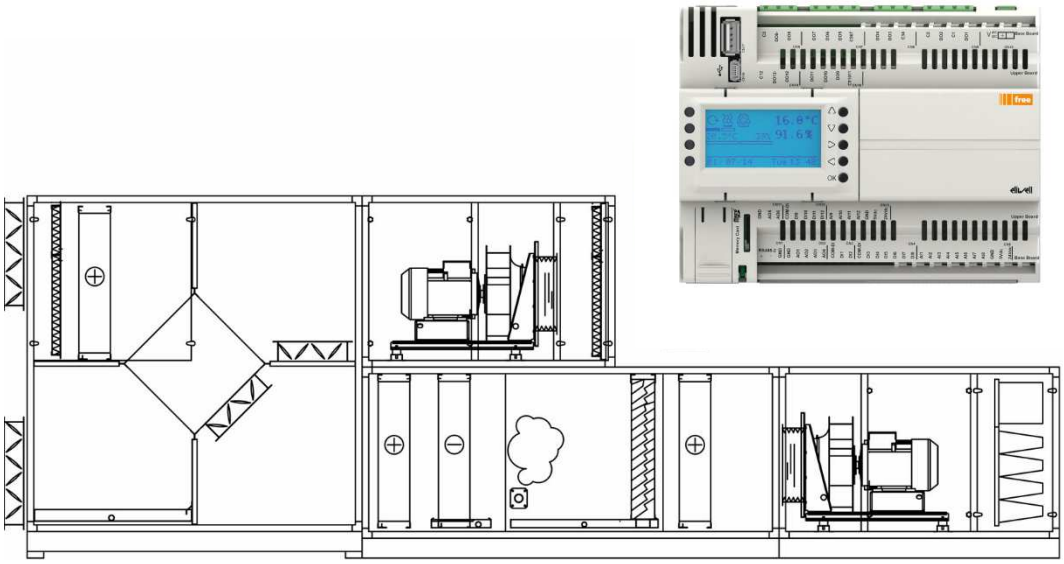
Air Handling Unit
FREE Advance



USER MANUAL

9MA00276.03

1. INTRODUCTION

1.1. Manufacturer's Identification Data

Eliwell Controls s.r.l.
Via dell'Industria, 15 • Z.I. Paludi
32010 Pieve d'Alpago (BL) ITALY
Telephone: +39 0437 986 111
Fax: +39 0437 989 066
www.eliwell.com

1.2. Attached documentation

The following documents are supplied along with this Manual.

Document name	Document Code
User Guide FREE Advance	9MA10265 (ENG) 9MA00265 (ITA)

Table 1 - Attached documentation

1.3. Aim and usage of the manual

This Manual is an integral part of the product and is aimed at all those working on the product or who interact with those using the product itself. It aims to provide all the information needed to:

- rapidly identify all the parts that make up the product
- correct carry out all the operations foreseen during the stages of product use and management
- guarantee the health safety and protection of staff working on the product in different roles
- ensure the product works properly.

This Manual must be read carefully in its entirety before carrying out any operation on the product. If in doubt regarding the correct interpretation of the instruction found in it, contact the Manufacturer for further clarification.

This Manual needs to be carefully stored for the entire life cycle of the product and needs to stay with the product whenever it is transferred to other users, no matter what. It needs to be placed close to the product, in a place protected against atmospheric agents, heat, humidity, corrosive agents and be easily accessible as well as being familiar to all those who use it; it should not be damaged, pages removed or any of its content changed when it is being consulted.

1.4. Manual update

If, following constructive changes that lead to the product's functions changing, the Manual needs to be updated, the Manufacturer will provide the Client with a review copy which will fully replace the previous one.

1.5. Consulting the manual

The information in the Manual is arranged as follows:

- chapters,
- sub-chapters,
- paragraphs,
- sub-paragraphs

and can easily be traced by consulting the Summary found at the start of this Manual.

In order to attract the user's attention, in order to use the product properly and safely, the following convention is adopted in the Manual:

NOTE: The symbol is used to supply regulations or updates that are useful to the user.

1.6. Glossary

AI	Acronym of Analogue Input.
AO	Acronym of Analogue Output.
HOT ACTUATOR	Component that heats the air.
COLD ACTUATOR	Component that cools the air.
BACNET (Building Automation and Control NETwork)	Communication protocol based on standard ASHRAE, ANSI and ISO 16484-5 for the building automation networks.
BMS (Building Management System)	Control / monitoring system of mechanical and electrical equipment installed in an area.
CO_2	Carbon dioxide.
DATALOGGER	Data recording device.
DI	Acronym of Digital Input.
DO	Acronym of Digital Output.
FILESYSTEM	Group of abstract data needed to handle the data.
P REGULATOR	Proportional regulator.
REGULATOR PI	Proportional-Integral action regulator.
PID REGULATOR	Proportional-Integral-Derivative Regulator.
SCADA	Acronym of Supervisory Control And Data Acquisition.
SUPERVISOR	Control/ monitoring system for mechanical and electrical equipment.
VOC	Volatile Organic Compound

Table 2 - Glossary

1.7. Formulation of intellectual property rights

2. PRODUCT DESCRIPTION

The product is an AVD controller programmed for application on Air Handling Units (AHU).

The programmed AVD controller can be one of the two described in the following table.

AVD8400	FREE Advance with display, 28 I/Os
AVD12600	FREE Advance with display, 42 I/Os

Table 3 – programmed AVD controller

The following can be applied to the programmed AVD controller:

- up to two EVE4200 expansions
- EVK1000 remote graphic terminal.

NOTE: For further information refer to **1.2 Documentation attached to pag. 5**.

NOTE: In the continuation of this Manual:

- the programmed AVD controller will be shown with the tern “controller”
- the Air Handling Unit will be indicated with the term “AHU”.

2.1. Controller

The controller **(Fig 1 - on pag. 8)** has the following components:

- keyboard **(T)**;
- display **(D)**;
- LED Sign **(L)**;
- connectors **(S)**.

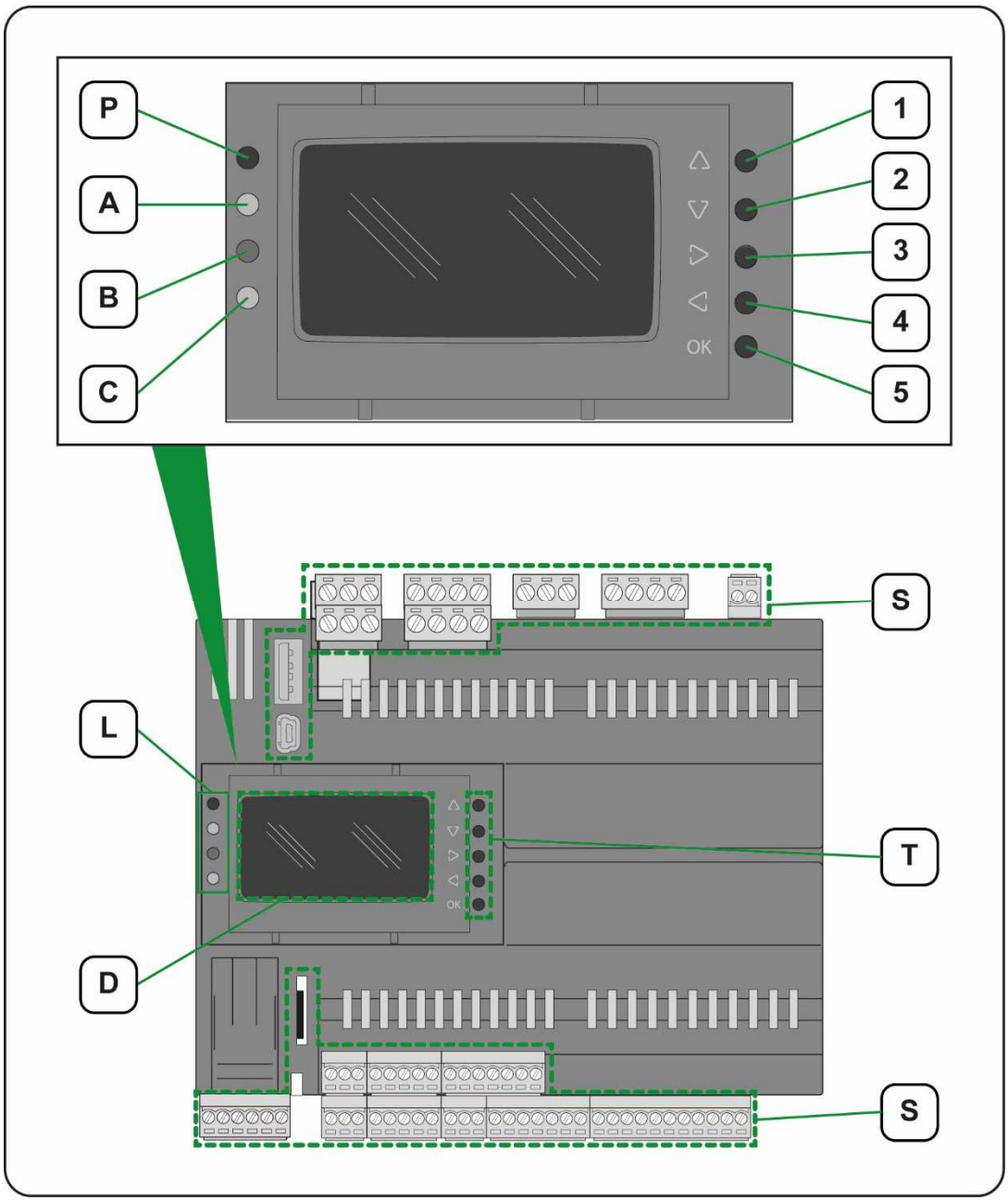


Fig 1 - Parts of the controller

The keyboard **(T)** has the following keys:

Key	Symbol	Name	Description
1		UP	- Increase/modify a value - Select the next label
2		DOWN	- Decrease / modify a value - Select the previous label
3		RIGHT	- Move the cursor to the right (in edit mode) - Select the next item - View next page (in the parameter lists)
4		LEFT	- Move the cursor to the left (in edit mode) - Select the previous item - View previous page (in the parameter lists) - (kept pressed) exit the edit mode without saving - (kept pressed) exit the page/return to previous page
5		OK	- Carry out operation linked to a graphic key - Confirm (in edit mode) - Edit mode entry

Table 4 - Keyboard

The display **(D)** allows the menus to be viewed and managed for AHU use. For the description of different menus please refer to **2.2 Menu Display on pag. 10**. For further information refer to **1.2 Documentation attached to pag. 5**.

There are four signal LEDs **(L)** each one which can assume one or more states to indicate information.

LED	Colour	Resource	Meaning
P	Green	On	Powered controller
		Off	Controller not-powered
A	Red	Off	No alarm
		On	Has at least one alarm active; refer to **8 Alarms on pag. 125**.
		Flashing	Has at least one re-settable alarm and no alarm active (or manual re-armed); please refer to **8 Alarms on pag. 125**.
B	Yellow	On	Writing on datalogger filesystem or data acquisition from USB port
C	Green	Off	AHU in OFF status
		On	AHU in ON status
		Flashing	AHU in stand-by status

Table 5 - signal LED

NOTE: The AHU is in stand-by status if the AHU is on and no regulation is activated.

The connectors **(S)** permit the connection of:

- power supply
- input/output
- communication ports
- MicroSD.

For further information on containers please refer to **1.2 Documentation attached to pag. 5**.

2.2. Main functions of the Display Menu

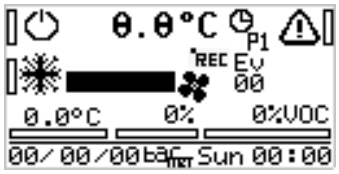
In order to select one of the icons on the display, press the UP, DOWN, RIGHT, LEFT keys on the keyboard.
The icon selected inverts its colour by going from black on a white background to white on a black background.
On pressing the OK key, access is given to the function relating to the icon selected.

On turning on, the controller sees the “Start splash” menu display.

From the “Start splash” menu to pressure on any key, the “Main” menu is accessed:

- the “Main” menu shown below refers to the AHU case in the ON status

- the “Main” menu shown below refers to the AHU case in the OFF status.



NOTE: The icons seen in the “Main” menu depend on the hardware configuration of the AHU (refer to **2.2.1.2 Hardware configuration of the AHU on pag. 17**).

The “Main” menu parameters are given in the following table.

Pag	Name	Device Type	Def	Min	Max	Unit	Description
- - -	Unit_KbdOnOff	Boolean	0	—	—	—	On/Off status from keyboard
- - -	Unit_ForceOffAfterReboot	Boolean	0	—	—	—	Force Off keyboard after reboot
- - -	Unit_KbdMode_E2	0=Cool 1=Heat 2=Auto	0	0	2	—	Mode status from keyboard
- - -	Unit_KbdEco_E2	1=Economy 2=Comfort 3=Night	2	1	3	—	Comfort/Economy/Night status from keyboard
- - -	Unit_RegTempType	0=Supply 1=Return Direct 2=Return Cascade	1	0	2	—	Temperature Regulation Probe
- - -	Unit_BMS_OnOff	Boolean	1	—	—	—	Unit On/Off via Modbus
- - -	Unit_Status	0=OFF 1=STANDBY 2=RUN	—	0	2	—	Unit Status
- - -	T_RegulationProbe	Signed 16-bit	—	—	—	°C	Temperature Regulation Probe
- - -	T_CurrentSetpointByPar	Signed 16-bit	—	—	—	°C	Current Setpoint by parameter based on selected mode
- - -	RH_RegulationProbe	Signed 16-bit	—	—	—	%R.H.	Humidity Regulation Probe
- - -	AirQ_RegulationProbe	Signed 16-bit	—	—	—	%/ppm	Air Quality Regulation Probe

Table 6 - Main

The icons foreseen for the “Main” menu are described in the following table.

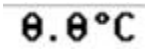
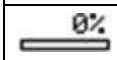
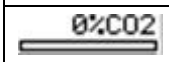
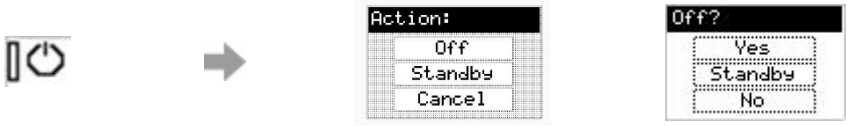
Icon	Description
	“Action” access key: to modify the AHU status.
	Functioning mode settings key (if activated).
	Alarm presence viewing key. If active, “D1-Alarms” menu access key.
	Profile change settings key: economy, night, comfort.
	Temperature regulation viewing field: temperature taken with a supply probe or return probe, depending on the kind of regulation.
	Weekly and/or annual events viewing field activated.
	Viewing field made operative or boost activated.
	Activation of viewing field (from left to right) of: regenerator, cooling actuators, heating actuators, fans, dehumidification.
	SCADA control viewing field of at least one parameter.
	Datalogger viewing field activated.
	“Setpoint” menu access key to set the set point temperature. The setpoint temperature set can be viewed on the key.
	“Setpoint” menu access key to set the humidity setpoint. The setpoint of the humidity set can be viewed on the key.
	“Setpoint” menu access key to set the air quality setpoint. The set air quality setpoint can be viewed on the key.

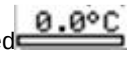
Table 7 - “Main” menu icons

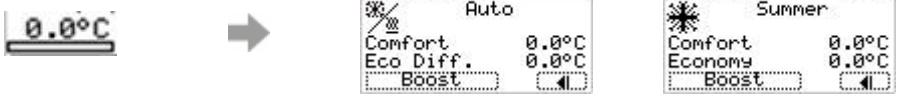
Access to the “Action” page as described below is given  when the key is pressed.

NOTE: If the AHU is in stand-by status, the key allows you to:

- turn the AHU to the OFF status using the Off key
- turn the AHU to the ON status using the Override key.



The “Setpoint” menu referring to the temperature setpoint as described below, is accessed  when the key is pressed.



“Setpoint” menu

The “Setpoint” menu referring to the humidity setpoint as described below is accessed 

when the key is pressed.

“Setpoint” menu

The “Setpoint” menu referring to the air quality setpoint as described below is accessed 

when the key is pressed.

“Setpoint” menu

NOTE: Some pages above to the right show the progressive page number of the current page compared to the total number of pages (example: 1/2). In order to change the current page viewed, press the LEFT key or the RIGHT key.

Keep the UP key pressed for at least 2 seconds in order to access the “Events” menu.

“Events” menu

Keep the RIGHT key pressed for at least 2 seconds in order to access the “User Settings Menu”.
NOTE: For further information on the User Settings Menu, see **4 User Settings Menu on pag. 55**.

“User Settings Menu”

Keep the LEFT key pressed for at least 2 seconds in order to access the “Start Splash” menu.

“Start splash” menu

2.2.1. Keypad lock

If no key is pressed for more than an hour, the keypad automatically locks.

If the keypad is locked, the displays shows the message 

.

In order to remove the keypad lock, keep the UP key pressed; in this case, the keypad lock automatically re-activates after 5 minutes of being inactive.

In order to disable the keypad lock, keep the LEFT key pressed; in this case, the keypad lock automatically re-activates after 60 minutes of being inactive.

2.3. Foreseen use

The controller is destined to control the AHU for the regulation of environmental conditions.

2.3.1. AHU main components

The AHU **(Fig 2 - on pag. 16)** consists of the components given in the following table.

NOTE: The number, type and conformation of the components illustrated in **Fig 2 - on pag. 16** and shown in the following table, are purely indicative.

1	External suction damper
2	Expulsion damper
3	Return filter
4	Supply filter
/	Fan dampers
5	Recirculation dampers
6	Heat Recovery unit
7	Recovery unit damper
8	Pre-heating actuator
9	Heating actuator
10	Cooling actuator
11	Post-heating actuator
12	Humidifier
13	Supply fans, powered by the supply engine
14	Return fans, powered by the return engine
15	Return probe
16	Supply probe
17	External Probe
18	Expulsion probe
/	Antifreeze probe, relating to the heating and cooling actuator
/	CO_2 probe
/	VOC probe
/	Pre-heating probe
/	Saturation probe
/	0-10 V pressure probe

Table 8 - Main components of the AHU

NOTE: In **Fig 2 - on pag. 16** the recovery unit illustrated has cross flow with the bypass damper.

NOTE: The temperature probes are NTC type.

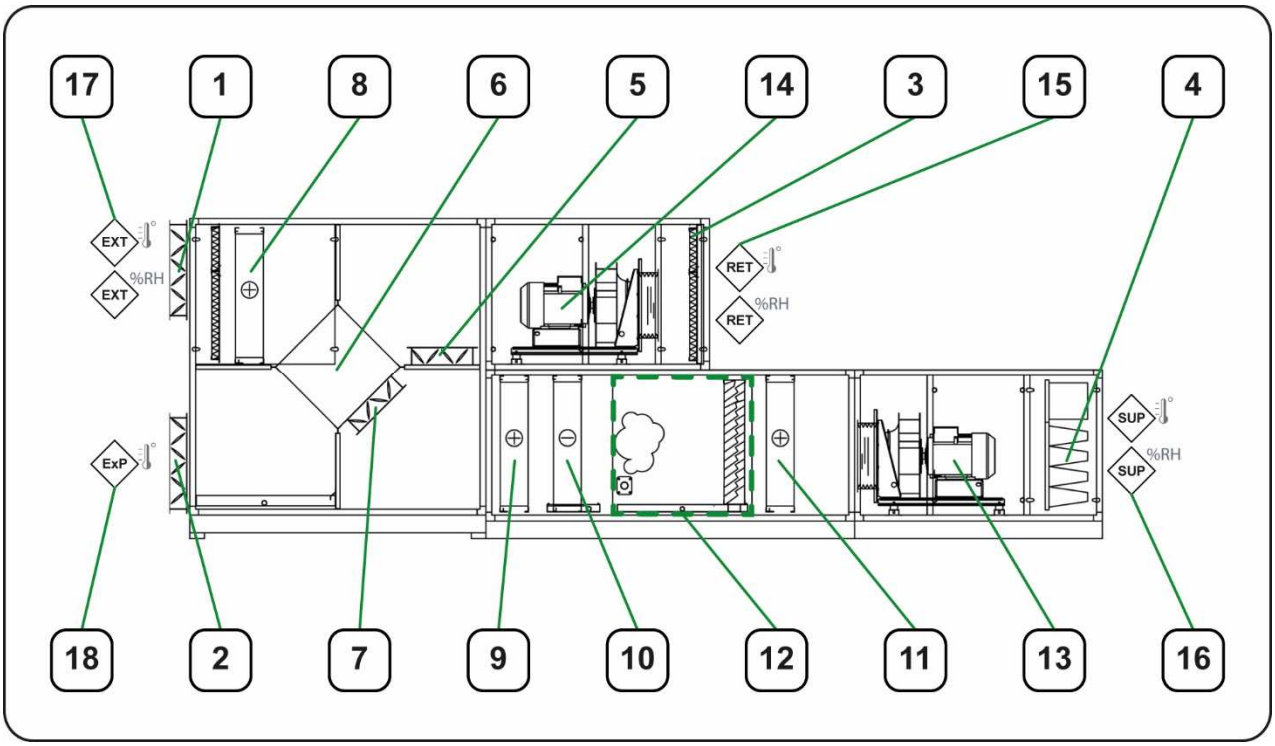


Fig 2 - Main components of the AHU

2.3.1.1 AHU Conventions

In the continuation of this Manual, the conventions shown in the following table are adopted.

Main heating/cooling actuators	- Heating actuator - cooling actuator
External dampers	- Expulsion damper - external suction damper
Air quality probes	- CO_2 probe - VOC probe
Backup fans	- Backup supply fan - backup return fan
Supply fans	- Main supply fan - backup supply fan
Main fans	- Main supply fan - main return fan
Return fans	- Main return fan - backup return fan
Modbus fans	- EBM fan - ATV fan - Ziehl fan

Table 9 – Conventions

2.3.1.2 AHU hardware configuration

The hardware configurations of the AHU are described in the following table.

Component	Feature	Hardware configuration
Fans	Number of fans	Supply fan; supply fan + return fan.
	Fan type	ON/OFF; modulating; ON/OFF with backup; modulating with backup; ATV; ATV with backup; EBM; EBM with backup; Ziehl; Ziehl with backup.
	Regulation of fans	To constant speed; quality air; constant pressure; constant flow.
	Fan alarm (non Modbus)	Heat; heat + ON/OFF flow switch.
	Fan alarm (Modbus)	None; ON/OFF flow switch.
Actuators	Pre-heating type (1)	None; modulating valve; modulating valve + pump; ON/OFF step electric heater; electric heater 0-10 V + step; PWM electric heater + step.
	Heating/Cooling configuration	None; cooling actuator; heating actuator; cooling + heating actuator; multi-purpose actuator.
	Cooling actuator (2)	Modulating valve; modulating valve + pump; condensing unit up to 4 steps or 4 parallel units.
	Heating actuator (2)	Modulating valve; modulating valve + pump; condensing unit up to 4 steps or 4 parallel units; ON/OFF step electric heating element; electric heating element 0-10 V + step; PWM electric heating element + step.
	Multi-purpose actuator (3)	Modulating; modulating + pump; condensing unit up to 4 steps or 4 parallel units.
	Post-heating type (1) – (4)	None; modulating valve; modulating valve + pump; ON/OFF step electric heater; electric heater 0-10 V + step; PWM electric heater + step.
	Antifreeze probe type	None; ON/OFF; NTC.
Recovery unit	Recovery unit (5)	None; ON/OFF overlapping flows with by-pass damper; rotary wheel ON/OFF; actuator ON/OFF; overlapping flows proportional with by-pass damper; rotary wheel proportional; actuator proportional.
	Defrost recovery unit type	None; supply far; resistance.
Humidifier	Humidifier activation	None; ON/OFF; proportional.
Dehumidification	Dehumidification type	None; standard; dew point; standard + winter; dew point + winter.
Dampers	External dampers type	None; ON/OFF; ON/OFF + 0-10 V mix
	Fan dampers type	None; supply fan; return ventilators; supply fan + return fan.
Air quality probes	Air quality probe type	None; CO_2; VOC; CO_2 + VOC.
Mixing chamber between external dampers and pre-heating actuator	Activation of mixing chamber (6)	None; active.

Table 10 - Hardware configuration of the AHU

NOTE (1): The pre-heating and post-heating actuator in modulating valve configuration are managed by an analogical output 0-10 V for the request modulation.

NOTE (2): The cooling and heating actuator in modulating valve configuration are managed by an analogical output 0-10 V for the request modulation.

NOTE (3): The multi-purpose actuator is an actuator able to cool or heat based on the current unit mode.

NOTE (4): The post-heating actuator is principally used:

- in heating, to dehumidify the air
- in cooling, as an integration to the actuator for heating the air if the action of the heating actuator is insufficient.

NOTE (5): The functioning logic of the different types of recovery unit is the same, but in the case of the overlapping flow recovery unit with by-pass damper, the polarity is inverted compared to the polarity of the other two kinds of recovery unit.

NOTE (6): The mixing chamber activation allows you to close the external dampers when the pre-heating actuator is turned on.

2.4. Reasonably foreseen incorrect use

Any use of the system that differs from what is indicated in **2.3 Foreseen use on pag. 15** and according to the indications given in this Manual should be considered IMPROPER USE and the Manufacturer declines all responsibility in relation to any damage caused to people or things and will render the product warrant null and void.

For additional Safety Information, see what is reported in **10. Safety Information**.

2.5. I/O Map and components

The controller software defines the I/O requested in function of the components and the hardware configuration of the AHU. The I/O Map and components is described in the following tables, respectively for:

- dampers
- actuators
- engines
- probes and other signals.

NOTE: For the I/O consult the documentation attached.

NOTE: For the hardware configuration see **2.2.1.2 Hardware configuration of the AHU on pag. 17**.

In any case, all the I/O can be manually allocated by the controller (see **4.8.2 O-I/O on pag. 96**).

NOTE: It is possible not to allocate an input or output even if the hardware configuration foresees its allocation.

The I/O requested depending on the hardware configuration relating to the dampers is shown in the following table.

NOTE: In the column to the far right an “X” indicates that the component is always present.

Component	Hardware configuration	DI	AI (NTC)	AI (UNIV)	DO	AO	Always present
External dampers	ON/OFF	—	—	—	1	—	—
	Modulating + Recirculation	—	—	—	—	1	—
By-pass damper	Recovery unit: cross flow with the bypass damper	—	—	—	1	1	—
Fan dampers	Fan supply dampers; Fan return dampers Fan supply and return dampers	—	—	—	1…4	—	—

Table 11 - Map I/O and components - dampers

The I/O requested depending on the hardware configuration relating to the actuators is shown in the following table.

NOTE: In the column to the far right an “X” indicates that the component is always present.

Component	Hardware configuration	DI	AI (NTC)	AI (UNIV)	DO	AO	Always present
Recovery unit	Recovery unit type: rotary wheel	1	—	—	1	1	—
Pre-heating actuator	Pre-heating actuator type: ON/OFF step electric heater	1	—	—	1	—	—
	Pre-heating actuator type: ON/OFF step electric heater + modulating	1	—	—	1	1	—
	Pre-heating actuator type: modulating valve	—	—	—	1	1	—
	Pre-heating actuator type: modulating valve + pump	—	—	—	—	1	—
Cooling actuator	Cooling actuator type: up to 4 steps condensing unit or 4 parallel units	1…4	—	—	1…4	1…4	—
	Cooling actuator type: modulating valve	—	—	—	—	1	—
	Cooling actuator type: modulating valve + pump	—	—	—	1	1	—
Heating actuator	Heating actuator type: up to 4 steps condensing unit or 4 parallel units	1…4	—	—	1…4	1…4	—
	Heating actuator type: ON/OFF step electric heater	1	—	—	1…3	—	—
	Heating actuator type: ON/OFF step + modulating electric heater	1	—	—	1…3	1	—
	Heating actuator type: modulating valve	—	—	—	—	1	—
	Heating actuator type: modulating valve + pump	—	—	—	1	1	—
Multi-purpose actuator	Multi-purpose actuator type: up to 4 steps condensing unit or 4 parallel units	1…4	—	—	1…4	1…4	—
	Heating actuator type: modulating valve	—	—	—	—	1	—
	Multi-purpose actuator type: modulating valve + pump	—	—	—	1	1	—
Post-heating actuator	Post-heating actuator type: modulating valve	—	—	—	—	1	—
	Post-heating actuator type: modulating valve + pump	—	—	—	1	1	—
	Post-heating actuator type: ON/OFF step electric heater	1	—	—	1…3	1	—
Humidifier	Humidifier activation: ON/OFF	1	—	—	1	—	—
	Humidifier activation: proportional	1	—	—	1	1	—

Table 12 - Map I/O and components - actuators

The I/O requested depending on the hardware configuration related to ventilation is shown in the following table.

NOTE: In the column to the far right an “X” indicates that the component is always present.

Component (if fans are not Modbus)	**Hardware configuration**	**DI**	**AI (NTC)**	**AI (UNIV)**	**DO**	**AO**	**Always present**
Supply fan	Fan alarm: Thermal Switch	1 or 2 (if backup supply fan active)	—	—	—	—	—
	Fan alarm: Thermal Switch + Flowswitch	2 or 4 (if backup supply fan active)					
	Fan number: supply fan	—	—	—	1 or 2 (if backup supply fan active)	—	—
	Fan type: modulating	—	—	—	—	1	—
Return fan	Fan alarm: Thermal Switch	1 or 2 (if backup return fan active)	—	—	—	—	—
	Fan alarm: Thermal Switch + Flowswitch	2 or 4 (if backup supply fan active)					
	Number of fans; supply fan + return fan	—	—	—	1 or 2 (if backup return fan active)	—	—
	Fan type: modulating	—	—	—	—	1	—

Table 13 - Map I/O and components - fans

The I/O requested depending on the hardware configuration relating to probes and other signals is shown in the following table.
NOTE: In the column to the far right an “X” indicates that the component is always present.

Component	Hardware configuration	DI	AI (NTC)	AI (UNIV)	DO	AO	Always present
Temperature Return probe		—	1	—	—	—	X
Humidity Return probe	Humidifier or Dehumidification enabled	—	—	1	—	—	—
Temperature Supply probe		—	1	—	—	—	X
Humidifty Supply probe	Humidifier enabled	—	—	1	—	—	—
External Probe	—	—	1	—	—	—	X
Expulsion probe	Recovery unit type: cross flow with bypass damper; rotary wheel	—	1	—	—	—	—
Pre-heating probe	Pre-heating actuator type: active (if none, it works as primary heating)	—	1	—	—	—	—
Saturation probe	Dehumidification type: dew point	—	1	—	—	—	—
Air quality probe: CO_2 probe (1)	Fan regulation: air quality or Air quality with CO_2 or CO_2+VOC	—	—	1	—	—	—
Air quality probe: VOC probe (1)	Fan regulation: air quality or Air quality with VOC or CO_2+VOC	—	—	1	—	—	—
0-10 V pressure probe (2)	Fan regulation: constant flow; constant pressure	—	—	1	—	—	—
Antifreeze probe for modulating valve	Antifreeze probe type: ON/OFF	1	—	—	—	—	—
Antifreeze probe for modulating valve	Antifreeze probe type: NTC	—	1	—	—	—	—
Filter pressure switch	—	From 0 to 4	—	—	—	—	—
Fan alarm: flow switch ON/OFF	Flow Switch Alarm Enabled	Number of fans: 1…4	—	—	—	—	—

Component	Hardware configuration	DI	AI (NTC)	AI (UNIV)	DO	AO	Always present
Remote input ON / OFF	—	1	—	—	—	—	X
Fire alarm input	—	1	—	—	—	—	X
Door dip switch input	Door Enabled	1	—	—	—	—	
Summer/winter mode change input	Mode Input Enabled	1	—	—	—	—	
Output for AHU ON/OFF status	—	—	—	—	1	—	X
Output for summer/winter mode	Mode Output Enabled	—	—	—	1	—	
General alarm output (exchange contact)	—	—	—	—	1	—	X

Table 14 - Map I/O and components - probes and other signals

NOTE: (1) There needs to be at least one of the following - CO_2 probe or VOC probe.

NOTE: (2) There can be one or two probes.

3. FUNCTIONS

The list of the functions relating to the AHU managed by the controller are given in the following table.

Functions	Reference in this Manual
ON/OFF	**3.1 ON/OFF on pag. 25**
Mode Change	**3.3 Working modes on on pag. 29**
Setpoint	**3.2 Setpoint on pag. 28**
Time periods and events	**3.4 Time periods and events on pag. 31**
Temperature regulation	**3.5Temperature regulationon on pag. 32**
Humidity regulation	**3.6 Humidity regulationon on pag. 34**
Free-cooling and free-heating	**3.7 Free-cooling and free-heating on pag. 36**
Heat recovery	**3.8 Heat recoveryon on pag. 37**
External dampers and recirculation dampers	**3.9 External dampers and recirculation dampers on pag. 41**
Cooling actuators	**3.10 Cooling actuatorson on pag. 42**
Heating actuators	**3.11 Heating actuatorson on pag. 44**
Pumps	**3.12 Pumps on pag. 48**
Fans	**3.13 Fanson on pag. 49**
Air quality: CO_2 probe and VOC probe	**3.14 Air quality: CO2 probe and VOC probe on pag. 53**
Constant flow	**3.15 Constant flow regulationon on pag. 54**
Constant pressure	**3.16 Constant pressure regulationon on pag. 54**
Test output	**3.17 Test outputon on pag. 54**

Table 15 - Functions relating to the AHU

NOTE: For further information on the parameters given at a later date in the chapter see **2.2 Menu Display on pag. 10** and **4 User Settings Menu on pag. 55**.

CONVENTIONS FOR FUNCTION GRAPHICS

At a later date in this Manual, for the illustrative graphs of certain functions, the conventions given in the following table are adopted.

Actuator Request	Actuator request (regulated)
Cooler	Cold actuator
Cooling	Cooling
Heater	Heating actuator
Heating	Heating
Hysteresis	Hysteresis
Main probe	Main probe, relating to the main temperature regulator
PI request	PI regulator request (that regulates the actuator)
PI Input	PI regulator input
PI Output	PI regulator Output
Post-Heater	Post-heating actuator
Recovery	Recovery unit
Return	Return probe
Summer mode	
Supply	Supply probe
Text	External temperature
Tret	Return temperature
Winter mode	Winter mode
Electric heater	Electrical heater
Damper	External damper

Table 16 - Conventions for function graphics

3.1. ON/OFF

3.1.1. Switch on

The AHU can be switched on in one of the following ways:

- Standard startup
- Startup with boost function, where the dampers are initially kept closed and heat actuators forced to maximum power in order to reduce the time needed to reach the setpoint.

Standard startup is described more in details in chapter 3.1.1.1

Startup with boost function is described more in details in chapter 3.1.1.2

Switch on can be managed via BMS through Modbus or Bacnet protocol (default status is ON).

The AHU is ON if the ON status is ON **simultaneously** confirmed:

- on digital input
- on controller display
- on BMS

3.1.1.1 Standard Startup

During the standard startup (**Fig 3 - on pag. 26**), the controller performs the following operations:

1. checks the absence of alarms
2. brings the external dampers to minimum opening
3. turns on the supply and return fan
4. activates the actuator regulations.

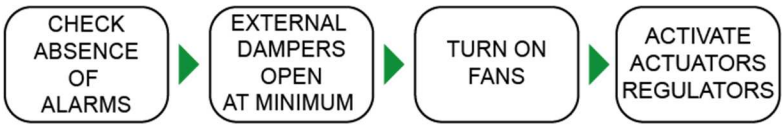


Fig 3 - Passage to ON status without making operative

3.1.1.2 Startup with boost function

During the startup with boost function (**Fig 4 - on pag. 26**), the controller performs the following operations:

1. checks the absence of alarms
2. turns on the supply and return fan
3. activates the heating actuators at maximum power.
4. on reaching the setpoint or time-out, the external dampers go to minimum opening.
5. activates the actuator regulations

Fig 4 - Passage to ON status with making operative process

In the case of:

- free-cooling,
- free-heating

the boost function is disabled.

During the startup with boost phase the Temperature supply limit regulator is enabled regardless the related enabled parameter.

3.1.2. Switch off

Switching off (**Fig 5 - on pag. 27**) consists of the passage of the AHU to OFF status with the controller who performs the following operations in order:

1. disables the regulations of the actuators
2. if necessary, starts the post-ventilation (if the electrical heating elements or the condensing units were on)
3. turns off the supply fan and return fan
4. closes the external dampers.

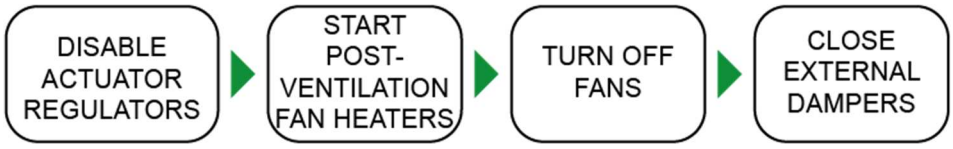


Fig 5 - Switching off

NOTE: **The digital input OFF status has maximum priority**.

The OFF/ON status of the BMS serial port has greater priority compared to the OFF/ON status:

- **of controller**;
- **via time periods and events (see 3.4 Time periods and events on pag. 31)**.

The AHU is OFF if the OFF status is confirmed in **at least one** of the following cases:

- on digital input
- on controller
- on BMS serial port
- on time bands.

3.2. Setpoint

It is possible to define three setpoints, one for each of the three functioning modes:

- summer setpoint
- winter setpoint
- auto setpoint

NOTE: The three setpoints correspond to three functioning modes described in **3.3 Functioning modes on pag. 29**.

Each setpoint can be combined, both in temperature and in humidity, with one of the following profiles:

- comfort,
- economy,
- night.

The night profile is characterised by:

- the same setpoint as the economy profile
- fan speed reduced to a minimum.

The characteristics of the economy and comfort profiles depending on the setpoints are described in the table below.

Setpoint	Characteristic of the economy and comfort profiles
Summer	setpoint with economy profile (SP_T_CoolEco_E2 parameter) > setpoint with comfort profile (SP_T_Cool_E2 profile)
Winter	setpoint with economy profile (SP_T_HeatEco_E2 parameter) < setpoint with comfort profile (SP_T_Heat_E2 profile)
Auto	setpoint with economy profile = setpoint with comfort profile ± offset (DIFF_T_AutoEco parameter)

Table 17 - Specifications of the economy and comfort profiles depending on the setpoints

NOTE: The DIFF_T_AutoEco parameter is defined even as a neutral zone.

NOTE: The SP_T_Auto_E2 parameter is the parameter auto setpoint, the T_RegulationProbe parameter is the current setpoint due to economy/comfort, Bacnet, auto/summer/winter.

3.3. Working modes

The controller approves three functioning modes for the AHU:

- winter
- summer
- auto.

NOTE: In certain hardware configurations, the AHU (see **3.3.1 Hardware configuration of the AHU to achieve mode change on pag. 29**), the summer/winter change mode is approved, that is, the move form summer mode to winter mode or vice versa. To see how to carry out this change of mode, see **3.3.2 Procedure for changing mode pag. 29**.

In winter mode, the hot actuators are activated to heat the air and if necessary the recovery unit to limit an excessive rise in temperature.

In summer mode, the cooling actuators are activated to cool the air and if necessary the recovery unit to limit an excessive reduction in temperature.

NOTE: In summer mode, it is not possible to turn on the electrical heating elements.

In auto mode (see **3.3.3 Functioning of the auto mode on pag. 30**) there is an automatic move of the AHU from cooling to heating (and vice versa) depending on the temperature of the regulation and temperature setpoint; it is, therefore, possible to activate both the hot and cooling actuators.

3.3.1. Hardware configuration of the AHU to change mode

The summer/winter change mode is not allowed if there is not recovery unit and with AHU configured with components that produce only heat or only cold. If there is just the recovery unit, it is still possible to achieve the cooling and heating.

NOTE: The summer/winter mode change is forced in auto mode in the case of AHU configuration where:

- only the fans are on, or
- only the recover unit is on.

The move from summer mode to winter mode (heating):

- is disabled if there is a request for dehumidification as the dehumidification impedes heating:
- it is possible if there is a request for cooling of the temperature regulator has been completed.

The move from winter mode to summer mode (cooling) is possible if the request for heating of the temperature regulator has been completed.

3.3.2. Procedure for changing mode

The summer/winter mode change can take place by:

- digital input
- keypad, with summer/winter mode change set automatically by default
- BMS serial port.

NOTE: If activated, the digital input summer /winter mode change has priority over the keypad selection; in this case, auto mode is not approved.

3.3.3. Auto mode functioning

In auto mode, the change from cooling to heating (and vice versa) depends on:

- the heating/cooling request from the main temperature regulator
- external temperature:
  - in the case of an external temperature that is lower than the SP_T_FORCEWINTER parameter, there is heating straining **(1 - Fig 6 -on pag. 30)**;
  - in the case of an external temperature that is higher than the SP_T_FORCESUMMER parameter, there is cooling straining **(2 - Fig 6 -on pag. 30)**;
  - in the case of an external temperature between the two previous parameters, depending on the kind of temperature regulation **3.5 Temperature regulation on pag. 32**) the move from cooling to heating (and vice versa) is handled via a return probe or a supply probe **(3 - Fig 6 -on pag. 30)**.

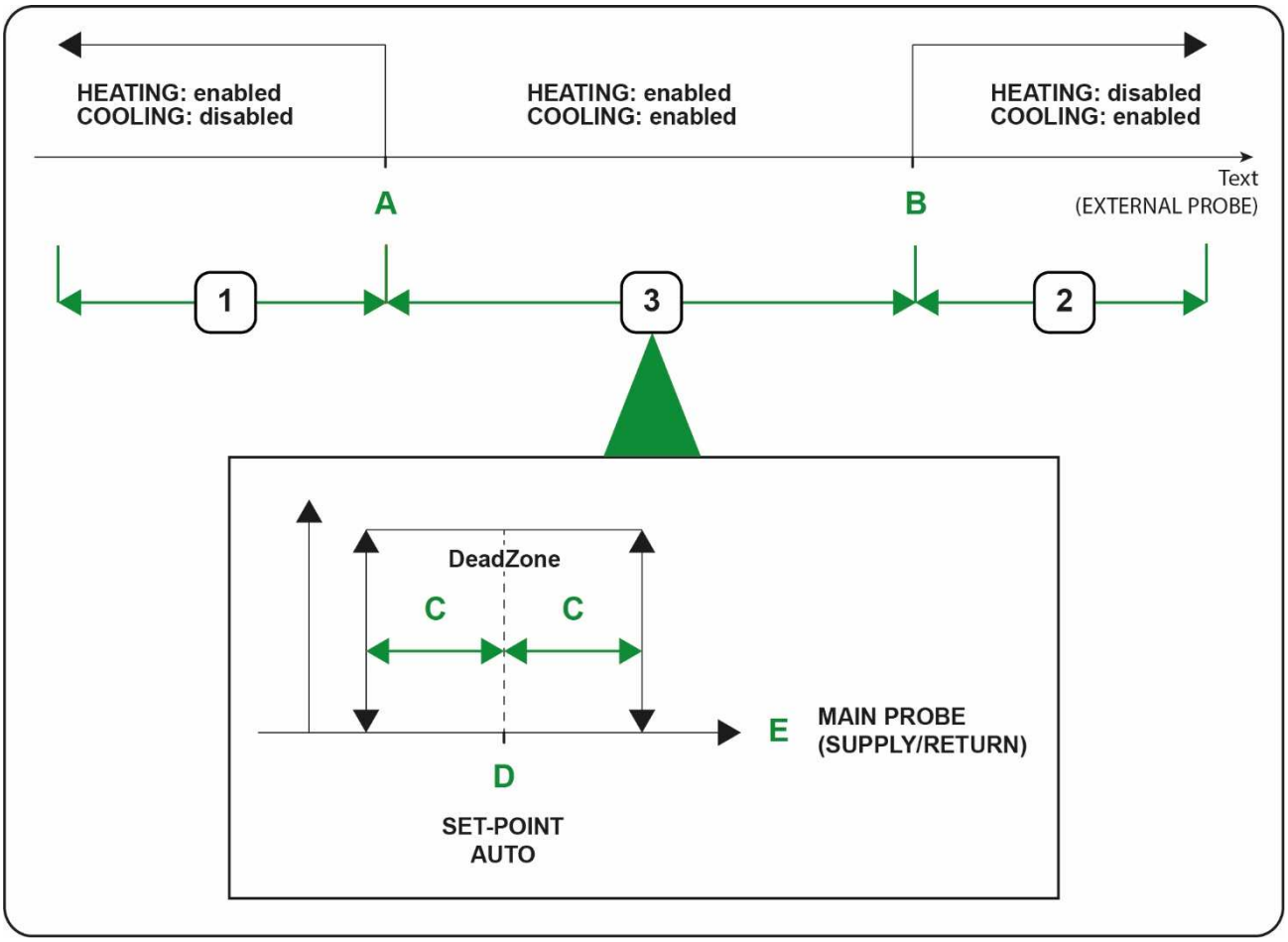


Fig 6 - - Auto mode functioning

In **Fig 6 -on pag. 30** the reference parameters are shown using tags (capital letters), the reference parameters for the auto mode functioning. See the following table for the correspondence between tags and parameters.

Tag	Parameters
A	SP_T_FORCEWINTER
B	SP_T_FORCESUMMER
C	DIFF_T_AutoChangeMode
D	SP_T_Auto_E2 (parameter setpoint) T_CurrentSetpointByPar (current setpoint)
E	T_RegulationProbe

Table 18 - Auto mode functioning

3.4. Time periods and events

The AHU can assume the ON status (active regulators) or OFF status (disabled regulators) depending on the time periods or events. The need for an event takes priority over the time periods.

NOTE: It is possible to force the stand-by status from the keypad.

NOTE: The time period function and events support the clock changing.

3.4.1. Time bands

For each day of the week it is possible to choose between four programmes:

- P1
- P2
- P3
- P4

irrespective of the mode set (summer, winter, auto).

In the P1 program and P2 program, it is possible to set four times, where one of the following status-profiles can be associated to each time:

- OFF
- ON with comfort profile
- ON with economy profile
- ON with night profile.

If the P3 program is active, the AHU is in the ON status all day in comfort profile.

If the P4 program is active, the AHU is in the OFF status all day.

3.4.2. Events

It is possible to active up to 15 Event. Each event is characterised by:

- a start day
- an end day
- an associated profile-status.

3.5. Temperature regulation

NOTE: For the setpoints see **3.2 Setpoint on pag. 28**.

When regulating the temperature, the recovery unit and various hot actuators and cooling actuators are turned on in sequence.

There are three kinds of temperature regulation:

- supply temperature regulation, with regulation on the supply probe
- return temperature regulation, with regulation on the return probe and limit supplied by the supply probe
- temperature regulation in cascade, with regulation on the supply probe compared to the return regulator.

In the three kinds of temperature regulation, the supply probe is always present.

NOTE: It is possible to configure the requested allocation to various regulators of the actuators.

The **Fig 7 - on pag. 32** describes the supply or in cascade temperature regulation case; in the case of return temperature, the recovery unit regulator is not present because the recovery unit is managed by a separate regulator.

The temperature regulator activates alternatively:

- cooling, where the request on the actuators is given in **(1 - Fig 7 - on pag. 32)**;
- heating, where the request on the actuators is given in **(2 - Fig 7 - on pag. 32)**.

NOTE: Depending on the hardware configuration of the AHU, in **Fig 7 - on pag. 32** the following regulators may not be present:

- recovery unit regulator
- regulator of the post-heating actuator.

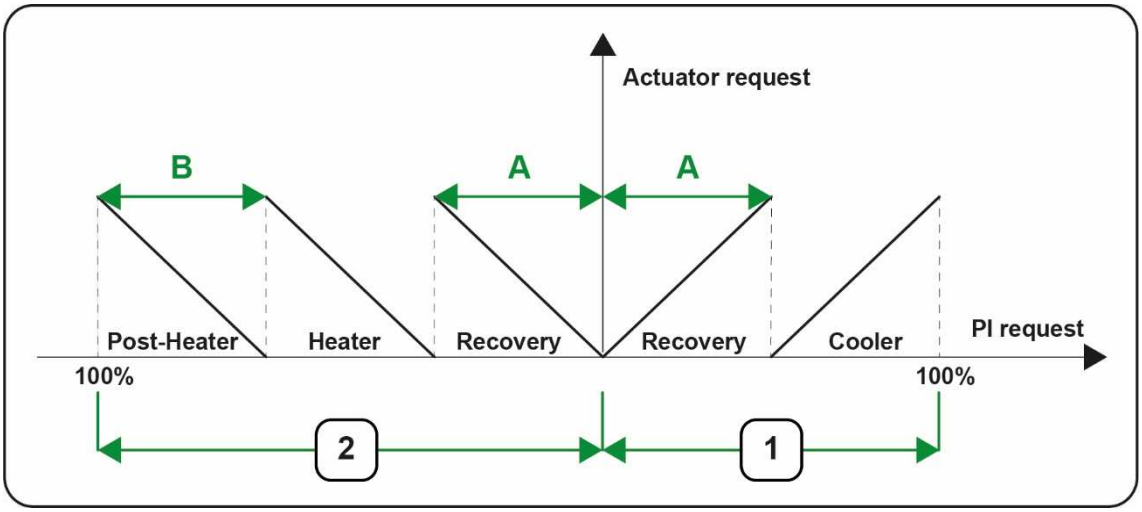


Fig 7 - Temperature regulation

In **Fig 7 - on pag. 32** the reference parameters are shown using tags (capital letters), the reference parameters for the temperature regulation. See the following table for the correspondence between tags and parameters.

Tag	Parameters
A	RecoveryPower
B	PostPower

Table 19 - Temperature regulation

3.5.1. Boost

The boost functioning allows you to make it operative from the keypad, similar to what is foreseen for turning on (see 3.1.1.2) at any time following the stand-by status.

3.5.2. Preheating regulator

If activated, the preheating regulator is a PI operating regulator **exclusively** in heating to keep the temperature at the preheating setpoint.

The preheating regulator is disabled during the making operative process when turning on **3.1.1.2 Move to ON status with the making operative process on pag. 26**) or the boost (see **3.5.1 Boost on pag. 33**).

3.5.3. Temperature supply limits

If activated, the temperature supply limits are limitations on the regulation of return temperature:

- in cooling, it is a limitation lower than the reduction of supply air temperature
- in cooling, it is a limitation greater than the increase in supply air temperature.

NOTE: In the case of regulation in cascade, the limitation is not necessary.

With the preheating regulator (see **3.5.2 Preheating regulator on pag. 33**), the upper limitation on the increase in temperature of the supply air while heating is done with the preheating probe (if present).

With a dehumidifying request (see **3.6.2 Dehumidifying regulation on pag. 34**), there is a limitation lower than the reduction in supply air temperature during cooling.

3.6. Humidity regulation

The air humidification is created via the humidifier, the dehumidification of the air is not done by a specific physical actuator but via the combined action of two actuators:

- cooling actuator
- post-heating actuator.

3.6.1. Humidification regulation

During the regulation of the supply air humidification, the variation in the supply air temperature itself, is negligible. Up until the humidity setpoint is reached, the controller:

- activates the production of steam
- modulates the amount of steam produced via 0-10 V signal.

The humidifier regulator is proportional or ON/OFF, with:

- return humidity probe fitted with hysterisis
- supply humidity probe used as limit probe.

3.6.2. Dehumidification regulation

3.6.2.1 Standard dehumidification

The PI regulation acts on the cooling actuator to obtain the required humidity setpoint. The regulation is carried out on the level of humidity acquired by the return humidity probe.

When a dehumidification request is made, as a result of a return air humidity that is too high, the cooling actuator is activated that equates to a return regulation in cooling.

During dehumidification, the post-heating actuator **compulsorily active**, compensates the cooling. The post-heating actuator regulates the supply air temperature with the main temperature setpoint.

NOTE: The cooling actuator is driven by the most binding of:

- the dehumidification request
- the cooling request.

