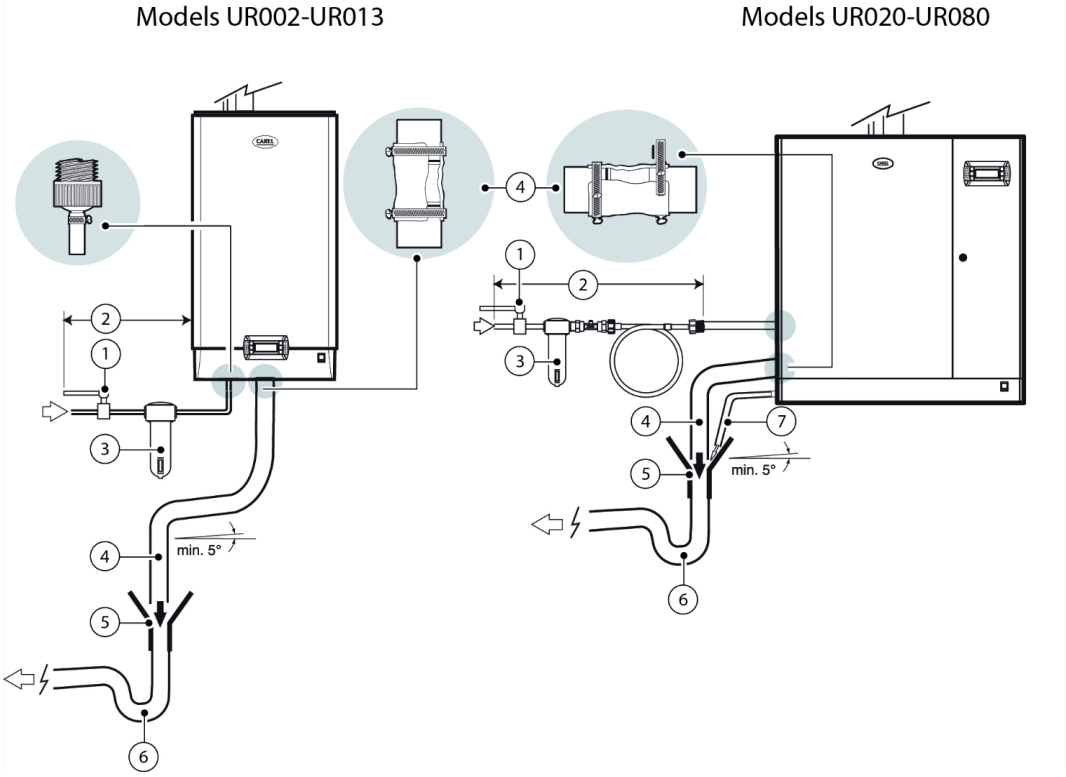
Connected
Efficiency

CAREL

Contractor Training Program

heaterSteam (UR) Installation and Startup

Hydraulics Connections



Water Connections

- Install a manual valve upstream (to cut off the water supply);
- Connect the humidifier to the water supply.
  - For UR002...UR013 models, use a flexible pipe 3/4"G connection.
  - For UR020...UR080 models connect the flexible pipe with the non-return valve (supplied - code FWHDCV0003), to avoid the water inside the humidifier making contact with the one in the mains;

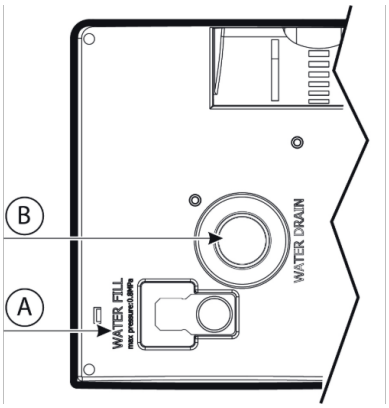
- Install a mechanical filter to retain any solid impurities (connect downstream with respect to the tap).
- Connect a section of pipe for draining (resistant to temperatures of 212 ° F (100 °C)) and with
  - a minimum internal diameter of 1.6 in (40 mm) for models UR002-UR013
  - a minimum internal diameter of (50 mm), for models UR020- UR080;
  - for drain tempering versions, water temperature will be 60 °C (140 °F), with temperature is max 25 °C guaranteed;
- Provide a funnel to ensure continuity interruption in the drain piping;
- Connect a P-trap to prevent the return of odors;
- For models UR020...UR080: connect a drain pipe from the tank to the bottom of the humidifier (this can run into the funnel used for draining).
- For drain tempering versions, water temperature will be 140°F (60°C) with temperature is max 77°F (25°C) guaranteed.

