

## AUTOMATED T10 TURBIDITY INSTALLATION INSTRUCTIONS

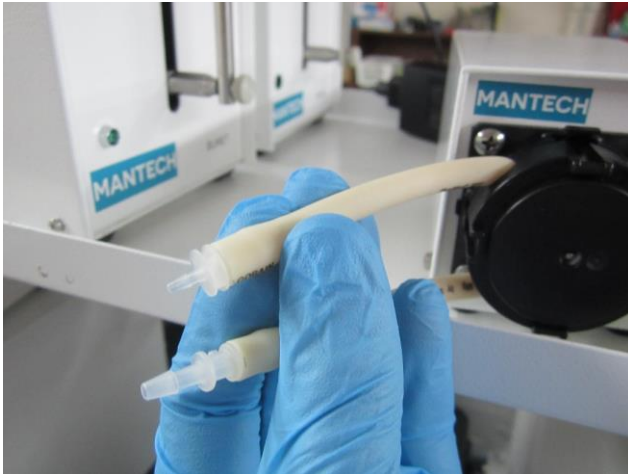
This document provides instructions for installing the T10 turbidity meter on a MANTECH MT-Series automated multi-parameter system. For further details about automated turbidity analysis with the T10 and MT Environmental Titrators, please contact MANTECH at 519-763-4245 or at [info@mantech-inc.com](mailto:info@mantech-inc.com).

### AUTOMATED T10 HARDWARE INSTALLATION:

1. If upgrading an existing automated turbidity system, remove the old meter, meter power/comm cable, and attached tubing. Place the mini pump on the top of the system organizer as shown.



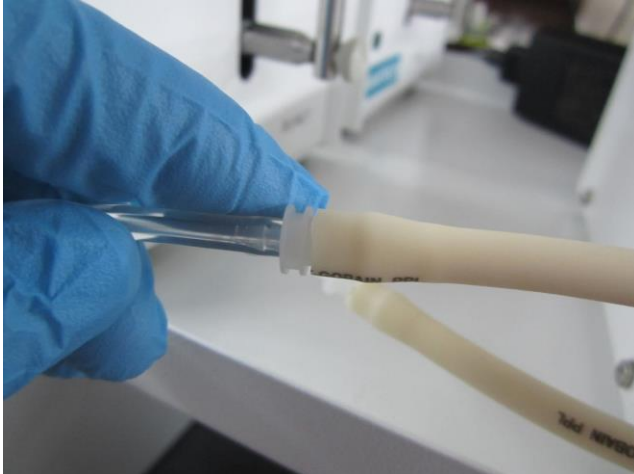
2. Insert the 3/16 to 1/16 fitting and the 3/16 to 1/8 fitting into the inlet and outlet of the pump, respectively. Use the manual switch on the pump to determine the inlet/outlet for the Forward setting.



3. Insert the PC-1000-1013 (or PC-1000-640 for some system models) tubing with needle into the autosampler probe holder.



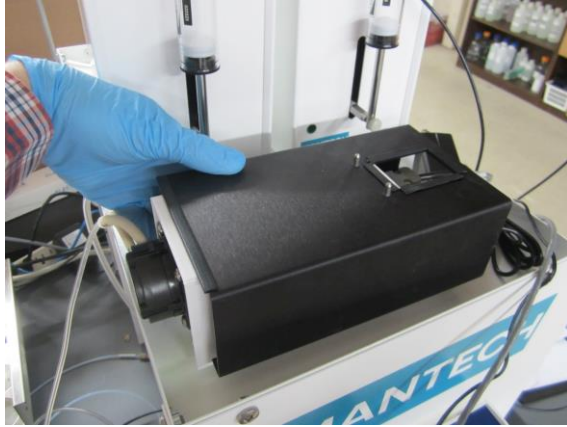
4. Insert the other end of the 1/16 tubing onto the pump fitting as shown.



