

# HORIBA

# LAQUA

## Electrodes and Accessories



pH	ORP	Ion	Conductivity
Resistivity	Total Dissolved Solids	Dissolved Oxygen	Salinity



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Explore the future

# HORIBA



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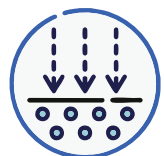
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# HORIBA's Expertise in Manufacturing



HORIBA's in-house expertise in the manufacture of electrodes is the accumulation of more than 60 years of experience. Our sophisticated electrode processing technology provides flexibility in designing various shapes of the electrode bulb and different structural designs of the electrodes.



## Thick Membrane Technology

HORIBA's glass moulding technology allows the manufacture of tougher pH glass bulbs.



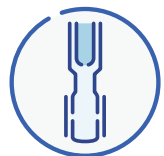
## Miniaturization

Unique flat electrode design as well as 3mm diameter micro-electrode with integrated temperature sensor (US Patent No. 7314541/China Patent No. ZL0315796).



## Fast Response & Highly Accurate

ToupH glass bulb does not compromise responsiveness and sensitivity (US Patent No. 8262877). Specially designed electrodes are available for hydrofluoric acid & strong alkaline application.



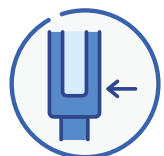
## Double-Junction Electrodes

All HORIBA pH combination electrodes are double-junction electrodes. Flexible to use in a wide-range of applications.



## Convenient Slider

Refillable electrodes are equipped with a slider to open or close the refilling port easily.



## Built-in Clip for Hooking Onto Electrode Stand Arm

Top housing of electrodes is designed with a built-in clip to hook onto HORIBA's electrode stands.







## pH Electrodes

Selection Guide

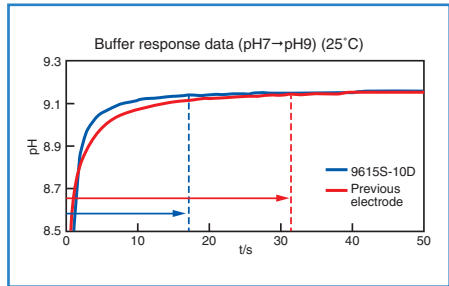
★ Recommended    ✓ Can be measured    — Not applicable

pH Electrodes	3-IN-1											COMBINATION							ISFET	PUREIL	
Type	PLASTIC					STANDARD ToupH	LONG ToupH	MICRO ToupH		SLEEVE ToupH	SLEEVE	NEEDLE	PLASTIC	STANDARD ToupH	MICRO ToupH	SLEEVE ToupH	LONG	LONG ToupH	FLAT	GENERAL	GENERAL
Model	9651-10D /9652-10D	9625-10D	9630-10D	9631-10D	9632-10D	9615S-10D	9680S-10D	9618N-10D		9681S-10D	6367N-10D	6252-10D	9425-10C	9415-10C	9418-10C	9481-10C	6069N-10C	9480-10C	6261-10C	0040N-10D	9600-10D
Specifications																					
Applicable temperature range (°C)	0-60 / 0-80	0-100	0-100	0-60	0-100	0-100	0-100	0-60		0-60	0-60	0-60	0-100	0-100	0-60	0-60	0-60	0-100	0-50	0-60	0-40 / 0-50
Diameter (mm)	16	16	16	16	16	12	8	3		12	12	12	16	12	3	12	3	8	12	16	12
Length (mm)	150	150	150	155	150	198	283	185		203	150	150	150	198	185	203	291	283	150	190	210
pH Sample Conditions																					
Aqueous Solution																					
Conductivity																					
High (approx. 5 S/m)	✓	✓	✓	✓	✓	✓	✓	—		—	—	—	✓	✓	—	★	—	✓	—	—	—
Normal (over 100mS/m)	★	★	★	★	★	★	★	★		★	★	★	★	★	★	★	★	★	★	★	—
Low (approx.10 ~100 mS/m)	—	—	★	—	—	—	—	—		★	—	—	—	—	—	✓	—	—	—	—	—
Very low (approx. 5 ~100 mS/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	—	—	★	—	—	✓	—	—		★	—	—	—	✓	—	✓	—	—	—	—	—
Pharmaceutical water/enviromental water/acid rain	✓	✓	✓	—	—	✓	—	—		✓	—	—	✓	✓	—	✓	—	—	—	—	—
Chemical Reagent/Solvent																					
Caustic/strong acid *except HF sample	—	—	—	★	—	★	—	—		—	—	—	—	★	—	✓	—	—	—	—	—
Hydrofluoric acid	—	—	—	★	—	—	—	—		—	—	—	—	—	—	—	—	—	—	—	—
Surfactant	—	—	—	—	—	✓	—	—		✓	—	—	—	✓	—	★	—	—	—	—	—
Water-based paint	—	—	—	—	—	✓	—	—		✓	—	—	—	✓	—	★	—	—	—	—	—
Dye/coloring agent	—	—	—	—	—	—	—	—		✓	—	—	—	—	—	★	—	—	—	—	—
Pharmaceutical/Biological Sample																					
Protein-containing sample	—	—	—	—	—	✓	—	✓		—	✓	—	—	✓	✓	★	—	—	—	—	—
Medicinal preparation	—	—	—	—	—	—	—	✓		✓	—	—	—	—	✓	✓	—	—	—	—	—
Enzyme solution	—	—	—	—	—	—	✓	★		—	—	✓	—	—	★	—	—	✓	—	—	—
Tris buffer	—	—	—	—	—	★	—	✓		—	—	—	—	★	✓	✓	—	—	—	—	—
Suspension	—	—	—	—	—	✓	—	—		★	—	—	—	✓	—	★	—	—	—	—	—
Agar medium	—	—	—	—	—	—	—	—		—	—	—	—	—	—	—	—	—	★	★	—
Food																					
Jam	—	—	—	—	—	✓	—	—		✓	—	✓	—	✓	—	★	—	—	✓	★ (surface)	—
Meat/fish/fruit/vegetable/dough	—	—	—	—	—	—	—	—		—	—	★	—	—	—	—	—	—	✓	★ (surface)	—
Honey	—	—	—	—	—	—	—	—		★	—	—	—	—	—	—	—	—	—	✓ (surface)	—
Cheese/butter	—	—	—	—	—	—	—	—		—	—	✓	—	—	—	—	—	—	✓	✓ (surface)	—
Yogurt	✓	✓	✓	—	—	✓	—	—		—	✓	✓	✓	✓	—	✓	—	—	✓	★ (surface)	—
Beverage/Seasoning																					
Beer	✓	✓	✓	—	—	✓	—	—		★	✓	—	✓	✓	—	★	—	—	—	—	—
Milk/carbonated drink/juice/sauce/soy sauce	—	—	—	—	—	✓	—	—		✓	✓	—	—	✓	—	★	—	—	—	—	—
Mayonnaise/ketchup	—	—	—	—	—	✓	—	—		✓	—	—	—	✓	—	★	—	—	—	—	—
Cosmetic/Lotion																					
Beauty cream/mascara	—	—	—	—	—	✓	—	—		✓	—	✓	—	✓	—	★	—	—	—	—	—
Gel/soap/shampoo/hairdye lotion	—	—	—	—	—	✓	—	—		✓	—	—	—	✓	—	★	—	—	—	—	—
Emulsified liquid	—	—	—	—	—	✓	—	—		★	—	—	—	✓	—	✓	—	—	—	—	—

# ToupH Standard Electrodes

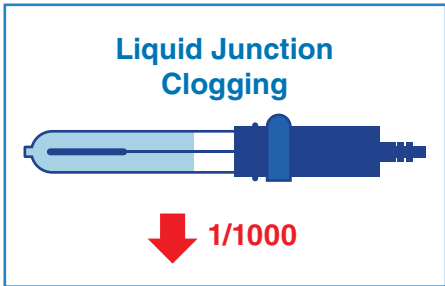
## Tougher, Faster and Highly Accurate

By integrating three key technologies, the ToupH standard electrodes combine enhanced toughness and faster response times with high accuracy, improved stability with minimal drift and exceptional ease of use.



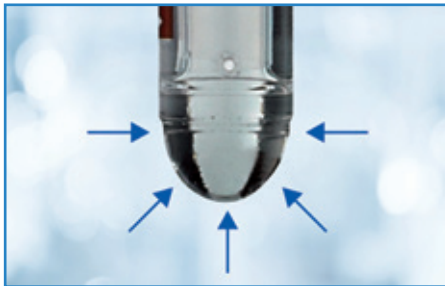
### pH FAST RESPONSE GLASS MEMBRANE (US Patent 8262877)

The membrane contains HORIBA's unique combination of rare earth metals to improve response time by twofold and to increase durability against chemical attack.



### REFERENCE ELECTRODE WITH INCREASED STABILITY

Liquid junction clogging by silver ions and silver complex ions is reduced to 1/1000 of the conventional technology. Furthermore, maintained internal solution concentration ensures a stable standard electrical potential.



### GLASS MEMBRANE MOLDING TECHNOLOGY

ToupH standard electrodes demonstrate a strength up to 10 times greater than the Japanese Industrial Standards (JIS) in strength tests. Additionally, their dome-shaped construction enhances durability by reinforcing strength in all directions.

## ToupH pH COMBINATION ELECTRODES



### 9415-10C ToupH Standard Electrode

3200611623

#### For General Laboratory Application

Perfect for preparing pH buffers and other aqueous test solutions

The electrode offers quick stability and drift reduction.

