Atlas Scientific™
Environmental Robotics

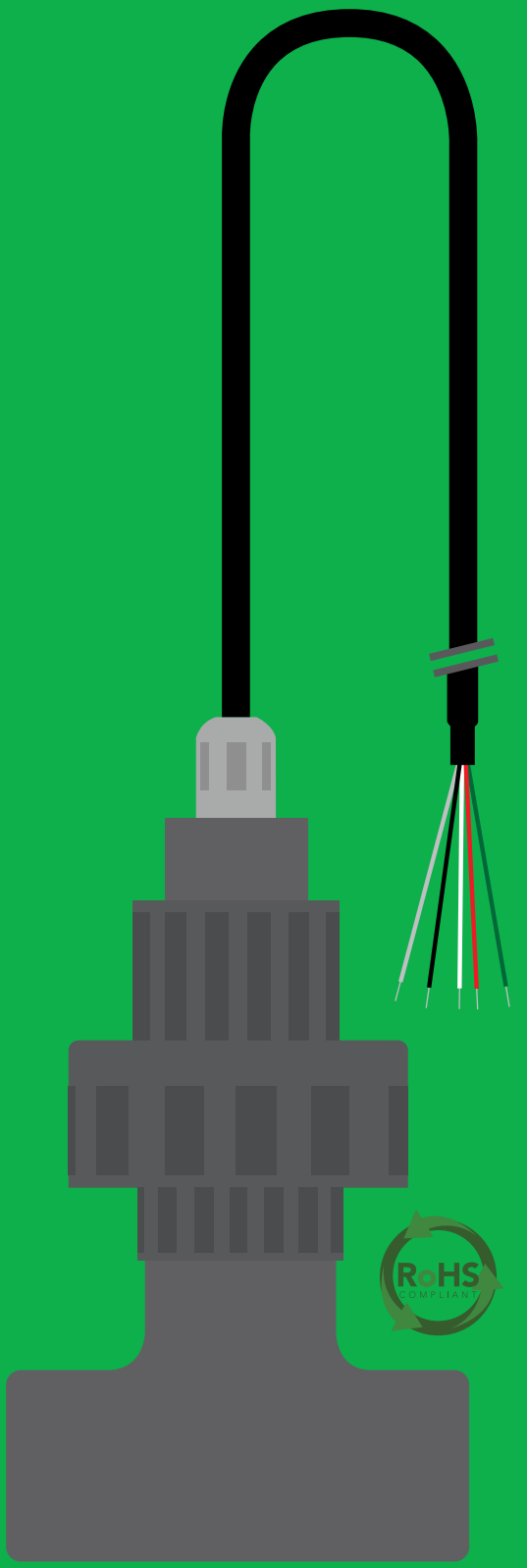
V 3.0
Revised 6/23

Gen 2

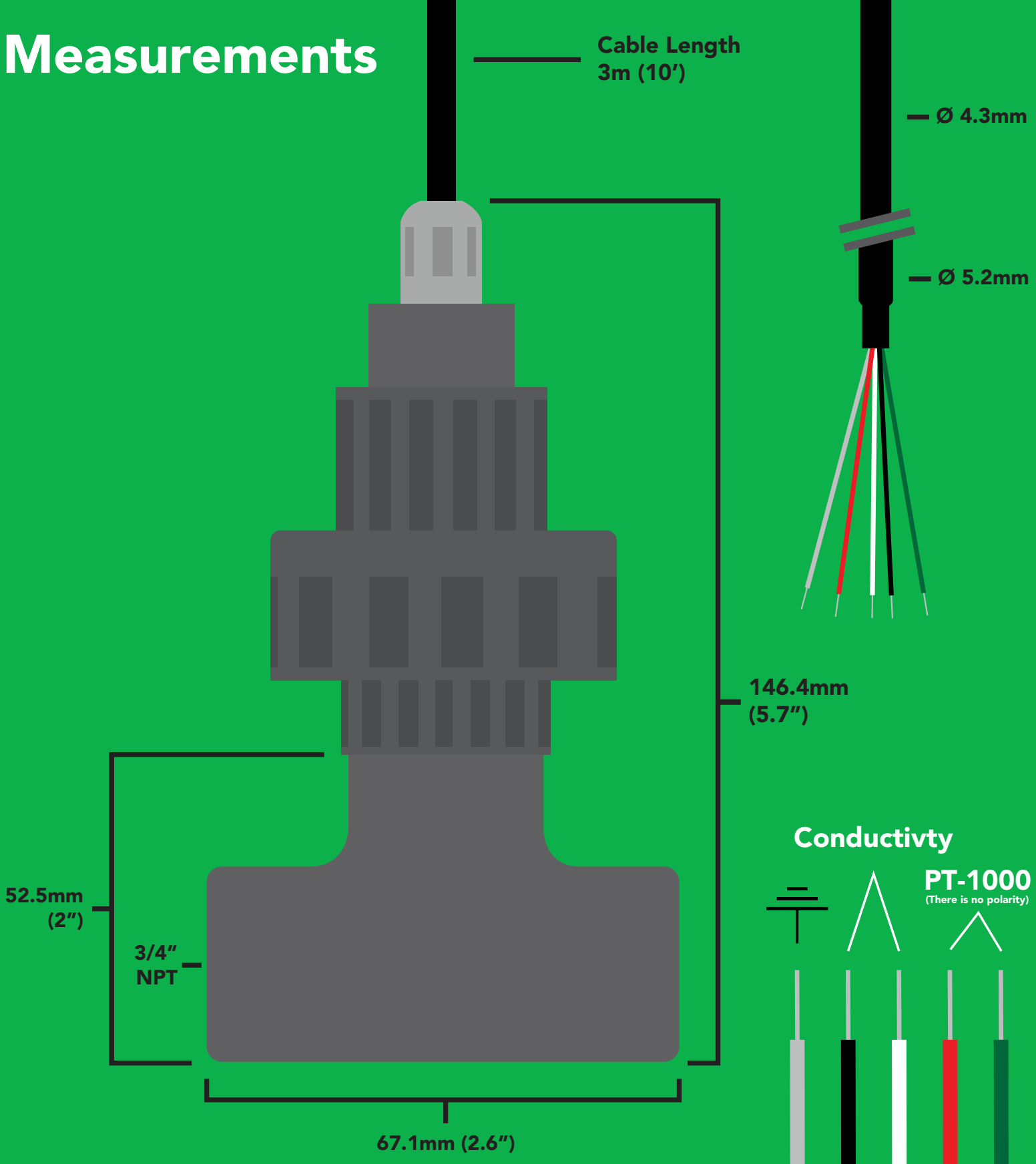
Conductivity Probe K 1.0

Graphite

Reads	**Conductivity**
Range	**5 – 200,000 µS/cm**
Accuracy	**+/ – 2%**
Response time	**90% in 1s**
Temperature range °C	**0 – 60 °C**
Max pressure	**200 PSI**
