

# nanoFlu-Blue Probe

## Fluorometer

Online measurement of phycocyanin concentration



### Applications

- Monitoring of bathing water: lakes, rivers and seas
- Continuous control of the resource before adduction
- Measurements and regulations in aquaculture and phycoculture
- Environmental monitoring instrument

### Advantages

- In situ measurements, no sampling or reagents
- Direct measurements
- Optical window with coating to minimize clogging
- Portable use possible
- Automatic compensation of LED power loss and temperature

### Monitoring of cyanobacteria

Monitoring cyanobacteria in natural waters helps to prevent bloom phenomena and associated health risks. This measure can also be integrated into phycoculture in order to optimize the production.

The nanoFlu probe is a miniature submersible fluorimeter that continuously measures the concentration of phycocyanin in fresh and salt water. The measurement of this pigment is a reliable indicator for determining the evolution of the cyanobacteria population. This relationship has been demonstrated in particular during studies carried out with this sensor.

This probe operates without sampling and does not require any on-site calibration. The only maintenance operation is to re-calibrate the probe every 2 years.

### Measure directly in the resource

The sensor has many accessories to allow its integration into the process or the natural environment and follow the variations of water levels.



Measurement of the light emitted by fluorescence of phycocyanin :

A specific LED emits stimulating light at 620 nm, guided to form a light cone of about ten centimeters in front of the probe. The phycocyanin pigments contained in cyanobacteria passing through this fluorescent stimulating cone and reflecting longer wavelength light at 655nm.

This detection light, relating to the phycocyanin concentration in the water, is then measured by a photodiode. An increase in the amount of phycocyanin is a relevant indicator of the development of cyanobacteria in water.

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## Fluorimeter

### Technical specifications

Measuring technology	Light source	LED
	Detector	Photodiode + optical filter
Principle of measurement		Fluorescence
Parameter		Phycocyanin
Measurement ranges		0 ... 200 µg / l phycocyanin
Measurement accuracy		± 5%
Auto-control		Automatic compensation for intensity variations of the light source due to wear and temperature
Interference		Automatic ambient light suppression
T100 response time		6 s
Measurement interval		3 s
Materials		Stainless steel (1.4571 / 1.4404) or titanium (3.7035)
Dimensions (L x d)		171 mm x 36 mm
Weight		0.5 kg stainless steel - 0.4 kg titanium
Interface	Digital	Ethernet (TCP/IP) RS232 or RS485 (Modbus RTU)
	Power supply	12 ... 24 VDC (± 10%)
Consumption		<1 W - (<1.6 W with connection)
Maintenance		<0.5 h / month (standard use - optical window cleaning)
Calibration interval		24 months
Warranty		24 months in the European Union
Maximum pressure	SubConn connector	30 bar.
	Fixed connector	3 bar.
	FlowCell	1 bar. for 2 ... 4 L / min
Protection type		IP 68
Medium temperature / sample		+ 2 ... + 40 °C
Ambient temperature		+ 2 ... + 40 °C
Storage temperature		- 20 ... + 80 °C
Inflow velocity		0,1 ... 10 m/s

