TECHNICAL BULLETIN

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EWC®
CONTROLS   INC.

ULTRA-ZONE™ Model 072000
Smart Digital Humidistat
Installation and Owner's Manual
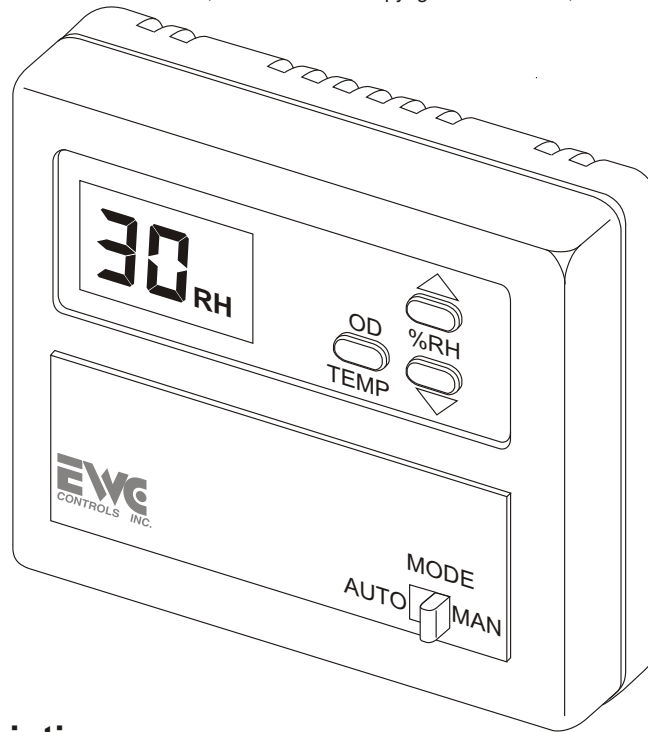
Package includes:
1 #072000 Smart Humidistat
1 Foam Gasket
1 Mounting Template
1 Technical Bulletin #TB213
2 Mounting screws
2 Wall anchors
1 #OAS Outside Air Sensor

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 displayed 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** and **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. EWC 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.

Displaying the Relative Humidity

The 072000 normal display shows the humidity level in the home. The example at right shows the humidity reading at 36%. The **"RH"** symbol blinks when the humidistat is requesting (calling for) humidification. The **"RH"** symbol remains steady when the humidity set point is satisfied. **NOTE:** *Allow 24 hours for the 072000 to fully stabilize and display the accurate humidity level in your home.*

Changing the RH Setpoint

When the up or down **%RH** keys are pressed once, the 072000 displays the relative humidity set point. Holding the **up** key will raise the RH set point and, holding the **down** key will lower the RH set point.

Upon initial power up, the 072000 defaults to an RH set point of 40% RH. You can adjust the set point as desired no matter which mode of operation you prefer. See "**Selecting Manual Operation**" and "**Selecting Automatic Operation**" for more information on the proper setting of the RH set point.
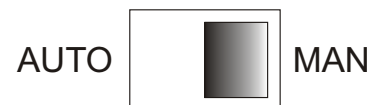
Displaying the Outdoor Temperature

Pressing the **OD TEMP** key will display the outdoor temperature. The 072000 will display outdoor air temperatures from -9 to 98°F.

Selecting Manual or Auto Operation

Moving the **AUTO/MAN** switch to the MAN position selects manual operation. The 072000 will maintain the RH set point selected with the up and down **%RH** keys. As the outdoor temperature changes, the home-owner will have to re-adjust the RH set point to achieve a comfortable environment and avoid condensation on windows and walls.

Table 1 shows the suggested RH set points for different outdoor air temperatures.

OUTDOOR TEMPERATURE	ADJUST %RH TO
+30°F	40%
+20°F	35%
+10°F	30%
+0°F	25%
-9°F	20%

Table 1. Suggested RH manual set points for different outdoor temperatures.

AUTO ☐ MAN

OUTDOOR TEMPERATURE	ADJUSTED %RH
+35°F	40%
+30°F	38%
+25°F	35%
+20°F	33%
+15°F	30%
+10°F	28%
+5°F	25%
0°F	23%
-5°F	20%
-9°F	18%

Table 2. Computer adjusted RH set points for different outdoor air temperatures based on a 40% RH setting.

