

FlowMark Disinfection System Model DS-3 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.

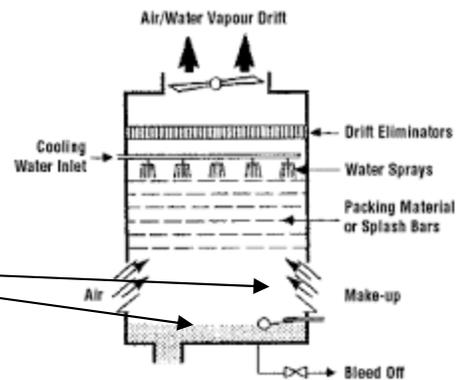
1. FlowMark DS-3 Controller
2. 2 X 25 feet 1/4" Tubing
3. 2 X Twin Ceramic Diffusers
4. Installation Manual



Selecting the Best Location for the Diffusers

For best results one of the ceramic diffusers should be submerged in the cooling tower basin near but not on the pump intake screen. If bubbles enter the pump intake they may cause cavitation (pump noise). The other twin diffuser should be placed at the opposite end of the tower basin. If the DS-3 is installed on a twin cell tower system place one diffuser set near the pump intake screen of each basin.

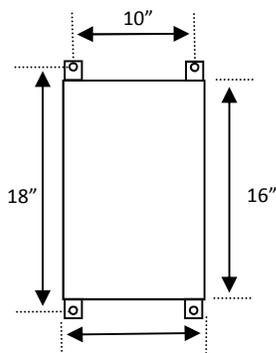
Ideal location for 1 Diffuser is near pump intake screen
Place the other at the opposite end of the sump.



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

Mounting Your FlowMark DS-3 Enclosure

Select a location that is within 25 feet of the diffuser location in the tower as the tubing provided is 25 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 air intake and fan holes have been installed on the bottom to allow oxygen to enter and heat to exhaust from the enclosure. 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 box.



DS-3 Enclosure Dimensions

Connecting and Routing the Tubing

The tubing connects between the blue Lamp Chambers and the diffusers so you must find an opening that will allow both tubes 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 them under or through the cross-flow 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.



Tubing connects here.

Tubing connects here.

Powering the FlowMark DS-3 System

Systems are supplied with a molded 10 foot long 110 VAC Power Cord that can be plugged into any 110 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

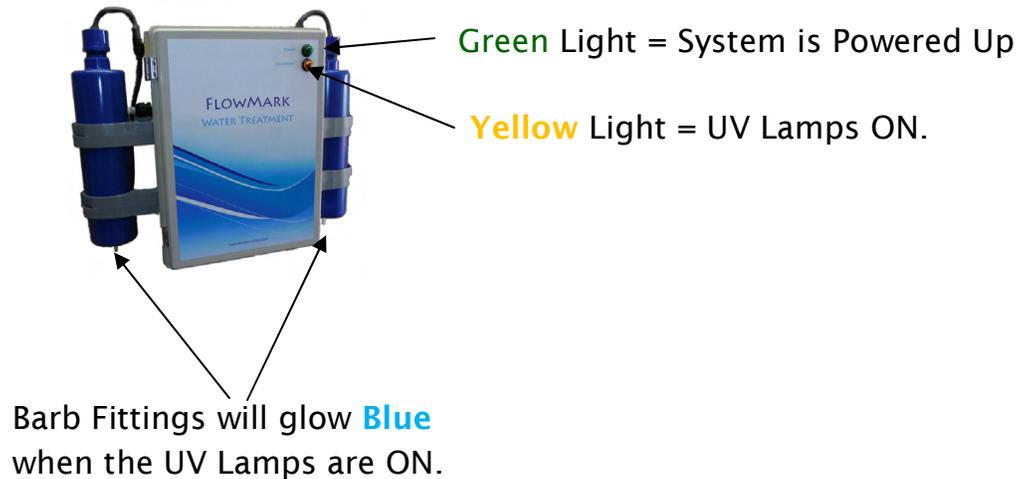
Green: Ground

Power Requirement: Voltage: 110 VAC
 Amperage: 1.5 Amps.

Testing the FlowMark DS-3 System

Once the unit is installed and connected to the diffusers you are ready to turn it on. Unlatch the two latches on the DS-3 Controller to open the door and turn on the Breaker Switch. There is a spring loaded safety button that must be pushed on the latches before you open them. Do not force the latch without pushing the spring loaded safety button.

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 Lights are on. The white color barb connectors at the bottom of the Lamp Chambers will also illuminate a light **Blue** color when the Ultraviolet Lamps are operating.



Confirm Bubbles in Tower Basin

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

Lamp Replacement

The blue lamp chambers contain special Ultraviolet Lamps that split oxygen molecules O₂ into single molecules O₁ to 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 lamps must be replaced. Order two new pre-assembled replacement lamps from your FlowMark distributor.



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 skin.

There is no need to remove the blue Lamp Chambers.

1. Simply unplug the weatherproof 4-pin connector at the top of each Lamp Chamber.
2. Unscrew the Lamps from the Chambers. The Lamps were installed hand tight from the factory but may need a pair of channel lock pliers to remove them 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 1/8th of a turn.
4. Reconnect both 4-pin connectors. Push until you feel a click.

Diffuser Maintenance

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

Trouble Shooting

Green and Yellow Lights OFF: Check the unit is plugged in. Re-Set circuit breaker inside DS unit. Check building circuit breaker and/or GFI and RE-set.

Green Light ON - Yellow Light Dim: UV Lamp disconnected or defective. Check both UV chambers to confirm the translucent hose barb connections are glowing Blue. Replace defective UV Lamp.

Green Light ON - Yellow Light OFF: Check both UV chambers to confirm the translucent hose barb connections are glowing Blue. Identify which lamp is not ON and trace wiring back to the blue Ballsts inside the controller. Replace the defective ballast and re-test.

Pump Running but NO Bubbles at Diffusers: Open the enclosure and confirm air pump is running. Check hose connections. If no air is flowing order a new pump from your FlowMark dealer.

Air Pump is Not Running but Power Light is ON: Defective pump. Order a new pump from your FlowMark dealer.

Note: UV Lamps, Ballasts and Air Pump are designed for easy field replacement.

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-3 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.