

IMPORTANT USER INFORMATION



C A U T I O N - Avoid Invalidating Warranty

The wick used in the **Model 651** must be changed every 4 weeks (~800 hours), and distilled (<6 ppm) or HPLC water must be used as the water source. **Tap water must NOT be used.** Using water tap water in this instrument will void the product warranty.

1. Remove All Protective Caps Before Operation.

- The **651** has two inlet ports (front and back).
- Cap the inlet not used with the inlet cap included in the accessory kit.

2. Upon start-up when the instrument is dry, it may take 10 to 20 minutes to initially fill the water reservoir

- This fill time is a result of air in the water lines
- If there are bubbles in the fill line, it may be helpful to raise the bottle to aid in water filling.

3. Every 4 Weeks (~800 hours):

- Replace the wick (be sure to tighten the Nozzle Jack screw with a flat-tip screwdriver).
- Fill water supply bottle with distilled (<6 ppm) or HPLC water.
- Check/clean the inlet screen, check inlet pressure and status screen.

4. Every 3 Months

- Clean the water fill and drain bottles
- Use a mild detergent and thoroughly rinse out the bottle.

5. Note: This Instrument Actively Pumps Out Excess Water.

- If the water exhaust tube (or drain bottle) is not connected, a small amount of water will drain out of the back of the instrument. This is normal and not a problem (just messy).
- **CAUTION: Ensure the draining water doesn't contact any electrical systems.**

6. Do Not Tip a Full Instrument More Than 10 Degrees.

7. Do Not Ship or Transport an "Un-dried" Instrument.

- To dry the instrument, remove the water bottle and allow the instrument to run (with the vacuum connected) until a pulse height flag is noted on the display (~20 minutes).
- Dry out the instrument before storage (to prevent bio-growth).

8. Ensure the Differential Pressure at the Inlet is Less Than -5 kPa.

- Upon initial installation it is recommended to use a manometer in-line with the inlet flow to ensure there is low differential pressure at the inlet.
- Long sample lines, multiple instruments pulling from the same line, or switching valves upstream of the **651** inlet can be a source of inlet differential pressure.

9. Note on Clock Accuracy

- The internal clock on the instrument has approximately 1 second/day accuracy. Over the course of long sampling times, small time drifts can occur.
- If increased time accuracy is necessary, refer to Chapter 4 of the operation manual.

10. Note on Sampling Times

- The **651** is capable of sampling and recording 1 second data. Be aware that the data file size when using 1s sampling gets extremely large very quickly, and the large amount of data becomes time consuming to process.
- Unless faster time resolution is specifically needed, 1 minute sampling is recommend for long term monitoring applications.

11. Additional Considerations for Outdoor Monitoring

- Operate in a conditioned enclosure to ensure operating temperature specs are met.
- Insulate or heat sample lines to prevent sample condensation.
- Use either a sampling system or a cyclone upstream of inlet to remove large particles.
 - a) Sampling system that includes a standard PM₁₀ inlet, a PM₁ cyclone, a flow splitter and a Nafion[®] dryer, or
 - b) Low flow rate cyclone, i.e., ~3 µm @ 0.6 lpm.

12. Annual Factory Maintenance and Calibration is Recommended.

Please read the operation manual (PN 07506) in its entirety before operating the Model 651.