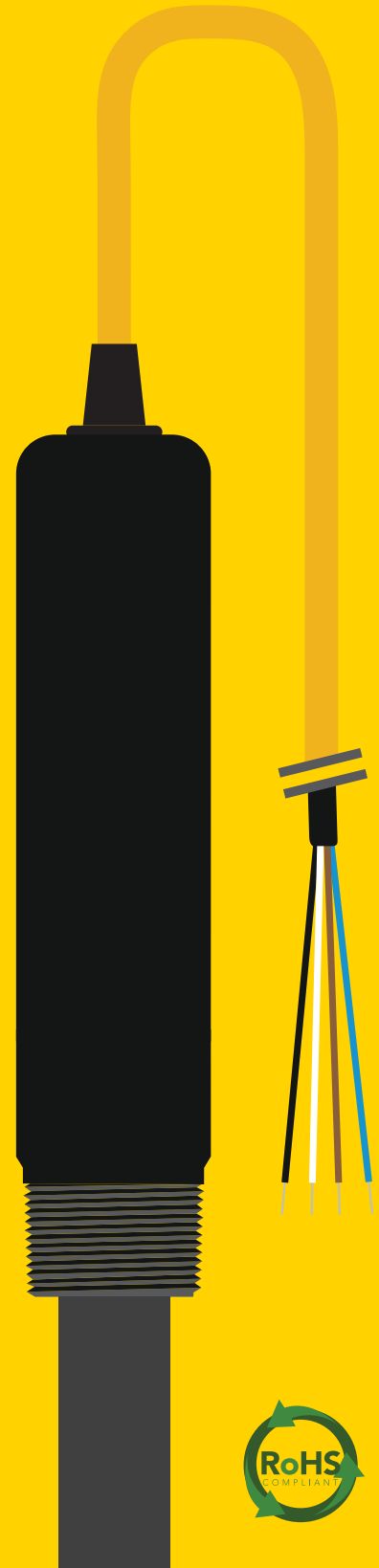


Gen 3

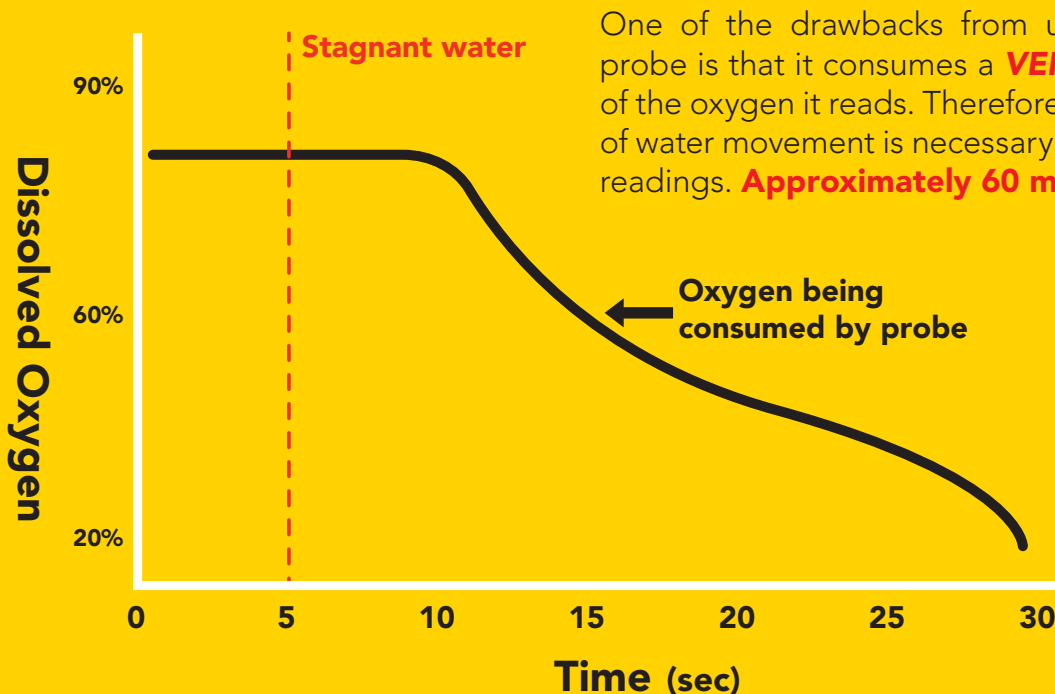
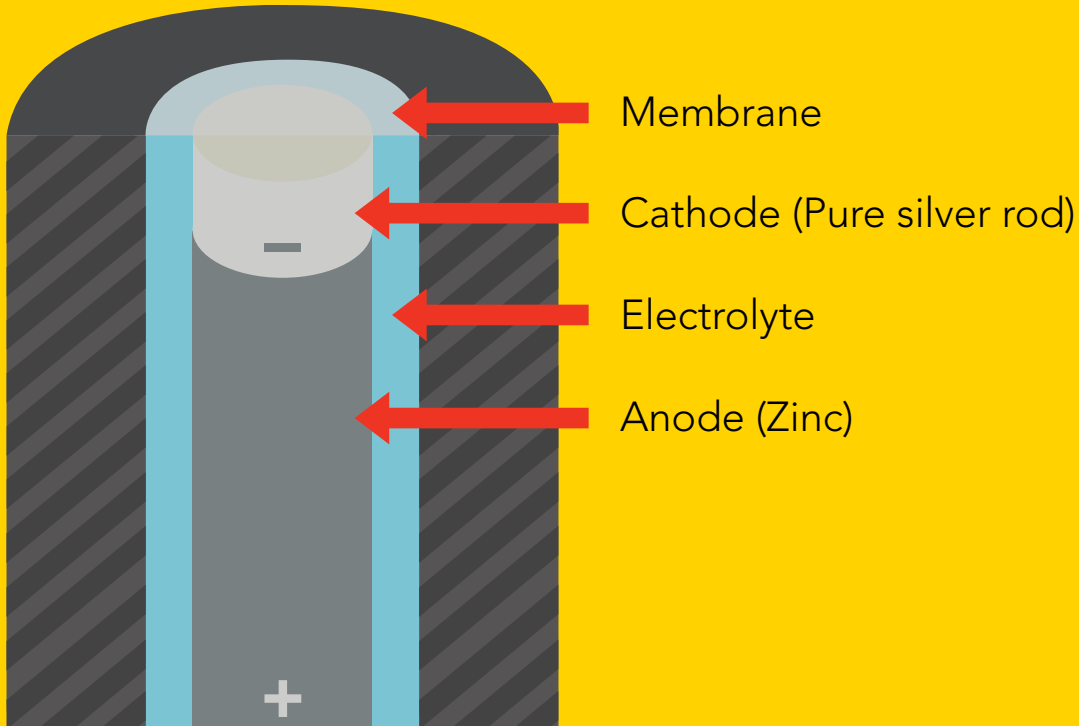
# Industrial D.O. Probe

