

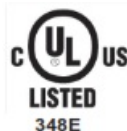


# S2000-LH Field Controls Electronic Steam Unit Power Humidifier Installation Guide

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INSTALLATION INSTRUCTIONS & OWNER MANUAL  
FIELD CONTROLS ELECTRONIC STEAM UNIT – POWER HUMIDIFIER  
MODELS S2000 (120VAC) and S2020 (240VAC)



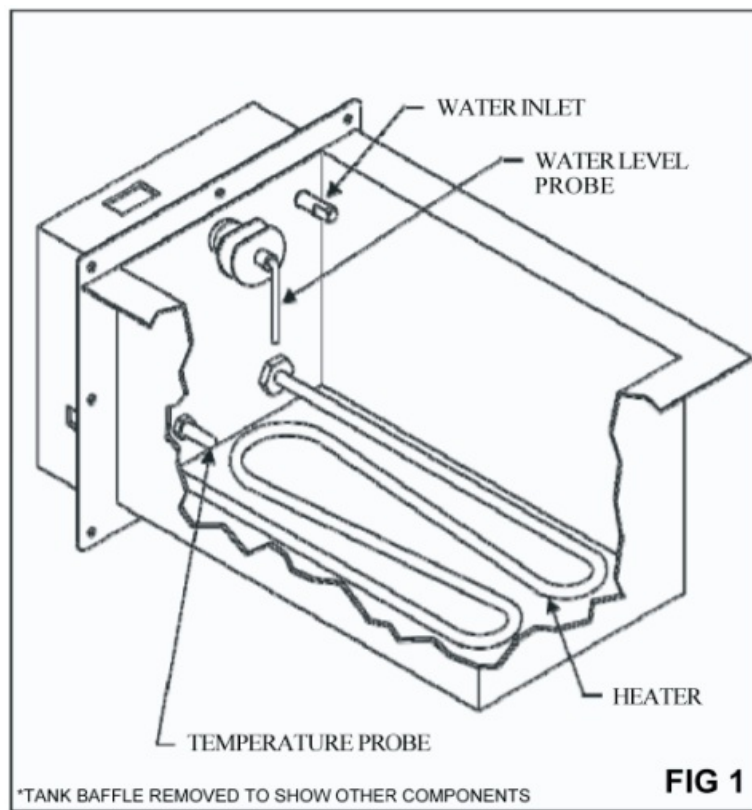
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## S2000-LH Field Controls Electronic Steam Unit Power Humidifier

Application: Forced Air Ducted Furnaces, Heat Pumps and Air Handlers

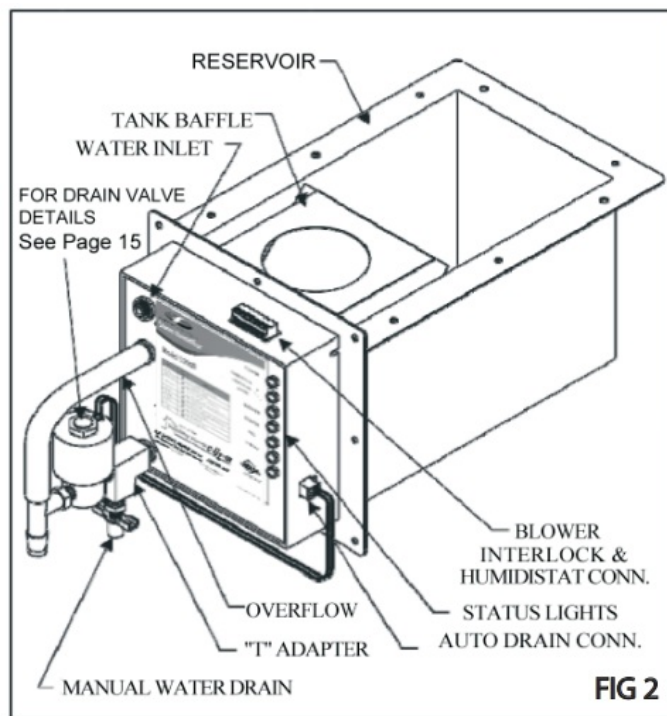
The Steam Humidifier you have purchased has been designed to be simple to install, operate and maintain. Read this manual before you install the humidifier.



Parts included in Steam Humidifier package are:

1. Self-piercing Saddle Valve
2. Installation Instructions and Owner's Manual
3. Mounting Templates x2
4. Installation Hardware Package
5. Insulation and Tape
6. Automatic Drain Assembly (Shipped loose)
7. Humidistat – Model #072000 (if ordered)
8. 1/2" I.D. Drain Hose – 8 ft
9. Anode #Z100 (located on lower flange of tank baffle)

Figures 1 and 2 will assist you in installing and maintaining your Steam Humidifier. This product should be installed according to local and national codes and standards.



Options and additional parts recommended:

1. Water Hammer Arrestor
2. Anode
3. Decorative Under Duct Cover
4. Gasket Material to seal flanges (installer provided)
5. Model APD Current Sensing Switch, or other Airflow Proving Switch.
6. Steam Treatment Water Cartridge

52000		52020	
Output Capacity	16 Gal./Day	Output Capacity	23 Gal./Day
Square Footage	2,400 Sq. Ft.	Square Footage	3,200 Sq. Ft.
Voltage	120 VAC	Voltage	220 VAC
Electrical	1.4 KW, 11.6 amps	Electrical	2.0 KW, 8.5 amps
Plenum Opening (side mount)	6' X 6"	Plenum Opening (side mount)	6' X 6"
Weight	9 Lbs	Weight	9 Lbs
Humidistat Included	Yes	Humidistat Included	Yes

## SIMPLIFIED INSTALLATION INSTRUCTIONS

1. Inspect water probe assembly
2. Assemble and install drain valve assembly.
3. Insulate the water reservoir. See Figure 3.
4. Select the mounting location on the duct and tape on the mounting template.

5. Drill the (8) 1/8" mounting holes.
6. Cut out the humidifier opening in the duct.
7. Insert the humidifier into the opening and screw in place.
8. Connect the drain line.
9. Flush and connect the water line.
10. Make 24VAC electrical connections to achieve fan operation and Interlock circuit.
11. Install and connect to humidistat.
12. Plug power cord into a grounded dedicated 120VAC, 20 amp outlet for S2000 (240VAC, 15amp for S2020).

## DETAILED INSTALLATION INSTRUCTIONS

### 1. CHECK WATER PROBE ASSEMBLY

Before installing drain valve assembly, inspect water probe assembly. Heater element should be 1/4" away from the brass water temperature sensor. The wire probe must be vertical (pointing towards bottom of reservoir).

Check for alignment of probe assembly prior to installation. Probe may have been shifted in position or become loose during shipping. Probe assembly must be tight and should not rotate. If loose, remove cover and tighten water probe nut. Refer to probe supplement insert on page 28.

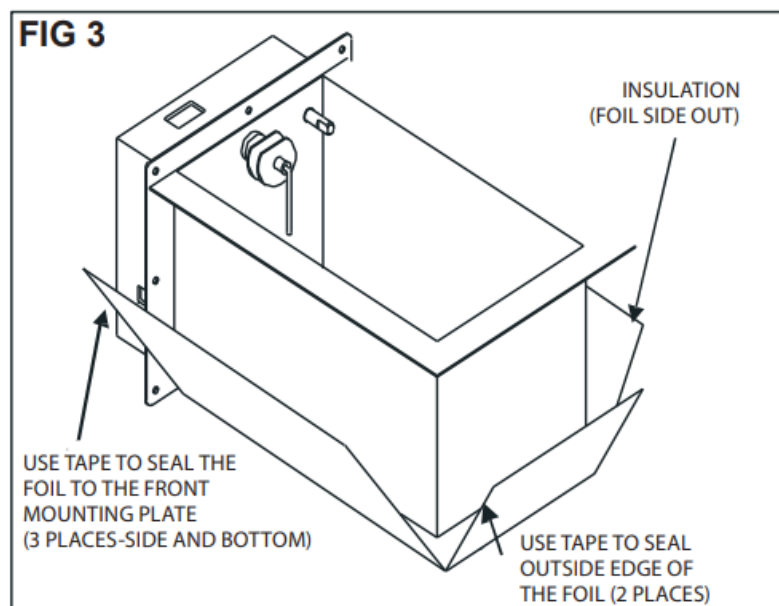
### 2. ASSEMBLE/INSTALL DRAIN VALVE ASSEMBLY (See figure 18)

Before assembling the drain valve assembly, apply water tight sealant to all metal to metal connections. Connect the drain cock valve to the "T" adapter, then the "T" adapter to the solenoid. Connect the barbed tee to the solenoid and then connect the overflow tube. After installation, insert the Molex plug into the right side of the steam humidifier control panel socket.

### 3. INSULATE WATER TANK RESERVOIR

With insulation foil side down, remove adhesive backing.

Align humidifier so that front side of unit meets long edge of insulation. Fold insulation up onto sides of humidifier and press firmly. Apply 5 continuous strips from the tape provided to seal the foil as shown. The tape will prevent the sharp duct edges from damaging the foil. Use additional foil tape to repair damage to the foil. The Insulation MUST be applied to the tank regardless of the mounting location.



### 4. LOCATION – Required Criteria

DO NOT INSTALL this unit in an attic period. Do Not InstallDO NOT INSTALL this unit in an attic period. Do Not

Install this unit in any area that may fall below 35 degrees F. this unit in any area that may fall below 35 degrees F.

Installing unit in area 35°F or less will void your warranty! Installing unit in area 35°F or less will void your warranty! The steam humidifier can be installed in either the warm air supply or the cold air return ducts; however the preferred location would be in the warm air supply duct of the system.

This humidifier does not require warm air to evaporate the water in order to provide humidity, but it will operate more efficiently in the warm air duct and condensation is less likely to occur on the surrounding cold surfaces. Efficiency is lost in a return air duct location.

When selecting a location on the duct, be certain that there is enough room in the duct for the water reservoir. There should be at least five (5) inches above the reservoir and the reservoir should not occupy more than about 25 percent of the duct space. If this criteria cannot be met, you should install the unit under the duct by means of the tank flange. See Figure 13 and UDB supplement insert on page 27.

If a suitable means of gravity draining the unit is not available if a suitable means of gravity draining the unit is not available or cannot be provided, the unit will work with the drain valve or cannot be provided, the unit will work with the drain valve electrically disconnected. Call the Technical Support Hotline electrically disconnected. Call the Technical Support Hotline for Instructions. for Instructions.

It is highly recommended but not required that the use of Fiberglass duct-board with this product includes an antimicrobial treatment.

#### **5. WEIGHT – Required Criteria**

Providing Adequate Structural Support for this unit is the responsibility of the Installer. It is recommended to reinforce the cut openings with folded lengths of sheet-metal to provide rigidity to the duct opening.

Now the screws must pass through 3 layers of metal when inserted. DO NOT install this unit into fiberglass duct without DO NOT install this unit into fiberglass duct without adequate structural support! adequate structural support! Both models weigh approximately 9 lbs. empty and 15 lbs when full of water.

#### **6. MOUNTING TEMPLATES**

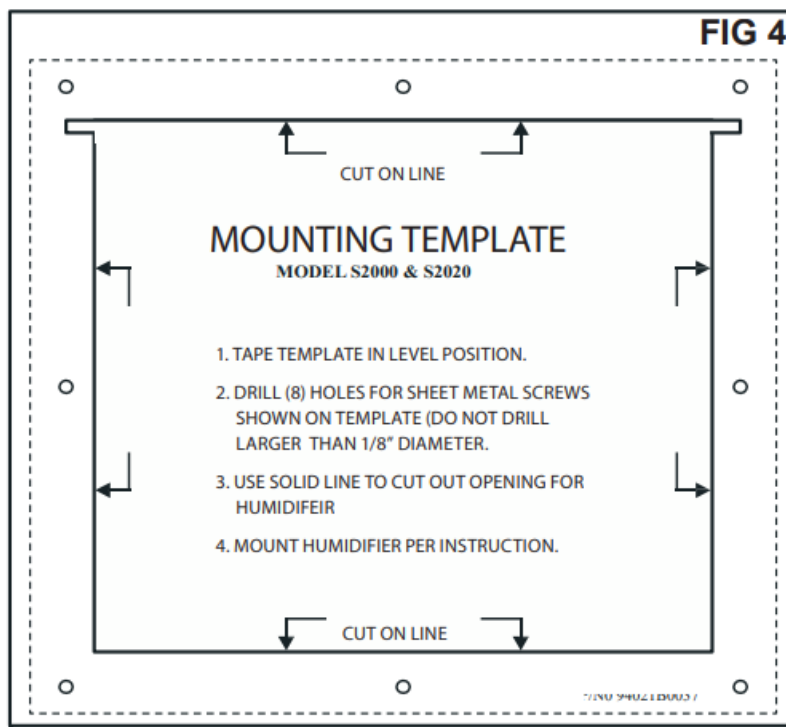
Two mounting templates are provided. Choose the correct template for your mounting method. Tape the mounting template to the duct. The template must be leveled using the top of the cutout on the template.

The template should be located so that the bottom of the reservoir cut-out is flush with the inside of the bottom of the duct for horizontal duct mount. Most ducts are insulated allow for additional space, about one (1) inch, must be accounted for when determining the location for the bottom of the reservoir cut-out. If you are mounting it under the duct, make sure the duct is level.

#### **7. DRILL HOLES AND CUT OPENINGS**

Safely predrill eight 1/8" diameter mounting holes in the duct. These can be drilled through the template at the locations indicated on the template. Safely remove the air duct material by cutting along the mounting template cut lines.

Insert and/or mount the Humidifier and secure it to the duct with the provided screws.



## 8. WATER SUPPLY – Required Criteria

### A. WATER SUPPLY USING THE SADDLE VALVE FURNISHED WITH UNIT.

Installation instructions for the saddle valve are printed on the plastic bag containing the saddle valve and its components. Tap into a 1/2" or 3/4" domestic cold water line. Avoid connecting to water lines from a Reverse Osmosis system or De-ionized water systems. The supply water must read a minimum of 25 ppm in order for the Steam unit to reliably sense the water.

**NOTE:** Never install the saddle valve on the bottom of the water pipe. Sediment in the water pipe may clog the saddle valve. Flush the line before connecting to the unit. When tightening the hex compression nut, tighten only enough to assure there are no leaks.

**NOTE:** Saddle valves do not meet plumbing codes in some areas. A "T" fitting with a valve may be required to meet code or, if low water pressure causes frequent water alerts on the steam humidifier.

