

Fiber-Fiber™ Fiber Optical Switch

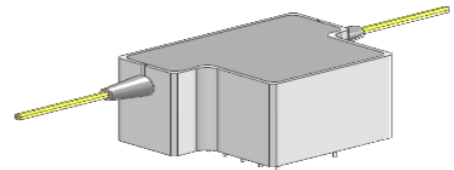
1x1, 1x2, Dual 1x2 (SM, MM, FM) (Bidirectional)

(Protected by pending patents)

Product Description

The FF Series fiber optic switch connects optical channels by a micro-mechanical fiber to fiber auto-alignment platform 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 an 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.

Using no lens, the FF Series switch can accommodate all type of fibers, including SM, MM, FM, double cladding, bendable, large core, small core.



Performance Specifications

FF 1x2, dual 1x2 Switch	Min	Typical	Max	Unit
Wavelength	400		2500	nm
Insertion Loss ¹		0.3	0.5	dB
Wavelength Dependent Loss		0.05	0.1	dB
Polarization Dependent Loss			0.1	dB
Polarization Extinction Ratio ²	22	25	27	
Return Loss	40	45		dB
	25 ³	30 ³		
Cross Talk	35	50		dB
Switching Time		15	20	ms
Repeatability			± 0.02	dB
Durability	10 ⁷			Cycles
Operating Optical Power ²		0.5	1	W
Operating Voltage	4	5	7	VDC
Operating Current (Latching/Non-Latching)		30	70	mA
Switching Type	Latching / Non-Latching			
Operating Temperature	-40 - 85			°C
Storage Temperature	-40 - 85			°C
Package Dimension	28L x 13W X 10H			mm

Notes:

1. Excluding Connectors. For MM fiber with laser CPR<14.
2. For PM fiber only
3. For MM fiber with laser CPR<14

Features

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

Applications

- Protection
- Instrumentation



Fiber-Fiber™ 1x1, 1x2, Dual 1x2 Fiber Optical Switch(SM, MM)

Mechanical Dimensions (Unit: mm)

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. We also offer RS232 interface as an option – please contact Agiltron sales.

Latching Type – Single Coil

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.

FF 1x2 Switch

Optic Path	Electric Drive				Status Sensor			
	Pin 1	Pin 10	Pin 5	Pin 6	Pin 2-3	Pin 3-4	Pin 7-8	Pin 8-9
Port 1 → Port 2	GND	5V	N/A	N/A	Close	Open	Open	Close
Port 1—Port 3	5V	GND	N/A	N/A	Open	Close	Close	Open

Non-Latching Type

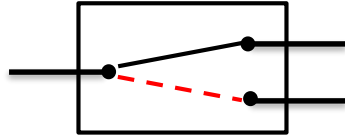
FF 1x2 Switch

Optic Path	Electric Drive				Status Sensor			
	Pin1	Pin10	Pin5	Pin6	Pin2-3	Pin 3-4	Pin 7-8	Pin 8-9
Port 1 → Port 2	5V	GND	N/A	N/A	Open	Close	Close	Open
Port 1 → Port 3	No Power		N/A	N/A	Close	Open	Open	Close

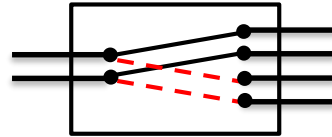


Fiber-Fiber™ 1x1, 1x2, Dual 1x2 Fiber Optical Switch(SM, MM)

Functional Diagram



FF 1x2 switch



FF dual 1x2 switch

Ordering Information

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	Type	Wavelength	Switch	Package	Fiber Type	Bare fiber=1 900um tube=3 Special=0	Fiber Length	Connector
FFSW ^[1]	1x1 latching = 11 1x1 N/T=1T 1x1 N/D =1D 1x2 = 12 2x1 = 21 Special=00	1060=1 1310=3 1550=5 650=6 780=7 850=8 1260-1620=B Special=0	Latching =2 Non-latch=3 Special=0	Standard=1 Special=0	SMF-28=1 50/125=5 62.5/125=6 105/125=M Panda = 2 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
FFDU ^[2]								

[1]. FFSW: fiber-fiber 1x1, 1x2, 2x1 switch
[2]. FFDU: fiber-fiber dual 1x1, 1x2, 2x1 switch

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Recommended driving circuit

