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CrystaLatch™ Dual-Stage 2x2 Series Fiber Optical Switch

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

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

Product Description

The CL Series 2x2 Solid State Fiber Optical Switch connects optical channels by redirecting an incoming optical signal into a selected output fiber. This is achieved using patented non-movement 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 fiberoptic switches feature low insertion loss, high extinction ratio, high channel isolation, and extremely high reliability. 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, as well as 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

- High Speed
- Non-Mechanical
- High Reliability
- Fail-Safe Latching
- Low Insertion Loss
- Rugged
- Compact
- Cost Effective
- Direct Low Voltage Drive

Performance Specifications

CL Dual Stage 2x2 Series Switch	Min	Typical	Max	Unit	
Operation Wavelength ^[1]	1520	1550	1580	nm	
	1295	1310	1325	nm	
Insertion Loss ^[2]		0.7	1.2	dB	
Cross Talk	Bidirectional Series Switch		35	50	dB
	Unidirectional Series Switch		37	50	dB
PDL (SM Series Switch only)		0.1	0.2	dB	
Extinction Ratio (PM Series Switch only)	18	25		dB	
Return Loss	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	
Operating Temperature	-5		70	°C	
Storage Temperature	-40		85	°C	
Optical Power Handling	Standard		300	500	mW
	High power series		1.5	2	W
Fiber Type	SMF-28, Panda PM, or equivalent				
Package Dimension	68.6L x 11.0W x 8.4H			mm	

[1]. Agiltron can achieve same SPEC at L band.
 [2]. Measured without connectors.

Applications

- Optical Sensing
- Optical Signal Routing
- Instrumentation

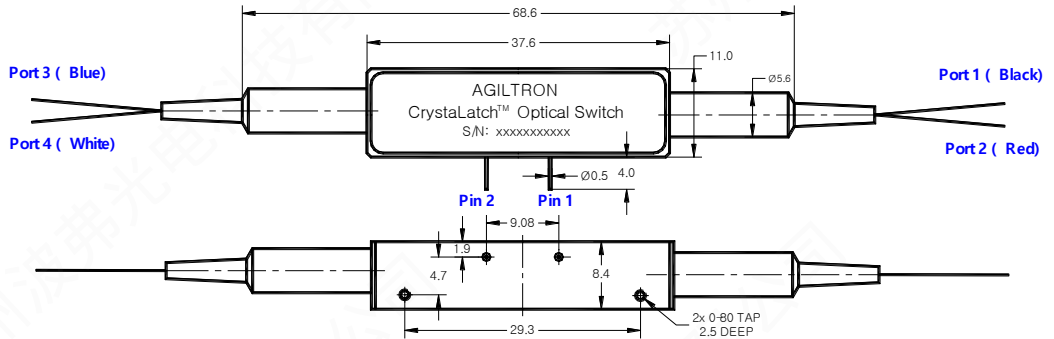


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 (Click here for latest revision)

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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	4.5	5.0	5.5*	V
Drive Current	110	140	195	mA
Pulse Duration	0.2	0.3	0.5	ms

*Over this value will damage the device.

Driving kit with USB or RS232 control interfaces with Windows™ GUI is available.

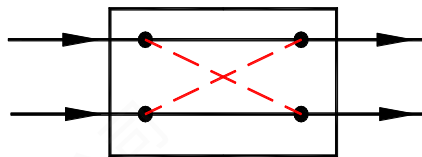
Bidirectional Series Switch Driving Table

Optical Path	Pin 1	Pin 2
Port 1→3 (or Port 3→1) Port 2→4 (or Port 1→3)	GND	5V Pulse
Port 1→4 (or Port 4→1) Port 2→3 (or Port 3→2)	5V Pulse	GND

Other Series Switch Driving Table

Optical Path	Pin 1	Pin 2
Port 1→3, Port 2→4	GND	5V Pulse
Port 1→4, Port 2→3	5V Pulse	GND
Optical Path	Pin 1	Pin 2
Port 3→1, Port 4→2	5V Pulse	GND
Port 3→2, Port 4→1	GND	5V Pulse

Function Diagram



CL 2x2 Dual Stage Switch



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

Ordering Information

Prefix	Type	Wavelength	Switch	Package	Fiber Type	Fiber Cover	Fiber Length	Connector ^[9]
CLSW- ^[1] CLPM- ^[2] CLHP- ^[3] CLBD- ^[4] CLPH- ^[5] CLHB- ^[6] CLPB- ^[7] CPHB- ^[8]	2x2 = 22	1310 = 3 1550 = 5 Special = 0	Dual Stage = 2	Standard = 1 Special = 0	SMF-28 = 1 PM 1550 = B 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 = 8 Special = 0

[1]. **CLSW**: CrystaLatch Dual Stage SM SWITCH.

[2]. **CLPM**: CrystaLatch Dual Stage PM Switch.

[3]. **CLHP**: CrystaLatch Dual Stage High Power Switch.

[4]. **CLBD**: CrystaLatch Dual Stage BIDIRECTIONAL Switch.

[5]. **CLPH**: CrystaLatch Dual Stage PM High Power Switch.

[6]. **CLHB**: CrystaLatch Dual Stage High Power Bidirectional Switch.

[7]. **CLPB**: CrystaLatch Dual Stage PM Bidirectional Switch.

[8]. **CPHB**: CrystaLatch Dual Stage PM High Power Bidirectional Switch.

[9]. There isn't any connector in high power switches. Please contact us for high power connectors.