



From pure water and clean water through process water and wastewater

Water quality measurement series

## Monitoring systems for water treatment



# H-1 series industrial water quality meters for on-site use

## The ultimate in toughness, intelligence and easy maintenance

On-site (Rain-proof) type

### H-1 Series

H-1 series industrial water quality meters for on-site use are designed to be installed at work sites and offer a full complement of the water quality measurement parameters needed for total monitoring and management of water quality. Horiba has designed the H-1 series units to be tough enough to withstand the harsh conditions of on-site processes, and intelligent enough to provide process conditions and sensor health — and they are also easy to maintain.

The product line includes models designed specifically for clean water and wastewater treatment and many different applications that range from natural environments through water treatment processes in manufacturing systems.

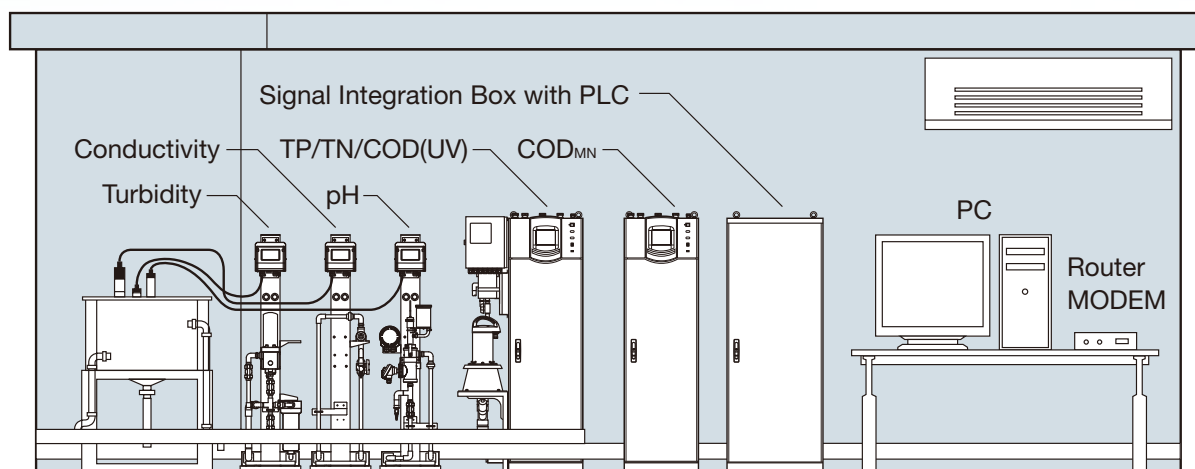


#### H-1 Series Lineup

	4-wire transmission	2-wire transmission	Explosion-proof
pH meter	HP-200	HP-300	HP-300-IS
ORP meter	HO-200	HO-300	HO-300-IS
Fluoride ion meter	HC-200F	HC-300F	—
Dissolved oxygen meter (polarographic)	HD-200	HD-300	—
Dissolved oxygen meter (optical)	HD-200FL	—	—
Ammonia Nitrogen Meter	HC-200NH	—	—
COND meter (high concentration)	HE-200H	—	—
COND meter (low concentration)	HE-200C	HE-300C	HE-300C-IS
Resistivity meters	HE-200R	HE-300R	—
Residual Chlorine meter (beads cleaning)	HR-200	—	—
Residual Chlorine meter (rotary electrode)	HR-200RT	—	—
MLSS meter	HU-200SS	—	—
TURB meter (wide range)	HU-200TB-W	—	—
TURB meter (high sensitivity)	HU-200TB-H	—	—
TURB meter (laser type)	HU-200TB-EH	—	—
TURB meter (immersed type)	HU-200TB-IM	—	—