Reads	<b>Dissolved Oxygen</b>
Range	<b>0 – 100 mg/L</b>
Accuracy	<b>+/- 0.05 mg/L</b>
Response time	<b>~0.1 mg/L/per sec</b>
Temperature range °C	<b>1 – 99 °C</b>
Max pressure	<b>300 PSI</b>
Max depth	<b>212m (694 ft)</b>
Connector	<b>Tinned leads</b>
Cable length	<b>3 Meters</b>
Internal temperature sensor	<b>Yes (PT-1000)</b>
Time before recalibration	<b>~1 Year</b>
Life expectancy	<b>~ 4 Years</b>
Maintenance	<b>~18 Months</b>



# Operating principle

This galvanic dissolved oxygen probe consists of a silicone membrane, an anode bathed in an electrolyte and a cathode. Oxygen molecules diffuse through the probe's membrane at a constant rate (without the membrane the reaction happens too quickly). Once the oxygen molecules have crossed the membrane they are reduced at the cathode and a small voltage is produced. If no oxygen molecules are present, the probe will output 0 mV. As the oxygen increases so does the mV output from the probe. Each probe will output a different voltage in the presence of oxygen. The only thing that is constant is that **0mV = 0 Oxygen**.



One of the drawbacks from using a galvanic probe is that it consumes a **VERY** small amount of the oxygen it reads. Therefore, a small amount of water movement is necessary to take accurate readings. **Approximately 60 ml/min.**

# Measurements

Storage Life ~5 Years  
Working Life ~4+ Years

172mm  
(6.7")

Cable Length  
3m (10')

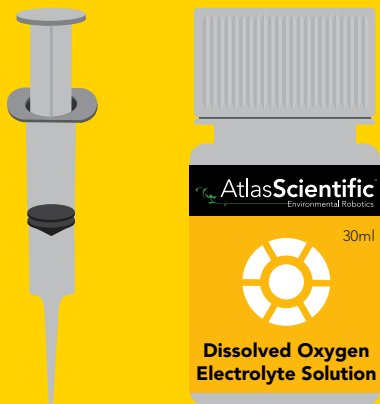
28.4mm  
(1.1")

— Ø 4.4mm

— Ø 5.3mm

99.2mm  
(3.9")

## Included with probe

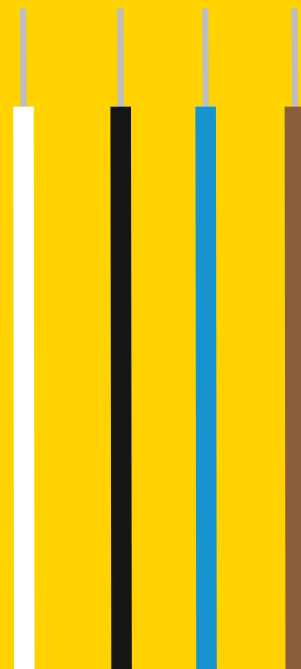


— 3/4 NPT

44.4mm  
(1.75")

19.2mm (.7")

D.O.  PT-1000  
(There is no polarity)



# NSF/ANSI 51 Compliant

## Food Safe

Atlas Scientific LLC, hereby certifies that,

**Industrial Dissolved Oxygen Probe**  
**Part # ENV-50-DO**

meets the NSF/ANSI Std. 51,  
Whether or not they bear the NSF Mark.

