

## GaoHong803 Photon Correlation DLS Nano particle Size Analyzer



### **Brief Introduction:**

GaoHong803 dynamic light scattering nanometer particle size analyzer which based on the dynamic light scattering principle, Based on Brownian motion principle, smaller particle, faster speed, bigger particle, more slowly. It adopt great performance of Japan HAMAMATSU photomultiplier and self-developed high speed digital correlator as core parts, Get diffusion coefficient by test scattering light change in some angle, and calculate particle diameter and distribution according to stokes-Einstein equation. the machine is with characters of fast calculation, high resolution ration, good accuracy and repeatability, it's widely used in company product lab research and university use, especially good for testing particle size distribution of coloured particles.

### **Application:**

Nano metallic oxide, Nano metallic powder, Nano ceramic material, protein, polymer latex, preparation of pharmaceutical, water/oil emulsion, paint, coating material, pigment, ink, toner, cosmetics and other fields of research, preparation and application of nano materials.

**Main specification:**

Model		GaoHong 803
Standard		GB/T 19627-2005/ISO 13321:1996 GB/T 29022-2012/ISO 22412:2008
Measure range		1nm-10000nm (reference to sample)
Concentration range		0.1mg/ml--100mg/ml
Accuracy error		<1%( average size of CRM)
Repeatability error		<1% ( average size of CRM)
Light source		Semiconductor laser $\lambda= 532\text{nm}$ P=30 mW Auxiliary blue laser $\lambda= 450\text{nm}$ P=5.0 mW
Detector		PMT -Imported Japan HAMAMATSU photo-multiplier (19-90°C)
Scattering angle		90°
Sample cuvette		1-4mL
Test temperature		5-90 °C ( temperature controller 5-90°C, precision within 0.1°C )
Test speed		<5 Min
Power Supply		220V 50HZ/60HZ
Outer Dimension		L18.9*W10.63*H6.69"
G.W.		12Kg/26.46pound
Operation system (MIN)		Win XP/Win 7/Win 10 64 bits, USB port: 2.0 /3.0
Analysis		Average particle diameter, particle distribution, photon counting rate etc.
Digital Correlator	Model	CR256
	Auto-correlation channels	256
	Baseline channel	4
	Unit delay time	100ns-10ms

## **Main Features:**

### 1) Dual-wavelength laser, automatic switching

Exclusively using dual-wavelength ( $\lambda= 450 \text{ nm}$ ,  $\lambda= 532 \text{ nm}$ ) laser to build the optical system. The correlation spectrum detection system is not only small size, but also has strong anti-interference ability, thus ensuring the stability of the test. For some samples with absorbance properties, which can not be detected by traditional single-wavelength laser, it can be tested effectively.

### 2) Advanced test principle

Dynamic light scattering principle and photon correlation spectrum technology, according to Brownian motion speed of particle to test particle size, different size of particles have different speed, when laser illuminate these particles, it will make scattering light happen different speed of fluctuations- downs.

Photo correlation spectrum method will analyze these particle size according to Photon fluctuations -downs in particular direction.

### 3) High resolution

Using PCR technology test nanometer-scale particle size, must be able to distinguish nanosecond signal fluctuations. The core components of the instrument is CR256 digital correlator developed by our company, with 8ns high resolution speed.

### 4) High sensitivity and Noise-signal ratio

Detector is composed of imported HAMAMATSU photomultiplier, so ensure good accuracy.

### 5) High speed data collection and calculation

Self-developed patent product-CR256 digital correlation, It could finish dynamic scattering light intensity collection and autocorrelative function real time calculation, Data processing speed is up to 162M, effectively reflect dynamic scattering light information of different sizes of particles.

### 6) High stable optical path system

Photon correlation spectrum detect system adopt optical-fibre technology, smaller size and high

anti-interference and reliability.

7) High precision constant temperature control system

Semiconductor temperature control technology, precision control within  $\pm 0.1^{\circ}\text{C}$ , make samples be in a constant state throughout the testing process, prevent testing error because temperature change will change liquid viscosity and Brownian movement speed.

8) Output parameters

Real particle size distribution, freely set D10-D100, D[4,3], D[3,2], D[2,1], D[1,0] and specific surface area.

