

Optimum measurement system for all types of application
Industrial Water Quality Measuring Instruments

Field-installation type

H-1 Series

4-Wire Transmitter

2-Wire Transmitter



Panel mount type

SLIM48/96 Series

4-Wire Transmitter



Measurement item



Total support for all types of application from purified water



HORIBA H-1 and SLIM48/96 series of industrial water quality measuring instruments include a total array of measurement points for the broad applications required controlling of water quality. With sensors, cleaners, and various accessories, these water quality measuring instruments are applicable to all kinds of water treatment and reduce the maintenance load.

Series Lineup of Industrial Water Quality Instruments

Series	Installation Location	Type	Power Supply	pH	ORP	Resistivity	Conductivity		Residual Chlorine	DO	NH ₄ -N	F	MLSS	Turbidity	Color
H-1	Field installation type	2-Wire Transmitter	24 V DC	HP-300	HO-300	HE-300R	HE-300C	—	—	HD-300	—	HC-300F	—	—	—
		2-Wire Multi-Parameter	24 V DC	HQ-300	HQ-300	HQ-300	HQ-300	—	—	HQ-300	—	HQ-300	—	—	—
		4-Wire Transmitter	90 to 264 V AC	HP-200	HO-200	HE-200R	HE-200C	HE-200H	HR-200	HD-200 HD-200FL	HC-200NH	HC-200F	HU-200SS	HU-200TB-W HU-200TB-H HU-200TB-EH HU-200TB-IM	HU-200CL
SLIM 48/96	Panel mount type	4-Wire Transmitter	90 to 264 V AC	HP-480 HP-960FTP	HO-480	HE-480R HE-960RW	HE-480C HE-960CW	HE-480H HE-960HI	HR-480P	HD-480	—	—	—	—	—

monitoring to waste water monitoring



Field-installation Type

H-1 Series

The Field installation type H-1 series Transmitters offer a rainproof structure. This has been newly developed under the concepts of “durability”, “functionality”, and “maintainability” in order to stand the severe environmental conditions of on-site processes. This series of units comprehensively can use all kinds of water treatment from purified water monitoring to waste water monitoring.

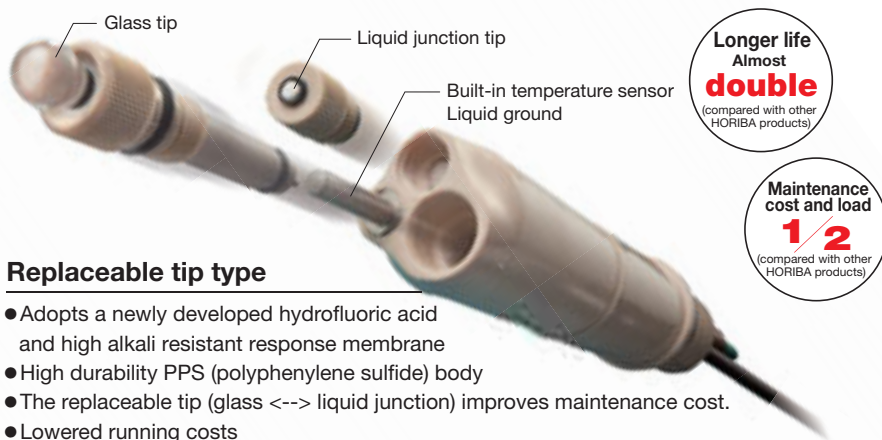


Panel mount type

SLIM48/96 Series

The panel mount type SLIM48/96 series instruments are the optimum Analyzers for incorporation in an instrumentation system. Their compact design means minimal space requirements for systems that combine multi-item measurement instruments. We recommend this series for automatic all-purpose monitoring of sewerage, factory effluent, factory processes, etc.

Industrial pH electrode



Replaceable tip type

- Adopts a newly developed hydrofluoric acid and high alkali resistant response membrane
- High durability PPS (polyphenylene sulfide) body
- The replaceable tip (glass <--> liquid junction) improves maintenance cost.
- Lowered running costs

Liquid junction: Porous ceramic; Temperature: -10 to 60°C; Pressure: 0 to 0.03 MPa (through internal liquid pressurization)
Liquid contact material: glass, ceramic, fluorine rubber, polyphenylene sulfide resin, and titanium (for hydrofluoric acid resistance: Nickel chrome alloy)

pH electrode HF

Combination with replaceable tip
Model: 6171-50B



Resistant to the waste fluids of semiconductor processes and strong acids, including hydrofluoric acid.

pH electrode Alkali

Combination with replaceable tip
Model: 6172-50B



Resistant to the water used in brine electrolysis processes and high alkali waste fluids.

pH electrode Oil

Combination with replaceable tip
Model: 6173-50B



Resistant to oil contamination in petroleum refinery processes and boiler circulation water that includes petroleum.

