

LightBend™ Shifting Dual 1x3 Series Fiber Optic Switch

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

(Protected by U.S. pending patents)

Product Description

The LB Shifting Dual 1x3 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 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 Shifting Dual1x3 Series Switch	Min	Typical	Max	Unit	
Operation Wavelength	850, 980, 1060, 1310, 1550			nm	
Insertion Loss ^[1]	0.6			0.9	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	
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, MM50/125, MM 62.5/125,			
	PM	Panda 400, Panda 250			
Package Dimension	56 x 43.5 x 12.3			mm	

[1]. Exclude connectors.

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

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

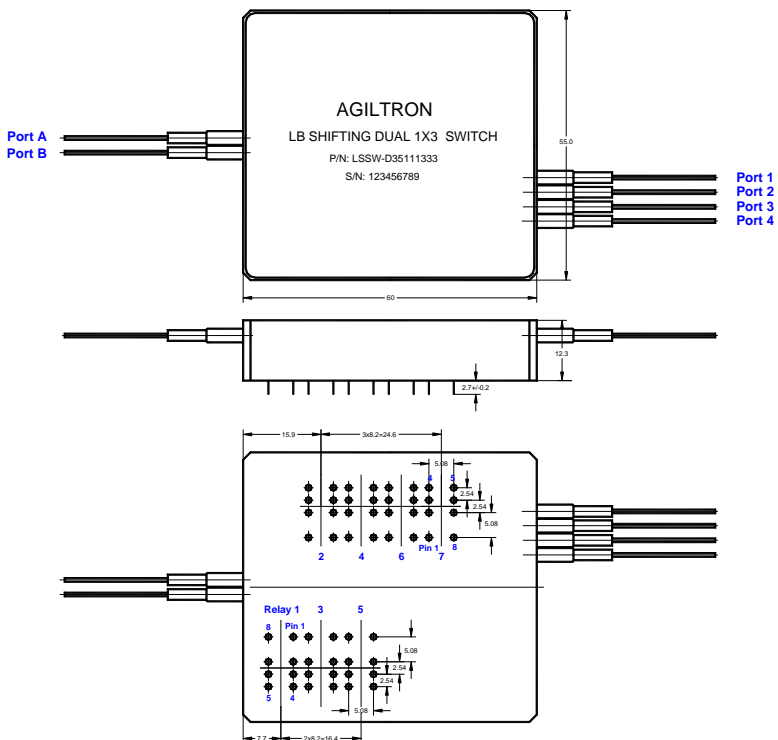


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Mechanical Dimensions (Unit: mm)



Electrical Driving Requirements

The load is a resistive coil which is activated by applying 5V (draw ~ 40mA). 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	Pin 2-3	Pin 3-4	Pin 5-6	Pin 6-7
Port B ↔ Port 1	Relay 8	5 V	GND	Open	Close	Close	Open
	Relay 1, 2, 3, 4, 5, 6, 7	GND	5 V	Close	Open	Open	Close
Port A ↔ Port 1	Relay 6, 7	5 V	GND	Open	Close	Close	Open
Port B ↔ Port 2	Relay 1, 2, 3, 4, 5, 8	GND	5 V	Close	Open	Open	Close
Port A ↔ Port 2	Relay 4, 5	5 V	GND	Open	Close	Close	Open
	Relay 1, 2, 3, 6	GND	5 V	Close	Open	Open	Close
Port B ↔ Port 3	Relay 7, 8	N/A	N/A	Close	Open	Open	Close
Port A ↔ Port 3	Relay 2, 3	5 V	GND	Open	Close	Close	Open
	Relay 1, 4	GND	5 V	Close	Open	Open	Close
Port B ↔ Port 4	Relay 5, 6, 7, 8	N/A	N/A				
Port A ↔ Port 4	Relay 1	5 V	GND	Open	Close	Close	Open
	Relay 2	GND	5 V	Close	Open	Open	Close
	Relay 3, 4, 5, 6, 7, 8	N/A	N/A				



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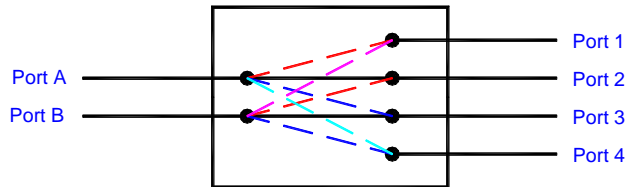
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Non-Latching Type

Optical Path	Relay	Electrical Drive		Status Sensor			
		Pin 1	Pin 8	Pin 2-3	Pin 3-4	Pin 5-6	Pin 6-7
Port B ↔ Port 1	Relay 8	5 V	GND	Open	Close	Close	Open
	Relay 1, 2, 3, 4, 5, 6, 7	No Power		Close	Open	Open	Close
Port A ↔ Port 1	Relay 6, 7	5 V	GND	Open	Close	Close	Open
Port B ↔ Port 2	Relay 1, 2, 3, 4, 5, 8	No Power		Close	Open	Open	Close
Port A ↔ Port 2	Relay 4, 5	5 V	GND	Open	Close	Close	Open
Port B ↔ Port 3	Relay 1, 2, 3, 4, 5, 7, 8	No Power		Close	Open	Open	Close
Port A ↔ Port 3	Relay 2, 3	5 V	GND	Open	Close	Close	Open
Port B ↔ Port 4	Relay 1, 4, 5, 6, 7, 8	No Power		Close	Open	Open	Close
Port A ↔ Port 4	Relay 1	5 V	GND	Open	Close	Close	Open
	Relay 2, 3, 4, 5, 6, 7, 8	No Power		Close	Open	Open	Close

Functional Diagram



Ordering Information

	Type	Wavelength	Switch	Package	Fiber Type	Fiber Length	Connector
LSSW ^[1]	Dual 1x3=D3	1060=1	Latching=1	Standard=1	SMF-28=1	Bare fiber=1	None=1
LSPM ^[2]	Special=00	1310=3	Non-latching=2	Special=0	MM 50/125=5	900um loose tube=3	FC/PC=2
LSHP ^[3]		1550=5	Special=0		MM62.5/125=6	Special=0	FC/APC=3
LSPH ^[4]		780=7			Panda 400=A		SC/PC=4
		850=8			Panda 250=B		SC/APC=5
		980=9			Special=0		ST/PC=6
		Special=0					LC=7
							Duplex LC=8
							Special=0

[1]. LSSW: LB Shifting Dual 1x3 SM or MM SWITCH.

[2]. LSPM: LB Shifting Dual 1x3 SM or PM SWITCH.

[3]. LSHP: LB Shifting Dual 1x3 SM or MM High Power SWITCH.

[4]. LSPH: LB Shifting Dual 1x3 PM High Power SWITCH.

[5]. There isn't any connector in the high power switches normally. Please contact us for high power connectors.

