HORIBA Global Application/Service Network

Laser Scattering Particle Size Distribution Analyzer
LA-960V2


See the True Characterization of Your Particles.

https://www.horiba.com
HORIBA proudly introduces the newest breakthrough in particle size technology.

Laser Scattering Particle Size Distribution Analyzer Partica LA-960V2

This latest evolution in the LA series advances scientific knowledge for tomorrow’s world through intuitive software, unique accessories, and high performance. The Partica LA-960V2 continues HORIBA’s long standing tradition of leading the industry with innovative design in both the hardware and the software. The new optical design allows the user to visualize the particle dispersion in real time.

Proven high accuracy and resolution for wide application

- CMP slurry
- Catalysts
- Ink / Pigments
- Plastics
- Minerals
- Metal powder
- Emulsion
- Battery
- Capacitor
- 3D printing
- Paper Coating
- Pharmaceutical
- Cosmetics
- Food / Drink
- Building materials

HORIBA’s Original Optical Design

The groundbreaking optical design perfects the static light scattering particle sizing technique.

Advanced Detector Design

The number of detectors, angular range, and layout contribute to overall system performance. The Partica LA-960V2 uses logarithmically spaced silicon photodiodes that detect a wide range up to 165 degrees to allowing the measurement of complete particle size distributions.

Superior Instrument-to-Instrument Precision

The Partica LA-960V2 is designed and built to provide the same experience regardless of manufacture date, operator skill, or geographic location. It achieves unmatched instrument agreement without the need for additional correlation procedures.

Automatic Laser Alignment in Seconds

Always make perfect measurements with computer-controlled laser alignment. The alignment process is completed in only a few seconds with HORIBA’s innovative approach.

Guaranteed Accuracy

The Partica LA-960V2 is a capable of accurately measuring NIST-traceable size standards within 0.6% of specification. Fully compliant with ISO 13320 recommendations.
HORIBA proudly introduces the newest breakthrough in particle size technology.

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Measuring with two light sources, red laser diode and blue LED, which enables detection from nanometers to millimeters with a single optical setup.

Ceria
Silica
Alumina
Positive electrode
Negative electrode
Electrolyte
State of the Art Sampling Systems

Wet Measurement

Sample-to-sample analysis in less than 60 seconds

The Partica LA-960V2 wet circulation system is an easy, fast and very powerful dispersion system. The standard wet system offers a full package which includes dispersant fill pump, liquid level sensor, circulation pump, 30 W in-line ultrasonic probe, and drain valve. It is all software-controlled for true one-button operation. This advanced design provides highly reproducible particle size results.

Dry Measurement

Automated, powerful dry powder dispersion

The Partica LA-960V2 Powderjet combines several unique and patented features to provide the most reproducible dry measurements. Use the Auto Measurement function to control vacuum, air pressure, powder flow, start/stop conditions, measurement duration, and data processing. Designed to handle every application including small sample amounts, friable powders, and highly agglomerated materials.

Smart Scans - Trigger Function

This function allows precise materials to be measured accurately. When the sample amount is limited or has low fluidity, the trigger functions starts and stops the measurement with faultless precision.

Self-adjusting Powder Flow

Historically, the biggest challenge in dry powder measurement involved establishing an even powder flow. The Partica LA-960V2 Powderjet has solved that challenge with a self-adjusting feedback loop to maintain a constant laser transmittance. This is a crucial factor in creating reliable, reproducible dry powder size measurements.

Available chutes

Standard chute

Equipped with every Powderjet Dry Feeder and used for most powders.

V type chute

This chute is ideal for both small amounts of powder and powder which does not flow easily, e.g. magnetic powders.

Vacuum sampler

This accessory is useful for measuring very small amounts of powder. Sampling table is included.

Cooled chute

This cooled chute is useful for samples which adhere to the stainless steel standard sample bath.

Flow cell Sample bath Drain

Auto-fill pump → Flow cell → Sample bath

Accessories

High Concentration Cell

Feature

The high concentration cell unit allows measurement closer to the original concentration with low dilution rates, no dilution and variable concentration.

Typical Applications

Understand the particle dispersion state of high concentration slurries, such as positive and negative electrode materials of batteries, inks, paints, pigments, emulsions etc.

Typical Applications

Find and count small amounts of large particles and aggregated particles. 5 types of particle shape analysis and the alarm of the observed “bubble” are also possible.

