

CrystaLatch™ Bi-directional 1x4 Solid State Fiberoptic Switch

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

Product Description

The CL Series bi-directional 1x4 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-mechanical configurations and activated via an electrical control signal. Latching operation preserves the selected optical path after the drive signal has been removed. These switches are true bidirectional allowing light propagating in both directions simultaneously, a critical feature for sensing applications. Agiltron non-mechanical CL fiberoptic switch features low insertion loss, fast response time, high extinction ratio, and extremely high reliability and repeatability. It is designed to meet the most demanding switching requirements of continuous operation without wear-out, longevity without fail, and live operation under vibration/shock. Electronic driver is available for this series of switches.



Performance Specifications

| CL Series 1x4 BD Switch | Min | Typical | Max | Unit |
|---------------------------------------|----------------------|---------|------|-------|
| Operation Wavelength ¹ | 1520 | 1550 | 1580 | nm |
| | 1295 | 1310 | 1325 | nm |
| Insertion Loss ² | | 1.2 | 1.7 | dB |
| Cross Talk | 35 | 50 | | dB |
| Switch Speed (Rise, Fall) | 5 | 50 | 200 | μs |
| Repetition Rate | | 2K | | Hz |
| Durability | 10 ¹¹ | | | cycle |
| Polarization Dependent Loss | | 0.1 | 0.25 | dB |
| Polarization Mode Dispersion | | 0.1 | 0.2 | ps |
| Return Loss ² | 50 | 55 | | dB |
| Operating Temperature ³ | -5 | | 70 | °C |
| Optical Power Handling ^{4,5} | | 300 | | mW |
| Storage Temperature | -40 | | 85 | °C |
| Fiber Type | Corning SMF-28 | | | |
| Package Dimension | 53.5L x 38.3W x 8.5H | | | mm |

1. Agiltron can achieve same SPEC at L band.

2. Exclude connectors.

3. -40°C version is also available.

4. High power version available.

5. Continuous operation, for pulse operation call.

Features

- Solid-State High Speed
- Non-Mechanical
- Ultra-High Reliability
- Fail-Safe Latching
- Low Insertion Loss
- Direct Low Voltage Drive
- Compact
- Vibration Tolerance
- 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 | 2.25 | 2.5 | 2.75* | V |
| Pulse Duration | 0.2 | 0.3 | 0.5 | ms |

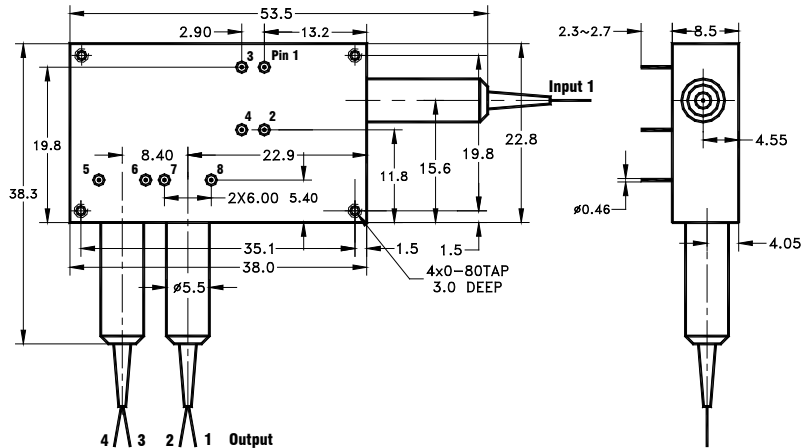
*Over this value will damage the device.

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

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

"+" : 2.5~3.0V Pulse; "-" : Ground.

Mechanical Footprint Dimensions (mm)



Ordering Information

| CLBD- | <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 4 | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> 2 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
|-------|--|---------------------------|--------------------------|---------------------------------------|---|--|---|--------------------------|--|
| Type | Wavelength | Switch | Package | Fiber Type | Fiber Length | Connector | | | |
| | 1310=3 1550=5 Special=0 | Dual Stage=2 Special=0 | 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 Duplex LC=8 Special=0 | | |