

# LAQUAtwin



Actual Size



CE marking compliant



# Compact Water Quality Meter

# NEW

# LAQUA twin

HORIBA's 60 years of sensor engineering realize accurate direct measurement from only a single drop on the unique flat sensor.

Select LAQUA twin from seven electrochemistry parameters such as pH, conductivity, various ions ( $\text{Na}^+$ ,  $\text{K}^+$ ,  $\text{NO}_3^-$ ,  $\text{Ca}^{2+}$ ) and salt concentration that suits your purpose.

Bring simple, compact LAQUA twin with you wherever and whenever you want to. It is your "lab-in-a-pocket."

### Quick!

No container is needed to calibrate or measure. Few drops of standards and samples is all you need.

### Variety!

Many different measurement methods can be made because of the sensor configuration.

### Anyone!

Easy, simple operation and indicators makes everyone an expert.

### Solution!

Discover more with easy, on-site measurement and only ion measurement

### Wherever!

IP67 rated waterproof. Carry LAQUA twin and its accessories in a carrying case (included).

### Reliable!

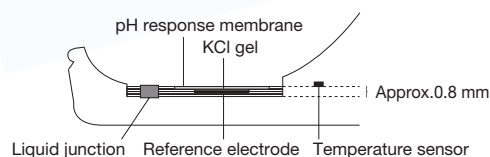
HORIBA 60 years sensor technology distilled in HORIBA original flat sensor.

### Cost effective

1/100 of standard solution and sample volume is needed. Sensor is replaceable.

## Accurate reading from only a single drop, in a few seconds

Employing the same test principle as standard laboratory electrodes, the LAQUA twin packs all components into a flat sensor chip that's less than 1 mm thick.



● Sectional drawing of tip of Flat sensor.

\* Figure shows B-711/B-712/B-713 (pH)

\* Comparison between a measurement in a container and a direct drop using LAQUA twin.

## pH, conductivity, ions and salt concentration. 7 parameters, 11 models.

Seven water quality parameters are available to suit your purpose, such as pH, conductivity, concentration of ion ( $\text{Na}^+$ ,  $\text{K}^+$ ,  $\text{NO}_3^-$ ,  $\text{Ca}^{2+}$ ) and salt concentration. Incorporating the same principle as the laboratory sensors, LAQUA twin will provide a reliable measurement.

## Calibrate and measure at the touch of a button – the Smiley face will tell you when the result can be read

Easy operation for both the measurement and indispensable calibration procedure. Read the data once a smiley face lights up.

## LAQUA twin is fully waterproof and dustproof\* (IP67 rated)

The meter and sensor are fully waterproof so you can take it anywhere anywhere. No worries when water splashes during measurement or cleaning.

\* IP67 rated. Will withstand immersion for 30 minutes at 1 m. Not suitable for underwater use.

## Carrying case comes standard for handy portability

The compact carrying case contains everything you need for your measurements, including the standard solution. Ready to measure only with carrying case, it's a your laboratory! You can attach a strap or tag on the strap hole.



● Attach a strap or tag here.  
\* Strap not included

## Unique measurement variation by LAQUAtwin

One meter provides seven flexible measurement techniques. Simply choose the method to best fit your sample and situation.

LAQUAtwin



### Drops

Drop a sample with a pipette, small volume as 0.1 mL can be measured. Using sampling sheet B, volumes down to 0.05 mL can be tested.



### Immersion

When you're in the lab, you can test the sample in a beaker. Ensure the sensor guard sliding cap is open.



### Scoop

Use as a scoop to test water for example from a river. Vertically scoop is available with a unique sensor guard.



### Wipe

The sampling sheet allows tiny, trace volumes to be analysed. For example, wipe off the surface of the skin with a sampling sheet soaked with pure water and measure.



### Solid samples

Foods containing some moisture can be tested by placing a small piece directly onto the sensor.



### Powders

LAQUAtwin meters can also test dry powders. Simply place the powder sample onto the sensor, and drop on an amount of pure water.

