

# Wall-Mount Dewpoint Probe (809-2011)

## Installation Instructions

The HMW90 Wall-Mount Dewpoint Probe (P/N 809-2011) HMW90 measures dewpoint for indoor applications such as anti-sweat heater control and HVAC dehumidification. The probe's linear 0-5VDC output makes the probe compatible with the E2 site controller and all legacy CPC site control products that use MultiFlex and 16AI input boards.

Note that the HMW90 dewpoint probe model is shipped factory-configured. Do not adjust dip switch settings or configuration loss may occur to the unit. The model number can be identified by checking the label located on the side of the unit (Figure 1).

## HMW90 Specifications

Property	Description/Value	Property	Description/Value
Operating Temperature	+23°F to +131°F (-5°C to +55°C)	Relative Humidity Range	0-90% RH 90-100% RH
Storage Temperature	-4°F to +140°F (-20°C to +60°C)	Accuracy	+/- 1.7% RH +/- 2.5% RH
Supply Voltage	18-35VDC or 24VAC *	Output Voltage	2 x 0-5v or 2 x 0-10v
Current Consumption	12mA	External Load	10k $\Omega$ min.

Table 1 - HMW90 Specifications

\*May be powered with MultiFlex or 16AI, 12 VDC output, if optional relay is not used.

## Mounting

Mount the dewpoint probe enclosure against a flat surface (such as a wall or riser) or junction box. Remove the front cover, and remove the two screws that attach the probe's circuit board to the rear mounting plate (Figure 2). Attach the mounting plate to the mounting surface (Figure 1), then reattach the circuit board and snap the cover back in place.