**NOTE:** Flush the new water line before connecting it.

**NOTE:** The use of City water or Municipal water is preferred.

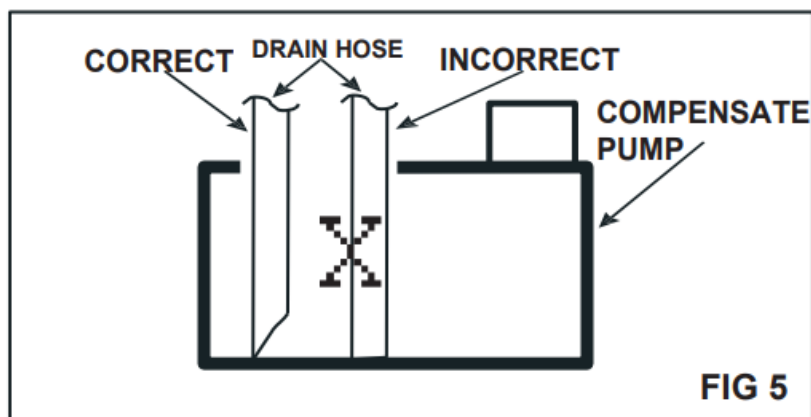
Softened water is preferred over untreated well water. Specify the Optional WC-25 disposable water filter for treating any water supply that is very high in mineral content. Refer to water conditioning system supplement insert information on page 24.

**NOTE:** Use optional water hammer arrester (WH-100) if water spikes occur (pipes bang) during fill ups. Refer to water hammer arrester supplement insert information on page 23.

### B. OVERFLOW & DRAIN LINES – Required Criteria

The use of an overflow line and drain line is always required. Use the supplied 1/2" ID high temperature hose. Slip the hose over the 1/2" OD "T" drain fitting and use a hose clamp to secure. Route the hose to a suitable drain, avoiding kinks, traps and sharp objects. DO NOT route the hose above the humidifier. Failure to install all necessary drain lines may result in water leaks during normal operating conditions, and voids all warranties.

When routing the S2000 drain hose into a condensate pump, be sure to cut the end of the hose at a sharp angle to prevent the hose from bottoming out in the pan. It could result in poor draining or no draining at all. Failure to do so may result in water backing up into the S2000 reservoir and eventual overflow. See Figure 5.



## 9. MOUNTING THE STEAM HUMIDIFIER

Use gasket material to seal where the front plate or tank flange contacts the duct-work. Place the humidifier reservoir into the opening in the duct and secure with eight (8) sheet metal screws. Refer to page 8 and 9 for additional humidifier mounting location information.

**NOTE:** If the duct-work will not support the unit in a level position with the reservoir full of water, the duct-work must be reinforced. Both steam models weigh approximately 9 lbs. empty and approximately 15 Lbs. when full of water.

## 10. STEAM OPERATION – Required Criteria

Because of the high humidity output of the steam humidifier, it must not be operated without proper fan operation. The steam humidifier is designed to be “Dominant” over the HVAC System Blower. The “System” Blower will be operated by the humidifier when the water tank temperature reaches 170° F. A minimum of 800 cfm @ 800-900 fpm is required for proper operation of the steam

humidifier. Lower velocities may result in excessive condensation inside the duct. See Air Proving Feature under section 11 B. See Variable Speed on Page 9.

A temperature sensor is mounted in the water reservoir of the humidifier. As the water temperature increases to about 170° F, the computer closes a set of blower relay contacts to start the HVAC system fan. When the water cools to about 140° F, the computer will open the relay contacts to shut off the fan. This operational sequence drastically decreases the chances of condensation occurring inside the duct-work.

## 11. WIRING THE STEAM HUMIDIFIER

**IMPORTANT:IMPORTANT:** Dedicated fused circuits and outlets of the proper voltage and current ratings must be provided. Use a NEMA 5-20R receptacle for the S2000 and a NEMA 6-15R receptacle for the S2020. All wiring must conform to local and national codes.

Failure to do so will void all warranties. Failure to do so will void all warranties.

DO NOT cut off the grounded plug and/or hard wire this unit to line voltage! DO NOT use extension cords to operate this unit! Doing so will void all warranties. Doing so will void all warranties.

### A. INSTALLING AND WIRING THE HUMIDISTAT

A humidistat, such as the Model #072000 is required to control the Steam Humidifier. The humidistat may be installed on the wall in the living space or on the return air duct. NOTE: Continuous fan operation should be initiated if the humidistat is installed on the return air duct!

Instructions for installation are packaged with each humidistat. Follow wiring instructions carefully! Follow wiring instructions carefully!

DO NOT connect any foreign voltage to the “H” connect any foreign voltage to the “H” terminals of the humidifier! The Humidifier supplies its own control voltage. Simply connect the two “H” terminals straight to any dry contact humidistat terminals.

If you are using a 3rd party Humidistat that has powered terminals, you must use an isolating relay to operate

the Steam Humidifier. Failure to do so will result in circuit board failure and will void all warranties.

## B. FIELD WIRING

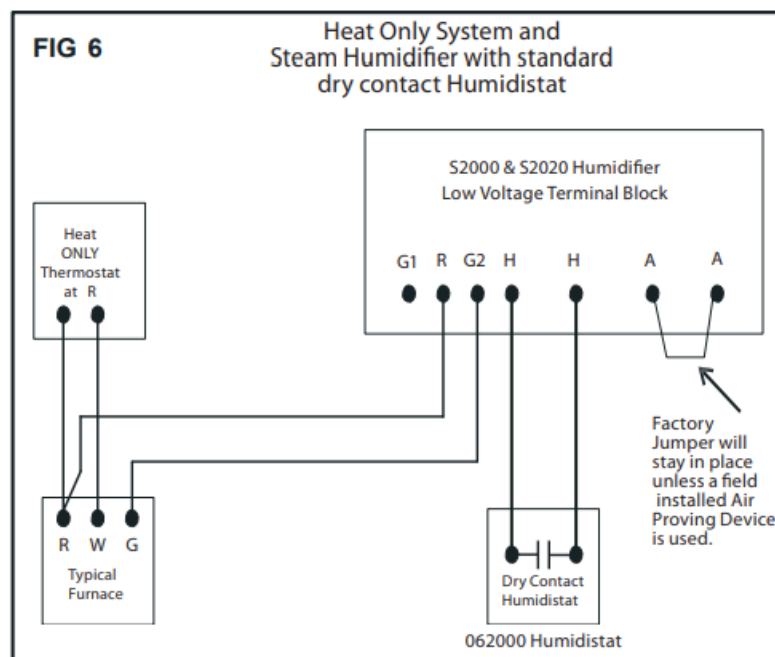
Schematics on the following pages describe the suggested interlock wiring arrangement for different HVAC systems. Interlocking may be performed on systems that provide a 24VAC NEC Class 2 terminal block for system control.

**AIR PROVING FEATURE:** The Steam Humidifier has an integrated air proving feature that allows the user to install a current sensing switch, airflow proving switch and/or high humidity switch in the duct and easily achieve fail safe shutdown in the event of fan/blower failure. This feature prevents the Steam Humidifier from operating unless adequate airflow is proven thereby avoiding a saturated duct condition. Refer to Air Proving Device Current Sensing Switch Supplement insert information on page 25.

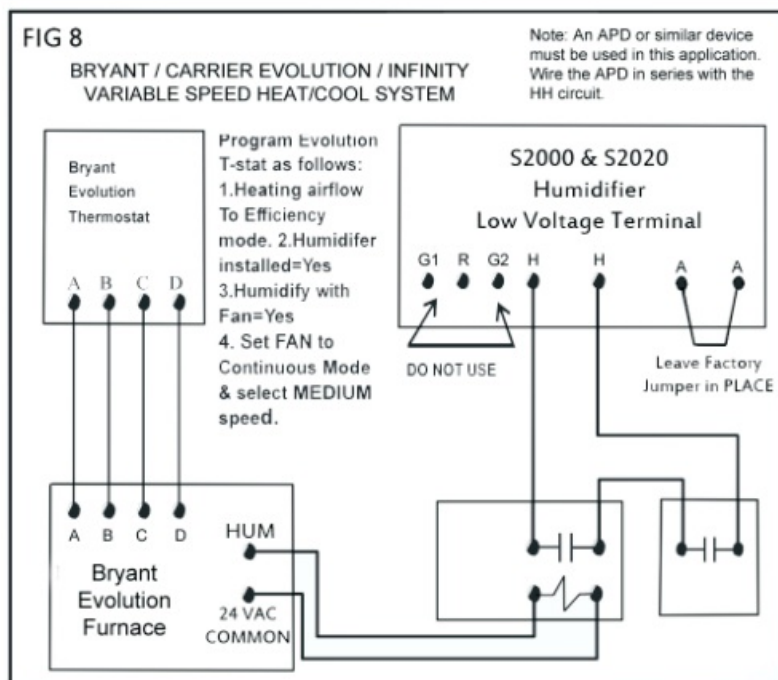
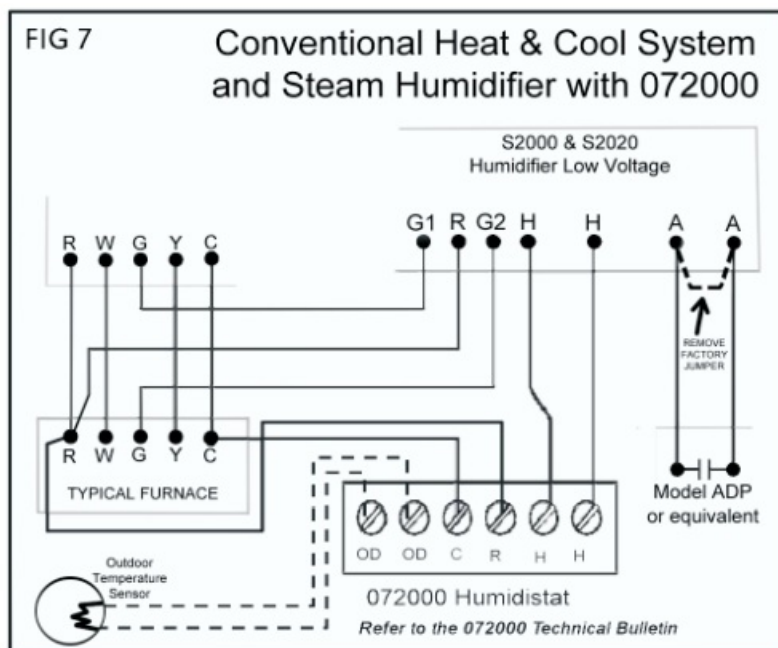
**WARNING:** It is highly recommended to use an airflow proving device. In particular Duct-Board applications should always use an airflow proving device.

A factory jumper wire is provided and must be removed when connecting the safety switch to the field supplied air flow proving device. Leave the jumper in place if you decide not to use the airflow proving feature.

**IMPORTANT NOTE:** If the Steam Humidifier is removed and disconnected from the system, the blower interlock circuit must be restored to its original configuration. Failure to do so may result in loss of blower operation during cooling mode.



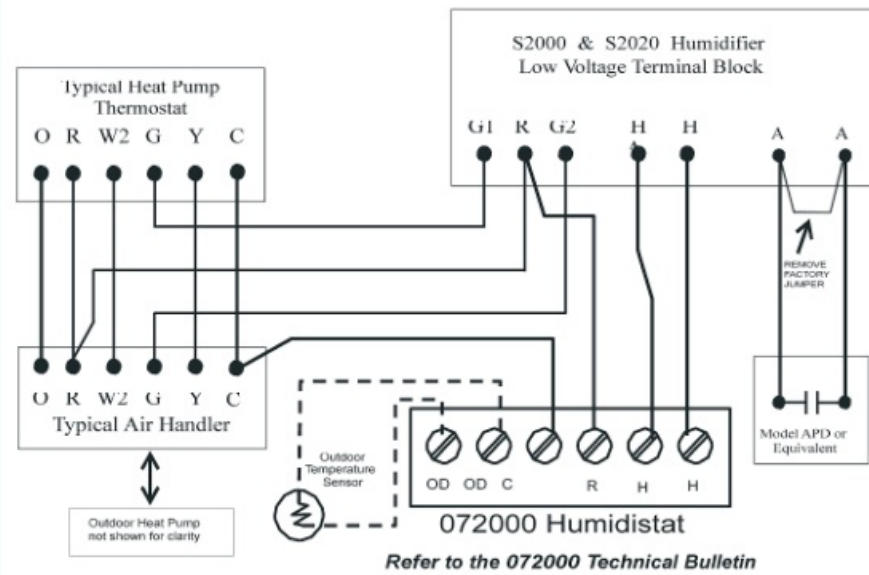




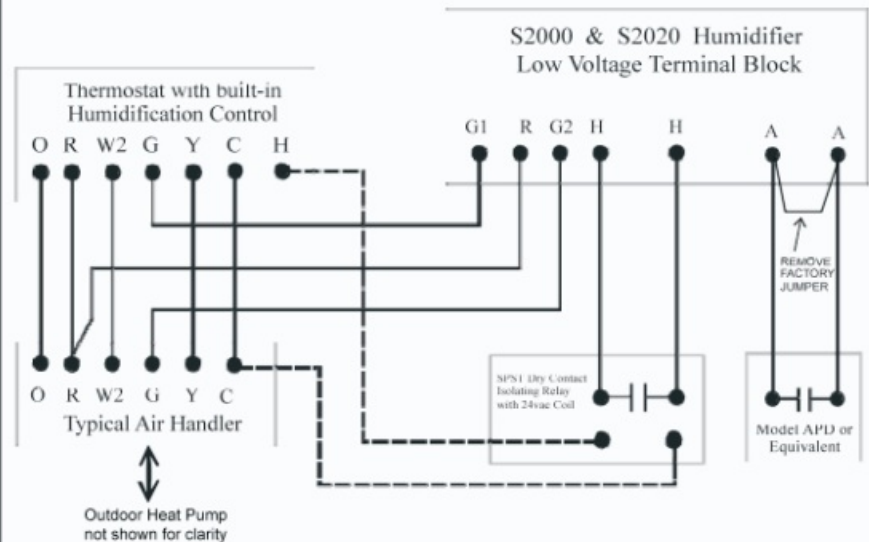
CONTROL WIRING SOLUTIONS FOR VARIOUS HVAC SYSTEMS

Additional diagram shown on page 5

**FIG 9** HEAT PUMP SYSTEM AND STEAM HUMIDIFIER WITH 072000 HUMIDISTAT



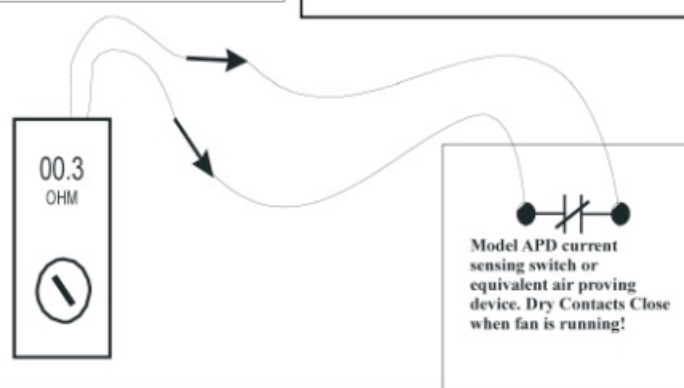
**FIG 10** HEAT PUMP SYSTEM AND STEAM HUMIDIFIER WITH COMBO THERMOSTAT/HUMIDIFIER AND ISOLATING RELAY



**FIG. 11** S2000 & S2020 Humidifier Low Voltage Terminal Block

G1 R G2 H H A A

Disconnect the wires from the "A" terminals, and check the device & circuit with a reliable ohm meter. Check continuity when the fan is off and when is running



The latest improvement to the Field Controls humidifiers is the new “Airflow Interlock Feature” provided on the low voltage terminal block. Due to popular demand we have made it easier for you to achieve failsafe lockout in the event the fan or blower on the HVAC system does not operate when called upon. A high humidity or airflow proving device is necessary.

