

TSS200 Portable MLSS Meter

Operating Manual



Introduction

First of all, Thank you for using the Portable MLSS Meter.

Please read this manual carefully before installation. The correct sensor installation and parameter setting will maximize the performance and advantages of the product, and bring you a good experience.

This instrument is an analytical measurement and control instrument with highly precision, which should be installed, operated and repaired by trained professionals or anyone who understand and have expertise in this technique.

Please contact our after-sales department when there are any difficulties occur during installation or being in use.

After unpacking the box, please check the packing list and the actual product you have received. If there are any part missing or damaged, please contact our company in time.

We solemnly guarantee that :

1. If there are any quality problem occurs within one year from the date of purchase, you will be served with product maintenance for free.

2. No matter where the product you buy from, the manufacturer hereby guarantees that you will be served with lifetime technical maintenance and service.

3. Damage to the product caused by the following reasons shall not be covered by the warranty:

A. Damage caused by mistaken connection to high voltage power supply or water immersion;

B. Damage caused by unauthorized modification and misuse;

C. Incidental losses caused by improper selection of model;

D. Damage caused by the working conditions which exceeds that specified by the product;

E. All physical damage caused by improper force;

F. Failure to store and transport in accordance with the specified storage or transportation conditions (reference to standard SJ/T10463-93); consumable materials should be purchased separately.



When this symbol appears in the manual, it refers to that it is related to safety,

installation, product function and use which should be paid special attention to.

Advancing with the times is the law of development for enterprises, and the products will be upgraded in stages. There are no prior notice for any general changes. Please refer to the actual product.

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Chapter 1 Product Overview

1.1 Product Information

The portable MLSS meter consists of a mainframe and a sludge concentration sensor that is based on combined infrared absorption scatter method, and it adopts the ISO 7027 method to continuously and accurately determine the sludge concentration. The sludge concentration value is determined according to ISO 7027 infrared double scattering light technology without chromatic influence. It uses ergonomic curve design with rubber washers, making it suitable for hand-held operation, and easy to control in moist environment. It is calibrated before leaving factory, there is no need for calibration in one year, and the process can be completed on-site. It is equipped with digital sensor, which can bring convenience and fastness during on-site use, and it can connect with the host immediately. Its USB interface makes the built-in battery easy to be charged and data realizable to be exported. It is widely used in on-site portable monitoring of water sludge concentration in sewage treatment, surface water, universities, research institutes and other fields.

The external dimension of portable handheld operator are shown in Figure 1.

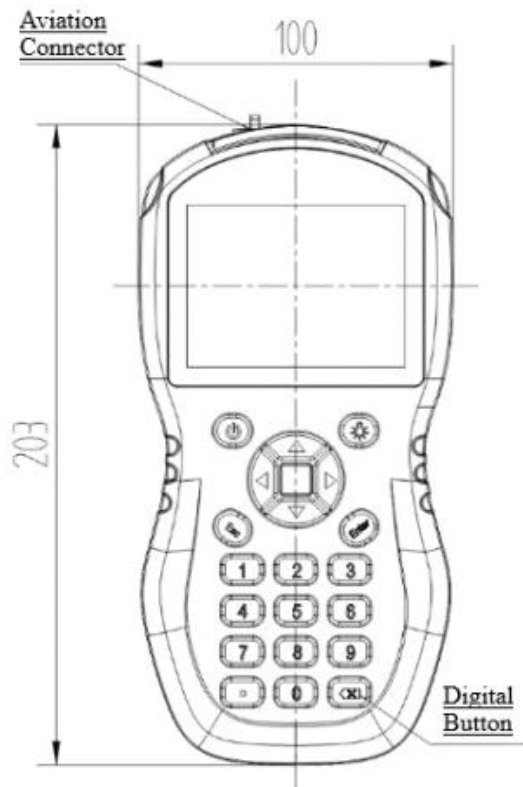


Figure 1 The external dimension of portable handheld operator

The external dimension of the sludge concentration sensor are shown in Figure 2 below.

