

## **Laser Particle Size Analyzer, (Measuring Range**

**0.1~500 $\mu$ m)**

**BGD 249-1**

### **Product Description**

The BGD 249 Laser Particles Size Analyzer is a new cost-effective laser particle size analyzer designed by our manufacturer. It is used to measure the particle size distribution of powder or latex.

**Test Principle** Light is an electromagnetic wave. When light meets with particles on its way of traveling, the interaction between light and particles will result in deviations of part of the light, which is called light scattering. The bigger the scattering angle is, the particle size will be smaller, the smaller the scattering angle is, the particle size will be bigger. The particle analyzer instruments will analyze the particle distribution according to this physical character of the light wave.



### **Technical Specification**

#### **Reliable optical platform**

- Use horizontal straight light path layout, no reflecting prism, light path is stable and reliable
- Good designability for base, good consistency of light path
- Anti-moist ability of laser power module and the stability of electric are better
- Modular construction design, maintenance is more convenient
- The testing performance for small particles is improved
- The all-in-one housing design, it's dust-protected and water-proof.

#### **Schematic diagram of optical path**

- Totally enclosed design of light path system, dust pollution and external light pollution can be prevented.
- Light path adopts lens back Fourier transform structure
- Optical source adopts He-Ne laser emitter which owns better monochromaticity, high coherence, small divergence angle and good stability compared to other laser emitters, we also adopt the patent design of integrated laser emitter which reduces heat distortion of laser tube and external mechanical vibration
- For laser emitter, except for traditional detection of output power value, we add the stability test of output power.
- Smooth processing technology is used to reduce the impact of power fluctuation to measurement
- Constant current limit and filling process of laser tube are used to reduce the flash frequency to the minimum

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- Backward detector is added, the lower limit of measurement is extended to 0.1micron.
- Spatial filter is fixed by powerful permanent magnet, the pinhole is not easy to shift under the disturbance of external force, so the stability of the optical path has been greatly improved. Besides, the new designed spatial filter eliminates the laser diffraction ring more effectively, the light background of the instrument is lower, optical energy data is more accurate, it is helpful to improve the testing capability for large particles
- Detector array adopts unique scattered light detection around a sphere surface DAS , the large angle detectors are placed in a spherical surface to get accurate focus of the large angle scattered light.

### **Advanced data collection and processing technology**

- New designed data collecting board uses 32 bit CPU from famous chip design company-ARM,the CPU has the advantages of high-effective signal processing capacity and low power consumption
- Using 8-channel simultaneous sampling to sample 16 bit ADC, the sampling frequency of frame data can reach 1 kHz.
- Using 64-channel simultaneous sampling technology and sample & hold switch with ultralow leakage current, the full scale accuracy can reach 0.15%
- Easy to update the firmware and layout data, more convenient for maintenance and operation
- Offset function of electric background, it can help to get more accurate optical energy data

### **Software**

- SOP standardization operating procedure function, analysis & testing process standardization
- Multiple distribution models Rosin-Ramler mode, general mode, enhanced mode, Single mode
- Two report models General purpose, statistics
- Two accumulative directions: small to large, large to small
- Data input function, and reports can be exported as Word, Excel format or other text format files
- Multiple reports can be opened at the same time, easy to compare among reports
- Report items can be set/ selected according to customers' requirements, also can be set as fixed report format.
- Users can define refractive index parameters by themselves, including real part and imaginary part (correspond to the absorption of sample)
- Automatic clear of electric background

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### **Main Technical Parameters**

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- Measuring Range: 0.1~750µm
- Sample Feeding: wet dispersion
- Repeatability: ≤1% (standard sample D50)
- Scan frequency: 1 kHz (times/second)
- Measurement Duration: 1-2 minutes
- Number of Detectors: 49
- Environmental Requirement: Temperature: 5-35°C; Humidity: <85%
- Report Items: Particle size distribution table & graph, Average diameter, Median diameter, SSA, etc.
- Dimension (L × W × H): 838 X 265 X 295mm (mainframe)
- Ordering Information:
  - BGD 249 - Laser Particle Size Analyzer
  - BGD 1168 - Circulating Small sample Feeding System (Optional)

### **Disclaimer**

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