

PDM Scattered Light Separation and Photodetector System

- Complete, compact package for PDPA/LDV
- High efficiency color separation
- Fully automated calibration diode system for PDPA applications
- Matched set of PMTs for particle size measurements

TSI's new Photodetector Module (PDM) system combines an enhanced scattered light separation unit with high performance photodetectors for Phase Doppler Particle Analyzer (PDPA) and Laser Doppler Velocimeter (LDV) applications. The system is optimized for the best dynamic and operating size ranges, yet allows the freedom to adjust system parameters easily. System operation is controlled by TSI's Flowsizer™ Data Acquisition, Analysis and Display Software.

New, compact, high-frequency-response photodetectors that exploit the latest advances in PMT technology convert the scattered light to electrical signals. A matched set of PMTs is used for phase Doppler measurements. A computer-controlled diode calibration system removes the effects of electronic delays between the three sizing channels and optimizes PDM system operation for particle sizing applications. The diode calibration system generates simulated bursts at any frequency, with very high resolution, to cover the amplitude and frequency range of the signal processor. The Flowsizer software provides a convenient user interface for operating the diode calibration system.



The PDM system requires no alignment. Simply connect the receiving fiber to the PDM and the color-separated signal outputs are available for sending to the signal processor. Scattered light from the receiving fiber (fibers) is separated by wavelength, with color filters eliminating potential color contamination before the scattered light reaches the photodetectors.

The photodetector voltage is controlled and monitored via software to optimize the signal quality. A built-in control circuit prevents saturation of the photomultiplier tubes. The PDM also includes a 12-bit A/D converter used to measure pedestal intensity (for phase/Doppler and two-phase flow applications).

Specifications

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Number of Photodetectors	1 to 5
Photodetector Type	High sensitivity photon counting
Bandwidth	DC to 300 MHz
Maximum Anode Voltage	1000 V
High Pass Filters	5 or 20 MHz (software-selectable)
Intensity Measurement	12 bit A/D
Optical Design	Removable/replaceable optics module
Upgradeable from LDV to PDPA	Yes
Upgradeable from 1D to 2D	Yes
Upgradeable from 2D to 3D	Yes
Dimensions (L × H × D)	35.5 × 11.5 × 23 cm (14 × 4.5 × 9 in.)

To Order

PDM 1000-1	One-channel system for velocity (LDV) measurements
PDM 1000-2	Two-channel system for velocity (LDV) measurements
PDM 1000-3	Three-channel system for velocity (LDV) measurements
PDM 1000-1P	One-channel system for size (PDPA) and velocity (LDV) measurements
PDM 1000-2P	Two-channel system for size (PDPA) and velocity (LDV) measurements
PDM 1000-3P	Three-channel system for size (PDPA) and velocity (LDV) measurements

Specifications subject to change without notice.



TSI Incorporated

Corporate Headquarters—Tel: 651 490 2811 **Toll Free:** 1 800 874 2811 **Fax:** 651 490 3824 **E-mail:** fluid@tsi.com

TSI China—Tel: +86 10 8260 1595 **Fax:** +86 10 8260 1597 **E-mail:** tsibeijing@tsi.com

Contact TSI or visit www.tsi.com for information on specific office locations worldwide.

