

Gen 2

Industrial D.O. Probe

Reads

Dissolved Oxygen

Range

0 – 100 mg/L

Accuracy

+/- 0.05 mg/L

Response time

~0.1 mg/L/per sec

Temperature range °C

1 – 99 °C

Max pressure

300 PSI

Max depth

212m (694 ft)

Connector

Tinned leads

Cable length

3 Meters

Internal temperature sensor

Yes (PT-1000)

Time before recalibration

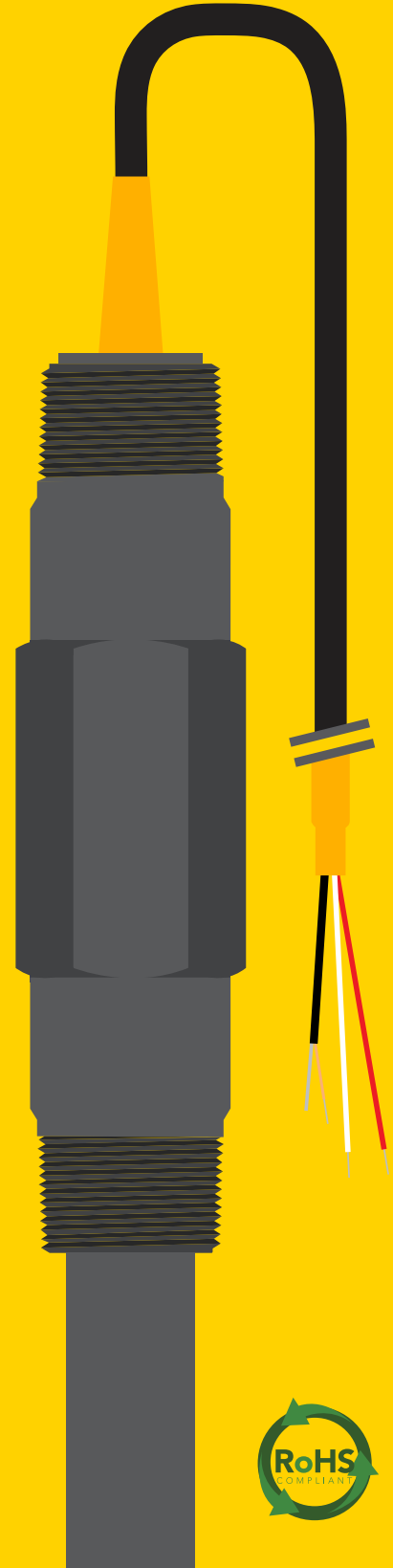
~1 Year

Life expectancy

~ 4 Years

Maintenance

~18 Months



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.



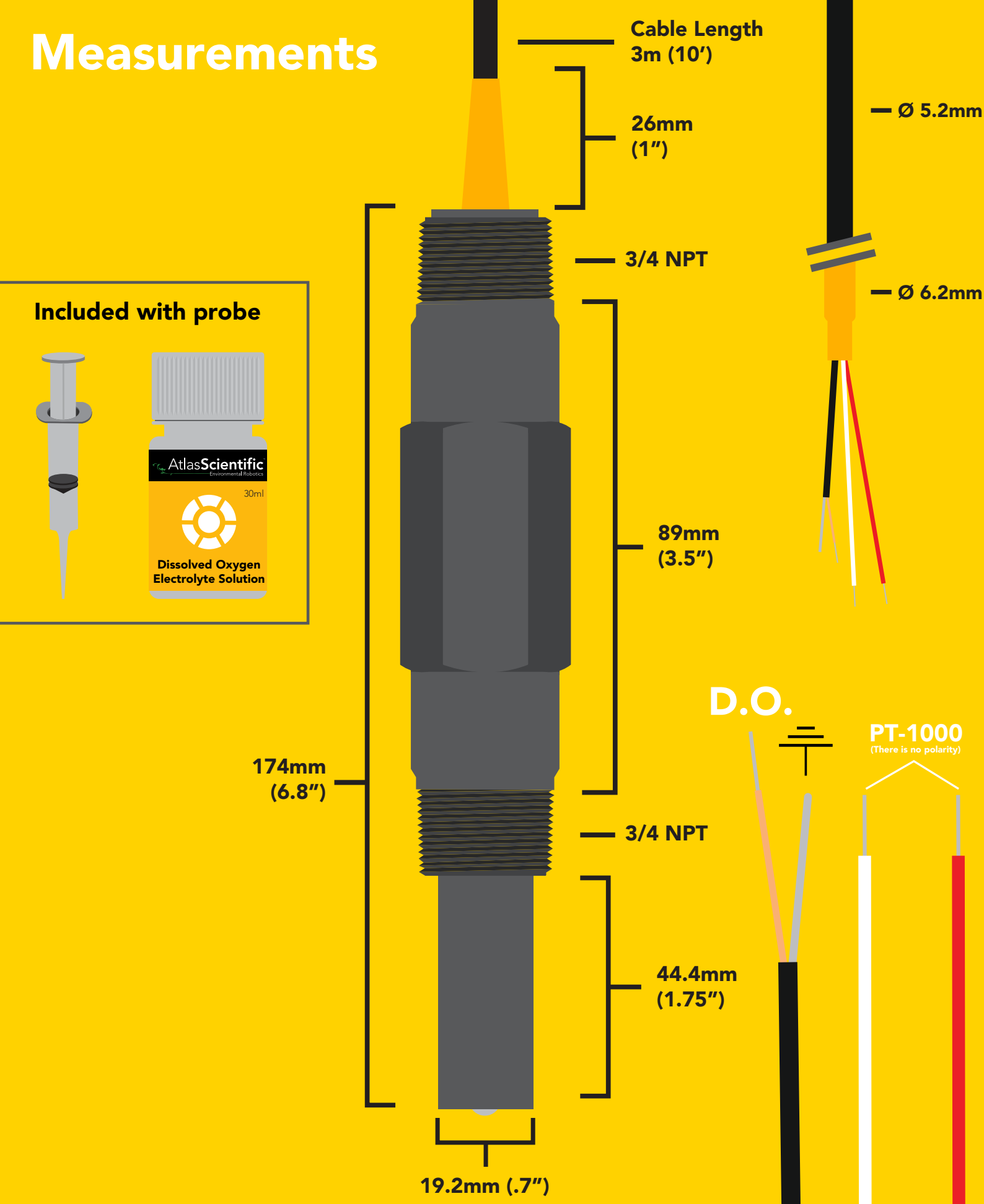
**Dried KCl residue
from Electrolyte
solution**