Caution:
Once the installation is complete, flush the supply pipe for about 30 minutes by carrying water directly in the drain and without introducing it into the humidifier. This will eliminate any waste or processing residues that could clog the inlet valve and/or cause foam when boiling water;

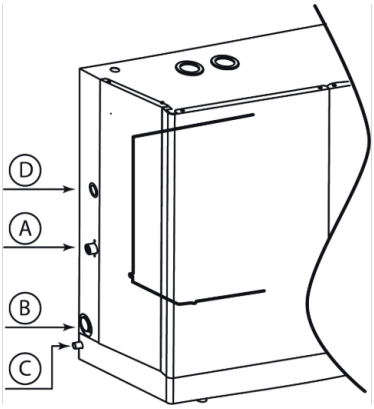
The drain pipe must run vertically downwards at least 12 inches to prevent the return of steam.

Set up for Water Connections

Models UR002 - UR013

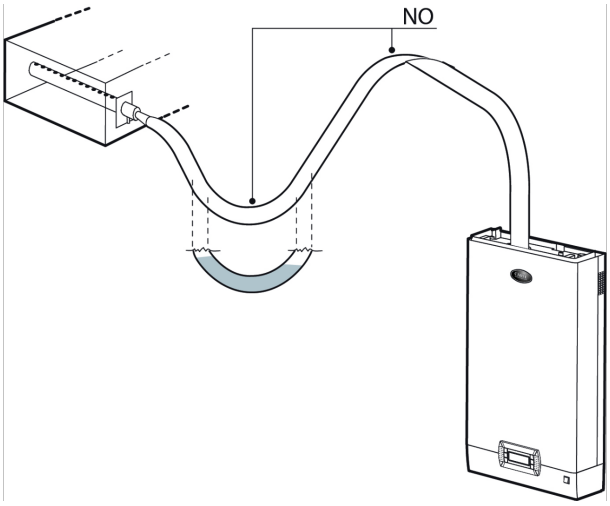


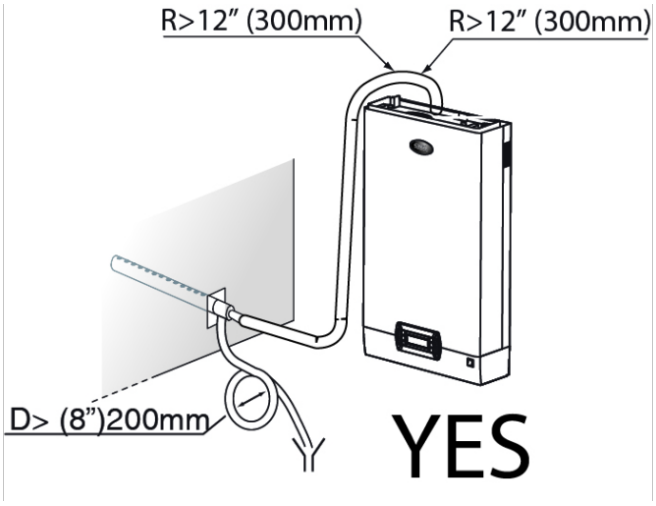
Models UR020 - UR080

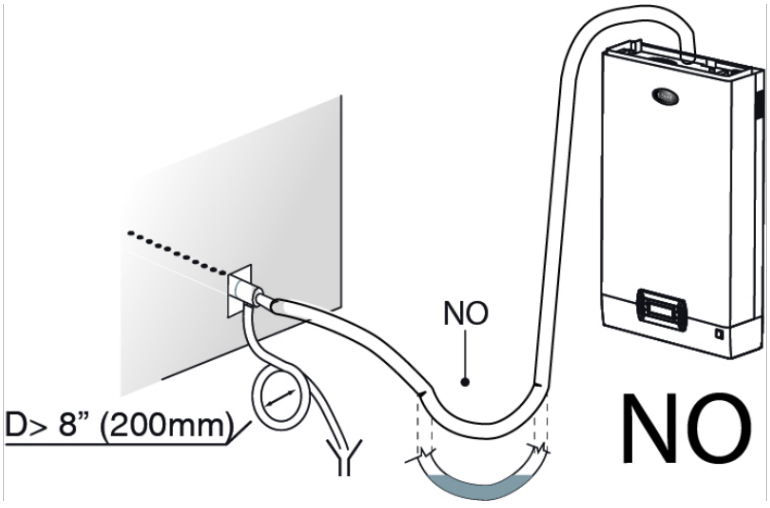


KEY	
A	Supply water inlet
B	Drain water outlet
C	Bottom tank drain water outlet (Only for model UR020-UR080)
D	Drain tempering inlet

All UR Models







Electrical Connections

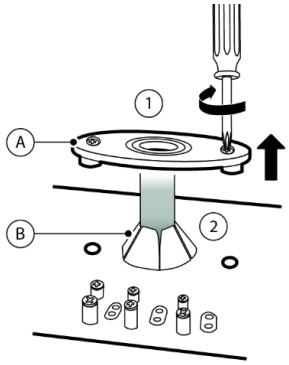
⚠ Before making the connections, make that the unit is disconnected from the mains power supply: move the main system switch and humidifier switch to OFF.

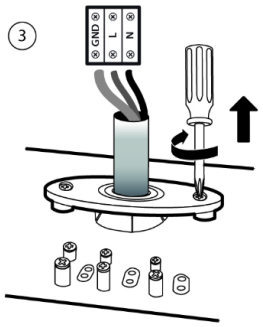
Important:

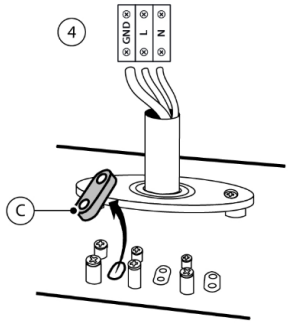
