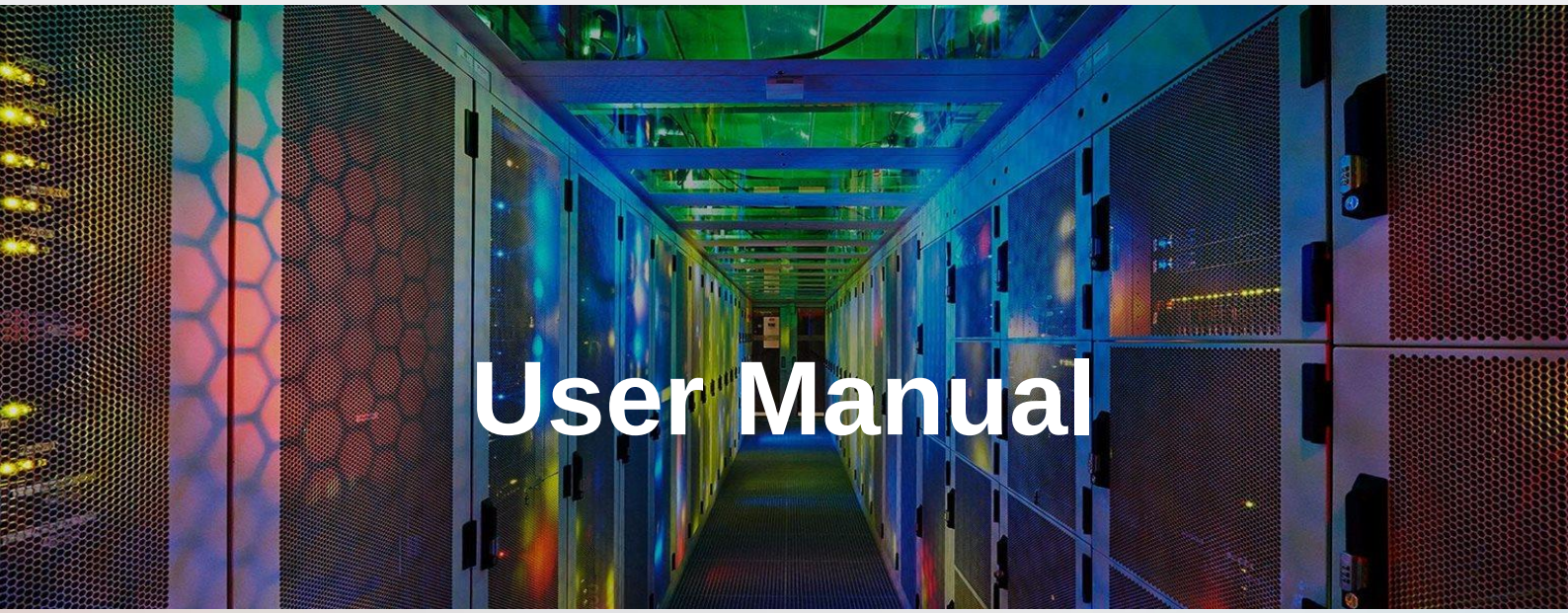
1×N Optical Switch

Polarization-Maintaining (PM) Fiber, TTL Version



User Manual

This user manuals (PDF files) can be downloaded from the Lfiber website.

www.lfiber.com

1×N Polarization-Maintaining (PM) Optical Switch

FEATURES

- ✓ Low Insertion Loss and High Reliability
- ✓ Parallel Interface (TTL)
- ✓ Modularized Design
- ✓ Functions of Breakdown Self-checking and Alarm Warning

APPLICATIONS

- ➢ Optical Signal Switching and Routing
- ➢ Optical Network Monitoring
- ➢ Testing of Fiber Optic Component
- ➢ Military Communications

Specifications of the Polarization-Maintaining (PM) Optical Switch	
Channel Number (N)	1×N (N ≤ 16)
Fiber Type	Panda PM fibers
Insertion Loss (dB)	Typ: 0.5; Max: 0.8
Extinction Ratio (dB)	≥ 20
Operating Wavelength (nm)	1300-1590
Testing Wavelength (nm)	1310 or 1550
Return Loss (dB)	≥ 50
Crosstalk (dB)	≥ 70
Wavelength Dependent Loss (dB)	≤ 0.25
Temperature Dependent Loss (dB)	≤ 0.25
Repeatability (dB)	≤ 0.02
Lifetime (cycles)	10^7
Switching Time (ms)	≤ 8 (adjacent channel)
Power Handling (mW)	≤ 500
Power Supply	5V / 500mA
Control Mode	TTL
Connector	FC, LC, SC, ST, MPO, etc.
Operating Temperature (℃)	-20 to +70
Storage Temperature (℃)	-40 to +85
Dimension (mm)	80 × 40 × 32 mm (channel amount ≤ 8) 135 × 64 × 32 mm (channel amount ≤ 16)