- Constructed with responsive glass that is 10 times stronger than JIS standards
- The one-touch refilling port slider allows one-hand operation
- Waterproof, Pb-free glass

pH range	Operating temperature range (°C)	Liquid junction	Length	Diameter	Connector
0-14	0-100	Ceramic	151 mm	12 mm	BNC



### 9481-10C ToupH Sleeve Electrode

3200611631

#### For High Viscosity Application

For measurement of highly viscous samples and samples containing non-aqueous solvents (e.g., cosmetics, paints)

The electrode gives stable readings in highly viscous samples.

- The liquid junction is designed with a movable sleeve that can be cleaned easily and prevents clogging
- Waterproof, Pb-free glass

pH range	Operating temperature range (°C)	Liquid junction	Length	Diameter	Connector
0-14	0-60	Movable sleeve	151 mm	12 mm	BNC



### 9418-10C ToupH Micro Electrode

3200611627

#### For Precious Trace Amount Sample

Suitable for low-volume samples and wide range of aqueous solutions

The electrode can measure samples as small as 50µL.

- Compatible with extremely small containers (e.g., micro tubes)
- Waterproof
- Temperature sensor is placed next to the bulb for quick response

pH range	Operating temperature range (°C)	Liquid junction	Length	Diameter	Connector
0-14	0-60	Ceramic	151.5 mm	3 mm	BNC



### 9480-10C ToupH Long Electrode

3200611628

#### For Large Containers and Long Test Tubes

For measuring samples (e.g., microbial culture fluids) in test tubes and tall beakers

The long, thin body of the electrode is perfect for large containers and test tubes.

- 283mm length, 8mm diameter
- Waterproof, Pb-free glass
- Constructed with responsive glass that is 10 times stronger than JIS standards

pH range	Operating temperature range (°C)	Liquid junction	Length	Diameter	Connector
0-14	0-100	Ceramic	251 mm	8 mm	BNC

## ToupH 3-IN-1 pH GLASS BODY ELECTRODES



### 9615S-10D ToupH Standard Electrode

3200585428

#### For General Laboratory Application

Perfect for preparing pH buffers and other aqueous test solutions

The electrode offers quick stability and drift reduction

- Constructed with responsive glass that is 10 times stronger than JIS standards
- The one-touch refilling port slider allows one-hand operation

pH range	Operating temperature range (°C)	Liquid junction	Length	Diameter	Connector
0-14	0-100	Ceramic	151 mm	12 mm	BNC & phono jack



### 9681S-10D ToupH Sleeve Electrode

3200585463

#### For High Viscosity Application

For measurement of highly viscous samples and samples containing non-aqueous solvents (e.g. cosmetics, paints)

The electrode gives stable readings in highly viscous samples.

- The liquid junction is designed with a movable sleeve that can be cleaned easily and prevents clogging
- Waterproof, Pb-free glass

pH range	Operating temperature range (°C)	Liquid junction	Length	Diameter	Connector
0-14	0-60	Movable sleeve	151 mm	12 mm	BNC & phono jack





### 9618N-10D ToupH Micro Electrode

3200991595

#### For Precious Trace Amount Sample

Suitable for low-volume samples and a wide range of aqueous solutions.

The electrode can measure samples as small as 50 µL.

- Compatible with extremely small containers (e.g. micro tubes)
- Waterproof
- Temperature sensor is placed next to the bulb for quick response

pH range	Operating temperature range (°C)	Liquid junction	Length	Diameter	Connector
0-14	0-60	Ceramic	151.5 mm	3 mm	BNC & phono jack



### 9680S-10D ToupH Long Electrode

3200585455

#### For Large Containers and Long Test Tubes

For measuring samples (e.g. microbial culture fluids) in test tubes and tall beakers

The long, thin body of the electrode is perfect for large containers and test tubes.

- 283mm length, 8mm diameter
- Waterproof, Pb-free glass
- Constructed with responsive glass that is 10 times stronger than JIS standards

pH range	Operating temperature range (°C)	Liquid junction	Length	Diameter	Connector
0-14	0-100	Ceramic	251 mm	8 mm	BNC & phono jack

## pH Combination Electrodes

HORIBA pH Combination electrodes manufactured with 1 meter cable terminating in BNC connector allow these electrodes to be used with any pH meter<sup>1</sup>. Enjoy the full spectrum of features and benefits of these electrodes on your existing pH meter<sup>1</sup>. (For applications where temperature measurement and compensation is required, please refer to the 3-in-1 pH electrodes).

<sup>1</sup> pH meters must have BNC connector



### 9425-10C Standard Plastic Electrode

3200611625

#### For General Field Application

For measurement of tap water and drinking water

The electrode has plastic body, which is ideal for field measurement.

- Can be submerged up to 1 m depth and 30 mins (with refilling port closed)
- Recommended for field use
- Waterproof, Pb-free glass

pH range	Operating temperature range (°C)	Liquid junction	Length	Diameter	Connector
0-14	0-100	Ceramic	150 mm	16 mm	BNC



### 6069N-10C Long Electrode

3200995147

#### For Surface and Shallow Sample Measurement

For measuring samples in slender tubes (e.g., NMR test tube)

The long, thin body of the electrode is perfect for surface and shallow sample measurement.

- 291 mm length, 3 mm diameter
- Waterproof

pH range	Operating temperature range (°C)	Liquid junction	Length	Diameter	Connector
0-14	0-60	Ceramic	291 mm	3.15 mm	BNC



### 6261-10C Flat Electrode

3014081807

#### For Surface and Shallow Sample Measurement

Perfect for measuring samples in shallow containers (e.g., petri dishes), gelatinous materials (e.g., nutrient agar), and surface measurement of meat, paper, skin, and cloth

The sensor is located on the flat surface of the tip.

- Measurement can be made from minute amount of moisture on solid sample surface
- Waterproof
- Pure water can be applied for samples with no moisture

pH range	Operating temperature range (°C)	Liquid junction	Length	Diameter	Connector
0-12	0-50	Sleeve	150 mm	12 mm	BNC

## 3-in-1 pH Glass Body Electrodes

HORIBA pH Combination electrodes<sup>2</sup> with an integrated thermistor offer higher accuracy as these electrodes measure temperature concurrently with pH. The pH meter is able to continuously monitor and compensate for temperature effects automatically.

<sup>2</sup> Only compatible with HORIBA pH meters



### 6252-10D Needle Electrode

3014080850

#### For Food Application

Needle electrode allows measurement of food samples and aqueous solutions

pH range	Operating temperature range (°C)	Liquid junction	Length	Diameter	Connector
0-14	0-100	Ceramic	150 mm	16 mm	BNC



### 6367N-10D Standard Sleeve Electrode

3200991603

#### For Measuring pH at High Accuracy

Uses a sleeve at the liquid junction for improved stability and repeatability.

pH range	Operating temperature range (°C)	Liquid junction	Length	Diameter	Connector
0-14	0-60	Sleeve	150 mm	12 mm	BNC & phono jack

# 3-in-1 pH Plastic Body Electrodes

Designed for portability, durability, and ease of use, 3-in-1 plastic-body pH electrode is the perfect companion for fieldwork. With an integrated pH sensor, reference electrode, and temperature sensor, it delivers accurate, temperature-compensated readings in a single probe—no extra equipment needed.<sup>2</sup>

<sup>2</sup> Only compatible with HORIBA pH meters



## 9651-10D Gel-filled pH Electrode

3200642020

### For General Field Application

#### Recommended for field use

The plastic body of the electrode is filled with gel electrolyte. Less maintenance is needed as refilling is not required.

- Can be submerged up to 1m depth of water for 30mins.
- Waterproof, Pb-free glass

pH range	Operating temperature range (°C)	Liquid junction	Length	Diameter	Connector
0-14	0-80	Porous sintered polyethylene	150 mm	16 mm	BNC & phono jack



## 9625-10D / 9652-20D Gel-filled pH Electrode

3200786359 / 3200786361

### For General Field Application

#### Recommended for field use

The plastic body of the electrode is filled with gel electrolyte. Less maintenance is needed as refilling is not required.

- Can be submerged up to 1 m depth of water for 30 mins
- Waterproof, Pb-free glass

pH range	Operating temperature range (°C)	Liquid junction	Length	Diameter	Connector
0-14	0-80	Porous sintered polyethylene	150 mm	16 mm	BNC & phono jack



## 9625-10D / 9625-20D / 9625-30D Standard Plastic Electrode

3200360505 / 3200393025 / 3200393026

### For General Field Application

#### Recommended for field use and measurement of tap water and drinking water

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

- Can be submerged up to 1 m depth of water for 30 mins (with refilling port closed)
- Waterproof, Pb-free glass

pH range	Operating temperature range (°C)	Liquid junction	Length	Diameter	Connector
0-14	0-100	Ceramic	150 mm	16 mm	BNC & phono jack



## 9631-10D Hydrofluoric Acid Resistant Electrode

3200524119

### For Measuring Hydrofluoric Acid and Etching Drain Water

#### Suitable for drain water measurement after etching process

The electrode can measure 1% hydrofluoric acid solution (at 25°C, immersed at 1min.) for about 1000 times.

- Rolled glass design for long-term reliable measurement and easy maintenance
- Compliant with Japan's Measurement Act Certification
- Waterproof, Pb-free glass

pH range	Operating temperature range (°C)	Liquid junction	Length	Diameter	Connector
2-12	0-60	Ceramic	155 mm	16 mm	BNC & phono jack



## 9632-10D Strong Alkali Resistant Electrode

3200524120

### For Stable pH Measurement in Strong Alkali Solutions

#### Suitable for strong alkali samples such as plating solutions

The alkali-resistant glass membrane has higher resistance and longer stability (about 5X in 0.1mol/L sodium at 60°C, pH 13) than conventional electrodes.

