

RkT-30-CAL

Thermopile Power Probe



- **High Damage Threshold**
- **mW Sensitivity**
- **Broad Spectral Response**
- **Compact Head**

The RkT-30-CAL Thermopile Probe measures up to 30 Watts of continuous wave or average power, from the UV to far-IR. The spectrally flat absorber material can withstand average power densities to 20 kW/cm^2 and peak pulse power densities of 15 MW/cm^2 . Advanced thermal management techniques allow for a compact probe design that is capable of continuously dissipating 30 W total power while maintaining mW sensitivity. Electrical substitution calibration with the CAL feature insures maximum measurement accuracy.

The RkT-30-CAL is ideal for any mid-power laser, such as Excimer, Argon, Ruby, Nd:YAG (fundamental and harmonics), Holmium, or CO_2 . The broadband wavelength response lends itself equally well to applications involving high power lamps and other white-light sources.

Use the probe to calibrate ophthalmic and surgical lasers. Monitor industrial welding and drilling lasers, as well as resistor trimming systems. Capture the total output of high power laser diodes, fiber-delivered industrial lasers, and other divergent sources with the large area detector. Laser technicians performing field installations or repairs will appreciate the probe's fast response time and ease of use.

The RkT-30-CAL can measure the average power of pulsed and chopped light sources as easily as it does the true power of continuous wave sources. Accurate average power measurements can be made on sources chopped or pulsed at 5 Hz or greater. If the pulse repetition rate is known the average pulse energy in Joules can be obtained by dividing the average power by the pulse repetition rate.

*Laser***Probe** inc.

SPECIFICATIONS

Spectral response (see curve)	0.2 - 20 μm
Maximum total power	30 W
Maximum average power density	20 kW/cm ²
Noise equivalent power	1 mW
Calibration accuracy	$\pm 5\%$
Linearity	$\pm 0.5\%$
Detector active area dimensions	18.0 mm (2.5 cm ²)
Full scale ranges	3; 300 mW - 30 W
Head dimensions (dia x depth)	8.5 cm x 4.3 cm (3.4" x 1.7")
Preamp dimensions (l x w x h)	8.9 cm x 3.8 cm x 2.5 cm (3.5" x 1.5" x 1.0")
Probe weight (head and preamp)	0.7 kg (1.6 lb)

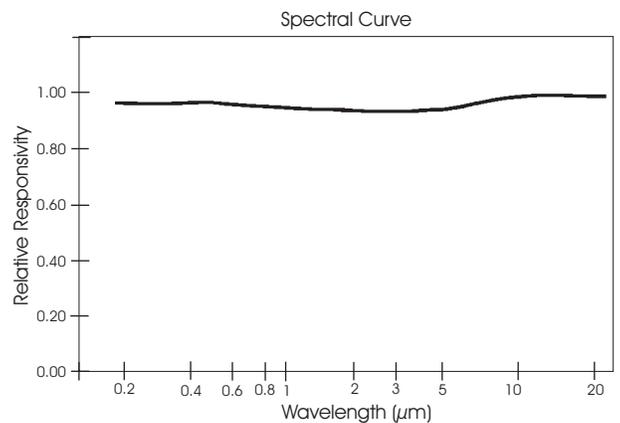
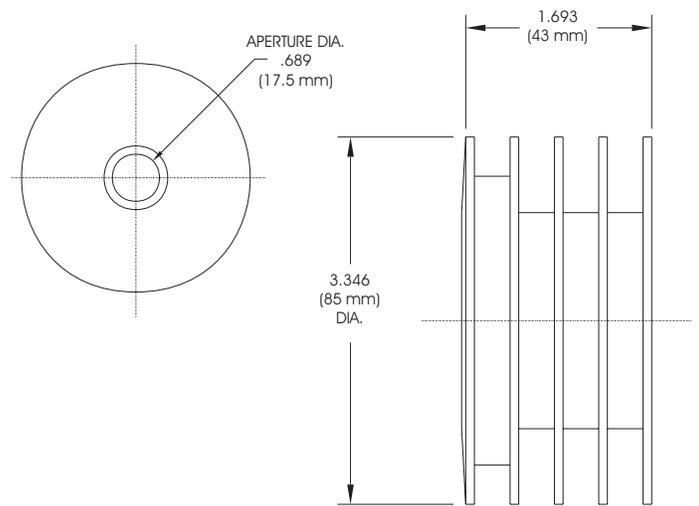
The RkT-30-CAL uses a thermopile detector with a unique black absorber coating that offers both a broad, flat spectral response and tremendous power handling capability - even focused beams can be measured without damaging the detector. The compact, convection-cooled heat sink assembly features a side-mounted BNC connector, standard 1/4-20 mounting hole, and a black anodize finish to reduce unwanted back-reflection.

The "-CAL" feature allows the probe to be calibrated by electrical substitution. Applying a known amount of electrical power to the jacks on the probe's rear plate and then multiplying that power value by the appropriate electro-optical equivalency factor yields the correct optical power level; the probe's output is then adjusted to this value. The electro-optical equivalency factor takes into account the differences between optically and electrically heating the thermopile detector.

The RkT Series Probes consist of the thermopile detector assembly, or "head", and a preamplifier housed in its own enclosure. The preamplifier is attached directly to the probe input connector of the appropriate Laser Probe instrument; the head is then connected to the preamplifier with a BNC cable. The head and preamplifier are calibrated together as a set to insure maximum accuracy and linearity over 5 decades of dynamic range. This also allows the RkT-30 to be used with any Laser Probe instrument without having to enter a responsivity correction factor - the instrument reads the probe's ID and configures itself accordingly.

Various options and accessories are available for the RkT Series probes. Contact the factory for additional information.

All RkT Series Probes 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. REV019801js