

MEMS 1x8 Mini Latching Series Fiber Optic Switch

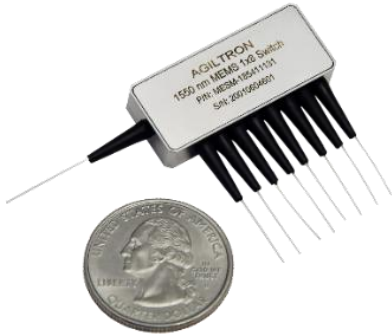
(Bidirectional, SM, PM)

(Protected by U.S. pending patents)



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Applications

- Channel Routing
- Configurable Add/Drop
- System Monitoring
- Instrumentation

Features

- High reliability
- Intrinsic tolerance to ESD

The MEMS 1x8 Latching Type Series Fiber Optic Switch connects optical channels by redirecting incoming optical signals into selected output fibers. This is achieved using a patent pending MEMS configuration and activated via an electrical control signal. It uniquely features rugged thermal activated micro-mirror movement instead of rotation.

This novel design significantly reduces packaging requirement and simplifies driving electronics, offering unprecedented high stability as well as an unmatched low cost.

Specifications

Parameter	Min	Typical	Max	Unit
Operation Wavelength	850±30, 1060±30, 1310±40, 1510±40			nm
Insertion Loss ^[1]		0.7	1.2 (1.4 ^[2])	dB
Wavelength Dependent Loss		0.15	0.3 ^[2]	
PDL (SM)			0.1	dB
Extinction Ratio (PM)	18		0.1	dB
Cross Talk ^[1]	50			dB
Return Loss ^[1]	50			dB
Switching Time		5	10	ms
Repeatability			± 0.05	dB
Repetition Rate		5		Hz
Durability	10 ⁹			cycle
Switching Type	Latching			
Operating Temperature	-5		70	°C
Storage Temperature	-40		85	°C
Optical Power Handling (CW)		300	500	mW
Fiber Type	SM	SMF-28, or equivalent single mode fiber		
	PM	Panda 250, or equivalent		

Notes:

- [1]. Excluding connectors
[2]. Wavelength <=1060nm



Rev 05/27/26

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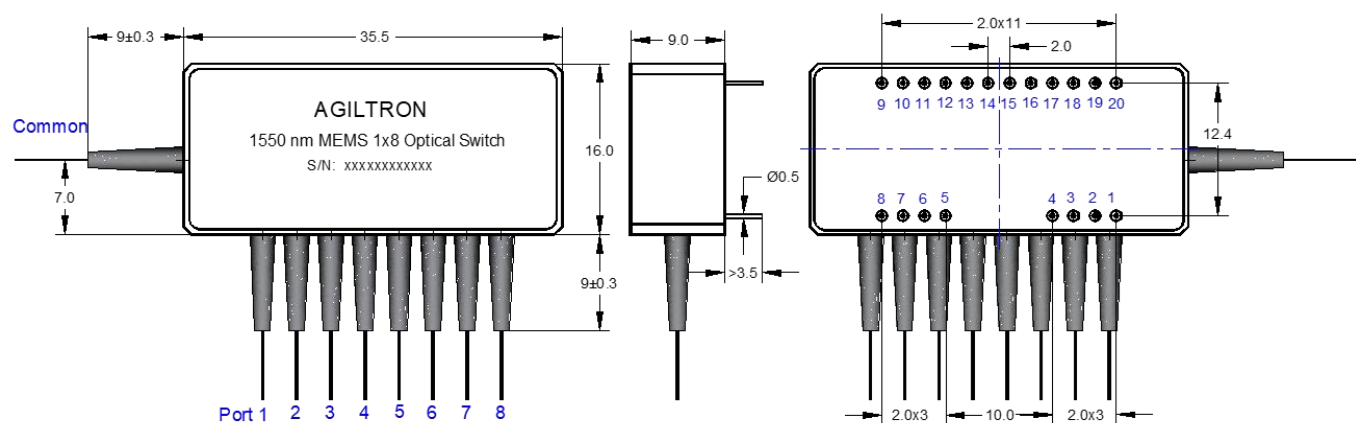
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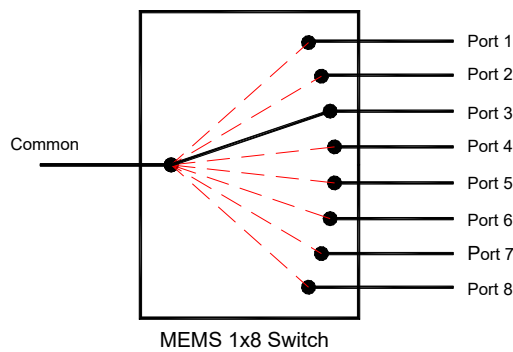
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Mechanical Footprint Dimensions (mm)



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

Functional Diagram (Bidirectional)



Ordering Information (Part Number)

			1	1				
Prefix	Type	Wavelength	Switch	Package	Fiber Type	Fiber Cover	Fiber Length	Connector ^[3]
MESM- ^[1]	1x5 = 15	1060 = 1	Latching = 1	Standard = 1	SMF-28 = 1	Bare fiber = 1	0.25m = 1	None = 1
MEMP- ^[2]	1x6 = 16	850 = 8			PM 1550 = B	900 um tube = 3	0.5m = 2	FC/PC = 2
	1x7 = 17	1310 = 3			PM 1310 = D	Special = 0	1.0m = 3	FC/APC = 3
	1x8 = 18	1550 = 5			Hi1060 = 4		Special = 0	SC/PC = 4
	Special = 00	Special = 0			PM980 = E			SC/APC = 5
					Hi780 = 7			LC/PC = 7
					PM850 = F			Duplex LC/PC = 8
					Special = 0			LC/UPC = U
								Special = 0

