

LightBend™ High Power 1x8 Fiber Optic Switch

(SM, MM, PM, up to 10W, Bidirectional)

(Protected by U.S. pending patents)



DATASHEET

BUY NOW



The LB 1x8 Series fiber optic switch connects optical channels by redirecting an incoming optical signal into a selected output fiber. This is achieved using a patent-pending optomechanical configuration activated via an electrical control signal. The latching operation preserves the selected optical path after the drive signal has been removed.

The switch has integrated electrical position sensors, and the new material-based advanced design significantly reduces moving part position sensitivity, offering unprecedented high stability as well as an unmatched low cost. An electronic driver is available for this series of switches.

Features

- Unmatched Low Cost
- Low Optical Distortions
- High Isolation
- High Reliability
- Epoxy-Free Optical Path

Applications

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

Specifications

Parameter	Min	Typical	Max	Unit
Operation Wavelength	850, 980, 1060, 1310, 1550, 1620			nm
Insertion Loss ^[1]		0.7	1.1	dB
Extinction Ratio ^[1] (PM)	18			dB
Polarization Dependent Loss (SM, PM)			0.1	dB
Return Loss ^[1]	SM, PM	50		dB
	MM	35		dB
Cross Talk ^[1]	SM, PM	50		dB
	MM	35		dB
Switching Time		3	10	ms
Repeatability			± 0.05	dB
Operating Voltage	4.5	5	6	VDC
Operating Current ^[2]	Latching		26	mA
	Non-Latching		36	mA
Voltage Pulse Width (Latching)		20		ms
Switching Type	Latching / Non-Latching			
Operating Temperature	-5		70	°C
Storage Temperature	-40		85	°C
Optical Power Handling	Standard	300	500	mW
	High Power	5	10	W
Fiber Type	SM, MM	SMF-28, MM 50/125, MM 62.5/125		
	PM	Panda 400, Panda 250		

Notes:

- [1]. Exclude connectors.
- [2]. Tested at 5VDC for each coil actuation.
- [3]. Measure at Light Source CPR<14 dB.

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

Legal notices: All product information is believed to be accurate and is subject to change without notice. Information contained herein shall legally bind Agiltron only if it is specifically incorporated into the terms and conditions of a sales agreement. Some specific combinations of options may not be available. The user assumes all risks and liability whatsoever in connection with the use of a product or its application.

Rev 03/04/24

© Photonwares Corporation

+1 781-935-1200

sales@photonwares.com

www.agiltron.com

Information contained herein is deemed to be reliable and accurate as of the issue date. Photonwares reserves the right to change the design or specifications at any time without notice. Agiltron is a registered trademark of Photonwares Corporation in the U.S. and other countries.

LightBend™ High Power 1x8 Fiber Optic Switch

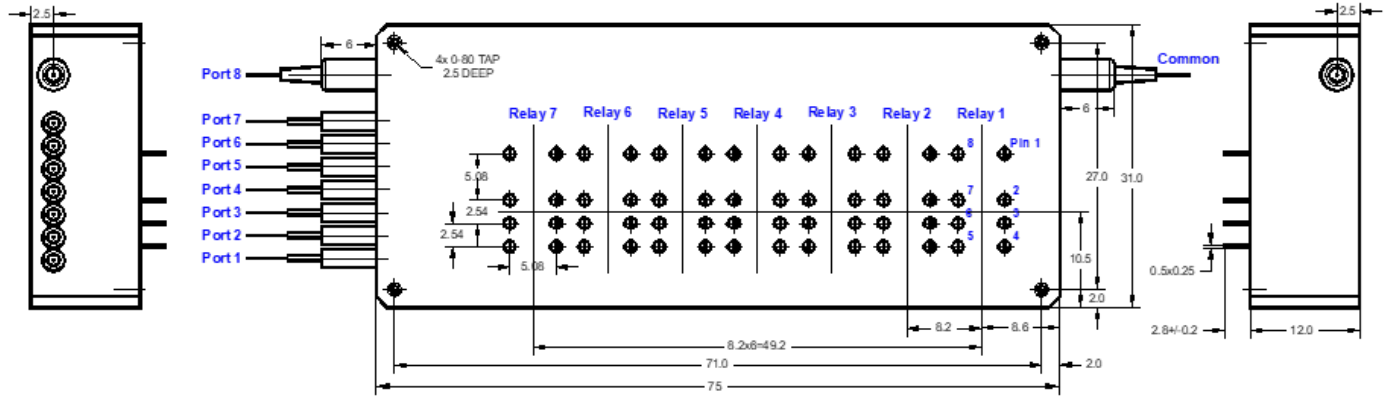
(SM, MM, PM, up to 10W, Bidirectional)

(Protected by U.S. pending patents)



