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 PM_{10} inlet, a PM_1 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.

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