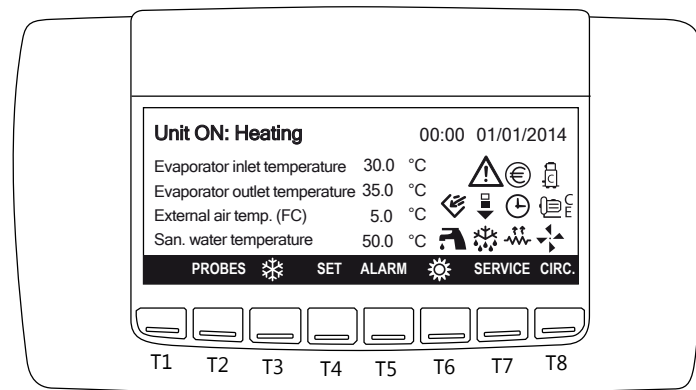# iCHiLL

User Manual
Ichill 290D/291D

1.1 Position of the control panel

Control panel

5.2.1 Display icons

Icon	Meaning	Icon	Meaning
	Number of compressors in operation.		Indicates that the electric heaters are active.
	Water pump		Economy or ON/OFF by timetable.
	Indicates that the fans are working.		Free cooling is active (not available).
	Indicates that an alarm is active.		Domestic hot water.
	Economy function		Indicates that the defrost is active.
	Unloading function (not available).		

1.2 Key function

T2:	PROBES	Allows to read the value of the probes configured
T3:	❄	Allows to switch on the unit in cooling mode
T4:	SET	Allows to read and modify the set point
T5:	ALARM	Allows to read and reset the alarms
T6:	☀	Allows to switch on the unit in heating mode
T7:	SERVICE	Allows to enter the SERVICE menù
T8:	CIRC	Allows to read the main information of the circuits (compressor status, water pump status, pressure probe value,…)

When the unit is turned on, the display will be as follows:
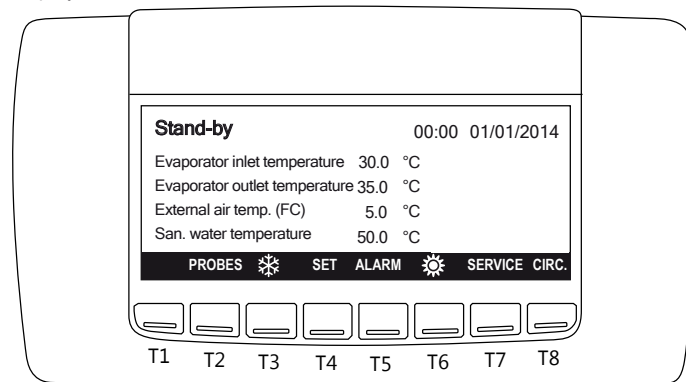
1.3 How to remote the control

