

FOGCOntroller 2 Zone Microprocessor



This FOGCOntroller is a 24VAC microprocessor that is ideal for controlling up to 2 separate zones based on humidity and/or temperature levels for any residential, commercial or industrial application. When incorporated with the Fogco climate control system, a completely integrated and automated system is achieved. The controller requires the use of an external 50 Watt 24VAC transformer to provide the necessary power.

The controller has multiple inputs and outputs and can control one pressure switch, two separate sensors; two separate remotely located On/Off switches; two separate components for zone 1; two separate components for zone 2, and one common component for zones 1 and 2.

The Fogco sensors are fully calibrated reflow humidity sensors with digital output that sends binary data over RS485 protocol with an accuracy of +/-2%. The sensors follow typical SHT15 standards.

OPERATING MODES

The FOGCOntroller provides five different operating modes. These include Manual; Trigger; Temperature; Humidity; and Temperature & Humidity.

Manual mode allows the control of two zones by simply pressing the Zone 1 or Zone 2 buttons on the facing of the controller. Press once to turn ON; press a second time to turn OFF

Trigger mode allows for the controlling of two zones using a separate, remotely located switch that is wired to the FOGCOntroller terminal block position Trigger 1 and Trigger 2.

Temperature mode allows for the controlling of 2 zones if used with the Fogco Temperature/Humidity sensor. In this mode the system will come ON when the ambient temperature is greater than the set point. It will turn OFF the system when the ambient temperature is less than the set point minus the hysteresis.

Humidity mode allows for the controlling of 2 zones if used with the Fogco Temperature/Humidity sensor. In this mode the system will come ON when the relative humidity is at or below the set point minus the hysteresis. It will turn OFF the system when the relative humidity is equal to or greater than the set point

Temperature & Humidity mode is a proprietary operating mode to this FOGCOntroller. In this mode, the system will only come ON If the Temperature is greater than the temperature set point AND the humidity is less than humidity set point minus the hysteresis. If the temperature drops below the temperature set point minus the hysteresis OR the humidity increases above the humidity set point, then the system will turn off. This prevents the system from running if the humidity exceeds a 'comfortable' level.



WIRING INSTRUCTIONS

To connect the FOGCOntroller to the power supply, remove the front cover from the base of the controller. Using an 18 gauge cable, connect the 24VAC Hot power supply to the terminal contact **24VAC Hot In.** Connect the 24VAC Common power supply to the terminal contact **24VAC Common In**. Once this is done, turning on the 24VAC power will energize the FOGCOntroller and allow the user to begin the programming.

Pressure Switch

The FOGCOntroller includes the ability to shut down the system if there is not sufficient pressure on the inlet water supply or if pressure is lost in the high pressure side of the system. IF no pressure switch is being used, set the delay time for the pressure sensor to 0 (see Programming Instructions). This will disable the pressure switch control. If a pressure switch is being used, a connection must be made using a.18 gauge wire from the **24VAC Common Out** contact to the pressure switch with the return signal to the **Pressure Switch In** contact.

Wiring the Revolution/Evolution Fans

If Revolutions are included in the system, they will need to be connected to an appropriately sized contactor with built in surge suppressor and a 24VAC coil. To hook up the FOGCOntroller to the fan contactor, connect an 18 gauge wire from the **24VAC Common In** or **Out** contact to the 'common' side of the fan contactor coil. Connect another 18 gauge wire from the **Zone 1 Relay 1** contact for Zone 1 (or **Zone 2 Relay 1** contact for Zone 2) to the 'hot' side of the fan contactor coil.

Wiring the Water Supply

The FOGCOntroller is designed to control the function of an inlet solenoid valve (and an electric drain valve if included in the pump design) with the use of an external cube relay with a 24VAC coil. To hook up the FOGCOntroller to the cube relay, connect an 18 gauge wire from the **24VAC Common In** or **Out** contact to the 'common' side of the cube relay coil. Connect another 18 gauge wire from the **Zone 1 Relay 2** contact for Zone 1 (or **Zone 2 Relay 2** contact for Zone 2) to the 'hot' side of the cube relay coil.

Wiring the Pump Start

The FOGCOntroller is designed to control the function of an external contactor with suppressor for the motor start. The contactor must include a 24VAC coil. To hook up the FOGCOntroller to the motor start contactor, connect an 18 gauge wire from the **24VAC Common In** or **Out** contact to the 'common' side of the contactor. Connect another 18 gauge wire from the **Pump Start Relay** contact to the 'hot' side of the contactor.

Wiring For Operating Mode

If the Manual operating mode is being used, Skip to the **PROGRAMMING DIRECTIONS**.

