

# Other analyzers



Non-Contact Infrared Thermometer  
**IT-545**

■ Temperature  
This is an easy-to-use portable thermometer with the highest level of accuracy in the industry\*. Useful for various experiments and maintenance, food temperature management, etc.

Gloss Checker  
**IG series**

■ Gloss  
This gloss checker provides easy measurement of surface gloss levels, by quantifying the surface appearance visual inspection. Ideal for automotive coating inspections, floor waxing coating inspections, etc.

Environmental Radiation Monitor  
**PA series**

■ γ (gamma) rays  
This is a portable monitor that allows easy and accurate measurement of gamma rays. It is equipped with data communication function, enabling automatic recording of measured data and dose mapping, in linkage with a smartphone or computer.

Oil Content Analyzer  
**OCMA-500 series**

■ Oil content  
This analyzer measures oil content in water or seawater, residual oil on machine parts, and oil content in soil, etc. Easy to operate, this analyzer delivers speedy measurements.

Multi Parameter Water Quality Checker  
**U-50 series**

pH / Dissolved oxygen / Electrical conductivity / Turbidity / Oxidation-reduction potential / Salt content / Specific gravity of seawater / Total dissolved solid quantity / Water temperature / Water depth / GPS  
Many items can be measured simultaneously with one probe. This portable checker is best for outdoor use, such as measurements of river water, lake water, well water, and ground water.

■ Measurement items  
■ Features

**IMS** 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.**

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<http://www.horiba.com> e-mail: [info@horiba.co.jp](mailto:info@horiba.co.jp)

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

**HORIBA (China) Trading Co., Ltd.** China  
**Shanghai**  
Unit D, 1F, Building A, Synnex International Park, 1068 West Tianshan Road, Shanghai, 200335, China  
Phone: 86 (21) 6289-6060 Fax: 86 (21) 6289-5553  
**Beijing**  
12F, Metropolis Tower, No.2, Haidian Dong 3 Street, Beijing, 100080, China  
Phone: 86 (10) 8567-9966 Fax: 86 (10) 8567-9066

**HORIBA Korea Ltd.** Korea  
10, Dogok-Ro, 6-Gil, Gangnam-Gu, Seoul-Si, 06259, Korea  
Phone: 82 (2) 753-7911 Fax: 82 (2) 756-4972

**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 Vietnam Co., Ltd.** Vietnam  
Unit 6, 10 Floor, CMC Tower, Duy Tan Street, Dich Vong Hau Ward, Cau Giay District, Hanoi, Vietnam  
Phone: 84 (4) 3795-8552 Fax: 84 (4) 3795-8553

**HORIBA (Thailand) Ltd.** Thailand  
**East Office**  
850 / 7 Soi Lat Krabang 30 / 5, Lat Krabang Road, Lat Krabang, Bangkok 10520, Thailand  
Phone: 66 (0) 2734 4434 Fax: 66 (0) 2734 4438

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

**HORIBA India Private Limited** India  
**Delhi**  
246, Okhla Industrial Estate, Phase 3 New Delhi-110020, India  
Phone: 91 (11) 4646-5000 Fax: 91 (11) 4646-5020  
**Pune**  
502, 5th Floor, Purushottam Plaza, Baner Road, Baner, Pune-411045 India  
Phone: 91 (20) 4076-6000 Fax: 91 (20) 4076-6010  
**Bangalore**  
No.55, 12th Main, Behind BDA Complex, 6th sector, HSR Layout, Bangalore South, Bangalore-560102, India  
Phone: 91 (80) 4127-3637

**HORIBA Instruments Inc.** USA  
**Head Office**  
9755 Research Drive, Irvine, CA 92618, U.S.A.  
Phone: 1 (949) 250-4811 Fax: 1 (949) 250-0924  
**Alvin, TX**  
5318 W.FM 517 Rd, Alvin, TX 77511, U.S.A  
Phone: 1 (281) 482-4334 Fax: 1 (281) 614-0303

**HORIBA Instruments Brazil, Ltda.** Brazil  
**Head Office**  
Rua:Presbitero Plinio Alves de Souza, 645, Loteamento Polo Multivias Barirro Medeiros-Jundiai Sao Paulo CEP 13.212-181 Brazil  
Phone: 55 (11) 2923-5400 Fax: 55 (11) 2923-5490

**HORIBA France Sarl** France  
12. Av des Tropiques Hightec Sud, F-91955 Les Ulis, France  
Phone: 33 (1) 69-29-96-23 Fax: 33 (1) 69-29-95-77

