



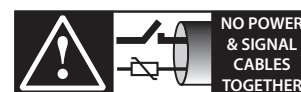
humiFog Multizone

pumping station and zone panel



COMMISSIONING MANUAL

→ **LEGGI E CONSERVA
QUESTE ISTRUZIONI** ←
**READ AND SAVE
THESE INSTRUCTIONS**



**NO POWER
& SIGNAL
CABLES
TOGETHER**

READ CAREFULLY IN THE TEXT!

humiFog Multizone

+0300115EN - ENG

Updated version available on

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 specific 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.

IMPORTANT

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

IMPORTANT:

- 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 the humidifier 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

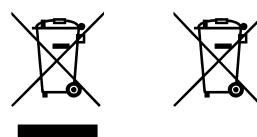


Fig. 1

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), is 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



Intertek & WaterMark marks.



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1. PURPOSE OF THE MANUAL

This manual contains the instructions for the commissioning and use of the humiFog Multizone high-pressure adiabatic humidification system, 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 "fi." 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)".



CAUTION

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 a 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.



CAUTION

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 Multizone 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.



CAUTION: 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 in the country where the appliance is installed.
- Do not activate the pumping station without it being adequately supplied with water.
- The user 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 user 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 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. SYSTEM IDENTIFICATION

Before proceeding with configuration and therefore commissioning the system, the type of system installed and its specific components need to be identified.

4.1 Types and components

The system comprises the following components:

- pumping station (par. 4.3) comprising the system pump and the electrical panel;
- zone electrical panel (par. 4.4);
- distribution system (rack) and droplet separator for humidification in ducts (AHU - Air Handling Unit) (par. 4.4.2);
- blower unit for in-room humidification (par. 4.4.1).

The system can be arranged differently depending on whether it is used for humidification in ducts (par. 4.2.1) or in rooms (par. 4.2.2), and based on the number of zones provided by the system:

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

The following diagrams provide an overview for identifying the correct type of system and its components.

4.2 System configuration

4.2.1 AHU - Air Handling Unit

Single zone

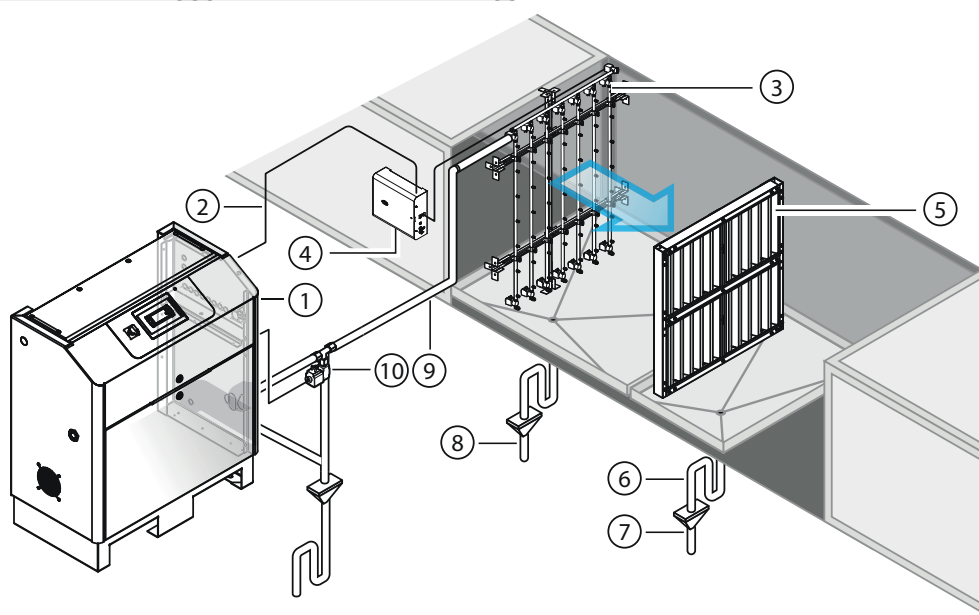


Fig. 4.a

Ref.	Description
1	Pumping station
2	Ethernet cable
3	Distribution manifolds (racks)
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



Notice: in some configuration, element ref. 4 (zone electrical panel) may not be included.

Multizone

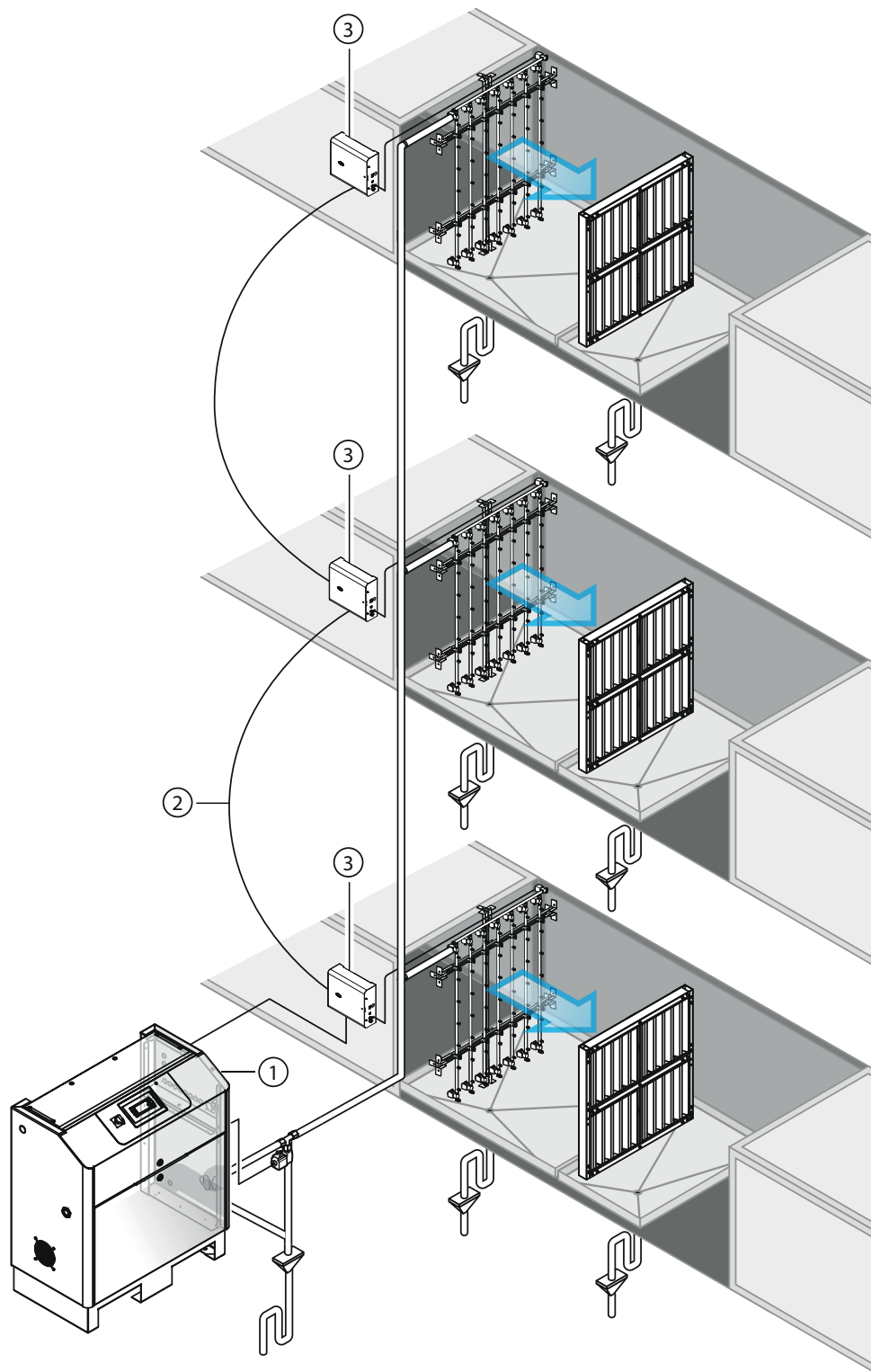


Fig. 4.b

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

Tab. 4.b

4.2.2 Direct in-room

Single zone

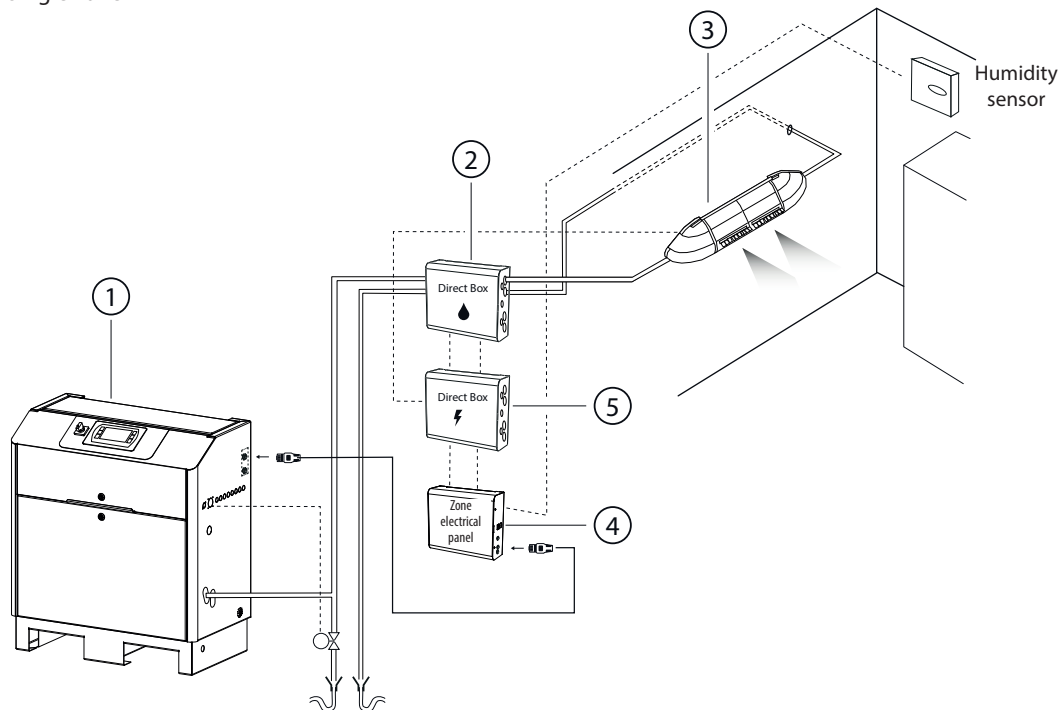


Fig. 4.c



Notice: in some configuration , element ref. 4 (zone electrical panel) may not be included.

Multizone

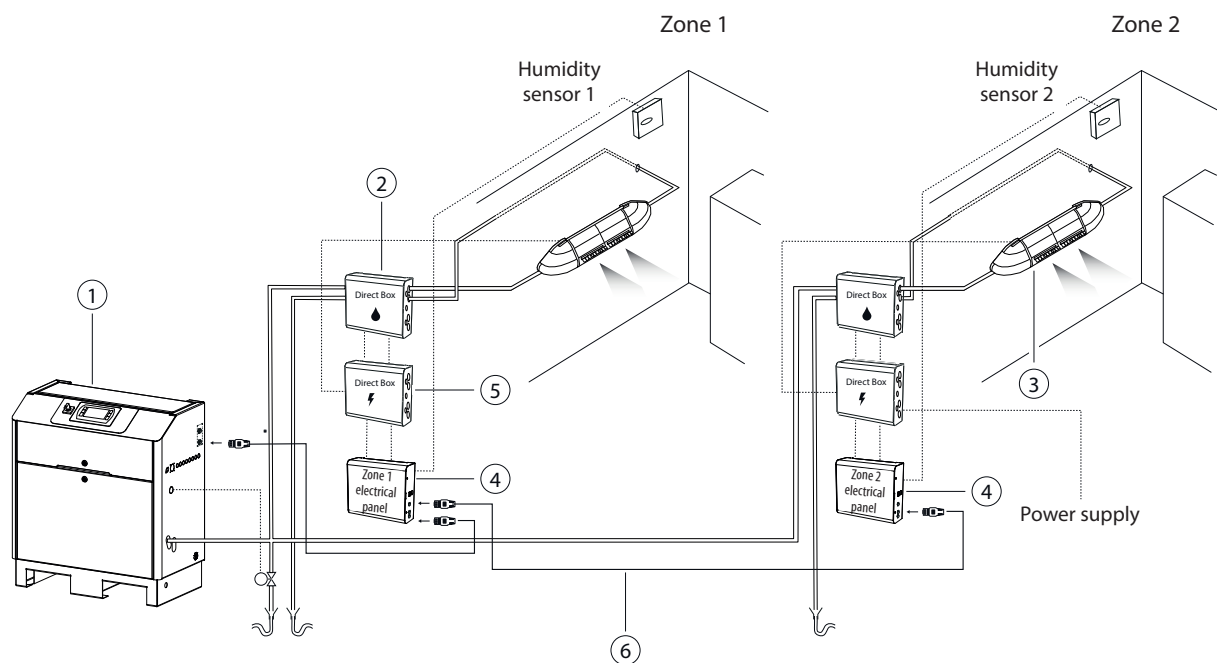


Fig. 4.d

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

Tab. 4.c

4.3 Identification of the pumping station

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

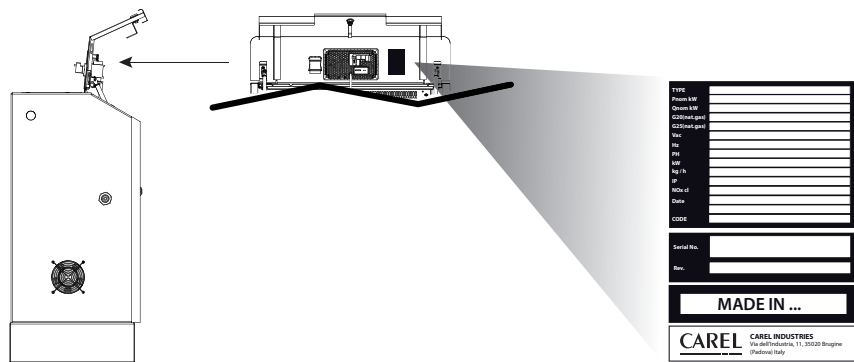


Fig. 4.e

The pumping station is available on the humiFog Multizone and humiFog Multizone Touch models, which differ in terms of the components supplied, the accessories available and the different system configuration modes (pa . 4.5).

4.3.1 Part numbers

U	A	*	*	*	*	*	5	0	*
Range		Flow-rate kg/h		Model	Power supply and approval	Revision no.	Customisation	Pump type	
UA: humiFog	150: 150 kg/h	0: humiFog Multizone		1: humiFog Multizone Touch	D: 230 Vac 50/60 Hz, 1~, CE L: 400 Vac 50/60 Hz, 3~, CE 2: 230 Vac 50/60 Hz, 1~, UL U: 208 Vac 50/60 Hz, 1~, UL M: 460 Vac 50/60 Hz, 3~, UL	5: Fifth revision	0: Carel	0: Brass	
	300: 300 kg/h							1: Stainless steel	
	500: 500 kg/h							2: Silicone-free stainless steel	
	800: 800 kg/h								
	1K2: 1200 kg/h								

Tab. 4.d

4.4 Identification of accessories

Zone electrical panel

Electrical panel connected to the pumping station for managing multizone in-room or duct systems.
See technical leaflet +0300114**.



Fig. 4.f

Ref.	Description
UA000SD500	230 V electrical panel
UA000SU500	208 V 60 Hz electrical panel
UA000S2500	230 V 60 Hz electrical panel

Tab. 4.e

4.4.2 In-room humidification

directBOX hydraulic

Water circuit assembly for interfacing the pumping station with the blowers for in-room humidification. This contains the solenoid valves for pressurising 1/2 water lines (zone/step). See technical leaflet +050001828



Fig. 4.g

Ref.	Description
UAKDLASV10	directBOX hydraulic for managing 1 zone/step
UAKDLASV20	directBOX hydraulic for managing 2 zones/steps

Tab. 4.f

directBOX electric

Electrical panel for interfacing the pumping station with the blowers for in-room humidification. This receives the control signal for the fill and drain valve (1 or 2 zones/steps) and relays this to the directBOX hydraulic to actuate the valves. At the same time it controls the blower fans, which are only activated when there is a humidification request. See technical leaflet +050001828.



Fig. 4.h

Ref.	Description
UAKDLAEL10	directBOX electric for managing 1 zone/step
UAKDLAEL20	directBOX electric for managing 2 zones/steps

Tab. 4.g

Blower unit

The blowers are positioned directly in the room to be humidified and cooled. They differ in terms of flow rate and direction of spray. They are connected to the pumping station via the directBOX hydraulic and directBOX electric accessories. See technical leaflet +050001852



Fig. 4.i

D	L	A	0	*	*	*	*	0	0
range				Nozzle quantity	Power supply	Distribution	Nozzle size (l/h)	--	--
				2	D: 230 Vac 50 Hz, 1~	F: frontal delivery	0: 1.45		
				4	U: 115 Vac 60 Hz, 1~	B: front and rear	1: 2.80		
				8			2: 4.00		

Tab. 4.h

Manifolds with nozzles

The distribution system is designed according to the specific application and comprising manifolds, solenoid valves, nozzles, pipes and fitting .

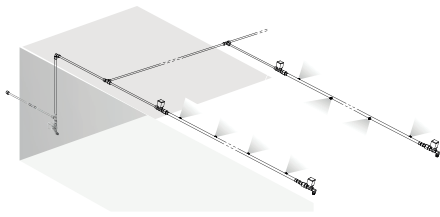


Fig. 4.j

4.4.3 Ducted humidification

Racks

The distribution system is designed according to the specific application and comprising manifolds with nozzles and fixing frame in the duct, available in the fully- or partially-assembled versions.

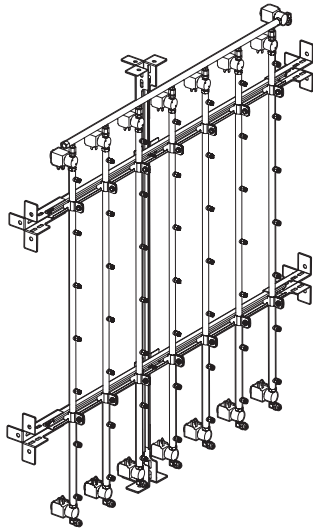


Fig. 4.k

The racks are available with:

- horizontal or vertical collectors;
- solenoid valves included on the rack.



Notice: for the humiFog Multizone system configuration and commissioning procedures, refer to the technical drawings to identify the characteristics of the racks installed.

Droplet separator

Frame with stainless steel or fib eglass modules.



Notice: the modules are sized according to the specific application

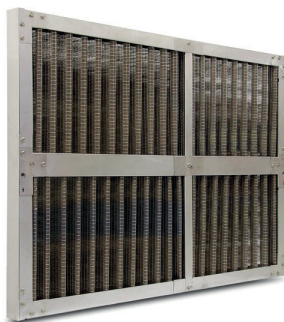


Fig. 4.l



Notice: for further information, see the humiFog Multizone installation manual.

4.5 User terminal

The user terminal is located at the top-front of the pumping station (1 - Fig. 4.m) and allows the user to interact with the control system.

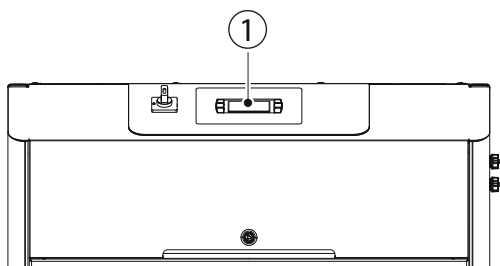


Fig. 4.m

4.5.1 humiFog Multizone (analogue interface)

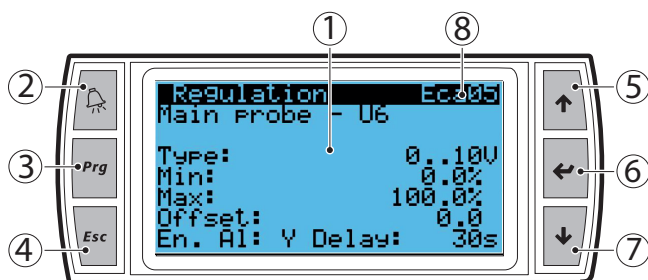


Fig. 4.n

Ref.	Description	Function
1	Display	
2	Alarm button	Display active alarms and alarm history. Reset the alarms.
3	Prg button (Prg)	Return to the main menu in any situation.
4	ESC button (Esc)	Return to the previous screen. View the notification centre from the main page.
5	UP ARROW (↑)	Scroll the interface sub-menus and modify the value of the selected parameter.
6	ENTER button (↵)	Enter the selected sub-menu, confirm the parameter setting and select a specific parameter.
7	DOWN ARROW (↓)	Scroll the interface sub-menus and modify the value of the selected parameter.
8	Screen index	Uniquely identifies the screen shown on the display.

Tab. 4.h

humiFog Multizone quick menu

The Quick menus provide quick access to the system functions and information directly from the main screen, without needing to log in.

There are three Quick menus:

- INFO
- SET
- ON/OFF

When the main screen is displayed

- Use ↑ & ↓ to select the desired Quick menu.
- Press ↵ to access the selected Quick menu.

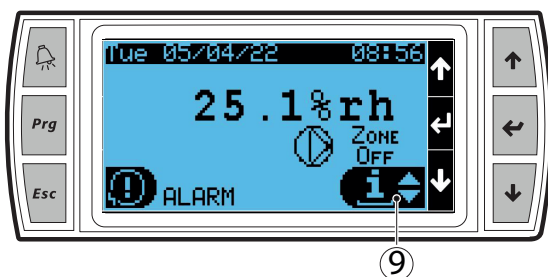


Fig. 4.o

Ref.	Description	Function
9	Quick menu icon	Access the functions corresponding to the quick menu displayed.
	 INFO Quick menu	Pumping station: Read-only screens that display the main unit and system zone status values. Zone panel: Read-only screens that display the main zone status values.
	 SET Quick menu	Pumping station: Screens for setting the main unit and system zone values. Zone panel: Screens for setting the main zone values.
	 ON/OFF Quick menu	Pumping station: Screens for enabling/disabling the entire system or individual zones. Zone panel: Screens for enabling/disabling the zone.

Tab. 4.i

Active alarms and alarm history

The active alarms screen shows the list of active alarms on the device.

To enter the active alarms screen, press button 2 - Fig. 4.p.



Notice: if a guided procedure is in progress (e.g. wizard), the active alarms screen cannot be accessed until the wizard has terminated.

- Use **↑** & **↓** to scroll the list of active alarms.
- Press button 2 - Fig. 4.p to reset the displayed alarm.
- Press **Esc** to return to the main screen.

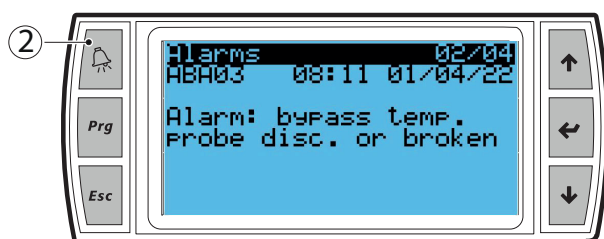


Fig. 4.p

To enter the alarm log, use **↑** & **↓** to display the following screen (Fig. 4.q).



Fig. 4.q

- Press button 2 - Fig. 4.q to reset all the alarms.
- Press **←** to access the alarm log screen.
- Use **↑** & **↓** to scroll the list of logged alarms.
- Press **Esc** to return to the main screen.

Notification centre

The notification centre shows the list of notifications on the device.

To enter the notification centre, press button 4 - Fig. 4.r from the main screen.

- Use **↑** & **↓** to scroll the list of notification .
- Press **←** to access information on the selected notification (Fig. 4.s).
- Press **Prg** to clear the displayed notification, where applicable (Fig. 4.s).
- Press **Esc** to return to the main screen.



Fig. 4.r

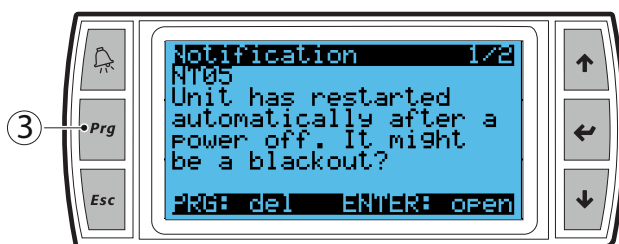


Fig. 4.s

5. PREPARING FOR OPERATION

5.1 Preliminary operations

Once the type of system, the components and the type of control system installed have been identified, the following preliminary checks need to be completed:

- complete the installation checklist (par. 5.2);
- complete the commissioning checklist (par. 5.3).

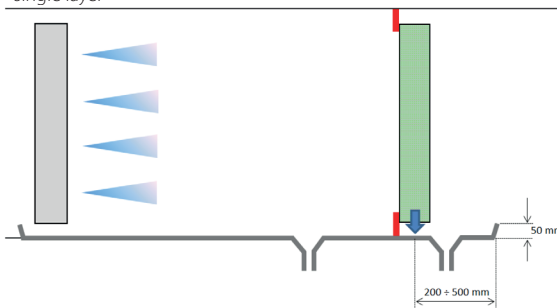
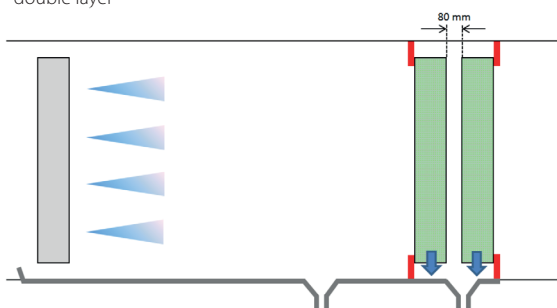
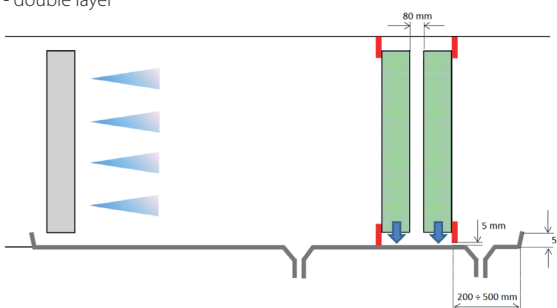
5.1.1 Material required

The following are required to configure humiFog Multizone:

- humiFog Multizone installation manual
- zone panel installation manual
- drawings of distribution manifolds (racks), if included

5.2 Installation 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 by the manu- facturer (par. 5.2 of the installation manual).		
2.f	NOL drain solenoid valves installed at the lowest points of the circuit to facilitate drainage of water (Fig. 5.c in the installation manual).		
2.g	Drain pipe and drain tank installed in accordance with the manufacturer's instructions (par. 4.2 of the installation manual).		
3. Electrical connections		Yes	No
3.a	Solenoid valves wired n accordance with the manufacturer's instructions (par. 6.2 of the installation manual).		
3.b	Connection cables suitably sized for the maximum distance between the pumping station or the zone panel and the rack (par. 6.3 of the installation manual).		
3.c	Enabling and control signals wired in accordance with the manufacturer's instructions (par. 6.4 of the installation manual).		
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 +0500066IE, depending on the type: - single layer		
			
- double layer			
			
- double layer			
			

5.3 Commissioning checklist

Final commissioning checklist		
1. Preliminary checks		
1.a	Inlet water line pressure range 2 - 5 bars (29 - 73 psi)	
1.b	Purge water line	
1.c	Red pump oil cap replaced with yellow cap	
2. Water line		
2.a	All water connections fitted correctly.	
2.b	Visually check pressurised water line for any leaks	
2.c	Manually test NOL and NOV valves	
2.d	Manually test NO and NC valves	
2.e	Drain line installed at the right slope to guarantee drainage (at least 2 - 3°)	
2.f	NOL drain solenoid valves installed at the lowest points of the circuit to facilitate drainage of water (Fig. 5.c in the installation manual).	
3. Electrical connections		
3.a	Control signal properly connected	
3.b	Control signal functioning properly: E.g.: 0-10 V proportional signal	
	• 0 V » STOP/STAND-BY	
	• 5 V » 50% atomised water production	
	• 10 V » 100% atomised water production	
	For different types of signals, see this document (par. 8.4.1)	
3.c	Limit probe installed (high humidity control after the humidification section)	
3.d	NTC probe installed (low temperature control before the humidification section)	
3.e	Remote contact ON/OFF switch correctly connected to the ventilation system	
3.f	Test remote contact ON/OFF switch operation	
3.g	Test alarm switch operation (check NO/NC logic)	
3.h	Check the working pressure at the minimum flow-rate by carrying out the minimum rack production calibration procedure (see par. 8.4.3)	

6. COMMISSIONING

When first starting the humiFog Multizone high-pressure adiabatic humidification system, the main components need to be checked (par. 4.1) from the user terminal.

6.1 Switching on humiFog Multizone

Before starting the unit, check that the water and electrical connections have been completed correctly in accordance with the instructions provided by the manufacturer.

Switch the system on as follows:

1. switch on the pumping station by turning the disconnect switch (1 - Fig. 6.a) from O (OFF) to I (ON)

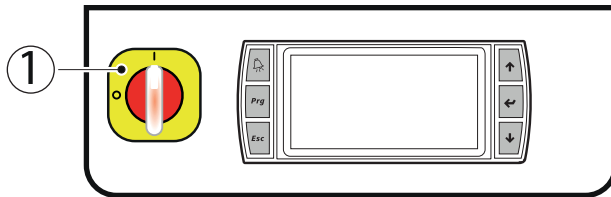


Fig. 6.a

2. switch on all the zone panels (if present) by pressing the power button on the side of the device (2 - Fig. 6.b).

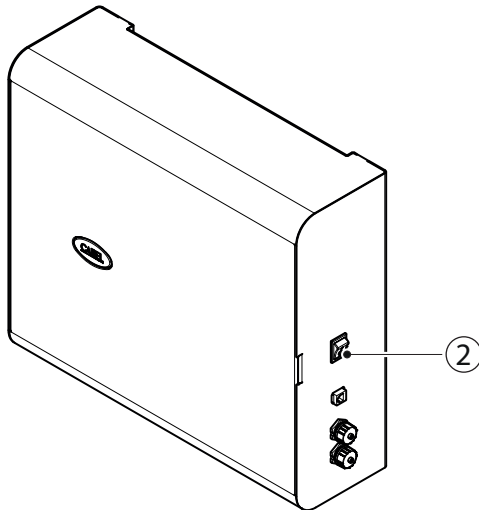


Fig. 6.b

3. The unit can now be commissioned (see par. 6.1.1).

6.1.2 Commissioning the unit - humiFog Multizone

When the unit is switched on, the CAREL logo is shown on the display. The language setting prompt is then displayed.

Press **←** to scroll through the options.

Press **Esc** to confirm the selected language.

6.2 Start-up sequence for system configuration

Based on the system configuration (par. 4.2), different system start-up sequences are available. The start-up sequences are described below, with reference to the paragraphs illustrating the steps in the configuration wizard.

- **humiFog Multizone (analogue) in single-zone mode without local zone**
 1. Pumping station configuration - without local zone (see par. 6.3)
 2. Backup pumping station configuration - without local zone (see par. 6.4)
 3. Zone panel configuration (see par. 6.6)
- **humiFog Multizone (analogue) in single-zone mode with local zone**
 1. Pumping station configuration - with local zone (see par. 6.4)
- **humiFog Multizone (analogue) in multizone mode without local zone**
 1. Pumping station configuration - without local zone (see par. 6.3)
 2. Backup pumping station configuration - without local zone (see par. 6.4)
 3. Zone panel configuration (see par. 6.6)
- **humiFog Multizone (analogue) in multizone mode with local zone**
 1. Pumping station configuration - with local zone (see par. 6.4)
 2. Zone panel configuration (see par. 6.6)



Note: If the system foresees the presence of a backup pumping station, this must necessarily be isolated from the rest of the system before being configured. Only once the configuration has been completed, according to the instructions in the above paragraphs, can the backup pumping station be connected to the rest of the system.

6.3 Pumping station configuration (humiFog Multizone) Without local zone

During commissioning, after having selected the language, a wizard is shown to help the operator quickly configure the main unit parameters. Press  to start the wizard.

- Use  &  to scroll the screens for the various configuration parameters.
- Press  to select the desired parameter on the screen.
- Use  &  to change the value of the selected parameter.
- Press  to confirm the parameter value.
- To modify the parameters on the other screens, press  until the cursor is back on the screen header and use  &  to scroll the screens for the various configuration parameters.

The following steps describe how to configure the pumping station without a local zone, using the humiFog Multizone analogue interface. The screen indexes (where relevant) are shown in brackets.



Notice: select the desired option based on the specific characteristics of the installed system.



Note: If the system foresees the presence of a backup pumping station, remember that the latter must be insulated from the rest of the system before starting with the configuration

Step 1

Set the pumping station model (only if not already set).

Step 2 [20]

Set the type of pumping station unit (primary).

Specify the type of pumping station unit in relation to whether there is a second backup pumping station. When the systems include two pumping stations that operate alternately, one needs to be defined as the primary unit and the other the secondary. This avoids conflicts and overlaps in role between the two pumping stations.

Set the type of system. The following options are available:

- AHU (Air Handling Unit)
- Direct in-room
- Pressurised water



Notice: the Pressurised water configuration allows the appliance to be used exclusively as a pressurised water generator (in this configuration, the operating pressures can be specified)

Step 3 [21]

Set the number of zones and the number of zone panels.

Step 4 [22]

Set the type of modulation (flow control/constant pressure)

Set the pressure set point (only in the event of constant pressure modulation).

Step 5 [23]

Enable multi-network functionality and set the network number (if necessary).

Step 6 [50]

Set the date and time parameters (*).

Step 7 [51]

Set the time zone parameters (*).



Notice (*): the new date and time and/or time zone is broadcast from the pumping station to the online remote zone units.

Step 8

The wizard is now finished.

On this screen, select whether or not to display the wizard the next time the unit is started.

Pumping station wizard screen index (without local zone)

Screen header	Index	Description
Unit model		Set the pumping station model
Pump logic and multi-network configuratio	20	Set the type of unit
		Set the type of system
	21	Set the number of zones and zone panels
	22	Set the type of modulation and pressure set point
	23	Set-up of the multi-network functionality
Date/time	50	Set the date and time
	51	Set the time zone



Note: Once the configuration is complete, if the system also foresees the backup pumping station, it is recommended to perform a check on the network configuration of the two pumping stations in order to ensure correct communication between the different units. In particular, the requirements for sub-network compatibility and uniqueness of IP addresses of all system elements must be met. Please refer to par. 8.2.3 to check the network configuration of the pumping station.

6.4 Backup pumping station configuration Without local zone

The backup pumping station must necessarily be isolated from the rest of the system before it is configured.

To configure the backup (secondary) pumping station, follow the instructions illustrated for configuring the primary pumping station without local zone (see par. 6.3), with the exception of **Step 2 [20]**.

In **Step 2 [20]** of the wizard, proceed as follows:

Set the type of the pumping station unit (secondary).

Specify the type of pumping station unit in relation to whether there is a second backup pumping station. When the systems includes two pumping stations that operate alternately, one needs to be defined as the primary unit and the other the secondary. This avoids conflicts and overlaps in role between the two pumping stations.

Set the type of system. The following options are available:

- AHU (Air Handling Unit)
- Direct in-room
- Pressurised water



Notice: the Pressurised water configuration allows the appliance to be used exclusively as a pressurised water generator (in this configuration, the operating pressures can be specified)



Note: Once the configuration is complete, it is recommended to perform a check on the network configuration of the two pumping stations in order to ensure the correct communication between the different units. In particular, the requirements for sub-network compatibility and uniqueness of IP addresses of all system elements must be met. Please refer to par. 8.2.3 to check the network configuration of the pumping stations. Only after both pumping stations have been correctly configured can the backup pumping station be connected to the rest of the system.

6.5 Pumping station configuration (humiFog Multizone) With local zone

During commissioning, a wizard is shown to help the operator quickly configure the main unit parameters.

Press  to start the wizard.

- Use  &  to scroll the screens for the various configuration parameters.
- Use  to select the desired parameter on the screen.
- Use  &  to change the value of the selected parameter.
- Use  to confirm the parameter value.
- To modify the parameters on the other screens, press  until the cursor is back on the screen header and use  &  to scroll the screens for the various configuration parameters.

The following steps describe how to configure the pumping station with a local zone, using the humiFog Multizone analogue interface. The screen indexes (where relevant) are shown in brackets.



Notice: select the desired option based on the specific characteristics of the installed system.

Step 1

Set the pumping station model (only if not already set).

Step 2 [20]

Set the type of pumping station unit (primary).

Specify the type of pumping station unit in relation to whether there is a second backup pumping station. When the systems includes two pumping stations that operate alternately, one needs to be defined as the primary unit and the other the secondary. This avoids conflicts and overlaps in role between the two pumping stations.

Set the type of system. The following options are available:

- AHU (Air Handling Unit)
- Direct in-room
- Pressurised water



Notice: the Pressurised water configuration allows the appliance to be used exclusively as a pressurised water generator (in this configuration, the operating pressures can be specified)

Step 3 [21]

Set the number of zones and the number of zone panels.

Step 4 [22]

Set the type of modulation (flow control/constant pressure)

Set the pressure set point (only in the event of constant pressure modulation).

Step 5 [23]

Enable multi-network functionality and set the network number (if necessary).

Step 6 [30]

Set the number of steps for the zone.

Step 7 [31]

Set the flow-rates for each step.

Step 8 [32]

Display the nominal rack capacity. This is calculated based on the values entered in screen [31].

Step 9 [40]

Set the type of control. The available options vary according to the type of application set, as shown in the following table.

Type of control

Humidity (single probe)
External signal + temperature limit
External signal + humidity limit
External proportional signal
ON/OFF signal + temperature limit
ON/OFF signal + humidity limit
ON/OFF signal
Dew point temperature + humidity limit
Dew point temperature
Adjustment by supervisor
Temperature + humidity limit
Temperature + temperature limit
Temperature (single probe)
Humidity + temperature limit
Humidity + humidity limit
Two temperature probes + humidity limit
Two humidity probes
Two temperature probes
Three humidity probes
Three temperature probes

Tab. 6.a



Notice: The parameters displayed on screens [41] [42] [43] change according to the control logic set.

Step 9 [41]

Set the parameters relating to the type of control.

The options available for the type of signal from the probe are:

- 0-10V
- 4-20mA
- 0-20mA
- 0-1V
- 2-10V
- NTC (temperature probe only)



Notice: on this screen the probe operating range can also be set (if modifiable), as well as the relative correction offsets and management of probe alarm activation.

Step 10 [42]

Set the parameters relating to the limit probe or the second probe.

The options available for the type of signal from the probe are those already described for screen [41]

Step 11 [43]

Set the parameters relating to the rack probe or the third probe.

The options available for the type of signal from the probe are those already described for screen [41]

Step 12 [44]

Set the parameters relating to the weight of the probes when measuring the values (control with two/three probes only).

Step 13 [45]

Set the modulating control set point and differential parameters relating to the probe (temperature or humidity).

Step 14 [46]

Set the modulating control integral time and dead zone (PID) parameters relating to the probe (temperature or humidity).

Step 15 [47]

Set the modulating control set point and differential parameters relating to the limit probe.

Step 16 [48]

Set the parameters relating to the production range (minimum and maximum).

Step 17 [50]

Set the date and time parameters (*).

Step 18 [51]

Set the time zone parameters (*).



Notice (*): the new date and time and/or time zone is broadcast from the pumping station to the online remote zone units.

Step 19

The wizard is now finished.

On this screen, select whether or not to display the wizard the next time the unit is started.

