W3000
Second Edition

USER MANUAL
C0240102-07-12-EN

For software versions GA12

Replaces C0240102-05-12-EN

E N

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Contents

Caution: *The W3000 SE controller software is protected by a digital signature.*
This means that it can only work on boards supplied by Climaveneta and not on boards purchased from other dealers.

1 USER INTERFACE

There are two types of user interface:

W3000

W3000 compact

***Figure 1.a**: W3000 and W3000 compact displays*

Depending on the type of user interface installed, there are more or less keys available for controlling the unit and for accessing system information.

Key		Description
W3000	**W3000 compact**	
	Prg	[MENU key]: accesses the main menu.
		[UP key]: moves around the masks and sets control parameter values
		[DOWN key]: moves around the masks and sets control parameter values
		[ENTER key]: confirms entered data.
	Esc	[ESC key]: goes back one level in the mask tree if you are in the header masks, or returns to the unit controller.
		[ALARM key]: displays the alarms and resets normal operating conditions.
	---	[SETPOINT key]: directly accesses the setpoint menu.
	---	[ON/OFF key]: switches the machine on and off.

For each compressor, the following LED's are also located on the W3000 user interface:

Symbol	LED colour	Description
	Green	If the LED shines steady the compressor is on, if it flashes the compressor is demanded.
	Red	The compressor is blocked by a compressor or circuit alarm
	Green	The compressor is in the “chiller” mode
	Green	The circuit is in the “freecooling” mode
	Green	The compressor is in the “heat pump” mode
	Green	If the LED shines steady the circuit is in the “recovery mode”, if it flashes there is a “recovery alarm”
	Green	If the LED shines steady the circuit is in the “defrost mode”, if it flashes it is in the “drip mode”

1.1 Language selection

During programming, all the languages are loaded to the controller and the end user performs a simple procedure to select the language to display.

Italian	Danish	German	Greek	English	Spanish	Finnish	French	Croatian	Hungarian
IT	**DA**	**DE**	**EL**	**EN**	**ES**	**FI**	**FR**	**HR**	**HU**

Dutch	Norwegian	Polish	Portuguese	Romanian	Russian	Swedish	Turkish	Simplified Chinese
NL	**NO**	**PL**	**PT**	**RO**	**RU**	**SV**	**TR**	**ZH**

***Table 1.1.a**: available languages and their relative international codes*

To select any one of the available languages, proceed as follows.

0)	Make sure the unit is OFF !! Make sure "OFF" (or OFF from keyboard, OFF from digital input…) appears in the first row of the main menu screen. Access to the system menu described below immediately switches off the compressors.	09:26 OFF Mode : chiller State: OFF keyboard Term. Req. Act. Cool. --- --- % Rec. --- --- % ID:011 U:01
1)	Press [ALARM] and [ENTER] together and hold down until the mask shown to the side appears.	> SYSTEM INFORMATION LOG DATA OTHER INFORMATION FLASH NAND FILES
2)	Press [UP] and [DOWN] to move the cursor ">" to the "FLASH NAND FILES" row and press [ENTER] to select.	SYSTEM INFORMATION LOG DATA OTHER INFORMATION > FLASH NAND FILES
3)	The mask to the side appears to confirm access to the "FLASH NAND FILES" menu. Now select the file for the required language. Press [ESC] to exit the menu without changing the language.	[ ] ga00r00xIT.iup
4)	Press [ENTER] to select the language EN. An "X" appears between square brackets. Press [ENTER] again to deselect the language.	[X] ga00r00xIT.iup
5)	Press [UP] and [DOWN] to view other files. Files with ".iup" extensions concern the language. The ".bin" file concerns the application. The ".grp" file concerns the graphic resources (if present).	[ ] ga00r00x.grp
6)	Choose **just one ".iup" file** according to the required language (consult the table of languages and relative international codes).	[X] ga00r00xIT.iup
7)	Select the ".bin" file.	[X] FLASH1.bin
8)	Select the ".grp" file (if present).	[X] ga00r00x.grp
9)	After selecting one of the ".iup" files, the ".bin" file and the ".grp" file, move to the mask on the side and press [ENTER].	Press Enter to start copying
9b)	On request of the mask to the side, leave "NO" and press [ENTER]. This mask is only used in large applicative versions and may therefore not appear.	Erase Log data? NO press ENTER to conf.
10)	The mask to the side appears indicating that the files are being copied. ATTENTION!! DO NOT SWITCH THE CONTROLLER OFF UNTIL THE WHOLE PROCEDURE HAS FINISHED. Otherwise it will not be possible to use the board and the firmware will have to be uploaded.	copy process is running

11)	After the installation process ends, the mask on the side appears	ok, copy completed. wait for restart
12)	Messages such as “I/O BOARD FAULT” and “NO LINK” may appear during the process. This is caused by the application restart process. They will disappear after a few seconds.	I/O BOARD FAULT
13)	Once the operation has finished, the masks will appear in the selected language. The installed language can be checked in the “Unit“ menu.	W 3000 SE Code GA 00.00 EN

All steps of the procedure must be performed. Even if just one file is omitted, the following faults may occur:

N.B.	If no “.iup” file is selected, this means that no language has been selected and an empty mask will appear! Repeat the operation taking care to select a “.iup” file.	
N.B.	If the “.bin” file is not selected, it means that the application file has not been selected. The mask on the side will appear. Press [ESC] and repeat the operation taking care to select the “.bin” file.	ERROR : press menu select one blb file
N.B.	If the “.grp” file is not selected, it means that the graphics file has not been selected. The language and the application have been installed but images will not be processed. Repeat the operation taking care to select a “.grp” file.	
N.B.	If the controller is switched off during the “copy process” phase, an empty mask will appear as the application is irreparably damaged. The “upload firmware” operation will have to be performed in order to reprogramme the controller (this operation can only be performed by an authorised CAT).	

1.2 Menu structure

The tree structures for moving around the various menus are shown below.

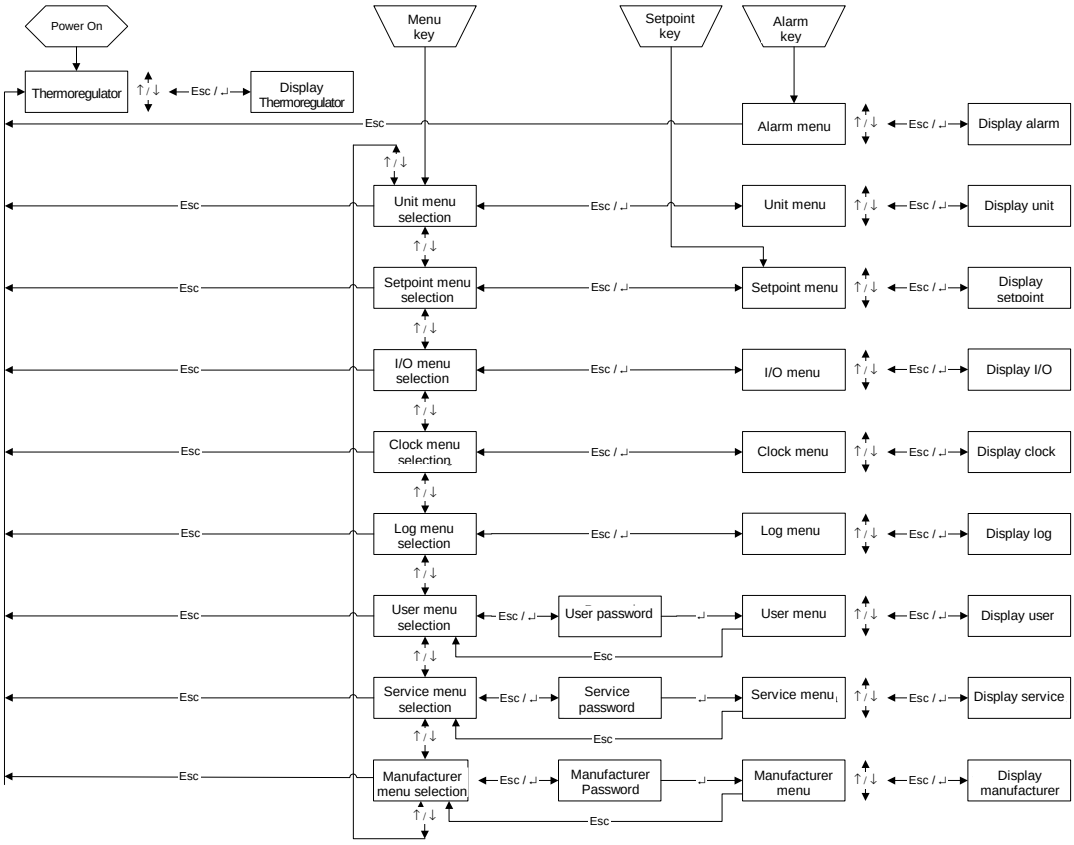


***Figure 1.2.a**: menu tree.*

The menus are briefly described below:

- The “Unit Menu” displays information such as temperature, pressure and circuit states.
- The “Setpoint menu” is used to set the setpoints for the various available functions. Different setpoints can be set depending on the available operating modes (chiller, heat pump and recovery). Double setpoint values can also be set for chiller and heat pump operation (only if the digital input is fitted and the “double setpoint” function is enabled in the “user menu”).
- The “I/O menu” shows the status of the digital inputs and values read from the analogue inputs.
  It also shows the status of the digital outputs and the voltage supplied to the analogue outputs.
  If expansions are necessary (depending on the configuration parameters), the inputs and outputs of the latter are also shown.
- The “Clock menu”, if the clock board is present, is used to set and display the date and time and configure the time bands.
- The list of events recorded by the unit can be viewed in the “Log menu” (only accessible if the clock card is installed).
- Parameters relative to user programming of the unit can be displayed and set in the “User menu”.
- Service engineers can view and set parameters in the “Service menu”.
- Unit configuration parameters can be displayed and set in the “Manufacturer menu”.

1.3 Switching the unit on and off

Caution: connect the unit to the power supply at least 8 hours before starting it; if this is not done, the guarantee will become null and void.

There are different procedures for starting or stopping the unit: using the user interface keys or selecting from the display. The following procedures have a priority. In the event of conflicts between different settings, the following priorities apply:

- highest priority: on/off from keyboard - on/off from parameter
  on/off from digital input
  on/off from time bands
- lowest priority: on/off from protocol

Using the [ON/OFF] key:

Only for W3000 display

Proceed as follows:
- *SWITCHING ON:* press the [ON-OFF] key.
- *SWITCHING OFF:* press the [ON-OFF] key.

The display will show Com. : ON indicating the unit is on, or OFF indicating the unit is off.

Using the On/Off parameter:

The “Com: On/Off” parameter is displayed on the main screen. “Off” means that the unit is switched off while “On” means that the unit is switched on.
Proceed as follows:
- *SWITCHING ON:* Move to the “On/Off” parameter by pressing [Enter] and then press [Up] or [Down] until “On” appears. Press [Enter] again to confirm. If “On” continues to be displayed it means that the unit has been switched on.
- *SWITCHING OFF:* Move to the “On/Off” parameter and change to “Off” using the same procedure used to switch the unit on. Press [Enter] again to confirm. If “Off” continues to be displayed it means that the unit has been switched off.

Using the digital input:

Only if the digital input is fitted.

Open the “user menu” and check that the “On/Off enable from digital input” parameter is set to “Yes”.
When the contact is open the unit is “Off”, when the contact is closed the unit is “On”.
Proceed as follows:
- *SWITCHING ON:* Close the remote On/Off contact. The “On from digital input” message appears in the main mask to show that the unit has been switched on.
- *SWITCHING OFF:* Open the remote On/Off contact. The “Off from digital input” message appears in the main mask to show that the unit has been switched off.

Using time bands:

Make sure that the “Clock board not installed” is not displayed in the “clock menu”.
Check that the “Time bands enabled” parameter in the “user menu” is set to “Yes”.

- *SWITCHING ON:* Set the required switching on time in the “clock menu”. The unit switches on when the set time is reached. The “On from time bands” message appears in the main mask to show that the unit has been switched on. N.B.: The unit does not switch on if it is set to “Off from keyboard” or “Off from digital input”.
- *SWITCHING OFF:* set the required switching off time in the “clock menu”. The unit switches off when the set time is reached. The “Off from time bands” message appears in the main mask to show that the unit has been switched off.

After enabling time bands from the “Enable time bands” parameter in the “user menu”, time bands can be set and different setpoints can be specified according to requirements.
Several time bands (up to 10) of different types (A, B, C and D) can be set during the day.
The beginning of the first band is set to 00:00 and the end of the tenth band is set to 23:59; the end of one band determines the beginning of the following one.
To use a smaller number of bands, set the time a band ends to the same time it begins, and that band will be ignored. Summer, winter and recovery setpoints can be set for each time band. It is also possible to define whether the unit must be on or off; set “Off” to maintain the unit in “Off from time bands”, set “Adjustment” to switch the unit “On from time bands”.
The following chart shows some examples representing the default settings indicated in the clock menu for bands A, bands B and bands C. The chart after that is a weekly setting showing bands A for Monday, bands B for Tuesday, Wednesday, Thursday and Friday, band C for Saturday and time bands off for Sunday (with the bands disabled, the unit will stay to “Off from times bands”).

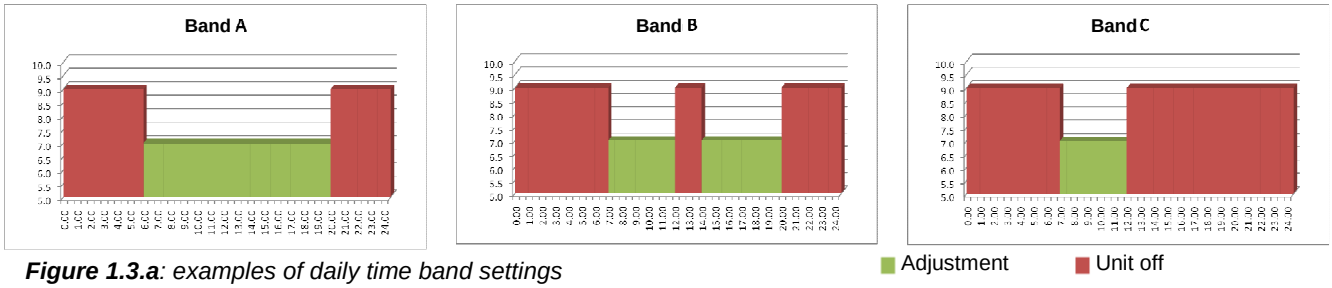


***Figure 1.3.a**: examples of daily time band settings*

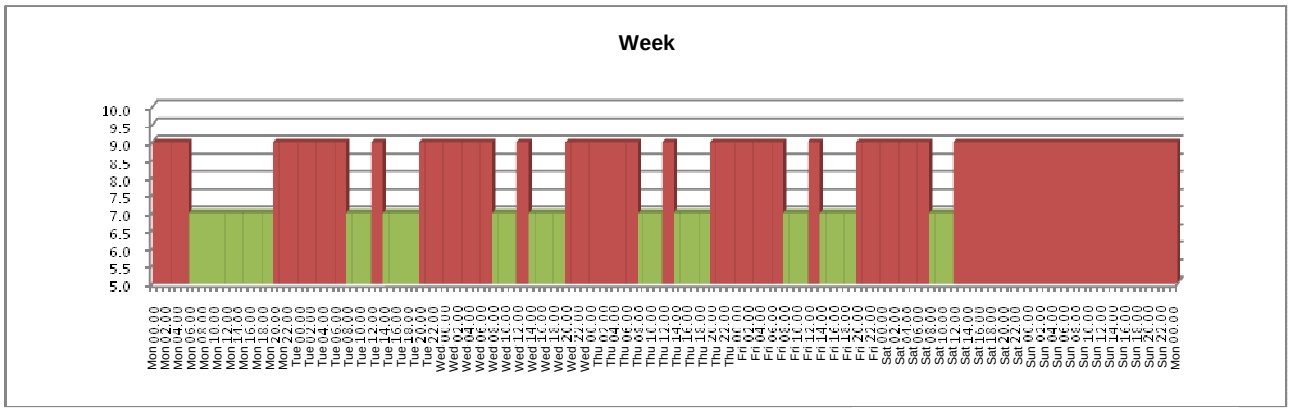


***Figure 1.3.b**: examples of weekly time band settings*

Using the supervision protocol:

Only if the serial board is fitted.

Check that the “Serial line configuration” parameter is not “Disabled” and that “On/Off enable from supervisor” is set to “Yes” in the “user menu”.
Proceed as follows:

- *SWITCHING ON:* Send the switching on command from the protocol. The “On from supervisor” message appears in the main mask to show that the unit has been switched on. N.B.: The unit does not switch on if it is set to “Off from keyboard” or “Off from digital input”.
- *SWITCHING OFF:* Send the switching off command from the protocol. The “Off from supervisor” message appears in the main mask to show that the unit has been switched off.

Devices such as the Sequencer and Manager 3000 can switch the unit on and off.

1.4 Setting the operating mode

Caution: Do not switch from chiller to heat pump unless the inlet temperature is above 15°C.
Do not switch from heat pump to chiller unless the inlet water temperature is below 30°C.

