⚠	**WARNING: Please read this manual carefully before connecting the panel**

Controller for air handling units CU24V2

Set 22.0 C @1

| Indoor | 19.0 C | Inlet | 5.0 C |
| Supply | 28.0 C | Extract | 10.0 C |

Heating Cooling Exchanger GHE Alarm

① ② ③ ④ Mode AUTO
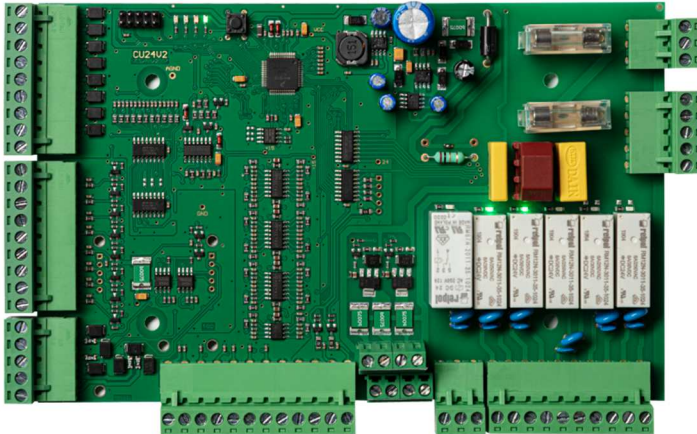
User's MANUAL

Ver.1.9/2026

CE

<u>WARNING!!</u>

When connecting the panel to the controller, take care not to change the G0 earth voltage cable with G phase cable in one of the devices. Reversing these cables in one of the devices will lead to a short-circuit between G and G0 through the RS485 output and to the damage of this output.
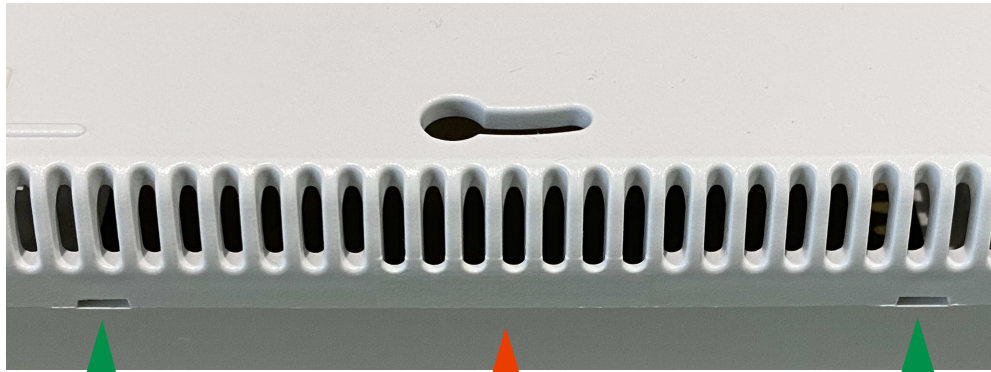
24 V AC power supply should be connected as below:

- G0 earth voltage cable should be connected to terminal No. **1**
- G phase cable should be connected to terminal No. **2**
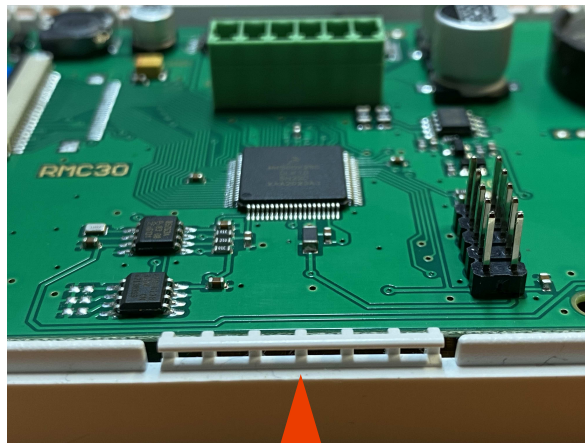
Table of contents

1. RMC30 PANEL OPENING

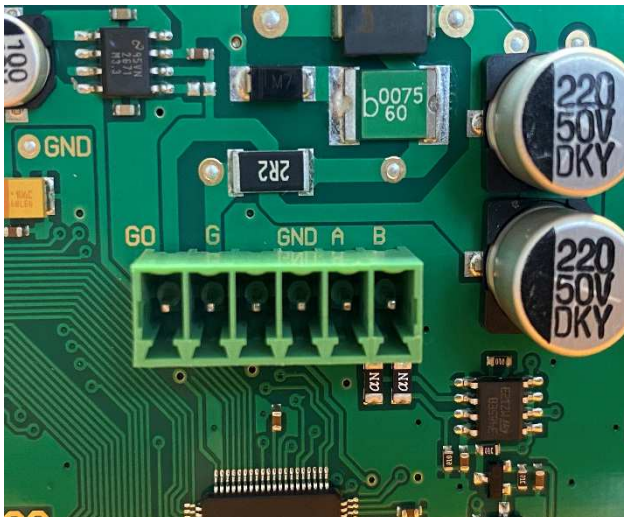Open this side
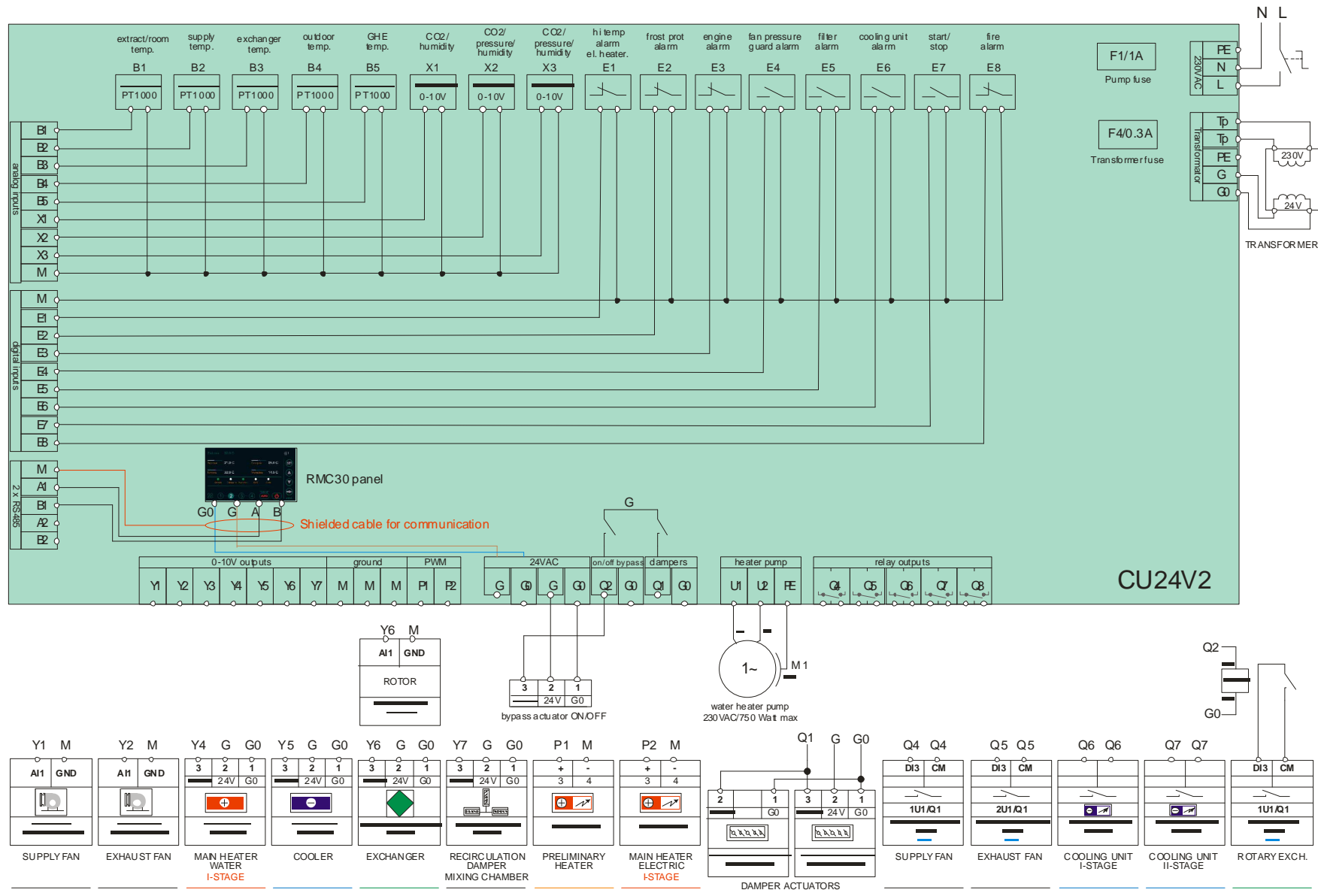
Beware: Do not open from this side