Pumping station wizard screen index (with local zone)

Screen header	Index	Description
Unit model		Set the pumping station model
Pump logic and multi-network configuration	20	Set the type of unit
		Set the type of system
	21	Set the number of zones and zone panels
	22	Set the type of modulation and pressure set point
Zone distribution system	23	Set-up of the multi-network functionality
	30	Set the number of steps
	31	Set the step flow-rates
	32	Display the rated zone rack capacity (sum of the set step flow-rates)
Zone control	40	Set the type of control
	41	Set the main probe (humidity)
	41	Set the on/off control signal logic
	41	Set the main probe (temperature)
	41	Set the external proportional signal
	41	Set the proportional control (supervisor)
	42	Set the limit probe/second probe (humidity)
	42	Set the limit probe/second probe (temperature)
	43	Set the rack probe/third probe (humidity)
	43	Set the rack probe/third probe (temperature)
	44	Set the probe weight (two probe control)
	44	Set the probe weight (three probe control)
	45	Set the modulating control set point and differential (humidity)
	45	Set the modulating control set point and differential (temperature)
	46	Set the modulating control PID (humidity)
	46	Set the modulating control PID (temperature)
	47	Set the limit probe set point and differential (humidity)
	47	Set the limit probe set point and differential (temperature)
	48	Set the minimum-maximum production range
Date/time	50	Set the date and time
	51	Set the time zone

6.6 Zone panel configuration

The zone panel can be configured as follows:

1. Using the display on the device
2. Using a mobile analogue display (optional) that can be connected to the device

6.6.1 Using the display inside the zone panel

To use the display inside the zone panel, unscrew the side screws (3 - Fig. 6.c) with a Phillips-head screwdriver and remove the front panel (4 - Fig. 6.c). The display inside the zone panel can now be used (5 - Fig. 6.c).

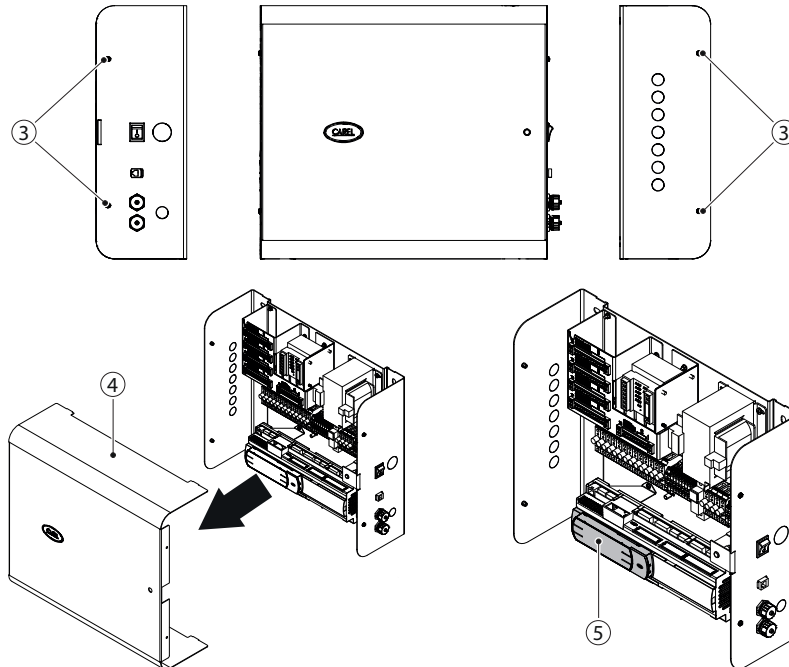


Fig. 6.c

6.6.2 Using a mobile analogue display (optional)

To use a mobile analogue display (optional), connect the mobile display (6 - Fig. 6.d) using an RJ11 cable to port (7 - Fig. 6.d) on the side of the zone panel.

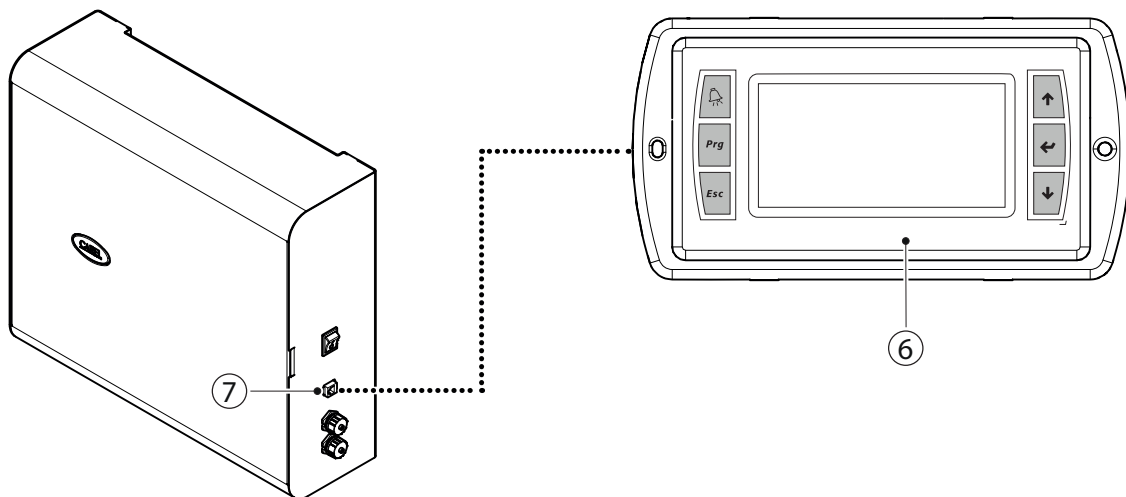


Fig. 6.d

6.6.3 Zone panel configuration procedure

During commissioning, a wizard is shown to help the operator quickly configure the main unit parameters.

Press  to start the wizard.

- Use  &  to scroll the screens for the various configuration parameters.
- Use  to select the desired parameter on the screen.
- Use  &  to change the value of the selected parameter.
- Use  to confirm the parameter value.
- To modify the parameters on the other screens, press  until the cursor is back on the screen header and use  &  to scroll the screens for the various configuration parameters.

The following steps describe how to configure the zone panels using the humiFog Multizone analogue interface. The screen indexes (where relevant) are shown in brackets.



Notice: select the desired option based on the specific characteristics of the installed system.

Step 1

Set the zone unit model (only if not already set).

Step 2 [12]

Set the zone number for the panel you are operating in, enable multi-network functionality and set the network number (if required).

Step 3 [30]

Set the number of steps for the zone.

Step 4 [31]

Set the flow-rates for each step.

Step 5 [32]

Display the nominal rack capacity. This is calculated based on the values entered in screen [31].

Step 6 [40]

Set the type of control. The available options vary according to the type of application set, as shown in the following table.

Adjustment type

Humidity (single probe)
External signal + temperature limit
External signal + humidity limit
External proportional signal
ON/OFF signal + temperature limit
ON/OFF signal + humidity limit
ON/OFF signal
Dew point temperature + humidity limit
Dew point temperature
Adjustment by supervisor
Temperature + humidity limit
Temperature + temperature limit
Temperature (single probe)
Humidity + temperature limit
Humidity + humidity limit
Two temperature probes + humidity limit
Two humidity probes
Two temperature probes
Three humidity probes
Three temperature probes

Tab. 6.b



Notice: The parameters displayed on screens [41] [42] [43] change according to the control logic set.

Step 7 [41]

Set the parameters relating to the type of control.

The options available for the type of signal from the probe are:

- 0-10V
- 4-20mA
- 0-20mA
- 0-1V
- 2-10V
- NTC (temperature probe only)



Notice: on this screen the probe operating range can also be set (if modifiable), as well as the relative correction offsets and management of probe alarm activation.

Step 8 [42]

Set the parameters relating to the limit probe or the second probe.

The options available for the type of signal from the probe are those already described for screen [41]

Step 9 [43]

Set the parameters relating to the rack probe or the third probe.

The options available for the type of signal from the probe are those already described for screen [41]

Step 10 [44]

Set the parameters relating to the weight of the probes when measuring the values (control with two/three probes only).

Step 11 [45]

Set the modulating control set point and differential parameters relating to the probe (temperature or humidity).

Step 12 [46]

Set the modulating control integral time and dead zone (PID) parameters relating to the probe (temperature or humidity).

Step 13 [47]

Set the modulating control set point and differential parameters relating to the limit probe.

Step 14 [48]

Set the parameters relating to the production range (minimum and maximum).

Step 15 [50]

Set the date and time parameters

Step 16 [51]

Set the time zone parameters.

Step 17

The wizard is now finished.

On this screen, select whether or not to display the wizard the next time the unit is started.

Zone panel wizard screen index

Screen header	Index	Description
Unit model		Set the unit model
Zone number	12	Setting of the current zone number and multi-network configuration
Zone distribution system	30	Set the number of steps
	31	Set the step flow-rates
	32	Display the rated zone rack capacity (sum of the set step flow-rates)
Zone control	40	Set the type of control
	41	Set the main probe (humidity)
	41	Set the on/off control signal logic
	41	Set the main probe (temperature)
	41	Set the external proportional signal
	41	Set the proportional control (supervisor)
	42	Set the limit probe/second probe (humidity)
	42	Set the limit probe/second probe (temperature)
	43	Set the rack probe/third probe (humidity)
	43	Set the rack probe/third probe (temperature)
	44	Set the probe weight (two probe control)
	44	Set the probe weight (three probe control)
	45	Set the modulating control set point and differential (humidity)
	45	Set the modulating control set point and differential (temperature)
	46	Set the modulating control PID (humidity)
	46	Set the modulating control PID (temperature)
	47	Set the limit probe set point and differential (humidity)
	47	Set the limit probe set point and differential (temperature)
	48	Set the minimum-maximum production range
Date/time	50	Set the date and time
	51	Set the time zone

7. COMPLETE MENU TREE

The complete tree of programming menus is shown below, specifying the screen index of each menu (at the top right, see Fig. 7.a).

7.1 humiFog Multizone menu navigation

To access the menu, proceed as follows:

- Press **Prg** to access the main menu.
- Use **↑** & **↓** to scroll the submenus and confi m the selection by pressing **↵**.



Notice: to access the E. Settings submenu, first log into the system.

- Log in to the system.
The access password used can be installer level (0077) to activate all the software functions, or maintenance (0044) to only activate the functions required for maintenance operations.

To navigate the menus, proceed as follows:

- Use **↑** & **↓** to scroll the screens for the various configuration parameters.
- Press **↵** to select the desired parameter on the screen.
- Use **↑** & **↓** to change the value of the selected parameter.
- Press **↵** to confi m the parameter value.
- To modify the parameters on the other screens, press **↵** until the cursor is back on the screen header and use **↑** & **↓** to scroll the screens for the various configuration parameters.
- Press **Esc** to return to the previous screen.

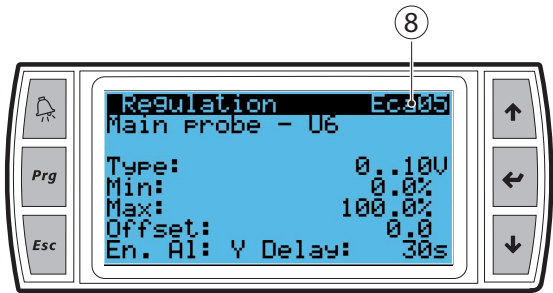
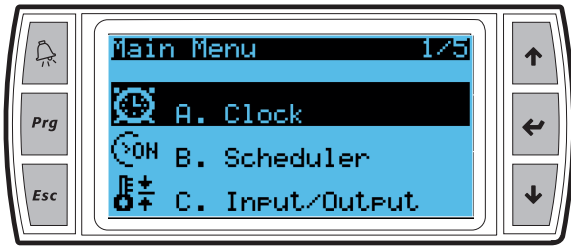


Fig. 7.a

Ref.	Description	Function
8	Screen index	Uniquely identifies the screen shown on the display.

Tab. 7.a

7.2 humiFog Multizone complete menu tree



Menu A. Clock

Index	Description	Level
A01	Set the date and time	Service
A02	Set the time zone	Service

Menu B. Scheduler

Index	Description	Level
B01	Enable time bands	Service
B02	(visible if time bands are enabled) Set the ordinary time bands (day, switch-on time, switch-off time) and the set point (optional)	Service
B03	(visible if time bands are enabled) Set the time bands for special periods (day, switch-on time, switch-off time) and the set point (optional)	Service
B04	(visible if time bands are enabled) Set the time bands for special days (switch-on time, switch-off time) and the set point (optional)	Service

Menu C. Input/Output

Index	Description	Level
C01	Read the pump analogue inputs (inlet pressure, outlet pressure, bypass temperature, water conductivity)	Service
C02	Read the zone analogue inputs (main probe, limit probe, rack temperature probe)	Service
C03	Read the digital pump inputs (high pressure switch, bypass high pressure thermostat, enable water production, reverse osmosis system status, flood sensor status, inverter status)	Service
C04	Read the zone digital inputs (enable rack, flow switch)	Service
C05	Read the digital outputs (cabinet water fill SV, cabinet drain SV)	Service
C06	Read the digital outputs (line drain SV, pump status, alarm status)	Service
C07	Read the digital outputs (ventilation SV)	Service
C08	Read the pump analogue outputs (inverter speed reference)	Service

Menu D. Language

Index	Description	Level
	Select language	Service

Menu E. Settings (Pumping station)

Menu		Index	Description	Level
a. System	a. System logic	Eaa01	Select type of application (AHU/direct in-room/pressurised water)	Installer
		Eaa02	Set the number of zones and zone panels	Installer
		Eaa03	Select the type of modulation (flow control/constant pressure)	Installer
	b. Functions	Eab01	Enable and set the fill time and type (multizone system only: one zone at a time/all zones together)	Installer
		Eab02	Set the fill time for zones 1-6 (multizone system only)	Installer
		Eab03	Set the fill time for zones 7-12 (multizone system only)	Installer
		Eab04	Select the wash mode - periodic/inactivity/disabled and type (multizone system only: one zone at a time/all zones together)	Installer
		Eab05	Set the washing cycle (wash time (single zone system only), inactivity threshold, daily washing activation time))	Installer
		Eab06	Set the wash time for zones 1-6 (multizone system only)	Installer
		Eab07	Set the wash time for zones 7-12 (multizone system only)	Installer
		Eab08	Enable and set the emptying delay for zones 1-4 (multizone system only)	Installer
		Eab09	Enable and set the emptying delay for zones 5-8 (multizone system only)	Installer
		Eab10	Enable and set the emptying delay for zones 9-12 (multizone system only)	Installer
		Eab11	Enable and set line emptying	Installer
		Eab12	Set WTS water change (enable procedure, inactivity threshold and duration)	Installer
		Eab13	Set the digital signal logic (enable pump input PEN and alarm output AL)	Installer
		Eab14	Set the digital input logic (reverse osmosis alarm ROAL and flood sensor alarm WL)	Installer
		Eab15	Set programmable relay output configuration (NO7)	Installer
		Eab16	Set pump speed control ramp (constant pressure mode only)	Installer
		Eab17	Set the rack type (standard/with external valves)	Installer
		Eab18	Set the bypass for zones 1-6 (multizone system only)	Installer
		Eab19	Set the bypass for zones 7-12 (multizone system only)	Installer
		Eab20	Line pressure relief	Installer
		Eab22	Filling and washing regulation	Installer
		Eab25	Set the number of chattering cycles for low outlet pressure	Installer
	c. Maintenance	Eac01	Display unit operating hours, pump operation and next scheduled maintenance	Service
		Eac02	Command to reset pump operating hours and display date/time of last reset	Service
		Eac03	Set time advance for 3000h maintenance pre-alert activation	Service
		Eac04	Command to replace pump and/or controller based on unit/pump operating hours	Service
	d. Alarms	Ead08	Setting of the low delivery pressure alarm activation parameters	Installer
	e. Backup & rotation	Eae01	Enable pump backup and rotation, set rotation time and unit type	Installer
f. BMS	a. Channel 1	Eafa01	Enable supervisor channel, set channel type and select protocol and communication port	Installer
		Eafa02	Enable the supervisor offline alarm and set the alarm activation delay (only if supervisor channel + control enabled)	Installer
		Eafa03	Set the control mode from supervisor channel for zone 1-6 (only if supervisor channel + control enabled)	Installer
		Eafa04	Set the control mode from supervisor channel for zone 7-12 (only if supervisor channel + control enabled)	Installer
	a. Channel 2	Eafb01	Enable supervisor channel, set channel type and select protocol and communication port	Installer
		Eafb02	Enable the supervisor offline alarm and set the alarm activation delay (only if supervisor channel + control enabled)	Installer
		Eafb03	Set the control mode from supervisor channel for zone 1-6 (only if supervisor channel + control enabled)	Installer
		Eafb04	Set the control mode from supervisor channel for zone 7-12 (only if supervisor channel + control enabled)	Installer

Menu			Index	Description	Level
a. System	f. BMS	a. Channel 3	Eafc01	Enable supervisor channel, set channel type and select protocol and communication port	Installer
			Eafc02	Enable the supervisor offline alarm and set the alarm activation delay (only if supervisor channel + control enabled)	Installer
			Eafc03	Set the control mode from supervisor channel for zone 1-6 (only if supervisor channel + control enabled)	Installer
			Eafc04	Set the control mode from supervisor channel for zone 7-12 (only if supervisor channel + control enabled)	Installer
		d. Port configuration	Eafd01	Configure the Ethernet port (enable DHCP, IP address, subnet mask, gateway, DNS)	Installer
			Eafd02	Configure the BMS port (address, baud rate, stop bits, parity)	Installer
			Eafd03	Configure the Modbus/BACnet protocol	Installer
			Eafd04	Set the BACnet device instance (only if BACnet selected on one of the enabled supervisor channels)	Installer
		e. Monitoring service	Eafe01	Display unit paused by monitoring service status, unit paused bypass command, set disabling of paused bypass	Installer
		f. Multi-network	Eaff0	Enabling of the multi-network functionality and setting of the network number (only if multi-network enabled)	Installer
b. Pump	a. Manual mode		Eba01	Enable pump manual mode	Service
			Eba02	Set inverter manual request (only if manual mode enabled)	Service
			Eba03	Manual control of cabinet fill and drain SV (only if manual mode enabled)	Service
			Eba04	Manual control of line drain (NOL) and ventilation SV (only if manual mode enabled)	Service
			Eba05	Manual control of alarm, pump and zone digital outputs (only if manual mode enabled)	Service
			Eba06	Read the digital pump inputs (high pressure switch, water thermostat, enable water production, reverse osmosis system status, flood sensor status, inverter status) (only if manual mode enabled)	Service
			Eba07	Set the bypass calibration (enable fill and set fill time) (only if manual mode enabled)	Service
			Eba08	Enable bypass calibration and display unit status (outlet pressure reading, current flow-rate, zone 1 step fill solenoid valve status command) (only if manual mode is enabled)	Service
c. Zone	a. Control		Eca01	Select the type of control	Installer
			Eca02	Set the main probe (humidity)	Installer
			Eca03	Set the on/off control signal logic	Installer
			Eca04	Set the main probe (temperature)	Installer
			Eca05	Set the external proportional signal	Installer
			Eca06	Set the limit probe/second probe (humidity)	Installer
			Eca07	Set the limit probe/second probe (temperature)	Installer
			Eca08	Set the rack probe/third probe (humidity)	Installer
			Eca09	Set the rack probe/third probe (temperature)	Installer
			Eca10	Set the probe weight (two probe control)	Installer
			Eca11	Set the probe weight (three probe control)	Installer
			Eca12	Set the proportional control (supervisor)	Installer
			Eca13	Set the modulating control set point and differential (humidity)	Installer
			Eca14	Set the modulating control PID (humidity)	Installer
			Eca15	Set the modulating control set point and differential (temperature)	Installer
			Eca16	Set the modulating control PID (temperature)	Installer
			Eca17	Set the limit probe set point and differential (humidity)	Installer
			Eca19	Set the limit probe set point and differential (temperature)	Installer
			Eca21	Set the minimum-maximum production range	Installer
	b. Distribution system		Ecb01	Set the number and nominal flow-rates of the distribution system steps	Installer
			Ecb02	Display the total nominal rack capacity.	Installer
	b. Functions		Ecc01	Set the rack pressure relief duration (air handling unit application only)	Installer
			Ecc02	Set the pressure relief duration for the individual steps (room application only)	Installer
			Ecc03	Configure the rack temperature probe (type, range, offset) (air handling unit application only)	Installer
			Ecc04	Set reduced production to be enabled with rack temperature probe, set point and proportional band (air handling unit application only)	Installer
			Ecc05	Set the type of rack temperature probe signal, set point, differential and signal reset threshold (air handling unit application only)	Installer
			Ecc06	Set humidity control probe alarm delay enabling and activation delay	Installer

Menu		Index	Description	Level
c. Zone	b. Functions	Ecc07	Set the digital input logic (enable rack and flow switch)	Installer
		Ecc08	Set the digital output logic (zone and alarm status)	Installer
		Ecc09	Configure the digital output with programmable relay (NO7)	Installer
		Ecc10	Activate and set step rotation (only if all the steps have the same nominal flow-rate)	Installer
	d. Alarm thresholds	Ecd01	Set the main probe alarm range and limit and alarm activation delay	Installer
	e. Manual mode	Ece01	Activate zone manual mode, enable filling in manual mode	Service
		Ece02	Set manual zone request, display rack SV status and current production (only if manual mode enabled)	Service
		Ece03	Manual control of ventilation and line drain SV (NOL) (only if manual mode enabled)	Service
		Ece04	Manual control of rack step fill SV (only if manual mode enabled)	Service
		Ece05	Manual control of rack step drain SV (only if manual mode enabled)	Service
		Ece06	Manual control of relay digital outputs (alarm, pump, zone) (only if manual mode enabled)	Service
		Ece07	Display zone digital output status (enable rack and flow switch) (only if manual mode enabled)	Service
		Ece08	Enable minimum rack production calibration (only if manual mode enabled)	Service
		Ece09	Set minimum production for rack calibration and read outlet pressure (only if manual mode enabled)	Service
		Ece10	Manually set minimum rack production and command to restore default value (only if manual mode is enabled)	Service
	f. BMS	Ecf01	Enable supervisor channel, set channel type and select protocol and communication port	Installer
		Ecf02	Enable the supervisor offline alarm and set the alarm activation delay (only if supervisor channel + control enabled)	Installer
		Ecf03	Configure the BMS port (address, baud rate, stop bits, parity)	Installer
		Ecf04	Configure the BACnet protocol (address, maximum number of main units and maximum number of frames)	Installer
		Ecf05	Set the BACnet device instance (only if BACnet selected on one of the enabled supervisor channels)	Installer
		Ecf06	Configure the Ethernet port (enable DHCP, IP address, subnet mask, gateway, DNS)	Installer
		Ecf07	Set supervisor control mode (On/Off signal for enabling and/or control request)	Installer
		Ecf08	Display unit paused by monitoring service status, unit paused bypass command, set disabling of paused bypass	Installer
		Ecf09	Enabling of the multi-network functionality and setting of the network number (only if multi-network enabled)	Installer
d. Initialisation		Ed01	Enable wizard and set wizard display at power on	Installer
		Ed03	Restore the factory settings, save/load unit configuration	Installer
		Ed05	Set the access passwords	Installer
		Ed06	Command to export parameters and select destination drive	Installer
		Ed07	Command to import parameters and select source drive	Installer
		Ed08	Select unit of measure (international or imperial).	Installer
		Ed09	Command to update SW	Installer
		Ed10	Command to export logs and select destination drive	Service
e. Logout		Ed11	Command to export alarms and select destination drive	Service
		Ee01	Logout command	Service

Menu E. Settings (Zone panel)

Menu	Index	Description	Level
a. Control	Ea01	Select the type of control	Installer
	Ea02	Set the main probe (humidity)	Installer
	Ea03	Set the on/off control signal logic	Installer
	Ea04	Set the main probe (temperature)	Installer
	Ea05	Set the external proportional signal	Installer
	Ea06	Set the limit probe/second probe (humidity)	Installer
	Ea07	Set the limit probe/second probe (temperature)	Installer
	Ea08	Set the rack probe/third probe (humidity)	Installer
	Ea09	Set the rack probe/third probe (temperature)	Installer
	Ea10	Set the probe weight (two probe control)	Installer
	Ea11	Set the probe weight (three probe control)	Installer
	Ea12	Set the proportional control (supervisor)	Installer
	Ea13	Set the modulating control set point and differential (humidity)	Installer
	Ea14	Set the modulating control PID (humidity)	Installer
	Ea15	Set the modulating control set point and differential (temperature)	Installer
	Ea16	Set the modulating control PID (temperature)	Installer
	Ea17	Set the limit probe set point and differential (humidity)	Installer
	Ea19	Set the limit probe set point and differential (temperature)	Installer
	Ea21	Set the minimum-maximum production range	Installer
b. Distribution system	Eb01	Set the number and nominal flow-rates of the distribution system steps	Installer
	Eb02	Display the total nominal rack capacity.	Installer
b. Functions	Ec01	Set the rack pressure relief duration (air handling unit application only)	Installer
	Ec02	Set the pressure relief duration for the individual steps (room application only)	Installer
	Ec03	Configure the rack temperature probe (type, range, offset) (air handling unit application only)	Installer
	Ec04	Set reduced production to be enabled with rack temperature probe, set point and proportional band (air handling unit application only)	Installer
	Ec05	Set the type of rack temperature probe signal, set point, differential and signal reset threshold (air handling unit application only)	Installer
	Ec06	Set humidity control probe alarm delay enabling and activation delay	Installer
	Ec07	Set the digital input logic (enable rack and flow switch)	Installer
	Ec08	Set the digital output logic (zone and alarm status)	Installer
	Ec09	Configure the digital output with programmable relay (NO7)	Installer
	Ec10	Activate and set step rotation (only if all the steps have the same nominal flow-rate)	Installer
d. Alarm thresholds	Ed01	Set the main probe alarm range and limit and alarm activation delay	Installer
e. Manual mode	Ee01	Activate zone manual mode, enable filling in manual mod	Service
	Ee02	Set manual zone request, display rack SV status and current production (only if manual mode enabled)	Service
	Ee03	Manual control of ventilation and line drain SV (NOL) (only if manual mode enabled)	Service
	Ee04	Manual control of rack step fill SV (only if manual mode enabled)	Service
	Ee05	Manual control of rack step drain SV (only if manual mode enabled)	Service
	Ee06	Manual control of relay digital outputs (alarm, pump, zone) (only if manual mode enabled)	Service
	Ee07	Display zone digital output status (enable rack and flow switch) (only if manual mode enabled)	Service
	Ee08	Enable minimum rack production calibration (only if manual mode enabled)	Service
	Ee09	Set minimum production for rack calibration and read outlet pressure (only if manual mode enabled)	Service
	Ee10	Manually set minimum rack production and command to restore default value (only if manual mode is enabled)	Service
f. BMS	Ef01	Enable supervisor channel, set channel type and select protocol and communication port	Installer
	Ef02	Enable the supervisor offline alarm and set the alarm activation delay (only if supervisor channel + control enabled)	Installer
	Ef03	Configure the BMS port (address, baud rate, stop bits, parity)	Installer
	Ef04	Configure the BACnet protocol (address, maximum number of main units and maximum number of frames)	Installer
	Ef05	Set the BACnet device instance (only if BACnet selected on one of the enabled supervisor channels)	Installer
	Ef06	Configure the Ethernet port (enable DHCP, IP address, subnet mask, gateway, DNS)	Installer
	Ef07	Set supervisor control mode (On/Off signal for enabling and/or control request)	Installer
	Ef08	Display unit paused by monitoring service status, unit paused bypass command, set disabling of paused bypass	Installer
g. Initialisation	Eq01	Enable wizard and set wizard display at power on	Installer
	Eq03	Set the current zone number	Installer
	Eq04	Set the access passwords	Installer
	Eq05	Command to export parameters and select destination drive	Installer
	Eq06	Command to import parameters and select source drive	Installer
	Eq07	Select unit of measure (international or imperial).	Installer
	Eq08	Command to update SW	Installer
	Eq10	Command to export logs and select destination drive	Service
h. Logout	Eq11	Command to export alarms and select destination drive	Service
	Eh01	Logout command	Service

8. ADVANCED CONFIGURATION PARAMETERS

The following paragraphs provide a description of the most important configuration parameters for the installer. All these parameters can be found under the Software settings menu.



Notice: the parameters shown on the user terminal display may vary according to the system configuration. These parameters are indicated in the Description field in the following tables.

8.1 humiFog Multizone navigation commands

The navigation commands for the humiFog Multizone analogue interface on the pumping station and on the zone panels are described below.

Press **Prg** to access the main menu.

Press **↓** to select submenu E.

Settings and confirm the selection by pressing **↵**.



Notice: to access the E. Settings submenu, first log into the system.

Log in to the system.

The access password used can be installer level (**0077**) to activate all the software functions, or maintenance (**0044**) to only activate the functions required for maintenance operations.

- To confirm the value of one digit and move to the next, press **↵**.
- To set the value of a digit, use **↑** & **↓**.

Once the value of the last digit of the password has been confirmed, the system will be accessed.



Notice: after 5 minutes of inactivity, the user is automatically logged out.

Use the following commands to move between the various submenus:

- Use **↑** & **↓** to scroll the screens for the various configuration parameters.
- Press **↵** to select the desired parameter on the screen.
- Use **↑** & **↓** to change the value of the selected parameter.
- Press **↵** to confirm the parameter value.
- To modify the parameters on the other screens, press **↵** until the cursor is back on the screen header and use **↑** & **↓** to scroll the screens for the various configuration parameters.



Notice: in the Settings submenu of the zone panel user terminal, only the parameters relating to the zone controlled by the current panel can be accessed (see par. 8.4).

8.2 System

The System menu is active only on the humiFog Multizone pumping station user terminal.

8.2.1 Functions

Depending on the system configuration, different parameters can be set for each available function.

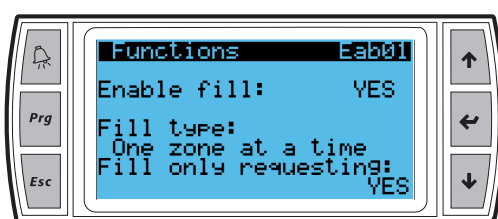
humiFog Multizone (pumping station)

- Enter menu E. Settings (see par. 8.1)
- Select a. System and confirm the selection by pressing **↵**.
- Select b. Functions and confirm the selection by pressing **↵**.

Fill

For correct system operation, the line must not contain any air, so as to avoid vibrations, long transients before reaching full production and poor atomisation quality. To eliminate air from the lines, the fill time needs to be set correctly. When commissioning the system, measure the time needed for the water to reach the end of the circuit and wait until only water comes out of the circuit. The longer the water circuit, the longer the fill time needs to be. For multi-zone systems, two types of filling can be selected: one zone at a time or all zones together. Based on the characteristics of the distribution system, evaluate the most suitable type of filling cycle for the specific application. In some applications with just a few drain valves in the distribution system, it may be useful to set all zones together, in order to avoid high pressure during operation of the function.

Index	Display	Description	Range	Default
Eab01	Enable fil	If enabled, when the water outlet line is empty during start-up, the pump delivers water for a set time, in order to fill the line before starting atomisation.	Yes/No	Yes
	Fill type	Selection of the type of fill (active only if filling is enabled)	One zone at a time All zones together	All zones together
	Fill time	System fill time. (active only if filling is enabled and the fill type is set to All zones together)	1-60 min	2 min
	Fill with request only	Filling will only be activated in the zones that require production. (active only if filling is enabled and the fill type is set to One zone at a time)	Yes/No	Yes
Eab02		Fill time (zones 1-6) (active only if filling is enabled)	1-10 min	2 min
Eab03		Fill time (zones 7-12) (active only if filling is enabled)	1-10 min	2 min

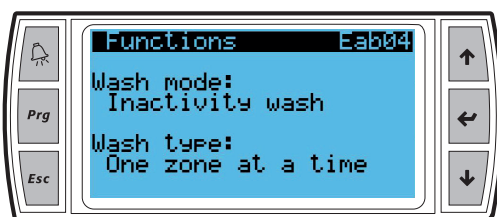


Eab01

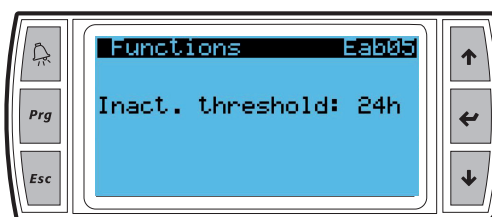
Wash

The washing function involves running water through all the piping for a set time. The aim is to completely flush the system and avoid water stagnation. It is managed in the same way as filling, but lasts longer: it is recommended to set the time so that the water used for washing is at least three times the volume of water contained in the entire system. Washing is performed every day at the same time (e.g. every day at 4 in the morning) or periodically, set by parameter. A washing cycle is also performed at power on. For multi-zone systems, two types of washing can be selected: one zone at a time or all zones together. Based on the characteristics of the distribution system, evaluate the most suitable type of washing cycle for the specific application. In some applications with just a few drain valves in the distribution system, it may be useful to set all zones together, in order to avoid high pressure during operation of the function.

Index	Display	Description	Range	Default
Eab04	Wash mode	Set washing daily, after a period of inactivity or disable washing.	Inactivity wash Daily wash Wash disabled	Daily wash
	Wash type	Select the type of washing cycle (active only if washing is enabled)	One zone at a time All zones together	All zones together
Eab05	Wash time	Duration of the daily washing cycle in minutes (active only if the Wash type is set to All zones together)	1-10 min	2 min
	Time (hh:mm)	Time of day when the daily washing cycle is performed (active only if the Wash mode is set to Daily)	00:00 - 23:59	00:00
	Inactivity threshold	Number of hours of inactivity after which a washing cycle is performed (active only if the Wash mode is set to Inactivity)	1-99 hours	24 hours
Eab06	Wash time (zones 1-6)	(active only if the Wash type is set to One zone at a time)	1-10 min	2 min
Eab07	Wash time (zones 7-12)	(active only if the Wash type is set to One zone at a time)	1-10 min	2 min



Eab04

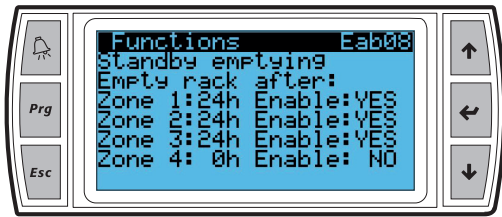


Eab05

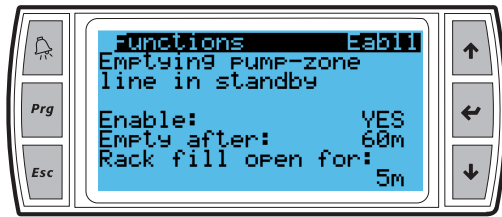
Emptying

For reasons of hygiene, it is recommended to empty the distribution system so as to prevent water from stagnating inside when there is no humidification request for an extended period.

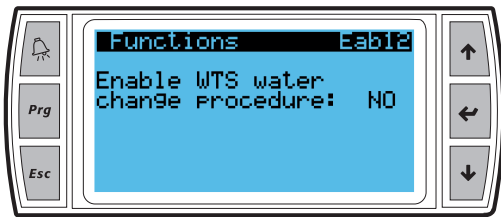
Index	Display	Description	Range	Default
Eab08	Empty rack after (zone 1-4)	Set emptying of the rack in the specified zone after a set time (zone 1-4)		
	Time (zone 1-4)	Set the emptying time for the specified zone	0-48 hours	24 hours
	Enable (zone 1-4)	Enable/disable rack emptying in the specified zone	Yes/No	Yes
Eab09	Empty rack after (zone 5-8)	Set emptying of the rack in the specified zone after a set time (zone 5-8)		
	Time (zone 5-8)	Set the emptying time for the specified zone	0-48 hours	24 hours
	Enable (zone 5-8)	Enable/disable rack emptying in the specified zone	Yes/No	Yes
Eab10	Empty rack after (zone 9-12)	Set emptying of the rack in a specific zone after a set time (zone 9-12)		
	Time (zone 9-12)	Set the emptying time for the specified zone	0-48 hours	24 hours
	Enable (zone 9-12)	Enable/disable rack emptying in the specified zone	Yes/No	Yes
Eab11	Emptying pump-zone line in standby	Set emptying of the line that connects the pumping station to the zones		
	Enable	Enable/disable emptying of the line	Yes/No	Yes
	Empty after	Set the line emptying interval	0-120 min	60 min
	Rack fill open or	Set the amount of time the rack fill valves remain open to facilitate emptying	1-120 min	5 min
Eab12	Enable WTS water change procedure	Enable/disable the water treatment system water change procedure	Yes/No	No
	Inactivity threshold	Number of hours of inactivity after which the WTS water change procedure is performed. (active only if the WTS water change procedure is enabled)	1-999 hours	24 hours
	Duration	Duration of the water treatment system water change procedure (active only if the WTS water change procedure is enabled)	1-99 min	15 min



Eab08



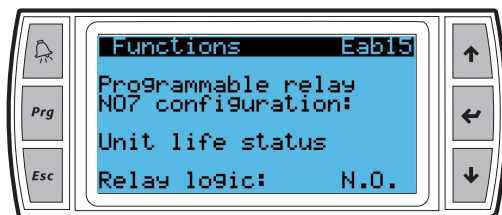
Eab11



Eab12

I/O logic

Index	Display	Description	Range	Default
Eab13	Pump enable input logic (PEN)	Set the logic of the digital signals for the enable pumping unit input	N.O./N.C.	N.C.
	Alarm output logic (AL)	Set the logic of the digital signals for the alarm output	N.O./N.C.	N.C.
Eab14	Osmosis alarm input logic (ROAL)	Set the logic of the digital signals for the reverse osmosis alarm input	N.O./N.C.	N.C.
	Water leak alarm input logic (WL)	Set the logic of the digital signals for the water leak alarm input	N.O./N.C.	N.C.
Eab15	Programmable relay NO7 configuratio	Set the output configuration for the programmable relay NO7	Unit life status / Water temperature alarm / Low inlet pressure alarm / Low inlet pressure warning / No water warning / Pump maintenance warning / Pump status / Rack low temperature warning	Unit life status
	Relay logic	Set the logic for the programmable relay NO7 signals	N.O./N.C.	N.O.

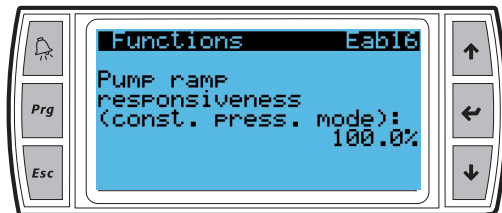


Eab15

Pump ramp responsiveness

The responsiveness of the pump speed ramp typically needs to be reduced in the event of pressure instability, when the outlet line is more than 50 m long, and a low distribution rack flow-rate.

Index	Display	Description	Range	Default
Eab16	Pump ramp responsiveness (constant pressure mode)	Set the responsiveness of the pump speed ramp. (active only in constant pressure mode)	30-100 %	100 %



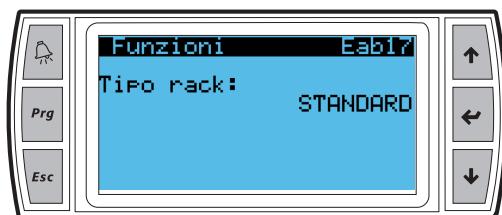
Eab16

Type of rack

humiFog Multizone supports two types of distribution system rack: standard (RH*00*****) and with external valves (RH*E0*****). Select the type of rack based on the installed solution. The type of rack is the same for all distribution system zones.

Path: Menu -> Settings -> System -> Functions -> Rack

Index	Display	Description	Range	Default
Eab17	Type of rack	Set the rack type	Standard/External valves	Standard



Eab17

Exclusion

This function is used to bypass one or more system zones for maintenance. The system will continue to work with the remaining zones.



Notice: make sure that there are manual shut-off valves on the water lines in the bypassed zones.

Index	Display	Description	Range	Default
Eab18	Zones exclusion	Set which zones are to be bypassed (zones 1-6) (active only in multizone systems)		
	Zone 1-6	Specifies the zones to be bypassed (excluded)	Excluded/Not excluded	Not excluded
Eab19	Zones exclusion	Set which zones are to be bypassed (zones 7-12) (active only in multizone systems)		
	Zone 7-12	Specifies the zones to be bypassed (excluded)	Excluded/Not excluded	Not excluded

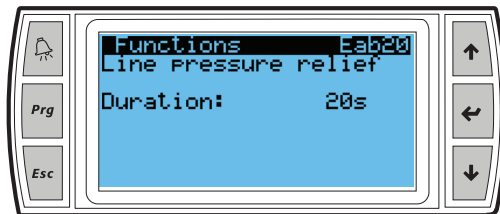


Eab18

Line pressure relief

This function allows the pressure in the system to be monitored. In the event of overpressure, the system activates the opening of the solenoid valves (SV) to discharge the excess water, bringing the pressure back to safe levels.

