The Quanta series detectors are a large step forward in laser pulse energy measurement for Gentec-EO and for you. They provide a unique combination of high damage resistance and higher speed. They also offer very good linearity with power and a versatile mounting system.

QE12

The 12 mm aperture and small body of the QE12 is perfect for service applications that need a portable detector. The small body is also attractive for mounting in machines with tight space constraints. Its high repetition rate and good pulse width performance make it suitable for use in a wide range of applications and with many lasers. The QE12-MB also has the same impressive damage threshold as the other members of the Quanta family. The QE12 with heatsink extends its performance to higher average powers. You can read the QE12-MB with our SOLO PE and DUO monitors as well as with an oscilloscope. The QE12-MT is for applications that require the highest repetition rate. Also available on special orders, the QE12-ELP-MB for measurement of Extra Long Pulses up to 5 msec, custom-tuned for repetition rate, sensitivity, and pulse width.

Versatile Mechanics

The square aperture is ideal for Excimer lasers. Our versatile mounting system lets you also mount the square in a diamond configuration. That will let you fit Excimer beams a bit larger than 12 mm. It is also handy for more conveniently positioning the cable for some applications. You can also mount the detector on the most common English and metric threaded posts. In addition, the thin package is ideal for OEM installations.

Attenuators

To extend the performance of the QE12 to higher pulse energies you can select one of our attenuators. They fit easily over the QE12 and are held in place by 2 small set screws. For UV applications choose the **QEAS-12**. This combination attenuator/ diffuser works between 190 nm and 2.5 um with a damage threshold of 1 J/cm^2 at 266 nm (7 ns at 10 Hz). Transmission varies from 15 to 30% depending on wavelength. It lets you extend the maximum pulse energy by a factor of 2 in the UV.

For the highest damage threshold at the longer wavelengths though you will prefer the **QEA-12**. The QEA-12 works between 400 nm and 2.5 um and it has damage thresholds of 5 J/cm^2 in the visible and 7 J/cm^2 in the Near IR (7 ns at 10 Hz). It transmits between 15% and 25% (depending on the wavelength) of the incoming pulse letting you extend the energy range of your QE12 by a factor of 4. The damage threshold increases with pulse length. For example, it is 85 J/cm^2 for 150 µs pulses (1064 nm at 10Hz).

QE12-LP-H-MB

QE12-SP-S-MB

ENERGY DETECTORS
Small Aperture (12 x 12 mm)

- **Portable**
- **Durable**
- **High Damage Thresholds**
- **Full NIST-Traceability**
- **Smart Interface**

CE

QUANTA SERIES QE12 SPECIFICATIONS

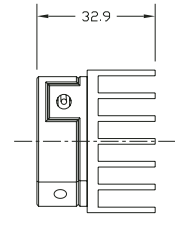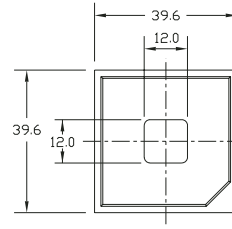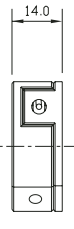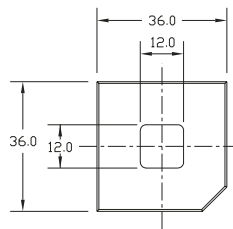| TYPICAL LASERS	COMMON APPLICATIONS	QE12	QE12-Heatsink

TYPICAL LASERS
- Pulsed CO_2
- Er:YAG
- Ho:YAG
- Ruby
- Small Excimer

COMMON APPLICATIONS
- Medical systems
- Ophthalmology
- Angioplasty
- Cardiac surgery
- Dermatology
- Micromachining
- Drilling
- Robotics
- Urology