- Waterproof, Pb-free glass

pH range	Operating temperature range (°C)	Liquid junction	Length	Diameter	Connector
0-14	0-100	Ceramic	150 mm	16 mm	BNC & phono jack



## 9630-10D Standard Plastic Electrode

3200528726

### For Tap Water

#### Suitable for tap water measurement and quality control in water purification plant

#### Recommended to use with cleaning solution 230

The electrode can measure samples with low conductivity or buffering capacity.

- Made of high purity multicomponent lithium series glass
- Waterproof, Pb-free glass

pH range	Operating temperature range (°C)	Liquid junction	Length	Diameter	Connector
0-14	0-100	Ceramic	150 mm	16 mm	BNC & phono jack

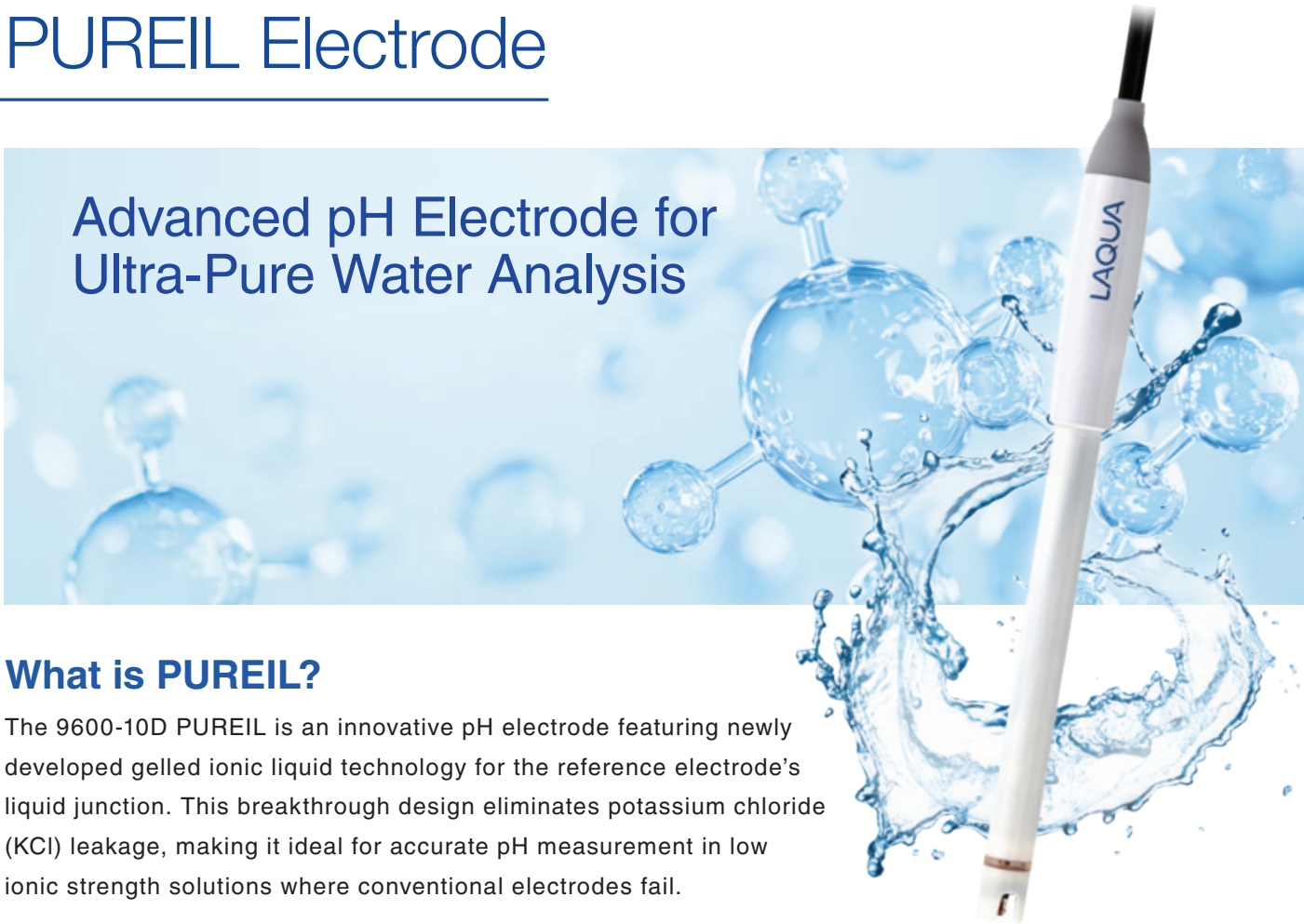


# PUREIL Electrode

## Advanced pH Electrode for Ultra-Pure Water Analysis

### What is PUREIL?

The 9600-10D PUREIL is an innovative pH electrode featuring newly developed gelled ionic liquid technology for the reference electrode's liquid junction. This breakthrough design eliminates potassium chloride (KCl) leakage, making it ideal for accurate pH measurement in low ionic strength solutions where conventional electrodes fail.



### Conventional Electrode VS PUREIL Electrode

❌ KCl solution electrolyte	Salt Bridge Technology	✅ Gelled ionic liquid
❌ KCl leaks into sample	Sample Contamination	✅ No KCl exposure
❌ Inaccurate, pH drift over time	Low Conductivity Performance	✅ Stable, accurate readings
❌ Slower stabilization	Response Time	✅ Faster response and stabilization
❌ Variable, affected by KCl diffusion	Junction Potential Stability	✅ Very stable liquid junction potential
❌ Limited, reacts with K <sup>+</sup> /Cl <sup>-</sup> sensitive samples	Sample Compatibility	✅ Compatible with KCl-reactive solutions
❌ Regular cleaning and refilling	Maintenance Requirements	✅ Maintenance-free operation
❌ Manual or separate sensor	Temperature Compensation	✅ Integrated automatic compensation
❌ Poor performance < 100 µS/cm	Conductivity Range	✅ Optimized for < 100 µS/cm
❌ Basic	Mounting Options	✅ Includes sensor holder for stand mounting

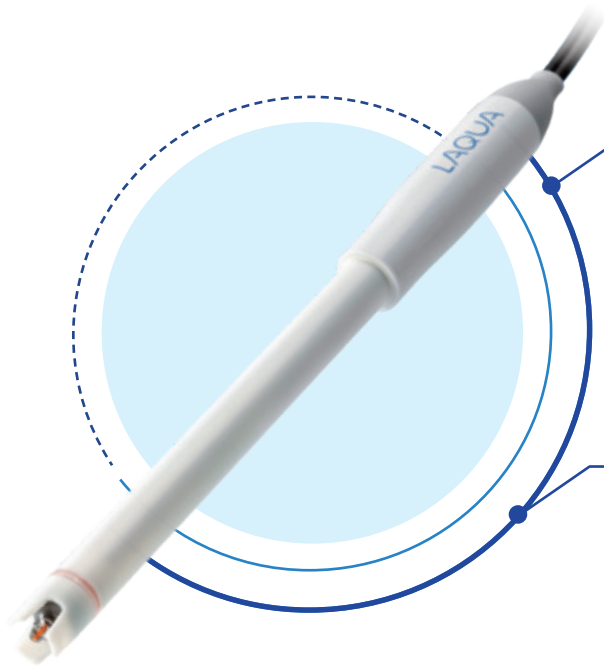
## 9600-10D PUREIL Electrode

3200358859

### For Low Conductivity Water and Solutions Reacting with KCl

Ideal for low conductivity water (< 100 uS/cm) such as pure water samples (e.g. distilled water, deionized water, rain water, reverse osmosis water, boiler water) and solutions that react with KCl or contain ions that form precipitates with potassium or chloride ions such as drug injection solution. Uses a reference electrode equipped with gelled ionic liquid that does not leak potassium chloride (KCl).

pH range	Operating temperature range (°C)	Liquid junction	Length	Diameter	Connector
0-14	0-40	PVDF-HFP, ionic liquid	210 mm	12 mm	BNC & phono jack



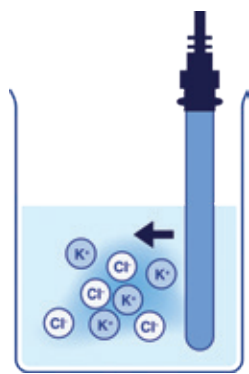
### PERFORMANCE FEATURES

- ✓ Stable liquid junction potential
- ✓ Faster response time
- ✓ Accurate pH measurement in challenging samples
- ✓ Minimal ionic liquid dissolution during measurement

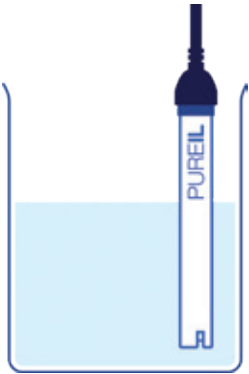
### DESIGN FEATURES

- ✓ Maintenance-free operation
- ✓ Waterproof construction
- ✓ Integrated temperature sensor for automatic temperature compensation
- ✓ Includes sensor holder for electrode stand mounting

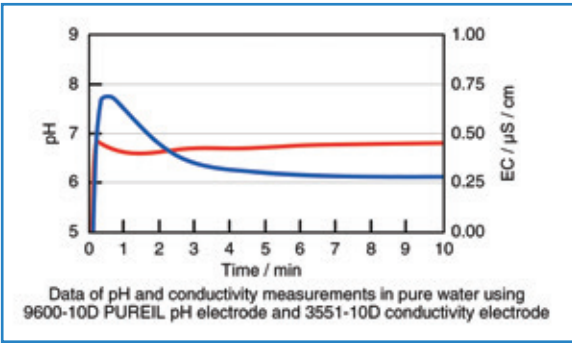
### CONVENTIONAL pH ELECTRODE 9600-10D PUREIL PH ELECTRODE



3.33M KCl diffuses into the sample



Only slight dissolution of ionic liquid (< 1/10000 of conventional pH electrode in terms of concentration)



# ISFET Electrode

## Next-Generation ISFET Electrode Technology



### What is ISFET?

ISFET (Ion Sensitive Field Effect Transistor) is a semiconductor-based sensor technology developed by HORIBA through years of dedicated research and continuous improvement. Unlike traditional glass electrodes, ISFET uses a semiconductor response membrane, making it suitable for environments where glass cannot be used.

