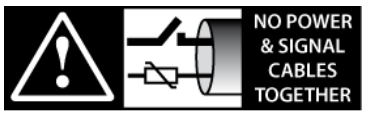
kVent

Controller for ventilation units

LEGGI E CONSERVA QUESTE ISTRUZIONI

READ AND SAVE THESE INSTRUCTIONS

ENG Manual



READ CAREFULLY IN THE TEXT!

High Efficiency Solutions

IMPORTANT

CAREL bases the development of its products on decades of experience in HVAC/R, on the continuous investments in technological innovations to products, procedures and strict quality processes with in-circuit and functional testing on 100% of its products, and on the most innovative production technology available on the market. CAREL and its subsidiaries nonetheless cannot guarantee that all the aspects of the product and the software included with the product respond to the requirements of the final application, despite the product being developed according to start-of-the-art techniques. The customer (manufacturer, developer or installer of the final equipment) accepts all liability and risk relating to the configuration of the product in order to reach the expected results in relation to the specific final installation and/or equipment.

CAREL may, based on specific agreements, acts as a consultant for the positive commissioning of the final unit/application, however in no case does it accept liability for the correct operation of the final equipment/system.

The CAREL product is a state-of-the-art product, whose operation is specified in the technical documentation supplied with the product or can be downloaded, even prior to purchase, from the website www.CAREL.com.
Each CAREL product, in relation to its advanced level of technology, requires setup/configuration/programming/commissioning to be able to operate in the best possible way for the specific application. The failure to complete such operations, which are required/indicated in the user manual, may cause the final product to malfunction; CAREL accepts no liability in such cases.
Only qualified personnel may install or carry out technical service on the product.
The customer must only use the product in the manner described in the documentation relating to the product.

In addition to observing any further warnings described in this manual, the following warnings must be heeded for all CAREL products:

- Prevent the electronic circuits from getting wet. Rain, humidity and all types of liquids or condensate contain corrosive minerals that may damage the electronic circuits. In any case, the product should be used or stored in environments that comply with the temperature and humidity limits specified in the manual.
- Do not install the device in particularly hot environments. Too high temperatures may reduce the life of electronic devices, damage them and deform or melt the plastic parts. In any case, the product should be used or stored in environments that comply with the temperature and humidity limits specified in the manual.
- Do not attempt to open the device in any way other than described in the manual.
- Do not drop, hit or shake the device, as the internal circuits and mechanisms may be irreparably damaged.
- Do not use corrosive chemicals, solvents or aggressive detergents to clean the device.
- Do not use the product for applications other than those specified in the technical manual.

All of the above suggestions likewise apply to the controllers, serial boards, programming keys or any other accessory in the CAREL product portfolio.
CAREL adopts a policy of continual development. Consequently, CAREL reserves the right to make changes and improvements to any product described in this document without prior warning.

The technical specifications shown in the manual may be changed without prior warning.

The liability of CAREL in relation to its products is specified in the CAREL general contract conditions, available on the website www.CAREL.com and/or by specific agreements with customers; specifically, to the extent where allowed by applicable legislation, in no case will CAREL, its employees or subsidiaries be liable for any lost earnings or sales, losses of data and information, costs of replacement goods or services, damage to things or people, downtime or any direct, indirect, incidental, actual, punitive, exemplary, special or consequential damage of any kind whatsoever, whether contractual, extra-contractual or due to negligence, or any other liabilities deriving from the installation, use or impossibility to use the product, even if CAREL or its subsidiaries are warned of the possibility of such damage.

DISPOSAL

INFORMATION FOR USERS ON THE CORRECT HANDLING OF WASTE ELECTRICAL AND ELECTRONIC EQUIPMENT (WEEE)

In reference to European Union directive 2002/96/EC issued on 27 January 2003 and the related national legislation, please note that:

- WEEE cannot be disposed of as municipal waste and such waste must be collected and disposed of separately;
- the public or private waste collection systems defined by local legislation must be used. In addition, the equipment can be returned to the distributor at the end of its working life when buying new equipment;
- the equipment may contain hazardous substances: the improper use or incorrect disposal of such may have negative effects on human health and on the environment;
- the symbol (crossed-out wheeled bin) shown on the product or on the packaging and on the instruction sheet indicates that the equipment has been introduced onto the market after 13 August 2005 and that it must be disposed of separately;
- in the event of illegal disposal of electrical and electronic waste, the penalties are specified by local waste disposal legislation.

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

Approval: the quality and safety of CAREL INDUSTRIES Hqs products are guaranteed by the ISO 9001 certified design and production system.

WARNING: separate as much as possible the probe and digital input signal cables from the cables carrying inductive loads and power cables to avoid possible electromagnetic disturbance. Never run power cables (including the electrical panel wiring) and signal cables in the same conduits.

The product must be installed with the earthconnected, using the special yellow-green terminal on the terminal block. Do not use the neutral for the earth connection.

KEY TO THE ICONS

	NOTE: to bring attention to a very important subject; in particular, regarding the practical use of the various functions of the product.
	IMPORTANT: to bring critical issues regarding the use of the kVent to the attention of the user.
	TUTORIAL: some simple examples to accompany the user in configuring the most common settings.

CONTENTS

1. INTRODUCTION

1.1 Main features

Usability and display – kVent, developed in line with the new CAREL usability standards, assists the manufacturer in the configuration of the installation. The menu-based system allows the application to be configured as a tool for instant diagnostics. All this is possible by the immediately accessible overview screens and the commissioning tool.

Quick menus - information on the status of the kVent is accessible directly from the main menu, without needing to access the submenus. Configuration, active function and operating temperature information are arranged in loops of screens, scrolled by pressing the DOWN button from the main screen.

Main features

Regulation	Temperature PID regulation based on supply
	Humidity PID regulation based on supply or room humidity
	Automatic cooling/heating changeover
	Setpoint compensation
	VOC and CO2 regulation
Scheduler	4 time bands for each day
	3 special periods
	6 special days
Recovery	Rotary heat recovery
	Glycol heat recovery
	Plate cross-flow recovery
Coils	Hydronic systems
	Electric heating
	Direct expansion
	Steam coil
	Reverse coil
Fans	ON/OFF fan
	3 speeds setup
	Air pressure control
	Air flow control
Protection	Filters
	Fire/Smoke alarm
	Frost protection
	Door switch
Interface	Browser interface based on WebKit
	pGDE for advanced function and service
	thTune for end user
	3 different parameters access levels
Languages	EN, PL, RU, CZ
Unit of measure	International
	USA
	CAN
	UK
Alarms	Automatic and manual management
	Log from application
Fieldbus1	Modbus Master Line
Ethernet port	Modbus slave built-in
	Bacnet built-in
	tEra ready
	WebServer / c.field for commissioning

1.2 Accessories available

Below is a list of devices suitable for use with this product. CAREL features passive, active and serial temperature, humidity and differential pressure probes, for room or duct installation, specifically for the air handling unit appliance.

Duct temperature and humidity sensor
(Technical leaflet +050001245)

Outdoor sensors
(Technical leaflet +050001790)

NTC temperature sensors
(Manual +030220655)

PT1000 temperature sensors
(Manual +030220655)

Room air quality sensors
(Technical leaflet +050001300)

Differential air pressure sensors
(Technical leaflet +050000651)

Differential air pressure switches/flow switches
(Technical leaflets +050000645 +050000647)

Smoke and fi re sensors
(Technical leaflet +050000520)

pGDE terminal
(Technical leaflet +050001050)

pLDPRO terminal
(Technical leaflet +050001840)

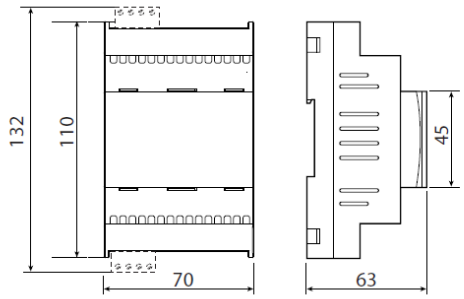
thTune terminal
(Technical leaflet +0500017IE)

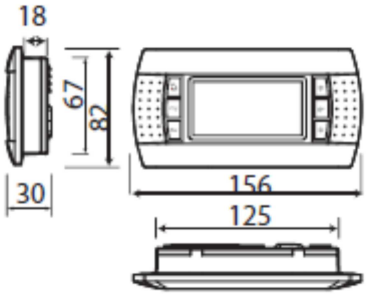
Fans VFD inverter
(Technical leaflet +050001230)

2. HARDWARE INSTALLATION

2.1 Mounting and dimensions

The controller is designed to be mounted on a DIN rail. The figure below shows the dimensions.





2.2 Installation

2.2.1 Environmental conditions

Avoid installing the controller and the terminal in places with:

- exposure to direct sunlight and to the elements in general;
- temperature and humidity outside the product's range of operation (see "Technical Specifications");
- large, rapid fluctuations in room temperature;
- strong magnetic and/or radio frequency interference (avoid installing near transmitting antennas);
- strong vibrations or knocks;
- presence of explosives or flammable gas mixtures;
- exposure to aggressive and polluting atmospheres (e.g. sulphur and ammonia vapours, salt mist, fumes) that can cause corrosion and/or oxidation;
- exposure to dust (formation of a corrosive patina with possible
- oxidation and reduced insulation);
- exposure to water.

2.2.2 Positioning the controller inside the panel

Install the controller inside an electrical panel in a position where it cannot be reached and is protected from knocks or impacts. The controller should be placed inside the panel in a position where it is physically separated from power components (solenoids, contactors, actuators, inverters, etc.) and their respective cables. The ideal solution is to house these two circuits in two separate cabinets. Proximity to such devices/cables may cause random malfunctions that are not immediately evident. The panel's casing must allow an adequate flow of cooling air.

Attention:

- For safety reasons the controller should be installed inside an electrical panel so that the only accessible parts are the display and the built-in terminal's keypad.
- Install the controller so that the disconnection devices can be used safely and without hindrance.
- When laying out the wiring, separate as much as possible the probe cables, digital input cables and serial line cables from the power cables (connected to contactors, thermomagnetic devices, etc.) avoid electromagnetic interference.
- Never run power cables and probe signal cables in the same conduits (including the ones in the electrical panels).
- For control signals, use shielded cables with twisted wires. If the control cables have to cross over power cables, the intersections should be as close as possible to 90 degrees; under no circumstances should the control cables be laid parallel to the power cables.
- Keep the paths of the probe cables as short as possible and avoid making spiral paths that enclose power devices.
- In case of malfunctions do not attempt to repair the device, but contact a CAREL service centre.

2.2.3 Electrical installation

Attention: Before servicing the equipment in any way disconnect the controller from the power mains by putting the system's main switch on OFF.

Make sure the system is provided with a power disconnector conforming to regulations. Use cable lugs that are suitable for the terminals used.
Loosen each screw and insert the cable lugs, then tighten the screws.
There is no limit to the number of wires that can be connected to each individual terminal. When tightening the terminal screws apply a tightening torque no greater than 0.6 Nm. For information on the maximum allowable length of the connections to the analogue/digital inputs and to the analogue outputs please refer to the "Technical Specifications" table. In environments subject to strong disturbance use shielded cables with the braiding bonded to the earthing conductor in the electrical panel. The terminals can accept wires with a maximum cross-section of 2.5 mm2 (12 AWG). After making the connection, gently tug on the cables to make sure they are sufficiently tight.

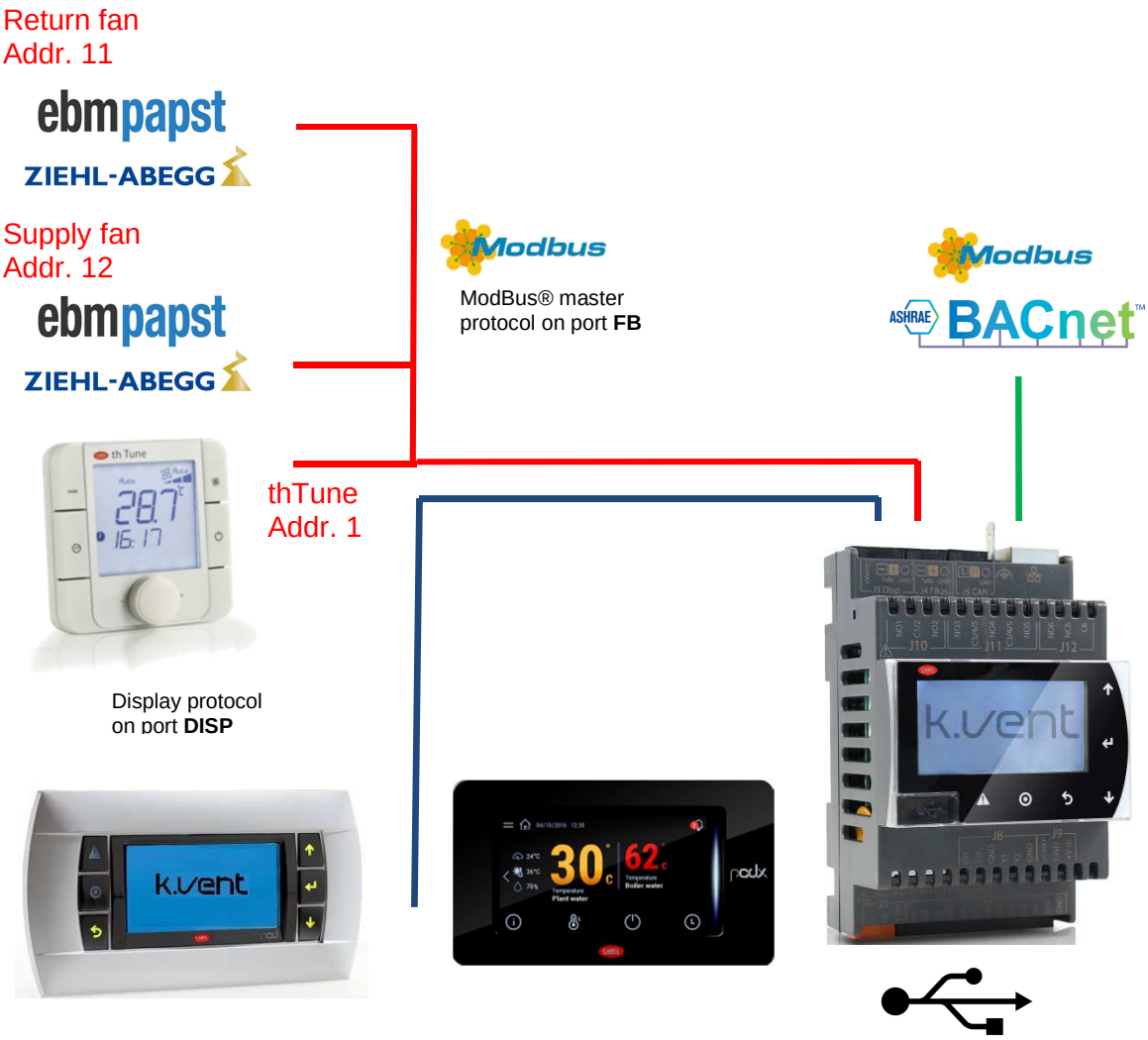
Note:

- secure the cables connected to the controller with clamps placed at 3cm from the connectors;
- if the power transformer's secondary winding is earthed, make sure the earth conductor is bonded to the conductor that goes to the controller and is connected to terminal G0. This applies to all the devices connected to the controller through a serial network.

Attention:

- Using a supply voltage other than specified can seriously damage the system.
- Installing, servicing and inspecting the controller should be done only be qualified personnel and in compliance with national and local regulations.
- All the very low voltage connections (24 Vac/Vdc or 28 to 36 Vdc
- analogue and digital inputs, analogue outputs, serial bus connections, power supplies) must have reinforced or double insulation from the power mains.
- Avoid touching or nearly touching the electronic components mounted on the boards to avoid electrostatic discharges from the
- operator to the components, which can be very damaging.
- Do not press the screwdriver on the connectors with excessive force, to avoid damaging the controller.
- Using the device in any way other than specifi ed by the Manufacturer can compromise its protection system.
- Use only optional boards and connectors supplied by CAREL.

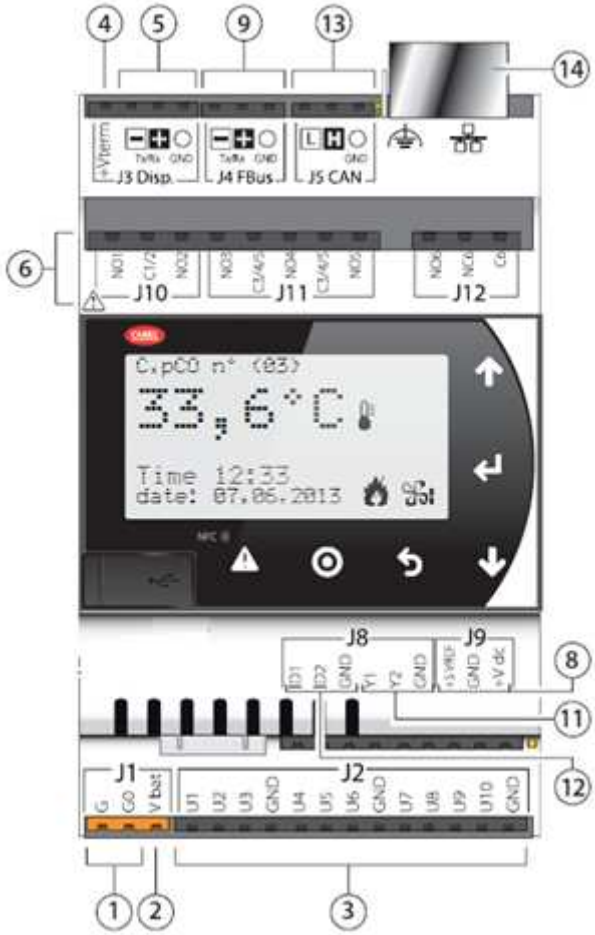
2.3 Field connection



2.4 Input/Output

	In/Out	Label	Type	kVent
Universal I/O	In	U	NTC input	10
	In	U	PT1000 input	10
	In	U	PTC input	10
	In	U	PT500 input	10
	In	U	PT100 input	5
	In	U	0 to 1 Vdc/0 to 10 Vdc input (powered by controller)	0
	In	U	0 to 1 Vdc/0 to 10 Vdc input (external power supply)	10
	In	U	0 to 20 / 4 to 20mA input (powered by controller)	2
	In	U	0 to 20 / 4 to 20mA input (powered externally)	4
	In	U	0 to 5 V input for ratiometric probe (+5Vref)	2
	In	U	Digital input w/ voltage-free contact	10
	In	U	Fast digital inputs	2
	Out	U	0 to 10 Vdc output, not opticallyisolated	5
	Out	U	PWM output, not optically-isolated	10
TOTAL UNIVERSAL				10
Digital inputs	In	DI	Voltage-free contacts	2
TOTAL DIGITAL INPUTS				2
Analog outputs	Out	Y	0 to 10 Vdc output, not opticallyisolated	2
Analog outputs	Out	Y	PWM output, not optically-isolated	2
Analog outputs	Out	Y	Output for single-pole stepper motor	1
TOTAL ANALOG OUTPUTS				2
Digital outputs	Out		NO/NC relay output	1
	Out		NO relay output	5
TOTAL DIGITAL OUTPUTS				6

2.4.1 Connections terminals



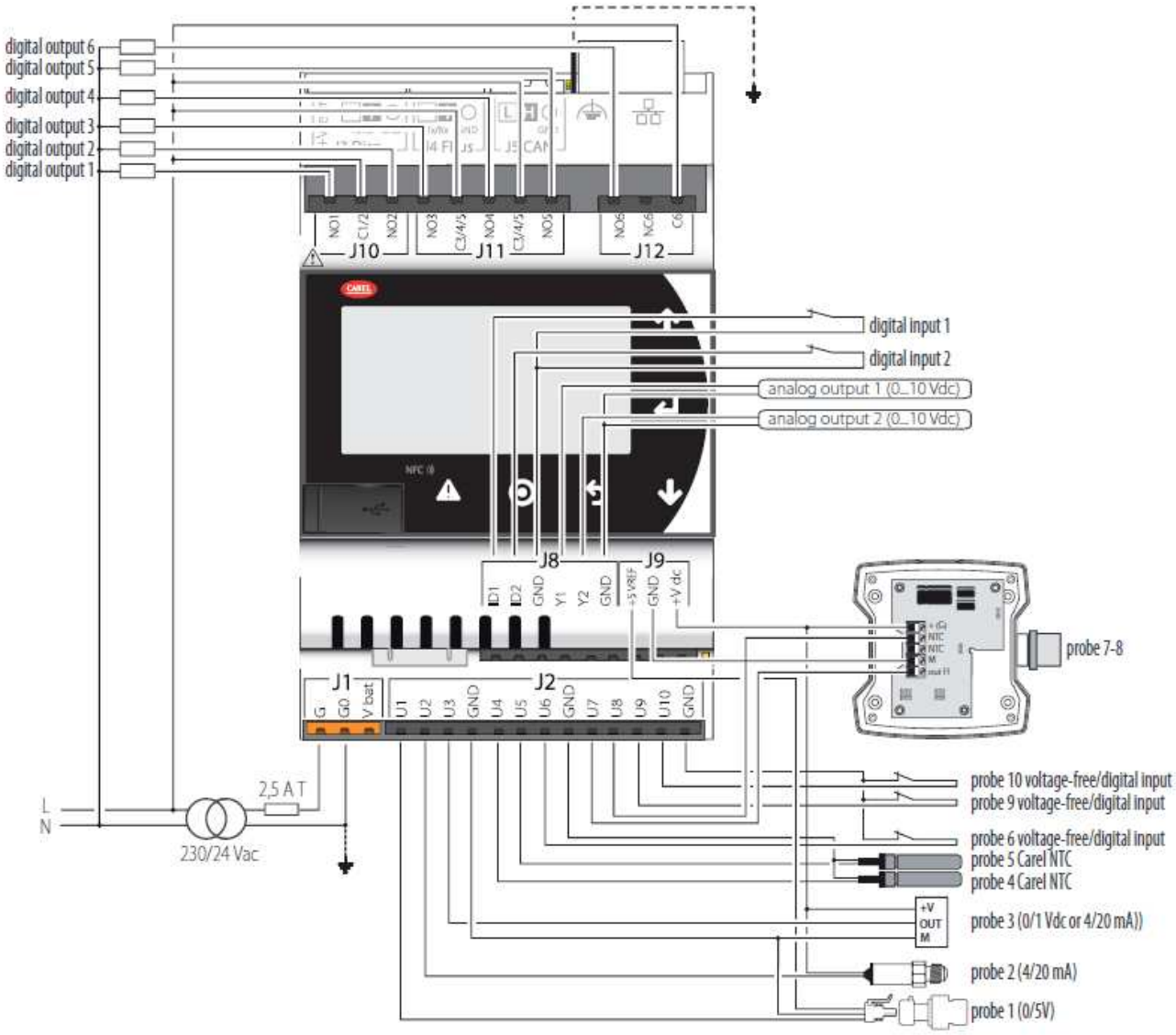
Ref.	Description
1	Power connector □G(+), G0(-)□
2	Vbat: terminal for external Ultracap module (accessory)
3	Universal inputs/outputs
4	+Vterm: terminal power supply
5	Terminal connector
6	Relay digital outputs
8	+5VREF: power supply for ratiometric probes +VDC: power supply for active probes
9	FieldBus connector
10	BMS connector
11	Analogue outputs
12	Digital inputs
13	CANbus connector
14	Ethernet port

2.4.2 thTune addressing

thTune communicates with the controller throu ModBus network, so the slave devices must have different ModBus address.
To configure ModBus address of thTune, press buttons FAN+ON/OFF for 3s, then enter password 22. Parameters are:

Acronym	Description	Value	Default
Addr	ModBus address	1	1
bAud	Baudrate	2	2

2.4.3 **Connections example**



3. SOFTWARE CONFIGURATION

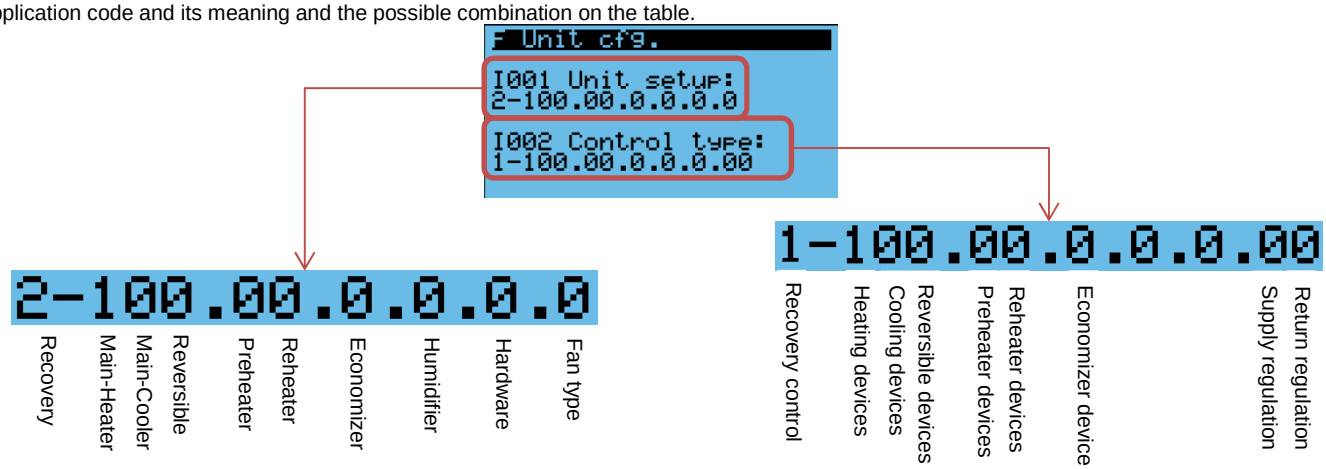
Attention: Structure of the software in class A: the thermal protection safeties for overload and high pressure must act directly on the actuators and are thus wired in series with the command for coil of the actuators contactors.

The software configuration procedure includes these steps:

1. Configure unit setup unique code in Unit config**.** menu (**I001**)
2. Configure control type unique code in Unit config. menu (**I002**)
3. Assign inputs/outputs with board to point function (menu G)
4. Set regulation and optional parameters
5. Set unit in RUN mode (**I003**)

3.1.1 Unit setup

To configure the unit is enough to setup an unique application code that determines the devices present on the unit. Here an example of application code and its meaning and the possible combination on the table.



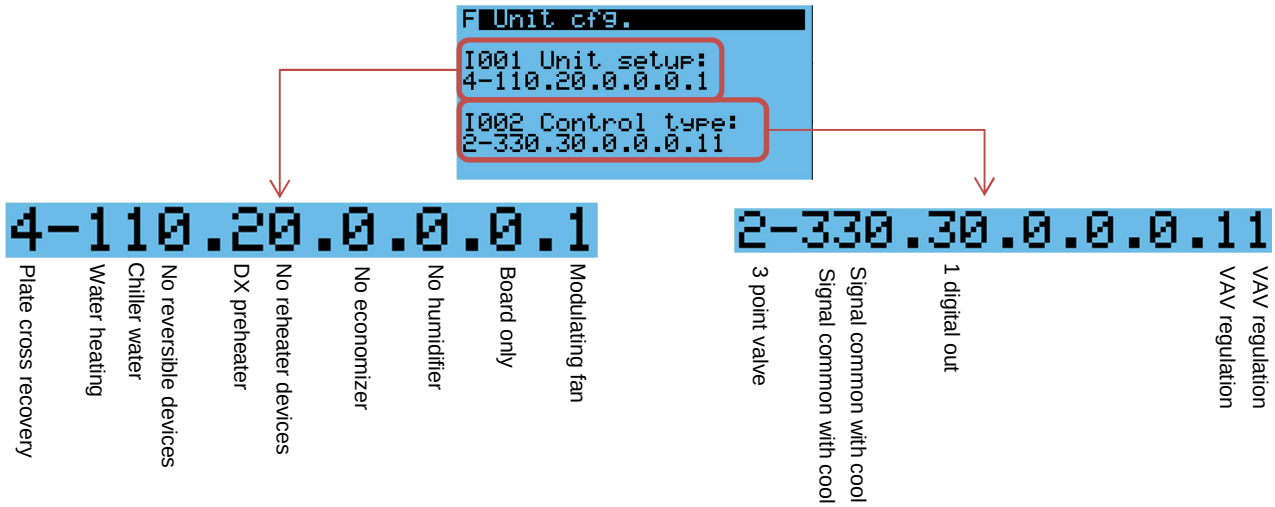
Unit setup		Control type		Mandatory I/O	Not available I/O
Recovery					
0	Supply only			Supply temperature (AI1)	Exhaust temperature (AI4), Exhaust air pressure (AI14), Exhaust air filter (DI15), Exhaust air damper (DO9), Recovery (DO10, DO36, DO37, DO23, DO24, AO6), Exhaust fan (DO15)
1	Supply + Exhaust			Supply temperature (AI1)	Exhaust temperature (AI4), Recovery (DO10, DO36, DO37, DO23, DO24, AO6)
2	Rotary wheel				
		1	0-10V valve control	Supply temperature (AI1), Exhaust temperature (AI4), Fresh temperature (AI3), Modulating recovery (AO6)	Recovery 3point valve (DO23, DO24), Recovery 2 steps (DO36, DO37)
		2	3 point valve control	Supply temperature (AI1), Exhaust temperature (AI4), Fresh temperature (AI3), Recovery 3point valve (DO23, DO24)	Recovery 2 steps (DO36, DO37), Modulating recovery (AO6)
		3	2 steps control	Supply temperature (AI1), Exhaust temperature (AI4), Fresh temperature (AI3), Recovery 2 steps (DO36, DO37)	Recovery 3point valve (DO23, DO24), Modulating recovery (AO6)
		4	ON/OFF control	Supply temperature (AI1), Exhaust temperature (AI4), Fresh temperature (AI3), Recovery ON/OFF (DO10)	Recovery 3point valve (DO23, DO24), Modulating recovery (AO6), Recovery 2 steps (DO36, DO37)
3	Glycol			Supply temperature (AI1), Exhaust temperature (AI4), Fresh temperature (AI3), Recovery ON/OFF (DO10)	Modulating recovery (AO6, DO36, DO37, DO23, DO24)
4	Plate cross				
		1	0-10V valve control	Supply temperature (AI1), Exhaust temperature (AI4), Fresh temperature (AI3), Modulating recovery (AO6)	Recovery 3point valve (DO23, DO24), Recovery 2 steps (DO36, DO37)
		2	3 point valve control	Supply temperature (AI1), Exhaust temperature (AI4), Fresh temperature (AI3), Recovery 3point valve (DO23, DO24)	Recovery 2 steps (DO36, DO37), Modulating recovery (AO6)
		3	2 steps control	Supply temperature (AI1), Exhaust temperature (AI4), Fresh temperature (AI3), Recovery 2 steps (DO36, DO37)	Recovery 3point valve (DO23, DO24), Modulating recovery (AO6)
		4	ON/OFF control	Supply temperature (AI1), Exhaust temperature (AI4), Fresh temperature (AI3), Recovery ON/OFF (DO10)	Recovery 3point valve (DO23, DO24), Modulating recovery (AO6), Recovery 2 steps (DO36, DO37)
Main-Heater					
0	None				Back water temperature (AI6), Freeze alarm (DI8), Heat alarm (DI9), Heat 1 (DO4), Heat 2 (DO6), Modulating heat (DO17, DO18, AO3, AO12)
1	Hot water				
		1	0-10V valve control	Back water temperature (AI6), Fresh temperature (AI3), Freeze alarm (DI8), Heat 1 (DO4), Modulating heat (AO3)	Heat 2 (DO6), Heat 3 point valve (DO17, DO18), Cool/Heat common (AO12)
		2	3 point valve control	Back water temperature (AI6), Fresh temperature (AI3), Freeze alarm (DI8), Heat 1 (DO4), Heat 3 point valve (DO17, DO18)	Heat 2 (DO6), Modulating heat (AO3), Cool/Heat common (AO12)
		3	0-10V valve in common with cool	Back water temperature (AI6), Fresh temperature (AI3), Freeze alarm (DI8), Heat 1 (DO4), Cool/Heat common (AO12)	Heat 2 (DO6), Modulating heat (AO3), Heat 3 point valve (DO17, DO18)

