0-10 V Wall & Duct Humidistat Installation Instructions

This document covers the operation and installation instructions for the following Condair Digital Humidistats:

Part #:	Description:
1510142	0-10 V Digital Wall Humidistat
2520266*	0-10 V Digital Duct Humidistat

Note: Part #2520266 is comprised of two parts:
1509857	Duct Sensor
2520261	Humidistat w/o sensor

1510142 – 0-10 V Digital Wall Humidistat Installation

Location

1. The wall humidistat should not be installed on an outside wall.
2. The sensor should be installed away from any heat source and away from direct sunlight.
3. The wall surface should be flat and clean.
4. Any draft originating from the wall interior should be prevented from interacting with the humidity sensor. A vapor barrier should be installed.
5. Condair recommends using a sealed, single-gang electrical mounting box (recessed in wall) to mount the wall humidity sensor.

Installation

1. Pull cables 6" (15cm) out of the wall
2. To remove the front face with the digital display, loosen the retaining screw at the bottom of the case. Pull firmly but gently on the bottom of the front face to unplug the face from the backboard. The front face will unhinge from the top retaining clips.
3. Connect the control wires to the terminals according to the wiring diagram(s). Table 1 outlines the terminal layout of the digital humidistat.
4. Secure the metal bracket to the mounting box using 2 screws. Make sure the screw heads do not stand out more than 1/5" (5mm) from the mounting surface.
5. Mount the front face onto the metal bracket. Ensure the top clips engage the grooves on the top of the metal bracket. Carefully lower the front face until the interconnector reaches the mounting plate. Ensure the connector pins are aligned with the plug on the back plate. While inserting the connectors, a slight resistance will be felt. Continue pressing gently until the front face is fully seated and tighten the retaining screw to secure the face.

2520266 – 0-10 V Digital Duct Humidistat Installation

Part #1509857 – Duct Sensor Installation

Location

1. The duct sensor should be installed directly on the duct in an area where the air is well mixed with uniform flow.
2. The supply air sensor should be mounted downstream of the steam distributor at a distance 1.5 times the absorption distance (typically 10-12 ft or 3-3.7 m).
3. If a return air humidity sensor is used it should be mounted close to the air inlet but downstream from a return fan if one is present.

Installation

1. Open the housing by removing the 4 screws securing the housing together.
2. Push the probe through the center hole and tighten the 2 mounting screws.
3. Drill a 1/2" (13mm) hole in the duct and insert the probe into the air stream.
4. Secure the sensor to the duct using 2 sheet-metal screws.
5. Connect the signal wires to the sensor terminal strip. Table 1 outlines the terminal layout of the digital humidistat.
6. Connect the plug from the temperature probe to the PCB board into the plug marked 'PROBE'.
7. Close the cover and secure using the 4 Screws removed in step 1.

Part #2520261 – Humidistat w/o Sensor Installation

Refer to the installation instructions on page 1 for Part #1510142 – Wall Humidistat Installation.

Table 1: Humidistat Terminal Layout

	Wall Humidistat - (Part # 1510142)	Humidistat w/o Sensor - (Part # 2520261)
Ground	1	1
24 VAC	2	2
Outdoor Temperature Input	8	8
Control Output	6	6
Duct Sensor Input	N/A	7

Humidistat LCD Display

Legend for Figure 1.

1. Display of current humidity value.
2. Snowflake indicates outdoor temperature setback for winter compensation is in effect.
3. Setpoint display.
4. Graphical display of output value with increments of 10%.
5. Buttons for operating the humidistat:

   ⓪   POWER button: No function.

   △ ▽   UP/DOWN buttons: Adjusts calibration value.

   ▷   OPTION button: Used for accessing the sensor calibration routine.
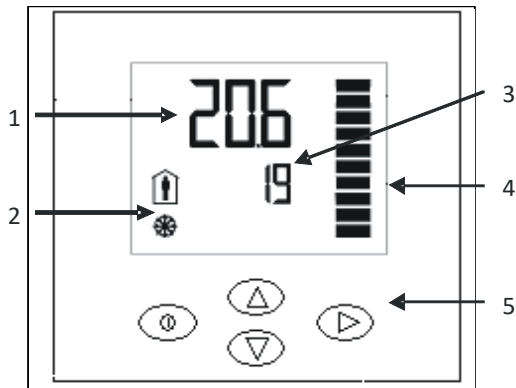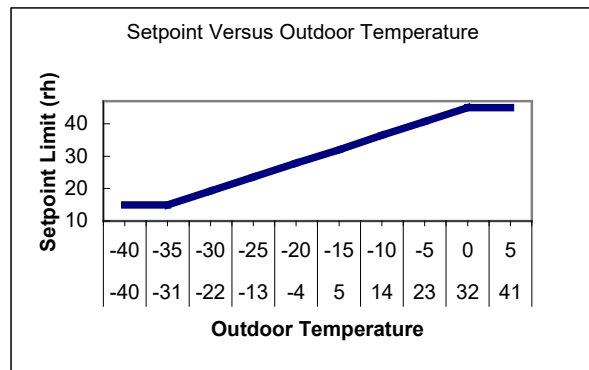