More than just being “unbreakable,” this innovation enables new measurement possibilities that were previously impossible with conventional electrode technology.



#### Durability & Safety

- Crack-resistant and unbreakable design
- Easy handling and maintenance — simply clean with a toothbrush
- Can be stored dry



#### Superior Measurement Capabilities

- Flat, miniature design enables measurement of extremely small samples
- Less than 100µm distance between housing and sensor
- Measures trace sample droplets and solid sample surfaces
- Prevents bubble trapping when measuring samples in beakers



#### Enhanced Reliability

- HORIBA's unique sensor structure with enhanced electrostatic protection
- Significantly reduced static electricity effects (previously the main weakness of semiconductor sensors)
- More reliable and comfortable measurements



### 0040N-10D ISFET General pH Electrode

3200862858

**Perfect for measuring samples in shallow containers (e.g., petri dishes) and gelatinous materials (e.g., nutrient agar). For surface measurement of meat, paper, skin, and cloth.**

The sensor is located on the flat surface of the tip (<100µm from the housing).

- Measurement can be made from minute amount of moisture on solid sample surface
- Pure water can be applied for samples with no moisture
- Use of semiconductor sensor prevents damage such as crack or breakage
- Waterproof
- Comes with replacement sensor ISFET tip 0141N

pH range	Operating temperature range (°C)	Liquid junction	Length	Diameter	Connector
0-14	Sensor: 0 to 60 °C, Converter: 0 to 40 °C	Porous sintered polyethylene	190 mm	16 mm	BNC & phono jack

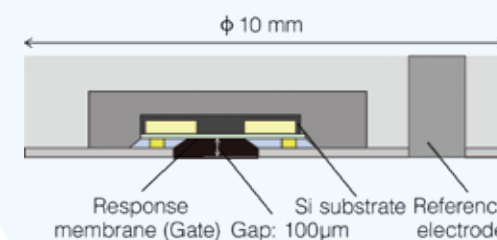


#### 0141N Replacement ISFET electrode tip for 0040N-10D

3200862632

- Length: 86.1 mm
- Diameter: 16 mm

#### Sectional drawing of a tip of Flat ISFET







## ORP and DO Electrodes

# 3-IN-1 ORP Electrodes

HORIBA ORP electrodes have flat platinum tip that allows measurement of low-volume samples and thermistor that ensures accurate temperature reading during ORP measurement.



## 9300-10D Standard ORP Electrode

3014046710

### For General Laboratory Application

- Waterproof
- Refillable with 3.33M KCl

Electrode Material	Operating temperature range (°C)	Liquid junction	Length	Diameter	Connector
Pt / Glass	0-60	Ceramic	150 mm	12 mm	BNC & phono jack



## 9301-10D Gel-filled ORP Electrode

3200922105

### For General Field Application

- Waterproof
- Maintenance-free

Electrode Material	Operating temperature range (°C)	Liquid junction	Length	Diameter	Connector
Pt / Plastic	0-80	Porous sintered polyethylene	110 mm	16 mm	BNC & phono jack

# DO Electrodes

HORIBA Dissolved Oxygen (DO) electrodes are galvanic probes with integrated temperature sensors. With galvanic DO probes, calibration can be performed immediately and in air. The HORIBA DO probes use unique and innovative tips which are replaceable. There is no need to replace membranes or refill electrolytes.



## 9521-10D DO Electrode

3200891722

### For General Laboratory Application

- Waterproof
- Fitted with rotor and adapter
- For lab BOD measurements
- Comes with replaceable DO tip 7544

Response Time	Measurement range	Operating temperature range (°C)	Length	Diameter	Connector
20 seconds*	0-20.00mg/L DO	0-50	183 mm	15.6 mm	BNC & phono jack



### 7544 Replacement DO electrode tip for 9521-10D

3200891724

- Length: 43 mm
- Diameter: 15 mm



## 9551-20D / 9551-100D DO Electrode

3014047090 / 3014047091

### For General Field Application

- Rugged housing with 2m or 10m cables available for configuration
- Waterproof
- Comes with replaceable DO tip 5401

Response Time	Measurement range	Operating temperature range (°C)	Length	Diameter	Connector
30 seconds*	0-19.99mg/L DO	0-40	165 mm	32 mm	BNC & phono jack



### 5401 Replacement DO electrode tip for 9551-20D and 9551-100D

3201055578

- Length: 23 mm
- Diameter: 24 mm



## 9552-20D / 9552-50D DO Electrode

3200780939 / 3200780941

### For General Field Application

- Rugged housing with 2m or 5m cables available for configuration
- Waterproof
- Comes with replaceable DO tip 5402

Response Time	Measurement range	Operating temperature range (°C)	Length	Diameter	Connector
30 seconds*	0-20.00 mg/L DO	0-50	165 mm	30 mm	BNC & phono jack



### 5402 Replacement DO electrode tip for 9552-20D and 9552-50D

3200781553

- Length: 19 mm
- Diameter: 21 mm

\* 90% response time at constant temperature





## Conductivity Electrode Cells

HORIBA Conductivity cells offer **Submersible** and **Flow Type** configurations with cell constants from 0.1 to 10.0. Most models include integrated temperature sensors and feature durable stainless steel or platinum/titanium construction suitable for corrosive applications including acids and seawater. Simple maintenance involves soaking in deionized water, and the 9371-10D model is compatible with glass flow cells.

# Conductivity Electrode Cells

## SUBMERSIBLE TYPE\*



### 3551-10D Conductivity Cell

3014081712

#### For Low Conductivity Water (e.g., deionized, distilled)

- Cell Material: Pt–Pt black / Glass
- Minimum sample volume: 50 ml

Cell Constant	Measurement Range	Operating temperature range (°C)	Thermistor	Length	Diameter	Connector
0.1 cm <sup>-1</sup>	0.1 μS/cm - 10 mS/cm	0-60	Built-in	175 mm	23 mm	BNC & phono jack
10 m <sup>-1</sup>	10 μS/m - 1 S/m	0-60	Built-in	175 mm	23 mm	BNC & phono jack



### 3552-10D Conductivity Cell

3014081545

#### For General Application

- Cell Material: Pt–Pt black / Glass
- Minimum sample volume: 15 ml

Cell Constant	Measurement Range	Operating temperature range (°C)	Thermistor	Length	Diameter	Connector
1 cm <sup>-1</sup>	1 μS/cm - 100 mS/cm	0-100	Built-in	150 mm	12 mm	BNC & phono jack
100 m <sup>-1</sup>	0.1 mS/m - 10 S/m	0-100	Built-in	150 mm	12 mm	BNC & phono jack



### 3553-10D Conductivity Cell

3014081714

#### For High Conductivity Water

- Cell Material: Pt–Pt black / Glass
- Minimum sample volume: 50 ml

Cell Constant	Measurement Range	Operating temperature range (°C)	Thermistor	Length	Diameter	Connector
10 cm <sup>-1</sup>	10 μS/cm - 1 S/cm	0-60	Built-in	175 mm	28 mm	BNC & phono jack
1000 m <sup>-1</sup>	1 mS/m - 100 S/m	0-60	Built-in	175 mm	28 mm	BNC & phono jack



### 9371-10D Conductivity Cell

3200878882

#### For Low Conductivity Water and Ultra-Pure Water

- Cell Material: Stainless Steel
- Minimum sample volume: 20-30 ml

Cell Constant	Measurement Range	Operating temperature range (°C)	Thermistor	Length	Diameter	Connector
0.1 cm <sup>-1</sup>	0.01 μS/cm - 500 μS/cm	0-100	Built-in	180 mm	16 mm	BNC & phono jack
10 m <sup>-1</sup>	1 μS/m - 50 mS/m	0-100	Built-in	180 mm	16 mm	BNC & phono jack



### 9382-10D Conductivity Cell

3014046709

#### For General Application

- Cell Material: Ti-Pt black / Plastic
- Waterproof
- Minimum sample volume: 20-30 ml

Cell Constant	Measurement Range	Operating temperature range (°C)	Thermistor	Length	Diameter	Connector
1 cm <sup>-1</sup>	1 μS/cm - 100 mS/cm	0-80	Built-in	150 mm	16 mm	BNC & phono jack
100 m <sup>-1</sup>	0.1 mS/m - 10 S/m	0-80	Built-in	150 mm	16 mm	BNC & phono jack



### 9383-10D Conductivity Cell

3200780927

#### For General Application

- Cell Material: Ti-Pt black / Plastic
- Waterproof
- Minimum sample volume: 20-30 ml

Cell Constant	Measurement Range	Operating temperature range (°C)	Thermistor	Length	Diameter	Connector
1 cm <sup>-1</sup>	1 μS/cm - 100 mS/cm	0-80	Built-in	150 mm	16 mm	BNC & phono jack
100 m <sup>-1</sup>	0.1 mS/m - 10 S/m	0-80	Built-in	150 mm	16 mm	BNC & phono jack

## FLOW TYPE\*



### 3561-10D Conductivity Cell

3014082350

#### For Low Conductivity Water (e.g., Deionized, Distilled)

- Cell Material: Pt–Pt black / Glass
- Minimum sample volume: 10 ml

Cell Constant	Measurement Range	Operating temperature range (°C)	Thermistor	Length	Diameter	Connector
0.1 cm <sup>-1</sup>	0.1 μS/cm - 10 mS/cm	0-60	Built-in	143 mm	18 mm	BNC & phono jack
10 m <sup>-1</sup>	10 μS/m - 1 S/m	0-60	Built-in	143 mm	18 mm	BNC & phono jack



