

LightBend™ 2x2 PM High Power OptoMechanical Fiberoptic Switch (Bidirectional)

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

Product Description

The LB series Full 2x2 PM High Power fiber optic switch is 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-mechanical 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 switch has 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. The switch is bidirectional.



Features

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

Performance Specification

LB 2x2 PM High Power Switch ^{[1], [2]}	Min	Typical	Max	Unit
Operation Wavelength		850, 1310, 1550		nm
Insertion Loss		0.6	1.1	dB
Wavelength Dependent Loss			0.25	dB
Temperature Dependent Loss			±0.15	dB
Extinction Ratio	18			dB
Return Loss	50			dB
Cross Talk	50			dB
Switching Time		3	10	ms
Repeatability			±0.02	dB
Durability	10 ⁷			Cycle
Operating Voltage	4.5	5	6	VDC
Operating Current (Latching/Non-Latching)		30	60	mA
Switching Type	Latching / Non Latching			
Operating Temperature	-5		70	°C
Storage Temperature	-40		85	°C
Optical Power Handling			10 ^[3]	W

Note:
 [1]. Exclude connectors.
 [2]. Within operating temperature and SOP.
 [3]. Continuous operation, for Pulse operation call.

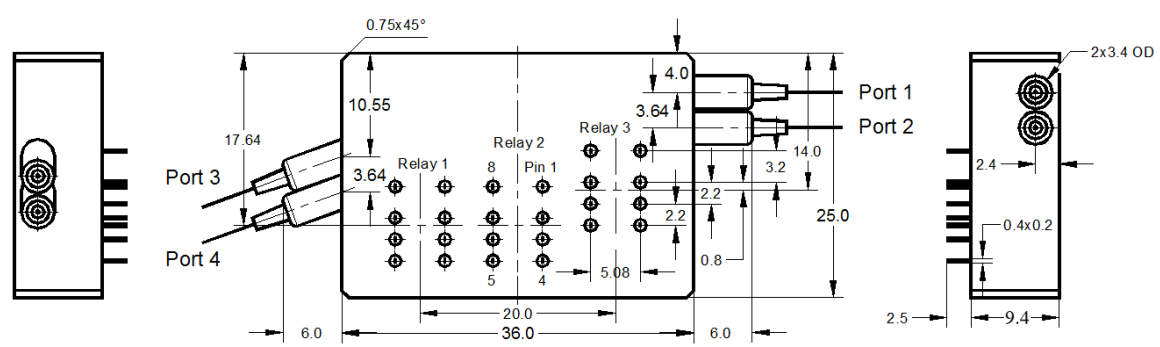
Applications

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



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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 USB interfaces and Windows™ GUI. We also offer RS232 interface as an option - please contact Agiltron sales.

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	Pin2-3	Pin3-4	Pin5-6	Pin 6-7
Port 1 → Port 3 Port 2 → Port 4	Relay 1, 3	GND	5V	Close	Open	Open	Close
	Relay 2	5V	GND	Open	Close	Close	Open
Port 1 → Port 4 Port 2 → Port 3	Relay 1, 3	5V	GND	Open	Close	Close	Open
	Relay 2	GND	5V	Close	Open	Open	Close

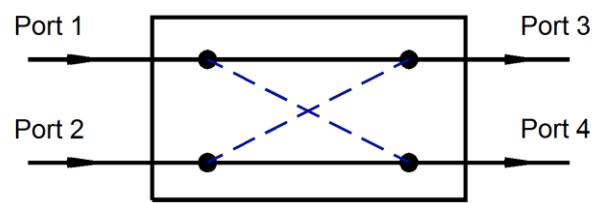
Non-Latching Type

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



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Functional Diagram



LB Full 2x2 PM High Power Switch

Ordering Information

LBPH*-	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1 **
	Type	Wavelength	Switch	Package	Fiber Type	Fiber Length		Connector
	2x2=22 Special=00	1310=3 1410=4 1550=5 850 =8 Special=0	Latching=1 Non-latching=2 Special=0	Standard=1 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	

* LBPH: LightBend PM High Power Switch.
 ** Agiltron provide high power connector, please call.

