

Rk-3115 Laser Power Meter



- **Compact Fan-Cooled Design**
- **Fast System Response**
- **Handles Up To 150 W**
- **Measure UV to IR**

The Rk-3115 Power Meter consists of a thermopile detector assembly ("head") and a large, backlit analog display. The detector is cooled by a built-in fan that can dissipate up to 150 W continuously, allowing for a much smaller head than is possible with traditional convection cooling techniques. The analog meter is precisely matched to the head to provide a fast, smooth display of the optical power, ideal for aligning optics and peaking laser output.

The Rk-3115 is perfectly suited for a variety of industrial and medical applications. Use it to quantify laser welding and cutting processes on the shop floor, or for routine maintenance of Nd:YAG, CO₂, and other industrial lasers. Take advantage of the high power density capability to calibrate surgical and ophthalmic lasers. The broadband wavelength response also lends itself to non-laser applications, such as high-power arc lamps.

The Rk-3115 can measure the average power of pulsed and chopped light sources as easily as it does the true power of continuous wave sources. The fast system response time insures accurate average power measurement for sources chopped at 5 Hz or greater. The high damage threshold enables it to measure the average power of a train of short laser pulses without harming the detector surface. If the pulse repetition rate is known the average pulse energy in Joules can be obtained by dividing it into the average power measured by the Rk-3115.

The Rk-3115's detector surface is engineered to withstand very high power densities, allowing even smaller diameter beams to be measured without damage. The flat spectral response covers the UV to far-IR range with ease.

LaserProbe inc.

SPECIFICATIONS

Spectral response (see curve)	0.2 - 20 μm
Maximum total power	150 W
Max. average power density	20 kW/cm ²
Noise equivalent power	10 mW
Calibration accuracy	$\pm 5\%$
Linearity	$\pm 0.5\%$
Response time (10 - 90%)	< 2 sec
Detector active area dimensions	17.5 mm (2.4 cm ²)
Full scale ranges	6; 1 mW to 300 W
Head dimensions (h x w x d)	8.3 cm x 8.3 cm x 11.5 cm (3.3" x 3.3" x 4.6")
Meter dimensions (h x w x d)	9.0 cm x 19.2 cm x 22.1 cm (3.6" x 7.6" x 8.7")
System weight (head and readout)	2.8 kg (6.0 lb)

The rectangular head is approximately 8.5 cm on a side by 11.5 cm deep, with side-mounted connectors for the signal output and fan power input, as well as a 1/4-20 mounting hole. This compact design is achieved by using a fan to actively force large amounts of air over a smaller heatsink, effectively dissipating the same amount of heat as a traditional convection-cooled thermopile with a larger, passively radiating heatsink. The black anodize finish reduces unwanted back-reflection.

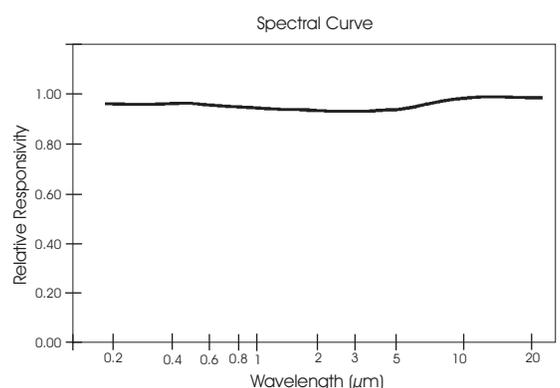
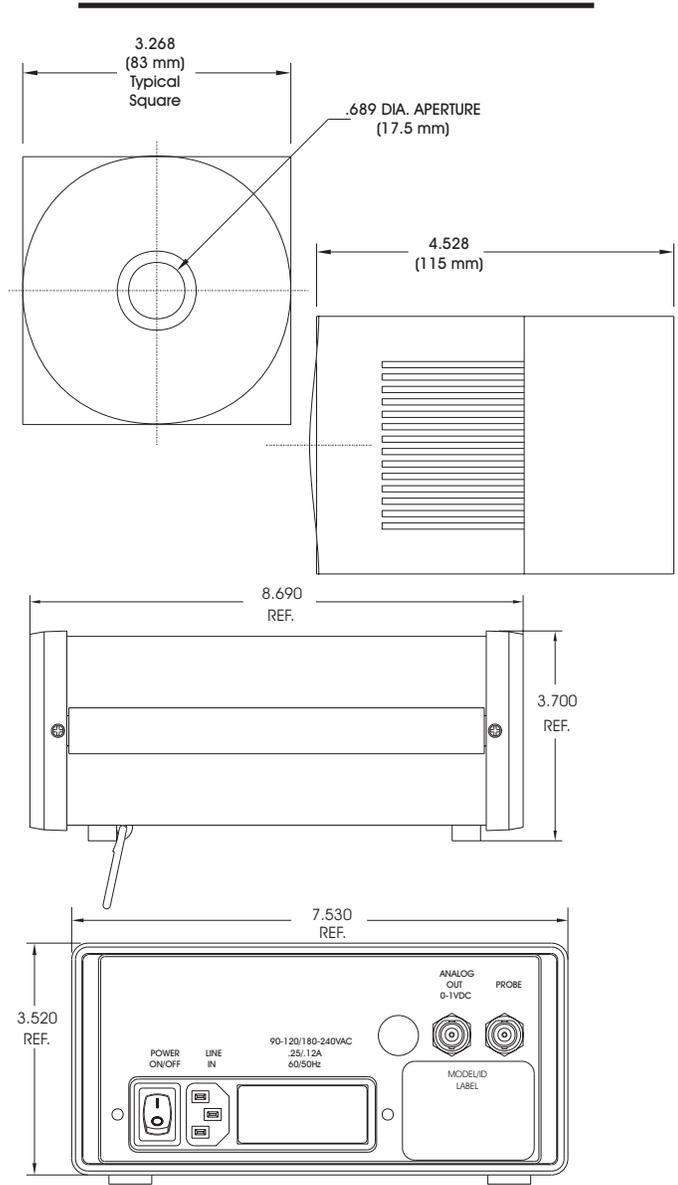
The Rk-3115 power meter features an oversized, backlit, dual-scale analog display. System response time is less than 2 seconds, resulting in smooth, real-time needle movement - none of the frustrating lag and overshoot associated with other meters that make it difficult to tweak a laser system.

Front panel controls include the Zero Adjust knob and Range Select knob. The Zero Adjust allows for compensation of unwanted background radiation, and to a lesser extent, wavelength responsivity of the detector. The Range Select knob selects the appropriate full scale range for the incident power level.

Rear panel features include the universal power entry module (90-240 VAC, 50-60 Hz input), Probe BNC, and Analog Out BNC. The Analog Output is 0-1 VDC, with 1 Volt corresponding to full scale for the selected range. Collapsible feet allow the viewing angle to be optimized to the experimental setup.

An adjustable head support stand is provided with the Rk-3115. Contact the factory for information regarding other options and accessories.

All Rk-3000 Series instruments are provided with a certificate of calibration showing traceability to the National Institute of Standards and Technology (NIST) and compliance with MIL-45662 and ANSI-Z540 Sections 7-18.



As a result of our ongoing commitment to product improvement specifications are subject to change without notice. REV 019801js