World-wide network ensures full after-sales service, when and where you need it.
The worldwide network of the HORIBA Group serves as the foundation for a full after-sales service system. This system meets customer needs with a wide range of services, including post-delivery training.

Related product
In-line Gas Monitors
IR-150 Series
The IR-150 Series is a collection of in-line semiconductor gas concentration monitors that use the NDIR method (non-dispersive infrared absorption). These instruments are ideal for implementing in-line control of the gas concentrations resulting from the gasification of solid and liquid materials that are used in compound semiconductor manufacturing processes, including TMG, TMGa, and DEZn.

- Ideal for controlling the concentrations of MOCl/V and solid material gases
- Compact, mount-free design
- Real-time measurement
- Easy installation and maintenance

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HORIBA, Ltd.
HORIBA KOREA LTD.
HORIBA FRANCE
HORIBA ADVANCED TECHNOLOGY
HORIBA TAIWAN Rep. Office

For Semiconductor and FPD Processes
FTIR GAS ANALYZERS
FG-100A Series
Compact gas analyzers for efficient in-process applications
Dual cell model

After 700 (27.6)
400 (15.7)
300 (11.8)

Typical measurement results

Suitable for diverse applications
- Optimization of CVD processes (chamber cleaning, etc.) and dry etching processes
- R&D of PFC processing equipment (recovery and decomposition)
- Monitoring of abatement system performance
- Quality control of gas production processes
- Development of PFC substitutes
- Continuous monitoring of ambient gases in clean rooms
- Monitoring of MOCVD liquid and solid material gas concentrations
- Evaluation of thermal decomposition characteristics of CVD materials

For semiconductor and FPD processes
More compact units, wider range of application

New line of single and dual cell gas analyzers

The FG-100A Series of FTIR gas analyzers enables the detection and measurement of a wide variety of substances, such as PFCs, greenhouse gases and semiconductor/FPD process gases, which must be reduced due to their contribution to global warming. To provide effective on-site gas measurement, we have developed single cell and dual cell models which have been made much more compact. Suitable for diverse gas measurement applications, the FG-100A Series is both easy to set up and highly portable. The FG-100A Series is available as a total system, including software that is ideal for semiconductor/FPD process gas analysis, an extensive library, and a moveable sampling unit. With expertise in environmental gas analysis built up over a period of 50 years, HORIBA technology provides gas-monitoring support for semiconductor and FPD processes.

FG-100A Series Specifications

- **Model name:** FG-110A, FG-120A
- **Measurement principle:** FTIR method
- **Detector:** Liquid-nitrogen-cooled MCT detector, Electronically-cooled MCT detector
- **Measurement wave number range:** Standard: 5000 to 700 cm\(^{-1}\), Optional: 500 to 5000 cm\(^{-1}\)
- **Cell optical path length (cell volume):** Single cell: 0.61 m (2 mL), 0.1 m (2 mL), 0.8 m (200 mL), 2.4 m (220 mL), 10 m (1600 mL), Dual cell: 0.61 m (2.4 m), 0.1 m (0.8 m), 0.1 m (2.4 m)
- **Cell window material:** Standard: BaF\(_2\), Option: ZnSe
- **O-ring material:** Standard: Viton, Option: Kalrez
- **Cell optical path length:** 2.4 m (220 mL), 10 m (1800 mL)
- **Measurement cycle:** Approx. 0.6 seconds (Varies depending on measurement conditions)
- **Humidity:** 10 to 30°C
- **Pressure:** 20 to 98% RH
- **Power consumption:** 240 VA (2.4 m cell), 250 VA (2.4 m cell)
- **Ambient temperature:** 10 to 30°C
- **Nitrogen gas:** For analyzer purging: Approximately 5 L/min, continuous
- **Power consumption:** 80 VA
- **Liquid nitrogen:** For analyzer purging: Approximately 500 to 600 mL
- **Mass:** Single cell: 40 kg (2.4 m cell), Dual cell: 50 kg
- **Applicable regulation:** CE marking, FCC Part 15 (Class A)

Control Unit (FGC-10) Specifications

- **Applications:** Continuous monitoring
- **Information displayed:** Component names, in-detected values, concentration warnings, etc.
- **Number of components that can be displayed:** 1 per screen
- **External input/output:** Analog input/output (0 to 1 V), digital input/output
- **Dimensions:** W450 X D300 X H230 mm
- **Power:** 100 to 240 V AC, 50/60 Hz
- **Power consumption:** 80 VA
- **Contact HORIBA for more information.”

