

AUTOMATIC HUMIDIFIER CONTROL

Safety and Installation Instructions

READ COMPLETE INSTALLATION INSTRUCTIONS AND TEMPLATE BEFORE STARTING.

Attention Installer:

WARNING

This product must be installed by a qualified heating and air conditioning contractor. Failure to do so could result in serious injury from electrical shock.

WARNING

- 120 volts may cause serious injury from electrical shock. Disconnect electrical power to the furnace before starting installation.
- Sharp edges may cause serious injury from cuts. Use care when cutting plenum openings and handling ductwork.

CAUTION

- Do not set humidity higher than recommended. Condensation damage may result.
- Do not set humidity up to recommended levels if there is condensation on the inside of windows of any unheated living space. Condensation damage may result.
- Do not mount Humidifier Control on supply plenum or duct. The unit will not withstand supply temperatures.
- When installing Humidifier Control on downflow furnaces, ensure blower continues to run after a heat call is satisfied to eliminate high temperatures from damaging the Humidifier Control.
- Do not mount Humidifier Control downstream of the bypass outlet. False humidity conditions will cause humidifier to operate incorrectly.

THESE INSTALLATION INSTRUCTIONS ARE FOR THE AUTOMATIC HUMIDIFIER CONTROL ONLY!
For Humidifier installation, follow Humidifier Installation Instructions.

STEP 1: Unpack the Humidifier Control Carton

Make sure all components are present (see Figure A):

- | | |
|-------------------------------|------------------------------|
| A. Humidifier Control | C. Manual Mode Label |
| B. Outdoor Temperature Sensor | D. Manual Mode Resistor Case |

STEP 2: Disassemble the Humidifier Control

Remove knob, then pull cover off the base.

STEP 3: Check the Jumper Blocks

With the cover removed, notice 5 pins coming up from the base. Make sure the 2 sets of jumper blocks are correctly set for the type of humidifier being installed (see Figure B).

STEP 4: Mount Humidifier Control

Control must be mounted in the Return Duct. For proper operation, the Control must be at least 6 inches upstream of any of the following:

- Humidifier
- Humidifier Bypass Ductwork (if applicable)
- Fresh Air Intake Ductwork (if applicable) (see Figure C)

Use the perforated Humidifier Control template (attached to these instructions) to mark the duct opening and cut it. Use 4 sheet metal screws (not provided) to mount the Control in the duct opening and make sure Control is sealed tightly to duct.

STEP 5: Determine Location for Outdoor Temperature Sensor

The Outdoor Temperature Sensor:

- Must be mounted on North, East or West side of house out of direct sunlight
- Must be at least 3 feet from all exhaust vents
- Must be above expected snow line (See figure D)

Incorrect humidity levels will result if these requirements are not met.

STEP 6: Locate Existing Access Hole to Outside

A convenient way to get the Sensor wire outside is to make use of unused wires running to the A/C condensing unit (if applicable). Other ways are to use existing holes for Cable TV lines, telephone lines, A/C lines, etc. Read all equipment instructions beforehand for possible conflicts and warnings.