Open this side

Beware: Do not open from this side

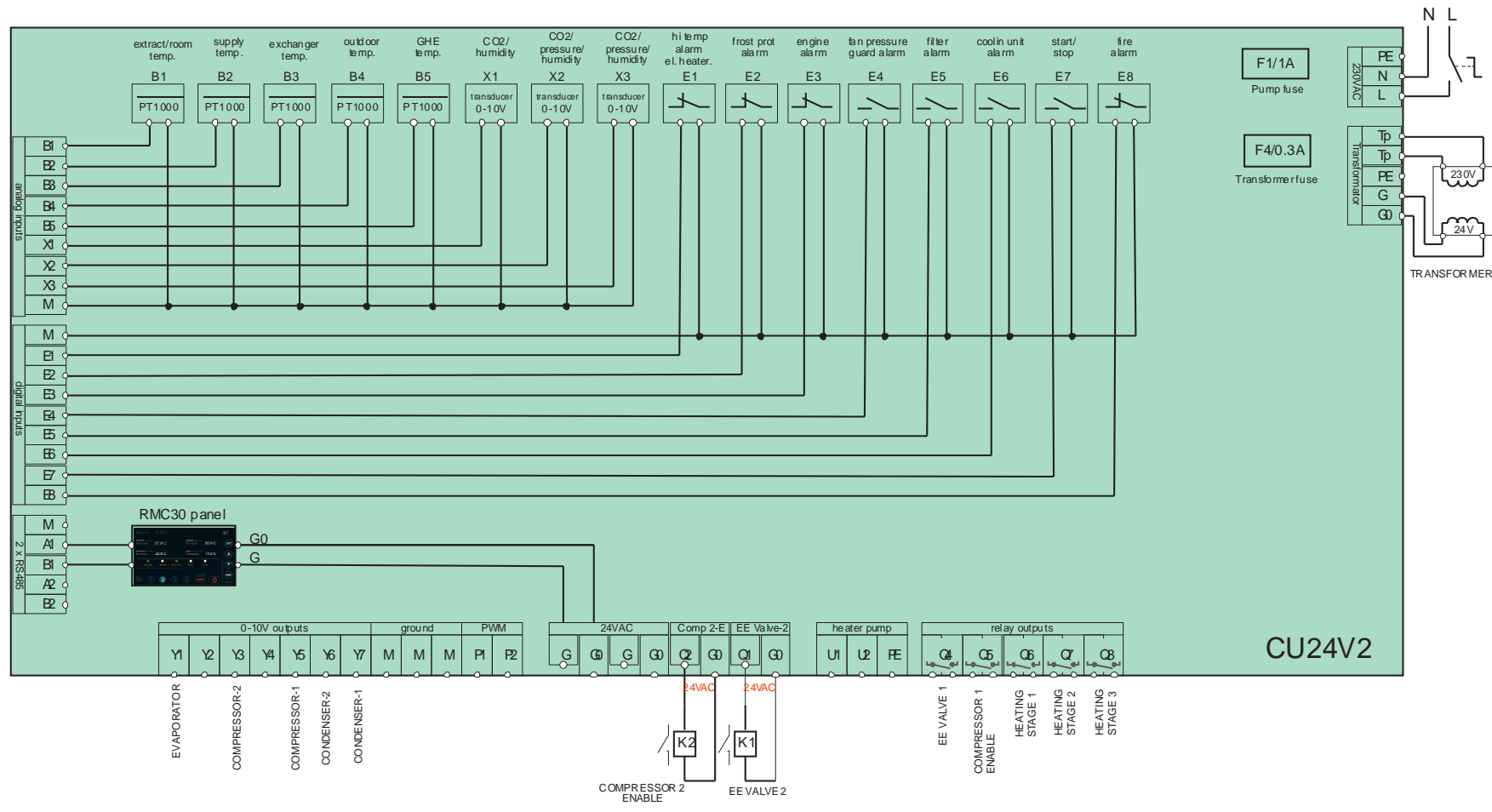**Connection description visible on the board after removing the connector:**
G0 – G – not used – GND – A – B

extract/room temp.	supply temp.	exchanger temp.	outdoor temp.	GHE temp.	CO2/ humidity	CO2/ pressure/ humidity	CO2/ pressure/ humidity	hi temp alarm el. heater.	frost prot alarm	engine alarm	fan pressure guard alarm	filter alarm	coolin unit alarm	start/ stop	fire alarm
B1	B2	B3	B4	B5	X1	X2	X3	E1	E2	E3	E4	E5	E6	E7	E8
PT1000	PT1000	PT1000	PT1000	PT1000	transducer 0-10V	transducer 0-10V	transducer 0-10V								

analog inputs

B1
B2
B3
B4
B5
X1
X2
X3
M

digital inputs

M
E1
E2
E3
E4
E5
E6
E7
E8

2 x RS485

M
A1
B1
A2
B2

RMC30 panel

G0
G

F1/1A
Pump fuse

F4/0.3A
Transformer fuse

CU24V2

0-10V outputs							ground			PWM		24VAC				Comp 2-E		EE Valve-2		heater pump			relay outputs
Y1	Y2	Y3	Y4	Y5	Y6	Y7	M	M	M	P1	P2	G	G0	G	G0	Q2	G0	Q1	G0	U1	U2	PE	Q4 Q5 Q6 Q7 Q8

