Fiber-Fiber™

Large Core 1xN/2xN Fiber Optical Switch/VOA

(large core fiber up to 0.4mm, broadband 200-3000nm, bidirectional, high power)

DATASHEET

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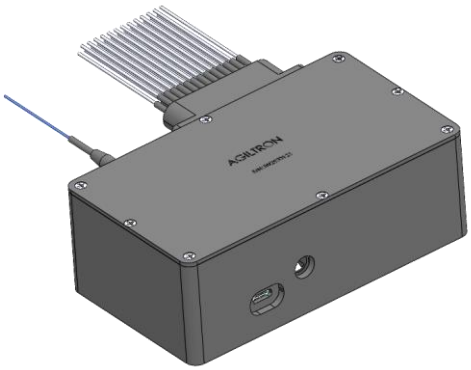

The FFLC Series 1xN Optical Switch connects optical channels by precisely aligning a pair of fibers using a high-precision mini motor. Its latching capability maintains the selected optical path even after the drive signal is removed. Additionally, the FFLC functions as a high-resolution attenuator. Agiltron's unique design ensures exceptionally low insertion loss and an ultra-broad spectral range from 200 to 3000 nm, limited only by fiber transmission. Available with fiber core sizes ranging from 50μm to 400μm, the FFLC integrates a USB/RS232 driver within a single unit. It includes an intuitive GUI and a wall-pluggable power supply for easy operation. The switch is ideal for sensor and spectroscopy applications, offering bidirectional operation.

Features

- Unmatched Low Cost
- Very Broad Spectral Range
- High Isolation
- High Reliability
- Epoxy-Free Optical Path

Applications

- Sensor
- Spectroscopy
- High Power Laser
- Instrumentation

Specifications

Parameter	Min	Typical	Max	Unit
Operation Wavelength	200		5000	nm
Insertion Loss [1]	0.3	0.4	0.8	dB
Wavelength Dependent Loss [2]		0.05	0.3	dB
Polarization Dependent Loss		0.03	0.10	dB
Return Loss [5]	35			dB
Cross Talk On/Off Ratio	60		70	dB
VOA Resolution	0.3	0.5	1	dB
Operating Voltage		5	5.5	VDC
Power Consumption			2	W
Switching Type		Latching		
Switching Time [3]		0.8		s
Durability	10^7			cycle
Operating Temperature	0		70	°C
Optical Power Handling [4]		1	2	W
Storage Temperature	-40		85	°C
Fiber Type		∅50 ~ ∅400 μm core fiber		
Package Dimension		See Mechanical Dimensions		

Notes:

[1]. Measured without connectors for 1xN. For multimode fiber, use a laser source with CPR<15

[2]. Within 200 nm bandwidth

[3]. Defined for speed between the adjacent channels

[4]. High power version available

***** The switch covers an ultra-broad spectral band that is only limited by the fiber intrinsic transmission properties.

Note: The specifications provided are for general applications with a cost-effective approach. If you need to narrow or expand the tolerance, coverage, limit, or qualifications, please [click this link]:

