

CrystaLatch™

1x8 Series Fiber Optic Switch

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

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

Product Description

The CrystaLatch™ 1x8 Series fiber optic 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 1x8 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 built-in Circulator and isolator functions. Electronic driver is available for this series of switches.



Performance Specifications

CL Series 1x8 Switch	Min	Typical	Max	Unit
Operation Wavelength [1]	1520	1550	1580	nm
	1295	1310	1325	nm
Insertion Loss [2]		1.2	2.2	dB
Cross Talk [2]	Bidirectional Series	35	45	dB
	Unidirectional Series	40	50	dB
Return Loss [2]	50	55		dB
PDL (SMF Series only)		0.15	0.35	dB
Extinction Ratio (PMF Series only)	18	25		dB
Polarization Mode Dispersion (SMF Series only)			0.2	ps
Switch Speed (Rise, Fall)		50	200	µs
Repetition Rate		2K		Hz
Durability	10 ¹¹			cycle
Optical Power Handling	Standard	300	500	mW
	High Power Series		2 [3]	W
Switch type	Solid-State Latching			
Operating Temperature [3]	-5		70 [4]	°C
Storage Temperature	-40		85	°C
Fiber Type	SMF-28, Panda PM, or equivalent			
Package Dimension	70.6L x 38.3W x 8.5H			mm

[1]. Agiltron can achieve same SPEC at L band.
 [2]. Measured without connectors.
 [3]. Continuous operation, for pulse operation call.
 [4]. The premium versions with the operating temperature larger than -5-+70°C are available, please see the ordering information.

Features

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

Applications

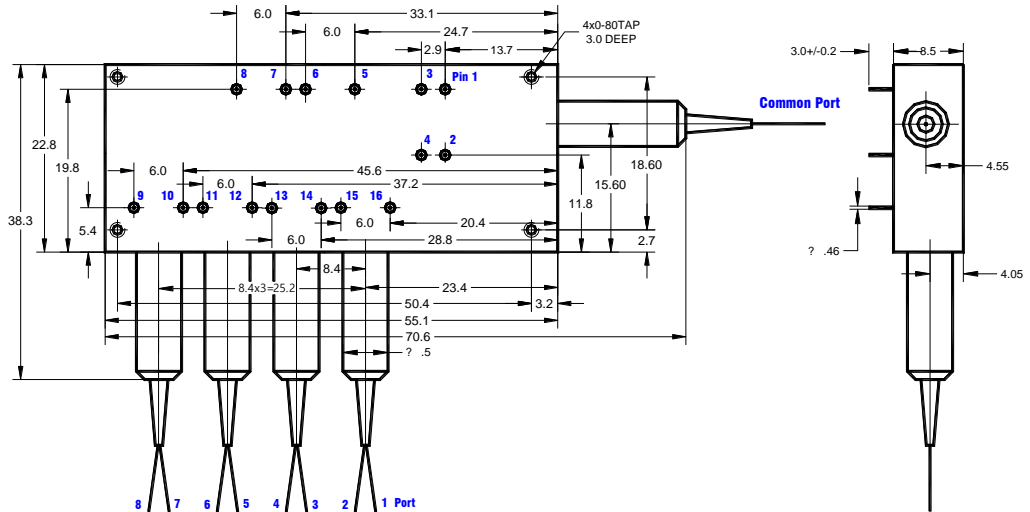
- Optical Signal Routing
- Network Protection
- Burst Switching
- Configurable Add/Drop
- Signal Monitoring
- Instrumentation



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Mechanical Dimensions (Unit: mm)



Electrical Driving Information

Each switching point is actuated by applying a polarity voltage pulse through a pair of PINS, and latched after pulse removed.

Parameter	Minimum	Typical	Maximum	Unit
Resistance (each Pin group)	15	18	22	Ω
Switch Voltage	2.25	2.5	2.75 ^[1]	V
Pulse Duration	0.2	0.3	0.5	ms

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

Driving kit with USB and/or RS232 or TTL interfaces is available. We provide GUI for USB and RS232 interface. Please contact sales for more information.

Bidirectional series CL 1x8, or 8x1 Switch Electrical Driving Table

Optical Path	Pin Group 1		Pin Group 2		Pin Group 3		Pin Group 4		Pin Group 5		Pin Group 6		Pin Group 7		Pin Group 8	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Common ↔ Port 1	+ ^[1]	-	+	-	-	+	-	+	+	-	+	-	-	+	+	-
Common ↔ Port 2	-	+	-	+	-	+	-	+	+	-	+	-	-	+	+	-
Common ↔ Port 3	+	-	-	+	-	+	-	+	+	-	+	-	+	-	-	+
Common ↔ Port 4	-	+	+	-	-	+	-	+	+	-	+	-	+	-	-	+
Common ↔ Port 5	+	-	-	+	+	-	+	-	+	-	-	+	-	+	-	+
Common ↔ Port 6	-	+	+	-	+	-	+	-	+	-	-	+	-	+	-	+
Common ↔ Port 7	+	-	-	+	+	-	-	+	-	+	+	-	-	+	-	+
Common ↔ Port 8	-	+	+	-	+	-	-	+	-	+	+	-	-	+	-	+

[1]. "+": 2.25~2.75V Pulse, Topical is 2.5V pulse; "-": Ground.

