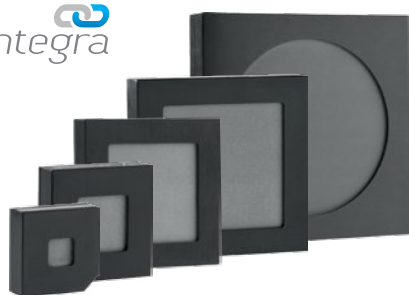


PRESENTATION

OVERVIEW OF THE DIFFERENT MODELS

Our pyroelectric energy meters cover a very wide range, going from nanojoules to several tens of joules per pulse. We also have them either in standalone formats, where the electronics are integrated in the device, or as standard sensors that you hook up to an energy meter.

Available with
integra



Available with
integra



Available with
integra



QE-MB

- Standard (Broadband) Coating
- Available in 5 sizes:
12 x 12 mm 65 x 65 mm
25 x 25 mm 95 mm Ø
50 x 50 mm
- Low Noise Levels and Possibility to Extend the Response for Long (ms) Pulses

See pages **42 to 50**

STANDARD COATING, LONG PULSE CAPABILITY

QE-MT

- Metallic (High Repetition Rate) Coating
- Available in 3 sizes:
12 x 12 mm
25 x 25 mm
50 x 50 mm
- Pulse-to-Pulse Response up to 6000 Hz

See pages **42 to 46**

METALLIC COATING, HIGH REP RATES

QE-B

- Small Compact Detectors
- 8 mm Ø Aperture
- Organic Black or Metallic Coatings with Spectral Ranges from DUV to Far-IR
- Noise Levels as low as 50 nJ, without the need of a photo detector.

See page **52**

COMPACT PYROELECTRIC DETECTORS

NOISE LEVEL AS LOW AS 50 nJ



MACH 6

- High Speed Digital Joulemeter:
Mach 6: Measures EVERY PULSE at 200 kHz
- Capture and Store up to 4 Million Pulses at the Maximum Repetition Rate
- Track Missing Pulses and Pulses below Threshold
- Wide Energy Range: Measure from pJ to mJ

200 kHz ENERGY METER

See our
Special Products Section
for more details.

See page **148**



QED ATTENUATOR

DESCRIPTION

The QED attenuators increase the energy, energy density, average power and average power density capabilities of the QE Series detectors. They are engineered to typically transmit 30-50% (@1.064 μm)^a of the incident radiation to the detector in a near Lambertian pattern (very wide diffusion pattern). Their slide-in casing make them easy to install and remove and they are held securely in place with the use of simple set screws. Since they become part of the detector, it is important to understand how they will affect the calibration.

CALIBRATION OPTIONS

When buying a QE detector with a QED attenuator, 4 calibration options are available:

STANDARD CALIBRATION

QE Detector Alone:	Fully calibrated, from 248 - 2500 nm
With QED Attenuator:	Not calibrated (Calibrated by the user)



EXTRA QED CALIBRATION - QED-CAL-1

QE Detector Alone:	Fully calibrated, from 248 - 2500 nm
With QED Attenuator:	Calibrated at one wavelength (532 nm or 1064 nm)



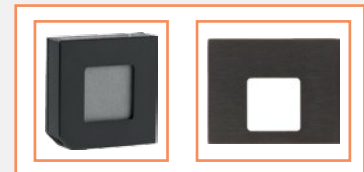
CALIBRATED AS A PAIR (-QED EXTENSION) - QED-CAL-2

QE Detector Alone:	Not calibrated
With QED Attenuator:	Fully calibrated, from 308 - 2100 nm



FULL CALIBRATION - QED-CAL-3

QE Detector Alone:	Fully calibrated, from 248 - 2500 nm
With QED Attenuator:	Fully calibrated, from 308 - 2100 nm (This configuration comes with a DB-15 adaptor for the QED calibration)



SPECIFICATIONS

PHYSICAL CHARACTERISTICS	QED-12	QED-25	QED-50	QED-65	QED-95
Spectral Range*	200 - 2100 nm	200 - 2100 nm	200 - 2100 nm	200 - 2100 nm	200 - 2100 nm
Effective Aperture	9 x 9 mm	22 x 22 mm	47 x 47 mm	62 x 62 mm	90 mm Ø
Dimensions	30.5H x 41W x 12.5D mm	44H x 55W x 12.5D mm	69H x 80W x 12.5D mm	85H x 97W x 12.5D mm	115H x 127W x 12.5D mm
For use with	QE12	QE25	QE50	QE65	QE95

ORDERING INFORMATION^{b,c}

Product Name (QED alone)	QED-12	QED-25	QED-50	QED-65	QED-95
Product Number	201200	201199	201198	201282	201323

a. See the full transmittance curve on page 56.

b. For ordering information about the detectors, check the product pages.

c. Ordering information of the QE-QED kits calibrated as a pair can be found on the individual specifications sheets of the QE products.

* The attenuators are not calibrated below 308 nm

COMPARISON TABLE



All the models are available with INTEGRA all-in-one detector + meter

MODEL	EMAX*	NOISE LEVEL	P _{MAX}	λ _{MIN}	λ _{MAX}	MAX REP RATE	ABSORBER TYPE	APERTURE	SEE PAGE
QE8SP-B-MT	1.3 mJ	50 nJ	500 mW	190 nm	20 μm	1000 Hz	Metallic	7.8 x 7.8 mm	52
QE8SP-B-BL	3.6 mJ	100 nJ	500 mW	190 nm	20 μm	400 Hz	Black	7.8 x 7.8 mm	52
QE12SP-S-MT	700 mJ	800 nJ	3 W	190 nm	20 μm	6000 Hz	Metallic	12 x 12 mm	42
QE12SP-H-MT	700 mJ	800 nJ	5 W	190 nm	20 μm	6000 Hz	Metallic	12 x 12 mm	42
QE12LP-S-MB	850 mJ	700 nJ	3 W	190 nm	20 μm	300 Hz	Broadband	12 x 12 mm	42
QE12LP-H-MB	850 mJ	700 nJ	5 W	190 nm	20 μm	300 Hz	Broadband	12 x 12 mm	42
QE12SP-S-MT + QED-12	1.6 J	25 μJ	7.5 W	308 nm	2.1 μm	6000 Hz	Metallic	9 x 9 mm	42
QE12SP-H-MT + QED-12	1.6 J	25 μJ	12.5 W	308 nm	2.1 μm	6000 Hz	Metallic	9 x 9 mm	42
QE25SP-S-MT	3 J	2 μJ	5 W	190 nm	20 μm	6000 Hz	Metallic	25 x 25 mm	44
QE25SP-H-MT	3 J	2 μJ	10 W	190 nm	20 μm	6000 Hz	Metallic	25 x 25 mm	44
QE25LP-S-MB	3.8 J	4 μJ	5 W	190 nm	20 μm	300 Hz	Broadband	25 x 25 mm	44
QE25LP-H-MB	3.8 J	4 μJ	10 W	190 nm	20 μm	300 Hz	Broadband	25 x 25 mm	44
QE12LP-S-MB + QED-12	3.9 J	3 μJ	7.5 W	308 nm	2.1 μm	300 Hz	Broadband	9 x 9 mm	42
QE12LP-H-MB + QED-12	3.9 J	3 μJ	12.5 W	308 nm	2.1 μm	300 Hz	Broadband	9 x 9 mm	42
QE25SP-S-MT + QED-25	10 J	6 μJ	15 W	308 nm	2.1 μm	6000 Hz	Metallic	22 x 22 mm	44
QE25SP-H-MT + QED-25	10 J	6 μJ	30 W	308 nm	2.1 μm	6000 Hz	Metallic	22 x 22 mm	44
QE50SP-S-MT	13 J	10 μJ	10 W	190 nm	20 μm	4000 Hz	Metallic	50 x 50 mm	46
QE50SP-H-MT	13 J	10 μJ	20 W	190 nm	20 μm	4000 Hz	Metallic	50 x 50 mm	46
QE50LP-S-MB	15 J	10 μJ	10 W	190 nm	20 μm	200 Hz	Broadband	50 x 50 mm	46
QE50LP-H-MB	15 J	10 μJ	20 W	190 nm	20 μm	200 Hz	Broadband	50 x 50 mm	46
QE25LP-S-MB + QED-25	23 J	15 μJ	15 W	308 nm	2.1 μm	300 Hz	Broadband	22 x 22 mm	44
QE25LP-H-MB + QED-25	23 J	15 μJ	30 W	308 nm	2.1 μm	300 Hz	Broadband	22 x 22 mm	44
QE65LP-S-MB	25 J	10 μJ	12 W	190 nm	20 μm	100 Hz	Broadband	65 x 65 mm	48
QE65LP-H-MB	25 J	10 μJ	40 W	190 nm	20 μm	100 Hz	Broadband	65 x 65 mm	48
QE65ELP-S-MB	25 J	20 μJ	12 W	190 nm	20 μm	20 Hz	Broadband	65 x 65 mm	48
QE65ELP-H-MB	25 J	20 μJ	40 W	190 nm	20 μm	20 Hz	Broadband	65 x 65 mm	48
QE95LP-S-MB	35 J	15 μJ	20 W	190 nm	20 μm	40 Hz	Broadband	95 mm Ø	50
QE95LP-H-MB	35 J	15 μJ	40 W	190 nm	20 μm	40 Hz	Broadband	95 mm Ø	50
QE95ELP-S-MB	35 J	30 μJ	20 W	190 nm	20 μm	10 Hz	Broadband	95 mm Ø	50
QE95ELP-H-MB	35 J	30 μJ	40 W	190 nm	20 μm	10 Hz	Broadband	95 mm Ø	50
QE50SP-S-MT + QED-50	44 J	30 μJ	25 W	308 nm	2.1 μm	4000 Hz	Metallic	47 x 47 mm	46
QE50SP-H-MT + QED-50	44 J	30 μJ	45 W	308 nm	2.1 μm	4000 Hz	Metallic	47 x 47 mm	46
QE50LP-S-MB + QED-50	85 J	30 μJ	25 W	308 nm	2.1 μm	200 Hz	Broadband	47 x 47 mm	46
QE50LP-H-MB + QED-50	85 J	30 μJ	45 W	308 nm	2.1 μm	200 Hz	Broadband	47 x 47 mm	46
QE65LP-S-MB + QED-65	125 J	30 μJ	30 W	308 nm	2.1 μm	100 Hz	Broadband	62 x 62 mm	48
QE65LP-H-MB + QED-65	125 J	30 μJ	90 W	308 nm	2.1 μm	100 Hz	Broadband	62 x 62 mm	48
QE95LP-S-MB + QED-95	150 J	45 μJ	45 W	308 nm	2.1 μm	40 Hz	Broadband	90 mm Ø	50
QE95LP-H-MB + QED-95	150 J	45 μJ	90 W	308 nm	2.1 μm	40 Hz	Broadband	90 mm Ø	50

