

LightBend™

1x4 Series Fiber Optic Switch

(SM, MM, PM, High Power, Bidirectional)

(Protected by U.S. pending patents)

Product Description

The LB 1x4 Series 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.



Features

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

Performance Specifications

LB 1x4 PM Series Switch	Min	Typical	Max	Unit
Operation Wavelength	850, 980, 1060, 1310, 1550			nm
Insertion Loss ^[1]		0.7	1.1	dB
Extinction Ratio ^[1] (PM)	18			dB
Polarization Dependent Loss (SM, PM)			0.1	dB
Return Loss ^[1]	SM, PM	50		dB
	MM	35		dB
Cross Talk ^[1]	SM, PM	50		dB
	MM	35		dB
Switching Time		3	10	ms
Repeatability			±0.05	dB
Operating Voltage	4.5	5	6	VDC
Operating Current ^[2]	Latching		26	mA
	Non-Latching		36	
Voltage Pulse Width (Latching)		20		ms
Switching Type		Latching / Non-Latching		
Operating Temperature	-5		70	°C
Storage Temperature	-40		85	°C
Optical Power Handling	Standard	300	500	mW
	High Power	3	5	W
Fiber Type	SM, MM	SMF-28, MM 50/125, MM 62.5/125,		
	PM	Panda PM 250		
Package Dimension		54L x 31W x 12H		mm

[1]. Exclude connectors.

[2]. Tested at 5VDC for each coil actuation.

[3]. Measure at Light Source CPR<14 dB.

Warning: This device must use the reference circuit to driver otherwise it is unstable.



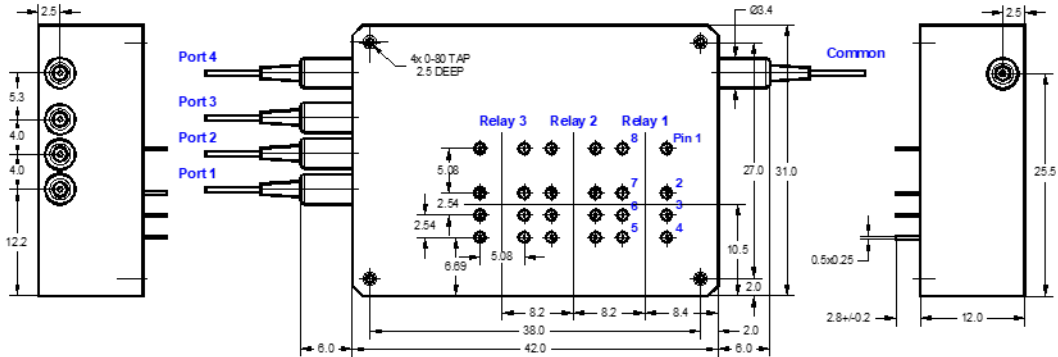
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Mechanical Dimensions (Unit: mm)



Electrical Driving Requirements

Agiltron offers a computer control kit with TTL and RS232 interfaces and Windows™ GUI

The load is a resistive coil which is activated by applying 5V (draw ~ 40mA). However, the current flow direction must be correct otherwise it will cancel the permanent magnet inside causing instability. We strongly recommend to use the reference circuit to avoid major issues. We offer pushbutton elevation driver for verifications or convenient income inspection.

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
Common → Port 1	Relay1	5V	GND	Open	Close	Close	Open
	Relay 2, 3	N/A	N/A				
Common → Port 2	Relay1	GND	5V	Close	Open	Open	Close
	Relay 2	5V	GND	Open	Close	Close	Open
Common → Port 3	Relay 3	N/A	N/A				
	Relay1, 2	GND	5V	Close	Open	Open	Close
Common → Port 4	Relay 3	5V	GND	Open	Close	Close	Open
	Relay1, 2, 3	GND	5V	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
Common → Port 1	Relay1	5V	GND	Open	Close	Close	Open
	Relay 2, 3	No Power		Close	Open	Open	Close
Common → Port 2	Relay 2	5V	GND	Open	Close	Close	Open
	Relay 1, 3	No Power		Close	Open	Open	Close
Common → Port 3	Relay 3	5V	GND	Open	Close	Close	Open
	Relay 1, 2	No Power		Close	Open	Open	Close
Common → Port 4	Relay1, 2, 3	No Power		Close	Open	Open	Close



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Ordering Information

LB <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"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Type	Wavelength	Switch	Package	Fiber Type	Bare fiber	Fiber Length	Connector
SW ^[1]	1x2=12	1060=1	Latching=1	Standard=2	SMF-28=1	Bare fiber=1	0.25m=1	None=1
HP ^[2]	1x3=13	1310=3	Non-latching=2	Special=0	MM 50/125=5	900 um tube=3	0.5m=2	FC/PC=2
	1x4=14	1550=5	Special=0		MM62.5/125=6		1.0m=3	FC/APC=3
	4x1=41	780=7			PM1550/250=B		Special=0	SC/PC=4
	Special=00	850 =8			PM1310/250=D			SC/APC=5
		980=9			PM980/250=E			ST/PC=6
		Special=0			PM850/250=F			LC=7
					Special=0			Duplex LC=8
								Special=0

[1]. LBSM: LB 1x4 Series Switch. [2]. LBHP: LB 1x4 High Power Series Switch.

