

Fiber Phase Shifter (FPS-002)



Coherent or interferometric sensor systems, such as distributed acoustic sensors (DAS), often require a low loss, low-cost phase shifter or modulator to obtain the desired sensing signals. General Photonics' 2nd generation all fiber phase shifter/modulator provides phase shifts up to 65π with a much lower half-wave voltage (~ 2 volts as compared with 10-20 volts for the 1st generation phase shifter) at frequencies from DC to 20 kHz. The all fiber construction results in low insertion loss and back reflection. In addition to fiber sensor systems, this compact device is ideal for fiber laser systems, fiber resonators, and fiber interferometers for precision phase tuning or phase modulation.

Specifications:

Wavelengths	1550, 1310, 1060, or 780nm
Fiber Type	SM: 1310/1550nm: Corning ClearCurve ZBL or equiv. 1060nm: Corning HI1060 or equiv. 780nm: Nufern 780HP or equiv. PM: 1550nm: Bend insensitive PM with MFD=6.5 μ m 1310nm: Bend insensitive PM with MFD=6.0 μ m 1060nm: Nufern PM 980XP or equiv.
Insertion Loss	<0.5 dB (at λ_c , excluding mode coupling loss and connectors)
Return Loss	>58 dB without connectors >55 dB with APC connectors >50 dB with PC connectors)
Total Phase Shift @500Hz, $V_{pp}=150V$	> 65π (at 1550nm)
Half Wave Voltage (V_{π}) @500Hz	2.5-4.5V typical (small frame) 0.7-1.5V typical (large frame)
Resonance Frequency	8-14kHz typical
V_{π} @resonance frequency	0.1-0.5V typical
PDL	SM: <0.05 dB PM: <0.1 dB
PER	PM: >18 dB with connectors
Residual Amplitude Modulation	± 0.01 dB (at 1550nm)
Capacitance of Piezo	0.18 μ F
Maximum Applied Voltage	150V
Electrical Interface	Molex WM9131-ND or equivalent
Operation Temperature	0 to 50° C
Storage temperature	-40° to 85° C
Fiber Length (Internal) ¹	36 \pm 2 cm (small frame) 93 \pm 2 cm (large frame)
Dimensions	Small frame: 35.0 (L) x 17.0 (W) x 10.0 (H) mm Large frame: 45.0 (L) x 27.0 (W) x 11.0 (H) mm
<p>Note: Unless otherwise stated, specifications in this table are for devices without connectors at 23\pm5°C.</p> <p>1. From edge of enclosure at input port to edge of enclosure at output port, not including boots or pigtails. Total fiber length including pigtails will be provided in test data for each FPS-002.</p>	

Features:

- All-fiber optical path
- Low half-wave voltage
- Large phase shift range
- Compact
- Low insertion loss
- Low residual amplitude modulation
- Low PDL
- Low cost

Applications:

- Fiber interferometers
- Fiber laser systems
- Fiber sensor systems

Related Products:

- Phase Shifters (FPS-001, FPS-003)

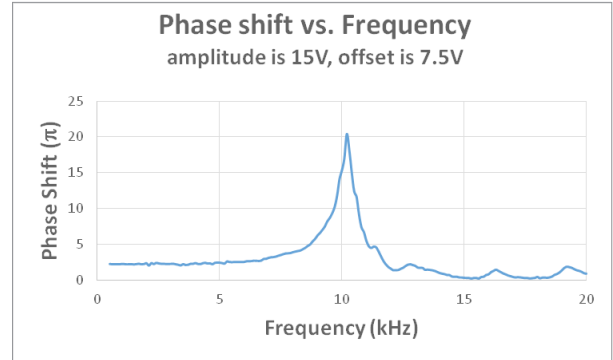
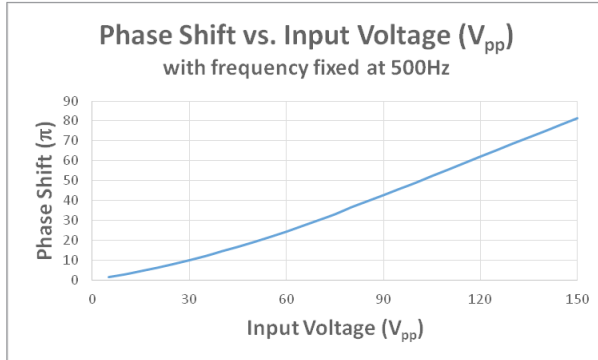
FAQ:

- [Phase Shifters](#)

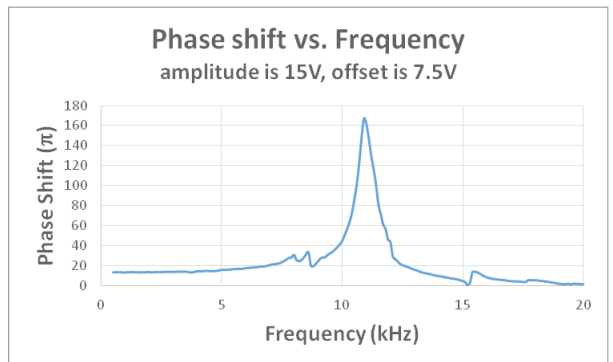
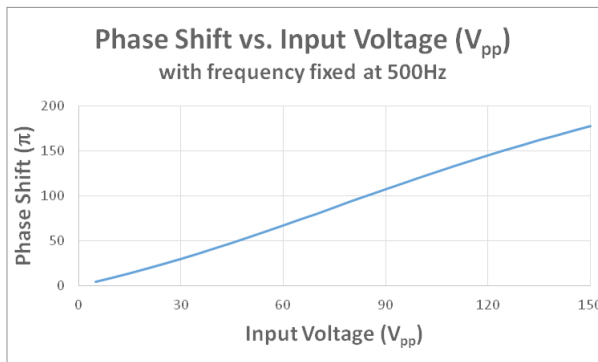
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Typical Performance Data:

1550nm SM fiber (small frame)

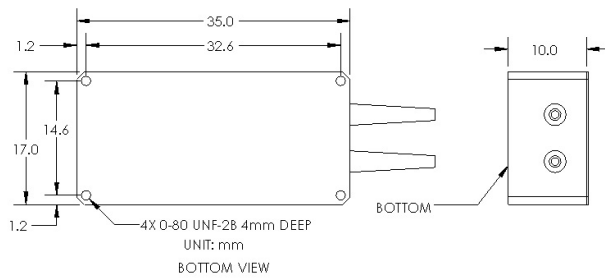


1550nm PM fiber (large frame)

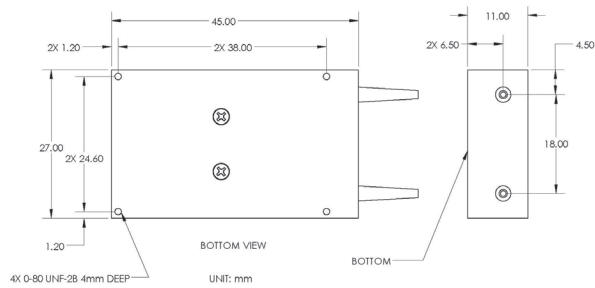


Dimensions (in mm):

Small Package

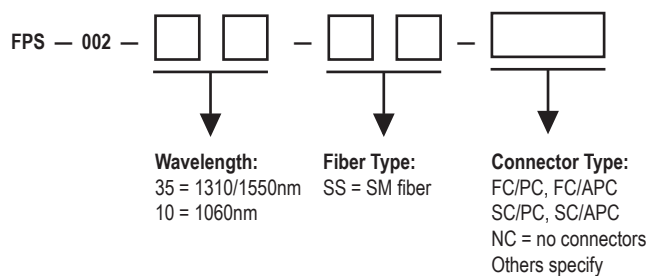


Large Package



Ordering Information:

Small Package (Available for 1310/1550 or 1060nm SM fiber)



Large Package (Available for PM or 780nm SM fiber)