Unit setup		Control type		Mandatory I/O	Not available I/O
2	Direct expansion				
		4	1 digital output	Heat 1 (DO4)	Back water temperature (AI6), Freeze alarm (DI8), Heat 3 point valve (DO17, DO18), Heat 2 (DO6), Modulating heat (AO3), Modulating cool/heat (AO12)
		5	1 modulating	Modulating heat (AO3)	Back water temperature (AI6), Freeze alarm (DI8), Heat 3 point valve (DO17, DO18), Heat 1 (DO4), Heat 2 (DO6), Modulating cool/heat (AO12)
		6	2 digital outputs	Heat 1 (DO4), Heat 2 (DO6)	Back water temperature (AI6), Freeze alarm (DI8), Heat 3 point valve (DO17, DO18), Modulating heat (AO3), Modulating cool/heat (AO12)
		7	1 digital output + 1 modulating	Heat 1 (DO4), Modulating heat (AO3)	Back water temperature (AI6), Freeze alarm (DI8), Heat 3 point valve (DO17, DO18), Heat 2 (DO6), Modulating cool/heat (AO12)
		8	2 digital outputs + 1 modulating	Heat 1 (DO4), Heat 2 (DO6), Modulating heat (AO3)	Back water temperature (AI6), Freeze alarm (DI8), Heat 3 point valve (DO17, DO18), Modulating cool/heat (AO12)
		9	1 modulating in common with cool	Modulating cool/heat (AO12)	Back water temperature (AI6), Freeze alarm (DI8), Heat 3 point valve (DO17, DO18), Heat 1 (DO4), Heat 2 (DO6), Modulating heat (AO3)
		A	1 digital output + 1 modulating in common with cool	Heat 1 (DO4), Modulating cool/heat (AO12)	Back water temperature (AI6), Freeze alarm (DI8), Heat 3 point valve (DO17, DO18), Heat 2 (DO6), Modulating heat (AO3)
		B	2 digital outputs + 1 modulating in common with cool	Heat 1 (DO4), Heat 2 (DO6), Modulating cool/heat (AO12)	Back water temperature (AI6), Freeze alarm (DI8), Heat 3 point valve (DO17, DO18), Modulating heat (AO3)
3	Electric heater				
		4	1 digital output	Heat 1 (DO4)	Back water temperature (AI6), Freeze alarm (DI8), Heat 3 point valve (DO17, DO18), Heat 2 (DO6), Modulating heat (AO3), Modulating cool/heat (AO12)
		5	1 modulating	Modulating heat (AO3)	Back water temperature (AI6), Freeze alarm (DI8), Heat 3 point valve (DO17, DO18), Heat 1 (DO4), Heat 2 (DO6), Modulating cool/heat (AO12)
		6	2 digital outputs	Heat 1 (DO4), Heat 2 (DO6)	Back water temperature (AI6), Freeze alarm (DI8), Heat 3 point valve (DO17, DO18), Modulating heat (AO3), Modulating cool/heat (AO12)
		7	1 digital output + 1 modulating	Heat 1 (DO4), Modulating heat (AO3)	Back water temperature (AI6), Freeze alarm (DI8), Heat 3 point valve (DO17, DO18), Heat 2 (DO6), Modulating cool/heat (AO12)
		8	2 digital outputs + 1 modulating	Heat 1 (DO4), Heat 2 (DO6), Modulating heat (AO3)	Back water temperature (AI6), Freeze alarm (DI8), Heat 3 point valve (DO17, DO18), Modulating cool/heat (AO12)
		9	1 modulating in common with cool	Modulating cool/heat (AO12)	Back water temperature (AI6), Freeze alarm (DI8), Heat 3 point valve (DO17, DO18), Heat 1 (DO4), Heat 2 (DO6), Modulating heat (AO3)
		A	1 digital output + 1 modulating in common with cool	Heat 1 (DO4), Modulating cool/heat (AO12)	Back water temperature (AI6), Freeze alarm (DI8), Heat 3 point valve (DO17, DO18), Heat 2 (DO6), Modulating heat (AO3)
		B	2 digital outputs + 1 modulating in common with cool	Heat 1 (DO4), Heat 2 (DO6), Modulating cool/heat (AO12)	Back water temperature (AI6), Freeze alarm (DI8), Heat 3 point valve (DO17, DO18), Modulating heat (AO3)
4	Steam				
		1	0-10V valve control	Back water temperature (AI6), Fresh temperature (AI3), Heat 1 (DO4), Modulating heat (AO3)	Heat 2 (DO6), Heat 3 point valve (DO17, DO18), Cool/Heat common (AO12)
		3	0-10V valve in common with cool	Back water temperature (AI6), Fresh temperature (AI3), Heat 1 (DO4), Cool/Heat common (AO12)	Heat 2 (DO6), Heat 3 point valve (DO17, DO18), Modulating heat (AO3)
Main-Cooler					
0	None				Cooling alarm (DI6), Cool 1 (DO2), Cool 2 (DO3), Cool 3 point valve (DO19, DO20), Modulating cool (AO5)
1	Chilled water				
		1	0-10V valve control	Fresh temperature (AI3), Cool 1 (DO2), Modulating cool (AO5)	Cool 2 (DO3), Cool 3 point valve (DO19, DO20)
		2	3 point valve control	Fresh temperature (AI3), Cool 1 (DO2), Cool 3 point valve (DO19, DO20)	Cool 2 (DO3), Modulating cool (AO5)
		3	0-10V valve in common with heat	Fresh temperature (AI3), Cool 1 (DO2),	Cool 2 (DO3), Cool 3 point valve (DO19, DO20), Modulating cool (AO5)
2	Direct expansion				
		4	1 digital output	Fresh temperature (AI3), Cool 1 (DO2),	Cool 3 point valve (DO19, DO20), Cool 2 (DO3), Modulating cool (AO5)
		5	1 modulating	Fresh temperature (AI3), Modulating cool (AO5)	Cool 3 point valve (DO19, DO20), Cool 1 (DO2), Cool 2 (DO3)
		6	2 digital outputs	Fresh temperature (AI3), Cool 1 (DO2), Cool 2 (DO3)	Cool 3 point valve (DO19, DO20), Modulating cool (AO5)
		7	1 digital output + 1 modulating	Fresh temperature (AI3), Cool 1 (DO2), Modulating cool (AO5)	Cool 3 point valve (DO19, DO20), Cool 2 (DO3)
		8	2 digital outputs + 1 modulating	Fresh temperature (AI3), Cool 1 (DO2), Cool 2 (DO3), Modulating cool (AO5)	Cool 3 point valve (DO19, DO20),
		9	1 modulating in common with heat	Fresh temperature (AI3),	Cool 3 point valve (DO19, DO20), Cool 1 (DO2), Cool 2 (DO3), Modulating cool (AO5)
		A	1 digital output + 1 modulating in common with heat	Fresh temperature (AI3), Cool 1 (DO2),	Cool 3 point valve (DO19, DO20), Cool 2 (DO3), Modulating cool (AO5)
		B	2 digital outputs + 1 modulating in common with heat	Fresh temperature (AI3), Cool 1 (DO2), Cool 2 (DO3)	Cool 3 point valve (DO19, DO20), Modulating cool (AO5)
Reversible					
0	None				Circuit 1 (AI5, AI7, AI8, AI9, DI7, DI18, DO1), Circuit 2 (AI16, AI17, AI18, AI19, DI16, DI19, DO31), Circuit 3 (AI20, AI21, AI22, AI23, DI17, DI20, DO32), Rofftop circuit 1,2,3 (DO16, DO33, DO34), Reverse 1 (DO5), Reverse 2 (DO7), Reverse 3 point valve (DO21, DO22), Modulating reverse (AO4), Cool/Heat (DO1)
1	Hydronic				
		1	0-10V valve control	Fresh temperature (AI3), Reverse 1 (DO5), Cool/Heat (DO1), Modulating reverse (AO4)	Circuit 1 (AI5, AI7, AI8, AI9, DI7, DI18, DO1), Circuit 2 (AI16, AI17, AI18, AI19, DI16, DI19, DO31), Circuit 3 (AI20, AI21, AI22, AI23, DI17, DI20, DO32), Rofftop circuit 1,2,3 (DO16, DO33, DO34), Reverse 3 point valve (DO21, DO22)
		2	3 point valve control	Fresh temperature (AI3), Reverse 1 (DO5), Cool/Heat (DO1), Reverse 3 point valve (DO21, DO22)	Circuit 1 (AI5, AI7, AI8, AI9, DI7, DI18, DO1), Circuit 2 (AI16, AI17, AI18, AI19, DI16, DI19, DO31), Circuit 3 (AI20, AI21, AI22, AI23, DI17, DI20, DO32), Rofftop circuit 1,2,3 (DO16, DO33, DO34), Modulating reverse (AO4)
2	Direct expansion				
		3	1 digital output	Fresh temperature (AI3), Cool/Heat (DO1), Reverse 1 (DO5),	Circuit 1 (AI5, AI7, AI8, AI9, DI7, DI18, DO1), Circuit 2 (AI16, AI17, AI18, AI19, DI16, DI19, DO31), Circuit 3 (AI20, AI21, AI22, AI23, DI17, DI20, DO32), Rofftop circuit 1,2,3 (DO16, DO33, DO34), Reverse 2 (DO7), Modulating reverse (AO4)
		4	1 modulating	Fresh temperature (AI3), Cool/Heat (DO1),	Circuit 1 (AI5, AI7, AI8, AI9, DI7, DI18, DO1), Circuit 2 (AI16, AI17,

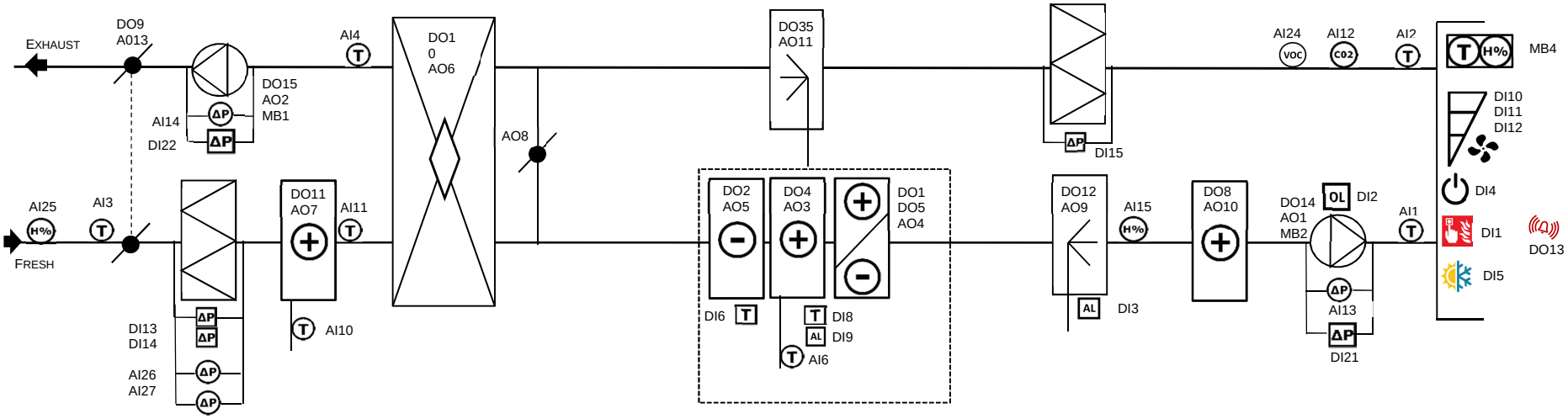
Unit setup	Control type	Mandatory I/O	Not available I/O
		Modulating reverse (AO4)	AI18, AI19, DI16, DI19, DO31), Circuit 3 (AI20, AI21, AI22, AI23, DI17, DI20, DO32), Rofftop circuit 1,2,3 (DO16, DO33, DO34), Reverse 1 (DO5), Reverse 2 (DO7),
	5 2 digital outputs	Fresh temperature (AI3), Cool/Heat (DO1), Reverse 1 (DO5), Reverse 2 (DO7),	Circuit 1 (AI5, AI7, AI8, AI9, DI7, DI18, DO1), Circuit 2 (AI16, AI17, AI18, AI19, DI16, DI19, DO31), Circuit 3 (AI20, AI21, AI22, AI23, DI17, DI20, DO32), Rofftop circuit 1,2,3 (DO16, DO33, DO34), Modulating reverse (AO4)
	6 1 digital output + 1 modulating	Fresh temperature (AI3), Cool/Heat (DO1), Reverse 1 (DO5), Modulating reverse (AO4)	Circuit 1 (AI5, AI7, AI8, AI9, DI7, DI18, DO1), Circuit 2 (AI16, AI17, AI18, AI19, DI16, DI19, DO31), Circuit 3 (AI20, AI21, AI22, AI23, DI17, DI20, DO32), Rofftop circuit 1,2,3 (DO16, DO33, DO34), Reverse 2 (DO7),
	7 2 digital outputs + 1 modulating	Fresh temperature (AI3), Cool/Heat (DO1), Reverse 1 (DO5), Reverse 2 (DO7), Modulating reverse (AO4)	Circuit 1 (AI5, AI7, AI8, AI9, DI7, DI18, DO1), Circuit 2 (AI16, AI17, AI18, AI19, DI16, DI19, DO31), Circuit 3 (AI20, AI21, AI22, AI23, DI17, DI20, DO32), Rofftop circuit 1,2,3 (DO16, DO33, DO34)
Preheater			
0 None			Preheater back water temperature (AI10), After preheater temperature (AI11), Preheater out (DO11), Modulating preheater (AO7), Preheater 3 point valve (DO27, DO28)
1 Hot water			
	1 0-10V valve control	Preheater back water temperature (AI10), After preheater temperature (AI11), Preheater out (DO11), Modulating preheater (AO7)	Preheater 3 point valve (DO27, DO28)
	2 3 point valve control	Preheater back water temperature (AI10), After preheater temperature (AI11), Preheater out (DO11), Preheater 3 point valve (DO27, DO28)	Modulating preheater (AO7)
2 Direct expansion			
	3 1 digital output	After preheater temperature (AI11), Preheater out (DO11)	Preheater back water temperature (AI10), Preheater 3 point valve (DO27, DO28), Modulating preheater (AO7)
	4 1 modulating	After preheater temperature (AI11), Modulating preheater (AO7)	Preheater back water temperature (AI10), Preheater 3 point valve (DO27, DO28), Preheater out (DO11)
	5 1 digital output + 1 modulating	After preheater temperature (AI11), Preheater out (DO11), Modulating preheater (AO7)	Preheater back water temperature (AI10), Preheater 3 point valve (DO27, DO28)
3 Electric heater			
	3 1 digital output	After preheater temperature (AI11), Preheater out (DO11)	Preheater back water temperature (AI10), Preheater 3 point valve (DO27, DO28), Modulating preheater (AO7)
	4 1 modulating	After preheater temperature (AI11), Modulating preheater (AO7)	Preheater back water temperature (AI10), Preheater 3 point valve (DO27, DO28), Preheater out (DO11)
	5 1 digital output + 1 modulating	After preheater temperature (AI11), Preheater out (DO11), Modulating preheater (AO7)	Preheater back water temperature (AI10), Preheater 3 point valve (DO27, DO28)
Reheater			
0 None			Reheater out (DO8), Modulating reheater (AO10), Reheater 3 point valve (DO29, DO30)
1 Hot water			
	1 0-10V valve control	Reheater out (DO8), Modulating reheater (AO10)	Reheater 3 point valve (DO29, DO30)
	2 3 point valve control	Reheater out (DO8), Reheater 3 point valve (DO29, DO30)	Modulating reheater (AO10)
2 Direct expansion			
	3 1 digital output	Reheater out (DO8)	Reheater 3 point valve (DO29, DO30), Modulating reheater (AO10)
	4 1 modulating	Modulating reheater (AO10)	Reheater 3 point valve (DO29, DO30), Reheater out (DO8)
	5 1 digital output + 1 modulating	Reheater out (DO8), Modulating reheater (AO10)	Reheater 3 point valve (DO29, DO30)
3 Electric heater			
	3 1 digital output	Reheater out (DO8)	Reheater 3 point valve (DO29, DO30), Modulating reheater (AO10)
	4 1 modulating	Modulating reheater (AO10)	Reheater 3 point valve (DO29, DO30), Reheater out (DO8)
	5 1 digital output + 1 modulating	Reheater out (DO8), Modulating reheater (AO10)	Reheater 3 point valve (DO29, DO30)
Economizer			
0 None			Eco 3 point valve (DO25, DO26), Modulating eco (AO8)
1 Yes			
	1 0-10V valve control	Modulating eco (AO8)	Eco 3 point valve (DO25, DO26)
	2 3 point valve control	Eco 3 point valve (DO25, DO26)	Modulating eco (AO8)
Humidifier			
0 None			Humidifier alarm (DI3), Humidifier out (DO12), Modulating humidifier (AO9), IEC out (DO35), Modulating IEC (AO11)
1 Evaporative		Supply humidity (AI15), Humidifier out (DO12), Modulating humidifier (AO9)	IEC out (DO35), Modulating IEC (AO11)
2 Steam		Supply humidity (AI15), Humidifier out (DO12), Modulating humidifier (AO9)	IEC out (DO35), Modulating IEC (AO11)
3 IEC+Evaporative		Supply humidity (AI15), Humidifier out (DO12), Modulating humidifier (AO9)	
Hardware			
0 Board only			
Fan type			
0 ON/OFF		Supply fan (DO14)	Modulating supply fan (AO1), Modulating exhaust fan (AO2)
1 0-10V signal			
	0 No regulation	Modulating supply fan (AO1), Modulating exhaust fan (AO2)	
	1 VAV	Supply air pressure (AI13), Exhaust air pressure (AI14), Modulating supply fan (AO1), Modulating exhaust fan (AO2)	
	2 CAV	Supply air pressure (AI13) , Exhaust air pressure (AI14), Modulating supply fan (AO1), Modulating exhaust fan (AO2)	
	3 Follow supply (only for return)	Modulating supply fan (AO1), Modulating exhaust fan (AO2)	
	3 Hepa filter compensation (only		

Unit setup		Control type		Mandatory I/O	Not available I/O
			for supply)		
2	EBM fan				
		0	No regulation		Modulating supply fan (AO1), Modulating exhaust fan (AO2)
		1	VAV	Supply air pressure (AI13), Exhaust air pressure (AI14)	Modulating supply fan (AO1), Modulating exhaust fan (AO2)
		2	CAV	Supply air pressure (AI13), Exhaust air pressure (AI14)	Modulating supply fan (AO1), Modulating exhaust fan (AO2)
		3	Follow supply (only for return)		Modulating supply fan (AO1), Modulating exhaust fan (AO2)
		3	Hepa filter compensation (only for supply)		
3	Ziehl Abegg fan				
		0	No regulation		Modulating supply fan (AO1), Modulating exhaust fan (AO2)
		1	VAV	Supply air pressure (AI13), Exhaust air pressure (AI14)	Modulating supply fan (AO1), Modulating exhaust fan (AO2)
		2	CAV	Supply air pressure (AI13), Exhaust air pressure (AI14)	Modulating supply fan (AO1), Modulating exhaust fan (AO2)
		3	Follow supply (only for return)		Modulating supply fan (AO1), Modulating exhaust fan (AO2)
		3	Hepa filter compensation (only for supply)		

All other I/O not described in the table above, are optional.
According to the table is possible to understand the unit setup in the following example.



3.2 Unit schema



AI	Code	Analog input
1	Ga01	Supply temperature
2	Ga06	Return temperature
3	Ga11	External temperature
4	Ga16	Exhaust temperature
6	Ga26	Back water temperature
9	Ga41	Discharge temperature
10	Ga 46	Preheater back water temp.
11	Ga51	After preheater temp.
12	Ga56	CO2 sensor
13	Ga61	Supply air pressure
14	Ga66	Exhaust air pressure
15	Ga 71	Supply humidity
24	GaB6	VOC sensor
25	GaC1	Fresh air humidity
26	GaC6	Hepa filter 1
27	GaD1	Hepa filter 2

DI	Code	Digital input
1	Gb01	Fire alarm
2	Gb03	Fan overload
3	Gb05	Humidifier alarm
4	Gb07	Remote On
5	Gb09	Summer/Winter
6	Gb11	Cooling alarm
8	Gb15	Freeze alarm
9	Gb17	Heating alarm
10	Gb19	Eco
11	Gb21	Precomfort
12	Gb23	Comfort
13	Gb25	Supply filter alarm
14	Gb27	Supply filter alarm 2
15	Gb29	Return filter alarm
21	Gb41	Supply air flow switch
22	Gb43	Return air flow switch
23	Gb45	Recovery clogged
24	Gb47	Door Switch
26	Gb51	External generic alarm

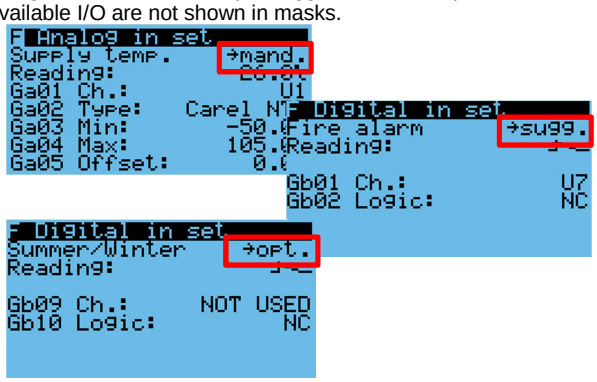
DO	Code	Digital output
1	Gc01	Cool/Heat
2	Gc03	Cooling 1
3	Gc05	Cooling 2
4	Gc07	Heating 1
5	Gc09	Reverse 1
6	Gc11	Heating 2
7	Gc13	Reverse 2
8	Gc15	Reheat
9	Gc17	Exhaust air damper
10	Gc19	Recovery
11	Gc21	Preheater
12	Gc23	Humidifier
13	Gc25	Alarm
14	Gc27	Supply fan
15	Gc29	Exhaust fan
17-18	Gc33-35	Heat Op/Cl
19-20	Gc37-39	Cool Op/Cl
21-22	Gc41-43	Cool/Heat Op/Cl
23-24	Gc45-47	Heat rec Op/Cl
25-26	Gc49-51	Mix Op/Cl
27-28	Gc53-55	Preheat Op/Cl
29-30	Gc57-59	Reheat Op/Cl
35	Gc69	IEC humidifer
36	Gc71	Recovery step 1
37	Gc73	Recovery step 2

AO	Code	Analog output
1	Gd01	Supply fan
2	Gd02	Exhaust fan
3	Gd03	Heating
4	Gd04	Reverse
5	Gd05	Cooling
6	Gd06	Heat recovery
7	Gd07	Preheater
8	Gd08	Mix
9	Gd09	Humidifier
10	Gd10	Reheater
11	Gd11	IEC
12	Gd12	Cool/Heat signal
13	Gd13	Fresh Damper
15	Gd15	Main cool req. Optional
17	Gd17	Main Heat req. Optional
19	Gd19	ReHeat req. Optional
20	Gd20	PreHeat req. Optional

MB	ModBus®
1	Exhaust fan
2	Supply fan
4	th-Tune

3.3 Board to point

kVent allows the manufacturer to setup the Inputs/Outputs (I/O) according to the application code and its needs: this function is named board to point. After Unit and control type setup, kVent recognize the mandatory, suggested and optional I/O. Not available I/O are not shown in masks.



Suggested I/O are the most common I/O, but not mandatory for regulation, while optional I/O are up to manufacturer.

When manufacturer setup the I/O according to its needs (channels, type, logic and limits), there could be an error code in configuration mask. Here below the error code meaning and the possible solutions:

Err.	pGD description	Error description
1	Reverse not allowed	Application code error: cooling device or heating device cannot be enabled with reversible device.
2	Missing mandatory AI	I/O error: a mandatory analog input is not enabled.
3	Missing mandatory DI	I/O error: a mandatory digital input is not enabled.
4	Missing mandatory DO	I/O error: a mandatory digital output is not enabled.
5	Missing mandatory AO	I/O error: a mandatory analog output is not enabled.
6	Wrong AI config.	I/O error: analog input configured in not available position.
7	Wrong DI config.	I/O error: digital input configured in not available position.
8	Wrong DO config.	I/O error: digital output configured in not available position.
9	Wrong AO config.	I/O error: analog output configured in not available position.
10	Missing c.pCOe	I/O error: c.pCOe configured in I/O, but not in unit setup.
11	Sensors mismatch	I/O error: analog input configured as not available type in that channel.
12	Double DO config.	I/O error: same digital output is used for more functions.
13	Double AO config.	I/O error: same analog output is used for more functions.

3.4 Software upgrade

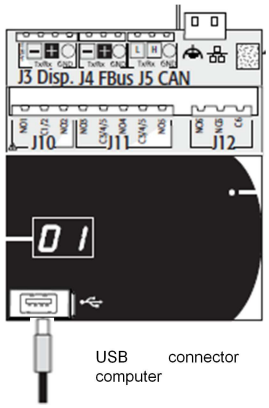
It is possible to load/update the application software of the controllers family with the following methods:

1. Update from computer by USB cable
2. Update via USB flash drive
3. Update with file transfer via FTP

Attention: only application delivered and approved by CAREL can be loaded into kVent controller.

3.4.1 Update from computer by USB cable

Connect the computer to the controller via USB cable using device USB port.

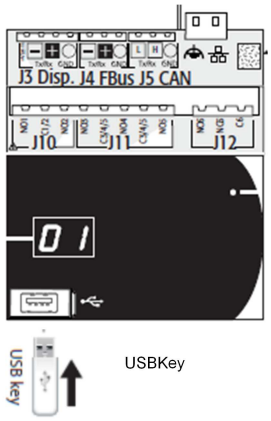


USB connector from computer

Controller will be shown as a flash memory and it's possible to load the binaries into the folder UPGRADE. When the file transfert it's done and the cable has been removed, the OS loads the application into the controller, when the cable has been disconnected, the OS install the new version.

3.4.2 Update via USB flash drive

Connect the USB flash memory to the USB host port.



USBKey

On system screen it's possible to select UPGRADE function then the application program to load into the controller, pressing ENTER button.

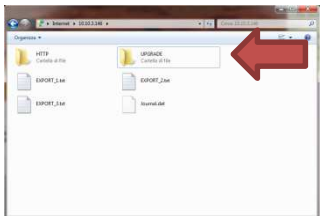
Attention: before updating the kVent controller via USB connection, check in the system menu that the Device USB port is enabled (Settings → USB Settings → PC connection)

3.4.3 Update with file transfer via FTP

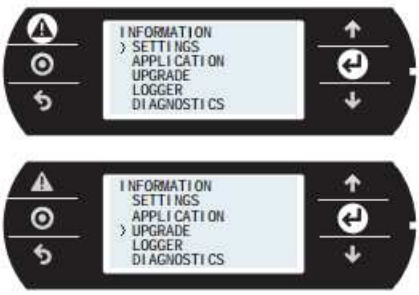
The kVent s family controllers fitted with Ehternet port include an FTP srver that provided acces to the public partition of the file system. Files and directories in this partion can be read, modified, created and deleted. FTP can also be used to transfer and .ap1 file, for example to update the image of the operating system or the application program. This is done using an FTP client, for example "FileZilla". The default username to access the file system is "anonymous". To protect the contents of the public the file system against unauthorised access, different user can be created, assigning each a different access profile, dedicated to each service and adapted to the individual directory. To update via FTP:

1. Open an FTP client. Enter the IP address of the kVent controller and the access credentials (default user "anonymous", no password)

2. Drag&drop the software update file from the directory on the computer to the “UPGRADE” directory on the kVent controller



3. Access the system menu on the kVent and select “UPGRADE”



Note: when having loaded the update file to the “UPGRADE” directory via FTP, the update procedure can also be started using the virtual terminal**.**

4. USER INTERFACE

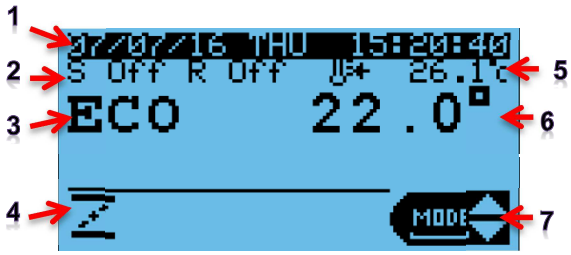
4.1 Display PGDE

The kVent service interface is the pGDE.

The terminal, which is shown in the figure above, has 6 buttons whose meanings are described below:

- *Alarm*	Display the list of active alarms Manually reset alarms
- *Prg*	Change work mode
- *Esc*	Return to the previous screen
- *Up* - *Down*	Navigate between the display screens or increase/decrease the value.
- *Enter*	Switch from parameter display to edit Confirm value and return to the parameter list

The following screen displays an example of the main screen with an active unit, highlighting the fields and icons used:



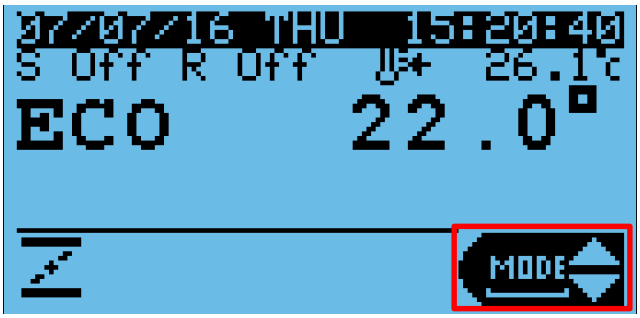
1. Date and Time
2. Fans speed
3. Operating mode
   - STOP
   - ECONOMY
   - PRECOMFORT
   - COMFORT
   - AUTO (scheduler)
4. Current unit status:

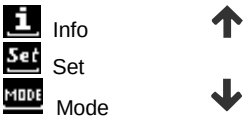
	Opening / Closing dampers
	Fans work
	Heating
	Cooling
FC FH	Freecooling Freeheating
	Humidification
	Dehumidification
	Active recovery
	Normal stop
	Emergency stop
	Active scheduler
	Recovery defrost
	Boost function active

5. Main temperature regulation
6. Setpoint
7. Indicates access to the user menu using the UP, DOWN and ENTER keys to confirm

4.1.1 User Menu

On the main screen, the UP and DOWN buttons can be used to scroll through the functions and ENTER used to select them. No password is needed to access and edit these parameters.





Info

The general synoptics for the unit can be shown from the user menu. The physical status of the inputs, device outputs and probes are available in a menu connected to the synoptics.
The individual screens of the synoptics are shown below.

Set

In this menu is possible to see the current setpoint and the working mode, defined by the scheduler. It's possible to set the setpoint of the unit and the scheduler. Setpoint is represented by one variable for each mode.

Mode

Change operating mode of the unit (stop, economy, precomfort, comfort, auto, in mask **X00a**).

4.1.2 Scheduler

On the th-Tune it is possible to set the number of enabled bands (maximum 6), for each one the starting time and the setpoint of the room temperature.
On the kVent there are 4 time bands (**Z00d**) and for each one it will be possible to set the starting time and the unit status (Off, Economy, Pre-comfort, Comfort). For each status there will be a set of values applied: main regulation setpoint, humidity setpoint (if any humidity probe is present), CO2 level or air flow setpoint (if differential pressure probe is present).
Besides the daily time band, it will be possible to set up to 3 special periods and 6 special days, for each one it will be possible to set the unit status (Off, Economy, Pre-comfort, Comfort).
The time bands of the kVent and the set of the th-Tune have the same priority. The last set that comes it will wins.
The options (**I007**) of the scheduler are:

1. No scheduler
2. Scheduler by Board
3. Scheduler by thtune

4.2 Menu description

Regardless of the displayed screen, pressing the programming key accesses the password entry screen which allows access to the main menu shown below.
The code of the mask is determined by the menu tree.

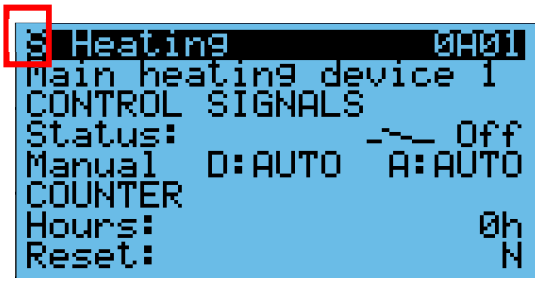
Menu description		Parameters code	
Heating		**A**	**0..999**
Cooling		**B**	**0..999**
Reversible		**C**	**0..999**
Fans		**D**	**0..999**
Recovery		**E**	**0..999**
Humidity		**F**	**0..999**
In/Out settings			
	Analog in set	**Ga**	**0..99**
	Digital in set	**Gb**	**0..99**
	Digital out set	**Gc**	**0..99**
	Analog output set	**Gd**	**0..99**
Settings		**H**	**0..999**
Unit Cfg.		**I**	**0..999**
Logout		**J**	**0..999**

4.2.1 Password Management

The program has 3 different password levels:

1. Advanced user (maintenance): read only access to all parameters. Default password: 0000.
2. Service: read access to all parameters with the ability to edit some of them (for more information on the parameters that can be changed, see the parameters table). Default password: 0001.
3. Manufacturer: read/write access to all parameters. Default password: 0002.

In the parameters screen, the access needed to edit the parameters is shown, always with the same codes. An example follows.



Once the password is entered it will be maintained for 5 minutes from the last time a key was pressed and then the password will need to be re-entered in order to access the parameters of the advanced functions. In the Log-Out menu, the password can be force entered without waiting 5 minutes.

4.3 Display th-Tune

The kVent user interface is the th-Tune, enabled in configuration mask (**I005**).

The terminal, which is shown in the figure above, has 4 buttons whose meanings are described below:

Mode	StandBy mode/Auto mode and stop the boost function when active
Clock	Enable scheduler
Clock 2s	thTune scheduler settings
Fan	Change working setpoint: 1. ECO 2. PRECOMFORT 3. COMFORT 4. STOP
On-Off	Switch ON-OFF th-Tune display Exit from settings
Clock+Mode for 3s	Run boost function
Encoder 1 press	Check setpoint
Encoder change	Change setpoint
Encoder 2 press	External temperature
Encoder 3 press	Humidity

In case of humidity or temperature setpoint change from th-Tune, the setpoint will change until the next change, by scheduler, PGDE or th-Tune.

In case of StandBy mode by thtune, the unit will be switched OFF. After a settable time from PGDE, the unit will switch ON and it will check the conditions. When the set conditions are reached again, the unit will go to standby condition and it will wait until the next check.

Note: OnOff of thTune will turn OnOff the display, there will not be any action in the unit.

4.3.1 Icons meaning

	Alarm active. Alarm code appear on the second thTune row
	Fans active
	Heating working
	Cooling working
	Defrosting heat pump
	Function locked

4.3.2 Scheduler management

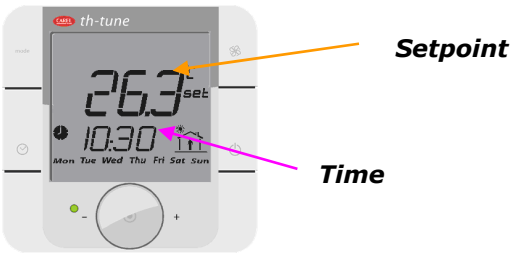
thTune allows to configure the scheduler after pushing CLOCK button for 2s. The data are stored in the thTune, so when passing from a time band (hh:mm) to another one the display is proposing as starting time the hour and minute following the previous one (hh:mm+1). The th-Tune is checking the consistency of the time bands.

After the push of “ENCODER” terminal displays “Sel days”. Rotating “ENCODER” is possible to select a group of days or a single day:

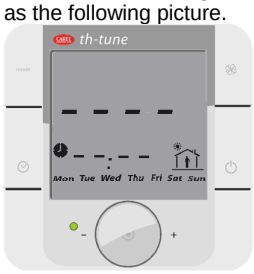
- “7 days” (mon, tue, wed, thu, fri, sat, sun)
- “5 days” (mon, tue, wed, thu, fri)
- “2 days” (sat, sun)
- “Day by day”

It’s possible to select up to 6 time bands for each day.

Parameters of a single time band selected are temperature setpoint and start time.



It's possible to disable a timeband rotating the encoder and setting "--:--" in the display, as the following picture.



To configure an OFF band from thtune, it's possible to rotate to the minimum value of setpoint to OFF, as the following picture.

4.4 User setpoint

The comfort zone of the unit can be changed by:

- Fan button of thTune
- Mode settings of pGDE (**X00a**)
- Digital input, if configured (**Gb07**)
- Any browser connected to Ethernet port of kVent
- Any master device connected to BMS port

Available comfort zones are ECO, PRECOMFORT and COMFORT.
This working mode can change the following sets if the functions are activated:

1. Supply temperature
   a. Economy (**Z001**)
   b. Precomfort (**Z002**)
   c. Comfort (**Z003**)
2. Room/Return temperature
   a. Economy (**Z004**)
   b. Precomfort (**Z005**)
   c. Comfort (**Z006**)
3. Humidity
   a. Economy (**Z007**)
   b. Precomfort (**Z008**)
   c. Comfort (**Z009**)
4. Air quality (CO2)
   a. Economy (**Z010**)
   b. Precomfort (**Z011**)
   c. Comfort (**Z012**)
5. Air quality (VOC)
   a. Economy (**Z013**)
   b. Precomfort (**Z014**)
   c. Comfort (**Z015**)
6. Supply fan speed (in percentage)
   a. Economy (**Z016**)
   b. Precomfort (**Z017**)
   c. Comfort (**Z018**)
7. Return fan speed (in percentage)
   a. Economy (**Z019**)
   b. Precomfort (**Z020**)
   c. Comfort (**Z021**)

thTune can override temperature setpoint determined by comfort zone, but setpoint will be override again by controller in case of comfort zone changing.

5. FUNCTIONS

5.1 Input functions

Here below the list of analog inputs functions:

AI	Code	Analog input	Function
1	Ga01	Supply temperature	Main temperature regulation
2	Ga06	Return temperature	Supply setpoint compensation Fire alarm activation
3	Ga11	External temperature	Recovery control and defrost FreeCooling/freeheating Cool/Heat mode changeover Antifreeze and antifrost control Fast heating function
4	Ga16	Exhaust temperature	Fire alarm in case of return probe broken
6	Ga26	Back water temperature	Antifreeze control
10	Ga 46	Preheater back water temperature	Antifreeze control
11	Ga51	After preheater temperature	Main preheating regulation Recovery defrost
12	Ga56	CO2 sensor	Fresh air regulation
13	Ga61	Supply air pressure	VAV and CAV regulation
14	Ga66	Exhaust air pressure	VAV and CAV regulation
15	Ga 71	Supply humidity	Main humidity regulation
24	GaB6	VOC sensor	Fresh air regulation
25	GaC1	Fresh air humidity	Freecoling/freeheating enabling

Here below the list of digital inputs functions:

DI	Code	Digital input	Function
1	Gb01	Fire alarm	Fire alarm activation
2	Gb03	Fan overload	Stop unit
3	Gb05	Humidifier alarm	Stop humidifier
4	Gb07	Remote On	Start/Stop the unit with timings
5	Gb09	Summer/Winter	Define working mode
6	Gb11	Cooling alarm	Stop cooling
8	Gb15	Freeze alarm	Stop ventilation Force heating valve at 100%
9	Gb17	Heating alarm	Stop unit and force ventilation ON
10	Gb19	Eco	Force unit in Economy mode
11	Gb21	Precomfort	Force unit in Precomfort mode
12	Gb23	Comfort	Force unit in Comfort mode
13	Gb25	Supply filter alarm	Warning dirty filter
14	Gb27	Supply filter alarm 2	Warning dirty filter
15	Gb29	Return filter alarm	Warning dirty filter
21	Gb41	Supply air flow switch	Check air flow and stop unit
22	Gb43	Return air flow switch	Check air flow and stop unit
23	Gb45	Recovery clogged	Recovery in defrost mode
24	Gb47	Door Switch	Door open

5.2 On request

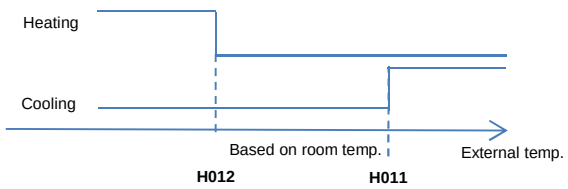
The On status requires the AND logic of:

- Unit configured by Service (**I003**)
- No serious alarm
- On by digital input
- On by the OR of the following conditions:
  - On by pGD (**X00a**)
  - On by BMS
  - On by thTune, if present
  - On by scheduler, if enabled

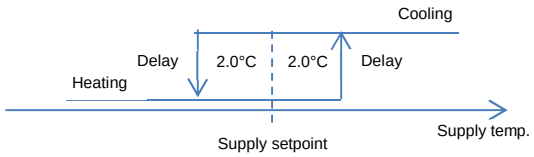
Variable mode is shared with all the control sources.
If any condition go to OFF, the unit will turn OFF.

