

BackScat in situ Fluorometer

Series 1100 / 1200 / 1300

The BackScat fluorometers series 1100, 1200 and 1300 are designed for the in situ measurement of Chlorophyll a, phycoerythrin, Rhodamin B, sulforhodamine, humic acids (Gelbstoff), fluorescein, hydrocarbons and other fluorescent agents.

The instruments of the series 1100 are measuring the fluorescence and optionally the turbidity by means of the elastically backscattered light entering the same window.

The fluorometers of the series 1200 are designed to measure two fluorescent agents simultaneously through a single window.



Due to the low power consumption, the BackScat fluorometers are suitable for battery operated long-term measurements.

The operational water depth extends to 6000 m.

Typical detectabilities are 10 – 30 ng/l related to a time constant of 100 ms.

Figure: BackScat I series 1100 fluorometer with pressure sensor.

The series 1300 fluorometers are equipped with two windows for two different channels designed for those combinations of fluorescent agents, the spectra of which would cross each other either in emission or in excitation.

The light source of this series of fluorometers is Xenon flashlight, which covers the spectral range from the UV near 300 nm to the IR at 1100 nm. A special UV Xenon flashtube extends the UV range to about 220 nm.

The tuning to specific fluorescent agents is realized by special filters and dichroic beamsplitters. Spectrally improved photodiodes convert the received light to electric signals.

The built-in automatic range switch enables a wide measuring range and a high detectability of the instrument. The BackScat I fluorometers are equipped with a bidirectional input/output for remote range control and range indication.

The flexibility of this instrument allows the adaptation of additional classical parameters like pressure and temperature. Several options are available enabling a configuration according to the user's needs.

Optical and electronical components are severely selected to guarantee an incident free use of the BackScat fluorometers. The material of the pressure housing is titanium and the window is made of high quality optical glass.

BackScat in situ Fluorometer

Series 1100

Features

- superior optical design, single optical window, compact instrument
- low noise due to improved electronics and enlarged measuring volume for optimum spatial averaging
- low power consumption of 0.5 W at 15 flashes/s, fast readiness after power on
- filter unit with all spectrally tuned elements, easy to change, no alignment after change
- high sampling rate of 15 Hz, optionally 30 Hz fast response of 100 ms, optionally 50 ms time constants
- spectral ranges Vis, UV1 and UV2 covering 220 nm to 1100 nm

Specifications (Model 1101.6 eexChl.a)

Light source	: Xenon flashtube	Repetition rate	: 15 Hz
Flash duration	: 1.5 μ s	Life of the tube	: 12 months cont. operation
Detector	: Silicon photodiodes	Electronics	: sync. correlator
Chlorophyll a	: Ex. 380 – 610 nm	Emission	: 683 nm HW 50 nm
Ranges x1, x 10	: 0 – 10 μ g/l, 0 – 100 μ g/l (*)	Resolutions	: 7 ng/l, 30 ng/l
Signal output	: 0 – 10 V,	Characteristic	: linear in concentration
Options	: 0 – 5 V, linlog split ranges	Response time	: 100 ms
Automatic/remote range control			
Range output	: 0 V low, 5 V upper range	Range input	: 0 V low, 4-16 V upper range
Power supply	: 12 V (7 to 16 V) 45 mA	Ready for operation	: 2 s after power on
Operational depth	: 1500 m, options: 3000 m	Pressure housing	: 215 mm, 88 mm diameter
	6000 m	Weight air/water	: 3.1 kg / 1.7 kg
Window	: tempered optical glass	Material	: titanium

Spectral ranges: 360 – 800 nm (Vis), options: 320 nm – 1100 nm (UV1), 220 nm – 1100 nm (UV2)

Filter units: Chlorophyll a, Phycoerythrin, Phycocyanin (Vis), humic acids (UV1), Rhodamine (Vis), Sulfurhodamine (Vis), Fluorescein (Vis), 3-cyclic hydrocarbons (UV2), others on request

Optional sensors: depth, turbidity, temperature, etc.
Optional data transmission with RS-232, FSK or RS-485 interface (105 mm longer housing)

The integrated turbidity sensor measures the Mie-backscattering through the same window.
(*) other ranges on request

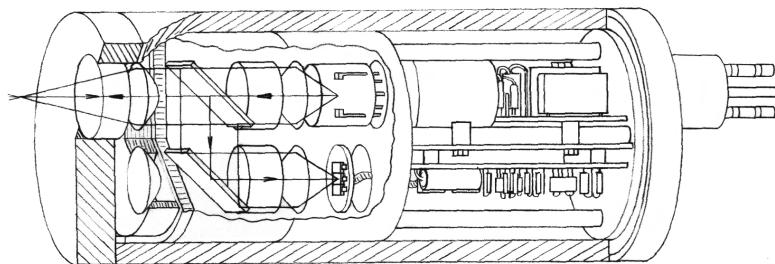


Figure: cross section
BackScat I fluorometer

Dr. Haardt
Optik Mikroelektronik

Alter Kieler Weg 19
D-24245 Klein Barkau / Germany
Fon: +49(0)4302 9659 -15 Fax: -13
dr.haardt@t-online.de
www.dr-haardt.de

distributed by:

ASD Sensortechnik GmbH

Gönnebeker Ring 24 D-24610 Trappenkamp, Germany
Tel.: + 49- (0) 4323-803680, Fax: + 49- (0) 4323-803681
E-Mail: ASD-sensors@t-online.de
Web: <http://www.ASD-sensors.com>