

## QE4

Gentec-EO has packaged its latest energy detection technology into a BNC connector! Tiny and robust, it is ideal for the most confining and tough OEM applications. The QE4-BL provides greatly improved speed and linearity. It is a work horse used in many machine mounted industrial applications. The small aperture and high sensitivity are also attractive for laboratory and medical test systems.

Apply your laser in a single pulse or at high repetition rates. Their small size and low thermal mass absorbers make these some of the fastest and most sensitive energy detectors in the Gentec-EO family. They are certainly the fastest detector that you will find with such a high damage threshold absorber. We offer two versions so that you can get the best performance for your application. The **QE4-BL** is for small aperture applications that need a high repetition rate. The **QE4-MT** is for applications with low energy that require the highest repetition rate.

## Easy Interface

You can easily run the signal into an oscilloscope or your data acquisition system. Getting the signal out is as easy as connecting a BNC cable. With Gentec-EO's BNC to DB-15 adapter you can connect most of our Quanta detectors to our SOLO PE and DUO monitors. It can take advantage of the individual calibration parameters that are stored in the adapter. That includes our *Personal wavelength correction™*.

## EDX-1 Amplifier

Use this amplifier to match your data acquisition electronics or overcome an electrically noisy environment. This component amplifies your energy detector signal by a factor of 1, 10, 100, or 1000. You control the gain to get the signal you need.



QE4-SP-S-MT



EDX-1

# ENERGY DETECTORS

Extra Small Aperture (4 mm diameter)

- Energy Detector in a BNC
- Robust
- Flat Spectral Response
- Full NIST-Traceability
- High Sensitivity
- High Repetition Rate
- Smart Interface



# QUANTA SERIES QE4 SPECIFICATIONS

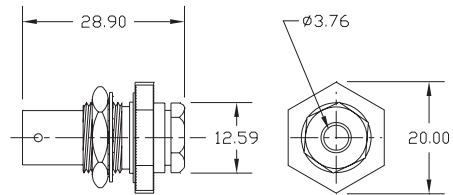
## TYPICAL LASERS

- High repetition rate pulse lasers
- Low repetition rate small lasers
- Low energy YAG & CO<sub>2</sub>
- Nitrogen
- Modulated lasers
- Low energy OEM

## COMMON APPLICATIONS

- Medical systems
- Exposure measurements
- Ophthalmic

## QE4



All dimensions in mm

### QE4-SP-S-BL

### QE4-SP-S-MT

## MEASUREMENT CAPABILITY

Spectral range	0.19 - 20 $\mu\text{m}$	0.19 - 2.5 $\mu\text{m}$
Maximum Measurable Energy <sup>a</sup> , 7nsec	16 mJ at 1064 nm 0.7 mJ at 266 nm	27 mJ at 1064 nm 5.5 mJ at 266 nm
Minimum Measurable Energy <sup>b</sup>	20 $\mu\text{J}$ with amplifier 300 $\mu\text{J}$ with SOLO or DUO alone	20 $\mu\text{J}$
Noise Equivalent Energy <sup>b</sup>	1 $\mu\text{J}$ with amplifier 15 $\mu\text{J}$ with SOLO or DUO alone	1 $\mu\text{J}$
Sensitivity <sup>c,d</sup>	150 V/J	200 V/J
Max Repetition Frequency	1200 Hz	6000 Hz <sup>f</sup>
Maximum Pulse Width (typical)	100 usec	10 usec
Rise Time (typical 0-100%)	200 usec	20 usec
Calibration Uncertainty <sup>e,g</sup>	$\pm 3\%$	$\pm 3\%$
Repeatability (precision)	< 0.5%	< 0.5%

## DAMAGE THRESHOLDS

Maximum Average Power	0.3 W	0.3 W
Maximum Energy Density		
1.064 $\mu\text{m}$ , 7 ns, 10 Hz	0.15 J/cm <sup>2</sup>	0.25 J/cm <sup>2</sup>
266 nm, 7 ns, 10 Hz	0.006 J/cm <sup>2</sup>	0.05 J/cm <sup>2</sup>

## PHYSICAL CHARACTERISTICS

Effective aperture	3.7 mm $\emptyset$	3.7 mm $\emptyset$
Absorber	BL: Black	MT: Metallic
Dimensions	20 $\emptyset$ x 30 mm	20 $\emptyset$ x 30 mm
Weight	20 g	20 g
Effective Area	0.11 cm <sup>2</sup>	0.11 cm <sup>2</sup>

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 M $\Omega$  and  $\leq$  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/cm<sup>2</sup>, 864 000 J/cm<sup>2</sup> with QEAS.

Specifications subject to change without notice



GENTEC ELECTRO-OPTICS INC.  
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