On/Off Digital Duct Humidistat Installation Instructions

This document covers the operation and installation instructions for the following Condair digital humidistat:

Kit No.	Component No.	Description
2597935	2548732	On/Off Digital Duct Humidistat

The humidistat can be configured for either **humidity control** or as a **high limit safety device**.

1 – Mounting and Installation

Duct High Limit Installation	Duct Humidity Control 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.	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 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.	**Location:** 1. Install on the retrurn air duct, close to the air inlet but upstream from a return fan if one is present.

Installation:

Refer to installation overview in section 2.

1. At the place of location drill a hole with a diameter of 16 mm (5/8") as well as 4 holes for the self-tapping screws into the duct.
2. Open the screw on the housing cover and remove cover.
3. Lead connecting cable through the cable gland and connect wires to the terminals according to the wiring diagram.
4. Attach gasket to the sensor side of the housing (self-adhesive).
5. Insert the probe into the hole in the duct, then fix housing to the duct using the 4 self-tapping screws provided.
6. Snap cover into the hinge of the housing, then close cover and fix it with the screw (do not tighten screw too much).
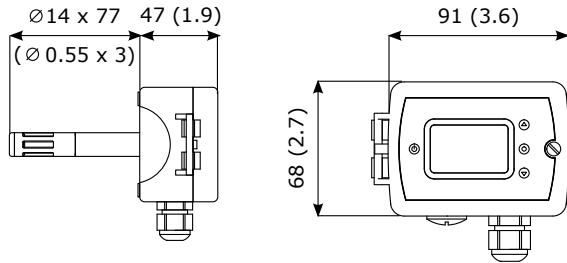
Note: We recommend using 18-gauge wire, and maximum <100 ft distance from the unit.
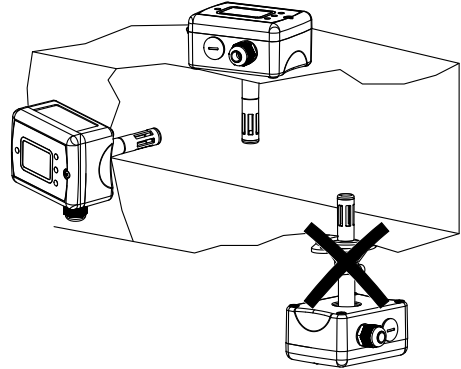
2 – Installation overview

A — mm (inch)

∅14 x 77
(∅ 0.55 x 3)
47 (1.9)
91 (3.6)
68 (2.7)

B

C

75 (2.9)
54 (2.1)
∅16 (0.6)

④
③

i

①
②
①
②

D

1	2	3	4	5	6	7	8
0V / GND	24V AC/DC	DO1	DO1	DO2	DO2	RT	RT
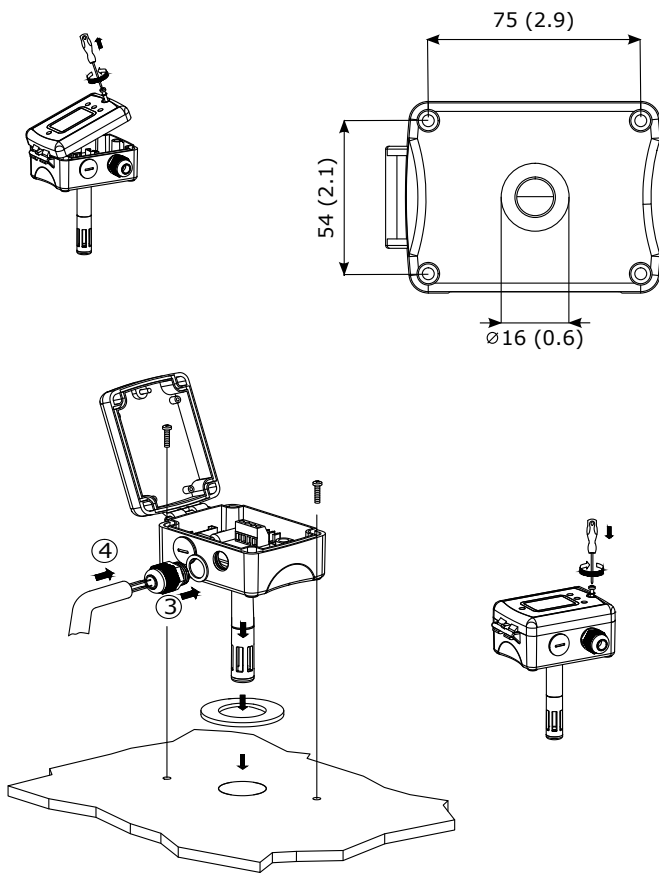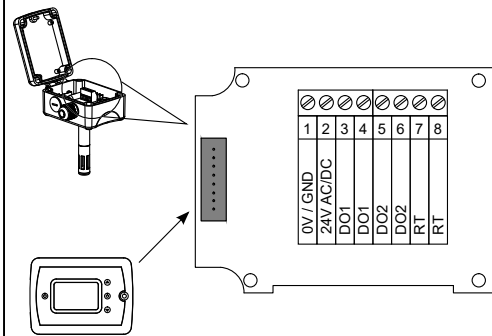
1: 0V / GND

