

INSTALLATION MANUAL

Condair HumiLifeWhole-home Steam Humidifier



Cautions and Warnings



CAUTION: Servicing

- The unit is mains powered. Disconnect main power before any servicing.
- Electrical compartment contains high voltage components. Access should be limited to authorized personnel only.
- The unit is hot. Wait for the unit to drain and cool before servicing. During and following operation of the humidifier, the steam and components in contact with the steam such as the steam lines, steam distributors, and condensate lines can become hot and can burn if touched.
- Condair does not accept any liability for installations of humidity equipment installed by unqualified personnel, or the use of parts, components, or equipment that are not authorized or approved by Condair.



CAUTION: Electrical

- All electrical work should be done according to all applicable local and national codes.
- Electrical connection to be performed by a licensed electrician.



CAUTION: Plumbing

- (Recommended) Plumbing to be performed by a licensed plumber.
- Drain water from the humidifier can be very hot. Drain to an appropriate floor drain.
- All plumbing work should be done according to local plumbing code.



CAUTION: Installation

- Do NOT mount in area where freezing can occur.
- Do NOT mount on vibrating surface.
- Do NOT mount on the floor.
- Do NOT block the steam outlet.
- (Recommended) Install an air proving switch.
- Do install steam lines to prevent any restrictions that may cause back-pressure in the humidifier.
- Ensure furnace fan is operating while the humidifier is generating steam.
- Keep out of reach of children.

Contents

Cautions and Warnings	2
Contents	3
Receiving and Storage	4
Inspection	4
Storage, Packaging, and Transportation	4
Product Overview	5
Description	6
Principle of Operation	6
Specifications	7
Dimensions	7
Installation Instructions	8
Installing the Steam Distributor	10
Location and Clearances (remote installation)	10
Installing the Steam Distributor	10
Mounting the Humidifier	12
Location and Clearances	12
Mounting Procedure	12
Installing the Steam Line	14
Installing the Condensate Return	15
Water Supply Connection	16
Drain Connection	17
Electrical Connection	18
Controls	19
Wiring Diagram	21
CDC-SL Control Wiring With Furnace Connection	22
CDC-SL Control Wiring Without Furnace Connection	23
CHD-NA Control Wiring With Furnace Connection	24
CHD-NA Control Wiring Without Furnace Connection	25
Connecting to Condair HumiLife	26
Downloading Condair HumiLife	26
Connecting to Condair HumiLife	26

Receiving and Storage

Inspection

After receiving the shipment, inspect the goods as follows:

- Inspect the shipping boxes for damage. Report any shipping box damages to the shipping company without delay.
- Check the goods against the packing slip to ensure that all items have been delivered. Report any shortages to Condair within 48 hours of receipt of the goods. Condair does not assume responsibilities for any shortages beyond this period.
- Unpack the parts/components and check for any damage. If parts/components are damaged, notify the shipping company immediately.
- Verify the model type on the specification label to ensure that it is suitable for your installation.

Storage, Packaging, and Transportation

Storage

Store the Condair HumiLife RH in its original packaging inside a protected area that meets the following requirements until it is installed, or if it needs to be stored for an extended period of time:

- Room temperature: 41 to 104 °F (5 to 40 °C)
- Room humidity: 10 to 75% RH (non-condensing)

Transportation

For optimum protection always transport the unit and components in their original packaging.

Packaging

Keep the original packaging of the unit/components for later use.

If the packaging needs to be disposed, observe local regulations on waste disposal. Please recycle packaging where possible.

Product Overview

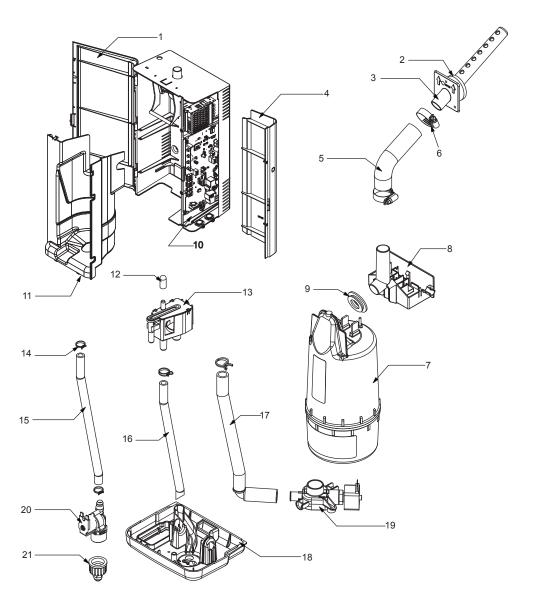


Figure 1 - Condair RH Humidifier Components

1	Plumbing door	8	Steam receptacle	15	Water supply hose
2	Gasket, steam distributor	9	Gasket, steam cylinder	16	Overflow hose
3	Steam distributor	10	Driver board	17	Drain hose
4	Electrical door	11	Plumbing cover	18	Drain pan
5	Steam hose	12	Condensate return cap	19	Drain valve
6	Steam hose clamp	13	Fill cup	20	Fill valve
7	Steam cylinder	14	Hose clip	21	Adapter, quick connect

Description

The Condair HumiLife RH is a residential steam humidifier designed by Condair. It is designed to provide steady, clean humidification for the home, and is designed to connect to a supply air duct. The humidifier may be mounted directly onto the duct, or remotely with connected steam hoses and distributor.