5.3 Cooling/Heating changeover

The external and room/return temperatures are considered: if the external temperature is lower than a minimum threshold or greater than a upper threshold the heating or cooling mode can be forced:



In the middle, between the heating and cooling external temperature thresholds, or when the external temperature probe isn't available the heating or cooling mode will be decided considering the room temperature or the return temperature (if the probes are available), here below it is represented the behaviour in case of room temperature:

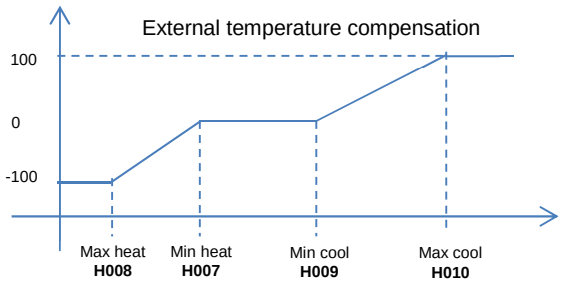


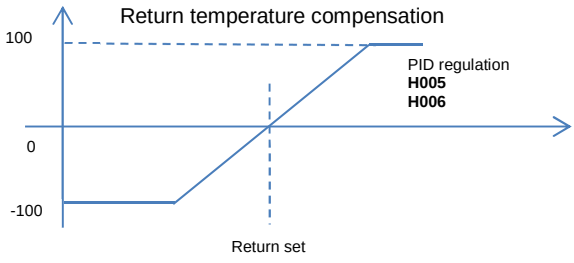
If the room temperature is greater than the setpoint, the unit starts in cooling mode and remains in cooling mode until the room temperature becomes lower than the setpoint for a settable delay (**H013**), then the heating mode is activated. In the same way, if the starting temperature is lower than the setpoint the unit starts in heating mode and remains in heating mode until the room temperature becomes greater than the setpoint for the same delay.

5.4 Temperature regulation strategy

5.4.1 Compensation

The regulation of the unit could be done according the return, supply or room set.
In case of return or room regulation, kVent provides the compensation control strategy, based on return or room and external temperature. Compensation modulate the supply setpoint between the minimum and maximum supply setpoint.

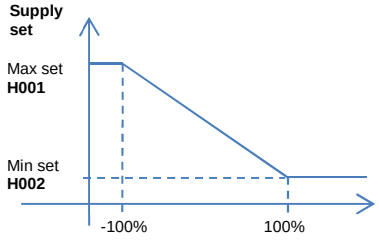




Final supply setpoint is calculated as following:

$$Compensation[\%] = External\ compensation[\%] + Return\ compensation[\%]$$

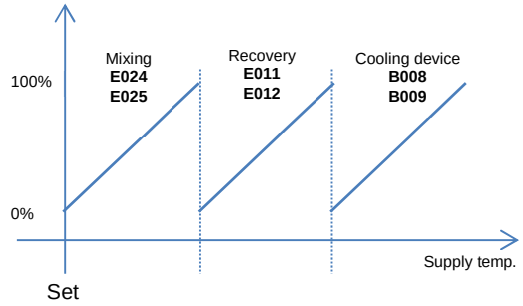
-100% is equal to maximum supply setpoint and 100% is equal to minimum supply setpoint, as in the following graph:



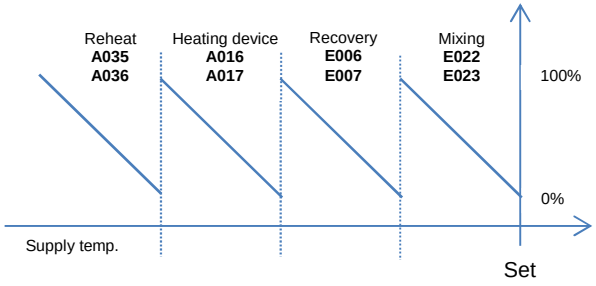
Note: To disable external temperature compensation is possible to setup minimum compensation equal to maximum compensation.

5.4.2 Supply regulation

The temperature regulation is based on supply temperature and its setpoint. If the setpoint set is the room set or return set, according to configuration parameter (**I008**), this will be converted to supply set.
To calculate the power of devices, a PID sequence is used.
The following graph show the PID sequence in case of cooling:



The following graph show the PID sequence in case of heating:



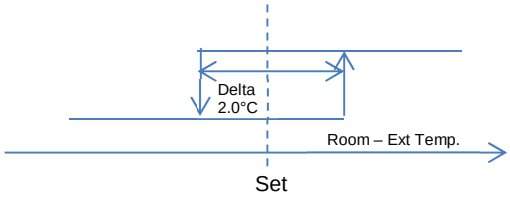
With a unique setpoint and different sets of PID parameters, the first request is calculated with a standard PID. The second request starts when the first one has reached 100%. The setpoint for the second device regulation is the same, while the PID set of parameters are different. According to the PID behaviour of the second device, the percentage of activation of the second device at the start up should be equal to ''offset'', but thanks to the incremental PID it is possible to consider only the last calculated delta so that there aren't any bumps, then the second device will start from the minimum output, then it will regulate according to PID parameters and supply temperature.

In case we have more devices and one is not available when required from the sequential PID regulation - for activation conditions not verified (i.e. recovery conditions) or active alarms - the request passes to the other one. If the first device becomes available again the device will be turned on at 100%.

5.5 Fresh air regulation

In case of unit without the mixing damper, the supply air is always coming from the outside: if the external temperature is better than the room or return temperature and the activation of freecooling/freeheating is verified (external temperature lower than the regulation temperature of a settable delta), the bypass damper opens and the heat exchanger is bypassed.

In the following picture we represent the ''freecooling'' enabling, that in case of unit without the mixing damper is the by-pass damper activation condition, considering as example the room temperature as regulation variable.
The freecooling is enabled if the external temperature is higher than the lower supply temperature threshold, while the freeheating is enabled if the external temperature is lower than the upper supply temperature threshold.



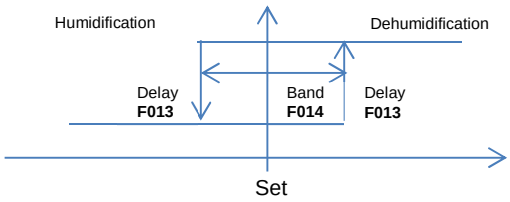
The bypass damper can be modulated to reach the desired temperature for the supply air temperature, because the freecooling can be considered as the first step of sequential PID regulation.
In case of unit with the mixing damper, the freecooling/freeheating conditions are the same, but mixing damper and external one modulate accordingly, and the logic acts on the bypass damper as in the previous case.

5.5.1 Night kick

If the unit is in standby mode, it starts at a certain hour (**H016**) in the night to check the conditions and if there is requests, the unit switch ON. When conditions are reached, the unit goes back to standby.

5.6 Humidity regulation

The regulation of the unit could be done according to return, supply or room set, according to configuration parameter (**I009**). The regulation of humidity in kVent is done by absolute humidity.
Absolute humidity setpoint is the conversion between the actual temperature setpoint (room, return or supply) and the relavtive humidity set that the user can change.
Absolute humidity is the conversion between the actual temperature and the room relative humidity.
Based on these conversions, it's possible to determine if the unit should go in humidifying or dehumidifying mode. When the humidity goes to change mode, a delay is provided to avoid fast change of humidity control.



In case of regulation on return or room temperature, the application check the supply humidity limits to avoid water of the ducts. Closer the supply humidity is to the limits, lower the humidity PID can act.
In case of regulation on supply, the humidity request goes directly to the devices.

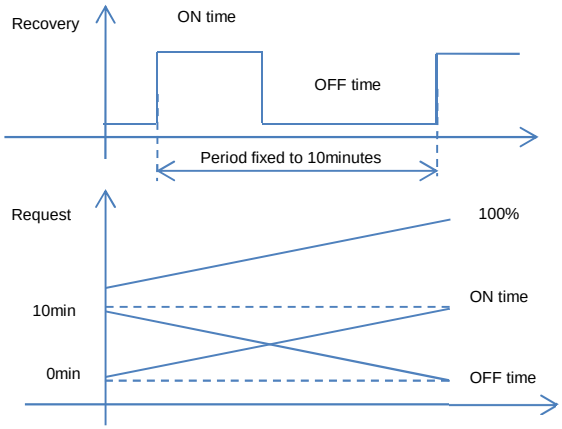
During dehumidification:
- The signal to control the cooling devices is calculate from the maximum between output temperature PID and the output humidity PID.
- The main heating devices are disabled and the reheaters works to compensate the cooling effect.
- Mixing damper is closed.

During humidification:
- Mixing damper is open 100%.

5.7 Devices activation

5.7.1 ON/OFF Recovery

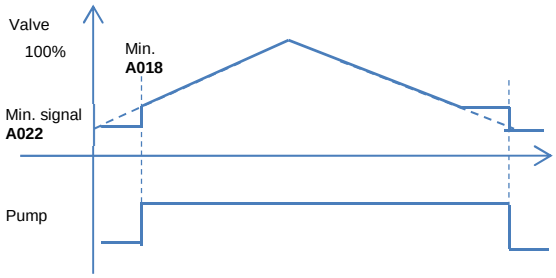
In case of ON/OFF recovery, kVent calculate modulating recovery request anyway. The digital output is activated by time, calculated by the request, with a fixed period of 10 minutes.
For example if the request is 60%, the digital output is ON for 360s and OFF for 240s, so the following graph show the working logic.



5.7.2 Hydronic circuits in heating

The PID sequence calculates a request 0-100% that is directly executed by the valves, but in case of water antifreeze prevent, the water valve opening increase, according to antifreeze setpoint. For antifreeze details check the related chapter.

Here below the regulation of water devices:



In case of external temperature below the force heating threshold (**H012**), the pump is ON all the time to measure the back water temperature and be sure that water is above the antifreeze limit (**A019**). Water valve is closed, so there isn't heating effect on the unit.

5.7.3 3 point valve or damper

In case of water circuits or modulating dampers, kVent can provide the 3 point control.
Two digital outputs are provided to open or close the valve. According to percentage request and valve opening time, the digital outputs act to follow the request. To avoid stressed regulation and too many valve actuations, a deadband is provided. If the request reaches 100%, the opening valve is kept for a while to ensure the valve is at maximum opening. Same management, but with closing valve, in case the request reaches 0%.

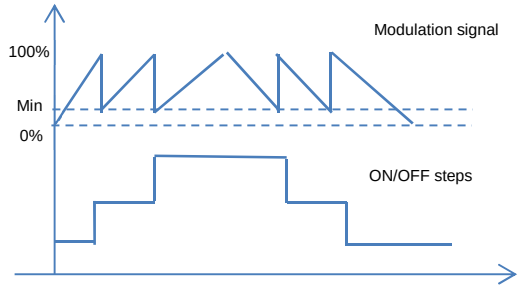
5.7.4 Heaters

Heaters could be present according application code in main, preheat and reheat sides. The PID sequence calculate a request 0-100% that is directly executed by the heaters.
Maximum heaters managed are 2 ON-OFF and 1 modulating.
kVent needs the power of each heater to divide the power in the best way.
The modulating device has the highest priority and there isn't any rotation, but in case of devices with different power, the priority of ON-OFF devices can change to satisfy in the best way the request by thermoregulation.

Here below an example with devices with the same power:
Min inverter power: 20%
Max heaters power: 33.3kW
In this case the second heater will start when the request reach the threshold calculated in the following way:

$$42.67\ (\%) = \frac{33.3 + 3.33 + \frac{20*(33.3-3.33)}{100}}{33.3 + 33.3 + 33.3} * 100\% = \frac{42.624}{99.9} * 100\%$$

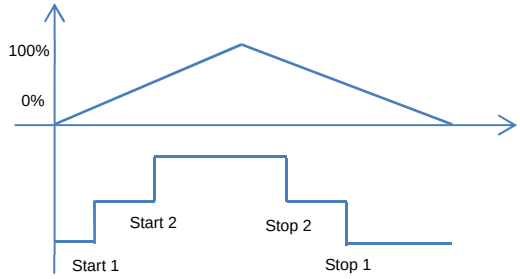
Before to start the ON-OFF device, the request must be greater than 20% of the power of the second device.
Here below the graph:



It's possible to set different power of the heaters (**A025, A026, A027**), so the ON sequence will be different to follow the request from PID loop.

5.7.5 Direct expansion (DX)

Below the description of how the direct expansions circuit works in the application. DX could be present according application code in main cool, main heat, reverse, preheat and reheat sides.
The PID sequence calculate a request 0-100% that is executed by ON-OFF devices and by a modulating device.
Each ON-OFF device has a threshold to start the device and a threshold to stop the device.
The modulating element will follow the request from PID sequence.



Between the stages activation there is a timings control, listed below:

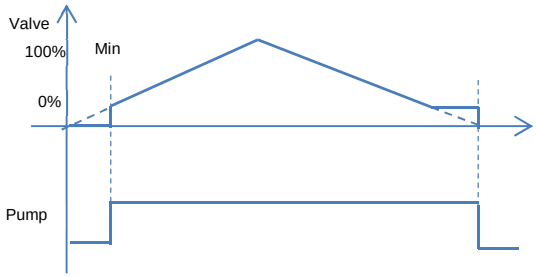
Stages activation	Start 1	Stop 1	Start 2	Stop 2
Heating	**A031**	**A032**	**A033**	**A034**
Cooling	**B015**	**B016**	**B017**	**B018**
Reverse	**C053**	**C054**	**C055**	**C056**

Timings settings	Min ON	Min OFF	Between device
Heating	**A028**	**A029**	**A0030**
Reheating	**A040**	**A041**	**A042**
Postheating	**A051**	**A052**	**A053**
Cooling	**B011**	**B012**	**B013**
Reverse	**C050**	**C051**	**C052**

In case of cooling DX, is possible to disable the cooling DX devices in ECO and PRECOMFORT modes (**B014**).

5.7.6 Steam

Steam device could be present in the main heater only.
The PID sequence calculate a request 0-100% that is directly executed by the steam actuator.
Here below the regulation of device:



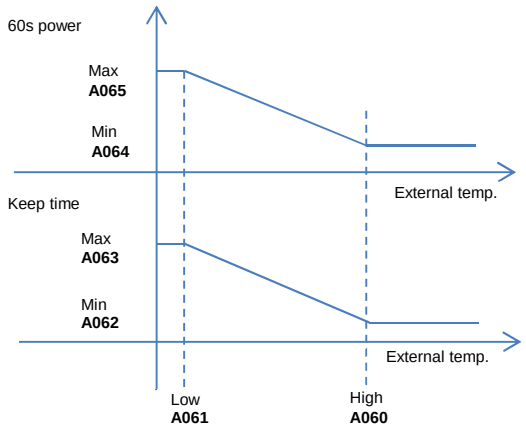
Steam device doesn't need antifreeze and frost protection.

5.8 Freeze and frost protections

5.8.1 Water antifreeze

At startup, in case of heating water coils, the start sequence is divided into the following steps:

1. The external temperature is checked.
2. If the external temperature is lower than antifreeze setpoint, the heating devices will be activated in 60s at power determined by the graph below, then the heating power will be kept for more time, as in the graph.

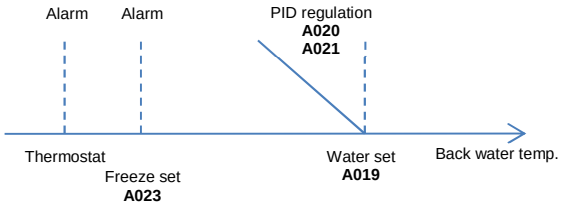


3. In case of external temperature greater than antifreeze setpoint or after the antifreeze sequence timers, the damper will open.
4. After 30s the fan can start and devices can regulate.

At any time, the back water temperature is checked. If the temperature is below the freeze threshold (**A023**), fans are stopped, the dampers are closed and the heating devices (main heating and preheating) are forced to 100%. Same management in case of frost protection by thermostat. Before the stop of unit by water freeze protection, the heating valve increase the opening even if there isn't any request by thermoregulation.

$$Valve\ opening = Thermoregulation\ request + Antifreeze\ PID\ regulation$$

Finally, the back water temperature is controlled as the graph below:

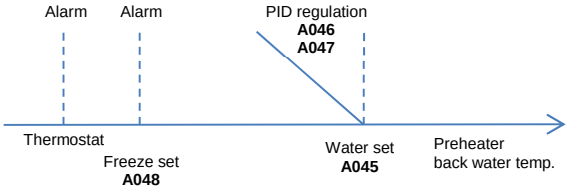


5.8.2 Preheater

The device will modulate accoding to its PID settings to keep the setpoint based on after preheater coil temperature.
Main goal of this device is prepare air for recovery and to avoid antifreeze condition for heat recovery device.

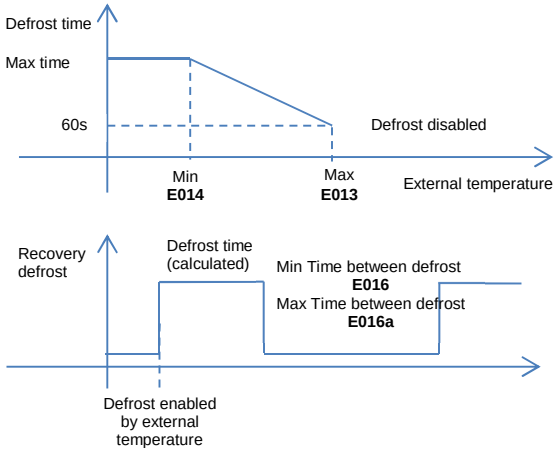
The antifreeze procedure of preheater, in case of hot water coil, is the same of main water heater.
The antifreeze request from back water temperature is added to main request.

$$Valve\ opening = Thermoregulation\ request + Antifreeze\ PID\ regulation$$



5.8.3 Recovery defrost

To prevent recovery frost condition that clogs the recovery device and decrease the efficiency of the unit, kVent provides a control on external temperature and after preheater device.
If the unit has a preheater, the after preheater temperature is considered for recovery defrost procedure, else the external temperature is considered.
kVent defrosts the recovery with timings. Less the external temperature is, more time kVent keep the recovery in defrost mode. Below the graph how it works:



5.8.4 Unit external temperature design

In case the external temperature is out of temperature design (**H020** for low limit, **H021** for high limit), the unit operates 100% with mixing damper. If the mixing damper is not present, the unit stops and damper will close.

5.9 Fans control

5.9.1 Regulation

With control type parameter (**I002**), the regulation of the fan can be done according to:

1. None (act according to percentage)
2. CAV regulation
3. VAV regulation
4. Follow supply (for exaust only)

In case of VAV regulation, the air pressure is used as input of the PID and the setpoint is in Pa.
In case of CAV regulation, the air pressure is used to calculate the air volume in m3/h.

It's possible in Setpoint loop to change the fan speed according to unit mode (Eco, PreComfort, Comfort). The value is in percentage of the setpoint of the fan in service menu.

The application is able to manage the following type of fans in ModBus®:

- Ziehl Abegg®
- Ebm papst®

When the unit is turned ON the sequence to start, can be set through the setting menu (**H022**). The two options available are “Start fans before the regulation” or “start the regulation before the fans”

“Start fans before the regulation”

1. Damper ON
2. Supply and return fans start after their own delay
3. Supply and return keep idle speed
4. Regulation

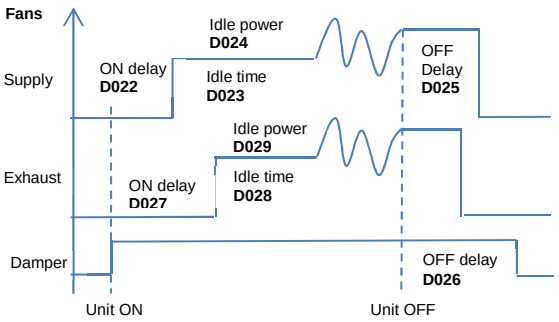
“Start the regulation before the fans”

1. Damper ON
2. Regulation
3. Supply and return fans start after their own delay
4. Supply and return keep idle speed

When the unit is turned OFF the sequence to stop is enabled:

1. Keep supply and return fans ON for their own delay
2. Close damper

The sequence is described by the graphs below:



Note: Fans will slow down to minimum speed (**D029**) in case of:

1. Recovery defrost active
2. Supply temperature below minimum threshold

5.10 Mixing chamber control

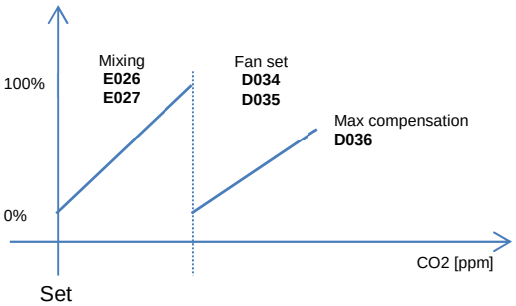
Mixing chamber saves energy in case of air quality is fine inside the room.

Acccording to CO_2 value, if present, a PID will calculate the request for the mixing chamber. If the PID is higher, then the mixing chamber will close more and more. The greater request between CO_2 request and freecooling/freeheating, will actuate the damper.

It’s possible to activate the mixing chamber at startup to reach setpoint temperature quickly. When setpoint is reached, the mixing chamber comes to regulate according to CO_2.

5.11 CO_2 Regulation

A signal is split and has a direct impact on the degree of participation of outside air and provides a correction signal to drive the VFD. VFD correction signal is limited to the MAX allowable adjustments.



5.12 Boost function

This function tourn on to a certain percentage the heating and cooling request (**A070; B021; C63**) in the unit is in the mode (confort-preconfort or economy).

From the board the function can be enable from the mode menu (**X00b**), or by TH-Tune pressing thogheter the buttons “Clock+Mode” for 3s.

The maximum Boost time is settable on the “Setting menu”, through the parameter **H023.**

5.13 Minor functions

5.13.1 Antistack procedure

In case of pumps or steam configured, kVent checks if the pumps stayed OFF for a long time. After a settable time of pump off, it has to start in any condition to avoid the risk of stack. The valve stays closed. Time is not saved in permanent memory.

5.13.2 Fire alarm

In case of fire alarm by digital input or in case of exhaust temperature > 70°C, the fire alarm procedure is activated.

All the devices are stop, but the fan can run according to service parameter.

5.13.3 Filter alarm

When the dirty filter alarm is active, it is possible to increment the fans speed of a settable percentage (**D041**).

5.13.4 NFC

kVent manages Near Field Comunication of the controller. The application publics in NFC tag the following parameters:

- Supply setpoint in ECONOMY
- Supply setpoint in PRECOMFORT
- Supply setpoint in COMFORT
- Room setpoint in ECONOMY
- Room setpoint in PRECOMFORT
- Room setpoint in COMFORT
- Working mode

With NFC app in the smartphone is possible to read those values and write them, even with controller not powered.

5.14 Import/Export parameters

This function is available from the menu F: Unit cfg.

Here below the parameters and their descriptions present on the mask:

- **I013: Imp/Exp**, is possible to set if the user want import or export the parameters from the kVent+
- **I014: Memory,** it is the parameter to chose where store or take the file, the possibility are: from internal memory or from a USB key
- **I015: Name:** is possible to set the file name to import or export the name must be write “EXPORT_XX” where XX can go from 00 to 99
- **I016:Confirm,** it is to run the import or export

6. PARAMETERS TABLE

The following tables show the parameters and values displayed by the terminal and the variables sent to supervisor.
kVent can be connected to various systems of supervision, in particular can be used the following communication protocols BMS on the Ethernet port: Modbus® and BacNet™.

The Modbus® address is the address specified in the Modbus® frame.

BMS index meaning	
IR	Input Register
HR	Holding Register
C	Coil
DI	Discrete Input

BacNet index meaning	
AV	Analog Value
IV	Integer Value
BV	Binary Value
PIV	Positive Integer Value

6.1 INFO menu in main mask

Mask code	Description	Type	Default	UoM	Range	R/W	Variable Name	BMS	BacNet
Y00a	Supply temperature probe - Probe value	Real		°C		R	SupplyTemp.ReadVal	IR18	AV18
Y00a	Temperature setpoint	Real		°C		R	TempRegSetP	IR1	AV1
Y00a	Modulating heating output - Hardware value	Real		%		R	HeatVlv.HW_Val	IR19	AV19
Y00a	Modulating reverse output - Hardware value	Real		%		R	RevOutVlv.HW_Val	IR20	AV20
Y00a	Modulating cooling output - Hardware value	Real		%		R	CoolVlv.HW_Val	IR21	AV21
Y00a	Modulating cooling/heating signal - Hardware value	Real		%		R	Modul_CoolHeat_NoRev.HW_Val	IR22	AV22
Y00a	Modulating heat recovery output - Hardware value	Real		%		R	HeatRecovery.HW_Val	IR23	AV23
Y00a	MixDampReq	Real		%		R	MixDampReq	IR24	AV24
Y00a	Modulating reheating output - Hardware value	Real		%		R	ReHeatVlv.HW_Val	IR25	AV25
Y00h	Supply air pressure probe - Probe value	Real		Pa		R	SupplyAirP.ReadVal	IR74	AV74
Y00h	Supply air flow	Real		m3h		R	SupplyAirFlow	IR75	AV75
Y00h	Modulating supply fan - Hardware value	Real		%		R	ModulSupplyFan.HW_Val	IR76	AV76
Y00h	Supply fan - Value	Bool				R	SupplyFan.Ctrl	DI5	BV172
Y00i	Exhaust air pressure probe - Probe value	Real		Pa		R	ExhAirP.ReadVal	IR77	AV77
Y00i	Return air flow	Real		m3h		R	ExhAirFlow	IR78	AV78
Y00i	Modulating return fan - Hardware value	Real		%		R	ModulExhFan.HW_Val	IR79	AV79
Y00i	Return fan - Value	Bool				R	ExhFan.Ctrl	DI6	BV176
Y00j	Supply temperature probe - Probe value	Real		°C		R	SupplyTemp.ReadVal	IR18	AV18
Y00j	Return temperature probe - Probe value	Real		°C		R	RetTemp.ReadVal	IR80	AV80
Y00j	External temperature probe - Probe value	Real		°C		R	ExtTemp.ReadVal	IR81	AV81
Y00j	Exhaust temperature probe - Probe value	Real		°C		R	ExhTemp.ReadVal	IR82	AV82
Y00j	Heating water temperature probe - Probe value	Real		°C		R	W_HeatCoilTemp.ReadVal	IR83	AV83
Y00k	Preheater water temperature probe - Probe value	Real		°C		R	W_PreHeatCoilTemp.ReadVal	IR84	AV84
Y00k	After preheating temperature probe - Probe value	Real		°C		R	AfterPreHeatCoilTemp.ReadVal	IR85	AV85
Y00k	thTune temperature value	Real		°C		R	Temp_THTN_1	IR86	AV86
Y00l	thTune humidity value	Real		%rh		R	Hum_THTN_1	IR87	AV87
Y00l	Supply humidity probe - Probe value	Real		%rh		R	SupplyHum.ReadVal	IR88	AV88
Y00l	Suction temperature probe - Probe value	Real		%rh		R	FreshAirHum.ReadVal	IR89	AV89
Y00l	Return CO2 sensor - Probe value	Real		ppm		R	RetAirCO2.ReadVal	IR90	AV90
Y00l	Return VOC sensor - Probe value	Real		%		R	RetAirVOC.ReadVal	IR91	AV91
Y00p	Digital input remote ON - Hardware value	Bool				R	RemoteOn.HW_Val	DI13	BV198
Y00p	Digital input remote ON - Input value	Bool				R	RemoteOn.ReadVal	DI14	BV199
Y00p	Digital input supply filter alarm - Hardware value	Bool				R	SupplyAlrmFilter.HW_Val	DI15	BV200
Y00p	Digital input supply filter alarm - Input value	Bool				R	SupplyAlrmFilter.ReadVal	DI16	BV201
Y00p	Digital input supply filter 2 alarm - Hardware value	Bool				R	SupplyAlrmFilter_2.HW_Val	DI17	BV202
Y00p	Digital input supply filter 2 alarm - Input value	Bool				R	SupplyAlrmFilter_2.ReadVal	DI18	BV203
Y00p	Digital input return filter alarm - Hardware value	Bool				R	ReturnAlrmFilter.HW_Val	DI19	BV204
Y00p	Digital input return filter alarm - Input value	Bool				R	ReturnAlrmFilter.ReadVal	DI20	BV205
Y00p	Digital Input door switch- Hardware value	Bool				R	Door_Switch.HW_Val	DI1435	BV1457
Y00p	Digital Input door switch-Input value	Bool				R	Door_Switch.ReadVal	DI1436	BV1458
Y00p	Digital Input recovery clogeed- Hardware value	Bool				R	Recovery_clogeed.HW_Val	DI1433	BV1455
Y00p	Digital Input recovery clogeed -Input value	Bool				R	Recovery_clogeed.ReadVal	DI1434	BV1456
Y00q	Digital input freeze alarm - Hardware value	Bool				R	FreezeHeat_Alrm.HW_Val	DI21	BV206
Y00q	Digital input freeze alarm - Input value	Bool				R	FreezeHeat_Alrm.ReadVal	DI22	BV207
Y00q	Digital input heating overload - Hardware value	Bool				R	DIN_AlHeat.HW_Val	DI23	BV208
Y00q	Digital input heating overload - Input value	Bool				R	DIN_AlHeat.ReadVal	DI24	BV209
Y00q	Digital input cooling alarm - Hardware value	Bool				R	CoolAlrm.HW_Val	DI25	BV210
Y00q	Digital input cooling alarm - Input value	Bool				R	CoolAlrm.ReadVal	DI26	BV211
Y00q	Digital input humidifier alarm - Hardware value	Bool				R	HumAlrm.HW_Val	DI27	BV212
Y00q	Digital input humidifier alarm - Input value	Bool				R	HumAlrm.ReadVal	DI28	BV213
Y00q	Digital input fire alarm - Hardware value	Bool				R	DIN_Fire.HW_Val	DI29	BV214
Y00q	Digital input fire alarm - Input value	Bool				R	DIN_Fire.ReadVal	DI30	BV215
Y00q	Digital input fan overload alarm - Hardware value	Bool				R	DIN_FanOvld.HW_Val	DI31	BV216
Y00q	Digital input fan overload alarm - Input value	Bool				R	DIN_FanOvld.ReadVal	DI32	BV217
Y00r	Digital input economy mode - Hardware value	Bool				R	DIN_Eco.HW_Val	DI33	BV218
Y00r	Digital input economy mode - Input value	Bool				R	DIN_Eco.ReadVal	DI34	BV219
Y00r	Digital input precomfort mode - Hardware value	Bool				R	DIN_PreComf.HW_Val	DI35	BV220
Y00r	Digital input precomfort mode - Input value	Bool				R	DIN_PreComf.ReadVal	DI36	BV221
Y00r	Digital input comfort mode - Hardware value	Bool				R	DIN_Comf.HW_Val	DI37	BV222

Mask code	Description	Type	Default	UoM	Range	R/W	Variable Name	BMS	BacNet
Y00r	Digital input comfort mode - Input value	Bool				R	DIN_Comf.ReadVal	DI38	BV223
Y00r	Digital input Winter/Summer - Hardware value	Bool				R	WinSum.HW_Val	DI39	BV224
Y00r	Digital input Winter/Summer - Input value	Bool				R	WinSum.ReadVal	DI40	BV225
Y00s	Exhaust air damper - Hardware value	Bool				R	ExhAirDamp.HW_Val	DI41	BV226
Y00s	Exhaust air damper - Value	Bool				R	ExhAirDamp.Ctrl	DI42	BV227
Y00s	Serious alarm - Hardware value	Bool				R	SrsAlrm.HW_Val	DI43	BV228
Y00s	Serious alarm - Value	Bool				R	SrsAlrm.Ctrl	DI44	BV229
Y00s	Heating device - Hardware value	Bool				R	Heat_1.HW_Val	DI45	BV230
Y00s	Heating device - Value	Bool				R	Heat_1.Ctrl	DI46	BV231
Y00s	Cooling device - Hardware value	Bool				R	Cool_1.HW_Val	DI47	BV232
Y00s	Cooling device - Value	Bool				R	Cool_1.Ctrl	DI48	BV233
Y00s	Supply fan - Hardware value	Bool				R	SupplyFan.HW_Val	DI49	BV234
Y00s	Supply fan - Value	Bool				R	SupplyFan.Ctrl	DI5	BV172
Y00t	Return fan - Hardware value	Bool				R	ExhFan.HW_Val	DI50	BV235
Y00t	Return fan - Value	Bool				R	ExhFan.Ctrl	DI6	BV176
Y00t	Cooling device 2nd step - Hardware value	Bool				R	Cool_2.HW_Val	DI51	BV236
Y00t	Cooling device 2nd step - Value	Bool				R	Cool_2.Ctrl	DI52	BV237
Y00t	Heating device 2nd step - Hardware value	Bool				R	Heat_2.HW_Val	DI53	BV238
Y00t	Heating device 2nd step - Value	Bool				R	Heat_2.Ctrl	DI54	BV239
Y00t	Cool/Heat device - Hardware value	Bool				R	CoolHeat.HW_Val	DI55	BV240
Y00t	Cool/Heat device - Value	Bool				R	CoolHeat.Ctrl	DI56	BV241
Y00t	Recovery device - Hardware value	Bool				R	RecoveryPump.HW_Val	DI57	BV242
Y00t	Recovery device - Value	Bool				R	RecoveryPump.Ctrl	DI58	BV243
Y00v	Humidifier device - Hardware value	Bool				R	Hum.HW_Val	DI59	BV244
Y00v	Humidifier device - Value	Bool				R	Hum.Ctrl	DI60	BV245
Y00v	Preheater - Hardware value	Bool				R	PreHeaterPump.HW_Val	DI61	BV246
Y00v	Preheater - Value	Bool				R	PreHeaterPump.Ctrl	DI62	BV247
Y00v	Reheating device - Hardware value	Bool				R	ReHeat.HW_Val	DI63	BV248
Y00v	Reheating device - Value	Bool				R	ReHeat.Ctrl	DI64	BV249
Y00v	Heating device - Hardware value	Bool				R	Heat_1.HW_Val	DI45	BV230
Y00v	Reverse device - Value	Bool				R	RevOut_1.Ctrl	DI65	BV250
Y00v	Heating device 2nd step - Hardware value	Bool				R	Heat_2.HW_Val	DI53	BV238
Y00v	Reverse device 2nd step - Value	Bool				R	RevOut_2.Ctrl	DI66	BV251
Y00x	Heating 3point valve open - Hardware value	Bool				R	HeatVlv_Op.HW_Val	DI77	BV262
Y00x	Heating 3point valve open - Value	Bool				R	HeatVlv_Op.Ctrl	DI78	BV263
Y00x	Heating 3point valve close - Hardware value	Bool				R	HeatVlv_Cl.HW_Val	DI79	BV264
Y00x	Heating 3point valve close - Value	Bool				R	HeatVlv_Cl.Ctrl	DI80	BV265
Y00x	Coolng 3point valve open - Hardware value	Bool				R	CoolVlv_Op.HW_Val	DI81	BV266
Y00x	Coolng 3point valve open - Value	Bool				R	CoolVlv_Op.Ctrl	DI82	BV267
Y00x	Cooling 3point valve close - Hardware value	Bool				R	CoolVlv_Cl.HW_Val	DI83	BV268
Y00x	Cooling 3point valve close - Value	Bool				R	CoolVlv_Cl.Ctrl	DI84	BV269
Y00y	Reverse 3point valve open - Hardware value	Bool				R	CoolHeatVlv_Op.HW_Val	DI85	BV270
Y00y	Reverse 3point valve open - Value	Bool				R	CoolHeatVlv_Op.Ctrl	DI86	BV271
Y00y	Reverse 3point valve close - Hardware value	Bool				R	CoolHeatVlv_Cl.HW_Val	DI87	BV272
Y00y	Reverse 3point valve close - Value	Bool				R	CoolHeatVlv_Cl.Ctrl	DI88	BV273
Y00y	Eco 3point valve open - Hardware value	Bool				R	MixVlv_Op.HW_Val	DI89	BV274
Y00y	Eco 3point valve open - Value	Bool				R	MixVlv_Op.Ctrl	DI90	BV275
Y00y	Eco 3point valve close - Hardware value	Bool				R	MixVlv_Cl.HW_Val	DI91	BV276
Y00y	Eco 3point valve close - Value	Bool				R	MixVlv_Cl.Ctrl	DI92	BV277
Y00z	Heat recovery 3point valve open - Hardware value	Bool				R	HeatRecVlv_Op.HW_Val	DI93	BV278
Y00z	Heat recovery 3point valve open - Value	Bool				R	HeatRecVlv_Op.Ctrl	DI94	BV279
Y00z	Heat recovery 3point valve close - Hardware value	Bool				R	HeatRecVlv_Cl.HW_Val	DI95	BV280
Y00z	Heat recovery 3point valve close - Value	Bool				R	HeatRecVlv_Cl.Ctrl	DI96	BV281
Y00z	Preheating 3point valve open - Hardware value	Bool				R	PreHeatVlv_Op.HW_Val	DI97	BV282
Y00z	Preheating 3point valve open - Value	Bool				R	PreHeatVlv_Op.Ctrl	DI98	BV283
Y00z	Preheating 3point valve close - Hardware value	Bool				R	PreHeatVlv_Cl.HW_Val	DI99	BV284
Y00z	Preheating 3point valve close - Value	Bool				R	PreHeatVlv_Cl.Ctrl	DI100	BV285
Y0a0	Reheating 3point valve open - Hardware value	Bool				R	ReHeatVlv_Op.HW_Val	DI101	BV286
Y0a0	Reheating 3point valve open - Value	Bool				R	ReHeatVlv_Op.Ctrl	DI102	BV287
Y0a0	Reheating 3point valve close - Hardware value	Bool				R	ReHeatVlv_Cl.HW_Val	DI103	BV288
Y0a0	Reheating 3point valve close - Value	Bool				R	ReHeatVlv_Cl.Ctrl	DI104	BV289
Y0a0	Recovery device - Hardware value	Bool				R	RecoveryStep1.HW_Val	DI105	BV290
Y0a0	Recovery device - Value	Bool				R	RecoveryStep1.Ctrl	DI106	BV291
Y0a0	Recovery device - Hardware value	Bool				R	RecoveryStep2.HW_Val	DI107	BV292
Y0a0	Recovery device - Value	Bool				R	RecoveryStep2.Ctrl	DI108	BV293
Y0ab	Modulating reverse output - Hardware value	Real		%		R	RevOutVlv.HW_Val	IR20	AV20
Y0ab	Modulating heating output - Hardware value	Real		%		R	HeatVlv.HW_Val	IR19	AV19
Y0ab	Modulating cooling output - Hardware value	Real		%		R	CoolVlv.HW_Val	IR21	AV21
Y0ab	Modulating heat recovery output - Hardware value	Real		%		R	HeatRecovery.HW_Val	IR23	AV23
Y0ab	Modulating humidifier output - Hardware value	Real		%		R	ModulHum.HW_Val	IR95	AV95
Y0ab	Modulating reheating output - Hardware value	Real		%		R	ReHeatVlv.HW_Val	IR25	AV25
Y0ac	Modulating supply fan - Hardware value	Real		%		R	ModulSupplyFan.HW_Val	IR76	AV76
Y0ac	Supply fan - Value	Bool				R	SupplyFan.Ctrl	DI5	BV172
Y0ac	Modulating return fan - Hardware value	Real		%		R	ModulExhFan.HW_Val	IR79	AV79
Y0ac	Return fan - Value	Bool				R	ExhFan.Ctrl	DI6	BV176
Y0ac	Modulating preheating output - Hardware value	Real		%		R	ModulPreHeat.HW_Val	IR96	AV96
Y0ac	Modulating mixing damper output - Hardware value	Real		%		R	ModulMixDamp.HW_Val	IR97	AV97
Y0ac	Modulating cooling/heating signal - Hardware value	Real		%		R	Modul_CoolHeat_NoRev.HW_Val	IR22	AV22
Y0ad	Supply fan - Value	Bool				R	SupplyFan.Ctrl	DI5	BV172