Index	Display	Description	Range	Default
Eab20	Line pressure relief			
	Duration	Line pressure relief: maximum time for managing line pressure after slowdown	0-40 s	20 s



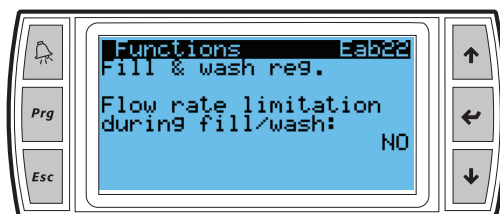
Eab20

Flow rate limitation during filling/washing

This function allows you to limit the pump flow rate during washing or filling phases in the following ways:

- Washing/Filling for single zone: the flow rate is limited to that of the active zone - i.e. the sum of the flow rates of the steps belonging to that zone.
- Simultaneous washing/filling of all zones: the flow rate is limited to the sum of the flow rates of all the zones involved.

Index	Display	Description	Range	Default
Eab22	Fill & wash req.			
	Flow rate limitation during fill wash:	Enabling of flow rate limitation during washing and filling	Yes-No	No



Eab22

Other functions (chattering)

This function is used to try and eliminate any debris that may form inside the solenoid valves during operation, preventing them from opening/closing correctly.

The function is activated when the unit detects a low outlet pressure (HP) warning.

Index	Display	Description	Range	Default
Eab25	Number of chattering cycles	Set the number of chattering cycles for low outlet pressure. The function is active by default and involves rapid 1-second opening/closing cycles of the NO solenoid valves (except for the cabinet drain valve).	1-10	5

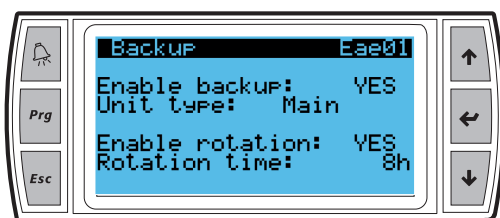
8.2.2 Backup and rotation

In some critical applications where relative humidity control is very important, it may be essential have a backup unit available in the event of malfunctions on the main unit.

A second backup unit can be useful in the event of a main unit malfunction in applications that require continuous humidity control.

- Enter menu E. Settings (see par. 8.1)
- Select a. System and confi m the selection by pressing **←**.
- Select e. Backup & rot. and confi m the selection by pressing **←**.

This screen is used to enable the backups, set the pump rotation time and the type of unit.



Eae01



Notice: the backup function is only available for pumping stations in the “without local zone” configuration

Index	Display	Description	Range	Default
Eae01	Enable backup	Enable/disable the backup function	Yes/No	No
	Unit type	Set the type of cabinet. The type of cabinet type defines the priority of the unit that will attempt to start first when the units are powered on simultaneously. After powering on, there is no difference in operation between the two devices. (active only if backup is enabled)	Main/Sec-ondary	Main
	Enable rotation	Enable/disable the rotation function between backup units (active only if backup is enabled)	Yes/No	Yes
	Rotation time	Set the rotation time between pumping stations. (active only if backup and rotation are enabled)	1-24 hours	8 hours

8.2.3 BMS

The humidifier can be connected to a supervisor (BMS) via serial or Ethernet network. The unit supports ModBus and BACnet protocols as standard (for further information see par. 9.2).

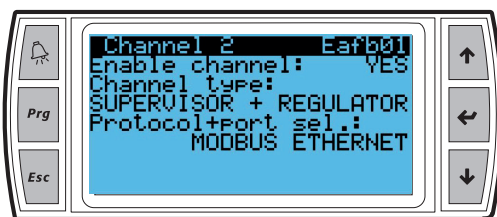


Notice: only one instance of the BACnet protocol is available, therefore it is not possible to activate BACnet on the BMS port and on the Ethernet port at the same time.

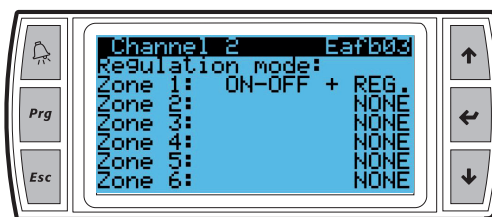
- Enter menu E. Settings (see par. 8.1)
- Select a. System and confi m the selection by pressing ←.
- Select f. BMS and confi m the selection by pressing ←.

Channels

Index	Display	Description	Range	Default
Eafb01	Enable channel	Enable/disable the selected communication channel	Yes/No	No
	Channel type	Set the channel operating mode: (active only if the channel is enabled)	Supervisor Supervisor + Controller	Supervisor
	Protocol + port selection	Set the type of communication protocol and port (active only if the channel is enabled)	ModBus BMS / BACnet BMS / ModBus Ethernet / BACnet Ethernet	ModBus BMS
Eafb02	Enable supervisor offline alarm	Enable/disable the alarm that signals when the supervisor is offline (active only if the Channel type is set to Supervisor + Controller)	Yes/No	Yes
	Alarm delay	Set the delay time for alarm activation (active only if the Channel type is set to Supervisor + Controller)	1-999 sec	180 sec
Eafb03	Control mode	Set the control mode from the supervisor channel (zones 1-6)		
	Zone 1-6	Indicates the zone for setting the control mode from the supervisor channel	None Control only On-Off + Control On-Off only	None
Eafb04	Control mode	Set the control mode from the supervisor channel (zones 1-6)		
	Zone 7-12	Indicates the zone for setting the control mode from the supervisor channel	None Control only On-Off + Control On-Off only	None



Eafb01



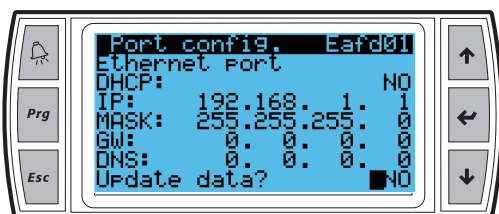
Eafb03

Port configuration

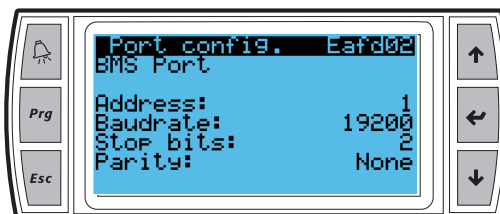


Caution: the parameter values must be provided by the local network administrator.

Index	Display	Description	Range	Default
Eafd01	Ethernet port	Settings relating to the unit's Ethernet connection		
	DHCP		Yes/No	No
	IP	Unit IP address:		192.168.1.1
	MASK	Subnet mask		255.255.255.0
	GW	Gateway		0.0.0.0
	DNS			0.0.0.0
	Update data	After having modified the parameters, the IP address can be updated.	Yes/No	No
Eafd02	BMS port	Settings relating to the unit's BMS connection		
	Address		0-247	1
	Baudrate		1200/2400/4800/9600/ 19200/38400/57600/ 76800/115200/375000	19200
	Stop bits		1/2	2
	Parity		None Even Odd	None
Eafd03	BACnet configuratio	Settings relating to the BACnet protocol		
	Station address		0-127	0
	Max masters		0-127	127
	Max frames		5-25	10
Eafd04	BACnet configuratio	Set the BACnet device instance (only with BACnet set to one of the channels)		
	Device instance		0-4194302	77000



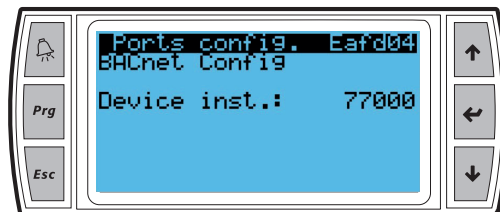
Eafd01



Eafd02



Eafd03



Eafd04

Pause from monitoring service

The paused by monitoring service function allows the devices configured for supervisor control to enable the unit (pumping station) independently. The paused unit is not enabled to operate in the system.

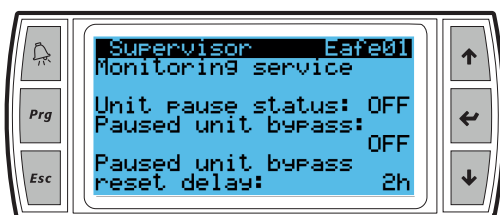


Notice: if the paused unit is the pumping station, then the entire system cannot produce humidity.

If necessary, the paused by monitoring service can be bypassed in local mode: the operator can use the local controller to enable production (despite the unit being paused by the monitoring service), by enabling the Paused unit bypass parameter.

To avoid forgetting that the pause bypass is active, a (settable) timer has been included so that the bypass is automatically removed after a set period of time.

Index	Display	Description	Range	Default
Eafe01	Monitoring service	Settings relating to the paused by monitoring service function.		
	Unit pause status	Display the unit paused from monitoring service status	On/Off	Off
	Paused unit bypass	Enable/disable the monitoring service pause bypass. Bypass activation is notified by displaying the status of the bypass reset timer.	On/Off	Off
	Paused unit bypass reset delay	Set the delay for disabling the monitoring service pause bypass.	1-999 hours	120 hours



Eafe01

Multi-network

The multi-network function allows to manage several humiFog Multizone systems connected to the same local network. An application example could be a supervision system that requires access to all humidifiers via a single Ethe net connection.

By way of example only, a possible type of network corresponding to the above requirements is shown:

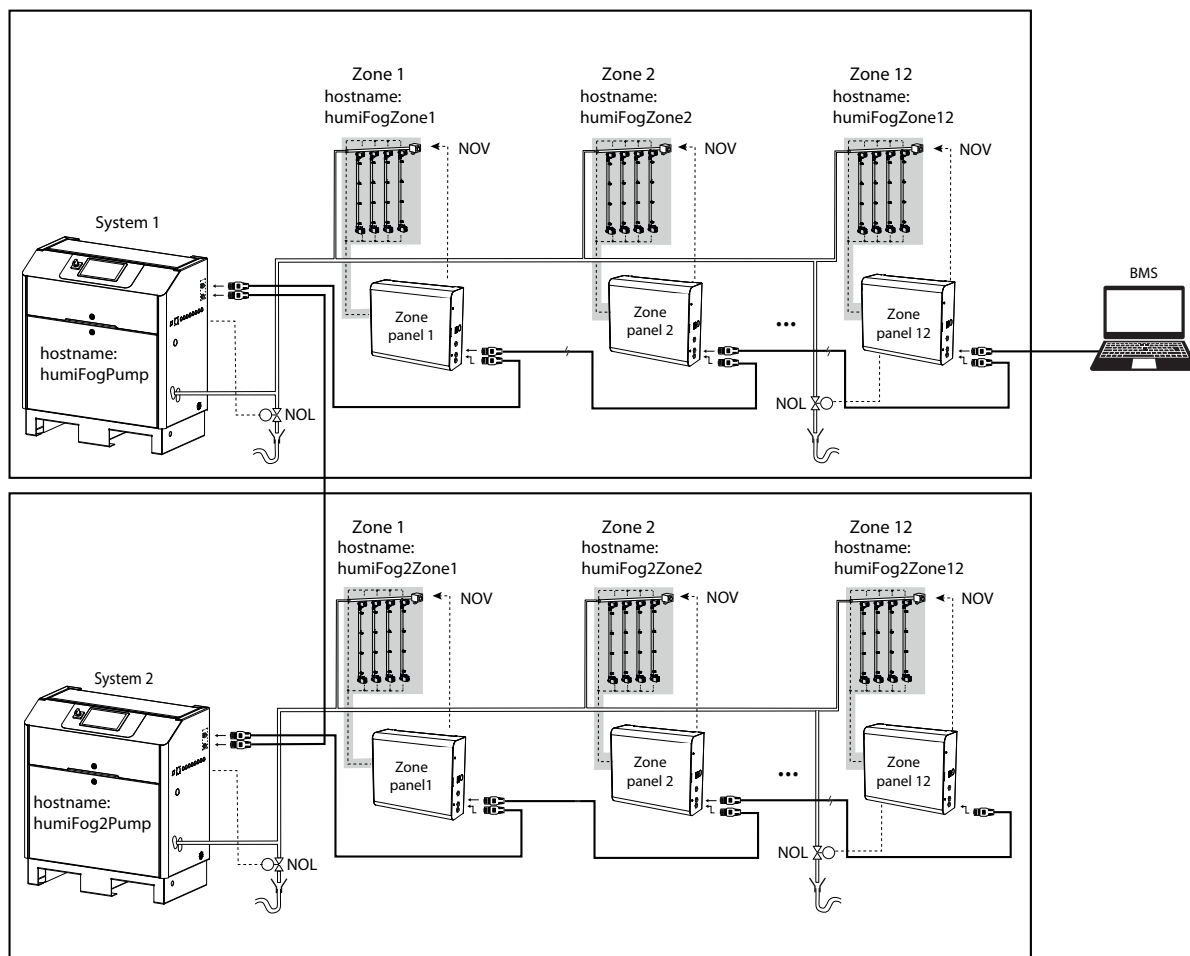


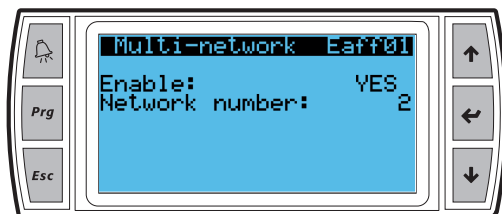
Fig. 8.b

Below are the steps for configuring multi-network functionality on all elements of the humiFog systems to be connected together.

It is strongly recommended to follow the instructions in the order given:

1. Isolate the humiFog Multizone systems so that there is no connection between the elements of one and the other; only the pumping station and its zones must be connected via Ethernet. Also disconnect any external supervision/gateway systems.
2. The first humiFog Multizone system requires no configuration
3. Activate and configure the multi-network function on all zones of the second humiFog Multizone Touch system by assigning network number 2 (zones will stop communicating with the reference pumping station).
4. Activate and configure the multi-network function on the pumping station of the second humiFog Multizone system by assigning network number 2. After a few seconds, the zones that were initially offline should be detected again by the pumping station.
5. Repeat steps 3. and 4. for every other humiFog system besides the first two, assigning an appropriate network number different from the previous ones.
6. Connect the humiFog Multizone systems together and check the integrity of the parameters on each system; each pumping station should have maintained communication with its assigned zones.
7. Connect any external supervision/gateway systems to the humiFog Multizone system network, repeating the tests in point 6.

Index	Display	Description	Range	Default
Eaff0	Enable	Enabling of the multi-network function	Yes/No	No
	Network number	Network number setting	1/99	1



Eaff01

8.2.4 Alarms

The alarms section allows to set machine alarm parameters in order to optimise their intervention based on installation conditions.

- Enter menu E. Settings (see par. 8.1)
- Select a. System and configuration your choice with the key $\leftarrow$.
- Select d. Alarms and configuration your choice with the key $\leftarrow$.

Index	Display	Description	Range	Default
Ead08	Alarm/warning delay	Low delivery pressure alarm/warning delay	20:1200 s	90 s

8.3 Pump

The Pump menu is active only on the humiFog Multizone pumping station user terminal.

In this submenu, manual pump operation can be enabled and the corresponding parameters set.

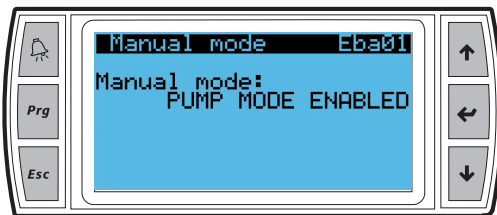
humiFog Multizone (pumping station)

- Enter menu E. Settings (see par. 8.1)
- Select b. Pump and configuration the selection by pressing $\leftarrow$.
- Select a. Manual mode and configuration the selection by pressing $\leftarrow$ to access the parameter configuration

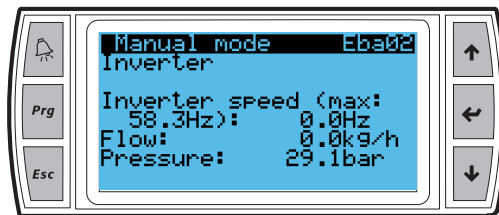
8.3.1 Manual mode

Index	Display	Description	Range	Default
Eba01	Manual mode	Enable/disable manual pump control	Yes/No	No
Eba02	Inverter speed	Enable/disable manual inverter control by setting a frequency set point. (active only with the pump in manual mode)	0-[Max frequency] Hz	0 Hz
	Flow	Display the pump flow-rate		
	Pressure	Display the pump outlet pressure		
Eba03	Cabinet	Manual controls relating to cabinet fill and drain functions (active only with the pump in manual mode)		
	Fill valve (FV)	Enable/disable the cabinet fill solenoid valve (active only with the pump in manual mode)	Closed (0V) Open (24V)	
	Drain (DVB)	Enable/disable the cabinet drain solenoid valve (active only with the pump in manual mode)	Closed (24V) Open (0V)	
Eba04	Cabinet	Manual controls relating to the line drain and ventilation functions (active only with the pump in manual mode)		
	Line drain (NOL)	Activate/deactivate the pump-zone line drain solenoid valve (active only with the pump in manual mode)	Closed (24V) Open (0V)	
	Ventilation (NOV)	Activate/deactivate the ventilation solenoid valve (active only with the pump in manual mode)	Closed (24V) Open (0V)	

Index	Display	Description	Range	Default
Eba05	Alarm (AL)	Activate/deactivate the alarm digital output (active only with the pump in manual mode)	Auto Closed (24V) Open (0V)	Auto
	NO7 output (PUMP)	Activate/deactivate the pump digital output (active only with the pump in manual mode)	Auto Closed (24V) Open (0V)	Auto
	Rack On/Off (ONE)	Activate/deactivate the zone digital output (active only with the pump in manual mode)	Auto Closed (24V) Open (0V)	Auto
Eba06		Display the reading of the pump digital inputs (active only with the pump in manual mode)		
	ID1 HP	High pressure switch		
	ID2 HT	Water thermostat		
	ID3 PEN	Enable water production		
	ID4 ROAL	Reverse osmosis system status		
	ID5 WL	Flood sensor status		
Eba07	ID8 VFD-MB	Inverter status		
	Bypass configuratio	Set the bypass calibration parameters (active only with the pump in manual mode)		
	Enable fill be ore calibration	Enable/disable filling be ore performing the bypass calibration (active only with the pump in manual mode)	Yes/No	Yes
Eba08	Bypass calibration fill time	Set the fill time (active only with Pre-calibration fill enabled)	1-60 min	1 min
	Start bypass calibration	Begin the bypass calibration procedure (active only with the pump in manual mode)	Yes/No	No
	Pressure	Display the outlet pressure reading (active only with Start bypass calibration enabled)		
	Flow-rate	Display the current flow-ra e reading (active only with Start bypass calibration enabled)		
	Zone 1 NC fill val es command	Control the fill solenoid val es for the steps in zone 1 (active only with Start bypass calibration enabled)	Auto Closed (24V) Open (0V)	Auto



Eba01



Eba02

8.4 Zone

The Zone menu is active on the user terminal, as follows:

- humiFog Multizone (pumping station) to set the parameters for the local zone (if active)
- humiFog Multizone (zone panels) to set the parameters for the zone controlled by the panel

8.4.1 Control

This submenu is used to set the zone operating parameters.

humiFog Multizone (pumping station)

- Enter menu E. Settings (see par. 8.1)
- Select c. Zone and confi m the selection by pressing **←**.
- Select a. Control and confi m the selection by pressing **←**.

humiFog Multizone (zone panel)

- Enter menu E. Settings (see par. 8.1)
- Select a. Control and confi m the selection by pressing **←**.



Notice: select the desired option based on the specific characteristics of the installed system.

Set the type of control The available options vary according to the type of application set, as shown in the following table.

Adjustment type

Humidity (single probe)
External signal + temperature limit
External signal + humidity limit
External proportional signal
ON/OFF signal + temperature limit
ON/OFF signal + humidity limit
ON/OFF signal
Dew point temperature + humidity limit
Dew point temperature
Adjustment by supervisor
Temperature + humidity limit
Temperature + temperature limit
Temperature (single probe)
Humidity + temperature limit
Humidity + humidity limit
Two temperature probes + humidity limit
Two humidity probes
Two temperature probes
Three humidity probes
Three temperature probes

Tab. 8.a

Press  to confirm the selected option.

If available, use  &  to select a control logic option.

The following options are available:

- Proportional
- Proportional + Integral

Press  to confirm the selected option.



Notice: set the parameter values based on the characteristics of the probes used and the specific characteristics of the system.

List of available control parameters

The following tables show all the screens available in submenu a. Control, with the screen indexes for the pumping station and for the zone panel in brackets.



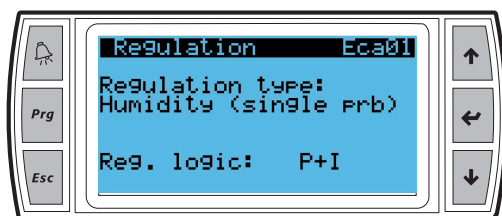
Notice: the screens and parameters displayed on the screens change according to the type of control and other system parameters.

Index	Display	Description	Range	Default
Eca02 (Ea02)	Main probe - U6	Display the configuration parameters for the main humidity probe		
	Type	Set the probe type	0-10V - 4-20mA - 0-20mA - 0-1V - 2-10V NTC	0-10V
	Min	Set the minimum value readable by the probe	0-100% rH	0% rH
	Max	Set the maximum value readable by the probe	0-100% rH	100% rH
	Offset	Set the offset value to compensate for any inaccurate readings	-999.9 - 999.9	0
	Enable alarm	Enable/disable the alarm that signals any probe faults	Yes/No	Yes
	Delay	Set the delay for activating the alarm after the fault is detected	0-9999 sec	30 sec
Eca03 (Ea03)	Main probe - Digital signal	Display the configuration parameters for the main probe		
	Logic	Set the logic of the main probe digital signals (for On/Off control)	N.O./N.C.	N.O.
Eca04 (Ea04)	Main probe - U6	Display the configuration parameters for the main temperature probe		
	Type	Set the probe type	0-10V - 4-20mA - 0-20mA - 0-1V - 2-10V NTC	0-10V
	Min	Set the minimum value readable by the probe	-999.9 - 999.9 °C	-20 °C
	Max	Set the maximum value readable by the probe	-999.9 - 999.9 °C	70 °C
	Offset	Set the offset value to compensate for any inaccurate readings	-999.9 - 999.9	0
	Enable alarm	Enable/disable the alarm that signals any probe faults	Yes/No	Yes
	Delay	Set the delay for activating the alarm after the fault is detected	0-9999 sec	30 sec
Eca05 (Ea05)	Main probe - U6	Display the configuration parameters for the main probe (external proportional signal)		
	Type	Set the probe type	0-10V - 4-20mA - 0-20mA - 0-1V - 2-10V NTC	0-10V
	Min	Set the minimum value readable by the probe	0-100 %	0%
	Max	Set the maximum value readable by the probe	0-100 %	100%
	Offset	Set the offset value to compensate for any inaccurate readings	-999.9 - 999.9	0
	Enable alarm	Enable/disable the alarm that signals any probe faults	Yes/No	Yes
	Delay	Set the delay for activating the alarm after the fault is detected	0-9999 sec	30 sec

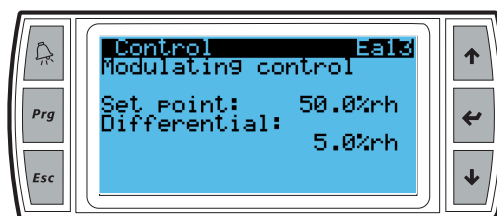
Index	Display	Description	Range	Default
Eca06 (Ea06)	Limit/Second probe - U7	Display the configuration parameters for the second probe/humidity limit probe		
	Type	Set the probe type	0-10V - 4-20mA - 0-20mA - 0-1V - 2-10V NTC	0-10V
	Min	Set the minimum value readable by the probe	0-100% rH	0% rH
	Max	Set the maximum value readable by the probe	0-100% rH	100% rH
	Offset	Set the offset value to compensate for any inaccurate readings	-999.9 - 999.9	0
	Enable alarm	Enable/disable the alarm that signals any probe faults	Yes/No	Yes
	Delay	Set the delay for activating the alarm after the fault is detected	0-9999 sec	30 sec
Eca07 (Ea07)	Limit/Second probe - U7	Display the configuration parameters for the second probe/temperature limit probe		
	Type	Set the probe type	0-10V - 4-20mA - 0-20mA - 0-1V - 2-10V NTC	0-10V
	Min	Set the minimum value readable by the probe	-999.9 - 999.9 °C	-20 °C
	Max	Set the maximum value readable by the probe	-999.9 - 999.9 °C	70 °C
	Offset	Set the offset value to compensate for any inaccurate readings	-999.9 - 999.9	0
	Enable alarm	Enable/disable the alarm that signals any probe faults	Yes/No	Yes
	Delay	Set the delay for activating the alarm after the fault is detected	0-9999 sec	30 sec
Eca08 (Ea08)	Third probe - U8	Display the configuration parameters for the third humidity probe		
	Type	Set the probe type	0-10V - 4-20mA - 0-20mA - 0-1V - 2-10V NTC	0-10V
	Min	Set the minimum value readable by the probe	0-100% rH	0% rH
	Max	Set the maximum value readable by the probe	0-100% rH	100% rH
	Offset	Set the offset value to compensate for any inaccurate readings	-999.9 - 999.9	0
	Enable alarm	Enable/disable the alarm that signals any probe faults	Yes/No	Yes
	Delay	Set the delay for activating the alarm after the fault is detected	0-9999 sec	30 sec
Eca09 (Ea09)	Third probe - U8	Display the configuration parameters for the third temp. probe		
	Type	Set the probe type	0-10V - 4-20mA - 0-20mA - 0-1V - 2-10V NTC	0-10V
	Min	Set the minimum value readable by the probe	-999.9 - 999.9 °C	-20 °C
	Max	Set the maximum value readable by the probe	-999.9 - 999.9 °C	70 °C
	Offset	Set the offset value to compensate for any inaccurate readings	-999.9 - 999.9	0
	Enable alarm	Enable/disable the alarm that signals any probe faults	Yes/No	Yes
	Delay	Set the delay for activating the alarm after the fault is detected	0-9999 sec	30 sec
Eca10 (Ea10)	Control with 2 probes	Set the importance (weight) of the values measured by the probes to calculate the reading		
	Probe weights			
	First probe	Set the weight of the first probes as a percentage	0-100 %	50%
Eca11 (Ea11)	Second probe	Set the weight of the second probe as a percentage	0-100 %	50%
	Control with 3 probes	Set the importance (weight) of the values measured by the probes to calculate the reading		
	Probe weights			
	First probe	Set the weight of the first probes as a percentage	0-100 %	33%
	Second probe	Set the weight of the second probe as a percentage	0-100 %	33%
Eca12 (Ea12)	Third probe	Set the weight of the third probe as a percentage	0-100 %	33%
	Proportional band	Set the parameters for the signals from the probe for proportional control		
	Hysteresis	Set the activation hysteresis for proportional control	0.5-100% rH	5%
Eca13 (Ea13)	Modulating control	Set the parameters for the signals from the humidity probe for modulating control		
	Set point	Set the set point for modulating control	0-100% rH	50.0% rH
	Differential	Set the differential for modulating control	0-100% rH	3% rH
Eca14 (Ea14)	Time interval	Set the time interval for modulating control	0-999 sec	50 sec
	Dead band	Set the width of the dead band for modulating control	0-20% rH	2.5% rH
Eca15 (Ea15)	Modulating control	Set the parameters for the signals from the temperature probe for modulating control		
	Set point	Set the set point for modulating control	0 - 100 °C	25 °C
	Differential	Set the differential for modulating control	0 - 100 °C	5 °C
Eca16 (Ea16)	Time interval	Set the time interval for modulating control	0-999 sec	50 sec
	Dead band	Set the width of the dead band for modulating control	0 - 20 °C	20 °C
Eca17 (Ea17)	Limit probe	Set the parameters for the signals from the limit probe (humidity)		
	Set point	Set the set point for proportional control of the limit probe	0-100% rH	20% rH
	Differential	Set the differential for proportional control of the limit probe	0-100% rH	5% rH

Index	Display	Description	Range	Default
Eca19 (Ea19)	Limit probe	Set the parameters for the signals from the limit probe (temperature)		
	Set point	Set the set point for proportional control of the limit probe	0 - 100 °C	25 °C
	Differential	Set the differential for proportional control of the limit probe	0 - 100 °C	5 °C
Eca21 (Ea21)	Production range			
	Minimum production	Set the minimum production value as a percentage (the corresponding value in kg/h is also shown)	0-100 %	
	Maximum production	Set the maximum production value as a percentage (the corresponding value in kg/h is also shown)	0-100 %	

Example of screens displayed:



Eca01 - Ea01



Eca13 - Ea13

Control type: Humidity (one probe)

For this type of control, the following screens are available for setting the parameters:

- [Eca02 - Ea02] Main probe - U6
- [Eca13 - Ea13] Modulating control settings
- [Eca14 - Ea14] Modulating control settings
- [Eca21 - Ea21] Production range

Control type: External signal + temperature limit

For this type of control, the following screens are available for setting the parameters:

- [Eca05 - Ea05] Main probe - U6
- [Eca07 - Ea07] Limit/2nd probe - U7
- [Eca12 - Ea12] Proportional control
- [Eca19 - Ea19] Limit probe
- [Eca21 - Ea21] Production range

Control type: External signal + humidity limit

For this type of control, the following screens are available for setting the parameters:

- [Eca05 - Ea05] Main probe - U6
- [Eca06 - Ea06] Limit/2nd probe - U7
- [Eca12 - Ea12] Proportional control
- [Eca17 - Ea17] Limit probe
- [Eca21 - Ea21] Production range

Control type: Proportional to external signal

For this type of control, the following screens are available for setting the parameters:

- [Eca05 - Ea05] Main probe - U6
- [Eca12 - Ea12] Proportional control
- [Eca21 - Ea21] Production range

Control type: ON/OFF signal + temperature limit

For this type of control, the following screens are available for setting the parameters:

- [Eca03 - Ea03] Main probe - DIG signal
- [Eca07 - Ea07] Limit/2nd probe - U7
- [Eca19 - Ea19] Limit probe
- [Eca21 - Ea21] Production range

Control type: ON/OFF signal + humidity limit

For this type of control, the following screens are available for setting the parameters:

- [Eca03 - Ea03] Main probe - DIG signal
- [Eca06 - Ea06] Limit/2nd probe - U7
- [Eca17 - Ea17] Limit probe
- [Eca21 - Ea21] Production range

Control type: ON/OFF signal

For this type of control, the following screens are available for setting the parameters:

- [Eca03 - Ea03] Main probe - DIG signal
- [Eca21 - Ea21] Production range

Control type: Dew point + humidity limit

For this type of control, the following screens are available for setting the parameters:

- [Eca02 - Ea02] Main probe - U6
- [Eca06 - Ea06] Limit/2nd probe - U7
- [Eca09 - Ea09] 3rd probe - U8
- [Eca15 - Ea15] Modulating control
- [Eca16 - Ea16] Modulating control
- [Eca17 - Ea17] Limit probe
- [Eca21 - Ea21] Production range

Control type: Dew point

For this type of control, the following screens are available for setting the parameters:

- [Eca02 - Ea02] Main probe - U6
- [Eca09 - Ea09] 3rd probe - U8
- [Eca15 - Ea15] Modulating control
- [Eca21 - Ea21] Production range

Control type: Control by supervisor

For this type of control, the following screens are available for setting the parameters:

- [Eca12 - Ea12] Proportional control
- [Eca21 - Ea21] Production range

Control type: Temperature + humidity limit

For this type of control, the following screens are available for setting the parameters:

- [Eca04 - Ea04] Main probe - U6
- [Eca06 - Ea06] Limit/2nd probe - U7
- [Eca15 - Ea15] Modulating control
- [Eca17 - Ea17] Limit probe
- [Eca21 - Ea21] Production range

Control type: Temperature + temperature limit

For this type of control, the following screens are available for setting the parameters:

- [Eca04 - Ea04] Main probe - U6
- [Eca07 - Ea07] Limit/2nd probe - U7
- [Eca15 - Ea15] Modulating control
- [Eca19 - Ea19] Limit probe
- [Eca21 - Ea21] Production range

Control type: Temperature (one probe)

For this type of control, the following screens are available for setting the parameters:

- [Eca04 - Ea04] Main probe - U6
- [Eca15 - Ea15] Modulating control
- [Eca21 - Ea21] Production range

Control type: Humidity + temperature limit

For this type of control, the following screens are available for setting the parameters:

- [Eca02 - Ea02] Main probe - U6
- [Eca07 - Ea07] Limit/2nd probe - U7
- [Eca13 - Ea13] Modulating control
- [Eca19 - Ea19] Limit probe
- [Eca21 - Ea21] Production range

Control type: Humidity + humidity limit

For this type of control, the following screens are available for setting the parameters:

- [Eca02 - Ea02] Main probe - U6
- [Eca06 - Ea06] Limit/2nd probe - U7
- [Eca13 - Ea13] Modulating control
- [Eca17 - Ea17] Limit probe
- [Eca21 - Ea21] Production range

Control type: Two temperature probes + humidity limit

For this type of control, the following screens are available for setting the parameters:

- [Eca04 - Ea04] Main probe - U6
- [Eca07 - Ea07] Limit/2nd probe - U7
- [Eca08 - Ea07] 3rd probe - U8
- [Eca10 - Ea10] Two-probe control
- [Eca15 - Ea15] Modulating control
- [Eca16 - Ea16] Modulating control
- [Eca17 - Ea17] Limit probe
- [Eca21 - Ea21] Production range

Control type: Two humidity probes

For this type of control, the following screens are available for setting the parameters:

- [Eca02 - Ea02] Main probe - U6
- [Eca06 - Ea06] Limit/2nd probe - U7
- [Eca10 - Ea10] Two-probe control
- [Eca13 - Ea13] Modulating control
- [Eca14 - Ea14] Modulating control
- [Eca21 - Ea21] Production range

Control type: Two temperature probes

For this type of control, the following screens are available for setting the parameters:

- [Eca04 - Ea04] Main probe - U6
- [Eca07 - Ea07] Limit/2nd probe - U7
- [Eca10 - Ea10] Two-probe control
- [Eca15 - Ea15] Modulating control
- [Eca16 - Ea16] Modulating control
- [Eca21 - Ea21] Production range

Control type: Three humidity probes

For this type of control, the following screens are available for setting the parameters:

- [Eca02 - Ea02] Main probe - U6
- [Eca06 - Ea06] Limit/2nd probe - U7
- [Eca08 - Ea08] 3rd probe - U8
- [Eca11 - Ea11] Three-probe control
- [Eca13 - Ea13] Modulating control
- [Eca14 - Ea14] Modulating control
- [Eca21 - Ea21] Production range

Control type: Three temperature probes

For this type of control, the following screens are available for setting the parameters:

- [Eca04 - Ea04] Main probe - U6
- [Eca07 - Ea07] Limit/2nd probe - U7
- [Eca09 - Ea09] 3rd probe - U8
- [Eca11 - Ea11] Three-probe control
- [Eca15 - Ea15] Modulating regulation
- [Eca16 - Ea16] Modulating regulation
- [Eca21 - Ea21] Production range

8.4.2 Functions

humiFog Multizone (pumping station)

- Enter menu E. Settings (see par. 8.1)
- Select b. Functions and confi m the selection by pressing ←.

humiFog Multizone (zone panel)

- Enter menu E. Settings (see par. 8.1)
- Select c. Functions and confi m the selection by pressing ←.

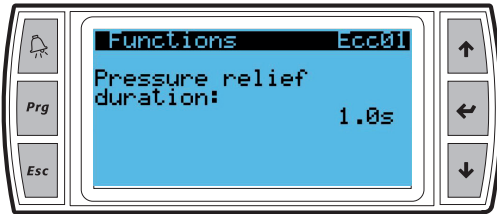


Notice: the following paragraphs indicate the screen indexes for both the pumping station and the zone panel (in brackets).

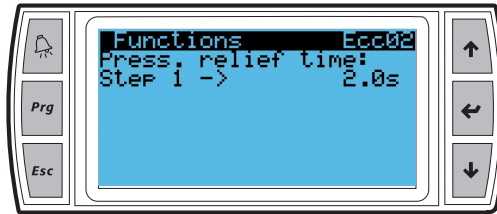
Pressure relief

When the steps close, in order to quickly lower the pressure and avoid unwanted dripping, the N.O. step valves are temporarily opened. The N.O. valve opening time needs to be selected during commissioning, making sure to verify the absence of dripping when the steps close by draining as much water as possible.

Index	Display	Description	Range	Default
Ecc01 (Ec01)	Pressure relief duration	Set the rack pressure relief duration (active only if Control type is set to AHU)	0-30 sec	1 sec
Ecc02 (Ec02)	Pressure relief time	Set the pressure relief duration for the single steps (active only if Control type is set to Direct in-room)	0-30 sec	2 sec



Ecc01 - Ec01

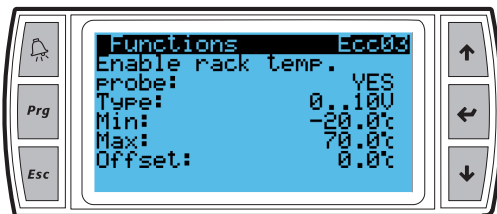


Ecc02 - Ec02

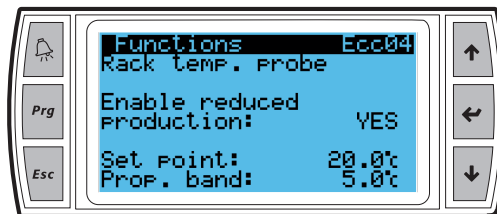
Rack temperature probe

A temperature probe can be installed just before the distribution system in order to check that the air pre-heating temperature is optimal for correct absorption of the atomised water.

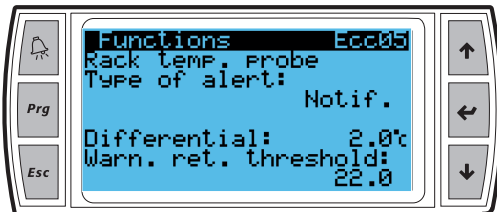
Index	Display	Description	Range	Default
Ecc03 (Ec03)		Display the configuration parameters for the rack temperature probe (active only if Control type is set to AHU)		
	Enable rack temperature probe	Enable/disable the rack temperature probe	Yes/No	No
	Type	Set the probe type	0-10V - 4-20mA - 0-20mA - 0-1V - 2-10V NTC	0-10V
	Min	Set the minimum value readable by the probe	-999.9 - 999.9 °C	-20 °C
	Max	Set the maximum value readable by the probe	-999.9 - 999.9 °C	70 °C
	Offset	Set the offset value to compensate for any inaccurate readings	-999.9 - 999.9 °C	0 °C
Ecc04 (Ec04)	Enable reduced production	Enable a reduction in production if the temperature in the atomisation zone falls below the set point. The reduction is applied in proportion to the deviation from the ideal atomisation temperature. (active only with the rack temperature probe enabled)	Yes/No	No
	Set point	This represents the minimum recommended temperature for atomisation (active only if Reduced production is enabled)	5 - 50 °C	20 °C
	Proportional band	Define a modulation range in which production is modulated. Below this range, production is at the minimum. Above the range, standard production restarts. (active only if Reduced production is enabled)	0.5 - 10 °C	5 °C
Ecc05 (Ec05)	Rack temperature probe	Set the configuration of the rack temperature probe alarm. (active only with the rack temperature probe enabled)		
	Type of alert	Set the type of alert issued by the system	Notification/ Warning	Notification
	Set point	This represents the alarm threshold temperature. (active only if Reduced production is disabled)	5 - 50 °C	20 °C
	Differential	This defines the interval outside of which the alarm message is cleared	0.5 - 10 °C	2 °C
	Warning return threshold	Display the threshold to reset the alarm message based on the configured probe parameters.		



