

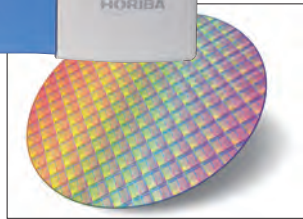
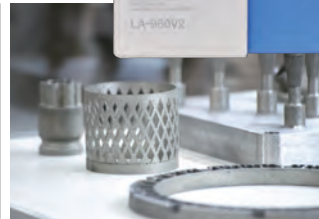
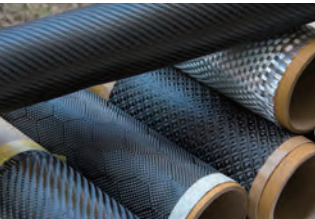


partica

Laser Scattering Particle Size Distribution Analyzer LA-960V2 Series



*See the True Characterization
of Your Particles.*



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 particle dispersion in real time.



Proven high accuracy and resolution for wide applications

CMP slurry
Catalysts
Ink / Pigments
Plastics
Minerals
Metal powder
Emulsion

- Ceria
- Silica
- Alumina

Battery
Capacitor
3D printing
Paper Coating
Pharmaceutical
Cosmetics
Food / Drink
Building materials

- Positive electrode
- Negative electrode
- Electrolyte



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 87 logarithmically spaced silicon photodiodes that detect a range of 0.006 - 165.7 degrees allowing the measurement of complete particle size distributions.

Automatic Laser Alignment in Seconds

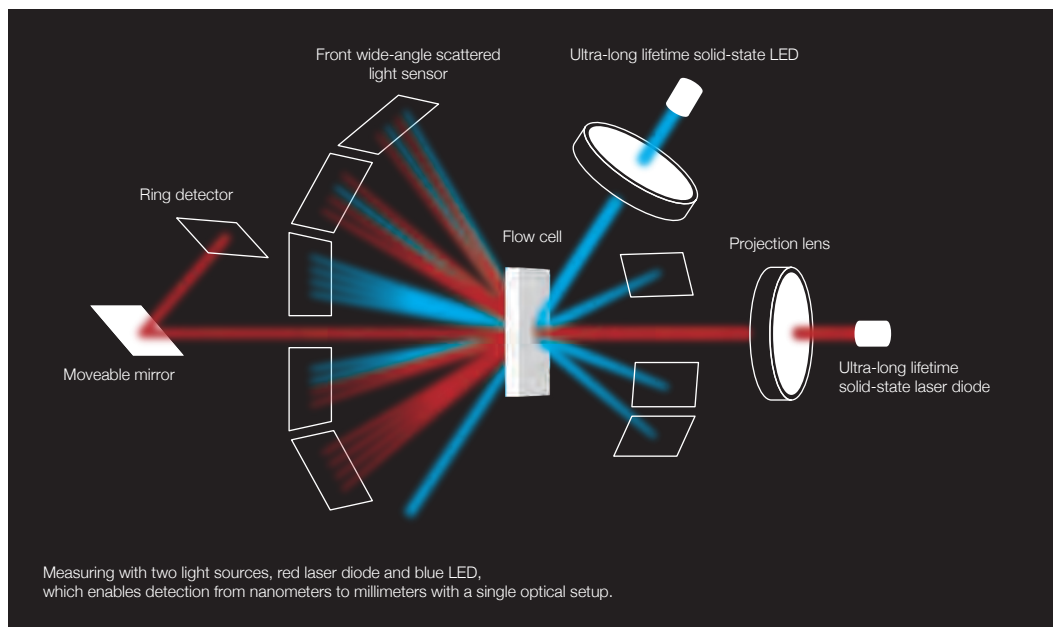
Always make perfect measurements with computer-controlled laser alignment. The alignment process is completed in only a few seconds with HORIBA's innovative approach.

