



PEM 20 K

Energy Sensor Heads with Ceramic Absorption Coating

Main applications for this detector are pulse lasers with high power density (Excimer-, CO₂-, TEA-, Nd-YAG-Laser). The outstanding properties

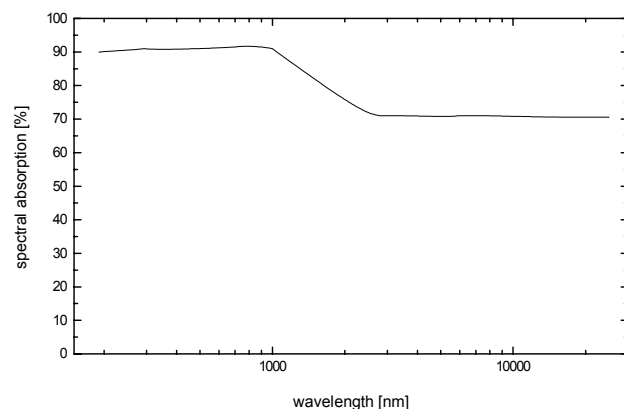
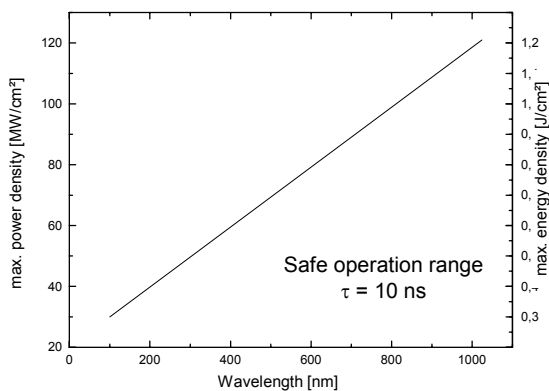
of this detector are high damage threshold, a short time constant, high sensitivity and high aperture.

diameter of active surface	20 mm
sensitivity	10 .. 15 V/J at 1 MOhm
repetition rate	30 Hz at 1 MOhm
max. average power	10 W
detection threshold	< 1 mJ
accuracy	±5 %
connector	BNC
dimension	diameter 46 mm, length 47 mm



permissible power- and energy densities at selected wavelengths:

laser	power density	energy density
Excimer, 308 nm, $\tau = 20$ ns	50 MW /cm ²	1 J/cm ²
Nd:YAG, THG, 355 nm, $\tau = 7$ ns	65 MW /cm ²	450 mJ/cm ²
Nd:YAG, SHG, 532 nm, $\tau = 8$ ns	70 MW /cm ²	560 mJ/cm ²
Nd:YAG, 1064 nm, $\tau = 8$ ns	120 MW /cm ²	970 mJ/cm ²
CO₂-TEA, 10,6 μm, $\tau = 0,5$ μs	10 MW /cm ²	5 J/cm ²



for pulses with width τ [ns] apply :

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