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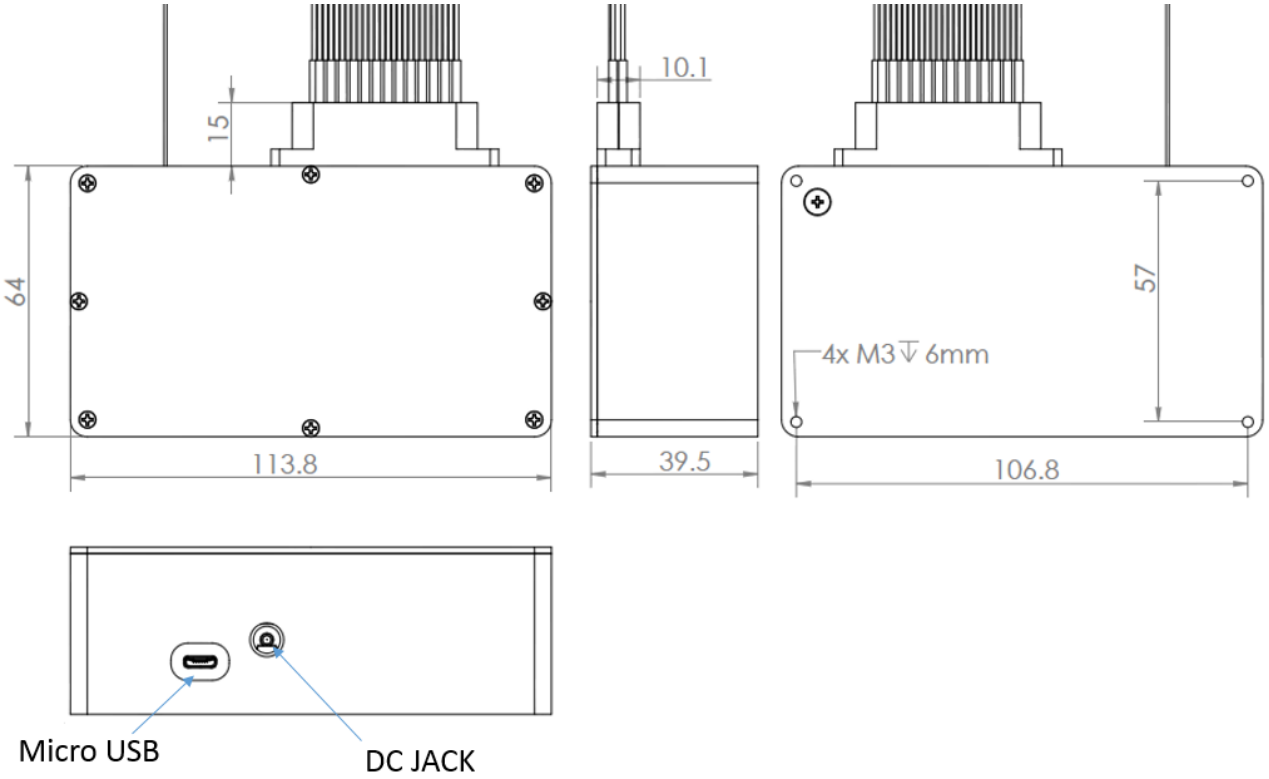
Mechanical Dimensions (Unit: mm)



*Product dimensions may change without notice. This is sometimes required for non-standard specifications.

Computer Interface

Computer controlling kit with Micro USB interfaces and Windows™ GUI.

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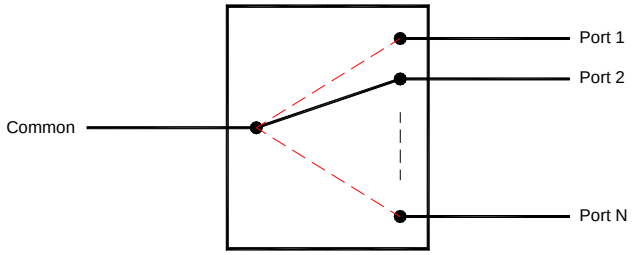
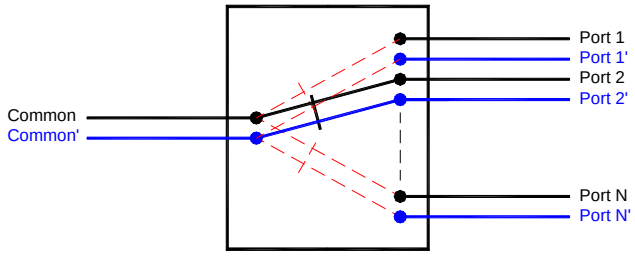
Function Diagram

SelfAlign 1xN Series Switch



SelfAlign Dual 1xN Series Switch



Ordering Information

	☐☐☐	☐	☐	☐	☐	☐	☐	☐	☐
Prefix	**Type**	**Channel**	**Wavelength**	**Configuration**	**Package**	**Fiber Type**	**Fiber Cover**	**Fiber Length**	**Connector**
FFLC-	1x8 Switch = 008 1x9 Switch = 009 1x10 Switch = 010 ... 1x128 Switch = 128	Single = S Dual = D Special = 0	Any [1] = A 1060 = 1 1310 = 3 1550 = 5 650 = 6 780 = 7 850 = 8 1310/1550 = 9 350 = B 450 = C 520 = D Special = 0	Single = S Dual = D Special = 0	Standard = 1 Special = 0	50/125 = 5 62.5/125 = 6 105/125 = E 200/NA.22 = F 300/NA.22 = G 400/NA.22 = H 600/NA.22 = J 800/NA.22 = K 1000/NA.22 = L SM28 [2] = S SM1900 [3] = M UV180nm = U Special = 0	Bare fiber = 1 2 mm Jacket = 2 0.9mm tube = 3 Special = 0	0.25m = 1 0.5m = 2 1.0m = 3 Special = 0	None = 1 FC/PC = 2 SC/PC = 4 ST/PC = 6 SMA =S Special = 0

[1]. This is the cost-effective version. By design, the switch ensures low loss across the fiber transmission range.