There are various ways of setting the operating mode of the unit.
The set operating mode may be any one of the following, as long as they are compatible with the unit:

Chillers:

Operating mode	Op. mode value	Description	Detail
chiller	3	Chiller	Chiller

Chillers with freecooling:

Operating mode	Op. mode value	Description	Detail
chiller	7	Chiller	Chiller
chiller+fc	8	Chiller plus freecooling	Chiller plus freecooling

Chillers with heat recovery:

Operating mode	Op. mode value	Description	Detail
chiller	3	Chiller	Chiller
chiller+rec	2	Chiller plus recovery	Chiller plus recovery

Heat pumps:

Operating mode	Op. mode value	Description	Detail
chiller	3	Chiller	Chiller
heatpump	4	Heat pump	Heat pump

Energy raisers:

Operating mode	Op. mode value	Description	Detail
chiller	3	Chiller	Chiller
chiller+rec	2	Chiller plus recovery	Chiller plus recovery
recovery	1	Recovery	Recovery only
auto	0	Automatic	Automatic

Heat pumps with recovery:

Operating mode	Op. mode value	Description	Detail
summer ch	13	Summer chiller	Chiller in summer mode
summer ch+rec	12	Summer chiller plus recovery	Chiller plus recovery in summer mode
summer rec	11	Summer recovery	Recovery in summer mode
summer auto	10	Summer automatic	Automatic in summer mode
winter hp	14	Winter heat pump	Heat pump in winter mode
winter rec	15	Winter recovery	Recovery in winter mode
winter auto	16	Winter automatic	Automatic in winter mode

***Table 1.4.a**: details of operating modes*

N.B.: in water-cooled chillers with water-side reversal the following operating modes are not yet available: auto, summer auto, winter auto, chiller plus recovery.

The following procedures have a priority: in the event of conflicts between opposing settings the following priorities apply:

- highest priority:	change via digital inputs
	change via keyboard (parameter or key)
- lowest priority:	change via supervision / Manager 3000 / Sequencer

Using the keyboard:

Make sure the unit is “Off”. Access the “setpoint menu” and display the “Operating mode” parameter. Move to the “Operating mode” parameter by pressing [Enter] and modify the parameter by pressing [Up] or [Down]. Press [Enter] again to confirm. If the set message continues to be displayed it means that the operating mode has been changed.

Using digital inputs:

Applicable in all units with more than one operating mode (all except chiller only).
Open the “user menu” and check that the “Change mode enable from digital input” parameter is set to “Yes”.
The chiller switches to the operating mode set according to the digital input settings shown in the following tables:

Chiller with freecooling:

Operating mode	Fc pin
chiller	Closed
chiller+fc	Open

Chiller with heat recovery:

Operating mode	Rec pin
chiller	Closed
chiller+rec	Open

Heat pump:

Operating mode	Sum/Win pin
chiller	Closed
heatpump	Open

Energy raisers:

Operating mode	Auto pin	Sum/Win pin	Rec pin
chiller	Closed	Closed	Closed
chiller+rec	Closed	Closed	Open
recovery	Open	Closed	Open
auto	Open	Closed	Closed

Heat pumps with recovery:

Operating mode	Auto pin	Sum/Win pin	Rec pin
summer ch	Closed	Closed	Closed
summer ch+rec	Closed	Closed	Open
summer rec	Open	Closed	Open
summer auto	Open	Closed	Closed
winter hp	Closed	Open	Closed
winter rec	Open	Open	Open
winter auto	Open	Open	Closed

***Table 1.4.b**: tables for digital inputs if the change operating mode via digital inputs is enabled*

Changing the operating mode using the digital inputs requires the unit to be switched off. Switching the digital inputs turns off the unit, changes the operating mode and automatically turns the unit back on again.

Using the supervision protocol:

Only applicable if the serial board is fitted.
Check that the “Serial line configuration” parameter is not “Disabled” and that “Enable operating mode change from supervisor” is set to “Yes” in the “user menu”.
Make sure the unit is “Off”. Send the change operating mode command from the protocol. The operating mode only changes if the unit is switched off.
The value restored to the protocol (or to send to the protocol) is the same as that shown in the supervision database. For simplicity it is shown in the above tables divided by type of unit.
Devices such as the Sequencer and Manager 3000 can change the operating mode of the unit.

1.5 Setting adjustment methods

Depending on the type of compressor used, various adjustment methods may be selected.

Compressor	Type of unit	Available adjustment methods
Hermetic	Water/water heat pump Water/water chiller Evaporating units Water/air heat pump Water/air chiller Chiller with heat recovery Chiller with free-cooling Energy Raiser Heat pump with recovery	• *Quick Mind on outlet probe (*)* • *Quick Mind on inlet probe* • *Proportional step on inlet probe* • *Proportional step on inlet probe + integral on inlet probe*
Alternative	Chiller with free-cooling Energy Raiser Heat pump with recovery Chiller with heat recovery Water/water heat pump Water/water chiller Evaporating units Water/air heat pump Water/air chiller	• *Proportional step on inlet probe* • *Proportional step on inlet probe + integral on inlet probe*
Screw	Water/water heat pump Water/water chiller Evaporating units Water/air heat pump Water/air chiller Chiller with heat recovery Chiller with free-cooling Energy Raiser Heat pump with recovery	• *Modulating on outlet probe + DIP on outlet probe (*)* • *Proportional step on inlet probe* • *Proportional step on inlet probe + integral on inlet probe*
Screw with inverter	Water/water chiller Water/air chiller Chiller with heat recovery Energy Raiser Heat pump with recovery	• *Flexible step proportional on inlet probe + DIP on outlet probe* • *Neutral zone on outlet probe + DIP on outlet probe (*)*
Centrifuge	Water/water chiller Water/air chiller Water/water heat pump Evaporating units	• *Flexible step proportional on inlet probe + DIP on outlet probe* • *Neutral zone on outlet probe + DIP on outlet probe (*)*

***Table 1.5.a**: heat adjustment methods available by compressor type*

(*): adjustment necessary for units with pump speed control.

The various heat adjustment methods are described below.

1.5.1 Proportional step adjustment on inlet probe

Some examples of proportional “step” adjustment on the inlet temperature probe:

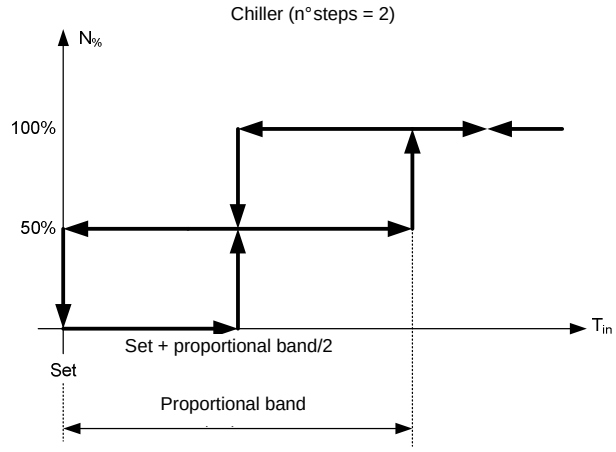


***Figure 1.5.1.a**: T_{in} is the input variable, $N_{\%}$ is the n°of active steps expressed in % (chiller)*

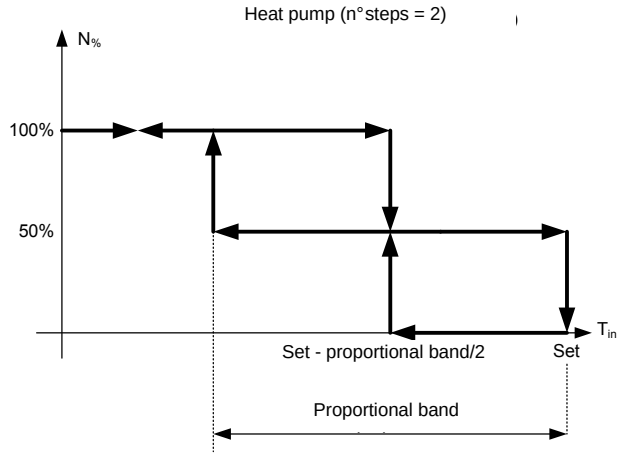


***Figure 1.5.1.b**: T_{in} is the input variable, $N_{\%}$ is the number of active steps expressed in % (heat pump)*

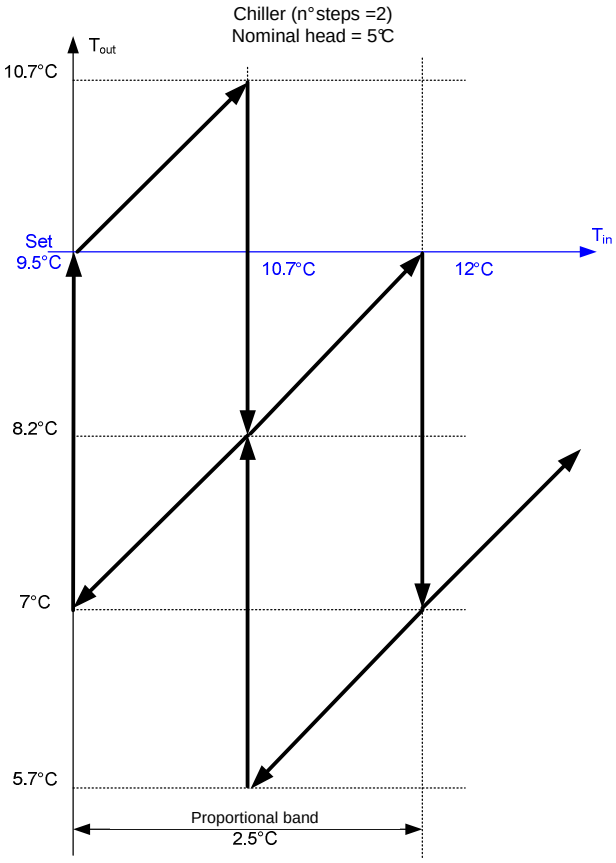


***Figure 1.5.1.c**: Relationship between T_{in} and T_{out}, with 2 steps (chiller)*

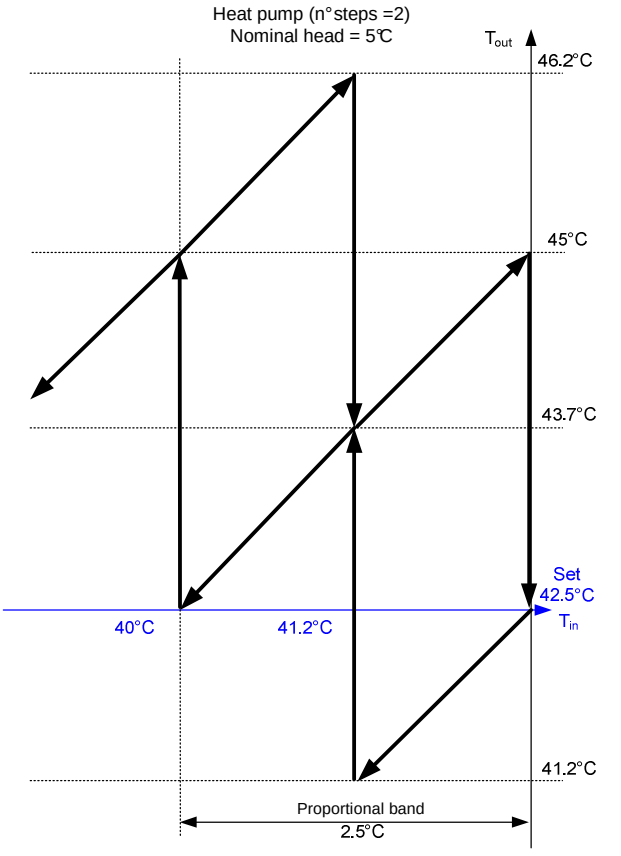


***Figure 1.5.1.d**: Relationship between T_{in} and T_{out}, with 2 steps (heat pump)*

The following tables show some typical values for the parameters in question. The theoretical maximum and minimum outlet temperature values refer to operation at nominal flow rates (with a thermal head at the evaporator of 5.0 ℃ and sufficient water in the system to ensure a litre / KW ratio equal to or greater than 7).

N° steps	Setpoint (℃)	Proportional band (℃)	Theoric min. outlet T (℃)	Theoric max. outlet T (℃)
2	9.5	2.5	5.7	10.8
4	7.0	5.0	5.7	8.3
5	7.0	5.0	6.0	8.0
6	7.0	5.0	6.2	7.8
8	7.0	5.0	6.4	7.6

***Table 1.5.1.b**: normal setpoint and proportional band values according to the number of steps (chiller).*

N° steps	Setpoint (℃)	Proportional band (℃)	Theoric min. outlet T (℃)	Theoric max. outlet T (℃)
2	42.5	2.5	41.2	46.3
4	45.0	5.0	43.7	46.3
5	45.0	5.0	44.0	46.0
6	45.0	5.0	44.2	45.8
8	45.0	5.0	44.4	45.6

***Table 1.5.1.c**: normal setpoint and proportional band values according to the number of steps (heat pump).*

1.5.2 Proportional step adjustment on inlet probe + integral on inlet probe

This adjustment method is based on the sum of two components: proportional and integral.
The proportional component generates the percentage demand for activating/deactivating the steps, as illustrated in the previous paragraph “Proportional step adjustment on inlet probe”.
The integral component adds the integral error to the proportional component at regular intervals (integral time). The integral error is calculated according to the following formula:

$$\text{Integral error} = \frac{\text{Inlet temperature} - \text{Set point}}{\text{Proportional band}} \times 100 \quad [\%]$$

However, the integral component is limited (integral limit) to prevent the adjustment.

If the inlet temperature varies by 5% or more in one second, a rapid change, therefore, the integral component is not calculated.
Integral time is counted starting from when the heat adjuster demand stabilises.

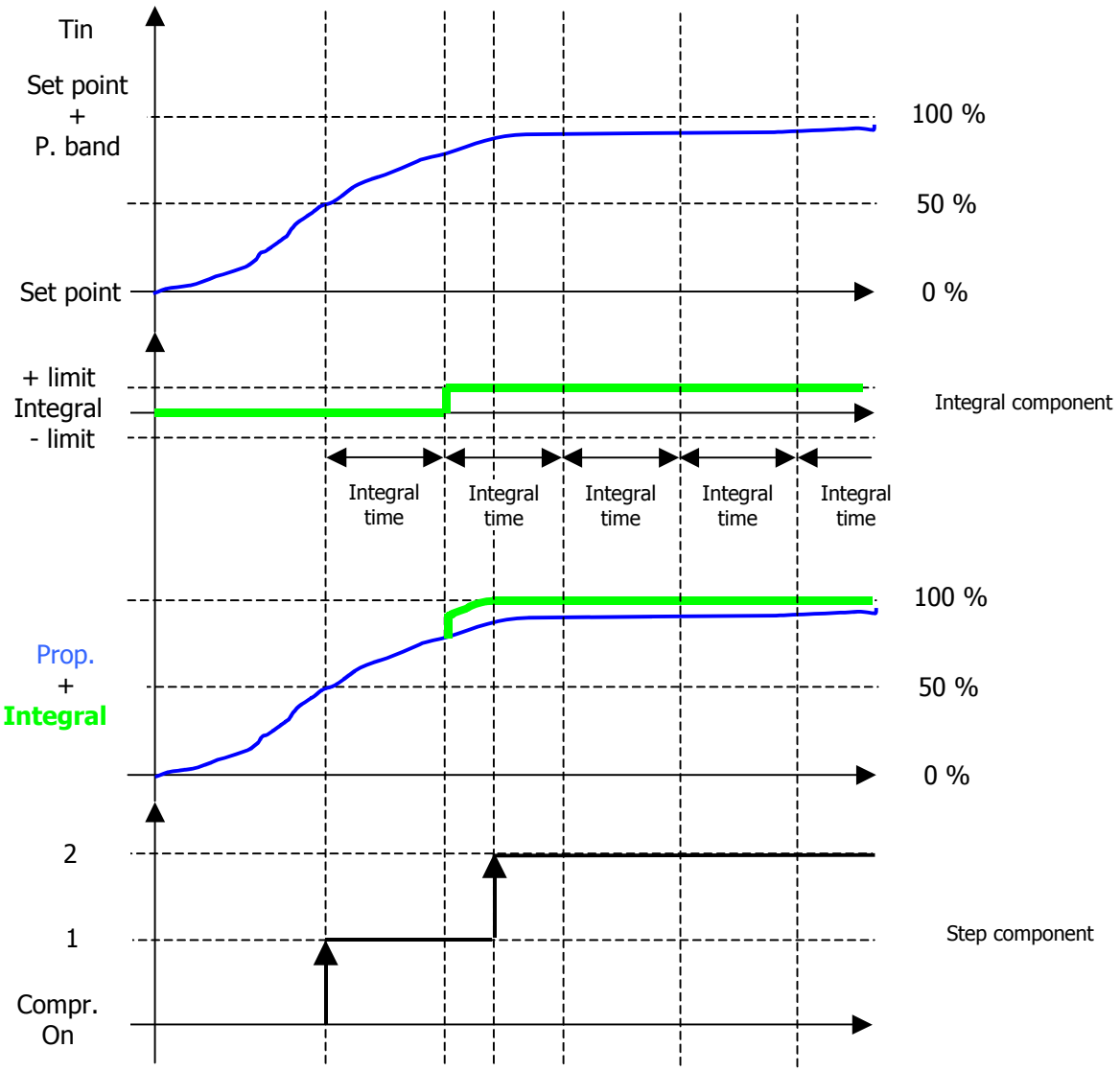


***Fig 1.5.2.e**: Example of a 2 step adjustment in the chiller mode*

1.5.3 Quick mind adjustment

Users must only set the required setpoint as all the other parameters are adapted to the system by the Quick Mind algorithm.

QUICK MIND is a self-adapting algorithm for adjusting the temperature of the water treated by an all-in-one unit. The following figure shows how this adjustment is made when adjusting the outlet probe.