**HORIBA UK Limited** UK  
**Northampton**  
Kyoto Close Moulton Park, Northampton NN3 6FL, UK  
Phone: 44 (1604) 542-500 Fax: 44 (1604) 542-699

**HORIBA Europe GmbH** Germany  
**Head Office**  
Hans-Mess-Str.6 D-61440 Oberursel Germany  
Phone: 49 (6172) 1396-0 Fax: 49 (6172) 1373-85  
**Leichlingen**  
Julius-kronenberg Str.9 D-42799 Leichlingen Germany  
Phone: 49 (2175) 8978-0 Fax: 49 (2175) 8978-50

**HORIBA Czech** Czech  
Prumyslova 1306 / 7, CZ-10200, Praha 10, Czech Republic  
Phone: 420 (2) 460-392-65

**HORIBA (Austria) GmbH** Austria  
Kaplanstrasse 5 A-3430 Tulln, Austria  
Phone: 43 (2272) 65225 Fax: 43 (2272) 65230

# HORIBA

Process & Environmental



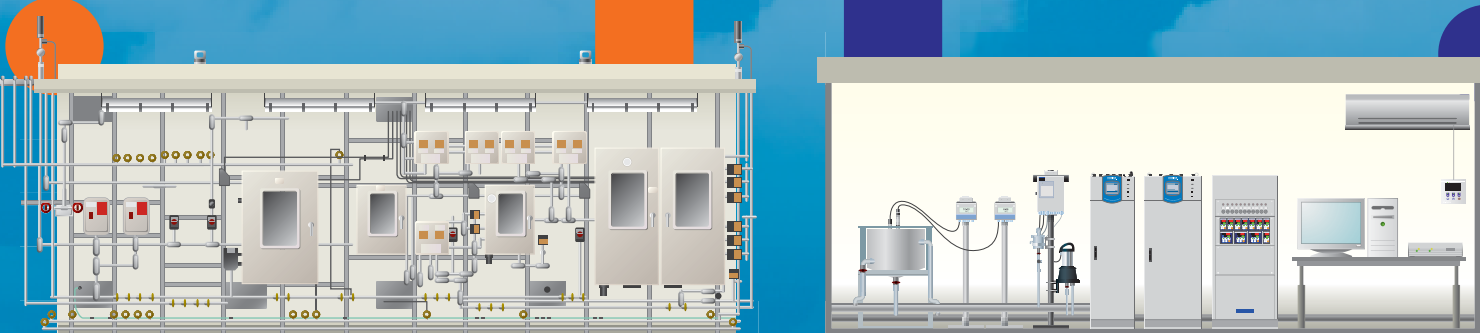
## CEMS

## AQMS

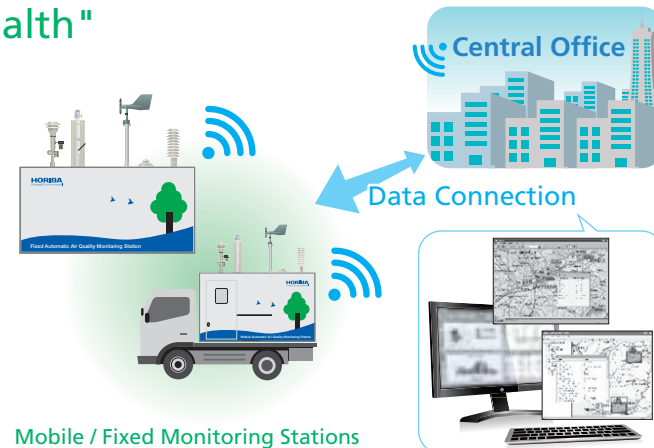
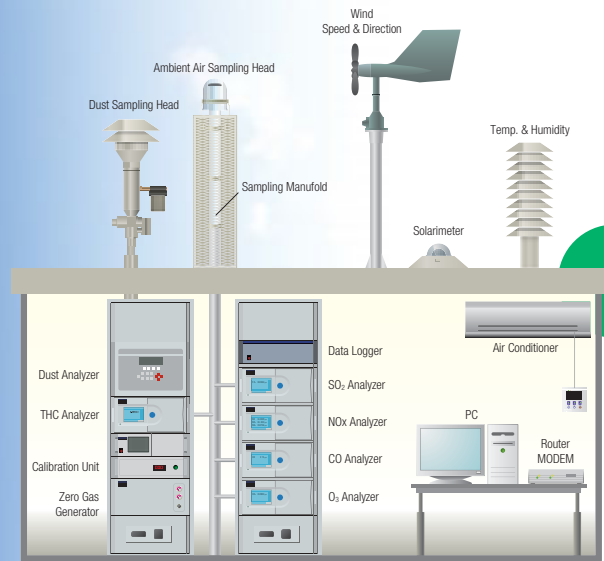
## Analytical System Integration

