

RBRargo CTD for profiling floats

Ultra low power, salinity to the surface

The RBRargo CTD is designed specifically for the Argo program. The ultra-low power design results in a 5x CTD energy budget savings, while the CFD-optimized flow makes a pump completely unnecessary. Salinity to the surface is default behaviour — the conductivity cell is unaffected by surfactants and is not damaged by drying out. Atmospheric measurements provide helpful drift references.

Impeccable power management and a direct engineer-to-engineer support channel, coupled with a design that focuses on ease of use makes integration straightforward. Capable of up to 12Hz sampling, massive storage capacity, and compact electronics, the RBRargo fits in both standard Argo and NATO A-class float hulls, and withstands air deployments.

A full range of BGC sensors are available, including optical DO, pH, PAR, fluorometers, and others.

Features

- WOCE accuracy
- Streamlined design minimizes salinity spiking
- Flushing by design — no pump required
- Classical 2000dbar profile consumes only 700J
- Up to 12Hz sampling
- Conductivity to within 10cm of air-ocean interface
- Integrations with Teledyne Webb APEX, MRV ALAMO, and MetOcean NAMI floats already available, in water, and data observed by ARGO scientists



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Specifications

Physical

Power:	240 μ W sleep, 65 mW sampling
Energy/sample:	<25mJ
Energy/profile:	~700J (2000dbar)
Communication:	UART, RS-232, USB-CDC
Storage:	~120M readings
Depth rating:	2000m (standard), 6000m (deep)
Sampling speeds:	Up to 12Hz, configurable per regime
Materials:	OSP (polymer), titanium, Hastelloy

Conductivity (up to 2000m)

Range:	0 – 85mS/cm
Initial accuracy:	\pm 0.003mS/cm
Resolution:	0.001mS/cm
Typical stability:	0.010mS/cm per year

Temperature

Range:	-5°C to 35 °C
Initial accuracy:	\pm 0.002°C
Resolution:	0.00005°C
Time constant:	~700ms (standard) or ~0.07s (option)
Typical stability:	0.002°C per year

Pressure (Depth)

Range:	1000 / 2000 / 4000 / 6000dbar
Initial accuracy:	\pm 0.05% FS
Resolution:	0.001% FS or 0.001 dbar w.i.g.
Time constant:	<0.01s
Typical stability:	0.1% FS per year

Custom Realtime Data Logging

All RBRargo instruments have onboard compensation of temperature effects on pressure, and temperature and pressure effects on conductivity. Derived channels are also built in for salinity, sound speed, density, etc.

The instrument runs a true RTOS (realtime operating system) and is capable of logging autonomously at the same time as supplying intermittent measurements (to a buoyancy engine controller, for instance).

Regimes mode supports three different sampling protocols according to the float depth in the water column. For instance, regime 1 could be between 2000 and 1000dbar, sampling at 1Hz, and binning all measurements taken over a 5dbar range. Regime 2 could be between 1000dbar and 300dbar, sampling at 1Hz, and binning over a 1dbar range. Regime 3 could be between 300dbar and the surface, sampling at 6 or even 12Hz, without any binning (storing all samples).

