

# Dissolved Oxygen Probe

Reads	<b>Dissolved Oxygen</b>
Range	<b>0 – 100 mg/L</b>
Response time	<b>~0.3 mg/L/per sec</b>
Max pressure	<b>3,447 kPa (500 PSI)</b>
Max depth	<b>343 meters (1,125 ft)</b>
Temperature range °C	<b>1 – 50 °C</b>
Cable length	<b>1 meter</b>
Internal temperature sensor	<b>No</b>
Time before recalibration	<b>~1 Year</b>
Life expectancy	<b>5 Years +</b>
Maintenance	<b>~18 Months</b>



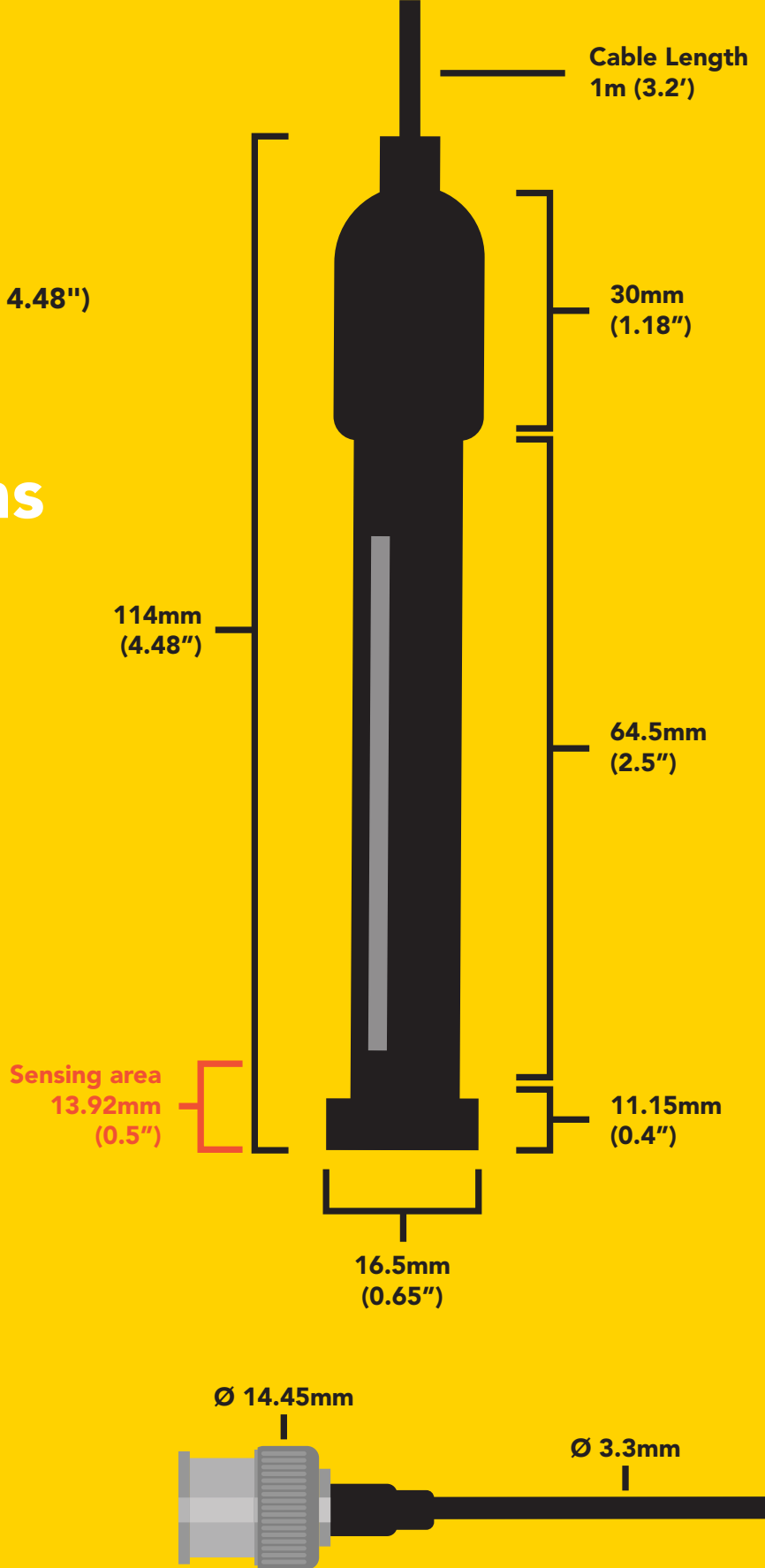
# Specifications

Max depth	<b>343 meters (1,125 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 114mm (0.5" x 4.48")</b>
BNC connector	<b>Yes</b>
Sterilization	<b>Chemical only</b>
Membrane type	<b>Teflon</b>

