

# RkP-485

# InGaAs Power Probe



The RkP-485 is the first InGaAs Probe designed specifically for high accuracy laser power measurements. The custom InGaAs detector is 5 mm in diameter (0.2 cm<sup>2</sup> active area) - over six times larger than the typical InGaAs detector - making it very easy to use for “real world” measurements. Picowatt sensitivity and superior thermal stability make it the probe of choice for mid-IR power measurements.

The RkP-485 is ideal for measuring the power of Raman-shifted Nd:YAG, Er:YAG, and Ti:Sapphire lasers, Optical Parametric Oscillators, laser diodes, and other mid-IR sources. All the major fiber optic wavelengths are covered, making the RkP-485 well suited for testing and calibrating fiber power meters, loss test sets, and other fiber test instrumentation.

Use the RkP-485 with the battery powered Rm-3700 Universal Radiometer to field-test eye-safe laser rangefinders, target designators, and fire-control systems. Couple it with a thermopile power probe and the Rm-6600 Dual Channel Universal Radiometer to ratiometrically measure the transmission of laser goggles, filters, and other optical components over 6 decades of dynamic range. Other applications include mid-IR and Raman spectroscopy, and non-linear optics.

The compact size and modular design make the 400 Series ideal for OEM applications as well. Incorporate the detector and preamplifier into mid-IR lasers, LIDAR systems, or fire-control systems for real-time diagnostics, output stabilization, and process control.

- **Custom Large Area InGaAs Detector**
- **Ideal for Eye-Safe Laser Applications**
- **Excellent Thermal Stability**
- **pW Sensitivity at 1.5  $\mu$ m**

**LaserProbe** inc.

SPECIFICATIONS

Spectral response (see curve)	0.8 - 1.7 $\mu\text{m}$
Maximum total power	1 mW
Maximum average power density	5 mW/cm <sup>2</sup>
Noise equivalent power	3 pW
Calibration accuracy	$\pm 5\%$
Linearity	$\pm 0.5\%$
Detector active area dimensions	5 mm (0.196 cm <sup>2</sup> )
Full scale ranges	7; 3 nW - 3 mW
Head dimensions (dia x depth)	6.0 cm x 4.6 cm (2.4" x 1.8")
Preamplifier dimensions (l x w x h)	11.5 cm x 7.7 cm x 5.1 cm (4.5" x 3.0" x 2.0")
Probe weight (head and preamp)	0.5 kg (1.0 lb)

There are many options and accessories available for the RkP-400 Series probes, including a precision aperture, light baffle, and the kTA-141 support stand. These options and accessories are detailed in a separate data sheet.

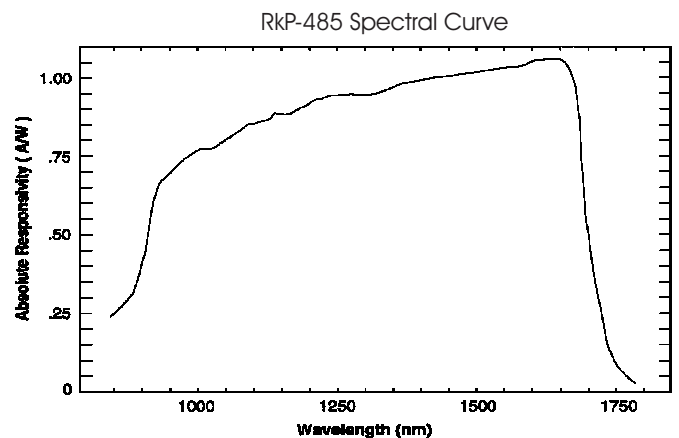
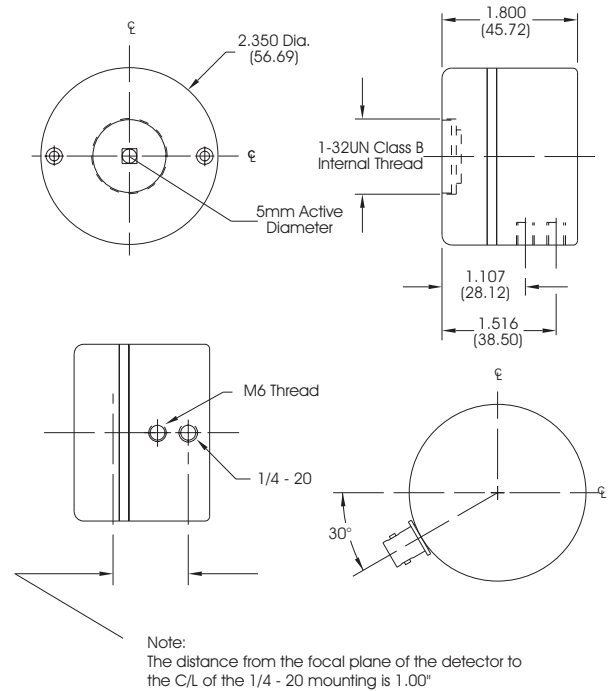
All 400 Series Probes are provided with a certificate of calibration showing traceability to the National Institute of Standards and Technology (NIST) and compliance with MIL-45662 and ANSI-Z540 Sections 7-18.

InGaAs has distinct advantages over other semiconductor detectors. It is more sensitive than silicon at 1064 nm, and is operating in a much more linear portion of its spectral response range. Therefore small fluctuations in wavelength have far less impact on the measured energy. In addition, InGaAs has a lower temperature coefficient than both silicon and germanium - over most of its spectral response range the RkP-485's responsivity varies less than 2% from -30° to +25°C - insuring repeatable results without expensive temperature stabilization.

As a member of the 400 Series Probe family, the RkP-485 uses the same detector housing and preamplifier enclosure as all other 400 Series probes. In addition, most 400 Series probes are designed so the detector plane is the same distance from the mounting post plane, allowing for easy interchange of probes in an experiment.

The compact 400 Series detector housing measures 2.35" in diameter by 1.8" deep. The side-mounted BNC connector requires no additional clearance in the beam path. Standard metric and English mounting holes and a 1" (25 mm) filter holder facilitate use, while the black anodized finish reduces unwanted back-reflection.

A separate enclosure houses the preamplifier. Probe parameters, including wavelength correction factors and calibration date, are stored in memory for access by Laser Probe's Universal Radiometer instruments. Carefully designed gain stages insure excellent linearity and S/N ratio over 6 decades of dynamic range.



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