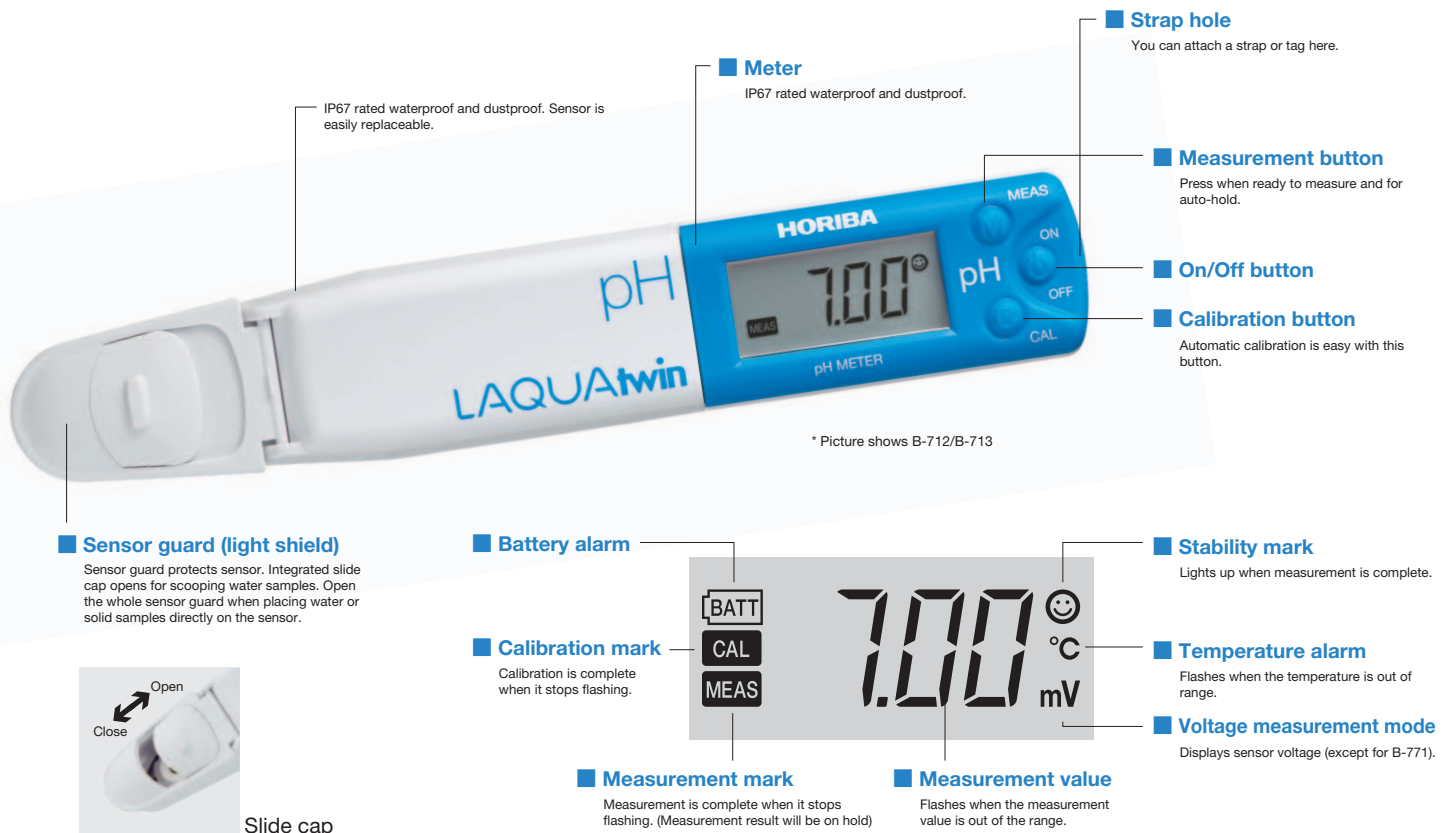


### Paper, textiles and films

To test sheets of paper and textiles, cut up the sample into small pieces and place them directly onto the sensor then drop on a define amount of pure water.

