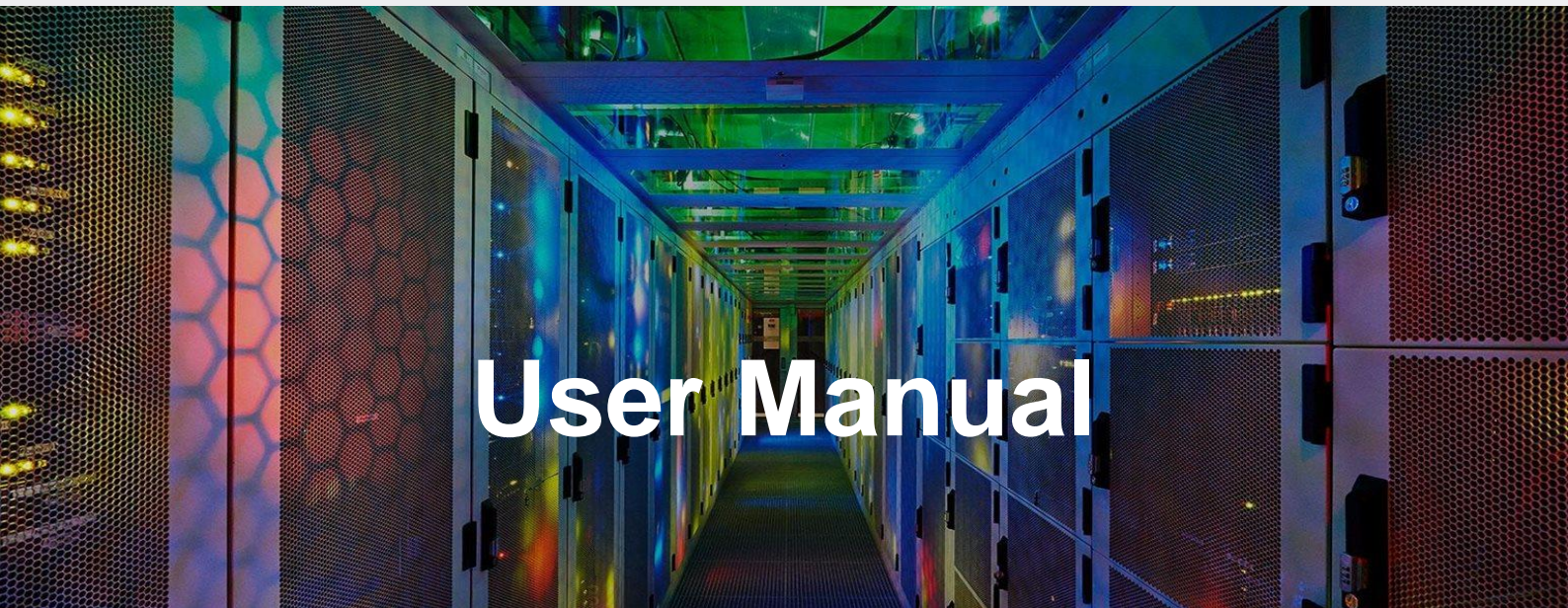


PM Fiber Optical Switches

Panda Polarization-Maintaining Fiber, VIS-NIR Spectrum, TTL Version

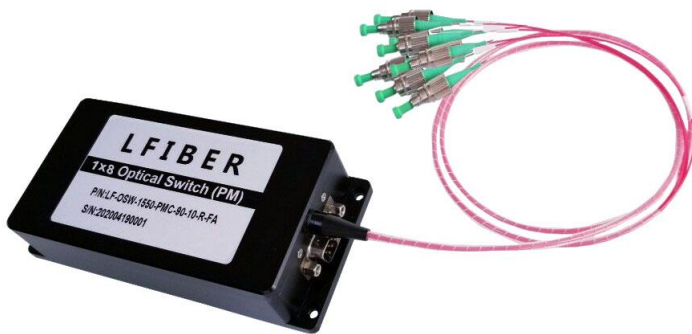


User Manual

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

www.lfiber.com

1×N Polarization-Maintaining (PM) Fiber Optical Switches



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
- OTDR Testing

Specifications of the Polarization-Maintaining (PM) Fiber Switches

Number of Channels (N)	1×N (N ≤ 16) or other channel counts on request
Fiber Type	Panda PM fibers
Insertion Loss (dB)	≤ 2.0 dB @ 430-670 nm ≤ 1.5 dB @ 780-1250 nm ≤ 1.0 dB @ 1260-1590 nm ≤ 1.5 dB @ 1600-2000 nm
Extinction Ratio (dB)	≥ 20 dB @ 1260-1590 nm
Operating Wavelength Range (nm)	430-2000 nm on request
Testing Wavelength (nm)	405, 450, 480, 532, 650, 780, 850, 980, 1310, 1490, 1550, 1625, 1650, etc.
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 (°C)	-20 to +70
Storage Temperature (°C)	-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 wavelength range, control mode, etc.



