



Portable pH • Water Quality Meter

# LAQUAact

D-70/ES-70/OM-70 Series

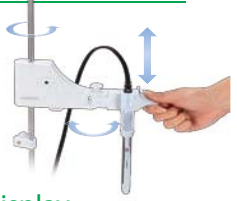


The casing is made from shock resistant and extremely durable polycarbonate resin. With high chemical resistance it is ideal for harsh environments. According to our research as of June 2013.

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

### Laboratory use capability

The optional electrode stand offers excellent manoeuvrability, allowing the electrode to be moved left to right, easily with one hand.



### Easy-to-view large display shows two measurement items simultaneously

The measurement values are easily visible on a display that is about 40% larger than those of our conventional products. Two measurement values can be displayed on a single screen.



### Chemical resistant

The polycarbonate resin casing is extremely chemical-resistant\*, so can be cleaned using alcohol.



### Various data processing

The built-in data memory can store 1000 items, and connecting to a computer allows measurement data to be collected. Output to a GLP/GMP-compatible printer is also possible.



### Backlit LCD model



**D-75**

CH.1 pH ORP  
CH.2 DO



**D-74**

CH.1 pH ORP  
CH.2 COND RESI SAL TDS



**D-73**

CH.1 pH ORP ION  
CH.2 pH ORP ION



**D-72**

CH.1 pH ORP

### Basic model



**D-71**

CH.1 pH

\*Accessories included : Instruction Manual/Quick Manual/2 pcs Batteries

### One hand operation

Slim body fits in your hand. Only three basic operation buttons for one-hand operability.



### Shock-resistant

Polycarbonate resin\* used in automobiles and mobile phones has been adopted to enhance shock resistance.

\*Polycarbonate resin has about twice the shock resistance of conventional ABS resin.



### Visible LCD in dark places

Backlight (except D-71) allows reading of measurement values even in the dark.



Image

### Waterproof and dustproof

IP67 rated waterproof and dustproof casing.

\*IP67: Fully waterproof for approximately 30 min in 1 metre of water.



### Extended operation

Uses about 10% of the power compared to conventional meters. With up to 1000 hrs of use\*, long periods of field work are possible.

\*D-71/D-72



### Easy to carry

The compact and ergonomic design is easy to carry and includes a cable winding function for the optional electrode hook attachment.



### Conductivity



ES-71

CH.1 COND RESI SAL TDS  
 Set includes conductivity electrode (model 9382-10D)

### Dissolved Oxygen



OM-71

CH.1 DO

\* Select from the following:  
 • 2 m cable (OM-71-2)  
 • 10 m cable (OM-71-10)  
 • Laboratory (OM-71-L1) (BOD measurement)

Laboratory set (OM-71-L1) : 1 set electrode stand, 1 pc air pump, 2 pcs battery, 1 bottle of Sulfric Chloride, 2 pcs styrene container, 1 pc flask, 1 pc AC adaoter

### [Various functions]

LAQUAact boasts a variety of safety and other useful functions to assist with measurements and data processing. For details, see page 16 of the specifications.

Common	Interval measurement function (except D-71)
	Sample ID number setting function
	Clock function and auto power-off function
pH [D-70 series]	Usable with AAA alkaline batteries, Ni-MH batteries, or AC adapter
	Automatic calibration and calibration interval alarm function Usable with both 5-point calibration and USA/NIST standard solutions
Conductivity [D-74/ES-71]	Electrical resistivity/total dissolved solids/salt content conversion functions
	Automatic range switching, automatic temperature conversion, and unit switching functions
Dissolved Oxygen [D-75/OM-71]	Temperature compensation, atmospheric pressure calibration and salt concentration calibration functions
	Oxygen concentration and saturated oxygen concentration measurement functions



# Electrodes/Accessories

## For LAQUA/LAQUA<sup>act</sup>

### pH Electrode

\*1 0-50°C when completely immersed.

