

# LightBend™ Quad 1x1 Single-Mode Fiberoptic Switch

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

## Product Description

The LB Series Quad 1x1 fiberoptic switch connects optical channels by redirecting an incoming optical signal into a selected output fiber. This is achieved using a patent pending opto-mechanical configuration and activated via an electrical control signal. Latching operation preserves the selected optical path after the driver signal has been 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.

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 Quad 1x1 Switch	Min	Typical	Max	Unit
Wavelength	Dual Band 1260-1360 and 1510-1610			nm
	Single Band 1260-1360 or 1510-1610			
	Broad Band 1260-1610			
Insertion Loss <sup>1,2</sup>		0.5	0.9(DW <sup>3</sup> )	dB
Wavelength Dependent Loss		0.15	0.25(DW <sup>3</sup> )	dB
Polarization Dependent Loss			0.1	dB
Return Loss <sup>1,2</sup>	55			dB
Cross Talk <sup>1</sup>	55			dB
Switching Time		3	10	ms
Repeatability			± 0.02	dB
Durability	10 <sup>7</sup>			Cycles
Operating Optical Power		300	500	mW
Operating Voltage	5	5	7	VDC
Operating Current (Latching/Non-Latching)		30	60	mA
Voltage Pulse Width (square)		20		ms
Switching Type	Latching / Non-Latching			
Operating Temperature	-5 ~ 70			°C
Storage Temperature	-40 ~ 85			°C
Fiber Type	SFM-28			
Package Dimension	30.0L x 27.0W X 8.2H			mm

Notes:

<sup>1</sup> 23° over operating wavelength and all SOP.

<sup>2</sup> Excluding Connectors.

<sup>3</sup> DW: Dual band and Broad band.

## Features

- Low Optical Distortions
- 8 Ports Integration
- High Isolation
- High Reliability
- Fail-Safe Latching
- Epoxy-Free Optical Path
- Low Cost

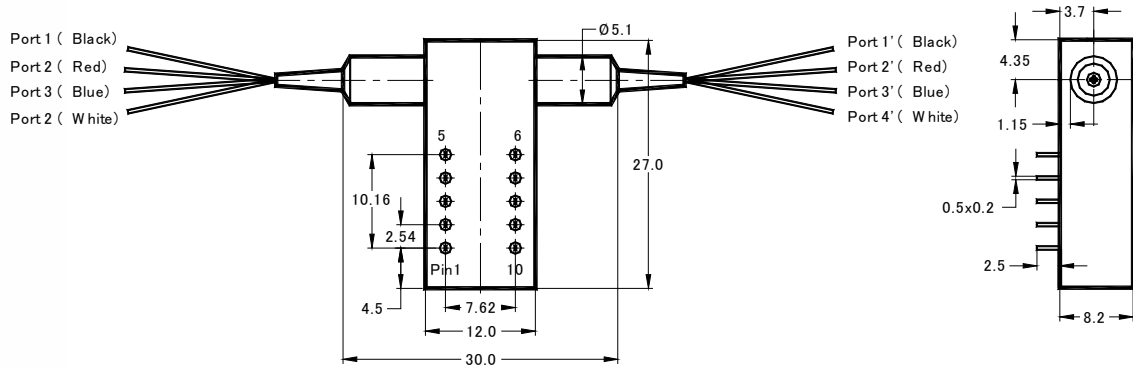
## Applications

- Protection
- Instrumentation



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## Mechanical Dimensions (Unit:mm)



## Electrical Connector Configurations

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

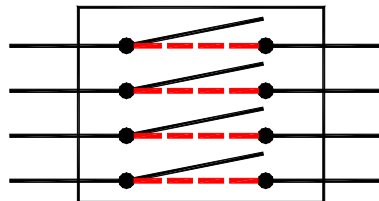
### Latching Type

Optical Path	Electric Drive		Status Sensor			
	Pin 1	Pin 8	Pin 2-3	Pin 3-4	Pin 5-6	Pin 6-7
1→1', 2→2' 3→3', 4→4'	GND	5V Pulse	Close	Open	Open	Close
Block	5V Pulse	GND	Open	Close	Close	Open

### Non-Latching Type

Optical Path	Electric Drive		Status Sensor			
	Pin 1	Pin 8	Pin 2-3	Pin 3-4	Pin 5-6	Pin 6-7
1→1', 2→2' 3→3', 4→4'	No Power		Close	Open	Open	Close
Block	5V	GND	Open	Close	Close	Open

## Functional Diagram



LB Quad 1x1 Switch

## Ordering Information

LBQU-	Type	Wavelength	Switch	Package	Fiber Type	Fiber Length	Connector
□□ □ □ □ □ □ □	1x1 Latching=11 1x1 N/O*=10 1x1 N/C**=1C  Special=00	1060=1 C+L=2 1310=3 1410=4 1550=5 650=6 780=7 850=8 1310 & 1550=9 Special=0	Latching Type =1 Non-latching Type=2 Special=0	Standard=1 Special=0	SMF-28=1 Corning XB=2 Draka BBE=3 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

\* N/O: LB Quad 1x1 Switch Non-Latching normally open.

\*\* N/C: LB Quad 1x1 Switch Non-Latching normally close.