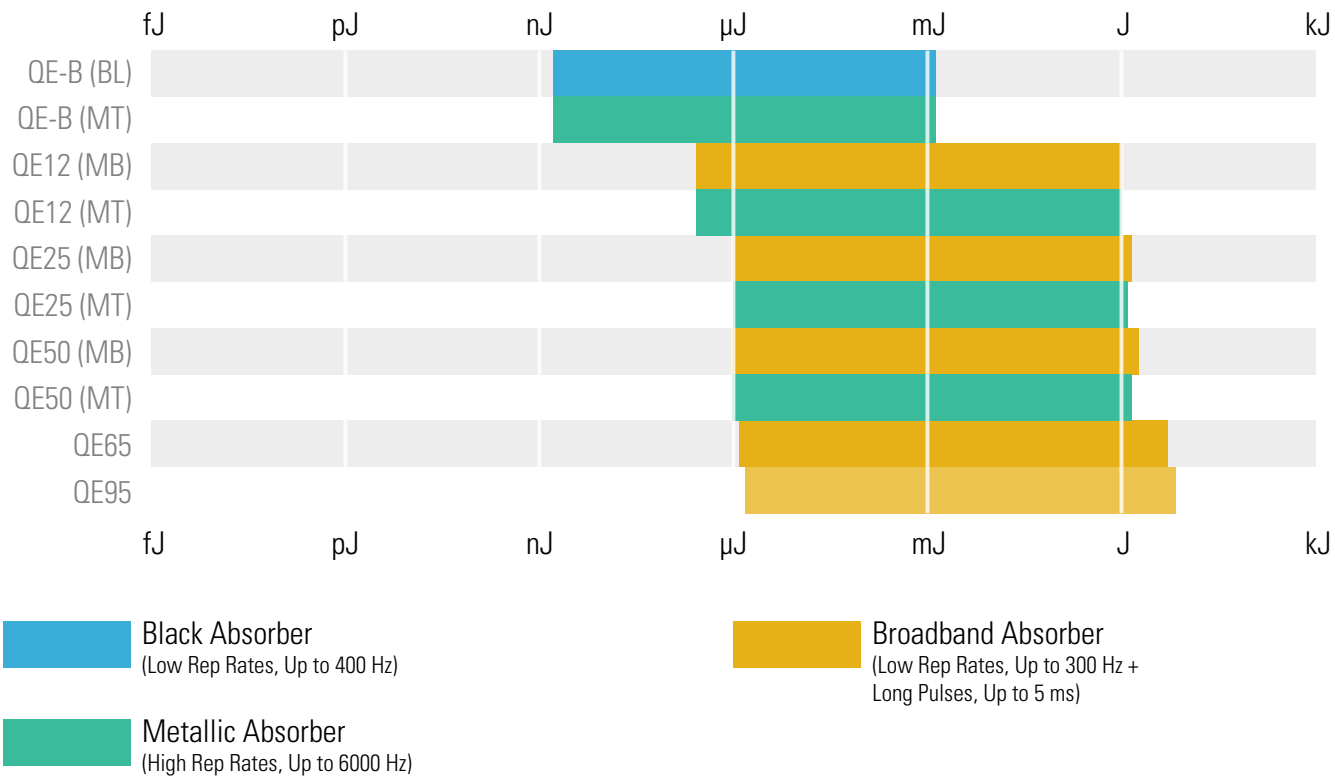
* at 1064 nm, 7 ns, 10 Hz

COMPARISON TABLE

ENERGY RANGES

You can use the graph below to compare the energy ranges of our pyroelectric energy detectors. Ranges go from the noise level to the maximum energy reading (including attenuator when available).

Table 1.
Comparison of the energy ranges of the pyroelectric energy detectors





QE12

12 x 12 mm, 0.7 μ J - 3.9 J



KEY FEATURES

- 1. MODULAR CONCEPT**
Increase the power capability of your detector:
2 different cooling modules
- 2. LOW NOISE LEVEL**
0.7 μ J for the MB coating
- 3. QED ATTENUATOR AVAILABLE**
 - Measure up to 5X higher energies
 - Available with optional calibration, all wavelengths between 532 & 1064 nm, or single wavelength
- 4. AVAILABLE WITH METALLIC ABSORBER**
High Repetition Rate (6000 Hz)
- 5. TEST TARGET INCLUDED**
With the MB models
- 6. SMART INTERFACE**
Containing all the calibration data
- 7. *integra* OPTIONS**
 - Standard: USB Output (-INT)
 - In Option: RS-232 Output (-IDR) and External Trigger (-INE)

AVAILABLE MODELS



QE12LP-S-MB
(Broadband-Convection)



QE12LP-H-MB
(Broadband-Heatsink)



QE12SP-S-MT
(Metallic-Convection)



QE12SP-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

SEE ALSO

HOW IT WORKS	12
CALIBRATION	6
TECHNICAL DRAWINGS	54
ABSORPTION CURVES	56
QED ATTENUATOR	39
COMPATIBLE MONITORS	
MAESTRO	20
S-LINK	28
M-LINK	32
LIST OF ALL ACCESSORIES	188

