

## pH electrodes/ORP electrodes for industrial use

Standardized

Tough enough to withstand brine electrolysis  
and highly alkaline waste fluid.

Glass tip

Tough enough to withstand semiconductor processing  
and waste fluid from hydrofluoric acid and other strong acids.

Liquid junction tip

Hydrofluoric  
acid proof

Built in temperature sensor liquid grounded

High-alkali  
proof

Extensive line up of industrial pH electrodes enabling 50% reduction maintenance load.

### Tip/glass combination electrodes

- High durability PPS (polyphenylene sulfide) body
- Adopts a newly developed membrane against hydrofluoric acid
- The replaceable tip (glass <--> liquid junction) improves maintenance cost.
- Lowered running costs

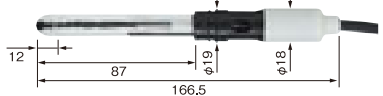
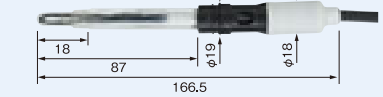
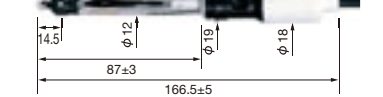
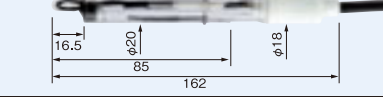
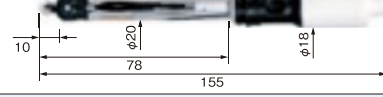
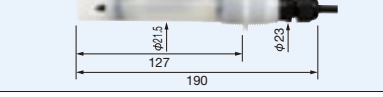
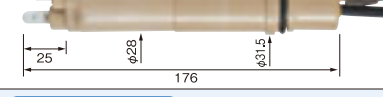
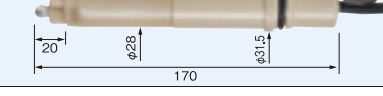
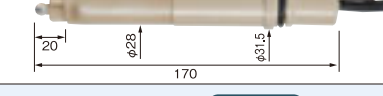

Longer life  
Almost  
**double**

(compared with  
other HORIBA products)

Maintenance  
cost and load  
**1/2**

(compared with  
other HORIBA products)

# pH electrode

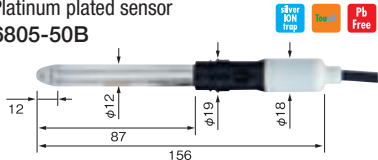
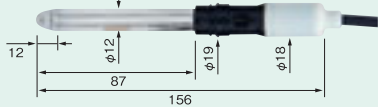
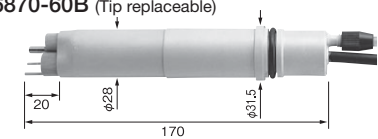
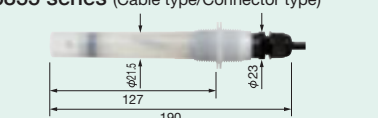
Model	Liquid junction	Useable temperature range	Usable pressure range	Temperature compensation	Cable length	Traits
<b>Dome type pH electrode</b> <b>6108-50B</b> (Integrated combination) 	Multi zirconia ceramic	-10 to 100°C	0 to 0.6MPa	1kΩ	5m (standard)	Rugged construction and easy-to-clean dome shape. Double ceramic liquid junction helps prevent soiling. Suitable for high-temperature (100°C) and high-pressure (0.6 MPa) processes. Good acid resistance. Can be combined with jet, brush and ultrasonic cleaning units.
<b>Sleeve type pH electrode</b> <b>6109-50B</b> (Integrated combination) 	Fixed sleeve	-10 to 80°C	0 to 0.03MPa (内部液加圧にて)	1kΩ	5m (standard)	New response membrane provides even greater toughness. Uses easy-to-attach fixed sleeve liquid junction.
<b>pH electrode</b> <b>6110-50B</b> (Integrated combination) 	Porous ceramic	-10 to 60°C	0 to 0.03MPa	1kΩ	5m (standard)	It is an pH sensor using lead-free glass that is environmentally friendly. Ion trap is adopted as the reference electrode, making clogging by silver ion less likely to occur.
<b>Hydrofluoric acid-resistant pH electrode</b> <b>6151-50B</b> (Integrated combination) 	Multi alumina ceramic	-10 to 60°C	0 to 0.2MPa	1kΩ	5m (standard)	Uses newly developed response membrane for alkali-resistant applications. Highly chemical resistant PSU (polysulfone) body. Provides service for one month in 1000 ppm hydrofluoric acid at 25°C with pH 3-4 (general guide). Double ceramic liquid junction.
<b>High alkali-resistant pH electrode</b> <b>6152-50B</b> (Integrated combination) 	Multi zirconia ceramic	-10 to 60°C	0 to 0.2MPa	1kΩ	5m (standard)	Uses newly developed response membrane for alkali-resistant applications. Highly chemical resistant PSU (polysulfone) body. Provides service for three months in 0.1N caustic soda at 60°C (general guide). Double ceramic liquid junction. Reduces alkali errors.
<b>Gel-filled electrode</b> <b>6155 series</b> (Cable type/Connector type) 	Porous ceramic & Porous Polyethylene	-10 to 100°C	0 to 0.7MPa	Pt 1000 RTD 1000Ω (at 0°C)	5m (standard)	Measurement of low conductivity samples is possible from 10 μS/cm. Internal solution of reference electrode is water-insoluble polymer gel that is strong against heat, pressure, acid and alkali. Both cable and connector type are available.
<b>High alkali-resistant pH electrode</b> <b>6171-50B</b> (Tip replaceable) 	Alumina ceramic	-10 to 60°C	0 to 0.03MPa	1kΩ	5m (standard)	Uses newly developed response membrane for alkali-resistant applications. Highly chemical resistant PSU (polysulfone) body. Provides service for one month in 1000 ppm hydrofluoric acid at 25°C with pH 3-4 (general guide). Changeable glass tip and liquid junction tip improve ease of maintenance and reduces running costs.
<b>High alkali-resistant pH electrode</b> <b>6172-50B</b> (Tip replaceable) 	Zirconia ceramic	-10 to 60°C	0 to 0.03MPa	1kΩ	5m (standard)	Uses newly developed response membrane for alkali-resistant applications. Highly chemical resistant PSU (polysulfone) body. Provides service for three months in 0.1N caustic soda at 60°C (general guide). Changeable glass tip and liquid junction tip improves ease of maintenance and reduces running costs.
<b>pH electrode</b> <b>6174-50B</b> (Tip replaceable) 	Zirconia ceramic	-10 to 100°C	0 to 0.03MPa	1kΩ	5m (standard)	It is made of PPS which has heat resistance and chemical resistance comparable to fluororesin, and there is no worry of breakage etc. In addition, pH tip and liquid junction tip are easy to replace cartridge type, excellent in maintainability.
<b>EL sensor for pure water</b> For HP-8A <b>EL-6121-60B</b> 	Porous plastic	0 to 50°C	Atmospheric release	—	0.3m (standard)	It is a pH sensor dedicated to pH meter "Hp-8" for pure water. PPS is used for the body, and high durability is realized. Also, since the pH tip is a connector type, it can be replaced with a single touch.

