

HORIBA

Scientific

ELECTRODES & ACCESSORIES

●pH ●mV(ORP) ●ION ●Conductivity ●Dissolved Oxygen



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HORIBA

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pH ELECTRODES

METALLIC ELECTRODES

ION ELECTRODES

CONDUCTIVITY ELECTRODE CELLS

DO ELECTRODES

ACCESSORIES

■ Applicable Product Models

| | |
|--|---|
| Benchtop pH/Water Quality Analyzer | F-70 Series, F-50 Series, F-20/F-20 II Series, F-10 Series, M-10 Series |
| Portable pH Meter | D-70 Series, D-50 Series, D-20 Series, D-10 Series |
| Compact pH Meter | B-211/212/213/711/712/713 |
| Benchtop Conductivity Meter | DS-70 Series, DS-50 Series, DS-10 Series |
| Portable Conductivity Meter | ES-71, ES-51, ES-10 Series |
| Compact Conductivity Meter | B-173/771 |
| Compact Ion Meter | B-341/342/343/721/722/731/ 741/742/743/751, C-121/122/131/141 |
| Portable DO Meter | OM-71, OM-51, OM-10 Series |
| Portable Water Quality Monitoring System | U-50, U-20XD, U-10 Series |

pH METER and ELECTRODE COMBINATION TABLE

| Type | pH | | | | | ORP | ION | | | Conductivity Electrode Cells | Dissolved Oxygen Electrode |
|---------------------------------|------------------|-----------------------|-----------------|--------------------|---------------------|------------------------------|-----------------------|--------------------|-----------|------------------------------|----------------------------|
| | 3-in-1 Electrode | Combination Electrode | ISFET Electrode | Single Electrode*1 | Reference Electrode | 3-in-1 Combination Electrode | Combination Electrode | Single Electrode*1 | | | |
| | 9615S-10D | 6069-10C | 0030-10D | 1066A-10C | 2060A-10T | 9300-10D | 6560-10C | 8001-10C | 8011-10C | 9382-10D | 9520-10D |
| | 9625-10D | 6261-10C | 0040-10D | 1076A-10C | 2565A-10T | | 6561-10C | 8002-10C | 1512A-10C | 3551-10D | 9551-20D |
| | 9618S-10D | | | | | | 5002A-10C | 8003-10C | 8201-10C | 3552-10D | 9551-100D |
| | 9681S-10D | | | | | | 6581-10C | 8004-10C | 8202-10C | 3553-10D | |
| | 9680S-10D | | | | | | 6582-10C | 8005-10C | 8203-10C | 3561-10D | |
| | 6367-10D | | | | | | 6583-10C | 8006-10C | | 3562-10D | |
| | 6377-10D | | | | | | | 8007-10C | | 3573-10C | |
| | 6252-10D | | | | | | | 8008-10C | | 3574-10C | |
| | 9631-10D | | | | | | | 8009-10C | | | |
| | 9632-10D | | | | | | | 8010-10C | | | |
| | 9630-10D | | | | | | | | | | |
| F-71, F-51 · 52 | ○ | ○ | ○ | ○ | ○ | ○ | × | × | | × | × |
| F-72 · 73, F-53 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | × | × |
| F-54 | ○ | ○ | ○ | ○ | ○ | ○ | × | × | | ○ | × |
| F-74 · 74BW, F-55 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | × |
| D-71, D-51, D-21 | ○ | ○ | ○ | × | × | × | × | × | × | × | × |
| D-72, D-52, D-22 | ○ | ○ | ○ | × | × | ○ | × | × | × | × | × |
| D-73, D-53, D-23 | ○ | ○ | ○ | × | × | ○ | ○ | × | × | × | × |
| D-74, D-54, D-24 | ○ | ○ | ○ | × | × | ○ | × | × | × | ○ | × |
| D-75, D-55, D-25 | ○ | ○ | ○ | × | × | ○ | × | × | × | × | ○ |
| F-21 · 22 · 21 II · 22 II | ○ | ○ | ○ | ○ | ○ | ○ | × | × | × | × | × |
| F-22C · 22 II C | ○ | ○ | ○ | ○ | ○ | ○ | × | × | × | × | × |
| F-23 · 24 · 23 II · 24 II | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | × | × |
| F-23C · 24C · 23 II C · 24 II C | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | × | × |
| M-11, F-11 · 12 | ○ | ○*2 | ○ | ○*2 | ○*2 | × | × | × | × | × | × |
| M-12 · 13, F-13 · 14 · 15 · 16 | ○ | ○ | ○ | ○ | ○ | ○ | × | × | × | × | × |
| D-11 · 12 | ○ | ○*2 | ○ | × | × | × | × | × | × | × | × |
| D-13 · 14 | ○ | ○*2 | ○ | × | × | ○ | × | × | × | × | × |

○: Applicable ×: Not Applicable *1: Reference electrode required for measurement *2: Temperature compensation electrode (4163-10T) required for measurement

Electrode connector and lead wire length:

10 of -10C, -10T, or -10D in the last part of each type shows that the lead wire length is 1.0m. C, T, and D denote connector types for the main unit. The connector type suited for the main unit should be selected.

Only D type connector can be used for the D-20, D-50, D-70 series. C, T, D type connectors can be used for all of the F series and M-series.

<Reference>

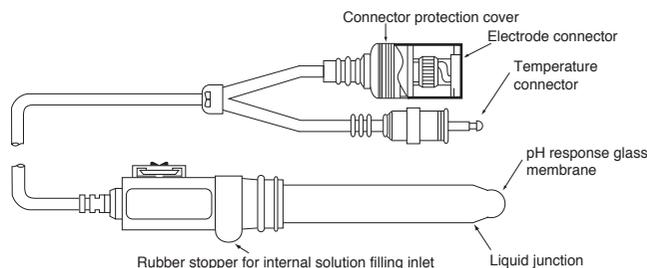
The liquid junction is the section where the liquid inside the reference electrode comes in contact with the sample liquid. Several junction types are available (ceramic, sleeve, etc.), to meet the requirements of specific samples or applications.

| Liquid junction type | Features |
|------------------------|--|
| Ceramic | A broad range of pH measurements. (Please note that samples of high viscosity may cause clogging.) |
| Movable sleeve | The larger liquid junction area is ideal for samples of high liquid junction potential, such as those with (1) high viscosity, (2) high salt concentration, or (3) low ionic strength. The liquid junction is easy to clean. High internal solution outflow volume. |
| Fixed sleeve | The large liquid junction area makes this type somewhat similar to the movable sleeve type. Not recommended for samples of high viscosity, as the sleeve cannot be cleaned. |
| Double junction | Combination of the ceramic type and the movable sleeve type overcomes the disadvantages of using either separately. When the outflow of the KCl in the internal solution presents a problem, placing the sample or other salt solution in the external tube will ensure stable measurements. |

pH ELECTRODES (3-in-1 ELECTRODES)

Combination electrodes are a glass electrode and a reference electrode incorporated into one unit. 3-in-1 electrodes incorporate a glass electrode and a reference electrode-plus a temperature compensation electrode-into a single unit.

These electrodes are compact and easy to use; they give superb results in pH measurements over a broad range of sample liquids and test conditions. Also, since the glass membrane and the liquid junction are adjacent, only a small amount of sample fluid is required and they are extremely simple to clean. The internal reference electrode uses a solution of 3.33 mol/L KCl.



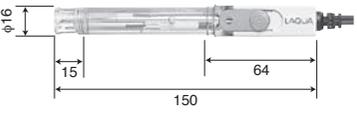
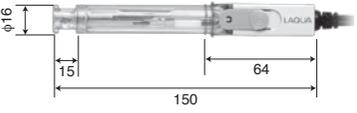
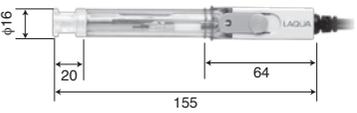
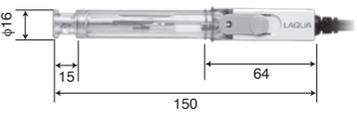
3-in-1 ELECTRODES **ToupH**

<ToupH> electrode: HORIBA's glass membrane molding technology achieves strengths more than 10 times the Japanese Industrial Standards (strength tests). New dome-shaped construction (9615-10D) boosts strength in all directions.

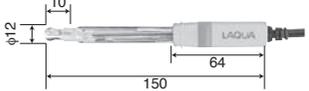
| Type | Applicable temperature range(°C) | pH range | Liquid junction | Internal solution | Feature |
|---|----------------------------------|----------|-----------------|-------------------|---|
| 9615S-10D General laboratory application ToupH Standard ToupH electrode | 0-100 | 0-14 | Ceramic | #300 (KCl) | Quick stability, and reduction of drift. No more worries about the timing of your measurement value readings. ●Uses responsive glass that is 10 times stronger than JIS standards. The domed shape provides strength in all directions, greatly reducing damage concerns. Constructed with smooth surfaces for easy wiping and cleaning. ●One touch slide port enable easy one hand operation. ●Waterproof ●Pb free (Recommended) Perfect for preparing buffers. Can be used on a wide range of aqueous test solutions. (Post 9615-10D, 9611-10D, 6366-10D) |
| 9618S-10D Precious trace amount sample ToupH Micro ToupH electrode | 0-60 | 0-14 | Ceramic | #300 (KCl) | This pH electrode with temperature compensation sensor can take measurements from samples as small as 50 μL. ●Compatible with extremely small containers such as micro tubes etc. ●Waterproof ●The temperature sensor is placed next to the response section for high-speed temperature response. (Recommended) Can be used for a wide range of aqueous solutions, including those that cannot be obtained in large quantities. We recommend using our specialized cleaning solution after measuring samples that contain proteins. (Post 9618-10D, 9669-10D) |
| 9680S-10D For large containers and long test tubes ToupH Long ToupH electrode | 0-100 | 0-14 | Ceramic | #300 (KCl) | 251 mm length & 8 mm diameter. The long, thin design makes this electrode perfect for measuring in large containers and test tubes. ●Uses responsive glass that is 10 times stronger than JIS standards. ●Constructed with smooth surfaces for easy wiping and cleaning. ●Waterproof ●Pb free (Recommended) For measuring samples such as microbe culture fluids in test tubes. We recommend that it be used with the long type electrode stand (FA-70L). (Post 9680-10D, 9678-10D, 6378-10D) |
| 9681S-10D High viscosity application ToupH Sleeve ToupH electrode | 0-60 | 0-14 | Movable sleeve | #300 (KCl) | Stable measurement can also be achieved for highly viscous samples. ●The liquid junction section is constructed with a moveable sleeve that can be rinsed clean, preventing highly viscous samples from clogging the liquid junction, and maintaining stable measurement performance. ●Waterproof ●Pb free (Recommended) For highly viscous samples and solutions, and samples that contain non-aqueous solvents (such as cosmetics or paints). We recommend that you take measurements while using the graph display function to confirm stable responses. (Post 9681-10D, 9677-10D) |

