POD Polarimeter

PolaDetect™

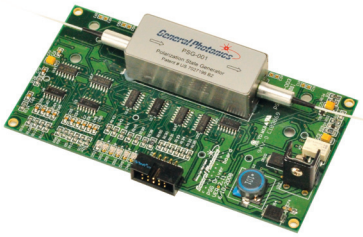
General Photonics' in-line polarimeter is specially designed for low cost, high-speed polarization characterization without interrupting data traffic. It outputs four voltage signals for calculating both the degree of polarization (DOP) and the state of polarization (SOP) of the light passing through the device in microseconds. PolaDetect™ is ideal for integration into polarization monitoring and polarization stabilization modules, or in polarization characterization instruments. It comes with a preamplification board to provide analog signals for SOP/DOP calculation, feedback control, and computer interface. A calibration matrix is provided with every device for the calculation. Devices without preamplification board and calibration matrix are also available for OEM purposes.

Specifications:

Insertion Loss	0.8 dB typical, 1.2 dB max.
Return Loss	55 dB
PDL	< 0.25 dB
PMD	< 0.1 ps
Wavelength Dependent Loss	0.15 dB over C band or 1310 ± 15nm, depending on version
Optical Power Sensitivity	5 μW
Max. Optical Input Power	5 mW
Optical Damage Power	300 mW min.
Measurement Bandwidth	50 kHz with preamplifier board Analog bandwidth for optical head alone is 1.5 MHz
SOP Uncertainty (At Calibration Wavelength)	1% max.
DOP Uncertainty (At Calibration Wavelength)	±2% max
Wavelength Range[1]	1550 ± 50 nm standard, 1310 ± 30nm available
Calibrated Wavelength	User specified within range
Operating Temperature	0 to 40 °C
Storage Temperature	-40 to 85 °C
Fiber Type	SMF - 28
Electrical Interface	10 pin w/o preamplifier board 20 pin w/preamplifier board
Electrical Power Supply	-5 V to -10 V w/o preamplifier board ±12 V w/preamplifier board
Dimensions	1.45" (L) x 0.8"(W) x 0.58" (H) (optical module) 4.91" (L) x 1.95" (W) x 0.65" (H) (with board)

Note: Values are referenced without connectors.
1. Contact General Photonics regarding other wavelengths.

High-Speed Polarization State Generator – PolaPal™



General Photonics' high-speed polarization state generator (PSG) module provides the ability to generate 6 states of polarization (-45°, 0°, 45°, 90°, RHC & LHC) across the Poincaré Sphere in less than 250 μs, with an impressive repeatability of less than 0.1 degrees. In addition, it comes as a compact module ideal for integration into systems that require precise generation of these 6 polarization states or precise 90° polarization rotation. Applications include Mueller matrix-based measurements, polarization OTDR, performance monitoring, and swept frequency component measurement systems. The PSG is easily controlled with a 6-bit TTL signal either from a microcontroller or a computer.

Specifications:

Wavelength Range[1]	1480 to 1620 nm	1260 to 1340nm
Insertion Loss	1.0 dB typical	1.2 dB typical
Wavelength Dependent Loss	0.3 dB typical across C band	< 0.3 dB
Maximum Optical Power	300 mW min.	
Insertion Loss Variation	0.1 dB max. for all SOP states	
Return Loss	55 dB min.	
SOP Repeatability	± 0.1 degrees on Poincaré Sphere	
Rotation Angle Wavelength Dependence	-0.068 deg./ nm	
Rotation Angle Temperature Dependence	0.1 deg./ °C	
Angle Between SOP States	90 ± 10 degrees on Poincaré Sphere	
Transient Loss	0.6 dB per bit max.	
Number of Control Bits	6	
SOP Switching Speed	250 μs max.	
Electrical Interface	10-pin digital port to accept any 6 bit TTL control signal, with +12 V power supply	
Software	None	
Operating Temperature	0 to 50 °C	
Storage Temperature	-40 to 80 °C	
Board Dimensions	5.30" (L) x 2.74" (W) x 0.75"(H)	

Note: Values are referenced without connectors.
1. Calibrated over 1500 to 1580 nm. Please contact General Photonics for information on other wavelength options.

