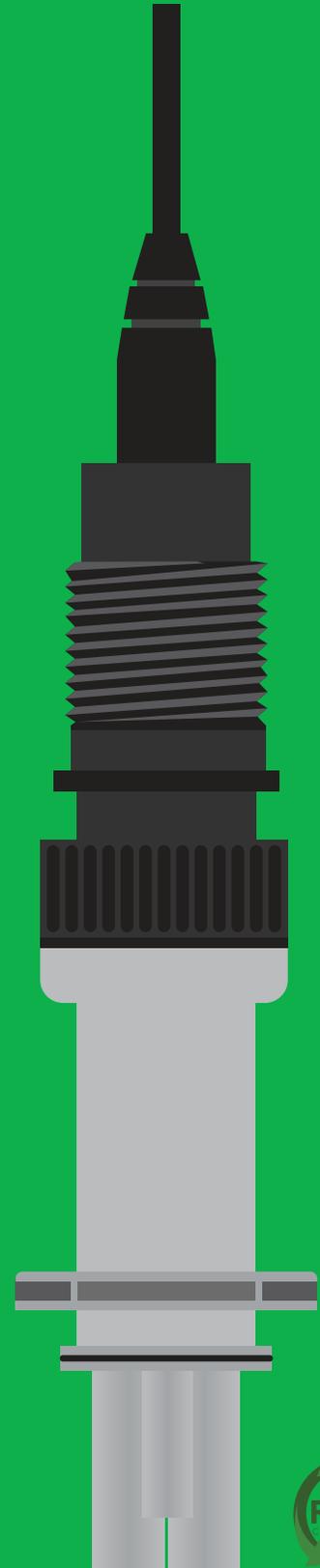


# Industrial Conductivity Probe K 1.0

## Graphite

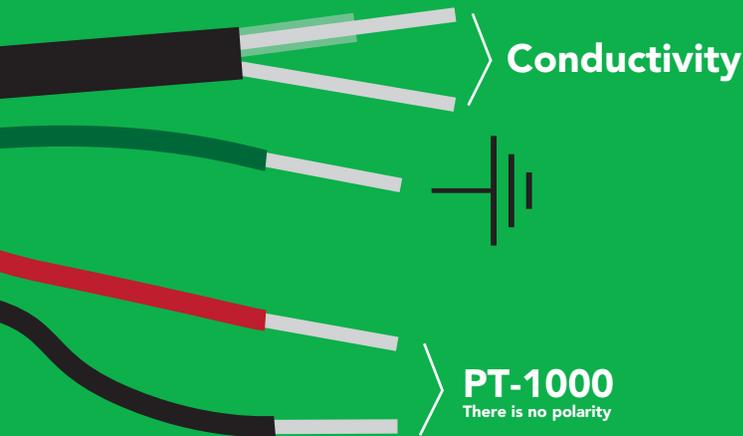
Reads	<b>Conductivity</b>
Range	<b>5 – 200,000 <math>\mu</math>S/cm</b>
Response time	<b>90% in 1s</b>
Max pressure	<b>200 PSI</b>
Max depth	<b>60m (197 ft)</b>
Temperature range °C	<b>0 – 110 °C</b>
Cable length	<b>3 meters</b>
Internal temperature sensor	<b>Yes (PT-1000)</b>
Time before recalibration	<b>~10 years</b>
Life expectancy	<b>~10 years</b>
Maintenance	<b>N/A</b>



# Specification

K 1.0	5 $\mu\text{S}$ – 200,000 $\mu\text{S}$
Body material	CPVC, Graphite, Viton
Max depth	60m (197 ft)
Cable length	3m (10 feet)
Internal temp. probe	Yes
Temp. probe type	Class A platinum, RTD
Temp. accuracy	+/- (0.15 + (0.002*t))
Weight	504 grams
Threading	20mm (3/4") NPT
Sterilization	Chemical only
Pipe fitting	3/4" threaded NPT