\* All methods applicable to pH measurement \* B-771 (conductivity) cannot be tested in solids, powders, and sheet-like samples.  
\* These pictures are for image purpose

## Easy measurement for all users



## Select LAQUAtwin from 7 parameters depending on your sample or application



### pH Meter B-711/B-712/B-713 (US only)

#### Feature

pH flat sensor with temperature compensation offers a reliable and quick direct measurement of a micro-sample from 100 µL.

#### Applications include

Fresh water testing (rain, rivers, lakes,); aquaria; drainage treatment solutions; soil testing; foods testing; research laboratories; QC of medical supplies and cosmetics; school education, etc.



### Conductivity (EC) Meter B-771

#### Feature

Conductivity reading converted into Salt concentration and TDS. Autoranging & temperature compensation feature allows accuracy on a measurements wide range.

#### Applications include

Fresh water testing (rain, rivers, lakes); aquaria; soil testing; salt water damage testing; surface cleanliness testing and improved paint adhesion.



### Sodium Ion Meter B-722

#### Feature

Unique compact meter for quick, on-site and reliable measurement of sodium ion using ion selective electrode (ISE).

#### Applications include

Health management; food quality control; environmental measurement; salt water damage testing.



### Potassium Ion Meter B-731

#### Feature

Unique compact meter for quick, on-site and reliable measurement of potassium ion using ion selective electrode (ISE).

#### Applications include

Soil testing; food quality control; cultivation management; health management; food quality control

|                                      | pH  |   | Conductivity (EC)   | Sodium Ion (Na <sup>+</sup> )  | Potassium Ion (K <sup>+</sup> )  |
|--------------------------------------|---|---|---|--|--|
| Model                                | B-711   | B-712/B-713 <sup>*1</sup>   | B-771   | B-722  | B-731  |
| Measurement principle                | Glass electrode method  |   | 2 AC bipolar  |  |  |
| Minimum sample volume                | 0.05 mL <sup>*3</sup> , 0.1 mL or more  |   | 0.12 mL or more   |  |  |
| Measurement range                    | 2 to 12 pH  |   | Conductivity: 0 to 19.9 mS/cm (0 to 1.99 S/m)<br>Salt: 0 to 1.1%<br>TDS: 0 to 9900 ppm  | 23 to 2300 ppm (mg/L)<br>(10 <sup>-3</sup> to 10 <sup>-1</sup> mol/L)                                      | 39 to 3900 ppm (mg/L)<br>(10 <sup>-3</sup> to 10 <sup>-1</sup> mol/L)<br>20 to 2000 kg/10a <sup>*4</sup> |
| Display range <sup>*5</sup>          | 0 to 14 pH  |   | 0 to 199 mS/cm (0 to 19.9 S/m)  |  |  |
| Range and Resolution (Valid numbers) | 0.1 pH  | 0.1/0.01 pH (Selectable)  | ① 0 to 199 µS/cm: 1 µS/cm<br>② 0.20 to 1.99 mS/cm: 0.01 mS/cm<br>③ 2.0 to 19.9 mS/cm: 0.1 mS/cm<br>④ 20 to 199 mS/cm: 1 mS/cm   | ① 0 to 1.0 ppm: 0.1 ppm<br>② 0 to 99 ppm: 1 ppm<br>③ 100 to 990 ppm: 10 ppm<br>④ 1000 to 9900 ppm: 100 ppm |  |
| Calibration                          | One-point   | Two-point <sup>*6</sup>   | Two-point <sup>*6</sup>   |  |  |
| Accuracy <sup>*7</sup>               | ±0.1 pH   |   | ±2% F.S. ±1digit (for each range) <sup>*8</sup>   |  | ±10% of reading value  |
| Functions                            | Temperature compensation<br>• IP67 Water/Dust proof <sup>*9</sup> • Auto hold<br>• Automatic power off (30 minutes) |   | Salt/TDS Measurement • Auto range change<br>• Temperature conversion (2%/°C fixed)<br>• IP67 Water/Dust proof <sup>*9</sup> • Auto hold<br>• Automatic power off (15 minutes) |  | Auto range change • Temperature compensation   |
| Display                              | Custom (monochrome) Digital LCD   |   |   |  |  |
| Operating temperature/humidity       | 5 to 40°C, 85% or less in relative humidity (no condensation)   |   |   |  |  |
| Power                                | CR2032 batteries (x2)   |   |   |  |  |
| Battery life                         | Approx. 400 hours in continuous use   |   |   |  |  |
| Main Material                        | ABS epoxy   |   |   |  |  |
| Dimensions/Mass                      | 164 mm × 29 mm × 20 mm (excluding projections)/Approx. 50 g (meter only, without batteries)                         |   |   |  |  |
| Accessories included                 | Standard solution (pH 7) (14 mL), 5 pieces of Sampling sheet B  | Standard solution (pH 4 & pH 7 <sup>*10</sup> ) (14 mL), 5 pieces of Sampling sheet B | Standard solution (1.41 mS/cm) (14 mL), Treatment reagent (14 mL)<br>* For the high conductivity standard solution (12.9 mS/cm) is sold separately.                           | Standard solution (150 ppm & 2000 ppm) (14 mL), 5 pieces of Sampling sheet B                               | Standard solution (150 ppm & 2000 ppm) (14 mL), 5 pieces of Sampling sheet B                             |