Optical Components, Fiber Optic Devices, Modules, and more.

More support, visit: www.lfiber.com

Email: sales@lfiber.com

2. Typically, the operating wavelengths of the polarization maintaining (PM) fiber switches include, but are not limited to, 405nm, 444nm, 445nm, 447nm, 450nm, 454nm, 457nm, 460nm, 462nm, 465nm, 470nm, 473nm, 480nm, 484nm, 488nm, 490nm, 491nm, 501nm, 505nm, 509nm, 510nm, 514nm, 515nm, 520nm, 522nm, 523nm, 526nm, 530nm, 532nm, 540nm, 543nm, 550nm, 552nm, 555nm, 556nm, 561nm, 577nm, 588nm, 589nm, 593.5nm, 594nm, 600nm, 604nm, 607nm, 612nm, 622nm, 627nm, 630nm, 632nm, 633nm, 635nm, 637nm, 638nm, 640nm, 642nm, 647nm, 650nm, 655nm, 656nm, 660nm, 665nm, 666nm, 670nm, 671nm, 680nm, 685nm, 688nm, 689nm, 690nm, 698nm, 705nm, 721nm, 730nm, 750nm, 760nm, 770nm, 780nm, 785nm, 786nm, 790nm, 793nm, 795nm, 800nm, 808nm, 810nm, 825nm, 830nm, 835nm, 845nm, 850nm, 852nm, 860nm, 879nm, 880nm, 885nm, 905nm, 914nm, 915nm, 930nm, 935nm, 938nm, 940nm, 946nm, 960nm, 965nm, 975nm, 976nm, 980nm, 1030nm, 1035nm, 1040nm, 1047nm, 1053nm, 1055nm, 1060nm, 1064nm, 1080nm, 1085nm, 1105nm, 1112nm, 1120nm, 1122nm, 1177nm, 1208nm, 1268nm, 1275nm, 1300nm, 1310nm, 1313nm, 1319nm, 1320nm, 1342nm, 1380nm, 1392nm, 1410nm, 1413nm, 1444nm, 1450nm, 1470nm, 1475nm, 1480nm, 1490nm, 1528nm, 1532nm, 1540nm, 1550nm, 1558nm, 1560nm, 1565nm, 1570nm, 1573nm, 1590nm, 1600nm, 1605nm, 1610nm, 1625nm, 1645nm, 1700nm, 1710nm, 1720nm, 1750nm, 1850nm, 1870nm, 1900nm, 1910nm, 1920nm, 1940nm, 1950nm, 1990nm, and 2000nm.
3. Unless otherwise specified, the slow axis of the fiber is aligned with the key of the fiber connector.
4. Standard port/channel counts of the PM fiber optical switches: 1x2, 1x4, 1x8, 1x16, 1x24, 1x32, 1x48, 1x64, 1x128, etc. Other channel counts are also available on request.
5. Lfiber's PM fiber switches are customizable and the specifications are subject to change without notice.
6. For product customization or special requirements, please contact our sales representative.

Pin Configurations of the Polarization-Maintaining (PM) Fiber Switches

ZH 1.5mm 9P or DB-9 Male Connector

Pin No.	I / O	Signal	Description
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)