Max depth	**141m (463 ft)**
Connector	**Tinned leads**
Cable length	**3 meters**
Pipe fitting	**3/4" threaded NPT**
Internal temperature sensor	**Yes (PT-1000)**
Time before recalibration	**~10 years**
Life expectancy	**~10 years**



Measurements



Conductivty

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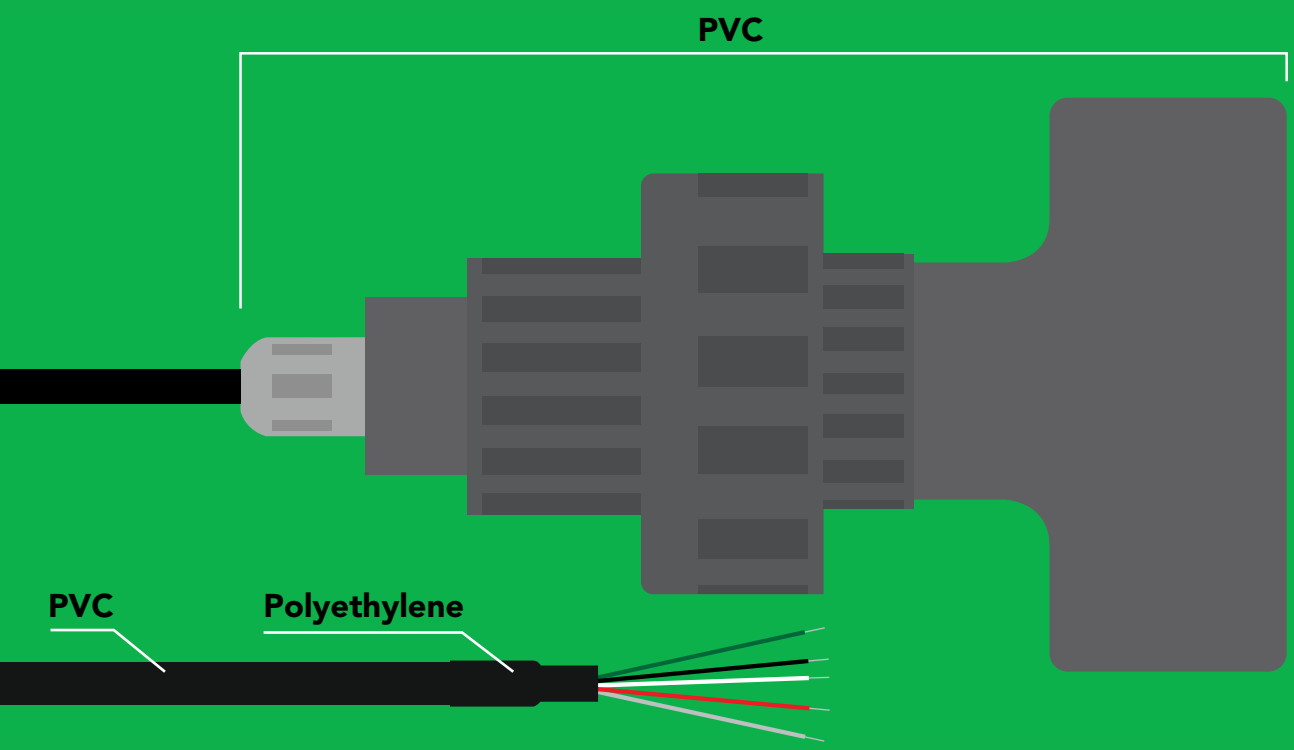
Specifications

