

EN

5905341_00 - 7607022_00 - 25.07
Translation of Original instructions

RTG

User manual



 **ELECTRONIC CONTROLLER**



www.aermec.com

Dear Customer,

Thank you for wanting to learn about a product Aermec. This product is the result of many years of experience and in-depth engineering research, and it is built using top quality materials and advanced technologies.

The manual you are about to read is meant to present the product and help you select the unit that best meets the needs of your system.

However, please note that for a more accurate selection, you can also use the Magellano selection program, available on our website.

Aermec, always attentive to the continuous changes in the market and its regulations, reserves the right to make all the changes deemed necessary for improving the product, including technical data.

Thank you again.

Aermec S.p.A.

SAFETY CERTIFICATIONS



This marking indicates that this product should not be disposed with other household wastes throughout the EU. To prevent possible harm to the environment or human health from uncontrolled disposal of Waste Electrical and Electronic Equipment (WEEE), please return the device using appropriate collection systems, or contact the retailer where the product was purchased. Please contact your local authority for further details. Illegal dumping of the product by the user entails the application of administrative sanctions provided by law.

All specifications are subject to change without prior notice. Although every effort has been made to ensure accuracy, Aermec shall not be held liable for any errors or omissions.

TABLE OF CONTENTS

1	User interface	6
1.1	User terminal	6
1.2	Remote control panel	7
1.3	Display	9
1.4	User menu	10
1.5	Programming menu.....	14
1.6	Menu description.....	15
2	Main functions.....	17
2.1	Setting of language.....	17
2.2	Setting of the date and time.....	17
2.3	Setting the password.....	18
2.4	Setting time slots.....	18
2.5	Setting temperature and/or humidity setpoints	22
2.6	Setpoint compensation function.....	23
2.7	Setting air flow rate setpoints	23
2.8	Setting air quality setpoints.....	24
2.9	Comfort/economy setting.....	24
2.10	Summer/winter season change.....	25
2.11	Cooling/Heating.....	26
2.12	Unit On/Off.....	27
2.13	Air washing function.....	27
2.14	Putting into service function	28
2.15	Maximum capacity function.....	29
2.16	Low noise function.....	29
3	Alarm	30
3.1	Alarm types	30
3.2	Presence of alarms.....	30
3.3	Alarm reset	30
3.4	Alarms and error codes additional information.....	30
3.5	List of alarms	31
4	BMS Supervision	34
4.1	Modbus RTU.....	34
4.2	Modbus TCP/IP	35

1 USER INTERFACE

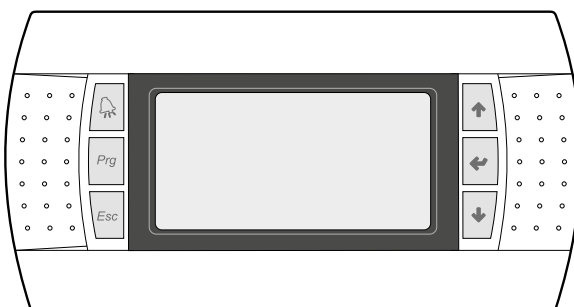
The command panel of the unit allows the rapid setting of the working parameters of the machine, and their visualisation. The card stores all the default settings and any modifications.

After the absence of voltage for any period of time, the unit is able to start up again automatically, maintaining the original settings.

The user interface is represented by a graphic display with six navigation keys; the views are organized through a menu hierarchy, activated by pressing the navigation keys. The default display of these menus is represented by the main menu. You may browse the various parameters using the arrow keys on the right side of the panel; these keys are also used to edit the selected parameters.

1.1 USER TERMINAL

The terminal, shown in the figure, has 6 buttons with the following meanings:



Icon	Name	Description
	"Alarm"	Views the list of active alarms and alarm history. Manual reset of alarms by holding down the key.
	"Prg"	Access to the programming menu
	"Esc"	Return to the previous mask
	"Up"	While navigating through menus/parameters, it allows you to move to the next menu/parameter. When editing a parameter, it increases the value of the selected parameter.
	"Enter"	While browsing the menus, it allows you to enter the selected menu. While browsing the parameters, it allows you to enter the editing mode of the selected parameter. When editing a parameter, it confirms changes to the value of the selected parameter.
	"Down"	While navigating through menus/parameters, it allows you to move to the previous menu/parameter. When editing a parameter, the value of the selected parameter decreases.

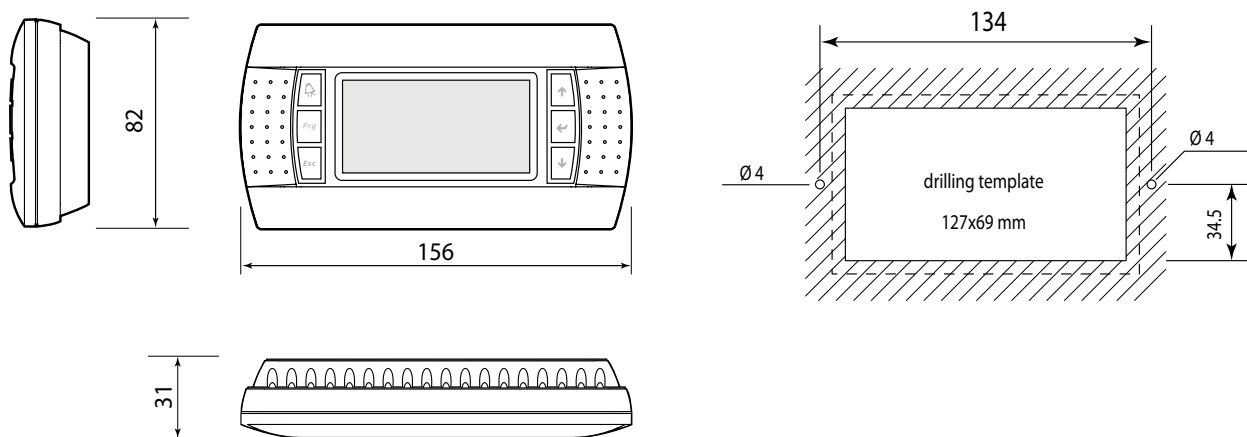
1.2 REMOTE CONTROL PANEL

By installing the remote control panel accessory, it is possible to remotely replicate all the functions and settings available on the machine.

For the RTG units, the available remote control panel accessories are:

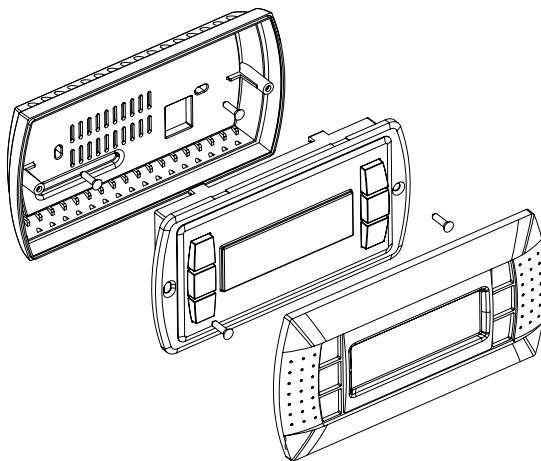
- **PRT1**: control panel can be remotely controlled up to 50m with a 6-pin telephone cable (not supplied)
- **PRT2**: control panel can be remotely controlled up to 200m with AWG20/22 shielded cable (not supplied)

1.2.1 Dimensions



1.2.2 Wall mounting

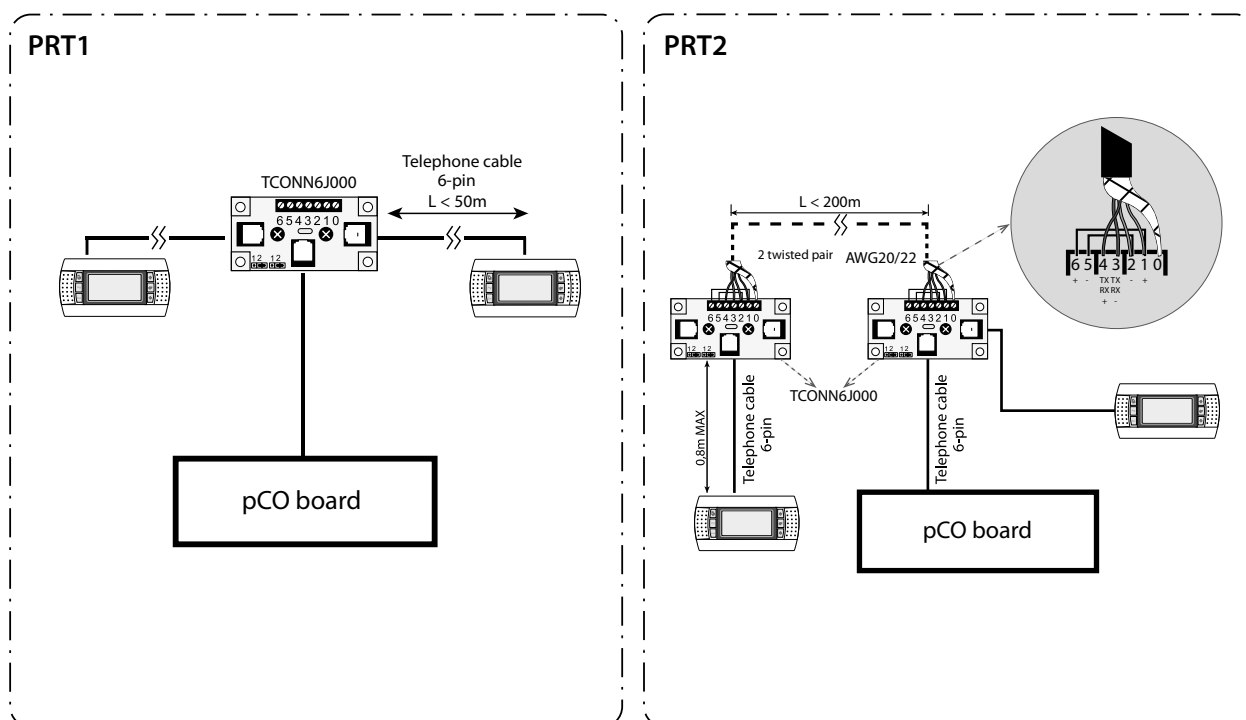
Fig. 2



Wall mounting of the terminal requires the initial fixing of the rear container (Fig. 2), using a standard 3-module switch box.

