

# LightBend™ 1xN Mini Series Fiber Optic Switch

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

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



DATASHEET

BUY NOW



## Features

- Unmatched Low Cost
- Very Broad Spectral Range
- High Isolation
- High Reliability
- Epoxy-Free Optical Path

## Applications

- Signal management
- Sensor
- Spectroscopy
- High Power Laser
- Instrumentation

The LB 1xN Mini 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 LB 1xN Mini Series Fiber Optic Switch is suitable for multiple channel signal monitoring, test and signal management. The switch is bidirectional. The switch is ideal for sensor and spectroscopy applications as well.

The switch is operated by the computer through USB, RS232, or GBIB interface.

The LB series 1xN optical fiber switch is compliant with the Telcordia 1209 and 1221 reliability standards.

## Specifications

Parameter	Min	Typical	Max	Unit
Operation Wavelength	300		1675	nm
Insertion Loss <sup>[1]</sup>		0.5	1.0	dB
Wavelength Dependent Loss <sup>[2]</sup>		0.1	0.3	dB
Polarization Dependent Loss (SM)		0.03	0.10	dB
Extinction Ratio (PM)	18			dB
Return Loss (APC/UPC)	(SM, PM)	50		dB
	(MM)	35		dB
Cross Talk	50			dB
Operating Voltage		12		VDC
Switching Type		Latching		
Switching Time <sup>[3]</sup>		0.5		s
Durability	10 <sup>7</sup>			cycle
Operating Temperature	0		70	°C
Storage Temperature	-40		85	°C
Optical Power Handling	Standard		0.5	W
	High Power	2	5	
Fiber Type	SMF-28, 50/125MM, 62.5/125MM, PM 250			
Package Dimension	See Mechanical Dimensions			

### Notes:

[1]. Exclude connectors.

[2]. Within 100 nm bandwidth.

[3]. Defined for speed between the adjacent channels.

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

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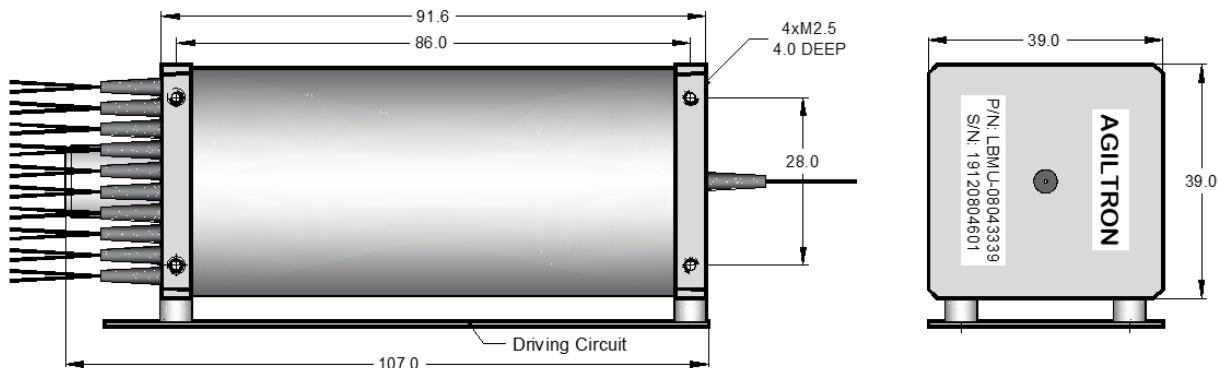
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### Mechanical Dimensions (mm)

#### Package A



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

### Electrical Driving Requirement

Computer controlling kit with USB or RS232 or GBIB interfaces and Windows™ GUI

### Ordering Information

Prefix	Type	Wavelength	Configuration	Optical Power	Fiber Type	Fiber Cover	Fiber Length	Connector
LBMU- <sup>[1]</sup>	1x2 = 02	1060 = 1	Single = S	0.5 W = 1	SMF-28 = 1	Bare fiber = 1	0.25 m = 1	None = 1
LBMR- <sup>[2]</sup>	1x3 = 03	C+L = 2	Dual = D	2 W = 2	MM 50/125 = 5	0.9mm tube = 3	0.5 m = 2	FC/PC = 2
LBMG- <sup>[3]</sup>	...	1310 = 3	Special = 0	5 W = 3	MM 62.5/125 = 6	Special = 0	1.0 m = 3	FC/APC = 3
LBMT- <sup>[4]</sup>	1x99 = 99 Special = 00	1410 = 4 1550 = 5 650 = 6 780 = 7 850 = 8 1310/1550 = 9 1260~1620 = B Special = 0		Special = 0	PM1550 = B PM1310 = D PM980 = E PM850 = F Special = 0		Special = 0	SC/PC = 4 SC/APC = 5 ST/PC = 6 LC/PC = 7 Duplex LC/PC = 8 SMA905 = 9 LC/UPC = U Special = 0

- [1]. **LBMU**: LightBend Mini 1xN Switch with **USB** driver.
- [2]. **LBMR**: LightBend Mini 1xN Switch with **RS232** driver.
- [3]. **LBMG**: LightBend Mini 1xN Switch with **GBIB** driver.
- [4]. **LBMT**: LightBend Mini 1xN Switch with **TTL** driver.

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### Application Notes

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#### **Fiber Core Alignment**

Note that the minimum attenuation for these devices depends on excellent core-to-core alignment when the connectors are mated. This is crucial for shorter wavelengths with smaller fiber core diameters that can increase the loss of many decibels above the specification if they are not perfectly aligned. Different vendors' connectors may not mate well with each other, especially for angled APC.

#### **Fiber Cleanliness**

Fibers with smaller core diameters (<5  $\mu\text{m}$ ) must be kept extremely clean, contamination at fiber-fiber interfaces, combined with the high optical power density, can lead to significant optical damage. This type of damage usually requires re-polishing or replacement of the connector.

#### **Maximum Optical Input Power**

Due to their small fiber core diameters for short wavelength and high photon energies, the damage thresholds for device is substantially reduced than the common 1550nm fiber. To avoid damage to the exposed fiber end faces and internal components, the optical input power should never exceed 20 mW for wavelengths shorter 650nm. We produce a special version to increase the handling by expanding the core side at the fiber ends.