Dimensional Outlines

- **Single Cell Type Analyzer**
  - Dimensions: 450 (17.7) X 230 (9.1) X 350 (13.8) mm
  - Mass: Single cell: 40 kg (2.4 m cell), Dual cell: 50 kg

- **Dual Cell Type Analyzer**
  - Dimensions: 450 (17.7) X 230 (9.1) X 350 (13.8) mm
  - Mass: Single cell: 40 kg (2.4 m cell), Dual cell: 50 kg
Data sampling possible at intervals of 0.6 seconds.

“Speed Priority Mode” can be selected at the time of measurement to perform data sampling at a cycle of less than one second. This is effective for recipes that are completed in a short time and for precise verification of the effective for recipes that are completed in a short time and for precise verification of the behavior of exhaust gas when conditions are changed.

Varies depending on measurement conditions.

Compact and easy-to-use in places with limited place

The FG-100A Series can be easily carried in places with limited space Extensive library

More than 38 types of spectra and calibration curves for semiconductor and FPD processes are provided standard as a library. In addition, efficient gas analysis is supported with a lineup of more than 265 types of spectra.

Single cell and dual cell models available

Single cell and dual cell models are available. Dual cell models enable continuous monitoring, with single-touch changeover, of situations where sampling is done at two points that vary widely in concentration such as at the inlet and outlet of abatement systems. This eliminates the burden of purging and contributes to rapid and efficient gas analysis.

Continuous monitoring with an optimal liquid-nitrogen-free detector

Electronically cooled MCT detectors are used to enable measurement of low-concentrations down to the sub-ppm level. By optimizing the conditions of analysis, it may be possible to obtain even greater precision.

Line up of five cell optical path lengths for optimal matching with the gas-density sampling situation

Five cell optical path lengths are available (0.01, 0.1, 0.8, 2.4, and 10 m). Depending on the concentration in the sample, simply swap in a cell unit of appropriate optical path length to enable highly precise measurement. Cells are also available for measuring gas concentrations in a decompressed state immediately following the processing chamber.

Extensive library

Precision to sub-ppm level

The use of a cell with a long optical path length enables measurement of low-concentrations down to the sub-ppm level.

Constituent gas Detection limit

Capable of detecting gas concentrations on the order of less than a part per million, the FG-100A Series can be combined with a control unit with concentration display and output functionality to enable continuous, high-sensitivity monitoring of ambient gases in clean rooms without the use of a computer. By switching the sampling line, multipoint measurement can be carried out. It can be used for the monitoring of ambient gases in clean rooms, and contributes to EHS (Environment, Health, Safety) in the semiconductor and FPD industries.

Monitoring of ambient gases in clean rooms

A variety of functions are provided as standard features, including concentration trend display which is ideal for real-time analysis, automatic spectra storing, and automatic storing of concentration log files. A navigation function supports the procedure for creating calibration curves, making it possible even for first-time users to create calibration curves by multivariate analysis. The operation can be accomplished on a Windows® notebook computer.

In the United States and other countries, Windows® is a registered trademark of Microsoft Corporation.

User friendly software

Optimized for semiconductor and FPD processes, a dedicated sampling unit is available. Gas samples can be easily introduced. Designed to be upgraded with the FG-100A Series system, you get a compact design that takes less space and is easy to move around with casters.

Dedicated sampling unit available

Dedicated sampling unit with concentration display and output functionality to enable continuous, high-sensitivity monitoring of ambient gases in clean rooms (Environment, Health, Safety) in the semiconductor and FPD industries.