



QE25-SP-S-MB



QE25-LP-H-MB

## ENERGY DETECTORS

Mid Aperture (25 x 25 mm)



- High Damage Thresholds
- Durable
- Versatile
- Broadband
- Full NIST-Traceability
- Smart Interface



The Quanta series detectors are a big 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.

### QE25

The 25 mm aperture of the QE25 is requested for the widest range of applications of any energy detector. It is right for many pulsed lasers. It is right for many OEM, manufacturing and laboratory uses. It has one of the best damage thresholds of any energy detector of its class. We offer three versions so that you can get the best performance for your application. The short pulse QE25-SP-MT gives you repetition rate – up to 6000 Hz but with pulse lengths of up to 10  $\mu$ s. The short pulse QE25-SP-MB gives you repetition rate – up to 800 Hz but with pulse lengths of up to 150  $\mu$ s. The long pulse QE25-LP-MB is for users who need more pulse width than repetition rate. Also available on special orders, the QE25-ELP-MB for measurement of Extra Long Pulses up to 9 msec, custom-tuned for repetition rate, sensitivity, and pulse width.

The QE25 with heatsink (H) extends performance to higher average powers. You can read most of our Quanta detectors with our SOLO PE and DUO monitors as well as with an oscilloscope.

### Versatile Mechanics

The square aperture is ideal for Excimer lasers. Our versatile mounting system also lets you mount the square in a diamond configuration. This will let you fit Excimer beams a bit larger than 25 mm. It is also handy for more conveniently positioning the cable for some applications. In addition, the thin package is ideal for OEM installations.

### Attenuators

To extend the performance of the QE25 to higher pulse energies you can select one of our attenuators. They fit easily over the QE25 and are held in place by 2 small set screws. For UV applications choose the QEAS-25. This combination attenuator/diffuser works between 190 and 2500 nm with a damage threshold of 1 J/cm<sup>2</sup> 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 thresholds at the longer wavelengths, you will prefer the QEA-25. It transmits between 15% and 25% (depending on wavelength) of the incoming pulse letting you extend the energy range of your QE25 by a factor of 4. The QEA-25 works between 400 nm and 2500 nm, with damage thresholds of 7 J/cm<sup>2</sup> at 1064 nm and 5 J/cm<sup>2</sup> at 532 nm (7 ns at 10 Hz). Damage threshold increases with pulse length. For example, it is 85 J/cm<sup>2</sup> for 150  $\mu$ s pulses (1064 nm at 10Hz).



QEAS-25

# QUANTA SERIES QE25 SPECIFICATIONS

## TYPICAL LASERS

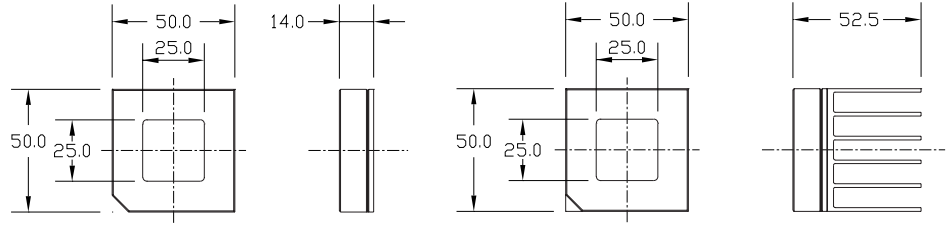
- Excimer
- Er: YAG
- Ho: YAG
- Tm: YAG
- Ruby
- CO<sub>2</sub>
- Nd: Glass
- Nd: YAG
- YLF

## COMMON APPLICATIONS

- Ophthalmology
- Angioplasty
- Cardiac surgery
- Dermatology
- Micromachining
- Drilling
- Robotics
- Urology