	Description	Model	Temp. range (°C)	pH range	Part No.
Combination (3-in-1) pH electrode	Plastic body	9625-10D	0~100*1	0~14	3200360505
	Standard ToupH	9615S-10D	0~100	0~14	3200585428
	Sleeve ToupH	9681S-10D	0~ 60	0~14	3200585463
	Long ToupH	9680S-10D	0~100*1	0~14	3200585455
	Micro ToupH	9618S-10D	0~ 60	0~14	3200585447
	Sleeve	6367-10D	0~ 60	0~14	3014079136
	For measurement of low-conductivity water and non-aqueous solvents	6377-10D	0~ 60	0~14	3014093085
	Needle type	6252-10D	0~ 60	0~12	3014080850
	For Tap water	9630-10D	0~100	0~14	3200528726
	For Hydrofluoric acid sample	9631-10D	0~ 60	2~12	3200524119
For Strong alkali sample	9632-10D	0~100	0~14	3200524120	
ISFET pH electrode	Needle type ISFET	0030-10D	0~ 60	0~14	3014028323
	Flat type ISFET	0040-10D	0~ 60	0~14	3200367925
	Needle type ISFET(0030-10D) sensor	0131	—	—	3014028400
	Flat type ISFET(0040-10D) sensor	0141	—	—	3200367926
Combination pH electrode	For very slender test tubes	6069-10C	0~ 60	0~14	3014081107
	Flat type	6261-10C	0~ 50	0~12	3014081807
Glass pH electrode	Standard type	1066A-10C	0~100	0~14	3014080432
	For measurement of low-conductivity water and non-aqueous solvents.	1076A-10C	0~100	0~14	3014093084
Reference electrode	Standard type	2060A-10T	0~100	—	3014080434
	Double-junction type	2565A-10T	0~100	—	3014080436
Temperature electrode	For temperature compensation and measurement	4163-10T	0~100	—	3014080375
ORP electrode	Water proof Platinum 3-in-1 type	9300-10D	0~ 60	—	3014046710

\* See pages 18 and 19 for the application guide for each electrode.

### Conductivity Electrode

Electrode	Cell constant m <sup>-1</sup> (cm <sup>-1</sup> )	Model	Range m <sup>-1</sup> (cm <sup>-1</sup> )	Minimum Volume (mL)	Temp. range (°C)	Part No.	
Conductivity electrode	Immersion type	10 (0.1)	3551-10D	10 μS~1 S (0.1 μS~10 mS)	50	0~ 60	3014081712
		100 (1)	9382-10D	0.1 mS~10 S (1 μS~100 mS)	20~30	0~ 80	3014046709
		100 (1)	3552-10D	0.1 mS~10 S (1 μS~100 mS)	15	0~100	3014081545
		1000 (10)	3553-10D	1 mS~100 S (10 μS~1 S)	50	0~ 60	3014081714
		10 (0.1)	3561-10D	10 μS~1 S (0.1 μS~10 mS)	10	0~ 60	3014082350
	Flow type	100 (1)	3562-10D	0.1 mS~10 S (1 μS~100 mS)	16	0~ 60	3014082513
		1000 (10)	3573-10C	1 mS~100 S (10 μS~1 S)	4	0~ 60	3014082590
		1000 (10)	3574-10C	1m S~10 S (10 μS~100 mS)	0.25	0~ 60	3014082592

### Ion Electrode

\*All ion electrodes (except combination electrodes) require a sensor holder for attaching to the electrode stand.

\*Please be aware of the hindering ion and pH range interference of ion electrodes. \*D-73 connects combination type ion electrodes only.

