

Automatic Fluid Injection Sampler AFIS

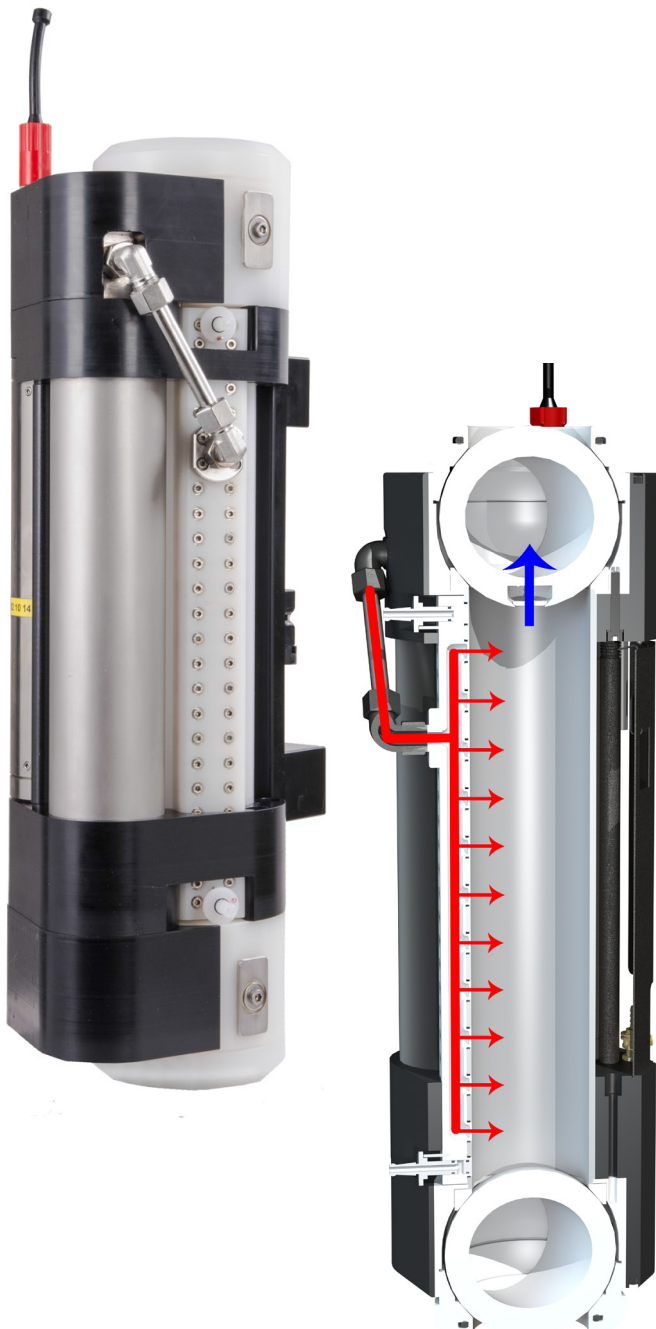
Novel In Situ Water Sampling And Fluid Injection System

ABOUT

Microorganisms are the driving catalysts of virtually all biogeochemical cycles on this planet. Therefore, knowledge regarding microbial abundances, diversities and activities in the environment is of funda-

mental interest not only to microbiologists, but also for understanding globally important element cycles. One culture-independent approach to deduce those prokaryotic metabolic functions is to analyse metatranscriptomes.

The Automatic Fluid Injection Sampler AFIS provides a novel technique to enhance sampling technology for the analysis of metatranscriptomes (messenger RNA).



FEATURES:

- ▶ High-pressure injection for fast fixation of the sample within seconds
- ▶ Optimised injection system for even distribution of injection fluid
- ▶ User-selectable injection fluid
- ▶ Pressure-less handling of injection fluid
- ▶ Programmable volume of injection fluid
- ▶ Programmable schedule for sampling procedure
- ▶ For use inside common rosette water sampling systems

Transcripts degrade fast - within seconds to minutes. It is known that their abundance patterns detected in nature are subject to considerable modification not only due to environmental changes but simply as a result of sampling procedures. Traditional sampling from a ship using conventional water sampling bottles usually takes many minutes to some hours, providing plenty of time for modification.

To overcome this problem, AFIS takes samples and rapidly fixes water directly in the original environment and thereby instantaneously conserves the gene expression profile in situ. This allows a reliable evaluation of microbially driven processes based on metatranscriptomics.

Additional applications are expected in the field of conventional water sampling where immediate fixation of biological matters or chemical substances inside the sample is needed.

The single-bottle version AFISsingle has been designed to be operated inside common rosette water sampling systems or as stand-alone instrument when mounted to hydrographic wires or other subaqueous structures like landers, ROVS etc.

The AFIS results from a cooperation with Leibniz-Institute for Baltic Sea Research Warnemuende IOW.

TECHNICAL DATA

Dimensions	20 x 20 x 65 cm
Empty weight	20 kg
Max. operational water depth	Standard 3000 m, optional 6000 m
Material	Technical ceramics, PVDF, PTFE, POM, titanium, stainless steel AISI 316, FKM, FFKM
Power supply	Lithium iron phosphate (LiFePO ₄), 2500 mAh
Protocol memory	Up to 100 operation protocols
Sampling scenario	Mechanically activated (by rosette), depth-, time- or motion-dependent (programmable)
Sampler volume	2000 ml
Volume of injection fluid	Up to 250 ml (programmable)
Injection pressure	700 ... 500 kPa (100 ... 70 psi)

ORDERING INFORMATION

Products	
436 430	AFISsingle , Automatic Fluid Injection Sampler Single-bottle version with 2 l capacity Integrated pressure sensor Power supply: rechargeable lithium iron phosphate batteries (LiFePO ₄), 2500 mAh Windows based OceanLab3 software included
436 430-001	Injection fluid bags for AFISsingle Volume 400 ml Material: 5-layer thermoplastic polyolefin (free from PVC) Set of 10 pcs.
436 430-002	Quick connector with integrated automatic valve for AFISsingle injection fluid bag
436 430-003	Connection port for AFISsingle injection fluid bag