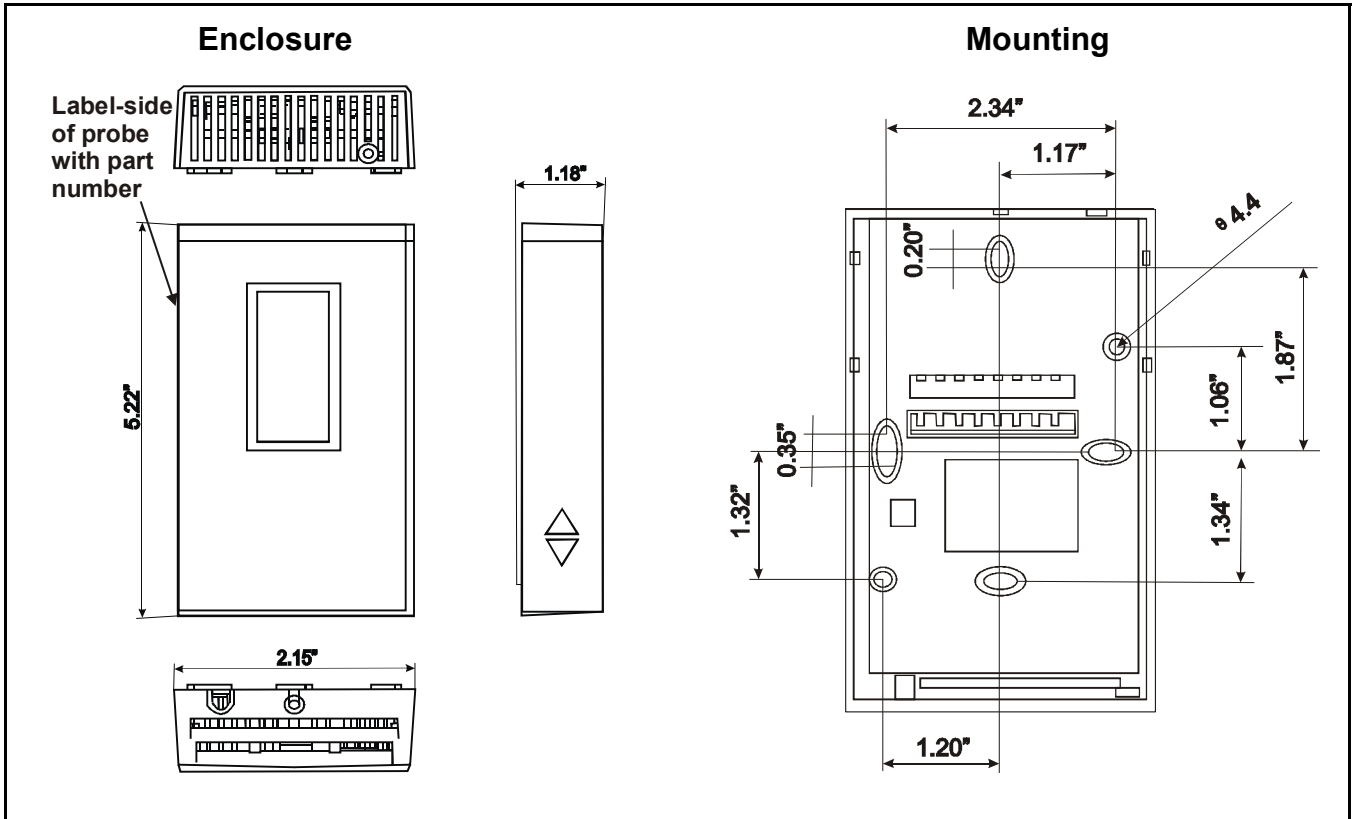


Figure 1 - Enclosure Dimensions and Mounting Plate

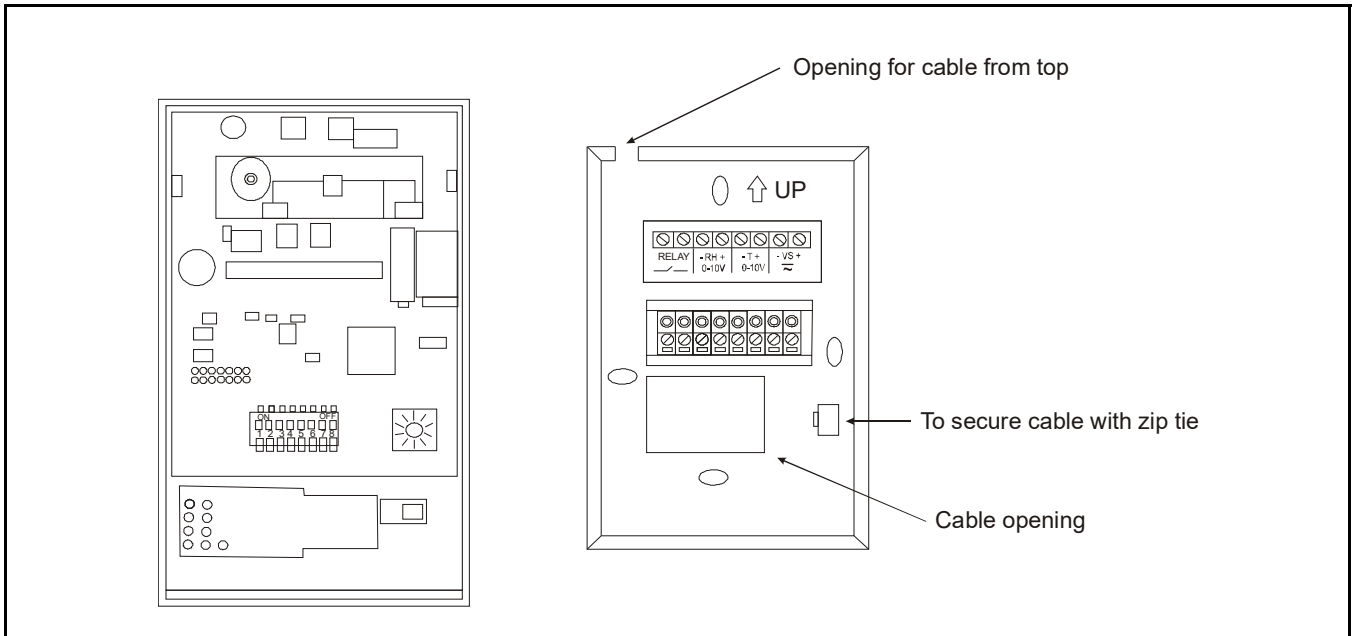


Figure 2 - Circuit Board

## Power and Input Wiring

To wire the dewpoint probe to a MultiFlex or 16AI input point, use Belden #8771 three-conductor shielded 22AWG wire (or equivalent). **Figure 3** shows the connection point on the dewpoint probe and where to connect the wires to the probe as well as the MultiFlex input point. The probe is powered by the +12VDC power supply terminal on the MultiFlex or 16AI input boards. Connect the SHIELD wire on the MultiFlex end of the cable to a separate earth ground near the board.

