

Sentinel II System Technical Design Notes

Sentinel II power heads are controlled via the liquid input line. A line pressure above 10 psi turns on the blower and opens the liquid solenoid valve. This lets liquid flow to the nozzle, producing fog.

The liquid system is low pressure, typically 10-20 psi, so you can use flexible tubing, PVC piping, hose, copper tubing, etc. Fog heads come with a 3/16 inch hose barb, compatible with Fogmaster's fuel and oil resistant tubing (3/16" ID X 1/8" wall, \$0.50/ft). If you prefer to use flare or compression fittings, replace the barb fitting (1/8" NPT thread) with your adapter. If heads are arranged in zones supplied by one liquid feed line, make sure it can handle the expected liquid flow. (Each fog head draws 0-10 oz/minute of liquid.) In general, 1/4" ID tubing is adequate for 2-4 heads, 1/2" for 6-12 heads, etc. If in doubt, contact the factory.

Each fog head has a valve to control liquid rate and droplet size (higher flow = larger droplets). Adjust droplet size after installation so a change in head elevation does not affect flow. Too high a liquid pressure will reduce valve controlability. A step down pressure regulator, available from Fogmaster and numerous third parties, will remedy this problem.

Fogging nozzles contain no small orifices so plugging is not a concern. However, feed liquid impurities can obstruct the control valve. If this is a problem, install a filter in the liquid supply line. The only required maintenance is to clean the air filter (the frequency would depend on your conditions) and to replace motor brushes when they wear out.

There are many ways to manage the feed liquid to produce pressure and control fog heads. The best one depends upon your specific situation. The following examples show some possibilities.

PUMP METHOD

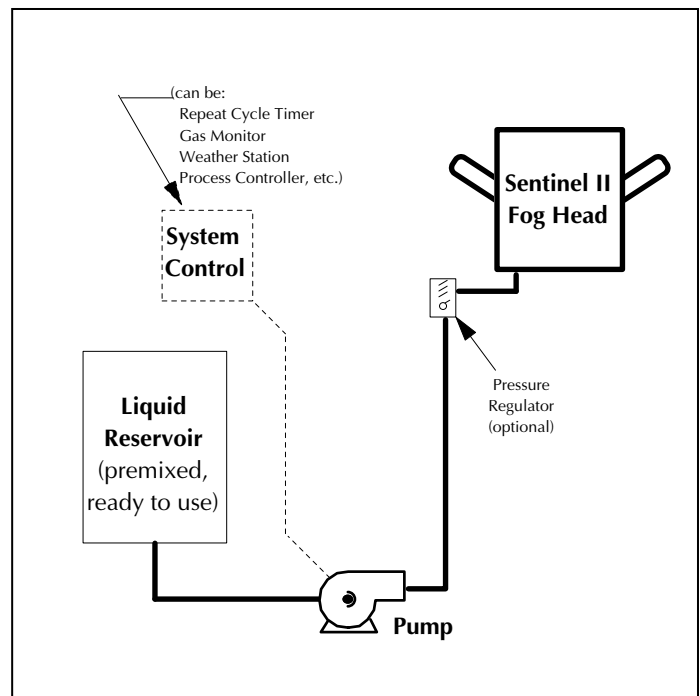
A pump is used to transfer ready-to-use liquid to the fogging head. Pump pressure must be adequate to lift liquid to the highest fogging head, plus 10 psi to activate the pressure switch.

To calculate the minimum pump pressure required, measure the height of the highest fogging head (in inches) above the minimum liquid level. Divide by 2.7 to convert to psi. If your fogging liquid is heavier than water, multiply by the density ratio. Finally, add 10 to get the required pump pressure (in psi).

You can use flexible tubing or solid pipe to connect fogging heads. Liquid lines must be able to hold your highest pressure.

Choose a pump which is properly sized for the application. Too large a pump wastes energy and may reduce droplet size controlability. Our Model 6300, Pump-R transfer pump delivers the proper flow and pressure for one Sentinel II head. If you need help choosing a pump, contact the factory.

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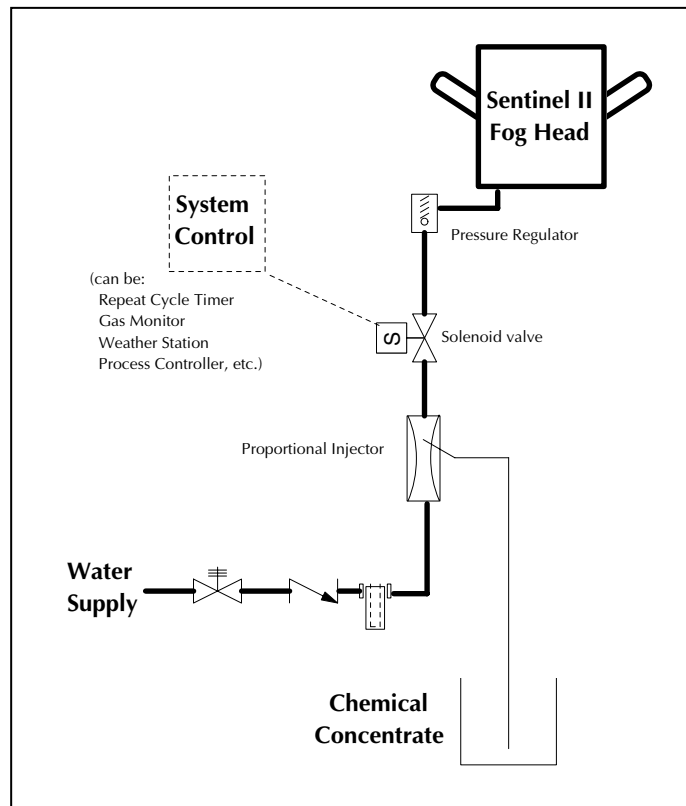
DIRECT CONNECTION METHOD

As shown in the drawing, fog heads can be fed by a direct connection to the building water supply. A shut-off valve, backflow preventer and particulate filter are desirable, especially when using a chemical injector. Check local plumbing codes for requirements.

The proportional injector lets you dilute chemical in-line. This saves the cost of a liquid reservoir and the labor to mix chemical by hand. Injectors are available from many sources. Fogmaster offers a non-electric model with adjustable mix ratio (up to 1:500).

A direct connection also eliminates the pump since house water pressure (45-75 psi) is more than adequate. However, you may need a pressure reducer for better droplet size controlability.

If you intend to use several chemicals, install an injector for each one so you can change mix ratios easily. This also minimizes the chance of incompatibilities between different ingredients. Injectors should have an internal bypass, or be plumbed with external bypass.



SYSTEM CONTROL

The modular Sentinel II fogging system offers great flexibility at low cost. You can control heads individually, or group several together in a zone. You can change head locations without expensive piping. You can start with simple controls like toggle valves, and add more complex devices as your needs grow, without changing power heads or plumbing lines.

You can control your fogging system manually — turn on a pump or open a supply valve — or automatically, with any control device able to activate a relay (time clock, odor sensor, flow monitor, wind direction indicator, etc.).

Many installations use a repeat cycle timer to control fog operation, turning a pump or solenoid valve(s) on and off. Fogmaster's Model 2238 RC Timer offers separately adjustable on/off times (1-100 minutes each) and 10A contacts. If time of day control is needed as well, put a clock timer before the RC timer.