Electrode name	Model	Measuring range	Applicable reference electrode	Interfering ion influence*1	Part No.
Sodium ion electrode	1512A-10C	2.3~230,000 mg/L Na <sup>+</sup>	2565A	K <sup>+</sup> , Li <sup>+</sup> =10 NH <sub>4</sub> <sup>+</sup> =20 Ca <sup>2+</sup> =500	3014068526
Cyanide ion electrode	8001-10C	0.03~2,600 mg/L CN	2060A·2565A	S <sup>2-</sup> , MnO <sub>4</sub> <sup>-</sup> =N/A I <sup>-</sup> =0.1 S <sub>2</sub> O <sub>3</sub> <sup>2-</sup> =1	3014094393
Chloride ion electrode	8002-10C	0.4~35,000 mg/L Cl <sup>-</sup>	2565A	S <sub>2</sub> O <sub>3</sub> <sup>2-</sup> , S <sup>2-</sup> , I <sup>-</sup> , Ag <sup>+</sup> , Hg <sup>2+</sup> =N/A SCN <sup>-</sup> =0.3 MnO <sub>4</sub> <sup>-</sup> =0.1	3014094394
Chloride ion electrode (Combination type)*	6560-10C	0.4~35,000 mg/L Cl <sup>-</sup>	—	Br <sup>-</sup> =0.03 NO <sub>3</sub> <sup>-</sup> , F <sup>-</sup> , HCO <sub>3</sub> <sup>-</sup> , SO <sub>4</sub> <sup>2-</sup> , PO <sub>4</sub> <sup>3-</sup> =1,000	3014093430
Sulfide ion electrode	8003-10C	0.3~32,000 mg/L S <sup>2-</sup>	2060A·2565A	CN <sup>-</sup> =N/A S <sub>2</sub> O <sub>3</sub> <sup>2-</sup> =10 I <sup>-</sup> , F <sup>-</sup> , Cl <sup>-</sup> , PO <sub>4</sub> <sup>3-</sup> , SO <sub>4</sub> <sup>2-</sup> =1,000	3014094395
Iodide ion electrode	8004-10C	0.01~13,000 mg/L I <sup>-</sup>	2060A·2565A	MnO <sub>4</sub> <sup>-</sup> , S <sup>2-</sup> , CN <sup>-</sup> =N/A S <sub>2</sub> O <sub>3</sub> <sup>2-</sup> =10 NO <sub>2</sub> <sup>-</sup> =100 Br <sup>-</sup> =1,000	3014094396
Bromide ion electrode	8005-10C	0.8~80,000 mg/L Br <sup>-</sup>	2565A	S <sub>2</sub> O <sub>3</sub> <sup>2-</sup> , I <sup>-</sup> , S <sup>2-</sup> , CN <sup>-</sup> =N/A MnO <sub>4</sub> <sup>-</sup> =1 Cl <sup>-</sup> , PO <sub>4</sub> <sup>3-</sup> =100 F <sup>-</sup> , NO <sub>3</sub> <sup>-</sup> , SO <sub>4</sub> <sup>2-</sup> =1,000	3014094397
Copper ion electrode	8006-10C	0.06~6,400 mg/L Cu <sup>2+</sup>	2565A	Fe <sup>3+</sup> =0.1 Ni <sup>2+</sup> , Na <sup>+</sup> =1,000	3014094398
Cadmium ion electrode	8007-10C	0.1~11,000 mg/L Cd <sup>2+</sup>	2060A·2565A	Cu <sup>2+</sup> , Hg <sup>2+</sup> , Ag <sup>+</sup> =N/A Pb <sup>2+</sup> =0.1 Fe <sup>3+</sup> =1 Cr <sup>3+</sup> , Fe <sup>2+</sup> =100 Ni <sup>2+</sup> =1,000	3014094399
