

## Main specification:

Model No.	Winner901		
Executive standard	GB/T 19627-2005/ISO 13321: 1996 ; GB/T 29022-2012/ISO 22412: 2008		
Function	Size, Zeta potential, Molecular weight		
Measure range	1-10000nm (reference to sample)	-500mV — +500mV	
Concentration range	0.1mg/ml--100mg/ml (reference to sample)		
Electrophoretic mobility range	> $\pm 20\mu\text{m}\cdot\text{cm}/\text{V}\cdot\text{s}$		
Highest conductivity	200mS/cm (reference to sample)		
Accuracy error	<1% (National standard sample D50 value)	<10% (Standard sample)	
Repeatability error	<1% (National standard sample D50 value)	<10%(Standard sample)	
Laser Source	Semiconductor laser $\lambda= 635\text{nm}$ , P=1-40mw (adjustable)		
Detector	Photomultiplier tube		
Scattering angle	90°	18°	
Sample cell volume	10mm*10mm*40mm, 1--4mL	10mm*10mm*60mm, 1mL	
Temperate range	5-45°C		
Temperature control accuracy	0.1°C		
Test speed	<5 Min		
Digital correlator	Model	HA1024	HA1024
	Auto-correlation channels	892	892
	Baseline channel	4	-
	Physical channels	5000	-
	Unit delay time	1 $\mu\text{s}$ -10ms(adjustable)	1 $\mu\text{s}$ -10ms(adjustable)
Outer dimension	560mm*450mm*300mm		
N.W.	20Kg		

Test principle	Using the principle of electrophoretic light scattering and photon correlation spectroscopy, the size of particle Zeta potential was determined according to the electrophoretic movement speed of particles in liquid. The population velocity of the electrophoretic motion of the particles, and the amount of Doppler shift of the scattered light caused by the laser irradiation of these particles, varies. Photon correlation spectroscopy analyzes the size of particle Zeta potential according to the frequency shift.
Ultra-high-speed data acquisition	The core component of the instrument is through the HA1024 digital correlator, which can complete the collection of electrophoretic scattered light intensity and the calculation of the auto-correlation function in real time, so as to effectively reflect the information of the electrophoretic movement speed of the particles and lay the foundation for the accuracy of the Zeta potential test results.
High sensitivity signal-to-noise ratio	Using professional-grade high-performance photomultiplier tubes, it has extremely high sensitivity and signal-to-noise ratio to photon signals.
High-precision constant temperature control	Using semiconductor temperature control technology, the temperature control accuracy is as high as 0.1 °C, so that the sample is always in a constant temperature state during the whole test process, avoiding the test deviation caused by the change of liquid viscosity and Brownian motion caused by temperature changes, and ensuring the accuracy and stability of the test results.
Stable optical path system	The optical path system constructed by the optical frequency shifting device and the optical fiber coupling technology makes the detection system not only small in size, but also has strong anti-interference ability, thus ensuring the stability of the test.