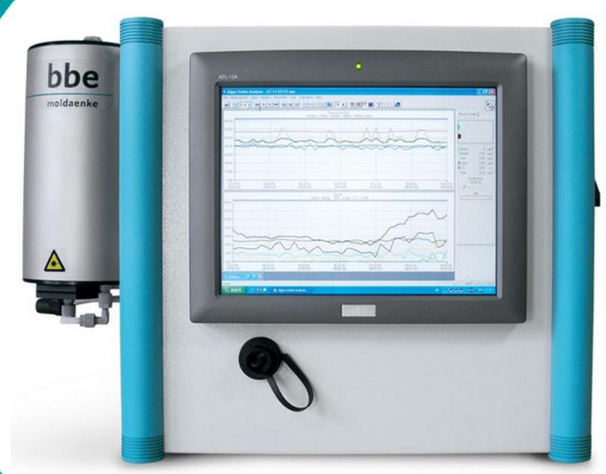
bbe

moldaenke

- Innovative Spectrofluorometers with integrated measurement of:
  - Unbound phycocyanin
  - Differentiation of algae classes

- bbe has been an expert in the field of fluorometry for over 20 years



bbe Chlorophyll Fluorometers

Algae Class Differentiation and Early Warning System by Measuring Unbound Phycocyanin

www.bbe-moldaenke.de

PhycoLabAnalyser

Early warning system for detection of cyanotoxins as well as flavours and odorous substances in raw water

The bbe PhycoLabAnalyser* (PhycoLA) offers the simultaneous determination of chlorophyll concentrations, transmission, and - as an option - the photosynthetic activity of microalgae in a 25 ml glass cuvette. Additionally, the PhycoLA measures the amount of unbound phycocyanin (free PC) which reflects the release of blue-green algaes contents like toxins as well as flavours and odorous substances.

The chlorophyll and phycocyanin content is excited by coloured LEDs and allocated to the different algal classes. The PhycoLabAnalyser enables direct measurement without sample preparation by filtration or solvent. The fluorescence signals f_0, f, and f_m are used to calculate the photosynthetic activity using the Genty parameter method. A yellow substances (CDOM) correction is also used to correctly calculate the total chlorophyll content. The device is virtually maintenance-free and very simple to operate thus saving both time and money.

Specifications

DESCRIPTION	VALUE
Measurands	Total chlorophyll [µg chl-a/l], green algae [µg chl-a/l], blue-green algae [µg chl-a/l], diatoms [µg chl-a/l], cryptophyceae [µg chl-a/l], yellow substances correction, unbound phycocyanin [µg /l], photosynthetic activity (Genty) – optional, transmission
Measuring range	0 – 200 µg chl-a/l, 0 – 50 µg free PC/l
Resolution	0.01 µg chl-a/l
Transmission	0 - 100 %
Turbidity	0 - 200 FTU
Weight	4.5 kg (without computer)
Dimensions (H x W x D)	152 x 340 x 295 mm
Protection class	IP 54
Voltage	230 V / 50 Hz; 110 V / 60 Hz
Power consumption	10 W
Sample temperature	0 to 40 °C
Sample volume	25 ml (cuvette)
Interface	RS232
Software	bbe++ software
Options	Genty, SDI-12 with bbe converter, 12 V adapter

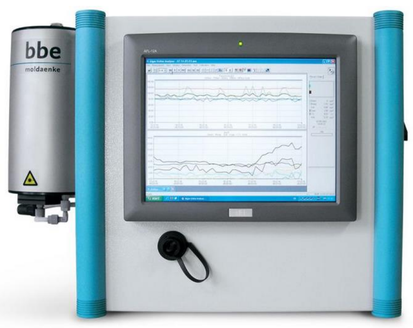
FEATURES

- Quick, simple chlorophyll measurement with algal class differentiation
- Indicator for cyanotoxins as well as flavours and odorous substances by phycocyanin measurements
- Turbidity compensation up to 200 FTU
- Maintenance-free
- Easy to use
- Direct measurement without preparation
- Laptop included
- Integrated stirrer
- Splash-water proof
- PC operation with bbe software
- Simple data export
- Rugged transport case

APPLICATIONS

- Monitoring and assessment of water quality
- Reservoir monitoring
- Process tracking in waterworks
- Environmental and hygiene monitoring
- Chemical assessment
- Toxicity tests
- Analysis of contaminated sites
- Limnological work
- Research and teaching
- Oceanography
- Laboratory tests

*patented



PhycoSens

Online determination of algae classes, chlorophyll and phycocyanin concentrations as well as photosynthetic activity

The bbe PhycoSens* is deployed in measuring stations and laboratories in which online measurement of water quality is required for rivers, reservoirs, dams and lakes as well as in drinking water production.