Lead ion electrode	8008-10C	2~20,000 mg/L Pb <sup>2+</sup>	2565A	Cu <sup>2+</sup> , Hg <sup>2+</sup> , S <sup>2-</sup> , Ag <sup>+</sup> =N/A Fe <sup>3+</sup> =0.01 Cr <sup>3+</sup> =1 Cd <sup>2+</sup> =10 Ni <sup>2+</sup> , Mg <sup>2+</sup> , Zn <sup>2+</sup> =100 NH <sub>4</sub> <sup>+</sup> , K <sup>+</sup> =1,000	3014094400
Thiocyanate ion electrode	8009-10C	0.6~5,800 mg/L SCN <sup>-</sup>	2565A	CN <sup>-</sup> , I <sup>-</sup> , S <sup>2-</sup> , S <sub>2</sub> O <sub>3</sub> <sup>2-</sup> =N/A Br <sup>-</sup> =1 Cl <sup>-</sup> =100	3014094401
Fluoride ion electrode	8010-10C	0.02~19,000 mg/L F <sup>-</sup>	2060A·2565A	Possible interference when multiply-charged ion	3014093439
Fluoride ion electrode (Combination type)*	6561-10C	0.02~19,000 mg/L F <sup>-</sup>	—	(ex. Al <sup>3+</sup> , Fe <sup>3+</sup> )coexisted and foamed the complex.	3014093431
Silver ion electrode	8011-10C	0.01~110,000 mg/L Ag <sup>+</sup>	2565A	Hg <sup>2+</sup> =N/A Cu <sup>2+</sup> , Cd <sup>2+</sup> , Pb <sup>2+</sup> , Zn <sup>2+</sup> , Mg <sup>2+</sup> , Ca <sup>2+</sup> , Na <sup>+</sup> , K <sup>+</sup> =Over 1000	3014094402
Nitrate ion electrode	8201-10C	0.62~62,000 mg/L NO <sub>3</sub> <sup>-</sup>	2565A	ClO <sub>4</sub> <sup>-</sup> =0.03 I <sup>-</sup> =0.1 Br <sup>-</sup> =2 NO <sub>2</sub> <sup>-</sup> =3 Cl <sup>-</sup> =40 F <sup>-</sup> =200	3014094403
Nitrate ion electrode (Combination type)*	6581-10C	0.62~62,000 mg/L NO <sub>3</sub> <sup>-</sup>	—	CH <sub>3</sub> COO <sup>-</sup> =300 SO <sub>4</sub> <sup>2-</sup> =Over 1000	3014093432
Potassium ion electrode	8202-10C	0.04~39,000 mg/L K <sup>+</sup>	2565A	Rb <sup>+</sup> =0.4 Cs <sup>+</sup> =3 NH <sub>4</sub> <sup>+</sup> =70	3014094404
Potassium ion electrode (Combination type)*	6582-10C	0.04~39,000 mg/L K <sup>+</sup>	—	Li <sup>+</sup> , Na <sup>+</sup> , Mg <sup>2+</sup> , Ca <sup>2+</sup> , Sr <sup>2+</sup> , Ba <sup>2+</sup> =Over 1000	3014093433
Calcium ion electrode	8203-10C	0.4~40,080 mg/L Ca <sup>2+</sup>	2060A·2565A	Fe <sup>3+</sup> =0.1 Fe <sup>2+</sup> , Zn <sup>2+</sup> =1 Sr <sup>2+</sup> =50 Ni <sup>2+</sup> , Cu <sup>2+</sup> =70 Co <sup>2+</sup> =350	3014068839
Calcium ion electrode (Combination type)*	6583-10C	0.4~40,080 mg/L Ca <sup>2+</sup>	—	Mn <sup>2+</sup> =500 Mg <sup>2+</sup> =1,000 Na <sup>+</sup> , K <sup>+</sup> , Ba <sup>2+</sup> , NH <sub>4</sub> <sup>+</sup> =Over 1,000	3014093434
Ammonia electrode (Combination type)*	5002A-10C	0.1~1,000 mg/L NH <sub>3</sub>	—	—	3014093560