[1]. MESM: MEMS 1x8 Single mode Mini Switch

[2]. MEMP: MEMS 1x8 Mini PM fiber Switch

[3]. The default connector configuration uses fiber with 0.9 mm buffer protection. The connector cannot be installed directly onto bare fiber because the bare fiber is prone to damage during shipping. However, the connector can be assembled on bare fiber if a 3 cm protective loose tube is added for reinforcement. The customer may remove this protective tube after testing. The optical power handling of a standard connector is less than 0.5 W for SMF-28 fiber and decreases further for smaller-core fibers.

Note: PM1550 fiber works well for 1310nm

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Driving Table & Electric Requirement

Optical Path		Pin Number																			
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
C ^[1] ↔ P1 ^[1]	ON	5 VDC ^[2]				H ^[3]	0 ^[3]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	OFF					0	H	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C ↔ P2	ON					0	0	H	0	0	0	0	0	0	0	0	0	0	0	0	0
	OFF					0	0	0	H	0	0	0	0	0	0	0	0	0	0	0	0
C ↔ P3	ON					0	0	0	0	H	0	0	0	0	0	0	0	0	0	0	0
	OFF					0	0	0	0	0	H	0	0	0	0	0	0	0	0	0	0
C ↔ P4	ON					0	0	0	0	0	0	H	0	0	0	0	0	0	0	0	0
	OFF					0	0	0	0	0	0	0	H	0	0	0	0	0	0	0	0
C ↔ P5	ON					0	0	0	0	0	0	0	0	H	0	0	0	0	0	0	0
	OFF					0	0	0	0	0	0	0	0	0	H	0	0	0	0	0	0
C ↔ P6	ON					0	0	0	0	0	0	0	0	0	0	H	0	0	0	0	0
	OFF					0	0	0	0	0	0	0	0	0	0	0	H	0	0	0	0
C ↔ P7	ON					0	0	0	0	0	0	0	0	0	0	0	0	H	0	0	0
	OFF					0	0	0	0	0	0	0	0	0	0	0	0	0	H	0	0
C ↔ P8	ON					0	0	0	0	0	0	0	0	0	0	0	0	0	0	H	0
	OFF					0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	H

[1]. C: Common Port; P#: Output Port #.

[2]. VDC Power supply: 5.0±0.2 VDC. Static ~10mA; Pulse current is ~150mA on each chip during switching.

[3]. Driving H: 5V Pulse (5.0±0.2V) & width 40±5ms. 0: 0.0±0.2V.

Switching Operation Supplement (must read)

[1]. Each chip is driven through a pair of PINs, such as PIN5 and PIN6.

[2]. For new link from the common port to any other output, the existing link must be disconnected.

[3]. If the current link between the common and output ports is known, the current link can be disconnected by applying H only on the corresponding PIN, and link the common port to the desired output by applying H pulse only on the corresponding PIN at same time per the driving table.

[4]. If the current link is unknown, "H" voltage should be applied on all even number of PINs from PIN6 to PIN20 to disconnect any possible link first, and then "H" is applied only on the corresponding PIN to connect the common port to the desired output per the driving table.

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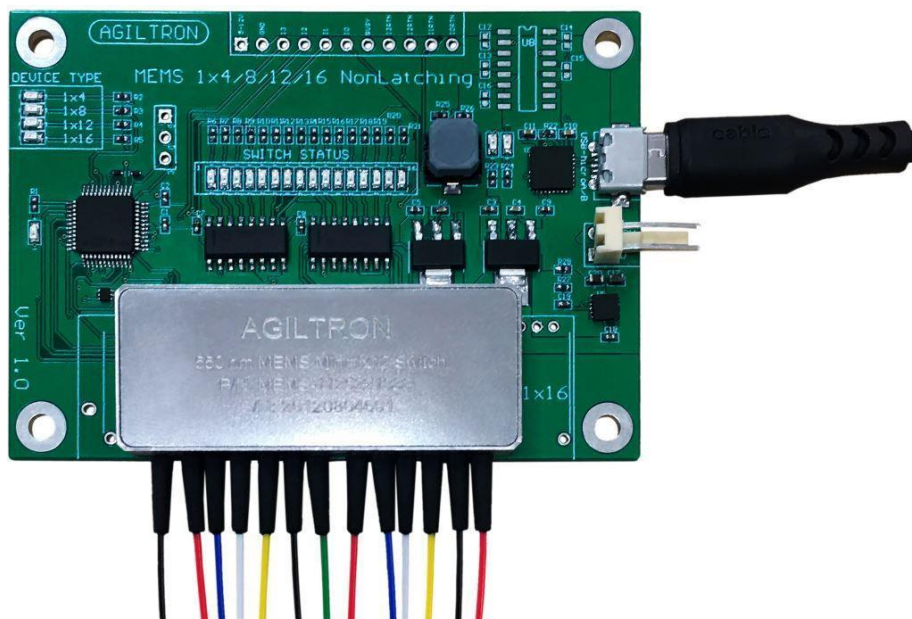
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Demo Driver

USB RS232/GUI, Pushbutton/LED Channel Indicators (\$255)



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