



# PEM 45 K

Energy Sensor Head with Ceramic Absorption Coating

Main applications for this detector are pulse lasers with high power density (Excimer-, CO<sub>2</sub>-, TEA-, Nd-YAG-Laser). With this device we offer a sensor that serves in a wide range of applications due to a high damage thresh-

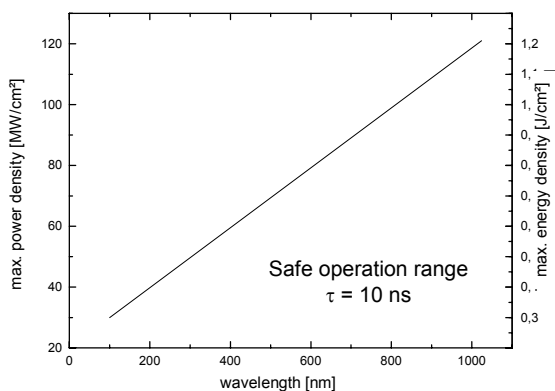
old, a short time constant, relatively high sensitivity and high aperture. A special feature is a switch on the backside allowing a choice between high sensitivity or a short time constant.

diameter of active surface	45 mm
sensitivity	1.5 .. 3.5 V/J at 1 MOhm 0.5 .. 1.5 V/J at 100 kOhm
repetition rate	30 Hz at 1 MOhm 70 Hz at 100 kOhm
max. average power	10 W
detection threshold	1 mJ
accuracy	±5 %
connector	BNC
dimension	diameter 68 mm, length 53 mm



permissible power- and energy densities at selected wavelengths:

laser	power density	energy density
Excimer, 308 nm, $\tau = 20$ ns	50 MW /cm <sup>2</sup>	1 J/cm <sup>2</sup>
Nd:YAG, THG, 355 nm, $\tau = 7$ ns	65 MW /cm <sup>2</sup>	450 mJ/cm <sup>2</sup>
Nd:YAG, SHG, 532 nm, $\tau = 8$ ns	70 MW /cm <sup>2</sup>	560 mJ/cm <sup>2</sup>
Nd:YAG, 1064 nm, $\tau = 8$ ns	120 MW /cm <sup>2</sup>	970 mJ/cm <sup>2</sup>
CO <sub>2</sub> -TEA, 10,6 $\mu$ m, $\tau = 0,5$ $\mu$ s	10 MW /cm <sup>2</sup>	5 J/cm <sup>2</sup>



for pulses with width  $\tau$ [ns] apply:

$$E_{\max} [\text{J}/\text{cm}^2] = 10^{-2} \cdot (5 + 0,03 \cdot \lambda [\text{nm}]) \cdot \sqrt{\tau [\text{ns}]}$$