DATASHEET

Mechanical Dimensions (Unit: mm)



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

Ordering Information

Prefix	Type	Wavelength	Switch	Power	Fiber Type	Fiber Cover	Fiber Length	Connector
LBHP- [1]	1x5 = 15 5x1 = 51 1x6 = 16 6x1 = 61 1x7 = 17 7x1 = 71 1x8 = 18 8x1 = 81 Special = 00	1060 = 1 1310 = 3 1550 = 5 780 = 7 850 = 8 980 = 9 Special = 0	Latching = 1 Non-latching = 2 Special = 0	5W = 4 10W = 5 Special = 0	SMF-28 = 1 MM50/125 = 5 MM62.5/125 = 6 PM1550 = B PM1310 = D PM980 = E PM850 = F Special = 0	Bare fiber = 1 900 um 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/PC = 7 Duplex LC/PC = 8 LC/UPC = U Special = 0

[1]. **LBHP**: LightBend 1x8 High Power Switch.

NOTE:

- ☐ PM1550 fiber works well for 1310nm

LightBend™ High Power 1x8 Fiber Optic Switch

(SM, MM, PM, up to 10W, Bidirectional)

(Protected by U.S. pending patents)



DATASHEET

Electrical Driving Requirements

Agiltron offers a computer control kit with TTL and RS232 interfaces and Windows™ GUI

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

Optical Path	Relay	Electrical Drive		Status Sensor			
		Pin 1	Pin 8	Pin 2-3	Pin 3-4	Pin 5-6	Pin 6-7
Common → Port 1	Relay 1	5V	0	Open	Close	Close	Open
	Relay 2, 3, 4, 5, 6, 7	N/A	N/A				
Common → Port 2	Relay 1	0	5V	Close	Open	Open	Close
	Relay 2	5V	0	Open	Close	Close	Open
	Relay 3, 4, 5, 6, 7	N/A	N/A				
Common → Port 3	Relay 1, 2	0	5V	Close	Open	Open	Close
	Relay 3	5V	0	Open	Close	Close	Open
	Relay 4, 5, 6, 7	N/A	N/A				
Common → Port 4	Relay 1, 2, 3	0	5V	Close	Open	Open	Close
	Relay 4	5V	0	Open	Close	Close	Open
	Relay 5, 6, 7	N/A	N/A				
Common → Port 5	Relay 1, 2, 3, 4	0	5V	Close	Open	Open	Close
	Relay 5	5V	0	Open	Close	Close	Open
	Relay 6, 7	N/A	N/A				
Common → Port 6	Relay 1, 2, 3, 4, 5	0	5V	Close	Open	Open	Close
	Relay 6	5V	0	Open	Close	Close	Open
	Relay 7	N/A	N/A				
Common → Port 7	Relay 1, 2, 3, 4, 5, 6	0	5V	Close	Open	Open	Close
	Relay 7	5V	0	Open	Close	Close	Open
Common → Port 8	Relay 1, 2, 3, 4, 5, 6, 7	0	5V	Close	Open	Open	Close

Non-Latching Type

Optical Path	Relay	Electrical Drive		Status Sensor			
		Pin 1	Pin 8	Pin 2-3	Pin 3-4	Pin 5-6	Pin 6-7
Common → Port 1	Relay 1	5V	0	Open	Close	Close	Open
	Relay 2, 3, 4, 5, 6, 7	No Power		Close	Open	Open	Close
Common → Port 2	Relay 2	5V	0	Open	Close	Close	Open
	Relay 1, 3, 4, 5, 6, 7	No Power		Close	Open	Open	Close
Common → Port 3	Relay 3	5V	0	Open	Close	Close	Open
	Relay 1, 2, 4, 5, 6, 7	No Power		Close	Open	Open	Close
Common → Port 4	Relay 4	5V	0	Open	Close	Close	Open
	Relay 1, 2, 3, 5, 6, 7	No Power		Close	Open	Open	Close
Common → Port 5	Relay 5	5V	0	Open	Close	Close	Open
	Relay 1, 2, 3, 4, 6, 7	No Power		Close	Open	Open	Close
Common → Port 6	Relay 6	5V	0	Open	Close	Close	Open
	Relay 1, 2, 3, 4, 5, 7	No Power		Close	Open	Open	Close
Common → Port 7	Relay 7	5V	0	Open	Close	Close	Open
	Relay 1, 2, 3, 4, 5, 6	No Power		Close	Open	Open	Close
Common → Port 8	Relay 1, 2, 3, 4, 5, 6, 7	No Power		Close	Open	Open	Close

LightBend™ High Power 1x8 Fiber Optic Switch

(SM, MM, PM, up to 10W, Bidirectional)

(Protected by U.S. pending patents)



DATASHEET

Application Notes

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 μm) 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.