

LAQUA



pH	ORP	Ion	Conductivity
Resistivity	Total Dissolved Solids	Salinity	

Benchtop Water Quality Meters

LAQUA 1000 Series



LAQUA

Benchtop Water Quality Instruments
LAQUA 1000 Series



Intuitive and easy to use

- Soft-touch operation panel
- Scratch-proof and chemical-resistant glass panel
- Large display – 5.5 inches
- Small footprint – 170(W) x 174(D) x 73(H) mm
- Protection cover included

History of the HORIBA pH Meter

360° Maneuverability

- Light-weight electrode stand can be integrated with meter or placed separately
- Base of electrode stand can be used as a convenient platform for placing beakers
- Height-adjust stopper controls vertical slide of electrode stand arm

*Taller electrode stand (650 mm) with telescopic shaft is also available



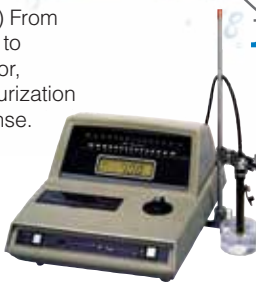
1950

HORIBA introduces Japan's first glass electrode pH meter.



1964

M-5 (benchtop) From a vacuum tube to a semiconductor, allowing miniaturization and fast response.



1977

Model F-7AD (benchtop) Incorporating an industry-first LCD display, the combination of a glass electrode, a reference electrode and a temperature-compensating electrode, makes testing easier.



1980

Model F-80 (benchtop) The world's first instrument capable of measuring pH at 1/1000 resolution, includes an integral computer, with automatic calibration and a self-diagnostic function.



L-7 (integrated) Introduction of a small, hand-held pH meter with the measurement electrode integrated within the main device.

1987



C-1 (card) Development of the world's first flat sensor.

1990

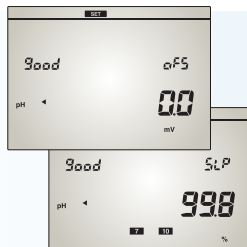


B-111 (Pen type) Pen type sensor allows small samples to be tested.



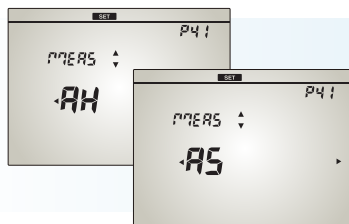
Electrode Status

- Electrode condition is updated after each calibration and stored information can be viewed anytime
- Alert when electrode deteriorates with usage
- Programmable calibration reminders*



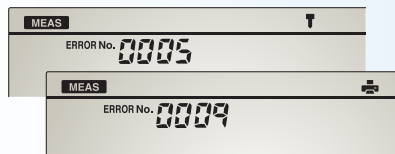
Stability function aids documentation

- Fuzzy logic determines when measured value is stable and freezes the reading on the LCD display



Diagnostic messages

- Meter performs diagnosis at various stages and reports errors
- Up to 10 error codes facilitate troubleshooting-specific issues



Data management

- Internal memory with indexed data
- Automatically log measured values to memory with Auto Log function
- Sample ID for easier sample referencing
- Date / time stamping with real-time clock*
- Output to printer, PC or USB memory-stick*
- RS232C or USB* for data output



GLP / GMP

- Important information such as model number, serial number, calibration data, electrode condition and parameters can be printed out*
- Date / time stamping of calibration performed
- Number of calibration points done and value of calibration solutions recorded
- Electrode parameters are captured and printed*

Data Acquisition Software

- To load measurement data from the meter into your PC
- Communication cable is sold separately



Universal Power Adapter

- Multi-voltage (100-240V)
- 6 types of international standard plugs included (US, UK, EU, ANZ, Korea and China)



*For selected models

LAQUA

1993



F-20 (benchtop) The world's first wireless pH meter. Large graphical display gives user instructions on screen.

2003



F-50 (desktop) World's first color LCD display. Navigation panel guides operators in how to use the meter as well as resolving errors.

D-50 (portable) Waterproof IP67-rated housing and multi parameter.

2011



LAQUA Benchtop Water Quality Instruments

2012



LAQUA Twin Pocket Ion Meters

2013



LAQUA Handheld Water Quality Instruments

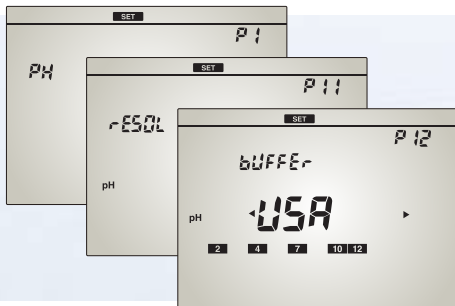
LAQUA

Benchtop Water Quality Instruments
LAQUA 1000 Series

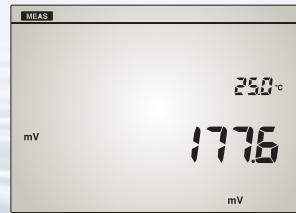


Sophisticated
Simplicity

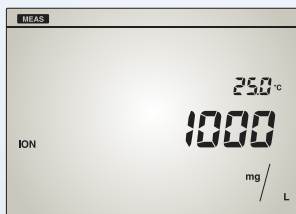
Rugged
Reliability



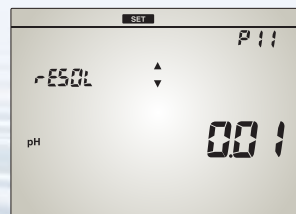
- Fuss-free advanced meter options such as Buffer Selection, Switchable Resolutions, Auto-Stable/Auto-Hold Measurement, Unit Selections, etc.



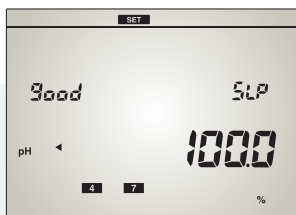
- pH or ORP measurements in all pH meters



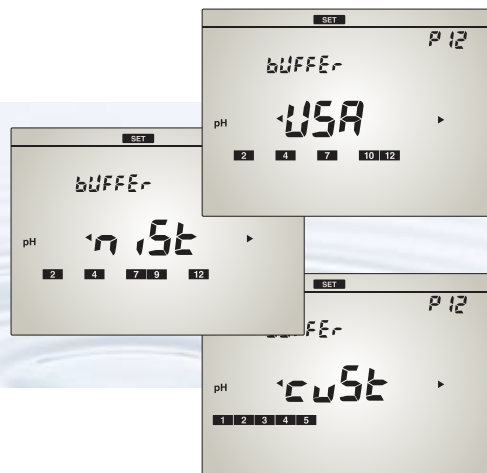
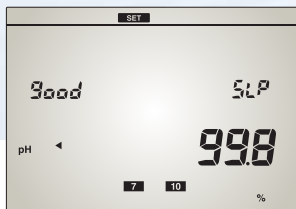
- Ion measurements in pH 1300 with respective Ion Selective Electrode