K 1.0	**5 µS – 200,000 µS**
Body material	**PVC**
Max depth	**141m (463 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	**354 grams**
Threading	**(3/4") NPT**
Sterilization	**Chemical only**
Pipe fitting	**3/4" threaded NPT**

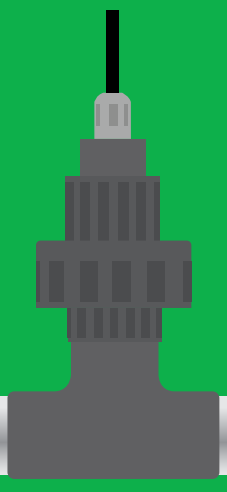
Materials



Connecting this probe to these devices will give you a sensing range of:

EC-EZO™	EC-OEM™	Industrial Transmitter
5 – 200,000 µS	5 – 200,000 µS	1 – 25,000 µS

The Industrial Conductivity Probe is meant for inline use.



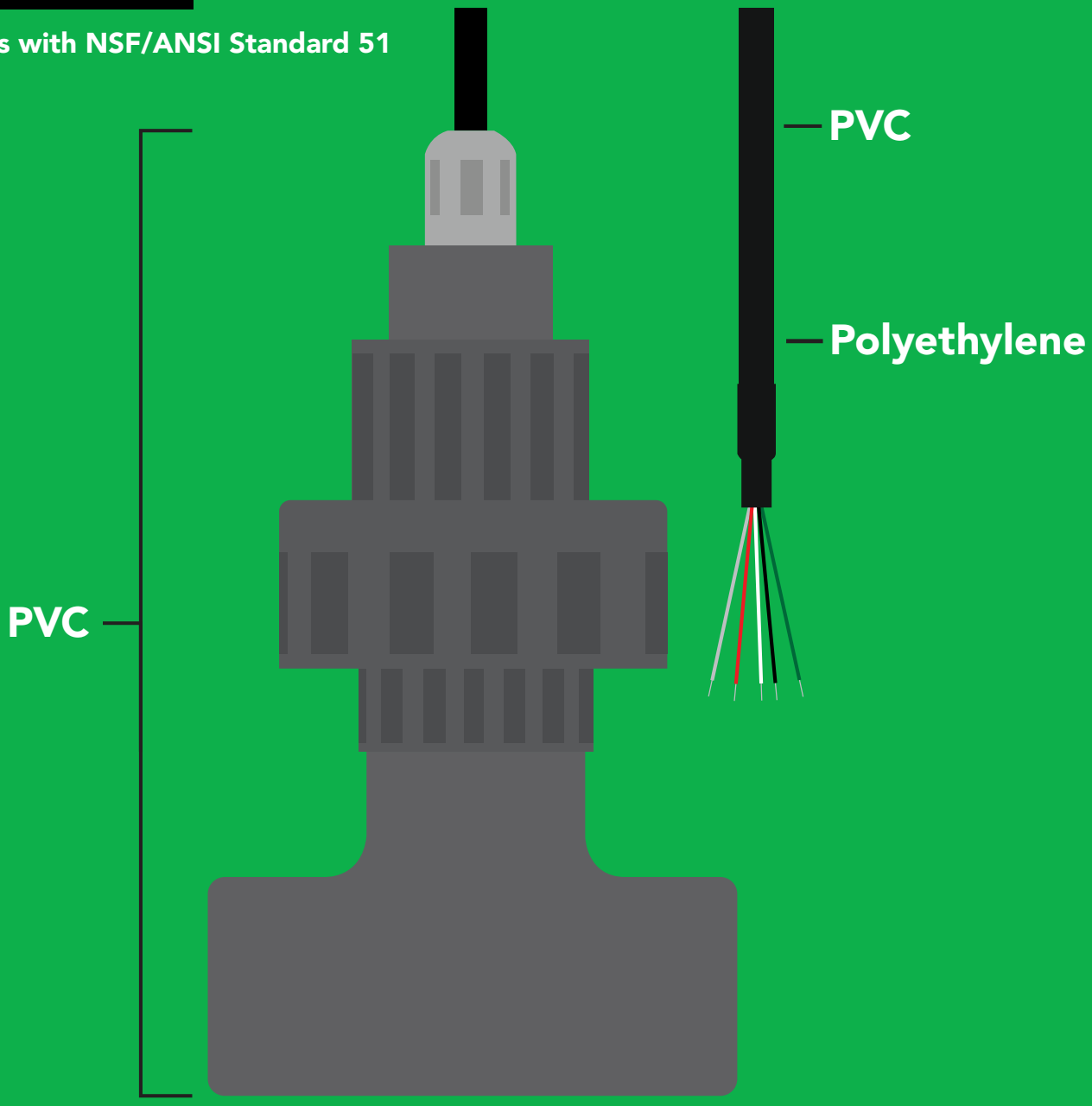
NSF/ANSI 51 Compliant

Food Safe

Atlas Scientific LLC, hereby certifies that,

Industrial Conductivity Probe K 1.0