24VAC   24VAC

EVAPORATOR
COMPRESSOR-2
COMPRESSOR-1
CONDENSER-2
CONDENSER-1

K2   K1

COMPRESSOR 2 ENABLE   EE VALVE 2

EE VALVE 1
COMPRESSOR 1 ENABLE
HEATING STAGE 1
HEATING STAGE 2
HEATING STAGE 3

N L

PE
230VAC N
L

Tp
Tp
PE
G
G0

Transformator
230V
24V

TRANSFORMER

4. TERMINALS

L-N   **230VAC power line supply**

PE   **Ground**

Tp-Tp   **Primary windings of the transformer:**
The L-N powerline is internally connected to Tp-Tp to supply the primary windings of the transformer

G0-G   **24VAC** Power supply for the controller: G0 is the (-) terminal and G is the (+) terminal. The 24VAC secondary windings of the transformer should be connected to G0-G

M   **Signal ground** for analog inputs B1-B5, X1-X3, digital inputs E1-E8, 0-10V outputs Y1-Y7, PWM outputs P1, P2

B1-B5   Resistive PT1000 inputs

X1-X3   Analog inputs 0-10VDC

E1-E8   Digital inputs, potential-free contacts
Do not apply voltage to the E1... E8 digital inputs.

Q1, Q2   24VAC output for direct supplying of damper actuators, **4A max load**

Q4-Q8   Relay outputs - closing contacts, **4A max load**

Y1-Y7   Analog outputs 0-10VDC

P1, P2   Modulated outputs 21V DC: electric heat current valves driving
Connect the device to be controlled (e.g. a semiconductor relay) to P1(+) and M(-) or P2(+) and M(-)

A1, B1 Serial interface RS485
A2, B2 Serial interface RS485

5. PANEL CONNECTION

No.	Type	Description
1	Power supply (-)	**G0**: Supply earth voltage
2	Power supply (+)	**G**: +24V AC
3	Unused	-
4	M	Ground
5	A	Serial interface RS485
6	B	

To see the labels for wiring, remove the connector.

6. OPERATION

The **CU24V2** controller is a configurable controller for HVAC AHUs. The rich configuration options of the controller allows to create applications for AHU in almost all configurations. The controller comes complete with a 4.3" wall-mounted color touch panel **RMC30**, which allows you to create applications, parameterize the controller and manage the unit. The panel has a built-in very innovative and intelligent interface that allows the user to easily and clearly program the controller and navigate in the menu system. It has a unique solution consisting of a built-in guide, which during navigation in the menu, prompts the user how to use the buttons and explains the parameter designations, so there is no need to consult the instructions. When creating an application, the user only selects which functions he wants to use, while the controller sets the input/output for the task depending on the selected other functions, then the selection is displayed on the panel in real time. The I/O list of the built application along with the description and visualization is made available and can be consulted when connecting devices to the controller.

6.1 Basic functions:

- **Temperature control**
    - Cascade temperature control with min/max limitation. or airflow adjustment
    - Water and electric heater control
    - Water cooler and chiller control
    - Heat pump control
    - Pre-heating function
    - Active water heater frost protection
    - Protection of electric heaters against overheating
    - Preliminary heater
    - Cascade connection of two heaters: I and II section
- **Fan control**
    - Supply and exhaust fan control
    - Frequency converter control
    - Engine alarm
    - Fan pressure switch
- **Control of heat recovery system**

- Rotary, cross and glycol exchanger control
- Mixing chamber control
- Exchanger freezing protection
- **CO2 regulation**
- **Supply and exhaust pressure regulation**
- **Humidity control**
- **Real time clock with weekly work schedule**
- **Alarms**
    - Signaling and alarm management
    - Alarm history overview
- **BMS**
    - Possibility to connect to the BMS system via the RS485 serial link
    - MODBUS communication protocol

6.2   Power on and scanning the network:

At power on RMC30 panel will scan the network to find device. The address of the device is displayed in the top right corner and is preceded by the character "@". After a device is detected data will be loaded from it before the panel can start operating. During data loading an animation appears on the top-right side of the display. **After power on wait until full data load full display of information before using the keys to navigate**.

6.3   Keys description:

SET Entering the **Menu** review or entering the parameter editing mode in the Menu.

▲ Scrolling the menu backward or change parameter value during setting

▼ Scrolling the menu forward or changing the parameter value during setting

➡ Switching main screen views or moving to the next parameter during setting

⏻ The AHU is working. Pressing switches off the AHU
⏻ The AHU is off. Pressing turns on the AHU

AUTO Selection of program AUTO, MAN, PRO1, PRO2. Each press switches to the next value
MAN on the list.

PRO1 **PRO2**

1 — 2 — 3 — 4 Switching fan gears

6.4   Login:

The CU24V2 controller has 3 access level:

- Level 0: level at power on without login

- Level 1: **User**,   password at factory set: **0**

- Level 2: **Admin1**,   password at factory set: **0**

- Level 3: **Admin2**,   password at factory set: **11**

Level 3 is the highest and gives access to the editing of any parameter.

All parameters can be viewed without need to log in with any password. But editing the parameters values are done according to the login level for the parameter. Parameters that are not allowed to be changed without password have * or ** displayed. The number of * is the log in level needed for the parameter to be edited. A parameter without symbol * or ** can be changed.

To login:

1. Click SET and hold (about 1-2 sec) until the first Menu page **Menu #1 Zone 1 – All** appears.
2. Go to **Menu #38 LOGIN** (last page in the menu system) by pressing ▲
3. Click on SET and hold until the value of LOGIN changes from white to **green**. Editing mode is indicated by a red circle SET .
4. Enter the password with the button ▲ ▼
5. After entering the password click and hold SET until the color of the parameter value goes out (green to white color). The red circle in the button will also turn off and go back to SET
   After validating the password the **LOGIN** level will be displayed and be > 0. If the password is not valid the displayed LOGIN level will be 0.

Once the password is validated it will be valid you can change parameters values according to you login level. After leaving the menu system and back to main view the password will still be valid for one minute, so when you come back to menu system again you don't have to login. But if you stay out of the menu system for more than one minute the password validation will be cancelled and you will have to login again to edit parameters.