You must still determine the type of proving device you want to use. We recommend our new Model APD switch, (P/N: 090558A0001). Refer to APD Application Note contained in this manual. But then all you have to do is connect two low voltage wires from your air proving device straight to the Steam Humidifier’s “A” terminals. No additional field relays or components are needed.

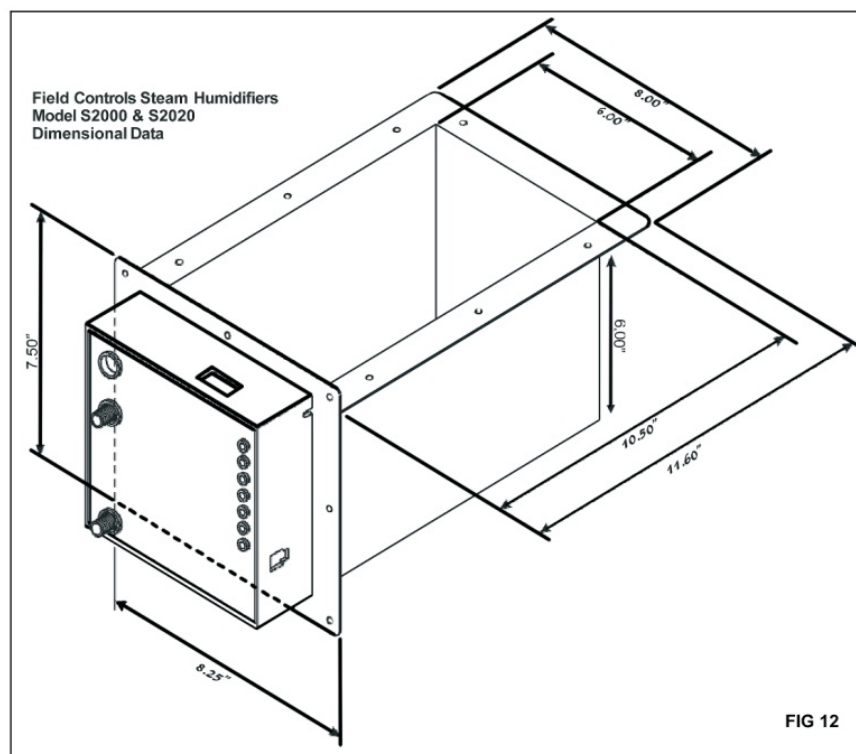
The Steam Humidifier monitors the airflow circuit anytime it is operating the blower on the HVAC system. If the Steam Humidifier detects a loss of airflow longer than 1 minute, it will shutdown the heating element and stop producing steam to avoid saturating the duct.

You must test the air proving device when you install it to make sure it will function properly.

**WARNING:** DO NOT perform this test with the wires connected to the Steam Humidifier. Temporarily disconnect them. Refer to Figure 11.

#### AIR PROVING DEVICE TEST:

1. After installing the air proving device, test for continuity across the normally open contacts with the fan/blower off. You should read infinity (no continuity) when the fan/blower is off.
2. Turn on the fan/blower at the thermostat and test for continuity across the normally open contacts with the fan/blower running. You should now read continuity (a complete circuit) when the fan/blower is running.



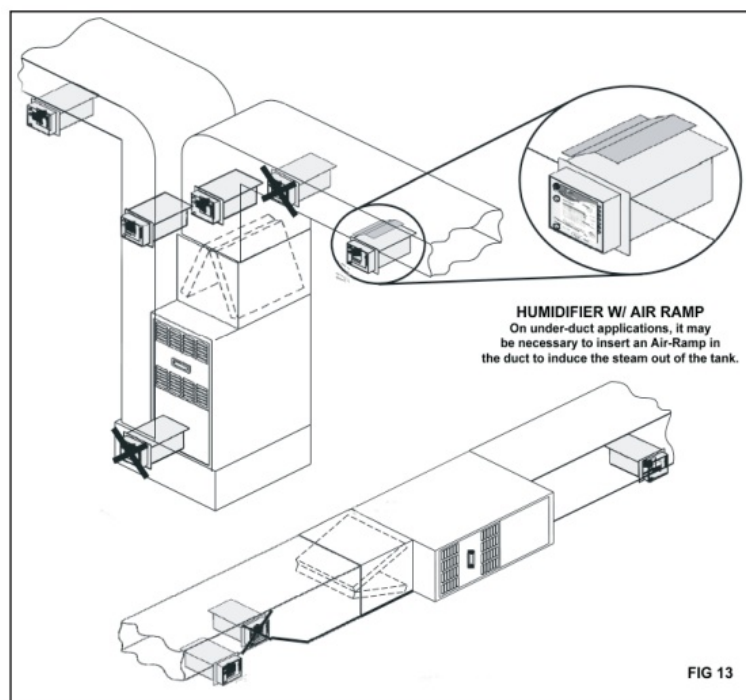
#### 12. HUMIDIFIER MOUNTING LOCATION

Figure 12 reflects the basic dimensions of the S2000 or S2020 Steam Humidifier. This data is useful in determining the room needed to install the unit in a certain location. The data can also be used to determine the minimum duct size the Steam Humidifier can be inserted into. The Steam Humidifier should not obstruct more than 25% of the cross sectional area of the selected duct. For Example: The humidifier tank measures 8 inches wide (including the flange) times the length of 11.6 inches=92.8 square inches. We are only concerned with the obstruction on a flat plane. Which is why the flange is taken into account but not the depth of the tank. This assumes an up-flow configuration. If the configuration is horizontal, then the Steam Humidifier will obstruct

approximately 70 square inches of duct area. The tank flange is no longer a factor.

At 92.8 square inches, the smallest duct plenum that can accommodate the Steam Humidifier mounted internally would be approximately 20" by 19".  $20 \times 19 = 380$  square inches multiplied by .25 = 95 square inches. Steam Humidifier square inches of obstruction = 92.8 square inches. Up-flow configuration. 25 percent of  $20 \times 19$  duct = 95 square inches. Steam Humidifier square inches of obstruction = 69.6 square inches. Horizontal-flow configuration. 25 percent of  $12 \times 24$  duct = 72 square inches.

In either case, avoid installing the Steam Humidifier on any duct size where the unit will consume more than 25% of the cross sectional area of the duct at the point of insertion. Doing so may result in turbulent airflow, lower velocities and condensation inside the duct. Avoid all of these conditions by selecting an "under the duct" location and specify the SC100 decorative tank cover to give it a finished look.



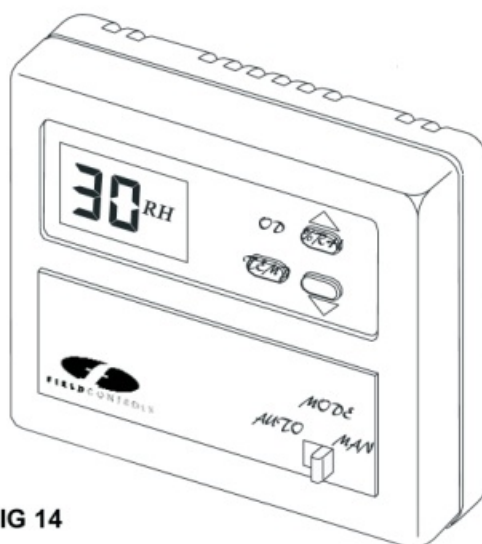
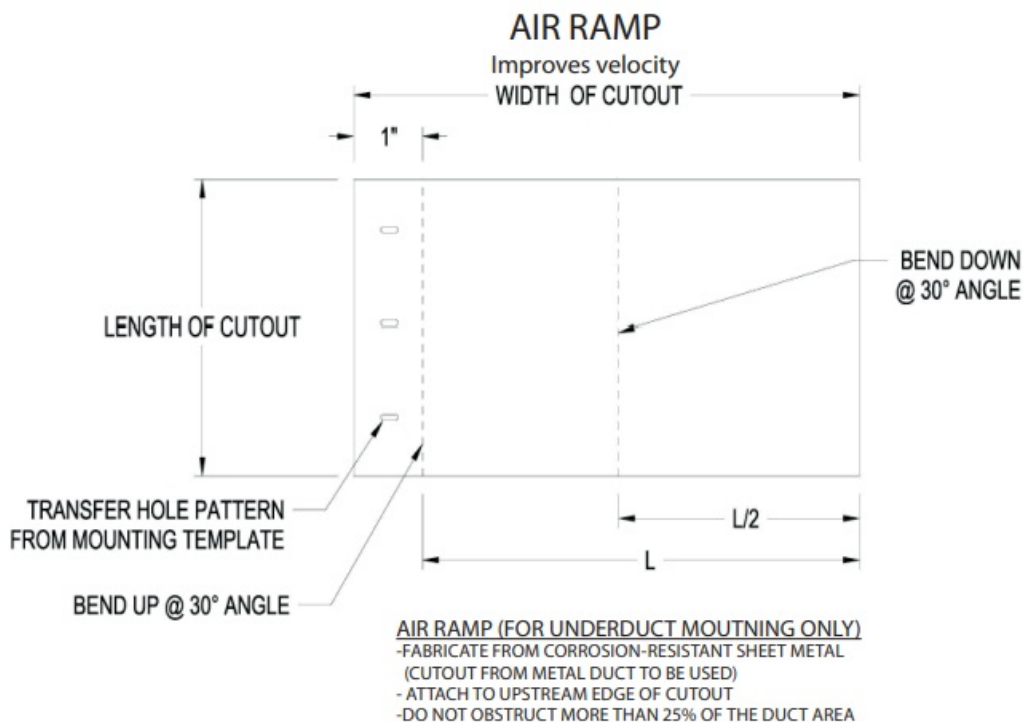
Suitable locations to install your Steam Humidifier on an Up-flow or horizontal HVAC System. Notice that some of the locations are X'd out. These are poor locations for the Steam Humidifier and may result in lower capacity output and/or excessive condensation. Try to avoid mounting the unit within 2 feet of any 90 degree turns. Allow at least 5 inches of clearance above the tank.

The unit should not be installed within 5 feet of an Electronic Air Cleaner, 4-5 inch thick Media filters, or a UV Lamp.

**Caution:** UV lamps may destroy certain plastics/rubber unless shielding is applied to those surfaces.

DO NOT install the Steam Humidifier on a Down-flow HVAC system. Avoid Fiberglass Duct-Board as it cannot support the weight of the Steam unit when full of water. DO NOT install the Steam Humidifier in an attic or crawl space exposed to freezing temperatures.

Remember to insulate the water reservoir with supplied insulation. under extreme velocities it may be necessary to double wrap the tank and/or the tank flange to prevent excessive heat loss. Also remember to use gasket material on duct opening to prevent metal to metal heat loss and to prevent against condensation and air leakage.



**FIG 14**

Installation instructions for the 072000 model

Humidistat are packaged with the 072000.

Your humidifier may include Model 062000 Humidistat.

Installation instructions for the 062000 model are packaged with the 062000.

There are many ways to wire and control a humidifier. Refer to the wiring diagrams on pages 5, 6 and 9.

### 13. **SETTING THE HUMIDISTAT**

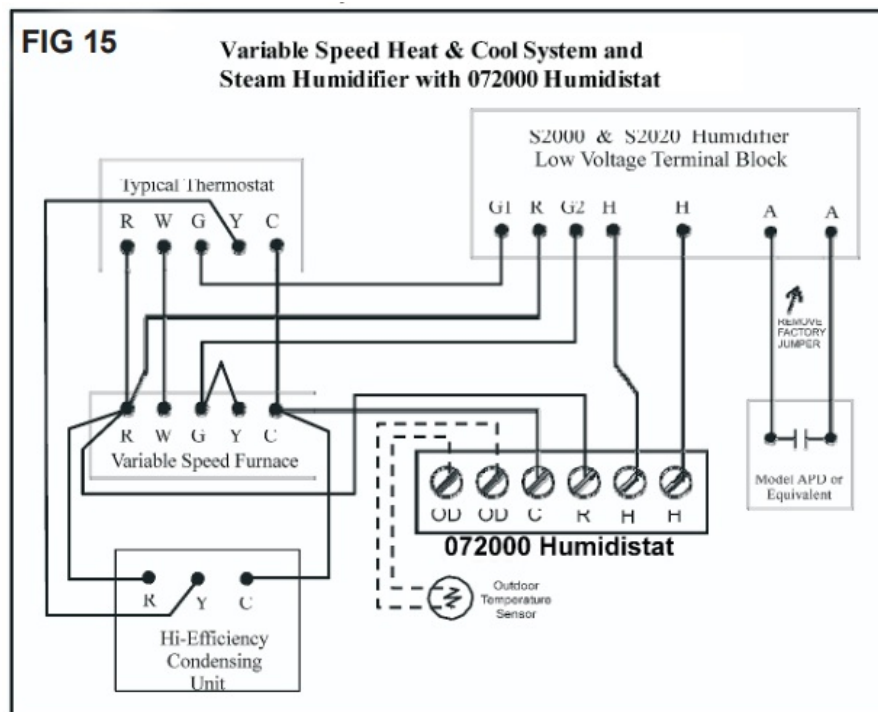
It is recommended that humidistat settings of 30-45% not be exceeded. If condensation is noticed on windows during very cold outside temperatures, the humidistat setting should be lowered.

The maximum recommended relative humidity for your home depends upon many factors such as outdoor air temperature, type and placement of insulation, vapor barriers, effectiveness of weather stripping, type of windows and doors (including frames and jambs) and whether or not storm windows and doors are used. With all these variables it is nearly impossible to recommend a proper humidity setting. The best humidistat setting is one that you are most comfortable with. Also, as the outdoor temperature fluctuates, it may be necessary to adjust the humidity level of your system a few times during the heating season.