Selecting Automatic Operation

Moving the **AUTO/MAN** switch to the AUTO position selects automatic operation. The 072000 will automatically adjust the RH set point up or down as the outdoor temperature changes. You do not have to adjust the RH set point unless you want to. Simply push the **up** or **down** arrow to increase or decrease the humidity level in the home. The 072000 will calculate and display the new set point on the LCD screen.

Table 2 shows the adjusted RH set points for different outdoor temperatures, using the factory default set point of 40% relative humidity. The 072000 computer will automatically lower the RH set point as the outdoor temperature falls below 35 degrees F. Above 35 degrees F., the 072000 will operate based on the default set point.
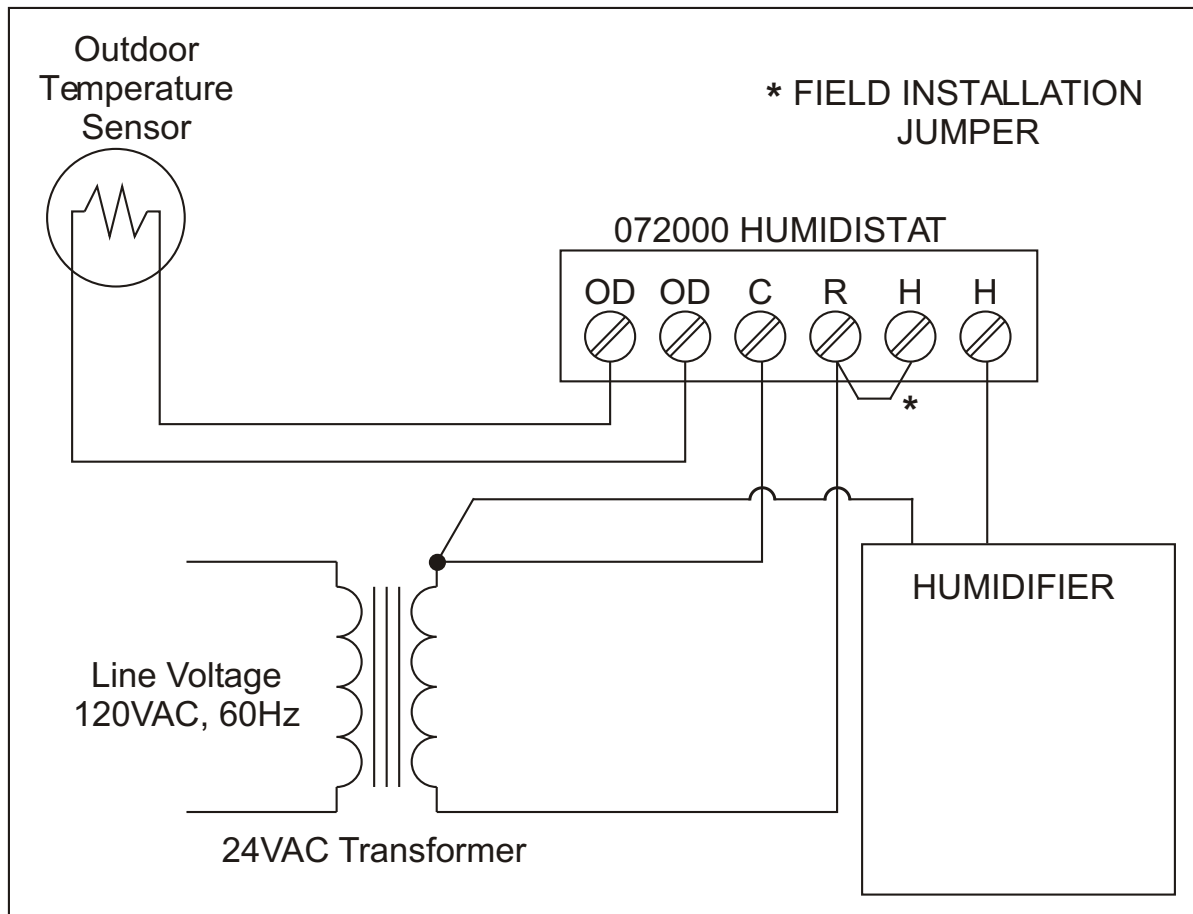
NOTE: Adjusting the default set point will change the calculated set point, when the outside air temperature drops below 35 degrees F. The 072000 will display the new set point after the processor has calculated a new set point based on the outdoor air temperature.
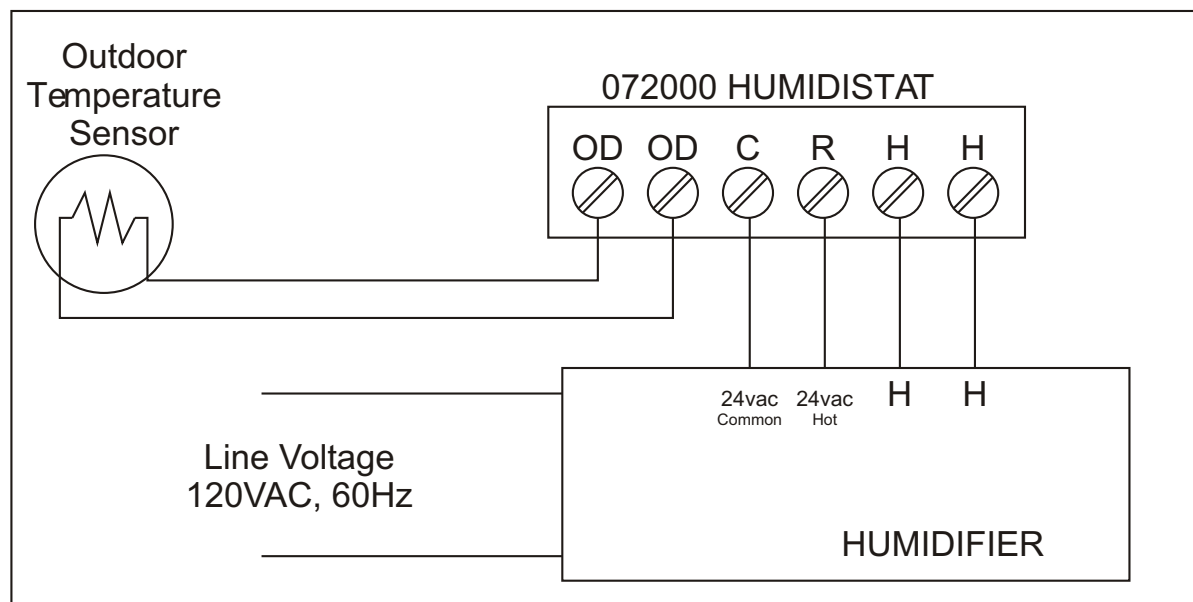
Wiring Humidifier
with External 24VAC Source