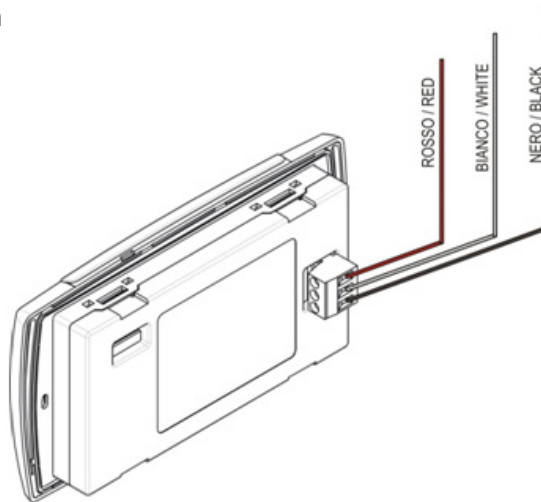### 1.3.1 Remote keyboard connection (VGI890)
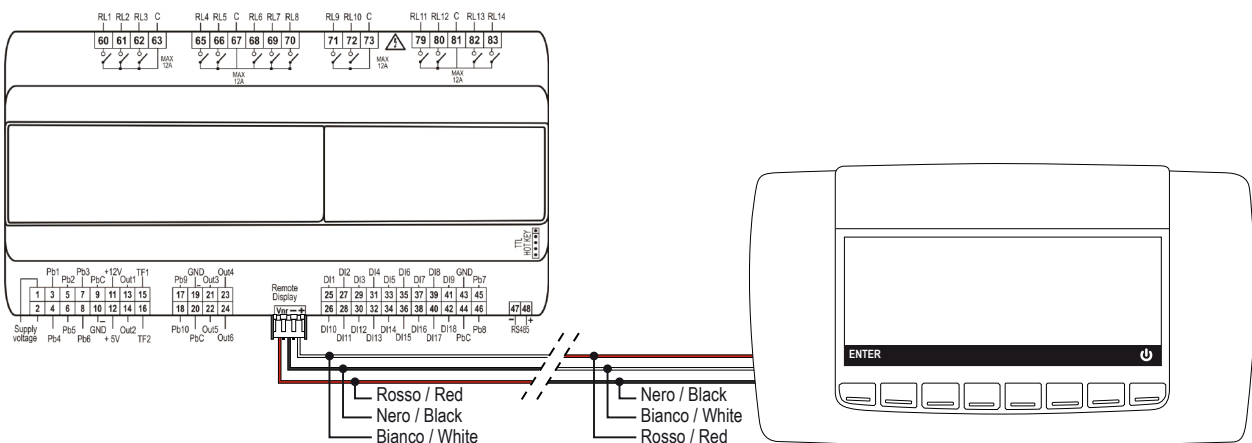
Special care must be taken when connecting the keyboard to the Ichill200D, to avoid irreparable damage to the controller or/and keyboard

- In case of power supply failure (wire black or red), the keyboard doesn't work.
- In case of comunication problems, the display shows "noL" message.

1.3.2 Panel mounting connection diagram

1.3.3 Wall mounting connection diagram
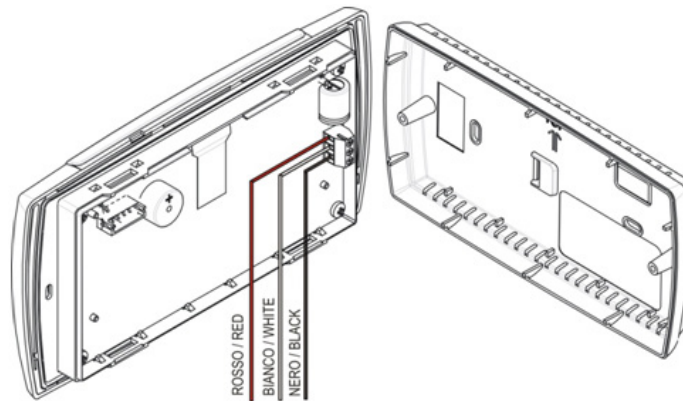
1.4.4 Selection built in display or remote keyboard

Use the selector switch as shown below to choose the desired display:
- Position 0 = display on board
- Position 1 = remote display.

For remote display electrical connections, always refer to the electrical diagram supplied with the unit.

2.3 Set point

To change the set-point from the main screen, press SET .