## PROCESS

## WQMS



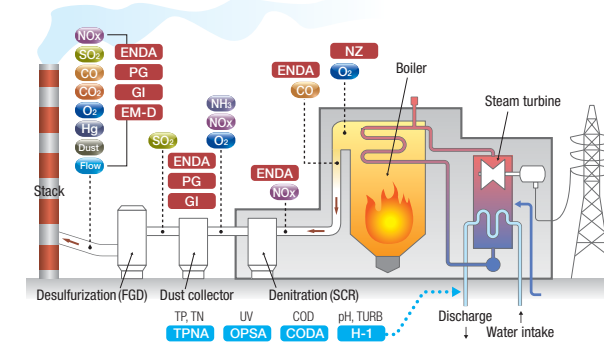
## AQMS as the doctor for "Human Health"



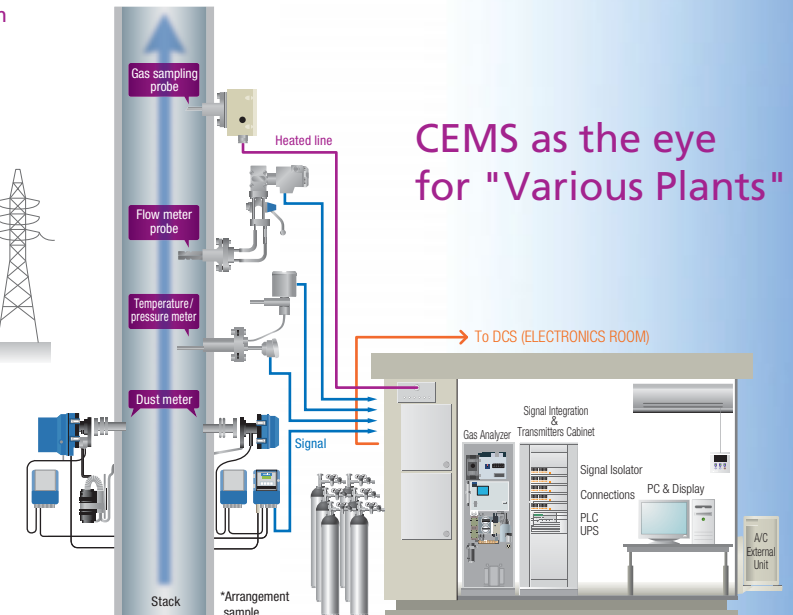
Mobile / Fixed Monitoring Stations

The measured data can be remotely monitored and exported in various formats to the local/central authorities. The data can be published via the Internet for easy public access to raise awareness on current air pollution levels. This way, the public can prevent outdoor activities and reduce health impacts during heavy polluted days.

## Sample measurement points of a general small/medium sized power facility with HORIBA analyzers



Required parameters by law are measured continuously at a stack and reported to the government by the Continuous Emission Monitoring System (CEMS). De-NOx process (SCR) needs to monitor NOx and NH<sub>3</sub>, and De-SOx (FGD) process needs to monitor SO<sub>2</sub> to optimize the process operation.



## CEMS as the eye for "Various Plants"

**Overview** The Air Quality Monitoring System (AQMS) is a facility to measure wind speed, direction, other weather parameters, concentration of air pollutants (such as SO<sub>2</sub>, NOx, CO, O<sub>2</sub>, THC etc), and particulate matters continuously all year round. Mobile AQMS can also be customized to monitor multiple sites via one system.

