

# LightBend™ 1x1, 1x2 PM OptoMechanical Fiberoptic Switch

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

## Product Description

The LB series 1x2 PM fiber optic switch has 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.



## Performance Specification

LB Series 1x1, 1x2 PM Switch	Min	Typical	Max	Unit
Operation Wavelength	850	1310, 1550		nm
Insertion Loss <sup>1</sup>		0.5	0.8	dB
Wavelength Dependent Loss			0.25	dB
Temperature Dependent Loss			±0.15	dB
Extinction Dependent Loss	18			dB
Return Loss <sup>1 2</sup>	55			dB
Cross Talk <sup>1</sup>	55			dB
Switching Time		4	10	ms
Repeatability			±0.02	dB
Durability	10 <sup>7</sup>			Cycle
Operating Voltage	5	5	7	VDC
Operating Current (Latching/Non-Latching)		30	60	mA
Voltage Pulse Width (Latching)		20		ms
Switching Type		Latching / Non Latching		
Operating Temperature	-5		70	°C
Optical Power Handling		300	500	mW
Storage Temperature	-40		85	°C
Package Dimension		36.0L x 26.0W x 8.2H		mm

Note:  
 1. Exclude connectors, IL≤1.0dB for Dual and Broad Band.  
 2. Within operating temperature and SOP.

### Features

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

### Applications

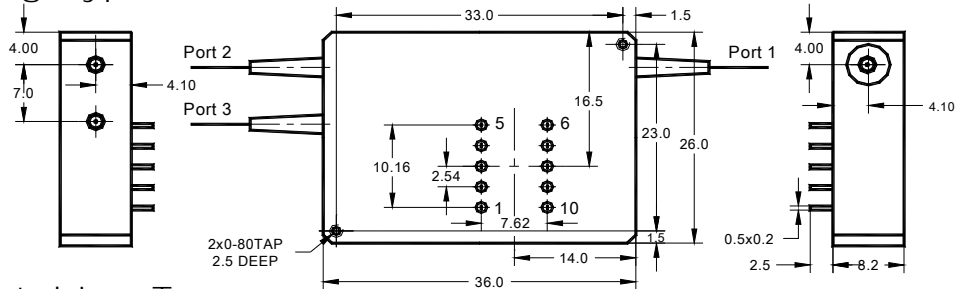
- Fault Protection
- Channel Add/Drop
- Channel Switching
- Instrumentation



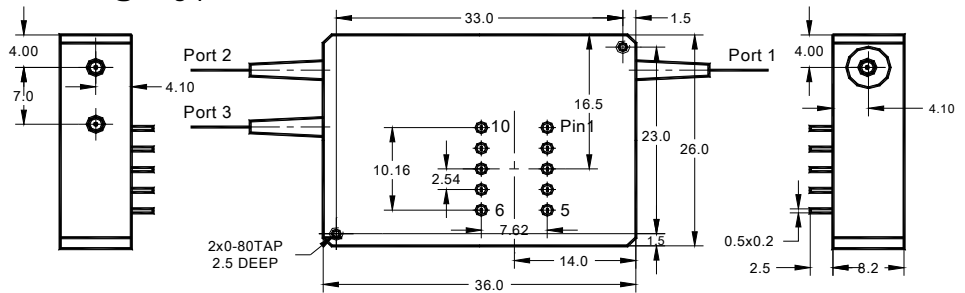
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## Mechanical Dimensions (Unit:mm)

### Latching Type



### Non-Latching Type



## 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 RS232 interfaces and Windows™ GUI

### 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
Port 1 → Port 2	GND	5V Pulse	N/A	N/A	Close	Open	Open	Close
Port 1 → Port 3	5V Pulse	GND	N/A	N/A	Open	Close	Close	Open

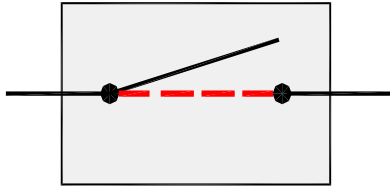
### Non-Latching Type

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

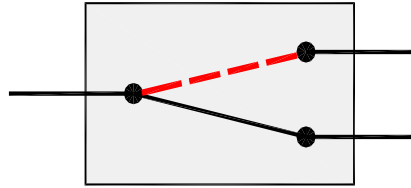


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## Functional Diagram



LB 1x1 PM Switch



LB 1x2 PM Switch

## Ordering Information

LBPM-	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Type	Wavelength	Switch	Package	Fiber Type		Fiber Length	Connector
	1x1 Latching=11 1x1 N/O <sup>1</sup> =10 1x1 N/C <sup>2</sup> =1C 1x2=12 2x1=21 Special=00	1310=3 1410=4 1550=5 850 =8 C+L= 2 1310 & 1550=9 Special=0	Latching=1 Non-latching=2	Latching=2 Non-Latching=3 Special=0	PM 1550=5 PM 1310=7 PM 850=8 PM 980=9 Special=0	Bare fiber=1 900um 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. N/O: LB 1x1 PM Switch, Non-Latching, Normally open.
2. N/C: LB 1x1 PM Switch, Non-Latching, Normally close.