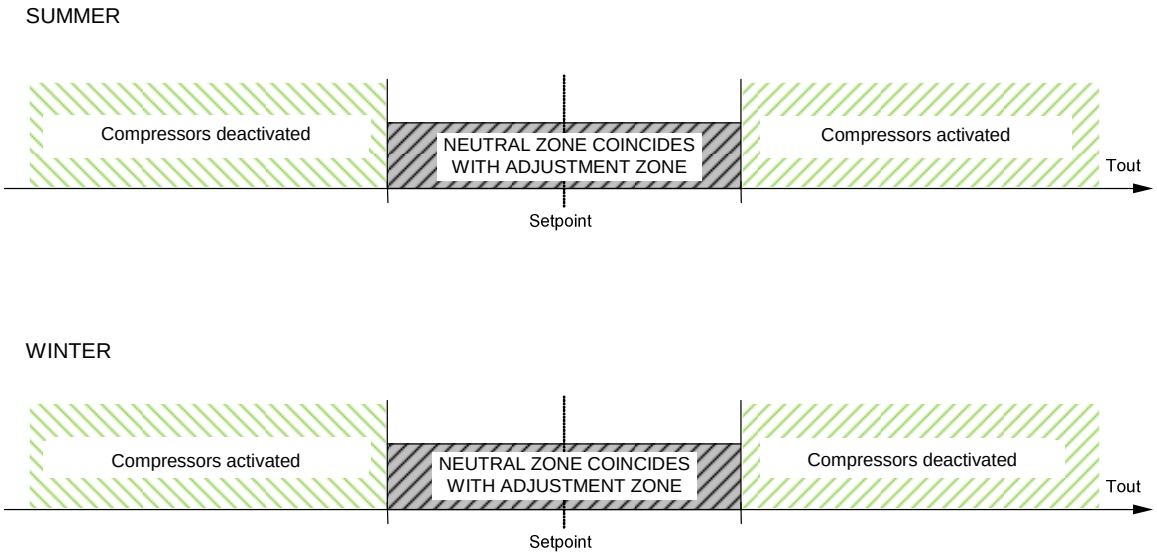


***Figure 1.5.3.f**: QUICK MIND adjustment model (chiller and heat pump)*

The setpoint remains within a neutral zone. If the temperature also remains within this area, no change is made to the number of active compressors.
When the temperature leaves the neutral zone following a change in system load, the compressors are either activated or deactivated in order to return the temperature to the neutral zone.
The amplitude of the neutral zone depends on the dynamic characteristics of the system and, in particular, on the amount of water it contains and the load. The self-adapting algorithm is able to “measure” system dynamics and calculate the minimum neutral zone in order to respect compressor activation times and the maximum number of start-ups per hour.
Both return and delivery temperatures can be adjusted.

Special functions are also present which reduce the number of compressor start-ups in the event of very low loads or start-ups of units with significantly higher or lower temperatures than the setpoint.

2 compressors - with maximum permitted number of start-ups per hour 10									
Litres / KW	10.5	9.5	8.5	7.5	6.5	5.5	4.5	3.5	2.5
Δ Tout	3.2	3.3	3.4	3.5	3.6	3.8	4.1	4.5	5.3

4 compressors - with maximum permitted number of start-ups per hour 10									
Litres / KW	10.5	9.5	8.5	7.5	6.5	5.5	4.5	3.5	2.5
Δ Tout	1.6	1.6	1.7	1.7	1.8	1.9	2.0	2.2	2.6

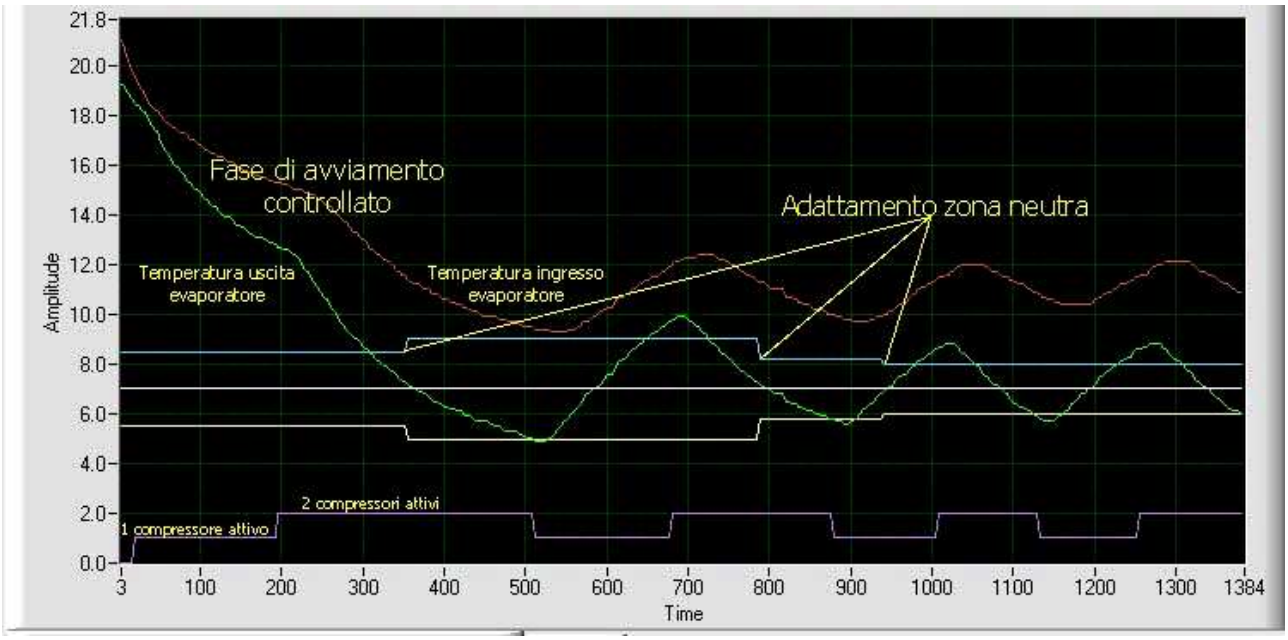
5 compressors - with maximum permitted number of start-ups per hour 10									
Litres / KW	10.5	9.5	8.5	7.5	6.5	5.5	4.5	3.5	2.5
Δ Tout	1.3	1.3	1.3	1.4	1.5	1.5	1.6	1.9	2.1

6 compressors - with maximum permitted number of start-ups per hour 10									
Litres / KW	10.5	9.5	8.5	7.5	6.5	5.5	4.5	3.5	2.5
Δ Tout	1.1	1.1	1.1	1.2	1.2	1.3	1.4	1.5	1.8

8 compressors - with maximum permitted number of start-ups per hour 10									
Litres / KW	10.5	9.5	8.5	7.5	6.5	5.5	4.5	3.5	2.5
Δ Tout	0.8	0.8	0.8	0.9	0.9	0.9	1.0	1.1	1.3

***Table 1.5.3.d**: maximum theoretical delivery temperature range at constant part load (depending on the quantity of water contained in the system) with outlet Quick Mind adjustment*

An example of real data acquired during operation with the Quick Mind adjuster on the delivery side is shown below. Reference is made to the following figure:



Fase di avviamento controllato	=	Controlled starting phase
Adattamento zona neutra	=	Adaptation to neutral zone
Temperatura uscita evaporatore	=	Outlet temperature of evaporator
Temperatura ingresso evaporatore	=	Inlet temperature of evaporator
1 compressore attivo	=	1 compressor active
2 compressori attivi	=	2 compressors active

***Figure 1.5.3.g:** example of real data with quick-mind outlet adjustment (x-axis: time in [s]; y-axis: Tout in [℃]).*

This is an example of start-up with a very high initial temperature compared with the setpoint (7℃). About 10 seconds after data acquisition began, one compressor switches on. The second compressor does not switch on immediately as the algorithm which handles start-up checks if one compressor is enough to return delivery temperature to the setpoint and avoid unnecessary start-ups. As the delivery temperature is still at 12 ℃ after about 200 seconds, the second compressor is also switched on, otherwise it would take too long to reach setpoint.
Following the controlled starting phase, the delivery temperature falls until it “enters” the neutral zone. The algorithm (at t= 350 s) begins to adapt the amplitude of the neutral zone in order to respect compressor safety times. As can be seen, the neutral zone is later reduced (t= 780 s, 950 s) to the absolute minimum amplitude which allows safety times to be respected. It can also be seen that the compressors are activated and deactivated when the outlet temperature reaches the upper or lower limits of the neutral zone. The example shows that outlet temperature varies by about 3.5 ℃ during regular operation.

1.5.4 Modulating adjustment on outlet probe + DIP on outlet probe for screw compressors

This adjustment is performed by two coordinated adjusters:

a) **Neutral zone** (step adjuster) on the outlet probe;
b) **DIP** (modulating adjustment) on the outlet probe.

The set point is identical for both adjusters.

a) This is a neutral zone step adjuster whose control variable is the outlet temperature from the **Tout** unit and whose controlled variable is the number of steps to enable (compressors).
The set point remains within a neutral zone. If the temperature also remains within this area, no change is made to the number of active compressors.
When the temperature leaves the neutral zone following a change in system load, the compressors are either activated or deactivated in order to return the temperature to the neutral zone (see figure below).
The amplitude of the neutral zone depends on the dynamic characteristics of the system. The self-adapting algorithm is able to “measure” system dynamics and calculate the minimum neutral zone in order to respect compressor activation times and the maximum number of start-ups per hour.

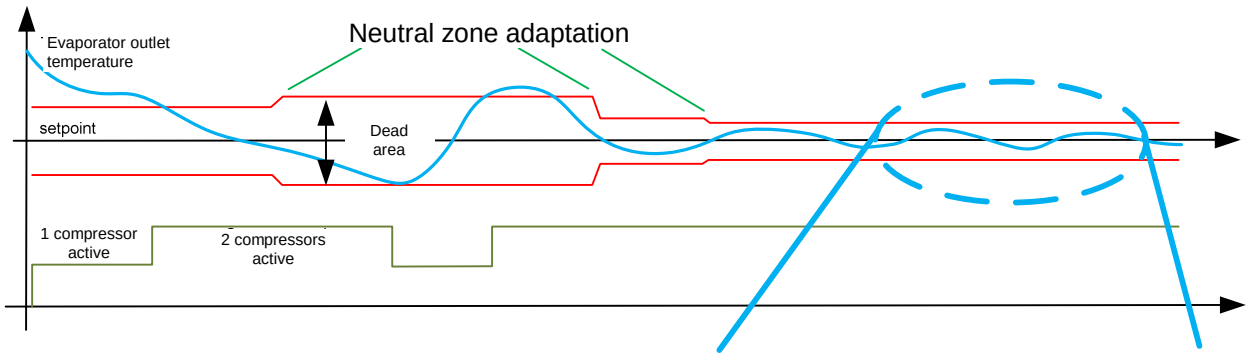


Figure 1.5.4.h: modulating adjustment on the outlet probe

b) Reference is made to the figure on the side*:*
The set point remains within a holding zone (ZM). If the outlet temperature also remains within this zone, no change is made to the number of active compressors or their load percentages (position of modulating chamber).
When the outlet temperature rises above zone B following a change in the system load, the compressors are activated in order to return the temperature to the adjustment area.
Inside zone B, if the outlet temperature derivative is greater than or equal to 0, compressor power is increased in order to return the temperature to the holding zone (ZM). The amount of the increase is calculated by a DIP regulator according to the outlet temperature.
When the outlet temperature falls below zone C following a change in the system load, the compressors are deactivated in order to return the temperature to the adjustment area.

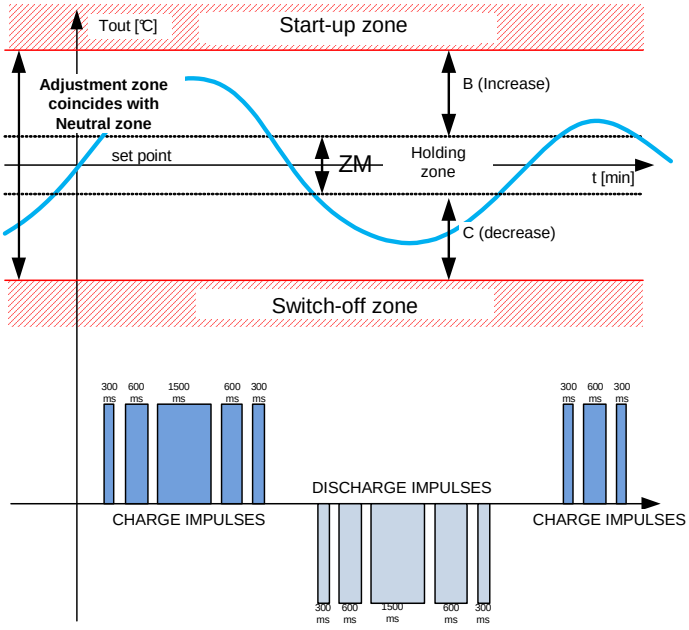


Figure 1.5.4.i*: modulating adjustment for screw compressors*

Inside zone C, if the outlet temperature derivative is less than or equal to 0, compressor power is decreased in order to return the temperature to the holding zone (MN). The amount of the decrease is calculated by a DIP regulator according to the outlet temperature.
The amplitude of the adjustment zone depends on the dynamic characteristics of the system and, in particular, on the amount of water it contains and the load. The self-adapting algorithm is able to “measure” system dynamics and calculate the minimum neutral zone in order to respect compressor activation times and the maximum number of start-ups per hour.
When a second or subsequent compressor is switched on, the ones that are already running are forced to a minimum, and the subsequent power increases/decreases are applied to all the compressors.

1.5.5 Flexible step proportional adjustment on inlet + DIP on outlet probe

This adjustment is performed by two coordinated adjusters:

a) **Proportional step** (step adjuster) on the inlet probe;
b) **DIP** (adjustment) on the outlet probe.

The set point is identical for both adjusters.

a) This is a proportional step adjuster whose control variable is the inlet temperature to the **Tin** unit and whose controlled variable is the number of steps to enable (compressors).

Compared with the traditional step adjuster, 2 further parameters have been added.

Rb: is a percentage of the proportional band **BP** and allows the steps to be compressed in this part of the proportional band.

Operating example of 4 cooling steps and **Rb** < **BP**

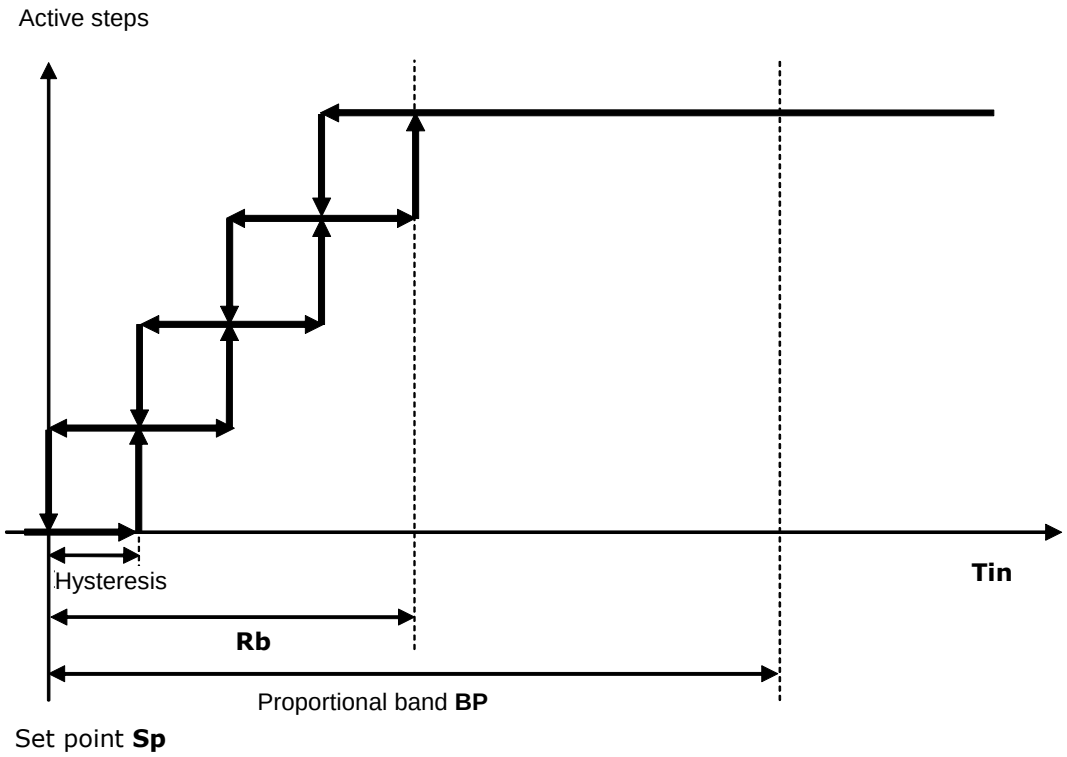


***Figure 1.5.5.j**: proportional step adjuster with offset = 0 and Rb = 50%*

The hysteresis of each step is the reference proportional band **Rb** divided by the number of steps to manage.

