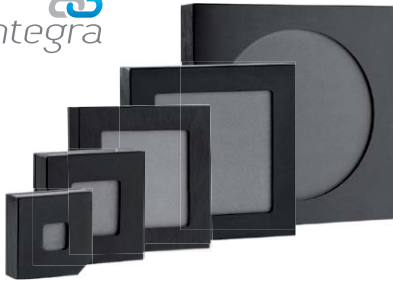


PRESENTATION

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



QE-MB & QE-MT

- Standard Broadband Coating (-MB):
Long pulse capability
- Metallic Coating (-MT):
Pulse-to-Pulse Response up to 6000 Hz
- Available in sizes from 12 x 12 mm to 90 mm Ø

LONG PULSE CAPABILITY OR HIGH REP RATES

See pages **44 to 52**

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.

COMPACT PYROELECTRIC DETECTORS

NOISE LEVEL AS LOW AS 50 nJ

See page **54**

200 kHz

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 page **56**

PRONTO-500-IPL

- For sources up to 350 J
- Rugged Device: All-metal Body, High Damage Thresholds

PORTABLE LASER PROBES

IPL: FOR SOURCE UP TO 350 J

See page **60**

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 (1064 nm)



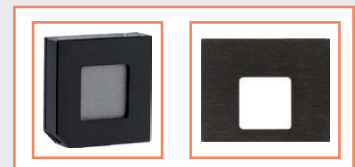
CALIBRATED AS A PAIR (-QED EXTENSION) - QED-CAL-2

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 \emptyset
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 64.

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

 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
M6-6-Si	200 μJ	2 nJ	5 W	350 nm	1100 nm	200,000 Hz	Silicon	6 mm Ø	56
M6-6-In	200 μJ	2 nJ	5 W	900 nm	1600 nm	200,000 Hz	InGaAs	6 mm Ø	56
QE8SP-B-MT	1.3 mJ	50 nJ	500 mW	190 nm	20 μm	1000 Hz	Metallic	7.8 x 7.8 mm	54
QE8SP-B-BL	3.6 mJ	100 nJ	500 mW	190 nm	20 μm	400 Hz	Black	7.8 x 7.8 mm	54
M6-6-PY	20 mJ	0.2 μJ	5 W	350 nm	2500 nm	200,000 Hz	Pyro	6 mm Ø	56
M6-12.5-PY	200 mJ	2 μJ	5 W	350 nm	2500 nm	200,000 Hz	Pyro	12.5 mm Ø	56
QE12SP-S-MT	700 mJ	800 nJ	3 W	190 nm	20 μm	6000 Hz	Metallic	12 x 12 mm	44
QE12SP-H-MT	700 mJ	800 nJ	5 W	190 nm	20 μm	6000 Hz	Metallic	12 x 12 mm	44
QE12LP-S-MB	850 mJ	700 nJ	3 W	190 nm	20 μm	300 Hz	Broadband	12 x 12 mm	44
QE12LP-H-MB	850 mJ	700 nJ	5 W	190 nm	20 μm	300 Hz	Broadband	12 x 12 mm	44
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	44
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	44
QE25SP-S-MT	3 J	2 μJ	5 W	190 nm	20 μm	6000 Hz	Metallic	25 x 25 mm	46
QE25SP-H-MT	3 J	2 μJ	10 W	190 nm	20 μm	6000 Hz	Metallic	25 x 25 mm	46
QE25LP-S-MB	3.8 J	4 μJ	5 W	190 nm	20 μm	300 Hz	Broadband	25 x 25 mm	46
QE25LP-H-MB	3.8 J	4 μJ	10 W	190 nm	20 μm	300 Hz	Broadband	25 x 25 mm	46
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	44
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	44
QE25SP-S-MT + QED-25	10 J	6 μJ	15 W	308 nm	2.1 μm	6000 Hz	Metallic	22 x 22 mm	46
QE25SP-H-MT + QED-25	10 J	6 μJ	30 W	308 nm	2.1 μm	6000 Hz	Metallic	22 x 22 mm	46
QE50SP-S-MT	13 J	10 μJ	10 W	190 nm	20 μm	4000 Hz	Metallic	50 x 50 mm	48
QE50SP-H-MT	13 J	10 μJ	20 W	190 nm	20 μm	4000 Hz	Metallic	50 x 50 mm	48
QE50LP-S-MB	15 J	10 μJ	10 W	190 nm	20 μm	200 Hz	Broadband	50 x 50 mm	48
QE50LP-H-MB	15 J	10 μJ	20 W	190 nm	20 μm	200 Hz	Broadband	50 x 50 mm	48
QE25LP-S-MB + QED-25	23 J	15 μJ	15 W	308 nm	2.1 μm	300 Hz	Broadband	22 x 22 mm	46
QE25LP-H-MB + QED-25	23 J	15 μJ	30 W	308 nm	2.1 μm	300 Hz	Broadband	22 x 22 mm	46
QE65LP-S-MB	25 J	10 μJ	12 W	190 nm	20 μm	100 Hz	Broadband	65 x 65 mm	50
QE65LP-H-MB	25 J	10 μJ	40 W	190 nm	20 μm	100 Hz	Broadband	65 x 65 mm	50
QE65ELP-S-MB	25 J	20 μJ	12 W	190 nm	20 μm	20 Hz	Broadband	65 x 65 mm	50
QE65ELP-H-MB	25 J	20 μJ	40 W	190 nm	20 μm	20 Hz	Broadband	65 x 65 mm	50
QE95LP-S-MB	35 J	15 μJ	20 W	190 nm	20 μm	40 Hz	Broadband	95 mm Ø	52
QE95LP-H-MB	35 J	15 μJ	40 W	190 nm	20 μm	40 Hz	Broadband	95 mm Ø	52
QE95ELP-S-MB	35 J	30 μJ	20 W	190 nm	20 μm	10 Hz	Broadband	95 mm Ø	52
QE95ELP-H-MB	35 J	30 μJ	40 W	190 nm	20 μm	10 Hz	Broadband	95 mm Ø	52
QE50SP-S-MT + QED-50	44 J	30 μJ	25 W	308 nm	2.1 μm	4000 Hz	Metallic	47 x 47 mm	48
QE50SP-H-MT + QED-50	44 J	30 μJ	45 W	308 nm	2.1 μm	4000 Hz	Metallic	47 x 47 mm	48
QE50LP-S-MB + QED-50	85 J	30 μJ	25 W	308 nm	2.1 μm	200 Hz	Broadband	47 x 47 mm	48
QE50LP-H-MB + QED-50	85 J	30 μJ	45 W	308 nm	2.1 μm	200 Hz	Broadband	47 x 47 mm	48
QE65LP-S-MB + QED-65	125 J	30 μJ	30 W	308 nm	2.1 μm	100 Hz	Broadband	62 x 62 mm	50
QE65LP-H-MB + QED-65	125 J	30 μJ	90 W	308 nm	2.1 μm	100 Hz	Broadband	62 x 62 mm	50
QE95LP-S-MB + QED-95	150 J	45 μJ	45 W	308 nm	2.1 μm	40 Hz	Broadband	90 mm Ø	52
QE95LP-H-MB + QED-95	150 J	45 μJ	90 W	308 nm	2.1 μm	40 Hz	Broadband	90 mm Ø	52
PRONTO-500-IPL	350 J	500 mJ	NA	190 nm	2.5 μm	0.06 Hz	Broadband	55 mm Ø	60