[2]. It uses 1mm collimators covering 1230-1630nm

[3]. It uses 1mm collimators covering 1700-2400nm

RED is Special Order

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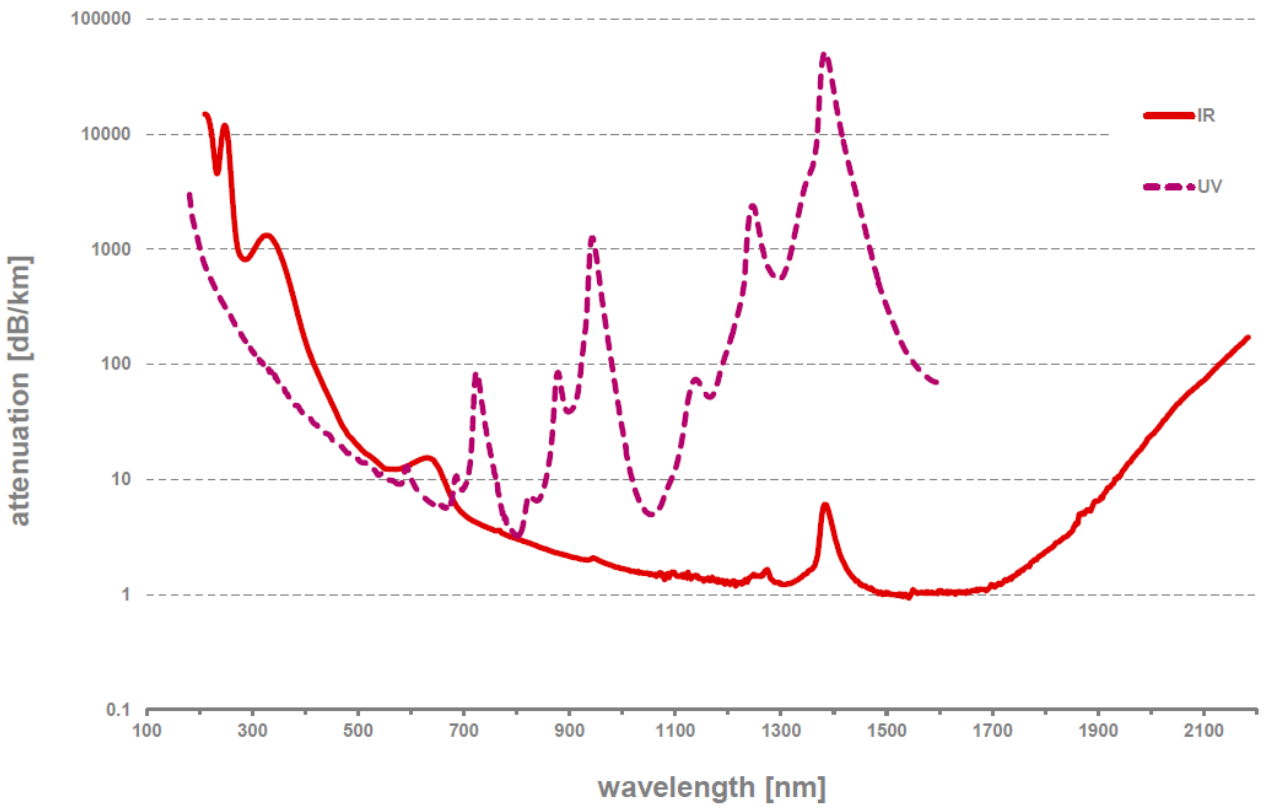
Typical Fiber Transmissions



Application Notes

Fiber Core Alignment
Note that the minimum attenuation for these devices depends on excellent core-to-core alignment when the connectors are mated. This is crucial for shorter wavelengths with smaller fiber core diameters that can increase the loss of many decibels above the specification if they are not perfectly aligned. Different vendors' connectors may not mate well with each other, especially for angled APC.

Fiber Cleanliness
Fibers with smaller core diameters (<5 μm) must be kept extremely clean, contamination at fiber-fiber interfaces, combined with the high optical power density, can lead to significant optical damage. This type of damage usually requires re-polishing or replacement of the connector.

Maximum Optical Input Power
Due to their small fiber core diameters for short wavelength and high photon energies, the damage thresholds for device is substantially reduced than the common 1550nm fiber. To avoid damage to the exposed fiber end faces and internal components, the optical input power should never exceed 20 mW for wavelengths shorter 650nm. We produce a special version to increase the how handling by expanding the core side at the fiber ends.

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