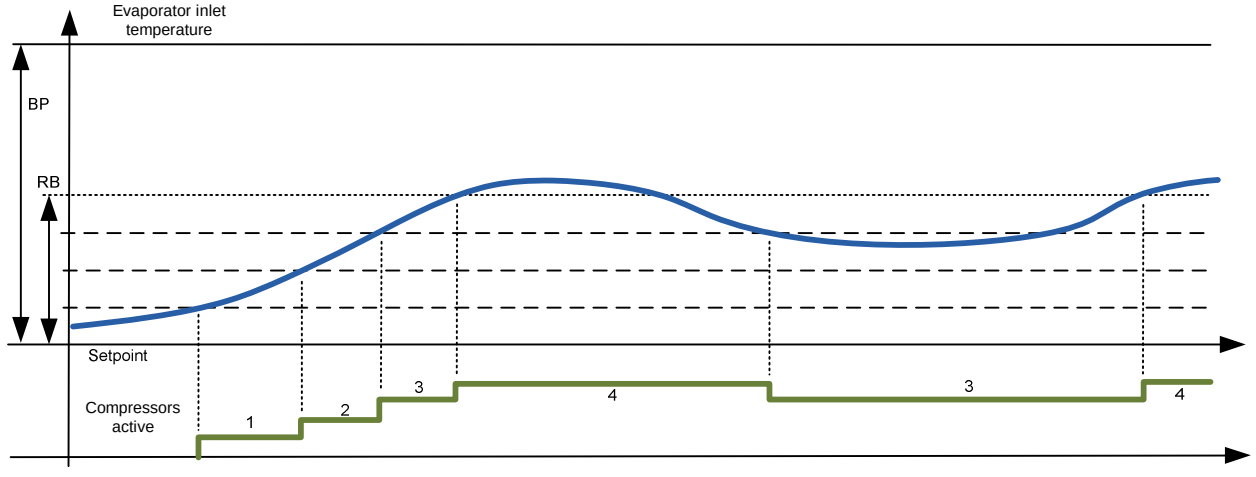


***Figure 1.5.5.k**: proportional adjustable with flexible steps on the inlet probe with offset = 0 and Rb = 50%*

The **Offset** moves the enable/disable of the second half of the steps to a higher value with respect to offset = 0, and refers to the proportional band BP.

Operating example of 4 cooling steps and Offset > 0

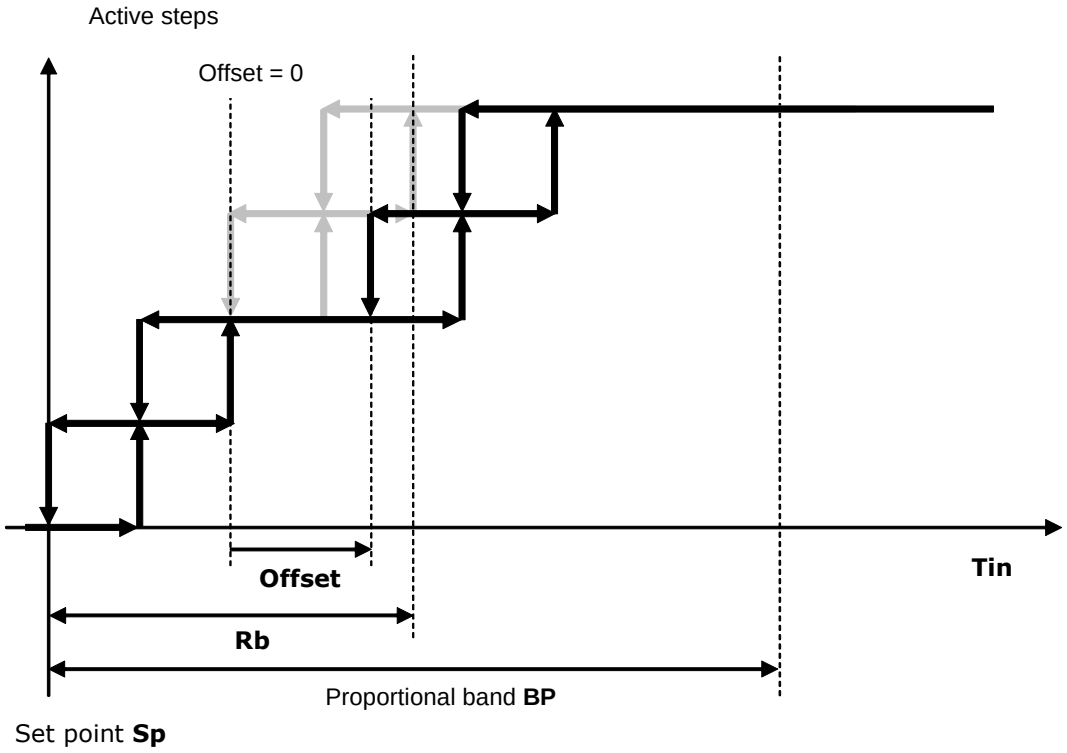


***Figure 1.5.5.l**: proportional step adjuster with offset > 0 and Rb = 50%*

b) The **DIP** (Derivative Integral Proportional adjuster), whose control variable is the outlet temperature, activates when first compressor starts and deactivates when the last one stops.
The controlled variable is the number of compressor revs (absorbed power per unit with centrifugal compressors), changing them from the settable minimum to maximum, thus achieving continuous adjustment of the outlet temperature.
The following parameters can also be adjusted: kp (coefficient of proportional component) and ti (integral time). The derivative time is factory set.

When the outlet temperature lies within the *holding zone*, the compressor revs are not modified.
When the outlet temperature lies within the *DIP adjustment zone*, the value of the compressor revs is modified to return the temperature to within the *holding zone*.
The zfi, holding zone and zfs parameters are factory set.

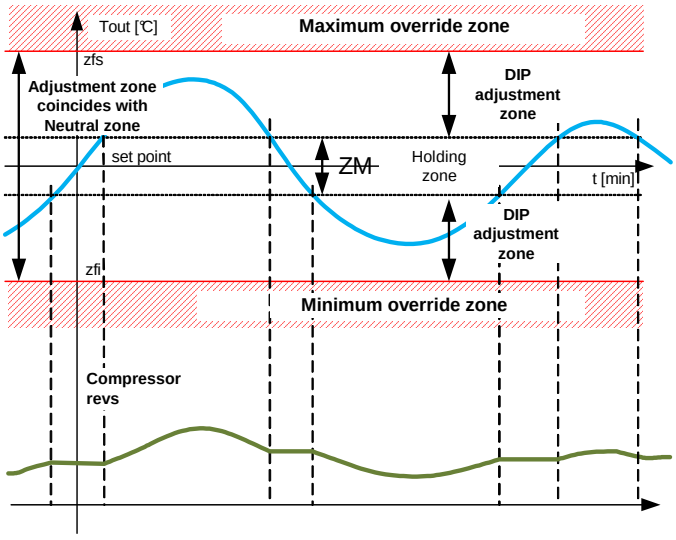


***Figure 1.5.5.m**: operating diagram of DIP adjuster output*

1.5.6 Neutral zone adjustment on outlet probe + DIP on outlet probe

This adjustment is performed by two coordinated adjusters:

a) **Neutral zone** (step adjuster) on the outlet probe;
b) **DIP** (adjustment) on the outlet probe.

The set point is identical for both adjusters.

a) This is a neutral zone step adjuster whose control variable is the outlet temperature from the **Tout** unit and whose controlled variable is the number of steps to enable (compressors).
The setpoint remains within a neutral zone. If the temperature also remains within this area, no change is made to the number of active compressors.
When the temperature leaves the neutral zone following a change in system load, the compressors are either activated or deactivated in order to return the temperature to the neutral zone (see figure below).
The amplitude of the neutral zone depends on the dynamic characteristics of the system. The self-adapting algorithm is able to "measure" system dynamics and calculate the minimum neutral zone in order to respect compressor activation times and the maximum number of start-ups per hour.

b) The **DIP** (Derivative Integral Proportional adjuster), whose control variable is the outlet temperature, activates when first compressor starts and deactivates when the last one stops.
The controlled variable is the number of compressor revs (absorbed power per unit with centrifugal compressors), changing them from the settable minimum to maximum, thus achieving continuous adjustment of the outlet temperature.
The following parameters can also be adjusted: kp (coefficient of proportional component) and ti (integral time). The derivative time is factory set.

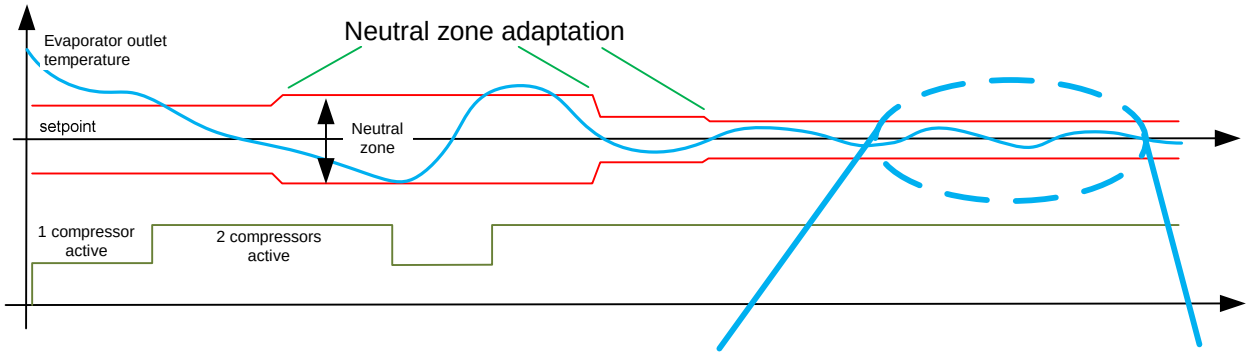


***Figure 1.5.6.n**: Neutral zone adjustment on outlet probe*

Operating diagram of the DIP adjuster:
When the outlet temperature lies within the *holdling zone*, the compressor revs are not modified.
When the outlet temperature lies within the *DIP adjustment zone*, the value of the compressor revs is modified to return the temperature to within the *holding zone*.
The zfi, *holding zone* and zfs parameters are set to a fixed offset value with respect to the neutral zone.

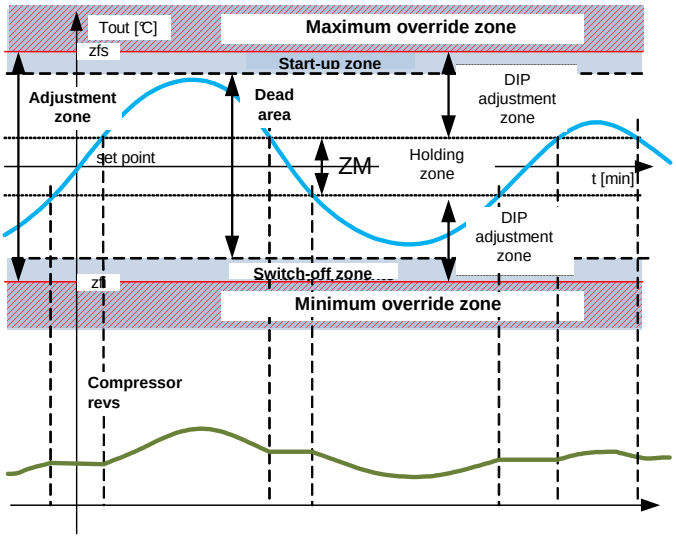


***Figure 1.5.6.o**: operating diagram of DIP adjuster output*

1.6 Setpoint setting

The setpoint set from the keyboard, or selected from the external contact for the double setpoint, is modified by any functions enabled which convert it into the active set point sent to the adjusters.

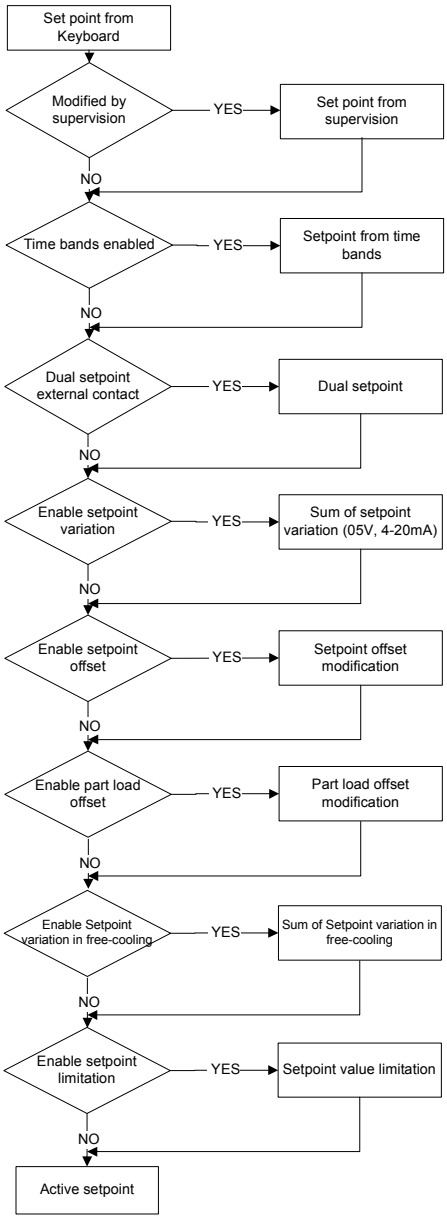


Figure 1.6.a: *sequence of the setpoint modification functions set to obtain the active setpoint.*

Example
Keyboard setpoint: 7.0℃
Double setpoint: 10.0℃
Variation of the setpoint at 50% corresponding to 2.5℃
Setpoint active with contact open: 7.0 + 2.5 = 9.5℃
Setpoint active with contact closed: 10.0 + 2.5 = 12.5℃

Note: the signal applied by the change in the setpoint is always summed, regardless of the operating mode of the unit
Note: if Manager or Sequencer control is enabled, the time band, double set point and set point variation functions are forcibly disabled.
N.B.: The setpoint limitation and compensation functions are only available if the external air temperature probe is fitted. This probe is not available in for water-cooled units.

The setpoint menu shows the active temperature setpoint (of both the main setpoint and the recovery/DHW setpoint).

The captions of the flashing symbols indicating the functions active by setpoint and operating mode are indicated below:

R: change from remote contact function
V: change from external signal function
B: change from time band function
C: compensation from external temperature function
L: limitation from external temperature function
P: part load compensation function
S: value received from Sequencer
M: value received from Manager 3000
Q: value changed from Moving Band function
F: Free-cooling variation function

```
Active setpoint:

Main          07.0 °C B
Recovery/DHW 42.5 °C  R
```

```
Unit type:
chiller
Operating mode:
auto                  R
Adjustment enabled:
Quick Mind
in output
```

1.7 Symbols

The following symbols are used in the W3000 and W3000 compact masks.

Flashing items main mask	Description
BANDS	Time bands active
FCOOL	Unit in free-cooling mode
LIMIT	Power limit active (demand limit)
FREEZE	Outlet temperature approaching anti-freeze setpoint
FULL LOAD	Maximum override of at least one circuit is active
U.ALONE	The unit works independently after disconnecting the Manager3000 or Sequencer
HPTC	Circuit limitation enabled due to elevated condensation
DEFR	Defrosting is active on one or more circuits of the unit
DRIP	Dripping is active on one or more circuits of the unit
STORAGE	The energy storage function is enabled
MIN LOAD	Minimum override of at least one circuit is active
DHW	The unit is producing DHW
ANTILEG	The anti-legionellosis function is active
OFF SNIFF.	To enable the Sniffer function, the pumps are off or, if they are working, the system delivery/return temperatures are being updated before re-enabling the thermoregulators
POWER-ON	The unit is waiting for the post-blackout start delay to expire
WAIT	The unit is on and the thermoregulators are waiting for the current timers

The BANDS, LIMIT and FREEZE indicator LED's are only enabled when the unit is ON.

Symbol unit menu	Description
Off	Unit/circuit off
Ch nr	Chiller circuit not demanded by thermoregulator
Ch	Chiller circuit demanded by thermoregulator
Ch+R	Chiller circuit plus recovery demanded by thermoregulator
Hp nr	Heat pump circuit not demanded by thermoregulator
Hp	Heat pump circuit demanded by thermoregulator
R nr	Recovery only circuit not demanded by thermoregulator
R	Recovery only circuit demanded by thermoregulator
Pd	Circuit in pump-down mode
Defr	Circuit in defrost mode
Drip	Circuit in drip mode

2 ALARMS

Press the [ALARM] key once to enter the “alarms menu” and view the alarm message along with its code. If there is more than one alarm, scroll the menu using the [UP] and [DOWN] keys.
Press any other key to exit from this menu.
To reset the alarm press the [ALARM] key again and hold it down until the message "No active alarm" is displayed. If the message does not appear it means that one or more alarm conditions are still active.