Mask code	Description	Type	Default	UoM	Range	R/W	Variable Name	BMS	BacNet
Y0ad	Modulating supply fan - Hardware value	Real		%		R	ModulSupplyFan.HW_Val	IR76	AV76
Y0ad	Ziehl Abegg supply fan - Actual speed [rpm] of the Zhiel-Abegg fan	UInt				R	MB_Devices.FanSpeedInfo_ZA_1.CurrSpeed_rpm	IR98	PIV98
Y0ad	Ziehl Abegg supply fan - Maximum set speed	UInt				R	MB_Devices.FanSpeedInfo_ZA_1.MaxSpeed_rpm	IR99	PIV99
Y0ad	Ziehl Abegg supply fan - Minimum set speed	UInt				R	MB_Devices.FanSpeedInfo_ZA_1.MinSpeed_rpm	IR100	PIV100
Y0ad	Ziehl Abegg supply fan electrical informations - DC link voltage (V)	UInt				R	MB_Devices.FanElectricalInfo_ZA_1.DC_LinkV	IR101	PIV101
Y0ad	Ziehl Abegg supply fan electrical informations - Supply voltage (peak voltage)	UInt				R	MB_Devices.FanElectricalInfo_ZA_1.LineV	IR102	PIV102
Y0ad	Ziehl Abegg supply fan electrical informations - Fan level of speed controller (0-100%)	USInt				R	MB_Devices.FanElectricalInfo_ZA_1.Modulation	IR103	PIV103
Y0ad	Ziehl Abegg supply fan electrical informations - Motor input power (W)	UInt				R	MB_Devices.FanElectricalInfo_ZA_1.MotPwr	IR104	PIV104
Y0ae	Ziehl Abegg supply fan electrical informations - Electronics temperature (°C)	Real				R	MB_Devices.FanElectricalInfo_ZA_1.ElectronicTemp	IR105	AV105
Y0ae	Ziehl Abegg supply fan electrical informations - IGBT temperature (°C)	Real				R	MB_Devices.FanElectricalInfo_ZA_1.IGBT_temp	IR106	AV106
Y0ae	Ziehl Abegg supply fan electrical informations - MCU temperature	Real				R	MB_Devices.FanElectricalInfo_ZA_1.MCU_Temp	IR107	AV107
Y0ae	Ziehl Abegg supply fan electrical informations - Motr temperature (°C)	Real				R	MB_Devices.FanElectricalInfo_ZA_1.MotTemp	IR108	AV108
Y0af	Return fan - Value	Bool				R	ExhFan.Ctrl	DI6	BV176
Y0af	Modulating return fan - Hardware value	Real		%		R	ModulExhFan.HW_Val	IR79	AV79
Y0af	Ziehl Abegg return fan speed informations - Actual speed [rpm] of the Zhiel-Abegg fan	UInt				R	MB_Devices.FanSpeedInfo_ZA_2.CurrSpeed_rpm	IR109	PIV109
Y0af	Ziehl Abegg return fan speed informations - Maximum set speed	UInt				R	MB_Devices.FanSpeedInfo_ZA_2.MaxSpeed_rpm	IR110	PIV110
Y0af	Ziehl Abegg return fan speed informations - Minimum set speed	UInt				R	MB_Devices.FanSpeedInfo_ZA_2.MinSpeed_rpm	IR111	PIV111
Y0af	Ziehl Abegg return fan electrical info - DC link voltage (V)	UInt				R	MB_Devices.FanElectricalInfo_ZA_2.DC_LinkV	IR112	PIV112
Y0af	Ziehl Abegg return fan electrical info - Supply voltage (peak voltage)	UInt				R	MB_Devices.FanElectricalInfo_ZA_2.LineV	IR113	PIV113
Y0af	Ziehl Abegg return fan electrical info - Fan level of speed controller (0-100%)	USInt				R	MB_Devices.FanElectricalInfo_ZA_2.Modulation	IR114	PIV114
Y0af	Ziehl Abegg return fan electrical info - Motor input power (W)	UInt				R	MB_Devices.FanElectricalInfo_ZA_2.MotPwr	IR115	PIV115
Y0ag	Ziehl Abegg return fan electrical info - Electronics temperature (°C)	Real				R	MB_Devices.FanElectricalInfo_ZA_2.ElectronicTemp	IR116	AV116
Y0ag	Ziehl Abegg return fan electrical info - IGBT temperature (°C)	Real				R	MB_Devices.FanElectricalInfo_ZA_2.IGBT_temp	IR117	AV117
Y0ag	Ziehl Abegg return fan electrical info - MCU temperature	Real				R	MB_Devices.FanElectricalInfo_ZA_2.MCU_Temp	IR118	AV118
Y0ag	Ziehl Abegg return fan electrical info - Motr temperature (°C)	Real				R	MB_Devices.FanElectricalInfo_ZA_2.MotTemp	IR119	AV119
Y0ah	Supply fan - Value	Bool				R	SupplyFan.Ctrl	DI5	BV172
Y0ah	Modulating supply fan - Hardware value	Real		%		R	ModulSupplyFan.HW_Val	IR76	AV76
Y0ah	EBM supply fan speed info - Current speed in [rpm] of the fan for Ebmpapst fan	UInt		rpm		R	MB_Devices.InfoSpeed_EBM_1.CurrSpeed	IR120	PIV120
Y0ah	EBM supply fan speed info - Maximum admissible speed: all read or speed in [rpm] settings are limited to this value for Ebmpapst fan	UInt		rpm		R	MB_Devices.InfoSpeed_EBM_1.MaxSpeed	IR121	PIV121
Y0ah	EBM supply fan electrical info - DC link voltage for Ebmpapst fan	UInt				R	MB_Devices.ElectrInfo_EBM_1.DC_Link_V	IR122	PIV122
Y0ah	EBM supply fan electrical info - DC link current for Ebmpapst fan	UInt				R	MB_Devices.ElectrInfo_EBM_1.DC_Link_A	IR123	PIV123
Y0ah	EBM supply fan electrical info - Current power in [W] for Ebmpapst fan	UInt		W		R	MB_Devices.ElectrInfo_EBM_1.CurrPower	IR124	PIV124
Y0ai	EBM supply fan electrical info - Internal circuit temperature for Ebmpapst fan	UInt		°C		R	MB_Devices.ElectrInfo_EBM_1.ElectrTemp	IR125	PIV125
Y0ai	Current rotation direction 0: Left; 1: Right; for Ebmpapst fan	UInt				R	MB_Devices.CurrRotDir_EBM_1	IR126	PIV126
Y0ai	EBM supply fan electrical info - Current modulation level in [%] for Ebmpapst fan	UInt		%		R	MB_Devices.ElectrInfo_EBM_1.CurrModulLev	IR127	PIV127
Y0aj	Return fan - Value	Bool				R	ExhFan.Ctrl	DI6	BV176
Y0aj	Modulating return fan - Hardware value	Real		%		R	ModulExhFan.HW_Val	IR79	AV79
Y0aj	EBM return fan speed info - Current speed in [rpm] of the fan for Ebmpapst fan	UInt		rpm		R	MB_Devices.InfoSpeed_EBM_2.CurrSpeed	IR128	PIV128
Y0aj	EBM return fan speed info - Maximum admissible speed: all read or speed in [rpm] settings are limited to this value for Ebmpapst fan	UInt		rpm		R	MB_Devices.InfoSpeed_EBM_2.MaxSpeed	IR129	PIV129
Y0aj	EBM return fan electrical info - DC link voltage for Ebmpapst fan	UInt				R	MB_Devices.ElectrInfo_EBM_2.DC_Link_V	IR130	PIV130
Y0aj	EBM return fan electrical info - DC link current for Ebmpapst fan	UInt				R	MB_Devices.ElectrInfo_EBM_2.DC_Link_A	IR131	PIV131
Y0aj	EBM return fan electrical info - Current power in [W] for Ebmpapst fan	UInt		W		R	MB_Devices.ElectrInfo_EBM_2.CurrPower	IR132	PIV132
Y0ak	EBM return fan electrical info - Internal circuit temperature for Ebmpapst fan	UInt		°C		R	MB_Devices.ElectrInfo_EBM_2.ElectrTemp	IR133	PIV133
Y0ak	Current rotation direction 0: Left; 1: Right; for Ebmpapst fan	UInt				R	MB_Devices.CurrRotDir_EBM_2	IR134	PIV134
Y0ak	EBM return fan electrical info - Current modulation level in [%] for Ebmpapst fan	UInt		%		R	MB_Devices.ElectrInfo_EBM_2.CurrModulLev	IR135	PIV135
Y0ax	Current version of the application according to standard - X version of the application	UInt				R	CurrVer.X	IR178	PIV178
Y0ax	Current version of the application according to standard - Y version of the application	UInt				R	CurrVer.Y	IR179	PIV179
Y0ax	Current version of the application according to standard - Z version of the application	UInt				R	CurrVer.Z	IR180	PIV180
Y0ax	Current version of the application according to standard - Beta version enable	Bool				R	CurrVer.IsBeta	DI223	BV494
Y0ax	Current version of the application according to standard - D version of the application	UInt				R	CurrVer.D	IR181	PIV181
Y0ax	Application version	UDInt				R	GeneralMng.OsVersion[1]	IR182	PIV182

Mask code	Description	Type	Default	UoM	Range	R/W	Variable Name	BMS	BacNet
Y0ax	Application version	UDInt				R	GeneralMng.OsVersion[2]	IR184	PIV184
Y0ax	Application version	UDInt				R	GeneralMng.OsVersion[3]	IR186	PIV186
Y0ay	Type of board (12 = c.pCO, 13 = uPC, 14 = c.pCO mini) and size (10 = Large, 11 = Medium, 12 = Small, 13 = XL, 20 = Basic, 21 = Enhanced, 22 = High End)	UDInt				R	BoardTyp[1]	IR188	PIV188
Y0ay	Type of board (12 = c.pCO, 13 = uPC, 14 = c.pCO mini) and size (10 = Large, 11 = Medium, 12 = Small, 13 = XL, 20 = Basic, 21 = Enhanced, 22 = High End)	UDInt				R	BoardTyp[2]	IR190	PIV190
Y0ay	Automatically generated	UDInt				R	MemWritingsNo	IR192	PIV192
Y0ay	Program speed in ms	UInt		ms		R	PrgCycleMs	IR194	PIV194
Y0ay	Program speed in CyclePerSecond	Real				R	CyclesPerSecond	IR195	AV195
Y0ay	PollingTime	UDInt		s		R	PollingTime	IR196	PIV196

6.2 SET menu in main mask

Mask code	Description	Type	Default	UoM	Range	R/W	Variable Name	BMS	BacNet
Z00a	Temperature setpoint	Real		°C		R	TempRegSetP	IR1	AV1
Z00a	Temperature regulation probe type	USInt	1			R	AppTempReg	IR2	PIV2
Z00a	Actual room temperature setpoint	Real		°C		R	CurrRoomTempSetP_Val	IR3	AV3
Z00a	Actual humidity setpoint	Real				R	CurrHumSetP_Val	IR4	AV4
Z00a	Current air quality setpoint	Real				R	CurrAirQualitySetP_Val	IR5	AV5
Z00a	Current air quality setpoint	Real				R	VOC_QualitySetP_Val	IR6	AV6
Z00b	Air flow current setpoint	Real		m3h		R	CurrAirFlwSetP_Val	IR7	AV7
Z00b	Current air flow setpoint	Real		m3h		R	CurrRetAirFlwSetP_Val	IR8	AV8
Z00b	VAV supply setpoint	Real		Pa		R	VAV_SupplySet	IR9	AV9
Z00b	CAV supply setpoint	Real		m3h		R	CAV_SupplySet	IR10	AV10
Z00b	Unit of measure for user interface	DInt	6			R	Uom_Msk		
Z00b	VAV return setpoint	Real		Pa		R	VAV_RetSet	IR11	AV11
Z00b	CAV return setpoint	Real		m3h		R	CAV_RetSet	IR12	AV12
Z00b	Unit of measure for user interface	DInt	6			R	Uom_Msk		
Z001	Supply temperature setpoint - Economy	Real	22.0	°C	SupplyMinSet...SupplyMaxSet	R/W	UnitSetP.SupplyTempSetP.Economy	HR1	AV1
Z002	Supply temperature setpoint - PreComfort	Real	22.0	°C	SupplyMinSet...SupplyMaxSet	R/W	UnitSetP.SupplyTempSetP.PreComfort	HR2	AV2
Z003	Supply temperature setpoint - Comfort	Real	22.0	°C	SupplyMinSet...SupplyMaxSet	R/W	UnitSetP.SupplyTempSetP.Comfort	HR3	AV3
Z004	Room temperature setpoint - Economy	Real	22.0	°C	SetMinLimit...SetMaxLimit	R/W	UnitSetP.RoomTempSetP.Economy	HR4	AV4
Z005	Room temperature setpoint - PreComfort	Real	22.0	°C	SetMinLimit...SetMaxLimit	R/W	UnitSetP.RoomTempSetP.PreComfort	HR5	AV5
Z006	Room temperature setpoint - Comfort	Real	22.0	°C	SetMinLimit...SetMaxLimit	R/W	UnitSetP.RoomTempSetP.Comfort	HR6	AV6
Z007	Humidity setpoint - Economy	Real	50.0	%rh	0.0...100.0	R/W	UnitSetP.HumSetP.Economy	HR7	AV7
Z008	Humidity setpoint - PreComfort	Real	50.0	%rh	0.0...100.0	R/W	UnitSetP.HumSetP.PreComfort	HR8	AV8
Z009	Humidity setpoint - Comfort	Real	50.0	%rh	0.0...100.0	R/W	UnitSetP.HumSetP.Comfort	HR9	AV9
Z010	CO2 air quality setpoint - Economy	Real	900.0	ppm	0.0...9999.9	R/W	UnitSetP.AirQualitySetP.Economy	HR10	AV10
Z011	CO2 air quality setpoint - PreComfort	Real	900.0	ppm	0.0...9999.9	R/W	UnitSetP.AirQualitySetP.PreComfort	HR11	AV11
Z012	CO2 air quality setpoint - Comfort	Real	900.0	ppm	0.0...9999.9	R/W	UnitSetP.AirQualitySetP.Comfort	HR12	AV12
Z013	VOC air quality setpoint - Economy	Real	70.0	%	0.0...100.0	R/W	UnitSetP.VOC_QualitySetP.Economy	HR13	AV13
Z014	VOC air quality setpoint - PreComfort	Real	60.0	%	0.0...100.0	R/W	UnitSetP.VOC_QualitySetP.PreComfort	HR14	AV14
Z015	VOC air quality setpoint - Comfort	Real	50.0	%	0.0...100.0	R/W	UnitSetP.VOC_QualitySetP.Comfort	HR15	AV15
Z016	Air flow setpoint - Economy	Real	60.0	%	MinFanPwr...100.0	R/W	UnitSetP.AirFlwSetP.Economy	HR16	AV16
Z017	Air flow setpoint - PreComfort	Real	70.0	%	MinFanPwr...100.0	R/W	UnitSetP.AirFlwSetP.PreComfort	HR17	AV17
Z018	Air flow setpoint - Comfort	Real	80.0	%	MinFanPwr...100.0	R/W	UnitSetP.AirFlwSetP.Comfort	HR18	AV18
Z019	Return air flow setpoint - Economy	Real	60.0		MinFanPwr...100.0	R/W	UnitSetP.RetAirFlwSetP.Economy	HR19	AV19
Z020	Return air flow setpoint - PreComfort	Real	60.0		MinFanPwr...100.0	R/W	UnitSetP.RetAirFlwSetP.PreComfort	HR20	AV20
Z021	Return air flow setpoint - Comfort	Real	60.0		MinFanPwr...100.0	R/W	UnitSetP.RetAirFlwSetP.Comfort	HR21	AV21
Z00c	Index of the zone	UInt	38		0...999	R/W	GeneralMng.Zone_TZ	HR22	PIV22
Z00c	Writing of new day value enabled	UInt			1...31	R/W	DayIn	HR23	PIV23
Z00c	Writing of new month value enabled	UInt			1...12	R/W	MonthIn	HR24	PIV24
Z00c	Writing of new year value enabled	UInt			0...99	R/W	YearIn	HR25	PIV25
Z00c	Day of week	UInt				R	DayOfWeek	IR13	PIV13
Z00c	Writing of new Hour value enabled	UInt			0...24	R/W	HourIn	HR26	PIV26
Z00c	Writing of new minute value enabled	UInt		min	0...59	R/W	MinuteIn	HR27	PIV27
Z00c	Writing of new seconds value enabled	UInt			0...59	R/W	SecondIn	HR28	PIV28
Z00c	Scheduler active	Bool				R	SchedActive	DI1	BV42
Z00c		Bool				R	Scheduler_OnOffUnit.Scheduler_1.DaySchedActive	DI2	BV43
Z00c		Bool				R	Scheduler_OnOffUnit.Scheduler_1.VacationActive	DI3	BV44
Z00c		Bool				R	Scheduler_OnOffUnit.Scheduler_1.SpecDayActive	DI4	BV45
Z00c	Unit status currently active	USInt				R	CurrUnitStatus	IR14	PIV14
Z00d		DInt			0...6	R/W	Scheduler_OnOffUnit.Scheduler_1.Day	HR29	IV29
Z00d		DInt			0...7	R/W	Scheduler_OnOffUnit.Scheduler_1.CopyTo_Day	HR31	IV31
Z00d		USInt			0...1	R/W	Scheduler_OnOffUnit.Scheduler_1.EnDayCopy	HR33	PIV33
Z00d	Daily event enabled	Bool			0...1	R/W	Scheduler_OnOffUnit.Scheduler	C1	BV50

Mask code	Description	Type	Default	UoM	Range	R/W	Variable Name	BMS	BacNet
							_1.Event_Msk[0].Enabled		
Z00d	Starting time of the daily event (hour)	USInt			0...23	R/W	Scheduler_OnOffUnit.Scheduler_1.Event_Msk[0].Hours	HR34	PIV34
Z00d	Starting time of the daily event (minute)	USInt			0...59	R/W	Scheduler_OnOffUnit.Scheduler_1.Event_Msk[0].Mins	HR35	PIV35
Z00d	Unit status of the daily event (0=OFF; 1=ECONOMY; 2=PRE-COMFORT; 3=COMFORT)	USInt			0...3	R/W	Scheduler_OnOffUnit.Scheduler_1.Event_Msk[0].UnitStatus	HR36	PIV36
Z00d	Daily event enabled	Bool			0...1	R/W	Scheduler_OnOffUnit.Scheduler_1.Event_Msk[1].Enabled	C2	BV54
Z00d	Starting time of the daily event (hour)	USInt			0...23	R/W	Scheduler_OnOffUnit.Scheduler_1.Event_Msk[1].Hours	HR37	PIV37
Z00d	Starting time of the daily event (minute)	USInt			0...59	R/W	Scheduler_OnOffUnit.Scheduler_1.Event_Msk[1].Mins	HR38	PIV38
Z00d	Unit status of the daily event (0=OFF; 1=ECONOMY; 2=PRE-COMFORT; 3=COMFORT)	USInt			0...3	R/W	Scheduler_OnOffUnit.Scheduler_1.Event_Msk[1].UnitStatus	HR39	PIV39
Z00d	Daily event enabled	Bool			0...1	R/W	Scheduler_OnOffUnit.Scheduler_1.Event_Msk[2].Enabled	C3	BV58
Z00d	Starting time of the daily event (hour)	USInt			0...23	R/W	Scheduler_OnOffUnit.Scheduler_1.Event_Msk[2].Hours	HR40	PIV40
Z00d	Starting time of the daily event (minute)	USInt			0...59	R/W	Scheduler_OnOffUnit.Scheduler_1.Event_Msk[2].Mins	HR41	PIV41
Z00d	Unit status of the daily event (0=OFF; 1=ECONOMY; 2=PRE-COMFORT; 3=COMFORT)	USInt			0...3	R/W	Scheduler_OnOffUnit.Scheduler_1.Event_Msk[2].UnitStatus	HR42	PIV42
Z00d	Daily event enabled	Bool			0...1	R/W	Scheduler_OnOffUnit.Scheduler_1.Event_Msk[3].Enabled	C4	BV62
Z00d	Starting time of the daily event (hour)	USInt			0...23	R/W	Scheduler_OnOffUnit.Scheduler_1.Event_Msk[3].Hours	HR43	PIV43
Z00d	Starting time of the daily event (minute)	USInt			0...59	R/W	Scheduler_OnOffUnit.Scheduler_1.Event_Msk[3].Mins	HR44	PIV44
Z00d	Unit status of the daily event (0=OFF; 1=ECONOMY; 2=PRE-COMFORT; 3=COMFORT)	USInt			0...3	R/W	Scheduler_OnOffUnit.Scheduler_1.Event_Msk[3].UnitStatus	HR45	PIV45
Z00d	Messages to be displayed for daily events	USInt				R	Scheduler_OnOffUnit.Scheduler_1.DaysSchedMsg	IR15	PIV15
Z00d		USInt			0...1	R/W	Scheduler_OnOffUnit.Scheduler_1.SaveData	HR46	PIV46
Z00e	Holiday period enabled	Bool	FALSE		0...1	R/W	Scheduler_OnOffUnit.Scheduler_1.VacationsSched[0].Enabled	C5	BV68
Z00e	First day of period	USInt	1		1...31	R/W	Scheduler_OnOffUnit.Scheduler_1.VacationsSched[0].StartDay	HR47	PIV47
Z00e	First month of period	USInt	1		1...12	R/W	Scheduler_OnOffUnit.Scheduler_1.VacationsSched[0].StartMonth	HR48	PIV48
Z00e	Last day of period	USInt	2		1...31	R/W	Scheduler_OnOffUnit.Scheduler_1.VacationsSched[0].EndDay	HR49	PIV49
Z00e	Last month of period	USInt	1		1...12	R/W	Scheduler_OnOffUnit.Scheduler_1.VacationsSched[0].EndMonth	HR50	PIV50
Z00e	Unit status of the holiday period (0=OFF; 1=ECONOMY; 2=PRE-COMFORT; 3=COMFORT)	USInt	0		0...3	R/W	Scheduler_OnOffUnit.Scheduler_1.VacationsSched[0].UnitStatus	HR51	PIV51
Z00e	Holiday period enabled	Bool	FALSE		0...1	R/W	Scheduler_OnOffUnit.Scheduler_1.VacationsSched[1].Enabled	C6	BV74
Z00e	First day of period	USInt	1		1...31	R/W	Scheduler_OnOffUnit.Scheduler_1.VacationsSched[1].StartDay	HR52	PIV52
Z00e	First month of period	USInt	1		1...12	R/W	Scheduler_OnOffUnit.Scheduler_1.VacationsSched[1].StartMonth	HR53	PIV53
Z00e	Last day of period	USInt	2		1...31	R/W	Scheduler_OnOffUnit.Scheduler_1.VacationsSched[1].EndDay	HR54	PIV54
Z00e	Last month of period	USInt	1		1...12	R/W	Scheduler_OnOffUnit.Scheduler_1.VacationsSched[1].EndMonth	HR55	PIV55
Z00e	Unit status of the holiday period (0=OFF; 1=ECONOMY; 2=PRE-COMFORT; 3=COMFORT)	USInt	0		0...3	R/W	Scheduler_OnOffUnit.Scheduler_1.VacationsSched[1].UnitStatus	HR56	PIV56
Z00e	Holiday period enabled	Bool	FALSE		0...1	R/W	Scheduler_OnOffUnit.Scheduler_1.VacationsSched[2].Enabled	C7	BV80
Z00e	First day of period	USInt	1		1...31	R/W	Scheduler_OnOffUnit.Scheduler_1.VacationsSched[2].StartDay	HR57	PIV57
Z00e	First month of period	USInt	1		1...12	R/W	Scheduler_OnOffUnit.Scheduler_1.VacationsSched[2].StartMonth	HR58	PIV58
Z00e	Last day of period	USInt	2		1...31	R/W	Scheduler_OnOffUnit.Scheduler_1.VacationsSched[2].EndDay	HR59	PIV59
Z00e	Last month of period	USInt	1		1...12	R/W	Scheduler_OnOffUnit.Scheduler_1.VacationsSched[2].EndMonth	HR60	PIV60
Z00e	Unit status of the holiday period (0=OFF; 1=ECONOMY; 2=PRE-COMFORT; 3=COMFORT)	USInt	0		0...3	R/W	Scheduler_OnOffUnit.Scheduler_1.VacationsSched[2].UnitStatus	HR61	PIV61
Z00e	Messages to be displayed for vacation periods	USInt				R	Scheduler_OnOffUnit.Scheduler_1.VacationsMsg	IR16	PIV16
Z00f	Special day enabled	Bool	FALSE		0...1	R/W	Scheduler_OnOffUnit.Scheduler_1.SpecDaysSched[0].Enabled	C8	BV87
Z00f	Special day	USInt	1		1...31	R/W	Scheduler_OnOffUnit.Scheduler_1.SpecDaysSched[0].SpecialDay	HR62	PIV62
Z00f	Special month	USInt	1		1...12	R/W	Scheduler_OnOffUnit.Scheduler_1.SpecDaysSched[0].SpecialMonth	HR63	PIV63
Z00f	Unit status of the special day (0=OFF; 1=ECONOMY; 2=PRE-COMFORT; 3=COMFORT; 4=AUTO)	USInt	0		0...4	R/W	Scheduler_OnOffUnit.Scheduler_1.SpecDaysSched[0].UnitStatus	HR64	PIV64
Z00f	Special day enabled	Bool	FALSE		0...1	R/W	Scheduler_OnOffUnit.Scheduler_1.SpecDaysSched[1].Enabled	C9	BV91
Z00f	Special day	USInt	1		1...31	R/W	Scheduler_OnOffUnit.Scheduler_1.SpecDaysSched[1].SpecialDay	HR65	PIV65

Mask code	Description	Type	Default	UoM	Range	R/W	Variable Name	BMS	BacNet
Z00f	Special month	USInt	1		1...12	R/W	Scheduler_OnOffUnit.Scheduler_1.SpecDaysSched[1].SpecialMonth	HR66	PIV66
Z00f	Unit status of the special day (0=OFF; 1=ECONOMY; 2=PRE-COMFORT; 3=COMFORT; 4=AUTO)	USInt	0		0...4	R/W	Scheduler_OnOffUnit.Scheduler_1.SpecDaysSched[1].UnitStatus	HR67	PIV67
Z00f	Special day enabled	Bool	FALSE		0...1	R/W	Scheduler_OnOffUnit.Scheduler_1.SpecDaysSched[2].Enabled	C10	BV95
Z00f	Special day	USInt	1		1...31	R/W	Scheduler_OnOffUnit.Scheduler_1.SpecDaysSched[2].SpecialDay	HR68	PIV68
Z00f	Special month	USInt	1		1...12	R/W	Scheduler_OnOffUnit.Scheduler_1.SpecDaysSched[2].SpecialMonth	HR69	PIV69
Z00f	Unit status of the special day (0=OFF; 1=ECONOMY; 2=PRE-COMFORT; 3=COMFORT; 4=AUTO)	USInt	0		0...4	R/W	Scheduler_OnOffUnit.Scheduler_1.SpecDaysSched[2].UnitStatus	HR70	PIV70
Z00f	Special day enabled	Bool	FALSE		0...1	R/W	Scheduler_OnOffUnit.Scheduler_1.SpecDaysSched[3].Enabled	C11	BV99
Z00f	Special day	USInt	1		1...31	R/W	Scheduler_OnOffUnit.Scheduler_1.SpecDaysSched[3].SpecialDay	HR71	PIV71
Z00f	Special month	USInt	1		1...12	R/W	Scheduler_OnOffUnit.Scheduler_1.SpecDaysSched[3].SpecialMonth	HR72	PIV72
Z00f	Unit status of the special day (0=OFF; 1=ECONOMY; 2=PRE-COMFORT; 3=COMFORT; 4=AUTO)	USInt	0		0...4	R/W	Scheduler_OnOffUnit.Scheduler_1.SpecDaysSched[3].UnitStatus	HR73	PIV73
Z00f	Special day enabled	Bool	FALSE		0...1	R/W	Scheduler_OnOffUnit.Scheduler_1.SpecDaysSched[4].Enabled	C12	BV103
Z00f	Special day	USInt	1		1...31	R/W	Scheduler_OnOffUnit.Scheduler_1.SpecDaysSched[4].SpecialDay	HR74	PIV74
Z00f	Special month	USInt	1		1...12	R/W	Scheduler_OnOffUnit.Scheduler_1.SpecDaysSched[4].SpecialMonth	HR75	PIV75
Z00f	Unit status of the special day (0=OFF; 1=ECONOMY; 2=PRE-COMFORT; 3=COMFORT; 4=AUTO)	USInt	0		0...4	R/W	Scheduler_OnOffUnit.Scheduler_1.SpecDaysSched[4].UnitStatus	HR76	PIV76
Z00f	Special day enabled	Bool	FALSE		0...1	R/W	Scheduler_OnOffUnit.Scheduler_1.SpecDaysSched[5].Enabled	C13	BV107
Z00f	Special day	USInt	1		1...31	R/W	Scheduler_OnOffUnit.Scheduler_1.SpecDaysSched[5].SpecialDay	HR77	PIV77
Z00f	Special month	USInt	1		1...12	R/W	Scheduler_OnOffUnit.Scheduler_1.SpecDaysSched[5].SpecialMonth	HR78	PIV78
Z00f	Unit status of the special day (0=OFF; 1=ECONOMY; 2=PRE-COMFORT; 3=COMFORT; 4=AUTO)	USInt	0		0...4	R/W	Scheduler_OnOffUnit.Scheduler_1.SpecDaysSched[5].UnitStatus	HR79	PIV79
Z00f	Messages to be displayed for special days	USInt				R	Scheduler_OnOffUnit.Scheduler_1.SpecDaysMsg	IR17	PIV17
Z021	Language	DInt	0		0...4	R/W	LangChange	HR80	IV80

6.3 MODE menu in main mask

Mask code	Description	Type	Defaut	UoM	Range	R/W	Variable Name	BMS	BacNet
X00a	Current mode	USInt	0		0...MaxSetTyp	R/W	SetTyp	HR82	PIV82
X00a	Machine status	USInt				R	OnOffStatus	IR198	PIV198
X00b	Boost function enable	Bool	FALSE			R/W	En_Boost_Function_Msk	C344	BV1433