\*1 The selection coefficient is a ratio of the limit concentration of coexisting ions (mol/L) to the ion concentration to be measured (mol/L); A value of 1000 means that the coexisting ions can be permitted up to 1000 times the ion measured and "N/A" means that chemical change occurs in the solid response membrane.

### Ion Electrode Tip

Electrode name	Model	Part No.
Chloride ion tip	7660	3014093436
Fluoride ion tip	7661	3014093438
Nitrate ion tip	7681	3014068364
Potassium ion tip	7682	3014069795
Calcium ion tip	7683	3014068795
Ammonia electrode membrane (6pcs)	membrane (NH <sub>3</sub> )	3014067083

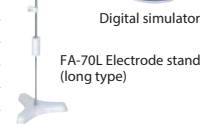
### DO Electrode /DO Tip

Electrode	Cable length	Model	Specification	Temp. range (°C)	Part No.
Waterproof DO electrode	2m	9551-20D	Field immersible type	0~40	3014047090
Waterproof DO electrode	10m	9551-100D	Field immersible type	0~40	3014047091
DO electrode	1m	9520-10D	Laboratory use	0~45	3014046711
DO tip	—	5401	Replacement electrode tip for 9551	—	3014072770
DO tip	—	7541	Replacement electrode tip for 9520	—	3014074145

## Accessories

Name	Remarks	Part No.	F-70	DS-70	D-70	ES-70	OM-70
Printer (for GLP/GMP compliance)	Cable sold separately, Plain paper	—					
Printer cable	1.5 m	3014030148	☒	☒	☒1	☒	☒
Printer paper	20 rolls	3014030149					
Ink ribbon	5 pcs/set	3014030150					
AC adapter cable set.	AC adaptor 1.8 m, cable 1 m	—	☒	☒	☒	☒	☒
Digital simulator X-51	pH, mV, ION, DO simulator (for periodic inspection of the electrode)	3014028368	☒	—	☒	—	☒
Digital simulator X-52	Conductivity simulator (for periodic inspection of the electrode)	3014028370	☒2	☒	☒2	☒	—
USB cable	Cable to connect a meter and PC. 1 m	3200373941	☒	☒	—	—	—
LCD protection sheet	2 pcs/pack	3200382462	☒	☒	—	—	—
Protection cover	Protects the meter for F-70, DS-70 series	3200382441	☒	☒	—	—	—
Analog cable	Analog (alarm) output cable	3014030152	☒3	☒3	—	—	—
Serial cable	Cable to connect a meter and PC (Serial, 9 pins)	3014030151	☒	☒	☒1	☒	☒
Electrode hook	With function for winding the cable	3200528475	—	—	☒	☒	☒
DP-70S Electrode stand (adjustable type)	With holder for D/ES/OM-70 1 m	3200528474	—	—	☒	☒	☒
FA-70S Electrode stand (adjustable type)	Free-standing type. Height 384 mm	3200382557	☒	☒	☒	☒	☒
FA-70L Electrode stand (long type)	Free-standing type. Height 450 ~650 mm	3200382560	☒	☒	☒	☒	☒

☒1 Except D-71 ☒2 Conductivity measurement model: F-74/F-74BW/D -74 ☒3 Except F-71/F-74BW/DS-71



## Standard Solutions

Name	Type	Specification	Remarks	Part No.
pH Standard Solution SET	101-5	pH4*9 Standard Solution	250 mL	3200043642
		pH7 Standard Solution	500 mL	
		Internal Solution for Reference Electrode	250 mL	
Oxalate standard solution	100-2	pH 1.68 (25☒)	500 mL	3200043639
Phthalate standard solution	100-4	pH 4.01 (25☒)	500 mL	3200043638
Phosphate standard equimolar solution	100-7	pH 6.86 (25☒)	500 mL	3200043637
Borate standard solution	100-9	pH 9.18 (25☒)	500 mL	3200043636
Carbonate standard solution	100-10	pH 10.02 (25☒)	500 mL	3200043635
Powder for ORP standard solution	160-51	For 250 mL (10 packets per set)	25☒ : 89 mV	3200043618
Powder for ORP standard solution	160-22	For 250 mL (10 packets per set)	25☒ : 258 mV	3200043617
Internal Solution for Reference Electrode	300	3.33 mol/L KCl	250 mL	3200043640
Internal solution for NH <sub>3</sub> electrodes	370	—	250 mL	3014067184

## Electrode Cleaning Solution

☒ For removing inorganic sample residues from glass electrodes, and for cleaning liquid junctions

Name	Type	Volume (mL)	Part No.
Electrode cleaning solution	220	50 x 2 pcs	3014028653