Typical Applications

Valuable samples requiring powerful dispersion and materials requiring hazardous dispersions such as organic solvent and oil solvent.

Typical Applications

Samples requiring minimal dispersion such as precious samples, bio material and highly volatile solvent. Samples to measure without dispersing forces.

Auto Sampler (Wet measurement in powder)

The Auto Sampler is a rotary table-type automatic sampling system equipped with 24 detachable sample cups.

Comparison of the results of undiluted suspension measurement and flow measurement (diluted with dispersant)

Undiluted sample

Flow measurement

Comparison of undiluted suspension measurement and flow measurement (diluted with dispersant)
State of the Art Sampling Systems

**Wet Measurement**

**Sample-to-sample analysis in less than 60 seconds**

The Partica LA-960V2 wet circulation system is an easy, fast and very powerful dispersion system. The standard wet system offers a full package which includes dispersant fill pump, liquid level sensor, circulation pump, 30 W in-line ultrasonic probe, and drain valve. It is all software-controlled for true one-button operation. This advanced design provides highly reproducible particle size results.

- **Auto-fill**
- **Auto-fill pump → Flow cell → Sample bath**
- **Circulation**
- **Sample bath → Ultrasonic probe → Flow cell**
- **Drain**
- **Flow cell → Sample bath → Drain**

**Dry Measurement**

**Automated, powerful dry powder dispersion**

The Partica LA-960V2 Powderjet combines several unique and patented features to provide the most reproducible dry measurements. Use the Auto Measurement function to control vacuum, air pressure, powder flow, start/stop conditions, measurement duration, and data processing. Designed to handle every application including small sample amounts, friable powders, and highly agglomerated materials.

**Smart Scans - Trigger Function**

This function allows precious materials to be measured accurately. When the sample amount is limited or has low flowability, the trigger functions start and stop the measurement with faultless precision.

**Self-adjusting Powder Flow**

Historically, the biggest challenge in dry powder measurement involved establishing an even powder flow. The Partica LA-960V2 Powderjet has solved that challenge with a self-adjusting feedback loop to maintain a constant laser transmittance. This is a crucial factor in creating reliable, reproducible dry powder size measurements.

**Available chutes**

- **Standard chute**
  - Equipped with every Powderjet Dry Feeder and used for most powders.

- **V type chute**
  - This chute is ideal for both small amounts of powder and powder which does not flow easily, e.g. magnetic powders.

- **Vacuum sampler**
  - This accessory is useful for measuring very small amounts of powder.
  - *Sampling table is included.*

- **Cooled chute**
  - This cooled chute is useful for samples which adhere to the stainless steel standard chutes.

- **MiniFlow (Circulation system)**
  - Measurement range: 9 μm-1000 μm
  - **Feature**
    - *Comparison of the results of undiluted suspension measurement and flow measurement (diluted with dispersant).*

- **Miniflow**
  - *Typical Applications*
    - Find and count small amounts of large particles and agglomerated particles, 5 types of particle shape analysis and the alarm of the observed “bubble” are also possible.

**Accessories**

- **High Concentration Cell**
  - **Feature**
    - The high concentration cell unit allows measurement closer to the original concentration with low dilution rates, no dilution and variable concentration.

- **Typical Applications**
  - Understand the particle dispersion state of high concentration slurry, such as positive and negative electrode materials of batteries, inks, paints, pigments, emulsions etc.

- **Auto Sampler (Wet measurement in powder)**
  - The Auto Sampler is a rotary table-type automatic sampling system equipped with 24 detachable sample cups.

- **Fraction Cell**
  - **Feature**
    - The Fraction Cell makes measurements with only micrograms of sample. The unique accessory is available in 5, 10 and 15 mL volumes and fully solvent resistant.

- **Typical Applications**
  - Samples requiring minimal dispersion such as precious samples, bio material and highly volatile solvent. Samples to measure without dispersing forces.

- **Imaging Analysis Unit (Built-in option)**
  - The imaging unit visualizes the particle in the wet circulation system. It is very small and built into the main unit, and can acquire particle image information without changing the usability.
  - **Feature**
    - Measurement range: 9 μm-1000 μm
  - **Typical Applications**
    - Feature
      - *Particle images information without changing the usability.*

- **Typical Applications**
  - Feature
    - 8 types of particle shape analysis and the alarm of the observed “bubble” are also possible.

