

# LightBend™ 1x1, 1x2 PM OptoMechanical Fiberoptic Switch (Bidirectional)

(Protected by U.S. patent 6823102 and pending patents)

## Product Description

The LB series 1x2 PM fiber optic switch is a polarization-maintaining fiber switch, which connects optical channels by directing or blocking an incoming optical signal into the output fiber. This is achieved using a patent pending opto-machnical configuration and achieved via an electrical control signal. A latching version preserves the selected optical path after the drive signal has been removed, while the non-latching version defaults to either the open or close state when power is removed. The switches integrated electrical position sensors. The new material-based advanced design significantly reduces moving part position sensitivity, offering unprecedented high stability as well as an unmatched low cost. Electronic driver is available for this series of switches. The switch is bidirectional.

## Features

- Low Optical Distortions
- High Isolation
- High Reliability
- Fail-Safe Latching
- Epoxy-Free Optical Path

## Performance Specification

LB Series 1x2 PM Switch	Min	Typical	Max	Unit
Operation Wavelength	780, 850, 980, 1060, 1260-1360, 1510-1610			nm
Insertion Loss <sup>[1]</sup>		0.9	1.3	dB
Extinction Dependent Loss <sup>[1]</sup>	18			dB
Return Loss <sup>[1],[2]</sup>	55			dB
Cross Talk <sup>[1]</sup>	50			dB
Switching Time		3	10	ms
Repeatability			±0.05	dB
Durability	10 <sup>7</sup>			Cycle
Operating Voltage	4.5	5	6	VDC
Operating Current		30	60	mA
Voltage Pulse Width (Latching)	12	20		ms
Switching Type	Latching / Non Latching			
Operating Temperature	-5		70	°C
Storage Temperature	-40		85	°C
Optical Power Handling		300	500	mW
Fiber Type	Panda 400, Panda 250			

Note:

[1]. Exclude connectors.

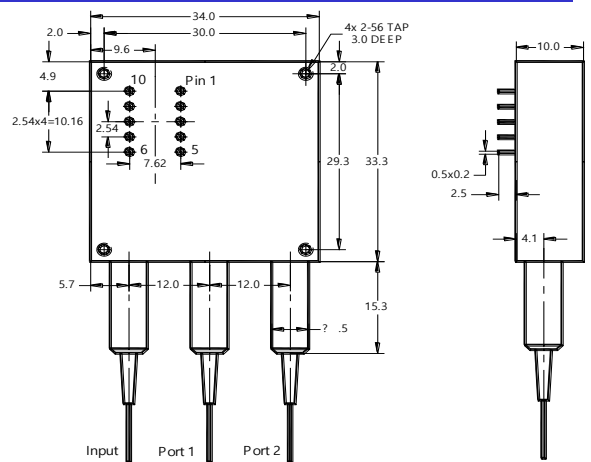
[2]. -40-+85°C is also available.

## Applications

- Fault Protection
- Channel Add/Drop
- Channel Switching
- Instrumentation

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## Mechanical Dimensions (Unit: mm)



## Electrical Driving Requirements

The load is a resistive coil which is activated by applying 5V (draw ~ 40mA). Applying too long pulse for the latching version will heat up the device. Agiltron offers a computer control kit with TTL and USB interfaces and Windows™ GUI. We also offer RS232 interface as an option - please contact Agiltron sales.

### Latching Type

Optical Path	Electrical Drive				Status Sensor			
	Pin 1	Pin 10	Pin 5	Pin 6	Pin2-3	Pin3-4	Pin7-8	Pin 8-9
Input → Port 1	5V Pulse	GND	N/A	N/A	Open	Close	Close	Open
Input → Port 2	GND	5V Pulse	N/A	N/A	Close	Open	Open	Close

### Non-Latching Type

Optical Path	Electrical Drive				Status Sensor			
	Pin 1	Pin 10	Pin 5	Pin 6	Pin2-3	Pin3-4	Pin7-8	Pin 8-9
Input → Port 1	5 V	GND	N/A	N/A	Open	Close	Close	Open
Input → Port 2	No Power		N/A	N/A	Close	Open	Open	Close

## Ordering Information

LBPM <sup>[1]</sup>	Type	Wavelength	Switch	Package	Fiber Type	Fiber Length	Connector
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	1x1 Latching=11 1x1 N/T <sup>[2]</sup> =1T 1x1 N/D <sup>[3]</sup> =1D 1x2=12 2x1=21 Special=00	1060=1 1310=3 1550=5 780=7 850 =8 980=9 Special=0	Latching=1 Non-latching=2	Standard=4 Special=0	Panda 400=A Panda 250=B Special=0	Bare fiber=1 900um loose tube=3 Special=0	0.25m=1 0.5m=2 1.0m=3 Special=0 None=1 FC/PC=2 FC/APC=3 SC/PC=4 SC/APC=5 ST/PC=6 LC=7 Duplex LC=8 Special=0

[1]. LBPM: LightBend PM Switch.  
 [2]. N/T: LB 1x1 PM Non-Latching Switch, Normally Transparent.  
 [3]. N/D: LB 1x1 PM Non-Latching Switch, Normally Dark.