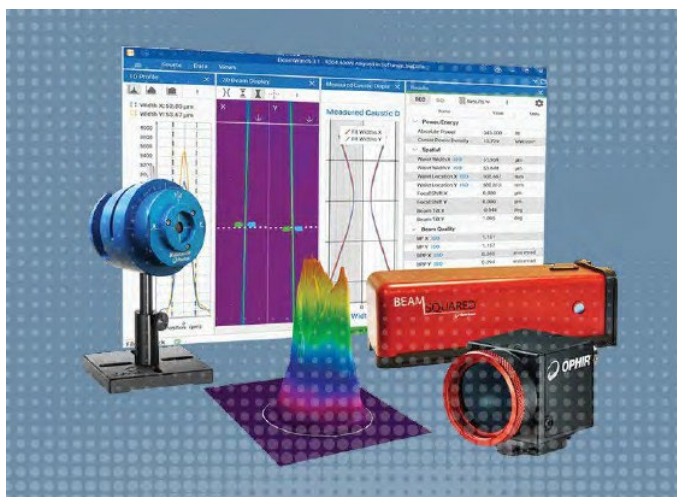


Ophir








LASER POWER & ENERGY MEASUREMENT

LASER BEAM ANALYSIS







LASER POWER SENSOR • THERMAL SENSOR

The thermal sensor can measure the average power of the laser and single shot energy. We have a rich lineup of high-precision power sensors. The thermopile sensor absorbs light with an absorber and converts it into heat. Thermopile thermocouples are arranged so that the beam diameter and beam position are less dependent on the reading. Ophir sensors generally have a good beam position sensitivity error, with a sensitivity non-uniformity of less than $\pm 2\%$ over the entire light receiving surface where the entire beam can be incident.

	High sensitivity thermal sensor 300fW ~ 12W	A high-sensitivity thermal sensor featuring low noise, low drift, and a wide wavelength range from UV to IR. Single-shot energy measurement from μJ and average power measurement from μW are possible for low-power lasers, LEDs, etc.
	Low power thermal sensor 10mW-50W	With the industry's most abundant lineup, it supports various applications such as CW lasers, pulse lasers, and LEDs.
	Low-medium power thermal sensor 30mW~150W	Aperture 17mm-35mm, average power measurement / single shot energy measurement of CW laser, pulse laser, LED, etc.
	Medium power thermal sensor 100mW~300W	Aperture 50mm-65mm, average power measurement / single shot energy measurement of medium power laser such as CW laser, pulse laser, etc. Compact design.
	Medium-high power thermal sensor Air cooling fan, 10mW~1100W	Average power measurement / single shot energy measurement of high-power to medium-power lasers such as CW lasers and pulse lasers. Compact design while air cooling the fan.
	High power, water-cooled thermal sensor & power probe, 1W~120kW	Industry's highest power measurement range 100 kW and damage threshold 10 kW / cm^2 (full power) Average power measurement / single shot energy measurement of high power lasers such as CW lasers and pulse lasers.
	High power laser beam damper & low power beam trap	High power laser machining, laser measurement, laser beam dampers for other applications, and low power beam traps.





PHOTODIODE SENSOR

The photodiode sensor has surprisingly good linear output characteristics for a wide range of incident power, from a very small amount of light of several nW to an optical output level of about 2 mW. Since the amount of light above this power level corresponds to a current value of up to about 1 mA, it causes output saturation as an optical sensor and mistakenly displays the value low. That's why Ophir ships with a removable, compact external filter for almost every photodiode sensor, including sensors that can measure up to 3W of laser power without saturation over a wide wavelength range.