 Until you don't leave the menu system the password validation is active.

6.5 Alarm list:

To view the alarm list switch the display views using the ⬤ button, or touch the Alarm light area when an alarm is activated.

Clearing alarm with the "clear" button can be done only after logged in with password.

Alarm nr	Alarm name	Description
1	Heater freeze	**Operation**: Water heater frost alarm occurs when the digital input **E2** is **opened**. The alarm stops the AHU and open the heater valve at 100% to protect the heater. **Alarm clearing**: To clear the alarm the input **E2** should be closed, then alarm can be cleared by the "clear" button if the parameter **FOVER = MAN** or automatically cleared if **FOVER = AUTO**. See FOVER in **Menu #20**.
2	Engine failure	**Operation**: Engine failure alarm occurs when input **E3** is **opened**. The alarm stops the AHU. **Alarm clearing**: To clear alarm input **E3** should be closed, then clearing is done by click on **START** button to start the AHU or by the "clear" button.
3	Fan pressure-1	**Operation**: Supply/Extract fan pressure guard alarm occurs when input **E4** is **opened** for a time longer than the time set by the parameter **PREST** (**Menu #30**). The alarm stops the AHU. **Alarm clearing**: To clear alarm input **E4** should be closed, then clearing is done by click on **START** button to start the AHU or by the "clear" button.
4	Fan pressure-2	**Operation**: Extract fan pressure guard alarm. There is no separate input for extract fan pressure guard, and bot supply and extract fan pressure guards should be connected to input **E4**.
5	Fire alarm	**Operation**: Fire alarm occurs when input **E8** is **opened**. The alarm stops the AHU. **Alarm clearing**: To clear alarm input **E8** should be closed, then clearing is done by the "clear" button. After clearing the AHU can be started by **START** button.
6	Hi temperature	**Operation**: High temperature alarm occurs when input **E1** is **opened**. The alarm switch of all heaters but does not stop the AHU. **Alarm clearing**: Alarm clears automatically after input **E1** is closed.
7	Exchanger freeze	**Operation**:

		Exchanger freeze alarms occurs when the temperature sensed at the exchanger outlet falls below the value set by parameter **EPRO** (**Menu #10**). The alarm opens fully the bypass damper or stops the rotary exchanger, but does not stop the AHU. **Alarm clearing**: Alarm clears automatically after the temperature has raised above the set alarm value **EPRO** by 1 C.
8	Chiller alarm	**Operation**: Chiller alarm occurs when input **E6** is **closed**. The alarm switch off the cooling unit but does not stop the AHU. **Alarm clearing**: - Manually clearing using the "**clear**" button with input **E6 opened** - Automatically cleared when input **E6** is **opened** and after **5 min** have elapsed from the time the alarm occurred. - Stop the AHU then start again. The alarm clears automatically at start.
9	Pump failure	**Not available**
10	Filters alarm	**Operation**: Filters guards alarm occurs when input **E5** is **closed**. **Alarm clearing**: Alarm clears automatically after input **E5** is opened. There is one common input dedicated to filters guards. All filters guards should be connected in parallel to the input **E5**.
19	Low water temp.	**Not available**
20	Sensor break	**Operation**: Sensor break alarm occurs when the main temperature sensor is not connected at input **B1** or when there is a short circuit. **Alarm clearing**: Automatically cleared after sensor is connected.
22	Low pressure-1	**Operation**: Switch off the compressor 1
23	High pressue-1	**Operation**: Switch off the compressor 1
24	Water leak	**Operation**: Switch off the evaporator if parameter **WLEAK = Yes (Menu #17**)
25	Low pressure-2	**Operation**: Switch off the compressor 2
26	High pressue-2	**Operation**: Switch off the compressor 2

6.6   Home page and setpoint editing:

The home page contains all the most important information of the HVAC unit and enables direct editing of setpoints such as temperature, fan speed, work program and switching on/off of the unit, without having to scroll the screens to search for information

Home page view

a. Increasing the temperature: click

b. Reducing the temperature: click

c. Setting fan speed: click on the appropriate number in the field

d. Change work program: click on AUTO until the desired program appears

e. Turning on or off the unit: click on   or

Note: The temperature changes every 0.5 C. For a more accurate temperature editing, this should be done within the time schedule.

6.7   Switching home screen views:

The RMC30 panel enables displaying all information from the HVAC unit. This information is grouped into several views that can be switch with the key ➡ in the order shown below

1. Home page

3. Analog and digital inputs display

4. Analog and digital outputs display
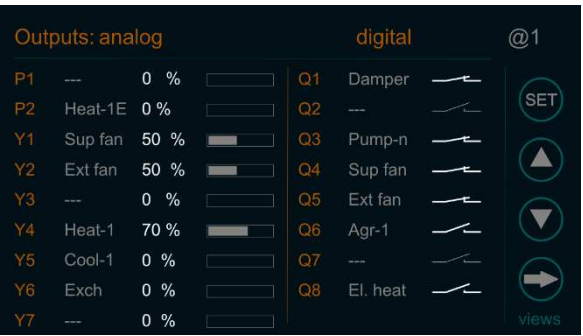
5. Alarms display
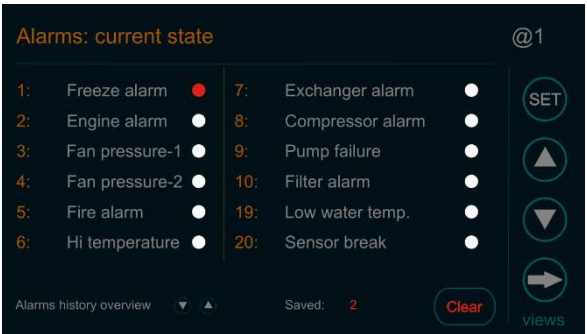
6.8   Abbreviation description:

Abbreviation description for input

Skrót	Opis
Main	Main sensor
Supply	Supply sensor
Outdoor	Outdoor sensor
Exch	Exchanger sensor
GHE	GHE temperature sensor
Pre-heat	Preliminary heating temperaturę sensor
CO2	CO2 tranducer
Hum	Humidity tranducer
Pres-1	Pressue tranducer 1
Pres-2	Pressure tranducer 2
Frost	Frost thermostat
Pres-S	Supply fan pressure guard
Pres-E	Extract fan pressure guard
Engine al	Engine alarm
Aprot	Cooling unit alarm
Fire	Fire alarm
Hi temp	Hi temperaturę alarm
Pump al	Pomp alarm
Filter	Filter alarm
Start	Start/stop input
Cust-1	Custom function 1 input
Cust-2	Custom function 2 input
Comp1-Lo	Compressor 1 low pressure input
Comp-Hi	Compressor 1 high pressure input
Comp2-Lo	Compressor 2 low pressure input
Comp2-Hi	Compressor 2 high pressure input
Water-lk	Water leak input

