



humiFog
Zone panel



INSTALLATION MANUAL



humiFog

+0300114EN - ENG

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www.carel.com

GENERAL WARNINGS



FAILURE TO CAREFULLY HEED THE WARNINGS SHOWN IN THIS MANUAL COULD LEAD TO FIRE OR EXPLOSION AND CONSEQUENT DAMAGE TO PROPERTY, INJURY OR DEATH.

CAREL Industries humidifiers are advanced products, whose operation is specified in the technical documentation supplied with the product or can be downloaded, even prior to purchase, from the website www.carel.com. Each CAREL product, in relation to its advanced level of technology, requires setup/configuration/programming to be able to operate in the best possible way for the specific application. Failure to complete such operations, which are required/indicated in the user manual, may cause the final product to malfunction; CAREL accepts no liability in such cases. The customer (manufacturer, developer or installer of the final equipment) accepts all liability and risk relating to the configuration of the product in order to reach the expected results in relation to the specific final installation and/or equipment. CAREL may, based on prior agreements, act as a consultant for the installation/commissioning/use of the unit, however in no case does it accept liability for the correct operation of the humidifier and the final installation if the warnings or suggestions provided in this manual or in other product technical documents are not heeded. In particular, as well as observing the above warnings and suggestions, the following warnings must be observed for correct use of the product:

ELECTRIC SHOCK HAZARD: the humidifier contains live electrical components. Disconnect the mains power supply before accessing inside parts or during maintenance and installation.

WATER LEAK HAZARD: the humidifier automatically and constantly fills/drains certain quantities of water. Malfunctions in the connections or in the humidifier may cause leaks.

CAUTION

The installation of the product must include an earth connection, using the special yellow-green terminal available in the humidifier.

Caution:

- Disconnect the appliance from the mains power supply before accessing any internal parts.
- Environmental and power supply conditions must conform to the values specified on the product rating labels.
- The product is designed exclusively to humidify rooms either directly or through distribution systems (ducts).
- Only qualified personnel who are aware of the necessary precautions and able to perform the required operations correctly may install, operate or carry out technical service on the product.
- Only water with the characteristics indicated in this manual must be used to produce the spray.
- All operations on the product must be carried out according to the instructions provided in this manual and on the labels applied to the product. Any uses or modifications that are not authorised by the manufacturer are considered improper. CAREL declines all liability for any such unauthorised use.
- Do not attempt to open the appliance in any way other than described in the manual.
- Observe the standards in force in the place where the humidifier is installed.
- The appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.
- Do not install and use the product near objects that may be damaged when in contact with water (or condensate). CAREL declines all liability for direct or indirect damage following water leaks from the humidifier.
- Do not use corrosive chemicals, solvents or aggressive detergents to clean the inside and outside parts of the humidifier, unless specifically indicated in the user manual.
- Do not drop, hit or shake the humidifier, as the inside parts and the linings may be irreparably damaged,

CAREL adopts a policy of continual development. Consequently, CAREL reserves the right to make changes and improvements to any product described in this document without prior warning. The technical specifications shown in the manual may be changed without prior warning. The liability of CAREL in relation to its products is specified in the CAREL general contract conditions, published on the website www.carel.com and/or by specific agreements with customers; specifically, to the extent where allowed by applicable legislation, in no case will CAREL, its employees or subsidiaries/affiliates be liable for any lost earnings or sales, losses of data and information, costs of replacement goods or services, damage to things or people, downtime or any direct, indirect, incidental, actual, punitive, exemplary, special or consequential damage of any kind whatsoever, whether contractual, extra-contractual or due to negligence, or any other liabilities deriving from the installation or use of the product, even if CAREL or its subsidiaries/affiliates are warned of the possibility of such damage.

DISPOSAL

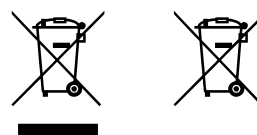


Fig. 1

Fig. 2

PLEASE READ AND KEEP.

WITH REFERENCE TO EUROPEAN UNION DIRECTIVE 2012/19/EU ISSUED ON 4 JULY 2012 AND RELATED NATIONAL LEGISLATION, PLEASE NOTE THAT:

- Waste Electrical and Electronic Equipment (WEEE) cannot be disposed of as municipal waste but must be collected separately so as to allow subsequent recycling, treatment or disposal, as required by law;
- users are required to take Electrical and Electronic Equipment (EEE) at end-of-life, complete with all essential components, to the WEEE collection centres identified by local authorities. The directive also provides for the possibility to return the equipment to the distributor or retailer at end-of-life if purchasing equivalent new equipment, on a one-to-one basis, or one-to-zero for equipment less than 25 cm on their longest side;
- the equipment may contain hazardous substances: the improper use or incorrect disposal of such may have negative effects on human health and on the environment;
- the symbol (crossed-out wheeled bin, see Figure 1), if shown on the product or on the packaging, indicates that the equipment must be disposed of separately at end-of-life;
- if at end-of-life the EEE contains a battery (Figure 2), this must be removed following the instructions provided in the user manual before disposing of the equipment. Used batteries must be taken to appropriate waste collection centres as required by local regulations;
- in the event of illegal disposal of electrical and electronic waste, the penalties are specified by local waste disposal legislation.

Warranty on materials: 2 years (from production date, excluding consumables).

Approval: the quality and safety of CAREL products are guaranteed by the ISO 9001 certified design and production system, as well as the



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1. PURPOSE OF THE MANUAL

This manual contains instructions for the installation, use and maintenance of the models of humiFog unit manufactured by:

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2. HOW TO READ THE MANUAL

The manual is divided into chapters and paragraphs. Each paragraph is a sub-level of the corresponding chapter. References to headings or paragraphs are indicated by the abbreviation "Chap." or "Par." followed by the number.

Example: "Chap. 2" or "Par. 2.1".

The figures in this manual are numbered consecutively according to the corresponding chapter, for example Figure 1.c is the third figure in chapter one. References to the figures are indicated by the abbreviation "Fig." followed by the number. Example: "Fig. 1.c".

The components shown in the figures are marked with numbers. A reference to component 1 in figure 2, chapter 3 will be indicated as follows: "See 1 - Fig. 3.b" or simply "(1 - Fig. 3.b)".



IMPORTANT

The figures shown in this manual are purely indicative. The actual components may vary from those illustrated. If in doubt, contact an authorised service centre.

In addition to the instructions for installation, use and maintenance, this manual contains safety information that requires special attention. This information is denoted by the symbols described below:



DANGER

Failure to comply with this warning will lead to an imminently hazardous situation which, if not avoided, will result in death or serious injury.



WARNING

Failure to comply with this warning will lead to potentially hazardous situation which, if not avoided, could result in death or serious injury.



CAUTION

Failure to comply with this warning will lead to a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.



IMPORTANT

Failure to comply with this warning will lead to a potentially hazardous situation which, if not avoided, could cause minor damage to the unit.



Notice: provides supplementary information to the above safety instructions.

3. GENERAL SAFETY INFORMATION AND INSTRUCTIONS

3.1 Intended use

humifog is a high pressure adiabatic humidification system for humidity control and evaporative cooling. It can be used both to condition the air in an AHU (air handling unit), and for direct humidification or cooling in rooms.



IMPORTANT: the product must only be used for its intended purpose, as envisaged by CAREL. CAREL declines all liability, both contractual and extra-contractual, for any damage to people, animals or things due to installation, control or maintenance errors or improper use.

3.2 General safety instructions

When using products that require electricity and a source of high-pressure water, a number of fundamental safety rules need to be observed, including:

- The appliance must not be used by children or people with reduced physical, sensory or mental capabilities, or people lacking the necessary experience or knowledge or who are not familiar with the operating instructions.
- People without specific qualifications and skills must not use the pumping station.
- People must not come into contact with the appliance if barefoot or any of the parts of their body are wet.
- No technical or cleaning operations are allowed until the appliance has been isolated from the power supply by moving the main system switch to "off" and the main switch on the appliance to "OFF".
- The safety and control devices must never be adjusted without the manufacturer's authorisation.
- The pictograms and labels affixed to the pumping station must not be removed. These must remain legible and the corresponding instructions must be observed at all times. If they are no longer legible, they must be replaced with equivalent pictograms or safety labels.
- The water connections must never be loosened during operation. Improperly secured pipes or hoses may detach without warning, resulting in injury.
- Do not block or obstruct the water drain.
- Do not pull, disconnect or twist the electrical cables coming out of the appliance, even when this is disconnected from the mains power supply.
- Never expose the appliance to the elements. It is designed for indoor use only.
- Do not dispose of the packaging material in the environment and keep it out of the reach of children, as it is a potential hazard. It must be disposed of in accordance with current legislation.
- Do not activate the pumping station without it being adequately supplied with water.
- The customer is responsible for ensuring that the humidification system complies with local guidelines on occupational health and safety and prevention of bacterial proliferation.
- In the event of water leaks, disconnect the pumping station from the power supply, shut off the water supply and promptly notify CAREL's Technical Service or other professionally qualified personnel.
- Periodically check that the water circuit operating pressure is above 1 bar and below than the maximum limit specified for the appliance. Otherwise, contact CAREL's Technical Service or other professionally qualified personnel.
- If the pumping station is not used for an extended period, the following operations need to be carried out:
 - Turn the main switch on the appliance to "OFF"
 - Turn the main system switch to "off"
 - Close the system water taps
 - Empty the system if there is the risk of freezing.
- This instruction manual is an integral part of the appliance and consequently must be kept with care and must ALWAYS accompany the pumping station even if it is transferred to another owner or installed in another system. If damaged or lost, another copy can be ordered from CAREL's local Technical Service.
- Read this instruction manual carefully to ensure proper and safe installation, operation and maintenance of the appliance. The owner must be adequately informed and trained on how to use the appliance. Users must be familiar with all the information needed for safe operation of the system.
- Before connecting the pumping station to the water and power supply, it can be exposed to temperatures between -10°C and 40°C. Once commissioned, it can be exposed to temperatures between 5°C and 40°C.
- Periodically check that the water drains are not blocked.

