

## pH Electrode (35419-42) Instruction Manual

This manual describes the operation of pH electrode, 35419-42. Be sure to read this manual carefully, before using the electrode.

### Conformable standards

This equipment conforms to the following standards:



RoHS: EN IEC 63000

9. Monitoring and control instruments including industrial monitoring and control instruments



RoHS: BS EN IEC 63000

9. Monitoring and control instruments including industrial monitoring and control instruments

### Authorised representative in EU and UK

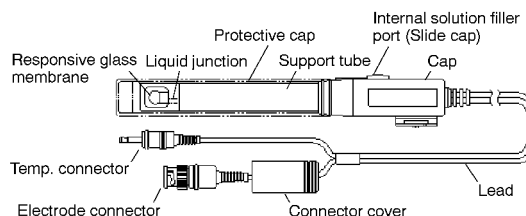
- If the responsive glass membrane or liquid junction is very dirty and cannot be washed clean using pure water, cleanse it depending on dirt condition. (Refer to "Maintenance" (page 4).)
- Avoid continuous use of this electrode at acidic or alkaline concentrations above 0.1 mol/L. Using the electrode under these conditions may harm performance and shorten the life of the electrode.
- Do not measure the solutions which contain fluoride ion, which may corrode the glass electrode.
- Do not suddenly immerse the electrode in samples where the temperature variation is 50°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 for regulations of your country for disposal of the product.

### Packaged Contents

Name	Q'ty
Electrode 35419-42	1 pc
Instruction manual (this book)	1 booklet




### Specifications and Parts Description

#### Part name



### Caution on Use

#### Safety Precautions

 <b>CAUTION</b>	
	<b>Chemical solution</b> The internal solution in the electrode uses potassium chloride (3.33 mol/L-KCl). If the internal material comes in contact with the hands or skin, wash immediately with water. If the internal solution comes in contact with the eyes, flush with a large amount of running water, then seek medical advice.
	 <b>Glass fragments</b> Glass fragments can cause injury. The tip of the electrode are made from glass. Be careful not to break them.

#### 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.
- Always use the 3.33 mol/L-KCl solution internal solution for reference electrode.

## ● Specifications

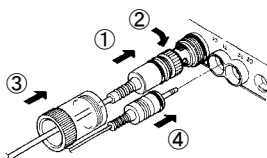
Electrode model	35419-42
Measurement range	pH 0 to 14
Usable temperature range	0°C to 100°C (In submergence measurement: 0°C to 50°C)
Storage temperature range	0°C to 50°C
Internal electrode	Silver/silver chloride
Reference electrode internal solution	3.33 mol/L-KCl solution
Liquid junction material	Porous ceramic
Wetted material	Glass, silicone rubber, ceramic, polysulfone, polyolefin, polyamide
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.

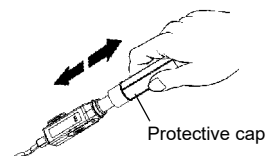
## ■ Preparation

### Note

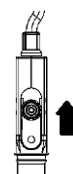
White crystal (KCl) can adhere to the internal solution filler port or protective cap. However, it will not cause any performance problem. Wash away the white crystal with pure water.

## ● For the first use or use after a long interval

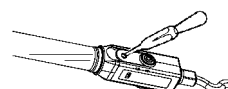
1. Remove the protective cap.



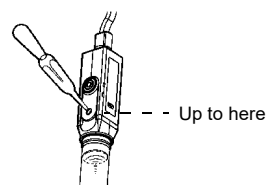
2. Open the internal solution filler port.



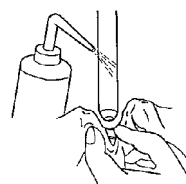
3. Remove the existing electrode internal solution with a dropper.



4. Fill the electrode with new internal solution until the solution level gets close to the internal solution filler port.

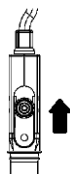


5. Wash the electrode tip well with pure water, then wipe it with filter paper.

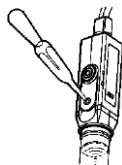


## ■ Measurement (calibration)

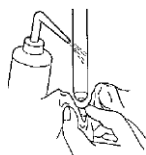
1. Open the internal solution filler port.



2. If necessary, fill the electrode with new internal solution until the solution level gets close to the internal solution filler port.



3. Wash the electrode with pure water and wipe it with filter paper, prior to every immersion into standard/sample solution.



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



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



6. Stir the electrode lightly to remove bubbles.



### Note

- Be sure to keep the internal solution filler port open during measurement. If it is clogged with the solution, accurate measurement cannot be performed. Wipe the solution with cloth.
- For calibration/measurement on pH meter, refer to the instruction manual of pH meter.

## ● In submergence measurement

- Perform measurement with the internal solution filler port closed.
- Pour the internal solution as much as possible, and close the internal solution filler port not to leave the bubbles inside the electrode.
- Avoid continuous use for more than 30 minutes.
- Do not swing around the sensor, and do not pull the connection with the cable. In addition, do not hold the cable the electrode and pH meter hanging. It may cause breaking of wire.

## Maintenance

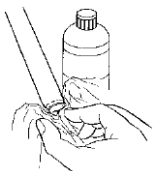
### Note

Do not use organic solvents (such as acetone or tetrahydrofuran) or acid (above 1 mol/L) or alkaline (above 0.1 mol/L) cleansing solutions. Using such chemicals may damage the body of the electrode or cause a decline in performance.

- To maintain electrode performance, replace the internal solution approximately every one or two months. (Refer to "Preparation" (page 2).)
- Dirt on the responsive glass membrane or 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, perform cleansing.

### Cleansing of electrode

1. Open the internal solution filler port.
2. Immerse the responsive glass membrane and liquid junction in cleansing agent for approximately one hour until contamination is removed. The responsive glass membrane can also be cleaned by wiping it with cotton gauze containing cleansing agent.



Type of dirt	Cleansing agent
General	Diluted neutral cleansing agent
Oil	Alcohol, or diluted neutral cleansing agent
Inorganic substance	Hydrochloric acid approximately 1 mol/L

3. Rinse the electrode with pure water completely.



4. Replace the internal solution.  
(Refer to "Preparation" (page 2).)

### Note

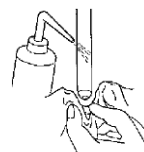
Be sure to perform calibration prior to measurement after cleansing the electrode.

### Tip

Applying pressure on the internal solution and exuding it from liquid junction have an effect of stabilizing pH response.

## Storage

1. Wash the electrode well with pure water to remove sample completely and wipe it with filter paper.



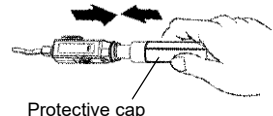
2. Close the internal solution filler port.



3. Wash the inside of the protective cap with pure water, then add enough pure water to soak the sponge.



4. Attach the protective cap.



### Note

- Do not dry the responsive glass membrane and liquid junction. If they are dry, replace the internal solution and immerse them in pure water for 24 hours or longer. After these procedures, perform calibration. If calibration cannot be performed correctly, replace the electrode.
- 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 items below.

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