

# RBR

## RBRargo<sup>3</sup> C.T.D, Field Service Bulletin, Q1 2024

### Background

RBR discovered, at its factory, abnormal behaviour on some RBRargo<sup>3</sup> C.T.D instruments in the end of Q4 2023/ beginning of Q1 2023.

This abnormal behaviour consisted of a step change in conductivity readings when power-cycled in a magnitude of 1 to 10  $\mu\text{S}/\text{cm}$ .

Our investigation revealed that ferrites delivered to RBR and used for the RBRargo<sup>3</sup> C.T.D instruments manufactured between Q2 2023 and Q4 2023 were out of typically expected electrical properties.

### Root cause investigation

In December 2023, some instruments did not pass RBR acceptance tests during our production process.

Further testing revealed that, when power-cycled and while actively sampling, these instruments showed a step change in conductivity readings of up to 10 $\mu\text{S}/\text{cm}$ .

RBR verified that, once the step change occurs, the offset affecting conductivity readings will mostly disappear by itself within 12h.

RBR established that the root cause of this behaviour was ferrites out of typically expected electrical properties delivered to RBR in 2023. Those ferrites were used on RBR instruments between Q2 2023 and Q4 2023.

RBR confirmed that instruments built with such ferrites were not affected by that step change in the conductivity readings when power-cycled but not actively sampling.

### Corrective and preventative actions

- RBR put a contingency plan at our factory and started investigating as soon as the issue was discovered.
- RBR released a new firmware for RBRargo<sup>3</sup> C.T.D to detect power disruptions and prevent active sampling during those periods.
- RBR revised our QA process for ferrites.

### Impact on the Argo program

RBR believes the impact on the Argo program is minimal. Argo floats, to RBR knowledge, are not power-cycling the instruments regularly as they rely on the extremely low-power sleeping mode of the RBRargo<sup>3</sup> C.T.D. Furthermore, even in the unlikely event of power-cycling the instrument while it is actively sampling, tests have shown the offset introduced will mostly disappear by itself within 12 hours.

RBR is now screening for this defect and, to our knowledge, no affected CTD were released to the Argo program. RBR will nonetheless work with the float manufacturers to update their RBRargo<sup>3</sup> C.T.D firmware for future units.

## Continued RBR Support

RBR is committed to providing the best product and service to your company to help you achieve your goals. If there are any questions or concerns with the changes listed in this document, do not hesitate to contact us for help and information.

## Revision Log

Rev	Revised by	Date	Description of Change
A	Jean-Michel Leconte	Feb 28, 2024	Initial release.