



# QE50

50 x 50 mm, 10  $\mu$ J - 85 J



## KEY FEATURES

- MODULAR CONCEPT**  
Increase the power capability of your detector:  
2 different cooling modules
- LOW NOISE LEVEL**  
10  $\mu$ J for both coatings
- QED ATTENUATOR AVAILABLE**
  - Measure up to 5X higher energies
  - Available with optional calibration, all wavelengths between 532 & 1064 nm, or single wavelength
- HIGH REPETITION RATE OPTIONS**
  - QE-MB: 200 Hz (Standard)
  - QE-MB: 500 Hz (Upon Request)
  - QE-MT: 4 000 Hz (Standard)
- TEST TARGET INCLUDED**  
With the MB models
- SMART INTERFACE**  
Containing all the calibration data

## AVAILABLE MODELS



QE50LP-S-MB  
(Broadband-Convection)



QE50LP-H-MB  
(Broadband-Heatsink)



QE50SP-S-MT  
(Metallic-Convection)



QE50SP-H-MT  
(Metallic-Heatsink)

## ACCESSORIES



Stand with Delrin Post  
(Model Number: 200428)



DB-15 to BNC Adaptor  
(Model Number: 200036)



QED-50 Attenuator  
(Model Number: 201198)



Pelican Carrying Case

## SEE ALSO

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| S-LINK                                 | 28     |
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| APPLICATION NOTES                      |        |
| LONG PULSE JOULEMETER<br>IN BURST MODE | 202153 |
| QEAS: UV ATTENUATOR                    | 202185 |

## QE50



\*Also traceable to NRC-CNRC

## SPECIFICATIONS

|                                                | QE50LP-S-MB | QE50LP-H-MB | QE50SP-S-MT | QE50SP-H-MT |
|------------------------------------------------|-------------|-------------|-------------|-------------|
| <b>MAX MEASURABLE ENERGY (WITH ATTENUATOR)</b> | 85 J        | 85 J        | 44 J        | 44 J        |
| <b>MAX REPETITION FREQUENCY</b>                | 200 Hz      | 200 Hz      | 4000 Hz     | 4000 Hz     |
| <b>EFFECTIVE APERTURE</b>                      | 50 x 50 mm  | 50 x 50 mm  | 50 x 50 mm  | 50 x 50 mm  |

| MEASUREMENT CAPABILITY                 |              |                           |              |                           |                           |                           |                           |                           |
|----------------------------------------|--------------|---------------------------|--------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|
| Spectral Range *                       | Alone        | Attenuator                | Alone        | Attenuator                | Alone                     | Attenuator                | Alone                     | Attenuator                |
|                                        | 0.19 – 20 µm | 0.3 - 2.1 µm <sup>a</sup> | 0.19 – 20 µm | 0.3 - 2.1 µm <sup>a</sup> | 0.19 – 20 µm <sup>b</sup> | 0.3 - 2.1 µm <sup>a</sup> | 0.19 – 20 µm <sup>b</sup> | 0.3 - 2.1 µm <sup>a</sup> |
| Maximum Measurable Energy <sup>c</sup> | Alone        | Attenuator                | Alone        | Attenuator                | Alone                     | Attenuator                | Alone                     | Attenuator                |
| 1064 nm, 7 ns, 10 Hz <sup>d</sup>      | 15 J         | 85 J                      | 15 J         | 85 J                      | 13 J                      | 44 J                      | 13 J                      | 44 J                      |
| 266 nm, 7 ns, 10 Hz                    | 12.5 J       | 22 J                      | 12.5 J       | 22 J                      | 1.8 J                     | 6.5 J                     | 1.8 J                     | 6.5 J                     |
| Noise Equivalent Energy <sup>e</sup>   | 10 µJ        |                           | 10 µJ        |                           | 10 µJ                     |                           | 10 µJ                     |                           |
| Sensitivity <sup>f, g</sup>            | 3 V/J        |                           | 3 V/J        |                           | 4 V/J                     |                           | 4 V/J                     |                           |
| Max Repetition Frequency               | 200 Hz       |                           | 200 Hz       |                           | 4000 Hz                   |                           | 4000 Hz                   |                           |
| Maximum Pulse Width (typical)          | 675 µs **    |                           | 675 µs **    |                           | 10 µs                     |                           | 10 µs                     |                           |
| Rise Time (typical 0-100 %)            | 900 µs       |                           | 900 µs       |                           | 20 µs                     |                           | 20 µs                     |                           |
| Calibration Uncertainty <sup>h</sup>   | ±3 %         |                           | ±3 %         |                           | ±3 %                      |                           | ±3 %                      |                           |
| Repeatability                          | <0.5 %       |                           | <0.5 %       |                           | <0.5 %                    |                           | <0.5 %                    |                           |

