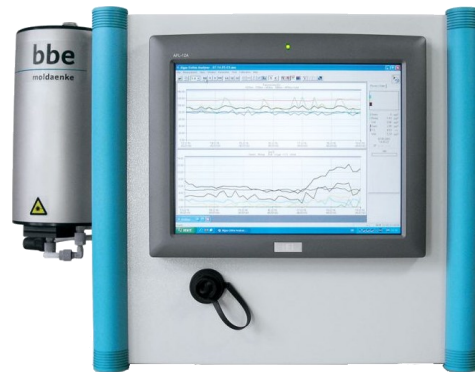# BBE Algae Online Analyser

Features:

- Algae online analysis
- Alternating channel measurements in sequence
- Remote data access
- Algae breeding ex works
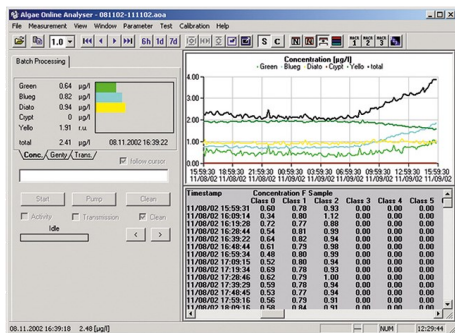- Reduced maintenance due to cleaning mechanism

Applications:

- Regulatory control and monitoring
- Environmental monitoring
- Liminological questions
- Planktothrix detection

Rapid measurement of microalgae using a flow-through chamber

Benefits:

- Immediate analysis of Chlorophyll content
- Covers all algae classes with six excitation wavelengths
- Adjustable alarm thresholds
- Prompt information on cyanobacteria on-site
- Long-term operation
- Calibrated using real algal cultures
- Evaluation of the algal condition of the flow-through sample
- Simple operation with touchscreen PC

The AlgaeOnlineAnalyser is used in measuring stations and laboratories, in fact anywhere where the online assessment of water quality of flowing waters, reservoirs and of drinking water extraction is needed.

On board ships and integrated into complex analytical systems, the AlgaeOnlineAnalyser determines biologically relevant data of commonly travelled shipping routes. Further applications are in the detection of the early stages of algal blooms, of ecological changes in diverse phytoplankton and in limnology, as well as in oceanology.

The purpose of algal class determination is the qualitative and quantitative detection and evaluation of the occurrence of particular types of algae, particularly those which can be classified as potentially harmful. This includes e.g. the cyanobacteria *Planktothrix rubescens*, which increasingly occur in reservoirs used for drinking water extraction.

BBE Algae Online Analyser **- The Measurement Principle**

The AlgaeOnlineAnalyser continuously determines the algal content of water based on chlorophyll fluorescence in real time and without the need for sample preparation. The chlorophyll-a measurement is used as an approximation of the biomass of the microphytoplankton in the water. The measurement is based on the natural fluorescence of the photosynthesis apparatus of chlorophyll using excitation by Light sources. Comprehensive excitation of all micro-algae is made possible by six different LEDs at particular frequencies.

The presence of characteristic pigments in the algae influences chlorophyll-a fluorescence. A complex spectral analysis leads to the allocation of the fluorescence signal to particular algal classes. Up to five Different algal classes can be determined simultaneously.

In contrast to other commercially available chlorophyll measurement instruments, the AlgaeOnlineAnalyser is calibrated using real algal cultures.

The fluorescence measurement corresponds to the time-intensive, wet-chemical chlorophyll analysis according to ISO 10260 and DIN38412/16. However, in contrast to wet chemical analysis, the Algae-OnlineAnalyser needs no sample preparation and can eve replace the laborious method of cell counting with a microscope.

Flurometric determination using the AlgaeOnlineAnalyser is highly sensitive due to the use of a low-noise photo-multiplier.

The component of the Algae Online Analyser

Sensor

Touchscreen

Sample inlet

Peristaltic pump

USB slot

Interfaces

Analyser Performance	
Measurement Parameters	Total chlorophyll [g chl a/l] Concentration of green algae [g chl a/l] Concentration of cyanobacteria [µg chl a/l] Concentration of blue green algae [g chl a/l] Concentration of diatoms [g chl a/l] Concentration of cryptophyceae [g chl a/l] Yellow substance (relative units)
Chlorophyll:	0200 µg chlorophylla/l
Measurement principle	Spectral fluorometry
Resolution	0.01 µg chlorophylla/l
Resolution:	0 - 100%. photometry
Transmission:	0-1 for > 3 µg chlorophylla/l
Photosynthetic activity:	Cleaning piston
Cleaning function:	V4A steel/aluminium/coated steel plate
Housing	19kg
Weight :	IP54
Protection class:	420 x 600 x 200 mm
Size (H x W x D):	110/230 V 50/60 Hz
Power supply:	100 W
Power input:	0-40° C
Sample temperature:	30 ml
Sample volume:	>7 days
Maintenance interval:	Free presureless inlet / peristaltic pump
Sample feed:	Touchscreen PC 12" with windows bbe++ software
PC:	USB LAN R232
Outputs:	Modem analogue outputs 4-20 mA up to 16 relay outputs up to 8 SDI-12 converter Modbus TCP/IP
Optional outputs:	SDI-12 converter

Optional
Please indicate
1. What digital and analogue outputs are required
2. Whether a weather proof housing is required
3. Whether PC operation is required