- Switchable pH Resolutions — 0.1, 0.01, 0.001



- Separate acid and alkaline slope calculation



- USA, NIST or Custom buffer options
- Up to 5-point calibration

pH Meters

PH 1100

PH 1200

PH 1300



Model	PH 1100	PH 1200	PH 1300
	pH/ORP/Temp (°C)	pH/ORP/Temp (°C)	pH/ORP/Ion/Temp (°C)
pH range	-2.00 to 20.00 pH	-2.000 to 20.000 pH	-2.000 to 20.000 pH
Resolution	0.1 / 0.01 pH	0.1 / 0.01 / 0.001 pH	0.1 / 0.01 / 0.001 pH
Accuracy	±0.01 pH	±0.003 pH	±0.003 pH
Cal points	5	5	5
Buffer options	USA, NIST	USA, NIST, Custom	USA, NIST, Custom
ORP range	±2000 mV	±2000 mV	±2000 mV
Resolution	0.1 mV	0.1 mV	0.1 mV
Accuracy	±0.2 mV	±0.2 mV	±0.2 mV
Ion range	--	--	0.000 µg/L to 9999 g/L
Resolution	--	--	4 significant digits
Accuracy	--	--	±0.3% full scale
Cal points	--	--	Up to 5
Temperature range	-30.0 °C to 130 °C	-30.0 °C to 130 °C	-30.0 °C to 130 °C
Resolution	0.1 °C	0.1 °C	0.1 °C
Accuracy	±0.4 °C	±0.4 °C	±0.4 °C
Cal option	Yes (±5.0 °C range in 0.1 °C increments)	Yes (±5.0 °C range in 0.1 °C increments)	Yes (±5.0 °C range in 0.1 °C increments)
Memory	500	999	999
Auto Data-logging	--	Yes	Yes
Real time clock	--	Yes	Yes
Date/time stamping	--	Yes	Yes
Auto Shut-off	--	Yes (programmable: 1 to 30 mins)	Yes (programmable: 1 to 30 mins)
Auto-Hold	Yes	Yes	Yes
Averaging/Stability	Yes, Automatic	Yes, Automatic	Yes, Automatic
Offset display	Yes	Yes	Yes
Slope display	Yes (independent acid and alkaline slopes depending on calibration)	Yes (independent acid and alkaline slopes depending on calibration)	Yes (independent acid and alkaline slopes depending on calibration)
Cal Alarm	--	Yes (programmable: 1 to 400 days)	Yes (programmable: 1 to 400 days)
Electrode status	On screen display	On screen display	On screen display
Diagnostic messages	Yes	Yes	Yes
Display	Custom LCD	Custom LCD	Custom LCD
Inputs	BNC, phono, DC sockets	BNC, phono, DC sockets	BNC, phono, DC sockets
Outputs**	RS232C	USB, RS232C	USB, RS232C
Power requirements	AC adaptor 100 ~ 240 V, 50/60 Hz	AC adaptor 100 ~ 240 V, 50/60 Hz	AC adaptor 100 ~ 240 V, 50/60 Hz
Electrode stand	Integrated	Integrated	Integrated
Weight	500g	500g	500g
Dimensions	170 (L) x 174 (D) x 73 (H) mm	170 (L) x 174 (D) x 73 (H) mm	170 (L) x 174 (D) x 73 (H) mm

Ordering information:

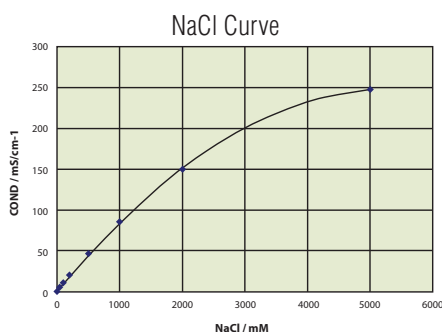
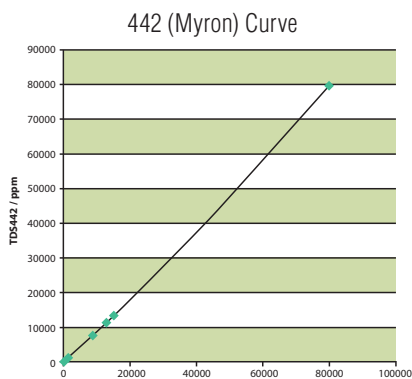
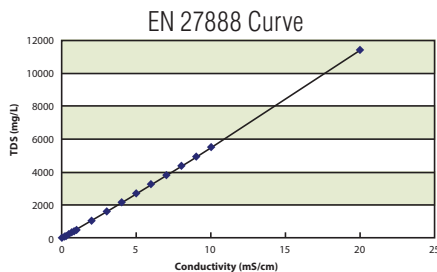
Kit*	PH1100-S (3999960176)	PH1200-S (3999960177)	PH1300-S (3999960178)
Kit*	<ul style="list-style-type: none"> PH1100 meter electrode stand power adaptor pH 4.01, 7.01, 10.01, 3.33M KCl solutions (250ml ea) 9615S-10D - refillable, glass-body pH electrode with integrated temperature sensor, 1m cable, BNC & phono jack Data Acquisition Software 	<ul style="list-style-type: none"> PH1200 meter electrode stand power adaptor pH 4.01, 7.01, 10.01, 3.33M KCl solutions (250ml ea) 9615S-10D - refillable, glass-body pH electrode with integrated temperature sensor, 1m cable, BNC & phono jack Data Acquisition Software 	<ul style="list-style-type: none"> PH1300 meter electrode stand power adaptor pH 4.01, 7.01, 10.01, 3.33M KCl solutions (250ml ea) 9615S-10D - refillable, glass-body pH electrode with integrated temperature sensor, 1m cable, BNC & phono jack Data Acquisition Software
Meter with electrode stand	PH1100 (3200647407) <ul style="list-style-type: none"> PH1100 meter electrode stand power adaptor protection cover 	PH1200 (3200647408) <ul style="list-style-type: none"> PH1200 meter electrode stand power adaptor protection cover 	PH1300 (3200647409) <ul style="list-style-type: none"> PH1300 meter electrode stand power adaptor protection cover
pH Electrode	9615S-10D (3200585428) <ul style="list-style-type: none"> refillable, glass-body pH electrode with integrated temperature sensor, 1m cable, BNC & phono jack 	9615S-10D (3200585428) <ul style="list-style-type: none"> refillable, glass-body pH electrode with integrated temperature sensor, 1m cable, BNC & phono jack 	9615S-10D (3200585428) <ul style="list-style-type: none"> refillable glass-body pH electrode with integrated temperature sensor, 1m cable, BNC & phono jack
USA pH buffer set	502-S (3999960016) pH 4.01, 7.01, 10.01, 3.33M KCl solutions (250ml ea)	502-S (3999960016) pH 4.01, 7.01, 10.01, 3.33M KCl solutions (250ml ea)	502-S (3999960016) pH 4.01, 7.01, 10.01, 3.33M KCl solutions (250ml ea)
NIST pH buffer set	501-S (3999960015) pH 4.01, 6.86, 9.18, 3.33M KCl solutions (250ml ea)	501-S (3999960015) pH 4.01, 6.86, 9.18, 3.33M KCl solutions (250ml ea)	501-S (3999960015) pH 4.01, 6.86, 9.18, 3.33M KCl solutions (250ml ea)

