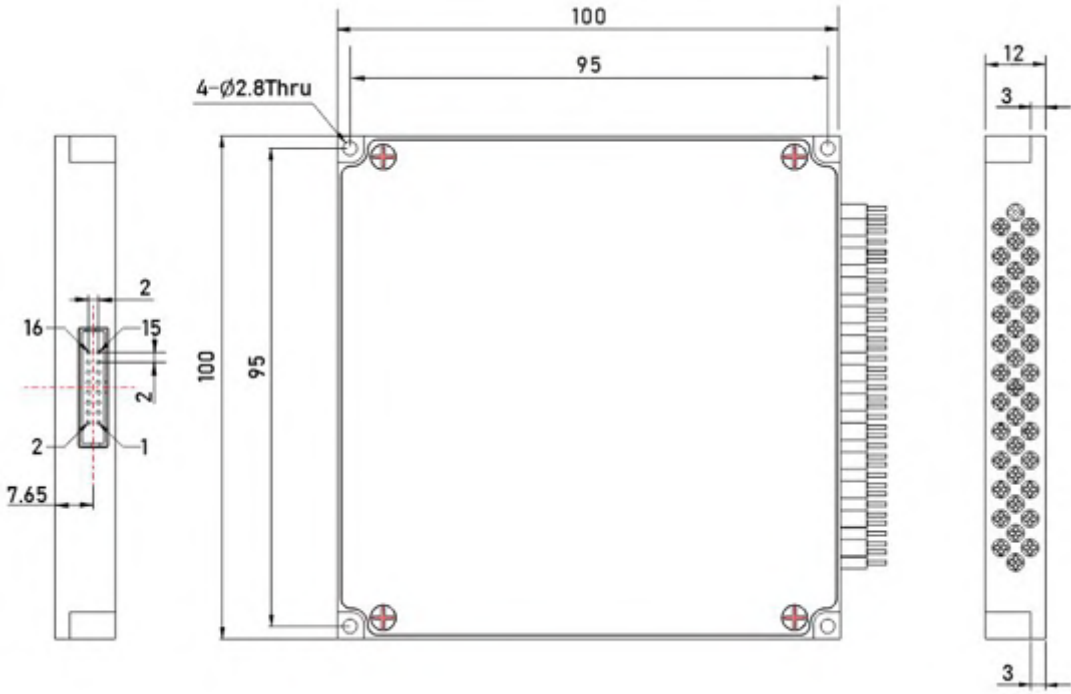


M2: 60×24×11mm

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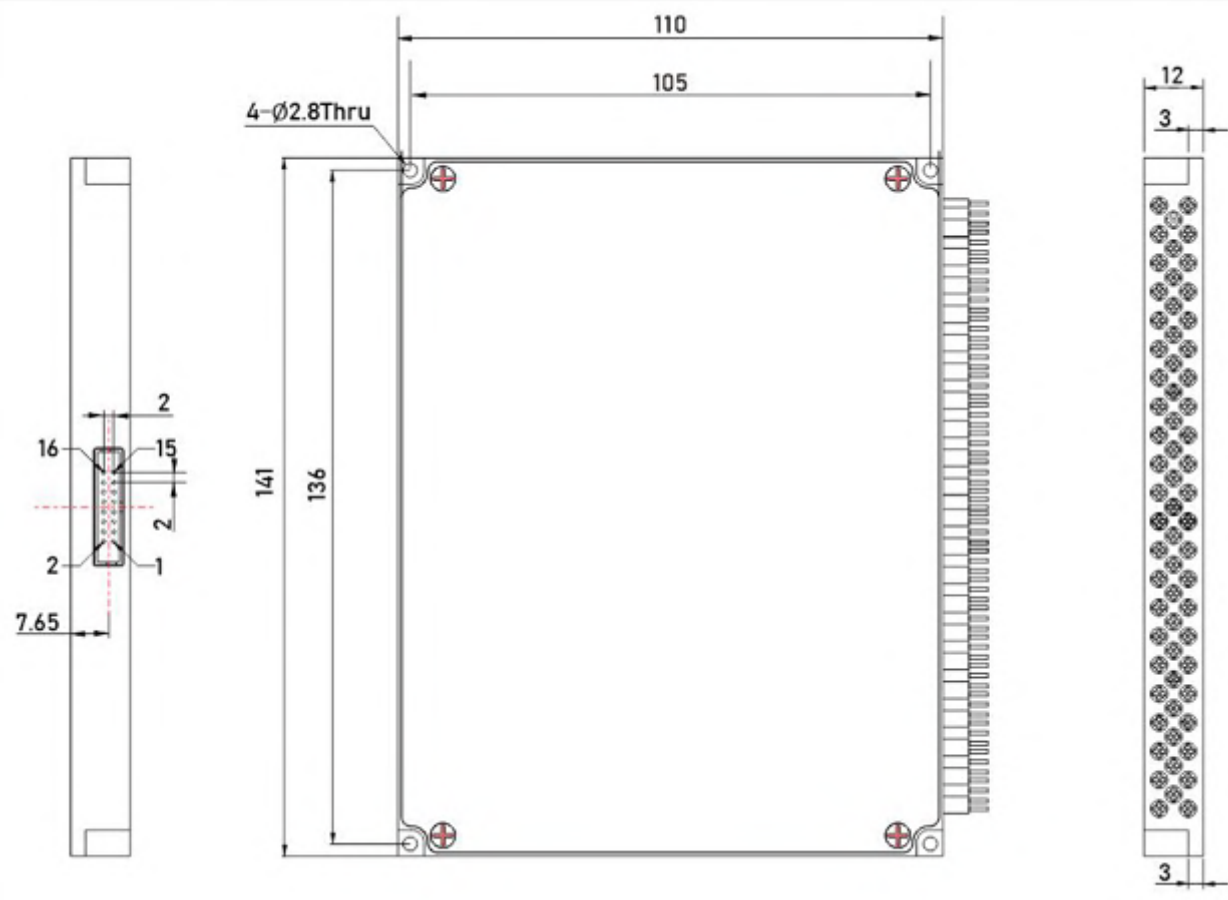


M3: 90×55×12mm



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

Notes:

1. The electrical interfaces of M3, M4 and M5 modules is Molex 87833-1620. Molex 87568-1694 connector is recommended.
2. Only the serial port is available if the number of channels exceeds 16 when using M1 and M2.

MEMS 1×N Optical Switch Module

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

A	
Code	Mode
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	34×24×11mm
M2	60×24×11mm
M3	90×55×12mm
M4	100×100×12mm
M5	110×141×12mm
X	other

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

E	
Code	Fiber Dimension
025	Φ0.25mm
09	Φ0.9mm
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
MP	MPO
X	other

F	
Code	Fiber Length
05	0.5m
10	1.0m
15	1.5m
X	other