

# LAQUAtwin



Actual Size



CE marking compliant



## Compact Water Quality Meter

# Debut!

# 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!

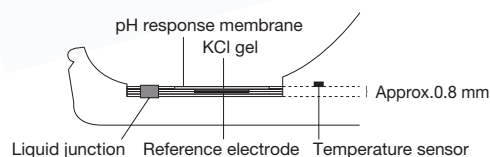
HORIBA 60 years sensor technology distilled in HORIBA original flat sensor.

### 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.

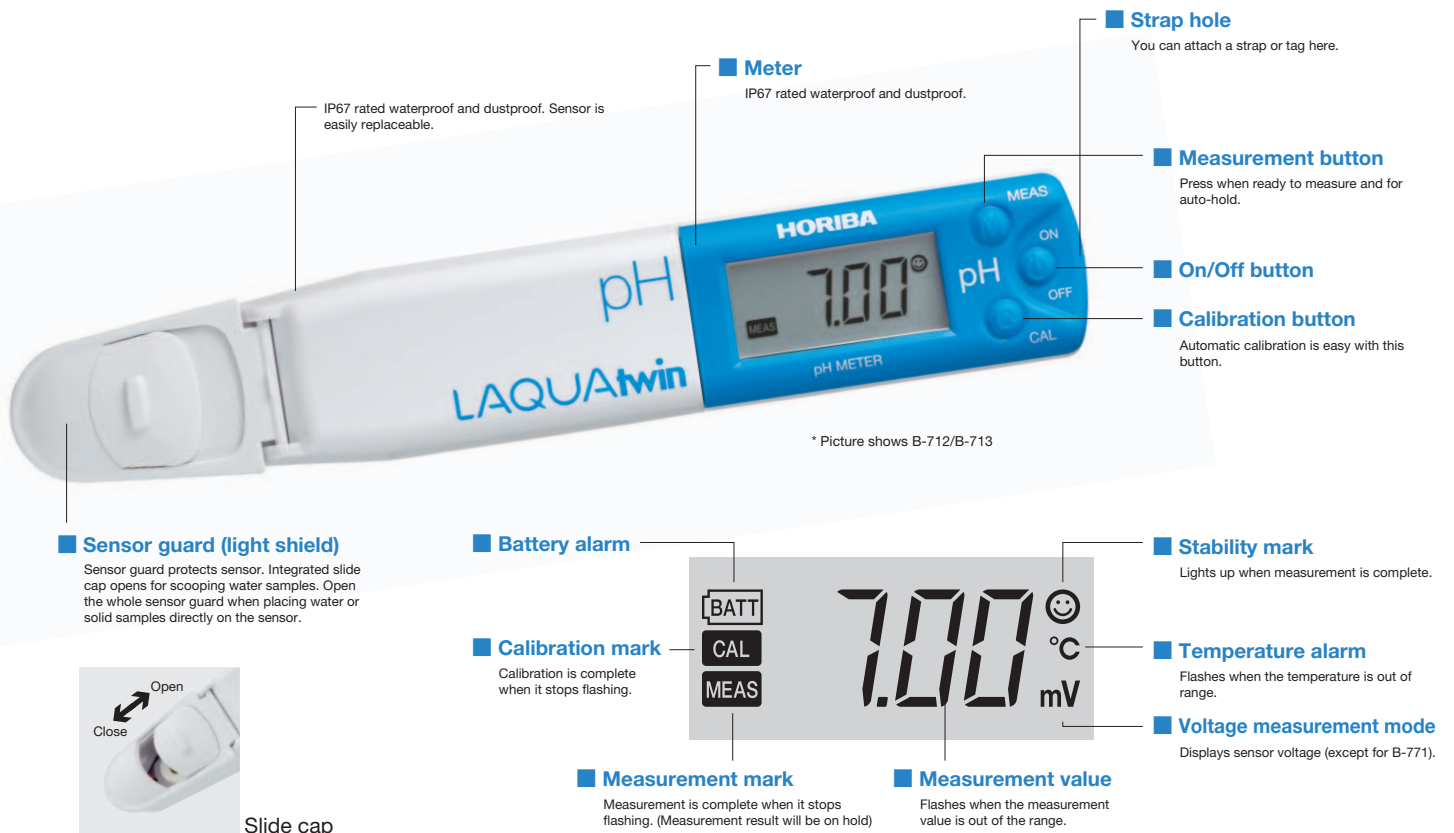


### Paper, textiles and films

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.



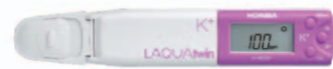
**Sodium Ion Meter**  
B-722

**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



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

**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.

**Applications include**

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



**Calcium Ion Meter**  
B-751

**Feature**

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

**Applications include**

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



**Salt Meter**  
B-721

**Feature**

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

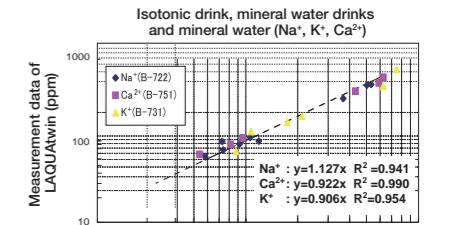
**Applications include**

health management; food quality control; Dietary instruction

\*1 Measurement value may 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.

