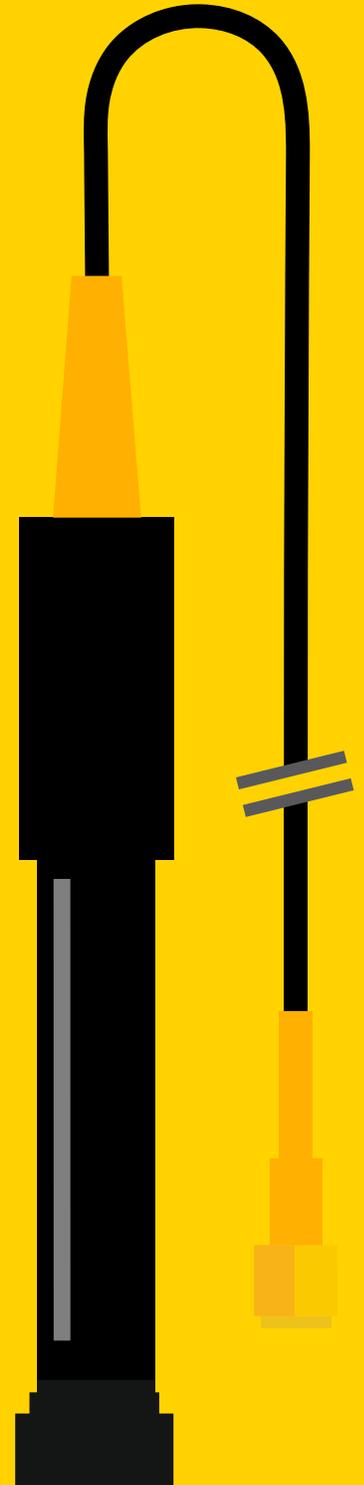


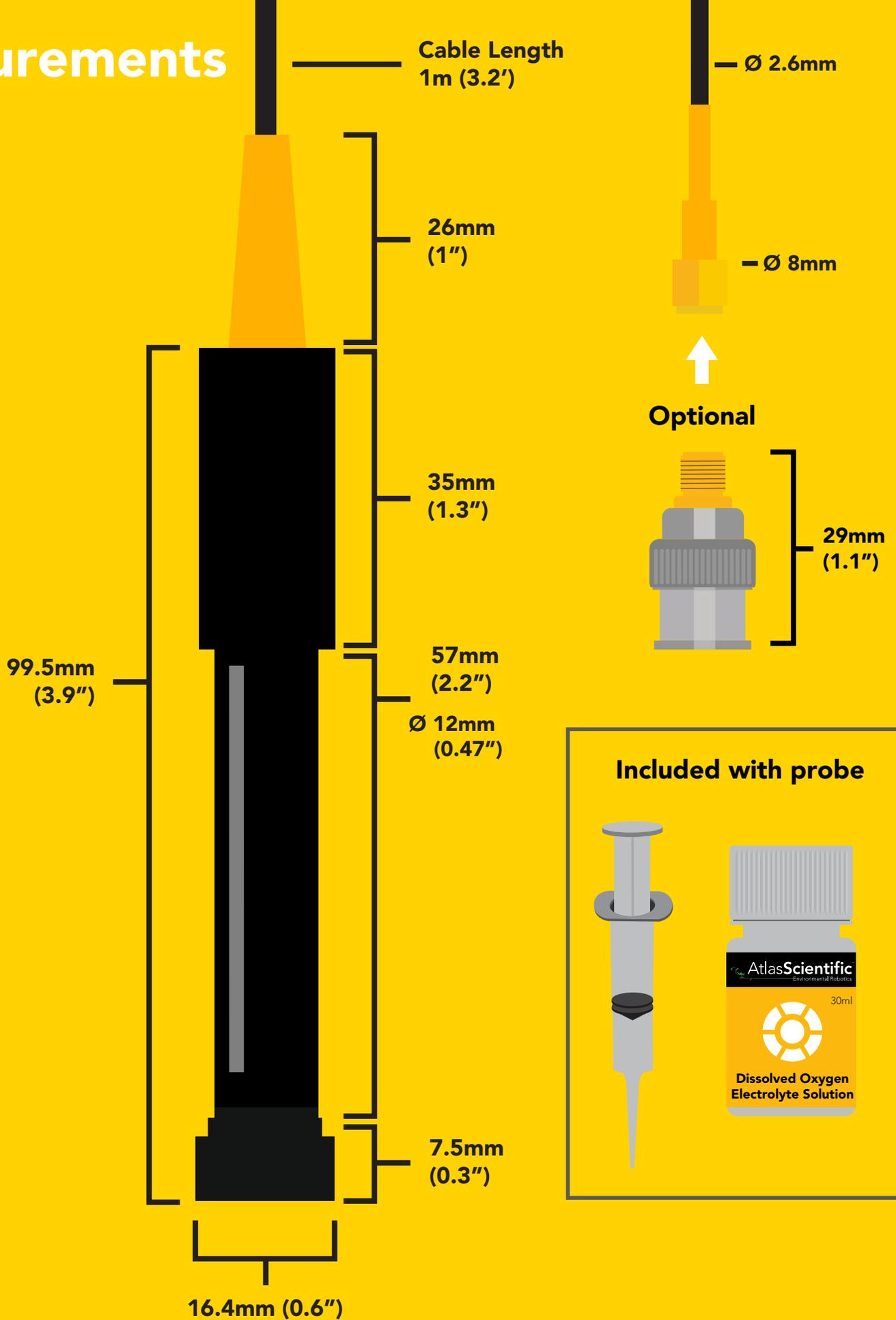
**Gen 2**

# Lab Grade 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>~0.3 mg/L/per sec</b>
Temperature range °C	<b>1 – 60 °C</b>
Max pressure	<b>3,447 kPa (500 PSI)</b>
Max depth	<b>352m (1,157 ft)</b>
Connector	<b>Male SMA / Male BNC</b> (Optional)
Cable length	<b>1 meter</b>
Internal temperature sensor	<b>No</b>
Time before recalibration	<b>~1 Year</b>