- Fix the rear of the case to the box using the roundhead screws present in the packaging;
- Connect the telephone cable coming from the pCO board to the specific RJ12 connector on the back of the terminal;
- Rest the front panel on the rear of the case and fix the assembly using the countersunk screws present inside the packaging as illustrated in (Fig. 2).
- Finally, install the click-on frame.

1.2.3 Electrical wiring



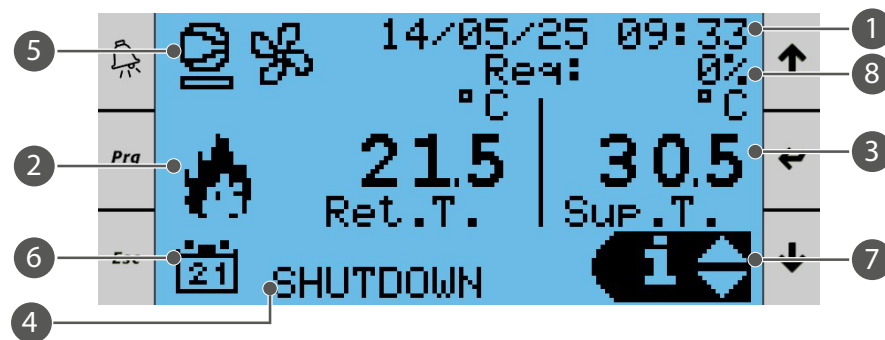
NOTICE



For further information, see the wiring diagrams supplied with the unit.

1.3 DISPLAY

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

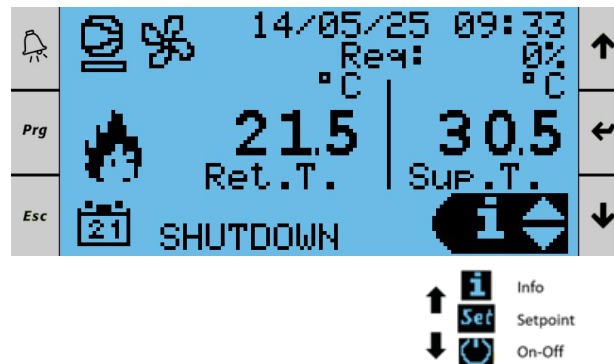


1	Date and time
2	Current state of the unit:
	❄️❄️❄️ Cooling mode
	🔥 Heating mode
	❄️❄️ Single defrost in progress
	❄️🔥 Separate defrost in progress
	🌀 Free cooling/heating
	❄️❄️ Partial free cooling
	🌀🔥 Partial free heating
3	Ambient (or recovery) temperature and humidity or recovery and flow temperature
4	Status of unit:
	Off by alarm
	Off by BMS
	Off by scheduler
	Off by remote DI
	Off by keyboard
	Manual Mode
	Change over
	Switch on
	Shutdown
	Pre-conditioning
	Dehumidification
	Anti-freeze
	Defrost unit
	Air pressure flow
	Air quality
	Cooling
	Heating
	Free-cooling
	Free-heating
	Low temp. control
	High temp. control
	IO Test
	Purging
	Defrost heat recovery
	Low ret./room temp.ctrl
	Ext. temp. limit
	Quick start
	Off eco temp.

1	Date and time
5	Status of compressors, unit and (flashing key icon) maintenance required warning
	Compressor on at maximum speed
	Compressor partially on
	Compressor off
6	Time slots schedule (if active)
7	Access the user menu using the Up and Down keys and Enter to confirm
8	Temperature control demand

1.4 USER MENU

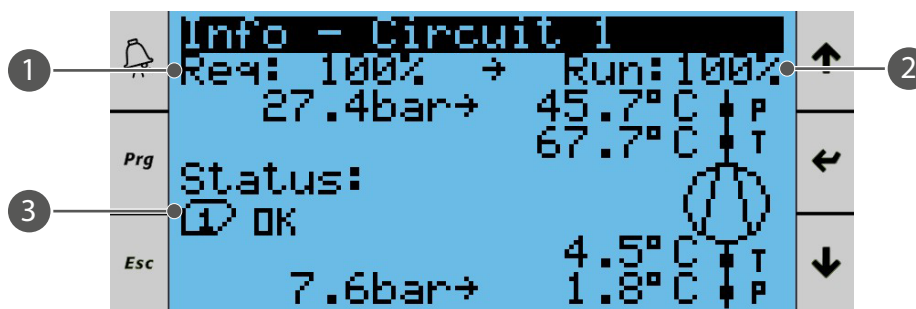
From the main mask you can scroll through the functions using the Up and Down keys and select them by pressing Enter. No password is required to access and edit these parameters.



1.4.1 Info

From the user menu you can view the general synoptics of the unit. The physical status of the inputs, outputs of the devices and probes are available in a menu linked to the synoptics. If the input or output has not been enabled, the relevant mask will not appear. Below we see the individual masks of the most common synoptics.

CIRCUIT SYNOPTIC



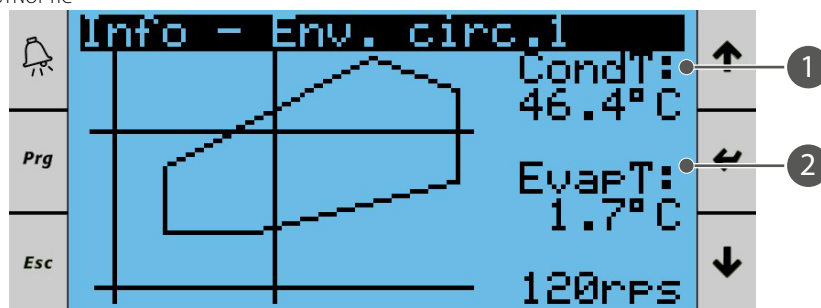
1. Demand to circuit for temperature control
2. Demand given by the circuit
3. Envelope area:
 - 1 Ok: area within operating limits
 - 2 HiDP: High compression ratio
 - 3 HiDscgP: High condensation pressure
 - 4 HiCurr: High motor current
 - 5 HiSuctP: High suction pressure
 - 6 LoPRat: Low compression ratio
 - 7 LoDP: Low differential pressure
 - 8 LoDscgP: Low condensation pressure
 - 9 LoSuctP: Low evaporation pressure

COMPRESSOR SYNOPTIC



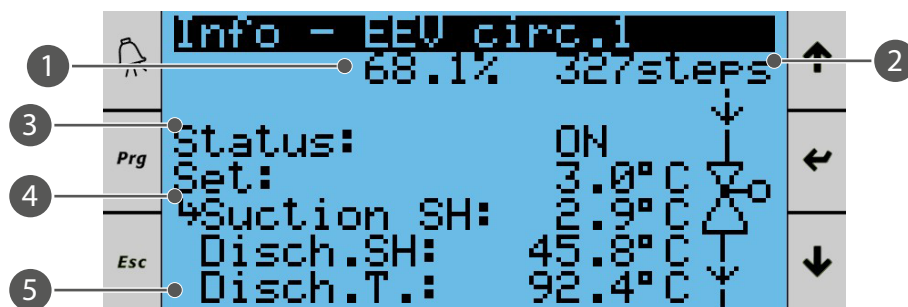
1. Current compressor speed (BLDC only)
2. Compressor 1 status:
 - **Off (...s)**: switched off possibly with indication of the remaining time for switching back on
 - **On (...s)**: on possibly with indication of the remaining time for switching off
 - **Man On**: on in manual mode
 - **Man Off**: off in manual mode
 - **Frcd Off**: Forced off by EVD driver (not ready to regulate yet)
 - **Defr**: on for defrost cycle
 - **PmpD**: In pump-down phase
 - **Alarm**: off due to alarm

COMPRESSOR ENVELOPE SYNOPTIC



1. Condensation temperature
2. Evaporation temperature

EEV SYNOPTIC



1. Valve opening percentage
2. Valve opening steps
3. Valve status:
 - Init: Driver initialization
 - Close: valve closed
 - Off: valve in standby
 - Pos: valve in positioning
 - Wait: valve activating
 - On: valve in regulation
 - LoSH: Low SH function active
 - LOP: LOP function active

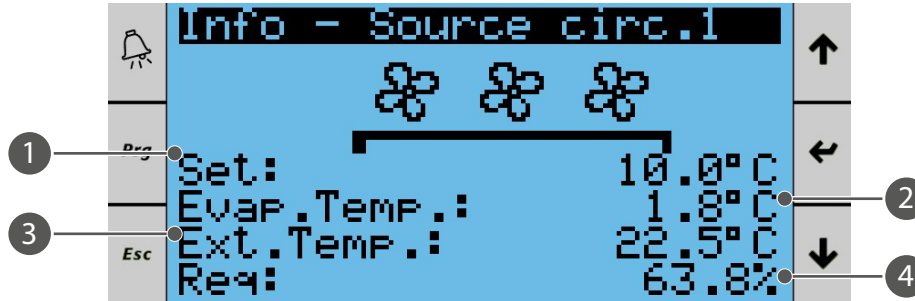
— MOP: MOP function active

— HiTc: HiTc function active

4. Current setpoint and current suction superheating

5. Compressor discharge temperature

AXIAL FANS SYNOPSIS



1. Regulation set point

2. Current value of the evaporation or condensation saturation temperature

3. Outdoor Temperature

4. Percentage request

DAMPER SYNOPSIS

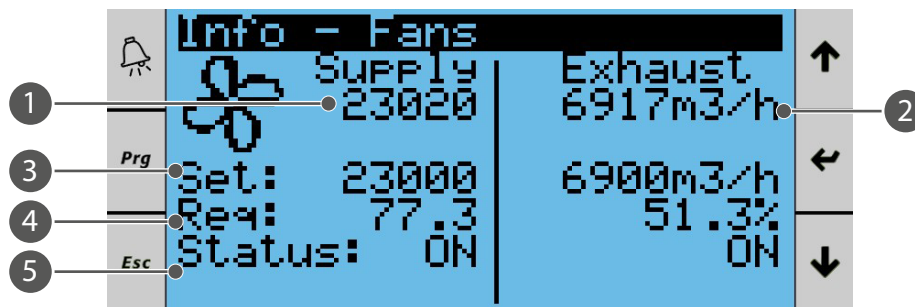


The synopsis depends on the dampers present. The following case shows the one relating to a unit with an external air damper.

