10-bit MEMS Photonic Time Delay with Variable Optical Attenuator

(patent pending)

Product Description

The MEMS Series Photonic Time Delay digitally varies the optical delay time in fiber by selectively routing optical signal through N fiber loops whose lengths increase successively by a power 2 of the increment time delay ΔT. Since each switching element allows the signal to either pass or bypass a fiber loop, a delay T may be inserted, which can take any value (in increments of ΔT) up to the maximum value ($T = (2^{N+1}-1)\Delta T$).

This is achieved using a patent pending MEMS switching configuration and activated via an direct DC electrical control signal.

The driver is available with USB and/or RS232 control interface separately.

Features

. 7-bit Resolution or more
. High Speed
· High Reliability
· Fail-Safe Latching
· Low Insertion Loss
· Low Power Consumption

Applications

· Phase-Array Antennas
· Instrumentation

RoHS Compliant

Performance Specifications

MEMS Series Photonic Delay Line	Min	Typical	Max	Unit
Wavelength Band	780	1550	2000	nm
Fiber Segment Number (bit #)			10	Loop
Insertion Loss [1]		1.2	2.0 [1]	dB
Polarization Dependent Loss (SM)		0.1	0.2	dB
Polarization Extinction Ratio (PM)	18	24		dB
Cross Talk	40	50		dB
Return Loss	50	55		dB
Switching Time (fall, rise)		2	10	ms
Fiber Segment Number	4		10	
Delay Time Range [2]			10	ms
Polarization Mode Dispersion (SM)		0.1	0.2	ps
Operating Temperature	-5		70	°C
Storage Temperature	-40		85	°C
Optical Power Handling		300		mW
Package Dimension [1]		44L x 15.5W x 6.5H		mm

[1]. Input to output with a single delay (1 m fiber length) loop.

[2]. The delay fiber loops (>0.5m) can be spliced in precise length control per request.

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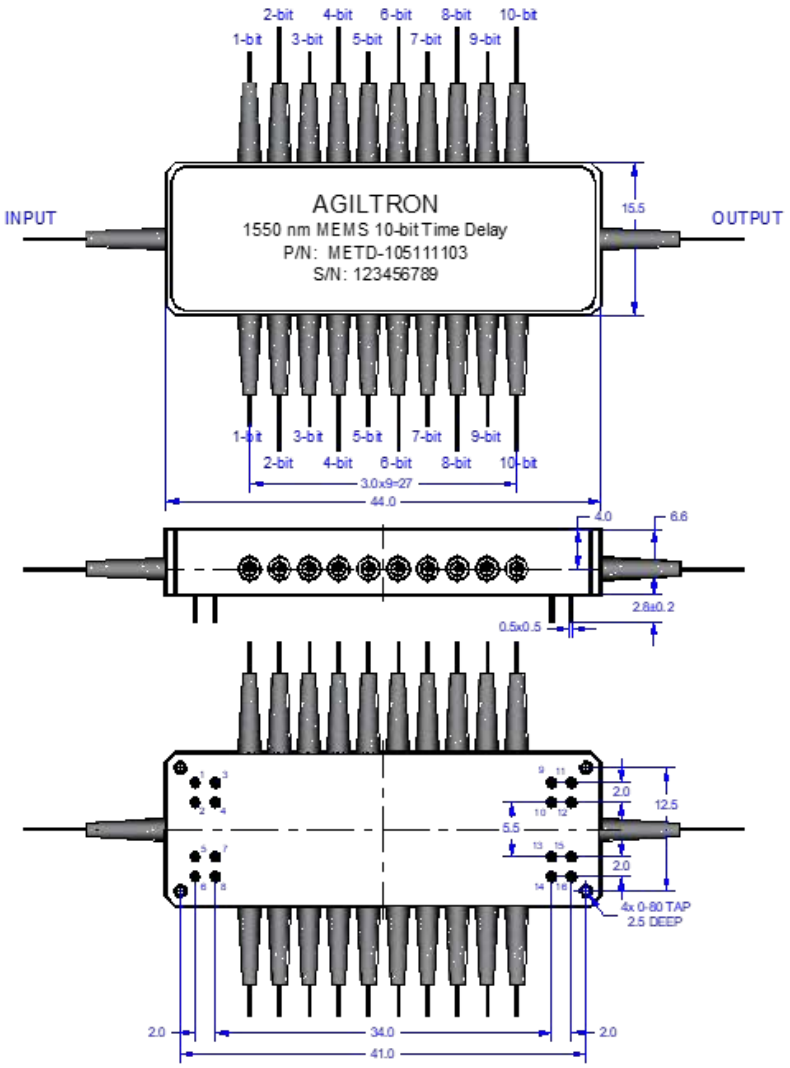
Mechanical Dimensions (Unit: mm)



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

Electrical Driving Requirements

The electrical driver is available with USB and/or RS232 control interfaces and Windows™ GUI. It comes with a wall-plug 5V power supply. Please contact us it.

Driving Voltage	Min	Typical	Max	Unit
H	4.6	4.8	5.0	VDC
Power Consumption (For each MEMS Chip)		170		mW

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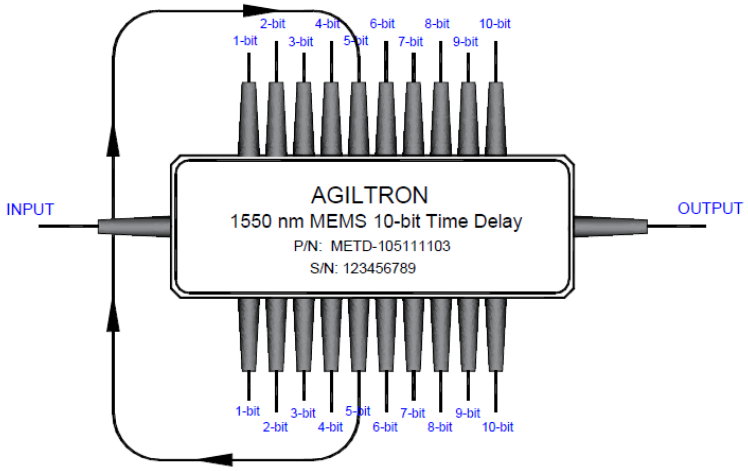
Status	Pin Number										
	1	2	3	4	5	9	10	11	12	13	6, 7, 8, 14, 15, 16
Bypass											0V
1-bit	H										
2-bit		H									
3-bit			H								
4-bit				H							
5-bit					H						
6-bit						H					
7-bit							H				
8-bit								H			
9-bit									H		
10-bit										H	

Delay Path Definition: ex. 5th-bit path diagram



Ordering Information

METD[1] -	☐☐	☐	☐	2	☐	☐	0	☐
	Type	**Wavelength**	**Configuration**	**Package**	**Fiber Type**		**Delay Range**	**Connector**
	4-Bit = 04 5-Bit = 05 6-Bit = 06 7-Bit = 07 8-Bit = 08 9-Bit = 09 10-Bit = 10 Special=00	1260~1620 =1 1310=3 1550=5 Special=0	TD [2] =1 TD & VOA =2 Special = 0	Non-Latching=2 Special =0	SMF-28 =1 PM 250 =B Special =0	Bare fiber=1 900 μm tube =3 Special =0	Custom =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]. **METD**: **ME**MS **T**ime **D**elay.
[2]. **TD**: **T**ime **D**elay.

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