The post-heating regulator is:

- activated in the case of a reduction in the regulation temperature (supply/return) to a level lower than the difference between the post-heating setpoint and post-heating offset
- disable in the case of reaching the post-heating setpoint.

NOTE: The post-heating actuator can operate:

- both as integration of the heating actuator action and as compensation for the reduction in temperature caused by the dehumidification (if present).

3.6.2.2 Dew point

The activation of the dehumidification regulator to the dew point is the ON/OFF type with differential that can be set via Dehum_Req_Diff parameter and is operated by the return humidity probe.

The regulator uses the saturation temperature probe positioned after the cooling actuator.

The controller calculates the dew point starting from the return temperature setpoint and the return humidity setpoint. The dew point represents the setpoint that the cooling actuator needs to maintain comparing it to the value acquired from the saturation temperature probe.

3.6.2.3 Dehumidification with external air (or winter)

This is a dehumidification active in cooling.

NOTE: In winter more, the hot actuators are enabled.

In order to start the dehumidification with external air, it is essential to:

- activate the Manufacture dehumidification and service
- activate the external humidity probe
- activate the external temperature probe
- activate the external dampers in ON/OFF configuration + 0-10V mix.

NOTE: The dehumidification with external air is only active if enabled by the Manufacturer via cfgDeHumidifier parameter. Once enabled by the Manufacturer, this dehumidification can be managed by the service via the Dehum_WinterEn enabling parameter.

The regulation is ON/OFF with differential that can be set. If the regulator requests dehumidification, if the sum of the external specific humidity and the differential is lower than the internal specific humidity:

- the external dampers are fully opened
- if necessary, the post-heating actuator is enabled.

3.7. Free-cooling and free-heating

The free-cooling is:

- disabled in the case of an external temperature that is excessively reduced
- active in the case where the following conditions are **simultaneously** met:
  - Treg - Text ≥ FreeCHDiff
  - Treg > T_CurrentSetpointByPar
  - Text > FreeCHMinExtTemp.

NOTE: Treg indicates the temperature of the regulation probe, Text indicates the external temperature.

NOTE: The default level:

- of the FreeCHDiff parameter equates to 5 °C
- of the FreeCHMinExtTemp parameter equates to 12 °C.

NOTE: The T_CurrentSetpointByPar parameter is the current setpoint of free-cooling relative to the regulation of temperature or, in the case of temperature regulation in cascade, the setpoint of the supply regulator.

The free-heating is:

- disabled in the case of an external temperature that is excessively high
- active in the case where the following conditions are **simultaneously** met:
  - Text - Treg ≥ FreeCHDiff
  - Treg < T_CurrentSetpointByPar.

NOTE: The T_CurrentSetpointByPar parameter is the current setpoint of free-heating relative to the regulation of temperature or, in the case of temperature regulation in cascade, the setpoint of the supply regulator.

In the case of the activation of the free-cooling or free-heating, the actuators are stopped for a maximum set time to allow the AHU to meet the setpoint (of free-cooling or free-heating) requested without energy consumption. If this setpoint is not reached within this maximum time, the actuators are reset.

The functioning of the external dampers according to the value of cfgFreeHeating parameter and the cfgFreeCooling parameter is described in the table below.

Value of the parameter	External damper regulator	External dampers
cfgFreeHeating = 1	P regulator	The external dampers are opened in proportion to the difference between the relative setpoint and regulation temperature
cfgFreeCooling = 1	P regulator	The external dampers are opened in proportion to the difference between the regulation temperature and external temperature
cfgFreeHeating = 2	Recovery unit regulator	The external dampers are controlled in parallel with the recovery unit
cfgFreeCooling = 2	Recovery unit regulator	The external dampers are controlled in parallel with the recovery unit

Table 20 - Functioning of the external dampers according to the cfgFreeHeating and cfgFreeCooling parameters

In the case of overlapping flow recovery units with by-pass dampers, the relative damper allows for external air to be taken and send directly into the atmosphere, if conditions are favourable (free-cooling or free-heating).

3.8. Heat recovery

If active, the recover unit can be convenient from an energetic heat recovery point of view. The heat recovery is a heat exchanger, activated by the recovery unit, between the supply air and expulsion air:

- in order to pre-heat the supply air, if the external temperature is excessively reduced
- in order to pre-cool the supply air, if the external temperature is excessively high.

The sending and stopping conditions of the heat recovery are described in the following table.

Regulation	Heating/Cooling	Start up condition of the heat recovery	Stop condition of the heat recovery
Return/Cascade	Heating	Text ≤ Trip	Text > Trip + RecoveryDiff_Band
Return/Cascade	Cooling	Text ≥ Trip	Text + RecoveryDiff_Band < Trip
Supply	Heating	Text ≤ setpoint and If Trip allocated: Text ≤ Trip	Text > setpoint + RecoveryDiff_Band and If Trip allocated: Text > Trip + RecoveryDiff_Band
Supply	Cooling	Text ≥ setpoint and If Trip allocated: Text ≥ Trip	Text + RecoveryDiff_Band < setpoint and If Trip allocated: Text + RecoveryDiff_Band < Trip

Table 21 - Stop and start conditions of the heat recovery

NOTE: The default level of the RecoveryDiff_Band parameter equates to 1.5 °C.

DEFROST (OR DE-ICER) RECOVERY UNIT

The defrosting (or de-icing) of the recovery unit is a function that foresees the formation of ice on the recovery unit, that can occur following the heat exchange between the air flows.

In order to de-frost the recovery unit, it is possible, alternatively:

- to reduce the supply fan with inverter speed
- activate the pre-heating actuator and close off the modulating external damper, if the following conditions are **simultaneously** met:
  - the pre-heating actuator is active
  - the cfgMixChamberBeforePreHeat parameter is enabled.

NOTE: The recovery unit defrosting via reduction in speed of the supply fan takes place 240 seconds after turning on the supply fan.

Depending on the kind of recovery unit, when defrosting, the recovery unit functions as described in the table below.

Recovery unit type	Function of the recovery unit during the recovery unit defrosting
Cross flow with bypass damper	The recovery unit by-pass damper remains closed
Heat Exchanger	The recovery pump continues to function
Rotary wheel	The recovery unit wheel continues to function

Table 22 - Function of the recovery unit during the recovery unit defrosting

3.8.1. Heat Recovery with return temperature regulation

The recovery unit operates separately from the request of the temperature regulator and the supply probe is used as a limit probe.

NOTE: The graphs shown in **Fig 8 - on pag. 39** refer to the rotary wheel recovery unit. In the case overlapping flow recovery unit with the by-pass damper, the relative graphs are symmetrical.

NOTE: In **Fig 8 - on pag. 39**, the following disparities represent the extent of hysterisis relating to the recovery unit with return control in the case of heating:

- Text less than or equal to Tret
- Text greater than Tret + RecoveryDiff_Band.

NOTE: In **Fig 8 - on pag. 39**, the following disparities represent the extent of hysterisis relating to the recovery unit with return control in the case of cooling:

- Text greater than or equal to Tret
- Text + RecoveryDiff_Band less than Tret.

In **Fig 8 - on pag. 39** the reference parameters are shown using tags (capital letters), the reference parameters for the recover of heat with return control. See the following table for the correspondence between tags and parameters.

Tag	Parameters
A	RecoveryDiff_Band
B	T_CurrentSetpointByPar + RecoveryDeadZone
C	T_CurrentSetpointByPar - RecoveryDeadZone

Table 23 - Recovery of heat with return regulation

With reference to **Fig 8 - on pag. 39**, for example, the function of the recovery regulation with cooling and Text + RecoveryDiff_Band < Tret is described in the following table.

Recovery temperature level (Tret)	Cooling mode
Very high	The recovery unit is disabled and the air in the AHU is cooled by taking air from outside, as it is at a low temperature
Lower than the cooling setpoint	The recovery unit is activated and air is not taken from outside because the temperature is too low

Table 24 - Functioning of the recovery regulation with cooling and Text + RecoveryDiff_Band < Tret

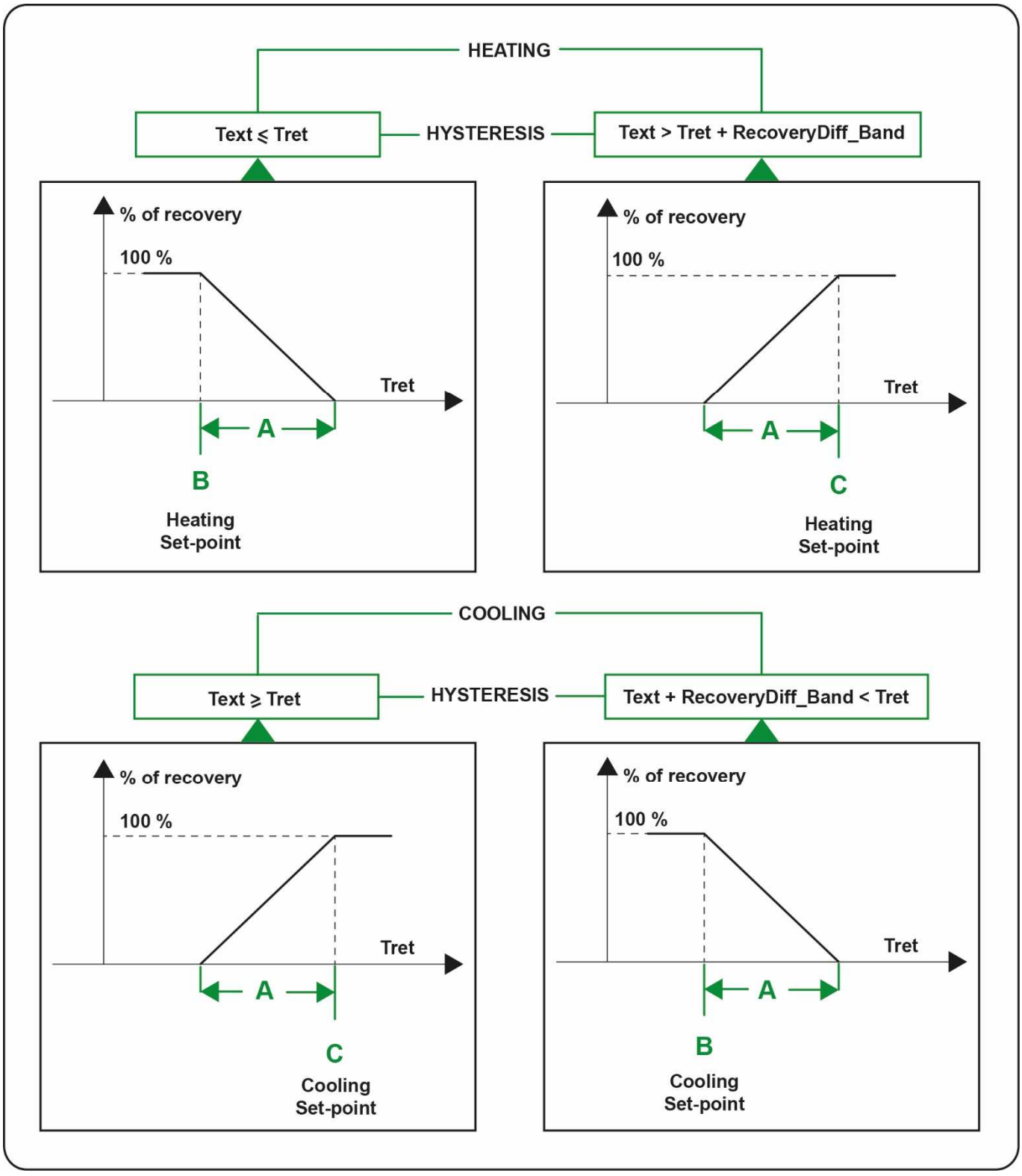


Fig 8 - Recovery of heat with return regulation

3.8.2. Heat recovery with supply or cascade temperature regulation

The heat recovery unit is activated by the temperature regulator as show in **Fig 7 - on pag. 32**. In this kind of regulation, the recovery unit regulator is always the first regulator to intervene; at a later date, the heating/cooling actuators are also activated.

NOTE: In the event that the start up condition of the heat recovery are unsatisfactory, the request for heating/cooling of the regulator is met only by the heating/cooling actuators. In reference to **Fig 9 - on pag. 40**, the recovery unit regulator is managed via an analogical output.

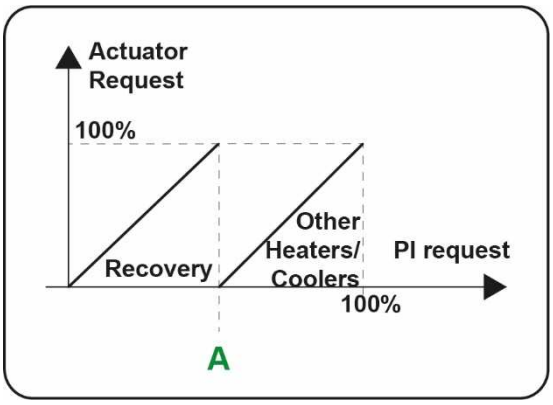


Fig 9 - Recovery of heat with supply regulation or in cascade

In supply In **Fig 9 - on pag. 40** the reference parameters are shown using tags (capital letters), the reference parameters for the recover of heat with supply regulation or in cascade. See the following table for the correspondence between tags and parameters.

Tag	Parameters
A	RecoveryPower

Table 25 - Recovery of heat with supply regulation or in cascade

3.9. External dampers and recirculation dampers

NOTE: When functioning normally, the external dampers have a minimum opening to guarantee a change of air in the AHU.

The external dampers are piloted by the same output as the controller. They are completely closed if one of the following conditions arises:

- AHU in OFF status;
- the making operative process in course (to minimise the time it takes to reach the setpoint)
- antifreeze alarm active (to heat via anti-freeze activation, if there is a pre-heating actuator)
- recovery unit defrost active (see **3.8 Heat recovery on pag. 37**).

Analogical output relating to the dampers	External dampers	Recirculation dampers
0%	Closed	Open
100%	Open	Closed

Table 26 - Functioning logic of the external dampers and recirculation dampers

The relations between the AHU condition and opening of the external dampers is described in the following table.

AHU conditions	Opening of the external dampers
Normal	Minimum opening (default equal to 30%)
Free-cooling/free-heating procedure	Proportional opening of the external dampers (cfgFreeCooling or cfgFreeHeating parameter equates to 1)
CO_2/VOC regulation	Modulation between minimum opening (default equal to 30%) and maximum opening (100%)
Regulation linked to heat recovery in free-cooling/free-heating procedure	Proportional opening of the external dampers (cfgFreeCooling or cfgFreeHeating parameter equates to 2)

Table 27 - AHU condition and opening of the external dampers

The CO_2 regulation is achieved on the value acquired by the CO_2 probe, the VOC regulation is achieved on the value acquired by the VOC probe. From a logical point of view, the CO_2 regulation is identical to the VOC regulation; if both are present, the regulator with the greatest request is considered active.

In the case of:

- modulating recovery unit, the opening of the external dampers is regulated in parallel to the recovery unit
- ON/OFF recovery unit, the opening of the external dampers starts after the recovery unit is in the OFF status.

NOTE: The CO_2/VOC regulation is priority to the regulation linked to the recovery of heat.

The damper management in ON/OFF configuration consists of opening/closing the external dampers when the AHU is in the ON/OFF status.

The managing of the dampers in external configuration and 0-10 V mix consists of activating the modulating external dampers and the recirculation dampers, in opposition compared to the modulating external dampers: if the external dampers are completely open, the recirculation damper is completely closed, and vice versa. Generally, in the case of modulating external dampers:

- the external dampers open a fixed percentage,
- the external dampers open further in the case of:
  - a request from the probe CO_2/VOC (air quality)
  - free-cooling.

3.10. Cooling actuators

The cooling actuators managed are described in the table below.

Cooling actuators	Management procedure
Valves **(1 - Fig 10 - on pag. 43)**	Analogical output 0 -10 V
Condensing Unit configuration up to 4 steps **(2 - Fig 10 - on pag. 43)**	Step command
Modulating Condensing Units, up to 4	Analogical outputs 0 -10 V

Table 28 - Cold actuators managed and relative management procedure

NOTE: In the case of 0-10 V electrical heating element + step or PWM electrical heating element + step, analogical output and digital output are connected to each other as the modulating interpolates consecutive steps. In the case of condensation unit, the analogical output and digital output intervene in the regulation separately from each other.

In **Fig 10 - on pag. 43** the reference parameters are shown using tags (capital letters), the reference parameters for the cooling actuators.

See the following table for the correspondence between tags and parameters.

Tag	Parameters
A	CondUnitS1_Req
B	CondUnitS2_Req
C	CondUnitS3_Req
D	CondUnitS4_Req

Table 29 - Cold actuators

In **Fig 10 - on pag. 43** tags are used to indicate (capital letters):

- **e**, the moving of the hysterisis,
- **f**, the extent of the hysterisis

linked to each other by the following relation:

$$f = e \cdot [CondUnitSx\_Hysteresis]/100$$

The complete request for cooling is subdivided between the various actuators in cascade, according to the parameters, and is dependent on the supply limits. In the case of a condensing unit configuration up to 4 steps, the parameters for the regulation of the cooling actuators are:

- percentage of regulation of condensation unit request for each step
- hysterisis, calculated as a percentage of the step.

A minimum ON and OFF time of the condensing unit can be managed, moreover an offset can be applied to the analog output whenever at least a step is on (output is 0V when all steps are OFF).

In case more than one condensing unit is selected, they are switched on using a step logic proportional to the request of the main temperature regulator, the power is balanced over all active units.

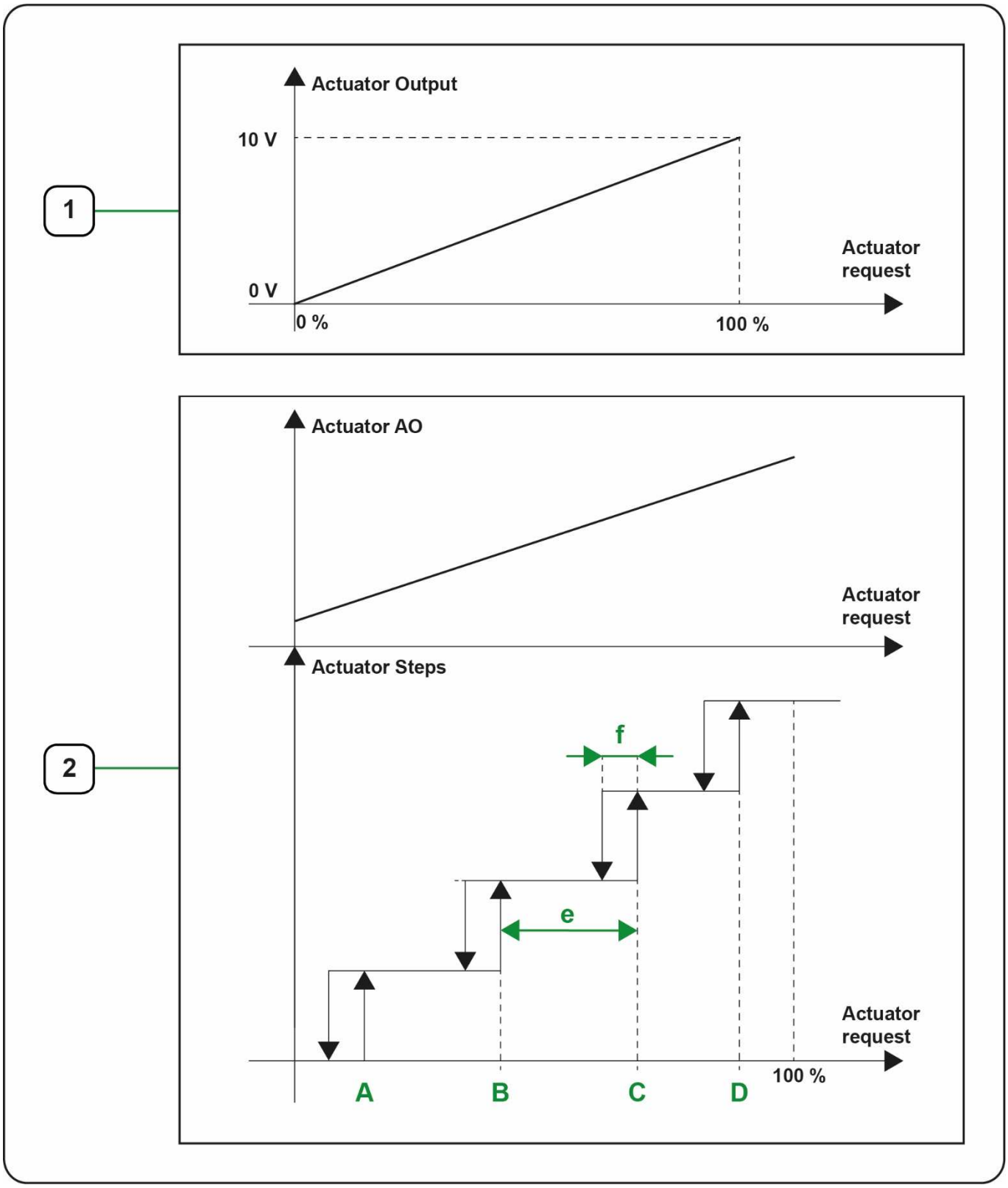


Fig 10 - Cold actuators

3.11. Heating actuators

The heating actuators managed are described in the table below.

Heating actuators	Management procedure
Valves	Analogical output 0 -10 V
Condensing unit configuration up to 4 steps	ON/OFF up to 4 steps
Modulating Condensing Units, up to 4	Analogical outputs 0 -10 V
Heaters	ON/OFF up to 6 steps + possible modulation with PWM output

Table 30 - Heating actuators managed and relative management procedure

This is a regulation with two components:

- analogical to carry out modulation
- digital, to carry out the steps.

The power of the analogical component (modulation) needs to be greater or equal to the power of the digital component (ON/OFF step) to guarantee agreement between the next two steps. The power of the digital component is expressed in %/kW of each step.

The hysterisis of switching off the steps is defined in the percentage of the step.

If the modulating heating element, the maximum hysteresis is limited to 1/4 of the minimum power step.

NOTE: The steps are implemented via a combination of activated relays (see **3.11.1 Activated relays and number of steps on pag. 46**).

In **Fig 11 - on pag. 45** the graphs of total request for heating of the PI regulator are illustrated, with relative components:

- analogical, supplied by an analogue output, indicated with AO
- digital, supplied with digital outputs, indicated with DO.

NOTE: Each step of the DO digital component is characterised by a negative hysteresis.

NOTE: The example given in **Fig 11 - on pag. 45** refers to two digital steps and an analogical output with equal power to the hysteresis equating to (6/33)·100%.

The condensing unit regulation is described in chapter 3.10.

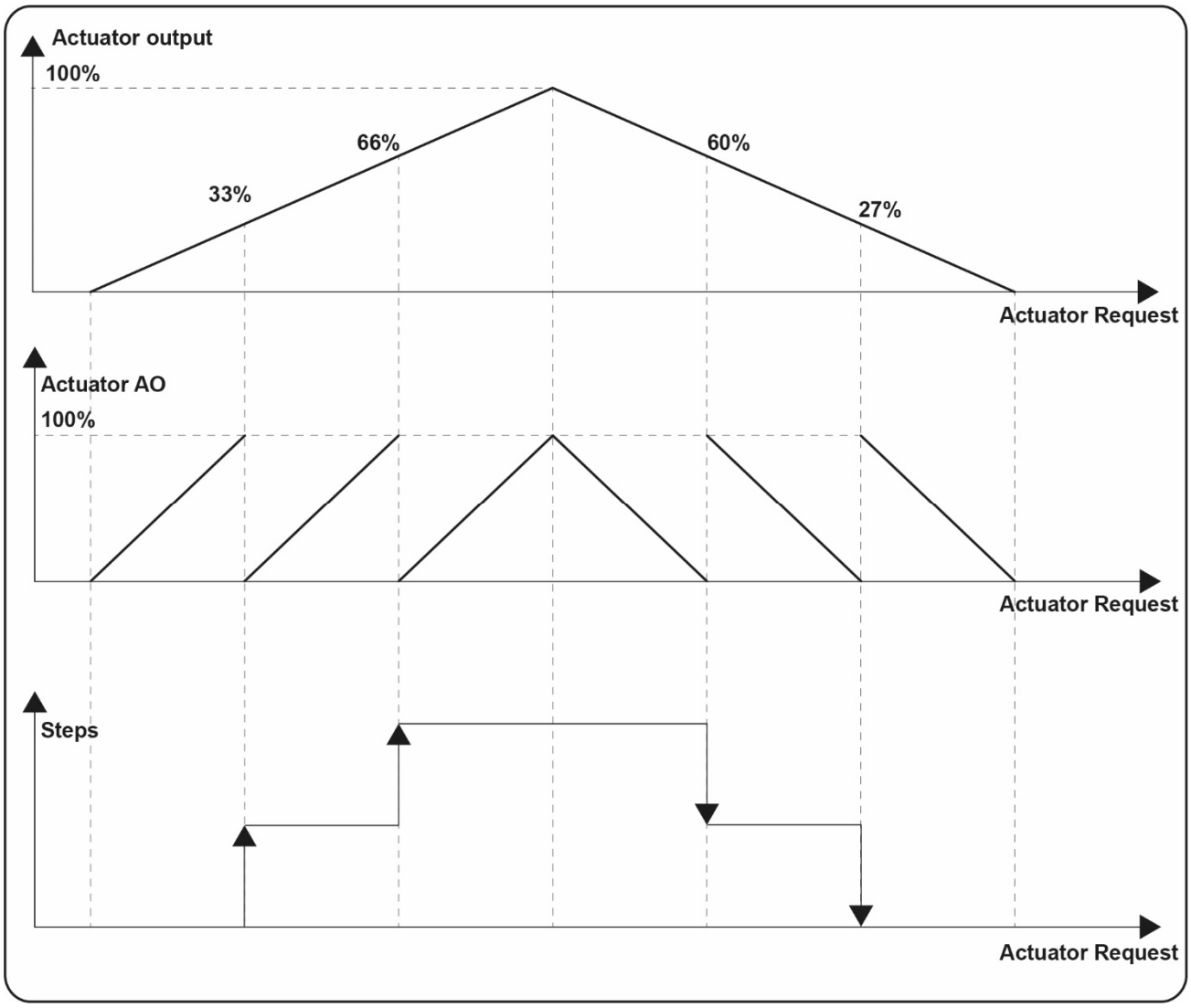


Fig 11 - Heat actuators

The following table gives the reference parameters for **Fig 11 - on pag. 45**.

Parameters relative to Heater	Parameters relative to Pre Heater	Parameters relative to Post Heater	Description
Heater_Power_Analog	PreHeater_Power_Analog	PostHeater_Power_Analog	Power relative to the analogical status
Heater_Power_Step1	PreHeater_Power_Step1	PostHeater_Power_Step1	Power relative to the digital status 1
Heater_Power_Step2	PreHeater_Power_Step2	PostHeater_Power_Step2	Power relative to the digital status 2
Heater_Power_Step3	PreHeater_Power_Step3	PostHeater_Power_Step3	Power relative to the digital status 3
Heater_Power_Step4	PreHeater_Power_Step4	PostHeater_Power_Step4	Power relative to the digital status 4
Heater_Power_Step5	PreHeater_Power_Step5	PostHeater_Power_Step5	Power relative to the digital status 5
Heater_Power_Step6	PreHeater_Power_Step6	PostHeater_Power_Step6	Power relative to the digital status 6
Heater_Hysteresis	PreHeater_Hysteresis	PostHeater_Hysteresis	Hysteresis % of the active status

Table 31 - Heat actuators

3.11.1. Activated relays and number of steps

The relays activated to obtain a given number of steps are described in the following tables.

Relay	Step 1	Step 2
1	X	X
2		X
Diagram		

Table 32 - Digital output connection: 2 steps, 2 relays

Relay	Step 1	Step 2	Step 3
1	X		X
2		X	X
Diagram			

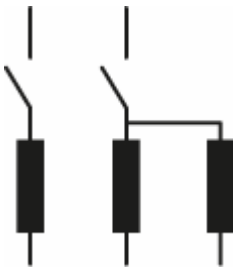


Table 33 - Digital output connection: 3 steps, 2 relays

Relay	Step 1	Step 2	Step 3	Step 4
1	X		X	X
2		X	X	X
3				X
Diagram				

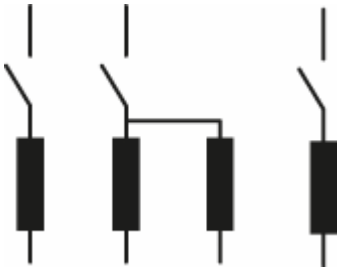


Table 34 - Digital output connection: 4 steps, 3 relays

Relay	Step 1	Step 2	Step 3	Step 4	Step 5
1	X		X		X
2		X	X	X	X
3				X	X
Diagram					

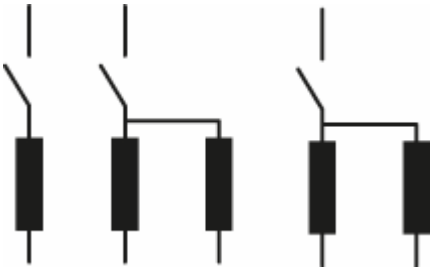


Table 35 - Digital output connection: 5 steps, 3 relays

Relay	Step 1	Step 2	Step 3	Step 4	Step 5	Step 6
1	X			X		X
2		X			X	X
3			X	X	X	X
Diagram						

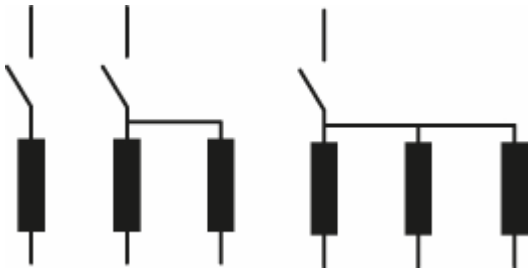


Table 36 - Digital output connection: 6 steps, 3 relays

3.12. Pumps

The management of a pump can be enabled when a valve with 0-10 V analogical output is enabled.

The management of the pump with hot valve is described in the table below.

Pump status	Condition
Switch on	Valve opening
Switch off	- After 5 minutes of valve closure (post-functioning time), or - if AHU in OFF status

Table 37 - Pump management

It is possible to activate the anti-sticking function to prevent the pump from blocking if it remains off for a long period of time: in the event of the upper pump not being used for 7 days, the pump is started automatically (see Pump_AntiStickingPeriod parameter and Pump_AntiStickingRun).

3.13. Fans

If in the AHU hardware configuration:

- there is a single fan, if disabled, the AHU moves to the OFF status
- there are several fans and a certain number gets disabled to the point that the AHU does not work properly, an alarm goes off.

Each fan can be disabled via parameter (see **4 User Settings Menu on pag. 55**).

The fans have two time delays:

- on turning on/turning off of the AHU, to allow for the opening and closure of the dampers
- in post-ventilation, after a possible turning off of the heating elements and/or condensing units.

In heating, if the electric heating elements are one, the start-up of the electric heating elements is delayed with respect to the start-up of the fans, as shown in **Fig 12 - on pag. 49**: the regulation of the heating elements is done after the fans have reached their maximum speed.

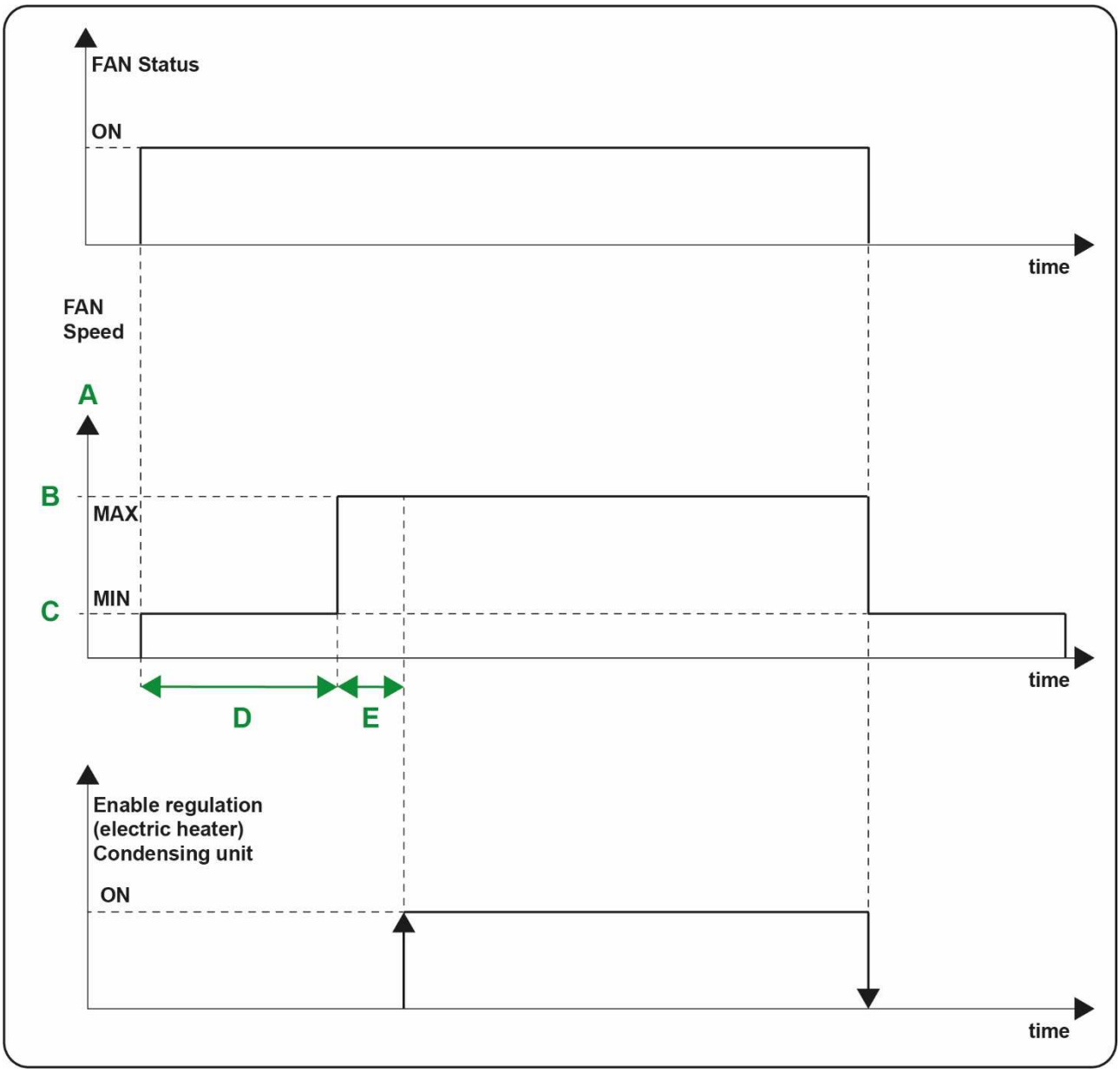


Fig 12 - Dynamics of the heating elements and fans

In **Fig 12 - on pag. 49** the reference parameters for heating elements and fans are shown using tags (capital letters). See the following table for the correspondence between tags and parameters.

Tag	Parameters
A	Status_FanSupply Status_FanReturn
B	Fan_NominalSpeed
C	Fan_LowSpeed
D	Fan_PowerUp1_Time
E	Fan_PowerUp2_Time

Table 38 - Dynamics of the heating elements and fans

The pre-heating function of the fans is activated if the following conditions are **simultaneously** met:

- activation of the heating with modulating valve
- external temperature lower than the Fan_PreHeatOnSet parameter
- disabling of the making operative process when turning on.

NOTE: If the previous conditions are **simultaneously** met, the fans are turned on with a further delay of Fan_PreHeating_Time compared to the opening of the external dampers.

When the AHU is turned on, the fans are kept turned off for a time equal to the Fan_PreHeating_Time parameter to reduce the possibility of transmitting air too cold to the valves.

3.13.1. ON/OFF fans

The ON/OFF fans come on / turn off when the AHU is in the ON/OFF status. After turning on, the fan is brought to a stable speed.

The fans are turned on and off with a relay.

3.13.2. Modulating fans (with inverter)

With modulating fans (with inverter), the following are used:

- digital output (relay), for the inverter consensus
- analogical output, to modulate the speed.

NOTE: It is possible to set a fan regulation at a steady speed even for modulating fan type via an appropriate configuration of the percentage of return and supply.

The management of modulating fans is described in the table below.

Management of the modulating fans	Management procedure
Manual (by the controller)	Via the setting of a fixed percentage for each fan
Automatic	Via a request from the CO_2 probe/VOC probe
Automatic	Via pressure sensors (up to two)

Table 39 - Management of modulating fans

The management of the modulating fans via pressure probes can be done:

- by parallel regulating the supply pressure probe and return pressure probe, with an offset of difference between the two sensors to balance the flows
- via a specific pressure probe for each fan.

In the case of recovery unit defrosting via the reduction of speed of the supply fan, the speed of the supply fan also depends on the regulator that carries out the recovery unit defrosting.

3.13.3. Backup fans

Each backup fan has the same air flow as the corresponding main fan.

The swap management (or inversion) between fans with backup is done via the Fan_SwapPolicy parameter and on which depends the selection of the supply fans and return fans for start-up, as described in the table below.

Fan_SwapPolicy parameter	Management of the swap between fans
0	The main fan pair is started-up (if both active)
1	The pair of fans (main or backup) that has the smallest number of overall hours of functioning
2	The pair of fans (supply or return) that has the smallest number of overall hours of functioning
3	The pair of fans (main or backup) with the fan that **individually** has the smallest number of overall hours of functioning

Table 40 - Management of the swap between fans

In the case of alarms relating to the pair of:

- main fans, at start-up the backup fans are selected
- backup fans, at start-up, the main fans are selected.

In the absence of any active alarm relating to the fans, periodically the rotation of the fans is carried out with a regularity equating to the Fan_Swap_Time parameter hours (if different from 0) between main fans and backup fans.

3.13.4. Modbus fans

The Modbus fans are piloted by the controller via the RS485-2 serial port with the following configuration: 19.2 E,8,1.

The kind of Modbus fans supported in the AHU are:

- EBM Papst;
- ATV212;
- Ziehl EC blue.

The relative slave Modbus addresses for each fan in the AHU are given in the following table.

Fan	ModBUS address
Main supply	2
Main return	3
Backup supply	4
Backup return	5
Second Supply (only Ziehl model)	10
Second Return (only Ziehl model)	11
Second Supply backup (only Ziehl model)	12
Second Return backup (only Ziehl model)	13
Third Supply (only Ziehl model)	14
Third Return (only Ziehl model)	15
Third Supply backup (only Ziehl model)	16
Third Return backup (only Ziehl model)	17

Table 41 - Modbus Fans and relative addresses

For the Modbus EBM Papst type fans, see **3.13.4.1 Modbus EBM Papst type fans on pag. 52**.

For the Modbus Ziehl EC blue type fans, see **3.13.4.2 Modbus Ziehl EC blue type fans on pag. 52**.

For the Modbus ATV212 type fans, see **3.13.4.3 Modbus ATV212 type fans on pag. 52**.

3.13.4.1 EMB Papst Modbus type fans

The levels of the registers relative to the EBM Papst Modbus type fans are given in the table below.

Name	Register	Value	Note
Source set value	D101	1	This parameter specifies the source from which the set value is taken: 1=RS485 (specified set value parameter D001)
Store Set Value	D103	0	This parameter specifies whether or not an incoming specified set value (D001) is also stored in the EEPROM under set value (EEPROM) (D114 / D115): 0=Set value is not stored. The fan is stationary after a reset
Control Mode Day	D106-D017	2	The external “Day/night” input and the “Day/night internal” parameter are used to select whether the value in “Control mode day” or “Control mode night” is applicable: 2=open loop PWM control.
Motor Stop Enable	D112 D113	1	The external “Day/night” input and the “Day/night internal” parameter are used to select whether the value in “Motor stop enable day” or “Motor stop enable night” is applicable: 1=Motor stops if set value = 0

Table 42 - Levels of registers relative to the EBM Papst Modbus type fans

NOTE: For additional information consult the EMB Papst manual.

3.13.4.2 Ziehl EC blue Modbus type fans

The levels of the registers relative to the Ziehl EC blue Modbus type fans are given in the table below.

Name	Register	Value	Note
Controlmode	4 bit 0	2	Speed control register h2 (fractional 0 - 32767 = 0 - 100 %) with possibility for switch over to Set Intern 2,3
D1 Function (digital input)	14	0	Off

Table 43 - Levels of registers relative to the Ziehl EC blue type fans

NOTE: For additional information consult the Ziehl EC blue manual.

3.13.4.3 ATV212 Modbus type fans

The levels of the registers relative to the ATV212 Modbus type fans are given in the table below.

Name	Register	Value	Note
CMOD	3+1	2	The setting of parameter CMOd determines the source of start, stop, forward, and reverse operation commands when the drive is in remote mode. The drive needs to be stopped to make changes to parameter CMOd.
FMOD	4+1	4	The setting of parameter FMOd determines the source of the drive’s speed reference when the drive is in remote mode. The drive needs to be stopped to make changes to parameter FMOd.
Timeout	2051+1	10	WARNING LOSS OF CONTROL - If F803 is set to 0, communication control will be inhibited. - For safety reasons, inhibiting the communication interruption detection should be restricted to the debug phase or to special applications. Failure to follow these instructions can result in death, serious injury, or equipment damage. 0= Communication error detection disabled 1 to 100=1 to 100 seconds
F732	1842+1	1	Use parameter F732 to enable or disable the LOC/REM key on the drive embedded display terminal. If the LOC/REM key is disabled, switching between local and remote mode can be achieved with parameters [Frequency mode sel] (FMOd) and [Command mode sel] (CMOd).

Table 44 - Levels of registers relative to the ATV212 Modbus type fans

NOTE: For additional information consults the ATV212 manual.

3.14. Air quality: CO_2 probe and VOC probe

In the event of a poor air quality reading by a CO_2 probe and/or a VOC probe, the regulation increases the speed of the ventilators. In this case, there is an increase in the incoming air flow to increase the concentration of oxygen.

It is possible to enable the air quality control function only if one of the following conditions is verified:

- there is a mix damper
- the fan is modulating.

The regulation of the air quality control can be:

- P, or
- PI.

NOTE: In the case of activating the CO_2 probe and the VOC probe, the active request is the greater of the two.

After defining the kind of probe, it is essential to define the following parameters relative to the regulation:

- setpoint, in the case of P or PI regulator
- differential, in the case of P or PI regulator
- integral time, in the case of PI regulator.

The quality air regulator is a regulator in cascade; it acts in the following order, depending on the request:

1. increasing the output of modulating external dampers **(1 – Fig 13 -)**

NOTE: It is necessary to set the minimum opening of the dampers.

2. on the modulating fans **(2 - Fig 13 -)**, as described below:
   - if the fans are regulated under pressure, increasing the pressure setpoint
   - if the fans are at a set speed, increasing t speed (between the minimum value and maximum value approved for the fans).

NOTE: The request for regulating the VOC probe takes priority over the request for regulating the external ON/OFF dampers + 0-10 V mix.

NOTE: In night profile the speed of the fans takes priority.

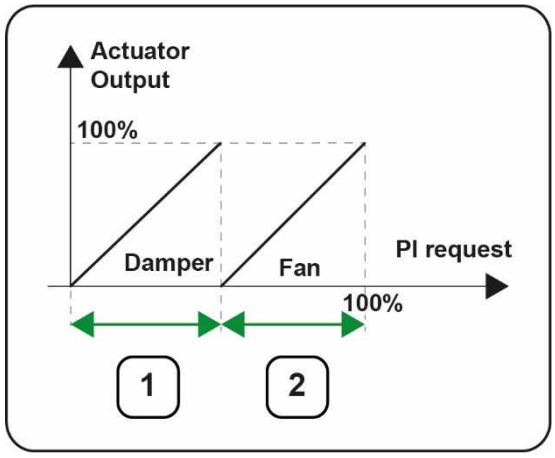


Fig 13 - Air quality regulator

3.15. Constant flow regulation

This regulation foresees a PID regulator to limit unexpected variations in the fan reaction.

The regulation at constant flow is obtained via a differential pressure probe connected to the suction part of the fan.

In the event of flow reduction due to an increase in aeraulic resistance (filter that gradually blocks), the functioning logic is as follows:

1. the controller detects a reduction in the pressure via the pressure probe
2. the controller increases the output value connected to the fan
3. the controller increases the speed of the fan until it reaches the set setpoint.

NOTE: In order to regulate the constant flow, a calibration of the pressure of flow is requested via the use of two optional inputs.

3.16. Constant pressure regulation

This regulation foresees a PID regulator to limit unexpected variations in the fan reaction.

The constant pressure regulation is obtained via a differential pressure probe connected to the supply channel or return channel and detects the difference in pressure compared to the atmospheric pressure.

NOTE: The constant pressure regulation is generally done if the supply flow is channelled on more than one environment characterised by the same need for ventilation but not used simultaneously.

The regulation logic is as follows:

1. the controller automatically established the pressure setpoint
2. the controller compares the pressure setpoint with the value acquired by the differential pressure probe
3. via this difference, the fan speed is increased or reduced until the pressure setpoint is reached.

3.17. Test output

The output test is a function that allows for the digital and analogical outputs to be tested by forcing a given value, with safety measures always in place.

NOTE: The output test can be done either by the controller or from the menu (see EnableTestOutput parameter).

The test function limitations of the output test carried out are given in the following table.

In case of Unit blocking alarms, test mode will be automatically disabled

Test output	Limitation
Turning fans on	Not permitted in the case of closed dampers
Turning on heat elements	- Not permitted if fans off - No more than 5 minutes

Table 45 - Limitations

4. USER SETTINGS MENU

The “User Settings Menu” pages are dynamic and some of them are visible only if there are relative functionalities present.
The list of menus which can be accessed from the “User Settings Menu” is shown in the table below.

Menu	User	Installer	Reference in this Manual
A-Unit	SI	SI	**4.1 A-Unit on pag. 56**
B-Clock & Events	SI	SI	**4.2 B-Clock & Events on pag. 58**
C-Languages	SI	SI	**4.3 C-Languages on pag. 66**
D-Alarms	SI	SI	**4.4 D-Alarms on pag. 66**
E-User Settings	SI	SI	**4.5 E-User Settings on pag. 71**
F-I/O	SI	SI	**4.6 F-I/O on pag. 75**
G-Password	SI	SI	**4.7 G-Password on pag. 78**
H-System	NO	SI	**4.8 H-System on pag. 79**

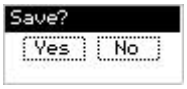
Table 46 - Menu that can be accessed from the “User Settings Menu”

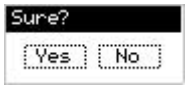
NOTE: Below are given the pages that are shown on the display:

- in the case of out of range values
- as a confirmation message.

Out of range values

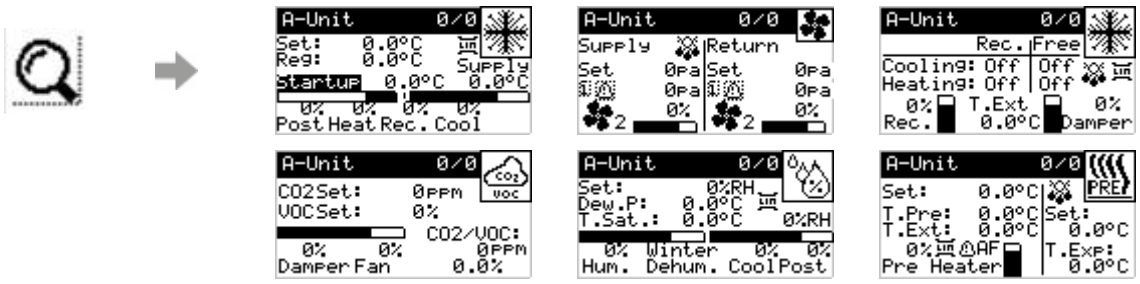
Confirmation messages





4.1. A-Unit

Below is given the “A-Unit”, menu navigation that allows the main parameters to be managed.



The parameters in the “A-Unit” menu are given in the table below, divided up per page.

Pag	Name	Device Type	Unit	Description
- - -	Status_PlantMode	0=Cool; 1=Heat;	—	Unit Working Mode
- - -	T_CurrentSetpointByPar	Signed 16-bit	°C	Current Setpoint by parameter based on selected mode
- - -	T_RegulationProbe	Signed 16-bit	°C	Temperature Regulation Probe
- - -	T_CurrentSupplySetpoint	Signed 16-bit	°C	Current Supply Setpoint
- - -	AI_LogicIndex_0	Signed 16-bit	°C	Supply Temperature
- - -	Status_OutPost	Signed 16-bit	%	Post Heating Output
- - -	Status_OutHeat	Signed 16-bit	%	Heating Output
- - -	Status_OutRec	Signed 16-bit	%	Recovery Output
- - -	Status_OutCool	Signed 16-bit	%	Cooling Output
- - -	Status_PID_TSupplyHeat	Signed 16-bit	%	Heating Regulator Request
- - -	Status_PID_TSupplyCool	Signed 16-bit	%	Cooling Regulator Request
- - -	Status_LowTempSupplyLimit	Signed 16-bit	%	Low Supply Limit Regulator Request
- - -	Status_HighTempSupplyLimit	Signed 16-bit	%	High Supply Limit Regulator Request
- - -	Status_HighTempPreHeatLimit	Signed 16-bit	%	High Preheater Limit Regulator Request
- - -	Pr_CurrentSupplySetpoint	Signed 32-bit	Pa-m3/h	Current Fan Supply Setpoint - Units depends on Fan_Supply_Pressure_Flow
- - -	Pr_CurrentReturnSetpoint	Signed 32-bit	Pa-m3/h	Current Fan Return Setpoint - Units depends on Fan_Return_Pressure_Flow
- - -	Pr_Flow_Supply	Signed 32-bit	Pa-m3/h	Current Fan Supply Sensor - Units depends on Fan_Supply_Pressure_Flow
- - -	Pr_Flow_Return	Signed 32-bit	Pa-m3/h	Current Fan Return Sensor - Units depends on Fan_Return_Pressure_Flow
- - -	Pr_Flow_Supply	Signed 32-bit	Pa-m3/h	Current Fan Supply Sensor - Units depends on Fan_Supply_Pressure_Flow
- - -	Pr_Flow_Return	Signed 32-bit	Pa-m3/h	Current Fan Return Sensor - Units depends on Fan_Return_Pressure_Flow
- - -	Status_PID_PrSupply	Signed 16-bit	%	Supply Fan Regulator Request
- - -	Status_PID_PrReturn	Signed 16-bit	%	Return Fan Regulator Request
- - -	Status_FanSupply	Signed 16-bit	%	Fan Supply Speed

Pag	Name	Device Type	Unit	Description
- - -	Status_FanReturn	Signed 16-bit	%	Fan Return Speed
- - -	Status_DefrostFan	Boolean	—	Defrost with Fan Status
- - -	Status_DefrostFanRed	Signed 16-bit	%	Defrost Supply Fan Speed Reduction
- - -	RH_CurrentSetpoint	Signed 16-bit	%R.H.	Current Return Setpoint
- - -	T_DewPointSetPoint	Signed 16-bit	°C	Current Dewpoint Setpoint
- - -	AI_LogicIndex_5	Signed 16-bit	°C	Saturation Temperature
- - -	RH_RegulationProbe	Signed 16-bit	%R.H.	Humdity Regulation Probe
- - -	Status_PID_Humid	Signed 16-bit	%	Hmidification Regulator Request
- - -	Status_PID_DeHumid	Signed 16-bit	%	Dehumidification Regulator Request
- - -	Status_OutHum	Signed 16-bit	%	Humidifier Output
- - -	Status_ExtSHum	Signed 16-bit	g/Kg	External Specific Humidity
- - -	Status_RetSHum	Signed 16-bit	g/Kg	Return Specific Humidity
- - -	Status_HighHumSupplyLimit	Signed 16-bit	%	High Humidity Limit Regulator Request
- - -	AirQ_RegulationProbe	Signed 16-bit	%/ppm	Air Quality Regulation Probe
- - -	AirQ_CurrentSetpointVOC	Signed 16-bit	%	Current Setpoint VOC
- - -	AirQ_CurrentSetpointCO2	Signed 16-bit	ppm	Current Setpoint CO2
- - -	Status_PID_AirQ	Signed 16-bit	%	Air Quality Regulator Request
- - -	AI_LogicIndex_2	Signed 16-bit	°C	External Temperature
- - -	Status_ExtDamper	Signed 16-bit	%	External Damper Status
- - -	Status_RecoveryCooling	Boolean	—	Cooling Recovery Status
- - -	Status_RecoveryHeating	Boolean	—	Heating Recovery Status
- - -	Status_FreeCooling	Boolean	—	Free Cooling Status
- - -	Status_FreeHeating	Boolean	—	Free Heating Status
- - -	Status_ActuatorsOffbyFCH	Boolean	—	Actuators off by Free Cooling/Heating
- - -	Status_FCHreq	Signed 16-bit	%	Free Cooling/Heating Request
- - -	Status_DefrostDamper	Boolean	—	Defrost with Damper Status
- - -	PreHeaterSetpoint	Signed 16-bit	°C	Setpoint Pre Heating
- - -	AI_LogicIndex_4	Signed 16-bit	°C	Preheating Temp,
- - -	Status_OutPre	Signed 16-bit	%	Preheating Output
- - -	RecoveryDefrost_SetMaxReq	Signed 16-bit	°C	Recovery Defrost: Setpoint Expulsion Temperature
- - -	AI_LogicIndex_3	Signed 16-bit	°C	Expulsion Temperature
- - -	Status_DefrostPreHeat	Boolean	—	Defrost with Preheating Status

Table 47 - A-Unit

4.2. B-Clock & Events

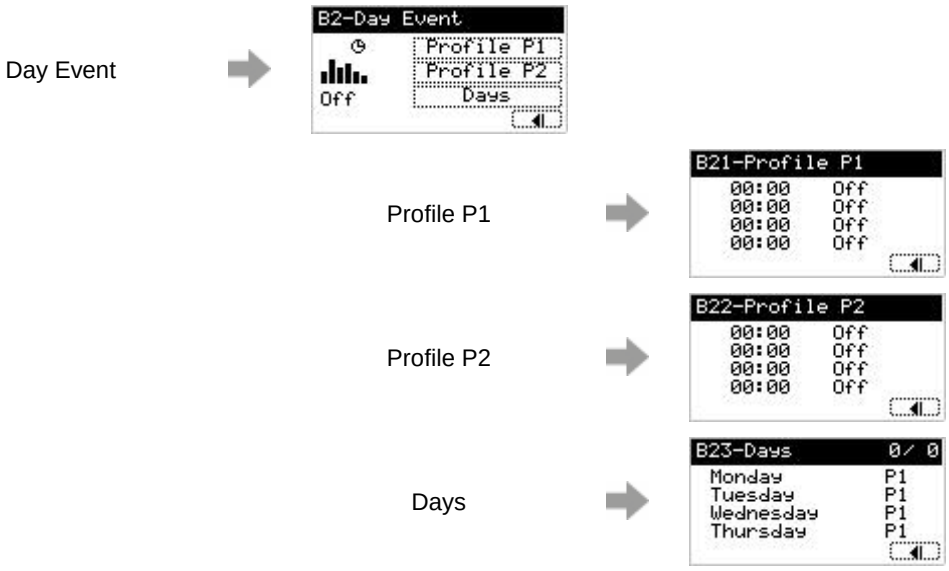
Below is given the “B-Clock & Events” menu navigation that allows for the time periods and events to be managed.

