OPM-110
USB Optical Power Meter

Instruction manual

OPM-110-M-E-Ver.1.0 CODE-2023-11-CH-KT-CPY

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COMPLIANCE

CE Compliance

Electronic test equipment is subject to the EMC Directive in the European Union. The EN61326 standard prescribes both emission and immunity requirements for laboratory, measurement, and control equipment. This unit has undergone extensive testing according to the European Union Directive and Standards.

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OVERVIEW

OPM-110 USB Optical Power Meter Overview

The OPM-110 is a USB-powered remote head optical power meter designed to measure power for both simplex and high-density connectors. When used alongside an optical source and the OPM-110RH OPM software application, this stand-alone OPM can measure both Insertion Loss (IL) and absolute power. Additionally, DLLs are available to create custom software applications to control the OPM-110

Figure 1: OPM-110 USB Optical Power Meter

Applications

- Optical alignment
- Silicon photonics
- Optical signal monitoring
- Transceiver testing
- Lab and R&D
- Free space optics

Key Features

- Different detector types (Si or InGaAs) and sizes (1, 3, 5 or 10 mm)
- 50 ms sampling time
- Small form factor
- USB powered and communication

Optional Accessories

- SDK
- simplex connectors such as LC, SC or FC
- large area detector

Available detector options:

IN1	1mm InGaAs detector with universal Adapter
IN3	3mm InGaAs detector with universal Adapter
IN5	5mm InGaAs detector with magnetic Adapter
IN10	10mm InGaAs detector with magnetic Adapter
SI3	3mm Silicon detector with universal Adapter

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SOFTWARE INSTALLATION

Insert the supplied Santec USB drive into the computer. Double-clicking on the installer to launch it brings up the following screen.

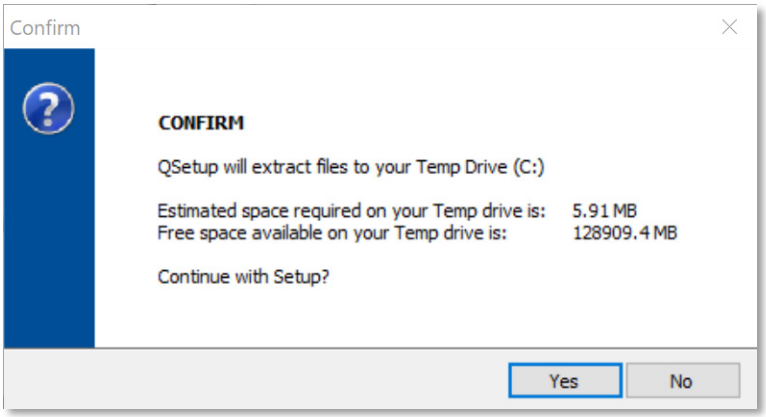


Figure 2: Software Installation Screen

Select Yes to confirm the installation. From there, the installer will progress through a series of screens where the user can decide the location to save the installed files to and the creation of shortcuts.