The diagram below shows the wiring arrangement with an external 24vac transformer to power up the 072000 and the humidifier.

Outdoor Temperature Sensor

* FIELD INSTALLATION JUMPER

072000 HUMIDISTAT

OD OD C R H H

*

HUMIDIFIER

Line Voltage 120VAC, 60Hz

24VAC Transformer
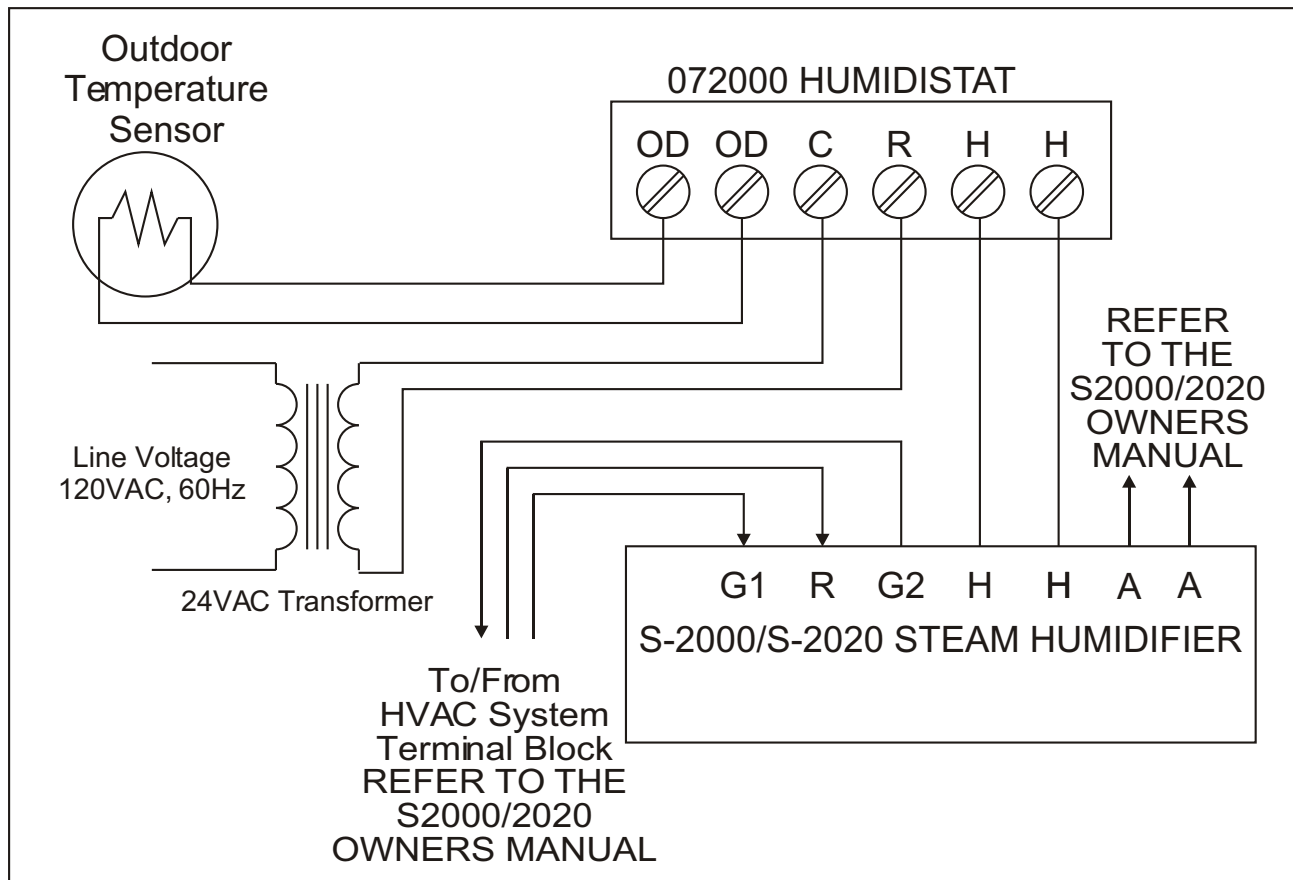
Wiring Humidifier
with Internal 24VAC Source