APPLICATION NOTE
LONG PULSE JOULEMETER
IN BURST MODE

QE12

SPECIFICATIONS

	QE12LP-S-MB		QE12LP-H-MB		QE12SP-S-MT		QE12SP-H-MT	
MAX MEASURABLE ENERGY (WITH ATTENUATOR)	3.9 J		3.9 J		1.6 J		1.6 J	
MAX REPETITION FREQUENCY	300 Hz		300 Hz		6000 Hz		6000 Hz	
EFFECTIVE APERTURE	12 x 12 mm		12 x 12 mm		12 x 12 mm		12 x 12 mm	
MEASUREMENT CAPABILITY								
Spectral Range *	Alone	Attenuator	Alone	Attenuator	Alone	Attenuator	Alone	Attenuator
	0.19 – 20 μm	0.3 - 2.1 μm	0.19 – 20 μm	0.3 - 2.1 μm	0.19 – 20 μm ^a	0.3 - 2.1 μm	0.19 – 20 μm ^a	0.3 - 2.1 μm
Maximum Measurable Energy ^b	Alone	Attenuator	Alone	Attenuator	Alone	Attenuator	Alone	Attenuator
1064 nm, 7 ns, 10 Hz ^c	0.85 J	3.9 J	0.85 J	3.9 J	0.70 J	1.60 J	0.70 J	1.60 J
266 nm, 7 ns, 10 Hz	0.70 J	0.81 J	0.70 J	0.81 J	0.10 J	0.25 J	0.10 J	0.25 J
Noise Equivalent Energy ^d	0.7 μJ		0.7 μJ		0.8 μJ		0.8 μJ	
Sensitivity ^{e, f}	60 V/J		60 V/J		100 V/J		100 V/J	
Max Repetition Frequency	300 Hz		300 Hz		6000 Hz ^g		6000 Hz ^g	
Maximum Pulse Width (typical)	400 μs ^{**}		400 μs ^{**}		10 μs		10 μs	
Rise Time (typical 0-100 %)	550 μs		550 μs		20 μs		20 μs	
Calibration Uncertainty ^h	±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	3 W	7.5 W	5 W	12.5 W	3 W	7.5 W	5 W	12.5 W
Maximum Energy Density	Alone	Attenuator	Alone	Attenuator	Alone	Attenuator	Alone	Attenuator
1064 nm, 7 ns, single shot	0.6 J/cm ²	16 J/cm ²	0.6 J/cm ²	16 J/cm ²	0.50 J/cm ²	4 J/cm ²	0.50 J/cm ²	4 J/cm ²
1064 nm, 7 ns, 10 Hz	0.6 J/cm ²	8 J/cm ²	0.6 J/cm ²	8 J/cm ²	0.50 J/cm ²	2 J/cm ²	0.50 J/cm ²	2 J/cm ²
532 nm, 7 ns, 10 Hz	0.6 J/cm ²	6 J/cm ²	0.6 J/cm ²	6 J/cm ²	0.07 J/cm ²	0.35 J/cm ²	0.07 J/cm ²	0.35 J/cm ²
266 nm, 7 ns, 10 Hz	0.5 J/cm ²	1 J/cm ²	0.5 J/cm ²	1 J/cm ²	0.07 J/cm ²	0.30 J/cm ²	0.07 J/cm ²	0.30 J/cm ²
Maximum Average Power Density	10 W/cm ²	600 W/cm ²	10 W/cm ² ⁱ	600 W/cm ²	10 W/cm ²	600 W/cm ²	10 W/cm ² ⁱ	600 W/cm ²
PHYSICAL CHARACTERISTICS								
Effective Aperture (with Attenuator)	12 X 12 mm (9 X 9 mm)							
Absorber	Multi-Band		Multi-Band		Metallic		Metallic	
Dimensions	36H x 36W x 14D mm		36H x 36W x 33D mm		36H x 36W x 14D mm		36H x 36W x 33D mm	
Weight	87 g		117 g		87 g		117 g	
ORDERING INFORMATION								
Product Name	QE12LP-S-MB	QE12LP-S-MB-QED	QE12LP-H-MB	QE12LP-H-MB-QED	QE12SP-S-MT	Call	QE12SP-H-MT	Call
Product Number (Including stand)	200508	202180	200510	202181	200511		200512	
 Add Extension for INTEGRA (USB)	-INT	-INT	-INT	-INT	-INT	Call	-INT	Call
Product Number (Including stand)	202723	202725	202719	202721	202729		202727	
 Add Extension for INTEGRA (RS-232)	-IDR	-IDR	-IDR	-IDR	-IDR		-IDR	
 Add Extension for INTEGRA (Ext Trig)	-INE	-INE	-INE	-INE	-INE		-INE	

Specifications are subject to change without notice

* * Also available on special order: The Extra Long Pulse Series QE12ELP-MB for pulse widths up to 2 msec, custom-tuned for rep. rate, sensitivity, and pulse width.

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

a. 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.

b. Not exceeding Maximum Average Power.

c. Increasing pulse width increases the maximum measurable energy.

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

e. Load: 1 MΩ and ≤ 30 pF.

f. Maximum output voltage = sensitivity x maximum energy.

g. 5700 Hz with Integra version and up to 9000 Hz in option.

h. Excludes non-linearities.

i. At 3 W. Maximum Average Power Density is 10 W/cm² @ 5 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.



QE25

25 x 25 mm, 2 μ J - 23 J

KEY FEATURES

- MODULAR CONCEPT**
Increase the power capability of your detector:
2 different cooling modules
- LOW NOISE LEVEL**
2 μ J for the MT coating
- 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: 300 Hz (Standard)
 - QE-MB: 1 000 Hz (Upon Request)
 - QE-MT: 6 000 Hz (Standard)
- TEST TARGET INCLUDED**
With the MB models
- SMART INTERFACE**
Containing all the calibration data
- integra OPTIONS**
 - Standard: USB Output (-INT)
 - In Option: RS-232 Output (-IDR) and External Trigger (-INE)

AVAILABLE MODELS



QE25LP-S-MB
(Broadband-Convection)



QE25LP-H-MB
(Broadband-Heatsink)



QE25SP-S-MT
(Metallic-Convection)



QE25SP-H-MT
(Metallic-Heatsink)

ACCESSORIES



Stand with Delrin Post
(Model Number: 200428)



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



QED-25 Attenuator
(Model Number: 201199)



Pelican Carrying Case

SEE ALSO

HOW IT WORKS	12
CALIBRATION	6
TECHNICAL DRAWINGS	54
ABSORPTION CURVES	56
QED ATTENUATOR	39
COMPATIBLE MONITORS	
MAESTRO	20
S-LINK	28
M-LINK	32
LIST OF ALL ACCESSORIES	188
APPLICATION NOTES	
LONG PULSE JOULEMETER	
IN BURST MODE	202153

QE25

SPECIFICATIONS

	QE25LP-S-MB		QE25LP-H-MB		QE25SP-S-MT		QE25SP-H-MT	
MAX MEASURABLE ENERGY (WITH ATTENUATOR)	23 J		23 J		10 J		10 J	
MAX REPETITION FREQUENCY	300 Hz		300 Hz		6000 Hz		6000 Hz	
EFFECTIVE APERTURE	25 x 25 mm		25 x 25 mm		25 x 25 mm		25 x 25 mm	
MEASUREMENT CAPABILITY								
Spectral Range *	Alone	Attenuator	Alone	Attenuator	Alone	Attenuator	Alone	Attenuator
	0.19–20 μm	0.3- 2.1 μm ^a	0.19–20 μm	0.3- 2.1 μm ^a	0.19–20 μm ^b	0.3- 2.1 μm ^a	0.19–20 μm ^b	0.3- 2.1 μm ^a
Maximum Measurable Energy ^c	Alone	Attenuator	Alone	Attenuator	Alone	Attenuator	Alone	Attenuator
1064 nm, 7 ns, 10 Hz ^d	3.8 J	23 J	3.8 J	23 J	3.0 J	10 J	3.0 J	10 J
266 nm, 7 ns, 10 Hz	3.1 J	4.8 J	3.1 J	4.8 J	0.44 J	1.45 J	0.44 J	1.45 J
Noise Equivalent Energy ^e	4 μJ		4 μJ		2 μJ		2 μJ	
Sensitivity ^{f, g}	10 V/J		10 V/J		20 V/J		20 V/J	
Max Repetition Frequency	300 Hz (1000 Hz in option)		300 Hz (1000 Hz in option)		6000 Hz ^h		6000 Hz ^h	
Maximum Pulse Width (typical)	400 μs ^{**}		400 μs ^{**}		10 μs		10 μs	
Rise Time (typical 0-100 %)	550 μs		550 μs		20 μs		20 μs	
Calibration Uncertainty ⁱ	±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	5 W	15 W	10 W	30 W	5 W	15 W	10 W	30 W
Maximum Energy Density	Alone	Attenuator	Alone	Attenuator	Alone	Attenuator	Alone	Attenuator
1064 nm, 7 ns, single shot	0.6 J/cm ²	16 J/cm ²	0.6 J/cm ²	16 J/cm ²	0.50 J/cm ²	4 J/cm ²	0.50 J/cm ²	4 J/cm ²
1064 nm, 7 ns, 10 Hz	0.6 J/cm ²	8 J/cm ²	0.6 J/cm ²	8 J/cm ²	0.50 J/cm ²	2 J/cm ²	0.50 J/cm ²	2 J/cm ²
532 nm, 7 ns, 10 Hz	0.6 J/cm ²	6 J/cm ²	0.6 J/cm ²	6 J/cm ²	0.07 J/cm ²	0.35 J/cm ²	0.07 J/cm ²	0.35 J/cm ²
266 nm, 7 ns, 10 Hz	0.5 J/cm ²	1 J/cm ²	0.5 J/cm ²	1 J/cm ²	0.07 J/cm ²	0.30 J/cm ²	0.07 J/cm ²	0.30 J/cm ²
Maximum Average Power Density	10 W/cm ²	600 W/cm ²	10 W/cm ² ⁱ	600 W/cm ²	10 W/cm ²	600 W/cm ²	10 W/cm ² ⁱ	600 W/cm ²
PHYSICAL CHARACTERISTICS								
Effective Aperture (with Attenuator)	25 X 25 mm (22 X 22 mm)							
Absorber	Multi-Band		Multi-Band		Metallic		Metallic	
Dimensions	50H x 50W x 14D mm		50H x 50W x 52.5D mm		50H x 50W x 14D mm		50H x 50W x 52.5D mm	
Weight	120 g		187 g		120 g		187 g	
ORDERING INFORMATION								
Product Name	QE25LP-S-MB	QE25LP-S-MB-QED	QE25LP-H-MB	QE25LP-H-MB-QED	QE25SP-S-MT	Call	QE25SP-H-MT	Call
Product Number (Including stand)	200312	202184	200313	202185	200310		200311	
 Add Extension for INTEGRA (USB)	-INT	-INT	-INT	-INT	-INT	Call	-INT	Call
Product Number (Including stand)	202380	202739	202382	202733	202384		202386	
 Add Extension for INTEGRA (RS-232)	-IDR	-IDR	-IDR	-IDR	-IDR		-IDR	
 Add Extension for INTEGRA (Ext Trig)	-INE	-INE	-INE	-INE	-INE		-INE	