Notes:

1. For requests please see the ordering information section and specify the number of channels, operating wavelengths, control mode, connector types, etc.
2. Unless otherwise specified, the slow axis of the fiber is aligned with the key of the PM fiber connector.
3. This PM optical switch can be installed in 1U units on standard 19-inch racks. We offer customization upon request if needed.
4. The above data are test results with connectors assembled.
5. The polarization-maintaining (PM) optical switch is customizable and above specifications are subject to change without notice.
6. For product customization or special requirements, please contact Lfiber's sales representative.

Pin Configurations of the Polarization-Maintaining (PM) Optical Switch

ZH 1.5mm 9P or DB-9 Male Connector

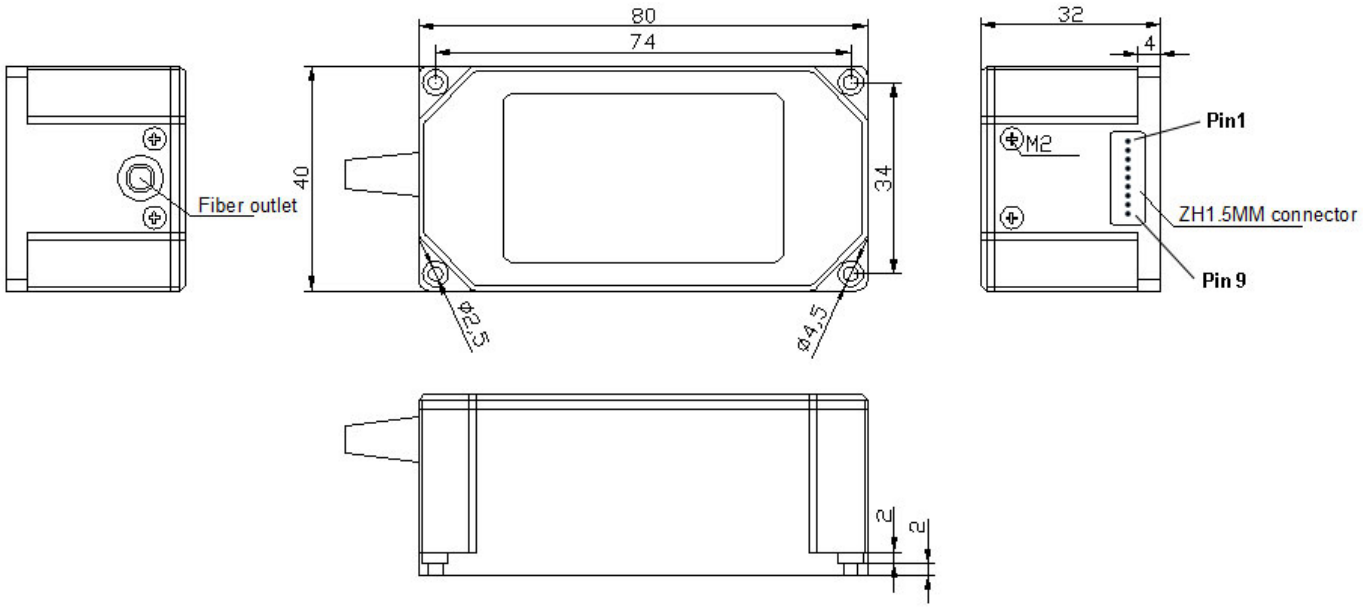
Pin No.	I / O	Signal	Descriptions
1	Input	D0	D0-D3 represent channel selection Bit0-Bit3; D0 is low; D3 is high.
2	Input	D1	
3	Input	D2	
4	Input	D3	
5	Input	RESET	TTL, Low level reset to channel 0. High level means channel selection bits are effective.
6	Out	READY	TTL, Ready (High = not ready, Low = ready)
7	Out	ERROR	TTL, Error OR Failure , (High = error, Low = no error)
8	Power	GND	Ground
9	Power	VCC	5.0±5% VDC Power Supply (max 500mA)