Features:

· Digitally Switched SOP
· Switching Speed 250 μs or less
· 0.1 degree SOP Repeatability
· 6-bit TTL Control
· Compact

Tech Info: pp. 148, 167, 170

Applications:

· Polarization OTDR
· Polarization Rotation
· Mueller Matrix-based Polarization Analysis
· Swept-Frequency Measurement

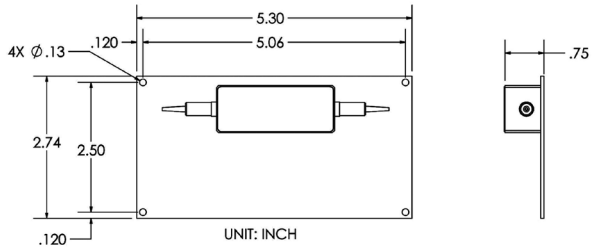
Ordering Information:

PSG – 001 – □ □ – □

Wavelength:
15 = 1550 nm
13 = 1310 nm

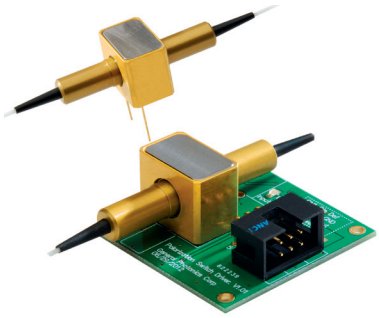
Connector Type:
FC/PC
FC/APC

Dimensions (in inches):



Polarization Submodules

Polarization Switch – PolaSwitch™



General Photonics' all solid-state polarization switch can quickly and repeatably rotate the SOP of incoming light by a fixed angle, either 45 or 90 degrees. Both single mode and PM fiber pigtailed versions are available. With the PM option, the device functions as a TE to TM converter, switching the SOP between being aligned with the slow and fast axes of the PM fiber, or between the slow axis and 45 degrees from the slow axis. With the SM option, the device simply rotates the polarization ellipse either 45 or 90 degrees. The device can be used for polarization sensitive OCT, polarization sensitive OTDR or OFDR, PMD monitoring, polarization modulation, polarization detection, and polarization metrology.

Specifications:

Operation Wavelength	1550 ± 30nm or 1310 ± 30nm
Polarization Rotation (at λc, 23° C)	45 ± 0.5° or 90 ± 0.5°
Polarization Rotation (All Wavelengths, All Temp.)	45 ± 5° or 90 ± 5°
Rotation Angle Temperature Dependence	-0.1 degree / °C for 45° version -0.2 degree / °C for 90° version
Insertion Loss	< 0.5 dB
Return Loss	> 55 dB
Switching Current	< 130 mA
Switching Voltage	2.5 V
Latching Current	~ 80 mA
Latching Voltage	1.5 to 2 V
Switching Time	100 μs typical
Extinction Ratio[1]	> 18 dB for PM model
Operating Temperature	0° to 50 °C
Storage Temperature	-40° to 85 °C
Fiber Type	PM Panda, SMF-28 or compatible
Dimensions	Optical head: 1.57" (L) x 0.69" (W) x 0.53" (H) Board: 1.50" (L) x 1.50" (W) x 0.58" (H)

Note: Values referenced without connectors.
1. Both output states of 90° PM PSW with input polarizer at 23 °C.

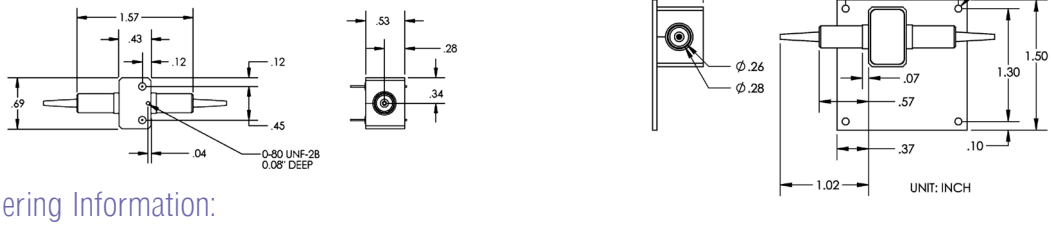
Applications:

- Polarization diversified detectors and sensors
- Polarization sensitive OCT
- Polarization metrology
- Polarization sensitive OTDR or OFDR
- PMD monitoring

Unique Features:

- Fast
- No moving parts
- Low insertion loss
- Compact

Dimensions (in inches):



Ordering Information:

PSW – 002 – □□ – □□ – □□ – □ – □ – □

Wavelength:	Polarization Rotation:	Fiber Type:	Input Polarizer (for PM PSW):	Connector Type:	Board:
15 = 1550 13 = 1310	90 = 90° 45 = 45°	SS = SM to SM PP = PM to PM	0 = no polarizer P = Input polarizer (slow axis)	FC/PC, FC/APC or NC = No Connectors Others specify	D = with driver board No character here if without driver board