Abbreviation description for output

Skrót	Opis
Heat-1	Main heater (first heating step)
Heat-sec	Secondary heating (second heating step)
Heat-1 E	Electric heater (first heating step)
El. heat	Electric heater supply
Cool-1	Cooling control - 1 step
Cool-2	Cooling control – 2 step
Agr-1	Cooling unit – 1 step
Agr-2	Cooling unit – 2 step
Exch	Exchanger control
Damper	On/off damper
Recirc	Recirculation control (mixing chamber)
Bypass	Bypass control
GHE	GHE control
Pump-H	Water heater pump
Pump-C	Water cooling pump
Pump-ex	Exchanger pump
Heat P	Heating pump
CO2	COE control
Pres-1	Pressure control-1
Pres-2	Pressure control-2
Sup fan	Supply fan control
Sup fan-2	Supply fan control – gear 2 (for 2 gear AC fans)
Ext fan	Extract fan control
Comp-1	Compressor 1 control
Comp-2	Compressor 2 control
Comp1-E	Compressor 1 enable output
Comp2-E	Compressor 2 enable output
Cond-1	Condenser 1 fan control
Cond-2	Condenser 2 fan control
Evapor	Evaporator fan control
Evalve-1	Electronic expansion valve 1 control
Evalve-2	Electronic expansion valve 2 control

6.9 Application setting:

The CU24V2 controller has built-in some predefined applications that can be selected from a list by setting the parameter **APP**. To manually define your own application set the parameter **APP = USER**. When a predefined application is selected (**APP** is other than **USER**) the items in the menu for manual defining an application will be disabled.

Predefined application list:

Nr	Heating	Cooling	Preheat	Sec heat	Exchanger (bypass)	Recirculation	Heat pump	CO2 control
Heat recovery units with on/off bypass control								
1-rec	P2	-	-	-	Q2	-	-	-
2-rec	P2	-	P1	-	Q2	-	-	-
AHU with water heater								
3-w	Y4	-	-	-	Y6, Q2	-	-	-
4-wx	Y4	Q6	-	-	Y6, Q2			
5-wxr	Y4	Q6	-	-	Y6, Q2	Y7	-	-
AHU with electric heater								
6-e	P2	-	-	-	Y6, Q2	-	-	-
7-ex	P2	Q6	-	-	Y6, Q2	-	-	-
8-exr	P2	Q6	-	-	Y6, Q2	Y7	-	-
AHU with heat pump								
9-hp	Y4	Y4, Q7	-	-	Y6, Q2	-	Q6	-
10-hp	Y4	Y4, Q7	-	P2	Y6, Q2	-	Q6	-
AHU with CO2 control								
11-co	Y4	Q6	-	-	Y6, Q2	-	-	Y1, Y2

The setting below is common to all the **predefined applications**:

- **Supply fan inverter control**: Y1
- **Supply fan inverter start**: Q4
- **Extract fan inverter control**: Y2
- **Extract fan inverter start**: Q5
- **On/Off dampers**: Q1
- **Water heater pump**: U1-U2

6.10   Menu overview and parameters setting:

6. Click **SET** and hold until the first page **Menu #1** of the Menu appears (about 1 sek).

7. There are two ways to search parameters:
    a. Scroll the pages with the buttons ▼ ▲ until you find the parameter
    b. Faster method:
        - Click on **Menu #1** to open the page with the menu contents as below
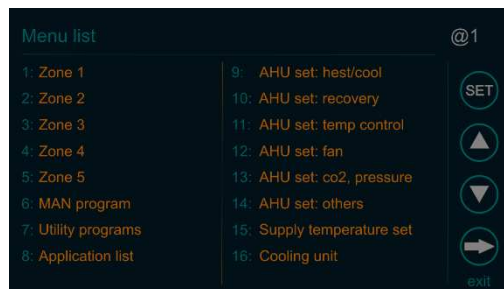
        - Scroll with the buttons ▼ ▲ to search the relevant chapter
        - Click on a chapter to directly open its page with the parameter list

8. To enable editing parameters, click on **SET** and hold until the color of the first parameter from the list changes. Editing mode is indicated by a red circle **SET** .

9. Set the desired parameter value with the buttons ▼ ▲ .

10. To switch to the next parameter click ➡

11. To finish editing click and hold **SET** until the color of the parameter value goes out. The red circle in the button will also turn off and go back to **SET** .

12. To exit the Menu section and return to the home page, click ➡ .

    Note: To switch days of the week in the schedule (**Menu #1** to **Menu #6**) press in the menu title "**All days**".

6.10.1 Menu #1 Zone 1 – All days

Name	Default setting	Range	Description
START	00.00	00.00 ÷ 23.59 G:M	Time zone start time
STOP	00.00	00.00 ÷ 23.59 G:M	Time zone end time
SV1	22.0	-24.0 ÷ 69.0 °C	Set temperature
CO2/SV2	0	0 ÷ 100 %	Set value of CO2 or humidity
SV3	0	0 ÷ 1000 Pa,%	Set value of for pressure, CO2 or humidity
SV4	0	0 ÷ 1000 Pa,%	Set value of for pressure, CO2 or humidity
SPEED	2	1 ÷ 4	Fan speed

6.10.2 Menu #2 Zone 2 – All days

As above

6.10.3 Menu #3 Zone 3 – All days

6.10.4 Menu #4 Zone 4 – All days

6.10.5 Menu #5 Zone 5 – All days

6.10.6 Menu #6 MAN program – All days

Name	Default setting	Range	Description
TIME	00.00	00.00 ÷ 23.59 G:M	Program runing time
SV1	22.0	-24.0 ÷ 69.0 °C	Set temperature
CO2	0	0 ÷ 100 %	Set value of CO2 or humidity
SV3	0	0 ÷ 1000 Pa,%	Set value of for pressure, CO2 or humidity
SV4	0	0 ÷ 1000 Pa,%	Set value of for pressure, CO2 or humidity
SPEED	2	1 ÷ 4	Fan speed

6.10.7 Menu #7 Utility programs

Name	Default setting	Range	Description
PRO1	OFF	OFF, S4-E4,S1-E4, S0-E4,S1-E1, S4-E1, S4-E0	**Work program for fans**. The program is controlled by the defined digital input following the activation of the parameter **PR1IN** w **Menu #14**. It performs according to the set value if is selected as program and the digital input is activated. **OFF**: turning off the program **S**-supply; **E**-extract The number after the letter indicates the fan speed
PRO2	OFF	OFF, S4-E4,S1-E4, S0-E4,S1-E1, S4-E1, S4-E0	**Work program for fans**. The program is activated after selecting **OFF**: turning off the program **S**-supply; **E**-extract The number after the letter indicates the fan speed

