Fogmaster®

OWNER'S MANUAL

Sentinel® II 5500

REMOTE CONTROL, DUAL HEAD FOGGING SYSTEMS

Read all instructions carefully before starting the installation.
Save this manual for future use.

SAFETY

- Always follow label instructions for the chemical you are using.
- To avoid danger of fire or explosion, do not fog flammable liquids, especially in an enclosed area.
- Wear a mask or respirator as required by the chemical being applied. Fog particles can be practically invisible and are easily inhaled.
- Do not fog so much that fog particles are drawn back into unit in the intake air. Keep air filter in place.

THEORY OF OPERATION

Sentinel II fog heads use a powerful tangential blower to atomize feed liquid in turbulent mixing nozzles. The fog head draws ambient air through a filter on top of the unit.

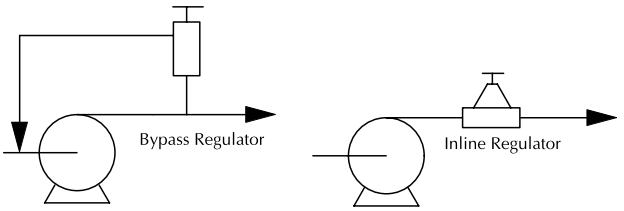
A pressure switch in the fog head controls its operation. When the switch senses a pressure of at least 3 psi at the liquid feed inlet, it turns on the blower and opens a solenoid valve allowing liquid to flow through a metering valve and into the nozzle.

The Sentinel II 5500 head lets you adjust fog droplet size. At the fine end of the range are droplets of 7-10 microns VMD (volume mean diameter). Such droplets, which are practically invisible except under optimal lighting conditions, form a light dry fog which floats a long time and diffuses widely.

The high end of the normal range is droplets of about 30 microns VMD. These form a heavy mist which settles quickly to wet surfaces.

Fog heads operate best at a 5-15 psi liquid inlet pressure. This provides ample liquid flow to nozzles yet allows good control by the metering valve. Higher pressures make it harder to adjust droplet size and increase the chances of impurities obstructing the metering valve.

If excess pressure is a problem, install an in-line pressure reducer in the liquid line or a pressure controlled bypass loop at the liquid pump.



Pressure Control Techniques

INSTALLATION PLANNING

A Sentinel II installation can contain any number of fog heads, all supplied with liquid from a central source. This can be located wherever convenient. If fogging chemicals must be diluted, you can use a mixing reservoir or inject them in-line with a proportional mixer. Low pressure tubing or other low cost material is used to connect heads to the liquid source.

Heads can be operated individually or connected together in zones. Nozzles can be rotated to any discharge angle. A metering valve on each head (open counterclockwise for more flow, larger droplets) is used to set fog properties.

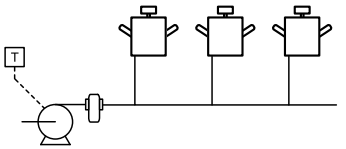
Power requirements, piping sizes and valve needs are determined by the head layout and expected liquid flows. Each head draws 10A at 120VAC (5A at 240V). A head's effective range (in still air) is 75-100 ft for small droplets, and 30-60 ft for larger ones. Liquid output is 4-10 oz/min for small droplets, and 10-20 oz/min for large ones.

System Control

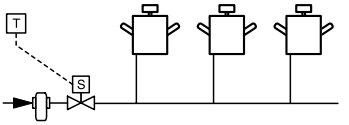
When the inlet pressure at the fog head exceeds 3 psi, the pressure switch turns on the head and generates fog. To control an individual head, feed it separately. To control several heads at once, connect them to a common liquid line.

Many installations use repeat cycle timers to activate solenoid valves or low pressure transfer pumps (see examples below).

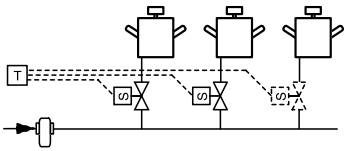
Bank of foggers controlled by turning supply pump on and off, under timer control.



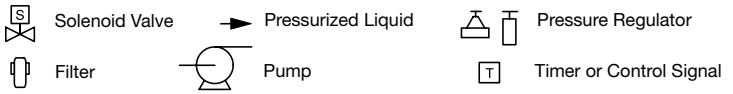
Pressurized liquid source, such as the house water supply, feeding a zone of foggers. Solenoid valve is controlled by repeat cycle timer.



Fog heads controlled individually by solenoid valves in supply lines. Chemicals can be injected "in-line" with a proportioning injector. Valve controlled by multiple timers.



Legend:



Fog Droplet Size

It is important to adjust fog droplet size properly for your application. Larger droplets are better for dust control, humidification and sanitizing. However, large droplets settle faster, and heads must be closer together to get even coverage.

