

ENERGY DETECTORS

AVAILABLE  
WITH

integra



# QE12HR

12 x 12 mm, 0.7 µJ - 3.9 J, tuned for high repetition rates



## KEY FEATURES

- 1. MODULAR CONCEPT**  
Increase the power capability of your detector:  
2 different cooling modules
- 2. LOW NOISE LEVEL**  
0.7 µJ for the MB coating
- 3. QED ATTENUATOR AVAILABLE**  
Measure up to 5X higher energies
- 4. NEW MODELS FOR HIGH REPETITION RATES**  
The QE12HR models are tuned for short pulses with high repetition rates (up to 10 kHz)
- 5. TEST TARGET INCLUDED**  
With the MB models

## AVAILABLE MODELS



QE12HR-S-MB  
(Broadband-Convection)



QE12HR-H-MB  
(Broadband-Heatsink)



QE12HR-H-MT  
(Metallic-Heatsink)

## ACCESSORIES



Stand with Delrin Post  
(Model Number: 200428)



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



QED-12 Attenuator  
(Model Number: 201200)



Pelican Carrying Case

## OUTPUT OPTIONS

- 1. SMART DB15 CONNECTOR**
  - Contains all the calibration data
  - Compatible with our displays & PC interfaces
- 2. INTEGRA ALL-IN-ONE METER**
  - No external meter required
  - Connects directly to a PC
  - Three models available:  
USB output (-INT)  
RS-232 output (-HDR)  
RS-232 with external trigger (-INE)

## COMPATIBLE DISPLAYS & PC INTERFACES

MAESTRO  
U-LINK  
S-LINK  
M-LINK

# QE12HR



\*Also traceable to NRC-CNRC

## SPECIFICATIONS

	QE12HR-S-MB	QE12HR-S-MB-QED	QE12HR-H-MB	QE12HR-H-MB-QED	QE12HR-H-MT
<b>MAX MEASURABLE ENERGY <sup>a</sup></b>	0.85 J	3.9 J	0.85 J	3.9 J	0.70 J
<b>MAX REPETITION FREQUENCY <sup>b</sup></b>	1 kHz	1 kHz	1 kHz	1 kHz	10 kHz <sup>c</sup>
<b>APERTURE</b>	12 x 12 mm	9 x 9 mm	12 x 12 mm	9 x 9 mm	12 x 12 mm
<b>MEASUREMENT CAPABILITY</b>					
Spectral Range	0.19 – 20 $\mu$ m	0.3 - 2.1 $\mu$ m	0.19 – 20 $\mu$ m	0.3 - 2.1 $\mu$ m	0.19 – 20 $\mu$ m
Calibrated Spectral Range	0.248 – 2.1 $\mu$ m	0.532 – 2.1 $\mu$ m	0.248 – 2.1 $\mu$ m	0.532 – 2.1 $\mu$ m	0.248 – 2.1 $\mu$ m
Maximum Measurable Energy <sup>ad</sup>					
1064 nm, 7 ns, 10 Hz	0.85 J	3.9 J	0.85 J	3.9 J	0.70 J
266 nm, 7 ns, 10 Hz	0.70 J	0.81 J	0.70 J	0.81 J	0.10 J
Noise Equivalent Energy <sup>e</sup>	1.4 $\mu$ J	2.8 $\mu$ J	1.4 $\mu$ J	2.8 $\mu$ J	1 $\mu$ J
Max Repetition Frequency <sup>b</sup>	1 kHz	1 kHz	1 kHz	1 kHz	10 kHz <sup>c</sup>
Maximum Pulse Width	40 $\mu$ s	40 $\mu$ s	40 $\mu$ s	40 $\mu$ s	4 $\mu$ s
Rise Time (typical 0-100 %)	70 $\mu$ s	70 $\mu$ s	70 $\mu$ s	70 $\mu$ s	7 $\mu$ s
Calibration Uncertainty <sup>f</sup>	$\pm$ 3 %	$\pm$ 3 %	$\pm$ 3 %	$\pm$ 3 %	$\pm$ 3 %
Repeatability	<0.5 %	<0.5 %	<0.5 %	<0.5 %	<0.5 %
<b>DAMAGE THRESHOLDS</b>					
Maximum Average Power	3 W	7.5 W	5 W	12.5 W	5 W
Maximum Energy Density					
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>
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>
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>
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>
Maximum Average Power Density <sup>g</sup>	10 W/cm <sup>2</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>
<b>PHYSICAL CHARACTERISTICS</b>					
Aperture	12 x 12 mm	9 x 9 mm	12 x 12 mm	9 x 9 mm	12 x 12 mm
Absorber	MB	MB	MB	MB	MT
Dimensions	36H x 36W x 14D mm	39H x 41W x 19D mm	36H x 36W x 33D mm	39H x 41W x 38D mm	36H x 36W x 33D mm
Weight	87 g	87 g	117 g	117 g	117 g
<b>ORDERING INFORMATION</b>					
Detector with Smart DB15 Connector	QE12HR-S-MB-DO	QE12HR-S-MB-QED-DO	QE12HR-H-MB-DO P/N 203895	QE12HR-H-MB-QED-DO P/N 203897	QE12HR-H-MT-DO P/N 205104
INTEGRA All-in-one Meter & Detector USB output	QE12HR-S-MB-INT-DO	QE12HR-S-MB-QED-INT-DO	QE12HR-H-MB-INT-DO P/N 203903	QE12HR-H-MB-QED-INT-DO P/N 203905	QE12HR-H-MT-INT-DO
RS-232 output	QE12HR-S-MB-IDR-DO	QE12HR-S-MB-QED-IDR-DO	QE12HR-H-MB-IDR-DO P/N 205363	QE12HR-H-MB-QED-IDR-DO P/N 205364	
USB output + external trigger	QE12HR-S-MB-INE-DO	QE12HR-S-MB-QED-INE-DO	QE12HR-H-MB-INE-DO	QE12HR-H-MB-QED-INE-DO	QE12HR-H-MT-INE-DO

Specifications are subject to change without notice // Compatible stand: P/N 200428

- a. Not exceeding maximum average power.
- b. With the IDR version, measured values are sampled when the repetition rate is > 200 Hz.
- c. Maximum 5.2 kHz with INT version.
- d. Increasing pulse width increases the maximum measurable energy
- e. Nominal value, actual value depends on electrical noise in the measurement system.
- f. Excludes non-linearities.
- g. At maximum power.

Catalogue 2021\_V1.0