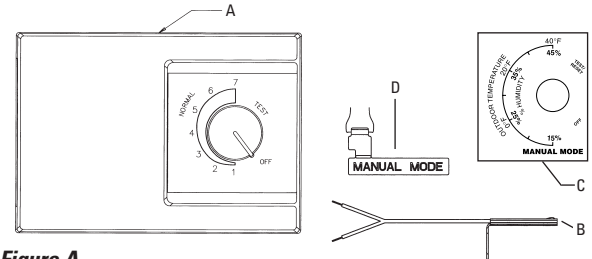


Figure A

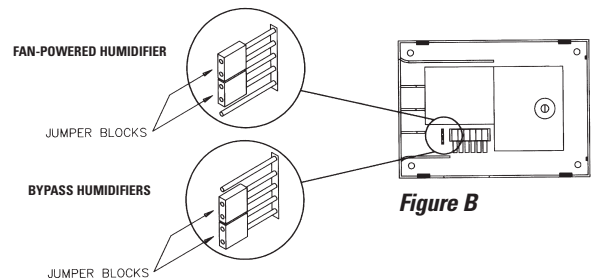


Figure B

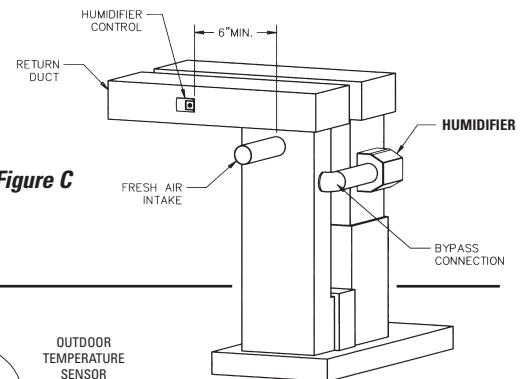


Figure C

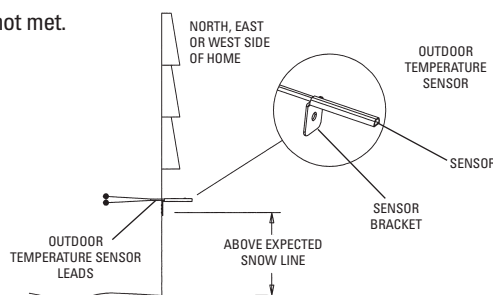


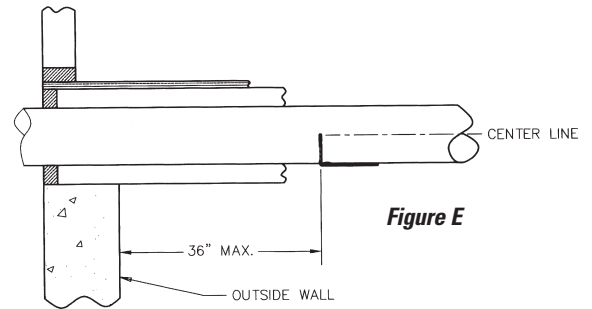
Figure D

STEP 7: Alternate Location for Outdoor Temperature Sensor

The Sensor can also be mounted in the center of either:

- 2 inch PVC fresh air intake pipe for the furnace
- OR
- 6 inch fresh air intake duct

In both cases, the Sensor must be no further than 3 feet from the outside wall. See Figure E.



STEP 8: Route the Wire to Chosen Sensor Location

Run wire to the Outdoor Temperature Sensor. If sensor is outdoors, attach to the house. Temperature Sensor is not affected by lead length.

In either case, do not run Outdoor Temperature Sensor wire alongside wires carrying high voltage (120 VAC or higher).

STEP 9: Wiring

NOTE: The control will function with either a switched or continuous 24 VAC Power source.

For Manual Operation see **Diagram E**.

