

1.2.3 High Energy Pyroelectric Sensors

20µJ to 10J

Features

- Sensors with diffuser for high energies and high energy densities
- Metallic coating for high repetition rates up to 10kHz
- High damage threshold
- Wide spectral range. Measure YAG and harmonics, 193nm, 248nm and many more
- Measure lasers with pulse widths up to 20ms

PE50-DIF-C / PE50U-DIFH-C



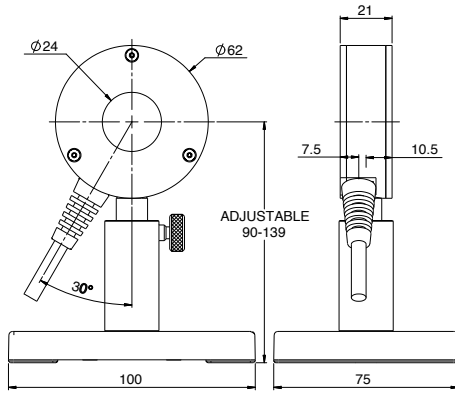
PE25BF-DIF-C



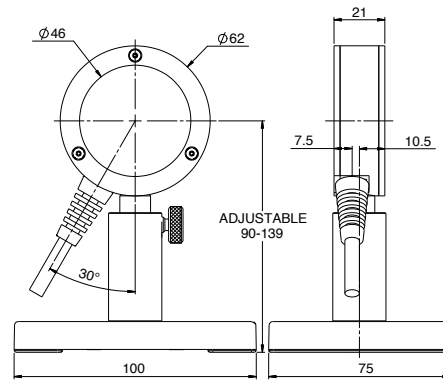
Model	PE50-DIF-C					PE50U-DIFH-C					PE25BF-DIF-C						
Use	High rep rate. Complete calibration curve					Complete calibration curve. Highest damage threshold, 193nm calibration					Complete calibration curve. High damage threshold						
Aperture mm	Ø35					Ø35					Ø20						
Absorber Type	Metallic with diffuser					Metallic with diffuser					BF with diffuser						
Spectral Range µm ^(a)	0.19 - 2.2, 2.94					0.19 - 2.2, 2.94					0.24 - 2.2						
Surface Reflectivity % approx.	25					25					25						
Calibration Accuracy +/--% ^(a)	3					3					3						
Max Pulse Width Setting ^(d)	2µs	30µs	500µs	1ms	5ms	2µs	30µs	500µs	1ms	5ms	1ms	2ms	5ms	10ms	20ms		
Energy Scales	10J to 200µJ	10J to 200µJ	10J to 2mJ	10J to 2mJ	10J to 20mJ	10J to 2mJ	10J to 2mJ	10J to 2mJ	10J to 2mJ	10J to 20mJ	10J to 2mJ	10J to 2mJ	10J to 20mJ	10J to 20mJ	10J to 20mJ		
Lowest Measurable Energy µJ ^(c)	20	20	100	120	200	100	100	100	100	100	100	150	200	200	300		
Max Pulse Width ms	0.002	0.03	0.5	1	5	0.002	0.03	0.5	1	5	1	2	5	10	20		
Maximum Pulse Rate pps	10kHz	5kHz	900Hz	450Hz	100Hz	10kHz	5kHz	900Hz	450Hz	100Hz	250Hz	100Hz	50Hz	40Hz	20Hz		
Noise on Lowest Range µJ	1	2	20	20	40	10	10	10	10	10	15	30	40	40	60		
Additional Error with Frequency %	±2% to 2kHz		±1% to 750Hz		±2% to 400Hz	±1% to 80Hz		±1.5%		±1.5%		±1% to 900Hz		±1% to 450Hz		±1% to 100Hz	
Linearity with Energy for >10% of full scale ^(c)	±1.5%					±1.5%					±2%						
Damage Threshold J/cm ² ^(b)																	
<100ns	1					2					4						
1µs	2					6					5						
300µs	20					30					20						
2ms	40					90					60						
Maximum Average Power W	25, 40 with optional heat sink					25, 40 with optional heat sink					20, 30 with optional heat sink						
Maximum Average Power Density W/cm ²	100					200					120						
Uniformity over surface	±2.5% over central 20mm					±2.5% over central 20mm					±2.5% over central 10mm						
Weight kg	0.25					0.25					0.25						
Compliance	CE, China RoHS					CE, China RoHS					CE, China RoHS						
Version																	
Part Number	7Z02939					7Z02957					7Z02941						
Notes: (a) Calibration curve is verified and adjusted at specified wavelengths.	Specified wavelengths: 355nm, 532nm, 1064nm and 2100nm.					Specified wavelengths: 193nm, 248-266nm, 355nm, 532nm, 1064nm, 2100nm and 2940nm.					Specified wavelengths: 355nm, 532nm, 1064nm and 2100nm.						
At other wavelengths, there may be an additional error up to the value given.	Max additional error at other wavelengths not specified above: ±2%.					Max additional error at 193nm ±4%. Max additional error at other wavelengths not specified above: ±2%. 193nm reading may need 1min irradiation to stabilize.					Max additional error at other wavelengths not specified above: ±2%.						
Notes: (b)	For wavelengths >2.1µm, derate to 40% of above values. For beam size ≤5mm. For 10mm beam, derate to 40% of above value.					For wavelengths >2.1µm, derate to 40% of above values. For beam size ≤5mm. For 10mm beam, derate to 40% of above values. For <100ns and wavelengths <240nm, derate by 50%.					For wavelengths below 600nm, derate to 60% of given values. For beam size ≤4mm. For 8mm beam, derate to 50% of above values.						
Notes: (c) With the "user threshold" setting set to minimum. For other settings, the spec is for >10% 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 105). 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.																	
Notes: (d) With the LaserStar, Pulsar, USBI, Quasar and Nova/Orion with adapter, only 2 out of 5 pulse widths settings are available; for the PE50-DIF-C and PE50U-DIFH-C models the 2µs (displayed as "30µs") and 1ms settings, and for the PE25BF-DIF-C model the 1ms and 10ms settings.																	

