

miniBackScat I – in situ Fluorometer

Series 1000 / Chlorophyll a

The miniBackScat I fluorometers 1010 to 1012 are designed for the in situ measurement of the concentration of Chlorophyll a of green and brown algae and/or blue algae respectively. Blue or yellow light emitting diodes of high efficiency and light emission provide the excitation light. The quanta output of the excitation is measured by a reference detector and regulated to a constant reference value. This circuit compensates the ageing and temperature dependence of the light emitting diodes. The built-in detector consists of photodiodes, which are selected for high signal to noise ratio.



The figure shows the miniBackScat model 1010 P. The front cap can be turned to select the proper measuring range or the automatic / remote range control.

Features

- tuned to Chlorophyll a, excellent selectivity, wide measuring range, high sensitivity
- standard analogue output, output linear in concentration
- compact instrument, small outlines, titanium connector, maintenance-free for long periods
- very low power consumption, wide voltage range of the power supply, fast readiness after power-on
- electronic compensation of daylight interference
- quanta controlled excitation
- two measuring ranges with automatic, manual and remote control
- options: titanium housing, integrated turbidity sensor, depth sensor

Specifications miniBackScat I model 1010.4 P

Light source	: 2 GaN-LED, peak wavelength 450 nm, quanta controlled emission
Detector	: Silicon diodes, detector filter tuned to Chlorophyll <i>a</i> fluorescence, peak wavelength 683 nm
Window	: single window, tempered optical glass
Calibration	: crystalline Chlorophyll <i>a</i> in acetone
Ranges	: 0 – 10 µg/l and 0 – 100 µg/l (*) selectable by turning the front cap, manual, automatic and remote control
Sensitivities	: 0.02 µg/l, 0.1 µg/l
Signal output	: 0 – 10 V analogue, (option: 0 – 5 V) linear in concentration, (option: linlog)
Time constant	: 150 ms
Range input/output	: 0..+5 V (max. 15 V) in/ 0..+5 V (man. 10 V) out
Readiness	: 3 s after power-on
Power supply	: 12 V (4 V to 36 VDC), 28 mA at 12 VDC “soft start” at power on
Size of pressure housing	: diameter 60 mm, length 160 mm
Materials	: plastics, glass
Weight in air / water	: 0.7 kg / 0.1 kg
Maximum operating depth	: 500 m
Installed connector	: Micro-Subconn MCBH–5M titanium
(*) Option	: 0 – 20 µg/l and 0 – 200 µg/l

Calibration

The miniBackScat fluorometer is tuned to Chlorophyll *a* fluorescence and absorption. An underestimation of the readings should be considered, if algae are present, the Chlorophyll of which is excited by an absorption of other pigments. The instrument is calibrated by means of a solution of crystalline Chlorophyll *a* in acetone.

Options

The titanium housing of the model 1010 Ti extends the operating depth to 2500 m. A subdivision of the output voltage (linlog) is available, by means of which only one analog data channel is necessary for transmitting both measuring ranges. The lower range covers 0 – 5 V and the upper range 5 – 10 V (or 0 – 2.5 V and 2.5 V – 5 V) of the output voltage. Other options: integrated turbidity sensor, DOM, depth.

Accessories

Cuvettes for laboratory use and calibration, underwater cable, display and supply unit, data acquisition and telemetry unit, pressure and other sensors.

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- One channel: 1010 Chlorophyll *a* (green, brown algae), 1011 Chlorophyll *a* (green, brown, blue algae), 1012 Chlorophyll *a* (blue algae), 1014 DOM, 1015 Rhodamine WT, 1016 Sulforhodamine, 1018 Uranine, 1019 DOC.
1020 Chlorophyll *a* (green+brown or blue or all algae)
- Two channels: 1021 Chlorophyll *a* and Phycoerythrin, 1022 Chlorophyll *a* green, brown algae and blue algae, 1024 Chlorophyll *a* and background, 1026 Rhodamine B and Uranine.

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