Part # ENV-50-EC-1.0

Complies with NSF/ANSI Standard 51



PVC
NSF-51 Compliant

Polyethylene
NSF-51 Compliant

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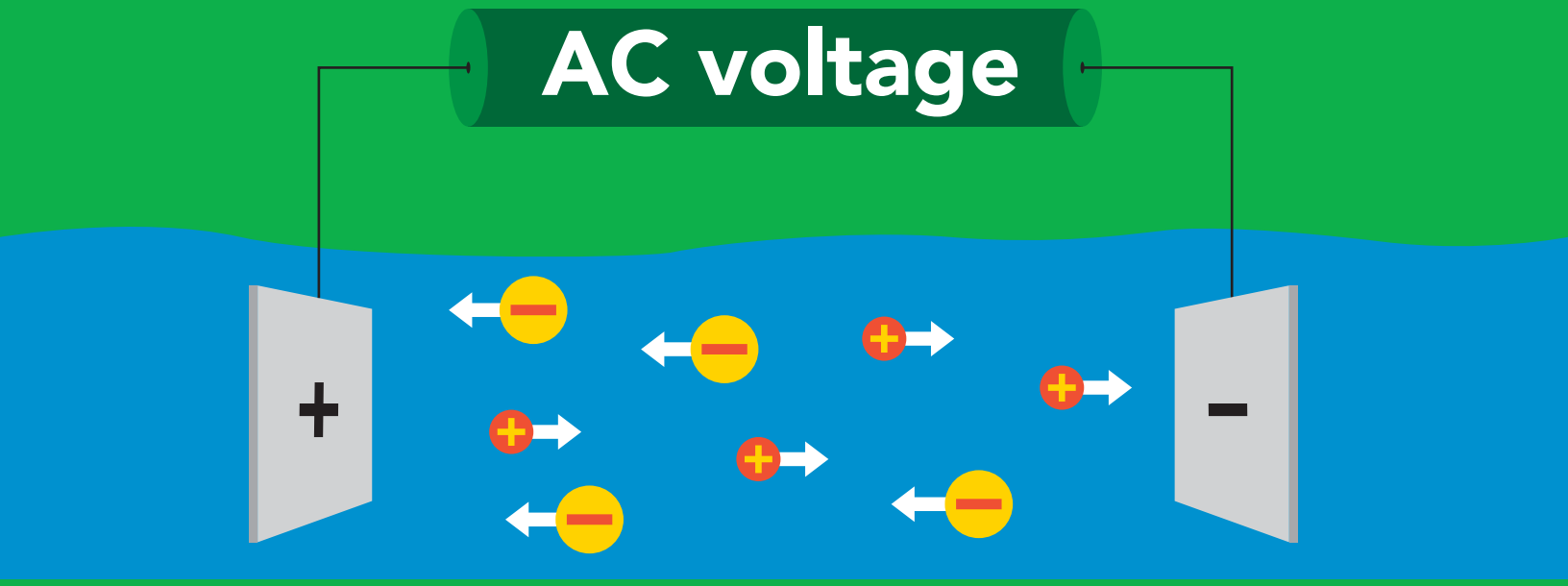
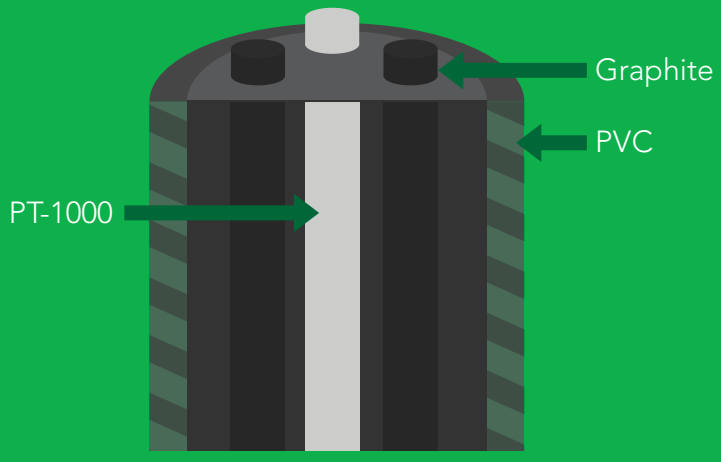
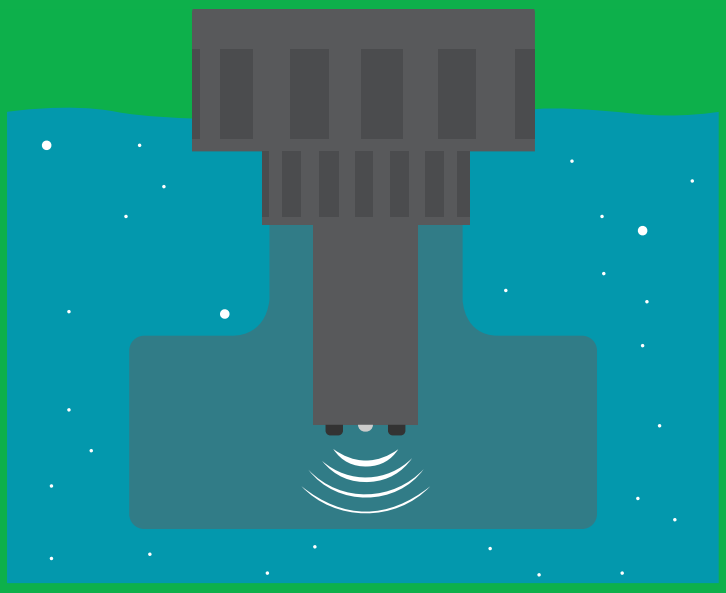
Operating principle