2: 24 V AC/DC ±10%

3: DO1

4: DO1

5: DO2

6: DO2

7: RT

8: RT

6 (0.02)

Download on the App Store

GET IT ON Google Play
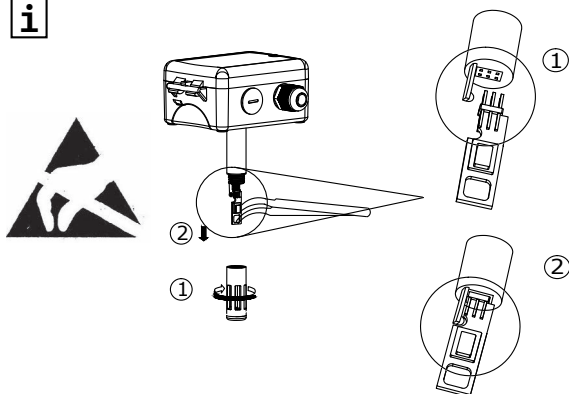
For Wiring Schematic:
Get the Condair
Sensor Connect App

3 – Duct Humidistat LCD Display

Fig. 1: Duct Humidistat LCD Display

Switching the humidistat on and off

Press the **<On/Off>** button to switch the humidistat on and off.

Humidistat **switched off**   Humidistat **switched on**

Set limit value (switching point)

Proceed as follows to set the limit value:

1. Switch on the humidistat with the **<On/Off>** button.

2. Set the required limit value in% rH with the **<Up>**- or **<Down>** button.
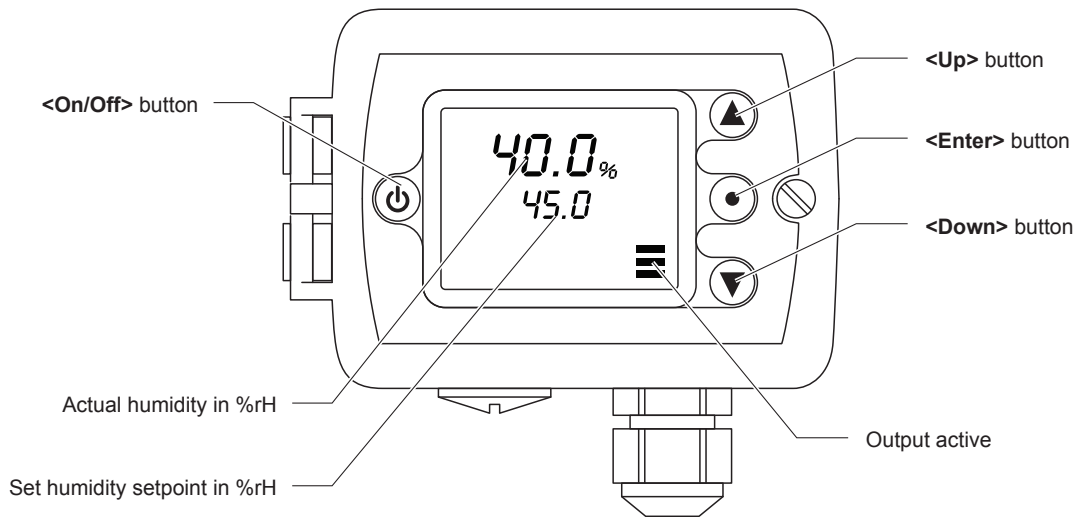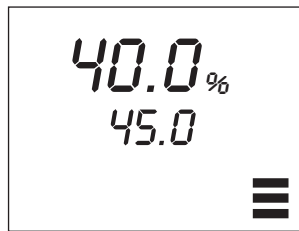
4 – Configuration