Specifications are subject to change without notice

* * Also available on special order: The Extra Long Pulse Series QE25ELP-MB for pulse widths up to 4 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. 5700 Hz with Integra version.

i. Excludes non-linearities.

j. At 5 W. Maximum Average Power Density is 10 W/cm² @ 10 W for -H versions.

k. 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.



QE50

50 x 50 mm, 10 μ J - 85 J



KEY FEATURES

- MODULAR CONCEPT**
Increase the power capability of your detector:
2 different cooling modules
- LOW NOISE LEVEL**
10 μ 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
- integra OPTIONS**
 - Standard: USB Output (-INT)
 - In Option: RS-232 Output (-IDR) and External Trigger (-INE)

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

HOW IT WORKS	12
CALIBRATION	6
TECHNICAL DRAWINGS	54
ABSORPTION CURVES	56
QED ATTENUATOR	39
COMPATIBLE MONITORS	
MAESTRO	20
S-LINK	28
M-LINK	32
LIST OF ALL ACCESSORIES	188
APPLICATION NOTES	
LONG PULSE JOULEMETER IN BURST MODE	202153

QE50



SPECIFICATIONS

	QE50LP-S-MB		QE50LP-H-MB		QE50SP-S-MT		QE50SP-H-MT	
MAX MEASURABLE ENERGY (WITH ATTENUATOR)	85 J		85 J		44 J		44 J	
MAX REPETITION FREQUENCY	200 Hz		200 Hz		4000 Hz		4000 Hz	
EFFECTIVE APERTURE	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 ^a	0.19 – 20 µm	0.3 - 2.1 µm ^a	0.19 – 20 µm ^b	0.3 - 2.1 µm ^a	0.19 – 20 µm ^b	0.3 - 2.1 µm ^a
Maximum Measurable Energy ^c	Alone	Attenuator	Alone	Attenuator	Alone	Attenuator	Alone	Attenuator
1064 nm, 7 ns, 10 Hz ^d	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 ^e	10 µJ		10 µJ		10 µJ		10 µJ	
Sensitivity ^{f, g}	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 ^h	±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 ²	16 J/cm ²	0.6 J/cm ²	16 J/cm ²	0.50 J/cm ²	4 J/cm ²	0.50 J/cm ²	4 J/cm ²
1064 nm, 7 ns, 10 Hz	0.6 J/cm ²	8 J/cm ²	0.6 J/cm ²	8 J/cm ²	0.50 J/cm ²	2 J/cm ²	0.50 J/cm ²	2 J/cm ²
532 nm, 7 ns, 10 Hz	0.6 J/cm ²	6 J/cm ²	0.6 J/cm ²	6 J/cm ²	0.07 J/cm ²	0.35 J/cm ²	0.07 J/cm ²	0.35 J/cm ²
266 nm, 7 ns, 10 Hz	0.5 J/cm ²	1 J/cm ²	0.5 J/cm ²	1 J/cm ²	0.07 J/cm ²	0.30 J/cm ²	0.07 J/cm ²	0.30 J/cm ²
Maximum Average Power Density	10 W/cm ²	600 W/cm ²	10 W/cm ² ⁱ	600 W/cm ²	10 W/cm ²	600 W/cm ²	10 W/cm ² ⁱ	600 W/cm ²
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								
Product Name	Standard	With Attenuator ^j	Standard	With Attenuator ^j	Standard	With Attenuator ^j	Standard	With Attenuator ^j
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 (USB)	-INT	-INT	-INT	-INT	-INT	Call	-INT	Call
Product Number (Including stand)	202749	202751	202745	202747	202755		202753	
 Add Extension for INTEGRA (RS-232)	-IDR	-IDR	-IDR	-IDR	-IDR		-IDR	
 Add Extension for INTEGRA (Ext Trig)	-INE	-INE	-INE	-INE	-INE		-INE	

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/cm² @ 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.



QE65

65 x 65 mm, 10 μ J - 200 J

KEY FEATURES

- MODULAR CONCEPT**
Increase the power capability of your detector:
2 different cooling modules
- LARGE APERTURE**
Effective aperture of 65 x 65 mm
- QED ATTENUATOR AVAILABLE**
 - Measure up to 5X higher energies
 - Available with optional calibration, all wavelengths between 532 & 1064 nm, or single wavelength
- LOW NOISE LEVEL**
10 μ J for the MB coating
- TEST TARGET INCLUDED**
With the MB models
- SMART INTERFACE**
Containing all the calibration data
- integra OPTIONS**
 - Standard: USB Output (-INT)
 - In Option: RS-232 Output (-IDR) and External Trigger (-INE)

AVAILABLE MODELS



QE65LP-S-MB
(Broadband-Convection)



QE65LP-H-MB
(Broadband-Heatsink)



QE65ELP-S-MB
(XLong Pulse-Convection)



QE65ELP-H-MB
(XLong Pulse-Heatsink)

ACCESSORIES



Stand with Delrin Post
(200428, For -S Model)



Stand with Delrin Post
(201284, For -H Model)



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



QED-65 Attenuator
(Model Number: 201282)



Pelican Carrying Case

SEE ALSO

HOW IT WORKS	12
CALIBRATION	6
TECHNICAL DRAWINGS	54
ABSORPTION CURVES	56
QED ATTENUATOR	39
COMPATIBLE MONITORS	
MAESTRO	20
S-LINK	28
M-LINK	32
LIST OF ALL ACCESSORIES	188
APPLICATION NOTE	
LONG PULSE JOULEMETER	
IN BURST MODE	202153