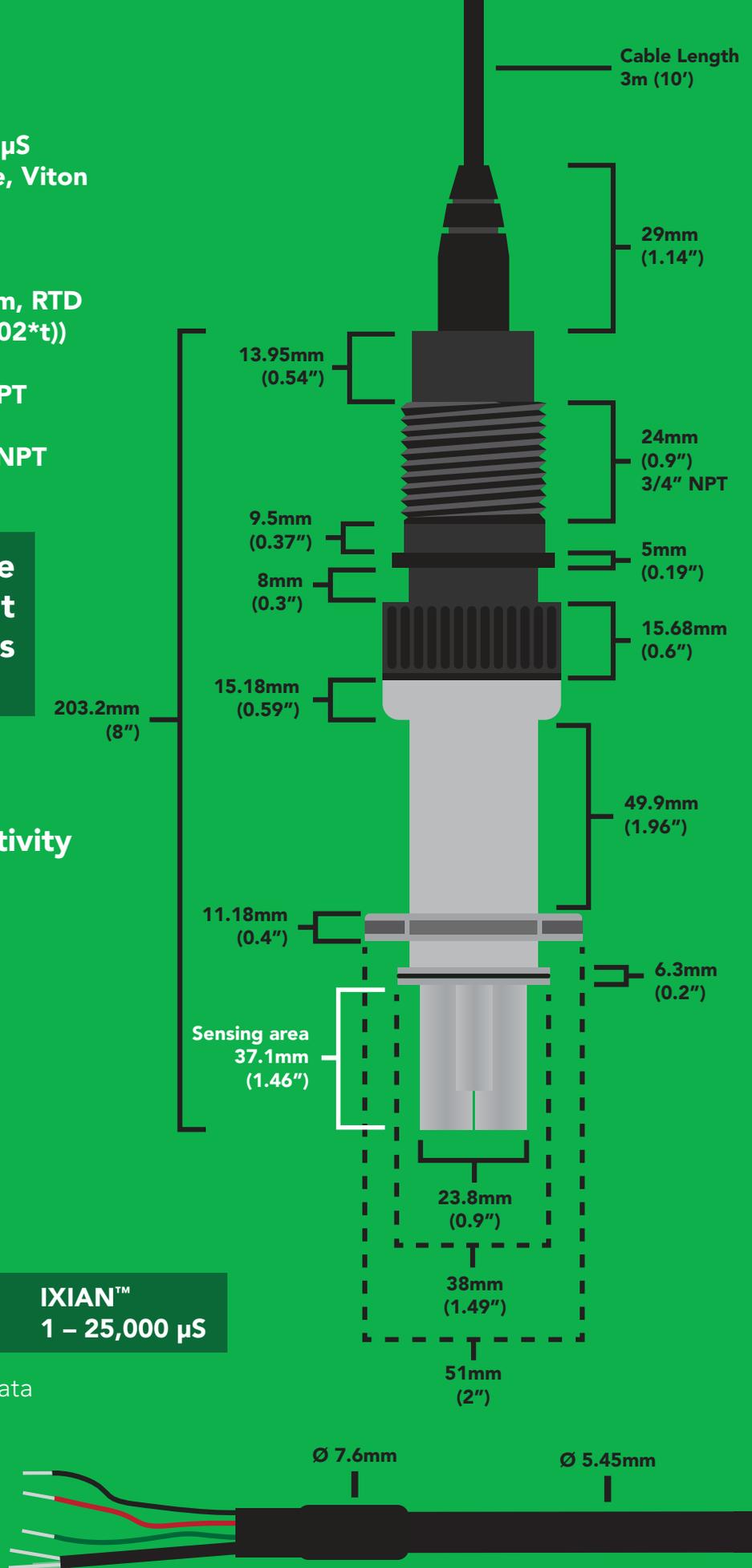
This Conductivity probe can be **fully submerged** in fresh or salt water, up to the tinned leads **indefinitely**.