## Typical Applications

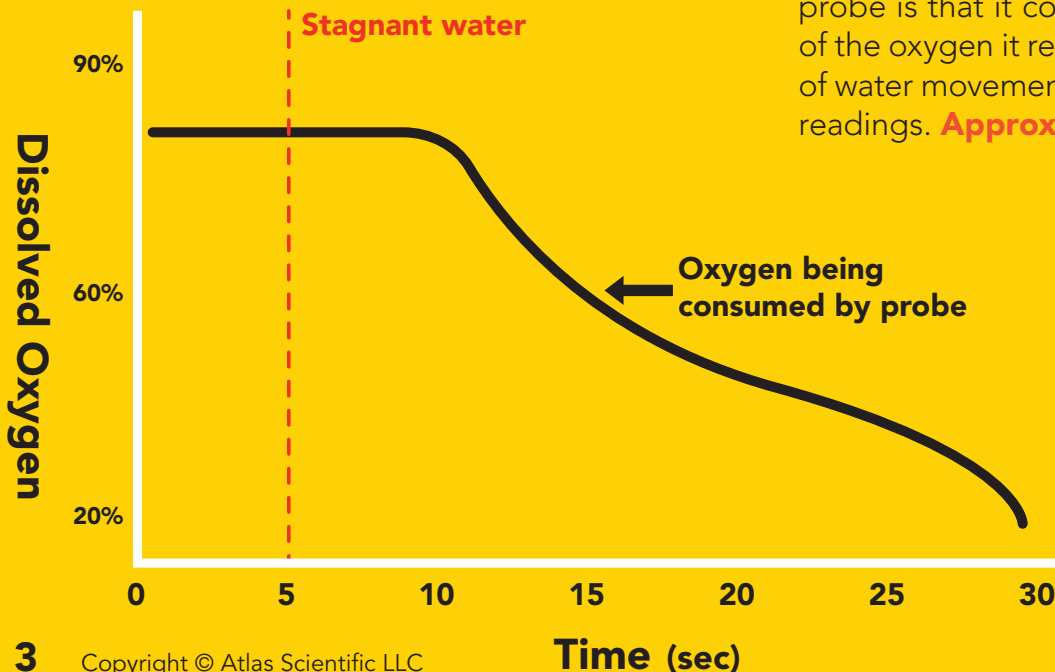
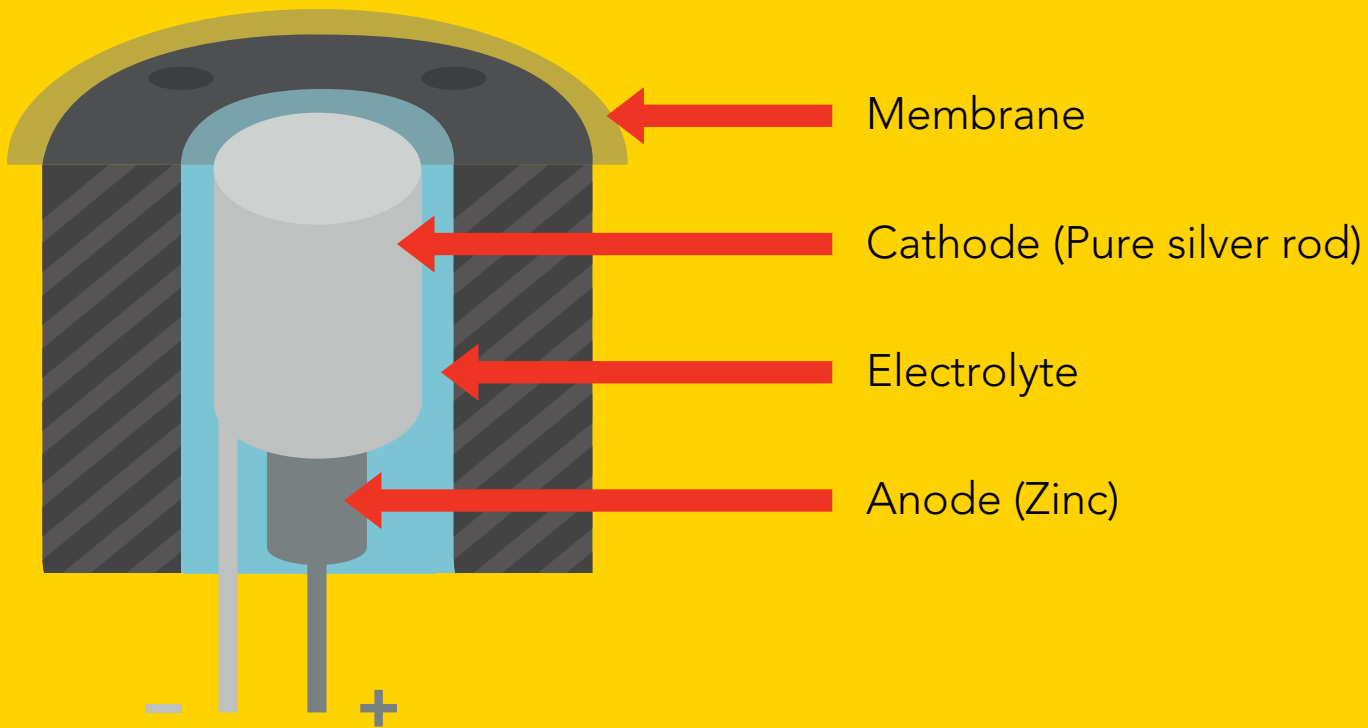
- Standard Lab use
- Field use
- Hydroponics
- Fish keeping
- Wine making
- Food Safe
- Environmental monitoring