Diagram A

FAN POWERED HUMIDIFIER WIRING DIAGRAM

FOR OPERATION DURING "HEATING CALL" ONLY

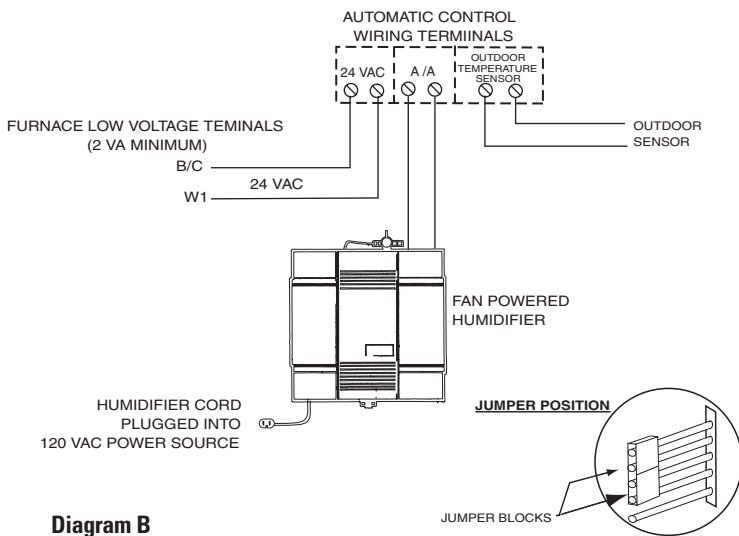


Diagram B

FOR HUMIDIFIER OPERATION WHEN BLOWER IS ENERGIZED

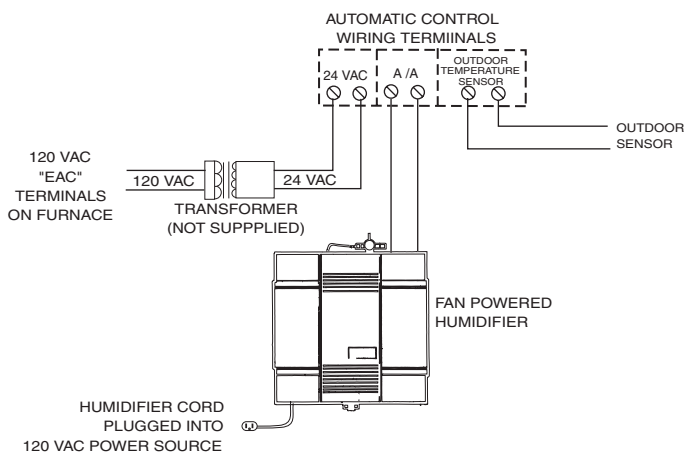


Diagram C

BYPASS HUMIDIFIER WIRING DIAGRAM

FOR OPERATION DURING "HEAT CALL" ONLY

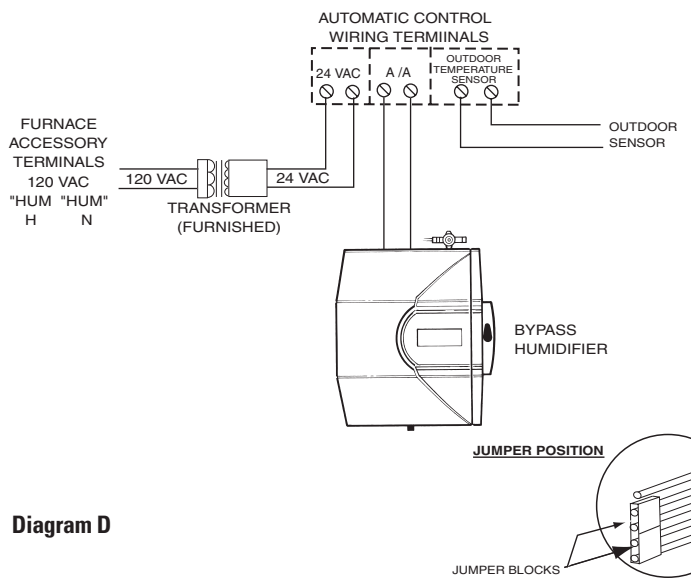


Diagram D

FOR HUMIDIFIER OPERATION WHEN BLOWER IS ENERGIZED

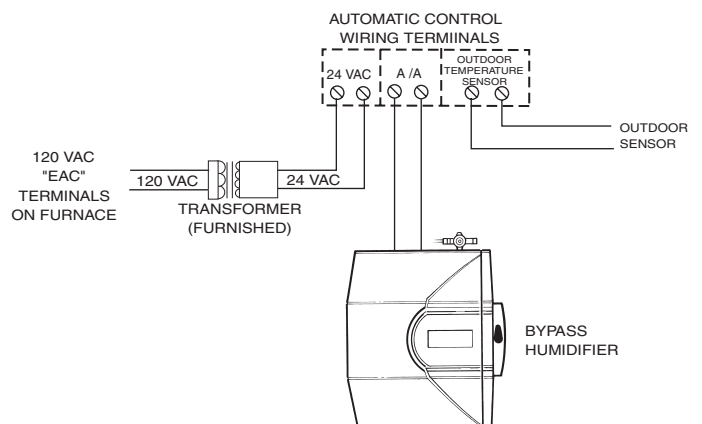
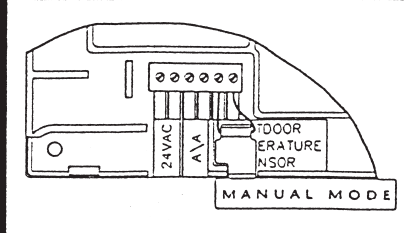


Diagram E

Installing the Humidifier Control for Manual Operation

If it is not feasible to use the Outdoor Temperature Sensor, the Humidifier Control can be installed in Manual Mode.

1. Insert the Manual Mode Resistor Case into the terminals labeled "Outdoor Temperature Sensor" on the Humidifier Control.
2. Snap the Resistor Case into the slot provided so that Resistor Case sticks out from the bottom edge of the base.
3. Follow Instructions to complete the wiring. Apply the Manual Mode Faceplate into the recessed area of the cover. Return the cover to the base and re-install knob.



System Checkout

1. For system test, be sure that 24 VAC is applied to the 24 VAC terminals of Humidifier Control.
2. Put the cover and knob back onto Humidifier Control base.
3. Activate furnace blower and be sure thermostat is calling for heat.
4. Rotate the control knob of Humidifier Control clockwise to the "Test" position.
5. If all is set up properly, you should be able to hear the solenoid valve click open. In "Test" mode, the Humidifier will operate for 1 minute.
6. If the humidifier does not activate with the Humidifier Control in the "Test" position, refer to troubleshooting guide.
7. Setting the Humidifier Control:
 - If home is occupied, set Humidifier Control to "Normal"
 - If home is vacant, set Humidifier Control to "Off"