- The humidifier ON/OFF switch disconnects power only to the electronic controller, and not the other devices, which therefore remain powered.
- Check that the unit's power supply voltage corresponds to the rated value shown inside the electrical panel. Remove the front panel.
- To enter the power and probe cables, see the follow the procedures described below:

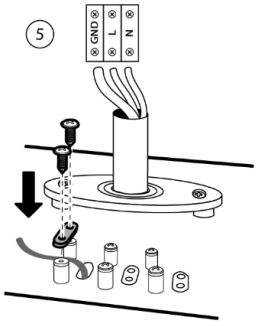
Models UR002-UR013

1. Unscrew the screws and remove the cover (A);
2. If necessary, cut the top part of the conical cable gland (B) and insert the power cable;
3. Connect the electrical wires to the terminal block, reposition the cover and fasten it using the screws;
4. To attach the probe cable:
   - Remove the knock-out (C) and unscrew the screws;
   - Insert the probe cable through the opening created: then fasten the cable using the screws.



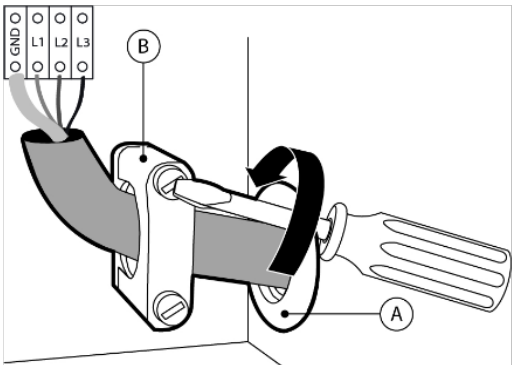






Models UR020-UR080

1. Identify the rubber cable gland (A) on the right side of the unit and insert the power cable;
2. Inside the electrical panel: unscrew the cable gland (B), connect the wires to the terminal block and tighten the screws again to fasten the cable.