## Notes on electrode selection

If you are using one of the samples below, please consult our sales department.

- A strong oxidizing solution such as aqua regia, chromic acid, hypochlorous acid, and perchloric acid.
- When containing corrosive gas such as ammonia, chlorine, and hydrogen sulfide.

# OPR electrode

Model	Liquid junction	Useable temperature range	Usable pressure range	Temperature compensation	Cable length	Traits
Platinum plated sensor <b>6805-50B</b> 	Fixed sleeve	0 to 80°C	0 to 0.03MPa	—	5m (standard)	It is an ORP sensor using lead-free glass that is environmentally friendly. Can be combined with jet, brush and ultrasonic cleaning units. Ion trap is adopted as the reference electrode, making clogging by silver ion less likely to occur.
Gold plated sensor <b>6815-50B</b> 	Fixed sleeve	0 to 80°C	0 to 0.03MPa	—	5m (standard)	Added gold plating to 6805 platinum electrodes. With this addition, it may be effective for samples that could not be measured stably previously.
Platinum plated sensor <b>6870-60B</b> (Tip replaceable) 	Ceramic	-10 to 105°C	0 to 0.03MPa	6.8kΩ	6m (standard)	The ORP electrode, reference electrode and temperature compensation electrode are integrated. It is made of PPS which has heat resistance and chemical resistance comparable to fluororesin, and there is no worry of breakage etc. In addition, ORP tip and liquid junction chip are easy to replace cartridge type, excellent in maintainability.
Gel-filled electrode <b>6855 series</b> (Cable type/Connector type) 	Porous ceramic & Porous Polyethylene	-10 to 100°C	0 to 0.7MPa	—	5m (standard)	Internal solution of reference electrode is water-insoluble polymer gel that is strong against heat, pressure, acid and alkali. Both cable and connector type are available.



#### Movable sleeve

Makes cleaning of liquid junction easy.



#### Tough Electrode

Increases strength and sensitivity significantly.



#### Silver Ion Trap

Controls outflow of silver ion significantly.



#### Lead-free glass

Lead-free glass membrane and body.