Small particles are better for such "air mix" applications as odor control and ULV (ultra low volume) pest control; they float extensively, have a large surface area and evaporate quickly.

A metering valve (drawing, Pg. 5) controls the droplet size of each head's output. Close the valve (turn clockwise) for smaller droplets. Too high a pressure in the liquid feed line will make it harder to adjust for smaller droplet sizes. Install a step-down pressure regulator (see "Theory of Operation") to solve this problem.

"Fine-Tuning" The System

Some experimentation is usually needed to obtain best results at the lowest operating cost. This typically involves three factors:

1. Head Location. Fog heads should be placed where they are needed, and spaced for uniform coverage. To move a head, or add a new one, just mount it where needed, plug into an electric outlet, and attach a liquid feed line.

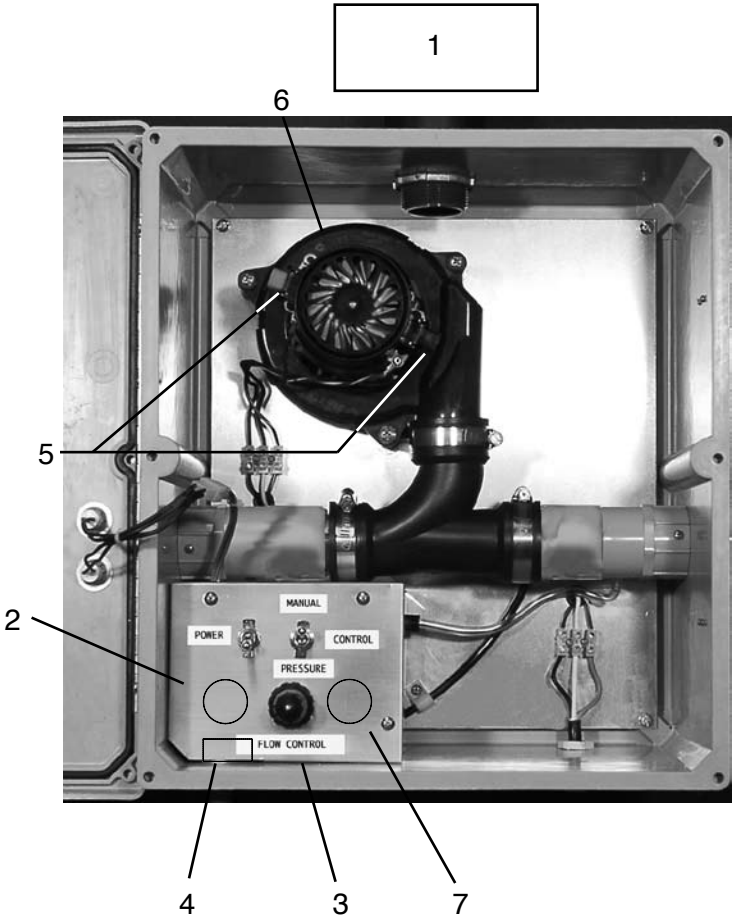
2. Droplet Size. We recommend starting with a large droplet size, then moving to smaller droplets as needed to increase diffusion and penetration, or to reduce wetting and fallout.

3. Fog Cycle Time. Most fog installations run intermittantly, using an interval timer to turn on a liquid feed pump or activate a solenoid valve. After determining an effective droplet size, gradually shorten the ON cycle time (or lengthen the OFF cycle time) to reduce liquid consumption and motor wear. Keep reducing fog output until you find the point of maximum control at minimum cost. You may have to adjust fogging cycle times to compensate for seasonal temperature changes.

CONTINUOUS OPERATION

If your fogging system must operate continuously, use the smallest droplet size that does the job. This will minimize liquid discharge and chemical expense.

Be aware that continuous operation means faster wear on motor brushes. (Typical brush life is 650–700 hours — about one month at 24 hours a day, 7 days a week.)



PARTS LIST

Item No.	Description	Part Number 120 Volt	Part Number 240 Volt
1	Element for Air Filter	510	510
2(*)	Pressure Switch (3 psi)	515	515
3	Metering Valve	530	530
4(*)	Relay	540	545
5	Motor Brushes (pair)	550	555
6	Blower	560	565
7(*)	Solenoid Valve	570	575
Not Shown	Spring Clip, 7/16 in., for tubing	580	580

(*) *Behind cover.*

INSTALLATION

NOTE: Do not drill mounting holes in fog head enclosure. It is designed to be air tight.

1. Mount enclosure where desired with screws or bolts and mounting tabs provided. ***Do not hang enclosure by the air filter***.

If you plan to use 3/16″ ID tubing for the liquid feed, apply teflon tape to hose barb and screw tightly into fitting on bottom of enclosure. If you plan to use a flare or compression fitting, install the appropriate 1/8″ NPT adapter.