\*1 For US market only.

\*2 Special application packages for crop measurement (B-741) and soil measurement (B-742) are also available.

\*3 Smaller amount (0.05 mL or more) can be measured with the sampling sheet B. (Please close the light shield cover. If a sample that contain particulate, please use "Sampling sheet holder" (sold separately))

\*4 With soil/water sampling ratio of 1:5.

\*5 When the measured value is out of the measurement range, the displayed value blinks. It should be used only as a guide.

\*6 Selectable between one-point and two-point calibrations. High conductivity standard solution (12.9 mS/cm) is sold separately.

\*7 Repeatability in measurement of a standard solution after calibration using it.

\*8 ①±5 µS/cm (0 to 199 µS/cm) ②±0.05 mS/cm (0.20 to 1.99 mS/cm) ③±0.5 mS/cm (2.0 to 19.9 mS/cm)

\*9 IP67: no failure when immersed in water at a depth of 1 meter for 30 minutes. But the product can not be used underwater.

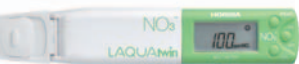
\*10 B-712: pH 6.86/B-713: pH 7.00 for US market.

Inte

|             |  |
|-------------|--|
| Selectivity |  |
| pH          |  |

\* Sel  
sel  
sar

\*1 Measurement value may be affected by other ions contained in the sample. Refer to the table below for details.  
 \*2 A sample pretreatment may be needed for measurement for total Calcium concentration.



## Nitrate Ion Meter B-743 (for general use)

## Calcium Ion Meter B-751

## Salt Meter B-721

### Feature

### Feature

### Feature

Unique compact meter for quick, on-site and reliable measurement of nitrate ion. Special application kits for crop (B-741) and soil (B-742) are also available.

Unique compact meter for quick, on-site and reliable measurement of ionized calcium using ion selective electrode (ISE).

Unique compact meter using a sodium ion electrode to measure salt content (NaCl) when conventional meters generally convert the conductivity value.

### Applications include

### Applications include

### Applications include

Soil testing; food quality control; cultivation management; food quality control; Growth management of crops.

