

1.1.1 Photodiode Power Sensors

1.1.1.1 Standard Photodiode Sensors

50pW to 3W

Features

- Very large dynamic range
- Swivel mount for hard to measure places
- Comes with filter in / filter out options
- Patented automatic background subtraction
- Fiber optic adapters available

PD300 with filter off



PD300 with filter installed



PD300-TP Mounted on stand

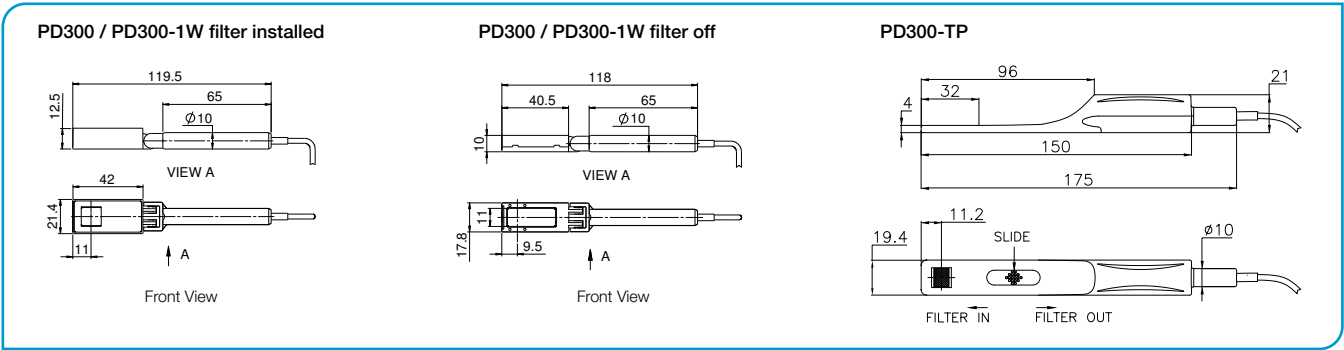


Model	PD300		PD300-1W			PD300-3W			PD300-TP		
Use	General		Powers to 1W			Powers to 3W			Thin profile for tight fit		
Detector Type	silicon		silicon			silicon			silicon		
Aperture	10x10mm		10x10mm			10x10mm			10x10mm		
Calibration Uncertainty nm	±1.1% 430-1000 ^(b)		±1.1% 430-1000 ^(b)			±1.1% 430-1000 ^(b)			±1.1% 430-1000 ^(b)		
Filter Mode	Filter out	Filter in	Filter out	Filter in	Filter in	Filter out	Filter in	Filter in	Filter out	Filter in	Filter in
Spectral Range nm	350-1100	430-1100	350-1100	430-1100		350-1100	430-1100		350-1100	400-1100	
Power Range	500pW to 30mW	2μW to 300mW	500pW to 30mW	2μW to 1W		5nW to 100mW	2μW to 3W		50pW to 3mW	2μW to 1W	
Power Scales	30mW to 30nW and dBm	300mW to 300μW and dBm	30mW to 30nW and dBm	1W to 300μW and dBm		100mW to 300nW and dBm	3W to 300μW and dBm		3mW to 3nW and dBm	1W to 300μW and dBm	
Resolution nW	0.01	NA	0.01	NA		0.1	NA		0.001	1	
Maximum Power vs. Wavelength	nm <488 30	mW 300	nm <488 30	mW 1000		nm <488 100	mW 3000		nm 350-400 3	mW NA	
	633 20	300	633 20	1000		633 100	3000		400-500 3	1000	
	670 13	200	670 13	1000		670 100	2000		600 2.5	1000	
	790 10	100	790 10	600		790 100	1200		700 2	500	
	904 10	100	904 10	700		904 100	1200		800-950 1.5	300	
	1064 25	250	1064 25	1000		1064 100	2200		1064 3	500	
Accuracy (including errors due to temp. variations)											
% error vs Wavelength nm	±10 360-400	NA	±10 360-400	NA		±10 360-400	NA		±7 350-400	NA	
	±3 400-980	±5 430-980	±3 400-950	±5 430-950		±3 400-950	±5 430-950		±3 400-450	±5 400-450	
	±5 980-1100	±7 980-1100	±4 950-1030	±6 950-1030		±4 950-1030	±6 950-1030		±2 450-950	±3 450-950	
			±6 1030-1100	±7 1030-1100		±6 1030-1100	±7 1030-1100		±6 950-1100	±7 950-1100	
Damage Threshold W/cm²	10	50	10	10 ^(a)		10	30		10	50	
Max Pulse Energy μJ	3	30	3	200		30	400		1	100	
Noise Level for filter out pW	20		20			200			±2		
Response Time with Meter s	0.2		0.2			0.2			0.2		
Beam Position Dependence	±2%		±2%			±2%	±3%		±2%		
Background Subtraction	95-98% of background is cancelled automatically under normal room conditions, even when changing continuously					N.A.			N.A.		
Fiber Adapters Available (see page 32)	ST, FC, SMA, SC		ST, FC, SMA, SC			ST, FC, SMA, SC			N.A.		
Compliance Version	CE, UKCA, China RoHS		CE, UKCA, China RoHS			CE, UKCA, China RoHS V1			CE, UKCA, China RoHS		
Part Number	7Z02410		7Z02411A			7Z02426			7Z02424		

