

Ferry Box Mounted Sensor for Monitoring pH in the Antarctic

 ANB Sensors

 University of East Anglia

OVERVIEW

The Southern Ocean around Antarctica absorbs a large portion of atmospheric CO₂, which can lead to ocean acidification as CO₂ dissolves in seawater, lowering pH levels. Since cold waters can absorb more CO₂, the Antarctic region is especially vulnerable to rapid changes in ocean chemistry. Tracking pH in the Antarctic not only helps scientists monitor the impact of increasing CO₂ on marine life that are highly sensitive to changes in acidity, but also, as Antarctic waters play a critical role in regulating global ocean circulation and carbon storage, monitoring pH levels helps researchers understand how acidification might affect these processes, influencing climate patterns and carbon cycles worldwide.

USE CASE

The AQ5 sensor was integrated into a ferry box on a research vessel deployed in Antarctic waters. This setup allowed the sensor to continuously monitor the pH of seawater flowing through the ferry box, providing real-time data critical for research on the impacts of increased CO₂ levels and ocean acidification. The sensor's calibration-free design eliminated the need for frequent maintenance and recalibration, which is particularly advantageous in the remote and challenging Antarctic environment.

Alongside other collected data, accurate and reliable pH measurements allow scientists to track fluctuations linked to CO₂ absorption and their potential effects on local marine ecosystems. This continuous data collection provides valuable insights into the changing chemistry of Antarctic waters, enhancing ongoing research and conservation efforts in this ecologically sensitive area.

AT A GLANCE

- **Integration into Ferry Box Systems:** The AQ5 sensor seamlessly integrates into ferry box setups on research vessels, enabling comprehensive data collection alongside other environmental parameters.
- **Robust design:** The sensor's durable construction and capability to be stored wet or dry facilitate convenient use during remote missions.
- **Support for Climate Research:** Continuous pH measurements in Antarctic waters provide critical insights into ocean acidification and its impact on marine ecosystems.

As research efforts to understand and safeguard marine ecosystems expand, ANB Sensors' technology delivers a vital, eco-friendly solution for continuous monitoring on research vessels, supporting informed decision-making and conservation initiatives in the world's oceans.