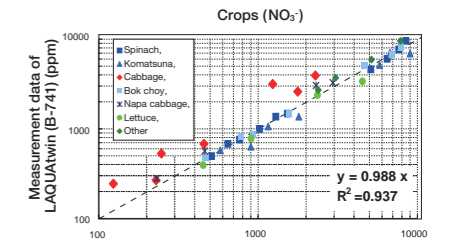
Examples for Ion measurement

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



Measurement data of ion chromatography (ppm)

\* When measuring Ca<sup>2+</sup>, we are pretreated in order to match the conditions of the ion chromatography.



Measurement data of ion chromatography (ppm)

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 sheet B, 2 Sampling sheet holders, Quick manual, Carrying case

	pH		Conductivity (EC)		Sodium Ion (Na <sup>+</sup> )		Potassium Ion (K <sup>+</sup> )		Nitrate Ion (NO <sub>3</sub> <sup>-</sup> )		Calcium Ion (Ca <sup>2+</sup> )		Salt (NaCl)	
Model	B-711	B-712/B-713*1	B-771		B-722		B-731		B-743*2 (for general use)		B-751		B-721	
Measurement principle	Glass electrode method		2 AC bipolar						Ion electrode method					
Minimum sample volume	0.05 mL*3, 0.1 mL or more		0.12 mL or more						0.05 mL*3, 0.3 mL or more					
Measurement range	2 to 12 pH		Conductivity: 0 to 19.9 mS/cm (0 to 1.99 S/m) Salt: 0 to 1.1% TDS: 0 to 9900 ppm		23 to 2300 ppm (mg/L) (10 <sup>-3</sup> to 10 <sup>-1</sup> mol/L)		39 to 3900 ppm (mg/L) (10 <sup>-3</sup> to 10 <sup>-1</sup> mol/L) 20 to 2000 kg/10a*4		NO <sub>3</sub> <sup>-</sup> : 62 to 6200 ppm (mg/L) (10 <sup>-3</sup> to 10 <sup>-1</sup> mol/L) NO <sub>3</sub> <sup>-</sup> -N: 14 to 1400 ppm (mg/L)		40 to 4000 ppm (mg/L) (10 <sup>-3</sup> to 10 <sup>-1</sup> mol/L)		0.1 to 10% by weight	
Display range*5	0 to 14 pH		0 to 199 mS/cm (0 to 19.9 S/m)		0 to 9900 ppm (mg/L)		0 to 9900 ppm (mg/L)		0 to 9900 ppm (mg/L)		0 to 9900 ppm (mg/L)		0.00 to 25% by weight	
Range and Resolution (Valid numbers)	0.1 pH	0.1/0.01 pH (Selectable)	① 0 to 199 µS/cm: 1 µS/cm ② 0.20 to 1.99 mS/cm: 0.01 mS/cm ③ 2.0 to 19.9 mS/cm: 0.1 mS/cm ④ 20 to 199 mS/cm: 1 mS/cm				① 0 to 1.0 ppm: 0.1 ppm ② 0 to 99 ppm: 1 ppm ③ 100 to 990 ppm: 10 ppm ④ 1000 to 9900 ppm: 100 ppm						① 0.00 to 0.99%: 0.01% by weight ② 1.0 to 9.9%: 0.1% by weight ③ 10 to 25%: 1% by weight	
Calibration	One-point	Two-point*6	Two-point*6						Two-point*6					
Accuracy*7	±0.1 pH		±2% F.S. ±1digit (for each range)*8				±10% of reading value		±20% of reading value		±10% of reading value		±10% of reading value	
Functions	Temperature compensation • IP67 Water/Dust proof*9 • Auto hold • Automatic power off (30 minutes)		Salt/TDS Measurement • Auto range change • Temperature conversion (2%/°C fixed) • IP67 Water/Dust proof*9 • Auto hold • Automatic power off (15 minutes)				Auto range change • Temperature compensation • IP67 Water/Dust proof*9 • Auto hold • Automatic power off (30 minutes)							
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, B-771 approx. 45 g)													
Accessories included	2 CR2032 batteries/1 Pipette/Instruction manual/Quick manual/Storage case													
	Standard solution (pH 7) (14 mL), 5 pieces of Sampling sheet B	Standard solution (pH 4 & pH 7*10) (14 mL), 5 pieces of Sampling sheet B	Standard solution (1.41 mS/cm) (14 mL), Treatment reagent (14 mL) * 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	Standard solution (150 ppm & 2000 ppm) (14 mL), 5 pieces of Sampling sheet	Standard solution (150 ppm & 2000 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					

\*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) ④±5 mS/cm (20 to 199 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.

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

\* Selectivity coefficient is a concentration ratio of the interfering ion against the target ion, which affects the target ion measurement value. For example, selectivity coefficient of potassium ion against sodium ion is 1x10<sup>-2</sup>, which means for the same concentration of potassium ion and sodium ion coexisting in a sample, the sodium measurement shows approximately 1x10<sup>2</sup>(1%) higher result.

**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.com/wq>

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 diphenyl 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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