Superior Instrument-to-Instrument Precision

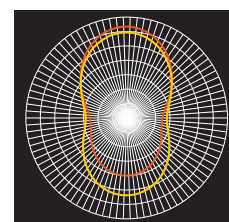
The Partica LA-960V2 is designed and built to provide the same experience regardless of manufacture date, operator skill, or geographic location. It achieves unmatched instrument agreement without the need for additional correlation procedures.

Guaranteed Accuracy

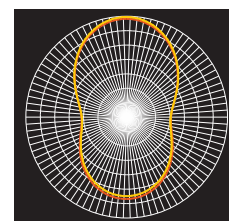
The Partica LA-960V2 is capable of accurately measuring NIST-traceable size standards within 0.6% of specification. Fully compliant with ISO 13320 recommendations.



Superior nanoparticle detection using red and blue light sources



0.05 μm 405 nm
0.07 μm 405 nm



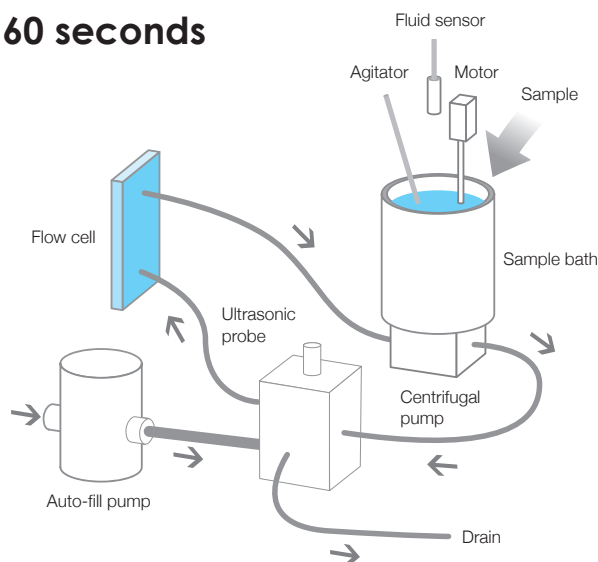
0.05 μm 650 nm
0.07 μm 650 nm

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 a 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.

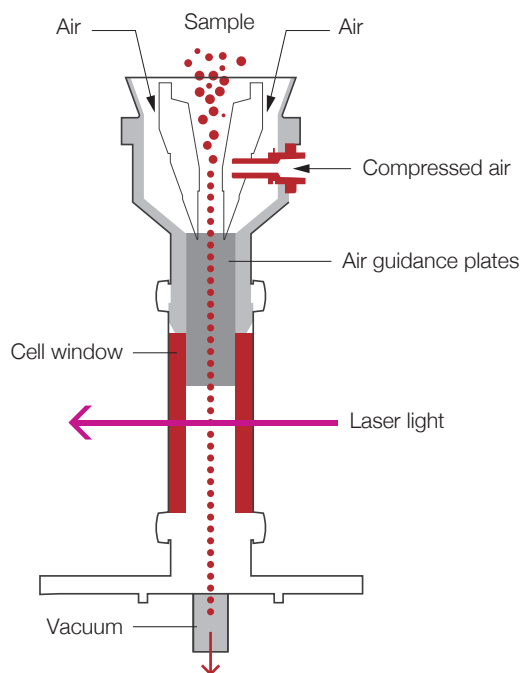
Smart Scans - Trigger function

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



Self-adjusting Powder Flow

Historically, the biggest challenge in dry powder measurement involves establishing an even powder flow. The Partica LA-960V2 Powderjet has solved that challenge with a self-adjusting feedback loop to maintain 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.



Coated chute

This coated chute is useful for samples which adhere to the stainless steel standard chute.



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.