Refer to the "Relative Humidity Chart" as a starting point for your proper humidistat setting. Generally, in a tighter and better insulated house, the humidistat may be set higher than in a drafty, un-insulated house.

**IMPORTANT:** If the humidifier is installed in the return air plenum the humidistat must be located at least five (5) feet upstream from the humidifier. Fan should be operated in continuous mode when the humidistat is mounted in the return air plenum. Mounting the humidistat on an interior wall is always preferable to mounting on the return duct. But mounting the humidistat on an interior wall takes more time, material and labor than a return duct location. Sometimes it may be impossible to mount a humidistat on an interior wall and the return duct location is the only solution.

#### Variable Speed WIRING DIAGRAM



#### RELATIVE HUMIDITY CHART

Outside Dry Bulb Temperature	Recommended Indoor Relative Humidity Setting
0 Deg F	15%
10 Deg F	20%
20 Deg F	25%
30 Deg F	35%

#### 14. VARIABLE SPEED

The diagram above should be followed if it is required to operate the fan system at high speed during the humidify operation. Such a requirement may be necessary if condensation occurs inside the duct-work due to the lower velocities of a variable speed system when only the fan is running.



The “Y” circuit must be wired exactly as shown to achieve the correct operation. This wiring configuration may result in the loss of the “enhanced” latent effect operations of your variable speed HVAC system. If you do not want this to happen, you should consider installing a different type of whole house humidifier that does not require dominance over the HVAC fan and full CFM capacities while operating. Variations on this diagram are available. Contact Field Controls Technical Support Hotline.

#### **INITIAL START-UP SEQUENCE OF OPERATION SERVICE “LED” INDICATORS**

##### **15. START-UP & OPERATING SEQUENCE**

Once the Steam Humidifier has been installed and the water, drain, humidistat and blower interlock connections completed, the humidifier may be started.

A. Disconnect the water line. Turn on the water supply and flush the line into a bucket. Reconnect the water line.

B. Set the humidistat to a setting higher than the room RH level.

C. Plug the S2000 Humidifier line cord into a 120 VAC, 20 amp source. (240VAC, 15amp for S2020).

D. The Green “POWER” LED should blink rapidly and the drain valve will open momentarily upon initial startup. The “FILL” LED will illuminate and water should begin to fill the Water Pan. The Power LED will now blink slowly.

E. When the water has reached the probe level the “FILL” lamp and fill valve will be turned off, and the “HEATER” LED and heater element will be turned on. The “POWER” LED will blink slow and steady.

F. Once the water reaches 170 deg. F. the “BLOWER” LED will illuminate and the system blower should start up.

G. If the above steps have been successfully completed, the humidifier is operating properly.

##### **16. SERVICE “LED” INDICATORS**

A. POWER: In normal standby mode, when the humidistat is not calling for humidity and the power cord is plugged in, the “POWER” LED should be blinking slowly. If the green “POWER” LED is not flashing when there is power to the unit, the CPU and/or circuit board may have failed.

B. FILL: When the humidistat closes, on a call for humidity, the “FILL” LED is illuminated, the Solenoid Valve is open and the water reservoir is filling.

C. HEATER: When the water reaches its proper level the valve closes, the “FILL” LED goes out, the “HEATER” LED is illuminated, and the Heater begins to heat the water.

**NOTE:** If the humidifier is unplugged while in steaming operation and then plugged back in, a rapid flashing of the “POWER” LED will occur and all other functions will stop! The unit wants to perform a water probe test, but cannot perform this test until the water cools down. Simply wait until the unit cools down and it will resume normal operations. To accelerate a cool down, simply turn the HVAC system fan on via the thermostat.

**D. BLOWER:** When the water in the reservoir reaches approximately 170 deg. F. the “BLOWER” LED will be illuminated and the interlock wiring should turn the system blower on. Depending upon the water and ambient temperatures, it may take anywhere from four to twelve minutes for the water to heat to 170 deg. F. If the humidistat remains closed the “HEATER” and “BLOWER” LED’s will both be illuminated at the same time and the “POWER” LED will be blinking slowly.

**E. The “FILL” LED** will illuminate and the water reservoir will refill at irregular intervals, depending on the boil off rate. The “HEATER” LED should remain illuminated unless the humidistat opens or the humidifier enters a drain cycle or failure mode.

**F. DRAIN:** This LED will be illuminated when the microprocessor cycles the humidifier into a Maintenance Mode. After a fan forced cool down period, the water is allowed to drain at 140 degrees F. The drain valve will then close and the fill valve will open to refill the reservoir and resume normal operation.

This mode will last about one hour and the micro processor will automatically restart the unit after wards, if there is a call for humidity. This drain cycle will occur once every 8-12hours, to reduce the mineral concentration in the tank and let the heater cool- down. That will shed most deposits that have built up on the heater.

**NOTE:** The “POWER” LED will blink rapidly during Maintenance mode.

**NOTE:** A unique feature of the “S” series humidifiers is called “Fill on Request”. The unit will not refill with water after a maintenance cycle, unless there is a demand for humidity from the humidistat. This ensures that the unit will not sit idle with standing water, which can stagnate over time.

#### **G. FAILURE LED’S:**

When service is required, these LED’s will illuminate. If the humidifier enters a failure mode, it must be manually re set by disconnecting the power and then reconnecting it. If the “Air” failure LED occurs, simply turn the Humidistat off or down then back up again to reset.

#### **WATER:**

This will occur when the reservoir is not filling up with water, not filling fast enough or the microprocessor cannot recognize that the water is touching the probe. Reverse Osmosis water or purified (distilled/deionized) water sources should be avoided, unless the final feed water measures at least 25 ppm conductivity.

#### **HEATER:**

This will occur if the humidifier is notboiling off water during the “HEATER” cycle. Water in the reservoir is not reaching 170 deg. F. temperature, or the unit has not detected a request for water in a 50 minute steaming time period. Both red LED’s will illuminate in this condition.

#### **AIR:**

This will occur if the humidifier detects a loss of air flow for more than 4 minutes. A field supplied air proving device must be installed, wired and tested.

#### **THERMISTOR:**

This will occur if a short or open is detected in the temperature probe.

### **17. MAINTENANCE/SPRING SHUTDOWN**

Proper maintenance and removal of mineral deposits is still required on your steam humidifier in order to optimize performance. Annual cleaning is a must and more frequent cleaning may be necessary depending on the mineral content.

A post winter cleaning and shutdown, will prevent hard deposits from accumulating inside the bin, while the humidifier is idle over the summer. Do not allow the unit to sit idle for long periods without proper cleaning and shutdown. Failure to do so will affect the performance of your system.

Maintenance and inspection of the unit requires removal of the humidifier from the duct. This can be done following these steps.

- A. Unplug the power cord from the 120 volt source for S2000 (240 volt for S2020) and allow the water to cool for at least 30 minutes prior to removal.
- B. Turn off the water supply at the saddle tapping valve.
- C. Remove the cable assembly wire plug from the top of the plastic control housing
- D. Drain the water with the manual drain valve. NOTE: The drain valve will be hot if the humidifier has not been allowed to cool.
- E. Disconnect the water and drain lines. NOTE: Some water may drain out of the water line. Have a small container ready to catch the water.

**NOTE:** Although the water has been drained, some water may still remain in the humidifier reservoir along with



sediment. Be careful not to tip the unit over when removing it from the duct.

Remove the eight (8) screws from the front mounting plate.

F. Slide the humidifier out of the duct.

G. Remove the two (2) screws holding the tank baffle to the pan flange and remove the baffle from the unit. Scrape all mineral deposits from the baffle and wash baffle off as described in step J. Remove the Anode from the baffle plate and purchase a new one. Operating the unit without the Anode will degrade the performance and increase maintenance.

H. Use a putty knife to scrape the minerals from the sides and bottom of the water reservoir. DO NOT scrape on the small temperature probe, or the heater element. Use a soft Emory cloth or stiffnylon brush. If necessary, fill the tank with vinegar and let it sit for several hours or even over-night allowing the scale to soften and making it easier to remove.

I. Carefully scrape the Water Level Probe to remove mineral deposits. Use soft Emory cloth if necessary

J. Clean with water probe insulator, inside the pan, with 50 50 mixture of water and vinegar, rinse with fresh water, Inspect for any material deposits on the plastic insulator. Repeat cleaning if necessary and thoroughly dry. Use a small nylon brush to clean deposits off the heater element and thermistor probe. Be careful not to damage any of the components.

K. Rinse out the reservoir. Be careful to keep water off of the wiring compartment and the front cover of the humidifier. Allowing the unit to dry thoroughly before using.

L. Re-install the tank baffle and tighten the two (2) screws.

M. Re-install the unit in the duct and connect the water lineand the drain lines. Store the unit in this condition for the summer, or continue to the next step.

#### **START –UP**

N. Turn on the water supply. Inspect the water connections and drain fittings for leaks.

O. Turn on the water supply. Inspect the water connections and drain fittings for leaks.


1. The green POWER light should blink rapidly until it detects a demand to humidify, then it will blink slowly.

2. If the humidistat is calling for humidity the water valve will energize and the water pan will fill with water.

3. The Heater element will energize to heat the water, and the Fan will start up to distribute the moisture.

#### **18. SERVICE INDICATORS**

Nine LED lamps provided on the front panel indicate the functional status of the humidifier as shown in Figure 16 below.



**FIELD CONTROLS**  
**Steam Humidifier**

## Model S2000

Function	LED Light	Explanation
Power	●	On when blinking slowly
Thermistor	●	Thermistor error
Heater/Air	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">●</div> <div style="text-align: center;">●</div> </div>	Both LEDs on - Heater error Both LEDs flashing - Air flow error
Water	●	Water error
Blower	○	Blower on while pan above 170° F
Heater	○	Heating / Boiling
Fill	○	Filling pan
Drain	○	Draining pan

**POWER**

**THERMISTOR**

**HEATER/AIR**

**WATER**


  


**BLOWER**

**HEATER**

**FILL**

**DRAIN**



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**1.800.742.8368**

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Kinston, NC

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FIG 16

A. The green "Power" light does not blink off and on.

1. The S2000 is not connected to an active 120 VAC 15 Amp power source. (S2020, 240 VAC, 10 AMP).
2. Call the Technical Support Hotline.

B. The "HEATER" LED does not illuminate.

1. The humidistat is not closed, calling for humidity or the humidistat is wired incorrectly.
2. The unit is in the maintenance cycle.

C. The HVAC Blower will not operate, but the "Blower" LED is on.

1. The blower "Field" wiring and/or interlock circuitry is incorrect.
2. The HVAC electric power is disconnected.
3. The humidifier internal "Blower" relay is defective. Call the Technical Support Hotline.
4. The HVAC Blower motor has failed.

D. The HVAC Blower will not operate and the "Blower" LED is not on.

The water pan temperature has not reached a high enough temperature to activate the "Blower" relay, about 170 degrees Fahrenheit. This takes several minutes after the "HEATER" LED is illuminated. Depending on the water temperature and the surrounding condition, this may take up to 12 minutes. If the problem continues, the heater

element may be defective or the thermistor temperature probe may be defective. Contact the Technical Support Hotline.

E. Red Service Light (error #1) is on constantly.

**THERMISTOR FAILURE** ...This is an indication that the temperature probe is open or shorted to ground. May also indicate the probe has detected a pan temperature below 32 degrees F. Or in excess of 230 degrees F., resulting in a total shutdown. Try to reset the unit by unplugging the cord and Reconnecting, or call Technical Support.

F. Red Service Light (error #2) is on constantly.

**WATER FAILURE** ...This is an indication that the water fill time has been exceeded. The water level did not reach the probe tip in the given amount of time. It may also indicate an unsuccessful drain cycle.

1. The water line is shut off at the saddle valve.
2. The water line is crimped or pinched.
3. The water valve inlet screen is plugged. Remove the water line from the unit and check the screen found inside the inlet side of the valve.
4. Unit is connected to a water source which is distilled, over-filtered, de-mineralized, or from a reverse osmosis system. Minimum 25 ppm water conductivity is required. \*The unit supply water must contain dissolved solids in the water, or the processor will not be able to detect the water level.
5. The water valve may be defective and must be replaced. See replacement parts.
6. The drain valve is unplugged or defective.
7. Debris is clogging the drain valve or drain line.
8. Reset the unit by unplugging the power cord and reconnecting.

G. Both Red Service Lights (error #3) are on constantly.

**HEATER FAILURE**...This is an indication that the water temperature is not increasing or reaching the boiling point.

1. Faulty heater element or faulty wire connection.
2. This can happen if the unit is operated without water in the pan as a result of a water level probe malfunction, due to lack of maintenance. The pan boils dry and overheats the water pan. If this condition occurs, call the Technical Support Hotline.
3. The unit has operated for 45-50 minutes without a request for water, due to a leaking water fill valve, which is filling the tank continuously.
4. Check drain solenoid valve for leaking around valve seat. Clean valve by flushing or replace solenoid valve.

H. Both Red Service Lights (error #4) are flashing.

**AIRFLOW FAILURE**... This is an indication that the system blower is not running or the blower/fan proving device has failed, is malfunctioning, or is not wired correctly. Check the blower motor and the interlock wiring.

Refer to page 4, Figure 11.

I. If the humidifier seems to operate in a random manner that doesn't seem to fit any of the pre-described conditions, check the following:

1. Check to make sure that the wires used to connect the humidifier to the humidistat are separate wires and not part of a multi-wire bundle used to hook up the furnace thermostat or any other device. The associated close wires may create an induced voltage in the humidistat wiring.
2. Make sure that the water level probe and plastic insulator are clean and free of mineral build-up. It may become electrically conductive to ground, sensing a false indication that the water level is correct.
3. If the electric solenoid valve makes a loud noise when it closes, install an optional water hammer arrester to absorb the spike. Frequent or erratic water fill cycles can be due to air turbulence, when mounted in the supply

air plenum.

4. The water probe uses the natural conductivity of the water, to determine the proper water level in the reservoir. Water that has been de-mineralized or over filtered may not allow the unit to function properly. Minimum 25 ppm of total dissolved solids must be present in the water.

Add approximately 1 tablespoon of salt to the tank, to temporarily fix this problem.

5. These steam humidifiers must be connected to dedicated outlets of the proper current and voltage ratings. The use of extension cords is not recommended. DO NOT cut off the grounded plug and/or hard wire this humidifier to line voltage. This will void the warranty.