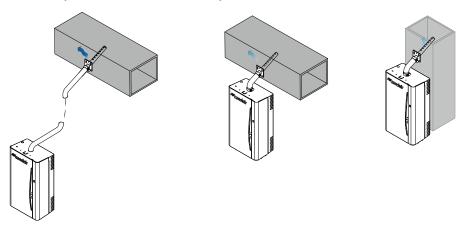


Figure 2 - Condair RH Humidifier Duct and Remote Installations

Principle of Operation

The Condair HumiLife RH is an atmospheric steam generator that uses heat generated by an electrical current flowing between submerged electrodes to generate steam.

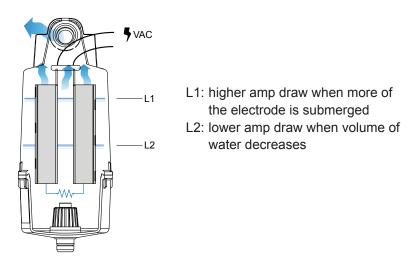


Figure 3 - Principle of Operation

Increasing the water level submerges the electrodes. This increases the current draw at the electrodes. Increasing the concentration of minerals in the water increases the current draw of the electrodes. Increasing the current draw increases steam production.

High concentration of minerals in the water over time forms scale on the electrodes. This reduces the effective area for the electrodes and reduces steam output. To maintain the desired current draw, the cylinder automatically fills with water (submerging more of the electrode), or allows the water to boil off.

Specifications

Table 1: Specifications

Model	Nominal capacity gpd / kg/h / lb/h	Voltage V	Power kW	Current A (MCA)	Phase, Frequency	Max. external fuse A (MOCP)
Condair RH - NAP, 22	11 / 1.8 / 3.9	110-120	1.4	12.0	Phase 1, 50/60 Hz	15
	19 / 3.0 / 6.7	208	2.5			
	22 / 3.6 / 7.8	220-240	2.9			

Dimensions

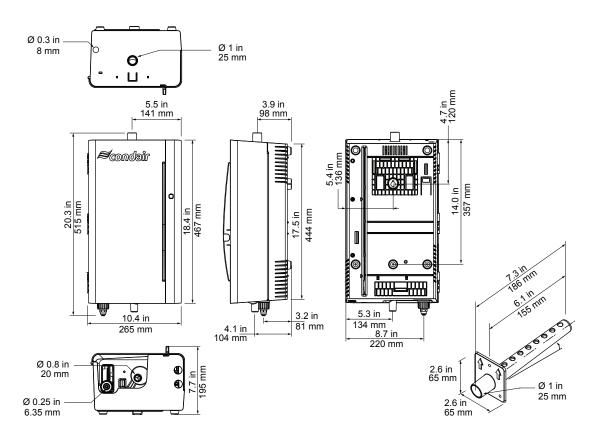


Figure 4 - Dimensions

Installation Instructions

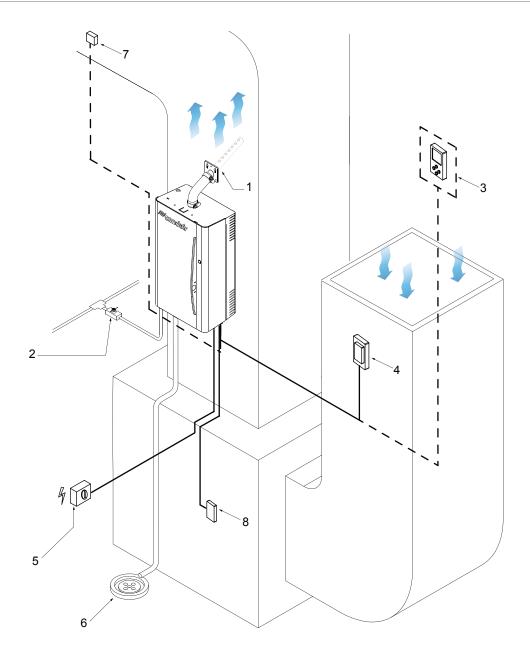


Figure 5 - Installation Overview (Furnace)

- 1 Steam distributor
- 2 Water shut off valve (not supplied)
- 3 On/Off wall humidistat *
- 4 Relative humidity (RH) duct sensor *
- 5 Electrical disconnect switch (not supplied)
- 6 Drain (not supplied)
- * only an on/off humidistat (not supplied) OR RH sensor (supplied) should be installed.
- 7 High limit sensor (optional)
- 8 Fan enable/activation