Standard electrode

Dome-shaped tough electrode

Integrated combination
Model: 6108-50B



Fixed sleeve tough electrode

Integrated combination
Model: 6109-50B



Hydrofluoric-acid resistant

Integrated combination
Model: 6151-50B



High-alkali resistant

Integrated combination
Model: 6152-50B



pH electrode standard

Combination with replaceable tip
Model: 6174-50B



Dissolved Oxygen

HD-200 (4-Wire Transmitter)



HD-300 (2-Wire Transmitter)



HD-200 Specifications

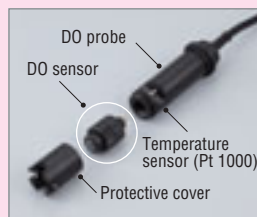
Measuring method	Membrane type polarography method
Measuring range	Dissolved oxygen concentration: 0 to 20 mg/L Resolution: 0.01 mg/L Saturation ratio: 0 to 200% Resolution: 1% Temperature: 0 to 50°C Resolution: 0.1°C
Repeatability	Dissolved oxygen concentration: $\pm 0.5\%$ full-scale or less, Temperature: $\pm 0.5^\circ\text{C}$ (for equivalent input)
Linearity	Dissolved oxygen concentration: $\pm 0.5\%$ full-scale or less, Temperature: $\pm 0.5^\circ\text{C}$ (for equivalent input)
Transmission output	Two points 4 to 20 mA DC Input/output isolated type Maximum load resistance 900 Ω
Contact output	Three points No-voltage contact output Relay contact, SPDT(1c) Contact function R1, R2: Selectable from upper limit alarm, lower limit alarm, ON/OFF control, transmission output hold operation, cleaning output FAIL: Malfunction alarm Control operation Control range: 0.02 to 1.00 mg/L (± 0.01 to ± 0.50 mg/L)
Contact input	One point Contact format: Open collector no-voltage a contact Contact function: Cleaning operation external input
Communication function	RS-485 Two wire systems, Input/output isolated type (not isolated from transmission output)
Temperature compensation range	0 to 50°C
Ambient temperature	-20 to 55°C
Temperature measurement element	Pt 1000 (0°C) (Built into DO-1100 probe)
Calibration method	Atmospheric calibration or saturated liquid calibration
Self-diagnosis function	Calibration error, Sensor diagnosis error, Analyzer malfunction
Power supply	100 to 240 V AC 50/60 Hz 15 VA (max.)
Construction	Outdoor installation type: IP65 protection level Mounting method: 50 A pole or wall mounted Case: Aluminum alloy Mount fitting/hood: SUS304
Compatible sensor	Sensor: 5505, 5510 Probe: DO-1100
Weight	Approx. 4.5 kg
Regulatory certification	CE marking, FCC rules

HD-300 Specifications

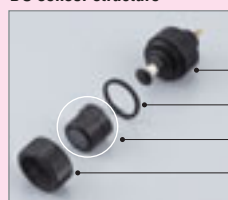
Measuring method	Membrane type polarography method
Measuring range	Dissolved oxygen: 0 to 20 mg/L Resolution: 0.01 mg/L Saturation ratio: 0 to 200% Resolution: 1% Temperature: 0 to 50°C Resolution: 0.1°C
Repeatability	Dissolved oxygen concentration: $\pm 0.5\%$ full-scale or less, Temperature: $\pm 0.5^\circ\text{C}$ (for equivalent input)
Linearity	Dissolved oxygen concentration: $\pm 0.5\%$ full-scale or less, Temperature: $\pm 0.5^\circ\text{C}$ (for equivalent input)
Transmission output	4 to 20 mA DC Input/output isolated type Maximum load resistance 600 Ω
Contact input	One point Contact format: No-voltage a contact Contact function: Transmission output is held for closed contact input.
Temperature compensation range	0 to 50°C
Ambient temperature	-20 to 60°C
Temperature measurement element	Pt 1000 (0°C) (Built into DO-1100 probe)
Calibration method	Atmospheric calibration or saturated liquid calibration
Self-diagnosis function	Calibration error, Sensor diagnosis error, Transmitter malfunction
Power supply	24 V DC (operational voltage range: 21 to 32 V DC) 0.6 W (max.)
Construction	Outdoor installation type: IP65 protection level Mounting method: 50 A pole or wall mounted Case: Aluminum alloy Mount fitting/hood: SUS304
Compatible sensor	Sensor: 5505, 5510 Probe: DO-1100
Weight	Approx. 4 kg
Regulatory certification	CE marking, FCC rules