1. Outdoor Temperature

2. Percentage request

FAN SYNOPSIS



The synopsis depends on the unit configuration. The following case shows the one relating to units with flow and exhaust fans.

1. Flow fan current flow rate

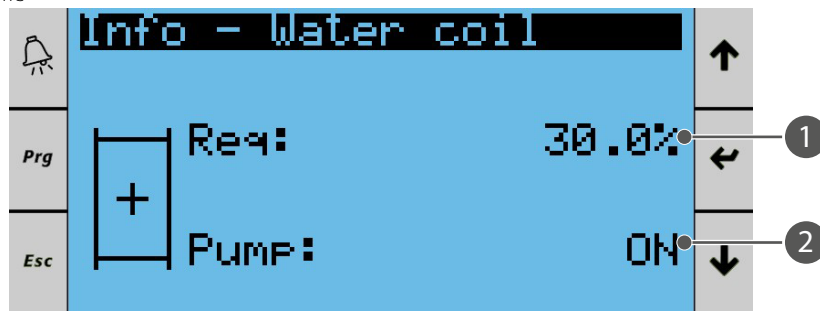
2. Exhaust fan current flow rate

3. Flow rate set point for the flow and exhaust fan

4. Percentage request for flow and exhaust fan

5. Flow and exhaust fan status

AUXILIARY HEATER SYNOPTIC



The synoptic depends on the type of auxiliary heater present. The following case refers to a water heating coil.

1. Percentage request
2. Pump contact

ACCESS TO OTHER INFORMATION

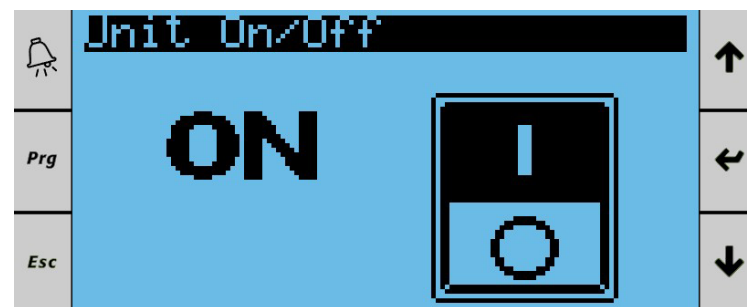


From this mask you can access the list of other available information: since the information is visible depending on the access profile, you must authenticate (by pressing the Prg button) to view the list of other information.

1.4.2 On/Off

From the user menu you can turn the unit on or off and view the status. The On status requires that consents be present from:

- keyboard from the On-Off menu
- digital input (if enabled)
- time slots (if enabled)
- BMS (if enabled)



Use the UP and DOWN buttons to select ON or OFF.

Before switching from On to Off, the unit goes through the transient off status, in which the control turns off the compressors and/or the electric heaters, then turns off the fans and finally closes the dampers.

NOTICE



If the supervisor goes offline, On-Off from BMS is no longer considered and the machine will continue to operate autonomously.

1.4.3 Current setpoint

In this menu you can view and edit the current temperature and humidity set points and the current season. The temperature and humidity setting depends on the active season (summer/winter) and the operating mode (comfort and economy). The change of the reference season (summer/winter) can only occur if the season change is enabled "from keyboard". By pressing ENTER, the first parameter to be edited is activated and the UP and DOWN keys are used to increase or decrease the value. Press ENTER to confirm and move on to edit the next parameter.



1. Current temperature setpoint
2. Current humidity setpoint
3. Current reference season for set points, editable only if season change is enabled "from keyboard"

1.5 PROGRAMMING MENU

Regardless of the mask you are in, by pressing the Prg programming key  you have access to the password entry mask which allows access to the main menu.

1.5.1 Password management

The program has 3 different password levels:

1. **USER:** read-only access to all parameters. Password: 0010.
2. **SERVICE:** read access to all parameters with the possibility of editing some
3. **MANUFACTURER:** read and write access to all parameters.

Using the UP and DOWN keys you can scroll the available profiles (manufacturer, service, user) and pressing the ENTER key activates the first number of the password to be edited. Use the UP and DOWN keys to increase or decrease the value. Press ENTER to confirm and move on to the other numbers.



Once the password is entered, it will be maintained for 5 minutes from the last time a key is pressed, after which it will be necessary to re-enter the password to access the advanced function parameters. In the Log-Out Menu you can force the password to be entered without waiting the 5 minutes.

1.6 MENU DESCRIPTION

Within each Menu the masks are organized in loops: using the Up and Down keys you can scroll through all the masks in the Menu. The masks are organized so that the most frequently used ones can be accessed by pressing the Down key, while the least used ones (e.g. configuration) can be reached by pressing the Up key.

The machine software provides a code for each individual parameter to unambiguously identify them. Each parameter has a code made up of a letter followed by 2-3 characters: the letter identifies the Menu to which the parameter belongs.



Access (*)	Indicative letter	Menu name	
U S M	Q	Use	
U S M	N	Setpoint	
U S M	T	Temp. timer	
S M		Manual Mode	
U S M	U	Plant	
S M	C	Compressors	c Config. Compressor
			b BLDC
			p Power+
S M	E	EEV	
S M	S	Source	
U S M	D	Dampers	
U S M	F	Fans	
M	R	Heat recovery	
S M	O	Coils	
M	H	Humidifier	
S M	J	Auxiliary loops	
S M	M	Hour counters	
U S M	Y	Settings	Date/Time
			Language
			Settings parameters
U S M	L	I/O Configuration	Analogue inputs
			Digital inputs
			Analogue outputs
			Digital outputs
U S M		I/O Info	Analogue inputs
			Digital inputs
			Analogue outputs
			Digital outputs
U S M		Configurations	
U S M		LogOut	

(*) Access: U= user, S= service, M= manufacturer.

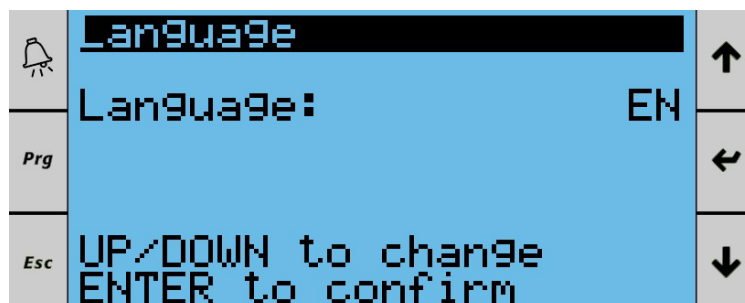
Menu	Name	Description
Q menu:	CONTROLS	In Commands there are: • The unit power command • Summer/winter switch from keyboard (if enabled)

Menu	Name	Description
N menu:	SETPOINT	In Setpoint there are the setpoint parameters of: • Summer and winter comfort and economy temperature • Summer and winter comfort and economy relative humidity
T menu:	TIME SLOTS	In Time slots you will find all the programming parameters for the time slots and the intended operating modes
U menu:	PLANT	In the Plant there are all the parameters that concern: • the putting into service function • the summer/winter season change mode • setpoint compensation function
S menu:	SOURCE	In Source there are parameters that concern the enabling of the Low Noise function.
D menu:	DAMPERS	In Dampers there are all the parameters regarding: • air quality management (CO₂ – VOC) • the Maximum capacity function
F menu:	FANS	In Fans there are all the parameters that concern the configuration and regulation of the air handling fans: • air flow set point • washing function
Y menu:	SETTINGS	In Settings you can access the submenus: • date/time, for setting the clock-calendar • language, to choose the language of the menus • settings, for changing the password
L menu:	I/O CONFIGURATION	In I/O Configuration, all the configuration parameters of the analog and digital inputs and outputs are available for reading.
Menu	I/O INFO	I/O Info has all the configuration parameters of the analog and digital inputs and outputs for reading.
H menu:	LOG-OUT	In Log-Out you can exit from the set password level

2 MAIN FUNCTIONS

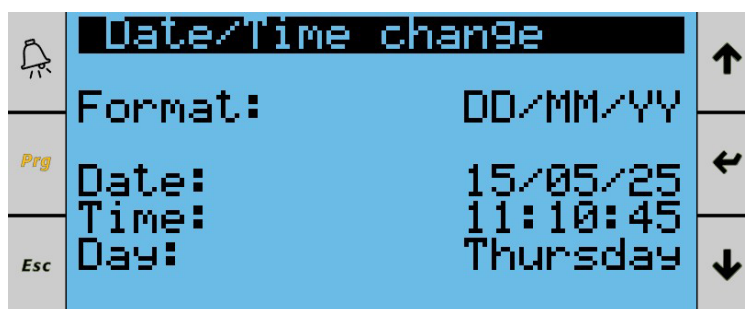
2.1 SETTING OF LANGUAGE

Enter the SETTINGS menu → Language:



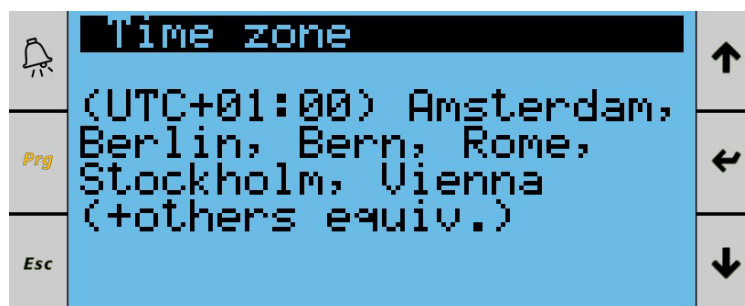
2.2 SETTING OF THE DATE AND TIME

Enter the → Date and time SETTINGS menu:



Press ENTER to access the field to be edited and use the UP and DOWN keys to increase or decrease the value. Press ENTER to confirm and move to the next field.

