

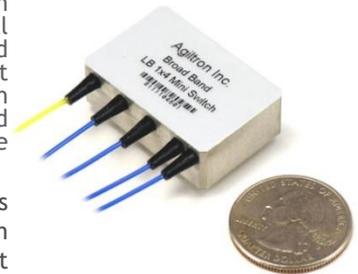
# LightBend™ Mini 1x4 MM OptoMechanical Fiberoptic Switch (Bidirectional)

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

## Product Description

The LB Series Mini 1x4 MM fiber optic switch connects optical channels by redirecting an incoming optical signal into a selected output fiber. This is achieved by using a patented opto-mechanical configuration activated via an electrical control signal. Latching operation preserves the selected optical path after the drive signal has been removed. The switch has integrated electrical position sensors, and the new material based advanced design significantly reduces moving part position sensitivity, offering unprecedented high stability and longevity, as well as an unmatched low cost. Electrical driver is also available. The switch is bidirectional.

We offer tight-bend-fiber version, which reduces the minimum bending radius from normal 15 mm to 7 mm. This feature enables smaller overall foot print.



## Performance Specifications

LB Series Mini 1x4 MM Switch	Min	Typical	Max	Unit
Operation Wavelength		820-880, 1260-1360		nm
Insertion Loss <sup>1, 2</sup>		0.5	1.0	dB
Wavelength Dependent Loss		0.15	0.3	dB
Polarization Dependent Loss		0.1	0.15	dB
Return Loss	35			dB
Cross Talk	50			dB
Switching Time		3	10	ms
Repeatability			±0.05	dB
Operating Voltage	4.5	5	6	VDC
Operating Current <sup>3</sup>	Latching		26	mA
	Non-Latching		36	
Switching Type	Latching / Non-Latching			
Operating Temperature <sup>4</sup>	-5		70	°C
Optical Power Handling		300	500	mW
Storage Temperature	-40		85	°C
Fiber Type	MM 50/125, MM 62.5/125			
Package Dimension	35L x 23W x 10H			mm

Note:

1. Exclude connectors, higher loss for Dual and Broad Band.
2. Measured using laser with coupled power ratio 5 (CPR). Laser with larger mode fill ratio needs special version.
3. Tested at 5V DC for each coil actuation.
4. -40 °C to 85 °C is also available.

## Features

- Unmatched Low Cost
- Low Optical Distortions
- High Isolation
- High Reliability
- Epoxy-Free Optical Path

## Applications

- Channel Blocking
- Configurable Add/Drop
- System Monitoring
- Instrumentation



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## Electrical Driving Requirement

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

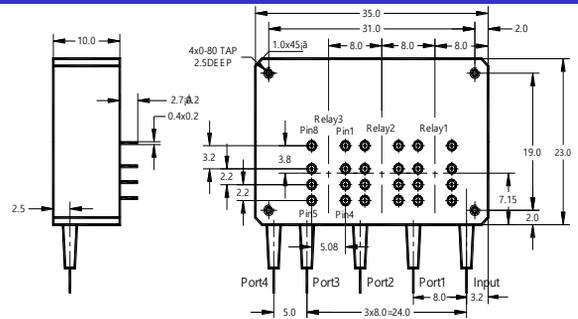
Application Note: Applying a constant driving voltage increases stability. The switches can also be driven by a pulse mode using Agiltron recommended circuit for energy saving.

Optical Path	Relay	Electrical Drive		Status Sensor			
		Pin 1	Pin 8	Pin 2-3	Pin 3-4	Pin 5-6	Pin 6-7
Input → Port 1	Relay1	5V	GND	Open	Close	Close	Open
	Relay 2, 3	N/A	N/A				
Input → Port 2	Relay1	GND	5V	Close	Open	Open	Close
	Relay 2	5V	GND	Open	Close	Close	Open
	Relay 3	N/A	N/A				
Input → Port 3	Relay1, 2	GND	5V	Close	Open	Open	Close
	Relay 3	5V	GND	Open	Close	Close	Open
Input → Port 4	Relay1, 2, 3	GND	5V Pulse	Close	Open	Open	Close

### Non-Latching Type

Optical Path	Relay	Electrical Drive		Status Sensor			
		Pin 1	Pin 8	Pin 2-3	Pin 3-4	Pin 5-6	Pin 6-7
Input → Port 1	Relay 1	5V	GND	Open	Close	Close	Open
	Relay 2, 3	No Power		Close	Open	Open	Close
Input → Port 2	Relay 2	5V	GND	Open	Close	Close	Open
	Relay 1, 3	No Power		Close	Open	Open	Close
Input → Port 3	Relay 3	5V	GND	Open	Close	Close	Open
	Relay 1, 2	No Power		Close	Open	Open	Close
Input → Port 4	Relay1, 2, 3	No Power		Close	Open	Open	Close

## Mechanical Dimensions (Unit: mm)



## Ordering Information

LBMM-	Type	Wavelength	Switch	Package	Fiber Type	Fiber Length	Connector
<input type="checkbox"/>	1x4=14 4x1=41 Special=00	1060=1 C+L=2 1310=3 1410=4 1550=5 650=6 780=7 850=8 1310 & 1550=9 Special=0	Latch=1 Non-latch=2 Special=0	Standard=1 Special=0	50/125=5 62.5/125=6 Tightbend=2 Special=0	Bare fiber=1 900um tube=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