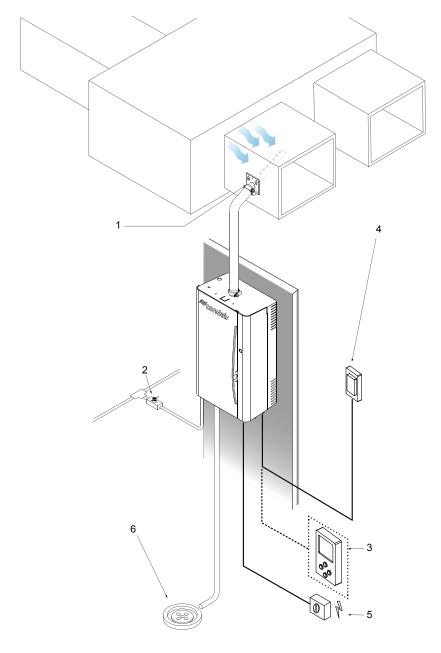


Figure 6 - Installation Overview (HRV)

1 Steam distributor

- 3 Relative humidity (RH) duct sensor *
- 2 Water shut off valve (not supplied)
- 4 On/Off wall humidistat *
- 5 Electrical disconnect switch (not supplied)
- 6 Drain (not supplied)
- * only an on/off humidistat (not supplied) OR RH sensor (supplied) should be installed.

Installing the Steam Distributor

The Condair HumiLife RH can be installed directly onto the duct system or remotely, with the installation of a steam distributor (including steam lines) to the duct. The installation of the steam distributor (and steam line) will determine the appropriate location for mounting the humidifier.

Condensate returns to the unit via steam line. In some cases, a separate condensate line from the steam distributor may be required. The condensate line would connect to the top of the fill cup inside the unit, or to a high temperature condensate pump.

Location and Clearances (remote installation)

Vertical ducts:

- Place the steam distributor half-way between sides of the duct. Ensure the air flow and the steam distributor openings are directed upwards.
- Minimum duct width: 8 in (204 mm).

Horizontal ducts:

The steam distributor can be installed on the side of the duct.

- When installed at the side of the duct, ensure that the distributor is located at least 2/3 ductheight from the top.
- Minimum duct height: 8 in (204 mm).

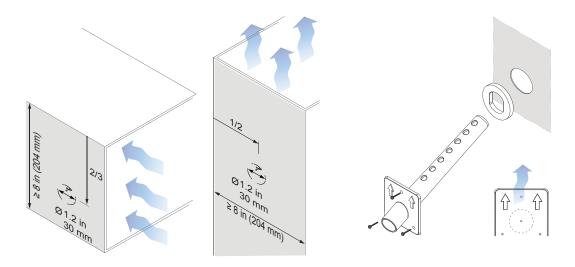


Figure 7 - Installing the Steam Distributor

Installing the Steam Distributor

- 1. Find a suitable location for the steam distributor. Create a 1.18 in (30 mm) hole in the duct.
 - For horizontal ducts, cut the hole at roughly 2/3 of duct height, from the top.
 - For vertical ducts, cut the hole halfway between the two sides of the duct.
- 2. Place a gasket (supplied) over the steam distributor and insert the distributor into the duct. Ensure the gasket is placed between the distributor and duct, and ensure that the arrows on the distributor are pointing up. Secure the steam distributor to the duct with self-tapping screws.

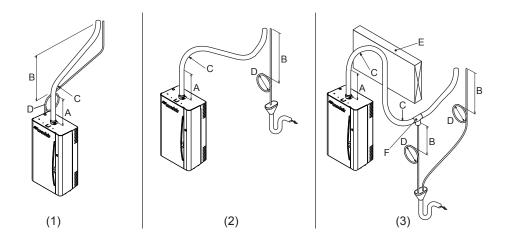


Figure 8 - Considerations for the Steam and Condensate Line (Remote Installations)

- 1 Typical installation
- 2 Distributor less than 20 in (500 mm) above humidifier.
- 3 Distributor less than 20 in (500 mm) above humidifier, with obstruction.
- A 6 in (150 mm) rise before bends.
- B Condensate traps below the condensate outlet on the steam distributor, min. 12 in (300 mm).
- C Steam line shorter than 15 ft (4.5 m).
- D Condensate traps have a min. height of 6 in (150 mm).
- E Wall, or other obstacle.
- F Condensate line, at lowest point, connected to T-connector.