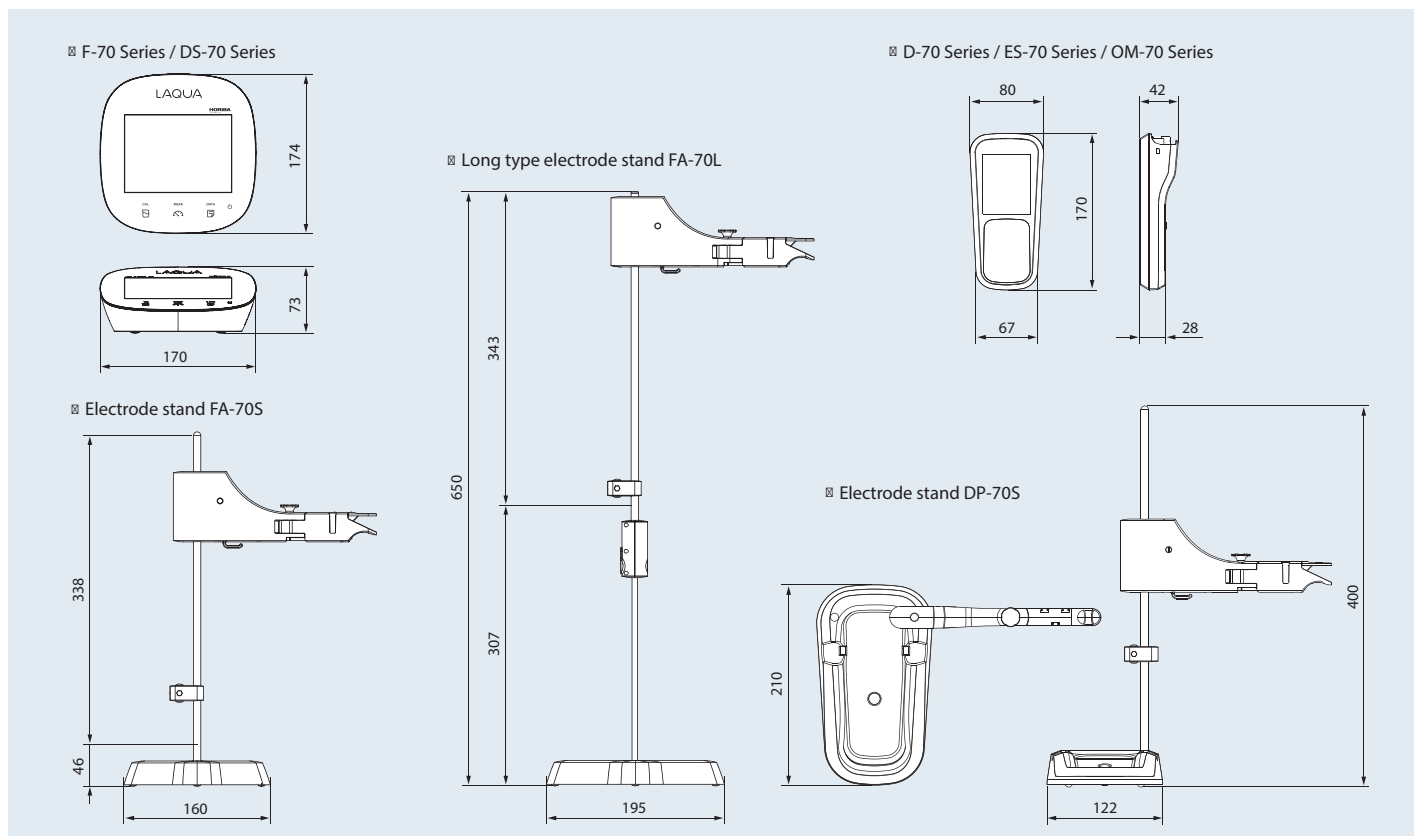
☒ For removing protein containing sample residues from glass electrodes, and for cleaning liquid junctions.

