Polarization Synthesizer/Analyzer – PolaFlex™

PolaFlex™ is a turn-key instrument that can generate and maintain any desired state of polarization (SOP), regardless of the input SOP. It combines General Photonics' patented polarization controller, in-line polarimeter, and control algorithm into an instrument that functions as both a deterministic polarization state generator and a polarization analyzer. The generated SOP and the corresponding Poincaré Sphere can be readily displayed on a computer screen via USB interface. To generate a desired SOP, a user simply inputs the corresponding Stokes parameters using the front panel keypad. The instrument automatically searches for the SOP and maintains it against input SOP fluctuations. Another attractive feature is that the user can scan through 6 distinct SOPs (0°, 90°, ± 45°, RHC and LHC) sequentially with user defined speed for Mueller matrix calculations, or select any of the 6 states with the touch of a button. Furthermore, the user can select multiple predetermined SOP traces for the instrument to generate, emulating certain common polarization variations. The instrument can also function as a polarization scrambler, generating random SOP scans with user-defined scanning speed. Finally, with the internal polarization controller disabled, PolaFlex™ can function as an in-line polarimeter, displaying the instantaneous SOP and DOP of the input light beam. This instrument can be quickly and easily calibrated using its built-in self-calibration program to optimize DOP and SOP measurement and control at special wavelengths and temperatures. PolaFlex™ puts all of the tools necessary for polarization management at your fingertips.

Specifications:

Operating Wavelength	1550 ± 50 nm
Insertion Loss	1.2 dB, typical
SOP tracking accuracy[1]	0.5°
SOP step time (trace mode)	3 ms/ degree
SOP measurement accuracy	± 1%
Target SOP Resolution	0.1°
DOP accuracy	± 2%
Input Stokes Parameter Resolution	0.01
Optical Power Accuracy	± 0.25 dB
Return Loss	55 dB
PDL	< 0.25 dB.
PMD	< 0.1 ps
Operating Power Range	-15 to +10 dBm
Optical Power Damage Threshold	300 mW
Operating Temperature	0 ~ 40 °C
Storage Temperature	-20 ~ 60 °C
Power Supply	100 - 120 VAC, 50 - 60 Hz or 200 - 240 VAC, 50 - 60 Hz
Communication Interfaces	RS-232, USB, Ethernet, GPIB
Software	PolaView™ (included)
Dimensions	2U, 19" half rack width 3.5" (H) x 8.5" (W) x 14" (L)

Note: Values are referenced without connectors.
1. At power > 0 dBm.

Features:

- Multiple Operation Modes
- Deterministic SOP generation
- Deterministic SOP trace generation
- Polarization analysis
- Polarization scrambling
- Input polarization independent

Applications:

- Deterministic SOP generation
- SOP/DOP monitoring
- Polarization Analysis
- Polarization Stabilization
- Optical SNR
- Sensor systems

INSTRUMENTS

Polarization Synthesizer/Analyzer – PolaFlex™

Typical Performance Data:

Polarization stabilization

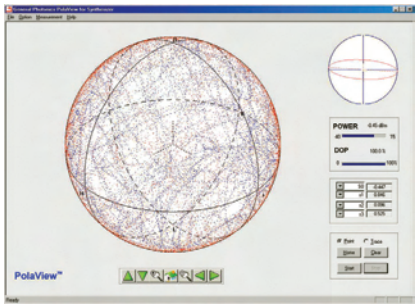

Fig. 1 Input polarization pattern: saw wave scramble at 5 Hz, taken over 20 sec.

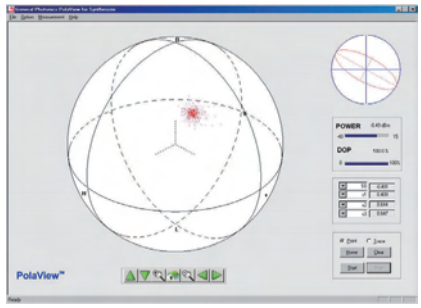

Fig. 2 Output polarization stabilized by PSY-101 against the same polarization scrambled input, taken over 20 sec.

Special polarization state/trace generation

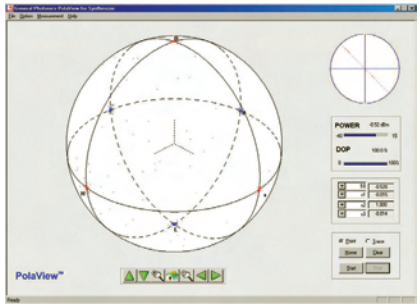

Figure 3. Poincaré sphere pole state generation

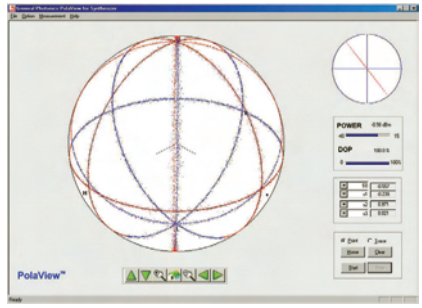

Figure 4. Trace scans

Scrambling

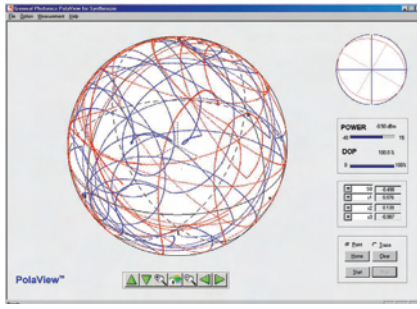

Figure 5. Saw scramble trace, 1Hz after 1 minute

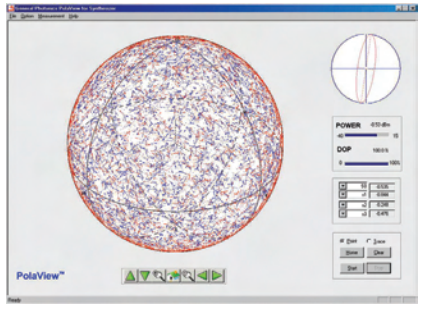

Figure 6. Random scramble, 100 Hz after 1 minute

Ordering Information:

PSY – 101 – ☐ ☐ ☐

Connector Type:
FC/PC, FC/APC
SC/PC, SC/APC
Others specify

Note: Please specify power supply when ordering

Accessories

NoTail™ Polarizer p. 78
NoTail™ Isolator p. 79