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



# Operating principle

A galvanic dissolved oxygen probe consists of a polyethylene 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**. (A galvanic dissolved oxygen probe can also be used to detect the Oxygen content in gases).

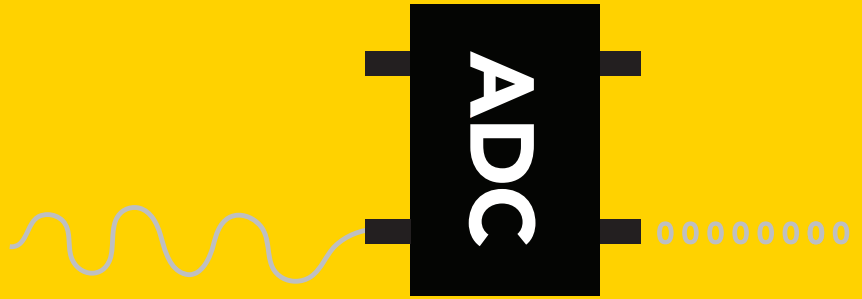


One of the drawbacks from using a galvanic probe is that it consumes a **VERY** small amount of the oxygen it reads. Therefore, a small amount of water movement is necessary to take accurate readings. **Approximately 60 ml/min.**

This galvanic dissolved oxygen probe is a passive device that generates a small voltage from 0mv – 40+ mv depending on the oxygen saturation of the Teflon 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.