The diagram below shows the wiring for a humidifier with an internal 24VAC transformer.

Outdoor Temperature Sensor

072000 HUMIDISTAT

OD OD C R H H

Line Voltage 120VAC, 60Hz

24vac Common   24vac Hot   H   H

HUMIDIFIER

Wiring Diagram for Steam Humidifier Models S-2000 and S-2020

The diagram below shows the wiring for the
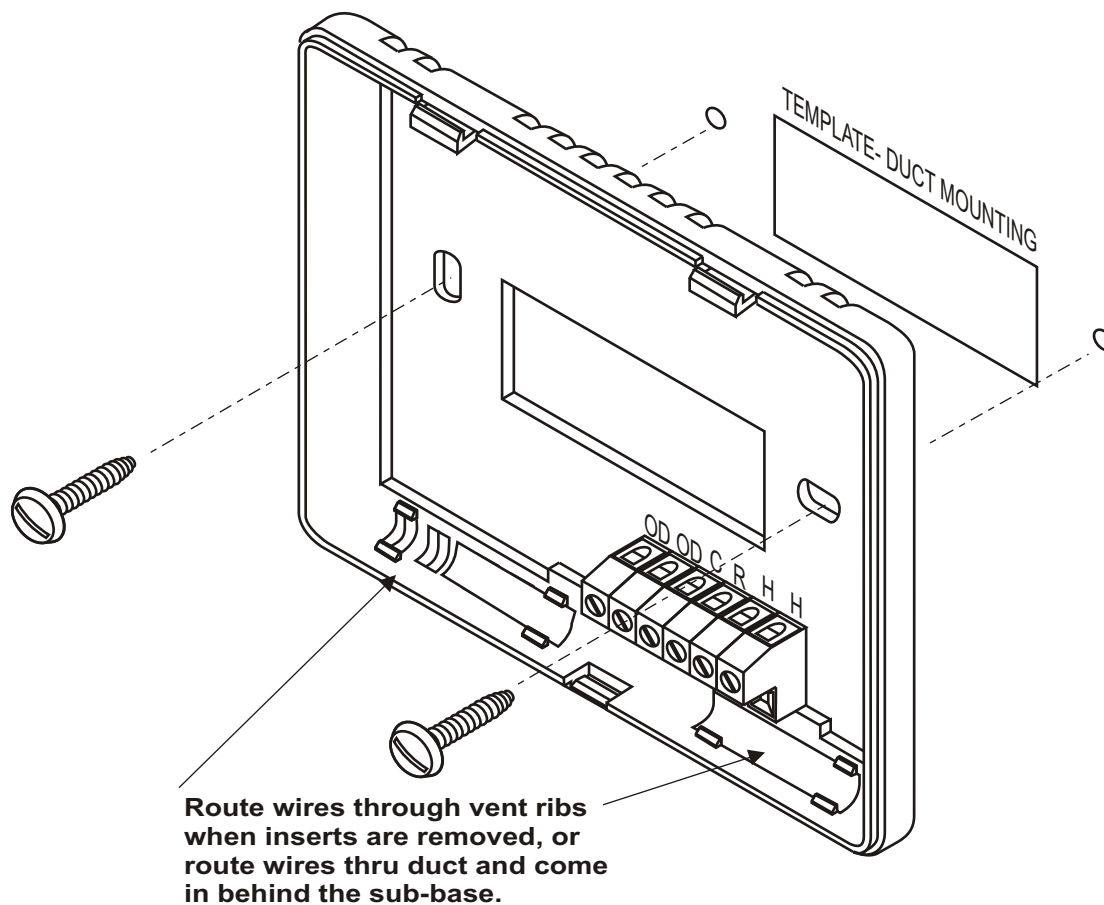ULTRA-ZONE Model S-2000 and
S-2020 Steam Humidifiers

