Hyperion
Phycocyanin Fluorometer
(Cyanobacteria | Freshwater Blue-Green Algae)

DATA SHEET

Valeport's Hyperion Phycocyanin instrument delivers high performance measurements of Phycocyanin (freshwater Blue-Green algae) in a compact and robust package ideal as a standalone sensor (with external power and logger e.g. EnviroLog), for ROV and AUV integration or used as part of a multi-sensor array.

Offered as standard in a 6,000m depth rated, titanium housing the Hyperion Fluorometer has a wide range (9-28V DC) isolated power supply, data output up to 16Hz and RS232, RS485 with ASCII and Modbus RTU communication protocols.

Hyperion offers an industry leading dynamic range with no adjustment of gain settings required. The detection range for the Phycocyanin Fluorometer is from 0 to 9,000 ppb.

Hyperion Fluorometers can be supplied in a ruggedised form that includes acetal protection rings, a shaped anti-snag connector cover and a kevlar weave protected cable for operation in borehole applications.

Cyanobacteria (or blue-green algae) are photosynthetic bacteria that occur naturally in surface waters. Under certain conditions of light, temperature and nutrient levels cyanobacteria can multiply rapidly, forming a bloom. Some Cyanobacteria produce toxins which pose health risks for humans and animals. The EU Bathing Waters Directive therefore, requires monitoring for these blue-green algae blooms.

Testing for the actual toxins is possible by means of laboratory analysis of water samples, but this can be costly and time-consuming. However, cyanobacteria contain a fluorescent pigment called Phycocyanin, which can be detected in real time using a Valeport Hyperion fluorometer. The Hyperion uses narrow bandpass filters on both excitation and emission wavelengths to ensure that the response is specific to Phycocyanin and not affected by false positive results from normal Chlorophyll a fluorescence.

Product Details

OPTICAL

VALEPORT CONFIGURE SOFTWARE

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Sensor Specification
Phycocyanin*

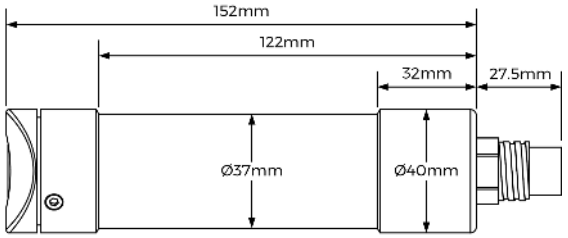
Excitation	590 nm
Detection	650 nm
Linear Range	0-4 000 ppb
Dynamic Range	0-9 000 ppb
Minimum Detection (3x SD in RO water)	2 ppb
Linearity	0.99 R^2
Response Time	0.03 - 2 sec
Output Rate	0.5 Hz to 16 Hz (free running) software controlled

* Calibrated against Phycocyanin in water\Phosphate buffer solution.

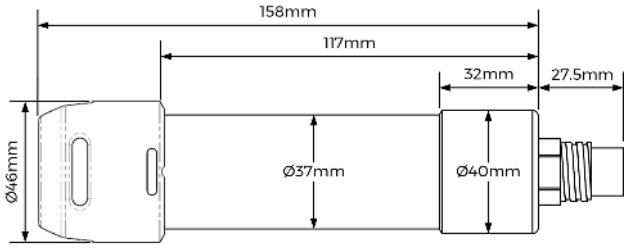
Physical

Materials	Titanium with glass window
Depth Rating	6,000m
Dimensions	40mmØ x 179.5mm (including connector)
Weight	0.50 kg (in air) 0.26 kg (in water)
Operating Temperature	-5°C to 35°C (the sensor is damaged above 60°C)

Dimensions - Standard Hyperion



Dimensions - with Optional Sensor Guard



Electrical

External	9 – 28V DC Isolated
Power	<600mW
Connector	SubConn MCBH6F

Communications

The instrument will operate in real time, with set up performed by direct communications with a PC before deployment.

RS232 | RS485	2400 - 230400 baud rate 8 data bits | 1 stop bit | No Parity | No Flow Control
USB	supplied cable and converter (RS232 to USB)
RS485 Modbus RTU (standard)	19200 baud rate 8 data bits | 1 stop bit | Even Parity | No Flow Control

Software

Valeport Configure software is supplied
Windows 10 software for instrument setup

Ordering

0901001 - PC	Hyperion Phycocyanin instrument
	Supplied with: • Y lead • Manual and transit case • Valeport Configure Software
0901EA2	Hyperion to EnviroLog System interface cable various lengths available
0901251	Hyperion Sensor Guard Set

Datasheet Reference: Hyperion Phycocyanin | October 2023