

Reset-Free Polarization Stabilizer – PolaStay™



The PolaStay™ polarization stabilizer actively maintains a stable output state of polarization (SOP) against rapid input SOP fluctuations as fast as 2 ms, and tracks against an endlessly rotating input SOP up to 16π /s without reset. This unique product is a complete system consisting of General Photonics' polarization controller, in-line polarization monitor, and proprietary algorithm. The output of the product can either be single mode fiber or PM fiber with the output polarization aligned to its slow axis. When a polarizer is placed at the output, the maximum power fluctuation caused by input polarization fluctuation is less than 0.1 dB. This instrument can be used to suppress noise figure in optical amplifiers, reduce PDL effects, demultiplex

polarization division multiplexed channels, and eliminate polarization fading in coherent communication and fiber sensor systems. In addition to the standard configuration, specialized versions are available for low power applications (as low as -30 dBm) and special wavelengths (1064 nm).

Specifications:

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|---|--|
| Operating Wavelength Range ¹ | 1260 to 1650 nm standard |
| SOP Recovery Time | < 7 ms (2 ms typical) |
| SOP Rotation Tracking Speed | 16π /s, endless tracking & reset free |
| SOP Accuracy ² | < 0.1 dB |
| Repeatability | < 0.1 dB |
| Insertion Loss | 0.8 dB typical, 1.2 dB max. |
| Return Loss | > 50 dB |
| Isolation in Orthogonal Polarization | 20 dB |
| Minimum Optical Input ³ | -13 dBm standard (low power option available) |
| Optical Power Handling ³ | 20 dBm max. standard (high power option available) |
| Operating Temperature | 0 ~ 50 °C |
| Storage Temperature | -20 ~ 70 °C |
| Power Supply | 100 - 120 VAC, 50 - 60 Hz, or 200 - 240 VAC, 50 - 60 Hz |
| Communication Interfaces | RS-232, USB, Ethernet, GPIB |
| Dimensions | 2U 19 inch half rack width 3.5" (H) x 8.5" (W) x 14" (L) |

Notes: Specifications listed above are for the standard configuration; specs may be different for instruments with different wavelength or input power ranges.

1. Wavelength range listed is for standard version with SM output. Wavelength ranges will be different for versions with PM output.

2. The output power fluctuation caused by SOP fluctuation after passing through a polarizer.

3. Contact General Photonics for details regarding low or high power options.

Features:

- Reset-Free Operation
- 2 ms Recovery Time
- 16π /s tracking speed
- Plug and Play

Applications:

- Optical Amplifier Noise Reduction
- Polarization Demultiplexing
- Elimination of Polarization Fading
- Coherent Communication
- Optical Coherence Tomography
- Fiber Laser

Tech Info: p. 152
FAQ: p. 180



INSTRUMENTS

Reset-Free Polarization Stabilizer – PolaStay™

Typical Performance Data:

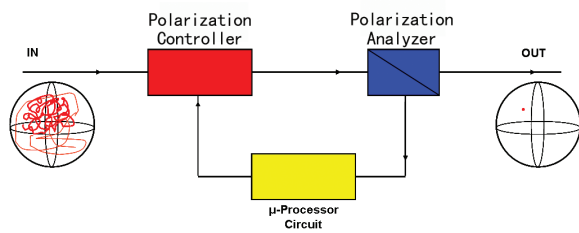


Figure 1. PolaStay™ polarization stabilizer function diagram.

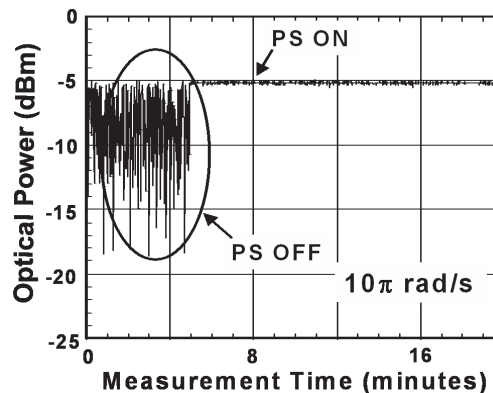


Figure 2. Polarization stabilization against endless half-wave plate rotation at 10π rad/s

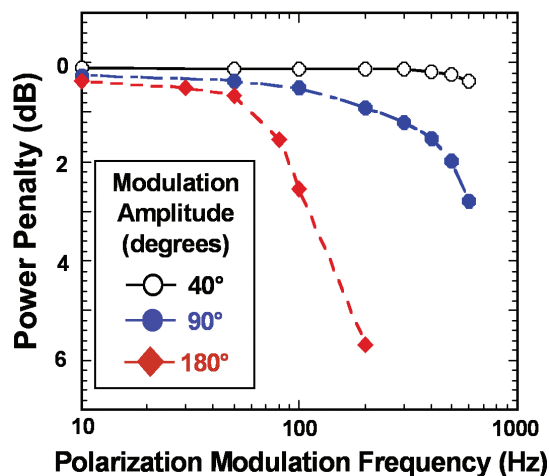


Figure 3. Polarization stabilization against sinusoidal polarization modulation.

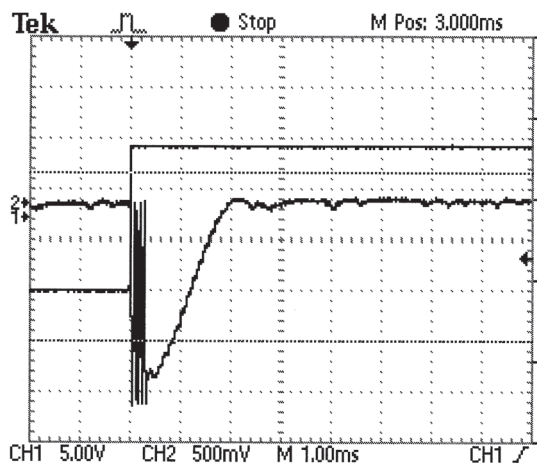
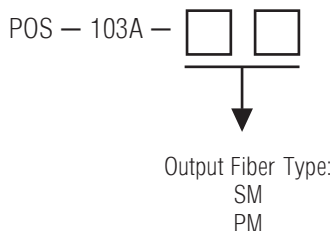


Figure 4. Polarization stabilization against a step polarization change.

Ordering Information:



Accessories:

| | |
|--------------------|-------|
| NoTail™ Isolator | p. 79 |
| NoTail™ Polarizer | p. 78 |
| NoTail™ Coupler | p. 72 |
| NoTail™ PM Coupler | p. 73 |
| NoTail™ PBC/S | p. 74 |
| NoTail™ Circulator | p. 81 |

Notes: Please specify power supply and connector type when ordering.
Please contact General Photonics for more information on low power or 1064 nm stabilizers.