Clock

The parameters in the “B1-Clock” menu are given in the table below, divided up per page.

Pag	Name	Device Type	Def	Min	Max	Description
- - -	sysClock_seconds_WR	Unsigned 8-bit	0	0	59	Second value to update
- - -	sysClock_minutes_WR	Unsigned 8-bit	0	0	59	Minute value to update
- - -	sysClock_hours_WR	Unsigned 8-bit	0	0	23	Hour value to update
- - -	sysClock_dayweek_WR	Unsigned 8-bit	0	0	6	Day of the week value to update
- - -	sysClock_daymonth_WR	Unsigned 8-bit	1	1	31	Day of the month value to update
- - -	sysClock_month_WR	Unsigned 8-bit	1	1	12	Month value to update
- - -	sysClock_year_WR	Unsigned 8-bit	10	10	99	Year value to update
- - -	sysClock_update	0=Current; 1=Update; 2=Modify	0	0	2	Confirm update
- - -	DayLight_Region	0=Europe; 1=USA/Canada	0	0	1	Day Light Region
- - -	DayLight_Enable	Boolean	1	—	—	Day Light Enable

Table 48 - B1-Clock



The parameter in the “B2- Day Event” menu is given in the table below.

Pag	Name	Device Type	Def	Min	Max	Description
- - -	tE00_TimeBandEnable	Boolean	0	—	—	Time events Enable

The parameters in the “B21- Profile P1” menu are given in the table below, divided up per page.

Pag	Name	Device Type	Def	Min	Max	Description
- - -	tE10_TimeProfile1Event1	Signed 16-bit	08:00	00:00	23:59	Time of event #1 of profile #1
- - -	tE11_ModeProfile1Event1	0=Off; 1=Eco; 2=Comfort; 3=Night	0	0	3	Mode of event #1 of profile #1
- - -	tE12_TimeProfile1Event2	Signed 16-bit	12:00	00:00	23:59	Time of event #2 of profile #1
- - -	tE13_ModeProfile1Event2	0=Off; 1=Eco; 2=Comfort; 3=Night	0	0	3	Mode of event #2 of profile #1
- - -	tE14_TimeProfile1Event3	Signed 16-bit	14:00	00:00	23:59	Time of event #3 of profile #1
- - -	tE15_ModeProfile1Event3	0=Off; 1=Eco; 2=Comfort; 3=Night	0	0	3	Mode of event #3 of profile #1
- - -	tE16_TimeProfile1Event4	Signed 16-bit	18:00	00:00	23:59	Time of event #4 of profile #1
- - -	tE17_ModeProfile1Event4	0=Off; 1=Eco; 2=Comfort; 3=Night	0	0	3	Mode of event #4 of profile #1

Table 49 - B21-Profile P1

The parameters in the “B22- Profile P2” menu are given in the table below, divided up per page.

Pag	Name	Device Type	Def	Min	Max	Description
- - -	tE20_TimeProfile2Event1	Signed 16-bit	08:00	00:00	23:59	Time of event #1 of profile #2
- - -	tE21_ModeProfile2Event1	0=Off; 1=Eco; 2=Comfort; 3=Night	0	0	3	Mode of event #1 of profile #2
- - -	tE22_TimeProfile2Event2	Signed 16-bit	08:00	00:00	23:59	Time of event #2 of profile #2
- - -	tE23_ModeProfile2Event2	0=Off; 1=Eco; 2=Comfort; 3=Night	0	0	3	Mode of event #2 of profile #2
- - -	tE24_TimeProfile2Event3	Signed 16-bit	08:00	00:00	23:59	Time of event #3 of profile #2
- - -	tE25_ModeProfile2Event3	0=Off; 1=Eco; 2=Comfort; 3=Night	0	0	3	Mode of event #3 of profile #2
- - -	tE26_TimeProfile2Event4	Signed 16-bit	18:00	00:00	23:59	Time of event #4 of profile #2
- - -	tE27_ModeProfile2Event4	0=Off; 1=Eco; 2=Comfort; 3=Night	0	0	3	Mode of event #4 of profile #2

Table 50 - B22-Profile P2

The parameters in the “B23-Days” menu are given in the table below, divided up per page.

Pag	Name	Device Type	Def	Min	Max	Description
1/2	tE01_TimeProfileMonday	1=P1; 2=P2; 3=24h On; 4=24h Off	1	1	4	Time events profile on Monday
1/2	tE02_TimeProfileTuesday	1=P1; 2=P2; 3=24h On; 4=24h Off	1	1	4	Time events profile on Tuesday
1/2	tE03_TimeProfileWednesday	1=P1; 2=P2; 3=24h On; 4=24h Off	1	1	4	Time events profile on Wednesday
1/2	tE04_TimeProfileThursday	1=P1; 2=P2; 3=24h On; 4=24h Off	1	1	4	Time events profile on Thursday
2/2	tE05_TimeProfileFriday	1=P1; 2=P2; 3=24h On; 4=24h Off	1	1	4	Time events profile on Friday
2/2	tE06_TimeProfileSaturday	1=P1; 2=P2; 3=24h On; 4=24h Off	1	1	4	Time events profile on Saturday
2/2	tE07_TimeProfileSunday	1=P1; 2=P2; 3=24h On; 4=24h Off	1	1	4	Time events profile on Sunday

Table 51 - B23-Days

Year Event

The parameters in the “B3-Year Event” menu are given in the table below, divided up per page.

Pag	Name	Device Type	Def	Min	Max	Unit	Description
- - -	TW00_EnableYearEvents	Boolean	0	—	—	—	Enable year events
1/15	TW01_EventProfile01	1=P1; 2=P2; 3=24h On; 4=24h Off	1	1	4	—	Year events profile 1
1/15	TW16_EnEvent01	0 = Off; 1 = On	0	0	1	—	Enable Year events 1
1/15	TW31_EventDDStart01	Unsigned 8-bit	1	1	31	Day	Start Day Year events 1
1/15	TW46_EventMMStart01	Unsigned 8-bit	1	1	12	Month	Start Month Year events 1
1/15	TW61_EventDDStop01	Unsigned 8-bit	1	1	31	Day	Stop Day Year events 1
1/15	TW76_EventMMStop01	Unsigned 8-bit	1	1	12	Month	Stop Month Year events 1
2/15	TW02_EventProfile02	1=P1; 2=P2; 3=24h On; 4=24h Off	1	1	4	—	Year events profile 2
2/15	TW17_EnEvent02	0 = Off; 1 = On	0	0	1	—	Enable Year events 2
2/15	TW32_EventDDStart02	Unsigned 8-bit	1	1	31	Day	Start Day Year events 2
2/15	TW47_EventMMStart02	Unsigned 8-bit	1	1	12	Month	Start Month Year events 2
2/15	TW62_EventDDStop02	Unsigned 8-bit	1	1	31	Day	Stop Day Year events 2
2/15	TW77_EventMMStop02	Unsigned 8-bit	1	1	12	Month	Stop Month Year events 2
3/15	TW03_EventProfile03	1=P1; 2=P2; 3=24h On; 4=24h Off	1	1	4	—	Year events profile 2
3/15	TW18_EnEvent03	0 = Off; 1 = On	0	0	1	—	Enable Year events 3
3/15	TW33_EventDDStart03	Unsigned 8-bit	1	1	31	Day	Start Day Year events 3
3/15	TW48_EventMMStart03	Unsigned 8-bit	1	1	12	Month	Start Month Year events 3
3/15	TW63_EventDDStop03	Unsigned 8-bit	1	1	31	Day	Stop Day Year events 3
3/15	TW78_EventMMStop03	Unsigned 8-bit	1	1	12	Month	Stop Month Year events 3
4/15	TW04_EventProfile04	1=P1; 2=P2; 3=24h On; 4=24h Off	1	1	4	—	Year events profile 4
4/15	TW19_EnEvent04	0 = Off; 1 = On	0	0	1	—	Enable Year events 4
4/15	TW34_EventDDStart04	Unsigned 8-bit	1	1	31	Day	Start Day Year events 4

Pag	Name	Device Type	Def	Min	Max	Unit	Description
4/15	TW49_EventMMStart04	Unsigned 8-bit	1	1	12	Month	Start Month Year events 4
4/15	TW64_EventDDStop04	Unsigned 8-bit	1	1	31	Day	Stop Day Year events 4
4/15	TW79_EventMMStop04	Unsigned 8-bit	1	1	12	Month	Stop Month Year events 4
5/15	TW05_EventProfile05	1=P1; 2=P2; 3=24h On; 4=24h Off	1	1	4	—	Year events profile 5
5/15	TW20_EnEvent05	0 = Off; 1 = On	0	0	1	—	Enable Year events 5
5/15	TW35_EventDDStart05	Unsigned 8-bit	1	1	31	Day	Start Day Year events 5
5/15	TW50_EventMMStart05	Unsigned 8-bit	1	1	12	Month	Start Month Year events 5
5/15	TW65_EventDDStop05	Unsigned 8-bit	1	1	31	Day	Stop Day Year events 5
5/15	TW80_EventMMStop05	Unsigned 8-bit	1	1	12	Month	Stop Month Year events 5
6/15	TW06_EventProfile06	1=P1; 2=P2; 3=24h On; 4=24h Off	1	1	4	—	Year events profile 6
6/15	TW21_EnEvent06	0 = Off; 1 = On	0	0	1	—	Enable Year events 6
6/15	TW36_EventDDStart06	Unsigned 8-bit	1	1	31	Day	Start Day Year events 6
6/15	TW51_EventMMStart06	Unsigned 8-bit	1	1	12	Month	Start Month Year events 6
6/15	TW66_EventDDStop06	Unsigned 8-bit	1	1	31	Day	Stop Day Year events 6
6/15	TW81_EventMMStop06	Unsigned 8-bit	1	1	12	Month	Stop Month Year events 6
7/15	TW07_EventProfile07	1=P1; 2=P2; 3=24h On; 4=24h Off	1	1	4	—	Year events profile 7
7/15	TW22_EnEvent07	0 = Off; 1 = On	0	0	1	—	Enable Year events 7
7/15	TW37_EventDDStart07	Unsigned 8-bit	1	1	31	Day	Start Day Year events 7
7/15	TW52_EventMMStart07	Unsigned 8-bit	1	1	12	Month	Start Month Year events 7
7/15	TW67_EventDDStop07	Unsigned 8-bit	1	1	31	Day	Stop Day Year events 7
7/15	TW82_EventMMStop07	Unsigned 8-bit	1	1	12	Month	Stop Month Year events 7
8/15	TW08_EventProfile08	1=P1; 2=P2; 3=24h On; 4=24h Off	1	1	4	—	Year events profile 8
8/15	TW23_EnEvent08	0 = Off; 1 = On	0	0	1	—	Enable Year events 8
8/15	TW38_EventDDStart08	Unsigned 8-bit	1	1	31	Day	Start Day Year events 8
8/15	TW53_EventMMStart08	Unsigned 8-bit	1	1	12	Month	Start Month Year events 8
8/15	TW68_EventDDStop08	Unsigned 8-bit	1	1	31	Day	Stop Day Year events 8
8/15	TW83_EventMMStop08	Unsigned 8-bit	1	1	12	Month	Stop Month Year events 8

Pag	Name	Device Type	Def	Min	Max	Unit	Description
9/15	TW09_EventProfile09	1=P1; 2=P2; 3=24h On; 4=24h Off	1	1	4	—	Year events profile 9
9/15	TW24_EnEvent09	0 = Off; 1 = On	0	0	1	—	Enable Year events 9
9/15	TW39_EventDDStart09	Unsigned 8-bit	1	1	31	Day	Start Day Year events 9
9/15	TW54_EventMMStart09	Unsigned 8-bit	1	1	12	Month	Start Month Year events 9
9/15	TW69_EventDDStop09	Unsigned 8-bit	1	1	31	Day	Stop Day Year events 9
9/15	TW84_EventMMStop09	Unsigned 8-bit	1	1	12	Month	Stop Month Year events 9
10/15	TW10_EventProfile10	1=P1; 2=P2; 3=24h On; 4=24h Off	1	1	4	—	Year events profile 10
10/15	TW25_EnEvent10	0 = Off; 1 = On	0	0	1	—	Enable Year events 10
10/15	TW40_EventDDStart10	Unsigned 8-bit	1	1	31	Day	Start Day Year events 10
10/15	TW55_EventMMStart10	Unsigned 8-bit	1	1	12	Month	Start Month Year events 10
10/15	TW70_EventDDStop10	Unsigned 8-bit	1	1	31	Day	Stop Day Year events 10
10/15	TW85_EventMMStop10	Unsigned 8-bit	1	1	12	Month	Stop Month Year events 10
11/15	TW11_EventProfile11	1=P1; 2=P2; 3=24h On; 4=24h Off	1	1	4	—	Year events profile 11
11/15	TW26_EnEvent11	0 = Off; 1 = On	0	0	1	—	Enable Year events 11
11/15	TW41_EventDDStart11	Unsigned 8-bit	1	1	31	Day	Start Day Year events 11
11/15	TW56_EventMMStart11	Unsigned 8-bit	1	1	12	Month	Start Month Year events 11
11/15	TW71_EventDDStop11	Unsigned 8-bit	1	1	31	Day	Stop Day Year events 11
11/15	TW86_EventMMStop11	Unsigned 8-bit	1	1	12	Month	Stop Month Year events 11
12/15	TW12_EventProfile12	1=P1; 2=P2; 3=24h On; 4=24h Off	1	1	4	—	Year events profile 12
12/15	TW27_EnEvent12	0 = Off; 1 = On	0	0	1	—	Enable Year events 12
12/15	TW42_EventDDStart12	Unsigned 8-bit	1	1	31	Day	Start Day Year events 12
12/15	TW57_EventMMStart12	Unsigned 8-bit	1	1	12	Month	Start Month Year events 12
12/15	TW72_EventDDStop12	Unsigned 8-bit	1	1	31	Day	Stop Day Year events 12
12/15	TW87_EventMMStop12	Unsigned 8-bit	1	1	12	Month	Stop Month Year events 12
13/15	TW13_EventProfile13	1=P1; 2=P2; 3=24h On; 4=24h Off	1	1	4	—	Year events profile 13

Pag	Name	Device Type	Def	Min	Max	Unit	Description
13/15	TW28_EnEvent13	0 = Off; 1 = On	0	0	1	—	Enable Year events 13
13/15	TW43_EventDDStart13	Unsigned 8-bit	1	1	31	Day	Start Day Year events 13
13/15	TW58_EventMMStart13	Unsigned 8-bit	1	1	12	Month	Start Month Year events 13
13/15	TW73_EventDDStop13	Unsigned 8-bit	1	1	31	Day	Stop Day Year events 13
13/15	TW88_EventMMStop13	Unsigned 8-bit	1	1	12	Month	Stop Month Year events 13
14/15	TW14_EventProfile14	1=P1; 2=P2; 3=24h On; 4=24h Off	1	1	4	—	Year events profile 14
14/15	TW29_EnEvent14	0 = Off; 1 = On	0	0	1	—	Enable Year events 14
14/15	TW44_EventDDStart14	Unsigned 8-bit	1	1	31	Day	Start Day Year events 14
14/15	TW59_EventMMStart14	Unsigned 8-bit	1	1	12	Month	Start Month Year events 14
14/15	TW74_EventDDStop14	Unsigned 8-bit	1	1	31	Day	Stop Day Year events 14
14/15	TW89_EventMMStop14	Unsigned 8-bit	1	1	12	Month	Stop Month Year events 14
15/15	TW15_EventProfile15	1=P1; 2=P2; 3=24h On; 4=24h Off	1	1	4	—	Year events profile 15
15/15	TW30_EnEvent15	0 = Off; 1 = On	0	0	1	—	Enable Year events 15
15/15	TW45_EventDDStart15	Unsigned 8-bit	1	1	31	Day	Start Day Year events 15
15/15	TW60_EventMMStart15	Unsigned 8-bit	1	1	12	Month	Start Month Year events 15
15/15	TW75_EventDDStop15	Unsigned 8-bit	1	1	31	Day	Stop Day Year events 15
15/15	TW90_EventMMStop15	Unsigned 8-bit	1	1	12	Month	Stop Month Year events 15

Table 52 - B3-Year Event

4.3. C-Languages

Below is given the “C-Languages” menu navigation that allows for a language to be selected.

Remote display language is aligned to the one of the PLC at boot and periodically rechecked.
A language change on the remote display is applied also to the local display of the PLC

4.4. D-Alarms

Below is given the “D-Alarms” menu navigation that allows for alarms to be managed.

Active

The alarms in the “D1- Alarms” menu are given in the table below, divided up per page.

Pag	Name	Device type	Description
- - -	Alxx_Reset	Boolean	Alarm reset request command via Modbus
- - -	Al01_SupplyProbe	0=Not Active; 1=Active; 2=Manual Reset	Al01-Supply Temperature Probe Error
- - -	Al02_ReturnProbe	See Al01_SupplyProbe	A02-Return Temperature Probe Error
- - -	Al03_ExternalProbe	See Al01_SupplyProbe	A03-External Temperature Probe Error
- - -	Al04_ExpulsionProbe	See Al01_SupplyProbe	A04-Expulsion Temperature Probe Error
- - -	Al05_PreHeatingProbe	See Al01_SupplyProbe	A05-Preheating Temperature Probe Error
- - -	Al06_SaturationProbe	See Al01_SupplyProbe	A06-Saturation Temperature Probe Error
- - -	Al07_AntifreezeProbe	See Al01_SupplyProbe	A07-Antifreeze Temperature Probe Error
- - -	Al08_AirQualityProbe_CO2	See Al01_SupplyProbe	A08-CO2 Probe Error
- - -	Al09_SupplyPressureProbe	See Al01_SupplyProbe	A09-Supply Pressure Probe Error
- - -	Al10_ReturnPressureProbe	See Al01_SupplyProbe	A10-Return Pressure Probe Error
- - -	Al11_SupplyHumidityProbe	See Al01_SupplyProbe	A11-Hum. Supply Probe Error
- - -	Al12_ReturnHumidityProbe	See Al01_SupplyProbe	A12-Hum. Return Probe Error
- - -	Al13_AirQualityProbe_VOC	See Al01_SupplyProbe	A13-VOC Probe Error
- - -	Al14_ExternalHumidityProbe	See Al01_SupplyProbe	A14-Hum. External Probe Error
- - -	Al26_SensAirFlowSupply	See Al01_SupplyProbe	A26-Supply Airflow by Probe
- - -	Al27_SensAirFlowReturn	See Al01_SupplyProbe	A27-Return Airflow by Probe
- - -	Al28_SensAirFlowSupplyBck	See Al01_SupplyProbe	A28-Airflow Prb Sup.2

Pag	Name	Device type	Description
- - -	Al29_SensAirFlowReturnBck	See Al01_SupplyProbe	A29-Airflow Prb Ret.2
- - -	Al30_FanThermalSupply	See Al01_SupplyProbe	A30-Fan Supply
- - -	Al31_FanThermalReturn	See Al01_SupplyProbe	A31-Fan Return
- - -	Al32_Fire	See Al01_SupplyProbe	A32-Fire
- - -	Al33_Door	See Al01_SupplyProbe	A33-Door
- - -	Al34_Antifreeze	See Al01_SupplyProbe	A34-Antifreeze
- - -	Al35_AirFlowSupply	See Al01_SupplyProbe	A35-Airflow Supply
- - -	Al36_AirFlowReturn	See Al01_SupplyProbe	A36-Airflow Return
- - -	Al37_Humidifier	See Al01_SupplyProbe	A37-Humidifier
- - -	Al38_PreHeater	See Al01_SupplyProbe	A38-Preheater
- - -	Al39_Heater	See Al01_SupplyProbe	A39-Heater
- - -	Al40_PostHeater	See Al01_SupplyProbe	A40-Postheater
- - -	Al41_RotaryWheel	See Al01_SupplyProbe	A41-Recovery
- - -	Al42_Filter1	See Al01_SupplyProbe	A42-Filter 1
- - -	Al43_Filter2	See Al01_SupplyProbe	A43-Filter 2
- - -	Al44_Filter3	See Al01_SupplyProbe	A44-Filter 3
- - -	Al45_Filter4	See Al01_SupplyProbe	A45-Filter 4
- - -	Al46_FanThermalSupplyBck	See Al01_SupplyProbe	A46-Fan Supply 2
- - -	Al47_FanThermalReturnBck	See Al01_SupplyProbe	A47-Fan Return 2
- - -	Al48_AirFlowSupplyBck	See Al01_SupplyProbe	A48-Airflow Supply 2
- - -	Al49_AirFlowReturnBck	See Al01_SupplyProbe	A49-Airflow Return 2
- - -	Al50_CondUnit	See Al01_SupplyProbe	A50-Cond. Unit
- - -	Al51_RTC	See Al01_SupplyProbe	A51-Real Time Clock
- - -	Al52_FanMaintenance	See Al01_SupplyProbe	A52-Fan Maintenance
- - -	Al53_ModbusFanCfg	See Al01_SupplyProbe	A53-Modbus Fan Config. Timeout
- - -	Al54_FanSupplyCom	See Al01_SupplyProbe	A54-Modbus Fan Supply Communication
- - -	Al55_FanReturnCom	See Al01_SupplyProbe	A55-Modbus Fan Return Communication
- - -	Al56_FanSupplyBckCom	See Al01_SupplyProbe	A56-Modbus Fan Supply 2 Communication
- - -	Al57_FanReturnBckCom	See Al01_SupplyProbe	A57-Modbus Fan Return 2 Communication
- - -	Al58_Filter5	See Al01_SupplyProbe	A58-Filter 5
- - -	Al60_LogError	See Al01_SupplyProbe	A60-Log Error
- - -	Al61_Exp1	See Al01_SupplyProbe	A61-Can Expansion 1
- - -	Al62_Exp2	See Al01_SupplyProbe	A62-Can Expansion 2
- - -	Al66_CondUnit2	See Al01_SupplyProbe	A66-Cond. Unit 2
- - -	Al67_CondUnit3	See Al01_SupplyProbe	A67-Cond. Unit 3
- - -	Al68_CondUnit4	See Al01_SupplyProbe	A68-Cond. Unit 4
- - -	Al99_FanSupply_1b_Com	See Al01_SupplyProbe	Al99-Fan Supply 1b Com Alarm
- - -	Al100_FanSupply_1c_Com	See Al01_SupplyProbe	Al100-Fan Supply 1c Com Alarm
- - -	Al101_FanReturn_1b_Com	See Al01_SupplyProbe	Al101-Fan Return 1b Com Alarm
- - -	Al102_FanReturn_1c_Com	See Al01_SupplyProbe	Al102-Fan Return 1c Com Alarm

Pag	Name	Device type	Description
- - -	Al103_FanSupply_2b_Com	See Al01_SupplyProbe	Al103-Fan Supply 2b Com Alarm
- - -	Al104_FanSupply_2c_Com	See Al01_SupplyProbe	Al104-Fan Supply 2c Com Alarm
- - -	Al105_FanReturn_2b_Com	See Al01_SupplyProbe	Al105-Fan Return 2b Com Alarm
- - -	Al106_FanReturn_2c_Com	See Al01_SupplyProbe	Al106-Fan Return 2c Com Alarm

Table 53 - D1-Alarms

Historical

Page “D2- Historical” allows to view the list of the last 50 alarms events.

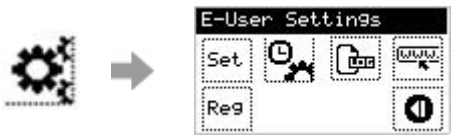
- - -	Historical_Value_Code	0 = ---; 1 = A01-Supply Pr.; 2 = A02-Return Pr.; 3 = A03-External Pr.; 4 = A04-Expulsion Pr.; 5 = A05-Preheating Pr.; 6 = A06-Saturation Pr.; 7 = A07-Antifreeze Pr.; 8 = A08-CO2 Pr.; 9 = A09-Supply Press. Pr.; 10 = A10-Return Press. Pr.; 11 = A11-Hum. Supply Pr.; 12 = A12-Hum. Return Pr.; 13 = A13-VOC Pr.; 14 = A14-Hum. External Pr.; 26 = A26-Airflow Prb Sup.; 27 = A27-Airflow Prb Ret.; 28 = A28-Airflow Prb Sup.2; 29 = A29-Airflow Prb Ret.2; 30 = A30-Fan Supply; 31 = A31-Fan Return; 32 = A32-Fire; 33 = A33-Door; 34 = A34-Antifreeze; 35 = A35-Airflow Supply; 36 = A36-Airflow Return; 37 = A37-Humidifier; 38 = A38-Preheater; 39 = A39-Heater; 40 = A40-Postheater; 41 = A41-Recovery; 42 = A42-Filter 1; 43 = A43-Filter 2; 44 = A44-Filter 3; 45 = A45-Filter 4; 46 = A46-Fan Supply 2; 47 = A47-Fan Return 2; 48 = A48-Airflow Supply 2; 49 = A49-Airflow Return 2; 50 = A50-Cond. Unit; 51 = A51-Real Time Clock; 52 = A52-Fan Maintenance; 58 = A58-Filter 5 60 = A60-Log Error; 61 = A61-Can Expansion 1; 62 = A62-Can Expansion 2; 66 = A66-Cond. Unit 2 67 = A67-Cond. Unit 3 68 = A68-Cond. Unit 4	—	0	106	Historical: Alarm Code

- - -	Historical_Value_Code	99 = A99-Fan Sup.1b Com. 100 = A100-Fan Sup.1c Com. 101 = A101-Fan Ret.1b Com. 102 = A102-Fan Ret.1c Com. 103 = A103-Fan Sup.2b Com. 104 = A104-Fan Sup.2c Com. 105 = A105-Fan Ret.2b Com. 106 = A106-Fan Ret.2c Com.	—	0	106	Historical: Alarm Code
- - -	Historical_Value_Date	Signed 16-bit	—	—	—	Historical: Alarm Date
- - -	Historical_Value_Time	Signed 16-bit	—	—	—	Historical: Alarm Time
- - -	Historical_Value_SecStatus	Signed 16-bit	—	—	—	Historical: Alarm Seconds and Status: 100x+seconds (x=0 restored, x=1 active, x=2 wait for reset)
- - -	Historical_Number_alarms	Signed 16-bit	—	—	—	Historical: Number of stored alarms
- - -	Historical_Reset	Boolean	0	—	—	Historical: Reset Request

Table 54 - D2-Historical

4.5. E-User Settings

Below is given the “E-User Settings” menu navigation that allows for user parameters to be managed.



4.5.1. E1-Setpoints

Below is given the E1-Setpoints” menu navigation that allows for the setpoints to be managed.

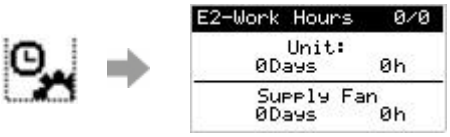
The parameters in the “E1- Setpoints” menu are given in the table below, divided up per page.

Pag	Name	Device type	Def	Min	Max	Unit	Description
1/6	SP_T_Cool_E2	Signed 16-bit	26.0	SP_T_MIN	SP_T_MAX	°C	Setpoint Cooling
1/6	SP_T_CoolEco_E2	Signed 16-bit	28.0	SP_T_Cool_E2	SP_T_MAX	°C	Setpoint Cooling Economy
2/6	SP_T_Heat_E2	Signed 16-bit	20.0	SP_T_MIN	SP_T_MAX	°C	Setpoint Heating
2/6	SP_T_HeatEco_E2	Signed 16-bit	18.0	SP_T_MIN	SP_T_Heat_E2	°C	Setpoint Heating Economy
3/6	SP_T_Auto_E2	Signed 16-bit	240	SP_T_MIN	SP_T_MAX	°C	Setpoint Auto
3/6	DIFF_T_AutoEco	Signed 16-bit	20	0	—	°C	Differential Economy Mode - Half Band (AUTO)
4/6	SP_RH_DehumidificationSetpoint_E2	Signed 16-bit	50	SP_RH_MinSetpoint	SP_RH_MaxSetpoint	%R.H.	Dehumidication setpoint (comfort)
4/6	SP_RH_DehumidificationSetpointEco_E2	Signed 16-bit	55	SP_RH_MinSetpoint	SP_RH_MaxSetpoint	%R.H.	Dehumidication setpoint (eco)
5/6	SP_RH_HumidificationSetpoint_E2	Signed 16-bit	50	SP_RH_MinSetpoint	SP_RH_MaxSetpoint	%R.H.	Humidification setpoint (comfort)
5/6	SP_RH_HumidificationSetpointEco_E2	Signed 16-bit	45	SP_RH_MinSetpoint	SP_RH_MaxSetpoint	%R.H.	Humidification setpoint (eco)
6/6	SP_CO2_E2	Signed 16-bit	800	0	2000	ppm	CO2 Air quality setpoint
6/6	SP_VOC_E2	Signed 16-bit	40	0	100	%	VOC Air quality setpoint

Table 55 - E1-Setpoints

4.5.2. E2-Work Hours

Below is given the E2-Work Hours" menu navigation that allows for the operating periods of the fan to be managed.



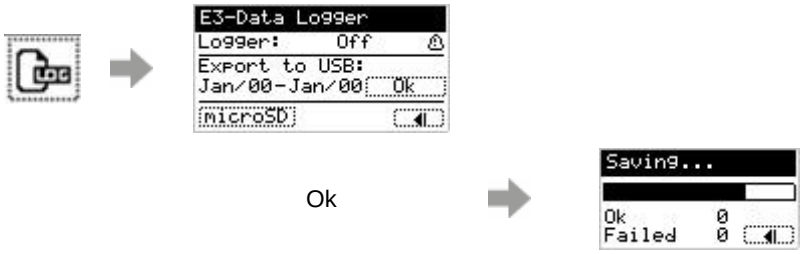
The status in the "E2- Work Hours" menu are given in the table below, divided up per page (elements are visible if defined in the current unit configuration).

Pag	Name	Device type	Unit	Description
1/5	Unit_DD	Unsigned 16-bit	days	Unit Working Days
1/5	Unit_HH	Unsigned 16-bit	hours	Unit Working Hours
1/5	FanSupply_DD	Unsigned 16-bit	days	Supply Fan Working Days
1/5	FanSupply_HH	Unsigned 16-bit	hours	Supply Fan Working Hours
2/5	FanSupplyBck_DD	Unsigned 16-bit	days	Supply Fan 2 Working Days
2/5	FanSupplyBck_HH	Unsigned 16-bit	hours	Supply Fan 2 Working Hours
2/5	FanReturn_DD	Unsigned 16-bit	days	Return Fan Working Days
2/5	FanReturn_HH	Unsigned 16-bit	hours	Return Fan Working Hours
3/5	FanReturnBck_DD	Unsigned 16-bit	days	Return Fan 2 Working Days
3/5	FanReturnBck_HH	Unsigned 16-bit	hours	Return Fan 2 Working Hours
3/5	CondUnit1_DD	Unsigned 16-bit	days	Condensing Unit 1 Working Days
3/5	CondUnit1_HH	Unsigned 16-bit	hours	Condensing Unit 1 Working Hours
4/5	CondUnit2_DD	Unsigned 16-bit	days	Condensing Unit 2 Working Days
4/5	CondUnit2_HH	Unsigned 16-bit	hours	Condensing Unit 2 Working Hours
4/5	CondUnit3_DD	Unsigned 16-bit	days	Condensing Unit 3 Working Days
4/5	CondUnit3_HH	Unsigned 16-bit	hours	Condensing Unit 3 Working Hours
5/5	CondUnit4_DD	Unsigned 16-bit	days	Condensing Unit 4 Working Days
5/5	CondUnit4_HH	Unsigned 16-bit	hours	Condensing Unit 4 Working Hours

Table 56 - E2-Work Hours

4.5.3. E3-Data Logger

Below is given the “E3-Data Logger” menu navigation that allows for the data loggers to be managed.



The parameters of the “E3-Data Logger” are given in the table below, divided up per page.

Pag	Name	Device type	Def	Min	Max	Description
- - -	LogEnable	Boolean	0	—	—	Logger Enable
- - -	StartMonth	Unsigned 8-bit	1	1	12	Start Month - Log Period Export to USB
- - -	EndMonth	Unsigned 8-bit	1	1	12	End Month - Log Period Export to USB
- - -	StartYear	Unsigned 8-bit	16	0	99	Start Year - Log Period Export to USB
- - -	EndYear	Unsigned 8-bit	16	0	99	End Year - Log Period Export to USB

Table 57 - E3-Data Logger

The parameters in the “E31- microSD Options” menu are given in the table below, divided up per page.

Pag	Name	Device type	Def	Min	Max	Description
- - -	microSdStatus	0=Not present; 1=Unsafe Removed; 2=Not Mounted; 3=Mounted	—	0	3	microSd Status
- - -	microSdError	Boolean	—	—	—	microSD Error
- - -	microSdInfo	0=...; 1=Release SD; 2=Ready to remove/mount; 3=Ready for log; 4=...; 5=insert SD..; 6=Release SD; 7=Retry command..; 8=Yet mounted	—	0	8	microSd Info
- - -	microSDPresCount	Unsigned 16-bit	0	—	—	microSD Presence Counter

Table 58 - E31-microSD Options

4.5.4. E4-Web Server

Below is given the E4-Web Server" menu navigation that allows for the access parameters relating to the web server, to be managed.

The parameters in the "E4- Web Server" menu are given in the table below, divided up per page.

Pag	Name	Device type	Def	Description
- - -	WEB_User_E2	String	administrator	Web User ID
- - -	WEB_PSW_E2	String	password	Web Psw ID

Table 59 - E4-Web Server

4.5.5. E5-Regulator

Below is given the E5-Regulator" menu navigation that allows for the regulators to be managed.

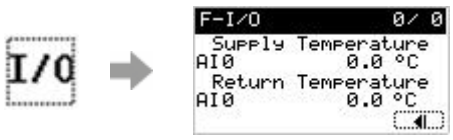
The parameters in the "E5-Regulators" menu are given in the table below, divided up per page.

Pag	Name	Device type	Def	Min	Max	Unit	Description
1/6	cfgFreeCooling	0=Disabled; 1=Prop.Reg.; 2=Recovery Reg.	0	0	2	—	FreeCooling Enable
1/7	cfgFreeHeating	0=Disabled; 1=Prop.Reg.; 2=Recovery Reg.	0	0	2	—	FreeHeating Enable
2/7	FreeCHMinExtTemp	Signed 16-bit	12.0	-20.0	20.0	°C	Free Cooling/Heating Minimum External Temperature
2/7	FreeCHBand	Signed 16-bit	5.0	1.0	10.0	°C	Free Cooling/Heating Proportional Band (direct return reg)
3/7	FreeCHTimeout	Unsigned 16-bit	60	0	180	min	Free Cooling/Heating Timeout
3/7	FreeCHDiff	Signed 16-bit	5.0	1.0	10.0	°C	Free Cooling/Heating Outside Regulation Differential
4/7	FreeCHHyst	Signed 16-bit	1.0	0.2	5.0	°C	Free Cooling/Heating Hysteresis
4/7	----------						
5/7	FastHeatCoolEn	Boolean	0	—	—	—	Fast Heating/Cooling Enable
5/7	FastHCTimeout	Signed 16-bit	10	1	—	Min	Fast Heating/Cooling and StartUp timeout
6/7	FastCoolSet	Signed 16-bit	20.0	-50.0	50.0	°C	Minimum outside temp for Power up Fast Cooling
6/7	FastCoolExitSet	Signed 16-bit	26.0	-50.0	50.0	°C	Fast Cooling Return temperature exit set in case of supply Regulation
7/7	FastHeatSet	Signed 16-bit	25.0	-50.0	50.0	°C	Maximum outside temp for Power up Fast Heating
7/7	FastHeatExitSet	Signed 16-bit	18.0	-50.0	50.0	°C	Fast Heating Return temperature exit set in case of supply Regulation

Table 60 - E5-Regulator

4.6. F-I/O

Below is given the “F-I/O” menu navigation that allows for the inputs and outputs to be managed.



The status in the “F-I/O” menu are given in the table below, divided up per page (elements are visible if defined in the current unit configuration)..

Pag	Name	Device type	Unit	Description
	AI_LogicIndex_0	Signed 16-bit	°C	Supply Temperature
	AI_LogicIndex_1	Signed 16-bit	°C	Return Temperature
	AI_LogicIndex_2	Signed 16-bit	°C	External Temperature
	AI_LogicIndex_3	Signed 16-bit	°C	Expulsion Temperature
	AI_LogicIndex_4	Signed 16-bit	°C	Preheating Temp,
	AI_LogicIndex_5	Signed 16-bit	°C	Saturation Temperature
	AI_LogicIndex_6	Signed 16-bit	°C	Antifreeze Temperature
	AI_LogicIndex_7	Signed 16-bit	%	Air Quality - VOC
	AI_LogicIndex_8	Signed 16-bit	ppm	Air Quality - CO2
	AI_LogicIndex_9	Signed 16-bit	pa	Supply Pressure
	AI_LogicIndex_10	Signed 16-bit	pa	Return Pressure
	AI_LogicIndex_11	Signed 16-bit	%	Supply Humidity
	AI_LogicIndex_12	Signed 16-bit	%	Return Humidity
	AI_LogicIndex_13	Signed 16-bit	%	External Humidity
	AI_LogicIndex_14	Signed 32-bit	m3/h	Supply Flow Testing
	AI_LogicIndex_15	Signed 32-bit	m3/h	Return Flow Testing
	DI_Voltage_LogicIndex_0	0 = 0V; 1 = 24V; 2 = Not Used	—	Supply Fan Thermal - Physical Status
	DI_Voltage_LogicIndex_1	See DI_Voltage_LogicIndex_0	—	Return Fan Thermal - Physical Status
	DI_Voltage_LogicIndex_2	See DI_Voltage_LogicIndex_0	—	On/Off Input - Physical Status
	DI_Voltage_LogicIndex_3	See DI_Voltage_LogicIndex_0	—	Fire Alarm - Physical Status
	DI_Voltage_LogicIndex_4	See DI_Voltage_LogicIndex_0	—	Mode Input - Physical Status
	DI_Voltage_LogicIndex_5	See DI_Voltage_LogicIndex_0	—	Door - Physical Status
	DI_Voltage_LogicIndex_6	See DI_Voltage_LogicIndex_0	—	Antifreeze - Physical Status
	DI_Voltage_LogicIndex_7	See DI_Voltage_LogicIndex_0	—	Supply Airflow - Physical Status
	DI_Voltage_LogicIndex_8	See DI_Voltage_LogicIndex_0	—	Return Airflow - Physical Status
	DI_Voltage_LogicIndex_9	See DI_Voltage_LogicIndex_0	—	Humidifier Alarm - Physical Status
	DI_Voltage_LogicIndex_10	See DI_Voltage_LogicIndex_0	—	Preheater Alarm - Physical Status
	DI_Voltage_LogicIndex_11	See DI_Voltage_LogicIndex_0	—	Postheater Alarm - Physical Status
	DI_Voltage_LogicIndex_12	See DI_Voltage_LogicIndex_0	—	Rotary Wheel Alarm - Physical Status
	DI_Voltage_LogicIndex_13	See DI_Voltage_LogicIndex_0	—	Filter 1 Alarm - Physical Status

Pag	Name	Device type	Unit	Description
	DI_Voltage_LogicIndex_14	See DI_Voltage_LogicIndex_0	—	Filter 2 Alarm - Physical Status
	DI_Voltage_LogicIndex_15	See DI_Voltage_LogicIndex_0	—	Filter 3 Alarm - Physical Status
	DI_Voltage_LogicIndex_16	See DI_Voltage_LogicIndex_0	—	Filter 4 Alarm - Physical Status
	DI_Voltage_LogicIndex_30	See DI_Voltage_LogicIndex_0	—	Filter 5 Alarm - Physical Status
	DI_Voltage_LogicIndex_17	See DI_Voltage_LogicIndex_0	—	Supply Fan 2 Th. - Physical Status
	DI_Voltage_LogicIndex_18	See DI_Voltage_LogicIndex_0	—	Return Fan 2 Th. - Physical Status
	DI_Voltage_LogicIndex_19	See DI_Voltage_LogicIndex_0	—	Supply Fan 2 Airflow - Physical Status
	DI_Voltage_LogicIndex_20	See DI_Voltage_LogicIndex_0	—	Return Fan 2 Airflow - Physical Status
	DI_Voltage_LogicIndex_21	See DI_Voltage_LogicIndex_0	—	Cond. Unit Alarm - Physical Status
	DI_Voltage_LogicIndex_22	See DI_Voltage_LogicIndex_0	—	El. Heater Alarm - Physical Status
	DI_Voltage_LogicIndex_23	See DI_Voltage_LogicIndex_0	—	Cond. Unit 2 Alarm - Physical Status
	DI_Voltage_LogicIndex_24	See DI_Voltage_LogicIndex_0	—	Cond. Unit 3 Alarm - Physical Status
	DI_Voltage_LogicIndex_25	See DI_Voltage_LogicIndex_0	—	Cond. Unit 4 Alarm - Physical Status
	DI_Voltage_LogicIndex_26	See DI_Voltage_LogicIndex_0	—	Cond. Unit 1 Defrost - Physical Status
	DI_Voltage_LogicIndex_27	See DI_Voltage_LogicIndex_0	—	Cond. Unit 2 Defrost - Physical Status
	DI_Voltage_LogicIndex_28	See DI_Voltage_LogicIndex_0	—	Cond. Unit 3 Defrost - Physical Status
	DI_Voltage_LogicIndex_29	See DI_Voltage_LogicIndex_0	—	Cond. Unit 4 Defrost - Physical Status
	AO_LogicIndex_0	Signed 16-bit	%	Supply Fan
	AO_LogicIndex_1	Signed 16-bit	%	Return Fan
	AO_LogicIndex_2	Signed 16-bit	%	Ext. Dampers
	AO_LogicIndex_3	Signed 16-bit	%	Bypass Damper
	AO_LogicIndex_4	Signed 16-bit	%	Modulating Cool - C/H
	AO_LogicIndex_5	Signed 16-bit	%	Modulating Heat
	AO_LogicIndex_6	Signed 16-bit	%	Pre Heater
	AO_LogicIndex_7	Signed 16-bit	%	Post Heater
	AO_LogicIndex_8	Signed 16-bit	%	Rotary Wheel / Exchanger
	AO_LogicIndex_9	Signed 16-bit	%	Humidifier
	AO_LogicIndex_10	Signed 16-bit	%	Condensing Unit 1
	AO_LogicIndex_11	Signed 16-bit	%	Condensing Unit 2
	AO_LogicIndex_12	Signed 16-bit	%	Condensing Unit 3
	AO_LogicIndex_13	Signed 16-bit	%	Condensing Unit 4
	DO_LogicIndex_0	0 = Off; 1 = On; 2 = Not Used	—	Supply Fan - Logic Status
	DO_LogicIndex_1	See DO_LogicIndex_0	—	Return Fan - Logic Status
	DO_LogicIndex_2	See DO_LogicIndex_0	—	On Off - Logic Status
	DO_LogicIndex_3	See DO_LogicIndex_0	—	Alarm - Logic Status
	DO_LogicIndex_4	See DO_LogicIndex_0	—	Mode - Logic Status
	DO_LogicIndex_5	See DO_LogicIndex_0	—	Ext. Dampers - Logic Status
	DO_LogicIndex_6	See DO_LogicIndex_0	—	Bypass Damper - Logic Status

Pag	Name	Device type	Unit	Description
	DO_LogicIndex_7	See DO_LogicIndex_0	—	Supply Damper - Logic Status
	DO_LogicIndex_8	See DO_LogicIndex_0	—	Return Damper - Logic Status
	DO_LogicIndex_9	See DO_LogicIndex_0	—	Pump Preheat - Logic Status
	DO_LogicIndex_10	See DO_LogicIndex_0	—	Pump Postheat - Logic Status
	DO_LogicIndex_11	See DO_LogicIndex_0	—	Cool/CH Pump - Logic Status
	DO_LogicIndex_12	See DO_LogicIndex_0	—	Cool/CH Step 1 - Logic Status
	DO_LogicIndex_13	See DO_LogicIndex_0	—	Cool/CH Step 2 - Logic Status
	DO_LogicIndex_14	See DO_LogicIndex_0	—	Cool/CH Step 3 - Logic Status
	DO_LogicIndex_15	See DO_LogicIndex_0	—	Cool/CH Step 4 - Logic Status
	DO_LogicIndex_16	See DO_LogicIndex_0	—	Heat Pump - Logic Status
	DO_LogicIndex_17	See DO_LogicIndex_0	—	Heater Step 1 - Logic Status
	DO_LogicIndex_18	See DO_LogicIndex_0	—	Heater Step 2 - Logic Status
	DO_LogicIndex_19	See DO_LogicIndex_0	—	Heater Step 3 - Logic Status
	DO_LogicIndex_20	See DO_LogicIndex_0	—	Pre Heater Step 1 - Logic Status
	DO_LogicIndex_21	See DO_LogicIndex_0	—	Pre Heater Step 2 - Logic Status
	DO_LogicIndex_22	See DO_LogicIndex_0	—	Pre Heater Step 3 - Logic Status
	DO_LogicIndex_23	See DO_LogicIndex_0	—	Post Heater Step 1 - Logic Status
	DO_LogicIndex_24	See DO_LogicIndex_0	—	Post Heater Step 2 - Logic Status
	DO_LogicIndex_25	See DO_LogicIndex_0	—	Post Heater Step 3 - Logic Status
	DO_LogicIndex_26	See DO_LogicIndex_0	—	Humidifier - Logic Status
	DO_LogicIndex_27	See DO_LogicIndex_0	—	Rotary Wheel / Exchanger - Logic Status
	DO_LogicIndex_28	See DO_LogicIndex_0	—	Supply Fan 2 - Logic Status
	DO_LogicIndex_29	See DO_LogicIndex_0	—	Return Fan 2 - Logic Status
	DO_LogicIndex_30	See DO_LogicIndex_0	—	Supply Damper 2 - Logic Status
	DO_LogicIndex_31	See DO_LogicIndex_0	—	Return Damper 2 - Logic Status

Table 61 - F-I/O

4.7. G-Password

Below is given the “G-Password” menu navigation that allows for the password to be managed.

The parameters in the “G-Password” menu are given in the table below, divided up per page.

Pag	Name	Device type	Def	Description
- - -	PSWEntry	Unsigned 16-bit	0	Password Entry:
- - -	PSWLevel	Unsigned 8-bit	—	Current password level
- - -	PSWreset	Boolean	0	Password Level Reset Request
- - -	Unit_Version	Unsigned 16-bit	0.00	Unit Application Version

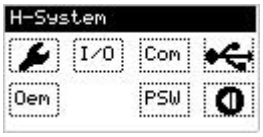
Table 62 - G-Password

Two password levels are defined, level 1 for Service and level 2 for OEM.

Access to level 2 is allowed only with unit in OFF status. Access to the submenu without entering a correct password is in read only mode.

4.8. H-System

Below is given the “H-System” menu navigation that allows for installer parameters to be managed.

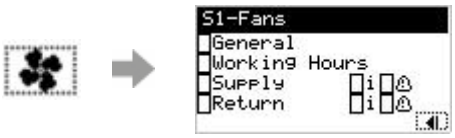


4.8.1. S-Service

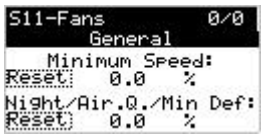
NOTE: The key  is only visible on the controller display.

4.8.1.1 S1-Fans

Below is given the S1-Fans" menu navigation that allows for the fans to be managed.



General



The parameters in the "General" menu are given in the table below, divided up per page.