Life expectancy	<b>~ 4 Years</b>
Maintenance	<b>~18 Months</b>



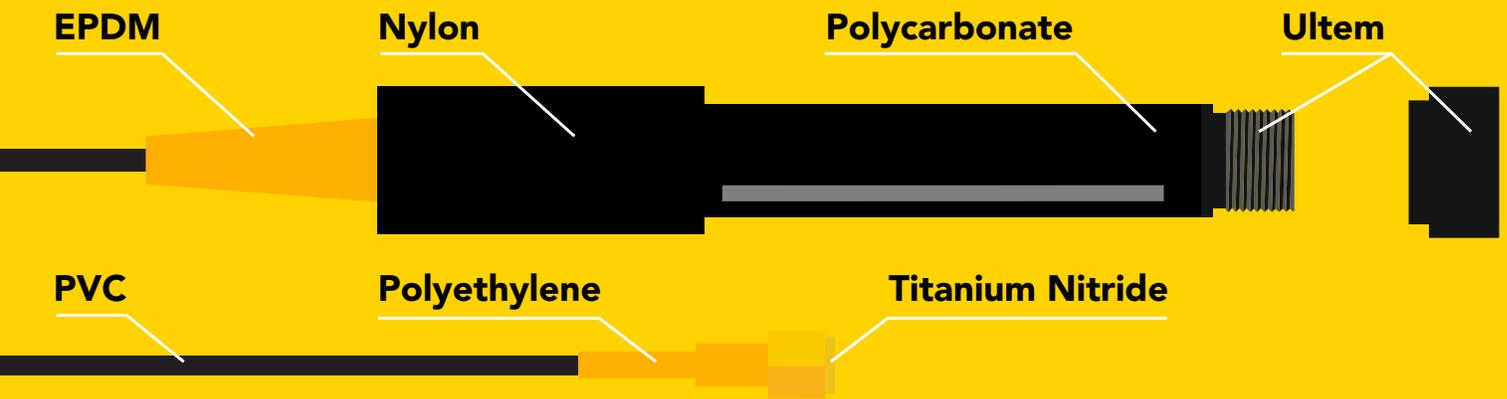
# Measurements



# Specifications

Max depth	<b>352m (1,157 ft)</b>
Cable length	<b>1 meter</b>
Weight	<b>52 grams</b>
Speed of response	<b>~0.3 mg/L/per sec</b>
Dimensions	<b>16.5mm x 124mm (0.5" x 4.9")</b>
SMA connector	<b>Male</b>
Membrane type	<b>PTFE</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 SMA connector *indefinitely*.**

