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FluoStar

submersible sensor with activity
measurement



Advanced but simple
measurement of microalgae
and photosynthetic activity

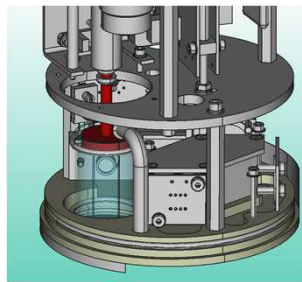
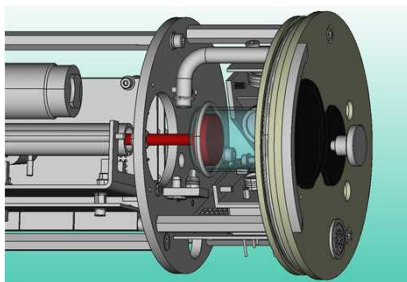


based on the sensor of the
AlgaeOnlineAnalyser

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Depth profiles with determination of algae classes, algae concentrations as well as photosynthetic activity

Nowadays depth profiles for phytoplankton analysis are limited either to algae class determination (FluoroProbe III) or photosynthetic activity measurements. Things will change with the new submersible probe - the FluoStar. The FluoStar with a new technique enables to identify the distribution of algae classes, their chlorophyll content and their ability to perform photosynthesis (activity). The FluoStar is currently under development and will be an advancement combination of the established bbe AlgaeOnlineAnalyser and the bbe FluoroProbe.



Measuring Chamber with automatic inlet of FluoStar

Operation

As you know, the measurement of algae's photosynthetic activity needs a dark adaptation to reach the basic energy state of the pigments. This is ensured by an internal chamber of the sensor where the microalgae at a defined depth are separated from the surroundings. Weak and strong light pulses provide the fluorescence response as variable fluorescence which is used to determine the photosynthetic activity and the algae classes. For semi-continued profiling the content of the internal chamber is exchanged.

MEASUREMENT

- ▶ In vivo determination in real time
- ▶ Multi-spectral excitation
- ▶ Measurement of up to five algal Classes
- ▶ Calibration at factory
- ▶ Highest sensitivity
- ▶ Depth profile

MEASUREMENT CYCLE

- ▶ Water intake 30 s
- ▶ Measuring time 30 s
- ▶ Adjustable dark adaptation depends on the photosynthetic active radiation and customers requirements e.g. 5 min to 30 min

FEATURES

- ▶ Determination of 5 algae classes
- ▶ Determination of photosynthetic activity
- ▶ Automatic sample taking
- ▶ Operation via data Logger connection
- ▶ RS485 connection to data logger



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Specifications

DESCRIPTION	VALUE
Measurands	Total chlorophyll [$\mu\text{g chl-a/l}$], green algae [$\mu\text{g chl-a/l}$], blue-green algae [$\mu\text{g chl-a/l}$], diatoms [$\mu\text{g chl-a/l}$], cryptophyceae [$\mu\text{g chl-a/l}$], yellow substances correction, photosynthetic activity, transmission, depth
Measuring range	0 – 200 $\mu\text{g chl-a/l}$, 0 – 50 $\mu\text{g free PC/l}$
Resolution	0.01 $\mu\text{g chl-a/l}$
Weight	7 kg
Size (H x Ø)	300 x 160 mm
Power supply	24 V, app. 250 mA, 500 mA while cleaning
Power input	10 W
Protection class	IP 68
Depth range	30 m
Temperature	Sample: 0 to 35 °C (Storage: 0 to 50 °C)
Data	continuous data transfer to data logger the data logger should use the values for depth control
Interface	RS485 (extended bbe FluoroProbe protocol)

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BENEFITS

- ▶ Immediate analysis of chlorophyll content
- ▶ Covers all algae classes with six excitation wavelengths
- ▶ Prompt information on cyanobacteria on-site
- ▶ Long-term operation, little maintenance due to self-cleaning antifouling
- ▶ calibrated using real algal cultures
- ▶ Evaluation of the algal condition
- ▶ Simple operation with bbe software



TASKS

- ▶ Algae analysis
- ▶ Regulatory control and monitoring
- ▶ Environmental monitoring
- ▶ Limnological questions

Do you have any questions? Please contact us!

Your local representative

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