Duct High Limit	Duct Humidity Control
Using keypad, set humidity setpoint to specified level (85% maximum) as a safety to prevent saturation.	Using keypad, set specified humidity level. For general health

6 – Sensor Calibration

Activate the controller by pressing the **<On/Off>** button. Press the **<Enter>** button for 3 sec until "SEL" is shown in the large digits. The menu can be left by pressing the **<On/Off>** button or by not pressing a button for more than 5 minutes.

Select "CALH" or "CALt" with the **<Up>/<Down>** buttons.

Small digits show "CALH" (internal humidity sensor calibration) and "CALt" (temperature setback sensor calibration). The current calibration value is displayed. Press **<Enter>** button and then change the value with **<Up>/<Down>** buttons and save it with the **<Enter>** button.

7 – Setting Parameters to Configure the Controller

The controller is preset to work for most applications. For special requirements it can be fine-tuned to work ideally with a simple parameter setup routine. The parameters can be changed on the unit without the need of additional equipment.

Identifying the firmware version:

The parameters and functionality of the controller depend on its firmware version and revision. It is therefore important to use a matching product version and parameter set. The firmware version and revision version can be found when pressing simultaneously the **<Up>** and **<Down>** buttons during several seconds. On the upper 7 segment display, the firmware version can be found, on the lower 7 segment display the current revision version (or "sub-version").

How to change the parameters:

The parameters are password protected. There are two levels of parameters: User operation parameters for access control settings and expert parameters for control functions and unit setup. The passwords for user levels and expert level are different. Only control experts should be given the control parameter password.

The parameter can be changed as follows:

3. Press **<Up>** and **<Down>** buttons simultaneously for three seconds. The display will indicate the firmware version in the upper large digits and the revision in the lower small digits. Pressing the key will show: "CODE".
4. Select a password using the **<Up>** and **<Down>** buttons. Selection "009" in order to get access to the user parameters, "241" for control parameters. Press **<On/Off>** button after selecting the correct password.
5. Once logged in, the parameter is displayed immediately.
6. Select the parameter with the **<Up>** and **<Down>** buttons. Change the parameter by pressing the "OPTION" button. The "MIN" and "MAX" symbols show up and indicate that the parameter may be modified now. Use **<Up>** and **<Down>** buttons to adjust the values.
7. After you are done, press **<On/Off>** button in order to return to the parameter selection level.
8. Press the **<On/Off>** button again to leave the menu. The unit returns to normal operation if no key is pressed for more than 5 minutes.

User Parameters (Password 0009)

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 type of content for large digits (00= OFF): 01 = Setpoint 02 = Humidity Sensor 03 = External Temperature Sensor	00…03	01

Control Parameters (Password 0241)

Note: Only experts should change these settings! See user parameter 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 [MM:SS] (Time the fan runs before control output starts)	00:00 - 98:30	00:10
CP 03	Stop delay for fan [MM:SS] (Time the fan keeps running after control output stops)	00:00 - 98:30	01:30