Accessories

High Concentration Cell

New

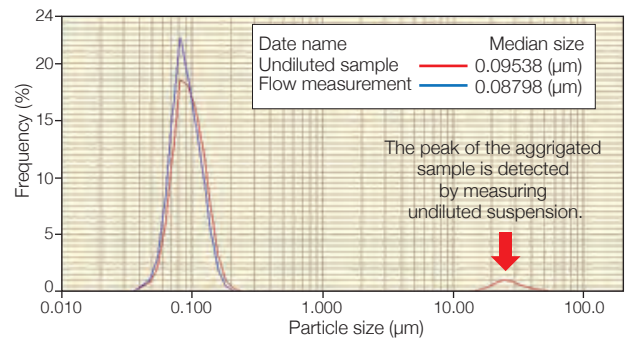


Feature

The high concentration cell unit allows measurement closer to original concentration with low dilution rates, without dilution and variable concentration.

Typical Applications

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



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

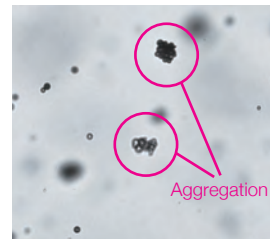
Imaging Analysis Unit (built-in option)

New



Feature

The imaging unit visualizes the particles in the wet circulation system. It is very small and built into the main unit, and can acquire particle images without changing the usability.
Measurement range : 9μm-1000μm



Typical Applications

Find and count small amounts of large particles and aggregated particles. Particle shape analysis and bubble state observation are also possible.

MiniFlow (Circulation System)



Feature

The MiniFlow minimizes sample and dispersant amounts. This miniaturized circulation system features fill and circulation pumps, an ultrasonic probe, and drain valve for fully automated operation.
Measurement range: 10nm – 1000μm

Typical Applications

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

Fraction Cell



Feature

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

Typical Applications

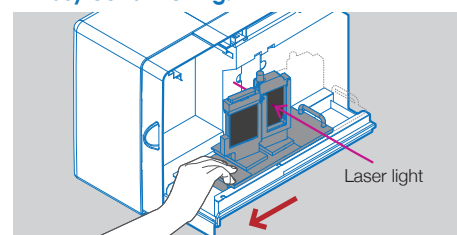
Samples requiring minimal dispersion such as precious samples, bio material, and highly volatile solvent. Samples to measure without dispersing force.

Auto Sampler (Wet measurement in powder)



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

■ Easy cell switching.



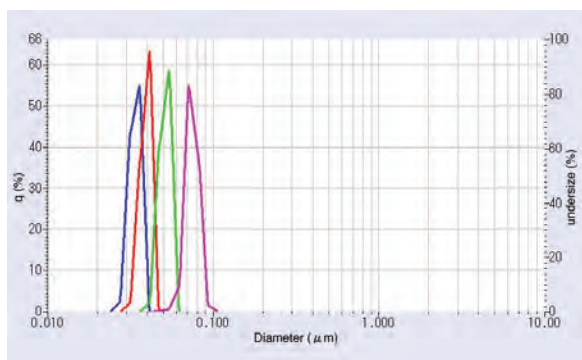
Change cells just sliding changer table. No tools required.

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.

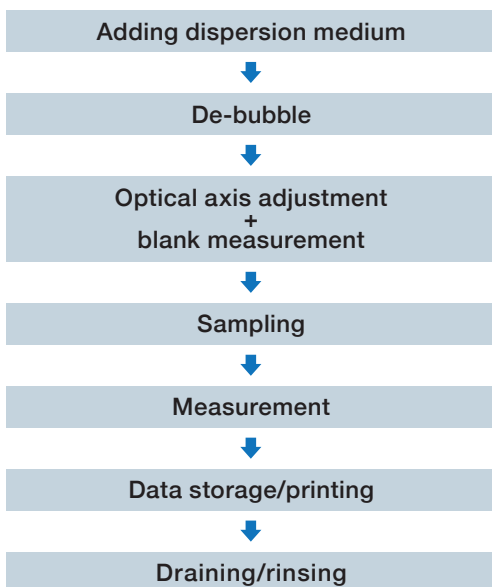


Overlay of 30, 40, 50, and 70 nm results

Speed

One click measurement Navigation system

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



Wide range

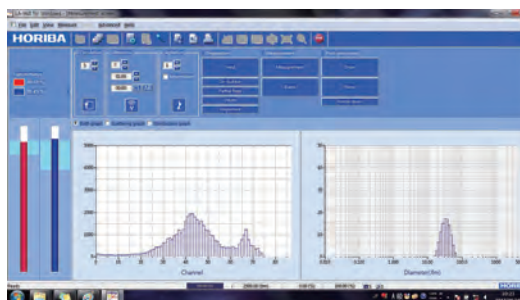
Measurement range 10 nm - 5,000 µm

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.