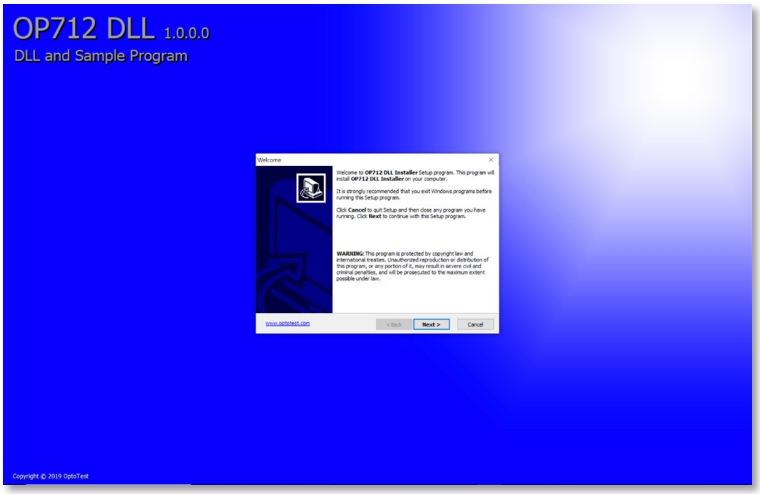


Figure 3: Software Installation Screen

Once completed, the DLL and software files will be saved to the computer. By default, the files are stored in ***C:\Program Files (x86)\Santec\OPM-110 DLL***. In addition, drivers necessary for the computer to

identify Santec instruments will be saved to ***C:\Santec\Santec*** Drivers. Be sure to run the appropriate driver installation for your system before continuing. 5 of 8

OPM-110RH OPM Demo Software

The OPM-110RH demo software allows the user to read power from the OPM-110 and display the results as an absolute value (dBm) or relative (dB) to a reference value. The ability to capture a reference value also makes it possible to perform Insertion Loss measurements within this software program.

When the software is launched, the devices screen has the user select which instrument they wish to control.

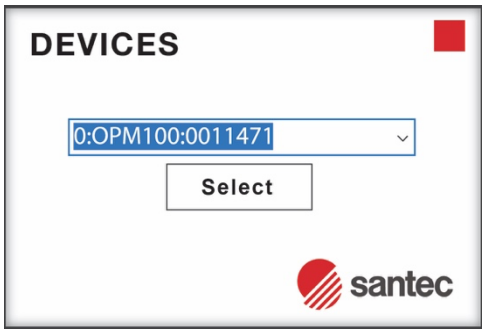


Figure 4: USB Device Scan

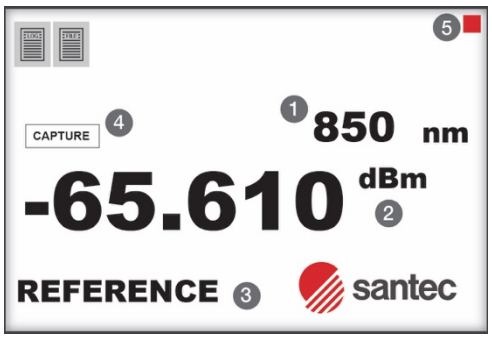


Figure 5: Absolute Power measurement

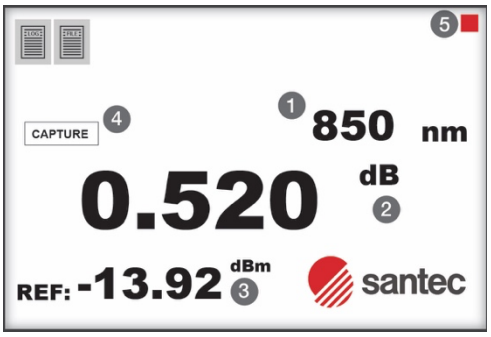


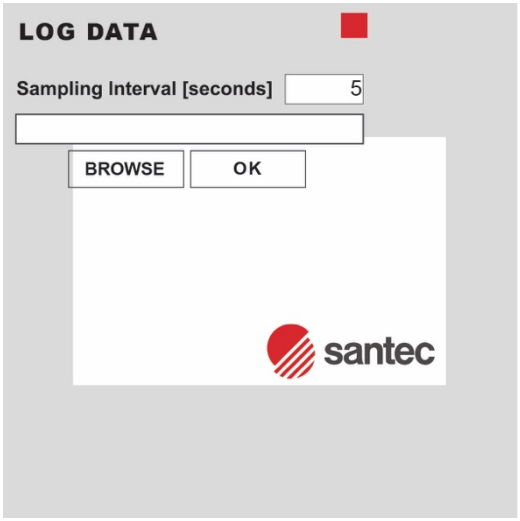
Figure 6: Relative Power Measurement after Reference has been performed

The operational screen of the OPM-110 software will look slightly different depending on whether or not a reference has been taken.

