On/Off Digital Duct Humidistat Installation Instructions

This document covers the operation and installation instructions for the following digital humidistat:
Part #: 2548732
Description: On/Off Duct Humidistat

The humidistat can be configured for either humidity control or as a high limit safety device:
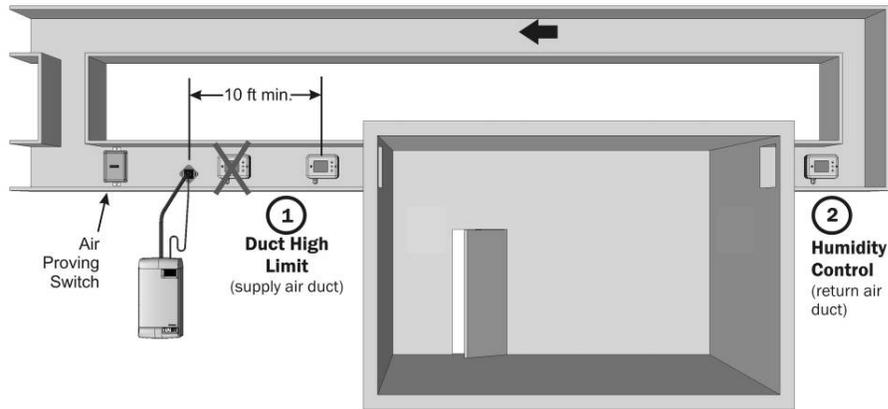
Figure 1: Duct Humidistat Installation Locations

1 - Duct High Limit Installation

When installed as a high limit, the humidistat prevents over humidification as well as wetting of the supply duct. Do not use fan relay when configuring as a high limit.

Location:
1. Install directly on the supply duct in an area where the air is well mixed with uniform flow.
2. Install downstream of the steam distributor at a distance 1.5 times the absorption distance (typically 10-12 feet or 3-3.7 m). Must be in a location to sense high humidity in addition to sensing when representative air is over humidified or approaching saturation.

Installation:
1. Use the provided humidistat template and small level to mark outline of humidistat body and location of probe hole. Ensure template is level before marking.
2. Open the housing by removing the screw securing the face of the housing.
3. Drill a 5/8" (16 mm) hole in the duct at the marked location for probe insertion.
4. Insert the probe into the air stream and place humidistat against duct wall.
5. Secure the duct humidistat to the duct using 4 sheet-metal screws (#6 x 3/4" Phillips).
6. Wire as per wiring diagram 2548733 in this document.
7. Close the cover and secure using the screw removed in step 2.

Configuration:
1. Using keypad, set humidity to specified level (85% maximum) as a safety to prevent saturation.
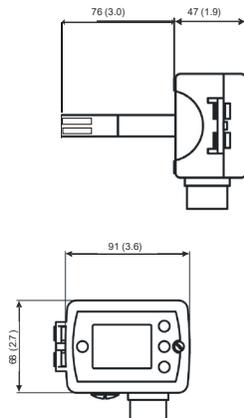
2 - Humidity Control Installation

When configured as a humidity controller, the humidistat provides accurate control of the RH in a return duct and will activate/deactivate a furnace or circulation fan.

Location:
1. Install on the return air duct, close to the air inlet but upstream from a return fan if one is present.

Installation:
1. Use the provided humidistat template and small level to mark outline of humidistat body and location of probe hole. Ensure template is level before marking.
2. Open the housing by removing the screw securing the face of the housing.
3. Drill a 5/8" (16 mm) hole in the duct at the marked location for probe insertion.
4. Insert the probe into the air stream and place humidistat against duct wall.
5. Secure the duct humidistat to the duct using 4 sheet-metal screws (#6 x 3/4" Phillips).
6. Wire as per wiring diagram 2548733 in this document. Figure 3 outlines the terminal layout.
7. Close the cover and secure using the screw removed in step 2.

Configuration:
1. Using keypad, set specified humidity level. For general health and comfort, a humidity setting of 50% is recommended.
2. See Table 3 for outdoor temperature setback configuration, if optional outdoor temperature sensor is supplied (P/N 2520263 or 2553858).

Figure 2: Dimensions

Figure 3: Terminal Strip

≋condair
Duct Humidistat LCD Display
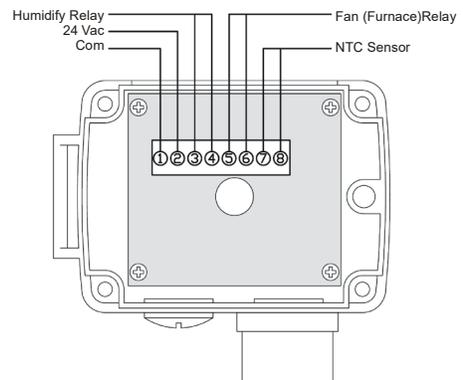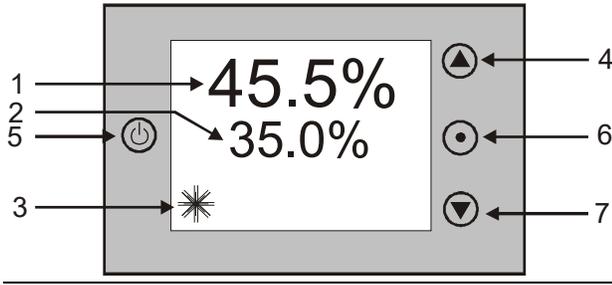
Legend:
1 Display of current humidity value.
2 Display of setpoint
3 Snowflake displayed if outdoor temperature setback active.
4 Adjusts setpoint and calibration (up)
5 Power ON/OFF
6 Toggles between RH setpoint and temperature (if temperature sensor present)
7 Adjusts setpoint and calibration (down)