| DAMAGE THRESHOLDS             |                       |                       |                                   |                       |                        |                        |                                   |                        |
|-------------------------------|-----------------------|-----------------------|-----------------------------------|-----------------------|------------------------|------------------------|-----------------------------------|------------------------|
| Maximum Average Power         | Alone                 | Attenuator            | Alone                             | Attenuator            | Alone                  | Attenuator             | Alone                             | Attenuator             |
| All Wavelengths               | 10 W                  | 25 W                  | 20 W                              | 45 W                  | 10 W                   | 25 W                   | 20 W                              | 45 W                   |
| Maximum Energy Density        | Alone                 | Attenuator            | Alone                             | Attenuator            | Alone                  | Attenuator             | Alone                             | Attenuator             |
| 1064 nm, 7 ns, single shot    | 0.6 J/cm <sup>2</sup> | 16 J/cm <sup>2</sup>  | 0.6 J/cm <sup>2</sup>             | 16 J/cm <sup>2</sup>  | 0.50 J/cm <sup>2</sup> | 4 J/cm <sup>2</sup>    | 0.50 J/cm <sup>2</sup>            | 4 J/cm <sup>2</sup>    |
| 1064 nm, 7 ns, 10 Hz          | 0.6 J/cm <sup>2</sup> | 8 J/cm <sup>2</sup>   | 0.6 J/cm <sup>2</sup>             | 8 J/cm <sup>2</sup>   | 0.50 J/cm <sup>2</sup> | 2 J/cm <sup>2</sup>    | 0.50 J/cm <sup>2</sup>            | 2 J/cm <sup>2</sup>    |
| 532 nm, 7 ns, 10 Hz           | 0.6 J/cm <sup>2</sup> | 6 J/cm <sup>2</sup>   | 0.6 J/cm <sup>2</sup>             | 6 J/cm <sup>2</sup>   | 0.07 J/cm <sup>2</sup> | 0.35 J/cm <sup>2</sup> | 0.07 J/cm <sup>2</sup>            | 0.35 J/cm <sup>2</sup> |
| 266 nm, 7 ns, 10 Hz           | 0.5 J/cm <sup>2</sup> | 1 J/cm <sup>2</sup>   | 0.5 J/cm <sup>2</sup>             | 1 J/cm <sup>2</sup>   | 0.07 J/cm <sup>2</sup> | 0.30 J/cm <sup>2</sup> | 0.07 J/cm <sup>2</sup>            | 0.30 J/cm <sup>2</sup> |
| Maximum Average Power Density | 10 W/cm <sup>2</sup>  | 600 W/cm <sup>2</sup> | 10 W/cm <sup>2</sup> <sup>i</sup> | 600 W/cm <sup>2</sup> | 10 W/cm <sup>2</sup>   | 600 W/cm <sup>2</sup>  | 10 W/cm <sup>2</sup> <sup>i</sup> | 600 W/cm <sup>2</sup>  |

| PHYSICAL CHARACTERISTICS             |                         |  |                    |  |                    |  |                    |  |
|--------------------------------------|-------------------------|--|--------------------|--|--------------------|--|--------------------|--|
| Effective Aperture (with Attenuator) | 50 X 50 mm (47 X 47 mm) |  |                    |  |                    |  |                    |  |
| Absorber                             | Multi-Band              |  | Multi-Band         |  | Metallic           |  | Metallic           |  |
| Dimensions                           | 75H x 75W x 15D mm      |  | 75H x 75W x 44D mm |  | 75H x 75W x 15D mm |  | 75H x 75W x 44D mm |  |
| Weight                               | 209 g                   |  | 338 g              |  | 209 g              |  | 338 g              |  |

| ORDERING INFORMATION             | Standard    | With Attenuator <sup>j</sup> | Standard    | With Attenuator <sup>j</sup> | Standard    | With Attenuator <sup>j</sup> | Standard    | With Attenuator <sup>j</sup> |
|----------------------------------|-------------|------------------------------|-------------|------------------------------|-------------|------------------------------|-------------|------------------------------|
| Product Name                     | QE50LP-S-MB | QE50LP-S-MB-QED              | QE50LP-H-MB | QE50LP-H-MB-QED              | QE50SP-S-MT | Call                         | QE50SP-H-MT | Call                         |
| Product Number (Including stand) | 200307      | 202188                       | 200308      | 202189                       | 200305      |                              | 200306      |                              |
| Add Extension for INTEGRA        | -INT        | -INT                         | -INT        | -INT                         | -INT        | Call                         | -INT        | Call                         |
| Product Number (Including stand) | 202749      | 202751                       | 202745      | 202747                       | 202755      |                              | 202753      |                              |

Specifications are subject to change without notice

\* \* Also available on special order: The Extra Long Pulse Series QE50ELP-MB for pulse widths up to 5 msec, custom-tuned for rep. rate, sensitivity, and pulse width.

\* For the calibrated spectral range, see the user manual.

a. 0.19 - 0.3 µm with QEAS Attenuator, 0.3 - 2.1 µm with QED Attenuator.

b. Detectors with the MT coating can be used within the range 0.19 to 20 µm, however the absorption in the IR wavelengths decreases significantly. This, in turn, reduces the sensitivity and increases the noise level. Nevertheless, each detector is individually scanned and the wavelength correction factor (PWC) is NIST traceable in the range of 248 nm to 2.5 µm.

c. Not exceeding Maximum Average Power.

d. Increasing pulse width increases the maximum measurable energy.

e. Nominal value, actual value depends on electrical noise in the measurement system.

f. Load: 1 MΩ and ≤ 30 pF.

g. Maximum output voltage = sensitivity x maximum energy.

h. Excludes non-linearities.

i. At 10 W. Maximum Average Power Density is 5 W/cm<sup>2</sup> @ 20 W for -H versions.

j. When -QED extension is added, the QE + QED come as one unit with a combined calibration only. See the "QED Attenuator" page for more options on the calibration.