Decades later...

KCl continues to behave the same way.

If you encounter the "KCl CREEP" rinse off your probe with water,
and carry on. ***Your probe is not damaged.***

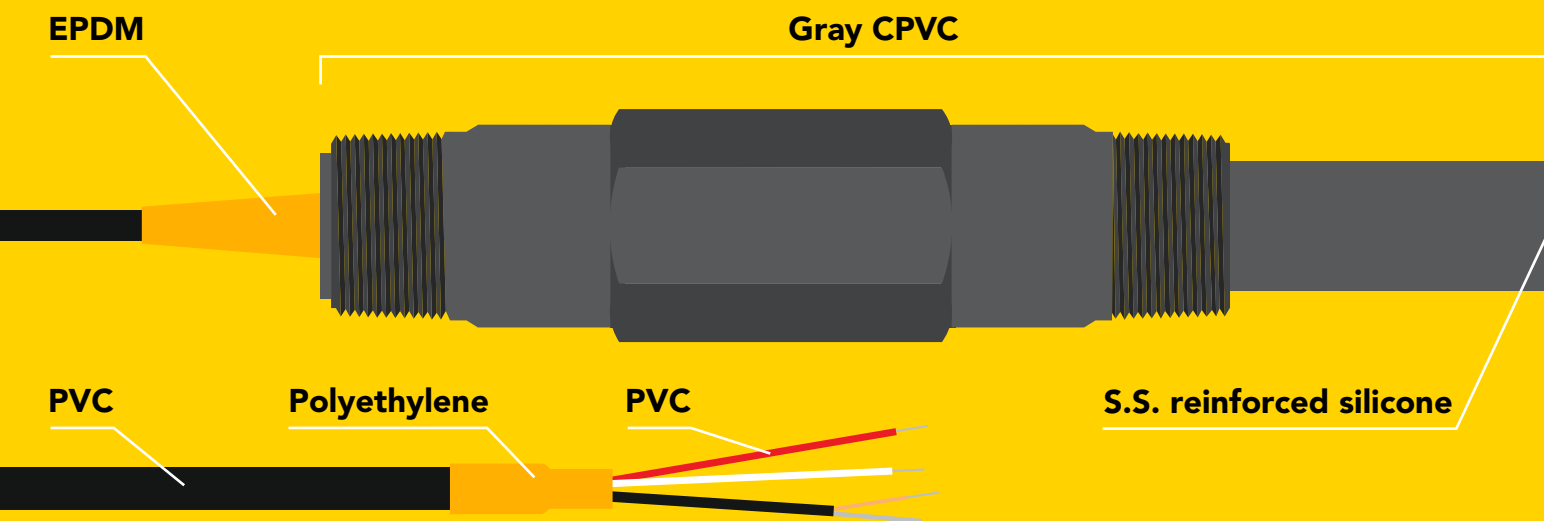
Measurements



Specifications

Body material	Gray CPVC
Max depth	212m (694 ft)
Cable length	3m (10 feet)
Internal temp. probe	Yes
Temp. probe type	Class A platinum, RTD
Temp. accuracy	+/- (0.15 + (0.002*t))
Tinned leads	Yes
Weight	233 grams
Threading	(3/4") NPT
Sterilization	Chemical only
Food safe	Yes