* For drawings please see page 101

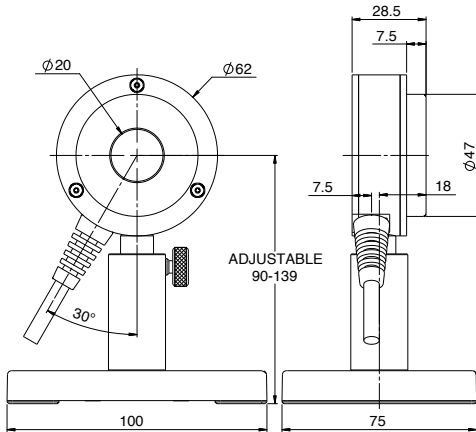
PE25-C / PE25BF-C



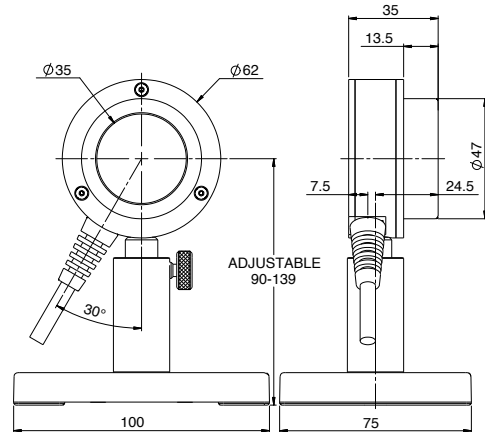
PE50-C / PE50BF-C



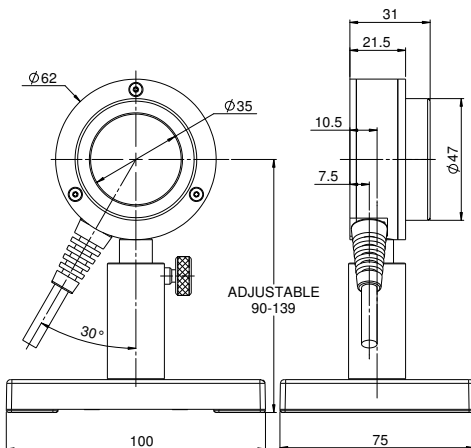
PE25BF-DIF-C



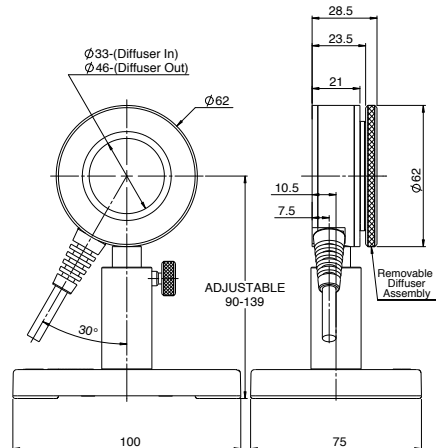
PE50BF-DIF-C / PE50-DIF-C



PE50BF-DIFH-C / PE50U-DIFH-C



PE50BB-DIF-C



1.2.4 Energy Sensors Accessories

1.2.4.1 Accessories for Pyroelectric Sensors

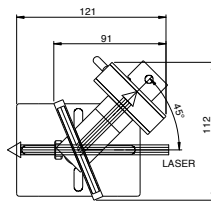
Fiberoptic Adapter for Pyroelectric Sensors



Beam Splitter Assembly



Beam splitter installed – reflected beam on sensor

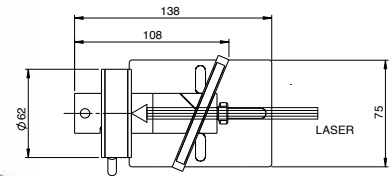


Oscilloscope Adapter for Pyroelectric Sensors



Beam Splitter removed – direct beam on sensor

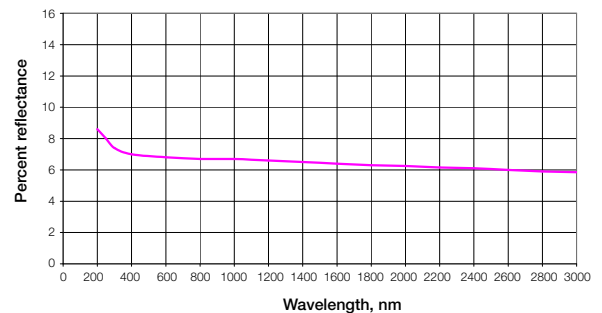
Heat Sink for PE-C Series Sensors



Beam Splitter Specifications

Material	UV grade fused silica	
Spectral range	0.19 - 2.2 μ m	
Aperture	\varnothing 60mm	
Damage threshold for pulses	< 10ns PW	>300 μ s PW
	5J/cm ²	>200J/cm ²
Fraction split off	See graph	

F.S. Beam Splitter, 2 sided reflection unpolarized light



Accessory	Description	Part number			
Heat Sink	Heat sink that screws onto rear of PE25 and PE50 series sensors and allows working at over 50% higher average powers.	7Z08267			