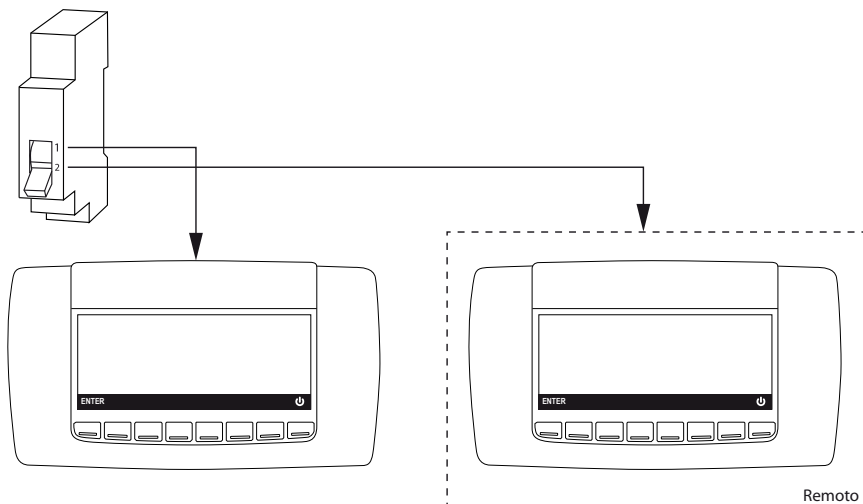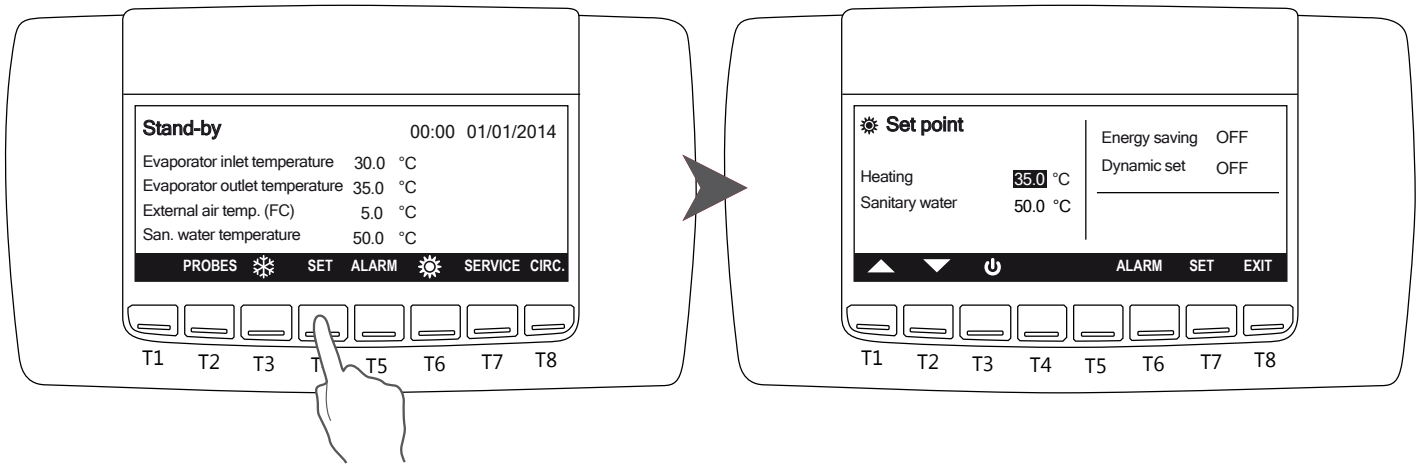To modify the values, move the cursor with ▲; press SET to select, the value starts blinking, change the data pressing ▲ and ▼ . Once the required value is reached, press again SET to confirm.
The cursor will automatically position itself on the next value, to modify it, repeat the operation just described.
In this screen it is also possible to verify (but not modify) whether the energy saving mode and dynamic set are active.

Press EXIT to go back to the main menu.

> All set points refer to the return temperature from the plant. In case hot water at 45°C is requested and the Δt is 5°C, then the set point must be set at 40°C. In case the Δt is 8°C, then the set point must be set at 37°C. In case cold water is requested, for example at 15°C and the Δt is 5°C, then the set point must be set at 20°C. If the Δt is 8°C, then the set point must be set at 23°C.

2.3.1 Adjustable parameters

The adjustable set point that can be modified by the end user are:

Function	Adjustment limit	Default value
Heating set-point	10÷55°C	35°C
Domestic hot water set-point	20÷55°C	50°C
Cooling set-point	10÷25°C	23°C
Set point compensation	0÷15°C	10°C
Password	(Contact the company)	

> The units are supplied with a very sophisticated control system with many other parameters that are not adjustable by the end user; these parameters are protected by a manufacturer password.