**Delrin®**  
(body)

— PVC

— Polyethylene

— PVC



**PVC**

NSF-51 Compliant



**Delrin®**

NSF-51 Compliant



**Polyethylene**

NSF-51 Compliant



**S.S. reinforced silicone**

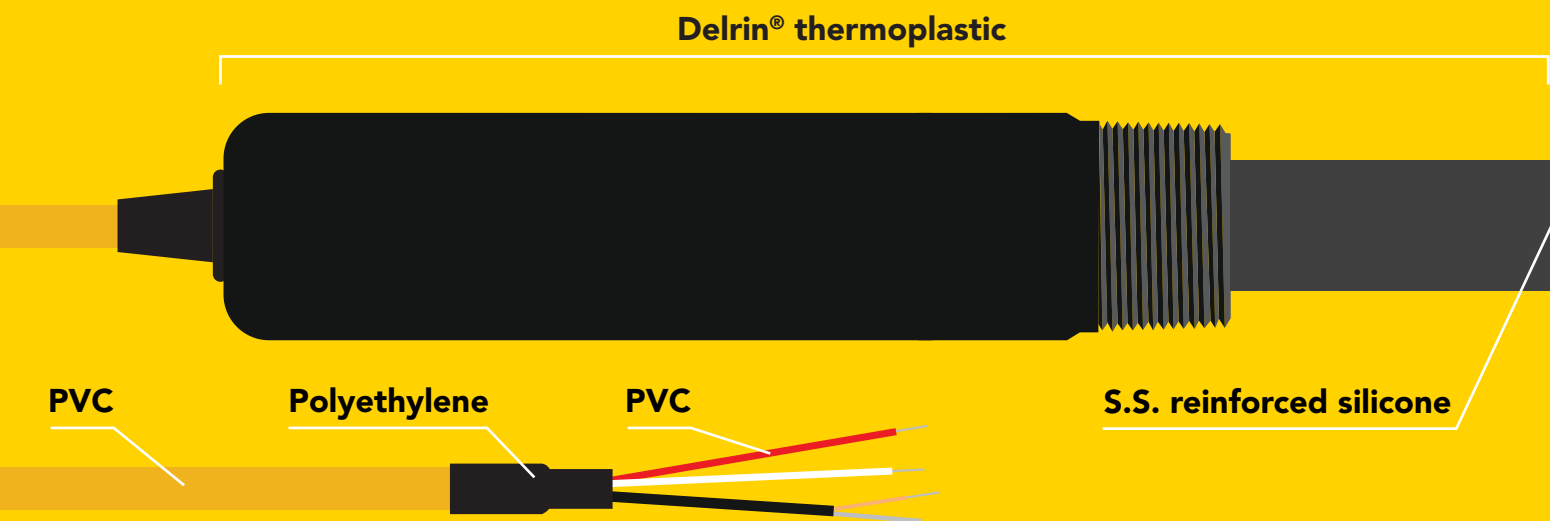
NSF-51 Compliant

— **S.S. reinforced silicone**

# Specifications

Body material	<b>Delrin® thermoplastic</b>
Max depth	<b>212m (694 ft)</b>
Cable length	<b>3m (10 feet)</b>
Internal temp. probe	<b>Yes</b>
Temp. probe type	<b>Class A platinum, RTD</b>
Temp. accuracy	<b>+/- (0.15 + (0.002*t))</b>
Tinned leads	<b>Yes</b>
Weight	<b>195 grams</b>
Threading	<b>(3/4") NPT</b>
Sterilization	<b>Chemical only</b>
Food safe	<b>Yes</b>

# Materials

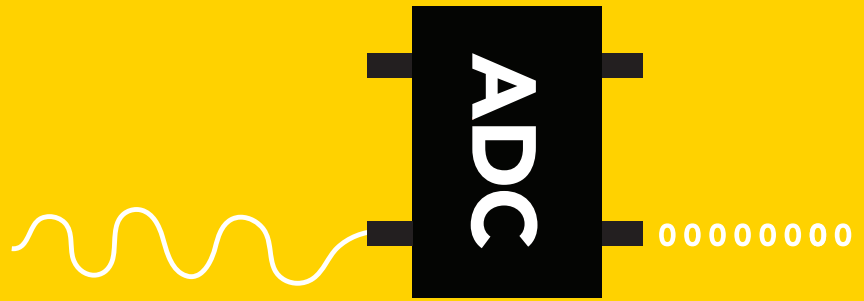


**This Dissolved Oxygen probe can be *fully submerged* in fresh or salt water, up to the Tinned leads *indefinitely*.**

This galvanic dissolved oxygen probe is a passive device that generates a small voltage from 0mv – 60+ mv depending on the oxygen saturation of the sensing membrane. This voltage can easily be read by a multimeter or an analog to digital converter.