## Main Products

AP-370 series	APDA-371	APMC-370
PX-375	APDA-372	

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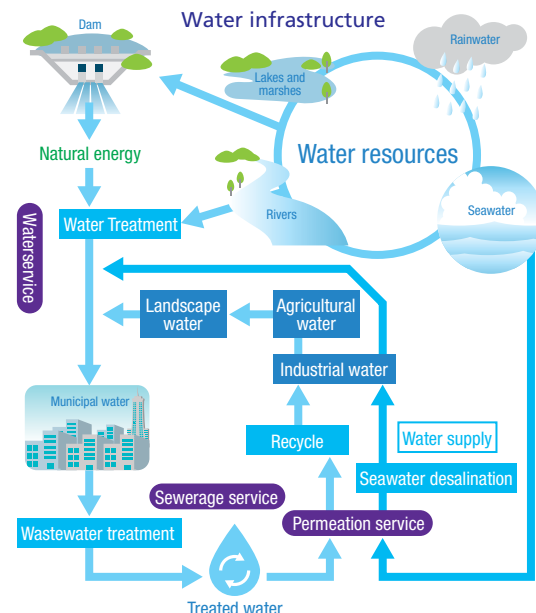
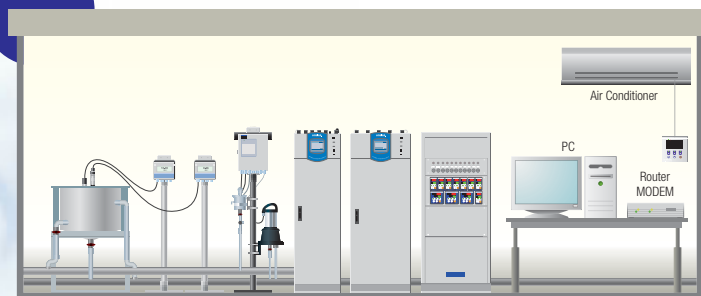
ENDA-5000 series	GI-700 series	PG-300 series
ENDA-7000 series	ENDA-C9000 series	EM-D/F5000

## Overview

The Continuous Emission Monitoring System (CEMS) is a facility to measure flow, dust, concentration of air pollutants (such as SO<sub>2</sub>, NOx, CO etc), and other parameters according to requirements. Required parameters depend on the type of stationary source.

Understanding the life cycle of water is essential for us to live on the earth. Water will be consumed, polluted, treated, discharged, and then returned as our water resource again through various sources such as rain. It is especially critical to monitor the waste water discharge from a factory to protect our water resources.

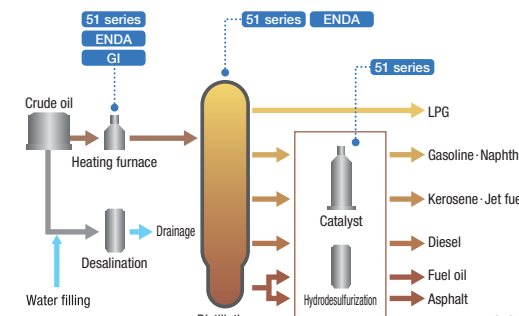
## WQMS as the gardian to protect nature life source "Water"



**Overview** Water Quality Monitoring System (WQMS) is a facility to measure pollutants such as Chemical Oxygen Demand (COD), Total Phosphates (TP), Total Nitrogen (TN), etc. The required parameters are customized according to the type of factory and discharge regulations.

## Main Products

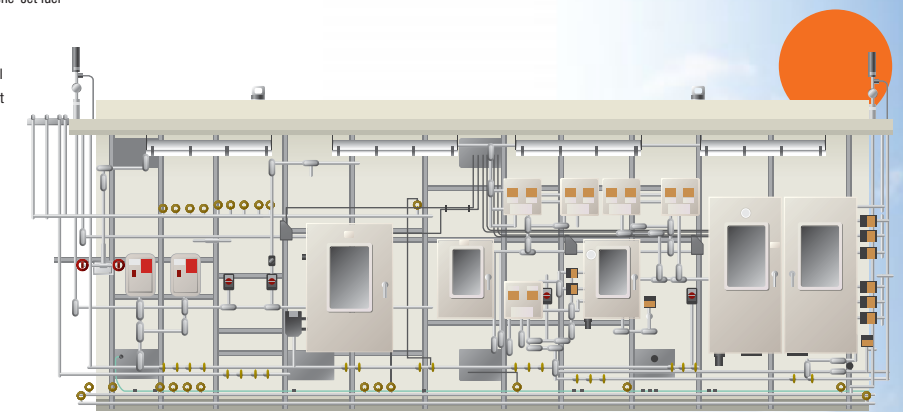
H-1 series	OPSA-150	TPNA-500
48/96 series	CODA-500	



## The example of sample measurement point of refinery plant with HORIBA analyzers

In an oil refinery, the crude oil will be converted to final products (Gasoline, Naphtha, etc.) through several processes such as distilling, cracking etc. HORIBA analyzers are utilized to optimize the process and increase production efficiency.

## The system as the facilitator to optimize "Industrial Process"



## Overview

Process Analyzer System is a facility to measure necessary parameters such as hydrocarbons to help optimize the manufacturing process. The analyzer is chosen that best meets the customer requirements.