Figure 1: Wall Sensor LCD Display

Figure 2: Outdoor Temperature Setback

Sensor Calibration

1. The humidity sensor is factory calibrated, however, it can be field recalibrated. The calibration routine can be accessed by pressing and holding down the option button for five seconds. A new screen will appear with the calibration adjustments.

2. Press the up or down buttons until the text *calH* appears on the LCD screen. To adjust the calibration, press the Option button. The screen should load to display the current calibration trim. The calibration trim can be adjusted by pressing the up or down buttons to the desired level and then pressing the option button to confirm the settings. Press the Power button to return to the normal display.

Specifications

Table 2: Specifications

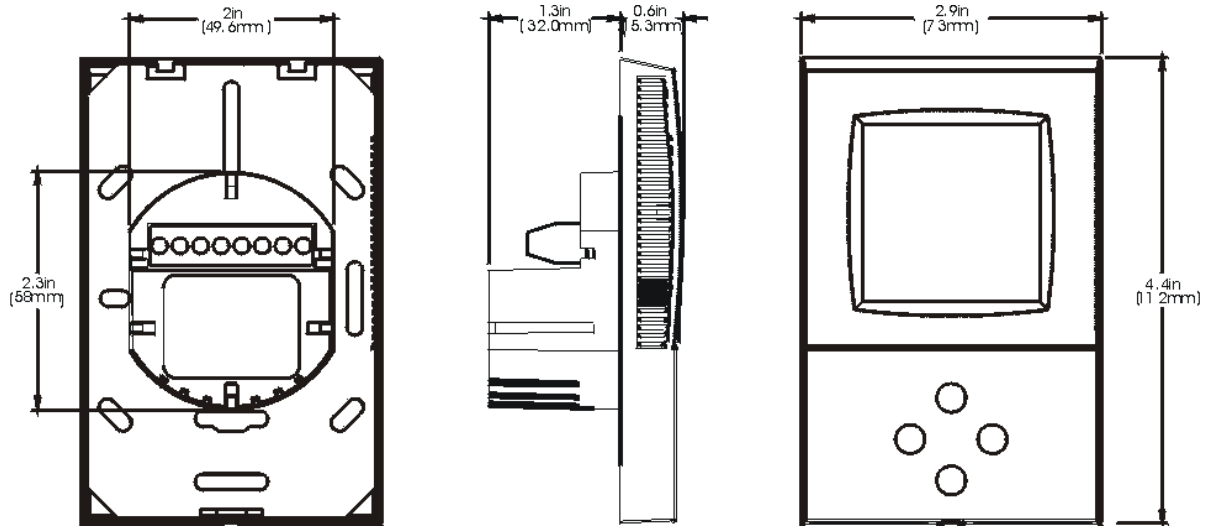| Power Supply	Operating Voltage	24 V AC ± 10% 50/60 Hz
	Power Consumption	Max 3 VA
	Internal rectification	Half Wave Rectified
Signal Inputs	Analog Input Input Signal Resolution Accuracy	AI1 0-10 VDC 9.76 mV, 0.019 mA ± 2%
	Temperature Input Range	External Thermistor -40...140 °C
	Humidity Input: Range Accuracy Repeatability	0...100 % rH ± 3.0% at 25°C ± 0.5%
Signal Outputs	Digital Outputs Maximum Load	DO1 24 VAC 2A max.
Environment	Operation: Temperature Humidity	0...50°C <95% r.h.
Housing	Materials: Cover, back Mounting Plate	Fire proof ABS plastic Galvanized Steel

