KEYSIGHT TECHNOLOGIES (AGILENT HP)

11896A

The Keysight Agilent 11896A Motorized Polarization Controller is designed to cover a wide wavelength range from 1250 nm to 1640 nm. Utilizing a motorized four-loop optical fiber design, it achieves complete coverage of the Poincaré sphere with extremely low optical insertion loss variation of ±0.002 dB. This high-stability performance makes it an essential instrument for polarization dependent loss (PDL) and gain measurements where power-sensitive accuracy is critical.

SPECIFICATIONS

General

Interfaces	GPIB (HP-IB)
Display	Front panel LED display

Physical

Power Supply	90 - 132 VAC or 198 - 264 VAC, 47 - 66 Hz, 45 VA max
Operating Temperature	0°C to +55°C °C
Dimensions (W×H×D)	425 mm × 89 mm × 520 mm mm
Weight	9.0 kg

Optical Performance

Operating Wavelength Range	1250 - 1600 nm
Insertion Loss Variation	±0.002 dB
Polarization Dependent Loss (PDL)	< 0.01 dB
Internal Fiber Type	9/125 µm single-mode fiber
Maximum Input Optical Power	+20 dBm

Operation and Control

Control Modes	Manual, auto scan, and GPIB control
Polarization Scrambling Speeds	8 selectable scan rates
SOP Adjustment Mechanism	Four independent motorized fiber loops

Environmental and Standards

Storage Temperature Range	-40°C to +75°C

Optical Specifications

Return Loss	> 40 dB (with PC connectors), > 50 dB (with APC connectors)
Optical Connectors	FC/PC, HMS-10, DIN 47256, ST, or SC/APC (option dependent)
Operating Wavelength Range Options	1250 to 1600 nm (Option 025), 1200 to 1700 nm (Option 026)

Architecture

Retarder Element Type	Four motorized fiber-loop quarter-wave retarders

Performance

Number of Retarder Loops	4
Retarder Angular Range	-90° to +90°
Retarder Angular Resolution	0.18° (1000 steps)
Poincaré Sphere Coverage	> 99.9% (for speed settings 1 to 5)
Poincaré Sphere Scan Time	1.25 s to 160 s (speed setting dependent)

TECHNOLOGY

Fiber Optic Polarization Control

APPLICATIONS

Optical component testing, PDL and gain measurements, polarization scrambling