

The AlgaeTorch

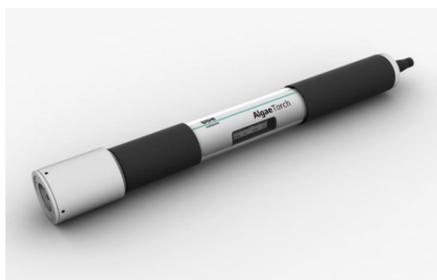
An easy-to-operate, field instrument for bathing water monitoring

An instrument for the measurement of...

- cyanobacteria
- total chlorophyll

The greatest amount of biomass on Earth consists of algae. While most algae increases the benefits to humans in the form of food, energy and pharmaceuticals, some bear the potential of toxin production. These hazardous algae pose a high risk to human health in fresh and marine waters. The group of blue-green algae (cyanobacteria) is well-known to produce highly toxic compounds such as MICROCYSTIN. Therefore, it is an essential task to survey water bodies where humans can come into contact with algae-polluted water.

The bbe AlgaeTorch is a light-weight, field instrument for the quantification of blue-green algae and total chlorophyll. The algae analysis includes the determination of chlorophyll content, which replaces the wet-chemical approach. The measurement is based on the natural fluorescence of algal cells. Immediately performed, the measurement itself needs less than 20 seconds. No sample preparation is needed. Simply turn it on, dip it in and read it off.



bbe AlgaeTorch: handheld operation for the measurement of e.g. bathing water

The illuminated LED display enables clear readings even in direct sunlight.

To switch the AlgaeTorch on, it is tilted rapidly upwards and then downwards. A clearly presented menu enables one-step measurements. For the input and operation of the instrument, four contact keys are located on the side of the housing just below the display. After starting a measurement, the remaining seconds until the end are counted down visibly on the display. A vibration alert informs the user about completion of the measurement.

Features

- blue-green algae (cyanobacteria)
- total chlorophyll-a
- high sensitivity
- no sample preparation
- automatic turbidity compensation
- easy handling
- GPS sensor
- LCD display
- datalogger function
- internal rechargeable batteries
- pressure sensor (option for 100m)
- USB connection to laptop/PC

Chlorophyll measurement

The pigments of the algae are spectrally excited by three coloured LEDs at high frequency. As a response, the algae emit red fluorescent light. The intensity of the light is used for the calculation of the different algal groups, e.g. blue-greens and total microalgae.

The calculation is performed internally with optimised algorithms. The results are displayed and stored in the internal memory. An encapsulated USB port enables data transfer to a PC.

GPS measurement

A GPS sensor indicates the co-ordinates of a measurement location. The data can be recorded with each measurement, seen on the LCD display and exported to Google Earth from the PC software.

Turbidity compensation

A turbidity sensor is included to determine particulate matter via the intensity of the reflected red light and to calculate a compensation factor.

Pressure measurement (optional)

For profiling down to 100 m, a special version of the AlgaeTorch is equipped with a depth rating pressure sensor. Depths are recorded with the chlorophyll data.



Telescopic rod for inaccessible areas

Your local representative...



AlgaeTorch used at a bathing water site

Applications

- water quality analysis
- bloom detection
- cyanobacteria assessment
- toxicity alerts
- reservoir management
- bathing water surveillance
- limnological work
- research and education

Instrument software functions

- start/stop of measurement
- access to all stored data
- (re-)calibration of instrument

PC software functions

- display of depth profiles as graphic
- display of time data as graphic
- export of data to ASCII files
- export of GPS co-ordinates to Google Earth

Technical Data

Measurands	concentration of blue-green algae [$\mu\text{g chl-a/l}$] concentration of total chlorophyll [$\mu\text{g chl-a/l}$] GPS co-ordinates
Measuring range	0 - 200 $\mu\text{g chl-a/l}$
Resolution	0.2 $\mu\text{g chl-a/l}$
Weight	1.8 Kg
Size (H x \varnothing)	500 x 60 mm
Power supply	110/230 V @50/60 Hz - 12V DC
Sample temperature	0 - 30° C
Turbidity compensation	range: 0 - 200 turbidity units
Protection class	IP68
Depth range	AlgaeTorch 10 10 m AlgaeTorch 100 100 m
Data interface	USB
Memory capacity	1,000 datasets
Software	bbe++ data software for Windows
Options	telescopic rod, 10 m rope

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