Considerations when installing the steam distributor:

- Do NOT exceed the maximum recommended steam line length, 15 ft (4.5 m).
- Do NOT over tighten hose clamps at the steam outlet. Max torque: 12 in·lbs(1.36 Nm).
- Ensure the steam line material is Condair-supplied, otherwise copper or stainless steel.
- Ensure the steam line out of the humidifier is vertical 6 in (15 cm) min. before any bends.
- Install the steam distributor as close as possible to the humidifier. Short distances minimize condensate losses and reduces the possibility of back pressure in the distribution line.
- Insulate the steam lines to reduce heat loss and condensate. Use 1.0 in (2.5 cm) pipe insulation, rated for 212 °F (100 °C) (recommended).
- Use the appropriate slope for the steam line.
 - The steam line should have a slope greater than 15° (above the horizontal) away from the humidifier for upward traveling steam.
 - The steam line should have a slope greater than 2° (below the horizontal) for downward traveling steam. Condensate should be removed from the steam line at low points using a T-connector condensate trap (not supplied).
- Support the steam line with brackets because the steam hose will soften, and to reduce the weight on the cylinder.

Condensate Line Considerations:

- Use condensate traps wherever condensate may form along the steam line. For example, at low points along the line, at horizontal-vertical transitions, or after long distances.
- P-traps located a minimum of 12 in (30 cm) below the duct.
- P-trap height minimum of 6 in (15 cm), or duct pressure + 2 in (5cm).
- Down slope of 1in/48in (1.2°), minimum.

Mounting the Humidifier

Location and Clearances

Allow clearances required for plumbing and electrical connections. Clearance dimensions shown are for reference only and are the minimum required for maintenance of the humidifier. Consult local and national codes before final location and installation. Condair does not accept responsibility for installation code violations.

- Mount on a suitable wall or vertical surface. Do NOT sit the unit on the floor.
- When possible, mount the humidifier at a height convenient for servicing.
- Install in areas with ambient temperature 40 –104 °F (5 41 °C) and relative humidity 5 95% RH.
- To allow for proper condensate return, it is recommended to install the humidifier below the steam distributor. Take care to provide proper steam line routing and proper condensate traps.
- Place the humidifier close to the steam distributor. Long distances reduce the output.
- The installation location of the humidifier should ensure it is kept out of reach of children.

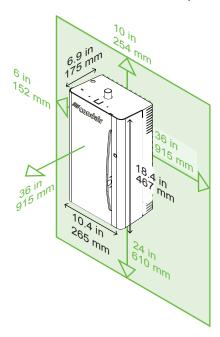


Figure 9 - Location and Clearances

Mounting Procedure

Mounting template supplied with the humidifier.

- The humidifier is mounted using screw holes located on the rear of the unit.
- Ensure suggested clearances are met when deciding on the location and the unit is level.
- Use screws longer than 2 in (5 cm) if dry wall or other spacer is present.

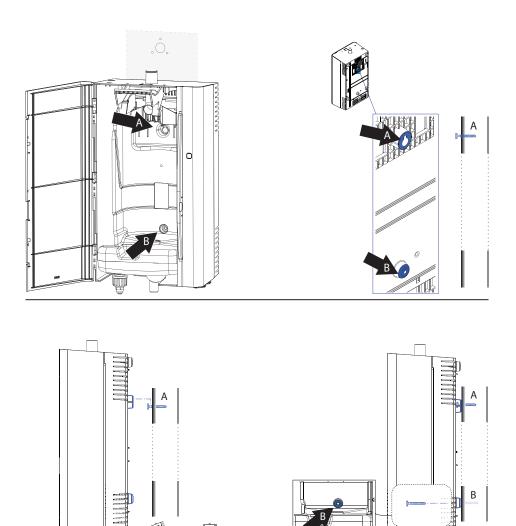


Figure 10 - Mounting the Humidifier to the Wall (stud) or Duct

Mounting the humidifier:

- 1. Locate suitable location for the humidifier. On the wall stud (2x4 or equivalent) or duct, mark the location for the key hole A (on the back of the humidifier). Insert a screw at A. Leave space on the screw to hang the humidifier. The humidifier will hang from this point.
- 2. Insert a screw into the location marked A. Do NOT completely insert the screw; allow space to hang the humidifier. Use a screw longer than 2 in (5 cm) if dry wall or other spacer is present.
- 3. Open the door to the humidifier. Remove the steam cylinder if it is installed. Raise and hang the humidifier on the screw **A**. Ensure the unit is level.
- 4. Through the inside of the humidifier, insert and tighten a screw into the lower mounting hole B. Tighten the top screw at A.

Installing the Steam Line

Location and Clearances (remote installation)

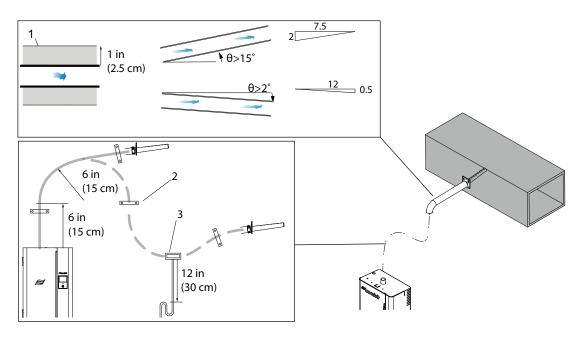


Figure 11 - Remote Mounted Installation with Steam Distributor (horizontal duct shown)

