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# RjP-736
# Pyroelectric Energy Probe



- **50 mm Diameter Detector**
- **Measures mJ to 10 Joules**
- **Single-Shot to 40 Hz**
- **Ideal for Large Beams**

The RjP-736 Pyroelectric Energy Probe is designed for lower repetition rate, high-energy pulsed sources. It is ideal for lasers with large beams, such as Excimer lasers, or for capturing the total output of a highly divergent source. With UV to IR spectral response, single-shot to 40 Hz speed, and up to 10 Joules total energy capability, the RjP-736 is an invaluable measurement tool.

Use this probe to measure the defocused beam from industrial Nd:YAG, Er:YAG, Nd:YLF, Ruby, and $CO_2$ lasers. Capture the total integrated energy of high energy flashlamps and arc lamps. Cover the full spectral range of Ti:Sapphire, Dye, OPOs, and other tunable sources. Take advantage of the large active area to measure laser diode bars and Excimer lasers.

Because of its 50 mm diameter the energy per pulse of a large beam can be measured directly, without having to use optics to squeeze the beam onto a smaller detector. This reduces the complexity of the beam path and eliminates any potential error associated with the focusing optics. Conversely, for high-energy sources, expanding the beam and using a larger area probe is an alternative to neutral density filters and beamsplitters for reducing the fluence to a measurable level. The large area is also convenient when working with highly divergent sources like laser diodes or bare optical fibers.

The RjP-736 can be used to monitor sterilization, curing, and other UV processes. Use it as a reference detector for optical testbeds with large, collimated beams, such as those used to calibrate the throughput of large diameter optics, or that

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## SPECIFICATIONS

| | |
|---|---|
| Spectral response | 0.18 - 20 $\mu$m |
| Maximum total energy | 10.0 J |
| Maximum energy density | 0.5 J/cm$^2$ |
| Max. peak pulse power density *(30 ns pulses)* | 0.5 MW/cm$^2$ |
| Max. average power density | 0.5 W/cm$^2$ |
| Minimum detectable energy | 100 $\mu$J |
| Maximum pulse rep rate | 40 Hz |
| Maximum pulse width | 1.0 msec |
| Calibration accuracy | ±5% |
| Linearity | ±0.5% |
| Detector active area | 50.0 mm (19.7 cm$^2$) |
| Full scale ranges | 4; 20 (30) mJ - 10 J (readout dependent) |
| Head dimensions (dia x depth) | 7.7 cm x 16.9 cm (3.0" x 6.7") |
| Probe weight | 0.6 kg (1.3 lb) |

flood a smaller detector's total active area. Repair and calibrate ophthalmic and surgical lasers by looking at the defocused beam. Sample the output of industrial Nd:YAG and $CO_2$ lasers for real time control of welding, marking, and cutting, processes.

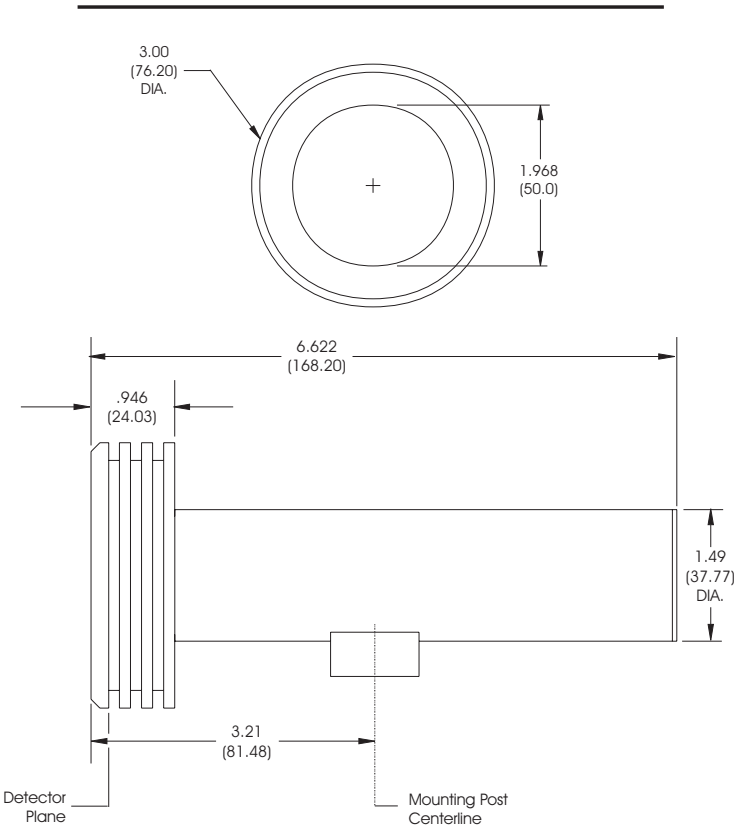
The RjP-736 is designed to measure high energy, large area beams. Expanding the beam so that it covers most of the Probe's active area allows it to measure up to 10 Joules per pulse at a 1 Hz pulse repetition rate. A black absorbing material is applied to the detector surface, to provide a flatter spectral response and higher total absorption. While exceeding the rated fluence level will sometimes oblate this absorber layer, the durable detector element itself is generally unharmed. Recoating and recalibrating the probe restores it to original operating specifications.

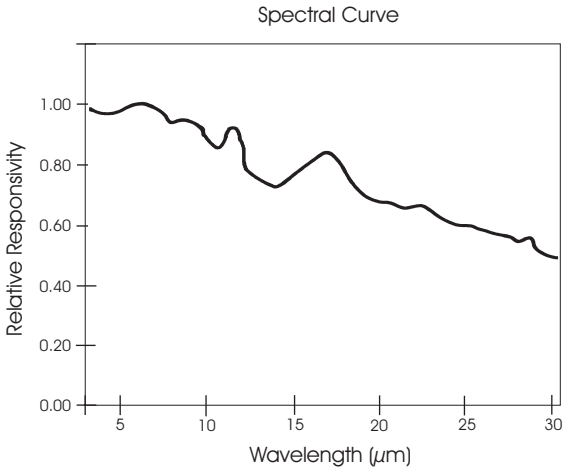
The RjP-700 Series probes have the detector assembly and preamplifier in a common housing. This minimizes the signal path between the detector and preamplifier and surrounds them with a continuous Faraday cage, giving optimal EMI/RFI immunity.

A mounting block with the standard ¼-20 mounting hole is attached to the probe housing. It can be removed for inserting the probe in a cylindrical fixture. A matte black finish reduces unwanted back-reflection.

There are many options and accessories available for the RjP-700 Series probes, including the kTA-141 support stand, probe extension cables, and various filters and windows. The options and accessories are detailed in a separate data sheet.

All RjP-700 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.

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