### 3562-10D Conductivity Cell

3014082513

#### For General Application

- Cell Material: Pt–Pt black / Glass
- Minimum sample volume: 16 ml

Cell Constant	Measurement Range	Operating temperature range (°C)	Thermistor	Length	Diameter	Connector
1 cm <sup>-1</sup>	1 μS/cm - 100 mS/cm	0-60	Built-in	205 mm	18 mm	BNC & phono jack
100 m <sup>-1</sup>	0.1 mS/m - 10 S/m	0-60	Built-in	205 mm	18 mm	BNC & phono jack



### 3573-10C Conductivity Cell

3014082590

#### For High Conductivity Water

- Cell Material: Pt–Pt black / Glass
- Minimum sample volume: 4 ml

Cell Constant	Measurement Range	Operating temperature range (°C)	Thermistor	Length	Diameter	Connector
10 cm <sup>-1</sup>	10 μS/cm - 1 S/cm	0-60	—	222 mm	18 mm	BNC
1000 m <sup>-1</sup>	1 mS/m - 100 S/m	0-60	—	222 mm	18 mm	BNC



### 3574-10C Conductivity Cell

3014082592

#### For Small Volume Sample (e.g., Column Chromatography)

- Cell Material: Pt–Pt black / Glass
- Minimum sample volume: 0.25 ml

Cell Constant	Measurement Range	Operating temperature range (°C)	Thermistor	Length	Diameter	Connector
10 cm <sup>-1</sup>	10 μS/cm - 100 mS/cm	0-60	—	136 mm	66 mm	BNC
1000 m <sup>-1</sup>	1 mS/m - 10 S/m	0-60	—	136 mm	66 mm	BNC

\* Material: All have platinum-platinum black / glass-body, except 9382-10D and 9383-10D (titanium-platinum black / plastic-body) and 9371-10D (stainless steel).





## Combination ISE

Ion-selective electrodes measure specific ion concentrations using variable-potential technology with reference electrodes. HORIBA offers a comprehensive range backed by extensive field experience. Calibration with standard solutions enables direct concentration readings, though measurements require fixed temperature conditions due to temperature-dependent detection levels.

# Combination ISE\*



## 5002S-10C Ammonia (NH<sub>3</sub>) Electrode

3200698386

**Applications:**

- Agriculture
- Soil
- Power station water
- Fish tanks
- Sea water
- Waste water
- Plating baths
- Air / stack gases
- Biological cultures or samples

**Accessories Include:**

- 3 pcs membrane caps
- 1 1000 mg/L ammonium ion standard solution (50 ml)
- 1 100 mg/L ammonium ion standard solution (50 ml)
- 1 ammonia electrode filling solution (50 ml)
- 1 syringe
- 1 dropper
- 1 protective pipe
- 1 manual

**Selection Coefficient:**

—

pH range	Measurement Range	Operating temperature range (°C)	Length	Diameter	Connector
pH 12 or more	0.01 - 18,000 mg/L NH <sub>4</sub> <sup>+</sup> (5 x 10 <sup>-7</sup> to 1 mol/L NH <sub>4</sub> <sup>+</sup> )	0-50	150 mm	15 mm	BNC

### Accessories and Solutions



**Ammonia Electrode Membrane Caps**  
**(3 Replacement Membrane Caps for 5002S-10C electrode)**  
3200705774



**500-NH3-IFS**  
**(Ammonia Electrode Filling Solution)**  
3200697173




**500-NH4-SL**  
**(100 mg/L Ammonium Ion Standard Solution)**  
3200697172



**500-NH4-SH**  
**(1000 mg/L Ammonium Ion Standard Solution)**  
3200697171



**500-NH3-ISA**  
**(Ammonia Ionic Strength Adjustor)**   
3200697174



## 6583S-10C Calcium Ion (Ca<sup>2+</sup>) Electrode

3200697410

**Applications:**

- Agriculture / plant tissue
- Soil
- Water softening systems
- Boiler feed water
- Drinking / mineral water
- Biological cultures
- Dental / clinical analysis
- Dairy / food / beverages

**Accessories Include:**

- 2pcs calcium electrode tips
- 1 1000 mg/L calcium ion standard solution (50 ml)
- 1 100 mg/L calcium ion standard solution (50 ml)
- 1 calcium electrode filling solution (50 ml)
- 1 calcium ionic strength adjustor (50 ml)
- 1 syringe
- 1 dropper
- 1 protective pipe
- 1 manual

**Selection Coefficient:**

- 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
- 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

pH range	Measurement Range	Operating temperature range (°C)	Length	Diameter	Connector
4.0 mg/L (10 <sup>-4</sup> mol/L) Ca <sup>2+</sup> , pH 5 to 11	0.4 - 40,080 mg/L Ca <sup>2+</sup> (10 <sup>-5</sup> to 1 mol/L Ca <sup>2+</sup> )	0-50	150 mm	16 mm	BNC

### Accessories and Solutions



**7683S Calcium Ion Electrode Tip**  
**(Replacement Electrode Tip for 6583S-10C electrode)**  
3200697414



**500-CA-IFS**  
**(Calcium Electrode Filling Solution)**  
3200697177



**500-CA-SL**  
**(100ppm Calcium Ion Standard Solution)**  
3200697176



**500-CA-SH**  
**(1000ppm Calcium Ion Standard Solution)**  
3200697175



**500-CA-ISA**  
**(Calcium Ionic Strength Adjustor)**  
3200697178

\* Note: Refer to [page 42](#) for detailed information on standard solutions, ISAs and filling solutions





### 6560S-10C Chloride Ion (Cl<sup>-</sup>) Electrode

3200697407

**Applications:**

- Agriculture
- River / tap water
- Plant tissue
- Soils
- Boiler feed water
- Clinical analysis
- Sweat
- Urine
- Cement
- Plating baths
- Dairy / food / beverage samples

**Accessories Include:**

- 1 chloride electrode tip
- 1 1000 mg/L chloride ion standard solution (50 ml)
- 1 100 mg/L chloride ion standard solution (50 ml)
- 1 syringe
- 1 dropper
- 1 protective pipe
- 1 water-resistant abrasive sheet
- 1 manual

**Selection Coefficient:**

- 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> = Not acceptable
- SCN<sup>-</sup> = 0.3
- MnO<sub>4</sub><sup>-</sup> = 0.1
- Br = 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>2-</sup> = 1,000

pH range	Measurement Range	Operating temperature range (°C)	Length	Diameter	Connector
350 mg/L (10 <sup>-2</sup> mol/L) Cl <sup>-</sup> , pH 3 to 11	0.35 - 35,000mg/L Cl <sup>-</sup> (10 <sup>-5</sup> to 1 mol/L Cl <sup>-</sup> )	0-50	150 mm	16 mm	BNC

### Accessories and Solutions



**7660S Chloride Ion Electrode Tip**  
**(Replacement Electrode Tip for 6560S-10C electrode)**  
3200697411



**500-CL-IFS**  
**(Chloride Electrode Filling Solution)**  
3200697169



**500-CL-SL**  
**(100 ppm Chloride Ion Standard Solution)**  
3200697168



**500-CL-SH**  
**(1000 ppm Chloride Ion Standard Solution)**  
3200697167



**500-CL-ISA**  
**(Chloride Ionic Strength Adjustor)**  
3200697170



### 6561S-10C Fluoride Ion (F<sup>-</sup>) Electrode

3200693774

**Applications:**

- Dental / toothpaste / mouthwash
- Drinking / seawater
- Wastewater
- Air / stack gases
- Acids
- Soils
- Food
- Biological fluids
- Plant tissue
- Coal
- Carbonated beverages
- Bone

**Accessories Include:**

- 1 fluoride electrode tip
- 1 1000 mg/L fluoride ion standard solution (50 ml)
- 1 100 mg/L fluoride ion standard solution (50 ml)
- 1 fluoride electrode filling solution (50 ml)
- 1 fluoride ionic strength adjustor (50 ml)
- 1 dropper
- 1 protective pipe
- 1 manual

**Selection Coefficient:**

- Possible interference when multiply-charged ion (ex. Al<sup>3+</sup>, Fe<sup>3+</sup>) coexisted and foamed the complex

pH range	Measurement Range	Operating temperature range (°C)	Length	Diameter	Connector
0.1 to 1,000 mg/L F <sup>-</sup> , pH 5 to 8	0.02 - 19,000 mg/L F <sup>-</sup> (10 <sup>-6</sup> to 1 mol/L F <sup>-</sup> )	0-50	150 mm	16 mm	BNC

### Accessories and Solutions



**7661S Fluoride Ion Electrode Tip**  
**(Replacement Electrode Tip for 6561S-10C electrode)**  
3200693606



**500-F-IFS**  
**(Fluoride Electrode Filling Solution)**  
3200697165



**500-F-SL**  
**(100 mg/L Fluoride Ion Standard Solution)**  
3200697164



**500-F-SH**  
**(1000 mg/L Fluoride Ion Standard Solution)**  
3200697163



**500-F-TISAB**  
**(Fluoride Ionic Strength Adjustor)**  
3200697166

\* Note: Refer to [page 42](#) for detailed information on standard solutions, ISAs and filling solutions



**6581S-10C Nitrate Ion (NO<sub>3</sub><sup>-</sup>) Electrode**  
3200697408

**Applications:**

- Agriculture
- River / Tap Water
- Plant Tissue
- Soils
- Boiler Feed Water
- Clinical Analysis
- Sweat
- Urine
- Cement
- Plating Baths
- Dairy / Food / Beverages Samples