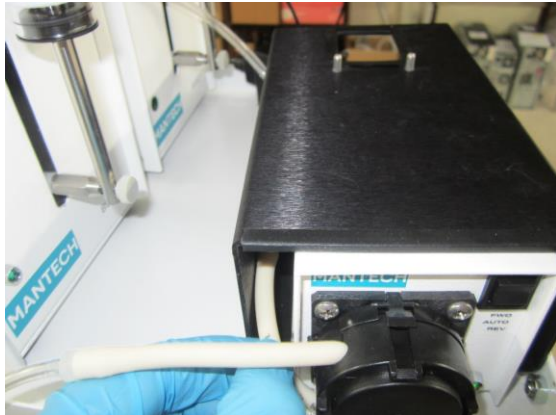
5. Connect the 12" length of 1/8 tubing to the other pump fitting.



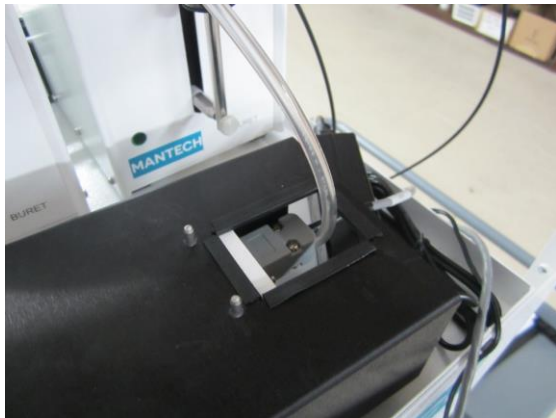
- 6. Place the T10 meter stand over the mini pump, spacing it as shown so pump head is fully out from underneath the stand.



- 7. Insert the 1/8 tubing length along the inside of the meter stand, so it runs to the back.



- 8. Run the 1/8 tubing length up through the hole in the T10 stand, under the control cable.



9. Retrieve the T10 meter.



10. Run the 1/8 tubing through the hole in the bottom of the T10 measuring area.

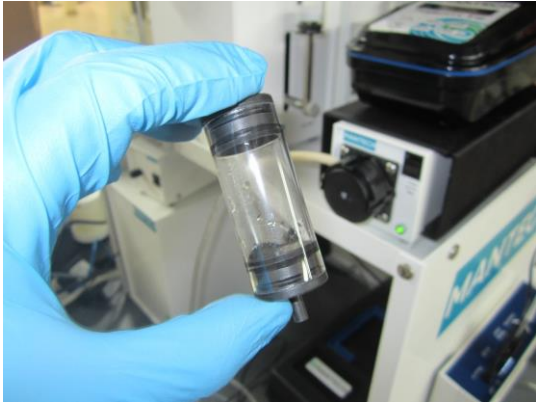


11. Place the meter on the stand, aligning the two locator pins with the holes on the back of the meter.

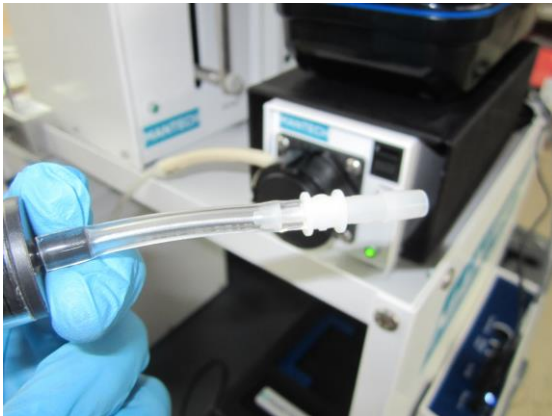




12. Retrieve the flow through measuring cell.



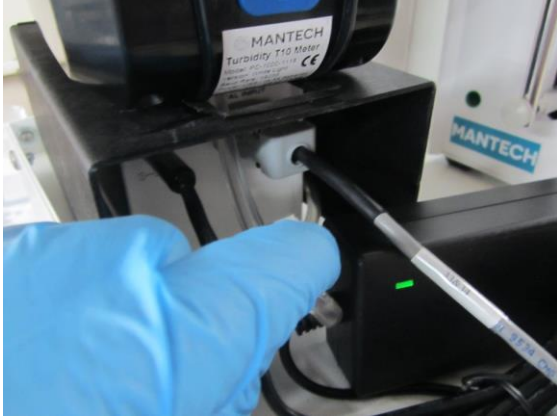
13. Insert the 2 inch 1/8 tubing piece onto one of the fittings, and attach the 1/8 to 1/4 fitting to the other end of the tubing piece.



