*et*MEMS™ Latching Type Series Fiber Optical Switch

(*With Built-in Driver. *SM & MM: 1x1, 1x2, 2x2, Dual 1x1, Dual 1x2, Dual 2x2, Quad 1. *PM: 1x1, 1x2)

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

Product Description

The *et*MEMS[TM] Series Fiber Optical Switch connects optical channels by redirecting incoming optical signals into selected output fibers. This is achieved using a patented thermal activated micro-mirror, moving-in and -out optical paths, uniquely featuring ultra small size and high reliability. The MEMS Latching type switches have a built-in circuit so that they can be directly controlled by 5 V. They are available in configurations of 1x1, Dual 1x1, Quad 1x1, 1x2, Dual 1x2, Full 2x2, Dual Full 2x2 Single mode and Multimode, also with configurations of 1x1, 1x2 PM.

This advanced design offers unprecedented high stability and low optical loss as well as low cost.

Performance Specifications

*et*MEMS[TM] Latching Switch		Min	Typical	Max	Unit
Operation Wavelength	Single Mode		1260~1360 and/or 1510~1610		nm
	Multimode		810~890 and/or 1260/1360		
	PM		980, 1060, 1310, 1550		
Insertion Loss [1], [2]			0.6	1.0 (1.2 [3])	dB
PDL	Single Mode			0.1	dB
Extinction Ratio	PM	18			dB
Return Loss [1]	SM, PM	50			dB
	Multimode	35			
Cross Talk [1]	SM, PM	50			dB
	Multimode	35			dB
Switching Time			20		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		
	PM		Panda 250 PM fiber, 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.
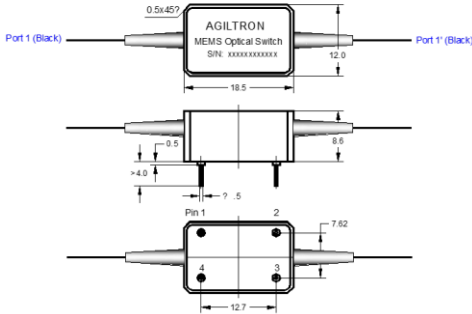
Revision: 3-5-18

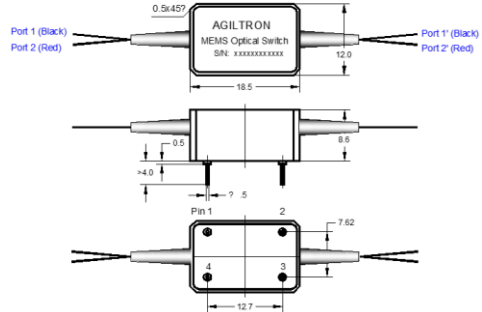# *et*MEMS™ Latching Type Series Fiber Optical Switch

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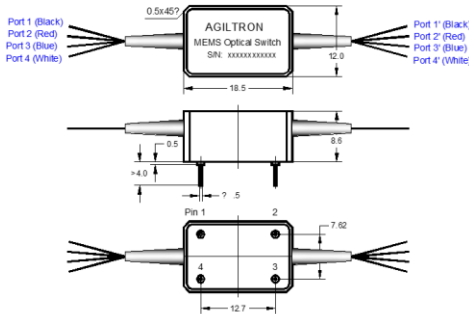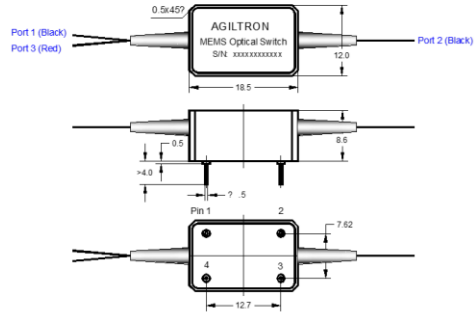## Mechanical Dimensions without Build-in Driver (Unit: mm)