3-in-1 ELECTRODES **Plastic Body**

Adopting plastic for the body material and covering the electrode tip with a protective tube, this electrode series is ideally suited to measurements in the field and harsh environments. This plastic body lineup consists of the electrodes equipped with high purity glass for tap water measurements, and those with special resistive glasses for hydrofluoric acid and strong alkali sample measurements.

| Type | Applicable temperature range(°C) | pH range | Liquid junction | Internal solution | Feature |
|---|----------------------------------|----------|-----------------|-------------------|--|
| 9625-10D Standard type  3200360505 | 0-100 | 0-14 | Ceramic | #300 (KCl) | Cased in a plastic body to enable field measurements. The slide-type internal solution filler permits submerged measurements in depths up to 1m (for up to 30 minutes) ● Waterproof ● Pb free (Recommended) Suitable for measurements for tap water, drinking water, field measurements. (Post 9621-10D model) |
| 9630-10D For tap water  3200528726 | 0-100 | 0-14 | Ceramic | #300 (KCl) | Can measure samples with low conductivity or buffering capacity such as tap water, by adopting high purity multicomponent lithium series glass to its body. Optimal for quality control in Water purification plant. ● Waterproof ● Pb free * Recommended to use along with the dedicated wash solution (model: 230) |
| 9631-10D Hydrofluoric acid resistant model  3200524119 | 0-60 | 2-12 | Ceramic | #300 (KCl) | Long life capable of measuring about 1000 times*. Rolled glass architecture achieves easy maintenance and long-term reliable measurement. Compliant with the Measurement Act Certification(Japan). Optimal for drain water control after etching process etc. ● Waterproof ● Pb free * When a measurement is conducted for 1 minute with 1% hydrofluoric acid solution (at 25°C) |
| 9632-10D Strong alkali resistant model  3200524120 | 0-100 | 0-14 | Ceramic | #300 (KCl) | An alkali resistant glass membrane achieves higher resistance and about five times* longer stability than our conventional products. Suitable for strong alkali samples such as plating solutions. ● Waterproof ● Pb free * With 0.1 mol/L sodium (about pH 13) (at 60°C) |

3-in-1 ELECTRODES **Glass Body**

| Type | Applicable temperature range(°C) | pH range | Liquid junction | Internal solution | Feature |
|--|----------------------------------|----------|-----------------|-------------------|---|
| 6367-10D Standard type (sleeve)  3014079136 (9003011800) | 0-60 | 0-14 | Sleeve | #300 (KCl) | Uses a sleeve for the liquid junction, improving the stability and repeatability. For measuring pH at high accuracy. (Standard accessory for model F-24II.) |
| 6377-10D For measurement of low-conductivity water and non-aqueous solvents  3014093085 (9003014100) | 0-60 | 0-14 | Movable sleeve | #300 (KCl) | Uses a glass membrane highly sensitive to low-conductivity water and non-aqueous solvents. Movable sleeve used at the liquid junction. |
| 6252-10D For food application (needle type)  3014080850 (9003013800) | 0-60 | 0-12 | Ceramic | #300 (KCl) | Needle electrode allows measurement of aqueous solutions too. |

pH ELECTRODES (ISFET (Semiconductor electrode))

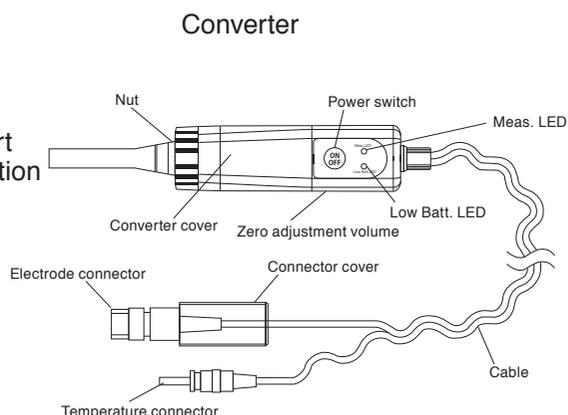
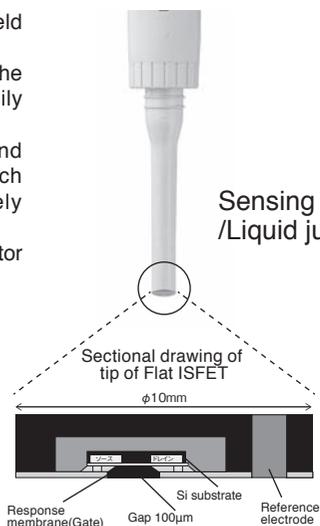
ISFET is the abbreviation of Ion Sensitive Field Effect Transistor.

Since ISFET is robust and will not crack like the conventional glass electrodes, it can be easily handled and maintained.

The response part is equipped with a flat and miniature semiconductor-based sensor, which makes the measurement even on extremely small samples possible.

Combination of HORIBA's unique semiconductor device structure and improvement of the electrostatic protection circuit enables to reduce greatly the static electricity effect that had been the weak point of the semiconductor sensor.

Now the measurement has become more comfortable and reliable.



ISFET ELECTRODES ISFET

| Type | Applicable temperature range(°C) | pH range | Liquid junction | Feature |
|---|----------------------------------|----------|---|---|
| 0040-10D Surface of solid samples Flat ISFET pH electrode 0040-10D | 0-60 | 0-14 | Porous sintered polyethylene | The sensor is located on the flat surface of the tip, with less than a 100 µm difference from the housing. ●Measurements can be made from a minute amount of moisture on the solid sample surface. ●Use of a semiconductor sensor means there are no concerns that the electrode will be damaged. ●Also perfect for measuring samples in shallow containers such as Petri dishes. ●Waterproof ●Replaceable Sensor (Recommended) For surface measurement of gelatinous materials such as nutrient agar, and foodstuffs such as meat. Evaluation of sheet materials such as cloth or paper. If the sample only has a small amount of moisture, pure water etc. is required. |
| 0141 Replacement sensor for 0040-10D 3200367925 | | | | |
| 0030-10D Inside solid samples Needle ISFET electrode | 0-60 | 0-14 | ABS, epoxy, polyethylene, Ta ₂ O ₅ , platinum | The sharp tip can pierce solid samples to take measurements. ●Use of a semiconductor sensor means there are no concerns that the electrode will be damaged. ●Waterproof (Recommended) For measuring inside foodstuffs, such as fruits, vegetables and bread. |
| 0131 Replacement sensor for 0030-10D 3014028323 (9096002100) | | | | |

REPLACEMENT SENSOR for ISFET ELECTRODES

| Type | Feature |
|---|--|
| 141 Flat ISFET (0040-10D) sensor part (for replacement) 3200367926 | Replaceable sensor tip for flat ISFET electrode (0040-10D) |
| 131 Needle ISFET (0030-10D) sensor part (for replacement) 3014028400 (9096002200) | Replaceable sensor tip for needle ISFET electrode (0030-10D) |

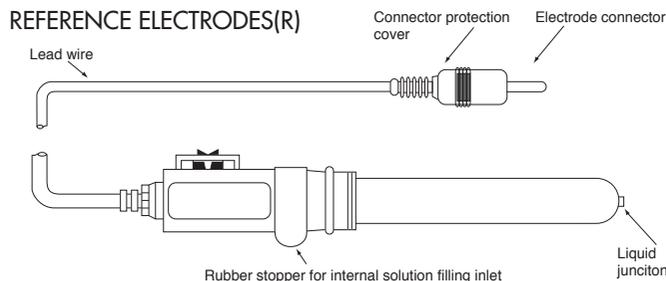
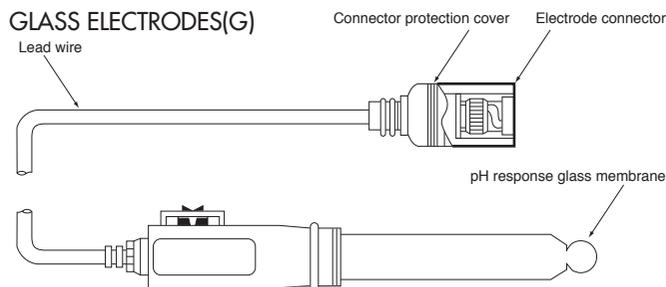
pH ELECTRODES (GLASS ELECTRODES(G), REFERENCE ELECTRODES(R))

Glass electrodes measure the pH value in the sample solution by detection of electromotive force, i.e., voltage.

HORIBA's superior glass electrodes have all the qualities required for accurate measurement and testing: they are responsive to changes in electromotive force, sensitive to very slight alkaline differences, have a low internal resistance, and are extremely durable. HORIBA's electrodes are perfect not only for laboratory pH measurement conditions, but are in widespread general use for pH measurement.

Our series of electrodes for use with HORIBA's F, M, & D Series of pH meters incorporate a composite lithium glass for the pH-responsive glass membrane. This gives them extremely high sensitivity. They connect to the industry-standard universal BNC connectors. The holder portion has a squared-off design to prevent the electrode from rolling, protecting it from damage.

Reference electrodes constitute part of the detection portion of pH meters; they are used together with a glass electrode to isolate the electromotive force generated in the glass electrode. HORIBA's reference electrodes use a top-quality internal reference electrode and a liquid junction with numerous special features; this gives them an incredible stable indication of electrical potential, making them particularly suitable as reference electrodes in all types of pH and electrical potential measurement. These electrodes have a double-junction configuration, incorporating two types of liquid junction, using capillary tubes, a sleeve with large surface area, and an easy-to-use ceramic filter.