Once all the fields have been set and confirmed, use the DOWN button to move to the next mask to set the time zone:

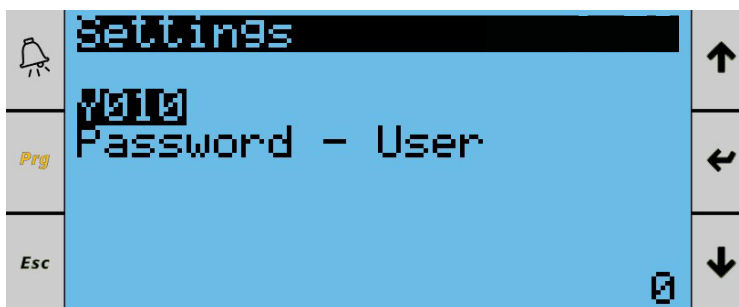


Press ENTER to access the modification and use the UP and DOWN arrows to set the time zone. Press ENTER to confirm.

2.3 SETTING THE PASSWORD

The default password for the user level is: 0010.

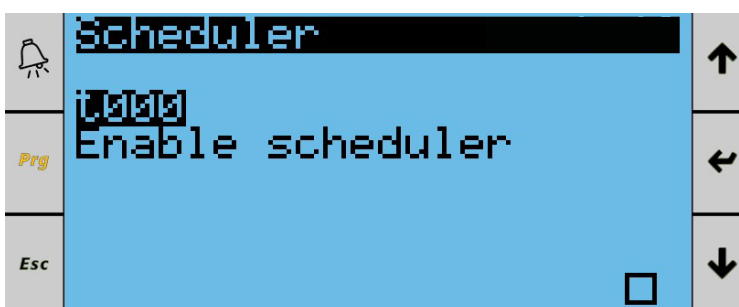
To change your password, go to the SETTINGS menu → Setting parameters:



Scroll through the parameters with the UP and DOWN keys and select parameter Y010 by pressing ENTER. Change the parameter value with the UP and DOWN keys and press ENTER to confirm.

2.4 SETTING TIME SLOTS

Enter the TIME SLOTS menu where you have access to the parameters for programming the time slots:



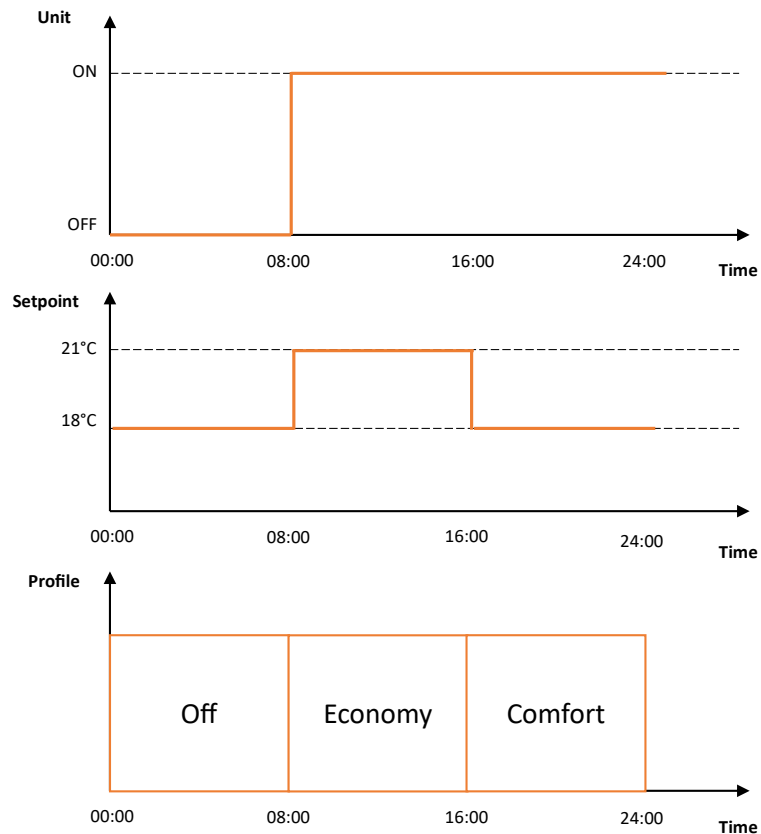
Scroll through the parameters with the UP and DOWN keys and select the parameter to be modified by pressing ENTER. Change the parameter value with the UP and DOWN keys and press ENTER to confirm.

It is possible to program three different profiles:

- Off
- Economy
- Comfort

The Economy and Comfort profiles have different setpoints for controlling temperature, humidity, and air flow rate and are divided into summer and winter modes.

Whereas the Off profile puts the unit into the "Off by time slots" state.



It is possible to set up to two programs P1 and P2, each with four daily time slots.

Each time slot can be enabled and you can select the start time and the desired profile. The set profile will then remain active until the start of the next time slot.

For each day of the week you can select the operating mode between:

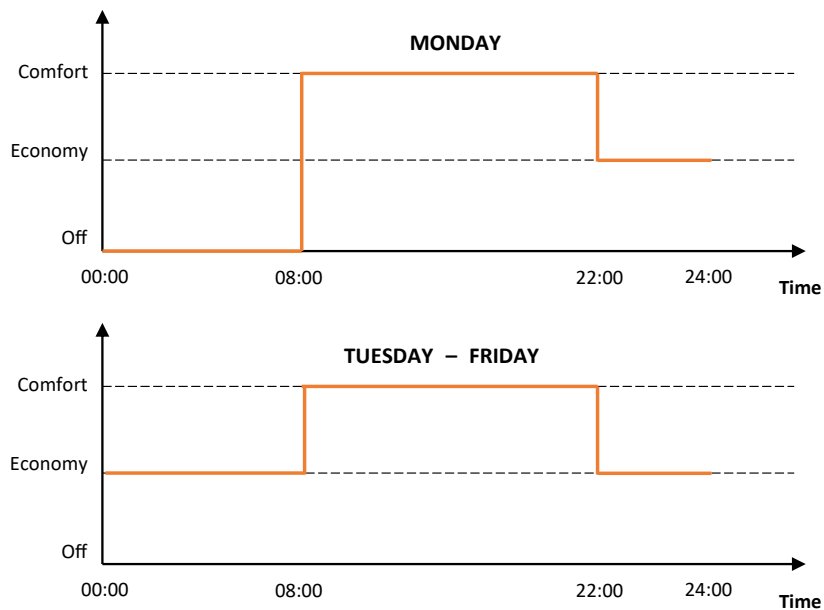
- Off
- Economy
- Comfort
- P1
- P2

By selecting Off, Economy or Comfort, that profile will remain active for the entire day, from 00:00 to 23:59.

By selecting P1 or P2 the set daily program will be active.

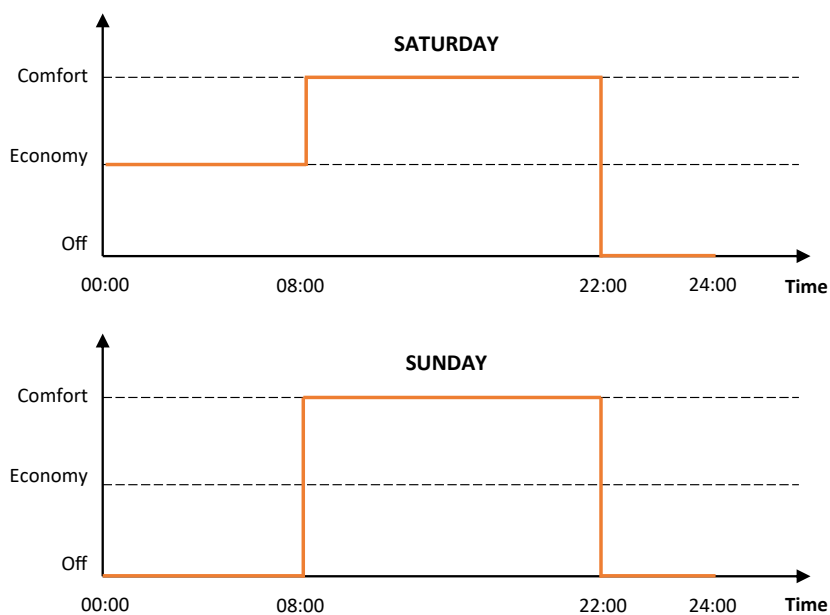
Programming example:

Program P1 used from Monday to Friday and program P2 used on Saturday and Sunday.



Program P1:

- 00:00 Economy profile start
- 08:00 Comfort profile start
- 22:00 Economy profile start



Program P2:

- 00:00 profile Off start
- 08:00 Comfort profile start
- 22:00 profile Off start

The time slot programmer also allows you to enable the vacation period and specify the day and month of the start/end of the vacations and the operating mode that will be applied during this period.