QE65



SPECIFICATIONS

	QE65LP-S-MB		QE65LP-H-MB		QE65ELP-S-MB		QE65ELP-H-MB	
MAX MEASURABLE ENERGY (WITH ATTENUATOR)	200 J		200 J		200 J		200 J	
MAX REPETITION FREQUENCY	100 Hz		100 Hz		20 Hz		20 Hz	
EFFECTIVE APERTURE	65 x 65 mm		65 x 65 mm		65 x 65 mm		65 x 65 mm	
MEASUREMENT CAPABILITY								
Spectral Range *	Alone	Attenuator	Alone	Attenuator	Alone	Attenuator	Alone	Attenuator
	0.19 – 20 μm	0.3 - 2.1 μm	0.19 – 20 μm	0.3 - 2.1 μm	0.19 – 20 μm	0.3 - 2.1 μm	0.19 – 20 μm	0.3 - 2.1 μm
Maximum Measurable Energy ^{a, b}	Alone	Attenuator	Alone	Attenuator	Alone	Attenuator	Alone	Attenuator
1064 nm, 150 μs pulse, Single shot ^c	25 J	200 J	25 J	200 J	50 J	200 J	50 J	200 J
1064 nm, 7 ns, 10 Hz	25 J	125 J	25 J	125 J	25 J	125 J	25 J	125 J
266 nm, 7 ns, 10 Hz	20 J	35 J	20 J	35 J	20 J	35 J	20 J	35 J
Noise Equivalent Energy ^d	10 μJ		10 μJ		20 μJ		20 μJ	
Sensitivity ^{e, f}	4 V/J		4 V/J		1.5 V/J		1.5 V/J	
Max Repetition Frequency	100 Hz		100 Hz		20 Hz		20 Hz	
Maximum Pulse Width (typical)	0.7 ms		0.7 ms		5 ms		5 ms	
Rise Time (typical 0-100 %)	1 ms		1 ms		6 ms		6 ms	
Calibration Uncertainty ^g	±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	12 W	30 W	40 W	90 W	12 W	30 W	40 W	90 W
Maximum Energy Density	Alone	Attenuator	Alone	Attenuator	Alone	Attenuator	Alone	Attenuator
1064 nm, 150 μs, 10 Hz	1.2 J/cm ²	14 J/cm ²	1.2 J/cm ²	14 J/cm ²	1.2 J/cm ²	14 J/cm ²	1.2 J/cm ²	14 J/cm ²
1064 nm, 7 ns, single shot	0.6 J/cm ²	16 J/cm ²	0.6 J/cm ²	16 J/cm ²	0.6 J/cm ²	16 J/cm ²	0.6 J/cm ²	16 J/cm ²
1064 nm, 7 ns, 10 Hz	0.6 J/cm ²	8 J/cm ²	0.6 J/cm ²	8 J/cm ²	0.6 J/cm ²	8 J/cm ²	0.6 J/cm ²	8 J/cm ²
532 nm, 7 ns, 10 Hz	0.6 J/cm ²	6 J/cm ²	0.6 J/cm ²	6 J/cm ²	0.6 J/cm ²	6 J/cm ²	0.6 J/cm ²	6 J/cm ²
266 nm, 7 ns, 10 Hz	0.5 J/cm ²	1 J/cm ²	0.5 J/cm ²	1 J/cm ²	0.5 J/cm ²	1 J/cm ²	0.5 J/cm ²	1 J/cm ²
Maximum Average Power Density (@12 W)	10 W/cm ²	600 W/cm ²	10 W/cm ² ^h	600 W/cm ²	10 W/cm ²	600 W/cm ²	10 W/cm ² ^h	600 W/cm ²
PHYSICAL CHARACTERISTICS								
Effective Aperture (with Attenuator)	65 X 65 mm (62 X 62 mm)							
Absorber	Multi-Band		Multi-Band		Multi-Band		Multi-Band	
Dimensions	90H x 90W x 20D mm		90H x 90W x 94D mm		90H x 90W x 20D mm		90H x 90W x 94D mm	
Weight	440 g		900 g		440 g		900 g	
ORDERING INFORMATION								
Product Name	Standard	With Attenuator ⁱ	Standard	With Attenuator ⁱ	Standard	With Attenuator ⁱ	Standard	With Attenuator ⁱ
Product Name	QE65LP-S-MB	QE65LP-S-MB-QED	QE65LP-H-MB	QE65LP-H-MB-QED	QE65ELP-S-MB	QE65ELP-S-MB-QED	QE65ELP-H-MB	QE65ELP-H-MB-QED
Product Number (Including stand)	201255	202192	201256	202193	201324	202759	201325	202757
 Add Extension for INTEGRA (USB)	-INT	-INT	-INT	-INT	-INT	-INT	-INT	-INT
Product Number (Including stand)	202765		202761	202763	202759		202757	
 Add Extension for INTEGRA (RS-232)	-IDR	-IDR	-IDR	-IDR	-IDR	-IDR	-IDR	-IDR
 Add Extension for INTEGRA (Ext Trig)	-INE	-INE	-INE	-INE	-INE	-INE	-INE	-INE

Specifications are subject to change without notice

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

a. Not exceeding Maximum Average Power.

b. Maximum measurable energy depends on the monitor.

c. Increasing pulse width increases the maximum measurable energy.

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

e. Load: 1 MΩ and ≤ 30 pF.

f. Maximum output voltage = sensitivity x maximum energy.

g. Excludes non-linearities.

h. At 12 W. Maximum Average Power Density is 5 W/cm² @ 40 W.

i. 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.



QE95

95 mm Ø, 15 µJ - 250 J



KEY FEATURES

- MODULAR CONCEPT**
Increase the power capability of your detector:
2 different cooling modules
- EXTRA LARGE APERTURE**
Effective aperture of 95 mm Ø
- QED ATTENUATOR AVAILABLE**
 - Measure up to 5X higher energies
 - Available with optional calibration, all wavelengths between 532 & 1064 nm, or single wavelength
- LOW NOISE LEVEL**
15 µJ for the MB coating
- TEST TARGET INCLUDED**
With the MB models
- SMART INTERFACE**
Containing all the calibration data
- integra OPTIONS**
 - Standard: USB Output (-INT)
 - In Option: RS-232 Output (-IDR) and External Trigger (-INE)

AVAILABLE MODELS



QE95LP-S-MB
(Broadband-Convection)



QE95LP-H-MB
(Broadband-Heatsink)



QE95ELP-S-MB
(Long Pulse-Convection)



QE95ELP-H-MB
(Long Pulse-Heatsink)

ACCESSORIES



Stand with Delrin Post
(200428, For -S Model)



Stand with Delrin Post
(201284, For -H Model)



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



QED-95 Attenuator
(Model Number: 201323)



Pelican Carrying Case

SEE ALSO

HOW IT WORKS	12
CALIBRATION	6
TECHNICAL DRAWINGS	54
ABSORPTION CURVES	56
QED ATTENUATOR	39
COMPATIBLE MONITORS	
MAESTRO	20
S-LINK	28
M-LINK	32
LIST OF ALL ACCESSORIES	188

APPLICATION NOTE

LONG PULSE JOULEMETER
IN BURST MODE

202153

QE95



SPECIFICATIONS

	QE95LP-S-MB		QE95LP-H-MB		QE95ELP-S-MB		QE95ELP-H-MB	
MAX MEASURABLE ENERGY (WITH ATTENUATOR)	250 J		250 J		250 J		250 J	
MAX REPETITION FREQUENCY	40 Hz		40 Hz		10 Hz		10 Hz	
EFFECTIVE APERTURE	95 mm Ø		95 mm Ø		95 mm Ø		95 mm Ø	
MEASUREMENT CAPABILITY								
Spectral Range *	Alone	Attenuator	Alone	Attenuator	Alone	Attenuator	Alone	Attenuator
	0.19 – 20 µm	0.3 - 2.1 µm	0.19 – 20 µm	0.3 - 2.1 µm	0.19 – 20 µm	0.3 - 2.1 µm	0.19 – 20 µm	0.3 - 2.1 µm
Maximum Measurable Energy ^{a, b}	Alone	Attenuator	Alone	Attenuator	Alone	Attenuator	Alone	Attenuator
1064 nm, 150 µs pulse, Single shot ^c	35 J	250 J	35 J	250 J	70 J	250 J	70 J	250 J
1064 nm, 7 ns, 10 Hz	35 J	150 J	35 J	150 J	35 J	150 J	35 J	150 J
266 nm, 7 ns, 10 Hz	30 J	50 J	30 J	50 J	30 J	50 J	30 J	50 J
Noise Equivalent Energy ^d	15 µJ		15 µJ		30 µJ		30 µJ	
Sensitivity ^{e, f}	2 V/J		2 V/J		0.6 V/J		0.6 V/J	
Max Repetition Frequency	40 Hz		40 Hz		10 Hz		10 Hz	
Maximum Pulse Width (typical)	1.5 ms		1.5 ms		5 ms		5 ms	
Rise Time (typical 0-100 %)	2 ms		2 ms		6 ms		6 ms	
Calibration Uncertainty ^g	±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	20 W	45 W	40 W	90 W	20 W	45 W	40 W	90 W
Maximum Energy Density	Alone	Attenuator	Alone	Attenuator	Alone	Attenuator	Alone	Attenuator
1064 nm, 150 µs, 10 Hz	1.2 J/cm²	14 J/cm²	1.2 J/cm²	14 J/cm²	1.2 J/cm²	14 J/cm²	1.2 J/cm²	14 J/cm²
1064 nm, 7 ns, single shot	0.6 J/cm²	16 J/cm²	0.6 J/cm²	16 J/cm²	0.6 J/cm²	16 J/cm²	0.6 J/cm²	16 J/cm²
1064 nm, 7 ns, 10 Hz	0.6 J/cm²	8 J/cm²	0.6 J/cm²	8 J/cm²	0.6 J/cm²	8 J/cm²	0.6 J/cm²	8 J/cm²
532 nm, 7 ns, 10 Hz	0.6 J/cm²	6 J/cm²	0.6 J/cm²	6 J/cm²	0.6 J/cm²	6 J/cm²	0.6 J/cm²	6 J/cm²
266 nm, 7 ns, 10 Hz	0.5 J/cm²	1 J/cm²	0.5 J/cm²	1 J/cm²	0.5 J/cm²	1 J/cm²	0.5 J/cm²	1 J/cm²
Maximum Average Power Density (@12 W)	10 W/cm²	600 W/cm²	10 W/cm² ^h	600 W/cm²	10 W/cm²	600 W/cm²	10 W/cm² ^h	600 W/cm²
PHYSICAL CHARACTERISTICS								
Effective Aperture (with Attenuator)	95 mm Ø (90 mm Ø)							
Absorber	Multi-Band		Multi-Band		Multi-Band		Multi-Band	
Dimensions	122H x 122W x 20D mm		122H x 122W x 98D mm		122H x 122W x 20D mm		122H x 122W x 98D mm	
Weight	0.78 kg		1.2 kg		0.78 kg		1.2 kg	
ORDERING INFORMATION								
Product Name	Standard	With Attenuator ⁱ	Standard	With Attenuator ⁱ	Standard	Standard		
Product Name	QE95LP-S-MB	QE95LP-S-MB-QED	QE95LP-H-MB	QE95LP-H-MB-QED	QE95ELP-S-MB	QE95ELP-H-MB		
Product Number (Including stand)	201315	202196	201316	202197	201317	201318		
 Add Extension for INTEGRA (USB)	-INT	-INT	-INT	-INT	-INT	-INT		
Product Number (Including stand)	202777	202779	202773	202775	202771	202769		
 Add Extension for INTEGRA (RS-232)	-IDR	-IDR	-IDR	-IDR	-IDR	-IDR		
 Add Extension for INTEGRA (Ext Trig)	-INE	-INE	-INE	-INE	-INE	-INE		