Sensor Calibration

The humidity sensor is factory calibrated, however, it can be field recalibrated. The calibration routine can be accessed by pressing the option key for > 3 seconds. Option key = the right key on the wall mount and middle key on the right side of the duct mount. Once the display changes select CAL H, press OPTION key again - the offset value is now shown.
Press up down keys to change. Press option key again to save changed value and return to previous level.

Login Procedure

Most applications can use default values.
User Parameters (Password 0009)

1 Press UP and DOWN button simultaneously for three seconds. The display shows the software version in the large digits and the product code in the small digits.
2 Pressing the OPTION button will indicate CODE on the small digits and 0000 on the large digits.
3 The code for accessing the control parameters is 0009
4 Select this using UP or DOWN buttons.
5 Press OPTION button after selecting the correct code.
6 Once logged in, the parameter is displayed immediately.
7 Select the parameters with the UP/DOWN buttons. Change a parameter by pressing the OPTION button. Three triangles will show up on the lower right and indicate that the parameter may be modified now. Use UP or DOWN buttons to adjust the value.
8 After you are done, press OPTION or POWER in order to return to the parameter selection level.

Table 1: User Parameters

Parameter	Description	Range	Default
UP 00	Enable change of operation modes	ON, OFF	ON (Enabled)
UP 01	Enable change of setpoints	ON, OFF	ON (Enabled)
UP 02	State after power failure: 0 = Switched OFF, 1 = Switched ON, 2 = state before power failure	0, 1, 2	2
UP 03	Celsius or Fahrenheit, Select ON for Fahrenheit, OFF for Celsius	ON, OFF	OFF (Celsius)
UP 04	Select contents of small digits in standard mode: 00 = OFF 01 = Setpoint 02 = Humidity Sensor 03 = External Temperature Sensor	0...3	01 Standard: show setpoint

Control Parameters (Password 0241)

NOTE: Only experts should change these settings! See user parameters for login procedure.

Table 2: Output Configuration

Parameter	Description	Range	Default
CP 00	Minimum setpoint limit in humidification mode	0...100%	10%
CP 01	Maximum setpoint limit in humidification mode	0...100%	90%
CP 02	Start delay for fan (Time the fan runs before control output starts)	0...255 s	10 s
CP 03	Stop delay for fan (Time the fan keeps running after control output stops)	0...255 s	90 s

Table 3: Temperature Setback Configuration - *For humidity control only.*

Parameter	Description	Range	Default
CP 04	Enable temperature setback OFF = Temperature setback is disabled ON = Temperature setback is enabled	ON, OFF	OFF
CP 05	Setpoint limit at full setback	0...100%	20%
CP 06	Lower temperature limit: Outside temperature with maximum setback The setpoint will be equal to the minimum setpoint limit	-40...60°C -40...160°F	-30°C (-22°F)
CP 07	Upper temperature limit: Outside temperature at begin of setback.	-40...60°C 40...160°F	0°C (32°F)
CP 08	Number of seconds taken into account to calculate the averaging input signal. Low value = fast response High value = slow response	0...100	30

Table 4: Technical Specification

Power Supply	Operating Voltage	24 V AC/DC ± 10 %, 50…60 Hz
	Power Consumption	Max. 1.5 VA
	Electrical Connection	Terminal Connectors, wire: AWG 24…12
	Internal rectification: Signal ground = power ground	Half wave rectified Isolation transformer required
Signal Inputs	Humidity Input: Range Accuracy	Element: Polymer-Based Capacity Sensor 0…100% r.H. 10%…90% r.H. ± 5.0% 0…10% and 90…100% ± 7.0%
	Hysteresis	±1% r.H.
	Temperature Input Range	External NTC (P/N: 2520263) -40…70°C (-40…158°F)
	Accuracy	-40…0°C (-40…32°F): 0.5 C 0…50°C (32…122°F): 0.2 C 50…70°C (122…158°F): 0.5 C
Signal Outputs	Digital Switching Outputs Switching type AC Switching power	DO1…DO2 Relays 2 x 1.0 A, 24 Vac max.
Environment	Operation Climatic Conditions Temperature Humidity	To IEC 721-3-3 class 3 K5 0…50 °C (32…122 °F) <95 % r.H. non-condensing
	Transport & Storage Climatic Conditions Temperature Humidity Mechanical Conditions	To IEC 721-3-2 and IEC 721-3-1 class 3 K3 and class 1 K3 -25…70 °C (-13…158 °F) <95 % r.H. non-condensing class 2M2
Standards	Product standards Automatic electrical controls for household and similar use	EN 60 730 –1 EN 60 730 – 2 – 9
	Degree of Protection	IP30 to EN 60 529
	Safety Class	III (IEC 60536)
Housing	Cover, back part Mounting Plate	Polycarbonate PC (UL94 class V-0) PTFE coated 1μm pores
General	Dimensions (H x W x D): Transmitter case: Probe length:	91 x 68 x 47mm (3.7" x 2.7" x 1.9") 76 mm (3.0")
	Weight (including package)	220g