6.10.8 Menu #8 Application List

Name	Default setting	Range	Description
APP	USER	USER, 1÷11	**Application select** **USER**: Free application configuration **DX**: DX cooling system application **1÷11**: Selecting among ready applications

6.10.9 Menu #9 AHU set: heat/cool

Name	Default setting	Range	Description
HEAT1	0-10V	none, 0-10V, PWM, elec-1, elec-2, elec-3	**Main heater:** First heating section 0-10V: 0-10V control PWM: PWM control of electric heater elec-1: ON/OFF control of electric heater – 1 stage elec-2: ON/OFF control of electric heater – 2 stage elec-3: ON/OFF control of electric heater – 3 stage
COOL	DX-1	none, water, DX-1, DX-2, INV-1, INV-2	**Cooling coil:** **DX-1:** DX cooling ON/OFF one step **DX-2:** DX cooling ON/OFF two step **INV-1:** DX cooling one inverter 0-10V **INV-2:** DX cooling two inverters 0-10V
PHEAT	none	none, 0-10V, PWM	**Preliminary heater:** Mounted before the exchanger, it is used for pre-heating. 0-10V: 0-10V control PWM: PWM control of electric heater
HEAT2	none	none, 0-10V, PWM	**Secondary heater:** Works as a second heating section connected in cascade to the main heater HEAT1. During dehumidification, if heaters HEAT1 and HEAT2 are defined then HEAT1 will be switch off and only HEAT2 will work. 0-10V: 0-10V control PWM: PWM control of electric heater
HPUMP	none	none, HP-1, HP-2	**Heat pump:** **HP-1:** 0-10V for heating and cooling. **HP-2:** 5-10V for heating 5-0V for cooling

Heat pump control

The HPUMP parameter is for AHU with heat pump control. After activating this parameter the outputs of the controller will be set as bellow:

	Heating/cooling control output **HPUMP=HP-1**	Heating/cooling control output **HPUMP=HP-2**	Electric heater control output	heating activation	Unit Start	operating mode select: according to **HPMD** setting **(Menu #21)**
	Y4		**P2**	**U1-U2**	**Q6**	**Q7**
Heating mode	0-10V	5-10V	**PWM** output	**ON** state	**ON** state	**ON** when **HPMD=HEAT** **OFF** when **HPMD=COOL**
Cooling mode	0-10V	5-0V	**OFF** state	**OFF** state	**ON** state	**ON** when **HPMD=COOL** **OFF** when **HPMD=HEAT**

Control for two-stage inverter units

To control a two-stage inverter unit with heating and cooling function, set the parameters as follows:

COOL=INV-2 : Two-stage inverter

HPUMP=HP-1 or **HP-2** : Heat pump function

HPMD=HEAT or **COOL** : Selection of heating or cooling mode for output Q7

	inverter **stage-1** **HPUMP=HP-1**	inverter **stage-1** **HPUMP=HP-2**	inverter **stage-2** **HPUMP=HP-1**	inverter **stage-2** **HPUMP=HP-2**	Unit Start	operating mode select: according to **HPMD** setting **(Menu #21)**
	Y5		**Y3**		**Q6**	**Q7**
Heating mode	0-10V	5-10V	0-10V	5-10V	**ON** state	**ON** when **HPMD=HEAT** **OFF** when **HPMD=COOL**
Cooling mode	0-10V	5-0V	0-10V	5-0V	**ON** state	**ON** when **HPMD=COOL** **OFF** when **HPMD=HEAT**

6.10.10 Menu #10 AHU set: recovery

Name	Default setting	Range	Description
ECON	bypass	none, bypass, rotor, glycol, 2-10V, 24VAC, contact, rotor on/off	**Exchanger control:** **bypass** - 0-10V control for bypass actuator **rotor** - 0-10V control for rotor inverter **glycol** - 0-10V control for glycol valve actuator **2-10V** - 2-10V control for bypass actuator **24VAC** - 24VAC on/off output for control **contact** - Potential free contact for on/off control **rotor on/off** – On/Off control for rotor
EPRO	B3		**Exchanger protection:** Protection by temperature sensor on the exchanger outlet.
DACO	none	No, Yes	**Recirculation (Mixing chamber):** 0V - 0% recirculation and 100% fresh air 10V - 100% recirculation i 0% fresh air
GWC	none	No, Yes	**Ground heat exchanger**

6.10.11 Menu #11 AHU set: temp control

Name	Default setting	Range	Description
TCON	cascade	cascade, supply	**Temperatur control:** Cascade control with supply and room/exhaust sensor, or supply control.

6.10.12 Menu #12 AHU set: wentylator

Name	Default setting	Range	Description
FCON	freq	1 speed, 2 speed 3 speed, 4 speed freq	**Fan control:** **1 speed – 4 speed**: AC fan **freq**: EC fan or inverter control

6.10.13 Menu #13 AHU set: co2, pressure

Name	Default setting	Range	Description
PID2	No	No, co2-fan, co2-damp, humidity, deshum, hum-desh	**PID #2 control:** CO2 or humidity control **co2-fan** – CO2 control by fan **co2-damp** – CO2 control by dampers **humidity** – Humidification control **deshum** – Deshumidification control **hum-desh** – Humidification / deshumidification
PID3	No	No, pressure, CO2, humidity, deshum, hum-desh	**PID #3 control:** Pressure, CO2 or humidity control **cisnienie** – Pressure control by fan **CO2** – Additional CO2 control **humidity** – Humidification control **deshum** – Deshumidification control **hum-desh** – Humidification / deshumidification
PID4	No	No, pressure, CO2, humidity, deshum, hum-desh	**PID #4 control:** Pressure, CO2 or humidity control **cisnienie** – Pressure control by fan **CO2** – Additional CO2 control **humidity** – Humidification control **deshum** – Deshumidification control **hum-desh** – Humidification / deshumidification

6.10.14 Menu #14 AHU set: others

Name	Default setting	Range	Description
ALOUT	Nie	Nie, Tak	**Alarm output:** Digital output for alarm signaling
PR1IN	Nie	Nie, Tak	**Utility program-1:** After enabling this function, the PRO1 program in **Menu #7** will be controlled by the digital input indicated under this function.