Ecc03 - Ec03



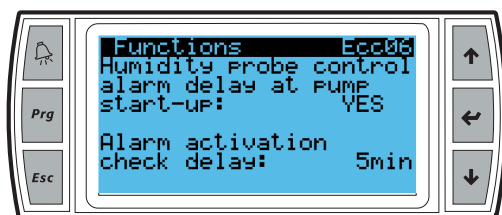
Ecc04 - Ec04



Ecc05 - Ec05

Probe alarm management at start-up

Index	Display	Description	Range	Default
Ecc06 (Ec06)	Humidity probe control alarm delay at pump start-up	Disable the probe disconnected alarm for a set time. This time is counted from when the pump starts. (active only with the rack temperature probe enabled)	Yes/No	No
	Alarm activation check delay	Set the time the disconnected probe alarm is disabled. (active only with Humidity probe control alarm delay at pump start-up enabled)	1-99 min	5 min



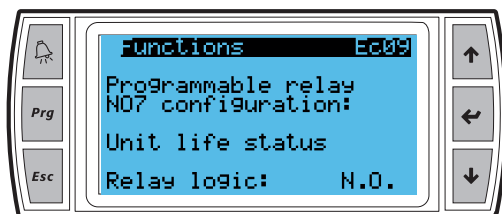
Ecc06 - Ec06

I/O logic

Index	Display	Description	Range	Default
Ecc07 (Ec07)	Digital inputs	Digital input operating logic settings		
	Rack enabling logic (RACKEN)	Set the operating logic of the rack enabling circuit	N.O./N.C.	N.C.
	Flow switch logic (FLUX)	Set the flow switch operating mode	N.O./N.C.	N.C.
Ecc08 (Ec08)	Digital outputs	Digital output operating logic settings		
	Zone status logic (ZONE)	Set the zone status operating logic	N.O./N.C.	N.C.
	Alarm status logic (AL)	Set the alarm status operating logic	N.O./N.C.	N.C.

Programmable relay configuration

Index	Display	Description	Range	Default
Ecc09 (Ec09)	Programmable relay NO7 configuratio	Set the output configuration for the programmable relay NO7	Unit life status / Low rack temperature warning	Unit life status
	Relay logic	Set the logic for the programmable relay NO7 signals	N.O./N.C.	N.O.

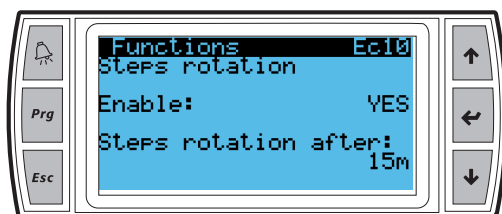


Ecc09 - Ec09

Step rotation

Step rotation is a function that can be activated only if all the steps in the distribution system relating to the zone in question are set with the same nominal flow-rate. In this case, when function is activated, after a settable time one or more steps currently in production are replaced by other steps that are currently inactive. This function makes it possible to standardise the use of the atomisation and distribution system as much as possible in direct in-room installations.

Index	Display	Description	Range	Default
Ecc10 (Ec10)	Enable	Enable/disable step rotation	Yes/No	No
	Step rotation after:	Set the step rotation activation time	1:9999 min	15 min



Ecc10 - Ec10

8.4.3 Manual mode

During commissioning or maintenance, "manual mode" may be useful in order to check the operation of the main devices that make up the system. All the operations carried out from this menu have a direct effect on the system, i.e. they effectively activate/deactivate the components or modify their status.

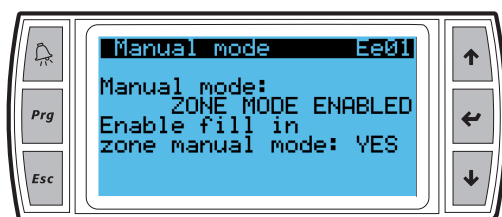
humiFog Multizone (pumping station)

- Enter menu E. Settings (see par. 8.1)
- Select c. Zone and confirm the selection by pressing **←**.
- Select e. Manual mode and confirm the selection by pressing **←**.

humiFog Multizone (zone panel)

- Enter menu E. Settings (see par. 8.1)
- Select e. Manual mode and confirm the selection by pressing **←**.

Index	Display	Description	Range	Default
Ece01 (Ee01)	Manual mode	Enable/disable manual device control.	Zone mode enabled/ Zone mode disabled	Zone mode disabled
	Enable fill in zone manual mode	Enable/disable filling of the zone in manual mode. (active only if manual mode is enabled)	Yes/No	Yes
Ece02 (Ee02)	Manual request	Activate the manual production request. Display the status of the rack solenoid valves, the current production and the outlet pressure. (active only if manual mode is enabled)		
Ece03 (Ee03)	Ventilation (NOV)	Activate/deactivate the ventilation solenoid valve. (active only if manual mode is enabled)	Auto Closed (24V) Open (0V)	Auto
	Line drain (NOL)	Activate/deactivate the line drain solenoid valve. (active only if manual mode is enabled)	Auto Closed (24V) Open (0V)	Auto
Ece04 (Ee04)	Fill	Manually control the rack step fill function (active only if manual mode is enabled)		
	NC1:6	Activate/deactivate the rack step fill solenoid valves. (active only if manual mode is enabled)	Auto Closed (24V) Open (0V)	Auto
Ece05 (Ee05)	Drain	Manually control the rack step drain functions (active only if manual mode is enabled)		
	NO1:6	Activate/deactivate the rack step drain solenoid valves. (active only if manual mode is enabled)	Auto Closed (24V) Open (0V)	Auto
Ece06 (Ee06)	Relays	Manually control the functions of the relay digital outputs. (active only if manual mode is enabled)		
	Alarm (AL)	Activate/deactivate the alarm digital output (active only if manual mode is enabled)	Auto Closed (24V) Open (0V)	Auto
	NO7 output (PUMP)	Activate/deactivate the programmable relay digital output (NO7) (active only if manual mode is enabled)	Auto Closed (24V) Open (0V)	Auto
	Rack On/Off (ZONE)	Activate/deactivate the zone digital output (active only if manual mode is enabled)	Auto Closed (24V) Open (0V)	Auto
Ece07 (Ee07)		Display the status of the zone digital inputs. (active only if manual mode is enabled)		
	ID6 RACKEN	Display the status of the enable rack digital input		
	ID7 FLUX	Display the status of the flow switch digital input		



Ece01 - Ee01

Minimum rack production calibration

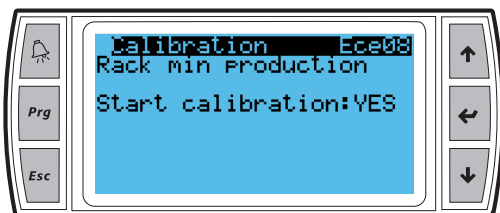
This procedure is used to calibrate the minimum rack production for the current zone (local zone managed by the pumping station or zone panel).

Minimum rack production calibration involves verifying that, at the minimum flow rate, the operating pressure is higher than the minimum threshold (20 bars). Otherwise, during the procedure the minimum production value needs to be increased until it reaches the minimum pressure. Once calibration has been completed, the procedure can be disabled.



Notice: rack minimum production calibration is required when the Application type is set to AHU for low outlet pressure with a low production request.

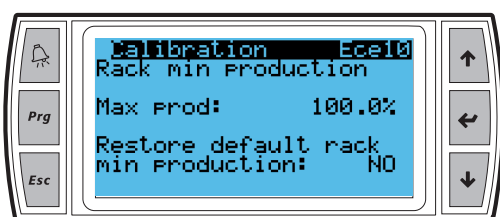
Index	Display	Description	Range	Default
Ece08 (Ee08)	Rack minimum production	Enable/disable the minimum rack production calibration procedure. (active only if manual mode is enabled)		
	Start calibration	Begin the calibration procedure.	Yes/No	No
Ece09 (Ee09)	Rack minimum production	Set the minimum production for rack calibration. (active only if manual mode is enabled)		
	Minimum production	Set the minimum production	0-100 %	
	HP pressure	Display the outlet pressure value in relation to the desired pressure set point.		
Ece10 (Ee10)	Maximum production	Manually set the minimum rack production.	0-100 %	100%
	Restore default rack minimum production	Manually reset the minimum rack production to the default value.	Yes/No	No



Ece08 - Ee08



Ece09 - Ee09



Ece10 - Ee10

8.4.4 BMS

This submenu is used to set the parameters relating to the supervisor channels and the port configuration

The system can be connected to a supervisor via serial (BMS) or Ethernet network. The ModBus and BACnet protocols are supported as standard.

humiFog Multizone (pumping station)

- Enter menu E. Settings (see par. 8.1)
- Select c. Zone and confi m the selection by pressing **←**.
- Select f. BMS and confi m the selection by pressing **←**.

humiFog Multizone (zone panel)

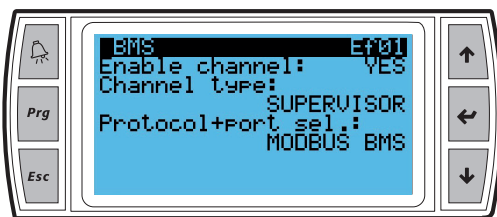
- Enter menu E. Settings (see par. 8.1)
- Select f. BMS and confi m the selection by pressing **←**.

Index	Display	Description	Range	Default
Ecf01 (Ef01)	Enable channel	Enable/disable the selected communication channel	Yes/No	No
	Channel type	Set the channel operating mode: (active only if the channel is enabled)	Supervisor Supervisor + Controller	Supervisor
	Protocol + port selection	Set the type of communication protocol and port (active only if the channel is enabled)	ModBus BMS BACnet BMS	
Ecf02 (Ef02)	Enable supervisor offline al m	Enable/disable the alarm that signals when the supervisor is offline (active only if the Channel type is set to Supervisor + Controller)	Yes/No	No
	Alarm delay	Set the delay time for alarm activation (active only if the Channel type is set to Supervisor + Controller)	1-999 sec	180 sec
Ecf03 (Ef03)	BMS port	Settings relating to the unit's BMS connection		
	Address		0 - 247	1
	Baudrate		1200 / 2400 / 4800 / 9600/ 19200 / 38400/ 57600 / 76800 / 115200 / 375000	19200
	Stop bits		1/2	2
	Parity		None Even Odd	None
Ecf04 (Ef04)	BACnet configuratio	Settings relating to the BACnet protocol		
	Station address		0 - 127	0
	Max masters		0 - 127	127
	Max frames		5 - 25	10
Ecf05 (Ef05)	BACnet configuratio	Set the BACnet device instance (only with BACnet set to one of the channels)		
	Device instance		0 - 4194302	77000

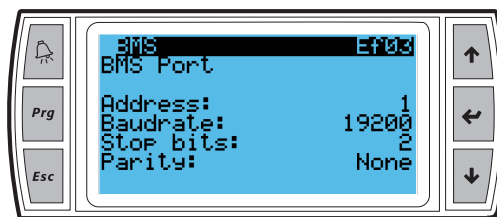
Index	Display	Description	Range	Default
Ecf06 (Ef06)	Ethernet port	Settings relating to the unit's Ethernet connection		
	DHCP		Yes/No	No
	IP	Unit IP address:		192.168.1.1 pumping station
				192.168.1.10 zone panel
	MASK	Subnet mask		255.255.255.0
	GW	Gateway		0.0.0.0
	DNS			0.0.0.0
	Update data	After having modified the parameters, the IP address can be updated.	Yes/No	No
Ecf07 (Ef07)	Control mode	Settings relating to the supervisor control mode.		
	On/off from supervisor	Enable/disable the on/off enabling signal	Yes/No	No
	Control from supervisor	Enable/disable the control request	Yes/No	No



Notice: in the zone BMS settings, the Ethernet port for supervisor connection is not available, as it is not supported.



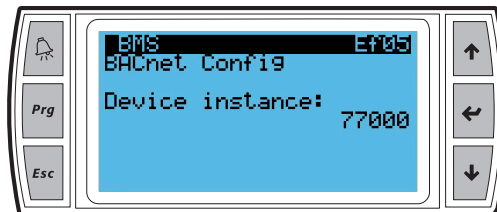
Ecf01 - Ef01



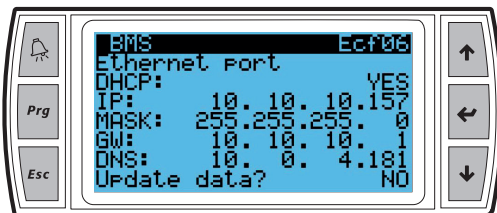
Ecf03 - Ef03



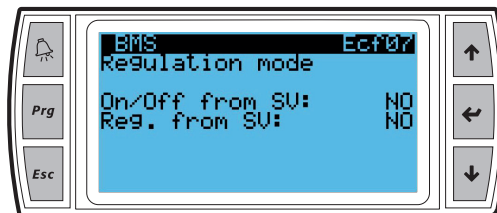
Ecf04 - Ef04



Ecf05 - Ef05



Ecf06 - Ef06



Ecf07 - Ef07

Pause from monitoring service

The paused by monitoring service function allows the devices configured for supervisor control to enable the unit (zone panel) independently. The paused unit is not enabled to operate in the system.

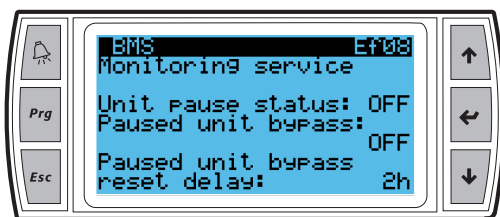


Notice: if a zone panel is paused, production in that zone is temporarily stopped. However, any other zones in the system can continue atomising.

If necessary, the paused by monitoring service can be bypassed in local mode: the operator can use the local controller to enable production (despite the unit being paused by the monitoring service), by enabling the Paused unit bypass parameter.

To avoid forgetting that the pause bypass is active, a (settable) timer has been included so that the bypass is automatically removed after a set period of time.

Index	Display	Description	Range	Default
Ecf08 (Ef08)	Monitoring service	Settings relating to the paused by monitoring service function.		
	Unit pause status	Display unit paused by monitoring service status	On/Off	Off
	Paused unit bypass	Enable/disable the monitoring service pause bypass.	On/Off	Off
	Paused unit bypass reset delay	Set the delay for disabling the monitoring service pause bypass.	1-999 hours	120 hours



Ecf08 - Ef08

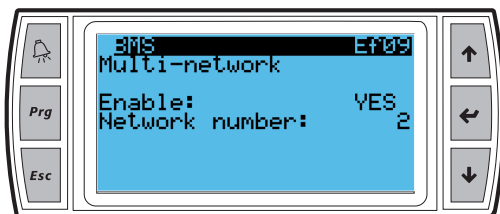
Multi-network

The multi-network function allows to manage several humiFog Multizone/humiFog Multizone Touch systems connected to the same local network.

In order for each individual system to co-exist, the parameters of the multi-network must be appropriately configured for each pumping station and associated zones.

For more details, please refer to the "Multi-network" section in paragraph 8.2.3 BMS.

Index	Display	Description	Range	Default
Ecf09 (Ef09)	Enable	Enabling of the multi-network function	Yes/No	No
	Network number	Network number setting	1/99	1



Ecf09 - Ef09

8.5 Initialisation

The Initialisation menu is active on the humiFog Multizone user terminal, on both the pumping station and the zone panel. This submenu is used to manually start the configuration wizard, set the unit of measure and manage the information (parameters, configuration, logs, alarms) provided by the unit.

humiFog Multizone (pumping station)

- Enter menu E. Settings (see par. 8.1)
- Select d. Initialisation and confirm the selection by pressing .

humiFog Multizone (zone panel)

- Enter menu E. Settings (see par. 8.1)
- Select g. Initialisation and confirm the selection by pressing .



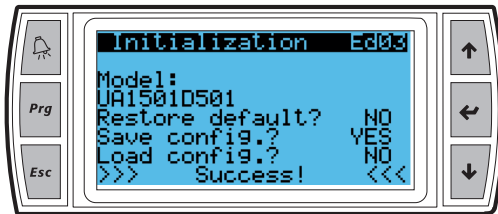
Notice: the following paragraphs indicate the screen indexes for both the pumping station and the zone panel (in brackets)

Factory reset and unit configuration management

When wanting to restore a prior configuration of the unit parameters, humiFog Multizone provides two specific functions: reset the factory defaults, and load the unit configuration

- Resetting the factory defaults restores all unit parameters to their default values.
- Managing the unit configuration, a more recent version of the parameters can be loaded, corresponding to the state at time the values were last saved. It is good practice to save the unit configuration after commissioning/setup and in any case when the system is functioning, so that it can be recalled later if necessary.

Index	Display	Description	Range	Default
Ed03	Model	Display the unit model		
(Eg03)	Reset defaults?	Reset parameters to factory settings	Yes/No	No
	Save configuration	Save the unit configuratio	Yes/No	No
	Load configuration	Load the unit configuratio	Yes/No	No
	Last configuration s ve date	Display the date/time the unit configuration was last s ved		
Ed12	Last configuration upload da e	Display the date/time the unit configuration was last load e		



Ed03 - Eg03

Other import/export operations

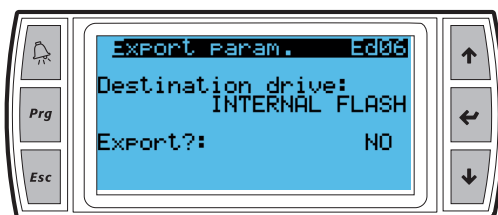
In the same way as the save/load unit configuration functions, the import/export parameter operations can be used to save/restore a specific unit configuration. The main difference lies in the possibility of selecting the destination/source drive, which can be the unit's internal memory or a USB flash drive. The outcome of the operation is displayed on the user interface. The parameter export operation, if completed successfully, will create the "humiFogCfg.txt" file on the destination drive. As regards the import operation, the unit will search the source drive for a file with the same name, before overwriting the current parameters.

In addition to operations on the unit parameters, humiFog Multizone can also export a log file and the alarms, both useful tools for diagnostics. The files generated, in the same way as described for the parameters, are named "MainLog.csv" and "AlrmLog.csv" respectively.

Index	Display	Description	Range	Default
Ed06	Destination drive	Select the destination drive to export the parameters	Internal memory/USB	USB
(Eg06)	Export?	Export the parameters to the selected destination drive	Yes/No	No
Ed07	Source drive	Select the source drive to import the parameters	Internal memory/USB	USB
(Eg07)	Import?	Import the parameters from the selected source drive	Yes/No	No
Ed10	Destination drive	Select the destination drive to export the log	Internal memory/USB	USB
(Eg10)	Export?	Export the log to the selected destination drive	Yes/No	No
Ed11	Destination drive	Select the destination drive to export the alarms	Internal memory/USB	USB
(Eg11)	Export?	Export the alarms to the selected destination drive	Yes/No	No



Notice: the parameter export operation to the internal memory overwrites any existing "humiFogCfg.txt" file (generated by saving a previous configuration or parameter export operation) and updates the last saved configuration date/time.



Ed06 - Eg06

Unit software update

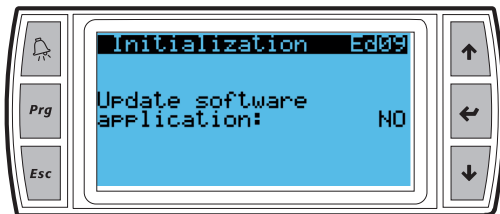
The most recent software application is available on the ksa.carel.com website, typically containing bug fixes and/or new features.

Once the update package has been downloaded and copied to a USB flash drive, in a directory called "Upgrade", the unit software can be updated by plugging the flash drive into the c.pco controller and following the simple instructions shown on the screen.

Index	Display	Description	Range	Default
Ed09 (Eg09)	Update application software	Update the application software	Yes/No	No



Notice: in multi-zone systems, it is normally expected that all the units will be updated with the same software version, to avoid possible system malfunctions. The software update must be performed locally on each individual unit in the system.



Ed09 - Eg09

9. CONNECTIVITY

9.1 Webservice

The webservice is a very interesting feature when the user has a local network available for connecting humiFog Multizone. The physical connection to the local network is made using the RJ45 Ethernet port on the humidifier controller and a standard Ethernet cable (category 5).

The built-in webservice on the humiFog Multizone c.pCO controller allows the main unit parameters to be set and monitored directly from a PC, tablet or smartphone connected to the network. Opening an internet browser, the user can connect to the humidifier from the local network by entering the humiFog Multizone unit IP address. The webservice can be accessed for each unit (controller) in the system. Depending on the system configuration, the following can be accessed:

- pumping station controller webservice
- controller webservice for each zone panel (if present)



Notice: when logging into the pumping station webservice, information relating to the entire system can be displayed, while the zone panel webservice only displays information relating to the specific one.

9.1.1 Local network connection

The local network connection is made using an Ethernet cable. Two different connection modes are available (see Fig. 9.a):

- a free port on the pumping station (1 - Fig. 9.a)
- a free port on the last zone panel in the network (2 - Fig. 9.a)



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

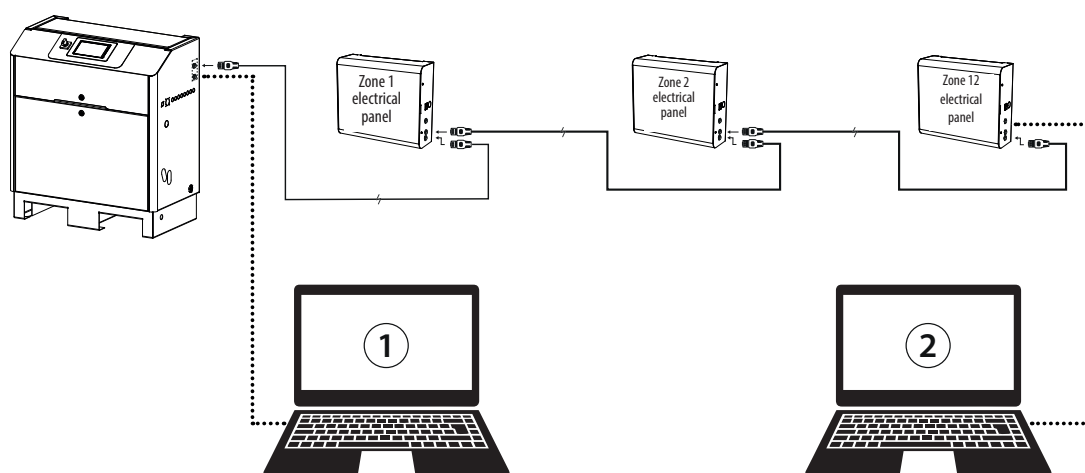


Fig. 9.a



CAUTION: the zone number is assigned when the network is already wired, so the last zone in the network may not be the one with the highest zone number.

9.1.2 IP address and network configuration

The IP address is a numerical code that identifies modems, computers, smartphones and all other devices connected to a network so that these can communicate with each other. As a rule, the IP addresses of multiple devices connected to the same network are identical to each other, except for the last few digits.

EXAMPLE:

- 192.168.1.1 device #1 connected to the network
- 192.168.1.2 device #2 connected to the same network
- 192.168.1.11 device #3 connected to the same network

The IP address of the humiFog Multizone unit can be displayed:

- in the Quick INFO menu (see par. 4.5.1)
- (pumping station) E. Settings > a. System > f. BMS > d. Port configuration > Screen Eafd01
- (zone panel) E. Settings > f. BMS > Screen Ef06

Ethernet port configuration: DHCP and IP address.

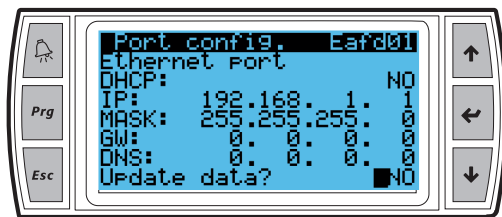


Fig. 9.b



Notice: unless there are specific system connection requirements, it is recommended to use the default settings provided for the individual units.

To access the webserver, open an internet browser and enter the IP address.

IP addresses can be:

- dynamic (if the DHCP function is available; this automatically assigns an IP address when a device is connected)
- static (if DHCP is not available or cannot be used, the IP address is assigned manually by the user).

For dynamic IP addresses with DHCP enabled on the server, the IP assignment mode must be set to DHCP on the humiFog Multizone configuration screen (Eafd01 or Ef06). The IP address shown on the screen will be assigned automatically by the DHCP server.

The advantage of this setting mode is that the server and humiFog Multizone communicate directly, and there is no need to configure the network parameters (Subnet mask and Gateway).

The disadvantage is that when adding other devices to the same network with humiFog Multizone switched off and not connected, the IP address originally assigned to the unit may change, and therefore it will be necessary to access the configuration screen (Eafd01 or Ef06) to get the new address and copy it into the browser's address bar.

If needing to set a specific static IP address other than the default (with DHCP OFF as default), enter the network parameters manually on the configuration screen (Eafd01 or Ef06), according to the instructions provided by the local network administrator. Usually, Subnet mask and Gateway have default values (which need to be known), while the IP address can be assigned sequentially with reference to another device connected to the same network.

The default network configurations are:

PUMP UNIT

- unit's IP address: 192.168.1.1
- subnet mask: 255.255.255.0
- gateway: 0.0.0.0
- DNS: 0.0.0.0

ZONE UNIT

- unit's IP address: 192.168.1.X (where X = 9 + zone number set for that unit)
- subnet mask: 255.255.255.0
- gateway: 0.0.0.0
- DNS: 0.0.0.0

In the case of an active backup function and pumping station with a 'secondary' role, the default configuration automatically changes to:

PUMP CONTROL (secondary)

- IP address: 192.168.1.3
- Subnet mask: 255.255.255.0
- Gateway: 0.0.0.0
- DNS: 0.0.0.0

9.1.3 Webserver features

Once having entered the webserver, to log in and access the various menu items, the credentials to be entered depend on the type of user (see Tab. 9.b).

ID	PW
Service	77
Maintenance	44

Tab. 9.a

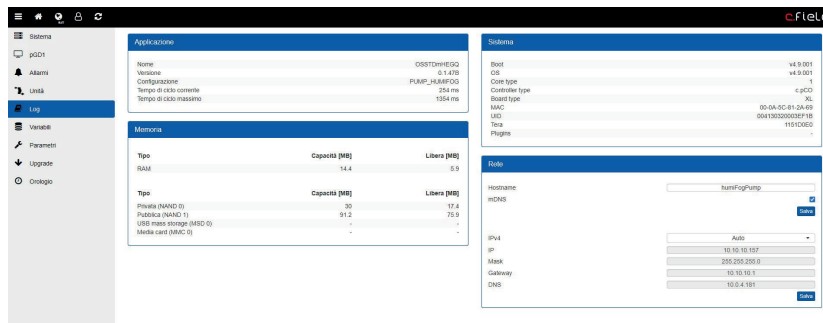


Fig. 9.c

Web interface

Once logged in, the various webserver pages can be accessed:

Menu	Description
System	View the main information on the application, available memory, network and system settings.
pGD1	This page accesses the keypad display for advanced unit configuration
Alarms	Display the active alarms and alarm log.
Unit	Display the status of the unit inputs and outputs.
Log	This page is used to create graphs of the selected variables using the logged data, and export them in .csv format.
Variables	Display all the variables logged by the unit. The variables are available grouped into predefined categories, all active by default.
Parameters	Display all the parameters that can be set on the unit. The parameters are available grouped into predefined categories, all active by default.
Upgrade	Page for managing the remote software upgrade.
Clock	View and set the unit clock

Tab. 9.b



Notice: to avoid incorrect settings, some of the main unit operating parameters can only be modified via the webserver when the unit is off (off from keypad, also set from the webserver).

9.2 Supervisor (BMS) connection

The system or one of its units can be connected to external control systems by activating one or more supervisor channels. Each supervisor channel needs to be configured by selecting the communication port and protocol and setting the various options. The supervisor can manage the entire system by configuring one or more supervisor channels on the pumping station, or control a single zone unit.

To set up the supervisor channels correctly, the characteristics of the supervisor need to be known. It is therefore strongly recommended to read the supervisor manual and/or contact the person responsible for installing the supervisor network.

9.2.1 Supervisor connection

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

- between the Ethernet port on the pumping station or any of the zone panels (if present) and the supervisor network (see paragraph 9.1.1).
- via RS485 serial link between the BMS2 port on the unit in question and the supervisor network.



Notice: if the supervisory system has been designed to connect via serial to multiple units, make sure that the serial configuration selected for each unit is compatible and that each unit has a unique BMS address.

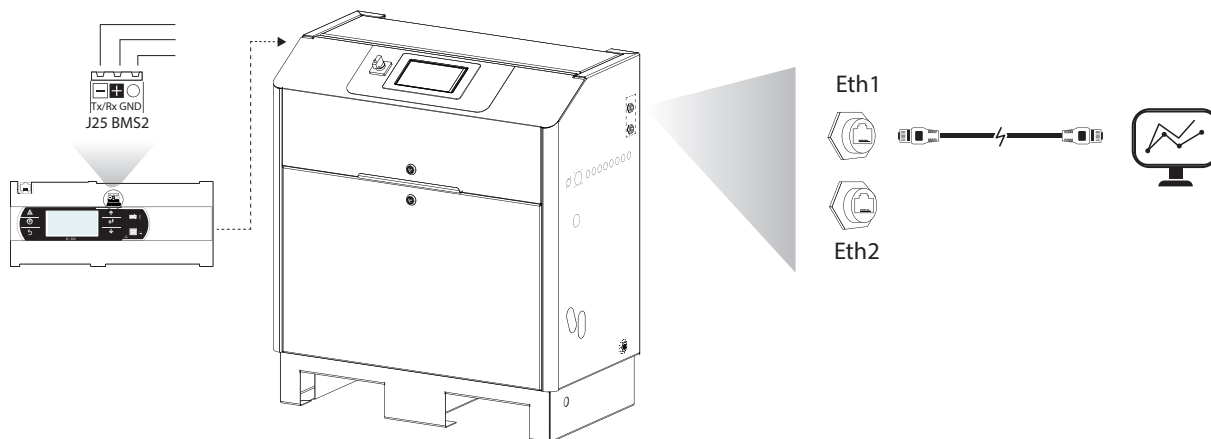


Fig. 9.d

9.2.2 System BMS

The BMS functions can be accessed via the connection to the pumping station, which provides information on the entire system (pumping station + zones).

There are two types of connection available:

- RS485 port (supported protocols: MODBUS, BACNET)
- Ethernet port (supported protocols: MODBUS, BACNET)

BMS channel types

For each single channel, independent of the selected port and protocol, there are two options: SUPERVISOR or SUPERVISOR + CONTROLLER. This differentiation lets the software enable or disable certain screens, so as to help the user configure the channel.

- SUPERVISOR: read the status and set the unit configuration parameters, with the possibility of pausing production (this can be bypassed locally). There is no remote production request modulation command.
- SUPERVISOR + CONTROLLER: in addition to the SUPERVISOR options, a dedicated signal can be managed to enable production (which cannot be bypassed) and/or assign a direct modulation command to the zone, if a compatible control type is set. "Controller" mode verifies unit-BMS communication and manages (optional) a dedicated offline alarm.

A maximum of three channels can be connected at the same time. This is reduced to two channels if the backup function is activated.

Channel configuration

For information on configuring the pumping station BMS channels, see par. 8.2.3.

The channel configuration submenu provides the following settings.

Parameter	Description
Enable the channel	Enable the use of the channel and make the subsequent settings available.
Channel type	Supervisor/Supervisor + controller
Protocol + port combination	Selection of the protocol will depend on the configurations of the devices that are already enabled, i.e. the same resource or protocol (single instance or for that specific port) cannot be selected multiple times. Example: if selecting the BACnet protocol via Ethernet for a specific channel, BACnet cannot be configured as the protocol for any other device associated with another supervisor channel.
With Channel type: Supervisor + controller	
Zone control mode	• On/Off: the supervisor can send a signal to enable production for all control types set (even control based on probe readings). • control: the supervisor sends the production request and the control type needs to be set as "Control by supervisor". • On/Off + control: to manage both the enabling signal and request from the supervisor.
Enable supervisor offline alarm	Enable/disable the alarm that signals when the supervisor is offline
Alarm delay	When there is no communication between the supervisory system and the unit for the set timeout, the offline supervisor alarm is activated This alarm shuts down the unit and is automatically reset once communication is re-established.

Tab. 9.c

On/off by supervisor

This function is used to enable production regardless of the control type selected. This is managed in series with all the other enabling signals needed to start production.

Production control by supervisor

In this mode, the zone panel determines the production request based on the value of a read/write variable (see par. 9.3 & 9.4) sent by the supervisor + controller.

OFFLINE alarm

This setting is only available when at least one of the functions is enabled, "ON/OFF by supervisor" and "Production control by supervisor".

By enabling this function and when there is no communication between the supervisor and the controller, the SUPERVISOR OFFLINE ALARM is generated when the OFFLINE TIMEOUT parameter, set on this screen, elapses.

9.2.3 Zone BMS

The BMS supervisor for a specific zone can be connected to the corresponding zone panel in two modes:

- RS485 port (supported protocols: MODBUS, BACNET)
- Ethernet port (supported protocols: MODBUS, BACNET)

BMS channel types

For the communication channel, independent of the selected port and protocol, there are two options: SUPERVISOR or SUPERVISOR + CONTROLLER. This differentiation lets the software enable or disable certain screens, so as to help the user configure the channel.

- SUPERVISOR: read the status and set the zone configuration parameters, with the possibility of pausing production (this can be bypassed). There is no remote production request modulation command.
- SUPERVISOR + CONTROLLER: in addition to the SUPERVISOR options, a dedicated signal can be managed to enable production (which cannot be bypassed) and/or assign a direct modulation command to the zone, if a compatible control type is set. "Controller" mode verifies zone-BMS communication and manages (optional) a dedicated offline alarm.

Channel configuration

For information on configuring the zone BMS channels, see par. 8.4.4.

The channel configuration submenu provides the following settings.

Parameter	Description
Enable channel	Enable the use of the channel and make the subsequent settings available.
Channel type	Supervisor/Supervisor + controller
Port + protocol selection	Selection of the protocol will depend on the configurations of the devices that are already enabled, i.e. the same resource or protocol (single instance or for that specific port) cannot be selected multiple times. Example: if selecting the BACnet protocol via Ethernet for a specific channel, BACnet cannot be configured as the protocol for any other device associated with another supervisor channel.
With Channel type: Supervisor + controller	
Zone control mode	• On/Off: the supervisor can send a signal to enable production for all control types set (even control based on probe readings). • control: the supervisor sends the production request and the control type needs to be set as "Control by supervisor".
Enable supervisor offline alarm	Enable/disable the alarm that signals when the supervisor is offline
Alarm delay	When there is no communication between the supervisory system and the unit for the set timeout, the offline supervisor alarm is activated This alarm shuts down the zone and is automatically reset once communication is re-established.

Tab. 9.d

On/off by supervisor

This function is used to enable production regardless of the control type selected. This is managed in series with all the other enabling signals needed to start production.

Production control by supervisor

In this mode, the zone panel determines the production request based on the value of a read/write variable sent by the supervisor + controller.

OFFLINE alarm

This setting is only available when at least one of the functions is enabled, "ON/OFF by supervisor" and "Production control by supervisor".

By enabling this function, the SUPERVISOR OFFLINE ALARM is generated when the OFFLINE TIMEOUT parameter, set on this screen, elapses.

9.3 ModBus parameter list

The variables shown in the list are a set of all the internal variables on the humidifier .



CAUTION

Do not configure any variables that are not shown in the tables, otherwise system operation may be affected.



Notice: all system zones can be supervised only by connecting to the pumping station.

In the following tables relating to the pumping station supervisor variables, only the zone variables relating to system zone 1 are shown.

The codes of the variables relating to the other zones can be determined as follows:

- The zone 1 variables have addresses up to 300. For the following zones, add 200 to the zone 1 address (example zone 5 = zone (1 + 4) - zone 5 address: 300 + (200 x 4) = 1100).
- Zone variables are typically associated with the ZonesData_C[X].Z_FctsCfg.RackTempMng.EnRackTMng). (example for zone 5: ZonesData_C[5].Z_FctsCfg.RackTempMng.EnRackTMng).

In the supervisor tables for the specific zones, on the other hand, the variable addresses always start from 300, as when connecting to the zone controllers, only the parameters relating to that specific one can be supervised.