Materials



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

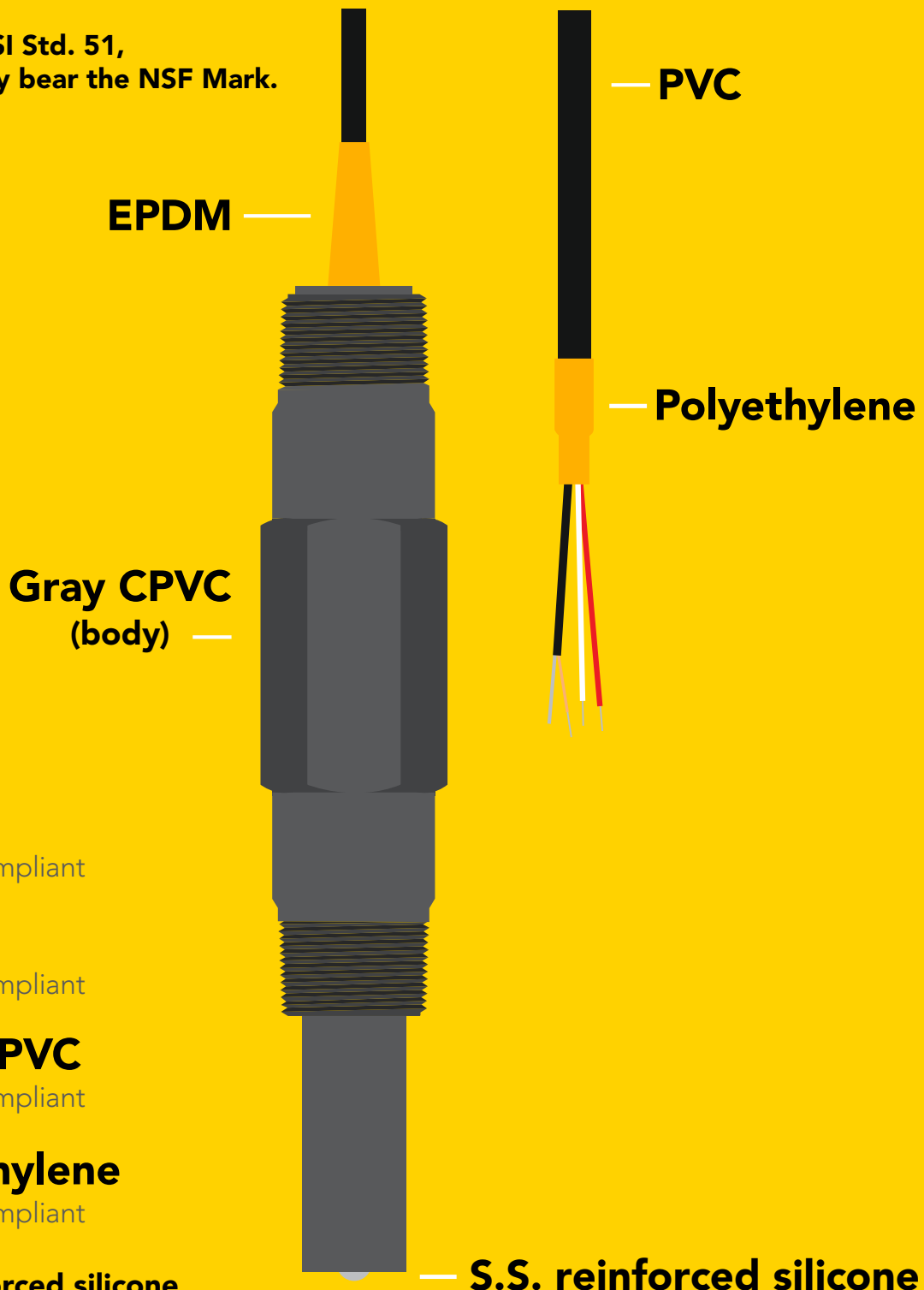
NSF/ANSI 51 Compliant

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.