The humidifier power line must be fitted by the installer with a disconnect switch and fuses to protect against short circuits. The table shows the recommended sizes of the cable and fuses; nonetheless, these data are purely indicative and, if different from local standards in force, the latter must prevail.

Note: To avoid unwanted interference, the power cables should be kept separate from the probe signal cables.

Important: Connect the yellow-green wire to the earth terminal (GND).

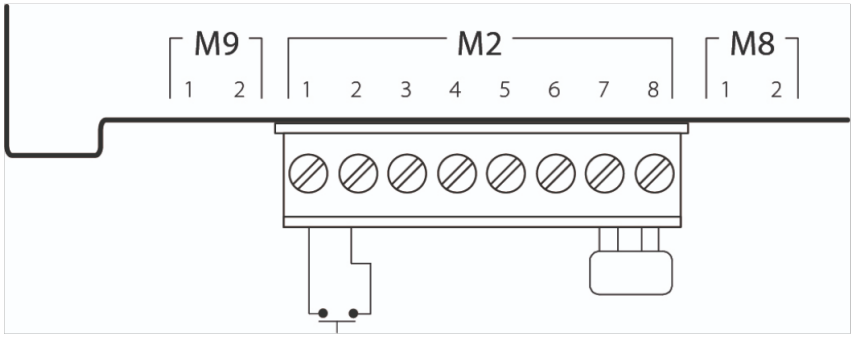
Steam Production Signals: On/Off Operation

Humidistat

- Connect terminals M2.1 and M2.2 (production request) to a humidistat;
- Short-circuit terminals M2.7 – M2.8 (jumper) to enable production;

To enable ON/OFF operation, set:

Screen Index	Screen description	Parameter
Ea01	Control type	External ON/OFF signal
Ea04	Maximum production	0-100% of rated production

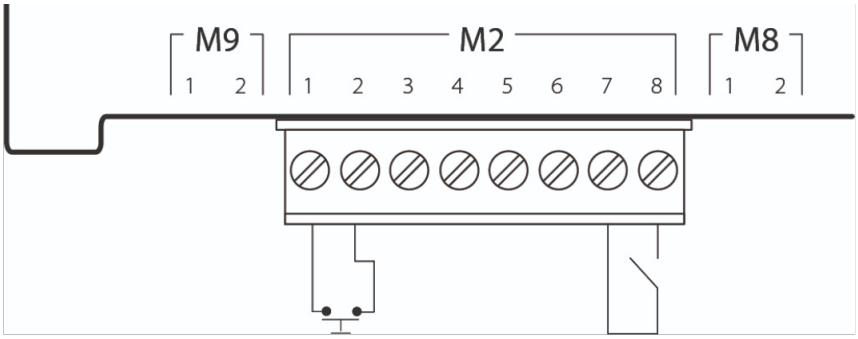


Humidistat and Remote Contact

- Connect terminals M2.1 and M2.2 (production request) to a humidistat;
- Connect inputs M2.7 – M2.8 (enable) to a remote contact (e.g.: switch, timer,...);

To enable ON/OFF operation, set:

Screen Index	Screen description	Parameter
Ea01	Control type	External ON/OFF signal
Ea04	Maximum production	0-100% of rated production