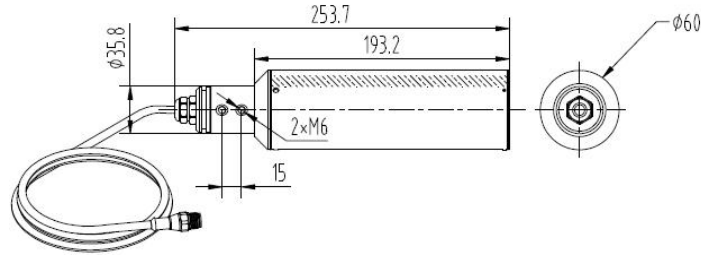


Figure 2 External Dimension of the Sludge Concentration Sensor

Technical parameters are shown as below:

Measurement Range	0.1-20000 mg/L、 0.1-45000 mg/L 、 0.1-120000 mg/L (Customizable)
Measurement Accuracy	Less than $\pm 5\%$ of the measured value (depends on the homogeneity of the sludge)
Resolution	0.1mg/L
Calibration	Standard Solution Calibration, Water Sample Calibration
Material of Casing	Sensor: SUS316L Mainframe Casing: ABS+PC
Storage Temperature	-15 to 50°C
Working Temperature	0 to 45°C
Size/Weight	Dimension of Sensor: Diameter 60mm*Length 256mm Weight:1.65KG Dimension of Mainframe: 203*100*43mm, Weight: 0.5KG
Level of Protection	Sensor IP68 Hand-held Device IP67
Length of Cable	Standard cable length is 10 meters, which is extendable.
Display	3.5 Inch color display, adjustable backlight
Data Storage	Storage card 8G,Open use 500M Data Memory Space

1.2 Safety Information

Please read this manual thoroughly before unpacking, setting up or operating the instrument.

Pay special attention to all hazard and warning statements. In the event of mishandling, it may cause serious injury to the operator or damage to the equipment.

This equipment must be used and installed only in accordance with the detailed instructions in this manual.

1.2.1 Use of Danger Information

For all the hazards occurred, this manual will use signal specific term (Danger, Caution, Note) that correspond to the degree of danger.



Danger

Refers to a potentially or imminently dangerous state that, if not prevented, could be life-threatening or cause serious injury.



Caution

Refers to a potentially dangerous state that may cause mild or moderate injury.

Important Note: Information that requires special emphasis.

Tip: Information in the text that supplements the points

1.2.2 Warning and Prevention Labels

Read all the labels and identifiers attached to the instrument carefully, otherwise it may cause personal injury or damage to the instrument.

	If the label is marked on the instrument, refer to the instrument manual for operation and/or safety information.
	If the label is marked on the product, it indicates that there is a fuse or current limiting
	If the label is marked on the product, it indicates that the device is susceptible to static electricity leakage and protective measures should be taken to prevent damage.
	If the label is marked on the product, it indicates the location of the ground wire.

Chapter 2 Settings and Operation

2.1 Boot Interface

Press the blue power button to start the instrument and enter the boot interface as follows. The “Auto/Manual Mode” can be switched by the “Up and Down” button. When the battery level is lower than 40%, the battery level is displayed in red. At this time, the built-in battery of the mainframe can be charged with the USB cable.



Press the “Menu” button to enter the setup menu, and the function information such as “Sludge Concentration”, “Local Settings”, “Historical Data”, and “Device Information” can be set and reviewed.



