



## **Winner- 99E Static Image Particle Size Analyzer**



### **Brief introduction:**

Winner99E is a special instrument for particle size distribution and particle shape analysis. The instrument through well-designed professional-grade optical microscope and camera to obtain particles information; using a computer image analysis technology to analyze and process, thereby determining the particle size distribution and particle morphology. The instrument is easy to operate, the image is clear, intuitive measurement resolution is up to 0.1 micron / pixel, wide measuring range etc. outstanding features, It can be widely used in new product research and development, technology control and quality inspection of universities, research institutes and enterprises.

Winner99E is an upgraded version of Winner99C and winner99D products used have higher resolution, high speed CMOS camera and full new automatic analysis algorithms to improve the accuracy rate of automated analysis, and can be freely generate color and Binarization particle size analysis report . Meanwhile, the instrument increases two manual binarization algorithm of the boundary detection and equalization, greatly reducing the dynamic binarization error and complexity, to improve the accuracy of the analysis.

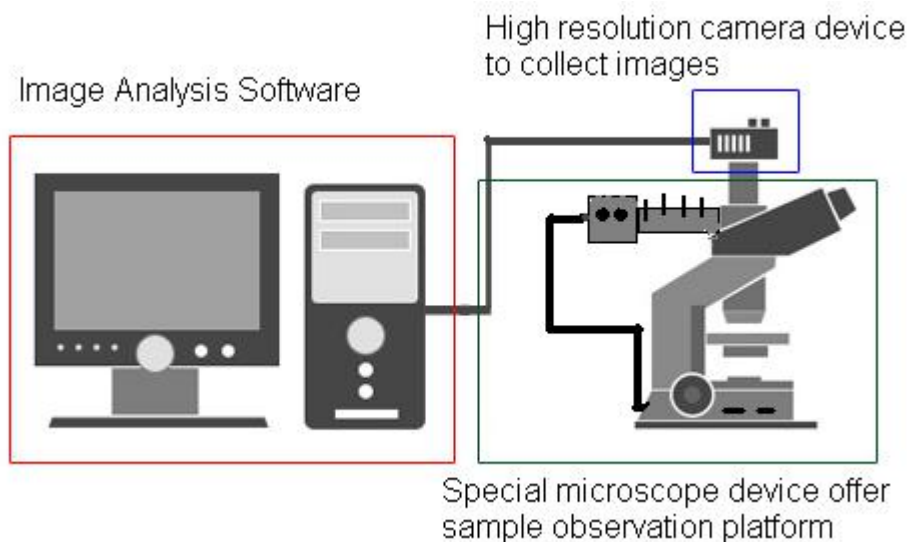
The instrument uses the latest high-speed CMOS camera with a resolution of up to 2048x1536, both high-definition and ultra-high signal to noise ratio and conversion

accuracy and so on.

### **Structural features:**

Winner 99E standard three most microscopic particle image analyzer system is composed of special microscope equipment, high-definition camera device and image analysis software.

Configured as shown:



### **Main Features:**

#### **1, Software support**

powerful automatic analysis function, simple to operate equalization and boundary detection and other Binarization methods, greatly improves the data processing and analysis capabilities. It reduces the complexity of user operation, improve the equipment convenience and resolution.

#### **2, Intuitive test results**

It enables users to more comprehensive understanding of the morphology of particles, status, process changes and other information when testing particles. Also, intuitive sample pictures could help users better understand the meaning of the data in the report.

#### **3, Image stitching**

The multiple picture Stitching seamless, get more number of particles in the particle testing in order to improve test representation. But also can stitching accuracy after save a single analysis, to further improve the result accuracy.

#### **4, Particles automatic processing tool-set**

Automatic elimination of particle adhesion, automatically eliminate noise, automatically eliminate boundaries incomplete particles, the particles automatically fill the hollow area, automatic smooth grain boundaries, etc. 12 automatic processing tools.