3.3 Personal protective equipment



DANGER: strictly follow the instructions provided in the manual.

Personal protective equipment (PPE) means any equipment intended to be worn and kept by workers in order to protect themselves against one or more risks likely to threaten their health or safety during work, as well as any device or accessory intended for this purpose.

All PPE described in this manual are intended to protect personnel from health and safety risks.

Below is a list of personal protective equipment to be used and the procedures to be adopted to protect workers from the residual risks that exist during the various phases of the humidifier's life cycle.



GLOVES TO PROTECT AGAINST PHYSICAL ELEMENTS:

these must protect the person's hands against cuts, abrasion and heat.

NON-SLIP SAFETY FOOTWEAR: these must prevent falls on slippery surfaces and protect the person's feet from impact, crushing and puncture wounds.

SAFETY HARD HAT: this must protect the person's head against bumps or material accidentally falling from above.

SAFETY GLASSES: these must protect the person's eyes from all risks due to contact with hazardous substances or materials.

PROTECTIVE MASK: this protects the wearer's respiratory tract against all risks associated with the inhalation of dangerous substances.

PROTECTIVE CLOTHING: this guarantees the body adequate protection against thermal and chemical agents.

EARMUFFS: these must attenuate noises that would otherwise be harmful to the person's hearing.

INSTRUCTION MANUAL: this must be referred to whenever necessary, in order to avoid adopting unsafe procedures.

4. INTRODUCTION

4.1 Components

- Pumping station, comprising the system pump and the electrical panel;
- zone electrical panel;
- distribution system and droplet separator for humidification in air handling units
- blower unit for in-room humidification

The range includes the pumping station in the humiFog multizone and humiFog multizone Touch versions, which differ in terms of the components supplied, the accessories available and the different system configuration mode .

The system can comprise:

- single zone: 1 pumping station with 1 atomisation system;
- multizone: 1 pumping station that supplies up to 12 independent atomisation systems.



Notice:

- to connect the pumping station to the blowers, use the water circuit assemblies and electrical panels supplied separately by Carel (see the list of accessories);
- to facilitate commissioning, plates already equipped with electrical connectors are available for simply and quickly connecting the electrical panels to the solenoid valves on the distribution manifolds.

The following diagrams provide an overview of the systems that can be implemented.

4.2 System schematics

4.2.1 Air handling unit (AHU)



Notice:

The proper design and construction of the humidification chamber in the air duct / AHU is essential to ensure hygiene during the operation. The following aspects are of utmost importance:

- the inner surfaces shall be made of stainless steel or any other material not promoting microbial growth and permanently resistant to corrosion;
- there must be a drain between the distribution manifolds and the droplet separator and after the droplet separator;
- the dimensions indicated at the chapter "Check list" related to the installation of the droplet separator with respect to the drain pan have to be met;
- the drain pan shall be sloped to the drain on all sides and shall have a drain trap preventing air-side leaks;
- drainage systems shall not be connected directly to the sewage system;
- the access to the distribution manifolds and to the drop separator in the humidification chamber has to be ensured;
- there must be an inspection opening (minimum diameter 150 mm) equipped with a darkening system;
- there must be an interior lighting operable from outside, with clear recognizable operating state from outside;
- the free distance between the nozzles and the droplet separator shall meet the humidification system design data;
- 90% rH downstream of the humidification chamber shall not be exceeded, hence the installation of a limit humidity probe directly connected to the humidifier is highly recommended;
- in the event of a shutdown or failure of the AHU fan, the humidifier shall be switched off automatically via interlock;
- provide for a stepwise shutdown of the AHU to ensure that the humidifier chamber is blown dry prior to intended shutdowns;
- any residual water adhering through surface tension shall be dried off completely by dry-blowing the system;
- the electrical cables wired to the solenoid valves of distribution manifolds shall follow the shortest path and must not lay on the floor so as to avoid any water stagnation.

4.3 Air handling unit (AHU)

Internal rack valves

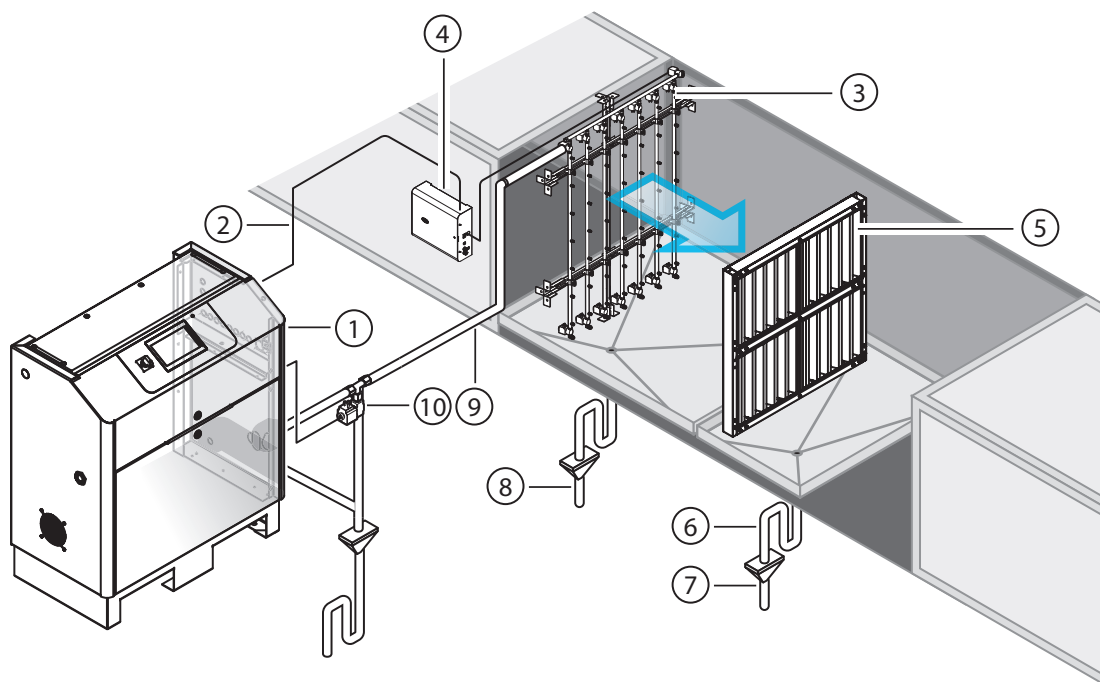


Fig. 4.a

Ref.	Description
1	Pumping station
2	Electrical cables
3	Distribution manifolds
4	Zone-electrical panel
5	Droplet separator
6	Drain trap
7	Open funnel drain (after droplet separator)
8	Open funnel drain (before droplet separator)
9	High pressure water line
10	Line drain valve

