

# CrystaLatch™ Mini 1x3, 1x4 Solid State Fiberoptic Switch

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

## Product Description

The CL Series 1x3,1x4 Mini 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 1x3,1x4 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, 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.



## Performance Specifications

CL Series 1x3, 1x4 Mini Switch	Min	Typical	Max	Unit
Operation Wavelength <sup>1</sup>	1520	1550	1580	nm
	1295	1310	1325	nm
Insertion Loss <sup>2</sup>	0.8	1.3	1.5	dB
Polarization Dependent Loss		0.1	0.25	dB
Cross Talk	40	45	55	dB
Polarization Mode Dispersion		0.1	0.2	ps
Return Loss <sup>2</sup>	50			dB
Switch Time (Rise, Fall)	20	50	200	µs
Repetition Rate		5K		Hz
Operating Temperature	-5 <sup>3</sup>		70	°C
Optical Power		300	500	mW
Storage Temperature	-40		85	°C
Switch type	Solid-Status Latching			
Fiber Type	Corning SMF28			
Package Dimension	42.0L x 20.0W x 7.8H			mm

1. Agiltron can achieve same SPEC at L band
2. Measured without connectors
3. The typical crosstalk of single stage is 20dB
4. High power version available.
5. -40 °C version is also available.

15 Cabot Road, Woburn, MA 01801 Tel: (781) 9351200 Fax: (781) 935-2040

[www.agiltron.com](http://www.agiltron.com)

## Features

- Solid-State High Speed
- Non-Mechanical
- Ultra-High Reliability
- Fail-Safe Latching
- Low Insertion Loss
- Direct Low Voltage Drive
- Compact
- Low Cost

## Applications

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

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## 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
Resistance (each group)	15	18	22	Ω
Switch Voltage	2.5		3	V
Pulse Duration	0.1	0.2	2	ms

Driving kit with RS232 and TTL interfaces and Windows™ GUI is available  
CL 1x4 Switch

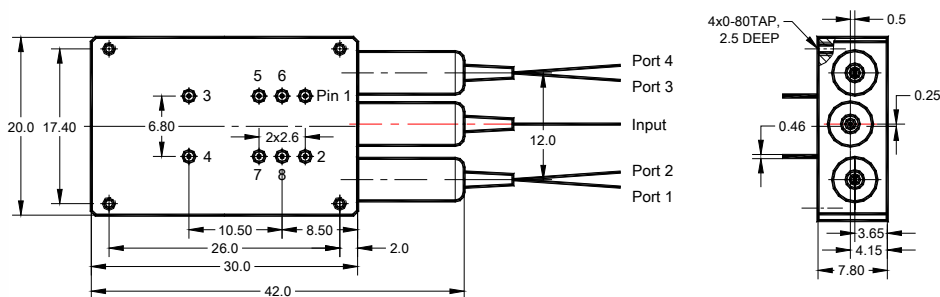
Optical Path	Pin Group 1		Pin Group 2		Pin Group 3		Pin Group 4	
	1	2	3	4	5	6	7	8
Input → Port 1	+	-	+	-	-	+	+	-
Input → Port 2	-	+	-	+	-	+	+	-
Input → Port 3	+	-	-	+	+	-	-	+
Input → Port 4	-	+	+	-	+	-	-	+

CL 4x1 Switch

Optical Path	Pin Group 1		Pin Group 2		Pin Group 3		Pin Group 4	
	1	2	3	4	5	6	7	8
Port 1 → Output	-	+	-	+	+	-	-	+
Port 2 → Output	+	-	+	-	+	-	-	+
Port 3 → Output	-	+	+	-	-	+	+	-
Port 4 → Output	+	-	-	+	-	+	+	-

Note: "+" is 2.5~3.0V Pulse. "-" is Ground.

## Mechanical Footprint Dimensions (mm)



## Ordering Information

CLMN-	Type	Wavelength	Switch	Package	Fiber Type	Fiber Length	Connector	
□ □ □ □ □ □ □ □	1x3=13 3x1=31 1x4=14 4x1=41	1310=3 1550=5 Special=0	Dual Stage=2	Standard=1 Special=0	SMF-28=1 Special=0	Bare fiber=1 900µm loose 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 = 7 Special = 0