



INSTALLATION AND OPERATION MANUAL

Condair sensor and controller range

Thank you for choosing Condair

Installation date (MM/DD/YYYY):

Commissioning date (MM/DD/YYYY):

Site:

Model:

Serial number:

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1 Condair UDC



1.1 Functional description

The universal controller Condair UDC is a programmable controller and sensor for duct installation. It has 2 control loops with 2 PI sequences each. The Condair UDC has an RS485 communication interface which enables programming with a PC and the Easyset program. The Condair UDC uses the universal X2 operating system.

Note: Ex factory the Condair UDC is configured as a humidity and temperature sensor.

1.2 Safety

Please observe all local regulations concerning electrical installations.

The installation work must be performed only by **adequately qualified personnel (electrician or workman with equivalent training)**.

Warning - danger of electric shock! Before starting the installation work the unit to which the Condair UDC will be connected must be disconnected from the mains and may be reconnected to mains only after all installation work has been completed.

Warning! The electronic components inside the Condair UDC and the humidifier are very susceptible to electrostatic discharges. For the protection of these components, measures must be taken during all installation work to prevent damage caused by electrostatic discharge (ESD-protection).

1.3 Delivery

The delivery includes:

- Universal duct controller Condair UDC
- Cable gland
- Fixing material
- Duct flange
- Installation manual

1.4 Mounting location

The Condair UDC is installed directly on the duct.

- **Mounting in the extract air duct (recommended):**

Mount the UDC in the extract air duct close to the air outlet of the room but downstream from a extract air fan if one is present.

- **Mounting in the supply air duct:**

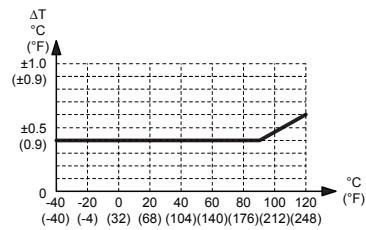
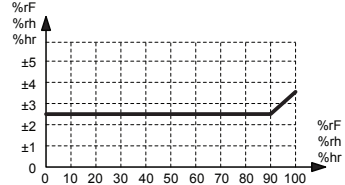
Mount the UDC in the supply air duct at least 3 meters downstream from the nearest fan and coil and with a minimum distance of 5x the humidification distance to the steam distributor (see manual of the humidifier).

1.5 Installation

1. At the place of location drill a hole with a diameter of 16 mm (5/8") into the duct (see dimensional drawing).
2. Stick the supplied self-adhesive gasket concentrically over the hole in the duct and attach the duct flange to the ventilation duct using the self-tapping screws supplied.
3. Insert the probe of the universal controller through the duct flange into the duct and secure it with the lock nut.
4. Loosen the screw on the housing cover and open the cover.
5. Lead connecting cable through the cable gland into the controller and connect wires to the terminals according to the wiring diagram.
6. Close cover and fix it with the screw (do not tighten screw too much).

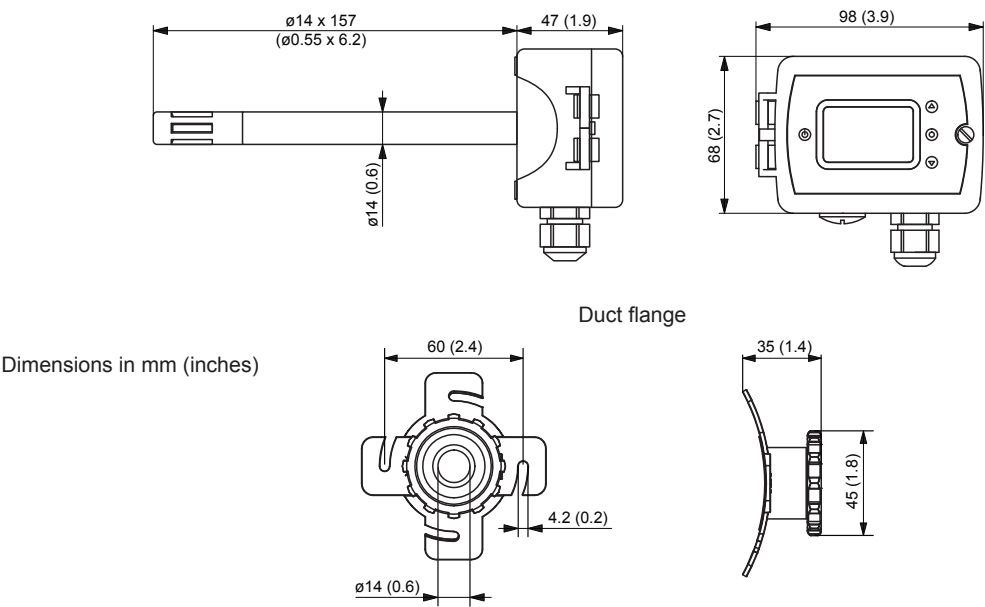
1.6 Product specifications

1.6.1 Technical data

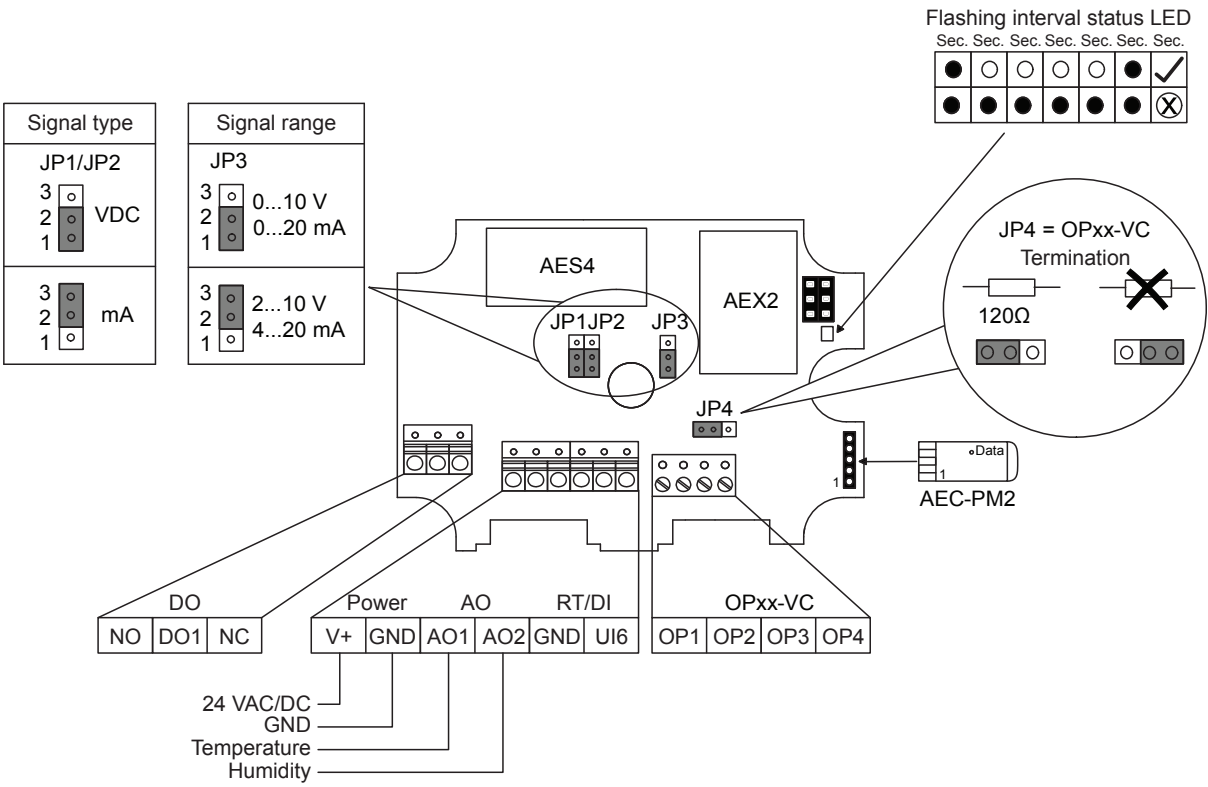
Power Supply	
Operating voltage	24 VAC $\pm 10\%$, 50/60 Hz, class 2, 2.0 A, 48 VA max. 24 VDC $\pm 10\%$
Power consumption	Max. 5 VA
Electrical connections	Terminal connectors, for wires 0.34...2.5 mm ² (AWG 24...12)
Clock backup	24 hours
Signal inputs	
Analog inputs	UI1, UI2
Input signal	DC 0-10V or 0...20mA
Resolution	39 mV or 0.078 mA
Impedance	Voltage: 98k Ω , Current: 240 Ω
Temperature sensor AES-HT-Ax	NTC
Range	Int. NTC: 0...50 °C (32...122 °F) Ext. NTC: -40...140 °C (-40...284 °F)
Resolution	Int. NTC: 0...50 °C (32...122 °F)
Measuring accuracy	
Humidity sensor AES-HT-Ax	Capacitive sensor
Range	0...100 % rH
Measuring accuracy	 Max. rH tolerance at 25 °C (77°F)
Hysteresis	$\pm 1\%$
Repeatability	$\pm 0.1\%$
Stability	< 0.5% / year
Signal outputs	
Analog Outputs	AO1, AO2
Analog signal	DC 0-10V or 0...20mA
Resolution	39 mV, 0.078 mA
Maximum load	Voltage: $\geq 1k\Omega$, Current: $\leq 250\Omega$

Relay outputs	
Interrupter type	Micro-breaker
AC voltage	0...48 VAC, 2(1.2)A max. Observe local regulations
DC voltage	0...30 VDC, 2A max.
Insulation strength	
between relay contacts and system electronics	2000V AC according to 60 730-1
between adjacent contacts	1250V AC according to 60 730-1
Environment	
Operation	According to IEC 721-3-3
Climatic Conditions	Class 3 K5
Temperature	0...50 °C (32...122 °F)
Humidity	<95 %rH., not condensing
Transport and storage	According to IEC 721-3-2 and IEC 721-3-1
Climatic Conditions	Class 3 K3 and Class 1 K3
Temperature	-25...70 °C (-13...158 °F)
Humidity	<95 %rH., not condensing
Mechanical Conditions	Class 2M2
Standards	
CE compliant to: EMC Standard and EMEI Standard 73/23/EEC	EN 61 000-6-1/ EN 61 000-6-3
Product standards	
Automatic electrical control devices for domestic use and similar applications.	EN 60 730 -1
Special requirements for temperature-dependent controls.	EN 60 730 - 2 - 9
Degree of protection	IP30 according to 60 529
Pollution class	II (EN 60 730-1)
Protection class	III (IEC 60536)
Overvoltage category	I (EN 60 730-1)
General	
Housing material	PC and ABS
Weight (including packaging)	380g (13.4oz)

1.6.2 Dimensions

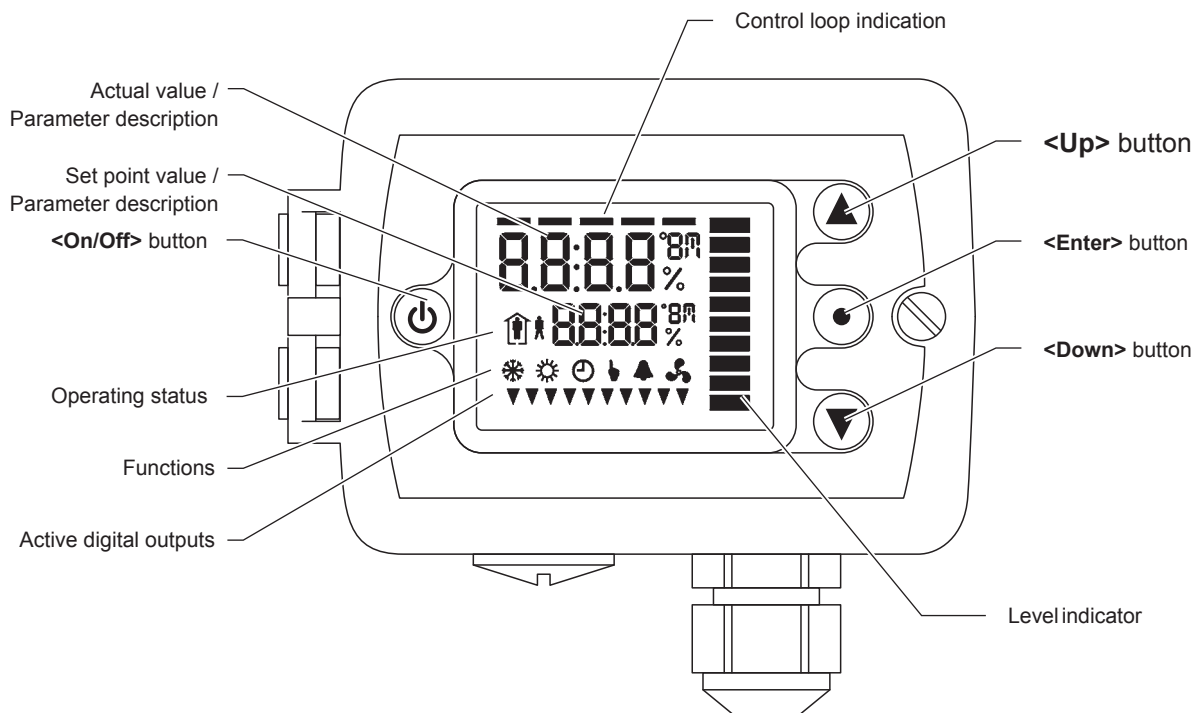


1.7 Wiring diagram/Configuration



1.8 Operation of the UDC

1.8.1 Display and operating elements



Symbols

	Occupied: (Comfort) All control functions operating per set points.
	Unoccupied: (Standby, Economy) If enabled, alternative set points are used with the intention to reduce energy consumption
OFF	Protection mode: All outputs switched off, inputs are monitored for alarms.
	Heating active
	Cooling active
	Fan active
	Manual override, delay on enable function Schedule set.
	Time program active

1.8.2 General operation

1.8.2.1 Idle Display

- The idle display is activated when no key has been pressed for 30 seconds.
- The idle display can be deactivated by the technician. Last active control loop or manual output will remain displayed.

1.8.2.2 Display of control loop

- Active when changing set points. Large digits show input value. Small digits show set point. Horizontal bars top left show which loop is being displayed.

1.8.2.3 Override of secondary set point in cascade control

- With cascade control, manual override of the secondary circuit can be activated. This is defined by the technician in the controller settings.
- If cascade control is active (with VAV for example) the user can override the primary loop and manually select the set point of the secondary loop (the loop is then changed to constant air volume mode). This function is helpful for tuning the VAV system. While the secondary loop is displayed change the set point with <UP>/<DOWN> button. The hand symbol appears. Change setpoint again to cancel cascade override. The hand symbol disappears.

1.8.2.4 Manual Mode

- The hand symbol is displayed during a pending delay. For example, if a start-up delay is active. The controller remains switched off and displays the hand symbol until the delay has elapsed. Then the controller switches on and the hand symbol goes out.

1.8.2.5 Status-LED

- A status LED is located on the upper left side of the controller housing. During normal operation the LED blinks briefly once every 5 seconds. It will blink every second in case there is an alarm or fault condition.

1.8.2.6 Power Failure

- All parameters and set points are memorized and do not need to be re-entered. The switch-on behavior on return of the power supply is set by the technician.
- Clock and time schedule settings are retained for 48 hours after being powered for at least 10 hours.

1.8.2.7 Error Messages

Err1: Communication error

Err2: Internal error: Firmware version of the memory does not match firmware.

Err3: Timer error: Set time and acknowledge error. If an error occurs again at a previously set time, the watch is faulty. Time switching functions are not guaranteed in this case.

Err4: Configuration error: An assigned input is not activated or has failed. Check all settings and ensure that all inputs used are activated and functional.

Err5: Copy error: Communication error with external memory AEC-PM1 or AEC-PM2.

Err6: Copy error: Checksums of the data record are incorrect. The data record is invalid.

1.8.3 Extended operation

1.8.3.1 Clock operation

Note on accuracy: The TCX2-40863 and devices with a -C addition have a real-time clock. This clock is accurate to two seconds a day. Other TCX2 series devices calculate the time based on the processor's internal clock speed. This time source is accurate to approx. 2 minutes per day. If the controller uses its time program functions, it is therefore necessary to synchronize the time of these controllers at least every 24 hours with an exact time base.

1.8.3.2 Time programs

The controller contains a real time clock with battery back-up. Up to 12 schedules based on time and day of the week may be programmed (Pr01 through Pr12). Schedules may change controller operation mode (on, off, occupied, unoccupied), change fan state, position an output, or change a loop set point. A blinking clock indicates that the time has not been set or the unit was without power for longer than 48 hours. The time needs to be set to allow time schedules to operate.

Summer / winter time changeover may be activated by the technician using user parameters.

1. Clock setup

1.1 Press <Enter> button longer than 2 sec. → SEL and Date or Time (alternately) are displayed.	12:30 SEL
1.2 Press <Enter> button briefly to change the time and date: • Minutes flash: <Up>/<Down> button for adjustment, <Enter> button to save setting. • Hours flash: <Up>/<Down> button for adjustment, <Enter> button to save. • DAY1 flashes: <Up>/<Down> button for adjustment, <Enter> button to save the day of the week. • Day of the month flashes: <Up>/<Down> button for adjustment, <Enter> button to save setting. • Month flashes: <Up>/<Down> button for adjustment, <Enter> button to save setting. • Year flashes: <Up>/<Down> button for adjustment, <Enter> button to save setting.	12:30 SEL day7 SEL 15 SEL Feb SEL 2021 SEL
1.3 Press <On/Off> button (1x) to return.	

2. Enable/disable time programs

2.1 Press <Enter> button longer than 2 sec. → SEL and Date or Time (alternately) are displayed.	see picture 1.1
2.2 Press <Up> button. → PRO and SEL are displayed.	PRO SEL
2.3 Press <Enter> button: Time program status indicates whether it is OFF or ON. When status is ON =  in the display. Press the <Enter> button to change the status.	PRO Off PRO On 
2.4 Press <On/Off> button (1x) to return to the submenu.	

3. Create weekly time schedules

3.1 Press <Enter> button longer than 2 sec. → SEL and Date or Time (alternately) are displayed.	see picture 1.1
3.2 Press <Up> button. → PRO and SEL are displayed. Set time program to ON or OFF with <Enter> button (see pictures 2.3). Change to Pr 01 - Pr 12 with the <Up> or <Down> button.	PR01 SEL
3.3 Press <Enter> button to select the following: – no = switching time not activated – OP = Operating mode ON (normal operation), ECO (reduced operation) or OFF (protective operation) – LP = setpoint of a control loop (setting range from 0-100%) – AO = Positioning of the analog output (output must be in manual mode!) – FAN = Fan control (fan stages from FSP0-3 and Auto) – do = positioning of the digital output (output must be in manual mode!) – Hday = Annual time schedule (holidays) A function can be selected by pressing the <Up> or <Down> button. Press <Enter> button to complete the selection.	LP... OP

4. Select a switching time

4.1 Press <Enter> button longer than 2 sec. → SEL and Date or Time (alternately) are displayed.	see pictures 1.1, 2.2, 2.3 and 3.2
4.2 Press <Up> button. → PRO and SEL are displayed.	
4.3 Press <Enter> button while PRO-ON or OFF is displayed: Press <Up> or <Down> button to select between programs 1 - 12 (see point 3.3).	

4.4 Press <Enter> button and select the desired program (e.g. Pr01), press the <Up> or <Down> button to scroll through the possible selections to see which function (no/OP/LP... etc.) is to be assigned to e.g. Pr01. In this case, the control loop (LP) on program 1 (Pr01) is selected (1 bar indicates that step 1 is complete). Press <Enter> button to set the desired time. This is done using the <Up> and <Down> button from 00:00 - 23:45. The 2 bars indicate that step 2 is complete. Continue with <Enter> button.	LP Pr01 — 08:30 Pr01 ==
---	---

5. Select day

DAY1 and Pr01 are now displayed on the screen: • To execute the time program on Monday (Day1), press the <Up> button. • A triangle symbol appears on the 1. • In order not to execute the time program on Monday, press the <Down> button. The triangle symbol disappears. • Press the <Enter> button to go to the next day. • Repeat this procedure to set DAY2 - DAY7 (Tuesday to Sunday). The 3 bars indicate that step 3 is complete. • Continue with <Enter> button.	day1 Pr01 1 2 3 4 5 6 7 ===
---	--

6. Selection of the connections (using the example of LP01)

For all mode changes, it is necessary to select the output or the control loop in this step. For example, for setpoint LP01, LP02, etc. or for an output the number of the output to be changed. In this concrete example, LP01 (control loop 01) is set to Pr01 (program 01). The connection has already been defined in point 4.4. There it is also possible to choose between the different connections or outputs. The 4 bars indicate that step 4 is complete. Continue with <Enter> button.	LP01 Pr01 ====
---	--

7. Select set point values

Press the <Up> or <Down> button to select the desired setpoint, operating mode or position of an output (see point 3.3 for more information on entering and selecting data). The 5 bars indicate that step 5 is complete. After pressing the <Enter> button, you have returned to point 3.2. Now you can start creating the weekly schedules for programs 2 - 12. Appropriate times, weekdays as well as control loops or outputs can then be specified.	25.0% Pr01 =====
--	---

1.8.3.3 Creating annual time schedules (only from V1.3)

Holiday schedules have priority over operation mode schedules. While a holiday schedule is active, the controller will be in the OFF-mode. Other weekly schedules will still be active. It will still be possible to manually override the controller while in holiday mode.

1. Select a holiday schedule

1.1 Press <Enter> button longer than 2 sec. → SEL and Date or Time (alternately) are displayed.	see picture 1.1
1.2 Press <Up> button. → PRO and SEL are displayed. Set time program to ON or OFF with <Enter> button (see pictures 2.3). Change to Pr 01 - Pr 12 with the <Up> or <Down> button.	see picture 3.2
1.3 Press <Enter> button to select the following: – no = switching time not activated – OP = Operating mode ON (normal operation), ECO (reduced operation) or OFF (protective operation) – LP = setpoint of a control loop (setting range from 0-100%) – AO = Positioning of the analog output (output must be in manual mode!) – Fan = Fan control (fan stages from FSP0-3 and Auto) – do = positioning of the digital output (output must be in manual mode!) – Hday = Annual time schedule: Holiday A function can be selected by pressing the <Up> or <Down> button. Press <Enter> button to complete the selection. 1 bar indicates that step 1 is completed.	Hday Pr01 —

2. Select start month of holiday

Select the first month of the holiday schedule, where "1" stands for January and "12" for December. The month flashes. Press the <Up> or <Down> button to select the month. Press the <Enter> button to complete the operation. The 2 bars indicate that step 2 is complete.	01.01 Pr01 ==
--	--

3. Select start day of holiday

Select the first day of the holiday schedule. The day flashes. Press the <Up> or <Down> button to select the day. Press the <Enter> button to complete the operation. The 3 bars indicate that step 3 is complete.	01.01 Pr01 ===
--	---

4. Select last month of holiday

Select the last month of the holiday schedule, where "1" stands for January and "12" for December. The month flashes. Press the <Up> or <Down> button to select the month. Press the <Enter> button to complete the operation. The 4 bars indicate that step 4 is complete.	01.01 Pr01 ====
---	--

5. Select last day of holiday and complete switching event

Select the last day of the holiday schedule. The day flashes.

Press the **<Up>** or **<Down>** button to select the day.

Press the **<Enter>** button to complete the operation.

The 5 bars indicate that step 5 is complete.

After pressing the **<Enter>** button, you have returned to point 3.2. Now you can start creating the weekly schedules for programs 2 - 12. Appropriate times, weekdays as well as control loops or outputs can then be specified.

01.01

Pr01



2 Condair CDC, CDC-NA, CDC-ST and CDC-SL



2.1 Functional description

The Condair CDC, CDC-NA, CDC-ST or CDC-SL serve for the humidity measurement in air ducts. For the humidity measurement a capacitive humidity sensor is used. The microprocessor samples the humidity once per second. It calculates an averaging signal over a preset number of seconds and generates the output signal. The applied measuring technology guarantees excellent reliability and long term stability. The output signal of the sensor 0-10VDC, 2-10VDC or 4-20mA, 0-20mA may be customized by jumpers.

2.2 Safety

Please observe all local regulations concerning electrical installations.

The installation work must be performed only by **adequately qualified personnel (electrician or workman with equivalent training)**.

Please observe all local regulations concerning electrical installations.

Warning - danger of electric shock! Before starting the installation work the unit to which the Condair CDC will be connected must be disconnected from the mains and may be reconnected to mains only after all installation work has been completed.

Warning! The electronic components inside the Condair CDC and the humidifier are very susceptible to electrostatic discharges. For the protection of these components, measures must be taken during all installation work to prevent damage caused by electrostatic discharge (ESD-protection).

2.3 Delivery

The delivery includes:

- Humidity sensor Condair CDC, Condair CDC-ST or Condair CDC-SL
- Cable gland
- Fixing material
- Installation manual
- Duct flange (Condair CDC-ST only)

2.4 Mounting location

The Condair CDC, Condair CDC-ST or Condair CDC-SL is installed directly on the duct.

- **Mounting in the extract air duct (recommended):**

Mount the CDC, Condair CDC-ST or Condair CDC-SL in the extract air duct close to the air outlet of the room but downstream from a extract air fan if one is present.

- **Mounting in the supply air duct:**

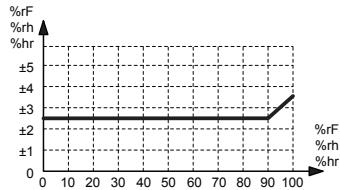
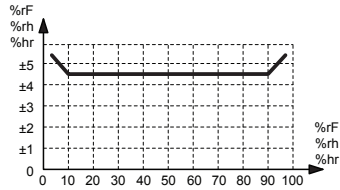
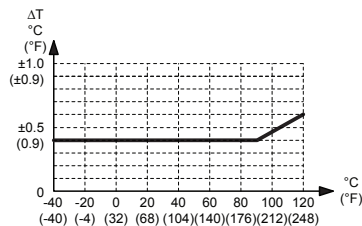
Mount the CDC, Condair CDC-ST or Condair CDC-SL in the supply air duct at least 3 meters downstream from the nearest fan and coil and with a minimum distance of 5x the humidification distance to the steam distributor (see manual of the humidifier).

2.5 Installation

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. Loosen the screw on the housing cover and open cover.
3. Lead connecting cable through the cable gland and connect wires to the terminals according to the wiring diagram.
4. Stick gasket on the sensor side centrally on 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. Close cover and fix it with the screw (do not tighten screw too much).

2.6 Product specifications

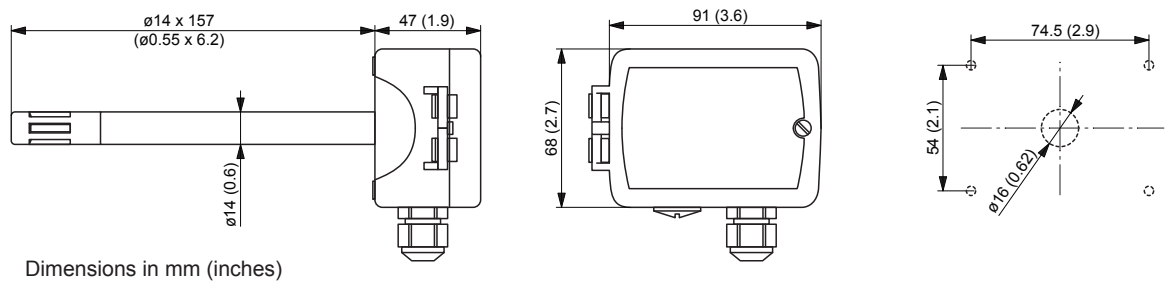
2.6.1 Technical data

Power Supply	
Operating voltage	24 V AC 50/60 Hz $\pm$ 10%, 24VDC $\pm$ 10%
Power consumption	Max. 2 VA
Terminal connections	For wires 0.34...2.5 mm ² (AWG 24...12)
Sensor probe (humidity sensor)	
Measuring element	Capacitive measuring element
Measuring range	0...100 %rH
Measuring accuracy	CDC / CDC-ST / CDC-NA  Max. RH tolerance at 25 °C (77°F) CDC-SL  Max. RH tolerance at 25 °C (77°F)
Hysteresis	$\pm$ 1%
Repeatability	$\pm$ 0.1%
Stability	< 0.5% / Year
Sensor probe (temperature sensor) - CDC-ST only	
Measuring element	Passive measuring element
Measuring range	0 ... 50 °C
Measuring accuracy	
Repeatability	0.04 °C
Stability	< 0.03 °C / year
Signal outputs	
Analog Outputs	
Analog signal	CDC and CDC-ST 0-10V or 0...20mA / 2-10V or 4...20mA CDC-SL and CDC-NA 2-10V fixed
Resolution	10 Bit, 9.7 mV, 0.019.5 mA
Maximum load	20 mA, 500Ω

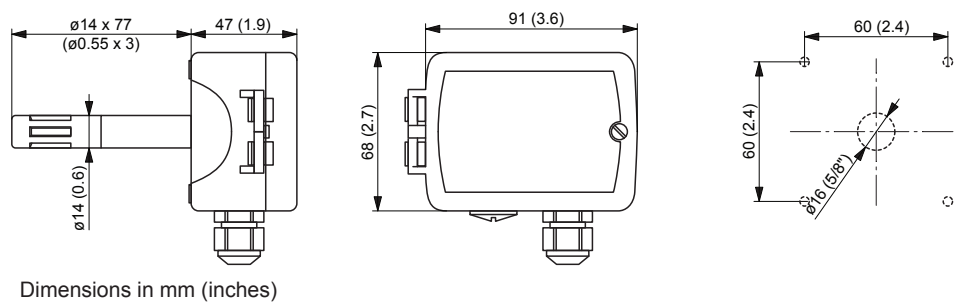
Environment	
Operation	IEC 721-3-3
Climatic Conditions	Class 3 K5
Temperature	-40...70°C (-40...158°F)
Humidity	<95 %rH not condensing
Transport and Storage	IEC 721-3-2 and IEC 721-3-1
Climatic Conditions	Class 3 K3 and Class 1 K3
Temperature	-40...80°C (-40...176°F)
Humidity	<95 %rH not condensing
Mechanical Conditions	Class 2M2
Standards	
CE compliant to EMC Norm 2014/30/EU, Low Voltage Directive 2014/35/EU	EN 61 000-6-1/ EN 61 000-6-3
Automatic electrical control and regulating devices for domestic use and similar applications	EN 60 730 –1
Degree of protection according to 60529	IP60
Protection class	III (IEC 60536)
General	
Housing material	PC and ABS
Filter material	PTFE coated 1µm pores
Weight CDC (including packaging)	270 g (9.5 oz)

2.6.2 Dimensions

2.6.2.1 Dimensions Condair CDC / CDC-NA

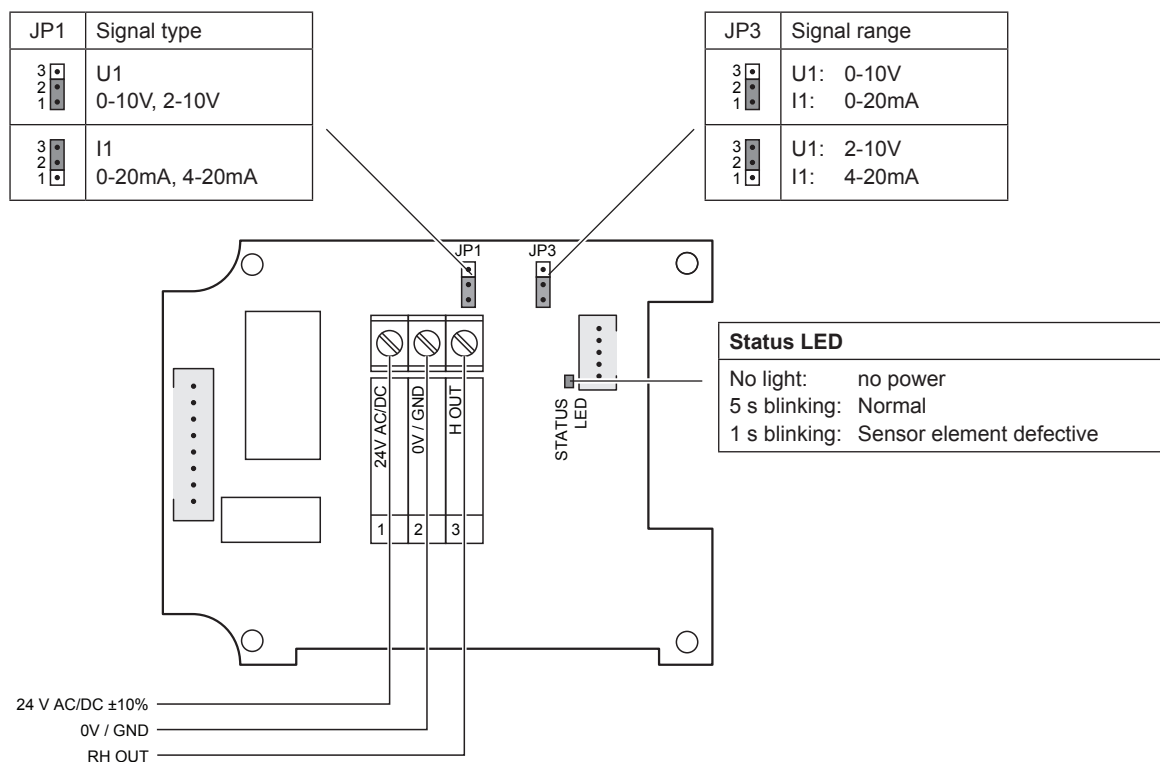


2.6.2.2 Dimensions Condair CDC-ST / CDC-SL

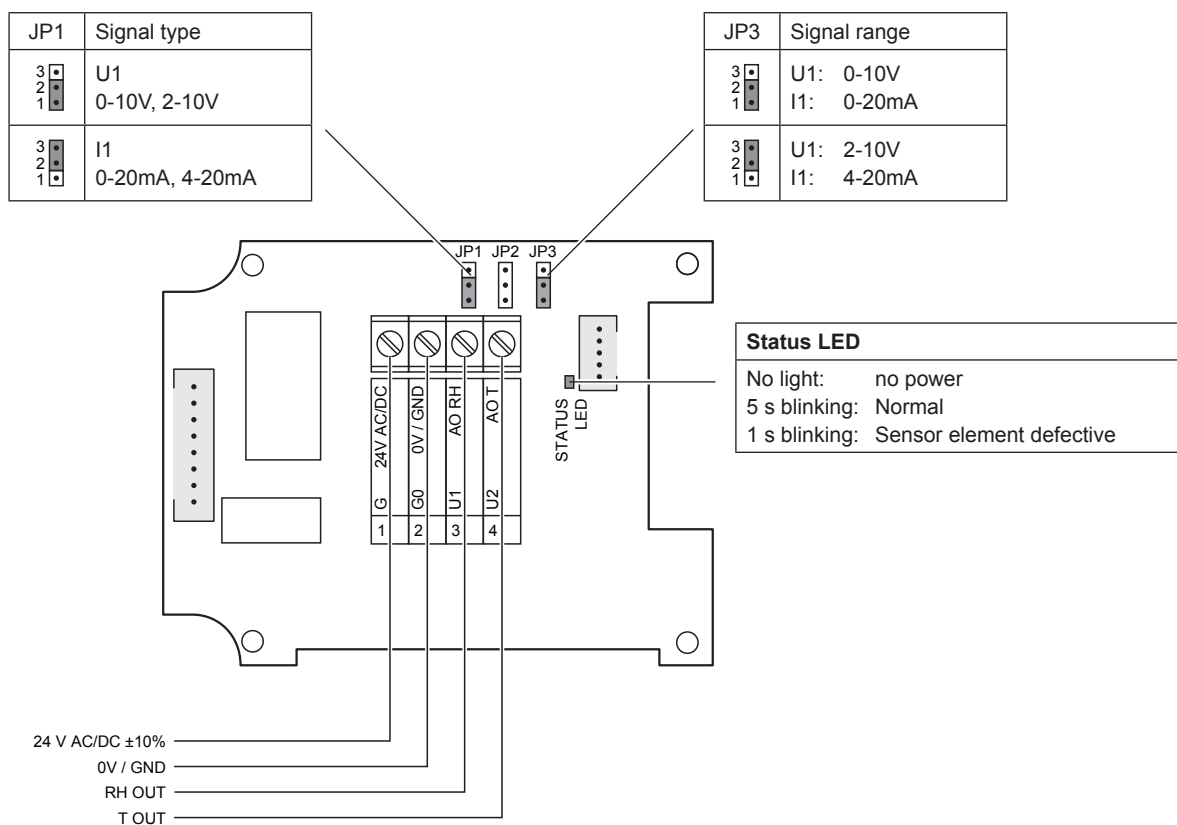


2.7 Wiring diagrams/Configuration

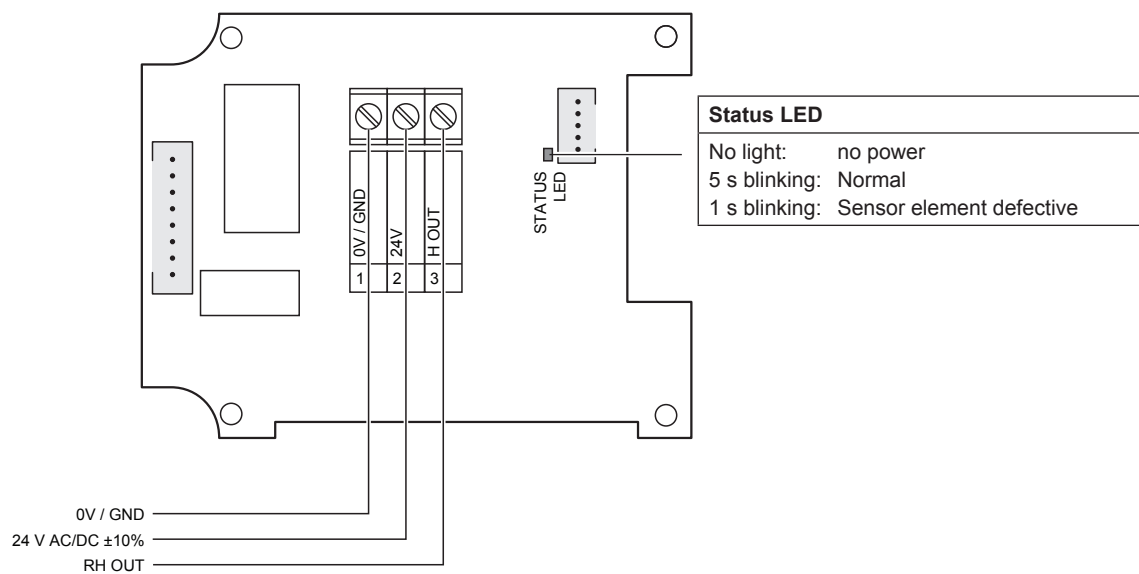
2.7.1 Wiring diagram/Configuration Condair CDC



2.7.2 Wiring diagram/Configuration Condair CDC-ST



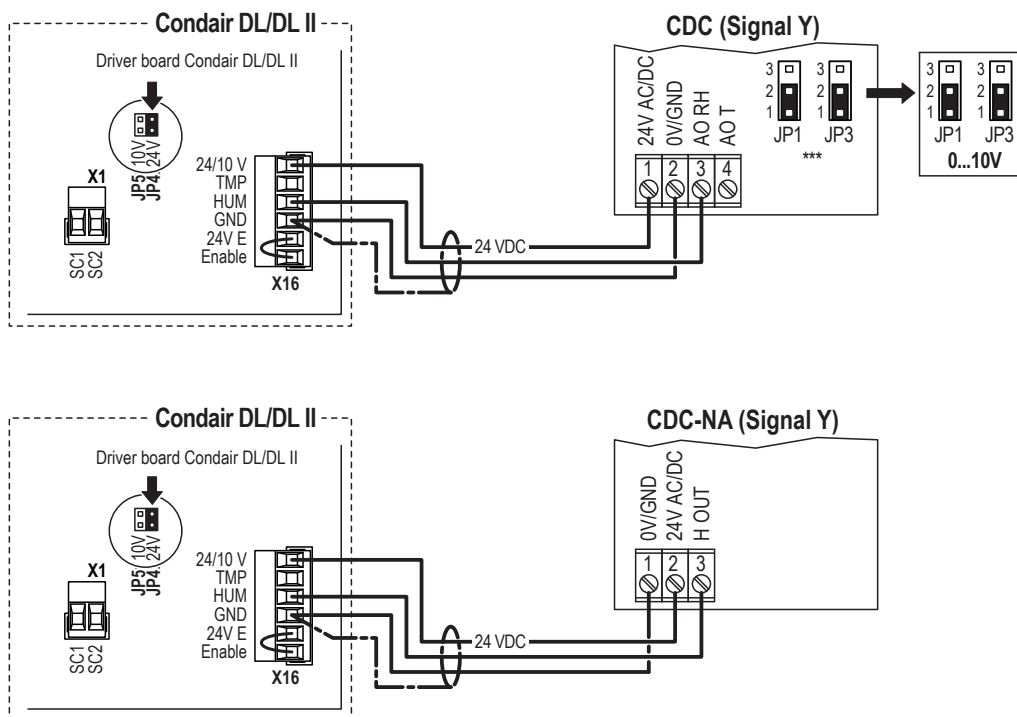
2.7.2.1 Wiring diagram Condair CDC-SL and CDC-NA



2.8 Connecting the CDC, CDC-NA, CDC-ST or CDC-SL to Condair units

2.8.1 Connecting the CDC or CDC-NA to the Condair DL/DL II

1. Connect the CDC or CDC-NA (signal Y) according to the appropriate wiring diagram (see below) to the corresponding terminals of the terminal block "X16" on the driver board of the Condair DL/DL II.
Note: The voltage supply of the CDC or CDC-NA is established via the terminals "24/10V" and "GND" of terminal block "X16" or via an external 24V AC/DC voltage supply.
2. On the driver board of the Condair DL/DL II: set a Jumper on JP4-24V and remove the Jumper on JP5-10V (if a jumper is set).
3. Only for CDC: Set the output signal of the CDC to "0-10V" using the Jumpers JP1 and JP3 on the control board of the CDC.
Note: other output signal settings (e.g. 4-20mA) are also possible, see CDC jumper settings in [Section 2.7](#).



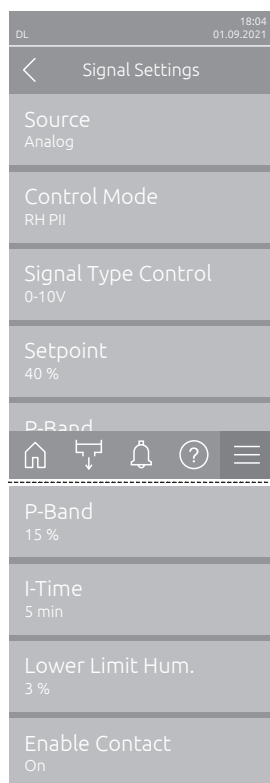
4. Set the Condair DL/DL II into operation, go to the control menu of the unit software and set the control parameters as follows:

- Condair DL:



"Source" to **"Analog"**, **"Control Mode CH 1"** to **"RH PI"**, **"Signal Type Hum"** to **"0-10V"** (or to output signal set on CDC) or **"2-10V"** (for CDC-NA) and the parameters **"Setpoint"**, **"Band Channel 1"** and **"ITime Channel 1"** to the desired values (refer to the Condair DL operation manual).

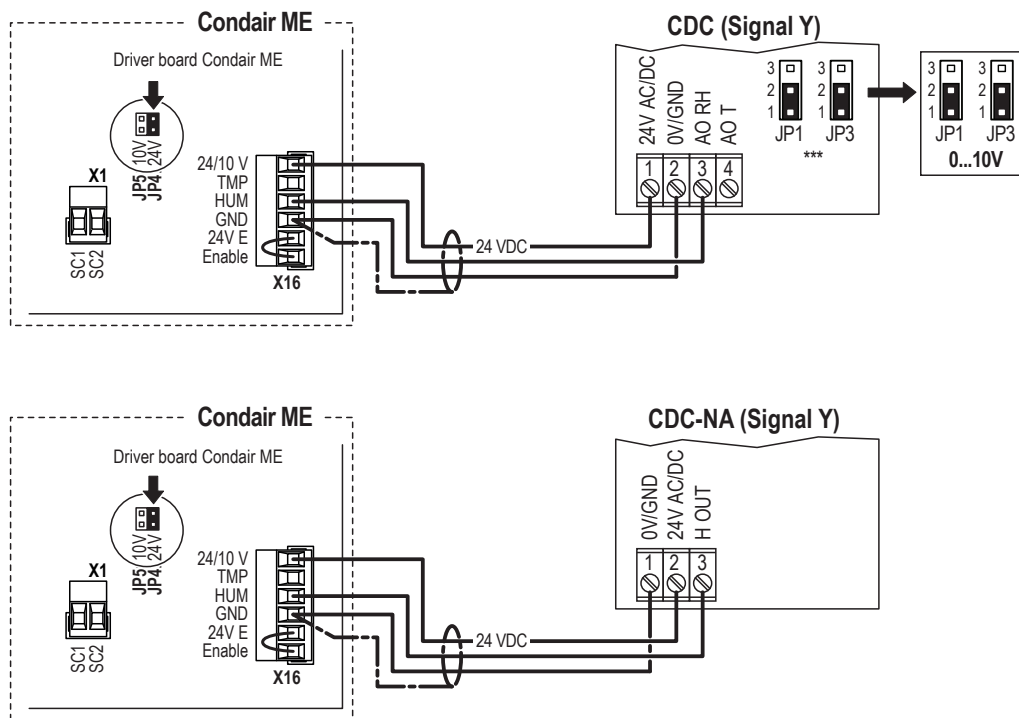
- Condair DL II:



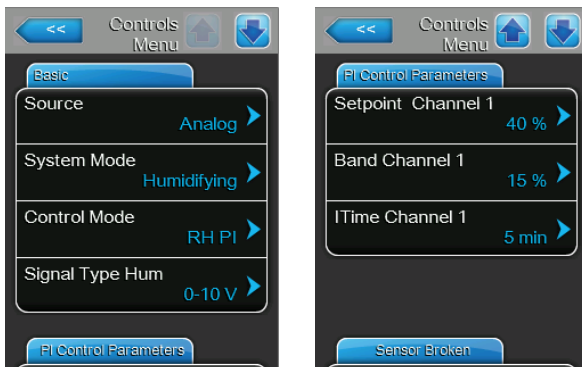
"Source" to **"Analog"**, **"Control Mode"** to **"RH PI"**, **"Signal Type Control"** to **"0-10V"** (or to output signal set on CDC) or **"2-10V"** (for CDC-NA) and the parameters **"Setpoint"**, **"P-Band"** and **"I-Time"** to the desired values (refer to the Condair DL II operation manual).

2.8.2 Connecting the CDC or CDC-NA to the Condair ME

1. Connect the CDC or CDC-NA (signal Y) according to the appropriate wiring diagram (see below) to the corresponding terminals of the terminal block "X16" on the driver board of the Condair ME.
Note: The voltage supply of the CDC or CDC-NA is established via the terminals "V+" and "GND" of terminal block "X16" or via an external 24V AC/DC voltage supply.
2. On the driver board of the Condair ME: set a Jumper on JP4-24V and remove the Jumper on JP5-10V (if a jumper is set).
3. Only for CDC: Set the output signal of the CDC to "0-10V" using the Jumpers JP1 and JP3 on the control board of the CDC.
Note: other output signal settings (e.g. 4-20mA) are also possible, see CDC jumper settings in [Section 2.7](#).



4. Set the Condair ME into operation, go to the control menu of the unit software and set the parameters **"Source"** to **"Analog"**, **"System Mode"** to **"Humidifying"**, **"Control Mode"** to **"RH PI"**, **"Signal Type Hum"** to **"0-10V"** (or to output signal set on CDC) or **"2-10V"** (for CDC-NA) and the parameters **"Setpoint Channel 1"**, **"Band Channel 1"** and **"ITime Channel 1"** to the desired values (refer to the Condair ME operation manual).

