

Fiber-Fiber™ Optical Switch

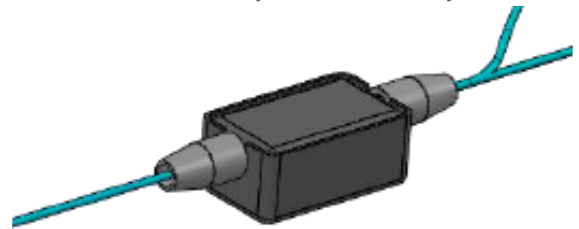
1x1, 1x2, Dual 1x1, Dual 1x2, Dual 2x2 Bypass (SM, PM, MM,) (Broadband, Bidirectional)

(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 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, PM, 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		55	60	dB
Cross Talk		35 ³		dB
Switching Time		50		ms
Repeatability		15	20	ms
Durability	10 ⁷		± 0.02	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 - 80 °C		
Storage Temperature		-40 - 85 °C		
Package Dimension		28L x 13W X 10H mm		

Notes:

1. SM 28 Fiber, 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
- Vibration Resistant
- Unmatched Low Cost

Applications

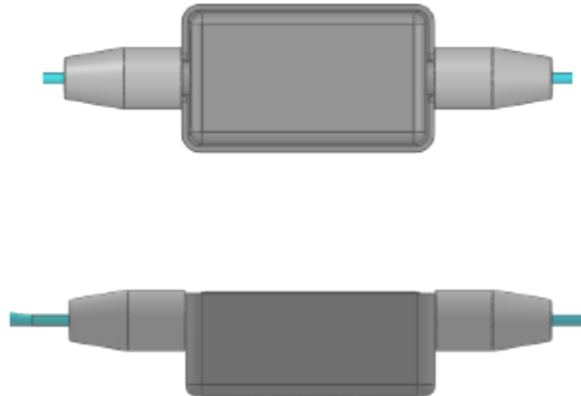
- Protection
- Instrumentation



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Mechanical Dimensions (Unit: mm)



L:21.4mm
W: 12.5mm
H:9mm

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

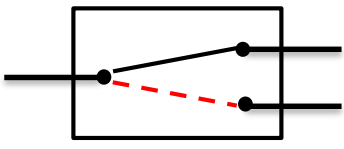
Optic Path	Electric Drive				Status Sensor			
	Pin1	Pin10	Pin5	Pin6	Pin2-3	Pin 3-4	Pin 7-8	Pin 8-9
Port 1 → Port 2	5V	GND	N/A	N/A	Open	Close	Close	Open
Port 1 → Port 3	No Power		N/A	N/A	Close	Open	Open	Close



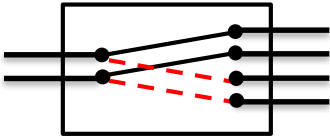
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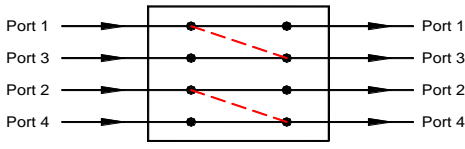
Functional Diagram



1x2 switch



Dual 1x2 switch



Dual 2x2 bypass switch

Ordering Information

FFSW-	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Type	Switch	Test Wavelength	Fiber type	Fiber Length	Connector	
FFSW	1x1 = 11 1x2 = 12 Dual 1x2 = 26 Dual 2x2bypass= 28 Special=00	Latching =2 Non-latch=3	488 = 4 532 = 5 630 = 6 780 = 7 850 = 8 980 = 9 1060 = 1 1310 = 3 1550 = C 2000 = 2 Special = 0	Pick from below table	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=7 Duplex LC=8 MTP = 9 Special=0

Fiber Type Selection Table:

01	SM-28	31	PM1550	61	OM1
02	SMF-28e	32		62	OM2
03	Corning XB	33	PM1310	63	OM3
04	SM450	34	PM400	64	OM4
05		35	PM480	65	GIF50
06	SM600	36	PM630	66	GIF625
07	Hi780	37	PM780		
08	SM800	38	PM850	71	FG50LGA
09	Hi980	39	PM980	75	FG105LCA
10	Hi1060	43		76	
11	SM200	44		77	
12	Draka BBE	45		78	



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Bypass (SM, PM, MM,)

Recommended driving circuit