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 electrode. The more free electrolyte the liquid contains, the higher the electrical conductivity.



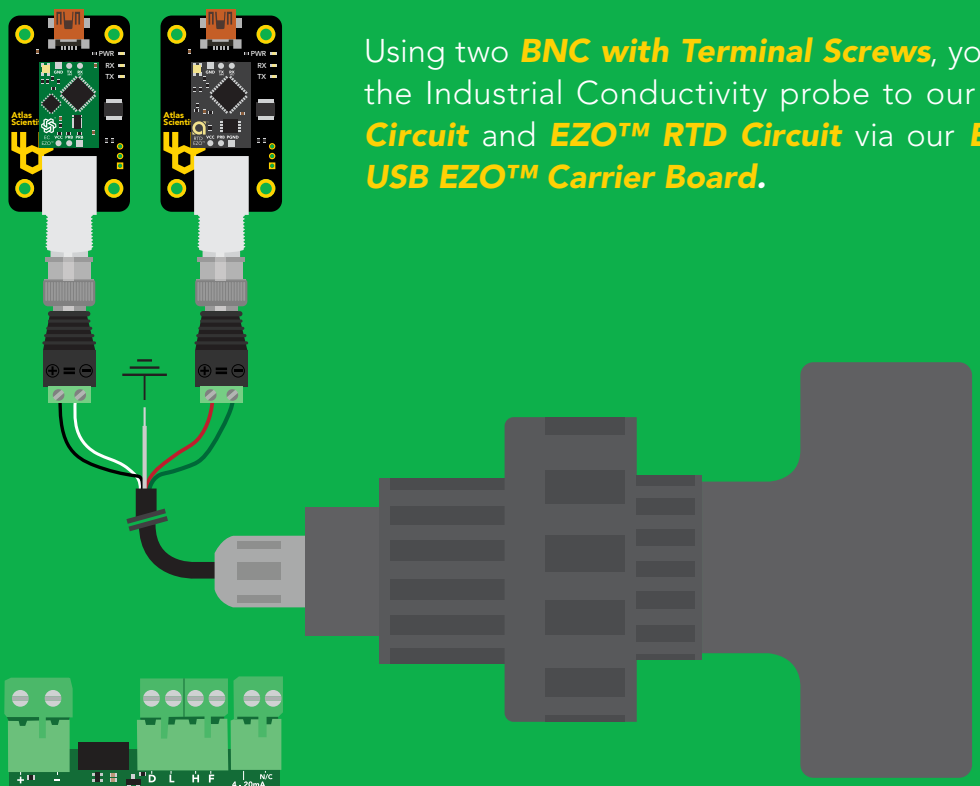




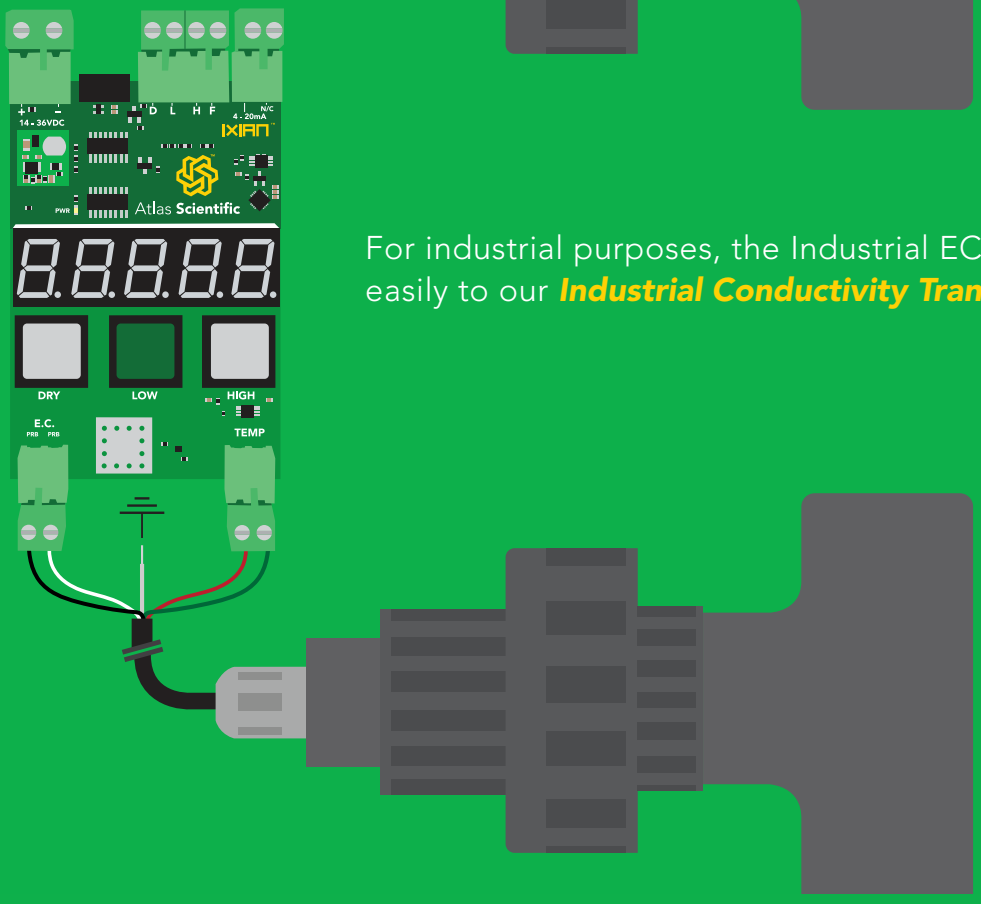
In order for the industrial conductivity probe to function correctly, the pipe fitting must be attached to the probe.

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.