Outdoor Temperature Sensor

072000 HUMIDISTAT

OD OD C R H H

REFER TO THE S2000/2020 OWNERS MANUAL

Line Voltage 120VAC, 60Hz

24VAC Transformer

To/From HVAC System Terminal Block
REFER TO THE S2000/2020 OWNERS MANUAL

G1 R G2 H H A A

S-2000/S-2020 STEAM HUMIDIFIER

NOTE: High voltage may cause serious injury from electrical shock. Disconnect electrical power to the HVAC system before starting the installation.

NOTE: Sharp edges may cause serious injury from cuts. Use care when cutting template openings and handling any duct work.

Installation, Duct Mounting

The Humidistat can be installed on the return air duct to sense the humidity level whenever the fan is operating. Use the "Duct Mounting Template" provided to cut an opening in the duct for airflow to the humidity sensor and two holes for the mounting screws. **Use the foam gasket to create a seal against the sheet metal.** Also punch a 1/4" hole in your duct and route the wires into the duct and out the new opening. This allows you to make your connections easily without having to route the wires through the vented ribs.

DO NOT REMOVE the vent covers when installing this device on the return duct, or only remove what is necessary to run your wires through a vent/rib opening.

Route wires through vent ribs when inserts are removed, or route wires thru duct and come in behind the sub-base.

WIRING

The wiring can pass through the duct or enter the subbase through an open vent rib at the bottom or top of the subbase.

Warning: Leave the vent hole covers in place, when mounting the Humidistat on the return air duct! **Only remove as much vent cover material as necessary to route your wires.**

All work should be done to local and national codes and ordinances.

Use color-coded, multi-conductor 18 awg, solid copper wire.