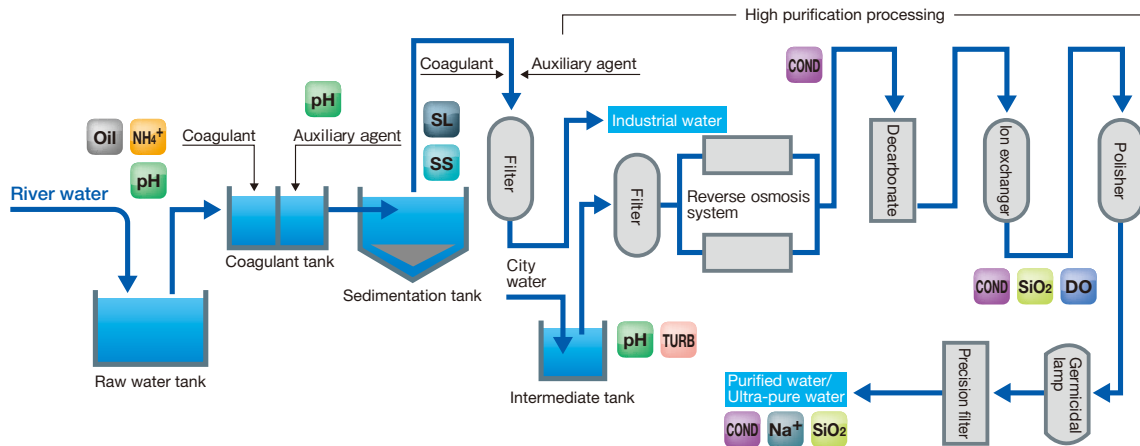
#### Water Quality Monitoring System

As the item to watch water quality, we offer the following automatic analytical instruments.