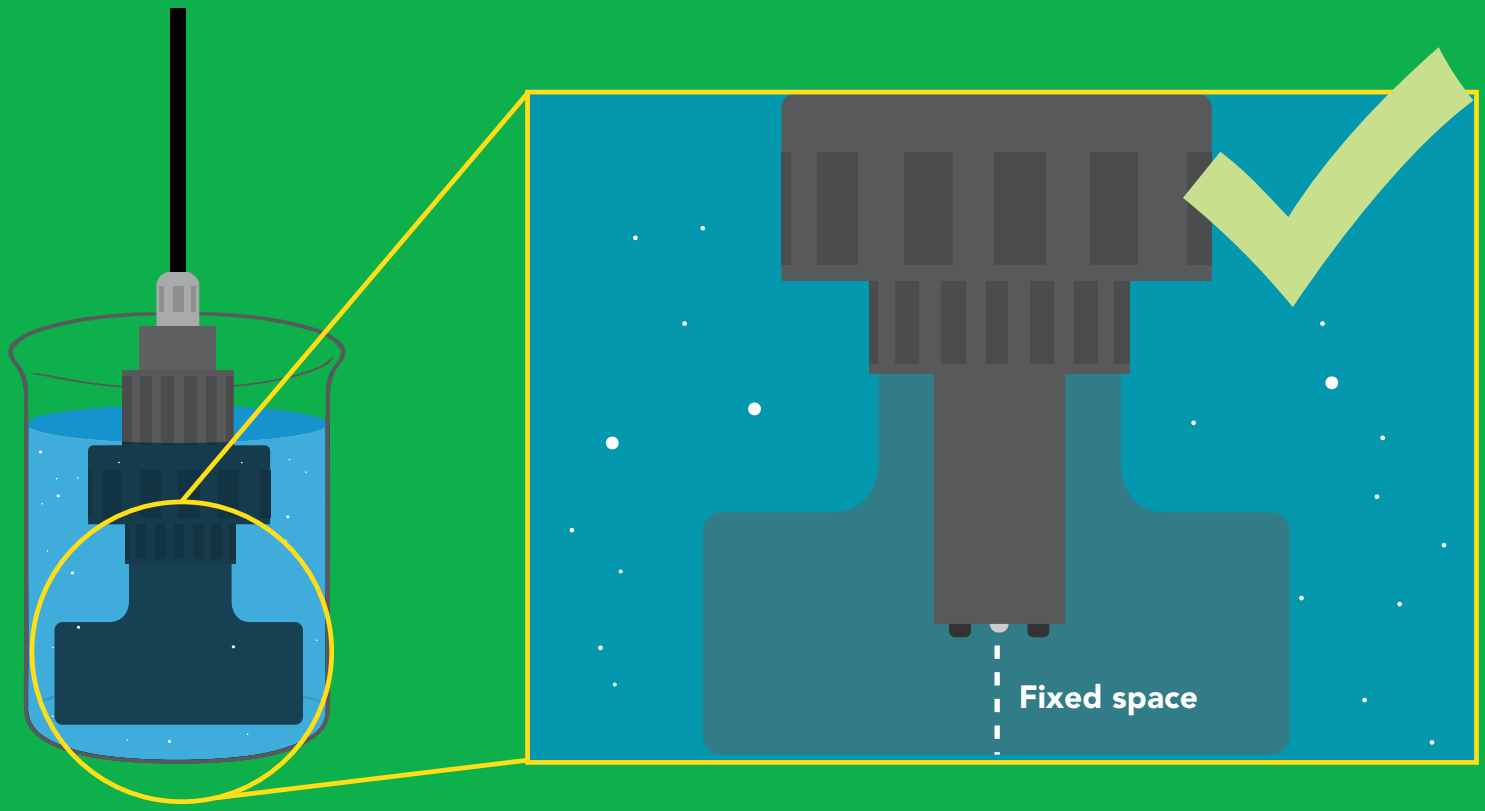
Using two ***BNC with Terminal Screws***, you can easily connect the Industrial Conductivity probe to our ***EZO Conductivity Circuit*** and ***EZO™ RTD Circuit*** via our ***Electrically Isolated USB EZO™ Carrier Board.***