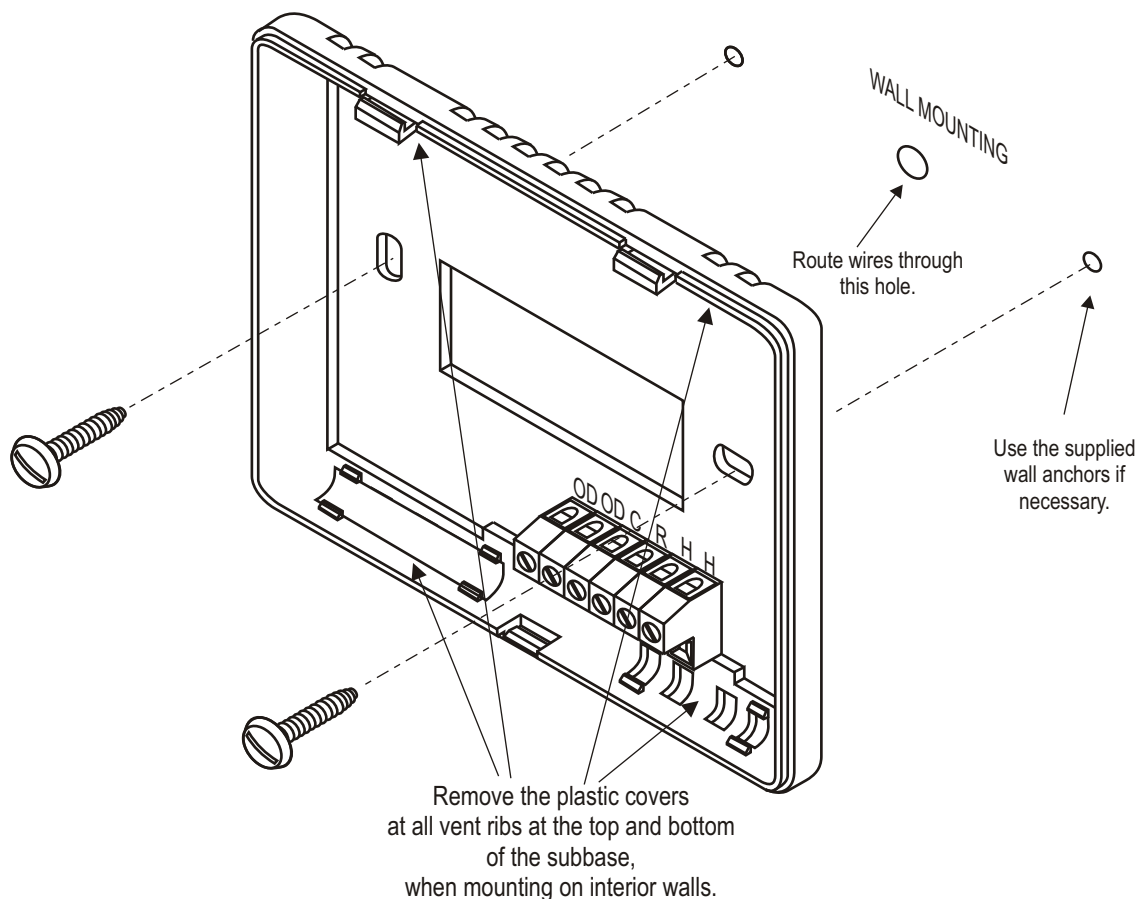*Wire number to number or letter to letter on each control.*

Installation, Wall Mounting

The Humidistat can be installed on a wall within the conditioned space. Use the "Wall Mounting Template" provided to cut a small opening in the wall for the wiring and drill two pilot holes for the mounting screws. *Use the foam gasket to create a seal against the wall if desired.*
 **Warning:** Seal up the wire hole made in the wall to prevent air leakage from effecting the RH sensor on the 072000 printed circuit board. Use plumbers putty, wall compound, or even duct tape to seal the hole.

Be sure to remove the small plastic strips that cover the air vent ribs in the subbase. They can be easily removed by popping them out with a small screw driver.

WALL MOUNTING

Route wires through this hole.

Use the supplied wall anchors if necessary.

OD OD C R H H

Remove the plastic covers
at all vent ribs at the top and bottom
of the subbase,
when mounting on interior walls.

Attaching the 072000 Humidistat

After installing and wiring the subbase, attach the 072000 by placing the front over the two top subbase brackets, and swinging the front cover down and snapping it in place. Power up the 072000 after attaching it to the subbase.