Figure 3: Humidistat Dimensions

Dimensions mm(inch)
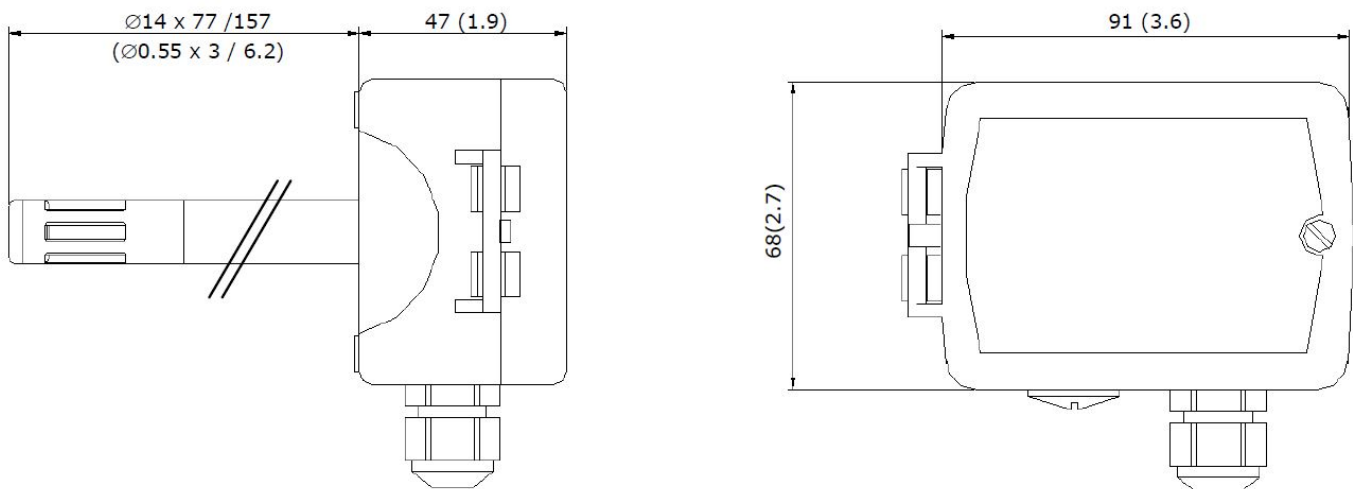
Figure 4: Duct Sensor Dimensions

Table 3: Troubleshooting

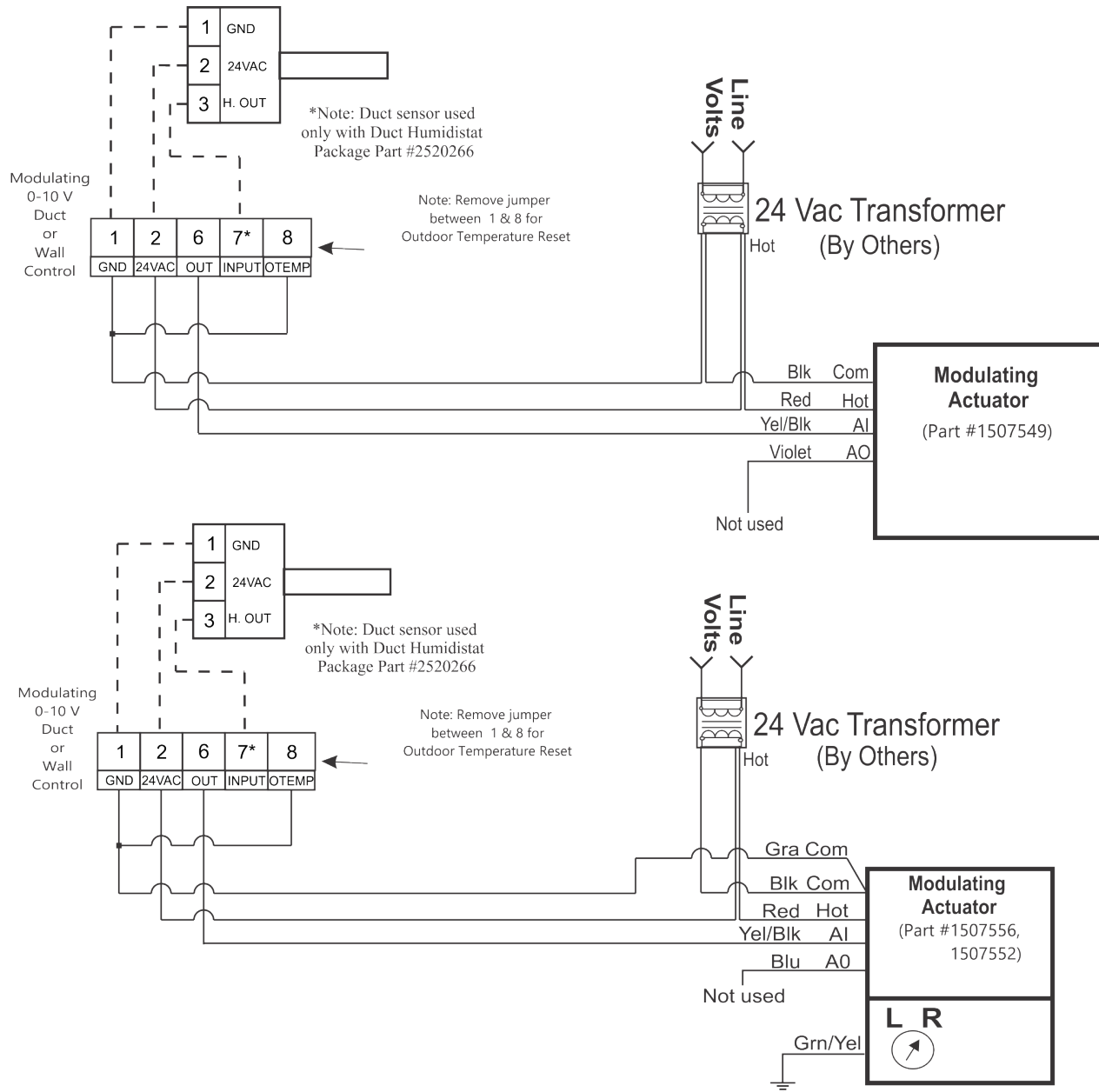| Display	Cause	Symptoms	Corrective Action
ALA5	The controller will initiate this alarm if the humidity sensor reports a relative humidity below 6%.	The LCD screen will report the message ALA5. The controller will negate output until a relative humidity above 6% is report to the controller from the sensor.	Normal operation resumes once the sensed humidity is above 6% RH. The message will remain on the LCD screen until removed by pressing the option button on the control panel. If this error persists verify that the wiring is correct. Also verify that the sensor is mounted in an area that accurately represents the controlled humidity level.
ALA6	The controller will initiate this alarm if the humidity sensor reports a relative humidity above 95%.	The LCD screen will report the message ALA6. The controller will negate output until a relative humidity below 95% is report to the controller from the sensor.	Normal operation resumes once the sensed humidity is below 95% RH. The message will remain on the LCD screen until removed by pressing the option button on the control panel. If this error persists verify that the wiring is correct. Also verify that the sensor is mounted in an area that accurately represents the controlled humidity level.
SNOWFLAKE	This function activates when the temperature sensor reports a temperature below 0 degrees Celsius or 32 degrees Fahrenheit.	The controller will automatically be lowered to a specific setpoint to compensate for the low temperature being reported from the sensor.	This is a normal action controlled by the controller software to compensate for low operating temperatures. If this option is believed to be malfunctioning verify the sensor is properly wired and in an appropriate location to read the controlled humidity accurately.