- 1 Insulation (recommended)
- 2 Brackets, support (supplied by others)
- 3 T-connector, condensate trap (supplied by others)

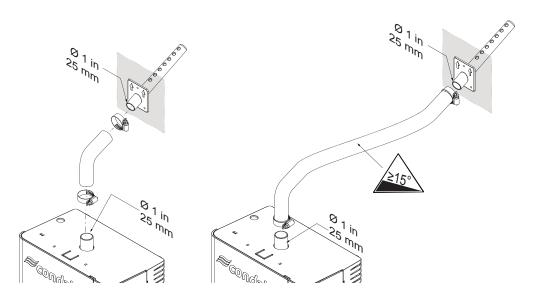


Figure 12 - Installing the Steam Line and Steam Distributor

Installing the Steam Line

1. Connect the steam hose to the humidifier and route it to the steam distributor, outer diameter 1 in (25 mm). Secure with clamps.

Installing the Condensate Return

Installing the Condensate Return Line:

- 1. Open the front door of the humidifier and push in the tabs securing the cover:
 - a. On top of the humidifier.
 - b. On the door frame.
- 2. Tilt the cover out, then pull it out of the humidifier.
- 3. Inside the humidifier, remove the cap from the fill cup and attach the condensate line to the condensate port. Secure with a clamp.

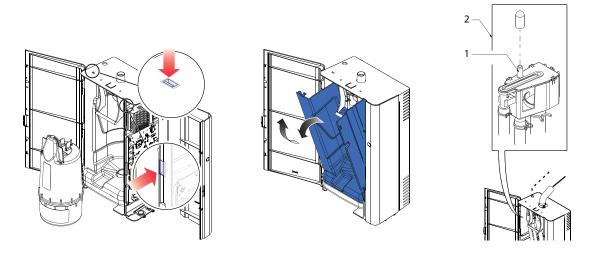


Figure 13 - Removing the Plumbing Cover and Installing the Condensate Return Line

1 Condensate return port, Ø 0.31 in (8 mm) 2 Fill cup

Water Supply Connection

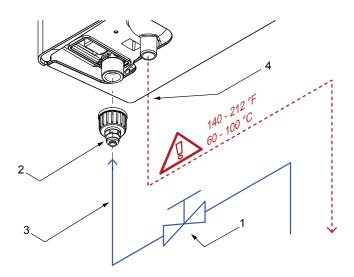


Figure 14 - Water Supply and Drain Connection

- 1 Water shut off valve
- 3 Inlet water line, 1/4 in (6.4 mm) (supplied)
- 4 Drain line, 3/4 in (20 mm) I.D. (supplied)

2 Inlet, quick connect (supplied)

Water Supply Requirements

Quality	Potable water (do not use reverse osmosis or deionized water)			
Pressure	30 - 80 psig (2 - 5.5 bar)			
Temperature	39 - 86 °F (4 - 30 °C), cold water			
Conductivity	125 - 1250 μS/cm			
Other	Water shut-off valve installed before the humidifier (for service).			
	Installed according to national and local plumbing code.			

Water conditions versus steam cylinder live

The atmospheric steam output of the humidifier is pure and clean steam. During operation the dissolved minerals from the water supply are left behind in the cylinder. Many of these minerals will be removed during periodic flush cycles of the cylinder.

"Figure 15 - Water conditions vs. steam cylinder live and drain rates" generalizes the effect of water hardness, and demand on cylinder life. Cylinder life is ultimately determined by the water chemistry, the unit running time, and output capacity setting.

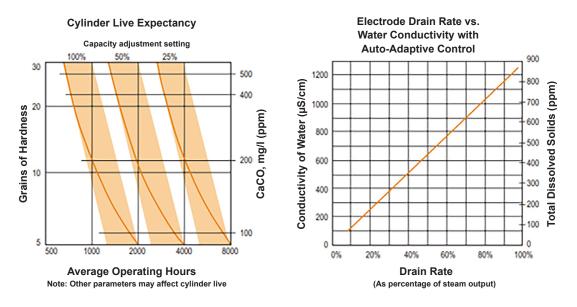


Figure 15 - Water conditions vs. steam cylinder live and drain rates

Drain Connection

Drain Requirements

The Condair HumiLife RH produces hot water during operation. Upon normal drainage, the drain water is automatically cooled to 140 °F (60 °C).

IMPORTANT! Drain water may reach high temperatures 212 °F (100 °C) in cases where the supply water is not cold, or obstructed.

Considerations for the drain connection

- (Recommended) Drain line is made of a material rated to handle hot temperatures, 212 °F (100 °C).
- (Recommended) Use the drain line hose supplied with the humidifier. For longer runs, use copper pipe with the same inner diameter as the drain line hose supplied with the humidifier, inner diameter: 3/4 in (20 mm).
- Ensure that the internal diameter throughout the drain line is constant.
- Ensure that the drain line is adequately sized. A restricted drain line may result in higher mineral concentrations in the water and can result in poor performance.
- Ensure that the drain line is routed to a floor drain (or where plumbing codes permit). If the drain is far from the humidifier, use a condensate pump rated for hot drain water.
- Ensure that the drain line has a consistent, downward slope (1.2°) to the drain.