Tab. 4.a

Multizone

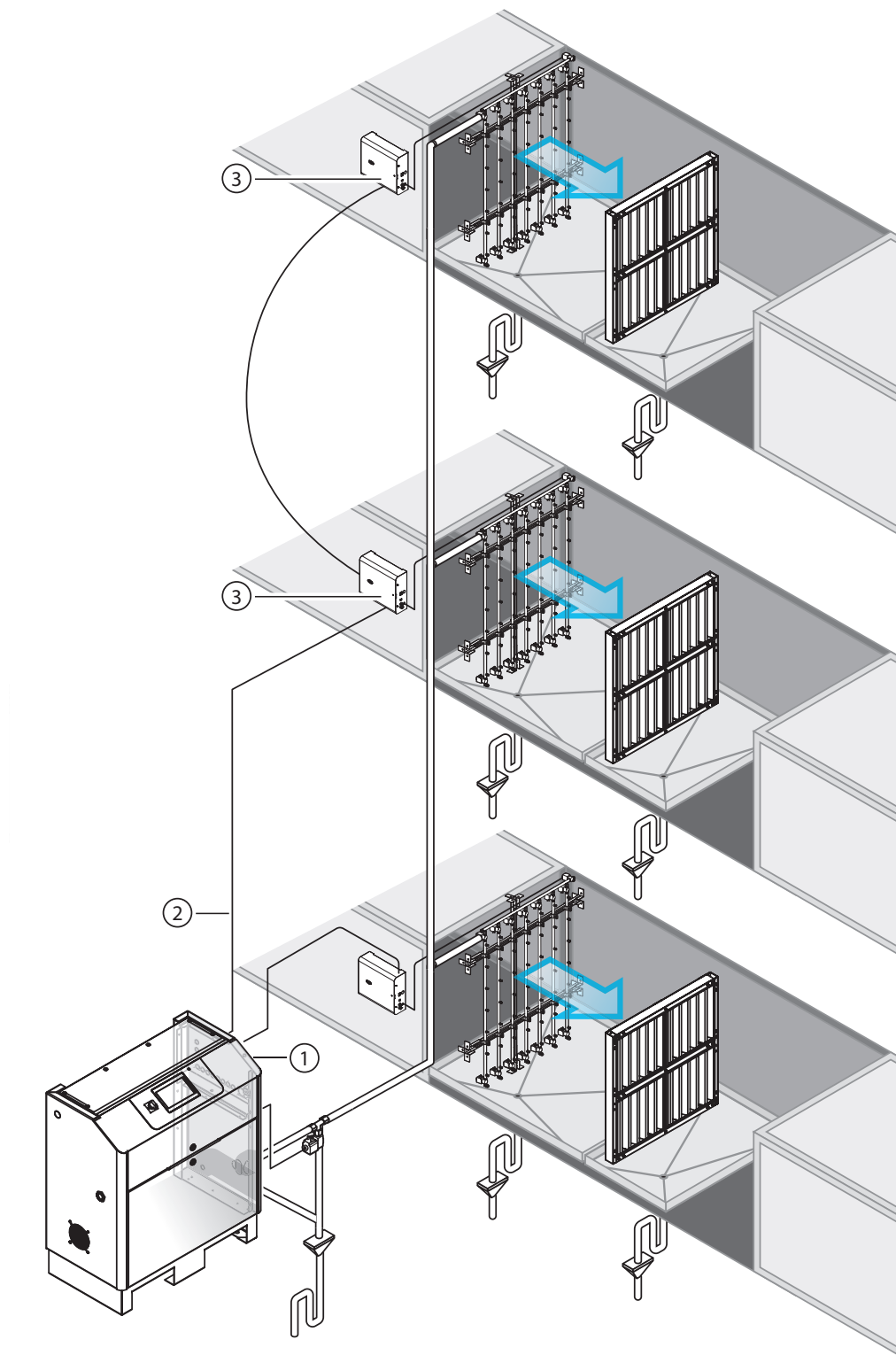


Fig. 4.b

Ref.	Description
1	Pumping station
2	Ethernet cable
3	Zone electrical panel

Tab. 4.b



Notice: for the Ethernet connection from the pumping station to the zone electrical panels, see "Installation notes".

4.3.2 Room



Notice:

- do not install the head units in recesses, closed corridors or behind curtains, as this would hinder the uniform diffusion of humidified air ;
- at the fan heads the air is cooler and more humid and the noise emission of nozzles and fans must be taken into consideration. Position the heads so as not to cause discomfort to the occupants of the room;
- do not install in areas where the air is contaminated, particularly by microorganisms or allergens.

Single zone

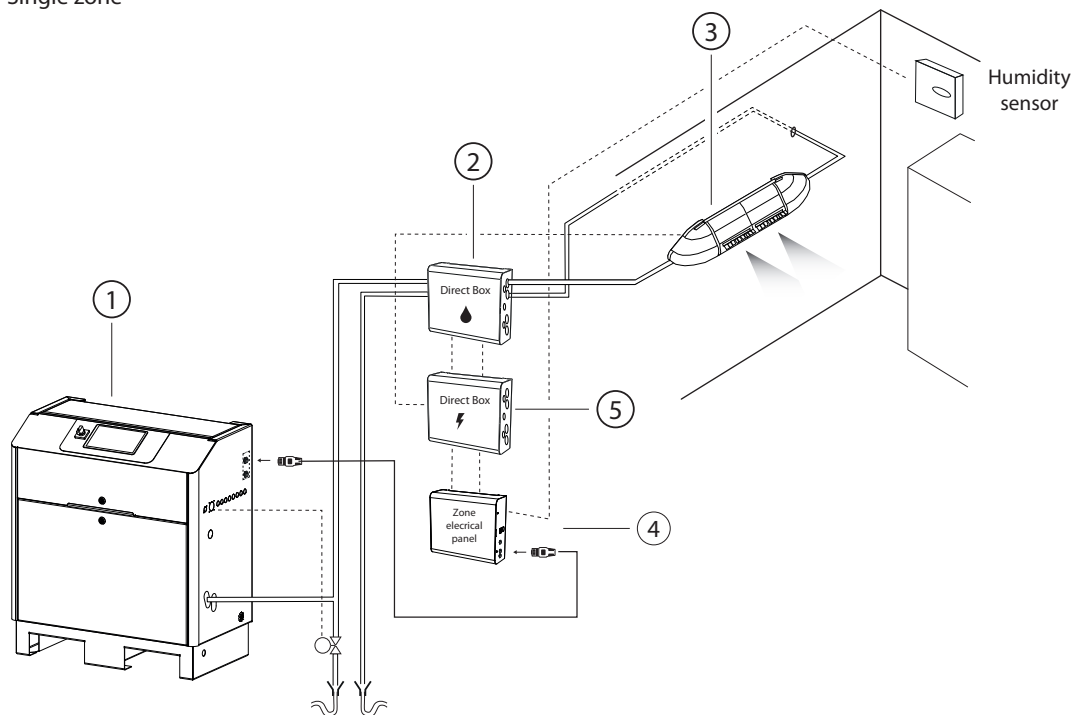


Fig. 4.c

Multizone

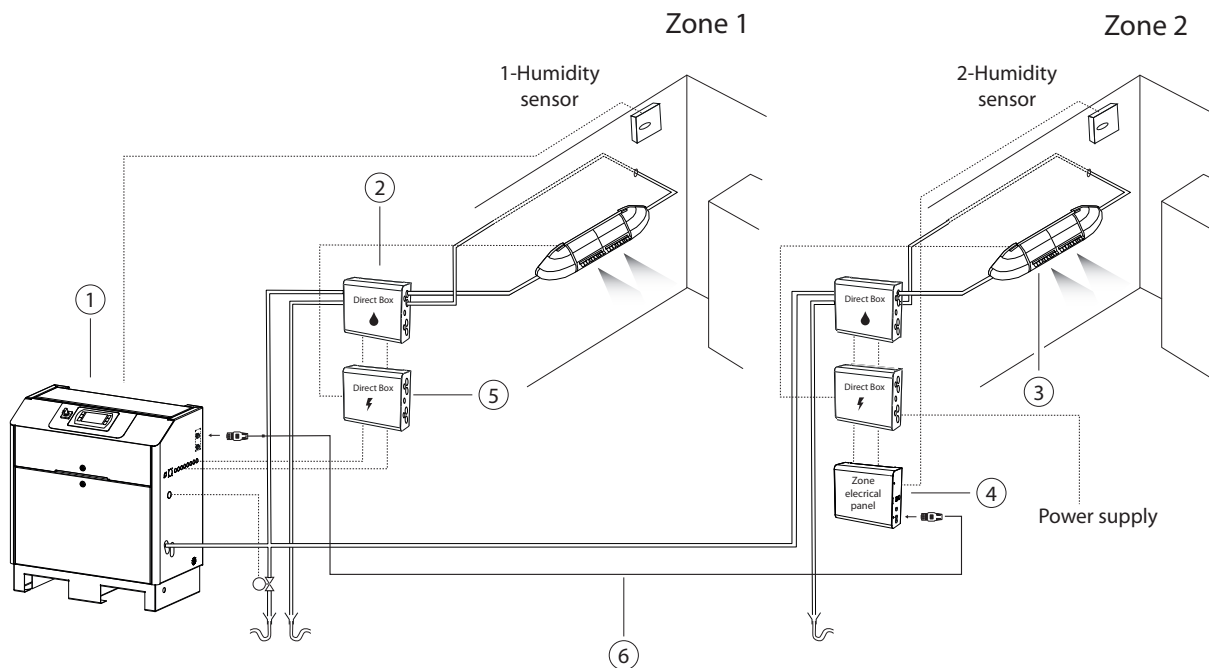


Fig. 4.d

Ref.	Description	Ref.	Description
1	Pumping station	4	Zone electrical panel
2	Directbox hydraulic	5	Directbox electric
3	Blower unit	6	Ethernet cable

Tab. 4.c

4.4 Pumping station

4.4.1 Part numbers

UA000SD500 | UA000S2500 | UA000SU500

U	A	****	*	5	0
Range	Model	Power supply and approval		Revision no.	Customisation
UA: humiFog	000S: humiFog zone panel	D: 230 Vac 50/60 Hz, 1~, CE 2: 230 Vac 50/60 Hz, 1~, UL U: 208 Vac 50/60 Hz, 1~, UL		5: Fifth revision	00: Carel

Tab. 4.d



Notice: for CE in accordance with the requirements of EN60204-1; EN61000-6-2; EN61000-6-4 in the most recent editions.
For UL approved versions
in accordance with UL 508A requirements.

4.4.2 Dimensions - mm (in)

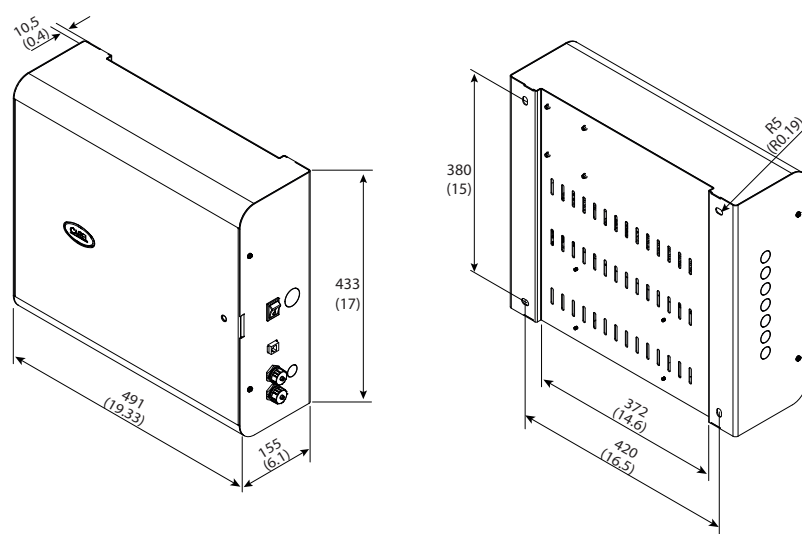


Fig. 4.e

4.4.3 Weight - kg (lb)

Zone panel	Weight with/without packaging [kg] (lb)
UA000SD500/UA000S2500/UA000SU500	22.2 / 19.6 (48.9 / 43.2)

Tab. 4.e

4.5 Opening the packaging

- check that the packaging is intact upon delivery and notify the carrier immediately, in writing, of any damage that may be due to improper or negligent transport;
- move the zone panel to the installation site before removing the packaging.
- place it near the position where it will be installed;
- remove the packaging.