Item	S2000 Part #	S2020 Part #	Description of Part	Optional
1	094021A0201		120 VOLT HEATER ASSEMBLY	
1		094021A0202	240 VOLT HEATER ASSEMBLY	
2	094021A0203	094021A0203	24 VOLT HEATER ASSEMBLY	
3	094021A0205	094021A0205	THERMISTOR PROBE ASSEMBLY	
4	094021A0204	094021A0204	WATER LEVEL PROBE ASSEMBLY	
5	094021A0206	094021A0207	CIRCUIT BOARD ASSEMBLY	
6	094021A0208	094021A0208	DRAIN VALVE ASSEMBLY	
7	094021A0209	094021A0209	TANK Baffle	
8	094021A0210	094021A0210	INSULATION KIT (not shown)	
9	090478A0001	090478A0001	WATER HAMMER ARRESTER (not shown)	X
10	094021A0211	094021A0211	ANODE	
11	094021A0156	094021A0156	UNDER DUCT STEAM COVER (not shown)	X
12	090558A0001	090558A0001	AIRFLOW PROVING DEVICE (not shown)	X
13	46617003	46617003	THERMAL CUTOFF (AFTER 8/2015)	
14	094021A1122	094021A1122	WATER CONDITIONING SYSTEM	X
15	094021A2040	094021A2040	INSIDE DUCT MOUNTING BRACKET	X
16	094021A2041	094021A2041	UNDER DUCT MOUNTING BRACKET	X
17	094021A0001	094021A0001	DIGITAL HUMIDISTAT	X
18	46617001	46617001	THERMAL CUT-OFF (PRIOR TO 7/2015)	

## SERVICE AND REPLACEMENT PARTS

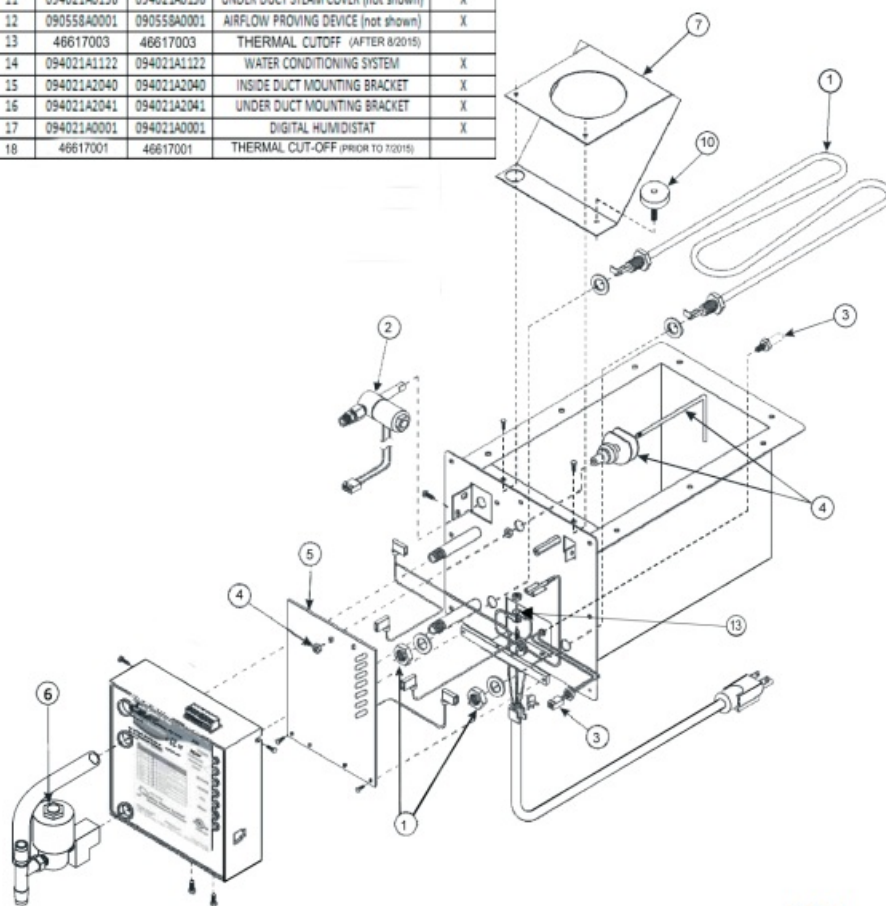
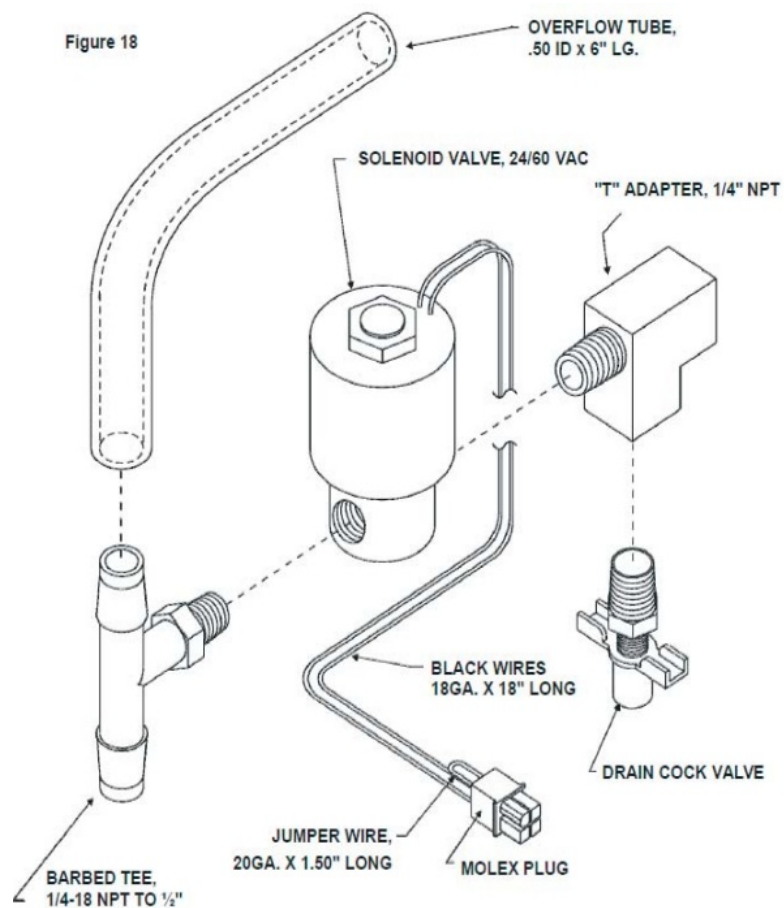
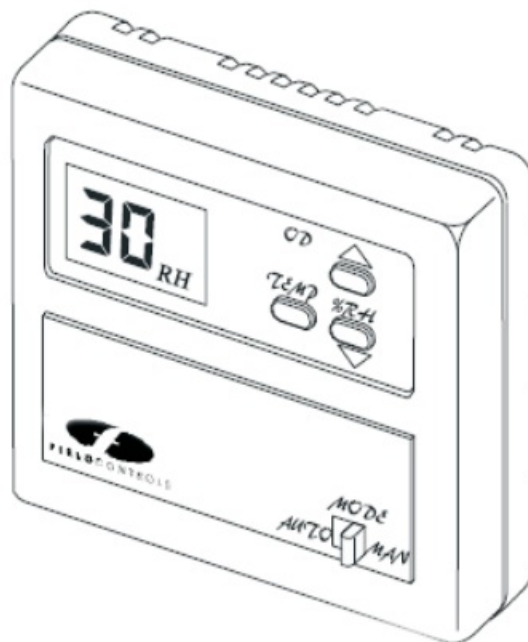


FIG 17



## Field Controls Model 07200 – Smart Digital Humidistat

Your new Steam Humidifier may include this control. The instructions are included! Please refer to this Bulletin.



### Package includes:

- 1 #072000 Smart Humidistat
- 1 Foam Gasket
- 1 Mounting Template
- 1 Technical Bulletin #TB213
- 2 Mounting screws

2 Wall anchors  
1 #OAS outside Air Sensor

## General Description

The 072000 is a digital humidifier control that can automatically adjust the indoor humidity set point as the outside air temperature changes. This intelligent control will maintain accurate humidity levels and a more comfortable indoor environment.

The actual indoor relative humidity is always on the LCD screen. When the up or down keys are pressed, the humidity set point is displayed and can be adjusted using the up or down arrow keys.

An outdoor temperature sensor is included, and must be connected in order to fully utilize the features of the 072000. The outdoor temperature sensor allows the humidistat to automatically adjust the humidity set point, to avoid condensation on windows. It is also a convenient way to read the outdoor air temperature at any time.

The outdoor sensor is not required to use the Humidistat in the basic or manual mode.

The 072000 operates on 24VAC, and has a set of isolated dry contacts for activating the humidifier. Terminals are also provided for the Outdoor Air Temperature Sensor. (Part# OAS)

The 072000 can be installed on the Return air duct or, it can be installed on an interior wall within the conditioned space. Field Controls recommends an interior wall installation.

**NOTE:** If the return air duct is chosen as the location, the HVAC fan should be set to run continuously, in order to obtain an accurate sampling of the actual living space relative humidity condition.

## APPLICATION NOTE

### Model OAS

### (OUTSIDE Air Sensor)

**The OAS comes standard with the 072000 Smart Digital Humidity Control. Refer to the 072000 Technical Bulletin for the specific Outside Air Features & Functions provided.**

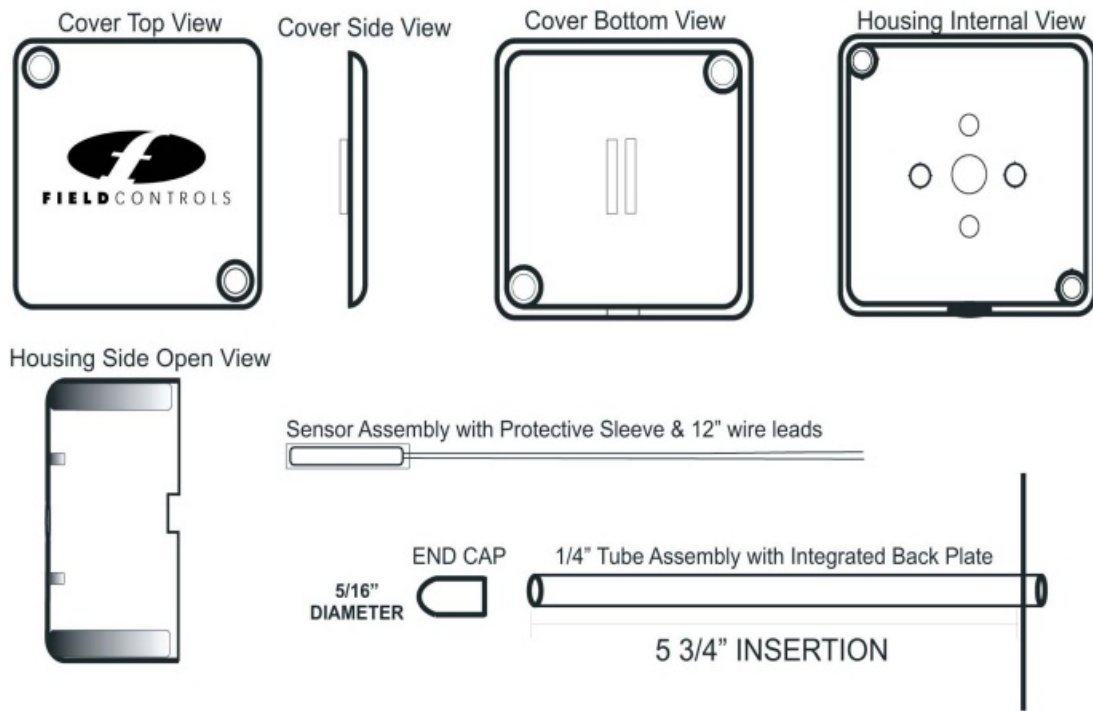
The OAS is a versatile device because it can be mounted on an outside wall or an outside air duct. See Page 2 & 3. Make sure the OAS is mounted completely outside of the house, on the North, East, or West side of the building.

Avoid direct sunlight. Do not mount the OAS low to the ground where snow can cover it. Do not mount the OAS close to exhaust vents of any type. Use a dedicated 2 conductor 18AWG solid copper jacketed thermostat cable to connect the OAS to the Smart Humidistat. Avoid running cable in close proximity to line voltage circuits, or inside a conduit with other circuits. Avoid wire runs in excess of 100 ft.

The Sensor wiring is not polarity sensitive. OAS equipped panels have a designated terminal block for the OAS.

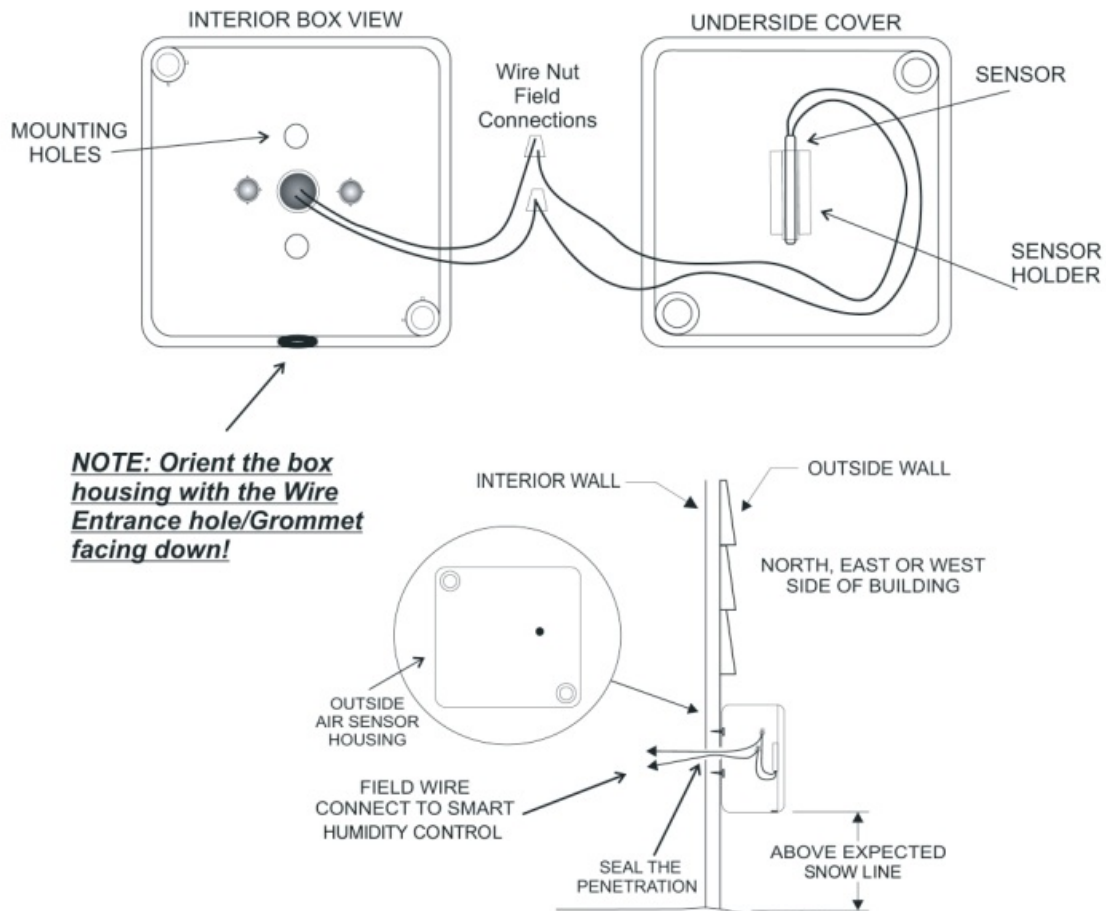
Be sure to enable the OAS Dip switch. Now dial in the Outside Air Changeover setting you desire. Dual fuel Heat Pumps and Multi-Stage heating systems can be controlled without the need for bulky mechanical outside air thermostats or expensive dual fuel kits. To test an OAS disconnect the wire leads from the control panel and remove it from the duct. At room temperature (75F.) the ohm reading on an OAS will be approximately 10.5K ohms (10,500 ohms). Or leave the OAS where it is and place a separate temperature probe of known accuracy in the same location as the OAS and measure the OAS resistance against the table provided on page 4. You should measure a value within 5% of the table value and the separate temperature probe reading.