Name	Type	Volume (mL)	Part No.
Electrode cleaning solution	250	400	3200366771

☒ For 9630-10D (pH electrode for tap water or low conductivity sample)

Name	Type	Volume (mL)	Part No.
Electrode cleaning solution	230	Solution A 30 mL Solution B 100 mL	3200530494

☒ Dimension Unit: mm



	D-71	D-72	D-73	D-74	D-75	ES-71	OM-71
pH	Measuring principle						
	Glass electrode method						
	Measuring range						
	pH 0.00~14.00						
	Display range						
	-2.00~16.00 *Flashes when outside the measurement range						
	Resolution						
	0.01 pH						
mV (ORP)	Repeatability						
	±0.01 pH±1digit						
	Auto calibration (5 points)/Calibration record						
	●						
	Standard solution Auto-detect						
	●						
	USA/NIST selectable						
	●						
Calibration interval alarm							
●							
Temperature	Measuring range (Display range)						
	-2000~2000 mV *Flashes when outside the measurement range						
	Resolution						
	1 mV						
ION	Repeatability						
	±1 mV±1 digit						
	Absolute/relative selectable						
	●						
Conductivity	Measuring range (Display range)						
	0.0°C~100.0°C (-30°C~130°C) *Flashes when outside the measurement range						
	Resolution						
	0.1°C						
Salinity	Repeatability						
	±0.1°C±1digit						
	Calibration function						
	●						
Conductivity	Measuring principle						
	Ion electrode method						
	Measuring range (Display range)						
	0.00 µg/L~999 g/L						
	Resolution						
3-digit valid numbers							
Resistivity	Repeatability						
	±0.5% F.S.±1 digit						
	5 points calibration/Calibration record						
	●						
	Measuring principle						
2 AC bipolar method							
TDS	Measuring range (Display range)						
	0.0 µS/m~200.0 S/m*						
	Resolution						
	0.05%F.S.						
	Repeatability						
±0.5% F.S.±1 digit							
Dissolved Oxygen	Change unit (S/m,S/cm)						
	●						
	Auto temperature conversion (25 °C)						
	●						
	Measuring principle						
Conversion from conductivity value							
Saturated Oxygen	Measuring range (Display range)						
	0.00%~4.00% (0.0PPT~40.0PPT)						
	Resolution						
	0.01%/0.1 PPT						
	Calibration function						
●							
Oxygen concentration	Measuring principle						
	Conversion from conductivity value						
	Measuring range (Display range)						
	0.00%~4.00% (0.0PPT~40.0PPT)						
	Resolution						
0.01%/0.1 PPT							
Function	Calibration function						
	●						
	Measuring principle						
	Conversion from conductivity value						
	Measuring range (Display range)						
0.000 Ω·m~2.000 MΩ·m <sup>2</sup>							
Display	Resolution						
	0.05%F.S.						
	Repeatability						
	±0.5%F.S.±1 digit						
	Measuring principle						
Conversion from conductivity value							
Function	Measuring range (Display range)						
	0.01 mg/L~100 g/L						
	Resolution						
	0.01 mg/L						
	Repeatability						
±0.1 mg/L±1 digit							
Function	Salinity concentration correction (0~40PPT)						
	●						
	Air pressure correction						
	●						
	Measuring principle						
Membrane galvanic cell							
Function	Measuring range (Display range)						
	0.00~20.00 mg/L						
	Resolution						
	0~40°C						
	Temperature compensation						
0~40°C							
Function	Resolution						
	0.01 mg/L						
	Repeatability						
	±0.1 mg/L±1 digit						
	Salinity concentration correction (0~40PPT)						
●							
Function	Air pressure correction						
	●						
	Measuring principle						
	Membrane galvanic cell						
	Measuring range (Display range)						
0.0~200.0%							
Function	Resolution						
	0.1%						
	Measuring principle						
	Membrane galvanic cell						
	Measuring range (Display range)						
0.0~50.0%							
Function	Resolution						
	0.1%						
	Display						
	Custom LCD						
	Custom LCD with backlight						
Function	PC connectivity*3						
	-						
	Printer connectivity (GLP/GMP)						
	-						
	Temperature compensation (Auto/manual)						
	●						
	Auto Hold function						
	●						
	Data memory number						
	1000						
Interval memory							
-							
ID input							
●							
Clock function							
●							
Auto power off/Battery Level Indicator							
●							
Dustproof and waterproof standard							
IP67							
Operating ambient temperature/humidity							
0°C to 45°C, 80% or less in relative humidity (no condensation)							
Power							
LR03/AAA alkaline batteries or AAA Ni-H rechargeable batteries × 2, AC adapter 100 V to 240 V 50/60 Hz (option)							
Current consumption							
Less than 1 mA Less than 1 mA Less than 2 mA Less than 5 mA Less than 2 mA Less than 5 mA Less than 2 mA							
Battery life*4							
Approx. 1000 hours Approx. 1000 hours Approx. 500 hours Approx. 200 hours Approx. 500 hours Approx. 200 hours Approx. 500 hours							
Dimensions							
Approx. 67 (80) × 28 (42) × 170 mm (The figures in parentheses are maximum thicknesses.)							
Weight (without batteries and electrode)							
Approx. 270 g Approx. 270 g Approx. 285 g Approx. 285 g Approx. 285 g Approx. 270 g Approx. 270 g							