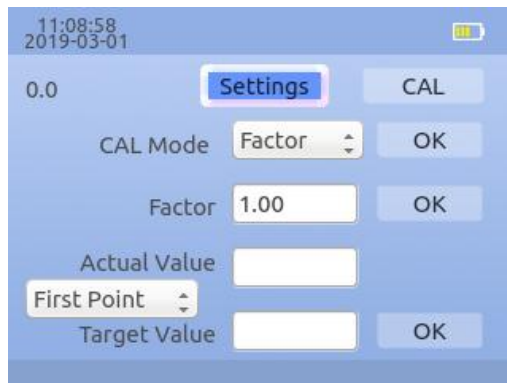
2.2 Probe Settings

Select “Sludge Concentration” and press “Enter” to enter the corresponding interface. The response time of the probe can be set, and its default time is 1 second. The sludge concentration sensor has been calibrated before leaving the factory. If there is any need for self-calibration, the

following steps shall be followed. Take two points calibration as an example.

- 1) Select “Factor” mode in “Calibration Method”, set the factor to 1, and wipe the sensor.
- 2) Put the probe into the first point standard solution (generally use pure water as the first point). After the data is stable, read the measured actual value and record the measured data.
- 3) Remove the probe from the first point standard solution, rinse with clean water, and dry the sensor.
- 4) Put the probe into the second point standard solution (generally select the on-site water sample as the second point standard value). After the data is stable, read the measured actual value and record the measured data.
- 5) Select “Two points” for “Calibration Mode” and confirm with “Enter”.
- 6) Enter the data measured in step 2 into the “Actual Value” box, enter the theoretical value of the first point standard into the “Target Value” box, and press “Enter” to confirm.
- 7) Move the cursor to the “First Point” option box and press the “Up” and “Down” keys to
- 8) Enter the data measured in step 4 into the “Actual Value” box, enter the theoretical value of the second point standard into the “Target Value” box, and press “Enter” to confirm.

The four-point calibration step is basically the same as the two-point calibration, and the selection of the correction point can be determined according to the actual measurement environment. Generally it select zero point, 0.25 times the range, 0.5 times the range and the full scale point.



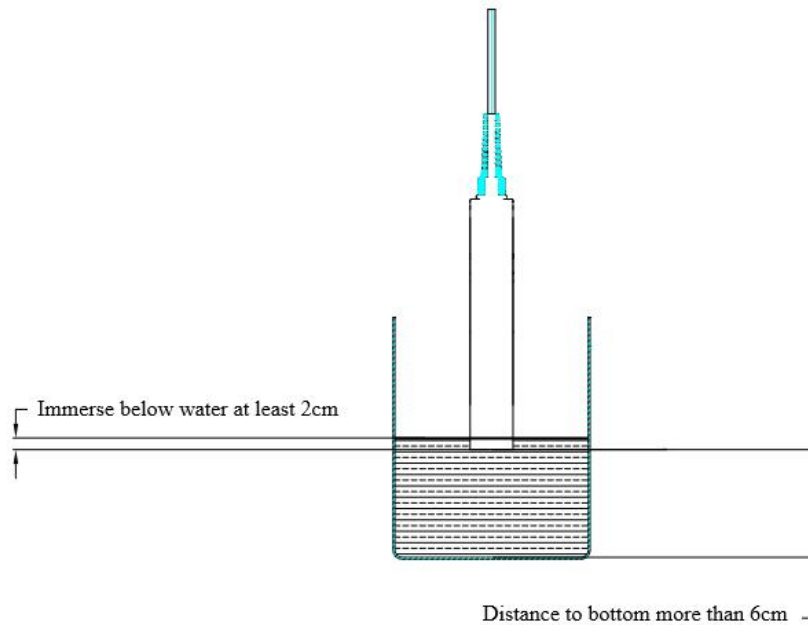
Notes:

1. Optical path protection, do not touch it with hard and sharp objects to avoid damage;
2. When measuring the water body, the probe should be at least 2cm into the solution, as shown in the following figure;
3. During the measurement, observe whether the optical path of the probe is blocked by

foreign objects. If with, please clean it, otherwise it will affect the accuracy of the data;