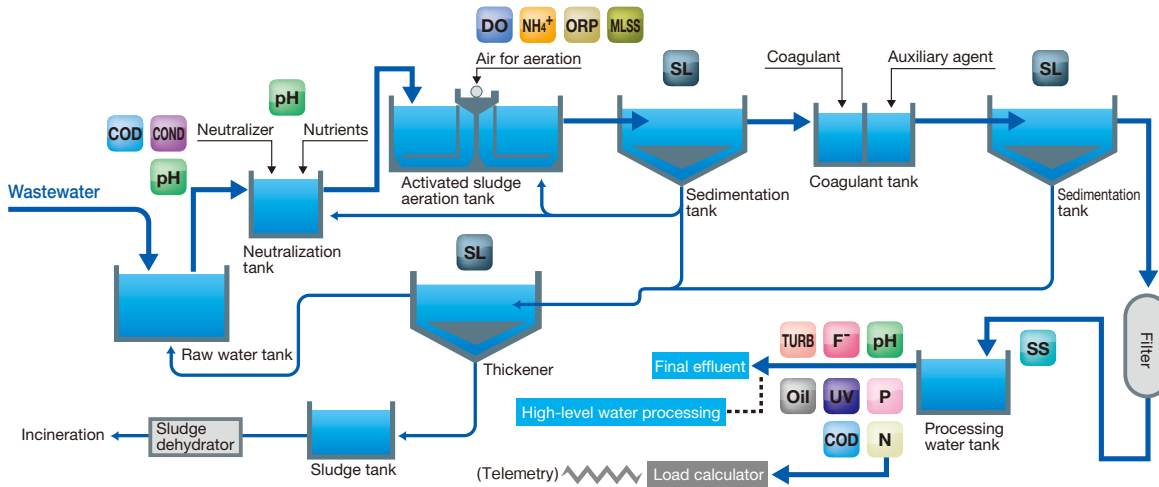


# A total solution for applications from service water to process and wastewater monitoring

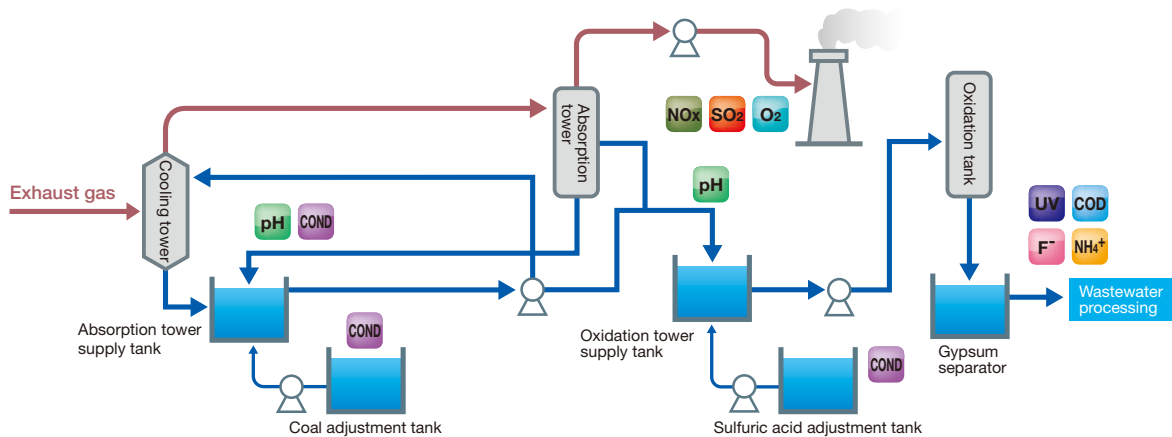
## Service Water Processing



## Wastewater Processing



## Processing Example Exhaust Gas Treatment





For water treatment processes ranging from clean water to wastewater treatment

On-site (Rain-proof) type

## H-1 Series

4-wire analyzer

Outdoor installation type water quality meter for various water treatment processes (ranging from clean water to wastewater treatment). Several models for measurement of pH, oxidation reduction potential (ORP), fluoride ion concentration, dissolved oxygen in optical and polarographic systems, 2-electrode and 4-electrode electrical conductivity, electrical resistivity (specific resistance), residual chlorine, MLSS, and turbidity.

- [Features]
- Sturdy die-cast aluminum case with Ingress Protection code IP65 rain-proof construction
  - Intelligent unit equipped with a full range of self-diagnostic functions
  - WEEE and RoHS compliant (Pb free) environmental design
  - Fully-featured interface
  - Power supply 90 to 264 V AC

2-wire transmitter

Outdoor installation type water quality meter for a wide range of applications in many fields (from ordinary wastewater monitoring to large-scale production processes). Several models for measurement of pH, ORP, fluoride ion concentration, dissolved oxygen, electrical conductivity, and electrical resistivity (specific resistance).

- [Features]
- Sturdy die-cast aluminum case with Ingress Protection code IP65 rain-proof construction
  - Uses site-insulated 2-wire transmission. Connection from measurement site to power box (in instrument room) is easy.
  - Cable length extendable up to 1 km.
  - Power supply 24 V DC

Explosion-proof type (2-wire transmission)

Continuous measurement system for measuring pH, ORP, and conductivity in an explosion-proof area. Improved sensor durability and improved converter reliability, equipped with a new jet brush cleaner. Ensures safety of water quality measurement in potentially explosive gas environments, such as oil refineries and chemical plants.

- [Features]
- Intrinsically safe construction (Ex ia II C T4)
  - Compliant with the latest recommended practices for explosion-protected electric installations (2008Ex)
  - Safety barriers can be selected from those on the market that have passed explosion resistance test
  - Can be combined with a sanitary type sensor

**pH** Represents a further evolution in calibration functions; significantly reduces the required number of man-hours in the field

**pH meter** explosion-proof

HP-200/300

HP-300-IS (explosion-proof)

- New one-touch calibration function to make calibration even easier
- Calibration history display
- Control output (upper/lower limit ON or OFF; time-sharing proportional control) <4-wire transmission>

[Measurement range] pH 0 to 14

**ORP** For managing neutralization treatment in aeration tanks, denitrification tanks, etc.

**ORP meter** explosion-proof

HO-200/300

HO-300-IS (explosion-proof)

- Measures oxidation and reduction potential of various solutions
- Manages neutralization treatment in aeration tanks, denitrification tanks, etc.

[Measurement range] -2000 to 2000 mV

**F<sup>-</sup>** Ideal for wastewater management at semiconductor or FPD factories, glass factories, etc.

**Fluoride ion meter**

HC-200F/300F

- Ideal for wastewater management at semiconductor or FPD factories, glass factories, etc.
- Wide measurement range of 0 to 10000 mg/L (any of 10 levels can be selected)

[Measurement range] Fluoride ion concentration: 0 to 10000 mg/L

# HORIBA's water processing analyzers provide the reliability you need

## Clean water and wastewater

Life Cycle Cost Reduction  
For compliance with the total emission control and enhancing the value of compliance-focused companies

**N P**

**Automatic Total Nitrogen/  
Phosphorus Monitoring System**

**TPNA-500**

High-precision measurement of total nitrogen and total phosphorus concentration in surface water, and enclosed coastal seawater.