Can be read with Multimeter



Can be read with ADC

## How often do you need to recalibrate a dissolved oxygen probe?

Because every use case is different, there is no set schedule for recalibration.

The dissolved oxygen probe reacts with oxygen in the water, the more oxygen it reacts with the more the probe is depleted of its electrolyte solution. Typically an industrial dissolved oxygen probe will last 2 years before the electrolyte is depleted (*results will vary*). When the electrolyte is depleted, the probe will read very low numbers. Best practice is to replace the electrolyte solution and membrane every 1 – 2 years.

**The Industrial Dissolved Oxygen probe comes with:**



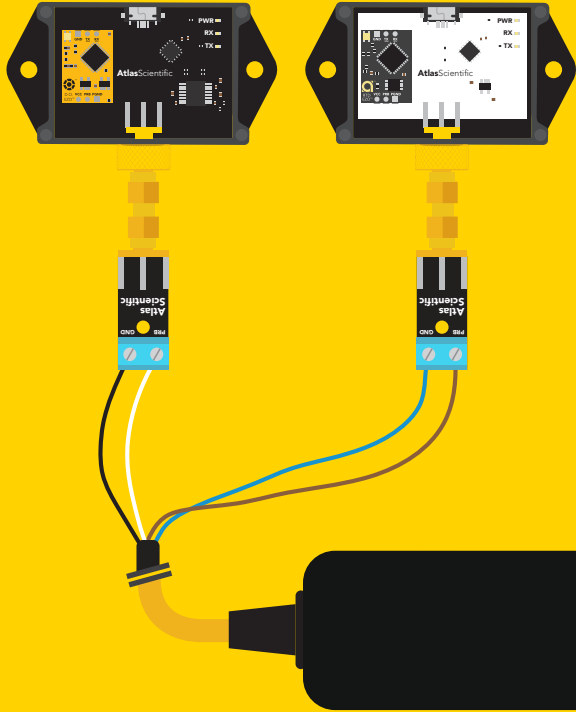
**30ml  
Dissolved Oxygen  
Electrolyte Solution**



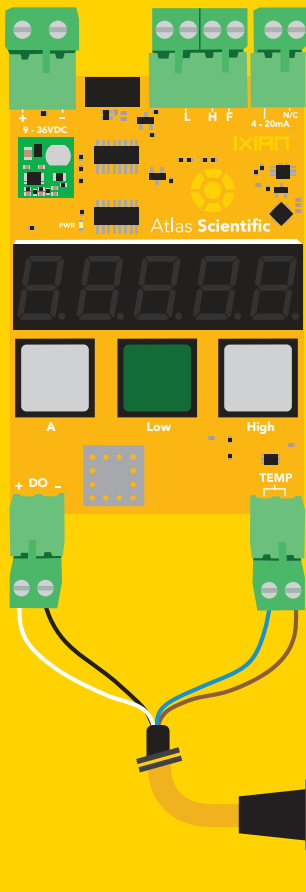
**Syringe**

# How to connect the industrial Dissolved Oxygen probe

The Atlas Scientific™ Gen 3 Industrial Dissolved Oxygen probe can be connected in several different ways. The following show two examples:



You can easily connect the Gen 3 Industrial D.O. probe, to the **EZO Complete-DO™** and **EZO Complete-TMP™**, using our **SMA to Screw Terminal (2 pack)**