Front

Sub-Base

Wall or Duct
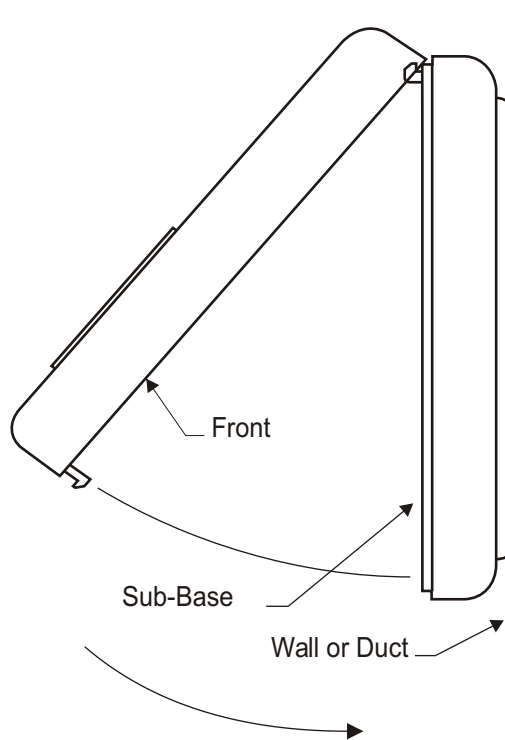
BE SURE TO PEEL OFF THE PLASTIC PROTECTIVE FILM FROM THE FRONT DISPLAY WHEN THE INSTALLATION IS COMPLETE.
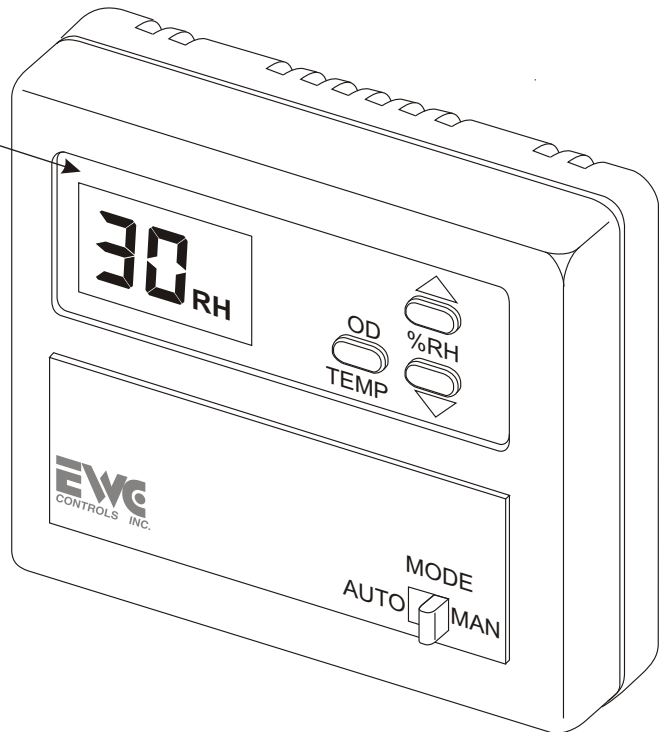
30 RH

OD

%RH

TEMP

EWC CONTROLS INC.

MODE
AUTO   MAN

ULTRA-ZONE™
Forced Air Zone Controls

The "**OAS"** Outside Air Sensor allows precise real time monitoring of the Outside Air temperature on your Zoned HVAC system. The *Optional* "OAS" wires directly into the **BMPlus series or UZC series** control panels allowing the Control System to monitor the outside air temperature in heating mode. Using the adjustable potentiometer on the Control Panel, the installer can set the desired outdoor temperature changeover setting, to engage supplemental or backup heating systems.
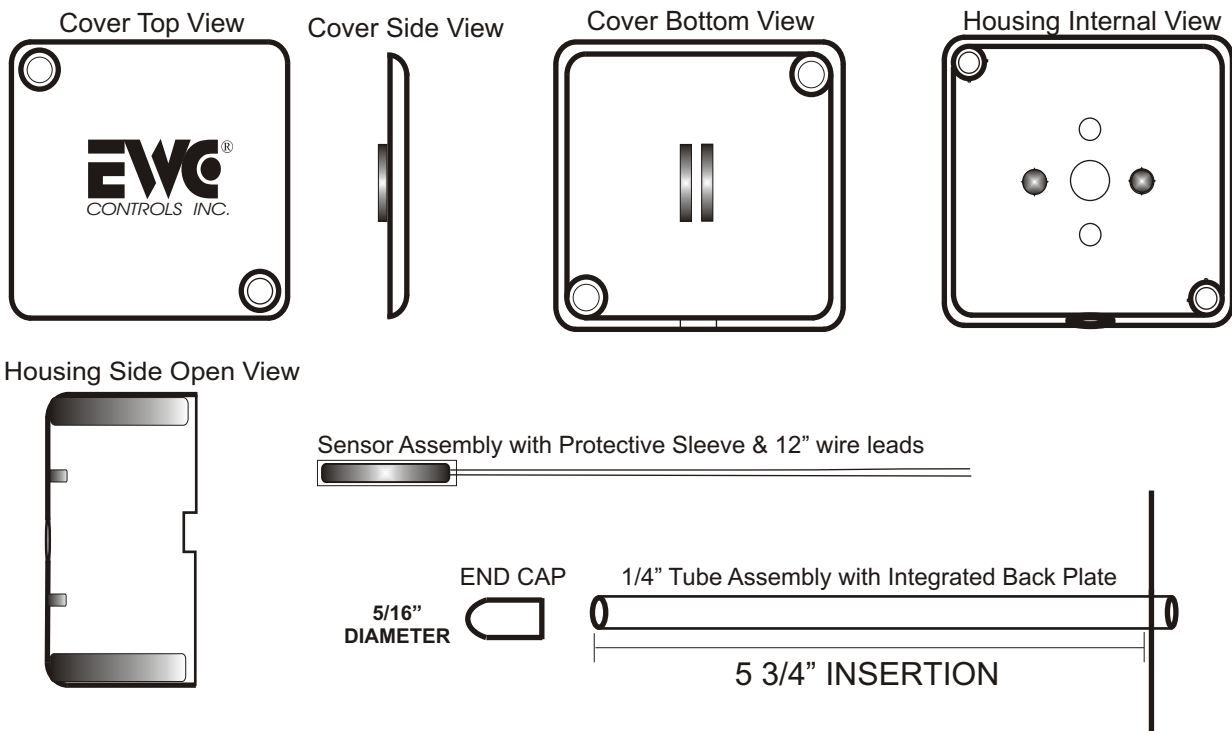
The OAS comes standard with the HK2000 Economizer System and the 072000 Smart Digital Humidity Control. Refer to the HK2000 and the 072000 Technical Bulletins for the specific Outside Air Features & Functions provided, with these products.