2.1 Table of W3000 SE alarms

Code	Description	Details	Reset	Action
002	Phase sequence / Voltage out of range	*Faulty phase connection. Totally shuts down the unit (only displayed if the input that detects it is fitted)*	A	U
003	No water flow to evaporator	*No flow to evaporator. The alarms automatically resets 3 times in the same hour if flow is restored within the maximum operating time of the pumps with a small amount of water (P23.34), otherwise, it must be reset manually*	A/M	U
005	Low inlet temperature	*Enabled only in the “heat pump” mode. Low water temperature at evaporator inlet.*	S-A	-/U
006	High inlet temperature	*Enabled only in the “chiller” mode. High water temperature at evaporator inlet.*	S-A	-/U
010	Evaporator antifreeze	*Low water temperature at evaporator outlet. Also specifies which evaporator (if more than one) is involved in the alarm condition. The alarm also appears if the antifreeze limit trips more than 5 times in 8 operating hours.*	M	CI
014	Insufficient system pressure	*Only displayed if the relative input is present (see I/O menu). Unit stops due to an external pressure switch.*	M	U
017	Low external air temperature	*Indicates that the external air temperature has fallen below the set point.*	S	-
021	Low water charge	*The evaporator inlet temperature changes too quickly, due to the low water level in the system.*	S	-
022	Low water flow	*Indicates that the temperature difference between the system exchanger inlet and outlet is too high, or that the flow of water to the exchanger is too low. The alarm automatically resets 3 times in the same hour if flow is restored within the set maximum time, otherwise, it must be reset manually During thawing or dripping with the compressors on it immediately becomes manual.*	A/M	U*
023	High water flow	*Indicates that the water flow to the evaporator is too high.*	M	U*
045	No water flow to condenser	*Similarly to “No water flow to evaporator” (only for water/water units with freon reversal).*	A/M	U*
046	No water flow to recuperator	*No water flow to the recuperator.*	A	U*
051	Pump 1 maintenance	*Maintenance hours limit exceeded (in units with just 1 pump, pump 1 is the evaporator pump)*	S	-
052	Pump 2 maintenance	*Pump 2 maintenance hours limit exceeded (in units with more than one pump).*	S	-
057	Recuperator pump maintenance	*(in units with recuperator pump) Recuperator pump maintenance hours limit exceeded.*	S	-
058	Condenser pump maintenance	*(in units with condenser pump) Condensation pump maintenance hours limit exceeded.*	S	-
060	Powering condenser maintenance	*(only for units with centrifugal compressors) Powering condenser maintenance hours limit exceeded.*	S	-
061	Subcooling driver 1 offline	*The circuit 1 subcooling management driver is disconnected (only for units with centrifuge compressors)*	A	CI
062	Subcooling driver 2 offline	*“as above, for circuit 2"*	A	CI

Code	Description	Details	Reset	Action
063	Subcooling driver 3 offline	*“as above, for circuit 3"*	A	CI
064	Subcooling driver 4 offline	*“as above, for circuit 4"*	A	CI
065	Low water content in recuperator circuit	*The recuperator inlet temperature changes too quickly and creates a low water level in the recuperator circuit.*	S	-
066	Low water flow in recuperator circuit	*Indicates that the temperature difference between the recuperator inlet and outlet is too high, or that the flow of water to the recuperator is too low. The alarm automatically resets 3 times in the same hour if flow is restored within the set maximum time, otherwise, it must be reset manually During thawing or dripping with the compressors on it immediately becomes manual.*	A/M	U*
067	Anti-legionellosis alarm	*The anti-legionellosis function has exceeded the maximum time set (P59.19) for the maximum permitted number of cycles (P59.20).*	S	-
072	High water flow in recuperator circuit	*Indicates that the water flow to the recuperator is too high.*	M	U*
075	Condenser antifreeze	*Low water temperature at condenser outlet. Except for W3000 base, it also specifies which condenser (if more than one) is involved in the alarm condition. The alarm also appears if the antifreeze limit trips more than 5 times in 8 operating hours (only for water/water units with freon reversal).*	M	U*
076	Recuperator antifreeze	*Low water temperature at recuperator outlet.*	A	U*
079	VPF management module disconnected	*The module adjusting the water flow in the primary circuit is disconnected.*	A	-
080	VPF management module faulty	*The module adjusting the water flow in the primary circuit is faulty. Check the fault on the module user interface.*	A	-
081	Pump 1 thermal switch	*Pump 1 overheated (in units with just 1 pump, pump 1 = evaporator pump)*	M	U
082	Pump 2 thermal switch	*Pump 2 overheated (in units with more than one pump).*	M	U*
085	Condenser pump thermal switch	*Condenser pump overheated (only for water-cooled units)*	M	U*
086	Recuperator pump thermal switch	*Recuperator pump overheated*	M	U*
087	Glycol pump thermal switch	*Glycol pump overheated (in units with freecooling).*	A	FC*
090	Slave no-link	*The slave card is disconnected (only for units with 3 or 4 circuits)*	A	U
091	Expansion 1 no-link	*Master expansion 1 unlinked, the word master appears in units with 3 or 4 circuits.*	A	U
092	Expansion 2 no-link	*“as above, for expansion 2”*	A	U
093	Expansion 3 no-link	*“as above, for expansion 3”*	A	U
094	Expansion 4 no-link	*“as above, for expansion 4”*	A	U
095	Expansion 5 no-link	*“as above, for expansion 5”*	A	U
101	Expansion 1 slave no-link	*Slave expansion 1 unlinked.*	A	U
102	Expansion 2 slave no-link	*“as above, for expansion 2”*	A	U
103	Expansion 3 slave no-link	*“as above, for expansion 3”*	A	U
104	Expansion 4 slave no-link	*“as above, for expansion 4”*	A	U
105	Expansion 5 slave no-link	*“as above, for expansion 5”*	A	U
111	Compressor 1 oil	*No oil on compressor 1 due to low compressor oil level or pressure*	M	CO
112	Compressor 2 oil	*“as above, for compressor 2"*	M	CO
113	Compressor 3 oil	*“as above, for compressor 3"*	M	CO
114	Compressor 4 oil	*“as above, for compressor 4"*	M	CO
121	High outlet temperature compressor 1	*Compressor 1 delivery temperature is higher than the set limit.*	M	CO
122	High outlet temperature compressor 2	*“as above, for compressor 2"*	M	CO
123	High outlet temperature compressor 3	*“as above, for compressor 3"*	M	CO
124	High outlet temperature compressor 4	*“as above, for compressor 4"*	M	CO
125	High outlet temperature compressor 5	*“as above, for compressor 5"*	M	CO
126	High outlet temperature compressor 6	*“as above, for compressor 6"*	M	CO

Code	Description	Details	Reset	Action
127	High outlet temperature compressor 7	*“as above, for compressor 7"*	M	CO
128	High outlet temperature compressor 8	*“as above, for compressor 8"*	M	CO
131	Compressor 1 fault	*Compressor 1 motor overheated or any another fault*	M - A/M	CO
132	Compressor 2 fault	*“as above, for compressor 2"*	M - A/M	CO
133	Compressor 3 fault	*“as above, for compressor 3"*	M - A/M	CO
134	Compressor 4 fault	*“as above, for compressor 4"*	M - A/M	CO
135	Compressor 5 fault	*“as above, for compressor 5"*	M - A/M	CO
136	Compressor 6 fault	*“as above, for compressor 6"*	M - A/M	CO
137	Compressor 7 fault	*“as above, for compressor 7"*	M - A/M	CO
138	Compressor 8 fault	*“as above, for compressor 8"*	M - A/M	CO
141	Compressor 1 offline	*No communication with compressor n°1 (only for units with centrifuge compressors)*	A	CO
142	Compressor 2 offline	*“as above, for compressor 2"*	A	CO
143	Compressor 3 offline	*“as above, for compressor 3"*	A	CO
144	Compressor 4 offline	*“as above, for compressor 4"*	A	CO
151	Compressor 1 maintenance	*Maintenance hours limit exceeded on compressor 1*	S	-
152	Compressor 2 maintenance	*“as above, for compressor 2"*	S	-
153	Compressor 3 maintenance	*“as above, for compressor 3”*	S	-
154	Compressor 4 maintenance	*“as above, for compressor 4”*	S	-
155	Compressor 5 maintenance	*“as above, for compressor 5”*	S	-
156	Compressor 6 maintenance	*“as above, for compressor 6”*	S	-
157	Compressor 7 maintenance	*“as above, for compressor 7"*	S	-
158	Compressor 8 maintenance	*“as above, for compressor 8"*	S	-
161	Compressor 1 motor power input	*Compressor 1 motor in alarm (only for units with centrifugal compressors)*	A	CO
162	Compressor 2 motor power input	*“as above, for compressor 2"*	A	CO
163	Compressor 3 motor power input	*“as above, for compressor 3"*	A	CO
164	Compressor 4 motor power input	*“as above, for compressor 4"*	A	CO
171	Compressor 1 start-up timeout	*Compressor 1 did not start within the set timeout (only for units with centrifuge compressors)*	A/M	CO
172	Compressor 2 start-up timeout	*“as above, for compressor 2"*	A/M	CO
173	Compressor 3 start-up timeout	*“as above, for compressor 3"*	A/M	CO
174	Compressor 4 start-up timeout	*“as above, for compressor 4"*	A/M	CO
201	Circuit 1 alarm	*Indicates a fan adjustment fault in cooling circuit 1. CONTACT THE NEAREST TECHNICAL SERVICE CENTRE*	S	-
202	Circuit 2 alarm	*“as above, for circuit 2”*	S	-
203	Circuit 3 alarm	*“as above, for circuit 3”*	S	-
204	Circuit 4 alarm	*“as above, for circuit 4”*	S	-
211	Circuit 1 high pressure	*High pressure on cooling circuit 1*	M	CI
212	Circuit 2 high pressure	*“as above, for circuit 2"*	M	CI
213	Circuit 3 high pressure	*“as above, for circuit 3"*	M	CI
214	Circuit 4 high pressure	*“as above, for circuit 4"*	M	CI
221	Circuit 1 fan thermal protection	*One of the condensation fans in circuit 1 overheated and stopped.*	M	CI
222	Circuit 2 fan thermal protection	*“as above, for circuit 2"*	M	CI
223	Circuit 3 fan thermal protection	*“as above, for circuit 3"*	M	CI
224	Circuit 4 fan thermal protection	*“as above, for circuit 4"*	M	CI
231	Circuit 1 low pressure	*Low pressure detected by the transducer/pressure switch on circuit 1*	A/M	CI
232	Circuit 2 low pressure	*“as above, for circuit 2"*	A/M	CI
233	Circuit 3 low pressure	*“as above, for circuit 3"*	A/M	CI
234	Circuit 4 low pressure	*“as above, for circuit 4"*	A/M	CI
241	Transducer 1 high pressure	*High pressure detected by the transducer/pressure switch on cooling circuit 1*	M	CI
242	Transducer 2 high pressure	*“as above, for circuit 2"*	M	CI
243	Transducer 3 high pressure	*“as above, for circuit 3"*	M	CI
244	Transducer 4 high pressure	*“as above, for circuit 4"*	M	CI
251	Circuit 1 start-up timeout	*Possible start-up attempt with no Freon in circuit 1.*	A	CI
252	Circuit 2 start-up timeout	*“as above, for circuit 2"*	A	CI
253	Circuit 3 start-up timeout	*“as above, for circuit 3"*	A	CI
254	Circuit 4 start-up timeout	*“as above, for circuit 4"*	A	CI

Code	Description	Details	Reset	Action
261	No freon in circuit 1	*Possible Freon leakage in circuit 1 as the "Start-up timeout" alarm has continued for at least 8 hours.*	A	CI
262	No freon in circuit 2	*"as above, for circuit 2"*	A	CI
263	No freon in circuit 3	*"as above, for circuit 3"*	A	CI
264	No freon in circuit 4	*"as above, for circuit 4"*	A	CI
271	Finned coil in circuit 1	*Circuit 1 condensation coil obstructed in defrost mode*	M	CI
272	Finned coil in circuit 2	*"as above, for circuit 2"*	M	CI
273	Finned coil in circuit 3	*"as above, for circuit 3"*	M	CI
274	Finned coil in circuit 4	*"as above, for circuit 4"*	M	CI
281	Insufficient evaporation pressure circuit 1	*There may not be any freon in circuit 1 as the evaporation pressure has fallen below the set point*	M	CI
282	Insufficient evaporation pressure circuit 2	*"as above, for circuit 2"*	M	CI
283	Insufficient evaporation pressure circuit 3	*"as above, for circuit 3"*	M	CI
284	Insufficient evaporation pressure circuit 4	*"as above, for circuit 4"*	M	CI
291	Insufficient freon in circuit n°1	*The freon content in circuit n°1 is insufficient as the unit worked under the approach threshold*	A/M	CI
292	Insufficient freon in circuit n°2	*"as above, for circuit 2"*	A/M	CI
293	Insufficient freon in circuit n°3	*"as above, for circuit 3"*	A/M	CI
294	Insufficient freon in circuit n°4	*"as above, for circuit 4"*	A/M	CI
301	Compressor 1 inverter temperature	*Compressor 1 inverter overheated*	A/M	CO
302	Compressor 2 inverter temperature	*"as above, for compressor 2"*	A/M	CO
303	Compressor 3 inverter temperature	*"as above, for compressor 3"*	A/M	CO
304	Compressor 4 inverter temperature	*"as above, for compressor 4"*	A/M	CO
311	Compressor 1 discharge temperature	*Compressor 1 discharge overtemperature (only for units with centrifuge compressors)*	A/M	CO
312	Compressor 2 discharge temperature	*"as above, for compressor 2"*	A/M	CO
313	Compressor 3 discharge temperature	*"as above, for compressor 3"*	A/M	CO
314	Compressor 4 discharge temperature	*"as above, for compressor 4"*	A/M	CO
321	Compressor 1 low pressure	*Compressor 1 suction pressure under min. (only for units with centrifuge compressors)*	A/M	CO
322	Compressor 2 low pressure	*"as above, for compressor 2"*	A/M	CO
323	Compressor 3 low pressure	*"as above, for compressor 3"*	A/M	CO
324	Compressor 4 low pressure	*"as above, for compressor 4"*	A/M	CO
331	Compressor 1 high pressure	*Compressor 1 compression pressure over max. (only for units with centrifuge compressors)*	B	CO
332	Compressor 2 high pressure	*"as above, for compressor 2"*	B	CO
333	Compressor 3 high pressure	*"as above, for compressor 3"*	B	CO
334	Compressor 4 high pressure	*"as above, for compressor 4"*	B	CO
341	Compressor 1 input current	*Compressor 1 current input over max. (only for units with centrifuge compressors)*	B	CO
342	Compressor 2 input current	*"as above, for compressor 2"*	B	CO
343	Compressor 3 input current	*"as above, for compressor 3"*	B	CO
344	Compressor 4 input current	*"as above, for compressor 4"*	B	CO
351	Compressor 1 rotor temperature	*Compressor 1 rotor temperature over max. (only for units with centrifuge compressors)*	A/M	CO
352	Compressor 2 rotor temperature	*"as above, for compressor 2"*	A/M	CO
353	Compressor 3 rotor temperature	*"as above, for compressor 3"*	A/M	CO
354	Compressor 4 rotor temperature	*"as above, for compressor 4"*	A/M	CO
361	Compressor 1 compression ratio	*Compressor 1 compression ratio over max. (only for units with centrifuge compressors)*	A/M	CO
362	Compressor 2 compression ratio	*"as above, for compressor 2"*	A/M	CO
363	Compressor 3 compression ratio	*"as above, for compressor 3"*	A/M	CO
364	Compressor 4 compression ratio	*"as above, for compressor 4"*	A/M	CO
371	Compressor 1 bearings	*Compressor 1 bearings faulty (only for units with centrifuge compressors)*	A/M	CO
372	Compressor 2 bearings	*"as above, for compressor 2"*	A/M	CO
373	Compressor 3 bearings	*"as above, for compressor 3"*	A/M	CO
374	Compressor 4 bearings	*"as above, for compressor 4"*	A/M	CO
381	Compressor 1 SCR temperature	*Compressor 1 SCR temperature over max. (only for units with centrifuge compressors)*	A/M	CO
382	Compressor 2 SCR temperature	*"as above, for compressor 2"*	A/M	CO
383	Compressor 3 SCR temperature	*"as above, for compressor 3"*	A/M	CO

Code	Description	Details	Reset	Action
384	Compressor 4 SCR temperature	*"as above, for compressor 4"*	A/M	CO
391	Compressor 1 rotor block	*Compressor 1 blocked (only for units with centrifuge compressors)*	A/M	CO
392	Compressor 2 rotor block	*"as above, for compressor 2"*	A/M	CO
393	Compressor 3 rotor block	*"as above, for compressor 3"*	A/M	CO
394	Compressor 4 rotor block	*"as above, for compressor 4"*	A/M	CO
400	Probe 10 err	*Probe 10 error. Values read by probe 10 out of range.*	A	*
401	Probe 1 err	*"analogue, as above"*	A	*
402	Probe 2 err	*"analogue, as above"*	A	*
403	Probe 3 err	*"analogue, as above"*	A	*
404	Probe 4 err	*"analogue, as above"*	A	*
405	Probe 5 err	*"analogue, as above"*	A	*
406	Probe 6 err	*"analogue, as above"*	A	*
407	Probe 7 err	*"analogue, as above"*	A	*
408	Probe 8 err	*"analogue, as above"*	A	*
409	Probe 9 err	*"analogue, as above"*	A	*
411	Exp 1 Probe 1 error	*Probe 1, expansion 1 fault*	A	*
412	Exp 1 Probe 2 error	*"analogue, as above"*	A	*
413	Exp 1 Probe 3 error	*"analogue, as above"*	A	*
414	Exp 1 Probe 4 error	*"analogue, as above"*	A	*
421	Exp 2 Probe 1 error	*"analogue, as above"*	A	*
422	Exp 2 Probe 2 error	*"analogue, as above"*	A	*
423	Exp 2 Probe 3 error	*"analogue, as above"*	A	*
424	Exp 2 Probe 4 error	*"analogue, as above"*	A	*
425	Exp 2 Probe 5 error	*"analogue, as above"*	A	*
426	Exp 2 Probe 6 error	*"analogue, as above"*	A	*
427	Exp 2 Probe 7 error	*"analogue, as above"*	A	*
428	Exp 2 Probe 8 error	*"analogue, as above"*	A	*
431	Exp 3 Probe 1 error	*"analogue, as above"*	A	*
432	Exp 3 Probe 2 error	*"analogue, as above"*	A	*
433	Exp 3 Probe 3 error	*"analogue, as above"*	A	*
434	Exp 3 Probe 4 error	*"analogue, as above"*	A	*
441	Exp 4 Probe 1 error	*"analogue, as above"*	A	*
442	Exp 4 Probe 2 error	*"analogue, as above"*	A	*
443	Exp 4 Probe 3 error	*"analogue, as above"*	A	*
444	Exp 4 Probe 4 error	*"analogue, as above"*	A	*
451	Exp 5 Probe 1 error	*"analogue, as above"*	A	*
452	Exp 5 Probe 2 error	*"analogue, as above"*	A	*
453	Exp 5 Probe 3 error	*"analogue, as above"*	A	*
454	Exp 5 Probe 4 error	*"analogue, as above"*	A	*
500	Probe 10 error slave	*Slave probe 10 faulty - only in units with more than 2 circuits*	A	*
501	Probe 1 error slave	*"analogue, as above"*	A	*
502	Probe 2 error slave	*"analogue, as above"*	A	*
503	Probe 3 error slave	*"analogue, as above"*	A	*
504	Probe 4 error slave	*"analogue, as above"*	A	*
505	Probe 5 error slave	*"analogue, as above"*	A	*
506	Probe 6 error slave	*"analogue, as above"*	A	*
507	Probe 7 error slave	*"analogue, as above"*	A	*
508	Probe 8 error slave	*"analogue, as above"*	A	*
509	Probe 9 error slave	*"analogue, as above"*	A	*
511	Exp 1 Probe 1 error slave	*Probe 1, expansion 1, connected to slave faulty*	A	*
512	Exp 1 Probe 2 error slave	*"analogue, as above"*	A	*
513	Exp 1 Probe 3 error slave	*"analogue, as above"*	A	*
514	Exp 1 Probe 4 error slave	*"analogue, as above"*	A	*
521	Exp 2 Probe 1 error slave	*"analogue, as above"*	A	*
522	Exp 2 Probe 2 error slave	*"analogue, as above"*	A	*
523	Exp 2 Probe 3 error slave	*"analogue, as above"*	A	*
524	Exp 2 Probe 4 error slave	*"analogue, as above"*	A	*
525	Exp 2 Probe 5 error slave	*"analogue, as above"*	A	*
526	Exp 2 Probe 6 error slave	*"analogue, as above"*	A	*
527	Exp 2 Probe 7 error slave	*"analogue, as above"*	A	*
528	Exp 2 Probe 8 error slave	*"analogue, as above"*	A	*
531	Exp 3 Probe 1 error slave	*"analogue, as above"*	A	*