6.4 HEATING menu in main menu

Mask code	Description	Type	Default	UoM	Range	R/W	Variable Name	BMS	BacNet
-	Heating device - Hardware value	Bool				R	Heat_1.HW_Val	DI45	BV230
-	Heating device - Value	Bool				R	Heat_1.Ctrl	DI46	BV231
-	Hours counter heating device	UDInt				R	HC_Heat_1.Hrs	IR225	PIV225
A001	Hours counter heating device	UDInt	0		0...999999	R/W	HC_Heat_1.MaintThrsh	HR169	PIV169
A002	Hours counter heating device	Bool			0...1	R/W	HC_Heat_1.Res	C24	BV622
A003	Heating device - Manual value	USInt			0...2	R/W	Heat_1.Man	HR171	PIV171
A004	Modulating heating output - Manual mode analog output	USInt			0...101	R/W	HeatVlv.Man	HR172	PIV172
-	Heating device 2nd step - Hardware value	Bool				R	Heat_2.HW_Val	DI53	BV238
-	Heating device 2nd step - Value	Bool				R	Heat_2.Ctrl	DI54	BV239
-	Hours counter heating 2nd step	UDInt				R	HC_Heat_2.Hrs	IR227	PIV227
A005	Hours counter heating 2nd step	UDInt	0		0...999999	R/W	HC_Heat_2.MaintThrsh	HR173	PIV173
A006	Hours counter heating 2nd step	Bool			0...1	R/W	HC_Heat_2.Res	C25	BV627
A007	Heating device 2nd step - Manual value	USInt			0...2	R/W	Heat_2.Man	HR175	PIV175
-	Preheater - Hardware value	Bool				R	PreHeaterPump.HW_Val	DI61	BV246
-	Preheater - Value	Bool				R	PreHeaterPump.Ctrl	DI62	BV247
-	Hours counter preheating	UDInt				R	HC_PreHeat.Hrs	IR229	PIV229
A008	Hours counter preheating	UDInt	0		0...999999	R/W	HC_PreHeat.MaintThrsh	HR176	PIV176
A009	Hours counter preheating	Bool			0...1	R/W	HC_PreHeat.Res	C26	BV631
A010	Preheater - Manual value	USInt			0...2	R/W	PreHeaterPump.Man	HR178	PIV178
A011	Modulating preheating output - Manual mode	USInt			0...101	R/W	ModulPreHeat.Man	HR179	PIV179

	analog output								
-	Reheating device - Hardware value	Bool				R	ReHeat.HW_Val	DI63	BV248
-	Reheating device - Value	Bool				R	ReHeat.Ctrl	DI64	BV249
-	Hours counter reheating	UDInt				R	HC_ReHeat.Hrs	IR231	PIV231
A012	Hours counter reheating	UDInt	0		0...999999	R/W	HC_ReHeat.MaintThrsh	HR180	PIV180
A013	Hours counter reheating	Bool			0...1	R/W	HC_ReHeat.Res	C27	BV636
A014	Reheating device - Manual value	USInt			0...2	R/W	ReHeat.Man	HR182	PIV182
A015	Modulating reheating output - Manual mode analog output	USInt			0...101	R/W	ReHeatVlv.Man	HR183	PIV183
-	Heating request	Real				R	Heating_PID_Seq[4]	IR233	AV233
A016	PID Heating regulation - Proportional gain	Real	5.0		0.0...999.9	R/W	DevCfg_PID_Seq_Heat[4].Kp	HR184	AV184
A017	PID Heating regulation - Integral time	UInt	120		0...65535	R/W	DevCfg_PID_Seq_Heat[4].Ti	HR185	PIV185
A018	Minimum heating requst	Real	2.0	%	-999.9...999.9	R/W	MainHeatMin	HR186	AV186
A019	Hot water setpoint	Real	40.0	°C	-999.9...999.9	R/W	HW_Set	HR187	AV187
A020	Heating water valve PID - Proportional (Kp)	Real	5.0		0.0...999.9	R/W	PID_HeatHW.Kp	HR188	AV188
A021	Heating water valve PID - Integral (Ti)	UInt	300	s	0...65535	R/W	PID_HeatHW.Ti	HR189	PIV189
A022	Minimum heating request	Real	20.0	%	0.0...100.0	R/W	MainHW_MinPID	HR190	AV190
A023	Water heater antifreeze threshold	Real	10.0	°C	-999.9...999.9	R/W	W_HeatFreezeSet	HR191	AV191
A024	Minimum cooling request	UDInt	300	s	10...9999	R/W	HeatVlvOpenTime	HR192	PIV192
A025	Electical heaters power	Real	33.0		0.0...999.9	R/W	HE_Pwr[0]	HR194	AV194
A026	Electical heaters power	Real	33.0		0.0...999.9	R/W	HE_Pwr[1]	HR195	AV195
A027	Electical heaters power	Real	33.0		0.0...999.9	R/W	HE_Pwr[2]	HR196	AV196
A028	Time minimum ON heating device	UInt	60	s	0...65535	R/W	HeatMinOnT	HR197	PIV197
A029	Time minimum OFF heating device	UInt	180	s	0...65535	R/W	HeatMinOffT	HR198	PIV198
A030	Time minimum ON ON heater device	UInt	360	s	0...65535	R/W	HeatMinOnOnSameT	HR199	PIV199
A031	Threshold to switch ON 1st heating device	Real	45.0	%	0.0...100.0	R/W	ThrshOnHeat_1	HR200	AV200
A032	Threshold to switch OFF 1st heating device	Real	0.0	%	-999.9...999.9	R/W	ThrshOffHeat_1	HR201	AV201
A033	Threshold to switch ON 2nd heating device	Real	90.0	%	0.0...100.0	R/W	ThrshOnHeat_2	HR202	AV202
A034	Threshold to switch OFF 2nd heating device	Real	45.0	%	-999.9...999.9	R/W	ThrshOffHeat_2	HR203	AV203
-	Heating request	Real				R	Heating_PID_Seq[6]	IR234	AV234
A035	PID Heating regulation - Proportional gain	Real	5.0		-999.9...999.9	R/W	DevCfg_PID_Seq_Heat[6].Kp	HR204	AV204
A036	PID Heating regulation - Integral time	UInt	120		0...65535	R/W	DevCfg_PID_Seq_Heat[6].Ti	HR205	PIV205
A037	Minimum reheater request	Real	2.0	%	0.0...100.0	R/W	ReHeatMin	HR206	AV206
A038	ReHeater power	Real	50.0		-999.9...999.9	R/W	ReHeatHE_Pwr[0]	HR207	AV207
A039	ReHeater power	Real	50.0		-999.9...999.9	R/W	ReHeatHE_Pwr[1]	HR208	AV208
A040	Time minimum ON reheater device	UInt	60	s	0...65535	R/W	ReHeatMinOnT	HR209	PIV209
A041	Time minimum OFF reheater device	UInt	180	s	0...65535	R/W	ReHeatMinOffT	HR210	PIV210
A042	Time minimum ON ON reheater device	UInt	60	s	0...65535	R/W	ReHeatMinOnOnSameT	HR211	PIV211
A043	Minimum reheater hot water valve	Real	20.0	%	0.0...100.0	R/W	ReHW_MinPID	HR212	AV212
A044	Minimum cooling request	UDInt	300	s	10...9999	R/W	ReHeatVlvOpenTime	HR213	PIV213
-	Preheater request	Real		%		R	AfterPreHeatReq	IR235	AV235
A045	Preheating coil PID - Setpoint	Real	5.0	°C	-999.9...999.9	R/W	PID_PreHeatCoil.SetP	HR215	AV215
A046	Preheating coil PID - Proportional (Kp)	Real	5.0		-999.9...999.9	R/W	PID_PreHeatCoil.Kp	HR216	AV216
A047	Preheating coil PID - Integral (Ti)	UInt	300	s	0...65535	R/W	PID_PreHeatCoil.Ti	HR217	PIV217
A048	Minimum preheater request	Real	2.0		0.0...999.9	R/W	PreHeatMin	HR218	AV218
A049	Preheater power	Real	50.0		-999.9...999.9	R/W	PreHeatHE_Pwr[0]	HR219	AV219
A050	Preheater power	Real	50.0		-999.9...999.9	R/W	PreHeatHE_Pwr[1]	HR220	AV220
A051	Time minimum ON preheater device	UInt	60	s	0...65535	R/W	PreHeatMinOnT	HR221	PIV221
A052	Time minimum OFF preheater device	UInt	180	s	0...65535	R/W	PreHeatMinOffT	HR222	PIV222
A053	Time minimum ON ON preheater device	UInt	360	s	0...65535	R/W	PreheatMinOnOnSameT	HR223	PIV223
-	Preheater antifreeze request	Real		%		R	PreW_AfreezeReq	IR236	AV236
A054	Preheater setpoint	Real	40.0	°C	-999.9...999.9	R/W	PreHeatSet	HR224	AV224
A055	Preheater PID - Proportional (Kp)	Real	5.0		-999.9...999.9	R/W	PID_PreHeatHW.Kp	HR225	AV225
A056	Preheater PID - Integral (Ti)	UInt	300	s	0...65535	R/W	PID_PreHeatHW.Ti	HR226	PIV226
A057	Minimum preheater hot water valve	Real	20.0	%	0.0...100.0	R/W	PreHW_MinPID	HR227	AV227
A058	Preheater antifreeze threshold	Real	20.0	°C	-999.9...999.9	R/W	W_PreHeatFreezeSet	HR228	AV228
A059	Minimum cooling request	UDInt	300	s	10...9999	R/W	PreHeatVlvOpenTime	HR229	PIV229
A060	Antifreeze procedure minimum external temperature	Real	0.0	°C	-999.9...999.9	R/W	AFreezeExtMinTemp	HR231	AV231
A061	Antifreeze procedure maximum external temperature	Real	6.0	°C	-999.9...999.9	R/W	AFreezeExtMaxTemp	HR232	AV232
A062	Antifreeze procedure minimum time	UInt	10	s	0...65535	R/W	AFreezeHeatMinT	HR233	PIV233
A063	Antifreeze procedure max time	UInt	180	s	0...65535	R/W	AFreezeHeatMaxT	HR234	PIV234
A064	Antifreeze procedure minimum opening	Real	20.0	%	-999.9...999.9	R/W	AfreezeHeatMin	HR235	AV235
A065	Antifreeze procedure maximum opening	Real	80.0	%	-999.9...999.9	R/W	AfreezeHeatMax	HR236	AV236
A066	On time pump in off mode	Int	180	min	0...9999	R/W	OnT_Pmp_inOff	HR237	IV237
A067	Off time pump in off mode	Int	180	min	0...9999	R/W	OffT_Pmp_inOff	HR238	IV238
A068	Low supply temperature threshold	Real	10.0	°C	-999.9...999.9	R/W	LowSupplyTempThrsh	HR239	AV239
A069	Low supply temperature alarm delay time at unit in run mode	UInt	300	s	0...65535	R/W	LowTempAlrmDT_Run	HR240	PIV240
A070	Boost function setpoint in heating	Real	50.0	%	0.0…100.0	R/W	MainHeatMin_Boost	HR1074	AV1447

6.5 COOLING menu in main menu

Mask code	Description	Type	Default	UoM	Range	R/W	Variable Name	BMS	BacNet
-	Cooling device - Hardware value	Bool				R	Cool_1.HW_Val	DI47	BV232
-	Cooling device - Value	Bool				R	Cool_1.Ctrl	DI48	BV233
-	Hours counter cooling	UDInt				R	HC_Cool_1.Hrs	IR215	PIV215
B001	Hours counter cooling	UDInt	0		0...999999	R/W	HC_Cool_1.MaintThrsh	HR107	PIV107

B002	Hours counter cooling	Bool			0...1	R/W	HC_Cool_1.Res	C20	BV555
B003	Cooling device - Manual value	USInt			0...2	R/W	Cool_1.Man	HR109	PIV109
B004	Modulating cooling output - Manual mode analog output	USInt			0...101	R/W	CoolVlv.Man	HR110	PIV110
-	Cooling device 2nd step - Hardware value	Bool				R	Cool_2.HW_Val	DI51	BV236
-	Cooling device 2nd step - Value	Bool				R	Cool_2.Ctrl	DI52	BV237
-	Hours counter cooling 2nd step	UDInt				R	HC_Cool_2.Hrs	IR217	PIV217
B005	Hours counter cooling 2nd step	UDInt	0		0...999999	R/W	HC_Cool_2.MaintThrsh	HR111	PIV111
B006	Hours counter cooling 2nd step	Bool			0...1	R/W	HC_Cool_2.Res	C21	BV560
B007	Cooling device 2nd step - Manual value	USInt			0...2	R/W	Cool_2.Man	HR113	PIV113
-	Cooling request	Real				R	Cooling_PID_Seq[4]	IR219	AV219
B008	PID Cooling regulation - Proportional gain	Real	5.0		-999.9...999.9	R/W	DevCfg_PID_Seq_Cool[4].Kp	HR114	AV114
B009	PID Cooling regulation - Integral time	UInt			0...65535	R/W	DevCfg_PID_Seq_Cool[4].Ti	HR115	PIV115
B010	Minimum cooling request	Real	2.0	%	0.0...100.0	R/W	MainCoolMin	HR116	AV116
B011	Time minimum ON ccooling device	UInt	60	s	0...65535	R/W	CoolMinOnT	HR117	PIV117
B012	Time minimum OFF cooling device	UInt	120	s	0...65535	R/W	CoolMinOffT	HR118	PIV118
B013	Time minimum ON ON cooling device	UInt	300	s	0...65535	R/W	CoolMinOnOnSameT	HR119	PIV119
B014	Block cooling in mode	USInt	0		0...2	R/W	CoolDX_ResTyp	HR120	PIV120
B015	Threshold to switch ON 1st cooling device	Real	50.0	%	0.0...100.0	R/W	ThrshOnCool_1	HR121	AV121
B016	Threshold to switch OFF 1st cooling device	Real	0.0	%	-999.9...999.9	R/W	ThrshOffCool_1	HR122	AV122
B017	Threshold to switch ON 2nd cooling device	Real	90.0	%	0.0...100.0	R/W	ThrshOnCool_2	HR123	AV123
B018	Threshold to switch OFF 2nd cooling device	Real	45.0	%	-999.9...999.9	R/W	ThrshOffCool_2	HR124	AV124
B019	Minimum cooling water coil	Real	20.0	%	0.0...100.0	R/W	MainCW_MinPID	HR125	AV125
B020	Minimum cooling request	UDInt	300	s	10...9999	R/W	CoolVlvOpenTime	HR126	PIV126
B021	Boost function setpoint in Cooling	Real	50.0	%	0.0…100.0	R/W	MainCoolMin_Boost	HR1073	AV1448

6.6 COOL/HEAT menu in main menu

Mask code	Description	Type	Default	UoM	Range	R/W	Variable Name	BMS	BacNet
-	Reverse device - Hardware value	Bool				R	RevOut_1.HW_Val	DI228	BV805
-	Reverse device - Value	Bool				R	RevOut_1.Ctrl	DI65	BV250
-	Hours counter reverse step	UDInt				R	HC_Rev_1.Hrs	IR264	PIV264
C001	Hours counter reverse step	UDInt	0		0...999999	R/W	HC_Rev_1.MaintThrsh	HR322	PIV322
C002	Hours counter reverse step	Bool			0...1	R/W	HC_Rev_1.Res	C37	BV808
C003	Reverse device - Manual value	USInt			0...2	R/W	RevOut_1.Man	HR324	PIV324
C004	Modulating reverse output - Manual mode analog output	USInt			0...101	R/W	RevOutVlv.Man	HR325	PIV325
-	Reverse device 2nd step - Hardware value	Bool				R	RevOut_2.HW_Val	DI229	BV811
-	Reverse device 2nd step - Value	Bool				R	RevOut_2.Ctrl	DI66	BV251
-	Hours counter reverse 2nd step	UDInt				R	HC_Rev_2.Hrs	IR266	PIV266
C005	Hours counter reverse 2nd step	UDInt	0		0...999999	R/W	HC_Rev_2.MaintThrsh	HR326	PIV326
C006	Hours counter reverse 2nd step	Bool			0...1	R/W	HC_Rev_2.Res	C38	BV814
C007	Reverse device 2nd step - Manual value	USInt			0...2	R/W	RevOut_2.Man	HR328	PIV328
-	Cool/Heat device - Hardware value	Bool				R	CoolHeat.HW_Val	DI55	BV240
-	Cool/Heat device - Value	Bool				R	CoolHeat.Ctrl	DI56	BV241
C038	Cool/Heat device - Manual value	USInt			0...2	R/W	CoolHeat.Man	HR359	PIV359
-	Heating request	Real				R	Heating_PID_Seq[5]	IR286	AV286
C039	PID Heating regulation - Proportional gain	Real	5.0		0.0...999.9	R/W	DevCfg_PID_Seq_Heat[5].Kp	HR360	AV360
C040	PID Heating regulation - Integral time	UInt	120		0...65535	R/W	DevCfg_PID_Seq_Heat[5].Ti	HR361	PIV361
C041	Minimum reverse request	Real	0.0	%	-999.9...999.9	R/W	MainRevMin	HR362	AV362
-	Cooling request	Real				R	Cooling_PID_Seq[5]	IR287	AV287
C042	PID Cooling regulation - Proportional gain	Real	5.0		0.0...999.9	R/W	DevCfg_PID_Seq_Cool[5].Kp	HR363	AV363
C043	PID Cooling regulation - Integral time	UInt	120		0...65535	R/W	DevCfg_PID_Seq_Cool[5].Ti	HR364	PIV364
-	Reverse antifreeze request	Real		%		R	RevW_AfreezeReq	IR288	AV288
C044	Hot water setpoint	Real	40.0	°C	-999.9...999.9	R/W	HW_Set	HR187	AV187
C045	Heating water valve PID - Proportional (Kp)	Real	5.0		0.0...999.9	R/W	PID_HeatHW.Kp	HR188	AV188
C046	Heating water valve PID - Integral (Ti)	UInt	300	s	0...65535	R/W	PID_HeatHW.Ti	HR189	PIV189
C047	Minimum heating request	Real	20.0	%	0.0...100.0	R/W	MainHW_MinPID	HR190	AV190
C048	Water heater antifreeze threshold	Real	10.0	°C	-999.9...999.9	R/W	W_HeatFreezeSet	HR191	AV191
C049	Minimum cooling request	UDInt	300	s	10...9999	R/W	CoolHeatVlvOpenTime	HR365	PIV365
C050	Time minimum ON reverse device	UInt	60	s	0...65535	R/W	RevMinOnT	HR367	PIV367
C051	Time minimum OFF reverse device	UInt	180	s	0...65535	R/W	RevMinOffT	HR368	PIV368
C052	Time minimum ON ON reverse device	UInt	300	s	0...65535	R/W	RevMinOnOnSameT	HR369	PIV369
C053	Threshold to switch ON 1st reverse device	Real	40.0	%	0.0...100.0	R/W	ThrshOnRev_1	HR370	AV370
C054	Threshold to switch OFF 1st reverse device	Real	0.0	%	-999.9...999.9	R/W	ThrshOffRev_1	HR371	AV371
C055	Threshold to switch ON 2nd reverse device	Real	90.0	%	0.0...100.0	R/W	ThrshOnRev_2	HR372	AV372
C056	Threshold to switch OFF 2nd reverse device	Real	60.0	%	-999.9...999.9	R/W	ThrshOffRev_2	HR373	AV373
C057	Antifreeze procedure minimum external temperature	Real	0.0	°C	-999.9...999.9	R/W	AFreezeExtMinTemp	HR231	AV231
C058	Antifreeze procedure maximum external temperature	Real	6.0	°C	-999.9...999.9	R/W	AFreezeExtMaxTemp	HR232	AV232
C059	Antifreeze procedure minimum time	UInt	10	s	0...65535	R/W	AFreezeHeatMinT	HR233	PIV233
C060	Antifreeze procedure max time	UInt	180	s	0...65535	R/W	AFreezeHeatMaxT	HR234	PIV234
C061	Antifreeze procedure minimum opening	Real	20.0	%	-999.9...999.9	R/W	AfreezeHeatMin	HR235	AV235
C062	Antifreeze procedure maximum opening	Real	80.0	%	-999.9...999.9	R/W	AfreezeHeatMax	HR236	AV236
C063	Boost function setpoint in heating	Real	50.0	%	0.0…100.0	R/W	MainHeatMin_Boost	HR1074	AV1447
C064	Boost function setpoint in Cooling	Real	50.0	%	0.0…100.0	R/W	MainCoolMin_Boost	HR1073	AV1448

6.7 FANS menu in main menu

Mask code	Description	Type	Default	UoM	Range	R/W	Variable Name	BMS	BacNet
-	Supply fan - Hardware value	Bool				R	SupplyFan.HW_Val	DI49	BV234
-	Supply fan - Value	Bool				R	SupplyFan.Ctrl	DI5	BV172
-	Hours counter supply fan	UDInt				R	HC_SupplyFan_1.Hrs	IR220	PIV220
D001	Hours counter supply fan	UDInt	0		0...999999	R/W	HC_SupplyFan_1.MaintThrsh	HR128	PIV128
D002	Hours counter supply fan	Bool			0...1	R/W	HC_SupplyFan_1.Res	C22	BV578
D003	Supply fan - Manual value	USInt			0...2	R/W	SupplyFan.Man	HR130	PIV130
D004	Modulating supply fan - Manual mode analog output	USInt			0...101	R/W	ModulSupplyFan.Man	HR131	PIV131
-	Return fan - Hardware value	Bool				R	ExhFan.HW_Val	DI50	BV235
-	Return fan - Value	Bool				R	ExhFan.Ctrl	DI6	BV176
-	Hours counter return fan	UDInt				R	HC_ExhFan_1.Hrs	IR222	PIV222
D005	Hours counter return fan	UDInt	0		0...999999	R/W	HC_ExhFan_1.MaintThrsh	HR132	PIV132
D006	Hours counter return fan	Bool			0...1	R/W	HC_ExhFan_1.Res	C23	BV583
D007	Return fan - Manual value	USInt			0...2	R/W	ExhFan.Man	HR134	PIV134
D008	Modulating return fan - Manual mode analog output	USInt			0...101	R/W	ModulExhFan.Man	HR135	PIV135
D009	Minimum fan power	Real	30.0	%	0.0...100.0	R/W	MinFanPwr	HR136	AV136
D010	Supply k factor	Real	140.0		0.0...999.9	R/W	K_FactorSupply	HR137	AV137
D011	Supply air flow setpoint	Real	4000.0	m3h	0.0...99999.0	R/W	SupplyAirFlowSet	HR138	AV138
D012	Return k factor	Real	140.0		0.0...999.9	R/W	K_FactorExh	HR139	AV139
D013	Return air flow setpoint	Real	4000.0	m3h	0.0...99999.0	R/W	ExhAirFlowSet	HR140	AV140
-	Unit of measure for user interface	DInt	6			R	Uom_Msk		
D014	Supply air pressure setpoint	Real	200.0	Pa	0.0...9999.99	R/W	SupplyAirPSet	HR141	AV141
D015	Return air pressure setpoint	Real	200.0	Pa	0.0...9999.99	R/W	ExhAirPSet	HR142	AV142
-	Supply fan - Value	Bool				R	SupplyFan.Ctrl	DI5	BV172
-	Modulating supply fan - Hardware value	Real		%		R	ModulSupplyFan.HW_Val	IR76	AV76
D016	Supply fan PID - Proportional (Kp)	Real	0.02		0.1...999.9	R/W	PID_Supply.Kp	HR143	AV143
D017	Supply fan PID - Integral (Ti)	UInt	3	s	0...30000	R/W	PID_Supply.Ti	HR144	PIV144
D018	Supply fan PID - Derivative (Td)	UInt	0	s	0...30000	R/W	PID_Supply.Td	HR145	PIV145
-	Return fan - Value	Bool				R	ExhFan.Ctrl	DI6	BV176
-	Modulating return fan - Hardware value	Real		%		R	ModulExhFan.HW_Val	IR79	AV79
D019	Exhaust fan PID - Proportional (Kp)	Real	0.02		0.1...999.9	R/W	PID_Exh.Kp	HR146	AV146
D020	Exhaust fan PID - Integral (Ti)	UInt	3	s	0...30000	R/W	PID_Exh.Ti	HR147	PIV147
D021	Exhaust fan PID - Derivative (Td)	UInt	0	s	0...30000	R/W	PID_Exh.Td	HR148	PIV148
D022	Delay between damper and supply fan	UInt	5	s	0...65535	R/W	DT_SupplyFan	HR149	PIV149
D023	Supply fan idle time	UInt	40	s	20...65535	R/W	IdleT_SupplyFan	HR150	PIV150
D024	Supply fan speed in idle mode	Real	50.0	%	0.0...999.9	R/W	ManSupplyFanIdle	HR151	AV151
D025	Delay to switch OFF supply fan	UInt	70	s	0...65535	R/W	DOff_SupplyFan	HR152	PIV152
D026	Delay between fan and damper	UInt	15	s	0...65535	R/W	DT_Dmp	HR153	PIV153
D027	Delay between damper and return fan	UInt	10	s	0...65535	R/W	DT_ExhFan	HR154	PIV154
D028	Return fan idle time	UInt	30	s	0...65535	R/W	IdleT_ExhFan	HR155	PIV155
D029	Return fan speed in idle mode	Real	40.0	%	0.0...999.9	R/W	ManExhFanIdle	HR156	AV156
D030	Delay to switch OFF return fan	UInt	60	s	0...65535	R/W	DOff_ExhFan	HR157	PIV157
D031	Supply fan speed in fire alarm	Real	0.0	%	0.0...100.0	R/W	FireSupplySpeed	HR158	AV158
D032	Return fan speed in fire alarm	Real	0.0	%	0.0...100.0	R/W	FireExhSpeed	HR159	AV159
D033	Fire alarm threshold	Real	85.0	°C	-999.9...999.9	R/W	FireThrsh	HR160	AV160
-	Air quality request for fan	Real		%		R	AirQualFan	IR224	AV224
D034	PID CO2 regulation - Proportional gain	Real	0.1		-999.99...999.99	R/W	DevCfg_PID_Seq_CO2[1].Kp	HR161	AV161
D035	PID CO2 regulation - Integral time	UInt	300		0...65535	R/W	DevCfg_PID_Seq_CO2[1].Ti	HR162	PIV162
D036	Supply fan maximum	Real	30.0		0.0...100.0	R/W	SupplyFanMax	HR163	AV163
D037	Supply air flow alarm threshold	Real	50.0	m3h	0.0...9999.9	R/W	WarnThrshSupplyFlw	HR164	AV164
D038	Return air flow alarm threshold	Real	50.0	m3h	0.0...9999.9	R/W	WarnThrshExhFlw	HR165	AV165
D039	Supply air pressure alarm threshold	Real	50.0	Pa	0.0...9999.9	R/W	AlrmSupplyAirP	HR166	AV166
D040	Return air pressure alarm threshold	Real	50.0	Pa	0.0...9999.9	R/W	AlrmExhAirP	HR167	AV167
D041	Fan speed increase in case of filter warning	Real	10.0	%	-999.9...999.9	R/W	FilterWarnFanIncr	HR168	AV168
D042	Supply fan set in Boost mode	Real	50.0	%	0.0…100.0	R/W	MinFanPwr_Supply	HR1084	AV1450
D043	Return fan set in Boost mode	Real	50.0	%	0.0…100.0	R/W	MinFanPwr_Return	HR1085	AV1451
D044	Pressure set HEPA filter	Real		Pa	0.0...9999.9	R/W	HepaAirPSet	HR1105	AV1512
D045	Maximum Pressure set HEPA filter	Real		Pa	0.0...9999.9	R/W	HepaAirPSet_Max	HR1106	AV1513
D046	Max Fan Speed	Real		%	0.0…100.0	R/W	HepaFansReqMax	HR1107	AV1514

6.8 RECOVERY menu in main menu

Mask code	Description	Type	Default	UoM	Range	R/W	Variable Name	BMS	BacNet
-	Recovery device - Hardware value	Bool				R	RecoveryPump.HW_Val	DI57	BV242
-	Recovery device - Value	Bool				R	RecoveryPump.Ctrl	DI58	BV243
-	Hours counter recovery	UDInt				R	HC_RecoveryPump.Hrs	IR237	PIV237
E001	Hours counter recovery	UDInt	0		0...999999	R/W	HC_RecoveryPump.MaintThrsh	HR241	PIV241
E002	Hours counter recovery	Bool			0...1	R/W	HC_RecoveryPump.Res	C28	BV699
E003		USInt	0		0...2	R/W	RecoveryManINT	HR243	PIV243
E004	Modulating heat recovery output - Manual mode analog output	USInt			0...101	R/W	HeatRecovery.Man	HR244	PIV244
E005	Modulating mixing damper output - Manual mode analog output	USInt			0...101	R/W	ModulMixDamp.Man	HR245	PIV245
-	Heating request	Real				R	Heating_PID_Seq[2]	IR239	AV239
E006	PID Heating regulation - Proportional gain	Real	5.0		0.0...999.9	R/W	DevCfg_PID_Seq_Heat[2].Kp	HR246	AV246

E007	PID Heating regulation - Integral time	UInt	120		0...65535	R/W	DevCfg_PID_Seq_Heat[2].Ti	HR247	PIV247
E008	Minimum heat recovery	Real	30.0	%	0.0...100.0	R/W	MinHeatRec	HR248	AV248
E009	Minimum for recovery	Real	3.0	%	-999.9...999.9	R/W	Rec_MinPID	HR249	AV249
-	Cooling request	Real				R	Cooling_PID_Seq[2]	IR240	AV240
E010	Enable cooling recovery	Bool	TRUE		0...1	R/W	En_CoolRec	C29	BV709
E011	PID Cooling regulation - Proportional gain	Real	5.0		0.0...999.9	R/W	DevCfg_PID_Seq_Cool[2].Kp	HR250	AV250
E012	PID Cooling regulation - Integral time	UInt	120		0...65535	R/W	DevCfg_PID_Seq_Cool[2].Ti	HR251	PIV251
-	Frost protection request	Bool				R	FrostProtReq	DI225	BV712
E013	Temperature threshold to start recovery defrost	Real	-5.0	°C	-999.9...999.9	R/W	MaxExtFrostRec	HR252	AV252
E014	Minimum temperature threshold for recovery defrost	Real	-20.0	°C	-999.9...999.9	R/W	MinExtFrostRec	HR253	AV253
E015	Maximum time for recovery defrost	UInt	180	s	90...65535	R/W	MaxFrostRecT	HR254	PIV254
E016	Minimum time for recovery defrost	UInt	300	s	0...9999	R/W	MinFrostRecOffT	HR1088	PIV1459
E016a	Maximum time for recovery defrost	UInt	600	s	0...9999	R/W	FrostRecOffT	HR255	PIV255
E017	Threshold to switch ON recovery device	Real	50.0	%	0.0...100.0	R/W	ThrshOnRecStep1	HR256	AV256
E018	Threshold to switch OFF recovery device	Real	0.0	%	0.0...100.0	R/W	ThrshOffRecStep1	HR257	AV257
E019	Threshold to switch ON recovery 2nd device	Real	100.0	%	0.0...100.0	R/W	ThrshOnRecStep2	HR258	AV258
E020	Threshold to switch OFF recovery 2nd device	Real	50.0	%	0.0...100.0	R/W	ThrshOffRecStep2	HR259	AV259
E021	Minimum cooling request	UDInt	300	s	10...9999	R/W	HeatRecoveryOpenTime	HR260	PIV260
-	Heating request	Real				R	Heating_PID_Seq[0]	IR241	AV241
E022	PID Heating regulation - Proportional gain	Real	5.0		0.0...999.9	R/W	DevCfg_PID_Seq_Heat[0].Kp	HR262	AV262
E023	PID Heating regulation - Integral time	UInt	120		0...65535	R/W	DevCfg_PID_Seq_Heat[0].Ti	HR263	PIV263
-	Cooling request	Real				R	Cooling_PID_Seq[0]	IR242	AV242
E024	PID Cooling regulation - Proportional gain	Real	5.0		0.0...999.9	R/W	DevCfg_PID_Seq_Cool[0].Kp	HR264	AV264
E025	PID Cooling regulation - Integral time	UInt	120		0...65535	R/W	DevCfg_PID_Seq_Cool[0].Ti	HR265	PIV265
-	Air quality request	Real				R	AirQualReq_1	IR243	AV243
E026	PID CO2 regulation - Proportional gain	Real	0.1		0.0...999.99	R/W	DevCfg_PID_Seq_CO2[0].Kp	HR266	AV266
E027	PID CO2 regulation - Integral time	UInt	300		0...65535	R/W	DevCfg_PID_Seq_CO2[0].Ti	HR267	PIV267
E028	Min mixing damper opening	Real	10.0	%	0.0...100.0	R/W	ModulMixDampMinVal	HR268	AV268
E029	Max mixing damper opening	Real	90.0	%	0.0...100.0	R/W	ModulMixDampMaxVal	HR269	AV269
E030	Minimum cooling request	UDInt	300	s	10...9999	R/W	MixOpenTime	HR270	PIV270
E031	Fast heating running	Bool			0...1	R/W	FastHeatTrig	C30	BV734
E032	Fast heating stop	Bool			0...1	R/W	FastHeatStop	C31	BV735
E033	Fast heating time	UInt	1500	s	0...65535	R/W	FastHeatT	HR272	PIV272
E034	Fast cooling threshold	Real	25.0	°C	-999.9...999.9	R/W	FastCoolThrsh	HR273	AV273
E035	Fast heat threshold	Real	10.0	°C	-999.9...999.9	R/W	FastHeatThrsh	HR274	AV274

6.9 HUMIDITY menu in main menu

Mask code	Description	Type	Default	UoM	Range	R/W	Variable Name	BMS	BacNet
-	Humidifier device - Hardware value	Bool				R	Hum.HW_Val	DI59	BV244
-	Humidifier device - Value	Bool				R	Hum.Ctrl	DI60	BV245
-	Hours counter humidifier	UDInt				R	HC_Hum.Hrs	IR244	PIV244
F001	Hours counter humidifier	UDInt	0		0...999999	R/W	HC_Hum.MaintThrsh	HR275	PIV275
F002	Hours counter humidifier	Bool			0...1	R/W	HC_Hum.Res	C32	BV741
F003	Humidifier device - Manual value	USInt			0...2	R/W	Hum.Man	HR277	PIV277
F004	Modulating humidifier output - Manual mode analog output	USInt			0...101	R/W	ModulHum.Man	HR278	PIV278
-	Condenser fan in rooftop application - Hardware value	Bool				R	IEC_Hum.HW_Val	DI226	BV744
-	Condenser fan in rooftop application - Value	Bool				R	IEC_Hum.Ctrl	DI227	BV745
-	Hours counter IEC humidifier	UDInt				R	HC_IEC_Hum.Hrs	IR246	PIV246
F005	Hours counter IEC humidifier	UDInt	0		0...999999	R/W	HC_IEC_Hum.MaintThrsh	HR279	PIV279
F006	Hours counter IEC humidifier	Bool			0...1	R/W	HC_IEC_Hum.Res	C33	BV748
F007	Condenser fan in rooftop application - Manual value	USInt			0...2	R/W	IEC_Hum.Man	HR281	PIV281
F008	Modulating humidifier output - Manual mode analog output	USInt			0...101	R/W	Modul_IEC_Hum.Man	HR282	PIV282
-	Absolute humidity	Real		g/s		R	AbsHum	IR248	AV248
-	Absolute humidity setpoint	Real		gH2O/kg		R	AbsHumSet	IR249	AV249
-	Dehumidification request	Real		%		R	HumRegReq	IR250	AV250
F008	PID CO2 regulation - Proportional gain	Real	10.0		-999.9...999.9	R/W	DevCfg_PID_Seq_Hum[0].Kp	HR283	AV283
F009	PID CO2 regulation - Integral time	UInt	240		0...65535	R/W	DevCfg_PID_Seq_Hum[0].Ti	HR284	PIV284
-	Supply dew point	Real		°C		R	SupplyDewPoint	IR251	AV251
-	Dew point compensation request	Real		%		R	PID_DewCompens	IR252	AV252
F010	Delta dewpoint for compensation	Real	2.0	°K	0.0...99.9	R/W	DeltaDewTemp	HR285	AV285
F011	Delta dew point PID - Proportional (Kp)	Real	5.0		0.1...999.9	R/W	DeltaDew_PID.Kp	HR286	AV286
F012	Delta dew point PID - Integral (Ti)	UInt	60	s	0...30000	R/W	DeltaDew_PID.Ti	HR287	PIV287
F013	Delay time for changeover	UDInt	360		0...999999	R/W	DT_ChangeHum	HR288	PIV288
F014	Humidifcation regulation dead band	Real	0.0	gH2O/kg	-999.9...999.9	R/W	HumDeadBand	HR290	AV290
F015	Start humidifier digital output	Real	50.0	%	0.0...100.0	R/W	StartHumPerc	HR291	AV291
F016	Stop humidifier digital output	Real	20.0	%	0.0...100.0	R/W	StopHumPerc	HR292	AV292
-	Absolute humidity	Real		g/s		R	AbsHum	IR248	AV248
-	Absolute humidity setpoint	Real		gH2O/kg		R	AbsHumSet	IR249	AV249
F017	Enable dehumidification increasing fan speed	Bool	TRUE		0...1	R/W	En_DeHumFan	C34	BV765
-	CO2 request	Real				R	Hum_PID_Seq[1]	IR253	AV253

F018	PID CO2 regulation - Proportional gain	Real	10.0		-999.9...999.9	R/W	DevCfg_PID_Seq_Hum[1].Kp	HR293	AV293
F019	PID CO2 regulation - Integral time	UInt	240		0...65535	R/W	DevCfg_PID_Seq_Hum[1].Ti	HR294	PIV294
-	Absolute humidity	Real		g/s		R	AbsHum	IR248	AV248
-	Absolute humidity setpoint	Real		gH2O/kg		R	AbsHumSet	IR249	AV249
F020		Bool	FALSE		0...1	R/W	En_DeHumCool	C35	BV769
-	Dehumidification request	Real		%		R	DehumRegReq	IR254	AV254
F021	PID CO2 regulation - Proportional gain	Real	10.0		-999.9...999.9	R/W	DevCfg_PID_Seq_Hum[2].Kp	HR295	AV295
F022	PID CO2 regulation - Integral time	UInt	240		0...65535	R/W	DevCfg_PID_Seq_Hum[2].Ti	HR296	PIV296
F023	Fresh air humidity check to enable freecooling/freeheating	Real	5.0	gH2O/kg	1.0...40.0	R/W	DeltaAbsHum	HR297	AV297

