

FlowMark Disinfection System Model DS-1 Installation Operation Manual

EPA Est.#: 92852-FL-1



Record Information About Your System

Date Purchased: _____

Date Installed: _____

Serial Number: _____

Local Representative: _____

For assistance please call your local representative or call (386)453-5091

Check Contents:

Please inspect the package for the following contents and any damage that may have occurred during shipping.

1. FlowMark DS-1 Controller
2. 20 feet 1/8th" Tubing
3. Ceramic Diffuser
4. Installation Manual



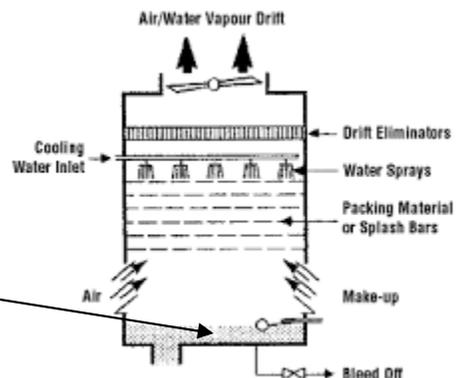
Selecting Diffuser Location

For best results the ceramic diffuser should be submerged in the cooling tower sump near the pump intake but not directly on the intake screen. If the diffuser is placed directly on the pump intake screen pump cavitation (noise) may result.

Caution: The ceramic diffuser is very delicate and will break easily if handled incorrectly. Handle with care.

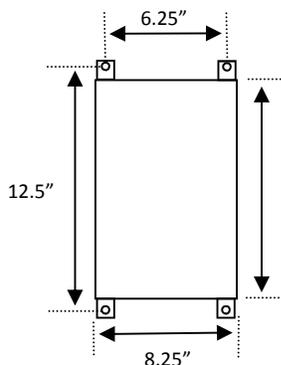
Clamp Tubing to Diffuser: The clear tubing should be secured to the 1/8" barb fitting on the ceramic diffuser to avoid it from falling off in the tower sump. Use small cable ties included to secure tubing to diffuser barb.

Ideal location for Diffuser is near but not on pump intake screen.



Mounting Your FlowMark DS-1 Enclosure

Select a location that is within 20 feet of the diffuser location in the tower as the tubing provided is 20 feet long. The enclosure is fitted with four stainless steel mounting feet and should be installed upright on a solid wall or other structure. The enclosure is rated Nema 4X (water and corrosion resistant) but an air hole has been installed on the bottom to allow oxygen to enter the internal air pump. Be sure the enclosure is at least two feet off the ground to prevent water from splashing up to the bottom and the enclosure is not lying flat on the ground where water could enter the air intake.



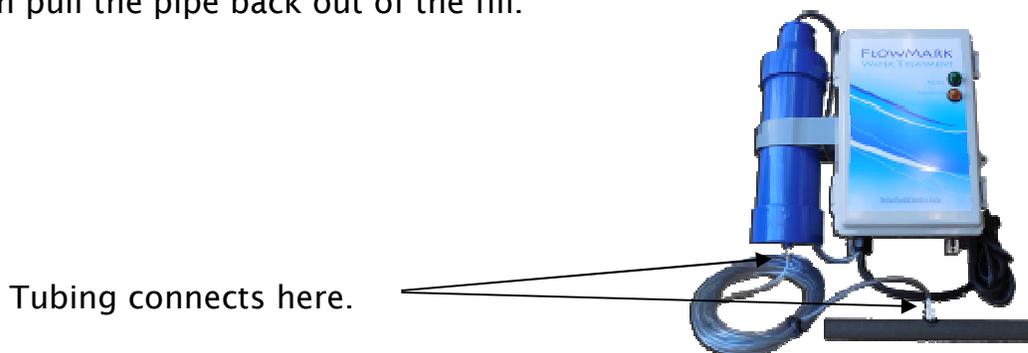
DS-1 Enclosure Dimensions

Connecting and Routing the Tubing

The ozone compatible tubing connects between the blue Lamp Chamber and the diffuser so you must find an opening that will allow the tubing to enter the sump area of the cooling tower.

Caution: *Make sure you do not kink the tubing as this will restrict disinfecting gas flow to the diffuser.*

If an opening is not available to route the tubing inside the tower you may have to route it under or through the cooling tower fill. If the fill is too close to the bottom of the tower a length of 1" PVC pipe will help with the install. Push the pipe straight through the tower fill and then slide the tubing through the pipe. Once the tubing has penetrated the fill you can then pull the pipe back out of the fill.



Powering the FlowMark DS-1 System

Systems are supplied with a molded 10 foot long 120 VAC Power Cord that can be plugged into any 120 VAC wall outlet. If you choose to hard wire the unit simply cut the male plug off the power cord and wire the three wires accordingly:

White: Hot Leg

Black: Hot Leg

Green: Ground

Power Requirement: 0.5 Amps. There is a small start up power surge but once running the system draws less than 40 watts of power so it is very electrically efficient and designed to run continuously.

Testing the FlowMark DS-1 System

Once the unit is installed and connected to the diffuser you are ready to turn it on. Unlatch the two latches on the Controller to open the door and turn on the Blue Breaker Switch.

The **Green** Power Light on the face of the controller will illuminate when the system is energized. The **Yellow** Treatment Light will illuminate indicating the Ultraviolet Light is on. The white color barb connector at the bottom of the Lamp Chamber will also illuminate a light **Blue** color when the Ultraviolet Lamp is operating.