## Range chart

<b>EC-EZO™</b> 5 – 200,000 $\mu\text{S}$	<b>EC-SM™</b> 5 – 200,000 $\mu\text{S}$	<b>IXIAN™</b> 1 – 25,000 $\mu\text{S}$
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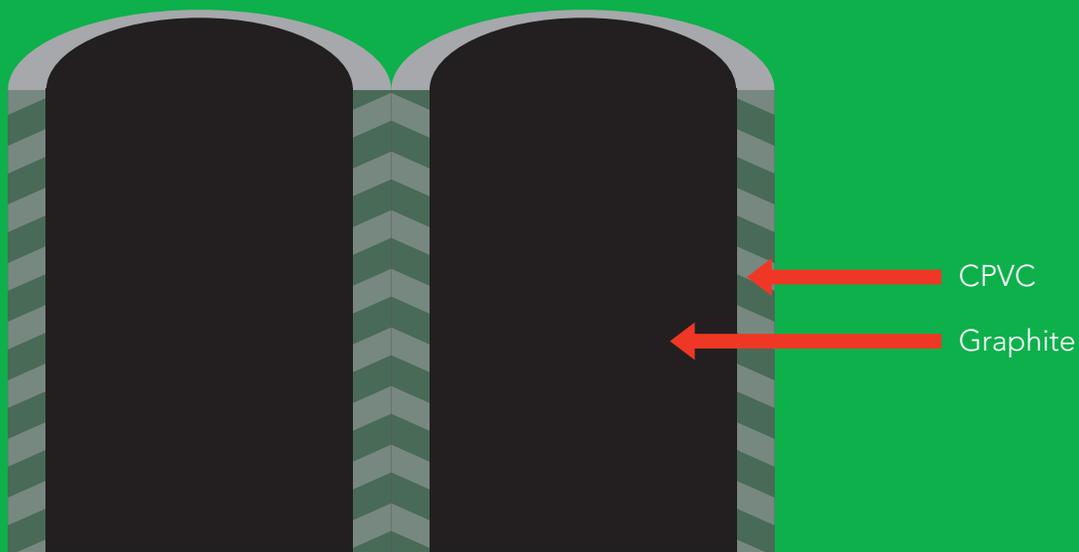
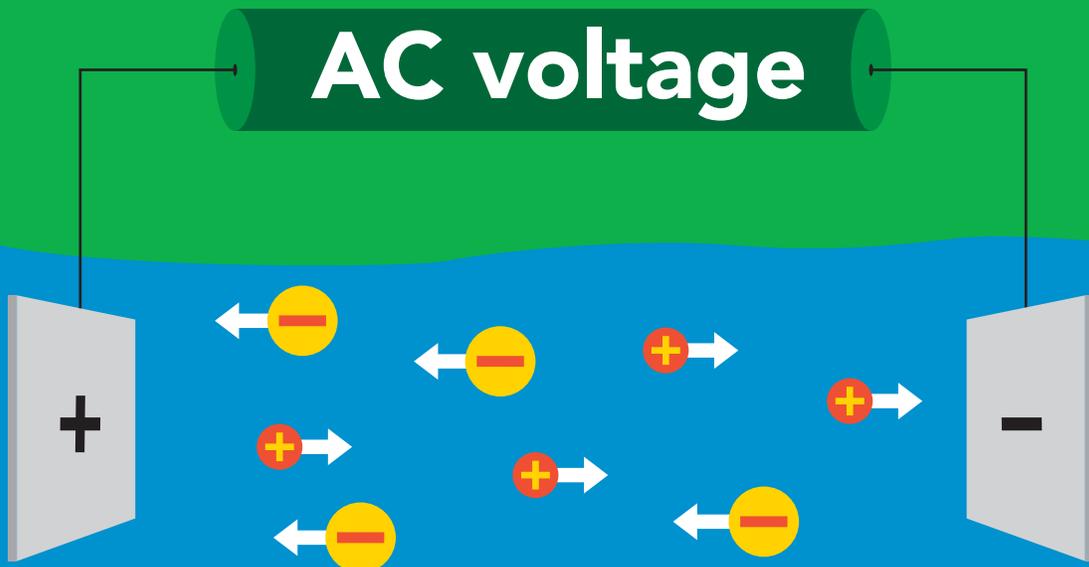
IXIAN™ range is limited by the amount of data that can be encoded in a 4 – 20mA signal.