Power Failure

Upon power-interruption, all parameters and setpoints are memorized in non-volatile memory and therefore do not have to be re-entered again.

Table 5: Error messages and Troubleshooting Guide

Display	Cause	Symptoms	Corrective Action
Err1	Humidity sensor faulty. The humidity sensor is damaged.	The LCD screen will report the message Err1.	Check that the humidity sensing element is not loose
Err2	External input for temperature setback missing or damaged.	The LCD screen will report the message Err2.	Check that the temperature sensor is connected to the humidistat. If the sensor is connected and the error message persists a replacement sensor should be ordered.

NOTE: If at any time this troubleshooting guide fails to provide the information needed, Technical Support Department can be reached at 1-866-667-8321 to provide assistance.

Wall and Duct ON/OFF HUMIDISTAT
WIRING DIAGRAM

Use for NH-EL, RH Series, NHRS, GSTC/GSP, SETC/SEP, MHTC, AIRFOG, and HP with:

Part #	Description
2548731	Digital ON/OFF Wall Humidistat
2548732	Digital ON/OFF Duct Humidistat
2520263	Outdoor Temperature Sensor
2553858	Outdoor Mount Temperature Sensor

Warning: Failure to wire the humidity transducer in accordance with wiring diagram could permanently damage the electronics. Such errors will void the warranty. Cabling between transducers and unit should be shielded 18 AWG
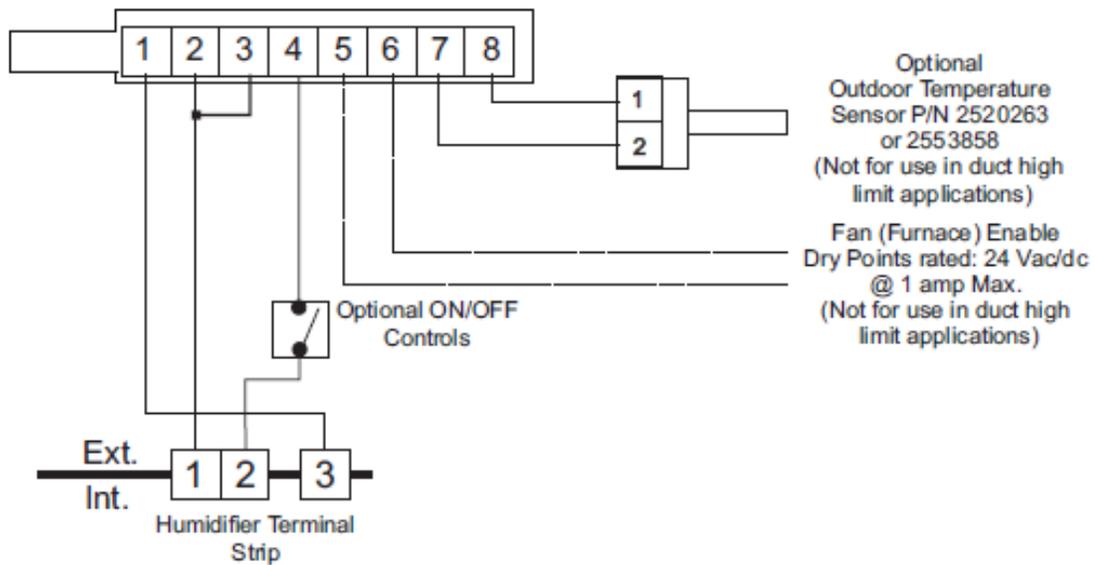
Optional Outdoor Temperature Sensor P/N 2520263 or 2553858 (Not for use in duct high limit applications)

Fan (Furnace) Enable Dry Points rated: 24 Vac/dc @ 1 amp Max. (Not for use in duct high limit applications)

Optional ON/OFF Controls

Ext. Int.

Humidifier Terminal Strip

Humidistat - Relay Timing Chart

(Humidity Demand)
Fan Relay
Humidifier Relay

10 sec.
90 sec.

WD Digital ON/OFF Humidistat
INSTALLATION INSTRUCTION/WIRING DIAGRAM
DIAGRAM NUMBER   2548733   REV. E
DATE   October 30, 2018