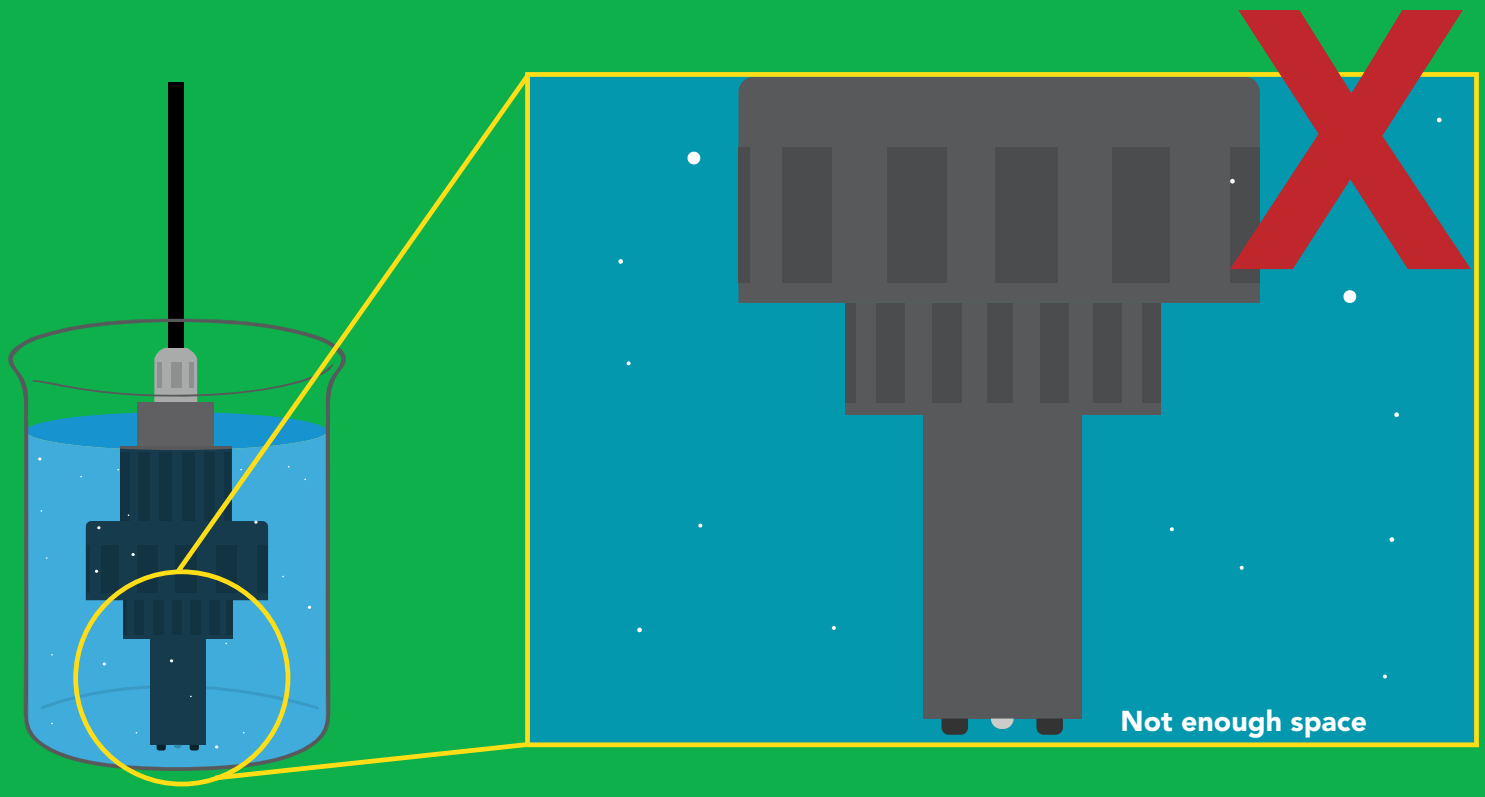
For industrial purposes, the Industrial EC probe connects easily to our ***Industrial Conductivity Transmitter.***

Calibration

In order for the industrial conductivity probe to function correctly, the pipe fitting must be attached to the probe.

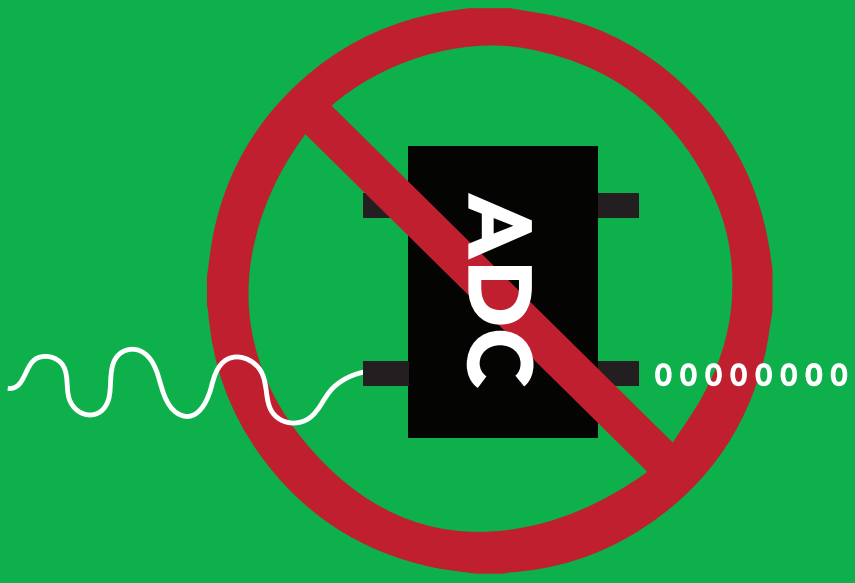


Calibrating and / or using the probe without the pipe fitting attached will cause irregular readings.



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.

Remove pipe fitting before cleaning.

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