Inductive Salinity Sensor

Maria Barroso[1], J.L. Rocha[1], C.L. Faria[1], P.A. Gomes[3], L.M. Gonçalves[1,2]

[1] CMEMS-UMinho, University of Minho, Campus de Azurém, Guimarães, Portugal
[2] LABBELS –Associate Laboratory, Braga/Guimarães, Portugal
[3] CBMA-Molecular and Environmental Biology Centre, University of Minho, Braga, Portugal
*e-mail: mariabarroso731@gmail.com

Why is it important to measure salinity?

Hydrological Cycle

Influences evaporation and cloud formation, impacting the global climate.

Ocean Circulation

The difference in salinity contributes to ocean currents, affecting climate, nutrients, and marine species.

Marine Ecosystem

Influences the distribution of species, especially in estuaries.

Climatic Changes

Helps to monitor climate change and its effects on the oceans, such as melting ice.

How to measure salinity?

Salinity determinations are usually made indirectly, measuring electrical conductivity, which depends on salinity and temperature.

Measure the conductivity of liquids

- **Inductive**
- **Contact** (with two or four electrodes)

Advantages of using an inductive sensor

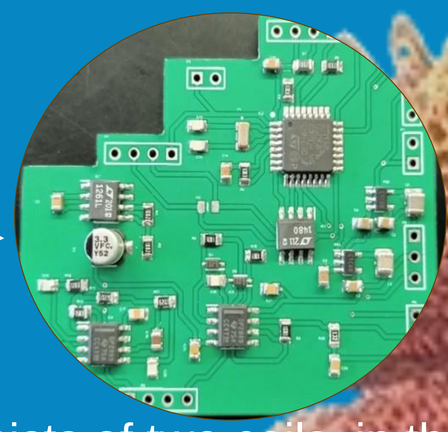
- Biofouling-proof
- Low maintenance
- Improved accuracy
- Cost-effective

Sensor design

Instrumentation

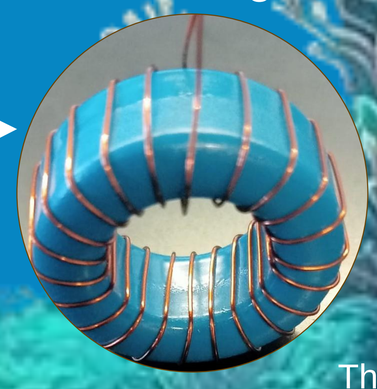
Electronics

and Data Processing



The developed sensor consists of two coils, in the shape of a toroid. The coil core will be made of ferrite and is supplied with N copper wire windings.
The sensor is designed so that part of the liquid medium forms a closed current path that passes through both coils. Applying an AC voltage or sinusoidal current to the transmitting coil induces a magnetic current, an inductive voltage in the seawater.

The receiving coil receives the magnetic flux from the seawater cycle and gives an inductive voltage.



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