# Typical applications

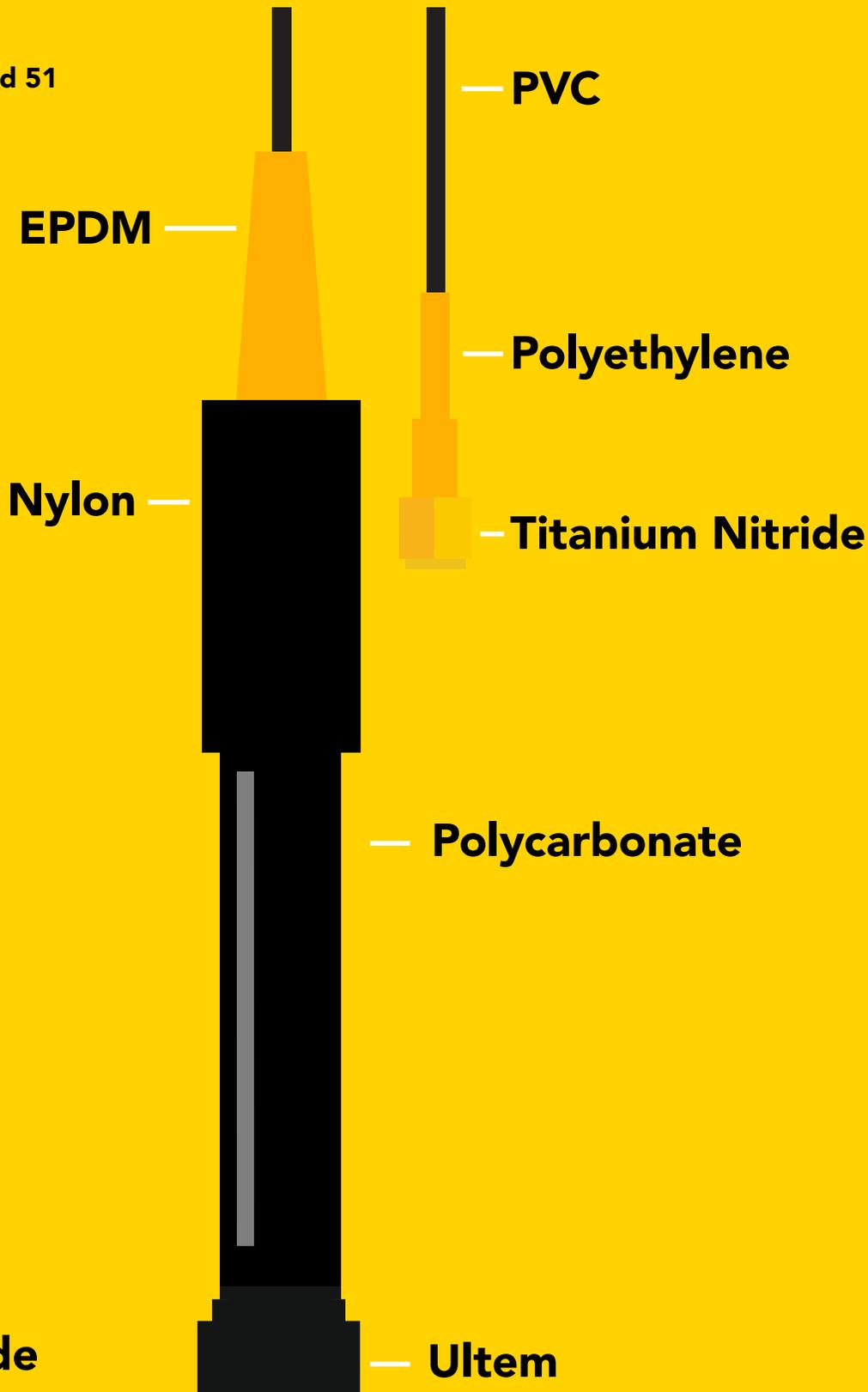
- Standard Lab use
- Field use
- Hydroponics
- Fish keeping
- Wine making
- Environmental monitoring