4.5.1 Material supplied

After opening the packaging and removing the front panel, check that the following are present:

- 1 cable gland (A) for the power supply cable;
- 6 cable glands (B) for the electrical cables coming out of the pumping station;
- installation manual

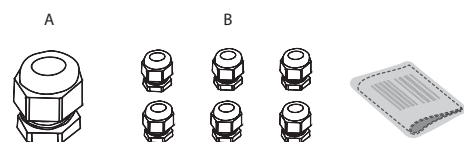


Fig. 4.f

4.6 Positioning

Install the pumping station on the floor, indoors, so as to ensure:

- accessibility of the display and that this can be clearly read;
- opening of the front panel;
- easy access to the internal parts for maintenance purposes;;
- connection of the water supply and drain lines;
- power and control electrical connections;
- protection from rain, splashing, direct sunlight and any other heat source.

The temperature/humidity sensors required to control the humidifier must not be affected by misting and they must be placed away from direct sunlight and any heat source.

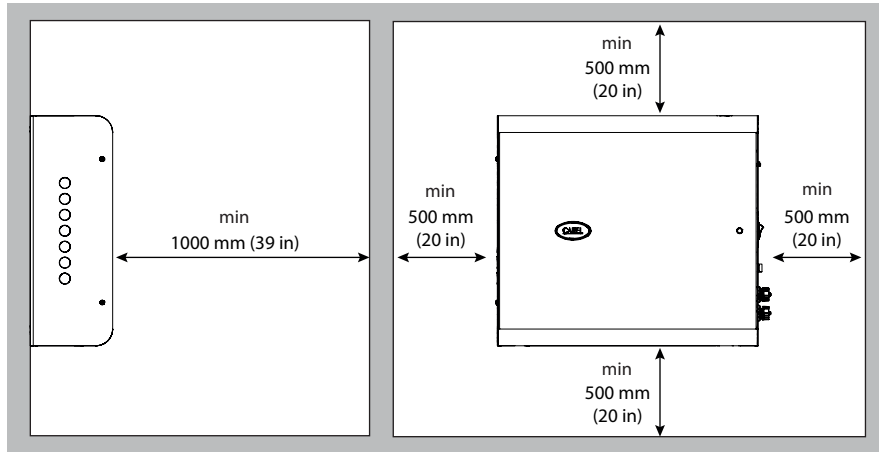


Fig. 4.g



Notice:

- check with a spirit level that the unit is placed on a horizontal surface;
- if the unit is positioned up against a wall, do not place any objects on it that block the cooling air.

4.7 Opening

Open the panel by unscrewing the side screws (Figure 4i) with a Phillips-head screwdriver, so as to access the electrical panel.

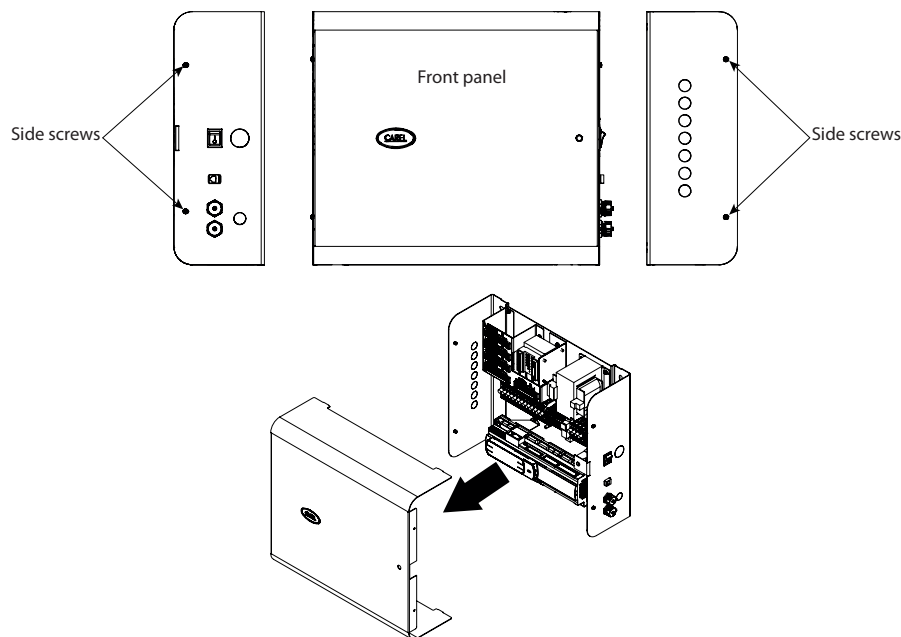


Fig. 4.h

The zone panel can be identified by the rating plate located inside the electrical panel.

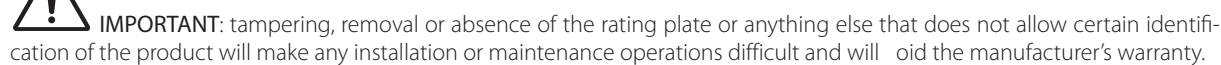


Fig. 4.j

Tab. 4.f

5. INSTALLATION NOTES

5.1 Network connection

See the technical data table for the specifications of the connection cables.

5.1.1 Zone panel connection

The connection is made using an Ethernet cable from the pumping station to the zone panels, as shown in the figure.

IMPORTANT: the maximum allowed length of an Ethernet connection between two devices is 100 m (for longer distances, use switch P/N KITSE08000).

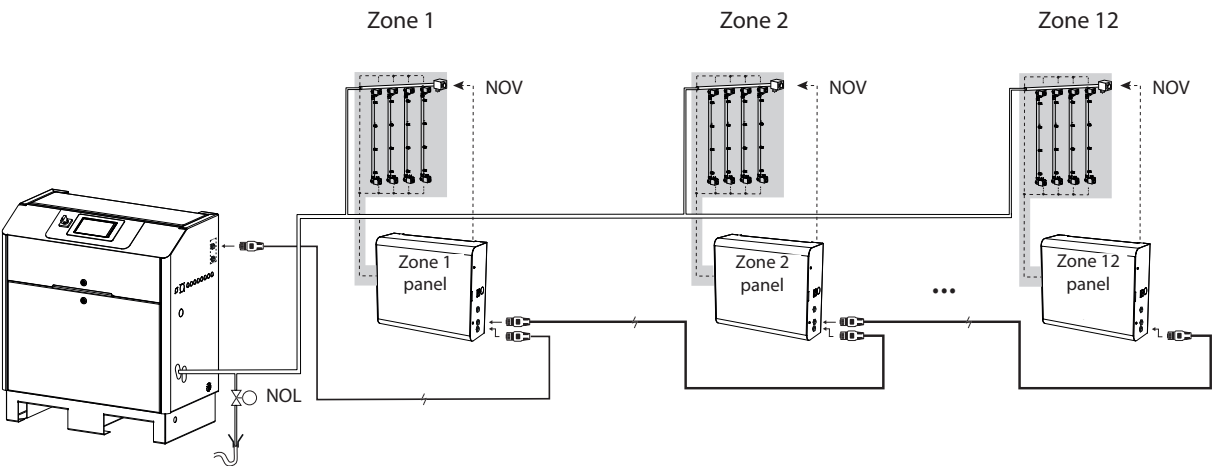


Fig. 5.a

Ref.	Description
NOL	Normally open line drain valve
NOV	Normally open vent valve

Tab. 5.a

5.1.2 Supervisor connection

The connection to the supervisor network can be made in two ways:

- between the Ethernet port on the pumping station and the supervisor network
- via RS485 serial link between the BMS2 port on the pumping station controller and the supervisor network. In the latter case, the communication settings need to be changed when commissioning the system.

