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LightBend™ Dual 1x1, 1x2 Multimode Fiber Optic Switch (Bidirectional)

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

Product Description

The LB Dual 1x2 Multimode Fiberoptic switch is a highly integrated single device with 6 fiber ports. Based on an Agiltron's pending patent, the switch is designed especially for protection and restoration applications. The switch is activated by a 5V pulse between two states and latching operation preserves the selected optical path after the drive signal has been removed. The switch has integrated electrical contact based position sensors. The proprietary simple design significantly reduces moving part position sensitivity, offering unprecedented high stability as well as unmatched low cost. Electronic driver is available for this series of switches. The switch is bidirectional.

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 Dual 1x2 MM Switch	Min	Typical	Max	Unit
Wavelength	Single Band	780±20, 850±20, 1060±20, 1310±30, 1550±30		nm
	Dual Band	850 / 1310		nm
Insertion Loss ^{[1], [2]}		0.6	0.9	dB
Wavelength Dependent Loss			0.25	dB
Cross Talk ^{[1], [2]}	35			dB
Return Loss ^{[1], [2]}	35			dB
Switching Time		3	10	ms
Repeatability			± 0.02	dB
Durability	10 ⁷			Cycles
Operating Optical Power		300	500	mW
Operating Voltage	4.5	5	6	V
Operating Current		30	60	mA
Voltage Pulse Width (square)		20		ms
Switch Type		Latching / Non-Latching		
Operating Temperature		0 ~ 70		°C
Storage Temperature		-40 ~ 85		°C
Fiber Type		MM 62.5/125 or MM 50/125		
Package Dimension		30.0L x 30.0W X 8.5H		mm

Notes:

- [1]. Within operating temperature and with light source CPR <14 dB.
- [2]. Excluding Connectors.

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

Features

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

Applications

- Protection
- Instrumentation

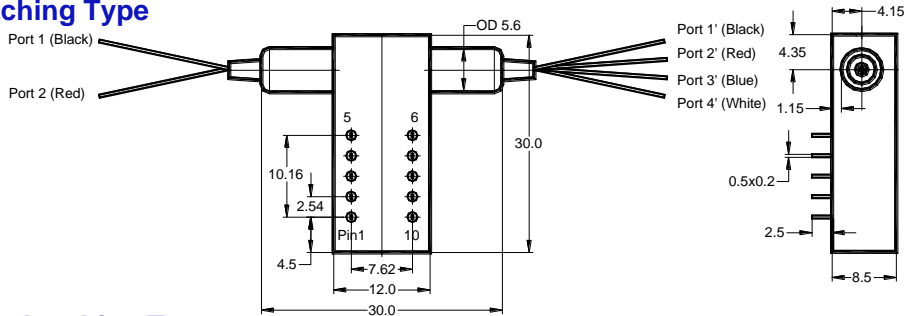


Revised on 06/30/22
(Click here for latest revision)

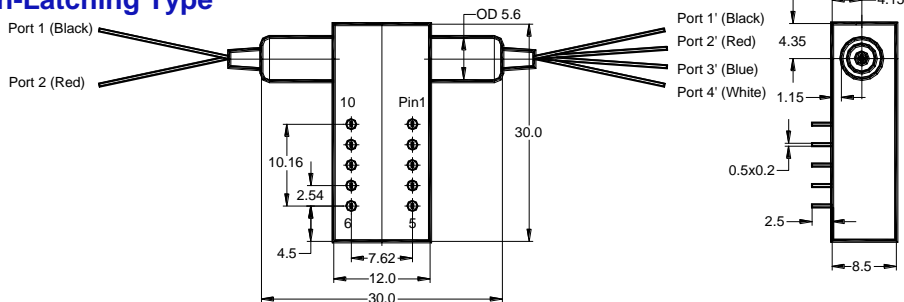
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Mechanical Dimensions (Unit: mm)

Latching Type



Non-Latching Type



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

Electrical Connector Configurations

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 - Single Coil

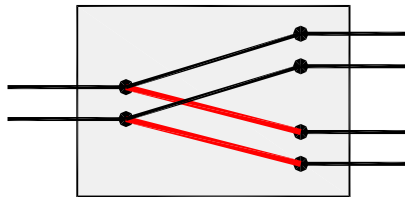
Optic Path	Electric Drive				Status Sensor			
	Pin1	Pin10	Pin 5	Pin 6	Pin 2-3	Pin 3-4	Pin 7-8	Pin 8-9
Port 1→Port 1' Port 2→Port 2'	GND	5V Pulse	N/A	N/A	Close	Open	Open	Close
Port 1→Port 3' Port 2→Port 4'	5V Pulse	GND	N/A	N/A	Open	Close	Close	Open

Non-Latching Type

Optic 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'	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

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Functional Diagram



LB Dual 1x2 MM Switch

Ordering Information

LBDU- ^[1]	Type	Wavelength	Switch	Package	Fiber Type	Fiber Length	Connector	
<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"/>	1x1 Latching=11 1x1 N/O ^[2] =1O 1x1 N/C ^[3] =1C 1x2=12 2x1=21 Special=00	1060=1 C+L=2 1310=3 1550=5 650=6 780=7 850=8 1310 & 1550=9 850 & 1310=A Special=0	Latching Type Single Coil=2 Non-latch=3 Special=0	Standard=1 Special=0	MM 50/125=5 MM 62.5/125=6 Special=0	Bare fiber=1 900 μm tube=3 Special=0	0.25m=1 0.5m=2 1.0=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]. **LBDU**: LB DUAL 1x1, 1x2 MM Switch.
- [2]. **N/O**: Non-Latching type Dual 1x1 Switch, Normally **O**pen.
- [3]. **N/C**: Non-Latching type Dual 1x1 Switch, Normally **C**lose.



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Driver Reference Design