Pag	Name	Device type	Def	Min	Max	Unit	Description
1/12	Fan_MinimumSpeed	Signed 16-bit	25.0	0.0	50.0	%	Fan Minimum Speed (Pressure Regulation and limit for other speed)
1/12	Fan_LowSpeed	Signed 16-bit	30.0	Fan _Minimum Speed	80.0	%	Fan Low Speed (Start Phase/Night/Min Air Q. and Defrost Speed)
2/12	Fan_NominalSpeed	Signed 16-bit	90.0	Fan_LowSpeed	100.0	%	Fan Nominal/Maximum Speed
2/12	Fan_ReturnSpeedCorrection	Signed 16-bit	0.0	-50.0	50.0	%	Fan Return Output correction (not used with 2 pressure probes)
3/12	Fan_PowerUp1_Time	Unsigned 16-bit	30	0	255	sec	Fan Power Up Time at Min Speed (with Heaters)
3/12	Fan_PowerUp2_Time	Unsigned 16-bit	10	0	255	sec	Fan Power Up Time at Nom Speed (with Heaters)
4/12	Fan_SinglePressureReturn	Boolean	0	—	—	—	In case of a unique pressure probe mounted on return section and Supply+Return Fans
4/12	Fan_Post_Time	Unsigned 16-bit	40	0	255	sec	Fan Post Ventilation Time (with Heaters)
5/12	Fan_PreHeating_Time	Unsigned 16-bit	180	0	600	sec	Fan Preheating Time (with heating valves)
5/12	Fan_PreHeatOnSet	Signed 16-bit	-5.0	-20.0	10.0	°C	External Temperature Set forcing preheating time
6/12	Fan_Swap_Time	Unsigned 16-bit	240	0	600	hours	Fan swap time (0=Disabled)

Pag	Name	Device type	Def	Min	Max	Unit	Description
6/12	Fan_SwapPolicy	0 = If available Start always Fans 1; 1 = Start Section with less working hours (Supply + Return); 2 = Start Fans with less working hours; 3 = Start Fans with less working hours keeping parallel sections	0	0	3	—	Fan swap policy
7/12	Fan_Maintenance_Supply	Boolean	0	—	—	—	Fan Main Supply Forced Off for maintenance
7/12	Fan_Maintenance_Return	Boolean	0	—	—	—	Fan Main Return Forced Off for maintenance
8/12	Fan_Maintenance_SupplyBck	Boolean	0	—	—	—	Fan Supply 2 Forced Off for maintenance
8/12	Fan_Maintenance_ReturnBck	Boolean	0	—	—	—	Fan Return 2 Forced Off for maintenance
9/12	Fan_Maintenance_Supply1b	Boolean	0	—	—	—	Fan Main Supply b Forced Off for maintenance
9/12	Fan_Maintenance_Supply1c	Boolean	0	—	—	—	Fan Main Supply c Forced Off for maintenance
10/12	Fan_Maintenance_Return1b	Boolean	0	—	—	—	Fan Main Return b Forced Off for maintenance
10/12	Fan_Maintenance_Return1c	Boolean	0	—	—	—	Fan Main Return c Forced Off for maintenance
11/12	Fan_Maintenance_Supply2b	Boolean	0	—	—	—	Fan Supply 2b Forced Off for maintenance
11/12	Fan_Maintenance_Supply2c	Boolean	0	—	—	—	Fan Supply 2c Forced Off for maintenance
12/12	Fan_Maintenance_Return2b	Boolean	0	—	—	—	Fan Main Return 2b Forced Off for maintenance
12/12	Fan_Maintenance_Return2c	Boolean	0	—	—	—	Fan Main Return 2c Forced Off for maintenance

Table 63 - General

The parameters in the “Working Hours” menu are given in the table below, divided up per page.

Pag	Name	Device type	Unit	Description
1/3	Unit_DD	Unsigned 16-bit	days	Unit Working Days
1/3	----------			
2/3	FanSupply_DD	Unsigned 16-bit	days	Supply Fan Working Days
2/3	FanSupplyBck_DD	Unsigned 16-bit	days	Supply Fan 2 Working Days
3/3	FanReturn_DD	Unsigned 16-bit	days	Return Fan Working Days
3/3	FanReturnBck_DD	Unsigned 16-bit	days	Return Fan 2 Working Days

Table 64 - Working Hours

The parameters in the “Supply” menu are given in the table below, divided up per page.

Pag	Name	Device type	Def	Min	Max	Unit	Description
1/7	Fan_Supply_Pressure_Flow	0=Pressure; 1=Flow	0	0	1	—	Fan Supply Regulation Unit
1/7	Fan_K_Supply	Unsigned 16-bit	100	1	3000	—	Fan K Supply
2/7	Fan_SetFlowSupply	Signed 32-bit	100	Fan_Supply_SetMinFlow	Fan_Supply_SetMaxFlow	m3/h	Fan Supply Flow Setpoint
2/7	Fan_SetPrSupply	Signed 16-bit	100	Fan_Supply_SetMinPr	Fan_Supply_SetMaxPr	Pa	Fan Supply Pressure Setpoint
3/7	AI_LogicIndex_14	Signed 32-bit	—	—	—	m3/h	Supply Flow Testing
3/7	AI_LogicIndex_9	Signed 16-bit	—	—	—	pa	Supply Pressure
4/7	Fan_Supply_SetMinFlow	Signed 32-bit	50	—	—	m3/h	Fan Supply Minimum/Night Flow Setpoint
4/7	Fan_Supply_SetMaxFlow	Signed 32-bit	100000	—	—	m3/h	Fan Supply Maximum Flow Setpoint
5/7	Fan_Supply_SetMinPr	Signed 16-bit	50	—	—	Pa	Fan Supply Minimum/Night Pressure Setpoint
5/7	Fan_Supply_SetMaxPr	Signed 16-bit	5000	—	—	Pa	Fan Supply Maximum Pressure Setpoint
6/7	FAN_Supply_BpP	Unsigned 16-bit	400	1	—	Pa	Fan Supply Prop. Band Pressure
6/7	FAN_Supply_TiP	Unsigned 16-bit	75	—	—	sec	Fan Supply Integral Time Pressure
7/7	FAN_Supply_TdP	Unsigned 16-bit	0	—	—	sec	Fan Supply Derivative Time Pressure

Table 65 - Supply

The parameters in the “Return” menu are given in the table below, divided up per page.

Pag	Name	Device type	Def	Min	Max	Unit	Description
1/7	Fan_Return_Pressure_Flow	0=Pressure; 1=Flow	0	0	1	—	Fan Return Regulation Unit
1/7	Fan_K_Return	Unsigned 16-bit	100	1	3000	—	Fan K Return
2/7	Fan_SetFlowReturn	Signed 32-bit	100	Fan_Return_SetMinFlow	Fan_Return_SetMaxFlow	m3/h	Fan Return Flow Setpoint
2/7	Fan_SetPrReturn	Signed 16-bit	100	Fan_Return_SetMinPr	Fan_Return_SetMaxPr	Pa	Fan Return Pressure Setpoint
3/7	AI_LogicIndex_15	Signed 32-bit	—	—	—	m3/h	Return Flow Testing
3/7	AI_LogicIndex_10	Signed 16-bit	—	—	—	pa	Return Pressure
4/7	Fan_Return_SetMinFlow	Signed 32-bit	50	—	—	m3/h	Fan Return Minimum/Night Flow Setpoint
4/7	Fan_Return_SetMaxFlow	Signed 32-bit	100000	—	—	m3/h	Fan Return Maximum Flow Setpoint
5/7	Fan_Return_SetMinPr	Signed 16-bit	50	—	—	Pa	Fan Return Minimum/Night Pressure Setpoint
5/7	Fan_Return_SetMaxPr	Signed 16-bit	5000	—	—	Pa	Fan Return Maximum Pressure Setpoint
6/7	FAN_Return_BpP	Unsigned 16-bit	400	1	—	Pa	Fan Return Prop. Band Pressure
6/7	FAN_Return_TiP	Unsigned 16-bit	75	—	—	sec	Fan Return Integral Time Pressure
7/7	FAN_Return_TdP	Unsigned 16-bit	0	—	—	sec	Fan Return Derivative Time Pressure

Table 66 - Return

In case of Modbus driven fan and based on the number and type of fans, the parameters in the “I Supply” menu are given in the table below, divided up per page.

Modbus Fan Info 

Model	Name	Device type	Unit	Description
Ziehl/EBM	Status_Supply1_FansActualSpeed	Signed 16-bit	Rpm	Supply Ziehl/EBM Speed
Ziehl/EBM	Status_Supply1_FansVoltage	Signed 16-bit	V	Supply Ziehl/EBM DC Voltage
Ziehl/EBM	Status_Supply1_FansCurrent	Signed 16-bit	A	Supply Ziehl/EBM Current
Ziehl/EBM	Status_Supply2_FansActualSpeed	Signed 16-bit	Rpm	Supply Backup Ziehl/EBM Speed
Ziehl/EBM	Status_Supply2_FansVoltage	Signed 16-bit	V	Supply Backup Ziehl/EBM DC Voltage
Ziehl/EBM	Status_Supply2_FansCurrent	Signed 16-bit	A	Supply Backup Ziehl/EBM Current
ATV	Status_Supply1_FansActualSpeedHz	Signed 16-bit	Hz	Supply ATV212 Speed
ATV	Supply1_ATV212_FreqMin	Unsigned 16-bit	Hz	Supply ATV 212 Minimum Frequency
ATV	Supply1_ATV212_FreqMax	Unsigned 16-bit	Hz	Supply ATV 212 Maximum Frequency
ATV	Status_Supply1_FansVoltagePerc	Signed 16-bit	%	Supply ATV212 DC Voltage
ATV	Status_Supply1_FansCurrentPerc	Signed 16-bit	%	Supply ATV212 DC Current
ATV	Status_Supply2_FansActualSpeedHz	Signed 16-bit	Hz	Supply Backup ATV212 Speed
ATV	Supply2_ATV212_FreqMin	Unsigned 16-bit	Hz	Supply Backup ATV 212 Minimum Frequency
ATV	Supply2_ATV212_FreqMax	Unsigned 16-bit	Hz	Supply Backup ATV 212 Minimum Frequency
ATV	Status_Supply2_FansVoltagePerc	Signed 16-bit	%	Supply Backup ATV212 DC Voltage
ATV	Status_Supply2_FansCurrentPerc	Signed 16-bit	%	Supply Backup ATV212 DC Current

Table 67 - I Supply

The parameters in the “I Return” menu are given in the table below, divided up per page.

Model	Name	Device type	Unit	Description
Ziehl/EBM	Status_Return1_FansActualSpeed	Signed 16-bit	rpm	Return Ziehl/EBM Speed
Ziehl/EBM	Status_Return1_FansVoltage	Signed 16-bit	V	Return Ziehl/EBM DC Voltage
Ziehl/EBM	Status_Return1_FansCurrent	Signed 16-bit	A	Return Ziehl/EBM Current
Ziehl/EBM	Status_Return2_FansActualSpeed	Signed 16-bit	rpm	Return Backup Ziehl/EBM Speed
Ziehl/EBM	Status_Return2_FansVoltage	Signed 16-bit	V	Return Backup Ziehl/EBM DC Voltage
Ziehl/EBM	Status_Return2_FansCurrent	Signed 16-bit	A	Return Backup Ziehl/EBM Current
ATV	Status_Return1_FansActualSpeedHz	Signed 16-bit	Hz	Return ATV212 Speed
ATV	Return1_ATV212_FreqMin	Unsigned 16-bit	Hz	Return ATV 212 Minimum Frequency
ATV	Return1_ATV212_FreqMax	Unsigned 16-bit	Hz	Return ATV 212 Maximum Frequency
ATV	Status_Return1_FansVoltagePerc	Signed 16-bit	%	Return ATV212 DC Voltage
ATV	Status_Return1_FansCurrentPerc	Signed 16-bit	%	Return ATV212 DC Current
ATV	Status_Return2_FansActualSpeedHz	Signed 16-bit	Hz	Return Backup ATV212 Speed

Model	Name	Device type	Unit	Description
ATV	Return2_ATV212_FreqMin	Unsigned 16-bit	Hz	Return Backup ATV 212 Minimum Frequency
ATV	Return2_ATV212_FreqMax	Unsigned 16-bit	Hz	Return Backup ATV 212 Maximum Frequency
ATV	Status_Return2_FansVoltagePerc	Signed 16-bit	%	Return Backup ATV212 DC Voltage
ATV	Status_Return2_FansCurrentPerc	Signed 16-bit	%	Return Backup ATV212 DC Current

Table 68 - I Return

Modbus Fan Alarm Info Supply

ATV212

EBM

ZIEHL

The parameters in the “Sup.Alarms” menu, S17, are given in the table below, divided up per page.

Name	Description
Supply1_Ziehl_Basic_ErrorStatus	Ziehl MB Input Register 13 = error status
Supply2_Ziehl_Basic_ErrorStatus	Ziehl MB Input Register 13 = error status
Supply1_EBM_MotorStatus	EBM D011+1 : Motor status
Supply2_EBM_MotorStatus	EBM D011+1 : Motor status
Supply1_ATV212_Status	ATV212: 64769+1 Fd01
Supply1_ATV212_Trip	ATV212: 64656+1 FC90
Supply2_ATV212_Status	ATV212: 64769+1 Fd01
Supply2_ATV212_Trip	ATV212: 64656+1 FC90
Supply1_Ziehl_Basic_ErrorStatus	Ziehl MB Input Register 13 = error status
Supply2_Ziehl_Basic_ErrorStatus	Ziehl MB Input Register 13 = error status

Table 69 - Sup.Alarms

The parameters in the “Ret.Alarms” menu are given in the table below, divided up per page.

Name	Description
Return1_Ziehl_Basic_ErrorStatus	Ziehl MB Input Register 13 = error status
Return2_Ziehl_Basic_ErrorStatus	Ziehl MB Input Register 13 = error status
Return1_EBM_MotorStatus	EBM D011+1 : Motor status
Return2_EBM_MotorStatus	EBM D011+1 : Motor status
Return1_ATV212_Status	ATV212: 64769+1 Fd01
Return1_ATV212_Trip	ATV212: 64656+1 FC90
Return2_ATV212_Status	ATV212: 64769+1 Fd01
Return2_ATV212_Trip	ATV212: 64656+1 FC90
Return1_Ziehl_Basic_ErrorStatus	Ziehl MB Input Register 13 = error status
Return2_Ziehl_Basic_ErrorStatus	Ziehl MB Input Register 13 = error status

Table 70 - Ret.Alarms

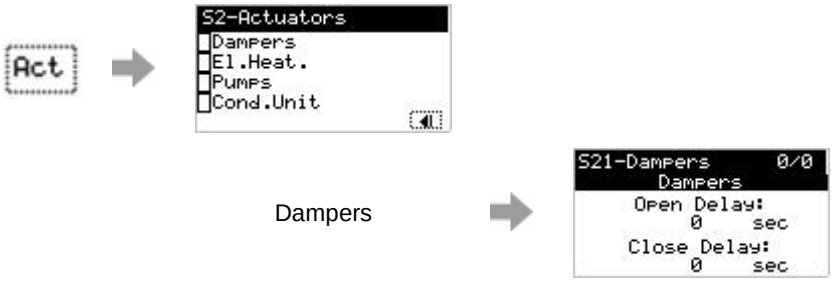
NOTE: For the Modbus fans, the reset is **only** possible with password.

NOTE: The “I Supply” can only be viewed if a Modbus fan is active.

NOTE: The “Alarm Info Supply” can only be viewed if an alarm relative to a Modbus fan is active.

4.8.1.2 S2-Actuators

Below is given the S2-Actuators" menu navigation that allows for the actuators to be managed.



The parameters in the "Dampers" menu are given in the table below, divided up per page.

Pag	Name	Device type	Def	Min	Max	Unit	Description
1/2	ExtDamperOpenDelay	Unsigned 16-bit	60	—	—	sec	External/Fan Damper Open Time
1/2	ExtDamperCloseDelay	Unsigned 16-bit	60	—	—	sec	External/Fan Damper Close Time
2/2	ExtDamperMinOpen	Signed 16-bit	50	0	100	%	External Damper Minimum Open
2/2	ExtDamperMaxOpen	Signed 16-bit	100	ExtDamperMinOpen	100	%	External Damper Maximum Open

Table 71 - Dampers

The parameters in the “El.Heat.” menu are given in the table below, divided up per page.

Pag	Name	Device type	Def	Min	Max	Unit	Description
1/15	Heater_Power_Analog	Unsigned 16-bit	2	1	—	Power	El. Heater Analog Power
1/15	Heater_Power_Step1	Unsigned 16-bit	2	1	—	Power	El. Heater Step 1 Power
2/15	Heater_Power_Step2	Unsigned 16-bit	2	1	—	Power	El. Heater Step 2 Additional Power
2/15	Heater_Power_Step3	Unsigned 16-bit	2	1	—	Power	El. Heater Step 3 Additional Power
3/15	Heater_Power_Step4	Unsigned 16-bit	2	1	—	Power	El. Heater Step 4 Additional Power
3/15	Heater_Power_Step5	Unsigned 16-bit	2	1	—	Power	El. Heater Step 5 Additional Power
4/15	Heater_Power_Step6	Unsigned 16-bit	2	1	—	Power	El. Heater Step 6 Additional Power
4/15	Heater_Hysteresis	Unsigned 16-bit	75	1	100	%	El. Heater Hysteresis [% of current step]
5/15	Heater_PWM_Period	Signed 16-bit	30	10	3000	sec	El. Heater PWM Period
5/15	----------						
6/15	PreHeater_Power_Analog	Unsigned 16-bit	2	1	—	—	PreHeater Analog Power
6/15	PreHeater_Power_Step1	Unsigned 16-bit	2	1	—	—	PreHeater Step 1 Power
7/15	PreHeater_Power_Step2	Unsigned 16-bit	2	1	—	—	PreHeater Step 2 Power
7/15	PreHeater_Power_Step3	Unsigned 16-bit	2	1	—	—	PreHeater Step 3 Power
8/15	PreHeater_Power_Step4	Unsigned 16-bit	2	1	—	—	PreHeater Step 4 Power
8/15	PreHeater_Power_Step5	Unsigned 16-bit	2	1	—	—	PreHeater Step 5 Power
9/15	PreHeater_Power_Step6	Unsigned 16-bit	2	1	—	—	PreHeater Step 6 Power
9/15	PreHeater_Hysteresis	Unsigned 16-bit	75	1	100	%	PreHeater Hysteresis [% of current step]
10/15	PreHeater_PWM_Period	Signed 16-bit	30	10	3000	sec	PreHeater PWM Period
10/15	----------						
11/15	PostHeater_Power_Analog	Unsigned 16-bit	2	1	—	—	PostHeater Analog Power
11/15	PostHeater_Power_Step1	Unsigned 16-bit	2	1	—	—	PostHeater Step 1 Power
12/15	PostHeater_Power_Step2	Unsigned 16-bit	2	1	—	—	PostHeater Step 2 Power
12/15	PostHeater_Power_Step3	Unsigned 16-bit	2	1	—	—	PostHeater Step 3 Power
13/15	PostHeater_Power_Step4	Unsigned 16-bit	2	1	—	—	PostHeater Step 4 Power
13/15	PostHeater_Power_Step5	Unsigned 16-bit	2	1	—	—	PostHeater Step 5 Power
14/15	PostHeater_Power_Step6	Unsigned 16-bit	2	1	—	—	PostHeater Step 6 Power
14/15	PostHeater_Hysteresis	Unsigned 16-bit	75	1	100	%	PostHeater Hysteresis [% of current step]
15/15	PostHeater_PWM_Period	Signed 16-bit	30	10	3000	sec	PreHeater PWM Period

Table 72 - El.Heat.

The parameters in the “Pumps” menu are given in the table below, divided up per page.

Pag	Name	Device type	Def	Min	Max	Unit	Description
1/2	Pump_AntiStickingRun	Unsigned 16-bit	20	0	255	sec	Antisticking run time
1/2	Pump_AntiStickingPeriod	Unsigned 16-bit	7	0	30	days	Antisticking period (0=Disabled)
2/2	Pump_Post_Time	Unsigned 16-bit	5	0	255	min	Pump Post Running Time

Table 73 - Pumps

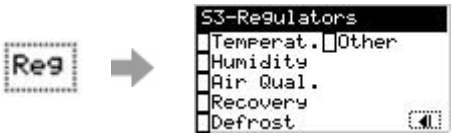
The parameters in the “Cond.Unit” menu are given in the table below, divided up per page.

Pag	Name	Device type	Def	Min	Max	Unit	Description
1/11	CondUnitS1_Req	Signed 16-bit	20.0	0.0	100.0	%	% CondUnit Step 1
1/11	CondUnitS2_Req	Signed 16-bit	40.0	0.0	100.0	%	% CondUnit Step 2
2/11	CondUnitS3_Req	Signed 16-bit	60.0	0.0	100.0	%	% CondUnit Step 3
2/11	CondUnitS4_Req	Signed 16-bit	80.0	0.0	100.0	%	% CondUnit Step 4
3/11	CondUnitSx_Hysteresis	Signed 16-bit	50	10	100	%	Cond. Unit Hysteresis % of current Step size
3/11	CondUnit_Offset	Signed 16-bit	0.0	0.0	100.0	%	Cond Unit AO Offset
4/11	CondUnit_Ton	Unsigned 16-bit	0	0	600	sec	Cond Unit Step Minimum On Time
4/11	CondUnit_Toff	Unsigned 16-bit	0	0	600	sec	Cond Unit Step Minimum Off Time
5/11	CondUnit_FanSpeedDefrost	0=No Action 1=Low Speed 2=Fan Off					Condensing Unit: Fan Speed During Defrost
6/11	MultiCondUnit_CtrlMode	0=Delay 1=Hysteresis					Multi Condensing Unit: Control
6/11	MultiCondUnit_RegHyst	Signed 16-bit	5	2	30	%	Multi Condensing Unit regulator hysteresis
7/11	MultiCondUnit_DelayOn	Unsigned 16-bit	0	0	600	Sec	Multi Cond Unit Delay On
7/11	MultiCondUnit_DelayOff	Unsigned 16-bit	0	0	600	Sec	Multi Cond Unit Delay Off
8/11	CU1_Maintenance	Boolean	0				Condensing Unit 1 Forced Off for maintenance
8/11	CU2_Maintenance	Boolean	0				Condensing Unit 2 Forced Off for maintenance
9/11	CU3_Maintenance	Boolean	0				Condensing Unit 3 Forced Off for maintenance
9/11	CU4_Maintenance	Boolean	0				Condensing Unit 4 Forced Off for maintenance
10/11	CondUnit1_DD	Unsigned 16-bit				days	Condensing Unit 1 Working Days
10/11	CondUnit2_DD	Unsigned 16-bit				Days	Condensing Unit 2 Working Days
11/11	CondUnit3_DD	Unsigned 16-bit				Days	Condensing Unit 3 Working Days
11/11	CondUnit4_DD	Unsigned 16-bit				days	Condensing Unit 4 Working Days

Table 74 - Cond.Unit

4.8.1.3 S3-Regulators

Below is given the S3-Regulators" menu navigation that allows for the regulators to be managed.



Temperature

The parameters in the "Temperat." menu are given in the table below, divided up per page.

Pag	Name	Device type	Def	Min	Max	Unit	Description
1/17	Unit_RegTempType	0=Supply; 1=Return Direct; 2=Return Cascade	1	0	2	—	Temperature Regulation Probe
1/17	----------						
2/17	SP_T_MIN	Signed 16-bit	14.0	—	SP_T_MAX	°C	Minimum Temperature Setpoint
2/17	SP_T_MAX	Signed 16-bit	30.0	SP_T_MIN	—	°C	Maximum Temperature Setpoint
3/17	SP_T_FORCESUMMER	Signed 16-bit	24.0	—	—	°C	Force Summer Mode (AUTO)
3/17	SP_T_FORCEWINTER	Signed 16-bit	16.0	—	—	°C	Force Winter Mode (AUTO)
4/17	DIFF_T_AutoChangeMode	Signed 16-bit	2.0	0.5	—	°C	Differential Change season (AUTO)
4/17	----------						
5/17	Pb_Cooling	Signed 16-bit	2.0	0.2	99.9	°C	Cooling Proportional Band
5/17	Ti_Cooling	Unsigned 16-bit	0	0	—	sec	Cooling Integral Time
6/17	Temp_LowSupplyEn	Boolean	0	—	—	—	Temperature Low Supply Limit Enable (Summer)
6/17	Temp_LowSupplySet	Signed 16-bit	15.0	0.0	100.0	°C	Temperature Low Supply Limit Setpoint (Summer)
7/17	Temp_LowSupplyBand	Signed 16-bit	10.0	1.0	99.9	°C	Temperature Low Supply Band (Summer)
7/17	----------						
8/17	Pb_ReturnCooling	Signed 16-bit	2.0	0.2	99.9	°C	Return Temp. Reg: Cooling Proportional Band (only Cascade)
8/17	Ti_ReturnCooling	Unsigned 16-bit	0	0	—	sec	Return Temp. Reg: Cooling Integral Time (only Cascade)
9/17	SupplyDeltaUpCooling	Signed 16-bit	1.0	0.5	5.0	°C	Cooling Max Supply =RegSet+SupplyDeltaUpCooling
9/17	SupplyDeltaDwCooling	Signed 16-bit	12.0	0.5	15.0	°C	Cooling Min Supply =RegSet-SupplyDeltaDwCooling
10/17	Pb_Heating	Signed 16-bit	2.0	0.2	99.9	°C	Heating Proportional Band
10/17	Ti_Heating	Unsigned 16-bit	0	0	—	sec	Heating Integral Time
11/17	Temp_HighSupplyEn	Boolean	0	—	—	—	Temperature High Supply Limit Enable (Winter)

Pag	Name	Device type	Def	Min	Max	Unit	Description
11/17	Temp_HighSupplySet	Signed 16-bit	35.0	0.0	100.0	°C	Temperature High Supply Limit Setpoint (Winter)
12/17	Temp_HighSupplyBand	Signed 16-bit	10.0	1.0	99.9	°C	Temperature High Supply Band (Winter)
12/17	----------						
13/17	Pb_ReturnHeating	Signed 16-bit	2.0	0.2	99.9	°C	Return Temp. Reg: Heating Proportional Band (only Cascade)
13/17	Ti_ReturnHeating	Unsigned 16-bit	0	0	—	sec	Return Temp. Reg: Heating Integral Time (only Cascade)
14/17	SupplyDeltaUpHeating	Signed 16-bit	16.0	0.5	40.0	°C	Heating Max Supply =RegSet+SupplyDeltaUpHeating
14/17	SupplyDeltaDwHeating	Signed 16-bit	2.0	0.0	5.0	°C	Heating Min Supply =RegSet-SupplyDeltaDwHeating
15/17	PostHeating4Integration	Boolean	1	—	—	—	Use the post heating also in the heating phase
15/17	PostPower	Signed 16-bit	30.0	0.1	100.0	%	% of PI out sent to post (if enabled as heat integration)
16/17	PreHeaterSetpoint	Signed 16-bit	5.0	-10.0	20.0	°C	Setpoint Pre Heating
16/17	Pb_PreHeating	Signed 16-bit	10.0	0.2	99.9	°C	PreHeating Proportional Band
17/17	Ti_PreHeating	Unsigned 16-bit	300	0	—	sec	PreHeating Integral Time

Table 75 - Temperat.

The parameters in the “Humidity” menu are given in the table below, divided up per page.

Pag	Name	Device type	Def	Min	Max	Unit	Description
1/10	SP_RH_MinSetpoint	Signed 16-bit	30	20	SP_RH _MaxSetpoint	%R.H.	Minimum relative humidity setpoint
1/10	SP_RH_MaxSetpoint	Signed 16-bit	90	SP_RH _MinSetpoint	100	%R.H.	Maximum relative humidity setpoint
2/10	Hum_Band	Signed 16-bit	20.0	1.0	40.0	%R.H.	Humidification Band
2/10	Hum_HighSupplyEn	Boolean	0	—	—	—	Humidification High Supply Limit Enable
3/10	Hum_HighSupplySet	Signed 16-bit	70.0	0.0	100.0	%R.H.	Humidification High Supply Limit Setpoint
3/10	Hum_HighSupplyBand	Signed 16-bit	20.0	1.0	40.0	%R.H.	Humidification High Supply Band
4/10	Pb_Dehum	Signed 16-bit	10.0	0.2	20.0	%R.H.	Dehum. Proportional Band
4/10	Ti_Dehum	Unsigned 16-bit	0	0	—	sec	Dehum. Integral Time
5/10	Pb_Dewpoint	Signed 16-bit	10.0	0.2	99.9	°C	Dewpoint Dehum. Proportional Band
5/10	Ti_Dewpoint	Unsigned 16-bit	300	0	—	sec	Dewpoint Dehum. Integral Time
6/10	Dehum_WinterEn	Boolean	0	—	—	—	Enable Winter Dehumidification
6/10	Dehum_WinterHumHyst	Signed 16-bit	1.0	0.4	5.0	g/Kg	Winter Dehumidification Hysteresis
7/10	Dehum_Req_Diff	Signed 16-bit	5.0	0.1	15.0	%R.H.	Dehumidification Request Differential on Return Humidity for Winter and Dewpoint mode
7/10	DeHum_LowSupplyEn	Boolean	0	—	—	%R.H.	DeHumidification Low Supply Limit Enable
8/10	DeHum_LowSupplySet	Signed 16-bit	30.0	0.0	100.0	%R.H.	DeHumidification Low Supply Limit Setpoint
8/10	DeHum_LowSupplyBand	Signed 16-bit	20.0	1.0	40.0	%R.H.	DeHumidification Low Supply Band
9/10	Pb_Post	Signed 16-bit	10.0	0.2	99.9	°C	PostHeating Dehum. Proportional Band
9/10	Ti_Post	Unsigned 16-bit	300	0	—	sec	PostHeating Dehum. Integral Time
10/10	Offset_Post	Signed 16-bit	1.0	0.4	5.0	°C	PostHeating Setpoint offset with respect to current set

Table 76 - Humidity

The parameters in the “Air Qual.” menu are given in the table below, divided up per page.

Pag	Name	Device type	Def	Min	Unit	Description
1/2	VOC_Bp	Unsigned 16-bit	30.0	0.1	%	VOC Regulator: Prop. Band
1/2	VOC_Ti	Unsigned 16-bit	0	—	sec	VOC Regulator: Integral Time
2/2	CO2_Bp	Unsigned 16-bit	400	1	ppm	CO2 Regulator: Prop. Band
2/2	CO2_Ti	Unsigned 16-bit	0	—	sec	CO2 Regulator: Integral Time

Table 77 - Air Qual.

The parameters in the “Recovery” menu are given in the table below, divided up per page.

Pag	Name	Device type	Def	Min	Max	Unit	Description
1/2	RecoveryDiff_Band	Signed 16-bit	1.5	0.1	10.0	°C	Recovery Diff (On/Off Case) Recovery Band (Mod Case with Direct Return control);
1/2	RecoveryDeadZone	Signed 16-bit	1.0	0.0	10.0	°C	Recovery Dead Zone
2/2	RecoveryPower	Signed 16-bit	25.0	0.0	100.0	%	% of PI out sent to recovery (Only for Cascade or Supply control)
2/2	RecoveryReqDuringFastHC	Signed 16-bit	0	0	100.0	%	Recovery request during Fast Heating/Cooling

Table 78 - Recovery

The parameters in the “Defrost” menu are given in the table below, divided up per page.

Pag	Name	Device type	Def	Min	Max	Unit	Description
1/2	RecoveryDefrost_SetMaxReq	Signed 16-bit	-4.0	-15.0	10.0	°C	Recovery Defrost: Setpoint Expulsion Temperature
1/2	RecoveryDefrost_Band	Signed 16-bit	4.0	0.1	10.0	°C	Recovery Defrost: Band Mix Chamber/PreHeater/Supply Fan
2/2	RecoveryDefrost_Cutoff	Signed 16-bit	0.0	0.0	10.0	°C	Recovery Defrost: CutOff Modulating Fan

Table 79 - Defrost

The parameters in the “Other” menu are given in the table below, divided up per page.

Pag	Name	Device type	Def	Description
1/1	Unit_ForceOffAfterReboot	Boolean	0	Force Off keyboard after reboot

Table 80 – Other

4.8.1.4 S4-Conf.Alarms

Below is given the “S4-Conf.Alarms” menu navigation that allows for the alarms to be managed.

The parameters in the “Conf.Alarms” menu are given in the table below, divided up per page.

Pag	Name	Device type	Def	Min	Max	Unit	Description
1/8	AFset	Signed 16-bit	5.0	-5.0	15.0	°C	Antifreeze Setpoint
1/8	AFdiff	Signed 16-bit	2.0	0.1	5.0	°C	Antifreeze Differential
2/8	AFphtime	Unsigned 16-bit	5	0	255	min	Antifreeze Preheater time
2/8	----------						
3/8	cfgFireAlarm	0=Off All; 1=All Fans-Damper On; 2=ReturnFan-Damper On	0	0	2	—	Fire Alarm Configuration
3/8	FireTempSet	Signed 16-bit	95.0	90.0	—	°C	Setpoint Temperature for Fire Alarm
4/8	Fan_SupplyAirflowAlrmByAi	Boolean	0	—	—	—	Enable supply flow alarm by probe (pressure probe must be already enabled)
4/8	Fan_ReturnAirflowAlrmByAi	Boolean	0	—	—	—	Enable return flow alarm by probe (pressure probe must be already enabled)
5/8	Fan_SetMinAirflow	Signed 16-bit	50	—	—	Pa	Fan Airflow Alarm setpoint
5/8	Fan_AlrmPressBypass	Unsigned 16-bit	30	1	600	Sec	Flow Bypass
6/8	Alm_MinHumiditySens	Signed 16-bit	2.0	0.0	100.0	%R.H.	Minimum Valid Humidity Value
6/8	Alm_MinCO2Sens	Signed 16-bit	40	0	—	ppm	Minimum Valid CO2 Value
7/8	Alm_MinVOCSens	Signed 16-bit	2.0	0.0	100.0	%	Minimum Valid VOC Value
7/8	Alm_MinPrSens	Signed 16-bit	40	0	—	pa	Minimum Valid Pr Value (Fans on)
8/8	Alm_ActiveProbeBypass	Unsigned 16-bit	30	0	600	sec	Active Probe alarm bypass

Table 81 - Conf.Alarms

4.8.1.5 S5-Data Logger

Below is given the “S5-Data Logger” menu navigation that allows for the data loggers to be managed.

The parameters in the “Data Logger” menu are given in the table below, divided up per page.

Pag	Name	Device type	Def	Min	Max	Unit	Description
1/2	LogEnable	Boolean	0	—	—	—	Logger Enable
1/2	LogCycle	Unsigned 16-bit	00:01	MinLogCycle	23:59	Min	Logger Period
2/2	FileDimension	Unsigned 32-bit	—	—	—	—	Size of the current log file- Log Export to USB
2/2	MinLogCycle	Signed 16-bit	00:01	0	23:59	Min	Minimum Log Cycle

Table 82 - Data Logger

4.8.1.6 S6-Restore Factory

Below is given the S6-Restore Factory” menu navigation that allows for the parameter resetting to be managed.

The parameters in the “Restore Factory” menu are given in the table below, divided up per page.

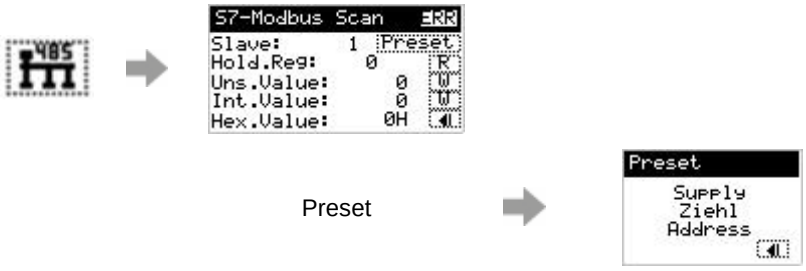
Pag	Name	Device type	Def	Min	Max	Description
- - -	RestoreFactory Status	0=Completed; 1=Running; 248=Open in write failed; 249=Write failed; 250=Some parameters failed; 251=File not compatible; 252=Usb not connected; 253=File too long; 254=File not present; 255=Command Failed	—	0	255	Restore Factory Settings Status
- - -	RestoreFactory Command	Boolean	0	—	—	Restore Factory Settings Request

Table 83 - Restore Factory

4.8.1.7 S7-Modbus Scan

Below is given the S7-Modbus Scan" menu navigation that allows for the configuration of the holding register per slave with address (1…10 or 247) 19.2 E,8,1 connected to RS485-2 port.

NOTE: The Preset key refers to the Modbus fans.



4.8.2. O-I/O

NOTE: **The sub-menu can be edited only after the password has been typed in**.

4.8.2.1 O1-Polarity

Below is given “O1-Polarity” menu navigation that allows for the management of the input polarities and digital outputs.

The parameters of the “O1-Polarity” page are given in the table below, divided up per page.

Pag	Name	Device type	Def	Min	Max	Description
1/29	DI_Polarity_LogicIndex_0	0V = Off, 24V = On/Alarm; 0V = On/Alarm, 24V = Off	1	0	1	Polarity - Supply Fan Thermal
1/29	DI_Polarity_LogicIndex_1	See DI_Polarity_LogicIndex_0	1	0	1	Polarity - Return Fan Thermal
2/29	DI_Polarity_LogicIndex_2	See DI_Polarity_LogicIndex_0	0	0	1	Polarity - On/Off Input
2/29	DI_Polarity_LogicIndex_3	See DI_Polarity_LogicIndex_0	1	0	1	Polarity - Fire Alarm
3/29	DI_Polarity_LogicIndex_4	See DI_Polarity_LogicIndex_0	0	0	1	Polarity - Mode Input
3/29	DI_Polarity_LogicIndex_5	See DI_Polarity_LogicIndex_0	1	0	1	Polarity - Door
4/29	DI_Polarity_LogicIndex_6	See DI_Polarity_LogicIndex_0	1	0	1	Polarity - Antifreeze
4/29	DI_Polarity_LogicIndex_7	See DI_Polarity_LogicIndex_0	1	0	1	Polarity - Supply Airflow
5/29	DI_Polarity_LogicIndex_8	See DI_Polarity_LogicIndex_0	1	0	1	Polarity - Return Airflow
5/29	DI_Polarity_LogicIndex_9	See DI_Polarity_LogicIndex_0	1	0	1	Polarity - Humidifier Alarm
6/29	DI_Polarity_LogicIndex_10	See DI_Polarity_LogicIndex_0	1	0	1	Polarity - Preheater Alarm
6/29	DI_Polarity_LogicIndex_11	See DI_Polarity_LogicIndex_0	1	0	1	Polarity - Postheater Alarm
7/29	DI_Polarity_LogicIndex_12	See DI_Polarity_LogicIndex_0	1	0	1	Polarity - Rotary Wheel Alarm
7/29	DI_Polarity_LogicIndex_13	See DI_Polarity_LogicIndex_0	0	0	1	Polarity - Filter 1 Alarm
8/29	DI_Polarity_LogicIndex_14	See DI_Polarity_LogicIndex_0	0	0	1	Polarity - Filter 2 Alarm
8/29	DI_Polarity_LogicIndex_15	See DI_Polarity_LogicIndex_0	0	0	1	Polarity - Filter 3 Alarm
9/29	DI_Polarity_LogicIndex_16	See DI_Polarity_LogicIndex_0	0	0	1	Polarity - Filter 4 Alarm
9/29	DI_Polarity_LogicIndex_30	See DI_Polarity_LogicIndex_0	0	0	1	Polarity - Filter 5 Alarm
10/29	DI_Polarity_LogicIndex_17	See DI_Polarity_LogicIndex_0	1	0	1	Polarity - Supply 2 Fan Th.
10/29	DI_Polarity_LogicIndex_18	See DI_Polarity_LogicIndex_0	1	0	1	Polarity - Return 2 Fan Th.
11/29	DI_Polarity_LogicIndex_19	See DI_Polarity_LogicIndex_0	1	0	1	Polarity - Supply 2 Airflow
11/29	DI_Polarity_LogicIndex_20	See DI_Polarity_LogicIndex_0	1	0	1	Polarity - Return 2 Airflow

Pag	Name	Device type	Def	Min	Max	Description
12/29	DI_Polarity_LogicIndex_21	See DI_Polarity_LogicIndex_0	1	0	1	Polarity - Cond. Unit Alarm
12/29	DI_Polarity_LogicIndex_22	See DI_Polarity_LogicIndex_0	1	0	1	Polarity - El. Heater Alarm
13/29	DI_Polarity_LogicIndex_26_29	See DI_Polarity_LogicIndex_0	1	0	1	Polarity - Cond. Unit Defrost
13/29	DO_Polarity_LogicIndex_0	0=NO; 1=NC	0	0	1	Supply Fan - DO Polarity
14/29	DO_Polarity_LogicIndex_1	See DO_Polarity_LogicIndex_0	0	0	1	Return Fan - DO Polarity
14/29	DO_Polarity_LogicIndex_2	See DO_Polarity_LogicIndex_0	0	0	1	On Off - DO Polarity
15/29	DO_Polarity_LogicIndex_3	See DO_Polarity_LogicIndex_0	0	0	1	Alarm - DO Polarity
15/29	DO_Polarity_LogicIndex_4	See DO_Polarity_LogicIndex_0	0	0	1	Mode - DO Polarity
16/29	DO_Polarity_LogicIndex_5	See DO_Polarity_LogicIndex_0	0	0	1	Ext. Dampers - DO Polarity
16/29	DO_Polarity_LogicIndex_6	See DO_Polarity_LogicIndex_0	0	0	1	Bypass Damper - DO Polarity
17/29	DO_Polarity_LogicIndex_7	See DO_Polarity_LogicIndex_0	0	0	1	Supply Damper - DO Polarity
17/29	DO_Polarity_LogicIndex_8	See DO_Polarity_LogicIndex_0	0	0	1	Return Damper - DO Polarity
18/29	DO_Polarity_LogicIndex_9	See DO_Polarity_LogicIndex_0	0	0	1	Pump Preheat - DO Polarity
18/29	DO_Polarity_LogicIndex_10	See DO_Polarity_LogicIndex_0	0	0	1	Pump Postheat - DO Polarity
19/29	DO_Polarity_LogicIndex_11	See DO_Polarity_LogicIndex_0	0	0	1	Cool/CH Pump - DO Polarity
19/29	DO_Polarity_LogicIndex_12	See DO_Polarity_LogicIndex_0	0	0	1	Cool/CH Step 1 - DO Polarity
20/29	DO_Polarity_LogicIndex_13	See DO_Polarity_LogicIndex_0	0	0	1	Cool/CH Step 2 - DO Polarity
20/29	DO_Polarity_LogicIndex_14	See DO_Polarity_LogicIndex_0	0	0	1	Cool/CH Step 3 - DO Polarity
21/29	DO_Polarity_LogicIndex_15	See DO_Polarity_LogicIndex_0	0	0	1	Cool/CH Step 4 - DO Polarity
21/29	DO_Polarity_LogicIndex_16	See DO_Polarity_LogicIndex_0	0	0	1	Pump heat - DO Polarity
22/29	DO_Polarity_LogicIndex_17	See DO_Polarity_LogicIndex_0	0	0	1	El. Heater Step 1 - DO Polarity
22/29	DO_Polarity_LogicIndex_18	See DO_Polarity_LogicIndex_0	0	0	1	El. Heater Step 2 - DO Polarity
23/29	DO_Polarity_LogicIndex_19	See DO_Polarity_LogicIndex_0	0	0	1	El. Heater Step 3 - DO Polarity
23/29	DO_Polarity_LogicIndex_20	See DO_Polarity_LogicIndex_0	0	0	1	Pre Heater Step 1 - DO Polarity
24/29	DO_Polarity_LogicIndex_21	See DO_Polarity_LogicIndex_0	0	0	1	Pre Heater Step 2 - DO Polarity

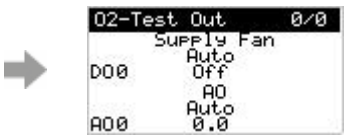
Pag	Name	Device type	Def	Min	Max	Description
24/29	DO_Polarity_LogicIndex_22	See DO_Polarity_LogicIndex_0	0	0	1	Pre Heater Step 3 - DO Polarity
25/29	DO_Polarity_LogicIndex_23	See DO_Polarity_LogicIndex_0	0	0	1	Post Heater Step 1 - DO Polarity
25/29	DO_Polarity_LogicIndex_24	See DO_Polarity_LogicIndex_0	0	0	1	Post Heater Step 2 - DO Polarity
26/29	DO_Polarity_LogicIndex_25	See DO_Polarity_LogicIndex_0	0	0	1	Post Heater Step 3 - DO Polarity
26/29	DO_Polarity_LogicIndex_27	See DO_Polarity_LogicIndex_0	0	0	1	Humidifier - DO Polarity
27/29	DO_Polarity_LogicIndex_26	See DO_Polarity_LogicIndex_0	0	0	1	Recovery - DO Polarity
27/29	DO_Polarity_LogicIndex_28	See DO_Polarity_LogicIndex_0	0	0	1	Supply Fan 2 - DO Polarity
28/29	DO_Polarity_LogicIndex_29	See DO_Polarity_LogicIndex_0	0	0	1	Return Fan 2 - DO Polarity
28/29	DO_Polarity_LogicIndex_30	See DO_Polarity_LogicIndex_0	0	0	1	Supply Damper 2 - DO Polarity
29/29	DO_Polarity_LogicIndex_31	See DO_Polarity_LogicIndex_0	0	0	1	Return Damper 2 - DO Polarity

Table 84 - O1-Polarity

4.8.2.2 O2-Test Out

Below is given “O2-Test Out” menu navigation that allows for the management of the tests on analogue and digital outputs.

Test Out



The parameters in the “O2- Test Out” menu depends on the current configuration of the unit.

Pag	Name	Device type	Def	Min	Max	Unit	Description
- - -	doTst_LogicIndex_0	Boolean	0	—	—	—	Test DO - Supply Fan
- - -	aoTst_LogicIndex_0	Signed 16-bit	0	0	1000	%	Test AO - Supply Fan
- - -	doTst_LogicIndex_28	Boolean	0	—	—	—	Test DO - Supply Fan 2
- - -	doTst_LogicIndex_1	Boolean	0	—	—	—	Test DO - Return Fan
- - -	aoTst_LogicIndex_1	Signed 16-bit	0	0	1000	%	Test AO - Return Fan
- - -	doTst_LogicIndex_29	Boolean	0	—	—	—	Test DO - Return Fan 2
- - -	doTst_LogicIndex_2	Boolean	0	—	—	—	Test DO - On Off
- - -	doTst_LogicIndex_3	Boolean	0	—	—	—	Test DO - Alarm
- - -	doTst_LogicIndex_4	Boolean	0	—	—	—	Test DO - Mode
- - -	doTst_LogicIndex_5	Boolean	0	—	—	—	Test DO - Ext. Dampers
- - -	aoTst_LogicIndex_2	Signed 16-bit	0	0	1000	%	Test AO - Ext. Dampers
- - -	doTst_LogicIndex_6	Boolean	0	—	—	—	Test DO - Bypass Damper
- - -	aoTst_LogicIndex_3	Signed 16-bit	0	0	1000	%	Test AO - Bypass Damper
- - -	doTst_LogicIndex_7	Boolean	0	—	—	—	Test DO - Supply Damper
- - -	doTst_LogicIndex_30	Boolean	0	—	—	—	Test DO - Supply Damper 2
- - -	doTst_LogicIndex_8	Boolean	0	—	—	—	Test DO - Return Damper
- - -	doTst_LogicIndex_31	Boolean	0	—	—	—	Test DO - Return Damper 2
- - -	doTst_LogicIndex_9	Boolean	0	—	—	—	Test DO - Pump Preheat
- - -	doTst_LogicIndex_10	Boolean	0	—	—	—	Test DO - Pump Postheat
- - -	doTst_LogicIndex_11	Boolean	0	—	—	—	Test DO - Cool/CH Pump
- - -	doTst_LogicIndex_12	Boolean	0	—	—	—	Test DO - Cool/CH Step 1
- - -	doTst_LogicIndex_13	Boolean	0	—	—	—	Test DO - Cool/CH Step 2
- - -	doTst_LogicIndex_14	Boolean	0	—	—	—	Test DO - Cool/CH Step 3
- - -	doTst_LogicIndex_15	Boolean	0	—	—	—	Test DO - Cool/CH Step 4
- - -	doTst_LogicIndex_16	Boolean	0	—	—	—	Test DO - Heat Pump
- - -	doTst_LogicIndex_17	Boolean	0	—	—	—	Test DO - Heater Step 1
- - -	doTst_LogicIndex_18	Boolean	0	—	—	—	Test DO - Heater Step 2
- - -	doTst_LogicIndex_19	Boolean	0	—	—	—	Test DO - Heater Step 3
- - -	doTst_LogicIndex_20	Boolean	0	—	—	—	Test DO - Pre Heater Step 1
- - -	doTst_LogicIndex_21	Boolean	0	—	—	—	Test DO - Pre Heater Step 2
- - -	doTst_LogicIndex_22	Boolean	0	—	—	—	Test DO - Pre Heater Step 3
- - -	doTst_LogicIndex_23	Boolean	0	—	—	—	Test DO - Post Heater Step 1

Pag	Name	Device type	Def	Min	Max	Unit	Description
- - -	doTst_LogicIndex_24	Boolean	0	—	—	—	Test DO - Post Heater Step 2
- - -	doTst_LogicIndex_25	Boolean	0	—	—	—	Test DO - Post Heater Step 3
- - -	doTst_LogicIndex_26	Boolean	0	—	—	—	Test DO - Humidifier
- - -	doTst_LogicIndex_27	Boolean	0	—	—	—	Test DO - Rotary Wheel / Exchanger
- - -	aoTst_LogicIndex_9	Signed 16-bit	0	0	1000	%	Test AO - Humidifier
- - -	aoTst_LogicIndex_8	Signed 16-bit	0	0	1000	%	Test AO - Rotary Wheel / Exchanger
- - -	aoTst_LogicIndex_4	Signed 16-bit	0	0	1000	%	Test AO - Cool - C/H Valve
- - -	aoTst_LogicIndex_5	Signed 16-bit	0	0	1000	%	Test AO - Heat Valve
- - -	aoTst_LogicIndex_6	Signed 16-bit	0	0	1000	%	Test AO - Pre Heater
- - -	aoTst_LogicIndex_7	Signed 16-bit	0	0	1000	%	Test AO - Post Heater
- - -	aoTst_LogicIndex_10	Signed 16-bit	0	0	1000	%	Test AO – Cond Unit 1
- - -	aoTst_LogicIndex_11	Signed 16-bit	0	0	1000	%	Test AO – Cond Unit 2
- - -	aoTst_LogicIndex_12	Signed 16-bit	0	0	1000	%	Test AO – Cond Unit 3
- - -	aoTst_LogicIndex_13	Signed 16-bit	0	0	1000	%	Test AO – Cond Unit 4

Table 85 - O2-Test Out

4.8.2.3 O3-I/O Allocation

Below is given “O3-I/O Allocation” menu navigation that allows for the management of the input and output allocations.

NOTE (1): The AllocationCmdSet parameter corresponds with the “O3-IO Allocation” menu page given above and allows for the management of the analogical and digital input and output allocations, as described in the following table.

Key	Description
AI	“AI” access key to sub-menu
DI	“DI” access key to sub-menu
AO	“AO” access key to sub-menu
DO	“DO” access key to sub-menu
Auto	Automatic allocation command
Save	Save command on EEProm of the set allocation
Clear	Cancellation command of the set allocation
Reload	Reload command of allocation

Table 86 - “O3-IO Allocation” menu description

The parameters in the “O3-I/O Allocation” menu relating to the analogical inputs are given in the table below, divided up per page.