0-10V DIGITAL HUMIDISTAT
Wiring Diagram for Livesteam

Part #	Description
1510142	0-10V Digital Wall Humidistat
2520266	0-10V Digital Duct Humidistat pkg.

Warning: Failure to wire the humidistat in accordance with the wiring diagram could permanently damage the electronics. Such errors will void the warranty.
Cabling between controls and unit should be shielded 18 AWG

HUMIDISTAT TO ACTUATOR CONNECTIONS

*Note: Duct sensor used only with Duct Humidistat Package Part #2520266

Note: Remove jumper between 1 & 8 for Outdoor Temperature Reset

Modulating 0-10 V Duct or Wall Control

1	2	6	7*	8
GND	24VAC	OUT	INPUT	OTEMP

Line Volts

24 Vac Transformer (By Others)

Hot

Blk — Com
Red — Hot
Yel/Blk — AI
Violet — AO

Not used

Modulating Actuator
(Part #1507549)

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*Note: Duct sensor used only with Duct Humidistat Package Part #2520266

Note: Remove jumper between 1 & 8 for Outdoor Temperature Reset

Modulating 0-10 V Duct or Wall Control

1	2	6	7*	8
GND	24VAC	OUT	INPUT	OTEMP

Line Volts

24 Vac Transformer (By Others)

Hot

Gra — Com
Blk — Com
Red — Hot
Yel/Blk — AI
Blu — A0
Grn/Yel

Not used

Modulating Actuator
(Part #1507556, 1507552)

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0-10V Digital Humidistat for LiveSteam

