

# Fiber-Fiber™

## Large Core Fiber Optical Switch

(up to 1 mm diameter, 1x1, 1x2, Bidirectional)

(Protected by U.S. patent 6823102 and pending patents)

### Product Description

The Fiber-Fiber Series Fiber optical switch directly couples a pair of fibers and activated via an electrical relay. The advanced design significantly increase the performance, offering unprecedented low optical loss, little wavelength dependence with no coatings, high power handling, as well as unmatched low cost. Latching operation preserves the selected optical path after the driver signal has been removed. The switch has integrated electrical position sensors. The switch is bidirectional and conveniently controllable by 5V TTL. Index matching liquid can be filled to further reduce the loss.

Using no lens, the Fiber-Fiber Series switch can accommodate Multimode, double cladding, bendable, large core fiber.



### Performance Specifications

FF Series 1x1, 1x2, 2x2 BP Switch	Min	Typical	Max	Unit
Operating Wavelength	300		5000	nm
Insertion Loss <sup>[1], [2]</sup>		0.5	1.0 (1.2 <sup>[3]</sup> )	dB
Polarization Depended Loss			0.1	dB
Wavelength Dependent Loss		0.05	0.3	dB
Cross Talk <sup>[1]</sup>	35			dB
Return Loss <sup>[1]</sup>	35			dB
Switching Time		8	15	ms
Repeatability			± 0.05	dB
Durability	10 <sup>8</sup>			Cycles
Optical Power Handling	1	2	5 <sup>[4]</sup>	W
Switching Type	Latching / Non-Latching			
Operating Temperature	-5 ~ +60			°C
Storage Temperature	-40 ~ +60			°C
Fiber Type	100, 200, 300, 400, 500, 600 Core, or equivalent			µm
Package Dimension	60L x 23.5W X 16.5H			mm

[1]. Excluding Connectors.

[2]. Multimode IL Measure @ Light source CPR<14 dB.

[3]. Dual band, Broad band.

[4]. Continuous operation, for pulse operation call.

### Features

- Low Optical Distortions
- 8 Ports Integration
- High Isolation
- High Reliability
- Fail-Safe Latching
- Epoxy-Free Optical Path
- Low Cost