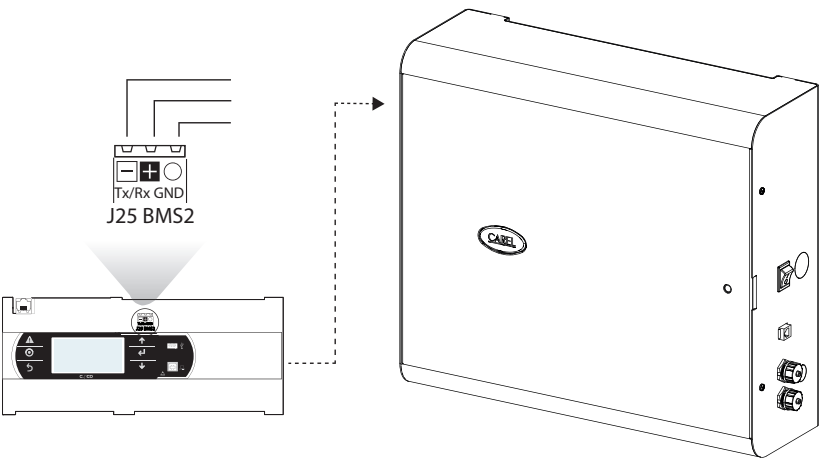


Fig. 5.b

5.2 Distribution system

5.2.1 Atomisation system solenoid valve management

To manage the distribution system, the zone panel controls the following solenoid valves:

- distribution manifold fill/drain (normally closed NC / normally open NO, respectively). See the following diagrams;
- vent, used to facilitate the emptying of the distribution system (NOV, normally open);

Case 1: installation in an AHU (air handling unit)

- The water is atomised through a series of distribution manifolds (racks), equipped with nozzles.
- One or more manifolds can be grouped together to form a "step". All of the manifolds in the same step are activated simultaneously to start/stop atomisation.
- Each rack can be managed by a zone panel. There are a maximum of 6 steps per rack.
- Each step comprises a maximum number of solenoid valves, as shown in the table; however the total number of powered solenoid valves cannot exceed 22 (including the vent and line drain valves).

No. of steps	Maximum no. of solenoid valves
1	5 NC + 5 NO (*)
2	3 NC + 3 NO
3	2 NC + 2 NO
4	4 NC + 4 NO
5	1 NC + 1 NO
6	1 NC + 1 NO

Tab. 5.b

(*) NC1a, NC1b, ..., NC1e + NO1a, NO1b, ..., NO1e

Case 2: installation of the blowers in the room

The water is atomised through the nozzles installed on blowers or on racks in the room. These can be grouped together to form steps, in the same way as for the rack manifolds.

5.2.2 Drain valve management (NOL)

The zone panel manages and controls the line drain valve (NOL, normally open).



Notice: the line drain valve must be fitted at the lowest point in the water circuit and wired to the nearest electrical panel (pumping station or zone panel), so that when opened, the entire system is emptied.

Case 1: Pumping station located below the distribution manifolds

Connect the drain valve near the zone panel that will control its opening.

Case 2: Pumping station located above the distribution manifolds, placed at different heights.

The drain valve must be connected near to the lowest distribution manifold.



Notice: the control signal for the zone 12 drain valve is output J12 NO3 on the zone electrical panel controller. See the corresponding manual.

Case 3: Distribution manifolds located both above and below the pumping station

Connect multiple drain valves at the lowest points in the water circuit.

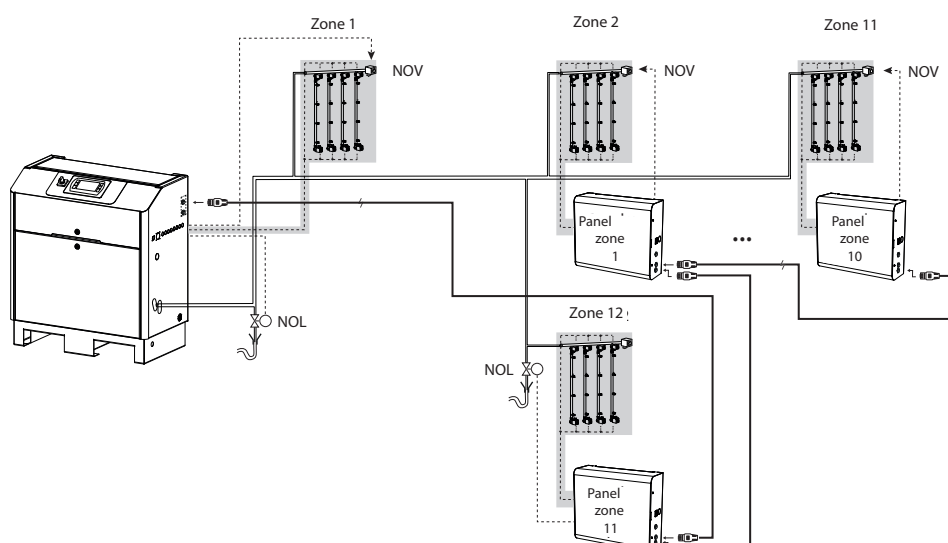


Fig. 5.c

6. INSTALLATION

6.1 Electrical connections

Before making the connections, make sure that the unit is disconnected from the power supply: turn the main system switch and pumping station switch to OFF.

Install the cable glands on the left and right side of the electrical panel for the electrical cables to pass through.

6.1.1 Electrical panel

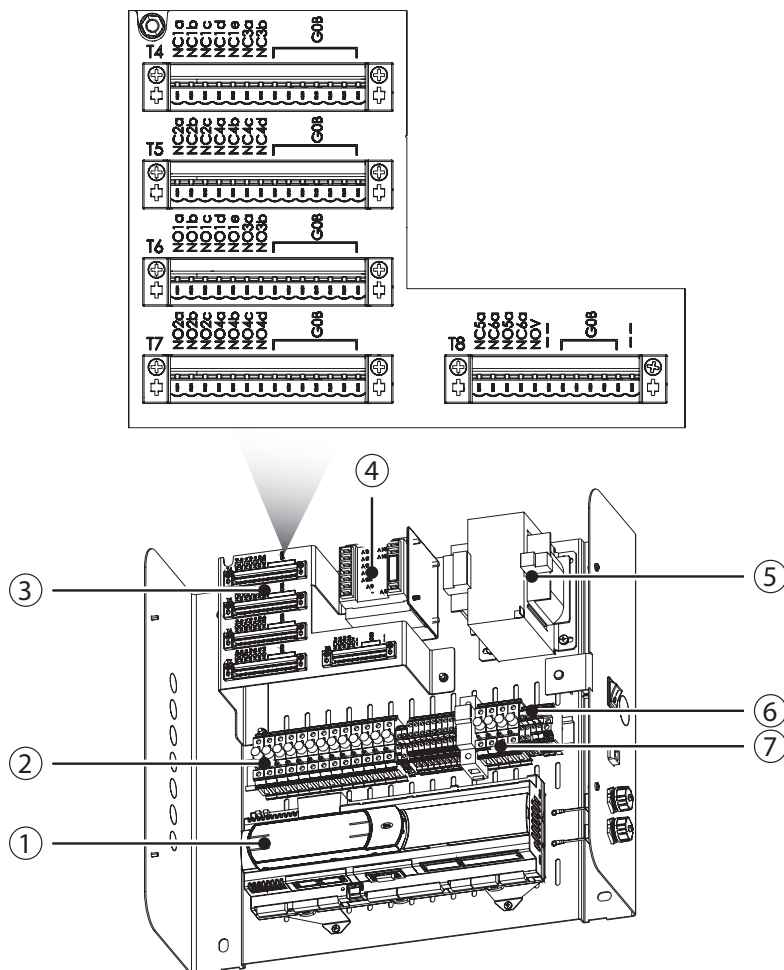


Fig. 6.a

Ref.	Description
1	Electronic controller
2	Fuses
3	Connector T4 to T8
4	Transformer A
5	Transformer B
6	Power terminal
7	Transformer fuses

Tab. 6.a

6.1.2 Power supply



Notice: recommended cable size: 2.5 mm² (AWG 13).

Check that the unit's power supply voltage corresponds to the rated data.

The connection must be made in compliance with national and local regulations in force.



IMPORTANT:

- cables must comply with local regulations;
- install a switch upstream of the pumping station to isolate it from the power supply line;
- provide a TT earth system, with earth fault current protection => 30 mA.

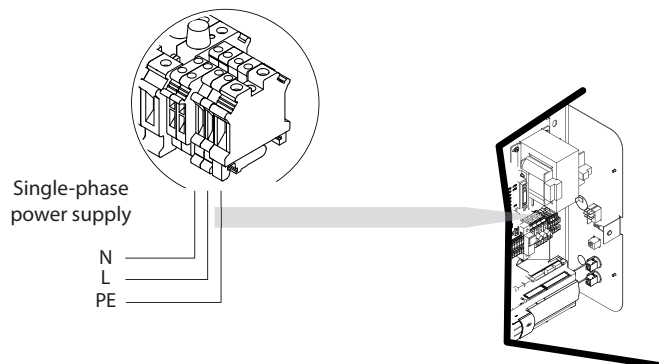


Fig. 6.b

6.2 Control connections

The type of control is selected on the user interface. See the humidification system **commissioning manual**.



Notice: for all control connections:

- recommended cable size: 0.3 - 0.5 mm² (AWG 22/20) up to 30 m
- recommended cable size: 0.8 - 1.3 mm² (AWG 18/16) > 30 m

6.2.1 Enable zone production



Notice: the zone panel is supplied with the ID6 - G0A contacts jumpered. To enable the rack remotely, remove the jumper and connect a voltage-free contact.

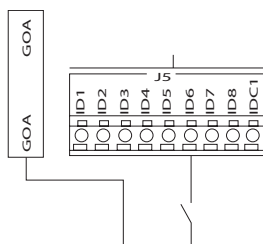


Fig. 6.c

Connector	Terminals
J5	ID6-G0A

Tab. 6.b

6.2.2 Enable from air flow switch (FLUX): Air flow switch

Enable from air flow switch input.



Notice: the zone panel is supplied with the ID7 - GND terminals jumpered.

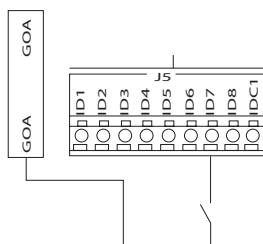


Fig. 6.d

Connector	Terminals	Device
J5	ID7 - G0A	fl w switch (contact open/closed = production disabled/enabled)

Tab. 6.c

6.2.3 On/off control signal



Notice: contact type: voltage-free.