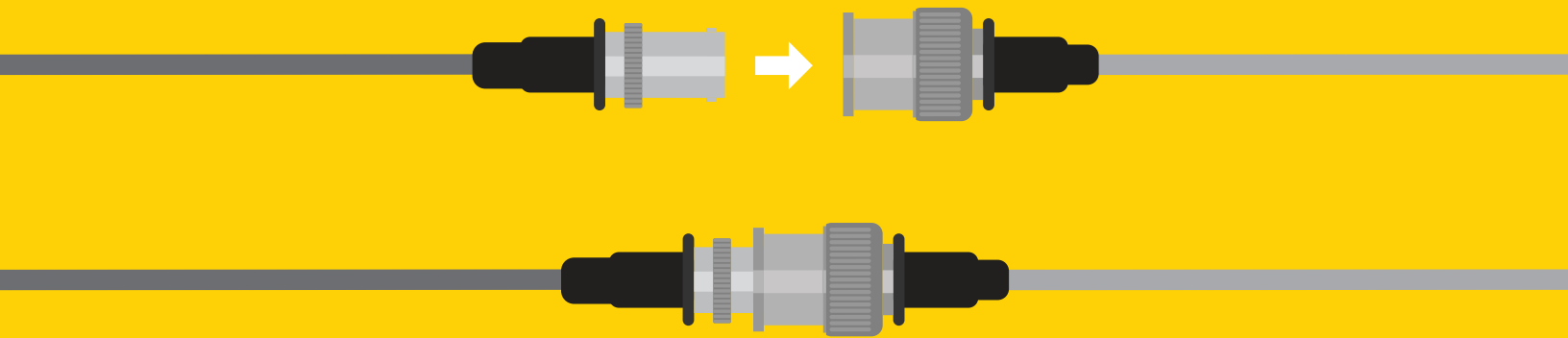
The Dissolved Oxygen probe reacts with oxygen in the water, the more oxygen it reacts with the more the probe is depleted of its electrolyte solution. Typically a dissolved oxygen probe will last ~2 years before the electrolyte is depleted (*results will vary*). When the electrolyte is depleted, the probe will read very low numbers. Best practice is to replace the Electrolyte Solution and Teflon Membrane every 2 years; both are included in our **Dissolved Oxygen Maintenance Kit**.

# Extending the probe cable length

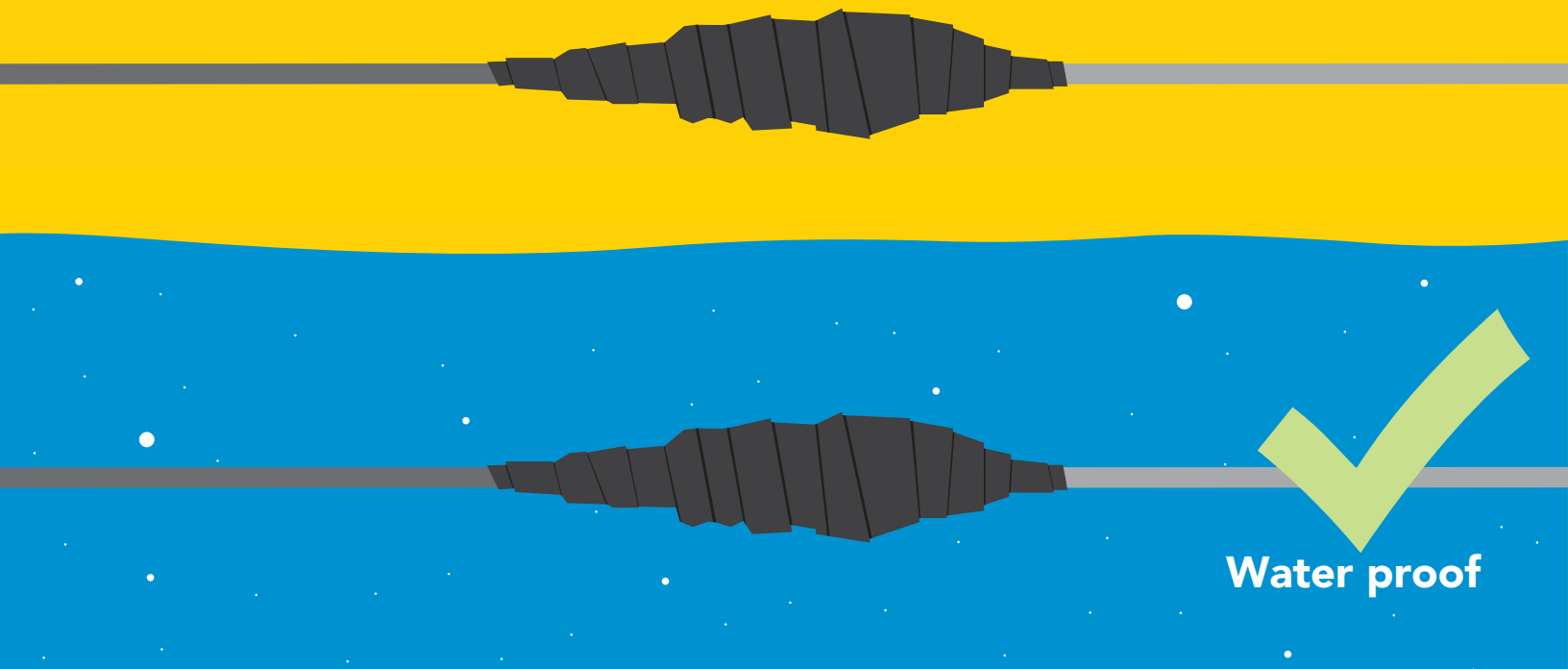
You can extend the cable to greater than 100 meters with no loss of signal. Atlas Scientific has tested up to 300 meters without a problem, however you run the risk of turning your D.O. probe into an antennae, picking up noise along the length of your cable.

