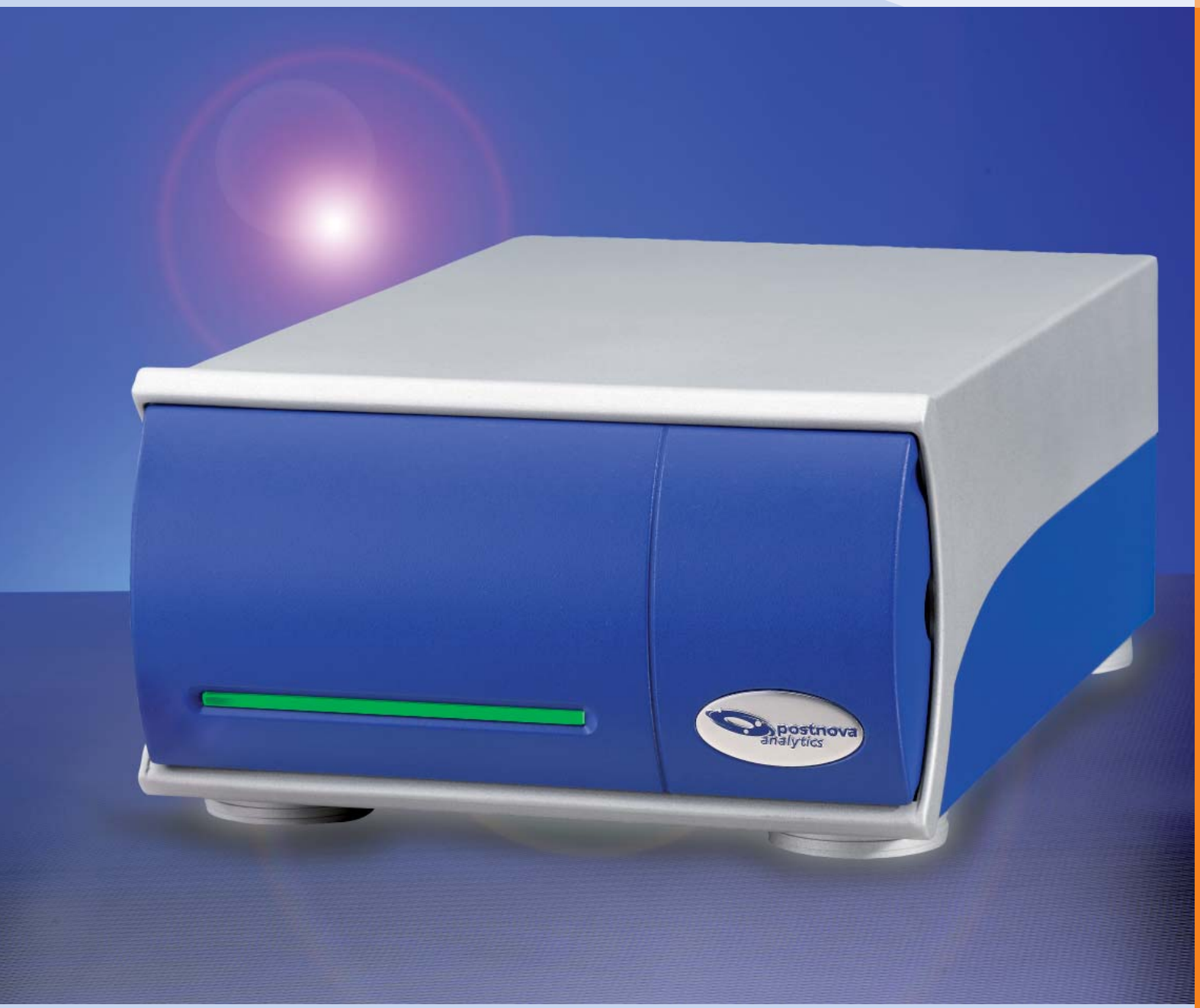
PN3070 MALS

Multi-Angle Light Scattering Detector



Technical specifications are subject to change without further notice.

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PN3070 MALS Detector

Specifications

- Sample Cell
  100 µL internal volume, PEEK cell with max. pressure up to 35bar / 500psi
- Static Light Scattering Volume
  20 nL
- Detection Principle
  Multi-Angle Static Laser Light Scattering Detection
- Light Scattering Angles
  35°, 50°, 75°, 90°, 105°, 130°, 145°
- Precision of Molar Mass
  +/- 1 %
- Molar Mass Range
  10^3 to 10^9 Daltons
- Radius of Gyration Range
  10 nm to 500 nm
- Hydrodynamic Radius Range
  Rh: 13 nm to 195 nm
  Dh: 26 nm to 390 nm
- Laser Specifications
  35 mW, 635 nm
- Laser Life Time
  Approx. 9.000 hours
- Solvent Compatibility
  All commonly used aqueous/ organic solvents
- Electronics
  4 standard inputs with 16-24 bit resolution and 16 optional analog channels with 24 bit resolution. Software select able gain adjustment! Suitable for most commonly used detectors as Refractive Index, UV/VIS and Viscometer, etc..
- Total Size
  ca. 21 cm x 44 cm x 11 cm
- Shipping Weight
  ca. 8,5 kg
- Power requirement
  230/110 V, 50/60 Hz
- Avaliable Options
  - Temperature Control 50°C +/-0.015°C
  - Expansion Board: 15 analog inputs with 24 bit
- Requires a PC with USB port for operation!