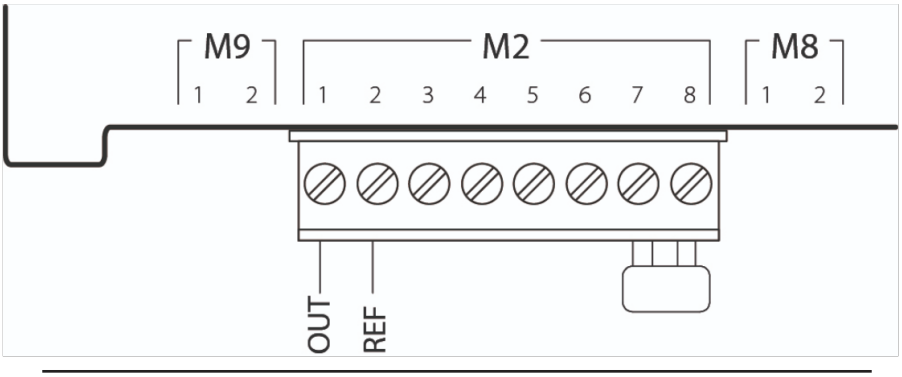
Steam Production Signals: DDC Control

External Proportional Controller (Modulating Operation)

- Short-circuit terminals M2.7 – M2.8 (jumper) to enable production;
- Connect terminals M2.1 and M2.2 (production request) to an external controller;

To enable control, set:

Screen Index	Screen description	Parameter
Ea01	Control type	proportional to external signal
Ea03	Proportional band	Set: Hysteresis (0-100%) Minimum production (0-100%) Maximum production (0-100%)
Ec01	Main probe type	Select from: 0-1V, 0-10V, 2-10V, 0-20mA, 4-20mA



External Proportional Controller and Remote Contact (Modulating Operation)

- Connect terminals M2.1 and M2.2 (production request) to a humidistat;
- Connect inputs M2.7 – M2.8 (enable) to a remote contact (e.g.: switch, timer,...);

To enable control, set:

Screen Index	Screen description	Parameter
Ea01	Control type	proportional to external signal
Ea03	Proportional band	Set: Hysteresis (0-100%) Minimum production (0-100%) Maximum production (0-100%)
Ec01	Main probe type	Select from: 0-1V, 0-10V, 2-10V, 0-20mA, 4-20mA

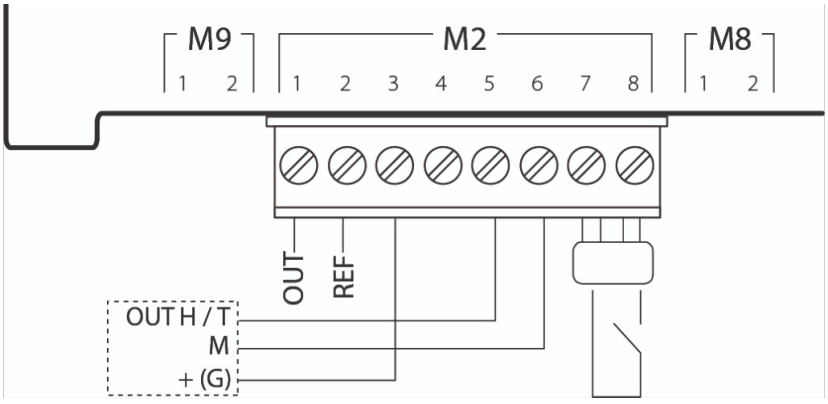
External Proportional Controller and Remote Contact (Modulating Operation) with Limit Probe

- Short-circuit terminals M2.7 – M2.8 (jumper) to enable production; alternatively connect terminals M2.7 – M2.8 to a remote contact (e.g.: switch, timer,...);
- Connect terminals M2.1 and M2.2 (production request) to an external controller;
- Connect the active limit probe to terminals M2.5, M2.3 (+12Vdc), M2.6 (GND);

Note: when using CAREL 0-10V probe, connect the probe power supply +(G) to terminal "G" on the board rather than terminal M2.3.

To enable control, set:

Screen Index	Screen description	Parameter
Ea01	Control type	Prop. to external signal with limit probe
Ea03	Proportional band	Set: Hysteresis (0-100%) Minimum production (0-100%) Maximum production (0-100%)
Ea06	Limit probe	Set: Set point (0-100 %rH) Differential (0-100%)
Ec01	Main probe type	Select from: 0-1V, 0-10V, 2-10V, 0-20mA, 4-20mA
Ec02	Limit probe type	Select from: 0-1V, 0-10V, 2-10V, 0-20mA, 4-20mA



Note: in industrial environments (IEC EN61000-6-2) the signal cables leaving the unit must not exceed 30 m (98') in length: steam production signal cable (terminals M2.1, M2.2), digital remote on/off input (terminals M2.7, M2.8) and shielded cable for RS485 communication.

