

Wall-Mount Dewpoint Probe

P/N 210-2011

The HMW90 and HMW93 models of the Wall-Mount Dewpoint Probe (P/N 210-2011) measure dewpoint for indoor applications such as anti-sweat heater control and HVAC dehumidification. The probes 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 and HMW93 dewpoint probe models are shipped factory-configured. Do not adjust dip switch settings or configuration loss may occur to the unit. You can identify which model type you have by checking the label located on the side of the unit. (See [Figure 1 - Enclosure Dimensions and Mounting Plate](#)).

Specifications for HMW90 and HMW93 Models

Property	Description/Value	Property	Description/Value
Operating Temperature	-5°C to +55°C (+23°F to +131°F)	Relative Humidity Range	0-90% RH 90-100% RH
Storage Temperature	-20°C to +60°C (-4°F to +140°F)	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 Ω min.

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

Mounting for HMW90 and HMW93 Models

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 - Circuit Board*). Attach the mounting plate to the mounting surface (*Figure 1 - Enclosure Dimensions and Mounting Plate*), then re-attach the circuit board and snap the cover back in place.

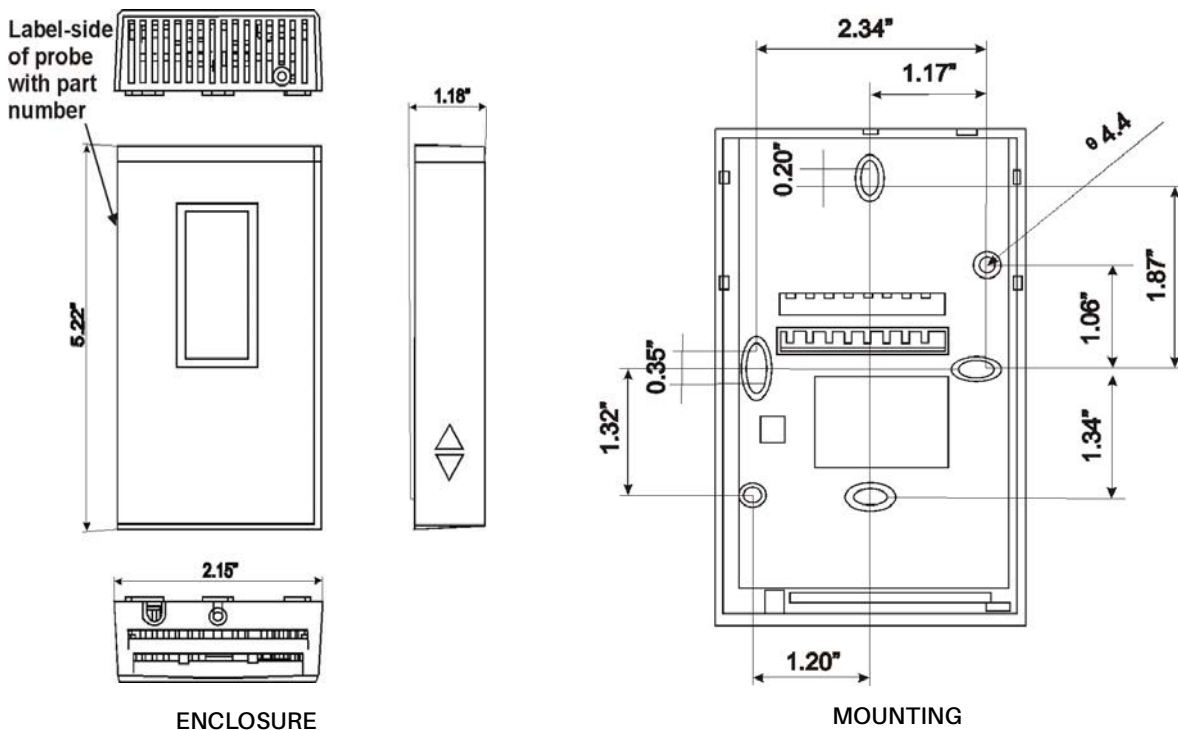


Figure 1 - Enclosure Dimensions and Mounting Plate

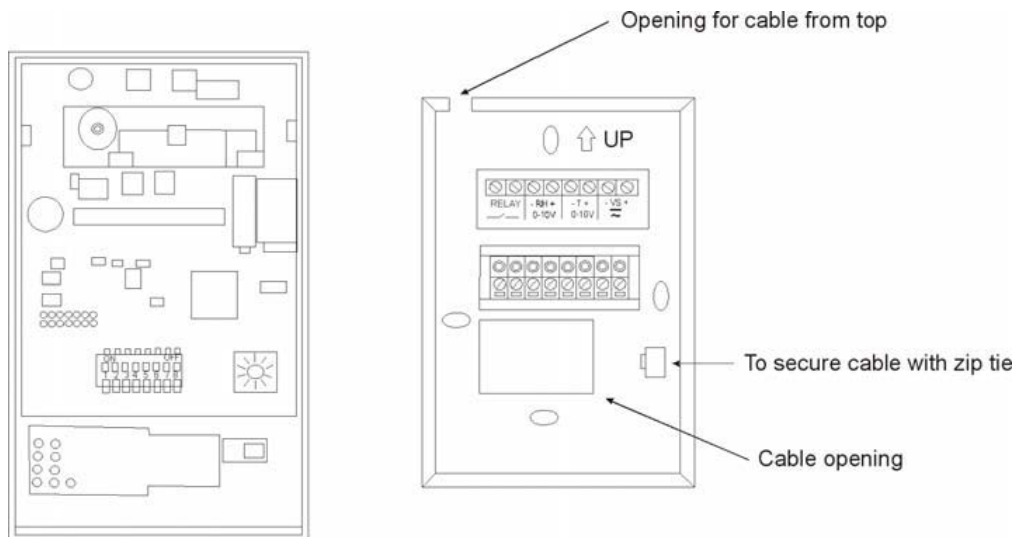


Figure 2 - Circuit Board

HMW93 Model 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 - HMW93 Model Dewpoint Probe Wiring](#) 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.

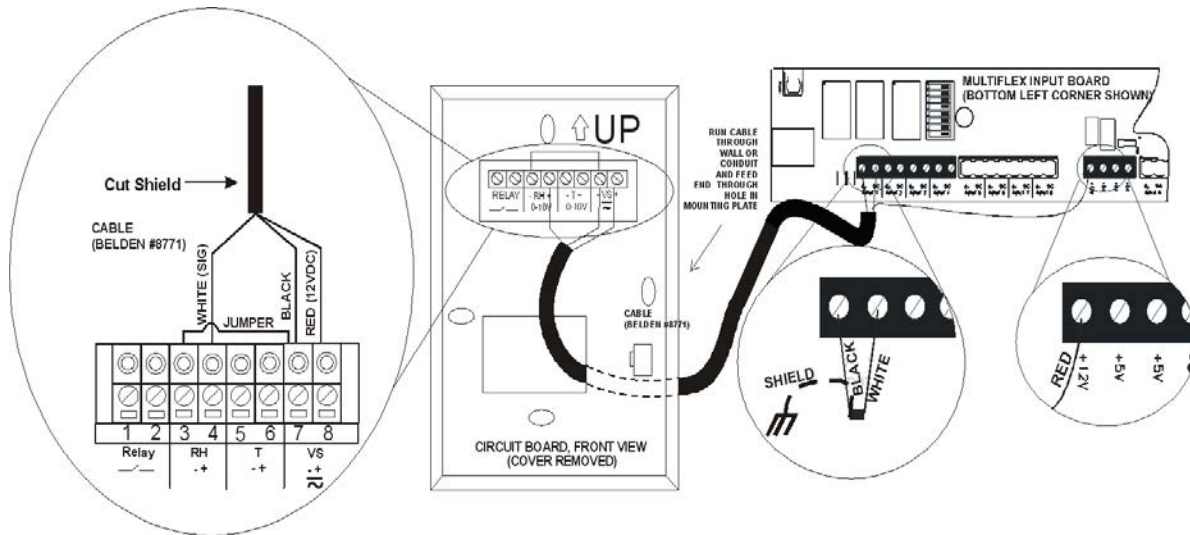


Figure 3 - HMW93 Model Dewpoint Probe Wiring

The input type dip switch on the MultiFlex or 16AI input board must be set to the **DOWN** 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.