Confirm Bubbles in Tower Basin

Once the system is powered up and running for two minutes, confirm the diffuser is producing a fine screen of disinfecting gas bubbles.

Adjusting Disinfecting Gas Flow

The DS-1 air pump is pre-adjusted to provide 100% Disinfecting Gas flow. Should you desire to reduce the amount of gas produced simply turn the dial on the pump counterclockwise while observing the amount of bubbles discharging from the diffuser. When the two white lines are lined up the pump is at 100% air flow.

ON/OFF Switch



Disinfecting Gas Flow Adjustment

Diffuser Maintenance

During each cooling tower maintenance visit be sure to confirm a strong stream of bubbles are coming from the diffuser. It is possible the diffuser may need cleaning from time to time. Submerge the diffuser in Muriatic acid for a few minutes and then rinse.

Lamp Replacement

The blue lamp chamber contains a special Ultraviolet Lamp that splits oxygen molecules O₂ into single molecules O₁ that create the disinfecting gas. The useful lamp life is 8,760 hours (one year of continuous operation). After the one-year term the light will continue to shine but it's ability to split oxygen molecules is degraded so the lamp must be replaced. Order a new pre-assembled replacement lamp from your FlowMark distributor.

Disconnect and Unscrew Here



Warning: Do not touch the lamp glass with your fingers as damage may occur.

Warning: Do not connect the light and power the system with the lamp out of the chamber. UV light will damage your eyes and burn your skin.

There is no need to remove the blue Lamp Chamber.

1. Simply unplug the weatherproof 4-pin connector at the top of the Lamp Chamber.
2. Unscrew the Lamp from the Chamber. The Lamp was installed hand tight from the factory but may need a pair of channel lock pliers to remove it after time.
3. The new Lamp threads are pre-wrapped with Teflon tape. Gently insert the new lamp into the chamber and hand tighten. If pliers are used do not tighten more than a 1/8th turn.
4. Reconnect the 4-pin connector. Push until you feel a click. Turn ON and check light.

Trouble Shooting

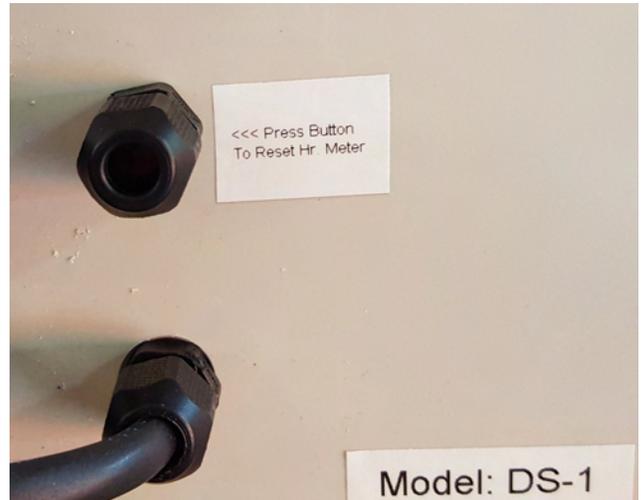
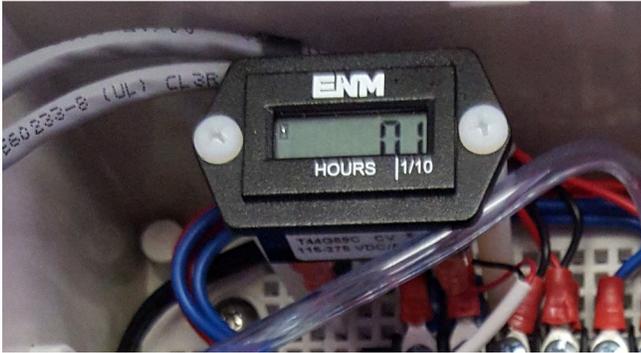
Both Lights OFF - No Power to unit. Reset internal breaker, check service breaker and or GFI and reset.

Yellow Treatment Light Dim - UV Lamp defective or bad UV Lamp Connection. Check to see if hose barbs on UV Canister are glowing blue to confirm UV lamp is off. Replace UV Lamp and re-test.

Yellow Treatment Light OFF - Defective Ballast. Order new ballast from FlowMark and replace. Red wires attach to red and orange. Blue wires attach to blue and black.

No bubbles from Diffuser Stone - Check tubing connections and possible damage. Check to see if air pump is running and producing air flow. Replace air pump.

Hour Meter



Your DS system is fitted with a digital hour meter to monitor run time. If the system is turned off or power fails the e-prom memory will remember the last reading and restart at the last reading. After 9,000 hours replace the UV Lamp and then use a pen tip to press the button seen in the photo above. Confirm the reading resets back to zero.

FlowMark DS-1 System Warranty

ELECTRONIC CONTROLLER: FlowMark Water Treatment, LLC warrants this water treatment device to the original purchaser against defective parts and workmanship for a period of (1) one year from the end user purchase date according to the following schedule: The Electronic Water Treatment Device will be repaired or replaced (at our option) free of charge during the full 1 year term.

EXCLUSION: This warranty does not apply to lightning damage, flood damage, abuse or improper installation. This warranty is limited to repair or replacement and does not include consequential damage or installation expenses and is in lieu of any and all other warranties, either expressed or implied. This warranty gives you specific rights and you may have other rights which vary from state to state.