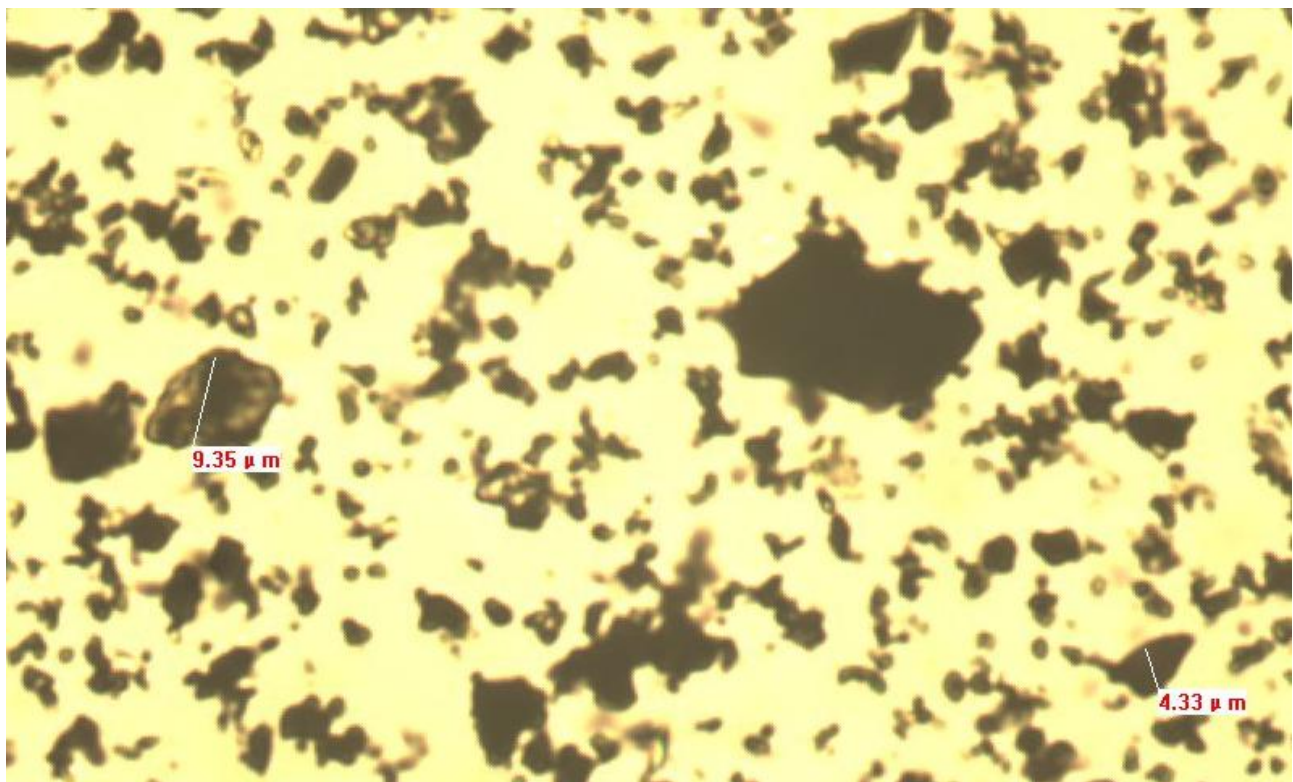
## Main Specification:

Model		Winner99E
Standard		ISO13322-1: 2004; GB/T21649.1-2008
Size Range		1-6000 $\mu\text{m}$
Maximum Resolution		0.1 micron
Repeatability		<3%(error due to sample not considered)
Digital camera(CCD)		3 million pixels
Ruler Scale		3.2*3.2um
Segmentation Speed		<1 second
Segmentation Success rate		>98%
Operation system		Win XP/Win7
Connection Port		USB
Microscope system	Microscope	Domestic biological microscope, (Japan Olympus is available)
	Max amplification	4000
Software function	Static collection	Take the sample morphology into high resolution JPG image
	Image Processing	a variety of drawing tools
	Image stitching	The multiple picture Stitching seamless, get more number of particles in the particle testing in order to improve test representation. But also can stitching accuracy after save a single analysis, to further improve the result accuracy.
	Particles automatic processing tool-set	Automatic elimination of particle adhesion, noise point, boundaries incomplete particles, Automatically fill the hollow area and automatic smooth grain boundaries, etc. 12 automatic processing tools.
	Scale Calibration	After the adoption of national standards calibrated micrometer, simply select each test scale corresponds with the objective value can directly get the actual size of the value of the particles.
	Single particle photo data	Cross-sectional area, volume, aspect ratio etc. 10 specification
	characteristic parameter	D10、D50、D90、D100 etc.
Report parameters	Overall frequency distribution	The frequency of particles by number, volume, area and other distribution Distribution and cumulative distribution of data tables, graphs, bar charts, and so on.

	cumulative distribution	
	Statistical average diameter	Xnl、Xns、Xnv、Xls、Xlv、Xsv etc.
	Shape parameters	L/D ratio, Aspect ratio, a huge rate, sphericity, surface ratio, specific surface area, circumscribed rectangle parameters etc.
	Number statistics	Number of particles directly observed

### Application:

Winner 99E static particle image analyzer used in cement, ceramics, pharmaceuticals, paints, dyes, pigments, fillers, chemical products, catalysts, coal, sediment, dust, flour, food additives, pesticides, explosives, graphite, photographic materials, fuel , metal and non-metal powder, calcium carbonate, kaolin and other powder industry.




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