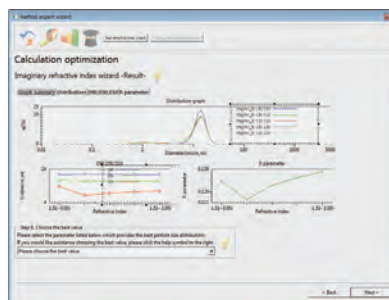
Operation

Method Expert

The Partica LA-960V2 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.



Measurement Screen
Real-time display of the measurement result



The Method Expert recommends the most suitable refractive index.

Data support

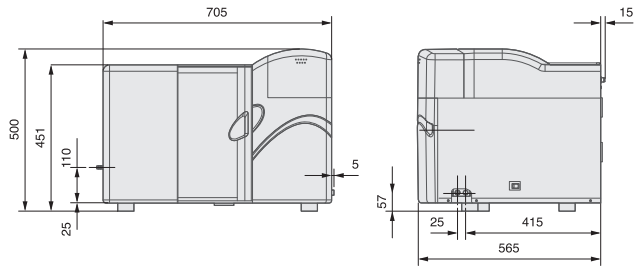
- ✓ Traceability certification
- ✓ 21 CFR Part 11 compliant software IQ/OQ/PQ document support
- ✓ Data correlation support with older models

LA-960V2 Series

Measurement Principle	Mie scattering and Fraunhofer diffraction
Measurement Range	10 nm - 5000 µm
Measurement Time	Typical measurement takes 60 seconds from liquid filling, sampling and measurement to rinsing.
Measurement Method	Circulation measurement or fraction cell measurement (Fraction cell is optional)
Sample Quantity	Approximately 10 mg - 5 g (Depending on the particle size, distribution and density)
Dispersing Volume	Approximately 180 mL for standard pumping system 5/10/15 mL for Fraction Cell accessory Minimum volume 35 mL for Mini Flow accessory Approximately 1 L of LiterFlow option
Available Carrier Fluid	Aqua* (A type), Organic solvent (S type) (*Small volume ethanol can be used as a dispersing additive)
Communication	USB 2.0
Light Sources	Red solid state 5 mW laser diode (650 nm), Blue solid state 3 mW LED (405 nm)
Dispersion System	In-line ultrasonic probe: 30 W, 20 kHz, adjustable levels Circulation pump: Fully automated fill and circulation pumps, 4 selectable fill levels, 15 selectable circulation speeds (max: 10 L/min)
Operating Conditions	15~35°C (59 to 95°F), relative humidity 85% or less (no condensation)
Power	AC100-240V 50/60Hz, 300VA
Dimensions	705 (W) x 565 (D) x 500 (H) mm
Mass	54kg
Computer Requirements	PC operation, Software compatible with Windows® 10 32-bit and 64-bit environments, *contact HORIBA for additional operating system compatibilities

* Windows is a registered trademark of Microsoft Corporation in the United States and other countries.