A) ON/OFF

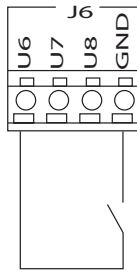


Fig. 6.e

Connector	Terminals
J6	GND - U6

Tab. 6.d

B) ON / OFF AND HUMIDITY/TEMPERATURE LIMIT PROBE

Inputs allowed for limit probe: 0 to 1 V; 0 to 10 V; 2 to 10 V; 0 to 20 mA; 4 to 20 mA; NTC

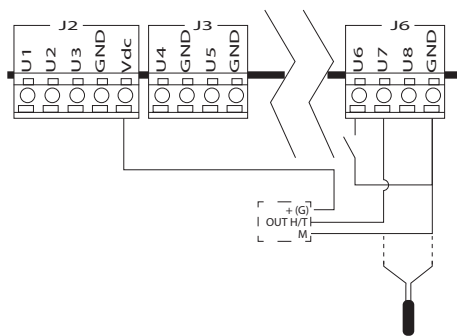


Fig. 6.f

Connector	Terminals	Device
J6	U6 - GND	Humidistat/thermostat
J6	U7 - GND - Vdc	Active humidity/temperature probe
J6	U7 - GND	NTC probe

Tab. 6.e

6.2.4 Modulating control signal

With a modulating control signal, depending on the type of controller, the following can be connected to the terminals:

- external controller
- external controller and humidity/temperature limit probe
- main humidity/temperature probe
- main humidity/temperature probe and humidity/temperature limit probe
- dual main humidity/temperature probe
- triple main humidity/temperature probe
- * rack temperature limit probe (can be used with some of the previous control configurations)



IMPORTANT: use shielded cables. The cables must not be placed near the power supply cables or contactors, to avoid electromagnetic disturbance.

A) Modulating control with external controller

Possible inputs: 0 to 1 V; 0 to 10 V; 2 to 10 V; 0 to 20 mA; 4 to 20 mA.

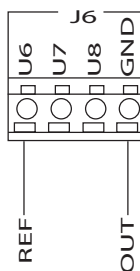


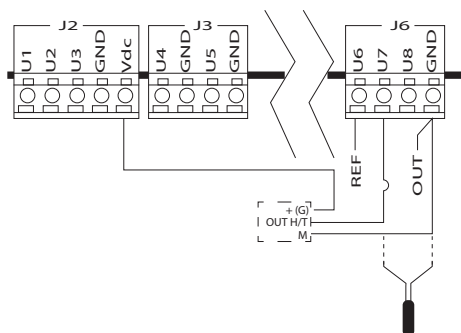
Fig. 6.g

Connector	Terminals	Device
J6	U6 - GND	Signal from external controller

Tab. 6.f

B) Modulating control with external controller and humidity/temperature limit probe

Possible inputs: 0 to 1 V; 0 to 10 V; 2 to 10 V; 0 to 20 mA; 4 to 20 mA; NTC



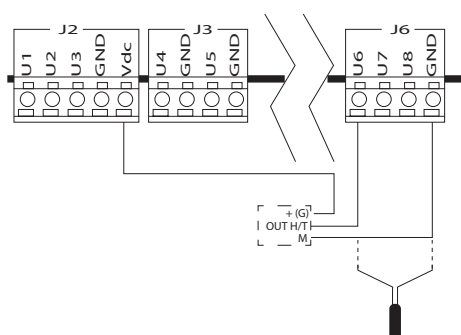
Connector	Terminals	Device
J6	U6 - GND	Signal from external controller
J6	U7 - GND - Vdc	Humidity/temperature limit probe
	U7 - GND	NTC

Tab. 6.g

Fig. 6.h

C) Modulating control with humidity/temperature probe

Possible inputs: 0 to 1 V; 0 to 10 V; 2 to 10 V; 0 to 20 mA; 4 to 20 mA; NTC

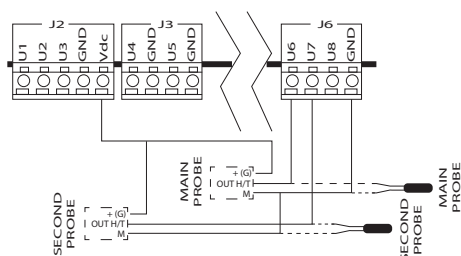


Connector	Terminals	Device
J6	U6 - GND - Vdc	Active humidity/temperature probe
	U6 - GND	NTC

Tab. 6.h

Fig. 6.i

D) Modulating control with humidity/temperature probe and humidity/temperature limit probe



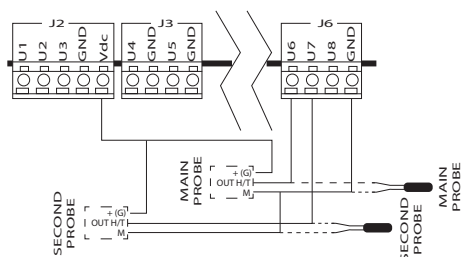
Connector	Terminals	Device
J6	U6 - GND - Vdc	Active humidity/temperature probe
	U6 - GND	NTC
J6	U7 - GND - Vdc	Humidity/temperature limit probe
	U7 - GND	NTC

Tab. 6.i

Fig. 6.j

E) Modulating control with dual humidity/temperature probe

Possible inputs: 0 to 1 V; 0 to 10 V; 2 to 10 V; 0 to 20 mA; 4 to 20 mA; NTC

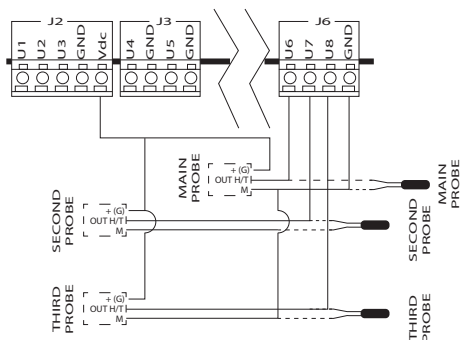


Connector	Terminals	Device
J6	U6 - GND - Vdc	Active humidity/temperature probe
	U6 - GND	NTC
J6	U7 - GND - Vdc	Active humidity/temperature probe
	U7 - GND	NTC

Tab. 6.j

Fig. 6.k

F) Modulating control with triple humidity/temperature probe



Connector	Terminals	Device
J6	U6 - GND - Vdc	Active humidity/temperature probe
	U6 - GND	NTC
J6	U7 - GND - Vdc	Active humidity/temperature probe
	U7 - GND	NTC
J6	U8 - GND - Vdc	Active humidity/temperature probe
	U8 - GND	NTC

Tab. 6.k

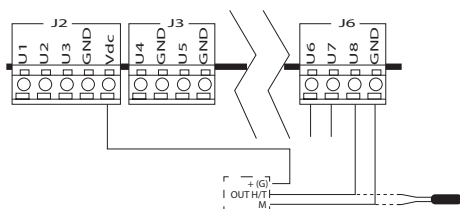
Fig. 6.l

G) Modulating control with rack temperature limit probe



Notice: this control configuration cannot be integrated with:

- modulating control with dual humidity/temperature probe;
- modulating control with triple humidity/temperature probe.



Connector	Terminals	Device
J6	U8 - GND - Vdc	Temperature probe
	U8 - GND	NTC

Tab. 6.l

Fig. 6.m

6.3 Solenoid valve connections

Cable type	Max length
0.8 mm ² (AWG 18)	30 m

Tab. 6.m

6.3.1 Solenoid valve connection for atomisation system

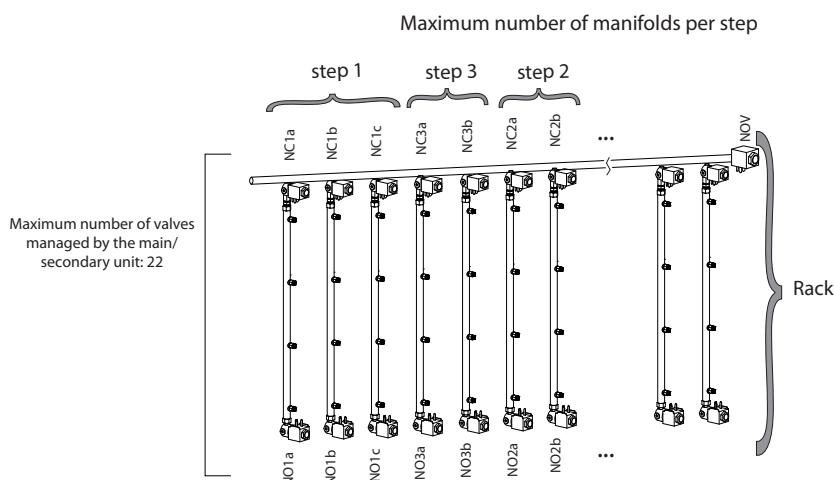


Fig. 6.n

Below is the wiring diagram to the connectors on the electrical panel.