Life Cycle Cost Reduction due to adoption of stain resistant measurement system and reducing power consumption etc.

[Measurement range]  
Total nitrogen:  
0 to 2 mg N/L (standard range)  
~0 to 1000mgN/L (max)  
Total phosphorus:  
0 to 0.5 mg P/L (standard range)  
~0 to 250mgP/L (max)



**COD** Automatic COD monitor combines traditional and state-of-the-art technologies to achieve highest possible performance while keeping running costs low

**Automatic COD Monitor**

**CODA-500A, C** Acid Potassium Permanganate Method  
**CODA-500B** Alkaline Potassium Permanganate Method

This monitor uses the latest dispensing and weighing techniques to enable reagent quantity to be reduced to 1/10 that of previous systems, while maintaining the same measurement accuracy, and a reagent delivery service eliminates the need for the time-consuming reagent mixing process. These advances reduce the time and trouble involved in reagent changing and cut running costs in half as compared with existing product.

[Measurement range]  
0-20, 30, 40, 50, 100, 200, 500,  
1000, 2000 mg/L



For monitoring of organic substances in water quality processing lines, including water quality gross volume regulation and the monitoring of trihalomethane (THM) generation in raw water.

**UV TURB**  
verification

**Organic Pollutant Monitor**

**OPSA-150**

Thanks to HORIBA's unique technology, which involves a rotary cell length modulation system, there is no zero-point drift. The OPSA-150 is also the only UV meter that can measure from low concentration (0.1 Abs) to high concentration (5.0 Abs).

[Measurement range]  
(Equivalent to a cell length of 10 mm)  
UV absorbance / VIS absorbance  
0 to 0.1 Abs - 0 to 5.0 Abs (Can be set 0.1 Abs increments)



**Oil** Provides early warning by on-line detection of oil leakage with a laser and a security camera

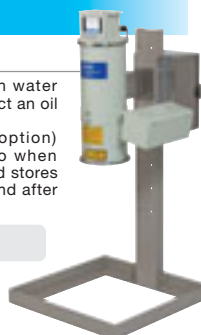
**Surface Oil Detector  
Laser Scanning Type**

**LO-300**

LO-300 uses a laser to scan water surface or the ground to detect an oil film with high sensitivity.

LO-300 with camera unit (option) enables to record the video when LO-300 detects the alarm and stores the image captured before and after alarm signal.

[Subject of detection]  
Oil on water surface or liquid on floor



**DO** Optical sensor dramatically improves ease of maintenance

## Optical dissolved oxygen meter

### HD-200FL

- Includes self-diagnostic function for detecting light source errors, film detection errors, etc.
- No need for replacement of electrolyte (internal liquid) or warm-up time
- Improved ease of maintenance and reduced running costs
- Built-in sensor cap in IC memory

[Measurement range] Dissolved oxygen concentration: 0 to 20 mg/L  
Saturation level: 0 to 200%

**DO** Equipped with self-diagnostic function for diaphragm breakage, probe immersion, etc.

## Dissolved oxygen meter (polarography method)

### HD-200/300

- Equipped with self-diagnostic function for diaphragm breakage, probe immersion, etc.
- Equipped with both cartridge type diaphragm replacement system and diaphragm and internal liquid replacement and renewal system
- No need for zero offset during atmospheric calibration (automatic electrical zero offset function)

[Measurement range] Dissolved oxygen concentration: 0 to 20 mg/L  
Saturation level: 0 to 200%

**Resist** For highly precise measurement of ultra-pure water

## Resistivity meter

### HE-200R/300R

- Achieves highly precise temperature compensation
- Reference temperature can be set to any value

[Measurement range]

Cell constant	/cm	0.01	
Electrical resistivity	MΩ-cm	0.000 to 2.000	0.00 to 20.00
	kΩ-m	0.00 to 20.00	0.0 to 200.0