# Operating principle

An E.C. (**electrical conductivity**) probe measures the electrical conductivity in a solution. It is commonly used in hydroponics, aquaculture and freshwater systems to monitor the amount of nutrients, salts or impurities in the water.

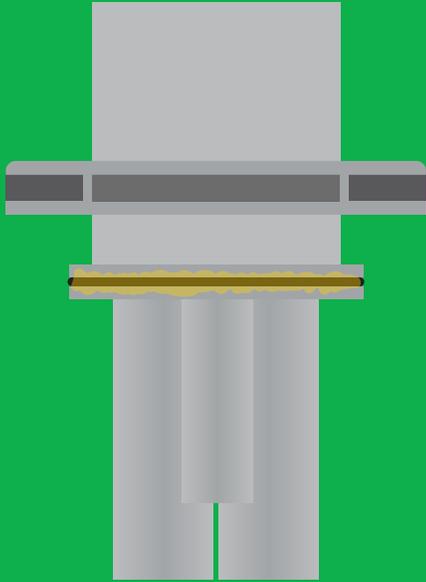
Inside the industrial conductivity probe, two electrodes are positioned adjacent to each other, an AC voltage is applied to the electrodes causing cations to move to the negatively charged electrode, while the anions move to the positively charged electrode. The more free electrolyte the liquid contains, the higher the electrical conductivity.



The Atlas Scientific™ Industrial Conductivity K 1.0 Probe, comes with a 3/4" NPT threaded pipe fitting. The pipe fitting is made out of thick plastic, to prevent leakage; and capable of safely withstanding pressures up to **690 kPa (100 PSI)**.

Because of this, inserting the probe into the pipe fitting can be a bit tricky. Apply a small amount of cooking oil, or food grade grease along the outer edge of the probes O-ring.

1



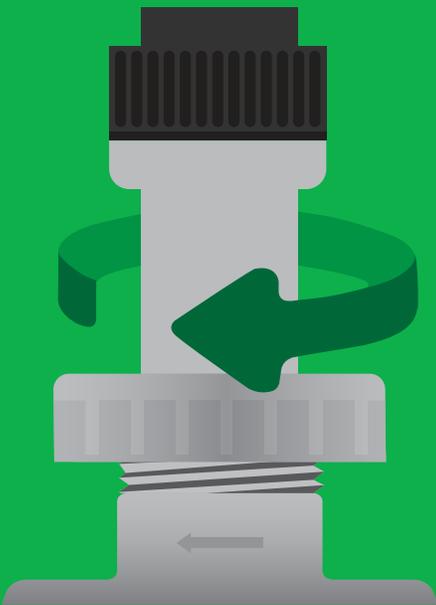
Apply oil/grease along the O-ring.

2



Line up the grooves and snap the probe into the pipe fitting.

3



Attach and fully tighten the probe pipe fitting cover.

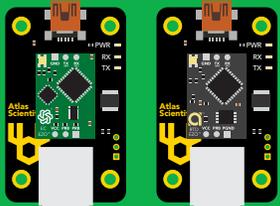
4



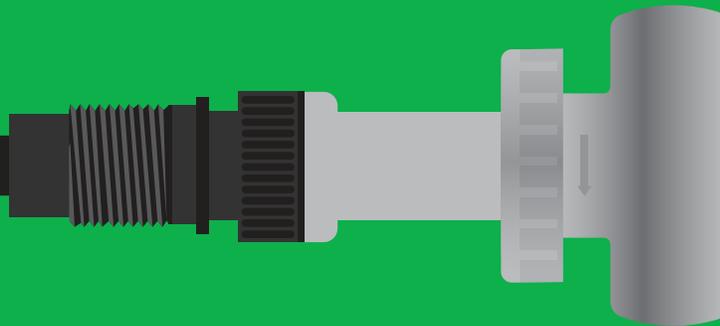
Ready to take readings!

