

Polarization Analyzer



- **Product Description**

Idealphotonics' has designed a high-precision polarization analyzer for characterizing the polarization state of continuous-wave lasers. The analyzer is based on a rotating achromatic wave plate and a polarizer. The waveplate is rotated by a motor, while a photodiode (PD) collects one cycle of the signal. From this measurement, the four Stokes parameters (S_0 , S_1 , S_2 , S_3) of the input light can be determined, enabling calculation of the polarization azimuth, ellipticity, and other related polarization parameters.



- **Product features**

Compact Design and Stability ; Full Software Support ; High Accuracy ;
Excellent Compatibility

- **Part Number**

MP-IP-PAX-VIS/NIR/IR

- **Application area**

Research and Development and Fundamental Research | Industry and
Quality Control | National Defense and Remote Sensing

- **Core parameters**

Wavelength Range
VIS: 400~700nm / NIR: 650~1100nm / IR: 900~1700nm

- **General Parameters**

Features

Wavelength Coverage: The series offers three models – VIS, NIR, and IR – covering a wavelength range from 400 nm to 1700 nm, allowing users to select the appropriate model according to their needs.

Compact Design and Stability: Features a compact design for easy integration and reliable operation.



Full Software Support: Includes control software that displays Stokes parameters, the Poincaré sphere, and other polarization-related information.

Supports Degree of Polarization (DOP) measurement and Extinction Ratio (ER) testing.

High Accuracy: Provides precise measurement of polarization azimuth and ellipticity.

Excellent Compatibility: Dual-threaded structure (external SM1, internal SM05) enables both cage/mount integration and direct free-space light input.

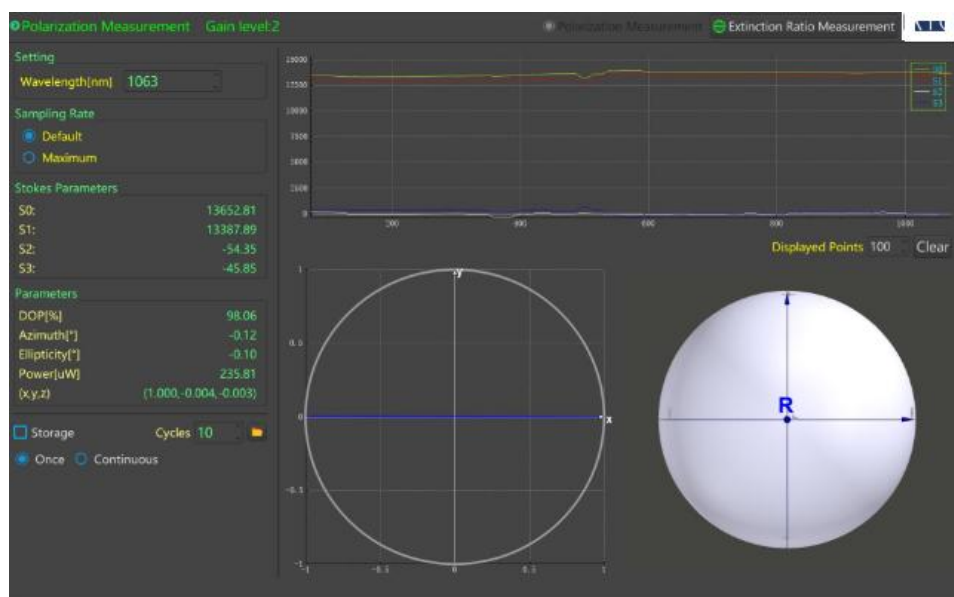
Technical Specifications and Test Data

Performance Parameters	Typical Values	Unit
Housing (L×W×H)	79.5×65×75	mm
Power Supply	DC 12V/2A	/
Wavelength Range	VIS: 400~700	nm
	NIR: 650~1100	nm
	IR: 900~1700	nm
Optical Power Input Range	10 μW~10 mW	/
Free-Space Input Beam Diameter	Φ3 (Φ2 for IR)	mm
Default Sampling Rate	15 Hz (FFT=2048/cycle)	/
Maximum Sampling Rate	30 Hz (FFT=2048/cycle)	/
Measurable State of Polarization (SOP)	Entire Poincaré Sphere	/

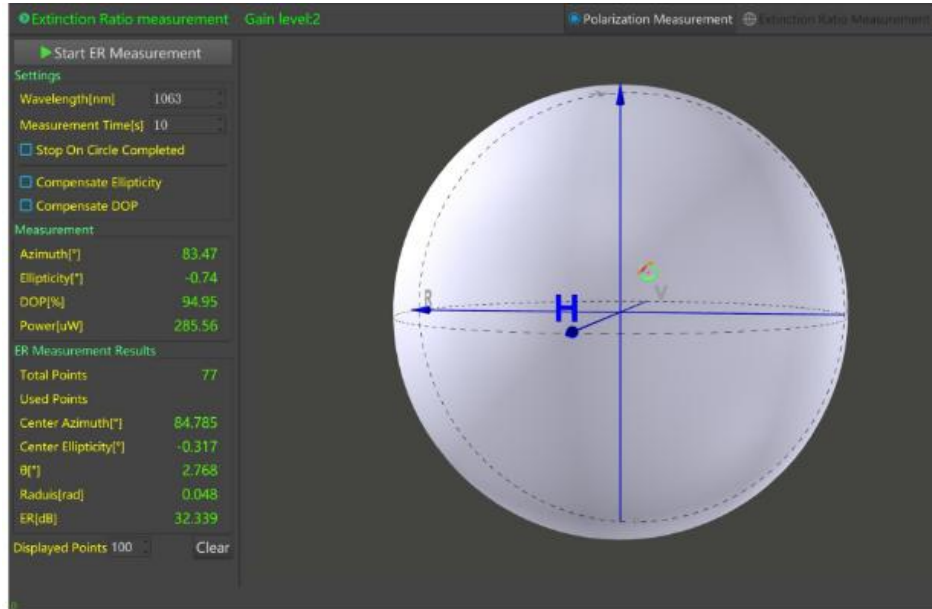


Azimuth Angle Accuracy	±0.5	°
Ellipticity Accuracy	±0.5	°
Degree of Polarization (DOP) Accuracy	±5%	/
Bottom Thread	M4 thread	/
Front Thread	External SM1, Internal SM05	/
Temperature range	5~30	°C
Operating Humidity	<90% (non-condensing)	/
<p>Notes:</p> <p>a) FFT=2048 cycle can be configured to 1024, 512, etc.</p> <p>b) One sampling per quarter-wave rotation; hardware supports half-circle sampling once (further settings can be updated via software).</p>		

Test result



The polarization measurement software interface (using a 1063 nm laser) shows that the polarization ellipse appears as linear polarization, with an ellipticity of 0.1° .



The extinction ratio measurement software interface (using a 1063 nm laser) shows an extinction ratio of $ER = 32.339$ dB, and it can also be used for polarization adjustment in scenarios such as polarization-maintaining (PM) light.