The instrument impresses due to its rapid analysis of chlorophyll and unbound phycocyanin (free PC) concentrations. The free colour pigments of the cyanobacteria are an important indicator for cyanotoxins as well as flavours and odorous substances in raw water. The online device can also measure the photosynthetic activity of microalgae and the transmission. The detection of different algal classes by excitation with coloured LEDs distinguishes this measuring instrument from its competitors. Part of the analysis is a yellow substances (CDOM) measurement to adjust the calculation of the total chlorophyll and phycocyanin contents. The integrated cleaning unit protect against growth problems during long-term measurement.

Specifications

DESCRIPTION	VALUE
Measurands	Total chlorophyll [µg chl-a/l], green algae [µg chl-a/l], blue-green algae [µg chl-a/l], diatoms [µg chl-a/l], cryptophyceae [µg chl-a/l], yellow substances correction, unbound phycocyanin [µg /l], water temperature, photosynthetic activity – optional, transmission
Measuring range	0 – 200 µg chl-a/l, 0 – 50 µg free PC/l
Resolution	0.01 µg chl-a/l
Transmission	0 - 100 %
Turbidity	0 - 200 FTU
Weight	25 kg
Dimensions (H x W x D)	530 x 660 x 25 mm
Protection class	IP 54
Voltage	230 V / 50 Hz; 110 V / 60 Hz
Power consumption	100 W
Sample temperature	0 to 40 °C
Sample volume	45 ml
Maintenance interval	> 7 days
PC	internal PC with touchscreen, Windows
Options	Genty determination, modem, up to zu 16 4-20mA and 16 digital outputs, SDI-12 with bbe converter

FEATURES

- Quick, simple chlorophyll measurement with algal class differentiation
- Indicator for cyanotoxins as well as flavours and odorous substances by phycocyanin measurements
- Turbidity compensation up to 200 FTU
- Minimal maintenance
- Easy to use
- Monitoring of algae around the clock
- Direct measurement without preparation
- Integrated stirrer
- PC operation with bbe software
- RS232, LAN, USB

APPLICATIONS

- Online water quality assessment
- Reservoir monitoring
- Process tracking in waterworks
- Environmental and hygiene monitoring
- Chemical assessment
- Cooling and production water control
- Limnological work
- Research and teaching
- Oceanography
- Aqua culture monitoring

*patented

PhycoProbe

Depth-profile with quick analysis of chlorophyll and unbound phycocyanin concentrations as well as algae classes

The bbe PhycoProbe* is a highly sensitive measuring instrument for the *in vivo* analysis of chlorophyll-a in real microalgae and blue-green algae (cyanobacteria). Individual profiles for the different algal classes are created during the measurement. The algal content is determined by evaluating the chlorophyll fluorescence in real time. Without the necessity of using a laboratory, it is possible to completely analyse the occurrence and distribution of algae in different water bodies, if necessary at different depths.

Additionally, the PhycoProbe measures the amount of unbound phycocyanin (free PC) which reflects the release of blue-green algae contents like toxins as well as flavours and odorous substances. Interference from e.g. humic substances is compensated using the integrated yellow substances measurement.

Specifications

DESCRIPTION	VALUES
Measurands	Total chlorophyll [µg chl-a/l], green algae [µg chl-a/l], blue-green algae [µg chl-a/l], diatoms [µg chl-a/l], Cryptophyceae [µg chl-a/l], yellow substances correction, unbound phycocyanin [µg /l], water temperature - optional, depth
Measuring range	0 – 200 µg chl-a/l
Resolution	0.01 µg chl-a/l, 0.01 µg free PC/l
Turbidity	0 - 200 FTU
Weight	7.5 kg
Dimensions (H x Ø)	550 x 140 mm
Protection class	IP 68
Voltage	12 V
Battery capacity	3900 mAh
Water temperature	-2 to 40 °C
Operating time	continually approx. 7 hrs; interval approx. 27 days
Interface	RS485 und USB
Maximum depth	0 – 100 m (standard), 0 – 300 m (extended range), 0 – 1000 m (PhycoProbe „Metall Shell“)
Options	Temperature measurements, Measuring cables: 2 – 100 m, Hydro-Wiper unit, Bluetooth-Set

FEATURES

- Quick, simple chlorophyll measurement with algal class differentiation
- Indicator for cyanotoxins as well as flavours and odorous substances by phycocyanin measurements
- Yellow substances measurement and compensation of disturbances via UV-LED excitation
- Up to 4 measurements per second
- PC software for data analysis
- Reduces the number of microscopic laboratory analyses
- Internal rechargeable batteries for independent measurement
- Internal data logger

APPLICATIONS

- Reservoir monitoring
- Process tracking in waterworks
- Drinking water monitoring for blue-green algae
- Monitoring of bathing water for blue-green algae
- Environmental monitoring
- Cooling and production water control
- Limnological work
- Research and teaching
- Oceanography

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