- **10 Micrometer Cell**
  - **Feature**
    - Median size 0.08798 (µm)
  - **Typical Applications**
    - *Particle images information without changing the usability.*

- **Typical Applications**
  - Feature
    - Measurement range: 0.0-1000 µm

- **Typical Applications**
  - Feature
    - *Particle images information without changing the usability.*

- **Typical Applications**
  - Feature
    - Measurement range: 0.0-1000 µm

- **Typical Applications**
  - Feature
    - Measurement range: 0.0-1000 µm
Innovations in hardware and software

**Performance**
State of the art nanoparticle measurement

The advanced design of the Partica LA-960V2 allows for easy measurement of nanoparticle applications. NIST-traceable size standards verify that the Partica LA-960V2 accurately measures peaks as fine as 30 nanometers.

**Wide range**
Measurement range 10 nm - 5000 µm

The Partica LA-960V2 features a wide measurement range to measure every application. The unique optical bench is user-friendly and standard in every Partica LA-960V2 configuration.

**Operation**
Intuitive software

The Partica LA-960V2 software is designed to be intuitive, allowing the user to check particle size distribution in real time. There is also a navigation system that allows one click measurements.

In addition, Method Expert software makes it easy to create robust, powerful methods for research and development purposes as well as quality control. The Method Expert is a series of guided, automated tests with advice to help the user choose values for refractive index, concentration, ultrasonic dispersion, pump speed and measurement duration. Without any training, users can generate effective data in a short amount of time using the software.

**Speed**
One click measurement Navigation system

This incredible speed is made possible by automatic laser alignment, fully automated liquid handling and intuitive software design.

- Adding dispersion medium
- De-bubble
- Optical axis adjustment
- Blank measurement
- Sampling
- Measurement
- Data storage/printing
- Draining/rinsing

The Method Expert recommends the most suitable refractive index.

**With PowderJet Dryer Feeder Accessory**

- Dispensing Method: Component or dispersion using motor control
- Sample handling: Vibrating feeder
- Measurement Range: 10 nm - 5000 µm
- Controls: Communication: Serial cable to the main unit
  - Measurement: Vibrating feeder controlled automatically as feedback from PowderJet

**Data support**
- Traceability certification
- 21 CFR Part 11 compliant support optional software
- IQ/OQ/PQ documents support
- Data correlation support with old model

**Partica LA-960V2 Standard Model**

| Measurement Principle | Mix scattering and Mie scattering, diffraction |
| Measurement Range     | 10 nm - 5000 µm |
| Measurement Time       | Typical measurement takes 60 seconds from liquid filling, sampling and measurement to drying |
| Measurement Method     | Differential interference and fraction cell measurement |
| Sample Quantity        | Approximately 0.5 mg - 0.3 L depending on the particle size, dilution and density |
| Dispensing Volume      | Approximately 100 µL for standard pumping system |
| Dispensing System      | Automatic fill and circulation pumps, 4 selectable fill rates, 10 selectable circulation speeds (max 1.5 min) |
| Available Capillary    | Acryl (P Series) (Air driven) sampling capillary can be used as a dispersed additive |
| Communication          | Real solid state 1-mm inner, 3-mm outer solid state connection (900 V) |
| Light Sources          | Blue light 470 nm (20 W), 650 nm (10 W) |
| Dispersion System      | In-line aspirator, piston (10 - 20 L/min) adjustable levels (piston pump), Fully automated fill and circulation pumps, 4 selectable fill rates, 10 selectable circulation speeds (max 1.5 min) |
| Power                  | AC100-240 V, 50/60 Hz, 100 VA |
| Dimensions (mm)        | 332 (W) x 321 (D) x 244 (H) mm |
| Mass                   | 54 kg |
| Power for PowderJet    | AC100-240 V, 50/60 Hz, 300 VA |
| Dimensions (mm)        | 705 (W) x 565 (D) x 500 (H) mm |

**Dimensions (mm)**

- Air Compressor
  - Inlet pressure within 0.5 - 0.8 MPa, Tank capacity 26 L or larger, Flow rate 45 L/min or faster
  - Compressed Air Connection: Vacuum driven evacuation
  - Vacuum: Equipped as standard
  - Compressed Air Connection: Power for PowderJet
  - Power: AC100-240 V, 50/60 Hz, 300 VA
  - Compressed Air Supply: Compressed air supply origin pressure: 0.4 - 0.8 MPa, Compressed Air Supply: Air Compressor: Vacuum-driven evacuation