Pag	Name	Device type	Def	Min	Max	Unit	Description
- - -	AllocationCmdSet (1)	0=Idle; 1=Load Stored; 2=Auto Allocation; 3=Save into Stored; 4=Clear All; 18 = 18=Auto Allocation AI; 19 = 19=Save Allocation AI; 20 = 20=Clear AI; 34 = 34=Auto Allocation DI; 35 = 35=Save Allocation DI; 36 = 36=Clear DI; 50 = 50=Auto Allocation DO; 51 = 51=Save Allocation DO; 52 = 52=Clear DO; 66 = 66=Auto Allocation AO; 67 = 67=Save Allocation AO; 68 = 68=Clear AO	0	0	68	—	Allocation command
1/35	ioSV_base_AI_01	-1 = Not Used; 0=Supply Temp.; 1=Return Temp.; 2=External Temp.; 3=Expulsion Temp.; 4=Preheat Temp.; 5=Saturation Temp.; 6=Antifreeze; 7=Air Quality CO2; 8=Air Quality VOC; 9=Pressure 1; 10=Pressure 2; 11=Supply Hum.; 12=Return Hum.; 13=External Hum.; 14=Flow Tuning 1; 15=Flow Tuning 2	-1	-1	15	—	Temporary: Logic Allocation of the physical input
1/35	ioSV_base_AI_02	See ioSV_base_AI_01	-1	-1	15	—	Save command required to be effective
2/35	ioSV_base_AI_03	See ioSV_base_AI_01	-1	-1	15	—	—
2/35	ioSV_base_AI_04	See ioSV_base_AI_01	-1	-1	15	—	—
3/35	ioSV_base_AI_05	See ioSV_base_AI_01	-1	-1	15	—	—
3/35	ioSV_base_AI_06	See ioSV_base_AI_01	-1	-1	15	—	—
4/35	ioSV_base_AI_07	See ioSV_base_AI_01	-1	-1	15	—	—
4/35	ioSV_base_AI_08	See ioSV_base_AI_01	-1	-1	15	—	—
5/35	ioSV_base_AI_09	See ioSV_base_AI_01	-1	-1	15	—	—
5/35	ioSV_base_AI_10	See ioSV_base_AI_01	-1	-1	15	—	—
6/35	ioSV_base_AI_11	See ioSV_base_AI_01	-1	-1	15	—	—

Pag	Name	Device type	Def	Min	Max	Unit	Description
6/35	ioSV_base_AI_12	See ioSV_base_AI_01	-1	-1	15	—	—
7/35	ioSV_exp1_AI_01	See ioSV_base_AI_01	-1	-1	15	—	—
7/35	ioSV_exp1_AI_02	See ioSV_base_AI_01	-1	-1	15	—	—
8/35	ioSV_exp1_AI_03	See ioSV_base_AI_01	-1	-1	15	—	—
8/35	ioSV_exp1_AI_04	See ioSV_base_AI_01	-1	-1	15	—	—
9/35	ioSV_exp2_AI_01	See ioSV_base_AI_01	-1	-1	15	—	—
9/35	ioSV_exp2_AI_02	See ioSV_base_AI_01	-1	-1	15	—	—
10/35	ioSV_exp2_AI_03	See ioSV_base_AI_01	-1	-1	15	—	—
10/35	ioSV_exp2_AI_04	See ioSV_base_AI_01	-1	-1	15	—	—
11/35	ioSV_base_AI_0102	0=NTC(NK103); 2=NTC(103AT); 3=4...20mA; 4=0-10V; 5=Ratiometric; 6=PT1000; 9=PTC; 10=0-5V; 11=0...20mA	2	0	11	—	Temporary: AI probe configuration
11/35	ioSV_base_AI_0304	See ioSV_base_AI_0102	2	0	11	—	Save command required to be effective
12/35	ioSV_base_AI_0506	See ioSV_base_AI_0102	2	0	11	—	—
12/35	ioSV_base_AI_0708	See ioSV_base_AI_0102	4	0	11	—	—
13/35	ioSV_base_AI_0910	See ioSV_base_AI_0102	2	0	11	—	—
13/35	ioSV_base_AI_1112	See ioSV_base_AI_0102	4	0	11	—	—
14/35	ioSV_exp1_AI_0102	See ioSV_base_AI_0102		0	11	—	—
14/35	ioSV_exp1_AI_0304	See ioSV_base_AI_0102		0	11	—	—
15/35	ioSV_exp2_AI_0102	See ioSV_base_AI_0102		0	11	—	—
15/35	ioSV_exp2_AI_0304	See ioSV_base_AI_0102		0	11	—	—
16/35	ioSV_base_AI01_min	Signed 16-bit	0	—	—	digit	Temporary: AI ranges
16/35	ioSV_base_AI01_max	Unsigned 16-bit	1000	—	—	digit	Save command required to be effective
17/35	ioSV_base_AI02_min	Signed 16-bit	0	—	—	digit	—
17/35	ioSV_base_AI02_max	Unsigned 16-bit	1000	—	—	digit	—
18/35	ioSV_base_AI03_min	Signed 16-bit	0	—	—	digit	—
18/35	ioSV_base_AI03_max	Unsigned 16-bit	1000	—	—	digit	—
19/35	ioSV_base_AI04_min	Signed 16-bit	0	—	—	digit	—
19/35	ioSV_base_AI04_max	Unsigned 16-bit	1000	—	—	digit	—
20/35	ioSV_base_AI05_min	Signed 16-bit	0	—	—	digit	—
20/35	ioSV_base_AI05_max	Unsigned 16-bit	1000	—	—	digit	—
21/35	ioSV_base_AI06_min	Signed 16-bit	0	—	—	digit	—
21/35	ioSV_base_AI06_max	Unsigned 16-bit	1000	—	—	digit	—
22/35	ioSV_exp1_AI01_min	Signed 16-bit	-500	—	—	digit	—

Pag	Name	Device type	Def	Min	Max	Unit	Description
22/35	ioSV_exp1_AI01_max	Signed 16-bit	1100	—	—	digit	—
23/35	ioSV_exp1_AI02_max	Signed 16-bit	1100	—	—	digit	—
23/35	ioSV_exp1_AI02_min	Signed 16-bit	-500	—	—	digit	—
24/35	ioSV_exp1_AI03_min	Signed 16-bit	0	—	—	digit	—
24/35	ioSV_exp1_AI03_max	Signed 16-bit	1000	—	—	digit	—
25/35	ioSV_exp1_AI04_min	Signed 16-bit	0	—	—	digit	—
25/35	ioSV_exp1_AI04_max	Signed 16-bit	1000	—	—	digit	—
26/35	ioSV_base_AI07_min	Signed 16-bit	0	—	—	digit	—
26/35	ioSV_base_AI07_max	Unsigned 16-bit	1000	—	—	digit	—
27/35	ioSV_base_AI08_min	Signed 16-bit	0	—	—	digit	—
27/35	ioSV_base_AI08_max	Unsigned 16-bit	1000	—	—	digit	—
28/35	ioSV_base_AI09_min	Signed 16-bit	0	—	—	digit	—
28/35	ioSV_base_AI09_max	Unsigned 16-bit	1000	—	—	digit	—
29/35	ioSV_base_AI10_min	Signed 16-bit	0	—	—	digit	—
29/35	ioSV_base_AI10_max	Unsigned 16-bit	1000	—	—	digit	—
30/35	ioSV_base_AI11_min	Signed 16-bit	0	—	—	digit	—
30/35	ioSV_base_AI11_max	Unsigned 16-bit	1000	—	—	digit	—
31/35	ioSV_base_AI12_min	Signed 16-bit	0	—	—	digit	—
31/35	ioSV_base_AI12_max	Unsigned 16-bit	1000	—	—	digit	—
32/35	ioSV_exp1_AI03_min	Signed 16-bit	0	—	—	digit	—
32/35	ioSV_exp1_AI03_max	Signed 16-bit	1000	—	—	digit	—
33/35	ioSV_exp1_AI04_min	Signed 16-bit	0	—	—	digit	—
33/35	ioSV_exp1_AI04_max	Signed 16-bit	1000	—	—	digit	—
34/35	ioSV_exp2_AI03_min	Signed 16-bit	0	—	—	digit	—
34/35	ioSV_exp2_AI03_max	Signed 16-bit	1000	—	—	digit	—
35/35	ioSV_exp2_AI04_min	Signed 16-bit	0	—	—	digit	—
35/35	ioSV_exp2_AI04_max	Signed 16-bit	1000	—	—	digit	—

Table 87 - O3-I/O Allocation for analogical inputs

The parameters in the “O3-I/O Allocation” menu relating to the digital inputs are given in the table below, divided up per page.

Pag	Name	Device type	Def	Min	Max	Description
- - -	AllocationCmdSet (1)	0=Idle; 1=Load Stored; 2=Auto Allocation; 3=Save into Stored; 4=Clear All; 18 = 18=Auto Allocation AI; 19 = 19=Save Allocation AI; 20 = 20=Clear AI; 34 = 34=Auto Allocation DI; 35 = 35=Save Allocation DI; 36 = 36=Clear DI; 50 = 50=Auto Allocation DO; 51 = 51=Save Allocation DO; 52 = 52=Clear DO; 66 = 66=Auto Allocation AO; 67 = 67=Save Allocation AO; 68 = 68=Clear AO	0	0	68	Allocation command
1/10	ioSV_base_DI_01	-1 = Not Used; 0=Supply Fan Th.Prot.; 1=Return Fan Th.Prot.; 2=On Off; 3=Fire Alarm; 4=Mode; 5=Door; 6=Antifreeze Alarm; 7=Airflow Alarm Supply; 8=Airflow Alarm Return; 9=Humidifier Alarm; 10=Pre Heater Alarm 11=Post Heater Alarm 12=Rotary Heat Exch. Alarm 13=Filter 1 Alarm 14=Filter 2 Alarm 15=Filter 3 Alarm 16=Filter 4 Alarm 17=Supply Fan 2 Th.Prot. 18=Return Fan 2 Th.Prot. 19=Supply Fan 2 Airflow Alarm 20=Return Fan 2 Airflow Alarm 21=Cond. Unit Alarm 22=Heater Alarm 23=Cond. Unit 2 Alarm 24=Cond. Unit 3 Alarm 25=Cond. Unit 4 Alarm 26=Cond. Unit 1 Defrost 27=Cond. Unit 2 Defrost 28=Cond. Unit 3 Defrost 29=Cond. Unit 4 Defrost 30=Filter 5 Alarm	-1	-1	10	—

Pag	Name	Device type	Def	Min	Max	Description
1/10	ioSV_base_DI_02	See ioSV_base_DI_01	-1	-1	10	—
2/10	ioSV_base_DI_03		-1	-1	10	—
2/10	ioSV_base_DI_04		-1	-1	10	—
3/10	ioSV_base_DI_05		-1	-1	10	—
3/10	ioSV_base_DI_06		-1	-1	10	—
4/10	ioSV_base_DI_07		-1	-1	10	—
4/10	ioSV_base_DI_08		-1	-1	10	—
5/10	ioSV_base_DI_09		-1	-1	10	—
5/10	ioSV_base_DI_10		-1	-1	10	—
6/10	ioSV_base_DI_11		-1	-1	10	—
6/10	ioSV_base_DI_12		-1	-1	10	—
7/10	ioSV_exp1_DI_01		-1	-1	10	—
7/10	ioSV_exp1_DI_02		-1	-1	10	—
8/10	ioSV_exp1_DI_03		-1	-1	10	—
8/10	ioSV_exp1_DI_04		-1	-1	10	—
9/10	ioSV_exp2_DI_01		-1	-1	10	—
9/10	ioSV_exp2_DI_02		-1	-1	10	—
10/10	ioSV_exp2_DI_03		-1	-1	10	—
10/10	ioSV_exp2_DI_04		-1	-1	10	—

Table 88 - O3-I/O Allocation for digital inputs

The parameters in the “O3-I/O Allocation” menu relating to the digital outputs are given in the table below, divided up per page.

Pag	Name	Device type	Def	Min	Max	Description
- - -	AllocationCmdSet (1)	0=Idle; 1=Load Stored; 2=Auto Allocation; 3=Save into Stored; 4=Clear All; 18 = 18=Auto Allocation AI; 19 = 19=Save Allocation AI; 20 = 20=Clear AI; 34 = 34=Auto Allocation DI; 35 = 35=Save Allocation DI; 36 = 36=Clear DI; 50 = 50=Auto Allocation DO; 51 = 51=Save Allocation DO; 52 = 52=Clear DO; 66 = 66=Auto Allocation AO; 67 = 67=Save Allocation AO; 68 = 68=Clear AO	0	0	68	Allocation command

Pag	Name	Device type	Def	Min	Max	Description
1/10	ioSV_base_DO_01	-1 = Not Used; 0=Supply Fan; 1=Return Fan; 2=On Off; 3=Alarm; 4=Mode; 5=Ext. Dampers; 6=Bypass Damper; 7=Supply Damper; 8=Return Damper; 9=Pump Preheat; 10=Pump Postheat; 11=Cool / Cool-Heat Pump; 12=Cool / Cool-Heat Step 1 or Cond.Unit 1; 13=Cool / Cool-Heat Step 2 or Cond.Unit 2; 14=Cool / Cool-Heat Step 3 or Cond.Unit 3; 15=Cool / Cool-Heat Step 4 or Cond.Unit 4; 16=Heat Pump; 17=Heater Step 1; 18=Heater Step 2; 19=Heater Step 3; 20=Pre Heater Step 1; 21=Pre Heater Step 2; 22=Pre Heater Step 3; 23=Post Heater Step 1; 24=Post Heater Step 2; 25=Post Heater Step 3; 26=Humidifier; 27=Recovery; 28=Supply Fan 2; 29=Return Fan 2; 30=Supply Damper 2; 31=Return Damper 2	-1	-1	31	Temporary: Logic Allocation of the physical output
1/10	ioSV_base_DO_02	See ioSV_base_DO_01	-1	-1	31	Save command required to be effective
2/10	ioSV_base_DO_03		-1	-1	31	—
2/10	ioSV_base_DO_04		-1	-1	31	—
3/10	ioSV_base_DO_05		-1	-1	31	—
3/10	ioSV_base_DO_06		-1	-1	31	—
4/10	ioSV_base_DO_07		-1	-1	31	—
4/10	ioSV_base_DO_08		-1	-1	31	—
5/10	ioSV_base_DO_09		-1	-1	31	—
5/10	ioSV_base_DO_10		-1	-1	31	—
6/10	ioSV_base_DO_11		-1	-1	31	—
6/10	ioSV_base_DO_12		-1	-1	31	—
7/10	ioSV_exp1_DO_02		-1	-1	31	—
7/10	ioSV_exp1_DO_01		-1	-1	31	—

Pag	Name	Device type	Def	Min	Max	Description
8/10	ioSV_exp1_DO_03		-1	-1	31	—
8/10	ioSV_exp1_DO_04		-1	-1	31	—
9/10	ioSV_exp2_DO_01		-1	-1	31	—
9/10	ioSV_exp2_DO_02		-1	-1	31	—
10/10	ioSV_exp2_DO_03		-1	-1	31	—
10/10	ioSV_exp2_DO_04		-1	-1	31	—

Table 89 - "O3-I/O Allocation" relative to digital outputs

The parameters in the "O3-I/O Allocation" menu relating to the analogical outputs are given in the table below, divided up per page.

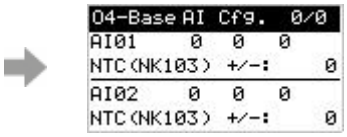
Pag	Name	Device type	Def	Min	Max	Description
- - -	AllocationCmdSet (1)	0=Idle; 1=Load Stored; 2=Auto Allocation; 3=Save into Stored; 4=Clear All; 18 = 18=Auto Allocation AI; 19 = 19=Save Allocation AI; 20 = 20=Clear AI; 34 = 34=Auto Allocation DI; 35 = 35=Save Allocation DI; 36 = 36=Clear DI; 50 = 50=Auto Allocation DO; 51 = 51=Save Allocation DO; 52 = 52=Clear DO; 66 = 66=Auto Allocation AO; 67 = 67=Save Allocation AO; 68 = 68=Clear AO	0	0	68	Allocation command
1/5	ioSV_base_AO_01	-1 = Not Used; 0=Supply Fan; 1=Return Fan; 2=Ext. Dampers; 3=Byp. Damper; 4=Cool / Cool-Heat; 5=Heat; 6=Pre Heater; 7=Post Heater; 8=Recovery; 9=Humidifier 10=Cond.Unit 1 11=Cond.Unit 2 12=Cond.Unit 3 13=Cond.Unit 4	-1	-1	9	—
1/5	ioSV_base_AO_02	See ioSV_base_AO_01	-1	-1	9	—
2/5	ioSV_base_AO_03		-1	-1	9	—
2/5	ioSV_base_AO_04		-1	-1	9	—
3/5	ioSV_base_AO_05		-1	-1	9	—

Pag	Name	Device type	Def	Min	Max	Description
3/5	ioSV_base_AO_06		-1	-1	9	—
4/5	ioSV_exp1_AO_01		-1	-1	9	—
4/5	ioSV_exp1_AO_02		-1	-1	9	—
5/5	ioSV_exp2_AO_01		-1	-1	9	—
5/5	ioSV_exp2_AO_02		-1	-1	9	—

Table 90 - "O3-I/O Allocation" relative to analogical outputs

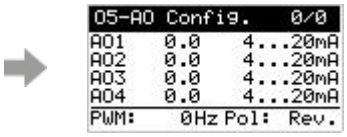
4.8.2.4 O4-Base AI Cfg.

Bios AI



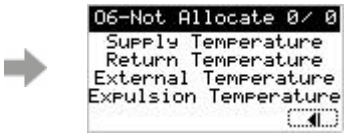
4.8.2.5 O5-AO Config.

Bios AI



4.8.2.6 O6-Not Allocate

I/O Not Fully Cfg

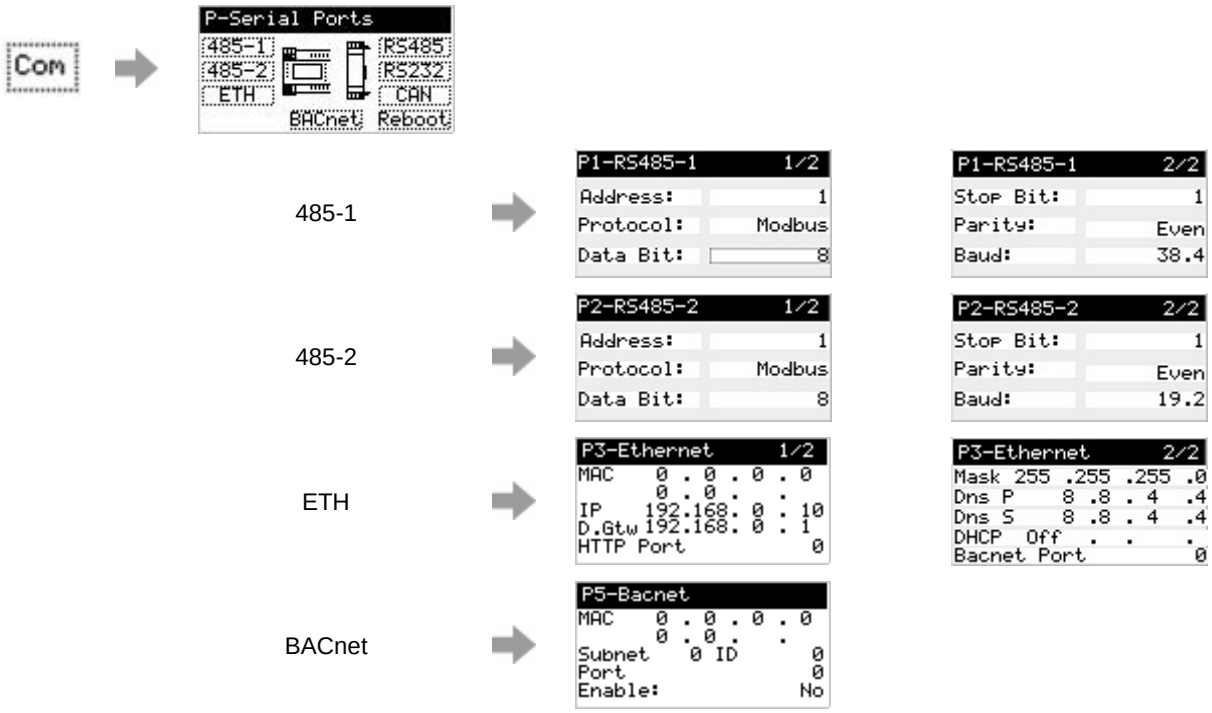


4.8.3. P-Serial ports

The “P-Serial ports” menu allows for the management of communication ports via the relative keys, as shown in the following table.

Communication port	“P-Serial ports” menu key	Meaning
P1	485-1	RS485 - 1 communication port of the controller
P2	485-2	RS485 - 2 communication port of the controller
P3	ETH	Ethernet communication port of the controller
P5	BACnet	BACnet communication port of the controller
P6	RS485	RS485 communication port of the plug-in
P7	RS232	RS232 communication port of the plug-in
P8	CAN	CAN communication port of the plug-in

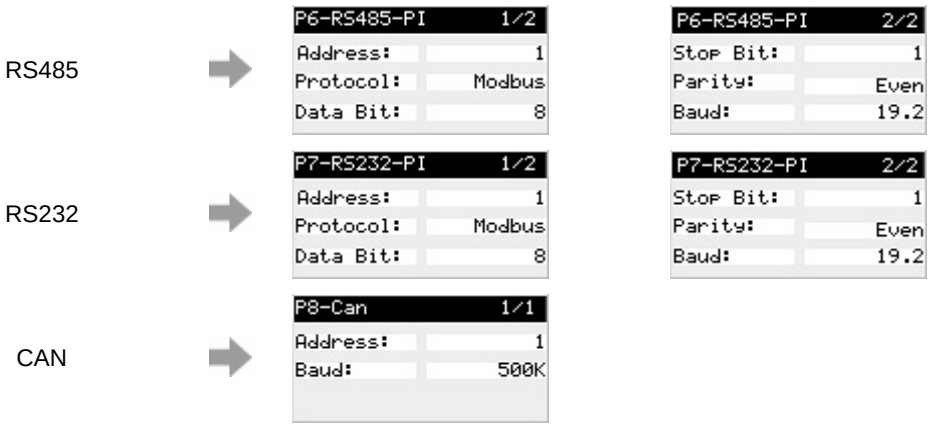
Table 91 - Management of the communication ports



The parameters in the “P5-Bacnet” menu are given in the table below, divided up per page.

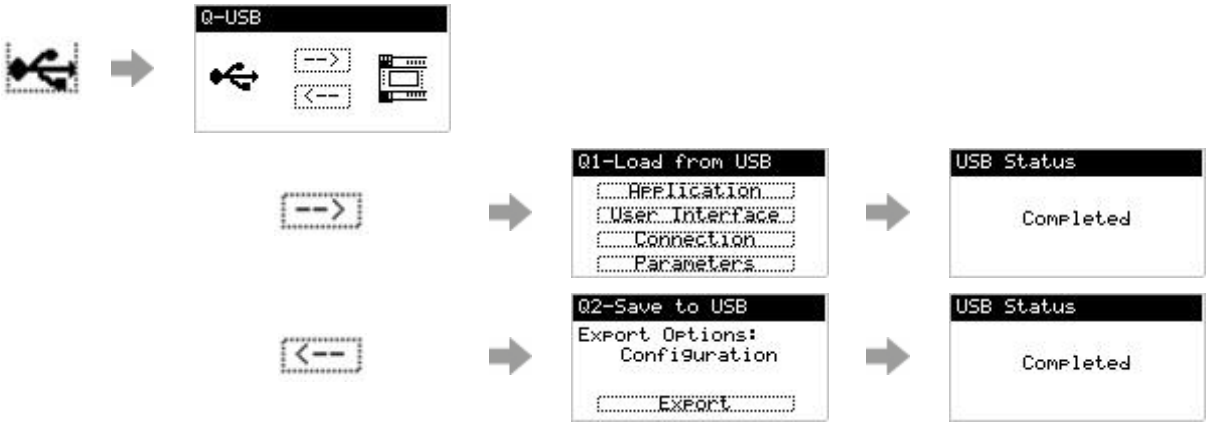
Pag	Name	Device type	Def	Min	Unit	Description
- - -	BACNET_ENABLE	Boolean	1	—	—	Bacnet Protocol Enable
- - -	BACNET_ID	Unsigned 16-bit	1	1	—	Bacnet Device ID
- - -	BACNET_SUBNET	Unsigned 16-bit	0	0	63	Bacnet Device SUBNET
- - -	BACNET_BBMD_Ip1	Unsigned 8-bit	0	—	—	BBMD Service IP - Foreing Devices Handling
- - -	BACNET_BBMD_Ip2	Unsigned 8-bit	0	—	—	BBMD Service IP - Foreing Devices Handling
- - -	BACNET_BBMD_Ip3	Unsigned 8-bit	0	—	—	BBMD Service IP - Foreing Devices Handling
- - -	BACNET_BBMD_Ip4	Unsigned 8-bit	0	—	—	BBMD Service IP - Foreing Devices Handling
- - -	BACNET_BBMD_TMO	Unsigned 16-bit	60	—	sec	BBMD Timeout - Foreing Devices Handling

Table 92 - P5-Bacnet



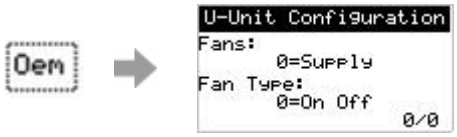
NOTE: The parameter relative to the communication ports P1, P2, P3, P6, P7, P8 are BIOS parameters of the controller. For additional information consult the User Guide FREE Advance manual.

4.8.4. Q-USB



4.8.5. U-Unit Configuration

Below is given the “Unit Configuration” menu navigation that allows for the AHU hardware configuration to be managed.



The parameters in the “Unit Configuration” menu are given in the table below, divided up per page.

Pag	Name	Device type	Def	Min	Max	Description
1/14	cfgFans	0=Supply; 1=Supply+Return	0	0	1	OEM: Fan Sections
1/14	cfgFanType	0=On Off; 1=Modulating; 2=On Off Backup; 3=Modulating Backup; 4=ATV; 5=ATV Backup; 6=EBM; 7=EBM Backup; 8=Ziehl; 9=Ziehl Backup	0	0	9	OEM: Fan Type
2/14	cfgFanRegulation	0=Fixed Speed; 1=Air Quality; 2=Pressure 1 Probe; 3=Pressure 2 Probes	0	0	3	OEM: Fan Regulator
2/14	cfgFanAlarm	0=Thermal/Digital Protection; 1=Digital+Flowswitch	0	0	1	OEM: Fan Alarm Selection
3/14	cfgCoolHeatModules	0=None; 1=Cool; 2=Heat; 3=Cool+Heat; 4=Cool/Heat Single out	0	0	4	OEM: Heating Cooling Enable
5/14	cfgPreHeating	0=None; 1=Water; 2=Water+Pump; 3=On Off Heaters; 4=Mod Heaters; 5=PWM Heaters	0	0	5	OEM: Preheater Selection
3/14	cfgCooling	0=Modulating Valve; 1=Mod+Pump; 2=Cond.Unit	0	0	2	OEM: Cooling Actuator Selection
4/14	cfgHeating	0=Modulating; 1=Mod+Pump; 2=Cond.Unit; 3=On Off Heaters; 4=Mod Heaters; 5=PWM Heaters	0	0	5	OEM: Heating Actuator Selection

Pag	Name	Device type	Def	Min	Max	Description
4/14	cfgCooling_Heating	0=Modulating Valve; 1=Mod+Pump; 2=Cond.Unit	0	0	2	OEM: Cooling+Heating Actuator Selection
5/14	cfgPostHeating	0=None; 1=Modulating Valve; 2=Mod.Valve+Pump; 3=On Off Heaters; 4=Mod Heaters; 5=PWM Heaters	0	0	5	OEM: Postheater Selection
6/14	cfgAntifreeze	0=None; 1=On Off; 2=NTC	0	0	2	OEM: Antifreeze Selection
6/14	cfgHeatRecovery	0=None/Not Regulated; 1=Bypass On Off; 2=Bypass Mod; 3=Rotary On Off; 4=Rotary Mod; 5=Exchanger On Off; 6=Exchanger Mod	0	0	6	OEM: Heat Recovery Selection
7/14	cfgDefrostHeatRec	0=None; 1=Supply Fans; 2=Preheating	0	0	2	OEM: Defrost Regulation Selection
7/14	cfgDampers	0=None; 1=External On Off; 2=External + Mix Mod	1	0	2	OEM: External Dampers Selection
8/14	cfgHumidifier	0=None; 1=On Off; 2=Modulating	0	0	2	OEM: Humidifier Selection
8/14	cfgDeHumidifier	0=None; 1=Standard; 2=Dew Point; 3=Standard+Winter; 4=Dew Point+Winter	0	0	4	OEM: Dehumification Regulator
9/14	cfgDampersForFans	0=None; 1=Supply; 2=Return; 3=Supply+Return	0	0	3	OEM: Dampers for fam Selection
9/14	cfgAirQuality	0=None; 1=CO2; 2=VOC; 3=CO2+VOC	0	0	3	OEM: Air Quality Probe Selection
10/14	cfgFilterPressostat	Unsigned 8-bit	0	0	5	OEM: Number of filter pressostat
10/14	cfgDoorDI	Boolean	0	—	—	OEM: Door Input Enable
11/14	cfgModeDI	Boolean	0	—	—	OEM: Unit Mode Input Enable
11/14	cfgModeDO	Boolean	0	—	—	OEM: Unit Mode Output Enable

Pag	Name	Device type	Def	Min	Max	Description
12/14	cfgCoolHeat_NumSteps	0=1 Cond Unit – AO 1=1 Cond Unit - 1 Step+AO 2=1 Cond Unit - 2 Steps 3=1 Cond Unit - 3 Steps 4=1 Cond Unit - 4 Steps 16=2 Cond Units 32=3 Cond Units 64=4 Cond Units	0	0	48	OEM: Condensing Unit Steps
12/14	cfgHeat_NumSteps	Unsigned 8-bit	1	0	6	OEM: Electric Heater Steps
13/14	cfgPreHeat_NumSteps	Unsigned 8-bit	1	0	6	OEM: Electric Pre Heater Steps
13/14	cfgPostHeat_NumSteps	Unsigned 8-bit	1	0	6	OEM: Electric Post Heater Steps
14/14	cfgMixChamberBeforePreHeat	Boolean	0	—	—	OEM: If enabled dampers closed with PreAntifreeze and Defrost with PreHeating
	CfgParallelFans	Unsigned 8-bit	1	1	3	OEM: Number of parallel fans (Ziehl only)

Table 93 - Unit Configuration

4.8.6. W-Password

5. DATALOGGER

The controller allows for data to be saved on MicroSD.

Below are given some indications on how to use the MicroSD on the controller properly.

- Removal of the MicroSD **is forbidden** without having previously dismantled it (see **4 User Settings Menu on pag. 55**) and before previously disabling the data-logging to avoid an error signal.
- It is essential to dismantle the MicroSD in the event it gets inserted into the controller already on (see **4 User Settings Menu on pag. 55**).
- Use of the MicroSD **is forbidden** with more than 500 stored files.
- The MicroSD needs to be formatted FAT32.

If enabled, the data saving on MicroSD starts 1 minute after booting. The data saved on MicroSD are:

- alarm status
- the data shown in the following table:

Data saved on MicroSD	Description
'On/Off'	AHU status
'Set T.'	Temperature set-point
'Set RH'	Humidity setpoint
'Set CO2'	Setpoint of air quality for CO_2 probe
'Set VOC'	Setpoint of air quality for VOC probe
'Supply T.'	Temperature of supply probe
'Return T.'	Temperature of return probe
'Ext.T.'	Temperature of outdoor probe
'Exp.T.'	Temperature of expulsion probe
'Preheat T.'	Temperature of preheat probe
'Sat. T.'	Temperature of saturation probe
'Af T.'	Temperature of antifreeze probe
'CO2'	CO_2 probe
'VOC'	VOC probe
'Supply Pr.'	Supply probe
'Return Pr.'	Return probe
'Supply Hum.'	Humidity of supply probe
'Return Hum.'	Humidity of return probe
'Ext.Hum.'	Humidity of external probe
Mode	Corrent Mode: 0=Cooling 1=Heating
Supply Fan	Supply Fan Speed
Return Fan	Return Fan Speed
Ext.Damper	External Damper Out
Recovery	Recovery Out
Free C.	Free Cooling Status
Free H.	Free Heating Status
Off by FC	Actuators Off due to Active Free Cooling/Heating
Heat	Heating Output
Cool	Cooling Output
Pre Heat	Pre-Heating Output

Data saved on MicroSD	Description
Post Heat	Post-Heating Output
Humidifier	Humidifier Output
PID Cool	Cooling PID Request
PID Heat	Heating PID Request
PID Air Q.	Air Quality PID Request
Dehum. Req.	Dehumidification Request
Defrost Fan	Defrost Fan Status

Table 94 - Data saved on MicroSD

6. BMS PROTOCOLS

The BMS protocols available are:

- Modbus RTU
- Modbus TCP.
- Bacnet

In the Modbus protocol, the bridge procedure is activated towards all the enabled slaves if the display is not in the S7-Modbus Scan menu for the management of the Modbus master (see **4.8.1.7 S7-Modbus Scan on pag. 95**).

6.1. Modbus RTU

NOTE: The parameters relative to the Modbus RTU protocol are BIOS parameters of the controller. For further information, see User Guide FREE Advance manual and in **11 Tables Modbus on pag. 133**, **8 Alarms on pag. 125** for the Modbus register addresses that can be read and written.

6.2. Modbus TCP

NOTE: The parameters relative to the TCP Modbus protocol are BIOS parameters of the controller. For further information, see User Guide FREE Advance manual and in **11 Tables Modbus on pag. 133**, **8 Alarms on pag. 125** for the Modbus register addresses that can be read and written.

6.3. Bacnet

The specifications relating to the Bacnet protocol are given in the table below.

Profile	ACC Controller
Door	On Ethernet door or in alternative exclusive Bacnet MS/TP on door RS485-1 (see **4.8.3 P-Serial Ports on pag. 109**).

Table 95 - Specifications relative to the Bacnet protocol

The objects relative to the Bacnet protocol are given in the table below.

Object name	Object type	Object instance	Description	Supports COV
Supply Temperature	AI	0	Supply Temperature	Y
Return Temperature	AI	1	Return Temperature	Y
External Temperature	AI	2	External Temperature	Y
Expulsion Temperature	AI	3	Expulsion Temperature	Y
Preheating Temperature	AI	4	Preheating Temperature	Y
Saturation Temperature	AI	5	Saturation Temperature	Y
Antifreeze Temperature	AI	6	Antifreeze Temperature	Y
Air Quality CO2	AI	7	Air Quality CO2	Y
Air Quality VOC	AI	8	Air Quality VOC	Y
Supply Ventilation	AI	9	Supply Pressure or Flow	Y
Return Ventilation	AI	10	Return Pressure or Flow	Y
Supply Humidity	AI	11	Supply Humidity	Y
Return Humidity	AI	12	Return Humidity	Y
External Humidity	AI	13	External Humidity	Y
Supply Flow Tuning	AI	14	Supply Flow Tuning	Y
Return Flow Tuning	AI	15	Return Flow Tuning	Y
BAI16	AI	16	Future Use	Y
Set Comfort Cool	AV	17	Set Comfort Cool	Y

Object name	Object type	Object instance	Description	Supports COV
Set Comfort Heat	AV	18	Set Comfort Heat	Y
Set Eco Cool	AV	19	Set Eco Cool	Y
Set Eco Heat	AV	20	Set Eco Heat	Y
Set Auto	AV	21	Set Auto	Y
Set Comfort Humidification	AV	22	Set Comfort Humidification	Y
Set Comfort DeHumidification	AV	23	Set Comfort DeHumidification	Y
Set Eco Humidification	AV	24	Set Eco Humidification	Y
Set Ecot DeHumidification	AV	25	Set Ecot DeHumidification	Y
Set CO2	AV	26	Set CO2	Y
Set VOC	AV	27	Set VOC	Y
Damper Position	AI	28	Damper Position	Y
Fan Supply Speed	AI	29	Fan Supply Speed	Y
Fan Return Speed	AI	30	Fan Return Speed	Y
Cooling Actuator	AI	31	Cooling Actuator	Y
Heating Actuator	AI	32	Heating Actuator	Y
PreHeating Actuator	AI	33	PreHeating Actuator	Y
PostHeating Actuator	AI	34	POstHeating Actuator	Y
Heat-Cool Recovery Request	AI	35	Heat-Cool Recovery Request	Y
Humidifier Actuator	AI	36	Humidifier Actuator	Y
On/Off Unit	BV	0	On Off Unit	N
Unit Alarm	BV	1	Unit Alarm	N
Unit Blocking Alarm	BV	2	Unit Blocking Alarm	N
Fire Alarm	BV	3	Unit Fire Alarm	N
Alarms Reset Request	BV	4	Alarms Reset Request	
Unit Mode	MSV	0	Season Mode	N
Unit Set Mode	MSV	2	Setpoint Mode	N
Unit Current Mode	MSI	1	Season Mode	N
Unit Status	MSV	3	On Off Standby Unit	N
NC0	NC	0	NC0	N
NC1	NC	1	NC1	N
NC2	NC	2	NC2	N
NC3	NC	3	NC3	N
AHU_<subnet>_<id>	Device	0	—	N

Table 96 - Items relative to the Bacnet protocol

If an object is not enabled, the applicative forces the status to “out of service”.

The unit of AI Supply, Return Ventilation, Supply Flow Tuning e Return Flow Tuning can be configured as Pascal (53) o m^3/h (135).

7. WEB SERVER

The Web Server is a software application that allows for the AHU to be managed. It is sub-divided into the following screens:

- Home
  - Settings
  - Weekly Scheduler
  - Event Scheduler
- State
  - IOs
  - Alarms and Historical
- Log
  - Logged File
  - Trend.

The Home screen allows for the synoptic of the AHU to be dynamically configured, managed the main functions, including the ON/OFF status of the AHU and the summer/winter mode change, and view the status of the probes and alarms.

Fig 14 - Home Screen

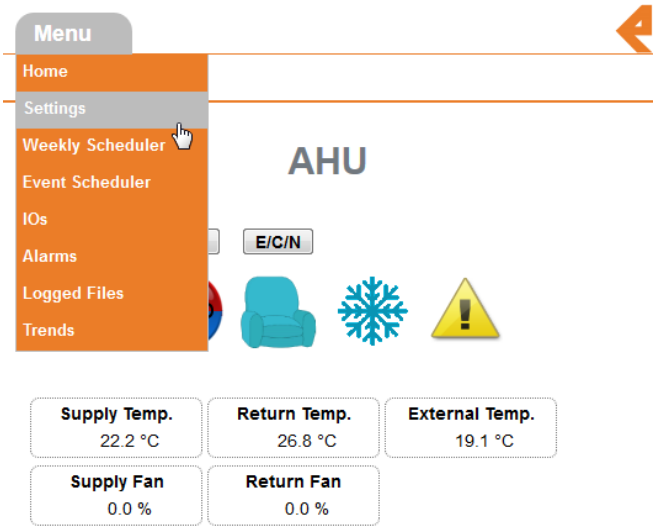


Fig 15 - Visualizzazione Mobile

The Settings screen allows for the setpoints to be configured.

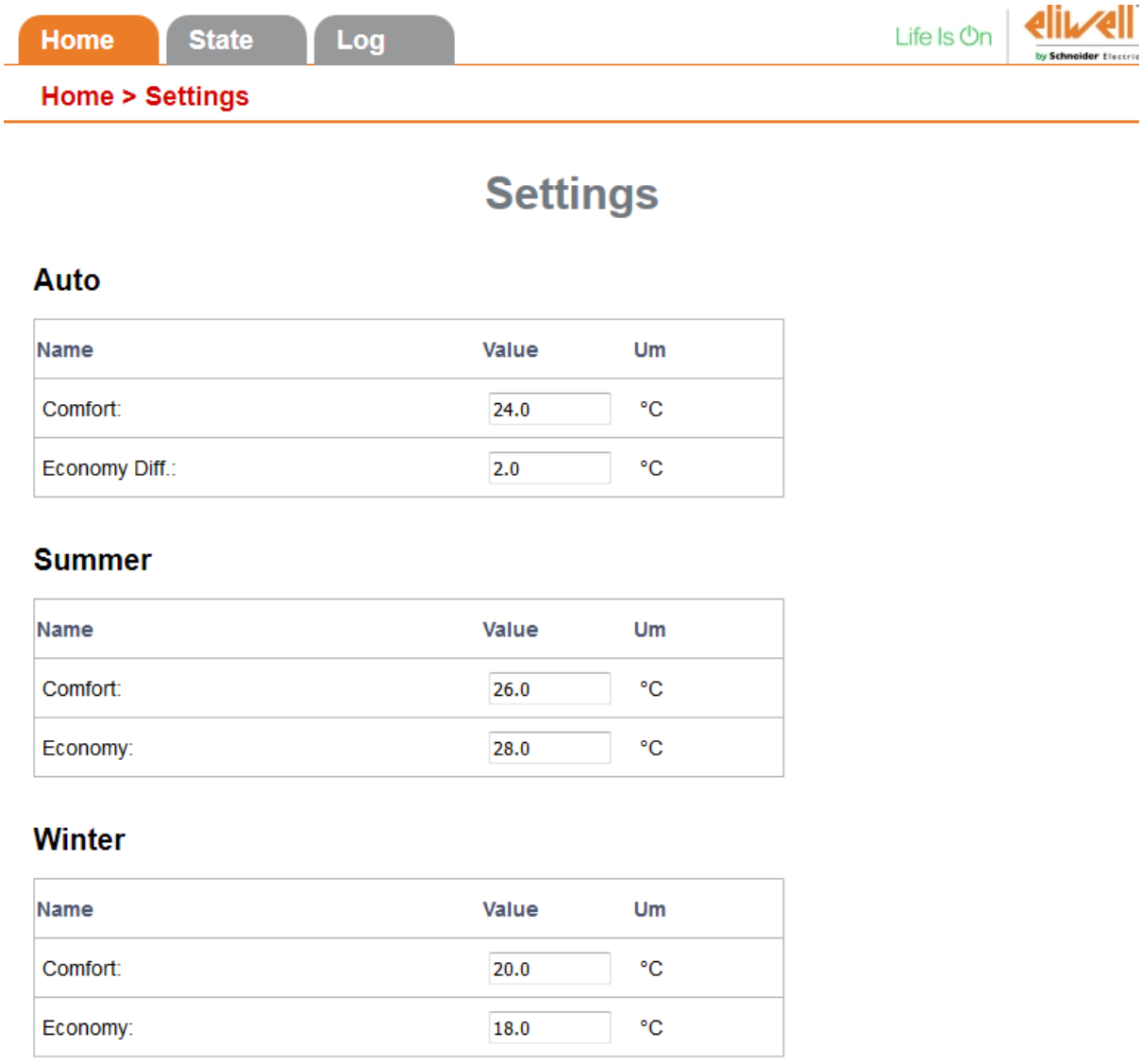


Fig 16 - Settings Screen

The Weekly Scheduler screen allows for the configuration of the weekly events.

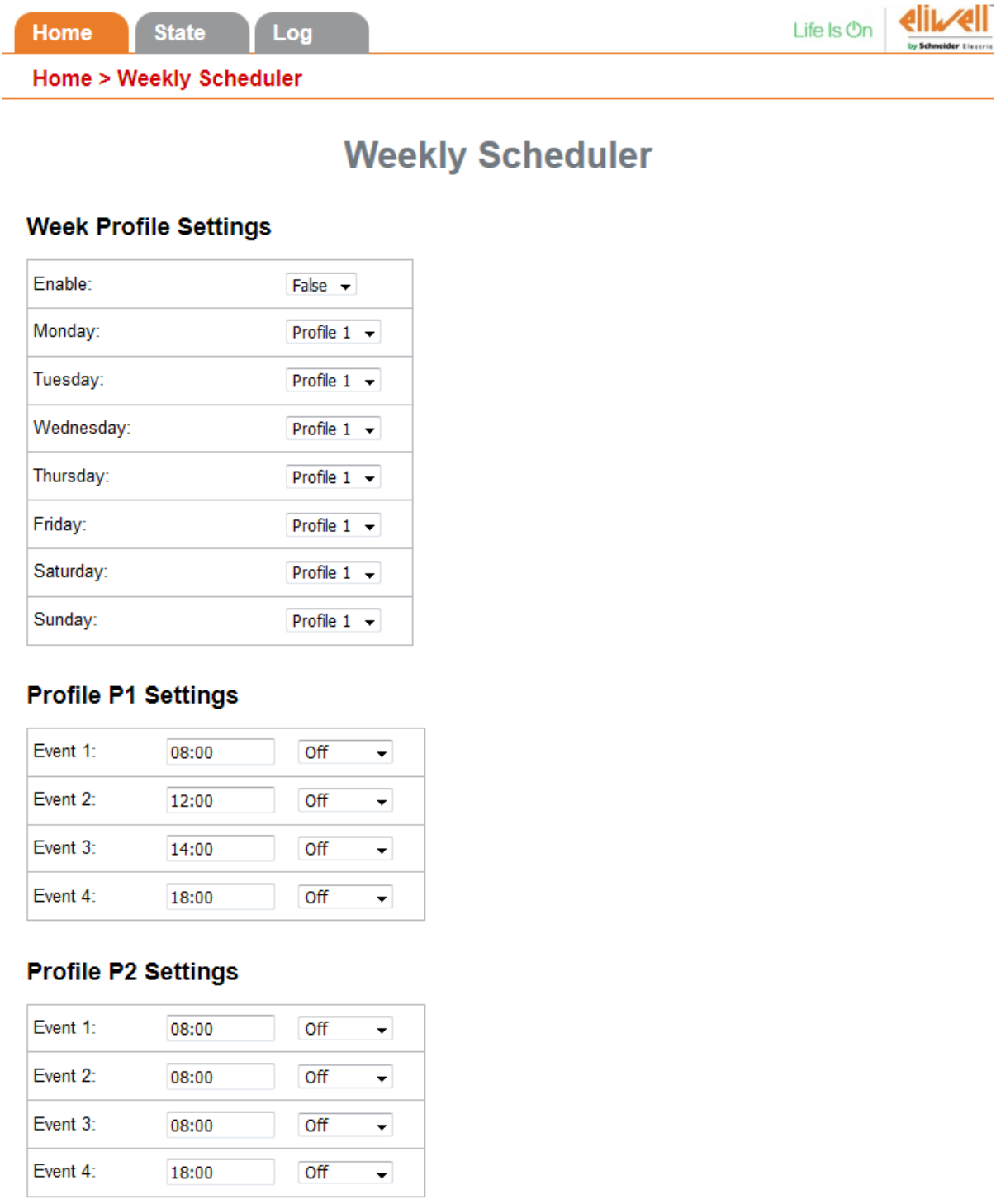


Fig 17 – Weekly Scheduler

The Event Scheduler screen allows for the yearly event settings.

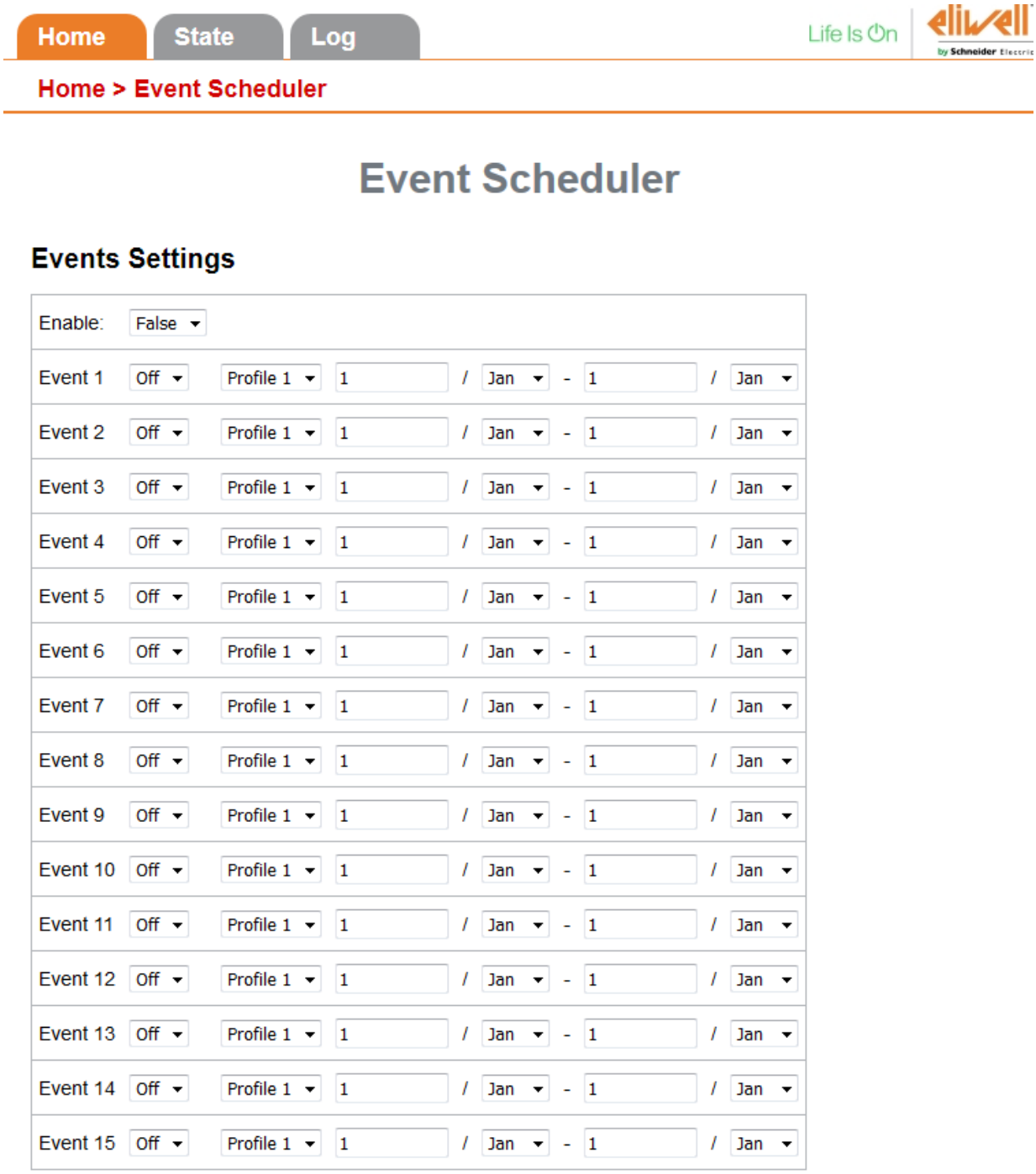


Fig 18 – Event Scheduler

The Alarms screen allows monitoring the current active alarms and the historical alarm.