Code	Description	Details	Reset	Action
532	Exp 3 Probe 2 error slave	*"analogue, as above"*	A	*
533	Exp 3 Probe 3 error slave	*"analogue, as above"*	A	*
534	Exp 3 Probe 4 error slave	*"analogue, as above"*	A	*
551	Exp 5 Probe 1 error slave	*"analogue, as above"*	A	*
552	Exp 5 Probe 2 error slave	*"analogue, as above"*	A	*
553	Exp 5 Probe 3 error slave	*"analogue, as above"*	A	*
554	Exp 5 Probe 4 error slave	*"analogue, as above"*	A	*
611	Antifreeze pre-alarm evaporator 1	*Low water temperature at evaporator outlet pre-alarm. Also specifies which evaporator (if more than one) is involved in the alarm condition*	S	-
612	Antifreeze pre-alarm evaporator 2	*"as above, for evaporator 2"*	S	-
613	Antifreeze pre-alarm evaporator 3	*"as above, for evaporator 3"*	S	-
614	Antifreeze pre-alarm evaporator 4	*"as above, for evaporator 4"*	S	-
631	Low pressure in circuit 1 pre-alarm	*Low pressure acquired from circuit 1 transducer pre-alarm*	S	-
632	Low pressure in circuit 2 pre-alarm	*"as above, for circuit 2"*	S	-
633	Low pressure in circuit 3 pre-alarm	*"as above, for circuit 3"*	S	-
634	Low pressure in circuit 4 pre-alarm	*"as above, for circuit 4"*	S	-
641	High pressure in circuit 1 pre-alarm	*High pressure acquired from circuit 1 transducer pre-alarm*	S	-
642	High pressure in circuit 2 pre-alarm	*"as above, for circuit 2"*	S	-
643	High pressure in circuit 3 pre-alarm	*"as above, for circuit 3"*	S	-
644	High pressure in circuit 4 pre-alarm	*"as above, for circuit 4"*	S	-
651	Envelope control: low overheating in delivery to circuit 1 compressors	*Indicates that the overheating value for the circuit 1 compressors is too low (depending on the active compression ratio)*	M	CI
652	Envelope control: low overheating in delivery to circuit 2 compressors	*"as above, for circuit 2"*	M	CI
653	Envelope control: low overheating in delivery to circuit 3 compressors	*"as above, for circuit 3"*	M	CI
654	Envelope control: low overheating in delivery to circuit 4 compressors	*"as above, for circuit 4"*	M	CI
661	Envelope control: high overheating in delivery to circuit 1 compressors	*Indicates that the overheating value for the circuit 1 compressors is too high (depending on the active compression ratio)*	M	CI
662	Envelope control: high overheating in delivery to circuit 2 compressors	*"as above, for circuit 2"*	M	CI
663	Envelope control: high overheating in delivery to circuit 3 compressors	*"as above, for circuit 3"*	M	CI
664	Envelope control: high overheating in delivery to circuit 4 compressors	*"as above, for circuit 4"*	M	CI
671	Envelope control: minimum high pressure limit of circuit 1 compressors	*Indicates that the compressors in cooling circuit 1 operate above the permitted limit*	M	CI
672	Envelope control: minimum high pressure limit of circuit 2 compressors	*"as above, for circuit 2"*	M	CI
673	Envelope control: minimum high pressure limit of circuit 3 compressors	*"as above, for circuit 3"*	M	CI
674	Envelope control: minimum high pressure limit of circuit 4 compressors	*"as above, for circuit 4"*	M	CI
701	Inverter 1 offline	*No communication with the inverter on compressor 1 (only for units with screw compressors with inverter)*	M	CO
702	Inverter 2 offline	*"as above, for compressor 2"*	M	CO
703	Inverter 3 offline	*"as above, for compressor 3"*	M	CO
704	Inverter 4 offline	*"as above, for compressor 4"*	M	CO
711	Inverter 1 power alarm	*Fault in inverter power on compressor 1 (only for units with screw compressors with inverter)*	M	CO
712	Inverter 2 power alarm	*"as above, for compressor 2"*	M	CO
713	Inverter 3 power alarm	*"as above, for compressor 3"*	M	CO
714	Inverter 4 power alarm	*"as above, for compressor 4"*	M	CO
721	Inverter 1 motor power alarm	*Fault in motor power of compressor 1 (only for units with screw compressors with inverter)*	M	CO
722	Inverter 2 motor power alarm	*"as above, for compressor 2"*	M	CO
723	Inverter 3 motor power alarm	*"as above, for compressor 3"*	M	CO
724	Inverter 4 motor power alarm	*"as above, for compressor 4"*	M	CO

Code	Description	Details	Reset	Action
731	Inverter 1 input current alarm	*Overload in inverter variator on compressor 1 (only for units with screw compressors with inverter)*	M	CO
732	Inverter 2 input current alarm	*“as above, for compressor 2"*	M	CO
733	Inverter 3 input current alarm	*“as above, for compressor 3"*	M	CO
734	Inverter 4 input current alarm	*“as above, for compressor 4"*	M	CO
741	Inverter 1 rectifier overheating alarm	*Heat protection of inverter variator on compressor 1 (only for units with screw compressors with inverter)*	M	CO
742	Inverter 2 rectifier overheating alarm	*“as above, for compressor 2"*	M	CO
743	Inverter 3 rectifier overheating alarm	*“as above, for compressor 3"*	M	CO
744	Inverter 4 rectifier overheating alarm	*“as above, for compressor 4"*	M	CO
751	Inverter 1 motor overheating alarm	*Heat protection of compressor 1 motor (only for units with screw compressors with inverter)*	M	CO
752	Inverter 2 motor overheating alarm	*“as above, for compressor 2"*	M	CO
753	Inverter 3 motor overheating alarm	*“as above, for compressor 3"*	M	CO
754	Inverter 4 motor overheating alarm	*“as above, for compressor 4"*	M	CO
761	Inverter 1 variator overheating alarm	*Heat protection of inverter variator on compressor 1 (only for units with screw compressors with inverter)*	M	CO
762	Inverter 2 variator overheating alarm	*“as above, for compressor 2"*	M	CO
763	Inverter 3 variator overheating alarm	*“as above, for compressor 3"*	M	CO
764	Inverter 4 variator overheating alarm	*“as above, for compressor 4"*	M	CO
771	Inverter 1 IGBT alarm	*Fault in inverter IGBT on compressor 1 (only for units with screw compressors with inverter)*	M	CO
772	Inverter 2 IGBT alarm	*“as above, for compressor 2"*	M	CO
773	Inverter 3 IGBT alarm	*“as above, for compressor 3"*	M	CO
774	Inverter 4 IGBT alarm	*“as above, for compressor 4"*	M	CO
781	Stator heater on inverter 1 alarm	*Fault in stator heater on compressor 1 (only for units with screw compressors with inverter)*	M	CO
782	Stator heater on inverter 2 alarm	*“as above, for compressor 2"*	M	CO
783	Stator heater on inverter 3 alarm	*“as above, for compressor 3"*	M	CO
784	Stator heater on inverter 4 alarm	*“as above, for compressor 4"*	M	CO
791	Inverter 1 overspeed alarm	*Compressor 1 overspeed alarm (only for units with screw compressors with inverter)*	M	CO
792	Inverter 2 overspeed alarm	*“as above, for compressor 2"*	M	CO
793	Inverter 3 overspeed alarm	*“as above, for compressor 3"*	M	CO
794	Inverter 4 overspeed alarm	*“as above, for compressor 4"*	M	CO
801	Inverter 1 field bus alarm	*Fault in inverter field bus on compressor 1 (only for units with screw compressors with inverter)*	M	CO
802	Inverter 2 field bus alarm	*“as above, for compressor 2"*	M	CO
803	Inverter 3 field bus alarm	*“as above, for compressor 3"*	M	CO
804	Inverter 4 field bus alarm	*“as above, for compressor 4"*	M	CO
811	Inverter 1 communication alarm	*Internal communication fault in inverter on compressor 1 (only for units with screw compressors with inverter)*	M	CO
812	Inverter 2 communication alarm	*“as above, for compressor 2"*	M	CO
813	Inverter 3 communication alarm	*“as above, for compressor 3"*	M	CO
814	Inverter 4 communication alarm	*“as above, for compressor 4"*	M	CO
821	Inverter 1 safety input alarm	*Safety input alarm on inverter of compressor 1 (only for units with screw compressors with inverter)*	M	CO
822	Inverter 2 safety input alarm	*“as above, for compressor 2"*	M	CO
823	Inverter 3 safety input alarm	*“as above, for compressor 3"*	M	CO
824	Inverter 4 safety input alarm	*“as above, for compressor 4"*	M	CO
831	Inverter 1 self-calibration alarm	*Self-calibration alarm on inverter of compressor 1 (only for units with screw compressors with inverter)*	M	CO
832	Inverter 2 self-calibration alarm	*“as above, for compressor 2"*	M	CO
833	Inverter 3 self-calibration alarm	*“as above, for compressor 3"*	M	CO
834	Inverter 4 self-calibration alarm	*“as above, for compressor 4"*	M	CO
841	Inverter 1 counter-rotation alarm	*Counter-rotation alarm on inverter of compressor 1 (only for units with screw compressors with inverter)*	M	CO
842	Inverter 2 counter-rotation alarm	*“as above, for compressor 2"*	M	CO

Code	Description	Details	Reset	Action
843	Inverter 3 counter-rotation alarm	*"as above, for compressor 3"*	M	CO
844	Inverter 4 counter-rotation alarm	*"as above, for compressor 4"*	M	CO
851	Inverter 1 generic alarm	*Generic alarm on inverter of compressor 1 (only for units with screw compressors with inverter)*	M	CO
852	Inverter 2 generic alarm	*"as above, for compressor 2"*	M	CO
853	Inverter 3 generic alarm	*"as above, for compressor 3"*	M	CO
854	Inverter 4 generic alarm	*"as above, for compressor 4"*	M	CO

Key to "Reset" column:

M = Manual reset alarm (if the condition that generated the alarm is eliminated, the alarm must be reset from the keyboard); sets "cumulative alarms"
A = Automatic reset alarm (if the condition that generated the alarm is eliminated, the alarm is reset automatically); sets "cumulative alarms"
A/M = Automatic reset alarm for the first "n" cut-ins, after which manual; sets "cumulative alarms"
S = Signal on display (does not set "cumulative alarms")
S-A = Automatic reset signal (that does not stop the machine) or alarm. The mode is selected from a parameter
M - A/M = Manual reset alarm (in hermetic, alternative and screw compressors), automatic for the first "n" cut-ins, after which manual (in centrifuge compressors)
B = Block that cannot be reset from the display; sets "cumulative alarms". To eliminate the alarm, switch the relative compressor off and then back on again.

Key to "Action" column:

\- = no block
U = Unit shut-down
-/U = No shut-down or Unit shut-down. The action taken depends on the reset parameter used
U* = Unit shut-down in override operating modes. In the automatic mode the unit does not shut down but switches to the available operating modes
CI = Shut-down of the circuit involved in the event
CO = Shut-down of the compressor involved in the event
FC* = Shut-down of the freecooling function, the unit switches to the available operating modes
* = Depending on the sensor involved in the alarm, the compressors, circuits or the whole unit may or may not shut down.

2.2 Table of centrifugal compressor alarms

Details of the centrifugal compressor alarms transmitted by the compressor to the W3000 SE via the serial line are shown below.
Any groupings of several compressor alarm codes under the same W3000 SE controller alarm code are also indicated

	W3000 SE alarm			**TURBOCOR alarm**
AL	Description	Modbus address	Alarm bit	Reason for fault
141	Compressor offline			Turbocor disconnected
161	Compressor motor power	40106	0x0002	DC bus high voltage detect
			0x0010	IGBT inverter error signal active
			0x0100	Output voltage on the motor generate no current. IGBT inverter command signals disconnected or drive coil error
			0x0800	Motor back EMF is low. Shaft might be demagnetized.
			0x2000	Compressor is running in generator mode.
			0x4000	SCR phase loss.
		40026	0x1000	Winding Temperature
			0x2000	Super Heat
301	Compressor inverter temperature	40026	0x0001	Inverter temperature
311	Compressor discharge temperature		0x0002	Discharge temperature
321	Compressor low pressure		0x0004	Suction pressure
331	Compressor high pressure		0x0008	Discharge pressure
341	Compressor input current		0x0010	3 phase current trip
351	Compressor rotor temperature		0x0020	Shaft cavity temperature
361	Compressor compression ratio		0x0080	Total compression ratio fault
371	Compressor bearings		0x0100	Bearing motor fault
381	Compressor SCR temperature		0x0200	SCR temp fault
391	Compressor rotor shut-down		0x0400	System lock out state

2.3 Table of Bitzer inverter compressor alarms

Details of the Bitzer inverter compressor alarms transmitted by the compressor to the W3000 SE via the serial line are shown below.
Any groupings of several compressor alarm codes under the same W3000 SE controller alarm code are also indicated

	W3000 SE alarm			**POWERDRIVE alarm**
AL	Description	N°	Console	Reason for fault
701	Inverter offline			Inverter disconnected
711	Power input alarm	1	BUS undervoltage	DC bus undervoltage
		2	BUS overvoltage	DC bus overvoltage
		32	Phase loss	Loss of a phase
		39	Mains synchro	Impossible to synchronise to the mains (regenerative mode)
		65	Overload +10V	Power input overload
		101	MAINS LOSS	Loss of alternating current mains
721	Motor power alarm	5	Imbalance	Current imbalance, sum of the 3 motor currents not zero
		6	Motor phase	Loss of a motor phase
		20	I²t motor	Ixt motor overload
		26	24V overload	+24V power input or logic output overload
731	Inverter input current alarm	3	I ph. conv. input	Phase converter output overcurrent
741	Rectifier thermal cut-out alarm	10	T rectifier	Fan fault, ambient temperature too high, overload
751	Motor thermal cut-out alarm	24	Motor probe	Motor thermal probe tripped
761	Phase converter thermal cut-out alarm	8	it phase converter	Phase converter overheated
771	IGBT alarm	9	IGBT U	Fault in an IGBT (U)
		21	T IGBT U	Fan fault, ambient temperature too high, overload
		56	IGBT V	Fault in an IGBT (V)
		57	IGBT W	Fault in an IGBT (W)
		58	T IGBT V	Fan fault, ambient temperature too high, overload
		59	T IGBT W	Fan fault, ambient temperature too high, overload
781	Stator resistance alarm	33	Stator resist.	Stator resistance measurement fault
791	Overspeed alarm	7	Overspeed	Overspeed
801	Field bus alarm	34	FIELD BUS	Field bus disconnected during operation or error detected
811	Communication alarm	30	COM loss	Communication loss on serial connection
		31	EEPROM	EEPROM fault or XpressKey transfer problem
821	Safety input alarm	35	Safety input	Safety input fault
831	Self-calibration alarm	18	Self-calibr.	Self-calibration fault
841	Counter-rotation alarm	41	User 1	User 1 fault from logical input
851	Generic alarm	4	I IGBT brake	Phase converter output overcurrent
		11	Encoder rot.	The encoder does not change position
		12	Invers. A/B	Signals A, B, A\, B\, are inverted
		13	Invers. UVW	Switching signals U, V, W are inverted
		14	Enc. cal. U	Some signals are present but U is missing
		15	Enc. cal. V	Some signals are present but V is missing
		16	Enc. cal. W	Some signals are present but W is missing
		17	N°poles	The set number of pole pairs is incorre ct
		19	Brake res.	Ixt braking resistor overloaded
		22	Int. BR temp.	Overheating of internal brake resistor, thermal probe
		27	4mA AI1	Current reference lost on analogue input AI1
		28	4mA ADI1	Current reference lost on analogue input ADI1
		36	U enc. fail	Communication channel U failed
		37	V enc. fail	Communication channel V failed
		38	W enc. fail	Communication channel W failed
		42	User 2	User 2 fault from logical input
		43	User 3	User 3 fault from logical input
		44	User 4	User 4 fault from logical input
		45	User 5	User 5 fault from serial conn.
		46	User 6	User 6 fault from serial conn.
		47	User 7	User 7 fault from serial conn.
		48	User 8	User 8 fault from serial conn.
		49	User 9	User 9 fault from serial conn.
		50	User 10	User 10 fault from serial conn.

