

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-machanical 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 *		0.5	0.8	dB
Wavelength Dependent Loss			0.25	dB
Temperature Dependent Loss			±0.15	dB
Extinction Dependent Loss	18			dB
Return Loss *, **	55			dB
Cross Talk*	55			dB
Switching Time		4	10	ms
Repeatability			±0.02	dB
Durability	10 ⁷			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:

* Exclude connectors, IL≤1.0dB for Dual and Broad Band.

** Within operating temperature and SOP.

*** Continuous operation, for pulse operation call

Features

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

Applications

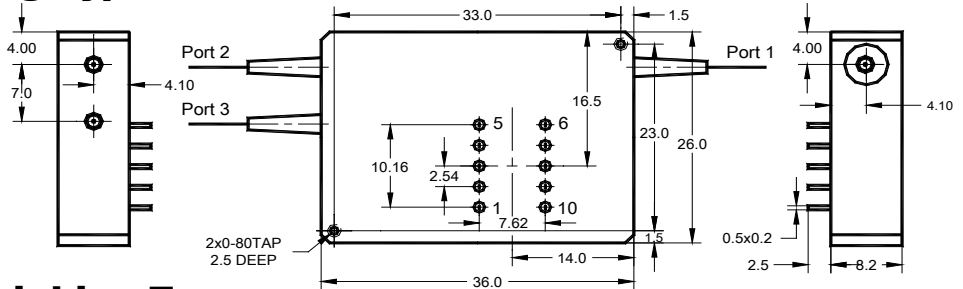
- Fault Protection
- Channel Add/Drop
- Channel Switching
- Instrumentation



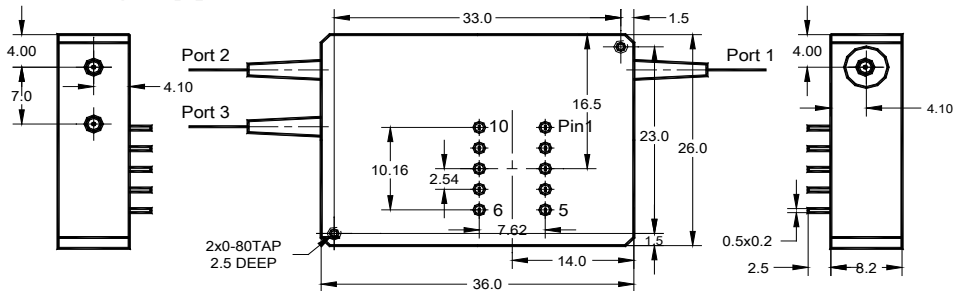
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Mechanical Dimensions (Unit:mm)

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

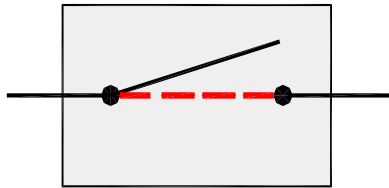
Non-Latching Type

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

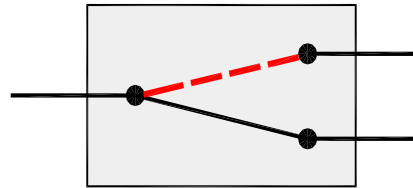


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Functional Diagram



LB 1x1 PM Switch



LB 1x2 PM Switch

Ordering Information

LBPM-	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"/>	<input type="checkbox"/>	
	1x1 Latching=11 1x1 N/O ¹ =10 1x1 N/C ² =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.