

ISO 22013: Ensuring The Reliability and Accuracy of Marine Environment Sensor Data

A universal standard to fill the gap in marine environment sensor performance

The health and function of our oceans and inland waters depends on monitoring key parameters, such as temperature, salinity, turbidity (clarity of water), and acidity, while the reliability and accuracy of this data depends on the instruments used to measure it. And although the value of this data has grown in importance to both industry and government, even legally mandated to be recorded in some cases, oversight on instrument performance has not kept pace. There is no agreement between manufacturers on even basic performance specifications, such as accuracy, which can have a significant impact on the quality of the measurement.

ISO 22013, *Marine environment sensor performance — Specifications, testing and reporting — General requirements* sets out to address the gap related to these instruments (known as Conductivity Temperature Depth (CTD) and Multi-parameter probes). It does so by defining basic specifications, such as accuracy, time response and drift, specifying preferred test methods, and reporting requirements.

ISO 22013 focuses on the testing method without placing requirements on the level of specification achieved, thereby allowing the market to decide what performance is needed for a particular application.

Benefits:

- ensures marine sensors better meet market expectations
- allows straightforward “apples to apples” comparison by non-technical personnel
- rewards true performance innovations within the marketplace
- improves the overall quality of marine environment sensor data collected globally
- eliminates confusion in the marketplace by addressing the lack of consistency and transparency when it comes to marine sensor performance



Who can use ISO 22013?

Manufacturers of CTDs – can use its simple and clear requirements and test methods during the development of new or recharacterization of existing sensors to reduce time to market.

Individual consumers of CTDs – (e.g. private industry, academia or government) can compare datasheets between manufacturers who comply with ISO 22013, supporting more informed purchasing decisions.

Purchasing departments – can incorporate ISO 22013 compliance as a requirement across their organization, especially on large tenders, making bid comparison and performing due diligence easier.



To get the most out of ISO 22013, consider using it:

- **As a reference document** to provide definitions for many broader metrological terms, such as the difference between primary and secondary standards, and those more specific to CTDs, such as the difference between a transducer, sensor and instrument.
- **To develop tests to characterize the performance** of CTDs using its test methodologies for specifications such as accuracy, precision and time response. It also specifies experiment design, such as the required minimum number of sensors, repeat measurements and statistical calculations.
- **As a recommended format to publish performance specifications for CTDs**, such as in datasheets since it requires manufacturers both maintain and produce test reports on specifications if asked by customers.

