

User Maintenance and Troubleshooting

Symptom	Possible Cause	Remedy
Drift	Wick blocked	Clean Wick
	Sensor tip not clean	Clean glass membrane
	Membrane aged/damaged	Allow longer measuring time or replace
	Temperature changes	Stabilise temperature
Noisy	Bubble in membrane	Flick electrode downward
	Poor connection	Check connections
	Wick not fully immersed	Lower electrode into solution below wick
Low Slope (<95%)	Contaminated buffers	Replace buffers
	Membrane not clean	Clean membrane
	Membrane aged	Allow more time for stabilisation or replace
	Electrode polarised	Isolate sample electrically
Slow Response	Membrane not clean	Clean membrane
	Membrane aged	Allow more time for stabilisation or replace
Reads pH7 in all buffers	Electrical short	Check connector
	Internal short	Replace electrode
Reads pH4-5 in all buffers	Membrane or stem cracked	Replace electrode
Large Offset (>0.5pH)	Electrode polarised	Isolate sample electrically

Warranty

Ionode electrodes have an expected lifetime of several years in ideal samples at room temperature.

Visit ionode.com/support/warranty for full warranty details.



Contact Ionode or your preferred reseller for information on a range of quality lab supplies including meters, buffers & lab accessories.

All specifications and values are subject to change without notice. © 2024



Parameter	Operating Range
pH Range	0-14 pH
Zero Potential Point	pH 7.0 ± 0.3
Electrode Slope	> 98% (at time of manufacture)
Body Type	Polypropylene
Temperature Range	0 - 60°C
Reference Type	Double Junction Ag/AgCl/sat KCl
Cable Length	1m standard, longer available. Maximum 20m
Connector	BNC standard Others upon request

Operators Manual



IJ Series

Intermediate Junction pH Electrode



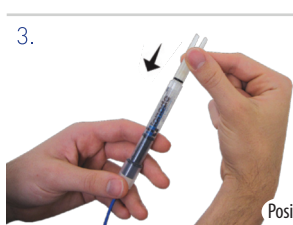
Introduction

The guide contains the basic information for correct use and maintenance of your Ionode pH electrode.

Contact us for more information support@ionode.com

Preparation

IJ Series electrodes are shipped without sleeve electrolyte and must be filled prior to use. Some residual electrolyte may be evident due to QC procedures, but is of no concern. To fill, hold the electrode by the sleeve and gently ease off the rubber wetting cap and prepare as follows:

	
1. Invert the electrode. Hold the electrode just below the sleeve and with careful rotation and pulling along the axis of the electrode, remove the sleeve. DO NOT BEND.	2. Fill the annular space with gel or electrolyte to approximately half to three quarter full.
	
3. Slide the sleeve back onto the electrode ensuring the black O-ring is correctly seated within the electrode body. Do not exert sideways force. Any excess electrolyte will be expelled from the end of the electrode through the ground junction.	4. To ensure there are no air bubbles in the membrane, hold the electrode with the pH bulb facing downwards & gently flick the body to dislodge any bubbles. Wash off any excess electrolyte and store in KS250 or 3M KCl before use.

Cleaning

Cleanliness of the sensor and junction is critical for accurate measurements. Drift, poor slope and slow response are often due to an unclean sensor or junction. DO NOT use abrasive materials to clean the electrode.

To remove solids and organics:

Wipe the membrane with cotton or tissue soaked in methylated spirits. Rinse well with water and condition in 3M KCl for one hour before use.

To remove strongly adsorbed and chemically bonded impurities:

Wipe the membrane with methylated spirits on a soft cloth. Rinse well with water and condition in 3M KCl for one hour before use. In the case of protein contamination, use 5% Pepsin in 0.1M HCl solution.

To remove inorganic deposits and scale:

If above steps to remove deposits do not work, soak membrane in 0.1M HCl for 15 minutes. Rinse well with water and condition in 3M KCl solution for one hour before use.

Helpful Hints

- Use the same technique during calibration and sample measurements (including stirring rates).
- Try to ensure that the pH buffers and the samples are at the same temperature (within $\pm 5^{\circ}\text{C}$ or better).
- Calibrate regularly and always use fresh buffers.
- Keep all connections dry
- Use a dedicated high impedance pH meter.
- Ensure the membrane is completely submerged while in use.
- Do not use the electrode in fluoride solutions of low pH as this will damage the glass membrane.
- Minimise contact with sulphide vapours and change the sleeve electrolyte frequently in these conditions.
- If the electrode has a low slope/abnormal measurement, replace the sleeve electrolyte.

pH Electrode Calibration

1. Consult the meter instruction manual for meter setup. Connect the electrode (and temperature sensor if applicable) rinse the electrode with distilled water and blot dry.
2. Immerse the electrode membrane in pH7 buffer and wait for a stable reading.
3. Rinse the electrode with distilled or deionised water and carefully blot the membrane dry with a clean tissue. Then immerse the electrode membrane pH4 buffer and wait for stability. If the electrode is performing correctly, your meter should show a calculated slope of at least 95%. Repeat calibration if necessary.

Maintenance & Storage

Electrode Storage Solution (KS250) is recommended for storage and conditioning.

Short Term Storage (< 1 week)

- Keep the electrode membrane immersed in KS250 or 3M KCl to stabilise junction potentials.

Long Term Storage (> 1 week)

- Remove and clean the sleeve, then replace sleeve (without electrolyte) and attach the wetting cap.
- DO NOT store the electrode in deionised or distilled water.
- pH membranes are NOT damaged if allowed to dry out, but rehydration will be necessary.

Maintenance

- Replace sleeve electrolyte when necessary. The frequency of this is best determined by experience, however this should be done more often when measuring contaminated samples. At minimum, the sleeve electrolyte should be replaced once per month or
- Replace sleeve electrolyte when necessary. When used frequently, (multi sample per day) the electrolyte should be replaced once per week. The electrolyte should be replaced every use with contaminated samples. Experience. When not used frequently, a minimum of once per month is good practice.

If low slope/strange measurement, replace sleeve electrolyte