



Chlorophyll WETStar Characterization

Date: May 23, 2012

S/N: WS3S-235

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
Scale Factor (SF)	0.057 V @
	7.3 $\mu\text{g/l/V}$ @
Maximum Output	5.35 V @
Resolution	0.32 mV
Ambient Characterization Temperature	22 $\pm$ 1 $^{\circ}\text{C}$
Current Draw	30 mA @ 12V (typical)
12-hour Stability	0.15 mV/hr
Temperature Stability, 25–2 $^{\circ}\text{C}$	0.15 mV/ $^{\circ}\text{C}$

Range	
15 $\mu\text{g/l}$	0
38 $\mu\text{g/l}$	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

Date May 23, 2012 **Customer** MBARI

S/N# WS3S-235 **Repair Order** 15682

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

Additional Repairs

Parts Replaced: Bulkhead Connector, Red Filter, Blue LEDs, LED Ferrules, Zinc Anode and O-Rings.

Comments

WETStar was re-calibrated with 100ppb Uranine.