Soil testing; food quality control; cultivation management; health management; food quality control; breeding water of coral; water hardness measurement

health management; food quality control; Dietary instruction

| Nitrate Ion (NO <sub>3</sub> )   | Calcium Ion (Ca <sup>2+</sup> )                                       | Salt (NaCl)  |
|--|---|--|
| B-743*2 (for general use)  | B-751   | B-721  |
| Ion electrode method   |   |  |
| 0.05 mL*3, 0.3 mL or more  |   |  |
| NO <sub>3</sub> <sup>-</sup> : 62 to 6200 ppm (mg/L)<br>(10 <sup>-3</sup> to 10 <sup>-1</sup> mol/L)<br>NO <sub>3</sub> <sup>-</sup> -N: 14 to 1400 ppm (mg/L) | 40 to 4000 ppm (mg/L)<br>(10 <sup>-3</sup> to 10 <sup>-1</sup> mol/L) | 0.1 to 10% by weight   |
| 0 to 9900 ppm (mg/L)   |   | 0.00 to 25% by weight  |
| 1 ppm<br>10 ppm<br>100 ppm   |   | ① 0.00 to 0.99%: 0.01% by weight<br>② 1.0 to 9.9%: 0.1% by weight<br>③ 10 to 25%: 1% by weight |
| Two-point*6  |   |  |
| ±20% of reading value  |   | ±10% of reading value  |
| IP67 Water/Dust proof*9 • Auto hold • Automatic power off (30 minutes)   |   |  |
| Standard solution (300 ppm & 5000 ppm) (14 mL), 5 pieces of Sampling sheet   |   |  |
| Standard solution (150 ppm & 2000 ppm) (14 mL), 5 pieces of Sampling sheet   |   |  |
| Standard solution (0.5%, 5%) (14 mL), 5 pieces of Sampling sheet   |   |  |

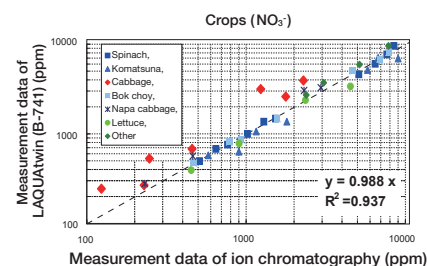
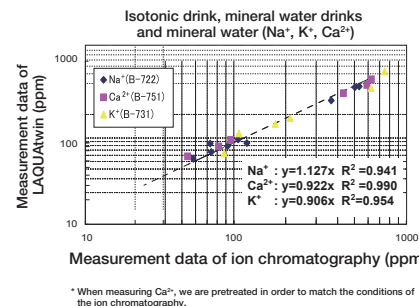
### Interfering ion influence

|             | Sodium Ion (Na <sup>+</sup> )  | Potassium Ion (K <sup>+</sup> )   | Nitrate Ion (NO <sub>3</sub> <sup>-</sup> )  | Calcium Ion (Ca <sup>2+</sup> )   |
|-------------|--|---|--|---|
| coefficient | K <sup>+</sup> , Rb <sup>+</sup> = 1 × 10 <sup>-2</sup><br>Ba <sup>2+</sup> , Sr <sup>2+</sup> , Ca <sup>2+</sup> , Mg <sup>2+</sup> = 1 × 10 <sup>-4</sup><br>Li <sup>+</sup> = 1 × 10 <sup>-3</sup><br>Cs <sup>+</sup> = 3 × 10 <sup>-3</sup><br>NH <sub>4</sub> <sup>+</sup> = 6 × 10 <sup>-3</sup> | Rb <sup>+</sup> = 1 × 10 <sup>-1</sup><br>Mg <sup>2+</sup> = 1 × 10 <sup>-5</sup><br>NH <sub>4</sub> <sup>+</sup> = 7 × 10 <sup>-3</sup><br>Ca <sup>2+</sup> = 7 × 10 <sup>-7</sup><br>Cs <sup>+</sup> = 4 × 10 <sup>-3</sup><br>Na <sup>+</sup> = 3 × 10 <sup>-4</sup> | I <sup>-</sup> = 10<br>Cl <sup>-</sup> = 4 × 10 <sup>-2</sup><br>Br <sup>-</sup> = 9 × 10 <sup>-1</sup><br>ClO <sub>4</sub> <sup>-</sup> = 30<br>NO <sub>2</sub> <sup>-</sup> = 7 × 10 <sup>-1</sup> | Na <sup>+</sup> , K <sup>+</sup> , Mg <sup>2+</sup> = 1 × 10 <sup>-3</sup><br>Fe <sup>2+</sup> , Zn <sup>2+</sup> = 1<br>Fe <sup>3+</sup> = 10<br>Cu <sup>2+</sup> = 1 × 10 <sup>-2</sup> |
| range       | pH 3-9<br>(at 10 <sup>-3</sup> mol/L Na <sup>+</sup> )   | pH 2-9<br>(at 10 <sup>-3</sup> mol/L K <sup>+</sup> )   | pH 2-9<br>(at 10 <sup>-3</sup> mol/L NO <sub>3</sub> <sup>-</sup> )  | pH 4-12<br>(at 10 <sup>-3</sup> mol/L Ca <sup>2+</sup> )  |