6.10 IN/OUT SETTINGS menu

6.10.1 ANALOG IN SET menu

Mask code	Description	Type	Default	UoM	Range	R/W	Variable Name	BMS	BacNet
-	Analog input functions - Priority	USInt				R	AI_ReadFnt[1].Prio	IR336	PIV336
-	Analog input functions - Hardware value	Real		°C		R	AI_ReadFnt[1].Read.Hw_Val	IR337	AV337
Ga01	Analog input functions - Channel	DInt	0		0...70	R/W	AI_ReadFnt[1].Ch	HR760	IV760
Ga02	Analog input functions - Type	USInt	0		0...50	R/W	AI_ReadFnt[1].Param.Typ	HR762	PIV762
Ga03	Analog input functions - Minimum value	Real	-50.0	°C	-999.9...999.9	R/W	AI_ReadFnt[1].Param.Min_Val	HR763	AV763
Ga04	Analog input functions - Maximum value	Real	105.0	°C	-999.9...999.9	R/W	AI_ReadFnt[1].Param.Max_Val	HR764	AV764
Ga05	Analog input functions - Offset	Real	0.0	°K	-99.9...99.9	R/W	AI_ReadFnt[1].Param.Offset	HR765	AV765
-	Analog input functions - Priority	USInt				R	AI_ReadFnt[2].Prio	IR338	PIV338
-	Analog input functions - Hardware value	Real		°C		R	AI_ReadFnt[2].Read.Hw_Val	IR339	AV339
Ga06	Analog input functions - Channel	DInt	0		0...70	R/W	AI_ReadFnt[2].Ch	HR766	IV766
Ga07	Analog input functions - Type	USInt	0		0...50	R/W	AI_ReadFnt[2].Param.Typ	HR768	PIV768
Ga08	Analog input functions - Minimum value	Real	-50.0	°C	-999.9...999.9	R/W	AI_ReadFnt[2].Param.Min_Val	HR769	AV769
Ga09	Analog input functions - Maximum value	Real	105.0	°C	-999.9...999.9	R/W	AI_ReadFnt[2].Param.Max_Val	HR770	AV770
Ga10	Analog input functions - Offset	Real	0.0	°K	-99.9...99.9	R/W	AI_ReadFnt[2].Param.Offset	HR771	AV771
-	Analog input functions - Priority	USInt				R	AI_ReadFnt[3].Prio	IR340	PIV340
-	Analog input functions - Hardware value	Real		°C		R	AI_ReadFnt[3].Read.Hw_Val	IR341	AV341
Ga11	Analog input functions - Channel	DInt	0		0...70	R/W	AI_ReadFnt[3].Ch	HR772	IV772
Ga12	Analog input functions - Type	USInt	0		0...50	R/W	AI_ReadFnt[3].Param.Typ	HR774	PIV774
Ga13	Analog input functions - Minimum value	Real	-50.0	°C	-999.9...999.9	R/W	AI_ReadFnt[3].Param.Min_Val	HR775	AV775
Ga14	Analog input functions - Maximum value	Real	105.0	°C	-999.9...999.9	R/W	AI_ReadFnt[3].Param.Max_Val	HR776	AV776
Ga15	Analog input functions - Offset	Real	0.0	°K	-99.9...99.9	R/W	AI_ReadFnt[3].Param.Offset	HR777	AV777
-	Analog input functions - Priority	USInt				R	AI_ReadFnt[4].Prio	IR342	PIV342
-	Analog input functions - Hardware value	Real		°C		R	AI_ReadFnt[4].Read.Hw_Val	IR343	AV343
Ga16	Analog input functions - Channel	DInt	0		0...70	R/W	AI_ReadFnt[4].Ch	HR778	IV778
Ga17	Analog input functions - Type	USInt	0		0...50	R/W	AI_ReadFnt[4].Param.Typ	HR780	PIV780
Ga18	Analog input functions - Minimum value	Real	-50.0	°C	-999.9...999.9	R/W	AI_ReadFnt[4].Param.Min_Val	HR781	AV781
Ga19	Analog input functions - Maximum value	Real	105.0	°C	-999.9...999.9	R/W	AI_ReadFnt[4].Param.Max_Val	HR782	AV782
Ga20	Analog input functions - Offset	Real	0.0	°K	-99.9...99.9	R/W	AI_ReadFnt[4].Param.Offset	HR783	AV783
-	Analog input functions - Priority	USInt				R	AI_ReadFnt[5].Prio	IR344	PIV344
-	Analog input functions - Hardware value	Real		bar		R	AI_ReadFnt[5].Read.Hw_Val	IR345	AV345
Ga21	Analog input functions - Channel	DInt	0		0...70	R/W	AI_ReadFnt[5].Ch	HR784	IV784
Ga22	Analog input functions - Type	USInt	43		0...50	R/W	AI_ReadFnt[5].Param.Typ	HR786	PIV786
Ga23	Analog input functions - Minimum value	Real	0.0	bar	-9999.9...9999.9	R/W	AI_ReadFnt[5].Param.Min_Val	HR787	AV787
Ga24	Analog input functions - Maximum value	Real	45.0	bar	-9999.9...9999.9	R/W	AI_ReadFnt[5].Param.Max_Val	HR788	AV788
Ga25	Analog input functions - Offset	Real	0.0	bar	-99.9...99.9	R/W	AI_ReadFnt[5].Param.Offset	HR789	AV789
-	Analog input functions - Priority	USInt				R	AI_ReadFnt[6].Prio	IR346	PIV346
-	Analog input functions - Hardware value	Real		°C		R	AI_ReadFnt[6].Read.Hw_Val	IR347	AV347
Ga26	Analog input functions - Channel	DInt	0		0...70	R/W	AI_ReadFnt[6].Ch	HR790	IV790
Ga27	Analog input functions - Type	USInt	0		0...50	R/W	AI_ReadFnt[6].Param.Typ	HR792	PIV792
Ga28	Analog input functions - Minimum value	Real	-50.0	°C	-999.9...999.9	R/W	AI_ReadFnt[6].Param.Min_Val	HR793	AV793
Ga29	Analog input functions - Maximum value	Real	105.0	°C	-999.9...999.9	R/W	AI_ReadFnt[6].Param.Max_Val	HR794	AV794
Ga30	Analog input functions - Offset	Real	0.0	°K	-99.9...99.9	R/W	AI_ReadFnt[6].Param.Offset	HR795	AV795
-	Analog input functions - Priority	USInt				R	AI_ReadFnt[7].Prio	IR348	PIV348
-	Analog input functions - Hardware value	Real		bar		R	AI_ReadFnt[7].Read.Hw_Val	IR349	AV349
Ga31	Analog input functions - Channel	DInt	0		0...70	R/W	AI_ReadFnt[7].Ch	HR796	IV796
Ga32	Analog input functions - Type	USInt	43		0...50	R/W	AI_ReadFnt[7].Param.Typ	HR798	PIV798
Ga33	Analog input functions - Minimum value	Real	0.0	bar	-9999.9...9999.9	R/W	AI_ReadFnt[7].Param.Min_Val	HR799	AV799
Ga34	Analog input functions - Maximum value	Real	17.3	bar	-9999.9...9999.9	R/W	AI_ReadFnt[7].Param.Max_Val	HR800	AV800
Ga35	Analog input functions - Offset	Real	0.0	bar	-99.9...99.9	R/W	AI_ReadFnt[7].Param.Offset	HR801	AV801
-	Analog input functions - Priority	USInt				R	AI_ReadFnt[8].Prio	IR350	PIV350
-	Analog input functions - Hardware value	Real		°C		R	AI_ReadFnt[8].Read.Hw_Val	IR351	AV351
Ga36	Analog input functions - Channel	DInt	0		0...70	R/W	AI_ReadFnt[8].Ch	HR802	IV802
Ga37	Analog input functions - Type	USInt	0		0...50	R/W	AI_ReadFnt[8].Param.Typ	HR804	PIV804
Ga38	Analog input functions - Minimum value	Real	-50.0	°C	-999.9...999.9	R/W	AI_ReadFnt[8].Param.Min_Val	HR805	AV805
Ga39	Analog input functions - Maximum value	Real	105.0	°C	-999.9...999.9	R/W	AI_ReadFnt[8].Param.Max_Val	HR806	AV806
Ga40	Analog input functions - Offset	Real	0.0	°K	-99.9...99.9	R/W	AI_ReadFnt[8].Param.Offset	HR807	AV807
-	Analog input functions - Priority	USInt				R	AI_ReadFnt[9].Prio	IR352	PIV352
-	Analog input functions - Hardware value	Real		°C		R	AI_ReadFnt[9].Read.Hw_Val	IR353	AV353
Ga41	Analog input functions - Channel	DInt	0		0...70	R/W	AI_ReadFnt[9].Ch	HR808	IV808
Ga42	Analog input functions - Type	USInt	0		0...50	R/W	AI_ReadFnt[9].Param.Typ	HR810	PIV810
Ga43	Analog input functions - Minimum value	Real	-50.0	°C	-999.9...999.9	R/W	AI_ReadFnt[9].Param.Min_Val	HR811	AV811
Ga44	Analog input functions - Maximum value	Real	105.0	°C	-999.9...999.9	R/W	AI_ReadFnt[9].Param.Max_Val	HR812	AV812

Ga45	Analog input functions - Offset	Real	0.0	°K	-99.9...99.9	R/W	AI_ReadFnt[9].Param.Offset	HR813	AV813
-	Analog input functions - Priority	USInt				R	AI_ReadFnt[10].Prio	IR354	PIV354
-	Analog input functions - Hardware value	Real		°C		R	AI_ReadFnt[10].Read.Hw_Val	IR355	AV355
Ga46	Analog input functions - Channel	DInt	0		0...70	R/W	AI_ReadFnt[10].Ch	HR814	IV814
Ga47	Analog input functions - Type	USInt	0		0...50	R/W	AI_ReadFnt[10].Param.Typ	HR816	PIV816
Ga48	Analog input functions - Minimum value	Real	-50.0	°C	-999.9...999.9	R/W	AI_ReadFnt[10].Param.Min_Val	HR817	AV817
Ga49	Analog input functions - Maximum value	Real	105.0	°C	-999.9...999.9	R/W	AI_ReadFnt[10].Param.Max_Val	HR818	AV818
Ga50	Analog input functions - Offset	Real	0.0	°K	-99.9...99.9	R/W	AI_ReadFnt[10].Param.Offset	HR819	AV819
-	Analog input functions - Priority	USInt				R	AI_ReadFnt[11].Prio	IR356	PIV356
-	Analog input functions - Hardware value	Real		°C		R	AI_ReadFnt[11].Read.Hw_Val	IR357	AV357
Ga51	Analog input functions - Channel	DInt	0		0...70	R/W	AI_ReadFnt[11].Ch	HR820	IV820
Ga52	Analog input functions - Type	USInt	0		0...50	R/W	AI_ReadFnt[11].Param.Typ	HR822	PIV822
Ga53	Analog input functions - Minimum value	Real	-50.0	°C	-999.9...999.9	R/W	AI_ReadFnt[11].Param.Min_Val	HR823	AV823
Ga54	Analog input functions - Maximum value	Real	105.0	°C	-999.9...999.9	R/W	AI_ReadFnt[11].Param.Max_Val	HR824	AV824
Ga55	Analog input functions - Offset	Real	0.0	°K	-99.9...99.9	R/W	AI_ReadFnt[11].Param.Offset	HR825	AV825
-	Analog input functions - Priority	USInt				R	AI_ReadFnt[12].Prio	IR358	PIV358
-	Analog input functions - Hardware value	Real		ppm		R	AI_ReadFnt[12].Read.Hw_Val	IR359	AV359
Ga56	Analog input functions - Channel	DInt	0		0...70	R/W	AI_ReadFnt[12].Ch	HR826	IV826
Ga57	Analog input functions - Type	USInt	43		0...50	R/W	AI_ReadFnt[12].Param.Typ	HR828	PIV828
Ga58	Analog input functions - Minimum value	Real	0.0	ppm	-99999.9...99999.9	R/W	AI_ReadFnt[12].Param.Min_Val	HR829	AV829
Ga59	Analog input functions - Maximum value	Real	1000.0	ppm	-99999.9...99999.9	R/W	AI_ReadFnt[12].Param.Max_Val	HR830	AV830
Ga60	Analog input functions - Offset	Real	0.0	ppm	-99.9...99.9	R/W	AI_ReadFnt[12].Param.Offset	HR831	AV831
-	Analog input functions - Priority	USInt				R	AI_ReadFnt[13].Prio	IR360	PIV360
-	Analog input functions - Hardware value	Real		Pa		R	AI_ReadFnt[13].Read.Hw_Val	IR361	AV361
Ga61	Analog input functions - Channel	DInt	0		0...70	R/W	AI_ReadFnt[13].Ch	HR832	IV832
Ga62	Analog input functions - Type	USInt	43		0...50	R/W	AI_ReadFnt[13].Param.Typ	HR834	PIV834
Ga63	Analog input functions - Minimum value	Real	0.0	Pa	-9999.9...9999.9	R/W	AI_ReadFnt[13].Param.Min_Val	HR835	AV835
Ga64	Analog input functions - Maximum value	Real	1500.0	Pa	-9999.9...9999.9	R/W	AI_ReadFnt[13].Param.Max_Val	HR836	AV836
Ga65	Analog input functions - Offset	Real	0.0	Pa	-99.9...99.9	R/W	AI_ReadFnt[13].Param.Offset	HR837	AV837
-	Analog input functions - Priority	USInt				R	AI_ReadFnt[14].Prio	IR362	PIV362
-	Analog input functions - Hardware value	Real		Pa		R	AI_ReadFnt[14].Read.Hw_Val	IR363	AV363
Ga66	Analog input functions - Channel	DInt	0		0...70	R/W	AI_ReadFnt[14].Ch	HR838	IV838
Ga67	Analog input functions - Type	USInt	43		0...50	R/W	AI_ReadFnt[14].Param.Typ	HR840	PIV840
Ga68	Analog input functions - Minimum value	Real	0.0	Pa	-9999.9...9999.9	R/W	AI_ReadFnt[14].Param.Min_Val	HR841	AV841
Ga69	Analog input functions - Maximum value	Real	1500.0	Pa	-9999.9...9999.9	R/W	AI_ReadFnt[14].Param.Max_Val	HR842	AV842
Ga70	Analog input functions - Offset	Real	0.0	Pa	-99.9...99.9	R/W	AI_ReadFnt[14].Param.Offset	HR843	AV843
-	Analog input functions - Priority	USInt				R	AI_ReadFnt[15].Prio	IR364	PIV364
-	Analog input functions - Hardware value	Real		%rh		R	AI_ReadFnt[15].Read.Hw_Val	IR365	AV365
Ga71	Analog input functions - Channel	DInt	0		0...70	R/W	AI_ReadFnt[15].Ch	HR844	IV844
Ga72	Analog input functions - Type	USInt	43		0...50	R/W	AI_ReadFnt[15].Param.Typ	HR846	PIV846
Ga73	Analog input functions - Minimum value	Real	0.0	%rh	-999.9...999.9	R/W	AI_ReadFnt[15].Param.Min_Val	HR847	AV847
Ga74	Analog input functions - Maximum value	Real	100.0	%rh	-999.9...999.9	R/W	AI_ReadFnt[15].Param.Max_Val	HR848	AV848
Ga75	Analog input functions - Offset	Real	0.0	%rh	-99.9...99.9	R/W	AI_ReadFnt[15].Param.Offset	HR849	AV849
-	Analog input functions - Priority	USInt				R	AI_ReadFnt[16].Prio	IR366	PIV366
-	Analog input functions - Hardware value	Real		bar		R	AI_ReadFnt[16].Read.Hw_Val	IR367	AV367
Ga76	Analog input functions - Channel	DInt	0		0...70	R/W	AI_ReadFnt[16].Ch	HR850	IV850
Ga77	Analog input functions - Type	USInt	43		0...50	R/W	AI_ReadFnt[16].Param.Typ	HR852	PIV852
Ga78	Analog input functions - Minimum value	Real	0.0	bar	-9999.9...9999.9	R/W	AI_ReadFnt[16].Param.Min_Val	HR853	AV853
Ga79	Analog input functions - Maximum value	Real	45.0	bar	-9999.9...9999.9	R/W	AI_ReadFnt[16].Param.Max_Val	HR854	AV854
Ga80	Analog input functions - Offset	Real	0.0	bar	-99.9...99.9	R/W	AI_ReadFnt[16].Param.Offset	HR855	AV855
-	Analog input functions - Priority	USInt				R	AI_ReadFnt[17].Prio	IR368	PIV368
-	Analog input functions - Hardware value	Real		°C		R	AI_ReadFnt[17].Read.Hw_Val	IR369	AV369
Ga81	Analog input functions - Channel	DInt	0		0...70	R/W	AI_ReadFnt[17].Ch	HR856	IV856
Ga82	Analog input functions - Type	USInt	0		0...50	R/W	AI_ReadFnt[17].Param.Typ	HR858	PIV858
Ga83	Analog input functions - Minimum value	Real	-50.0	°C	-999.9...999.9	R/W	AI_ReadFnt[17].Param.Min_Val	HR859	AV859
Ga84	Analog input functions - Maximum value	Real	105.0	°C	-999.9...999.9	R/W	AI_ReadFnt[17].Param.Max_Val	HR860	AV860
Ga85	Analog input functions - Offset	Real	0.0	°K	-99.9...99.9	R/W	AI_ReadFnt[17].Param.Offset	HR861	AV861
-	Analog input functions - Priority	USInt				R	AI_ReadFnt[18].Prio	IR370	PIV370
-	Analog input functions - Hardware value	Real		bar		R	AI_ReadFnt[18].Read.Hw_Val	IR371	AV371
Ga86	Analog input functions - Channel	DInt	0		0...70	R/W	AI_ReadFnt[18].Ch	HR862	IV862
Ga87	Analog input functions - Type	USInt	43		0...50	R/W	AI_ReadFnt[18].Param.Typ	HR864	PIV864
Ga88	Analog input functions - Minimum value	Real	0.0	bar	-9999.9...9999.9	R/W	AI_ReadFnt[18].Param.Min_Val	HR865	AV865
Ga89	Analog input functions - Maximum value	Real	17.3	bar	-9999.9...9999.9	R/W	AI_ReadFnt[18].Param.Max_Val	HR866	AV866
Ga90	Analog input functions - Offset	Real	0.0	bar	-99.9...99.9	R/W	AI_ReadFnt[18].Param.Offset	HR867	AV867
-	Analog input functions - Priority	USInt				R	AI_ReadFnt[19].Prio	IR372	PIV372
-	Analog input functions - Hardware value	Real		°C		R	AI_ReadFnt[19].Read.Hw_Val	IR373	AV373
Ga91	Analog input functions - Channel	DInt	0		0...70	R/W	AI_ReadFnt[19].Ch	HR868	IV868
Ga92	Analog input functions - Type	USInt	0		0...50	R/W	AI_ReadFnt[19].Param.Typ	HR870	PIV870
Ga93	Analog input functions - Minimum value	Real	-50.0	°C	-999.9...999.9	R/W	AI_ReadFnt[19].Param.Min_Val	HR871	AV871
Ga94	Analog input functions - Maximum value	Real	105.0	°C	-999.9...999.9	R/W	AI_ReadFnt[19].Param.Max_Val	HR872	AV872
Ga95	Analog input functions - Offset	Real	0.0	°K	-99.9...99.9	R/W	AI_ReadFnt[19].Param.Offset	HR873	AV873
-	Analog input functions - Priority	USInt				R	AI_ReadFnt[20].Prio	IR374	PIV374
-	Analog input functions - Hardware value	Real		bar		R	AI_ReadFnt[20].Read.Hw_Val	IR375	AV375
Ga96	Analog input functions - Channel	DInt	0		0...70	R/W	AI_ReadFnt[20].Ch	HR874	IV874
Ga97	Analog input functions - Type	USInt	43		0...50	R/W	AI_ReadFnt[20].Param.Typ	HR876	PIV876
Ga98	Analog input functions - Minimum value	Real	0.0	bar	-9999.9...9999.9	R/W	AI_ReadFnt[20].Param.Min_Val	HR877	AV877
Ga99	Analog input functions - Maximum value	Real	45.0	bar	-9999.9...9999.9	R/W	AI_ReadFnt[20].Param.Max_Val	HR878	AV878
GaA0	Analog input functions - Offset	Real	0.0	bar	-99.9...99.9	R/W	AI_ReadFnt[20].Param.Offset	HR879	AV879
-	Analog input functions - Priority	USInt				R	AI_ReadFnt[21].Prio	IR376	PIV376

-	Analog input functions - Hardware value	Real		°C		R	AI_ReadFnt[21].Read.Hw_Val	IR377	AV377
GaA1	Analog input functions - Channel	DInt	0		0...70	R/W	AI_ReadFnt[21].Ch	HR880	IV880
GaA2	Analog input functions - Type	USInt	0		0...50	R/W	AI_ReadFnt[21].Param.Typ	HR882	PIV882
GaA3	Analog input functions - Minimum value	Real	-50.0	°C	-999.9...999.9	R/W	AI_ReadFnt[21].Param.Min_Val	HR883	AV883
GaA4	Analog input functions - Maximum value	Real	105.0	°C	-999.9...999.9	R/W	AI_ReadFnt[21].Param.Max_Val	HR884	AV884
GaA5	Analog input functions - Offset	Real	0.0	°K	-99.9...99.9	R/W	AI_ReadFnt[21].Param.Offset	HR885	AV885
-	Analog input functions - Priority	USInt				R	AI_ReadFnt[22].Prio	IR378	PIV378
-	Analog input functions - Hardware value	Real		bar		R	AI_ReadFnt[22].Read.Hw_Val	IR379	AV379
GaA6	Analog input functions - Channel	DInt	0		0...70	R/W	AI_ReadFnt[22].Ch	HR886	IV886
GaA7	Analog input functions - Type	USInt	43		0...50	R/W	AI_ReadFnt[22].Param.Typ	HR888	PIV888
GaA8	Analog input functions - Minimum value	Real	0.0	bar	-9999.9...9999.9	R/W	AI_ReadFnt[22].Param.Min_Val	HR889	AV889
GaA9	Analog input functions - Maximum value	Real	17.3	bar	-9999.9...9999.9	R/W	AI_ReadFnt[22].Param.Max_Val	HR890	AV890
GaB0	Analog input functions - Offset	Real	0.0	bar	-99.9...99.9	R/W	AI_ReadFnt[22].Param.Offset	HR891	AV891
-	Analog input functions - Priority	USInt				R	AI_ReadFnt[23].Prio	IR380	PIV380
-	Analog input functions - Hardware value	Real		°C		R	AI_ReadFnt[23].Read.Hw_Val	IR381	AV381
GaB1	Analog input functions - Channel	DInt	0		0...70	R/W	AI_ReadFnt[23].Ch	HR892	IV892
GaB2	Analog input functions - Type	USInt	0		0...50	R/W	AI_ReadFnt[23].Param.Typ	HR894	PIV894
GaB3	Analog input functions - Minimum value	Real	-50.0	°C	-999.9...999.9	R/W	AI_ReadFnt[23].Param.Min_Val	HR895	AV895
GaB4	Analog input functions - Maximum value	Real	105.0	°C	-999.9...999.9	R/W	AI_ReadFnt[23].Param.Max_Val	HR896	AV896
GaB5	Analog input functions - Offset	Real	0.0	°K	-99.9...99.9	R/W	AI_ReadFnt[23].Param.Offset	HR897	AV897
-	Analog input functions - Priority	USInt				R	AI_ReadFnt[24].Prio	IR382	PIV382
-	Analog input functions - Hardware value	Real		%		R	AI_ReadFnt[24].Read.Hw_Val	IR383	AV383
GaB6	Analog input functions - Channel	DInt	0		0...70	R/W	AI_ReadFnt[24].Ch	HR898	IV898
GaB7	Analog input functions - Type	USInt	43		0...50	R/W	AI_ReadFnt[24].Param.Typ	HR900	PIV900
GaB8	Analog input functions - Minimum value	Real	0.0	%	-999.9...999.9	R/W	AI_ReadFnt[24].Param.Min_Val	HR901	AV901
GaB9	Analog input functions - Maximum value	Real	100.0	%	-999.9...999.9	R/W	AI_ReadFnt[24].Param.Max_Val	HR902	AV902
GaC0	Analog input functions - Offset	Real	0.0	%	-99.9...99.9	R/W	AI_ReadFnt[24].Param.Offset	HR903	AV903
-	Analog input functions - Priority	USInt				R	AI_ReadFnt[25].Prio	IR384	PIV384
-	Analog input functions - Hardware value	Real		%rh		R	AI_ReadFnt[25].Read.Hw_Val	IR385	AV385
GaC1	Analog input functions - Channel	DInt	0		0...70	R/W	AI_ReadFnt[25].Ch	HR904	IV904
GaC2	Analog input functions - Type	USInt	43		0...50	R/W	AI_ReadFnt[25].Param.Typ	HR906	PIV906
GaC3	Analog input functions - Minimum value	Real	0.0	%rh	-999.9...999.9	R/W	AI_ReadFnt[25].Param.Min_Val	HR907	AV907
GaC4	Analog input functions - Maximum value	Real	100.0	%rh	-999.9...999.9	R/W	AI_ReadFnt[25].Param.Max_Val	HR908	AV908
GaC5	Analog input functions - Offset	Real	0.0	%rh	-99.9...99.9	R/W	AI_ReadFnt[25].Param.Offset	HR909	AV909

6.10.2 **DIGITAL IN SET menu**

Mask code	Description	Type	Default	UoM	Range	R/W	Variable Name	BMS	BacNet
-	Digital input functions - Priority	USInt				R	DI_ReadFnt[1].Prio	IR386	PIV386
-	Digital input functions - Status	Bool				R	DI_ReadFnt[1].Hw_Val	DI251	BV1721
Gb01	Digital input functions - Channel	DInt	0		0...70	R/W	DI_ReadFnt[1].Ch	HR910	IV910
Gb02	Digital input functions - Logic	Bool	FALSE		0...1	R/W	DI_ReadFnt[1].Logic	C274	BV1723
-	Digital input functions - Priority	USInt				R	DI_ReadFnt[2].Prio	IR387	PIV387
-	Digital input functions - Status	Bool				R	DI_ReadFnt[2].Hw_Val	DI252	BV1725
Gb03	Digital input functions - Channel	DInt	0		0...70	R/W	DI_ReadFnt[2].Ch	HR912	IV912
Gb04	Digital input functions - Logic	Bool	FALSE		0...1	R/W	DI_ReadFnt[2].Logic	C275	BV1727
-	Digital input functions - Priority	USInt				R	DI_ReadFnt[3].Prio	IR388	PIV388
-	Digital input functions - Status	Bool				R	DI_ReadFnt[3].Hw_Val	DI253	BV1729
Gb05	Digital input functions - Channel	DInt	0		0...70	R/W	DI_ReadFnt[3].Ch	HR914	IV914
Gb06	Digital input functions - Logic	Bool	FALSE		0...1	R/W	DI_ReadFnt[3].Logic	C276	BV1731
-	Digital input functions - Priority	USInt				R	DI_ReadFnt[4].Prio	IR389	PIV389
-	Digital input functions - Status	Bool				R	DI_ReadFnt[4].Hw_Val	DI254	BV1733
Gb07	Digital input functions - Channel	DInt	0		0...70	R/W	DI_ReadFnt[4].Ch	HR916	IV916
Gb08	Digital input functions - Logic	Bool	FALSE		0...1	R/W	DI_ReadFnt[4].Logic	C277	BV1735
-	Digital input functions - Priority	USInt				R	DI_ReadFnt[5].Prio	IR390	PIV390
-	Digital input functions - Status	Bool				R	DI_ReadFnt[5].Hw_Val	DI255	BV1737
Gb09	Digital input functions - Channel	DInt	0		0...70	R/W	DI_ReadFnt[5].Ch	HR918	IV918
Gb10	Digital input functions - Logic	Bool	FALSE		0...1	R/W	DI_ReadFnt[5].Logic	C278	BV1739
-	Digital input functions - Priority	USInt				R	DI_ReadFnt[6].Prio	IR391	PIV391
-	Digital input functions - Status	Bool				R	DI_ReadFnt[6].Hw_Val	DI256	BV1741
Gb11	Digital input functions - Channel	DInt	0		0...70	R/W	DI_ReadFnt[6].Ch	HR920	IV920
Gb12	Digital input functions - Logic	Bool	FALSE		0...1	R/W	DI_ReadFnt[6].Logic	C279	BV1743
-	Digital input functions - Priority	USInt				R	DI_ReadFnt[7].Prio	IR392	PIV392
-	Digital input functions - Status	Bool				R	DI_ReadFnt[7].Hw_Val	DI257	BV1745
Gb13	Digital input functions - Channel	DInt	0		0...70	R/W	DI_ReadFnt[7].Ch	HR922	IV922
Gb14	Digital input functions - Logic	Bool	FALSE		0...1	R/W	DI_ReadFnt[7].Logic	C280	BV1747
-	Digital input functions - Priority	USInt				R	DI_ReadFnt[8].Prio	IR393	PIV393
-	Digital input functions - Status	Bool				R	DI_ReadFnt[8].Hw_Val	DI258	BV1749
Gb15	Digital input functions - Channel	DInt	0		0...70	R/W	DI_ReadFnt[8].Ch	HR924	IV924
Gb16	Digital input functions - Logic	Bool	FALSE		0...1	R/W	DI_ReadFnt[8].Logic	C281	BV1751
-	Digital input functions - Priority	USInt				R	DI_ReadFnt[9].Prio	IR394	PIV394
-	Digital input functions - Status	Bool				R	DI_ReadFnt[9].Hw_Val	DI259	BV1753
Gb17	Digital input functions - Channel	DInt	0		0...70	R/W	DI_ReadFnt[9].Ch	HR926	IV926
Gb18	Digital input functions - Logic	Bool	FALSE		0...1	R/W	DI_ReadFnt[9].Logic	C282	BV1755
-	Digital input functions - Priority	USInt				R	DI_ReadFnt[10].Prio	IR395	PIV395
-	Digital input functions - Status	Bool				R	DI_ReadFnt[10].Hw_Val	DI260	BV1757
Gb19	Digital input functions - Channel	DInt	0		0...70	R/W	DI_ReadFnt[10].Ch	HR928	IV928
Gb20	Digital input functions - Logic	Bool	FALSE		0...1	R/W	DI_ReadFnt[10].Logic	C283	BV1759

-	Digital input functions - Priority	USInt				R	DI_ReadFnt[11].Prio	IR396	PIV396
-	Digital input functions - Status	Bool				R	DI_ReadFnt[11].Hw_Val	DI261	BV1761
Gb21	Digital input functions - Channel	DInt	0		0...70	R/W	DI_ReadFnt[11].Ch	HR930	IV930
Gb22	Digital input functions - Logic	Bool	FALSE		0...1	R/W	DI_ReadFnt[11].Logic	C284	BV1763
-	Digital input functions - Priority	USInt				R	DI_ReadFnt[12].Prio	IR397	PIV397
-	Digital input functions - Status	Bool				R	DI_ReadFnt[12].Hw_Val	DI262	BV1765
Gb23	Digital input functions - Channel	DInt	0		0...70	R/W	DI_ReadFnt[12].Ch	HR932	IV932
Gb24	Digital input functions - Logic	Bool	FALSE		0...1	R/W	DI_ReadFnt[12].Logic	C285	BV1767
-	Digital input functions - Priority	USInt				R	DI_ReadFnt[13].Prio	IR398	PIV398
-	Digital input functions - Status	Bool				R	DI_ReadFnt[13].Hw_Val	DI263	BV1769
Gb25	Digital input functions - Channel	DInt	0		0...70	R/W	DI_ReadFnt[13].Ch	HR934	IV934
Gb26	Digital input functions - Logic	Bool	FALSE		0...1	R/W	DI_ReadFnt[13].Logic	C286	BV1771
-	Digital input functions - Priority	USInt				R	DI_ReadFnt[14].Prio	IR399	PIV399
-	Digital input functions - Status	Bool				R	DI_ReadFnt[14].Hw_Val	DI264	BV1773
Gb27	Digital input functions - Channel	DInt	0		0...70	R/W	DI_ReadFnt[14].Ch	HR936	IV936
Gb28	Digital input functions - Logic	Bool	FALSE		0...1	R/W	DI_ReadFnt[14].Logic	C287	BV1775
-	Digital input functions - Priority	USInt				R	DI_ReadFnt[15].Prio	IR400	PIV400
-	Digital input functions - Status	Bool				R	DI_ReadFnt[15].Hw_Val	DI265	BV1777
Gb29	Digital input functions - Channel	DInt	0		0...70	R/W	DI_ReadFnt[15].Ch	HR938	IV938
Gb30	Digital input functions - Logic	Bool	FALSE		0...1	R/W	DI_ReadFnt[15].Logic	C288	BV1779
-	Digital input functions - Priority	USInt				R	DI_ReadFnt[16].Prio	IR401	PIV401
-	Digital input functions - Status	Bool				R	DI_ReadFnt[16].Hw_Val	DI266	BV1781
Gb31	Digital input functions - Channel	DInt	0		0...70	R/W	DI_ReadFnt[16].Ch	HR940	IV940
Gb32	Digital input functions - Logic	Bool	FALSE		0...1	R/W	DI_ReadFnt[16].Logic	C289	BV1783
-	Digital input functions - Priority	USInt				R	DI_ReadFnt[17].Prio	IR402	PIV402
-	Digital input functions - Status	Bool				R	DI_ReadFnt[17].Hw_Val	DI267	BV1785
Gb33	Digital input functions - Channel	DInt	0		0...70	R/W	DI_ReadFnt[17].Ch	HR942	IV942
Gb34	Digital input functions - Logic	Bool	FALSE		0...1	R/W	DI_ReadFnt[17].Logic	C290	BV1787
-	Digital input functions - Priority	USInt				R	DI_ReadFnt[18].Prio	IR403	PIV403
-	Digital input functions - Status	Bool				R	DI_ReadFnt[18].Hw_Val	DI268	BV1789
Gb35	Digital input functions - Channel	DInt	0		0...70	R/W	DI_ReadFnt[18].Ch	HR944	IV944
Gb36	Digital input functions - Logic	Bool	FALSE		0...1	R/W	DI_ReadFnt[18].Logic	C291	BV1791
-	Digital input functions - Priority	USInt				R	DI_ReadFnt[19].Prio	IR404	PIV404
-	Digital input functions - Status	Bool				R	DI_ReadFnt[19].Hw_Val	DI269	BV1793
Gb37	Digital input functions - Channel	DInt	0		0...70	R/W	DI_ReadFnt[19].Ch	HR946	IV946
Gb38	Digital input functions - Logic	Bool	FALSE		0...1	R/W	DI_ReadFnt[19].Logic	C292	BV1795
-	Digital input functions - Priority	USInt				R	DI_ReadFnt[20].Prio	IR405	PIV405
-	Digital input functions - Status	Bool				R	DI_ReadFnt[20].Hw_Val	DI270	BV1797
Gb39	Digital input functions - Channel	DInt	0		0...70	R/W	DI_ReadFnt[20].Ch	HR948	IV948
Gb40	Digital input functions - Logic	Bool	FALSE		0...1	R/W	DI_ReadFnt[20].Logic	C293	BV1799
-	Digital input functions - Priority	USInt				R	DI_ReadFnt[21].Prio	IR406	PIV406
-	Digital input functions - Status	Bool				R	DI_ReadFnt[21].Hw_Val	DI271	BV1801
Gb41	Digital input functions - Channel	DInt	0		0...70	R/W	DI_ReadFnt[21].Ch	HR950	IV950
Gb42	Digital input functions - Logic	Bool	FALSE		0...1	R/W	DI_ReadFnt[21].Logic	C294	BV1803
-	Digital input functions - Priority	USInt				R	DI_ReadFnt[22].Prio	IR407	PIV407
-	Digital input functions - Status	Bool				R	DI_ReadFnt[22].Hw_Val	DI272	BV1805
Gb43	Digital input functions - Channel	DInt	0		0...70	R/W	DI_ReadFnt[22].Ch	HR952	IV952
Gb44	Digital input functions - Logic	Bool	FALSE		0...1	R/W	DI_ReadFnt[22].Logic	C295	BV1807
-	Digital input functions - Priority	USInt				R	DI_ReadFnt[22].Prio	IR407	PIV407
-	Digital input functions - Status	Bool				R	DI_ReadFnt[23].Hw_Val	DI273	BV1808
Gb45	Digital input functions - Channel	DInt	0		0...70	R/W	DI_ReadFnt[23].Ch	HR954	IV954
Gb46	Digital input functions - Logic	Bool	FALSE		0...1	R/W	DI_ReadFnt[23].Logic	C296	BV1810
Gb47	Digital input functions - Channel	DInt	0		0...70	R/W	DI_ReadFnt[24].Ch	HR1086	IV1453
Gb48	Digital input functions - Logic	Bool	FALSE		0...1	R/W	DI_ReadFnt[24].Logic	C350	BV1454

