

激光能量传感器



说明:

Ophir 提供两类能量传感器，热释电和光电二极管传感器。热释电传感器在最大 25000 个 / 秒的脉冲率和最大 20ms 的脉冲宽度下测量重复脉冲能量和平均功率。光电二极管能量传感器用于超低能量脉冲激光（低至 200 pJ）。请注意脉冲率不超过每 5 秒 1 个脉冲的单次脉冲能量可使用热传感器进行测量。

光电二极管能量传感器

Ophir 光电二极管激光能量传感器能够在高达 20 kHz 的频率下测量低至 10pJ 的低能量脉冲。硅光电二极管用于 UV 和可见光谱，锗光电二极管用于 IR。

Photodiode energy sensors - 10pJ - 20μJ

Sensor	Features	Aperture	Spectral Range	Energy Range	Maximum Frequency
PD10-C	Very low energies down to nJ, Silicon photodiode	Ø10mm	0.19-1.1μm	1nJ-20μJ	20,000Hz
PD10-pJ-C	Lowest energies down to pJ, Silicon photodiode	Ø10mm	0.2-1.1μm	10pJ-200nJ	20,000Hz
PD10-IR-pJ-C	Lowest energies down to pJ, Germanium photodiode	Ø5mm	0.7-1.8μm	30pJ-20nJ	10,000Hz

热释电激光能量传感器

热释电传感器用于在高达 25 kHz 频率下测量重复脉冲能量。此类传感器使用一个热释电晶体，该晶体产生于吸收的热量成比例的电荷。热释电传感器的响应时间取决于热量进入晶体并对晶体加热所花费的时间。对于金属型热释电探测器，响应时间为几十微秒，因此金属型热释电探测器可在高重复频率下运行。对于 BF 和 BB 型，响应时间以毫秒为单位，相应的重复频率较低。Ophir 热释电探测器采用独特的专有电路，使其能够测量长脉冲及短脉冲，并在高占空比下工作，即脉冲宽度大至总周期时间的 30%。

Pyroelectric energy sensors - 0.05μJ - 10J

Sensor	Features	Aperture	Spectral Range	Energy Range	Maximum Frequency
PE9-C	Pyroelectric for very low energies	Ø8mm	0.15-12μm	0.2μJ-1mJ	25,000Hz
PE9-ES-C	Pyroelectric for lowest energies	Ø8mm	0.15-12μm	0.05-200μJ	25,000Hz
PE10-C	Pyroelectric for low energies	Ø12mm	0.15-12μm	1μJ-10mJ	25,000Hz
PE10BF-C	As above, high damage threshold	Ø12mm	0.15-3μm, 10.6μm	7μJ-10mJ	250Hz
PE25-C	Medium aperture pyroelectric	Ø24mm	0.15-3μm	8μJ-10J	10,000Hz
PE25BF-C	As above, high damage threshold	Ø24mm	0.15-3μm, 10.6μm	60μJ-10J	250Hz
PE50-C	Large aperture pyroelectric	Ø46mm	0.15-3μm	10μJ-10J	10,000Hz
PE50BF-C	As above, high damage threshold	Ø46mm	0.15-3μm, 10.6μm	120μJ-10J	250Hz
PE50HD-C	Pyroelectric for 193nm with high damage threshold	Ø56mm	193nm	500μJ-10J	100Hz

High energy pyroelectric sensors - 10μJ - 40J

Sensor	Features	Aperture	Spectral Range	Energy Range	Maximum Frequency
PE50-DIF-C	Pyroelectric with diffuser, high repetition rate. Complete calibration curve	Ø35mm	0.19-2.2, 2.94μm	20μJ-10J	10,000Hz
PE25BF-DIF-C	Pyroelectric with diffuser for high damage threshold. Complete calibration curve	Ø20mm	0.24-2.2μm	100μJ-10J	250Hz
PE50BF-DIF-C	Pyroelectric with diffuser for highest damage threshold. Complete calibration curve	Ø35mm	0.19-2.2μm, 2.94μm	200μJ-10J	250Hz
PE50BF-DIFH-C	Similar to PE50BF-DIF-C but with higher damage threshold	Ø35mm	0.19-2.2μm, 2.94μm	200μJ-10J	250Hz
PE50BB-DIF-C	Pyroelectric with removable diffuser. Wide spectral range w/o diffuser	Ø46mm Ø33mm with diffuser	0.19-20μm, 0.4-2.5μm with diffuser	100μJ-40J	40Hz
PE50-DIF-ER-C	Pyroelectric with removable diffuser. Especially for Erbium laser	Ø46mm Ø33mm with diffuser	0.19-3μm, 0.4-3μm With diffuser	10μJ-30J	10,000Hz
PE100BF-DIF-C	Largest aperture pyroelectric with removable diffuser	Ø96mm Ø85mm with diffuser	0.15-3μm, 0.4-2.5μm with diffuser	400μJ-40J	200Hz
FPE80BF-DIF-C	Fan cooled pyroelectric for high ave powers to 200W	Ø53mm	0.19-2.2μm, 2.94μm	1mJ-40J	250Hz