Channel Selection Table of the Polarization-Maintaining (PM) Optical Switch

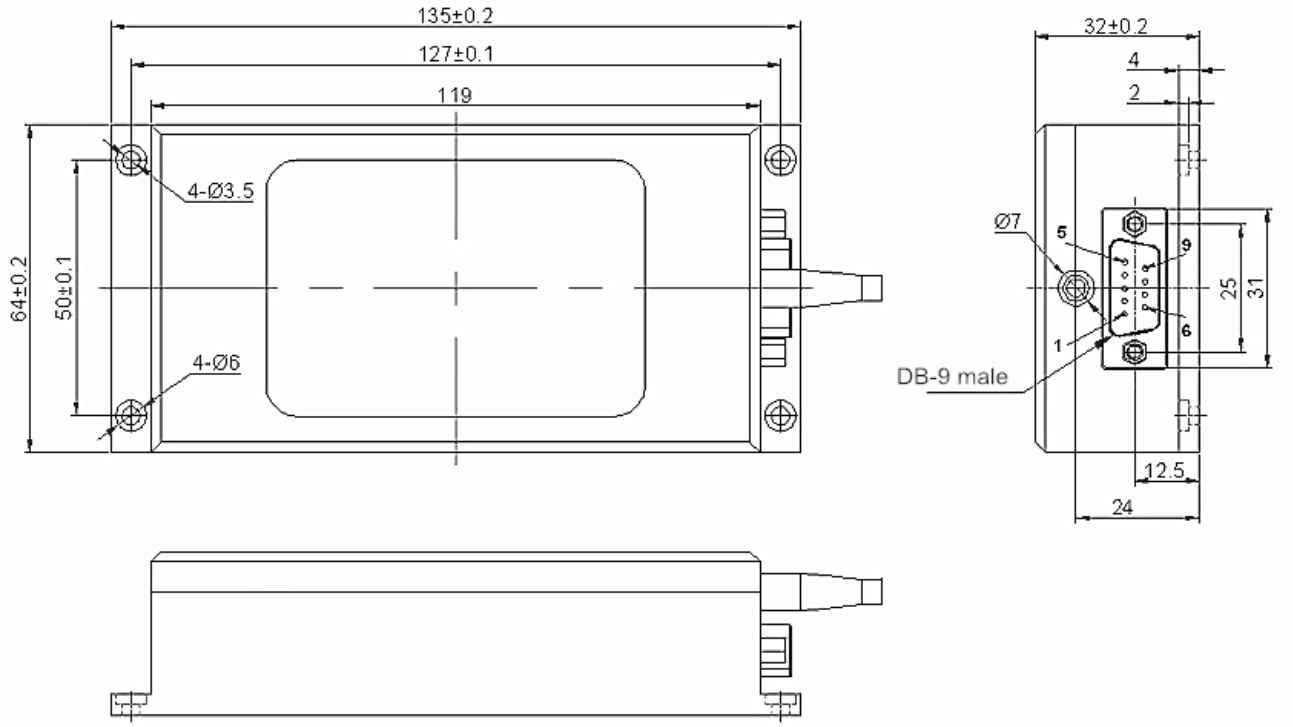
Channel	D0	D1	D2	D3	RESET
COM-0	x	x	x	x	0
COM-1	0	0	0	0	1
COM-2	1	0	0	0	1
COM-3	0	1	0	0	1
...	...	...	...	...	1
COM-14	1	0	1	1	1
COM-15	0	1	1	1	1
COM-16	1	1	1	1	1