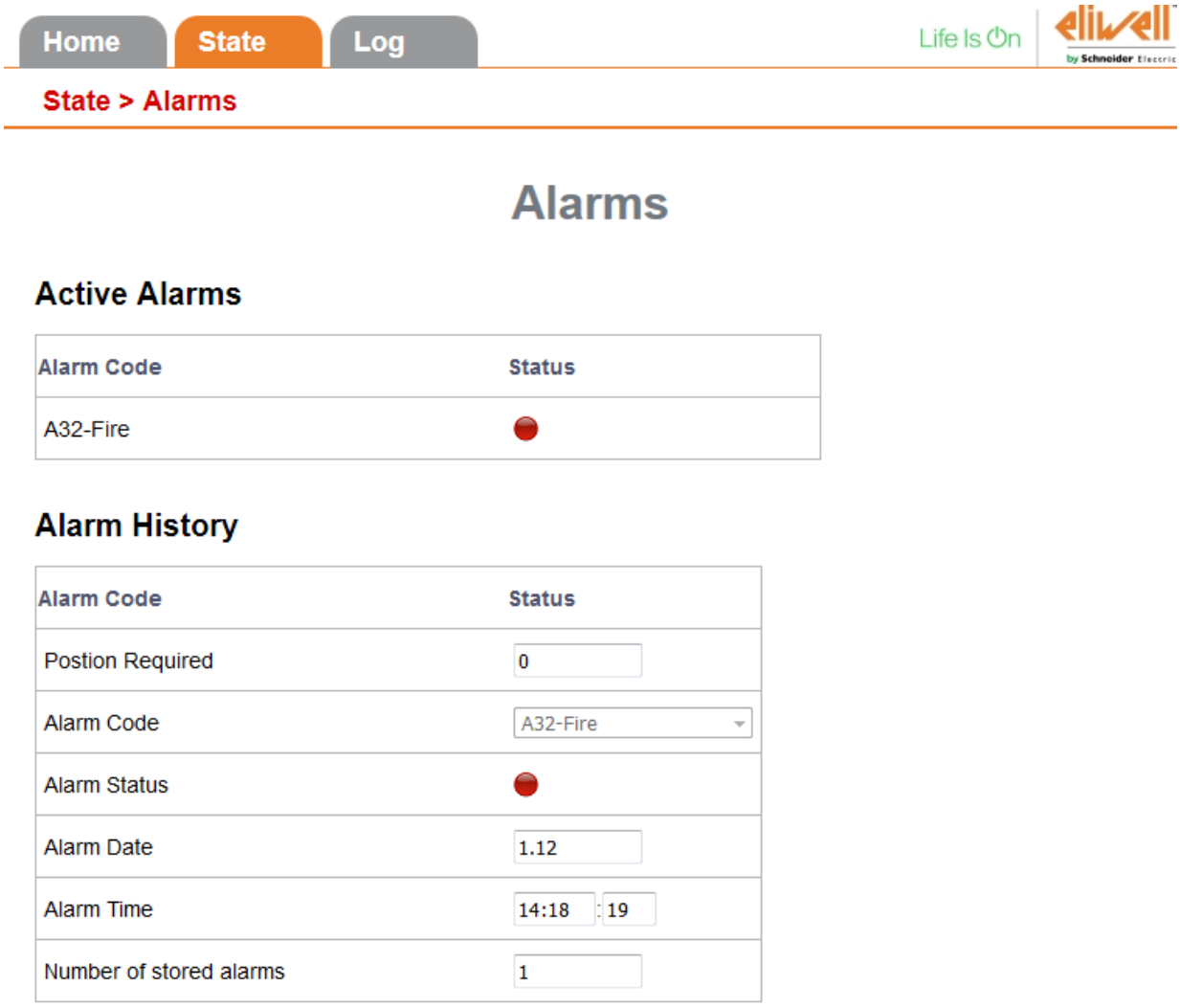


Fig 19 - Alarms Screen

The Log screens allow to show the graphs of the logged data and download the logged files.

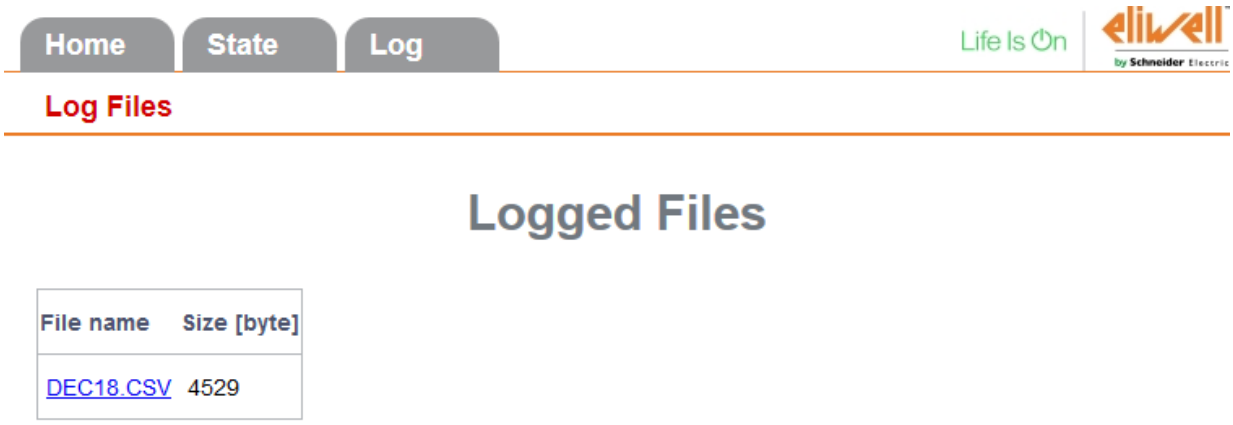


Fig 20 - Logged Files Screen

Fig 21 – Trends Screen

8. ALARMS

The following table describes the alarms that may be activated.

Modbus Register	Descrizione	Effetto	Riarmo	Ritardo
9520	Alarm reset request command via Modbus	—	—	—
9521	Al01-Supply Temperature Probe Error	Force Stop Unit	Auto	—
9522	A02-Return Temperature Probe Error	Force supply temperature regulation Disable Winter Dehumidification	Auto	—
9523	A03-External Temperature Probe Error	Disable FreeCooling FreeHeating Disable Recovery	Auto	—
9524	A04-Expulsion Temperature Probe Error	Disable Defrost Recovery	Auto	—
9525	A05-Preheating Temperature Probe Error	Disable Preheating Actuators	Auto	—
9526	A06-Saturation Temperature Probe Error	Disable Dewpoint Dehumidification	Auto	—
9527	A07-Antifreeze Temperature Probe Error	Disable Antifreeze alarm When unit is on, open all the valves	Auto	—
9528	A08-CO2 Probe Error	Disable Air quality regulator	Auto	Delayed
9529	A09-Supply Pressure Probe Error	If 2 pressure probes enabled, uses single pressure probe regulation Otherwise uses fixed speed regulation	Auto	Delayed
9530	A10-Return Pressure Probe Error	If 2 pressure probes enabled, uses single pressure probe regulation Otherwise uses fixed speed regulation	Auto	Delayed
9531	A11-Hum. Supply Probe Error	Disable Humidification	Auto	Delayed
9532	A12-Hum. Return Probe Error	Disable Humidification and Dehumidification	Auto	Delayed
9533	A13-VOC Probe Error	Disable Air quality regulator	Auto	Delayed
9534	A14-Hum. External Probe Error	Disable Winter Dehumidification	Auto	Delayed
9546	A26-Supply Airflow by Probe	Force stop unit if backup fans are not available	Manual	Delay at fan start
9547	A27-Return Airflow by Probe	Force stop unit if backup fans are not available	Manual	Delay at fan start
9548	A28-Airflow Prb Sup.2	Force stop unit if main fans are not available	Manual	Delay at fan start
9549	A29-Airflow Prb Ret.2	Force stop unit if main fans are not available	Manual	Delay at fan start
9550	A30-Fan Supply	Force stop unit if backup fans are not available	Manual	—
9551	A31-Fan Return	Force stop unit if backup fans are not available	Manual	—
9552	A32-Fire	Refer to **8.1 Allarme incendio a pag. 127**	Manual	—
9553	A33-Door	Force Stop Unit	Manual	—
9554	A34-Antifreeze	Force Off Unit Enabled only in heating mode	Auto	Delayed if preheating enabled
9555	A35-Airflow Supply	Force stop unit if backup fans are not available	Manual	—

Modbus Register	Descrizione	Effetto	Riarmo	Ritardo
9556	A36-Airflow Return	Force stop unit if backup fans are not available	Manual	—
9557	A37-Humidifier	Disable Humidification	Manual	—
9558	A38-Preheater	Disable Preheating Electric Heaters	Manual	—
9559	A39-Heater	Disable Electric Heaters	Manual	—
9560	A40-Postheater	Disable Post Electric Heaters	Manual	—
9561	A41-Recovery	Disable Heat Recovery	Manual	—
9562	A42-Filter 1	---	Manual	—
9563	A43-Filter 2	---	Manual	—
9564	A44-Filter 3	---	Manual	—
9565	A45-Filter 4	---	Manual	—
9566	A46-Fan Supply 2	Force stop unit if main fans are not available	Manual	Delay at fan start
9567	A47-Fan Return 2	Force stop unit if main fans are not available	Manual	Delay at fan start
9568	A48-Airflow Supply 2	Force stop unit if main fans are not available	Manual	Delay at fan start
9569	A49-Airflow Return 2	Force stop unit if main fans are not available	Manual	Delay at fan start
9570	A50-Cond. Unit	Disable Condensing Unit	Manual	—
9571	A51-Real Time Clock	Disable Time and Events	Manual	—
9572	A52-Fan Maintenance	Force stop unit	Auto	—
9573	A53-Modbus Fan Config. Timeout	Force stop unit	Manual	—
9574	A54-Modbus Fan Supply Communication	Force stop unit if backup fans are not available	Manual	—
9575	A55-Modbus Fan Return Communication	Force stop unit if backup fans are not available	Manual	—
9576	A56-Modbus Fan Supply 2 Communication	Force stop unit if backup fans are not available	Manual	—
9577	A57-Modbus Fan Return 2 Communication	Force stop unit if backup fans are not available	Manual	—
9578	Al58_Filter5	---	Manual	—
9580	A60-Log Error	Disable Datalogging	Manual	—
9581	A61-Can Expansion 1	Force Stop Unit	Manual	—
9582	A62-Can Expansion 2	Force Stop Unit	Manual	—
9586	Al66_CondUnit2	Disable Condensing Unit 2	Manual	—
9587	Al67_CondUnit3	Disable Condensing Unit 3	Manual	—
9588	Al68_CondUnit4	Disable Condensing Unit 4	Manual	—
9619	Al99-Fan Supply 1b Com Alarm	Force stop unit if backup fans are not available	Manual	
9620	Al100-Fan Supply 1c Com Alarm	Force stop unit if backup fans are not available	Manual	
9621	Al101-Fan Return 1b Com Alarm	Force stop unit if backup fans are not available	Manual	
9622	Al102-Fan Return 1c Com Alarm	Force stop unit if backup fans are not available	Manual	
9623	Al103-Fan Supply 2b Com Alarm	Force stop unit if backup fans are not available	Manual	

Modbus Register	Descrizione	Effetto	Riarmo	Ritardo
9624	Al104-Fan Supply 2c Com Alarm	Force stop unit if backup fans are not available	Manual	
9625	Al105-Fan Return 2b Com Alarm	Force stop unit if backup fans are not available	Manual	
9626	Al106-Fan Return 2c Com Alarm	Force stop unit if backup fans are not available	Manual	

Table 97 - Alarms

NOTE: The following alarms have no effect on the AHU but are exclusively pointed out:

- A42-Filter 1
- A43-Filter 2
- A44-Filter 3
- A45-Filter 4.
- A58-Filter 5.

NOTE: In delay type alarms, the alarm is activated after a time delay between it and the event that generated it.

NOTE: In “Delay at fan start” alarms, the alarm can **only** be activated after the fans have been turned on.

8.1. Fire alarm

The fire alarm is managed via a digital input.

In the event of a fire, one of the following actions for the AHU can be configured:

- stop
- opening of the dampers and forcing of the fans at maximum speed
- opening of the dampers and forcing of the single fan at maximum speed.

8.2. Air quality probe alarm

The air quality probe is managed via 0-10 V analogical input.

The air quality probe alarm activates when the analogical input acquires a lower signal:

- than the Alm_MinCO2Sens parameter, in the case of the CO_2 probe,
- than the Alm_MinVOCSens parameter, in the case of the VOC probe,

for a period of time greater than the time-out, given by the Alm_ActiveProbeBypass parameter.

In the case of air quality probe alarm, the fans are put at maximum speed.

8.3. Pressure probe alarm

The pressure probe is managed via 0-10 V analogical input.

The pressure probe alarm is activated if the following conditions are simultaneously met:

- the analogical input acquires a signal lower than the Fan_SupplyAirflowAlrmByAi parameter for a time greater than the time-out given by the Alm_ActiveProbeBypass parameter
- the fans are on.

In the case of pressure probe alarm, the fans are put at maximum speed.

8.4. Air flow alarm

The air flow alarm can be enabled if there is a differential pressure probe, it is disabled during the switch off procedure.

In the event of an air flow alarm, the AHU is stopped.

8.5. Fan protection alarm

The fan protection alarm is relative both to the supply fan as well as the return fan.

In the event of fans with physical inputs, the fan protection alarm is managed via a digital input. The fan protection alarm is generated even in the case of Modbus fans.

Re-setting after the fan protection alarm is manual.

If there are no backup fans, when the fan protection alarm goes off, the AHU stops.

If there are backup fans, when the fan protection alarm goes off:

both the main fans are stopped

1. the main fan damper is closed
2. the backup fan damper is opened, if present
3. both backup fans are started up.

If the fan protection alarm is generated by the return fan, the post-ventilation for cooling the heating elements is also carried out.

When the fan protection alarm is turned off, the main fans are started up again if, **simultaneously**, the following conditions are met:

- Fan_SwapPolicy parameter different from 2
- a main fan is active
- a backup fan is active.

The pair of main fans or the pair of backup fans is then activated, depending on the value of the Fan_SwapPolicy parameter and the hours of functioning of the fans themselves.

8.6. Fan maintenance alarm

As controller, it is possible to disable a single fan in order to carry out maintenance work. If both supply fans or both return fans are disabled, the fan maintenance alarm appears as it is not possible to start-up the AHU.

The fan maintenance alarm is automatically reset.

8.7. Antifreeze alarm

The antifreeze alarm can be activated:

- by the thermostat, via digital input
- by antifreeze probe, via analogical input.

In the event of the antifreeze alarm being activated by the thermostat, the preheating actuator is activated at 100% of its power.

The antifreeze alarm management by the antifreeze probe is described in the following table.

Temperature measured by the antifreeze probe	Time (in minutes)	Antifreeze signal	Effects
Lower than setpoint + differential	Lower than AFphtime parameter	The control within the “antifreeze prevention” procedure	- The power is increased gradually via P regulator with proportional band equal to the differential between antifreeze probe temperature and antifreeze setpoint - Closure of external dampers, if the cfgMixChamberBeforePreHeat parameter is enabled
Greater than setpoint + differential	/	The control exits the “antifreeze prevention” procedure	None
Lower than setpoint + differential	Greater than AFphtime parameter	Antifreeze alarm	- AHU in OFF status - Valve opening - External damper closure

Table 98

Management of the antifreeze probe antifreeze alarm

If the controller enters the “antifreeze prevention” procedure:

- it stops the fans
- closes the external gates
- activates the valves at 100%
- activates all the pumps.

The controller exits “antifreeze prevention” procedure if the antifreeze probe returns to a temperature greater than setpoint + differential.

The antifreeze is active with AHU in heating mode or OFF/Standby status.

The antifreeze alarm resets automatically.

9. DISPOSAL

	The product needs to be disposed of separately in compliance with current regulations regarding the disposal of electric and electronic equipment, in the country where it is installed.

It is forbidden *to dispose of the product or part of it in the environment. Improper disposal of the product could damage the environment and/or persons.*

10. Safety Information

10.1. Before You Begin

General

The products specified in this document have been tested under actual service conditions. Of course, your specific application requirements may be different from those assumed for this and any related examples described herein. In that case, you will have to adapt the information provided in this and other related documents to your particular needs. To do so, you will need to consult the specific product documentation of the hardware and/or software components that you may add or substitute for any examples specified in this documentation. Pay particular attention and conform to any safety information, different electrical requirements and normative standards that would apply to your adaptation.

WARNING: REGULATORY INCOMPATIBILITY

Be sure that all equipment applied and systems designed comply with all applicable local, regional and national regulations and standards. Failure to follow these instructions can result in death, serious injury, or equipment damage.

Note

Electrical equipment should be installed, operated, serviced, and maintained only by qualified personnel. No responsibility is assumed by Schneider Electric for any consequences arising out of the use of this material. A qualified person is one who has skills and knowledge related to the construction and operation of electrical equipment and its installation, and has received safety training to recognize and avoid the hazards involved. Failure to observe this information can result in injury or equipment damage.

The use and application of the information contained herein require expertise in the design and programming of automated control systems. Only the user or integrator can be aware of all the conditions and factors present during installation and setup, operation, and maintenance of the machine or process, and can therefore determine the automation and associated equipment and the related safeties and interlocks which can be effectively and properly used. When selecting automation and control equipment, and any other related equipment or software, for a particular application, the user or integrator must also consider any applicable local, regional or national standards and/or regulations.

Some of the major software functions and/or hardware components used in the proposed architectures and examples described in this document cannot be substituted without significantly compromising the performance of your application. Further, any such substitutions or alterations may completely invalidate any proposed architectures, descriptions, examples, instructions, wiring diagrams and/or compatibilities between the various hardware components and software functions specified herein and in related documentation. You must be aware of the consequences of any modifications, additions or substitutions.

A residual risk, as defined by EN/ISO 12100-1, Article 5, will remain if:

- it is necessary to modify the recommended logic and if the added or modified components are not properly integrated in the control circuit;
- you do not follow the required standards applicable to the operation of the machine, or if the adjustments to and the maintenance of the machine are not properly made (it is essential to strictly follow the prescribed machine maintenance schedule);
- the devices connected to any safety outputs do not have mechanically-linked contacts.

CAUTION: EQUIPMENT INCOMPATIBILITY

Read and thoroughly understand all device and software documentation before attempting any component substitutions or other changes related to the application examples provided in the document. Failure to follow these instructions can result in injury, or equipment damage.

10.2. Start-Up and Test

Before using electrical control and automation equipment after design and installation, the application and associated functional safety system must be subjected to a start-up test by qualified personnel to verify correct operation of the equipment. It is important that arrangements for such testing be made and that enough time is allowed to perform complete and satisfactory testing.

CAUTION: EQUIPMENT OPERATION HAZARD

- Verify that all installation and set up procedures have been completed.
- Before operational tests are performed, remove all blocks or other temporary holding means used for shipment from all component devices.
- Remove tools, meters, and debris from equipment.

Failure to follow these instructions can result in injury, or equipment damage.

Verify that the completed system, including the functional safety system, is free from all short circuits and grounds, except those grounds installed according to local regulations. If high-potential voltage testing is necessary, follow the recommendations in equipment documentation to help prevent injury or equipment damage.

10.3. Operations and Adjustments

Regardless of the care exercised in the design and manufacture of equipment or in the selection and ratings of components, there are hazards that can be encountered if such equipment is improperly installed and operated.

In some applications, such as packaging machinery, additional operator protection such as point-of-operation guarding must be provided. This is necessary if the hands and other parts of the body are free to enter the pinch points or other hazardous areas where serious injury can occur. Software products alone cannot protect an operator from injury. For this reason, the software cannot be substituted for or take the place of point-of-operation protection.

WARNING: UNGUARDED MACHINERY CAN CAUSE SERIOUS INJURY

- Do not use this software and related automation equipment on equipment which does not have point-of - operation protection.
- Do not reach into machinery during operation.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

Ensure that appropriate safeties and mechanical/electrical interlocks related to point-of-operation protection have been installed and are operational before placing the equipment into service. All interlocks and safeties related to point-of-operation protection must be coordinated with the related automation equipment and software programming.

Note

Coordination of safeties and mechanical/electrical interlocks for point-of-operation protection is outside the scope of the examples and implementations suggested herein. It is sometimes possible to adjust the equipment incorrectly and this produce unsatisfactory or unsafe operation. Always use the manufacturer instructions as a guide to functional adjustments. Personnel who have access to these adjustments must be familiar with the equipment manufacturer instructions and the machinery used with the electrical equipment.

Only those operational adjustments actually required by the machine operator should be accessible to the operator. Access to other controls should be restricted to help prevent unauthorized changes in operating characteristics.

11. WIRING DIAGRAM

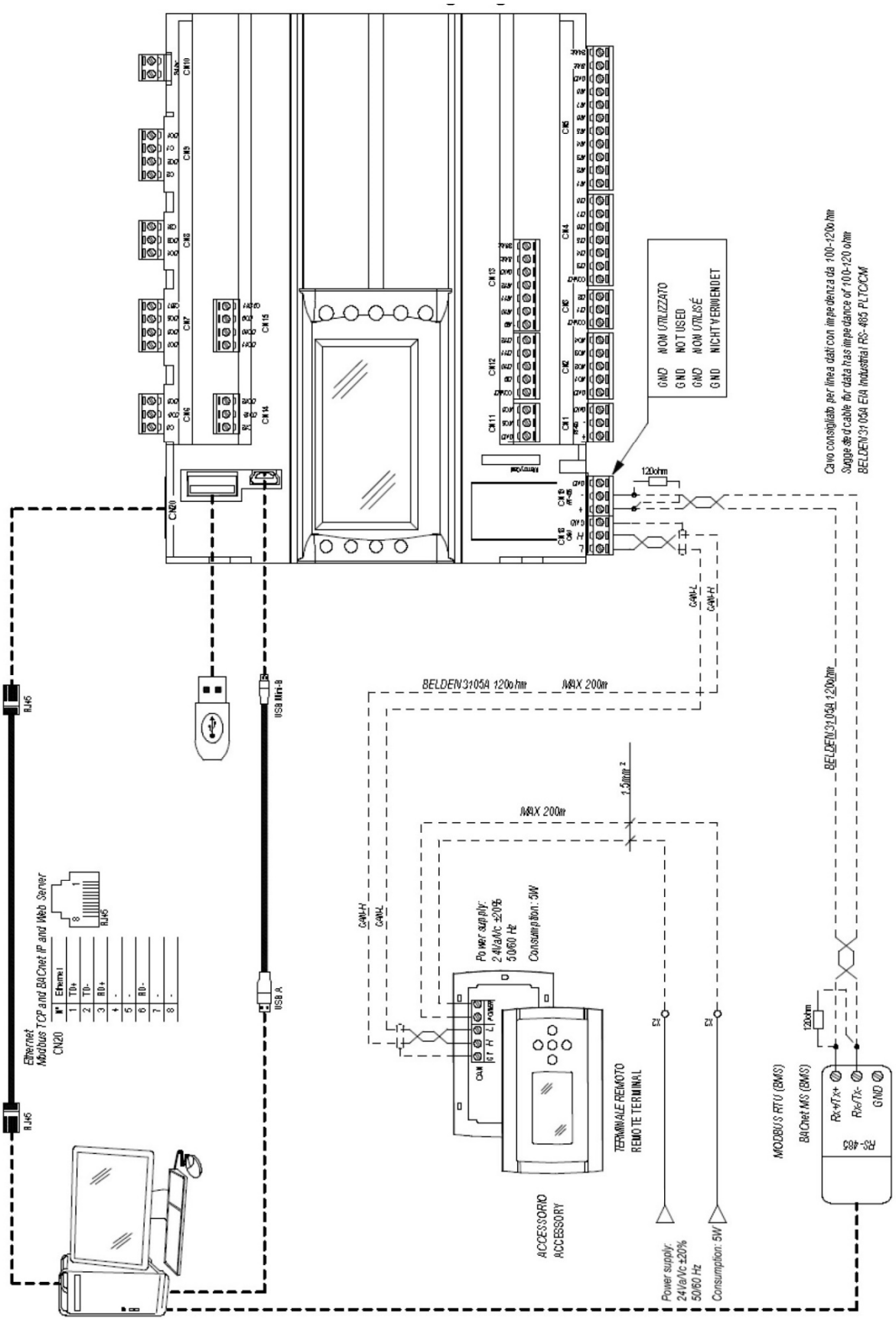


Fig 22 - Wiring diagram

12. MODBUS TABLES

NOTE: In the following tables:

- in the case of XXX.Y format, divide by 10 the value found in the relative register
- in the case of XXX.YY format, divide by 100 the value found in the relative register.

12.1. Modbus EEProm table

The following table describes the EEProm parameters.

Modbus Register	Name	Device type	Def	Min	Max	Unit	Format	Description
16384	PSW1	Unsigned 16-bit	10	—	—	—	—	Level 1 Password
16385	PSW2	Unsigned 16-bit	65315	—	—	—	%x	Level 2 Password
16386	cfgFans	0=Supply; 1=Supply+Return	0	0	1	—	—	OEM: Fan Sections
16387	cfgFanType	0=On Off; 1=Modulating; 2=On Off Backup; 3=Modulating Backup; 4=ATV; 5=ATV Backup; 6=EBM; 7=EBM Backup; 8=Ziehl; 9=Ziehl Backup	0	0	9	—	—	OEM: Fan Type
16388	cfgFanRegulation	0=Fixed Speed; 1=Air Quality; 2=Pressure 1 Probe; 3=Pressure 2 Probes	0	0	3	—	—	OEM: Fan Regulator
16389	cfgFanAlarm	0=Thermal/Digital Protection; 1=Digital+Flowswitch	0	0	1	—	—	OEM: Fan Alarm Selection
16390	cfgCoolHeatModules	0=None; 1=Cool; 2=Heat; 3=Cool+Heat; 4=Cool/Heat Single out	0	0	4	—	—	OEM: Heating Cooling Enable

Modbus Register	Name	Device type	Def	Min	Max	Unit	Format	Description
16391	cfgCooling	0=Modulating; 1=Mod+Pump; 2=Cond.Unit	0	0	2	—	—	OEM: Cooling Actuator Selection
16392	cfgHeating	0=Modulating; 1=Mod+Pump; 2=Cond.Unit; 3=On Off Heaters; 4=Mod Heaters; 5=PWM Heaters	0	0	5	—	—	OEM: Heating Actuator Selection
16393	cfgCooling_Heating	0=Modulating; 1=Mod+Pump; 2=Cond.Unit	0	0	2	—	—	OEM: Cooling+Heating Actuator Selection
16394	cfgPreHeating	0=None; 1=Water; 2=Water+Pump; 3=On Off Heaters; 4=Mod Heaters; 5=PWM Heaters	0	0	5	—	—	OEM: Preheater Selection
16395	cfgPostHeating	0=None; 1=Water; 2=Water+Pump; 3=On Off Heaters; 4=Mod Heaters; 5=PWM Heaters	0	0	5	—	—	OEM: Postheater Selection
16396	cfgAntifreeze	0=None; 1=On Off; 2=NTC	0	0	2	—	—	OEM: Antifreeze Selection
16397	cfgHeatRecovery	0=None/Not Regulated; 1=Bypass On Off; 2=Bypass Mod; 3=Rotary On Off; 4=Rotary Mod; 5=Exchanger On Off; 6=Exchanger Mod	0	0	6	—	—	OEM: Heat Recovery Selection

Modbus Register	Name	Device type	Def	Min	Max	Unit	Format	Description
16398	cfgDefrostHeatRec	0=None; 1=Supply Fans; 2=Preheating	0	0	2	—	—	OEM: Defrost Regulation Selection
16399	cfgDampers	0=None; 1=External On Off; 2=External + Mix Mod	1	0	2	—	—	OEM: External Dampers Selection
16400	cfgHumidifier	0=None; 1=On Off; 2=Modulating	0	0	2	—	—	OEM: Humidifier Selection
16401	cfgDeHumidifier	0=None; 1=Standard; 2=Dew Point; 3=Standard+Winter; 4=Dew Point+Winter	0	0	4	—	—	OEM: Dehumification Regulator
16402	cfgDampersForFans	0=None; 1=Supply; 2=Return; 3=Supply+Return	0	0	3	—	—	OEM: Dampers for fam Selection
16403	cfgAirQuality	0=None; 1=CO2; 2=VOC; 3=CO2+VOC	0	0	3	—	—	OEM: Air Quality Probe Selection
16404	cfgFilterPressostat	Unsigned 8-bit	0	0	4	—	—	OEM: Number of filter pressostat
16405	cfgDoorDI	Boolean	0	—	—	—	—	OEM: Door Input Enable
16406	cfgModeDI	Boolean	0	—	—	—	—	OEM: Unit Mode Input Enable
16407	cfgModeDO	Boolean	0	—	—	—	—	OEM: Unit Mode Output Enable
16408	cfgCoolHeat_NumSteps	0=1 Cond Unit – AO 1=1 Cond Unit - 1 Step+AO 2=1 Cond Unit - 2 Steps 3=1 Cond Unit - 3 Steps 4=1 Cond Unit - 4 Steps 16=2 Cond Units 32=3 Cond Units 64=4 Cond Units	0	0	48	—	—	OEM: Condensing Unit Steps

Modbus Register	Name	Device type	Def	Min	Max	Unit	Format	Description
16409	cfgHeat_NumSteps	Unsigned 8-bit	1	0	6	—	—	OEM: Electric Heater Steps
16410	cfgPreHeat_NumSteps	Unsigned 8-bit	1	0	6	—	—	OEM: Electric Pre Heater Steps
16411	cfgPostHeat_NumSteps	Unsigned 8-bit	1	0	6	—	—	OEM: Electric Post Heater Steps
16412	cfgMixChamberBeforePreHeat	Boolean	0	—	—	—	—	OEM: If enabled dampers closed with PreAntifreeze and Defrost with PreHeating
16413	cfgEE_free2	Signed 16-bit	0	—	—	—	—	—
16414	cfgEE_free3	Signed 16-bit	0	—	—	—	—	—
16415	cfgEE_free4	Signed 16-bit	0	—	—	—	—	—
16416	cfgEE_free5	Signed 16-bit	0	—	—	—	—	—
16417	cfgEE_free6	Signed 16-bit	0	—	—	—	—	—
16418	cfgEE_free7	Signed 16-bit	0	—	—	—	—	—
16419	cfgEE_free8	Signed 16-bit	0	—	—	—	—	—
16420	ioEE_base_AI_01	-1 = -1=Not Used; 0=Supply Temp.; 1=Return Temp.; 2=External Temp.; 3=Expulsion Temp.; 4=Preheat Temp.; 5=Saturation Temp.; 6=Antifreeze; 7=Air Quality CO2; 8=Air Quality VOC; 9=Pressure 1; 10=Pressure 2; 11=Supply Hum.; 12=Return Hum.; 13=External Hum.; 14=Flow Tuning 1; 15=Flow Tuning 2	0	-1	15	—	—	Saved Logic Allocation of the physical input
16421	ioEE_base_AI_02	See ioEE_base_AI_01	1	-1	15	—	—	—
16422	ioEE_base_AI_03	See ioEE_base_AI_01	2	-1	15	—	—	—
16423	ioEE_base_AI_04	See ioEE_base_AI_01	-1	-1	15	—	—	—
16424	ioEE_base_AI_05	See ioEE_base_AI_01	-1	-1	15	—	—	—

Modbus Register	Name	Device type	Def	Min	Max	Unit	Format	Description
16425	ioEE_base_AI_06	See ioEE_base_AI_01	-1	-1	15	—	—	—
16426	ioEE_base_AI_07	See ioEE_base_AI_01	-1	-1	15	—	—	—
16427	ioEE_base_AI_08	See ioEE_base_AI_01	-1	-1	15	—	—	—
16428	ioEE_base_AI_09	See ioEE_base_AI_01	-1	-1	15	—	—	—
16429	ioEE_base_AI_10	See ioEE_base_AI_01	-1	-1	15	—	—	—
16430	ioEE_base_AI_11	See ioEE_base_AI_01	-1	-1	15	—	—	—
16431	ioEE_base_AI_12	See ioEE_base_AI_01	-1	-1	15	—	—	—
16432	ioEE_exp1_AI_01	See ioEE_base_AI_01	-1	-1	15	—	—	—
16433	ioEE_exp1_AI_02	See ioEE_base_AI_01	-1	-1	15	—	—	—
16434	ioEE_exp1_AI_03	See ioEE_base_AI_01	-1	-1	15	—	—	—
16435	ioEE_exp1_AI_04	See ioEE_base_AI_01	-1	-1	15	—	—	—
16436	ioEE_exp2_AI_01	See ioEE_base_AI_01	-1	-1	15	—	—	—
16437	ioEE_exp2_AI_02	See ioEE_base_AI_01	-1	-1	15	—	—	—
16438	ioEE_exp2_AI_03	See ioEE_base_AI_01	-1	-1	15	—	—	—
16439	ioEE_exp2_AI_04	See ioEE_base_AI_01	-1	-1	15	—	—	—
16440	ioEE_free1	Signed 16-bit	0	—	—	—	—	—
16441	ioEE_free2	Signed 16-bit	0	—	—	—	—	—
16442	ioEE_free3	Signed 16-bit	0	—	—	—	—	—
16443	ioEE_free4	Signed 16-bit	0	—	—	—	—	—
16444	ioEE_free5	Signed 16-bit	0	—	—	—	—	—
16445	ioEE_free6	Signed 16-bit	0	—	—	—	—	—
16446	ioEE_free7	Signed 16-bit	0	—	—	—	—	—
16447	ioEE_free8	Signed 16-bit	0	—	—	—	—	—

Modbus Register	Name	Device type	Def	Min	Max	Unit	Format	Description
16448	ioEE_base_DI_01	-1 = Not Used; 0=Supply Fan Th.Prot.; 1=Return Fan Th.Prot.; 2=On Off; 3=Fire Alarm; 4=Mode; 5=Door; 6=Antifreeze Alarm; 7=Airflow Alarm Supply; 8=Airflow Alarm Return; 9=Humidifier Alarm; 10=Pre Heater A 11=Post Heater Alarm 12=Rotary Heat Exch. Alarm 13=Filter 1 Alarm 14=Filter 2 Alarm 15=Filter 3 Alarm 16=Filter 4 Alarm 17=Supply Fan 2 Th.Prot. 18=Return Fan 2 Th.Prot. 19=Supply Fan 2 Airflow Alarm 20=Return Fan 2 Airflow Alarm 21=Cond. Unit Alarm 22=Heater Alarm 23=Cond. Unit 2 Alarm 24=Cond. Unit 3 Alarm 25=Cond. Unit 4 Alarm 26=Cond. Unit 1 Defrost 27=Cond. Unit 2 Defrost 28=Cond. Unit 3 Defrost 29=Cond. Unit 4 Defrost 30=Filter 5 Alarm	2	-1	30	—	—	—
16449	ioEE_base_DI_02	See ioEE_base_DI_01	3	-1	10	—	—	—
16450	ioEE_base_DI_03	See ioEE_base_DI_01	0	-1	10	—	—	—
16451	ioEE_base_DI_04	See ioEE_base_DI_01	-1	-1	10	—	—	—
16452	ioEE_base_DI_05	See ioEE_base_DI_01	-1	-1	10	—	—	—

Modbus Register	Name	Device type	Def	Min	Max	Unit	Format	Description
16453	ioEE_base_DI_06	See ioEE_base_DI_01	-1	-1	10	—	—	—
16454	ioEE_base_DI_07	See ioEE_base_DI_01	-1	-1	10	—	—	—
16455	ioEE_base_DI_08	See ioEE_base_DI_01	-1	-1	10	—	—	—
16456	ioEE_base_DI_09	See ioEE_base_DI_01	-1	-1	10	—	—	—
16457	ioEE_base_DI_10	See ioEE_base_DI_01	-1	-1	10	—	—	—
16458	ioEE_base_DI_11	See ioEE_base_DI_01	-1	-1	10	—	—	—
16459	ioEE_base_DI_12	See ioEE_base_DI_01	-1	-1	10	—	—	—
16460	ioEE_exp1_DI_01	See ioEE_base_DI_01	-1	-1	10	—	—	—
16461	ioEE_exp1_DI_02	See ioEE_base_DI_01	-1	-1	10	—	—	—
16462	ioEE_exp1_DI_03	See ioEE_base_DI_01	-1	-1	10	—	—	—
16463	ioEE_exp1_DI_04	See ioEE_base_DI_01	-1	-1	10	—	—	—
16464	ioEE_exp2_DI_01	See ioEE_base_DI_01	-1	-1	10	—	—	—
16465	ioEE_exp2_DI_02	See ioEE_base_DI_01	-1	-1	10	—	—	—
16466	ioEE_exp2_DI_03	See ioEE_base_DI_01	-1	-1	10	—	—	—
16467	ioEE_exp2_DI_04	See ioEE_base_DI_01	-1	-1	10	—	—	—
16468	ioEE_free9	Signed 16-bit	0	—	—	—	—	—
16469	ioEE_free10	Signed 16-bit	0	—	—	—	—	—
16470	ioEE_free11	Signed 16-bit	0	—	—	—	—	—
16471	ioEE_free12	Signed 16-bit	0	—	—	—	—	—
16472	ioEE_free13	Signed 16-bit	0	—	—	—	—	—
16473	ioEE_free14	Signed 16-bit	0	—	—	—	—	—
16474	ioEE_free15	Signed 16-bit	0	—	—	—	—	—
16475	ioEE_free16	Signed 16-bit	0	—	—	—	—	—

Modbus Register	Name	Device type	Def	Min	Max	Unit	Format	Description
16476	ioEE_base_DO_01	-1 = -1=Not Used; 0=Supply Fan; 1=Return Fan; 2=On Off; 3=Alarm; 4=Mode; 5=Ext. Dampers; 6=Bypass Damper; 7=Supply Damper; 8=Return Damper; 9=Pump Preheat; 10=Pump Postheat; 11=Cool / Cool-Heat Pump; 12=Cool / Cool-Heat Step 1 or Cond.Unit 1; 13=Cool / Cool-Heat Step 2 or Cond.Unit 2; 14=Cool / Cool-Heat Step 3 or Cond.Unit 3; 15=Cool / Cool-Heat Step 4 or Cond.Unit 4; 16=Heat Pump; 17=Heater Step 1; 18=Heater Step 2; 19=Heater Step 3; 20=Pre Heater Step 1; 21=Pre Heater Step 2; 22=Pre Heater Step 3; 23=Post Heater Step 1; 24=Post Heater Step 2; 25=Post Heater Step 3; 26=Humidifier; 27=Recovery; 28=Supply Fan 2; 29=Return Fan 2; 30=Supply Damper 2; 31=Return Damper 2	2	-1	31	—	—	Saved Logic Allocation of the physical output
16477	ioEE_base_DO_02	See ioEE_base_DO_01	3	-1	31	—	—	—
16478	ioEE_base_DO_03	See ioEE_base_DO_01	0	-1	31	—	—	—
16479	ioEE_base_DO_04	See ioEE_base_DO_01	-1	-1	31	—	—	—

Modbus Register	Name	Device type	Def	Min	Max	Unit	Format	Description
16480	ioEE_base_DO_05	See ioEE_base_DO_01	-1	-1	31	—	—	—
16481	ioEE_base_DO_06	See ioEE_base_DO_01	-1	-1	31	—	—	—
16482	ioEE_base_DO_07	See ioEE_base_DO_01	-1	-1	31	—	—	—
16483	ioEE_base_DO_08	See ioEE_base_DO_01	-1	-1	31	—	—	—
16484	ioEE_base_DO_09	See ioEE_base_DO_01	-1	-1	31	—	—	—
16485	ioEE_base_DO_10	See ioEE_base_DO_01	-1	-1	31	—	—	—
16486	ioEE_base_DO_11	See ioEE_base_DO_01	-1	-1	31	—	—	—
16487	ioEE_base_DO_12	See ioEE_base_DO_01	-1	-1	31	—	—	—
16488	ioEE_exp1_DO_01	See ioEE_base_DO_01	-1	-1	31	—	—	—
16489	ioEE_exp1_DO_02	See ioEE_base_DO_01	-1	-1	31	—	—	—
16490	ioEE_exp1_DO_03	See ioEE_base_DO_01	-1	-1	31	—	—	—
16491	ioEE_exp1_DO_04	See ioEE_base_DO_01	-1	-1	31	—	—	—
16492	ioEE_exp2_DO_01	See ioEE_base_DO_01	-1	-1	31	—	—	—
16493	ioEE_exp2_DO_02	See ioEE_base_DO_01	-1	-1	31	—	—	—
16494	ioEE_exp2_DO_03	See ioEE_base_DO_01	-1	-1	31	—	—	—
16495	ioEE_exp2_DO_04	See ioEE_base_DO_01	-1	-1	31	—	—	—
16496	ioEE_free17	Signed 16-bit	0	—	—	—	—	—
16497	ioEE_free18	Signed 16-bit	0	—	—	—	—	—
16498	ioEE_free19	Signed 16-bit	0	—	—	—	—	—
16499	ioEE_free20	Signed 16-bit	0	—	—	—	—	—
16500	ioEE_free21	Signed 16-bit	0	—	—	—	—	—
16501	ioEE_free22	Signed 16-bit	0	—	—	—	—	—
16502	ioEE_free23	Signed 16-bit	0	—	—	—	—	—
16503	ioEE_free24	Signed 16-bit	0	—	—	—	—	—

Modbus Register	Name	Device type	Def	Min	Max	Unit	Format	Description
16504	ioEE_base_AO_01	-1 = -1=Not Used; 0=Supply Fan; 1=Return Fan; 2=Ext. Dampers; 3=Byp. Damper; 4=Cool / Cool-Heat; 5=Heat; 6=Pre Heater; 7=Post Heater; 8=Recovery; 9=Humidifier	-1	-1	9	—	—	—
16505	ioEE_base_AO_02	See ioEE_base_AO_01	-1	-1	9	—	—	—
16506	ioEE_base_AO_03	See ioEE_base_AO_01	-1	-1	9	—	—	—
16507	ioEE_base_AO_04	See ioEE_base_AO_01	-1	-1	9	—	—	—
16508	ioEE_base_AO_05	See ioEE_base_AO_01	-1	-1	9	—	—	—
16509	ioEE_base_AO_06	See ioEE_base_AO_01	-1	-1	9	—	—	—
16510	ioEE_exp1_AO_01	See ioEE_base_AO_01	-1	-1	9	—	—	—
16511	ioEE_exp1_AO_02	See ioEE_base_AO_01	-1	-1	9	—	—	—
16512	ioEE_exp2_AO_01	See ioEE_base_AO_01	-1	-1	9	—	—	—
16513	ioEE_exp2_AO_02	See ioEE_base_AO_01	-1	-1	9	—	—	—
16514	ioEE_free25	Signed 16-bit	0	—	—	—	—	—
16515	ioEE_free26	Signed 16-bit	0	—	—	—	—	—
16516	ioEE_free27	Signed 16-bit	0	—	—	—	—	—
16517	ioEE_free28	Signed 16-bit	0	—	—	—	—	—
16518	ioEE_free29	Signed 16-bit	0	—	—	—	—	—
16519	ioEE_free30	Signed 16-bit	0	—	—	—	—	—
16520	ioEE_free31	Signed 16-bit	0	—	—	—	—	—
16521	ioEE_free32	Signed 16-bit	0	—	—	—	—	—
16522	Cfg_exp1_AI1	Unsigned 16-bit	2	2	2	—	—	Static Configuration
16523	Cfg_exp1_AI2	Unsigned 16-bit	2	2	2	—	—	Static Configuration
16524	Cfg_exp1_AI3	Unsigned 16-bit	4	4	4	—	—	Static Configuration

Modbus Register	Name	Device type	Def	Min	Max	Unit	Format	Description
16525	Cfg_exp1_AI4	Unsigned 16-bit	4	4	4	—	—	Static Configuration
16526	Cfg_exp2_AI1	Unsigned 16-bit	2	2	2	—	—	Static Configuration
16527	Cfg_exp2_AI2	Unsigned 16-bit	2	2	2	—	—	Static Configuration
16528	Cfg_exp2_AI3	Unsigned 16-bit	4	4	4	—	—	Static Configuration
16529	Cfg_exp2_AI4	Unsigned 16-bit	4	4	4	—	—	Static Configuration
16530	ioEE_free33	Signed 16-bit	0	—	—	—	—	—
16531	ioEE_free34	Signed 16-bit	0	—	—	—	—	—
16532	ioEE_free35	Signed 16-bit	0	—	—	—	—	—
16533	ioEE_free36	Signed 16-bit	0	—	—	—	—	—
16534	ioEE_free37	Signed 16-bit	0	—	—	—	—	—
16535	ioEE_free38	Signed 16-bit	0	—	—	—	—	—
16536	ioEE_free39	Signed 16-bit	0	—	—	—	—	—
16537	ioEE_free40	Signed 16-bit	0	—	—	—	—	—
16538	FullScaleMin_exp1_AI1	Signed 16-bit	-500	-500	-500	—	—	Saved: AI probe configuration
16539	FullScaleMax_exp1_AI1	Signed 16-bit	1100	1100	1100	—	—	—
16540	FullScaleMin_exp1_AI2	Signed 16-bit	-500	-500	-500	—	—	—
16541	FullScaleMax_exp1_AI2	Signed 16-bit	1100	1100	1100	—	—	—
16542	FullScaleMin_exp1_AI3	Signed 16-bit	0	-9999	9999	—	—	—
16543	FullScaleMax_exp1_AI3	Signed 16-bit	1000	-9999	9999	—	—	—
16544	FullScaleMin_exp1_AI4	Signed 16-bit	0	-9999	9999	—	—	—
16545	FullScaleMax_exp1_AI4	Signed 16-bit	1000	-9999	9999	—	—	—
16546	FullScaleMin_exp2_AI1	Signed 16-bit	-500	-500	-500	—	—	—
16547	FullScaleMax_exp2_AI1	Signed 16-bit	1100	1100	1100	—	—	—
16548	FullScaleMin_exp2_AI2	Signed 16-bit	-500	-500	-500	—	—	—
16549	FullScaleMax_exp2_AI2	Signed 16-bit	1100	1100	1100	—	—	—
16550	FullScaleMin_exp2_AI3	Signed 16-bit	0	-9999	9999	—	—	—
16551	FullScaleMax_exp2_AI3	Signed 16-bit	1000	-9999	9999	—	—	—
16552	FullScaleMin_exp2_AI4	Signed 16-bit	0	-9999	9999	—	—	—
16553	FullScaleMax_exp2_AI4	Signed 16-bit	1000	-9999	9999	—	—	—

Modbus Register	Name	Device type	Def	Min	Max	Unit	Format	Description
16554	ioEE_free41	Signed 16-bit	0	—	—	—	—	—
16555	ioEE_free42	Signed 16-bit	0	—	—	—	—	—
16556	ioEE_free43	Signed 16-bit	0	—	—	—	—	—
16557	ioEE_free44	Signed 16-bit	0	—	—	—	—	—
16558	ioEE_free45	Signed 16-bit	0	—	—	—	—	—
16559	ioEE_free46	Signed 16-bit	0	—	—	—	—	—
16560	ioEE_free47	Signed 16-bit	0	—	—	—	—	—
16561	ioEE_free48	Signed 16-bit	0	—	—	—	—	—
16562	ioEE_free57	Signed 16-bit	0	—	—	—	—	—
16563	ioEE_free58	Signed 16-bit	0	—	—	—	—	—
16564	ioEE_free59	Signed 16-bit	0	—	—	—	—	—
16565	ioEE_free60	Signed 16-bit	0	—	—	—	—	—
16566	ioEE_free61	Signed 16-bit	0	—	—	—	—	—
16567	ioEE_free62	Signed 16-bit	0	—	—	—	—	—
16568	ioEE_free63	Signed 16-bit	0	—	—	—	—	—
16569	ioEE_free64	Signed 16-bit	0	—	—	—	—	—
16570	Calibration_exp1_AI1	Signed 16-bit	0	-1000	1000	—	—	Offset of expansions AI
16571	Calibration_exp1_AI2	Signed 16-bit	0	-1000	1000	—	—	—
16572	Calibration_exp1_AI3	Signed 16-bit	0	-1000	1000	—	—	—
16573	Calibration_exp1_AI4	Signed 16-bit	0	-1000	1000	—	—	—
16574	Calibration_exp2_AI1	Signed 16-bit	0	-1000	1000	—	—	—
16575	Calibration_exp2_AI2	Signed 16-bit	0	-1000	1000	—	—	—
16576	Calibration_exp2_AI3	Signed 16-bit	0	-1000	1000	—	—	—
16577	Calibration_exp2_AI4	Signed 16-bit	0	-1000	1000	—	—	—
16578	ioEE_free49	Signed 16-bit	0	—	—	—	—	—
16579	ioEE_free50	Signed 16-bit	0	—	—	—	—	—
16580	ioEE_free51	Signed 16-bit	0	—	—	—	—	—
16581	ioEE_free52	Signed 16-bit	0	—	—	—	—	—
16582	ioEE_free53	Signed 16-bit	0	—	—	—	—	—

Modbus Register	Name	Device type	Def	Min	Max	Unit	Format	Description
16583	ioEE_free54	Signed 16-bit	0	—	—	—	—	—
16584	ioEE_free55	Signed 16-bit	0	—	—	—	—	—
16585	ioEE_free56	Signed 16-bit	0	—	—	—	—	—
16586	DI_Polarity_LogicIndex_0	0 = 0V = Off, 24V = On/Alarm; 1 = 0V = On/Alarm, 24V = Off	1	0	1	—	—	Polarity - Supply Fan Thermal
16587	DI_Polarity_LogicIndex_1	See DI_Polarity_LogicIndex_0	1	0	1	—	—	Polarity - Return Fan Thermal
16588	DI_Polarity_LogicIndex_2	See DI_Polarity_LogicIndex_0	0	0	1	—	—	Polarity - On/Off Input
16589	DI_Polarity_LogicIndex_3	See DI_Polarity_LogicIndex_0	1	0	1	—	—	Polarity - Fire Alarm
16590	DI_Polarity_LogicIndex_4	See DI_Polarity_LogicIndex_0	0	0	1	—	—	Polarity - Mode Input
16591	DI_Polarity_LogicIndex_5	See DI_Polarity_LogicIndex_0	1	0	1	—	—	Polarity - Door
16592	DI_Polarity_LogicIndex_6	See DI_Polarity_LogicIndex_0	1	0	1	—	—	Polarity - Antifreeze
16593	DI_Polarity_LogicIndex_7	See DI_Polarity_LogicIndex_0	1	0	1	—	—	Polarity - Supply Airflow
16594	DI_Polarity_LogicIndex_8	See DI_Polarity_LogicIndex_0	1	0	1	—	—	Polarity - Return Airflow
16595	DI_Polarity_LogicIndex_9	See DI_Polarity_LogicIndex_0	1	0	1	—	—	Polarity - Humidifier Alarm
16596	DI_Polarity_LogicIndex_10	See DI_Polarity_LogicIndex_0	1	0	1	—	—	Polarity - Preheater Alarm
16597	DI_Polarity_LogicIndex_11	See DI_Polarity_LogicIndex_0	1	0	1	—	—	Polarity - Postheater Alarm
16598	DI_Polarity_LogicIndex_12	See DI_Polarity_LogicIndex_0	1	0	1	—	—	Polarity - Rotary Wheel Alarm
16599	DI_Polarity_LogicIndex_13	See DI_Polarity_LogicIndex_0	0	0	1	—	—	Polarity - Filter 1 Alarm
16600	DI_Polarity_LogicIndex_14	See DI_Polarity_LogicIndex_0	0	0	1	—	—	Polarity - Filter 2 Alarm
16601	DI_Polarity_LogicIndex_15	See DI_Polarity_LogicIndex_0	0	0	1	—	—	Polarity - Filter 3 Alarm
16602	DI_Polarity_LogicIndex_16	See DI_Polarity_LogicIndex_0	0	0	1	—	—	Polarity - Filter 4 Alarm
16603	DI_Polarity_LogicIndex_17	See DI_Polarity_LogicIndex_0	1	0	1	—	—	Polarity - Supply 2 Fan Th.
16604	DI_Polarity_LogicIndex_18	See DI_Polarity_LogicIndex_0	1	0	1	—	—	Polarity - Return 2 Fan Th.
16605	DI_Polarity_LogicIndex_19	See DI_Polarity_LogicIndex_0	1	0	1	—	—	Polarity - Supply 2 Airflow
16606	DI_Polarity_LogicIndex_20	See DI_Polarity_LogicIndex_0	1	0	1	—	—	Polarity - Return 2 Airflow
16607	DI_Polarity_LogicIndex_21	See DI_Polarity_LogicIndex_0	1	0	1	—	—	Polarity - Cond. Unit Alarm
16608	DI_Polarity_LogicIndex_22	See DI_Polarity_LogicIndex_0	1	0	1	—	—	Polarity - El. Heater Alarm
16609	DI_Polarity_LogicIndex_26_29	See DI_Polarity_LogicIndex_0	1	0	1	—	—	Polarity - Cond. Unit Defrost
16610	DI_Polarity_LogicIndex_30	Signed 16-bit	1	0	1	—	—	Polarity - Filter 5 Alarm