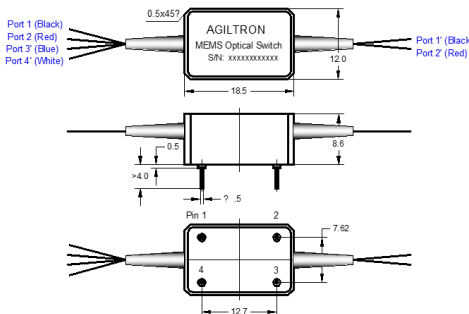

MEMS 1x1 Latching Switch

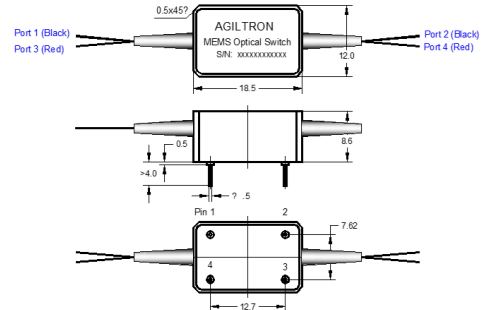MEMS Dual 1x1 Latching Switch

MEMS Quad 1x1 Latching Switch

MEMS 1x2 Latching Switch

MEMS Dual 1x2 Latching Switch

MEMS Full 2x2 Latching Switch
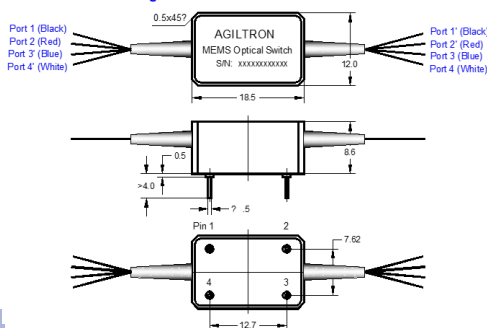
MEMS Dull 2x2 Latching Switch

RoHS Compliant

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Package of MEMS Quad 1x1, Dual 1x2, Dual 2x2 Switch with 900 um loose tube
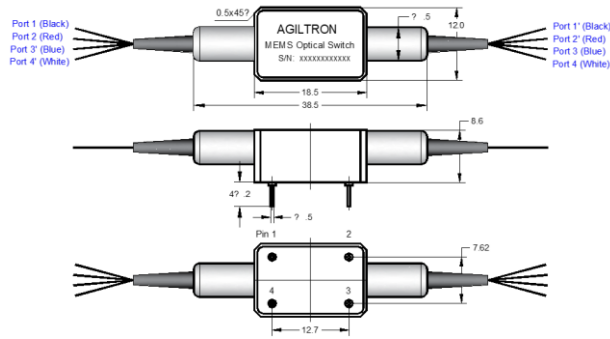
Electrical Driving Requirements

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'	5 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'	5 VDC	H Pulse	L	GND

Pin No.	Symbol	Type	Description
1	1	I	DC power supply, Voltage range is 4.8~5.2 V, Typical voltage is 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 ms is required.
[3]. Please call sales for user manual if position sensing is needed.

Functional Diagram
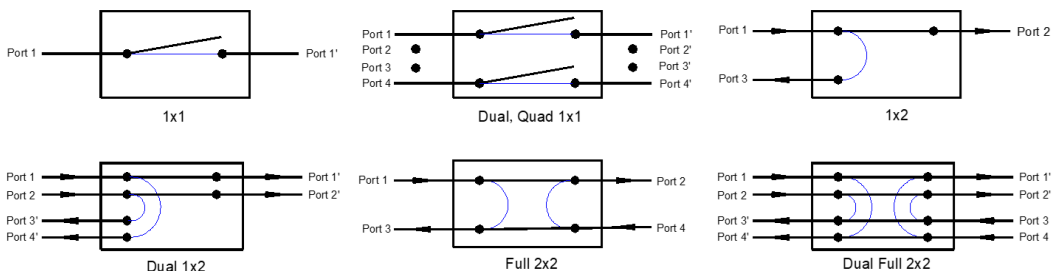
1x1

Dual, Quad 1x1

1x2

Dual 1x2

Full 2x2

Dual Full 2x2

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Ordering Information

☐☐☐☐ -	☐ ☐	☐	1	5	☐	☐	☐	☐
	Type	**Wavelength**	**Switch**	**Package**	**Fiber Type**		**Fiber Length**	**Connector**
MEMS [1] MEDU [2] MEQU [3] MEPM [4]	1x1 =11 1x2 =12 2x2 =22 Special =00	1060=1 1310=3 1550=5 780=7 850 =8 1310/1550=9 850/1310=A 1260~1620=B Special=0	Latching=1	With Built-in Driver=5 Special=0	SMF-28=1 MM 50/125=5 Panda 250=B Special=0	Bare fiber=1 900um loose 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 Special=0

[1]. **MEMS**: **ME**MS 1x1, 1x2, 2x2 Switch.
[2]. **MEDU**: **ME**MS **DU**AL 1x1, 1x2, 2x2 Switch.
[3]. **MEQU**: **ME**MS **QU**AD 1x1 Switch.
[3]. **MEPM: ME**MS 1x1, 1x2 **PM** Switch.