



CrystaLatch™

1x2 3-Stage Series Fiber Optic Switch

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

(Protected by U.S. patents 7224860, 6757101, 6577430 and pending patents)

Product Description

The CL 1x2 3-Stage Series fiber optical switch connects optical channels by redirecting an incoming optical signal into a selected output fiber. This is achieved using patented non-mechanical configurations and activated via an electrical control signal. Latching operation preserves the selected optical path after the drive signal has been removed. The all solid state CL 1x2 3-stage fiber optic switch features low insertion loss, high extinction ratio, high channel isolation, and extremely high reliability and repeatability. It is designed to meet the most demanding switching requirements of continuous operation without failure, longevity, operation under shock/vibration environment and large temperature variations, and fast response time.

The switch also has build-in circulator and isolator functions. Electronic driver is available for this series of switches.

The magneto-optical crystals used in the CL switches have no fatigue nor drift effect.



Features

- Solid-State high speed
- Ultra-high reliability
- Fail-safe latching
- Low insertion loss
- Direct low voltage drive
- Compact
- Low cost

Performance Specifications

CL 1x2 3-Stage Series Switch	Min	Typical	Max	Unit
Operation Wavelength ^[1]	1510	1550	1620	nm
	1295	1310	1325	nm
Insertion Loss ^[2]		0.7	1.1	dB
Cross Talk ^[2]	50	70		dB
Polarization Dependent Loss ^[2] (SM only)		0.1	0.2	dB
Extinction Ratio ^[2] (PM only)	18			dB
Return Loss ^[2]	50	55		dB
Polarization Mode Dispersion		0.1	0.2	ps
Optical Switching Speed (rise, fall)	5		10	μs
Repetition Rate		2K		Hz
Durability	10 ¹⁵			cycle
Optical Power Handling ^[3]		300	500 ^[3]	mW
			2 ^[4]	W
Operating Temperature	-5		70	°C
Storage Temperature	-40		85	°C
Fiber Type	SMF-28, Panda PM 250, or equivalent			
Package Dimension	63.5 x 7.8 x 7.8			mm

[1]. Agiltron can achieve same SPEC at L band.
 [2]. Measured without connectors.
 [3]. Optical power is bigger than 2W, please call.
 [4]. High power version

Applications

- Optical channel blocking
- Configurable Add/Drop
- System monitoring
- Instrumentation

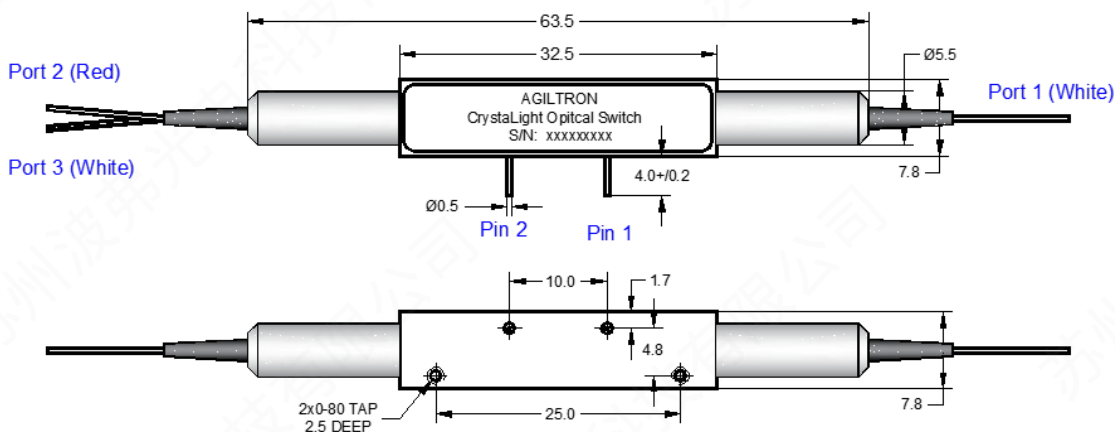


Revised on 02/13/23
 (Click here for latest revision)

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Mechanical Dimensions (Unit: mm)



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

Electrical Driving Information

The switch is actuated by applying a voltage pulse. Applying one polarity pulse, one light path will be connected and latched to the position. Applying a reversed polarity pulse, another light path will be connected and latched to the position after pulse removed.

Parameter	Minimum	Typical	Maximum	Unit
Drive Voltage	7.0	7.5	8.0 [1]	V
Resistance (Pin 1 - Pin 2)	45	54	66	Ω
Pulse Duration	0.2	0.3	0.5	ms

[1]. Over this value will damage the device.

Driving kit with USB and TTL interfaces and Windows™ GUI is available. We also offer RS232 interface as an option - please contact Agiltron sales.

Bidirectional Switch 1x2, or 2x1 Switch Driving Table

Optical Path	Pin 1	Pin 2
Port 1→Port 2	GND	7.5V Pulse
Port 1→Port 3	7.5V Pulse	GND

Unidirectional Switch 1x2 Switch Driving Table

Optical Path	Pin 1	Pin 2
Port 1→Port 2	GND	7.5V Pulse
Port 1→Port 3	7.5V Pulse	GND

Unidirectional Switch 2x1 Switch Driving Table

Optical Path	Pin 1	Pin 2
Port 2→Port 1	7.5V Pulse	GND
Port 3→Port 1	GND	7.5V Pulse

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Ordering Information

Prefix	Type	Wavelength	Switch	Package	Fiber Type	Fiber Cover	Fiber Length	Connector ^[9]
CLSW- ^[1]	1x1 = 11	1310 = 3	3-stage = 3	Standard = 1	SMF-28 = 1	Bare fiber = 1	0.25m = 1	None = 1
CLPM- ^[2]	1x2 = 12	1550 = 5		Special = 0	PM 1550 = B	900 um tube = 3	0.5m = 2	FC/PC = 2
CLHP- ^[3]	2x1 = 21				Special = 0	Special = 0	1.0m = 3	FC/APC = 3
CLBD- ^[4]							Special = 0	SC/PC = 4
CLPH- ^[5]								SC/APC = 5
CLHB- ^[6]								ST/PC = 6
CLPB- ^[7]								LC/PC = 7
CPHB- ^[8]								Duplex LC = 8
								Special = 0

- [1]. **CLSW**: CrystaLatch 3-Stage 1x1, 1x2 SM **SWITCH**.
- [2]. **CLPM**: CrystaLatch 3-Stage 1x1, 1x2 **PM** Switch.
- [3]. **CLHP**: CrystaLatch 3-Stage 1x1, 1x2 SM **High Power** Switch.
- [4]. **CLBD**: CrystaLatch 3-Stage 1x1, 1x2 SM **BIDIRECTIONAL** Switch.
- [5]. **CLPH**: CrystaLatch 3-Stage 1x1, 1x2 **PM High Power** Switch.
- [6]. **CLHB**: CrystaLatch 3-Stage 1x1, 1x2 **High Power Bidirectional** Switch.
- [7]. **CLPB**: CrystaLatch 3-Stage 1x1, 1x2 **PM Bidirectional** Switch.
- [8]. **CPHB**: CrystaLatch 3-Stage 1x1, 1x2 **PM High Power Bidirectional** Switch.
- [9]. There isn't any connector in high power switches. Please contact us for high power connectors.