Modbus Register	Name	Device type	Def	Min	Max	Unit	Format	Description
16611	ioEE_free69	Signed 16-bit	0	—	—	—	—	—
16612	ioEE_free70	Signed 16-bit	0	—	—	—	—	—
16613	ioEE_free71	Signed 16-bit	0	—	—	—	—	—
16614	ioEE_free72	Signed 16-bit	0	—	—	—	—	—
16615	DO_Polarity_LogicIndex_0	0=NO; 1=NC	0	0	1	—	—	Supply Fan - DO Polarity
16616	DO_Polarity_LogicIndex_1	See DO_Polarity_LogicIndex_0	0	0	1	—	—	Return Fan - DO Polarity
16617	DO_Polarity_LogicIndex_2	See DO_Polarity_LogicIndex_0	0	0	1	—	—	On Off - DO Polarity
16618	DO_Polarity_LogicIndex_3	See DO_Polarity_LogicIndex_0	0	0	1	—	—	Alarm - DO Polarity
16619	DO_Polarity_LogicIndex_4	See DO_Polarity_LogicIndex_0	0	0	1	—	—	Mode - DO Polarity
16620	DO_Polarity_LogicIndex_5	See DO_Polarity_LogicIndex_0	0	0	1	—	—	Ext. Dampers - DO Polarity
16621	DO_Polarity_LogicIndex_6	See DO_Polarity_LogicIndex_0	0	0	1	—	—	Bypass Damper - DO Polarity
16622	DO_Polarity_LogicIndex_7	See DO_Polarity_LogicIndex_0	0	0	1	—	—	Supply Damper - DO Polarity
16623	DO_Polarity_LogicIndex_8	See DO_Polarity_LogicIndex_0	0	0	1	—	—	Return Damper - DO Polarity
16624	DO_Polarity_LogicIndex_9	See DO_Polarity_LogicIndex_0	0	0	1	—	—	Pump Preheat - DO Polarity
16625	DO_Polarity_LogicIndex_10	See DO_Polarity_LogicIndex_0	0	0	1	—	—	Pump Postheat - DO Polarity
16626	DO_Polarity_LogicIndex_11	See DO_Polarity_LogicIndex_0	0	0	1	—	—	Cool/CH Pump - DO Polarity
16627	DO_Polarity_LogicIndex_12	See DO_Polarity_LogicIndex_0	0	0	1	—	—	Cool/CH Step 1 - DO Polarity
16628	DO_Polarity_LogicIndex_13	See DO_Polarity_LogicIndex_0	0	0	1	—	—	Cool/CH Step 2 - DO Polarity
16629	DO_Polarity_LogicIndex_14	See DO_Polarity_LogicIndex_0	0	0	1	—	—	Cool/CH Step 3 - DO Polarity
16630	DO_Polarity_LogicIndex_15	See DO_Polarity_LogicIndex_0	0	0	1	—	—	Cool/CH Step 4 - DO Polarity
16631	DO_Polarity_LogicIndex_16	See DO_Polarity_LogicIndex_0	0	0	1	—	—	Pump heat - DO Polarity
16632	DO_Polarity_LogicIndex_17	See DO_Polarity_LogicIndex_0	0	0	1	—	—	El. Heater Step 1 - DO Polarity
16633	DO_Polarity_LogicIndex_18	See DO_Polarity_LogicIndex_0	0	0	1	—	—	El. Heater Step 2 - DO Polarity
16634	DO_Polarity_LogicIndex_19	See DO_Polarity_LogicIndex_0	0	0	1	—	—	El. Heater Step 3 - DO Polarity
16635	DO_Polarity_LogicIndex_20	See DO_Polarity_LogicIndex_0	0	0	1	—	—	Pre Heater Step 1 - DO Polarity
16636	DO_Polarity_LogicIndex_21	See DO_Polarity_LogicIndex_0	0	0	1	—	—	Pre Heater Step 2 - DO Polarity
16637	DO_Polarity_LogicIndex_22	See DO_Polarity_LogicIndex_0	0	0	1	—	—	Pre Heater Step 3 - DO Polarity
16638	DO_Polarity_LogicIndex_23	See DO_Polarity_LogicIndex_0	0	0	1	—	—	Post Heater Step 1 - DO Polarity

Modbus Register	Name	Device type	Def	Min	Max	Unit	Format	Description
16639	DO_Polarity_LogicIndex_24	See DO_Polarity_LogicIndex_0	0	0	1	—	—	Post Heater Step 2 - DO Polarity
16640	DO_Polarity_LogicIndex_25	See DO_Polarity_LogicIndex_0	0	0	1	—	—	Post Heater Step 3 - DO Polarity
16641	DO_Polarity_LogicIndex_27	See DO_Polarity_LogicIndex_0	0	0	1	—	—	Humidifier - DO Polarity
16642	DO_Polarity_LogicIndex_26	See DO_Polarity_LogicIndex_0	0	0	1	—	—	Recovery - DO Polarity
16643	DO_Polarity_LogicIndex_28	See DO_Polarity_LogicIndex_0	0	0	1	—	—	Supply Fan 2 - DO Polarity
16644	DO_Polarity_LogicIndex_29	See DO_Polarity_LogicIndex_0	0	0	1	—	—	Return Fan 2 - DO Polarity
16645	DO_Polarity_LogicIndex_30	See DO_Polarity_LogicIndex_0	0	0	1	—	—	Supply Damper 2 - DO Polarity
16646	DO_Polarity_LogicIndex_31	See DO_Polarity_LogicIndex_0	0	0	1	—	—	Return Damper 2 - DO Polarity
16647	ioEE_free73	Signed 16-bit	0	—	—	—	—	—
16648	ioEE_free74	Signed 16-bit	0	—	—	—	—	—
16649	ioEE_free75	Signed 16-bit	0	—	—	—	—	—
16650	ioEE_free76	Signed 16-bit	0	—	—	—	—	—
16651	ioEE_free77	Signed 16-bit	0	—	—	—	—	—
16652	ioEE_free78	Signed 16-bit	0	—	—	—	—	—
16653	ioEE_free79	Signed 16-bit	0	—	—	—	—	—
16654	ioEE_free80	Signed 16-bit	0	—	—	—	—	—
16700	BACNET_ENABLE	Boolean	1	—	—	—	—	Bacnet Protocol Enable
16701	BACNET_ID	Unsigned 16-bit	1	1		—	—	Bacnet Device ID
16702	BACNET_BBMD_Ip1	Unsigned 8-bit	0	—	—	—	—	BBMD Service IP - Foreing Devices Handling
16703	BACNET_BBMD_Ip2	Unsigned 8-bit	0	—	—	—	—	BBMD Service IP - Foreing Devices Handling
16704	BACNET_BBMD_Ip3	Unsigned 8-bit	0	—	—	—	—	BBMD Service IP - Foreing Devices Handling
16705	BACNET_BBMD_Ip4	Unsigned 8-bit	0	—	—	—	—	BBMD Service IP - Foreing Devices Handling
16706	BACNET_BBMD_TMO	Unsigned 16-bit	60	—	—	sec	—	BBMD Timeout - Foreing Devices Handling
16707	BACNET_BBMD_PORT	Unsigned 16-bit	0	—	—	—	—	BBMD Port - Foreing Devices Handling
16708	BACNET_SUBNET	Unsigned 8-bit	0	0	63			Bacnet Device Subnet
16710	WEB_User_E2	String	administrator	—	—	—	—	Web User ID
16719	WEB_PSW_E2	String	password	—	—	—	—	Web Psw ID
16730	DayLight_Region	0=Europe; 1=USA/Canada	0	0	1	—	—	Day Light Region

Modbus Register	Name	Device type	Def	Min	Max	Unit	Format	Description
16731	DayLight_Enable	Boolean	1	—	—	—	—	Day Light Enable
16740	Unit_ForceOffAfterReboot	Boolean	0	—	—	—	—	Force Off keyboard after reboot
16741	Unit_RegTempType	0=Supply; 1=Return Direct; 2=Return Cascade	1	0	2	—	—	Temperature Regulation Probe
16742	SP_T_MIN	Signed 16-bit	140	—	SP_T_MAX	°C	XXX.Y	Minimum Temperature Setpoint
16743	SP_T_MAX	Signed 16-bit	300	SP_T_MIN	—	°C	XXX.Y	Maximum Temperature Setpoint
16744	SP_T_Auto_E2	Signed 16-bit	240	SP_T_MIN	SP_T_MAX	°C	XXX.Y	Setpoint Auto
16745	DIFF_T_AutoChangeMode	Signed 16-bit	20	5	—	°C	XXX.Y	Differential Change season (AUTO)
16746	DIFF_T_AutoEco	Signed 16-bit	20	0	—	°C	XXX.Y	Differential Economy Mode - Half Band (AUTO)
16747	SP_T_FORCESUMMER	Signed 16-bit	240	—	—	°C	XXX.Y	Force Summer Mode (AUTO)
16748	SP_T_FORCEWINTER	Signed 16-bit	160	—	—	°C	XXX.Y	Force Winter Mode (AUTO)
16749	SP_T_Cool_E2	Signed 16-bit	260	SP_T_Heat_E2	SP_T_MAX	°C	XXX.Y	Setpoint Cooling
16750	SP_T_Heat_E2	Signed 16-bit	200	SP_T_MIN	SP_T_Cool_E2	°C	XXX.Y	Setpoint Heating
16751	SP_T_CoolEco_E2	Signed 16-bit	280	SP_T_Cool_E2	SP_T_MAX	°C	XXX.Y	Setpoint Cooling Economy
16752	SP_T_HeatEco_E2	Signed 16-bit	180	SP_T_MIN	SP_T_Heat_E2	°C	XXX.Y	Setpoint Heating Economy
16753	SP_RH_MinSetpoint	Signed 16-bit	30	20	SP_RH_MaxSetpoint	%R.H.	—	Minimum relative humidity setpoint
16754	SP_RH_MaxSetpoint	Signed 16-bit	90	SP_RH_MinSetpoint	100	%R.H.	—	Maximum relative humidity setpoint
16755	SP_RH_DehumidificationSetpoint_E2	Signed 16-bit	50	SP_RH_MinSetpoint	SP_RH_MaxSetpoint	%R.H.	—	Dehumidication setpoint (comfort)
16756	SP_RH_DehumidificationSetpointEco_E2	Signed 16-bit	55	SP_RH_MinSetpoint	SP_RH_MaxSetpoint	%R.H.	—	Dehumidication setpoint (eco)
16757	SP_RH_HumidificationSetpoint_E2	Signed 16-bit	50	SP_RH_MinSetpoint	SP_RH_MaxSetpoint	%R.H.	—	Humidification setpoint (comfort)

Modbus Register	Name	Device type	Def	Min	Max	Unit	Format	Description
16758	SP_RH_HumidificationSetpointEco_E2	Signed 16-bit	45	SP_RH_MinSetpoint	SP_RH_MaxSetpoint	%R.H.	—	Humidification setpoint (eco)
16759	SP_VOC_E2	Signed 16-bit	40	0	100	%	—	VOC Air quality setpoint
16760	SP_CO2_E2	Signed 16-bit	800	0	2000	ppm	—	CO2 Air quality setpoint
16770	cfgFreeCooling	0=Disabled; 1=Prop.Reg.; 2=Recovery Reg.	0	0	2	—	—	FreeCooling Enable
16771	cfgFreeHeating	0=Disabled; 1=Prop.Reg.; 2=Recovery Reg.	0	0	2	—	—	FreeHeating Enable
16772	FreeCHMinExtTemp	Signed 16-bit	120	-200	200	°C	XXX.Y	Free Cooling/Heating Minimum External Temperature
16773	FreeCHBand	Signed 16-bit	50	10	100	°C	XXX.Y	Free Cooling/Heating Proportional Band (direct return reg)
16774	FreeCHTimeout	Unsigned 16-bit	60	0	180	min	—	Free Cooling/Heating Timeout
16775	FreeCHDiff	Signed 16-bit	50	10	100	°C	XXX.Y	Free Cooling/Heating Outside Regulation Differential
16776	FreeCHHyst	Signed 16-bit	10	2	50	°C	XXX.Y	Free Cooling/Heating Hysteresis
16780	cfgFireAlarm	0=Off All; 1=All Fans-Damper On; 2=ReturnFan-Damper On	0	0	2	—	—	Fire Alarm Configuration
16781	FireTempSet	Signed 16-bit	950	900	—	°C	XXX.Y	Setpoint Temperature for Fire Alarm
16782	Alm_MinHumiditySens	Signed 16-bit	20	0	1000	%R.H.	XXX.Y	Minimum Valid Humidity Value
16783	Alm_MinVOCSens	Signed 16-bit	20	0	1000	%	XXX.Y	Minimum Valid VOC Value
16784	Alm_MinCO2Sens	Signed 16-bit	40	0	—	ppm	—	Minimum Valid CO2 Value
16785	Alm_MinPrSens	Signed 16-bit	40	0	—	pa	—	Minimum Valid Pr Value (Fans on)
16786	Alm_ActiveProbeBypass	Unsigned 16-bit	30	0	600	sec	—	Active Probe alarm bypass
16787	AFset	Signed 16-bit	50	-50	150	°C	XXX.Y	Antifreeze Setpoint
16788	AFdiff	Signed 16-bit	20	1	50	°C	XXX.Y	Antifreeze Differential
16789	AFphtime	Unsigned 16-bit	5	0	255	min	—	Antifreeze Preheater time
16800	ExtDamperOpenDelay	Unsigned 16-bit	60	—	—	sec	—	External/Fan Damper Open Time

Modbus Register	Name	Device type	Def	Min	Max	Unit	Format	Description
16801	ExtDamperCloseDelay	Unsigned 16-bit	60	—	—	sec	—	External/Fan Damper Close Time
16802	ExtDamperMinOpen	Signed 16-bit	50	0	100	%	—	External Damper Minimum Open
16803	ExtDamperMaxOpen	Signed 16-bit	100	ExtDamperMinOpen	100	%	—	External Damper Maximum Open
16820	VOC_Bp	Unsigned 16-bit	300	1	—	%	XXX.Y	VOC Regulator: Prop. Band
16821	VOC_Ti	Unsigned 16-bit	0	—	—	sec	—	VOC Regulator: Integral Time
16822	CO2_Bp	Unsigned 16-bit	400	1	—	ppm	—	CO2 Regulator: Prop. Band
16823	CO2_Ti	Unsigned 16-bit	0	—	—	sec	—	CO2 Regulator: Integral Time
16840	Fan_MinimumSpeed	Signed 16-bit	250	0	500	%	XXX.Y	Fan Minimum Speed (Pressure Regulation and limit for other speed)
16841	Fan_LowSpeed	Signed 16-bit	300	Fan_MinimumSpeed	800	%	XXX.Y	Fan Low Speed (Start Phase/Night/Min Air Q. and Defrost Speed)
16842	Fan_NominalSpeed	Signed 16-bit	900	Fan_LowSpeed	1000	%	XXX.Y	Fan Nominal/Maximum Speed
16843	Fan_ReturnSpeedCorrection	Signed 16-bit	0	-500	500	%	XXX.Y	Fan Return Output correction (not used with 2 pressure probes)
16844	Fan_PowerUp1_Time	Unsigned 16-bit	30	0	255	sec	—	Fan Power Up Time at Min Speed (with Heaters)
16845	Fan_PowerUp2_Time	Unsigned 16-bit	10	0	255	sec	—	Fan Power Up Time at Nom Speed (with Heaters)
16846	Fan_Post_Time	Unsigned 16-bit	40	0	255	sec	—	Fan Post Ventilation Time (with Heaters)
16847	Fan_PreHeating_Time	Unsigned 16-bit	180	0	600	sec	—	Fan Preheating Time (with heating valves)
16848	Fan_PreHeatOnSet	Signed 16-bit	-50	-200	100	°C	XXX.Y	External Temperature Set forcing preheating time
16849	Fan_Swap_Time	Unsigned 16-bit	240	0	600	hours	—	Fan swap time (0=Disabled)
16850	Fan_SwapPolicy	0 = If available Start always Fans 1; 1 = Start Section with less working hours (Supply + Return); 2 = Start Fans with less working hours; 3 = Start Fans with less working hours keeping parallel sections	0	0	3	—	—	Fan swap policy
16851	Fan_SinglePressureReturn	Boolean	0	—	—	—	—	In case of a unique pressure probe mounted on return section and Supply+Return Fans
16852	Fan_AlrmPressBypass	Unsigned 16-bit	30	1	600	Sec	—	Flow Bypass
16853	Fan_SupplyAirflowAlrmByAi	Boolean	0	—	—	—	—	Enable supply flow alarm by probe (pressure probe must be already enabled)

Modbus Register	Name	Device type	Def	Min	Max	Unit	Format	Description
16854	Fan_ReturnAirflowAlrmByAi	Boolean	0	—	—	—	—	Enable return flow alarm by probe (pressure probe must be already enabled)
16855	Fan_SetMinAirflow	Signed 16-bit	50	—	—	Pa	—	Fan Airflow Alarm setpoint
16856	FAN_Supply_BpP	Unsigned 16-bit	400	1	—	Pa	—	Fan Supply Prop. Band Pressure
16857	FAN_Supply_TiP	Unsigned 16-bit	75	—	—	sec	—	Fan Supply Integral Time Pressure
16858	FAN_Supply_TdP	Unsigned 16-bit	0	—	—	sec	—	Fan Supply Derivative Time Pressure
16859	FAN_Return_BpP	Unsigned 16-bit	400	1	—	Pa	—	Fan Return Prop. Band Pressure
16860	FAN_Return_TiP	Unsigned 16-bit	75	—	—	sec	—	Fan Return Integral Time Pressure
16861	FAN_Return_TdP	Unsigned 16-bit	0	—	—	sec	—	Fan Return Derivative Time Pressure
16862	Fan_K_Supply	Unsigned 16-bit	100	1	3000	—	—	Fan K Supply
16863	Fan_K_Return	Unsigned 16-bit	100	1	3000	—	—	Fan K Return
16880	Fan_Supply_Pressure_Flow	0=Pressure; 1=Flow	0	0	1	—	—	Fan Supply Regulation Unit
16881	Fan_Return_Pressure_Flow	0=Pressure; 1=Flow	0	0	1	—	—	Fan Return Regulation Unit
16882	Fan_Supply_SetMinPr	Signed 16-bit	50	—	—	Pa	—	Fan Supply Minimum/Night Pressure Setpoint
16883	Fan_Return_SetMinPr	Signed 16-bit	50	—	—	Pa	—	Fan Return Minimum/Night Pressure Setpoint
16884	Fan_SetPrSupply	Signed 16-bit	100	Fan_Supply_SetMinPr	Fan_Supply_SetMaxPr	Pa	—	Fan Supply Pressure Setpoint
16885	Fan_SetPrReturn	Signed 16-bit	100	Fan_Return_SetMinPr	Fan_Return_SetMaxPr	Pa	—	Fan Return Pressure Setpoint
16886	Fan_Supply_SetMaxPr	Signed 16-bit	5000	—	—	Pa	—	Fan Supply Maximum Pressure Setpoint
16887	Fan_Return_SetMaxPr	Signed 16-bit	5000	—	—	Pa	—	Fan Return Maximum Pressure Setpoint
16888	Fan_Supply_SetMinFlow	Signed 32-bit	50	—	—	m3/h	—	Fan Supply Minimum/Night Flow Setpoint
16890	Fan_Return_SetMinFlow	Signed 32-bit	50	—	—	m3/h	—	Fan Return Minimum/Night Flow Setpoint
16892	Fan_SetFlowSupply	Signed 32-bit	100	Fan_Supply_SetMinFlow	Fan_Supply_SetMaxFlow	m3/h	—	Fan Supply Flow Setpoint
16894	Fan_SetFlowReturn	Signed 32-bit	100	Fan_Return_SetMinFlow	Fan_Return_SetMaxFlow	m3/h	—	Fan Return Flow Setpoint

Modbus Register	Name	Device type	Def	Min	Max	Unit	Format	Description
16896	Fan_Supply_SetMaxFlow	Signed 32-bit	100000	—	—	m3/h	—	Fan Supply Maximum Flow Setpoint
16898	Fan_Return_SetMaxFlow	Signed 32-bit	100000	—	—	m3/h	—	Fan Return Maximum Flow Setpoint
16910	SupplyDeltaUpHeating	Signed 16-bit	160	5	400	°C	XXX.Y	Heating Max Supply =RegSet+SupplyDeltaUpHeating
16911	SupplyDeltaDwHeating	Signed 16-bit	20	0	50	°C	XXX.Y	Heating Min Supply =RegSet-SupplyDeltaDwHeating
16912	SupplyDeltaUpCooling	Signed 16-bit	10	5	50	°C	XXX.Y	Cooling Max Supply =RegSet+SupplyDeltaUpCooling
16913	SupplyDeltaDwCooling	Signed 16-bit	120	5	150	°C	XXX.Y	Cooling Min Supply =RegSet-SupplyDeltaDwCooling
16914	Pb_Cooling	Signed 16-bit	20	2	999	°C	XXX.Y	Cooling Proportional Band
16915	Pb_Heating	Signed 16-bit	20	2	999	°C	XXX.Y	Heating Proportional Band
16916	Ti_Cooling	Unsigned 16-bit	0	0	—	sec	—	Cooling Integral Time
16917	Ti_Heating	Unsigned 16-bit	0	0	—	sec	—	Heating Integral Time
16918	Pb_ReturnCooling	Signed 16-bit	20	2	999	°C	XXX.Y	Return Temp. Reg: Cooling Proportional Band (only Cascade)
16919	Pb_ReturnHeating	Signed 16-bit	20	2	999	°C	XXX.Y	Return Temp. Reg: Heating Proportional Band (only Cascade)
16920	Ti_ReturnCooling	Unsigned 16-bit	0	0	—	sec	—	Return Temp. Reg: Cooling Integral Time (only Cascade)
16921	Ti_ReturnHeating	Unsigned 16-bit	0	0	—	sec	—	Return Temp. Reg: Heating Integral Time (only Cascade)
16930	Temp_HighSupplyEn	Boolean	0	—	—	—	—	Temperature High Supply Limit Enable (Winter)
16931	Temp_HighSupplySet	Signed 16-bit	350	0	1000	°C	XXX.Y	Temperature High Supply Limit Setpoint (Winter)
16932	Temp_HighSupplyBand	Signed 16-bit	100	10	999	°C	XXX.Y	Temperature High Supply Band (Winter)
16933	Temp_LowSupplyEn	Boolean	0	—	—	—	—	Temperature Low Supply Limit Enable (Summer)
16934	Temp_LowSupplySet	Signed 16-bit	150	0	1000	°C	XXX.Y	Temperature Low Supply Limit Setpoint (Summer)
16935	Temp_LowSupplyBand	Signed 16-bit	100	10	999	°C	XXX.Y	Temperature Low Supply Band (Summer)
16940	FastHeatCoolEn	Boolean	0	—	—	—	—	Fast Heating/Cooling Enable
16941	FastHeatSet	Signed 16-bit	200	-500	500	°C	XXX.Y	Maximum outside temp for Power up Fast Heating
16942	FastCoolSet	Signed 16-bit	250	-500	500	°C	XXX.Y	Minimum outside temp for Power up Fast Cooling
16943	FastHCTimeout	Signed 16-bit	10	1	—	Min	—	Fast Heating/Cooling and StartUp timeout

Modbus Register	Name	Device type	Def	Min	Max	Unit	Format	Description
16950	Pump_AntiStickingRun	Unsigned 16-bit	20	0	255	sec	—	Antisticking run time
16951	Pump_AntiStickingPeriod	Unsigned 16-bit	7	0	30	days	—	Antisticking period (0=Disabled)
16952	Pump_Post_Time	Unsigned 16-bit	5	0	255	min	—	Pump Post Running Time
16953	Heater_Power_Analog	Unsigned 16-bit	2	1	—	Power	—	El. Heater Analog Power
16954	Heater_Power_Step1	Unsigned 16-bit	2	1	—	Power	—	El. Heater Step 1 Power
16955	Heater_Power_Step2	Unsigned 16-bit	2	1	—	Power	—	El. Heater Step 2 Additional Power
16956	Heater_Power_Step3	Unsigned 16-bit	2	1	—	Power	—	El. Heater Step 3 Additional Power
16957	Heater_Power_Step4	Unsigned 16-bit	2	1	—	Power	—	El. Heater Step 4 Additional Power
16958	Heater_Power_Step5	Unsigned 16-bit	2	1	—	Power	—	El. Heater Step 5 Additional Power
16959	Heater_Power_Step6	Unsigned 16-bit	2	1	—	Power	—	El. Heater Step 6 Additional Power
16960	Heater_Hysteresis	Unsigned 16-bit	75	1	100	%	—	El. Heater Hysteresis [% of current step]
16961	Heater_PWM_Period	Signed 16-bit	30	10	3000	sec	—	El. Heater PWM Period
16962	PreHeater_Power_Analog	Unsigned 16-bit	2	1	—	—	—	PreHeater Analog Power
16963	PreHeater_Power_Step1	Unsigned 16-bit	2	1	—	—	—	PreHeater Step 1 Power
16964	PreHeater_Power_Step2	Unsigned 16-bit	2	1	—	—	—	PreHeater Step 2 Power
16965	PreHeater_Power_Step3	Unsigned 16-bit	2	1	—	—	—	PreHeater Step 3 Power
16966	PreHeater_Power_Step4	Unsigned 16-bit	2	1	—	—	—	PreHeater Step 4 Power
16967	PreHeater_Power_Step5	Unsigned 16-bit	2	1	—	—	—	PreHeater Step 5 Power
16968	PreHeater_Power_Step6	Unsigned 16-bit	2	1	—	—	—	PreHeater Step 6 Power
16969	PreHeater_Hysteresis	Unsigned 16-bit	75	1	100	%	—	PreHeater Hysteresis [% of current step]
16970	PreHeater_PWM_Period	Signed 16-bit	30	10	3000	sec	—	PreHeater PWM Period
16971	PostHeater_Power_Analog	Unsigned 16-bit	2	1	—	—	—	PostHeater Analog Power
16972	PostHeater_Power_Step1	Unsigned 16-bit	2	1	—	—	—	PostHeater Step 1 Power
16973	PostHeater_Power_Step2	Unsigned 16-bit	2	1	—	—	—	PostHeater Step 2 Power
16974	PostHeater_Power_Step3	Unsigned 16-bit	2	1	—	—	—	PostHeater Step 3 Power
16975	PostHeater_Power_Step4	Unsigned 16-bit	2	1	—	—	—	PostHeater Step 4 Power
16976	PostHeater_Power_Step5	Unsigned 16-bit	2	1	—	—	—	PostHeater Step 5 Power
16977	PostHeater_Power_Step6	Unsigned 16-bit	2	1	—	—	—	PostHeater Step 6 Power
16978	PostHeater_Hysteresis	Unsigned 16-bit	75	1	100	%	—	PostHeater Hysteresis [% of current step]

Modbus Register	Name	Device type	Def	Min	Max	Unit	Format	Description
16979	PostHeater_PWM_Period	Signed 16-bit	30	10	3000	sec	—	PreHeater PWM Period
16980	CondUnitS1_Req	Signed 16-bit	200	0	1000	%	XXX.Y	% CondUnit Step 1
16981	CondUnitS2_Req	Signed 16-bit	400	0	1000	%	XXX.Y	% CondUnit Step 2
16982	CondUnitS3_Req	Signed 16-bit	600	0	1000	%	XXX.Y	% CondUnit Step 3
16983	CondUnitS4_Req	Signed 16-bit	800	0	1000	%	XXX.Y	% CondUnit Step 4
16984	CondUnitSx_Hysteresis	Signed 16-bit	50	10	100	%	—	Cond. Unit Hysteresis % of current Step size
16985	CondUnit_Ton	Unsigned 16-bit	0	0	600	sec	—	Cond Unit Step Minimum On Time
16986	CondUnit_Toff	Unsigned 16-bit	0	0	600	sec	—	Cond Unit Step Minimum Off Time
16987	CondUnit_Offset	Signed 16-bit	0	0	1000	%	XXX.Y	Cond Unit AO Offset
16988	CondUnit_FanSpeedDefrost	0=No Action 1=Low Speed 2=Fan Off	0	0	2			Condensing Unit: Fan Speed During Defrost
16989	MultiCondUnit_CtrlMode	FALSE=Delay TRUE=Hysteresis	1	0	1			Multi Condensing Unit:Control
16990	MultiCondUnit_RegHyst	Signed 16-bit	5	2	30	sec		Multi Condensing Unit regulator hysteresis
16991	MultiCondUnit_DelayOn	Unsigned 16-bit	0	0	600	sec		Multi Cond Unit Delay On
16992	MultiCondUnit_DelayOff	Unsigned 16-bit	0	0	600	sec		Multi Cond Unit Delay Off
17000	PreHeaterSetpoint	Signed 16-bit	50	-100	200	°C	XXX.Y	Setpoint Pre Heating
17001	Pb_PreHeating	Signed 16-bit	100	2	999	°C	XXX.Y	PreHeating Proportional Band
17002	Ti_PreHeating	Unsigned 16-bit	300	0	—	sec	—	PreHeating Integral Time
17010	RecoveryDiff_Band	Signed 16-bit	15	1	100	°C	XXX.Y	Recovery Diff (On/Off Case) Recovery Band (Mod Case with Direct Return control);
17011	RecoveryDeadZone	Signed 16-bit	10	0	100	°C	XXX.Y	Recovery Dead Zone
17012	RecoveryPower	Signed 16-bit	250	0	1000	%	XXX.Y	% of PI out sent to recovery (Only for Cascade or Supply control)
17013	RecoveryDefrost_SetMaxReq	Signed 16-bit	-40	-150	100	°C	XXX.Y	Recovery Defrost: Setpoint Expulsion Temperature
17014	RecoveryDefrost_Band	Signed 16-bit	40	1	100	°C	XXX.Y	Recovery Defrost: Band Mix Chamber/PreHeater/Supply Fan
17015	RecoveryDefrost_Cutoff	Signed 16-bit	0	0	100	°C	XXX.Y	Recovery Defrost: CutOff Modulating Fan
17016	RecoveryReqDuringFastHC	Signed 16-bit	0	0	1000	%	XXX.Y	Recovery request during Fast Heating/Cooling

Modbus Register	Name	Device type	Def	Min	Max	Unit	Format	Description
17020	Hum_Band	Signed 16-bit	200	10	400	%R.H.	XXX.Y	Humidification Band
17021	Pb_Dehum	Signed 16-bit	100	2	200	%R.H.	XXX.Y	Dehum. Proportional Band
17022	Ti_Dehum	Unsigned 16-bit	0	0	—	sec	—	Dehum. Integral Time
17023	Pb_Dewpoint	Signed 16-bit	100	2	999	°C	XXX.Y	Dewpoint Dehum. Proportional Band
17024	Ti_Dewpoint	Unsigned 16-bit	300	0	—	sec	—	Dewpoint Dehum. Integral Time
17025	Offset_Post	Signed 16-bit	10	4	50	°C	XXX.Y	PostHeating Setpoint offset with respect to current set
17026	Dehum_WinterEn	Boolean	0	—	—	—	—	Enable Winter Dehumidification
17027	Dehum_WinterHumHyst	Signed 16-bit	10	4	50	g/Kg	XXX.Y	Winter Dehumidification Hysteresis
17028	Dehum_Req_Diff	Signed 16-bit	50	1	150	%R.H.	XXX.Y	Dehumidification Request Differential on Return Humidity for Winter and Dewpoint mode
17029	Hum_HighSupplyEn	Boolean	0	—	—	—	—	Humidification High Supply Limit Enable
17030	Hum_HighSupplySet	Signed 16-bit	700	0	1000	%R.H.	XXX.Y	Humidification High Supply Limit Setpoint
17031	Hum_HighSupplyBand	Signed 16-bit	200	10	400	%R.H.	XXX.Y	Humidification High Supply Band
17032	DeHum_LowSupplyEn	Boolean	0	—	—	%R.H.	—	DeHumidification Low Supply Limit Enable
17033	DeHum_LowSupplySet	Signed 16-bit	300	0	1000	%R.H.	XXX.Y	DeHumidification Low Supply Limit Setpoint
17034	DeHum_LowSupplyBand	Signed 16-bit	200	10	400	%R.H.	XXX.Y	DeHumidification Low Supply Band
17040	PostHeating4Integration	Boolean	1	—	—	—	—	Use the post heating also in the heating phase
17041	PostPower	Signed 16-bit	300	1	1000	%	XXX.Y	% of PI out sent to post (if enabled as heat integration)
17042	Pb_Post	Signed 16-bit	100	2	999	°C	XXX.Y	PostHeating Dehum. Proportional Band
17043	Ti_Post	Unsigned 16-bit	300	0	—	sec	—	PostHeating Dehum. Integral Time
17900	LogEnable	Boolean	0	—	—	—	—	Logger Enable
17901	LogCycle	Unsigned 16-bit	1	MinLogCycle	1439	Min	HH:MM	Logger Period
17902	LogErrorNumber	Unsigned 32-bit	0	—	—	—	—	Error while try to oper or save to a file
17904	LoggedRecord	Unsigned 32-bit	0	—	—	—	—	Number of logged record (Rounded by 100)
17906	MinLogCycle	Signed 16-bit	1	0	1439	Min	HH:MM	Minimum Log Cycle
17907	FirstDownload	Boolean	1	—	—	—	—	—
17908	microSDPresCount	Unsigned 16-bit	0	—	—	—	—	microSD Presence Counter
18000	tE00_TimeBandEnable	Boolean	0	—	—	—	—	Time events Enable

Modbus Register	Name	Device type	Def	Min	Max	Unit	Format	Description
18001	tE01_TimeProfileMonday	1=P1; 2=P2; 3=24h On; 4=24h Off	1	1	4	—	—	Time events profile on Monday
18002	tE02_TimeProfileTuesday	1=P1; 2=P2; 3=24h On; 4=24h Off	1	1	4	—	—	Time events profile on Tuesday
18003	tE03_TimeProfileWednesday	1=P1; 2=P2; 3=24h On; 4=24h Off	1	1	4	—	—	Time events profile on Wednesday
18004	tE04_TimeProfileThursday	1=P1; 2=P2; 3=24h On; 4=24h Off	1	1	4	—	—	Time events profile on Thursday
18005	tE05_TimeProfileFriday	1=P1; 2=P2; 3=24h On; 4=24h Off	1	1	4	—	—	Time events profile on Friday
18006	tE06_TimeProfileSaturday	1=P1; 2=P2; 3=24h On; 4=24h Off	1	1	4	—	—	Time events profile on Saturday
18007	tE07_TimeProfileSunday	1=P1; 2=P2; 3=24h On; 4=24h Off	1	1	4	—	—	Time events profile on Sunday
18008	tE10_TimeProfile1Event1	Signed 16-bit	480	0	1439	—	HH:MM	Time of event #1 of profile #1
18009	tE11_ModeProfile1Event1	0=Off; 1=Eco; 2=Comfort; 3=Night	0	0	3	—	—	Mode of event #1 of profile #1
18010	tE12_TimeProfile1Event2	Signed 16-bit	720	0	1439	—	HH:MM	Time of event #2 of profile #1

Modbus Register	Name	Device type	Def	Min	Max	Unit	Format	Description
18011	tE13_ModeProfile1Event2	0=Off; 1=Eco; 2=Comfort; 3=Night	0	0	3	—	—	Mode of event #2 of profile #1
18012	tE14_TimeProfile1Event3	Signed 16-bit	840	0	1439	—	HH:MM	Time of event #3 of profile #1
18013	tE15_ModeProfile1Event3	0=Off; 1=Eco; 2=Comfort; 3=Night	0	0	3	—	—	Mode of event #3 of profile #1
18014	tE16_TimeProfile1Event4	Signed 16-bit	1080	0	1439	—	HH:MM	Time of event #4 of profile #1
18015	tE17_ModeProfile1Event4	0=Off; 1=Eco; 2=Comfort; 3=Night	0	0	3	—	—	Mode of event #4 of profile #1
18016	tE20_TimeProfile2Event1	Signed 16-bit	480	0	1439	—	HH:MM	Time of event #1 of profile #2
18017	tE21_ModeProfile2Event1	0=Off; 1=Eco; 2=Comfort; 3=Night	0	0	3	—	—	Mode of event #1 of profile #2
18018	tE22_TimeProfile2Event2	Signed 16-bit	480	0	1439	—	HH:MM	Time of event #2 of profile #2
18019	tE23_ModeProfile2Event2	0=Off; 1=Eco; 2=Comfort; 3=Night	0	0	3	—	—	Mode of event #2 of profile #2
18020	tE24_TimeProfile2Event3	Signed 16-bit	480	0	1439	—	HH:MM	Time of event #3 of profile #2
18021	tE25_ModeProfile2Event3	0=Off; 1=Eco; 2=Comfort; 3=Night	0	0	3	—	—	Mode of event #3 of profile #2
18022	tE26_TimeProfile2Event4	Signed 16-bit	1080	0	1439	—	HH:MM	Time of event #4 of profile #2
18023	tE27_ModeProfile2Event4	0=Off; 1=Eco; 2=Comfort; 3=Night	0	0	3	—	—	Mode of event #4 of profile #2

Modbus Register	Name	Device type	Def	Min	Max	Unit	Format	Description
18200	TW00_EnableYearEvents	Boolean	0	—	—	—	—	Enable year events
18201	TW01_EventProfile01	1=P1; 2=P2; 3=24h On; 4=24h Off	1	1	4	—	—	Year events profile 1
18202	TW02_EventProfile02	1=P1; 2=P2; 3=24h On; 4=24h Off	1	1	4	—	—	Year events profile 2
18203	TW03_EventProfile03	1=P1; 2=P2; 3=24h On; 4=24h Off	1	1	4	—	—	Year events profile 3
18204	TW04_EventProfile04	1=P1; 2=P2; 3=24h On; 4=24h Off	1	1	4	—	—	Year events profile 4
18205	TW05_EventProfile05	1=P1; 2=P2; 3=24h On; 4=24h Off	1	1	4	—	—	Year events profile 5
18206	TW06_EventProfile06	1=P1; 2=P2; 3=24h On; 4=24h Off	1	1	4	—	—	Year events profile 6
18207	TW07_EventProfile07	1=P1; 2=P2; 3=24h On; 4=24h Off	1	1	4	—	—	Year events profile 7
18208	TW08_EventProfile08	1=P1; 2=P2; 3=24h On; 4=24h Off	1	1	4	—	—	Year events profile 8

Modbus Register	Name	Device type	Def	Min	Max	Unit	Format	Description
18209	TW09_EventProfile09	1=P1; 2=P2; 3=24h On; 4=24h Off	1	1	4	—	—	Year events profile 9
18210	TW10_EventProfile10	1=P1; 2=P2; 3=24h On; 4=24h Off	1	1	4	—	—	Year events profile 10
18211	TW11_EventProfile11	1=P1; 2=P2; 3=24h On; 4=24h Off	1	1	4	—	—	Year events profile 11
18212	TW12_EventProfile12	1=P1; 2=P2; 3=24h On; 4=24h Off	1	1	4	—	—	Year events profile 12
18213	TW13_EventProfile13	1=P1; 2=P2; 3=24h On; 4=24h Off	1	1	4	—	—	Year events profile 13
18214	TW14_EventProfile14	1=P1; 2=P2; 3=24h On; 4=24h Off	1	1	4	—	—	Year events profile 14
18215	TW15_EventProfile15	1=P1; 2=P2; 3=24h On; 4=24h Off	1	1	4	—	—	Year events profile 15
18216	TW16_EnEvent01	0 = Off; 1 = On	0	0	1	—	—	Enable Year events 1
18217	TW17_EnEvent02	0 = Off; 1 = On	0	0	1	—	—	Enable Year events 2
18218	TW18_EnEvent03	0 = Off; 1 = On	0	0	1	—	—	Enable Year events 3

Modbus Register	Name	Device type	Def	Min	Max	Unit	Format	Description
18219	TW19_EnEvent04	0 = Off; 1 = On	0	0	1	—	—	Enable Year events 4
18220	TW20_EnEvent05	0 = Off; 1 = On	0	0	1	—	—	Enable Year events 5
18221	TW21_EnEvent06	0 = Off; 1 = On	0	0	1	—	—	Enable Year events 6
18222	TW22_EnEvent07	0 = Off; 1 = On	0	0	1	—	—	Enable Year events 7
18223	TW23_EnEvent08	0 = Off; 1 = On	0	0	1	—	—	Enable Year events 8
18224	TW24_EnEvent09	0 = Off; 1 = On	0	0	1	—	—	Enable Year events 9
18225	TW25_EnEvent10	0 = Off; 1 = On	0	0	1	—	—	Enable Year events 10
18226	TW26_EnEvent11	0 = Off; 1 = On	0	0	1	—	—	Enable Year events 11
18227	TW27_EnEvent12	0 = Off; 1 = On	0	0	1	—	—	Enable Year events 12
18228	TW28_EnEvent13	0 = Off; 1 = On	0	0	1	—	—	Enable Year events 13
18229	TW29_EnEvent14	0 = Off; 1 = On	0	0	1	—	—	Enable Year events 14
18230	TW30_EnEvent15	0 = Off; 1 = On	0	0	1	—	—	Enable Year events 15
18231	TW31_EventDDStart01	Unsigned 8-bit	1	1	31	Day	—	Start Day Year events 1
18232	TW32_EventDDStart02	Unsigned 8-bit	1	1	31	Day	—	Start Day Year events 2
18233	TW33_EventDDStart03	Unsigned 8-bit	1	1	31	Day	—	Start Day Year events 3
18234	TW34_EventDDStart04	Unsigned 8-bit	1	1	31	Day	—	Start Day Year events 4
18235	TW35_EventDDStart05	Unsigned 8-bit	1	1	31	Day	—	Start Day Year events 5
18236	TW36_EventDDStart06	Unsigned 8-bit	1	1	31	Day	—	Start Day Year events 6
18237	TW37_EventDDStart07	Unsigned 8-bit	1	1	31	Day	—	Start Day Year events 7
18238	TW38_EventDDStart08	Unsigned 8-bit	1	1	31	Day	—	Start Day Year events 8

Modbus Register	Name	Device type	Def	Min	Max	Unit	Format	Description
18239	TW39_EventDDStart09	Unsigned 8-bit	1	1	31	Day	—	Start Day Year events 9
18240	TW40_EventDDStart10	Unsigned 8-bit	1	1	31	Day	—	Start Day Year events 10
18241	TW41_EventDDStart11	Unsigned 8-bit	1	1	31	Day	—	Start Day Year events 11
18242	TW42_EventDDStart12	Unsigned 8-bit	1	1	31	Day	—	Start Day Year events 12
18243	TW43_EventDDStart13	Unsigned 8-bit	1	1	31	Day	—	Start Day Year events 13
18244	TW44_EventDDStart14	Unsigned 8-bit	1	1	31	Day	—	Start Day Year events 14
18245	TW45_EventDDStart15	Unsigned 8-bit	1	1	31	Day	—	Start Day Year events 15
18246	TW46_EventMMStart01	Unsigned 8-bit	1	1	12	Month	—	Start Month Year events 1
18247	TW47_EventMMStart02	Unsigned 8-bit	1	1	12	Month	—	Start Month Year events 2
18248	TW48_EventMMStart03	Unsigned 8-bit	1	1	12	Month	—	Start Month Year events 3
18249	TW49_EventMMStart04	Unsigned 8-bit	1	1	12	Month	—	Start Month Year events 4
18250	TW50_EventMMStart05	Unsigned 8-bit	1	1	12	Month	—	Start Month Year events 5
18251	TW51_EventMMStart06	Unsigned 8-bit	1	1	12	Month	—	Start Month Year events 6
18252	TW52_EventMMStart07	Unsigned 8-bit	1	1	12	Month	—	Start Month Year events 7
18253	TW53_EventMMStart08	Unsigned 8-bit	1	1	12	Month	—	Start Month Year events 8
18254	TW54_EventMMStart09	Unsigned 8-bit	1	1	12	Month	—	Start Month Year events 9
18255	TW55_EventMMStart10	Unsigned 8-bit	1	1	12	Month	—	Start Month Year events 10
18256	TW56_EventMMStart11	Unsigned 8-bit	1	1	12	Month	—	Start Month Year events 11
18257	TW57_EventMMStart12	Unsigned 8-bit	1	1	12	Month	—	Start Month Year events 12
18258	TW58_EventMMStart13	Unsigned 8-bit	1	1	12	Month	—	Start Month Year events 13
18259	TW59_EventMMStart14	Unsigned 8-bit	1	1	12	Month	—	Start Month Year events 14
18260	TW60_EventMMStart15	Unsigned 8-bit	1	1	12	Month	—	Start Month Year events 15
18261	TW61_EventDDStop01	Unsigned 8-bit	1	1	31	Day	—	Stop Day Year events 1
18262	TW62_EventDDStop02	Unsigned 8-bit	1	1	31	Day	—	Stop Day Year events 2
18263	TW63_EventDDStop03	Unsigned 8-bit	1	1	31	Day	—	Stop Day Year events 3
18264	TW64_EventDDStop04	Unsigned 8-bit	1	1	31	Day	—	Stop Day Year events 4
18265	TW65_EventDDStop05	Unsigned 8-bit	1	1	31	Day	—	Stop Day Year events 5
18266	TW66_EventDDStop06	Unsigned 8-bit	1	1	31	Day	—	Stop Day Year events 6
18267	TW67_EventDDStop07	Unsigned 8-bit	1	1	31	Day	—	Stop Day Year events 7

Modbus Register	Name	Device type	Def	Min	Max	Unit	Format	Description
18268	TW68_EventDDStop08	Unsigned 8-bit	1	1	31	Day	—	Stop Day Year events 8
18269	TW69_EventDDStop09	Unsigned 8-bit	1	1	31	Day	—	Stop Day Year events 9
18270	TW70_EventDDStop10	Unsigned 8-bit	1	1	31	Day	—	Stop Day Year events 10
18271	TW71_EventDDStop11	Unsigned 8-bit	1	1	31	Day	—	Stop Day Year events 11
18272	TW72_EventDDStop12	Unsigned 8-bit	1	1	31	Day	—	Stop Day Year events 12
18273	TW73_EventDDStop13	Unsigned 8-bit	1	1	31	Day	—	Stop Day Year events 13
18274	TW74_EventDDStop14	Unsigned 8-bit	1	1	31	Day	—	Stop Day Year events 14
18275	TW75_EventDDStop15	Unsigned 8-bit	1	1	31	Day	—	Stop Day Year events 15
18276	TW76_EventMMStop01	Unsigned 8-bit	1	1	12	Month	—	Stop Month Year events 1
18277	TW77_EventMMStop02	Unsigned 8-bit	1	1	12	Month	—	Stop Month Year events 1
18278	TW78_EventMMStop03	Unsigned 8-bit	1	1	12	Month	—	Stop Month Year events 1
18279	TW79_EventMMStop04	Unsigned 8-bit	1	1	12	Month	—	Stop Month Year events 1
18280	TW80_EventMMStop05	Unsigned 8-bit	1	1	12	Month	—	Stop Month Year events 1
18281	TW81_EventMMStop06	Unsigned 8-bit	1	1	12	Month	—	Stop Month Year events 1
18282	TW82_EventMMStop07	Unsigned 8-bit	1	1	12	Month	—	Stop Month Year events 1
18283	TW83_EventMMStop08	Unsigned 8-bit	1	1	12	Month	—	Stop Month Year events 1
18284	TW84_EventMMStop09	Unsigned 8-bit	1	1	12	Month	—	Stop Month Year events 1
18285	TW85_EventMMStop10	Unsigned 8-bit	1	1	12	Month	—	Stop Month Year events 1
18286	TW86_EventMMStop11	Unsigned 8-bit	1	1	12	Month	—	Stop Month Year events 1
18287	TW87_EventMMStop12	Unsigned 8-bit	1	1	12	Month	—	Stop Month Year events 1
18288	TW88_EventMMStop13	Unsigned 8-bit	1	1	12	Month	—	Stop Month Year events 1
18289	TW89_EventMMStop14	Unsigned 8-bit	1	1	12	Month	—	Stop Month Year events 1
18290	TW90_EventMMStop15	Unsigned 8-bit	1	1	12	Month	—	Start Day Year events 1
19810	Fan_Maintenance_Supply	Boolean	0	—	—	—	—	Fan Main Supply Forced Off for maintenance
19811	Fan_Maintenance_Return	Boolean	0	—	—	—	—	Fan Main Return Forced Off for maintenance
19812	Fan_Maintenance_SupplyBck	Boolean	0	—	—	—	—	Fan Supply 2 Forced Off for maintenance
19813	Fan_Maintenance_ReturnBck	Boolean	0	—	—	—	—	Fan Return 2 Forced Off for maintenance
19814	Fan_Maintenance_Supply1b	Boolean	0	—	—	—	—	Fan Main Supply b Forced Off for maintenance
19815	Fan_Maintenance_Supply1c	Boolean	0	—	—	—	—	Fan Main Supply c Forced Off for maintenance

Modbus Register	Name	Device type	Def	Min	Max	Unit	Format	Description
19816	Fan_Maintenance_Return1b	Boolean	0	—	—	—	—	Fan Main Return b Forced Off for maintenance
19817	Fan_Maintenance_Return1c	Boolean	0	—	—	—	—	Fan Main Return c Forced Off for maintenance
19818	Fan_Maintenance_Supply2b	Boolean	0	—	—	—	—	Fan Main Supply 2b Forced Off for maintenance
19819	Fan_Maintenance_Supply2c	Boolean	0	—	—	—	—	Fan Main Supply 2c Forced Off for maintenance
19820	Fan_Maintenance_Return2b	Boolean	0	—	—	—	—	Fan Main Return 2b Forced Off for maintenance
19821	Fan_Maintenance_Return2c	Boolean	0	—	—	—	—	Fan Main Return 2c Forced Off for maintenance
19822	Fan_Modbus_Configured_E2	Boolean	0					Modbus Fan have been configured
19823	udhoursCU1E2	Unsigned 32-bit	0					Condensing Unit 1 Running Hours
19825	udhoursCU2E2	Unsigned 32-bit	0					Condensing Unit 2 Running Hours
19827	udhoursCU3E2	Unsigned 32-bit	0					Condensing Unit 3 Running Hours
19829	udhoursCU4E2	Unsigned 32-bit	0					Condensing Unit 4 Running Hours
19831	CU1_Maintenance	Boolean	0	—	—	—	—	Condensing Unit 1 Forced Off for maintenance
19832	CU2_Maintenance	Boolean	0	—	—	—	—	Condensing Unit 2 Forced Off for maintenance
19833	CU3_Maintenance	Boolean	0	—	—	—	—	Condensing Unit 3 Forced Off for maintenance
19834	CU4_Maintenance	Boolean	0	—	—	—	—	Condensing Unit 4 Forced Off for maintenance

Table 99 - Modbus EEProm Table

12.2. Modbus Status table

The following table describes the Status parameters.