2.4 PROBES key

To view all the parameters measured by the sensors of the unit press PROBES ;
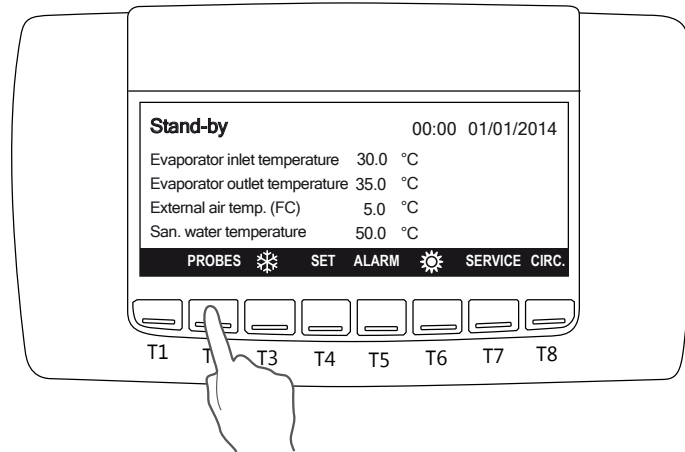
By pressing the ▼ key, all relevant values of the circuit will be displayed
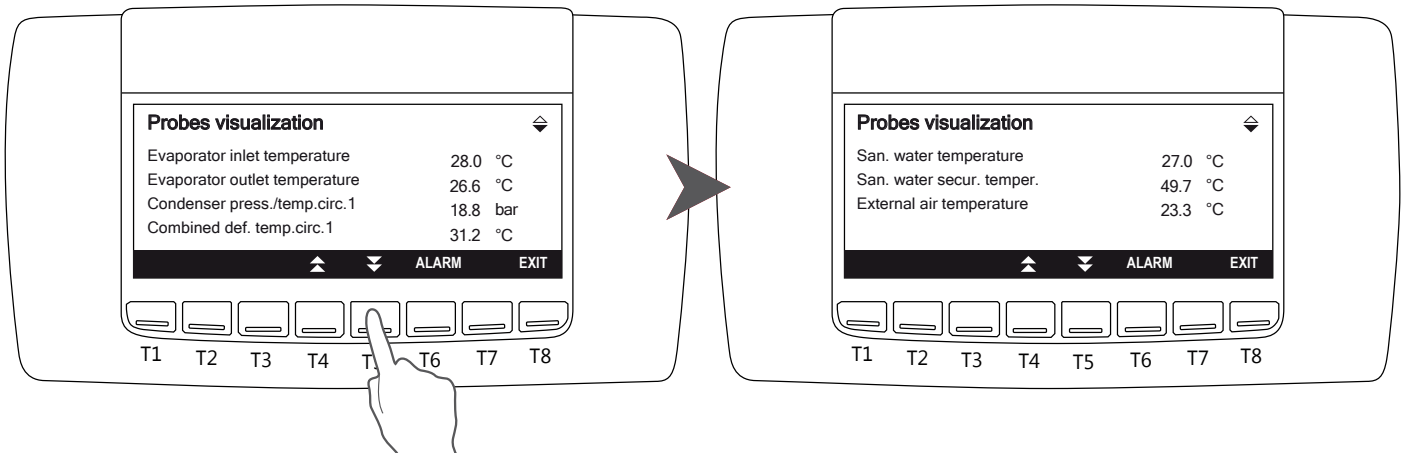
Press EXIT to go back to the main menu.

6.5 ALARM key

When the alarm occurs, the display shows the icon ⚠ blinking.
Press ALARM key to read the alarm status:
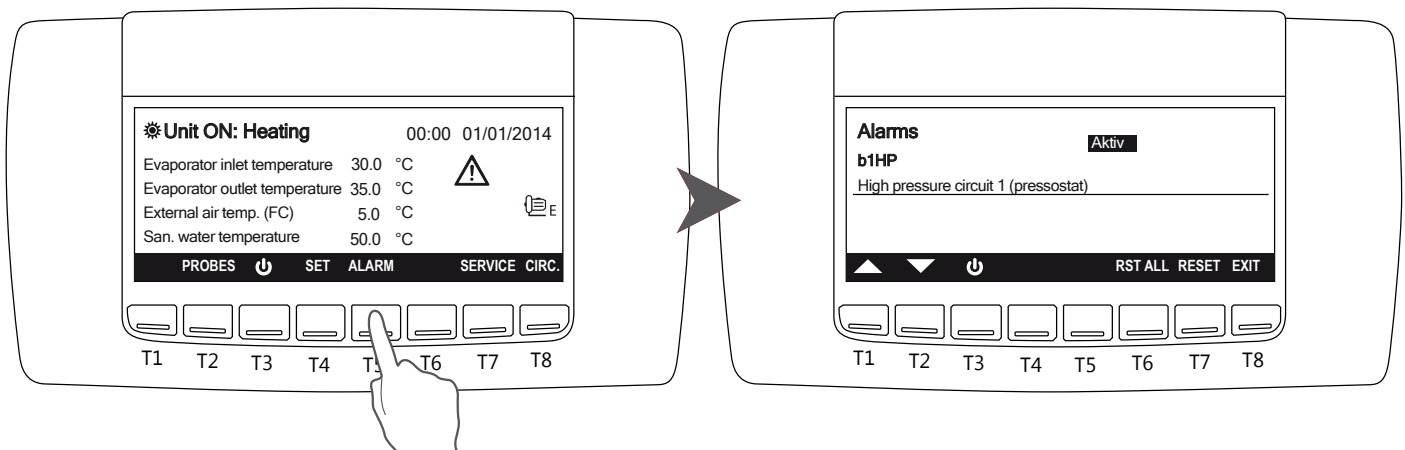
The alarm status can be:

• **Reset:** the alarm is not active and it is possible to reset it. Press [▲] and [▼] keys to select the alarm to select it and press [RESET] key to reset the alarm.
• **Password**: in this case the alarm is no longer active, but you need a password to reset it (please contact the Company).
• **Active**: the alarm is still active and it is not possible to reset it.

In case more resettable alarms are present, it's possible to reset all of them at once pressing [RST ALL] key.
In any case, even if all the alarms are reset, they remain present in the alarm history (par. 6.7.7).

2.6 CIRC key

Pressing [CIRC] can view the different parameters of the unit:

Pressing [▲] and [▼] you move from one screen to another while with [▲] and [▼] you scroll through the menu items. Press [ENTER] key to view the values.

State of the compressors; the display shows compressors present in each circuit and the activation status of each one.
Color black: compressor running
Color white: compressor on standby

In case of use of compressors in part-loading (typically screw compressors) an icon appears to the right of the compressor showing the level of step control.
In case of use of On/Off compressors (Scroll) no icon appear to the right of the compressor.

Compressor status

Compressor status
Circuit 1
    51 %
Circuit 2   not configured

Ù   ALARM   EXIT

T1   T2   T3   T4   T5   T6   T7   T8
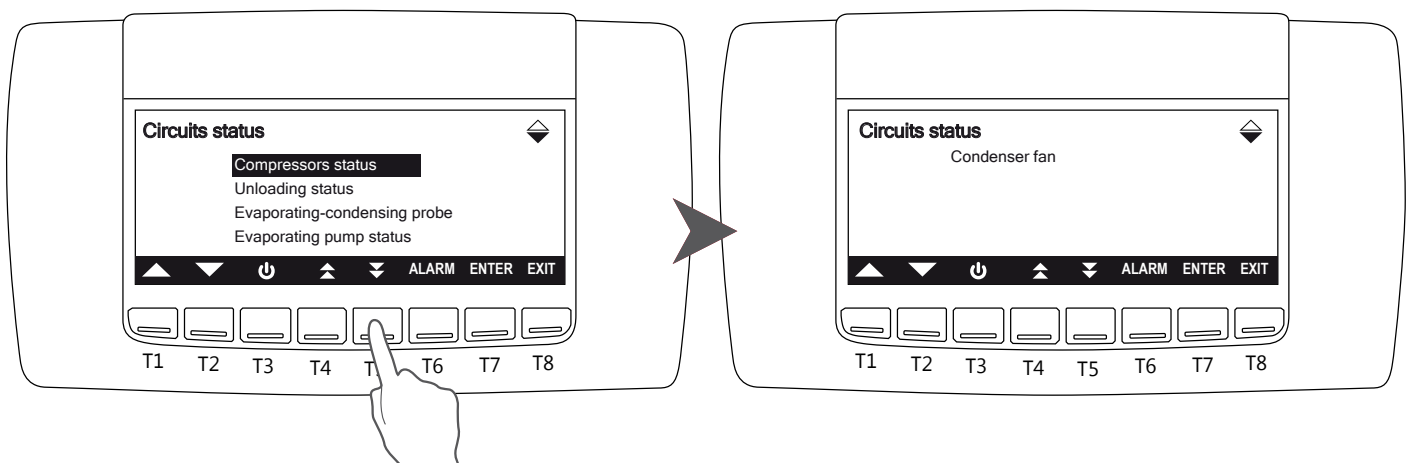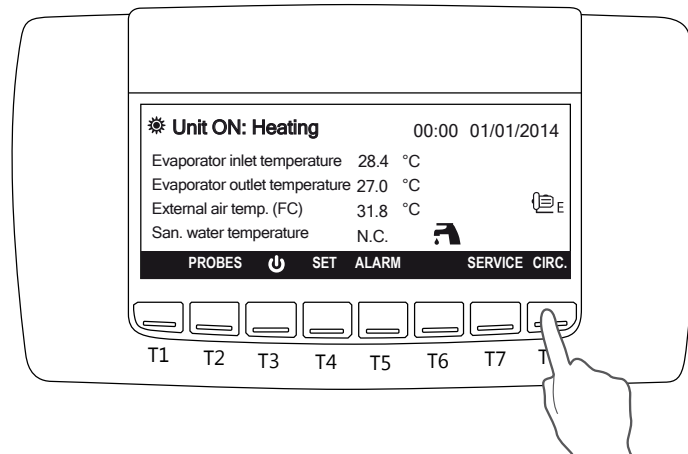
Unloading status

