

# Polarimeter

**POL-APX Model**

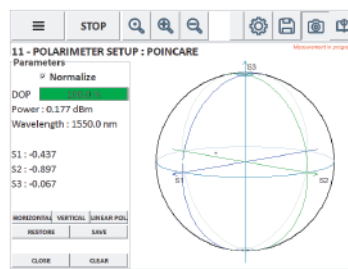


# Stand-alone benchtop fiber-coupled polarimeter

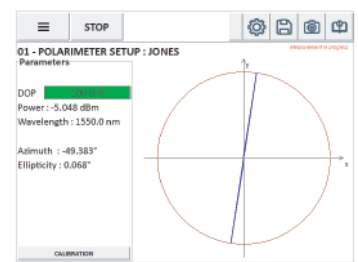
## Product description:

APEX Technologies stand-alone benchtop fiber-coupled polarimeter enables real time monitoring of the SOP, DOP, and power of a light signal in fiber. It can display SOP data information either on a Poincaré sphere, a Jones diagram or on a virtual oscilloscope. Covering the operating wavelength range from 1260 to 1610nm, it offers excellent performance, fast sampling rate, high SOP accuracy, and wide dynamic input optical power range. Optionally, it can be used in combination with an internal Optical Filter to measure the SOP as a function of frequency. Intuitive software and touch screen allows an easy

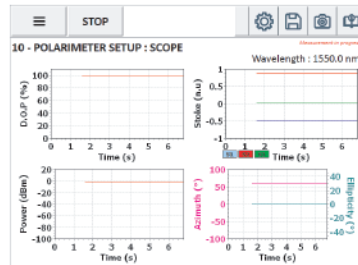
Poincaré sphere



Jones graph



Stockes parameters oscilloscope

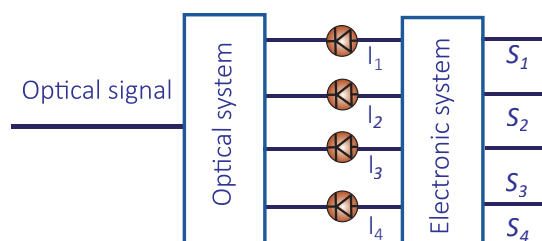


	Pol-AP1
Wavelength range	1260nm to 1610nm
Input power range	-60dBm to +10dBm
Maximum sampling rate	333 S/s
SOP accuracy	+/- 0.25° (-30 to +2 dBm) < 2° (-35 to +5 dBm)
Measurable SOP states	Full Poincaré sphere
Azimuth accuracy	+/-0.25° (-30 to +2 dBm)
Ellipticity accuracy	+/-0.25° (-30 to +2 dBm)
DOP accuracy	+/-0.5% (-35 to +5 dBm)
Rel. power meas. accu	+/-0.2 dB (-35 to +5 dBm)
Abs. power meas. accu	+/-1 dB (-35 to +5 dBm)

## Physical principle

The incident optical signal is converted into four electrical currents I, via four internal photo-detectors. Each signal corresponding to a different phase (polarization) is analyzed separately. These four outputs will offer the possibility to calculate the four Stokes parameters, thus the Stokes column S.

Basic functional schematic of our polarimeter



## Features

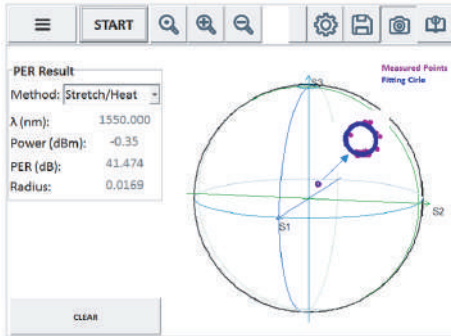
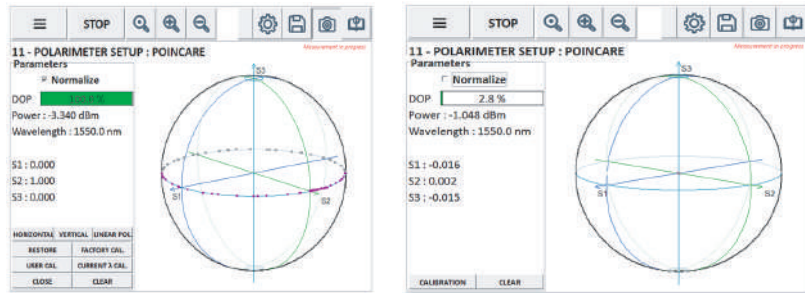
- Standard FC/APC connector
- Wavelength range: 1260nm to 1610nm
- Input power range: -60 dBm to +10 dBm
- SOP accuracy:  $\pm 0.25^\circ$  (-30 to + 2 dbm)  
<  $2^\circ$  (-35 to + 5 dBm)
- Measurable SOP states: Full Poincaré sphere

