

FLNTU Characterization Sheet

Date: 12/22/15

S/N: FLNTURTD-3398

Chlorophyll Scale Factor

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

$$\text{CHL } (\mu\text{g/l}) = \text{Scale Factor} \times (\text{Output} - \text{Dark Counts})$$

	Analog		Digital	
Dark Counts	0.069	V	47	counts
Scale Factor (SF)	10	$\mu\text{g/l/V}$	0.0115	$\mu\text{g/l/count}$
Maximum Output	4.97	V	4130	counts
Resolution	0.6	mV	1.0	counts
Ambient temperature during calibration	22.3	$^{\circ}\text{C}$		

Nephelometric Turbidity Unit (NTU) Scale Factor

Turbidity units expressed in NTU can be derived using the equation:

$$\text{NTU} = \text{Scale Factor} \times (\text{Output} - \text{Dark Counts})$$

	Analog		Digital	
Dark Counts	0.055	V	50	counts
NTU Solution Value	1.68	V	1390	counts
Scale Factor (SF)	5	NTU/V	0.0066	NTU/count
Maximum Output	4.97	V	4130	counts
Resolution	0.6	mV	1.0	counts
Ambient temperature during calibration	22.3	$^{\circ}\text{C}$		

Definition of terms:

Dark Counts: Signal output of the meter in clean water with black tape over detector.

NTU Solution Value: Signal output of the turbidity sensor when measuring a sample of interest.

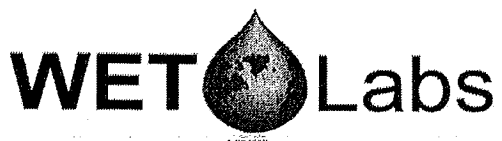
SF (CHL): Determined using the following equation: $\text{SF} = x \div (\text{output} - \text{dark counts})$, where x is the concentration of the solution used during instrument characterization. SF is used to derive instrument output concentration from the raw signal output of the fluorometer.

SF (NTU): Scale factor is determined using the following equation: $\text{SF} = \text{xx} \div (\text{Output} - \text{Dark counts})$, where xx is the value of a Formazin concentration. For example: $12.2 \div (2011 - 50) = 0.0062$.

Maximum Output: Maximum signal output the fluorometer is capable of.

Resolution: standard deviation of 1 minute of collected data.

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Scattering Meter Calibration Sheet

12/21/2015

Wavelength: 700

S/N FLNTURTD-3398

Use the following equation to obtain either digital or analog "scaled" output values:

$$\beta(\theta_c) \text{ m}^{-1} \text{ sr}^{-1} = \text{Scale Factor} \times (\text{Output} - \text{Dark Counts})$$

• Scale Factor for 700 nm	=	1.873E-05 (m ⁻¹ sr ⁻¹)/counts	1.543E-02 (m ⁻¹ sr ⁻¹)/volts
• Output	=	meter output counts	meter output volts
• Dark Counts	=	49 counts	0.07 volts
Instrument Resolution	=	1.0 counts 0.5838 mV	1.87E-05 (m ⁻¹ sr ⁻¹)

Definitions:

- **Scale Factor:** Calibration scale factor, $\beta(\theta_c)/\text{counts}$. Refer to User's Guide for derivation.
 - **Output:** Measured signal output of the scattering meter.
 - **Dark Counts:** Signal obtained by covering detector with black tape and submersing sensor in water.
- Instrument Resolution: Standard deviation of 1 minute of collected data.