## pH electrode/ORP electrode Electrode combination table

### Field type H-1 series



### Panel mount type 48/96 series



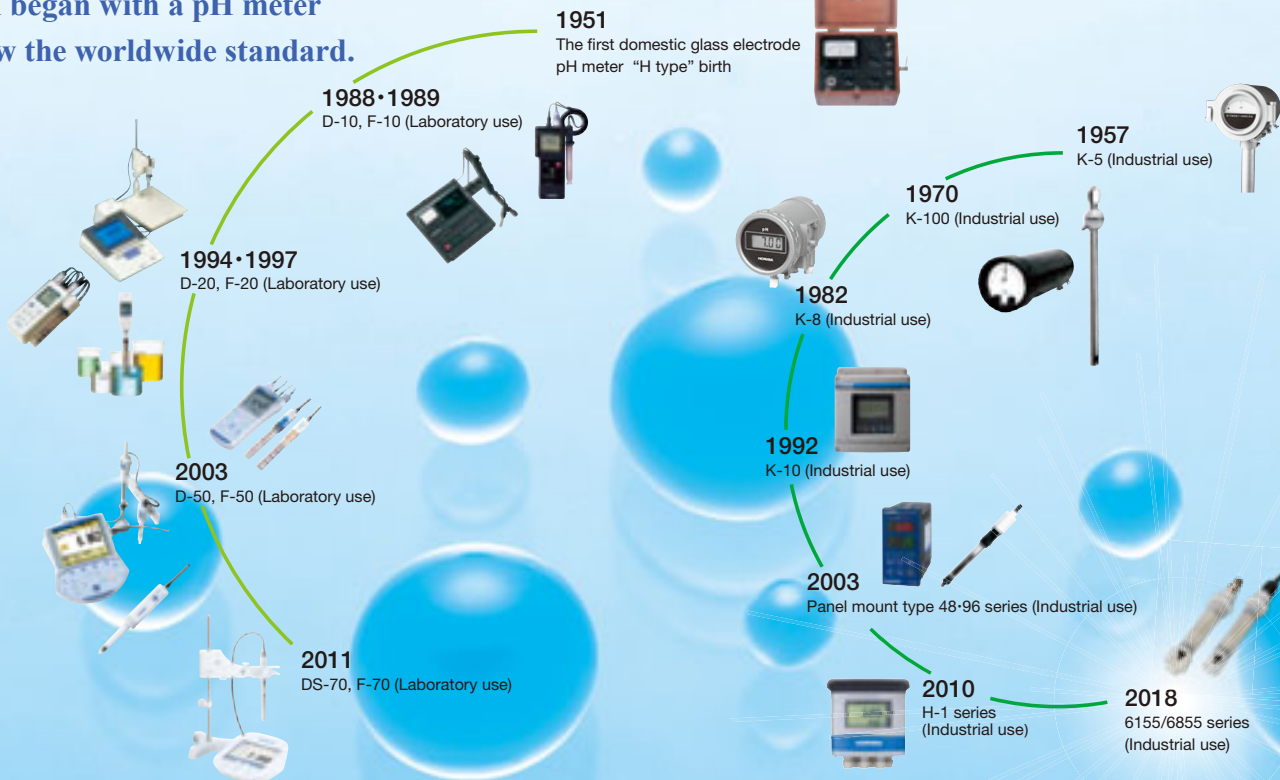
### HP-8 (for pure water)



Combination table of pH meter and electrode	Dome-shaped pH electrode <b>6108-50B</b> (Integrated combination)			
	Fixed sleeve electrode <b>6109-50B</b> (Integrated combination)			
	pH electrode <b>6110-50B</b> (Integrated combination)			
	Hydrofluoric-acid proof pH electrode <b>6151-50B</b> (Integrated combination)			
	High alkali proof pH electrode <b>6152-50B</b> (Integrated combination)			
	Gel-filled electrode <b>6155 series</b> (Cable type/Connector type)			
	Hydrofluoric-acid proof pH electrode <b>6171-50B</b> (Combination with replaceable tip)			
	High alkali proof pH electrode <b>6172-50B</b> (Combination with replaceable tip)			
	Replaceable tip electrode <b>6174-50B</b> (Combination with replaceable tip)			
	EL sensor for pure water <b>For HP-8A</b> <b>EL-6121-60B</b>			
	ORP platinum electrode <b>6805-50B</b>			
Combination table of ORP meter and electrode	ORP platinum + Gold plate electrode <b>6815-50B</b>			
	Platinum plated sensor <b>6870-60B</b> (Tip replaceable)			
	Gel-filled electrode <b>6855 series</b> (Cable type/Connector type)			

● Recommended combination — Unable to connect

# HORIBA began with a pH meter and is now the worldwide standard.



The HORIBA Group adopts IMS (Integrated Management System) which integrates Quality Management System ISO9001, Environmental Management System ISO14001, and Occupational Health and Safety Management System OHSAS18001. We have now integrated Business Continuity Management System ISO22301 in order to provide our products and services in a stable manner, even in emergencies.



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

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