*Kit with 501-S is available upon request. Add 'N' suffix to the order code when ordering. **Communication cable is sold separately

- Wide measurement range
- EC/TDS/Res/Sal in one meter
- Auto-calibration
- Multi-calibration points
- Preset TDS calibration curves
- Preset Salinity calibration curves
- Rugged conductivity cell construction

TDS Calibration Curves

Application	Key chemical species	TDS selection
Aquaculture, pickling	NaCl	NaCl
Boiler water, HVAC	Na ₂ SO ₄ , NaHCO ₃ , NaCl	442 (Myron)
Environmental	EN standard for environmental water	EN 27888
General application	Not known	KCl (linear factor) Default: 0.5 Selectable: 0.4 to 1.0



Conductivity Meter



Model		EC 1100
		EC/TDS/Res/Sal/Temp (°C)
EC range		0.000 to 1.999 μ S/cm (k = 0.1) 2.00 to 19.99 μ S/cm (k = 0.1, 1) 20.0 to 199.9 μ S/cm (k = 0.1, 1, 10) 200 to 1999 μ S/cm (k = 0.1, 1, 10) 2.00 to 19.99 mS/cm (k = 0.1, 1, 10) 20.0 to 199.9 mS/cm (k = 1, 10) 0.200 to 2.000 S/cm (k = 10)
Resolution		0.05% F.S.
Accuracy		\pm 0.6% F.S. (\pm 1.5% F.S. > 18.0 mS/cm)
Ref. temp.		15 to 30 °C (selectable)
Temp. coefficient		0.00 to 10.00% (selectable)
Cell constants		0.1 / 1.0 / 10.0
Cal points		4 points (Auto/Manual)
Units setting		Auto ranging / Manual μ S/cm or mS/cm or S/m
TDS range		0.01 to 9.99 mg/L 10.0 to 99.9 mg/L 100 to 999 mg/L 1.00 to 9.99 g/L 10.0 to 99.9 g/L 100 g/L
Resolution		0.01 mg/L
Accuracy		\pm 0.1% F.S.
TDS curves		EN27888, 442, Linear (0.40 to 1.00), NaCl
Resistivity Range		0.000 to 1.999 k Ω •cm (k = 1) 2.00 to 19.99 k Ω •cm (k = 0.1, 1) 20.0 to 199.9 k Ω •cm (k = 0.1, 1) 0.200 to 1.999 M Ω •cm (k = 0.1, 1) 2.00 to 19.99 M Ω •cm (k = 0.1, 1) 20.0 to 200.0 M Ω •cm (k = 0.1)
Resolution		0.05% F.S.
Accuracy		\pm 0.6% F.S. (\pm 1.5% F.S. > 1.80 M Ω •cm)
Salinity		0.00 to 100.00 ppt 0.000 to 10.000 %
Resolution		0.01 ppt / 0.001%
Accuracy		\pm 0.2% F.S.
Cal curves		NaCl / Sea water
Temperature range		-30.0 °C to 130 °C
Resolution		0.1 °C
Accuracy		\pm 0.4 °C
Memory		500
Auto-Hold/Stability		Yes
Diagnostic messages		Yes
Display		Custom LCD
Inputs		BNC, phono, DC sockets
Outputs**		USB, RS232C
Power requirements		AC adaptor 100 ~ 240 V, 50/60 Hz
Electrode stand		Integrated
Weight		500g
Dimensions		170 (L) x 174 (D) x 73 (H) mm

Ordering information:

Kit	<ul style="list-style-type: none"> • EC1100 meter • electrode stand • power adaptor • 84uS/cm, 1413 uS/cm, 12.88 mS/cm, 111.8 mS/cm solutions (250ml ea) • 9382-10D - plastic-body, k=1.0 conductivity cell with integrated temperature sensor, 1m cable, BNC & phono jack • Data Acquisition Software 	EC1100-S (3999960179)
Meter with electrode stand	<ul style="list-style-type: none"> • EC1100 meter • electrode stand • power adaptor • protection cover 	EC1100 (3200647411)
Conductivity cell	<ul style="list-style-type: none"> • plastic-body, k=1.0 conductivity cell with integrated temperature sensor, 1m cable, BNC & phono jack 	9382-10D (3014046709)
Conductivity standard solutions set	<ul style="list-style-type: none"> • 84uS/cm, 1413 uS/cm, 12.88 mS/cm, 111.8 mS/cm solutions (250ml ea) 	503-S (3999960017)

*Kit with 501-S is available upon request. Add 'N' suffix to the order code when ordering. ** Communication cable sold separately.

Multi-Parameter Meter



PC 1100

- pH/ORP/EC/TDS/Res/Sal/Temp (°C) in one meter
- Combination of PH 1200 & EC 1100
- Simultaneous measurement on 2 channels



- Dual channel, dual display

Model		PC 1100
Dual Channel pH/ORP/ EC/TDS/Res/Sal/Temp (°C)		
pH range	-2.000 to 20.000 pH	
Resolution	0.1 / 0.01 / 0.001 pH	
Accuracy	±0.003 pH	
Cal points	5	
Buffer options	USA, NIST, Custom	
ORP range	±2000 mV	
Resolution	0.1 mV	
Accuracy	±0.2 mV	
EC range	0.000 to 1.999 µS/cm (k = 0.1) 2.00 to 19.99 µS/cm (k = 0.1, 1) 20.0 to 199.9 µS/cm (k = 0.1, 1, 10) 200 to 1999 µS/cm (k = 0.1, 1, 10) 2.00 to 19.99 mS/cm (k = 0.1, 1, 10) 20.0 to 199.9 mS/cm (k = 1, 10) 0.200 to 2.000 S/cm (k = 10)	
Resolution	0.05% F.S.	
Accuracy	±0.6% F.S. (±1.5% F.S. > 18.0 mS/cm)	
Ref. temp.	15 to 30 °C (selectable)	
Temp. coefficient	0.00 to 10.00% (selectable)	
Cell constants	0.1 / 1.0 / 10.0	
Cal points	4 points (Auto/Manual)	
Units setting	Auto ranging / Manual µS/cm or mS/cm or S/m	
TDS range	0.01 to 9.99 mg/L 10.0 to 99.9 mg/L 100 to 999 mg/L 1.00 to 9.99 g/L 10.0 to 99.9 g/L 100 g/L	
Resolution	0.01 mg/L	
Accuracy	±0.1% F.S.	
TDS curves	EN27888, 442, Linear (0.40 to 1.00), NaCl	
Resistivity Range	0.000 to 1.999 kΩ•cm (k = 1) 2.00 to 19.99 kΩ•cm (k = 0.1, 1) 20.0 to 199.9 kΩ•cm (k = 0.1, 1) 0.200 to 1.999 MΩ•cm (k = 0.1, 1) 2.00 to 19.99 MΩ•cm (k = 0.1, 1) 20.0 to 200.0 MΩ•cm (k = 0.1)	
Resolution	0.05% F.S.	
Accuracy	±0.6% F.S. (±1.5% F.S. > 1.80 MΩ•cm)	
Salinity	0.00 to 100.00 ppt 0.000 to 10.000 %	
Resolution	0.01 ppt / 0.001%	
Accuracy	±0.2% F.S.	
Cal curves	NaCl / Sea water	
Temperature range	-30.0 °C to 130 °C	
Resolution	0.1 °C	
Accuracy	±0.4 °C	