Unloading status
Circuit 1
unloading not ongoing
Circuit 2
not configured

Ù   ALARM   EXIT

T1   T2   T3   T4   T5   T6   T7   T8
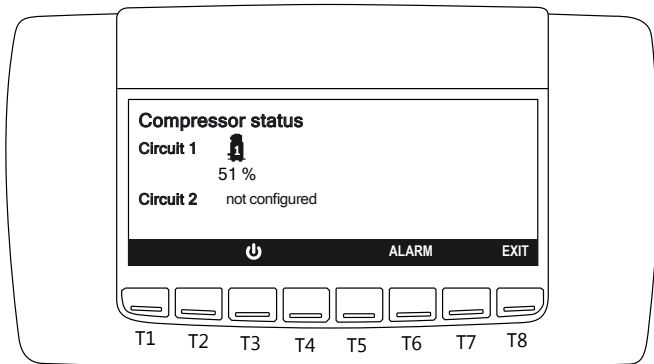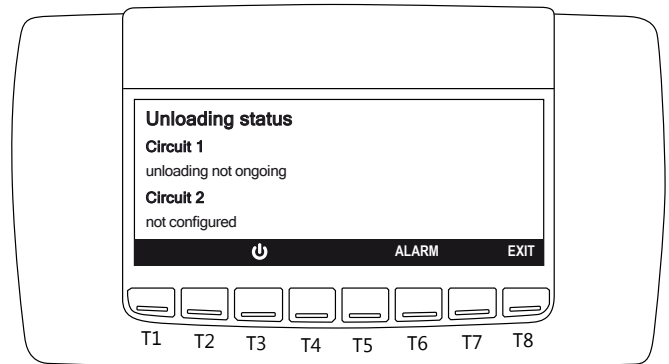
Evaporating-condensing probe

Evaporating-condensing probe
            High press.   **Low press.**
Circuit 1   36.2 bar   N.C.
Circuit 2   not configured

Ù   ALARM   EXIT

T1   T2   T3   T4   T5   T6   T7   T8

Evaporator pump status

Evaporator pump status
Evap. pump 1   **Evap. pump 2**
            not configured
    255 %