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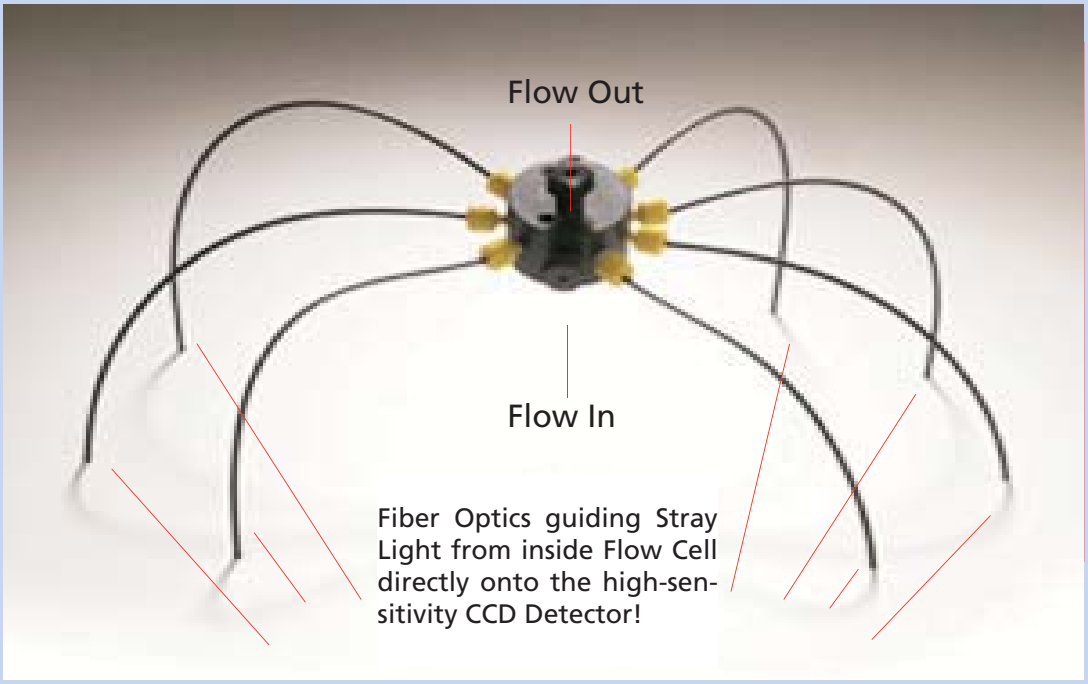
The PN3070 MALS Static Laser Light Scattering Detector is a new type of detection system, which combines high sensitivity fiber optics with advanced and unique CCD detection. The system enables the simultaneous and independent measurement of up to 7 angles using static light scattering at 35°, 50°, 75°, 90° 105°, 130° and 145°. The detection takes place in a small cylindrical and high sensitivity light scattering cell with a total volume of 100 µL. Due to the applied multi-angle detection, parameters such as absolute molar mass, radius of gyration and conformation can be determined. In this way, complex polymer and nanoparticle systems, where the use of single/dual angle light scattering technology is not sufficient, can be completely characterized. The PN3070 employs the latest opto-electronic components and devices, as e.g. modern microcontrollers, fiber optic detection coupled to a CCD and 24 bit A/D converters.

Unique Working Principle and Features

Avoiding the pitfalls of other commonly used MALS systems, the PN3070 brings the latest technology in electronics, CCD detection and light scattering cell design, directly into the scientific laboratory. Finally, there is a viable alternative available which offers unique advantages:

- Small footprint to save bench space and for more flexible instrument handling.
- Cylindrical cell design with vertical orientation to avoid sticking of airbubbles.
- Unique patented fiber optic detection without the use of fragile cell windows.
- Overcoming the index matching problem by using fiberoptic detection inside cell.
- Minimized dead volumes and absence of sharp narrow edges inside flow path.
- Extremely high dynamic range CCD detection overcoming outdated photodiodes.
- Direct gain adjustment via PC, no need for manual change of dip switches.
- The PN3070 is the new industry benchmark offered at a highly competitive pricing.



The patented fiberoptic flow cell incorporates 7 fused silica fibers, which are mounted directly in the cell showing only a low numerical aperture. There is no index matching neccessary with this set-up and changes of the solvent does not effect the angular position of the measured stray light outside the cell, as it typically happens with other flow cell designs using conventional windows. The whole cell is designed for maximum ruggedness and for long-lasting reliable use, with pressures applied up to 35 bar.
Because of its simple and robust design, the cell and the instrument in total is ideally suited not only for R&D but also for QC applications monitoring production processes.

Typical Application Range

- Biotechnology/Pharma: Biopolymers, Starches, Proteins, Virus, Antibodies, Micelles
- Polymer Science: Plastics, Rubbers, Co-polymers, Latex particles, Polyelectrolytes
- Environmental Research: Organic and Inorganic Colloids, Humic and Fulvic Acids