Reference zone	Address	Variable name
Zone 1	300	ZonesData_C[1].Z_FctsCfg.RackTempMng.EnRackTMng
	304	ZonesData_C[1].Z_FctsCfg.RackEnLogic
Zone 2	500	ZonesData_C[2].Z_FctsCfg.RackTempMng.EnRackTMng
	504	ZonesData_C[2].Z_FctsCfg.RackEnLogic
Zone 3	700	ZonesData_C[3].Z_FctsCfg.RackTempMng.EnRackTMng
	704	ZonesData_C[3].Z_FctsCfg.RackEnLogic
Zone 4	900	ZonesData_C[4].Z_FctsCfg.RackTempMng.EnRackTMng
	904	ZonesData_C[4].Z_FctsCfg.RackEnLogic
Zone 5	1100	ZonesData_C[5].Z_FctsCfg.RackTempMng.EnRackTMng
	1104	ZonesData_C[5].Z_FctsCfg.RackEnLogic
Zone 6	1300	ZonesData_C[6].Z_FctsCfg.RackTempMng.EnRackTMng
	1304	ZonesData_C[6].Z_FctsCfg.RackEnLogic
Zone 7	1500	ZonesData_C[7].Z_FctsCfg.RackTempMng.EnRackTMng
	1504	ZonesData_C[7].Z_FctsCfg.RackEnLogic
Zone 8	1700	ZonesData_C[8].Z_FctsCfg.RackTempMng.EnRackTMng
	1704	ZonesData_C[8].Z_FctsCfg.RackEnLogic
Zone 9	1900	ZonesData_C[9].Z_FctsCfg.RackTempMng.EnRackTMng
	1904	ZonesData_C[9].Z_FctsCfg.RackEnLogic
Zone 10	2100	ZonesData_C[10].Z_FctsCfg.RackTempMng.EnRackTMng
	2104	ZonesData_C[10].Z_FctsCfg.RackEnLogic
Zone 11	2300	ZonesData_C[11].Z_FctsCfg.RackTempMng.EnRackTMng
	2304	ZonesData_C[11].Z_FctsCfg.RackEnLogic
Zone 12	2500	ZonesData_C[12].Z_FctsCfg.RackTempMng.EnRackTMng
	2504	ZonesData_C[12].Z_FctsCfg.RackEnLogic

Tab. 9.e

9.3.1 Pumping station ModBus variable table - Coil variables

RO= Read Only

RW= ReadWrite

Add.	Occ.	Variable name	Description	Data-typ.	Def.	Min	Max	UoM	Acces.
100	1	ResetPmpHrs	Partially reset pump operating hours	Bool		0	1	0	RW
101	1	EnFill	Enable fill function (0 = disabled, 1 = enabled)	Bool	1	0	1	0	RW
102	1	FillOnlyReqZones	Function to fill - ones only with production request, if filling - one by zone (0 = disabled, 1 = enabled)	Bool	1	0	1	0	RW
103	1	ZonesData_C[1].Z_FctsCfg.EnRackFullStandby	Enable full standby function for zone 1 (0 = the zone will always remain in full standby at the end of production, 1 = the zone, once the full standby time has elapsed, will go to empty standby)	Bool		0	1	0	RW
104	1	ZonesData_C[2].Z_FctsCfg.EnRackFullStandby	Enable full standby function for zone 2 (0 = the zone will always remain in full standby at the end of production, 1 = the zone, once the full standby time has elapsed, will go to empty standby)	Bool		0	1	0	RW
105	1	ZonesData_C[3].Z_FctsCfg.EnRackFullStandby	Enable full standby function for zone 3 (0 = the zone will always remain in full standby at the end of production, 1 = the zone, once the full standby time has elapsed, will go to empty standby)	Bool		0	1	0	RW
106	1	ZonesData_C[4].Z_FctsCfg.EnRackFullStandby	Enable full standby function for zone 4 (0 = the zone will always remain in full standby at the end of production, 1 = the zone, once the full standby time has elapsed, will go to empty standby)	Bool		0	1	0	RW
107	1	ZonesData_C[5].Z_FctsCfg.EnRackFullStandby	Enable full standby function for zone 5 (0 = the zone will always remain in full standby at the end of production, 1 = the zone, once the full standby time has elapsed, will go to empty standby)	Bool		0	1	0	RW
108	1	ZonesData_C[6].Z_FctsCfg.EnRackFullStandby	Enable full standby function for zone 6 (0 = the zone will always remain in full standby at the end of production, 1 = the zone, once the full standby time has elapsed, will go to empty standby)	Bool		0	1	0	RW
109	1	ZonesData_C[7].Z_FctsCfg.EnRackFullStandby	Enable full standby function for zone 7 (0 = the zone will always remain in full standby at the end of production, 1 = the zone, once the full standby time has elapsed, will go to empty standby)	Bool		0	1	0	RW
110	1	ZonesData_C[8].Z_FctsCfg.EnRackFullStandby	Enable full standby function for zone 8 (0 = the zone will always remain in full standby at the end of production, 1 = the zone, once the full standby time has elapsed, will go to empty standby)	Bool		0	1	0	RW
111	1	ZonesData_C[9].Z_FctsCfg.EnRackFullStandby	Enable full standby function for zone 9 (0 = the zone will always remain in full standby at the end of production, 1 = the zone, once the full standby time has elapsed, will go to empty standby)	Bool		0	1	0	RW

Add.	Occ.	Variable name	Description	Data-typ.	Def.	Min	Max	UoM	Acces.
112	1	ZonesData_C[10].Z_FctsCfg. EnRackFullStandby	Enable full standby function for zone 10 (0 = the zone will always remain in full standby at the end of production, 1 = the zone, once the full standby time has elapsed, will go to empty standby)	Bool		0	1	0	RW
113	1	ZonesData_C[11].Z_FctsCfg. EnRackFullStandby	Enable full standby function for zone 11 (0 = the zone will always remain in full standby at the end of production, 1 = the zone, once the full standby time has elapsed, will go to empty standby)	Bool		0	1	0	RW
114	1	ZonesData_C[12].Z_FctsCfg. EnRackFullStandby	Enable full standby function for zone 12 (0 = the zone will always remain in full standby at the end of production, 1 = the zone, once the full standby time has elapsed, will go to empty standby)	Bool		0	1	0	RW
115	1	ZoneData_S.Z_FctsCfg. RelayLogicNO7	Digital output logic for PUMP "programmable relay NO7" (0 = NC, 1 = NO)	Bool	0	0	1	0	RW
116	1	EnHiConductAlarm	Enable pumping station high inlet water conductivity alarm	Bool	1	0	1	0	RW
118	1	UnitPause	Unit setting paused (0=not paused; 1=paused)	Bool	0	0	1	0	RW
119	1	EnMstFullStandbyMaxT	Enable emptying of pump-zone line in standby	Bool	1	0	1	0	RW
120	1	EnMultiNet	Enabling of the multi-network	Bool	0	0	1	0	RW
121	1	EnFillWashProdLim	Enabling of production limitation during filling/washin	Bool		0	1	0	RW
300	1	ZonesData_C[1].Z_FctsCfg. RackTempMng.EnRackTMng	Enable production modulation function from rack temperature probe reading (0 = disabled, 1 = enabled)	Bool	0	0	1	0	RW
301	1	ZonesData_C[1].Z_FctsCfg. RackTempMng.EnRack- TReducedProd	Enable production reduction based on rack temperature	Bool	0	0	1	0	RW
302	1	ZonesData_C[1].Z_FctsCfg. RackTempMng.EnRackTWarn	Select type of signal for low rack temperature (0 = notification, 1 = warning)	Bool	0	0	1	0	RW
303	1	ZonesData_C[1].Z_FctsCfg. EnDlydHumPrbAlrmCtrl	Enable humidity probe control delay for alarm activation	Bool	0	0	1	0	RW
304	1	ZonesData_C[1].Z_FctsCfg. RackEnLogic	Enable zone production digital input (RACKEN) status (0 = contact closed, 1 = contact open)	Bool	0	0	1	0	RW
305	1	ZonesData_C[1].Z_FctsCfg. AirFlowSwitchLogic	Flow switch digital input (FLUX) status (0 = contact closed, 1 = contact open)	Bool	0	0	1	0	RW
306	1	ZonesData_C[1].Z_FctsCfg. ZoneStatusDout_Logic	"Zone status" ZONE digital output logic (0 = NC, 1 = NO)	Bool	0	0	1	0	RW
307	1	ZonesData_C[1].Z_FctsCfg. AlrmDOutLogic	"Alarm status" AL digital output logic (0 = NC, 1 = NO)	Bool	0	0	1	0	RW
308	1	ZonesData_C[1].Z_FctsCfg. RelayLogicNO7	"Programmable relay NO7" digital output logic (0 = NC, 1 = NO)	Bool	0	0	1	0	RW
309	1	ZonesData_C[1].Z_FctsCfg. ZoneManModeEnFill	Enable filling function for zone manual mode (0 = disabled, 1 = enabled)	Bool	1	0	1	0	RW
310	1	ZonesData_C[1].Z_WorkPar. UnitPause	Unit setting paused (0=not paused; 1=paused)	Bool	0	0	1	0	RW
311	1	ZonesData_C[1].Z_WorkPar. SVEnReg	Enable zone control from supervisor	Bool	0	0	1	0	RW
312	1	ZonesData_C[1].Z_WorkPar. SVEnOnOff	Enable zone 1 on/off from supervisor	Bool	0	0	1	0	RW
313	1	ZonesData_C[1].Z_WorkPar. SVOnOff	Zone 1 on/off from supervisor	Bool		0	1	0	RW
314	1	ZonesData_C[1].Z_RackCfg. EnRotSteps	Enable step rotation in zone 1	Bool	0	0	1	0	RW

9.3.2 Pumping station ModBus variable table - Discrete Input variables

RO= Read Only

RW= ReadWrite

Add.	Occ.	Variable name	Description	Data-typ.	Def.	Min	Max	UoM	Acces.
100	1	CurrAlrmStatus.isPresent	At least 1 alarm active	Bool		0	1	0	RO
102	1	HP_SwitchStatus_NoLogic	High pressure switch digital input (HP) status (0 = contact closed, 1 = contact open)	Bool		0	1	0	RO
103	1	HT_ThermostatStatus_NoLogic	High temperature thermostat digital input (HT) status (0 = contact closed, 1 = contact open)	Bool		0	1	0	RO
104	1	PumpEnDinStatus_NoLogic	Enable pumping station digital input (PEN) status (0 = contact closed, 1 = contact open)	Bool		0	1	0	RO
105	1	RevOsmStatus_NoLogic	Reverse osmosis alarm status digital input (ROAL) status (0 = contact closed, 1 = contact open)	Bool		0	1	0	RO
106	1	WaterLeakStatus_NoLogic	Flood sensor digital input (WL) status (0 = contact closed, 1 = contact open)	Bool		0	1	0	RO
107	1	Cabinet_UI.SupplyW	Water fill solenoid valve and pump cooling fan digital input (FV) status (0 = output not energised, 1 = output energised)	Bool		0	1	0	RO
108	1	Cabinet_UI.Drain	Pumping station water drain digital input (DVB) status (0 = output not energised, 1 = output energised)	Bool		0	1	0	RO
109	1	ZoneData_S.Z_RackSteps. LineDrain	Line drain solenoid valve digital input (NOL) status (0 = output not energised, 1 = output energised)	Bool		0	1	0	RO
110	1	ZoneData_S.Z_DigIO.NO7_ PrqDout	Programmable relay NO7 digital input (PUMP) status (0 = output not energised, 1 = output energised)	Bool		0	1	0	RO
111	1	ZoneData_S.Z_DigIO. Alrm_Dout	Alarm status digital input (AL) status (0 = output not energised, 1 = output energised)	Bool		0	1	0	RO
112	1	LowInletFlow	Low inlet water pressure (0 = not present, 1 = low pressure present)	Bool		0	1	0	RO
113	1	Alrm_Retain.Active	ALG01 - Alarm: error in number of retain memory writes	Bool		0	1	0	RO
114	1	Alrm_Err_retain_write.Active	ALG02 - Alarm: too many retain memory writes	Bool		0	1	0	RO
115	1	Warn_LowPressLP.Active	WRP01 - Warning: low inlet pressure (LP) during production	Bool		0	1	0	RO
116	1	Warn_RetMem.Active	WRG03 - Warning: too many retain memory writes	Bool		0	1	0	RO
117	1	Alrm_Inv_Overvoltage.Active	ABV01 - Inverter alarm: overvoltage	Bool		0	1	0	RO
118	1	Alrm_NoModel.Active	ABC01 - Alarm: no model configured	Bool		0	1	0	RO
119	1	Warn_Cu_Maint.Active	WRM01 - Maintenance warning: visual water circuit check required	Bool		0	1	0	RO
120	1	Alrm_HighTemp.Active	ABP02 - Alarm: high water temperature	Bool		0	1	0	RO
121	1	Alrm_Inv_General.Active	ABV02 - Inverter alarm: general alarm	Bool		0	1	0	RO
122	1	Alrm_InvOFF_STATUSline. Active	ABV03 - Inverter alarm: inverter offli	Bool		0	1	0	RO
123	1	Alrm_LowTemp.Active	ABP03 - Alarm: low water temperature	Bool		0	1	0	RO
124	1	Alrm_Inv_Overtorque.Active	ABV04 - Inverter alarm: overtorque	Bool		0	1	0	RO
125	1	Alrm_Inv_HeatsinkOverH. Active	ABV05 - Inverter alarm: overheating	Bool		0	1	0	RO
126	1	Warn_HighTemp.Active	WRP04 - Warning: high water temperature	Bool		0	1	0	RO
127	1	Warn_HighPressHP.Active	WRP05 - Warning: high outlet pressure (HP)	Bool		0	1	0	RO
128	1	Alrm_Inv_Overcurrent.Active	ABV06 - Inverter alarm: overcurrent	Bool		0	1	0	RO

Add.	Occ.	Variable name	Description	Data-typ.	Def.	Min	Max	UoM	Acces.
129	1	Alrm_Inv_MotorOverload.Active	ABV07 - Inverter alarm: motor overload	Bool		0	1	0	RO
130	1	Alrm_LowPressHP.Active	ABP06 - Alarm: low outlet pressure (HP)	Bool		0	1	0	RO
131	1	Alrm_Inv_DriveOverload.Active	ABV08 - Inverter alarm: drive overload	Bool		0	1	0	RO
132	1	Warn_WMiss.Active	WRP07 - Warning: no inlet water	Bool		0	1	0	RO
133	1	Alrm_LowPressLP.Active	ABP08 - Alarm: low inlet pressure (LP) during production	Bool		0	1	0	RO
134	1	Alrm_HighPressHP.Active	ABP09 - Alarm: high outlet pressure (HP)	Bool		0	1	0	RO
135	1	Alrm_HighPressLP.Active	ABP10 - Alarm: high inlet pressure (LP)	Bool		0	1	0	RO
136	1	Alrm_Slave1.Active	ALZ01 - Alarm: zone 1 panel alarm	Bool		0	1	0	RO
137	1	Alrm_Slave2.Active	ALZ02 - Alarm: zone 2 panel alarm	Bool		0	1	0	RO
138	1	Alrm_Slave3.Active	ALZ03 - Alarm: zone 3 panel alarm	Bool		0	1	0	RO
139	1	Alrm_Slave4.Active	ALZ04 - Alarm: zone 4 panel alarm	Bool		0	1	0	RO
140	1	Alrm_Slave5.Active	ALZ05 - Alarm: zone 5 panel alarm	Bool		0	1	0	RO
141	1	Alrm_Slave6.Active	ALZ06 - Alarm: zone 6 panel alarm	Bool		0	1	0	RO
142	1	Alrm_Slave7.Active	ALZ07 - Alarm: zone 7 panel alarm	Bool		0	1	0	RO
143	1	Alrm_Slave8.Active	ALZ08 - Alarm: zone 8 panel alarm	Bool		0	1	0	RO
144	1	Alrm_Slave9.Active	ALZ09 - Alarm: zone 9 panel alarm	Bool		0	1	0	RO
145	1	Alrm_Slave10.Active	ALZ10 - Alarm: zone 10 panel alarm	Bool		0	1	0	RO
146	1	Alrm_Slave11.Active	ALZ11 - Alarm: zone 11 panel alarm	Bool		0	1	0	RO
147	1	Alrm_Slave12.Active	ALZ12 - Alarm: zone 12 panel alarm	Bool		0	1	0	RO
148	1	Alrm_Water_Leakage.Active	ABR01 - Alarm: water flooding detected (WL)	Bool		0	1	0	RO
149	1	Alrm_RevOsmNotReady.Active	ABR02 - Alarm: reverse osmosis system not ready (ROAL)	Bool		0	1	0	RO
150	1	Alrm_BypassTPrb.Active	ABA03 - Alarm: bypass temperature probe broken or disconnected	Bool		0	1	0	RO
151	1	Alrm_InletPressPrb.Active	ABA04 - Alarm: water inlet pressure probe (LP) broken or disconnected	Bool		0	1	0	RO
152	1	Alrm_OutletPressPrb.Active	ABA05 - Alarm: water outlet pressure probe (HP) broken or disconnected	Bool		0	1	0	RO
153	1	Warn_HighConduct.Active	WRA07 - Warning: high water conductivity measured	Bool		0	1	0	RO
154	1	Alrm_ConductPrb.Active	ABA08 - Alarm: conductivity probe broken or disconnected	Bool		0	1	0	RO
155	1	Alrm_HighConduct.Active	ABA09 - Alarm: high water conductivity measured	Bool		0	1	0	RO
156	1	Warn_ReqTooHigh.Active	WRC03 - Warning: production request is too high for pump nominal flow rate	Bool		0	1	0	RO
157	1	Alrm_HighPressHPWashFill.Active	ABP11 - Alarm: high water outlet pressure (HP) during wash or fill	Bool		0	1	0	RO
158	1	Warn_Maint_Bi.Active	WRM02 - Maintenance warning: oil change required	Bool		0	1	0	RO
159	1	Warn_Maint_ResMan.Active	WRM03 - Maintenance warning: oil change and parts replacement required	Bool		0	1	0	RO
160	1	Warn_LowPressHP.Active	WRP11 - Warning: low outlet pressure (HP)	Bool		0	1	0	RO
161	1	Warn_SVOOffline_Channel Active	WRO02 - Warning: supervisor channel 1 offline	Bool		0	1	0	RO
162	1	Warn_SVOOffline_Channel Active	WRO03 - Warning: supervisor channel 2 offline	Bool		0	1	0	RO
163	1	Warn_SVOOffline_Channel Active	WRO04 - Warning: supervisor channel 3 offline	Bool		0	1	0	RO
164	1	Alrm_SVOOffline_Channel Active	ALO06 - Alarm: supervisor channel 1 offline	Bool		0	1	0	RO
165	1	Alrm_SVOOffline_Channel Active	ALO07 - Alarm: supervisor channel 2 offline	Bool		0	1	0	RO
166	1	Alrm_SVOOffline_Channel Active	ALO08 - Alarm: supervisor channel 3 offline	Bool		0	1	0	RO
167	1	Warn_BackupFail.Active	WRB01 - Warning: backup pump activation failed	Bool		0	1	0	RO
168	1	Warn_BackupOffline.Active	WRB02 - Warning: backup pump offline	Bool		0	1	0	RO
169	1	Alrm_BackupOffline.Active	WRB03 - Warning: backup pump offline	Bool		0	1	0	RO
170	1	DisableVarUnitPause	Disable pause from monitoring service (0: pause not disabled, 1: pause disabled)	Bool	0	0	1	0	RO
171	1	CurrAlrmStatus.Warning	At least 1 warning active	Bool		0	1	0	RO
172	1	UnitCfg.isMasterSec	Pumping unit type set to secondary (only with backup function enabled)	Bool	0	0	1	0	RO
173	1	UnitCfg_UI.PressWaterMode	Pressurised water mode selected	Bool		0	1	0	RO
174	1	Slave_1_ComStatus.isOnline	Zone 1 online status	Bool		0	1	0	RO
175	1	Slave_2_ComStatus.isOnline	Zone 2 online status	Bool		0	1	0	RO
176	1	Slave_3_ComStatus.isOnline	Zone 3 online status	Bool		0	1	0	RO
177	1	Slave_4_ComStatus.isOnline	Zone 4 online status	Bool		0	1	0	RO
178	1	Slave_5_ComStatus.isOnline	Zone 5 online status	Bool		0	1	0	RO
179	1	Slave_6_ComStatus.isOnline	Zone 6 online status	Bool		0	1	0	RO
180	1	Slave_7_ComStatus.isOnline	Zone 7 online status	Bool		0	1	0	RO
181	1	Slave_8_ComStatus.isOnline	Zone 8 online status	Bool		0	1	0	RO
182	1	Slave_9_ComStatus.isOnline	Zone 9 online status	Bool		0	1	0	RO
183	1	Slave_10_ComStatus.isOnline	Zone 10 online status	Bool		0	1	0	RO
184	1	Slave_11_ComStatus.isOnline	Zone 11 online status	Bool		0	1	0	RO
185	1	Slave_12_ComStatus.isOnline	Zone 12 online status	Bool		0	1	0	RO
186	1	UnitCfg.isZone1Remoted	Zone 1 remote	Bool		0	1	0	RO
193	1	Warn_Deflnst_Pmp.Active	WRC04 - Warning: reset defaults from pumping station	Bool	0	0	1	0	RO
301	1	ZonesData_C[1].Z_DigIO. RackEnStatus_NoLogic	Enable zone production digital input (RACKEN) status (0 = contact closed, 1 = contact open)	Bool		0	1	0	RO
302	1	ZonesData_C[1].Z_DigIO.Air-FlowSwitchStatus_NoLogic	Flow switch digital input (FLUX) status (0 = contact closed, 1 = contact open)	Bool		0	1	0	RO
303	1	ZonesData_C[1].Z_RackSteps. LineDrain	Line drain digital output (NOL) status (0 = output not energised, 1 = output energised)	Bool		0	1	0	RO
304	1	ZonesData_C[1].Z_DigIO. NO7_PrgDout	Programmable relay NO7 digital output status (0 = output not energised, 1 = output energised)	Bool		0	1	0	RO
305	1	ZonesData_C[1].Z_DigIO. Alrm_Dout	Alarm status digital input (AL) status (0 = output not energised, 1 = output energised)	Bool		0	1	0	RO
306	1	ZonesData_C[1].Z_RackSteps. Ventilation	Rack ventilation solenoid valve digital output (NOV) status (0 = output energised, 1 = output not energised)	Bool		0	1	0	RO
313	1	ZonesData_C[1].Z_RackSteps. Step[1].Fill	Rack fill solenoid valve status - step 1 (0 = closed, 1 = open)	Bool		0	1	0	RO
314	1	ZonesData_C[1].Z_RackSteps. Step[2].Fill	Rack fill solenoid valve status - step 2 (0 = closed, 1 = open)	Bool		0	1	0	RO
315	1	ZonesData_C[1].Z_RackSteps. Step[3].Fill	Rack fill solenoid valve status - step 3 (0 = closed, 1 = open)	Bool		0	1	0	RO
316	1	ZonesData_C[1].Z_RackSteps. Step[4].Fill	Rack fill solenoid valve status - step 4 (0 = closed, 1 = open)	Bool		0	1	0	RO
317	1	ZonesData_C[1].Z_RackSteps. Step[5].Fill	Rack fill solenoid valve status - step 5 (0 = closed, 1 = open)	Bool		0	1	0	RO

Add.	Occ.	Variable name	Description	Data-typ.	Def.	Min	Max	UoM	Acces.
318	1	ZonesData_C[1].Z_RackSteps. Step[6].Fill	Rack fill solenoid valve status - step 6 (0 = closed, 1 = open)	Bool		0	1	0	RO
319	1	ZonesData_C[1].Z_RackSteps. Step[1].Drain	Rack drain solenoid valve status - step 1 (0 = closed, 1 = open)	Bool		0	1	0	RO
320	1	ZonesData_C[1].Z_RackSteps. Step[2].Drain	Rack drain solenoid valve status - step 2 (0 = closed, 1 = open)	Bool		0	1	0	RO
321	1	ZonesData_C[1].Z_RackSteps. Step[3].Drain	Rack drain solenoid valve status - step 3 (0 = closed, 1 = open)	Bool		0	1	0	RO
322	1	ZonesData_C[1].Z_RackSteps. Step[4].Drain	Rack drain solenoid valve status - step 4 (0 = closed, 1 = open)	Bool		0	1	0	RO
323	1	ZonesData_C[1].Z_RackSteps. Step[5].Drain	Rack drain solenoid valve status - step 5 (0 = closed, 1 = open)	Bool		0	1	0	RO
324	1	ZonesData_C[1].Z_RackSteps. Step[6].Drain	Rack drain solenoid valve status - step 6 (0 = closed, 1 = open)	Bool		0	1	0	RO
331	1	ZonesData_C[1].Z_Alrms. Alrm_MainPrb	ALA01 - Zone 1 alarm: main probe broken or disconnected	Bool		0	1	0	RO
332	1	ZonesData_C[1].Z_RackSteps. Ventilation	ALA02 - Zone 1 alarm: limit probe broken or disconnected	Bool		0	1	0	RO
333	1	ZonesData_C[1].Z_Alrms. Alrm_NoRack	ABC02 - Zone 1 alarm: distribution system not configured	Bool		0	1	0	RO
334	1	ZonesData_C[1].Z_Alrms. Alrm_MasterOffli	ABO01 - Zone 1 alarm: pumping station offline	Bool		0	1	0	RO
335	1	ZonesData_C[1].Z_Alrms. Alrm_RackTPrb	ABA06 - Zone 1 alarm: rack temperature probe broken or disconnected	Bool		0	1	0	RO
336	1	ZonesData_C[1].Z_Alrms. Warn_LowRackTemp	WRA10 - Zone 1 warning: low rack temperature	Bool		0	1	0	RO
337	1	ZonesData_C[1].Z_Alrms. Warn_HighHumMainPrb	WRA11 - Zone 1 warning: high humidity measured by main probe	Bool		0	1	0	RO
338	1	ZonesData_C[1].Z_Alrms. Warn_LowHumMainPrb	WRA12 - Zone 1 warning: low humidity measured by main probe	Bool		0	1	0	RO
339	1	ZonesData_C[1].Z_Alrms. Warn_HighTempMainPrb	WRA13 - Zone 1 warning: high temperature measured by main probe	Bool		0	1	0	RO
340	1	ZonesData_C[1].Z_Alrms. Warn_LowTempMainPrb	WRA14 - Zone 1 warning: low temperature measured by main probe	Bool		0	1	0	RO
341	1	ZonesData_C[1].Z_Alrms. Warn_HighHumLimPrb	WRA15 - Zone 1 warning: high humidity measured by limit probe	Bool		0	1	0	RO
342	1	ZonesData_C[1].Z_Alrms. Warn_LowTempLimPrb	WRA16 - Zone 1 warning: low humidity measured by limit probe	Bool		0	1	0	RO
343	1	ZonesData_C[1].Z_Alrms. Warn_HighHumTwoPrbsAvg	WRA17 - Zone 1 warning: high humidity measured by average of 2 probes	Bool		0	1	0	RO
344	1	ZonesData_C[1].Z_Alrms. Warn_LowHumTwoPrbsAvg	WRA18 - Zone 1 warning: low humidity measured by average of 2 probes	Bool		0	1	0	RO
345	1	ZonesData_C[1].Z_Alrms. Warn_HighTempTwoPrbsAvg	WRA19 - Zone 1 warning: high temperature measured by average of 2 probes	Bool		0	1	0	RO
346	1	ZonesData_C[1].Z_Alrms. Warn_LowTempTwoPrbsAvg	WRA20 - Zone 1 warning: low temperature measured by average of 2 probes	Bool		0	1	0	RO
347	1	ZonesData_C[1].Z_Alrms. Warn_HighHumThreePrbsAvg	WRA21 - Zone 1 warning: high humidity measured by average of 3 probes	Bool		0	1	0	RO
348	1	ZonesData_C[1].Z_Alrms. Warn_LowHumThreePrbsAvg	WRA22 - Zone 1 warning: low humidity measured by average of 3 probes	Bool		0	1	0	RO
349	1	ZonesData_C[1].Z_Alrms. Warn_HighTempThreePrbsAvg	WRA23 - Zone 1 warning: high temperature measured by average of 3 probes	Bool		0	1	0	RO
350	1	ZonesData_C[1].Z_Alrms. Warn_LowTempThreePrbsAvg	WRA24 - Zone 1 warning: low temperature measured by average of 3 probes	Bool		0	1	0	RO
351	1	ZonesData_C[1].Z_Alrms. Warn_SVOffli	WRO05 - Zone 1 warning: supervisor offline	Bool		0	1	0	RO
352	1	ZonesData_C[1].Z_Alrms. Alrm_SVOffli	WRO09 - Zone 1 alarm: supervisor offline	Bool		0	1	0	RO
353	1	ZonesData_C[1].Z_Alrms. Alrm_Retain	ALG01 - Zone 1 alarm: error in number of retain memory writes	Bool		0	1	0	RO
354	1	ZonesData_C[1].Z_Alrms. Alrm_Err_retain_write	ALG02 - Zone 1 alarm: too many retain memory writes	Bool		0	1	0	RO
355	1	ZonesData_C[1].Z_Alrms. Warn_RetMem	WRG03 - Zone 1 warning: too many retain memory writes	Bool		0	1	0	RO
356	1	ZonesData_C[1].Z_Alrms. Alrm_NoModel	ABC01 - Zone 1 alarm: no model configured	Bool		0	1	0	RO
357	1	ZonesData_C[1].Z_WorkPar. DisableVarUnitPause	Disable pause from monitoring service (0: pause not disabled, 1: pause disabled)	Bool		0	1	0	RO
358	1	ZonesData_C[1].Z_Info.ZoneAlrmPresent	At least 1 alarm active in zone	Bool		0	1	0	RO
359	1	ZonesData_C[1].Z_Info.ZoneWarning	At least 1 warning active in zone	Bool		0	1	0	RO

9.3.3 Pumping station ModBus variable table - HoldingRegister variables

RO= Read Only

RW= ReadWrite

Add.	Occ.	Variable name	Description	Data-typ.	Def.	Min	Max	UoM	Acces.
100	1	ZoneData_S.Z_FctsCfg.FillT	Fill duration if "all zones together" option selected	UInt	2	1	60	[min]	RW
101	1	FillMultiType	Type of filling for multi-zone system (0 = all zones together, 1 = one zone at a time)	UInt	0	0	1	0	RW
102	1	ZonesData_C[1].Z_FctsCfg.FillT	Fill duration zone 1	UInt	2	1	60	[min]	RW
103	1	ZonesData_C[2].Z_FctsCfg.FillT	Fill duration zone 2	UInt	2	1	60	[min]	RW
104	1	ZonesData_C[3].Z_FctsCfg.FillT	Fill duration zone 3	UInt	2	1	60	[min]	RW
105	1	ZonesData_C[4].Z_FctsCfg.FillT	Fill duration zone 4	UInt	2	1	60	[min]	RW
106	1	ZonesData_C[5].Z_FctsCfg.FillT	Fill duration zone 5	UInt	2	1	60	[min]	RW
107	1	ZonesData_C[6].Z_FctsCfg.FillT	Fill duration zone 6	UInt	2	1	60	[min]	RW
108	1	ZonesData_C[7].Z_FctsCfg.FillT	Fill duration zone 7	UInt	2	1	60	[min]	RW
109	1	ZonesData_C[8].Z_FctsCfg.FillT	Fill duration zone 8	UInt	2	1	60	[min]	RW
110	1	ZonesData_C[9].Z_FctsCfg.FillT	Fill duration zone 9	UInt	2	1	60	[min]	RW
111	1	ZonesData_C[10].Z_FctsCfg.FillT	Fill duration zone 10	UInt	2	1	60	[min]	RW
112	1	ZonesData_C[11].Z_FctsCfg.FillT	Fill duration zone 11	UInt	2	1	60	[min]	RW
113	1	ZonesData_C[12].Z_FctsCfg.FillT	Fill duration zone 12	UInt	2	1	60	[min]	RW

Add.	Occ.	Variable name	Description	Data-typ.	Def.	Min	Max	UoM	Acces.
114	1	WashMode	Wash mode (0 = wash disabled, 1 = wash due to inactivity, 2 = daily wash)	USInt	2	0	2	0	RW
115	1	WashMultiType	Wash type for multi-zone system (0 = all zones together, 1 = one zone at a time)	UInt		0	1	0	RW
116	1	ZoneData_S_Z_FctsCfg.WashT	Wash time, if "wash all zones together" enabled	UInt	2	1	10	[min]	RW
117	1	PerWashHrThr	Inactivity time to activate the wash due to inactivity	UInt	24	1	99	0	RW
118	1	DailyWashHr	Select hours for daily wash	UInt	0	0	23	0	RW
119	1	DailyWashMin	Select minutes for daily wash	UInt	0	0	59	0	RW
120	1	ZonesData_C[1].Z_FctsCfg.WashT	Wash duration zone 1	UInt	2	1	10	[min]	RW
121	1	ZonesData_C[2].Z_FctsCfg.WashT	Wash duration zone 2	UInt	2	1	10	[min]	RW
122	1	ZonesData_C[3].Z_FctsCfg.WashT	Wash duration zone 3	UInt	2	1	10	[min]	RW
123	1	ZonesData_C[4].Z_FctsCfg.WashT	Wash duration zone 4	UInt	2	1	10	[min]	RW
124	1	ZonesData_C[5].Z_FctsCfg.WashT	Wash duration zone 5	UInt	2	1	10	[min]	RW
125	1	ZonesData_C[6].Z_FctsCfg.WashT	Wash duration zone 6	UInt	2	1	10	[min]	RW
126	1	ZonesData_C[7].Z_FctsCfg.WashT	Wash duration zone 7	UInt	2	1	10	[min]	RW
127	1	ZonesData_C[8].Z_FctsCfg.WashT	Wash duration zone 8	UInt	2	1	10	[min]	RW
128	1	ZonesData_C[9].Z_FctsCfg.WashT	Wash duration zone 9	UInt	2	1	10	[min]	RW
129	1	ZonesData_C[10].Z_FctsCfg.WashT	Wash duration zone 10	UInt	2	1	10	[min]	RW
130	1	ZonesData_C[11].Z_FctsCfg.WashT	Wash duration zone 11	UInt	2	1	10	[min]	RW
131	1	ZonesData_C[12].Z_FctsCfg.WashT	Wash duration zone 12	UInt	2	1	10	[min]	RW
132	1	ZonesData_C[1].Z_FctsCfg.FullStandbyMaxT	Zone 1 full standby duration	UInt	24	0	48	[h]	RW
133	1	ZonesData_C[2].Z_FctsCfg.FullStandbyMaxT	Zone 2 full standby duration	UInt	24	0	48	[h]	RW
134	1	ZonesData_C[3].Z_FctsCfg.FullStandbyMaxT	Zone 3 full standby duration	UInt	24	0	48	[h]	RW
135	1	ZonesData_C[4].Z_FctsCfg.FullStandbyMaxT	Zone 4 full standby duration	UInt	24	0	48	[h]	RW
136	1	ZonesData_C[5].Z_FctsCfg.FullStandbyMaxT	Zone 5 full standby duration	UInt	24	0	48	[h]	RW
137	1	ZonesData_C[6].Z_FctsCfg.FullStandbyMaxT	Zone 6 full standby duration	UInt	24	0	48	[h]	RW
138	1	ZonesData_C[7].Z_FctsCfg.FullStandbyMaxT	Zone 7 full standby duration	UInt	24	0	48	[h]	RW
139	1	ZonesData_C[8].Z_FctsCfg.FullStandbyMaxT	Zone 8 full standby duration	UInt	24	0	48	[h]	RW
140	1	ZonesData_C[9].Z_FctsCfg.FullStandbyMaxT	Zone 9 full standby duration	UInt	24	0	48	[h]	RW
141	1	ZonesData_C[10].Z_FctsCfg.FullStandbyMaxT	Zone 10 full standby duration	UInt	24	0	48	[h]	RW
142	1	ZonesData_C[11].Z_FctsCfg.FullStandbyMaxT	Zone 11 full standby duration	UInt	24	0	48	[h]	RW
143	1	ZonesData_C[12].Z_FctsCfg.FullStandbyMaxT	Zone 12 full standby duration	UInt	24	0	48	[h]	RW
144	1	FuncSelNO7_Mst	Select function for PUMP programmable relay NO7 *	USInt	0	0	7	0	RW
145	1	P_SetPLowPAlrmDly	Pumping station low outlet pressure alarm delay	UInt	90	20	120	[s]	RW
146	1	HiConductAlrmThresh	High water conductivity alarm threshold	UInt	200		2500	[uS/cm]	RW
147	1	HiConductWarnThresh	High water conductivity warning threshold	UInt	100	20	2500	[uS/cm]	RW
148	1	HiConductWarnHyst	High water conductivity warning deactivation hysteresis	UInt	10	1	2500	[uS/cm]	RW
149	1	HiConductAlrmDlyT	High water conductivity alarm delay	UInt	10	0	99	[min]	RW
150	1	T_SetPAFreezeSetP	Low water temperature alarm threshold	Real	5.0	3.0	10.0	0.1 [°C - °F]	RW
151	1	T_SetPAFreezeHyst	Low water temperature alarm deactivation hysteresis	Real	1.0	0.5	6.0	0.1 [°C - °F]	RW
152	1	T_SetPAFreezeAlrmDly	Low water temperature alarm delay	UInt	15	1	30	[s]	RW
153	1	T_SetPByPassTDrainOpen	Drain solenoid valve DVB opening threshold for high water temperature bypass	Real	45.0	35.0	60.0	0.1 [°C - °F]	RW
154	1	T_SetPByPassTWarnResetHyst	High water temperature warning deactivation hysteresis	Real	5.0	1.0	10.0	0.1 [°C - °F]	RW
155	1	T_SetPByPassTWarnSet	High water temperature warning threshold	Real	52.0	45.0	65.0	0.1 [°C - °F]	RW
164	1	UoM_SV	Unit of measure (2: Imperial system, 6: International system)	USInt	6	1	7	0	RW
165	1	MstFullStandbyMaxT	Pump-zone line emptying delay in standby	UInt	60	0	120		RW
166	1	MstEmptyStandbyMaxTFill	Pump-zone line emptying duration in standby	UInt	5	1	120		RW
171	2	NetNum	Network number for multi-network	UDInt	1	1	99	0	RW
181	1	P_SetPLinePressRelT	Line pressure release: maximum time for managing line pressure after slowdown	UInt	20	1	40		RW
300	1	ZonesData_C[1].Z_WorkPar.GlbSetP_Hum	Set zone 1 humidity set point	Real	50.0	0.0	100.0	0.1 [%rh]	RW
301	1	ZonesData_C[1].Z_WorkPar.GlbSetP_Temp	Set zone 1 temperature set point	Real	25.0	0.0	100.0	0.1 [°C - °F]	RW
302	1	ZonesData_C[1].Z_WorkPar.GlbSetPLim_Hum	Set zone 1 humidity limit set point	Real	50.0	0.0	100.0	0.1 [%rh]	RW
303	1	ZonesData_C[1].Z_WorkPar.GlbSetPLim_Temp	Set zone 1 temperature limit set point	Real	25.0	0.0	100.0	0.1 [°C - °F]	RW
304	1	ZonesData_C[1].Z_Reg.Rack-MaxProd	Set zone 1 maximum production	Real	100.0	0.0	100.0	0.1 [%]	RW
305	1	ZonesData_C[1].Z_Reg.RegTyp	Control mode **	USInt	6	0	18	0	RW
306	1	ZonesData_C[1].Z_FctsCfg.PressReliefT[1]	Pressure relief function duration for step 1	Real	1.0	0.0	30.0	0.1 [s]	RW
307	1	ZonesData_C[1].Z_FctsCfg.PressReliefT[2]	Pressure relief function duration for step 2	Real	1.0	0.0	30.0	0.1 [s]	RW
308	1	ZonesData_C[1].Z_FctsCfg.PressReliefT[3]	Pressure relief function duration for step 3	Real	1.0	0.0	30.0	0.1 [s]	RW
309	1	ZonesData_C[1].Z_FctsCfg.PressReliefT[4]	Pressure relief function duration for step 4	Real	1.0	0.0	30.0	0.1 [s]	RW
310	1	ZonesData_C[1].Z_FctsCfg.PressReliefT[5]	Pressure relief function duration for step 5	Real	1.0	0.0	30.0	0.1 [s]	RW

Add.	Occ.	Variable name	Description	Data-typ.	Def.	Min	Max	UoM	Acces.
311	1	ZonesData_C[1].Z_FctsCfg.PressReliefT[6]	Pressure relief function duration for step 6	Real	1.0	0.0	30.0	0.1 [s]	RW
312	1	ZonesData_C[1].Z_PrbCfg.RackTPrb.UlTyp	Select rack temperature probe type (0 = 0-1 V, 1 = 0-10 V, 2 = 2-10 V, 3 = 0-20 mA, 4 = 4-20 mA, 5 = NTC)	USInt	5	0	5	0	RW
313	1	ZonesData_C[1].Z_PrbCfg.RackTPrb.Mi_Temp	Minimum rack temperature probe value	Real	-20.0	-999.9	999.9	0.1 [°C - °F]	RW
314	1	ZonesData_C[1].Z_PrbCfg.RackTPrb.Ma_Temp	Maximum rack temperature probe value	Real	70.0	-999.9	999.9	0.1 [°C - °F]	RW
315	1	ZonesData_C[1].Z_PrbCfg.RackTPrb.Offs	Rack temperature probe reading offset	Real	0.0	-999.9	999.9	0.1 [°C - °F]	RW
316	1	ZonesData_C[1].Z_FctsCfg.RackTempMng.RackTSetP	Temperature set point for production modulation function from rack probe	Real	20.0	5.0	50.0	0.1 [°C - °F]	RW
317	1	ZonesData_C[1].Z_FctsCfg.RackTempMng.RackTBand	Proportional band for production modulation function from rack probe	Real	5.0	0.5	10.0	0.1 [°C - °F]	RW
318	1	ZonesData_C[1].Z_FctsCfg.RackTempMng.RackTDiff	Differential for disabling the production modulation function from rack probe warning	Real	2.0	0.5	10.0	0.1 [°C - °F]	RW
319	1	ZonesData_C[1].Z_FctsCfg.HumPrbAlrmCtrlDel	Enable control probe alarm delay at start of production (0 = disabled, 1 = enabled)	UInt	5	1	99	[min]	RW
320	1	ZonesData_C[1].Z_FctsCfg.FunctSelNO7_Slv	Select programmable relay NO7 function (0 = Unit life status, 1 = Low rack temperature warning)	USInt	0	0	1	0	RW
340	1	ZonesData_C[1].Z_FctsCfg.HighMainHum_WarnThrsh	Set main probe high humidity alarm threshold	Real	100.0	0.0	100.0	0.1 [%rh]	RW
341	1	ZonesData_C[1].Z_FctsCfg.HighMainTemp_WarnThrsh	Set main probe high temperature alarm threshold	Real	40.0	5.0	70.0	0.1 [°C - °F]	RW
342	1	ZonesData_C[1].Z_FctsCfg.LowMainHum_WarnThrsh	Set main probe low humidity alarm threshold	Real	0.0	0.0	100.0	0.1 [%rh]	RW
343	1	ZonesData_C[1].Z_FctsCfg.LowMainTemp_WarnThrsh	Set main probe low temperature alarm threshold	Real	15.0	5.0	70.0	0.1 [°C - °F]	RW
344	1	ZonesData_C[1].Z_FctsCfg.HighLimitHum_WarnThrsh	Set limit probe high humidity alarm threshold	Real	100.0	0.0	100.0	0.1 [%rh]	RW
345	1	ZonesData_C[1].Z_FctsCfg.LowLimitTemp_WarnThrsh	Set limit probe low temperature alarm threshold	Real	15.0	5.0	70.0	0.1 [°C - °F]	RW
346	1	ZonesData_C[1].Z_FctsCfg.PrbThrshsWarnDly	High/low humidity/temperature alarm delay	UInt	1	0	99	[min]	RW
347	1	ZonesData_C[1].Z_WorkPar.SVReq	Zone production request from supervisor	Real		0.0	100.0	0.1 [%]	RW
349	1	ZonesData_C[1].Z_RackCfg.RotStepsT	Enable step rotation in zone 1	UInt	15	1	9999	[min]	RW

* (0=Unit life status, 1=Low rack temp. warning, 2=Pump status, 3=Pump maintenance warning, 4=No water warning, 5=Low inlet press. warning, 6=Low inlet press. alarm, 7=Low water temp. alarm)