PVC

NSF-51 Compliant



EPDM

NSF-51 Compliant



Gray CPVC

NSF-51 Compliant



Polyethylene

NSF-51 Compliant

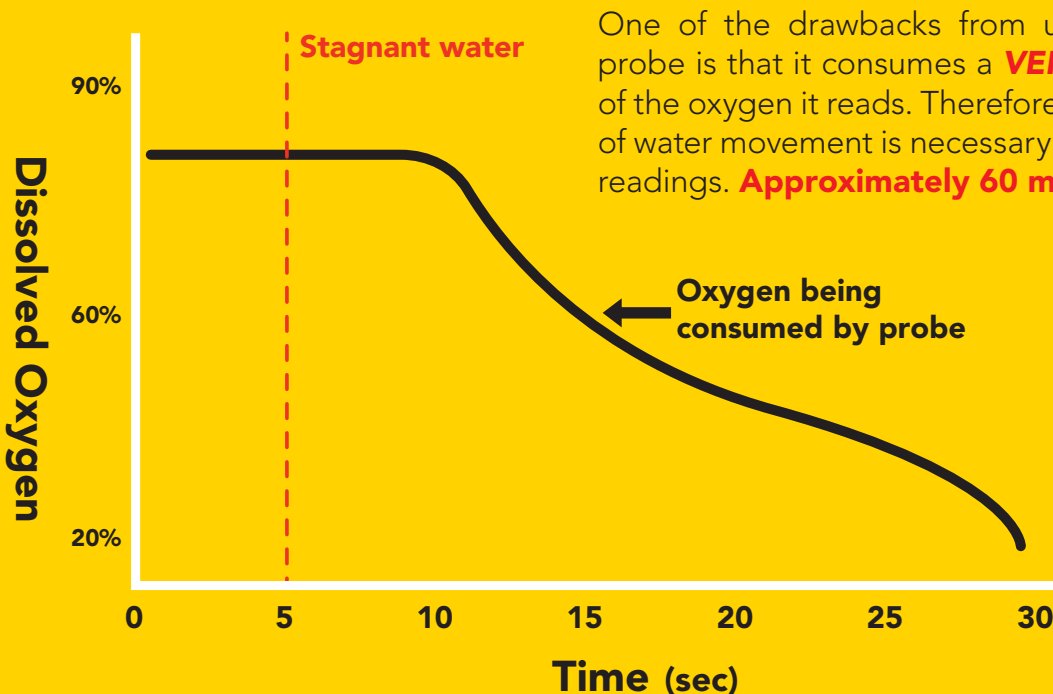
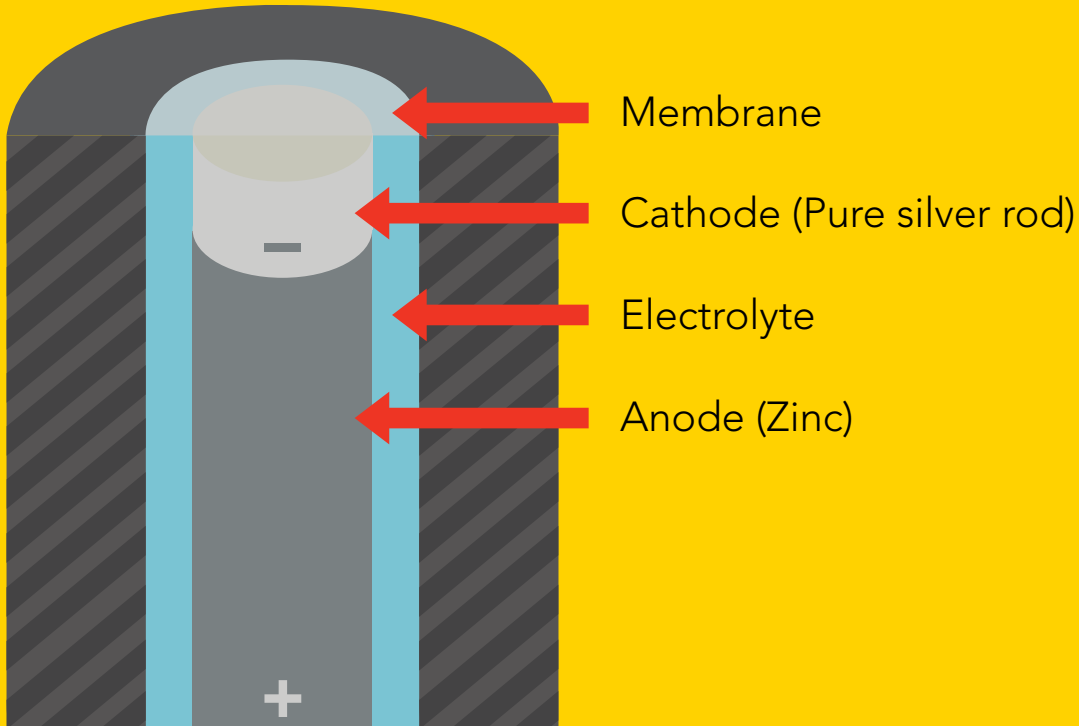


S.S. reinforced silicone

NSF-51 Compliant

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**.