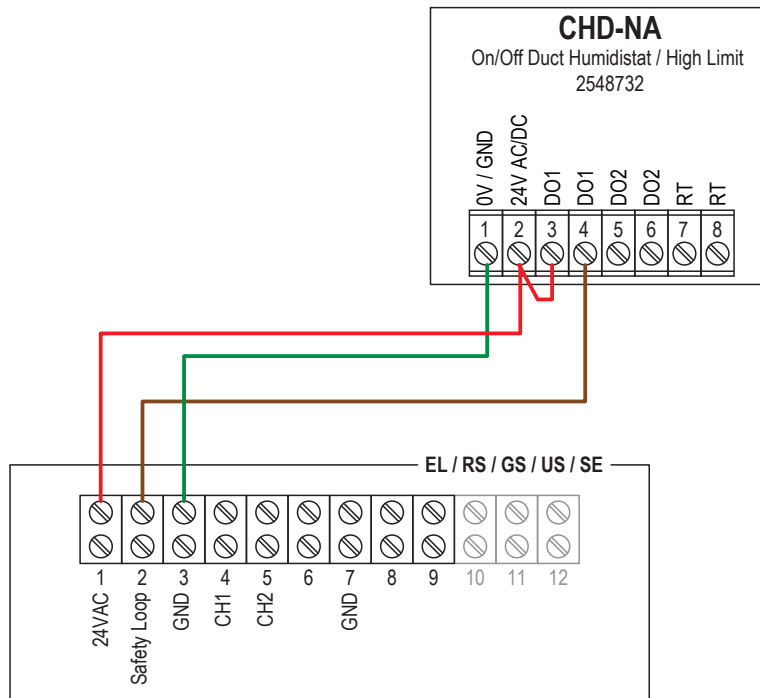*Table 3: Temperature Setback Configuration – *For humidity control only*

Parameter	Description	Range	Default
CP 04	Enable temperature setback OFF = Temperature set back 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 setback 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 average input signal Low value = fast response High value = slow response	0…100	10

8 – Product Specification

Power Voltage	Operating voltage Power consumption Terminal connection	24 V AC 50/60 Hz ± 10 %, 24 VDC ± 10 % Max. 3 VA For wires 0.34…2.5 mm^2 (AWG 24…12)
Signal input	Measuring element Measuring range Hysteresis	Capacitive measuring element 0…100 % rH ± 1 % rH
Signal Output	Digital signal output Switching type Switching power Admissible switching voltage	DO1 Relay, normally open 2(1.2) A 0..250 VAC / 0…24 VDC
Environment	Operation: Climatic Conditions Temperature Humidity	IEC 721-3-3 Class 3 K5 0…50°C (32…122°F) <95 % rH not condensing
General	Housing and housing cover Filter material Weight (including packing)	PC and ABS PTFE coated 1µm pores 220 g (7.8 oz)

9 – Wiring Diagrams

Wiring diagram CHD-NA for RS, EL, GS, US and SE

CHD-NA
On/Off Duct Humidistat / High Limit
2548732

0V / GND	24V AC/DC	DO1	DO1	DO2	DO2	RT	RT
1	2	3	4	5	6	7	8

EL / RS / GS / US / SE

24VAC	Safety Loop	GND	CH1	CH2		GND					
1	2	3	4	5	6	7	8	9	10	11	12

Wiring diagram CHD-NA for DL and ME

CHD-NA
On/Off Duct Humidistat / High Limit
2548732

0V / GND	24V AC/DC	DO1	DO1	DO2	DO2	RT	RT
1	2	3	4	5	6	7	8

ME / DL

Driver board
ME / DL

JP5: 10V
JP4: 24V

X1

SC1
SC2

24/10 V
TMP
HUM
GND
24V E
Enable

X16
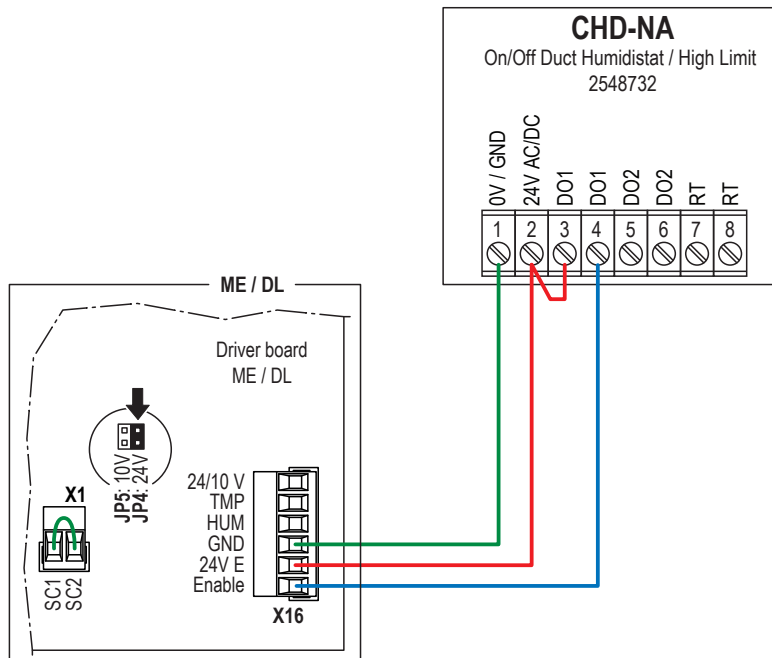
Wiring diagram CHD-NA with RCC-NA and APS for RS, EL, GS, US and SE