CAREL Humidity Probe Control

The main control board, connected to a room humidity probe, manages steam production based on the humidity measured. A second outlet humidity limit probe can also be connected: with this configuration, typical of air handling units, the main control board continues managing steam production according to the humidity requirement, however production is limited according to the relative humidity measured in the outlet duct.

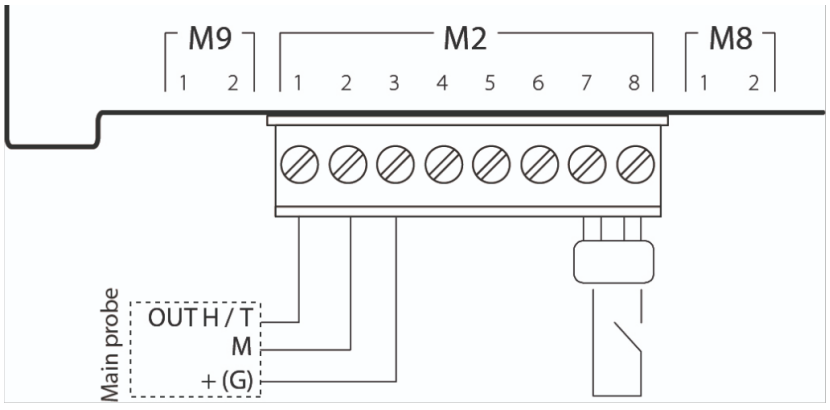
Control with One Humidity Probe

- Short-circuit terminals M2.7 – M2.8 (jumper) to enable production; alternatively connect terminals M2.7 – M2.8 to a remote contact (e.g.: switch, timer,...);
- Connect the main active room probe to terminals M2.1, M2.2 (GND) and M2.3 (+12Vdc);

Note: When using CAREL 0-10V probe, connect the probe power supply +(G) to terminal "G" on the board rather than terminal M2.3.

To enable control, set:

Screen Index	Screen description	Parameter
Ea01	Control type	one humidity probe
Ea05	Modulating control	Set: humidity set point (0-100 %rH) differential (2-20%rh) Minimum production (0-100%) Maximum production (0-100%)
Ec01	Main probe type	Select from: 0-1V, 0-10V, 2-10V, 0-20mA, 4-20mA



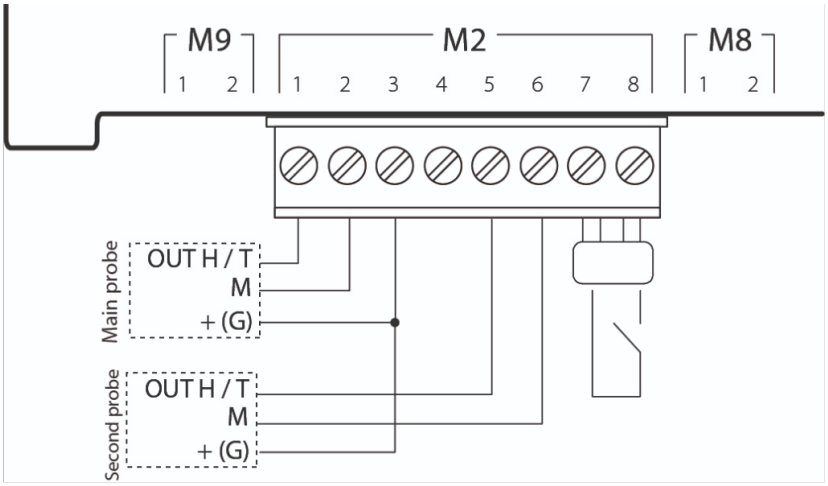
Control with One Humidity Probe and Limit Probe

- Short-circuit terminals M2.7 – M2.8 (jumper) to enable production; alternatively connect terminals M2.7 – M2.8 to a remote contact (e.g.: switch, timer,...);
- Connect the main active room probe to terminals M2.1, M2.2 (GND) and M2.3 (+12Vdc);
- Connect the active limit probe to terminals M2.5, M2.3 (+12Vdc), M2.6 (GND);

Note: when using CAREL 0-10V probe, connect the probe power supply +(G) to terminal "G" on the board rather than terminal M2.3.

