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Supersedes 10/2010

**RELATIVE HUMIDITY (RH)  
SENSOR KIT**

**INSTALLATION INSTRUCTIONS FOR THE RELATIVE HUMIDITY (RH) SENSOR KIT (17M50,  
76M31) USED WITH LG/LC/LH/SG/SC AND ENERGENCE® ROOFTOP UNITS**

**⚠ WARNING**

Improper installation, adjustment, alteration, service or maintenance can cause personal injury, loss of life, or damage to property.

Installation and service must be performed by a licensed professional installer (or equivalent) or a service agency.

**⚠ CAUTION**

Electrostatic discharge can affect electronic components. Take precautions during unit installation and service to protect the unit's electronic controls. Precautions will help to avoid control exposure to electrostatic discharge by putting the unit, the control and the technician at the same electrostatic potential. Neutralize electrostatic charge by touching hand and all tools on an unpainted unit surface before performing any service procedure

ELECTROSTATIC  
DISCHARGE (ESD)  
Precautions and  
Procedures

**Shipping and Packing List**

- 1 - Sensor (A91)
- 2 - Screws

**Application**

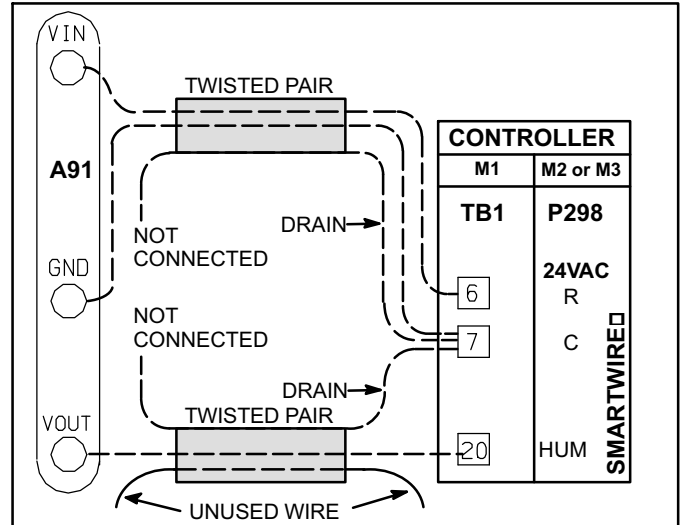
The relative humidity sensor is used with LG/LC/LH/SG/SC and Energence® rooftop units to monitor and control condenser reheat for Humiditrol® units or supermarket reheat applications. The sensor can also be used with the BC1-1 Building Controller for L Connection network applications.

The 17M50 sensor is wall-mounted; 76M31 is duct-mounted.

**Cable Applications**

**Wire runs of 50' (15m) or less:**

Use two separate shielded cables containing 20AWG minimum, twisted pair conductors with overall shield. Belden type 8762 or 88760 (plenum) or equivalent. Connect both cable shield drain wires as shown in figure 1.



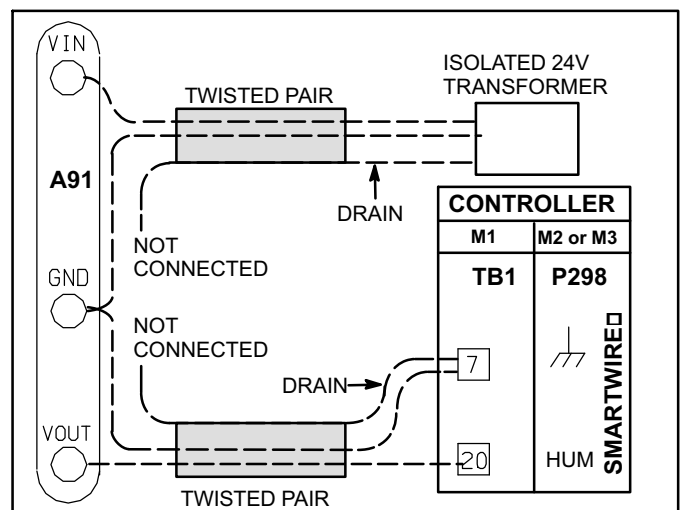
**Figure 1. Field Wiring  
(150' [46m] or shorter runs)**

**Wire runs of 150' (46m) or less:**

Use two separate shielded cables containing 18AWG minimum, twisted pair conductors with overall shield. Belden type 8760 or 88760 (plenum) or equivalent. Connect both cable shield drain wires as shown in figure 1.

