

etMEMS™ Latching Type Fiber Optical Switch (With Built-in Driver)

(Protected by U.S. patent 8,203,775 and pending patents)

Product Description

The etMEMS™ Series Fiber Optical Switch connects optical channels by redirecting incoming optical signals into selected output fibers. This is achieved using a proprietary thermal activated micro-mirror, moving-in and -out optical paths, uniquely featuring ultra small size, rugged. The MEMS Latching type with Built-in driver switches can be directly mounted on printed circuit board with configurations of 1x1, Dual 1x1, Quad 1x1, 1x2, Dual 1x2, Full 2x2, and Dual Full 2x2 Single mode and Multimode.

This advanced design offers unprecedented high stability and high reliability as well as low cost advantage.



Performance Specifications

etMEMS™ Latching with Built-in Driver Switch	Min	Typical	Max	Unit
Operation Wavelength	Single Mode	1260~1360 and/or 1510~1610		nm
	Multimode	810~890 and/or 1260/1360		
Insertion Loss ^{[1], [2]}		0.6	1.0 (1.2 ^[3])	dB
PDL (Single mode)			0.1	dB
Return Loss ^[1]	Single Mode	50		dB
	Multimode	35		
Cross Talk ^[1]	Single Mode	50		dB
	Multimode	35		
Switching Time		10		ms
Repeatability			±0.05	dB
Repetition Rate			20	Hz
Durability		10 ⁹		Cycle
Switching Type		Latching type with Build-in Driver		
Operating Temperature		-5	70	°C
Storage Temperature		-40	85	°C
Optical Power Handling		300	500	mW
Package Dimension		18.5L x 12W x 8.6H		mm
Fiber Type	Single Mode	SMF-28, or equivalent		
	Multimode	MM50/125, or equivalent		

[1]. Excluding connectors.

[2]. Multimode IL measure @ Light Source CPR<14 dB.

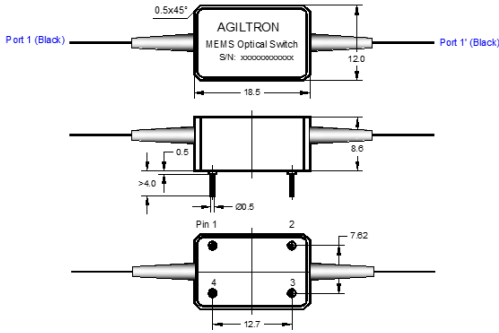
[3]. Dual band, and Dual 1x2, Full 2x2, Dual Full 2x2.



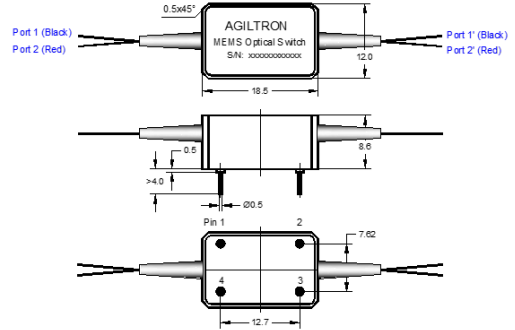
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Mechanical Dimensions without Build-in Driver (Unit: mm)