To enable control, set:

Screen Index	Screen description	Parameter
Ea01	Control type	humidity with limit probe
Ea05	Modulating control	Set: humidity set point (0-100 %rH) differential (2-20%rh) Minimum production (0-100%) Maximum production (0-100%)
Ea06	Limit probe	Set point (0-100 %rH) Differential (0-100%)
Ec01	Main probe type	Select from: 0-1V, 0-10V, 2-10V, 0-20mA, 4-20mA
Ec02	Limit probe type	Select from: 0-1V, 0-10V, 2-10V, 0-20mA, 4-20mA



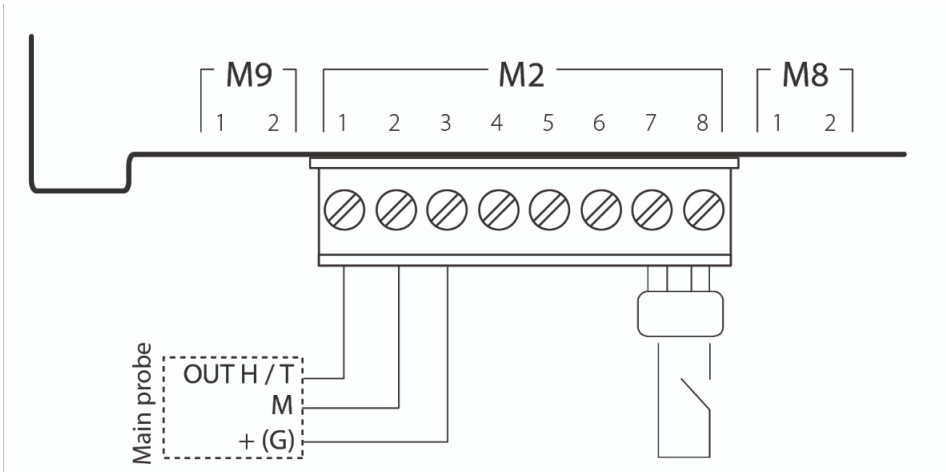
CAREL Temperature Probe Control

Control with One Active Temperature Probe

- Short-circuit terminals M2.7 – M2.8 (jumper) to enable production; alternatively connect terminals M2.7 – M2.8 to a remote contact (e.g.: switch, timer,...);
- Connect the main active room probe to terminals M2.1, M2.2 (GND) and M2.3 (+12Vdc)

To enable control, set:

Screen Index	Screen description	Parameter
Ea01	Control type	one temperature probe
Ea05	Modulating control	Set: temperature set point (0-100 °C) (32-212°F) differential (2-20°C) (3.6-36°F) Minimum production (0-100%) Maximum production (0-100%)
Ec01	Main probe type	Select from: 0-1V, 0-10V, 2-10V, 0-20mA, 4-20mA