Ù   ALARM   EXIT

T1   T2   T3   T4   T5   T6   T7   T8

Condenser fan

Condenser fan

Cond. fan 1   **Cond. fan 2**
0   %   0   %

Ù   ALARM   EXIT

T1   T2   T3   T4   T5   T6   T7   T8
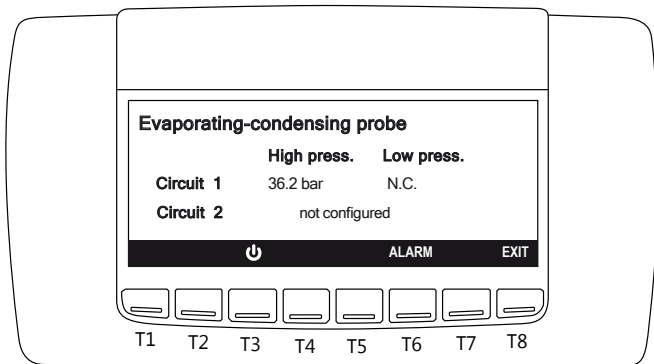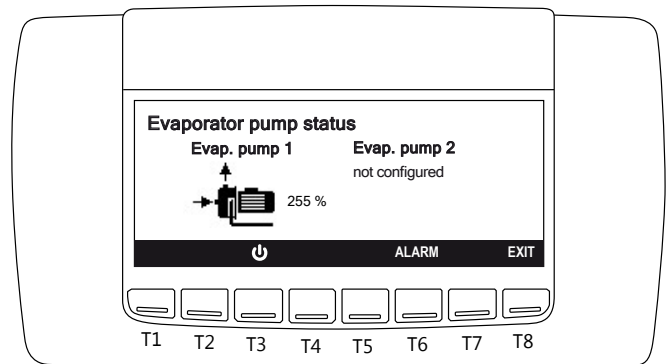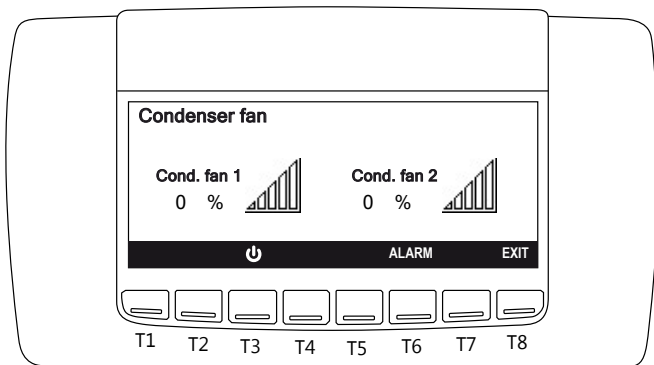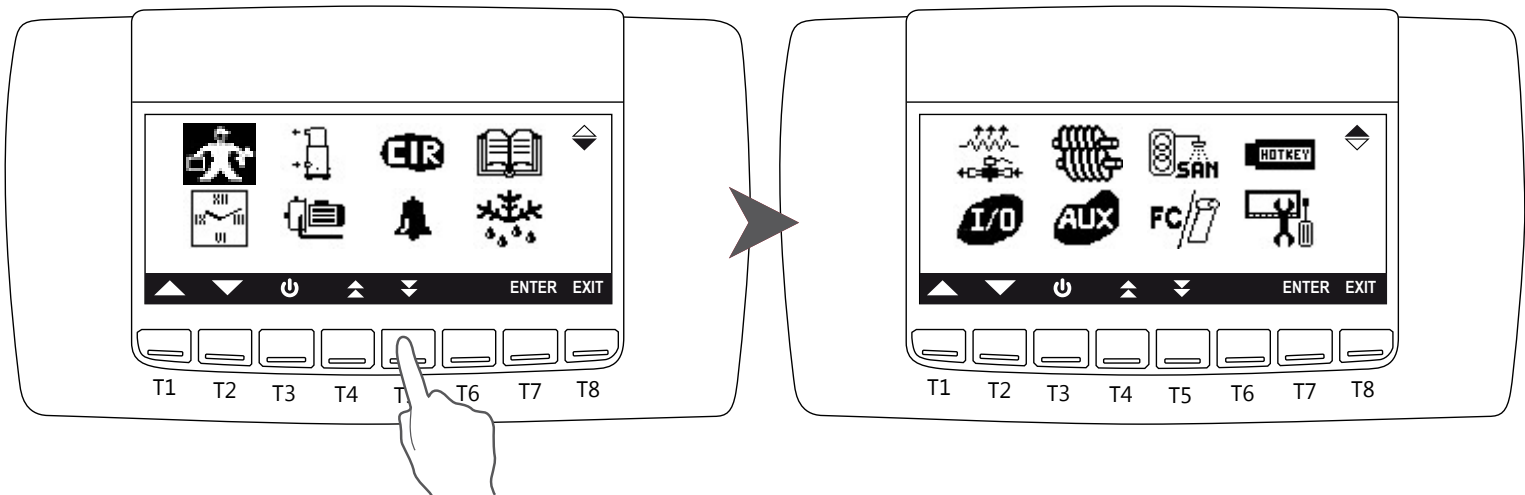
2.7 SERVICE key