## Applications

- Four Stokes parameters measurement
- Instantaneous state of polarization (SOP)
- Degree of polarization of input light (DOP)
- Extinction ratio measurements of polarizers
- Alignment of PM fiber
- PER measurement

## SOP and DOP measurements

After performing a calibration using a linear polarizer at 0 and 45° for the horizontal calibration or at 90° and 45° for the vertical calibration, we display the state of linear polarization input signal by varying the linear polarizer angle between 0 and 360°. Our polarimeter allows also to measure the DOP with an accuracy of +/- 0.5%.

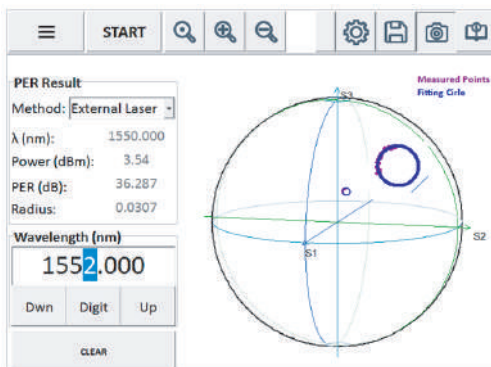
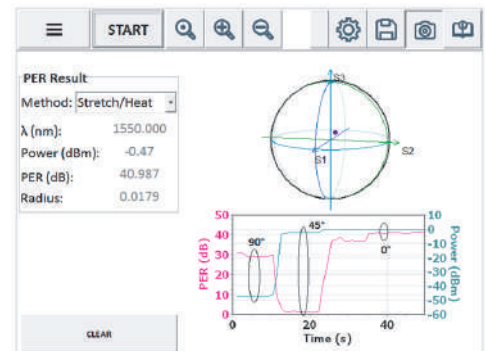


## Polarization extinction ratio measurement

APEX Technologies polarimeter can be used to measure the polarization extinction ratio of PM fibers. By applying mechanical stress (stretch, heat) on the fiber, the measured points forms a circle on the Poincaré sphere. The PER is then calculated from the radius of the circle. Our equipment allows to measure PER values of up to 45 dB.

## PM fiber alignment

The APEX Technologies polarimeter can be used to align the polarization axis of PM fibers and for Fiber splicing in real time. This experiment is performed by rotating and stretching one of the two fibers. The perfect alignment is achieved at maximum output power and maximum PER.