2. Aim nozzles as desired by twisting gently at the rotary fitting. Nozzles are set by the factory to point up and out. To aim nozzle down:

Loosen O-ring seal at nozzle assembly (A) one-half turn. Loosen hose clamp on rubber collar (B) . Twist nozzle base inside rubber collar for the desired alignment. Retighten nozzle assembly into mounting base to compress O-ring seal and tighten hose clamp.

3. Plug into electrical outlet (15 A grounded circuit).

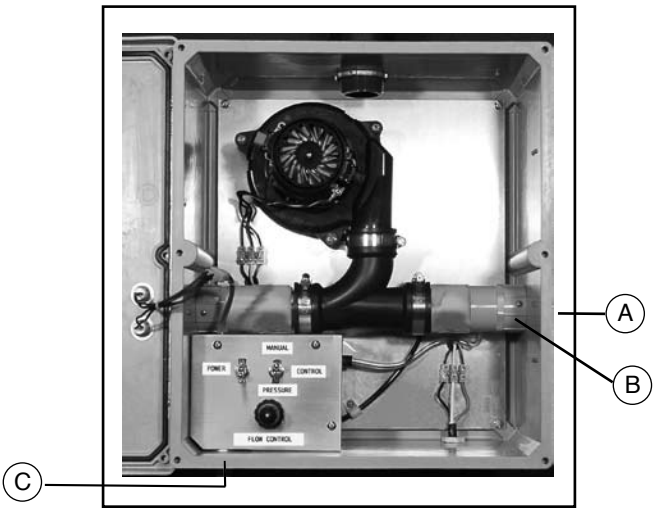
4. Connect liquid feed line to inlet (C). If using hose barb, secure with spring clip.

5. Install air filter and tighten clamp on collar.

6. **Open metering valve** and pressurize liquid line. Blower will turn on and produce fog. Adjust metering valve for desired droplet size.

7. Set timers or control devices.

8. Fine-tune system as required.



MAINTENANCE

- Clean or replace air filter as appropriate for the operating conditions.
- Replace motor brushes as necessary.

MOTOR BRUSH REPLACEMENT FOR THE SENTINEL II 5500

1. Unplug unit to avoid the risk of electric shock.

2. Remove plastic cooling fan cover on the top of the motor. Using a small screwdriver, gently pry back the plastic fingers that hold cover to motor brush housing.

3. Remove the two Phillips screws and brush retaining bracket.

4. Gently loosen and remove lead wire terminal from the brush's nylon housing. With a small screwdriver, gently push the lead wire terminal toward the commutator. If the terminal is stuck in the nylon housing, soften the top of the brush with a heat gun or hair drier and then try to remove terminal. Remove the brush.

5. Place the new brush in position. Insert the lead wire terminal between the nylon housing and the brass shell of the new brush.

6. Push the brush into nylon housing and position into notch on motor housing. Replace the retaining bracket and the two screws.

7. Replace cooling fan housing. If you break the retaining clips, you can purchase a different type of retaining clip from Fogmaster.

TROUBLESHOOTING CHART

SYMPTOM	POSSIBLE CAUSE(S)	CORRECTIVE ACTION
No fan, no fog	No electrical power	Check power at outlet Check pressure in liquid line
No fan, liquid dribble	Fan motor brushes worn	Replace
Fan on, no fog	Possible liquid obstruction Excessive liquid feed pressure Bad pressure switch Bad solenoid valve	Check metering valve Reduce to 5–15 psi Replace Replace
Fan on, liquid spits	Excessive liquid feed pressure	Reduce to 5–15 psi
Cover bowed in	Clogged air filter	Clean or replace filter
Liquid plugging	Sentinel II 5500 nozzles do not contain any small orifices, so plugging is not usually a problem. If an impurity in the liquid obstructs the metering (needle) valve, note valve position from vernier markings, temporarily open valve wide enough to pass impurity, and readjust valve for desired droplet size.	

ONE YEAR LIMITED WARRANTY

This product is warranted for one year from the purchase date against defects in materials and workmanship. If you have a warranty claim, return the unit freight prepaid to The Fogmaster Corporation. We will repair or replace (at our option) any defective parts and return the unit to you.

Motor brushes are not covered under warranty.

This warranty does not apply to any unit which has been: subject to misuse, neglect or accident; used for a purpose for which it is not designed; altered in any manner; serviced by unauthorized parties; or subjected to any but the specified voltage.

This warranty is limited to the original purchaser only, and does not include claims for incidental or consequential damages resulting from the non-function or malfunction of this product or for breach of any express or implied warranties.

Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

This Limited Warranty notice replaces any other warranty or guarantee information accompanying this product or appearing in any literature referring to this product. Any implied warranties, including merchantability or fitness for a particular purpose, shall not extend beyond the warranty period.

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