**Wire runs over 150 feet (46m):**

Use a local, isolated 24VAC transformer such as Lennox cat #18M13 (20VA minimum) to supply power to RH sensor as shown in figure 2. Use one shielded cable containing 20AWG minimum, twisted pair conductors with overall shield. Belden type 8762 or 88760 (plenum) or equivalent.

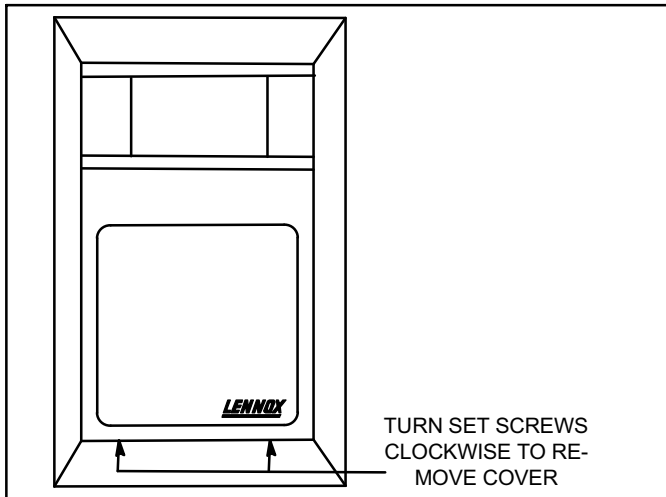


**Figure 2. Field Wiring  
(150' [46m] or longer runs)**

## Wall-Mount Installation

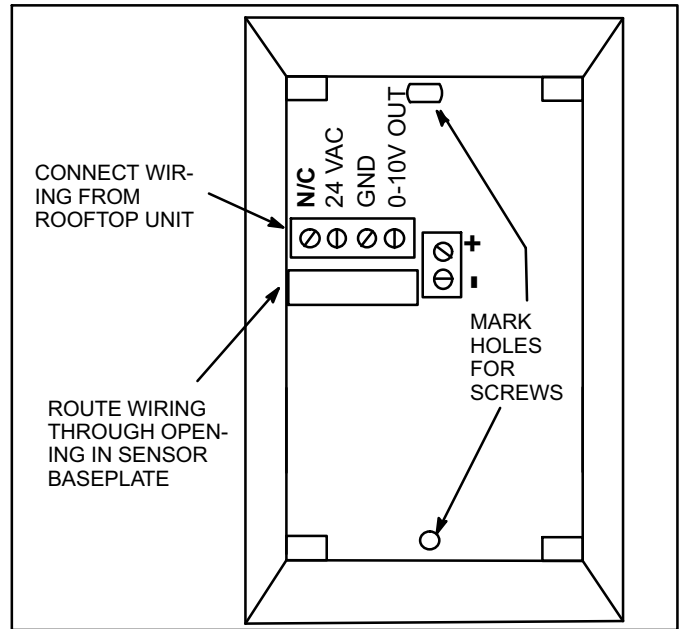
Install sensor on a standard handy box or directly on wall. Locate sensor in conditioned space approximately 5 feet (1-1/2m) above the floor in an area with good air circulation at average temperature. Avoid locating the sensor where it might be affected by:

- drafts or dead spots behind doors and in corners
  - hot or cold air from ducts
  - radiant heat from sun or appliances
  - excessive moisture
  - corrosive fumes
  - excessive vibration
  - extremely high temperatures
1. Route shielded cables from the rooftop unit to the appropriate location in the conditioned space.
  2. Loosen screws and remove sensor cover (see figure 3).



**Figure 3. Wall-mount Humidity Sensor (A91)**

3. Center opening in baseplate over opening in wall.
4. Mark holes for screws (see figure 4). Remove baseplate and drill holes.
5. Insert wall anchors (field provided) and align baseplate over opening in wall. Pull wiring through opening in baseplate. Secure baseplate to wall with screws.
6. Connect wiring for appropriate length of run as shown in figure 1 or 2.
7. Replace humidity sensor cover and turn set screws counterclockwise to secure cover in place.