Once the programs have been created and the time slots function has been enabled, you can get a summary of the programming carried out from the INFO menu:



Below are the parameters available for setting the time slot program:

Name	Description	U.M.
t000	Enable time slots (0/1: (No/Yes)	-
t001	Time slots - Prog1 - time slot 1 enable (0/1: (No/Yes)	-
t002	Time slots - Prog1 - time slot 1 start hour	h
t003	Time slots - Prog1 - time slot 1 start minute	min
t004	Time slots - Prog1 - time slot 1 profile (0: Comfort, 1: Eco, 2: Off)	-
t005	Time slots - Prog1 - time slot 2 enable (0/1: (No/Yes)	-
t006	Time slots - Prog1 - time slot 2 start hour	h
t007	Time slots - Prog1 - time slot 2 start minute	min
t008	Time slots - Prog1 - time slot 2 profile (0: Comfort, 1: Eco, 2: Off)	-
t009	Time slots - Prog1 - time slot 3 enable (0/1: (No/Yes)	-
t010	Time slots - Prog1 - time slot 3 start hour	h
t011	Time slots - Prog1 - time slot 3 start minute	min
t012	Time slots - Prog1 - time slot 3 profile (0: Comfort, 1: Eco, 2: Off)	-
t013	Time slots - Prog1 - time slot 4 enable (0/1: (No/Yes)	-
t014	Time slots - Prog1 - time slot 4 start hour	h
t015	Time slots - Prog1 - time slot 4 start minute	min
t016	Time slots - Prog1 - time slot 4 profile (0: Comfort, 1: Eco, 2: Off)	-
t017	Time slots - Prog2 - time slot 1 enable (0/1: (No/Yes)	-
t018	Time slots - Prog2 - time slot 1 start hour	h
t019	Time slots - Prog2 - time slot 1 start minute	min
t020	Time slots - Prog2 - time slot 1 profile (0: Comfort, 1: Eco, 2: Off)	-
t021	Time slots - Prog2 - time slot 2 enable (0/1: (No/Yes)	-
t022	Time slots - Prog2 - time slot 2 start hour	h
t023	Time slots - Prog2 - time slot 2 start minute	min
t024	Time slots - Prog2 - time slot 2 profile (0: Comfort, 1: Eco, 2: Off)	-
t025	Time slots - Prog2 - time slot 3 enable (0/1: (No/Yes)	-
t026	Time slots - Prog2 - time slot 3 start hour	h
t027	Time slots - Prog2 - time slot 3 start minute	min
t028	Time slots - Prog2 - time slot 3 profile (0: Comfort, 1: Eco, 2: Off)	-
t029	Time slots - Prog2 - time slot 4 enable (0/1: (No/Yes)	-
t030	Time slots - Prog2 - time slot 4 start hour	h
t031	Time slots - Prog2 - time slot 4 start minute	min
t032	Time slots - Prog2 - time slot 4 profile (0: Comfort, 1: Eco, 2: Off)	-
t033	Time slots - Sunday mode (0: Comfort, 1: Eco, 2: Off, 3: P1, 4: P2)	-

Name	Description	U.M.
t034	Time slots – Monday mode (0: Comfort, 1: Eco, 2: Off, 3: P1, 4: P2)	-
t035	Time slots – Tuesday mode (0: Comfort, 1: Eco, 2: Off, 3: P1, 4: P2)	-
t036	Time slots – Wednesday mode (0: Comfort, 1: Eco, 2: Off, 3: P1, 4: P2)	-
t037	Time slots – Thursday mode (0: Comfort, 1: Eco, 2: Off, 3: P1, 4: P2)	-
t038	Time slots – Friday mode (0: Comfort, 1: Eco, 2: Off, 3: P1, 4: P2)	-
t039	Time slots – Saturday mode (0: Comfort, 1: Eco, 2: Off, 3: P1, 4: P2)	-
t040	Time slots – Vacation period enable (0/1: (No/Yes)	-
t041	Time slots – Start day of vacation period	D
t042	Time slots – Start month of vacation period	Month
t043	Time slots – End day of vacation period	D
t044	Time slots – End month of vacation period	Month
t045	Time slots – Vacation period mode (0: Comfort, 1: Eco, 2: Off, 3: P1, 4: P2)	-

2.5 SETTING TEMPERATURE AND/OR HUMIDITY SETPOINTS

Enter the SETPOINT menu where you can view and edit the temperature and humidity setpoints.



Scroll through the parameters with the UP and DOWN keys and select the parameter to be modified by pressing ENTER. Change the parameter value with the UP and DOWN keys and press ENTER to confirm.

The set points depend on the season (summer/winter) and the operating mode (comfort/economy).

The available set points are therefore:

- Summer comfort temperature setpoint
- Summer economy temperature setpoint
- Winter comfort temperature setpoint
- Winter economy temperature setpoint
- Summer comfort humidity setpoint
- Summer economy humidity setpoint
- Winter comfort humidity setpoint
- Winter economy humidity setpoint

Below are the setpoints used by the control depending on the season and the operating mode:

Name	Description	U.M.
n000	Summer Comfort Temperature Setpoint	°C
n001	Summer Eco Temperature Setpoint	°C
n003	Winter Comfort Temperature Setpoint	°C
n004	Winter Eco Temperature Setpoint	°C
n006	Control setpoint without compensation	°C
n007	Summer comfort relative humidity setpoint (Visible only if recovery humidity probe configured)	%
n008	Summer Eco relative humidity setpoint (Visible only if recovery humidity probe configured)	%
n010	Winter Comfort relative humidity setpoint (Visible only if recovery humidity probe configured)	%
n001	Winter Eco relative humidity setpoint (Visible only if recovery humidity probe configured)	%
n013	Relative humidity setpoint (Visible only if recovery humidity probe configured)	%
n025	Control set point with compensation	°C

Parameters n° 006 and n° 013 provide direct access to the active temperature and humidity setpoint (whether they are comfort, economy, summer, winter) which can be set from the main screen, using the SET key; n025 is instead a read-only parameter that takes into account n006 plus external temperature compensation, if enabled.

2.6 SETPOINT COMPENSATION FUNCTION

When external conditions are particularly severe for the system, the unit modifies the active set point in order to reduce the temperature difference between the indoor and outdoor environment and consequently introduce significant energy savings.

In the case of summer functioning, a value is added to the recovery set point which depends proportionally on the increase in outdoor temperature.

In the case of winter functioning, a value is subtracted from the recovery set point which depends proportionally on the reduction of the outdoor temperature.

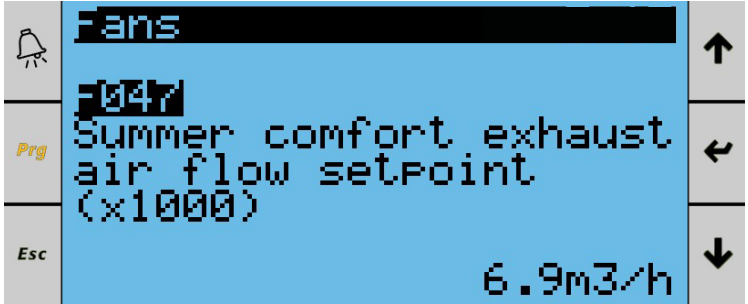
By default the function is disabled, to enable it enter the SYSTEM menu:



Scroll through the parameters with the UP and DOWN keys and select parameter U011 by pressing ENTER. Change the parameter value with the UP and DOWN keys and press ENTER to confirm.

2.7 SETTING AIR FLOW RATE SETPOINTS

Enter the FANS menu where you can view and edit the setpoints relating to the air flow rates:



Scroll through the parameters with the UP and DOWN keys and select the parameter to be modified by pressing ENTER. Change the parameter value with the UP and DOWN keys and press ENTER to confirm.

The set points depend on the season (summer/winter) and the operating mode (comfort/economy).

The available set points are therefore:

- Summer comfort flow rate setpoint
- Summer economy flow rate setpoint
- Winter comfort flow rate setpoint
- Winter economy flow rate setpoint
- Summer comfort exhaust flow rate setpoint
- Summer economy exhaust flow rate setpoint
- Winter comfort exhaust flow rate setpoint
- Winter economy exhaust flow rate setpoint

Below are the setpoints used by the control depending on the season and the operating mode:

Name	Description	U.M.
F047	Summer comfort exhaust air flow rate setpoint (x1000)	m3/h
F048	Summer Eco exhaust air flow rate setpoint (x1000)	m3/h

Name	Description	U.M.
F049	Winter Comfort exhaust air flow rate setpoint (x1000)	m3/h
F050	Winter Eco exhaust air flow rate setpoint (x1000)	m3/h
F051	Summer comfort delivery air flow rate setpoint (x1000)	m3/h
F052	Summer Eco delivery air flow rate setpoint (x1000)	m3/h
F053	Winter comfort delivery air flow rate setpoint (x1000)	m3/h
F054	Winter Eco delivery air flow rate setpoint (x1000)	m3/h

2.8 SETTING AIR QUALITY SETPOINTS

When an air quality sensor is configured via an analog input, you can access the parameters for controlling air quality. By means of the air quality signal reading, the software adjusts the opening of the external air damper to ensure the desired air quality setpoint. The software also allows you to control several air quality parameters via independent control loops: the highest demand is sent to the outside air dampers.

Depending on the sensor installed, the following environmental parameters can be monitored:

- Air quality – CO2
- Air quality – VOC
- Air quality – CO2/VOC

Enter the DAMPERS menu where you can view and edit the air quality setpoints:



Scroll through the parameters with the UP and DOWN keys and select the parameter to be modified by pressing ENTER. Change the parameter value with the UP and DOWN keys and press ENTER to confirm.

Below are the setpoints used for air quality management:

Name	Description	U.M.
d004	Air Quality CO ₂ – Current Setpoint	ppm
d006	Air Quality VOC – Current Setpoint	%

2.9 COMFORT/ECONOMY SETTING

Comfort / Economy mode can be selected by:

- Setting time slots
- Digital input
- BMS

The comfort and economy setpoint change, in addition to varying the temperature and humidity settings, also affects the active flow rate setpoint.

The priority will be in the following order:

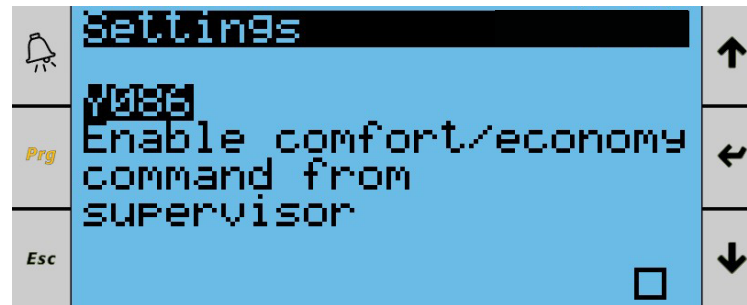
1. Digital input
2. BMS
3. Setting time slots

Digital input

To enable the comfort/economy setpoint change from digital input, the respective digital input must be configured. The digital input configuration must be carried out by an authorized service center.