## Main Products

VA-3000 series	51 series	FG-100A
GA-360E	NZ-5000	



■ Air Pollution Analyzer  
**AP-370 series**

■ NO<sub>x</sub>, SO<sub>2</sub>, CO, CO<sub>2</sub>, O<sub>3</sub>, H<sub>2</sub>S, NH<sub>3</sub>, THC, NMTHC, CH<sub>4</sub>, NMVOC

NO<sub>x</sub>: 0-0.1/0.2/0.5/1.0 ppm  
SO<sub>2</sub>: 0-0.05/0.1/0.2/0.5 ppm  
CO: 0-5/10/20/50 ppm  
CO<sub>2</sub>: 0-500/1000 ppm  
O<sub>3</sub>: 0-0.1/0.2/0.5/1.0 ppm  
H<sub>2</sub>S: 0-0.05/0.1/0.2/0.5 ppm  
NH<sub>3</sub>: 0-0.1/0.2/0.5/1.0 ppm  
THC, NMTHC, CH<sub>4</sub>: 0-5/10/20/50 ppmC  
NMVOC: 0-2000ppm  
\* Other ranges are also available. Please consult HORIBA.

- Long term stable drift by Cross Flow Modulation technology.
- Automatic calibration function enables setting of start time and the interval to reduce operation.
- Multi-range function automatically switches the range to the best suited, depending on measured gas concentration.

■ CE, TÜV, FCC, MCERTs, GOST, KC, JAPAN etc



■ Continuous Particulate Monitor with X-ray Fluorescence  
**PX-375**

■ Particulate Matter (PM10/PM2.5/TSP)  
■ Particulate mass concentration and element concentration

0-200/500/1000 µg/m<sup>3</sup>  
\* Other ranges are also available. Please consult HORIBA.

- Continuous hourly analysis of PM mass and the elemental concentration by a single unit directly in the field.
- Adoption of world proven technologies: X-ray fluorescence & Beta-ray attenuation, advanced analysis for prevention of air pollution.
- Remote Operation via internet connection enables user to check status and acquire data without going on site.



■ Measurement items
■ Range
■ Features
■ Certificates & Compliance

■ On-line Industrial Water Quality Analyzer  
**H-1 series**

■ pH, ORP, Conductivity, Resistivity, Residual chlorine, Dissolved oxygen, Turbidity, MLSS, Fluoride ion, NH<sub>4</sub>-N

pH: 0 to 14pH   ORP: -2000 to 2000 mV  
Conductivity: 0.0 to 200.0 mS/cm 0.00 to 20.00, 0 to 2000 µS/cm  
Resistivity: 0.000 to 2.000 MΩ · cm 0.00 ot20.00 kΩ · m Residual chlorine: 0 to 3 mg/L  
Dissolved oxygen: 0 to 20 mg/L  
Turbidity: 0 to 2 degree(min.), 0 to 4000 degree(max)  
MLSS: 0 to 2000mg/L  
Fluoride ion: 0 to 10000mg/L  
NH<sub>4</sub>-N: 0 to 1000mg/L  
\* Other ranges are also available. Please consult HORIBA.

- H-1 series comprehensively suits all kinds of water applications, ranging from purified water monitoring to waste water monitoring.
- Lineup with focus on robustness, functionality and maintainability that responds to harsh conditions at the installation sites.
- Essential functions for water analyzer management such as noise resistance, auto calibration, self-diagnosis, and full interface.

■ CE, FCC etc



■ Panel Types Water Quality Measuring Instruments  
**48/96 series**

■ pH/ORP/Conductivity/Resistivity/Dissolved Oxygen/Residual Chlorine  
■ Please consult HORIBA.

- Well-developed status indicator icons.
- Setting with the front-panel keys.
- Utilization of lead-free solder.

■ CE, FCC etc



■ Organic Pollutant Monitor  
**OPSA-150**

■ UV absorbance, VIS absorbance, Converted COD level, Converted BOD level, Converted TURB level

UV absorbance, VIS absorbance  
0-0.1 Abs to 0-5.0 Abs (Can be set 0.1 Abs increments)

- HORIBA's unique rotary cell length modulation sensor ensures no zero-drift as well as covers a wide measurement range from as low as 0 to 0.1 Abs, up to 0 to 5.0 Abs, while providing a minimum resolution of 0.0001Abs.
- Sample error alarm comes as a standard feature.
- OPSA-150 offers data storage to save up to one year of data and continuous cell wiper system which greatly reduces maintenance.

