

# PZT Phase modulator(Fiber Stretcher)



**FOGPhotonics,inc**

one Idealphotonics company



## Products Guide

FOG Components

IMU Systems

FOG Devices

RLG Devices

FOG Instruments

## Features

- High Speed
- Low Cost
- Compact package
- SM, PM or RC fiber
- Multiple termination choices
- Unique multi-layer winding
- Driven with general purpose electronics

## Application

- open loop demodulation
- sensor simulation
- Variable optical delay
- Fiber sensor
- Downhole measuring
- Gyro compassing

**2016 NEW VERSION**

## Description



The FOGPhotonics PZT-13 is the high-speed member of our family of fiber stretchers. It is a fiber wound piezoelectric element for use in a wide range of optical interferometric measurement and sensing system applications. Typical uses include open loop demodulation, sensor simulation, variable optical delay, general purpose fiber interferometry and large angle modulation of interferometric phase.

FOGPhotonics's expertise in the design, manufacture and use of all-fiber interferometers has produced a unique multi-layer winding approach resulting in an enhanced modulation function while maintaining a high operational frequency [see charts]. PZT-13 Fiber Stretchers are available with SM, commercial PM [PANDA or Bowtie] or RC [SM Reduced Cladding] fiber types.

## Specification

Parameter	Units	PZT13 FIBER STRETCHER
Operational Wavelengths	nm	600-1625
Fiber Stretch	μm / Vol	0.001
Maximum thrust	N	100N@150V
Rigidity	N/um	<b>200</b>
Dynamic response frequency	KHZ	0-30
Nominal diameter displacement	um	0.15um@150V (±10%)
Fiber type	NA	SM,PM,RC Fiber
Dimension(ODXIDXH)	mm	∅25×∅22x30
Electrode lead	NA	Red-positive electrode;Black-negative electrode
Operation temperature	°C	-45-+71
Storage temperature	°C	-55-+85
Extinction Ratio	dB	≤ 24 dB bare leads; ≤ 22 dB with connectors
Optical Loss	dB	≤ 0.5 dB, typical 0.2 dB (excluding connectors)
Fiber Interface	NA	Bare fiber, FC/PC or FC/APC
Max Power supply	V	150
MTBF	Hours	100000
Impedance [below resonance]	nf	Capacitance 2 nF nominal, floating
Data Rate	Hz	Typ400Hz(User Selectable 1 to 1000 Hz)

### PZT material Modulation Constant:

D31: -240 picometer/Volt

D33:+580 picometer/Volt

Dielectric constantε: 1900

Curie temperature: 250°C

Density: 7.5 g/cm,Elastic compliance s33: 20x10<sup>-12</sup> m<sup>2</sup> /N

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