**Figure 4. Wall-mount Sensor Baseplate**

## Return Duct Installation

### ⚠ NOTICE

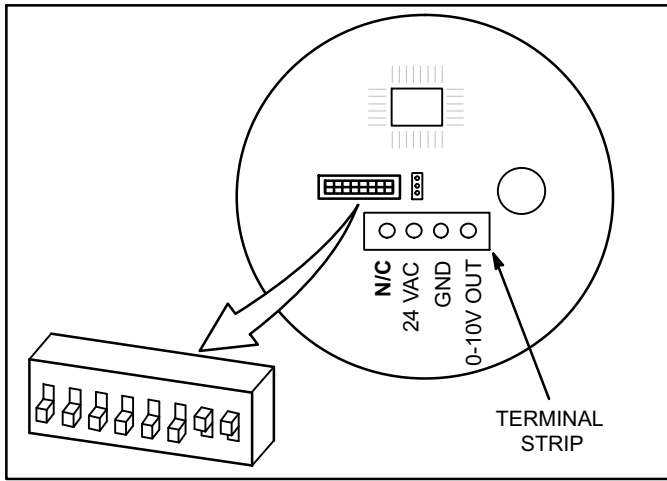
When installing duct-mount sensor (76M31) in Humiditrol units, use only IMC ECTO 4.24 or M3 Parameter 105 option 3 or 6. For supermarket reheat applications, make sure the thermostat or energy management system is set to maintain the blower in continuous operation. Both reheat applications require that the blower be energized before a reheat demand. Refer to IMC manual.

Install the sensor in the return air duct at least 6 feet (1.88m) away from the unit.

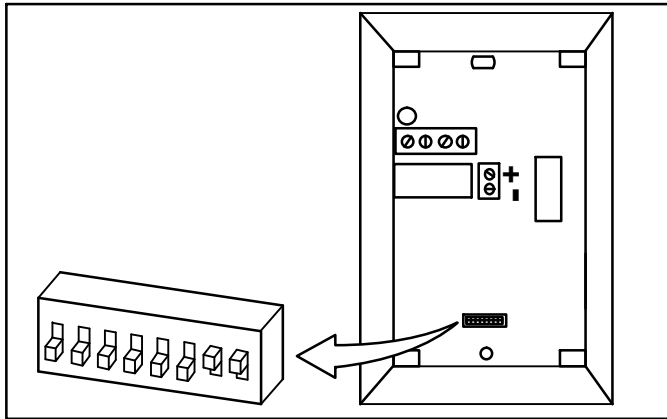
1. Drill a 3/4 in. (19mm) hole in the return air duct.
2. Insert the probe into the hole and secure the sensor enclosure to the duct with two 8 X 3/4" self tapping screws. Make sure the foam gasket fits securely against duct.
3. Remove the enclosure cover by turning counterclockwise. Remove the appropriate knock-out and install conduit connectors if used. Remove the knock-out outer ring when using a 1/2" NPT conduit fitting.
4. Route shielded cable from the rooftop unit to the sensor. Connect wiring as shown in figure 1.
5. Replace enclosure cover and turn clockwise to secure. DO NOT OVERTIGHTEN.

## DIP Switch Settings

DIP switches are set at the factory. Proper settings are shown in figures 5 and 6.



**Figure 5. Duct-mount DIP Switch Settings**



**Figure 6. Wall-mount DIP Switch Settings**

### Check-Out

Verify the humidity reading is proper by using the L Connection® PC Software, the NCP (A105), the controller (A55), or by measuring the sensor output voltage

Relative humidity should correspond to the sensor (A91) output voltage listed in table 1. For example: if indoor air relative humidity is 80% ± 3%, the humidity sensor output should read 8.00VDC.

Check the sensor output annually for accuracy. Keep the air intake openings on the sensor clean and free of obstructions and debris.

**Table 1. RH to Sensor Output Voltage**

Relative Humidity (%RH ± 3%)	Sensor Output (VDC)
20	2.00
30	3.00
40	4.00
50	5.00
60	6.00
70	7.00
80	8.00
90	9.00