## MAJOR PARTS INCLUDED IN THE "OAS" OUTSIDE AIR SENSOR ASSEMBLY



### Model OAS (OUTSIDE Air Sensor)

Choose a suitable location to mount the OAS. The OAS can be configured to mount on an outside air duct or an outside wall. If mounting on a wall, simply fasten the box to the outside wall using the two 1/4" hex head self-tapping screws and wall anchors provided. The box should cover the hole penetration made in the wall. Now route 2x18AWG field wire through the center hole and into the box. Press the sensor into the brackets on the underside of the front cover. Use the provided wire nuts to connect to the SAS sensor wires. Place the cover back on and secure it. Connect the #18AWG field wires to the correct terminals on your Field Controls control panel. The 1/4" bracketed tube and rubber end cap are not used in this configuration.

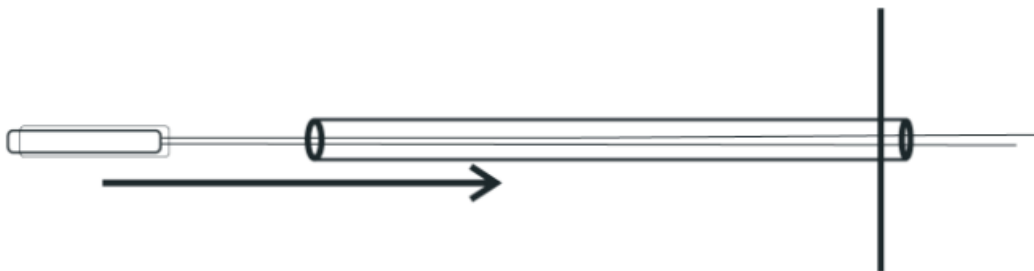


### Model OAS (OUTSIDE Air Sensor)

Choose a suitable location to mount the OAS. The OAS can be configured to mount on an outside air duct or an outside wall. If mounting on a duct, make sure there are no critical components behind the duct and drill a 3/8" hole into the duct. Assemble the components as shown below to allow the sensor to sense outside air moving through the duct. Now fasten the box to the duct using the two 1/4" hex head self tapping screws provided. Route 2x18AWG field wire through the wire entrance grommet and into the box. Use the provided wire nuts to connect to the OAS sensor wires. Place the cover back on and secure it. Connect the #18AWG field wires to the correct terminals on your field controls control panel.

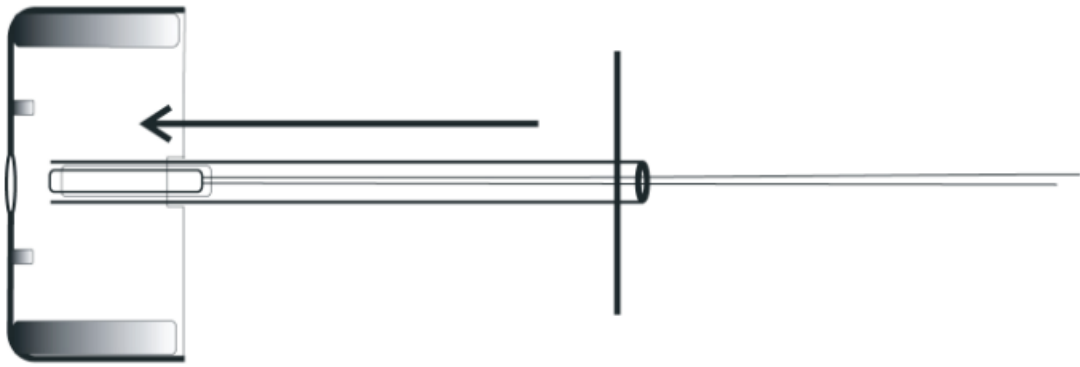
**NOTE:** Choose your sensor location and configuration carefully. Sensing Outside Air Temperature in a duct can lead to inaccurate readings if the air is not actually moving through the duct.

1. Pull the sensor assembly into the tube assembly as shown until the tip of the sensor is even with the end of the tube.

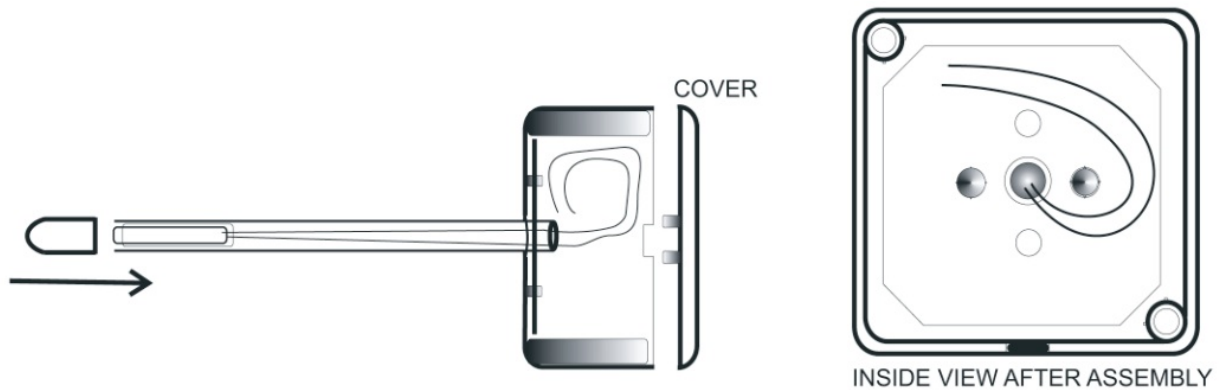


2. Slide the tube assembly through the center hole of the box all the way and press the bracket down onto the alignment posts.



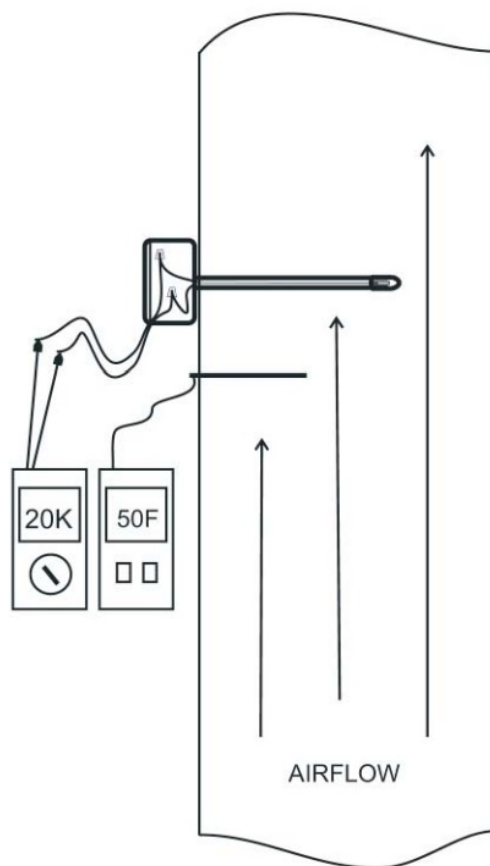


3. Slide the rubber tip onto the end of the tube. You may now mount the assembly to the duct!



The "OAS" is constructed of UV stabilized Poly Carbonate Plastic with seamless aluminum tubing frame and highly accurate thermistor with 24AWG 12" leads. The unique construction provides a thermal barrier between the temperature probe and the duct work allowing precise air temperature measurements.

To test OAS, disconnect the wire leads from the control panel and remove it from the duct. At room temperature (75°F.) The ohm reading on an OAS will be approximately 10.5K ohms (10,500 ohms). Or leave the OAS where it is and place a separate temperature probe of known accuracy in the same location as the OAS and measure the OAS resistance against the table provided below. You should measure a value within 5% of the table value and the separate probe reading.



TEMPERATURE (F)	RESISTANCE/OHMS	TEMPERATURE (F)	RESISTANCE/OHMS
-5	100184	50	19903
0	85340	55	17438
5	72906	60	15313
10	62460	65	13475
15	53658	70	11884
20	46220	75	10501
25	39917	80	9298
30	34562	85	8249
35	30000	90	7333
40	26104	95	6530
45	22767	100	5826

#### APPLICATION NOTE

##### Z100 ASSEMBLY (P/N: 094021A0211)

##### Anode Installation Instructions

The Field Controls Steam Humidifier now comes equipped with a factory installed Z100, which acts as a sacrificial metal. Put simply, minerals in the water will attack and cling to the Z100. The minerals will not attack the other components inside the humidifier as long as the Z100 is present and active.

This results in a dramatic decrease in mineral and scale build up on the critical components inside the tank. In particular, it means less scale build up on the heating element which is subject to damage from excessive scaling and overheating. This also means that efficiency stays high and preventive maintenance is faster and easier.

The Z100 is positioned on the baffle plate inside the tank and is easily removed and replaced. Remember that the Z100's job is to become the target of mineral attack, so it will be heavily covered with scale and should be replaced annually for best results.

To remove the Z100 you must have already unplugged and shutdown your steam humidifier and allowed it to cool. The water tank has been drained, the water supply, drain lines and electrical wiring have been disconnected and the unit has been removed from the duct.

Refer to the blow up view on Page 11. Using a Philips screwdriver, remove the two screws that hold the baffle plate to the tank. Lift the baffle slightly back to clear the water probe and then straight up and out of the tank. You can then see the round Z100, or rather what is left of it after a single season. Notice the heavy scale build up on the Z100 that would have been on your element, if the Z100 was not there. Use a rag or pliers to grasp the edges of the Z100 and simply unscrew it from the baffle plate. Rinse off or wipe away any residual scale from the baffle plate and install a new Z100. Leave a slight gap between the bottom of the Z100 and the baffle plate. Now re-insert the baffle plate into the tank and secure with the two screws that were removed previously. It's that simple.

The Z100 can also benefit the older model steam humidifiers. Simply lay the Z100 down into the baffle plate in the same location as the factory installed model. DO NOT lay the Z100 down into the main tank. It may come in contact with the heating element and damage it. The dimensions of the baffle plate prevent the Z100 from falling down into the tank.

## APPLICATION NOTE

### Decorative Cover

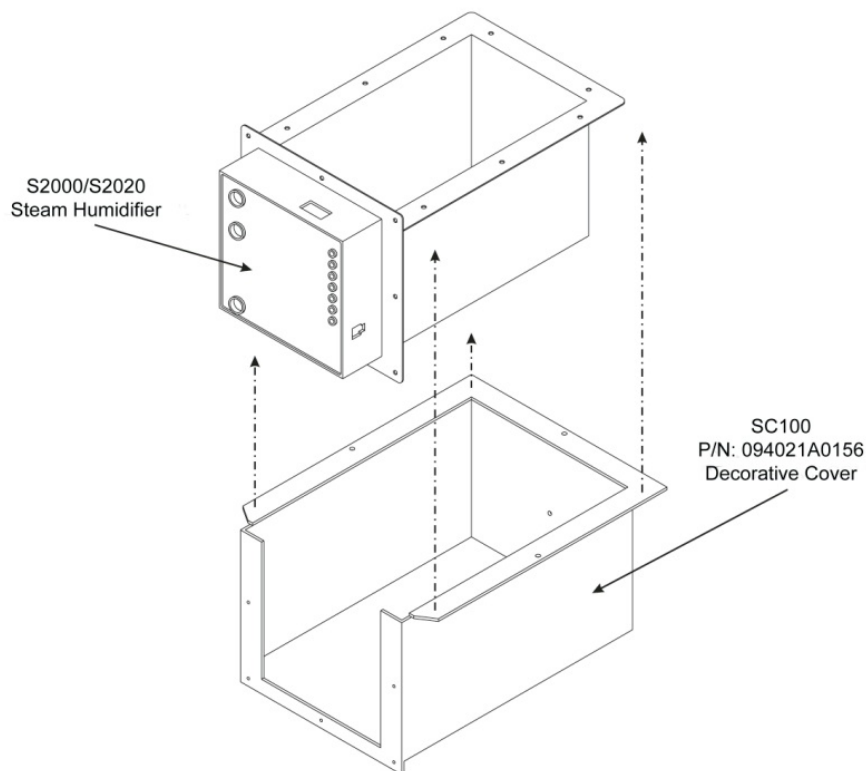
SC100 (P/N: 094021A0156)

Supplement to the Electronic Steam Power Humidifier

Model # S2000 and S2020

The Field Controls Steam Humidifier can be equipped with a field installed Decorative and Protective Cover for Under the Duct Installations only. The SC100 provides a protective shell around the exposed insulated tank and provides a visually pleasing finish to the installation.

The SC100 decorative cover is available as an installation add-on option for the steam humidifier. Contact your local Field Controls Contractor (installer) for purchase.



