

Chlorophyll WETStar Characterization

Date: September 14, 2022

S/N: WS3S-236

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 0.093 V
Scale Factor (SF)	5.6 $\mu\text{g/l/V}$
Maximum Output	5.53 V
Resolution	0.55 mV
Ambient Characterization Temperature	22 $\pm$ 1°C
Current Draw	30 mA @ 12V (typical)
12-hour Stability	0.16 mV/hr
Temperature Stability, 25–2 °C	0.34 mV/°C

Range	
27 $\mu\text{g/l}$	X
75 $\mu\text{g/l}$	0
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.