# NSF/ANSI 51 Compliant

Atlas Scientific LLC, hereby certifies that,

**Dissolved Oxygen Probe**  
Part # *ENV-40-DOX*

Complies with NSF/ANSI Standard 51



**PVC**

NSF-51 Compliant



**EPDM**

NSF-51 Compliant



**Ultem**

NSF-51 Compliant



**Nylon**

NSF-51 Compliant



**Polyethylene**

NSF-51 Compliant



**Polycarbonate**

NSF-51 Compliant

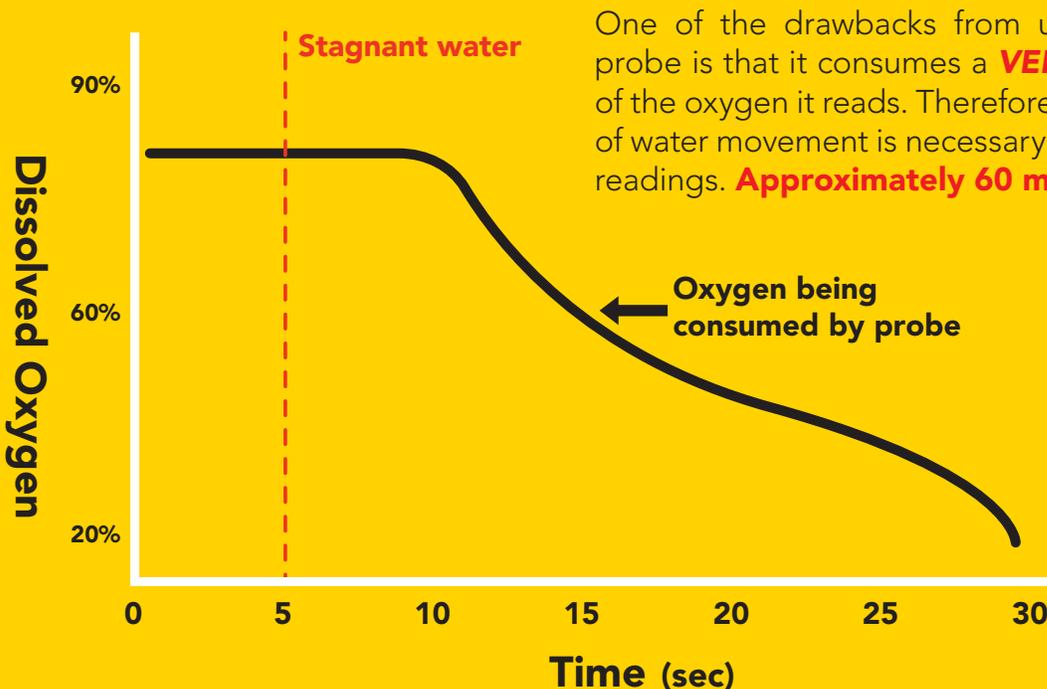
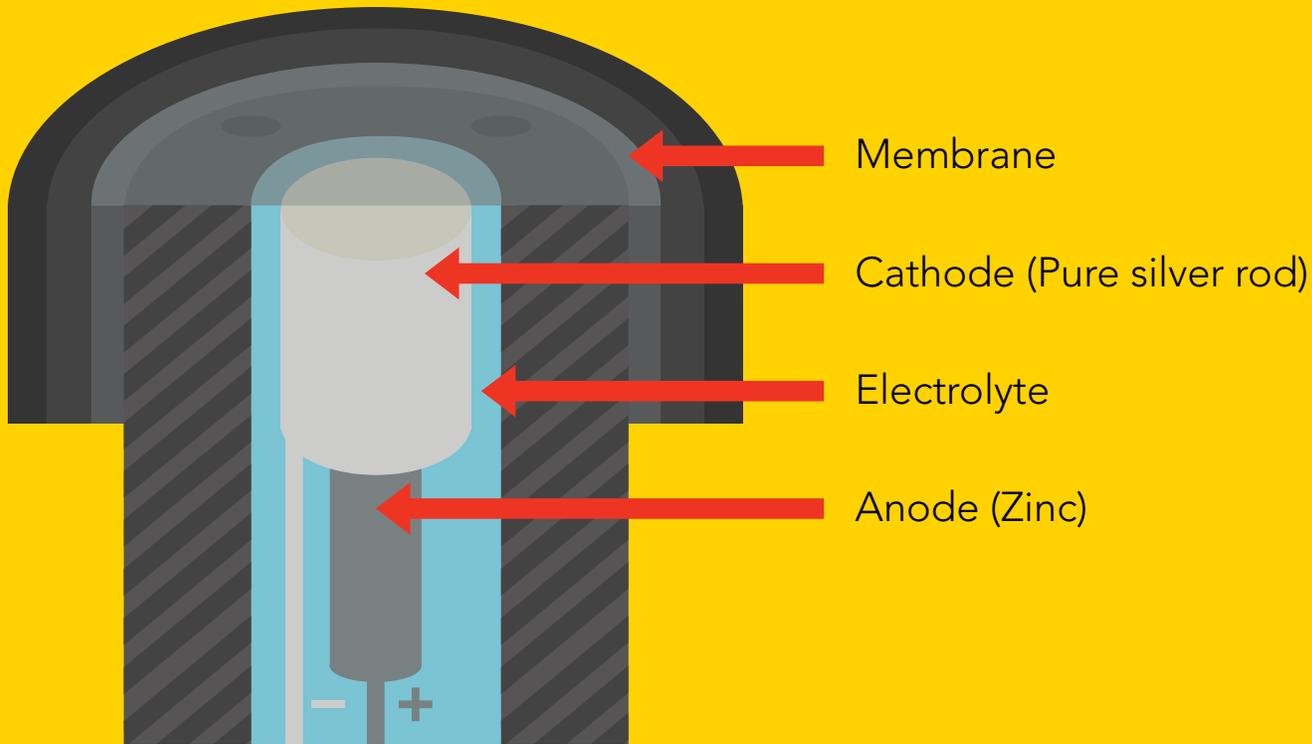