Memory	999
Auto Data-logging	Yes
Real time clock	Yes
Date/time stamping	Yes
Auto Shut-off	Yes (programmable: 1 to 30 mins)
Auto-Hold	Yes
Averaging/Stability	Yes, Automatic
Offset display	Yes
Slope display	Yes (independent acid and alkaline slopes depending on calibration)
Cal Alarm	Yes (programmable: 1 to 400 days)
Electrode status	On screen display
Diagnostic messages	Yes
Display	Custom LCD, Dual channel display
Inputs	Dual BNC, dual phono, DC sockets
Outputs**	USB, RS232C
Power requirements	AC adaptor 100 ~ 240 V, 50/60 Hz
Electrode stand	Integrated
Weight	500g
Dimensions	170 (L) x 174 (D) x 73 (H) mm

Ordering information:

Kit*	<p>PC1100-S (3999960180)</p> <ul style="list-style-type: none"> • PC1100 meter • electrode stand • power adaptor • 9615S-10D - refillable, glass-body pH electrode with integrated temperature sensor, 1m cable, BNC & phono jack • 9382-10D - plastic-body, k=1.0 conductivity cell with integrated temperature sensor, 1m cable, BNC & phono jack • pH 4.01, 7.01, 10.01, 3.33M KCl solutions (250ml ea) • 84µS/cm, 1413 µS/cm, 12.88 mS/cm, 111.8 mS/cm solutions (250ml ea) • Data Acquisition Software
Meter with electrode stand	<p>PC1100 (3200647410)</p> <ul style="list-style-type: none"> • PC1100 meter • electrode stand • power adaptor • protection cover
pH Electrode	<p>9615S-10D (3200585428)</p> <ul style="list-style-type: none"> • refillable, glass-body pH electrode with integrated temperature sensor, 1m cable, BNC & phono jack
Conductivity cell	<p>9382-10D (3014046709)</p> <ul style="list-style-type: none"> • plastic-body, k=1.0 conductivity cell with integrated temperature sensor, 1m cable, BNC & phono jack
USA pH buffer set	<p>502-S (3999960016)</p> <ul style="list-style-type: none"> • pH 4.01, 7.01, 10.01, 3.33M KCl solutions (250ml ea)
NIST pH buffer set	<p>501-S (3999960015)</p> <ul style="list-style-type: none"> • pH 4.01, 6.86, 9.18, 3.33M KCl solutions (250ml ea)
Conductivity standard solutions set	<p>503-S (3999960017)</p> <ul style="list-style-type: none"> • 84µS/cm, 1413 µS/cm, 12.88 mS/cm, 111.8 mS/cm solutions (250ml ea)

*Kit with 501-S is available upon request. Add 'N' suffix to the order code when ordering. ** Communication cable sold separately.

pH Electrode Selection Guide

		3-in-1 ELECTRODES											COMBINATION ELECTRODES				
		PLASTIC				STANDARD ToupH	LONG ToupH	MICRO ToupH	SLEEVE ToupH	SLEEVE	NON-AQUEOUS	NEEDLE	PLASTIC	STANDARD ToupH	MICRO ToupH	SLEEVE ToupH	LONG
		9625-10D	9630-10D	9631-10D	9632-10D	9615S-10D	9680S-10D	9618S-10D	9681S-10D	6367-10D	6377-10D	6252-10D	9425-10C	9415-10C	9418-10C	9481-10C	6069-10C
Specification	Applicable temperature range (°C)	0-100	0-100	0-60	0-100	0-100	0-100	0-60	0-60	0-60	0-60	0-60	0-100	0-100	0-60	0-60	0-60
	Diameter (mm)	16	16	16	16	12	8	3	12	12	12	12	16	12	3	12	3
	Length (mm)	150	150	155	150	198	283	185	203	150	150	150	150	198	185	203	291

pH - Sample Conditions

Aqueous Solution	Conductivity	Normal (over 100 mS/m)	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
		Low (approx. 10 ~100 mS/m)		●						○		●				○	
		Very low (approx. 5 ~100 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)								●	○	●					●	
	Containing non-aqueous solvent					○	○	○	○	○	●			○	○	○	
	Suspension					○	○	○	●		●			○	○	●	
Solid/ Semisolid	Inside											○					
	Surface																

Sample Containers	Microtube/plate (> 50 µL)							●							●		
	Ampule > ø4 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																

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		●			○			○	●			○	○		○	
Chemical reagent/ solvent	Pharmaceutical water/ Environmental water/acid rain	○	○			○			○	○			○	○		○	
	Caustic/strong acid (Except HF sample)			●		●			○				●			○	
	Hydrofluoric acid			●													
	Surfactant					○			●		○			○		●	
	Water-based paint					○			●		○			○		●	
Pharmaceutical/ biological sample	Dye/coloring agent								●		○					●	
	Protein-containing sample					○		○	●	○			○	○		●	
	Medicinal preparation							○	○					○	○		
	Enzyme solution						○	●				○			●		
	Tris buffer					●		○	○				●	○	○		
	Suspension					○			●		●			○		●	
Food	Agar medium																
	Jam					○			●		○	○		○		●	
	Meat/fish/Fruit/vegetable/ Dough											●					
	Honey										●						
	Cheese/butter											○					
Beverage/ seasoning	Yogurt	○	○			○			○	○		○	○		○		
	Beer	○	○			○			●	○	●		○	○		●	
	Milk/Carbonated drink/juice/ sauce/soy sauce					○			●	○	○		○	○		●	
Cosmetic/ lotion	Mayonnaise/ketchup					○			●		○		○		●		
	Beauty cream/mascara					○			●		○	○		○		●	
	Gel/soap/shampoo/Hairdye lotion					○			●		○		○		●		
	Emulsified liquid					○			○		●			○		○	

● Recommended ○ Can be measured

		ISFET ELECTRODE	
LONG ToupH	FLAT	GENERAL	
9480-10C	6261-10C	0040-10D	
0-100	0-50	0-60	
8	12	16	
283	150	190	

●	●	●
○		
○		
○		○
○		○
	●	●

○		
●		
○	○	○
●		
	●	●
	●	●

○		
	●	●
	○	●(surface)
	○	●(surface)
		○(surface)
	○	○(surface)
	○	●(surface)

Stable measurement for a wide range of samples. Standard **ToupH** glass electrode (9615S-10D)

STANDARD ToupH



High stability and drift reduction. No more worries about the timing of your measurement value readings.