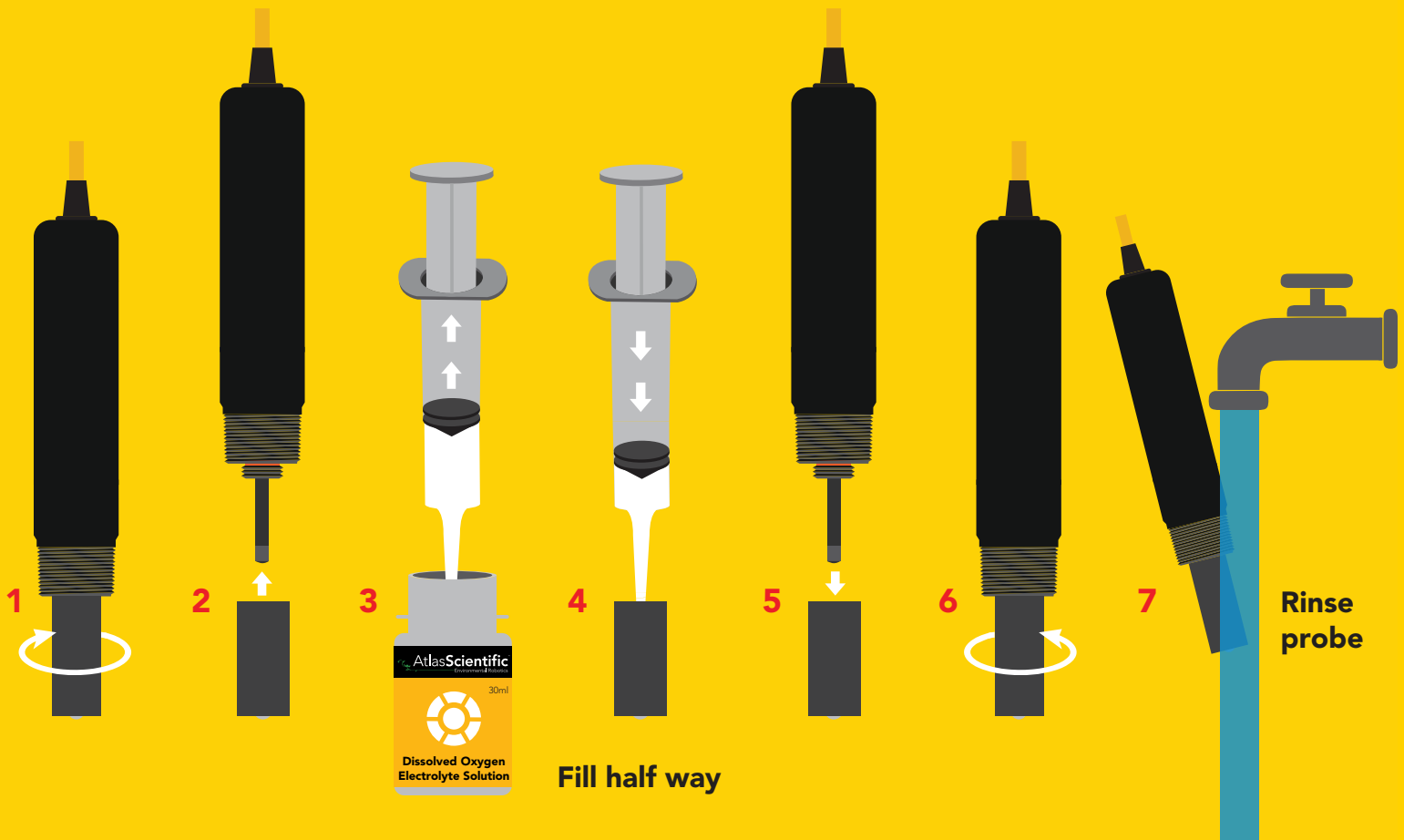
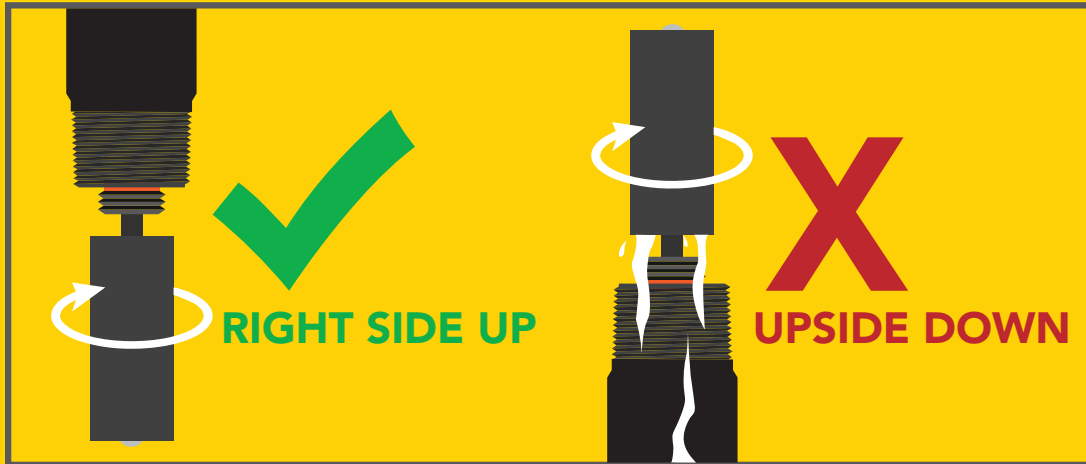


For industrial purposes, the Gen 3 Industrial DO probe, can be easily connected to our **Industrial DO Transmitter** via the probes tinned leads.