Electrical Connection

IMPORTANT! Wiring to be performed by a licensed electrician.

IMPORTANT! All wiring to be installed in accordance with national and local electrical codes.

Primary Power Connection

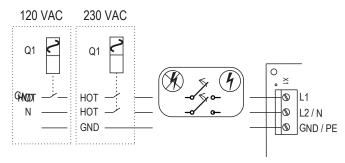


Figure 16 - High Voltage Connection and External Disconnect

IMPORTANT! Do NOT use the neutral wire as a ground. Connect a dedicated ground to Ground termination.

To install the high voltage connection:

- 1. Install a disconnect switch between the humidifier and the circuit breaker (for ease of maintenance).
- 2. Route the power supply wire through the strain relief located at the bottom of the unit (closest to front).
- 3. Connect the power wires to the main supply terminals L1, L2/N, and GND on the control board (terminal X1) in the humidifier.

Notes:

- Ensure that adequate power is available to carry full humidifier amp draw, as indicated on the specification label.
- A dedicated external fused disconnect may be installed between the humidifier and the circuit breaker.
- Do NOT use the neutral wire as a ground.



DANGER!

Danger of electric shock

The Condair RH is mains powered. Live parts may be exposed when the control compartment is open. Touching live parts may cause severe injury or danger to life.

Prevention: The Condair RH unit must be connected to the mains only after all mounting and installation work has been completed, all installations have been checked for correct workmanship and the unit is closed and properly locked.



CAUTION!

The electronic components inside the Condair RH are very sensitive to electrostatic discharge. Before carrying out installations work inside the unit, appropriate measures must be taken to protect the electronic components against damage caused by electrostatic discharge (ESD protection).

Controls

Condair controls are available as accessories and can be ordered with the purchase of the humidifier. If the controls were not ordered with the humidifier, they must be purchased from Condair, or be supplied by others. A relative humidity (duct) sensor is supplied with the unit.

Requirements:

- 18 AWG minimum
- Wiring kept as short as possible
- Cables for low voltage controls (such as humidistats, controllers, etc) should be routed through the strain relief at the bottom of the humidifier (closer to the wall/duct).

Considerations for installing external controls:

- Install the humidity control device in the return air duct (recommended) or in the room being humidified. A relative humidity sensor comes with the unit (a modulating or on/off humidistat is not included). Avoid placing near the discharge diffuser of humidified air, or in the discharge zone of humidified air. Install the device in locations that represent the room humidity (avoid areas near drafts, doorways, and sunlight).
- (Highly Recommended) Install an air proving switch upstream on the return-air duct to detect air flow. An air proving switch will prevent the unit from producing steam if there is insufficient air flow through the duct. Insufficient air flow during steam production produces excess and unwanted condensate in the air ducts.

IMPORTANT! The humidifier must be connected to the furnace fan if an air proving switch is **not installed**. This ensures that the unit is humidifying only while air is flowing through your ducts.

- (Highly Recommended) Install a duct high limit sensor (or modulating or on/off high limit humidistat) downstream from the steam distributor and where the steam is fully absorbed under normal conditions to prevent duct saturation. If RH reaches a predefined level - typically 90% - the high-limit humidistat disengages the humidifier. The high-limit humidistat is a very important safety device to prevent wet ducts if, for example, duct temperature unexpectedly drops and the air cannot absorb as expected.
- (Optional) Install an outdoor temperature sensor outside, in an area that accurately represents the outdoor air temperature, and NOT in a sunny location.

Note: Condair humidifiers must have a closed circuit across its on/off security loop control terminals (labeled "SC" in the wiring diagram) to operate. Condair recommends the use of an On/Off high limit humidistat AND an air proving switch in series for this function.

Note: All high limit controls should be ON/OFF type, and wired in series to the "SC" terminals on the control board.

Note: The main control can be done using a relative humidity sensor (included with the humidifier), or with a humidistat (supplied by others).

The Condair HumiLife RH can be connected to the following devices:

- Air proving switches
- Humidistats or relative humidity (RH) sensors
- External fans
 - » such as furnace fans, "enable" input (pilot duty only). External fans activate when the humidifier receives a call for humidity.

The humidifier is factory configured to operate under most conditions without the need for any changes. If required, several settings can be made using jumpers on the control board.

For further information, refer to "Wiring Diagram" on page 21.