**Titanium Nitride**

NSF-51 Compliant

# Operating principle

A galvanic dissolved oxygen probe consists of a PTFE 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**.

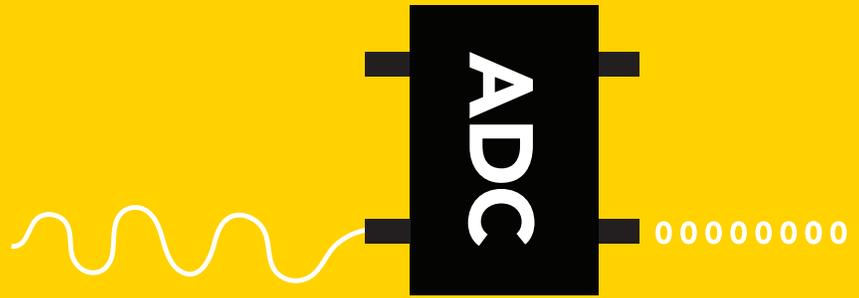


One of the drawbacks from using a galvanic probe is that it consumes a **VERY** small amount of the oxygen it reads. Therefore, a small amount of water movement is necessary to take accurate readings. **Approximately 60 ml/min**.

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 PTFE 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 a 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 PTFE membrane every 1–2 years.