8. Inform homeowner to set the Humidifier Control to "Normal" (position 5) for the initial adjustment period. Once the Humidifier Control is properly adjusted, no further adjustment is necessary!

PROCEDURE TO DETERMINE RH IN THE HOME:

1. Activate furnace blower.
2. Turn the control dial to OFF. Slowly turn the dial clockwise until the solenoid valve clicks on. Then, slowly turn the dial counter-clockwise until the solenoid valve clicks off. At that point, note the dial setting.
3. Locate the dial setting in Table 2. Follow the line across until it intersects the column with the outdoor temperature. The number in the box is the relative humidity in the home.
4. Return the thermostat and control dial to their original settings.

As an example, if the outdoor temperature is 20°F, and the solenoid valve clicks off at dial setting 5, the indoor RH is 35%.

(Table 2) % Relative Humidity Guide

		Outdoor Temperature (°F)					
		-10	0	10	20	30	40
Dial Setting	1	10	10	10	15	20	25
	2	10	10	15	20	25	30
	3	10	15	20	25	30	35
	4	15	20	25	30	35	40
	5	20	25	30	35	40	45
	6	25	30	35	40	45	45
	7	30	35	40	45	45	45

Humidifier operates only in "Test" mode

- If outdoor temperature is greater than 65°F or less than -32°F, the Humidifier Control will only operate in the "Test" mode.
- If the humidity level in the home is higher than the knob setting, the Humidifier Control will not operate the Humidifier.
- Check the resistance of the sensor by removing the leads of the Outdoor Temperature Sensor from the terminals and measuring the resistance across the wires with an ohmmeter. Confirm reading to outdoor temperature in Table 1.
- Make sure the Outdoor Temperature Sensor is mounted completely outside the house on the North, East, or West side of the house and out of direct sunlight.
- If Outdoor Temperature Sensor is mounted in fresh air intake duct, make sure the probe is no further than 36 inches from the outside wall.
- Make sure the Outdoor Temperature Sensor is located at least 3 feet away from all exhaust vents.