**COND** Enables measurement of up to 2,000 mS/cm

## COND meter (high concentration)

### HE-200H

- Enables measurement of up to 2,000 mS/cm
- Automatic display range switching
- Equipped with seawater salinity/NaCl content conversion function
- Equipped with automatic conversion function for nitric acid, phosphoric acid and sodium hydroxide concentration

[Measurement range]  
0.000 to 2000 mS/cm (0.0000 to 200.0 S/m)

**COND** Ideal for continuous measurement of pure water and boiler water

## COND meter (low concentration) explosion-proof

### HE-200C/300C

### HE-300C-IS (explosion-proof)

- Ideal for continuous measurement of pure water and boiler water
- Can accommodate various types of temperature compensation
- Equipped with USP water quality determination function

[Measurement range]

Cell constant	/cm	0.01	0.1	1.0
Electrical resistivity	μS/cm	0.000 to 2.000 0.00 to 20.00	0.000 to 2.000 0.00 to 20.00 0.0 to 200.0 0 to 2000*	0.0 to 200.0 0 to 2000

\* Range applies only to sanitary sensor (FS-01 series).

**RC** Ideal for swimming pools, water supply systems, water desalination systems

## Residual Chlorine meter

### HR-200/200RT

- Beads Clearing and electrochemical cleaning (HR-200)
- Beads Clearing by rotary electrode (HR-200RT)
- Maintenance costs reduced through use of cathode electrodes with replaceable tips for sensors

[Measurement range] 0 to 3 mg/L

**MLSS** Can be used in various environments, from sewage discharge monitoring to wastewater treatment processes

## MLSS meter

### HU-200SS

- Transmitted beam system makes span calibration unnecessary
- LEDs offering long service life used as light source
- Built-in reference light monitor provides automatic correction of fluctuations in light intensity

[Measurement range] Activated sludge: 0 to 20000 mg/L  
Kaolin: 0 to 10000 mg/L Clay: 0 to 20000 mg/L

**TURB** Four optical path system for measurement unit reduces the impact of turbidity

## TURB meter

### HU-200TB/TB-W/TB-H/TB-EH/TB-IM

- A wide measuring range from 0 to 2000 NTU (HU-200TB-W)
- High resolution of 0.001/0.0001 NTU (HU-200TB-H/TB/EH)
- Submersion-type directly immersing sensors in measuring tank (HU-200TB-IM)
- LEDs offering long service life used as light source (Semiconductor laser light source adopted by HU-200TB-EH)
- Motor-driven wiper cleaning of sensor ensures long-term, stable measurement

[Measurement range] Formazin: 0 to 2 degree (min.)  
0 to 4000 degree (max)

**NH<sub>4</sub><sup>+</sup>** Continuous measurement of ammonia nitrogen concentration by ion electrode method

## Ammonia Nitrogen Meter

### HC-200NH

- Sensor deterioration diagnostic during measurement
- Optical DO sensor connectable
- Replaceable chip without need of tools
- Combination with new-type ultrasonic cleaner improves antifouling property
- The ion sensor enables long term stable measurement

[Measurement range] Dissolved oxygen concentration: 0 to 20mg/L  
Display resolution 0.01mg/L  
Saturation degree: 0 to 200% Display resolution 0.1%  
Temperature: 0 to 50°C Display resolution 0.1°C

# Best for the measurement for service water to raw and processed sewage.

Place at tap water facilities and final feeder pipes for daily, automatic monitoring of certain characteristics of the water (turbidity, chromaticity, residual chlorine) without the use of reagents.

**RC** **TURB** **COLOR** **PRESS** **pH** **COND** **TEMP**

## Automatic measurement system for tap water

### TW-100

A compact unit that measures four standard characteristics (turbidity, chromaticity, residual chlorine, water pressure) and can be set up to measure up to seven characteristics (the standard four plus pH, conductivity, and water temperature). Uses no reagents. The remote control's communications unit is mounted on top of the measurement system, making the entire system more compact.



[Measurement range]  
Turbidity: 0 to 2 degrees/0 to 4 degrees; Chromaticity: 0 to 10 degrees/0 to 20 degrees; Residual chlorine: 0 to 2 mg/L; Water pressure: 0 to 1 MPa; pH: 2 to 12 pH; Conductivity: 0 to 50 mS/m; Water temperature: 0 to 50°C

## Process

**TOC** Continuous on-line TOC measurement of pharmaceutical water and production Purified Water, etc.

## On-line TOC Analyzer

### HT-110

Total Organic Carbon (TOC) analyzer for use in pharmaceutical water production. It delivers high accuracy measurement at low concentrations.