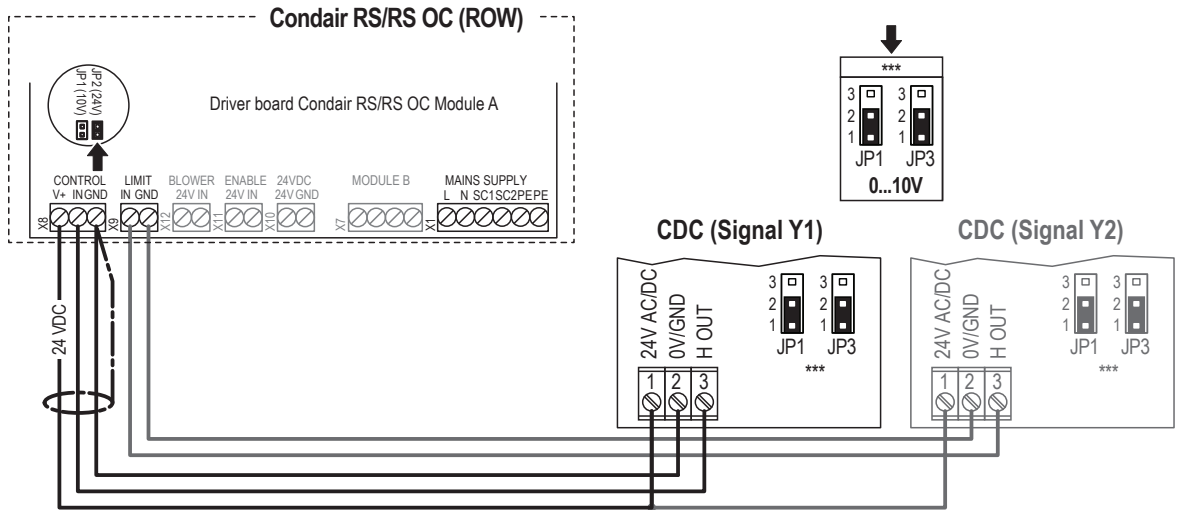


2.8.3 Connecting the CDC or CDC-NA to the Condair RS/RS OC

1. Connect the CDC (signal Y1) to the corresponding terminals on the driver board of the Condair RS/RS OC (ROW) according to the following diagram.

Note: The voltage supply of the CDC is established via the terminals "V+" and "GND" of terminal block "X8" or via an external 24 V AC/DC voltage supply.

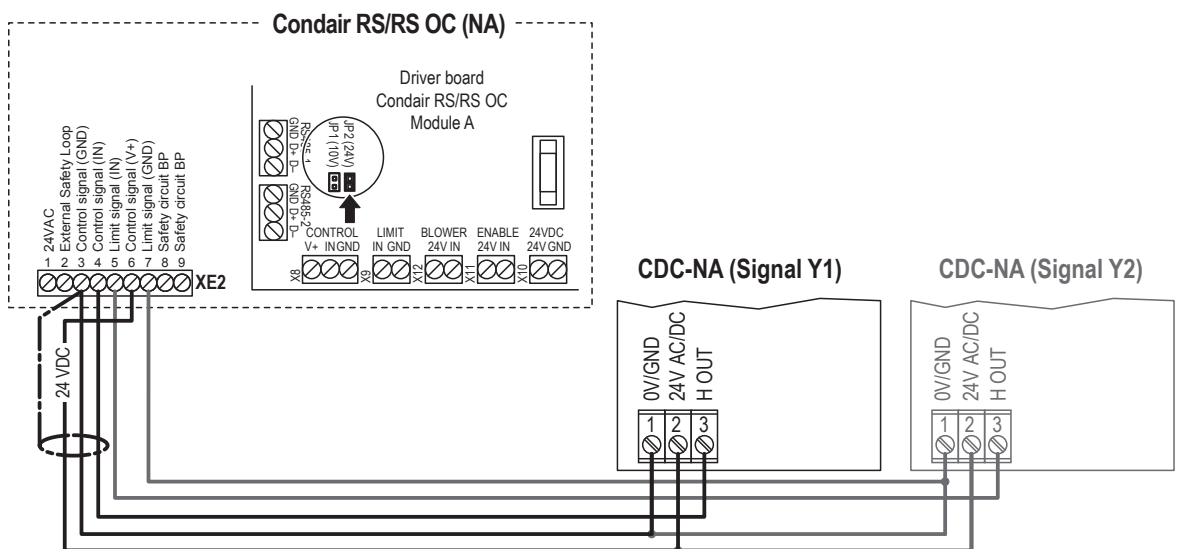
Note: In case of humidity control with limitation of the supply air humidity, a second CDC duct humidity sensor (signal Y2) is to be connected according to the wiring diagram below.



Connect the CDC-NA (signal Y1) to the appropriate terminals of the terminal block "XE2" of the Condair RS/RS OC (NA) according to the following diagram.

Note: The voltage supply of the CDC-NA is established via the terminals "Control Signals (V+)" and "Control Signals (GND)" of terminal block "XE2" or via an external 24 V AC/DC voltage supply.

Note: In case of humidity control with limitation of the supply air humidity, a second CDC-NA duct humidity sensor (signal Y2) is to be connected according to the wiring diagram below.



2. Set a jumper on JP2 (24V) on the driver board of the Condair RS/RS OC and remove the jumper on JP1 (10V), if present.

3. Only for CDC: Set the output signal of the CDC to "0-10V" using the Jumpers JP1 and JP3 on the control board of the CDC.
Note: other output signal settings (e.g. 4-20mA) are also possible, see CDC jumper settings in [Section 2.7](#).
4. Set the Condair RS/RS OC into operation, go to the control menu of the unit software and set the parameters **"Source"** to **"Analog"**, **"Control Mode CH 1"** to **"RH PI"**, **"Signal Type Control CH 1"** to **"0-10V"** (or to output signal set on CDC) or **"2-10V"** (for CDC-NA) and the parameters **"Setpoint Channel 1"**, **"Band Channel 1"** and **"ITime Channel 1"** to the desired values (refer to the Condair RS operation manual).
Note: if required, also set the limitation parameters (signal Y2). In order to be able to set these parameters, the "Control channels" parameter must be set to "Double" (refer to the Condair RS operation manual).

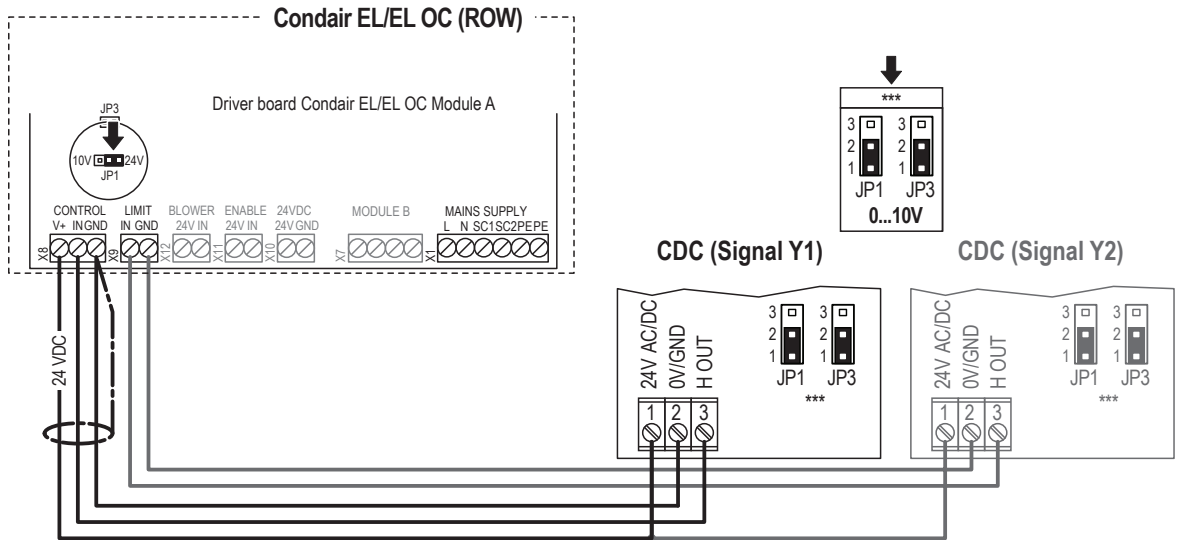


2.8.4 Connecting the CDC or CDC-NA to the Condair EL/EL OC

1. Connect the CDC (signal Y1) to the corresponding terminals on the driver board of the Condair EL/EL OC (ROW) according to the following diagram.

Note: The voltage supply of the CDC is established via the terminals "V+" and "GND" of terminal block "X8" or via an external 24 V AC/DC voltage supply.

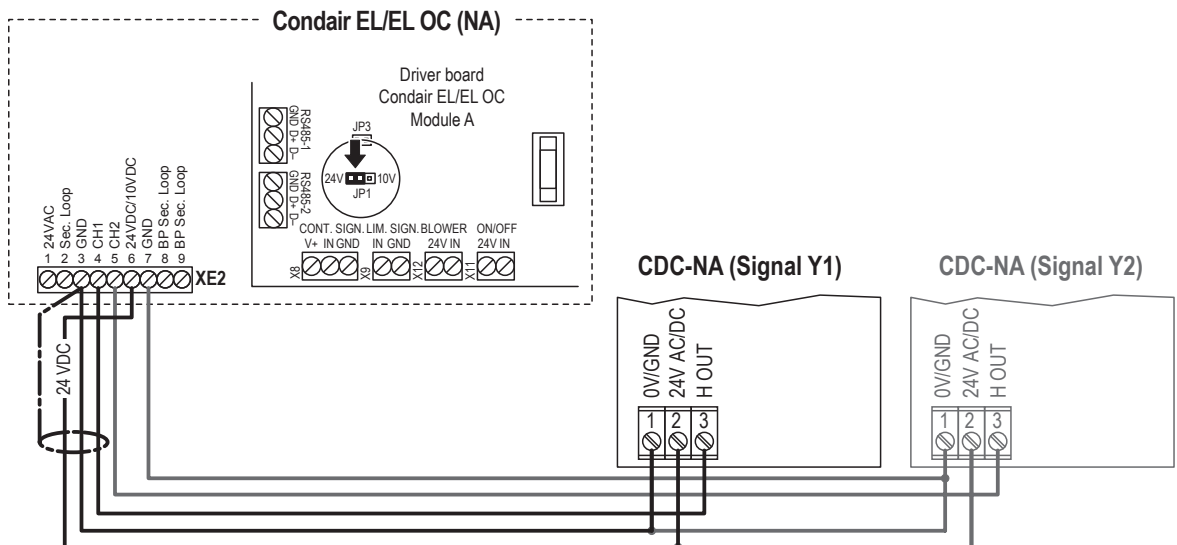
Note: In case of humidity control with limitation of the supply air humidity, a second CDC duct humidity sensor (signal Y2) is to be connected according to the wiring diagram below.



Connect the CDC-NA (signal Y1) to the appropriate terminals of the terminal block "XE2" of the Condair EL/EL OC (NA) according to the following diagram.

Note: The voltage supply of the CDC-NA is established via the terminals "24VDC/10VDC" and "GND" of terminal block "XE2" or via an external 24 V AC/DC voltage supply.

Note: In case of humidity control with limitation of the supply air humidity, a second CDC duct humidity sensor (signal Y2) is to be connected according to the wiring diagram below.



2. Set a jumper on JP1-24V on the driver board of the Condair EL/EL OC.

3. Only for CDC: Set the output signal of the CDC to "0-10V" using the Jumpers JP1 and JP3 on the control board of the CDC.
Note: other output signal settings (e.g. 4-20mA) are also possible, see CDC jumper settings in [Section 2.7](#).
4. Set the Condair EL/EL OC into operation, go to the control menu of the unit software and set the parameters **"Source"** to **"Analog"**, **"Control Mode CH 1"** to **"RH PI"**, **"Signal Type Control CH 1"** to **"0-10V"** (or to output signal set on CDC) or **"2-10V"** (for CDC-NA) and the parameters **"Setpoint Channel 1"**, **"Band Channel 1"** and **"ITime Channel 1"** to the desired values (refer to the Condair EL operation manual).
Note: if required, also set the limitation parameters (signal Y2). In order to be able to set these parameters, the "Control channels" parameter must be set to "Double" (refer to the Condair EL operation manual).

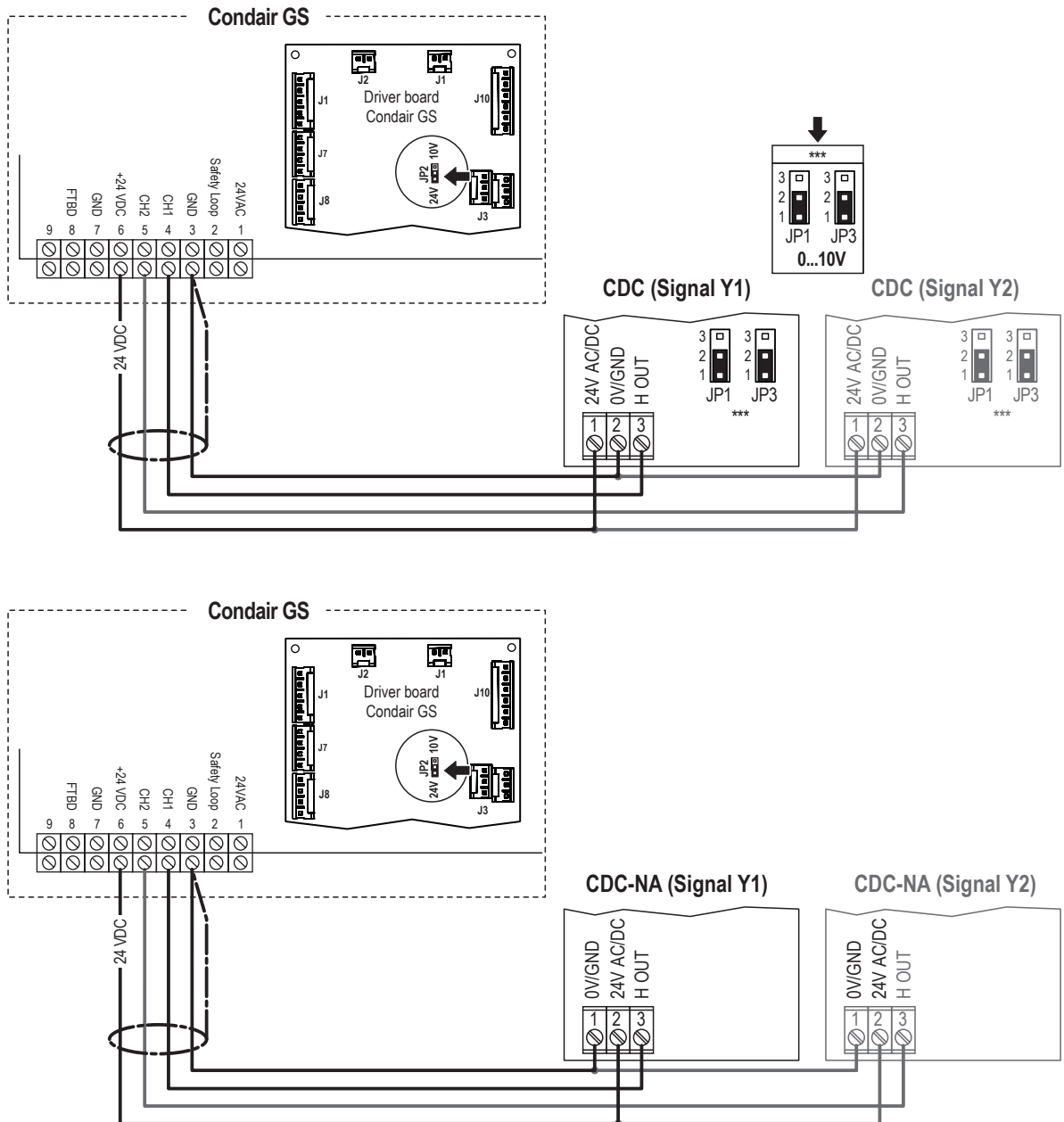


2.8.5 Connecting the CDC or CDC-NA to the Condair GS

1. Connect the CDC or CDC-NA (signal Y1) to the corresponding terminals of the Condair GS according to the appropriate wiring diagram (see below).

Note: The voltage supply of the CDC or CDC-NA is established via the terminals "+24 VDC" and "GND" of the terminal block or via an external 24 V AC/DC voltage supply.

Note: In case of humidity control with limitation of the supply air humidity, a second CDC or CDC-NA duct humidity sensor (signal Y2) is to be connected according to the appropriate wiring diagram below.

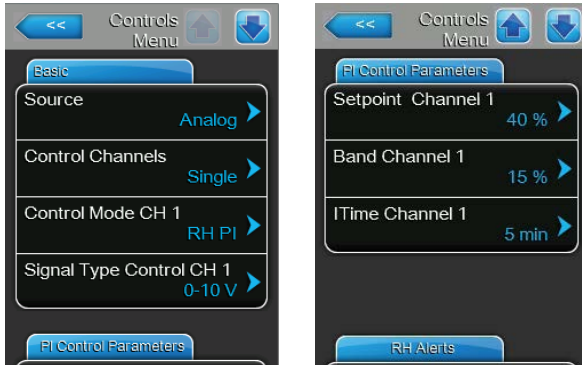


2. On the driver board of the Condair GS: set a Jumper on JP2-24V.
3. Only for CDC: Set the output signal of the CDC to "0-10V" using the Jumpers JP1 and JP3 on the control board of the CDC.

Note: other output signal settings (e.g. 4-20mA) are also possible, see CDC jumper settings in [Section 2.7](#).

4. Set the Condair GS into operation, go to the control menu of the unit software and set the parameters **"Source"** to **"Analog"**, **"Control Mode CH 1"** to **"RH PI"**, **"Signal Type Control CH 1"** to **"0-10V"** (or to output signal set on CDC) or **"2-10V"** (for CDC-NA) and the parameters **"Setpoint Channel 1"**, **"Band Channel 1"** and **"ITime Channel 1"** to the desired values (refer to the Condair GS operation manual).

Note: if required, also set the limitation parameters (signal Y2). In order to be able to set these parameters, the "Control channels" parameter must be set to "Double" (refer to the Condair GS operation manual).

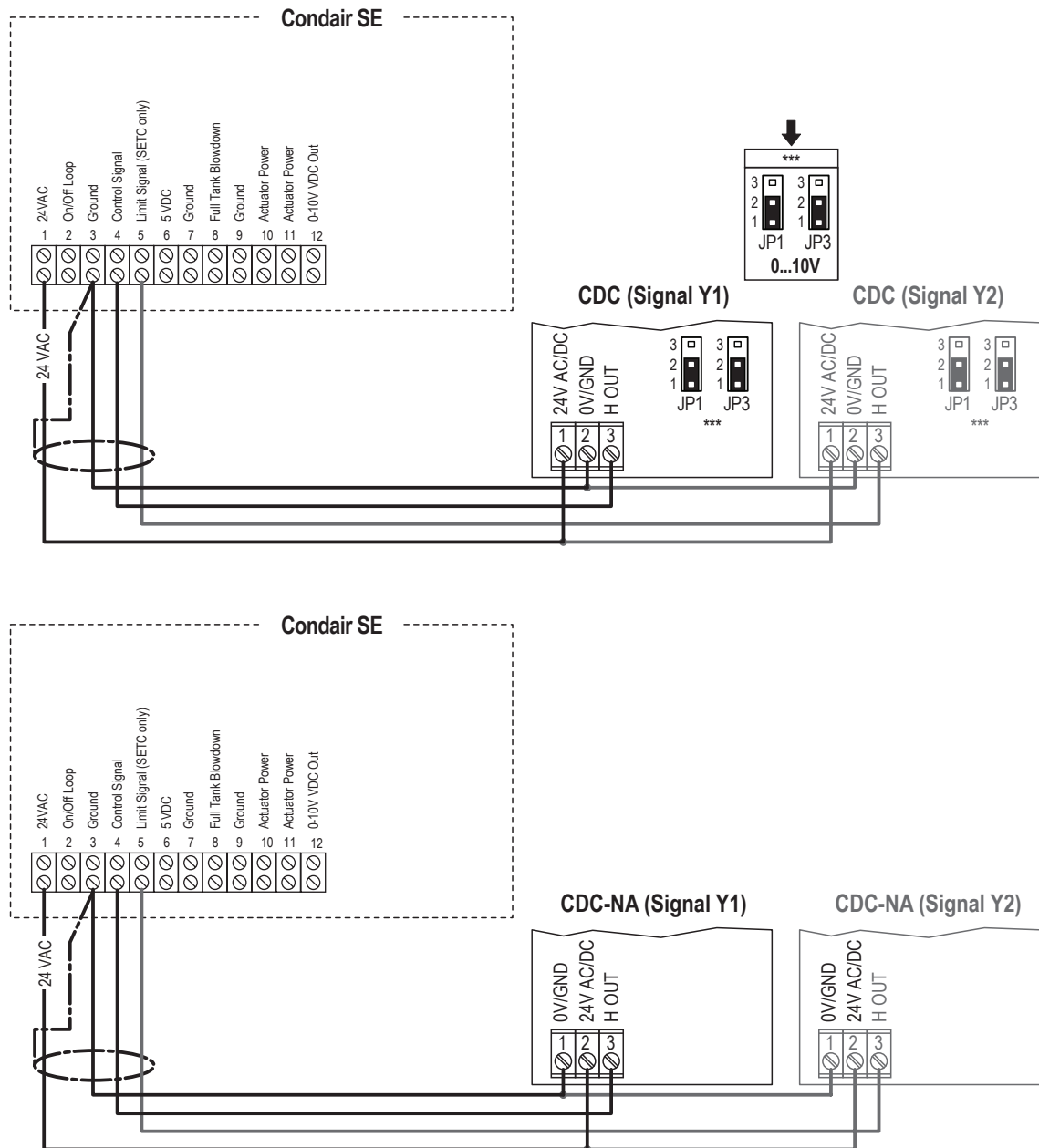


2.8.6 Connecting the CDC or CDC-NA to the Condair SE

1. Connect the CDC or CDC-NA (signal Y1) to the corresponding terminals of the Condair SE according to the appropriate wiring diagram (see below).

Note: The voltage supply of the CDC or CDC-NA is established via the terminals "24 VAC" and "Ground" of the terminal block or via an external 24 V AC/DC voltage supply.

Note: In case of humidity control with limitation of the supply air humidity, a second CDC or CDC-NA duct humidity sensor (signal Y2) is to be connected according to the appropriate wiring diagram below.



2. Only for CDC: Set the output signal of the CDC to "0-10V" using the Jumpers JP1 and JP3 on the control board of the CDC.

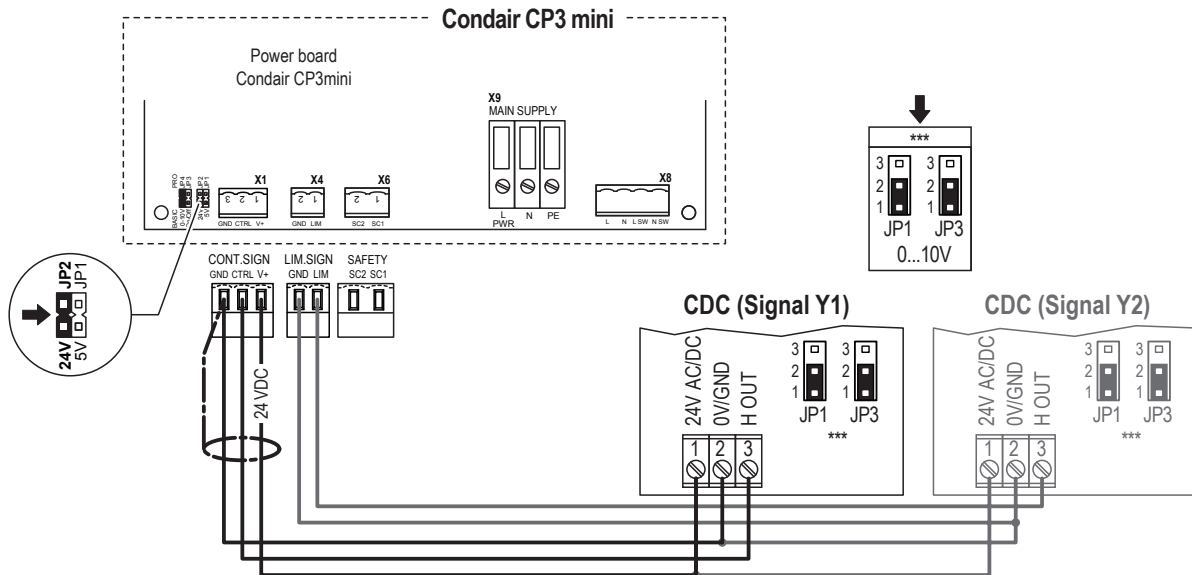
Note: other output signal settings (e.g. 4-20mA) are also possible, see CDC jumper settings in [Section 2.7](#).

2.8.7 Connecting the CDC to the Condair CP3mini

1. Connect the CDC (signal Y1) to the corresponding terminals of terminal block "X1" on the power board of the Condair CP3mini according to the wiring diagram below.

Note: The voltage supply of the CDC is established via the terminals "V+" and "GND" of terminal block "X1" or via an external 24 V AC/DC voltage supply.

Note: In case of humidity control with limitation of the supply air humidity, a second CDC duct humidity sensor (signal Y2) is to be connected according to the wiring diagram below.

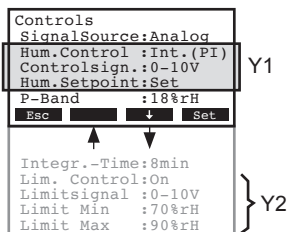


2. On the power board of the Condair CP3mini: set a Jumper on JP2-24 V and remove the Jumper on JP1-5V (if a jumper is set).
3. Set the output signal of the CDC with jumpers JP1 and JP3 on the control board of the CDC to **"0-10V"**.

Note: other output signal settings (e.g. 4-20mA) are also possible, see CDC jumper settings in [Section 2.7](#).

4. Set the Condair CP3mini into operation, go to the setup level of the unit software and set the parameters **"Hum.Control"** to **"Int.(PI)"**, **"Controlsign."** to **"0-10V"** (or to output signal set on CDC) and **"Hum.Setpoint"** to the desired value (refer to the Condair CP3mini installation and operation manual).

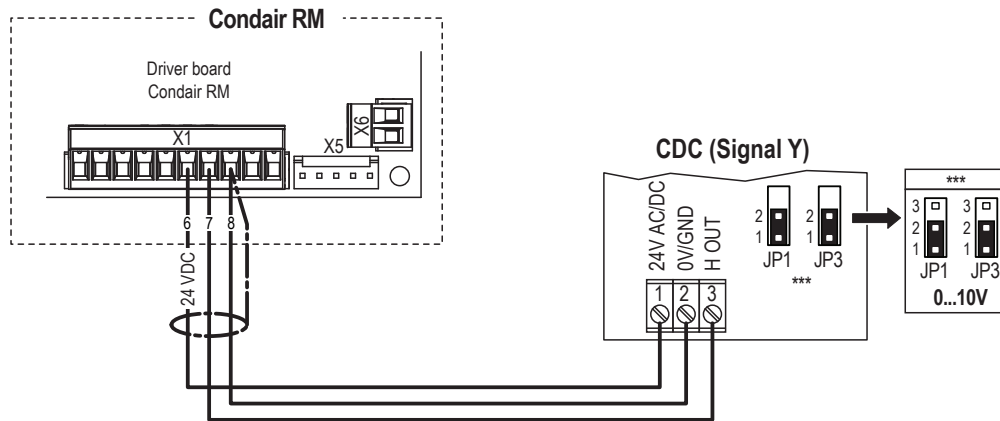
Note: if required, also set the limitation parameters (signal Y2).



2.8.8 Connecting the CDC to the Condair RM

1. Connect the CDC (signal Y) to the corresponding terminals of terminal block "X1" of the Condair RM according to the wiring diagram below.

Note: The voltage supply of the CDC is established via the terminals "6" and "8" of the terminal block "X1" or via an external 24 V AC/DC voltage supply.

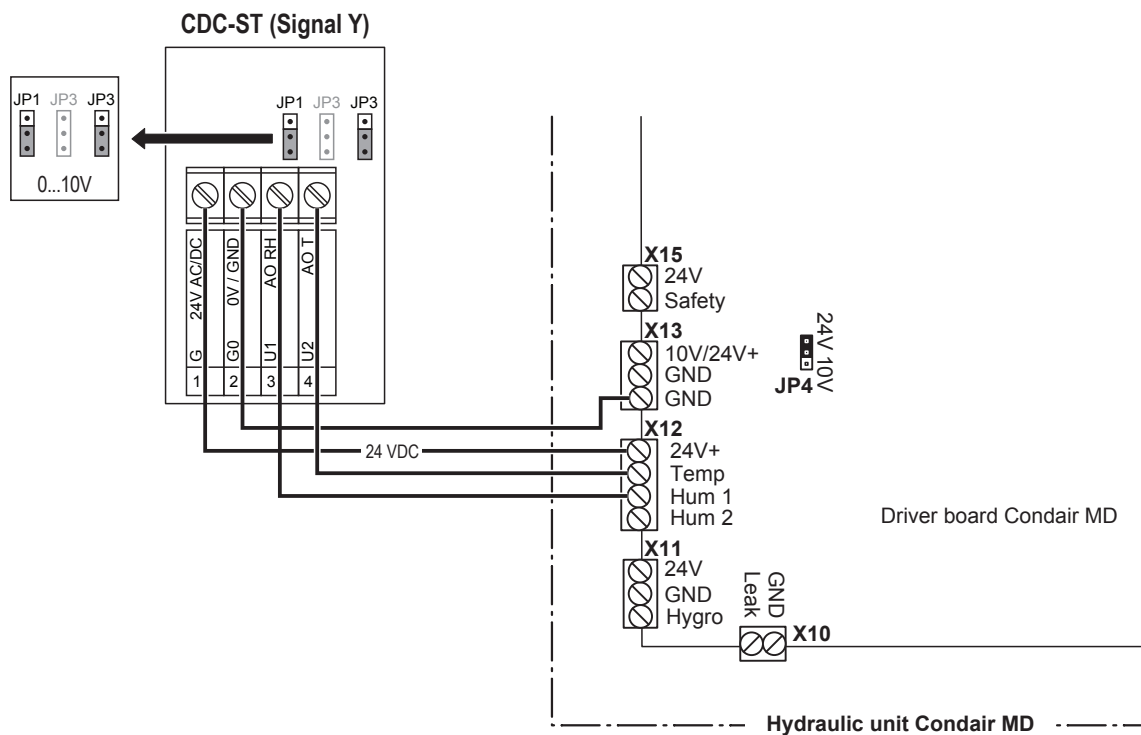


2. Set the Condair RM into operation and set in the unit software under "Engineering > Steam Generator> Steaming Settings" the parameters **"Input signal"** to **"0-10V"** (or to output signal set on CDC), **"Control Mode"** to **"rH"** and **"PID Type"** to **"PI"** as well as in the user menu **"Set point value"** to the desired value (refer to the Condair RM operation manual).

2.8.9 Connecting the CDC-ST to the Condair MD

1. Connect the CDC (signal Y) to the corresponding terminals of terminal block "X11" and "X12" on the power board of the Condair CP3mini according to the wiring diagram below.

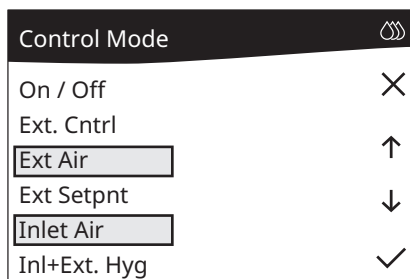
Note: The voltage supply of the CDC-ST is established via the terminal "24V+" on terminal block "X12" and terminal "GND" on terminal block "X13" or via an external 24 V AC/DC voltage supply.



2. Set the jumper "JP4" on the driver board in the hydraulic unit of the Condair MD to "24V".
3. Set the output signal of the CDC-ST with jumpers "JP1" and "JP3" on the control board of the CDC-ST to "0-10V"

Note: other output signal settings (e.g. 4-20mA) are also possible, see CDC-ST jumper settings in [Section 2.7](#).

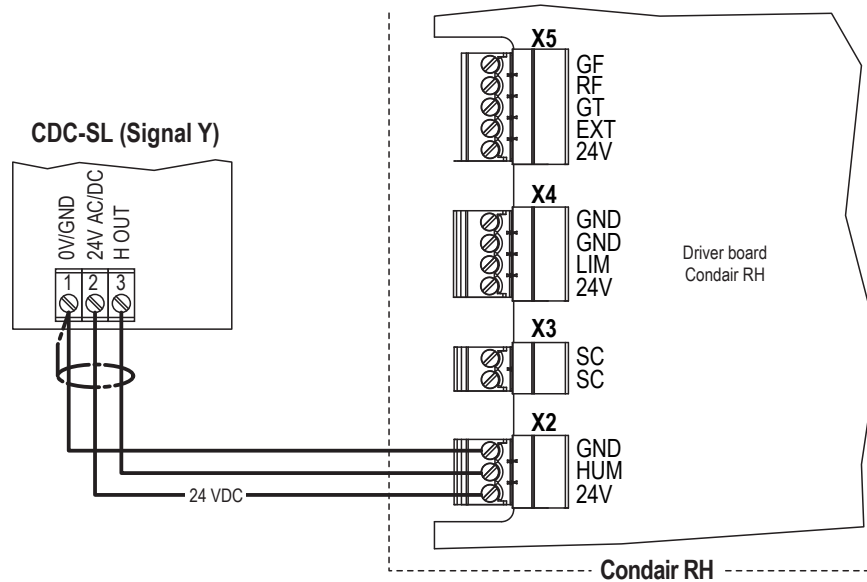
4. Set the Condair MD into operation and set "Control Mode" in the "User Settings" menu (Path: "User Settings > Operation > Control Mode") to "Inlet Air" (for supply air control) or "Ext Air" (for extract air control) . Confirm selection with the <✓> button.



2.8.10 Connecting the CDC-SL am Condair RH

Connect the CDC-SL (signal Y) to the corresponding terminals of the terminal block "X2" on the driver board of the Condair RH according to the wiring diagram below. The voltage supply of the CDC-SL is established via the terminals "24 VDC" and "GND" or via an external 24 V AC/DC voltage supply.

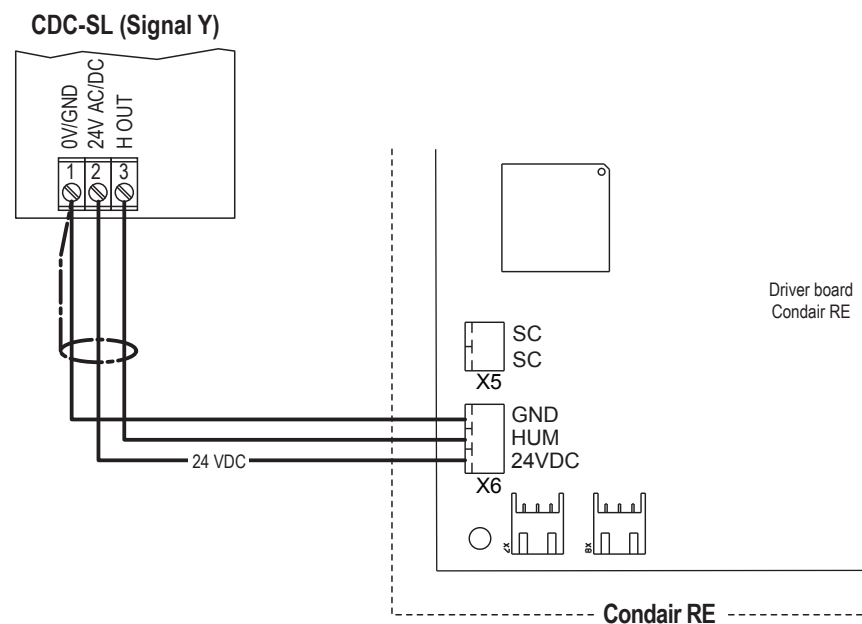
Note: The CDC-SL works with a fixed control signal range of 2-10 V. The corresponding sensor setting can be adjusted using the HumiLife app.



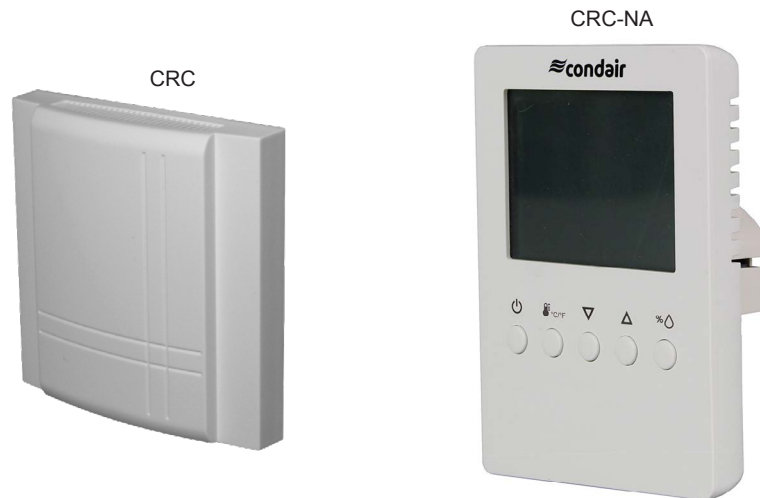
2.8.11 Connecting the CDC-SL am Condair RE

Connect the CDC-SL (signal Y) to the corresponding terminals of the terminal block "X6" on the driver board of the Condair RE according to the wiring diagram below. The voltage supply of the CDC-SL is established via the terminals "24 VDC" and "GND" or via an external 24 V AC/DC voltage supply.

Note: The CDC-SL works with a fixed control signal range of 2-10 V. The corresponding sensor setting can be adjusted using the HumiLife app.



3 Condair CRC and CRC-NA



3.1 Functional description

Condair CRC serves for the humidity measurement in rooms. For the humidity measurement a capacitive humidity sensor is used. The microprocessor samples the humidity once per second. It calculates an averaging signal over a preset number of seconds and generates the output signal. The applied measuring technology guarantees excellent reliability and long term stability. The output signal of the sensor 0...10 VDC, 0...20 mA or 2...10 VDC, 4...20 mA may be customized by jumpers.

3.2 Safety

Please observe all local regulations concerning electric installations.

The installation work must be performed only by **adequately qualified personnel (electrician or workman with equivalent training)**.

Warning - danger of electric shock! Before starting the installation work the unit to which the Condair CRC or CRC-NA will be connected must be disconnected from the mains and may be reconnected to mains only after all installation work has been completed.

Warning! The electronic components inside the Condair CRC or CRC-NA and the humidifier are very susceptible to electrostatic discharges. For the protection of these components, measures must be taken during all installation work to prevent damage caused by electrostatic discharge (ESD-protection).

3.3 Delivery

The delivery includes:

- Humidity sensor Condair CRC or CRC-NA
- Fixing material
- Installation manual

3.4 Mounting location

The Condair CRC or CRC-NA is mounted at least 1.5 m above the floor directly to the wall. Observe the following placement notes:

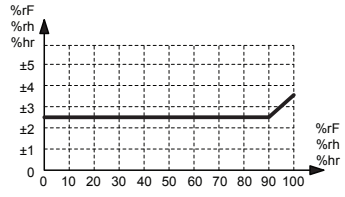
- Do not place the Condair CRC or CRC-NA in niches, behind curtains, etc.
- Do not place the Condair CRC or CRC-NA near heat sources, within the area with direct air draft or direct sunlight.

3.5 Installation

1. Open the screw of the housing and remove mounting plate.
2. At the place of location fix mounting plate (plastic screw facing downwards) with two screws (see dimensional drawing).
3. Lead connecting cable from the bottom into the housing and connect wires to the terminals according to the wiring diagram.
4. Snap housing onto the mounting plate, and fix it with the screw (do not tighten screw too much).

3.6 Product specifications

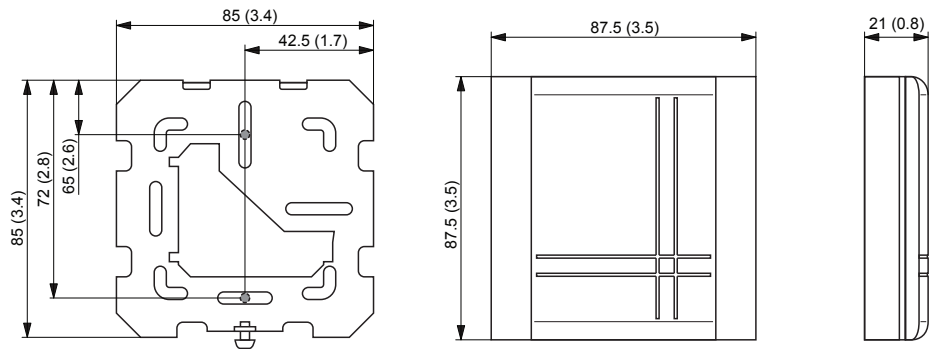
3.6.1 Technical data

Power Supply	
Operating voltage	24 V AC 50/60 Hz $\pm$ 10%, 24VDC $\pm$ 10%
Power consumption	Max. 2 VA
Terminal connectors	For wires 0.34...2.5 mm ² (AWG 24...12)
Sensor probe	
Measuring element	Capacitive measuring element
Measuring range	0...100 %rH
Measuring accuracy	 Max. rH tolerance at 25 °C (77°F)
Hysteresis	$\pm$ 1%
Repeatability	$\pm$ 0.1%
Stability	< 0.5% / year
Signal outputs	
Analog Outputs	
Analog signal	CRC: 0...10 VDC, 0...20mA, 2...10 VDC, 4...20mA CRC-NA: 2...10 VDC
Resolution	10 Bit, 9.7 mV, 0.019.5 mA
Maximum load	20 mA, 500 Ω

Environment	
Operation	IEC 721-3-3
Climatic Conditions	Class 3 K5
Temperature	-40...70°C (-40...158°F)
Humidity	<95 %rH not condensing
Transport and Storage	IEC 721-3-2 and IEC 721-3-1
Climatic Conditions	Class 3 K3 and Class 1 K3
Temperature	-40...80°C (-40...176°F)
Humidity	<95 %rH not condensing
Mechanical Conditions	Class 2M2
Standards	
CE compliant to EMC Norm 2014/30/EU, Low Voltage Directive 2014/35/EU	EN 61 000-6-1/ EN 61 000-6-3
Automatic electrical control and regulating devices for domestic use and similar applications	EN 60 730 –1
Degree of protection according to 60529	IP30
Protection class	III (IEC 60536)
General	
Housing material	PC and ABS
Mounting plate	Galvanized steel
Weight Condair CRC (including packaging)	160 g (5.6 oz)

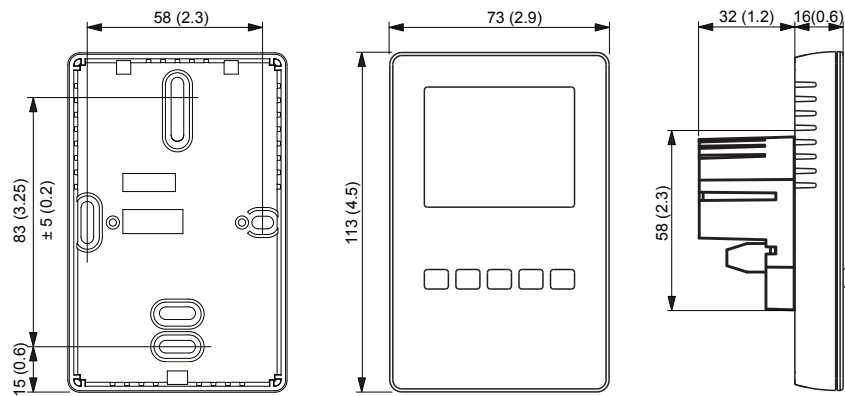
3.6.2 Dimensions

3.6.2.1 Dimensions CRC



Dimensions in mm (inches)

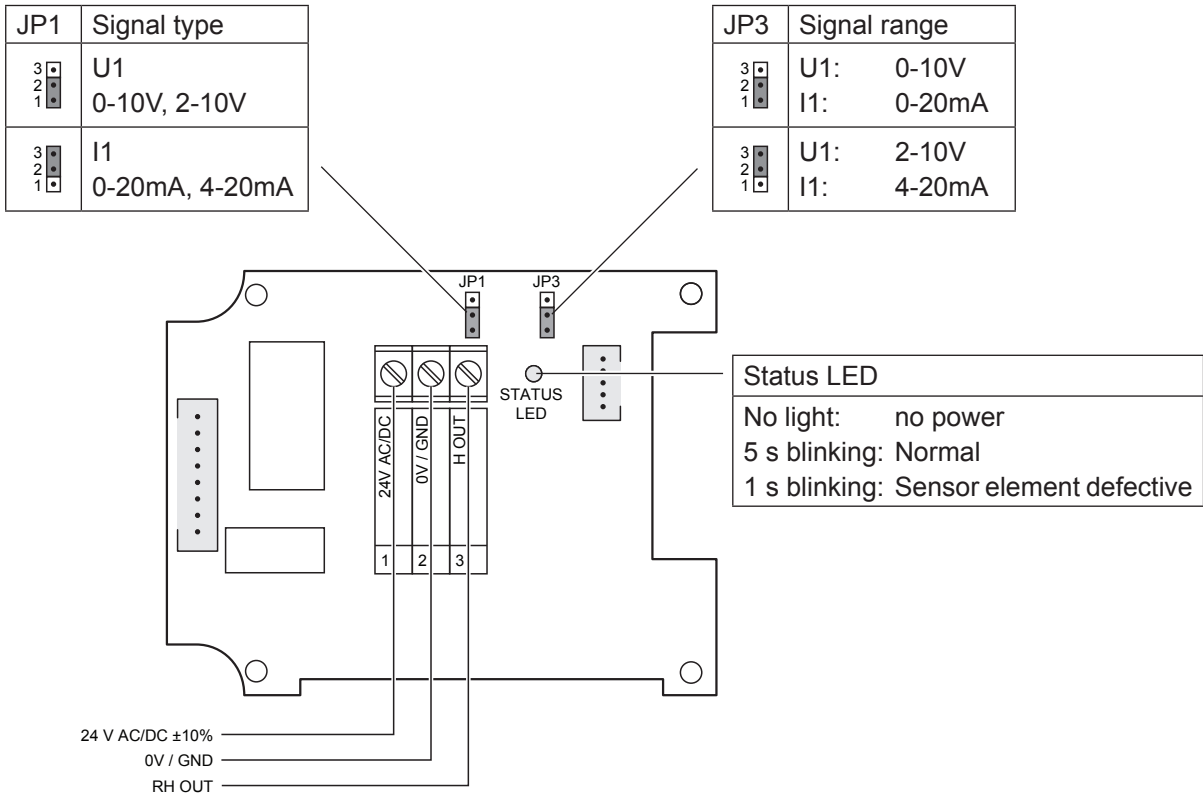
3.6.2.2 Dimensions CRC-NA



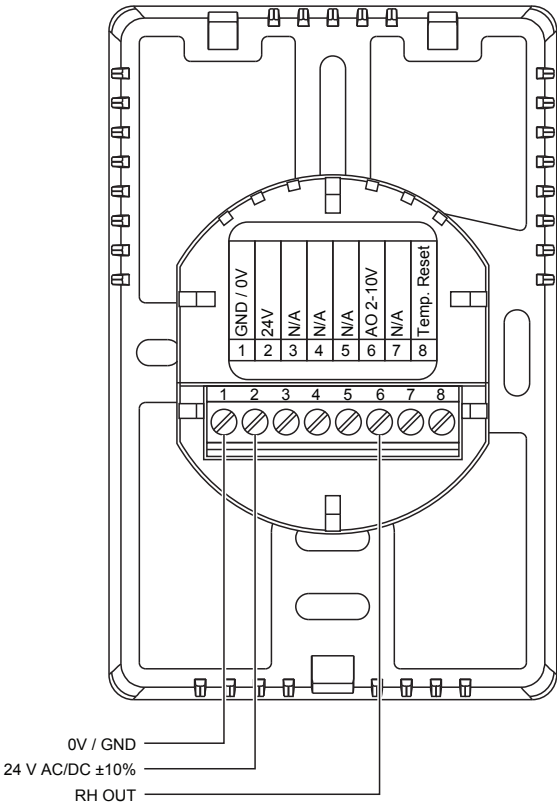
Dimensions in mm (inches)

3.7 **Wiring diagrams/Configuration**

3.7.2.1 **Wiring diagram/Configuration Condair CRC**



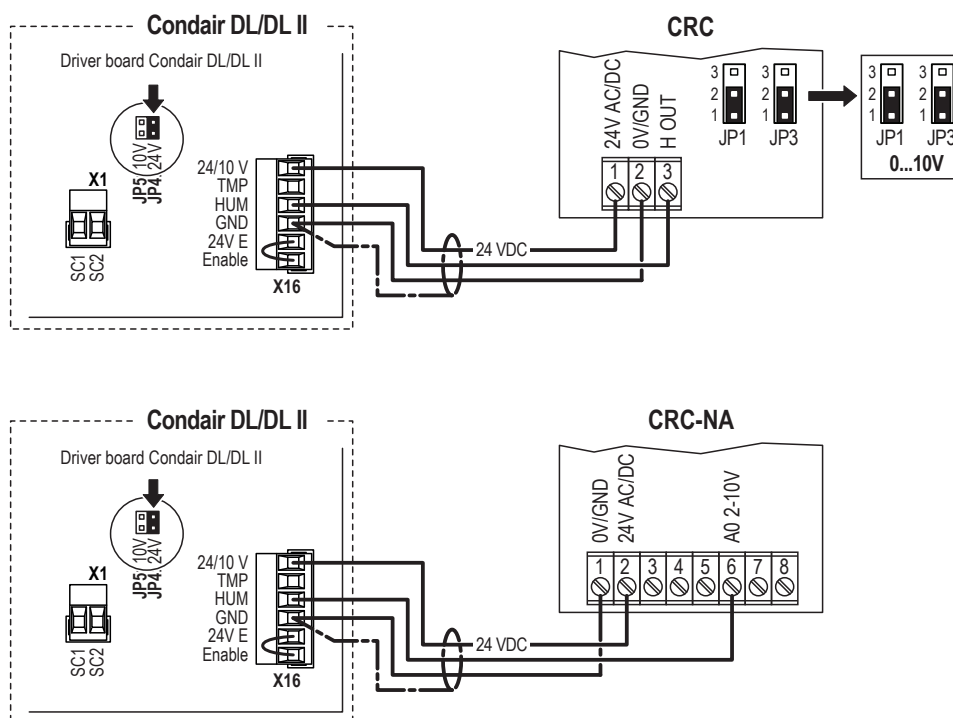
3.7.2.2 **Wiring diagram Condair CRC-NA**



3.8 Connecting the CRC or CRC-NA to Condair units

3.8.1 Connecting the CRC or CRC-NA to the Condair DL/DL II

1. Connect the CRC or CRC-NA according to the appropriate wiring diagram (see below) to the corresponding terminals of the terminal block "X16" on the driver board of the Condair DL/DL II.
Note: The voltage supply of the CRC or CRC-NA is established via the terminals "24/10V" and "GND" of terminal block "X16" or via an external 24V AC/DC voltage supply.
2. On the driver board of the Condair DL/DL II: set a Jumper on JP4-24V and remove the Jumper on JP5-10V (if a jumper is set).
3. Only for CRC: Set the output signal of the CRC to "0-10V" using the Jumpers JP1 and JP3 on the control board of the CDC.
Note: other output signal settings (e.g. 4-20mA) are also possible, see CRC jumper settings in [Section 3.7](#).