3 TABLE OF MASKS

Press [UP] or [DOWN] to move from one mask to another inside the same menu.
Press [ENTER] to access the parameter, press [UP] or [DOWN] to change the value of the parameter.

Mask	Description	Par.N.
09:26 ON ALXXX Mode : chiller State: ON tast. Term. Req. Act. Cool. 050 050 % Hot 000 000 % Pump time 000s LIMIT ID:011 U:01	Main display mask. Shows operating mode and status. The unit can be switched on and off with the On/Off command: press "Enter" to move to "Com. :", select the command using the "Up" or "Down" buttons and press "Enter" again to confirm. For air evaporation units, the on/off command is given by the air-handling control unit. Pump time: indicates that the timed switching on and off of the evaporator water pump is enabled. Valve time: indicates that the timed switching of the 3-way DHW valve is enabled (if present). Also displays the following messages: “ALxxx”: alarm active, “Sxxx”: signal active, "U:xx" : unit configuration address, "ID:xxx" : unit supervisor address, Symbols describing unit status also appear .	
Temp. In. Out. Evap. 12.5 07.0°C Rec. 35.6 40.5°C Cond. 38.0 42.5°C DHW 59.8 °C	Shows the inlet and outlet water temperature (evaporator, recuperator and condenser are only displayed if they are fitted). In units with 2 evaporators, if the shared outlet probe is disabled, the average temperature between the two outlet probes of the individual evaporators is displayed.	
Temp. In. Out. Evap. 12.5 07.0°C Evap1 07.2°C Evap2 06.9°C	(if more than 1 evaporator is fitted) Displays inlet and outlet temperatures of the evaporator or condenser (depending on whether the unit is in the chiller or heat pump mode) and the outlet temperature of the evaporators.	
Temp. In. Out. Cond. 24.3 22.4°C Cond.1 22.3°C Cond.2 22.4°C	(if 2 condensers are fitted) Displays inlet and outlet temperatures of the evaporator or condenser (depending on whether the unit is in the chiller or heat pump mode) and the outlet temperature of the two condensers.	
Temp. Freecooling 12.3°C External air 15.4°C Optional 19.6°C	(for air-cooled units) Displays freecooling temperature (in chiller+freecooling units), external air temperature and optional temperature (if the probes are enabled).	
User Password: 0000	Access mask to user menu. Enter the user password for access.	
User ← ↓	Access mask to user menu. Press "Up" or "Down" to scroll the other masks and "Esc" to return to the submenu.	
Enable time bands : Disabled	Activates/deactivates time bands. The time bands cannot be activated if the external setpoint is enabled.	39.41

Mask	Description	Par.N.
Serial line configuration: Disabled	Allows the devices connected to the serial interface board to be enabled and selected ("0"=disabled, "1"= supervision, "2"= sequencer, "3"=Manager 3000). N.B.: the Service software does not need to be enabled.	39.42
En. from superv.: On/Off: N Operating mode: N	Allows the on/off status of the unit to be selected from a supervision system. Also performs operating mode switching (to modify the latter, the unit must be switched off).	39.43 39.44
Serial line setting Protocol Modbus Speed 9600 baud ID 011	Defines the connection parameters with the supervisor: protocol type, communication speed and unit identification number.	39.45 39.46 39.47
Enable from dig. in: On/Off: Y Chiller/H.P.: N	Allows the on/off status of the unit to be selected from external enables. The on/off command can be enabled to switch the unit on or off from a digital input. The operating mode can be changed (in heat pumps, chillers with heat recovery, chillers with freecooling a digital input is sufficient; in energy raisers or heat pumps with recovery three digital inputs are required).	39.39 39.49
Insert other user password 0000	Personalises the password by defining one that will replace the default password.	
W 3000 SE Cod. GA 12.00 EN CE Man. C0240002-07-12 HW pCO3 L NAND 32MB Flash 2MB + 2MB Ram 0512KB Boot 4.03 Bios 9.04	This mask contains the reference information of the software [Code] and of the reference user manual [Man.]. The closed padlock symbol shows that the board is provided with its propriety software; two padlocks appear on units with 3 or 4 circuits. The second part of the mask shows information about the hardware: size (M, L, XL), memories (NAND 32MB, flash 2+2MB, ram 512KB) and versions of the installed operating system (boot and bios).	
Log ← ↓	Access mask to Events Log menu. Press "Up" or "Down" to scroll the other masks and "Esc" to return to the submenu.	
10:36:04 01/05/08 Event N°001 A002 S Phase sequence	Access mask to events log (only visible if the clock card is installed). Each event registered contains the following details: date and time, alarm or report code, activation or deactivation event (S = set, R = reset), number and description of event.	
Clock ← ↓	Access mask to clock menu. Press "Up" or "Down" to scroll the other masks and "Esc" to return to the submenu.	
Clock board not installed	Mask showing that the clock board is missing or damaged.	

Mask	Description	Par.N.
Clock configuration: Date Time 01/05/08 10:40	Current date and time settings.	
Time bands disabled. See user menu	Indicates that the time bands are set correctly but not enabled. To enable them, consult the user menu.	
Daily time band programming: advanced	Advanced time band programming manages four different daily time bands, type A and type B; each type can be personalised and each is independent from the other. Only the A-type time band is used in the standard programming mode.	900.01
Weekly timetable Monday type A Tuesday type B Wednesday type B Thursday type B Friday type B Saturday type C Sunday disabled	Weekly timetable setting.	900.02 900.03 900.04 900.05 900.06 900.07 900.08
Time band 1A Off Time 00:00 / 06:00 Sp E 09.0°C I 40.0°C Sp R 40.0°C Time band 2A Adj. Time 06:00 / 12:00 Sp E 07.0°C I 42.0°C Sp R 42.0°C	Setting band A, first and second daily time band.	901.01 901.02 901.03 901.04 901.05 901.06 901.07 901.08 901.09 901.10 901.11 901.12
Time band 3A Off Time 20:00 / 20:00 Sp E 09.0°C I 40.0°C Sp R 40.0°C Time band 4A Off Time 20:00 / 20:00 Sp E 09.0°C I 40.0°C Sp R 40.0°C	Setting band A, third and fourth daily time band.	901.13 901.14 901.15 901.16 901.17 901.18 901.19 901.20 901.21 901.22 901.23 901.24
Time band 5A Off Time 20:00 / 20:00 Sp E 09.0°C I 40.0°C Sp R 40.0°C Time band 6A Off Time 20:00 / 20:00 Sp E 09.0°C I 40.0°C Sp R 40.0°C	Setting band A, fifth and sixth daily time band.	901.25 901.26 901.27 901.28 901.29 901.30 901.31 901.32 901.33 901.34 901.35 901.36

Mask	Description	Par.N.
Time band 7A Off Time 20:00 / 20:00 Sp E 09.0°C I 40.0°C Sp R 40.0°C Time band 8A Off Time 20:00 / 20:00 Sp E 09.0°C I 40.0°C Sp R 40.0°C	Setting band A, seventh and eighth daily time band.	901.37 901.38 901.39 901.40 901.41 901.42 901.43 901.44 901.45 901.46 901.47 901.48
Time band 9A Off Time 20:00 / 20:00 Sp E 09.0°C I 40.0°C Sp R 40.0°C Time band 10A Off Time 20:00 / 23:59 Sp E 09.0°C I 40.0°C Sp R 40.0°C	Setting band A, ninth and tenth daily time band.	901.49 901.50 901.51 901.52 901.53 901.54 901.55 901.56 901.57 901.58
Time band 1B Off Time 00:00 / 07:00 Sp E 09.0°C I 40.0°C Sp R 40.0°C Time band 2B Adj. Time 07:00 / 12:00 Sp E 07.0°C I 42.0°C Sp R 42.0°C	Setting band B, first and second daily time band.	902.01 902.02 902.03 902.04 902.05 902.06 902.07 902.08 902.09 902.10 902.11 902.12
Time band 3B Off Time 12:00 / 14:00 Sp E 09.0°C I 40.0°C Sp R 40.0°C Time band 4B Adj. Time 14:00 / 20:00 Sp E 07.0°C I 42.0°C Sp R 42.0°C	Setting band B, third and fourth daily time band.	902.13 902.14 902.15 902.16 902.17 902.18 902.19 902.20 902.21 902.22 902.23 902.24
Time band 5B Off Time 20:00 / 20:00 Sp E 09.0°C I 40.0°C Sp R 40.0°C Time band 6B Off Time 20:00 / 20:00 Sp E 09.0°C I 40.0°C Sp R 40.0°C	Setting band B, fifth and sixth daily time band.	902.25 902.26 902.27 902.28 902.29 902.30 902.31 902.32 902.33 902.34 902.35 902.36
Time band 7B Off Time 20:00 / 20:00 Sp E 09.0°C I 40.0°C Sp R 40.0°C Time band 8B Off Time 20:00 / 20:00 Sp E 09.0°C I 40.0°C Sp R 40.0°C	Setting band B, seventh and eighth daily time band.	902.37 902.38 902.39 902.40 902.41 902.42 902.43 902.44 902.45 902.46 902.47 902.48

Mask	Description	Par.N.
Time band 9B Off Time 20:00 / 20:00 Sp E 09.0°C I 40.0°C Sp R 40.0°C Time band 10B Off Time 20:00 / 23:59 Sp E 09.0°C I 40.0°C Sp R 40.0°C	Setting band B, ninth and tenth daily time band.	902.49 902.50 902.51 902.52 902.53 902.54 902.55 902.56 902.57 902.58
Time band 1C Off Time 00:00 / 07:00 Sp E 09.0°C I 40.0°C Sp R 40.0°C Time band 2C Adj. Time 07:00 / 12:00 Sp E 07.0°C I 42.0°C Sp R 42.0°C	Setting band C, first and second daily time band.	903.01 903.02 903.03 903.04 903.05 903.06 903.07 903.08 903.09 903.10 903.11 903.12
Time band 3C Off Time 12:00 / 20:00 Sp E 09.0°C I 40.0°C Sp R 40.0°C Time band 4C Off Time 20:00 / 20:00 Sp E 09.0°C I 40.0°C Sp R 40.0°C	Setting band C, third and fourth daily time band.	903.13 903.14 903.15 903.16 903.17 903.18 903.19 903.20 903.21 903.22 903.23 903.24
Time band 5C Off Time 20:00 / 20:00 Sp E 09.0°C I 40.0°C Sp R 40.0°C Time band 6C Off Time 20:00 / 20:00 Sp E 09.0°C I 40.0°C Sp R 40.0°C	Setting band C, fifth and sixth daily time band.	903.25 903.26 903.27 903.28 903.29 903.30 903.31 903.32 903.33 903.34 903.35 903.36
Time band 7C Off Time 20:00 / 20:00 Sp E 09.0°C I 40.0°C Sp R 40.0°C Time band 8C Off Time 20:00 / 20:00 Sp E 09.0°C I 40.0°C Sp R 40.0°C	Setting band C, seventh and eighth daily time band.	903.37 903.38 903.39 903.40 903.41 903.42 903.43 903.44 903.45 903.46 903.47 903.48
Time band 9C Off Time 20:00 / 20:00 Sp E 09.0°C I 40.0°C Sp R 40.0°C Time band 10C Off Time 20:00 / 23:59 Sp E 09.0°C I 40.0°C Sp R 40.0°C	Setting band C, ninth and tenth daily time band.	903.49 903.50 903.51 903.52 903.53 903.54 903.55 903.56 903.57 903.58

Mask	Description	Par.N.
Time band 1D Off Time 00:00 / 07:00 Sp E 09.0°C I 40.0°C Sp R 40.0°C Time band 2D Adj. Time 07:00 / 12:00 Sp E 07.0°C I 42.0°C Sp R 42.0°C	Setting band D, first and second daily time band.	904.01 904.02 904.03 904.04 904.05 904.06 904.07 904.08 904.09 904.10 904.11 904.12
Time band 3D Off Time 12:00 / 20:00 Sp E 09.0°C I 40.0°C Sp R 40.0°C Time band 4D Off Time 20:00 / 20:00 Sp E 09.0°C I 40.0°C Sp R 40.0°C	Setting band D, third and fourth daily time band.	904.13 904.14 904.15 904.16 904.17 904.18 904.19 904.20 904.21 904.22 904.23 904.24
Time band 5D Off Time 20:00 / 20:00 Sp E 09.0°C I 40.0°C Sp R 40.0°C Time band 6D Off Time 20:00 / 20:00 Sp E 09.0°C I 40.0°C Sp R 40.0°C	Setting band D, fifth and sixth daily time band.	904.25 904.26 904.27 904.28 904.29 904.30 904.31 904.32 904.33 904.34 904.35 904.36
Time band 7D Off Time 20:00 / 20:00 Sp E 09.0°C I 40.0°C Sp R 40.0°C Time band 8D Off Time 20:00 / 20:00 Sp E 09.0°C I 40.0°C Sp R 40.0°C	Setting band D, seventh and eighth daily time band.	904.37 904.38 904.39 904.40 904.41 904.42 904.43 904.44 904.45 904.46 904.47 904.48
Time band 9D Off Time 20:00 / 20:00 Sp E 09.0°C I 40.0°C Sp R 40.0°C Time band 10D Off Time 20:00 / 23:59 Sp E 09.0°C I 40.0°C Sp R 40.0°C	Setting band D, ninth and tenth daily time band.	904.49 904.50 904.51 904.52 904.53 904.54 904.55 904.56 904.57 904.58
In/Out ← ↓	Access mask to In/Out menu. Press "Up" or "Down" to scroll the other masks and "Esc" to return to the submenu.	
Dig. In. 12345 67890 master CCCCC CCCCC CCCCC CCC Dig. Out.12345 67890 master CCCCC CCCCC CCCCC CCCCC CCCCC CCCC	Displays the state of the digital inputs and outputs and specifies their number. C: Contact closed A: Contact open The number of inputs and outputs displayed depends on the type of unit. Master is only specified on units with 3 or 4 circuits.	

Mask	Description	Par.N.
An. In. master N° Value 1 07.3 bar 2 12.3 °C 3 12.3 °C 4 12.3 °C 5 12.3 °C 6 07.3 bar	Displays analogue inputs 1, 2, 3, 4, 5 and 6. Master is only specified on units with 3 or 4 circuits.	
An. In. master N° Value 7 27.6 °C 8 04.0 °C 9 15.3 °C 10 C	Display of analogue inputs 7, 8, 9 and 10. C: Contact closed A: Contact open (If the analogue inputs are configured as digital) The number of inputs and outputs displayed depends on the type of unit. Master is only specified on units with 3 or 4 circuits.	
An. Out. master N° Value 1 00.0 V 2 00.0 V 3 00.0 V 4 00.0 V 5 00.0 V 6 00.0 V	Voltage applied to analogue outputs. The number of analogue inputs and outputs displayed depends on the type of unit. Master is only specified on units with 3 or 4 circuits.	
Necessarie master Exp.1: Y Exp.2: N Exp.3: Y Exp.4: N Exp.5: N On-line master Exp.1: Y Exp.2: N Exp.3: Y Exp.4: N Exp.5: N	Mask indicating the address for the expansion boards. This changes depending on the parameter settings. Moreover, the second part of the mask shows the link with the expansion board. N means that there is no link with the expansion indicated in the address. Master is only specified on units with 3 or 4 circuits.	
Dig.In. 12345 67890 exp1 CCCC master Dig.Out.12345 67890 exp1 ACAA master	Displays the state of the digital inputs and outputs of expansion 1 /if present) and specifies their number. C: Contact closed A: Contact open Master is only specified on units with 3 or 4 circuits.	
An. In. master exp1 N° Value 1 35.6 °C 2 40.5 °C 3 37.2 °C 4 37.2 °C	Displays analogue inputs 1, 2, 3 and 4 of expansion 1 (if present). Master is only specified on units with 3 or 4 circuits.	
An. Out. master exp1 N° Value 1 00.0 V	Voltage applied to the analogue outputs of expansion 1. The number of outputs displayed depends on the type of unit. Master is only specified on units with 3 or 4 circuits.	
Dig.In. 12345 67890 exp2 CCCCC CCCCC master CCCC Dig.Out. 12345 67890 exp2 CCCCC CCCCC master CCC	Displays the state of the digital inputs and outputs of expansion 2 /if present) and specifies their number. C: Contact closed A: Contact open Master is only specified on units with 3 or 4 circuits.	
An. In. master exp2 N° Value 1 04.2 bar 2 03.9 bar 3 35.6 °C 4 40.5 °C 5 22.3 °C 6 24.2 °C	Displays analogue inputs 1, 2, 3, 4, 5 and 6 of expansion 2 (if present). Master is only specified on units with 3 or 4 circuits.	
An. In. master exp2 N° Value 7 22.4 °C 8 - °C	Displays analogue inputs 7 and 8 of expansion 2 (if present). Master is only specified on units with 3 or 4 circuits.	

