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SEA-BIRD
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Chlorophyll WETStar Characterization

Date: September 12, 2019

S/N: WS3S-583P

Chlorophyll concentration expressed in $\mu\text{g/l}$ can be derived using the equation:

$$\text{CHL}(\mu\text{g/l}) = \text{Scale Factor} \times (\text{Output} - \text{Clean Water Offset})$$

Clean Water Offset (CWO)	Analog output 0.068 V
Scale Factor (SF)	12.2 $\mu\text{g/l/V}$
Maximum Output	5.47 V
Resolution	0.55 mV
Ambient Characterization Temperature	$22 \pm 1^\circ\text{C}$
Current Draw	30 mA @ 12V (typical)
12-hour Stability	0.00 mV/hr
Temperature Stability, 25–2 °C	0.18 mV/°C

Range	
15 $\mu\text{g/l}$	0
53 $\mu\text{g/l}$	x
150 $\mu\text{g/l}$	0

Definitions:

CWO: Clean Water Offset value obtained using pure filtered de-ionized water.

SF: Scale Factor is used to convert the fluorescence response of the instrument into chlorophyll-a concentration. Scale Factor is determined at WET Labs during a cross calibration using a liquid fluorescent standard and a reference fluorometer whose chlorophyll fluorescence response has been characterized in a laboratory using a mono-species lab culture of *Thalassiosira weissflogii* phytoplankton.

Maximum Output: Maximum signal output of the fluorometer.

Resolution: Standard deviation of 1 minute of clean water data, sampled once per second.

Ambient Characterization Temperature: Room temperature at time of characterization.

Current Draw: The amount of current the instrument uses for operation.

12-hour Stability: Deviation of output averaged over 12 hours.

Temperature Stability: Measured output variation per degree.

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WETStar Calibration and Repairs

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Standard Service

Performed noise test: 1 sample/sec for 60 sec.
Performed stability test: 1 sample/min for 12 hrs.
Performed temperature test: 25-2 °C.
Performed saturation test.
Shake-tested unit.
Pressure-tested unit.
Updated unit's calibration sheet.

Diagnosis

Intermittently Reads -5.38v
Perform Standard Services.

Repairs

Cleaned detector and lens
Cleaned electrical connections and reseated boards
Tightened internal fixtures
Standard service performed.
Replaced O-rings.

Comments

None