nano particle size and zeta potential analyzer for research

Nano particle size and Z potential analyzer is a combination of dynamic light scattering and electrophoretic light scattering technology of high-precision analytical equipment, able to simultaneously measure the particle size distribution of nanoparticles and surface electrical properties, Zeta potential.

Nano Particle Size and Zeta Potential Analyzer

Nano Particle Size and Zeta Potential Analyzer is widely used in the fields of material science, pharmaceutical, biotechnology, food, chemical, etc. It is an important tool to study colloid stability, surface modification of nanomaterials and electrical properties of dispersed systems.

Main Features

1. **Dual analytical capability:** Particle size and zeta potential can be tested simultaneously to comprehensively evaluate the physical and chemical properties of particles.
2. **High sensitivity detection:** The use of high-performance photomultiplier tubes to ensure that even weak signals can be accurately captured, high signal-to-noise ratio.

3. **Precise temperature control system:** Semiconductor thermostat control, precision up to 0.1 ℃, effectively eliminate the interference of temperature on the test results.
4. **Stable optical circuit design:** Optical frequency shifting and fiber optic coupling, compact size, strong anti-interference ability, to protect the stability of the test.
5. **Ultra-high-speed data processing:** Built-in high-performance digital correlator, real-time acquisition and data operation, to enhance test efficiency and accuracy.

Advantages

1. One machine for multiple uses, saving experimental costs and space.
2. Fast testing speed, high reproducibility of results.
3. Can analyze nanoscale particles, to meet the needs of high-end scientific research or industrial production.
4. Adaptable, can test different types and concentrations of samples.
5. Support automation and batch testing, suitable for high-throughput analysis.

Working Principle

The analyzer uses dynamic light scattering technology to irradiate nanoparticles dispersed in liquid with laser light, analyze the intensity change of scattered light due to Brownian motion, and then calculate the particle size distribution. zeta potential measurement is based on the principle of electrophoretic light scattering, which is based on the electrophoretic light scattering principle, whereby the particles move electrophoretically under the effect of electric field, and then the laser irradiation generates a Doppler shift, and then analyze the shift amount to obtain the particle size distribution through photon correlation spectroscopy technology. The zeta potential of the particles can be obtained by analyzing the frequency shift. The core data acquisition relies on a high-speed digital correlator to ensure accurate processing of electrophoresis and light scattering signals. The precise temperature control system ensures constant temperature throughout the test process, eliminating external influences and improving data stability.

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Model	**LP20**	
Implementation standards	GB/T 19627-2005/ISO 13321:1996; GB/T 29022-2012/ISO 22412:2008	
Measurement Range	1nm to 10000nm	-500mV to +500mV
Concentration range	0.1mg/ml to 100mg/ml, sample-related	
Electrophoretic mobility range	more than ±20 um·cm/V·s	
Conductivity	⩽ 200 mS/cm, depends on the sample	
Accuracy error	less than 1%	less than 15%
Repeatability error	less than 1%	less than 15%
Laser light source	Semiconductor laser, λ = 635 nm, P = 1 to 40 mW, adjustable	
Detector	Photomultiplier Tube, PMT	
Scattering angle	90 degrees	18 degrees
Sample cell volume	10mmx10mmx40mm, 1mL to 4mL	10mmx10mmx60mm, 1mL

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Model	**LP20**
Temperature control range	5°C to 45°C
Temperature control accuracy	±0.1°C
Measurement speed	less than 5 minutes
Dimensions	560mmx450mmx300mm
Weight	20kg
Power Supply	100Vac, 230Vac, 50Hz, 60Hz