Wiring Diagram

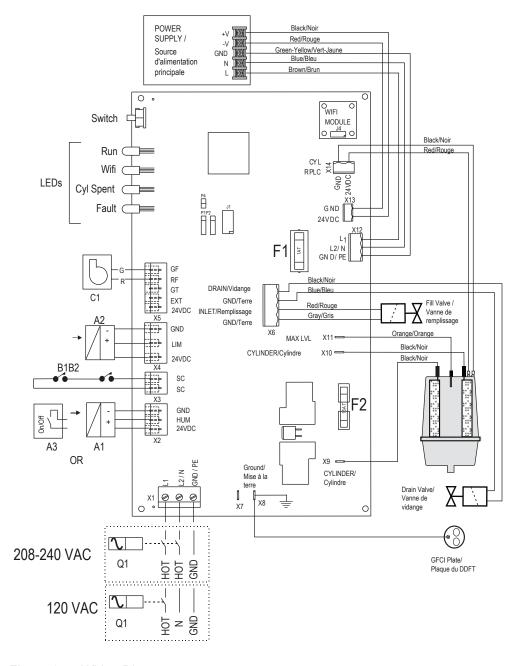
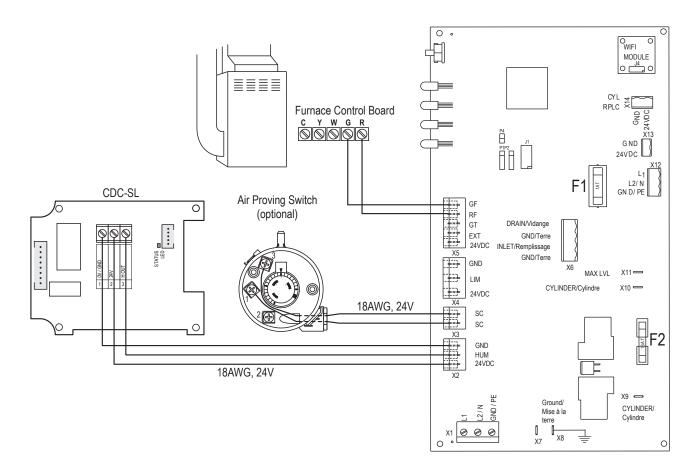


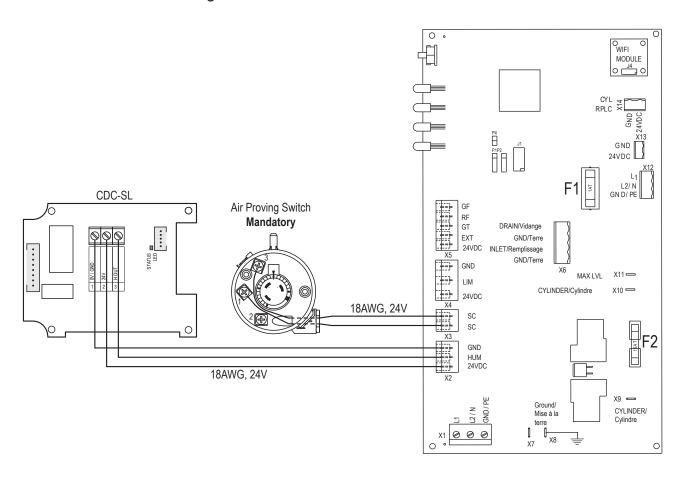
Figure 17 - Wiring Diagram

- A1 Humidity control sensor or controller (Install either A1 or A3)
- A2 High limit control sensor or controller (highly recommended)
- A3 Humidistat (On/Off). Install either A1 or A3
- B1/B2 Air proving switches, safety high limit humidistat, or external contact. Jumper, use if air proving switch or furnace fan not installed.
- C1 Fan activation, connect to HVAC system
- F1 Fuse 1AT (5x20 mm)
- F2 Fuse 16AT, SPT (5x20 mm)
- Q1 External disconnect or breaker

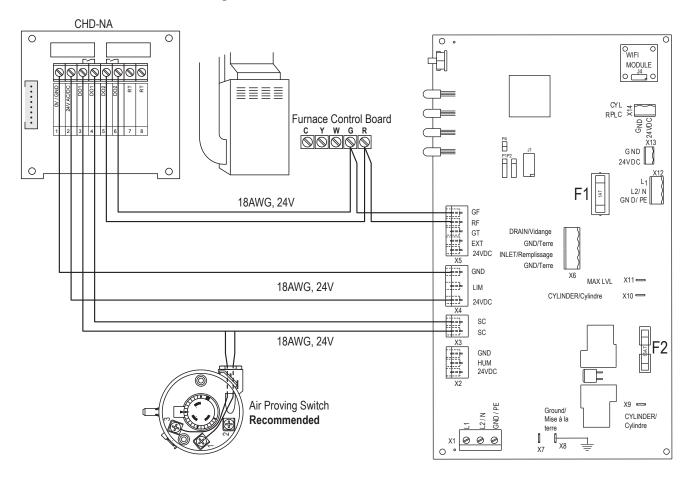
CDC-SL Control Wiring With Furnace Connection