## QE25

## QE25-Heatsink



All dimensions in mm

### SP-S-MB

### SP-H-MB

### LP-S-MB

### LP-H-MB

### SP-S-MT

### SP-H-MT

## MEASUREMENT CAPABILITY

	SP-S-MB	SP-H-MB	LP-S-MB	LP-H-MB	SP-S-MT	SP-H-MT
<b>Spectral Range</b>	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
<b>Maximum Measurable Energy</b>						
7 ns pulse, 1.064 μm <sup>a</sup>	3.75 J	3.75 J	3.75 J	3.75 J	1.6 J	1.6 J
With QEA attenuator	20 J	20 J	20 J	20 J	4.8 J	4.8 J
266 nm, 7 ns, 10 Hz	3.1 J	3.1 J	3.1 J	3.1 J	0.30 J	0.30 J
With QEAS attenuator	4.8 J	4.8 J	4.8 J	4.8 J	1 J	1 J
<b>Noise Equivalent Energy<sup>b</sup></b>	4 μJ	4 μJ	4 μJ	4 μJ	2 μJ	2 μJ
<b>Sensitivity<sup>c,d</sup></b>	10 V/J	10 V/J	10 V/J	10 V/J	20 V/J	20 V/J
<b>Max Repetition Frequency</b>	800 Hz	800 Hz	300 Hz	300 Hz	6000 Hz	6000 Hz
<b>Maximum Pulse Width (typical)</b>	150 μs	150 μs	400 μs*	400 μs*	10 μs	10 μs
<b>Rise Time (typical 0-100%)</b>	200 μs	200 μs	550 μs*	550 μs*	20 μs	20 μs
<b>Calibration Uncertainty<sup>e, f</sup></b>	±3%	±3%	±3%	±3%	±3%	±3%
<b>Repeatability</b>	< 0.5%	< 0.5%	< 0.5%	< 0.5%	< 0.5%	< 0.5%

## DAMAGE THRESHOLDS

	SP-S-MB	SP-H-MB	LP-S-MB	LP-H-MB	SP-S-MT	SP-H-MT
<b>Maximum Average Power<sup>e</sup></b>	5 W	10 W	5 W	10 W	5 W	10 W
With QEA or QEAS attenuator	15 W	30 W	15 W	30 W	15 W	30 W
<b>Maximum Energy Density</b>						
1.064 μm, 7 ns, 10 Hz	0.6 J/cm <sup>2</sup>	0.6 J/cm <sup>2</sup>	0.6 J/cm <sup>2</sup>	0.6 J/cm <sup>2</sup>	0.25 J/cm <sup>2</sup>	0.25 J/cm <sup>2</sup>
With QEA attenuator	7 J/cm <sup>2</sup>	7 J/cm <sup>2</sup>	7 J/cm <sup>2</sup>	7 J/cm <sup>2</sup>	1 J/cm <sup>2</sup>	1 J/cm <sup>2</sup>
With QEAS attenuator	4 J/cm <sup>2</sup>	4 J/cm <sup>2</sup>	4 J/cm <sup>2</sup>	4 J/cm <sup>2</sup>	1 J/cm <sup>2</sup>	1 J/cm <sup>2</sup>
532 nm, 7 ns, 10 Hz	0.6 J/cm <sup>2</sup>	0.6 J/cm <sup>2</sup>	0.6 J/cm <sup>2</sup>	0.6 J/cm <sup>2</sup>	0.05 J/cm <sup>2</sup>	0.05 J/cm <sup>2</sup>
With QEA attenuator	5 J/cm <sup>2</sup>	5 J/cm <sup>2</sup>	5 J/cm <sup>2</sup>	5 J/cm <sup>2</sup>	0.25 J/cm <sup>2</sup>	0.25 J/cm <sup>2</sup>
With QEAS attenuator	4 J/cm <sup>2</sup>	4 J/cm <sup>2</sup>	4 J/cm <sup>2</sup>	4 J/cm <sup>2</sup>	0.25 J/cm <sup>2</sup>	0.25 J/cm <sup>2</sup>
266 nm, 7 ns, 10 Hz	0.5 J/cm <sup>2</sup>	0.5 J/cm <sup>2</sup>	0.5 J/cm <sup>2</sup>	0.5 J/cm <sup>2</sup>	0.05 J/cm <sup>2</sup>	0.05 J/cm <sup>2</sup>
With QEAS attenuator	1 J/cm <sup>2</sup>	1 J/cm <sup>2</sup>	1 J/cm <sup>2</sup>	1 J/cm <sup>2</sup>	0.2 J/cm <sup>2</sup>	0.2 J/cm <sup>2</sup>

## PHYSICAL CHARACTERISTICS

<b>Effective Aperture</b>	25 x 25 mm (22 x 22 mm with QEA or QEAS)					
<b>Absorber</b>	MB: Multi-Band	MB: Multi-Band	MB: Multi-Band	MB: Multi-Band	MT: Metallic	MT: Metallic
<b>Dimensions</b>	50 (H) x 50(W) x 14 (D) mm or 52.5 (D) mm with heatsink					
<b>Weight (with Heatsink)</b>	0.12 (0.187) kg					
<b>Effective Area (with QEA-QEAS)</b>	6.25 (4.84) cm <sup>2</sup>					

\*Also available on special order: The Extra Long Pulse Series QE25-ELP-MB for pulse widths up to 9 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. Change in calibration with dose: 1% change with 432 000 J/cm<sup>2</sup>, 864 000 J/cm<sup>2</sup> with QEAS.

Specifications subject to change without notice



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## Calibration centers

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