[Measurement range]  
0 to 1000 ppb



**Oil** Ideal for applications needed for environmental monitoring and measurement of oil on machined parts

## Oil Content Analyzer




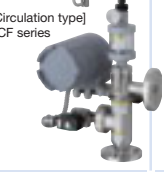


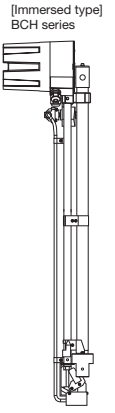

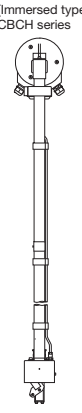

### OCMA-500/550

- Capable of measuring low concentrations that cannot be measured using the n-hexane method
- Uses highly safe S-316 as a solvent.
- Suitable when making highly precise measurements or measuring oil content in water (OCMA-500)
- Suitable for measuring oil on parts, etc. and the oil content of dried soil (OCMA-550)

[Measurement range]  
0 mg/L to 200 mg/L



## Lineup of Cleaners

Ultrasonic Cleaner UCH-1X1 UCF-3X1	Jet Cleaner JCH-1X1 JCF-3X1	Jet Driven Brush Cleaner BH-1X1	Brush Cleaner BCH-1X1	Brush/Jet Cleaner BCH-1X1J	Chemical Cleaner CCH-1X1	Chemical Brush Cleaner CBCH-1X1	pH Meter with Auto Calibration Function AH-151
The use of original burst oscillation method enables continuous cleaning, as measurement values are not affected during cleaning.	Cleans with water or air jet. Effective physical cleaning to remove adhered substances.	Cleaner with a brush rotated by water or air jet. Can be used in an explosion-proof area, as power supply is not required as long as jet source is available.	Motor-driven brush cleaner. Effective physical cleaning to remove adhered substances.	Composite type cleaner, combining a motor-driven brush cleaner and a jet cleaner.	Chemical cleaner using dilute hydrochloric acid. Optimum for removing coating materials such as calcium.	Composite type cleaner, combining a chemical cleaner using dilute hydrochloric acid and a motor-driven brush cleaner.	pH meter with automatic functions to clean electrodes with chemicals and calibrate standard solutions and to measure pH, which significantly reduces man-hours required for maintenance. Regular cleaning and calibration enable stable and reliable pH measurement.
[[Immersed type] UCH series  [Circulation type] UCF series 	[[Immersed type] JCH series  [Circulation type] JCF series 	[[Immersed type] BH series 	[[Immersed type] BCH series 	[[Immersed type] BCH series 	[[Immersed type] CCH series 	[[Immersed type] CBCH series 	[[Immersed type] AH-151-CH 

## Please choose the appropriate instruments for your needs.

### Process

**pH** Water quality meters that feature HORIBA's unique sensing technology

#### pH meter

##### HP-480/480TP/480PL

The HP-480 covers a wide range of usages such as monitoring industrial effluent, monitoring manufacturing processes in various industrial areas and quality inspections, as well as for fisheries industry and aquaculture industry.

[Measurement range]  
pH 0 to 14; resolution of 0.01 pH  
Temperature 0 to 100; resolution of 1°C (selectable)



HP-480

**pH** **COND** **Resist** Panel mount type

#### 96 series

##### HP-96FTP/HE-960CW HE-960HI/HE-960RW

96 series are a high-end model with various functions such as four-point alarm, clean timer, external input and so on.

[Measurement range]  
•HP-96FTP: 0 to 14 pH •HE-960CW: 0 to 2000 µS/cm  
•HE-960HI: 0 to 500 mS/cm •HE-960RW: 0 to 20 MΩ·cm



**pH** For purified water pH measurement in semiconductor manufacturing lines, etc.

#### pH meters

##### HP-8A

Eliminates the changes in the pH of purified water that can result from KCl leaching, to offer extremely stable measurement even at low ion concentrations (0.1µS/cm and up).

