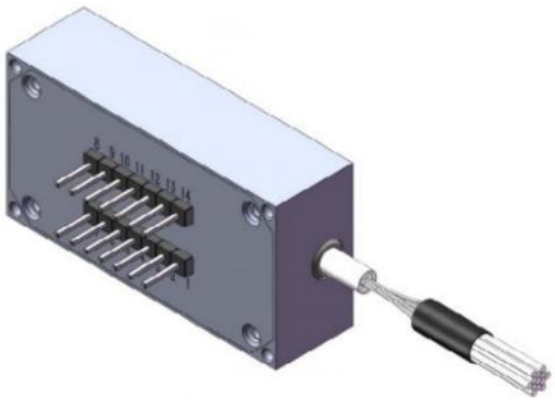
1x4 Multimode MEMS Optical Switch (Module)



Product Description

Idealphotonics's MEMS 1x4 optical switch is an optical switch based on MEMS (Micro Electro Mechanical Systems) technology that allows channel selection between a single input light and four output lights. It has the characteristics of small size, long lifespan, and stable reliability, and is widely used in optical network fields such as OADM and OXC.

Product features

MEMS technology; multimode fiber support; low insertion loss; modular design; stable and reliable

Part Number

MP-OSW-1550-MS10-14-MI

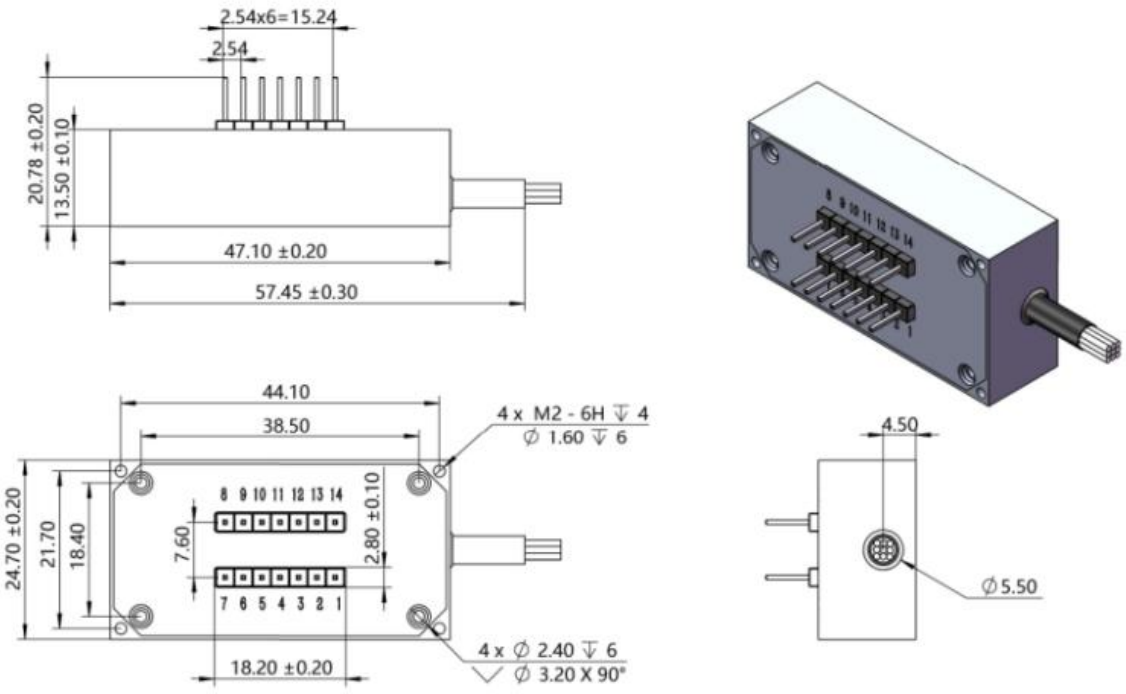
Application area

Industrial Fiber Optics | Medical Lasers | Multimode Sensing | Test and Measurement Applications | Optical Path Switching Control