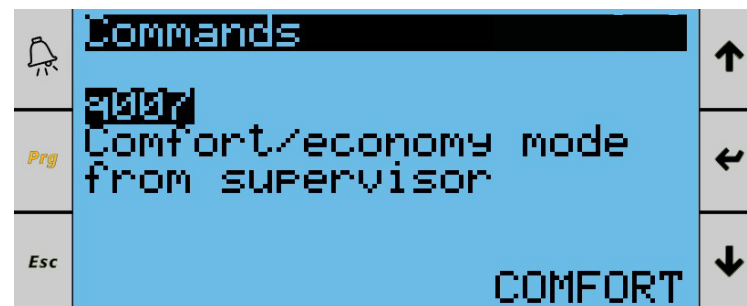
BMS

To enable the choice of comfort/economy mode from BMS, enter the SETTINGS menu → Settings parameters:



Scroll through the parameters with the UP and DOWN keys and select parameter Y086 by pressing ENTER. Change the parameter value with the UP and DOWN keys and press ENTER to confirm.

Even if the comfort/economy change is enabled by BMS, it is possible to change the comfort/economy operating mode via the keyboard by entering the COMMANDS menu:



Scroll through the parameters with the UP and DOWN keys and select parameter q007 by pressing ENTER. Change the parameter value with the UP and DOWN keys and press ENTER to confirm.

2.10 SUMMER/WINTER SEASON CHANGE

The reference season affects the selection of setpoints used for temperature control and humidity control.

The summer/winter season can be edited by:

- Automatic (default)
- Keyboard
- Digital input
- BMS

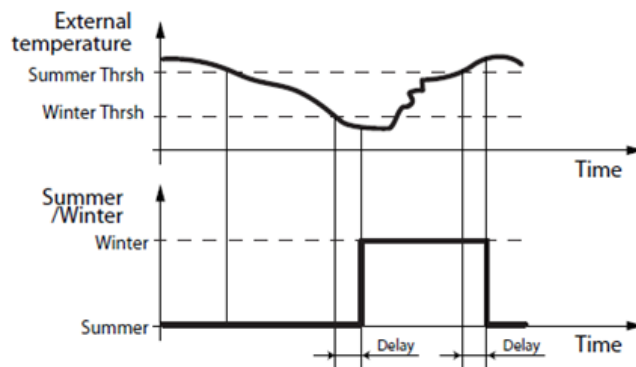
To select the season change mode, enter the SYSTEM menu:



Scroll through the parameters with the UP and DOWN keys and select parameter U038 by pressing ENTER. Change the parameter value with the UP and DOWN keys and press ENTER to confirm.

Automatic

If automatic summer/winter change is enabled, the switching is based on the outside temperature. In this case, in fact, the outside temperature is measured and compared with two thresholds, one winter and one summer. When the temperature exceeds one of these thresholds for a certain time, the reference season changes, according to the diagram shown in the following figure:

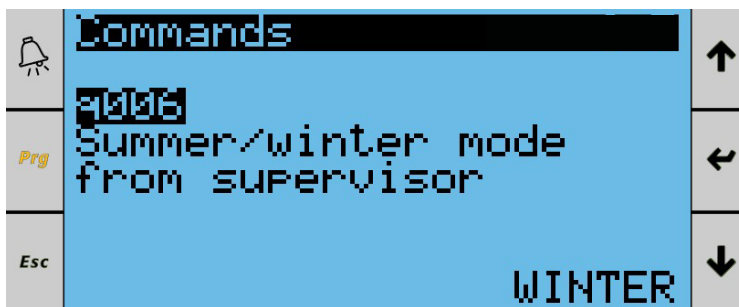


Keyboard

If season change from keyboard is enabled, to edit the season see chapter "1.4.3 Current setpoint [on page 14](#)".

BMS

Even if the season change is enabled by BMS, it is possible to change the comfort/economy operating mode via the keyboard by entering the COMMANDS menu:

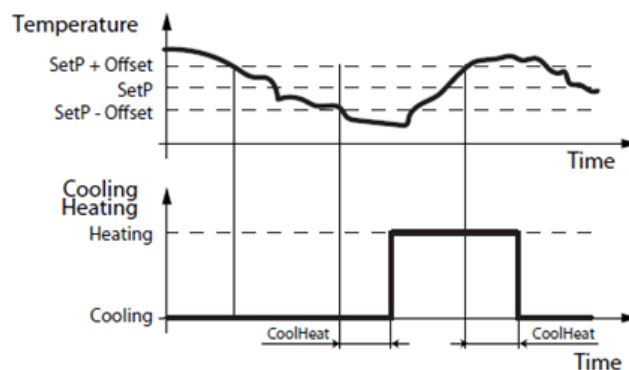


Scroll through the parameters with the UP and DOWN keys and select parameter q006 by pressing ENTER. Change the parameter value with the UP and DOWN keys and press ENTER to confirm.

2.11 COOLING/HEATING

The "heating" or "cooling" operating mode is managed as follows:

- in comfort mode, the cooling or heating operating mode does not depend on the selected season, but is decided autonomously by the control at each switch-on based on the distance from the controlled air temperature setpoint (room - return): if the distance is greater than an offset, the mode changes. If this condition is met during operation, it must persist for a certain amount of time for the mode change to occur. See the diagram below:



- in economy mode, the cooling or heating operating mode depends on the selected season: winter – heating, summer – cooling.

2.12 UNIT ON/OFF

The unit can be turned on/off by:

- Keyboard
- Digital input
- BMS
- Setting time slots

The software allows the unit to be turned on only if all enabled commands are set to ON (keyboard, digital input, BMS, time slot programmer).

During start-up, the first components to activate are the supply fans, then the exhaust fans, if present, and then, if there are no air flow errors and the minimum flow rate of the machine is reached, the rest of the regulation will activate.

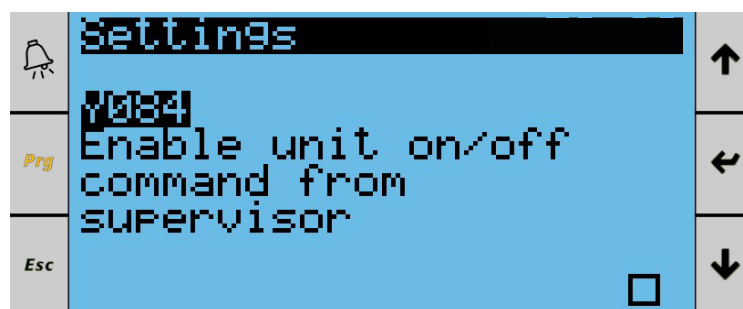
If enabled, the putting into service function has priority over the adjustment of the dampers, if present. This function is exited when the setpoint is reached or when the maximum time has elapsed. At the end, the rest of the regulation is activated.

Digital input

To enable the digital input on/off mode, you need to configure the respective digital input. The digital input configuration must be carried out by an authorized service center.

BMS

To select the unit on/off mode from BMS, enter the SETTINGS menu → Settings parameters:



Scroll through the parameters with the UP and DOWN keys and select parameter Y084 by pressing ENTER. Change the parameter value with the UP and DOWN keys and press ENTER to confirm.

Keyboard

To turn the unit on or off from the keyboard, see chapter "1.4.2 On/Off [on page 13](#)".

2.13 AIR WASHING FUNCTION

The air washing function is used to force total air exchange in the air-conditioned space at certain times.

This is mainly useful in units without an air quality probe, since in this case there is no clear indication of the level of indoor air pollution. For this reason, the air washing function forces the fans to operate, with the outside air damper fully open, for a certain period of time.

If enabled, the function is activated every day. In the event of a blackout, the procedure is interrupted and will be activated the following day.

If the function is activated when the unit is running, the main control remains active even during the air washing action; if, however, the air wash is performed with the unit off, the main control remains deactivated.

NOTICE



Air washing is inhibited in the presence of a hot water coil if an antifreeze alarm is present.

By default the function is disabled, to enable it enter the FANS menu where you can view and edit the setpoints relating to the washing function:



Scroll through the parameters with the UP and DOWN keys and select the parameter to be modified by pressing ENTER. Change the parameter value with the UP and DOWN keys and press ENTER to confirm.

Below are the parameters available for setting the air washing function:

Name	Description	U.M.
F009	Air Wash – Enabling (0: Disabled, 1: Enabled)	-
F011	Air Wash – Duration	min
F012	Air Wash – Start Time	h
F013	Air Wash – Start minute	min

2.14 PUTTING INTO SERVICE FUNCTION

This function is used to allow the room setpoint temperature to be reached as quickly as possible when the unit starts. Upon start-up, if the function is enabled, the putting into service cycle is performed by closing the external air dampers and opening the recirculation damper. The damper control will resume its normal operation after the room/recovery temperature has reached the active recovery/room setpoint value at least once or after the putting into service time set by parameter (in minutes) has elapsed.

By default the function is disabled, to enable it enter the SYSTEM menu:



Scroll through the parameters with the UP and DOWN keys and select the U097 and U098 parameters to be modified by pressing the ENTER key. Change the parameter value with the UP and DOWN keys and press ENTER to confirm.

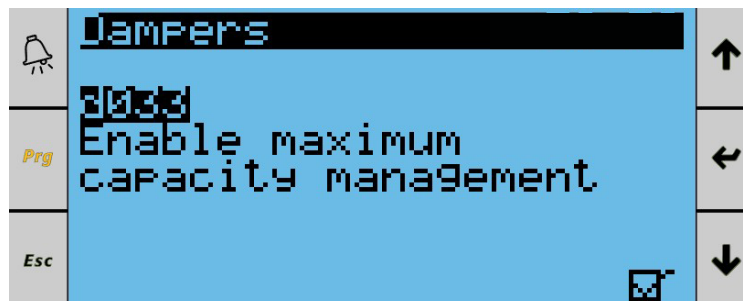
The parameters for managing this function are the following:

Name	Description	U.M.
U097	Putting into service type (0=disabled; 1=heating only; 2=compress + heating; 3=Compressor only)	-
U098	Maximum time for putting into service	min

2.15 MAXIMUM CAPACITY FUNCTION

By default, when the power demand saturates (=100%) and this condition persists for more than a certain amount of time, then an integral action progressively reduces the opening of the fresh air damper, until the power demand is de-saturated; then the integral action is reversed so as to progressively reset the forcing done.