- Uses responsive glass that is 10 times stronger than JIS standard. The domed shape provides strength in all directions, greatly reducing damage concerns.
- Constructed with smooth surfaces for easy wiping and cleaning.

Recommended

Perfect for preparing buffers. Can be used on a wide range of aqueous test solutions.

Stable measurement for routine testing. Standard plastic electrode (9625-10D)

STANDARD ToupH



The electrode has a plastic body which is ideal for general purpose measurement.

- Can be submerged up to 1m depth and 30mins. (with refilling port closed)
- Waterproof, Pb-free

Recommended

Ideal for general purpose use. For measurement of tap water and drinking water.

For extremely small samples Micro **ToupH** glass electrode (9618S-10D)

MICRO ToupH



This pH electrode with temperature compensation sensor can take measurements from samples as small as 50µL, the smallest in the world.

- Our original manufacturing technology (Japanese Patent No. 4054245) is used to produce 2-ply piping 3mm in diameter.
- Compatible with extremely small containers such as micro tubes etc.
- The temperature sensor is located at the tip for high-speed temperature response. Refrigerated samples can be measured without needing to wait for them to return to room temperature.

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.

For using a large container Long **ToupH** glass electrode (9680S-10D)

LONG ToupH



283 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 standard. The domed shape provides strength in all directions, greatly reducing damage concerns.

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).

For highly viscous samples Sleeve **ToupH** glass electrode (9681S-10D)

SLEEVE ToupH



Stable measurement can also be achieved for high 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

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.

(We recommend washing with a neutral detergent after use with samples that contain oil.)

For the surface of solid samples General ISFET pH electrode (0040-10D)

GENERAL ISFET



The sensor is located on the flat surface of the electrode tip, with less than a 100 µm protrusion 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.
- Replaceable sensor

Recommended




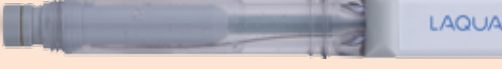


For highly viscous samples and solutions, and samples that contain non-aqueous solvents (such as cosmetics or paints). We recommend that you take measurements while using the graph display function to confirm stable responses.

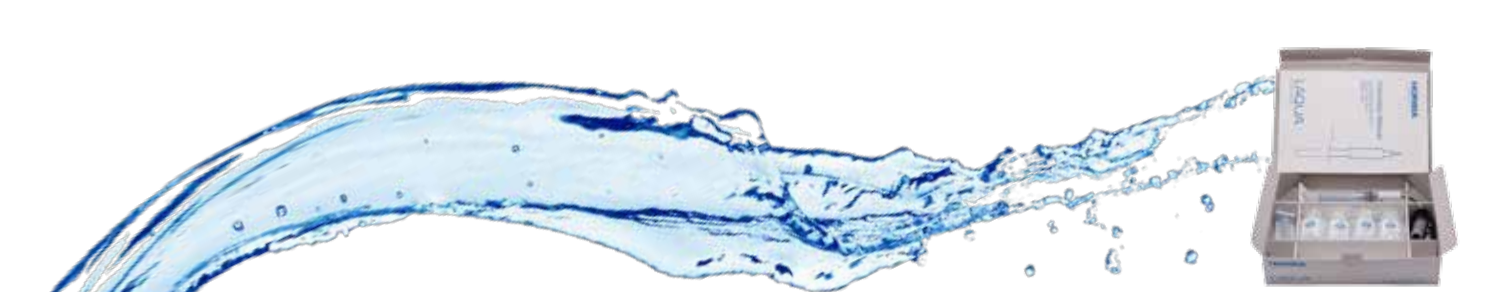
(We recommend washing with a neutral detergent after use with samples that contain oil.)


Combination ISE

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. HORIBA's 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, calibrating it with various standard solutions will give direct readings of the ion concentration. Note that since volume-detection level changes with temperature, measurements must be taken at a fixed temperature.


Model	Accessories Included	Temp. Range (°C)	Measurement Range	pH Range
 <p>Ammonia ion (NH₃) electrode 5002S-10C 3200698386 Overall length: 161 mm Diameter of probe: 15 mm Connector: BNC</p>	<ul style="list-style-type: none"> • membrane cap, 3pcs • 1000mg/L ammonium ion standard solution, 50ml • 100mg/L ammonium ion standard solution, 50ml • ammonia electrode filling solution, 50ml • syringe • dropper • protective pipe • manual 	0 - 50	0.01 - 18,000 mg/L NH ₄ ⁺ (5 × 10 ⁻⁷ to 1 mol/L NH ₄ ⁺)	pH 12 or more
 <p>Calcium ion (Ca²⁺) electrode 6583S-10C 3200697410 Overall length: 150 mm Diameter of probe: 16 mm Connector: BNC</p>	<ul style="list-style-type: none"> • calcium electrode tip, 2pcs • 1000mg/L calcium ion standard solution, 50ml • 100mg/L calcium ion standard solution, 50ml • calcium electrode filling solution, 50ml • calcium ionic strength adjustor, 50ml • syringe • dropper • protective pipe • manual 	0 - 50	0.4 - 40,080 mg/L Ca ²⁺ (10 ⁻⁵ to 1 mol/L Ca ²⁺)	4.0 mg/L (10 ⁻⁴ mol/L) Ca ²⁺ , pH 5 to 11
 <p>Chloride ion (Cl⁻) electrode 6560S-10C 3200697407 Overall length: 150 mm Diameter of probe: 16 mm Connector: BNC</p>	<ul style="list-style-type: none"> • chloride electrode tip • 1000mg/L chloride ion standard solution, 50ml • 100mg/L chloride ion standard solution, 50ml • chloride electrode filling solution, 50ml • chloride ionic strength adjustor, 50ml • syringe • dropper • protective pipe • water-resistant abrasive sheet • manual 	0 - 50	0.35 - 35,000 mg/L Cl ⁻ (10 ⁻⁵ to 1 mol/L Cl ⁻)	350 mg/L (10 ⁻² mol/L) Cl ⁻ , pH 3 to 11
 <p>Fluoride ion (F⁻) electrode 6561S-10C 3200693774 Overall length: 150 mm Diameter of probe: 16 mm Connector: BNC</p>	<ul style="list-style-type: none"> • fluoride electrode tip • 1000mg/L fluoride ion standard solution, 50ml • 100mg/L fluoride ion standard solution, 50ml • fluoride electrode filling solution, 50ml • fluoride ionic strength adjustor, 50ml • syringe • dropper • protective pipe • manual 	0 - 50	0.02 - 19,000 mg/L F ⁻ (10 ⁻⁶ to 1 mol/L F ⁻)	0.1 to 1,000 mg/L F ⁻ , pH 5 to 8
 <p>Nitrate ion (NO₃⁻) electrode 6581S-10C 3200697408 Overall length: 150 mm Diameter of probe: 16 mm Connector: BNC</p>	<ul style="list-style-type: none"> • nitrate electrode tip, 2pcs • 1000mg/L nitrate ion standard solution, 50ml • 100mg/L nitrate ion standard solution, 50ml • nitrate electrode filling solution, 50ml • nitrate ionic strength adjustor, 50ml • syringe • dropper • protective pipe • manual 	0 - 50	0.62 - 62,000 mg/L NO ₃ ⁻ (10 ⁻⁵ to 1 mol/L NO ₃ ⁻)	62 mg/L (10 ⁻³ mol/L) NO ₃ ⁻ , pH 3 to 7
 <p>Potassium ion (K⁺) electrode 6582S-10C 3200697409 Overall length: 150 mm Diameter of probe: 16 mm Connector: BNC</p>	<ul style="list-style-type: none"> • potassium electrode tip, 2pcs • 1000mg/L potassium ion standard solution, 50ml • 100mg/L potassium ion standard solution, 50ml • potassium electrode filling solution, 50ml • potassium ionic strength adjustor, 50ml • syringe • dropper • protective pipe • manual 	0 - 50	0.39 - 39,000 mg/L K ⁺ (10 ⁻⁵ to 1 mol/L K ⁺)	3.9 mg/L (10 ⁻⁴ mol/L) K ⁺ , pH 5 to 11