Note that on the HMW93 model, the linear ranges on the label-side of the dewpoint probe box are for temperature and humidity, not for reading dewpoint. Dewpoint probe dip switches are factory set and should not be changed.

Td (-4....131°F) or (-20....55°C).

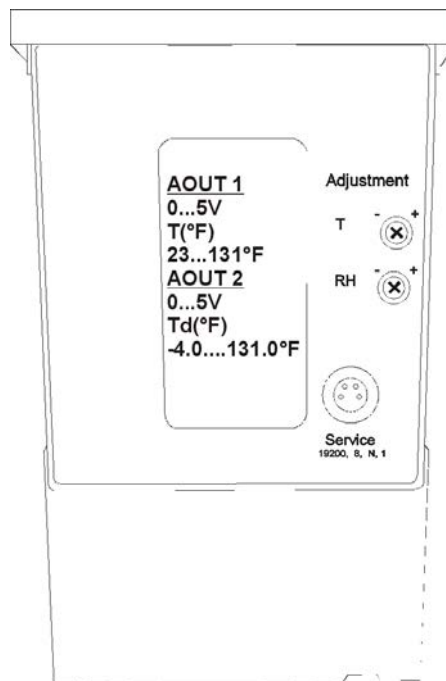





Figure 4 - HMW93 Power Up Screen

HMW93 Model E2 Input Setup

NOTE: Do **NOT** set up this probe with a sensor type of **Dewpoint**; this setting only works for old-style CPC 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 **F1** (Setup).
3. When prompted to select the data type, press **1** (Analog).
4. In the **Analog Input** setup 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:** -4 (will display as -3.999999)
 - **High Eng Units:** 131

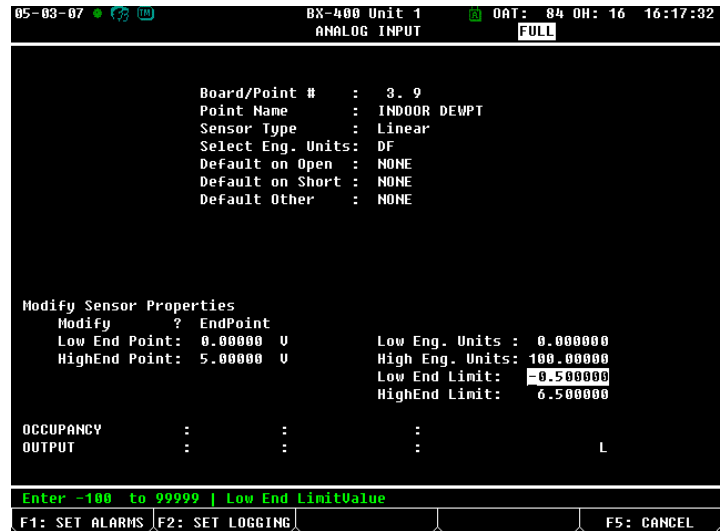


Figure 5 - E2 Input Setup

If you are using degrees Celsius, set:


- **Eng. Unit:** DC
- **Low Eng. Units:** -20.0
- **High Eng. Units:** 55

Some models of the HMW93 will use:

- **Low Eng Units:** 0
- **High Eng Units:** 100

If you are using degrees Celsius, set:

- **Eng. Unit:** DC
- **Low Eng. Units:** -18.0
- **High Eng. Units:** 38

5. Press  to save changes and exit the **Analog Input** setup screen.

Note that the E2 controller can be set to display degrees Celsius, but the **Dewpoint Probe** only displays in degrees Fahrenheit.

HMW90 Model 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 6 - HMW90 Dewpoint Probe Wiring](#) 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.

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 6 - HMW90 Dewpoint Probe Wiring](#)).