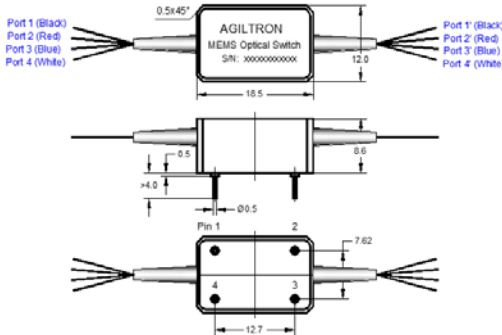
MEMS 1x1 Latching Switch



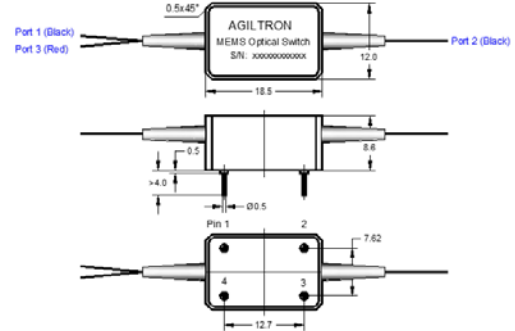
MEMS Dual 1x1 Latching Switch



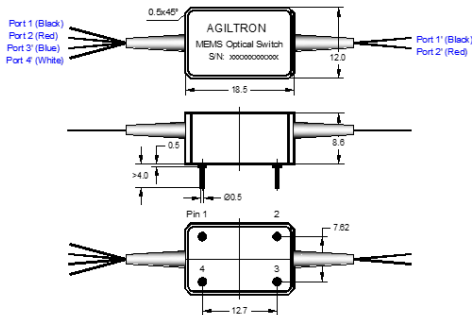
MEMS Quad 1x1 Latching Switch



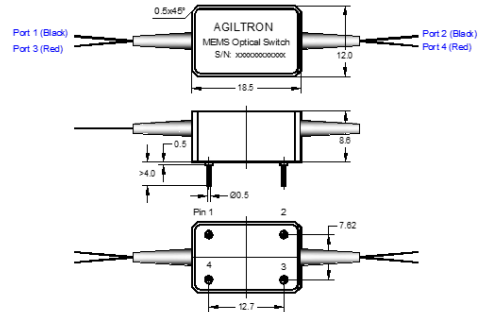
MEMS 1x2 Latching Switch



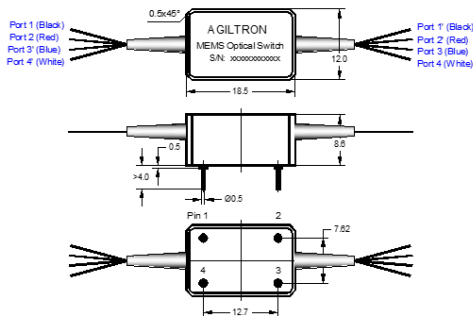
MEMS Dual 1x2 Latching Switch



MEMS Full 2x2 Latching Switch



MEMS Dual 2x2 Latching Switch



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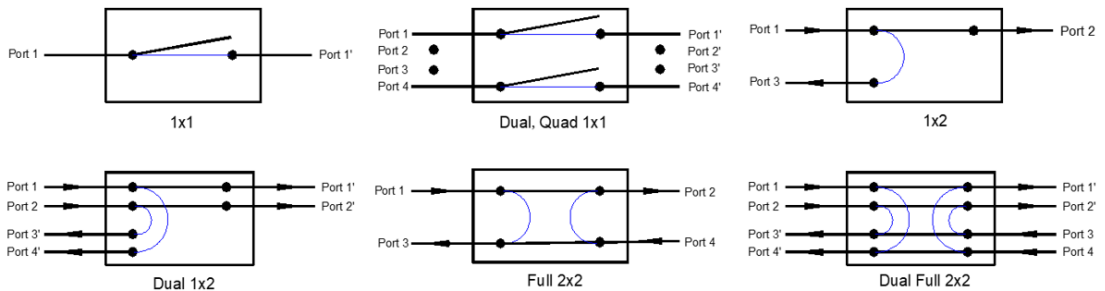
Electrical Driving Requirements

Status	Optical Path							Pin No.			
	1X1	Dual 1X1	Quad 1x1	1X2	Dual 1x2	Full 2x2	Dual Full 2x2	Pin 1	Pin 2	Pin 3	Pin 4
Status I	Port 1→1'	Port 1→1' Port 1→1'	Port 1→1' Port 2→2' Port 3→3' Port 4→4'	Port 1→2	Port 1→1' Port 2→2'	Port 1→2 Port 4→3	Port 1→1' Port 2→2' Port 3→3' Port 4→4'	12 VDC	L	H Pulse	GND
Status II	Dark	Dark	Dark	Port 1→3	Port 1→3' Port 2→4'	Port 1→3 Port 4→2	Port 1→4' Port 2→3' Port 3→2' Port 4→1'	12 VDC	H Pulse	L	GND

Pin No.	Symbol	Type	Description
1	1	I	DC power supply, Voltage range is 11.5~12.5 V.
2	TTL A	I	TTL input port,
3	TTL B	I	TTL input port,
4	GND		Ground

- [1]. H: high level (3.5~5.5V), L: low level (0~1.5V).
 [2]. H pulse: (3.5~5.5V) high level pulse, minimum width 10 um is required. It should return to L to prevent repetitively switching action.
 [3]. Please call sales for user manual if position sensing is needed.

Functional Diagram



Ordering Information

Type	Wavelength	Switch	Package	Fiber Type	Fiber Length	Connector
MEMS [1] MEDU [2] MEQU [3]	1060=1 1310=3 1550=5 780=7 850 =8 1310/1550=9 850/1310=A 1260~1620=B Special=0	Latching=1	With Build-in Driver=1 Special=0	SMF-28=1 MM 50/125=5 Special=0	Bare fiber=1 900um loose tube=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

- [1]. MEMS: MEMS 1x1, 1x2, 2x2 Switch.
 [2]. MEDU: MEMS DUAL 1x1, 1x2, 2x2 Switch.
 [3]. MEQU: MEMS QUAD 1x1 Switch.
 [4]. N/T: MEMS Mini Non-Latching Switch, Normally Transparent.
 [4]. N/D: MEMS Mini Non-Latching Switch, Normally Dark.