## APPLICATION NOTE

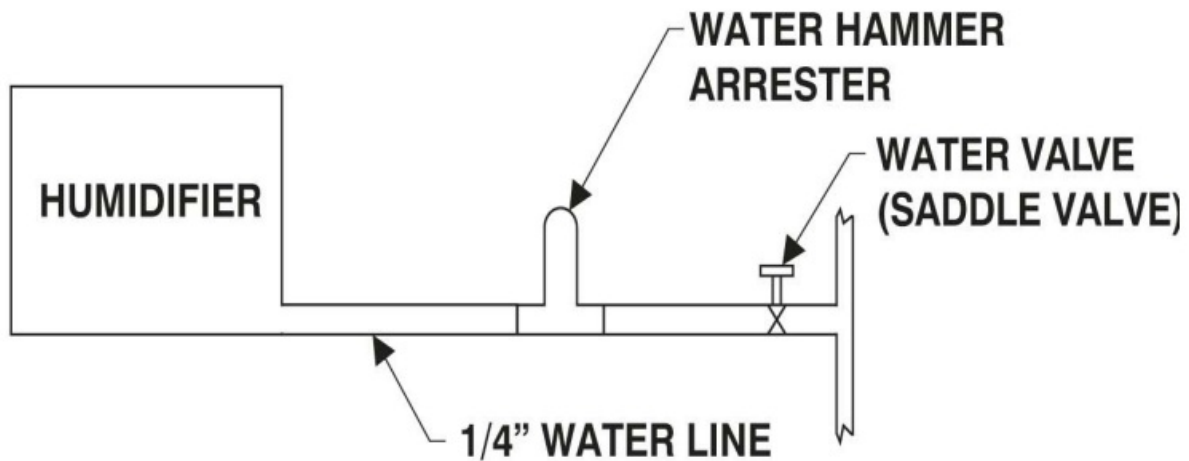
Model #WH-100 (P/N: 090478A0001)

Water Hammer Arrestor

Installation Instructions

**Parts List:**

- \* Water Hammer Arrestor #WH 100
- \* 2 – 1/4" brass compression nuts
- \* 2 – 1/4" brass ferrules
- \* 2 – 1/4" plastic ferrules



**Required tools and materials:**

- \* Adjustable wrenches
- \* Tubing cutter

Water Hammer is the term used to define the pounding noise or vibration that occurs in a water line, due to the fast closing action of electric solenoid valves or similar water flow control devices. Installation of a water hammer arrester will cure this problem and allow your humidifier to work quietly and efficiently.

1. Identify a suitable location to install the arrester.
2. The preferred location of the arrester is on a horizontal or vertical section of the 1/4" water line close to the humidifier. Approximately 6-12 inches from the connection to the humidifier.
3. Unplug the humidifier, and turn off the water supply to the humidifier.
4. Cut the water line, 1/4" copper or plastic tubing.
5. Slide the 1/4" brass nuts and ferrules onto each end of the water line.
6. Use the plastic ferrules if installing the arrester onto plastic tubing.
7. **CAUTION:** provide support for plastic water lines which cannot handle the weight of the water hammer arrester.
8. Install the water hammer arrester and tighten the connections. DO NOT OVER TIGHTEN.
9. Turn on water supply, and plug the humidifier back in.
10. Inspect for water leaks and observe humidifier operation.
11. Congratulations ! You have successfully installed the water hammer arrester.

**APPLICATION NOTE**

Model #WC-25 (P/N: 094021A1122)

Water Conditioning System

Supplement to the Electronic Steam Humidifier

Model S2000/S2020

**Installer : Save these instructions for future use!**

FAILURE TO READ AND FOLLOW INSTRUCTIONS CAREFULLY BEFORE INSTALLATION OR OPERATION  
COULD DAMAGE THIS DEVICE OR CAUSE PROPERTY DAMAGE.

**KEEP HUMIDIFIERS CLEAN AND SCALE-FREE!****Description:**

Steam-Treatment Water Conditioning System (STEAM-TREAT) is designed for humidifiers using up to 25 gallons per day and will inhibit scale for one season. Install Steam-Treat on the 1/4" food grade poly vinyl cold water tubing that supplies water directly to the humidifier. Equipped with John Guest Fittings.

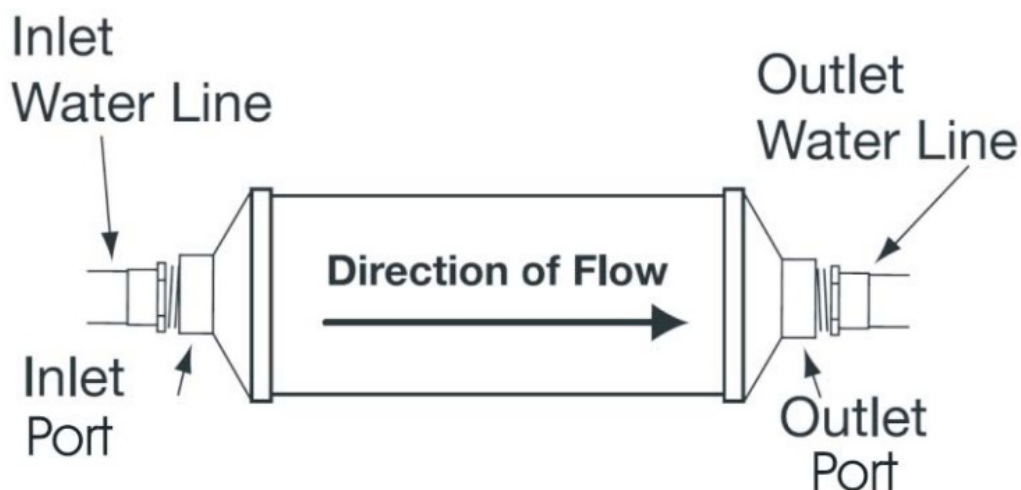
The STEAM-TREAT System is available as an installation add-on option for the Steam Humidifier S2000, S2020 and Atomizing Humidifier TM-2000.

**Application:**

Clean tank and heating element and if necessary clean or install new pad before installing the Steam-Treat cartridge. For best results, humidifier should have a daily dump of water from the sump to diminish scale forming minerals. Install a new Steam-Treat cartridge before each heating season. Operating temperature, min./max, 40°-80°F (4-26°C).

**Installation Steps:**

1. Shut off the water supply to your humidifier.
2. Disconnect existing cartridge or cut water tubing where new cartridge is to be installed.
3. TAP INTO COLD WATER PIPE ONLY. DO NOT USE HOT WATER.
4. Use 1/4" food grade poly vinyl water tubing only. (DO NOT USE COPPER) Insert the poly vinyl tubing directly into the John Guest fittings at each end of the Steam-Treat cartridge. No additional fittings or tools are necessary.
5. Observe proper direction of water flow.
6. Carefully turn on the water and check for leaks.
7. Check the Cartridge after approximately 8 hours for slight leaks not visible during original installation.

**APPLICATION NOTE**

Model #APD (P/N: 090558A0001)

Air Proving Device Current Sensing Switch

Installation Instructions

Supplement to the Electronic Steam Humidifier

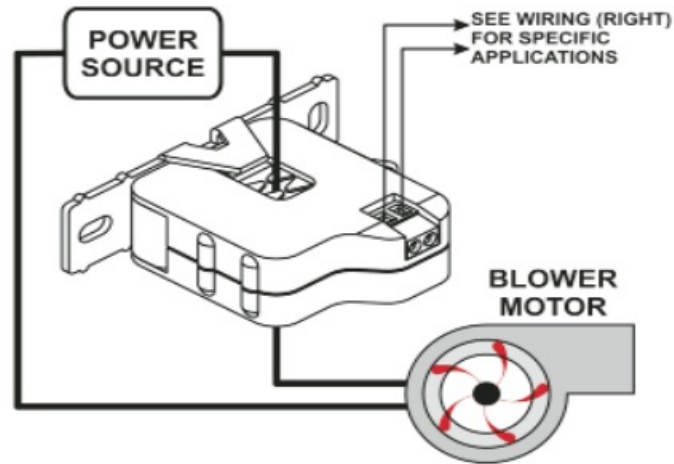
Model S2000/S2020

The Field Controls Steam Humidifier can be equipped with the Air Proving Device (APD). Field Controls provides a current sensing switch type device. This device must be purchased separately from Field Controls as part of your

## Steam Humidifier System.

The latest improvement to the Field Controls humidifiers is the new "Airflow Interlock Feature" provided on the low voltage terminal block.

Due to popular demand we have made it easier for you to achieve fail safe lockout in the event the fan or blower on the HVAC system does not operate when called upon. A high humidity or airflow proving device is necessary.



### INSTALLATION:

1. Ensure power conductor to be monitored is disconnected and locked out from the power source!
2. Install the removable mounting bracket to the back of the electrical enclosure, if desired.
3. Snap the split core around the conductor to be monitored and close until the core snaps shut.

#### NOTES:

To monitor current under .15 Amp see installation note.

4. Connect current switch output to switched load. (See diagrams to the right).
5. Snap the APD back into the mounting bracket or allow the APD to hang on the conductor.

**Note:** Contacts are solid state and work just like dry contacts. When the switch is closed 1 Ohm is present.

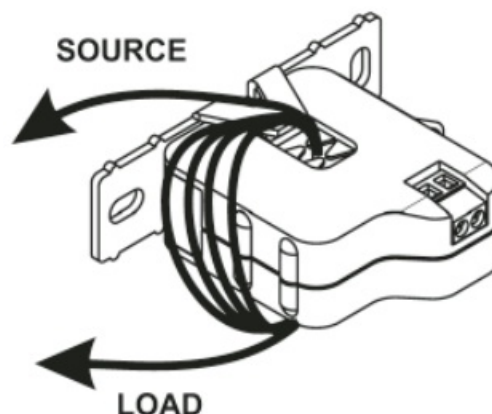
When the switch is open more than 1 Megohm is present.

6. Reconnect power.

### INSTALLATION NOTES:

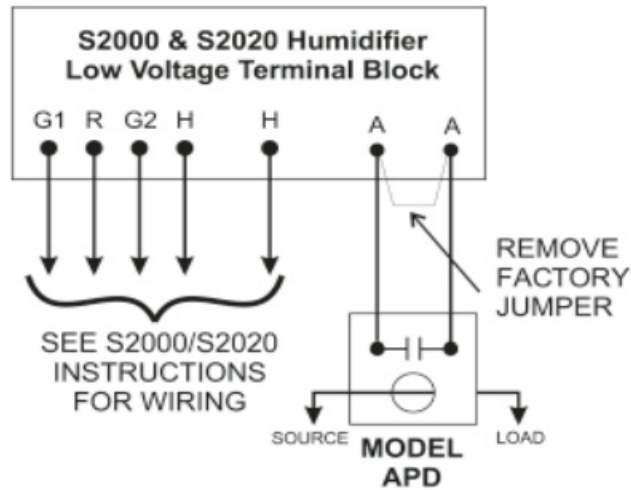
For currents less than .15 Amp:

To provide adequate current, wrap the conductor through the center hole and around the sensor body to produce multiple passes and increase measured current. Measured current = Actual current times the number of passes.

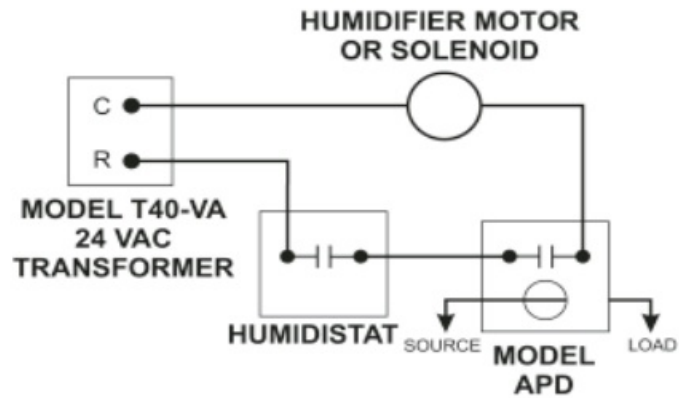


## WIRING

### FOR AIR PROVING ON S2000/S2020

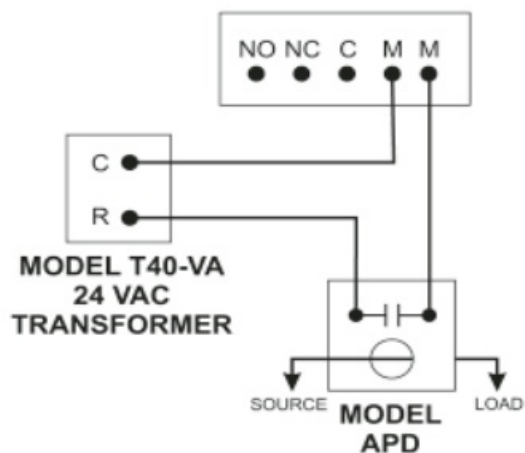


### FOR AIR PROVING ON BY-PASS OR FLOW-THRU HUMIDIFIER



### FOR FRESH AIR WITH ESR DAMPER

MODEL ND-ESR / URD-ESR  
POWER OPEN / SPRING CLOSE



## APPLICATION NOTE

Model #IDB (P/N: 094021A2040)

Inside Duct Mounting Bracket

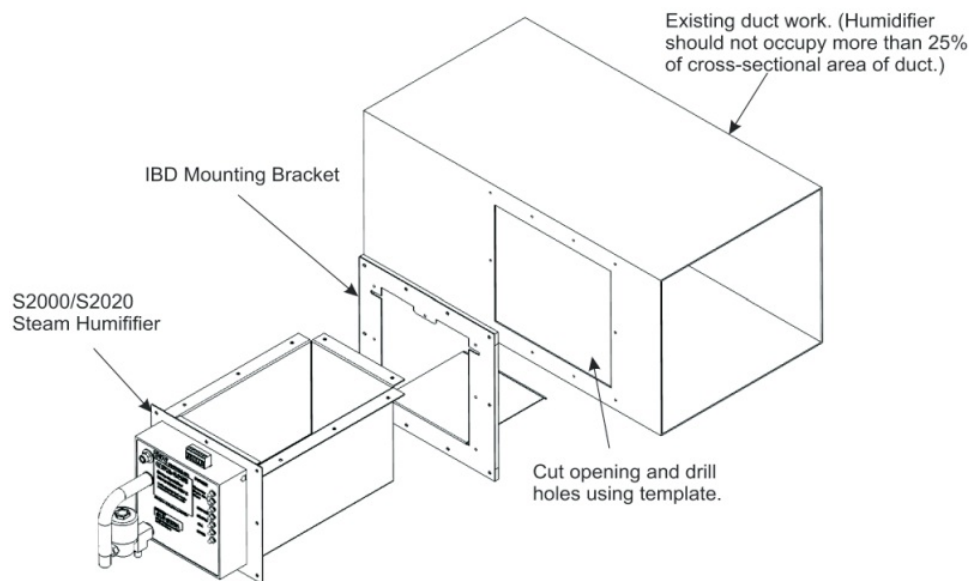
Installation Instructions

Supplement to the Electronic Steam Humidifier

## Model S2000/S2020

The model IDB is an optional installation accessory for the S2000 and S2020 Steam Humidifier. The IDB is designed to ease the mounting process and facilitate removal of the humidifier for inspection and maintenance.

