

User maintenance and troubleshooting

Symptom	Possible cause	Remedy
Drift	Junction blocked	Remove sleeve. Clean junction or ground glass stem
	Sensor tip not clean	Remove sleeve Clean sensor tip
	Reading stable in standards, but not in samples	See ORP theory available on-line: https://ionode.com/en/theory/orp-theory
Noisy	Poor connection to meter	Check connection
	Junction not immersed fully	Lower electrode into solution below junction
	Insufficient electrolyte	Refill electrolyte
Not within tolerance (±20mV)	Contaminated standard	Replace standard
	Sensor not clean	Remove sleeve. Clean sensor wire or disc. Re-gel
Displays 0mV for all solutions	Electrical or Internal short	Check connector or Replace electrode
Slow ORP response	Non reversible ORP reaction	Stir sample

Notes:

Warranty

Ionode IJ electrodes have an expected lifetime of several years in ideal samples at room temperature.
Refer to <https://ionode.com/en/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.
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Parameter	Operating Range
mV range	-2000 to +2000 mV
Accuracy	± 10mV
Temperature range	0 – 60°C or optional HT 0-100° C
Reference type	Double Junction Ag/AgCl/sat KCl
Sensor materials	Platinum wire Platinum disc Gold wire
Body and sleeve	Standard - Polypropylene High Temperature - Kynar (PVDF)
Overall length	150 mm
Barrel diameter	12 mm
Cable length	1m standard, longer on request.
Connector	BNC standard, others on request.

Operators Manual



Intermediate Junction ORP Electrodes

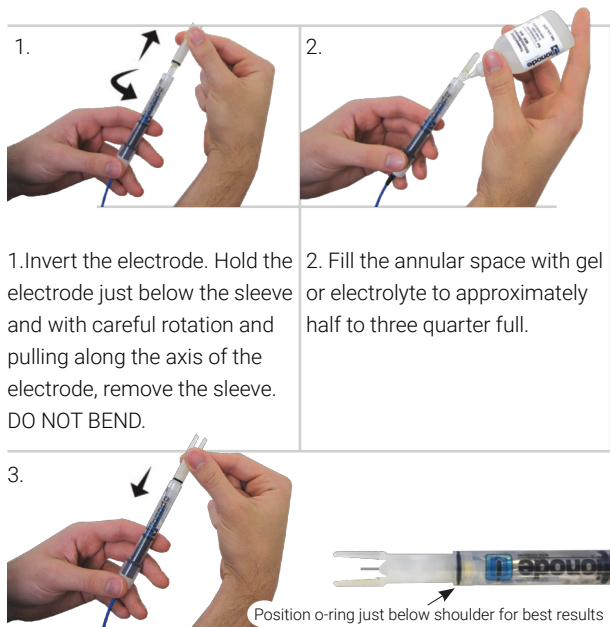


Introduction

This guide contains the basic information for correct use and maintenance of your new ORP electrode.

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:



Calibration

Unlike pH electrodes, ORP electrodes do not require asymmetry potential and slope correction. However, an offset can develop if the sensor tip or the reference junction becomes contaminated. To assure correct operation, check ORP electrodes with an ORP standard as detailed below.

Checking ORP Electrodes

- Set pH/mV meter to mV and connect electrode.
- Place the electrode in a stirred ORP standard, allow time to stabilise, and observe the reading.
- Note mV reading and compare to the correct value.
- If reading is not within $\pm 20\text{mV}$ of the correct value, clean the electrode, replenish the electrolyte and repeat the procedure.
- Rinse the electrode in distilled water before use.

ORP Standards

Ionode recommends the use of either Zobell's (229mV @25°C) or EasyCal 700mV standard for checking ORP electrodes.

ORP Standards.	Value mV @25°C	
EasyCal	+ 700 mV	
Zobells	+ 229mV	
Quinhydrone	pH 4	+264
	pH 6.86	+98
	pH 9.18	-41

Helpful Hints

- ORP standards are generally unstable—measure samples on site whenever possible.
- Most ORP reactions are not reversible—solutions should be stirred for best results.
- Clean the sensing tip regularly.
- Allow adequate time for stabilisation.
- Always use fresh standards.

Maintenance

- When not in use (short term), store the electrode dry.
 - 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.
- For long term storage, remove and clean the sleeve. Replace the sleeve (without electrolyte) and attach the wetting cap.

Cleaning

Cleanliness of the sensor and junction is critical for accurate measurement. Drift and slow response are often due to an unclean sensor/junction. Clean the electrode periodically. Do not use abrasive materials.

To remove inorganic deposits and scale:

Soak sensor tip in 0.1M HCl or nitric acid until clean. Wash well with water and condition in 3M KCl solution for at least 15 mins before use.

To remove solids and organics:

Wipe the sensor tip with cotton or tissue soaked in mild non-alkaline detergent. Wash well with water and condition in 3M KCl solution for at least 15 mins before use.

