2x4 Broadband Fiber Switch UV-IR

300 - 2350 nm, SM, MM, PM

DATASHEET

Return to the Webpage

The 2x4 broadband fiber switches deliver industry-leading performance, offering nearly lossless, continuous light transmission without perturbations. Its ultra-broadband operation is limited only by the intrinsic properties of the fiber, making it highly versatile for a wide range of applications. The switch features fast switching times (<1 ms), insensitivity to temperature and vibration, a high on/off extinction ratio, high polarization extinction ratio, and cost-effective. At the core of this patented design is a MEMS-based auto-alignment silicon chip, which achieves direct fiber-to-fiber coupling. A tiny gap (less than 5 microns) between fibers is filled with a non-fluorescent, index-matching liquid, creating an ultra-low-loss optical path without requiring lenses or coatings—effectively eliminating surface reflection issues. This design ensures continuous, high-fidelity light transmission, making it ideal for spectroscopy, optical coherence tomography (OCT), interferometry, and other systems sensitive to optical losses and reflections. The FF platform is compatible with all fiber types that have a 125 µm outer diameter, including single-mode (SM), multimode (MM), polarization-maintaining (PM), double-cladding fibers, and bend-insensitive fibers, supporting both large and small core configurations. The switch operates via an electrical relay with a latching mechanism, maintaining the selected optical path even when power is removed. Bidirectional light paths are controlled using a 4.5V electrical pulse, with no continuous power consumption required—energy is only consumed during switching events.

Features

- Low Insertion Loss
- Low PDL
- Excellent Repeatability
- High Optical Isolation
- Ultra Low Back Reflection
- Broad Spectral Range
- Short Switching Time

Applications

- Telecommunications
- Testing and Measurement

RoHS COMPLIANT

Specifications

Parameter	Min	Typical	Max	Unit
No. of Channels		2x4		ch
Operation Wavelength	350		2650	nm
Insertion Loss [1]		2.8	3.5	dB
Return Loss (SM, PM) [1]		≥ 55		dB
Cross Talk On/Off Ratio		≥ 55		dB
Repeatability		≤ 0.01		dB
Rise/Fall Time [2]		≤ 1		ms
Switching Frequency	0.01		5	Hz
Polarization Extinction Ratio	≥ 18	20		dB
Optical Power Maximum[3]		500		mW
Operating Voltage		4.5 V (+/- 10%)		V
Power Consumption		< 600		mW
Electrical Interface		RS232, USB , TTL		
Operating Temperature	-20		+70	°C
Storage Temperature	-40		80	°C
Operating Relative Humidity	35		55	%rH
Lifetime		1 billion (10^9)		cycles

Notes:

[1]. Excluding Connectors. For small core fibers the specs are reduced. For IR fluoride fiber loss increase.

[2]. Rise/Fall time is defined as 10/90% optical signal change.

[3].Total optical power input to this switch (all ports combined). For 1310/1550nm. The optical power handling rapidly reduces as fiber core size/ reduces. At 650nm the max is 2mW. Expanding the fiber core can increase the power handling. We tested 105/125 fiber to safely handle 2W CW optical power.

Rev 02/04/26

P +1 781-935-1200 E sales@agiltron.com W www.agiltron.com

2x4 Broadband Fiber Switch UV-IR

300 - 2350 nm, SM, MM, PM

DATASHEET

Mechanical Dimensions

124mm x 56mm x 13mm

P +1 781-935-1200 E sales@agiltron.com W www.agiltron.com

2x4 Broadband Fiber Switch UV-IR

300 - 2350 nm, SM, MM, PM

DATASHEET

Ordering Information

	24	☐	☐	☐☐	☐	☐	☐	☐
Prefix	**Type**	**Package**	**Test Wavelength [4]**	**Fiber Type**	**Fiber Cover**	**Fiber Length**	**Connector**	**Driver**
FFSW-	2x4 = 24	Latching = L Non-Latching = N	488 nm = 4 360 nm = A 430 nm = B 532 nm = 5 630 nm = 6 780 nm = 7 850 nm = 8 980 nm = 9 1060 nm = 1 1310 nm = 3 1550 nm = C 2000 nm = 2 2.3-4.1 µm = F 3.2-5.5 µm = G	*Pick from below table to match the wavelength range*	Bare fiber = 1 900um 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/PC = 7 Duplex LC/PC = 8 MTP = 9 LC/APC = A LC/UPC = U Special = 0	Non = 1 USB = 2 RS232 = 3 TTL = 4

[1]. Transparent: Light passes through without activation. Opaque: Light is blocked in the non-activated state.

[2]. The beam size expands approximately 5x within the fiber tip.

[3]. Fast latching is available for PM fiber at twice the cost of slow latching.

[4]. This ultra-broadband device is limited by the intrinsic transmission of the fiber and is tested at a single selected wavelength. Testing at multiple wavelengths is available under the “special = 0” option at an additional cost, though it may be unnecessary, as fiber transmission data can be referenced directly from the fiber specifications.

Red: old part numbers

Fiber Type Selection Table:

01	**SMF-28**	34	**PM1550**	71	**MM 50/125µm**
02	**SMF-28e**	35	**PM1950**	72	**MM 62.5µm**
03	**Corning XB**	36	**PM1310**	73	**105/125µm**
04	**SM450**	37	**PM400**	74	**FG105LCA**
05	**SM1950**	38	**PM480**	75	**FG50LGA**
06	**SM600**	39	**PM630**	76	**STP 50/125**
07	**780HP**	40	**PM850**	77	**IRZS23**
08	**SM800**	41	**PM980**	78	**IRZS32**
09	**Hi980**	42	**PM780**	79	
10	**Hi1060**	43		80	
11	**SM400**	44	**PM405**	81	**UV180nm**
12		45	**PM460**	82	**LMA-PM-10**
13		46			

P +1 781-935-1200 E sales@agiltron.com W www.agiltron.com