

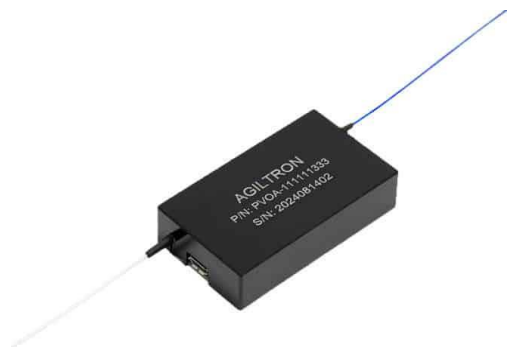
Free Space Fiber Polarization Maintaining Phase Shifter

(up to 9π , up to 100kHz, 500-2000nm SM, PM, MM, Bidirectional)



DATASHEET

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The PZTD Series High-Speed Variable Optical Time Delay delivers exceptional performance with high speed and low loss. It is compatible with all wavelengths and fiber types, including single-mode (SM), multimode (MM), and polarization-maintaining (PM) fibers. The device utilizes a piezo motor to change the separation between a pair of mating fibers, enabling time delays of up to 40 μm . The system features an integrated high-speed driver with a 0–5V analog SMA input and requires 12VDC power. For convenience, a wall-pluggable power supply is included, making the unit easy to operate in various setups.

Features

- Low Cost
- Low Loss
- Fast
- Wide Range
- High Resolution
- High Reliability
- Easy to Use

Applications

- PMD Compensation
- OCT
- Interferometer
- Spectroscopy
- Lab use

Specifications

Parameter	Min	Typical	Max	Unit
Operation Central Wavelength	500	1550	2000	nm
Wavelength Range		± 50		nm
Insertion Loss ^{[1] [2]}		0.3	0.8	dB
Return Loss ^[2]	55			dB
Loss Change		0.3	0.5	dB
Polarization Extinction Ratio (PM Fiber)	18		29	dB
PDL (SM Fiber)			0.2	dB
Scan Speed ^[3]		10	100	kHz
Phase Delay	8	9	10	π
Delay Resolution	0.1	0.4	0.5	μm
Optical Power Handling		0.5 ^[4]	5	W
Durability (Life cycle)	10^7			
Operating Temperature	-40		70	$^{\circ}\text{C}$
Storage Temperature	-40		85	$^{\circ}\text{C}$
Fiber Type	SM, PM, MM			

Notes:

[1]. Excludes connectors, Measured at 1550 nm

[2]. Tested with SM and PM fiber version only. For MM version, IL highly depends on CPR of light source and delay range, minimum RL 35dB.

[3]. Speed Variable with GUI setting

Equation to convert delay time to free space length:

$$T = L/C = L \text{ (m)} / (2.9996 \times 10^8 \text{ m/s})$$

Note: The specifications provided are for general applications with a cost-effective approach. If you need to narrow or expand the tolerance, coverage, limit, or qualifications, please [click this link](#):

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Rev 07/17/25

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Mechanical Dimensions (Unit: mm)

Ordering Information

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Prefix	Wavelength	Phase Shift	PER	Driver	Optical Power	Fiber Type *	Fiber Cover	Connector
PMPS-	488 = 4	$9\pi = 9$	18dB = 1	Non = 1	0.5W = 1	SMF-28 = 1	0.9mm Tube = 1	FC/PC = 2
	532 = 5	$15\pi = 1$	25dB = 2	Yes = 2	5W = 2	Hi1060 = B	Special = 0	FC/APC = 3
	650 = 6	Special = 0	$29\text{dB} = 3$	Special = 0	10W = 3	PM1550 = 5		SC/PC = 4
	780 = 7		Non = 5			780HP = 7		SC/APC = 5
	850 = 8					Special = 0		ST/PC = 6
	980 = 9							LC/PC = 7
	1060 = 1							LC/APC = 8
	1310 = 3							LC/UPC = U
	1550 = C							Special = 0
	2000 = 2							
	Special = 0							

* Fiber Type Selection Table:

1	SMF-28	5	PM1550	M	MM 50/125 μm
		D	PM1950	N	MM 62.5 μm
		3	PM1310		
4	SM450	E	PM400		
A	SM1950	F	PM480		
6	SM600	G	PM630		
7	Hi780	H	PM850		
8	SM800	I	PM980		
9	SM980	J	PM780		
B	Hi1060	K	PM460		
C	SM400	L	PM405		

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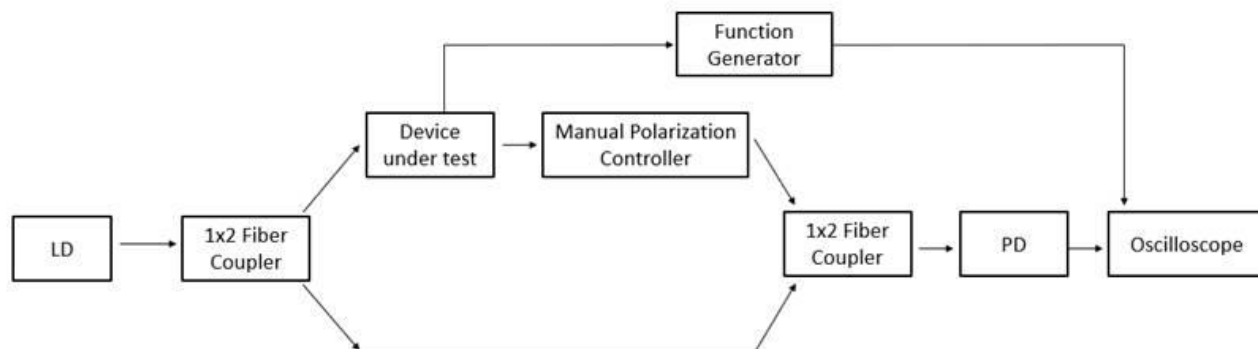


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Operation Instruction with Agiltron Driver

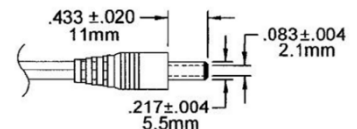
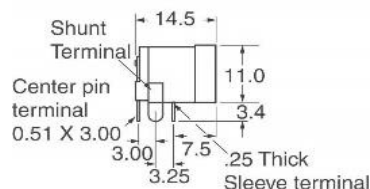
- Connection:
 - Connect the optical signal to either of the two fibers.
 - Connect the measurement instrument to the output of the other fiber.
 - Power Supply: Plug in the provided wall-pluggable 12V DC power supply.
- Control Signal: Provide a 0–5V control signal to the SMA connector on the driver.
- Operation: The device will operate as specified in the datasheet. For testing, applying sine wave and to observe several peaks within each wave; each peak represents a π phase shift
- Support: For any issues using our driver and our suggested set-up, please email us.
- Warranty: The product includes a one-year warranty against manufacturer defects.
- **Warning:** Do not applying voltage beyond the max value which will damage the piezoelectric actuator permanently. Do not adjust any pots on the driver

Typical Test Set-Up (For PM version all components must be PM fiber)



Power Connector (for OEM integration)

P/N:
Power Barrel Connector Jack 2.00mm ID (0.079"), 5.50mm OD
(0.217") Through Hole, Right Angle



12V Wall Plug DC Power Supply Interface