### The Gen 2 Dissolved Oxygen probe comes with:



**30ml  
Dissolved Oxygen  
Electrolyte Solution**



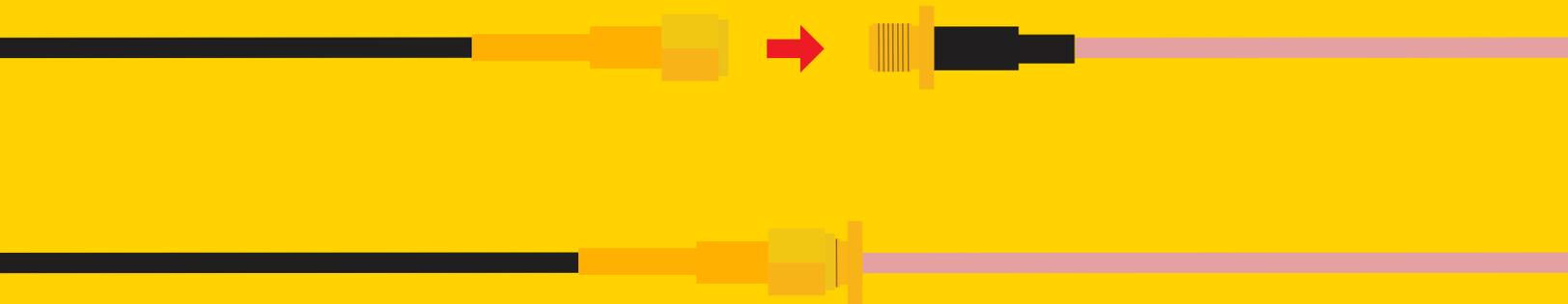
**Syringe**

# Extending the probe cable length

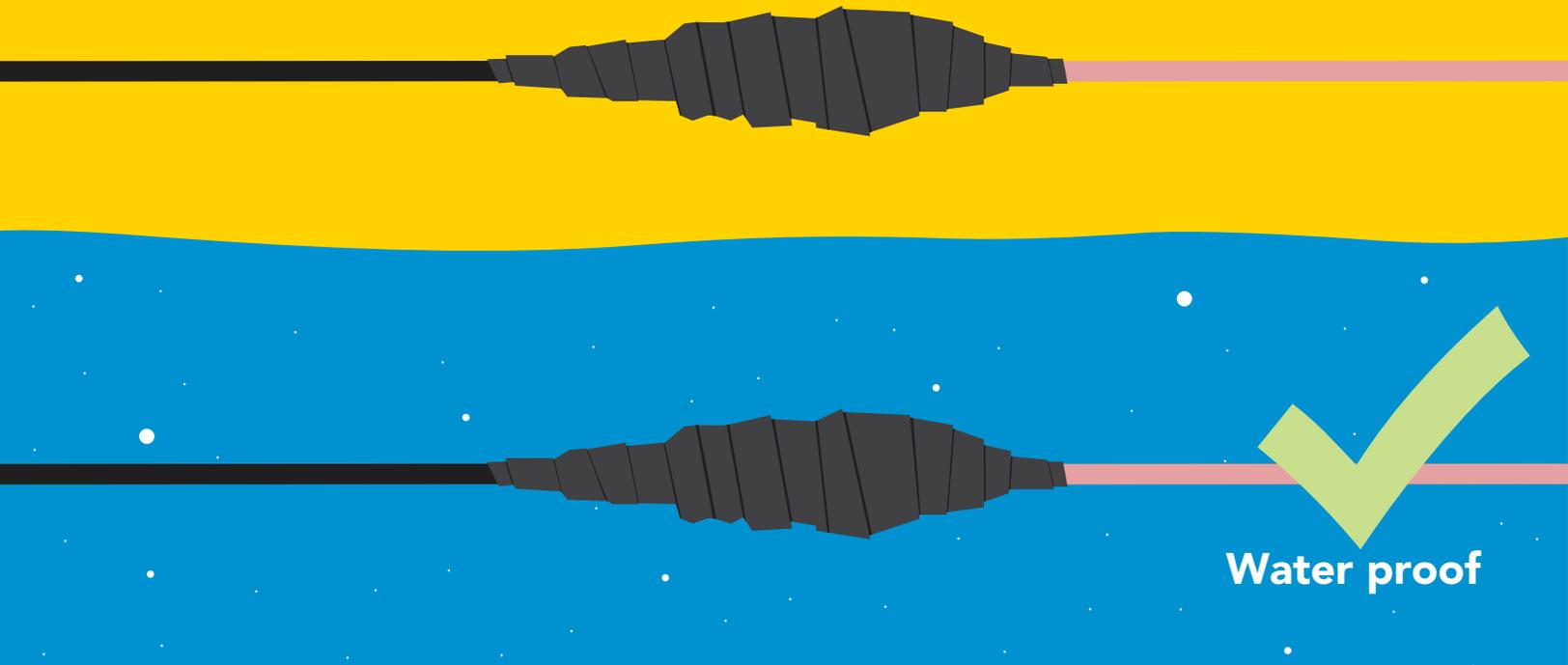
You can extend the cable to greater than 100 meters with no loss of signal. Atlas Scientific has tested up to 300 meters without a problem, however you run the risk of turning your D.O. probe into an antennae, picking up noise along the length of your cable.