**Accessories Include:**

- 2pcs nitrate electrode tip
- 1 1000 mg/L nitrate ion standard solution (50 ml)
- 1 100 mg/L nitrate ion standard solution (50 ml)
- 1 nitrate electrode filling solution (50 ml)
- 1 nitrate ionic strength adjustor (50 ml)
- 1 syringe
- 1 dropper
- 1 protective pipe
- 1 manual

**Selection Coefficient:**

- ClO<sub>4</sub><sup>-</sup>, I<sup>-</sup> = Not acceptable
- Br<sup>-</sup> = 2
- NO<sub>2</sub><sup>-</sup> = 3
- Cl<sup>-</sup> = 300
- HCO<sub>3</sub><sup>-</sup>, H<sub>2</sub>PO<sub>4</sub><sup>-</sup>, SO<sub>4</sub><sup>2-</sup> = over 1000

pH range	Measurement Range	Operating temperature range (°C)	Length	Diameter	Connector
62 mg/L (10 <sup>-3</sup> mol/L) NO <sub>3</sub> <sup>-</sup> , pH 3 to 7	0.62 - 62,000 mg/L NO <sub>3</sub> <sup>-</sup> (10 <sup>-5</sup> to 1 mol/L NO <sub>3</sub> <sup>-</sup> )	0-50	150 mm	16 mm	BNC

**Accessories and Solutions**



**7681S Nitrate Ion Electrode Tip**  
**(Replacement Electrode Tip for 6581S-10C electrode)**  
3200697412



**500-NO3-IFS**  
**(Nitrate Electrode Filling Solution)**  
3200697181



**500-NO3-SL**  
**(100 mg/L Nitrate Ion Standard Solution)**  
3200697180



**500-NO3-SH**  
**(1000 mg/L Nitrate Ion Standard Solution)**  
3200697179



**500-NO3-ISA**  
**(Nitrate Ionic Strength Adjustor)**  
3200697182



**6582S-10C Potassium Ion (K<sup>+</sup>) Electrode**  
3200697409

**Applications:**

- Agriculture / Plant Tissue
- Soils
- Wastewater
- River / Tap Water
- Clinical Analysis
- Saliva
- Serum
- Fertilizers
- Soils
- Wines
- Dairy / Foods / Beverages

**Accessories Include:**

- 2pcs potassium electrode tip
- 1 1000 mg/L potassium ion standard solution (50 ml)
- 1 100 mg/L potassium ion standard solution (50 ml)
- 1 potassium electrode filling solution (50 ml)
- 1 potassium ionic strength adjustor (50 ml)
- 1 syringe
- 1 dropper
- 1 protective pipe
- 1 manual

**Selection Coefficient:**

- Rb<sup>+</sup> = 0.4
- Cs<sup>+</sup> = 3
- NH<sub>4</sub><sup>+</sup> = 70
- Li<sup>+</sup>, Na<sup>+</sup>, Mg<sup>2+</sup>, Ca<sup>2+</sup>, Sr<sup>2+</sup>, Ba<sup>2+</sup> = over 1,000

pH range	Measurement Range	Operating temperature range (°C)	Length	Diameter	Connector
3.9 mg/L (10 <sup>-4</sup> mol/L) K <sup>+</sup> , pH 5 to 11	0.39 - 39,000 mg/L K <sup>+</sup> (10 <sup>-5</sup> to 1 mol/L K <sup>+</sup> )	0-50	150 mm	16 mm	BNC

**Accessories and Solutions**



**7682S Potassium Ion Electrode Tip**  
**(Replacement Electrode Tip for 6582S-10C electrode)**  
3200697413



**500-K-IFS**  
**(Potassium Electrode Filling Solution)**  
3200697185



**500-K-SL**  
**(100 ppm Potassium Ion Standard Solution)**  
3200697184



**500-K-SH**  
**(1000 ppm Potassium Ion Standard Solution)**  
3200697183



**500-K-ISA**  
**(Potassium Ionic Strength Adjustor)**  
3200697186





**Sensor Head  
With Built-in  
Digital Circuit**  
Retains sensor  
and measurement  
information

**Sensor Cartridge**  
Replaceable,  
cost efficient and  
environment-friendly



## WQ-300 Series Smart Digital Sensors

### HORIBA's Smart Digital Sensor Technology

All sensor heads are offered in 2 m and 5 m cable versions.  
A 10 m extension cable is also available.



# WQ-300 Series Smart Digital Sensors

## pH SENSORS

### Maintenance-free, gel-filled pH sensor

- No electrolyte refilling required
- KCl gel electrolyte
- Double junction reference
- Porous sintered polyethylene junction
- Built-in temperature sensor
- Rugged polycarbonate body
- Replaceable pH sensor cartridge



### pH Sensor Head

pH / mV / Temp (°C/°F)

Model	300PH-2	300PH-5
Part No.	3200812206	3200812207
Cable Length	2 m	5 m
pH Range	-2.00 to 20.00 pH -2.000 to 20.000 pH	
Resolution	-2.00 to 20.00: 0.01 pH -2.000 to 20.000: 0.001 pH	
Accuracy	-2.00 to 20.00: ±0.01 -2.000 to 20.000: ±0.005	
Calibration Points	Up to 6	
pH Buffer Groups	USA, DIN, NIST, NIST10, Custom	
mV Range	±1000.0 mV	
Resolution	0.1 mV	
Accuracy	±0.1 mV	
Temperature Range	-30.0 to 130.0 °C -22.0 to 266.0 °F	
Resolution	0.1 °C / °F	
Accuracy	±0.5 °C / ±0.9 °F	
Calibration Option	Yes	
Body Material	ABS / Polycarbonate	
Length and Diameter	85 x 30 mm	
Connector	Push-pull	

### pH Sensor Cartridge

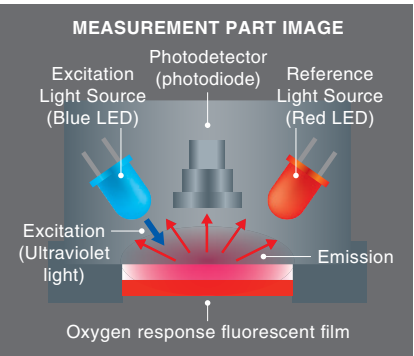
pH / mV / Temp (°C/°F)

Model	300-P-C
Part No.	3200786363
pH Range	-2.00 to 20.00 pH -2.000 to 20.000 pH
Temperature Range	0 to 80 °C -32.0 to 176.0 °F
Junction Material	Porous sintered polyethylene
Double Junction	Yes
Temperature Sensor	Built-in
Body Material	Polycarbonate, glass bulb
Length and Diameter	110 x 16 mm

## DISSOLVED OXYGEN (DO) SENSORS

### Optical dissolved oxygen (DO) sensor

- Longer usable life with excellent performance
- Easy to handle – not affected with sample flow velocity, not sensitive to hydrogen sulfide, DO sensor cap replacement after 1-2 years\*
- Built-in temperature sensor
- Comes with replaceable DO sensor cap, air calibration bottle and Stainless Steel DO Sensor Protective Guard



### Dissolved Oxygen Sensor

DO (mg/L, %) / O<sub>2</sub> / Temp (°C/°F)

Model	300-D-2	300-D-5
Part No.	3200780940	3200780942
Cable Length	2 m	5 m
Dissolved Oxygen (DO) Range	0.00 to 20.00 mg/L 0.0 to 200.0 %	
Resolution	0.01 mg/L, 0.1%	
Accuracy	±0.2 mg/L, ±2 %	
Salinity Compensation	Auto: by conductivity sensor / Manual: 0.0 to 40.0 ppt	
Barometric Pressure Compensation	Auto: by built-in barometer / Manual: 10.0 to 199.9 kPa	
Calibration Points	Up to 2	
Oxygen Range	0.0 to 50.0%	
Resolution	0.1%	
Accuracy	±0.5%	
Temperature Range	-30.0 to 130.0 °C -22.0 to 266.0 °F	
Resolution	0.1 °C / °F	
Accuracy	±0.5 °C / ±0.9 °F	
Calibration Option	Yes	
Body Material	ABS / Polycarbonate	
Length and Diameter	200 x 16 mm	
Connector	Push-pull	
Sensor cap included	1	
Warranty	3 years	

### Dissolved Oxygen Sensor Cap

Model	300-D-M
Part No.	3200781554
Dissolved Oxygen (DO) Range	0.00 to 20.00 mg/L 0.0 to 200.0 %
Temperature Range	0 to 50.0 °C 32.0 to 122.0 °F
Body Material	PVC, PMMA
Length and Diameter	10 x 16 mm

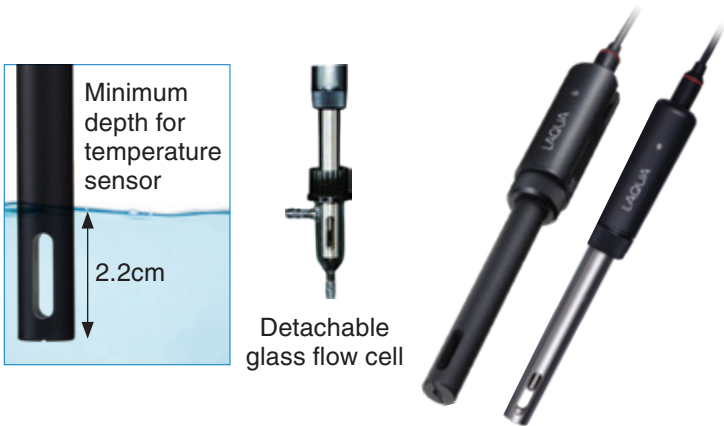
\* Depending on application, handling, and maintenance