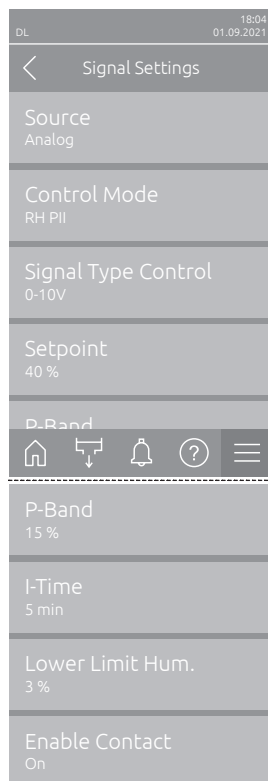
4. Set the Condair DL/DL II into operation, go to the control menu of the unit software and set the control parameters as follows:

- Condair DL:



"Source" to **"Analog"**, **"Control Mode CH 1"** to **"RH PI"**, **"Signal Type Hum"** to **"0-10V"** (or to output signal set on CRC) or **"2-10V"** (for CRC-NA) and the parameters **"Setpoint"**, **"Band Channel 1"** and **"ITime Channel 1"** to the desired values (refer to the Condair DL operation manual).

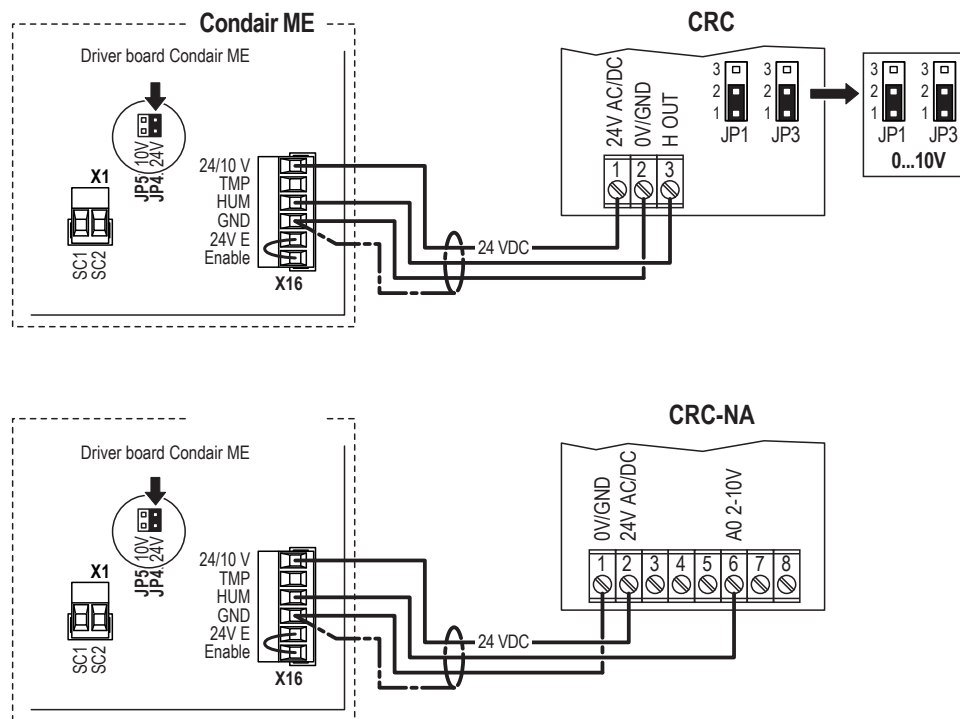
- Condair DL II:



"Source" to **"Analog"**, **"Control Mode"** to **"RH PI"**, **"Signal Type Control"** to **"0-10V"** (or to output signal set on CRC) or **"2-10V"** (for CRC-NA) and the parameters **"Setpoint"**, **"P-Band"** and **"I-Time"** to the desired values (refer to the Condair DL II operation manual).

3.8.2 Connecting the CRC or CRC-NA to the Condair ME

1. Connect the CRC or CRC-NA according to the appropriate wiring diagram (see below) to the corresponding terminals of the terminal block "X16" on the driver board of the Condair DL/DL II.
Note: The voltage supply of the CRC or CRC-NA is established via the terminals "24/10V" and "GND" of terminal block "X16" or via an external 24V AC/DC voltage supply.
2. On the driver board of the Condair ME: set a Jumper on JP4-24V and remove the Jumper on JP5-10V (if a jumper is set).
3. Only for CRC: Set the output signal of the CRC to "0-10V" using the Jumpers JP1 and JP3 on the control board of the CDC.
Note: other output signal settings (e.g. 4-20mA) are also possible, see CRC jumper settings in [Section 3.7](#).



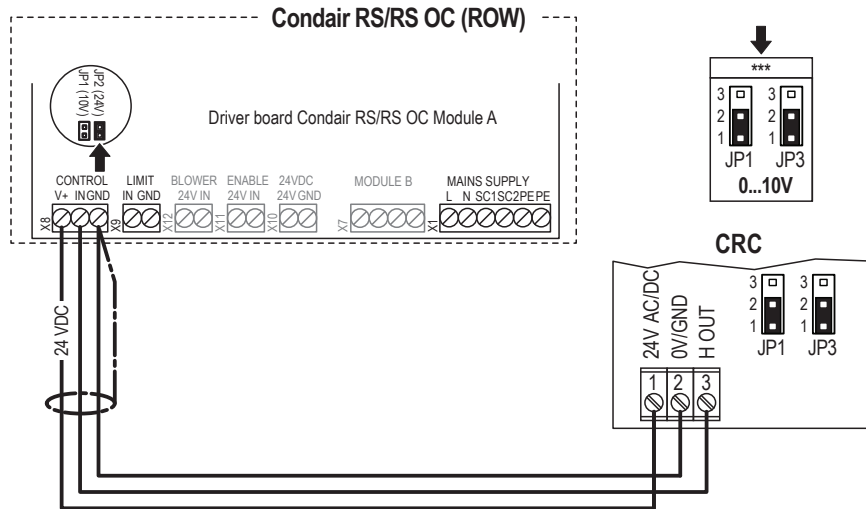
4. Set the Condair ME into operation, go to the control menu of the unit software and set the parameters **"Source"** to **"Analog"**, **"System Mode"** to **"Humidifying"**, **"Control Mode"** to **"RH PI"**, **"Signal Type Hum"** to **"0-10V"** (or to output signal set on CRC) or **"2-10V"** (for CRC-NA) and the parameters **"Setpoint Channel 1"**, **"Band Channel 1"** and **"ITime Channel 1"** to the desired values (refer to the Condair ME operation manual).



3.8.3 Connecting the CRC or CRC-NA to the Condair RS/RS OC

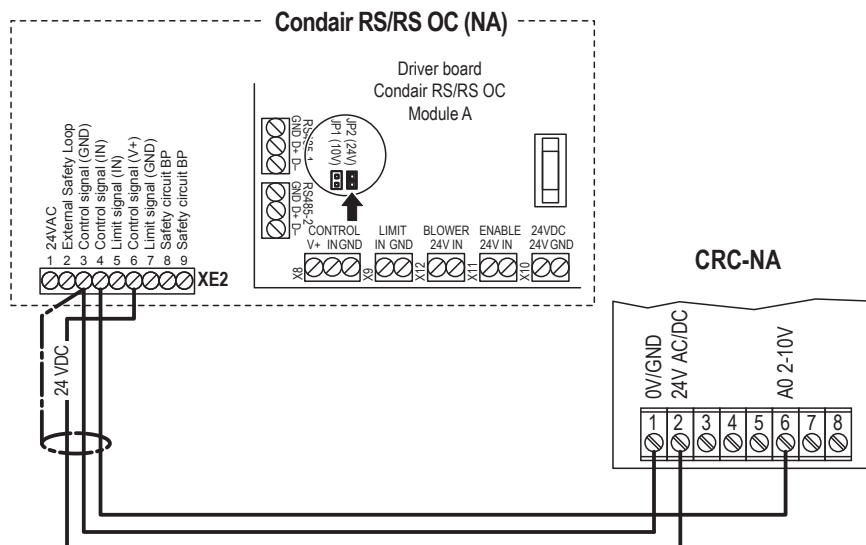
1. Connect the CRC to the corresponding terminals on the driver board of the Condair RS/RS OC (ROW) according to the following diagram.

Note: The voltage supply of the CRC is established via the terminals "V+" and "GND" of terminal block "X8" or via an external 24 V AC/DC voltage supply.



Connect the CRC-NA to the appropriate terminals of the terminal block "XE2" of the Condair RS/RS OC (NA) according to the following diagram.

Note: The voltage supply of the CRC-NA is established via the terminals "Control Signals (V+)" and "Control Signals (GND)" of terminal block "XE2" or via an external 24 V AC/DC voltage supply.



2. Set a jumper on JP2 (24V) on the driver board of the Condair RS/RS OC and remove the jumper on JP1 (10V), if present.
3. Only for CRC: Set the output signal of the CDC to "0-10V" using the Jumpers JP1 and JP3 on the control board of the CRC.

Note: other output signal settings (e.g. 4-20mA) are also possible, see CRC jumper settings in [Section 3.7](#).

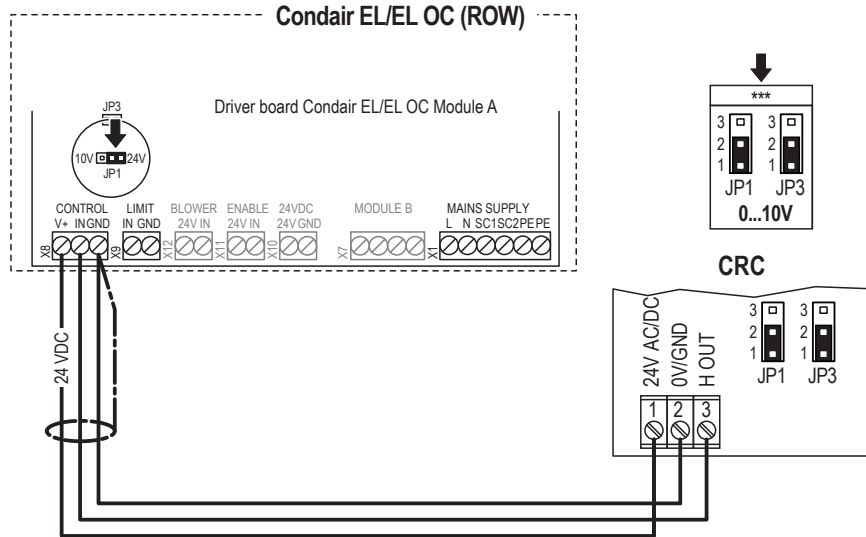
4. Set the Condair RS/RS OC into operation, go to the control menu of the unit software and set the parameters "**Source**" to "**Analog**", "**Control Mode CH 1**" to "**RH PI**", "**Signal Type Control CH 1**" to "**0-10V**" (or to output signal set on CRC) or "**2-10V**" (for CRC-NA) and the parameters "**Setpoint Channel 1**", "**Band Channel 1**" and "**ITime Channel 1**" to the desired values (refer to the Condair RS operation manual).



3.8.4 Connecting the CRC or CRC-NA to the Condair EL/EL OC

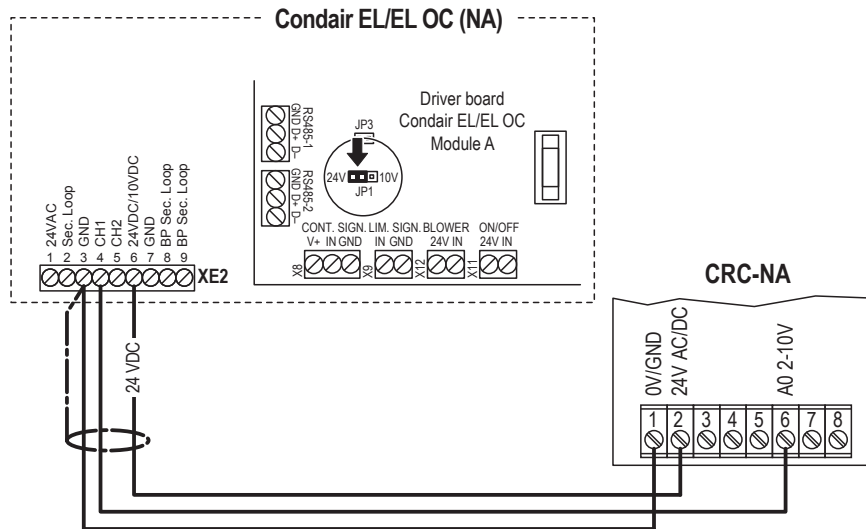
1. Connect the CRC to the corresponding terminals on the driver board of the Condair EL/EL OC (ROW) according to the following diagram.

Note: The voltage supply of the CRC is established via the terminals "V+" and "GND" of terminal block "X8" or via an external 24 V AC/DC voltage supply.



Connect the CRC-NA to the appropriate terminals of the terminal block "XE2" of the Condair EL/EL OC (NA) according to the following diagram.

Note: The voltage supply of the CRC-NA is established via the terminals "24VDC/10VDC" and "GND" of terminal block "XE2" or via an external 24 V AC/DC voltage supply.



2. Set a jumper on JP1-24V on the driver board of the Condair EL/EL OC.
3. Only for CRC: Set the output signal of the CRC to "0-10V" using the Jumpers JP1 and JP3 on the control board of the CRC.

Note: other output signal settings (e.g. 4-20mA) are also possible, see CRC jumper settings in [Section 3.7](#).

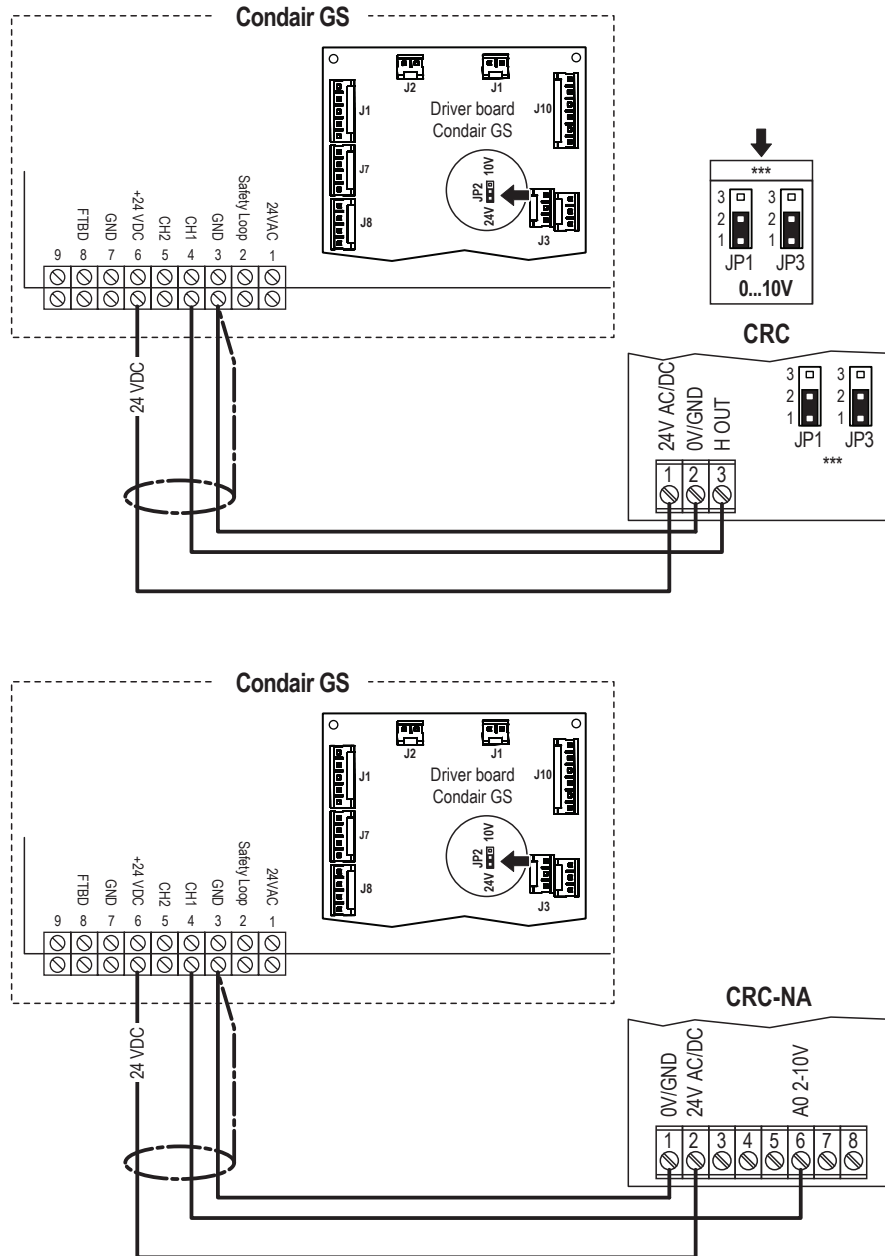
4. Set the Condair EL/EL OC into operation, go to the control menu of the unit software and set the parameters "**Source**" to "**Analog**", "**Control Mode CH 1**" to "**RH PI**", "**Signal Type Control CH 1**" to "**0-10V**" (or to output signal set on CRC) or "**2-10V**" (for CRC-NA) and the parameters "**Setpoint Channel 1**", "**Band Channel 1**" and "**ITime Channel 1**" to the desired values (refer to the Condair EL operation manual).



3.8.5 Connecting the CRC or CRC-NA to the Condair GS

1. Connect the CRC or CRC-NA to the corresponding terminals of the Condair GS according to the appropriate wiring diagram (see below).

Note: The voltage supply of the CRC or CRC-NA is established via the terminals "+24 VDC" and "GND" of the terminal block or via an external 24 V AC/DC voltage supply.



2. On the driver board of the Condair GS: set a Jumper on JP2-24V.
3. Only for CRC: Set the output signal of the CRC to "0-10V" using the Jumpers JP1 and JP3 on the control board of the CRC.

Note: other output signal settings (e.g. 4-20mA) are also possible, see CRC jumper settings in [Section 3.7](#).

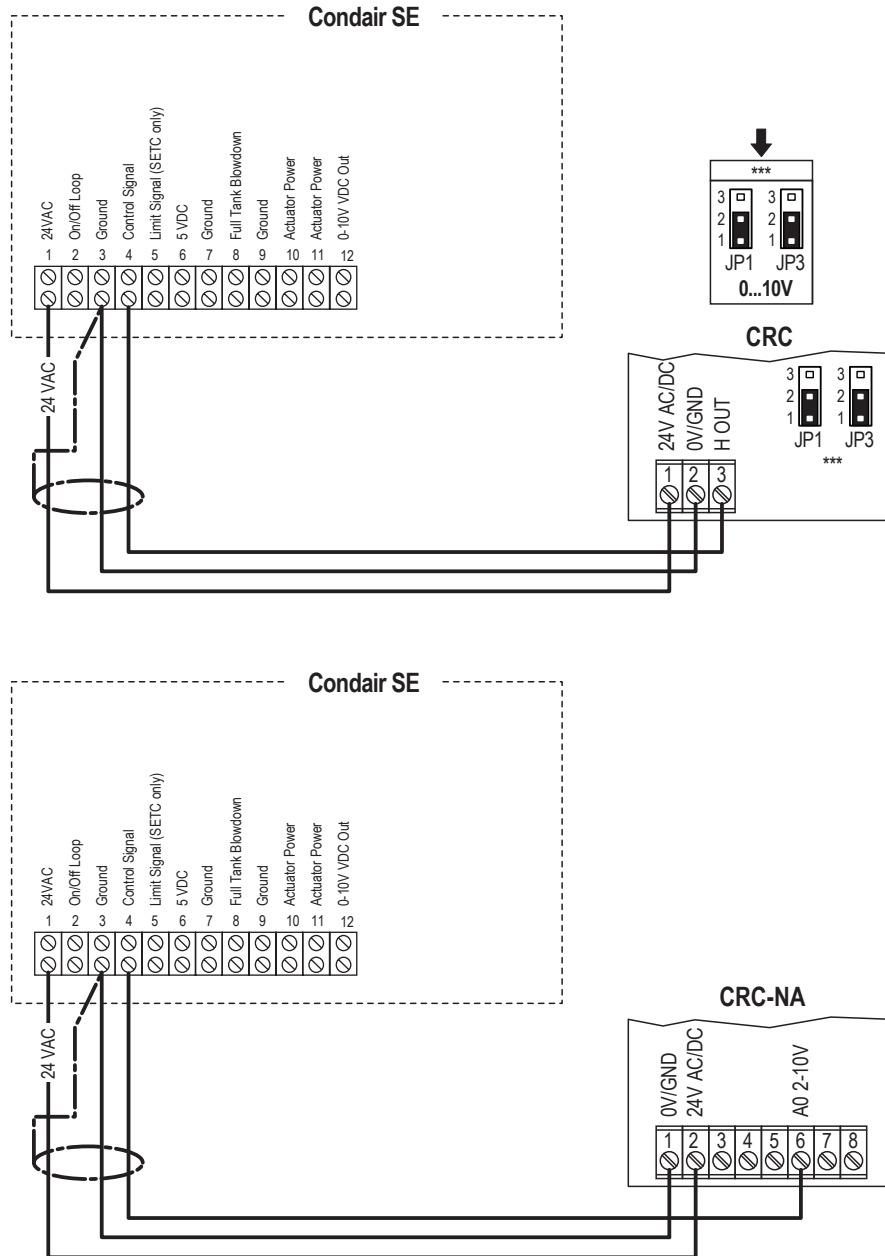
4. Set the Condair GS into operation, go to the control menu of the unit software and set the parameters **"Source"** to **"Analog"**, **"Control Mode CH 1"** to **"RH PI"**, **"Signal Type Control CH 1"** to **"0-10V"** (or to output signal set on CRC) or **"2-10V"** (for CRC-NA) and the parameters **"Setpoint Channel 1"**, **"Band Channel 1"** and **"ITime Channel 1"** to the desired values (refer to the Condair GS operation manual).



3.8.6 Connecting the CRC or CRC-NA to the Condair SE

1. Connect the CRC or CRC-NA to the corresponding terminals of the Condair SE according to the appropriate wiring diagram (see below).

Note: The voltage supply of the CRC or CRC-NA is established via the terminals "24 VAC" and "Ground" of the terminal block or via an external 24 V AC/DC voltage supply.

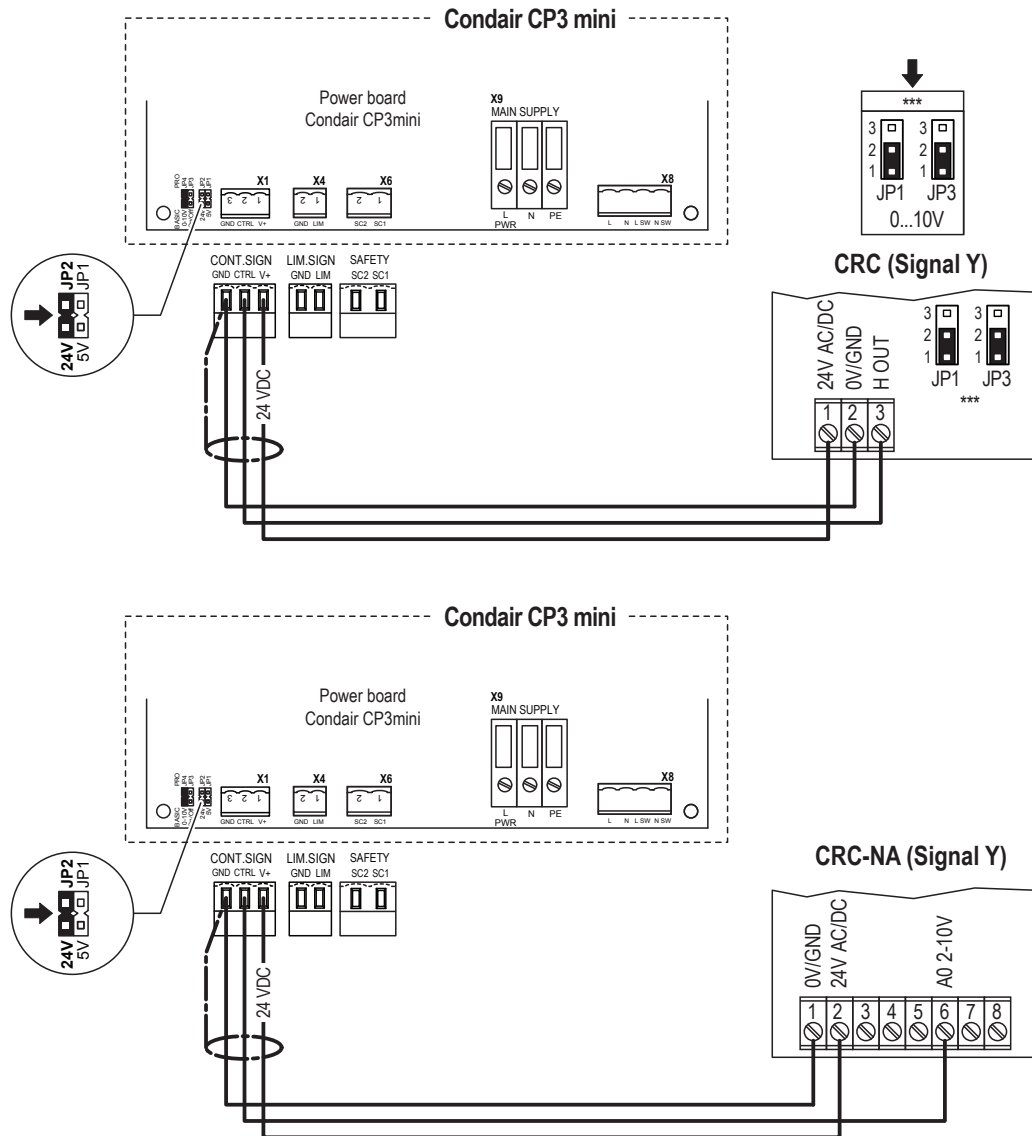


2. Only for CRC: Set the output signal of the CRC to "0-10V" using the Jumpers JP1 and JP3 on the control board of the CRC.

Note: other output signal settings (e.g. 4-20mA) are also possible, see CRC jumper settings in [Section 3.7](#).

3.8.7 Connecting the CRC or CRC-NA am Condair CP3mini

1. Connect the CRC to the corresponding terminals of terminal block "X1" on the power board of the Condair CP3mini according to the appropriate wiring diagram (see below).
Note: The voltage supply of the CRC is established via the terminals "V+" and "GND" of terminal block "X1" or via an external 24 V AC/DC voltage supply.
2. On the power board of the Condair CP3mini: set a Jumper on JP2-24 V and remove the Jumper on JP1-5V (if a jumper is set).



3. Only for CRC: Set the output signal of the CRC to "0-10V" using the Jumpers JP1 and JP3 on the control board of the CRC.
Note: other output signal settings (e.g. 4-20mA) are also possible, see CRC jumper settings in [Section 3.7](#).

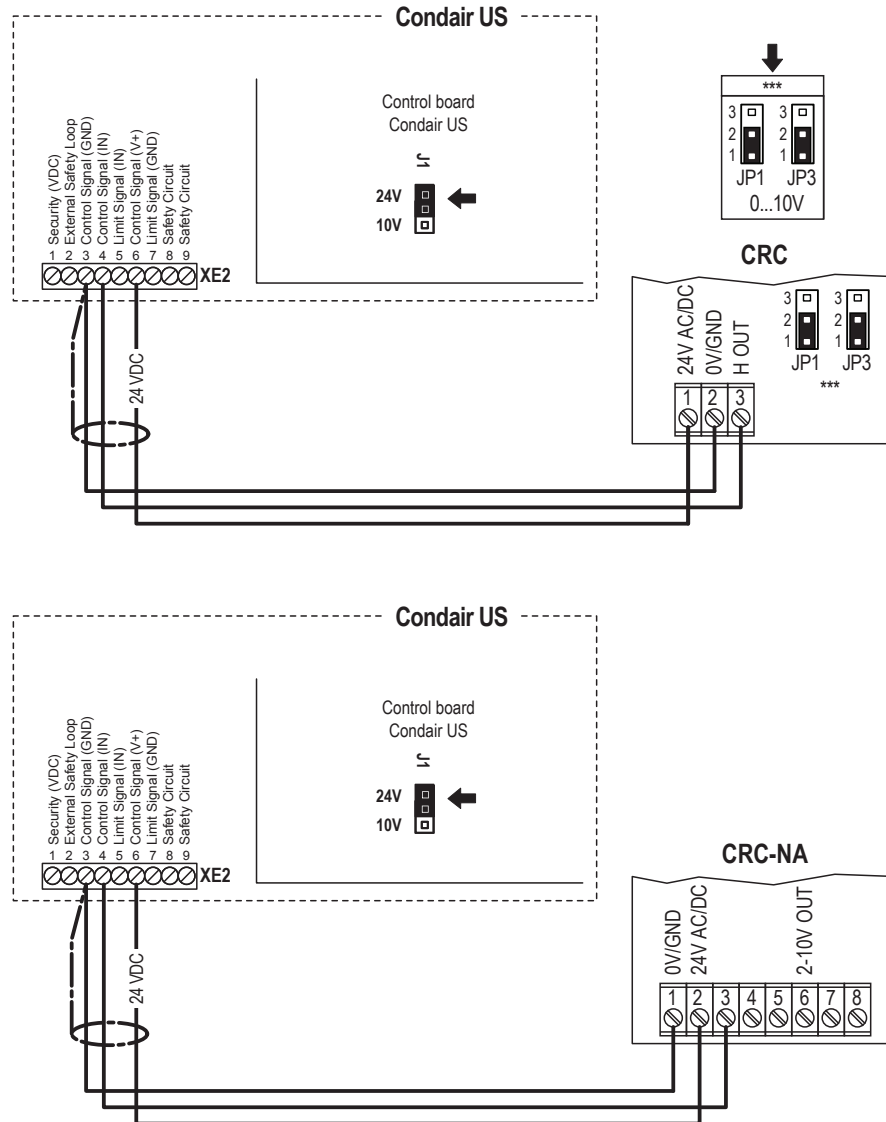
4. Set the Condair CP3mini into operation, go to the setup level of the unit software and set the parameters **"Hum.Control"** to **"Int.(PI)"**, **"Controlsign."** to **"0-10V"** (or to output signal set on CRC) or **"2-10V"** (for CRC-NA) and **"Hum.Setpoint"** to the desired value (refer to the Condair CP3mini installation and operation manual)

Controls	
SignalSource:Analog	
Hum.Control :int.(PI)	
Controlsign.:0-10V	
Hum.Setpoint:Set	
P-Band :10%rH	
Esc	Set
↑ ↓	
Integr.-Time:8min	

3.8.8 Connecting the CRC or CRC-NA to the Condair US

1. Connect the CRC or CRC-NA to the corresponding terminals of terminal block "XE2" of the Condair US according to the appropriate wiring diagram (see below).

Note: The voltage supply of the CRC is established via the terminals "Control Signals (V+)" and "Control Signals (GND)" of terminal block "XE2" or via an external 24 V AC/DC voltage supply.

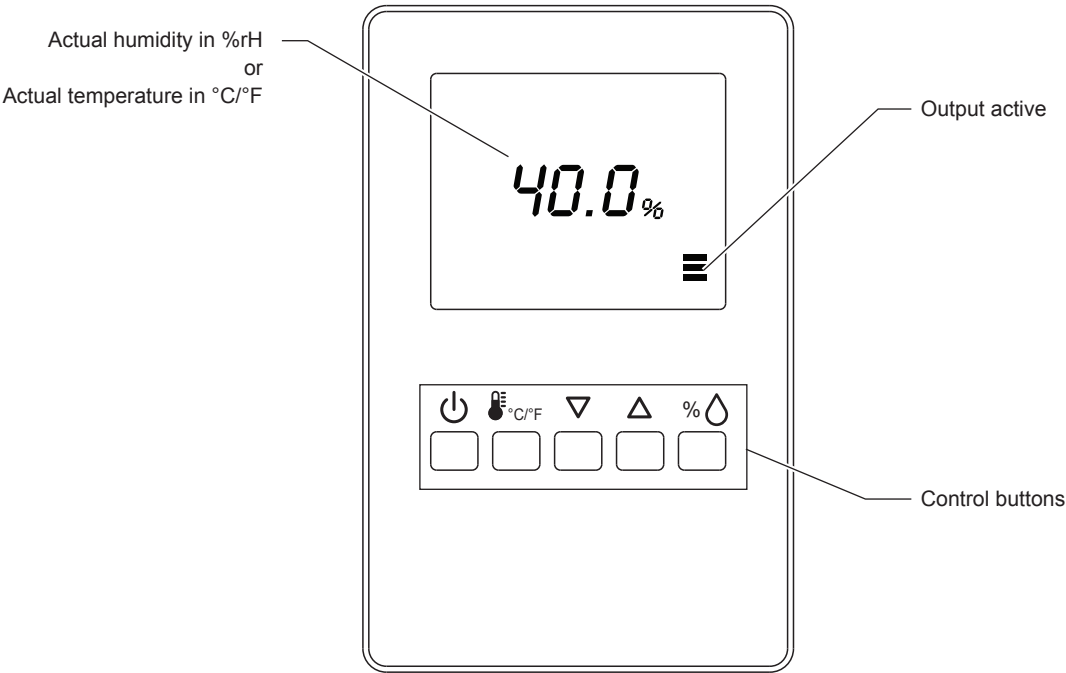


2. Set a jumper on "J1-24 V" on the control board of the Condair US.
3. Only for CRC: Set the output signal of the CRC to "0-10V" using the Jumpers JP1 and JP3 on the control board of the CRC.

Note: other output signal settings (e.g. 4-20mA) are also possible, see CRC jumper settings in [Section 3.7](#).

3.9 **Operation of the CRC-NA**

Display and operating elements



Function of the control buttons

Buttons	Operation	Function
	press briefly	Switching On and Off
	press briefly	Shows temperature value
	press long	Switching between °C and °F
	—	—
	press briefly	Shows rH value
	press long	Offset settings

4 Condair DCC and DCC-NA



4.1 Functional description

The PI humidity controller Condair DCC or DCC-NA serves together with the duct humidity sensor Condair CDC or CDC-NA for the humidity control in air ducts. The output signal of the sensor as well as the input and output signal of the controller (0...10 VDC, 0...20 mA or 2...10 VDC, 4...20 mA) may be customized by jumpers.

4.2 Safety

Please observe all local regulations concerning electrical installations.

The installation work must be performed only by **adequately qualified personnel (electrician or workman with equivalent training)**.

Warning - danger of electric shock! Before starting the installation work the unit to which the Condair DCC or DCC-NA will be connected must be disconnected from the mains and may be reconnected to mains only after all installation work has been completed.

Warning! The electronic components inside the Condair DCC or DCC-NA, Condair CDC or CDC-NA and the humidifier are very susceptible to electrostatic discharges. For the protection of these components, measures must be taken during all installation work to prevent damage caused by electrostatic discharge (ESD-protection).

4.3 Delivery

The delivery includes:

- PI humidity controller Condair DCC or DCC-NA
- Humidity sensor Condair CDC or CDC-NA
- Cable gland
- Fixing material
- Surface-mounting box (CDC only)
- Installation manual

4.4 Mounting location

Humidity controller Condair DCC / DCC-NA

Install the humidity controller Condair DCC or DCC-NA in a protected and easy accessible place at least 1.5 m above the floor to the wall (mounting on flush-mounting or surface-mounting box)

Humidity sensor Condair CDC / CDC-NA

See [Section 2.5](#).

4.5 Installation

Humidity controller Condair DCC / DCC-NA

1. Open the screw of the housing and remove mounting plate with the connecting unit.
2. Connect wires of the connection cables to the terminals according to the wiring diagram.
3. At the place of location fix mounting plate (plastic screw facing downwards) with two screws to the flush-mounting or surface-mounting box (see dimensional drawing).
4. Carefully snap housing onto the mounting plate, and fix it with the screw (do not tighten screw too much).

Humidity sensor Condair CDC / CDC-NA

See [Section 2.5](#).

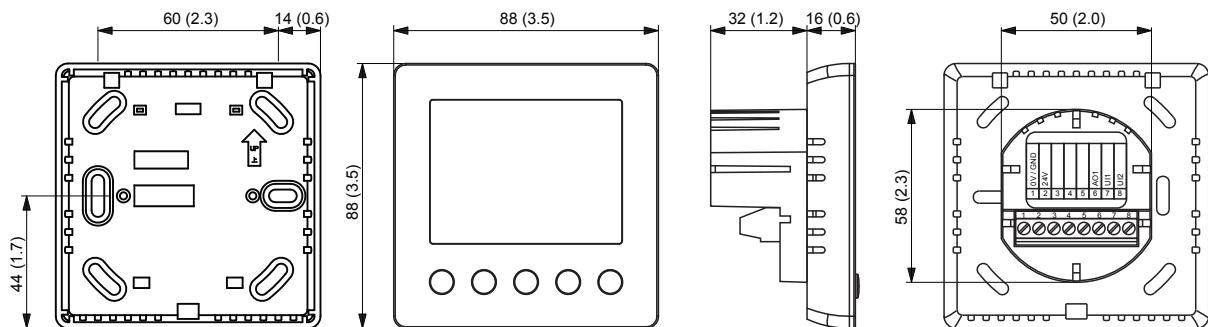
4.6 Product specifications

4.6.1 Technical data Condair DCC / DCC-NA

Power Supply	
Operating voltage	24 V AC 50/60 Hz $\pm$ 10%, 24VDC $\pm$ 10%
Power consumption	Max. 3 VA
Terminal connections	For wires 0.34...2.5 mm ² (AWG 24...12)
Signal input	
Humidity sensor input	UI1
Signal outputs	
Analog output	AO1
Analog signals	DCC: 0...10 VDC or 0...20mA DCC-NA: 0...10 VDC
Resolution	39 mV or 0.078 mA
Maximum load	10 mA (at 0...10 VDC) 20 mA (at 0...20mA)
Environment	
Operation	IEC 721-3-3
Climatic Conditions	Class 3 K5
Temperature	0...50 °C (32...122 °F)
Humidity	<95 %rH not condensing
Transport and Storage	IEC 721-3-2 and IEC 721-3-1
Climatic Conditions	Class 3 K3 and Class 1 K3
Temperature	-25...70 °C (-13...158 °F)
Humidity	<95 %rH not condensing
Mechanical Conditions	Class 2M2
Standards	
CE compliant to EMC Norm 2014/30/EU, Low Voltage Directive 2014/35/EU	EN 61 000-6-1/ EN 61 000-6-3
Automatic electrical control and regulating devices for domestic use and similar applications	EN 60 730 –1
Degree of protection according to 60529	IP30
Protection class	III (IEC 60536)
General	
Housing material	ABS
Mounting plate	Galvanized steel
Weight (including packaging)	260 g (9.2 oz)

4.6.2 Dimensions

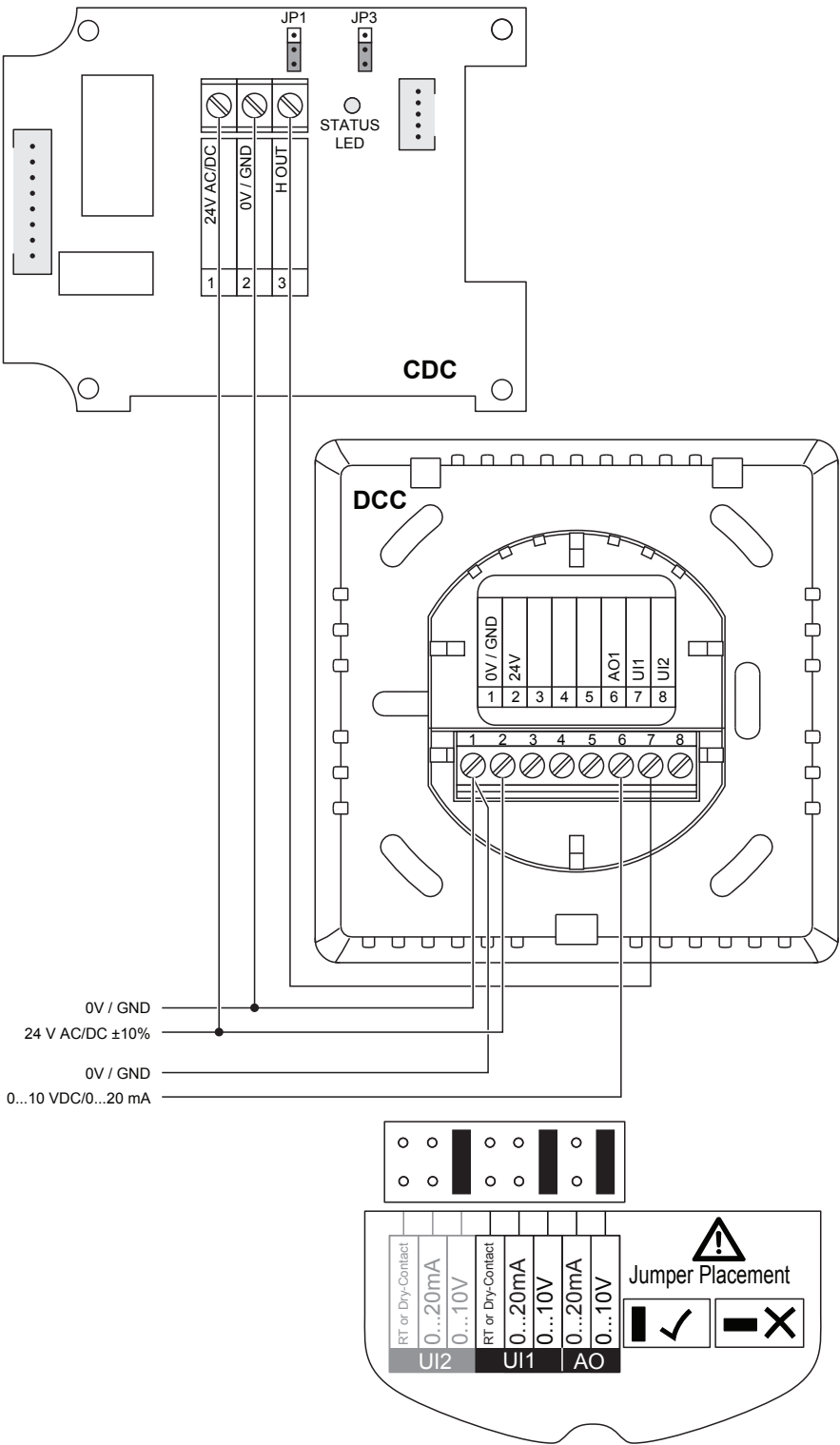
4.6.2.1 Dimensions Condair DCC



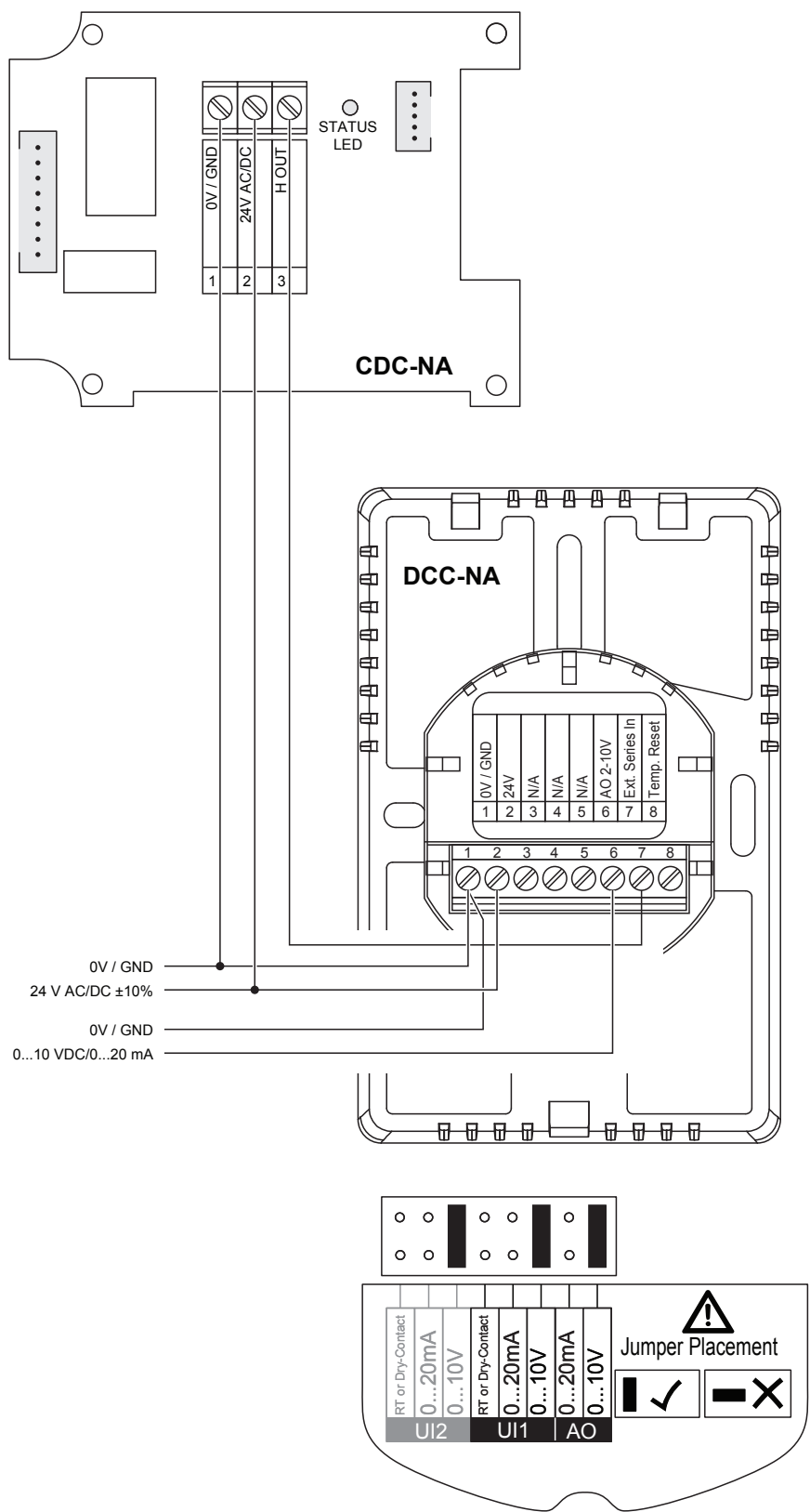
Dimensions in mm (inches)