Glass Electrodes(G)

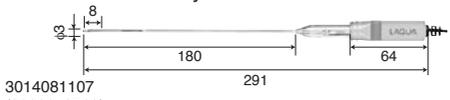
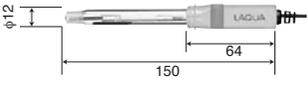
| Type | Usage | Applicable temperature range(°C) | pH range | Applicable reference electrode | Feature |
|---|---|----------------------------------|----------|--------------------------------|--|
| 1066A-10C Standard type 3014080432 (9003012200) | Glass electrode 1066A-10C Reference electrode 2060A-10T or other | 0-100 | 0-14 | 2060A 2565A | Very durable minimum alkali errors. Most widely used for general pH measurements. |
| 1076A-10C For measurement of low-conductivity water and non-aqueous solvents. 3014093084 (9003014200) | Glass electrode 1076A-10C Reference electrode 2060A-10T or other | 0-100 | 0-14 | 2060A 2565A | Uses a glass membrane highly sensitive to low-conductivity water and non-aqueous solvents. Can also be used for ordinary pH measurement. |

Reference Electrodes(R)

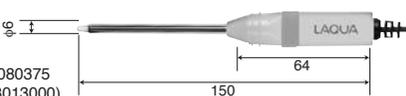
| Type | Applicable temperature range(°C) | Liquid junction | Internal solution | Applicable glass electrode | Feature |
|--|----------------------------------|---|-------------------|----------------------------|--|
| 2060A-10T Standard type 3014080434 (9003012500) | 0-100 | Ceramic | #300 (KCl) | 1066A 1076A | Suitable for a wide range of pH measurements since the resistance of the liquid junction is small. |
| 2565A-10T Double-junction type 3014080436 (9003012700) | 0-100 | Intermediate: Ceramic External: Sleeve | #300 (KCl) | 1066A 1076A | Suitable for measurements of liquid other than normal aqueous solutions, such as suspensions, emulsions, paste, and non-aqueous solutions. When the potassium chloride solution of the internal solution reacts with the sample, measurements can be stably carried out by filling the sample or any other chloride solution in the external jacket. The replacement of the internal solution and the cleaning of the liquid junction can be carried out easily. |

pH ELECTRODES (COMBINATION), Temperature Compensation Electrode, METALLIC ELECTRODES (FOR ORP MEASUREMENT)

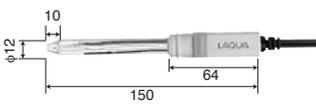
Combination Electrodes

| Type | Applicable temperature range(°C) | pH range | Liquid junction | Internal solution | Feature |
|---|----------------------------------|----------|-----------------|----------------------|--|
| 6069-10C For very slender test tubes  3014081107 (9003013500) | 0-60 | 0-14 | Ceramic | #310 (KCl with AgCl) | For measuring pH of a small amount of sample in a slender tube (more than 3.5 mm dia.) such as a NMR test tube. |
| 6261-10C Flat type  3014081807 (9003013700) | 0-50 | 0-12 | Sleeve | #300 (KCl) | Since the pH response membrane and the liquid junction are located on the same surface, pH values on the surfaces of skin, leather, paper, and leaves can be measured. |

Temperature Compensation Electrode

| Type | Applicable temperature range(°C) | Applicable | Temperature compensation element | Feature |
|--|----------------------------------|--|----------------------------------|---|
| 4163-10T  3014080375 (9003013000) | 0-100 | Temperature compensation and measurement | Thermistor | Used to automatically compensate the changes in the electromotive force of the pH electrode due to temperatures and also to measure temperatures. |

Metallic Electrode (For ORP Measurement)

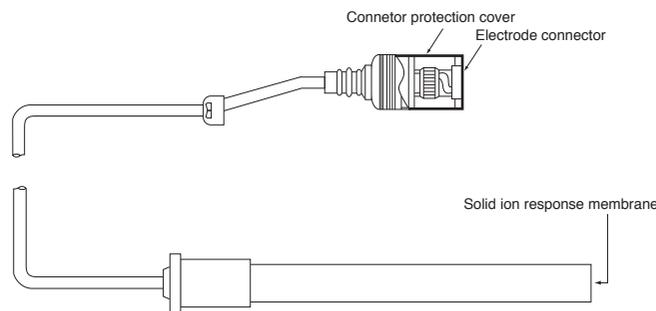
| Type | Applicable temperature range(°C) | Electrode material | Applicable reference electrode | Internal solution | Feature |
|---|----------------------------------|--------------------|--------------------------------|-------------------|--|
| 9300-10D Waterproof platinum combination type  3014046710 (9096000400) | 0-60 | Pt | — | #300 (KCl) | Waterproof. Uses a flat type metallic electrode, which allows a small amount of sample to be measured. |

ION ELECTRODES

See P4 for information about reference electrodes.

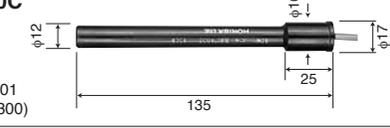
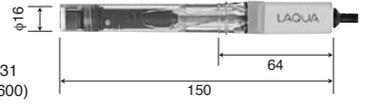
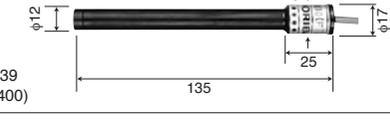
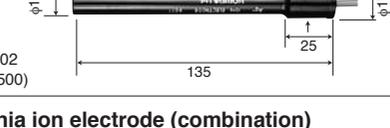
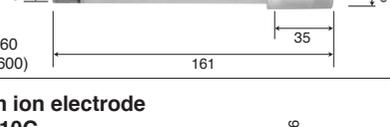
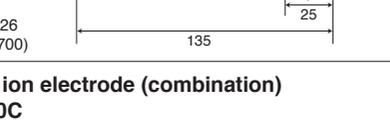
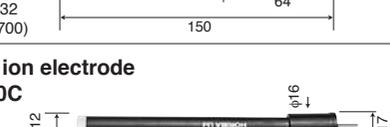
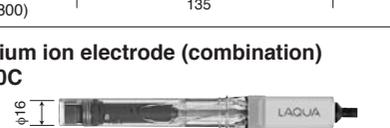
Ion-selective electrodes are responsive to concentration of particular ions in the test liquid and are variable-potential electrodes. They are used in conjunction with reference electrodes to measure the concentration of particular ions. HORIBAs years of experience and know-how in this field are behind the wide range of ion electrodes we offer.

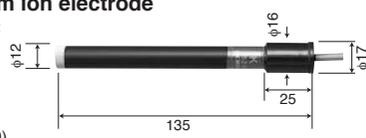
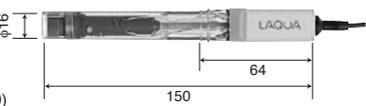
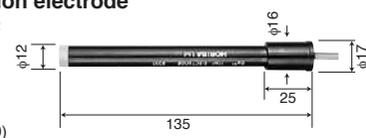
When measurements are made using an ion meter, by calibrating with various standard solutions, direct readings of the concentration of the ion in question can be taken. Note that since volume-detection level changes with temperature, measurements must be taken at a fixed temperature.



①: Measuring range ②: pH range ③: Applicable temperature range ④: Response time (90%)

| Type | Measuring range | Applicable reference electrode | Selection coefficient |
|--|---|--------------------------------|---|
| Cyanide ion electrode 8001-10C <p>3014094393 (9003015500)</p> | ①: 0.03 to 2,600 mg/L CN ⁻ (10 ⁻⁶ to 10 ⁻¹ mol/L CN ⁻) ②: 2.6 mg/L (10 ⁻⁴ mol/L) CN ⁻ pH 12 to 13 ③: 0 to 50°C ④: Within 10 seconds | 2060A, 2565A | S ²⁻ , MnO ₄ ⁻ = Not acceptable I ⁻ = 0.1 S ₂ O ₃ ²⁻ = 1 |
| Chloride ion electrode (combination) 6560-10C <p>3014093430 (9003014500)</p> | ①: 0.35 to 35,000 mg/L Cl ⁻ (10 ⁻⁵ to 1 mol/L Cl ⁻) ②: 350 mg/L (10 ⁻² mol/L) Cl ⁻ pH 3 to 11 ③: 0 to 50°C ④: Within 5 seconds | — | S ₂ O ₃ ²⁻ , S ²⁻ , I ⁻ , Ag ⁺ , Hg ²⁺ = Not acceptable SCN ⁻ = 0.3 MnO ₄ ⁻ = 0.1 Br ⁻ = 0.03 NO ₃ ⁻ , F ⁻ , HCO ₃ ⁻ , SO ₄ ²⁻ , PO ₄ ²⁻ = 1,000 |
| Chloride ion electrode 8002-10C <p>3014094394 (9003015600)</p> | ①: 0.35 to 35,000 mg/L Cl ⁻ (10 ⁻⁵ to 1 mol/L Cl ⁻) ②: 350 mg/L (10 ⁻² mol/L) Cl ⁻ pH 3 to 11 ③: 0 to 50°C ④: Within 5 seconds | 2565A | S ₂ O ₃ ²⁻ , S ²⁻ , I ⁻ , Ag ⁺ , Hg ²⁺ = Not acceptable SCN ⁻ = 0.3 MnO ₄ ⁻ = 0.1 Br ⁻ = 0.03 NO ₃ ⁻ , F ⁻ , HCO ₃ ⁻ , SO ₄ ²⁻ , PO ₄ ²⁻ = 1,000 |
| Sulfide ion electrode 8003-10C <p>3014094395 (9003015700)</p> | ①: 0.32 to 32,000 mg/L S ²⁻ (10 ⁻⁵ to 1 mol/L S ²⁻) ②: 3.2 mg/L (10 ⁻⁴ mol/L) S ²⁻ pH 12 to 14 ③: 0 to 50°C ④: Within 10 seconds | 2060A, 2565A | CN ⁻ = Not acceptable S ₂ O ₃ ²⁻ = 10 I ⁻ , F ⁻ , Cl ⁻ , PO ₄ ²⁻ , SO ₄ ²⁻ = 1,000 |
| Iodide ion electrode 8004-10C <p>3014094396 (9003015800)</p> | ①: 0.0127 to 12,700 mg/L I ⁻ (10 ⁻⁷ to 10 ⁻¹ mol/L I ⁻) ②: 1,270 mg/L (10 ⁻² mol/L) I ⁻ pH 2 to 11 ③: 0 to 50°C ④: Within 10 seconds | 2060A, 2565A | MnO ₄ ⁻ , S ²⁻ , CN ⁻ = Not acceptable S ₂ O ₃ ²⁻ = 10 NO ₃ ⁻ = 100 Br ⁻ = 1,000 |
| Bromide ion electrode 8005-10C <p>3014094397 (9003015900)</p> | ①: 0.8 to 80,000 mg/L Br ⁻ (10 ⁻⁵ to 1 mol/L Br ⁻) ②: 800 mg/L (10 ⁻² mol/L) Br ⁻ pH 1.5 to 11.5 ③: 0 to 50°C ④: Within 10 seconds | 2565A | S ₂ O ₃ ²⁻ , I ⁻ , S ²⁻ , CN ⁻ = Not acceptable MnO ₄ ⁻ = 1 Cl ⁻ , PO ₄ ²⁻ = 100 F ⁻ , NO ₃ ⁻ , SO ₄ ²⁻ = 1,000 |
| Copper ion electrode 8006-10C <p>3014094398 (9003016000)</p> | ①: 0.06 to 6,350 mg/L Cu ²⁺ (10 ⁻⁶ to 10 ⁻¹ mol/L Cu ²⁺) ②: 6.35 mg/L (10 ⁻⁴ mol/L) Cu ²⁺ pH 2 to 6 ③: 0 to 50°C ④: Within 10 seconds | 2565A | Fe ²⁺ = 0.1 Ni ²⁺ , Na ⁺ = 1,000 |
| Cadmium ion electrode 8007-10C <p>3014094399 (9003016100)</p> | ①: 0.1 to 11,240 mg/L Cd ²⁺ (10 ⁻⁶ to 10 ⁻¹ mol/L Cd ²⁺) ②: 11 mg/L (10 ⁻⁴ mol/L) Cd ²⁺ pH 3 to 8 ③: 0 to 50°C ④: Within 10 seconds | 2060A, 2565A | Cu ²⁺ , Hg ²⁺ , Ag ⁺ = Not acceptable Pb ²⁺ = 0.1 Fe ³⁺ = 1 Cr ³⁺ , Fe ²⁺ = 100 Ni ²⁺ = 1,000 |