# How to add more electrolyte solution

During usage, a small amount of electrolyte solution within the dissolved oxygen probe will deplete. In this case, you will need to add more solution into the probe.

**To add more electrolyte solution:** Carefully unscrew the probes membrane cap, and drain any remaining electrolyte solution. Using the supplied syringe, **inject solution into the membrane cap until it's filled half way**. Screw the membrane cap back onto probe. Once the probe is reassembled, rinse of the probe.



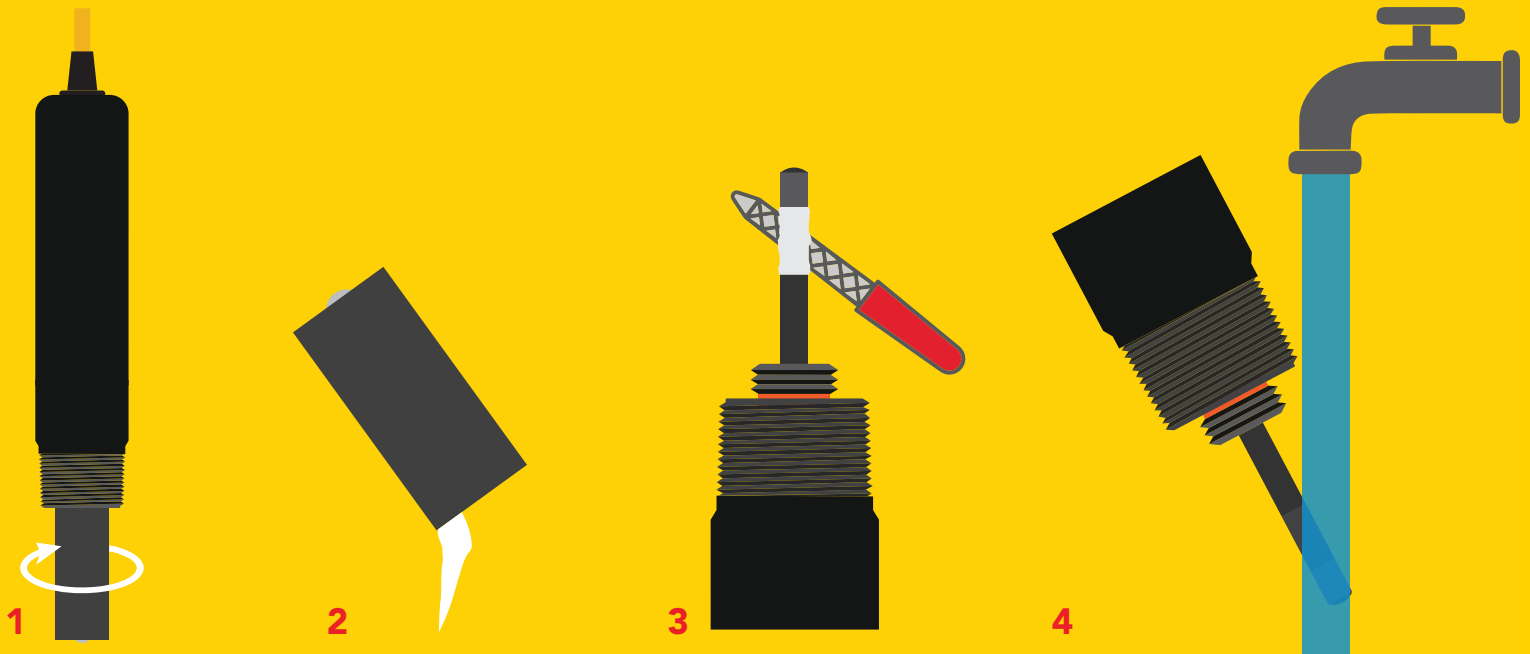
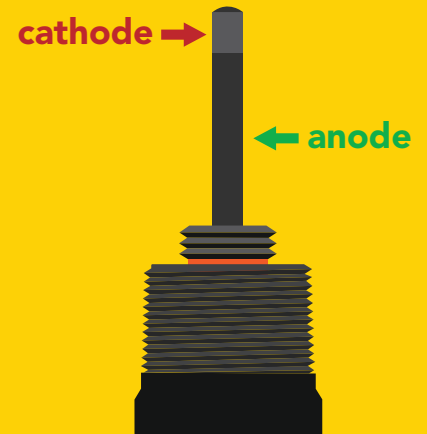
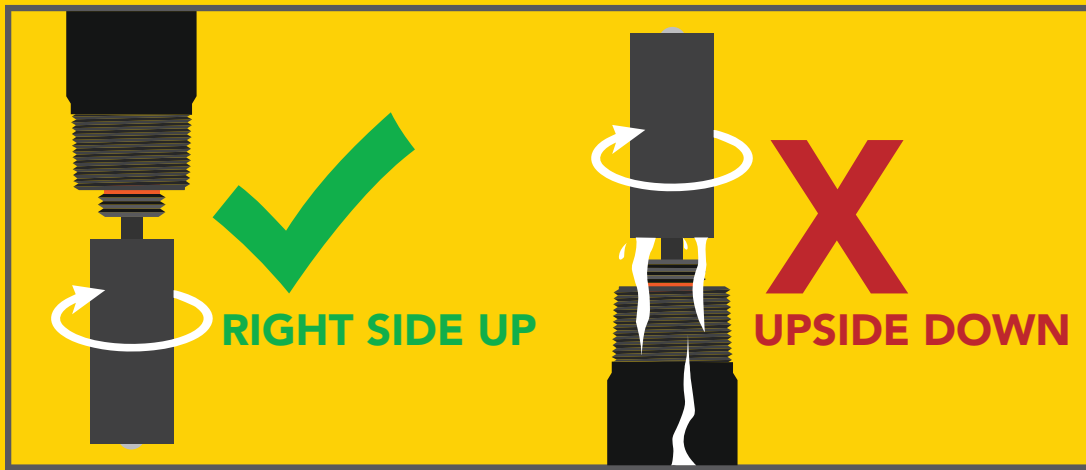