■ CE, FCC, CPA, KC etc



■ Beta-Ray Attenuation type Dust Analyzer  
**APDA-371**

■ PM2.5, PM10, TSP

Standard: 0-1000µg/m<sup>3</sup>

\* Other ranges are also available. Please consult HORIBA.

- Long term unattended remote operation of up to 60 days between site visits.
- Hourly filter advances minimize effects of volatile compounds.
- Integrated data logger allows the connection of up to six additional meteorological sensors.

■ CE, TÜV, US EPA etc



■ Light Scattering type Dust Analyzer  
**APDA-372**

■ PM1, PM2.5, PM10, TSP

Particle size: 0.18 - 100 µm  
Number: 1 - 20000 particle/cm<sup>3</sup>  
Mass: <0 - 1500 µg/m<sup>3</sup>

\* Other ranges are also available. Please consult HORIBA.

- Continuous real-time measurement of PM values simultaneously with additional information through particle number concentration.
- Time resolution adjustable from 1sec up to 24hr.
- LED light source with high stability, long lifetime and durability.

■ CE, TÜV etc



■ Multi Gas Calibrator  
**APMC-370**

■ NO, SO<sub>2</sub>, CO, CO<sub>2</sub>, O<sub>3</sub>, H<sub>2</sub>S, NH<sub>3</sub>

\* Other parameters are also available. Please consult HORIBA.

- Dynamic generation of span gas by dilution system. Integrated zero gas generator or external zero gas generator (ZNV-7) is also available.
- Multipoint calibration: 8 individually adjustable cycles, each with up to 20 calibration points and each calibration cycle runs also automatically.
- Precision of span gas concentration: better than 1%, Linearity of span gas concentration: better than 1%.

■ CE etc



Related Products	Clean Room Ambient Air Analyzer : <b>AP-365 series</b>
	Data Acquisition & Management Software : <b>IDA-2000, IDA-ZRW</b>

Air Quality Monitoring System

# AQMS

HORIBA has more than 50 years experience providing ambient monitoring solutions, recognized around the world. HORIBA has supplied over 15,000 units with the major share in many regions. The monitoring station is tailor-made according to the customer's request. HORIBA can provide several types of stations, cabinets, calibration equipment and more to meet your challenging monitoring requirements.



Water Quality Monitoring System

# WQMS

HORIBA produced the first national pH meter in 1950 in Japan. Since then, we have been producing a variety of water quality analyzers and systems which are designed according to the customer's request. HORIBA has unrivaled knowledge and expertise to provide a suitable system to meet your regulation requirement. To date, approximately 200 WQMS have been installed in Korea alone.



■ Measurement items
■ Range
■ Features
■ Certificates & Compliance

Related Products	Automatic Calibration/Cleaning Industrial pH Analyzer : <b>AH-151</b>
	Continuous Oil Film Analyzer : <b>LO-300</b>



# CEMS

## Continuous Emission Monitoring System

HORIBA has been supplying stack gas analyzers for more than 50 years and have invented several analyzer technologies and sampling systems. HORIBA has supplied more than 100,000 units so far around the world and has the largest market share in Japan for power plant applications\*. We can supply systems that comply with regulations in various regions such as Europe, US, China and Korea with our wealth of knowledge and experience.

\*As of 2014, based on our company's research



### Stack Gas Analyzer ENDA-5000 series

- NO<sub>x</sub>, SO<sub>2</sub>, CO<sub>2</sub>, CO, O<sub>2</sub>
- NO<sub>x</sub>: 0-200 to 5000ppm      CO: 0-200 to 5000ppm
- SO<sub>2</sub>: 0-200 to 5000ppm      O<sub>2</sub>: 0-10 to 25vol%
- CO<sub>2</sub>: 0-5 to 25vol%
- \* It can be set to dual ranges. Range ratio shall be within factor 10 as standard.
- \* Other ranges are also available. Please consult HORIBA.
- Cross Flow Modulation type NDIR stabilizes operation with no optical adjustment and zero drift to give longer life time.
- Integrated analyzer with promised performance sampling unit established from more than 50 years experience in this field.
- Special magneto-pneumatic O<sub>2</sub> detector providing non carrier gas and non direct contact with sample gas provides less running cost and longer life time.
- CE, TÜV, US EPA, FCC, KC, JAPAN etc



