

New  
**SOP Analyzer**  
**SA2000**

FIBERPRO's State Of Polarization Analyzer, SA2000, measures various polarization related characteristics of optical light, such as, the State Of Polarization (SOP), Degree Of Polarization (DOP), Polarization Extinction Ratio (PER), the Inclination angle of polarization ellipse, etc. with high accuracy.

SA2000 adopts rotating waveplate and polarizer method, which makes it possible to measure SOP without operating wavelength calibration.

The main application of SA2000 is to monitor polarization states of optical light, to characterize polarization-sensitive optical devices, and to align and assemble optical devices with PM fiber. It is also useful for polarization analysis including Polarization Mode Dispersion measurement.

SOP



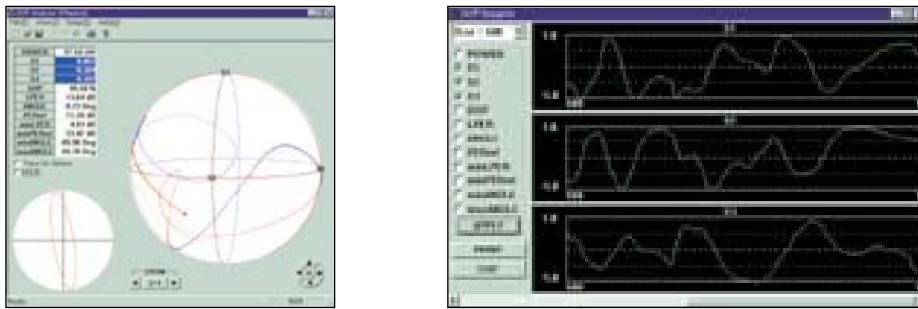
## Features

- Rotating Waveplate and Polarizer Method
- Wavelength Independent Measurement
- No calibration needed
- Accurate SOP measurement
- Wide range of PER measurement
- Free space and FC/PC Input
- 3 Analog Outputs for Active Control
- GPIB and RS232 Remote Interface
- Complete Software Package Program

## Applications

### 1. Polarization Analysis

SA2000 measures the State Of Polarization (SOP) and Degree Of Polarization (DOP) of optical light. Accompanying software shows the measured results in various types, polarization ellipse, Poincare sphere and graphs.

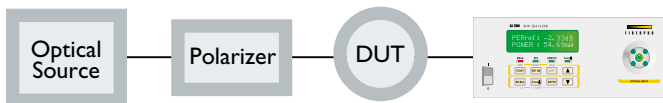


[Figure 1] Window of Complete Software, SA2000

### 2. Extinction Ratio Measurement

SA2000 measures Polarization Extinction Ratio (PER), which is an important characteristic of Polarization Maintaining Fiber (PMF), PM patch cord and other PM devices. It has two kinds of PER, linear polarization extinction ratio (LPER) and PER to linear reference polarization (PERref). Accompanying software also gives another PER measurement method from the SOP trace of perturbed PM fiber (Fig. (3)).

[Figure 2]



[Figure 3]  
Window of Complete Software, SA2000

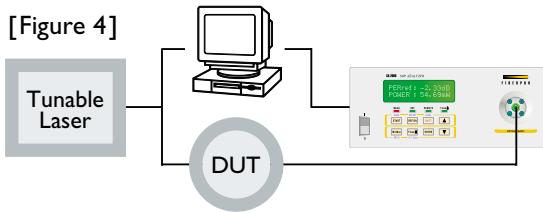
### 3. Alignment of Polarization Axis of Optical Device

SOP and PER measurement can be used in launching optical light to Polarization Maintaining Fiber and aligning polarization axis of optical devices, such as polarization maintaining fiber pig-tailing to laser diode, polarizer, polarization splitter and combiner, etc. Active feedback control in aligning polarization axis is possible using three user-configurable analog outputs.

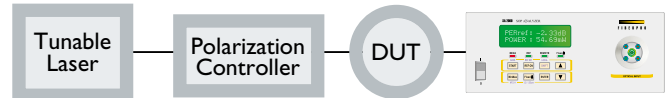
### 4. PMD Measurements

SA2000 can be used in PMD measurement using scanning principal state of polarization methods, 3 Stokes parameter wavelength scanning method (Fig. (4)) and also Jones Matrix Eigen Analysis method with the help of the polarization controller (Fig. (5)). (ITU-T G.650)

[Figure 4]



[Figure 5]



## Specification

Wavelength Range	1250 ~ 1400 nm, 1450 ~ 1640 nm <sup>1), 2)</sup>
Input Power Range	-50 dBm ~ 10 dBm
Measurement Speed	12 Hz <sup>3)</sup> , 24 Hz <sup>4)</sup>
Poincare Sphere Display Accuracy	$\pm 0.6^\circ$ <sup>4)</sup>
Accuracy of Inclination Angle	$\pm 0.2^\circ$ <sup>5)</sup>
Accuracy of Degree of Polarization	$\pm 1\%$ <sup>1), 6)</sup>
Extinction Ratio Range	0 dB ~ 50 dB
Accuracy of Optical Power Measurement	0.2 dB <sup>7)</sup>
Optical Input	FC and free space $\varnothing < 3$ mm
Analog Output	3 analog ports, 5 user selectable modes
AC Power Input	100 ~ 125 V, 210 ~ 250 V, 50 Hz / 60 Hz
Dimensions (H × W × D)	86 × 212 × 420 mm
Operating Temperature	10°C ~ 40°C
Storage Temperature	-10°C ~ 60°C
Interface	RS232 / GPIB

<sup>1)</sup> This range is for fixed wavelength operation mode (calibrated mode).

<sup>2)</sup> For variable wavelength operation mode, this range is reduced to 1260 ~ 1340 nm, 1520 ~ 1620 nm.

<sup>3)</sup> The optical specifications of this table is based on the speed for the average number of 2.

<sup>4)</sup> At the condition of a single average, the measurement speed is 24 Hz.

<sup>4)</sup> For DOP > 90%

<sup>5)</sup> At linear polarization.

<sup>6)</sup> For variable wavelength operation mode, this accuracy is limited to the polarization state with ellipticity angle within  $-35^\circ \sim 35^\circ$ , and DOP > 90%.

<sup>7)</sup> At power calibrated wavelength 1.3  $\mu\text{m}$  and 1.55  $\mu\text{m}$ .

The specifications and technical information contained herein are subject to change without notice and are furnished without charge or obligation. They are given and accepted at recipients sole risks.

## Ordering Code

**SA2000**