*et*MEMS™ Non-Latching Fiber Optical Switch

(MEMS 1x1, 1x2, 2x2 Switch. MEMS Dual 1x1, 1x2, 2x2 Switch. MEMS Quad 1x1 Switch.)

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

Product Description

The *et*MEMS™ 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 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

*et*MEMS™ Series 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			dB
Switching Time			10		ms
Repeatability				±0.05	dB
Repetition Rate				20	Hz
Durability		10^9			Cycle
Switching Type			Non-Latching		
Operating Temperature		-5		70	°C
Storage Temperature		-40		85	°C
Optical Power Handling			300	500	mW
Package Dimension			13L x 9W x 6H		mm
Fiber Type	Single Mode	SMF-28 or equivalent			
	Multimode	MM 50/125, MM 62.5/125 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.

RoHS Compliant

Revision: 11-12-20

15 Presidential Way, Woburn, MA 01801 Tel: (781) 935-1200 Fax: (781) 935-2040
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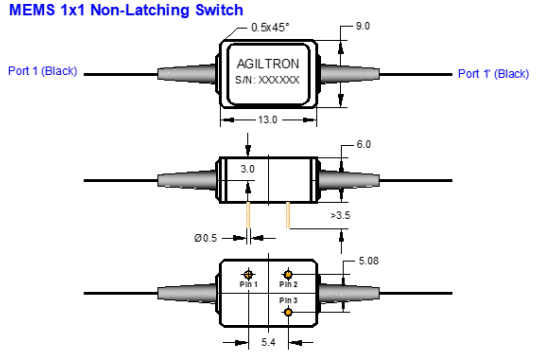
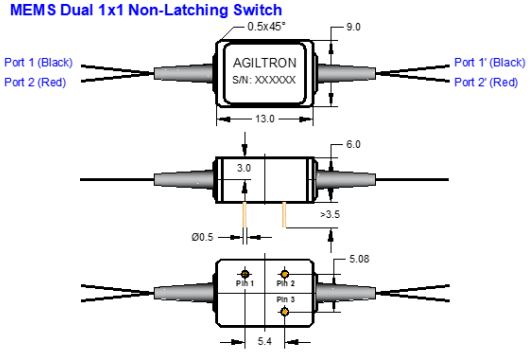
Mechanical Dimensions (Unit: mm)

