

# FLNTU Characterization Sheet

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## Chlorophyll Scale Factor

Chlorophyll concentration expressed in µg/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                            | 0.079  | V      | 50      | counts     |
| Scale Factor (SF)                      | 10     | µg/l/V | 0.0127  | µg/l/count |
| Maximum Output                         | 4.98   | V      | 4130    | counts     |
| Resolution                             | 0.6    | mV     | 1.0     | counts     |
| Ambient temperature during calibration | 21.0   | °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                            | 0.068  | V     | 50      | counts    |
| NTU Solution Value                     | 1.36   | V     | 1103    | counts    |
| Scale Factor (SF)                      | 21     | NTU/V | 0.0254  | NTU/count |
| Maximum Output                         | 4.98   | V     | 4130    | counts    |
| Resolution                             | 0.7    | mV    | 1.0     | counts    |
| Ambient temperature during calibration | 21.0   | °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.