6.10.15 Menu #15 Supply temperaturę set

Name	Default setting	Range	Description
MIN	15 C	0 ÷ 66 C	Minimum temperature
MAX	35 C	0 ÷ 70 C	Maximum temperature

6.10.16 Menu #16 Cooling unit

Name	Default setting	Range	Description
AOFF	05 °C	0 ÷ 20 °C	**Cooling unit off:** External temperature that disables the cooling unit
ONTM	5 min	0 ÷ 5 min	Cooling unit run time
OFFTM	5 min	0 ÷ 5 min	Cooling unit standby time

6.10.17 Menu #17 DX unit

Name	Default setting	Range	Description
SETP	27 bar	0 ÷ 100 bar	Setpoint for the condenser
CSTAR	22 bar	0 ÷ 50 bar	Condenser fan start pressure
CUTOF	10 bar	0 ÷ 50 bar	Condenser fan stop pressure
VSTAR	5 sec	3 ÷ 20 sec	Electronic expansion valve start time before compressor
VSTOP	5 sec	3 ÷ 20 sec	Electronic expansion valve stop time before compressor
WLEAK	No	No, Yes	Water leak alarm action: **No**- Evaporator fan is not stopped on water leak alarm **Yes**- Evaporator fan is stopped on water leak alarm
TERMO	OFF	0(OFF) ÷ 10°C	Energy saving mode: **0 (OFF)** – the compressor is constantly modulated to maintain the desired temperature **A value > 0** - When the unit reaches temperature the compressor is switch off. It will start again when the temperature rises over the desired value by the value **TERMO**.

6.10.18 Menu #18 Exchanger

Name	Default setting	Range	Description
ELIM	5°C	-10 ÷ +10°C	**Exchanger protection:** The temperature below witch alarm is set and the defrost starts.
PRT	8.0 C	0 ÷ 15 C	**Preheating temperature:** The set value for preheating.

6.10.19 Menu #19 Recirc. damper.

Name	Default setting	Range	Description
DMODE	OFF	OFF, 10%,20%,…100%, AUTO	**Dampers control:** **OFF,10..100%**: dampers manually set **DELTA**: control as a function of the difference in room and outside temperature. **AUTO**: control as a function of outside temperature according to the graph
DTLIM	2 °C	1 ÷ 10°C	**For DMODE = DELTA**: Minimum difference between room temperature *IND* and outdoor temperature *OUTD* to open inlet/outlet dampers. **For heating**: $OUTD \geq IND + DTLIM$ **For cooling**: $OUTD \leq IND - DTLIM$
ODT1	-5 °C	-25 ÷ 30°C	Outdoor temperature low range value.
DACO1	20 %	0 ÷ 100 %	Outdoor temperature high range value.
ODT2	15 °C	-25 ÷ 30°C	Damper control low range value
DACO2	100 %	0 ÷ 100 %	Damper control high range value
EXFAN	No	No, Yes	**No**: The exhaust fan speed is not related to the mixing chamber control. **Yes**: The speed of the exhaust fan is proportional to the control level of the mixing chamber (external dampers)

Mixing chamber dampers control description in AUTO mode
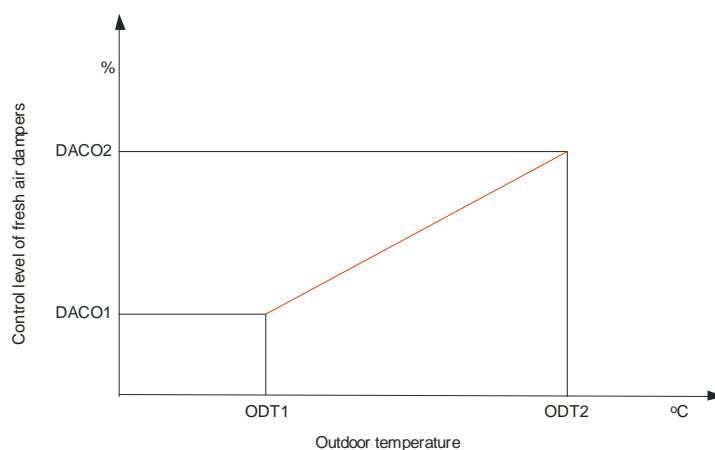
6.10.20 Menu #20 Bypass and GHE

Name	Default setting	Range	Description
Bypass	AUTO	OFF, ON, AUTO	**Bypass setting:** OFF – Switch off Bypass ON – Switch on Bypass AUTO – Bypass is controlled depending on the outdoor and the outlet/indoor temperatures.
GWC	AUTO	OFF, ON, AUTO	**GHE setting:** OFF – Switch off GHE ON – Switch on GHE AUTO – GHE is controlled depending on the temperature

6.10.21 Menu #21 Heating set

Name	Default setting	Range	Description
PREH	ON	OFF, ON	**Preliminary heating:** Before the fans start the heater is warm up.
FOVER	MAN	MAN, AUTO	**Frost alarm clearing:** **MAN** – Manual start of the unit after clearing alarm manually. **AUTO** – Automatic alarm reset and unit start after the alarm signal disappears.
PUMP	0°C	-25 ÷ +15°C	**Pump start temperature**: Outdoor temperature below which the water heater pump will be activated.

HPMD	COOL	COOL, HEAT	**Heat pump operating mode select**
			COOL: Q7 output closes for cooling mode
			      Q7 output opens for heating mode
			
			HEAT: Q7 output closes for heating mode
			      Q7 output opens for heating mode

Preliminary heating curve:
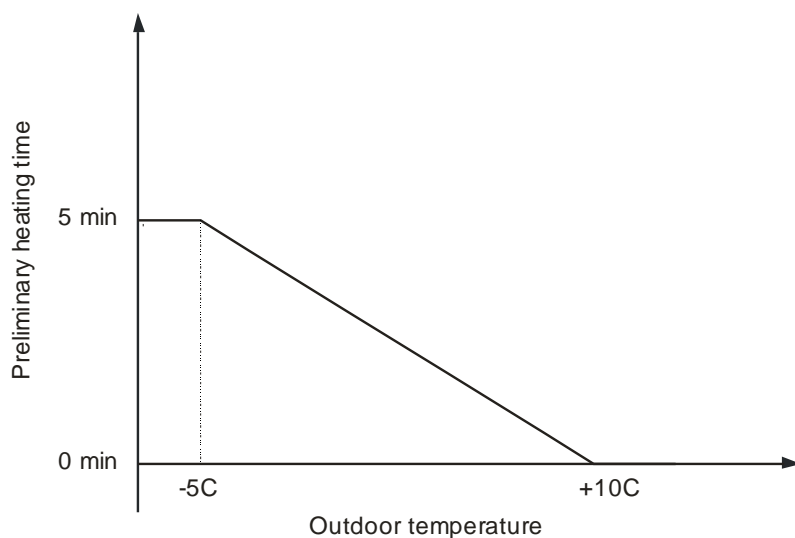
6.10.22 Menu #22 Ventilating

Name	Default setting	Range	Description
CYCLE	0 h	0 ÷ 6 h	**Ventilating cycle:** Ventilating function is activated only when the unit is standby. The AHU is started every CYCLE period and stopped after VTIME time.
VTIME	0 min	0 ÷ 60 min	**Ventilating time**

6.10.23 Menu #23 PID set: Heating

Name	Default setting	Range	Description
PBAND	30.0°C	0 ÷ 999.9°C	**Proportional band** Setting PBAND = 0 means ON/OFF control with a hysteresis defined by HYS parameter.
INT	100 sec	0 ÷ 6000 sec	**Integral time**
HYS	1.5°C	0.5 ÷ 10.0°C	**Heating hysteresis** When PBAND = 0 (ON/OFF) then HYS parameter is the hysteresis of the ON/OFF control.
HDIS	18°C	10 ÷ 22°C	**Heating disabling:** Outdoor temperature above witch heating is disabled (SUMMER).