Dimension of the Polarization-Maintaining (PM) Optical Switch

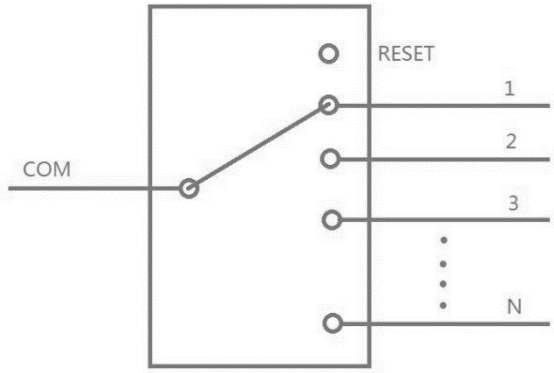
Port/Channel Amount (N) ≤ 8



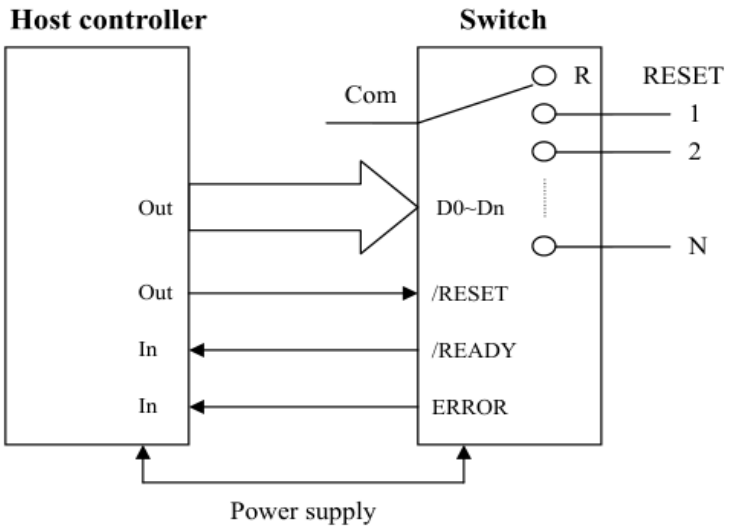
Port/Channel Amount (N) ≤ 12



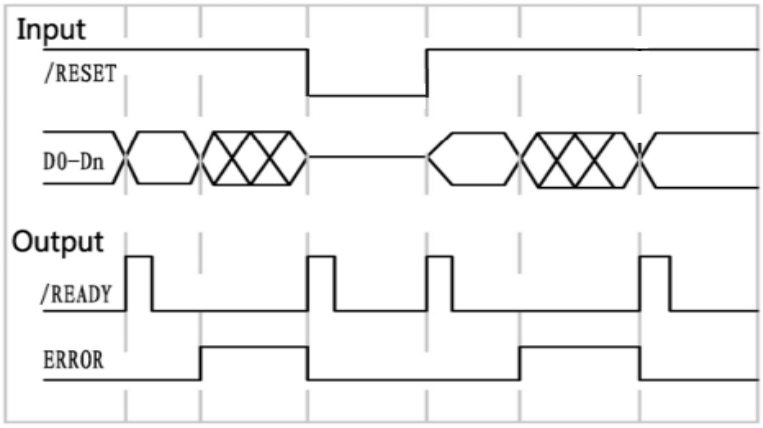
Optical Route of the Polarization-Maintaining (PM) Optical Switch



Control Chart of the Polarization-Maintaining (PM) Optical Switch



Timing Diagram of the Polarization-Maintaining (PM) Optical Switch



Operating Instructions

(1) Lfiber's polarization-maintaining (PM) optical switch has TTL/CMOS parallel interface. To distinguish from each other, there is a mark of a number for each of the connectors. The switch is bidirectional in operation.

(2) The PM optical switch can be controlled via TTL/CMOS parallel interface with a DB-9 connector. See the Pin Specifications and Control Chart to set the connection correctly before operations.

(3) When supply power to the switch, it will reset the 0 channel. When /READY and ERROR signals become low, the switch is ready for the data or the reset signal.

(4) Channel Selection: Set /READY signal high and then connect the data lines to select the channel. Whenever the data exceed N (the max channel of the switch), the ERROR signal becomes high, until a correct data occurred or RESET signal is given. The switch will monitor the data lines, and switch to the position specified by the data lines.

(5) Reset Operation: Set /RESET signal low, and the device will switch to the open position. /READY and ERROR signals become low after reset operation. Never try to keep /RESET signal low all the time otherwise the switch will repeat the reset operation until the signal goes high. The low level on the /RESET pin should not exceed 20ms.

(6) The /READY signal keeps high when the switch is in operation (switching) and it becomes low after operations. The ERROR signal keeps high when an invalid data appears on the data line and it becomes low after reset operation or input a valid data. To understand the device's operation situation, the /READY and ERROR signal should be monitored although D0~D3 data lines are enough for the simplest application.

Ordering Information for the Polarization-Maintaining (PM) Optical Switch

	Port/Channel Number	Test Wavelength	Fiber Type	Control Mode	Fiber Length	Connector
1xN Polarization-Maintaining (PM) Optical Switch	1×N (N ≤ 16) Custom …	1310 nm 1550 nm Custom …	Panda PM fibers	TTL	0.50 m 1.00 m 1.50 m Custom …	None LC/UPC LC/APC SC/UPC SC/APC FC/UPC FC/APC MPO Male MPO Female Custom …