4.7 **Wiring diagrams/Configuration**

4.7.2.1 **Wiring diagram/Configuration Condair DCC**



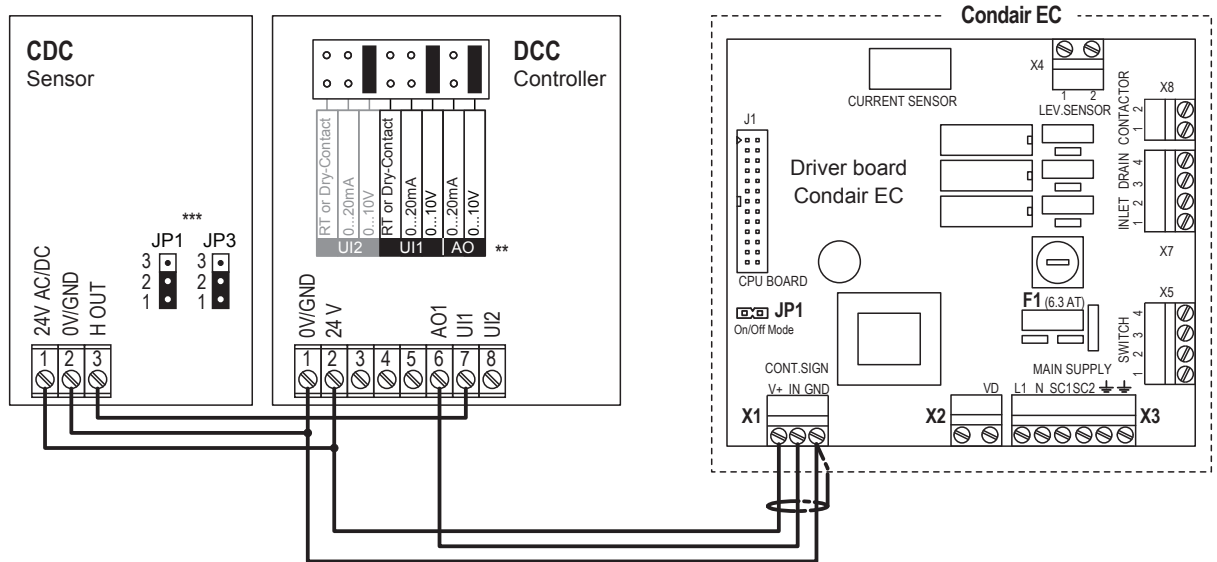
4.7.2.2 Wiring diagram Condair DCC-NA



4.8 Connecting the DCC and DCC-NA to Condair units

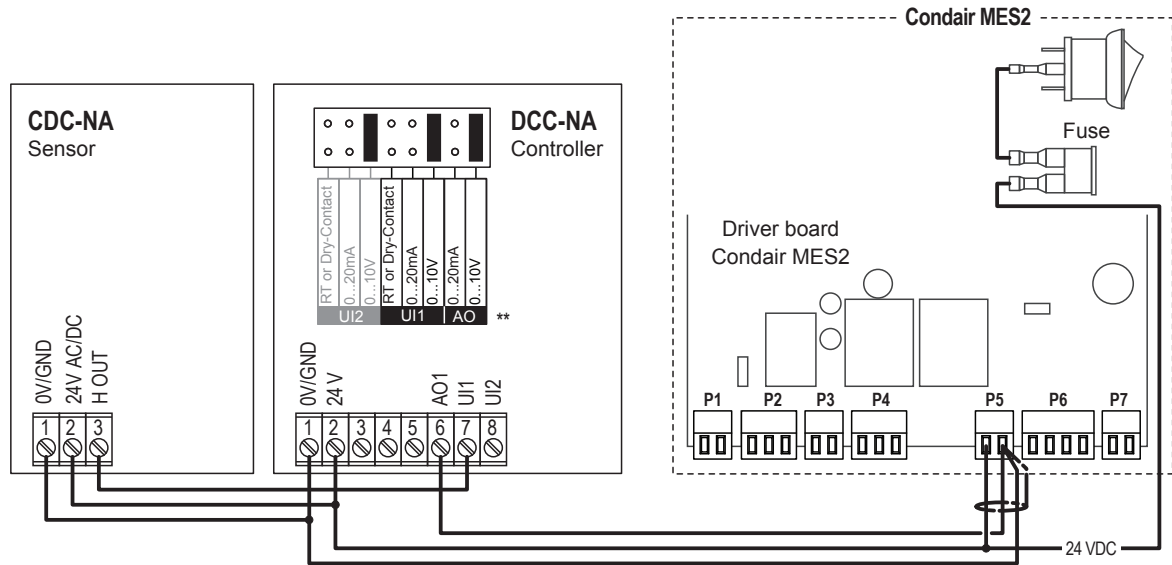
4.8.1 Connecting the DCC to the Condair EC

1. Connect the Condair CDC sensor to the Condair DCC controller according to the wiring diagram below. Then, set the **control signal** to "**0-10V**" using the jumpers "JP1" and "JP3" on the control board of the sensor.
2. Connect the Condair DCC controller to the corresponding terminals on the driver board of the Condair EC according to the wiring diagram below.
Note: The voltage supply of the DCC is established via the terminals "V+" and "GND" of terminal block "X1" or via an external 24 V AC/DC voltage supply.
3. Set the input and the output signal of the controller to "**0-10V**" using the Jumper "AO" and "AI" on the control board of the Condair DCC.
4. Set the Condair DCC to the desired **humidity setpoint** (see following programming instructions in [Section 4.9](#)).



4.8.2 Connecting the DCC-NA to the Condair MES2

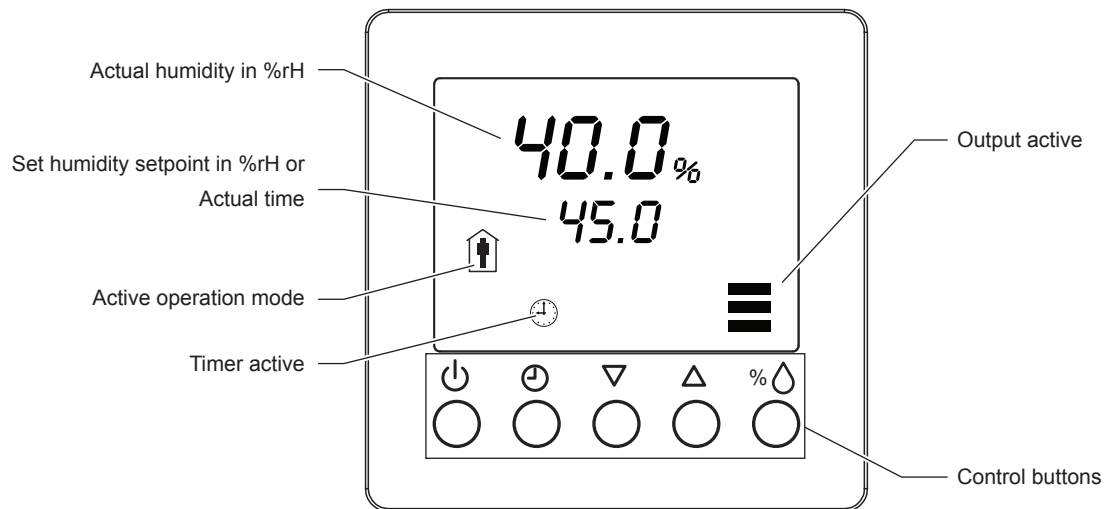
1. Connect the Condair DCC-NA controller to the corresponding terminals on the driver board of the Condair MES2 according to the wiring diagram below.
2. Connect the Condair CDC-NA sensor to the Condair DCC-NA controller according to the wiring diagram below.
3. Connect the 24 V power supply from the fuse connector of the Condair MES2 to the corresponding terminals in the CDC-NA sensor and in the DCC-NA controller.
4. Set the input and the output signal of the controller to **"0-10V"** using the Jumper "AO" and "AI" on the control board of the Condair DCC-NA.



4.9 Operation of the DCC / DCC-NA

4.9.1 Display and operating elements

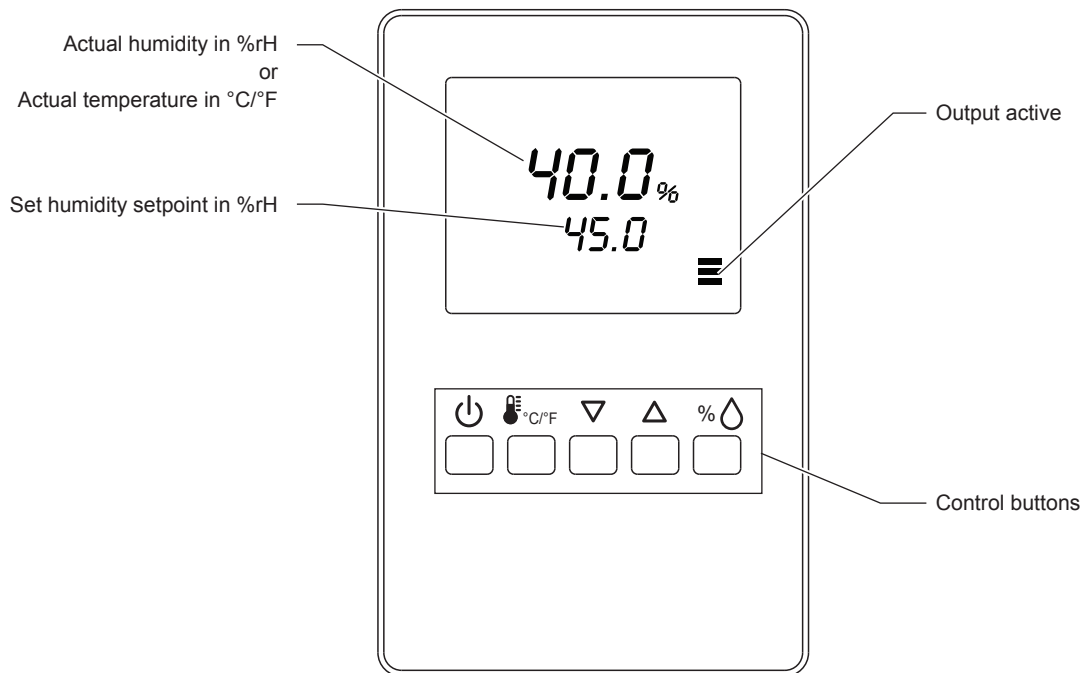
4.9.1.1 Display and operating elements DCC



Function of the control buttons

Buttons	Operation	Function
	press briefly	Eco Mode
	press long	Switching On and Off
	press briefly	Shows actual time
	press long	Accessing program settings
	press briefly	Adjusting set point value
	press briefly	Shows humidity set point value
	press long	Offset settings

4.9.1.2 Display and operating elements DCC-NA



Function of the control buttons

Buttons	Operation	Function
⏻	press long	Switching On and Off
🌡️ °C/°F	press briefly	—
🌡️ °C/°F	press long	Switching between °C and °F
▽ / △	press briefly	Adjusting set point value
%💧	press briefly	Shows %rH value
%💧	press long	Offset settings

4.9.2 Error messages

AL 5 & AL 7: Measured value of the external sensor fell below the lower limit of 5% RH. Check the cabling of the DCC and CDC. After eliminating the fault, acknowledge the alarm with the  button.

Err2, 3 & 4: Hardware or memory problem. Replace device.

4.9.3 Settings Condair DCC

4.9.3.1 Selecting the operating mode

The humidity controller can be operated either in **Standard mode** (regulation takes place on the set humidity setpoint value) or **Eco Mode** (regulation takes place on preset humidity setpoint value of 30 %rH). Proceed as follows to select the operating mode:

1. Press the  button to switch the unit on.
2. Briefly press the  button in order to switch between the two operating modes. A corresponding symbol in the display indicates the currently selected operating mode:

 **Standard Mode**

 **ECO Mode**

4.9.3.2 Setting time and day of week

Proper functioning of the controller (specially the timer function) requires the time and the day of the week to be set correctly. Proceed as follows to set the time and the day of the week:

1. Press the  button (press long) to switch the unit on.
2. Press the  button for about 3 seconds "SEL" appears in the display.
3. Select the time setting option using the  or  button, then confirm with the **<Enter>** key.
4. The minute display flashes. Press the  or  button key to set the minutes, then confirm with the .
5. The hours display starts flashing. Press the  or  button to set the current hour, then confirm with the .
6. The day of the week flashes. Press the  or  button to set the day of the week (Monday = day1, Tuesday = day2, and so on), then confirm with the .
7. To quit the setup mode, briefly press the  button twice.

The above settings need to be carried out just once as an internal battery preserves the settings even in case of power failure.

4.9.3.3 Configuring timer programs

Eight timer programs can be set. A timer program either switches the operating mode of the controller or the setpoint. The week days a timer program is active can be selected individually (Day 1 = Monday, Day 2 = Tuesday, ..., Day 7 = Sunday).

The following operating modes are available:

- **On** 
The unit is active and attempts to reach the preset relative humidity at full power, if required (standard mode).
- **ECO** 
The unit is in Eco Mode and humidifies at a preset setpoint value of 30 %rH (setback operation).
- **OFF**
No humidification is taking place.
- **no**
No switching operation is taking place. The unit remains in the previous mode.

Programming example:

From Monday to Friday from 00:00h to 09:00h the unit should run in Eco Mode, from 09:00h to 17:00h the unit should humidify to the target value and from 17:00h to 00:00h the unit should run in Eco Mode, again. On Saturday and Sunday the unit should remain in Eco Mode the whole day long (00:00h – 00:00h).

Setting up this procedure requires two timer programs. The first one to activate the standard operation mode from Monday to Friday at 09:00h and the second one to activate the Eco Mode from Monday to Sunday at 17:00h.

Setting up the **Timer program 1**:

1. Press the  button (press long) to switch the unit on.
2. Press the  button for about 3 seconds "SEL" appears in the display.
3. Use the  or  button to scroll the display until "Pro" appears, then press the  button.
4. Depending on whether or not timer operation is activated "PRO ON" or "PRO OFF" shows up in the display.
5. Press the  button, "Pro 1" (Program 1) appears in the display. Press the  button to confirm program 1.
6. Use the  or  button to set the start time to "09:00" (in steps of 15'), then confirm with the  key.
7. "Day1" (Monday) is flashing. Use the  button to activate the time schedule for Monday, then confirm with the  button. "Day2" (Tuesday) is flashing. Use the  button to activate the time schedule for Tuesday, then confirm with the  button. Repeat this procedure for "Day3" (Tuesday) to "Day5" (Friday). Deactivate "Day6" (Saturday) and "Day7" (Sunday) using the  button.
8. Use the  or  button to select "OP" (operating mode), then confirm with the  button.
9. Use the  or  button to select "On" (standard mode), then confirm with the  button.

Setting up the **Timer program 2**:

1. Press the **<⏻>** button (press long) to switch the unit on.
2. Press the **<⌚>** button for about 3 seconds "**SEL**" appears in the display.
3. Use the **<Δ>** or **<▽>** button key to scroll the display until "**Pro**" appears, then press the **<%⏻>** button.
4. Depending on whether or not timer operation is activated "PRO ON" or "PRO OFF" shows up in the display.
5. Select "**Pro 2**" (Program 2) using the **<Δ>** button and press the **<%⏻>** button to confirm.
6. Use the **<Δ>** or **<▽>** button to set the start time to "**17:00**" (in steps of 15'), then confirm with the **<%⏻>** button.
7. "Day1" (Monday) is flashing. Use the **<Δ>** button to activate the time schedule for Monday, then confirm with the **<%⏻>** button. "Day2" (Tuesday) is flashing. Use the **<Δ>** button to activate the time schedule for Tuesday, then confirm with the **<%⏻>** button. Repeat this procedure for "Day3" (Tuesday) to "Day7" (Sunday).
8. Use the **<Δ>** or **<▽>** button to select "**OP**" (operating mode), then confirm with the **<%⏻>** button.
9. Use the **<Δ>** or **<▽>** button to select "**ECO**" (setback operation), then confirm with the **<%⏻>** button.

Activating/Deactivating timer operation:

1. Press the **<On/Off>** key to switch the unit on.
2. Press the **<⌚>** button for about 3 seconds "**SEL**" appears in the display.
3. Use the **<Δ>** or **<▽>** button to scroll the display until "**Pro**" appears, then press the **<%⏻>** button.
4. Depending on whether or not timer operation is activated "PRO ON" or "PRO OFF" shows up in the display. Press the **<%⏻>** button.
5. Using the **<Δ>** or **<▽>** button select "PRO ON" if you want to activate the timer operation or select "PRO OFF" if you want to deactivate the timer operation. Confirm the selection with the **<%⏻>** button.
6. Press **<⌚>** button two times to quit the programming mode.

5 Condair RCC and RCC-NA



5.1 Functional description

PI humidity controller Condair RCC with integrated humidity sensor serves for the humidity control in rooms. The output signal of the controller (0...10 VDC, 0...20 mA or 2...10 VDC, 4...20 mA) may be customized by jumpers. The output signal of the RCC-NA is set fixed to 0... 10 VDC.

5.2 Safety

Please observe all local regulations concerning electrical installations.

The installation work must be performed only by **adequately qualified personnel (electrician or workman with equivalent training)**.

Warning - danger of electric shock! Before starting the installation work the unit to which the Condair RCC or RCC-NA will be connected must be disconnected from the mains and may be reconnected to mains only after all installation work has been completed.

Warning! The electronic components inside the Condair RCC or RCC-NA and the humidifier are very susceptible to electrostatic discharges. For the protection of these components, measures must be taken during all installation work to prevent damage caused by electrostatic discharge (ESD-protection).

5.3 Delivery

The delivery includes:

- PI humidity controller Condair RCC or RCC-NA
- Fixing material
- Surface-mounting box (RCC only)
- Installation manual

5.4 Mounting location

Mount the humidity controller Condair RCC or RCC-NA in a protected and easy accessible place at least 1.5 m above the floor to the wall (mounting on flush-mounting or surface-mounting box). Observe the following placement notes:

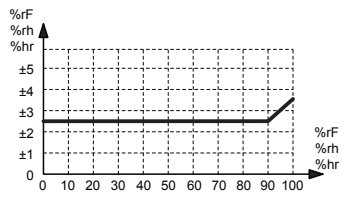
- Do not place the Condair RCC or RCC-NA in niches, behind curtains, etc.
- Do not place the Condair RCC or RCC-NA near heat sources, within the area with direct air draft or direct sunlight.

5.5 Installation

1. Open the screw of the housing and remove mounting plate with the connecting unit.
2. Connect wires of the connection cable to the terminals according to the wiring diagram.
3. At the place of location fix mounting plate (plastic screw facing downwards) with two screws to the flush-mounting or wall-mounting box (see dimensional drawing).
4. Carefully snap housing onto the mounting plate, and fix it with the screw (do not tighten screw too much).

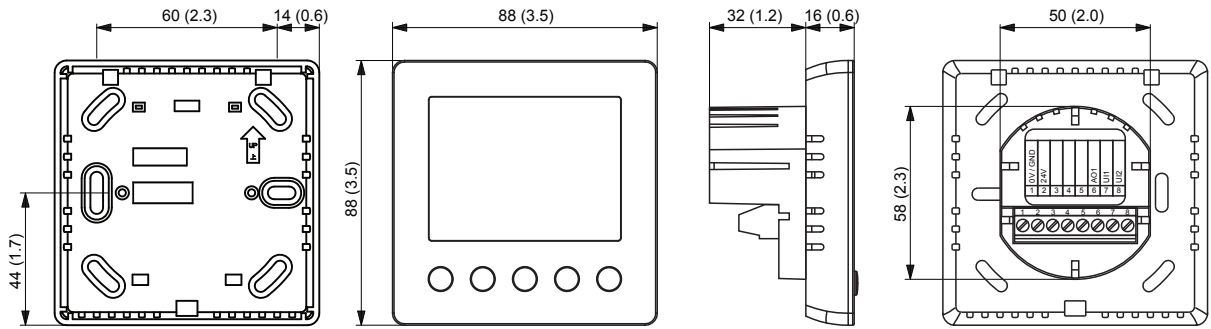
5.6 Product specifications

5.6.1 Technical data

Power Supply	
Operating voltage	24 V AC 50/60 Hz $\pm$ 10%, 24VDC $\pm$ 10%
Power consumption	Max. 3 VA
Terminal connections	For wires 0.34...2.5 mm ² (AWG 24...12)
Sensor probe	
Measuring element	Capacitive measuring element
Measuring range	0...100 %rH
Measuring accuracy	 Max. rH tolerance at 25 °C (77°F)
Hysteresis	$\pm$ 1%
Repeatability	$\pm$ 0.1%
Stability	< 0.5% / year
Signal inputs	
Universal inputs	UI1, UI2
Signal outputs	
Analog output	AO1
Analog signal	0...10 VDC or 0...20mA
Resolution	39 mV or 0.078 mA
Maximum load	10 mA (at 0...10 VDC) 20 mA (at 0...20mA)
Environment	
Operation	IEC 721-3-3
Climatic Conditions	Class 3 K5
Temperature	0...50 °C (32...122 °F)
Humidity	<95 %rH not condensing
Transport and Storage	IEC 721-3-2 and IEC 721-3-1
Climatic Conditions	Class 3 K3 and Class 1 K3
Temperature	-25...70 °C (-13...158 °F)
Humidity	<95 %rH not condensing
Mechanical Conditions	Class 2M2
Standards	
CE compliant to EMC Norm 2014/30/EU, Low Voltage Directive 2014/35/EU	EN 61 000-6-1/ EN 61 000-6-3
Automatic electrical control and regulating devices for domestic use and similar applications	EN 60 730 –1
Degree of protection according to 60529	IP30
Protection class	III (IEC 60536)
General	
Housing material	ABS
Mounting plate	Galvanized steel
Weight (including packaging)	260 g (9.2 oz)

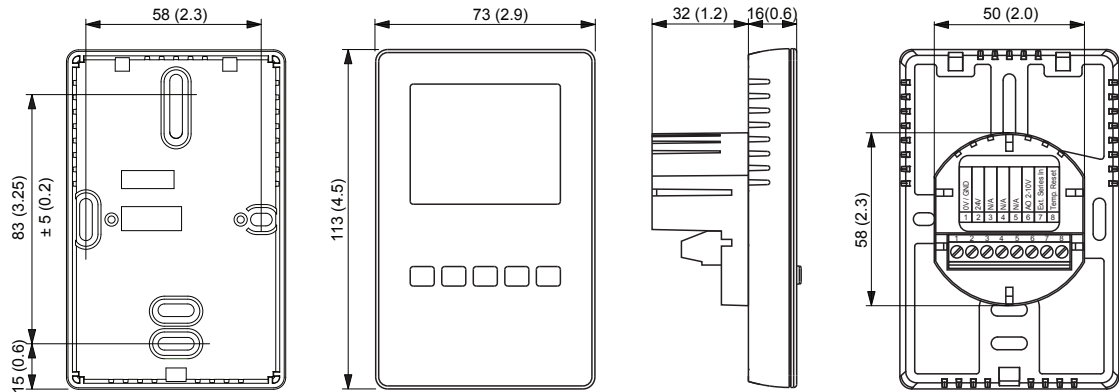
5.6.2 Dimensions

5.6.2.1 Dimensions Condair RCC



Dimensions in mm (inches)

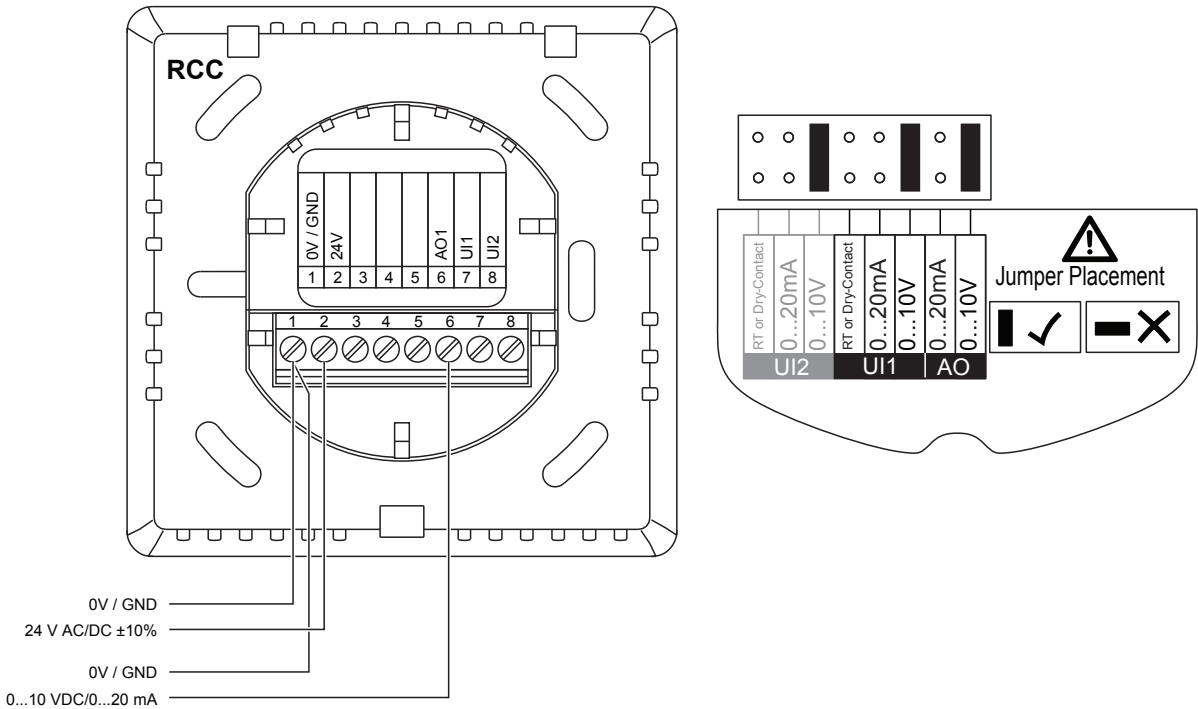
5.6.2.2 Dimensions Condair RCC-NA



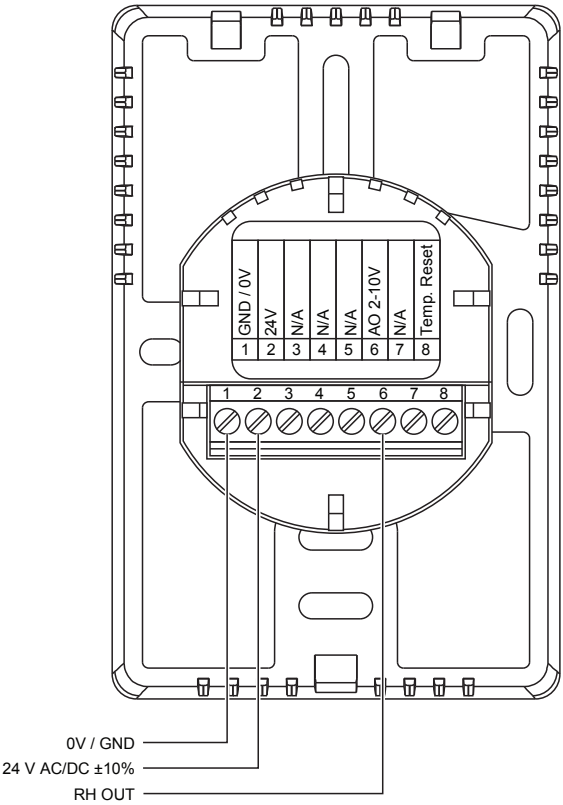
Dimensions in mm (inches)

5.7 Wiring diagrams/Configuration

5.7.2.1 Wiring diagram/Configuration RCC



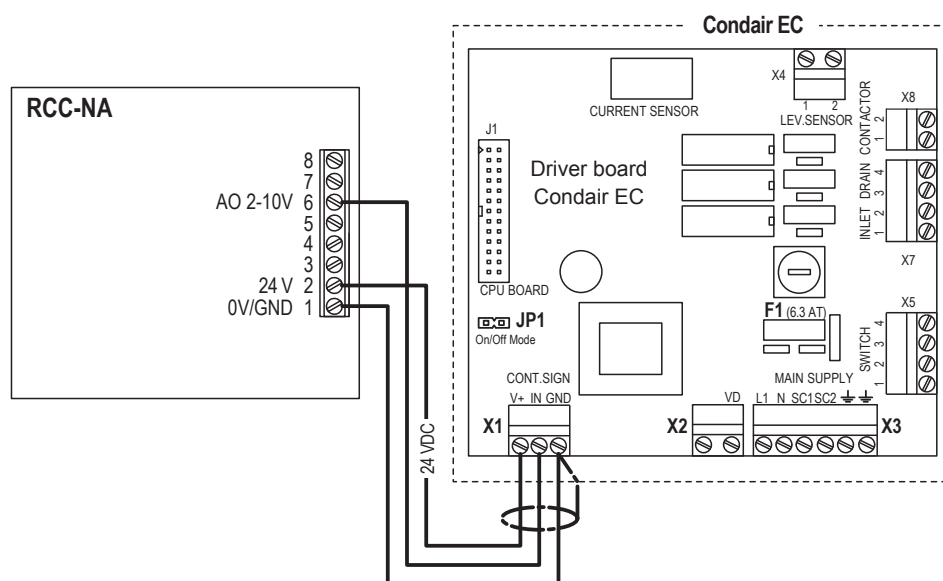
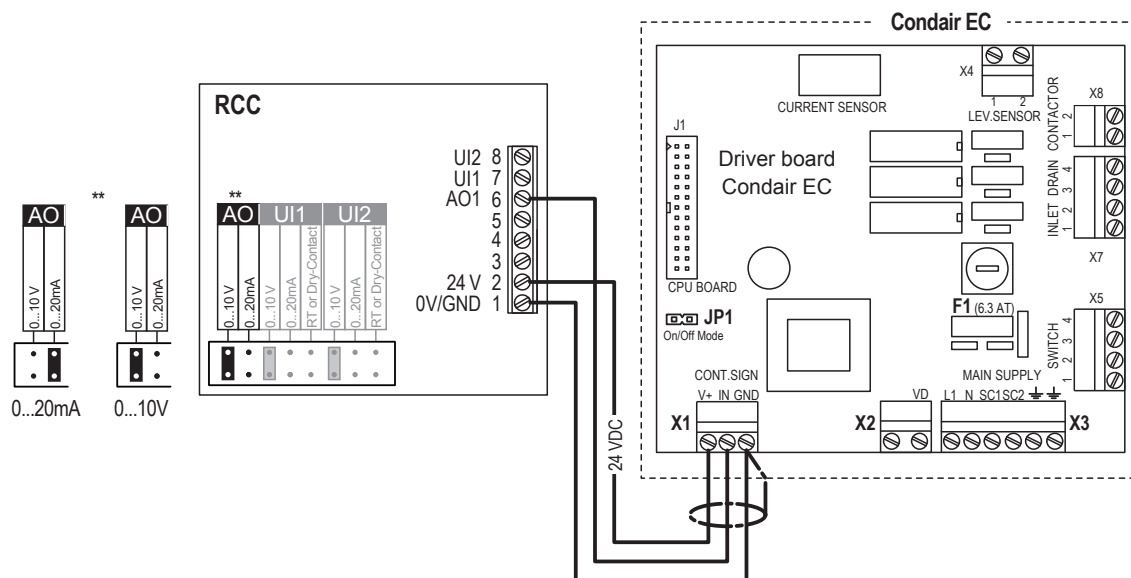
5.7.2.2 Wiring diagram Condair RCC-NA



5.8 Connecting the RCC and RCC-NA to Condair units

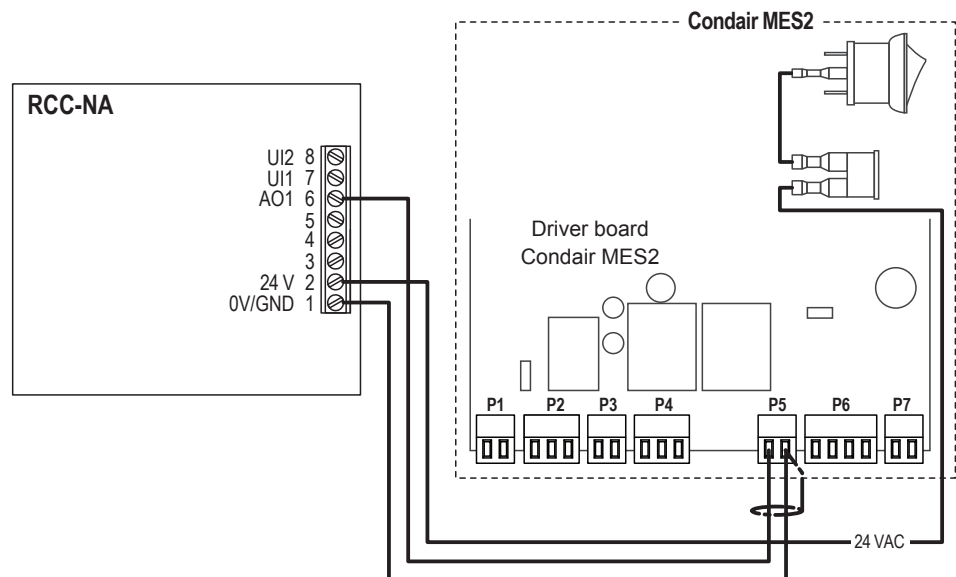
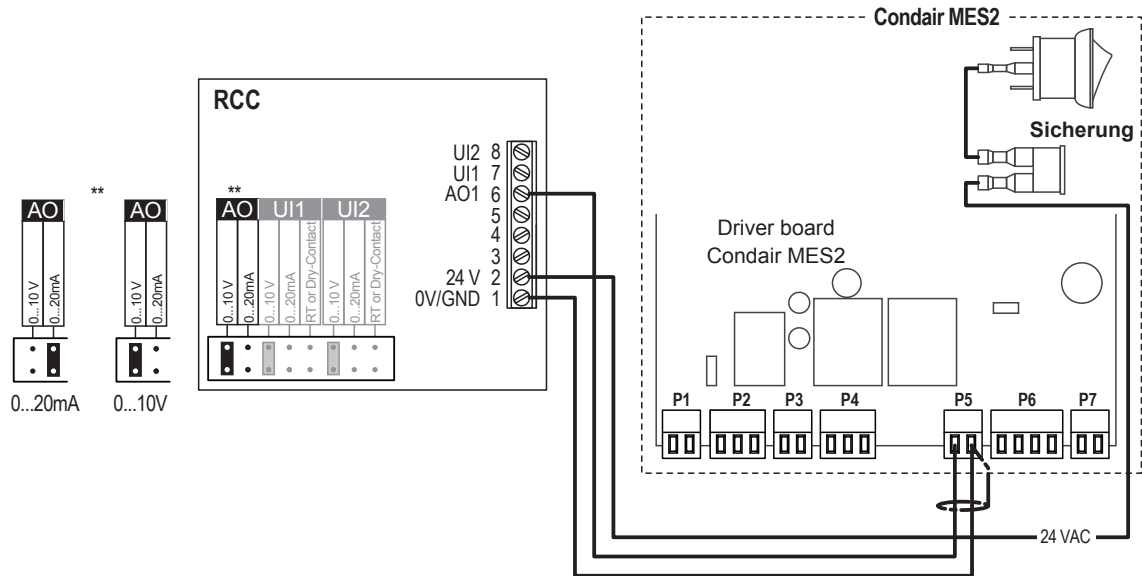
5.8.1 Connecting the RCC and RCC-NA to the Condair EC

1. Connect the Condair RCC or RCC-NA to the corresponding terminals on the driver board of the Condair EC according to the appropriate wiring diagram below.
2. Only for RCC: Set the output signal of the RCC to **"0-10V"** using the jumpers "AO".



5.8.2 Connecting the RCC or RCC-NA to the Condair MES2

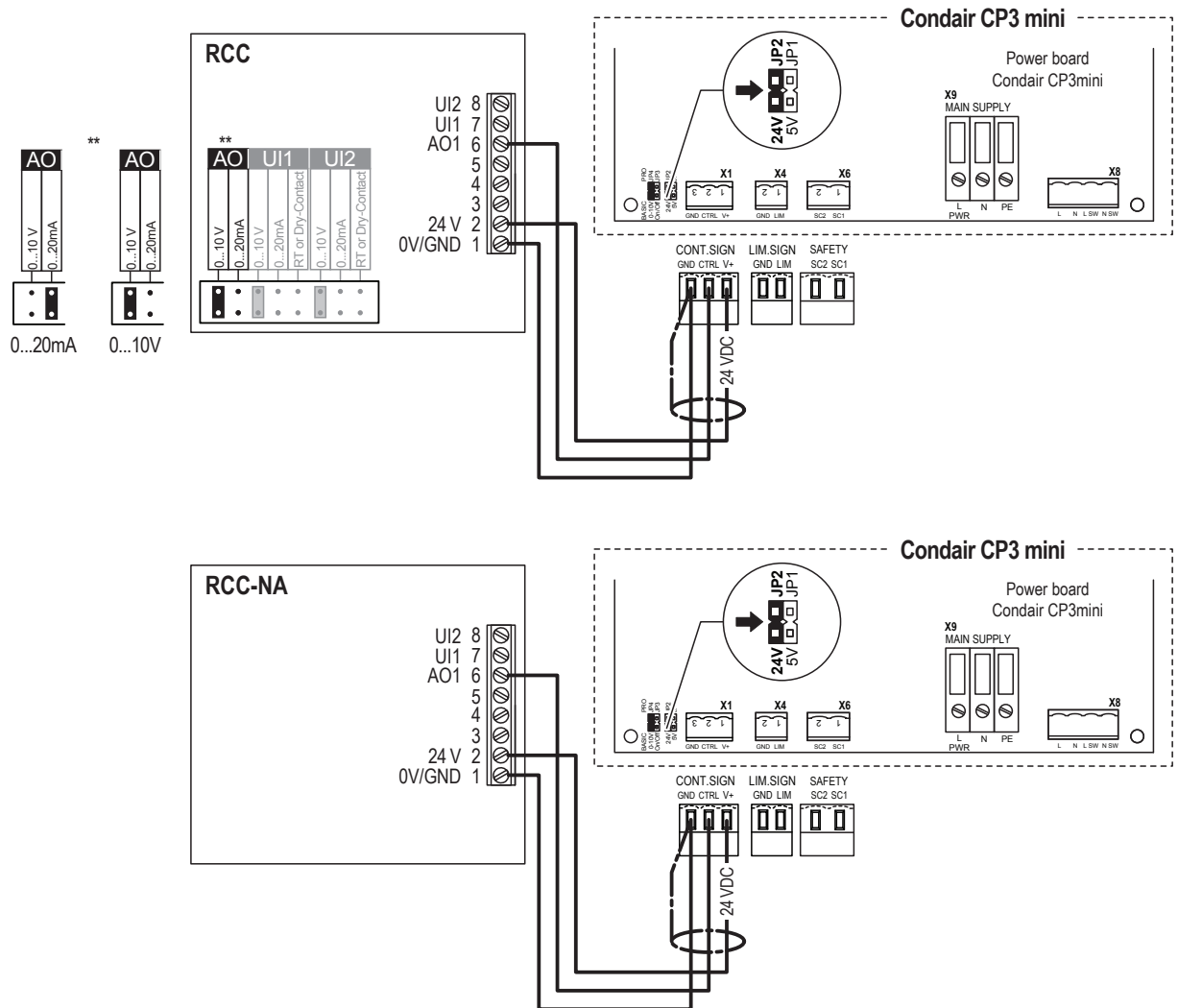
1. Connect the Condair RCC or RCC-NA to the corresponding terminals on the driver board of the Condair MES2 according to the wiring diagram below.
2. Connect the 24 V power supply from the fuse connector of the Condair MES2 to the corresponding terminals in the RCC or RCC-NA controller.
3. Only for RCC: Set the output signal of the RCC to "**0-10V**" using the jumpers "AO".



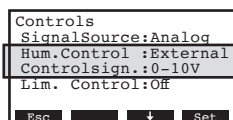
5.8.3 Connecting the RCC or RCC-NA to the Condair CP3mini

1. Connect the Condair RCC or RCC-NA to the corresponding terminals of terminal block "X1" on the power board of the Condair CP3mini according to the appropriate wiring diagram below.

Note: The voltage supply of the RCC or RCC-NA is established via the terminals "V+" and "GND" of terminal block "X1" or via an external 24 V AC/DC voltage supply.

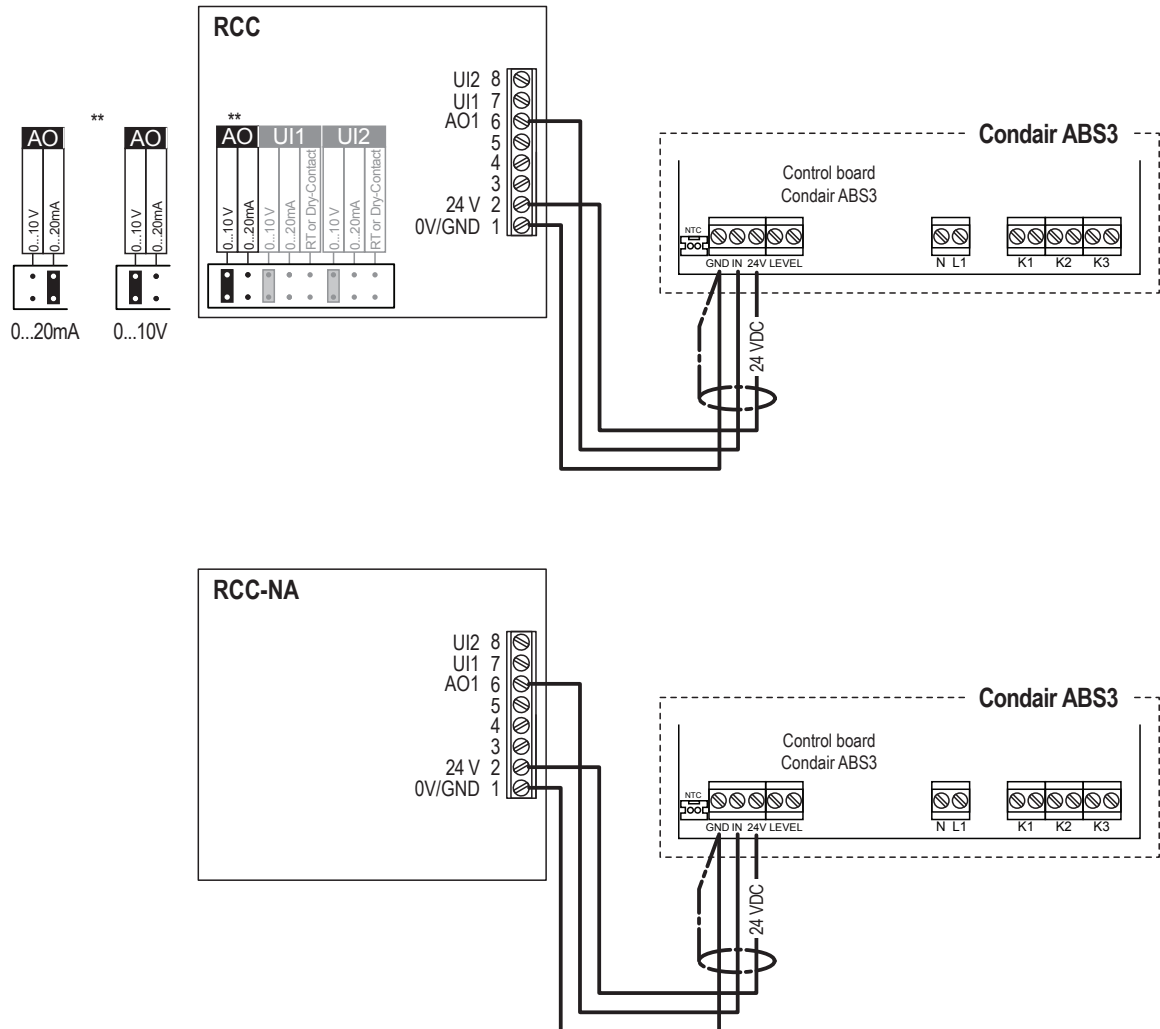


2. On the power board of the Condair CP3mini: set a Jumper on JP2-24 V and remove the Jumper on JP1-5V (if a jumper is set).
3. Only for RCC: Set the output signal of the RCC to "0-10V" using the jumpers "AO".
4. Set the Condair CP3mini into operation, go to the setup level of the unit software and set the parameters "Hum.Control" to "External", "Controlsign." to "0-10V" (refer to the Condair CP3mini installation and operation manual).