# How to recondition the industrial Dissolved Oxygen probe

During usage, a small amount of corrosion (*zinc oxide*) may build up around the anode of the probe, this will cause irregular readings. In this case, you will need to recondition the probe.

**To recondition the probe:** Carefully unscrew the probes membrane cap, and drain any remaining electrolyte solution. Using a small file, carefully file off the corrosion buildup around the anode of the probe. **Do not file the cathode**, as this will damage the probe. Once the corrosion has been removed, rinse the off the anode.

Using the supplied syringe, **inject solution into the membrane cap until it's filled half way**. Screw the membrane cap back onto probe. Once the probe is reassembled, rinse of the probe.

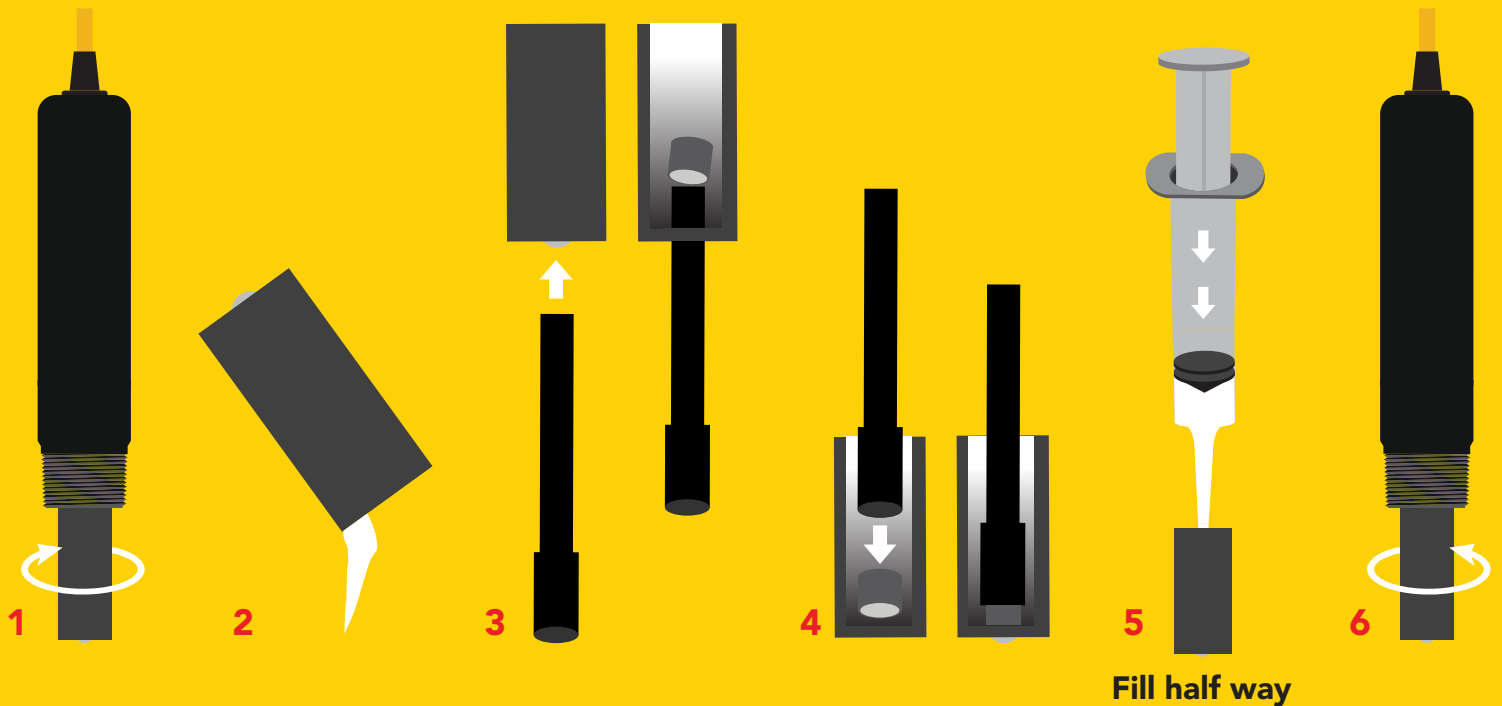
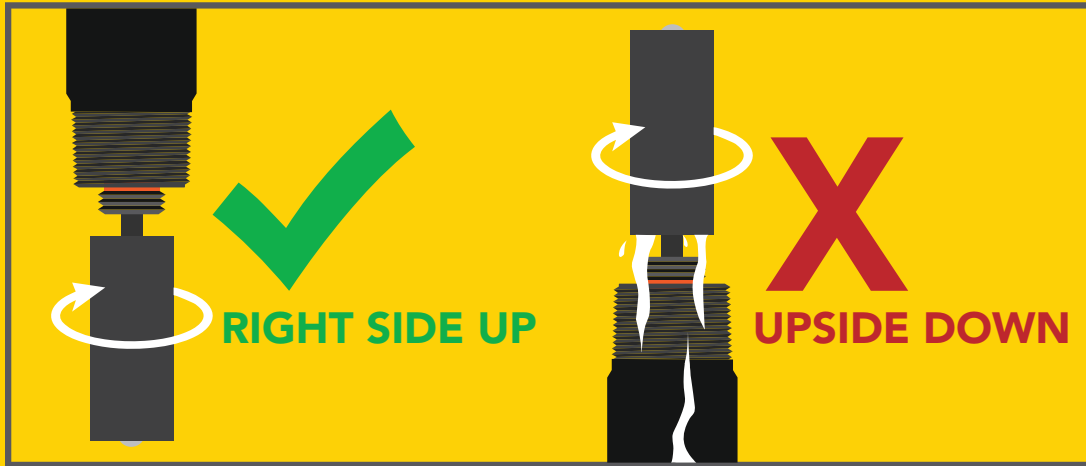