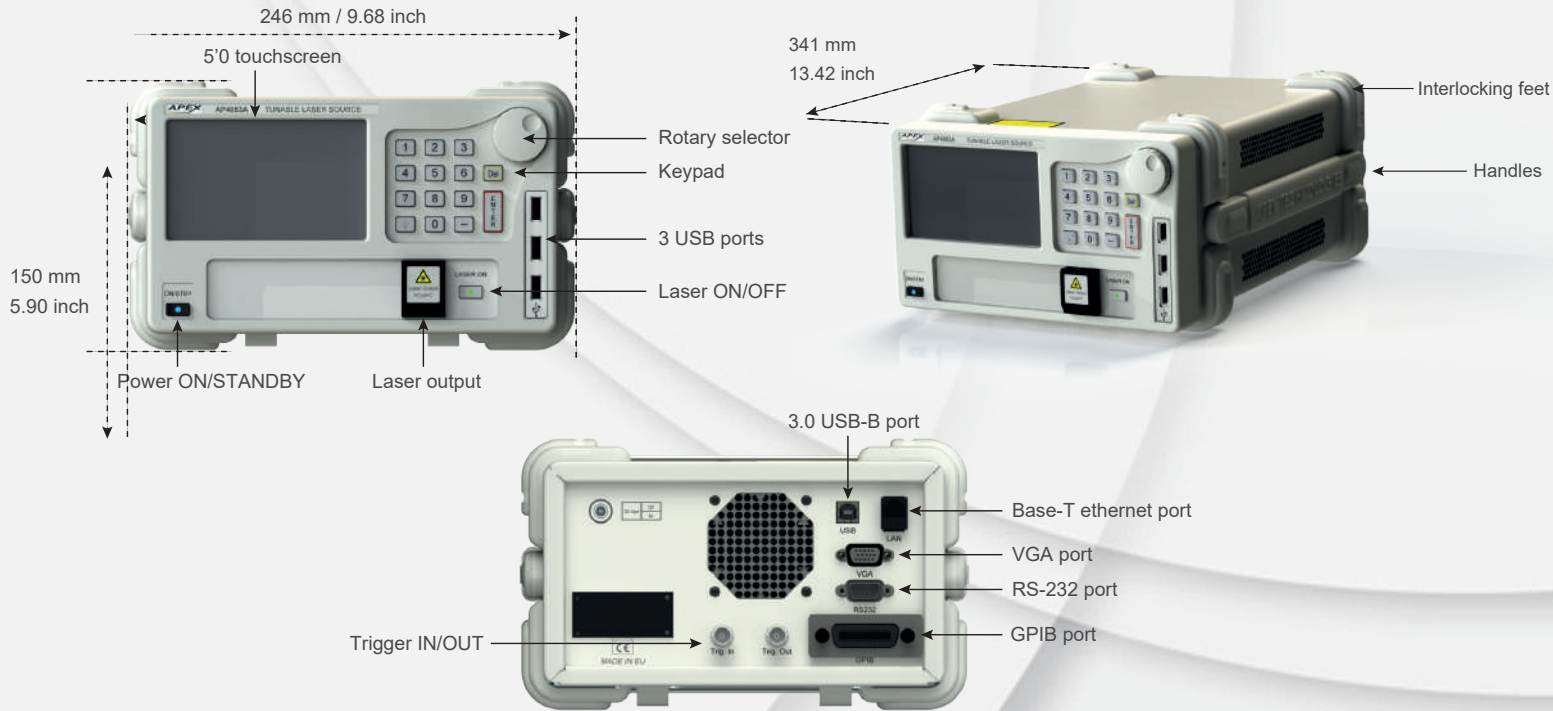


## External Laser mode

APEX Technologies polarimeter allows also to characterize external lasers and other components. By using APEX Technologies Tunable Laser Source TLS-APB-9, with a wavelength range from 1525 to 1607 nm, we measured the PER by varying the wavelength of the laser.

## Stand-alone Polarimeter Benchtop

APEX Technologies now proposes compact stand-alone benchtop with many possibilities of remote control technologies and a user-friendly interface.

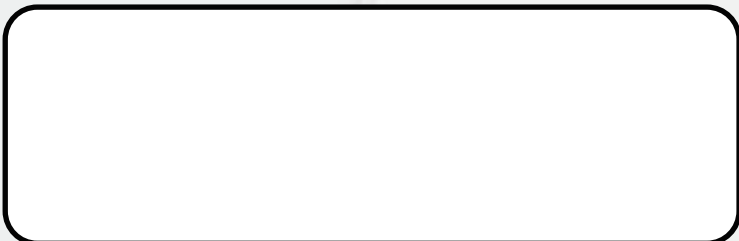


### Specifications:

	Stand-alone benchtop optical instruments
Connector type	FC/APC (other connectors on demand)
USB-A connectors	3 USB-A 2.0 ports (enables keyboard, mouse and USB stick)
USB remote control	Yes, Via USB-B 3.0 port
Ethernet	Yes
GPIB	Yes
RS-232	Yes
Internal memory	64 Gbit
File format	txt, bmp and setup file formats
Display	5.0" touchscreen pad and VGA port
Dimensions	W x H x D: 246 x 150 x 341 mm / 9.68 x 5.90 x 13.42 inch
Weight	Average: 4.5 kg / 9.92 lb
Environmental conditions	Operating temperature: +5 to +35°C Storage temperature: -10 to +50°C Humidity: 20 to 80% RH (no condensation)
Power requirement	Furnished AC Adaptor with 12V/5A DC output, power 60W

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