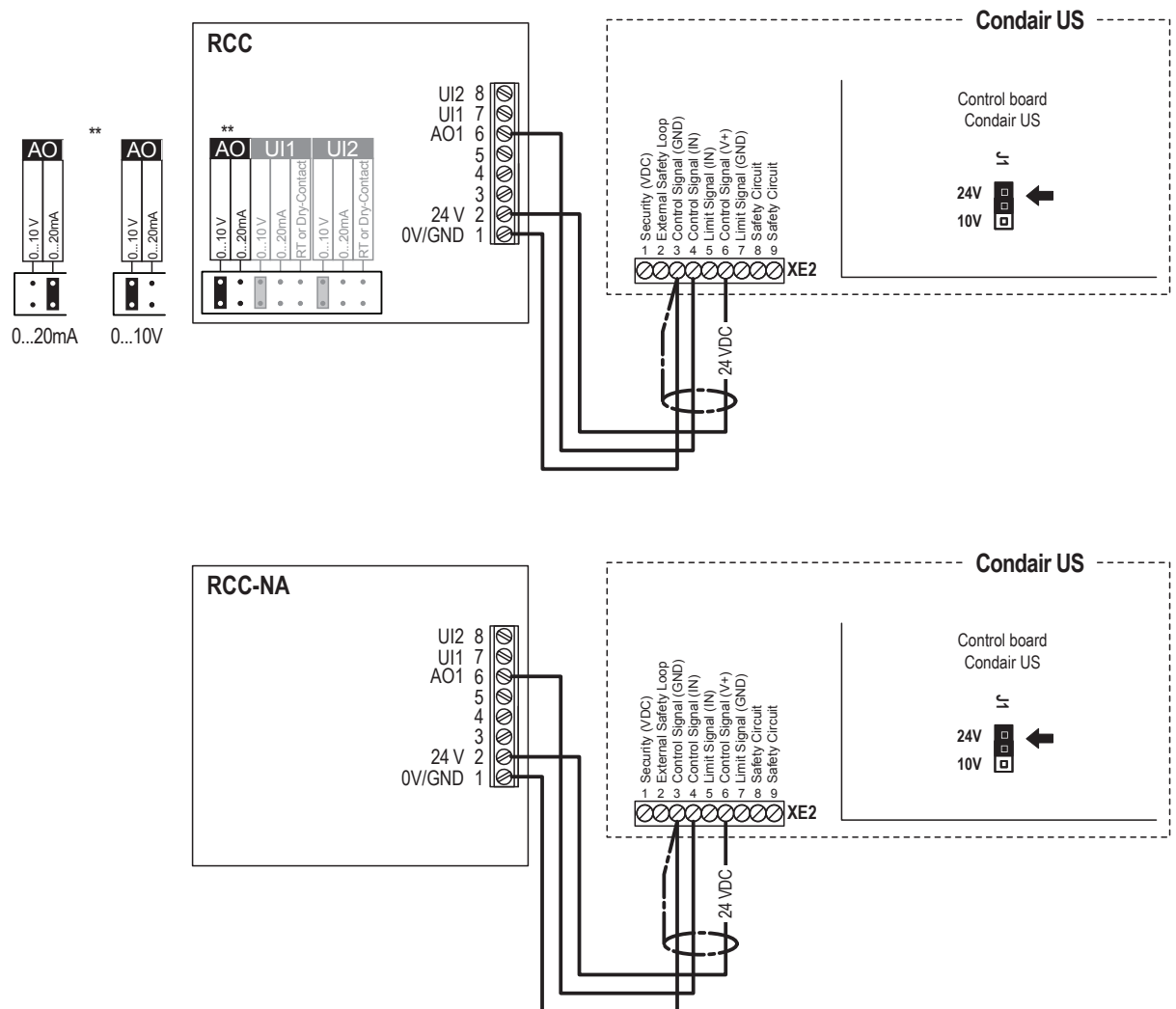
5.8.4 Connecting the RCC or RCC-NA to the Condair ABS3

1. Connect the Condair RCC or RCC-NA to the corresponding terminals on the control board of the Condair ABS3 according to the appropriate wiring diagram below.
Note: The voltage supply of the RCC or RCC-NA is established via the terminals "24V" and "GND" of the terminal block or via an external 24 V AC/DC voltage supply.
2. Only for RCC: Set the output signal of the RCC to "**0-10V**" using the jumpers "AO".



5.8.5 Connecting the RCC or RCC-NA to the Condair US

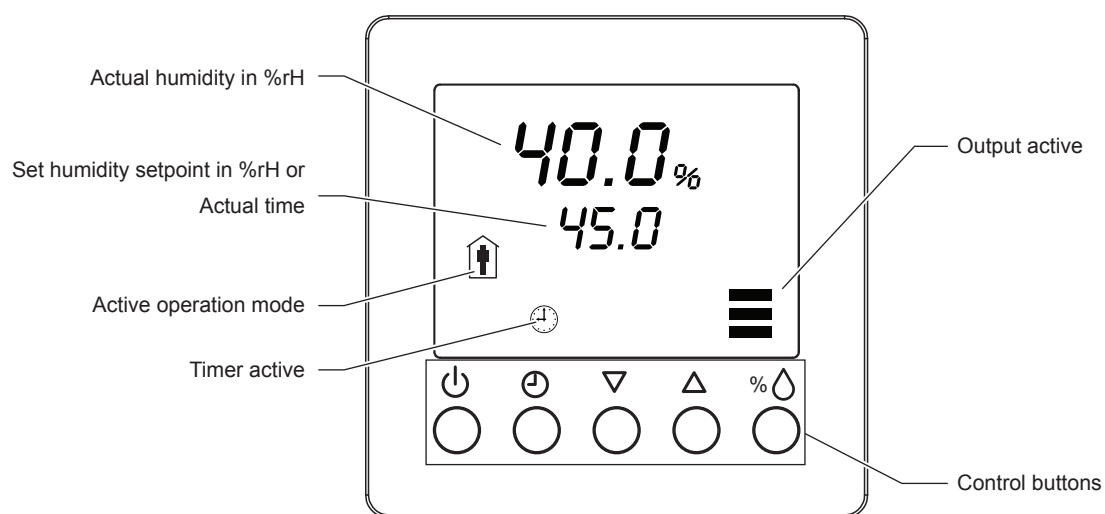
1. Connect the Condair RCC or RCC-NA to the corresponding terminals of terminal block "XE2" of the Condair US according to the appropriate wiring diagram below.
Note: The voltage supply of the RCC or RCC-NA is established via the terminals "Control Signals (V+)" and "Control Signals (GND)" of the terminal block "XE2" or via an external 24 V AC/DC voltage supply.
2. Set a jumper on "J1-24 V" on the control board of the Condair US.
3. Only for RCC: Set the output signal of the RCC to **"0-10V"** using the jumpers "AO".



5.9 Operation of the RCC or RCC-NA

5.9.1 Display and operating elements

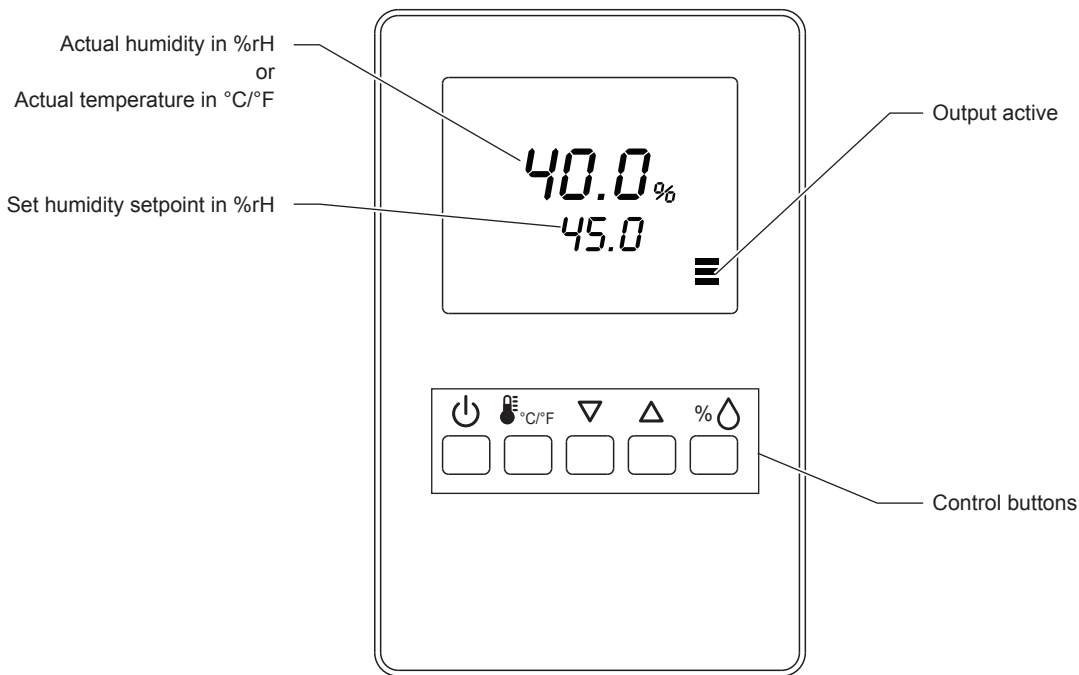
5.9.1.1 Display and operating elements RCC



Function of the control buttons

Buttons	Operation	Function
	press briefly	Eco Mode
	press long	Switching On and Off
	press briefly	Shows actual time
	press long	Accessing program settings
	press briefly	Adjusting set point value
	press briefly	Shows humidity set point value
	press long	Offset settings

5.9.1.2 Display and operating elements RCC-NA



Function of the control buttons

Buttons	Operation	Function
	press long	Switching On and Off
	press briefly	—
	press long	Switching between °C and °F
	press briefly	Adjusting set point value
	press briefly	Shows %rH value
	press long	Offset settings

5.9.2 Error messages

- Err 1: Sensor element in the device not properly inserted or defective. Insert the sensor element correctly or replace it.
- Err2, 3 & 4: Hardware or memory problem. Replace device.

5.9.3 Settings Condair RCC

5.9.3.1 Selecting the operating mode

The humidity controller can be operated either in **Standard mode** (regulation takes place on the set humidity setpoint value) or **Eco Mode** (regulation takes place on preset humidity setpoint value of 30 %rH). Proceed as follows to select the operating mode:

1. Press the <⏻> button to switch the unit on.
2. Briefly press the <⏻> button in order to switch between the two operating modes. A corresponding symbol in the display indicates the currently selected operating mode:

 **Standard Mode**

 **ECO Mode**

5.9.3.2 Setting time and day of week

Proper functioning of the controller (specially the timer function) requires the time and the day of the week to be set correctly. Proceed as follows to set the time and the day of the week:

1. Press the <⏻> button (press long) to switch the unit on.
2. Press the <⌚> button for about 3 seconds "SEL" appears in the display.
3. Select the time setting option using the <Δ> or <▽> button, then confirm with the <Enter> key.
4. The minute display flashes. Press the <Δ> or <▽> button key to set the minutes, then confirm with the <⏻> button.
5. The hours display starts flashing. Press the <Δ> or <▽> button to set the current hour, then confirm with the <⏻> button.
6. The day of the week flashes. Press the <Δ> or <▽> button to set the day of the week (Monday = day1, Tuesday = day2, and so on), then confirm with the <⏻> button.
7. To quit the setup mode, briefly press the <⌚> button twice.

The above settings need to be carried out just once as an internal battery preserves the settings even in case of power failure.

5.9.3.3 Configuring timer programs

Eight timer programs can be set. A timer program either switches the operating mode of the controller or the setpoint. The week days a timer program is active can be selected individually (Day 1 = Monday, Day 2 = Tuesday, ..., Day 7 = Sunday).

The following operating modes are available:

- **On** 
The unit is active and attempts to reach the preset relative humidity at full power, if required (standard mode).
- **ECO** 
The unit is in Eco Mode and humidifies at a preset setpoint value of 30 %rH (setback operation).
- **OFF**
No humidification is taking place.
- **no**
No switching operation is taking place. The unit remains in the previous mode.

Programming example:

From Monday to Friday from 00:00h to 09:00h the unit should run in Eco Mode, from 09:00h to 17:00h the unit should humidify to the target value and from 17:00h to 00:00h the unit should run in Eco Mode, again. On Saturday and Sunday the unit should remain in Eco Mode the whole day long (00:00h – 00:00h).

Setting up this procedure requires two timer programs. The first one to activate the standard operation mode from Monday to Friday at 09:00h and the second one to activate the Eco Mode from Monday to Sunday at 17:00h.

Setting up the **Timer program 1**:

1. Press the  button (press long) to switch the unit on.
2. Press the  button for about 3 seconds "SEL" appears in the display.
3. Use the  or  button to scroll the display until "Pro" appears, then press the  button.
4. Depending on whether or not timer operation is activated "PRO ON" or "PRO OFF" shows up in the display.
5. Press the  button, "Pro 1" (Program 1) appears in the display. Press the  button to confirm program 1.
6. Use the  or  button to set the start time to "09:00" (in steps of 15'), then confirm with the **<Enter>** key.
7. "Day1" (Monday) is flashing. Use the  button to activate the time schedule for Monday, then confirm with the  button. "Day2" (Tuesday) is flashing. Use the  button to activate the time schedule for Tuesday, then confirm with the  button. Repeat this procedure for "Day3" (Wednesday) to "Day5" (Friday). Deactivate "Day6" (Saturday) and "Day7" (Sunday) using the  button.
8. Use the  or  button to select "OP" (operating mode), then confirm with the  button.
9. Use the  or  button to select "On" (standard mode), then confirm with the  button.

Setting up the **Timer program 2:**

1. Press the <⏻> button (press long) to switch the unit on.
2. Press the <⌚> button for about 3 seconds "**SEL**" appears in the display.
3. Use the <Δ> or <▽> button key to scroll the display until "**Pro**" appears, then press the <⏻> button.
4. Depending on whether or not timer operation is activated "PRO ON" or "PRO OFF" shows up in the display.
5. Select "**Pro 2**" (Program 2) using the <Δ> button and press the <⏻> button to confirm.
6. Use the <Δ> or <▽> button to set the start time to "**17:00**" (in steps of 15'), then confirm with the <⏻> button.
7. "Day1" (Monday) is flashing. Use the <Δ> button to activate the time schedule for Monday, then confirm with the <⏻> button. "Day2" (Tuesday) is flashing. Use the <Δ> button to activate the time schedule for Tuesday, then confirm with the <⏻> button. Repeat this procedure for "Day3" (Tuesday) to "Day7" (Sunday).
8. Use the <Δ> or <▽> button to select "**OP**" (operating mode), then confirm with the <⏻> button.
9. Use the <Δ> or <▽> button to select "**ECO**" (setback operation), then confirm with the <⏻> button.

Activating/Deactivating timer operation:

1. Press the <On/Off> key to switch the unit on.
2. Press the <⌚> button for about 3 seconds "**SEL**" appears in the display.
3. Use the <Δ> or <▽> button to scroll the display until "**Pro**" appears, then press the <⏻> button.
4. Depending on whether or not timer operation is activated "PRO ON" or "PRO OFF" shows up in the display. Press the <⏻> button.
5. Using the <Δ> or <▽> button select "PRO ON" if you want to activate the timer operation or select "PRO OFF" if you want to deactivate the timer operation. Confirm the selection with the <⏻> button.
6. Press <⌚> button two times to quit the programming mode.

6 Condair CHD, CHD-S and CHD-NA



6.1 Functional description

The duct humidistat Condair CHD, CHD-S and CHD-NA serve as high limit humidistat (maximum humidistat) in ducts.

Notes:

- In combination with the Condair RE, the duct humidistat CHD or CHD-NA can also be used as On/Off controller with additional furnace fan control.
- In combination with the Condair CP3mini, the duct humidistat CHD or CHD-NA can also be used as an On/Off humidistat.

6.2 Safety

Please observe all local regulations concerning electrical installations.

The installation work must be performed only by **adequately qualified personnel (electrician or workman with equivalent training)**.

Warning - danger of electric shock! Before starting the installation work the unit to which the Condair CHD, CHD-S or CHD-NA will be connected must be disconnected from the mains and may be reconnected to mains only after all installation work has been completed.

Warning! The electronic components inside the Condair CHD, CHD-S and CHD-NA and the humidifier are very susceptible to electrostatic discharges. For the protection of these components, measures must be taken during all installation work to prevent damage caused by electrostatic discharge (ESD-protection).

6.3 Delivery

The delivery includes:

- Duct humidistat Condair CHD, CHD-S or CHD-NA
- Cable gland
- Fixing material
- Installation manual

6.4 Mounting location

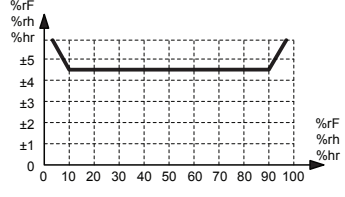
Mount the Condair CHD in the supply air duct at least 3 meters downstream from the nearest fan and coil and with a minimum distance of 5x the humidification distance to the steam distributor (see manual of the humidifier).

6.5 Installation

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).

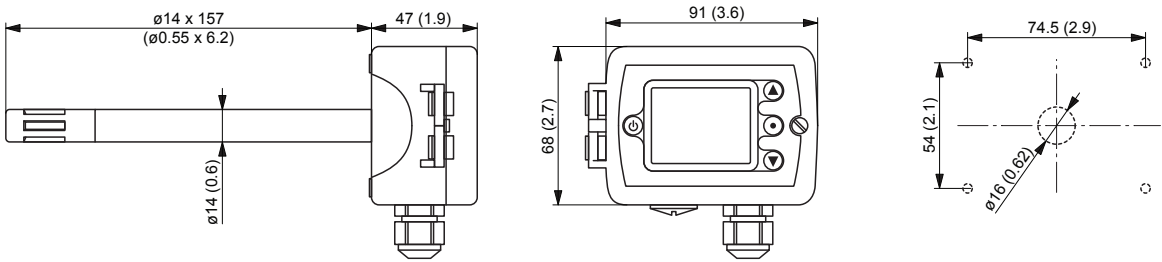
6.6 Product specifications

6.6.1 Technical data

Power Supply	
Operating voltage	24 V AC $\pm$ 10% 50...60 Hz, 24VDC $\pm$ 10%
Power consumption	Max. 2 VA
Terminal connections	For wires 0.34...2.5 mm ² (AWG 24...12)
Signal input	
Measuring element	Capacitive measuring element
Measuring range	0...100 %rH
Measuring accuracy	 Max. rH tolerance at 25 °C (77°F)
Hysteresis	$\pm$ 1 %rH
Signal output	
Digital signal output	DO1
Switching type	Relay, normally open
Switching power	2(1.2) A
Admissible switching voltage	0...250 VAC / 0...24VDC
Environment	
Operation	IEC 721-3-3
Climatic Conditions	Class 3 K5
Temperature	0...50°C (32...122°F)
Humidity	<95 %rH not condensing
Transport and Storage	IEC 721-3-2 and IEC 721-3-1
Climatic Conditions	Class 3 K3 and Class 1 K3
Temperature	-25...70°C (-13...158°F)
Humidity	<95 %rH not condensing
Mechanical Conditions	Class 2M2
Standards	
CE compliant to EMC Norm 2014/30/EU, Low Voltage Directive 2014/35/EU	EN 61 000-6-1/ EN 61 000-6-3
Automatic electrical controls for household and similar use	EN 60 730-1
Special requirement on temperature dependent controls	EN 60 730-2-9
Degree of protection according to 60529	IP30
Safety class	III (IEC 60536)
General	
Housing and housing cover	PC and ABS
Filter material	PTFE coated 1µm pores
Weight (including packaging)	220 g (7.8 oz)

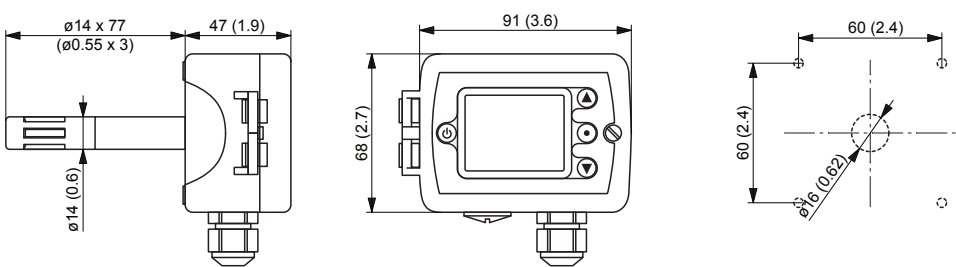
6.6.2 Dimensions

6.6.2.1 Dimensions CHD



Dimensions in mm (inches)

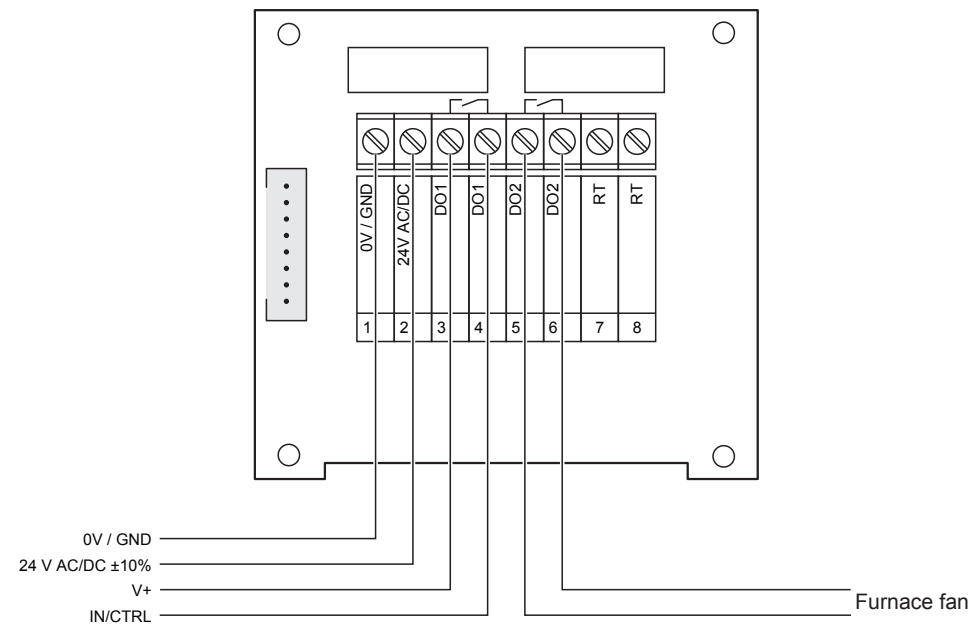
6.6.2.2 Dimensions CHD-S and CHD-NA



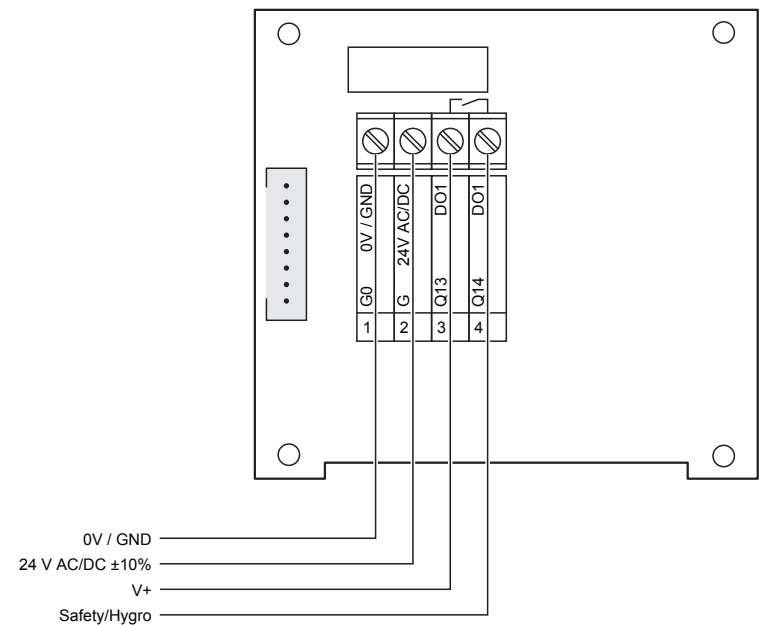
Dimensions in mm (inches)

6.6.3 **Wiring diagrams**

6.6.3.1 **Wiring diagram Condair CHD and CHD-NA**



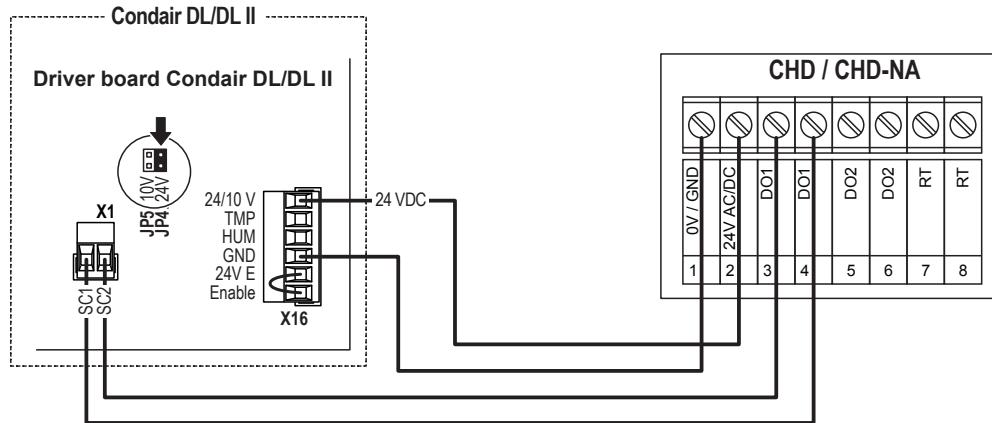
6.6.3.2 **Wiring diagram Condair CHD-S**



6.7 Connecting the CHD, CHD-NA or CHD-S to Condair units

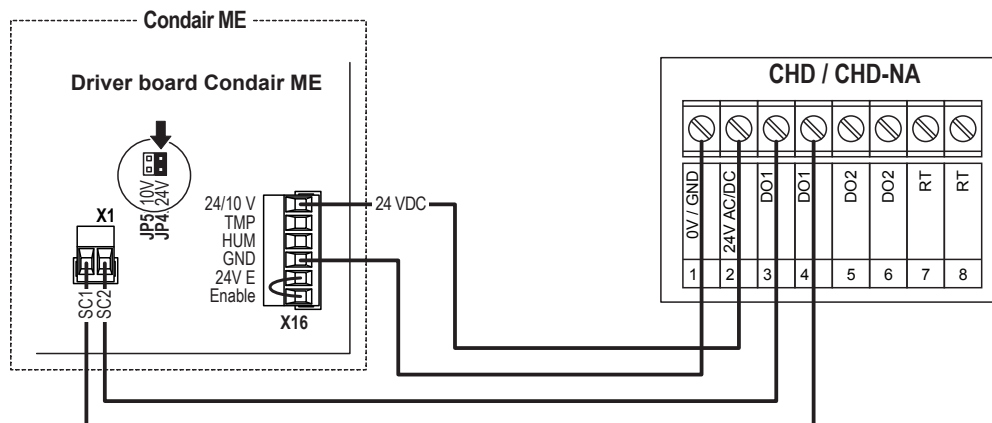
6.7.1 Connecting the CHD or CHD-NA to the Condair DL/DL II

1. Connect the Condair CHD or CHD-NA to the corresponding terminals on the driver board of the Condair DL/DL II according to the wiring diagram below.
Note: The voltage supply of the CHD or CHD-NA is established via the terminals "24/10V" and "GND" of the terminal block "X16" or via an external 24 V AC/DC voltage supply.
2. On the driver board of the Condair DL/DL II: set a Jumper on JP4-24V and remove the Jumper on JP5-10V (if a jumper is set).



6.7.2 Connecting the CHD or CHD-NA to the Condair ME

1. Connect the Condair CHD or CHD-NA to the corresponding terminals on the driver board of the Condair ME according to the wiring diagram below.
Note: The voltage supply of the CHD or CHD-NA is established via the terminals "24/10V" and "GND" of the terminal block "X16" or via an external 24 V AC/DC voltage supply.
2. On the driver board of the Condair ME: set a Jumper on JP4-24V and remove the Jumper on JP5-10V (if a jumper is set).

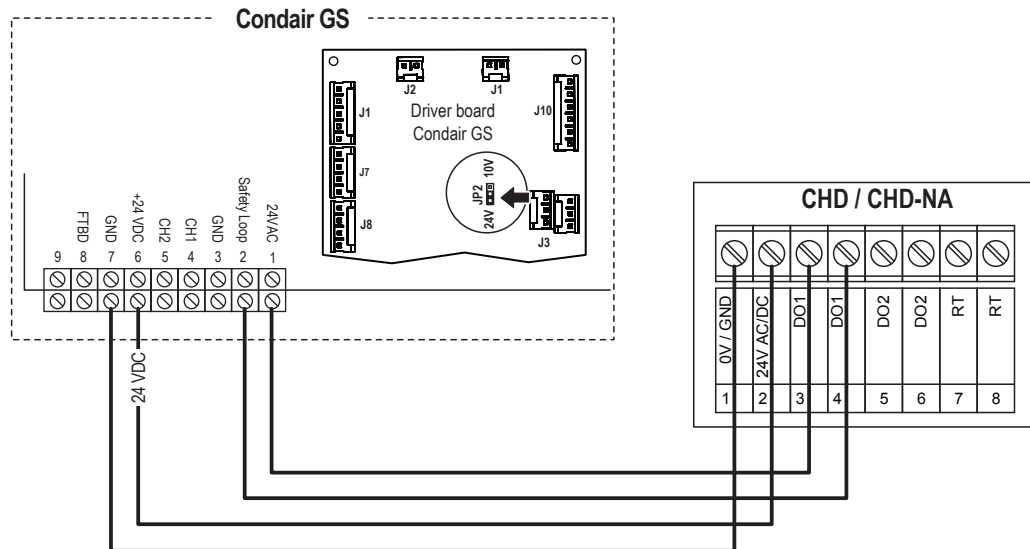


6.7.3 Connecting the CHD or CHD-NA to the Condair GS

1. Connect the Condair CHD or CHD-NA to the corresponding terminals of the terminal block of the Condair GS according to the wiring diagram below.

Note: The voltage supply of the CHD or CHD-NA is established via the terminals "+24 VDC" and "GND" of the terminal block or via an external 24 V AC/DC voltage supply.

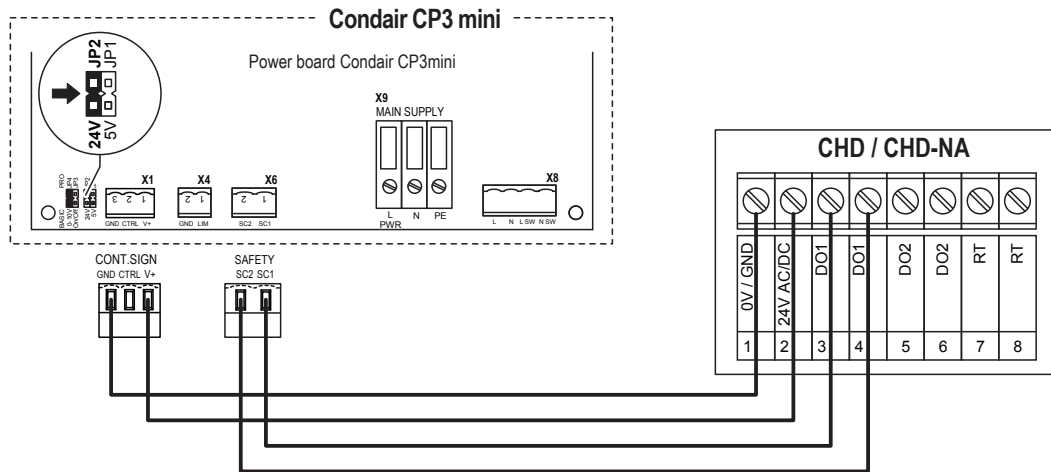
2. On the driver board of the Condair GS: set a Jumper on JP4-24V.



6.7.4 Connecting the CHD or CHD-NA to the Condair CP3mini

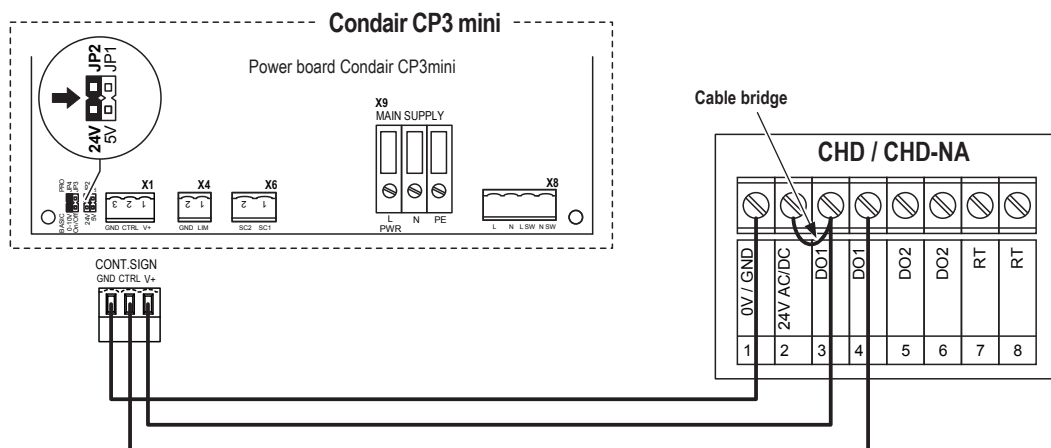
Connection as a high limit humidistat (maximum humidistat)

1. Connect the Condair CHD or CHD-NA to the corresponding terminals on the power board of the Condair CP3mini according to the wiring diagram below.
Note: The voltage supply of the CHD or CHD-NA is established via the terminals "V+" and "GND" of terminal block "X1" or via an external 24 V AC/DC voltage supply.
2. On the power board of the Condair CP3mini: set a Jumper on JP2 (24V) and remove the Jumper on JP1 (5V) (if a jumper is set).



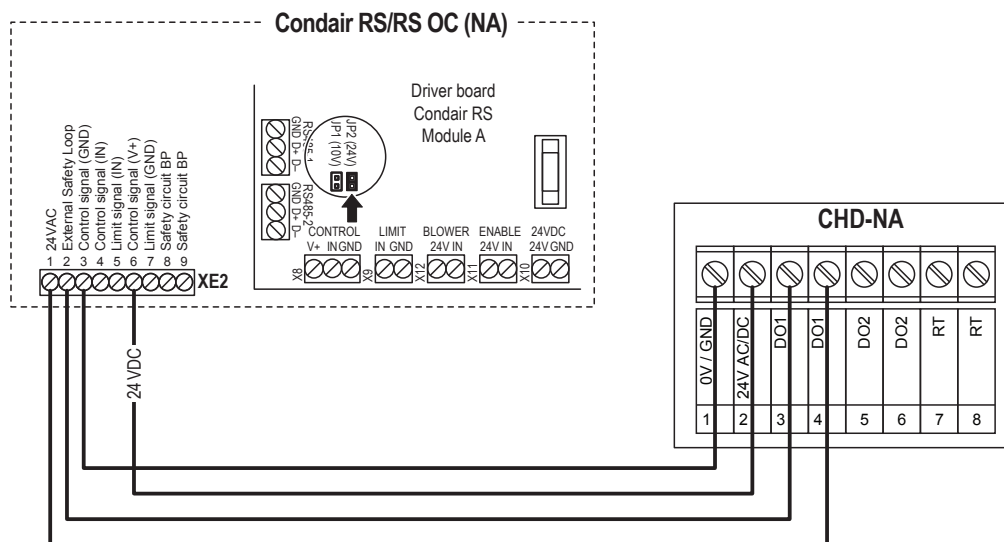
Connection as On/Off humidistat

1. Connect the Condair CHD or CHD-NA to the corresponding terminals on the power board of the Condair CP3mini according to the wiring diagram below.
Note: The voltage supply of the CHD or CHD-NA is established via the terminals "V+" and "GND" of terminal block "X1". In addition, a cable bridge must be connected to the CHD or CHD-NA between terminal "2" (24V AC/DC) and "3" (DO1).
2. On the power board of the Condair CP3mini: set a Jumper on JP2 (24V) and remove the Jumper on JP1 (5V) (if a jumper is set).



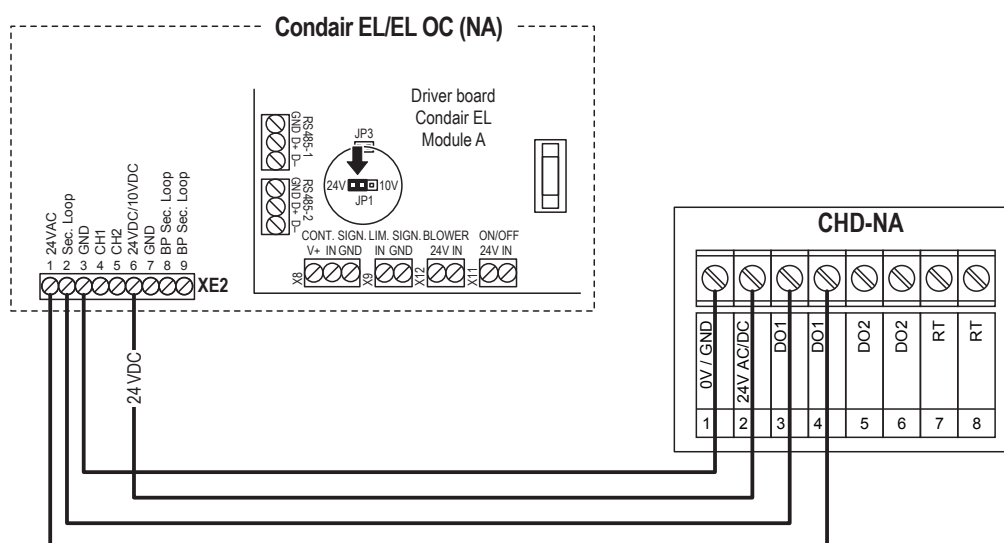
6.7.5 Connecting the CHD-NA to the Condair RS/RS OC (NA)

1. Connect the Condair CHD-NA to the corresponding terminals on the driver board of the Condair RS/RS OC according to the wiring diagram below.
Note: The voltage supply of the CHD-NA is established via the terminals "V+" and "GND" of terminal block "XE2" or via an external 24 V AC/DC voltage supply.
2. On the driver board of the Condair RS/RS OC: set a Jumper on JP2 (24 V) and remove the Jumper on JP1 (10V) (if a jumper is set).



6.7.6 Connecting the CHD-NA to the Condair EL/EL OC (NA)

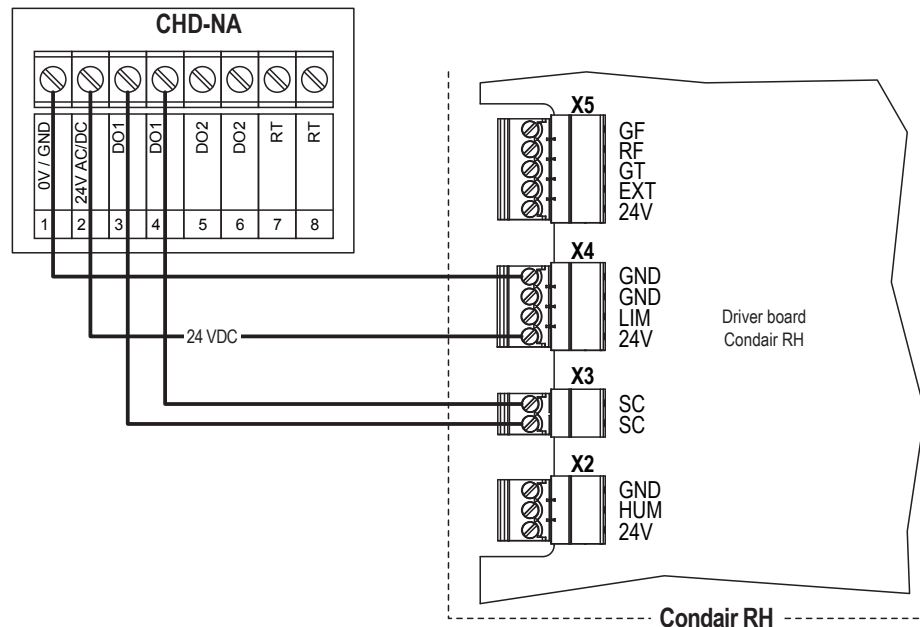
1. Connect the Condair CHD-NA to the corresponding terminals on the driver board of the Condair EL/EL OC according to the wiring diagram below.
Note: The voltage supply of the CHD-NA is established via the terminals "24VDC/10VDC" and "GND" of terminal block "XE2" or via an external 24 V AC/DC voltage supply.
2. Set a jumper on JP1-24V on the driver board of the Condair EL/EL OC.



6.7.7 Connecting the CHD-NA to the Condair RH

Connect the CHD-NA to the corresponding terminals of terminal block "X3" on the driver board of the Condair RH according to the wiring diagram below.

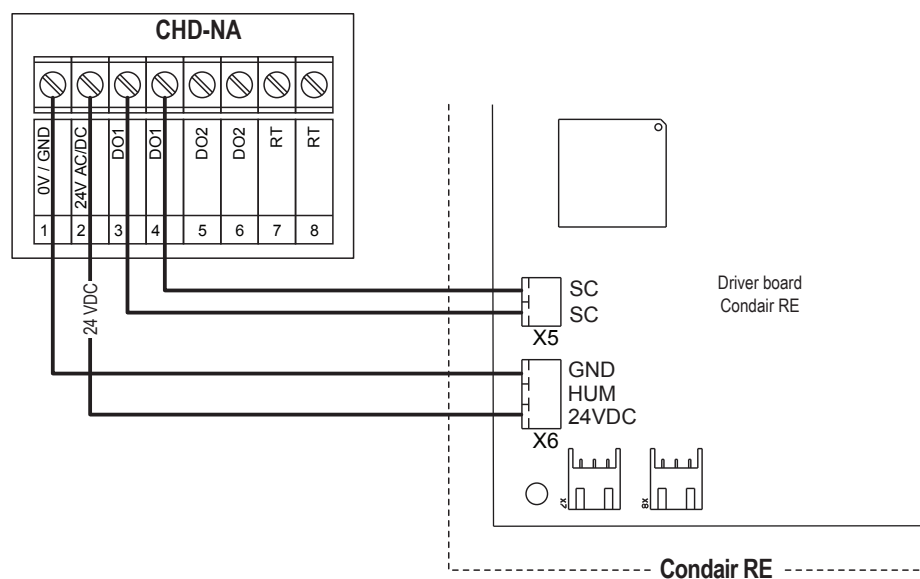
Note: The voltage supply of the CHD-NA is established via the terminals "24 VDC" and "GND" of terminal block "X4" or via an external 24 V AC/DC voltage supply.



6.7.8 Connecting the CHD-NA to the Condair RE

Connect the CHD-NA to the corresponding terminals of the terminal block "X5" on the driver board of the Condair RE according to the wiring diagram below.

Note: The voltage supply of the CHD-NA is established via the terminals "24 VDC" and "GND" of the terminal block "X6" or via an external 24 V AC/DC voltage supply.

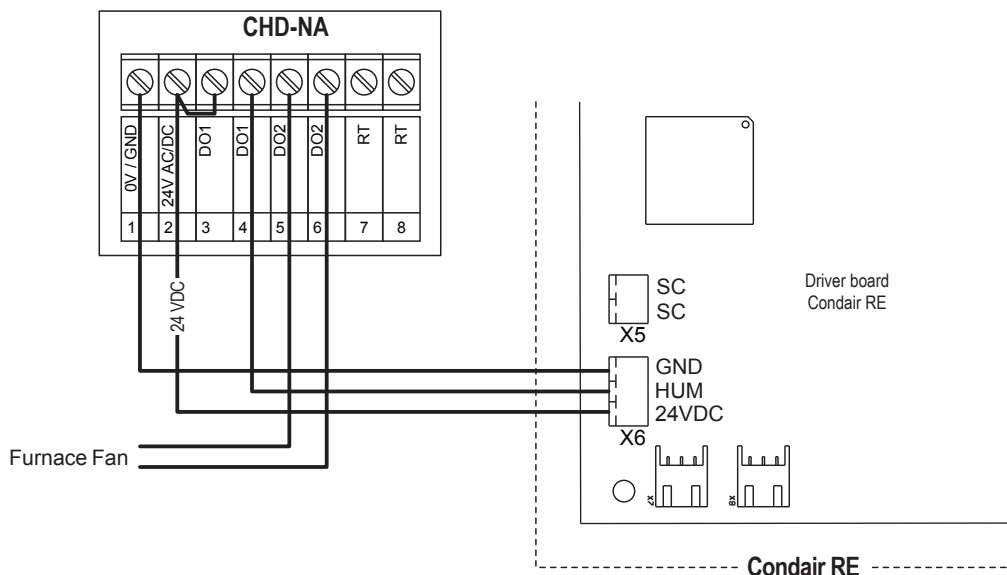


6.7.9 Connecting the CHD-NA with fan control output to the Condair RE

1. Connect the CHD-NA (On/Off humidistat) according to the wiring diagram below to the corresponding terminals of terminal block "X6" on the driver board of the Condair RE and connect terminals "24V AC/DC" and "DO1-3" with a wire bridge.

Note: The voltage supply of the CHD-NA is established via the terminals "24 VDC" and "GND" of terminal block "X6" of the Condair RE or via an external 24V AC/DC voltage source.

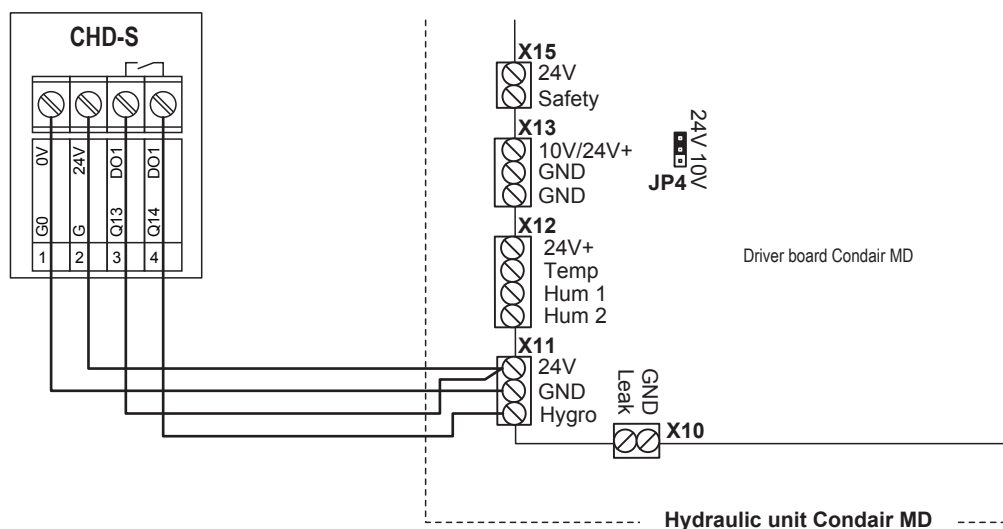
2. Connect the cable for the fan control to the terminals "DO2-5" and "DO2-6" of the CHD-NA.



6.7.10 Connecting the CHD-S to the Condair MD

Connect the Condair CHD-S to the terminals "24V+", "GND" and "Hygro" of terminal block "X11" on the driver board of the Condair MD hydraulic unit according to the wiring diagram below.

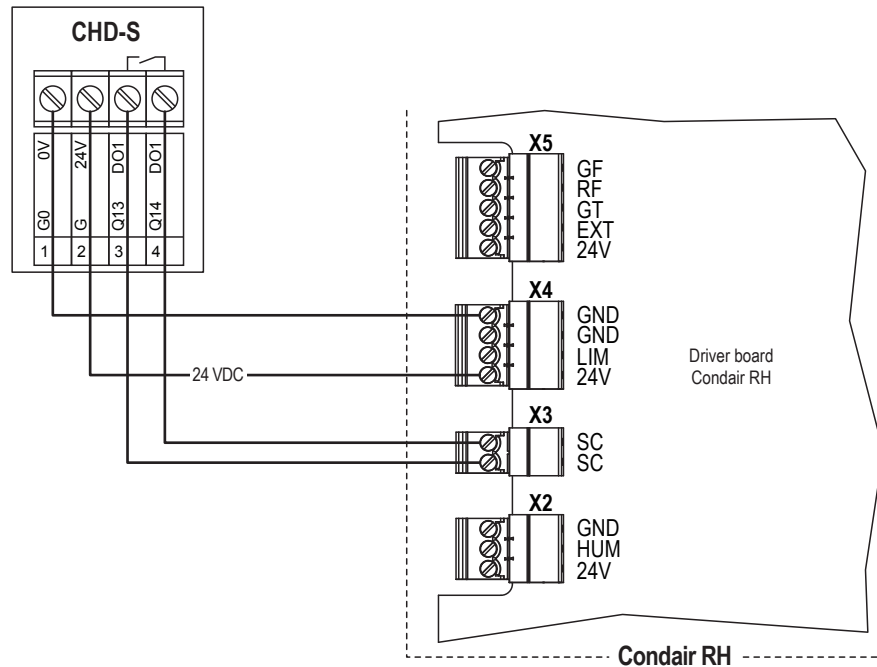
Note: The voltage supply of the CHD-S is established via the terminals "24V" and "GND" of terminal block "X11" or via an external 24 V AC/DC voltage supply.