Specifications are subject to change without notice

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

a. Not exceeding Maximum Average Power.

b. maximum depends on monitor.

c. Increasing pulse width increases the maximum measurable energy.

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

e. Load: 1 MΩ and ≤ 30 pF.

f. Maximum output voltage = sensitivity x maximum energy.

g. Excludes non-linearities.

h. At 12 W. Maximum Average Power Density is 5 W/cm² @ 40 W

i. 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.



QE-B

50 nJ - 3.6 mJ, Ultra-Low Energy Measurements



KEY FEATURES

- 1. VERY LOW NOISE LEVELS**
Noise levels of a photo detector, but with the high energies of a pyroelectric:
 - 50 nJ with the MT coating
 - 100 nJ with the BL coating
- 2. 2 COATINGS AVAILABLE**
 - BL: Black coating, sensitivity of 900 V/J, readings up to 400 Hz
 - MT: Metallic coating, sensitivity of 2400 V/J, readings up to 1000 Hz
- 3. SMART INTERFACE**
Containing all the calibration data
- 4.  integra OPTIONS**
 - Standard: USB Output (-INT)
 - In Option: RS-232 Output (-IDR) and External Trigger (-INE)

AVAILABLE MODELS



QE8SP-B-BL
(8 mm-Organic Black)



QE8SP-B-MT
(8 mm-Metallic)

ACCESSORIES



Stand with Delrin Post
(Model Number: 200428)



APM Analog Power Supply
(Model Number: 201848)



Pelican Carrying Case

SEE ALSO

TECHNICAL DRAWINGS	54
ABSORPTION CURVES	56
COMPATIBLE MONITORS	
MAESTRO	20
S-LINK	28
M-LINK	32
LIST OF ALL ACCESSORIES	188

APPLICATION NOTES	
MEASUREMENT LIMITS	
USING JOULEMETERS	201932
LONG PULSE JOULEMETER	
IN BURST MODE	202153

This product cannot be used with DB-15 extension cables

QE-B

SPECIFICATIONS

	QE8SP-B-BL	QE8SP-B-MT
MAX MEASURABLE ENERGY	3.6 mJ	1.3 mJ
MAX REPETITION FREQUENCY	400 Hz	1 000 Hz
EFFECTIVE APERTURE	7.8 X 7.8 mm	7.8 X 7.8 mm
MEASUREMENT CAPABILITY		
Spectral Range *	0.19 - 20 μ m	0.19 - 20 μ m
Max Measurable Energy		
With M-LINK	3.6 mJ	1.3 mJ
With S-LINK	2.9 mJ	1.1 mJ
With MAESTRO	2.5 mJ	0.93 mJ
Noise Equivalent Energy		
With M-LINK (with noise suppression) ^a	100 nJ	50 nJ (3 nJ)
With S-LINK	100 nJ	50 nJ
With MAESTRO	150 nJ	80 nJ
Sensitivity	900 V/J	2400 V/J
Max Repetition Frequency	400 Hz	1000 Hz
Max Pulse Width	10 μ s	10 μ s
Rise Time (0-100%)	30 μ s	30 μ s
Calibration Uncertainty	$\pm$ 4.0%	$\pm$ 4.0%
Repeatability	<0.5 %	<0.5 %
DAMAGE THRESHOLDS		
Maximum Average Power	0.5 W	0.5 W
Maximum Average Power Density		
1064 nm, 7 ns, 10 Hz	1 W/cm ²	1 W/cm ²
Maximum Energy Density		
1064 nm, 7 ns, 10 Hz	50 mJ/cm ²	50 mJ/cm ²
PHYSICAL CHARACTERISTICS		
Effective Aperture	7.8 x 7.8 mm	7.8 x 7.8 mm
Absorber	Organic Black	Metallic
Dimensions	38.1 $\varnothing$ X 27.4D mm	38.1 $\varnothing$ X 27.4D mm
Weight	91 g	91 g
ORDERING INFORMATION		
Product Name	QE8SP-B-BL	QE8SP-B-MT
Product Number (Including stand)	202104	202101
 Add Extension for INTEGRA (USB)	-INT	-INT
Product Number (Including stand)	202388	202390
 Add Extension for INTEGRA (RS-232)	-IDR	-IDR
 Add Extension for INTEGRA (Ext Trig)	-INE	-INE

Specifications are subject to change without notice

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

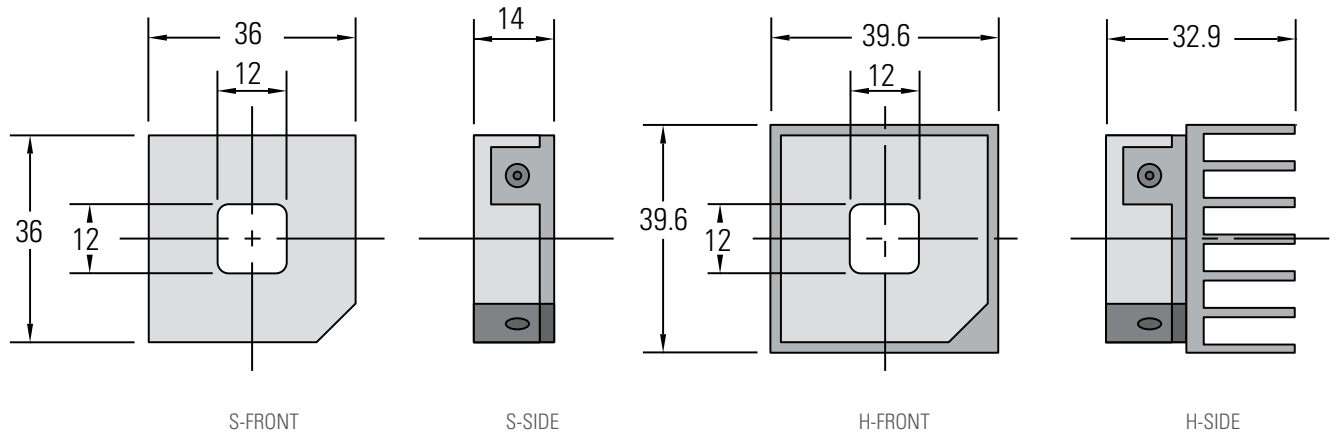
a. Obtain a lower noise level using the Noise Suppression function in the PC M-LINK application. Setting the sampling size at 128 will get the lowest noise level possible.