Activity coefficient is a concentration ratio of the interfering ion against the target ion, which affects the target ion measurement value. For example, activity coefficient of potassium ion against sodium ion is 1×10<sup>-2</sup>, which means for the same concentration of potassium ion and sodium ion coexisting in a sample, the sodium measurement shows approximately 1×10<sup>-2</sup>(1%) higher result.

### Examples for Ion measurement

The graph below depicts the correlation between LAQUAtwin and ion chromatography.



### Nitrate Ion Meter for crop B-741



■ Measurement range: 100~9,900 ppm (NO<sub>3</sub><sup>-</sup>),  
23~2,200 ppm (NO<sub>3</sub><sup>-</sup>-N)

[Accessories included]  
 Standard solution for crops(300 ppm & 5000 ppm) (14 mL),  
 2 CR2032 batteries/Instruction manual/5 Pipettes,  
 Cleaning solution bottle (250 mL),  
 Crop sample press, 3 Medical cups, Quick manual,  
 Carrying case

### Nitrate Ion Meter for soil B-742



■ Measurement range: 30~600 ppm (NO<sub>3</sub><sup>-</sup>),  
6.8~140 ppm (NO<sub>3</sub><sup>-</sup>-N),  
3.4~68 kg/10a (NO<sub>3</sub><sup>-</sup>-N)

[Accessories included]  
 Standard solution for soil (30 ppm, 300 ppm) (14 mL),  
 2 CR2032 batteries/Instruction manual/5 Pipettes,  
 Cleaning solution bottle (250 mL),  
 3 Extraction bottles (100 mL),  
 2 sets of spoon for soil sampling, Tweezers,  
 Sampling sheetB, 2 Sampling sheet holders,  
 Quick manual, Carrying case