	Specification
1	Select wavelength (850-1650nm)
2	Switch to dBm mode (only functional after taking a reference)
3	Capturers a reference and switches the display to dB mode if previously in dBm mode
4	Record a single measurement to the data file (file must be set first)
5	Close window

File and Log

The file button on the top left-hand side brings up a separate window where the user sets a sampling rate in seconds and specifies a file to record results to. Once a data file is set, the capture button becomes functional. The user can click capture to record a single measurement to the data file. Once a file is set, the gray border around the file button on the main display becomes yellow, signaling that a data file is set and can be written to.



Clicking on the log button on the top left-hand side enables recording of values as the sampling rate set when creating the data file. As a result, single capture is disabled when log is active. A yellow border around the log button signals that recording is active. All results are stored to the computer in csv format.

A3 | 7/18/2019 4:42:32 PM

	A	B	C	D	E
1	Date	Wavelength	Reference	Power	
2	Date	Wavelength	Reference	Power	
3	7/18/2019 16:42	850	-14.75671	0.19436975	
4	7/18/2019 16:43	850	-14.49297	0.45811395	
5	7/18/2019 16:43	850	-14.47723	0.47385147	
6	7/18/2019 16:43	850	-14.524	0.42707757	
7	7/18/2019 16:43	850	-14.40592	0.54516186	
8	7/18/2019 16:43	850	-14.47662	0.47445562	
9	7/18/2019 16:43	850	-14.45313	0.49795222	
10	7/18/2019 16:43	850	-14.84721	0.10386811	
11	7/18/2019 16:43	850	-14.88156	0.06952069	
12	7/18/2019 16:43	850	-14.88886	0.06221995	
13	7/18/2019 16:43	850	-14.9095	0.04157885	
14	7/18/2019 16:44	850	-15.14116	-0.1900815	
15	Date	Wavelength	Reference	Power	
16					

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SPECIFICATIONS

Table 1: OPM-110 optical and electrical specifications sheet

OPM-110 Optical / Electrical Specifications

Parameter	Specification						
	1 mm InGaAs	2 mm InGaAs HP	3 mm InGaAs	5 mm InGaAs	10 mm InGaAs	3 mm Silicon	10 mm Silicon
Wavelength Range (nm)	850 to 1650					400 to 1100	
Power Range (dBm)	6 to -72	27 to -45	3 to -72	0 to -65	0 to -55	0 to -65	0 to -55
Total Uncertainty [1]	± 0.25 dB						
Power Resolution (dB)	0.001						
Linearity (dB) [2,3]	± 0.02 (< 10 dB)						
	± 0.05 (> 10 dB)						
Sampling Time	50 ms						
Remote Interface	USB						
Input Voltage	5 V DC						
Power Consumption (VA)	0.5 maximum						

Notes:
[1] *At calibration conditions for all NIST traceable wavelengths*
[2] *Measured for InGaAs at 1490 nm, between 3 to -65 for 1 mm, 17 to -35 for 2 mm HP, 0 to -65 for 3 mm, 0 to -55 for 5 mm, 0 to -45 for 10 mm*
[3] *Measured for Si at 980 nm, between 0 to -55 for 3 mm*

Mechanical / Environmental Specifications

Parameter	Specification
	OPM-110
Max Detector Count	1
Operating Temperature (°C)	5 to 40
Humidity (Non-condensing)	Maximum 95% RH from 5 to 40 °C

WARNING!

In the event of any trouble with this product, turn the unit off in accordance with the procedures to shut off the power described in this operation manual, disconnect the power source cord, make sure the product name and serial number described on the name plate of the product, and then contact our dealer at your place or directly contact us at Santec Photonics Laboratories. Our telephone number and facsimile number are shown below. However, we are not responsible for any trouble arising from your own repair or modification on this product.

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