[Measurement range] Choose between  
pH 0 to 14, pH 0 to 10, pH 2 to 12, pH 4 to 14, pH 0 to 8, pH 3 to 11, pH 6 to 14, pH 4 to 10, and pH 6 to 12.



**COND**

#### Conductivity meter

##### HE-480H/480C

- High concentration type (HE-480H) enables wide range measurement, up to 500 mS/cm.
- Low concentration type (HE-480C) is ideal for continuous measurement of purified water and boiler water.



[Measurement range]  
0.000 to 50.00 S/m, 0.00 to 500.0 mS/cm

**Resist**

#### Resistivity meter

##### HE-480R

High-precision measurement of ultra-pure water. Suitable for systems requiring traceability.



[Measurement range]  
0 to 100.0 MΩ·cm

**DO**

#### Dissolved oxygen meter

##### HD-480

Ideal for wide range dissolved oxygen measurement.



[Measurement range]  
0 to 20.00 mg/L

**ORP**

#### ORP meter

##### HO-480

Environmentally friendly measurement is made possible through the use of a lead free electrode and **TouPH** electrode.



[Measurement range]  
2000 mV

**RC**

#### Residual chlorine meter

##### HR-480/HR-480P

- Uses galvanic method (galvanization). (HR-480)
- Uses polarographic method (HR-480P)



[Measurement range]  
0 to 2.00 mg/L (HR-480)  
0 to 3.00 mg/L (HR-480P)

# pH electrodes, cleaner and holders for industrial use

## Dome-shaped tough electrode



- Rugged construction and easy-to-clean dome shape
- Double ceramic liquid junction helps prevent soiling
- Suitable for high-temperature (100°C) and high-pressure (0.6 MPa) processes
- Can be combined with jet, brush and ultrasonic cleaning units
- Good acid resistance

Liquid junction: Porous ceramic Temperature: 0 to 100°C  
Pressure: 0 to 0.6 MPa (internal liquid pressurization)

## Fixed sleeve tough electrode



- New response membrane provides even greater toughness
- Uses easy-to-attach fixed sleeve liquid junction

Liquid junction: Fixed glass sleeve  
Temperature: 0 to 80°C  
Pressure: 0 to 0.03 MPa (internal liquid pressurization)

## Replaceable chip electrode



- Highly durable polyphenylene sulfide (PPS) body
- Changeable glass tip and liquid junction tip improve ease of maintenance and reduces running costs

Liquid junction: Porous ceramic  
Temperature: 0 to 60°C  
Pressure: 0 to 0.03 MPa (internal liquid pressurization)

## Hydrofluoric-acid proof



- Tough enough to withstand semiconductor processing and waste fluid from hydrofluoric acid and other strong acids
- Provides service for one month in 1000 ppm hydrofluoric acid at 25°C with pH 3-4 (general guide)

Liquid junction: Porous ceramic  
Temperature: -10 to 60°C  
Pressure: 0 to 0.03 MPa (internal liquid pressurization)

## High-alkali proof



- Tough enough to withstand brine electrolysis and highly alkaline waste fluid
- Provides service for three months in 0.1N caustic soda at 60°C (general guide)

Liquid junction: Porous ceramic  
Temperature: -10 to 60°C  
Pressure: 0 to 0.03 MPa (internal liquid pressurization)

## Hydrofluoric-acid proof



- Uses newly developed response membrane for alkali-resistant applications
- Highly chemical resistant PSU (polysulfone) body
- Double ceramic liquid junction

Liquid junction: Porous ceramic  
Temperature: 0 to 60°C  
Pressure: 0 to 0.2 MPa (internal liquid pressurization)

## High-alkali proof



- Uses newly developed response membrane for alkali-resistant applications
- Highly chemical resistant PSU (polysulfone) body
- Double ceramic liquid junction
- Reduces alkali errors

Liquid junction: Porous ceramic  
Temperature: 0 to 60°C  
Pressure: 0 to 0.2 MPa (internal liquid pressurization)



### Lead-free glass

Lead-free glass has been used for the glass response unit and body.



### Silver Ion Trap

Controls outflow of silver ion significantly.



### Tough Electrode

Increases strength and sensitivity significantly.



