

1.2.2 Pyroelectric Energy Sensors

1μJ to 10mJ

Features

- Ø12mm apertures
- Repetition rates up to 25,000Hz
- High sensitivity sensors
- Pulse widths up to 5ms

PE10-C / PE10BF-C



Model	PE10-C		PE10BF-C	
Use	Sensitive		High damage threshold	
Aperture mm	Ø12		Ø12	
Absorber Type	metallic		BF	
Spectral Range μm ^(a)	0.15 - 12		0.15 - 3, 10.6 ^(a)	
Surface Reflectivity % approx.	50		20	
Calibration Uncertainty $\pm\%$ ^(a)	4		3	
Max Pulse Width Setting ^(e)	1μs	30μs	1ms	5ms
Energy Scales	10mJ to 2μJ	10mJ to 20μJ	10mJ to 20μJ	10mJ to 200μJ
Lowest Measurable Energy μJ ^(c)	1	1	7	20
Max Pulse Width μs	1	30	1000	5000
Maximum Pulse Rate pps	25kHz	5kHz	250Hz	50Hz
Noise on Lowest Range μJ	0.1	0.15	1	5
Additional Error with Frequency %	$\pm 2\%$ to 15kHz $\pm 3\%$ to 25kHz	$\pm 1\%$ to 5kHz	$\pm 1\%$ to 100Hz $\pm 4.5\%$ to 250Hz	$\pm 1\%$
Damage Threshold J/cm^2				
<100ns	0.1		0.8 ^(b)	
1μs	0.2		1 ^(b)	
300μs	3		4 ^(b)	
Linearity with Energy for >7% of full scale ^(c)	$\pm 1.5\%$		$\pm 2\%$	
Maximum Average Power W	2		3	
Maximum Average Power Density W/cm^2	50		50	
Fiber Adapters Available (see page 138)	ST, FC, SMA, SC		ST, FC, SMA, SC	
Weight kg	0.25		0.25	
Compliance	CE, UKCA, China RoHS		CE, UKCA, China RoHS	
Version				
Part Number: Standard Sensor	7Z02932		7Z02938 (1.5m cable)	
Sensor with different cable length			7Z02938C (10m cable)	
Note: (a) Calibrated curve is checked and adjusted at the following wavelengths (μm)	1.064, 0.355		0.193, 0.248, 0.355, 0.532, 1.064	
For other wavelengths in the curve there is additional calibration error as stated	240 - 800nm add $\pm 4\%$, 2-3μm add $\pm 8\%$, 10.6μm add $\pm 15\%$. <240nm not calibrated		0.2-3μm $\pm 2\%$, 10.6μm $\pm 5\%$	
	In order to avoid measurement degradation at UV wavelengths extra care must be taken to protect sensor from contaminants			

Note: (b) For wavelengths below 600nm, derate damage threshold to 60% of given values. Below 300nm, derate to 40% of given values.

Note: (c) With "user threshold" setting set to minimum. For other settings, the spec is for >7% of full scale or greater than twice the "user threshold", whichever is greater. The user threshold is not available with LaserStar, Nova/Orion, Pulsar, USBI and Quasar. For these meters, the threshold is set to minimum and the linearity spec is >10% of full scale. The PE-C series will only operate with Nova or Orion meters with an additional adapter Ophir P/N 7Z08272 (see page 139). The adapter can introduce up to 1% additional measurement error. The user threshold feature allows adjustment of the internal threshold up to 25% of full scale if desired to avoid false triggering in noisy environments. For further information, see the FAQs on our Website.

Note: (d) The absorption at 675nm is approximately the same as at 10.6μm. Therefore, to measure a CO₂ laser, set to the 675nm setting. The additional error for measuring 10.6μm is $\pm 5\%$.

Note: (e) With the LaserStar, Pulsar, USBI, Quasar and Nova/Orion with adapter, for the PE10-C model the 1μs pulse width setting is displayed as "10μs".

PE10-C / PE10BF-C