Selection Coefficient	Replacement Tip	Electrode Filling Solution	100mg/L Standard Solution	1000mg/L Standard Solution	Ionic Strength Adjustor	Applications
—	 <p>NH₃ electrode membrane caps 3200705774</p>	500-NH3-IFS 3200697173	500-NH4-SL 3200697172	500-NH4-SH 3200697171	500-NH3-ISA 3200697174 	Agriculture, Soil, Power Station Water, Fish Tanks, Sea Water, Waste Water, Plating Baths, Air / Stack Gases and Biological Cultures or Samples
$Fe^{3+} = 0.1, Fe^{2+}, Zn^{2+} = 1, Sr^{2+} = 50$ $Ni^{2+}, Cu^{2+} = 70, Co^{2+} = 350$ $Mn^{2+} = 500, Mg^{2+} = 1,000$ $Na^+, K^+, Ba^{2+}, NH_4^+ = \text{over } 1,000$	 <p>7683S 3200697414</p>	500-CA-IFS 3200697177	500-CA-SL 3200697176	500-CA-SH 3200697175	500-CA-ISA 3200697178	Agriculture / Plant Tissue, Soil, Water Softening Systems, Boiler Feed Water, Drinking / Mineral Water, Biological Cultures, Dental / Clinical Analysis and Dairy / Food / Beverages Applications
$S_2O_3^{2-}, S^{2-}, I^-, Ag^+, Hg^{2+} = \text{Not acceptable}$ $SCN^- = 0.3, MnO_4^- = 0.1$ $Br^- = 0.03$ $NO_3^-, F^-, HCO_3^-, SO_4^{2-}, PO_4^{2-} = 1,000$	 <p>7660S 3200697411</p>	500-CL-IFS 3200697169	500-CL-SL 3200697168	500-CL-SH 3200697167	500-CL-ISA 3200697170	Agriculture, River / Tap Water, Plant Tissue, Soils, Boiler Feed Water, Clinical Analysis, Sweat, Urine, Cement, Plating Baths and Dairy / Food / Beverages Samples
Possible interference when multiply-charged ion (ex. Al^{3+}, Fe^{3+}) coexisted and foamed the complex.	 <p>7661S 3200693606</p>	500-F-IFS 3200697165	500-F-SL 3200697164	500-F-SH 3200697163	500-F-TISAB 3200697166	Dental / Toothpaste / Mouth Wash, Drinking / Seawater, Wastewater, Air / Stack Gases, Acids, Soils, Food, Biological Fluids, Plant Tissue, Coal, Carbonated Beverages and Bone
$ClO_4^-, I^- = \text{Not acceptable}, Br^- = 2$ $NO_2^- = 3, Cl^- = 300$ $HCO_3^-, H_2PO_4^-, SO_4^{2-} = \text{over } 1000$	 <p>7681S 3200697412</p>	500-NO3-IFS 3200697181	500-NO3-SL 3200697180	500-NO3-SH 3200697179	500-NO3-ISA 3200697182	Agriculture / Plant Tissue / Fertilizers, Surface / Seawater / Drinking Water, Sewage Effluent, Soils, Meats, Vegetables, Foods / Beverages
$Rb^+ = 0.4, Cs^+ = 3, NH_4^+ = 70$ $Li^+, Na^+, Mg^{2+}, Ca^{2+}, Sr^{2+}, Ba^{2+} = \text{over } 1,000$	 <p>7682S 3200697413</p>	500-K-IFS 3200697185	500-K-SL 3200697184	500-K-SH 3200697183	500-K-ISA 3200697186	Agriculture / Plant Tissue, Soils, Wastewater, River / Tap Water, Clinical Analysis, Saliva, Serum, Fertilizers, Soils and Wines, Dairy / Foods / Beverages

Note: Detailed information on standard solutions, ISAs, and filling solutions can be found on page 13





Metallic Electrode (For ORP Measurement)

Model	Operating Temperature Range (°C)	Electrode Material	Internal Solution	Applications
ORP Electrode 9300-10D Waterproof platinum 3-in-1 type  3014046710 Overall length: 150 mm Diameter of probe: 12 mm Connectors: BNC & phono jack	0-60	Pt / Glass	#300 (KCl)	Waterproof; Platinum on the flat tip allows measurement of small volume samples

Conductivity Cells (Submersible Type)

Model	Cell Constant	Measurement Range	Temp. Range (°C)	Cell Material	Thermistor	Minimum Sample Volume (ml)	Application
3551-10D  3014081712 Overall length: 175 mm Diameter of probe: 23 mm Connectors: BNC & phono jack	0.1 cm ⁻¹	0.1 μS/cm - 10 mS/cm	0 - 60	Pt-Pt black / Glass	Built-in	50	Low conductivity water (e.g., deionized, distilled)
	10 m ⁻¹	10 μS/m - 1 S/m					
3552-10D  3014081545 Overall length: 150 mm Diameter of probe: 12 mm Connectors: BNC & phono jack	1 cm ⁻¹	1 μS/cm - 100 mS/cm	0 - 100	Pt-Pt black / Glass	Built-in	15	General purpose use
	100 m ⁻¹	0.1 mS/m - 10 S/m					
3553-10D  3014081714 Overall length: 175 mm Width of probe: 28 mm Connectors: BNC & phono jack	10 cm ⁻¹	10 μS/cm - 1 S/cm	0 - 60	Pt-Pt black / Glass	Built-in	50	High conductivity water
	1000 m ⁻¹	1 mS/m - 100 S/m					
9382-10D  3014046709 Overall length: 150 mm Diameter of probe: 16 mm Connectors: BNC & phono jack	1 cm ⁻¹	1 μS/cm - 100 mS/cm	0 - 80	Ti-Pt black / Plastic	Built-in	20-30	General purpose use; Waterproof
	100 m ⁻¹	0.1 mS/m - 10 S/m					