Sensor

Combines sensor replacement and internal solution, membrane replacement during parts renewal



DO sensor structure



Specifications

Model	5505	5510
Measuring method	Membrane type polarography	
Construction	Sensor replacement and membrane internal solution replacement system	
Material	Membrane thickness	50 μm
	Membrane material	PFA
	Electrode material	C-Ag
	Solution contact material	PPO, PFA, EPDM
	Internal solution	KCl (neutral)
Performance	Response speed (90% response)	120 sec. or less
	Repeatability	± 0.1 mg/L
Measurement solution conditions	Temperature	0 to 50°C
	Pressure	0 to 0.5 MPa
	Flow velocity	20 cm/sec. or more
Combined probe	DO-1100	

Pb Free

The membrane remains fixed to the diaphragm cap, simplifying the replacement work during tip renewal.

Probe



Specifications

Model	DO-1100
Construction	Tip replacement type
Measurement solution temperature	0 to 50°C (no freezing)
Measurement solution pressure	0 to 0.5 MPa
Solution contact material	PPO, EPDM, Ti
Combined sensor	5505, 5510

Caution: The selection of equipment will differ based on various conditions, including the installation site, usage environment, measurement samples, and any special characteristics. Contact your sales representative for details.

Dissolved Oxygen

HD-200FL (4-Wire Transmitter)



HD-480 (4-Wire Transmitter)



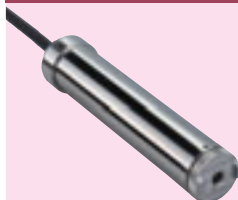
HD-200FL Specifications

Measuring method	Optical (fluorescent)	
Measuring range	DO: 0 to 20 mg/L Saturation: 0 to 200% Temperature: 0 to 50°C	Resolution: 0.01 mg/L Resolution: 0.1% Resolution: 0.1°C
Repeatability	±1% of full scale	
Linearity	±2% of full scale	
Transmission output	Two points 4 to 20 mA DC output isolated type Maximum load resistance 900 Ω Range 1: DO concentration: Freely selectable within the measurement range Range 2: Temperature: Freely selectable within the range from -10.0 to 110.0°C Alarm: Burnout function (3.8 mA or 21 mA) Hold: Selectable from previous value hold, optional value hold	
Contact output	Three points Dry contact output Relay contact, SPDT (1c) Signal R1, R2: upper limit alarm, lower limit alarm, hold, Cleaning (selectable) FAIL: Alarm Control operation Control width: 0.02 to 4.00 mg/L (±0.01 to ±2.00 mg/L)	
Communication function	RS-485 Two wire systems, Input/output isolated type (not isolated from transmission output)	
Temperature compensation range	0 to 50°C	
Self-diagnosis function	Calibration error, sensor diagnosis error, converter alarm	
Operating temperature range	-20 to 55°C (Should not be frozen)	
Power supply	100 to 240 V AC 50/60 Hz 15 VA (max.)	
Structure	IP65 : 50 A pole or wall mounting Case: Aluminum alloy Mounting brackets, hood: SUS304	
Compatible sensor	DO-2000	
Weight	Main unit body: Approx. 3.5 kg Hood, mounting brackets: Approx. 1 kg	
Regulatory certification	CE marking, FCC rules	

HD-480 Specifications

Measuring method	Galvanic cell method	
Measuring range	Dissolved oxygen: 0 to 20 mg/L Saturation ratio: 0 to 200% Temperature: 0 to 40°C	Resolution: 0.01 mg/L Resolution: 1% Resolution: 0.1°C
Repeatability	Dissolved oxygen: ±0.5% full-scale or less (for equivalent input)	
Linearity	Dissolved oxygen: ±0.5% full-scale or less (for equivalent input)	
Transmission output	4 to 20 mA DC Input/output isolated type Maximum load resistance 900 Ω	
Transmission output range	Freely settable within measuring range	
Contact output	No. of outputs: Two points (R1, R2) Contact format: Relay contact SPDT (1c) Contact capacity: 240 V AC 3 A, 30 V DC 3 A (resistance load) Contact function: Selectable from upper, lower limit operation (ON/OFF control) and malfunction alarm, maintenance operation, temperature	
Calibration function	· Atmospheric calibration or saturated liquid calibration · Salinity correction (0.0 to 5.0%) · Temperature calibration (2 points)	
Self-diagnosis function	· Calibration failure (zero error, sensitivity error) · Sensor diagnosis (temperature sensor short-circuit, temperature sensor disconnection) · Outside measuring range · Analyzer malfunction	
Power supply	100 to 240 V AC 50/60 Hz 10 VA (max.)	
Temperature compensation range	0 to 40°C	
Ambient temperature	-5 to 45°C	
Compatible sensor	Sensor: 5405, Probe: DP-100	
Weight	Approx. 400 g	
Regulatory certification	CE marking, FCC rules	