| Type | Measuring range | Applicable reference electrode | Selection coefficient |
|---|---|--------------------------------|--|
| Lead ion electrode 8008-10C  <p>3014094400 (9003016200)</p> | ①: 2 to 20,000 mg/L Pb ²⁺ (10 ⁻⁵ to 10 ⁻¹ mol/L Pb ²⁺) ②: 20 mg/L (10 ⁻⁴ mol/L) Pb ²⁺ pH 4.5 to 6.5 ③: 0 to 50°C ④: Within 10 seconds | 2565A | Cu ²⁺ , Hg ²⁺ , S ²⁻ , Ag ⁺ = Not acceptable Fe ³⁺ = 0.01 Cr ³⁺ = 1 Cd ²⁺ = 10 Ni ²⁺ , Mg ²⁺ , Zn ²⁺ = 100 NH ₄ ⁺ , K ⁺ = 1,000 |
| Thiocyanate ion electrode 8009-10C  <p>3014094401 (9003016300)</p> | ①: 0.6 to 5,800 mg/L SCN ⁻ (10 ⁻⁵ to 10 ⁻¹ mol/L SCN ⁻) ②: 5.8 mg/L (10 ⁻⁴ mol/L) SCN ⁻ pH 2 to 12 ③: 0 to 50°C ④: Within 30 seconds | 2565A | CN ⁻ , I ⁻ , S ²⁻ , S ₂ O ₃ ²⁻ = Not acceptable Br ⁻ = 1 Cl ⁻ = 100 |
| Fluoride ion electrode (combination) 6561-10C  <p>3014093431 (9003014600)</p> | ①: 0.02 to 19,000 mg/L F ⁻ (10 ⁻⁶ to 1 mol/L F ⁻) ②: 20 mg/L (10 ⁻³ mol/L) F ⁻ pH 4 to 10 ③: 0 to 50°C ④: Within 5 seconds | — | Possible interference when multiply-charged ion (ex. Al ³⁺ , Fe ³⁺) coexisted and foamed the complex. |
| Fluoride ion electrode 8010-10C  <p>3014093439 (9003016400)</p> | ①: 0.02 to 19,000 mg/L F ⁻ (10 ⁻⁶ to 1 mol/L F ⁻) ②: 20 mg/L (10 ⁻³ mol/L) F ⁻ pH 4 to 10 ③: 0 to 50°C ④: Within 5 seconds *1 | 2060A, 2565A | Possible interference when multiply-charged ion (ex. Al ³⁺ , Fe ³⁺) coexisted and foamed the complex. |
| Silver ion electrode 8011-10C  <p>3014094402 (9003016500)</p> | ①: 0.01 to 110,000 mg/L Ag ⁺ (10 ⁻⁷ to 1 mol/L Ag ⁺) ②: 1 mg/L (10 ⁻⁵ mol/L) Ag ⁺ pH 2 to 10 ③: 0 to 50°C ④: Within 10 seconds | 2565A | Hg ²⁺ = Not acceptable Cu ²⁺ , Cd ²⁺ , Pb ²⁺ , Zn ²⁺ , Mg ²⁺ , Ca ²⁺ , Na ²⁺ , K ⁺ = over 1,000 |
| Ammonia ion electrode (combination) 5002A-10C  <p>3014093560 (9003016600)</p> | ①: 0.1 to 1,000 mg/L NH ₃ ②: Adjust more than pH 12 ③: 0 to 50°C ④: Within 30 seconds when substituting low concentration to high concentration Within 2 minutes when substituting high concentration to low concentration | — | — |
| Sodium ion electrode 1512A-10C  <p>3014068526 (9003016700)</p> | ①: 2.3 to 230,000 mg/L Na ⁺ (10 ⁻⁴ to 10 mol/L Na ⁺) ②: 230 mg/L (10 ⁻² mol/L) Na ⁺ Over pH 4.5 ③: 0 to 60°C ④: Within 30 seconds *1 | 2565A | K ⁺ , Li ⁺ = 10 NH ₄ ⁺ = 20 Ca ²⁺ = 500 |
| Nitrate ion electrode (combination) 6581-10C  <p>3014093432 (9003014700)</p> | ①: 0.62 to 62,000 mg/L NO ₃ ⁻ (10 ⁻⁵ to 1 mol/L NO ₃ ⁻) ②: 62 mg/L (10 ⁻³ mol/L) NO ₃ ⁻ pH 3 to 7 ③: 0 to 50°C ④: Within 15 seconds *2 | — | ClO ₄ ⁻ = 0.03 I ⁻ = 0.1 Br ⁻ = 2 NO ₂ ⁻ = 3 Cl ⁻ = 40 F ⁻ = 200 CH ₃ COO ⁻ = 300 SO ₄ ²⁻ = over 1,000 |
| Nitrate ion electrode 8201-10C  <p>3014094403 (9003016800)</p> | ①: 0.62 to 62,000 mg/L NO ₃ ⁻ (10 ⁻⁵ to 1 mol/L NO ₃ ⁻) ②: 62 mg/L (10 ⁻³ mol/L) NO ₃ ⁻ pH 3 to 7 ③: 0 to 50°C ④: Within 15 seconds *2 | 2565A | ClO ₄ ⁻ = 0.03 I ⁻ = 0.1 Br ⁻ = 2 NO ₂ ⁻ = 3 Cl ⁻ = 40 F ⁻ = 200 CH ₃ COO ⁻ = 300 SO ₄ ²⁻ = over 1,000 |
| Potassium ion electrode (combination) 6582-10C  <p>3014093433 (9003014800)</p> | ①: 0.04 to 39,000 mg/L K ⁺ (10 ⁻⁶ to 1 mol/L K ⁺) ②: 3.9 mg/L (10 ⁻⁴ mol/L) K ⁺ pH 5 to 11 ③: 0 to 50°C ④: Within 15 seconds *3 | — | Rb ⁺ = 0.4 Cs ⁺ = 3 NH ₄ ⁺ = 70 Li ⁺ , Na ⁺ , Mg ²⁺ , Ca ²⁺ , Sr ²⁺ , Ba ²⁺ = over 1,000 |

| Type | Measuring range | Applicable reference electrode | Selection coefficient |
|--|---|--------------------------------|---|
| Potassium ion electrode 8202-10C  3014094404 (9003016900) | ①: 0.04 to 39,000 mg/L K ⁺ (10 ⁻⁶ to 1 mol/L K ⁺) ②: 3.9 mg/L (10 ⁻⁴ mol/L) K ⁺ pH 5 to 11 ③: 0 to 50°C ④: Within 15 seconds *3 | 2565A | Rb ⁺ = 0.4 Cs ⁺ = 3 NH ₄ ⁺ = 70 Li ⁺ , Na ⁺ , Mg ²⁺ , Ca ²⁺ , Sr ²⁺ , Ba ²⁺ = over 1,000 |
| Calcium ion electrode (combination) 6583-10C  3014093434 (9003014900) | ①: 0.4 to 40,080 mg/L Ca ²⁺ (10 ⁻⁵ to 1 mol/L Ca ²⁺) ②: 4.0 mg/L (10 ⁻⁴ mol/L) Ca ²⁺ pH 5 to 11 ③: 0 to 50°C ④: Within 15 seconds *4 | — | Fe ³⁺ = 0.1 Fe ²⁺ , Zn ²⁺ = 1 Sr ²⁺ = 50 Ni ²⁺ , Cu ²⁺ = 70 Co ²⁺ = 350 Mn ²⁺ = 500 Mg ²⁺ = 1,000 Na ⁺ , K ⁺ , Ba ²⁺ , NH ₄ ⁺ = over 1,000 |
| Calcium ion electrode 8203-10C  3014068839 (9003017000) | ①: 0.4 to 40,080 mg/L Ca ²⁺ (10 ⁻⁵ to 1 mol/L Ca ²⁺) ②: 4.0 mg/L (10 ⁻⁴ mol/L) Ca ²⁺ pH 5 to 11 ③: 0 to 50°C ④: Within 15 seconds *4 | 2060A, 2565A | Fe ³⁺ = 0.1 Fe ²⁺ , Zn ²⁺ = 1 Sr ²⁺ = 50 Ni ²⁺ , Cu ²⁺ = 70 Co ²⁺ = 350 Mn ²⁺ = 500 Mg ²⁺ = 1,000 Na ⁺ , K ⁺ , Ba ²⁺ , NH ₄ ⁺ = over 1,000 |

•Sensor holder is necessary for ion electrode except of combination type to attach to electrode stand.

•The response time is the time which is required to reach 90% response when the ion concentration is gradually changed from 10⁻⁴ mol/L to 10⁻² mol/L with the solution stirred.

Exception:

*1: 90% response when ion concentration is changed to 10⁻⁶ mol/L ~ 10⁻² mol/L

*2: 95% response when ion concentration is changed to 10⁻³ mol/L ~ 10⁻¹ mol/L

*3: 95% response when ion concentration is changed to 10⁻⁴ mol/L ~ 10⁻² mol/L

*4: 95% response when ion concentration is changed to 10⁻⁴ mol/L ~ 10⁻¹ mol/L

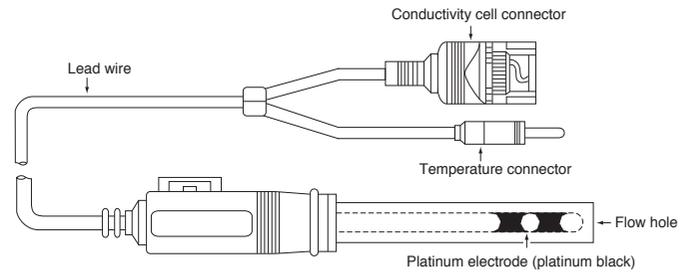
•The selection coefficient is a ratio of the limit concentration of coexisting ions (mol/L) to the ion concentration to be measured (mol/L); The value of 1000 means that the coexisting ions can be permitted up to 1000 times the ion measured and "not acceptable" means that chemical change occurs in the solid response membrane.