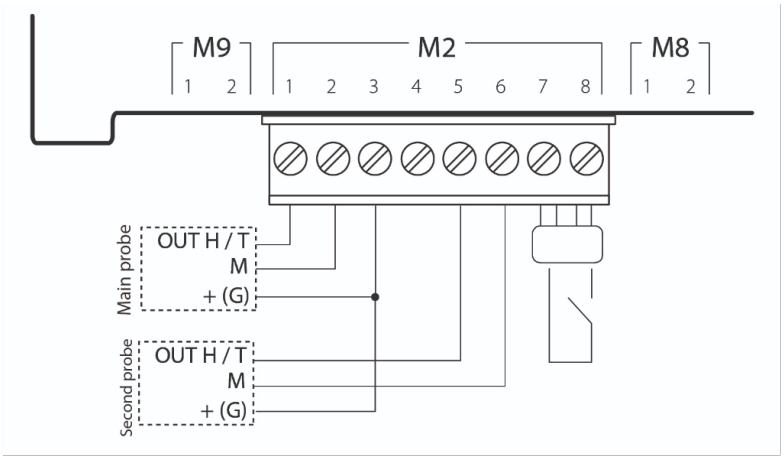


Control with One Temperature Probe and Limit Probe

- Short-circuit terminals M2.7 – M2.8 (jumper) to enable production; alternatively connect terminals M2.7 – M2.8 to a remote contact (e.g.: switch, timer,...);
- Connect the main active room probe to terminals M2.1, M2.2 (GND) and M2.3 (+12Vdc);
- Connect the active limit probe to terminals M2.5, M2.3 (+12Vdc), M2.6 (GND);

To enable control, set:

Screen Index	Screen description	Parameter
Ea01	Control type	Temperature with limit
Ea05	Modulating control	Set: temperature set point (0-100 °C) (32-212°F) differential (2-20°C) (3.6-36°F) Minimum production (0-100%) Maximum production (0-100%)
Ea06	Limit probe	Set point (0-100 °C/°F) Differential (0-100%)
Ec01	Main probe type	Select from: 0-1V, 0-10V, 2-10V, 0-20mA, 4-20mA
Ec02	Limit probe type	Select from: 0-1V, 0-10V, 2-10V, 0-20mA, 4-20mA



Activation Sequence

1. STARTING THE APPLICATION THE FIRST TIME

The "heaterSteam" humidifier logo is displayed. When starting the first time (commissioning), the menu language needs to be selected:

- English
- Italiano
- Deutsch
- Francais
- Espanol

Press UP/Down to select the number corresponding to the desired language and press ENTER to confirm. This screen is displayed for 60 seconds.

2. FIRST START-UP (WIZARD)

When starting the first time, a wizard is displayed to quickly set the main unit parameters. The wizard comprises nine steps (some of which may not be displayed, if not necessary):

- 1/9 - model (only if the replacement controller is not configured): select and set the parameters relating to the model (size, voltage,…);

- 2/9 - water hardness: auto or user-defined. If choosing "auto", the controller automatically sets the water hardness, based on feedwater conductivity;
- 3/9- manual water hardness setting. The possible options are:
  - 0-10°F, maintenance at 3000h (hours)
  - 10-20°F, maintenance at 1500h (hours)
  - 20-30°F, maintenance at 1000h (hours)
  - 30-40°F, maintenance at 800h (hours);

- 4/9 - control type: external On/Off signal, proportional to external signal with limit probe, proportional to external signal, one humidity probe, one temperature probe, one humidity probe and limit probe, one temperature probe and limit probe, two temperature probes (average), two humidity probes (average);

- 5/9 – select the main room probe type: 0-1V (active), 0-10V (active), 2-10V (active), 0-20 mA (active), 4-20 (active), NTC (passive);

- 6/9 – select the limit probe type: 0-1V (active), 0-10V (active), 2-10V (active), 0-20 mA (active), 4-20 (active), NTC (passive);

- 7/9- set the limits for the active probes.
  - Room min (%): set the minimum relative humidity limit rH% for the main probe;
  - Room max (%): set the maximum relative humidity limit rH% for the main probe;
  - Limit min (%): set the minimum relative humidity limit rH% for the limit probe;
  - Limit max (%): set the maximum relative humidity limit rH% for the limit probe;

- 8/9 - set the drain to dilute cycles: auto or user-defined. If choosing "auto", the controller automatically sets the number of evaporation cycles that must occur between two consecutive drain to dilute cycles. This setting is based on the feedwater conductivity read by the conductivity meter, thus reducing the use of water, reducing maintenance and extending cylinder life;

- 9/9 - manual drain to dilute cycle setting. Enter the number of evaporation cycles before forcing a dilution cycle.

The UR series humidifiers are default to operate with 4-20mAdc CAREL probe plus high limit.

You are ready to put the unit in operation.