# How to connect the industrial Conductivity probe

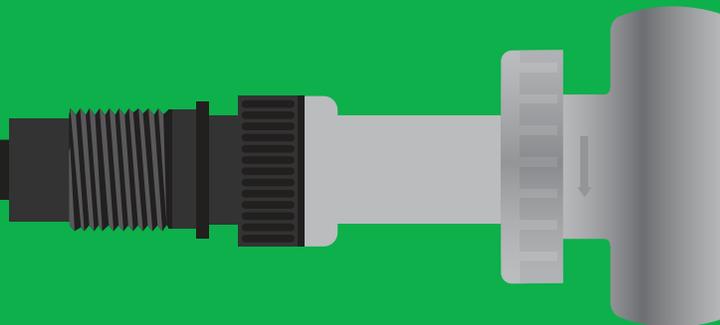
The Atlas-Scientific™ Industrial Conductivity probe can be connected in several different ways. The following images show two examples.



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



For industrial purposes, the Industrial pH probe connects easily to our **IXIAN™ Conductivity Transmitter**.



A conductivity probe is a very simple device. It is just two conductors with a fixed surface area at a fixed distance from each other. This distance and surface area is known as the conductivity cell. The cells distance and surface area is quantified as the conductivity cells K constant.



Result will *always* read zero.



Result will *always* read zero.

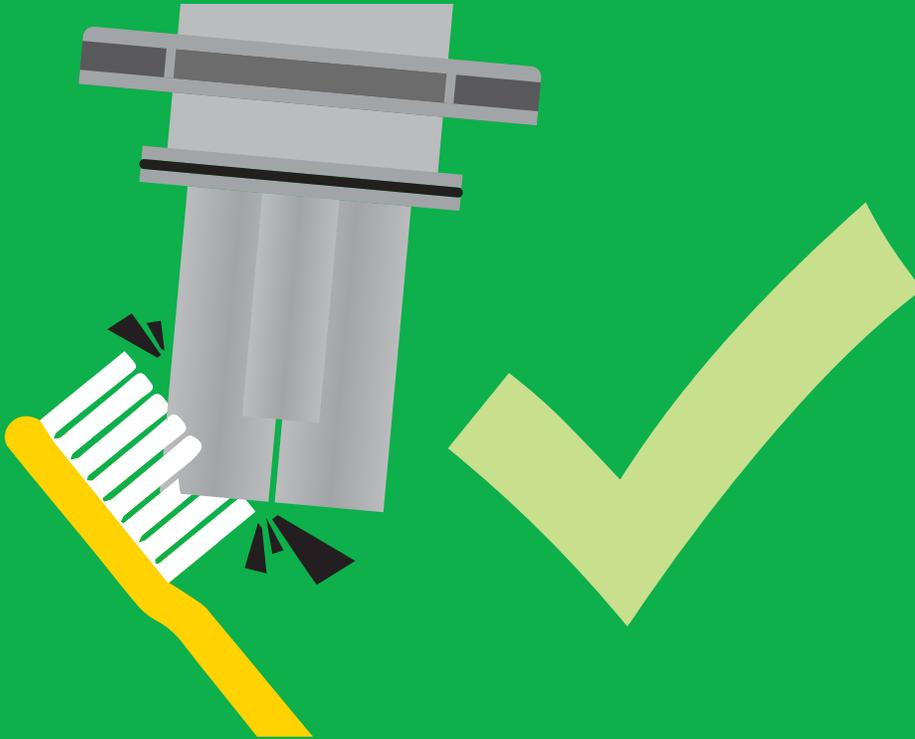
## How often do you need to recalibrate a conductivity probe?

Conductivity probes work by measuring the electrical current of the water between two graphite plates. The plates do not go bad, or change, so recalibration is not necessary. After the first calibration your conductivity probe is good to go.

# Probe cleaning

Over time conductivity probes can become dirty and covered in deposits, which can change the basic electrical properties of the probe and cause inaccurate readings.

Soft coatings can be removed by lightly brushing around the conducting area.



Hard coatings should be chemically removed. We highly recommend you use the **Atlas Scientific conductivity probe cleaner**.

