LightBend™ 1x4 OptoMechanical Fiberoptic Switch (Bidirectional)

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

Product Description

The LB Series 1x4 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. Electronic driver is available for this series of switches. 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.

Features

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

Applications

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

Performance Specifications

LB Series 1x4 SM Switch	Min	Typical	Max	Unit
Operation Wavelength	850±30,	1260~1360,	1510~1620	nm
Insertion Loss [1]	0.4	0.6	0.9	dB
Wavelength Dependent Loss		0.2	0.3	dB
Polarization Dependent Loss	0.05	0.1	0.2	dB
Return Loss	50			dB
Cross Talk	50			dB
Switching Time		3	10	ms
Repeatability			±0.05	dB
Operating Voltage	4.5	5	6	V DC
Operating Current[3] — Latching			24	mA
Operating Current[3] — Non-Latching			34	mA
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		SMF-28		
Package Dimension		54L x 31W x 12H		mm

Note:
1. Exclude connectors, higher loss for Dual and Broad Band.
2. -40 °C to 85 °C is also available.
3. Tested at 5V DC for each coil actuation.
 * Continuous operation, for pulse operation call

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 as an option – please contact Agiltron sales.
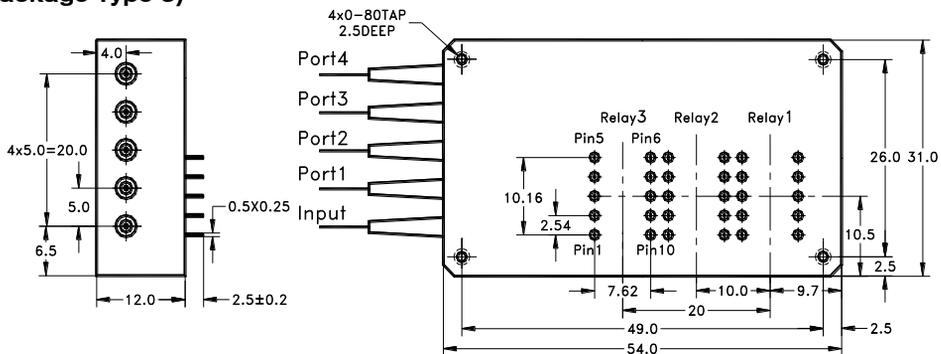
Latching Type

Optical Path	Relay	Electric Drive		Status Sensor					
		Pin 1	Pin 10	Pin 5	Pin 6	Pin 2-3	Pin 3-4	Pin 7-8	Pin 8-9
Input → Port 1	Relay1	GND	5V Pulse	N/A	N/A	Close	Open	Open	Close
	Relay 2, 3	N/A	N/A	N/A	N/A				
Input → Port 2	Relay1	5V Pulse	GND	N/A	N/A	Open	Close	Close	Open
	Relay 2	GND	5V Pulse	N/A	N/A	Close	Open	Open	Close
	Relay 3	N/A	N/A	N/A	N/A				
Input → Port 3	Relay1, 2	5V Pulse	GND	N/A	N/A	Open	Close	Close	Open
	Relay 3	GND	5V Pulse	N/A	N/A	Close	Open	Open	Close
Input → Port 4	Relay1, 2, 3	5V Pulse	GND	N/A	N/A	Open	Close	Close	Open

Non-Latching Type

| Optical Path	Relay	Electric Drive		Status Sensor					
		Pin 1	Pin 10	Pin 5	Pin 6	Pin 2-3	Pin 3-4	Pin 7-8	Pin 8-9
Input → Port 1	Relay 1	5V	GND	N/A	N/A	Open	Close	Close	Open
	Relay 2, 3	No Power		N/A	N/A	Close	Open	Open	Close
Input → Port 2	Relay 2	5V	GND	N/A	N/A	Open	Close	Close	Open
	Relay 1, 3	No Power		N/A	N/A	Close	Open	Open	Close
Input → Port 3	Relay 3	5V	GND	N/A	N/A	Open	Close	Close	Open
	Relay 1, 2	No Power		N/A	N/A	Close	Open	Open	Close
Input → Port 4	Relay1, 2, 3	No Power		N/A	N/A	Close	Open	Open	Close

Mechanical Dimensions (Unit: mm)

Latching Type
(Package Type 3)

LightBend™ 1x4
OptoMechanical Fiberoptic Switch

AGILTRON INC

Non-Latching Type
(Package Type 4)
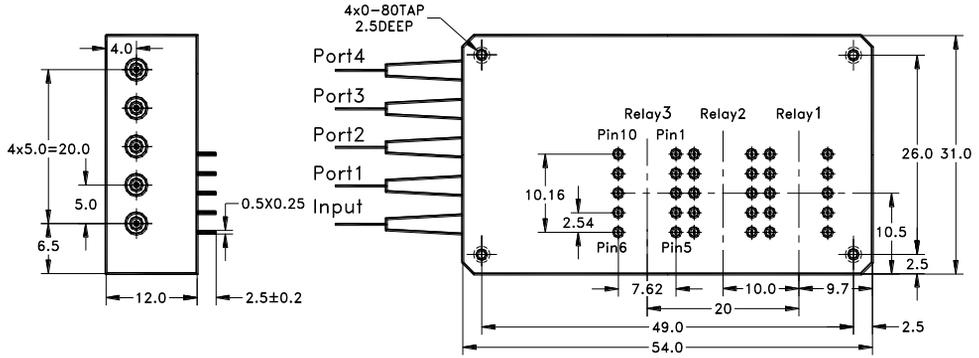
Ordering Information

LBSW-									
	Type	**Wavelength**	**Switch**	**Package**	**Fiber Type**		**Fiber Length**	**Connector**	
	1x4=14 4x1=41 Special=00	1310=3 1410=4 1550=5 850 =8 Special=0	Latch=1 Non-latch=2	Latching=3 Non-Latching=4 Special=0	SMF-28=1 Corning XB=2 Draka BBE=3 Special=0	Bare fiber=1 900m loose 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	

RoHS Compliant