**Standard solution**

| Part Number | Model | Name  | Description                             | Applicable model |
|-------------|-------|---|---|------------------|
| 3200457725  | Y017  | Standard solution (pH 6.86)                 | pH 6.86 14 mL 6 bottles                 | B-711, B-712     |
| 3200457726  | Y014  | Standard solution (pH 4.01)                 | pH 4.01 14 mL 6 bottles                 | B-712, B-713     |
| 3200457721  | Y021H | Standard solution (NaCl 5.0%)               | NaCl 5.0% 14 mL 6 bottles               | B-721            |
| 3200457722  | Y021L | Standard solution (NaCl 0.5%)               | NaCl 0.5% 14 mL 6 bottles               | B-721            |
| 3200457723  | Y022H | Standard solution (Sodium Ion 2000 ppm)     | Sodium Ion 2000 ppm 14 mL 6 bottles     | B-722            |
| 3200457724  | Y022L | Standard solution (Sodium Ion 150 ppm)      | Sodium Ion 150 ppm 14 mL 6 bottles      | B-722            |
| 3200457719  | Y031H | Standard solution (Potassium Ion 2000 ppm)  | Potassium Ion 2000 ppm 14 mL 6 bottles  | B-731            |
| 3200457720  | Y031L | Standard solution (Potassium Ion 150 ppm)   | Potassium Ion 150 ppm 14 mL 6 bottles   | B-731            |
| 3200053433  | Y041  | Standard solution (Nitrate Ion 5000 ppm)    | Nitrate Ion 5000 ppm 14 mL 6 bottles    | B-741            |
| 3200053514  | Y042  | Standard solution (Nitrate Ion 300 ppm)     | Nitrate Ion 300 ppm 14 mL 6 bottles     | B-741, B-742     |
| 3200053532  | Y043  | Standard solution (Nitrate Ion 2000 ppm)    | Nitrate Ion 2000 ppm 14 mL 6 bottles    | B-743            |
| 3200053535  | Y044  | Standard solution (Nitrate Ion 30 ppm)      | Nitrate Ion 30 ppm 14 mL 6 bottles      | B-742            |
| 3200053536  | Y045  | Standard solution (Nitrate Ion 150 ppm)     | Nitrate Ion 150 ppm 14 mL 6 bottles     | B-743            |
| 3200457727  | Y051H | Standard solution (Calcium Ion 2000 ppm)    | Calcium Ion 2000 ppm 14 mL 6 bottles    | B-751            |
| 3200457728  | Y051L | Standard solution (Calcium Ion 150 ppm)     | Calcium Ion 150 ppm 14 mL 6 bottles     | B-751            |
| 3200457718  | Y071H | Standard solution (Conductivity 12.9 mS/cm) | Conductivity 12.9 mS/cm 14 mL 6 bottles | B-771            |
| 3200457717  | Y071L | Standard solution (Conductivity 1.41 mS/cm) | Conductivity 1.41 mS/cm 14 mL 6 bottles | B-771            |

**Sensor**

| Part Number | Model | Name                 | Description        | Applicable model    |
|-------------|-------|----------------------|--------------------|---------------------|
| 3200459834  | S010  | pH Sensor            | Replacement sensor | B-711, B-712, B-713 |
| 3200459866  | S021  | Salt Sensor          | Replacement sensor | B-721               |
| 3200459867  | S022  | Sodium Ion Sensor    | Replacement sensor | B-722               |
| 3200459868  | S030  | Potassium Ion Sensor | Replacement sensor | B-731               |
| 3200459870  | S040  | Nitrate Ion Sensor   | Replacement sensor | B-741, B-742, B-743 |
| 3200459869  | S050  | Calcium Ion Sensor   | Replacement sensor | B-751               |
| 3200459672  | S070  | Conductivity Sensor  | Replacement sensor | B-771               |

**Accessories**

| Part Number | Model | Name                                  | Description | Applicable model |
|-------------|-------|---------------------------------------|-------------|------------------|
| 3200053858  | Y046  | Sampling sheet B                      | 100 pieces  | Except B-771     |
| 3200459736  | Y048  | Sampling sheet holder (for LAQUAtwin) |             | Except B-771     |

**WEB HORIBA Water Quality Analyzers**

**Compact Water Quality Meter**

<http://www.horiba.com/laquatwin>

**Benchtop pH/Water Quality Analyzer**

<http://www.horiba.com/laqua>

**WATER QUALITY ANALYZERS**

<http://www.horiba-water.com>

Applying to the EU RoHS Directive : This products is compliant with the restriction of the designated 6 hazardous substances(\*).  
 (\* ) lead, cadmium, mercury, hexavalent chromium, polybrominated biphenyls (PBB) and polybrominated ethers (PBDE)  
 Using lead-free soldering : Lead-free soldering is used for mounting components of printed circuit boards.  
 - Many countries consider the reinforcement of regulations concerning the risk caused by lead to human body and the environment

**Please read the operation manual before using this product to assure safe and proper handling of the product.**

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