TABLE 1

Outdoor Temperature	Resistance
100° F	6,000 OHMS
90° F	7,500 OHMS
80° F	9,500 OHMS
70° F	12,000 OHMS
60° F	15,500 OHMS
50° F	20,000 OHMS
40° F	26,000 OHMS
30° F	34,500 OHMS
20° F	46,000 OHMS
10° F	62,000 OHMS
0° F	84,500 OHMS
-10° F	116,500 OHMS
-20° F	162,500 OHMS
-30° F	229,500 OHMS

Humidifier Control Troubleshooting Guide

SYMPTOM

TROUBLESHOOTING PROCEDURE

Humidifier operates constantly

- If the humidity level in the home is less than the knob setting, the Humidifier Control will operate the Humidifier until the humidity level is higher than the knob setting.
- In the "Test" mode, verify unit will operate for approximately one minute.
- Check the resistance of the sensor by removing the wires of the Outdoor Temperature Sensor and measuring the resistance across the wires with an ohmmeter. Confirm reading to outdoor temperature in Table 1 above.
- Make sure the Outdoor Temperature Sensor is mounted completely outside the house on the North, East, or West side of the house and out of direct sunlight.
- Rotate the Humidifier Control knob counterclockwise to the "Off" position, and observe whether the humidifier turns off. If the humidifier still operates in the "Off" position, perform the following:
 1. Check summary wiring diagram for correct Humidifier Control Installation.
 2. Remove wires from Humidifier Control's "A/A" terminals. If Humidifier continues to operate, replace solenoid valve.

Humidifier or Humidifier Control "chatters" or clicks ON and OFF rapidly

- Check for steady 22 VAC – 30 VAC with voltmeter.
- Make sure Outdoor Temperature Sensor wiring is not run alongside wires carrying high voltage (120 VAC or higher).

Humidifier does not operate in "Test" mode

- Make sure furnace blower is operating and thermostat is calling for heat.
- Make sure the Outdoor Temperature Sensor is connected to the "Outdoor Temperature Sensor" terminals of the control.
- Check main wiring diagram for correct Humidifier Control installation.
- Check voltage at Humidifier Control 24 VAC terminals. Voltage should be 22 VAC minimum – 30 VAC maximum.
- Check Humidifier Control for correct installation of jumper blocks.
- Check Current Sensing Relay (if used) for correct installation. Do not use Model 50 Relay in transformer circuit or "24 VAC" circuit of Humidifier Control. Model 50 relay is to be used in the "A/A" circuit only.
- In "Test" mode, humidifier will operate for 1 minute only. **DO NOT LEAVE IN TEST MODE AS HUMIDIFIER WILL NOT OPERATE.**

WARNING

Sharp edges on the opening may cause cuts. Use care when cutting the plenum opening and installing the Humidifier Control.

CAUTION

- Do not mount Humidifier Control on supply plenum or duct. The unit will not withstand supply temperatures and will malfunction!
- When installing Humidifier Control on counterflow furnaces, ensure blower continues to run after a heat call is satisfied to eliminate high temperatures from damaging the Humidifier Control.
- Do not mount Humidifier Control downstream of the bypass outlet. False humidity conditions will cause humidifier to operate incorrectly.

1. **CUT OUT TEMPLATE ALONG EDGES.**
2. **PLACE THIS TEMPLATE ON THE RETURN PLENUM UPSTREAM OF (BEFORE) THE HUMIDIFIER CONNECTION.**
3. **TRACE THE OUTSIDE EDGES OF THIS TEMPLATE.**
4. **REMOVE TEMPLATE AND ACCURATELY CUT THE PLENUM OPENING.**
5. **USING 4 SHEET METAL SCREWS, INSTALL HUMIDIFIER CONTROL IN PLENUM OPENING.**



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