Sensor



Specifications

Model	DO-2000
Sensor cap	5700A
Measurement sample temperature	0 to 50°C
Measurement depth	10 m
Wetted material	SUS316, NBR, PVC
Weight	Approx. 3.0 kg (including 10 m cable)

Holder

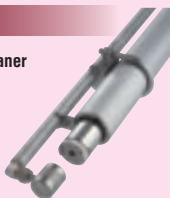
- **Immersion type holder**
DH-101 series (insertion type)
NH-10 series (drop-in type)
- **Flow type holder**
DF-30 series

Cleaner

- **Immersion type jet cleaner**
JDH series
- **Flow type jet cleaner**
JDF series
- **Ultrasonic cleaner**
UH / UDH series



Intermittent cleaning by air jet cleaner



Continuous cleaning by ultrasonic cleaner

Accessories

- **DO sensor extensive cable**
C-7E



- **Relay box**
CT-50DO



Sensor

Specifications

Model	5405
Construction	Cartridge replacement disposable type
Cleaner combination	Possible
Film thickness	50 μm
Responsiveness (for same measurement conditions)	90% response 120 sec. or less
Measurement solution conditions	Temperature: 0 to 40°C Pressure: 0 to 0.1 MPa (DO measurement is possible to a maximum depth of 10 m.) Flow velocity: 25 cm/sec. or more
Film material	PTFE
Combined probe	DP-100



[Disposable type sensor]

The film recovering work required when renewing conventional electrodes is no longer necessary and anyone can easily perform replacement. In addition, disposable type sensors deliver high quality and low cost.

Probe

Specifications

Model	DP-100
Construction	Immersion type
Measurement solution temperature	0 to 40°C
Solution contact material	PVC, titanium, CR
Combined sensor	5405

[Immersion type probe]

Directly immerse the probe in the measurement solution during use. No special installation work is required. Immersion type holders / flow type holders are available according to the application.



Cleaner







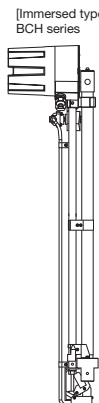



- **Water/air jet Cleaner Flow type**
JDF-30



- **Water/air jet Cleaner Immersion type**
JDH-10



Lineup of Cleaners

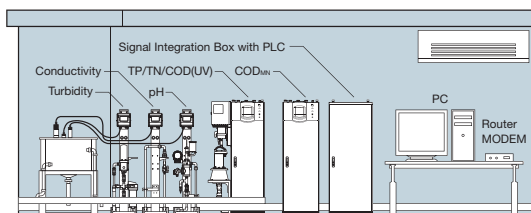
Ultrasonic Cleaner UCH-1X1 UCF-3X1	Jet Cleaner JCH-1X1 JCF-3X1	Jet Driven Brush Cleaner BH-1X1	Brush Cleaner BCH-1X1	Brush/Jet Cleaner BCH-1X1J	Chemical Cleaner CCH-1X1	Chemical Brush Cleaner CBCH-1X1	pH Meter with Auto Calibration Function AH-151
The use of original burst oscillation method enables 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.
<div>[Immersed type] UCH series</div>  <div>[Circulation type] UCF series</div> 	<div>[Immersed type] JCH series</div>  <div>[Circulation type] JCF series</div> 	<div>[Immersed type] BH series</div> 	<div>[Immersed type] BCH series</div> 	<div>[Immersed type] BCH series</div> 	<div>[Immersed type] CCH series</div> 	<div>[Immersed type] CBCH series</div> 	<div>[Immersed type] AH-151-GH</div> 

Comparison Table of Automatic Cleaners

	Ultrasonic Cleaner	Jet Cleaner	Jet Driven Brush Cleaner	Brush Cleaner	Brush/Jet Cleaner	Chemical Cleaner	Chemical Brush Cleaner	pH Meter Auto Calibration Function
pH	○	○	○	○	○	○	○	○
ORP	○	○	○	○	○	○	○	×
DO(Polarography)	×	○	×	×	×	×	×	×
DO (Optical)	○	○	×	×	×	×	×	×
NH ₄ -N	○	○	×	×	×	×	×	×
F	×	○	×	×	×	○	×	×
MLSS	×	○	×	×	×	×	×	×

Water Quality Monitoring System

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



HORIBA Global 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.

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HORIBA

Head Office
2 Miyahonogashi, 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

Manufactured by
HORIBA Advanced Techno

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, Bhamboli 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