Quick Start Guide

MTOL+™ Turbidimeter

Models 28052 & 28053

This guide will assist you with simplified instructions for installation and operation. It is not intended to replace the full Owner's & User's Manual (loaded on the supplied flash drive) or to provide service instructions.

If you are ever uncertain about a particular task or the proper method of operating this equipment, consult the full Owner's and User's Manual, access www.hfscientific.com, or contact Customer Service at 888-203-7248 or your local representative.

Installation

Mounting

The junction box is located under the sensor portion as shown above. Use appropriate screws and hardware as needed for mounting the instrument to the chosen surface.

Generally, you will want to locate and mount the junction box first using two M4 or #8 screws. Ensure that the head of the screw used for mounting the junction box fits inside the access tube.

Next, mount the base portion on top of the junction box. The recommended mounting hardware is M6 or ¼" screws. Four screws are needed.

Plumbing

The base section of the sensor is equipped with a push to connect fittings for use in both the intake and drain. Use ¼" OD tubing. Flexible polyethylene or polypropylene tubing is recommended. To reduce the chance of algae growth opaque tubing is highly encouraged. Make sure the flow through is connected before starting the water flow. We recommend that the flow through is tested for leaks before installing it in the sensor.

Electrical Connections

All electrical connections are made inside the junction box. Choose the appropriate cable gland for each connection. Any modifications to the junction box could affect the warranty.

Power Connection

A method of power disconnect should be provided prior to the instrument to allow for service. This can be a power cord.

The MTOL+ can accept 100-240VAC 47-63Hz and requires approx. 80VA of power. Connections are made by the green terminal block on the left hand. This block is socketed and can be removed for easy access.

I/O Connections

The MTOL+ has outputs for both 4-20mA and Modbus. These are located on the grey terminal block on the lower row. The connections are marked on the PCB surface. These spring-loaded terminal blocks are operated by inserting a 3mm (1/8") flat blade screwdriver in the smaller opening directly above the connection. Tilting the screwdriver up will open the connection and allow for wire insertion.

Alarm Connections

The upper row of the grey terminal block provides connections for the two C form alarm relays. These are operated as described in I/O connections. Refer to the PCB for terminal function.

Desiccant Installation

Ensure the provided desiccant is installed in the lower section of the sensor. The sensor can be opened using the four corner thumb screws. The desiccant is simply placed on the lower tray. Ensure the thumb screws are securely tightened to increase desiccant life. DESC will show on the screen when replacement is required. The DESC indicator can take up to an hour to reset.

General Operation

Once power is applied the MTOL+ will start in the AUTO mode. This is the normal measurement mode. If the flow through unit has been inserted and water connected you are now measuring your sample.

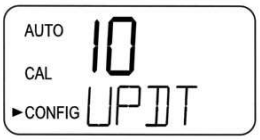
Calibration & Range Change

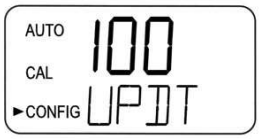
NOTICE Out of the box, the instrument has been factory calibrated for the 0-10 NTU and can be used right away. If you decide to change the range to either the 0-100 NTU range or the 0-1000 NTU, refer to section 4.2.18 in full Owner's & User's Manual (loaded on the supplied flash drive) or see the brief instructions below. You will need to recalibrate the instrument if you change the range. Make sure the standards for the appropriate range are on hand.

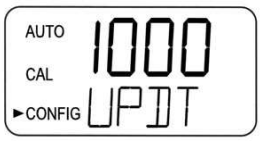
Range Change

The MTOL+ is factory set to the 0-10 NTU range. To change the range:

- Enter the **CONFIG** mode by pressing the ▲ and ▼ buttons until the arrow beside **CONFIG** is illuminated, then press the ↵ button.
- Press the ◀ button to move through the menus from the end until UPDT is displayed, then press the ↵ button.
- Insert the supplied flash drive with the software. An Err will show on the screen until the correct software is found.



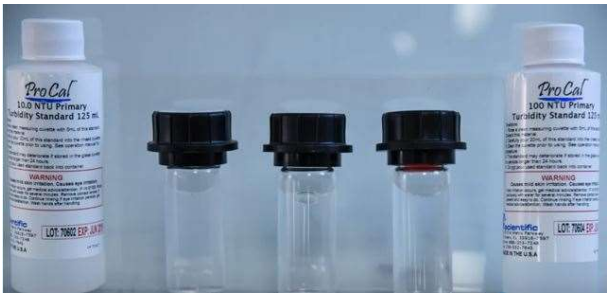




- When the software is found you will see one the screens seen above. Use the ▲ and ▼ buttons to select the desired range then press the ↵ button.
- The range change will take up to 90 seconds. When it is completed the system will restart and will display that the calibration has failed. This indicates that you must now recalibrate.

Calibration

If you chose to calibrate, this can be easily done. Before starting, the ProCal standards need to be prepared as stated in the info sheets provided with the calibration kits. For the best calibration, the standards should be indexed. This involves inserting the standards in the optical well while the instrument is in AUTO and rotating the standards to the lowest value.



The provided indexing ring is then placed on the standard facing forward toward the index mark on top of the MTOL+.

To calibrate from AUTO (0-100 NTU range):

1. Press the down arrow on MTOL+ once. The screen will show the arrow beside CAL and the ↵ button.
2. Press the center ↵ button.
3. The lower screen will flash between 100 and ↵, indicating you need to insert the 100 NTU standard and press the center ↵ button.
4. Once this is done a 30-second countdown will begin.
5. The lower screen will flash between 10 and ↵, indicating you need to insert the 10 NTU standard and press the center ↵ button.
6. Once this is done a 60-second countdown will begin.
7. The lower screen will flash between .02 and ↵, indicating you need to insert the .02 NTU standard and press the center ↵ button.
8. Once this is done 30-second countdown will begin.

If the calibration is good it will display GOOD and start the AUTO mode. If the calibration fails, the MTOL+ will use the last good calibration.

If you are calibrating to a range other than 0-100 NTU the instrument will prompt for the correct values of 0.02 NTU, 1 NTU & 10 NTU for the 0-10 NTU range or 0.02, 10, & 1000 NTU for the 0-1000 NTU range.