

# LightBend™ Dual 2x2 Bypass Single-Mode Fiberoptic Switch

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

## Product Description

The LB Dual 2x2 Bypass OptoMechanical Fiberoptic switch is an integrated single device with 8 fiber ports. Based on Agiltron's patented technologies, the switch is designed especially for protection and restoration applications. The switch is activated by a low voltage pulse between two states, and the latching operation preserves the selected optical path after the drive signal has been removed. The switch has integrated electrical contact based status sensors. The design significantly reduces moving part position sensitivity, offering unprecedented high stability as well as an unmatched low cost. Electronic driver and circuit design assistance are 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 Dual 2x2 Bypass Switch	Min	Typical	Max	Unit
Wavelength	Single Band 1260-1360 or 1510-1610			nm
	Dual Band 1260-1360 and 1510-1610			
	Broad Band 1260-1610			
Insertion Loss <sup>1,2</sup>		0.7	1.0	dB
Wavelength Dependent Loss		0.15	0.4(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		4	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> Within operating temperature and SOP.

<sup>2</sup> Excluding Connectors.

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

\* Continuous operation, for pulse operation call

## Features

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

## Applications

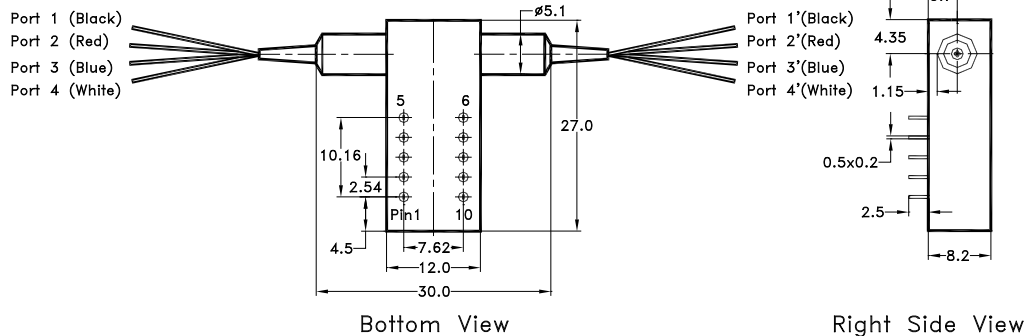
- Protection
- Instrumentation



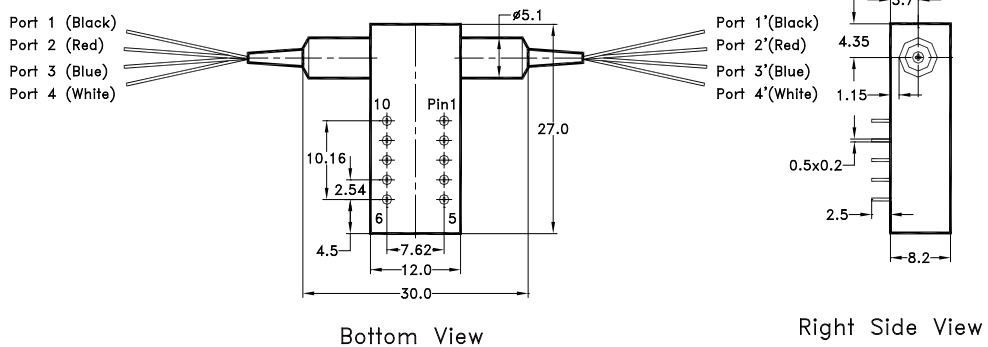
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## Mechanical Dimensions (Unit:mm)

### Latching Type



### Non-Latching Type



## 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

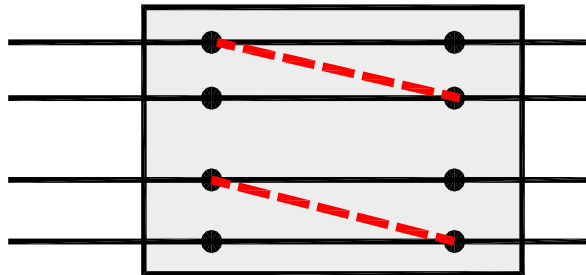
Optical Path	Electric Drive				Status Sensor			
	Pin 1	Pin 10	Pin 5	Pin 6	Pin 2-3	Pin 3-4	Pin 7-8	Pin 8-9
Port 1 → Port 1' Port 2 → Port 2' Port 3 → Port 3' Port 4 → Port 4'	GND	5V Pulse	N/A	N/A	Close	Open	Open	Close
Port 1 → Port 3' Port 2 → Port 4'	5V Pulse	GND	N/A	N/A	Open	Close	Close	Open

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## Non-Latching Type

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

## Functional Diagram



LB Dual 2x2 Bypass Switch

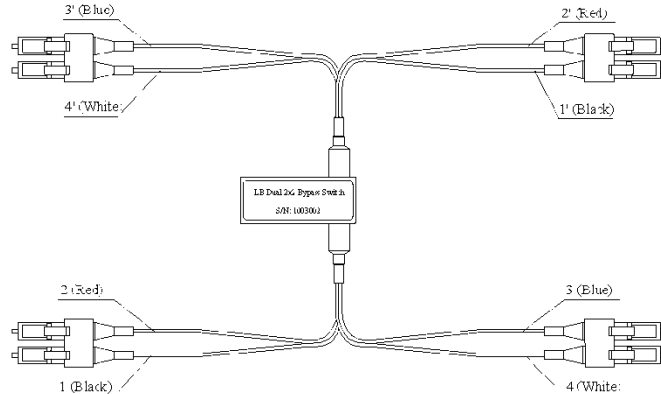
## Ordering Information

LBSW-	Type	Wavelength	Switch	Package	Fiber Type	Fiber Length	Connector
4 2	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 Single Coil=2  Latching Type Dual Coil=1  Non-latch=3	Standard=1 Special=0	SMF-28=1 Corning XB=2 Draka BBE=3 Special=0	Bare fiber=1 900um tube=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

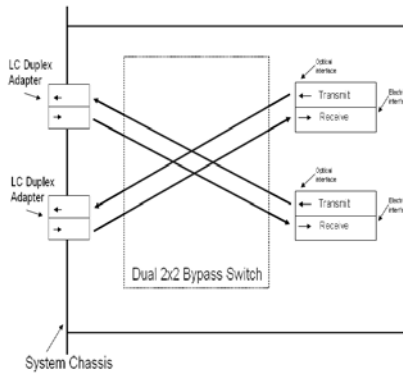
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## Application

Prepared with 4 duplex LC connectors and customized fiber length for convenient installation



Normal Mode



Bypass Mode