CONDUCTIVITY SENSORS

2-cell & 4-cell conductivity sensors

- Wide range of conductivity measurements possible
- 2-cell conductivity sensor with flow cell is designed for ultra-pure water applications
- From clean water to industrial wastewater, the 4-cell type can measure a variety of samples with different conductivities
- Built-in temperature sensor
- Stainless steel 2-cell cartridge
- Durable epoxy / carbon body 4-cell cartridge
- Replaceable conductivity sensor cartridge



Conductivity Sensor Head

EC / Sal / TDS / Res / Temp (°C/°F)

Model	300-C-2			300-C-5		
Part No.	3200784468			3200812202		
Cable Length	2 m			5 m		
Conductivity Range	µS/cm	mS/cm		µS/cm	mS/cm	S/m
	• 0.000 to 0.199	• 2.00 to 19.99		• 0.0 to 19.9	• 2.00 to 19.99	• 2.00 to 19.99
	• 0.200 to 1.999	• 20.0 to 199.9		• 20.0 to 199.9	• 20.0 to 199.9	• 20.0 to 200.0
	• 2.00 to 19.99	• 200 to 2000		• 200 to 1999	• 200 to 1999	
	• 20.0 to 199.9					
Resolution	Auto ranging, up to 4 significant digits					
Accuracy	± 0.5% full scale of each range, > 200 mS/cm (20.0 S/m): ± 1.5% full scale					
Reference Temperature	15 to 30°C					
Temperature Coefficient	0.00 to 10.00 %/°C					
Calibration Points	Up to 4 (Auto) / Up to 5 (Manual)					
Units	S/cm, S/m					
Salinity Range	0.00 to 80.00 ppt, 0.000 to 8.000 %					
Resolution	0.01 ppt, 0.001 %					
Accuracy	± 0.5% of reading or ± 0.01 ppt, whichever is greater					
Salinity Curves	NaCl, Seawater (UNESCO 1978)					
Calibration Option	Yes					
Total Dissolved Solids (TDS) Range	0.01 mg/L to 200,000 mg/L					
Resolution	0.01 minimum, 4 significant digits					
Accuracy	± 0.5% of reading or ± 0.1 mg/L, whichever is greater					
TDS Curves	Linear (0.40 to 1.00), EN27888, 442, NaCl					
Resistivity Range	Ω•cm	kΩ•cm	MΩ•cm	Ω•cm	kΩ•cm	
	• 0.1 to 199.9	• 2.00 to 19.99	• 2.00 to 19.99	• 0.001 to 1.999	• 2.00 to 19.99	
	• 200 to 1999	• 20.0 to 199.9	• 20.0 to 200.0	• 2.00 to 19.99	• 20.0 to 199.9	
		• 200 to 1999		• 20.0 to 199.9	• 200 to 2000	
				• 200 to 1999		
Resolution	Auto ranging, up to 4 significant digits					
Accuracy	± 0.5% full scale of each range, > 200 mS/cm (20.0 S/m): ± 1.5% full scale					
Temperature Range	-30.0 to 130.0 °C, -22.0 to 266.0 °F					
Resolution	0.1 °C / °F					
Accuracy	±0.5 °C / ±0.9 °F					
Calibration Option	Yes					
Body Material	ABS / Polycarbonate					
Length and Diameter	85 x 30 mm					
Connector	Push-pull					

4-Cell Conductivity Sensor Cartridge

Model	300-4C-C
Part No.	3200780928
Cell Constant	0.172 cm <sup>-1</sup>
Conductivity Range	10 µS/cm to 2000 mS/cm
Operating Temperature Range	0 to 100 °C, 32.0 to 212.0 °F
Temperature Sensor	Built-in
Body Material	Epoxy, carbon
Length and Diameter	110 x 16 mm

2-Cell Conductivity Sensor Cartridge

Model	300-2C-C
Part No.	3200820579
Cell Constant	0.1 cm <sup>-1</sup>
Conductivity Range	0.01 µS/cm to 500 µS/cm
Operating Temperature Range	0 to 100 °C, 32.0 to 212.0 °F
Temperature Sensor	Built-in
Body Material	Stainless steel
Length and Diameter	110 x 16 mm

ORP SENSORS

Maintenance-free, gel-filled ORP sensor

- No electrolyte refilling required
  - Platinum tip attached to glass
  - KCl gel electrolyte
  - Porous sintered polyethylene junction
- Built-in temperature sensor
  - Rugged polycarbonate body
  - Replaceable ORP sensor cartridge



ORP Sensor Head

ORP / Temp (°C/°F)

Model	300-O-2	300-O-5
Part No.	3200812204	3200923561
Cable Length	2 m	5 m
ORP Range	-2000 to +2000 mV	
Resolution	< ±1000.0 mV: 0.1mV, ≥ 1000.0 mV: 1 mV	
Accuracy	< ±1000.0 mV: ±0.1 mV, ≥ 1000.0 mV: ±1 mV	
Calibration Option	Yes	
Temperature Range	-30.0 to 130.0 °C, -22.0 to 266.0 °F	
Resolution	0.1 °C / °F	
Accuracy	±0.5 °C / ±0.9 °F	
Calibration Option	Yes	
Body Material	ABS / Polycarbonate	
Length and Diameter	85 x 30 mm	
Connector	Push-pull	

ORP Sensor Cartridge

ORP / Temp (°C/°F)

Model	300-O-C
Part No.	3200922104
ORP Range	-2000 to +2000 mV
Temperature Range	0 to 80 °C, -32.0 to 176.0 °F
Junction Material	Porous sintered polyethylene
Double Junction	Yes
Temperature Sensor	Built-in
Body Material	Polycarbonate, platinum/glass
Length and Diameter	110 x 16 mm

ION SENSORS

Compatible not only with ion cartridges, but also with combination ion-selective electrodes

- Accepts all maintenance-free ion sensor cartridges equipped with temperature sensor
- Requires 300-BNC sensor head adapter for connecting combination ion-selective electrodes



Ion Sensor Head

Ion / mV / Temp (°C/°F)

Model	300-I-2	300-I-5
Part No.	3200812203	3200923560
Cable Length	2 m	5 m
Ion Range	(mg/L, mmol/L) 0.000 to 0.999, 1.00 to 9.99, 10.0 to 99.9, 100 to 999, 1000 to 9990, 10000 to 99900	
Resolution	0.001 minimum, 3 significant digits	
Accuracy	±0.3% full scale	
Calibration Points	Up to 5	
mV Range	±1000.0 mV	
Resolution	0.1 mV	
Accuracy	±0.1 mV	
Temperature Range	-30.0 to 130.0 °C -22.0 to 266.0 °F	
Resolution	0.1 °C / °F	
Accuracy	±0.5 °C / ±0.9 °F	
Calibration Option	Yes	
Body Material	ABS / Polycarbonate	
Length and Diameter	85 x 30 mm	
Connector	Push-pull	

Ion Sensor Cartridge\*

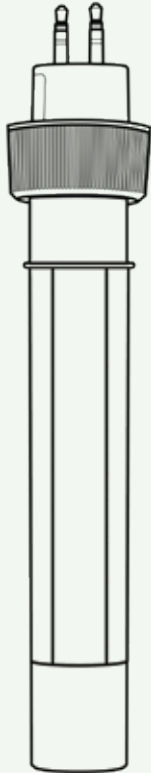
Model	300-NO3-C	300-K-C	300-CA-C	300-NA-C	300-NH4-C
Ion Sensor Cartridge	Nitrate (NO <sub>3</sub> <sup>-</sup> )	Potassium (K <sup>+</sup> )	Calcium (Ca <sup>2+</sup> )	Sodium (Na <sup>+</sup> )	Ammonium (NH <sub>4</sub> <sup>+</sup> )
Part No.	3200986784	3200986785	3200986786	3200986787	3200986783
Measurement Range	0.62 to 62,000 mg/L NO <sub>3</sub> <sup>-</sup> (1 x 10 <sup>-5</sup> to 1 mol/L NO <sub>3</sub> <sup>-</sup> )	0.39 to 39,000 mg/L K <sup>+</sup> (1 x 10 <sup>-5</sup> to 1 mol/L K <sup>+</sup> )	0.4 to 40,000 mg/L Ca <sup>2+</sup> (1 x 10 <sup>-5</sup> to 1 mol/L Ca <sup>2+</sup> )	0.23 to 23,000 mg/L Na <sup>+</sup> (1 x 10 <sup>-5</sup> to 1 mol/L Na <sup>+</sup> )	0.18 to 18,000 mg/L NH <sub>4</sub> <sup>+</sup> (1 x 10 <sup>-5</sup> to 1 mol/L NH <sub>4</sub> <sup>+</sup> )
Operating Temperature Range	0 to 50 °C				
pH Range	pH 4 to 7 (100 mg/L NO <sub>3</sub> <sup>-</sup> , 25 °C)	pH 5 to 11 (100 mg/L K <sup>+</sup> , 25 °C)	pH 5 to 10 (100 mg/L Ca <sup>2+</sup> , 25 °C)	pH 5 to 10 (100 mg/L Na <sup>+</sup> , 25 °C)	pH 5 to 8 (100 mg/L NH <sub>4</sub> <sup>+</sup> , 25 °C)
Junction Material	Porous sintered polyethylene				
Double Junction	Yes				
Temperature Sensor	Built-in				
Body Material	Polycarbonate, PVC				
Length and Diameter	110 x 16 mm				

\* Each ion sensor cartridge comes with 100 mg/L & 1000 mg/L ion standard solutions (50 ml each), ionic strength adjustor (50 ml), syringe and manual.