Cartridges for Ion Sensor

| Type | Feature |
|--|---|
| 7660 Chloride ion cartridge 3014093436(9003015000) | Replacement electrode tip for combination ion electrodes |
| 7661 Fluoride ion cartridge 3014093438(9003015100) | Replacement electrode tip for combination or single electrodes |
| 7681 Nitrate ion cartridge 3014068364(9003015200) | |
| 7682 Potassium ion cartridge 3014069795(9003015300) | |
| 7683 Calcium ion cartridge 3014068795(9003015400) | |
| Membrane(NH₃) 3014067083(9012001000) | Membrane set (6 pcs) for NH ₃ electrodes |
| 370 Internal solution for NH₃ electrodes 3014067184(9012000900) | Contains 250 mL |
| O-ring 3200043723(9012001100) | Neoprene ring set (10 pcs) for NH ₃ electrodes (JIS B 2401-P7) |

CONDUCTIVITY ELECTRODE CELLS

Conductivity is calculated as the inverse of the resistance R (in ohms) of the sample solution as $S/m = V/m$ between two parallel electrode plates with a surface area of $1m^2$ separated by a distance of $1m$. Since conductivity changes depending on temperature of the sample solution, values are shown at the standard temperature equivalent of $25^{\circ}C$. HORIBA's conductivity electrodes also have a built-in thermistor for temperature measurement, making them perfect for temperature measurement and for obtaining values equivalent to those at the standard $25C$, when used in conjunction with the conductivity meter. Since the conductivity gives valuable information about the ion composition of the sample solution, it is expected that these useful electrodes will continue to find a wide range of applications in the future.



Conductivity Cells (Submersible Type)

(*1) The cell constants are within 10% of the values shown.

| Type | Cell constant (cm ⁻¹) | Measuring range | Sample amount required (mL) | Temperature compensation element | Applicable temperature range (°C) | Remarks |
|---|-----------------------------------|---|-----------------------------|----------------------------------|-----------------------------------|--|
| 3551-10D 3014081712 (9056000800) | 0.1 | 10 μ S/m to 1 S/m (0.1 μ S/cm ~10 mS/cm) | 50 | Incorporated | 0-60 | For low conductivity water (deionized water or other) |
| 3552-10D 3014081545 (9056000900) | 1 | 0.1 mS/m to 10 S/m (1 μ S/cm ~100 mS/cm) | 15 | Incorporated | 0-100 | For general purposes (provided as a standard accessory for the DS-10 series) |
| 3553-10D 3014081714 (9056001000) | 10 | 1 mS/m to 100 S/m (10 μ S/cm ~1 S/cm) | 50 | Incorporated | 0-60 | For high conductivity water |
| 9382-10D 3014046709 (9096000300) | 1 | 0.1 mS/m to 10 S/m (1 μ S/cm ~100 mS/cm) | 20-30 | Incorporated | 0-80 | Waterproof. For general purposes. |

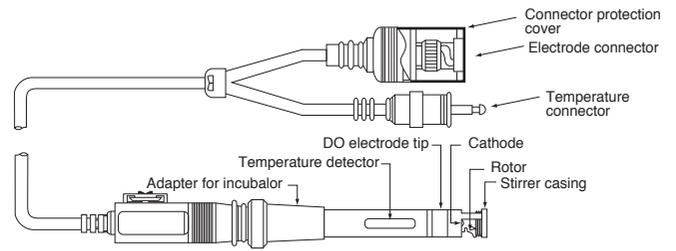
Conductivity Cells (Flow Type)

(*1) The cell constants are within 10% of the values shown.

| Type | Cell constant (cm ⁻¹) | Measuring range | Sample amount required (mL) | Temperature compensation element | Applicable temperature range (°C) | Remarks |
|---|-----------------------------------|---|-----------------------------|----------------------------------|-----------------------------------|---|
| 3561-10D 3014082350 (9056001100) | 0.1 | 10 mS/m to 1 S/m (0.1 μ S/cm ~10 mS/cm) | 10 | Incorporated | 0-60 | For low conductivity water (pure water or other) |
| 3562-10D 3014082513 (9056001200) | 1 | 0.1 mS/m to 10 S/m (1 μ S/cm ~100 mS/cm) | 16 | Incorporated | 0-60 | For general purposes |
| 3573-10C 3014082590 (9056001300) | 10 | 1 mS/m to 100 S/m (10 μ S/cm ~1 S/cm) | 4 | Not provided | 0-60 | For high conductivity water |
| 3574-10C 3014082592 (9056001400) | 10 | 1 mS/m to 10 S/m (10 μ S/cm ~100 mS/cm) | 0.25 | Not provided | 0-80 | For column chromatography using a very small amount of sample |

DISSOLVED OXYGEN(DO) ELECTRODE & TIPS

Dissolved Oxygen(DO) electrode detect oxygen that diffuses through the oxygen-permeable membrane to determine the amount of dissolved oxygen. The method for measuring dissolved oxygen based on this principle is referred to as the diaphragm electrode method. DO measurement can be carried out much more simply than chemical analysis, which requires complex preparatory procedures to eliminate the effects of deoxidized and oxidized substances. HORIBA's DO electrodes use innovative disposable probe tips. This eliminates the troublesome replacement of membranes and fluid that plagued conventional methods. Each disposable tip comes with its own rotor, so it is not necessary to prepare a separate rotor for each sample. In addition, the electrode has an adaptor for easy use with an incubator in BOD measurement.



Dissolved Oxygen Electrodes

| Type | Applicable temperature range(°C) | Measuring range | Response time | Feature |
|---|----------------------------------|--|---|---|
| 9520-10D For laboratories 3014046711 (9096000500) | 0-45 | DO: 0-19.99mg/L Temperature: 0-40°C (When used with dissolved D-25) | 20 seconds (90% response time at constant temperature) | Waterproof. Uses a thermistor with a disposable ship-type electrode 7541 as the thermometric element. |
| 9551-20D For field immersible type (2 m cable) 3014047090 (9096002300) | 0-40 | DO: 0-19.99mg/L Temperature: 0-40°C (When used with dissolved D-55, OM-51) | 30 seconds (90% response time at constant temperature) | Waterproof. Uses a thermistor with a disposable ship-type electrode 5401 as the thermometric element. |
| 9551-100D For field immersible type (10 m cable) 3014047091 (9096002400) | 0-40 | DO: 0-19.99mg/L Temperature: 0-40°C (When used with dissolved D-55, OM-51) | 30 seconds (90% response time at constant temperature) | Waterproof. Uses a thermistor with a disposable ship-type electrode 5401 as the thermometric element. |

Dissolved Oxygen Electrode Tips

*A commercially available stirrer should be used.

| Type | Remarks |
|--|--|
| 5401 3014072770 (9033010000) | A DO electrode chip for replacement. (For the above-mentioned 9551-20D, 9551-100D, 9550-20D, 9550-100D, 5450-20D and 5450-100D) |
| 7541 3014074145 (9074000200) | A DO electrode chip for replacement. (For the above-mentioned 5410-10C, 9520-10D) |
| DIFFUSION SET 3200043567 (9074000400) | Stirrer casing set for model 7541 |

ACCESSORIES

For Electrode

| Model | | Part No. | Remarks | Applicable electrodes |
|--|---|----------------------------|--|--|
| Sensor holder |  | 3200373961 | For attaching an ion electrode or the like with a round electrode cap to the stand arm 2 pcs/pack | 9615-10D/9618-10D/9681-10D/9680-10D/9600-10D/5002A-10C/8001-10C/8002-10C/8003-10C/8004-10C/8005-10C/8006-10C/8007-10C/8008-10C/8009-10C/8010-10C/8011-10C/1512A-10C/8201-10C/8202-10C/8203-10C |
| Electrode protector tube |  | 3200044409 (9003012000) | Protects the tip of the electrode 5 pcs/pack | 9621-10D/9625-10D/9630-10D/9632-10D |
| Electrode protector cap |  | 3200043508 (9003012100) | 5 pcs/pack | 9621-10D/9625-10D/9615S-10D/9618S-10D/9681S-10D/6367-10D/6377-10D/6252-10D/9630-10D/9631-10D/9632-10D/6261-10C/1066A-10C/1076A-10C/2060A-10T/9300-10D/3552-10D |
| Electrode protector cap |  | 3200382477 | 3 pcs/pack | 9615-10D/9618-10D/9681-10D/9600-10D |
| Electrode protector cap for long electrode |  | 3200382482 | 1 pcs/pack | 9680-10D/9680S-10D |
| Plug for internal solution filler port |  | 3200382468 | 3 pcs/pack | 9615-10D/9618-10D/9681-10D/9680-10D |

Meter Accessories Meter and Accessories table

| | Model | Part No. | Meter | | | | | | | | | |
|--------------------------|--|------------|-------|------|-------|-------|------|------|-------|-------|-------|-------|
| | | | F-50 | F-70 | DS-50 | DS-70 | D-50 | D-70 | ES-50 | ES-70 | OM-50 | OM-70 |
| Printer | Printer (for GLP/GMP compliance) | — | ○ | ○ | ○ | ○ | ○*1 | ○*1 | ○ | ○ | ○ | ○ |
| | Printer cable | 3014030148 | ○ | ○ | ○ | ○ | ○*1 | ○*1 | ○ | ○ | ○ | ○ |
| | Printer paper | 3014030149 | ○ | ○ | ○ | ○ | ○*1 | ○*1 | ○ | ○ | ○ | ○ |
| | Ink ribbon | 3014030150 | ○ | ○ | ○ | ○ | ○*1 | ○*1 | ○ | ○ | ○ | ○ |
| For Inspection | Digital simulator X-51 | — | ○ | ○ | — | — | ○ | ○ | — | — | ○ | ○ |
| | Digital simulator X-52 | — | ○*2 | ○*2 | ○ | ○ | ○*2 | ○*2 | ○ | ○ | — | — |
| Communication and Output | USB cable | 3200373941 | — | ○ | — | ○ | — | — | — | — | — | — |
| | Serial cable | 3014030151 | ○ | ○ | ○ | ○ | ○*1 | ○*1 | ○ | ○ | ○ | ○ |
| | Analog (alarm) output cable | 3014030152 | ○*3 | ○*3 | ○*3 | ○*3 | — | — | — | — | — | — |
| | COMPACTFLASH® memory card | 3014030160 | ○*4 | — | — | — | — | — | — | — | — | — |
| | Data Collection Software *5 | — | ○ | ○ | ○ | ○ | ○*1 | ○*1 | ○ | ○ | ○ | ○ |
| Power | AC adapter and cable set | — | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| Meter Accessories | LCD protection sheet | 3200382462 | — | ○ | — | ○ | — | — | — | — | — | — |
| | Protection cover | 3200382441 | — | ○ | — | ○ | — | — | — | — | — | — |
| | Electrode hook | 3200528475 | — | — | — | — | — | ○ | — | ○ | — | ○ |
| Electrode stand | Electrode stand for F-50/DS-50 | 3014028342 | ○ | — | ○ | — | — | — | — | — | — | — |
| | FA-70S Electrode stand (adjustable type) | 3200382557 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| | FA-70L Electrode stand (long type) | 3200382560 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| | DP-50S Electrode stand | 3014028590 | — | — | — | — | ○ | — | ○ | — | ○ | — |
| | DP-70S Electrode stand | 3200528474 | — | — | — | — | — | ○ | — | ○ | — | ○ |