CDC-SL Control Wiring Without Furnace Connection

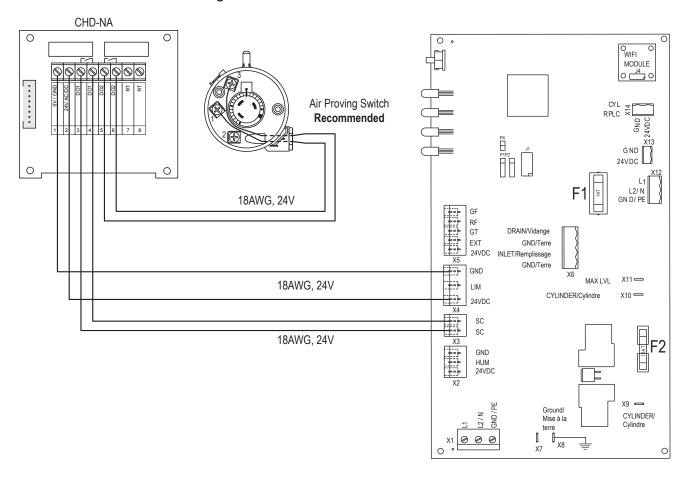


CHD-NA Control Wiring With Furnace Connection



Note: This wiring configuration requires sensor change within Humilife App to "Open contact/Relay"

CHD-NA Control Wiring Without Furnace Connection



Note: This wiring configuration requires sensor change within Humilife App to "Open contact/Relay".

Note 1: Our system is a 2-wire accessory. Thermostats like the Honeywell T9 and the Ecobee provide dry contacts for wiring 2 wire devices. Systems like the Google Nest only supply a single wire connection so a relay is required for the thermostat to work.

Note 2: If an external device is used for the humidifier they take complete control of the humidity with the unit. The unit will no longer control the humidity and cannot control the temperature setback as this is now done by the external controller. The app can only display canister lifecycle and error codes.

Note 3: If using a 3rd party device, always check the manuals provided with the devices in case of wiring connection changes or any other updates.

Connecting to Condair HumiLife

Once the humidifier is mounted, and steam, water, drain, and wiring connections have been established, you can turn on the unit and control it with the Condair HumiLife app on your mobile device.

Downloading Condair HumiLife

Use your phone's camera or QR scanner to go to Google Play (Android) or the App Store (iOS).

Google Play (Android)



App Store (iOS)



Connecting to Condair HumiLife

- 1. Download and install the Condair HumiLife app from the App Store or Google Play Store. Ensure your mobile device is connected to your home Wifi network.
- 2. Turn on your humidifier (press and hold the power button for 2 seconds).
- 3. Open the Condair HumiLife app. You enter a screen allowing you to choose a humidifier to connect. On the app, press Add Device. Your mobile device will begin to scan the area for the Condair HumiLife RH.
- 4. On the humidifier, press and hold the power button for 5 seconds. The wireless light () will flash green. The humidifier will be discoverable to the app.
- 5. Follow the instructions in the Condair HumiLife app to finalize the connection.
- 6. The wireless light remains solid blue once completed. A red light indicates a disconnect.

Compliance

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Warranty

Condair Inc. and/or Condair Ltd.(hereinafter collectively referred to as THE COMPANY), warrant for a period of five years from the date of purchase by the customer, that THE COMPANY's manufactured and assembled products, not otherwise expressly warranted, are free from defects in material and workmanship. No warranty is made against corrosion, deterioration, or suitability of substituted materials used as a result of compliance with government regulations.

THE COMPANY's obligations and liabilities under this warranty are limited to furnishing replacement parts to the customer, F.O.B. THE COMPANY's factory, providing the defective part(s) is returned freight prepaid by the customer. Parts used for repairs are warranted for the balance of the term of the warranty on the original humidifier or 90 days, whichever is longer.

The warranties set forth herein are in lieu of all other warranties expressed or implied by law. No liability whatsoever shall be attached to THE COMPANY until said products have been paid for in full and then said liability shall be limited to the original purchase price for the product. Any further warranty must be in writing, signed by an officer of THE COMPANY.

THE COMPANY's parts or materials that are considered consumables, including but not limited to: cylinders, filters, nozzles, membranes, media, gaskets, O-rings, etc. are NOT covered by the warranty.

THE COMPANY makes no warranty and assumes no liability unless the equipment is installed in strict accordance with a copy of the catalog and installation manual in effect at the date of purchase and by a contractor approved by THE COMPANY to install such equipment.

THE COMPANY makes no warranty and assumes no liability whatsoever for consequential damage or damage resulting directly from misapplication, incorrect sizing or lack of proper maintenance of the equipment.

THE COMPANY makes no warranty and assumes no liability whatsoever for damage resulting from freezing of the humidifier, supply lines, drain lines, or quality of the water used.

THE COMPANY retains the right to change the design, specification and performance criteria of its products without notice or obligation.

THE COMPANY's limited warranty on accessories, not of the companies manufacture, such as controls, humidistats, pumps, etc. is limited to the warranty of the original equipment manufacturer from date of original shipment of humidifier.