Conductivity Cells (Flow Type)

Model	Cell Constant	Measurement Range	Temp. Range (°C)	Cell Material	Thermistor	Minimum Sample Volume (ml)	Application
3561-10D  3014082350 Overall length: 143 mm Diameter of probe: 18 mm Connectors: BNC & phono jack	0.1 cm ⁻¹	0.1 μS/cm - 10 mS/cm	0 - 60	Pt-Pt black / Glass	Built-in	10	Low conductivity water (e.g., deionized, distilled)
	10 m ⁻¹	10 μS/m - 1 S/m					
3562-10D  3014082350 Overall length: 205 mm Diameter of probe: 18 mm Connectors: BNC & phono jack	1 cm ⁻¹	1 μS/cm - 100 mS/cm	0 - 60	Pt-Pt black / Glass	Built-in	16	General purpose use
	100 m ⁻¹	0.1 mS/m - 10 S/m					
3573-10C  3014082590 Overall length: 222 mm Diameter of probe: 18 mm Connector: BNC	10 cm ⁻¹	10 μS/cm - 1 S/cm	0 - 60	Pt-Pt black / Glass	—	4	High conductivity water
	1000 m ⁻¹	1 mS/m - 100 S/m					
3574-10C  3014082592 Overall length: 136 mm Diameter of probe: 66 mm Connector: BNC	10 cm ⁻¹	10 μS/cm - 100 mS/cm	0 - 60	Pt-Pt black / Glass	—	0.25	Small volume sample (e.g., column chromatography)
	1000 m ⁻¹	1 mS/m - 10 S/m					



501-S NIST pH Buffer Solution Kit



502-S USA pH Buffer Solution Kit



503-S Conductivity Standard Solution Kit



ORP Powders



220

250



230

Cleaning Solutions

pH Buffer Solution Kits

Code	Part No.	Description	Volume
501-S	3999960015	NIST pH Buffer Solution Kit (pH 4.01, 6.86, 9.18 buffers & 3.33M KCl)	250ml each
502-S	3999960016	USA pH Buffer Solution Kit (pH 4.01, 7.00, 10.01 buffers & 3.33M KCl)	250ml each

pH Buffer Solutions

Code	Part No.	Description	Volume
500-2	3999960028	pH 1.68 Buffer Solution at 25°C	500ml
500-4	3999960029	pH 4.01 Buffer Solution at 25°C	500ml
500-686	3999960030	pH 6.86 Buffer Solution at 25°C	500ml
500-7	3999960031	pH 7.00 Buffer Solution at 25°C	500ml
500-9	3999960032	pH 9.18 Buffer Solution at 25°C	500ml
500-10	3999960033	pH 10.01 Buffer Solution at 25°C	500ml
500-12	3999960034	pH 12.46 Buffer Solution at 25°C	500ml

Conductivity Standard Solution Kit

Code	Part No.	Description	Volume
503-S	3999960017	Conductivity Standard Solution Kit (84µS/cm, 1413µS/cm, 12.88mS/cm & 111.8mS/cm)	250ml each

Conductivity Standard Solutions

Code	Part No.	Description	Volume
500-21	3999960035	84 µS/cm Conductivity Standard Solution	500ml
500-22	3999960036	1413 µS/cm Conductivity Standard Solution	500ml
500-23	3999960037	12.88 mS/cm Conductivity Standard Solution	500ml
500-24	3999960038	111.8 mS/cm Conductivity Standard Solution	500ml

ORP Powders

Code	Part No.	Description	Volume
160-51	3200043618	89 mV at 25°C (for 250ml solution)	10 sachets/pack
160-22	3200043617	258 mV at 25°C (for 250ml solution)	10 sachets/pack

pH/ORP Electrode Filling Solutions

Code	Part No.	Description	Volume
525-3	3999960023	3.33M KCl	250ml
300	3200043640	3.33M KCl	250ml

pH Electrode Cleaning Solutions

Code	Part No.	Description	Volume
220	3014028653	For removing inorganic residues from glass membrane and liquid junction	2 x 50ml
230	3200530494	For removing inorganic and organic residues from glass membrane (30ml Solution A & 100ml Solution B)	30ml & 100ml
250	3200366771	For removing protein residues from glass membrane and liquid junction	400ml



Calcium Ion Electrode Solutions



Chloride Ion Electrode Solutions



Fluoride Ion Electrode Solutions



Potassium Ion Electrode Solutions



Ammonia Ion Electrode Solutions



Nitrate Ion Electrode Solutions

Ion Standard Solutions

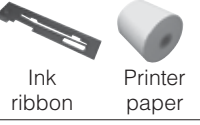


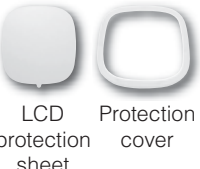



Code	Part No.	Description	Volume
500-NH4-SH	3200697171	1000 mg/L Ammonium Ion Standard Solution	500ml
500-NH4-SL	3200697172	100 mg/L Ammonium Ion Standard Solution	500ml
500-CA-SH	3200697175	1000 mg/L Calcium Ion Standard Solution	500ml
500-CA-SL	3200697176	100 mg/L Calcium Ion Standard Solution	500ml
500-CL-SH	3200697167	1000 mg/L Chloride Ion Standard Solution	500ml
500-CL-SL	3200697168	100 mg/L Chloride Ion Standard Solution	500ml
500-F-SH	3200697163	1000 mg/L Fluoride Ion Standard Solution	500ml
500-F-SL	3200697164	100 mg/L Fluoride Ion Standard Solution	500ml
500-NO3-SH	3200697179	1000 mg/L Nitrate Ion Standard Solution	500ml
500-NO3-SL	3200697180	100 mg/L Nitrate Ion Standard Solution	500ml
500-K-SH	3200697183	1000 mg/L Potassium Ion Standard Solution	500ml
500-K-SL	3200697184	100 mg/L Potassium Ion Standard Solution	500ml