By default the function is enabled, to disable it enter the DAMPERS menu:

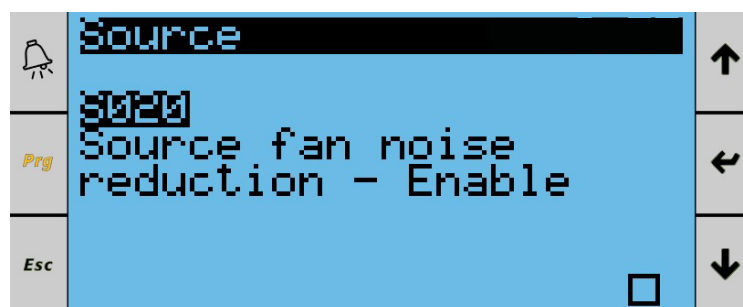


Scroll through the parameters with the UP and DOWN keys and select parameter d033 by pressing ENTER. Change the parameter value with the UP and DOWN keys and press ENTER to confirm.

2.16 LOW NOISE FUNCTION

During air conditioning operation, it is possible to set the Low noise mode for a specific time slot. This function reduces the rotation speed of the axial fans, bringing benefits to the unit's noise emission values.

By default the function is disabled, to enable it and set the activation time slot, enter the SOURCE menu:



Scroll through the parameters with the UP and DOWN keys and select the parameter to be modified by pressing ENTER. Change the parameter value with the UP and DOWN keys and press ENTER to confirm.

The parameters for managing this function are the following:

Name	Description	U.M.
S020	Low Noise enabling 0/1=No/Yes	-
S021	Low Noise time slot: start hour	h
S022	Low Noise time slot: start minute	min
S023	Low Noise time slot: end hour	H
S024	Low Noise time slot: end minute	min

3 ALARM

3.1 ALARM TYPES

The alarms managed by the control are of 3 types according to the reset mode:

- **A - automatic:** the alarm resets and the affected device restarts automatically when the alarm condition ceases.
- **R - semi-automatic:** if the alarm condition repeats itself several times, the alarm becomes manual reset and the intervention of an operator is required to restart the device.
- **M - manual:** operator intervention is required to restart the device.

Alarms requiring Service intervention indicate the request on the display by the key icon flashing. The lit key icon indicates that a device has reached the programmed threshold of the number of functioning hours, and maintenance is required (the alarm code indicates which device is affected).

3.2 PRESENCE OF ALARMS

The presence of an alarm is signaled by the activation of the buzzer and the lighting of the alarm icon. Pressing the ALARM button silences the buzzer and displays the alarm code and description and any additional information code. Alarm activation is recorded in the alarm history. If the alarm is automatically cleared, the alarm icon goes off, the alarm code disappears from the list and the alarm clearing event is stored in the alarm log.

3.3 ALARM RESET

To reset the alarms, press the ALARM key to view the active alarms and once you have selected the alarm to be reset using the UP and DOWN keys, hold down the ALARM key for a few seconds.

CAUTION



The triggering of an alarm with manual reset implies the presence of a faulty condition in the unit: contact the authorized technical assistance service before proceeding with the alarm reset.

3.4 ALARMS AND ERROR CODES ADDITIONAL INFORMATION

Some alarms complete the information by adding a numeric code that adds information to the alarm, as described below:

- **A18 (air flow alarm):** the device that triggered the air flow alarm is indicated:
 - 0 = generic flow switch;
 - 1 = flow fan;
 - 2 = exhaust fan;
 - 3 = both fans.
- **A35 and A68 (EEV alarm circuit 1 and 2):** an error code is indicated specifying the type of alarm:
 - 4 = emergency closure;
 - 5 = low overheating alarm;
 - 6 = LOP alarm;
 - 7 = MOP alarm;
 - 9 = low suction temperature alarm;
 - 20 = high overheating;
 - 21 = motor alarm;
 - 22 = EVD driver not compatible.
- **A42 and A75 (envelope alarm circuit 1 and 2):** in addition to the alarm description, the envelope exit zone is indicated.
- **A48 and A81 (inverter alarm):** the error code transmitted by the inverter is indicated.
- **A56 (Periodic maintenance from hour meter):** the device that has exceeded the scheduled maintenance hours threshold is indicated:
 - 1 = air filters;
 - 2 = flow fan;
 - 3 = return fan;
 - 4 = heat recovery unit
 - 5 = compressor 1 circuit 1;

- 7 = source fans circuit 1;
- 8 = compressor 1 circuit 2;
- 10 = source fans circuit 2;

3.5 LIST OF ALARMS

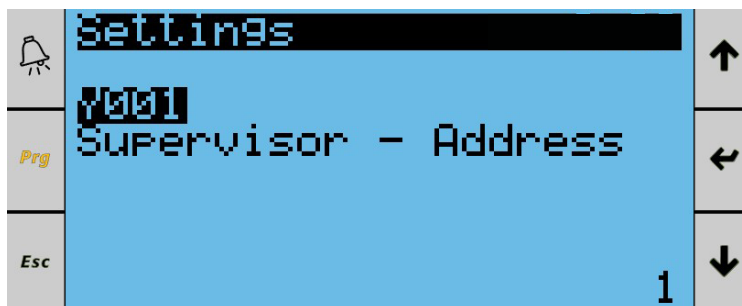
Name	Description	Reset	Action	Delay	N.int.	Period
A01	Permanent memory write error	M	No action			
A03	Flow air temperature sensor	A	Turns off the unit if used by control; otherwise no action	10s		
A04	Return air temperature sensor	A	Turns off the unit if used by control; otherwise no action	10s		
A05	Return air humidity sensor	A	No action	10s		
A06	Ambient temperature sensor	A	Turns off the unit if used by control; otherwise no action	10s		
A07	Room humidity sensor	A	No action	10s		
A08	External humidity sensor	A	Disables functions related to external humidity	10s		
A09	External temperature sensor	A	Disables functions related to the outside temperature	10s		
A10	Exhaust air temperature sensor	A	No action	10s		
A11	Flow pressure sensor	A	Fan forced at speed F27	10s		
A12	Return pressure sensor	A	Fan forced at speed F27 F28	10s		
A13	CO ₂ sensor	A	No action	10s		
A14	VOC sensor	A	No action	10s		
A15	PM sensor	A	No action	10s		
A16	Remote setpoint out of limit	A	Uses the standard setpoint	10s		
A17	Hot water coil antifreeze	A	Disables the "Fresh Air function"	o23		
A18	Fan air flow	M	Turn unit off	F07		
A19	Circuit 1: Condensation pressure sensor	A	Switches off circuit 1	10s		
A21	Circuit 1: Evaporation pressure sensor	A	Switches off circuit 1	10s		
A22	Circuit 1: Condensation temperature sensor	A	Switches off circuit 1	10s		
A23	Circuit 1: Exhaust temperature sensor	A	Switches off circuit 1	10s		
A24	Circuit 1: Intake temperature sensor	A	Switches off circuit 1	10s		
A25	Circuit 1: High pressure switch	M	Switches off circuit 1			
A26	Circuit 1: high pressure from sensor	M	Switches off circuit 1			
A27	Circuit 1: low pressure from sensor	R	Switches off circuit 1		3	1h
A28	Circuit 1: source fan/s circuit breaker	M	No action			
A29	Circuit 1: Low pressure switch	R	Switches off circuit 1	C74, C75	3	1h
A30	Circuit 1: compressor 1 circuit breaker	M	Turn off compressor 1 of circuit 1			
A31	Circuit 1: compressor 2 circuit breaker	M	Turn off compressor 2 of circuit 1			
A35	Circuit 1: EEV alarm + error code	M	Switches off circuit 1			
A40	Circuit 1: compressor circuit breakers	M	Switches off circuit 1			
A41	EVD offline	A	Turns off circuit 1 and 2			
A42	Circuit 1: envelope alarm + alarm zone	R	Switches off circuit 1	b03	3	1h
A43	BLDC circuit 1: high start-up pressure differential	A	Does not allow BLDC 1 start	15 min		
A44	BLDC circuit 1: start failed	R	No action		5	1h
A45	BLDC circuit 1: low pressure differential	A	Switches off circuit 1	b04a		
A46	BLDC circuit 1: high exhaust gas temperature	M	Switches off circuit 1			
A47	Speed drive circuit 1: offline	A	Turns off BLDC circuit 1			

Name	Description	Reset	Action	Delay	N.int.	Period
A48	Speed drive circuit 1: alarm + error code	A	Turns off BLDC circuit 1			
A49	Circuit 2: Condensation pressure sensor	A	Switches off circuit 2	10s		
A51	Circuit 2: Evaporation pressure sensor	A	Switches off circuit 2	10s		
A52	Circuit 2: Condensation temperature sensor	A	Switches off circuit 2	10s		
A53	Circuit 2: Exhaust temperature sensor	A	Switches off circuit 2	10s		
A54	Circuit 2: Intake temperature sensor	A	Switches off circuit 2	10s		
A56	Periodic maintenance + error code	A	No action			
A57	Circuit 2: source fan/s circuit breaker	M	No action			
A58	Circuit 2: High pressure switch	M	Switches off circuit 2			
A59	Circuit 2: high pressure from sensor	M	Switches off circuit 2			
A60	Circuit 2: low pressure from sensor	R	Switches off circuit 2		3	1h
A62	Circuit 2: Low pressure switch	R	Switches off circuit 2	C74, C75	3	1h
A63	Circuit 2: compressor 1 circuit breaker	M	Turn off compressor 1 of circuit 2			
A64	Circuit 2: compressor 2 circuit breaker	M	Turn off compressor 2 of circuit 2			
A68	Circuit 2: EEV alarm + error code	M	Switches off circuit 2			
A73	Circuit 2: compressor circuit breakers	M	Switches off circuit 2			
A75	Circuit 2: envelope alarm + alarm zone	R	Switches off circuit 2	b03	3	1h
A76	BLDC circuit 2: high start-up pressure differential	A	Does not allow BLDC 1 start	15 min		
A77	BLDC circuit 2: start failed	R	No action		5	1h
A78	BLDC circuit 2: low pressure differential	A	Switches off circuit 2	b04		
A79	BLDC circuit 2: high exhaust gas temperature	M	Switches off circuit 2			
A80	Speed drive circuit 2: offline	A	Turns off BLDC circuit 2			
A81	Speed drive circuit 2: alarm + error code	A	Turns off BLDC circuit 2			
A82	Offline supervision					
A83	Remote alarm from digital input	A	Turn unit off			
A84	Clogged air filters	A	No action	U107		
A85	Main fans circuit breaker	M	Turn unit off			
A86	Flow fan circuit breaker	M	Turn unit off			
A87	Return fan circuit breaker	M	Turn unit off			
A88	Overheating of electrical resistors	M	Turns off the electric resistors			
A89	Heat recovery unit circuit breaker	M	Turns off the heat recovery unit			
A94	Auxiliary sensor	A	No action	10s		
A99	RTC date/time incorrect	A	Disables the "Low noise" and "Fresh Air" functions			
A100	Low air flow temperature	A	In cooling mode: turns off the unit	U29, U30		
A101	High air flow temperature	A	In cooling mode: no action	U29, U26		
A102	High humidity	A	No action	U15		
A103	High CO ₂ level	A	No action	d09		
A104	High VOC level	A	No action	d11		
A105	Free-cooling/Free-heating fault	M	No action	U45		
A106	Expansion board offline	A	No action			
A107	Expansion board configuration error	A	No action			
A108	Error applying configuration	A	No action			
A109	I/O configuration error	A	No action			
A110	Room Terminal offline (th-Tune)	A	No action			
A111	Humidifier offline	A	No action			