Wiring For Trigger Operating Mode

The FOGCOntroller includes the ability to control the system using a remotely located switch. To wire the controller to a remotely located switch, connect an 18 gauge wire from the **24VAC Common In** or **Out** contact to the remote switch. Run a return 18 gauge wire from the other side of the switch back to the controller and connect it to the **Trigger 1** or **Trigger 2** contact. Skip to **PROGRAMMING INSTRUCTIONS**

Wiring for Temperature And/Or Humidity Operating Mode

The FOGCOntroller includes the ability to operate the system based on temperature, humidity, or temperature and humidity. This will require the use of the Fogco Remote Sensor Module and shielded instrumentation cabling with the pre-soldered 4 pin connector. To hook up the Fogco Remote Sensor Module, connect the wires from the cabling as follows: Yellow wire to **Sensor 1 Temperature In** contact; the Green wire to the **Sensor 1 Humidity In** contact; the White wire to the **Sensor 1 DC GND Out** contact, and the Brown wire to the **Sensor 1 DC +12V** contact. Skip to **PROGRAMMING INSTRUCTIONS**.

PROGRAMMING INSTRUCTIONS

Once the FOGCOntroller is wired and powered up, it can be programmed. The first menu screen is titled **SETUP** and includes options for displaying the numeric figures in **Celsius** or **Fahrenheit**; the option to set the relay **DELAY**; the option to set the temperature and humidity **SETPOINTS**; and the option to set the operating **MODE**. Once all of these steps are confirmed, exiting this screen will take you to the operating mode.

To toggle through various options, place the cursor next to each listed item using the Up and Down buttons. Once the cursor is next to the menu option desired, press the Stop/Set button to view the available options. Use the Up and Down arrows to toggle through the setting options. Press the Stop/Set button to choose the desired option. Placing the cursor next to **EXIT** and pressing the Stop/Set button will take the controller to the next screen. Placing the cursor next to **EXIT** in the **SETUP** screen will take the controller to the operating mode.

DELAY -This menu option allows for the setting of the required delay times between the various output relays. The delay time will affect both the start up and the shut down sequence of the relays.

Water: This delay is the amount of time from the switching of the Zone 1 Relay 1(and the Zone 2 Relay 1) to the switching of the Zone 1 Relay 2 (and the Zone 2 Relay 2).

Pump: This delay is the amount of time from switching of the **Zone 1 Relay 2** (and the **Zone 2 Relay 2**) to the switching of the **Pump Start Relay**.

PSEN: This is the delay before the pressure switch will turn off the system in the event of a pressure loss. This time should be set to '0' if no pressure switch is being used.

SET POINTS -This menu option allows for the setting of the temperature, temperature hysteresis, humidity, and humidity hysteresis for each zone. Separate set points can be entered for **Zone 1** and **Zone 2**. **Temperature**: The temperature set point determines when the system will turn ON and OFF if the FOGCOntroller is operating in the Temperature Mode. The temperature set points range from 75 degrees F to 99 degrees F. The hysteresis set points range from 1 degree to 9 degrees

Humidity: The humidity set point determines when the system will turn ON and OFF if the FOGCOntroller is operating in the Humidity Mode. The humidity set points range from 30% humidity to 99% humidity. The hysteresis set points range from 1% to 9%

The Temperature and Humidity set points can be checked at any time while the FOGCOntroller is in the Temperature, the Humidity, or the Temperature & Humidity operating mode by simply pressing the Zone 1 or Zone 2 buttons. Pressing it a second time will return the display to the normal operating mode screen.

NOTES

- The lowercase 'p' on the display indicates the FOGCOntroller has received the return signal from the pressure switch. It will be displayed as long as the pressure switch is closed.
- If the system is running and pressure is not achieved (pressure switch contact does not close) within the programmed delay, err-p will be displayed and the system operation will be terminated. Once terminated, the power supply to the FOGCOntroller must be reset to reset the controller. All programmed set points will be maintained.
- 's1 out' or 's2 out' indicates that a sensor is not currently connected to the FOGCOntroller or that there is a communication problem between the sensor and the controller.
- The Zone 1 Relay 1 and Zone 2 Relay 1 will switch immediately upon receiving the return signal from the sensor when in the Temperature, the Humidity, or the Temperature./Humidity' Operating Mode; upon the return signal from the wired Trigger when in the Trigger Operating Mode; upon pressing the Zone 1 or Zone 2 buttons when in the Manual Operating Mode.
- The Zone 1 relay 2 and the Zone 2 relay 2, the Pump Start Relay, and the Pressure Sensor In relay have the following delay defaults:

Zone 1 Relay 2 and Zone 2 Relay 2 = 10 seconds delay Pump Start Relay = 2 seconds delay Pressure Sensor relay = 30 seconds delay Temperature = 90 degrees F Hysteresis = 5 degrees F Humidity = 60 % Hysteresis = 5 %

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