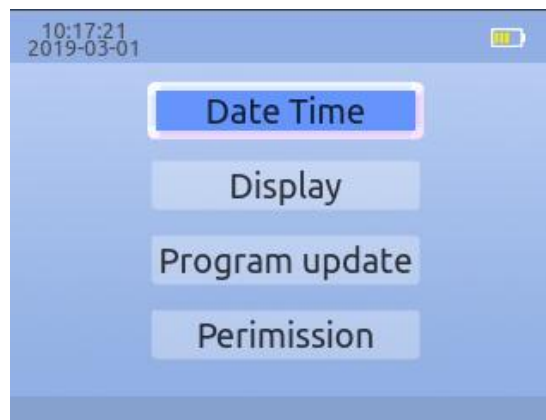
4. When measuring, it should be inclined into the water, or shake the probe after entering the water to prevent air bubbles in the electrode part of the electrode from causing interference;

5. Please be cleaned and stored after use;



2.3 Local Settings

After entering the “Local Settings” menu, operations such as “Time Settings”, “Display Settings”, “Program Update”, and “Permission Management” can be performed (please contact our technical service center for specific operations of authority management).



After entering the “Local Settings” menu, select “Time Settings” and press “Enter”, the time can be set at any time by the users.

After entering the “Local Settings” menu, select “Display Settings” and press “Enter”.

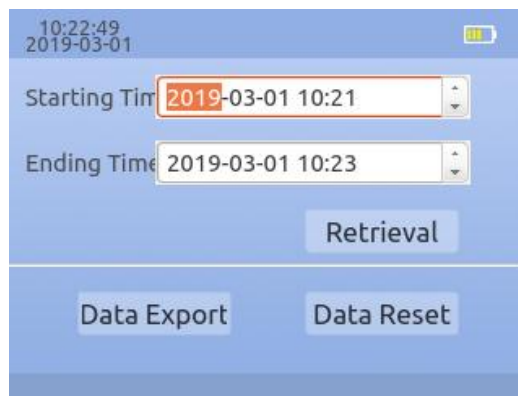
Users can set “Backlight” and “Screen Saver”.

After entering the “Local Settings” menu, select “Program Update” and press “Enter”. The user can set “File Loading”, “Restart and Update” and “Data Space”.

2.4 Historical Data

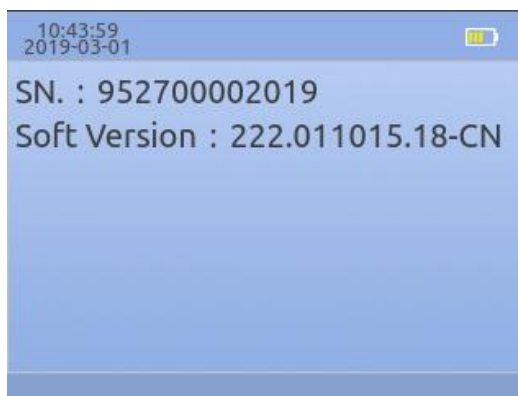
After entering the “Historical Data” menu, the users can retrieve the data by selecting the time period. If there is a need to export the data, the hand-held device will export all the historical data stored in the machine without time limitation.

Select “Export Data” and press “Enter” for 1 minute, then press “Esc” to return to the previous menu, select “Local Settings”, press “Enter” to confirm, select “Program Update”, press “Enter” to confirm, then select "Data Space", press "Enter" to confirm, then connect the manual operator to the computer with the USB cable, then the computer will automatically pop up a folder (500M). Copy the format file inside to the specified location on your computer.



2.5 Local Information

After entering the “Local Information” menu, the model number, SN number and software version number of the machine can be inquired.



Chapter 3 Maintenance

It is recommended to clean the sludge concentration sensor after use to ensure the accuracy of the measurement. Clean the surface of the sensor with water (do not use organic solvents). If debris remains, wipe it with a soft, damp cloth. Check the appearance of the sensor to see if it is damaged. If there is any damage, contact the after-sales service center for replacement to prevent the sensor from entering the water due to damage.