

nano laser particle size analyzer with DLS technology

Nano Laser Particle Sizer is a high-precision analytical instrument specially designed to measure the particle size distribution of nanoscale particles, which is a key tool for nanomaterials research and quality control.

Nano Laser Particle Sizer

Nano laser particle sizer can get the particle size information of the particles in a short time by irradiating the sample with laser and utilizing advanced optical and digital signal processing technology.

Main Features

1. **High sensitivity detection:** The use of imported high-performance photomultiplier tubes and high-speed correlator, able to capture the weak photon signals, to ensure the accuracy of the detection of nanoscale particles.
2. **Constant temperature control system:** Equipped with precision semiconductor temperature control device, temperature fluctuation is small, to ensure the stability of the sample environment during the test, to enhance the reliability of the measurement.



3. **Intelligent operation:** Support automated testing process, equipped with a variety of analysis modes and statistical methods to meet different user needs.
4. **Multi-language interface:** The software supports a variety of languages, easy to use and communicate with users around the world.

Advantages

1. Non-destructive measurement: the whole testing process will not change or destroy the original state of the sample, suitable for analyzing sensitive materials.
2. High resolution and repeatability: able to distinguish the light intensity changes on a short time scale, particle size distribution results are fine and highly repeatable.
3. Anti-interference design: the use of fiber optic optical system, effectively shielded from external interference, suitable for complex experimental environment.
4. Powerful data analysis: support a variety of distribution models, such as free distribution, lognormal distribution, etc., multi-batch sample comparison and customized statistics, flexible data output, convenient for scientific research and industrial applications.

Working Principle

The core principle of the Nano Laser Particle Sizer is dynamic light scattering and photon correlation spectroscopy. When a laser beam is directed at nanoparticles dispersed in a liquid, the particles experience small fluctuations in scattered light intensity over time due to Brownian motion. By detecting the correlation of these light intensities over time, the diffusion coefficients of the particles in the liquid are calculated, and the particle sizes and their distributions are inverted using the Stokes-Einstein equation. This method can reflect the dynamic behavior of particles in real time and accurately, and it is one of the mainstream techniques for determining nanoparticle size.

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Model	LP10	LP11
Implementation standards	GB/T 19627-2005/ISO 13321:1996; GB/T 29022-2012/ISO 22412:2008	
Measurement Range	1nm to 10000nm, sample-related	
Accuracy error	less than 1%	
Repeatability error	less than 1%	
Concentration range	0.1mg/ml to 100mg/ml, sample-related	
Laser light source	Semiconductor Laser: $\lambda = 532\text{nm}, 639$	Main Light Source:

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Model	LP10	LP11
	nm, optional. Power: P = 1 to 40 mW, adjustable. Service Life: more than 25,000 hours.	Semiconductor laser: $\lambda = 532/639$ nm. Power: P = 1 to 40 mW, adjustable. Auxiliary Light Source: Blue laser: $\lambda = 405$ nm. Power: more than 2 mW
Detector	Photomultiplier Tube, PMT	
Scattering angle	90 degrees	
Sample cell volume	10mmx10mmx40mm, 1mL to 4mL	
Temperature control range	5°C to 90°C	
Temperature control accuracy	$\pm 0.1^\circ\text{C}$	
Measurement speed	less than 5 minutes	
Dimensions	600mmx380mmx230mm	

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Model	LP10	LP11
Weight	12kg	
Power Supply	100Vac, 230Vac, 50Hz, 60Hz	