SWiFT SVPplus

Phycocyanin

Multi-parameter profiler

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 SWiFT SVPplus Phycocyanin fluorometer. The Valeport SWiFT SVPplus Phycocyanin 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.

DATA SHEET

Product Details

MULTI-PARAMETER CTD

SOUND SPEED

OPTICAL

OCEAN & CONNECT PATH-WAY EDITION SOFTWARE

Bluetooth® USB Rechargeable Battery GNSS

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VALEPORT

Sensor Specificaions

Valeport's Hyperion Fluorometer sensor range, when combined with SWiFT, delivers high performance measurements of Phycocyanin in a compact & robust package.

Phycocyanin*

Excitation	590 nm
Detection	650 nm
Dynamic Range	0-9,000 ppb 2 gain settings: 0-50, 0-9,000 software controlled
Minimum Detection (3x SD in RO water)	<0.08 ppb
Linearity	0.99 R^2
Response Time	0.03 to 2 sec
Output Rate	0.5 Hz to 32 Hz (free running) software controlled

Conductivity#

Range	0 - 80 mS/cm
Resolution	0.001 mS/cm
Accuracy	±0.05 mS/cm

Temperature (Platinum Resistance Thermometer)

Range	-5°C – +35°C
Resolution	0.001°C
Accuracy	±0.01°C

Pressure (Temperature compensated piezo-resistive pressure transducer)

Range	50 Bar
Resolution	0.001% FS
Accuracy	±0.01% FS

Sound Velocity (Digital time of flight sensor)

Range	1375 – 1900 m/s
Resolution	0.001 m/s
Accuracy	±0.02 m/s

Salinity#

Range	0 - 42 PSU
Resolution	0.001 PSU
Accuracy	±0.05 PSU

Density

Range	990 - 1035 kg/m^3
Resolution	0.001 kg/m^3
Accuracy	±0.05 kg/m^3

*Calibrated against Phycocyanin in water/Phosphate buffer solution.
#Calculated Accuracies. Calculations based on Valeport's proprietary DASH formula.

Physical dimensions

Materials	Housing: Titanium Sinker weight: Stainless steel Optical window: Sapphire glass
Depth rating	500 m
Dimensions	Ø78 mm x Length 307 mm (with sinker weight)
Weight	2.7 kg (in air) / 1.7 kg (in water) including optional sinker weight

Communications (set-up and data offload)

USB Serial	
Bluetooth v4	Low energy

Electrical

Battery	SWiFT Battery endurance depends on the sampling scenario used – contact Valeport for more information. 100 days endurance 2 profiles per day to 100 m* 42 days - 3 profiles a day to 500 m* 2 days continuous running (normal power mode) (*Utilising Bluetooth Sleep mode)
Charging	USB - Supplied mains AC adapter

Software

iOS and Android Valeport Connect Pathway Edition for Bluetooth compatible mobile devices – instrument set up, data offload, display and translation to common data formats. Valeport's Ocean PC software, with both USB cable and Bluetooth connectivity, for instrument setup, data extraction, display and translation to common data formats.

Instrument and data time is synchronised to GNSS, UTC.

Ordering

0660047-50-FP	SWiFT SVPplus profiler with Phycocyanin sensor 500 m rated
Supplied with	PC Bluetooth adapter USB interface and charging cable 1.5 A charger Valeport Ocean software Operating manual System transit case

Datasheet Reference: SWiFT SVPplus Phycocyanin | April 2024