### Stack Gas Analyzer ENDA-7000 series

- NO<sub>x</sub>, SO<sub>2</sub>, CO, CO<sub>2</sub>, O<sub>2</sub>, NH<sub>3</sub>
- NO<sub>x</sub>: 0-10 to 5000ppm      CO<sub>2</sub>: 0-5 to 25 vol%
- SO<sub>2</sub>: 0-10 to 5000ppm      O<sub>2</sub>: 0-10 to 25vol%
- CO: 0-50 to 5000ppm      NH<sub>3</sub>: 0- 10 to 100ppm
- \* It can be set to dual ranges. Range ratio shall be within factor 10 as standard.
- \* Other ranges are also available. Please consult HORIBA.
- Reliable, accurate and sensitive range measurement with accepted methods including Cross Flow Modulation type - NDIR, Chemiluminescence, Ultraviolet, and Magneto-pneumatic technology.
- 6 components can be measured simultaneously with multiple detector in a single analyzer.
- Easy to operate the test for US EPA such as CGA, Linearity, RATA etc with the integrated software's.
- CE, FCC, US EPA etc



Related Products	Dilution CEMS : <b>AP-370 series</b>
	Multi-Component Gas Analyzer : <b>VA-3000 series</b>

### Stack Gas Analyzer (Special model with CFM technology for System Integrator)

#### GI-700 series

- NO<sub>x</sub>, SO<sub>2</sub>, CO, CO<sub>2</sub>, O<sub>2</sub>, NH<sub>3</sub>
- NO<sub>x</sub>: 0-10 to 5000ppm      CO<sub>2</sub>: 0-5 to 25 vol%
- SO<sub>2</sub>: 0-10 to 5000ppm      O<sub>2</sub>: 0-10 to 25vol%
- CO: 0-50 to 5000ppm      NH<sub>3</sub>: 0- 10 to 100ppm
- \* It can be set to dual ranges. Range ratio shall be within factor 10 as standard.
- \* Other ranges are also available. Please consult HORIBA.
- Reliable, accurate and sensitive range measurement with accepted methods including Cross Flow Modulation type - NDIR, Chemiluminescence, Ultraviolet, and Magneto-pneumatic technology.
- 6 components can be measured simultaneously with multiple detectors in a single analyzer.
- Capability of combining with other system utilizes combustion measurement in variety of industries.
- CE, FCC etc



### De-NO<sub>x</sub> Process Gas Analyzer ENDA-C9000

- NH<sub>3</sub>, NO<sub>x</sub>, O<sub>2</sub>
- NH<sub>3</sub>: 0-20 to 100ppm
- NO<sub>x</sub>: 0-20 to 100ppm
- O<sub>2</sub>: 0-5 to 25 vol%
- \* It can be set to dual ranges. Range ratio shall be within factor 10 as standard.
- \* Other ranges are also available. Please consult HORIBA.
- Accurate measurement with sensitive range for NH<sub>3</sub>.
- Zero drift free Chemiluminescence detector (NH<sub>3</sub>/NO<sub>x</sub>) and Magneto-pneumatic detector (O<sub>2</sub>)
- Various useful functions such as hour meter, data logger, or trend graphs enhance maintenance performance
- JAPAN etc



■ Measurement items
■ Range
■ Features
■ Certificates & Compliance

### Stack Gas Dust & Flow Analyzer EM-D/F 5000 series

- Dust, Opacity, Gas velocity, Volume flow
- Dust: 0- 0.5 to 10,000 mg/m<sup>3</sup>
- Opacity: 0-100%
- Velocity: 0- 3 to 50 m/s
- Volume flow: 0-3000000 Nm<sup>3</sup>/h
- \* Other ranges are also available. Please consult HORIBA.
- Automatic calibration function to reduce operation work load
- Certified performance analyzer in the world.
- Volume flow measurement is available with combination of pressure and temperature monitors.
- CE, KC, TÜV, US EPA etc



### Transportable Gas Analyzer PG-300 series

- NO<sub>x</sub>, SO<sub>2</sub>, CO, CO<sub>2</sub>, O<sub>2</sub>, CH<sub>4</sub>
- NO<sub>x</sub>: 0-25/50/100/250/500/1000/2500ppm
- SO<sub>2</sub>: 0-200/500/1000ppm
- CO: 0-200/500/1000/2000/5000ppm
- CO<sub>2</sub>: 0-5/10/20vol%
- O<sub>2</sub>: 0-5/10/25vol% (Zirconia or Galvanic), 0-10/25 vol% (Paramagnetic)
- CH<sub>4</sub>: 0-2000/5000ppm or 0-50/100%
- \* There are several combinations and ranges available. Please consult HORIBA for more information.
- Capable of up to 5 component measurement simultaneously with built-in sampling unit.
- Max 5 days continuous measurement is available and necessary data and trend graph can be stored in an integrated data logging function.
- User-friendly functions such as an integrated instruction manual can be accessed from the LCD display
- CE, TÜV , FCC, MCERTS, GOST, CPA, KC, JAPAN etc



# PROCESS

## Process Analyzer System

HORIBA's facility in Texas, United States has an advantage of process analysis. We obtained the system integration facility in Houston USA which was previously well known as PAAI. We can offer a total package such as system design, engineering, application development, and on-site maintenance services. We are able to provide process analytical systems which not only use HORIBA's analyzers but also other brand's analyzers as per the customer's requirements.