\*1 Cell constant 100 m<sup>2</sup>: 0.000 mS/m~20.00 S/m, Cell constant 10 m<sup>2</sup>: 0.0 µS/m~2.000 S/m, Cell constant 1000 m<sup>2</sup>: 0.00 mS/m~200.0 S/m  
 \*2 Cell constant 100 m<sup>2</sup>: 0.00 Ω·m~200.0 kΩ·m, Cell constant 10 m<sup>2</sup>: 0.0 Ω·m~2.000 MΩ·m, Cell constant 1000 m<sup>2</sup>: 0.000 Ω·m~20.00 kΩ·m  
 \*3 RS-232C cable (3014030151) and software is required. Software can be downloaded by web registration. If you need to connect to the USB, the commercially available (RS232C to USB) adapter is required. Please purchase according to the specifications of the PC (Operating system · USB Specification, etc.). \* HORIBA will not guarantee the adapter operation  
 \*4 Battery life will be shorter when using optional accessories and LCD backlight is activated.



Specifications

# 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		○			●		
Cosmetic/lotion	Carbonated drink/juice/sauce/soy sauce		○			●		
	Mayonnaise/ketchup		○			●		
	Beauty cream/mascara		○			●		
	Gel/soap/shampoo		○			●		
Cosmetic/lotion	Hairdye lotion		○			●		
	Emulsified liquid		○			○		



## Water Quality Analyzers [www.horiba-water.com](http://www.horiba-water.com)

With over 60 years of engineering excellence, HORIBA's diverse range of water quality analyzers and electrodes are ideal for everyday laboratory needs through to the most demanding of applications. Visit our website for a wealth of useful information and water quality measurement tips to help you obtain the best results in your work.



## Benchtop Meter (LAQUA) [www.horiba.com/laqua](http://www.horiba.com/laqua)

Developed using extensive feedback from users, our new LAQUA meters deliver the best solution for your pH/water quality analysis. Our LAQUA website features an online 'Selection Guide' to enable you to find the perfect LAQUA meter and/or innovative electrode for your needs.



## Compact Meter (LAQUAtwin) [www.horiba.com/laquatwin](http://www.horiba.com/laquatwin)

Analyzing water quality is simplified when using our LAQUAtwin range of meters. Designed to produce accurate and reliable results, anyone, anywhere, at any time can measure samples easily with a LAQUAtwin meter. See just how good they are at our LAQUAtwin website.



## SUPPORT HORIBA CUSTOMER SUPPORT SYSTEM

HORIBA offers a variety of services to conform to quality standards and international guidelines such as GLP, GMP and ISO

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Our support website is available for registered customers and features:

- Data collection software
- Instruction manual downloads
- Measurement tips, etc.

[www.horiba.co.jp/register](http://www.horiba.co.jp/register)

### Validation Support

Please contact us with any questions or requirements for your validation procedure.

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