Dimensions (mm)



Class 1 Laser Product

※Laser Particle Size Distribution Analyzer LA-960V2 Standard Model

PowderJet Dry Feeder Accessory

Dispersion Method	Compressed air dispersion using Venturi nozzle
Sample Delivery	Vibrating feeder
Sample Disposal	Vacuum-driven evacuation
Measurement Range	100 nm - 5000 µm
Controls	Communication: Serial cable to LA-960V2 main unit Measurement: Vibrating feeder controlled automatically via feedback or manually by user, Vacuum AUTO/OFF, Compressed Air AUTO/OFF, Air pressure adjustable from 0 - 0.4 MPa in 40 steps
Measurement Time	Typical measurement takes 2 seconds or longer.
Operating Conditions for PowderJet	15~35°C (59 to 95°F), relative humidity 85% or less (no condensation)
Dimensions	332 (W) x 321 (D) x 244 (H) mm (not including dimensions of projections and LA-960V2 measurement unit)
Power for PowderJet Operation	AC100V, 120V, 230V, 50 or 60Hz, 1500VA (Including vacuum but LA-960V2 measurement unit)
Compressed Air Supply Pressure	Compressed air supply origin pressure: 0.4 - 0.8 MPa Compressed air controlling range: 0.01 - 0.4 MPa
Compressed Air Connection	Quick connector for resin tube with 6mm outer diameter (Compressed air supply equipment must be provided separately)
Remarks	Vacuum is equipped as standard

* When ordering the PowderJet, please specify the power requirements for the final destination.

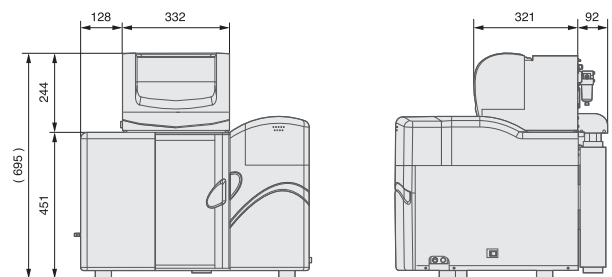
* Above specifications and functionality are valid only when PowderJet is installed on The Partica LA-960V2 main unit and controlled using The Partica LA-960V2 software.

* Manufacturers and models indicated for vacuum, air compressor, computer, monitor, and/or printer are subject to change.

Air Compressor

Inlet pressure within 0.5 - 0.8 MPa, Tank capacity 26 L or larger, Flow rate 45 L/min or faster

Dimensions (mm)



Class 1 Laser Product

※Laser Particle Size Distribution Analyzer LA-960V2 Model with Dry Unit Accessory

HORIBA Global Application/ Service Network



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 OHSAS18001. We have now integrated Business Continuity Management System ISO22301 in order to provide our products and services in a stable manner, even in emergencies.



Please read the operation manual before using this product to assure safe and proper handling of the product.

- The specifications, appearance or other aspects of products in this catalog are subject to change without notice.
- Please contact us with enquiries concerning further details on the products in this catalog.
- The color of the actual products may differ from the color pictured in this catalog due to printing limitations.
- It is strictly forbidden to copy the content of this catalog in part or in full.
- The screen displays shown on products in this catalog have been inserted into the photographs through compositing.
- All brand names, product names, and service names in this catalog are trademarks or registered trademarks of their respective companies.

<http://www.horiba.com>

HORIBA, Ltd. **Japan**
Head Office
 2 Miyahogashi-cho, Kisshoin, Minami-ku, Kyoto, 601-8510, Japan
 Phone: 81 (75) 313-8121 Fax: 81 (75) 321-5725

HORIBA (China) Trading Co., Ltd. **China**
 Unit D, 1F, Building A, Synnex International Park, 1068 West Tianshan Road, 200335, Shanghai, China
 Phone: 86 (21) 6289-6060 Fax: 86 (21) 6289-5553
Beijing Branch
 12F, Metropolis Tower, No.2, Haidian Dong 3 Street, Beijing, 100080, China
 Phone: 86 (10) 8567-9966 Fax: 86 (10) 8567-9066
Guangzhou Branch
 Room 1611 / 1612, Goldlion Digital Network Center, 138 Tiyu Road East, Guangzhou, 510620, China
 Phone: 86 (20) 3878-1883 Fax: 86 (20) 3878-1810