	Standard photodiode sensor 300fW - 3W	Ophir's Laser Measurement Photodiode PD-300 sensor series measures laser power with spectral coverage from 200nm - 1800nm, and automatic background subtraction so the laser measurement is not sensitive to room light. All models have wavelength calibration built into the system.
	Round photodiode sensor 20pW~3W	Ophir's Round PD300R sensors are similar to the standard PD300 sensors but have cylindrical geometry where preferable. They have SM-1 mounting threads.
	Integrating sphere	Integrating spheres are used especially for measuring divergent light sources such as LEDs. The light is introduced through the input port, then reflected many times by the highly reflective interior of the sphere until it illuminates the inner surface uniformly. A detector samples a small fraction of this light to measure the total power input. Ophir integrating spheres have a highly reflective diffuse white coating for measurements independent of beam size, position and divergence. There are several sphere sizes, apertures and wavelength regions available. The large IS6 series has 2 configurations for measuring divergent or parallel beams.
	Photodiode adoption sensor	Flat response sensors for broadband sources, eye response detectors for Lux measurements, peak detector for measuring scanned or chopped laser beams and Microscope Slide power sensor for measuring optical power at the sample plane of a microscope.

TERAHERTZ MEASUREMENT

Terahertz laser power beam profile measurement is not an easy task. The importance of accurate laser measurement is already known to those involved in the use and development of terahertz lasers. Ophir offers several options depending on what features of the laser you want to measure.

	Pyrocam IIIHR Beam Profiling Camera Gen 3 High-Resolution Broadband Pyroelectric Array Camera with BeamGage <ul style="list-style-type: none"> • High-Resolution 80μm pixel pitch • Integrated Chopper for CW Beams • Interchangeable Windows for a Wide Variety of Applications • BeamGage professional software included 	The Pyrocam camera accurately captures and analyzes wavelengths from 13nm - 355nm and 1.06-3000 μm with its broadband array. It features a solid state high-resolution array with a wide dynamic range, fast data capture rates, and operates in CW or Pulsed modes which makes it ideal for analysis of NIR, CO ₂ , and THz sources.
	Pyrocam IV Beam Profiling Camera Gen 4 High-Resolution Broadband Pyroelectric Array Camera with BeamGage <ul style="list-style-type: none"> • High-Resolution 80μm pixel pitch • Integrated Chopper for CW Beams • Interchangeable Windows for a Wide Variety of Applications • BeamGage professional software included 	The Pyrocam camera accurately captures and analyzes wavelengths from 13nm - 355nm and 1.06-3000 μm with its broadband array. It features a solid state high-resolution array with a wide dynamic range, fast data capture rates, and operates in CW or Pulsed modes which makes it ideal for analysis of NIR, CO ₂ , and THz sources.
	RM9-THz with Chopper	The RM9-THz radiometer system is a sensor and optical beam chopper combination for measuring the power of very low level CW or quasi CW light sources. This sensor was specially designed for work in the terahertz range. The RM9-THz sensor has a pyroelectric element to measure a wide dynamic range of radiation, from 100nW to 100mW. It has an 8mm aperture and covers the spectral range from 0.1THz to 30THz. The system comes with the RMC1 chopper that is placed between the source and the RM9 sensor.
	3A-P-THz	The 3A-P-THz is a very sensitive thermal power/energy laser measurement sensor with calibration for terahertz wavelengths. It has a 12mm aperture. It can measure from 15 μW to 3W and from 20 μJ to 2J. It is calibrated for the spectral range 0.1THz - 30THz. The sensor comes with a 1.5 meter cable for connecting to a meter or PC interface.