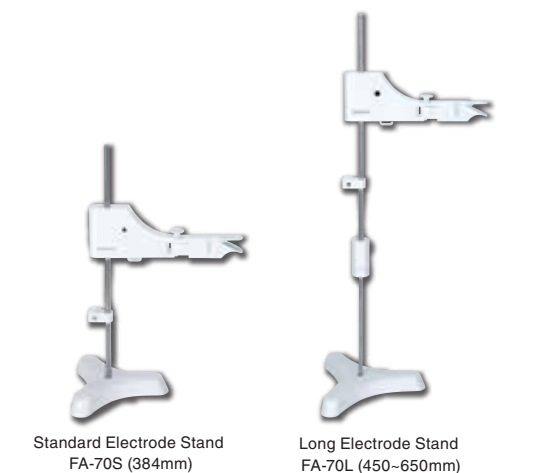
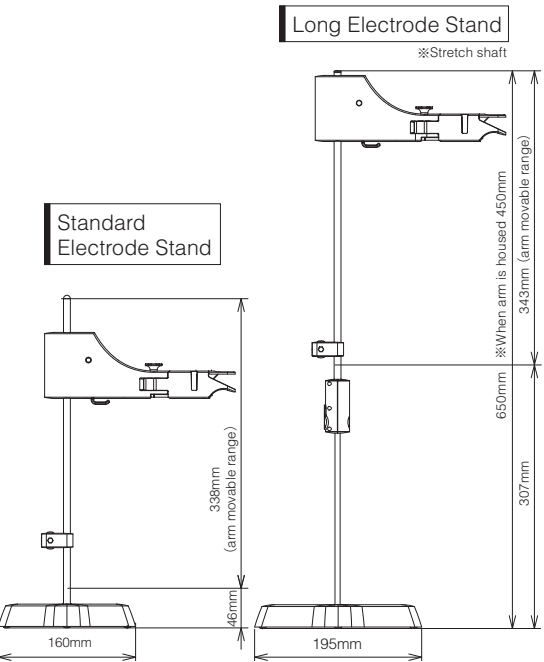
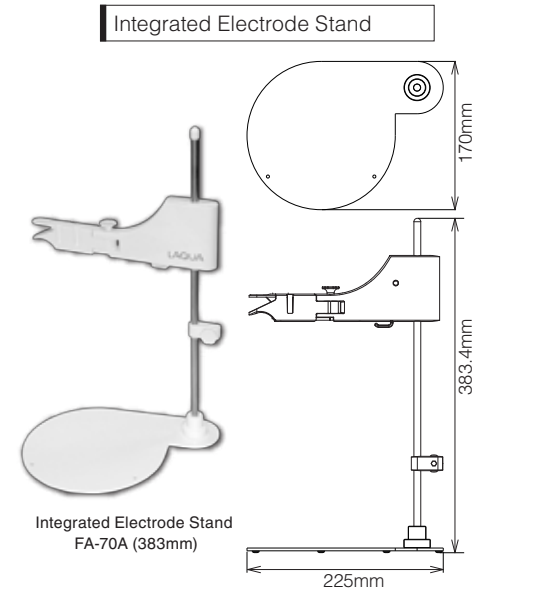
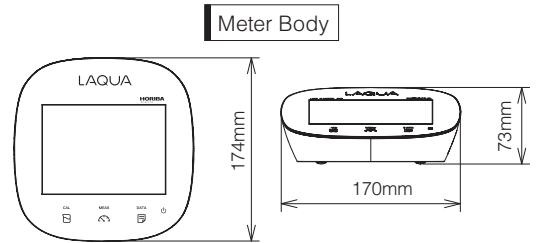
Ionic Strength Adjustors

Code	Part No.	Description	Volume
500-NH3-ISA	3200697174	Ammonia Ionic Strength Adjustor 	500ml
500-CA-ISA	3200697178	Calcium Ionic Strength Adjustor	500ml
500-CL-ISA	3200697170	Chloride Ionic Strength Adjustor	500ml
500-F-TISAB	3200697166	Fluoride Ionic Strength Adjustor	500ml
500-NO3-ISA	3200697182	Nitrate Ionic Strength Adjustor	500ml
500-K-ISA	3200697186	Potassium Ionic Strength Adjustor	500ml

Ion Selective Electrode Filling Solutions

Code	Part No.	Description	Volume
500-NH3-IFS	3200697173	Ammonia Electrode Filling Solution	500ml
500-CA-IFS	3200697177	Calcium Electrode Filling solution	500ml
500-CL-IFS	3200697169	Chloride Electrode Filling Solution	500ml
500-F-IFS	3200697165	Fluoride Electrode Filling Solution	500ml
500-NO3-IFS	3200697181	Nitrate Electrode Filling Solution	500ml
500-K-IFS	3200697185	Potassium Electrode Filling Solution	500ml

Accessories		
Code	Part No.	Description
 Printer Printer cable	3014030147 (230v)	Printer (for GLP/GMP compliance) Cable sold separately, Plain paper
	3014030146 (120v)	
 Ink ribbon Printer paper	3014030148	Printer cable (1.5 m)
	3014030149	Printer paper (20 rolls)
	3014030150	Ink ribbon (5 pcs/set)
 Universal AC adapter	3200647413	Multi-Voltage (100-240V) with 6 plugs, (US, UK, EU, ANZ, Korea and China) 1.8 m cable
 X-51 X-52	3014028368	Digital simulator X-51 (pH, mV, Ion, DO, temperature simulator)
	3014028370	Digital simulator X-52 (Conductivity, temperature simulator)
 LCD protection sheet Protection cover sheet	3200382462	LCD protection sheet (2 pcs/pack)
	3200382441	Protection cover (Protects the meter for F-70, DS-70, 1000 series)
 USB cable Serial cable	3200373941	USB cable (to connect meter and PC.)
	3014030152	Analog cable (Analog (alarm) output cable)
	3014030151	Serial cable (to connect meter and PC (Serial, 9 pins))
FA-70A	3200644455	Integrated Electrode Stand (Height: 338mm) for bench meter
FA-70S	3200382557	Adjustable, free-standing electrode stand (Height: 384 mm)
FA-70L	3200382560	Long, free-standing electrode stand (Height: 450-650mm)
	3200373991	Arm for electrode stand FA-70A, FA-70S, & FA-70L
	3200373961	Electrode holders, 2pcs (for mounting electrode with round cap on electrode stand arm)
	3200382477	Electrode protection caps, 3pcs (for 9615S-10D, 9618S-10D, 9681S-10D pH electrode)
	3200043508	Electrode protection caps, 5pcs (for 9621-10D, 9625-10D, 9630-10D, 9631-10D, 9632-10D, 6367-10D, 6377-10D, 6252-10D, 6261-10C, 1066A-10C, 1076-10C, 2060-10T, 9300-10D, 9382-10D, 3552-10D pH electrode)
	3200382482	Electrode protection cap for long electrode (for 9680S-10D, 9480-10C pH Electrode)





Wolflabs

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Use the above details to contact us if this literature doesn't answer all your questions.

Pricing on any accessories shown can be found by keying the part number into the search box on our website.

The specifications listed in this brochure are subject to change by the manufacturer and therefore cannot be guaranteed to be correct. If there are aspects of the specification that must be guaranteed, please provide these to our sales team so that details can be confirmed.