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 **BNC Extension Cable**. Simply connect the BNC end of the probe to the Extension cable, and you are all set.

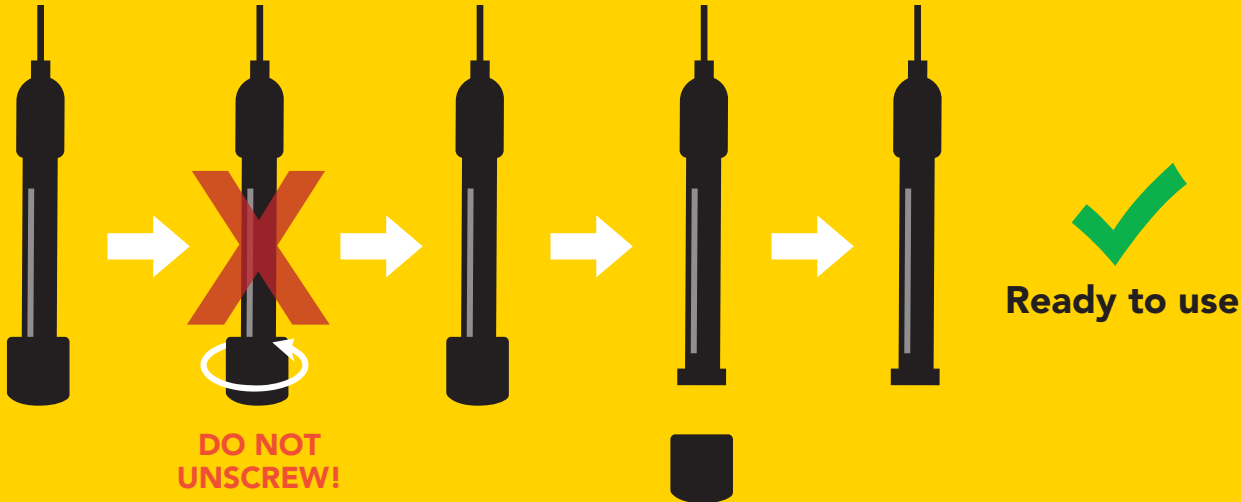


If you need to water proof a BNC connection, we highly recommend using a product like **Coax-Seal** to safely cover and prevent any water damage that may occur.



# Helpful operating tips

Every dissolved oxygen probe is shipped with a soft rubber cap that protects the probes membrane during shipping. Leaving the cap on during use, will cause irregular readings. Gently pull the cap off the probe. **DO NOT UNSCREW!** Doing so can damage the membrane causing electrolyte solution within the probe to spill out.



## Dissolved Oxygen Maintenance Kit

If your dissolved oxygen Probe has not been in use for more than one year, the Teflon sensing membrane can dry out and the internal electrolyte solution could leach out of the probe. The **dissolved oxygen maintenance kit** will get your dissolved oxygen probe back in working order quickly.



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 a needle and syringe, withdraw 2mL of electrolyte solution. Insert the needle into one of the four holes surrounding the silver cathode. Inject solution until it leaks out one of the fill holes. Screw membrane cap back onto probe.