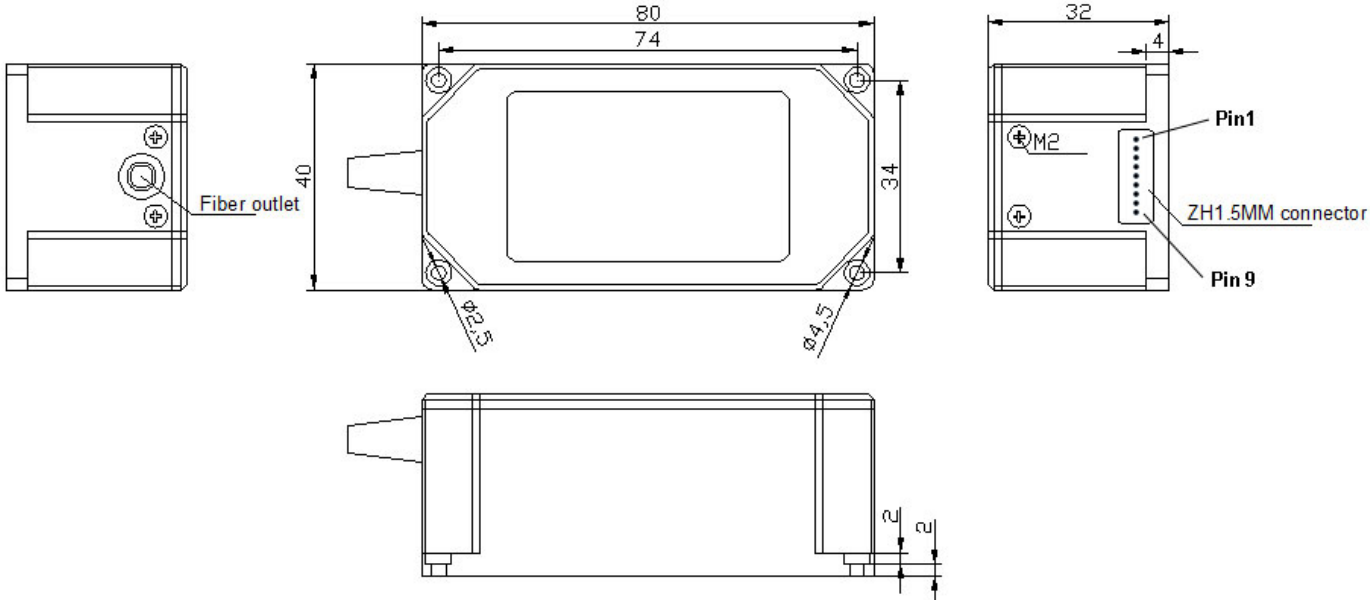
Channel Selection Table of the Polarization-Maintaining (PM) Fiber Switches