### Movable sleeve

Makes cleaning of liquid junction easy.

## Immersed type holder

CH-101

DH-101

## Circulation type holder

CF-301

(pressurization type)

CF-401S

(pressurization type corresponding to high temperatures and pressures)

CF-501

(chip exchange type)

DF-30

(chip exchange type)

## Float system holder

FH-101  
(vertical system)



# LAQUAact Portable Type

In the lab, in the field or anywhere you need it

**pH ORP ION COND SALT Resist TDS DO**

## pH/Water quality analyzer

### D-70 Series

- Compact design with special shock and alcohol resistant body
- Fully waterproof/dustproof meter and electrode (IP 67 rated)
- Two parameter measurement with simultaneous dual display

**COND SALT Resist TDS** Fully waterproof meter and electrode  
Data memory up to 1000 sets and  
PC/Printer output

## Conductivity meter

### ES-71

**DO** DO waterproof electrode can conduct measurements down  
to a depth of 10 meters

## Dissolved oxygen meter

### OM-71



Ideal for water quality testing and inspection of river, lake, well water, groundwater, discharge water and other water sources

**pH ORP COND SALT TDS DO TURB DEP TEMP GPS**

## Multiparameter Water Quality Checker

### U-50 Series

- Simultaneous measurement and display of up to 11 parameters
- Integrated sensor probe and display section for maximum portability. Convenient for one-point measurement and measurements near the surface of the water. Built-in highly sensitive turbidity sensor enables measurement of even low turbidity water.



# LAQUAtwin Compact Type

HORIBA's 60 years of sensor engineering enable accurate direct measurement from only a single drop on the unique flat sensor. Take the compact LAQUAtwin with you wherever and whenever you want it's your "lab-in-a-pocket".

## pH meter

LAQUAtwin-pH-11B/22B/33B



## Conductivity

LAQUAtwin-EC-33B



## Sodium Ion

LAQUAtwin-Na-11



## Potassium Ion

LAQUAtwin-K-11



## Nitrate Ion

LAQUAtwin-NO3-11/11C/11S



## Calcium Ion

LAQUAtwin-Ca-11



## Salt

LAQUAtwin-Salt-22



## 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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Manufactured by  
**HORIBA Advanced Techno**

## HORIBA

Head Office  
2 Miyano Higashi, Kisshoin Minami-ku, Kyoto, Japan  
Phone: 81 (75) 313-8123 Fax: 81 (75) 321-5725  
http://www.horiba.com e-mail: info@horiba.co.jp

### HORIBA (China) Trading Co., Ltd. China

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 Office**  
12F, Metropolis Tower, No.2, Haidian Dong 3 Street, Beijing, 100080, China  
Phone: 86 (10) 8567-9966 Fax: 86 (10) 8567-9066

### HORIBA (Thailand) Limited 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

### 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 (24) 3795-8552 Fax: 84 (24) 3795-8553

### 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 KOREA Ltd. Korea

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

### 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  
**Technical Center**  
D-255, Chakan MIDC Phase-II, Hamboli Village, Pune-410501, India  
Phone: 91 (21) 3567-6000  
**Bangalore Office**  
No.55, 12th Main, Behind BDA Complex, 6th sector, HSR Layout, Bangalore South, Bangalore-560102, India  
Phone: 91 (80) 4127-3637

### HORIBA Instruments Incorporated USA

9755 Research Drive, Irvine, CA 92618, U.S.A.  
Phone: 1 (949) 250-4811 Fax: 1 (949) 250-0924  
**Houston Office**  
5390 Bay Oaks Drive, Pasadena, TX 77505  
Phone: 1 (281) 482-4334 Fax: 1 (281) 674-6058

### HORIBA Instruments Brazil, Ltda. Brazil

Rua: Presbitero Plinio Alves de Souza, 645, Loteamento Polo Multivias Barro Medeiros-Jundiai Sao Paulo CEP 13.212-181 Brazil  
Phone: 55 (11) 2923-5400 Fax: 55 (11) 2923-5490

### HORIBA FRANCE SAS France

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

### HORIBA Europe GmbH Germany

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

### HORIBA Czech Czech

**Prague Office**  
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