PMTH Series Room-Temperature Photomultiplier Detectors, Side-Window PMTs

Model PMTH Series · waveqvanta.com/products/pmth-series-room-temperature-photomultiplier-detectors

Shielded side-window PMT detectors for low-light measurements on monochromators, spectrographs and sample chambers.



PMTH-S1 detectors house a side-window photomultiplier tube in a light-tight enclosure with electromagnetic and optical shielding, designed to mount on Omni-λ series monochromators/spectrographs and sample chambers. Several side-window tubes can be fitted, with spectral responses from 185 nm up to 900 nm. The matching HVC1800 high-voltage power supply provides the stable negative bias required for low-level photometry and photon counting.

Key features

- Side-window PMT in a light-tight housing with electromagnetic and optical shielding
- Matched to Omni-λ series monochromators/spectrographs and sample chambers
- Signal output through a standard BNC; high voltage fed through a dedicated HV-rated BNC
- Current output as standard, voltage output optional
- Choice of built-in tubes: CR316-02, R1527, R1527P, CR131, CR131A, R928, R2949
- Optional HVC1800 supply: 0–1500 V DC negative, set manually or by an external 0–10 V signal (e.g. from the DCS300PA)

Specifications

Detector Type	Side-window photomultiplier tube, room temperature
Tube Options	CR316-02, R1527, R1527P, CR131, CR131A, R928, R2949
Spectral Response	185–650 nm to 185–900 nm, depending on tube
Photocathode Material	Sb-Cs (CR316-02); bialkali or multialkali (other tubes)
Dynode Structure	Circular-cage, 9 stages
Anode Pulse Rise Time	2.2 ns
Electron Transit Time	22 ns
Supply Voltage, Anode to Cathode	1250 V
Supply Voltage, Anode to Last Dynode	250 V
Signal Output	Current (standard), voltage (optional), via BNC
High-Voltage Input	Dedicated HV-rated BNC
HVC1800 Output Voltage	0–1500 V DC, negative
HVC1800 Voltage Control	Manual, or external 0–10 V control port (PC or D/A converter)
HVC1800 Max. Output Current	0.5 mA
HVC1800 Max. Output Voltage Drift	±0.05%/h
HVC1800 Display	3½-digit LED
HVC1800 Dimensions	240 × 240 × 120 mm
HVC1800 Weight	3.4 kg

Model overview

Tube	Spectral Response (nm)	Peak Response (nm)	Cathode Radiant Sens. (mA/W)	Cathode Luminous Sens. (µA/lm)	Anode Luminous Sens. (A/lm)	Gain	Anode Dark Current Typ./Max. (nA)	Dark Count Typ./Max. (cps, 25 °C)	Effective Area (mm)
CR316-02	185–650	340	48	40	–	1.0×10^7	5 / 15	–	8 × 24
R1527	185–680	400	60	60	400	6.7×10^6	0.1 / 2	–	8 × 24
R1527P	185–680	400	60	60	400	6.7×10^6	0.1 / 0.5	10 / 50	8 × 24
CR131	185–900	400 ± 30	74	140	1000	1.0×10^7	3 / 50	–	8 × 24
CR131A	185–900	400 ± 30	74	250	1500	1.0×10^7	3 / 50	–	8 × 24
R928	185–900	400 ± 30	74	250	2500	1.0×10^7	3 / 50	–	8 × 24
R2949	185–900	400 ± 30	68	200	2000	1.0×10^7	2 / 25	300 / 500	8 × 6

Typical applications

- Low-light photometry
- Single photon counting
- Fluorescence and luminescence spectroscopy with scanning monochromators
- UV–visible spectral measurements