




## pH Electrode 9651-10D Instruction Manual

This manual describes the operation of the pH electrode, 9651-10D. Be sure to read this manual carefully, before using the electrode.

### ■ Caution on use

#### ● Safety precautions

 CAUTION	
	<p><b>Chemical solution</b> If the internal material comes in contact with the hands or skin, wash immediately with water. If the internal gel comes in contact with the eyes, flush with a large amount of running water, then seek medical advice.</p>
	<p><b>Glass fragments</b> Glass fragments can cause injury. The outer tube and tip of the electrode are made from glass. Be careful not to break them.</p>

#### ● Points of concern

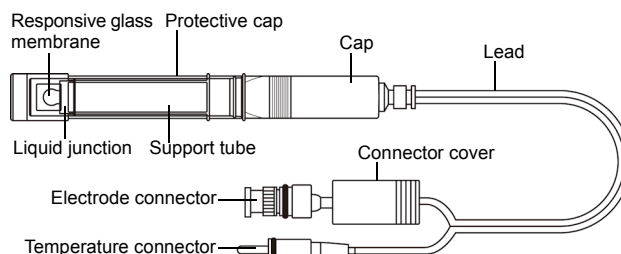
- Do not shock the electrode.
- Do not measure chapped or cracked electrode. Replace such electrode with a new one.
- Do not allow the connector to come in contact with water or unclean hands. If not, accurate measurement cannot be performed.
- If the responsive glass membrane or the liquid junction is very dirty and cannot be washed clean using pure water (or deionized water), clean it depending on dirt condition. (Refer to "Maintenance" (page 3).)
- Do not use this electrode at acidic or alkaline concentrations above 0.01 mol/L. Using the electrode under these conditions may harm performance and shorten the life of the electrode.
- Do not measure the solutions which contain hydrofluoric acid, which may corrode the glass electrode.
- Do not suddenly immerse the electrode in sample solution where the temperature variation is 40°C or more.
- Silver chloride can be detected inside the responsive glass membrane. However, it will not cause any performance problem.
- Do not use the electrode in any place where usable temperature is out of the specified range.
- White crystal can adhere to the internal solution filler port or protective cap after storage of the electrode. However, it will not cause any performance problem.
- When disposing of the product, follow the related laws and/or regulations of your country for disposal of the product.

### ■ Packaged contents

Name	Q'ty
Electrode 9651-10D	1 pc
Instruction manual (this book)	1 booklet

### ■ Specifications and parts description

#### ● Part name



#### ● Specifications

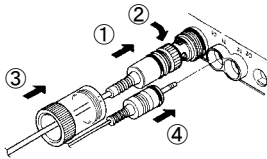
Electrode model	9651-10D
Measurement range	pH 0 to 14
Usable temperature range	0°C to 60°C
Storage temperature range	0°C to 50°C
Internal electrode	Silver/silver chloride
Reference electrode internal solution	Carboxymethyl cellulose (CMC), glycerin, saturated KCl
Liquid junction material	Porous sintered polyethylene
Wetted material	Glass, butyl rubber, polysulfone, polyolefin, polyamide, polyethylene resin
Electrode length	150 mm
Ext. diam. of wetted part	16 mm
Liquid junction height	Approximately 15 mm (from the tip of electrode)
Lead length	1 m
Maximum submergence depth	1 m

#### Note

**Body material is plastic. Do not use organic solvents (such as acetone or toluene).**

## Connecting to pH meter

1. Insert the electrode connector into the connector port sleeve on the meter, after aligning with the pin. Do not insert the connector unless it is aligned properly with the connector port.
2. Press the electrode connector into the connector port on the meter, while turning the connector to the right.
3. Slide the connector cover over the connector. Then, push the cover in straight until it comes in light contact with the meter case. Do not turn the cover.
4. Insert the temperature connector into the jack on the meter. Insert the connector firmly, until the O-ring on the connector can no longer be seen.