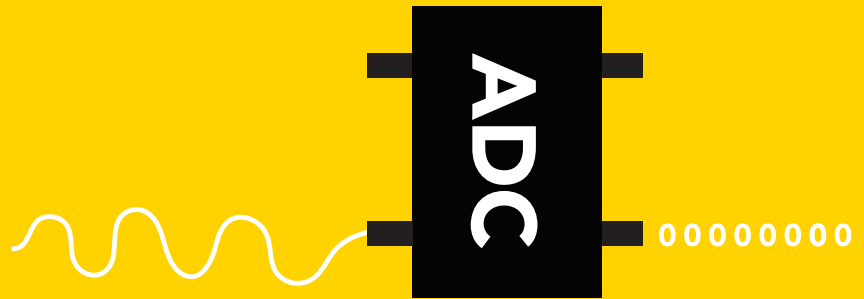


One of the drawbacks from using a galvanic probe is that it consumes a **VERY** small amount of the oxygen it reads. Therefore, a small amount of water movement is necessary to take accurate readings. **Approximately 60 ml/min.**

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:



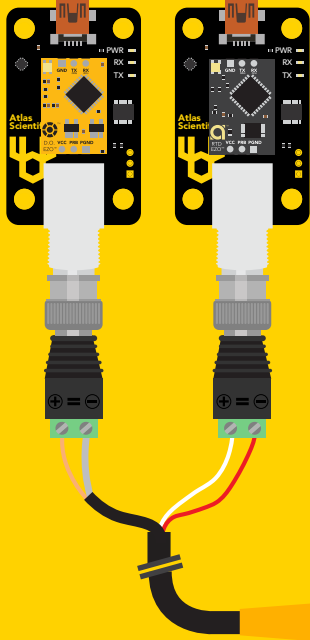
**30ml
Dissolved Oxygen
Electrolyte Solution**



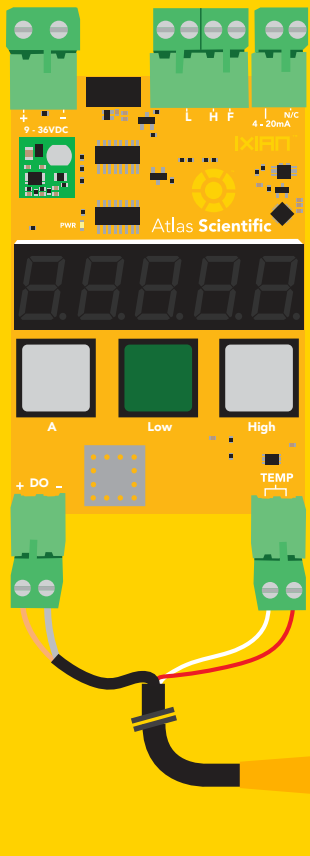
Syringe

How to connect the industrial Dissolved Oxygen probe

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



Using two **BNC with Terminal Screws**, you can easily connect the Industrial Dissolved Oxygen probe to our **EZO™ D.O. Circuit** and **EZO™ RTD Circuit** via our **Electrically Isolated USB EZO™ Carrier Board**.