All dimensions in mm

	SP-S-MB	SP-H-MB	LP-S-MB	LP-H-MB	SP-S-MT	SP-H-MT
MEASUREMENT CAPABILITY						
Spectral range	0.19 -20 µm	0.19 -20 µm	0.19 -20 µm	0.19 -20 µm	0.19 -2.5 µm	0.19 -2.5 µm
Maximum Measurable Energy						
7 ns pulse, 1.064 µm [a]	0.84 J	0.84 J	0.84 J	0.84 J	0.35 J	0.35 J
With QEA attenuator	3.36 J	3.36 J	3.36 J	3.36 J	0.8 J	0.8 J
266 nm, 7 ns, 10 Hz	0.7 J	0.7 J	0.7 J	0.7 J	0.07 J	0.07 J
With QEAS attenuator	0.81 J	0.81 J	0.81 J	0.81 J	0.16 J	0.16 J
Minimum Measurable Energy [b]	80 µJ with amplifier / 600 µJ with SOLO or DUO alone				40 µJ	40 µJ
Noise Equivalent Energy	4 µJ with amplifier / 30 µJ with SOLO or DUO alone				2 µJ	2 µJ
Sensitivity [c, d]	10 V/J	10 V/J	10 V/J	10 V/J	20 V/J	20 V/J
Max Repetition Frequency	800 Hz	800 Hz	300 Hz	300 Hz	6000 Hz [f]	6000 Hz [f]
Maximum Pulse Width (typical)	150 µs	150 µs	400 µs*	400 µs*	10 µs [f]	10 µs [f]
Rise Time (typical 0-100%)	200 µs	200 µs	550 µs*	550 µs*	20 µs	20 µs
Calibration Uncertainty [e, g]	±3%	±3%	±3%	±3%	±3%	±3%
Repeatability (precision)	< 0.5%	< 0.5%	< 0.5%	< 0.5%	< 0.5%	< 0.5%
DAMAGE THRESHOLDS						
Maximum Average Power	3 W	5 W	3 W	5 W	3 W	5 W
With QEA or QEAS attenuator	7.5 W	12.5 W	7.5 W	12.5 W	7.5 W	12.5 W
Maximum Energy Density						
1.064 µm, 7 ns, 10 Hz	0.6 J/cm²	0.6 J/cm²	0.6 J/cm²	0.6 J/cm²	0.25 J/cm²	0.25 J/cm²
With QEA attenuator	7 J/cm²	7 J/cm²	7 J/cm²	7 J/cm²	1.0 J/cm²	1.0 J/cm²
With QEAS attenuator	4 J/cm²	4 J/cm²	4 J/cm²	4 J/cm²	1.0 J/cm²	1.0 J/cm²
532 nm, 7 ns, 10 Hz	0.6 J/cm²	0.6 J/cm²	0.6 J/cm²	0.6 J/cm²	0.05 J/cm²	0.05 J/cm²
With QEA attenuator	5 J/cm²	5 J/cm²	5 J/cm²	5 J/cm²	0.25 J/cm²	0.25 J/cm²
With QEAS attenuator	4 J/cm²	4 J/cm²	4 J/cm²	4 J/cm²	0.25 J/cm²	0.25 J/cm²
266 nm, 7 ns, 10 Hz	0.5 J /cm²	0.5 J /cm²	0.5 J /cm²	0.5 J /cm²	0.05 J /cm²	0.05 J /cm²
With QEAS attenuator	1 J/cm²	1 J/cm²	1 J/cm²	1 J/cm²	0.20 J /cm²	0.20 J /cm²
PHYSICAL CHARACTERISTICS						
Effective aperture	12 x 12 mm (9 x 9 mm with QEA or QEAS)					
Absorber	MB: Multi-Band	MB: Multi-Band	MB: Multi-Band	MB: Multi-Band	MT: Metallic	MT: Metallic
Dimensions	36 (H) x 36 (W) x 14 (D) mm or 33 (D) mm with heatsink					
Weight (with Heatsink)	87 g	117 g	87 g	117 g	87 g	117 g
Effective Area (with QEA-QEAS)	1.4 (0.81) cm²					

*Also available on special order: The Extra Long Pulse Series QE12-ELP-MB for pulse widths up to 5 msec, custom-tuned for rep. rate, sensitivity, and pulse width.

a. Increasing pulse width increases the maximum measurable energy.
b. Nominal value, actual value depends on electrical noise in the measurement system.
c. Load: 1 MΩ and ≤ 130 pF.
d. Maximum output voltage = sensitivity x maximum energy.
e. Not including linearity with power.
f. For use with an oscilloscope ONLY.
g. Change in calibration with dose: 1% change with 432 000 J/cm², 864 000 J/cm² with QEAS.

Specifications subject to change without notice