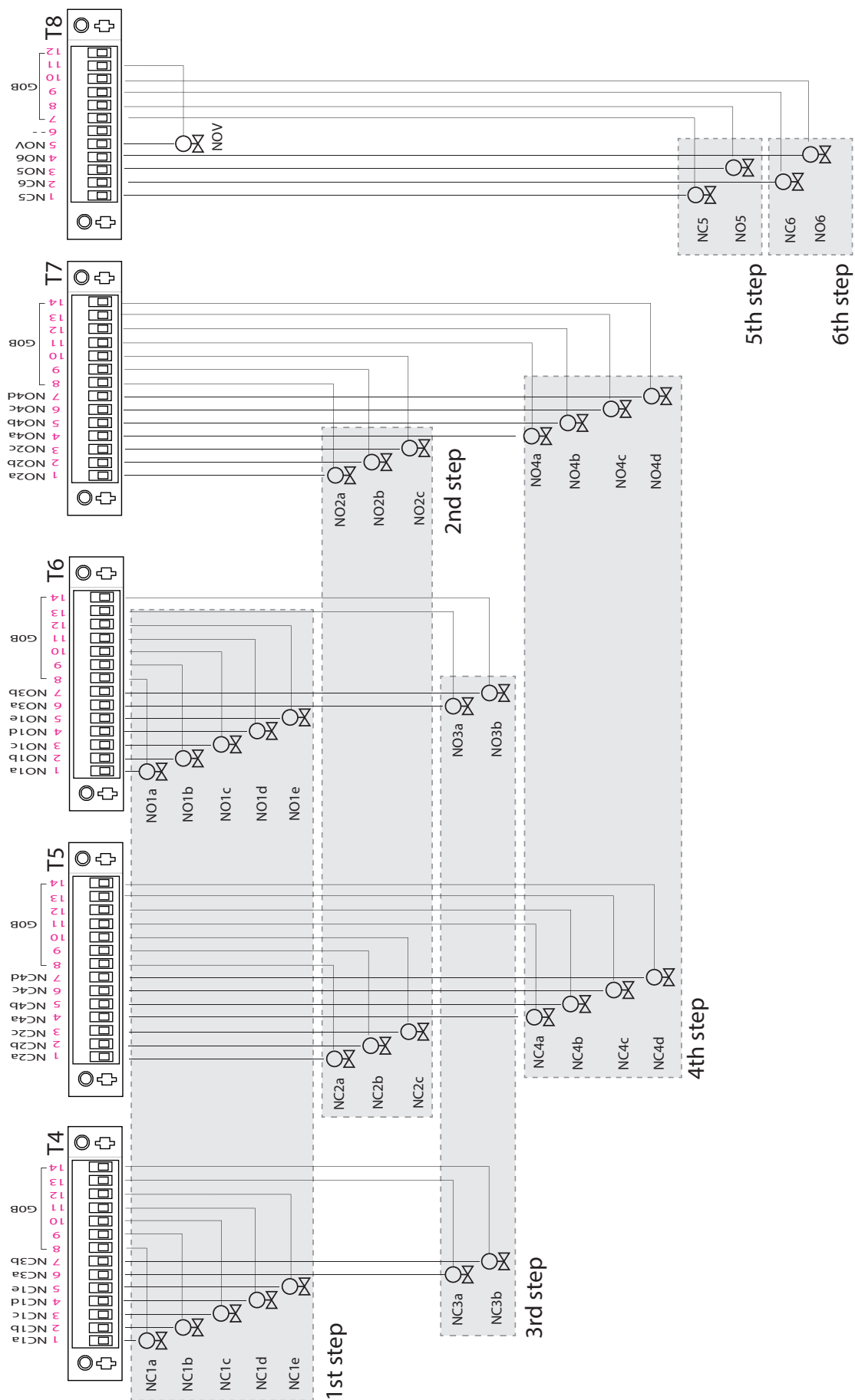


Fig. 6.0

6.3.2 Line drain solenoid valve connection

The line drain valve (NOL) empties the water line that connects the pumping station to the distribution system in each zone.



IMPORTANT: this should be installed near the pumping station and in any case at the lowest point in the system, to facilitate emptying by gravity.

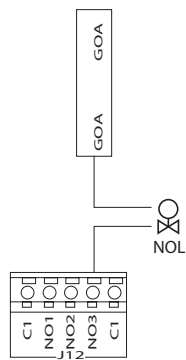


Fig. 6.p

Connector	Terminals
J12	NO3 - GOA

Tab. 6.n



Notice: recommended cable size: for lengths < 30 m (1181 inches): 0.8 mm² (0.00155 in²) (AWG 18).

6.4 Inputs and outputs

6.4.1 Alarm output

The alarm output is activated when one or more alarms are detected. The contact/output can be relayed to a supervisory system.

Relay electrical specifications	Power 500 VA; Voltage 250 V; Current 2 A resistive/inductive	
Relay status and operation	Contact open	alarms present
	Contact closed	no alarms present

Tab. 6.o

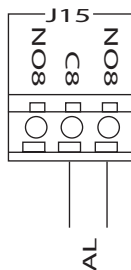


Fig. 6.q

Connector	Terminals
J15	C8-NO8

Tab. 6.p

6.4.2 Zone status output

Digital output that indicates the status of the zone (contact closed - zone atomisation active, contact open - zone atomisation not active).

Relay electrical specifications	Power 500 VA; Voltage 250 V; Current 1 A resistive/inductive	
Relay status and operation	Contact open	alarms present
	Contact closed	no alarms present

Tab. 6.q

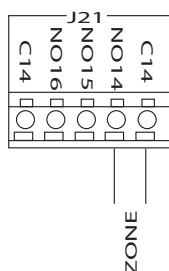


Fig. 6.r

Connector	Terminals
J21	NO14-C14

Tab. 6.r

7. TECHNICAL DATA

7.1 Technical specifications

	UA000SD500	UA000S2500	UA000SU500
ENVIRONMENTAL CONDITIONS			
Operating temperature (°C) (°F)	5 to 40°C (41 to 104°F)		
Operating humidity (rH)	0 to 90% non-condensing		
Storage temperature (°C) (°F)	-10 to 50°C (-14 to 122°F)		
Storage humidity (rH)	0 to 90% non-condensing		
Ingress protection	IP20		
PHYSICAL SPECIFICATIONS			
Weight (kg) (lb)	19.6 (43.2)		
Dimensions w x d x h	491 x 155 x 433 (19.33 x 6.1 x 17)		
Height (mm) (in)	433 (17)		
Width (mm) (in)	491 (19.33)		
Depth (mm) (in)	155 (6.1)		
Clearance at top (mm) (in)	500 (20)		
Clearance at sides (mm) (in)	500 (20)		
Clearance at front (mm) (in)	1000 (39)		
ELECTRICAL SPECIFICATIONS			
Power supply voltage (Vac)	230 V (±10%)	208 V (±10%)	
Phases	1		
Frequency (Hz)	50/60 Hz (±1%)		
Power (kW)	0.5 kW (3/4 Hp)		
Current (A)	2.2 A	2.5 A	
Cable size at terminal (mm2) (in2)	2.5 mm2 (0.004 in2)		
SCCR (kA)	5 kA		
CONTROLLER SPECIFICATIONS			
Type	c.pCO		
Probe inputs	0 to 1 Vdc, 0 to 10 Vdc, 2 to 10 Vdc, 0 to 20 mA, 4 to 20 mA, NTC		
Serial communication	three-wire RS485 / Fieldbus / BMS		
Communication protocol	Modbus / BACNET		
USB port	1 type A USB port		
Ethernet port	2 Ethernet ports		

Tab. 7.a

7.2 Terminal tightening torque

Ref.	Tightening torque (Nm)
Single terminal	5.3 min to 7 max
Double terminal	5.3 min to 7 max
Terminal with fuse	13 min to 16 max
Earth terminal	13 min to 16 max

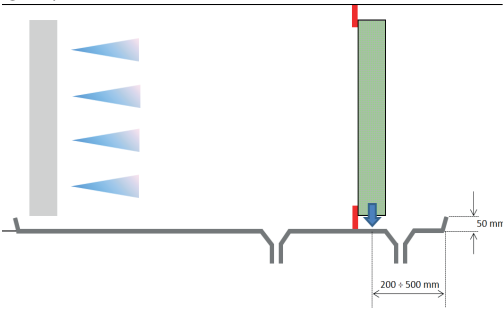
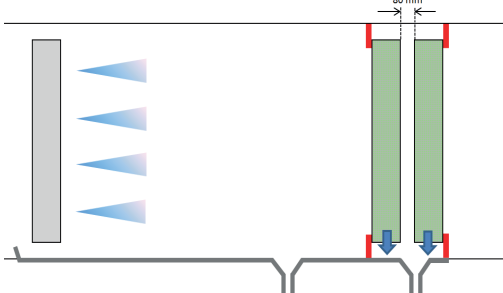
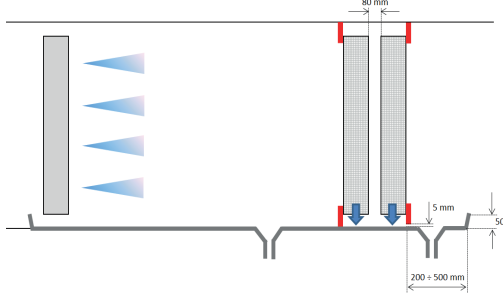
Tab. 7.b

7.3 Fuse chart

	Zone panel		
Fuse	UA000SD500	UA000S2500	UA000SU500
F1	1A T 5x20 250 V	1A T 5x20 250 V	1A T 5x20 250 V
F2	1A T 5x20 250 V	1A T 5x20 250 V	1A T 5x20 250 V
F4	4A T 5x20 250 V	4A T 5x20 250 V	4A T 5x20 250 V
F5	4A T 5x20 250 V	4A T 5x20 250 V	4A T 5x20 250 V
F9	20A F 10.3x38 500 V	20A F 10.3x38 500 V	20A F 10.3x38 500 V

