N-Bit, Lossless Variable Photonic Time Delay Module

Product Description

This N-bit (N ≥ 10) Photonic Time Delay Module selectively routes optical signals through N fiber segments with the different lengths. Each fiber segment is defined to have the delay as

$$\Delta T_i = 2^{(i-1)} \delta T, \, i = 1, 2, ..., N$$

Where δT is the increment of time delay.

Therefore, the module provides N-bit of digitally variable time delay, having the total time delay as

$$\Delta T_{Total} = (2^N - 1)\delta T$$

N and δT can be defined by customer.

The EDFAs is used in the module to compensate the optical loss through optic fiber segments and switches. The optical loss between the optic fiber segment and the bypassing path is balanced internally to get the excellent uniformity of optical power between different time delays in long time delay ranges.

Features

· High Resolution
· High Speed
· Large Time Delay Range
· High Reliability
· Low Insertion Loss
· Low Power Consumption

Applications

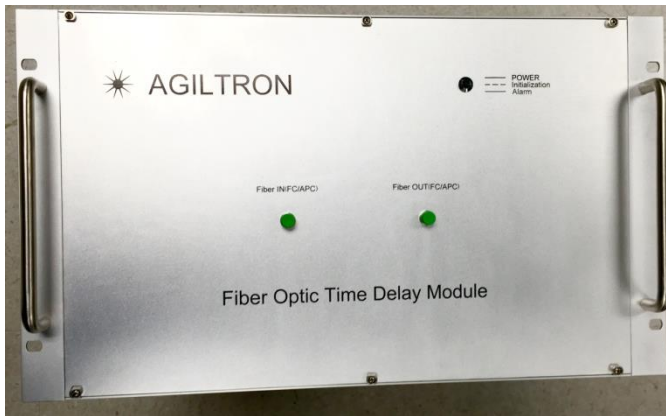· True time delay evaluation
· Instrumentation

Performance Specifications

N-bit Photonic Delay Module		Min	Typical	Max	Unit
Wavelength band		1535	1550	1565	nm
Insertion Loss [1]			0	0.5	dB
Cross Talk		25	30	40	dB
Switching Time	CL type		50	100	μs
	NS type		150	300	ns
Repetition Rate [2]	CL type			2	kHz
	NS type			100	kHz
Delay Time Range [3]		0.05		TBD[4]	ns
Polarization Dependent Loss			0.25	0.5	dB
IL Uniformity [5]			1.0	1.5	dB
Return Loss		50			dB
Operating Temperature		0		60	°C
Optical Power Handling			0		dBm
Storage Temperature		-40		85	°C
Fiber Type		SMF-28			
Package Dimension [6]		19" mount rack			

[1]: Defined at the input power from -10dBm to 0dBm
[2]: Defined in each switch.
[3]: The minimum delay can be as short as 0.01ns if needed, please contact us.
[4]: The maximum delay is defined by the bit number and delay increment.
[5]: Between the different time delays
[6]: The height of 19" mount rack will be determined by the total time delay.

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Control Interface

1) USB or RS232 with PC GUI

2) TTL, (GUI for system set-up only is available upon request)

Module Example (19-bit delay line in 6RU 19" rack)

Front panel

Rear panel

Ordering Information

SSTD -			5				3	0	
	Type	**Wavelength**	**Configuration**	**Package**	**Fiber Type**		**Delay Range**	**Connector**	
	10 bit = 10 N bit = N	1550nm=5	CL & latching =2 NS & non-latching = 3 Special = 0	3RU=3 4RU=4 5RU=5 6RU =6 Special=0	SMF-28=1 Special=0	900um loose tube=3	Customized = 0	FC/PC=2 FC/APC=3 SC/PC=4 SC/APC=5 ST/PC=6 LC/APC=7	