6.7.11 Connecting the CHD-S to the Condair RH

Connect the Condair CHD-S to the corresponding terminals of terminal block "X3" on the driver board of the Condair RH according to the wiring diagram below.

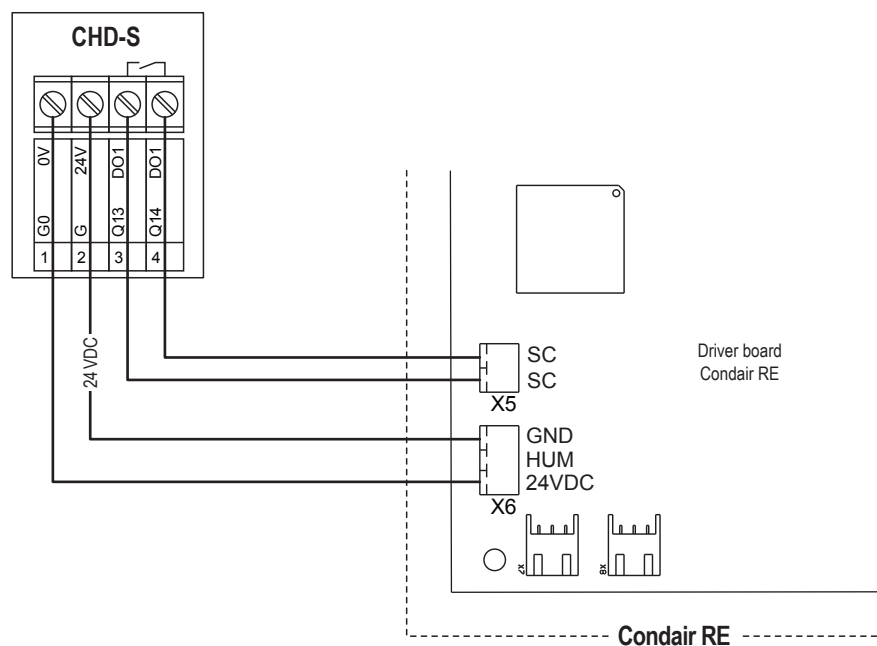
Note: The voltage supply of the CHD-S is established via the terminals "24 VDC" and "GND" of terminal block "X4" or via an external 24 V AC/DC voltage supply.



6.7.12 Connecting the CHD-S to the Condair RE

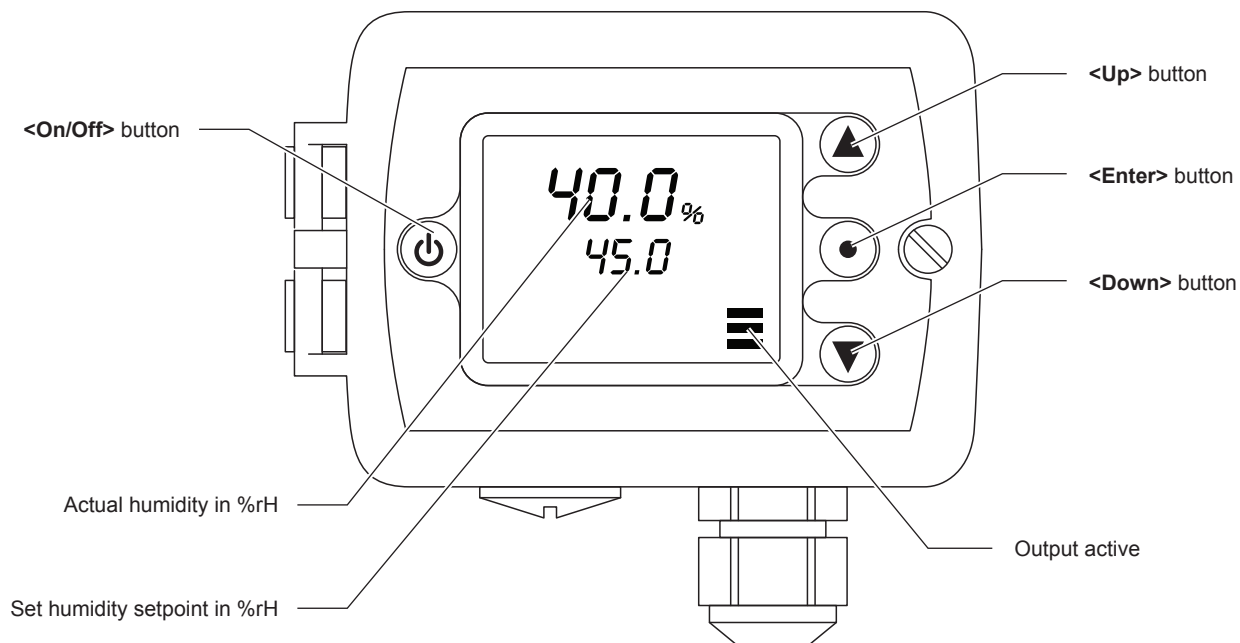
Connect the Condair CHD-S to the corresponding terminals of terminal block "X5" on the driver board of the Condair RE according to the wiring diagram below.

Note: The voltage supply of the CHD-S is established via the terminals "24 VDC" and "GND" of terminal block "X6" or via an external 24 V AC/DC voltage supply.



6.8 Operation of the CHD, CHD-S and CHD-NA

Display and operating elements



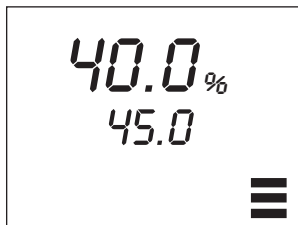
Switching the humidistat on and off

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.

Error messages

- Err 1: Sensor element in the probe tip not properly inserted or defective. Insert the sensor element correctly or replace it.
- Err2, 3 & 4: Hardware or memory problem. Replace device.

7 Condair CHR and CHR-NA



7.1 Functional description

The room humidistat Condair CHR or CHR-NA serves as On/Off humidistat in rooms.

7.2 Safety

Please observe all local regulations concerning electrical installations.

The installation work must be performed only by **adequately qualified personnel (electrician or workman with equivalent training)**.

Warning - danger of electric shock! Before starting the installation work the unit to which the Condair CHR or CHR-NA will be connected must be disconnected from the mains and may be reconnected to mains only after all installation work has been completed.

Warning! The electronic components inside the Condair CHR or CHR-NA and the humidifier are very susceptible to electrostatic discharges. For the protection of these components, measures must be taken during all installation work to prevent damage caused by electrostatic discharge (ESD-protection).

7.3 Delivery

The delivery includes:

- Room humidistat Condair CHR or CHR-NA
- Fixing material
- Surface-mounting box (CHR only)
- Installation manual

7.4 Mounting location

Install the Condair CHR or CHR-NA in a protected and easy accessible place at least 1.5 m above the floor to the wall (mounting on flush-mounting or wall-mounting box). Observe the following placement notes:

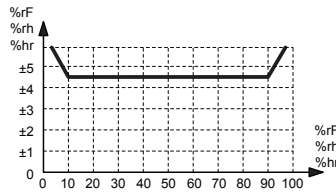
- Do not place the Condair CHR or CHR-NA in niches, behind curtains, etc.
- Do not place the Condair CHR or CHR-NA near heat sources, within the area with direct air draft or direct sunlight.

7.5 Installation

1. Open the screw of the housing and remove mounting plate with the connecting unit.
2. Connect wires of the connection cable to the terminals according to the wiring diagram.
3. At the place of location fix mounting plate (plastic screw facing downwards) with two screws to the flush-mounting or wall-mounting box (see dimensional drawing).
4. Carefully snap housing onto the mounting plate, and fix it with the screw (do not tighten screw too much).

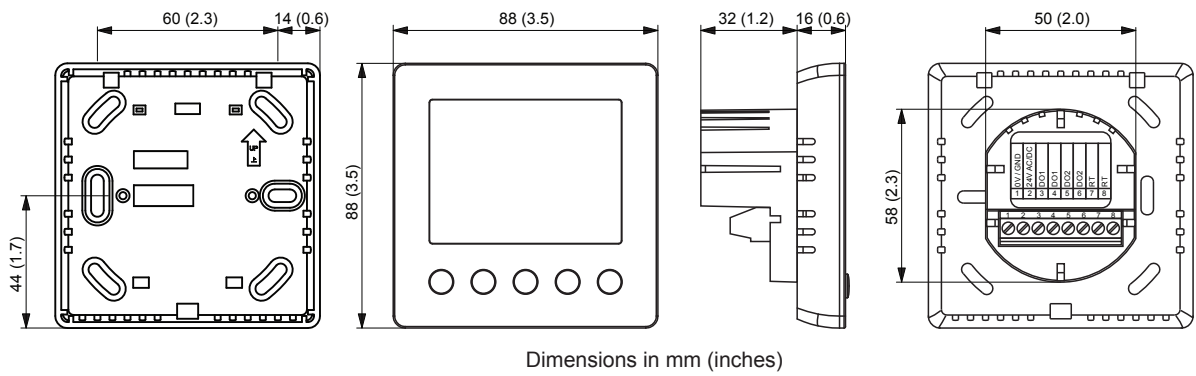
7.6 Product specifications

7.6.1 Technical data

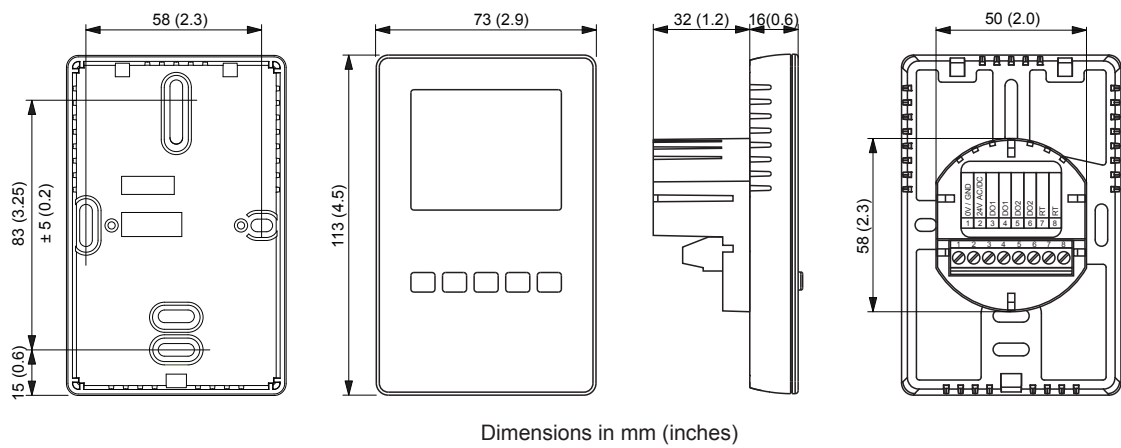
Power Supply	
Operating voltage	24 V AC $\pm$ 10% 50...60 Hz, 24VDC $\pm$ 10%
Power consumption	Max. 2 VA
Terminal connections	For wires 0.34...2.5 mm ² (AWG 24...12)
Signal input	
Measuring element	Capacitive measuring element
Measuring range	0...100 %rH
Measuring accuracy	 Max. rH tolerance at 25 °C (77°F)
Hysteresis	$\pm$ 1 %rH
Signal output	
Digital signal output	DO1
Switching type	Relay, normally open
Switching power	2(1.2) A
Admissible switching voltage	0...250 VAC / 0...24VDC
Environment	
Operation	IEC 721-3-3
Climatic Conditions	Class 3 K5
Temperature	0...50°C (32...122°F)
Humidity	<95 %rH not condensing
Transport and Storage	IEC 721-3-2 and IEC 721-3-1
Climatic Conditions	Class 3 K3 and Class 1 K3
Temperature	-25...70°C (-13...158°F)
Humidity	<95 %rH not condensing
Mechanical Conditions	Class 2M2
Standards	
CE compliant to EMC Norm 2014/30/EU, Low Voltage Directive 2014/35/EU	EN 61 000-6-1/ EN 61 000-6-3
Automatic electrical control and regulating devices for domestic use and similar applications	EN 60 730 –1
Degree of protection according to 60529	IP30
Protection class	III (IEC 60536)
General	
Housing material	PC and ABS
Mounting plate	Galvanized steel
Weight (including packaging)	260 g (9.2 oz)

7.6.2 Dimensions

7.6.2.1 Dimensions CHR

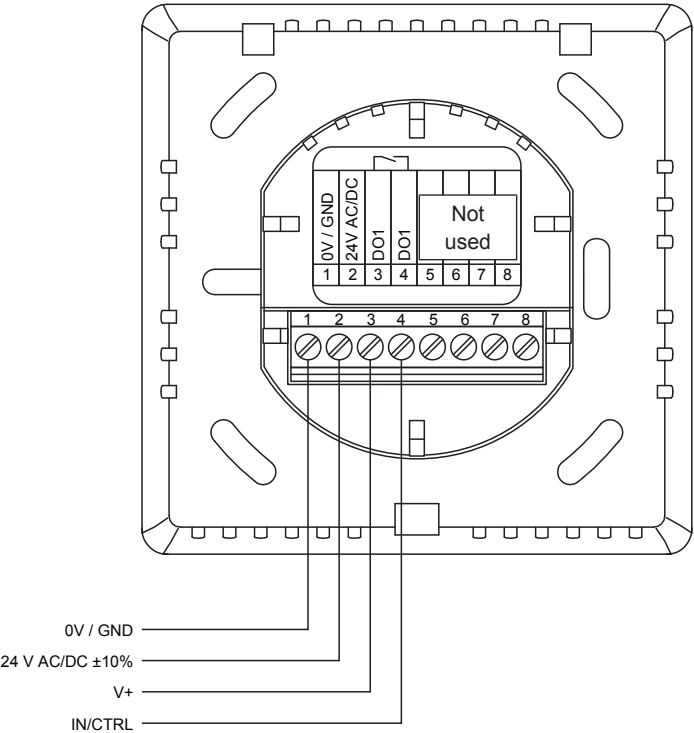


7.6.2.2 Dimensions CHR-NA

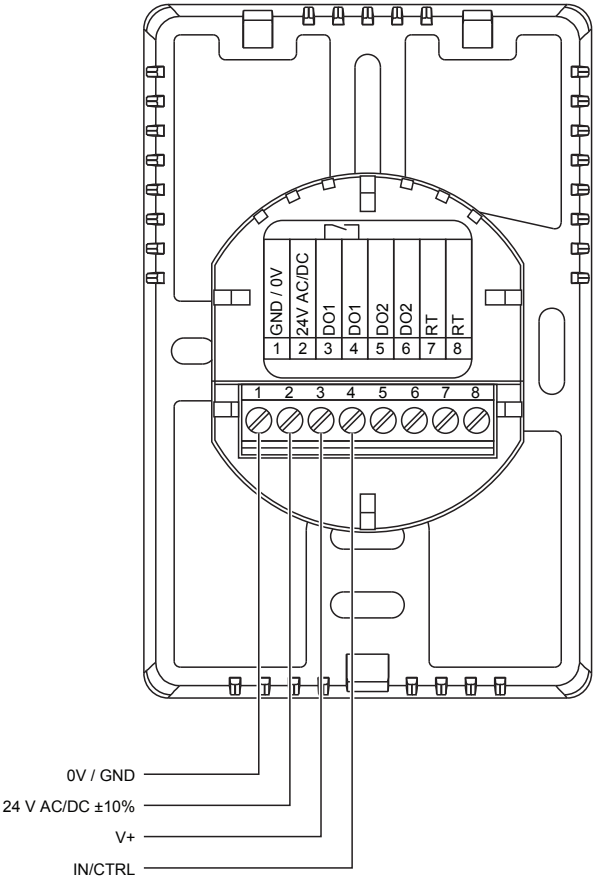


7.7 **Wiring diagrams**

7.7.1 **Wiring diagram Condair CHR**



7.7.2 **Wiring diagram Condair CHR-NA**

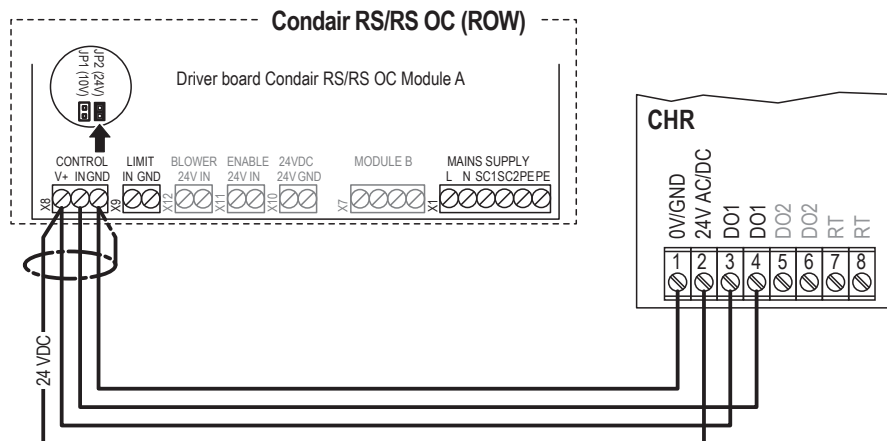


7.8 Connecting the CHR or CHR-NA to Condair units

7.8.1 Connecting the CHR or CHR-NA to the Condair RS/RS OC

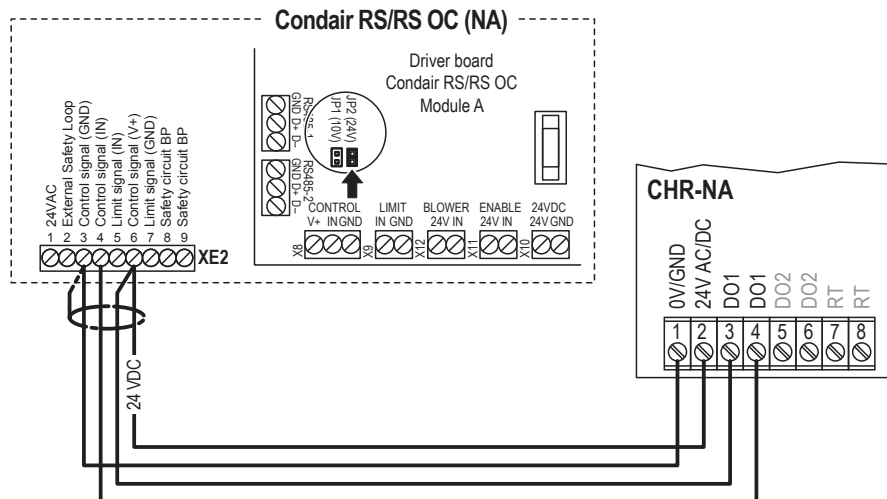
1. Connect the CHR to the corresponding terminals of the terminal block "X8" on the driver board of the Condair RS/RS OC (ROW) according to the following diagram.

Note: The voltage supply of the CHR is established via the terminals "V+" and "GND" of terminal block "X8" or via an external 24 V AC/DC voltage supply.



Connect the CHR-NA to the appropriate terminals of the Condair RS/RS OC (NA) according to the following diagram.

Note: The voltage supply of the CHR-NA is established via the terminals "Control Signals (V+)" and "Control Signals (GND)" of terminal block "XE2" or via an external 24 V AC/DC voltage supply.



2. Set a jumper on JP2 (24V) on the driver board of the Condair RS/RS OC and remove the jumper on JP1 (10V), if present.

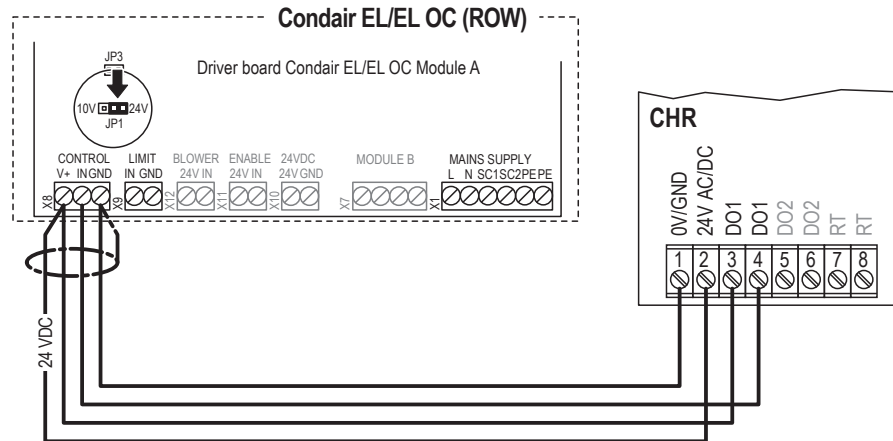
3. Set the Condair RS/RS OC into operation, go to the control menu of the unit software and set the parameters "**Source**" to "**Analog**", "**Control Mode CH 1**" to "**On/Off**" and "**Control Channels**" to "**Single**" (refer to the Condair RS operation manual).



7.8.2 Connecting the CHR or CHR-NA to the Condair EL/EL OC

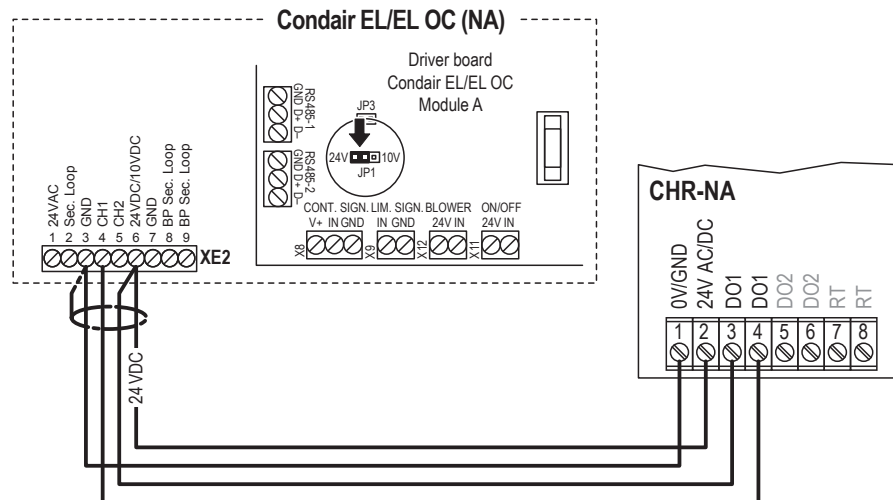
1. Connect the CHR to the corresponding terminals of the terminal block "X8" on the driver board of the Condair EL/ELS OC (ROW) according to the following diagram.

Note: The voltage supply of the CHR is established via the terminals "V+" and "GND" of terminal block "X8" or via an external 24 V AC/DC voltage supply.



Connect the CHR-NA to the appropriate terminals of the terminal block "XE2" of the Condair EL/EL OC (NA) according to the following diagram.

Note: The voltage supply of the CHR-NA is established via the terminals "24VDC/10VDC" and "GND" of terminal block "XE2" or via an external 24 V AC/DC voltage supply.



2. Set a jumper on JP1-24V on the driver board of the Condair EL/EL OC.

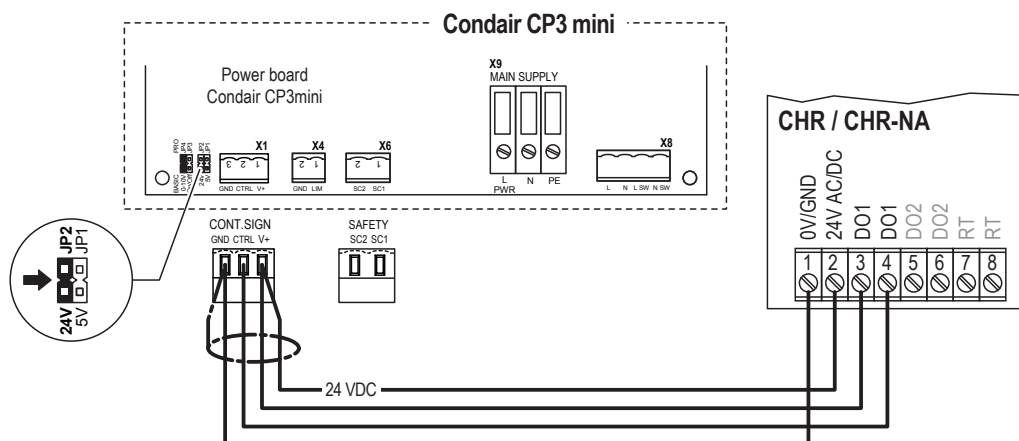
3. Set the Condair EL/EL OC into operation, go to the control menu of the unit software and set the parameters "**Source**" to "**Analog**", "**Control Mode CH 1**" to "**On/Off**" and "**Control Channels**" to "**Single**" (refer to the Condair RS operation manual).



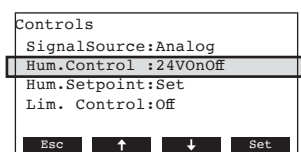
7.8.3 Connecting the CHR or CHR-NA to the Condair CP3mini

1. Connect the CHR or CHR-NA to the corresponding terminals of terminal block "X1" on the power board of the Condair CP3mini according to the following diagram.

Note: The voltage supply of the CHR or CHR-NA is established via the terminals "V+" and "GND" of terminal block "X1" or via an external 24 V AC/DC voltage supply.



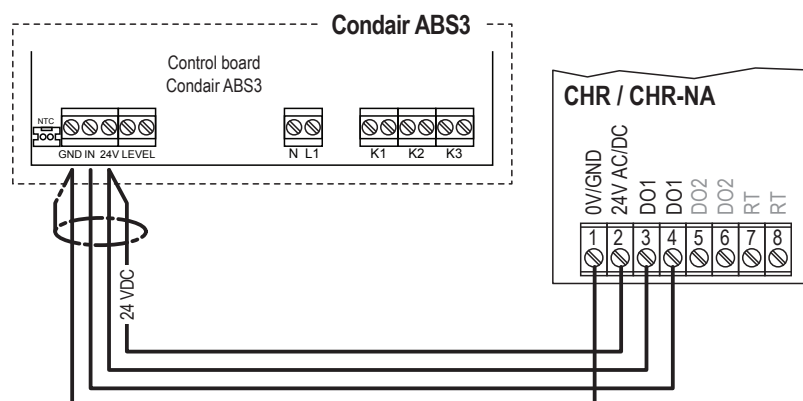
2. On the power board of the Condair CP3mini: set a Jumper on JP2-24 V and remove the Jumper on JP1-5V (if a jumper is set).
3. Set the Condair CP3mini into operation, go to the setup level of the software and set the parameter **"Hum.Control"** to **"24VOnOff"** (refer to the Condair CP3mini installation and operating instructions).



7.8.4 Connecting the CHR or CHR-NA to the Condair ABS3

Connect the CHR or CHR-NA to the corresponding terminals on the control board of the Condair CP3mini according to the following diagram.

Note: The voltage supply of the CHR or CHR-NA is established via the terminals "24V" and "GND" of the terminal block or via an external 24 V AC/DC voltage supply.

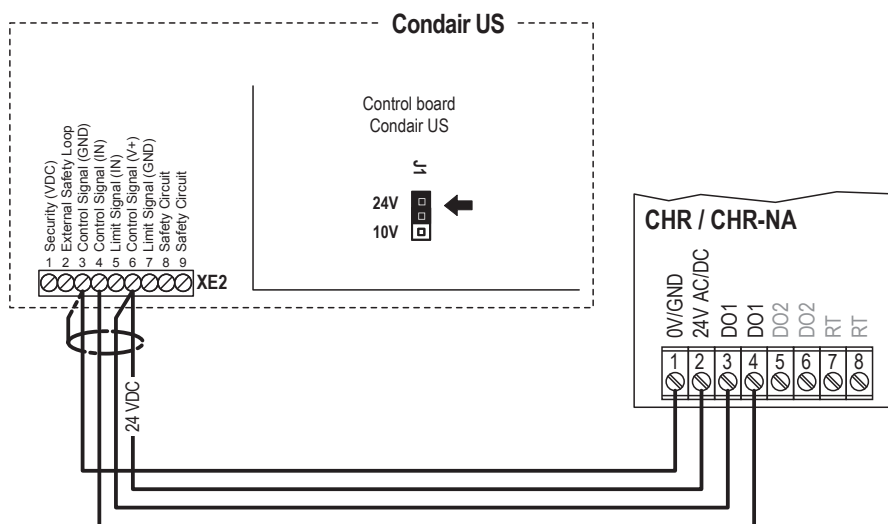


7.8.5 Connecting the CHR or CHR-NA to the Condair US

1. Connect the CHR or CHR-NA to the corresponding terminals of terminal block "XE2" of the Condair US according to the following diagram.

Note: The voltage supply of the CHR or CHR-NA is established via the terminals "Control Signals (V+)" and "Control Signals (GND)" of terminal block "XE2" or via an external 24 V AC/DC voltage supply.

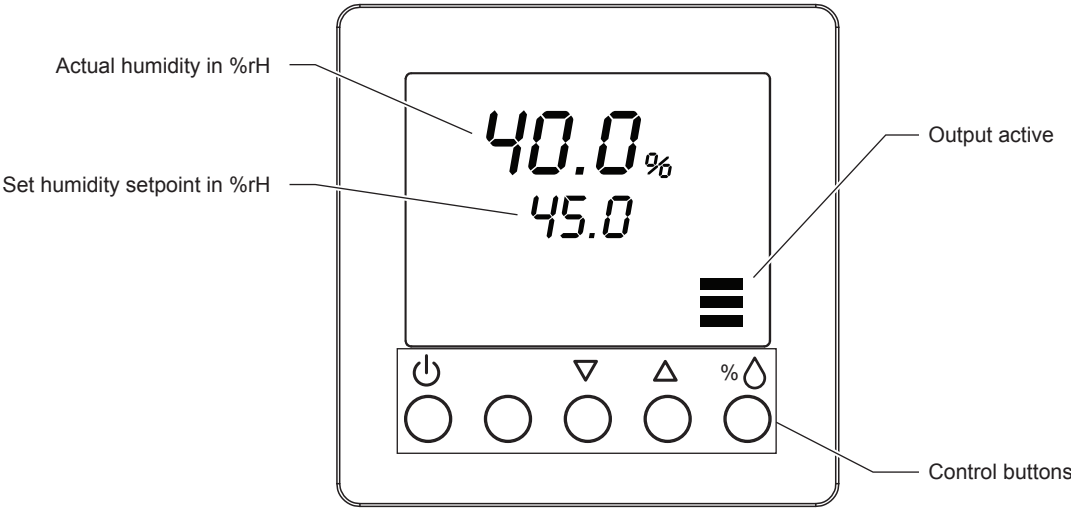
2. Set a jumper on "J1-24 V" on the control board of the Condair US.



7.9 **Operation of the CHR**

7.9.1 **Display and operating elements**

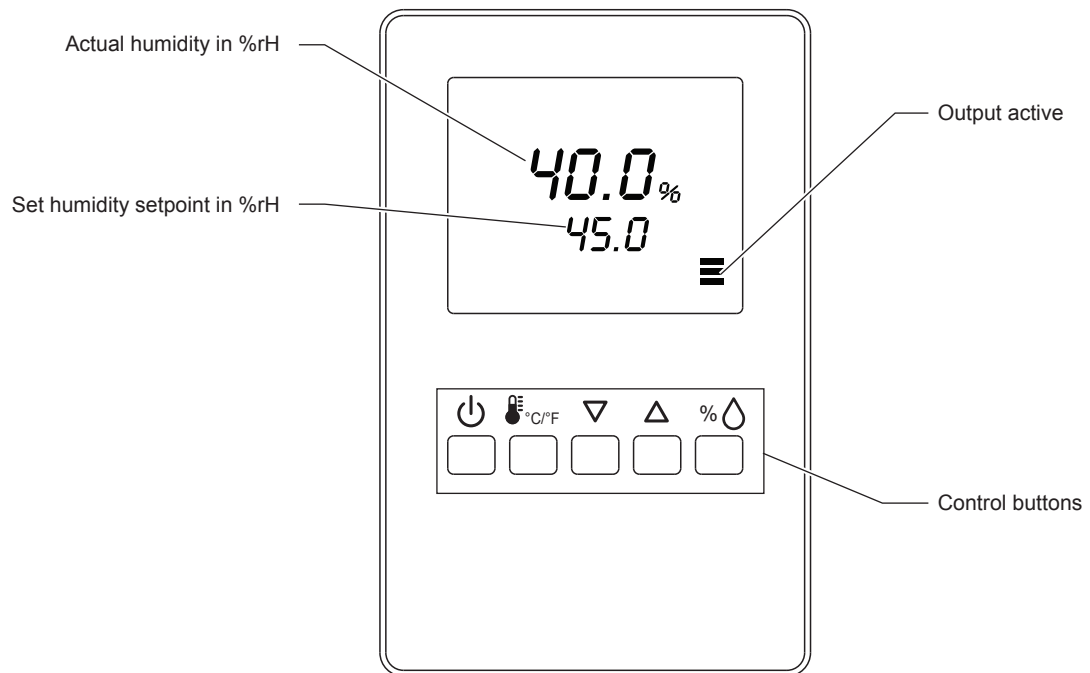
7.9.1.1 **Display and operating elements CHR**



Function of the control buttons

Buttons	Operation	Function
⏻	press briefly	Switching On and Off
	press briefly	Switch on display light
	press long	Switching between °C and °F
▽ / △	press briefly	Adjusting set point value
%💧	press briefly	Shows set point value
	press long	Offset settings

7.9.1.2 Display and operating elements CHR-NA



Function of the control buttons

Buttons	Operation	Function
	press long	Switching On and Off
	press briefly	—
	press long	Switching between °C and °F
	press briefly	Adjusting set point value
	press briefly	Shows %rH value
	press long	Offset settings

7.9.2 Error messages

- Err 1: Sensor element in the device not properly inserted or defective. Insert the sensor element correctly or replace it.
- Err2, 3 & 4: Hardware or memory problem. Replace device.

8 Condair MHD



8.1 Functional description

The mechanical duct humidistat Condair MHD serves as high limit humidistat (maximum humidistat) in ventilation ducts.

8.2 Safety

Please observe all local regulations concerning electrical installations.

The installation work must be performed only by **adequately qualified personnel (electrician or workman with equivalent training)**.

Warning - danger of electric shock! Before starting the installation work the unit to which the Condair MHD will be connected must be disconnected from the mains and may be reconnected to mains only after all installation work has been completed.

Warning! The electronic components inside the Condair MHD and the humidifier are very susceptible to electrostatic discharges. For the protection of these components, measures must be taken during all installation work to prevent damage caused by electrostatic discharge (ESD-protection).

8.3 Delivery

The delivery includes:

- Duct humidistat Condair MHD incl. duct flange
- Wall bracket
- Fixing material
- Installation manual

8.4 Mounting location

Mounting in the supply air duct: Mount the Condair MHD in the supply air duct at least 3 meters downstream from the nearest fan and coil and with a minimum distance of 5x the humidification distance to the steam distributor (see manual of the humidifier).

Mounting in a room: For applications with high requirements for IP protection, the Condair MHD can be used as a room humidistat. Use the wall bracket included in the delivery and place the Condair MHD at least 1.5 m above the floor in a protected location on the wall.

Observe the following placement notes

- Do not place the Condair MHD in niches, behind curtains, etc.
- Do not place the Condair MHD near heat sources, within the area with direct air draft or direct sunlight.

8.5 Installation in the duct

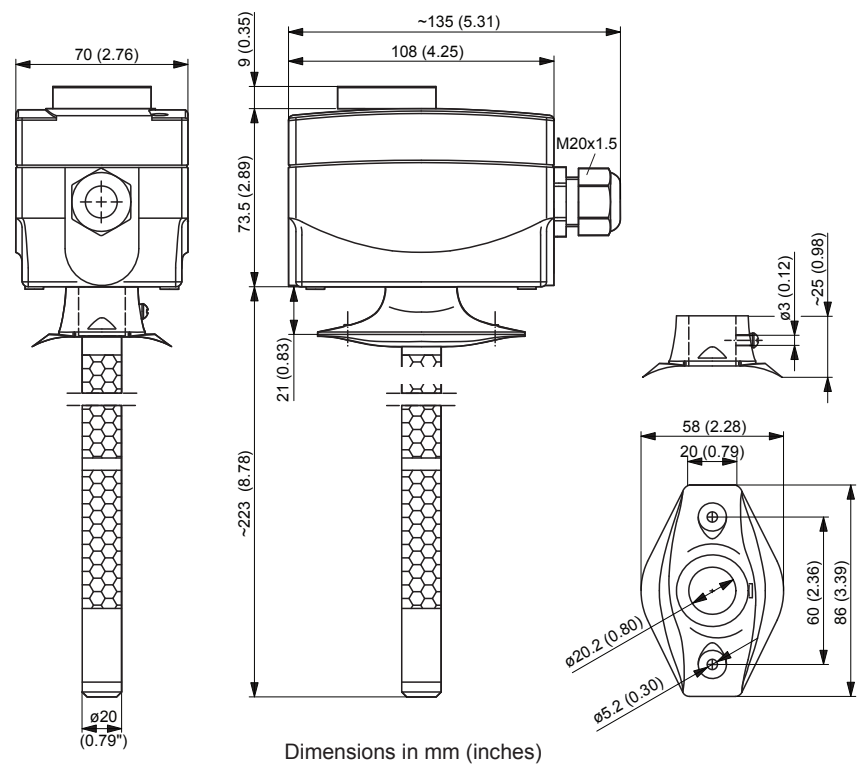
1. At the place of location drill a hole with a diameter of 22 mm (0.87") as well as 2 holes for the self tapping screws into the duct.
2. Loosen the two screws on the housing cover and remove cover.
3. Lead connecting cable through the cable gland and connect wires to the terminals according to the wiring diagram. Reattach the housing cover and secure it with the two screws.
4. Align the duct flange concentrically with the hole and fasten it to the duct with the self-tapping screws.
5. Push the sensor probe through the duct flange into the duct. Determine the insertion depth and fix it with the screw in the duct flange.

8.6 Product specifications

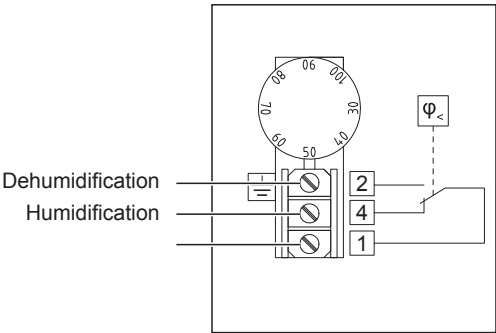
8.6.1 Technical data

Switching load (contact load)	15 (2) A; 24...250 V AC, min. 100 mA > 24 V only in dry rooms according to VDE 0110
Setting range	35...100 %rH
Contact	Dust-encapsulated microswitch as a single-pole, potential-free changeover switch (changeover contact)
Housing	Plastic, UV-stabilized, Material polyamide, 30% glass ball reinforced, Color traffic white (similar to RAL 9016)
Cable connection	Cable gland made of plastic (M 20 x 1.5; with strain relief, exchangeable, inner diameter 8 - 13 mm)
Ambient temperature	0 ...+60 °C
Switching differential	approx. 3...6 %rH
Measuring accuracy	typical ± 4 %rH
Measuring medium	Air, pressureless, not aggressive
Mean temperature coefficient	0,2 %/K; at +20 °C and 50 %rH
Flow velocity	max. 8 m/s
Sensor probe	made of nickel-plated brass, $\varnothing$ 20 mm, NL = 223 mm
Electrical connection	0,14 - 1,5 mm ² , via screw terminals
Protection class	I (according to EN 60 730)
Degree of protection	IP 65 (according to EN 60 529)
Standards	CE conformity, EMC directive 2014/30/EU, Low Voltage Directive 2014/35/EU
Function	
Humidification	Humidification: Connect contacts 1 and 4. The ON/OFF switching points are approx. 2.5 %rH above and below the selected value.
Dehumidification	Dehumidification: Connect contacts 1 and 2. The ON/OFF switching points are approx. 2.5 %rH above and below the selected value.

8.6.2 Dimensions MHD



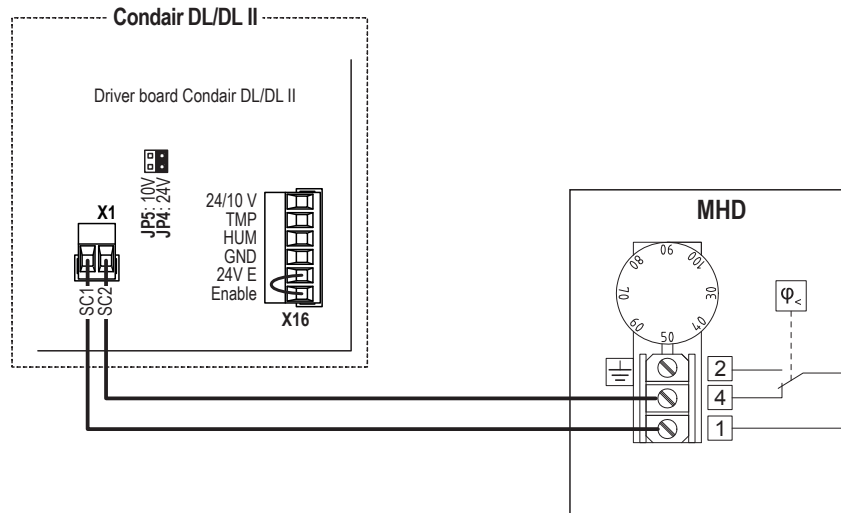
8.6.3 Wiring diagram MHD



8.7 Connecting the MHD to Condair units

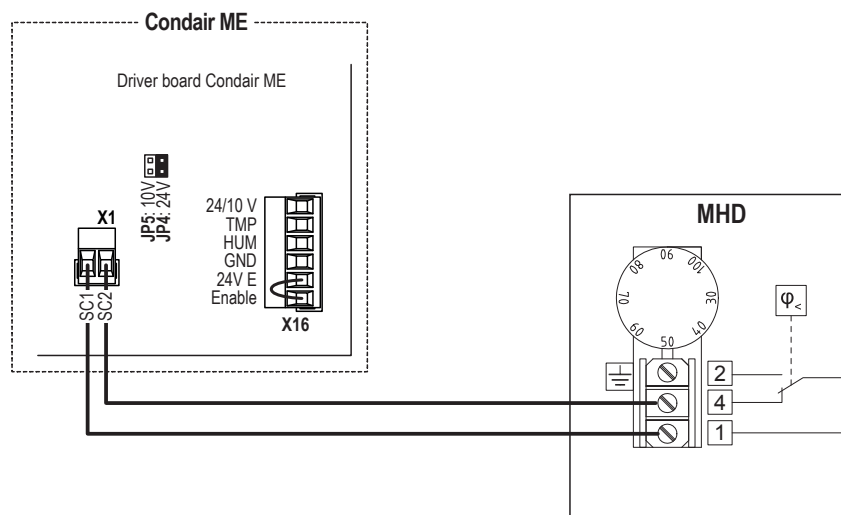
8.7.1 Connecting the MHD to the Condair DL/DL II

Connect the Condair MHD to the corresponding terminals on the driver board of the Condair DL/DL II according to the following diagram



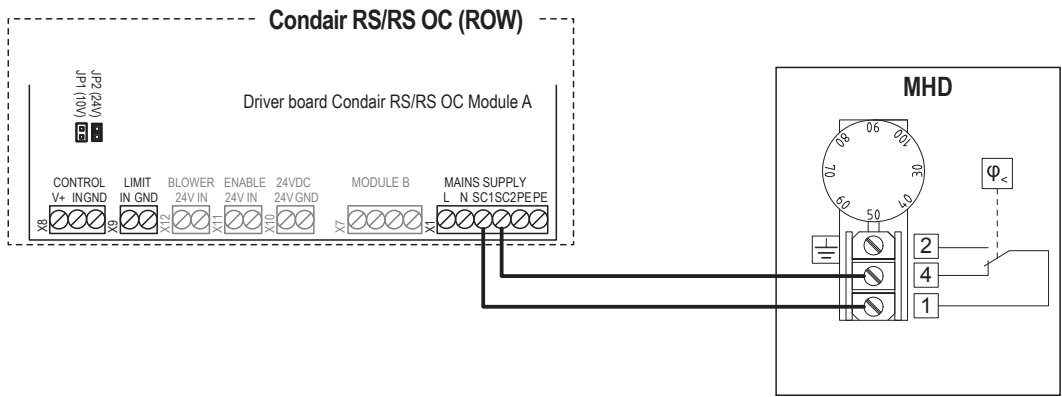
8.7.2 Connecting the MHD to the Condair ME

Connect the Condair MHD to the corresponding terminals on the driver board of the Condair ME according to the following diagram.

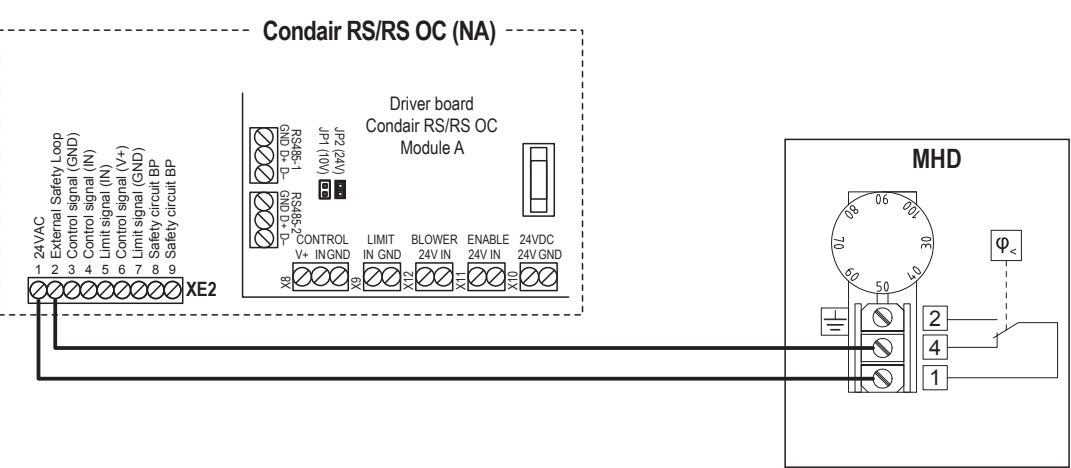


8.7.3 Connecting the MHD to the Condair RS

Connect the Condair MHD to the corresponding terminals on the driver board of the Condair RS/RS OC (ROW) according to the following diagram.

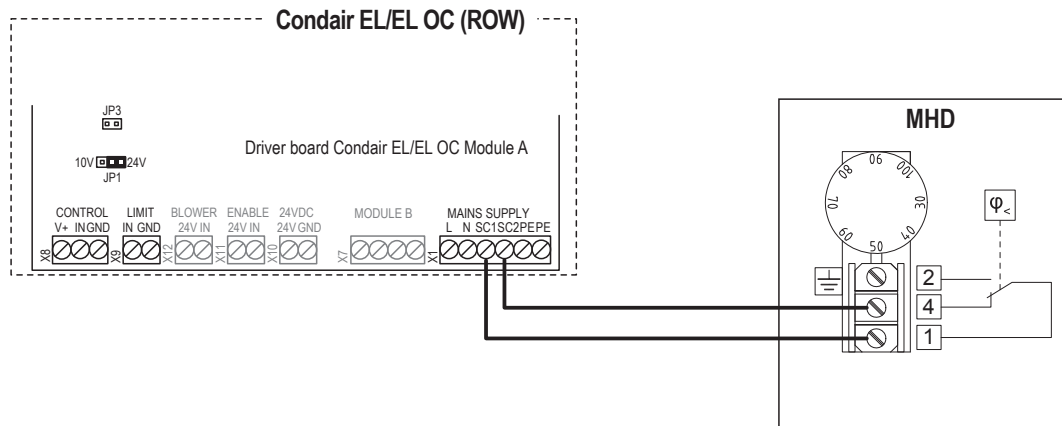


Connect the Condair MHD to the corresponding terminals of terminal block "XE2" of the Condair RS/RS OC (NA) according to the following diagram.