*1 Except D-51/D-71 *2 Conductivity measurement model: F-54/F-55/F-74/F-74BW/D-54/D-74 *3 Except F-51/F-71/F-74BW/DS-51/DS-71

*4 Only F-53/F-54/F-55 *5 Data collection software is available as a free download for registered users. <http://www.horiba.co.jp/register>

Printer-related

| Printer (for GLP/GMP compliance) | Printer cable | Printer paper | Ink ribbon |
|--|--|--|---|
| CBM-910-24RJ100-A There are printers for 100V, 120V and 230V power supplies. Please consult our sales staff when ordering 120V and 230V models.  The model numbers for 120V and 230V are listed below. 120V: CBM-910-24RJ-120-A (3014030146) 230V: CBM-910-24RJ-230-A (3014030147) | 3014030148 (9096003800) Cable to connect Printer with 50 series and 70 series.  | 3014030149 (9096003900) 20 rolls  | 3014030150 (9096004000) 5 pcs/set  |

For Inspection

| | |
|--|---|
| Digital simulator X-51 pH, mV, ION, DO simulator (for periodic inspection of the electrode)  | Digital simulator X-52 Conductivity simulator (for periodic inspection of the electrode)  |
|--|---|

Communication/output

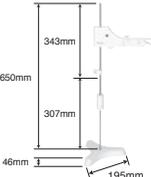
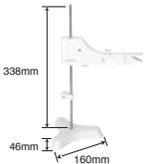
| | | | |
|---|---|--|--|
| USB cable 3200373941  Cable to connect a meter and PC. | Serial cable 3014030151 (9096004800)  Cable to connect a meter and PC (Serial, 9 pins) | COMPACTFLASH® memory card 3014030160 (9096003000)  For F-53, 54, 55 | Analog (alarm) output cable 3014030152 (9096004900) For F-52, 53, 54, 55 and DS-52, F-72, F-73, F-74, DS-72 |
|---|---|--|--|

*COMPACTFLASH is a trademark of San Disk Corporation

Power supply and Meter accessories

| | | | |
|---|--|--|---|
| AC adapter cable set. AC adaptor 1.8m cable 1m  120V: 3014031951 230V: 3014031952 | LCD protection sheet (2 pcs/pack) 3200382462  For F-70, DS-70 series | Protection cover 3200382441  Protects the meter for F-70, DS-70 series | Electrode hook 3200528475 For D-70, ES-70, OM-70  With electrode cable winding function *Meter and electrode are not included |
|---|--|--|---|

Electrode stands

| | | | |
|--|---|--|--|
| Electrode stand for F-50/DS-50 3014028342 (9096002600)  For F-50, DS-50 | FA-70L Electrode stand (long type) 3200382560  Electrode stand (adjustable type) 343mm, 650mm, 307mm, 46mm, 195mm | FA-70S Electrode stand 3200382557  Electrode stand (adjustable type) 338mm, 46mm, 160mm | DP-50S Electrode stand 3014028590 (9096002700) For D-50, ES-50, OM-50  *Meter and electrode are not included 150mm, 208mm |
| DP-70S Electrode stand 3200528474 For D-70, ES-70, OM-70  400mm, 122mm, 210mm *Meter and electrode are not included | Arm, for electrode stand (adjustable type) 3200373991  For FA-70S, FA-70L, DP-70S and FA-20S. Also available for FA-50S and "Electrode stand for F-50/DS-50" | Arm, for electrode stand 3014030158 (9096002800)  For "DP-50S", "FA-50S" and "Electrode stand for F-50/DS-50" | |

Maintenance Parts for Obsolete Models

| | | | |
|--|---|---|---|
| Output cord 3200044408 (9078000200) Connect a recorder to make easy work of data analysis after measurement. Applicable models: D-20, 10, OM-10 and D-10 series | AC-10 AC adapter 3200044196 (9078000100) Applicable models: D-20, F-20, F-10 ES-10, OM-10, D-10 and DS-10 series | Printer paper (10 rolls) 3200043956 (9079000400) Applicable models: F-15, 16, DS-15, and F-20 series | Dual electrode holder 3200043613 (9096001100)  Applicable model: D-20 series Adaptor for fitting two electrodes |
|--|---|---|---|

STANDARD SOLUTIONS, INTERNAL SOLUTION for REFERENCE ELECTRODE & CLEANING SOLUTIONS

pH Standard Solution SET (accuracy: ± 0.02 pH)

| Type | Name | pH value(25°C) | Volume(mL) | Remarks |
|--|---|----------------|------------|---|
|  101-S 3200043642 (9003003500) | Phosphate standard equimolal solution | 6.86 | 500 | Use undiluted. The set contains standard and internal solutions, as shown. |
| | Phthalate standard solution | 4.01 | 250 | |
| | Borate standard solution | 9.18 | 250 | |
| | Internal Solution for Reference Electrode (300) | — | 250 | |

pH Standard Solution (accuracy: ± 0.02 pH)

| Type | Name | pH value(25°C) | Volume(mL) | Remarks | |
|--|--|---------------------------------------|------------|--|-----|
|  100-2 3200043639 (9003001500) | Oxalate standard solution | 1.68 | 500 | The original solution should be used as it is. For general use as standard solution sets, 101-S (100-4.7.9 and #310 internal solution) are also available. | |
| | 100-4 3200043638 (9003001600) | Phthalate standard solution | 4.01 | | 500 |
| | 100-7 3200043637 (9003001700) | Phosphate standard equimolal solution | 6.86 | | 500 |
| | 100-9 3200043636 (9003001800) | Borate standard solution | 9.18 | | 500 |
| | 100-10 3200043635 (9003001900) | Carbonate standard solution | 10.02 | | 500 |

Condensed pH Standard Solution (accuracy: ± 0.02 pH)

| Type | Name | pH value(25°C) | Volume(mL) | Remarks | |
|--|--|---|------------|---|-----|
|  110-4 3200043626 (9003002300) | Condensed phthalate standard solution | 4.01 | 500 | Should be diluted when used. The pH values shown are those obtained when the original solution is diluted with pure water at a volume ratio of 1 to 4. For general use. | |
| | 110-7 3200043625 (9003002400) | Condensed phosphate standard equimolal solution | 6.86 | | 500 |
| | 110-10 3200043624 (9003002500) | Condensed carbonate standard solution | 10.02 | | 500 |

Powder for pH Standard Solution (accuracy: ± 0.05 pH)

| Type | Name | pH value(25°C) | Remarks | |
|---|---|--|--|------|
|  150-4 3200043619 (9003002700) | Powder for phthalate standard solution | 4.01 | The pH value shown are those obtained when one packet is dissolved in 500 ml of pure water. One packet contains powder for 500 mL. For use in field at factories (10 packets per set) | |
| | 150-7 3200043620 (9003002800) | Powder for neutral phosphate standard solution | | 6.86 |
| | 150-9 3200043621 (9003002900) | Powder for borate standard solution | | 9.18 |

Powder for ORP Standard Solution (accuracy: ± 15 mV)

| Type | Name | ORP value(25°C) | Remarks |
|---|--|------------------------------------|---|
|  160-51 3200043618 (9003003100) | Powder for ORP standard solution | 89 mV (vs, 3.33 mol/L KCl-AgCl) | The ORP values shown are those obtained when one packet is dissolved in 250 mL of pure water. This standard solution should be used immediately after conditioning and can-not be used for 2 hours or more. (10 packets per set) |
| | 160-22 3200043617 (9003003000) | Powder for ORP standard solution | |

Note: The pH standard solution by a reliable manufacturer should be selected because they are used as reference for pH measurements. It is recommended for safety not to use the standard liquid which was allowed to stand for long hours after opening its bottle or which was once used.

Internal Solution for Reference Electrode

| Type | Name | Concentration | Volume(mL) | Remarks |
|--|--|--|--|---|
|  300 3200043640 (9003003200) | For 6327, 6328, F, M, and D-10 series electrodes | 3.33 mol/L KCl | 250 | The original solution should be used as it is. Powder for internal solution (350) is also available for a large amount of internal solution. (The powder is used by dissolving it in pure water.) |
| | 310 3200043622 (9003003300) | For H-7 and old type pH meter electrodes | 3.33 mol/L KCl (AgCl, saturation in normal temp.) | |

Powder for Internal Solution for Reference Electrode

| Type | Remarks |
|---|-------------------------------------|
|  350 3200043623 (9003003400) | 500g. Dissolve in 2L of pure water. |

Electrode Cleaning Solution

| Type | Name | Volume(mL) | Remarks |
|--|-----------------------------|---|---|
|  220 3014028653 (9096002500) | Electrode cleaning solution | 50 x 2 pcs | For removing inorganic sample residues from glass electrodes, and for cleaning liquid junctions |
| | 230 3200530494 | Solution A 30mL(1 bottle) Solution B 100mL(1 bottle) | For 9630-10D (pH electrode for tap water or low conductivity sample) |
| | 250 3200366771 | Electrode cleaning solution | 400 |

ACCESSORIES for U-50, U-20XD, U-10, W-20XD SERIES & INTERNAL SOLUTION for REFERENCE ELECTRODE

U-50 Series Accessories

| | | | | |
|---|--|--|--|--|
| pH sensor 7112 3014057312 (90370048000) | pH sensor T_{oupH} 7113 3200170923 | ORP sensor 7313 3200170920 | DO sensor 7543 3200170924 | Reference sensor 7210 3200043582 (90370050000) |
| Reference tip for 7210 3200043587 (90370051000) | Turbidity sensor 7800 for U-52/U-52G 3200172803 | Turbidity sensor 7801 for U-53/U-53G 3200172800 | Turbidity sensor 7802 for U-54/U-54G 3200318188 | DO membrane cap for U-50 series 3200170194 |
| DO inner fluid 306 50 mL 3200170938 | | | | |

U-20XD/W-20XD Series Sensors

pH sensor 6230
for U-21/22/23, W-22/23
3014050849 (9037005600)



pH/ORP sensor 6280
for U-22, W-22/23
3014050850 (9037005700)



Dissolved oxygen sensor 5460
for U-21/22/23, W-22/23
3014001152 (9037005800)



Ammonia sensor 5012
for W-23
3014050864 (9037006200)



Chloride ion sensor * 6522
for W-23
3014050860 (9037006000)



Fluoride ion sensor * 6530
for W-23
3014050859 (9037006300)



Nitrate ion sensor * 6531
for W-23
3014050863 (9037005900)



Potassium ion sensor * 6532
for W-23
3014050862 (9037006400)



Calcium ion sensor * 6533
for W-23
3014050861 (9037006100)



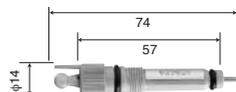
* Ion selective electrode cartridge included.