**With Data correlation support with old model**

- Class 1 Laser Product

- 10 nm - 3000 µm
- Mie scattering and Fraunhofer diffraction

- Vacuum-driven evacuation
- Compressed Air Connection: Power for PowderJet
- Power: AC100-240 V, 50/60 Hz, 300 VA
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- Windows is a registered trademark of Microsoft Corporation in the United States and other countries.
Partica LA-960V2 Standard Model

**Measurement Range**

- Measurement Principle: Mie-scattering and Rayleigh-Debye
- Measurement Range: 10 nm - 3000 μm
- Measurement Time: Typical measurement takes 60 seconds from liquid filling, sampling and measurement to ending
- Measurement Method: Optical- and/or laser-cell measurement
- Sample Quantity: Approximately 10 mg - 2 g
- Dispensing Volume: Approximately 100 μL for standard pumping system, 1 mL for dilution accessory
- Minimum volume: 20 μL for Mini Flow accessory
- Available Carrier Fluid: Aqua* (A type), Organic solvent (S type)

**Communication**

- User interface: Graphical interface, software compatible with Windows® 10 and 11
- Computer Requirements: PC operation, software compatible with Windows® 10 and 11
- Power: AC100-240 V 50/60 Hz, 300 VA
- Dimensions: 705 (W) x 565 (D) x 500 (H) mm
- Mass: 54 kg

With PowderJet Dry Feeder Accessory

- Dispensing Method: Component or dispersion using powder feeder
- Sample Handling: Vibrating feeder
- Measurement Range: 10 nm - 3000 μm
- Controls: Communication: Serial cable to the main unit
- Measurement: Vibrating feeder controlled automatically as feedback of powder pressure
- Compressed Air Supply: Compressed Air to PowderJet
- Operation: Air pressure adjustable from 0 - 3.4 MPa (40 psig)

**Measurement Time**

- Typical measurement: 3 seconds or longer
- Measuring Conditions: Relative humidity 40% or less (no condensation)
- Temperature: 15 - 35°C (59 - 95°F)
- Power: AC100-240 V 50/60 Hz, 350 VA
- Dimensions: 422 (W) x 420 (D) x 249 (H) mm
- Mass: 14.5 kg

**Dispensing Volume**

- Approximate 1 L of LiterFlow option
- Minimum volume: 35 mL for Mini Flow accessory
- Sample Quantity: 5/10/15 mL for Fraction Cell accessory
- Measurement Method: Circulation measurement or fraction cell measurement
- Measurement Principle: Mie-scattering and Rayleigh-Debye
- Typical measurement: 60 seconds from liquid filling, sampling and measurement to ending

**With PowderJet Dry Feeder Accessory**

- PowderJet Dry Feeder Accessory
- Power for PowderJet: AC100-240 V 50/60 Hz, 1500 VA
- Compressed Air Supply: Compressed air supply pressure: 0.3 - 0.8 MPa
- Compressed Air Source: Compressed air coming from an air compressor
- Air Compressor: Both pressure with ≤ 0.5 - 0.6 MPa, Tank capacity 25 L or larger, Flow rate 45 L/min or faster

**Partica LA-960V2**

- Laser Scattering Particle Size Distribution Analyzer
- NIST-traceable size standards verify that the Partica LA-960V2 accurately measures peaks as fine as 30 nanometers.
- Laser alignment, fully automated liquid handling and intuitive software design.
- This incredible speed is made possible by automatic alignment, fully automated liquid handling and intuitive software design.
- Without any training, users can generate effective data in a short amount of time using the software.
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**Data support**

- Traceability certification
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- IQ/OQ/PQ documents support
- Data correlation support with old model
Laser Scattering Particle Size Distribution Analyzer

See the True Characterization of Your Particles.

LA-960V2

Partica LA-960V2 Series

Horiba Scientific

The Horiba Group adopts IMS (Integrated Management System) which integrates Quality Management System (ISO9001), Environmental Management System (ISO14001), and Occupational Health and Safety Management System (ISO45001).

We have now integrated Business Continuity Management System (ISO22301) in order to provide our products and services in a stable manner even in emergencies.

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