If you want to extend your cable, we recommend that you use proper isolation, such as the **Basic EZO™ Inline Voltage Isolator**, or **Tentacle Shield**. Be sure to calibrate your probe with the extended cable.

Extending a probe cable can be easily done with our **SMA Extension Cable**. Simply connect the SMA end of the probe to the Extension cable, and you are all set.



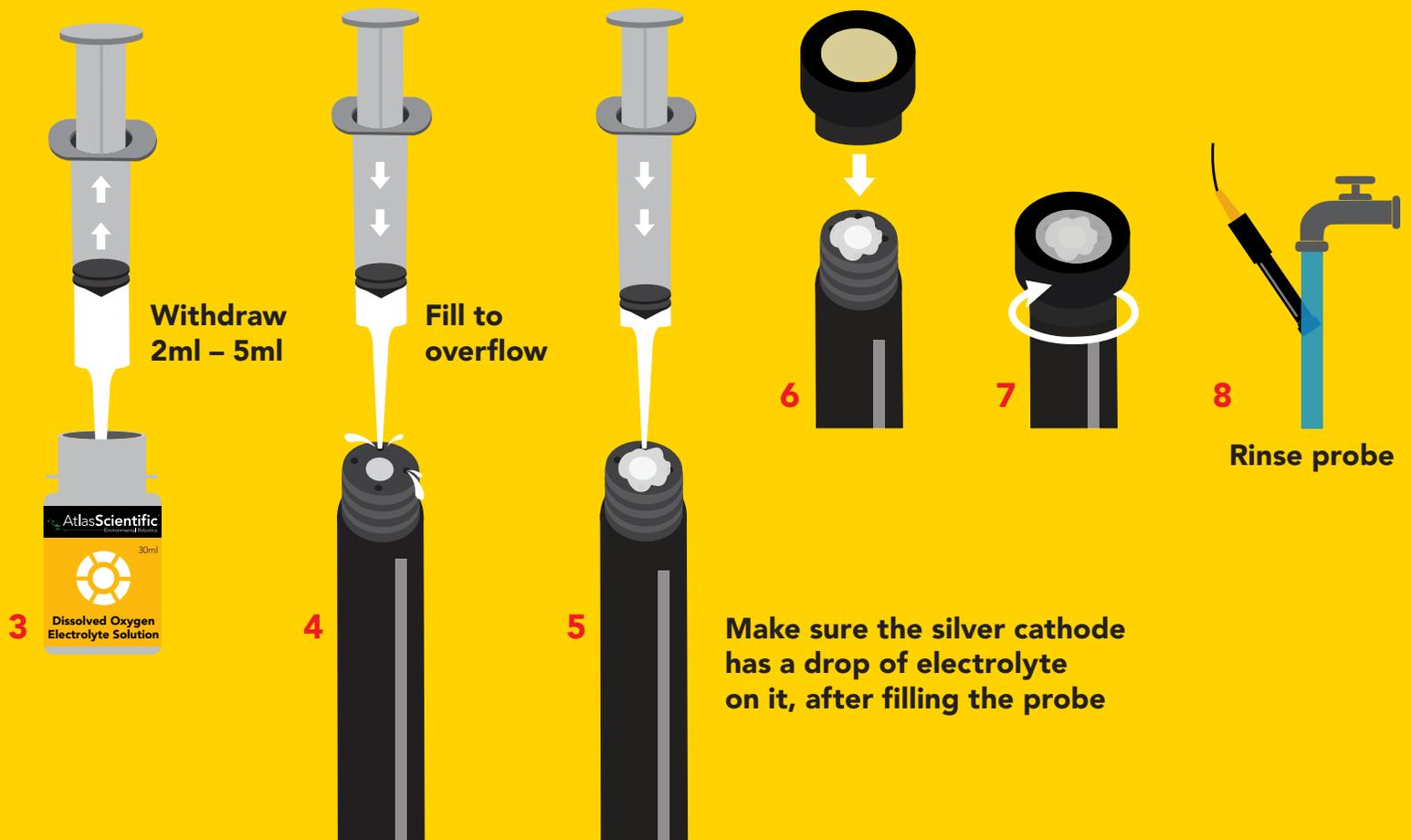
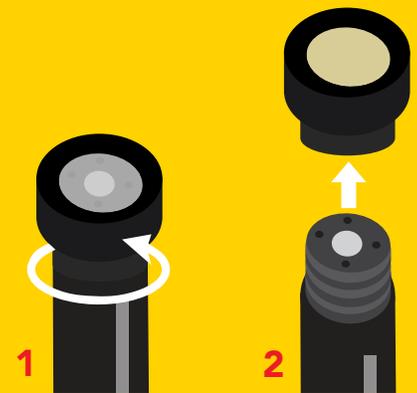
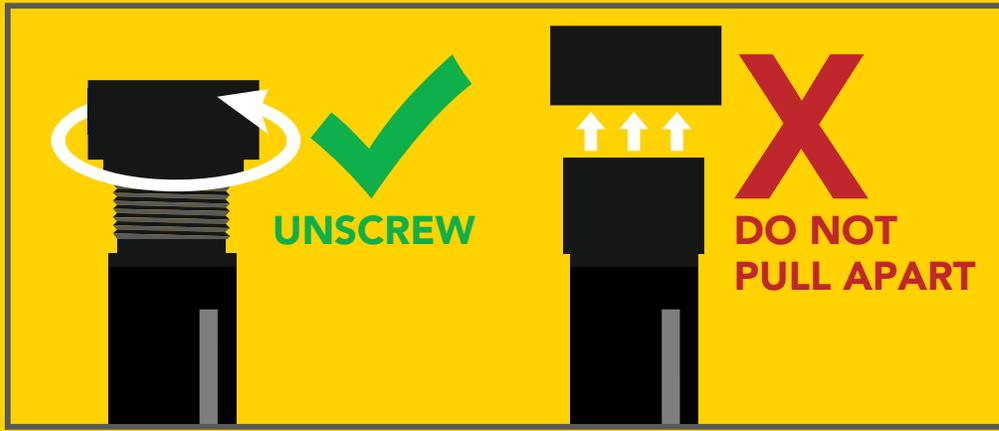
If you need to water proof a SMA connection, we highly recommend using a product like **Coax-Seal** to safely cover and prevent any water damage that may occur.



# How to recondition the lab grade dissolved oxygen probe

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. Using the supplied syringe, withdraw 2ml – 5ml of electrolyte solution. Insert the syringe into one of the four holes surrounding the silver cathode. Inject solution until it leaks out one of the fill holes. Make sure the silver cathode has a drop of electrolyte on it, after filling the probe. Screw membrane cap back onto probe.



# 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. If the probes membrane is in need of cleaning, use a mild bleach mixture to gently wash away any deposits.

## **DO NOT USE A BRUSH TO CLEAN THE MEMBRANE**

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