Core parameters

Wavelength	CH	Fiber Type
1550±30nm	4	Multimode OM1

Dimension Drawing



General Parameters

11	BUSY	Busy signal, high level indicates busy	Output	TTL
12	ALARM	Alarm signal, high level indicates module initialization abnormality/high temperature	Output	TTL
13	STROBE	Parallel port selection signal, falling edge valid	Input	TTL(default high level)
14	RESET	Hardware reset, low level valid	Input	TTL

1.Application Environment

Parameters	unit	Min	Max
Storage temperature	℃	-40	85
Operating temperature	℃	-5	70
Operating relative humidity	%RH	5	95
Electrostatic voltage (human body model)	V	500	
Maximum operating optical power	mw		500

2. Optical specifications

Parameters	Unit	Specification

Parameters	Unit	Specification
Fiber type	--	Multimode OM1
Number of channels	CH	4
Wavelength	nm	1550±30
Loss	dB	≤0.9
Return loss	dB	≥30
Repeatability	dB	0.03dB Max
Crosstalk	dB	≥25
Polarization-dependent loss	dB	≤0.15
Wavelength-dependent loss	dB	≤0.3@CWL±30nm , 23°C
Temperature-dependent loss	dB	≤0.3
Response time	ms	≤10
Switching life	Cycle	≥1×109
Drive voltage	V	5~12
Interface control type	TTL parallel port	

Note:

1. The above test loss (IL) is based on the test results at 23°C

2. The repeatability data is based on the results of 100 cycle repeated tests

3. Hardware Definition

Pin is defined as follows:

Pin	Title	Description	Input/Output	Special Requests
1	D0	Parallel port data 0	Input	TTL (default high level)
2	D3	Parallel port data 3	Input	TTL (default high level)
3	D4	Parallel port data 4	Input	TTL (default high level)
4	VIN	Power input	Input	DC 5V~12V

Pin	Title	Description	Input/Output	Special Requests
5	GND	Device ground	Input	
6	D5	Parallel port data 5	Input	TTL (default high level)
7	D2	Parallel port data 2	Input	TTL (default high level)
8	TX	Serial port send	Output	TTL
9	RX	Serial port receive	Input	TTL
10	D1	Parallel port data 1	Input	TTL
11	BUSY	Busy signal, high level indicates busy	Output	TTL
12	ALARM	Alarm signal, high level indicates module initialization abnormality/high temperature	Output	TTL
13	STROBE	Parallel port selection signal, falling edge valid	Input	TTL (default high level)
14	RESET	Hardware reset, low level valid	Input	TTL

Software format definition

1) UART parameters: 115200,8, 1,N

2) All sending commands end with

(Line feed

Command	*SW
Parameter	* SW ABC, 000 is the power-off state, 001 is the optical switch channel 1.
Return data	CHAN: ABC, PCB is not powered and there is no feedback data.
Example: * SW +ABC Send data: *SW001	

Command	*SW
Return data:	

Check product PN number

Command	*PN
Parameter	N/A
Return data	PN:AB.CD.EFGH
Example: Send data: *PN Return data:	

Check product SN number

Command	*SN
Parameter	N/A
Return data	SN:ABCDEFGHIJ
Example: Send data: *SN Return data:	

Software format definition

3) Parallel communication interface description

The 14-pin module has 6 TTL control pins (D0~D5) and can control up to 64 channels.

Use TTL to control the D0~Dx pins to select channels, no triggering is required.

See the table below for channel selection definitions

Channel selection	D5	D4	D3	D2	D1	D0
Channel 1	0	0	0	0	0	0
Channel 2	0	0	0	0	0	1
Channel 3	0	0	0	0	1	0
Channel 4	0	0	0	0	1	1
Channel 5	0	0	0	1	0	0
Channel 6	0	0	0	1	0	1
Channel 7	0	0	0	1	1	0
Channel 8	0	0	0	1	1	1
…						
Channel 64	1	1	1	1	1	1

4. Pigtails and connectors

Parameters	Specifications
Fiber type	OM1, 62.5/125, 0.9mm white loose tube
Fiber length/tolerance	1+/-0.05m
Connector	FC/APC