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

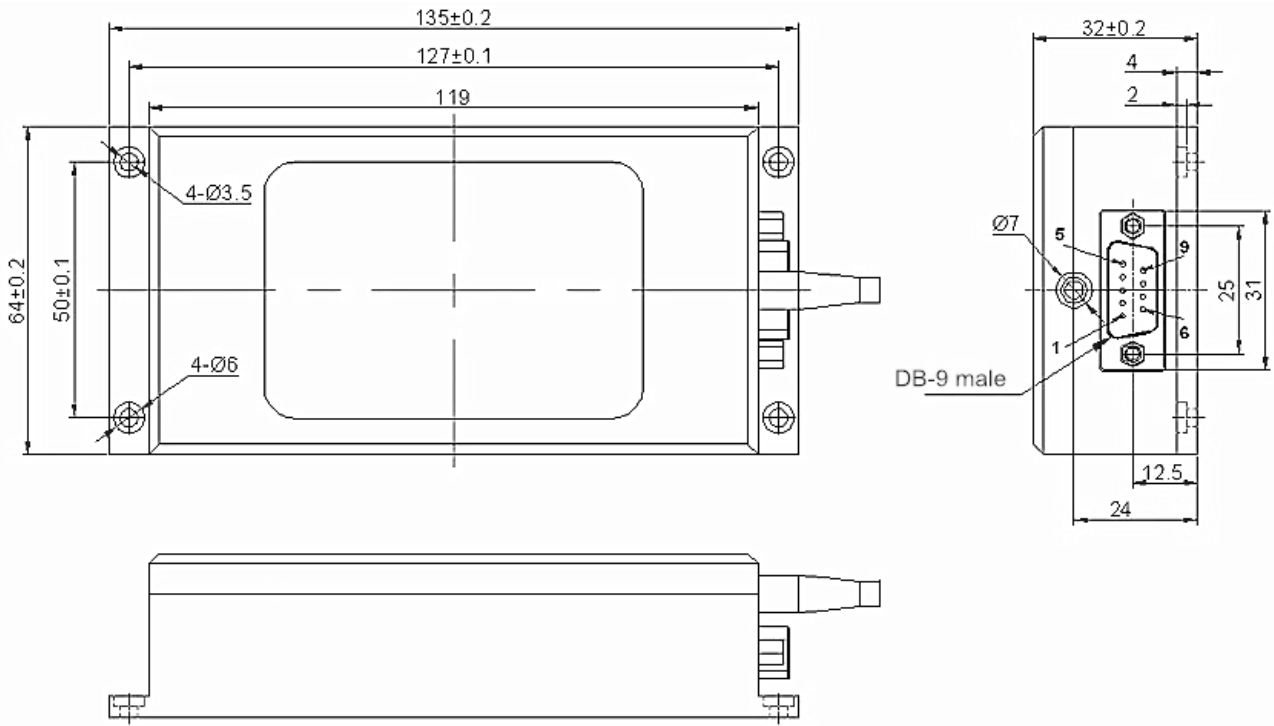


Dimension of the Polarization-Maintaining (PM) Fiber Switches

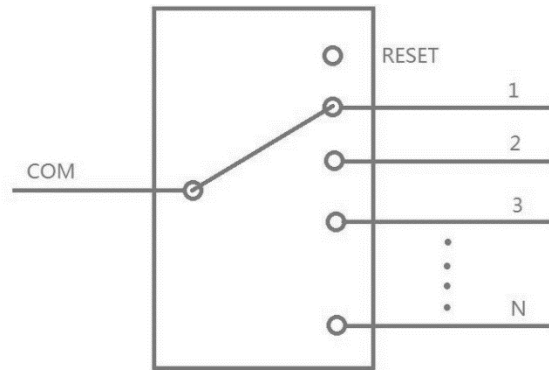
Port/Channel Amount (N) ≤ 8



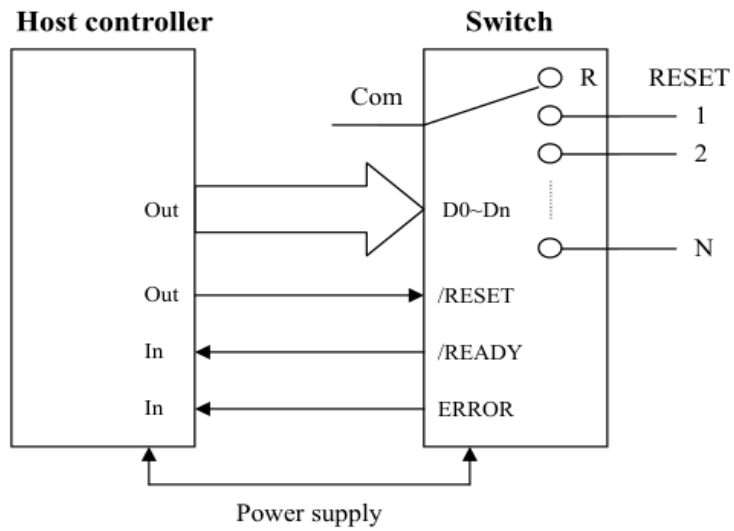
Port/Channel Amount (N) ≤ 16



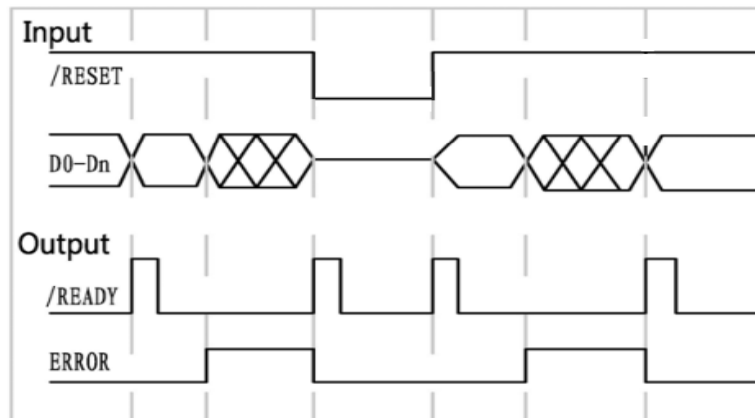
Optical Route of the Polarization-Maintaining (PM) Fiber Switches



Control Chart of the Polarization-Maintaining (PM) Fiber Switches



Timing Diagram of the Polarization-Maintaining (PM) Fiber Switches



Operating Instructions

(1) Lfiber's polarization-maintaining (PM) fiber switches have 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 fiber switches 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 PM fiber switches 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 PM fiber switches 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 PM fiber switches are 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) Fiber Switches

	Channels Amount	Operating Wavelength	Fiber Type	Control Mode	Fiber Length	Connector
1xN Polarization-Maintaining (PM) Fiber Switches	1x2	444 nm	Panda PM fibers	TTL	0.50 m	None
	1x4	450 nm			1.00 m	LC/UPC
	1x8	460 nm			1.50 m	LC/APC
	1x16	532 nm			Custom ...	SC/UPC
	Custom ...	630 / 632 / 633 nm				SC/APC
		635 / 637 nm				FC/UPC
		650 nm				FC/APC
		780 nm			MPO Male	
		793 nm			MPO Female	
		830 nm			Custom ...	
	835 nm					
	850 nm					



		905 nm		
		915 nm		
		935 nm		
		940 nm		
		980 nm		
		1064 nm		
		1080 nm		
		1300 nm		
		1310 nm		
		...		
		2000 nm		
		Custom ...		