** (0=on/off, 1=on/off + humidity limit, 2=on/off + temperature limit, 3=external signal, 4=external signal + humidity limit, 5=external signal + temperature limit, 6=humidity, 7=humidity + limit humidity, 8=humidity + temperature limit, 9=temperature, 10=temperature + temperature limit, 11=temperature + humidity limit, 12=2 humidity probes, 13=2 temperature probes, 14=3 humidity probes, 15=3 temperature probes, 16=2 temperature probes + humidity limit, 17=dewpoint, 18=dewpoint + humidity limit)

9.3.4 Pumping station ModBus variable table - InputRegister variables

RO= Read Only

RW= ReadWrite

Add.	Occ.	Variable name	Description	Data-typ.	Def.	Min	Max	UoM	Acces.
100	1	OnOffStatu	Pump status *	UInt		0	65535	0	RO
101	1	SwVer.X	Software version X (Major)	UInt		0	65535	0	RO
102	1	SwVer.Y	Software version Y (Minor)	UInt		0	65535	0	RO
103	1	SwVer.Z	Software version Z (Patch)	UInt		0	65535	0	RO
104	2	PmpCurrReq	Production request to the pump	Real		0.0	3.40E+43	0.1 [kg/h - lb/h]	RO
106	2	PmpCurrProd	Current pump production	Real		0.0	3.40E+43	0.1 [kg/h - lb/h]	RO
108	1	OSVer.X	Operating system version X (Major)	UInt		0	65535	0	RO
109	1	OSVer.Y	Operating system version Y (Minor)	UInt		0	65535	0	RO
110	1	OSVer.Z	Operating system version Z (Patch)	UInt		0	65535	0	RO
111	1	Core	c.pCO core version	UInt		0	65535	0	RO
112	2	PmpHrs_PAR	Partial count of pump operating hours	UDInt		0	4294967295	[h]	RO
114	1	PmpNextMaintThrsh	Hours threshold for next pump maintenance	UInt		0	65535	[h]	RO
115	2	PmpHrs_TOT	Total count of pump operating hours	UDInt		0	4294967295	[h]	RO
117	2	UnitHrs	Total count of unit operating hours	UDInt		0	4294967295	[h]	RO
119	1	PmpResDate.Day	Pump partial operating hours reset date - Day	UInt		0	65535	[d]	RO
120	1	PmpResDate.Month	Pump partial operating hours reset date - Month	UInt		0	65535	[m]	RO
121	1	PmpResDate.Year	Pump partial operating hours reset date - Year	UInt		0	65535	[y]	RO
122	1	PmpResDate.Hour	Pump partial operating hours reset date - Hours	UInt		0	65535	[h]	RO
123	1	PmpResDate.Minute	Pump partial operating hours reset date - Minutes	UInt		0	65535	[m]	RO
124	1	UnitCfg.UnitModel	Unit model	UInt		0	65535		RO
125	2	InletPress_Msk	Pumping station inlet water pressure	Real		-3.40E+42	3.40E+43	0.1 [bar - psi]	RO
127	2	OutletPress	Pumping station outlet water pressure	Real		-9999.9	9999.9	0.1 [bar - psi]	RO
129	2	BypassTPrb	Pumping station bypass water temperature	Real		-999.9	999.9	0.1 [°C - °F]	RO
131	1	Conductivity	Pumping station inlet water conductivity	UInt		0	65535	[uS/cm]	RO
132	1	PmpManModeWait	Pump manual mode activation status **	UInt		0	65535	0	RO
133	1	MaxInvOutFreq_Corr	Maximum inverter frequency	Real		-999.9	999.9	0.1 [Hz]	RO
134	1	PmpFlowRate	RESERVED	Real		-999.9	999.9	0.1 [kg/h - lb/h]	RO
135	1	Year	Current year (YYYY)	UInt		0	99	[y]	RO
136	1	Month	Current month (MM)	UInt		1	12	[m]	RO
137	1	Day	Current day (DD)	UInt		1	31	[d]	RO
138	1	Hour	Current time	UInt		0	23	[h]	RO
139	1	Minute	Current minute	UInt		0	65535	min	RO
140	1	DayOfWeek	Day of the week	USInt		1	7	0	RO
141	2	VerFrom_pgdxF	pGDx user interface software version	UDInt		0	4294967295	0	RO
143	2	ZoneData_SZ_Info.IPConfig[2]	Pump IP address	UDInt		0	4294967295	0	RO
145	1	UnitCfg.ZonesNum	Set the number of zones in the system	UInt	1	1	12	0	RO

Add.	Occ.	Variable name	Description	Data-typ.	Def.	Min	Max	UoM	Acces.
146	1	Bckp_Status	RESERVED	UInt		0	65535	0	RO
147	1	PmpMaintCntDwn	Countdown to next pump maintenance	UInt		0	65535	[h]	OR
300	1	ZonesData_C[1].Z_Info.ZonesStatus	Zone 1 status ***	UInt		0	65535	0	RO
301	2	ZonesData_C[1].Z_Info.FlowReq	Zone 1 production request	Real		0.0	9999.9	0.1 [kg/h - lb/h]	RO
303	2	ZonesData_C[1].Z_Info.CurrProd	Current zone 1 production	Real		0.0	9999.9	0.1 [kg/h - lb/h]	RO
305	2	ZonesData_C[1].Z_Info.RealReq	Zone 1 request from control signal	Real		0.0	100.0	0.1 [%]	RO
307	1	ZonesData_C[1].Z_Info.MainPrb	Zone 1 main probe reading	Real		-999.9	999.9	0	RO
308	1	ZonesData_C[1].Z_Info.LimitPrb	Zone 1 limit probe reading	Real		-999.9	999.9	0	RO
309	1	ZonesData_C[1].Z_Info.RackTPrb	Zone 1 rack temperature probe reading	Real		-999.9	999.9	0	RO
310	1	ZonesData_C[1].Z_RackCfg.RackFlowRate	Nominal rack fl w-rate	Real		0.0	999.9	0.1 [kg/h - lb/h]	RO
311	1	ZonesData_C[1].Z_SysInfo.SwVer.X	Software version X (Major)	UInt		0	65535	0	RO
312	1	ZonesData_C[1].Z_SysInfo.SwVer.Y	Operating system version Y (Minor)	UInt		0	65535	0	RO
313	1	ZonesData_C[1].Z_SysInfo.SwVer.Z	Software version Z (Patch)	UInt		0	65535	0	RO
314	1	ZonesData_C[1].Z_SysInfo.OSVer.X	Operating system version X (Major)	UInt		0	65535	0	RO
315	1	ZonesData_C[1].Z_SysInfo.OSVer.Y	Operating system version Y (Minor)	UInt		0	65535	0	RO
316	1	ZonesData_C[1].Z_SysInfo.OSVer.Z	Operating system version Z (Patch)	UInt		0	65535	0	RO
317	1	ZonesData_C[1].Z_SysInfo.CoreType	c.pCO core version	UInt		0	65535	0	RO
318	1	ZonesData_C[1].Z_SysInfo.UnitModel	Unit model	UInt		0	65535	0	RO
319	1	ZonesData_C[1].Z_Info.Zone-ManModeWait	Zone manual mode activation status **	UInt		0	65535	0	RO
320	2	ZonesData_C[1].Z_Info.IPConfig[2]	Zone IP address	UDInt		0	4294967295	0	RO
322	1	ZonesData_C[1].Z_Info.TempDewPoint	Zone dew point temperature calculation	Real		-999.9	999.9	0.1 [°C - °F]	RO
323	1	ZonesData_C[1].Z_Info.TwoPrbsAvg	Two zone probe reading average calculation	Real		-32768	32767	0	RO
324	1	ZonesData_C[1].Z_Info.ThreePrbsAvg	Three zone probe reading average calculation	Real		-32768	32767	0	RO
325	1	ZonesData_C[1].Z_Info.OnOffStatu	RESERVED	UInt		0	65535	0	RO

* (1=Off from keypad, 2=Off from supervisor, 3=Standby, 4=Production, 6=Wash, 7=Fill, 8=Warning, 9=Alarm, 12=Off from scheduler, 13=Off from DIN , 15=Off from flow switch, 16=Off from zone, 18=Pump alarm, 19=Off from pump, 20=Off from pump DIN, 22=Zone manual mode, 23=Slowdown, 27=Off from zones, 28=Bypass calibration, 31=Unit paused)

** (0 = manual mode available, 1 = waiting for wash to finish, 2 = waiting or fill o finish, 3 = waiting or production to finis)

*** (0=Power On, 10=Software initialisation, 20=Awaiting network, 30=Wash, 40=Fill, 50=Standby empty, 60=Standby full, 70=Water control, 80=Production, 90=Slowdown, 100=Pre-wash, 110=Alarm, 120=Bypass calibration fil , 130=Bypass calibration, 140=Waiting for control, 150=WTS water change, 160=Disabled)

9.3.5 Zone ModBus variable table - Coil variables

RO= Read Only

RW= ReadWrite

Add.	Occ.	Variable name	Description	Data-typ.	Def.	Min	Max	UoM	Acces.
300	1	ZoneData_S.Z_FctsCfg.Rack-TempMng.EnRackTMng	Enable production modulation function from rack temperature probe reading (0 = disabled, 1 = enabled)	Bool	0	0	1		RW
301	1	ZoneData_S.Z_FctsCfg.Rack-TempMng.EnRackTReducedProd	Enable production reduction based on rack temperature	Bool	0	0	1		RW
302	1	ZoneData_S.Z_FctsCfg.Rack-TempMng.EnRackTWarn	Select type of signal for low rack temperature (0 = notification, 1 = warning)	Bool	0	0	1		RW
303	1	ZoneData_S.Z_FctsCfg.EnDlyd-HumPrbAlrmCtrl	Enable humidity probe control delay for alarm activation	Bool	0	0	1		RW
304	1	ZoneData_S.Z_FctsCfg.Rack-EnLogic	Enable zone production digital input (RACKEN) status (0 = contact closed, 1 = contact open)	Bool	0	0	1		RW
305	1	ZoneData_S.Z_FctsCfg.AirFlow-SwitchLogic	Flow switch digital input (FLUX) status (0 = contact closed, 1 = contact open)	Bool	0	0	1		RW
306	1	ZoneData_S.Z_FctsCfg.ZoneSta-tusDout_Logic	"Zone status" ZONE digital output logic (0 = NC, 1 = NO)	Bool	0	0	1		RW
307	1	ZoneData_S.Z_FctsCfg.AlrmD-OutLogic	"Alarm status" AL digital output logic (0 = NC, 1 = NO)	Bool	0	0	1		RW
308	1	ZoneData_S.Z_FctsCfg.Relay-LogicNO7	"Programmable relay NO7" digital output logic (0 = NC, 1 = NO)	Bool	0	0	1		RW
309	1	ZoneData_S.Z_FctsCfg.ZoneM-anModeEnFill	Enable filling fun tion for zone manual mode (0 = disabled, 1 = enabled)	Bool	1	0	1		RW
310	1	ZoneData_S.Z_WorkPar.UnitPause	Unit setting paused (0=not paused; 1=paused)	Bool	0	0	1		RW
311	1	ZoneData_S.Z_WorkPar.SVEnReq	Enable zone control from supervisor	Bool	0	0	1		RW
312	1	ZoneData_S.Z_WorkPar.SVEnOnOff	Enable zone on/off from supervisor	Bool	0	0	1		RW
313	1	ZoneData_S.Z_WorkPar.SVOnOff	Zone on/off from supervisor	Bool		0	1		RW
314	1	ZoneData_S.Z_RackCfg.EnRotSteps	Enable zone step rotation	Bool	0	0	1	0	RW
315	1	EnMultiNet	Enabling of the multi-network	Bool	0	0	1	0	RW

9.3.6 Zone ModBus variable table - DiscretelInput variables

RO= Read Only

RW= ReadWrite

Add.	Occ.	Variable name	Description	Data-typ.	Def.	Min	Max	UoM	Acces.
301	1	ZoneData_S_Z_DigIO.RackEnStatus_NoLogic	Enable zone production digital input (RACKEN) status (0 = contact closed, 1 = contact open)	Bool		0	1		RO
302	1	ZoneData_S_Z_DigIO.AirFlowSwitch-Status_NoLogic	Flow switch digital input (FLUX) status (0 = contact closed, 1 = contact open)	Bool		0	1		RO
303	1	ZoneData_S_Z_RackSteps.LineDrain	Line drain digital output (NOL) status (0 = output not energised, 1 = output energised)	Bool		0	1		RO
304	1	ZoneData_S_Z_DigIO.NO7_PrgDout	Programmable relay NO7 digital output status (0 = output not energised, 1 = output energised)	Bool		0	1		RO
305	1	ZoneData_S_Z_DigIO.Alrm_Dout	Alarm status digital input (AL) status (0 = output not energised, 1 = output energised)	Bool		0	1		RO
306	1	ZoneData_S_Z_RackSteps.Ventilation	Rack ventilation solenoid valve digital output (NOV) status (0 = output energised, 1 = output not energised)	Bool		0	1		RO
313	1	ZoneData_S_Z_RackSteps.Step[1].Fill	Rack fill solenoid valve status - step 1 (0 = closed, 1 = open)	Bool		0	1		RO
314	1	ZoneData_S_Z_RackSteps.Step[2].Fill	Rack fill solenoid valve status - step 2 (0 = closed, 1 = open)	Bool		0	1		RO
315	1	ZoneData_S_Z_RackSteps.Step[3].Fill	Rack fill solenoid valve status - step 3 (0 = closed, 1 = open)	Bool		0	1		RO
316	1	ZoneData_S_Z_RackSteps.Step[4].Fill	Rack fill solenoid valve status - step 4 (0 = closed, 1 = open)	Bool		0	1		RO
317	1	ZoneData_S_Z_RackSteps.Step[5].Fill	Rack fill solenoid valve status - step 5 (0 = closed, 1 = open)	Bool		0	1		RO
318	1	ZoneData_S_Z_RackSteps.Step[6].Fill	Rack fill solenoid valve status - step 6 (0 = closed, 1 = open)	Bool		0	1		RO
319	1	ZoneData_S_Z_RackSteps.Step[1].Drain	Rack drain solenoid valve status - step 1 (0 = closed, 1 = open)	Bool		0	1		RO
320	1	ZoneData_S_Z_RackSteps.Step[2].Drain	Rack drain solenoid valve status - step 2 (0 = closed, 1 = open)	Bool		0	1		RO
321	1	ZoneData_S_Z_RackSteps.Step[3].Drain	Rack drain solenoid valve status - step 3 (0 = closed, 1 = open)	Bool		0	1		RO
322	1	ZoneData_S_Z_RackSteps.Step[4].Drain	Rack drain solenoid valve status - step 4 (0 = closed, 1 = open)	Bool		0	1		RO
323	1	ZoneData_S_Z_RackSteps.Step[5].Drain	Rack drain solenoid valve status - step 5 (0 = closed, 1 = open)	Bool		0	1		RO
324	1	ZoneData_S_Z_RackSteps.Step[6].Drain	Rack drain solenoid valve status - step 6 (0 = closed, 1 = open)	Bool		0	1		RO
331	1	ZoneData_S_Z_Alrms.Alrm_MainPrb	ALA01 - Zone alarm: main probe broken or disconnected	Bool		0	1		RO
332	1	ZoneData_S_Z_Alrms.Alrm_LimitPrb	ALA02 - Zone alarm: limit probe broken or disconnected	Bool		0	1		RO
333	1	ZoneData_S_Z_Alrms.Alrm_NoRack	ABC02 - Zone alarm: distribution system not configured	Bool		0	1		RO
334	1	ZoneData_S_Z_Alrms.Alrm_MasterOffli	ABO01 - Zone alarm: pumping station offline	Bool		0	1		RO
335	1	ZoneData_S_Z_Alrms.Alrm_RackTPrb	ABA06 - Zone alarm: rack temperature probe broken or disconnected	Bool		0	1		RO
336	1	ZoneData_S_Z_Alrms.Warn_Low-RackTemp	WRA10 - Zone warning: low rack temperature	Bool		0	1		RO
337	1	ZoneData_S_Z_Alrms.Warn_High-HumMainPrb	WRA11 - Zone warning: high humidity measured by main probe	Bool		0	1		RO
338	1	ZoneData_S_Z_Alrms.Warn_Low-HumMainPrb	WRA12 - Zone warning: low humidity measured by main probe	Bool		0	1		RO
339	1	ZoneData_S_Z_Alrms.Warn_HighTempMainPrb	WRA13 - Zone warning: high temperature measured by main probe	Bool		0	1		RO
340	1	ZoneData_S_Z_Alrms.Warn_Low-TempMainPrb	WRA14 - Zone warning: low temperature measured by main probe	Bool		0	1		RO
341	1	ZoneData_S_Z_Alrms.Warn_High-HumLimPrb	WRA15 - Zone warning: high humidity measured by limit probe	Bool		0	1		RO
342	1	ZoneData_S_Z_Alrms.Warn_Low-TempLimPrb	WRA16 - Zone warning: low humidity measured by limit probe	Bool		0	1		RO
343	1	ZoneData_S_Z_Alrms.Warn_High-HumTwoPrbsAvg	WRA17 - Zone warning: high humidity measured by average of 2 probes	Bool		0	1		RO
344	1	ZoneData_S_Z_Alrms.Warn_Low-HumTwoPrbsAvg	WRA18 - Zone warning: low humidity measured by average of 2 probes	Bool		0	1		RO
345	1	ZoneData_S_Z_Alrms.Warn_HighTempTwoPrbsAvg	WRA19 - Zone warning: high temperature measured by average of 2 probes	Bool		0	1		RO
346	1	ZoneData_S_Z_Alrms.Warn_Low-TempTwoPrbsAvg	WRA20 - Zone warning: low temperature measured by average of 2 probes	Bool		0	1		RO
347	1	ZoneData_S_Z_Alrms.Warn_High-HumThreePrbsAvg	WRA21 - Zone warning: high humidity measured by average of 3 probes	Bool		0	1		RO
348	1	ZoneData_S_Z_Alrms.Warn_Low-HumThreePrbsAvg	WRA22 - Zone warning: low humidity measured by average of 3 probes	Bool		0	1		RO
349	1	ZoneData_S_Z_Alrms.Warn_HighTempThreePrbsAvg	WRA23 - Zone warning: high temperature measured by average of 3 probes	Bool		0	1		RO
350	1	ZoneData_S_Z_Alrms.Warn_Low-TempThreePrbsAvg	WRA24 - Zone warning: low temperature measured by average of 3 probes	Bool		0	1		RO
351	1	ZoneData_S_Z_Alrms.Warn_SVOffli	WRO05 - Zone warning: supervisor offline	Bool		0	1		RO
352	1	ZoneData_S_Z_Alrms.Alrm_SVOffli	WRO09 - Zone alarm: supervisor offline	Bool		0	1		RO
353	1	ZoneData_S_Z_Alrms.Alrm_Retain	ALG01 - Zone alarm: error in number of retain memory writes	Bool		0	1		RO
354	1	ZoneData_S_Z_Alrms.Alrm_Err_retain_write	ALG02 - Zone alarm: too many retain memory writes	Bool		0	1		RO
355	1	ZoneData_S_Z_Alrms.Warn_RetMem	WRG03 - Zone warning: too many retain memory writes	Bool		0	1		RO
356	1	ZoneData_S_Z_Alrms.Alrm_NoModel	ABC01 - Zone alarm: no model configured	Bool		0	1		RO
357	1	ZoneData_S_Z_WorkPar.DisableVar-UnitPause	Disable pause from monitoring service (0: pause not disabled, 1: pause disabled)	Bool		0	1		RO
358	1	ZoneData_S_Z_Info.ZoneAlrmPresent	At least 1 alarm active in zone	Bool		0	1		RO
359	1	ZoneData_S_Z_Info.ZoneWarning	At least 1 warning active in zone	Bool		0	1		RO

9.3.7 Zone ModBus variable table - HoldingRegister variables

RO= Read Only

RW= ReadWrite

Add.	Occ.	Variable name	Description	Data-typ.	Def.	Min	Max	UoM	Acces.
300	1	ZoneData_S_Z_WorkPar.GlbSetP_Hum	Set zone humidity set point	Real	50.0	0.0	100.0	0.1 [%rh]	RW
301	1	ZoneData_S_Z_WorkPar.GlbSetP_Temp	Set zone temperature set point	Real	25.0	0.0	100.0	0.1 [°C - °F]	RW
302	1	ZoneData_S_Z_WorkPar.GlbSetPLim_Hum	Set zone humidity limit set point	Real	50.0	0.0	100.0	0.1 [%rh]	RW
303	1	ZoneData_S_Z_WorkPar.GlbSetPLim_Temp	Set zone temperature limit set point	Real	25.0	0.0	100.0	0.1 [°C - °F]	RW
304	1	ZoneData_S_Z_Reg.RackMaxProd	Set zone maximum production	Real	100.0	0.0	100.0	0.1 [%]	RW
305	1	ZoneData_S_Z_Reg.RegTyp	Control mode *	USInt	6	0	18		RW
306	1	ZoneData_S_Z_FctsCfg.PressReliefT[1]	Pressure relief function duration for step 1	Real	1.0	0.0	30.0	0.1 [s]	RW
307	1	ZoneData_S_Z_FctsCfg.PressReliefT[2]	Pressure relief function duration for step 2	Real	1.0	0.0	30.0	0.1 [s]	RW
308	1	ZoneData_S_Z_FctsCfg.PressReliefT[3]	Pressure relief function duration for step 3	Real	1.0	0.0	30.0	0.1 [s]	RW
309	1	ZoneData_S_Z_FctsCfg.PressReliefT[4]	Pressure relief function duration for step 4	Real	1.0	0.0	30.0	0.1 [s]	RW
310	1	ZoneData_S_Z_FctsCfg.PressReliefT[5]	Pressure relief function duration for step 5	Real	1.0	0.0	30.0	0.1 [s]	RW
311	1	ZoneData_S_Z_FctsCfg.PressReliefT[6]	Pressure relief function duration for step 6	Real	1.0	0.0	30.0	0.1 [s]	RW
312	1	ZoneData_S_Z_PrbCfg.RackTPrb.UITyp	Select rack temperature probe type (0 = 0-1 V, 1 = 0-10 V, 2 = 2-10 V, 3 = 0-20 mA, 4 = 4-20 mA, 5 = NTC)	USInt	5	0	5		RW
313	1	ZoneData_S_Z_PrbCfg.RackTPrb.Mi_Temp	Minimum rack temperature probe value	Real	-20.0	-999.9	999.9	0.1 [°C - °F]	RW
314	1	ZoneData_S_Z_PrbCfg.RackTPrb.Ma_Temp	Maximum rack temperature probe value	Real	70.0	-999.9	999.9	0.1 [°C - °F]	RW
315	1	ZoneData_S_Z_PrbCfg.RackTPrb.Offs	Rack temperature probe reading offset	Real	0.0	-999.9	999.9	0.1 [°C - °F]	RW
316	1	ZoneData_S_Z_FctsCfg.RackTempMng.RackTSetP	Temperature set point for production modulation function from rack probe	Real	20.0	5.0	50.0	0.1 [°C - °F]	RW
317	1	ZoneData_S_Z_FctsCfg.RackTempMng.RackTBand	Proportional band for production modulation function from rack probe	Real	5.0	0.5	10.0	0.1 [°C - °F]	RW
318	1	ZoneData_S_Z_FctsCfg.RackTempMng.RackTDiff	Differential for disabling the production modulation function from rack probe warning	Real	2.0	0.5	10.0	0.1 [°C - °F]	RW
319	1	ZoneData_S_Z_FctsCfg.HumPrbAlrmCtrlDel	Enable control probe alarm delay at start of production (0 = disabled, 1 = enabled)	USInt	5	1	99	[min]	RW
320	1	ZoneData_S_Z_FctsCfg.FunctSelNO7_Slv	Select programmable relay NO7 function (0 = Unit life status, 1 = Low rack temperature warning)	USInt	0	0	1		RW
340	1	ZoneData_S_Z_FctsCfg.HighMainHum_WarnThrsh	Set main probe high humidity alarm threshold	Real	100.0	0.0	100.0	0.1 [%rh]	RW
341	1	ZoneData_S_Z_FctsCfg.HighMainTemp_WarnThrsh	Set main probe high temperature alarm threshold	Real	40.0	5.0	70.0	0.1 [°C - °F]	RW
342	1	ZoneData_S_Z_FctsCfg.LowMainHum_WarnThrsh	Set main probe low humidity alarm threshold	Real	0	0.0	100.0	0.1 [%rh]	RW
343	1	ZoneData_S_Z_FctsCfg.LowMainTemp_WarnThrsh	Set main probe low temperature alarm threshold	Real	15.0	5.0	70.0	0.1 [°C - °F]	RW
344	1	ZoneData_S_Z_FctsCfg.HighLimitHum_WarnThrsh	Set limit probe high humidity alarm threshold	Real	100.0	0.0	100.0	0.1 [%rh]	RW
345	1	ZoneData_S_Z_FctsCfg.LowLimitTemp_WarnThrsh	Set limit probe low temperature alarm threshold	Real	15.0	5.0	70.0	0.1 [°C - °F]	RW
346	1	ZoneData_S_Z_FctsCfg.PrbThrshsWarnDly	High/low humidity/temperature alarm delay	USInt	1	0	99	[min]	RW
347	2	ZoneData_S_Z_WorkPar.SVReq	Zone production request from supervisor	Real		0.0	100.0	0.1 [%]	RW
348	1	UoM_SV	Unit of measure (2: Imperial system, 6: International system)	USInt	6	1	7		RW
349	1	ZoneData_S_Z_RackCfg.RotStepsT	Enable zone step rotation	USInt	15	1	9999	[min]	RW
350	1	NetNum	Network number for multi-network	UDInt	1	1	99	0	RW

* (0=on/off, 1=on/off + humidity limit, 2=on/off + temperature limit, 3=external signal, 4=external signal + humidity limit, 5=external signal + temperature limit, 6=humidity, 7=humidity + limit humidity, 8=humidity + temperature limit, 9=temperature, 10=temperature + temperature limit, 11=temperature + humidity limit, 12=2 humidity probes, 13=2 temperature probes, 14=3 humidity probes, 15=3 temperature probes, 16=2 temperature probes + humidity limit, 17=dewpoint, 18=dewpoint + humidity limit)

9.3.8 Zone ModBus variable table - InputRegister variables

RO= Read Only

RW= ReadWrite

Add.	Occ.	Variable name	Description	Data-typ.	Def.	Min	Max	UoM	Acces.
300	1	ZoneData_S_Z_Info.ZoneStatus	Zone status *	USInt		0	65535		RO
301	2	ZoneData_S_Z_Info.FlowReq	Zone production request	Real		0.0	9999.9	0.1 [kg/h - lb/h]	RO
303	2	ZoneData_S_Z_Info.CurrProd	Current zone production	Real		0.0	9999.9	0.1 [kg/h - lb/h]	RO
305	2	ZoneData_S_Z_Info.RealReq	Zone request from control signal	Real		0.0	100.0	0.1 [%]	RO
307	1	ZoneData_S_Z_Info.MainPrb	Zone main probe reading	Real		-999.9	999.9		RO
308	1	ZoneData_S_Z_Info.LimitPrb	Zone limit probe reading	Real		-999.9	999.9		RO
309	1	ZoneData_S_Z_Info.RackTPrb	Zone rack temperature probe reading	Real		-999.9	999.9		RO
310	1	ZoneData_S_Z_RackCfg.RackFlowRate	Nominal rack fl w-rate	Real		0.0	999.9	0.1 [kg/h - lb/h]	RO
311	1	ZoneData_S_Z_SysInfo.SwVer.X	Software version X (Major)	USInt		0	65535		RO
312	1	ZoneData_S_Z_SysInfo.SwVer.Y	Operating system version Y (Minor)	USInt		0	65535		RO
313	1	ZoneData_S_Z_SysInfo.SwVer.Z	Software version Z (Patch)	USInt		0	65535		RO
314	1	ZoneData_S_Z_SysInfo.OSVer.X	Operating system version X (Major)	USInt		0	65535		RO
315	1	ZoneData_S_Z_SysInfo.OSVer.Y	Operating system version Y (Minor)	USInt		0	65535		RO
316	1	ZoneData_S_Z_SysInfo.OSVer.Z	Operating system version Z (Patch)	USInt		0	65535		RO
317	1	ZoneData_S_Z_SysInfo.CoreType	c.pCO core version	USInt		0	65535		RO
318	1	ZoneData_S_Z_SysInfo.UnitModel	Unit model	USInt		0	65535		RO
319	1	ZoneData_S_Z_Info.ZoneManModeWait	Zone manual mode activation status **	USInt		0	65535		RO
320	2	ZoneData_S_Z_Info.IPConfig[2]	Zone IP address	UDInt		0	4294967295		RO
322	1	ZoneData_S_Z_Info.TempDewPoint	Zone dew point temperature calculation	Real		-999.9	999.9	0.1 [°C - °F]	RO
323	1	ZoneData_S_Z_Info.TwoPrbsAvg	Two zone probe reading average calculation	Real		-32768	32767		RO
324	1	ZoneData_S_Z_Info.ThreePrbsAvg	Three zone probe reading average calculation	Real		-32768	32767		RO
325	1	ZoneData_S_Z_Info.OnOffStatu	RESERVED	USInt		0	65535	0	RO

* (0=Power On, 10=Software initialisation, 20=Awaiting network, 30=Wash, 40=Fill, 50=Standby empty, 60=Standby full, 70=Water control, 80=Production, 90=Slow-down, 100=Pre-wash, 110=Alarm, 120=Bypass calibration fil, 130=Bypass calibration, 140=Waiting for control, 150=WTS water change, 160=Disabled)

** (0 = Manual mode available, 1 = waiting for wash to finish, 2 = waiting or fill o finish, 3 = waiting or production to finis)

9.4 BACnet parameter list

The variables shown in the list are a set of all the internal variables on the humidifier.



CAUTION

Do not configure any variables that are not shown in the tables, otherwise system operation may be affected.



Notice: all system zones can be supervised only by connecting to the pumping station.

In the following tables relating to the pumping station supervisor variables, only the zone variables relating to system zone 1 are shown.

The codes of the variables relating to the other zones can be determined as follows:

- The zone 1 variables have addresses up to 300. For the following zones, add 200 to the zone 1 address (example zone 5 = zone (1 + 4) - zone 5 address: 300 + (200 x 4) = 1100).
- Zone variables are typically associated with the ZonesData_C[X].Z_Info.LimitPrb structure, where **X** is the zone index. (example for zone 5: ZonesData_C[5].Z_Info.LimitPrb).

In the supervisor tables for the specific zones, on the other hand, the variable addresses always start from 300, as when connecting to the zone controllers, only the parameters relating to that specific zone can be supervised.

Reference zone	Address	Variable name
Zone 1	300	ZonesData_C[1].Z_Info.FlowReq
	304	ZonesData_C[1].Z_Info.LimitPrb
Zone 2	500	ZonesData_C[2].Z_Info.FlowReq
	504	ZonesData_C[2].Z_Info.LimitPrb
Zone 3	700	ZonesData_C[3].Z_Info.FlowReq
	704	ZonesData_C[3].Z_Info.LimitPrb
Zone 4	900	ZonesData_C[4].Z_Info.FlowReq
	904	ZonesData_C[4].Z_Info.LimitPrb
Zone 5	1100	ZonesData_C[5].Z_Info.FlowReq
	1104	ZonesData_C[5].Z_Info.LimitPrb
Zone 6	1300	ZonesData_C[6].Z_Info.FlowReq
	1304	ZonesData_C[6].Z_Info.LimitPrb
Zone 7	1500	ZonesData_C[7].Z_Info.FlowReq
	1504	ZonesData_C[7].Z_Info.LimitPrb
Zone 8	1700	ZonesData_C[8].Z_Info.FlowReq
	1704	ZonesData_C[8].Z_Info.LimitPrb
Zone 9	1900	ZonesData_C[9].Z_Info.FlowReq
	1904	ZonesData_C[9].Z_Info.LimitPrb
Zone 10	2100	ZonesData_C[10].Z_Info.FlowReq
	2104	ZonesData_C[10].Z_Info.LimitPrb
Zone 11	2300	ZonesData_C[11].Z_Info.FlowReq
	2304	ZonesData_C[11].Z_Info.LimitPrb
Zone 12	2500	ZonesData_C[12].Z_Info.FlowReq
	2504	ZonesData_C[12].Z_Info.LimitPrb

Tab. 9.f

9.4.1 Pumping station BACnet variable table - AnalogValue variables

RO= Read Only

RW= ReadWrite

Add.	Variable name	Description	Data-typ.	Def.	Min	Max	UoM	Acces.
100	PmpCurrReq	Production request to the pump	Real	0	0.0	3.40E+43	0.1 [kg/h - lb/h]	RO
101	PmpCurrProd	Current pump production	Real	0	0.0	3.40E+43	0.1 [kg/h - lb/h]	RO
102	InletPress_Msk	Pumping station inlet water pressure	Real	0	-3.40E+42	3.40E+43	0.1 [bar - psi]	RO
103	OutletPress	Pumping station outlet water pressure	Real	0	-9999.9	9999.9	0.1 [bar - psi]	RO
104	BypassTPrb	Pumping station bypass water temperature	Real	0	-999.9	999.9	0.1 [°C - °F]	RO
105	T_SetPAFreezeSetP	Low water temperature alarm threshold	Real	5.0	3.0	10.0	0.1 [°C - °F]	RW
106	T_SetPAFreezeHyst	Low water temperature alarm deactivation hysteresis	Real	1.0	0.5	6.0	0.1 [°C - °F]	RW
107	T_SetPByPassTDRAINOpen	Drain solenoid valve DVB opening threshold for high water temperature bypass	Real	45.0	35.0	60.0	0.1 [°C - °F]	RW
108	T_SetPByPassTWarnResetHyst	High water temperature warning deactivation hysteresis	Real	5.0	1.0	10.0	0.1 [°C - °F]	RW
109	T_SetPByPassTWarnSet	High water temperature warning threshold	Real	52.0	45.0	65.0	0.1 %	RW
110	MaxInvOutFreq_Corr	Maximum inverter frequency	Real	0	-999.9	999.9	0.1 [Hz]	RO
112	PmpFlowRate	RESERVED	Real	0	-999.9	999.9	0.1 [kg/h - lb/h]	RO
300	ZonesData_C[1].Z_Info.FlowReq	Zone 1 production request	Real	0	0.0	9999.9	0.1 [kg/h - lb/h]	RO
301	ZonesData_C[1].Z_Info.CurrProd	Current zone 1 production	Real	0	0.0	9999.9	0.1 [kg/h - lb/h]	RO
302	ZonesData_C[1].Z_Info.RealReq	Zone 1 request from control signal	Real	0	0.0	100.0	0.1 [%]	RO
303	ZonesData_C[1].Z_Info.MainPrb	Zone 1 main probe reading	Real	0	-999.9	999.9	0	RO
304	ZonesData_C[1].Z_Info.LimitPrb	Zone 1 limit probe reading	Real	0	-999.9	999.9	0	RO
305	ZonesData_C[1].Z_Info.RackTPrb	Zone 1 rack temperature probe reading	Real	0	-999.9	999.9	0	RO
306	ZonesData_C[1].Z_WorkPar.GlbSetP_Hum	Set zone 1 humidity set point	Real	50.0	0.0	100.0	0.1 [%rh]	RW
307	ZonesData_C[1].Z_WorkPar.GlbSetP_Temp	Set zone 1 temperature set point	Real	25.0	0.0	100.0	0.1 [°C - °F]	RW
308	ZonesData_C[1].Z_WorkPar.GlbSetPLim_Hum	Set zone 1 humidity limit set point	Real	50.0	0.0	100.0	0.1 [%rh]	RW
309	ZonesData_C[1].Z_WorkPar.GlbSetPLim_Temp	Set zone 1 temperature limit set point	Real	25.0	0.0	100.0	0.1 [°C - °F]	RW

Add.	Variable name	Description	Data-typ.	Def.	Min	Max	UoM	Acces.
310	ZonesData_C[1].Z_Reg.Rack-MaxProd	Set zone 1 maximum production	Real	100.0	0.0	100.0	0.1 [%]	RW
311	ZonesData_C[1].Z_RackCfg.RackFlowRate	Nominal rack flow rate	Real	0	0.0	999.9	0.1 [kg/h - lb/h]	RO
312	ZonesData_C[1].Z_FctsCfg.PressReliefT[1]	Pressure relief function duration for step 1	Real	1.0	0.0	30.0	0.1 [s]	RW
313	ZonesData_C[1].Z_FctsCfg.PressReliefT[2]	Pressure relief function duration for step 2	Real	1.0	0.0	30.0	0.1 [s]	RW
314	ZonesData_C[1].Z_FctsCfg.PressReliefT[3]	Pressure relief function duration for step 3	Real	1.0	0.0	30.0	0.1 [s]	RW
315	ZonesData_C[1].Z_FctsCfg.PressReliefT[4]	Pressure relief function duration for step 4	Real	1.0	0.0	30.0	0.1 [s]	RW
316	ZonesData_C[1].Z_FctsCfg.PressReliefT[5]	Pressure relief function duration for step 5	Real	1.0	0.0	30.0	0.1 [s]	RW
317	ZonesData_C[1].Z_FctsCfg.PressReliefT[6]	Pressure relief function duration for step 6	Real	1.0	0.0	30.0	0.1 [s]	RW
318	ZonesData_C[1].Z_PrbCfg.RackTPrb.Mi_Temp	Minimum rack temperature probe value	Real	-20.0	-999.9	999.9	0.1 [°C - °F]	RW
319	ZonesData_C[1].Z_PrbCfg.RackTPrb.Ma_Temp	Maximum rack temperature probe value	Real	70.0	-999.9	999.9	0.1 [°C - °F]	RW
320	ZonesData_C[1].Z_PrbCfg.RackTPrb.Offs	Rack temperature probe reading offset	Real	0.0	-999.9	999.9	0.1 [°C - °F]	RW
321	ZonesData_C[1].Z_FctsCfg.RackTempMng.RackTSetP	Temperature set point for production modulation function from rack probe	Real	20.0	5.0	50.0	0.1 [°C - °F]	RW
322	ZonesData_C[1].Z_FctsCfg.RackTempMng.RackTBand	Proportional band for production modulation function from rack probe	Real	5.0	0.5	10.0	0.1 [°C - °F]	RW
323	ZonesData_C[1].Z_FctsCfg.RackTempMng.RackTDiff	Differential for disabling the production modulation function from rack probe warning	Real	2.0	0.5	10.0	0.1 [°C - °F]	RW
325	ZonesData_C[1].Z_FctsCfg.HighMainHum_WarnThrsh	Set main probe high humidity alarm threshold	Real	100.0	0.0	100.0	0.1 [%rh]	RW
326	ZonesData_C[1].Z_FctsCfg.HighMainTemp_WarnThrsh	Set main probe high temperature alarm threshold	Real	40.0	5.0	70.0	0.1 [°C - °F]	RW
327	ZonesData_C[1].Z_FctsCfg.LowMainHum_WarnThrsh	Set main probe low humidity alarm threshold	Real	0.0	0.0	100.0	0.1 [%rh]	RW
328	ZonesData_C[1].Z_FctsCfg.LowMainTemp_WarnThrsh	Set main probe low temperature alarm threshold	Real	15.0	5.0	70.0	0.1 [°C - °F]	RW
329	ZonesData_C[1].Z_FctsCfg.HighLimitHum_WarnThrsh	Set limit probe high humidity alarm threshold	Real	100.0	0.0	100.0	0.1 [%rh]	RW
330	ZonesData_C[1].Z_FctsCfg.LowLimitTemp_WarnThrsh	Set limit probe low temperature alarm threshold	Real	15.0	5.0	70.0	0.1 [°C - °F]	RW
331	ZonesData_C[1].Z_WorkPar.SVReq	Zone production request from supervisor	Real	0	0.0	100.0	0.1 [%]	RW
332	ZonesData_C[1].Z_Info.Temp-DewPoint	Zone dew point temperature calculation	Real	0	-999.9	999.9	0.1 [°C - °F]	RO
333	ZonesData_C[1].Z_Info.Two-PrbsAvg	Two zone probe reading average calculation	Real	0	-32768	32767	0	RO
334	ZonesData_C[1].Z_Info.ThreePrbsAvg	Three zone probe reading average calculation	Real	0	-32768	32767	0	RO

