

## Pyroelectric Energy Detectors

The detectors of the PEM series are suitable for measuring laser pulses in the range of some Mikrojoule up to several Joule and they cover the whole spectral range from the UV to the far IR. The PEMs do not need any external power source, because they work with the pyroelectric principle. At the output of each detector the voltage signal is measured off, with the amplitude proportional to the irradiated laser energy and determined by a calibration constant, which is ascertained for each PEM by the manufacturer. Each detector is equipped with standard BNC-plugs.

The PEM 10 is especially designed for measuring small laser energies in the range of Micro- and Millijoule. The special coating of the active sensor diameter allows a broadband sensitivity of 0.19-10 mm. Because of short signal rise and drop times measurements with repetition rates up to 300 Hz are possible.

Higher repetition rates up to 500 Hz on request!

The PEM 25 has the same special broadband coating as the PEM 10, but with a larger active sensor diameter (∅25 mm).

The outstanding feature of the PEM 48 is its high detector aperture of ∅48 mm for the easy pulse energy measurement when working with an excimer laser.

The PEM 8 HP is especially designed for lasers with low pulse energies and high energy densities at the same time (like dye and small Q-switched Nd:YAG-lasers). The damage threshold lies above 2 J/cm<sup>2</sup> with pulse widths of 5 ns at 1064 nm.

The PEM 20 HP is well suitable for high pulse energies (up to 6 J) and high energy densities at the same time (2 J/cm<sup>2</sup>), occurring with Q-switched Nd:YAG-lasers. Cooling fins at the housing allow capacities up to 60 Watt

	PEM 10	PEM 25	PEM 48	PEM 8 HP	PEM 20 HP	PEM 48 H
Aperture ∅(mm)	10	25	48	8	20	48
Typ. sensitivity (V/J)	75	13	3	15	2	0.3
Max. repetition rate (Hz)	300	100	50	300	100	50
Min. detectable energy (μJ)	3	50	500	15	300	4000
Max. pulse energy (mJ)	60*	350*	1200*	100**	6000**	10000
Max. energy density (J/cm <sup>2</sup> )	0.07**	0.07**	0.07**	2**	2**	2**
Spectral range (nm)	0.19-10	0.19-10	0.19-10	0.2-3	0.36-3	0.2-3

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Pyroelectric energy detection for pulsed systems

	PEM 4	PEM 8	PEM 11	PEM 21
Active sensor diameter	4	8	11	21
Sensitivity at $1M\Omega$ [V/J]	500-10 <sup>8</sup>	50-100	100-300	50-80
Repetition rate [Hz]	500	500	500	500

### Pyroelectric Energy Detector PEM 50K

with black ceramic absorption sheet for extremely high energies

The PEM 45K is a further developed PEM 50M, which is even more resistant against radiation through its ceramic absorption coating.

### Neutral glass filter set RDNG 1-30

4 filters with transmission of approx. 1%, 5%, 10% and 30%. Maximum power density up to 100 MW/cm<sup>2</sup>.