### Note

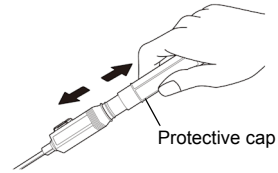
Be sure to install the temperature connector. If not, accurate measurement cannot be performed.

## Measurement (calibration)

### Note

White crystals (KCl) can adhere to the protective cap. However, they will not cause any performance problem. Remove the white crystals with pure water (or deionized water).

1. Remove the protective cap.



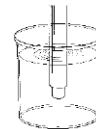
2. Clean the electrode with pure water (or deionized water) and wipe it with filter paper or tissue paper, prior to every immersion into the standard or sample solution.



3. When there are air bubbles inside the responsive glass membrane, stir the electrode lightly to remove bubbles.



4. Immerse the responsive glass membrane and the liquid junction in the sample solution completely. Make sure that the surface of the internal gel inside the electrode is higher than the surface of the sample solution.



5. Rinse the electrode with the sample solution lightly to remove bubbles. If bubbles remain on the electrode surface, accurate measurement cannot be performed.



### Note

For calibration and measurement on pH meter, refer to the instruction manual of pH meter.

## Maintenance

### Note

Do not use organic solvents (such as acetone or tetrahydrofuran) as cleaning solutions. Using such chemicals may damage the body of the electrode or cause a decline in performance.

Dirt on the responsive glass membrane or the liquid junction by the test solution may cause a decline in electrode response and sensitivity or measurement error. If the electrode is very dirty and cannot be washed clean using pure water (or deionized water), perform cleaning.

### Cleaning of electrode

1. Immerse the responsive glass membrane and the liquid junction in the cleaning solution for approximately one hour until dirt is removed. The responsive glass membrane can also be cleaned by wiping it with cotton gauze containing the cleaning solution.



Type of dirt	Cleaning solution
General	Diluted neutral cleaning solution
Oil	Alcohol, or diluted neutral cleaning solution
Inorganic substance	Electrode cleaning solution (model 220) or hydrochloric acid approximately 1 mol/L
Liquid junction	Electrode cleaning solution (model 220)
Altered of glass, Slow-response	Electrode cleaning solution (model 220)

2. Rinse the electrode with pure water (or deionized water) completely.



3. Immerse the liquid junction completely into 3.3 mol/L KCl solution (model: 300) for approximately 30 minutes before use.

### Note

Be sure to perform calibration prior to measurement after cleaning the electrode.

## Storage

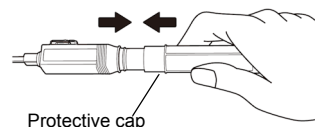
1. Clean the electrode well with pure water (or deionized water) to remove sample completely and wipe it with filter paper or tissue paper.



2. Clean the inside of the protective cap with pure water (or deionized water), then add enough pure water (or deionized water) to soak the sponge.



3. Attach the protective cap.



### Note

- Do not dry the responsive glass membrane and the liquid junction. If they are dry, immerse the electrode into 3.3 mol/L KCl solution (model: 300) (Refer to "Maintenance" (page 3)). After these procedures, perform calibration. If calibration cannot be performed correctly, replace the electrode.
- Adjust the water amount not to immerse the liquid junction. Otherwise, the electrode life span will be shortened.
- If there are air bubbles around the liquid junction, stir the electrode to remove bubbles.
- Avoid storing the electrode in hot and humid locations. Store the electrode indoors, out of direct sunlight.

## For accurate measurement

For accurate measurement, refer to the items below.

- Stir the sample solution with stirrer in measurement (calibration).
- In reference to the instruction of the pH meter, perform temperature compensation manually or automatically.
- Temperature of the standard solution and the sample solution should be the same.
- Immerse the responsive glass membrane and the liquid junction in the sample solution completely. Make sure that the surface of the internal gel inside the electrode is higher than the surface of the sample solution.
- Rinse the electrode with the sample solution before measurement.
- Perform calibration before measurement. If measurement is performed every day, perform calibration once or more a day.