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 <u>dedicated</u> 2 conductor 18AWG solid copper jacketed thermostat cable to connect the OAS to the Zone Control System, Economizer or 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 remove the factory supplied resistor on the Outside Air Sensor terminal block of the Ultra Zone panel, and connect the field wiring to those terminals instead. On some panels, make sure you 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

Cover Top View   Cover Side View   Cover Bottom View   Housing Internal View

Housing Side Open View

Sensor Assembly with Protective Sleeve & 12" wire leads

END CAP   1/4" Tube Assembly with Integrated Back Plate

5/16" DIAMETER

5 3/4" INSERTION

EWC® CONTROLS INC.
385 Hwy. 33 Englishtown, NJ 07726
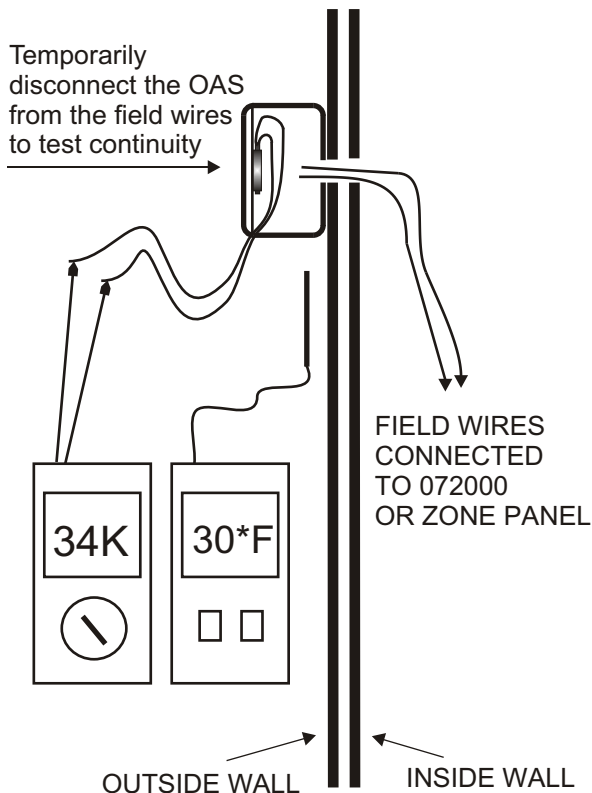Ph: 800-446-3110 - Fx: 732-446-5362

ULTRA-ZONE™
Forced Air Zone Controls

Model OAS
(OUTSIDE Air Sensor)

The "OAS" is constructed of UV stabilized Poly Carbonate Plastic with seamless aluminum tubing frame and a 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 an OAS, disconnect the wire leads from the control panel and remove it from the duct or wall. 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 below. You should measure an approximate value within 5% of the table value and the separate probe reading.

Temporarily disconnect the OAS from the field wires to test continuity

34K

30*F

FIELD WIRES CONNECTED TO 072000 OR ZONE PANEL

OUTSIDE WALL   INSIDE WALL

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

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NOTE: There are many different ways to wire and operate a humidifier. Your actual wiring may differ from what is shown in the supplied diagrams.

If you are not sure of the proper wiring for your application or, you have questions concerning the proper operation of your 072000 control, Contact the Technical Support Department.

EWC Controls is not responsible for the use or misuse of the information inside this document.
EWC Controls reserves the right to update and revise this document as deemed necessary.
All warranties are void if, upon the opinion of the Manufacturer the device has been abused or mis-wired.

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