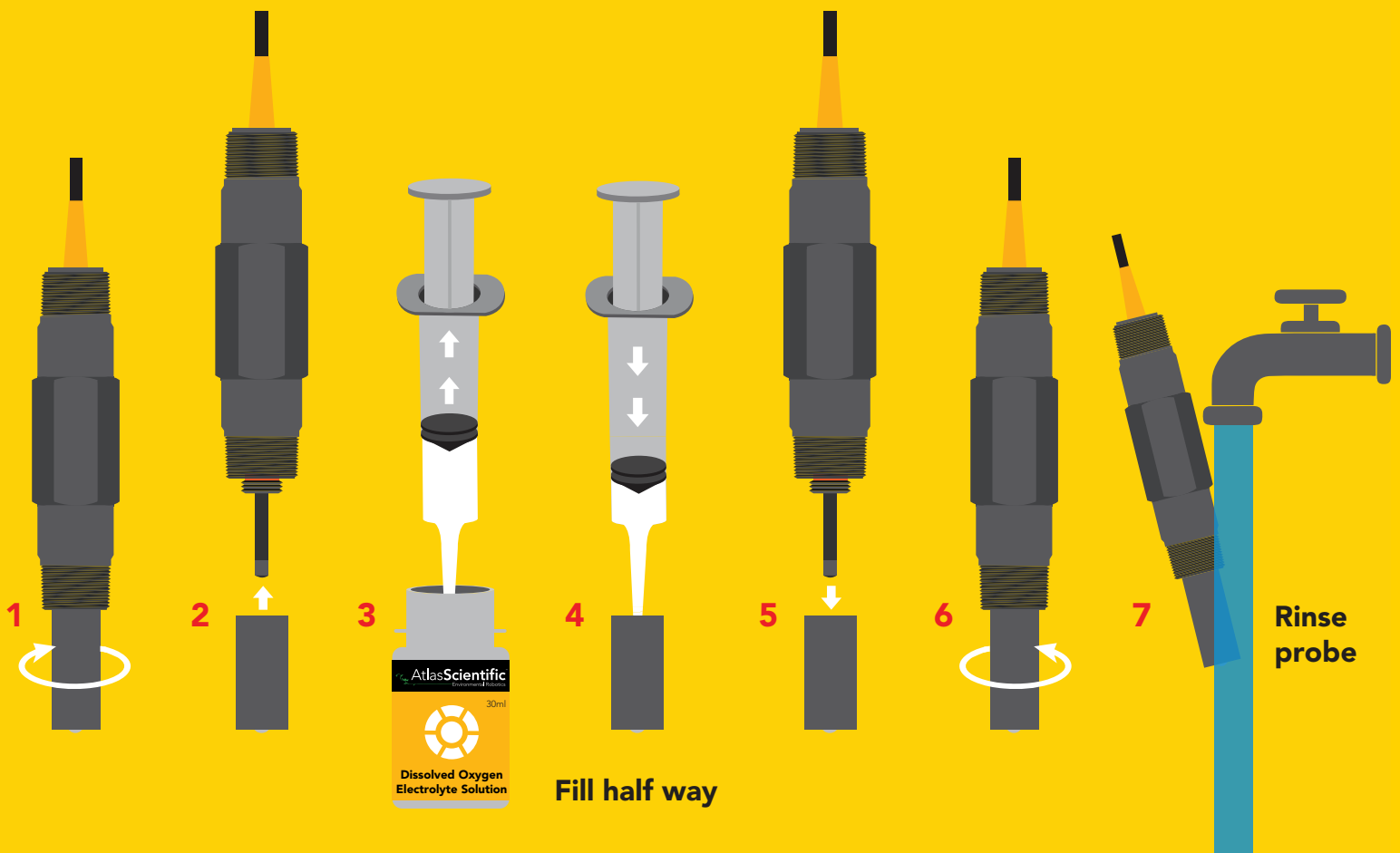
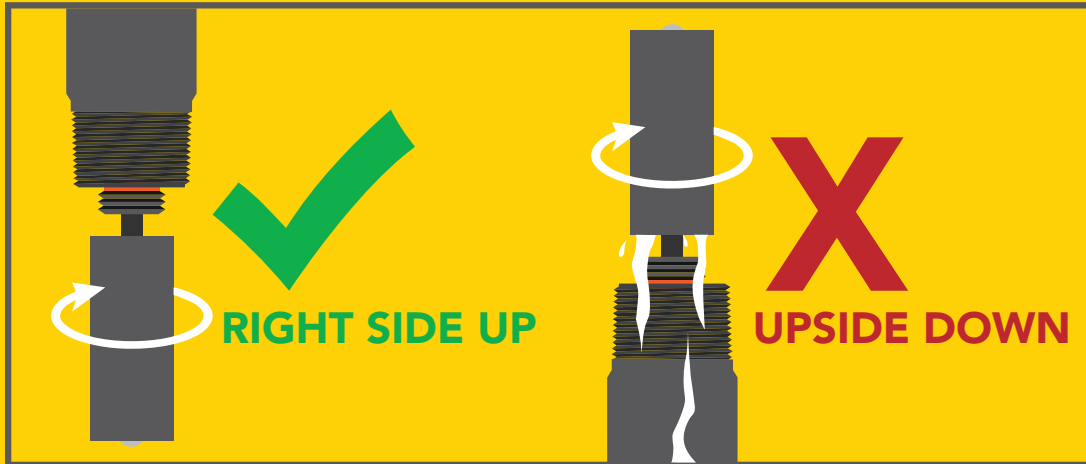


For industrial purposes, the Industrial Dissolved Oxygen probe connects easily to our **IXIAN™ D.O. Transmitter**.

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.