6.10.24 Menu #24 PID set: Cooling

Name	Default setting	Range	Description
PBAND	30.0°C	0 ÷ 999.9°C	**Proportional band** Setting PBAND = 0 means ON/OFF control with a hysteresis defined by HYS parameter.
INT	100 sec	0 ÷ 6000 sec	**Integral time**
HYS	1.5°C	0.5 ÷ 10.0°C	**Heating hysteresis** When PBAND = 0 (ON/OFF) then HYS parameter is the hysteresis of the ON/OFF control.
CDIS	15°C	10 ÷ 22°C	**Cooling disabling:** Outdoor temperature bellow witch cooling is disabled (WINTER).

6.10.25 Menu #25 Heat–Cool hyst.

Name	Default setting	Range	Description
HYS1	2.0°C	0.5 ÷ 9.9°C	Dead zone between heating and cooling:

6.10.26 Menu #26 PID set: CO2

Name	Default setting	Range	Description
PBAND	30	1 ÷ 4000	PBAND
INT	100 sec	0 ÷ 6000 sec	Integral time

6.10.27 Menu #27 PID set: pressure

Name	Default setting	Range	Description
PBAND	500	1 ÷ 4000	PBAND
INT	10 sec	0 ÷ 6000 sec	Integral time

6.10.28 Menu #28 PID set: humidifying

Name	Default setting	Range	Description
PBAND	30	1 ÷ 4000	PBAND
INT	100 sec	0 ÷ 6000 sec	Integral time

6.10.29 Menu #29 Measure ranges

Name	Default setting	Range	Description
X1R	100	0 ÷ 100	**Input range for X1 (PID2):** Setting the measuring range for input X1 (input for PID2 control). This is the measurement value corresponding to 10V signal from the transmitter.
X2R	1000	0 ÷ 1000	**Input range for X2 (PID3):** Setting the measuring range for input X2 (input for PID3 control). This is the measurement value corresponding to 10V signal from the transmitter.
X3R	1000	0 ÷ 1000	**Input range for X3 (PID4):** Setting the measuring range for input X3 (input for PID4 control). This is the measurement value corresponding to 10V signal from the transmitter.
OFS	0°C	0 ÷ 15.0°C	**Temperature shift:** The value for shifting down the temperature characteristic. The sensed value is decreased by the value OFS.

6.10.30 Menu #30 Units and flow

Nazwa	Name	Default setting	Range
UNIT1	none	none, C, %RH, %, Pa, m3/h, ppm, m/sec, sec, min, h	**Unit fo X1 input:** The unit to display for the sensed value.
UNIT2	none	none, C, %RH, %, Pa, m3/h, ppm, m/sec, sec, min, h	**Unit fo X2 input:** The unit to display for the sensed value.
UNIT3	none	none, C, %RH, %, Pa, m3/h, ppm, m/sec, sec, min, h	**Unit fo X3 input:** The unit to display for the sensed value.
K2	0		**K coeficeint of the fan (X2 input)** The flow is calculated according to the formula: **Flow = K x square_root(Pressure)**
K2	0		**K coeficeint of the fan (X3 input)** The flow is calculated according to the formula: **Flow = K x square_root(Pressure)**

6.10.31 Menu #31 Fan setting

Nazwa	Name	Default setting	Range
FCOEF	1.00	0.5 ÷ 2	**Exhaust/supply ratio:** Exhaust fan speed ratio to supply fan. Exhaust = FCOEF x Supply.
FMIN	10 %	10 ÷ 25	**Fan minimum speed:** The speed below which the fan cannot go down during speed modulation.
FMOD	7 °C	-25 ÷ 10 °C	**Fan modulation start:** Defines when the supply fan starts modulating to protect the exchanger. This is the number of degree C above the exchanger protection value ELIM.
START	0 sec	0 ÷ 100 sec	Start delay
STOP	0 sec lub 30 sec	0 ÷ 100 sec	Stop delay
PREST	60 sec	10 ÷ 300 sec	Fan pressure guard time

6.10.32 Menu #32 Gear setting

Nazwa	Name	Default setting	Range
SPD1	25%	10 ÷ 100 %	Fan speed for gear 1
SPD2	50%	10 ÷ 100 %	Fan speed for gear 2
SPD3	75%	10 ÷ 100 %	Fan speed for gear 3
SPD4	100%	10 ÷ 100 %	Fan speed for gear 4

6.10.33 Menu #33 Clock

Name	Default setting	Range	Description
H:M		00.00 ÷ 23.59	Hour : Minute
WDAY		SUN ÷ SAT	Day of the week
DAY		1 ÷ 31	Day of the month
MON		JAN ÷ DEC	Month
YEAR		20 ÷ 40	Year

6.10.34 Menu #34 Communication

Name	Default setting	Range	Description
ADR	001	1 ÷ 255	**Slave address:** Slave address for Modbus communication.
MODE	RTU	RTU, ASCII	MODBUS mode
RATE	9600	2400, 4800, 9600, 19200	Baud rate
PARIT	BRAK	NONE, ODD. EVEN	Parity
BITNR	8	7, 8	Bit number
STBIT	1	1, 2	Stop bit number

6.10.35 Menu #35 Simulation

Name	Default setting	Range	Description
SIM	OFF	OFF, ON	**Outputs control:** Simulation mode allows to manually control the outputs. After power on the simulation is always in the off state. **OFF** – Normal operation of the unit **ON** – Manual control mode

6.10.36 Menu #36 Password setting

Name	Default setting	Range	Description
User	0	0 ÷ 999	**User password: access level 1** The lowest access level. User can edit desired values like set temperature, CO2, schedule … but cannot edit the parameters of the application for AHU.
Admin1	0	0 ÷ 999	**Admin password 1: access level 2** All parameters can be edited except the password for admin2 and the AHU running time counter.
Admin2	11	0 ÷ 999	**Admin password 2: access level 3** The highest level. All parameters can be edited.

6.10.37 Menu #37 Language select

Name	Default setting	Range	Description
LANG	ENG	ENG, POL, CZ	Language

6.10.38 Menu #38 Information

6.10.39 Menu #39 Login

Name	Default setting	Range	Description
LOGIN		0 ÷ 999	**Login:** Enter password for parameter editing. Parameters are visible without login, but some need login for editing.