Mask	Description	Par.N.
An. Out. master exp2 N° Value 1 00.0 V 2 00.0 V 3 00.0 V 4 00.0 V	Voltage applied to the analogue outputs of expansion 2. The number of outputs displayed depends on the type of unit. Master is only specified on units with 3 or 4 circuits.	
Dig.In. 12345 67890 exp3 CCCC master Dig.Out. 12345 67890 exp3 ACAA master	Displays the state of the digital inputs and outputs of expansion 3 /if present) and specifies their number. C: Contact closed A: Contact open Master is only specified on units with 3 or 4 circuits.	
An. In. master exp3 N° Value 1 06.0 °C 2 00.0 °C 3 00.0 °C 4 00.0 °C	Displays analogue inputs 1, 2, 3 and 4 of expansion 3 (if present). Master is only specified on units with 3 or 4 circuits.	
An. Out. master exp3 N° Value 1 00.0 V	Voltage applied to analogue output 1 of expansion 3 (if present). Master is only specified on units with 3 or 4 circuits.	
Dig.In. 12345 67890 exp4 CCAC master Dig.Out. 12345 67890 exp4 ACAA master	Displays the state of the digital inputs and outputs of expansion 4 /if present) and specifies their number. C: Contact closed A: Contact open Master is only specified on units with 3 or 4 circuits.	
An. In. master exp4 N° Value 1 058.2 °C 2 067.3 °C 3 04.2 bar 4 03.9 bar	Displays analogue inputs 1, 2, 3 and 4 of expansion 4 (if present). Master is only specified on units with 3 or 4 circuits. C: Contact closed A: Contact open (If the analogue inputs are configured as digital)	
Dig.In. 12345 67890 exp5 CCAC master Dig.Out. 12345 67890 exp5 ACAA master	Displays the state of the digital inputs and outputs of expansion 5 /if present) and specifies their number. C: Contact closed A: Contact open Master is only specified on units with 3 or 4 circuits.	
An. In. master exp5 N° Value 1 00.0 °C 2 00.0 °C 3 00.0 °C 4 00.0 °C 5 - 6 060.1 kPa	Displays analogue inputs 1, 2, 3, 4, 5 and 6 of expansion 5 (if present). Master is only specified on units with 3 or 4 circuits. (B5 and B6 only appear with the M-type expansion 5)	
An. In. master exp5 N° Value 7 055.3 kPa 8 -	Displays analogue inputs 7 and 8 of expansion 5 (if present). Master is only specified on units with 3 or 4 circuits. (only appears with the M-type expansion 5)	
An. Out. master exp5 N° Value 1 00.0 V	Voltage applied to analogue output 1 of expansion 5 (if present). Master is only specified on units with 3 or 4 circuits.	

Mask	Description	Par.N.
Dig. In. 12345 67890 slave CCCCC CCCCC CCCCC CCC Dig. Out.12345 67890 slave CCCCC CCCCC CCCCC CCCCC CCCCC CCCC	Displays the state of the digital inputs and outputs and specifies their number. C: Contact closed A: Contact open The number of inputs and outputs displayed depends on the type of unit.	
An. In. slave N° Value 1 07.3 bar 2 12.3 °C 3 12.3 °C 4 12.3 °C 5 12.3 °C 6 07.3 bar	Displays analogue inputs 1, 2, 3, 4, 5 and 6 of the slave (for 3 or 4 circuit units).	
An. In. slave N° Value 7 27.6 °C 8 04.0 °C 9 - 10 -	Displays analogue inputs 7, 8, 9 and 10 of the slave (for 3 or 4 circuit units). C: Contact closed A: Contact open (If the analogue inputs are configured as digital) The number of analogue inputs displayed depends on the type of unit.	
An. Out. slave N° Value 1 00.0 V 2 00.0 V 3 00.0 V 4 00.0 V 5 00.0 V 6 00.0 V	Voltage applied to the analgue outputs of the slave (for units with 3 or 4 circuits). The number of outputs displayed depends on the type of unit.	
Necessarie slave Exp.1: N Exp.2: N Exp.3: N Exp.4: N Exp.5: N On-line slave Exp.1: N Exp.2: N Exp.3: N Exp.4: N Exp.5: N	Mask indicating the address for the expansion boards. This changes depending on the parameter settings. Moreover, the second part of the mask shows the link with the expansion board. N means that there is no link with the expansion indicated in the address.	
Dig.In. 12345 67890 exp1 CCCC slave Dig.Out. 12345 67890 exp1 ACAA slave	Displays the state of the digital inputs and outputs of expansion 1 /if present) and specifies their number. C: Contact closed A: Contact open	
An. In. slave exp1 N° Value 1 35.6 °C 2 40.5 °C 3 37.2 °C 4 37.2 °C	Displays analogue inputs 1, 2, 3, and 4 of slave expansion 1 (if present for 3 or 4 circuit units).	
An. Out. slave exp1 N° Value 1 00.0 V	Voltage applied to the analogue outputs of slave expansion 1 (for units with 3 or 4 circuits). The number of outputs displayed depends on the type of unit.	
Dig.In. 12345 67890 exp2 CCCCC CCCCC slave CCCC Dig.Out. 12345 67890 exp2 CCCCC CCCCC slave CCC	Displays the state of the digital inputs and outputs of expansion 2 /if present) and specifies their number. C: Contact closed A: Contact open	
An. In. slave exp2 N° Value 1 04.2 bar 2 03.9 bar 3 35.6 °C 4 40.5 °C 5 22.3 °C 6 24.2 °C	Displays analogue inputs 1, 2, 3, 4, 5 and 6 of slave expansion 2 (if present for 3 or 4 circuit units).	

Mask	Description	Par.N.
An. In. slave exp2 N° Value 7 22.4 °C 8 - °C	Displays analogue inputs 7 and 8 of expansion 2 (if present).	
An. Out. slave exp2 N° Value 1 00.0 V 2 00.0 V 3 00.0 V 4 00.0 V	Voltage applied to the analogue outputs of slave expansion 2 (for units with 3 or 4 circuits). The number of outputs displayed depends on the type of unit.	
Dig.In. 12345 67890 exp3 CCCC slave Dig.Out. 12345 67890 exp3 ACAA slave	Displays the state of the digital inputs and outputs of expansion 3 /if present) and specifies their number. C: Contact closed A: Contact open	
An. In. slave exp3 N° Value 1 06.0 °C 2 00.0 °C 3 00.0 °C 4 00.0 °C	Displays analogue inputs 1, 2, 3, and 4 of slave expansion 3 (if present for 3 or 4 circuit units).	
An. Out. slave exp3 N° Value 1 00.0 V	Voltage applied to analogue output 1 of expansion 3 (if present).	
Dig.In. 12345 67890 exp4 CCAC slave Dig.Out. 12345 67890 exp4 ACAA slave	Displays the state of the digital inputs and outputs of expansion 4 /if present) and specifies their number. C: Contact closed A: Contact open	
An. In. slave exp4 N° Value 1 A 2 A 3 A 4 A	Displays analogue inputs 1, 2, 3, and 4 of slave expansion 4 (if present for 3 or 4 circuit units).	
Dig.In. 12345 67890 exp4 CCAC slave Dig.Out. 12345 67890 exp4 ACAA slave	Displays the state of the digital inputs and outputs of expansion 4 /if present) and specifies their number. C: Contact closed A: Contact open	
An. In. slave exp5 N° Value 1 00.0 °C 2 00.0 °C 3 00.0 °C 4 00.0 °C	Displays analogue inputs 1, 2, 3, and 4 of slave expansion 5 (if present for 3 or 4 circuit units).	
An. Out. slave exp5 N° Value 1 00.0 V	Voltage applied to analogue output 1 of expansion 5 (if present).	

Mask	Description	Par.N.
Setpoint ← ↓	Access mask to setpoint menu. Press "Up" or "Down" to scroll the other masks and "Esc" to return to the submenu.	
Unit type: chiller Operating mode: auto Active regulation: Quick Mind in output	Mask for displaying the unit type and setting the operating mode. Also shows the active regulation type. If an R is displayed to the right of the operating mode, the latter is remote controlled with the digital inputs. Capitions to symbols: see setpoint settings section.	43.01
Sytem mode: SUMMER DHW: ON	Sets the system adjustment type (OFF / WINTER / SUMMER) and whether to control the DHW storage water (OFF / ON) (if present).	43.13 43.14
Active setpoint: Main 07.0 °C Recovery/DHW 42.5 °C	This screen displays the current main setpoint, the recuperator setpoint and the DHW setpoint (if present). If the letter R appears to the right of the value, the active setpoint is the secondary one. Key to symbols: see setpoint settings section.	
Chiller setpoint 07.0 °C Heatpump setpoint 42.5 °C Setpoint recovery/DHW 42.5 °C	Sets the chiller, heat pump and recovery setpoint (DHW if present).	43.10 43.11 43.09
DHW override No	Mask for manually overriding the unit so as to satisfy the demand for DHW.	
Chiller dual setpoint 07.0 °C Heatpump dual setpoint 45.0 °C Recovery dual setpoint 45.0 °C	Mask for setting the second setpoint (only visible if the double setpoint function is enabled).	43.07 43.08 43.12
Unit ← ↓	Access mask to unit menu. Press "Up" or "Down" to scroll the other masks and "Esc" to return to the submenu.	
Temp. In. Out. Evap. 12.5 07.0°C Rec. 35.6 40.5°C Cond. 38.0 42.5°C DHW 59.8 °C	Shows the inlet and outlet water temperature. (evaporator, recuperator, condenser and DHW are only displayed if they are fitted). In units with more thn one evaporator, if the shared outlet probe is disabled, the average temperature between the two outlet probes of the individual evaporators is displayed.	
Temp. In. Out. Evap. 12.5 07.0°C Evap1 07.2°C Evap2 06.9°C	(if more than 1 evaporator is fitted) Displays inlet and outlet temperatures of the evaporator or condenser (depending on whether the unit is in the chiller or heat pump mode) and the outlet temperature of the evaporators.	

Mask	Description	Par.N.
Temp. In. Out. Cond. 24.3 22.4°C Cond.1 22.3°C Cond.2 22.4°C	(if 2 condensers are fitted) Displays inlet and outlet temperatures of the evaporator or condenser (depending on whether the unit is in the chiller or heat pump mode) and the outlet temperature of the two condensers.	
Temp. Freecooling 12.3°C External air 15.4°C Optional 19.6°C	(for air-cooled units) Displays freecooling temperature (in chiller+freecooling units), external air temperature and optional temperature (if the probes are enabled).	
Circ hp lp st 1 07.3 04.2 Off 2 07.3 03.9 Off 3 07.3 04.2 Off 4 07.3 03.9 Off bar bar	Displays high and low pressure values (if transducers are fitted) and codifies the operating mode of circuits 1, 2, 3 and 4.	
Circ tc tl sott 1 07.3 00.0 00.0 2 07.3 00.0 00.0 3 07.3 00.0 00.0 4 07.3 00.0 00.0 °C °C °C	(in chiller units with recovery) Displays pressure converted into temperature values, temperature of the liquid and calculated subcooling values of circuits 1, 2, 3 and 4.	
Timer tuning defrost Range 1200 - 03600 s Ref. time 0277 s Free Defrost 0370 s	Displays, for timer tuning defrost, the variation range in the defrost delay calculated according to external temperature. Also displays the reference time for defrosting (if the tuning defrost timer is enabled) and the maximum free defrost duration calculated according to the external temperature.	
Circ Time 1 02700 2 02700 3 02700 4 02700 s Timer tuning defrost	Displays the defrost delay calculated by the timer tuning defrost algorithm.	
Circ Time Max 1 0188 0125 2 0125 0270 3 0188 0125 4 0125 0270 s s Free Defrost	Displays the free defrost enable time and the maximum time calculated according to the length of the delay.	
Circ defr T.del T.dur 1 N 0904 0000 2 N 0000 0028 3 N 0904 0000 4 N 0000 0028 s s	Displays the defrosting status, the delay before defrosting starts and the time taken to defrost.	
Compressor discharge temperature C1:105.9 C2:058.2 C3:098.4 C4:067.3 C5:105.3 C6:104.9 C7:098.4 C8:068.2 °C °C	Displays the discharge temperature (if probes are present) of compressors.	
Differential transd. evaporator: 060.1 kPa recovery: 055.3 kPa	Displays the differential pressure values (if transducers are present) of the evaporator and recuperator hydraulic circuits.	

Mask	Description	Par.N.
Ventilat. adj.: Circ1: 060 % Circ2: 043 % Circ3: 056 % Circ4: 092 % Circ1-2: 060 % Circ3-4: 092 %	Displays the ventilation percentages (or aperture of condensation valve for water-cooled units) of each circuit. This demand percentage does not correspond to the voltage delivered in V for non-linear devices (fans or valves). Compare Circ1-2: for units with separately cooled hermetic compressors and its value corresponds to the greater of the percentages of circuit 1 and 2 (the same applies to circ3-4 for 4-circuit units).	
Analogue outputs: Adj.Condens. 1:000 % Adj.Condens. 2:000 % Adj.Condens. 3:000 % Adj.Condens. 4:000 %	DIsplay of condensation percentages for HW pCOEM. Shows the percentage of demand of the devices connected to it (for non-linear devices correspondence with supplied voltage V does not apply).	
Analogue outputs: 5 System pump speed: 000%	Displays analogue outputs of expansion 5.	
Analogue outputs: 1 Recuperator pump speed: 000%	Displays analogue outputs of expansion 1.	
Analogue outputs: 2 Recuperator pump speed: 000%	Displays analogue outputs of expansion 2.	
Analogue outputs: 3 Freecooling :000 % --- %	Displays analogue outputs 1 and 2 of expansion 3.	
Analogue outputs: 3 Freecooling :000 %	Displays analogue outputs 1 and 2 of slave expansion 3.	
Hour counter Pump 1 001010 Pump 2 000982 Rec. pump 000450 Cond. pump 000625	Displays the operating hours of the circulation pumps (depending on whether the pump is enabled or not).	
Compr. hour counter Av. hours 000000 C1 000000 C2 000000 C3 000000 C4 000000 C5 000000 C6 000000	Displays average compressor hours. Used to view the operating hours of the compressors.	
Work Act << 082% RPM 32450 CR 2.8 lp 03.9bar discharge temp.78.5°C	Displays the operating status of the centrifuge compressors, the active percentage, the rpm and the percentage delivered. Also displays other data relative to the centrifuge compressors, such as outlet temperature and inlet pressure	

Mask	Description	Par.N.
Work Act << 080% RPM 29500 CR 2.8 lp 03.9bar discharge temp.78.5°C	Displays the operating status of the centrifuge compressors, the active percentage, the rpm and the percentage delivered. Also displays other data relative to the centrifuge compressors, such as outlet temperature and inlet pressure	
Work Act << 082% RPM 32450 CR 2.8 lp 03.9bar discharge temp.78.5°C	Displays the operating status of the centrifuge compressors, the active percentage, the rpm and the percentage delivered. Also displays other data relative to the centrifuge compressors, such as outlet temperature and inlet pressure	
Work Act << 080% RPM 29500 CR 2.8 lp 03.9bar discharge temp.78.5°C	Displays the operating status of the centrifuge compressors, the active percentage, the rpm and the percentage delivered. Also displays other data relative to the centrifuge compressors, such as outlet temperature and inlet pressure	
subc 03.8°c 03.6°c st Reg Reg step 1824 1630	Displays the subcooling value of circuits, the status of the electronic thermostat valve drivers and the number of valve aperture steps	
Circ SH steps st 1 05.9 1420 Ok 2 06.1 1382 Ok 3 06.0 1355 Ok 4 05.7 1444 Ok °C	Displays the overheating value of circuits, the status of the electronic thermostat valve drivers and the number of valve aperture steps	
Inverter 1: Online Command 1200 rpm Revs 1200 rpm	Displays whether inverter 1 is online with the controller. Also displays the command and the effective speed of rotation of the screw compressor with inverter.	
Inverter 2: Online Command 1400 rpm Revs 1400 rpm	Displays whether inverter 2 is online with the controller. Also displays the command and the effective speed of rotation of the screw compressor with inverter.	
Inverter 3: Online Command 1200 rpm Revs 1200 rpm	Displays whether inverter 3 is online with the controller. Also displays the command and the effective speed of rotation of the screw compressor with inverter.	
Inverter 4: Online Command 1400 rpm Revs 1400 rpm	Displays whether inverter 4 is online with the controller. Also displays the command and the effective speed of rotation of the screw compressor with inverter.	
Enable circuits Circ1: Y Circ2: Y Circ3: N Circ4: N compressors C1:Y C2:Y C3:Y C4:Y C5:Y C6:Y C7:N C8:N	Selects/deselects circuits and compressors.	47.01 47.02 47.03 47.04 47.05 47.06 47.07 47.08 47.09 47.10 47.11 47.12

Mask	Description	Par.N.
W 3000 SE Cod. GA 12.00 EN CE HW pCO3 L NAND 32MB Flash 2MB + 2MB Ram 0512KB Boot 4.03 Bios 9.04	This mask contains the reference information of the software [Code] The closed padlock symbol shows that the board is provided with its propriety software; two padlocks appear on units with 3 or 4 circuits. The second part of the mask shows information about the hardware: size (M, L, XL), memories (NAND 32MB, flash 2+2MB, ram 512KB) and versions of the installed operating system (boot and bios).	

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