HORIBA KOREA Ltd. **Korea**
 25, 94-Gil, Ilijik-Ro, Manan-Gu, Anyang-Si, Gyeonggi-Do, 13901, Korea
 Phone: 82 (31) 296-7911 Fax: 82 (31) 296-7913

HORIBA Instruments (Singapore) Pte Ltd. **Singapore**
 3 Changi Business Park Vista #01-01, Akzonobel House, Singapore 486051
 Phone: 65 (6) 745-8300 Fax: 65 (6) 745-8155

HORIBA Taiwan, Inc. **Taiwan**
 8F.-8, No.38, Taiyuan St. Zhubei City, Hsinchu County 30265, Taiwan (R.O.C.)
 Phone: 886 (3) 560-0606 Fax: 886 (3) 560-0550

HORIBA India Private Limited **India**
 246, Okhla Industrial Estate, Phase 3 New Delhi-110020, India
 Phone: 91 (11) 4646-5000 Fax: 91 (11) 4646-5020
Bangalore Office
 No.55, 12th Main, Behind BDA Complex, 6th sector, HSR Layout, Bangalore South, Bangalore-560102, India
 Phone: 91 (80) 4127-3637

HORIBA (Thailand) Limited **Thailand**
 393, 395, 397, 399, 401, 403 Latya Road, Somdetchaopraya, Klongsan, Bangkok 10520, Thailand
 Phone: 66 (0) 2-861-5995 ext.123 Fax: 66 (0) 2-861-5200
East Office
 850 / 7 Soi Lat Krabang 30 / 5, Lat Krabang Road, Lat Krabang, Tangerang-15144, Indonesia
 Phone: 66 (0) 2-734-4434 Fax: 66 (0) 2-734-4438

PT HORIBA Indonesia **Indonesia**
 Jl. Jalur Sutera Blok 20A, No.16-17, Kel. Kunciran, Kec. Pinang Tangerang-15144, Indonesia
 Phone: 62 (21) 3044-8525 Fax: 62 (21) 3044-8521

HORIBA Vietnam Company Limited **Vietnam**
 Lot 3 and 4, 16 Floor, Detech Tower II, No.107 Nguyen Phong Sac Street, Dich Vong Hau Ward, Cau Giay District, Hanoi, Vietnam
 Phone: 84 (24) 3795-8552 Fax: 84 (24) 3795-8553

HORIBA Instruments Incorporated **USA**
 9755 Research Drive, Irvine, CA 92618, U.S.A.
 Phone: 1 (949) 250-4811 Fax: 1 (949) 250-0924
HORIBA New Jersey Optical Spectroscopy Center
 20 Knightsbridge Rd, Piscataway, NJ 08854, U.S.A.
 Phone: 1 (732) 494-8660 Fax: 1 (732) 549-5125

HORIBA Instruments Brasil, Ltda. **Brazil**
 Rua Presbitero Plinio Alves de Souza, 645, Loteamento Multivias, Jardim Ermidia II - Jundiá Sao Paulo - CEP 13.212-181 Brazil
 Phone: 55 (11) 2923-5400 Fax: 55 (11) 2923-5490

HORIBA FRANCE SAS **France**
 16-18, rue du Canal, 91165, Longjumeau Cedex, France
 Phone: 33 (1) 69-74-72-00 Fax: 33 (1) 69-09-07-21

HORIBA Jobin Yvon GmbH **Germany**
 Neuhofstrasse 9, D_64625, Bensheim
 Phone: 49 (0) 62-51-84-750 Fax: 49 (0) 62-51-84-7520

HORIBA ITALIA Srl **Italy**
 Via Luca Gaurico 209-00143, ROMA
 Phone: 39 (6) 51-59-22-1 Fax: 39 (6) 51-96-43-34

HORIBA UK Limited **UK**
 Kyoto Close Moulton Park Northampton NN3 6FL UK
 Phone: 44 (0) 1604 542500 Fax: 44 (0) 1604 542699

Bulletin:HRE-3683C

Printed in Japan 2001SK00