

CUSTOM DESIGN EXAMPLES

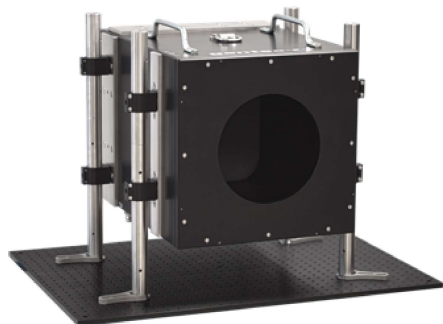
Specifications



After over 50 years of experience in the laser beam measurement business, we have developed many customized solutions, sometimes for very unusual applications! This section is only a small portion of the projects we have accomplished for our customers, so do not hesitate to contact us with any special need you may have. We are always striving to find the perfect solution for your application!

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EXTREMELY HIGH POWER, LOW BACK-REFLECTIONS

When working at extremely high average power, even a low % of back-reflections can be dangerous. To manage the back-reflections and provide a safer working environment, we can equip your high-power detector with a water-cooled "TUBE" extension.

This custom project example can measure up to 100 kW of average power continuously, and less than 4 % of the incident radiation is backscattered.

- CUSTOM-DESIGNED HIGH-POWER DETECTOR

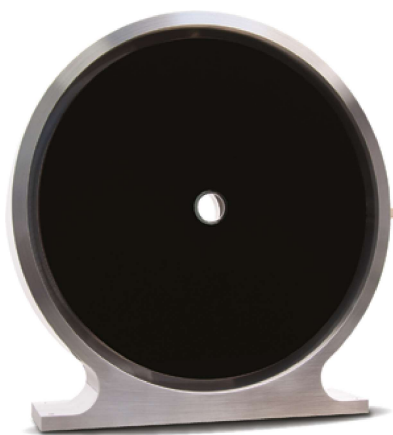


"10 PW PORTABLE BLACK HOLE"

Gentec-EO is the only supplier able to manufacture beam dumps able to withstand the tremendous peak power of a 10-petawatt laser, in a high vacuum environment.

By working closely with our client, we have designed the only existing beam dump that can fulfill the task of capturing and dissipating the energy contained in the single pulses of the ELI-NP end-of-line laser beams. Furthermore, this product was designed to be operated without external cooling, which simplifies its installation and makes it usable in a wide range of applications.

- UNRIVALED DAMAGE THRESHOLDS: UP TO 200 J/CM² FOR fs PULSES
- EXTREMELY LOW BACK-REFLECTIONS: < 0.02%



"HOLLOW" DETECTOR

This special calorimeter demonstrates the extent of Gentec-EO's customization capabilities. This product fulfills the requirements for the newest lasers for high energetic beam experimentation.

- High energy at low repetition rate for continuous measurement
- Femtosecond pulse
- Very large diameter with different shapes & sizes available
- Offers the flexibility to measure both power or energy
- Center hole option to let an electron beam through

- SHORT PULSES, HIGH ENERGIES
- VARIOUS SHAPES & SIZES

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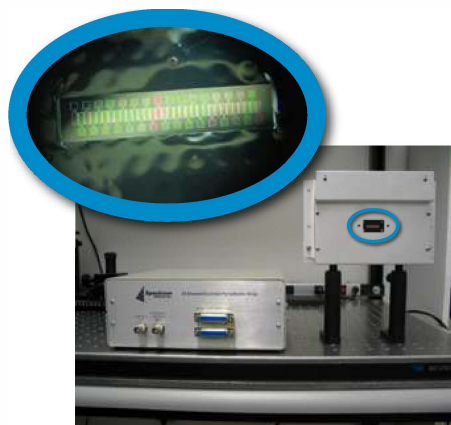


OPTICAL TRAP DETECTORS

Our optical TRAP detectors and their preamplifiers are used as primary spectral transfer standards in many metrology laboratories around the world.

These unique detectors are based on the use of two or three silicon photodiodes in an optical TRAP configuration. This results in extremely high quantum efficiency (QE) of greater than 99%. This extremely high QE renders the calibration uncertainty to record lows and allows one to calculate the precise current responsivity (A/W) at wavelengths in the 400 to 950 nm range using physical constants.

- HIGH QUANTUM EFFICIENCY
- HIGH PRECISION, THERMALLY STABLE, MULTI-GAIN PREAMPLIFIER



32-CHANNEL THZ PYROELECTRIC ARRAY

This self-scanned, linear, 32-element pyroelectric detector array was designed for use on a THz spectrometer. The spectrometer is used to characterize the "bunch length" of a high energy electron beam. It captures pulsed THz radiation at the 100 nJ level that help create interferograms as a diagnostic.

- BROAD SPECTRAL RESPONSE FROM 0.1 TO 3000 μm
- NOISE LEVEL LESS THAN 1 nJ



TEMPERATURE-CONTROLLED POWER METERS

Our temperature-controlled pyroelectric power detectors were designed for NIST. They are used as a spectral transfer standard, from 0.6 to 24 μm for their IR detector calibration systems.

The detector features BL black absorbing carbon coating for flat spectral response. The detector is mated to a thermoelectric cooler which maintains the probe's temperature at $25^\circ\text{C} \pm 0.05^\circ\text{C}$. This results in the ultimate measurement stability: the voltage responsivity (V/W) is stable to $\pm 0.1\%$.

- THE ULTIMATE MEASUREMENT STABILITY

PHOTO
TECHNICA

フォトテクニカ株式会社

〒336-0017 埼玉県さいたま市南区南浦和 2-18-2

TEL: 048-871-0067 FAX: 048-871-0068

<https://www.phototechnica.co.jp>

e-mail: voc@phototechnica.co.jp