POWER METER & ENERGY METER FINDER



	Centauri Single & Dual Channel	StarBright	Vega	Nova II	StarLite	LaserStar Single & Dual Channel
Digital Display	Yes	Yes	Yes	Yes	Yes	Yes
Display Color	Color	Color	Color	Monochrome	Monochrome	Monochrome
Analog Display	Yes	Yes	Yes	Yes	Yes	No
Rechargeable Battery	Yes	Yes	Yes	Yes	Yes	Yes
Detector Support (see compatibility table below)						
Thermal Sensors	Yes	Yes	Yes	Yes	Yes	Yes
Photodiode Sensors	Yes	Yes	Yes	Yes	Yes	Yes
Pyroelectric Sensors	Yes	Yes	Yes	Yes	Yes	Yes
BeamTrack Sensors	Yes	Yes	Yes	Yes	Yes	No
Measurement Options						
Average Power	Yes	Yes	Yes	Yes	Yes	Yes
Energy per Pulse (Pyro. Sensors)	Yes	Yes	Yes	Yes	Yes	Yes
Single Shot Energy (Thermal Sensors)	Yes	Yes	Yes	Yes	Yes	Yes
Statistics	Yes	Yes	Yes	Yes	No	Yes
Analog Out	1V,2V,5V,10V	1V,2V,5V,10V	1V,2V,5V,10V	1V,2V,5V,10V	1V	1V
Trigger input & output	Yes	No	No	No	No	No
Real-Time Logging						
RS232	30Hz	30Hz	30Hz	30Hz	N/A	30Hz
GPIO	N/A	N/A	N/A	N/A	N/A	1500Hz
USB	25,000Hz	5000Hz	2000Hz	2000Hz	20Hz*	N/A
Bluetooth	N/A	N/A	N/A	N/A	N/A	N/A
Ethernet	N/A	N/A	N/A	N/A	N/A	N/A
On-Board Data Storage	2GB	>10MB**	250kB	50kB	No	50kB
Automation Interface	Yes	Yes	Yes	Yes	Yes*	No
LabVIEW VI's	Yes	Yes	Yes	Yes	Yes*	Yes
Part number	7Z01700/ 7Z01701	7Z01580	7Z01560	7Z01550	7Z01565	7Z01600/ 7Z01601
Page in the catalog	137	139	141	143	145	147

* With USB activation code (see page 146)
 ** Depends on size of USB Flash Drive



Centauri

- Large 7" Full Color Touch Display
Single and Dual Channel models available
- Data log at up to 25,000Hz
- USB memory connection for data storage
- USB / RS232 interface



VEGA

- Color display, multifunction, compact
- Large LCD color screen with excellent visibility
- Non-slip rubber hold design
- Japanese / English switching display
- Up to 250,000 points of measurement data can be stored in the non-volatile internal memory.
- USB / RS232 interface



NOVA II

- Multi-functional, handy type
- Large high-resolution liquid crystal display adopted
- Measurement data storage of up to 54,000 points in non-volatile internal memory
- Japanese / English switching display
- Rich statistical display group (graph, minimum value, maximum value, standard deviation)
- USB / RS232 interface

Laser Beam Profiler

A reliable leader in laser beam profilers and M2 measurements, Ophir provides a complete solution for beam diagnostics of all wavelengths and powers. Ophir products enhance your capabilities and productivity in the areas of additive manufacturing, semiconductors, industry, life and health sciences, research and defense.

BEAM PROFILE MEASUREMENT

Ophir's beam profiler finder allows you to easily find the beam profiler that best suits your application.



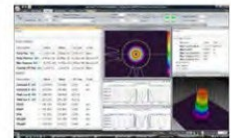
Camera Based (CCD)



Scanning Slit



Focal Spot Analyzer



Software Solutions

M² - BEAM PROPAGATION ANALYSIS

Offering a number of solutions for the M² measurement, ranging from simple manual processes to fully automated dedicated instruments.



BeamSquared

HIGH POWER SOLUTIONS

Ophir Spiricon Beam analysis of high-powered industrial lasers products that have proven to be solutions for laser users who operate and maintain these high-powered lasers.



BeamWatch



BeamWatch Integrated



BeamWatch AM



BeamCheck

ACCESSORIES

Our accessories are complementary products to our beam profiling imaging devices in order to achieve proper beam sizes and power levels so that you can achieve the most accurate measurements possible.



ND Filters



Beam Splitters



Attenuator



Beam Expander



Beam Reducers



Wide Beam Imager

