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# Fiber-Fiber™ LIDAR Optical Switch

## 1x4, 2x6, 2x8 PM

(Protected by pending patents)

### Product Description

The FF Series fiber optic switch connects optical channels by a MEMS fiber to fiber direct coupling platform and activated via an electrical relay. The advanced design offers unprecedented low optical loss, little wavelength dependence with no coatings, high power handling, high reliability/longevity, high polarization extinction ratio, as well as unmatched low cost. Since, there is no optical coated interfaces, no reflections and nor etalon effects from these switches. 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 2x4 LIDAR Switch	Min	Typical	Max	Unit
Wavelength		1550		nm
Insertion Loss <sup>1</sup>		0.8	1.3	dB
Wavelength Dependent Loss		0.01	0.01	dB
Return Loss <sup>2</sup>	70			dB
Polarization Extinction Ratio <sup>2</sup>	22	24	33	dB
Cross Talk	60	65	70	dB
Switching Time		5	7	ms
Repetition		5	10	Hz
Repeatability			± 0.1	dB
Durability	10 <sup>8</sup>			Cycles
Operating Optical Power (CW)			1 <sup>3</sup>	W
Operating Voltage	4	4.5	5	VDC
Actuation Current (Latching/Non-Latching)		30	60	mA
Switching Type	Latching / Non-Latching			
Operating Temperature		-40 ~ 80		°C
Storage Temperature		-50 ~ 90		°C

Notes:

1. Excluding Connectors
2. Measured with nothing connected to output FC/APC connectors
3. Higher power is feasible with special order

### Features

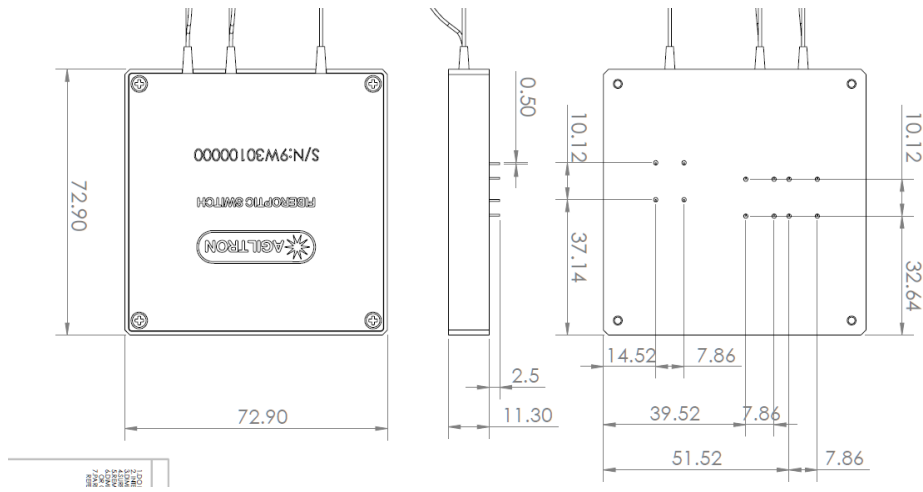
- Low Loss
- High Isolation
- High Power
- High Return Loss
- No Etalon Effects
- Low Cost

### Applications

- LIDAR
- Reflective Sensor



## Mechanical Dimensions (Unit: mm)



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

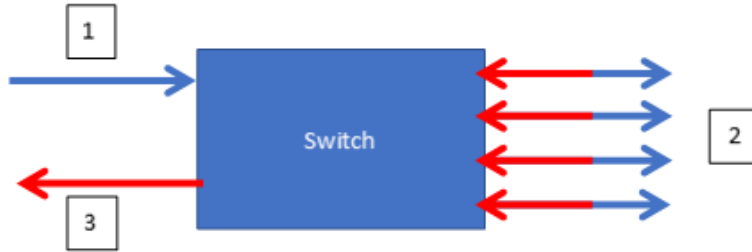
## Electrical Connector Configurations

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

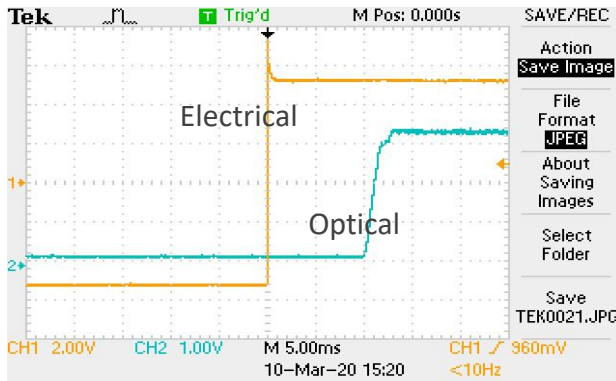
Application Note: Applying a constant driving voltage increases stability. The switches can also be driven by a pulse mode using Agiltron recommended circuit for energy saving.

Optic Path	Electric Drive	
	Pin 2	Pin 3
Port 1 → Port 2	5V	0V
Port 1—Port 3	0V	5V

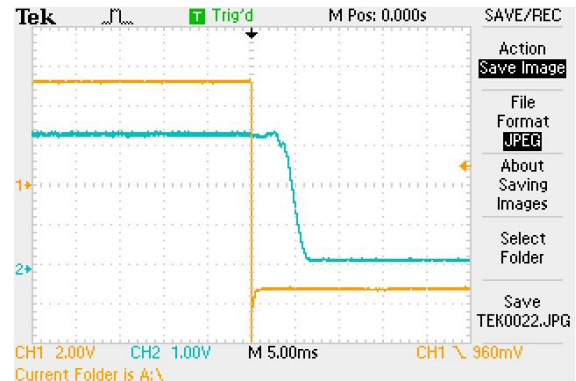
## Optical Functional



## Response Speed



Rise



Fall

## Ordering Information

FFLW-	Configuration	Switch	Tested Wavelength	Optical Power	Fiber Type	Fiber Length	Connector
FFLW	2x4 = 24 2x5 = 25 2x6 = 26 2x8 = 28 2x12=22	Latching =2 Non-latch=3	1550 = C Special = 0	1W =1 Higher power=0	PM 1550 =2 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

**Driver Reference Design**