Wiring Diagram/Installation Instruction

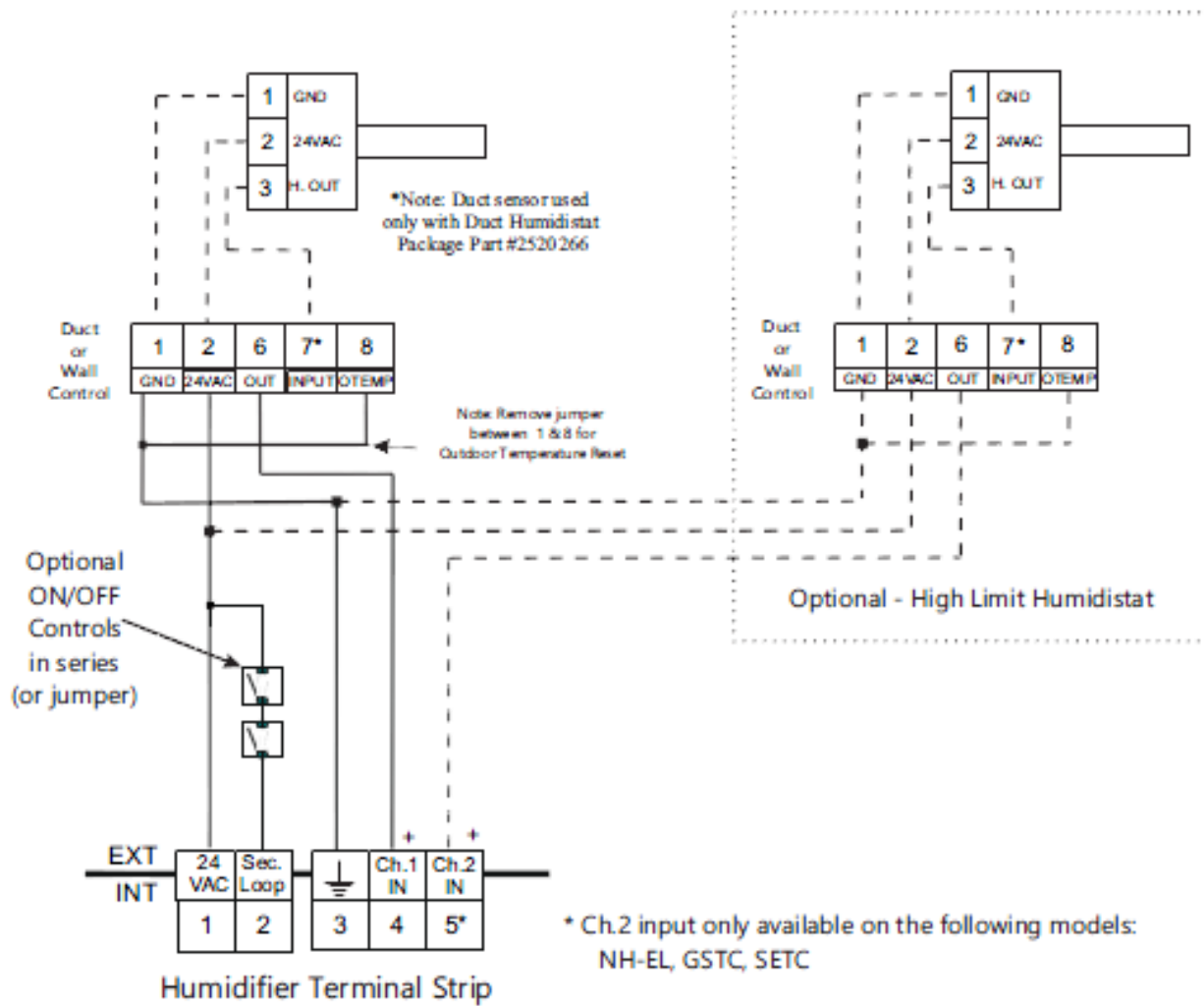**Part Number:** 2520531 **Revision:** E   **Date:** 2018.10.31

0-10V DIGITAL HUMIDISTAT WIRING DIAGRAM

Use on: NH-EL, GSTC/GSP, SETC/SEP, MHTC, AIRFOG, HP and RH series
with the following accessories:

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2520266	0-10V Digital Duct Humidistat Package

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permanently damage the electronics. Such errors will void the warranty.
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*Note: Duct sensor used only with Duct Humidistat Package Part #2520266

Note: Remove jumper between 1 & 8 for Outdoor Temperature Reset

Optional - High Limit Humidistat

Optional ON/OFF Controls in series (or jumper)

Humidifier Terminal Strip

* Ch.2 input only available on the following models:
NH-EL, GSTC, SETC

NOTE: Condair recommends using the Network Staged Modulation option when
controlling multiple humidifiers with a single set of controls.

0-10V Digital Humidistat

Wiring Diagram/Installation Instruction

P/N: 2520528   Rev.: I   Date: 2018.10.31