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Unidirectional series CL 1x8, Switch Electrical Driving Table

Optical Path	Pin Group 1		Pin Group 2		Pin Group 3		Pin Group 4		Pin Group 5		Pin Group 6		Pin Group 7		Pin Group 8	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Common→ Port 1	+ [1]	-	+	-	-	+	-	+	+	-	+	-	-	+	+	-
Common→ Port 2	-	+	-	+	-	+	-	+	+	-	+	-	-	+	+	-
Common→ Port 3	+	-	-	+	-	+	-	+	+	-	+	-	+	-	-	+
Common→ Port 4	-	+	+	-	-	+	-	+	+	-	+	-	+	-	-	+
Common→ Port 5	+	-	-	+	+	-	+	-	+	-	-	+	-	+	-	+
Common→ Port 6	-	+	+	-	+	-	+	-	+	-	-	+	-	+	-	+
Common→ Port 7	+	-	-	+	+	-	-	+	-	+	+	-	-	+	-	+
Common→ Port 8	-	+	+	-	+	-	-	+	-	+	+	-	-	+	-	+

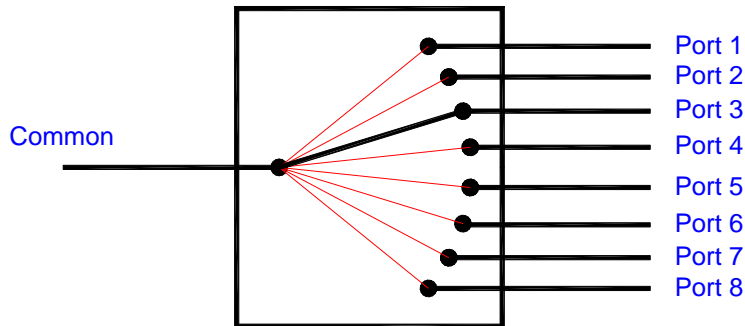
[1]. "+": 2.25~2.75V Pulse, Topical is 2.5V pulse; "-": Ground.

Unidirectional series 8x1 Switch Electrical Driving Table

Optical Path	Pin Group 1		Pin Group 2		Pin Group 3		Pin Group 4		Pin Group 5		Pin Group 6		Pin Group 7		Pin Group 8	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Common→ Port 1	-	+ [1]	-	+	+	-	+	-	-	+	+	-	+	-	-	+
Common→ Port 2	+	-	+	-	+	-	+	-	-	+	+	-	+	-	-	+
Common→ Port 3	-	+	+	-	+	-	+	-	-	+	+	-	-	+	-	+
Common→ Port 4	+	-	-	+	+	-	+	-	-	+	+	-	-	+	-	+
Common→ Port 5	-	+	+	-	-	+	-	+	+	-	+	-	-	+	-	+
Common→ Port 6	+	-	-	+	-	+	-	+	+	-	+	-	-	+	-	+
Common→ Port 7	-	+	+	-	-	+	+	-	+	-	+	-	-	+	-	+
Common→ Port 8	+	-	-	+	-	+	+	-	+	-	+	-	-	+	-	+

[1]. "+": 2.25~2.75V Pulse, Topical is 2.5V pulse; "-": Ground.

Functional Diagram



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Ordering Information

	Type	Wavelength	Switch	Package	Fiber Type	Fiber Length	Connector
CLSW ^[1]	1x8=18	1310=3	Dual Stage=2	Standard=2	SMF-28 =1	Bare fiber=1	None=1
CLPM ^[2]	8x1=81	1550=5		-40~+85°C=A	PM 250 =B	900 μm loose tube=3	FC/PC=2
CLHP ^[3]	1x7=17	Special=0		-40~+70°C=B	Special=0	Special=0	FC/APC=3
CLBD ^[4]	7x1=71			-20~+85°C=C			SC/PC=4
CLPH ^[5]	1x6=16			-20~+70°C=D			SC/APC=5
CLHB ^[6]	6x1=61			Special=0			ST/PC=6
CLPB ^[7]	1x5=15						LC=7
CPHB ^[8]	5x1=51						Duplex LC=8
	Special=00						Special=0

- [1]. CLSW: CrystaLatch Dual Stage 1x8 SWITCH.
- [2]. CLPM: CrystaLatch Dual Stage 1x8 PM Switch.
- [3]. CLHP: CrystaLatch Dual Stage 1x8 High Power Switch.
- [4]. CLBD: CrystaLatch Dual Stage 1x8 BIDIRECTIONAL Switch.
- [5]. CLPH: CrystaLatch Dual Stage 1x8 PM High Power Switch.
- [6]. CLHB: CrystaLatch Dual Stage 1x8 High Power Bidirectional Switch.
- [7]. CLPB: CrystaLatch Dual Stage 1x8 PM Bidirectional Switch.
- [8]. CPHB: CrystaLatch Dual Stage 1x8 PM High Power Bidirectional Switch.