Name	Description	Reset	Action	Delay	N.int.	Period
A112	Humidifier (error code if CPY)	A	Turns off the humidifier			
A113	Sanitizing device	A	Turns off the sanitizing device			
A114	IAQ sensor offline	A	No action			
A115	Return fan offline	A	No action if an air flow sensor is installed; otherwise, it turns the unit off			
A116	Return fan + error code	A	Turn unit off			
A117	Flow fan offline	A	No action if an air flow sensor is installed; otherwise, it turns the unit off			
A118	Flow fan + error code	A	Turn unit off			
A119	Supervision 2 offline		Supervisor 2 Warning offline			
A120	Supervision 3 offline		Supervisor 3 Warning offline			
A121	Ethernet supervision offline		Ethernet Warning offline			
A122	Vapor injection not supported		-			
A123	Gas not supported by the compressor		-			
A124	Expansion board 2 offline	A	Expansion 2 offline			
A125	Expansion board 2 configuration error		Expansion 2 Configuration Error			
A126	Expansion board 3 offline	A	Expansion 3 offline			
A127	Expansion board 3 configuration error		Expansion 3 Configuration Error			
A128	Room pressure probe	A	Room pressure probe error			
A129	Antifreeze temperature probe	A	Antifreeze probe error			
A130	Expansion board 4 offline	A	Expansion 4 offline			
A131	Expansion board 4 configuration error		Expansion 4 Configuration Error			
A132	Room offset setpoint probe alarm	A	"Offset setpoint" alarm from room probe			
A133	Phase sequence relay alarm		From configurable parameter U065: "WARNING" is for warning only; "SERIOUS ALARM" to turn off the unit			
A134	Smoke/fire alarm	M	Turn unit off			
A135	Leak detector alarm	M	Turn unit off			
A136	Heat generator alarm	M	Turns off the heat generator			
A137	Circuit 1 - Liquid probe	A	Circuit 1 liquid temperature probe error			
A138	Circuit 2 - Liquid probe	A	Circuit 2 liquid temperature probe error			
A139	Circuit 1 - Serious low pressure alarm from transducer	M	Circuit 1 low pressure serious alarm (turns unit off)			
A140	Circuit 2 - Serious low pressure alarm from transducer	M	Circuit 2 low pressure serious alarm (turns unit off)			
A141	Flow relative humidity probe	A	Flow humidity probe alarm			
A142	Demand limit signal	A	Demand limit signal alarm			
A143	Alarm humidifier	A	Alarm humidifier			
A155	Error during "ExpandPackContent" operation					

4 BMS SUPERVISION

To access the parameters for configuring the unit in the network, enter the SETTINGS menu → Settings parameters:



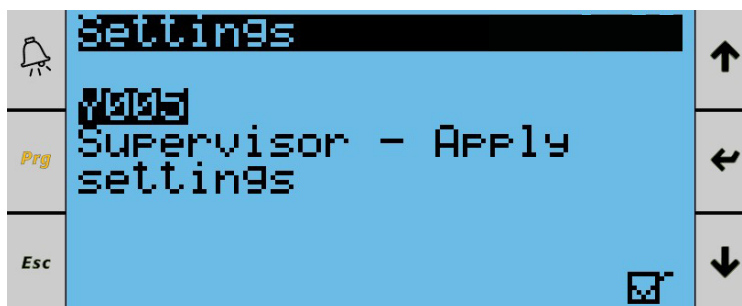
Scroll through the parameters with the UP and DOWN keys and select the parameter to be modified by pressing ENTER. Change the parameter value with the UP and DOWN keys and press ENTER to confirm.

4.1 MODBUS RTU

To configure supervision via Modbus RTU, set the following parameters:

Name	Description
Y001	Supervisor - Serial Address
Y002	Supervisor - Baud rate (0: 1200, 1: 2400, 2: 4800, 3: 9600, 4: 19200, 5: 38400, 6: 57600, 7: 115200, 8: 375000)
Y003	Supervisor - Parity and stop bits (0: 8 – none – 1, 1: 8 – none – 2, 2: 8 – even – 1, 3: 8 – even – 2, 4: 8 – odd – 1, 5: 8 – odd – 2)
Y004	Supervisor - Timeout offline

Once the above parameters have been set, select parameter Y005 by pressing ENTER, make the check appear with the UP and DOWN keys and confirm with ENTER:



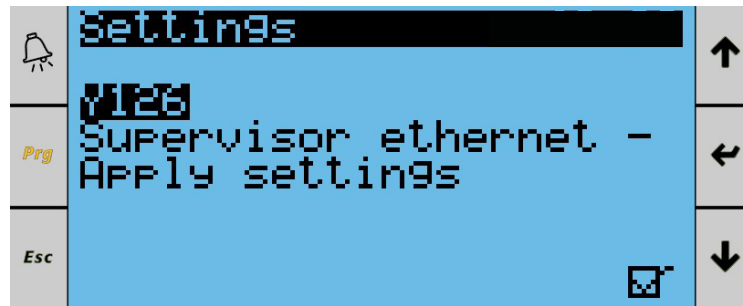
Once confirmed by pressing ENTER, the checkmark will disappear and the settings will be saved.

4.2 MODBUS TCP/IP

To configure supervision via Modbus TCP/IP, set the following parameters:

Name	Description
Y123	Ethernet Supervisor – Serial Address = 1
Y124	Ethernet Supervisor – Protocol = TCP
Y125	Ethernet Supervisor – Timeout offline

Once the above parameters have been set, select parameter Y126 by pressing ENTER, make the check appear with the UP and DOWN keys and confirm with ENTER:

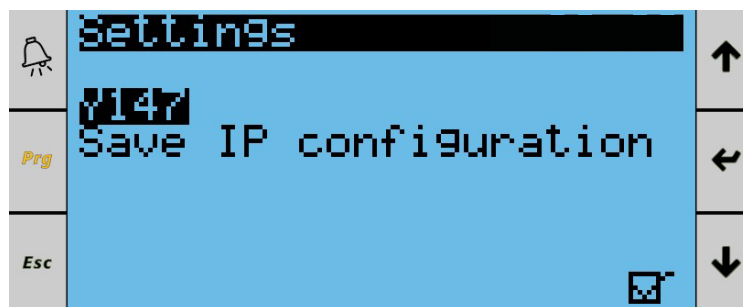


Once confirmed by pressing ENTER, the checkmark will disappear and the settings will be saved.

Then set the following parameters:

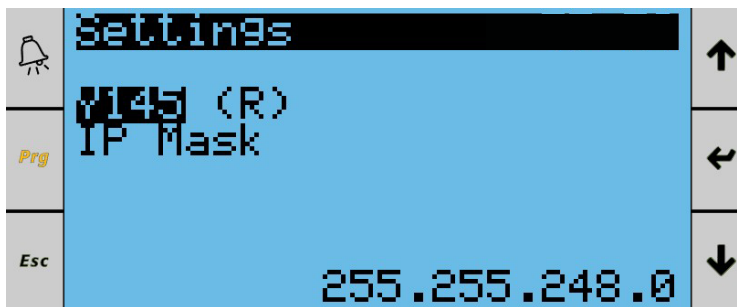
Name	Description
Y131	Enable DHCP (0: disabled, 1: enabled)
Y132	IP Address (xxx.000.000.000)
Y133	IP Address (000.xxx.000.000)
Y134	IP Address (000.000.xxx.000)
Y135	IP Address (000.000.000.xxx)
Y136	Mask IP (xxx.000.000.000)
Y137	Mask IP (000.xxx.000.000)
Y138	Mask IP (000.000.xxx.000)
Y139	Mask IP (000.000.000.xxx)
Y140	Gateway IP (xxx.000.000.000)
Y141	Gateway IP (000.xxx.000.000)
Y142	Gateway IP (000.000.xxx.000)
Y143	Gateway IP (000.000.000.xxx)

Once the above parameters have been set, select parameter Y147 by pressing ENTER, make the check appear with the UP and DOWN keys and confirm with ENTER:



Once confirmed by pressing ENTER, the checkmark will disappear and the settings will be saved.

To view the active network parameters (IP Address, IP mask, IP Gateway) you can scroll through the following masks (the addresses shown in the following images are for example only):



SCARICA L'ULTIMA VERSIONE:



<http://www.aermec.com/qrcode.asp?q=23221>

DOWNLOAD THE LATEST VERSION:



<http://www.aermec.com/qrcode.asp?q=23222>

TÉLÉCHARGER LA DERNIÈRE VERSION:



<http://www.aermec.com/qrcode.asp?q=23224>



Aermec S.p.A.

Via Roma, 996 - 37040 Bevilacqua (VR) - Italia

Tel. +39 0442 633 111 - Fax +39 0442 93577

marketing@aermec.com - www.aermec.com

BITTE LADEN SIE DIE LETZTE VERSION
HERUNTER:



<http://www.aermec.com/qrcode.asp?q=23223>

DESCARGUE LA ÚLTIMA VERSIÓN:



<http://www.aermec.com/qrcode.asp?q=23225>