9.4.2 Pumping station BACnet variable table - AnalogValue variables

RO= Read Only

RW= ReadWrite

Add.	Variable name	Description	Data-typ.	Def.	Min	Max	UoM	Acces.
100	CurrAlrmStatus.isPresent	At least 1 alarm active	Bool	0	0	1	0	RO
102	ResetPmpHrs	Partially reset pump operating hours	Bool	0	0	1	0	RW
103	EnFill	Enable fill function (0 = disabled, 1 = enabled)	Bool	1	0	1	0	RW
104	FillOnlyReqZones	Function to fill zones only with production request, if filling one by zone (0 = disabled, 1 = enabled)	Bool	1	0	1	0	RW
105	ZonesData_C[1].Z_FctsCfg.EnRack-FullStandby	Enable full standby function for zone 1 *	Bool	0	0	1	0	RW
106	ZonesData_C[2].Z_FctsCfg.EnRack-FullStandby	Enable full standby function for zone 2 *	Bool	0	0	1	0	RW
107	ZonesData_C[3].Z_FctsCfg.EnRack-FullStandby	Enable full standby function for zone 3 *	Bool	0	0	1	0	RW
108	ZonesData_C[4].Z_FctsCfg.EnRack-FullStandby	Enable full standby function for zone 4 *	Bool	0	0	1	0	RW
109	ZonesData_C[5].Z_FctsCfg.EnRack-FullStandby	Enable full standby function for zone 5 *	Bool	0	0	1	0	RW
110	ZonesData_C[6].Z_FctsCfg.EnRack-FullStandby	Enable full standby function for zone 6 *	Bool	0	0	1	0	RW
111	ZonesData_C[7].Z_FctsCfg.EnRack-FullStandby	Enable full standby function for zone 7 *	Bool	0	0	1	0	RW
112	ZonesData_C[8].Z_FctsCfg.EnRack-FullStandby	Enable full standby function for zone 8 *	Bool	0	0	1	0	RW
113	ZonesData_C[9].Z_FctsCfg.EnRack-FullStandby	Enable full standby function for zone 9 *	Bool	0	0	1	0	RW
114	ZonesData_C[10].Z_FctsCfg.EnRackFullStandby	Enable full standby function for zone 10 *	Bool	0	0	1	0	RW
115	ZonesData_C[11].Z_FctsCfg.EnRackFullStandby	Enable full standby function for zone 11 *	Bool	0	0	1	0	RW
116	ZonesData_C[12].Z_FctsCfg.EnRackFullStandby	Enable full standby function for zone 12 *	Bool	0	0	1	0	RW
117	ZoneData_S.Z_FctsCfg.RelayLogicNO7	Digital output logic for PUMP "programmable relay NO7" (0 = NC, 1 = NO)	Bool	0	0	1	0	RW
118	HP_SwitchStatus_NoLogic	High pressure switch digital input (HP) status (0 = contact closed, 1 = contact open)	Bool	0	0	1	0	RO
119	HT_ThermostatStatus_NoLogic	High temperature thermostat digital input (HT) status (0 = contact closed, 1 = contact open)	Bool	0	0	1	0	RO

Add.	Variable name	Description	Data-typ.	Def.	Min	Max	UoM	Acces.
120	PumpEnDinStatus_NoLogic	Enable pumping station digital input (PEN) status (0 = contact closed, 1 = contact open)	Bool	0	0	1	0	RO
121	RevOsmStatus_NoLogic	Reverse osmosis alarm status digital input (ROAL) status (0 = contact closed, 1 = contact open)	Bool	0	0	1	0	RO
122	WaterLeakStatus_NoLogic	Flood sensor digital input (WL) status (0 = contact closed, 1 = contact open)	Bool	0	0	1	0	RO
123	Cabinet_UI.SupplyW	Water fill solenoid valve and pump cooling fan digital input (FV) status (0 = output not energised, 1 = output energised)	Bool	0	0	1	0	RO
124	Cabinet_UI.Drain	Pumping station water drain digital input (DVB) status (0 = output not energised, 1 = output energised)	Bool	0	0	1	0	RO
125	ZoneData_S_Z_RackSteps.LineDrain	Line drain solenoid valve digital input (NOL) status (0 = output not energised, 1 = output energised)	Bool	0	0	1	0	RO
126	ZoneData_S_Z_DigIO.N07_PrgDout	Programmable relay N07 digital input (PUMP) status (0 = output not energised, 1 = output energised)	Bool	0	0	1	0	RO
127	ZoneData_S_Z_DigIO.Alrm_Dout	Alarm status digital input (AL) status (0 = output not energised, 1 = output energised)	Bool	0	0	1	0	RO
128	EnHiConductAlrm	Enable pumping station high inlet water conductivity alarm	Bool	1	0	1	0	RW
130	LowInletFlow	Low inlet water pressure (0 = not present, 1 = low pressure present)	Bool	0	0	1	0	RO
131	Alrm_Retain.Active	ALG01 - Alarm: error in number of retain memory writes	Bool	0	0	1	0	RO
132	Alrm_Err_retain_write.Active	ALG02 - Alarm: too many retain memory writes	Bool	0	0	1	0	RO
133	Warn_LowPressLP.Active	WRP01 - Warning: low inlet pressure (LP) during production	Bool	0	0	1	0	RO
134	Warn_RetMem.Active	WRG03 - Warning: too many retain memory writes	Bool	0	0	1	0	RO
135	Alrm_Inv_Overvoltage.Active	ABV01 - Inverter alarm: overvoltage	Bool	0	0	1	0	RO
136	Alrm_NoModel.Active	ABC01 - Alarm: no model config ed	Bool	0	0	1	0	RO
137	Warn_Cu_Maint.Active	WRM01 - Maintenance warning: visual water circuit check required	Bool	0	0	1	0	RO
138	Alrm_HighTemp.Active	ABP02 - Alarm: high water temperature	Bool	0	0	1	0	RO
139	Alrm_Inv_General.Active	ABV02 - Inverter alarm: general alarm	Bool	0	0	1	0	RO
140	Alrm_InvOFF_STATUSline.Active	ABV03 - Inverter alarm: inverter offli	Bool	0	0	1	0	RO
141	Alrm_LowTemp.Active	ABP03 - Alarm: low water temperature	Bool	0	0	1	0	RO
142	Alrm_Inv_Overtorque.Active	ABV04 - Inverter alarm: overtorque	Bool	0	0	1	0	RO
143	Alrm_Inv_HeatsinkOverH.Active	ABV05 - Inverter alarm: overheating	Bool	0	0	1	0	RO
144	Warn_HighTemp.Active	WRP04 - Warning: high water temperature	Bool	0	0	1	0	RO
145	Warn_HighPressHP.Active	WRP05 - Warning: high outlet pressure (HP)	Bool	0	0	1	0	RO
146	Alrm_Inv_Overcurrent.Active	ABV06 - Inverter alarm: overcurrent	Bool	0	0	1	0	RO
147	Alrm_Inv_MotorOverload.Active	ABV07 - Inverter alarm: motor overload	Bool	0	0	1	0	RO
148	Alrm_LowPressHP.Active	ABP06 - Alarm: low outlet pressure (HP)	Bool	0	0	1	0	RO
149	Alrm_Inv_DriveOverload.Active	ABV08 - Inverter alarm: drive overload	Bool	0	0	1	0	RO
150	Warn_WMis.Active	WRP07 - Warning: no inlet water	Bool	0	0	1	0	RO
151	Alrm_LowPressLP.Active	ABP08 - Alarm: low inlet pressure (LP) during production	Bool	0	0	1	0	RO
152	Alrm_HighPressHP.Active	ABP09 - Alarm: high outlet pressure (HP)	Bool	0	0	1	0	RO
153	Alrm_HighPressLP.Active	ABP10 - Alarm: high inlet pressure (LP)	Bool	0	0	1	0	RO
154	Alrm_Slave1.Active	ALZ01 - Alarm: zone 1 panel alarm	Bool	0	0	1	0	RO
155	Alrm_Slave2.Active	ALZ02 - Alarm: zone 2 panel alarm	Bool	0	0	1	0	RO
156	Alrm_Slave3.Active	ALZ03 - Alarm: zone 3 panel alarm	Bool	0	0	1	0	RO
157	Alrm_Slave4.Active	ALZ04 - Alarm: zone 4 panel alarm	Bool	0	0	1	0	RO
158	Alrm_Slave5.Active	ALZ05 - Alarm: zone 5 panel alarm	Bool	0	0	1	0	RO
159	Alrm_Slave6.Active	ALZ06 - Alarm: zone 6 panel alarm	Bool	0	0	1	0	RO
160	Alrm_Slave7.Active	ALZ07 - Alarm: zone 7 panel alarm	Bool	0	0	1	0	RO
161	Alrm_Slave8.Active	ALZ08 - Alarm: zone 8 panel alarm	Bool	0	0	1	0	RO
162	Alrm_Slave9.Active	ALZ09 - Alarm: zone 9 panel alarm	Bool	0	0	1	0	RO
163	Alrm_Slave10.Active	ALZ10 - Alarm: zone 10 panel alarm	Bool	0	0	1	0	RO
164	Alrm_Slave11.Active	ALZ11 - Alarm: zone 11 panel alarm	Bool	0	0	1	0	RO
165	Alrm_Slave12.Active	ALZ12 - Alarm: zone 12 panel alarm	Bool	0	0	1	0	RO
166	Alrm_Water_Leakage.Active	ABR01 - Alarm: water flooding de ected (WL)	Bool	0	0	1	0	RO
167	Alrm_RevOsmNotReady.Active	ABR02 - Alarm: reverse osmosis system not ready (ROAL)	Bool	0	0	1	0	RO
168	Alrm_BypassTPrb.Active	ABA03 - Alarm: bypass temperature probe broken or disconnected	Bool	0	0	1	0	RO
169	Alrm_InletPressPrb.Active	ABA04 - Alarm: water inlet pressure probe (LP) broken or disconnected	Bool	0	0	1	0	RO
170	Alrm_OutletPressPrb.Active	ABA05 - Alarm: water outlet pressure probe (HP) broken or disconnected	Bool	0	0	1	0	RO
171	Warn_HighConduct.Active	WRA07 - Warning: high water conductivity measured	Bool	0	0	1	0	RO
172	Alrm_ConductPrb.Active	ABA08 - Alarm: conductivity probe broken or disconnected	Bool	0	0	1	0	RO
173	Alrm_HighConduct.Active	ABA09 - Alarm: high water conductivity measured	Bool	0	0	1	0	RO
174	Warn_ReqTooHigh.Active	WRC03 - Warning: production request is too high for pump nominal fl w rate	Bool	0	0	1	0	RO
175	Alrm_HighPressHPWashFill.Active	ABP11 - Alarm: high water outlet pressure (HP) during wash or fil	Bool	0	0	1	0	RO
176	Warn_Maint_Bi.Active	WRM02 - Maintenance warning: oil change required	Bool	0	0	1	0	RO
177	Warn_Maint_ResMan.Active	WRM03 - Maintenance warning: oil change and parts replacement required	Bool	0	0	1	0	RO
178	Warn_LowPressHP.Active	WRP11 - Warning: low outlet pressure (HP)	Bool	0	0	1	0	RO
179	Warn_SVOffline_Channel1 ctive	WRO02 - Warning: supervisor channel 1 offli	Bool	0	0	1	0	RO
180	Warn_SVOffline_Channel2 ctive	WRO03 - Warning: supervisor channel 2 offli	Bool	0	0	1	0	RO
181	Warn_SVOffline_Channel3 ctive	WRO04 - Warning: supervisor channel 3 offli	Bool	0	0	1	0	RO
182	Alrm_SVOffline_Channel1 ctive	ALO06 - Alarm: supervisor channel 1 offli	Bool	0	0	1	0	RO
183	Alrm_SVOffline_Channel2 ctive	ALO07 - Alarm: supervisor channel 2 offli	Bool	0	0	1	0	RO
184	Alrm_SVOffline_Channel3 ctive	ALO08 - Alarm: supervisor channel 3 offli	Bool	0	0	1	0	RO
185	Warn_BackupFail.Active	WRB01 - Warning: backup pump activation failed	Bool	0	0	1	0	RO
186	Warn_BackupOffli Active	WRB02 - Warning: backup pump offli	Bool	0	0	1	0	RO
187	Alrm_BackupOffli Active	WRB03 - Warning: backup pump offli	Bool	0	0	1	0	RO
188	UnitPause	Unit setting paused (0=not paused; 1=paused)	Bool	0	0	1	0	RW
189	DisableVarUnitPause	Disable pause from monitoring service (0: pause not disabled, 1: pause disabled)	Bool	0	0	1	0	RO
190	CurrAlrmStatus.Warning	At least 1 warning active	Bool	0	0	1	0	RO
191	UnitCfg.isMasterSec	Pumping unit type set to secondary (only with backup function enabled)	Bool	0	0	1	0	RO
192	UnitCfg_UI.PressWaterMode	Pressurised water mode selected	Bool	0	0	1	0	RO
193	Slave_1_ComStatus.isOnline	Zone 1 online status	Bool	0	0	1	0	RO
194	Slave_2_ComStatus.isOnline	Zone 2 online status	Bool	0	0	1	0	RO
195	Slave_3_ComStatus.isOnline	Zone 3 online status	Bool	0	0	1	0	RO
196	Slave_4_ComStatus.isOnline	Zone 4 online status	Bool	0	0	1	0	RO
197	Slave_5_ComStatus.isOnline	Zone 5 online status	Bool	0	0	1	0	RO
198	Slave_6_ComStatus.isOnline	Zone 6 online status	Bool	0	0	1	0	RO
199	Slave_7_ComStatus.isOnline	Zone 7 online status	Bool	0	0	1	0	RO
200	Slave_8_ComStatus.isOnline	Zone 8 online status	Bool	0	0	1	0	RO
201	Slave_9_ComStatus.isOnline	Zone 9 online status	Bool	0	0	1	0	RO
202	Slave_10_ComStatus.isOnline	Zone 10 online status	Bool	0	0	1	0	RO
203	Slave_11_ComStatus.isOnline	Zone 11 online status	Bool	0	0	1	0	RO
204	Slave_12_ComStatus.isOnline	Zone 12 online status	Bool	0	0	1	0	RO

Add.	Variable name	Description	Data-typ.	Def.	Min	Max	UoM	Acces.
205	UnitCfg.isZone1Remoted	Zone 1 remote	Bool	0	0	1	0	RO
206	EnMstFullStandbyMaxT	Enable pump-zone line emptying in standby	Bool	1	0	1	0	RW
213	Warn_Definst_Pmp.Active	WRC04 - Warning: reset defaults from pumping station	Bool	0	0	1	0	RO
214	EnMultiNet	Enabling of the multi-network	Bool	0	0	1	0	RW
215	EnFillWashProdLim	Enabling of production limitation during filling/washin	Bool	0	0	1	0	RW
301	ZonesData_C[1].Z_FctsCfg.Rack-TempMng.EnRackTMng	Enable production modulation function from rack temperature probe reading (0 = disabled, 1 = enabled)	Bool	0	0	1	0	RW
302	ZonesData_C[1].Z_FctsCfg.Rack-TempMng.EnRackTReducedProd	Enable production reduction based on rack temperature	Bool	0	0	1	0	RW
303	ZonesData_C[1].Z_FctsCfg.Rack-TempMng.EnRackTWarn	Select type of signal for low rack temperature (0 = notification, 1 = warning)	Bool	0	0	1	0	RW
304	ZonesData_C[1].Z_FctsCfg.EnDlyd-HumPrbAlrmCtrl	Enable humidity probe control delay for alarm activation	Bool	0	0	1	0	RW
305	ZonesData_C[1].Z_FctsCfg.RackEnLogic	Enable zone production digital input (RACKEN) status (0 = contact closed, 1 = contact open)	Bool	0	0	1	0	RW
306	ZonesData_C[1].Z_FctsCfg.AirFlow-SwitchLogic	Flow switch digital input (FLUX) status (0 = contact closed, 1 = contact open)	Bool	0	0	1	0	RW
307	ZonesData_C[1].Z_FctsCfg.Zone-StatusDout_Logic	"Zone status" ZONE digital output logic (0 = NC, 1 = NO)	Bool	0	0	1	0	RW
308	ZonesData_C[1].Z_FctsCfg.AlrmD-OutLogic	"Alarm status" AL digital output logic (0 = NC, 1 = NO)	Bool	0	0	1	0	RW
309	ZonesData_C[1].Z_FctsCfg.Relay-LogicNO7	"Programmable relay NO7" digital output logic (0 = NC, 1 = NO)	Bool	0	0	1	0	RW
310	ZonesData_C[1].Z_DigIO.RackEn-Status_NoLogic	Enable zone production digital input (RACKEN) status (0 = contact closed, 1 = contact open)	Bool	0	0	1	0	RO
311	ZonesData_C[1].Z_DigIO.AirFlow-SwitchStatus_NoLogic	Flow switch digital input (FLUX) status (0 = contact closed, 1 = contact open)	Bool	0	0	1	0	RO
312	ZonesData_C[1].Z_RackSteps.LineDrain	Line drain digital output (NOL) status (0 = output not energised, 1 = output energised)	Bool	0	0	1	0	RO
313	ZonesData_C[1].Z_DigIO.NO7_PrgDout	Programmable relay NO7 digital output status (0 = output not energised, 1 = output energised)	Bool	0	0	1	0	RO
314	ZonesData_C[1].Z_DigIO.Alrm_Dout	Alarm status digital input (AL) status (0 = output not energised, 1 = output energised)	Bool	0	0	1	0	RO
315	ZonesData_C[1].Z_RackSteps.Ventilation	Rack ventilation solenoid valve digital output (NOV) status (0 = output energised, 1 = output not energised)	Bool	0	0	1	0	RO
316	ZonesData_C[1].Z_FctsCfg.ZoneManModeEnFill	Enable filling function for zone manual mode (0 = disabled, 1 = enabled)	Bool	1	0	1	0	RW
323	ZonesData_C[1].Z_RackSteps.Step[1].Fill	Rack fill solenoid valve status - step 1 (0 = closed, 1 = open)	Bool	0	0	1	0	RO
324	ZonesData_C[1].Z_RackSteps.Step[2].Fill	Rack fill solenoid valve status - step 2 (0 = closed, 1 = open)	Bool	0	0	1	0	RO
325	ZonesData_C[1].Z_RackSteps.Step[3].Fill	Rack fill solenoid valve status - step 3 (0 = closed, 1 = open)	Bool	0	0	1	0	RO
326	ZonesData_C[1].Z_RackSteps.Step[4].Fill	Rack fill solenoid valve status - step 4 (0 = closed, 1 = open)	Bool	0	0	1	0	RO
327	ZonesData_C[1].Z_RackSteps.Step[5].Fill	Rack fill solenoid valve status - step 5 (0 = closed, 1 = open)	Bool	0	0	1	0	RO
328	ZonesData_C[1].Z_RackSteps.Step[6].Fill	Rack fill solenoid valve status - step 6 (0 = closed, 1 = open)	Bool	0	0	1	0	RO
329	ZonesData_C[1].Z_RackSteps.Step[1].Drain	Rack drain solenoid valve status - step 1 (0 = closed, 1 = open)	Bool	0	0	1	0	RO
330	ZonesData_C[1].Z_RackSteps.Step[2].Drain	Rack drain solenoid valve status - step 2 (0 = closed, 1 = open)	Bool	0	0	1	0	RO
331	ZonesData_C[1].Z_RackSteps.Step[3].Drain	Rack drain solenoid valve status - step 3 (0 = closed, 1 = open)	Bool	0	0	1	0	RO
332	ZonesData_C[1].Z_RackSteps.Step[4].Drain	Rack drain solenoid valve status - step 4 (0 = closed, 1 = open)	Bool	0	0	1	0	RO
333	ZonesData_C[1].Z_RackSteps.Step[5].Drain	Rack drain solenoid valve status - step 5 (0 = closed, 1 = open)	Bool	0	0	1	0	RO
334	ZonesData_C[1].Z_RackSteps.Step[6].Drain	Rack drain solenoid valve status - step 6 (0 = closed, 1 = open)	Bool	0	0	1	0	RO
341	ZonesData_C[1].Z_Alrms.Alrm_MainPrb	ALA01 - Zone 1 alarm: main probe broken or disconnected	Bool	0	0	1	0	RO
342	ZonesData_C[1].Z_RackSteps.Ventilation	ALA02 - Zone 1 alarm: limit probe broken or disconnected	Bool	0	0	1	0	RO
343	ZonesData_C[1].Z_Alrms.Alrm-No-Rack	ABC02 - Zone 1 alarm: distribution system not configured	Bool	0	0	1	0	RO
344	ZonesData_C[1].Z_Alrms.Alrm_MasterOffli	ABO01 - Zone 1 alarm: pumping station offline	Bool	0	0	1	0	RO
345	ZonesData_C[1].Z_Alrms.Alrm_RackTPrb	ABA06 - Zone 1 alarm: rack temperature probe broken or disconnected	Bool	0	0	1	0	RO
346	ZonesData_C[1].Z_Alrms.Warn_LowRackTemp	WRA10 - Zone 1 warning: low rack temperature	Bool	0	0	1	0	RO
347	ZonesData_C[1].Z_Alrms.Warn_HighHumMainPrb	WRA11 - Zone 1 warning: high humidity measured by main probe	Bool	0	0	1	0	RO
348	ZonesData_C[1].Z_Alrms.Warn_LowHumMainPrb	WRA12 - Zone 1 warning: low humidity measured by main probe	Bool	0	0	1	0	RO
349	ZonesData_C[1].Z_Alrms.Warn_HighTempMainPrb	WRA13 - Zone 1 warning: high temperature measured by main probe	Bool	0	0	1	0	RO
350	ZonesData_C[1].Z_Alrms.Warn_LowTempMainPrb	WRA14 - Zone 1 warning: low temperature measured by main probe	Bool	0	0	1	0	RO
351	ZonesData_C[1].Z_Alrms.Warn_HighHumLimPrb	WRA15 - Zone 1 warning: high humidity measured by limit probe	Bool	0	0	1	0	RO
352	ZonesData_C[1].Z_Alrms.Warn_LowTempLimPrb	WRA16 - Zone 1 warning: low humidity measured by limit probe	Bool	0	0	1	0	RO
353	ZonesData_C[1].Z_Alrms.Warn_HighHumTwoPrbsAvg	WRA17 - Zone 1 warning: high humidity measured by average of 2 probes	Bool	0	0	1	0	RO
354	ZonesData_C[1].Z_Alrms.Warn_LowHumTwoPrbsAvg	WRA18 - Zone 1 warning: low humidity measured by average of 2 probes	Bool	0	0	1	0	RO
355	ZonesData_C[1].Z_Alrms.Warn_HighTempTwoPrbsAvg	WRA19 - Zone 1 warning: high temperature measured by average of 2 probes	Bool	0	0	1	0	RO
356	ZonesData_C[1].Z_Alrms.Warn_LowTempTwoPrbsAvg	WRA20 - Zone 1 warning: low temperature measured by average of 2 probes	Bool	0	0	1	0	RO
357	ZonesData_C[1].Z_Alrms.Warn_HighHumThreePrbsAvg	WRA21 - Zone 1 warning: high humidity measured by average of 3 probes	Bool	0	0	1	0	RO

Add.	Variable name	Description	Data-typ.	Def.	Min	Max	UoM	Acces.
358	ZonesData_C[1].Z_Alrms.Warn_LowHumThreePrbsAvg	WRA22 - Zone 1 warning: low humidity measured by average of 3 probes	Bool	0	0	1	0	RO
359	ZonesData_C[1].Z_Alrms.Warn_HighTempThreePrbsAvg	WRA23 - Zone 1 warning: high temperature measured by average of 3 probes	Bool	0	0	1	0	RO
360	ZonesData_C[1].Z_Alrms.Warn_LowTempThreePrbsAvg	WRA24 - Zone 1 warning: low temperature measured by average of 3 probes	Bool	0	0	1	0	RO
361	ZonesData_C[1].Z_Alrms.Warn_SVOffli	WRO05 - Zone 1 warning: supervisor offli	Bool	0	0	1	0	RO
362	ZonesData_C[1].Z_Alrms.Alrm_SVOffli	WRO09 - Zone 1 alarm: supervisor offli	Bool	0	0	1	0	RO
363	ZonesData_C[1].Z_Alrms.Alrm_Retain	ALG01 - Zone 1 alarm: error in number of retain memory writes	Bool	0	0	1	0	RO
364	ZonesData_C[1].Z_Alrms.Alrm_Err_retain_write	ALG02 - Zone 1 alarm: too many retain memory writes	Bool	0	0	1	0	RO
365	ZonesData_C[1].Z_Alrms.Warn_RetMem	WRG03 - Zone 1 warning: too many retain memory writes	Bool	0	0	1	0	RO
366	ZonesData_C[1].Z_Alrms.Alrm_NoModel	ABC01 - Zone 1 alarm: no model configured	Bool	0	0	1	0	RO
367	ZonesData_C[1].Z_WorkPar.UnitPause	Unit setting paused (0=not paused; 1=paused)	Bool	0	0	1	0	RW
368	ZonesData_C[1].Z_WorkPar.DisableVarUnitPause	Disable pause from monitoring service (0: pause not disabled, 1: pause disabled)	Bool	0	0	1	0	RO
369	ZonesData_C[1].Z_Info.ZoneAlrm-Present	At least 1 alarm active in zone	Bool	0	0	1	0	RO
370	ZonesData_C[1].Z_Info.Zone-Warning	At least 1 warning active in zone	Bool	0	0	1	0	RO
371	ZonesData_C[1].Z_WorkPar.SVEnReg	Enable zone control from supervisor	Bool	0	0	1	0	RW
372	ZonesData_C[1].Z_WorkPar.SVEnOnOff	Enable zone 1 on/off from supervisor	Bool	0	0	1	0	RW
373	ZonesData_C[1].Z_WorkPar.SVOnOff	Zone 1 on/off from supervisor	Bool	0	0	1	0	RW
374	ZonesData_C[1].Z_RackCfg.EnRotSteps	Enable step rotation in zone 1	Bool	0	0	1	0	RW

* (0 = the zone will always remain in full standby at the end of production, 1 = the zone, once the full standby time has elapsed, will go to empty standby)

9.4.3 Pumping station BACnet variable table - PositiveIntegerValue variables

RO= Read Only

RW= ReadWrite

Add.	Variable name	Description	Data-typ.	Def.	Min	Max	UoM	Acces.
100	OnOffStatu	Pump status *	UInt	0	0	65535	0	RO
101	SwVer.X	Software version X (Major)	UInt	0	0	65535	0	RO
102	SwVer.Y	Software version Y (Minor)	UInt	0	0	65535	0	RO
103	SwVer.Z	Software version Z (Patch)	UInt	0	0	65535	0	RO
104	OSVer.X	Operating system version X (Major)	UInt	0	0	65535	0	RO
105	OSVer.Y	Operating system version Y (Minor)	UInt	0	0	65535	0	RO
106	OSVer.Z	Operating system version Z (Patch)	UInt	0	0	65535	0	RO
107	Core	c.pCO core version	UInt	0	0	65535	0	RO
108	PmpHrs_PAR	Partial count of pump operating hours	UDInt	0	0	4294967295	[h]	RO
109	PmpNextMaintThrsh	Hours threshold for next pump maintenance	UInt	0	0	65535	[h]	RO
110	PmpHrs_TOT	Total count of pump operating hours	UDInt	0	0	4294967295	[h]	RO
111	UnitHrs	Total count of unit operating hours	UDInt	0	0	4294967295	[h]	RO
112	PmpResDate.Day	Pump partial operating hours reset date - Day	UInt	0	0	65535	[d]	RO
113	PmpResDate.Month	Pump partial operating hours reset date - Month	UInt	0	0	65535	[m]	RO
114	PmpResDate.Year	Pump partial operating hours reset date - Year	UInt	0	0	65535	[y]	RO
115	PmpResDate.Hour	Pump partial operating hours reset date - Hours	UInt	0	0	65535	[h]	RO
116	PmpResDate.Minute	Pump partial operating hours reset date - Minutes	UInt	0	0	65535	[m]	RO
117	UnitCfg.UnitModel	Unit model	UInt	0	0	65535	0	RO
118	ZoneData_S.Z_FctsCfg.FillT	Fill duration if "all zones together" option selected	UInt	2	1	60	[min]	RW
119	FillMultiType	Type of filling for multi-zone system (0 = all zones together, 1 = one zone at a time)	UInt	0	0	1	0	RW
120	ZonesData_C[1].Z_FctsCfg.FillT	Fill duration zone 1	UInt	2	1	60	[min]	RW
121	ZonesData_C[2].Z_FctsCfg.FillT	Fill duration zone 2	UInt	2	1	60	[min]	RW
122	ZonesData_C[3].Z_FctsCfg.FillT	Fill duration zone 3	UInt	2	1	60	[min]	RW
123	ZonesData_C[4].Z_FctsCfg.FillT	Fill duration zone 4	UInt	2	1	60	[min]	RW
124	ZonesData_C[5].Z_FctsCfg.FillT	Fill duration zone 5	UInt	2	1	60	[min]	RW
125	ZonesData_C[6].Z_FctsCfg.FillT	Fill duration zone 6	UInt	2	1	60	[min]	RW
126	ZonesData_C[7].Z_FctsCfg.FillT	Fill duration zone 7	UInt	2	1	60	[min]	RW
127	ZonesData_C[8].Z_FctsCfg.FillT	Fill duration zone 8	UInt	2	1	60	[min]	RW
128	ZonesData_C[9].Z_FctsCfg.FillT	Fill duration zone 9	UInt	2	1	60	[min]	RW
129	ZonesData_C[10].Z_FctsCfg.FillT	Fill duration zone 10	UInt	2	1	60	[min]	RW
130	ZonesData_C[11].Z_FctsCfg.FillT	Fill duration zone 11	UInt	2	1	60	[min]	RW
131	ZonesData_C[12].Z_FctsCfg.FillT	Fill duration zone 12	UInt	2	1	60	[min]	RW
132	WashMode	Wash mode (0 = wash disabled, 1 = wash due to inactivity, 2 = daily wash)	USInt	2	0	2	0	RW
133	WashMultiType	Wash type for multi-zone system (0 = all zones together, 1 = one zone at a time)	UInt	0	0	1	0	RW
134	ZoneData_S.Z_FctsCfg.WashT	Wash time, if "wash all zones together" enabled	UInt	2	1	10	[min]	RW
135	PerWashHrThr	Inactivity time to activate the wash due to inactivity	UInt	24	1	99	0	RW
136	DailyWashHr	Select hours for daily wash	UInt	0	0	23	0	RW
137	DailyWashMin	Select minutes for daily wash	UInt	0	0	59	0	RW
138	ZonesData_C[1].Z_FctsCfg.WashT	Wash duration zone 1	UInt	2	1	10	[min]	RW
139	ZonesData_C[2].Z_FctsCfg.WashT	Wash duration zone 2	UInt	2	1	10	[min]	RW
140	ZonesData_C[3].Z_FctsCfg.WashT	Wash duration zone 3	UInt	2	1	10	[min]	RW
141	ZonesData_C[4].Z_FctsCfg.WashT	Wash duration zone 4	UInt	2	1	10	[min]	RW
142	ZonesData_C[5].Z_FctsCfg.WashT	Wash duration zone 5	UInt	2	1	10	[min]	RW
143	ZonesData_C[6].Z_FctsCfg.WashT	Wash duration zone 6	UInt	2	1	10	[min]	RW
144	ZonesData_C[7].Z_FctsCfg.WashT	Wash duration zone 7	UInt	2	1	10	[min]	RW
145	ZonesData_C[8].Z_FctsCfg.WashT	Wash duration zone 8	UInt	2	1	10	[min]	RW
146	ZonesData_C[9].Z_FctsCfg.WashT	Wash duration zone 9	UInt	2	1	10	[min]	RW
147	ZonesData_C[10].Z_FctsCfg.WashT	Wash duration zone 10	UInt	2	1	10	[min]	RW
148	ZonesData_C[11].Z_FctsCfg.WashT	Wash duration zone 11	UInt	2	1	10	[min]	RW

Add.	Variable name	Description	Data-typ.	Def.	Min	Max	UoM	Acces.
149	ZonesData_C[12].Z_FctsCfg.WashT	Wash duration zone 12	UInt	2	1	10	[min]	RW
150	ZonesData_C[1].Z_FctsCfg.FullStandbyMaxT	Zone 1 full standby duration	UInt	24	0	48	[h]	RW
151	ZonesData_C[2].Z_FctsCfg.FullStandbyMaxT	Zone 2 full standby duration	UInt	24	0	48	[h]	RW
152	ZonesData_C[3].Z_FctsCfg.FullStandbyMaxT	Zone 3 full standby duration	UInt	24	0	48	[h]	RW
153	ZonesData_C[4].Z_FctsCfg.FullStandbyMaxT	Zone 4 full standby duration	UInt	24	0	48	[h]	RW
154	ZonesData_C[5].Z_FctsCfg.FullStandbyMaxT	Zone 5 full standby duration	UInt	24	0	48	[h]	RW
155	ZonesData_C[6].Z_FctsCfg.FullStandbyMaxT	Zone 6 full standby duration	UInt	24	0	48	[h]	RW
156	ZonesData_C[7].Z_FctsCfg.FullStandbyMaxT	Zone 7 full standby duration	UInt	24	0	48	[h]	RW
157	ZonesData_C[8].Z_FctsCfg.FullStandbyMaxT	Zone 8 full standby duration	UInt	24	0	48	[h]	RW
158	ZonesData_C[9].Z_FctsCfg.FullStandbyMaxT	Zone 9 full standby duration	UInt	24	0	48	[h]	RW
159	ZonesData_C[10].Z_FctsCfg.FullStandbyMaxT	Zone 10 full standby duration	UInt	24	0	48	[h]	RW
160	ZonesData_C[11].Z_FctsCfg.FullStandbyMaxT	Zone 11 full standby duration	UInt	24	0	48	[h]	RW
161	ZonesData_C[12].Z_FctsCfg.FullStandbyMaxT	Zone 12 full standby duration	UInt	24	0	48	[h]	RW
162	FunctSelNO7_Mst	Select function for PUMP programmable relay NO7 (0=Unit life status, 1=Low rack temp. warning, 2=Pump status, 3=Pump maintenance warning, 4=No water warning, 5=Low inlet press. warning, 6 = Low inlet press. alarm, 7=Low water temp. alarm)	USInt	0	0	7	0	RW
163	Conductivity	Pumping station inlet water conductivity	UInt	0	0	65535	[uS/cm]	RO
164	P_SetPLowPAlarmDly	Pumping station low outlet pressure alarm delay	UInt	90	20	120	[s]	RW
165	HiConductAlarmThrsh	High water conductivity alarm threshold	UInt	200	HiConductWarnThrsh	2500	[uS/cm]	RW
166	HiConductWarnThrsh	High water conductivity warning threshold	UInt	100	20	2500	[uS/cm]	RW
167	HiConductWarnHyst	High water conductivity warning deactivation hysteresis	UInt	10	1	2500	[uS/cm]	RW
168	HiConductAlarmDlyT	High water conductivity alarm delay	UInt	10	0	99	[min]	RW
169	T_SetPAFreezeAlarmDly	Low water temperature alarm delay	UInt	15	1	30	[s]	RW
171	PmpManModeWait	Pump manual mode activation status (0 = manual mode available, 1 = waiting for wash to finish, 2 = waiting or fill to finish, 3 = waiting or production to finish)	UInt	0	0	65535	0	RO
178	Year	Current year (YYYY)	UInt	0	0	99	[y]	RO
179	Month	Current month (MM)	UInt	0	1	12	[m]	RO
180	Day	Current day (DD)	UInt	0	1	31	[d]	RO
181	Hour	Current time	UInt	0	0	23	[h]	RO
182	Minute	Current minute	UInt	0	0	65535	min	RO
183	DayOfWeek	Day of the week	USInt	0	1	7	0	RO
184	UoM_SV	Unit of measure (2: Imperial system, 6: International system)	USInt	6	1	7	0	RW
185	VerFrom_pgdxF	pGDx user interface software version	UDInt	0	0	4294967295	0	RO
186	ZoneData_S.Z_Info.IPConfig[2]	Pump IP address	UDInt	0	0	4294967295	0	RO
187	UnitCfg.ZonesNum	Set the number of zones in the system	UInt	1	1	12	0	RO
188	MstFullStandbyMaxT	Pump-zone line emptying delay in standby	UInt	60	0	120	0	RW
189	MstEmptyStandbyMaxTFill	Pump-zone line emptying time in standby	UInt	5	1	120	0	RW
190	Bckp_Status	RESERVED	UInt		0	65535	0	RO
195	NetNum	Network number for multi-network	UDInt	1	1	99	0	RW
202	PmpMaintCntDwn	Countdown to next pump maintenance	UInt	0	0	65535	[h]	OR
203	P_SetPLinePressRelT	Line pressure release: maximum time for managing line pressure after slowdown	UInt	20	1	40		RW
300	ZonesData_C[1].Z_Info.ZoneStatus	Zone 1 status **	UInt	0	0	65535	0	RO
301	ZonesData_C[1].Z_Reg.RegTyp	Control mode ***	USInt	6	0	18	0	RW
302	ZonesData_C[1].Z_SysInfo.SwVer.X	Software version X (Major)	UInt	0	0	65535	0	RO
303	ZonesData_C[1].Z_SysInfo.SwVer.Y	Operating system version Y (Minor)	UInt	0	0	65535	0	RO
304	ZonesData_C[1].Z_SysInfo.SwVer.Z	Software version Z (Patch)	UInt	0	0	65535	0	RO
305	ZonesData_C[1].Z_SysInfo.OSVer.X	Operating system version X (Major)	UInt	0	0	65535	0	RO
306	ZonesData_C[1].Z_SysInfo.OSVer.Y	Operating system version Y (Minor)	UInt	0	0	65535	0	RO
307	ZonesData_C[1].Z_SysInfo.OSVer.Z	Operating system version Z (Patch)	UInt	0	0	65535	0	RO
308	ZonesData_C[1].Z_SysInfo.CoreType	c.pCO core version	UInt	0	0	65535	0	RO
309	ZonesData_C[1].Z_SysInfo.UnitModel	Unit model	UInt	0	0	65535	0	RO
310	ZonesData_C[1].Z_PrbcCfg.RackTPrb.UITyp	Select rack temperature probe type (0 = 0-1 V, 1 = 0-10 V, 2 = 2-10 V, 3 = 0-20 mA, 4 = 4-20 mA, 5 = NTC)	USInt	5	0	5	0	RW
311	ZonesData_C[1].Z_FctsCfg.HumPrbAlarmCtrlDel	Enable control probe alarm delay at start of production (0 = disabled, 1 = enabled)	UInt	5	1	99	[min]	RW
312	ZonesData_C[1].Z_FctsCfg.FunctSelNO7_Slv	Select programmable relay NO7 function (0 = Unit life status, 1 = Low rack temperature warning)	USInt	0	0	1	0	RW
314	ZonesData_C[1].Z_Info.ZoneManModeWait	Zone manual mode activation status (0 = manual mode available, 1 = waiting for wash to finish, 2 = waiting or fill to finish, 3 = waiting or production to finish)	UInt	0	0	65535	0	RO
332	ZonesData_C[1].Z_FctsCfg.PrbcThrsWarnDly	High/low humidity/temperature alarm delay	UInt	1	0	99	[min]	RW
333	ZonesData_C[1].Z_Info.IPConfig[2]	Zone IP address	UDInt	0	0	4294967295	0	RO
335	ZonesData_C[1].Z_Info.OnOffStatu	RESERVED	UInt		0	65535	0	RO
336	ZonesData_C[1].Z_RackCfg.RotStepsT	Step rotation delay, zone 1	UInt	15	1	9999	[min]	RW

* (1=Off from keypad, 2=Off from supervisor, 3=Standby, 4=Production, 6=Wash, 7=Fill, 8=Warning, 9=Alarm, 12=Off from scheduler, 13=Off from DIN, 15=Off from flow switch, 16=Off from zone, 18=Pump alarm, 19=Off from pump, 20=Off from pump DIN, 22=Zone manual mode, 23=Slowdown, 27=Off from zones, 28=Bypass calibration, 31=Unit paused)

