EnviroTech LLC

AquaLAB

Deep Ocean Water

Enviro-Sensible Technology for Earth Science

Gas-tight deep ocean water sampler

AquaLAB is a 50 port water sampler developed in collaboration with Lamont-Doherty Earth Observatory and the University of Columbia in the United States . Manufactured by EnviroTech LLC, AquaLAB provides new and unique sampling capabilities for a range of oceanic applications. These include trace gas analysis, extended deep ocean time-series sampling and high integrity short-term sampling via profiling system and remote vehicles. New gas-tight sample bags ensure high integrity sample acquisition and storage over long periods.

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Benefits

- Specifically designed to facilitate gas-tight water sampling
- Utilises titanium foil sample bags
- Titanium external construction
- Rated to full ocean depth (6000 m)
- High precision sample volume

Applications

- Water sampling for trace gas analysis (eg. CFC, CO2, SF6)
- Time series water sampling during extended deployments up to and exceeding 1 year
- Ultra-precise time-series salinity determination
- Analysis of other parameters (eg. nutrients, tracers, plankton)

Description

AquaLAB is a deep ocean gas tight water sampler which can collect 50 samples of up to 1000ml each. These are collected using a high integrity 50-port rotary valve and injected into titanium foil bags. The samples are then stored for post recovery analysis. AquaLAB normally operates either completely automatically in a time-series mode, sampling at a user pre-set interval or a master device within a system may control the sampling regime. AquaLAB incorporates the ESM-1 Plus controller/datalogger. The system is programmed using the Eco-Script programming language. Eco-Script has been designed to provide the user with maximum control and flexibility in implementing sampling regimes. Scripts can be readily designed to include extra flushing, sample preservation, rejection or even in-situ sampling processing. The integral ESM datalogger/system control allows AquaLAB to act as an ideal host for other external sensors (see ESM datasheet).

EnviroTech also manufactures Aqua Monitor (model WMS) for nutrient, phytoplankton and suspended load applications.

Specification

Sample size (ml)	0.75 ml to 1 litre with a step interval of 0.75 ml
Number of samples	Up to 50
Sample containers	Purpose made titanium foil bags with nominal volume of 1000 ml each Other types of flexible sample bags may also be used (eg. plastic IV bags)
Preservative	With a single preservative either by (a) pre-dosing the sample bags or; (b) using a bag attached to one or more ports as a preservative reservoir
Layout	AquaLAB comprises two modules; the control module and the sampling module The control and sampling modules are physically separated
Endurance	Programmable from 1 sample / minute to 1 sample / year
Dimensions	Length: 670 mm (26"). Diameter: 180 mm (7")
Weight	Sampler: 18 kg (39.6 lb). Controller: 5 kg (11 lb)
Depth capability	6000 m
Power consumption	Peak: 750 mA . Motors still: 140 mA. Sleep: 125 µA
Communications	RS232 - ASCII / 2400 to 56,7 kbaud
Power supply	External DC source (nominal 13.5 volts)
Materials	Titanium external casing
Scope of supply	AquaLAB, communications and power deck-lead, Eco-Script software, scientific transit case
Optional extras	Battery pack, sample bags, filters, preservatives and mooring frames

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