#5460 membrane replace kit (50 times)
3014050853 (9037007400)

#5012 membrane replace kit (6 units/set)
3014001155 (9037007000)

U-10 Electrode Tips

pH Electrode Tip 7112



3014057312 (9037004800)

Reference Electrode Tip 7210



3200043582 (9037005000)

Reference electrode internal solution 330
3200043641 (9037005200) 3.33 mol/L KCL Gel type 250 mL

Liquid junction
3200043587 (9037005100) For 7210 2 units/set

Do Tip 7542



3014057313 (9037004900)

Calibration beaker
3200043588 (9037005300)

Internal Solution for Reference Electrode

| | | | |
|---|---|---|--|
| 300 3200043640 (9003003200) Reference electrode internal solution for nitrate ion (250 mL) | 301 3014001271 (9037006700) Reference electrode internal solution for chloride (50 mL) | 302 3014001273 (9037006600) Reference electrode internal solution for calcium/fluoride (50 mL) | 303 3014001272 (9037006900) Reference internal solution for potassium (50 mL) |
| 370 3014067184 (9012000900) Reference internal solution for ammonia (250 mL) | Calibration beaker 3014001156 (9037007300) U-20 For automatic calibration | | |

ELECTRODES & ACCESSORIES for TWIN/CARDY

SENSOR and ACCESSORIES for LAQUAtwin/TWIN/CARDY

| Type | Sample amount required | Measuring temperature | Applicable model | Remarks |
|---|------------------------|-----------------------|---|---|
| S010 LAQUAtwin/TWIN pH sensor 3200459834  | Approx. 0.1 mL | 5 to 40°C | B-211/B-212 B-213/B-711 B-712/B-713 | Liquid junction: Porous macromolecule Glass electrode and reference electrode integrated on a 1mm-thick substrate. Replacement flat type pH sensor. |
| S021 LAQUAtwin Salt sensor 3200459866  | Approx. 0.3 mL | 5 to 40°C | B-721 | Liquid junction: Porous macromolecule Replacement flat type salt sensor. This sensor respond to sodium ion. |
| S022 LAQUAtwin Sodium ion sensor 3200459867  | Approx. 0.3 mL | 5 to 40°C | B-722 | Liquid junction: Porous macromolecule Replacement flat type Sodium ion sensor. |
| S030 LAQUAtwin Potassium ion sensor 3200459868  | Approx. 0.3 mL | 5 to 40°C | B-731 | Liquid junction: Porous macromolecule Replacement flat type Potassium ion sensor. |
| S040 LAQUAtwin Nitrate ion sensor 3200459870  | Approx. 0.3 mL | 5 to 40°C | B-341/B-342 B-343/B-741 B-742/B-743 | Liquid junction: Porous macromolecule Replacement flat type Nitrate ion sensor. |
| S050 LAQUAtwin Calcium ion sensor 3200459869  | Approx. 0.3 mL | 5 to 40°C | B-751 | Liquid junction: Porous macromolecule Replacement flat type Calcium ion sensor. |
| S070 LAQUAtwin Conductivity sensor 3200459672  | Approx. 0.12 mL | 5 to 40°C | B-771 | Replacement flat type Conductivity sensor. |

Exclusively for TWIN Conductivity Cell

| Type | Measuring range | Cell capacity | Measuring temperature | Temperature compensation element | Remarks |
|--|-----------------|----------------|-----------------------|----------------------------------|--|
| 0413 (for B-173) 3014088578 (9088000400)  | 0 to 19.9mS/cm | Approx. 0.1 mL | 5 to 35°C | Incorporated | For B-173 (conductivity meter) only. Cannot be applied for B-771. |

Exclusively for CARDY Ion Electrode

| Type | Measuring range | Sample amount required | Measuring temperature | Liquid junction | Remarks |
|---|------------------------------|------------------------|-----------------------|----------------------|--|
| Sodium ion electrode 0221 (for C-121 and C-122) 3014081704 (9076003000)  | 0.1% (w/w) to 10% (w/w) NaCl | Approx. 0.1 mL | 5 to 35°C | Porous macromolecule | For C-121, C-122 (Salt, Sodium ion meter) only. Cannot be applied for B-721, B-722. |
| Potassium ion electrode 0231 (for C-131) 3014083433 (9076007200)  | 39 to 3,900 mg/L | Approx. 0.1 mL | 5 to 35°C | Porous macromolecule | For C-131 (Potassium ion meter) only. Cannot be applied for B-731. |
| Nitrate ion electrode 0241 (for C-141) 3014083435 (9076007600)  | 62 to 6,200 mg/L | Approx. 0.1 mL | 5 to 35°C | Porous macromolecule | For C-141 (Nitrate ion meter) only. Cannot be applied for B-340 series & B-740 series. |

Accessories

| Type | specification | Remarks |
|--|---|--|
| Y047 Sampling sheet holder 3200053995  | For B-342 (for soil)/replacement sensor (0243) *Cannot be applied for LAQUAtwin B-700 series and their replacement sensors (S010/S021/S022/S030/S040/S050) | For a sample that contain particulate such as soils, suspension. To be used with "Sampling sheet B (model Y046)" |
| Y048 Sampling sheet holder 3200459736  | For LAQUAtwin B-700 series and their replacement sensors (S010/S021/S022/S030/S040/S050) *Cannot be applied for B-342 (for soil)/replacement sensor (0243) | For a sample that contain particulate such as soils, suspension. To be used with "Sampling sheet B (model Y046)" |
| Y046 Sampling sheet B 3200053858  | 100 sheets For LAQUAtwin/TWIN series | For trace measurement(0.05 mL),wiping measurement. If a sample that contain particulate, please use *Y047: twin series/Y048: LAQUAtwin series |
| Y011A Sampling sheet C 3014053435  | 11 mm × 6 mm × 5 rolls For CARDY series | For trace measurement (0.05 mL), wiping measurement. |
| Y049 Crop sample press 3200469679  | For squeezing a sample such as crop | Standard accessory for B-341, B-741 |

Standard solution

| Type | | Value | Volume | Applicable model | Remarks |
|---|---|------------------------|--------------------|----------------------------|---|
| Y017 Standard solution (pH 6.86) 3200457725 |  | pH 6.86 | 14 mL 6 bottles | B-711/B-712 B-211/B-212 | Replacing model of Y031 (discontinued) |
| Y014 Standard solution (pH 4.01) 3200457726 |  | pH 4.01 | 14 mL 6 bottles | B-712/B-212 | Replacing model of Y032 (discontinued) |
| Y021H Standard solution (NaCl 5.0%) 3200457721 |  | NaCl 5.0% | 14 mL 6 bottles | B-721/C-121 | Replacing model of Y022 (discontinued) *To be used with Y021L for two-point calibration |
| Y021L Standard solution (NaCl 0.5%) 3200457722 |  | NaCl 0.5% | 14 mL 6 bottles | B-721/C-121 | Replacing model of Y022 (discontinued) *To be used with Y021H for two-point calibration |
| Y022H Standard solution (Sodium Ion 2000ppm) 3200457723 |  | Sodium Ion 2000ppm | 14 mL 6 bottles | B-722/C-122 | Replacing model of Y024 (discontinued) *To be used with Y022L for two-point calibration |
| Y022L Standard solution (Sodium Ion 150ppm) 3200457724 |  | Sodium Ion 150ppm | 14 mL 6 bottles | B-722/C-122 | Replacing model of Y024 (discontinued) *To be used with Y022H for two-point calibration |
| Y031H Standard solution (Potassium Ion 2000ppm) 3200457719 |  | Potassium Ion 2000ppm | 14 mL 6 bottles | B-731/C-131 | Replacing model of Y025 (discontinued) *To be used with Y031L for two-point calibration |
| Y031L Standard solution (Potassium Ion 150ppm) 3200457720 |  | Potassium Ion 150ppm | 14 mL 6 bottles | B-731/C-131 | Replacing model of Y025 (discontinued) *To be used with Y031H for two-point calibration |
| Y041 Standard solution (Nitrate Ion 5000ppm) 3200053433 |  | Nitrate Ion 5000ppm | 14 mL 6 bottles | B-741/B-341 | |
| Y042 Standard solution (Nitrate Ion 300ppm) 3200053514 |  | Nitrate Ion 300ppm | 14 mL 6 bottles | B-741/B-742 B-341/B-342 | |
| Y043 Standard solution (Nitrate Ion 2000ppm) 3200053532 |  | Nitrate Ion 2000ppm | 14 mL 6 bottles | B-743/B-343 C-141 | Replacing model of Y026 (discontinued) *To be used with Y045 for two-point calibration |
| Y044 Standard solution (Nitrate Ion 30ppm) 3200053535 |  | Nitrate Ion 30ppm | 14 mL 6 bottles | B-742/B-342 | |
| Y045 Standard solution (Nitrate Ion 150ppm) 3200053536 |  | Nitrate Ion 150ppm | 14 mL 6 bottles | B-743/B-343 C-141 | Replacing model of Y026 (discontinued) *To be used with Y043 for two-point calibration |
| Y051H Standard solution (Calcium Ion 2000ppm) 3200457727 |  | Calcium Ion 2000ppm | 14 mL 6 bottles | B-751 | |
| Y051L Standard solution (Calcium Ion 150ppm) 3200457728 |  | Calcium Ion 150ppm | 14 mL 6 bottles | B-751 | |
| Y071H Standard solution (Conductivity 12.9mS/cm) 3200457718 |  | Conductivity 12.9mS/cm | 14 mL 6 bottles | B-771 | |
| Y071L Standard solution (Conductivity 1.41mS/cm) 3200457717 |  | Conductivity 1.41mS/cm | 14 mL 6 bottles | B-771/B-173 | Replacing model of Y023 (discontinued) *To be used with Y071H for two-point calibration (Only B-771) |