### Multi-Component Gas Analyzer VA-3000 series

- CO, CO<sub>2</sub>, NO<sub>x</sub>, SO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, O<sub>2</sub> and others
- CO: 0-200 to 100vol%
- CO<sub>2</sub>: 0-100 to 100vol%
- NO<sub>x</sub>: 0-20 to 0-5000ppm
- SO<sub>2</sub>: 0-200 to 10vol%
- CH<sub>4</sub>: 0-200 to 100vol%
- N<sub>2</sub>O: 0-100 to 5000ppm
- O<sub>2</sub>: 0-5 100vol%(MPA)
- 0-5 to 25vol% (Galvanic, Zirconia, and Paramagnetic which only available in Europe)
- \* It can be set to 4 ranges. Range ratio shall be within factor 10 as standard.
- \* Other ranges are also available. Please consult HORIBA.
- A single analyzer can contain three small sensor modules out of more than seven different gases to provide many combinations of measurement.
- Multiple gas components with wide selection of ranges (from ppm to %) assure high precision and flexibility for many applications.
- Capability of combining with other system utilizes any measurement in variety of industries.
- CE, FCC, KC, JAPAN etc



Related Products	Process Gas Chromatograph : <b>Other brand</b>
	Any process analyzer can be integrated in the system

### Trace Gas Analyzer GA-360E

- CO, CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O
- 0-1/2/5/10 ppm
- \* It can be set to 4 ranges. Range ratio shall be within factor 10 as standard.
- \* Other ranges are also available. Please consult HORIBA.
- Measures impurities in bulk gas used in semiconductor and other high-purity gases used in clean rooms, medical facilities and manufacturing processes.
- Assured minimum detection sensitivity 10 ppb provides high precise measurement values.
- All metal tubing employed internally to prevent dirt and to enhance safety in handling H<sub>2</sub> and O<sub>2</sub> gas.
- CE, FCC, KC etc



### Explosion-proof Gas Analyzer 51 series (EIA-51d/p, TIA-51d/p, TCA-51d/p, MPA-51d/p, PMA-51d)

- CO, CO<sub>2</sub>, CH<sub>4</sub> etc (EIA, TIA)
- H<sub>2</sub> (TCA)
- O<sub>2</sub> (MPA, PMA)
- EIA: 0-0.11 to 100 vol%
- TIA: 0-50 to 2000 ppm
- TCA: 0-10 to 100vol%
- MPA/PMA: 0-5 to 25vol%
- \* It can be set to multiple ranges. Range ratio shall be within factor 10 as standard.
- \* Other ranges are also available. Please consult HORIBA.
- Hydrogen explosion proof (IIB+H<sub>2</sub>), IEC60079 compatible.
- Self diagnosis and daily management function.
- Design features high visible LED light indicating operation status for instant recognition.
- CE, FCC, JAPAN (Explosion proof) etc



■ Measurement items
■ Range
■ Features
■ Certificates & Compliance

### In Situ Oxygen Monitor NZ-5000

- O<sub>2</sub>
- 0-ppm to 100%
- Continuous measurement of O<sub>2</sub> in stack gas with deviation of only 0.2% from the measured value.
- Electronically monitored pneumatic unit for reference air and calibration gas. (optional)
- Explosion-proof type is also available.
- CE, TÜV etc



### FTIR Gas Analyzer FG-100A

- CF<sub>4</sub>, SF<sub>6</sub>, C<sub>2</sub>F<sub>6</sub>, HF, C<sub>3</sub>F<sub>8</sub>, SiF<sub>4</sub>, C<sub>4</sub>F<sub>8</sub>, NH<sub>3</sub>, CHF<sub>3</sub>, NO<sub>2</sub>, NF<sub>3</sub>, CO etc
- Please consult HORIBA.
- A lineup of five cell optical path lengths for optimal matching to your gas density sampling situation.
- A lineup of more than 260 types of spectra is available.
- Precision measurement to sub-ppm level by utilizing a cell with a long optical path length.
- FCC, FDA, KC etc