Tab. 7.c

8. CHECKLIST

Final installation checklist			
1. Installation site		Yes	No
1.a	Temperature range 1 – 40 °C (34 – 104 °F).		
1.b	Protected against rain and humidity.		
1.c	Protected against direct sunlight.		
2. Water line		Yes	No
2.a	All water connections fit ed correctly.		
2.b	Materials compatible for use with water treated by reverse osmosis (stainless steel/plastic).		
2.c	Piping on pumping station feedwater line suitable for an operating pressure range of 2 to 5 bars.		
2.d	Piping of water outlet line from pumping station to the atomisation system suitable for pressures of up to 100 bars.		
2.e	Length of the outlet line from the pumping station to the atomisation system within the limits specified y the manufacturer (par. 5.2).		
2.f	NOL drain solenoid valves installed at the lowest points of the circuit to facilitate drainage of water (Fig. 5.c).		
2.g	Drain pipe and drain tank installed in accordance with the manufacturer's instructions (par. 4.2).		
3. Electrical connections		Yes	No
3.a	Solenoid valves wired n accordance with the manufacturer's instructions (par. 6.2).		
3.b	Connection cables suitably sized for the maximum distance between the pumping station or the zone control-ler and the rack (par. 6.3).		
3.c	Enabling and control signals wired in accordance with the manufacturer's instructions (par. 6.4).		
3d	Ethernet connection in accordance with the manufacturer's instructions.		
4. Droplet separator		Yes	No
4.a	Double droplet separator at a distance of 80 mm (3.15").		
4.b	Size of the drain tank underneath the separator from 200 to 500 mm (7.87" to 19.70").		
4.c	Separator installed in accordance with the manufacturer's instructions provided in the quick guide +05000661E, depending on the type: - single layer  - double layer  - double layer 		

9. ANNEXES

Annex A: Wiring diagrams

Single-phase power supply: UA000SD500 - UA000S2500 - UA000SU500

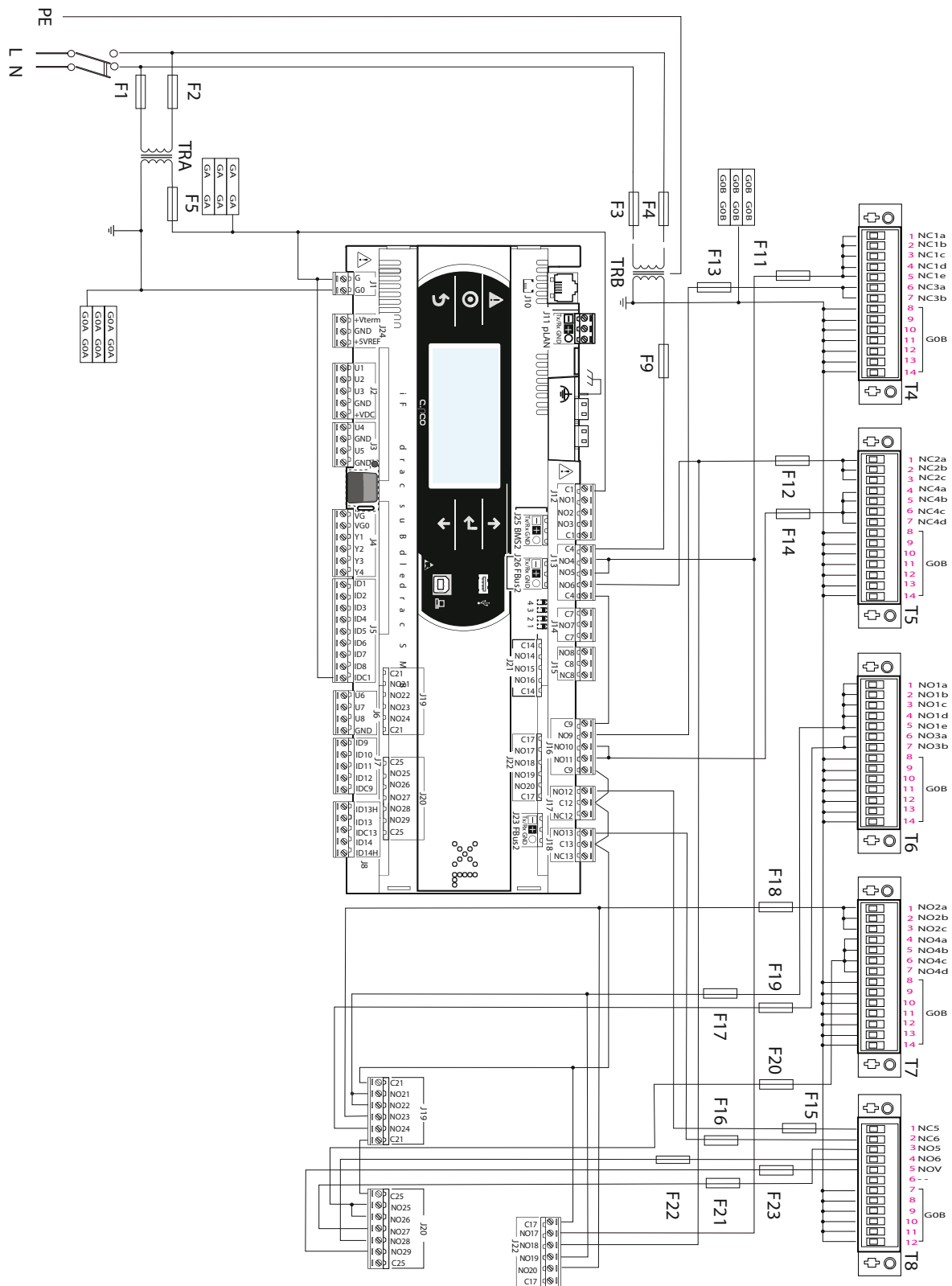
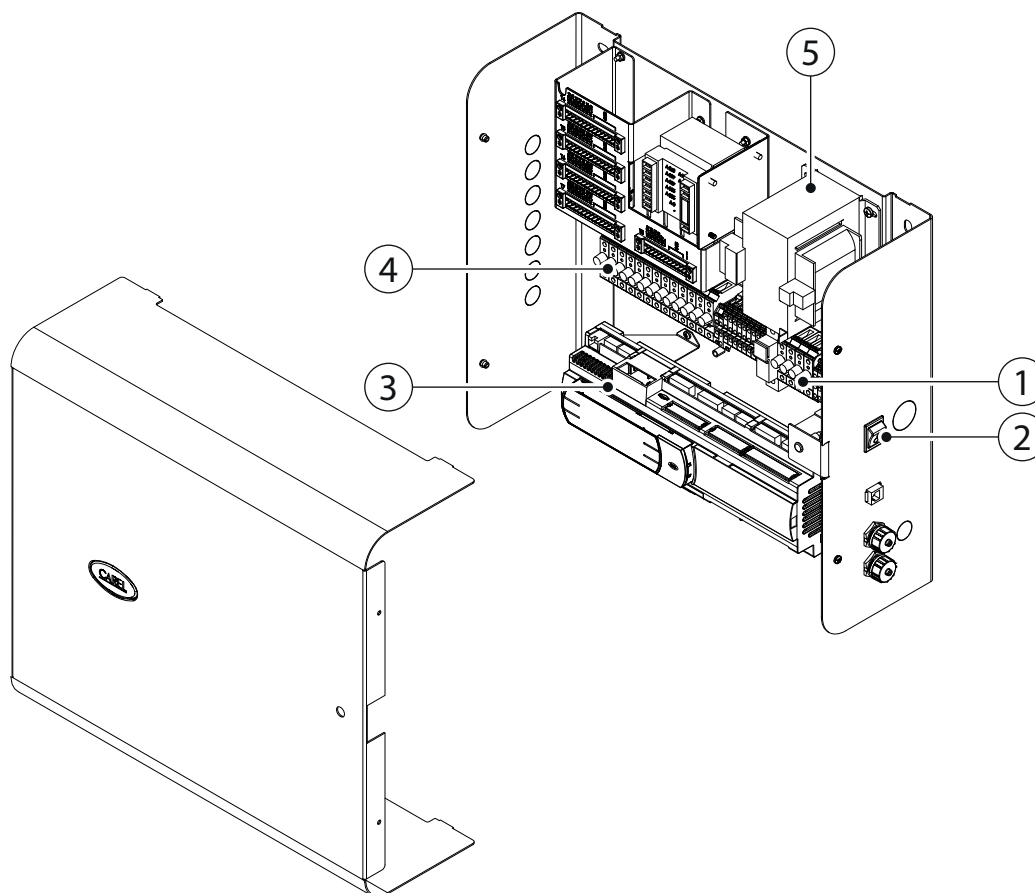


Fig. 9.a

Annex B: Accessories and spare parts kits



Part number	Description	Ref. figure	Quantity per humidifier
UAKFTR0AC0SP	Transformer fuse kit for UA150-300-500 CE	1	
UAKFTR0AC1SP	Transformer fuse kit for UA150-300-500 UL	1	
CHKSW16000	Zone panel main switch	2	
UAKPCOZ00SP	Electronic controller for UA*5* zone panel	3	
UAKFUSEVA0	Solenoid valve fuse kit	4	
URKTR10000	100 VA 230/400V 24V transformer	5	
UAKTRB0000	400 VA 208/230V 24V transformer	5	

Note

[illegible]

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