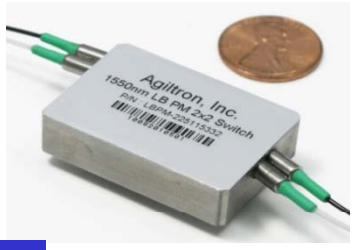
# LightBend™ PM 2x2 OptoMechanical Fiberoptic Switch

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

## Product Description

The LB series PM 2x2 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.




## Features

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

## Applications

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

RoHS Compliant

## Performance Specification

| LB Series PM 2x2 Switch [1] [2] | Min | Typical | Max | Unit |
|---|---|---|---|---|
| Operation Wavelength | | 850, 1310, 1550 | | nm |
| Insertion Loss | | 0.7 | 1.2 | 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 | 4.5 | 5 | 7 | VDC |
| Operating Current (each relay) | | 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 | | 48.0L x 25.0W x 10H | | mm |

Note:
1. Exclude connectors.
2. Within operating temperature and SOP.

Revision: 060-14
4-30-13

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www.agiltron.com

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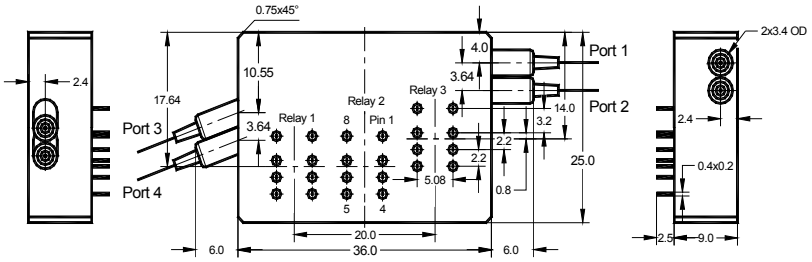
## Mechanical Dimensions (Unit:mm)




## 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 RS232 interfaces and Windows™ GUI

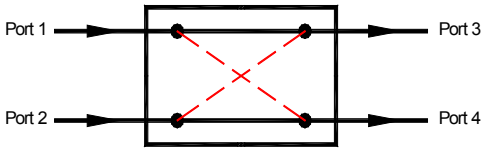
Latching Type

| Optical Path | Relay | Electrical Drive | | Status Sensor | | | |
|---|---|---|---|---|---|---|---|
| | | Pin 1 | Pin 8 | Pin2-3 | Pin3-4 | Pin5-6 | Pin 6-7 |
| Port 1 → Port 3<br>Port 2 → Port 4 | Relay 1, 3 | GND | 5V Pulse | Close | Open | Open | Close |
| | Relay 2 | 5V Pulse | GND | Open | Close | Close | Open |
| Port 1 → Port 4<br>Port 2 → Port 3 | Relay 1, 3 | 5V Pulse | GND | Open | Close | Close | Open |
| | Relay 2 | GND | 5V Pulse | Close | Open | Open | Close |

Non-Latching Type

| Optical Path | Relay | Electrical Drive | | Status Sensor | | | |
|---|---|---|---|---|---|---|---|
| | | Pin 1 | Pin 8 | Pin2-3 | Pin3-4 | Pin5-6 | Pin 6-7 |
| Port 1 → Port 3<br>Port 2 → Port 4 | Relay 1, 3 | No Power | | Close | Open | Open | Close |
| | Relay 2 | 5V | GND | Open | Close | Close | Open |
| Port 1 → Port 4<br>Port 2 → Port 3 | Relay 1, 3 | 5V | GND | Open | Close | Close | Open |
| | Relay 2 | No Power | | Close | Open | Open | Close |

## Functional Diagram




LB PM 2x2 Switch

## Ordering Information

| LBPM- | □□ | □ | □ | □ | □ | □ | □ | □ |
|---|---|---|---|---|---|---|---|---|
| | Type | Wavelength | Switch | Package | Fiber Type | | Fiber Length | Connector |
| | 2x2=22<br>Special=00 | 1310=3<br>1550=5<br>850 =8<br>Special=0 | Latching=1<br>Non-latching=2 | Standard=1<br>Special=0 | PM 1550=5<br>PM 1310=7<br>PM 850=8<br>PM 980=9<br>Special=0 | Bare fiber=1<br>900um tube=3<br>Special=0 | 0.25m=1<br>0.5m=2<br>1.0m=3<br>Special=0 | None=1<br>FC/PC=2<br>FC/APC=3<br>SC/PC=4<br>SC/APC=5<br>ST/PC=6<br>LC=7<br>Duplex LC=8<br>Special=0 |

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