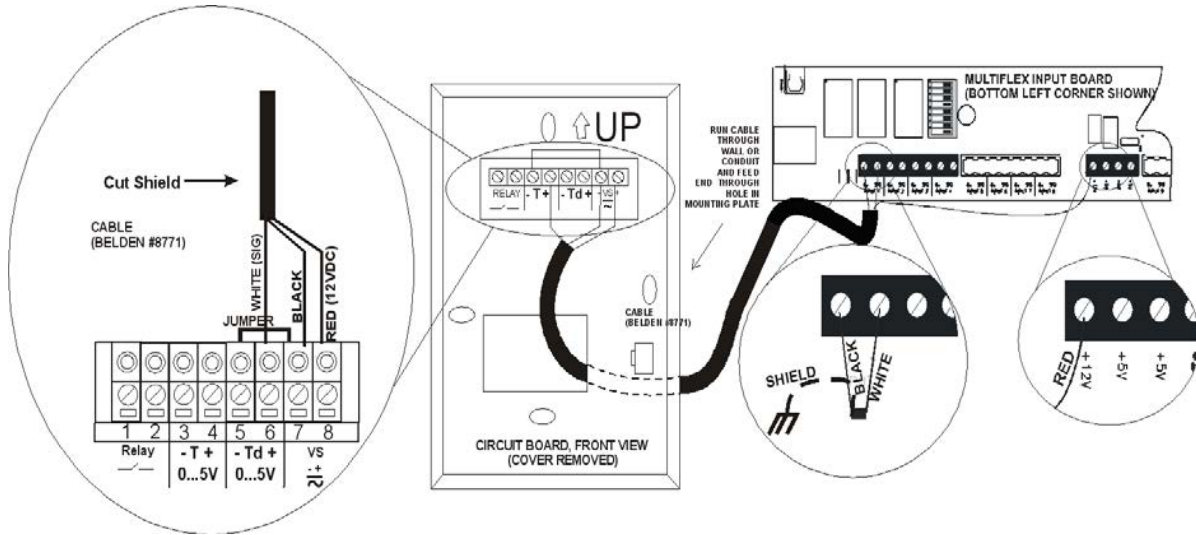


Figure 6 - HMW90 Dewpoint Probe Wiring

The input type dip switch on the MultiFlex or 16AI input board must be set to the **DOWN** 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.

Note that 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 not be changed.

Td (0....100°F) or (-18....38°C).

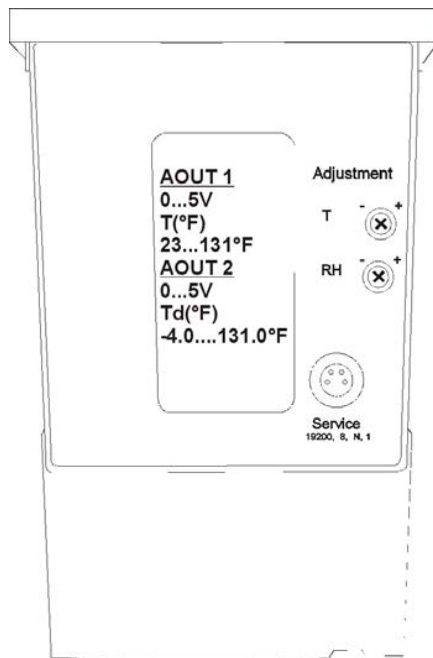


Figure 7 - HMW90 Power Up Screen

HMW90 Model E2 Input Setup

NOTE: Do **NOT** set up this probe with a sensor type of **Dewpoint**; this setting only works for old-style CPC 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).
4. In the **Analog Input** setup 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



Figure 8 - E2 Input Setup

If you are using degrees Celsius, set:

- **Eng. Unit:** DC
 - **Low Eng. Units:** -18.0
 - **High Eng. Units:** 38
5. Press  to save changes and exit the **Analog Input** setup screen.

NOTE: 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 re-calibrated. 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 Copeland 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 probes linear range can be seen on the second screen during power up. This range is normally 0...100°F but some earlier HMW93 units have a range of -4...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.

Visit our website at copeland.com/en-us/products/controls-monitoring-systems for the latest technical documentation and updates.

For Technical Support call 833-409-7505 or email ColdChain.TechnicalServices@Copeland.com