APS
Air Proofing
2598427

Com	NO	NC
1	2	3

CHD-NA
On/Off Duct Humidistat / High Limit
2548732

0V / GND	24V AC/DC	DO1	DO1	DO2	DO2	RT	RT
1	2	3	4	5	6	7	8

RCC-NA
0-10V Wall Humidistat
1510142

GND / 0V	24V	N/A	N/A	N/A	AO 0-10V	N/A	Temp. Reset
1	2	3	4	5	6	7	8

Factory Jumper

EL / RS / GS / US / SE

1	2	3	4	5	6	7	8	9	10	11	12
24V/AC	Safety Loop	GND	CH1	CH2		GND					
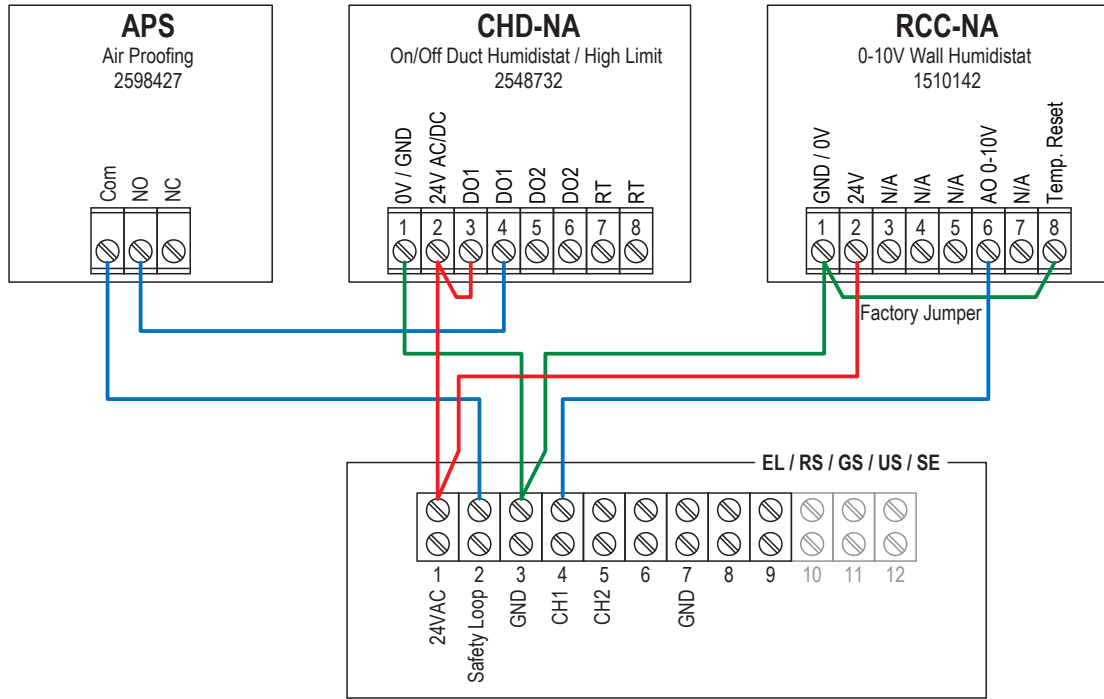
Wiring diagram CHD-NA with RCC-NA for DL and ME

RCC-NA
2-10V Wall Humidistat
1510142

GND / 0V	24V	N/A	N/A	N/A	AO 0-10V	N/A	Temp. Reset
1	2	3	4	5	6	7	8

Factory Jumper

CHD-NA
On/Off Duct Humidistat / High Limit
2548732

0V / GND	24V AC/DC	DO1	DO1	DO2	DO2	RT	RT
1	2	3	4	5	6	7	8

ME / DL

Driver board
ME / DL

JP5: 10V
JP4: 24V

X1

SC1
SC2

24/10 V
TMP
HUM
GND
24V E
Enable

X16