

Choose the best spectral response for your application

PPD Series Picosecond Photon Detection Modules

The PPD is a compact single-photon detection module containing all electronics necessary to detect single photons with picosecond accuracy. The module contains a fast rise-time photomultiplier tube, wide-bandwidth GHz pre-amplifier, picosecond constant-fraction discriminator, and regulated high-voltage supply, all in one compact, fully-integrated package.

The PPD is the first—and only—product to integrate all of the above functions into one module. The casing is machined from metal and plated to achieve the highest level of electromagnetic shielding.



Typical applications:

- Time-resolved fluorescence
- Particle-sizing
- Adaptive optics
- Photon-correlation spectroscopy
- Optical tomography
- LIDAR
- Chemiluminescence and bioluminescence detection
- General-purpose photon-counting and detection at low light levels

| Feature | Spectroscopy Benefits |
|---|---|
| Picosecond constant-fraction discriminator | Detect single photons with picosecond timing accuracy |
| Fast rise-time photomultiplier | Instrument response (TTS) <180 ps FWHM typical |
| Factory pre-set operation | No set-up required |
| No additional discriminators or high voltage required | Close-coupled signal optimization |
| Simultaneous NIM and TTL-compatible timing outputs | Flexible data-acquisition |
| Nickel-plated casings | Optimized EMF shielding |
| Spectral coverage from 230 to 920 nm | Photon-counting in UV and visible ranges |

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Specifications*

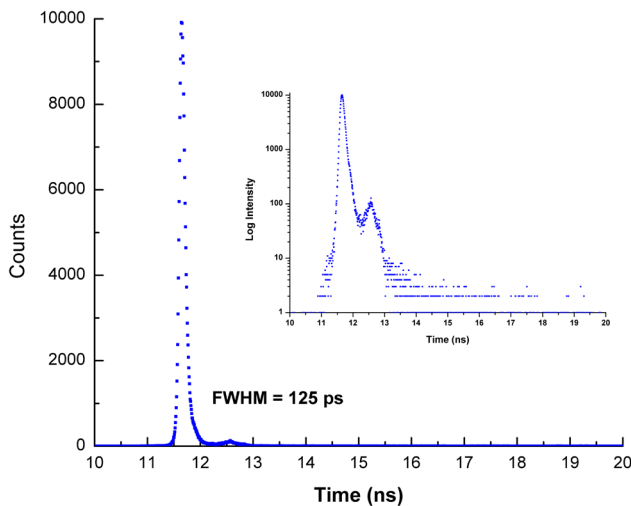
| | PPD-650 | PPD-850 | PPD-900 |
|---------------------|---------------------------------------|-----------------------|-----------------------|
| Transit time spread | 180 ps typical | | |
| Spectral response | 230 nm to 700 nm | 230 nm to 850 nm | 230 nm to 920 nm |
| Peak wavelength | 350 nm | 380 nm | 490 nm |
| Dark counts | <80 cps typical | <100 cps typical | <3000 cps typical |
| Active area | 8 mm diameter | | |
| Power requirements | +15 V, 300 mA (DPS-1 module optional) | DPS-1 module required | DPS-1 module required |
| Outputs | NIM and TTL-compatible (50 Ω) | | |
| Coupling | Light-tight 40 mm bayonet | | |
| Dimensions | 107 × 73 × 51 mm | | |



The PPD-850 and PPD-900 are thermoelectrically cooled and they require a dedicated power supply, the DPS-1.

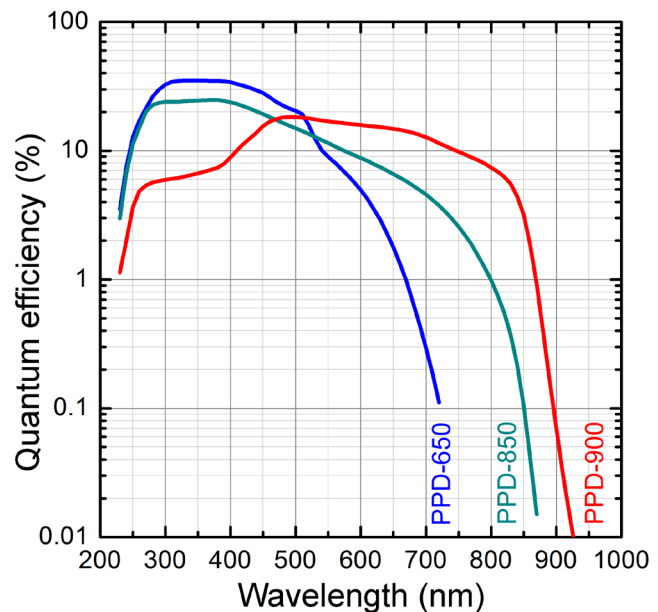
- ELEMENTAL ANALYSIS
- FLUORESCENCE
- GRATINGS & OEM SPECTROMETERS
- OPTICAL COMPONENTS
- FORENSICS
- PARTICLE CHARACTERIZATION
- RAMAN
- SPECTROSCOPIC ELLIPSOMETRY
- SPR IMAGING

Example data



Data measured using PPD-850 and NanoLED laser source, showing response using colloidal silica scattering solution. Inset: Data shown with logarithmic scale.

Spectral response curves



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