* For details, contact your Gentec-EO representative

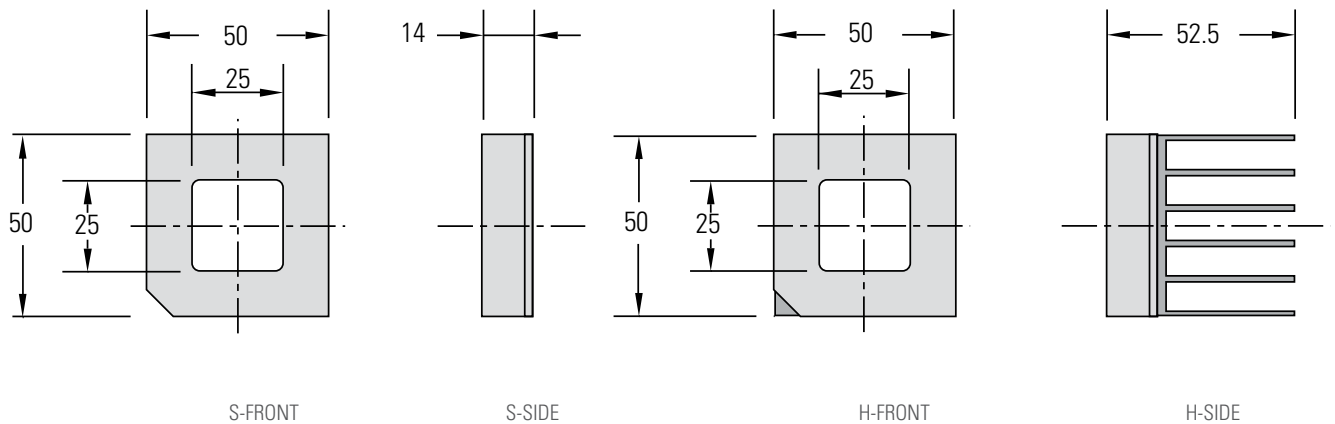
TECHNICAL DRAWINGS

All dimensions in mm

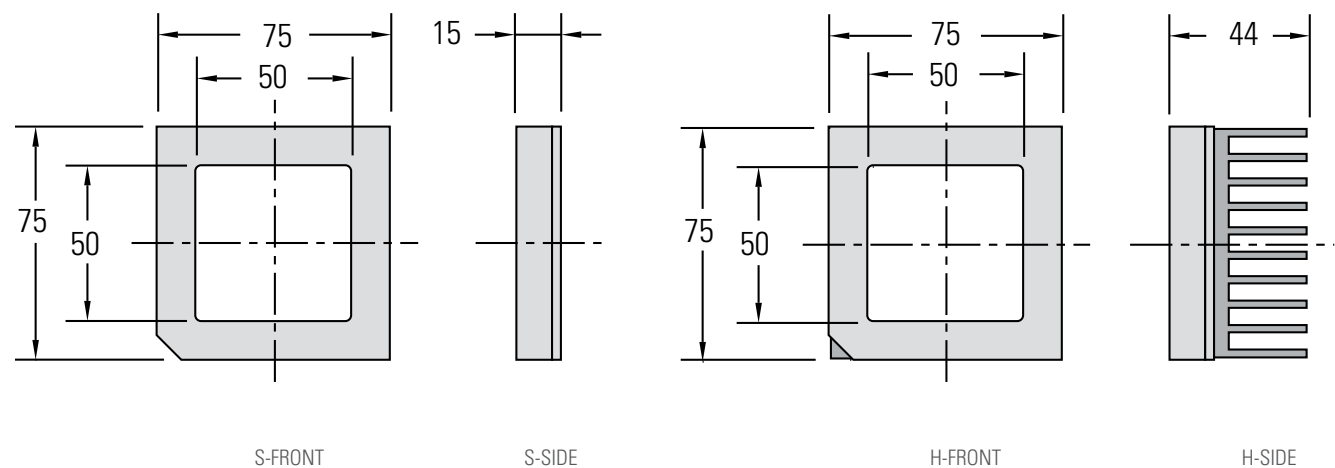
QE12



QE25



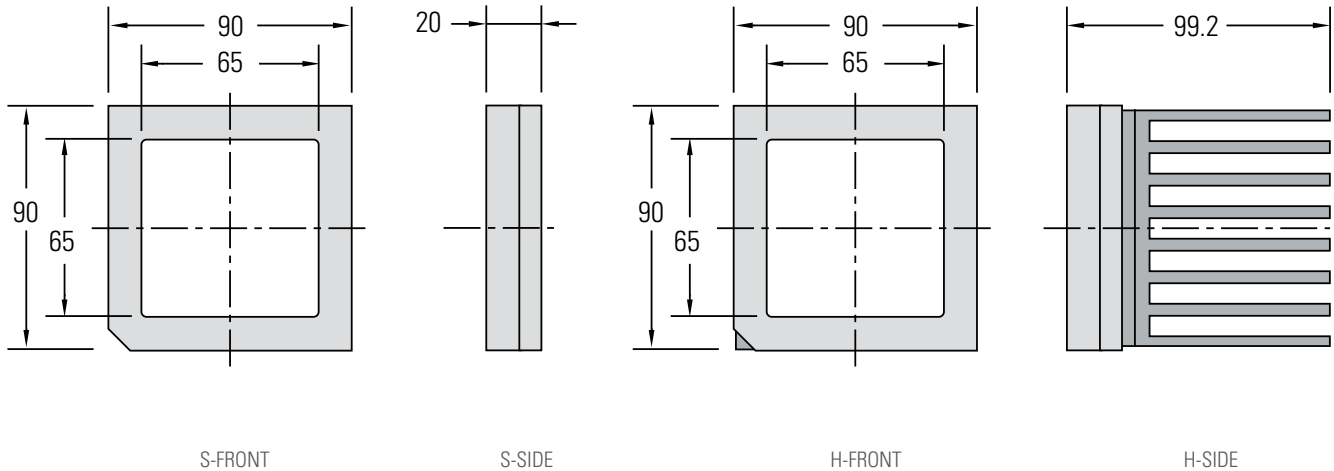
QE50



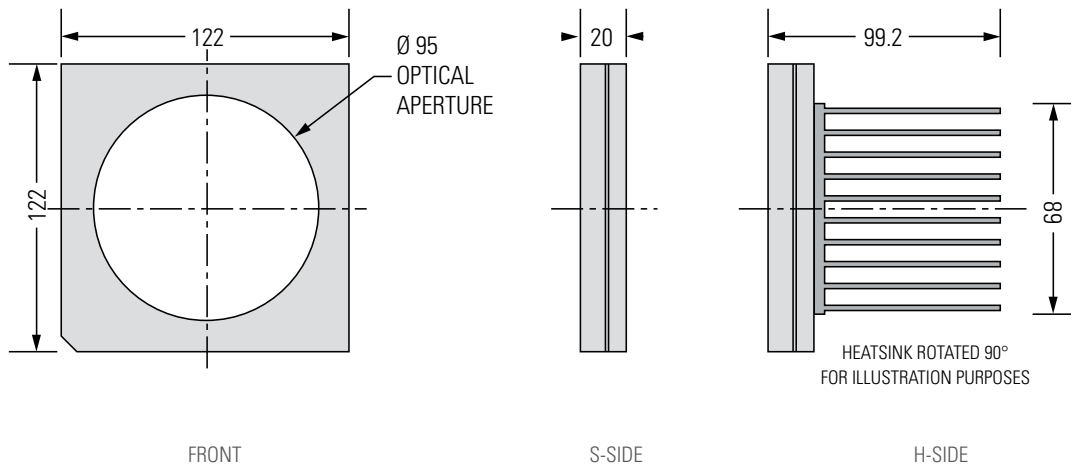
TECHNICAL DRAWINGS