1. Find a suitable location to install the humidifier in the supply or return plenum.
2. Place the template on the side of the duct in the location the humidifier is to be installed. Make sure no other internal components exist in that location that may be damaged. i.e. Evaporator Coil, UV Lamp, etc.
3. Place the template on the duct in a level position. The template can be easily adjusted. The adhesive is not permanent.
4. Drill the 10 holes shown on the template using an 1/8" drill bit (DO NOT DRILL LARGER THAN 1/8" DIAMETER)
5. Cut out the solid line area as marked on the template.
6. Remove the template from the duct.
7. Place bracket onto duct and line up the holes in the bracket with the holes in the duct.
8. Fasten the bracket to the duct using the provided sheet metal screws.
9. Slide the humidifier into the bracket and secure to bracket with the provided screws.
10. Refer to S2020/S2000 Steam Humidifier installation instructions to continue with the installation.



### APPLICATION NOTE

Model #UDB (P/N: 094021A2041)

Under Duct Mounting Bracket

Installation Instructions

Supplement to the Electronic Steam Humidifier

Model S2000/S2020 Model #UDB (P/N: 094021A2041)

Under Duct Mounting Bracket

Installation Instructions

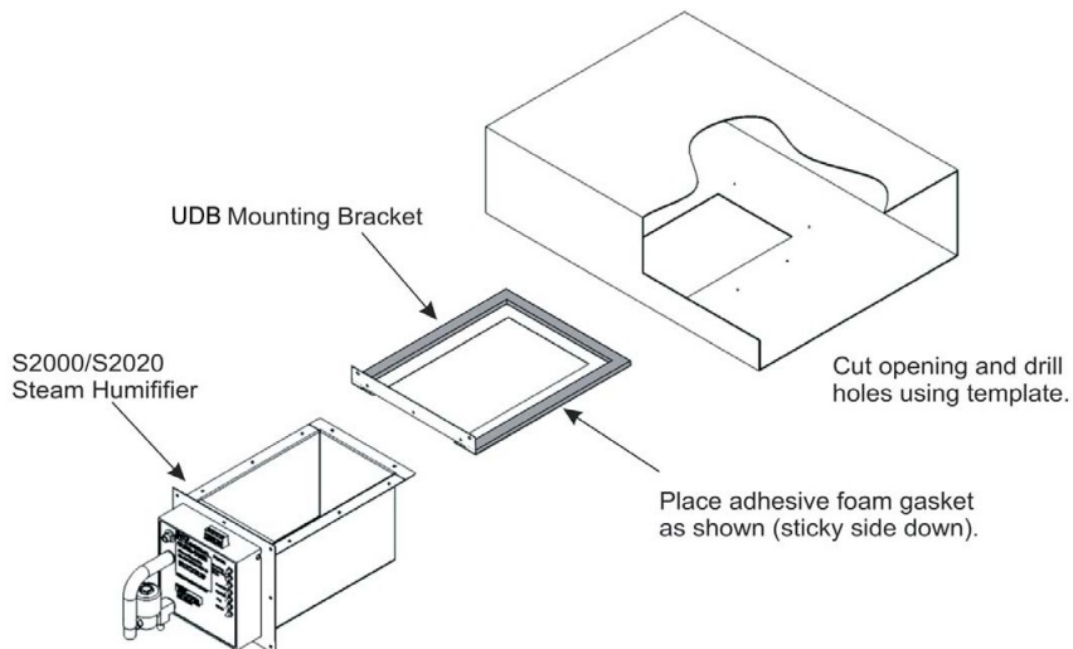
Supplement to the Electronic Steam Humidifier

Model S2000/S2020

The model UDB is an optional installation accessory for the S2000 and S2020 Steam Humidifier. The UDB is designed to ease the mounting process and facilitate removal of the humidifier for inspection and maintenance.



1. Apply gasket around perimeter of bracket (see illustration).
2. Find a suitable location to install the humidifier in the supply or return plenum.
3. Place the template on the bottom of the duct in the location the humidifier is to be installed. Make sure no other internal components exist in that location that may be damaged. i.e. Evaporator Coil, UV Lamp, etc..
4. Line the front edge of the template with the corner of the duct and tape in place.
5. Drill 8 holes shown on the template using an 1/8" drill bit (DO NOT DRILL LARGER THAN 1/8" DIAMETER)
6. Cut out the solid line area as marked on the template.
7. Remove the template from the duct.
8. Line up holes in the duct bottom with holes on the bracket.
9. Fasten the bracket to the duct bottom using the provided sheet metal screws.
10. With the bracket secure, using the holes on the front flange of the bracket as a guide, drill 5 pilot holes into the duct side.
11. Fasten the top left and top right corners of the front flange to the duct using the provided sheet metal screws.
12. Slide the humidifier into the bracket and secure Humidifier with 3 remaining screws.
13. Refer to S2020/S2000 Steam Humidifier installation instructions to continue with the installation.



#### APPLICATION NOTE

Model #2003 (P/N: 094021A0204)

Water Level Probe Replacement

Installation Instructions

Supplement to the Electronic Steam Humidifier Model S2000/S2020

To replace the water level probe in the "S" series steam humidifier, you must unplug and shut down your steam humidifier and allow it to cool. The water tank must be drained, the water supply, drain lines and electrical wiring must be disconnected and the unit removed from the duct. Pull straight up on the Green terminal block to disconnect it from the unit.

Place the unit on a flat working surface.

Using a phillips screwdriver, remove the two screws that hold the baffle plate to the tank. Lift the baffle slightly back to clear the water level probe and then straight up and out of the tank. Unplug the automatic drain valve assembly from the side of the front cover. Snip the plastic wire tie that secures the drain valve wires to the main power cord. Now use an adjustable wrench at the brass "T" adapter to unscrew the entire drain valve assembly. DO NOT use the drain valve itself as leverage when removing or reinstalling the drain valve assembly. Doing so will damage the drain valve and void the warranty.

Now use a phillips screwdriver and loosen the four screws securing the front cover and remove the front cover. You can now see the entire Water Level Probe. Use a 5/16" nut driver to loosen the hex nut which secures the water level probe to the printed circuit board. Then pull the water level probe out of the plastic insulator just far enough to remove the second hex nut. Now you can gently pull the water level probe out and through the plastic insulator. Be careful not to damage the plastic insulator! Place a small dab of grease or Vaseline on the water level probe, to ease the water level probe out. Do the same on the new water level probe when re-inserting it.

If the plastic insulator gets damaged, replace it. Otherwise, save the new plastic insulator for future use.

If the plastic insulator is damaged or, you want to replace it anyway, you must loosen and remove the ground screw at the top of the printed circuit board. This allows some play between the circuit board and the plastic insulator.

Use pliers and pull the old plastic insulator out. Place a bead of clear RTV silicon around the square portion of the plastic insulator (between the sealing flanges). Position the plastic insulator at the square hole in the humidifier and using pliers and a side to side motion, gently pull the plastic insulator through the hole until the outside flange pops completely through.

Insert the new water level probe into the plastic insulator using a dab of grease to ease it in. Wrap the small cable tie around the plastic insulator and pull tight. Cut off the excess length. Screw one hex nut onto the water level probe until about 1/4" of the threads are exposed. Re-install the ground screw removed earlier and secure the circuit board.

Push the water level probe up to and through the hole in the circuit board. Re-install the last hex nut and tighten down firmly while holding the water level probe leg straight down towards the bottom of the tank. Loosen the hex nut and re-adjust if necessary.

Now you can re-install the front cover. Make sure to line up with the LED's on the printed circuit board. Do not crush them when pushing the front cover back on. You may have to loosen the front cover screws a bit more. Press the front cover back on all the way and tighten the four front cover screws.

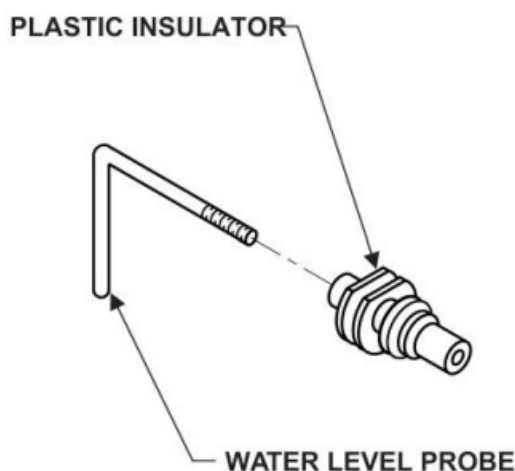
Re-install the baffle plate and secure with the two phillips screws.

Apply Teflon tape to the threads of the "T" adapter on the automatic drain valve. Screw the entire drain valve assembly back onto the drain fitting and tighten with an adjustable wrench. DO NOT use the solenoid valve itself as leverage to turn and tighten the assembly. Doing so will damage the valve. Tighten and position the drain assembly to the original position. Plug the drain valve molded connector back in on the side of the front cover until it snaps into place. Secure the drain valve wires with the short cable tie.

Review the entire project to be sure that nothing has been overlooked.

Now insert the unit back into the duct and secure it.

Re-connect the water, electrical and drain connections. Open the water source valve and plug the steam humidifier into it's electrical outlet. Make sure the humidistat is calling for humidity. Observe the operation of the unit and make sure there are no water leaks.



#### **APPLICATION NOTE**

Model #2001 (P/N: 094021A0203)

Water Fill Valve Replacement

Installation Instructions

Supplement to the Electronic Steam Humidifier Model S2000/S2020

To replace the Water Fill Valve in the "S" series steam humidifier, you must unplug and shut down your steam humidifier and allow it to cool. The water tank must be drained, the water supply, drain lines and electrical wiring must be disconnected and the unit removed from the duct. Pull straight up on the Green terminal block to disconnect it from the unit. Place the unit on a flat working surface.

Unplug the automatic drain valve assembly from the side of the front cover. Snip the plastic wire tie that secures the drain valve wires to the main power cord. Now use an adjustable wrench at the brass "T" adapter to unscrew the entire drain valve assembly. DO NOT use the drain valve itself as leverage when removing or re-installing the drain valve assembly. Doing so will damage the drain valve and void the warranty.

Now use a phillips screwdriver and loosen the four screws securing the front cover and remove the front cover. You can now see the Water Fill Valve assembly.

Use a 5/16" nut driver to loosen the hex nut which secures the water level probe to the printed circuit board. Then you must loosen and remove the ground screw at the top right hand corner of the printed circuit board. This allows some clearance between the circuit board and the Water Fill Valve.

Trace the wires coming from the Water Fill Valve to where they connect to the printed circuit board.

Pull the connector off of the board. Now remove both mounting screws which hold the Water Fill Valve to its mounting plate.

Now you can carefully pull the entire valve assembly straight back and out. You may have to pull back on the printed circuit board a bit for additional clearance.

BE CAREFUL not to damage the printed circuit board. It will feel a little tight when pulling the valve out, due to the rubber grommet on the front plate where the valve stem protrudes into the tank.

Now install the new valve assembly by pushing it through the rubber grommet and into position. Place a dab of grease or Vaseline on the stem to ease it through the rubber grommet.

The grommet may pop out if the stem is forced through.

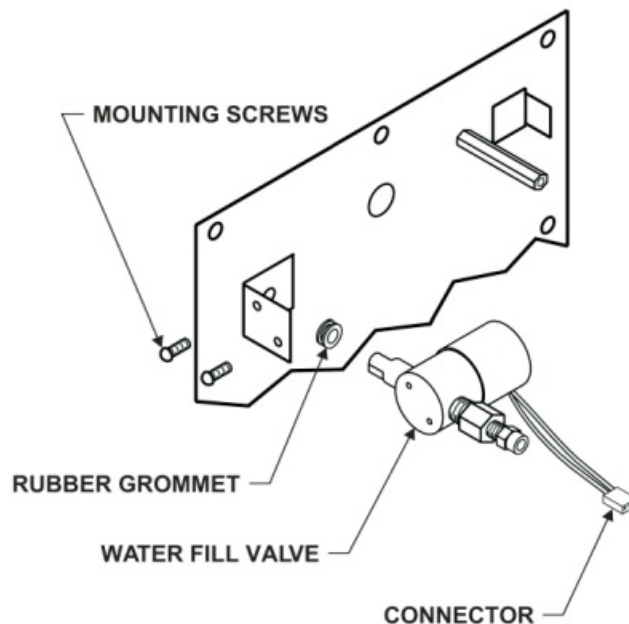
Line up the valve body with the mounting plate and secure it with the new screws provided. NOTE that one screw is longer than the other and doubles, as a front cover screw.

Route the wires under the water level probe and plug the connector back onto the printed circuit board J3 pins.

Line up the water level probe stem with the hole on the printed circuit board. Re-install the hex nut and tighten firmly while holding the leg of the water level probe straight down towards the tank. Loosen the hex nut and readjust if necessary. Reinstall the ground screw removed earlier and secure the circuit board.

Review the entire project to be sure that nothing has been overlooked. Now you can re-install the front cover. Make sure to line up with the LED's on the printed circuit board. Do not crush them when pushing the front cover back on. You may have to loosen the front cover screws a bit more. Press the front cover back on all the way and tighten the four front cover screws. Apply Teflon tape to the threads of the "T" adapter on the automatic drain valve. Screw the entire drain valve assembly back onto the drain fitting and tighten with an adjustable wrench. DO NOT use the solenoid valve itself as leverage to turn and tighten the assembly. Doing so will damage the valve. Tighten and position the drain assembly to the original position. Plug the drain valve molded connector back in on the side of the front cover until it snaps into place. Secure the drain valve wires with the short cable tie.

Now insert the unit back into the duct and secure it. Re-connect the water, electrical and drain connections. Open the water source valve and plug the steam humidifier into its electrical outlet. Make sure the humidistat is calling for humidity. Observe the operation of the unit and make sure there are no water leaks.



DOCUMENT YOUR PRODUCT, INSTALLATION & MAINTENANCE DATA HERE FOR FUTURE REFERENCE!

Model Number: Serial Number: Date Code:

Date Purchased:

Date Installed:

Date inspected:

**Maintenance Schedule:**

Annually Bi-Annually Quarterly Monthly

Date of Service: Service Performed:

**WARRANTY**

For warranty information about this or any Field Controls product, visit: [www.fieldcontrols.com](http://www.fieldcontrols.com)



Phone: 252.522.3031 • Fax: 252.522.0214

[www.fieldcontrols.com](http://www.fieldcontrols.com)

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P/N 090375A0227 Rev P 12/15

**Documents / Resources**

	<p><a href="#">FIELD CONTROLS S2000-LH Field Controls Electronic Steam Unit Power Humidifier</a> [pdf]   Installation Guide</p> <p>S2000-LH Field Controls Electronic Steam Unit Power Humidifier, S2000-LH, Field Controls Electronic Steam Unit Power Humidifier, Controls Electronic Steam Unit Power Humidifier, Electronic Steam Unit Power Humidifier, Steam Unit Power Humidifier, Unit Power Humidifier, Power Humidifier, Humidifier</p>
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**References**

- [User Manual](#)

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