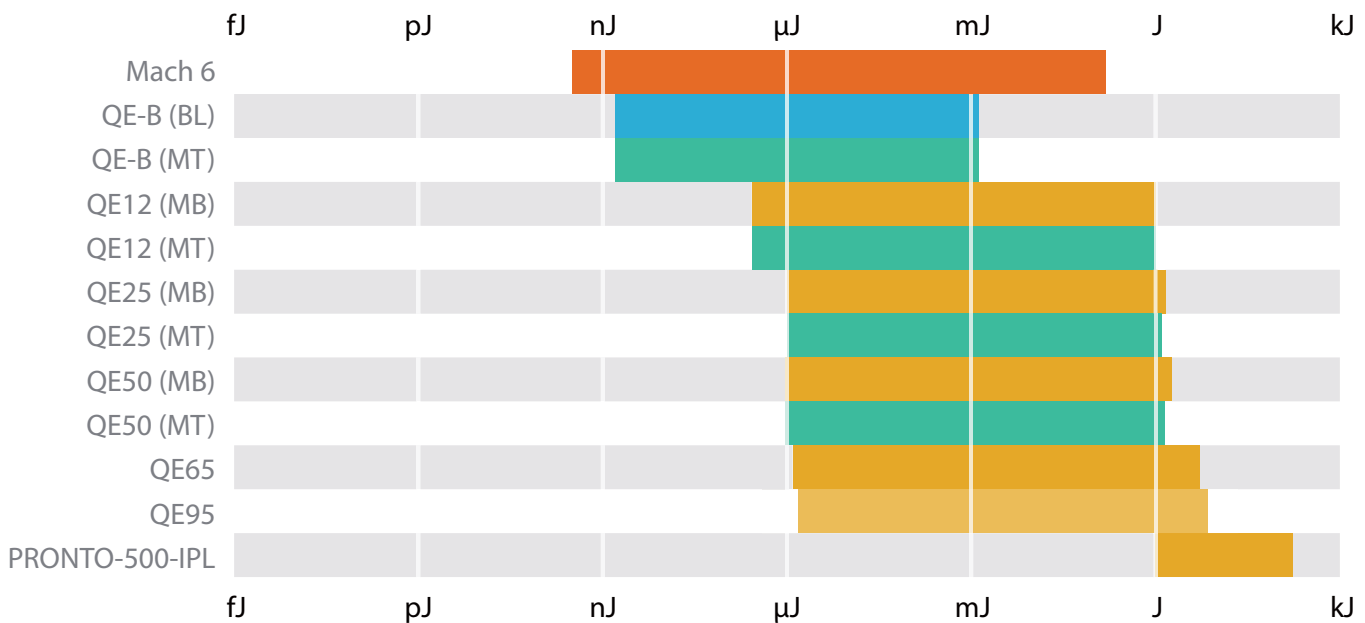
* at 1064 nm, 7 ns, 10 Hz

COMPARISON TABLE

ENERGY RANGES

You can use the graph below to compare the energy ranges of our 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



- Black Absorber**
 (Low Rep Rates, Up to 400 Hz)
- Broadband Absorber**
 (Low Rep Rates, Up to 300 Hz + Long Pulses, Up to 5 ms)
- Metallic Absorber**
 (High Rep Rates, Up to 6000 Hz)
- Ultrafast Absorber**

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