Modbus Register	Name	Device type	Def	Min	Max	Unit	Format	RW	Description
9213	PSWEntry	Unsigned 16-bit	0	—	—	—	—	RW	Password Entry:
9214	PSWLevel	Unsigned 8-bit	—	—	—	—	—	R	Current password level
9215	PSWreset	Boolean	0	—	—	—	—	RW	Password Level Reset Request
9216	sysClock_seconds_WR	Unsigned 8-bit	0	0	59	—	—	RW	Second value to update
9217	sysClock_minutes_WR	Unsigned 8-bit	0	0	59	—	—	RW	Minute value to update
9218	sysClock_hours_WR	Unsigned 8-bit	0	0	23	—	—	RW	Hour value to update
9219	sysClock_dayweek_WR	Unsigned 8-bit	0	0	6	—	—	RW	Day of the week value to update
9220	sysClock_daymonth_WR	Unsigned 8-bit	1	1	31	—	—	RW	Day of the month value to update
9221	sysClock_month_WR	Unsigned 8-bit	1	1	12	—	—	RW	Month value to update
9222	sysClock_year_WR	Unsigned 8-bit	10	10	99	—	—	RW	Year value to update
9223	sysClock_update	0=Current; 1=Update; 2=Modify	0	0	2	—	—	RW	Confirm update
9224	sv_sysUsbStatus	0=Completed; 1=Running; 248 = 248=Open in write failed; 249 = 249=Write failed; 250 = 250=Some parameters failed; 251 = 251=File not compatible; 252 = 252=Usb not connected; 253 = 253=File too long; 254 = 254=File not present; 255 = 255=Command Failed	—	0	255	—	—	R	Usb status code
9225	sv_sysUsbCommand	Unsigned 16-bit	0	—	—	—	—	RW	Usb status code
9226	SaveFactoryStatus	0=Running; 1=Done; 2=Error/Not Done	—	0	2	—	—	R	Save Factory Settings Status

Modbus Register	Name	Device type	Def	Min	Max	Unit	Format	RW	Description
9227	SaveFactoryCommand	Boolean	0	—	—	—	—	RW	Save Factory Settings Request
9228	RestoreFactoryStatus	0=Completed; 1=Running; 248 = 248=Open in write failed; 249 = 249=Write failed; 250 = 250=Some parameters failed; 251 = 251=File not compatible; 252 = 252=Usb not connected; 253 = 253=File too long; 254 = 254=File not present; 255 = 255=Command Failed	—	0	255	—	—	R	Restore Factory Settings Status
9229	RestoreFactoryCommand	Boolean	0	—	—	—	—	RW	Restore Factory Settings Request
9299	Unit_ApplicationCode	Unsigned 16-bit	1					R	Unit Application Code
9300	Unit_Version	Unsigned 16-bit	0	—	—	—	XX.YY	RW	Unit Application Version
9301	Unit_BMS_OnOff	Boolean	1	—	—	—	—	RW	Unit On/Off via Modbus
9302	Unit_Status	0=OFF; 1=STANDBY; 2=RUN	—	0	2	—	—	R	Unit Status
9303	Unit_Mode_Status	0=Cool; 1=Heat; 2=Auto	—	0	2	—	—	R	Unit Mode
9304	Unit_EcoCmfNight_Status	1=Economy; 2=Comfort; 3=Night	—	1	3	—	—	R	Unit Mode
9305	Unit_Alarm	Boolean	—	—	—	—	—	R	Unit Alarm
9306	T_RegulationProbe	Signed 16-bit	—	—	—	°C	XXX.Y	R	Temperature Regulation Probe
9307	T_CurrentSetpointByPar	Signed 16-bit	—	—	—	°C	XXX.Y	R	Current Setpoint by parameter based on selected mode
9308	T_CurrentSupplySetpoint	Signed 16-bit	—	—	—	°C	XXX.Y	R	Current Supply Setpoint
9309	T_CurrentReturnSetpoint	Signed 16-bit	—	—	—	°C	XXX.Y	R	Current Return Setpoint

Modbus Register	Name	Device type	Def	Min	Max	Unit	Format	RW	Description
9310	T_DewPointSetPoint	Signed 16-bit	—	—	—	°C	XXX.Y	R	Current Dewpoint Setpoint
9311	RH_CurrentSetpoint	Signed 16-bit	—	—	—	%R.H.	—	R	Current Return Setpoint
9312	AirQ_CurrentSetpointVOC	Signed 16-bit	—	—	—	%	—	R	Current Setpoint VOC
9313	AirQ_CurrentSetpointCO2	Signed 16-bit	—	—	—	ppm	—	R	Current Setpoint CO2
9314	Pr_CurrentSupplySetpoint	Signed 32-bit	—	—	—	Pa-m3/h	—	R	Current Fan Supply Setpoint - Units depends on Fan_Supply_Pressure_Flow
9316	Pr_CurrentReturnSetpoint	Signed 32-bit	—	—	—	Pa-m3/h	—	R	Current Fan Return Setpoint - Units depends on Fan_Return_Pressure_Flow
9318	RH_RegulationProbe	Signed 16-bit	—	—	—	%R.H.	—	R	Humdity Regulation Probe
9319	AirQ_RegulationProbe	Signed 16-bit	—	—	—	%/ppm	—	R	Air Quality Regulation Probe
9320	Pr_Flow_Supply	Signed 32-bit	—	—	—	Pa-m3/h	—	R	Current Fan Supply Sensor - Units depends on Fan_Supply_Pressure_Flow
9322	Pr_Flow_Return	Signed 32-bit	—	—	—	Pa-m3/h	—	R	Current Fan Return Sensor - Units depends on Fan_Return_Pressure_Flow
9350	OnOffRequestFromWeb	Boolean	0	—	—	—	—	RW	Unit On/Off via request via Web/Modbus
9351	ChangeSeasonRequestFromWeb	Boolean	0	—	—	—	—	RW	Unit Season Change request via Web/Modbus
9352	ComfortEcoNightRequestFromWeb	Boolean	0	—	—	—	—	RW	Unit Comfort/Eco/Night request via Web/Modbus
9480	History000	Signed 16-bit	—	—	—	—	—	R	Most recent value
9481	History001	Signed 16-bit	—	—	—	—	—	R	Most recent value
9482	History002	Signed 16-bit	—	—	—	—	—	R	Most recent value
9483	History003	Signed 16-bit	—	—	—	—	—	R	Most recent value
9484	HistoricalPosition	Unsigned 16-bit	0	—	—	—	—	RW	Historical Postion Required

Modbus Register	Name	Device type	Def	Min	Max	Unit	Format	RW	Description
9485	Historical_Value_Code	0 = ---; 1 = A01-Supply Pr.; 2 = A02-Return Pr.; 3 = A03-External Pr.; 4 = A04-Expulsion Pr.; 5 = A05-Preheating Pr.; 6 = A06-Saturation Pr.; 7 = A07-Antifreeze Pr.; 8 = A08-CO2 Pr.; 9 = A09-Supply Press. Pr.; 10 = A10-Return Press. Pr.; 11 = A11-Hum. Supply Pr.; 12 = A12-Hum. Return Pr.; 13 = A13-VOC Pr.; 14 = A14-Hum. External Pr.; 15 = A15-; 16 = A16-; 17 = A17-; 18 = A18-; 19 = A19-; 20 = A20-; 21 = A21-; 22 = A22-; 23 = A23-; 24 = A24-; 25 = A25-; 26 = A26-Airflow Prb Sup.; 27 = A27-Airflow Prb Ret.; 28 = A28-Airflow Prb Sup.2; 29 = A29-Airflow Prb Ret.2; 30 = A30-Fan Supply; 31 = A31-Fan Return; 32 = A32-Fire; 33 = A33-Door;	—	0	65	—	—	R	Historical: Alarm Code

Modbus Register	Name	Device type	Def	Min	Max	Unit	Format	RW	Description
9485	Historical_Value_Code	34 = A34-Antifreeze; 35 = A35-Airflow Supply; 36 = A36-Airflow Return; 37 = A37-Humidifier; 38 = A38-Preheater; 39 = A39-Heater; 40 = A40-Postheater; 41 = A41-Recovery; 42 = A42-Filter 1; 43 = A43-Filter 2; 44 = A44-Filter 3; 45 = A45-Filter 4; 46 = A46-Fan Supply 2; 47 = A47-Fan Return 2; 48 = A48-Airflow Supply 2; 49 = A49-Airflow Return 2; 50 = A50-Cond. Unit; 51 = A51-Real Time Clock; 52 = A52-Fan Maintenance; 53 = A53-Modbus Fan Config. Timeout 54 = A54-Modbus Fan Supply Communication; 55 = A55-Modbus Fan Return Communication; 56 = A56-Modbus Fan Supply 2 Communication; 57 = A57-Modbus Fan Return 2 Communication; 58 = A58-Filter 5; 59 = A59-; 60 = A60-Log Error; 61 = A61-Can Expansion 1; 62 = A62-Can Expansion 2; 63 = A63-Can Expansion 3; 64 = A64-Can Expansion 4;	—	0	65	—	—	R	Historical: Alarm Code

Modbus Register	Name	Device type	Def	Min	Max	Unit	Format	RW	Description
		65 = A65-Can Expansion 5 66 = A66-Cond. Unit 2 67 = A67-Cond. Unit 3 68 =A68-Cond. Unit 4							
9486	Historical_Value_Date	Signed 16-bit	—	—	—	—	XX.YY	R	Historical: Alarm Date
9487	Historical_Value_Time	Signed 16-bit	—	—	—	—	HH:MM	R	Historical: Alarm Time
9488	Historical_Value_SecStatus	Signed 16-bit	—	—	—	—	XX.YY	R	Historical: Alarm Seconds and Status: 100x+seconds (x=0 restored, x=1 active, x=2 wait for reset)
9489	Historical_Number_alarms	Signed 16-bit	—	—	—	—	—	R	Historical: Number of stored alarms
9490	Historical_Reset	Boolean	0	—	—	—	—	RW	Historical: Reset Request
9491	Historical_Value_Sec	Signed 16-bit	—	—	—	—	—	R	Historical: Alarm Time Seconds
9492	Historical_Value_Status	AlarmEnum	—	—	—	—	—	R	Historical: Alarm Status
9520	Alxx_Reset	Boolean	—	—	—	—	—	RW	Alarm reset request command via Modbus
9521	Al01_SupplyProbe	0=Not Active; 1=Active; 2=Manual Reset	—	0	2	—	—	R	Al01-Supply Temperature Probe Error
9522	Al02_ReturnProbe	See Al01_SupplyProbe	—	0	2	—	—	R	A02-Return Temperature Probe Error
9523	Al03_ExternalProbe	See Al01_SupplyProbe	—	0	2	—	—	R	A03-External Temperature Probe Error
9524	Al04_ExpulsionProbe	See Al01_SupplyProbe	—	0	2	—	—	R	A04-Expulsion Temperature Probe Error
9525	Al05_PreHeatingProbe	See Al01_SupplyProbe	—	0	2	—	—	R	A05-Preheating Temperature Probe Error
9526	Al06_SaturationProbe	See Al01_SupplyProbe	—	0	2	—	—	R	A06-Saturation Temperature Probe Error
9527	Al07_AntifreezeProbe	See Al01_SupplyProbe	—	0	2	—	—	R	A07-Antifreeze Temperature Probe Error
9528	Al08_AirQualityProbe_CO2	See Al01_SupplyProbe	—	0	2	—	—	R	A08-CO2 Probe Error
9529	Al09_SupplyPressureProbe	See Al01_SupplyProbe	—	0	2	—	—	R	A09-Supply Pressure Probe Error

Modbus Register	Name	Device type	Def	Min	Max	Unit	Format	RW	Description
9530	AI10_ReturnPressureProbe	See AI01_SupplyProbe	—	0	2	—	—	R	A10-Return Pressure Probe Error
9531	AI11_SupplyHumidityProbe	See AI01_SupplyProbe	—	0	2	—	—	R	A11-Hum. Supply Probe Error
9532	AI12_ReturnHumidityProbe	See AI01_SupplyProbe	—	0	2	—	—	R	A12-Hum. Return Probe Error
9533	AI13_AirQualityProbe_VOC	See AI01_SupplyProbe	—	0	2	—	—	R	A13-VOC Probe Error
9534	AI14_ExternalHumidityProbe	See AI01_SupplyProbe	—	0	2	—	—	R	A14-Hum. External Probe Error
9535… 9545	Future use	See AI01_SupplyProbe	—	0	2	—	—	R	Future Usse
9546	AI26_SensAirFlowSupply	See AI01_SupplyProbe	—	0	2	—	—	R	A26-Supply Airflow by Probe
9547	AI27_SensAirFlowReturn	See AI01_SupplyProbe	—	0	2	—	—	R	A27-Return Airflow by Probe
9548	AI28_SensAirFlowSupplyBck	See AI01_SupplyProbe	—	0	2	—	—	R	A28-Airflow Prb Sup.2
9549	AI29_SensAirFlowReturnBck	See AI01_SupplyProbe	—	0	2	—	—	R	A29-Airflow Prb Ret.2
9550	AI30_FanThermalSupply	See AI01_SupplyProbe	—	0	2	—	—	R	A30-Fan Supply
9551	AI31_FanThermalReturn	See AI01_SupplyProbe	—	0	2	—	—	R	A31-Fan Return
9552	AI32_Fire	See AI01_SupplyProbe	—	0	2	—	—	R	A32-Fire
9553	AI33_Door	See AI01_SupplyProbe	—	0	2	—	—	R	A33-Door
9554	AI34_Antifreeze	See AI01_SupplyProbe	—	0	2	—	—	R	A34-Antifreeze
9555	AI35_AirFlowSupply	See AI01_SupplyProbe	—	0	2	—	—	R	A35-Airflow Supply
9556	AI36_AirFlowReturn	See AI01_SupplyProbe	—	0	2	—	—	R	A36-Airflow Return
9557	AI37_Humidifier	See AI01_SupplyProbe	—	0	2	—	—	R	A37-Humidifier
9558	AI38_PreHeater	See AI01_SupplyProbe	—	0	2	—	—	R	A38-Preheater
9559	AI39_Heater	See AI01_SupplyProbe	—	0	2	—	—	R	A39-Heater
9560	AI40_PostHeater	See AI01_SupplyProbe	—	0	2	—	—	R	A40-Postheater
9561	AI41_RotaryWheel	See AI01_SupplyProbe	—	0	2	—	—	R	A41-Recovery
9562	AI42_Filter1	See AI01_SupplyProbe	—	0	2	—	—	R	A42-Filter 1
9563	AI43_Filter2	See AI01_SupplyProbe	—	0	2	—	—	R	A43-Filter 2
9564	AI44_Filter3	See AI01_SupplyProbe	—	0	2	—	—	R	A44-Filter 3
9565	AI45_Filter4	See AI01_SupplyProbe	—	0	2	—	—	R	A45-Filter 4

Modbus Register	Name	Device type	Def	Min	Max	Unit	Format	RW	Description
9566	AI46_FanThermalSupplyBck	See AI01_SupplyProbe	—	0	2	—	—	R	A46-Fan Supply 2
9567	AI47_FanThermalReturnBck	See AI01_SupplyProbe	—	0	2	—	—	R	A47-Fan Return 2
9568	AI48_AirFlowSupplyBck	See AI01_SupplyProbe	—	0	2	—	—	R	A48-Airflow Supply 2
9569	AI49_AirFlowReturnBck	See AI01_SupplyProbe	—	0	2	—	—	R	A49-Airflow Return 2
9570	AI50_CondUnit	See AI01_SupplyProbe	—	0	2	—	—	R	A50-Cond. Unit
9571	AI51_RTC	See AI01_SupplyProbe	—	0	2	—	—	R	A51-Real Time Clock
9572	AI52_FanMaintenance	See AI01_SupplyProbe	—	0	2	—	—	R	A52-Fan Maintenance
9573	AI53_ModbusFanCfg	See AI01_SupplyProbe	—	0	2	—	—	R	A53-Modbus Fan Config. Timeout
9574	AI54_FanSupplyCom	See AI01_SupplyProbe	—	0	2	—	—	R	A54-Modbus Fan Supply Communication
9575	AI55_FanReturnCom	See AI01_SupplyProbe	—	0	2	—	—	R	A55-Modbus Fan Return Communication
9576	AI56_FanSupplyBckCom	See AI01_SupplyProbe	—	0	2	—	—	R	A56-Modbus Fan Supply 2 Communication
9577	AI57_FanReturnBckCom	See AI01_SupplyProbe	—	0	2	—	—	R	A57-Modbus Fan Return 2 Communication
9578	AI58_Filter5	See AI01_SupplyProbe	—	0	2	—	—	R	A58-Filter 5
9579	AI59_	See AI01_SupplyProbe	—	0	2	—	—	R	—
9580	AI60_LogError	See AI01_SupplyProbe	—	0	2	—	—	R	A60-Log Error
9581	AI61_Exp1	See AI01_SupplyProbe	—	0	2	—	—	R	A61-Can Expansion 1
9582	AI62_Exp2	See AI01_SupplyProbe	—	0	2	—	—	R	A62-Can Expansion 2
9583	AI63_Exp3	See AI01_SupplyProbe	—	0	2	—	—	R	A63-Can Expansion 3
9584	AI64_Exp4	See AI01_SupplyProbe	—	0	2	—	—	R	A64-Can Expansion 4
9585	AI65_Exp5	See AI01_SupplyProbe	—	0	2	—	—	R	A65-Can Expansion 5
9586… 9618	Future use							R	Future use
9619	AI99_FanSupply_1b_Com	See AI01_SupplyProbe	—	0	2	—	—	R	AI99-Fan Supply 1b Com Alarm
9620	AI100_FanSupply_1c_Com	See AI01_SupplyProbe	—	0	2	—	—	R	AI100-Fan Supply 1c Com Alarm

Modbus Register	Name	Device type	Def	Min	Max	Unit	Format	RW	Description
9621	Al101_FanReturn_1b_Com	See Al01_SupplyProbe	—	0	2	—	—	R	Al101-Fan Return 1b Com Alarm
9622	Al102_FanReturn_1c_Com	See Al01_SupplyProbe	—	0	2	—	—	R	Al102-Fan Return 1c Com Alarm
9623	Al103_FanSupply_2b_Com	See Al01_SupplyProbe	—	0	2	—	—	R	Al103-Fan Supply 2b Com Alarm
9624	Al104_FanSupply_2c_Com	See Al01_SupplyProbe	—	0	2	—	—	R	Al104-Fan Supply 2c Com Alarm
9625	Al105_FanReturn_2b_Com	See Al01_SupplyProbe	—	0	2	—	—	R	Al105-Fan Return 2b Com Alarm
9626	Al105_FanReturn_2b_Com	See Al01_SupplyProbe	—	0	2	—	—	R	Al106-Fan Return 2c Com Alarm
9670	AI_Exp1_1	Signed 16-bit	—	—	—	—	—	R	Physical Input 1 Exp1
9671	AI_Exp1_2	Signed 16-bit	—	—	—	—	—	R	Physical Input 2 Exp1
9672	AI_Exp1_3	Signed 16-bit	—	—	—	—	—	R	Physical Input 3 Exp1
9673	AI_Exp1_4	Signed 16-bit	—	—	—	—	—	R	Physical Input 4 Exp1
9674	AI_Exp2_1	Signed 16-bit	—	—	—	—	—	R	Physical Input 1 Exp2
9675	AI_Exp2_2	Signed 16-bit	—	—	—	—	—	R	Physical Input 2 Exp2
9676	AI_Exp2_3	Signed 16-bit	—	—	—	—	—	R	Physical Input 3 Exp2
9677	AI_Exp2_4	Signed 16-bit	—	—	—	—	—	R	Physical Input 4 Exp2
9720	AI_LogicIndex_0	Signed 16-bit	—	—	—	°C	XXX.Y	R	Supply Temperature
9721	AI_LogicIndex_1	Signed 16-bit	—	—	—	°C	XXX.Y	R	Return Temperature
9722	AI_LogicIndex_2	Signed 16-bit	—	—	—	°C	XXX.Y	R	External Temperature
9723	AI_LogicIndex_3	Signed 16-bit	—	—	—	°C	XXX.Y	R	Expulsion Temperature
9724	AI_LogicIndex_4	Signed 16-bit	—	—	—	°C	XXX.Y	R	Preheating Temp,
9725	AI_LogicIndex_5	Signed 16-bit	—	—	—	°C	XXX.Y	R	Saturation Temperature
9726	AI_LogicIndex_6	Signed 16-bit	—	—	—	°C	XXX.Y	R	Antifreeze Temperature
9727	AI_LogicIndex_7	Signed 16-bit	—	—	—	ppm	—	R	Air Quality - VOC
9728	AI_LogicIndex_8	Signed 16-bit	—	—	—	%	XXX.Y	R	Air Quality - CO2
9729	AI_LogicIndex_9	Signed 16-bit	—	—	—	pa	—	R	Supply Pressure
9730	AI_LogicIndex_10	Signed 16-bit	—	—	—	pa	—	R	Return Pressure
9731	AI_LogicIndex_11	Signed 16-bit	—	—	—	%	XXX.Y	R	Supply Humidity

Modbus Register	Name	Device type	Def	Min	Max	Unit	Format	RW	Description
9732	AI_LogicIndex_12	Signed 16-bit	—	—	—	%	XXX.Y	R	Return Humidity
9733	AI_LogicIndex_13	Signed 16-bit	—	—	—	%	XXX.Y	R	External Humidity
9734	AI_LogicIndex_14	Signed 32-bit	—	—	—	m3/h	—	R	Supply Flow Testing
9736	AI_LogicIndex_15	Signed 32-bit	—	—	—	m3/h	—	R	Return Flow Testing
9738	AI_free4	Signed 16-bit	—	—	—	—	—	R	—
9739	AI_free5	Signed 16-bit	—	—	—	—	—	R	—
9740	AI_free6	Signed 16-bit	—	—	—	—	—	R	—
9741	AI_free7	Signed 16-bit	—	—	—	—	—	R	—
9742	AI_free8	Signed 16-bit	—	—	—	—	—	R	—
9743	AI_free9	Signed 16-bit	—	—	—	—	—	R	—
9744	AI_free10	Signed 16-bit	—	—	—	—	—	R	—
9745	DI_Voltage_LogicIndex_0	0 = 0V; 1 = 24V; 2 = Not Used	—	0	2	—	—	R	Supply Fan Thermal - Physical Status
9746	DI_Voltage_LogicIndex_1	See DI_Voltage_LogicIndex_0	—	0	2	—	—	R	Return Fan Thermal - Physical Status
9747	DI_Voltage_LogicIndex_2	See DI_Voltage_LogicIndex_0	—	0	2	—	—	R	On/Off Input - Physical Status
9748	DI_Voltage_LogicIndex_3	See DI_Voltage_LogicIndex_0	—	0	2	—	—	R	Fire Alarm - Physical Status
9749	DI_Voltage_LogicIndex_4	See DI_Voltage_LogicIndex_0	—	0	2	—	—	R	Mode Input - Physical Status
9750	DI_Voltage_LogicIndex_5	See DI_Voltage_LogicIndex_0	—	0	2	—	—	R	Door - Physical Status
9751	DI_Voltage_LogicIndex_6	See DI_Voltage_LogicIndex_0	—	0	2	—	—	R	Antifreeze - Physical Status
9752	DI_Voltage_LogicIndex_7	See DI_Voltage_LogicIndex_0	—	0	2	—	—	R	Supply Airflow - Physical Status
9753	DI_Voltage_LogicIndex_8	See DI_Voltage_LogicIndex_0	—	0	2	—	—	R	Return Airflow - Physical Status
9754	DI_Voltage_LogicIndex_9	See DI_Voltage_LogicIndex_0	—	0	2	—	—	R	Humidifier Alarm - Physical Status
9755	DI_Voltage_LogicIndex_10	See DI_Voltage_LogicIndex_0	—	0	2	—	—	R	Preheater Alarm - Physical Status
9756	DI_Voltage_LogicIndex_11	See DI_Voltage_LogicIndex_0	—	0	2	—	—	R	Postheater Alarm - Physical Status
9757	DI_Voltage_LogicIndex_12	See DI_Voltage_LogicIndex_0	—	0	2	—	—	R	Rotary Wheel Alarm - Physical Status
9758	DI_Voltage_LogicIndex_13	See DI_Voltage_LogicIndex_0	—	0	2	—	—	R	Filter 1 Alarm - Physical Status

Modbus Register	Name	Device type	Def	Min	Max	Unit	Format	RW	Description
9759	DI_Voltage_LogicIndex_14	See DI_Voltage_LogicIndex_0	—	0	2	—	—	R	Filter 2 Alarm - Physical Status
9760	DI_Voltage_LogicIndex_15	See DI_Voltage_LogicIndex_0	—	0	2	—	—	R	Filter 3 Alarm - Physical Status
9761	DI_Voltage_LogicIndex_16	See DI_Voltage_LogicIndex_0	—	0	2	—	—	R	Filter 4 Alarm - Physical Status
9762	DI_Voltage_LogicIndex_17	See DI_Voltage_LogicIndex_0	—	0	2	—	—	R	Supply Fan 2 Th. - Physical Status
9763	DI_Voltage_LogicIndex_18	See DI_Voltage_LogicIndex_0	—	0	2	—	—	R	Return Fan 2 Th. - Physical Status
9764	DI_Voltage_LogicIndex_19	See DI_Voltage_LogicIndex_0	—	0	2	—	—	R	Supply Fan 2 Airflow - Physical Status
9765	DI_Voltage_LogicIndex_20	See DI_Voltage_LogicIndex_0	—	0	2	—	—	R	Return Fan 2 Airflow - Physical Status
9766	DI_Voltage_LogicIndex_21	See DI_Voltage_LogicIndex_0	—	0	2	—	—	R	Cond. Unit Alarm - Physical Status
9767	DI_Voltage_LogicIndex_22	See DI_Voltage_LogicIndex_0	—	0	2	—	—	R	El. Heater Alarm - Physical Status
9768	DI_Voltage_LogicIndex_23	Signed 16-bit	—	—	—	—	—	R	Cond. Unit 2 Alarm - Physical Status
9769	DI_Voltage_LogicIndex_24	Signed 16-bit	—	—	—	—	—	R	Cond. Unit 3 Alarm - Physical Status
9770	DI_Voltage_LogicIndex_25	Signed 16-bit	—	—	—	—	—	R	Cond. Unit 4 Alarm - Physical Status
9771	DI_Voltage_LogicIndex_26	Signed 16-bit	—	—	—	—	—	R	Cond. Unit 1 Defrost - Physical Status
9772	DI_Voltage_LogicIndex_27	Signed 16-bit	—	—	—	—	—	R	Cond. Unit 2 Defrost - Physical Status
9773	DI_Voltage_LogicIndex_28	Signed 16-bit	—	—	—	—	—	R	Cond. Unit 3 Defrost - Physical Status
9774	DI_Voltage_LogicIndex_29	Signed 16-bit	—	—	—	—	—	R	Cond. Unit 4 Defrost - Physical Status
9775	DI_Voltage_LogicIndex_30	Signed 16-bit	—	—	—	—	—	R	Filter 5 Alarm - Physical Status
9776	DI_free9	Signed 16-bit	—	—	—	—	—	R	—
9777	DI_free10	Signed 16-bit	—	—	—	—	—	R	—
9778	DO_LogicIndex_0	0 = Off; 1 = On; 2 = Not Used	—	0	2	—	—	R	Supply Fan - Logic Status
9779	DO_LogicIndex_1	See DO_LogicIndex_0	—	0	2	—	—	R	Return Fan - Logic Status

Modbus Register	Name	Device type	Def	Min	Max	Unit	Format	RW	Description
9780	DO_LogicIndex_2	See DO_LogicIndex_0	—	0	2	—	—	R	On Off - Logic Status
9781	DO_LogicIndex_3	See DO_LogicIndex_0	—	0	2	—	—	R	Alarm - Logic Status
9782	DO_LogicIndex_4	See DO_LogicIndex_0	—	0	2	—	—	R	Mode - Logic Status
9783	DO_LogicIndex_5	See DO_LogicIndex_0	—	0	2	—	—	R	Ext. Dampers - Logic Status
9784	DO_LogicIndex_6	See DO_LogicIndex_0	—	0	2	—	—	R	Bypass Damper - Logic Status
9785	DO_LogicIndex_7	See DO_LogicIndex_0	—	0	2	—	—	R	Supply Damper - Logic Status
9786	DO_LogicIndex_8	See DO_LogicIndex_0	—	0	2	—	—	R	Return Damper - Logic Status
9787	DO_LogicIndex_9	See DO_LogicIndex_0	—	0	2	—	—	R	Pump Preheat - Logic Status
9788	DO_LogicIndex_10	See DO_LogicIndex_0	—	0	2	—	—	R	Pump Postheat - Logic Status
9789	DO_LogicIndex_11	See DO_LogicIndex_0	—	0	2	—	—	R	Cool/CH Pump - Logic Status
9790	DO_LogicIndex_12	See DO_LogicIndex_0	—	0	2	—	—	R	Cool/CH Step 1 - Logic Status
9791	DO_LogicIndex_13	See DO_LogicIndex_0	—	0	2	—	—	R	Cool/CH Step 2 - Logic Status
9792	DO_LogicIndex_14	See DO_LogicIndex_0	—	0	2	—	—	R	Cool/CH Step 3 - Logic Status
9793	DO_LogicIndex_15	See DO_LogicIndex_0	—	0	2	—	—	R	Cool/CH Step 4 - Logic Status
9794	DO_LogicIndex_16	See DO_LogicIndex_0	—	0	2	—	—	R	Heat Pump - Logic Status
9795	DO_LogicIndex_17	See DO_LogicIndex_0	—	0	2	—	—	R	Heater Step 1 - Logic Status
9796	DO_LogicIndex_18	See DO_LogicIndex_0	—	0	2	—	—	R	Heater Step 2 - Logic Status
9797	DO_LogicIndex_19	See DO_LogicIndex_0	—	0	2	—	—	R	Heater Step 3 - Logic Status
9798	DO_LogicIndex_20	See DO_LogicIndex_0	—	0	2	—	—	R	Pre Heater Step 1 - Logic Status
9799	DO_LogicIndex_21	See DO_LogicIndex_0	—	0	2	—	—	R	Pre Heater Step 2 - Logic Status
9800	DO_LogicIndex_22	See DO_LogicIndex_0	—	0	2	—	—	R	Pre Heater Step 3 - Logic Status
9801	DO_LogicIndex_23	See DO_LogicIndex_0	—	0	2	—	—	R	Post Heater Step 1 - Logic Status
9802	DO_LogicIndex_24	See DO_LogicIndex_0	—	0	2	—	—	R	Post Heater Step 2 - Logic Status
9803	DO_LogicIndex_25	See DO_LogicIndex_0	—	0	2	—	—	R	Post Heater Step 3 - Logic Status
9804	DO_LogicIndex_26	See DO_LogicIndex_0	—	0	2	—	—	R	Humidifier - Logic Status
9805	DO_LogicIndex_27	See DO_LogicIndex_0	—	0	2	—	—	R	Rotary Wheel / Exchanger - Logic Status

Modbus Register	Name	Device type	Def	Min	Max	Unit	Format	RW	Description
9806	DO_LogicIndex_28	See DO_LogicIndex_0	—	0	2	—	—	R	Supply Fan 2 - Logic Status
9807	DO_LogicIndex_29	See DO_LogicIndex_0	—	0	2	—	—	R	Return Fan 2 - Logic Status
9808	DO_LogicIndex_30	See DO_LogicIndex_0	—	0	2	—	—	R	Supply Damper 2 - Logic Status
9809	DO_LogicIndex_31	See DO_LogicIndex_0	—	0	2	—	—	R	Return Damper 2 - Logic Status
9810	DO_free1	See DO_LogicIndex_0	—	0	2	—	—	R	—
9811	DO_free2	See DO_LogicIndex_0	—	0	2	—	—	R	—
9812	DO_free3	See DO_LogicIndex_0	—	0	2	—	—	R	—
9813	DO_free4	See DO_LogicIndex_0	—	0	2	—	—	R	—
9814	DO_free5	See DO_LogicIndex_0	—	0	2	—	—	R	—
9815	DO_free6	See DO_LogicIndex_0	—	0	2	—	—	R	—
9816	DO_free7	See DO_LogicIndex_0	—	0	2	—	—	R	—
9817	DO_free8	See DO_LogicIndex_0	—	0	2	—	—	R	—
9818	DO_free9	See DO_LogicIndex_0	—	0	2	—	—	R	—
9819	DO_free10	See DO_LogicIndex_0	—	0	2	—	—	R	—
9820	AO_LogicIndex_0	Signed 16-bit	—	—	—	%	XXX.Y	R	Supply Fan
9821	AO_LogicIndex_1	Signed 16-bit	—	—	—	%	XXX.Y	R	Return Fan
9822	AO_LogicIndex_2	Signed 16-bit	—	—	—	%	XXX.Y	R	Ext. Dampers
9823	AO_LogicIndex_3	Signed 16-bit	—	—	—	%	XXX.Y	R	Bypass Damper
9824	AO_LogicIndex_4	Signed 16-bit	—	—	—	%	XXX.Y	R	Cool - C/H Valve
9825	AO_LogicIndex_5	Signed 16-bit	—	—	—	%	XXX.Y	R	Heat Valve
9826	AO_LogicIndex_6	Signed 16-bit	—	—	—	%	XXX.Y	R	Pre Heater
9827	AO_LogicIndex_7	Signed 16-bit	—	—	—	%	XXX.Y	R	Post Heater
9828	AO_LogicIndex_8	Signed 16-bit	—	—	—	%	XXX.Y	R	Rotary Wheel / Exchanger
9829	AO_LogicIndex_9	Signed 16-bit	—	—	—	%	XXX.Y	R	Humidifier
9830	AO_free1	Signed 16-bit	—	—	—	%	XXX.Y	R	—
9831	AO_free2	Signed 16-bit	—	—	—	%	XXX.Y	R	—

Modbus Register	Name	Device type	Def	Min	Max	Unit	Format	RW	Description
9832	AO_free3	Signed 16-bit	—	—	—	%	XXX.Y	R	—
9833	AO_free4	Signed 16-bit	—	—	—	%	XXX.Y	R	—
9834	AO_free5	Signed 16-bit	—	—	—	%	XXX.Y	R	—
9835	AO_free6	Signed 16-bit	—	—	—	%	XXX.Y	R	—
9836	AO_free7	Signed 16-bit	—	—	—	%	XXX.Y	R	—
9837	AO_free8	Signed 16-bit	—	—	—	%	XXX.Y	R	—
9838	AO_free9	Signed 16-bit	—	—	—	%	XXX.Y	R	—
9839	AO_free10	Signed 16-bit	—	—	—	%	XXX.Y	R	—
9840	AI_Map_LogicIndex_0	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9841	AI_Map_LogicIndex_1	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9842	AI_Map_LogicIndex_2	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9843	AI_Map_LogicIndex_3	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9844	AI_Map_LogicIndex_4	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9845	AI_Map_LogicIndex_5	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9846	AI_Map_LogicIndex_6	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9847	AI_Map_LogicIndex_7	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9848	AI_Map_LogicIndex_8	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9849	AI_Map_LogicIndex_9	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9850	AI_Map_LogicIndex_10	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9851	AI_Map_LogicIndex_11	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9852	AI_Map_LogicIndex_12	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9853	AI_Map_LogicIndex_13	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9854	AI_Map_LogicIndex_14	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9855	AI_Map_LogicIndex_15	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9856	AI_Map_LogicIndex_free4	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9857	AI_Map_LogicIndex_free5	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i

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9858	AI_Map_LogicIndex_free6	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9859	AI_Map_LogicIndex_free7	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9860	AI_Map_LogicIndex_free8	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9861	AI_Map_LogicIndex_free9	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9862	AI_Map_LogicIndex_free10	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9863	DI_Map_LogicIndex_0	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9864	DI_Map_LogicIndex_1	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9865	DI_Map_LogicIndex_2	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9866	DI_Map_LogicIndex_3	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9867	DI_Map_LogicIndex_4	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9868	DI_Map_LogicIndex_5	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9869	DI_Map_LogicIndex_6	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9870	DI_Map_LogicIndex_7	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9871	DI_Map_LogicIndex_8	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9872	DI_Map_LogicIndex_9	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9873	DI_Map_LogicIndex_10	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9874	DI_Map_LogicIndex_11	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9875	DI_Map_LogicIndex_12	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9876	DI_Map_LogicIndex_13	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9877	DI_Map_LogicIndex_14	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9878	DI_Map_LogicIndex_15	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9879	DI_Map_LogicIndex_16	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9880	DI_Map_LogicIndex_17	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9881	DI_Map_LogicIndex_18	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9882	DI_Map_LogicIndex_19	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9883	DI_Map_LogicIndex_20	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i

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9884	DI_Map_LogicIndex_21	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9885	DI_Map_LogicIndex_22	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9886	DI_Map_LogicIndex_free1	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9887	DI_Map_LogicIndex_free2	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9888	DI_Map_LogicIndex_free3	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9889	DI_Map_LogicIndex_free4	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9890	DI_Map_LogicIndex_free5	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9891	DI_Map_LogicIndex_free6	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9892	DI_Map_LogicIndex_free7	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9893	DI_Map_LogicIndex_free8	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9894	DI_Map_LogicIndex_free9	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9895	DI_Map_LogicIndex_free10	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9896	DO_Map_LogicIndex_0	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9897	DO_Map_LogicIndex_1	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9898	DO_Map_LogicIndex_2	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9899	DO_Map_LogicIndex_3	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9900	DO_Map_LogicIndex_4	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9901	DO_Map_LogicIndex_6	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9902	DO_Map_LogicIndex_5	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9903	DO_Map_LogicIndex_7	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9904	DO_Map_LogicIndex_8	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9905	DO_Map_LogicIndex_9	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9906	DO_Map_LogicIndex_10	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9907	DO_Map_LogicIndex_11	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9908	DO_Map_LogicIndex_12	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9909	DO_Map_LogicIndex_13	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i

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9910	DO_Map_LogicIndex_14	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9911	DO_Map_LogicIndex_15	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9912	DO_Map_LogicIndex_16	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9913	DO_Map_LogicIndex_17	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9914	DO_Map_LogicIndex_18	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9915	DO_Map_LogicIndex_19	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9916	DO_Map_LogicIndex_20	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9917	DO_Map_LogicIndex_21	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9918	DO_Map_LogicIndex_22	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9919	DO_Map_LogicIndex_23	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9920	DO_Map_LogicIndex_24	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9921	DO_Map_LogicIndex_25	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9922	DO_Map_LogicIndex_26	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9923	DO_Map_LogicIndex_27	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9924	DO_Map_LogicIndex_28	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9925	DO_Map_LogicIndex_29	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9926	DO_Map_LogicIndex_30	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9927	DO_Map_LogicIndex_31	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9928	DO_Map_LogicIndex_free1	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9929	DO_Map_LogicIndex_free2	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9930	DO_Map_LogicIndex_free3	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9931	DO_Map_LogicIndex_free4	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9932	DO_Map_LogicIndex_free5	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9933	DO_Map_LogicIndex_free6	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9934	DO_Map_LogicIndex_free7	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9935	DO_Map_LogicIndex_free8	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i

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9936	DO_Map_LogicIndex_free9	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9937	DO_Map_LogicIndex_free10	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9938	AO_Map_LogicIndex_0	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9939	AO_Map_LogicIndex_1	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9940	AO_Map_LogicIndex_2	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9941	AO_Map_LogicIndex_3	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9942	AO_Map_LogicIndex_4	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9943	AO_Map_LogicIndex_5	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9944	AO_Map_LogicIndex_6	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9945	AO_Map_LogicIndex_7	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9946	AO_Map_LogicIndex_8	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9947	AO_Map_LogicIndex_9	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9948	AO_Map_LogicIndex_free1	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9949	AO_Map_LogicIndex_free2	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9950	AO_Map_LogicIndex_free3	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9951	AO_Map_LogicIndex_free4	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9952	AO_Map_LogicIndex_free5	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9953	AO_Map_LogicIndex_free6	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9954	AO_Map_LogicIndex_free7	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9955	AO_Map_LogicIndex_free8	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9956	AO_Map_LogicIndex_free9	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9957	AO_Map_LogicIndex_free10	Unsigned 8-bit	—	—	—	—	—	R	Physical mapping of logic index i
9980	Unit_DD	Unsigned 16-bit	—	—	—	days	—	R	Unit Working Days
9981	Unit_HH	Unsigned 16-bit	—	—	—	hours	—	R	Unit Working Hours
9982	FanSupply_DD	Unsigned 16-bit	—	—	—	days	—	R	Supply Fan Working Days
9983	FanSupply_HH	Unsigned 16-bit	—	—	—	hours	—	R	Supply Fan Working Hours

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9984	FanReturn_DD	Unsigned 16-bit	—	—	—	days	—	R	Return Fan Working Days
9985	FanReturn_HH	Unsigned 16-bit	—	—	—	hours	—	R	Return Fan Working Hours
9986	FanSupplyBck_DD	Unsigned 16-bit	—	—	—	days	—	R	Supply Fan 2 Working Days
9987	FanSupplyBck_HH	Unsigned 16-bit	—	—	—	hours	—	R	Supply Fan 2 Working Hours
9988	FanReturnBck_DD	Unsigned 16-bit	—	—	—	days	—	R	Return Fan 2 Working Days
9989	FanReturnBck_HH	Unsigned 16-bit	—	—	—	hours	—	R	Return Fan 2 Working Hours
10000	Status_PlantMode	0=Cool; 1=Heat; 2=Auto	—	0	2	—	—	R	Unit Working Mode
10001	Status_PID_TSupplyCool	Signed 16-bit	—	—	—	%	—	R	Cooling Regulator Request
10002	Status_PID_TSupplyHeat	Signed 16-bit	—	—	—	%	—	R	Heating Regulator Request
10003	Status_PID_Humid	Signed 16-bit	—	—	—	%	—	R	Hmidification Regulator Request
10004	Status_PID_DeHumid	Signed 16-bit	—	—	—	%	—	R	Dehumidification Regulator Request
10005	Status_PID_AirQ	Signed 16-bit	—	—	—	%	—	R	Air Quality Regulator Request
10006	Status_PID_PrSupply	Signed 16-bit	—	—	—	%	—	R	Supply Fan Regulator Request
10007	Status_PID_PrReturn	Signed 16-bit	—	—	—	%	—	R	Return Fan Regulator Request
10008	Status_PID_PreHeater	Signed 16-bit	—	—	—	%	—	R	Preheater Regulator Request
10009	Status_OutCool	Signed 16-bit	—	—	—	%	—	R	Cooling Output
10010	Status_OutPre	Signed 16-bit	—	—	—	%	—	R	Preheating Output
10011	Status_OutHeat	Signed 16-bit	—	—	—	%	—	R	Heating Output
10012	Status_OutPost	Signed 16-bit	—	—	—	%	—	R	Post Heating Output
10013	Status_OutRec	Signed 16-bit	—	—	—	%	—	R	Recovery Output
10014	Status_OutHum	Signed 16-bit	—	—	—	%	—	R	Humidifier Output
10015	Status_FanSupply	Signed 16-bit	—	—	—	%	—	R	Fan Supply Speed
10016	Status_FanReturn	Signed 16-bit	—	—	—	%	—	R	Fan Return Speed
10017	Status_ExtDamper	Signed 16-bit	—	—	—	%	—	R	External Damper Status
10018	Status_FreeCooling	Boolean	—	—	—	—	—	R	Free Cooling Status

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10019	Status_FreeHeating	Boolean	—	—	—	—	—	R	Free Heating Status
10020	Status_ActuatorsOffbyFCH	Boolean	—	—	—	—	—	R	Actuators off by Free Cooling/Heating
10021	Status_FCHreq	Signed 16-bit	—	—	—	%	—	R	Free Cooling/Heating Request
10022	Status_RecoveryCooling	Boolean	—	—	—	—	—	R	Cooling Recovery Status
10023	Status_RecoveryHeating	Boolean	—	—	—	—	—	R	Heating Recovery Status
10024	Status_DefrostFan	Boolean	—	—	—	—	—	R	Defrost with Fan Status
10025	Status_DefrostDamper	Boolean	—	—	—	—	—	R	Defrost with Damper Status
10026	Status_DefrostPreHeat	Boolean	—	—	—	—	—	R	Defrost with Preheating Status
10027	Status_DefrostFanRed	Signed 16-bit	—	—	—	%	XXX.Y	R	Defrost Supply Fan Speed Reduction
10028	Status_LowTempSupplyLimit	Signed 16-bit	—	—	—	%	XXX.Y	R	Low Supply Limit Regulator Request
10029	Status_HighTempSupplyLimit	Signed 16-bit	—	—	—	%	XXX.Y	R	High Supply Limit Regulator Request
10030	Status_HighTempPreHeatLimit	Signed 16-bit	—	—	—	%	XXX.Y	R	High Preheater Limit Regulator Request
10031	Status_HighHumSupplyLimit	Signed 16-bit	—	—	—	%	XXX.Y	R	High Humidity Limit Regulator Request
10032	Status_ExtSHum	Signed 16-bit	—	—	—	g/Kg	XXX.Y	R	External Specific Humidity
10033	Status_RetSHum	Signed 16-bit	—	—	—	g/Kg	XXX.Y	R	Return Specific Humidity
10034	Status_Supply1_FansActualSpeed	Signed 16-bit	—	—	—	rpm	—	R	Supply Ziehl/EBM Speed
10035	Status_Supply1_FansVoltage	Signed 16-bit	—	—	—	V	—	R	Supply Ziehl/EBM DC Voltage
10036	Status_Supply1_FansCurrent	Signed 16-bit	—	—	—	A	—	R	Supply Ziehl/EBM Current
10037	Status_Supply1_FansActualSpeedHz	Signed 16-bit	—	—	—	Hz	XXX.Y	R	Supply ATV212 Speed
10038	Status_Supply1_FansVoltagePerc	Signed 16-bit	—	—	—	%	XXX.Y	R	Supply ATV212 DC Voltage
10039	Status_Supply1_FansCurrentPerc	Signed 16-bit	—	—	—	%	XX.YY	R	Supply ATV212 DC Current
10040	Status_Supply2_FansActualSpeed	Signed 16-bit	—	—	—	rpm	—	R	Supply Backup Ziehl/EBM Speed
10041	Status_Supply2_FansVoltage	Signed 16-bit	—	—	—	V	—	R	Supply Backup Ziehl/EBM DC Voltage
10042	Status_Supply2_FansCurrent	Signed 16-bit	—	—	—	A	—	R	Supply Backup Ziehl/EBM Current
10043	Status_Supply2_FansActualSpeedHz	Signed 16-bit	—	—	—	Hz	XXX.Y	R	Supply Backup ATV212 Speed

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10044	Status_Supply2_FansVoltagePerc	Signed 16-bit	—	—	—	%	XXX.Y	R	Supply Backup ATV212 DC Voltage
10045	Status_Supply2_FansCurrentPerc	Signed 16-bit	—	—	—	%	XX.YY	R	Supply Backup ATV212 DC Current
10046	Status_Return1_FansActualSpeed	Signed 16-bit	—	—	—	rpm	—	R	Return Ziehl/EBM Speed
10047	Status_Return1_FansVoltage	Signed 16-bit	—	—	—	V	—	R	Return Ziehl/EBM DC Voltage
10048	Status_Return1_FansCurrent	Signed 16-bit	—	—	—	A	—	R	Return Ziehl/EBM Current
10049	Status_Return1_FansActualSpeedHz	Signed 16-bit	—	—	—	Hz	XXX.Y	R	Return ATV212 Speed
10050	Status_Return1_FansVoltagePerc	Signed 16-bit	—	—	—	%	XXX.Y	R	Return ATV212 DC Voltage
10051	Status_Return1_FansCurrentPerc	Signed 16-bit	—	—	—	%	XX.YY	R	Return ATV212 DC Current
10052	Status_Return2_FansActualSpeed	Signed 16-bit	—	—	—	rpm	—	R	Return Backup Ziehl/EBM Speed
10053	Status_Return2_FansVoltage	Signed 16-bit	—	—	—	V	—	R	Return Backup Ziehl/EBM DC Voltage
10054	Status_Return2_FansCurrent	Signed 16-bit	—	—	—	A	—	R	Return Backup Ziehl/EBM Current
10055	Status_Return2_FansActualSpeedHz	Signed 16-bit	—	—	—	Hz	XXX.Y	R	Return Backup ATV212 Speed
10056	Status_Return2_FansVoltagePerc	Signed 16-bit	—	—	—	%	XXX.Y	R	Return Backup ATV212 DC Voltage
10057	Status_Return2_FansCurrentPerc	Signed 16-bit	—	—	—	%	XX.YY	R	Return Backup ATV212 DC Current
10100	StartMonth	Unsigned 8-bit	1	1	12	—	—	RW	Start Month - Log Period Export to USB
10101	EndMonth	Unsigned 8-bit	1	1	12	—	—	RW	End Month - Log Period Export to USB
10102	StartYear	Unsigned 8-bit	16	0	99	—	—	RW	Start Year - Log Period Export to USB
10103	EndYear	Unsigned 8-bit	16	0	99	—	—	RW	End Year - Log Period Export to USB
10104	SavingInProgress	Boolean	—	—	—	—	—	R	Log Export to usb ongoing - Log Export to USB
10105	SaveOk	Unsigned 16-bit	—	—	—	—	—	R	Number of files correctly exported- Log Export to USB
10106	SaveFailed	Unsigned 16-bit	—	—	—	—	—	R	Number of files not exported- Log Export to USB
10107	SavePercent	Unsigned 16-bit	—	—	—	—	—	R	Percentage of exported files- Log Export to USB

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10108	SavingAllowed	Boolean	—	—	—	—	—	R	Export can start - Log Export to USB
10109	LoggingError	Boolean	—	—	—	—	—	R	Log Error- Log Export to USB
10110	FileDimension	Unsigned 32-bit	—	—	—	—	—	R	Size of the current log file- Log Export to USB
10112	TotalRecordE2retain	Unsigned 32-bit	—	—	—	—	—	R	Record saved - Log Export to USB
10114	microSdMounted	Boolean	—	—	—	—	—	R	microSD Mounted
10115	microSdError	Boolean	—	—	—	—	—	R	microSD Error
10116	microSdStatus	0=Not present; 1=Unsafe Removed; 2=Not Mounted; 3=Mounted	—	0	3	—	—	R	microSd Status
10117	microSdInfo	0=...; 1=Release SD; 2=Ready to remove/mount; 3=Ready for log; 4=...; 5=insert SD..; 6=Release SD; 7=Retry command..; 8=Yet mounted	—	0	8	—	—	R	microSd Info
10498	BridgeStatus	Boolean	—	—	—	—	—	R	Bridge Function Status
11500	MdbZiehlSupplyMsgError	Unsigned 16-bit	—	—	—	Num	—	R	—
11501	MdbZiehlReturnMsgError	Unsigned 16-bit	—	—	—	Num	—	R	—
11502	MdbZiehlSupplyBckMsgError	Unsigned 16-bit	—	—	—	Num	—	R	—
11503	MdbZiehlReturnBckMsgError	Unsigned 16-bit	—	—	—	Num	—	R	—
11504	MdbEBMSupplyMsgError	Unsigned 16-bit	—	—	—	Num	—	R	—
11505	MdbEBMReturnMsgError	Unsigned 16-bit	—	—	—	Num	—	R	—
11506	MdbEBMSupplyBckMsgError	Unsigned 16-bit	—	—	—	Num	—	R	—
11507	MdbEBMReturnBckMsgError	Unsigned 16-bit	—	—	—	Num	—	R	—

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11508	MdbATVSupplyMsgError	Unsigned 16-bit	—	—	—	Num	—	R	—
11509	MdbATVReturnMsgError	Unsigned 16-bit	—	—	—	Num	—	R	—
11510	MdbATVSupplyBckMsgError	Unsigned 16-bit	—	—	—	Num	—	R	—
11511	MdbATVReturnBckMsgError	Unsigned 16-bit	—	—	—	Num	—	R	—
11512	MdbZiehlSupply_1b_MsgError	Unsigned 16-bit	—	—	—	Num	—	R	
11513	MdbZiehlReturn_1b_MsgError	Unsigned 16-bit	—	—	—	Num	—	R	
11514	MdbZiehlSupply_2b_MsgError	Unsigned 16-bit	—	—	—	Num	—	R	
11515	MdbZiehlReturn_2b_MsgError	Unsigned 16-bit	—	—	—	Num	—	R	
11516	MdbZiehlSupply_1c_MsgError	Unsigned 16-bit	—	—	—	Num	—	R	
11517	MdbZiehlReturn_1c_MsgError	Unsigned 16-bit	—	—	—	Num	—	R	
11518	MdbZiehlSupply_2c_MsgError	Unsigned 16-bit	—	—	—	Num	—	R	
11519	MdbZiehlReturn_2c_MsgError	Unsigned 16-bit	—	—	—	Num	—	R	
11600	CondUnit1_DD	Unsigned 16-bit							Condensing Unit 1 Working Days
11601	CondUnit1_HH	Unsigned 16-bit							Condensing Unit 1 Working Hours
11602	CondUnit2_DD	Unsigned 16-bit							Condensing Unit 2 Working Days
11603	CondUnit2_HH	Unsigned 16-bit							Condensing Unit 2 Working Hours
11604	CondUnit3_DD	Unsigned 16-bit							Condensing Unit 3 Working Days
11605	CondUnit3_HH	Unsigned 16-bit							Condensing Unit 3 Working Hours
11606	CondUnit4_DD	Unsigned 16-bit							Condensing Unit 4 Working Days
11607	CondUnit4_HH	Unsigned 16-bit							Condensing Unit 4 Working Hours

Table 100 - Modbus Status Table