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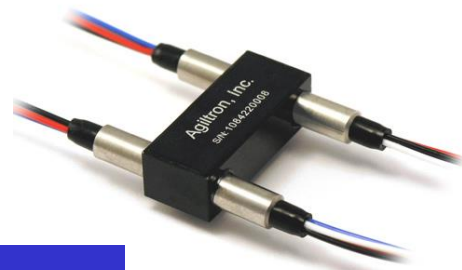
LightBend™ Quad 2x2 Bypass Fiber Optic Switch (Bidirectional)

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

Product Description

The LB Series Quad 2x2 Bypass Fiber Optic switch integrated 4 simultaneously activated 2x2 Bypass switches in a single compact format. The device connects optical channels by redirecting incoming optical signals into selected output fibers. This is achieved using a patented opto-mechanical configuration and 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. This novel design significantly reduces moving part position sensitivity, offering unprecedented high stability as well as an unmatched low cost. The switch is bidirectional.

We offer tight-bend-fiber version, which reduces the minimum bending radius. This feature enables smaller overall foot print.



Features

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

Performance Specifications

LB Quad 2x2 Bypass SM Switch	Min	Typical	Max	Unit
Operation Wavelength	Single Band 1260-1360 Or 1510-1620			nm
	Dual Band 1260-1360 and 1510-1620			
	Broad Band 1260-1620			
Insertion Loss ^{[1], [2]}		0.6	1.1	dB
Wavelength Dependent Loss		0.15	0.30 ^[3]	dB
Polarization Dependent Loss			0.1	dB
Return Loss ^{[1], [2]}	55			dB
Cross Talk ^{[1], [2]}	55			dB
Switching Time		3	10	ms
Repeatability			±0.02	dB
Durability	10 ⁷			Cycle
Operating Voltage	4.5	5	6	VDC
Operating Current		30	60	mA
Switching Type	Latching/Non-Latching			
Operating Temperature	-5		70	°C
Storage Temperature	-40		85	°C
Optical Power Handling		300	500	mW

[1]. Within operating temperature and SOP.
 [2]. Excluding Connectors.
 [3]. Dual and Broad Band.

Applications

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



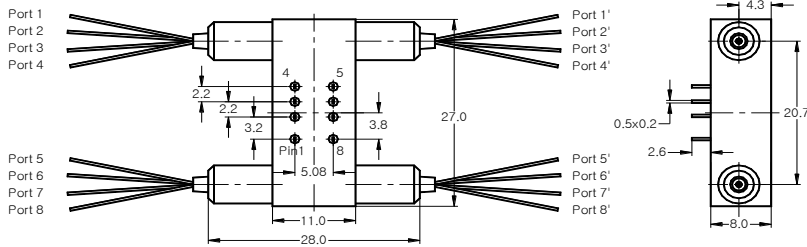
Revised on 06/29/22
 (Click here for latest revision)

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

LightBend™

Quad 2x2 Bypass Fiber Optic Switch

Mechanical Dimensions (Unit: mm)



*Product dimensions may change without notice. This is sometimes required for non-standard specifications.

Electrical Driving Requirements

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

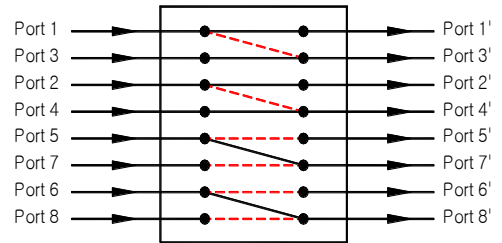
Application Note: Applying a constant driving voltage increases stability. The switches can also be driven by a pulse mode using Agiltron recommended circuit for energy saving.

Optical Path	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' 5→7', 6→8'	GND	5V	Close	Open	Open	Close
1→3', 2→4' 5→5', 6→6' 7→7', 8→8'	5V	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' 5→7', 6→8'	No Power		Close	Open	Open	Close
1→3', 2→4' 5→5', 6→6' 7→7', 8→8'	5V	GND	Open	Close	Close	Open

Functional Diagram



Ordering Information

LBQB ^[1]	Type	Wavelength	Switch	Package	Fiber Type	Fiber Length	Connector	
<input type="checkbox"/>	Quad 2x2=22 Special=00	1060=1 C+L=2 1310=3 1410=4 1550=5 850=8 1310 & 1550= 9 1260-1620=B Special=0	Latching=1 Non-Latching=2 Special=0	Standard=1 Special=0	SMF-28=1 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

[1]. LBQB: Light Bend Quad 2x2 Bypass Switch.



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Driver Reference Design