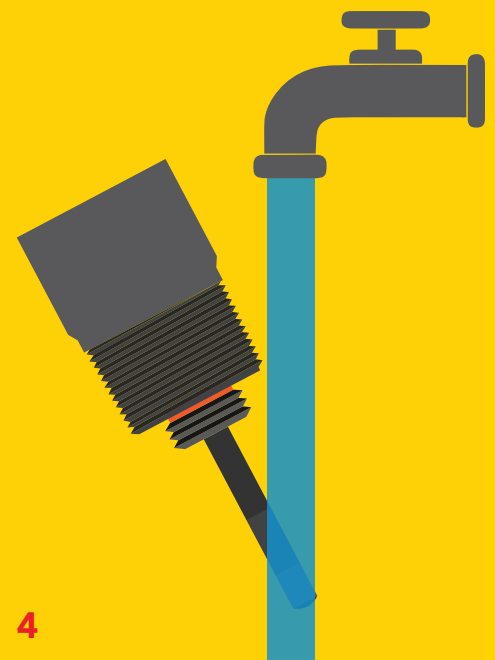
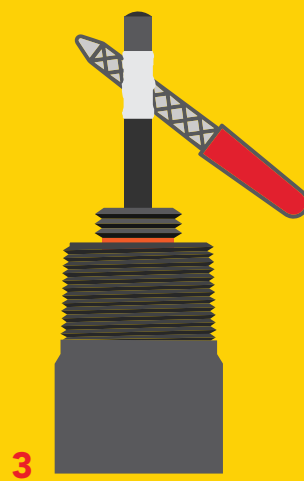
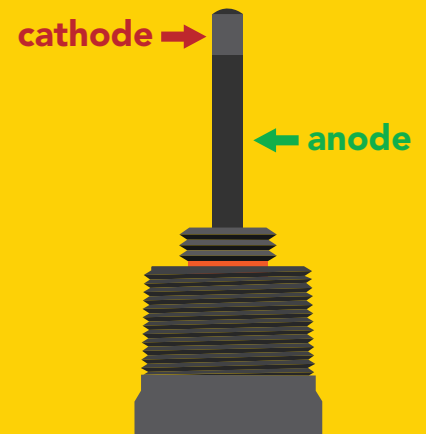
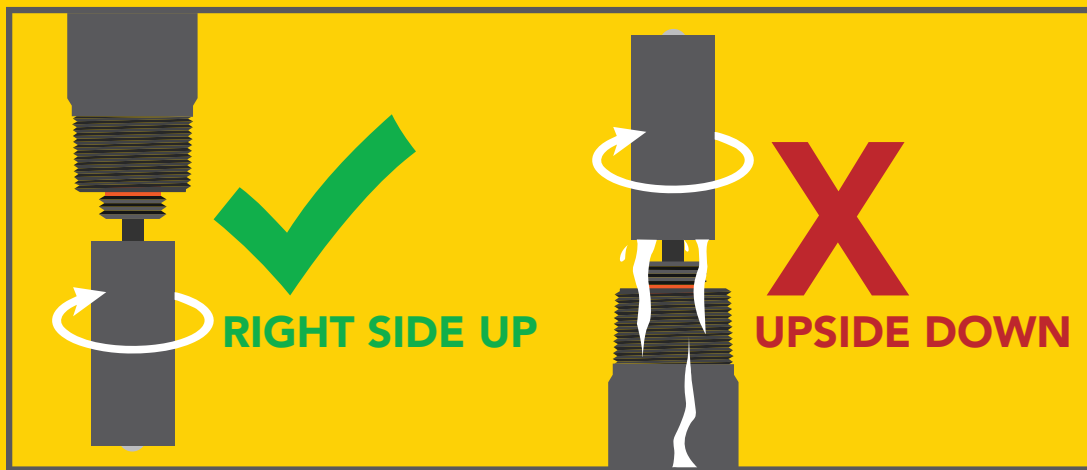


How to recondition the industrial Dissolved Oxygen probe

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.