Scope Adapter	Plugs in between the PE sensor and power meter. Provides BNC output to scope to see every pulse up to the maximum frequency of the sensor.	7Z11012			
Fiber Adapters	To mount fibers to sensors you need an adapter bracket and fiber adapter. All fiber adapters are compatible with the adapter bracket selected.				
Fiber Adapter Brackets	Mounting brackets to allow mounting fiber adapters to pyroelectric sensors.				
PE Sensor Family Type		Bracket P/N		Distance from fiber to detector	
PD10-C / PD10-IR-C / PD10-pJ-C / PD10-IR-pJ-C		7Z08275		10mm	
PE50-C / PE50BF-C		7Z08270		15mm	
PE9-C / PE9-ES-C / PE10-C / PE10BF-C / PE25-C / PE25BF-C		7Z08269		10mm	
Fiber Adapters	Fiber adapters for mounting to above brackets	SC type	ST type	FC type	SMA type
For all PE sensors above		7Z08227	7Z08226	7Z08229	1G01236A
Beam Splitter Assembly	Beam Splitter Assembly to measure pulsed laser sources too energetic for direct measurement. The reading with the Beam Splitter can be calibrated by setting the laser to a lower energy that will not damage the sensor and then taking a measurement with the beam splitter and without and taking the ratio.	7Z17001			