Notes: (a) Maximum power density above which sensor may not read correctly. There will be no permanent damage until 50W/cm²
(b) For calibration uncertainty of wavelengths outside of this range see table on page 24

* For graphs see page 30-31

* For PD300-3W drawing see PD300-UV/PD300-IR drawing on page 26



1.1.1.1 Standard Photodiode Sensors

10pW to 300mW

Features

- Spectral range including UV and IR
- Very large dynamic range
- Swivel mount for hard to measure places
- Comes with filter in / filter out options
- Fiber optic adapters available

PD300-UV / PD300-IR with filter off



PD300-UV / PD300-IR with filter installed



PD300-IRG with fiber input

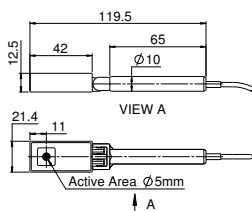


Model	PD300-UV/ PD300-UV-193				PD300-IR				PD300-IRG			
Use	Lowest powers from 200-1100nm				Low powers from 700-1800nm				Telecom wavelength fiber and free space measurements			
Detector Type	silicon				Germanium				InGaAs			
Aperture	10x10mm				Ø5mm				Ø5mm for free space beams			
Calibration Uncertainty nm	±1.1% 430-1000 ^(b)				±2.4% 700-1430 ^(b)				±2.4% 800-1430 ^(b)			
Filter Mode	Filter out		Filter in		Filter out		Filter in		Filter out		Filter in	
Spectral Range nm	200 -1100		220 -1100		700-1800		700-1800		800 - 1700		950 - 1700	
Power Range	20pW to 3mW		2µW to 300mW		5nW to 30mW		2µW to 300mW		10pW to 800µW		1µW to 200mW	
Power Scales	3mW to 3nW and dBm		300mW to 300µW and dBm		30mW to 30nW and dBm		300mW to 300µW and dBm		800 µW to 800pW and dBm		300mW to 30µW and dBm	
Resolution nW	0.001		100		0.01		NA		0.0001		1	
Maximum Power vs. Wavelength	nm	mW	mW		nm	mW	mW		nm	mW	mW	
	250 - 350	3	300		800	12	120		<1000	0.8	200	
	400	3	300		1000-1300	30	300		1100	0.8	200	
	600	3	300		1400	30	250		1200	0.8	200	
	800 - 950	2.5	150		1500	30	100		1300	0.8	200	
	1064	3	300		1600	30	100		1550	0.8	200	
					1800	30	300		>1600	0.8	200	
Accuracy (including errors due to temp. variations)												
% error vs Wavelength nm ^(a)	±10	200-230	±10	220-300	±5	700-800	±6	700-900	±3	1000-1650	±6	1000-1650
	±7	230-300	±4	300-420	±4	800-1700	±5	900-1700	±5	<1000 & >1650	±8	<1000 & >1650
	±3	300-420	±3	420-980	±7	1700-1800	±9	1700-1800				
	±2	420-980	±7	980-1100								
	±7	980-1100										
Damage Threshold W/cm2	10		50		10		50		5		50	
Max Pulse Energy µJ	1		50		0.75		2		1		100	
Noise Level for filter out pW	±1				200				±300fW at 1550 nm and 1s average			
Response Time with Meter s	0.2				0.2				0.2			
Beam Position Dependence	±2%				±2%				±1% over 80% of aperture			
Fiber Adapters Available (see page 32)	ST, FC, SMA, SC				ST, FC, SMA, SC				FC, FC/APC, SMA			
Compliance	CE, UKCA, China RoHS				CE, UKCA, China RoHS				CE, UKCA, China RoHS			
Version									V1			
Part Number	PD300-UV:		7Z02413		7Z02412				7Z02402			
	PD300-UV-193:		7Z02413A ^(a)									

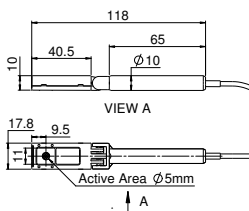
Notes: (a) Same as above with additional calibration point at 193nm accuracy ±6%
(b) For calibration uncertainty of wavelengths outside of this range see table on page 24

* For graphs see page 30-31

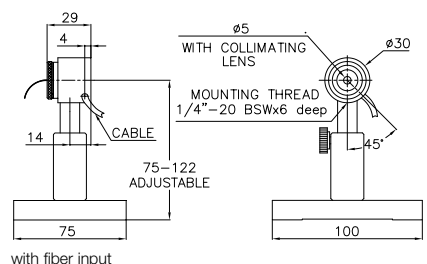
PD300-UV / PD300-IR filter installed
(Ø5mm for PD300-IR only)