6.10.3 **DIGITAL OUT SET menu**

Mask code	Description	Type	Default	UoM	Range	R/W	Variable Name	BMS	BacNet
-	Digital output functions - Priority	USInt				R	DO_ReadFnt[1].Prio	IR408	PIV408
-	Digital output functions - Status	Bool				R	DO_ReadFnt[1].Hw_Val	DI274	BV1812
Gc01	Digital output functions - Channel	DInt	0		0...50	R/W	DO_ReadFnt[1].Ch	HR956	IV956
Gc02	Digital output functions - Logic	Bool	FALSE		0...1	R/W	DO_ReadFnt[1].Logic	C297	BV1814
-	Digital output functions - Priority	USInt				R	DO_ReadFnt[2].Prio	IR409	PIV409
-	Digital output functions - Status	Bool				R	DO_ReadFnt[2].Hw_Val	DI275	BV1816
Gc03	Digital output functions - Channel	DInt	0		0...50	R/W	DO_ReadFnt[2].Ch	HR958	IV958
Gc04	Digital output functions - Logic	Bool	FALSE		0...1	R/W	DO_ReadFnt[2].Logic	C298	BV1818
-	Digital output functions - Priority	USInt				R	DO_ReadFnt[3].Prio	IR410	PIV410
-	Digital output functions - Status	Bool				R	DO_ReadFnt[3].Hw_Val	DI276	BV1820
Gc05	Digital output functions - Channel	DInt	0		0...50	R/W	DO_ReadFnt[3].Ch	HR960	IV960
Gc06	Digital output functions - Logic	Bool	FALSE		0...1	R/W	DO_ReadFnt[3].Logic	C299	BV1822
-	Digital output functions - Priority	USInt				R	DO_ReadFnt[4].Prio	IR411	PIV411
-	Digital output functions - Status	Bool				R	DO_ReadFnt[4].Hw_Val	DI277	BV1824
Gc07	Digital output functions - Channel	DInt	0		0...50	R/W	DO_ReadFnt[4].Ch	HR962	IV962
Gc08	Digital output functions - Logic	Bool	FALSE		0...1	R/W	DO_ReadFnt[4].Logic	C300	BV1826
-	Digital output functions - Priority	USInt				R	DO_ReadFnt[5].Prio	IR412	PIV412
-	Digital output functions - Status	Bool				R	DO_ReadFnt[5].Hw_Val	DI278	BV1828
Gc09	Digital output functions - Channel	DInt	0		0...50	R/W	DO_ReadFnt[5].Ch	HR964	IV964
Gc10	Digital output functions - Logic	Bool	FALSE		0...1	R/W	DO_ReadFnt[5].Logic	C301	BV1830

-	Digital output functions - Priority	USInt				R	DO_ReadFnt[6].Prio	IR413	PIV413
-	Digital output functions - Status	Bool				R	DO_ReadFnt[6].Hw_Val	DI279	BV1832
Gc11	Digital output functions - Channel	DInt	0		0...50	R/W	DO_ReadFnt[6].Ch	HR966	IV966
Gc12	Digital output functions - Logic	Bool	FALSE		0...1	R/W	DO_ReadFnt[6].Logic	C302	BV1834
-	Digital output functions - Priority	USInt				R	DO_ReadFnt[7].Prio	IR414	PIV414
-	Digital output functions - Status	Bool				R	DO_ReadFnt[7].Hw_Val	DI280	BV1836
Gc13	Digital output functions - Channel	DInt	0		0...50	R/W	DO_ReadFnt[7].Ch	HR968	IV968
Gc14	Digital output functions - Logic	Bool	FALSE		0...1	R/W	DO_ReadFnt[7].Logic	C303	BV1838
-	Digital output functions - Priority	USInt				R	DO_ReadFnt[8].Prio	IR415	PIV415
-	Digital output functions - Status	Bool				R	DO_ReadFnt[8].Hw_Val	DI281	BV1840
Gc15	Digital output functions - Channel	DInt	0		0...50	R/W	DO_ReadFnt[8].Ch	HR970	IV970
Gc16	Digital output functions - Logic	Bool	FALSE		0...1	R/W	DO_ReadFnt[8].Logic	C304	BV1842
-	Digital output functions - Priority	USInt				R	DO_ReadFnt[9].Prio	IR416	PIV416
-	Digital output functions - Status	Bool				R	DO_ReadFnt[9].Hw_Val	DI282	BV1844
Gc17	Digital output functions - Channel	DInt	0		0...50	R/W	DO_ReadFnt[9].Ch	HR972	IV972
Gc18	Digital output functions - Logic	Bool	FALSE		0...1	R/W	DO_ReadFnt[9].Logic	C305	BV1846
-	Digital output functions - Priority	USInt				R	DO_ReadFnt[10].Prio	IR417	PIV417
-	Digital output functions - Status	Bool				R	DO_ReadFnt[10].Hw_Val	DI283	BV1848
Gc19	Digital output functions - Channel	DInt	0		0...50	R/W	DO_ReadFnt[10].Ch	HR974	IV974
Gc20	Digital output functions - Logic	Bool	FALSE		0...1	R/W	DO_ReadFnt[10].Logic	C306	BV1850
-	Digital output functions - Priority	USInt				R	DO_ReadFnt[11].Prio	IR418	PIV418
-	Digital output functions - Status	Bool				R	DO_ReadFnt[11].Hw_Val	DI284	BV1852
Gc21	Digital output functions - Channel	DInt	0		0...50	R/W	DO_ReadFnt[11].Ch	HR976	IV976
Gc22	Digital output functions - Logic	Bool	FALSE		0...1	R/W	DO_ReadFnt[11].Logic	C307	BV1854
-	Digital output functions - Priority	USInt				R	DO_ReadFnt[12].Prio	IR419	PIV419
-	Digital output functions - Status	Bool				R	DO_ReadFnt[12].Hw_Val	DI285	BV1856
Gc23	Digital output functions - Channel	DInt	0		0...50	R/W	DO_ReadFnt[12].Ch	HR978	IV978
Gc24	Digital output functions - Logic	Bool	FALSE		0...1	R/W	DO_ReadFnt[12].Logic	C308	BV1858
-	Digital output functions - Priority	USInt				R	DO_ReadFnt[13].Prio	IR420	PIV420
-	Digital output functions - Status	Bool				R	DO_ReadFnt[13].Hw_Val	DI286	BV1860
Gc25	Digital output functions - Channel	DInt	0		0...50	R/W	DO_ReadFnt[13].Ch	HR980	IV980
Gc26	Digital output functions - Logic	Bool	FALSE		0...1	R/W	DO_ReadFnt[13].Logic	C309	BV1862
-	Digital output functions - Priority	USInt				R	DO_ReadFnt[14].Prio	IR421	PIV421
-	Digital output functions - Status	Bool				R	DO_ReadFnt[14].Hw_Val	DI287	BV1864
Gc27	Digital output functions - Channel	DInt	0		0...50	R/W	DO_ReadFnt[14].Ch	HR982	IV982
Gc28	Digital output functions - Logic	Bool	FALSE		0...1	R/W	DO_ReadFnt[14].Logic	C310	BV1866
-	Digital output functions - Priority	USInt				R	DO_ReadFnt[15].Prio	IR422	PIV422
-	Digital output functions - Status	Bool				R	DO_ReadFnt[15].Hw_Val	DI288	BV1868
Gc29	Digital output functions - Channel	DInt	0		0...50	R/W	DO_ReadFnt[15].Ch	HR984	IV984
Gc30	Digital output functions - Logic	Bool	FALSE		0...1	R/W	DO_ReadFnt[15].Logic	C311	BV1870
-	Digital output functions - Priority	USInt				R	DO_ReadFnt[16].Prio	IR423	PIV423
-	Digital output functions - Status	Bool				R	DO_ReadFnt[16].Hw_Val	DI289	BV1872
Gc31	Digital output functions - Channel	DInt	0		0...50	R/W	DO_ReadFnt[16].Ch	HR986	IV986
Gc32	Digital output functions - Logic	Bool	FALSE		0...1	R/W	DO_ReadFnt[16].Logic	C312	BV1874
-	Digital output functions - Priority	USInt				R	DO_ReadFnt[17].Prio	IR424	PIV424
-	Digital output functions - Status	Bool				R	DO_ReadFnt[17].Hw_Val	DI290	BV1876
Gc33	Digital output functions - Channel	DInt	0		0...50	R/W	DO_ReadFnt[17].Ch	HR988	IV988
Gc34	Digital output functions - Logic	Bool	FALSE		0...1	R/W	DO_ReadFnt[17].Logic	C313	BV1878
-	Digital output functions - Priority	USInt				R	DO_ReadFnt[18].Prio	IR425	PIV425
-	Digital output functions - Status	Bool				R	DO_ReadFnt[18].Hw_Val	DI291	BV1880
Gc35	Digital output functions - Channel	DInt	0		0...50	R/W	DO_ReadFnt[18].Ch	HR990	IV990
Gc36	Digital output functions - Logic	Bool	FALSE		0...1	R/W	DO_ReadFnt[18].Logic	C314	BV1882
-	Digital output functions - Priority	USInt				R	DO_ReadFnt[19].Prio	IR426	PIV426
-	Digital output functions - Status	Bool				R	DO_ReadFnt[19].Hw_Val	DI292	BV1884
Gc37	Digital output functions - Channel	DInt	0		0...50	R/W	DO_ReadFnt[19].Ch	HR992	IV992
Gc38	Digital output functions - Logic	Bool	FALSE		0...1	R/W	DO_ReadFnt[19].Logic	C315	BV1886
-	Digital output functions - Priority	USInt				R	DO_ReadFnt[20].Prio	IR427	PIV427
-	Digital output functions - Status	Bool				R	DO_ReadFnt[20].Hw_Val	DI293	BV1888
Gc39	Digital output functions - Channel	DInt	0		0...50	R/W	DO_ReadFnt[20].Ch	HR994	IV994
Gc40	Digital output functions - Logic	Bool	FALSE		0...1	R/W	DO_ReadFnt[20].Logic	C316	BV1890
-	Digital output functions - Priority	USInt				R	DO_ReadFnt[21].Prio	IR428	PIV428
-	Digital output functions - Status	Bool				R	DO_ReadFnt[21].Hw_Val	DI294	BV1892
Gc41	Digital output functions - Channel	DInt	0		0...50	R/W	DO_ReadFnt[21].Ch	HR996	IV996
Gc42	Digital output functions - Logic	Bool	FALSE		0...1	R/W	DO_ReadFnt[21].Logic	C317	BV1894
-	Digital output functions - Priority	USInt				R	DO_ReadFnt[22].Prio	IR429	PIV429
-	Digital output functions - Status	Bool				R	DO_ReadFnt[22].Hw_Val	DI295	BV1896
Gc43	Digital output functions - Channel	DInt	0		0...50	R/W	DO_ReadFnt[22].Ch	HR998	IV998
Gc44	Digital output functions - Logic	Bool	FALSE		0...1	R/W	DO_ReadFnt[22].Logic	C318	BV1898
-	Digital output functions - Priority	USInt				R	DO_ReadFnt[23].Prio	IR430	PIV430
-	Digital output functions - Status	Bool				R	DO_ReadFnt[23].Hw_Val	DI296	BV1900
Gc45	Digital output functions - Channel	DInt	0		0...50	R/W	DO_ReadFnt[23].Ch	HR1000	IV1000
Gc46	Digital output functions - Logic	Bool	FALSE		0...1	R/W	DO_ReadFnt[23].Logic	C319	BV1902
-	Digital output functions - Priority	USInt				R	DO_ReadFnt[24].Prio	IR431	PIV431
-	Digital output functions - Status	Bool				R	DO_ReadFnt[24].Hw_Val	DI297	BV1904
Gc47	Digital output functions - Channel	DInt	0		0...50	R/W	DO_ReadFnt[24].Ch	HR1002	IV1002
Gc48	Digital output functions - Logic	Bool	FALSE		0...1	R/W	DO_ReadFnt[24].Logic	C320	BV1906
-	Digital output functions - Priority	USInt				R	DO_ReadFnt[25].Prio	IR432	PIV432
-	Digital output functions - Status	Bool				R	DO_ReadFnt[25].Hw_Val	DI298	BV1908
Gc49	Digital output functions - Channel	DInt	0		0...50	R/W	DO_ReadFnt[25].Ch	HR1004	IV1004

Gc50	Digital output functions - Logic	Bool	FALSE		0...1	R/W	DO_ReadFnt[25].Logic	C321	BV1910
-	Digital output functions - Priority	USInt				R	DO_ReadFnt[26].Prio	IR433	PIV433
-	Digital output functions - Status	Bool				R	DO_ReadFnt[26].Hw_Val	DI299	BV1912
Gc51	Digital output functions - Channel	DInt	0		0...50	R/W	DO_ReadFnt[26].Ch	HR1006	IV1006
Gc52	Digital output functions - Logic	Bool	FALSE		0...1	R/W	DO_ReadFnt[26].Logic	C322	BV1914
-	Digital output functions - Priority	USInt				R	DO_ReadFnt[27].Prio	IR434	PIV434
-	Digital output functions - Status	Bool				R	DO_ReadFnt[27].Hw_Val	DI300	BV1916
Gc53	Digital output functions - Channel	DInt	0		0...50	R/W	DO_ReadFnt[27].Ch	HR1008	IV1008
Gc54	Digital output functions - Logic	Bool	FALSE		0...1	R/W	DO_ReadFnt[27].Logic	C323	BV1918
-	Digital output functions - Priority	USInt				R	DO_ReadFnt[28].Prio	IR435	PIV435
-	Digital output functions - Status	Bool				R	DO_ReadFnt[28].Hw_Val	DI301	BV1920
Gc55	Digital output functions - Channel	DInt	0		0...50	R/W	DO_ReadFnt[28].Ch	HR1010	IV1010
Gc56	Digital output functions - Logic	Bool	FALSE		0...1	R/W	DO_ReadFnt[28].Logic	C324	BV1922
-	Digital output functions - Priority	USInt				R	DO_ReadFnt[29].Prio	IR436	PIV436
-	Digital output functions - Status	Bool				R	DO_ReadFnt[29].Hw_Val	DI302	BV1924
Gc57	Digital output functions - Channel	DInt	0		0...50	R/W	DO_ReadFnt[29].Ch	HR1012	IV1012
Gc58	Digital output functions - Logic	Bool	FALSE		0...1	R/W	DO_ReadFnt[29].Logic	C325	BV1926
-	Digital output functions - Priority	USInt				R	DO_ReadFnt[30].Prio	IR437	PIV437
-	Digital output functions - Status	Bool				R	DO_ReadFnt[30].Hw_Val	DI303	BV1928
Gc59	Digital output functions - Channel	DInt	0		0...50	R/W	DO_ReadFnt[30].Ch	HR1014	IV1014
Gc60	Digital output functions - Logic	Bool	FALSE		0...1	R/W	DO_ReadFnt[30].Logic	C326	BV1930
-	Digital output functions - Priority	USInt				R	DO_ReadFnt[31].Prio	IR438	PIV438
-	Digital output functions - Status	Bool				R	DO_ReadFnt[31].Hw_Val	DI304	BV1932
Gc61	Digital output functions - Channel	DInt	0		0...70	R/W	DO_ReadFnt[31].Ch	HR1016	IV1016
Gc62	Digital output functions - Logic	Bool	FALSE		0...1	R/W	DO_ReadFnt[31].Logic	C327	BV1934
-	Digital output functions - Priority	USInt				R	DO_ReadFnt[32].Prio	IR439	PIV439
-	Digital output functions - Status	Bool				R	DO_ReadFnt[32].Hw_Val	DI305	BV1936
Gc63	Digital output functions - Channel	DInt	0		0...70	R/W	DO_ReadFnt[32].Ch	HR1018	IV1018
Gc64	Digital output functions - Logic	Bool	FALSE		0...1	R/W	DO_ReadFnt[32].Logic	C328	BV1938
-	Digital output functions - Priority	USInt				R	DO_ReadFnt[33].Prio	IR440	PIV440
-	Digital output functions - Status	Bool				R	DO_ReadFnt[33].Hw_Val	DI306	BV1940
Gc65	Digital output functions - Channel	DInt	0		0...70	R/W	DO_ReadFnt[33].Ch	HR1020	IV1020
Gc66	Digital output functions - Logic	Bool	FALSE		0...1	R/W	DO_ReadFnt[33].Logic	C329	BV1942
-	Digital output functions - Priority	USInt				R	DO_ReadFnt[34].Prio	IR441	PIV441
-	Digital output functions - Status	Bool				R	DO_ReadFnt[34].Hw_Val	DI307	BV1944
Gc67	Digital output functions - Channel	DInt	0		0...70	R/W	DO_ReadFnt[34].Ch	HR1022	IV1022
Gc68	Digital output functions - Logic	Bool	FALSE		0...1	R/W	DO_ReadFnt[34].Logic	C330	BV1946
-	Digital output functions - Priority	USInt				R	DO_ReadFnt[35].Prio	IR442	PIV442
-	Digital output functions - Status	Bool				R	DO_ReadFnt[35].Hw_Val	DI308	BV1948
Gc69	Digital output functions - Channel	DInt	0		0...70	R/W	DO_ReadFnt[35].Ch	HR1024	IV1024
Gc70	Digital output functions - Logic	Bool	FALSE		0...1	R/W	DO_ReadFnt[35].Logic	C331	BV1950
-	Digital output functions - Priority	USInt				R	DO_ReadFnt[36].Prio	IR443	PIV443
-	Digital output functions - Status	Bool				R	DO_ReadFnt[36].Hw_Val	DI309	BV1952
Gc71	Digital output functions - Channel	DInt	0		0...70	R/W	DO_ReadFnt[36].Ch	HR1026	IV1026
Gc72	Digital output functions - Logic	Bool	FALSE		0...1	R/W	DO_ReadFnt[36].Logic	C332	BV1954
-	Digital output functions - Priority	USInt				R	DO_ReadFnt[37].Prio	IR444	PIV444
-	Digital output functions - Status	Bool				R	DO_ReadFnt[37].Hw_Val	DI310	BV1956
Gc73	Digital output functions - Channel	DInt	0		0...70	R/W	DO_ReadFnt[37].Ch	HR1028	IV1028
Gc74	Digital output functions - Logic	Bool	FALSE		0...1	R/W	DO_ReadFnt[37].Logic	C333	BV1958
-	Digital output functions - Priority	USInt				R	DO_ReadFnt[38].Prio	IR445	PIV445
-	Digital output functions - Status	Bool				R	DO_ReadFnt[38].Hw_Val	DI311	BV1960
Gc75	Digital output functions - Channel	DInt	0		0...70	R/W	DO_ReadFnt[38].Ch	HR1030	IV1030
Gc76	Digital output functions - Logic	Bool	FALSE		0...1	R/W	DO_ReadFnt[38].Logic	C334	BV1962
-	Digital output functions - Priority	USInt				R	DO_ReadFnt[39].Prio	IR446	PIV446
-	Digital output functions - Status	Bool				R	DO_ReadFnt[39].Hw_Val	DI312	BV1964
Gc77	Digital output functions - Channel	DInt	0		0...70	R/W	DO_ReadFnt[39].Ch	HR1032	IV1032
Gc78	Digital output functions - Logic	Bool	FALSE		0...1	R/W	DO_ReadFnt[39].Logic	C335	BV1966
-	Digital output functions - Priority	USInt				R	DO_ReadFnt[40].Prio	IR447	PIV447
-	Digital output functions - Status	Bool				R	DO_ReadFnt[40].Hw_Val	DI313	BV1968
Gc79	Digital output functions - Channel	DInt	0		0...70	R/W	DO_ReadFnt[40].Ch	HR1034	IV1034
Gc80	Digital output functions - Logic	Bool	FALSE		0...1	R/W	DO_ReadFnt[40].Logic	C336	BV1970
-	Digital output functions - Priority	USInt				R	DO_ReadFnt[41].Prio	IR448	PIV448
-	Digital output functions - Status	Bool				R	DO_ReadFnt[41].Hw_Val	DI314	BV1972
Gc81	Digital output functions - Channel	DInt	0		0...70	R/W	DO_ReadFnt[41].Ch	HR1036	IV1036
Gc82	Digital output functions - Logic	Bool	FALSE		0...1	R/W	DO_ReadFnt[41].Logic	C337	BV1974
-	Digital output functions - Priority	USInt				R	DO_ReadFnt[42].Prio	IR449	PIV449
-	Digital output functions - Status	Bool				R	DO_ReadFnt[42].Hw_Val	DI315	BV1976
Gc81	Digital output functions - Channel	DInt	0		0...70	R/W	DO_ReadFnt[42].Ch	HR1038	IV1038
Gc82	Digital output functions - Logic	Bool	FALSE		0...1	R/W	DO_ReadFnt[42].Logic	C338	BV1978
-	Digital output functions - Priority	USInt				R	DO_ReadFnt[43].Prio	IR450	PIV450
-	Digital output functions - Status	Bool				R	DO_ReadFnt[43].Hw_Val	DI316	BV1980
Gc83	Digital output functions - Channel	DInt	0		0...70	R/W	DO_ReadFnt[43].Ch	HR1040	IV1040
Gc84	Digital output functions - Logic	Bool	FALSE		0...1	R/W	DO_ReadFnt[43].Logic	C339	BV1982
-	Digital output functions - Priority	USInt				R	DO_ReadFnt[44].Prio	IR451	PIV451
-	Digital output functions - Status	Bool				R	DO_ReadFnt[44].Hw_Val	DI317	BV1984
Gc85	Digital output functions - Channel	DInt	0		0...70	R/W	DO_ReadFnt[44].Ch	HR1042	IV1042
Gc86	Digital output functions - Logic	Bool	FALSE		0...1	R/W	DO_ReadFnt[44].Logic	C340	BV1986
-	Digital output functions - Priority	USInt				R	DO_ReadFnt[45].Prio	IR452	PIV452
-	Digital output functions - Status	Bool				R	DO_ReadFnt[45].Hw_Val	DI318	BV1988

Gc87	Digital output functions - Channel	DInt	0		0...70	R/W	DO_ReadFnt[45].Ch	HR1044	IV1044
Gc88	Digital output functions - Logic	Bool	FALSE		0...1	R/W	DO_ReadFnt[45].Logic	C341	BV1990
-	Digital output functions - Priority	USInt				R	DO_ReadFnt[46].Prio	IR453	PIV453
-	Digital output functions - Status	Bool				R	DO_ReadFnt[46].Hw_Val	DI319	BV1992
Gc89	Digital output functions - Channel	DInt	0		0...70	R/W	DO_ReadFnt[46].Ch	HR1046	IV1046
Gc90	Digital output functions - Logic	Bool	FALSE		0...1	R/W	DO_ReadFnt[46].Logic	C342	BV1994

6.10.4 **ANALOG OUT SET menu**

Mask code	Description	Type	Default	UoM	Range	R/W	Variable Name	BMS	BacNet
-	Analog output functions - Priority	USInt				R	AO_ReadFnt[1].Prio	IR454	PIV454
-	Analog output functions - Request	Real				R	AO_ReadFnt[1].Hw_Val	IR455	AV455
Gd01	Analog output functions - Channel	DInt	0		0...60	R/W	AO_ReadFnt[1].Ch	HR1048	IV1048
-	Analog output functions - Priority	USInt				R	AO_ReadFnt[2].Prio	IR456	PIV456
-	Analog output functions - Request	Real				R	AO_ReadFnt[2].Hw_Val	IR457	AV457
Gd02	Analog output functions - Channel	DInt	0		0...60	R/W	AO_ReadFnt[2].Ch	HR1050	IV1050
-	Analog output functions - Priority	USInt				R	AO_ReadFnt[3].Prio	IR458	PIV458
-:	Analog output functions - Request	Real				R	AO_ReadFnt[3].Hw_Val	IR459	AV459
Gd03	Analog output functions - Channel	DInt	0		0...60	R/W	AO_ReadFnt[3].Ch	HR1052	IV1052
-	Analog output functions - Priority	USInt				R	AO_ReadFnt[4].Prio	IR460	PIV460
-	Analog output functions - Request	Real				R	AO_ReadFnt[4].Hw_Val	IR461	AV461
Gd04	Analog output functions - Channel	DInt	0		0...60	R/W	AO_ReadFnt[4].Ch	HR1054	IV1054
-	Analog output functions - Priority	USInt				R	AO_ReadFnt[5].Prio	IR462	PIV462
-	Analog output functions - Request	Real				R	AO_ReadFnt[5].Hw_Val	IR463	AV463
Gd05	Analog output functions - Channel	DInt	0		0...60	R/W	AO_ReadFnt[5].Ch	HR1056	IV1056
-	Analog output functions - Priority	USInt				R	AO_ReadFnt[6].Prio	IR464	PIV464
-	Analog output functions - Request	Real				R	AO_ReadFnt[6].Hw_Val	IR465	AV465
Gd06	Analog output functions - Channel	DInt	0		0...60	R/W	AO_ReadFnt[6].Ch	HR1058	IV1058
-	Analog output functions - Priority	USInt				R	AO_ReadFnt[7].Prio	IR466	PIV466
-	Analog output functions - Request	Real				R	AO_ReadFnt[7].Hw_Val	IR467	AV467
Gd07	Analog output functions - Channel	DInt	0		0...60	R/W	AO_ReadFnt[7].Ch	HR1060	IV1060
-	Analog output functions - Priority	USInt				R	AO_ReadFnt[8].Prio	IR468	PIV468
-	Analog output functions - Request	Real				R	AO_ReadFnt[8].Hw_Val	IR469	AV469
Gd08	Analog output functions - Channel	DInt	0		0...60	R/W	AO_ReadFnt[8].Ch	HR1062	IV1062
-	Analog output functions - Priority	USInt				R	AO_ReadFnt[9].Prio	IR470	PIV470
-	Analog output functions - Request	Real				R	AO_ReadFnt[9].Hw_Val	IR471	AV471
Gd09	Analog output functions - Channel	DInt	0		0...60	R/W	AO_ReadFnt[9].Ch	HR1064	IV1064
-	Analog output functions - Priority	USInt				R	AO_ReadFnt[10].Prio	IR472	PIV472
-	Analog output functions - Request	Real				R	AO_ReadFnt[10].Hw_Val	IR473	AV473
Gd10	Analog output functions - Channel	DInt	0		0...60	R/W	AO_ReadFnt[10].Ch	HR1066	IV1066
-	Analog output functions - Priority	USInt				R	AO_ReadFnt[11].Prio	IR474	PIV474
-	Analog output functions - Request	Real				R	AO_ReadFnt[11].Hw_Val	IR475	AV475
Gd11	Analog output functions - Channel	DInt	0		0...60	R/W	AO_ReadFnt[11].Ch	HR1068	IV1068
-	Analog output functions - Priority	USInt				R	AO_ReadFnt[12].Prio	IR476	PIV476
-	Analog output functions - Request	Real				R	AO_ReadFnt[12].Hw_Val	IR477	AV477
Gd12	Analog output functions - Channel	DInt	0		0...60	R/W	AO_ReadFnt[12].Ch	HR1070	IV1070
Gd13	Analog output functions - Channel	DInt	0		0...60	R/W	AO_ReadFnt[13].Ch	HR1072	IV1070
-	Analog output functions - Priority	USInt				R	AO_ReadFnt[14].Prio	IR480	PIV480
-	Analog output functions - Request	Real				R	AO_ReadFnt[14].Hw_Val	IR481	AV481
Gd14	Analog output functions - Channel	DInt	0		0...60	R/W	AO_ReadFnt[14].Ch	HR1074	IV1074
-	Analog output functions - Priority	USInt				R	AO_ReadFnt[15].Prio	IR482	PIV482
-	Analog output functions - Request	Real				R	AO_ReadFnt[15].Hw_Val	IR483	AV483
Gd15	Analog output functions - Channel	DInt	0		0...60	R/W	AO_ReadFnt[15].Ch	HR1076	IV1076
-	Analog output functions - Priority	USInt				R	AO_ReadFnt[16].Prio	IR484	PIV484
-	Analog output functions - Request	Real				R	AO_ReadFnt[16].Hw_Val	IR485	AV485
Gd16	Analog output functions - Channel	DInt	0		0...60	R/W	AO_ReadFnt[16].Ch	HR1078	IV1078
-	Analog output functions - Priority	USInt				R	AO_ReadFnt[17].Prio	IR486	PIV486
-	Analog output functions - Request	Real				R	AO_ReadFnt[17].Hw_Val	IR487	AV487
Gd17	Analog output functions - Channel	DInt	0		0...60	R/W	AO_ReadFnt[17].Ch	HR1080	IV1080
-	Analog output functions - Priority	USInt				R	AO_ReadFnt[18].Prio	IR488	PIV488
-	Analog output functions - Request	Real				R	AO_ReadFnt[18].Hw_Val	IR489	AV489
Gd18	Analog output functions - Channel	DInt	0		0...60	R/W	AO_ReadFnt[18].Ch	HR1082	IV1082
-	Analog output functions - Priority	USInt				R	AO_ReadFnt[19].Prio	IR490	PIV490
-	Analog output functions - Request	Real				R	AO_ReadFnt[19].Hw_Val	IR491	AV491
Gd19	Analog output functions - Channel	DInt	0		0...60	R/W	AO_ReadFnt[19].Ch	HR1084	IV1070
-	Analog output functions - Priority	USInt				R	AO_ReadFnt[20].Prio	IR492	PIV492
-	Analog output functions - Request	Real				R	AO_ReadFnt[20].Hw_Val	IR493	AV493
Gd-20	Analog output functions - Channel	DInt	0		0...60	R/W	AO_ReadFnt[20].Ch	HR1088	IV1088
-	Analog output functions - Priority	USInt				R	AO_ReadFnt[21].Prio	IR494	PIV494
-	Analog output functions - Request	Real				R	AO_ReadFnt[21].Hw_Val	IR495	AV495
Gd-21	Analog output functions - Channel	DInt	0		0...60	R/W	AO_ReadFnt[21].Ch	HR1090	IV1090
-	Analog output functions - Priority	USInt				R	AO_ReadFnt[22].Prio	IR496	PIV496
-	Analog output functions - Request	Real				R	AO_ReadFnt[22].Hw_Val	IR497	AV497
Gd-22	Analog output functions - Channel	DInt	0		0...60	R/W	AO_ReadFnt[22].Ch	HR1092	IV1092
-	Analog output functions - Priority	USInt				R	AO_ReadFnt[23].Prio	IR498	PIV498
-	Analog output functions - Request	Real				R	AO_ReadFnt[23].Hw_Val	IR499	AV499

Gd-23	Analog output functions - Channel	DInt	0		0...60	R/W	AO_ReadFnt[23].Ch	HR1094	IV1094
-	Analog output functions - Priority	USInt				R	AO_ReadFnt[24].Prio	IR500	PIV500
-	Analog output functions - Request	Real				R	AO_ReadFnt[24].Hw_Val	IR501	AV501
Gd-24	Analog output functions - Channel	DInt	0		0...60	R/W	AO_ReadFnt[24].Ch	HR1096	IV1096

6.11 SETTINGS menu in main menu

Mask code	Description	Type	Default	UoM	Range	R/W	Variable Name	BMS	BacNet
H001	Min supply temperature setpoint	Real	16.0	°C	-999.9...999.9	R/W	SupplyMinSet	HR298	AV298
H002	Max supply temperature setpoint	Real	30.0	°C	-999.9...999.9	R/W	SupplyMaxSet	HR299	AV299
H003	Setpoint minimum limit	Real	5.0	°C	-999.9...999.9	R/W	SetMinLimit	HR300	AV300
H004	Maximum setpoint value	Real	30.0	°C	-999.9...999.9	R/W	SetMaxLimit	HR301	AV301
-	Compensation request	Real		%		R	PID_RegCompens	IR262	AV262
H005	Regulation set point offset	Real	5.0		-999.9...999.9	R/W	RoomReg_SetP_Offs_Kp	HR302	AV302
H006	Regulation set point offset: Integral time for room regulation	UInt	300		0...65535	R/W	RoomReg_SetP_Offs_Ti	HR303	PIV303
-	Compensation request	Real		%		R	ExtTempCompens	IR263	AV263
H007	Min external temperature compensation in heating	Real	10.0	°C	-999.9...999.9	R/W	MinHeatCompens	HR304	AV304
H008	Max external temperature compensation in heating	Real	0.0	°C	-999.9...999.9	R/W	MaxHeatCompens	HR305	AV305
H009	Min external temperature compensation in cooling	Real	30.0	°C	-999.9...999.9	R/W	MinCoolCompens	HR306	AV306
H010	Max external temperature compensation in cooling	Real	30.0	°C	-999.9...999.9	R/W	MaxCoolCompens	HR307	AV307
H011	Cooling external temperature threshold	Real	25.0	°C	-999.9...999.9	R/W	CoolExtTempThrsh	HR308	AV308
H012	Heating external temperature threshold	Real	10.0	°C	-999.9...999.9	R/W	HeatExtTempThrsh	HR309	AV309
H013	Supply temp.: cooling/heating delay time	UDInt	30	s	0...65535	R/W	SupplyTemp_CoolHeatDT	HR310	PIV310
H014	StandBy time	UDInt	0	min	0...9999	R/W	StandbyT	HR312	PIV312
H015	Wake up time	UDInt	180	min	10...9999	R/W	WakeUpT	HR314	PIV314
H016	Night kick hour	UInt	1		0...23	R/W	NightKickHour	HR316	PIV316
H016	Night kick minute	UInt	30	min	0...59	R/W	NightKickMinute	HR317	PIV317
H017	Enable freecooling/freeheating	Bool	TRUE		0...1	R/W	En_FreeCoolHeat	C36	BV800
H018	Antistuck OFF time	UInt	168	h	1...999	R/W	AntiStuckOFF	HR318	PIV318
H019	Antistuck ON time	UInt	300	s	0...9999	R/W	AntiStuckON	HR319	PIV319
H020	Minimum design temperature	Real	-45.0	°C	-999.9...999.9	R/W	MinDesignExtTemp	HR320	AV320
H021	Maximum design temperature	Real	55.0	°C	-999.9...999.9	R/W	MaxDesignExtTemp	HR321	AV321
H022	Start-up unit mode	Bool	FALSE			R/W	Startup_Sequence	C343	BV1430
H023	Boost function maximum time	Int	60	s	0… 32767	R/W	Boost_Time	HR1072	IV1452
H025	Enable fix fresh damper position	Bool	FALSE			R/W	EN_FreshDampFixReq	C381	BV1471
H026	fresh damper position percentage	Real	100	%	0…100	R/W	FreshDampFixReq	HR1333	AV1668
Ha25	Fresh damper min value open	Real		%	0…100		ModulFreshDampMinVal	HR1334	AV1669
Ha26	Fresh damper max value open	Real		%	0…100		ModulFreshDampMaxVal	HR1335	AV1670
Hb25	Manaul management fresh damper	Int	0		0…100		Modul_FreshDamper.Man	HR1336	PI1671
H027	Enable external devices management	Bool	FALSE			R/W	En_ExtDevSign	C382	BV1472
H028	Enable advanced PID managment	Bool	FALSE			R/W	En_PID_Modes	C383	BV1473
H029	Modes set PID regulations PreHeat	Real	5.0		-999.9...999.9	R/W	PIDs_PreHeat.Comfort_Kp	HR1152	AV1559
H030	Modes set PID regulations PreHeat	Int	120	s	0...65535	R/W	PIDs_PreHeat.Comfort_Ti	HR1153	IV1560
H031	Modes set PID regulations PreHeat	Real	5.0		-999.9...999.9	R/W	PIDs_PreHeat.Economy_Kp	HR1112	AV1519
H032	Modes set PID regulations PreHeat	Int	120	s	0...65535	R/W	PIDs_PreHeat.Economy_Ti	HR1113	IV1520
H033	Modes set PID regulations PreHeat	Real	5.0		-999.9...999.9	R/W	PIDs_PreHeat.Precomfort_Kp	HR1132	AV1539
H034	Modes set PID regulations PreHeat	Int	120	s	0...65535	R/W	PIDs_PreHeat.Precomfort_Ti	HR1133	IV1540
H035	Modes set PID regulations ReHeat	Real	5.1		-999.9...999.9	R/W	PIDs_ReHeat.Comfort_Kp	HR1150	AV1557
H036	Modes set PID regulations ReHeat	Int	121	s	0...65535	R/W	PIDs_ReHeat.Comfort_Ti	HR1151	IV1558
H037	Modes set PID regulations ReHeat	Real	5.1		-999.9...999.9	R/W	PIDs_ReHeat.Economy_Kp	HR1110	AV1517
H038	Modes set PID regulations ReHeat	Int	121	s	0...65535	R/W	PIDs_ReHeat.Economy_Ti	HR1111	IV1518
H039	Modes set PID regulations ReHeat	Real	5.1		-999.9...999.9	R/W	PIDs_ReHeat.Precomfort_Kp	HR1130	AV1537
H040	Modes set PID regulations ReHeat	Int	121	s	0...65535	R/W	PIDs_ReHeat.Precomfort_Ti	HR1131	IV1538
H041	Modes set PID regulations Heat	Real	5.1		-999.9...999.15	R/W	PIDs_Heat.Comfort_Kp	HR1148	AV1555
H042	Modes set PID regulations Heat	Int	121	s	0...65535	R/W	PIDs_Heat.Comfort_Ti	HR1149	IV1556
H043	Modes set PID regulations Heat	Real	5.1		-999.9...999.9	R/W	PIDs_Heat.Economy_Kp	HR1108	AV1515
H044	Modes set PID regulations Heat	Int	121	s	0...65535	R/W	PIDs_Heat.Economy_Ti	HR1109	IV1516
H045	Modes set PID regulations Heat	Real	5.2		-999.9...999.9	R/W	PIDs_Heat.Precomfort_Kp	HR1128	AV1535
H046	Modes set PID regulations Heat	Int	122	s	0...65535	R/W	PIDs_Heat.Precomfort_Ti	HR1129	IV1536
H047	Modes set PID regulations Cool	Real	5.2		-999.9...999.9	R/W	PIDs_Cool.Comfort_Kp	HR1154	AV1561
H048	Modes set PID regulations Cool	Int	122	s	0...65535	R/W	PIDs_Cool.Comfort_Ti	HR1155	IV1562
H049	Modes set PID regulations Cool	Real	5.2		-999.9...999.9	R/W	PIDs_Cool.Economy_Kp	HR1114	AV1521
H050	Modes set PID regulations Cool	Int	122	s	0...65535	R/W	PIDs_Cool.Economy_Ti	HR1115	IV1522
H051	Modes set PID regulations Cool	Real	5.2		-999.9...999.9	R/W	PIDs_Cool.Precomfort_Kp	HR1134	AV1541
H052	Modes set PID regulations Cool	Int	122	s	0...65535	R/W	PIDs_Cool.Precomfort_Ti	HR1135	IV1542
H053	PIDs_Rev_Cool.Comfort_Kp	Real	5.2		-999.9...999.9	R/W	PIDs_Rev_Cool.Comfort_Kp	HR1158	AV1565
H054	PIDs_Rev_Cool.Comfort_Ti	Int	122	s	0...65535	R/W	PIDs_Rev_Cool.Comfort_Ti	HR1159	IV1566
H055	PIDs_Rev_Cool.Economy_Kp	Real	5.3		-999.9...999.9	R/W	PIDs_Rev_Cool.Economy_Kp	HR1118	AV1525
H056	PIDs_Rev_Cool.Economy_Ti	Int	123	s	0...65535	R/W	PIDs_Rev_Cool.Economy_Ti	HR1119	IV1526
H057	PIDs_Rev_Cool.Precomfort_Kp	Real	5.3		-999.9...999.9	R/W	PIDs_Rev_Cool.Precomfort_Kp	HR1138	AV1545
H058	PIDs_Rev_Cool.Precomfort_Ti	Int	123	s	0...65535	R/W	PIDs_Rev_Cool.Precomfort_Ti	HR1139	IV1546
H059	Modes set PID regulations Rev Heat	Real	5.3		-999.9...999.24	R/W	PIDs_Rev_Heat.Comfort_Kp	HR1156	AV1563
H060	Modes set PID regulations Rev Heat	Int	123	s	0...65535	R/W	PIDs_Rev_Heat.Comfort_Ti	HR1157	IV1654
H061	Modes set PID regulations Rev Heat	Real	5.3		-999.9...999.9	R/W	PIDs_Rev_Heat.Economy_Kp	HR1116	AV1523
H062	Modes set PID regulations Rev Heat	Int	123	s	0...65535	R/W	PIDs_Rev_Heat.Economy_Ti	HR1117	IV1524
H063	Modes set PID regulations Rev Heat	Real	5.3		-999.9...999.9	R/W	PIDs_Rev_Heat.Precomfort_Kp	HR1136	AV1543
H064	Modes set PID regulations Rev Heat	Int	123	s	0...65535	R/W	PIDs_Rev_Heat.Precomfort_Ti	HR1137	IV1544
H065	Modes set PID regulations Heat Rec	Real	5.4		-999.9...999.27	R/W	PIDs_Heat_Rec.Comfort_Kp	HR1160	AV1567
H066	Modes set PID regulations Heat Rec	Int	124	s	0...65535	R/W	PIDs_Heat_Rec.Comfort_Ti	HR1161	IV1568
H067	Modes set PID regulations Heat Rec	Real	5.4		-999.9...999.9	R/W	PIDs_Heat_Rec.Economy_Kp	HR1120	AV1527
H068	Modes set PID regulations Heat Rec	Int	124	s	0...65535	R/W	PIDs_Heat_Rec.Economy_Ti	HR1121	IV1528
H069	Modes set PID regulations Heat Rec	Real	5.4		-999.9...999.9	R/W	PIDs_Heat_Rec.Precomfort_Kp	HR1140	AV1547
H070	Modes set PID regulations Heat Rec	Int	124	s	0...65535	R/W	PIDs_Heat_Rec.Precomfort_Ti	HR1141	IV1548