### Applications

- Protection
- Instrumentation



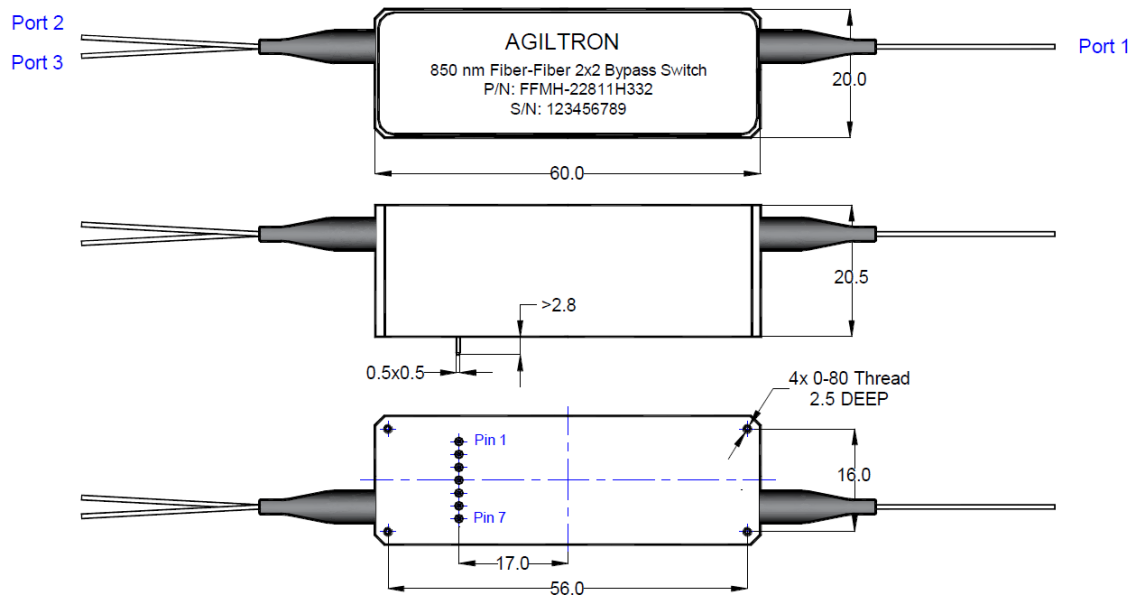
Revised on 3/13/21

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### Mechanical Dimensions (Unit: mm)



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

### Electrical Connector Configurations

The load is a resistive coil which is activated by applying 5V (draw ~ 40mA). Agiltron offers a computer control kit with TTL and USB interfaces and Windows™ GUI. Wez also offer RS232 interface as an option – please contact Agiltron sales.

#### Latching type

Application Note: Applying a constant driving voltage increases stability. The switches can also be driven by a pulse mode using Agiltron recommended circuit for energy saving.

Status	OpticalPath			Electric Drive			Status Sensor	
	1x1	Dual 1x1	1x2	Pin 1	Pin 2	Pin 3	Pin 4 - 5	Pin 6 - 7
Status I	Port 1 → 1'	Port 1 → 1' Port 2 → 2'	Port 1 → 1'	GND	5V Pulse	NC	Open	Open
Status II	Dark	Dark	Port 1 → 2'	GND	NC	5V Pulse	Close	Close

[1]. Typical Pulse width is 50 ms.

[2]. We can provide 3V or other Driving voltage switches, please call sales.

[3]. NC: No electric Connection.

#### Non-Latching type

Status	OpticalPath				1x2	Electric Drive			Status Sensor	
	1x1 Transparent	1x1 Dark	Dual 1x1 Transparent	Dual 1x1 Dark		Pin 1	Pin 2	Pin 3	Pin 4 - 5	Pin 6 - 7
Status I	Port 1 → 1'	Dark	Port 1 → 1' Port 2 → 2'	Dark	Port 1 → 1'	GND	NC	NC	Open	Open
Status II	Dark	Port 1 → 1'	Dark	Port 1 → 1' Port 2 → 2'	Port 1 → 2'	GND	5V	NC	Close	Close

[1]. We can provide 3V or other Driving voltage switches, please call sales.

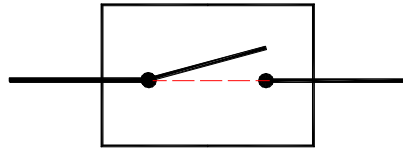
[2]. NC: No electric Connection.

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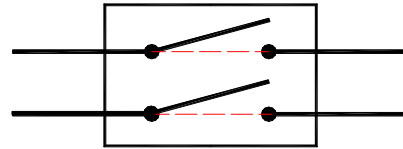
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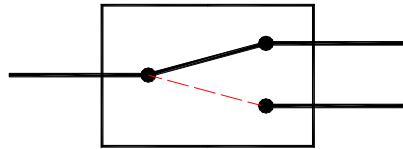
### Functional Diagram



1x1



Dual 1x1



1x2

### Ordering Information

FFLS <sup>(1)</sup>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Configuration	Test Wavelength	Type	Package	Fiber Type	Bare fiber	Fiber Length	Connector
	1x1 =11 1x2=12 Dual 1x1 = 33 Special=00	488 = 4 630 = 6 780 = 7 850 = 8 980 = 9 1060 = 1 1310 = 3 1550 = 5 2000 = 2 Special=0	Latching =1 Non-latching=2 Special=0	Standard=1 Special=0	100 um core =E 200 um core =F 300 um core =G 400 um core =H 500 um core =I 600 um core =J Special=0	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 Special=0

**FFLS:** Fiber-Fiber Large core fiber Switch.