# How to replace the membrane

Over time, the membrane can wear out, this will lead to irregular readings from the probe. To correct this issue, the probes membrane must be replaced.

**To replace membrane:** Carefully unscrew the probes membrane cap, and drain any remaining electrolyte solution. Using the thinner end of the membrane replacement tool, push on the membrane from the outside of the cap until it comes loose.

Replace the membrane and O-Ring (if needed); then snap membrane in place using the thicker end of the membrane replacement tool, from the inside of the cap. Refill the membrane cap half way with electrolyte solution and screw on to probe body.

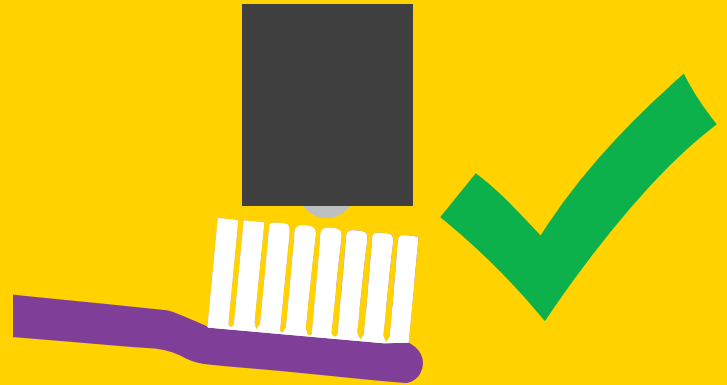


# Probe cleaning

Over time dissolved oxygen probes can become dirty and covered in chemical deposits. Soft coatings can be removed by lightly brushing around the sides of the probe and membrane cap.

## USE A SOFT BRISTLE BRUSH TO CLEAN THE MEMBRANE

If the probes membrane is ripped it must be replaced, as it will cause irregular readings.



**SOFT BRISTLE BRUSH ONLY!**

# 1980's — Today



**Despite appearances  
THE KCl CREEP  
is really quite harmless.**

The white crystals  
you may find on your electrode  
are formed by potassium chloride (KCl)  
from the electrode filling solution.  
Rinse the KCl from the electrode  
with distilled water and proceed as usual.



**Dried KCl residue  
from Electrolyte  
solution**

## Decades later...

**KCl continues to behave the same way.**

If you encounter the "KCl CREEP" or, if your probe dried out during shipping; Simply rinse off your probe with water, and carry on.

***Your probe is not damaged.***