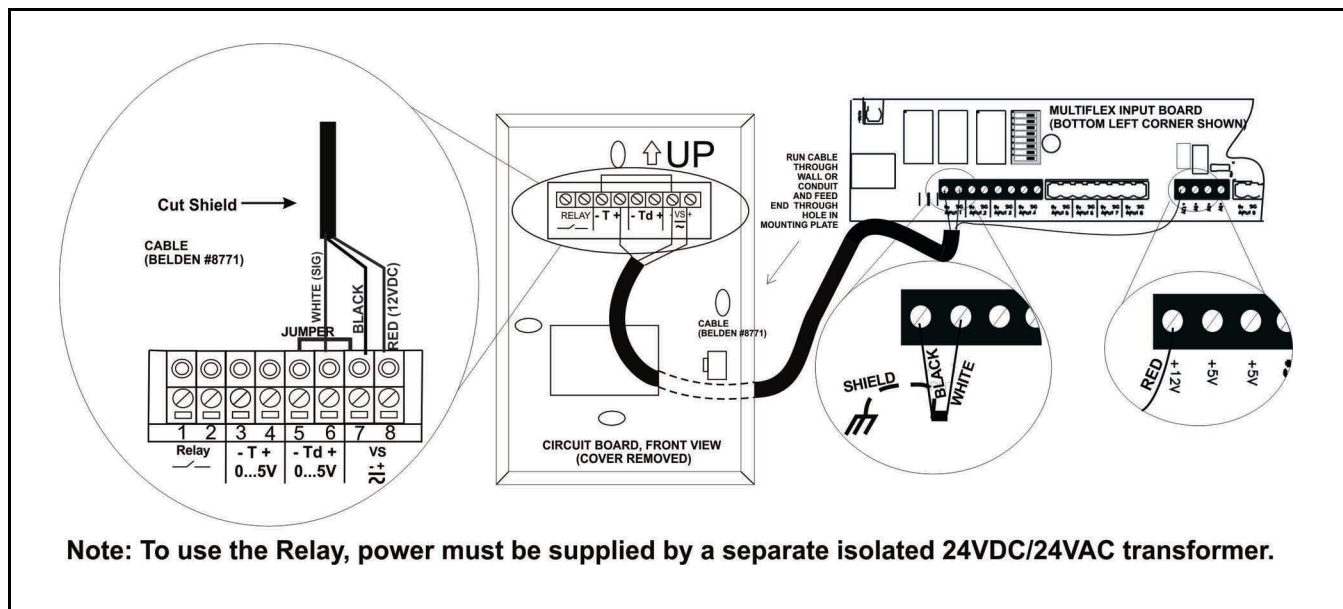


Figure 3 - Dewpoint Probe Wiring

If you are replacing a faulty HMW93 dewpoint probe, it is recommended that the mounting plate be replaced. The wiring of the HMW90 dewpoint probe signal wire has been moved. The white signal wire will now connect to terminal 6, and the jumper wire will now connect from terminal 7 to terminal 5 on the back mounting plate (see **Figure 3**).

The input type dip switch on the MultiFlex or 16AI input board must be set to the DOWN or OFF position. Input type dip switches for points #1 through #8 are located on switch bank S1, while points #9 through #16 are located on switch bank S2.

Dewpoint dip switches are factory set:

1. Non-metric: for Degrees F
2. Td: (dewpoint) for dewpoint linear output on RH terminals
3. 0 to 5V linear output for MultiFlex inputs

*Note: The linear ranges on the label-side of the HMW90 dewpoint probe box are for reading dewpoint. Dewpoint probe dip switches are factory set and should be not be changed. Td (0°F to 100°F) or (-18°C to 38°C).*

