



CrystaLatch™

2x2 Fiber Optic Switch

(full aerospace, outspace, and undersea qualified)

(SM, PM, High Power, Bidirectional, Isolator/Circulator Build-in)

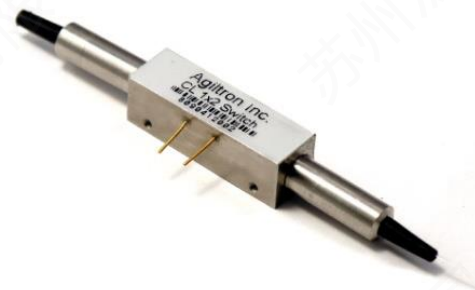
(Protected by U.S. patents 7224860, 6757101, 6577430 and pending patents)

Product Description

The CL 2x2 Fiber Optical Switch redirects an incoming optical signal into a selected output fiber, 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 1x1,1x2 fiberoptic 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, over 25 year 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.



Performance Specifications

CL Single 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	18	25		dB
	Unidirectional Series Switch	20	25		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 (-40) ³		70 (80) ⁴	°C
Storage Temperature		-40		85	°C
Optical Power Handling	Standard		300	500	mW
	High power series		1.5	2	W
Package Dimension			67.3L x 8.5W x 8.5H		mm

[1]. L band version available

[2]. Measured without connectors.

[3]. Special -40 C version available

[4]. Special -80 C version available

Features

- High speed
- High reliability
- Latching
- Low loss
- Direct drive
- Compact
- Low cost

Applications

- Telcom
- Airplane
- Satellite
- Undersea
- LiDAR

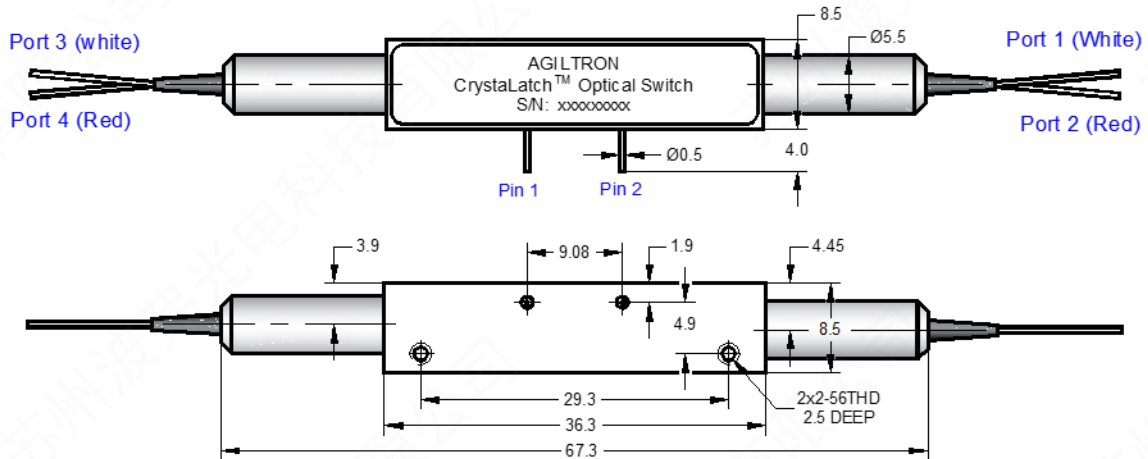


2x2 Fiber Optic Switch

(full aerospace, outspace, and undersea qualified)

(SM, PM, High Power, Bidirectional, Isolator/Circulator Build-in)

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	2.25	2.5	2.75*	V
Drive Current	110	140	195	mA
Pulse Duration	0.2	0.3	0.5	ms

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

Unidirectional Series Switch Driving Table

Optical Path A	Pin 1	Pin 2
Port 1 → 3, Port 2 → 4	GND	2.5V Pulse
Port 1 → 4, Port 2 → 3	2.5V Pulse	GND

Optical Path B	Pin 1	Pin 2
Port 3 → 1, Port 4 → 2	2.5V Pulse	GND
Port 3 → 2, Port 4 → 1	GND	2.5V Pulse

Bidirectional Series Switch Driving Table

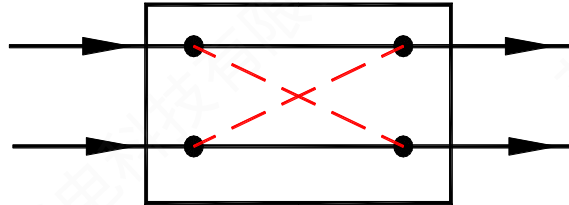
Optical Path	Pin 1	Pin 2
Port 1 → 3 (or Port 3 → 1) Port 2 → 4 (or Port 1 → 3)	GND	2.5V Pulse
Port 1 → 4 (or Port 4 → 1) Port 2 → 3 (or Port 3 → 2)	2.5V Pulse	GND

2x2 Fiber Optic Switch

(full aerospace, outspace, and undersea qualified)

(SM, PM, High Power, Bidirectional, Isolator/Circulator Build-in)

Function Diagram



CL 2x2 Single Stage Switch

Ordering Information

Prefix	Type	Wavelength	Switch	Package	Fiber Type	Fiber Cover	Fiber Length	Connector ^[9]
CLSW- ^[1]	2x2 = 22	1310 = 3	Single Stage = 1	Standard = 3	SMF-28 = 1	Bare fiber = 1	0.25m = 1	None = 1
CLPM- ^[2]	Special = 00	1550 = 5	Special = 0	-40°C Version = 5	PM 1550 = B	900 um tube = 3	0.5m = 2	FC/PC = 2
CLHP- ^[3]		Special = 0			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 2x2 Single Stage SM **SWITCH**.

[2]. **CLPM**: CrystaLatch 2x2 Single Stage **PM** Switch.

[3]. **CLHP**: CrystaLatch 2x2 Single Stage **High Power** Switch.

[4]. **CLBD**: CrystaLatch 2x2 Single Stage **BIDIRECTIONAL** Switch.

[5]. **CLPH**: CrystaLatch 2x2 Single Stage **PM High Power** Switch.

[6]. **CLHB**: CrystaLatch 2x2 Single Stage **High Power Bidirectional** Switch.

[7]. **CLPB**: CrystaLatch 2x2 Single Stage **PM Bidirectional** Switch.

[8]. **CPHB**: CrystaLatch 2x2 Single Stage **PM High Power Bidirectional** Switch.

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