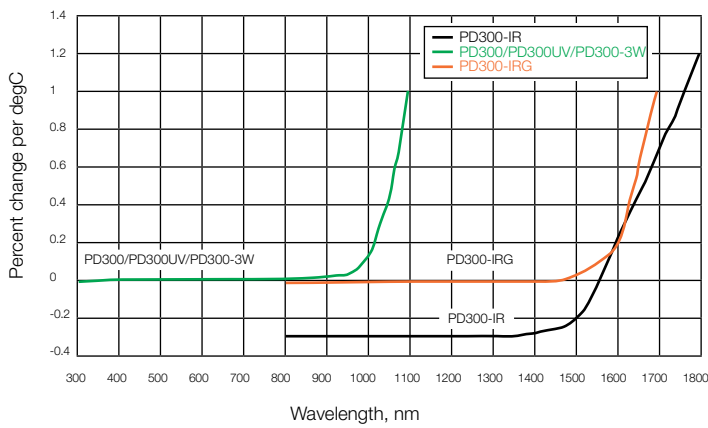
PD300-UV / PD300-IR filter off
(Ø5mm for PD300-IR only)



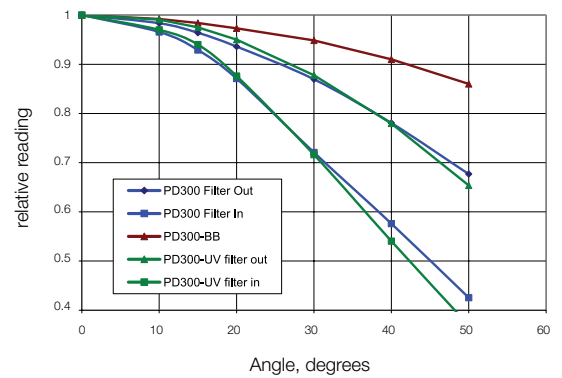
PD300-IRG



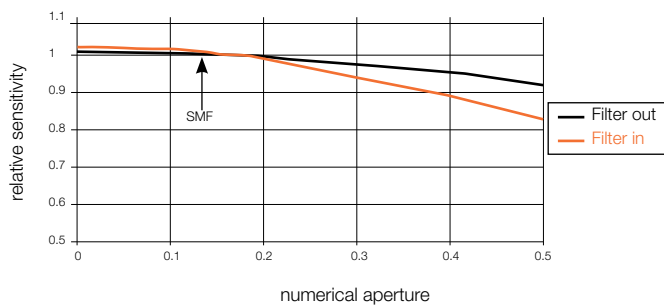
Temperature Coefficient of Sensitivity



PD300 Angle Dependence



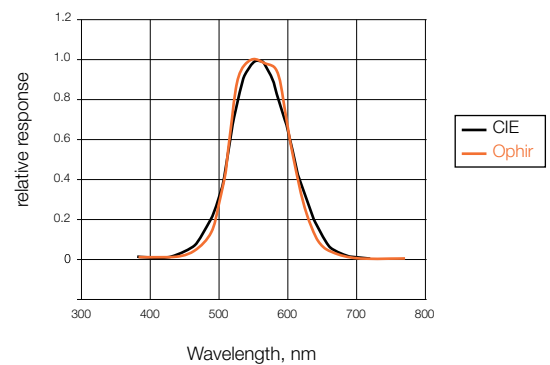
Dependence of Sensitivity on Numerical Aperture (PD300 - IRG)



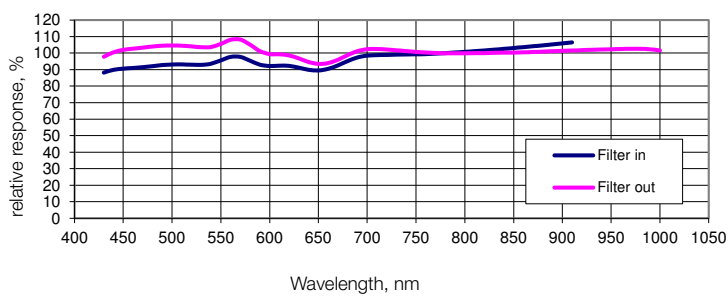
Note:

1. Graph assumes equal intensity into all angles up to maximum N.A.
2. Calibration is done with SMF, N.A. 0.13

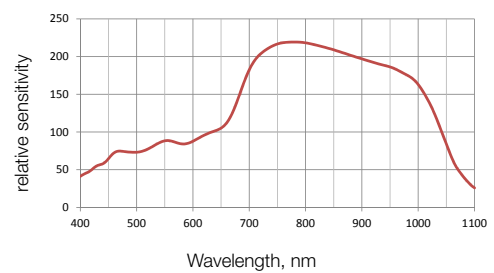
PD300-CIE Spectral Response vs. CIE Curve



Typical Sensitivity Curve of PD300-BB Sensors



BC20 Relative Spectral Response



Approximate Spectral Response

Relative to 633nm or 1550nm