All dimensions in mm

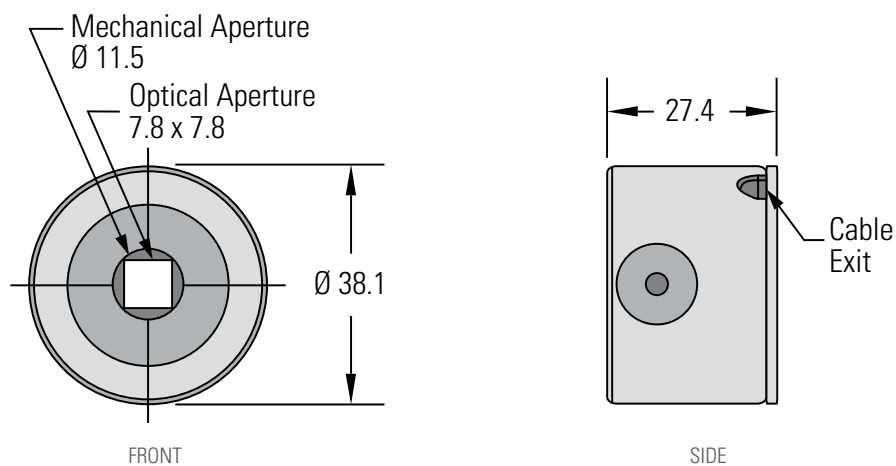
QE65



QE95

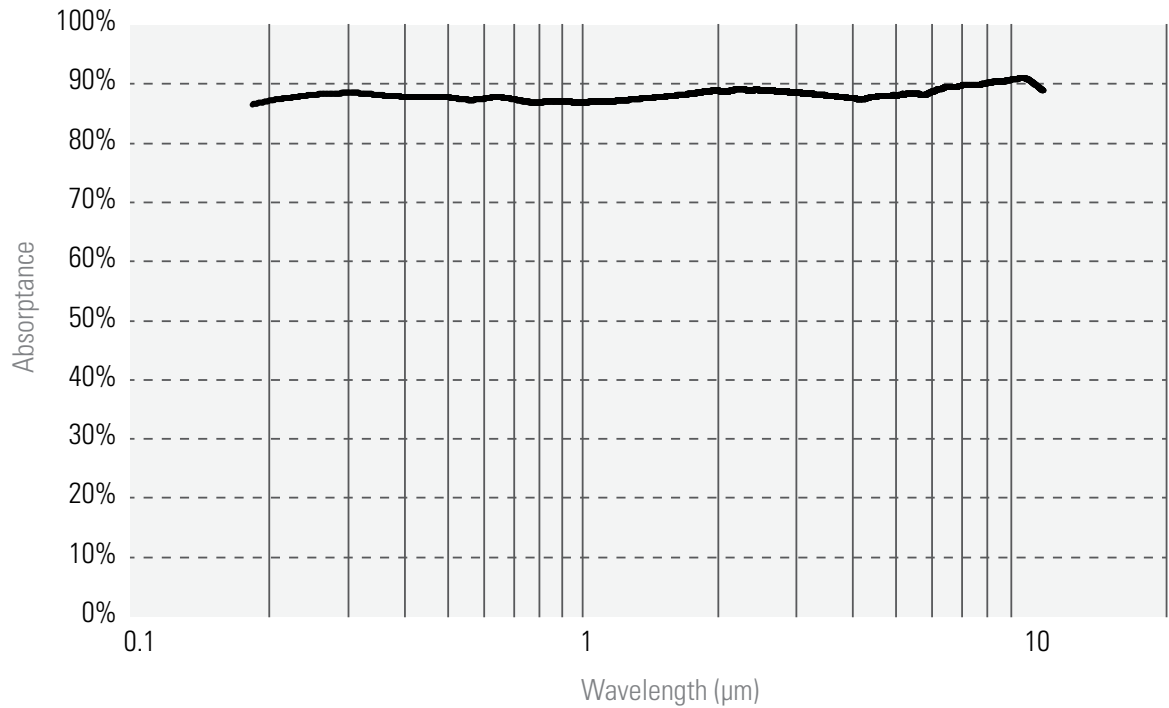


QE-B

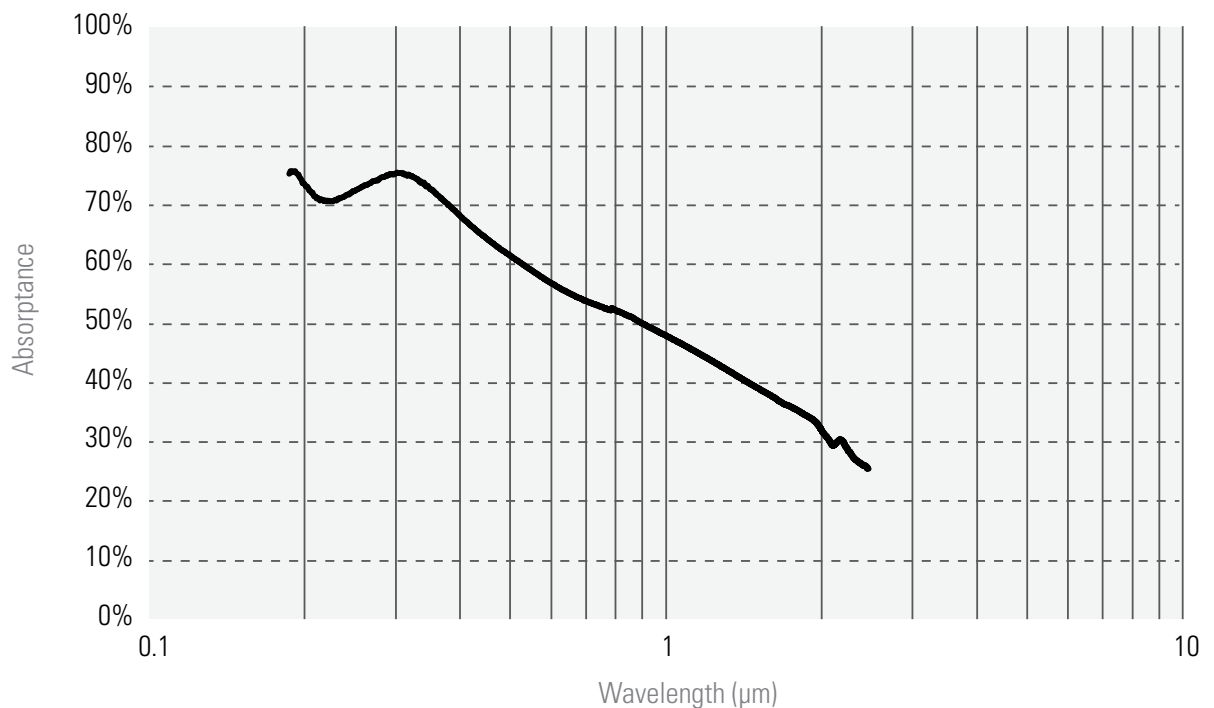


ABSORPTION CURVES

QE-MB

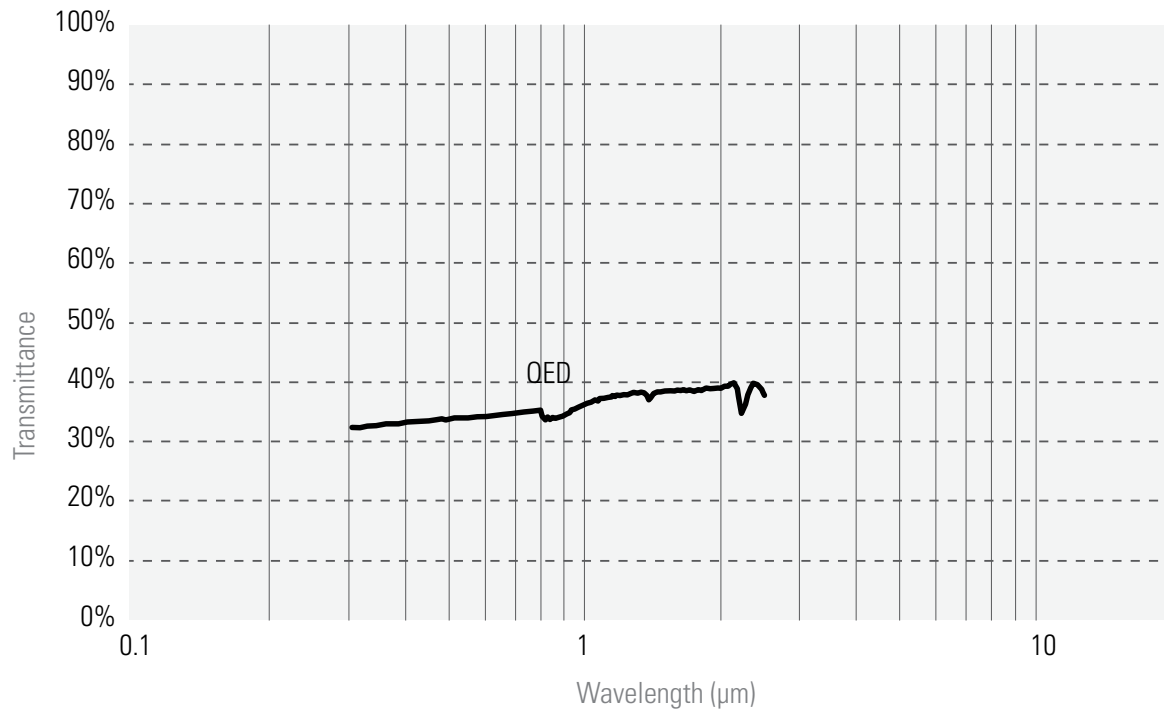


QE-MT



ABSORPTION CURVES

QED ATTENUATORS



QE-B

