1.3.1 Photodiode Energy Sensors

10pJ to 15µJ

Features

- Silicon and Germanium detectors
- Very sensitive - down to 10pJ
- Repetition rates to 20kHz
- Wide spectral range

PD10-C / PD10-pJ-C / PD10-IR-pJ-C

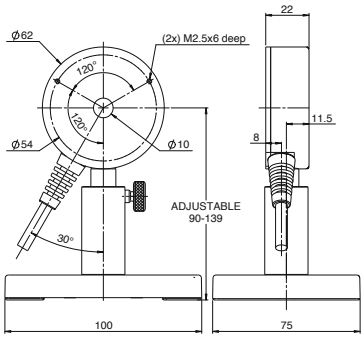
Model	PD10-C	PD10-pJ-C	PD10-IR-pJ-C
Use	**Low energies**	**Lowest energies**	**Infrared**
Aperture mm	φ10	φ10	φ 5
Absorber Type	Si photodiode with attenuator	Si photodiode	Ge photodiode
Spectral Range µm [a]	0.19 - 1.1	0.2 - 1.1	0.7 - 1.8
Surface Reflectivity % approx.	50	30	30
Calibration Accuracy +/-% [a]	5	5	5
Energy Scales	20µJ to 20nJ	200nJ to 200pJ	20nJ to 200pJ
Lowest Measurable Energy nJ [b]	1 at 900nm	0.01 at 900nm	0.03 at 1550nm
Max Pulse Width ms	0.005	0.005	0.005
Maximum Pulse Rate pps	20kHz	20kHz	10kHz
Noise on Lowest Range nJ	0.05	0.001	0.01
Additional Error with Frequency %	±1% to 20kHz [c]	±1% to 20kHz [d]	±1.5% to 10kHz
Linearity with Energy for > 10% of full scale [b]	±1.5%	±1.5%	±1.5%
Damage Threshold J/cm²	0.1	0.1	0.1
Maximum Average Power mW	50 at 800nm	0.5	0.5
Maximum Average Power Density W/cm²	50	5	5
Maximum Energy vs. Wavelength	Wavelength / Maximum Energy	Wavelength / Maximum Energy	Wavelength / Maximum Energy
	<300nm 15µJ	<300nm 150nJ	800 - 900nm 20nJ
	350-550nm 8µJ	350-550nm 75nJ	1000 - 1300nm 8nJ
	>800nm 5µJ	>800nm 50nJ	1300 - 1400nm 7nJ
			1480 - 1560nm 6nJ
			>1650nm 20nJ
Fiber Adapters Available (see page 76)	ST, FC, SMA, SC	ST, FC, SMA, SC	ST, FC, SMA, SC
Weight kg	0.25	0.25	0.25
Version			
Part number: Standard Sensor	**7Z02944** available Q1 2013	**7Z02945** available Q1 2013	**7Z02946** available Q2 2013
Previous Model Part Number	**7Z02823** till new model released	**7Z02824** till new model released	**7Z02827** till new model released
Note: (a) This is basic calibration accuracy. In certain wavelength regions calibration there is additional error as tabulated here.	<250nm add ±3% >950nm add ±2%	<250nm add ±2% >950nm add ±2%	<900nm add ±2% >1700nm add ±2%

Note: (b) 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 available with Nova II, Vega, StarLite or Juno. For other meters, the threshold is set to minimum and the linearity spec is >10% of full scale. The PD-C series will only operate with Nova or Orion meters with an additional adapter Ophir P/N 7Z08272 (see page 77). 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 highest accuracy, it is recommended to zero the sensor against the meter the first time it is used with a particular meter. For further information, see the FAQs on our Website.

Note: (c) Linearity of ±1% on ly for energies up to 2µJ. For higher energies ±1% up to 10kHz, -4% at 20kHz.

Note: (d) Linearity of ±1% only for energies up to 20nJ. For higher energies ±2% up to 10kHz, -5% at 20kHz.

PD10-C / PD10-pJ-C



PD10-IR-pJ-C