

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

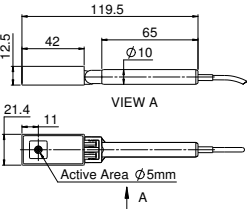


| Model                                               | PD300-UV/ PD300-UV-193        |          |                                    |      | PD300-IR                      |     |                        | PD300-IRG                                            |                                  |                       |           |  |    |               |  |    |               |  |
|-----------------------------------------------------|-------------------------------|----------|------------------------------------|------|-------------------------------|-----|------------------------|------------------------------------------------------|----------------------------------|-----------------------|-----------|--|----|---------------|--|----|---------------|--|
| 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 <sup>(b)</sup> |          |                                    |      | ±2.4% 700-1430 <sup>(b)</sup> |     |                        | ±2.4% 800-1430 <sup>(b)</sup>                        |                                  |                       |           |  |    |               |  |    |               |  |
| 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 <sup>(a)</sup>             | ±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:<br>PD300-UV-193:    |          | 7Z02413<br>7Z02413A <sup>(a)</sup> |      | 7Z02412                       |     |                        |                                                      | 7Z02402                          |                       |           |  |    |               |  |    |               |  |

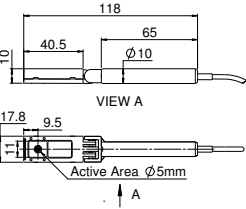
Notes: (a) Same as above with additional calibration point at 193nm accuracy ±6%  
(b) For calibration uncertainty of wavelengths outside of this range see table on page 24

\* For graphs see page 30-31

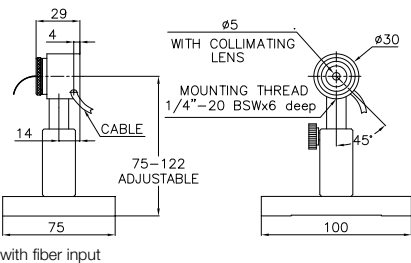
PD300-UV / PD300-IR filter installed  
(Ø5mm for PD300-IR only)



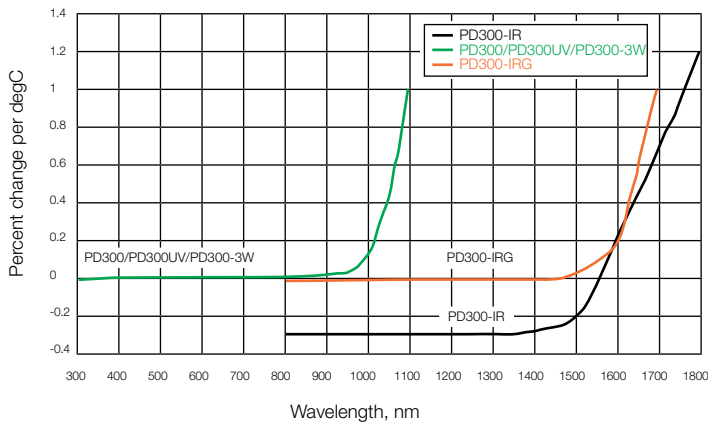
PD300-UV / PD300-IR filter off  
(Ø5mm for PD300-IR only)



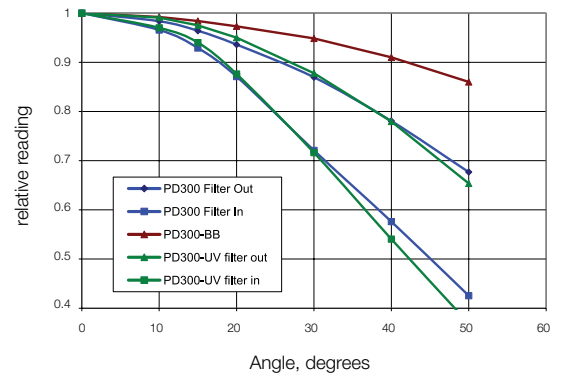
PD300-IRG



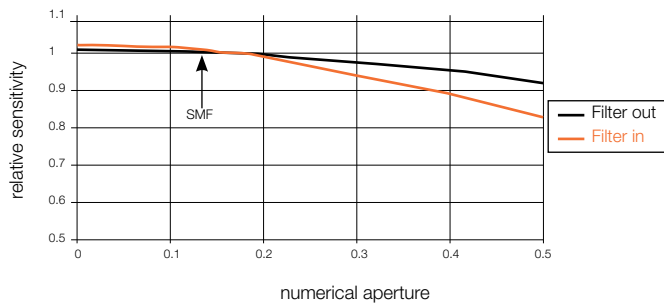
Temperature Coefficient of Sensitivity



PD300 Angle Dependence



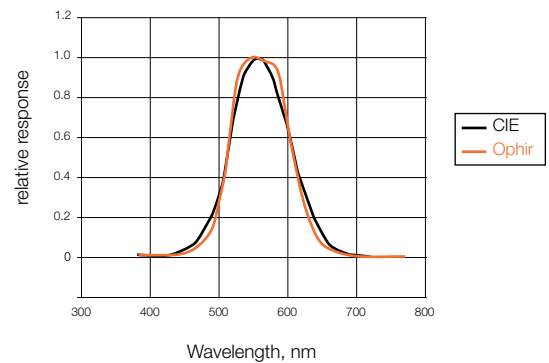
Dependence of Sensitivity on Numerical Aperture (PD300 - IRG)



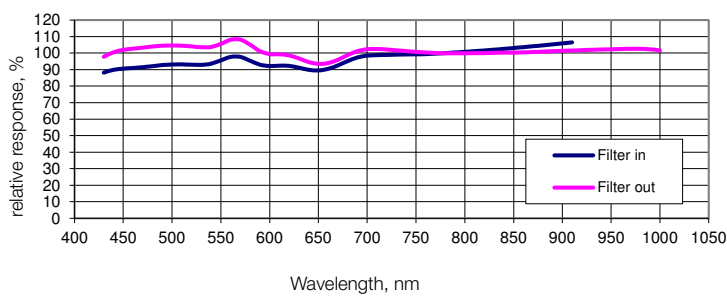
Note:

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

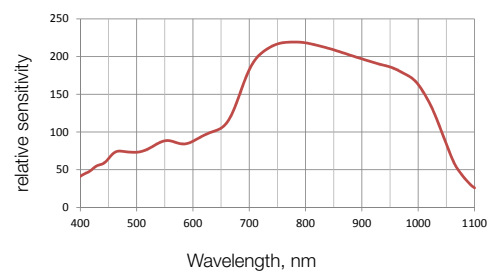
PD300-CIE Spectral Response vs. CIE Curve



Typical Sensitivity Curve of PD300-BB Sensors



BC20 Relative Spectral Response





Approximate Spectral Response

Relative to 633nm or 1550nm