DIMENSIONS

WQ-300 Ion Sensor Cartridge Packaging

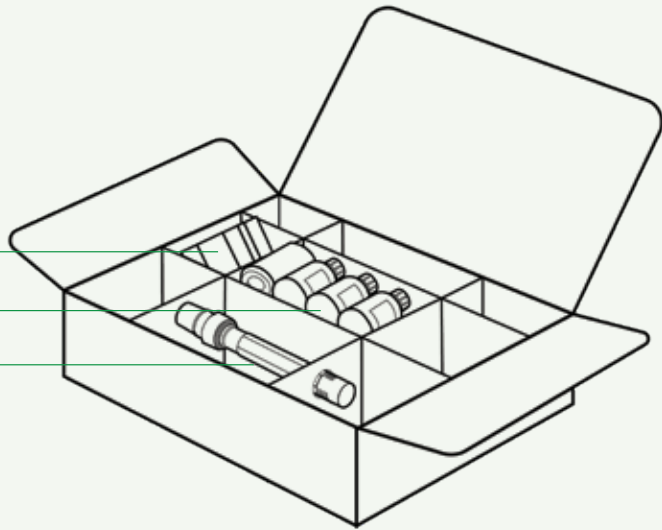
1 Ion Sensor Cartridge



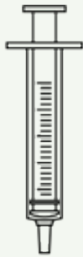
2

3

1



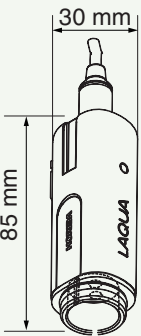
2 Syringe (2.5 ml)



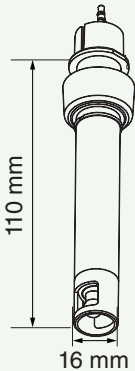
3 Ionic Strength Adjustor & Standard Solutions (50 ml each)



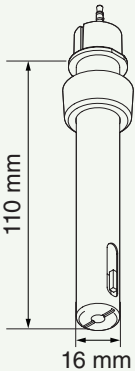
pH / ORP / Ion Sensor Head



pH / ORP / Ion Sensor Cartridge



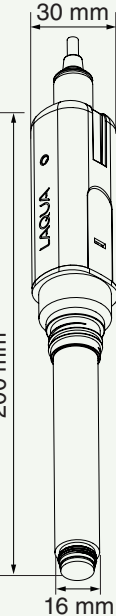
4-Cell & 2-Cell Conductivity Sensor Cartridge



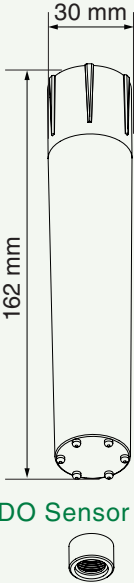
Flow Cell



Optical DO Sensor



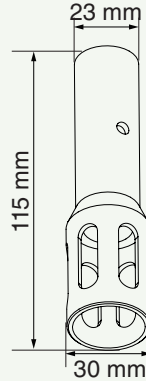
DO Calibration Bottle



DO Sensor Cap



Stainless Steel DO Sensor Protective Guard









# Accessories and Solutions

# Accessories and Solutions

## ORP Standard Solution & Powders

Part No.	Model	Description
4000047848	500-225	ORP Standard Solution 225 mV at 25°C (500 ml)
3200043618	160-51	ORP Powder 89 mV at 25°C for 250 ml (10 sachets/pack) 
3200043617	160-22	ORP Powder 258 mV at 25°C for 250 ml (10 sachets/pack) 

## pH Buffers

Part No.	Model	Description
3999960015	501-S	NIST pH Buffers Kit (pH 4.01, 6.86, 9.18 buffers & 3.33 M KCl, 250 ml each)
3999960016	502-S	USA pH Buffers Kit (pH 4.01, 7.00, 10.01 buffers & 3.33 M KCl, 250 ml each)
3999960028	500-2	pH 1.68 Buffer at 25°C, 500 ml
3999960029	500-4	pH 4.01 Buffer at 25°C, 500 ml
3999960030	500-686	pH 6.86 Buffer at 25°C, 500 ml
3999960031	500-7	pH 7.00 Buffer at 25°C, 500 ml
3999960032	500-9	pH 9.18 Buffer at 25°C, 500 ml
3999960033	500-10	pH 10.01 Buffer at 25°C, 500 ml
3999960034	500-12	pH 12.46 Buffer at 25°C, 500 ml


## Conductivity Standards

Part No.	Model	Description
3999960017	503-S	Conductivity Standards Kit (84µS/cm, 1413µS/cm, 12.88mS/cm & 111.8mS/cm, 250 ml each)
3999960035	500-21	84µS/cm Conductivity Standard at 25°C, 500 ml
3999960036	500-22	1413µS/cm Conductivity Standard at 25°C, 500 ml
3999960037	500-23	12.88mS/cm Conductivity Standard at 25°C, 500 ml
3999960038	500-24	111.8mS/cm Conductivity Standard at 25°C, 500 ml


## pH/ORP Electrode Filling Solutions

Part No.	Model	Description
3999960023	525-3	3.33M KCl, 250 ml (Made in Singapore)
3200043640	300	3.33M KCl, 250 ml (Made in Japan)

## pH Electrode Cleaning Solutions

Part No.	Model	Description
3014028653	220	Cleaning solution for removing inorganic sample residues from glass membrane and liquid junction, 50 ml x 2 pcs 
3200530494	230	Cleaning solution for removing inorganic and organic sample residues from glass membrane, Solution A (30 ml) & Solution B (100 ml)
3200366771	250	Cleaning solution for removing proteins from glass membrane and liquid junction, 400 ml

## Ion Strength Adjustors

Part No.	Model	Description
3200697174	500-NH3-ISA	Ammonia Ionic Strength Adjustor (500 ml) 
3200987466	500-NH4-ISA	Ammonium Ionic Strength Adjustor (500 ml)
3200697178	500-CA-ISA	Calcium Ionic Strength Adjustor (500 ml)
3200697170	500-CL-ISA	Chloride Ionic Strength Adjustor (500 ml)
3200697166	500-F-TISAB	Fluoride Ionic Strength Adjustor (500 ml)
3200697182	500-NO3-ISA	Nitrate Ionic Strength Adjustor (500 ml)
3200697186	500-K-ISA	Potassium Ionic Strength Adjustor (500 ml)
3200987465	500-NA-ISA	Sodium Ionic Strength Adjustor (500 ml)



## Ion Standard Solutions

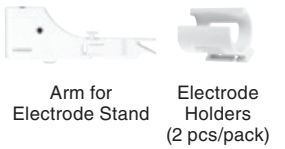
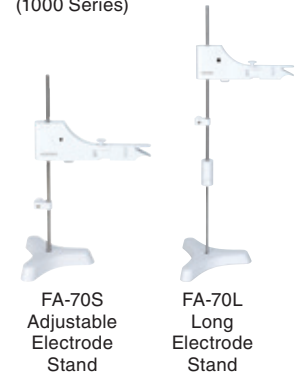
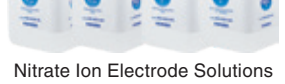
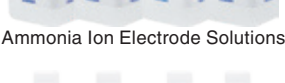
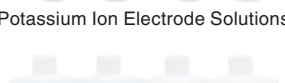
Part No.	Model	Description
3200697171	500-NH4-SH	1000 mg/L Ammonium Ion Standard Solution (500 ml)
3200697172	500-NH4-SL	100 mg/L Ammonium Ion Standard Solution (500 ml)
3200697175	500-CA-SH	1000 mg/L Calcium Ion Standard Solution (500 ml)
3200697176	500-CA-SL	100 mg/L Calcium Ion Standard Solution (500 ml)
3200697167	500-CL-SH	1000 mg/L Chloride Ion Standard Solution (500 ml)
3200697168	500-CL-SL	100 mg/L Chloride Ion Standard Solution (500 ml)
3200697163	500-F-SH	1000 mg/L Fluoride Ion Standard Solution (500 ml)
3200697164	500-F-SL	100 mg/L Fluoride Ion Standard Solution (500 ml)
3200697179	500-NO3-SH	1000 mg/L Nitrate Ion Standard Solution (500 ml)
3200697180	500-NO3-SL	100 mg/L Nitrate Ion Standard Solution (500 ml)
3200697183	500-K-SH	1000 mg/L Potassium Ion Standard Solution (500 ml)
3200697184	500-K-SL	100 mg/L Potassium Ion Standard Solution (500 ml)
3200987464	500-NA-SL	100 mg/L Sodium Ion Standard Solution (500 ml)
3200987463	500-NA-SH	1000 mg/L Sodium Ion Standard Solution (500 ml)

## Ion Selective Electrode Filling Solutions

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

## Accessories

Part No.	Model	Description
3200861022		Integrated Electrode Stand (Height: 383 mm) for 2000 Series
3200644455	FA-70A	Integrated Electrode Stand (Height: 338 mm) for 1000 Series
3200382557	FA-70S	Adjustable, free-standing electrode stand (Height: 384 mm)
3200382560	FA-70L	Long, free-standing electrode stand (Height: 450-650 mm)
3200373991		Arm for electrode stand FA-70A, FA-70S & FA-70L
3200373961		Electrode holders, 2 pcs/pack (for mounting electrode with round cap on electrode stand arm)
3200043508		Electrode protection caps, 5 pcs/pack
3200382482		Electrode protection cap for long electrode (for 9680S-10D, 9480-10C pH Electrode)
3200044409		Clear pH sensor tip guard (for plastic pH electrodes 9651/9652, 9625, 9630 etc.), 5 pcs/pack
3200828646		Black pH sensor tip guard (for 200 series, 300 series), 3 pcs/pack
3200897227		Stirrer set for 9521-10D
3200779640		Electrode adapter
3200821465	300-BNC	Sensor head adapter (for WQ-300 pH/ORP/Ion sensor heads)
3200844642		Glass flow cell (for 300-2C-C and 9371-10D)
3200921588	300-EXT-10	10 m sensor head extension cable





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