

## Compact Photonic Tools

### Optical Power Meter (cOPM-A1)



#### Key Features

- Operates over wide wavelength range (800 to 1650 nm)
- High power capability option can withstand up to 2 W
- Low PDL <0.01 dB
- Bare fiber measurement capability
- SCPI-compliant commands over USB automation interface
- Auto dark current measurements
- Perform simultaneous measurements on multiple wavelengths when used with cORL and cFPL units

#### Applications

- Serves as a basic tool for performing laboratory absolute optical power measurements
- Performs insertion loss testing of passive optical components
- Performs insertion loss testing of connectors and cables
- Performs optical power measurements in automated alignment stations

The JDSU Compact Photonic Tools offer a new portfolio of point solutions for fiber optic test applications. The cOPM-A1 Optical Power Meter is optimized for a number of applications ranging from general lab use to test and process automation for passive optical components. It can be used with both single-mode and multimode fiber and offers power levels from -80 to +15 dBm over a wavelength range of 800 to 1650 nm. The cOPM-A1 features high accuracy, high linearity, and extremely low polarization-dependent sensitivity.

Similar to the JDSU Multiple Application Platform (MAP-200), the cOPM-A1 detector heads use the AC100 interchangeable detector adapters that are available for most common connector types, as well as a fiber holder that permits bare fiber measurements. The cOPM-A1 Indium-Gallium-Arsenide (InGaAs) Optical Power Meter has a FC connector detector adapter as a standard accessory and an optional integrating sphere, which may be fastened to the front panel for increased power measurements to 33 dBm (2 W) with decreased polarization dependent loss (PDL) to 0.005 dB.

A simple, intuitive graphical user interface (GUI) and keypad minimizes training requirements. A universal serial bus (USB) interface may be used for test automation using a PC. While connected by USB, the cOPM-A1 does not require an additional mains connection, reducing cord tangle. The unit comes equipped with internal battery backup for quick measurements around the lab or for use during power outages.

### Innovative Features Reduce Test Duration by 3X

The following two powerful features enable the cOPM-A1 to dramatically reduce test duration in manufacturing and minimize potential operator errors.

#### Auto Dark Current

The cOPM-A1 removes the need for manual dark current measurements through innovative analogue circuit design. Typical power meters must be routinely and manually terminated to measure residual current from the photodiode. If this termination is not performed, or performed poorly, significant errors can result for low power measurements. The cOPM-A1 automatically conducts these measurements in the background, which results in zero downtime for a test station and simplifies daily start-up procedures.

#### TWIN or TRIPLE Test

For Insertion Loss and Return Loss measurements, TWIN or TRIPLE tests dramatically lower test durations up to three times by allowing for the simultaneous measurement of two or three wavelengths. To enable TRIPLE Test, the cOPM-A1 is paired with either the cFPL-A1 Fabry-Perot Light Source or the cORL-A1 Optical Return Loss Meter. For additional information please refer to the cORL and cFPL data sheets.



IL Solution

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## Specifications

Parameter	cOPM-A1
Sensor element	InGaAs
Wavelength range	800 to 1650 nm
Power range	-80 to +15 dBm
Display resolution	0.01 dB/0.001 $\mu$ W
Fibre type	SMF and MMF with N/A $\leq$ 0.27
Maximum core diameter	62.5 $\mu$ m
Uncertainty at reference condition <sup>1</sup>	$\pm$ 3%
Linearity at reference condition <sup>1</sup>	$\pm$ 0.06 dB, $\pm$ 20 pW
Averaging time	200 $\mu$ s
Recalibration period	1 yr
Warm-up time	5 min
Operating temperature	-10 to +55°C
Humidity	Non-condensing
Dimensions (W x H x D)	250 x 88 x 210 mm (9.84 x 3.46 x 8.27 in)
Weight	1.8 kg (4 lbs)
Remote interface	USB (through virtual com port driver)
Powering options	Auto sensing
Mains	100 to 240 V AC, 50 to 60 Hz
USB	Direct from USB, no main required
Battery back-up	60 min
Power consumption <sup>2</sup>	1.1 W

1. Reference condition: -20 dBm (CW), 1310  $\pm$ 1 nm, 23  $\pm$ 3°C, to 75% RH, 9 to 50  $\mu$ m

2. When connected to the AC power plug

## Integrating Sphere Specifications

Parameter	AC330
Attenuation at reference <sup>1</sup>	-30.7 $\pm$ 0.8 dB
Spectral range	800 to 1650 nm
Wavelength flatness <sup>2</sup>	$<$ $\pm$ 1.5 dB
RL <sup>3</sup>	$>$ 65 dB (typical)
Relative uncertainty <sup>4</sup>	$<$ $\pm$ 0.05 dB
Residual polarization dependent loss (PDL) <sup>5</sup>	$<$ 0.005 dB
Maximum power <sup>6</sup>	+33 dBm (2 W)
Operating temperature	10 to 40°C, RH 15 to 70%
Storage temperature	-30 to 60°C, RH 15 to 95% non-condensing

1. Measured with wavelength of 1550 nm at 23  $\pm$ 5°C and RH = 50% with straight connector

2. From 850 to 1650 nm, refer to the wavelength of 1310 nm

3. Measured at 1310 and 1550 nm with SM fiber and FC/APC connector

4. At reference condition, with 8 degree angled connector, due to the polarization and interference

5. Measured at 1550 nm

6. Continuous Wave (CW) laser

**Ordering Information**

Product Code	Description
<b>Base</b>	
2297/02	Power meter with InGaAs Diode
<b>Optional Accessories</b>	
<b>3 mm InGaAs MAP Power Meter</b>	
AC100	Detector cap
AC101	FC detector adapter
AC102	ST detector adapter
AC103	SC detector adapter
AC112	MT ribbon cable adapter
AC114	MU detector adapter
AC115	E2000 detector adapter
AC120	Magnetic fiber holder (requires AC121)
AC121	Single bare fiber plug (requires AC120)
AC330	+33 dBm integrating sphere

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