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BIC BI-200SM

Multiangle Research Goniometer

Colloid, polymer, and complex fluids characterization using Dynamic and Static Light Scattering

- **Multiangle Measurements:** Yields additional information on particles, molecules and structure
- **Simple Alignment:** Easy to learn, adjust and maintain; superior design
- **Flexible Design:** Any laser, open architecture allows user modifications
- **Fiber Optics:** Optional single-mode fiber optics for auto- and cross correlation

Typical applications: particle size analysis; structure in complex fluids; M_w , R_g , A_2 for dilute polymer solutions; studies of micelles, microemulsions and other colloids.

Instrument Specifications

Goniometer

200mm turntable mounted on circular base with holes for mounting to a supporting table. Manual or motor driven selection of angles with 0.01° steps. Rigid arm for mounting beam alignment apertures and neutral density filter in common holder and for mounting detector rail. Fine-thread screws for center-of-rotation adjustments.

Detector Optics

Adjustable eyepiece for viewing scattering volume. Two hundred micron wide slit with adjustments to determine center of rotation. All lenses are coated achromats. Filter wheel with narrow-band optical filters for laser wavelengths of 633, 514.5, 488 nm, optional 532 nm, one open and two blank positions. Pinhole turret with 100, 200 and 400 μm , pinholes for selecting coherence areas (DLS measurements) and 1, 2 and 3 mm apertures for adjusting intensity (SLS measurements).

Detector

Selected photomultiplier tube (PMT), shielded housing, socket, dynode chain, integral amplifier/discriminator. The low voltage power requirement (+12Vdc) is supplied from a Brookhaven correlator or photon counter. A separate high voltage supply is required for certain photomultiplier tubes.

ND Filter

A neutral density filter with an optical density of 3.0 is mounted on the rigid arm after alignment is complete. This reduces the main beam intensity by approximately a factor of 1000 for angles below approximately 8° .

Beam Focus

A 10 cm focal length coated achromat with adjustments is used for focusing and steering the beam onto the center of rotation. Entrance and exit apertures block stray light.



Brookhaven Instruments Corporation

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Sample Cell Assembly

Insulated, anodized metal housing with special glass vat for containing an index matching liquid. Inlet/outlet ports for circulating index matching liquid. Inlet/outlet ports for circulating a temperature controlled fluid around the sample cell holders. Temperature range may be maintained between +5°C to +80°C, depending upon the external controller. Cylindrical and square cell holders. Alignment cell for use in determining the center of rotation.

Sample Cells

12mm outside diameter, round cells with Teflon caps are provided as standard. Cells are nominally 55mm tall and require a minimum of 1.5mL of sample. The BI-200SM is capable of holding a variety of different sized and shaped cells with the use of standard and custom manufactured cell holders.

BI-200SM Options

BI-9000AT Digital Correlator

Auto- and cross correlation modes. Up to 522 user definable channels. Sampling times of 25 ns to 40 ms. Delay range of 25 ns to 1310 s. 100% efficient, real-time operation over entire delay range. Advanced dynamic and static light scattering Windows™ software.

LASERS & Optical Tables

Talk to our knowledgeable sales representatives about the best laser and optical table for your system. The BI-200SM accommodates any commercial laser, from 5mW diode lasers to 4W, water cooled, argon ion lasers. We also stock a variety of the highest quality optical tables for most any BI-200SM/laser configurations.

BI-LRM Laser Rails

Laser rail and mounts for small, cylindrical HeNe lasers, 35mW and lower power HeNe lasers with rectangular cross sections, and most Argon-ion lasers. Includes laser rail of appropriate length, foot with mounting holes and rail slider. Two adjustable laser mounts included.

BI-FC Closed Loop Filtration System

Gear pump, 47mm filter holder, set of filters, smooth-tip forceps for handling filters, Teflon tubing and connectors. For use with most index matching fluids like toluene or decahydronaphthalene (trade name, Decalin).

BI-TCA or TCD Temperature Controller

Temperature controller with external circulation. Stability of $\pm 0.1^\circ\text{C}$ over the range of +5°C to +80°C. Proportional control with temperature selection either analog (TCA) or digital (TCD).

BI-HV High Voltage Power Supply

High voltage power supply suitable for use with BI-200SM. Unit attaches directly to the BI-200SM.

BI-RC26 Wide Angle Cells

Nominal 26mm outside diameter cylindrical cells with Teflon stoppers. Best for wide angle and static light scattering measurements in aqueous and non-aqueous suspensions.



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