RjP-435
Pyroelectric Energy Probe

- **Unique Cavity Detector Design**
- **μJ Sensitivity**
- **±1% Wavelength Response**
- **Measure Energy up to 200 Hz**

The RjP-435 Cavity Pyroelectric Energy Probe offers unmatched versatility - μJ to J, UV to Far-IR, single-shot to 200 Hz - making it the right probe for almost every application. The unique cavity, or light-trap, detector assembly is a nearly perfect absorber, resulting in a flatter spectral response and greater sensitivity than a conventional pyroelectric detector of comparable size.

The extremely wide spectral response make this probe the ideal measurement tool for broadband sources like flashlamps and blackbody emitters. Cover the full spectral range of Ti:Sapphire, Dye, OPOs, and other tunable laser sources without having to worry about wavelength correction factors. The RjP-435 is equally adept at measuring Nd:YAG, Er:YAG, Nd:YLF, Excimer, Nitrogen, Copper Vapor, and CO_2 lasers.

Besides being a versatile research instrument the RjP-435 is an excellent energy transfer standard. Use calibrated neutral density filters to extend its dynamic range to match both low-energy semiconductor probes and high-energy calorimeter probes.

The extended UV response is well suited for photolithography, sterilization, and curing applications. Use it to calibrate ophthalmic and surgical lasers. Perform real-time analysis of LIDAR, rangefinder, and fire control systems. Or monitor the source laser in laser ablation, laser-induced fluorescence, and non-linear optics experiments.

The compact size and modular design make the RjP-435 ideal for OEM applications as well. Incorporate the detector and preamplifier directly into lasers, detector calibration fixtures, or fire-control systems for real-time diagnostics, output stabilization, and process control.

LaserProbe inc.

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SPECIFICATIONS

Spectral response	0.18 - 20 μm
Maximum total energy	1.0 J
Maximum energy density	1.0 J/cm^2
Max. peak pulse power density *(30 ns pulse)*	1.0 MW/cm^2
Max. average power density	5.0 W/cm^2
Minimum detectable energy	100 nJ
Maximum pulse rep rate	200 Hz
Maximum pulse width	200 μsec
Calibration accuracy	±5%
Linearity	±0.5%
Detector active area	1.0 cm^2
Full scale ranges	6; 30 μJ - 1J
Head dimensions (dia x depth)	6.0 cm x 5.0 cm (2.4" x 2.0")
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)

In a conventional flat detector photons incident on its surface have only one point of contact, at which they are either absorbed or reflected away. However, the geometry of the RjP-435 cavity detector insures that virtually all of the photons that are not absorbed at the initial contact point will be reflected further into the cavity, where they contact the detector surface again and again. This "light trap" configuration produces almost total light absorption, resulting in an extremely broad, flat wavelength response.

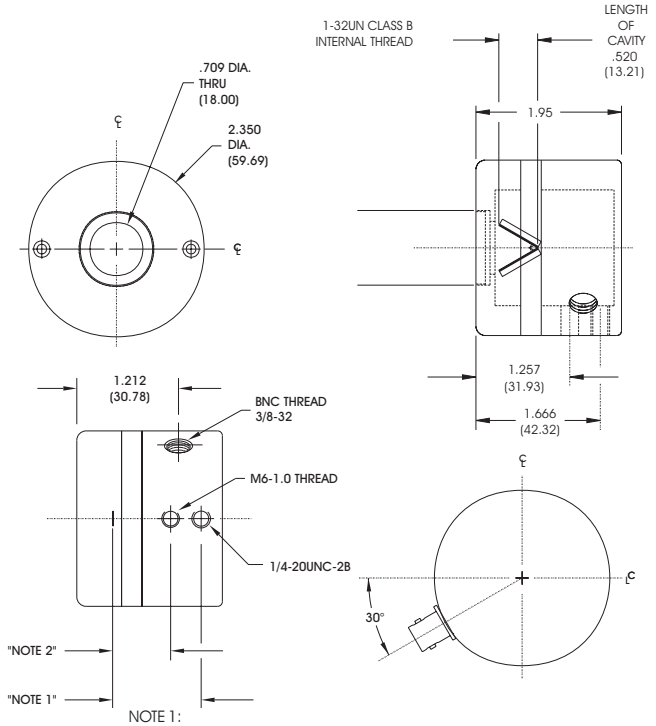
As a member of the 400 Series Probe family, the RjP-435 uses the same detector housing and preamplifier enclosure as all other 400 series probes. In addition, most 400 Series probes are designed so the detector plane is the same distance from the mounting post plane, allowing for easy interchange of 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.

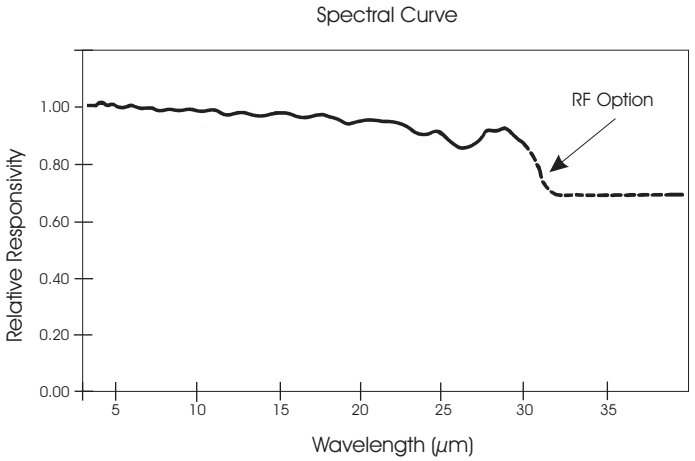
A separate enclosure houses the preamplifier. Probe parameters, including wavelength correction factors and calibration date, are stored in memory for access by Laser Probe's Universal Radiometers. Carefully designed gain stages insure excellent linearity and S/N ratio over 6 decades of dynamic range.

There are many options and accessories available for the RjP-400 Series probes, including a precision aperture, light baffle, and the kTA-141 support stand. The 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.



NOTE 1:
The distance from the center of the cavity to the center line of the ¼ - 20 mounting is 1.100±.005" (27.94mm).
NOTE 2:
The distance from the center of the cavity to the center line of the M6 mounting is 17.58mm (.692").



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

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