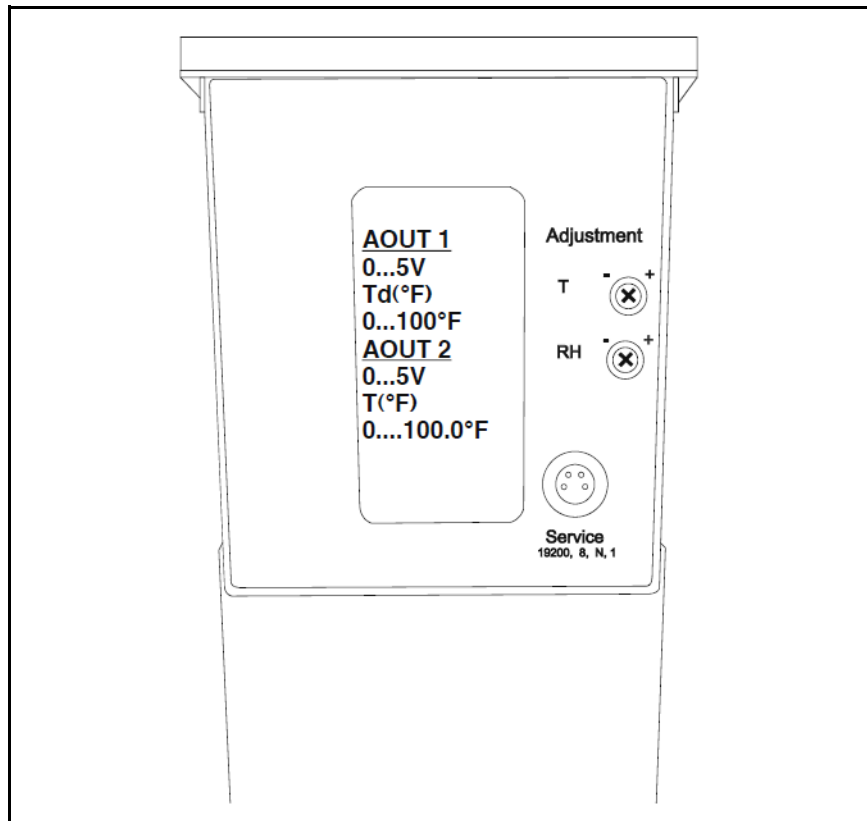







Figure 4 - HMW90 Power Up Screen

## E2 Input Setup

**NOTE:** Do **NOT** set up this probe with a sensor type of **Dewpoint**; this setting only works for old-style Dewpoint Probes (P/N 203-1902). This probe must be set up with a sensor type of **Linear**.

1. Log into the E2 and press    (Input Summary).
2. Highlight the input point the Dewpoint Probe is connected to, and press  (Setup).
3. When prompted to select the data type, press  (Analog).

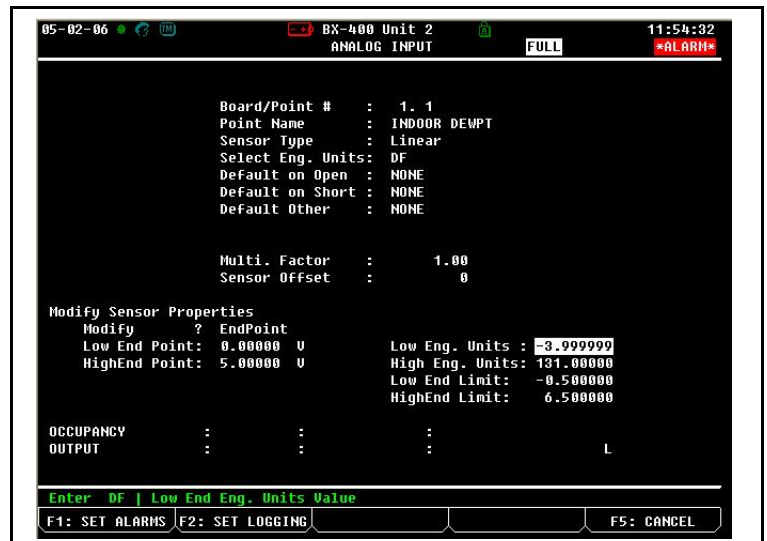



Figure 5 - E2 Input Setup

4. In the *Analog Input* screen, enter the following information in the fields listed below:
  - **Name:** A description of the sensor's function and/or location (for example, INDOOR DEWPT).
  - **Sensor Type:** Linear
  - **Eng. Unit:** DF
  - **Low Eng. Units:** 0
  - **High Eng. Units:** 100
5. Press  to save changes and exit the *Analog Input* setup screen.

*Note: If you are using Degrees C, set Eng. Unit: **DC**, Low Eng. Units: **-18.0** and High Eng. Units: **38**. The E2 controller can be set to display degrees Celsius, but the dewpoint probe only displays in degrees Fahrenheit.*

## Calibration

*The dewpoint probe is factory calibrated and should not need to be recalibrated. If the dewpoint probe is out of calibration, DO NOT use the E2 input offsets. The calibration must be adjusted on the dewpoint probe itself. If the dewpoint probe needs calibration, contact your Emerson sales representative for more information 770-425-2724.*

## Troubleshooting

1. If the dewpoint is not reading correctly on the E2, verify that the Low and High Engineering Units are set correctly. The dewpoint probe's linear range can be seen on the second screen during power up. This range is normally 0°F to 100°F but some earlier HMW93 units have a range of -4°F to 131°F.
2. If the dewpoint probe is not reading correctly, verify that the signal wire on the dewpoint probe is connected to the correct terminal location on the HMW unit.

For Technical Support call 833-409-7505 or email [ColdChain.TechnicalServices@Emerson.com](mailto:ColdChain.TechnicalServices@Emerson.com)

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