14. Connect the other end of the flow cell to the 1/8 tubing coming through the meter.



15. Carefully pull the 1/8 tubing from below the meter to pull the cell down into the meter.



16. Place the flow cell cover over the cell as shown.



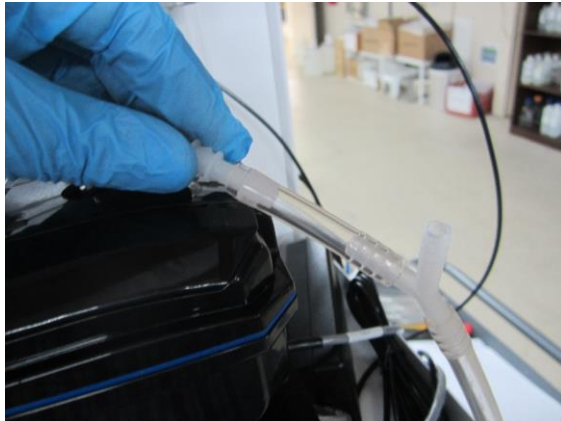
17. Close the meter lid, running the tubing through the hole.



18. Connect the 2 inch tubing piece to the Y fitting, and run a line downhill to the drain from the other side of the Y fitting as shown.



19. Connect the 2 inch tubing piece to the 1/8 to 1/4 fitting.



20. Plug in the USB power to the meter, and connect the other end to the computer USB port.



21. Press READ to turn on the meter.



## AUTOMATED T10 SOFTWARE UPDATE FOR USE WITH PC-TITRATE

1. Install the **MCP2221 Windows Driver** included in the upgrade package.
2. **Restart** the computer to finish the installation.
3. Navigate to **Device Manager** and find the USB Serial Port entry under 'Ports'. Open the properties, and ensure the device is set to **COM5**, and has a Baud rate of **19200**.
4. In the Hinterland database, navigate to **Hinterland>PC-Titrate V3>Database>StaticTables**
5. Replace all the files named '**SerialDevicesStatic**' with the updated serial device files included in the package.
6. Replace the **PCTitrateV3.exe** file in the PC-Titrate V3 folder with the updated version from the package.
7. Open **PC-Titrate**. Navigate to the **Hardware Setup**. For the serial device on Port 2 (or the port previously selected as Man-Tech Turbidity for upgrades), change the setting to **MT-Turbidity**. Set the port to **Comm 5**, and the Baud Rate to **19200**.
8. Import the turbidity schedules included with the upgrade package by navigating to **Utilities>Database Records>Import...** and selecting the import file included in the package.
9. Open the default turbidity calibration, and update the device to calibrate to be **2: MT-Turbidity**
10. For each turbidity schedule, ensure the new '**SUB TURB PUMPING**' subroutine is implemented where the pumping steps were before, and remove the old steps.
11. Repeat the above for the '**SUB TURB TRIPLE MEASURE**' subroutine, replacing the old steps for measuring/calculating. The subroutine will use the TURBIDITY equation set, it is included in the subroutine, but will only report the last of three turbidity analyses run back-to-back. Through internal testing, MANTECH has found that the third measurement after a brief settling time is the most accurate and our default recommendation to use for reporting.
12. Insert the subroutine '**TURBIDITY METER CHECK**' at the beginning of each turbidity schedule. This runs a quick turbidity analysis and checks the result to ensure PC-Titrate has full communication with the T10 meter. If communication is not established, a message will show and the run will pause.
13. Check the rest of the schedules to ensure there is no more reference to measuring the old turbidity meter.