

Conductivity Electrode (35419-47) Instruction Manual

This manual describes the operation of the conductivity electrode, 35419-47. 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
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Cautions during handling

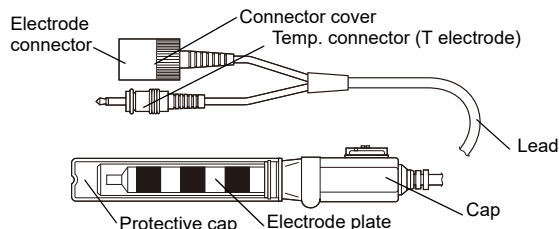
- Do not allow the electrode to come in contact with any hard surface.
- If the electrode pole plate is dry, immerse the electrode in pure (ion exchange) water for at least one hour, prior to use.
- The electrode connector requires a high degree of insulation. Do not allow the connector to come in contact with water or dirty hands.
- Do not rub the electrode plate with a brush or polish it with a polishing agent.
- The water-resistant construction of pH meters can be used in combination with this electrode to provide water-resistant construction (conforming to IP-67). When measuring, do not immerse the cap, lead or connector in the sample.

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Electrode	1 pc
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Specifications and parts description

Part name

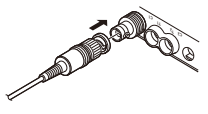
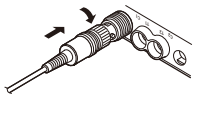
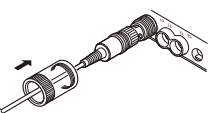
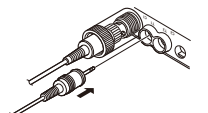


Specifications

Electrode model	35419-47
Cell constant	100 m ⁻¹ (Former units: 1 cm ⁻¹)
Measurement range	0.1 mS/ to 10 S/m (Former units: 1 μS/cm to 100 mS/cm)
Usable temperature range	0°C to 80°C
Storage temperature range	0°C to 50°C
Electrode material	Titanium - platinum black
Wetted part materials	PPS, PSF and titanium
Electrode length	150 mm (incl. cap)
Max. height of electrode plate	53 mm (position from electrode tip)
Exit. diam. of wetted part	16 mm
Lead length	1 m

Preparations

Connecting to pH meter

<p>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.</p> 	<p>2. Press the electrode connector into the connector port on the meter, while turning the connector to the right.</p> 
<p>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.</p> 	<p>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.</p> 

Setting cell constant

The cell constant for this electrode is displayed on the electrode cap. Enter the cell constant (shown as 1.030 × 100 m⁻¹, in this example) of the electrode, by following the instructions in the Operation Manual for the meter.

Example: **35419-47** LOT.
1.030 x 100 m⁻¹



SI units system

The explanation of this electrode uses SI units. Using SI units instead of the formerly used units means that the units used to express length have changed from "cm" to "m". To convert the numerical parts of the cell constant and conductivity from the former units to SI units, the numerical parts are multiplied by 100.

Sample calculations:

- Converting cell constant from cm^{-1} to m^{-1}
 1 cm^{-1} in former units is multiplied by 100, resulting in 100 m^{-1} in SI units.
- Converting conductivity from S/cm to S/m
 $10 \text{ }\mu\text{S/cm}$ in former units is multiplied by 100, resulting in $1,000 \text{ }\mu\text{S/m}$, which is equal to 1 mS/m .

Reference:

$$1,000 \text{ }\mu\text{S/m} = 1 \text{ mS/m}$$

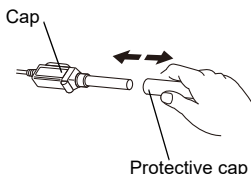
$$1,000 \text{ mS/m} = 1 \text{ S/m}$$

Use the following comparison table to convert from former units to SI units.

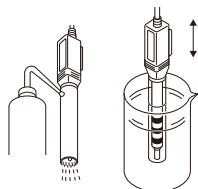
	Former units	SI units
Cell constant	1 cm^{-1}	100 m^{-1}
	0.1 cm^{-1}	10 m^{-1}
	10 cm^{-1}	1000 m^{-1}
Conductivity	$10 \text{ }\mu\text{S/cm}$	1 mS/m
	1 mS/cm	100 mS/m
	100 mS/cm	10 S/m

Preparing electrode

- Hold the cap and remove the protective cap.

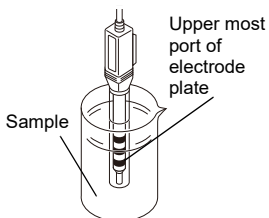


- Either wash the electrode plate using a wash bottle that contains pure (ion exchange) water, or immerse the electrode in a beaker containing pure (ion exchange) water and lift the electrode up and down a few times to rinse it, then wipe it dry using filter or tissue paper.

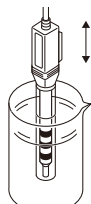


Points to remember when measuring

- Immerse the electrode in the sample, so that the uppermost part of the electrode plate is completely immersed.



- After immersing the electrode in the sample, lightly stir the electrode around to both get it used to the sample and remove any air bubbles.



Note

- When measuring pure water or other water having low conductivity (a few $100 \text{ }\mu\text{S/m}$ or less), the absorption of Carbon Dioxide in the air or other external interference may adversely effect the results. In such cases, air should be stopped from entering the measuring environment and measurement should take place under air-tight conditions; or, use of a flow-form conductivity electrode is recommended.

- Avoid measuring samples having a viscosity of $0.1 \text{ Pa}\cdot\text{s}$ (1P) or more and samples containing large amounts of oils.
- The surface of the electrode plate absorbs various kinds of macromolecular substances (such as proteins and fats). Wash the electrode well, after measuring samples that contain these substances.

Maintenance

- Wash the electrode well using pure (ion exchange) water, to remove any sample still clinging to the electrode.
- If the electrode is very dirty and cannot be washed clean using pure (ion exchange) water, wash it using the appropriate method below. Then, rinse the electrode well using pure (ion exchange) water.
- Long-term use of the electrode may result in shifts in the cell constant, due to changes in the surface condition of the electrode plate. We recommend measuring the cell constant once every two or three months. For further details, refer to the Operation Manual.

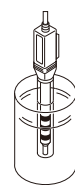
General/oily dirt

Immerse the electrode in a neutral cleansing agent, then rinse the dirt off.



Inorganic or other dirt

Immerse the electrode in 1 mol/L hydrochloric acid for approximately 30 minutes.



Note

If the electrode remains dirty after performing the above cleaning operations, immerse the electrode in a solution that is appropriate for the particular conditions of the dirt and clean the electrode using ultrasonic waves for five minutes. After this, measure the cell constant.

Storage

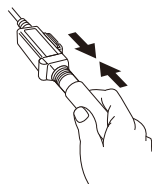
- Wash the electrode well using pure (ion exchange) water, to remove any sample still clinging to the electrode.



- Wash the electrode well using pure (ion exchange) water, to remove any sample still clinging to the electrode.



- Attach the protective cap.



Note

- Storing the electrode for an extended period of time while the inside of the protective cap is dry may lead to a decline in electrode responsiveness and sensitivity.
- Avoid storing the electrode in hot place or places with high humidity. Store the electrode indoors, out of direct sunlight.