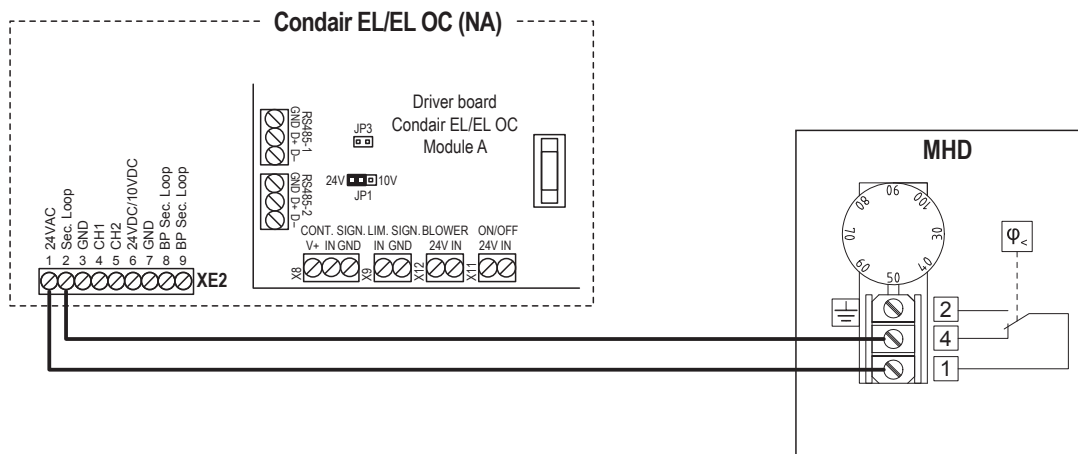


8.7.4 Connecting the MHD to the Condair EL

Connect the Condair MHD to the corresponding terminals on the driver board of the Condair EL/EL OC (ROW) according to the following diagram.

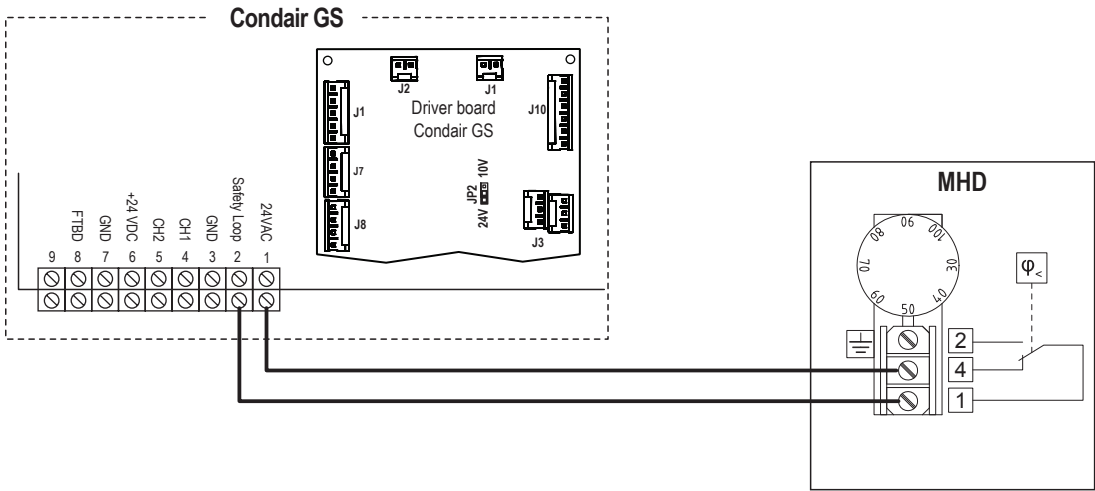


Connect the Condair MHD to the corresponding terminals of terminal block "XE2" of the Condair EL/EL OC (NA) according to the following diagram.



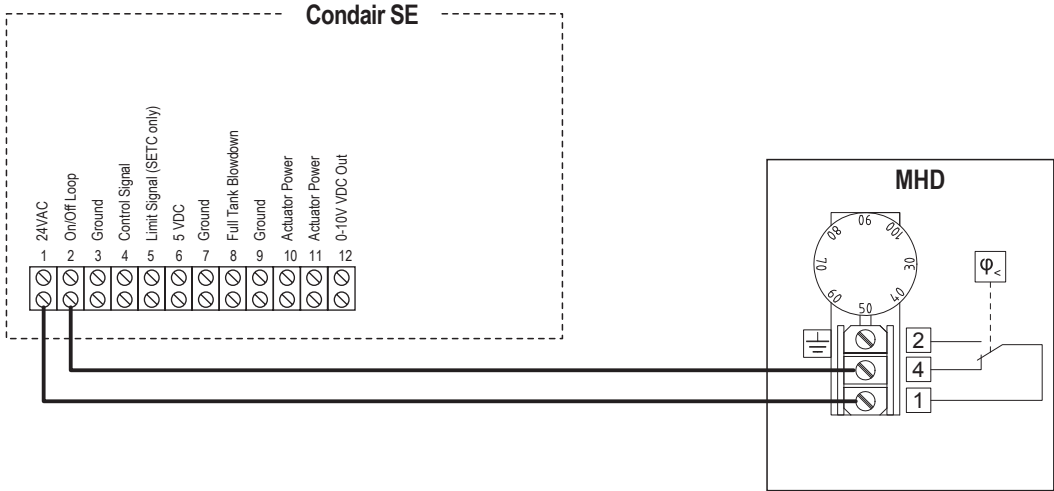
8.7.5 Connecting the MHD to the Condair GS

Connect the Condair MHD to the corresponding terminals on the terminal block of the Condair GS according to the following diagram.



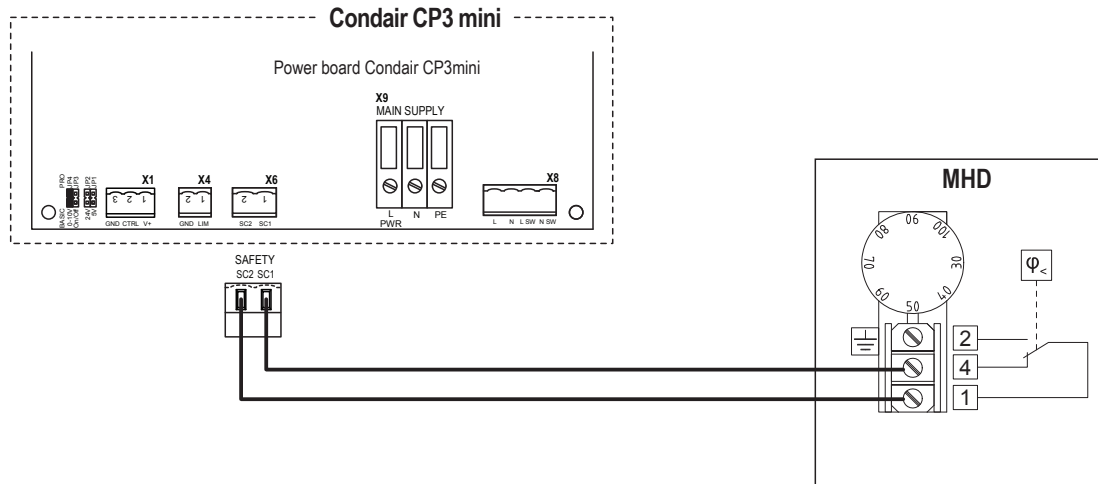
8.7.6 Connecting the MHD to the Condair SE

Connect the Condair MHD to the corresponding terminals on the terminal block of the Condair SE according to the following diagram.



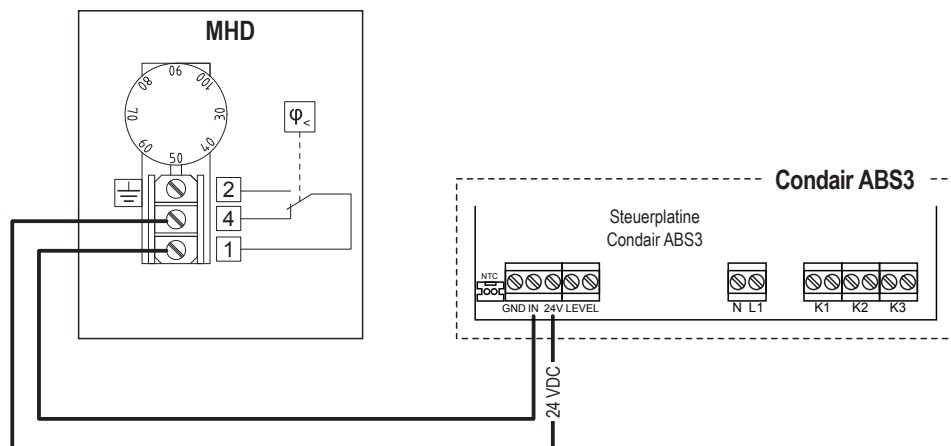
8.7.7 Connecting the MHD to the Condair CP3mini

Connect the Condair MHD to the corresponding terminals on the terminal block "X6" on the power board of the Condair CP3mini.



8.7.8 Connecting the MHD as On/Off room humidistat to the Condair ABS3

For On/Off control of the Condair ABS3, connect the Condair MHD to the terminals "IN" and "24V" on the control board of the Condair ABS3 according to the following diagram.



9 Condair MHR



9.1 Functional description

The mechanical room humidistat Condair MHR serves as high limit humidistat (maximum humidistat) in rooms.

9.2 Safety

Please observe all local regulations concerning electrical installations.

The installation work must be performed only by **adequately qualified personnel (electrician or workman with equivalent training)**.

Warning - danger of electric shock! Before starting the installation work the unit to which the Condair MHR will be connected must be disconnected from the mains and may be reconnected to mains only after all installation work has been completed.

Warning! The electronic components inside the Condair MHR and the humidifier are very susceptible to electrostatic discharges. For the protection of these components, measures must be taken during all installation work to prevent damage caused by electrostatic discharge (ESD-protection).

9.3 Delivery

The delivery includes:

- Room humidistat Condair MHR
- Fixing material
- Installation manual

9.4 Mounting location

Install the Condair MHR in a protected and easy accessible place at least 1.5 m above the floor to the wall (mounting on flush-mounting or wall-mounting box). Observe the following placement notes:

- Do not place the Condair MHR in niches, behind curtains, etc.
- Do not place the Condair MHR near heat sources, within the area with direct air draft or direct sunlight.

9.5 Installation

1. Place a slotted screwdriver in the locking slots on the right-hand side of the humidistat and press inwards until the housing cover pops open.
3. Connect wires of the connection cable to the terminals according to the wiring diagram.
3. Fasten the mounting plate with the connection unit at the intended location with two screws in the flush-mounted or surface mounted box (see dimensional drawing).
4. Close the housing cover and click into place in the basic housing.

9.6 Product specifications

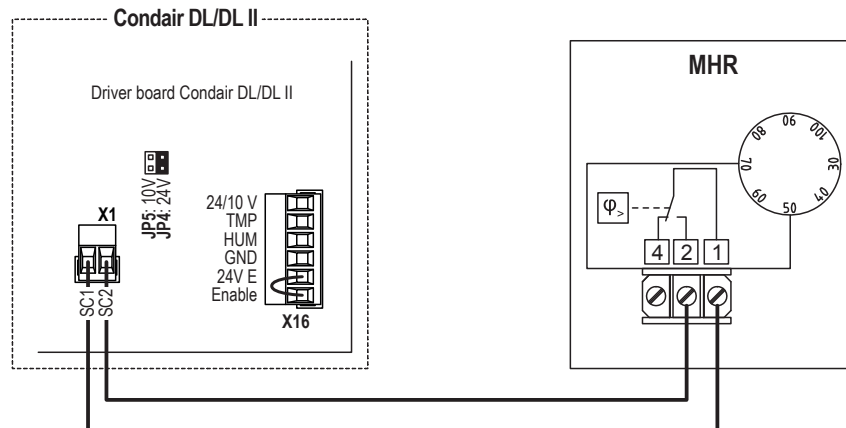
9.6.1 Technical data

Switching load	max. 250 V AC and 0,1...5 A with resistive load for dehumidification 0,1...2 A with resistive load for humidification 0,1...1 A with inductive load (power factor >0,8)
Contact	1 changer
Sensor element	Plastic fiber
Setting range	40...90 %rH
Deviation humidity	typical $\pm 2,0$ % (20...80 %rH) at +25 °C, otherwise $\pm 3,0$ %
Long-term stability	$\leq \pm 1$ % / year One-point adjustment at 48 %rH / 23 °C
Ambient temperature	Storage: -40 ... +60 °C Operation: 0 ... +60 °C, not condensing
Housing	Plastic, color white
Electrical connection	0,14 - 2,5 mm ² , via screw terminals
Mounting	Wall mounting
Notes on voltage	The measuring location of the humidistat should be chosen so that no water condensation can form on or in the device. This is especially important when the device is operated with a voltage higher than 48V. If the voltage is high, there is a risk that a voltage flashovers may occur if there is water precipitation on the microswitch or on the connection terminals and thus destroy the humidistat. At voltages below 48V, the humidistat can be used up to 100 %rH.
Protection class	I (according to EN 60 730)
Degree of protection	IP 30 (according to EN 60 529)
Standards	CE conformity, Low Voltage Directive 2014/35/EU EMC directive 2014/30/EU according to DIN EN 60730-1:2012-10 and DIN EN 60730-2-13:2008-09,
Function	Humidification: Wire contacts 1 + 2 Dehumidification: Wire contacts 1 + 4 If the relative humidity Fx (actual value) drops below the set point value Fw , contacts 1/4 open and contacts 1/2 close.

9.7 Connecting the MHR to Condair units

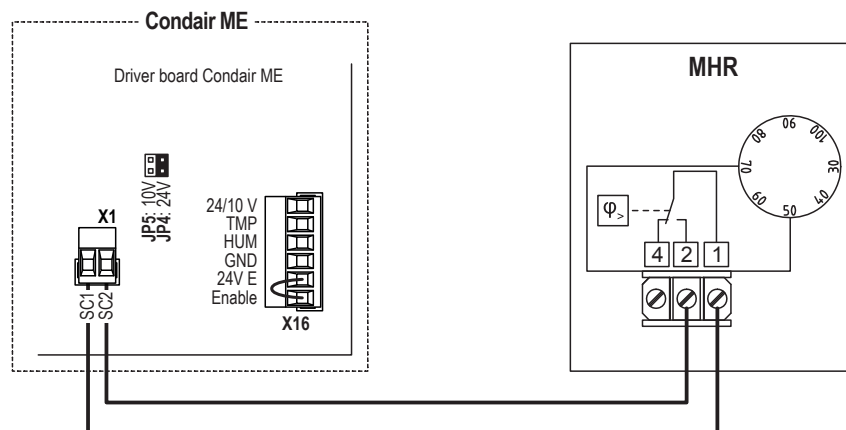
9.7.1 Connecting the MHR to the Condair DL/DL II

Connect the Condair MHR to the corresponding terminals on the driver board of the Condair DL/DL II according to the following diagram



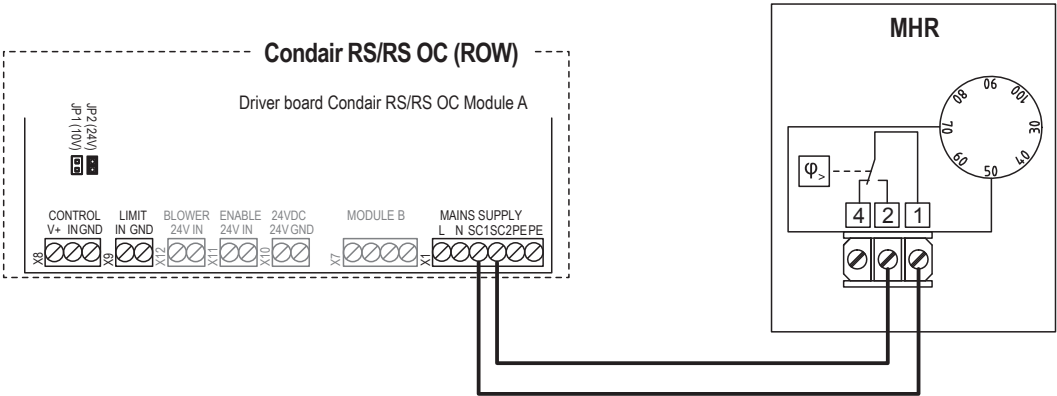
9.7.2 Connecting the MHR to the Condair ME

Connect the Condair MHR to the corresponding terminals on the driver board of the Condair ME according to the following diagram

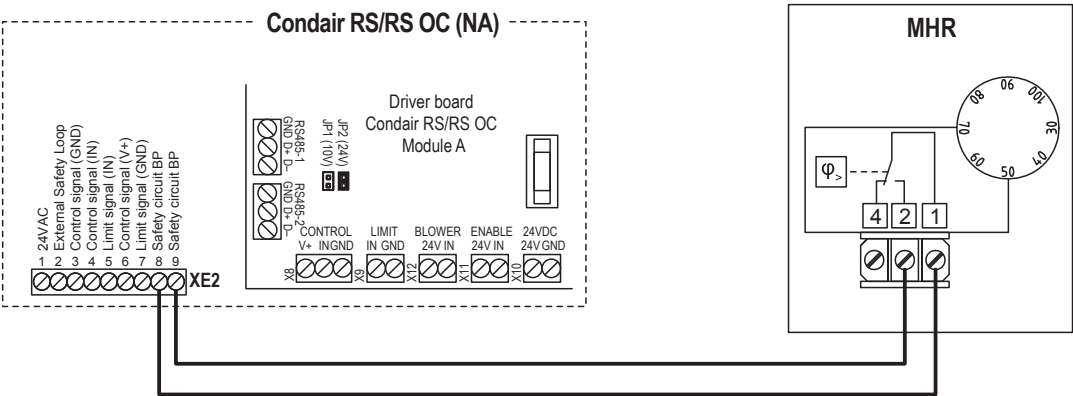


9.7.3 Connecting the MHR to the Condair RS

Connect the Condair MHR to the corresponding terminals on the driver board of the Condair RS/RS OC (ROW) according to the following diagram.

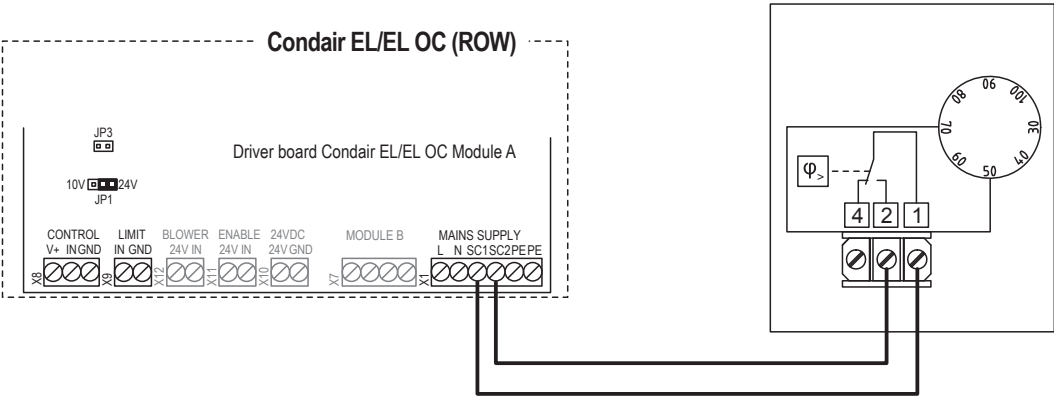


Connect the Condair MHR to the corresponding terminals of terminal block "XE2" of the Condair RS/RS OC (NA) according to the following diagram.

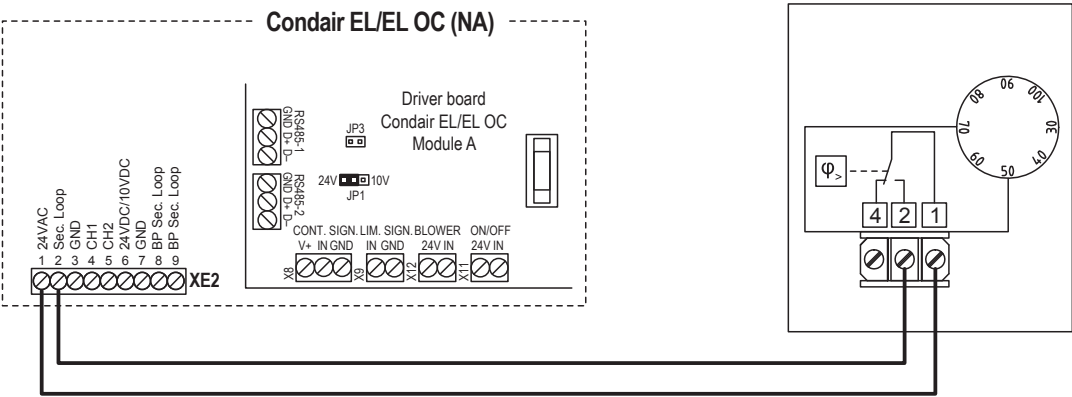


9.7.4 Connecting the MHR to the Condair EL

Connect the Condair MHR to the corresponding terminals on the driver board of the Condair EL/EL OC (ROW) according to the following diagram.

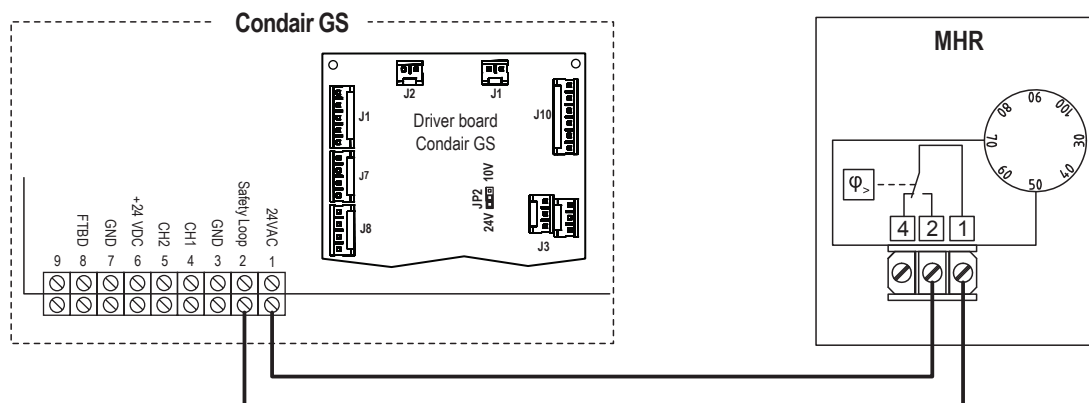


Connect the Condair MHR to the corresponding terminals of terminal block "XE2" of the Condair EL/EL OC (NA) according to the following diagram.



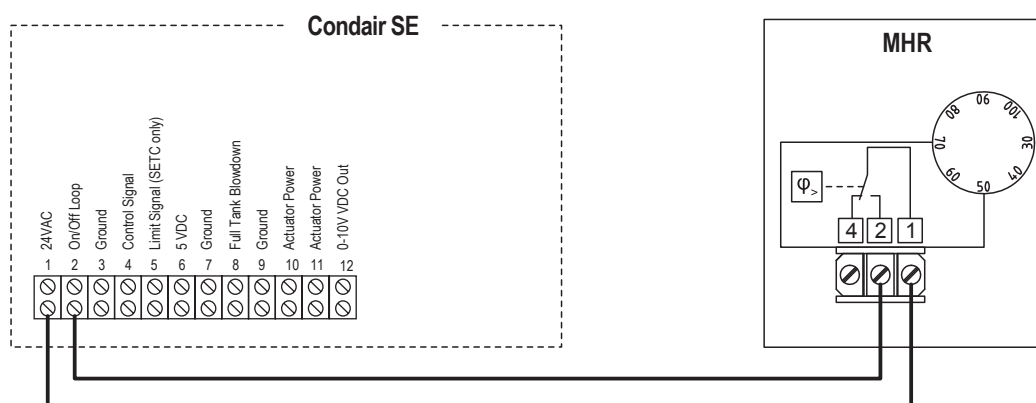
9.7.5 Connecting the MHR to the Condair GS

Connect the Condair MHR to the corresponding terminals of the terminal block of the Condair GS according to the following diagram.



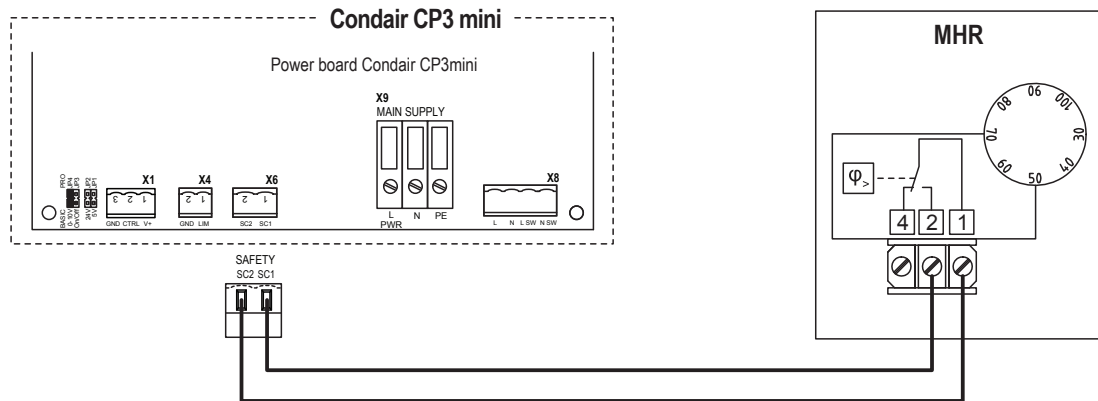
9.7.6 Connecting the MHR to the Condair SE

Connect the Condair MHR to the corresponding terminals of the terminal block of the Condair SE according to the following diagram.



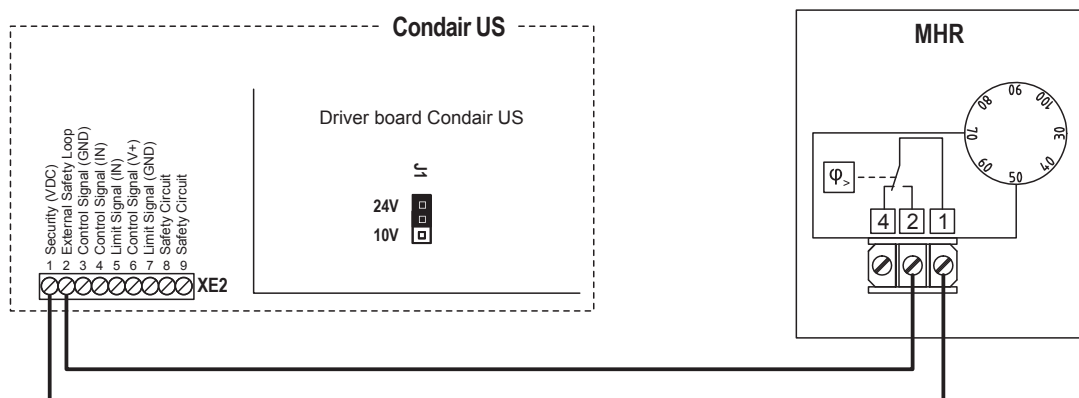
9.7.7 Connecting the MHR to the Condair CP3mini

Connect the Condair MHR to the corresponding terminals of the terminal block "X6" on the power board of the Condair CP3mini according to the following diagram.



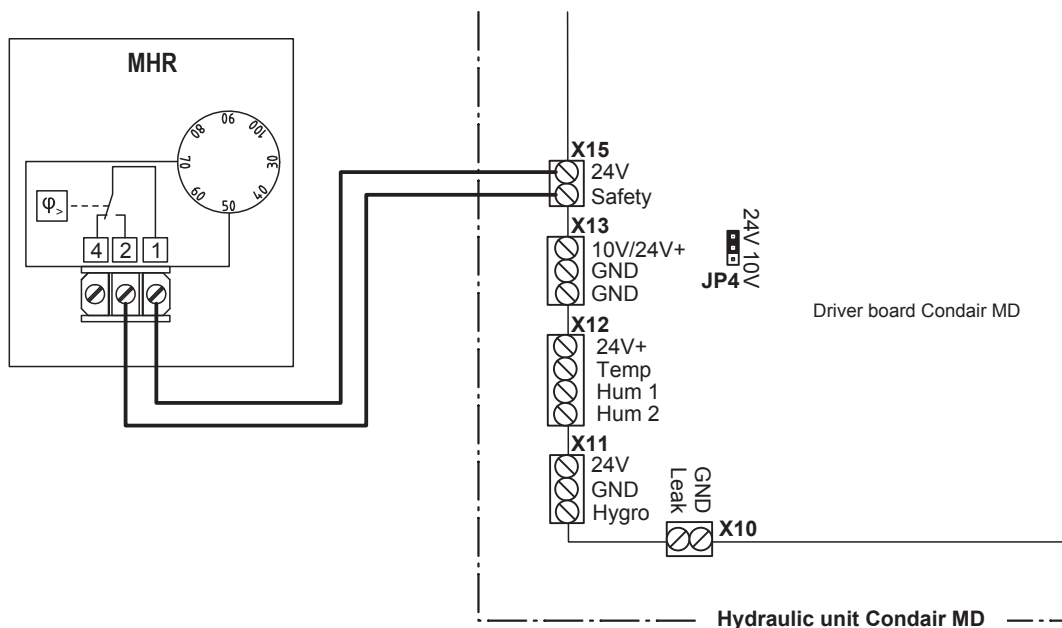
9.7.8 Connecting the MHR to the Condair US

Connect the Condair MHR to the corresponding terminals of terminal block "XE2" of the Condair US according to the following diagram.



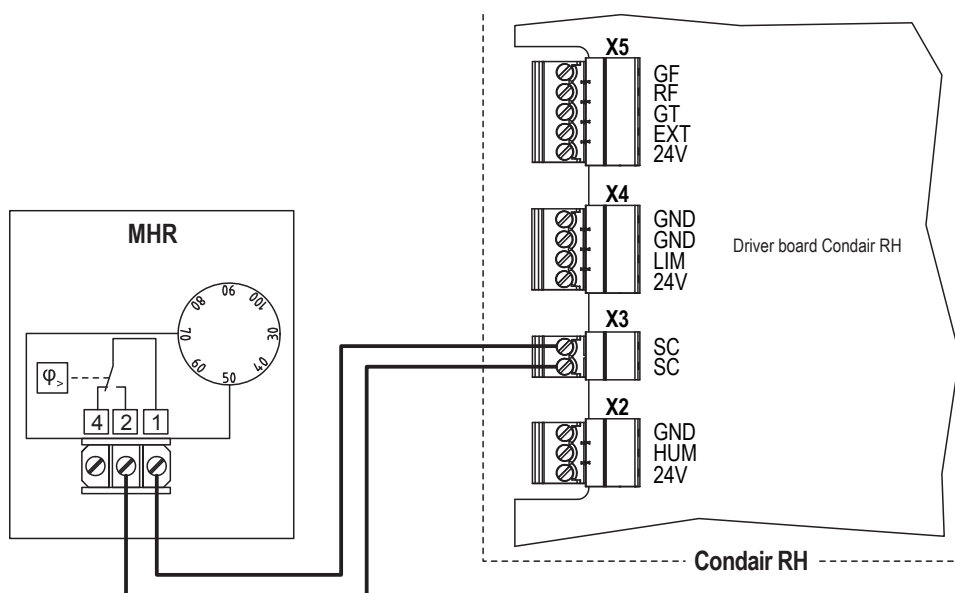
9.7.9 Connecting the MHR to the Condair MD

Connect the Condair MHR to the corresponding terminals on the driver board inside Condair MD hydraulic unit according to the following diagram.



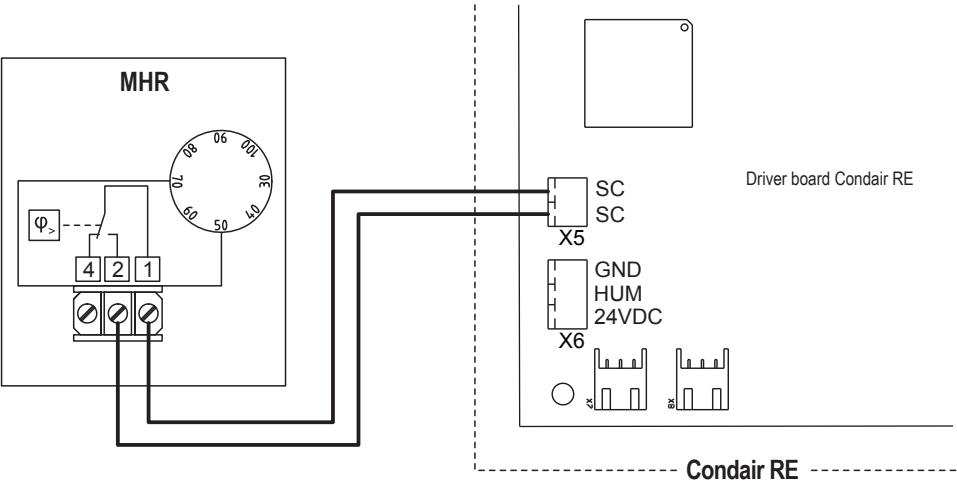
9.7.10 Connecting the MHR to the Condair RH

Connect the Condair MHR to the corresponding terminals on the driver board of the Condair RH according to the following diagram.



9.7.11 Connecting the MHR to the Condair RE

Connect the Condair MHR to the corresponding terminals on the driver board of the Condair RE according to the following diagram.



10 Condair CDA and CDA-S



10.1 Functional description

The duct air flow monitor CDA or CDA-S is used to monitor the air flow in ventilation ducts.

10.2 Safety

Please observe all local regulations concerning electrical installations.

The installation work must be performed only by **adequately qualified personnel (electrician or workman with equivalent training)**.

Warning - danger of electric shock! Before starting the installation work the unit to which the Condair CDA or CDA-S will be connected must be disconnected from the mains and may be reconnected to mains only after all installation work has been completed.

Warning! The electronic components inside the CDA and CDA-S and the humidifier are very susceptible to electrostatic discharges. For the protection of these components, measures must be taken during all installation work to prevent damage caused by electrostatic discharge (ESD-protection).

10.3 Delivery

The delivery includes:

- Duct air flow monitor Condair CDA or CDA-S including mounting flange
- Fixing material
- Installation manual

10.4 Mounting location

Mount the Condair CDA or CDA-S in the supply air duct at least 3 meters downstream from the nearest fan and coil and with a minimum distance of 5x the humidification distance to the steam distributor (see manual of the humidifier).

10.5 Installation

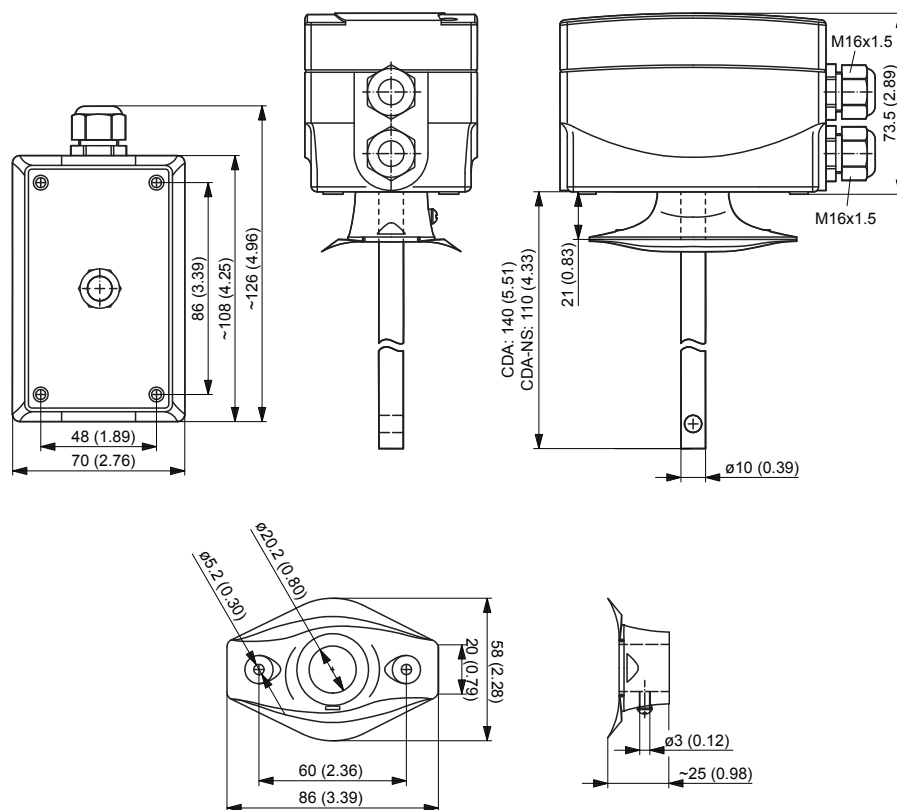
1. At the place of location drill a hole with a diameter of 16 mm (0.63") as well as 2 holes for the self tapping screws into the duct.
2. Loosen the two screws on the housing cover and remove cover.
3. Lead connecting cable through the cable gland and connect wires to the terminals according to the wiring diagram. Reattach the housing cover and secure it with the two screws.
4. Align the duct flange concentrically with the hole and fasten it to the duct with the self-tapping screws.
5. Push the sensor probe of the Condair CDA or CDA-S through the duct flange into the duct. Determine the insertion depth and fix it with the screw in the duct flange.
Important: The measuring opening in the protective tube must point in the direction of air flow.

10.6 Product specifications

10.6.1 Technical data

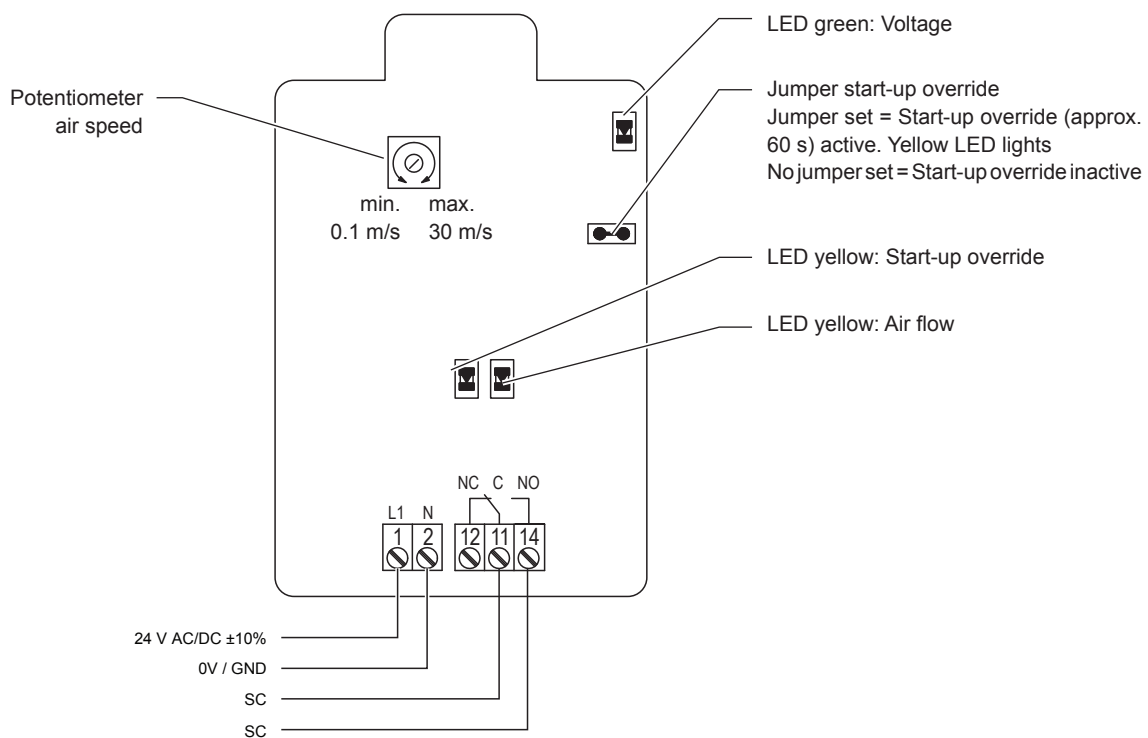
Power supply	24V AC/DC $\pm$ 10%
Output	1 potential-free relay (changeover contact), 8 A, max. 2 kW
Power consumption	approx. 3 VA
Measuring range	0,1...30 m/s
Switching point	Adjustable via potentiometer
Switching hysteresis	2 % (fixed set)
Signal indication	Voltage present: Green LED With air flow: Yellow LED Start-up override indication: Yellow LED
Start-up override	60 s (can be activated via jumper)
Permissible temperature of the medium	0...+80 °C
Permissible ambient temperature	0...+60 °C
Sensor	Sensor break protection, temperature compensated
Housing	Plastic, UV-resistant, material polyamide, 30% glass ball reinforced, color traffic white (similar to RAL 9016)
Protection tube	made of metal (nickel-plated brass), Ø 10 mm
Process connection	by means of PG7 mounting flange (included in delivery)
Connection cable	max. 50 m with a minimum cross-section of 1.5 mm ² per conductor; avoid parallel laying with lines carrying mains voltage or use shielded cables, connect the shield on one side.
Cable connection	Cable gland made of plastic (M 16 x 1.5; with strain relief, exchangeable, inner diameter 10.4 mm)
Electrical connection	0,25 - 2,5 mm ² , via screw terminals
Protection class	III (according to EN 60 730) at UB = 24 V
Degree of protection	Housing: IP 65 (according to EN 60 529) Sensor: IP 67 (according to EN 60 529)
Standards	CE conformity, EMC directive 2014/30/EU, Low Voltage Directive 2014/35/EU
Function	Contact 11 - 14 opens if there is no air flow Contact 11 - 12 closes if there is no air flow

10.6.2 Dimensions CDA or CDA-S



Dimensions in mm (inches)

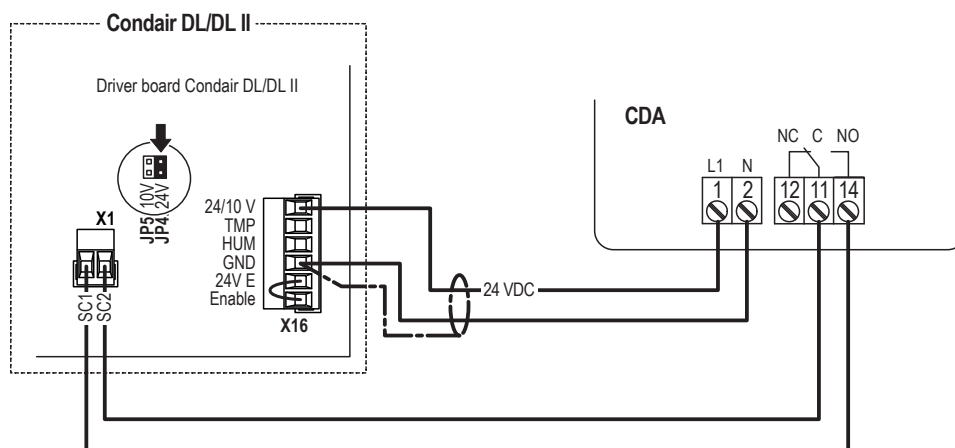
10.6.3 Wiring diagram/Configuration CDA or CDA-S



10.7 Connecting the CDA or CDA-S to Condair units

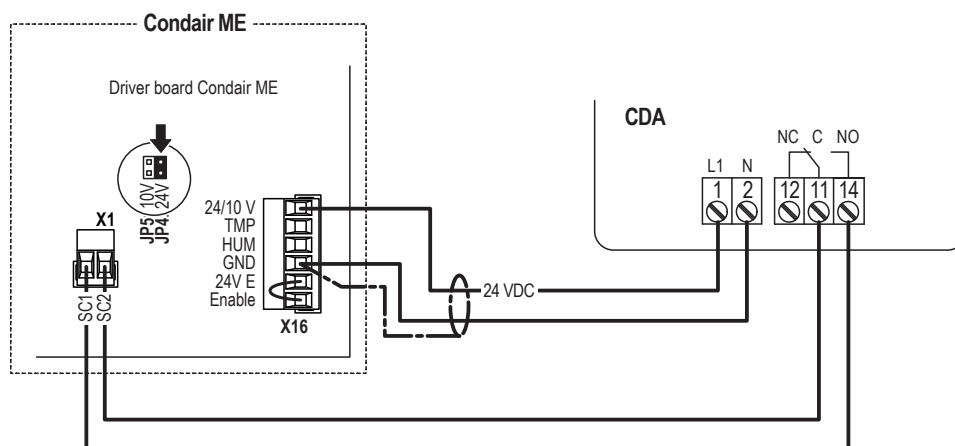
10.7.1 Connecting the CDA to the Condair DL/DL II

1. Connect the Condair CDA to the corresponding terminals on the driver board of the Condair DL/DL II according to the wiring diagram below.
Note: The voltage supply of the Condair CDA is established via the terminals "24/10V" and "GND" of the terminal block "X16" or via an external 24 V AC/DC voltage supply.
2. On the driver board of the Condair DL/DL II: set a Jumper on JP4-24V and remove the Jumper on JP5-10V (if a jumper is set).



10.7.2 Connecting the CDA to the Condair ME

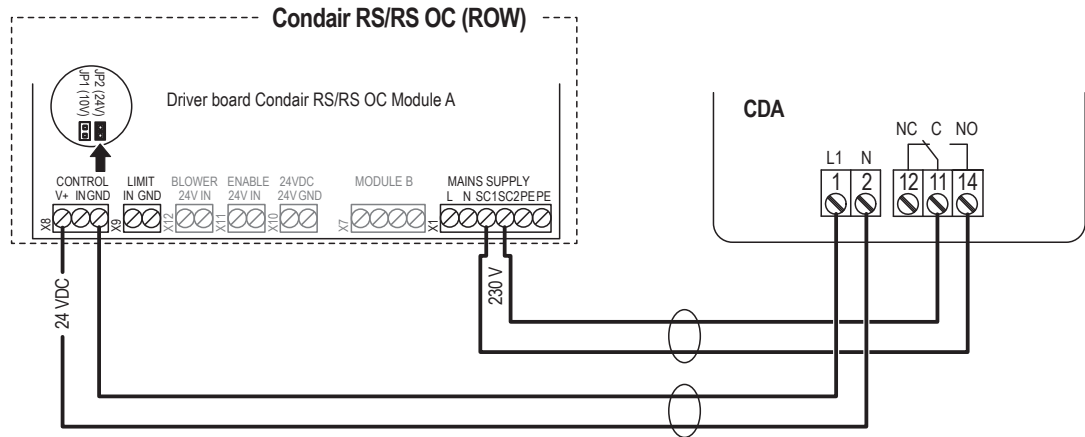
1. Connect the Condair CDA to the corresponding terminals on the driver board of the Condair ME according to the wiring diagram below.
Note: The voltage supply of the Condair CDA is established via the terminals "24/10V" and "GND" of the terminal block "X16" or via an external 24 V AC/DC voltage supply.
2. On the driver board of the Condair ME: set a Jumper on JP4-24V and remove the Jumper on JP5-10V (if a jumper is set).