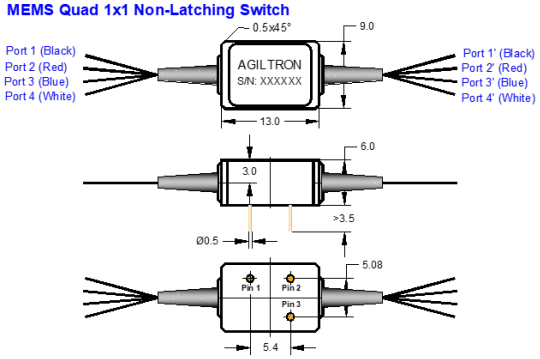
MEMS 1x1 Non-Latching Switch



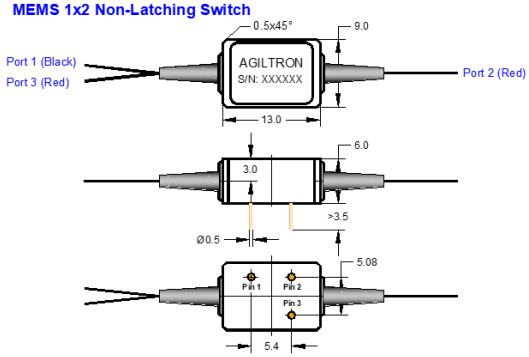
MEMS Dual 1x1 Non-Latching Switch



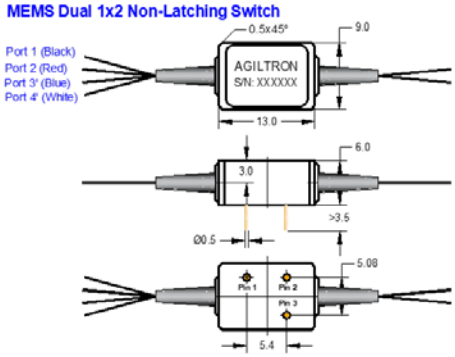
MEMS Quad 1x1 Non-Latching Switch



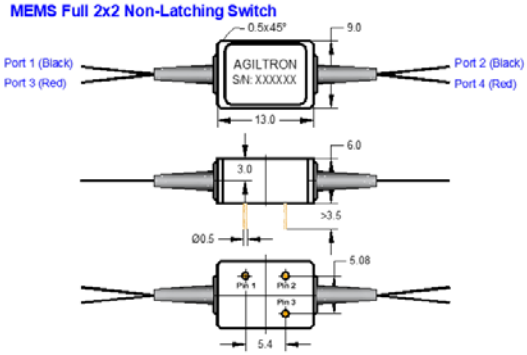
MEMS 1x2 Non-Latching Switch



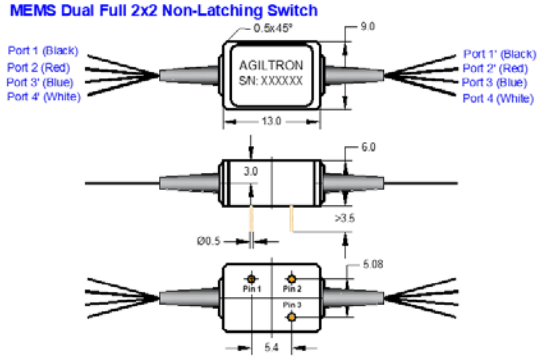
MEMS Dual 1x2 Non-Latching Switch



MEMS Full 2x2 Non-Latching Switch



MEMS Dual Full 2x2 Non-Latching Switch



RoHS Compliant

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(MEMS 1x1, 1x2, 2x2 Switch. MEMS Dual 1x1, 1x2, 2x2 Switch. MEMS Quad 1x1 Switch)

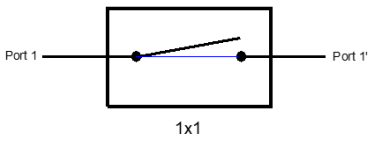
Electrical Driving Requirements

Status	Optical Path						Pin No.		
	1X1 (Normally Transparence)	1X1 (Normally Dark)	Dual 1X1 (Normally Transparence)	Dual 1X1 (Normally Dark)	Quad 1X1 (Normally Transparence)	Quad 1X1 (Normally Dark)	Pin 1	Pin 2	Pin 3
Status I	Dark	Port 1→1'	Dark	Port 1→1' Port 2→2'	Dark	Port 1→1' Port 2→2' Port 3→3' Port 4→4'	NC [1]	GND	H [2]
Status II	Port 1→1'	Dark	Port 1→1' Port 2→2'	Dark	Port 1→1' Port 2→2' Port 3→3' Port 4→4'	Dark	NC	GND	L [3]

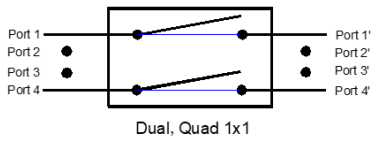
Status	Optical Path				Pin No.		
	1x2	Dual 1X2	Full 2x2	Dual Full 2x2	Pin 1	Pin 2	Pin 3
Status I	Port 1→2	Port 1→1' Port 2→2'	Port 1→2 Port 4→3	Port 1→1' Port 2→2' Port 3→3' Port 4→4'	NC	GND	H
Status II	Port 1→3	Port 1→4' Port 2→3'	Port 1→3 Port 4→2	Port 1→4' Port 2→3' Port 3→2' Port 4→1'	NC	GND	L

[1]. NC: No electronic connection. [2]. H: 4~5 VDC, Topical is 4.5 VDC. [3]. L<0.8 VDC. [4]. Power Consumption is about 170 mW.

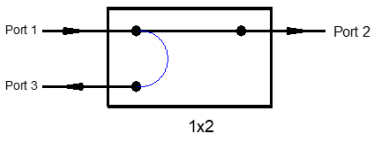
Functional Diagram



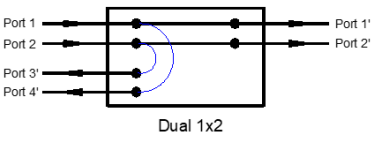
1x1



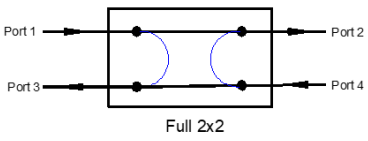
Dual, Quad 1x1



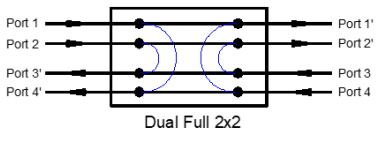
1x2



Dual 1x2



Full 2x2



Dual Full 2x2

Ordering Information

□□□□-	□□	□	2	□	□	□	□	□
	Type	Wavelength	Switch	Package	Fiber Type		Fiber Length	Connector
MEMS [1] MEDU [2] MEQU [3]	1x1 N/T [2] =1T 1x1 N/D [3] =1D 1x2=12 Full 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	Non-latching=2	Standard=1 Special=0	SMF-28=1 MM 50/125=5 MM 62.5/125=6 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**: **MEMS** 1x1, 1x2, 2x2 **S**WITCH.
[2]. **MEDU**: **ME**MS **DU**AL 1x1, 1x2, 2x2 Switch.
[3]. **MEQU**: **ME**MS **QU**AD 1x1 Switch.
[4]. **N/T**: MEMS 1x1 Series Non-Latching Switch, **N**ormally **T**ransparence.
[5]. **N/D**: MEMS 1x1 Series Non-Latching Switch, **N**ormally **D**ark.

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