** (0=Power On, 10=Software initialisation, 20=Awaiting network, 30=Wash, 40=Fill, 50=Standby empty, 60=Standby full, 70=Water control, 80=Production, 90=Slowdown, 100=Pre-wash, 110=Alarm, 120=Bypass calibration fill, 130=Bypass calibration, 140=Waiting for control, 150=WTS water change, 160=Disabled)

*** (0=on/off, 1=on/off + humidity limit, 2=on/off + temperature limit, 3=external signal, 4=external signal + humidity limit, 5=external signal + temperature limit, 6=humidity, 7=humidity + limit humidity, 8=humidity + temperature limit, 9=temperature, 10=temperature + temperature limit, 11=temperature + humidity limit, 12=2 humidity probes, 13=2 temperature probes, 14=3 humidity probes, 15=3 temperature probes, 16=2 temperature probes + humidity limit, 17=dewpoint, 18=dewpoint + humidity limit)

9.4.4 Zone BACnet variable table - AnalogValue variables

RO= Read Only

RW= ReadWrite

Add.	Variable name	Description	Data-typ.	Def.	Min	Max	UoM	Acces.
300	ZoneData_S_Z_Info.FlowReq	Zone production request	Real	0	0.0	9999.9	0.1 [kg/h - lb/h]	RO
301	ZoneData_S_Z_Info.CurrProd	Current zone production	Real	0	0.0	9999.9	0.1 [kg/h - lb/h]	RO
302	ZoneData_S_Z_Info.RealReq	Zone request from control signal	Real	0	0.0	100.0	0.1 [%]	RO
303	ZoneData_S_Z_Info.MainPrb	Zone main probe reading	Real	0	-999.9	999.9	0	RO
304	ZoneData_S_Z_Info.LimitPrb	Zone limit probe reading	Real	0	-999.9	999.9	0	RO
305	ZoneData_S_Z_Info.RackTPrb	Zone rack temperature probe reading	Real	0	-999.9	999.9	0	RO
306	ZoneData_S_Z_WorkPar.GlbSetP_Hum	Set zone humidity set point	Real	50.0	0.0	100.0	0.1 [%rh]	RW
307	ZoneData_S_Z_WorkPar.GlbSetP_Temp	Set zone temperature set point	Real	25.0	0.0	100.0	0.1 [°C - °F]	RW
308	ZoneData_S_Z_WorkPar.GlbSetP_Lim_Hum	Set zone humidity limit set point	Real	50.0	0.0	100.0	0.1 [%rh]	RW
309	ZoneData_S_Z_WorkPar.GlbSetP_Lim_Temp	Set zone temperature limit set point	Real	25.0	0.0	100.0	0.1 [°C - °F]	RW
310	ZoneData_S_Z_Reg.RackMax-Prod	Set zone maximum production	Real	100.0	0.0	100.0	0.1 [%]	RW
311	ZoneData_S_Z_RackCfg.RackFlowRate	Nominal rack flow rate	Real	0	0.0	999.9	0.1 [kg/h - lb/h]	RO
312	ZoneData_S_Z_FctsCfg.Press-ReliefT[1]	Pressure relief function duration for step 1	Real	1.0	0.0	30.0	0.1 [s]	RW
313	ZoneData_S_Z_FctsCfg.Press-ReliefT[2]	Pressure relief function duration for step 2	Real	1.0	0.0	30.0	0.1 [s]	RW
314	ZoneData_S_Z_FctsCfg.Press-ReliefT[3]	Pressure relief function duration for step 3	Real	1.0	0.0	30.0	0.1 [s]	RW
315	ZoneData_S_Z_FctsCfg.Press-ReliefT[4]	Pressure relief function duration for step 4	Real	1.0	0.0	30.0	0.1 [s]	RW
316	ZoneData_S_Z_FctsCfg.Press-ReliefT[5]	Pressure relief function duration for step 5	Real	1.0	0.0	30.0	0.1 [s]	RW
317	ZoneData_S_Z_FctsCfg.Press-ReliefT[6]	Pressure relief function duration for step 6	Real	1.0	0.0	30.0	0.1 [s]	RW
318	ZoneData_S_Z_PrbCfg.RackTPrb.Mi_Temp	Minimum rack temperature probe value	Real	-20.0	-999.9	999.9	0.1 [°C - °F]	RW
319	ZoneData_S_Z_PrbCfg.RackTPrb.Ma_Temp	Maximum rack temperature probe value	Real	70.0	-999.9	999.9	0.1 [°C - °F]	RW
320	ZoneData_S_Z_PrbCfg.RackTPrb.Offs	Rack temperature probe reading offset	Real	0.0	-999.9	999.9	0.1 [°C - °F]	RW
321	ZoneData_S_Z_FctsCfg.Rack-TempMng.RackTSetP	Temperature set point for production modulation function from rack probe	Real	20.0	5.0	50.0	0.1 [°C - °F]	RW
322	ZoneData_S_Z_FctsCfg.Rack-TempMng.RackTBand	Proportional band for production modulation function from rack probe	Real	5.0	0.5	10.0	0.1 [°C - °F]	RW
323	ZoneData_S_Z_FctsCfg.Rack-TempMng.RackTDiff	Differential for disabling the production modulation function from rack probe warning	Real	2.0	0.5	10.0	0.1 [°C - °F]	RW
325	ZoneData_S_Z_FctsCfg.High-MainHum_WarnThrsh	Set main probe high humidity alarm threshold	Real	100.0	0.0	100.0	0.1 [%rh]	RW
326	ZoneData_S_Z_FctsCfg.High-MainTemp_WarnThrsh	Set main probe high temperature alarm threshold	Real	40.0	5.0	70.0	0.1 [°C - °F]	RW
327	ZoneData_S_Z_FctsCfg.Low-MainHum_WarnThrsh	Set main probe low humidity alarm threshold	Real	0	0.0	100.0	0.1 [%rh]	RW
328	ZoneData_S_Z_FctsCfg.Low-MainTemp_WarnThrsh	Set main probe low temperature alarm threshold	Real	15.0	5.0	70.0	0.1 [°C - °F]	RW
329	ZoneData_S_Z_FctsCfg.High-LimitHum_WarnThrsh	Set limit probe high humidity alarm threshold	Real	100.0	0.0	100.0	0.1 [%rh]	RW
330	ZoneData_S_Z_FctsCfg.Low-LimitTemp_WarnThrsh	Set limit probe low temperature alarm threshold	Real	15.0	5.0	70.0	0.1 [°C - °F]	RW
331	ZoneData_S_Z_WorkPar.SVReq	Zone production request from supervisor	Real	0	0.0	100.0	0.1 [%]	RW
332	ZoneData_S_Z_Info.Temp-DewPoint	Zone dew point temperature calculation	Real	0	-999.9	999.9	0.1 [°C - °F]	RO
333	ZoneData_S_Z_Info.Two-PrbsAvg	Two zone probe reading average calculation	Real	0	-32768	32767	0	RO
334	ZoneData_S_Z_Info.ThreePrbsAvg	Three zone probe reading average calculation	Real	0	-32768	32767	0	RO

9.4.5 Zone BACnet variable table - BinaryValue variables

RO= Read Only

RW= ReadWrite

Add.	Variable name	Description	Data-typ.	Def.	Min	Max	UoM	Acces.
301	ZoneData_S_Z_FctsCfg.Rack-TempMng.EnRackTMng	Enable production modulation function from rack temperature probe reading (0 = disabled, 1 = enabled)	Bool	0	0	1	0	RW
302	ZoneData_S_Z_FctsCfg.Rack-TempMng.EnRackTReduced-Prod	Enable production reduction based on rack temperature	Bool	0	0	1	0	RW
303	ZoneData_S_Z_FctsCfg.Rack-TempMng.EnRackTWarn	Select type of signal for low rack temperature (0 = notification, 1 = warning)	Bool	0	0	1	0	RW
304	ZoneData_S_Z_FctsCfg.EnDlyd-HumPrbAlrmCtrl	Enable humidity probe control delay for alarm activation	Bool	0	0	1	0	RW
305	ZoneData_S_Z_FctsCfg.Rack-EnLogic	Enable zone production digital input (RACKEN) status (0 = contact closed, 1 = contact open)	Bool	0	0	1	0	RW
306	ZoneData_S_Z_FctsCfg.AirFlow-SwitchLogic	Flow switch digital input (FLUX) status (0 = contact closed, 1 = contact open)	Bool	0	0	1	0	RW
307	ZoneData_S_Z_FctsCfg.ZoneStatusDout_Logic	"Zone status" ZONE digital output logic (0 = NC, 1 = NO)	Bool	0	0	1	0	RW
308	ZoneData_S_Z_FctsCfg.AlrmD-OutLogic	"Alarm status" AL digital output logic (0 = NC, 1 = NO)	Bool	0	0	1	0	RW
309	ZoneData_S_Z_FctsCfg.Relay-LogicNO7	"Programmable relay NO7" digital output logic (0 = NC, 1 = NO)	Bool	0	0	1	0	RW
310	ZoneData_S_Z_DigIO.RackEn-Status_NoLogic	Enable zone production digital input (RACKEN) status (0 = contact closed, 1 = contact open)	Bool	0	0	1	0	RO
311	ZoneData_S_Z_DigIO.AirFlow-SwitchStatus_NoLogic	Flow switch digital input (FLUX) status (0 = contact closed, 1 = contact open)	Bool	0	0	1	0	RO
312	ZoneData_S_Z_RackSteps.LineDrain	Line drain digital output (NOL) status (0 = output not energised, 1 = output energised)	Bool	0	0	1	0	RO
313	ZoneData_S_Z_DigIO.NO7_PrgDout	Programmable relay NO7 digital output status (0 = output not energised, 1 = output energised)	Bool	0	0	1	0	RO
314	ZoneData_S_Z_DigIO.Alrm_Dout	Alarm status digital input (AL) status (0 = output not energised, 1 = output energised)	Bool	0	0	1	0	RO
315	ZoneData_S_Z_RackSteps.Ventilation	Rack ventilation solenoid valve digital output (NOV) status (0 = output energised, 1 = output not energised)	Bool	0	0	1	0	RO
316	ZoneData_S_Z_FctsCfg.ZoneManModeEnFill	Enable filling function for zone manual mode (0 = disabled, 1 = enabled)	Bool	1	0	1	0	RW
323	ZoneData_S_Z_RackSteps.Step[1].Fill	Rack fill solenoid valve status - step 1 (0 = closed, 1 = open)	Bool	0	0	1	0	RO
324	ZoneData_S_Z_RackSteps.Step[2].Fill	Rack fill solenoid valve status - step 2 (0 = closed, 1 = open)	Bool	0	0	1	0	RO
325	ZoneData_S_Z_RackSteps.Step[3].Fill	Rack fill solenoid valve status - step 3 (0 = closed, 1 = open)	Bool	0	0	1	0	RO
326	ZoneData_S_Z_RackSteps.Step[4].Fill	Rack fill solenoid valve status - step 4 (0 = closed, 1 = open)	Bool	0	0	1	0	RO
327	ZoneData_S_Z_RackSteps.Step[5].Fill	Rack fill solenoid valve status - step 5 (0 = closed, 1 = open)	Bool	0	0	1	0	RO
328	ZoneData_S_Z_RackSteps.Step[6].Fill	Rack fill solenoid valve status - step 6 (0 = closed, 1 = open)	Bool	0	0	1	0	RO
329	ZoneData_S_Z_RackSteps.Step[1].Drain	Rack drain solenoid valve status - step 1 (0 = closed, 1 = open)	Bool	0	0	1	0	RO
330	ZoneData_S_Z_RackSteps.Step[2].Drain	Rack drain solenoid valve status - step 2 (0 = closed, 1 = open)	Bool	0	0	1	0	RO
331	ZoneData_S_Z_RackSteps.Step[3].Drain	Rack drain solenoid valve status - step 3 (0 = closed, 1 = open)	Bool	0	0	1	0	RO
332	ZoneData_S_Z_RackSteps.Step[4].Drain	Rack drain solenoid valve status - step 4 (0 = closed, 1 = open)	Bool	0	0	1	0	RO
333	ZoneData_S_Z_RackSteps.Step[5].Drain	Rack drain solenoid valve status - step 5 (0 = closed, 1 = open)	Bool	0	0	1	0	RO
334	ZoneData_S_Z_RackSteps.Step[6].Drain	Rack drain solenoid valve status - step 6 (0 = closed, 1 = open)	Bool	0	0	1	0	RO
341	ZoneData_S_Z_Alrms.Alrm_MainPrb	ALA01 - Zone alarm: main probe broken or disconnected	Bool	0	0	1	0	RO
342	ZoneData_S_Z_Alrms.Alrm_LimitPrb	ALA02 - Zone alarm: limit probe broken or disconnected	Bool	0	0	1	0	RO
343	ZoneData_S_Z_Alrms.Alrm_NoRack	ABC02 - Zone alarm: distribution system not configured	Bool	0	0	1	0	RO
344	ZoneData_S_Z_Alrms.Alrm_MasterOffli	ABO01 - Zone alarm: pumping station offli	Bool	0	0	1	0	RO
345	ZoneData_S_Z_Alrms.Alrm_RackTPrb	ABA06 - Zone alarm: rack temperature probe broken or disconnected	Bool	0	0	1	0	RO
346	ZoneData_S_Z_Alrms.Warn_LowRackTemp	WRA10 - Zone warning: low rack temperature	Bool	0	0	1	0	RO
347	ZoneData_S_Z_Alrms.Warn_HighHumMainPrb	WRA11 - Zone warning: high humidity measured by main probe	Bool	0	0	1	0	RO
348	ZoneData_S_Z_Alrms.Warn_LowHumMainPrb	WRA12 - Zone warning: low humidity measured by main probe	Bool	0	0	1	0	RO
349	ZoneData_S_Z_Alrms.Warn_HighTempMainPrb	WRA13 - Zone warning: high temperature measured by main probe	Bool	0	0	1	0	RO
350	ZoneData_S_Z_Alrms.Warn_LowTempMainPrb	WRA14 - Zone warning: low temperature measured by main probe	Bool	0	0	1	0	RO
351	ZoneData_S_Z_Alrms.Warn_HighHumLimPrb	WRA15 - Zone warning: high humidity measured by limit probe	Bool	0	0	1	0	RO
352	ZoneData_S_Z_Alrms.Warn_LowTempLimPrb	WRA16 - Zone warning: low humidity measured by limit probe	Bool	0	0	1	0	RO
353	ZoneData_S_Z_Alrms.Warn_HighHumTwoPrbsAvg	WRA17 - Zone warning: high humidity measured by average of 2 probes	Bool	0	0	1	0	RO
354	ZoneData_S_Z_Alrms.Warn_LowHumTwoPrbsAvg	WRA18 - Zone warning: low humidity measured by average of 2 probes	Bool	0	0	1	0	RO
355	ZoneData_S_Z_Alrms.Warn_HighTempTwoPrbsAvg	WRA19 - Zone warning: high temperature measured by average of 2 probes	Bool	0	0	1	0	RO

Add.	Variable name	Description	Data-typ.	Def.	Min	Max	UoM	Acces.
356	ZoneData_S_Z_Alrms.Warn_LowTempTwoPrbsAvg	WRA20 - Zone warning: low temperature measured by average of 2 probes	Bool	0	0	1	0	RO
357	ZoneData_S_Z_Alrms.Warn_HighHumThreePrbsAvg	WRA21 - Zone warning: high humidity measured by average of 3 probes	Bool	0	0	1	0	RO
358	ZoneData_S_Z_Alrms.Warn_LowHumThreePrbsAvg	WRA22 - Zone warning: low humidity measured by average of 3 probes	Bool	0	0	1	0	RO
359	ZoneData_S_Z_Alrms.Warn_HighTempThreePrbsAvg	WRA23 - Zone warning: high temperature measured by average of 3 probes	Bool	0	0	1	0	RO
360	ZoneData_S_Z_Alrms.Warn_LowTempThreePrbsAvg	WRA24 - Zone warning: low temperature measured by average of 3 probes	Bool	0	0	1	0	RO
361	ZoneData_S_Z_Alrms.Warn_SVOffli	WRO05 - Zone warning: supervisor offli	Bool	0	0	1	0	RO
362	ZoneData_S_Z_Alrms.Alrm_SVOffli	WRO09 - Zone alarm: supervisor offli	Bool	0	0	1	0	RO
363	ZoneData_S_Z_Alrms.Alrm_Retain	ALG01 - Zone alarm: error in number of retain memory writes	Bool	0	0	1	0	RO
364	ZoneData_S_Z_Alrms.Alrm_Err_retain_write	ALG02 - Zone alarm: too many retain memory writes	Bool	0	0	1	0	RO
365	ZoneData_S_Z_Alrms.Warn_RetMem	WRG03 - Zone warning: too many retain memory writes	Bool	0	0	1	0	RO
366	ZoneData_S_Z_Alrms.Alrm_No-Model	ABC01 - Zone alarm: no model configur ed	Bool	0	0	1	0	RO
367	ZoneData_S_Z_WorkPar.UnitPause	Unit setting paused (0=not paused; 1=paused)	Bool	0	0	1	0	RW
368	ZoneData_S_Z_WorkPar.DisableVarUnitPause	Disable pause from monit. service (0: pause not disabled, 1: pause disabled)	Bool	0	0	1	0	RO
369	ZoneData_S_Z_Info.ZoneAlrm-Present	At least 1 alarm active in zone	Bool	0	0	1	0	RO
370	ZoneData_S_Z_Info.Zone-Warning	At least 1 warning active in zone	Bool	0	0	1	0	RO
371	ZoneData_S_Z_WorkPar.SVEnReg	Enable zone control from supervisor	Bool	0	0	1	0	RW
372	ZoneData_S_Z_WorkPar.SVEnOnOff	Enable zone on/off from supervisor	Bool	0	0	1	0	RW
373	ZoneData_S_Z_WorkPar.SVOnOff	Zone on/off from supervisor	Bool	0	0	1	0	RW
374	ZoneData_S_Z_RackCfg.EnRotSteps	Enable zone step rotation	Bool	0	0	1	0	RW
375	EnMultiNet	Enabling of the multi-network	Bool	0	0	1	0	RW

9.4.6 Zone BACnet variable table - PositiveIntegerValue variables

RO= Read Only

RW= ReadWrite

Add.	Variable name	Description	Data-typ.	Def.	Min	Max	UoM	Acces.
300	ZoneData_S_Z_Info.ZoneStatus	Zone status *	UInt	0	0	65535	0	RO
301	ZoneData_S_Z_Reg.RegTyp	Control mode **	USInt	6	0	18	0	RW
302	ZoneData_S_Z_SysInfo.SwVer.X	Software version X (Major)	UInt	0	0	65535	0	RO
303	ZoneData_S_Z_SysInfo.SwVer.Y	Operating system version Y (Minor)	UInt	0	0	65535	0	RO
304	ZoneData_S_Z_SysInfo.SwVer.Z	Software version Z (Patch)	UInt	0	0	65535	0	RO
305	ZoneData_S_Z_SysInfo.OSVer.X	Operating system version X (Major)	UInt	0	0	65535	0	RO
306	ZoneData_S_Z_SysInfo.OSVer.Y	Operating system version Y (Minor)	UInt	0	0	65535	0	RO
307	ZoneData_S_Z_SysInfo.OSVer.Z	Operating system version Z (Patch)	UInt	0	0	65535	0	RO
308	ZoneData_S_Z_SysInfo.CoreType	c.pCO core version	UInt	0	0	65535	0	RO
309	ZoneData_S_Z_SysInfo.UnitModel	Unit model	UInt	0	0	65535	0	RO
310	ZoneData_S_Z_PrCbfg.RackTPrb.UITyp	Select rack temperature probe type (0 = 0-1 V, 1 = 0-10 V, 2 = 2-10 V, 3 = 0-20 mA, 4 = 4-20 mA, 5 = NTC)	USInt	5	0	5	0	RW
311	ZoneData_S_Z_FctsCfg.HumPrbAlrmCtrlDel	Enable control probe alarm delay at start of production (0 = disabled, 1 = enabled)	UInt	5	1	99	[min]	RW
312	ZoneData_S_Z_FctsCfg.FuncSel-NO7_Slv	Select programmable relay NO7 function (0 = Unit life status, 1 = Low rack temperature warning)	USInt	0	0	1	0	RW
314	ZoneData_S_Z_Info.ZoneMan-ModeWait	Zone manual mode activation status **	UInt	0	0	65535	0	RO
332	ZoneData_S_Z_FctsCfg.PrbThrsWarnDly	High/low humidity/temperature alarm delay	UInt	1	0	99	[min]	RW
333	ZoneData_S_Z_Info.IPConfig[2]	Zone IP address	UDInt	0	0	4294967295	0	RO
334	UoM_SV	Unit of measure (2: Imperial system, 6: International system)	USInt	6	1	7	0	RW
335	ZoneData_S_Z_Info.OnOffStatu	RESERVED	UInt		0	65535	0	RO
336	ZoneData_S_Z_RackCfg.RotSteps	Zone step rotation delay	UInt	15	1	9999	[min]	RW
337	NetNum	Network number for multi-network	UDInt	1	1	99	0	RW

* (0=Power On, 10=Software initialisation, 20=Awaiting network, 30=Wash, 40=Fill, 50=Standby empty, 60=Standby full, 70=Water control, 80=Production, 90=Slow-down, 100=Pre-wash, 110=Alarm, 120=Bypass calibration fill, 130=Bypass calibration, 140=Waiting for control, 150=WTS water change, 160=Disabled)

** (0=on/off, 1=on/off + humidity limit, 2=on/off + temperature limit, 3=external signal, 4=external signal + humidity limit, 5=external signal + temperature limit, 6=humidity, 7=humidity + limit humidity, 8=humidity + temperature limit, 9=temperature, 10=temperature + temperature limit, 11=temperature + humidity limit, 12=2 humidity probes, 13=2 temperature probes, 14=3 humidity probes, 15=3 temperature probes, 16=2 temperature probes + humidity limit, 17=dewpoint, 18=dewpoint + humidity limit)

*** (0 = manual mode available, 1 = waiting for wash to finish, 2 = waiting or fill o finish, 3 = waiting or production to fini h)

10. ALARM LIST

When a fault occurs, the system generates an alarm and the corresponding button starts flashing. If an alarm is signalled, press the alarm button once to display the type of alarm (for more information, see par. 4.5.1).

In the event of potentially dangerous alarms, the humidifier automatically stops production.

For certain types of alarm, as well as the alarm signal, the alarm relay is activated (see the following table).

The system displays three types of messages and applies different actions:

Type	Unit status
Alarms	Unit operation shuts shown
Warning	The unit continues operating with limited functions
Notification	The unit operates normally (signal only)

Tab. 10.a

10.1 Alarms

Description	Causes	Possible solutions	Reset	Alarm relay	Action
ALG01 Alarm: error in number of retain memory writes	Problem in the software application	Check SW version and request updated version	Manual	Active	Signal only
ALG02 Alarm: too many retain memory writes	Problem in the software application	Check SW version and request updated version	Manual	Active	Signal only
ALA01 Zone alarm: main probe broken or disconnected	Main probe or first probe not connected or damaged	Check probe connection and the selected control type settings	Manual	Active	Stop zone production
ALA02 Zone alarm: limit probe broken or disconnected	Limit probe or second probe not connected or damaged	Check probe connection and the selected control type settings	Manual	Active	Stop zone production
ABP02 Alarm: high water temperature	Bypass circuit safety thermostat activated	Check the correct reading of the bypass circuit temperature probe and make sure the thermostat is functioning correctly	Manual	Active	Stop system production
ABC02 Zone alarm: distribution system not configured	Distribution system not configured or not valid	Set a number of steps > 0 and correct zone rack step flow values	Automatic	Active	Stop system production
ABV02 Inverter alarm: general alarm	General inverter alarm	Check the alarm code on the inverter display.	Manual	Active	Stop system production
ABP03 Alarm: low water temperature	Water temperature inside the cabinet close to the freezing threshold	Check that the cabinet is positioned in a place with suitable environmental conditions	Automatic	Active unless specifically signalled via NO7	Stop system production
ABP06 Alarm: low outlet pressure (HP)	Water leak from the distribution circuit on the high pressure side	Check the conditions of the pipes, SV, pump seals, inverter speed reference wiring	Manual	Active	Stop system production
ABP08 Alarm: low inlet pressure (LP) during production	Insufficient water supply pressure or failure to open cabinet fill SV	Check external water supply system and cabinet fill SV operation	Manual	Active unless specifically signalled via NO7	Stop system production
ABP09 Alarm: high outlet pressure (HP)	High pressure safety switch activated	Check for failure to open or obstruction of distribution system NC SV and for any choking of high pressure pipes	Manual	Active	Stop system production
ABP10 Alarm: high inlet pressure (LP)	Inlet water pressure higher than the maximum allowed threshold	Check external water supply system	Manual	Active	Stop system production
ALZ01 Alarm: zone 1 panel alarm	Zone 1 offline or alarm	Check the type of active alarms on the zone 1 panel; if the zone is offline, check the network connection between the pumping station and the zone panel	Automatic until a set number of periodic events	Active	Signal only or stop production, based on the type of alarm and zone bypass
ALZ02 Alarm: zone 2 panel alarm	Zone 2 offline or alarm	Check the type of active alarms on the zone 2 panel; if the zone is offline, check the network connection between the pumping station and the zone panel	Automatic until a set number of periodic events	Active	Signal only or stop production, based on the type of alarm and zone bypass
ALZ03 Alarm: zone 3 panel alarm	Zone 3 offline or alarm	Check the type of active alarms on the zone 3 panel; if the zone is offline, check the network connection between the pumping station and the zone panel	Automatic until a set number of periodic events	Active	Signal only or stop production, based on the type of alarm and zone bypass
ALZ04 Alarm: zone 4 panel alarm	Zone 4 offline or alarm	Check the type of active alarms on the zone 4 panel; if the zone is offline, check the network connection between the pumping station and the zone panel	Automatic until a set number of periodic events	Active	Signal only or stop production, based on the type of alarm and zone bypass
ALZ05 Alarm: zone 5 panel alarm	Zone 5 offline or alarm	Check the type of active alarms on the zone 5 panel; if the zone is offline, check the network connection between the pumping station and the zone panel	Automatic until a set number of periodic events	Active	Signal only or stop production, based on the type of alarm and zone bypass
ALZ06 Alarm: zone 6 panel alarm	Zone 6 offline or alarm	Check the type of active alarms on the zone 6 panel; if the zone is offline, check the network connection between the pumping station and the zone panel	Automatic until a set number of periodic events	Active	Signal only or stop production, based on the type of alarm and zone bypass
ALZ07 Alarm: zone 7 panel alarm	Zone 7 offline or alarm	Check the type of active alarms on the zone 7 panel; if the zone is offline, check the network connection between the pumping station and the zone panel	Automatic until a set number of periodic events	Active	Signal only or stop production, based on the type of alarm and zone bypass

Description	Causes	Possible solutions	Reset	Alarm relay	Action
ALZ08 Alarm: zone 8 panel alarm	Zone 8 offline or alarm	Check the type of active alarms on the zone 8 panel; if the zone is offline, check the network connection between the pumping station and the zone panel	Automatic until a set number of periodic events	Active	Signal only or stop production, based on the type of alarm and zone bypass
ALZ09 Alarm: zone 9 panel alarm	Zone 9 offline or alarm	Check the type of active alarms on the zone 9 panel; if the zone is offline, check the network connection between the pumping station and the zone panel	Automatic until a set number of periodic events	Active	Signal only or stop production, based on the type of alarm and zone bypass
ALZ10 Alarm: zone 10 panel alarm	Zone 10 offline or alarm	Check the type of active alarms on the zone 10 panel; if the zone is offline, check the network connection between the pumping station and the zone panel	Automatic until a set number of periodic events	Active	Signal only or stop production, based on the type of alarm and zone bypass
ALZ11 Alarm: zone 11 panel alarm	Zone 11 offline or alarm	Check the type of active alarms on the zone 11 panel; if the zone is offline, check the network connection between the pumping station and the zone panel	Automatic until a set number of periodic events	Active	Signal only or stop production, based on the type of alarm and zone bypass
ALZ12 Alarm: zone 12 panel alarm	Zone 12 offline or alarm	Check the type of active alarms on the zone 12 panel; if the zone is offline, check the network connection between the pumping station and the zone panel	Automatic until a set number of periodic events	Active	Signal only or stop production, based on the type of alarm and zone bypass
ABO01 Zone alarm: pumping station offline	Pumping station offline	Check the network connection between the pumping station and the zone panel	Auto reset	Active	Stop zone production
ABR01 Alarm: water flooding detected (WL)	Flood sensor activated	Check for water leaks in the pump cabinet; check the flood sensor electrical connection and the status/logic of the associated digital input	Automatic until a set number of periodic events	Active	Stop system production
ABR02 Alarm: reverse osmosis system not ready (ROAL)	Alarm signal from external water treatment system	Check the status of the water treatment system; check the alarm signal electrical connection and the status/logic of the associated digital input	Automatic until a set number of periodic events	Active	Stop system production
ABA03 Alarm: bypass temperature probe broken or disconnected	Bypass temperature probe not connected or damaged	Check the probe connection	Manual	Active	Stop system production
ABA04 Alarm: water inlet pressure probe (LP) broken or disconnected	Inlet water pressure probe not connected or damaged	Check the probe connection	Manual	Active	Stop system production
ABA05 Alarm: water outlet pressure probe (HP) broken or disconnected	Outlet water pressure probe not connected or damaged	Check the probe connection	Manual	Active	Stop system production
ABA06 Zone alarm: rack temperature probe broken or disconnected	Rack probe or third probe not connected or damaged	Check probe connection and the selected control type settings	Manual	Active	Stop zone production
ABA08 Alarm: conductivity probe broken or disconnected	Conductivity meter not connected or damaged	Check the connection of the conductivity meter for measuring feedwater conductivity	Manual	Active	Stop system production
ABA09 Alarm: high water conductivity measured	Inlet water conductivity reading above the alarm threshold	Check correct operation of the reverse osmosis water supply system	Manual	Active	Stop system production
ABP11 Alarm: high water outlet pressure (HP) during wash or fill	Pump outlet pressure reading above the wash/fill alarm threshold	Check for failure to open or obstruction of distribution system NC SV and for any choking of high pressure pipes; evaluate whether to change the wash/fill type; if set to "zone by zone", change to "all zones together".	Manual	Active	Stop system production
ALO06 Alarm: supervisor channel 1 offline	Supervisor channel 1 offline	Check the network connection and supervisor channel settings	Automatic	Active	Stop production in zones controlled by the supervisor channel
ALO07 Alarm: supervisor channel 2 offline	Supervisor channel 2 offline	Check the network connection and supervisor channel settings	Automatic	Active	Stop production in zones controlled by the supervisor channel
ALO08 Alarm: supervisor channel 3 offline	Supervisor channel 3 offline	Check the network connection and supervisor channel settings	Automatic	Active	Stop production in zones controlled by the supervisor channel
WRO09 Zone alarm: supervisor offline	Zone supervisor offline	Check the network connection and zone supervisor settings	Automatic	Not active	Stop production in zones controlled by the supervisor channel

Tab. 10.b

Zone alarms

The alarms relating to the zone panels are displayed on the pumping station controller, via a dedicated alarm:

ALARM IDENTIFIER: ALZ**XX**, where **XX** is the zone number

There are two types of alarm relating to the zone panels:

- offlin zone
- zone alarm

To provide information on the zone status, online/offli , the ALZ**XX** alarm displays the string "Unit online" and the status, YES/NO.

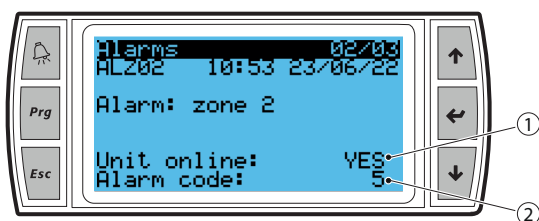
If the zone is online and there is an alarm, the ALZ**XX** zone alarm on the pumping station controller indicates the alarm code for the zone with the highest priority.

Numerical code	Corresponding zone alarm code	Description
1	WRO09	Zone alarm: supervisor offli
2	ALA01	Zone alarm: main probe broken or disconnected
3	ALA02	Zone alarm: limit probe broken or disconnected
4	ABA06	Zone alarm: rack temperature probe broken or disconnected
5	ABC02	Zone alarm: distribution system not configur ed
6	ABC01	Alarm: no model configur ed

Tab. 10.c



Notice: the pumping station controller displays only one alarm at a time relating to each zone. If there is more than one active alarm, these will be displayed only after the first alarm has been resolved.



Ref.	Description	Function
1	Zone status	Indicates the zone status, online/offli
2	Numerical code	Zone alarm identifie

Tab. 10.d

10.2 Warning

Description	Causes	Possible solutions	Reset	Alarm relay	Action
WRP01 Warning: low inlet pressure (LP) during production	Insufficient water supply pressure or failure to open cabinet fill S	Check the stability of the external water supply system and cabinet fill SV operation	Manual	Not active	Stop system production, timed restart attempts
WRG03 Warning: too many retain memory writes	Problem in the software application	Check SW version and request updated version	Automatic	Not active	Signal only
WRM01 Maintenance warning: visual water circuit check required	The pump has been operating for a number of hours above the maintenance threshold	Check the conditions of the cabinet water circuit and reset the warning	Manual	Not active	Signal only
WRP04 Warning: high water temperature	Water temperature probe reading above the warning threshold	Check that the cabinet is positioned in a place with suitable environmental conditions	Automatic	Not active	Signal only
WRP05 Warning: high outlet pressure (HP)	Pump outlet pressure reading above the warning threshold	Check for failure to open or obstruction of distribution system NC SV and for any choking of high pressure pipes	Automatic	Not active	Signal only
WRP07 Warning: no inlet water	Insufficient water supply pressure or failure to open cabinet fill S	Check the stability of the external water supply system and cabinet fill SV operation	Manual	Not active	Stop system production, timed restart attempts
WRA07 Warning: high water conductivity measured	Inlet water conductivity reading above the warning threshold	Check correct operation of the reverse osmosis water supply system	Manual	Not active	Signal only
WRA10 Zone warning: low rack temperature	Air temperature reading at rack inlet below set point	Check the humidification section air inlet temperature	Automatic	Not active	Signal only
WRA11 Zone warning: high humidity measured by main probe	Humidity reading from main probe above the higher warning threshold	Check the main probe high humidity warning threshold setting	Automatic	Not active	Signal only
WRA12 Zone warning: low humidity measured by main probe	Humidity reading from main probe below the lower warning threshold	Check the main probe low humidity warning threshold setting	Automatic	Not active	Signal only

Description	Causes	Possible solutions	Reset	Alarm relay	Action
WRA13 Zone warning: high temperature measured by main probe	Temperature reading from main probe above the higher warning threshold	Check the main probe high temperature warning threshold setting	Automatic	Not active	Signal only
WRA14 Zone warning: low temperature measured by main probe	Temperature reading from main probe below the lower warning threshold	Check the main probe low temperature warning threshold setting	Automatic	Not active	Signal only
WRA15 Zone warning: high humidity measured by limit probe	Humidity reading from limit probe above the higher warning threshold	Check the limit probe high humidity warning threshold setting	Automatic	Not active	Signal only
WRA16 Zone warning: low humidity measured by limit probe	Humidity reading from limit probe below the lower warning threshold	Check the limit probe low humidity warning threshold setting	Automatic	Not active	Signal only
WRC03 Warning: production request is too high for pump nominal flow rate	Pump not able to meet all production requests, production is limited to the maximum manageable value. Possible distribution system configuration error	Check the distribution system configuration	Automatic	Not active	Signal only
WRM02 Maintenance warning: oil change required	The pump has been operating for a number of hours above the maintenance threshold	Change the pump oil and reset the pump hour counter	Manual	Not active	Signal only
WRM03 Maintenance warning: oil change and parts replacement required	The pump has been operating for a number of hours above the maintenance threshold	Change the oil and replace the valves and pump seals, reset the pump hour counter	Manual	Not active	Signal only
WRP11 Warning: low outlet pressure (HP)	Water leak from the distribution circuit on the high pressure side	Check the conditions of the pipes, SV, pump seals, inverter speed reference wiring	Manual	Not active	Stop system production, chattering, restart system production
WRA17 Zone warning: high humidity measured by average of 2 probes	Average humidity reading from probes above the higher warning threshold	Check the high humidity warning threshold setting	Automatic	Not active	Signal only
WRA18 Zone warning: low humidity measured by average of 2 probes	Average humidity reading from probes below the lower warning threshold	Check the low humidity warning threshold setting	Automatic	Not active	Signal only
WRA19 Zone warning: high temperature measured by average of 2 probes	Average temperature reading from probes above the higher warning threshold	Check the high temperature warning threshold setting	Automatic	Not active	Signal only
WRA20 Zone warning: low temperature measured by average of 2 probes	Average temperature reading from probes below the lower warning threshold	Check the low temperature warning threshold setting	Automatic	Not active	Signal only
WRA21 Zone warning: high humidity measured by average of 3 probes	Average humidity reading from probes above the higher warning threshold	Check the high humidity warning threshold setting	Automatic	Not active	Signal only
WRA22 Zone warning: low humidity measured by average of 3 probes	Average humidity reading from probes below the lower warning threshold	Check the low humidity warning threshold setting	Automatic	Not active	Signal only
WRA23 Zone warning: high temperature measured by average of 3 probes	Average temperature reading from probes above the higher warning threshold	Check the high temperature warning threshold setting	Automatic	Not active	Signal only
WRA24 Zone warning: low temperature measured by average of 3 probes	Average temperature reading from probes below the lower warning threshold	Check the low temperature warning threshold setting	Automatic	Not active	Signal only
WRB01 Warning: backup pump activation failed	Backup pump not ready to replace currently active pump due to an alarm	Reset the alarms on the inactive pump	Manual	Not active	Stop backup pump rotation procedure, re-enable timed rotation attempts
WRB02 Warning: backup pump offline	Backup pump (not active) offline	Check the network connection between the pumps, the network settings and the backup function on both pumps	Automatic	Not active	Signal only
WRB03 Warning: backup pump offline	Backup pump (not powered or not connected) offline	Check the network connection between the pumps, the network settings and the backup function on both pumps	Automatic	Not active	Signal only
WRC04 Warning: reset defaults from pumping station	System factory reset from pumping station	Check unit settings	Manual	Not active	Signal only

Tab. 10.e

10.3 Notifications

Description	Causes	Possible solutions	Reset	Alarm relay	Action
NT01 Maintenance requested in ___ hours.	The pump has been operating for a number of hours close to the maintenance threshold	Schedule maintenance	Automatic	Not active	Signal only
NT02 Waiting for outlet pressure stabilisation.	Pump outlet pressure reading below the notification threshold	Wait for the system outlet pressure to stabilise	Automatic	Not active	Signal only
NT03 Low rack temperature.	Air temperature reading at rack inlet below set point	Check the humidification section air inlet temperature	Automatic	Not active	Signal only
NT05 Unit has restarted automatically after a power off. It might be a blackout?	The unit has restarted automatically after a shutdown	Check for possible blackouts/accidental unit shutdown	Manual	Not active	Signal only
NT07 Default parameters have been restored.	Unit parameters reset to the default values	Reconfigure the unit with the desired operating parameters	Manual	Not active	Signal only
NT10 Software updated correctly.	Application software update completed	-	Manual	Not active	Signal only
NT11 Low inlet pressure (LP).	Pump inlet pressure reading below the notification threshold	Check the stability of the external water supply system and cabinet fill SV operation	Automatic	Not active	Signal only
NT14 Pause by monitoring service is bypassed. Bypass will expire in ___ hours.	The paused by remote monitoring service function for the pump has been bypassed locally. It will be automatically reset when the countdown expires	If no longer needed, deactivate the paused by monitoring service bypass locally	Manual	Not active	Signal only
NT15 Warning autoreset.	One or more warnings automatically reset by the system	Check the alarm log to view the reset warnings	Manual	Not active	Signal only
NT16 Zone pause by monitoring service is bypassed. Bypass will expire in ___ hours.	The paused by remote monitoring service function for the zone has been bypassed locally. It will be automatically reset when the countdown expires	If no longer needed, deactivate the paused by monitoring service bypass locally	Manual	Not active	Signal only

Tab. 10.f

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