H071	Modes set PID regulations Cool Rec	Real	5.4		-999.9...999.9	R/W	PIDs_Cool_Rec.Comfort_Kp	HR1162	AV1569
H072	Modes set PID regulations Cool Rec	Int	124	s	0...65535	R/W	PIDs_Cool_Rec.Comfort_Ti	HR1163	IV1570
H073	Modes set PID regulations Cool Rec	Real	5.4		-999.9...999.9	R/W	PIDs_Cool_Rec.Economy_Kp	HR1122	AV1529
H074	Modes set PID regulations Cool Rec	Int	124	s	0...65535	R/W	PIDs_Cool_Rec.Economy_Ti	HR1123	IV1530
H075	Modes set PID regulations Cool Rec	Real	5.5		-999.9...999.9	R/W	PIDs_Cool_Rec.Precomfort_Kp	HR1142	AV1549
H076	Modes set PID regulations Cool Rec	Int	125	s	0...65535	R/W	PIDs_Cool_Rec.Precomfort_Ti	HR1143	IV1550
H077	Modes set PID regulations Heat Rec Mix	Real	5.5		-999.9...999.9	R/W	PIDs_Heat_Rec_Mix.Comfort_Kp	HR1164	AV1571
H078	Modes set PID regulations Heat Rec Mix	Int	125	s	0...65535	R/W	PIDs_Heat_Rec_Mix.Comfort_Ti	HR1165	IV1572
H079	Modes set PID regulations Heat Rec Mix	Real	5.5		-999.9...999.9	R/W	PIDs_Heat_Rec_Mix.Economy_Kp	HR1124	AV1531
H080	Modes set PID regulations Heat Rec Mix	Int	125	s	0...65535	R/W	PIDs_Heat_Rec_Mix.Economy_Ti	HR1125	IV1532
H081	Modes set PID regulations Heat Rec Mix	Real	5.5		-999.9...999.9	R/W	PIDs_Heat_Rec_Mix.Precomfort_Kp	HR1144	AV1551
H082	Modes set PID regulations Heat Rec Mix	Int	125	s	0...65535	R/W	PIDs_Heat_Rec_Mix.Precomfort_Ti	HR1145	IV1552
H083	Modes set PID regulations Cool Rec Mix	Real	5.5		-999.9...999.9	R/W	PIDs_Cool_Rec_Mix.Comfort_Kp	HR1166	AV1573
H084	Modes set PID regulations Cool Rec Mix	Int	125	s	0...65535	R/W	PIDs_Cool_Rec_Mix.Comfort_Ti	HR1167	IV1574
H085	Modes set PID regulations Cool Rec Mix	Real	5.6		-999.9...999.9	R/W	PIDs_Cool_Rec_Mix.Economy_Kp	HR1126	AV1533
H086	Modes set PID regulations Cool Rec Mix	Int	126	s	0...65535	R/W	PIDs_Cool_Rec_Mix.Economy_Ti	HR1127	IV1534
H087	Modes set PID regulations Cool Rec Mix	Real	5.6		-999.9...999.9	R/W	PIDs_Cool_Rec_Mix.Precomfort_Kp	HR1146	AV1553
H088	Modes set PID regulations Cool Rec Mix	Int	126	s	0...65535	R/W	PIDs_Cool_Rec_Mix.Precomfort_Ti	HR1147	IV1554

6.12 UNIT CFG. menu in main menu

Mask code	Description	Type	Default	UoM	Range	R/W	Variable Name	BMS	BacNet
	Unit configuration not allowed - Alarm status	Bool				R	AI_UnitCfgError.Active	DI1037	BV2068
I001	Recovery application code	USInt	0		0...4	R/W	AppCode_Rec	HR83	PIV83
I001	Application heating code	USInt	0		0...4	R/W	AppCode_Heat	HR84	PIV84
I001	Application cooling code	USInt	0		0...2	R/W	AppCode_Cool	HR85	PIV85
I001	Application reverse code	USInt	0		0...MaxAppCode_Rev	R/W	AppCode_Rev	HR86	PIV86
I001	Application preheating code	USInt	0		0...3	R/W	AppCode_PreHeat	HR87	PIV87
I001	Application reheater code	USInt	0		0...3	R/W	AppCode_ReHeat	HR88	PIV88
I001	Application mixing damper code	USInt	0		0...1	R/W	AppCode_Eco	HR89	PIV89
I001	Humidifier code	USInt	0		0...3	R/W	AppCode_Hum	HR90	PIV90
I001	Board application code	USInt	0		0...MaxAppCode_cpCOe	R/W	AppCode_cpCOe	HR91	PIV91
I001	Application fan code	USInt	0		0...3	R/W	AppCode_Fan	HR92	PIV92
I002	Recovery control type	USInt	0		0...4	R/W	AppRec_Special	HR93	PIV93
I002	Heating control type	USInt	0		0...11	R/W	AppHeat_Special	HR94	PIV94
I002	Cooling control type	USInt	0		0...11	R/W	AppCool_Special	HR95	PIV95
I002	Reversible control type	USInt	0		0...16	R/W	AppCoolHeat_Special	HR96	PIV96
I002	Preheat control type	USInt	0		0...5	R/W	AppPreHeat_Special	HR97	PIV97
I002	Reheat control type	USInt	0		0...5	R/W	AppReHeat_Special	HR98	PIV98
I002	Eco control type	USInt	0		0...2	R/W	AppMix_Special	HR99	PIV99
I002	Supply fan regulation type	USInt	0		0...9	R/W	SupplyFanRegTyp	HR100	PIV100
I002	Return fan regulation type	USInt	0		0...9	R/W	ExhFanRegTyp	HR101	PIV101
I003	Run unit	Bool	FALSE		0...1	R/W	UnitConfigured	C15	BV543
I004	Run auto configuration function	Bool			0...1	R/W	RunAutoCfg_IO	C16	BV544
I005	Enable thTune management	Bool	FALSE		0...1	R/W	En_THTN_1	C17	BV545
I006	BMS address	USInt	1		1...127	R/W	BMS_Addr	HR102	PIV102
I007	Scheduler type	USInt	0		0...2	R/W	TypScheduler	HR103	PIV103
I008	Temperature regulation probe type	USInt	1		0...2	R/W	AppTempReg	IR2	PIV2
I009	Regulation probe for humidier	USInt	0		0...2	R/W	AppHumReg	HR104	PIV104
I012	Enable of Buzzer	Bool			0...1	R/W	En_Buzz	C18	BV549
I014	Drive type internal/USB	Byte			0...1	R/W	DriveTyp	HR105	PIV105
I015	Import-Export file name (EXPORT_XX)	Int			0...99	R/W	ImpExpFileName	HR106	IV106
I017	Drive type internal/USB	Byte			0...1	R/W	DriveTyp	HR105	PIV105
I018	Import-Export file name (EXPORT_XX)	Int			0...99	R/W	ImpExpFileName	HR106	IV106
I020	Wipe memory	Bool			0...1	R/W	En_WipeMem	C19	BV552

7. ALARMS

7.1 Alarms interface

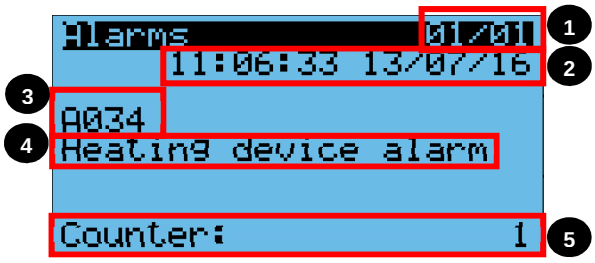
7.1.1 Alarms screen and LEDs

Pressing the ALARM key can occur in two different situations - no alarm or one alarm present.

If there is no alarm, the following screen is displayed:

This screen makes it possible to easily enter the alarms log using the ENTER key.

If there is at least one alarm, the alarms screen is displayed sorted by alarm code from lesser to greater.



Each alarm contains the information needed to understand the cause of the alarm.
The information available in the screen is shown below:

1. Alarm number/total alarms;
2. Alarm date and time;
3. Unique alarm code;
4. Long alarm description;
5. Value of the probe linked to the alarm;
6. Alarm counter.

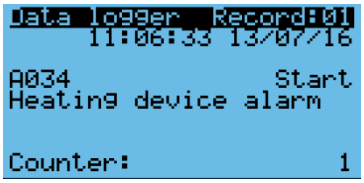
In every alarm screen, the alarms log can be displayed by pressing ENTER.

The red LED under the ALARM button can be:

- Off: no active alarm;
- Flashing: there is at least one active alarm and the display shows a screen that is not part of the alarms loop.
- On: there is at least one active alarms and a screen that is part of the alarms loop is displayed.

7.1.2 Alarms log

From the main menu, entering the Alarms Log menu allows access to the following alarms log display screen.



The alarms log memorizes the kVent operation status when the alarms are triggered. Each log entry is an even that can be displayed from among all of the events available in the memory.
The information saved in the alarms screen will also be saved in the alarms log. The maximum number of events that can be saved is 100. Once the limit is reached, the most recent alarm will overwrite the oldest one. The alarms log can be cleared in the Settings menu or by restoring the cpCO to default values.

7.1.3 Reset alarms

The alarms can be reset manually, automatically or automatically with retries:

- Manual reset: when the cause of the alarm has stopped, the buzzer must first be reset using the ALARM button and then the ALARM button pressed a second time for a true reset. At this point, even the specific alarm action is reset and the device can restart.
- Automatic reset: when the alarm condition stops automatically, the buzzer is silenced and the alarm reset.
- Automatic reset with retries: The number of interventions per hour is checked. If that number is less than the set maximum, the alarm is on automatic reset, once the limit is exceeded it becomes manual.

7.1.4 Reset alarms by TH-tune

To reset the alarms setup in manual reset by the TH-tune display is needed to press togheter the TH-tune button “Fan”
+ On/Off for 3s.

7.2 Table of alarms

Code	Description on display	Reset	Action	Variable name	BMS	BacNet
A000	Supply temperature probe not working	Auto reset	Stop unit	AI_SupplyTempPrb	DI1000	BV1000
A001	Cooling device alarm	User reset	Stop cooling	AI_Cool	DI1001	BV1001
A002	Antifreeze alarm by DIN	Auto reset until counter (3 in 3600s)	Stop unit, force heating at 100%	AI_AFreezeDIN	DI1002	BV1002
A003	Prototype software	Auto reset	Stop unit	AI_SwPrototype	DI1003	BV1003
A004	High number of retain memory writings	User reset	None	AI_retain	DI1004	BV1004
A005	Error in retain memory writings	User reset	None	AI_Err_retain_write	DI1005	BV1005
A006	Return temperature probe broken not working	Auto reset	Switch to supply regulation	AI_RetTempPrb	DI1006	BV1006
A007	External temperature probe broken not working	Auto reset	Disable external compensation	AI_ExtTempPrb	DI1007	BV1007
A008	CO2 air quality probe not working	Auto reset	Disable CO2 regulation	AI_RetAir_CO2_Lev_Prb	DI1008	BV1008
A009	Exhaust temperature probe not working	Auto reset	Stop unit	AI_ExhTempPrb	DI1009	BV1009
A010	th-Tune offline	Auto reset	Disable room compensation	AI_Offline_THTN_1	DI1010	BV1010
A011	Supply temperature out of range	Auto reset	None	AI_LowSupplyTemp	DI1011	BV1011
A012	Supply air flow alarm	User reset	Stop unit	AI_SupplyAirFlwSwWarn	DI1012	BV1012
A013	Return air flow alarm	User reset	Stop unit	AI_RetAirFlwSwWarn	DI1013	BV1013
A014	Humidifier alarm	Auto reset	Stop humidifier	AI_Hum	DI1014	BV1014
A015	Humidifier maintenance required	Auto reset	None	AI_HumWorkHrsWarn	DI1015	BV1015
A016	Return fan maintenance required	Auto reset	None	AI_RetFanWorkHrsWarn	DI1016	BV1016
A017	Supply fan maintenance required	Auto reset	None	AI_SupplyFanWorkHrsWarn	DI1017	BV1017
A018	Reheating coil maintenance required	Auto reset	None	AI_ReheatCoilWorkHrsWarn	DI1018	BV1018
A019	Heat recovery maintenance required	Auto reset	None	AI_HeatExchgWorkHrsWarn	DI1019	BV1019
A020	Supply filters alarm	Auto reset	None	AI_Filters	DI1020	BV1020
A021	th-Tune clock not working	Auto reset	None	AI_ThTune_ClkBrd	DI1021	BV1021
A022	th-Tune temperature probe not working	Auto reset	Disable room temperature regulation	AI_ThTune_TempPrb	DI1022	BV1022
A023	th-Tune humidity probe not working	Auto reset	Disable room humidity regulation	AI_ThTune_HumPrb	DI1023	BV1023
A024	BMS offline	Auto reset	None	AI_BMS_Offline	DI1024	BV1024
A025	Supply differential pressure probe not working	Auto reset	None	AI_SupplyAirP_Prb	DI1025	BV1025
A026	Return differential pressure probe not working	Auto reset	None	AI_RetAirP_Prb	DI1026	BV1026
A027	Fire alarm by digital input	User reset	Stop unit, force fan at fire speed	AI_Fire	DI1027	BV1027
A028	Heating coil water temp.probe not working	Auto reset	Stop unit, force valve at 100%	AI_HeatCoilTempPrb	DI1028	BV1028
A029	Preheating coil water temp.probe not working	Auto reset	Stop unit, force valve at 100%	AI_PreHeatCoilTempPrb	DI1029	BV1029
A030	After preheating coil temp.probe not working	Auto reset	Disable preheater	AI_AfterPreHeatCoilTempPrb	DI1030	BV1030
A031	Heating device alarm	Auto reset until counter (3 in 3600s)	Stop heating	AI_Heat	DI1031	BV1031
A032	Fire alarm by temperature	User reset	Stop unit, force fan at fire speed	AI_FireExh	DI1032	BV1032
A033	Antifreeze alarm by heat back water temp.	Auto reset until counter (3 in 3600s)	Stop unit, force valve at 100%	AI_AFreezePRB	DI1033	BV1033
A034	Antifreeze alarm by preheat back water temp.	Auto reset until counter (3 in 3600s)	Stop unit, force valve at 100%	AI_AFreezePreHeatPRB	DI1034	BV1034
A035	Fans overload alarm	Auto reset	Stop unit	AI_FansOvld	DI1035	BV1035
A036	Supply humidity probe not working	Auto reset	Stop humidifier	AI_SupplyAirHum_Prb	DI1036	BV1036
A037	Unit configuration not allowed	Auto reset	Stop unit	AI_UnitCfgError	DI1037	BV1037
A038	Supply fan - Offline	Auto reset	Stop unit	AI_Offline_ZA_1	DI1038	BV1038
A039	Supply fan - Line Fault	Auto reset	Stop unit	AI_LineFault_ZA_1	DI1039	BV1039
A040	Supply fan - Motor blocked	Auto reset	Stop unit	AI_MotorBlock_ZA_1	DI1040	BV1040
A041	Supply fan - Fire alarm	Auto reset	Stop unit	AI_FireAlrm_ZA_1	DI1041	BV1041
A042	Supply fan - Uin Low (FW 10)	Auto reset	Stop unit	AI_UIN_LO_ZA_1	DI1042	BV1042
A043	Supply fan - Uin High (FW 10)	Auto reset	Stop unit	AI_UIN_HI_ZA_1	DI1043	BV1043
A044	Supply fan - UZK low	Auto reset	Stop unit	AI_UZK_Low_ZA_1	DI1044	BV1044
A045	Supply fan - UZK high	Auto reset	Stop unit	AI_UZK_High_ZA_1	DI1045	BV1045
A046	Supply fan - IGBT fault	Auto reset	Stop unit	AI_IGBTfault_ZA_1	DI1046	BV1046
A047	Supply fan - Earth-GND fault	Auto reset	Stop unit	AI_EarthGNDfault_ZA_1	DI1047	BV1047
A048	Supply fan - Peak current error	Auto reset	Stop unit	AI_PeakCurrent_ZA_1	DI1048	BV1048
A049	Supply fan - Hall sensor error	Auto reset	Stop unit	AI_HallSensor_ZA_1	DI1049	BV1049
A050	Supply fan - Offline	Auto reset	Stop unit	AI_Offline_EBM_1	DI1050	BV1050
A051	Supply fan - Phase Failure	User reset	Stop unit	AI_PhaseFault_EBM_1	DI1051	BV1051
A052	Supply fan - Motor blocked	User reset	Stop unit	AI_MotBlocked_EBM_1	DI1052	BV1052
A053	Supply fan - Mains undervolt.	User reset	Stop unit	AI_MainsUnderV_EBM_1	DI1053	BV1053
A054	Supply fan - Mains overvoltage	User reset	Stop unit	AI_MainsOverV_EBM_1	DI1054	BV1054
A055	Supply fan - DC-link overvoltage	User reset	Stop unit	AI_DClinkOverV_EBM_1	DI1055	BV1055
A056	Supply fan - DC-link undervoltage	User reset	Stop unit	AI_DClinkUnderV_EBM_1	DI1056	BV1056
A057	Supply fan - Motor overheat	User reset	Stop unit	AI_MotSuperHeating_EBM_1	DI1057	BV1057
A058	Supply fan - Intern.circ.overheat	User reset	Stop unit	AI_IntCircSuperHeat_EBM_1	DI1058	BV1058
A059	Supply fan - Out stage overheat.	User reset	Stop unit	AI_OutStageSuperHeat_EBM_1	DI1059	BV1059
A060	Supply fan - Hall sensor error	User reset	Stop unit	AI_HallSenErr_EBM_1	DI1060	BV1060
A061	Supply fan - Communic. Error	User reset	Stop unit	AI_CommunicationErr_EBM_1	DI1061	BV1061
A062	Supply fan - Generic error	User reset	Stop unit	AI_GenericErr_EBM_1	DI1062	BV1062
A063	Supply fan - Out stage high temp.	Auto reset	Stop unit	AI_OutStageHighTemp_EBM_1	DI1063	BV1063
A064	Supply fan - Int.circ.high temp.	Auto reset	Stop unit	AI_InternCircHighTemp_EBM_1	DI1064	BV1064
A065	Supply fan - Motor high temp.	Auto reset	Stop unit	AI_MotHighTemp_EBM_1	DI1065	BV1065
A066	Supply fan - DC-link volt.low	Auto reset	Stop unit	AI_DClinkV_Low_EBM_1	DI1066	BV1066
A067	Supply fan - Lim.mains power	Auto reset	Stop unit	AI_LimMainsPwr_EBM_1	DI1067	BV1067
A068	Supply fan - Lim.mains current	Auto reset	Stop unit	AI_LimMainsA_EBM_1	DI1068	BV1068
A069	Supply fan - Brake mode	Auto reset	Stop unit	AI_BrakeMode_EBM_1	DI1069	BV1069
A070	Supply fan - Cable break	Auto reset	Stop unit	AI_CableBreak_EBM_1	DI1070	BV1070
A071	Supply fan - Ice protection	Auto reset	Stop unit	AI_IceProtection_EBM_1	DI1071	BV1071
A072	Supply fan - Heating: motor stop	Auto reset	Stop unit	AI_HeatMotStopped_EBM_1	DI1072	BV1072
A073	Supply fan - Speed under limit	Auto reset	Stop unit	AI_SpeedUnderLim_EBM_1	DI1073	BV1073
A074	Supply fan - DC-voltage high	Auto reset	Stop unit	AI_DC_VoltageHigh_EBM_1	DI1074	BV1074
A075	Supply fan - Supply volt.high	Auto reset	Stop unit	AI_SupplyVoltageHigh_EBM_1	DI1075	BV1075
A076	Supply fan - Line imp. High	Auto reset	Stop unit	AI_LineImpHigh_EBM_1	DI1076	BV1076
A077	Return fan - Offline	Auto reset	Stop unit	AI_Offline_ZA_2	DI1077	BV1077
A078	Return fan - Line Fault	Auto reset	Stop unit	AI_LineFault_ZA_2	DI1078	BV1078
A079	Return fan - Motor blocked	Auto reset	Stop unit	AI_MotorBlock_ZA_2	DI1079	BV1079
A080	Return fan - Fire alarm	Auto reset	Stop unit	AI_FireAlrm_ZA_2	DI1080	BV1080

Code	Description on display	Reset	Action	Variable name	BMS	BacNet
A081	Return fan - Uin Low (FW 10)	Auto reset	Stop unit	AI_UIN_LO_ZA_2	DI1081	BV1081
A082	Return fan - Uin High (FW 10)	Auto reset	Stop unit	AI_UIN_HI_ZA_2	DI1082	BV1082
A083	Return fan - UZK low	Auto reset	Stop unit	AI_UZK_Low_ZA_2	DI1083	BV1083
A084	Return fan - UZK high	Auto reset	Stop unit	AI_UZK_High_ZA_2	DI1084	BV1084
A085	Return fan - IGBT fault	Auto reset	Stop unit	AI_IGBTfault_ZA_2	DI1085	BV1085
A086	Return fan - Earth-GND fault	Auto reset	Stop unit	AI_EarthGNDfault_ZA_2	DI1086	BV1086
A087	Return fan - Peak current error	Auto reset	Stop unit	AI_PeakCurrent_ZA_2	DI1087	BV1087
A088	Return fan - Hall sensor error	Auto reset	Stop unit	AI_HallSensor_ZA_2	DI1088	BV1088
A089	Return fan - Offline	Auto reset	Stop unit	AI_Offline_EBM_2	DI1089	BV1089
A090	Return fan - Phase Failure	User reset	Stop unit	AI_PhaseFault_EBM_2	DI1090	BV1090
A091	Return fan - Motor blocked	User reset	Stop unit	AI_MotBlocked_EBM_2	DI1091	BV1091
A092	Return fan - Mains undervolt.	User reset	Stop unit	AI_MainsUnderV_EBM_2	DI1092	BV1092
A093	Return fan - Mains overvoltage	User reset	Stop unit	AI_MainsOverV_EBM_2	DI1093	BV1093
A094	Return fan - DC-link overvoltage	User reset	Stop unit	AI_DClinkOverV_EBM_2	DI1094	BV1094
A095	Return fan - DC-link undervoltage	User reset	Stop unit	AI_DClinkUnderV_EBM_2	DI1095	BV1095
A096	Return fan - Motor overheat	User reset	Stop unit	AI_MotSuperHeating_EBM_2	DI1096	BV1096
A097	Return fan - Intern.circ.overheat	User reset	Stop unit	AI_IntCircSuperHeat_EBM_2	DI1097	BV1097
A098	Return fan - Out stage overheat.	User reset	Stop unit	AI_OutStageSuperHeat_EBM_2	DI1098	BV1098
A099	Return fan - Hall sensor error	User reset	Stop unit	AI_HallSenErr_EBM_2	DI1099	BV1099
A100	Return fan - Communic. Error	User reset	Stop unit	AI_CommunicationErr_EBM_2	DI1100	BV1100
A101	Return fan - Generic error	User reset	Stop unit	AI_GenericErr_EBM_2	DI1101	BV1101
A102	Return fan - Out stage high temp.	Auto reset	Stop unit	AI_OutStageHighTemp_EBM_2	DI1102	BV1102
A103	Return fan - Int.circ.high temp.	Auto reset	Stop unit	AI_InternCircHighTemp_EBM_2	DI1103	BV1103
A104	Return fan - Motor high temp.	Auto reset	Stop unit	AI_MotHighTemp_EBM_2	DI1104	BV1104
A105	Return fan - DC-link volt.low	Auto reset	Stop unit	AI_DClinkV_Low_EBM_2	DI1105	BV1105
A106	Return fan - Lim.mains power	Auto reset	Stop unit	AI_LimMainsPwr_EBM_2	DI1106	BV1106
A107	Return fan - Lim.mains current	Auto reset	Stop unit	AI_LimMainsA_EBM_2	DI1107	BV1107
A108	Return fan - Brake mode	Auto reset	Stop unit	AI_BrakeMode_EBM_2	DI1108	BV1108
A109	Return fan - Cable break	Auto reset	Stop unit	AI_CableBreak_EBM_2	DI1109	BV1109
A110	Return fan - Ice protection	Auto reset	Stop unit	AI_IceProtection_EBM_2	DI1110	BV1110
A111	Return fan - Heating: motor stop	Auto reset	Stop unit	AI_HeatMotStopped_EBM_2	DI1111	BV1111
A112	Return fan - Speed under limit	Auto reset	Stop unit	AI_SpeedUnderLim_EBM_2	DI1112	BV1112
A113	Return fan - DC-voltage high	Auto reset	Stop unit	AI_DC_VoltageHigh_EBM_2	DI1113	BV1113
A114	Return fan - Supply volt.high	Auto reset	Stop unit	AI_SupplyVoltageHigh_EBM_2	DI1114	BV1114
A115	Return fan - Line imp. High	Auto reset	Stop unit	AI_LineImpHigh_EBM_2	DI1115	BV1115
A404	VOC air quality probe not working	Auto reset	Stop VOC regulation	AI_RetAir_VOC_Prb	DI1404	BV1404
A405	Supply filter 2 alarm	Auto reset	None	AI_SupplyFilter_2	DI1405	BV1405
A406	Return filter alarm	Auto reset	None	AI_ReturnFilter	DI1406	BV1406
A407	Fresh air humidity probe not working	Auto reset	Stop humidity check for freecooling	AI_FreshAirHumPrb	DI1407	BV1407
A408	Preheating coil maintenance required	Auto reset	None	AI_PreheatCoilWorkHrsWarn	DI1408	BV1408
A412	IEC humidifier maintenance required	Auto reset	None	AI_HumIEC_WorkHrsWarn	DI1412	BV1412
A413	Cool device maintenance required	Auto reset	None	AI_CoolWorkHrsWarn	DI1413	BV1413
A414	Cool device 2 maintenance required	Auto reset	None	AI_Cool2_WorkHrsWarn	DI1414	BV1414
A415	Heat device maintenance required	Auto reset	None	AI_HeatWorkHrsWarn	DI1415	BV1415
A416	Heat device 2 maintenance required	Auto reset	None	AI_Heat2_WorkHrsWarn	DI1416	BV1416
A417	Reverse device maintenance required	Auto reset	None	AI_RevWorkHrsWarn	DI1417	BV1417
A418	Reverse device 2 maintenance required	Auto reset	None	AI_Rev2_WorkHrsWarn	DI1418	BV1418
A422	Out of design temperature limits alarm	Auto reset	Open mixing or stop ventilation if not present	AI_OutDesignTemp	DI1422	BV1422
A429	Recovery clogeed	Auto reset	Stop recovery	AI_Recovery_clogeed	DI1429	BV1429
A430	Door switch	Auto reset	Stop unit	AI_Door_switch	DI1430	BV1431
A431	Hepa 1 pressure probe alarm	Auto reset	None	AI_HEPA_pressProb1	DI1441	BV1456
A432	Hepa 1 pressure probe alarm	Auto reset	None	AI_HEPA_pressProb2	DI1442	BV1466
A433	Reversable coil alarm	Auto reset	Stop unit	AI_Reversable	DI1443	BV1467
A434	Generic external alarm	Auto reset	Stop unit	AI_Input_generic	DI1444	BV1468
A435	Hepa filter 1	Auto reset	None	AI_HEPA_Filter1	DI1445	BV1469
A436	Hepa filter 2	Auto reset	None	AI_HEPA_Filter2	DI1446	BV1470

8. NEW FUNCTIONALITIES FROM VER. 2.1.0

8.1 Modulating Fresh air damper

From the release 2.1.0, there is the possibilitiy to setup a Fresh dumer modulating that can work on a fix position or modulate according with the mixing damper if present.
The parameters that permit those settings are under the menu Settings, **H025** to enable the fix position and **H026** to setup the percentage of the fix position opening.

8.2 Additional device signals to send a feedback to external devices

From the release 2.1.0, there is the possibility to send through analoge outputs the request for the main coils to external devices.
The enabling is manage under the menu Settings parameter **H027**.

8.3 Advanced PID settings for the working modes

From the release 2.1.0, there is the possibility to setup a different PID values for each devices in base of the working mode set .The enabling is manage under the menu Settings parameter **H028**.

8.4 HEPA filters management

From the release 2.1.0, there is the possibility to setup like supply filters,up to two HEPA filters devices that can work in base of their differential pressure sensor, and you can regulate the fans speed according with their pressure value.
The parameters to setup them are on the control type for the Fan, setting the “HEPA”regulation.

8.5 Regulation CAV and VAV in supply only units

From the release 2.1.0, we added the possibility to set up the VAV or CAV regulation also in case the unit is setup to works with just the supply fan, without the return.

9. NOTE

9.1 kVent release notes

SW release	Manual release	Modification description
2.0.14B 09-01-2017	1.0 09-01-2017	**Resolved** • x **Changed** • x. **Improved** • First beta version **Manual** • x
2.0.15B 29-03-2017	2.0 29-03-2017	**Resolved** • x **Changed** • x. **Improved** • Added supervisory line on the configuration **Manual** • x
2.0.17B 31-03-2017	2.1 31-03-2017	**Resolved** • x **Changed** • x. **Improved** • Added Polish language on UI **Manual** • x
2.0.18B 07-09-2017	2.4 07-09-2017	**Resolved** • Fix the alarm reset from the TH-tune • Fix the limit setpoint on the th-tune according with the regulation type **Changed** • x **Improved** • webkit added • updated the modbus slave and bacnet line • Added the Boost function, added the Door Switch digital input; fixed the alarm reset by th-tune, fixed the humidity limits with th-tune **Manual** • En and PL manual
2.1.0 30-05-2018	3.0 01-06-2018	**Resolved** • Fix a wrong behaviour on the fan if set up the water coils on pre/re-heaters, even if the unit was in oFF, the fans started • Fix the Threshold for the second device on/off on the DX reversible configuration • Fixed some issue regarding the rotation using three circuits with one BLDC compressor per circuit. • Fixed the reverseble menu according with the main configuratio setup from the unit config menu **Changed** • changed the unit of measure from s, to min on the time setting for the pump on the heating coils during the off time • Fixed the DEV configuration • changed FloatValve management, now at the startup of the unit we force the valve in closing before to start to regulate to be sure that the valve start from zero. • **Improved** • Added the HEPA filters management • Added the possibility to set an output signal for each device request (just for the coils) • implement the logic to define a specific PID set for each working mode for: Freecoling; pre-Heat; coling; Heating; reversible; ReHeating. • Alarms management, added the new alarms for the Hepa filters • Add Display Protocol • Added the new variables on modbus slave and bacnet server lines • Modulating Fresh air damper control • modulating fresh air damper output (AO), it to be separate from mixing damper output. • Setting fresh damper at constant value(fixed) for full fresh units or single zone unites • safety protection for antifreeze, smoke/fire by fresh damper shut-off • if air quality control is enabled the fresh air damper opens according to the request (at single zone units) • support free Colling function (at single zone units) • Create an additional signal for each device used on the kVent (like cooling coil request; heating coil request; pre/Re heating coil) in order to send the same request that kVent send to it device to and external device. • Adding the possibility through the user interface to set up for each working mode (like comfort-pre

		comfort-economy), not just the set point and fans speed but also a dedicate PID parameters for the free cooling and the relative coil (heating/cooling if it is present). • Adding a function to check the differential of pressure between the supply and exhaust fan, modulating the exhaust or return fan to keep the pressure constant. • in addition, units are equipped with two modulating dampers in fresh air and mixed air .we want two analog outputs for controlling dampers, that a fresh damper can be set to constant value. • added all the masks to set up the PID parameters for each coils in base of the working mode. • added the fresh modulating damper • Condensing Unit Management • Add the RU language • Add the CZ language • Added the c.filed web pages for commissioning **Manual** • Add pGDX user interfaces

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