10.7.3 Connecting the CDA to the Condair RS

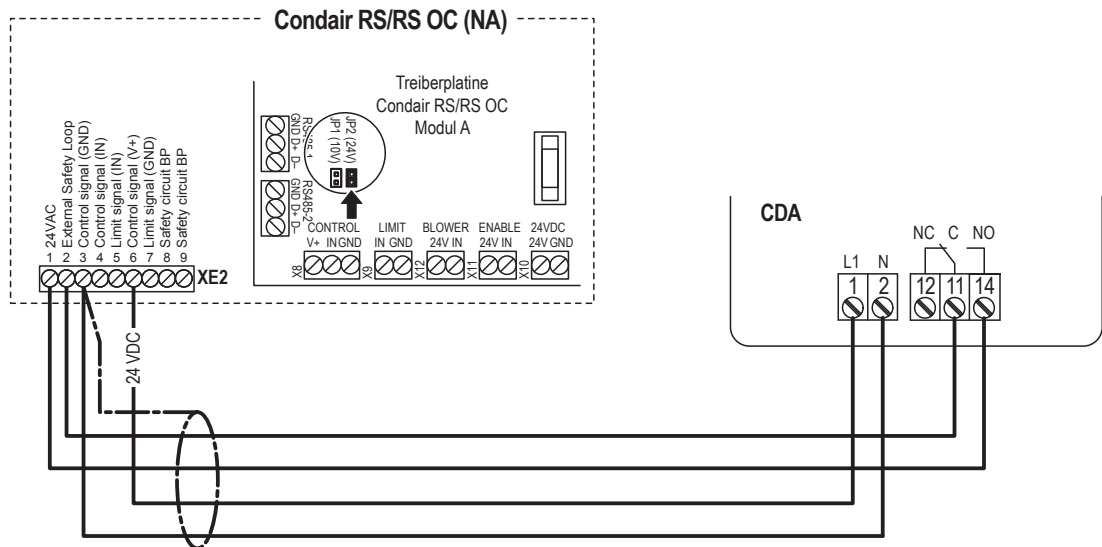
1. Connect the Condair CDA to the corresponding terminals on the driver board of the Condair RS/RS OC (ROW) according to the wiring diagram below.

Important: It is **mandatory to use two separate 2-wires cables** to connect the Condair CDA to the safety loop terminals (230 V) and to the voltage supply terminals (24 V DC) on the driver board.
Note: The voltage supply of the Condair CDA is established via the terminals "V+" and "GND" of the terminal block "X8" or via an external 24 V AC/DC voltage supply.



Connect the CDA to the appropriate terminals of the terminal block "XE2" of the Condair RS/RS OC (NA) according to the following diagram.

Note: The voltage supply of the CDA is established via the terminals "Control Signals (V+)" and "Control Signals (GND)" of terminal block "XE2" or via an external 24 V AC/DC voltage supply.

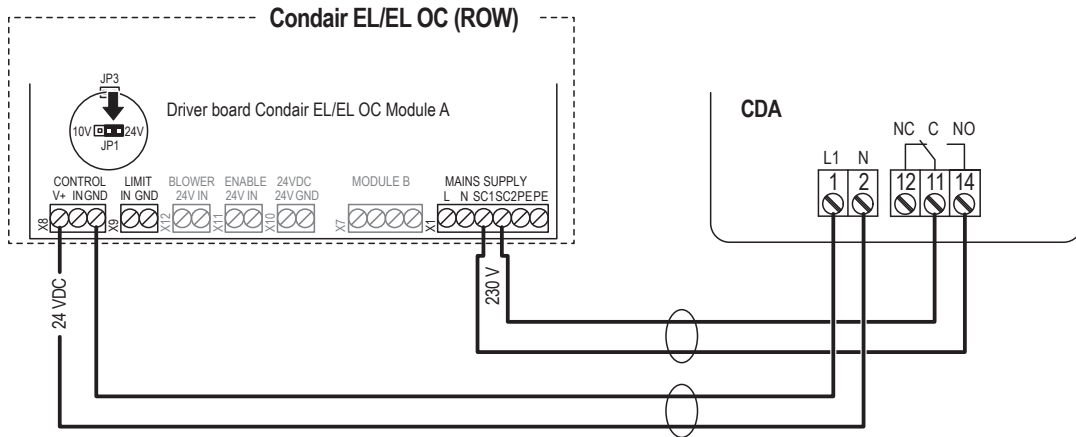


2. Set a jumper on JP2 (24V) on the driver board of the Condair RS/RS OC and remove the jumper on JP1 (10V), if present.

10.7.4 Connecting the CDA to the Condair EL

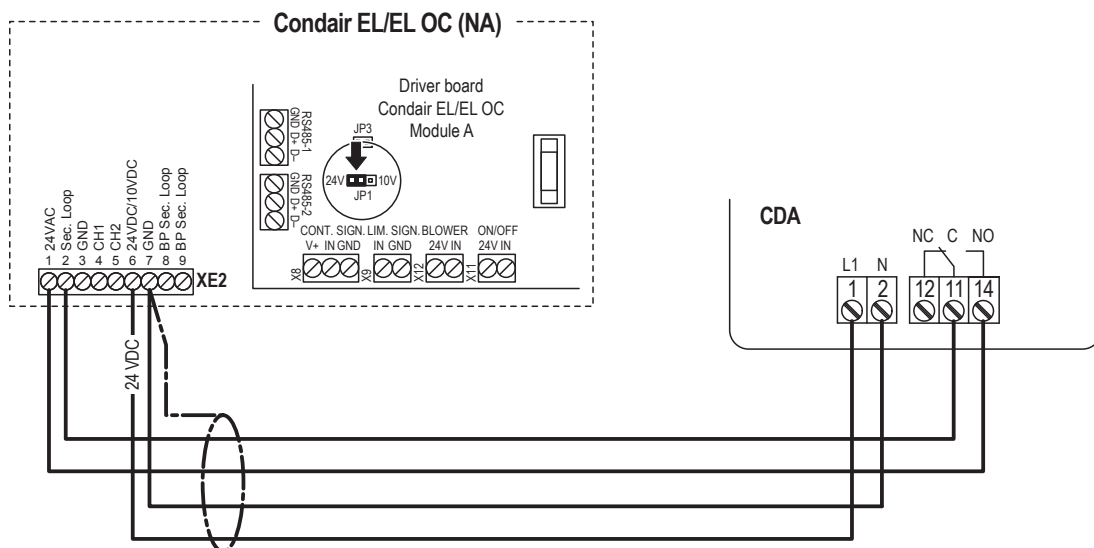
1. Connect the Condair CDA to the corresponding terminals on the driver board of the Condair EL/EL OC (ROW) .

Important: It is **mandatory to use two separate 2-wires cables** to connect the Condair CDA to the safety loop terminals (230 V) and to the voltage supply terminals (24 V DC) on the driver board.
Note: The voltage supply of the Condair CDA is established via the terminals "V+" and "GND" of the terminal block "X8" or via an external 24 V AC/DC voltage supply.



Connect the CDA to the appropriate terminals of the terminal block "XE2" of the Condair EL/EL OC (NA) according to the following diagram.

Note: The voltage supply of the CDA is established via the terminals "24VDC/10VDC" and "GND" of terminal block "XE2" or via an external 24 V AC/DC voltage supply.

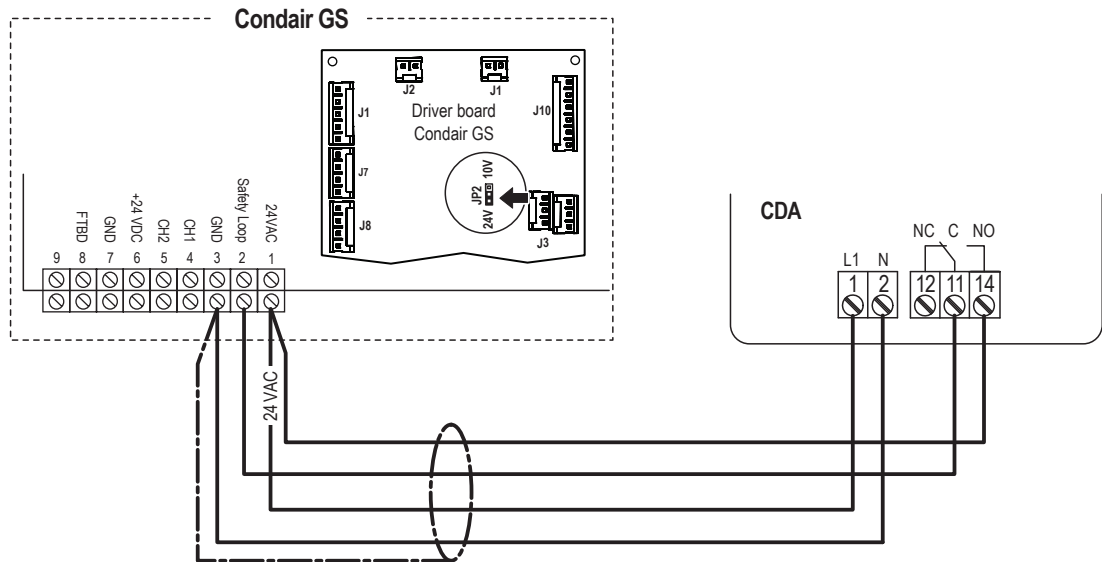


2. Set a jumper on JP1-24V on the driver board of the Condair EL/EL OC.

10.7.5 Connecting the Condair CDA to the Condair GS

1. Connect the Condair CDA to the corresponding terminals of the terminal block of the Condair GS according to the wiring diagram below.

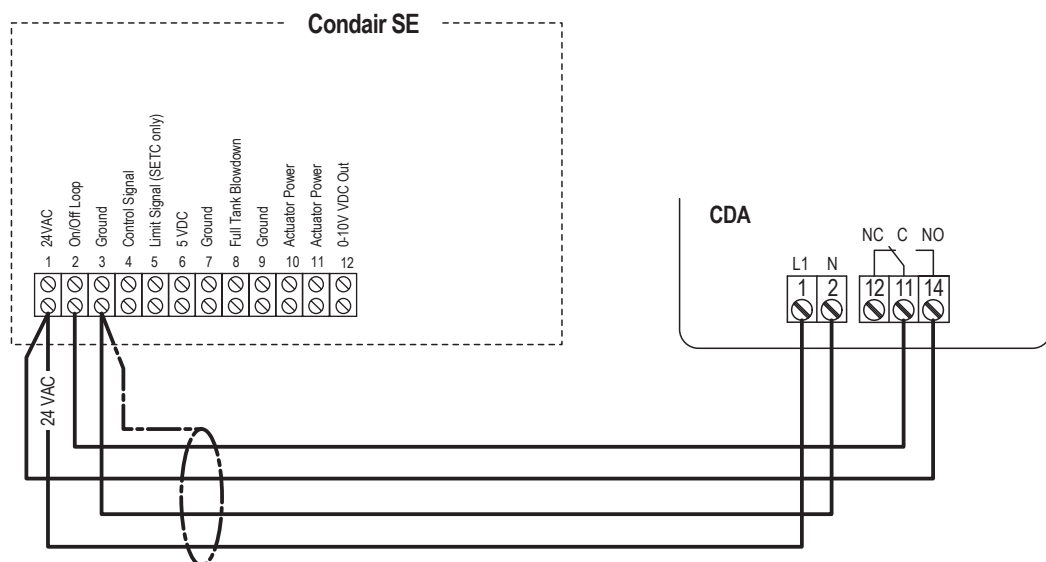
Note: The voltage supply of the Condair CDA is established via the terminals "24 VAC" and "GND" of the terminal block or via an external 24 V AC/DC voltage supply.



10.7.6 Connecting the CDA to the Condair SE

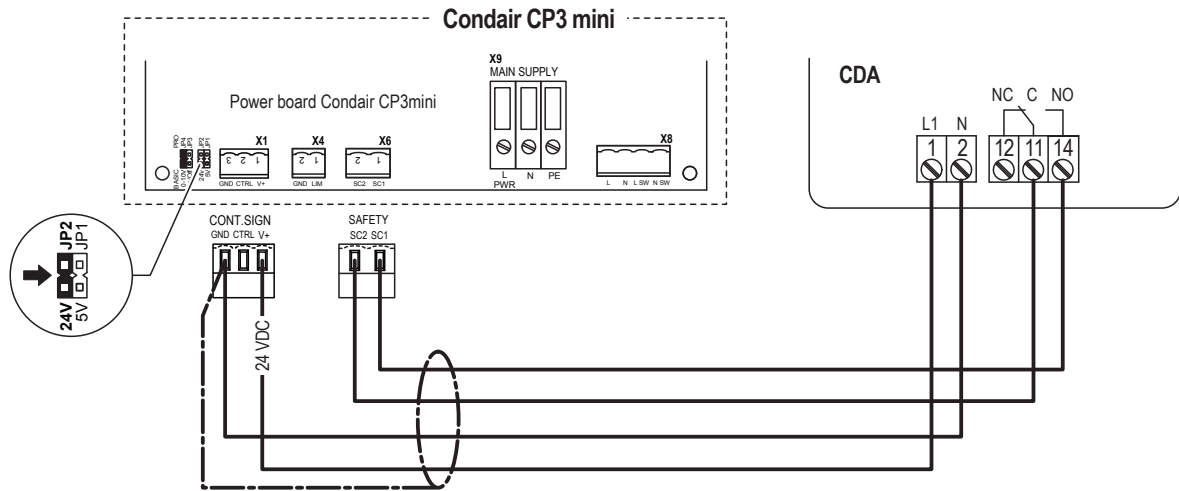
1. Connect the Condair CDA to the corresponding terminals of the terminal block of the Condair SE according to the wiring diagram below.

Note: The voltage supply of the Condair CDA is established via the terminals "24 VAC" and "GND" of the terminal block or via an external 24 V AC/DC voltage supply.



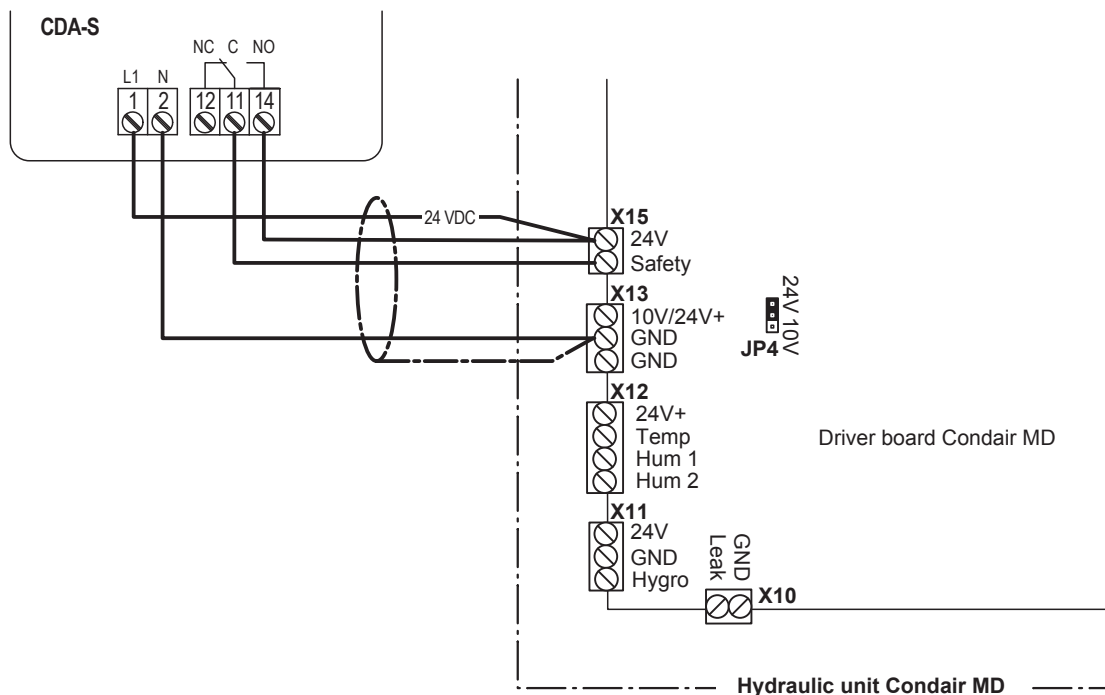
10.7.7 Connecting the CDA to the Condair CP3mini

1. Connect the Condair CDA to the corresponding terminals on the power board of the Condair CP3mini according to the wiring diagram below.
Note: The voltage supply of the Condair CDA is established via the terminals "V+" and "GND" of terminal block "X1" or via an external 24 V AC/DC voltage supply.
2. On the power board of the Condair CP3mini: set a Jumper on JP2-24 V and remove the Jumper on JP1-5V (if a jumper is set).



10.7.8 Connecting the CDA-S to the Condair MD

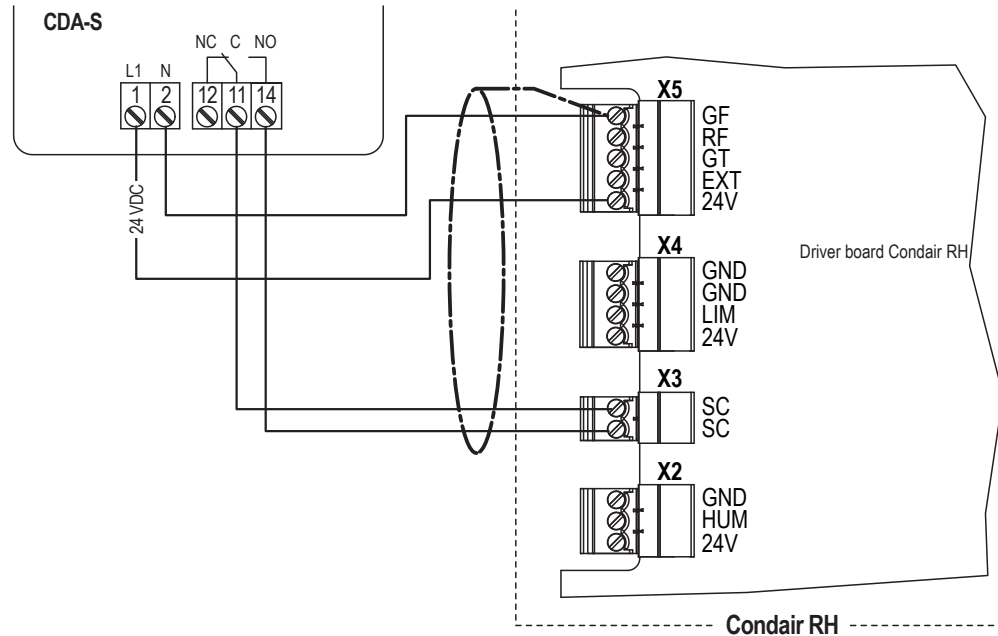
1. Connect the Condair CDA-S to the corresponding terminals on the driver board of the Condair MD according to the wiring diagram below.
Note: The voltage supply of the Condair CDA-S is established via the terminals "24V" of terminal block "X15" and "GND" of terminal block "X13" or via an external 24 V AC/DC voltage supply.
2. Set a jumper on JP4-24V on the driver board of the Condair MD.



10.7.9 Connecting the CDA-S to the Condair RH

1. Connect the Condair CDA-S to the corresponding terminals on the driver board of the Condair RH according to the wiring diagram below.

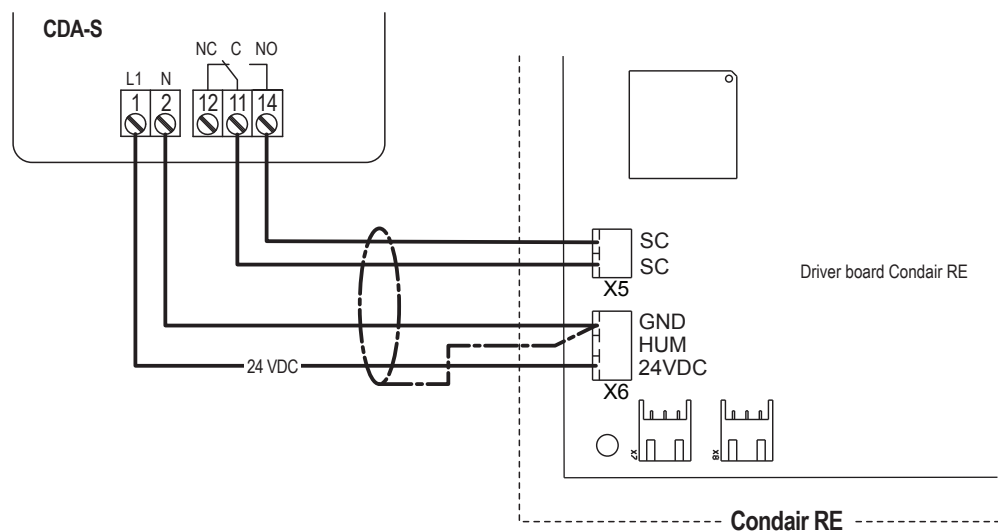
Note: The voltage supply of the CDA-S is established via the terminals "24V" and "GND" of terminal block "X4" or via an external 24 V AC/DC voltage supply.



10.7.10 Connecting the CDA-S to the Condair RE

1. Connect the Condair CDA-S to the corresponding terminals on the driver board of the Condair RE according to the wiring diagram below.

Note: The voltage supply of the CDA-S is established via the terminals "24VDC" and "GND" of terminal block "X6" or via an external 24 V AC/DC voltage supply.



11 Condair APS and APS-NA



11.1 Functional description

The mechanical differential pressure switch Condair APS or APS-NA is used for pressure monitoring in ventilation ducts

11.2 Safety

Please observe all local regulations concerning electrical installations.

The installation work must be performed only by **adequately qualified personnel (electrician or workman with equivalent training)**.

Warning - danger of electric shock! Before starting the installation work the unit to which the Condair APS or APS-NA will be connected must be disconnected from the mains and may be reconnected to mains only after all installation work has been completed.

Warning! The electronic components inside the Condair APS and APS-NA and the humidifier are very susceptible to electrostatic discharges. For the protection of these components, measures must be taken during all installation work to prevent damage caused by electrostatic discharge (ESD-protection).

11.3 Delivery

The delivery includes:

- Differential pressure switch Condair APS or APS-NA
- Fixing material
- Installation manual

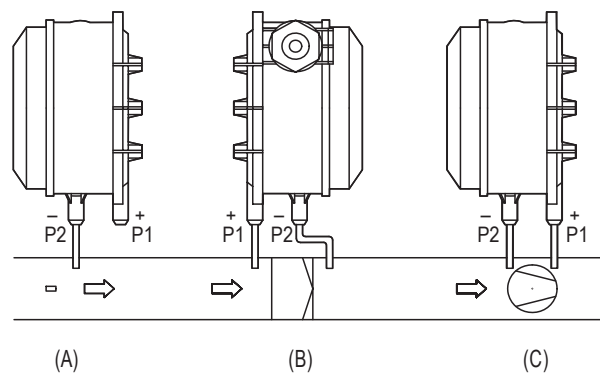
11.4 Mounting location

Mount the Condair APS or APS-NA close to the or the pressure measurement connectors in a protected and easy accessible place on the wall. Observe the following placement note:

- Do not place the Condair APS or APS-NA near heat sources, within the area with direct air draft or direct sunlight.

11.5 Installation

1. Mount the mounting ring to the desired location on the wall with four screws (see dimensional drawing).
2. Snap the Condair APS or APS-NA into the mounting ring with the snap ring.
3. Loosen the snap-on cover of the Condair APS or APS-NA and remove the cover.
4. Lead connecting cable through the cable gland into the housing and connect wires to the terminals according to the wiring diagram. .
5. Carefully attach the snap-on cover to the mounting plate.
6. Connect the measurement connection or measurement connections in the duct to the Condair APS or APS-NA using the hose supplied in accordance with the desired monitoring type (see figure below).



Monitoring types:

(A) Negative pressure:

- P1 (+) is not connected, is open to the atmosphere on the air side
- P2 (-) Connection in the duct

(B) Filter:

- P1 (+) Connection before the filter
- P2 (-) Connection after the filter

(C) Fan:

- P1 (+) Connection after the fan
- P2 (-) Connection before the fan

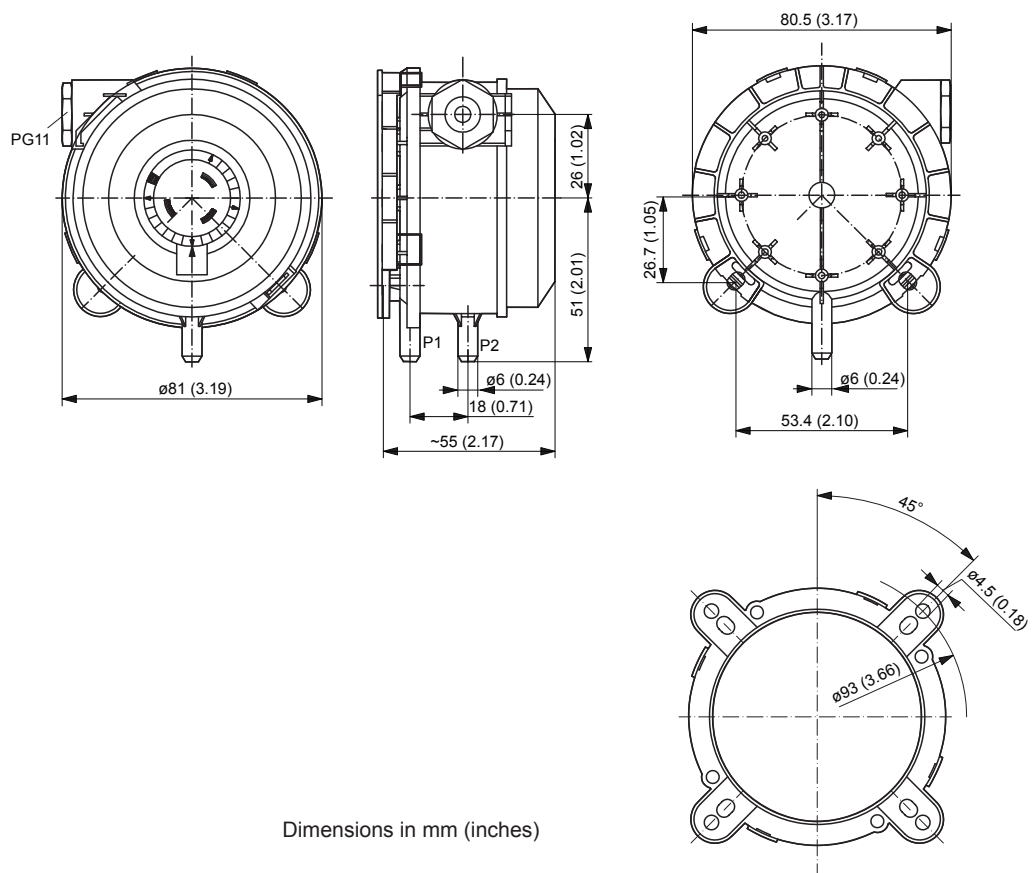
Note: The pressure connections are marked on the differential pressure switch with "P1 (+)" higher pressure and "P2 (-)" lower pressure.

11.6 Product specifications

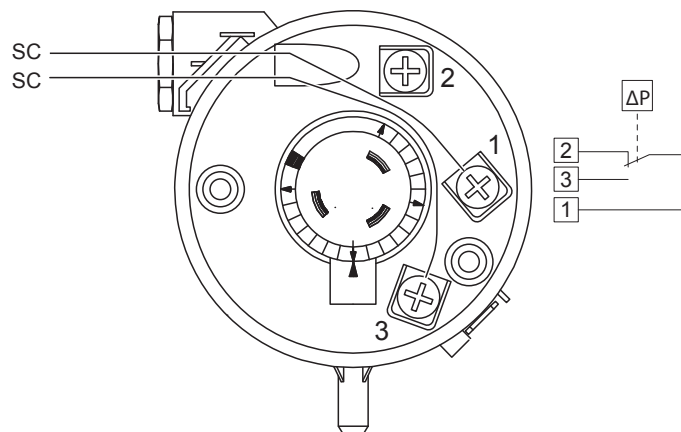
11.6.1 Technical data

Switching loads (contact load)	5 (0,8) A; 250 V AC 4 (0,7) A, 30 V DC
Contact	single-pole potential-free changeover switch (changeover contact), gold-plated multilayer contact (suitable for DDC)
Pressure range (adjustable)	20...300 Pa (0.2...3.0 mbar), 0.08...1.206 inch WC high setting accuracy through individual scale engraving per switch
Pressure difference	0.1 mbar $\pm$ 15 %, 0.4 inch WC $\pm$ 15 %
Max. pressure	5000 Pa (50 mbar), 20.09 inch WC
Housing	Lower part: material PC (10% GF), color light gray (similar to RAL 7035) Snap-on cover: Material PC, transparent, Cable gland PG 11, with strain relief
Medium temperature	-30...+85 °C
Membrane	Silicone, LSR (Liquid Silicon Rubber, tempered at +200 °C, outgassing-free, PWIS-free, no emission of substances that interfere with the wetting of paintwork), long-term stable switching points thanks to a trapezoidal bead membrane
Permissible humidity	< 90 %rH, not condensing
Electrical connection	0,14 - 1,5 mm ² , via twist-proof screw terminals
Pressure connection	with connector for pressure hose Ø 6 mm
Fastening	with 4-hole plastic foot (included in delivery)
Recommendation of the installation position	vertical (pressure connections downwards) - factory adjustment; horizontal (hood up/down)
Protection class	II (according to EN 60 730)
Degree of protection	IP 54 (according to EN 60529) with hood
Standards	Standards: CE conformity, Low Voltage Directive 2014/35/EU
Tests	DVGW (according to DIN 1854), VDE 0630, EN 61058, Gas Appliances Directive 2009/142/EU, CE 0085 A P 0918
Function	Contact 1 - 2 opens in case of a pressure/differential pressure rise to the set value. Contact 1 - 3 closes in case of a pressure/differential pressure drop and can be used as a signal contact.

11.6.2 Dimensions APS or APS-NA



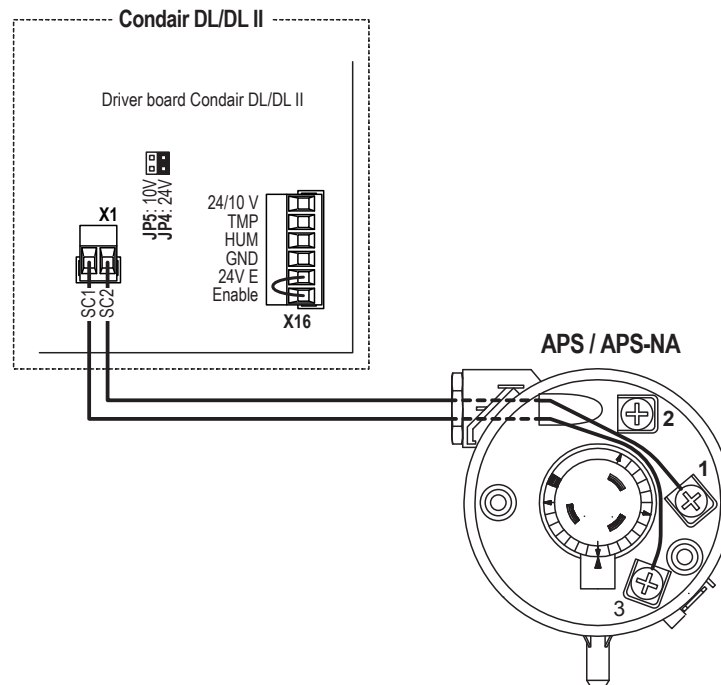
11.6.3 Wiring diagram APS or APS-NA



11.7 Connecting the APS or APS-NA to Condair units

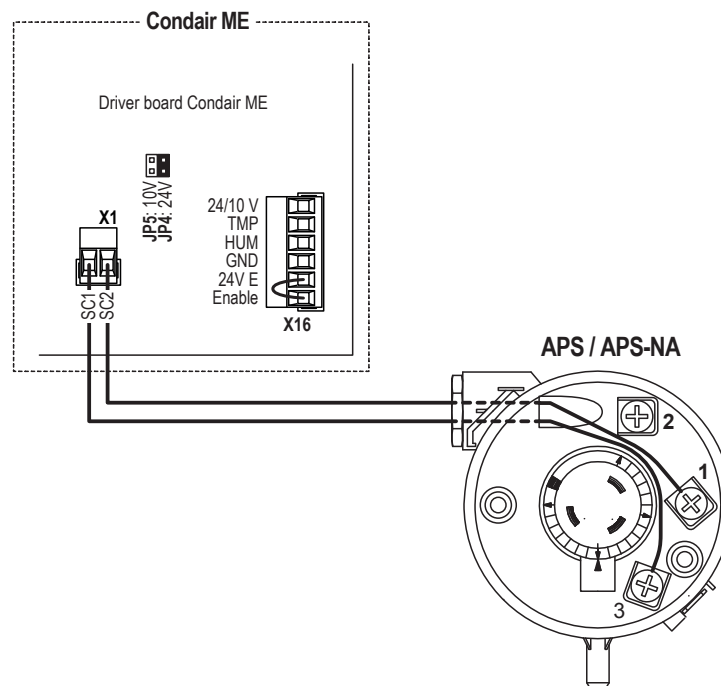
11.7.1 Connecting the APS or APS-NA to the Condair DL/DL II

Connect the Condair APS or APS-NA to the corresponding terminals on the driver board of the Condair DL/DL II according to the following diagram.



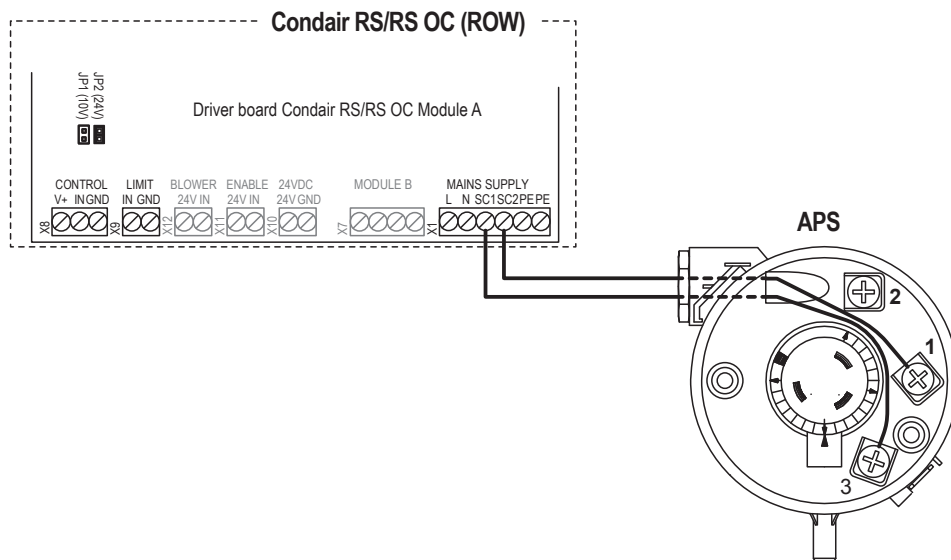
11.7.2 Connecting the APS or APS-NA to the Condair ME

Connect the Condair APS or APS-NA to the corresponding terminals on the driver board of the Condair ME according to the following diagram.

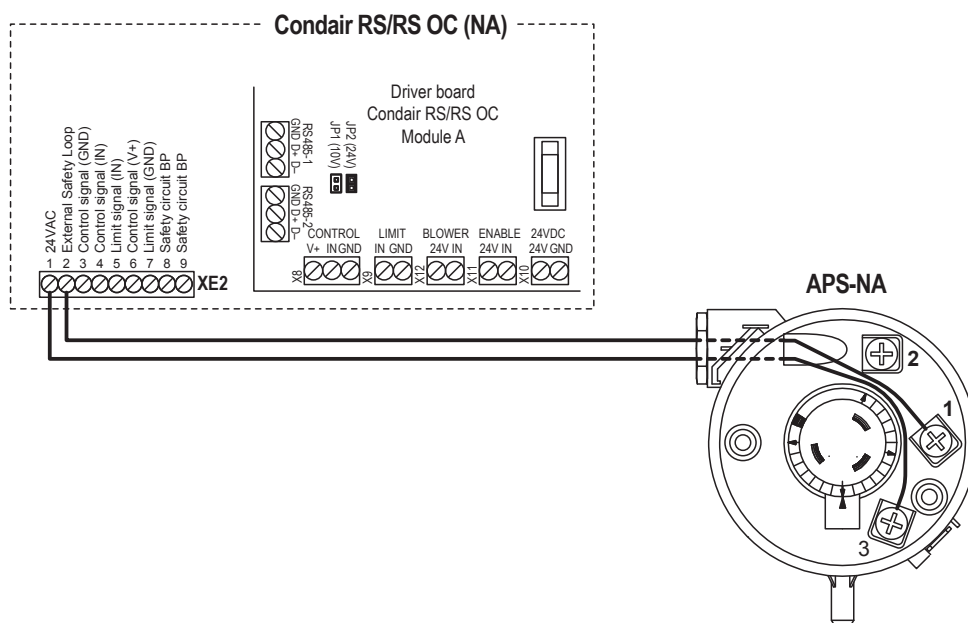


11.7.3 Connecting the APS or APS-NA to the Condair RS

Connect the APS to the corresponding terminals on the driver board of the Condair RS/RS OC (ROW) according to the following diagram.

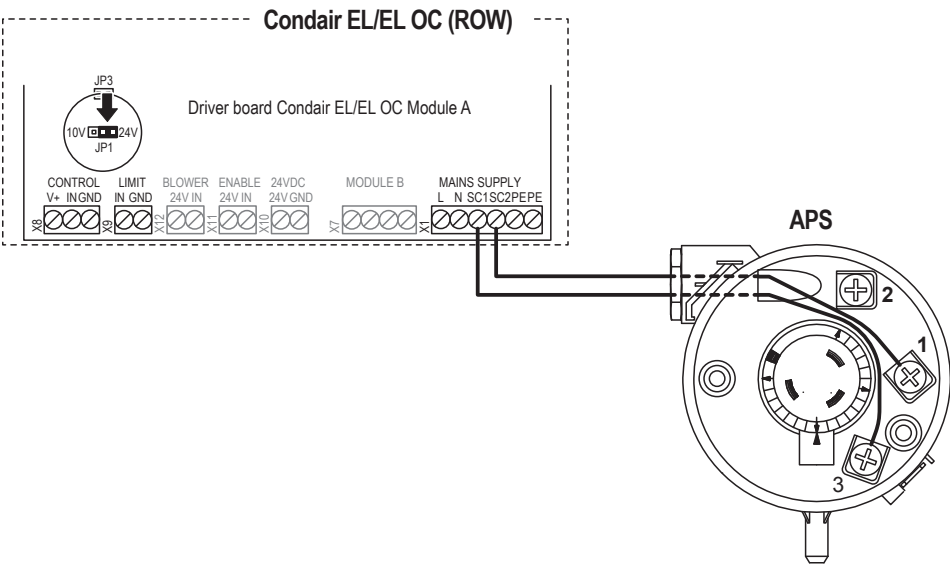


Connect the APS-NA to the corresponding terminals of terminal block "XE2" of the Condair RS/RS OC (NA) according to the following diagram.

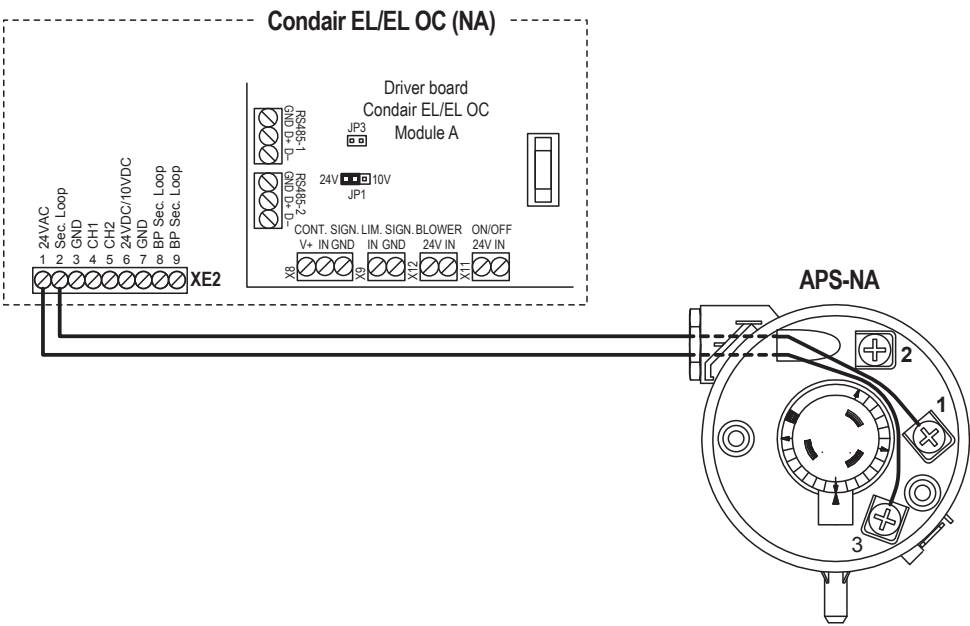


11.7.4 Connecting the APS or APS-NA to the Condair EL

Connect the APS to the corresponding terminals on the driver board of the Condair EL/EL OC (ROW) according to the following diagram.

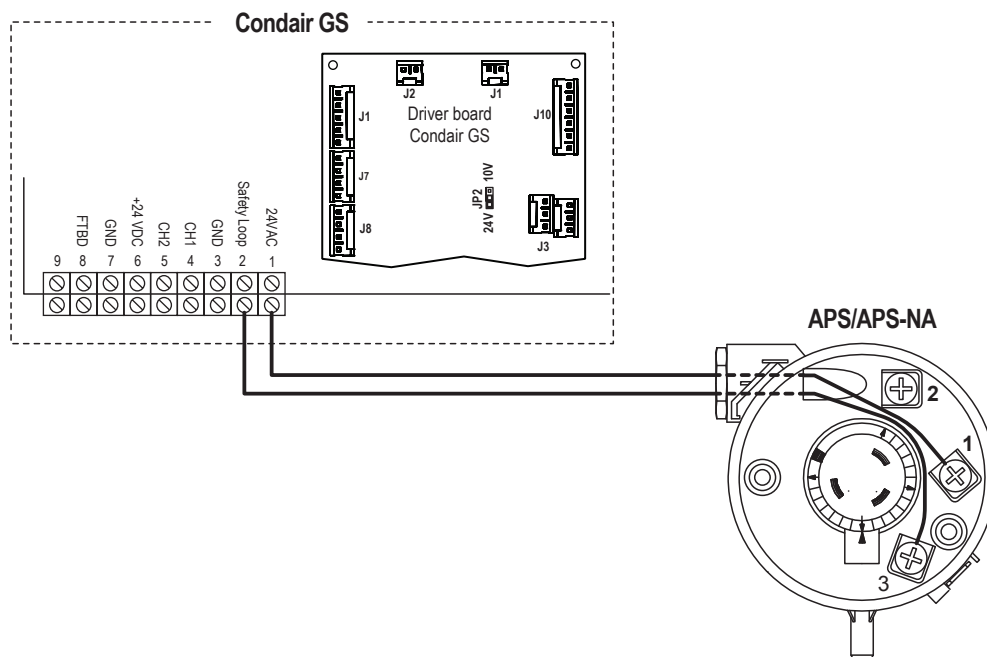


Connect the APS-NA to the corresponding terminals of terminal block "XE2" of the Condair EL/EL OC (NA) according to the following diagram.



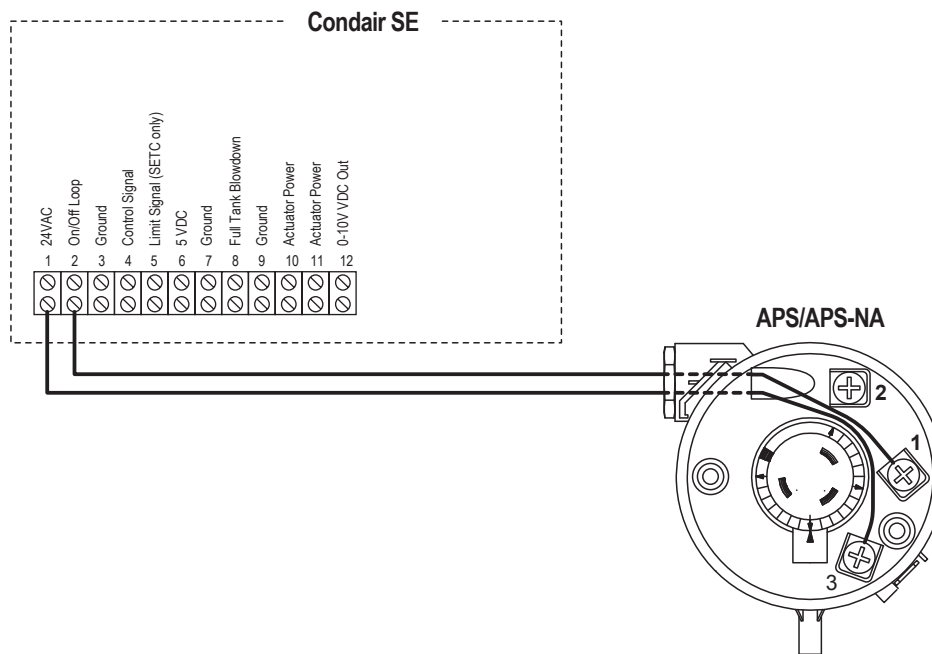
11.7.5 Connecting the APS or APS-NA to the Condair GS

Connect the Condair APS or APS-NA to the corresponding terminals on the terminal block of the Condair GS according to the following diagram.



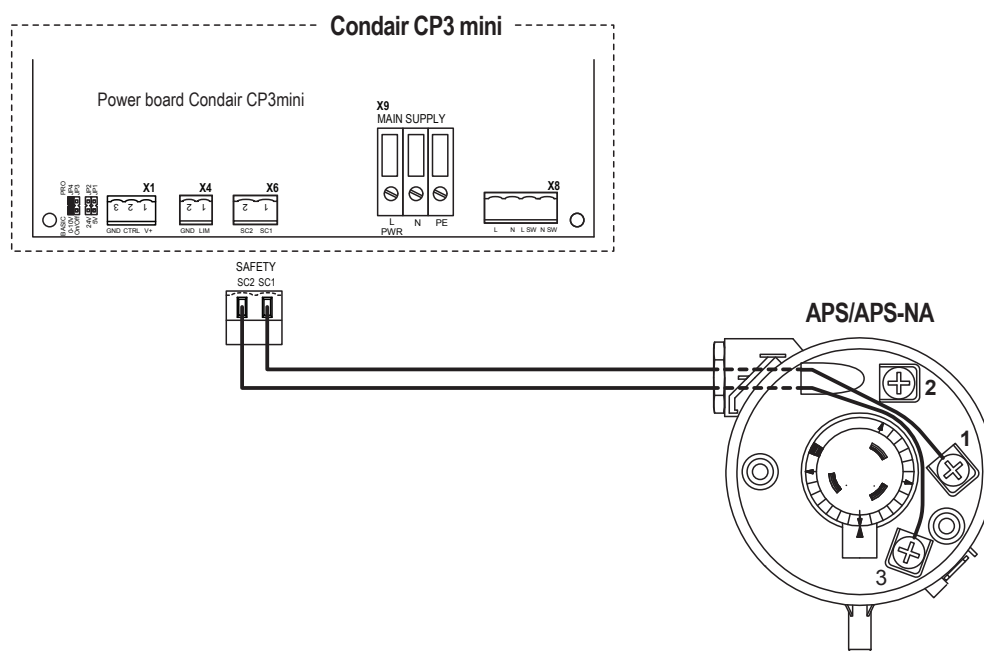
11.7.6 Connecting the APS or APS-NA to the Condair SE

Connect the Condair APS or APS-NA to the corresponding terminals on the terminal block of the Condair SE according to the following diagram.



11.7.7 Connecting the APS or APS-NA to the Condair CP3mini

Connect the Condair APS or APS-NA to the corresponding terminals on the power board of the Condair CP3mini according to the following diagram.



Notes

Notes

CONSULTING, SALES AND SERVICE:



CH94/0002.00

Condair Group AG
Gwattstrasse 17, 8808 Pfäffikon SZ, Switzerland
Phone +41 55 416 61 11, Fax +41 55 588 00 07
info@condair.com, www.condairgroup.com

