

EnviroTech LLC

Aqua Monitor Smart Water Sampler

Enviro-Sensible Technology for Earth Science



Smart, Versatile Water & Plankton Sampler

Aqua Monitor is a novel water sampler for use in a wide variety of deployment scenarios and is equally capable of integration within a traditional mooring arrangement, a towed-vehicle system or ROV/AUV platforms. This unique device enables collection of up to fifty discrete water samples for post recovery analysis. The device may be programmed for autonomous time series sampling or for operation in "slave" mode within an integrated system. Applications are as diverse as the range of possible deployment platforms and include sampling for nutrients, phytoplankton, salinity, suspended-load, tracers and contaminants.

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Benefits

- Determine phytoplankton numbers during blooms
- Independent assessment of key parameters
- De-trend data corrupted by biofouling
- Obtain frequent in-situ calibration points
- Measure difficult variables

Applications

- Phytoplankton, nutrients, salinity, suspended-load
- Fixed-point and spatial sampling
- Long-period deep-ocean deployments
- TMDL assessment

Description



Aqua Monitor is a novel water sampler that can collect 50 samples of up to 1000 ml each. The samples are captured using a high integrity syringe mechanism and then injected into flexible bags via a 50-way multi-port valve. Samples are stored for post recovery analysis. Aqua Monitor can be used in moored or towed-vehicle applications to collect 50 discrete samples. Originally designed as a versatile water and phytoplankton sampler the device may be programmed for autonomous sampling or operated as a "slave" within an integrated system such as a towed-vehicle or AUV. The sample volume is user programmable and a macro language allows the operator to easily implement custom in-situ sample processing. Timed sampling control for mooring applications includes two modes: Traditional time-series sample collection via an operator programmable interval and real-time sampling from a user generated schedule of sample times. The real-time mode provides Aqua Monitor with the unique ability to sample coherently with tidal state or acquire bursts of samples each dosed with different preservatives. Aqua Monitor is purpose designed for use in towed-body applications such as within U-Tow. A special deep ocean version of Aqua Monitor is available. The illustration over shows a 2500 m rated system that was successfully deployed in the Denmark Strait at a depth of 1200 m sampling once per week for a year. Aqua Monitor may be used aboard most ROVs and AUVs and has been fitted to the Southampton Oceanography Centre's AUV, Autosub, during science missions in the UK.

Specification

Sample size (ml)	100 - 1000
Number of samples	Up to 50
Bag sizes (ml)	250, 500, 1000, 2000
Preservatives	Lugol's iodine, mercuric chloride, chloroform, hyper-saline solution
Precision	0.125% sample volume
Endurance	Programmable from 1 sample / minute to 1 sample / month
Dimensions	5.7" (146 mm) diameter x 24.5" (623 mm)
Weight	Air: 17.6 lbs (8 kg) - Water: Neutrally buoyant
Depth capability	100 m and 2500 m. <i>Deeper on request</i>
Power consumption	Peak: 740 mA / Mean: <2 mA (8 weeks)
Communications	RS232 - ASCII / 300 - 38.4 kbaud
Power supply	12 volt DC (range 9.5 - 15.0 volts)
Materials	Acetyl plastic
Scope of supply	Aqua Monitor, communications and power deck-lead, AquaDATA software, scientific transit case
Optional extras	Battery pack, sample bags, filters, preservatives, mooring frames, external sensors (e.g. temperature & fluorescence)