pH Electrode Selection Guide

| | | 3-in-1 ELECTRODES (ToupH) | | | | | | |
|---------------|---|---------------------------|----------------|------------|-------------|--------------|---------------|----------|
| | | PLASTIC | STANDARD ToupH | LONG ToupH | MICRO ToupH | SLEEVE ToupH | For TAP WATER | HF-PROOF |
| | | 9625-10D | 9615S-10D | 9680S-10D | 9618S-10D | 9681S-10D | 9630-10D | 9631-10D |
| Specification | Applicable temperature range (°C) | 0-100 | 0-100 | 0-100 | 0-60 | 0-60 | 0-100 | 0-60 |
| | Diameter (mm) | 16 | 12 | 8 | 3 | 12 | 16 | 16 |
| | Position of liquid junction (approx.mm) | 15 | 13 | 21 | 6 | 26 | 15 | 20 |
| | Length (mm) | 150 | 151 | 251 | 151 | 151 | 150 | 155 |

pH-Sample Conditions

| | | | | | | | | |
|------------------|--|-----------------------------|---|---|---|---|---|---|
| Aqueous Solution | Conductivity | Normal (over 100 mS/m) | ● | ● | ● | ● | ● | ● |
| | | Low (approx.10~100 mS/m) | | | | | ○ | ● |
| | | Very low (approx.5~10 mS/m) | | | | | ○ | ○ |
| | | High (approx. 5 S/m) | ○ | ○ | ○ | | ● | ○ |
| | Strong alkaline (pH 10-12) | | ○ | ○ | | ○ | | |
| | Strong acidity (pH 0-2) * Except HF sample | | ● | | | | | ● |
| | Quick heat change (within 50°C) | ● | | | | | ● | ● |
| | High viscosity (approx. 5 Pa·S) | | | | | ● | | |
| Solid/Semisolid | Containing non-aqueous solvent | | ○ | ○ | ○ | ○ | | |
| | Suspension | | ○ | ○ | ○ | ● | | |
| | Inside | | | | | | | |
| | Surface | | | | | | | |

pH-Sample Conditions

| | | | | | | | | | |
|-------------------|---------------------------|--------------------------|---|---|---|---|---|---|---|
| Sample Containers | Microtube/plate (> 50 µL) | | × | × | × | ● | × | × | × |
| | NMR tube | φ5 mm ID > φ4 mm | × | × | × | × | × | × | |
| | Ampule | > φ4 mm | | | | ● | | | |
| | Micro container (> 2 mL) | | | | ○ | ● | | | |
| | Tube | ID:13 mm, L:100 ~ 150 mm | | | ● | | | | |
| | Beaker | 10 mL ~ 1 L | ● | ● | ○ | ○ | ○ | ● | ● |
| | Large container (> 1 L) | | ○ | ○ | ● | | | ○ | ○ |
| | Petri dish | | | | | | | | |
| Droplet | | × | × | × | × | × | × | × | |

pH-Typical Samples

| | | | | | | | | |
|-------------------------------|--|--|---|---|---|---|---|---|
| Water | Pure/ion-exchange water (approx. 0.1 mS/m) | | | | | | | |
| | Distilled water (approx. 0.5 mS/m) | | | ○ | | | | |
| | Tap/drinking water (approx. 10 mS/m) | | ○ | ○ | | | ○ | ● |
| | Surface water | | | ○ | | | ○ | ● |
| | Pharmaceutical water | | | ○ | | | ○ | |
| | Environmental water/acid rain | | ○ | ○ | | | ○ | ○ |
| Chemical reagent/solvent | Caustic/strong acid (Except HF sample) | | | ● | | | ○ | ● |
| | Hydrofluoric acid | | | | | | | ● |
| | Organic solvent | | × | | | | × | × |
| | KCl-reactive solution | | × | × | × | × | × | × |
| | Surfactant | | | ○ | | | ● | |
| | Water-based paint | | | ○ | | | ● | |
| Pharmaceutical/biology sample | Dye/coloring agent | | | | | | ● | |
| | Protein-containing sample | | | ○ | | ○ | ● | |
| | Medicinal preparation | | | | | ○ | ○ | |
| | Enzyme solution | | | | ○ | ● | | |
| | Tris buffer | | | ● | | ○ | ○ | |
| | Suspension | | | ○ | | | ● | |
| Food | Agar medium | | | | | | | |
| | Jam | | | ○ | | | ● | |
| | Meat/fish | | | | | | | |
| | Fruit/vegetable | | | | | | | |
| | Dough | | | | | | | |
| | Honey | | | | | | | |
| Beverage/seasoning | Cheese/butter | | | | | | | |
| | Yogurt | | ○ | ○ | | | ○ | ○ |
| | Beer | | ○ | ○ | | | ● | ○ |
| | Milk | | | ○ | | | ● | |
| | Carbonated drink/juice/sauce/soy sauce | | | ○ | | | ● | |
| | Mayonnaise/ketchup | | | ○ | | | ● | |
| Cosmetic/lotion | Beauty cream/mascara | | | ○ | | | ● | |
| | Gel/soap/shampoo | | | ○ | | | ● | |
| | Hairdye lotion | | | ○ | | | ● | |
| | Emulsified liquid | | | ○ | | | ○ | |

HORIBA WATER QUALITY ANALYZER LINEUP

Benchtop LAQUA

pH/Water Quality Analyzer F-70 series

| | | | | | | |
|-----|----------|-----|------|----|------|-----|
| pH | mV (ORP) | ION | COND | DO | RESI | SAL |
| TDS | | | | | | |

- Intuitive and very easy to use touch panel operation and navigation
- USB PC Communication and USB memory
- Full support for various country pharmaceutical pure water guidelines (USP/EP/JP/CP)
- Multi-language support (Japanese, English, Chinese, Korean)
- Enhanced data reliability with validation features (GLP/GMP compliance)



DS-70 series

| | | | |
|------|------|-----|-----|
| COND | RESI | SAL | TDS |
|------|------|-----|-----|

- Intuitive and very easy to use touch panel operation and navigation
- USB PC Communication and USB memory
- Full support for various country pharmaceutical pure water guidelines (USP/EP/JP/CP)
- Multi-language support (Japanese, English, Chinese, Korean)
- Enhanced data reliability with validation features (GLP/GMP compliance)



Portable LAQUAact

pH/Water Quality Meter D-70 Series

| | | | | |
|-----|-----|-----|------|------|
| pH | ORP | ION | COND | RESI |
| SAL | TDS | DO | | |

- Compact design with special shock and alcohol resistant body
- Fully waterproof/dustproof meter and electrode (IP67 rated)
- Large LCD with backlight
- Data memory up to 1000 sets and PC/Printer output
- Two parameter measurement with simultaneous dual display



Conductivity Meter ES-71

| | | | |
|------|------|-----|-----|
| COND | RESI | SAL | TDS |
|------|------|-----|-----|

- Compact design with special shock and alcohol resistant body
- Fully waterproof/dustproof meter and electrode (IP67 rated)
- Large LCD with backlight
- Data memory up to 1000 sets and PC/Printer output
- Conversion function to Salinity, Resistivity and TDS



Dissolved Oxygen Meter OM-71

| | | |
|----|------------------|--------|
| DO | Saturated Oxygen | Oxygen |
|----|------------------|--------|

- Compact design with special shock and alcohol resistant body
- Fully waterproof/dustproof meter and electrode (IP67 rated)
- Large LCD with backlight
- Data memory up to 1000 sets and PC/Printer output
- Air calibration, Salinity concentration correction



Multiparameter Water Quality Checker U-50 series

| | | | | | | |
|-------|------|------|-----|-----|----|------|
| pH | ORP | COND | SAL | TDS | DO | TURB |
| DEPTH | TEMP | GPS | | | | |

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



Water Quality Monitoring System W-20XD Series

| | | | | | | |
|-------|------|------|-----|-----|----|------|
| pH | ORP | COND | SAL | TDS | DO | TURB |
| DEPTH | TEMP | ION | | | | |

- Ideal for water quality testing and inspection of, city sewage water, lakes and marshes, dams, wells and ground water, factory drainage, farm water, and nurseries
- Simultaneous measurement and display of up to 13 parameters
- Up to one month data logging (With measurements every 15 minutes)
- Measurement at depths as low as 100 meters with its superior durability and high pressure resistance



Compact LAQUAtwin

pH METER B-711/B-712/B-713

pH

- Flat sensor technology realizes a reliable and direct measurement of a drop of the sample from 0.1 mL
- Select measurement method depending on your situation and sample. (Drops, Immersion, Scoop, Wipe, Solid samples, Powders, Paper, textiles)
- IP67 waterproof and dustproof
- Temperature compensation/Auto hold

B-711 (One-point calibration)

B-712 (Two-point calibration)

B-713 (US only) (Two-point calibration)



Conductivity METER B-771

COND Salt TDS

- Flat sensor technology realizes a reliable and direct measurement of a drop of the sample from 0.12 mL
- Conductivity readings can be converted into Salt and TDS
- IP67 waterproof and dustproof
- Temperature compensation/Auto hold/Auto range change



Sodium Ion METER B-722

ION

- Only compact meter for a quick measurement of sodium ion using ion selective membrane
- Flat sensor technology realizes a reliable and direct measurement of a drop of the sample from 0.3 mL
- IP67 waterproof and dustproof
- Temperature compensation/Auto hold/Auto range change



Potassium Ion METER B-731

ION

- Only compact meter for a quick measurement of potassium ion using ion selective membrane
- Flat sensor technology realizes a reliable and direct measurement of a drop of the sample from 0.3 mL
- IP67 waterproof and dustproof
- Temperature compensation/Auto hold/Auto range change



Nitrate Ion METER B-741/B-742/B-743

ION

- Only compact meter for a quick measurement of Nitrate ion using ion selective membrane
- Flat sensor technology realizes a reliable and direct measurement of a drop of the sample from 0.3 mL
- IP67 waterproof and dustproof
- Temperature compensation/Auto hold/Auto range change
- Special application packages for crop and soil

B-741 (for crops) B-742 (for soil)

B-743 (for general use)



Calcium Ion METER B-751

ION

- Only compact meter for a quick measurement of Calcium ion using ion selective membrane
- Flat sensor technology realizes a reliable and direct measurement of a drop of the sample from 0.3 mL
- IP67 waterproof and dustproof
- Temperature compensation/Auto hold/Auto range change



Salt METER B-721

ION

- Only compact meter to measure sodium ion to calculate into NaCl based salt concentration unlike the conductivity converted meters
- Flat sensor technology realizes a reliable and direct measurement of a drop of the sample from 0.3 mL
- IP67 waterproof and dustproof
- Temperature compensation/Auto hold/Auto range change



Water Quality Analyzers www.horiba-water.com

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