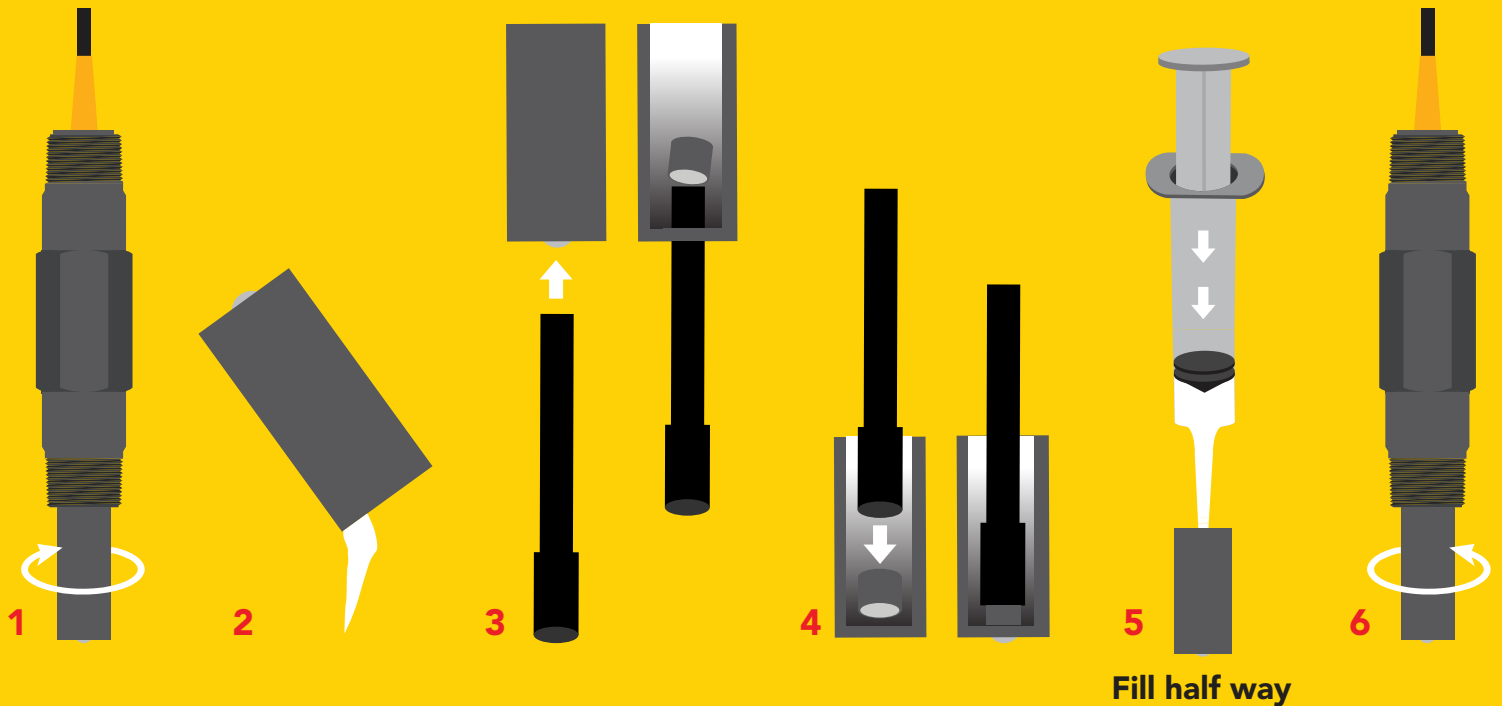
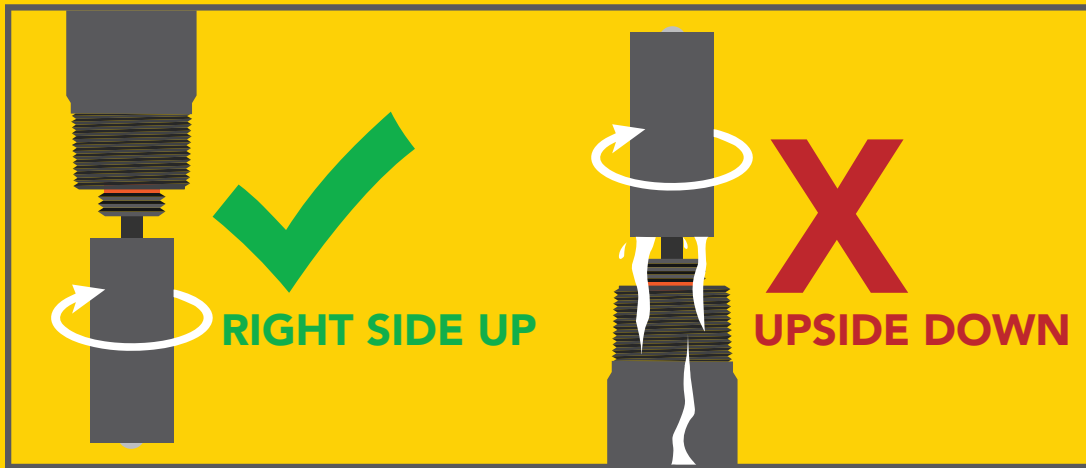


How to replace the membrane

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.

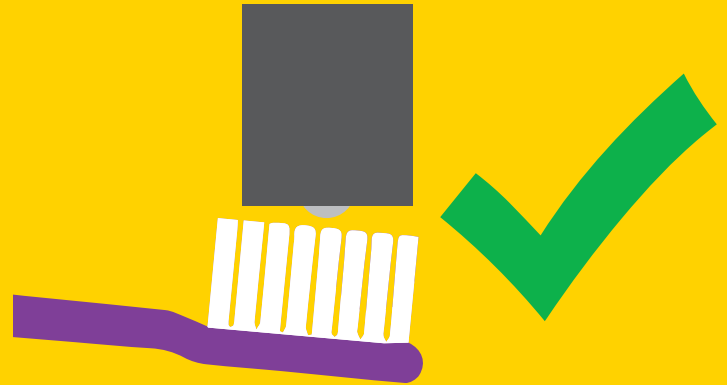


Probe cleaning

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!