

LightBend™ Mini 1x8 Multimode OptoMechanical Fiberoptic Switch (Bidirectional)

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

Product Description

The LB Series Mini 1x8 Multimode fiber optic switch connects optical channels by redirecting an incoming optical signal into a selected output fiber. This is achieved by using a patent pending 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 as well as an unmatched low cost. 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 1x8 MM Switch | Min | Typical | Max | Unit |
|------------------------------------|---|---------|--------------------|------|
| Operation Wavelength | Single Band 820-880, 1260-1360 Dual Band 820-880 and 1260-1360 | | | nm |
| Insertion Loss ^[1, 3] | | 0.6 | 1.4 ^[2] | dB |
| Wavelength Dependent Loss | | 0.15 | 0.3 ^[2] | dB |
| Polarization Dependent Loss | | 0.1 | 0.15 | dB |
| Return Loss | 35 | | | dB |
| Cross Talk | 40 | | | dB |
| Switching Time | | 3 | 10 | ms |
| Repeatability | | | ±0.05 | dB |
| Operating Voltage | 4.5 | 5 | 6 | VDC |
| Voltage Pulse Width (Latching) | | 20 | | ms |
| Switching Type | Latching / Non-Latching | | | |
| Operating Temperature ² | -5 | | 70 | °C |
| Optical Power Handling | | 300 | 500 | mW |
| Storage Temperature | -40 | | 85 | °C |
| Fiber Type | MM50/125, MM62.5/125, OM4 | | | |

1. Exclude connectors.
2. Dual Band.
3. Measured at CPR≤15 dB.

Features

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

Applications

- Channel Routing
- 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

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

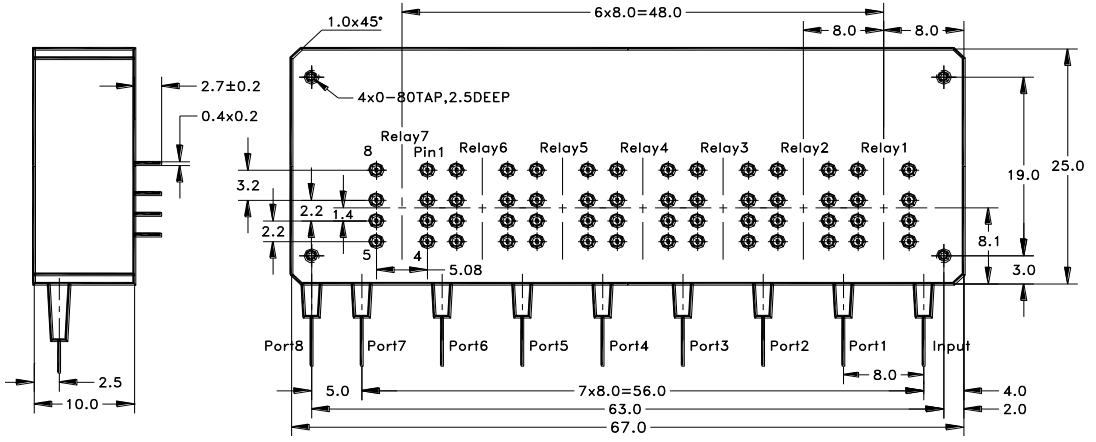
Non-Latching Type

| Optical Path | Relay | Electric 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, 4, 5, 6, 7 | No Power | | Close | Open | Open | Close |
| Input ↔ Port 2 | Relay 2 | 5V | GND | Open | Close | Close | Open |
| | Relay 1, 3, 4, 5, 6, 7 | No Power | | Close | Open | Open | Close |
| Input ↔ Port 3 | Relay 3 | 5V | GND | Open | Close | Close | Open |
| | Relay 1,2, 4, 5, 6, 7 | No Power | | Close | Open | Open | Close |
| Input ↔ Port 4 | Relay 4 | 5V | GND | Open | Close | Close | Open |
| | Relay 1, 2, 3, 5, 6, 7 | No Power | | Close | Open | Open | Close |
| Input ↔ Port 5 | Relay 5 | 5V | GND | Open | Close | Close | Open |
| | Relay 1, 2, 3, 4, 6, 7 | No Power | | Close | Open | Open | Close |
| Input ↔ Port 6 | Relay 6 | 5V | GND | Open | Close | Close | Open |
| | Relay1, 2, 3, 4, 5, 7 | No Power | | Close | Open | Open | Close |
| Input ↔ Port 7 | Relay 7 | 5V | GND | Open | Close | Close | Open |
| | Relay 1, 2, 3, 4, 5, 6 | No Power | | Close | Open | Open | Close |
| Input ↔ Port 8 | Relay 1, 2, 3, 4, 5, 6, 7 | No Power | | Close | Open | Open | Close |



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Mechanical Dimensions (Unit: mm)



Ordering Information

| LBMM- | 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"/> | 1x8=18 8x1=81 Special=00 | 1060=1 C+L=2 1310=3 1410=4 1550=5 780=7 850=8 850/1310=A Special=0 | Latching=1 Non-latching=2 | Standard=1 Special=0 | MM50/125=5 MM62.5/125=6 OM4=7 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 |