Press the SERVICE key to access the following menus:

	Setting parameters (for service only)			Electrical heater and pump down valve status
	Time and date setting			I/O status (Inputs and Outputs)
	Compressors status			Screw compressor information (Not configured)
	Pumps			Auxiliary outputs
	Circuit maintenance			Domestic hot water (if available)
	Display of alarms			Free cooling and Solar panel visualization (if available)
	Alarm history			Upload and download parameter map with Hot Key
	Defrost (if available)			Control panel

Press ▲ key to display all the menu available.

To modify and set the parameters move the cursor using the ▲ and ▼ ,press ENTER, to select the required menu, and then SET to select the desired value.

Change the parameters by pressing the ▲ and ▼ , and then press SET again to confirm.

Press the EXIT key to return to the main menu.

2.7.1 Service parameters setting

To enter service menu select ⬚🏃 moving between the icons with ▲ and ▼ keys and press `ENTER`.

The system prompts you to enter the password to access to different levels of security.
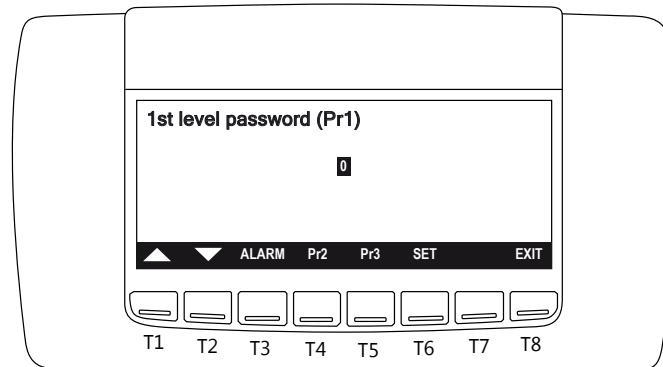
The first level allow to modify some parameters as for example heating and cooling set points and dynamic set points. Press `SET` key, with ▲ modify the password to 1 then press `SET` again to confirm.
The display show:
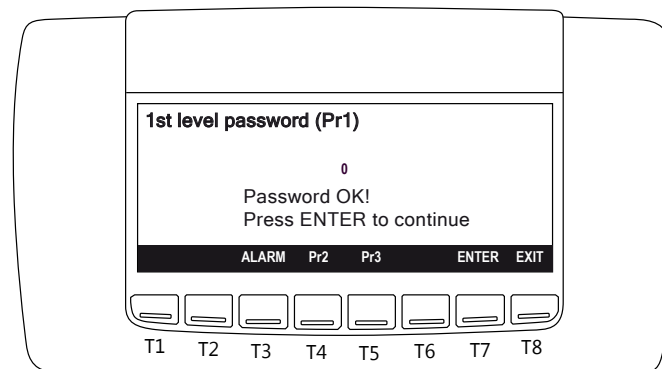
Press ▲ and ▼ to scroll through different groups of parameters. With password level 1 you could only change the Set Point (**St**), dynamic Set point (**Sd**), parameters of sanitary circuit (**FS**) and parameters for setting the time bands (**ES**); the unit must be switched on. Press `ENTER` to enter in the group of parameters. Other parameters can only be modified by service with a dedicated password. Other parameters could be modified by service people only with a dedicated password.

Parameters list:

Code	Meaning	Code	Meaning
St	Set point	US	Auxiliary output
dP	Main visualization	FA	Fan
CF	Configuration	Ar	Antifreeze
Sd	Dynamic set	dF	Defrost
ES	Energy saving	FS	Sanitary water
Cr	Compressor racks	AL	Alarms
CO	Compressor		

To modify the value of the parameter: press ⬆ or ⬇ to select the parameter to modify then press SET the value start to blinking, press ⬆ and ⬇ to modify, than press SET again to confirm.

The values available in the group of parameters "Set point" (**St**) are: summer set point (St01), winter set point (St04), summer regolation band (St07) and winter regolation band (St08).
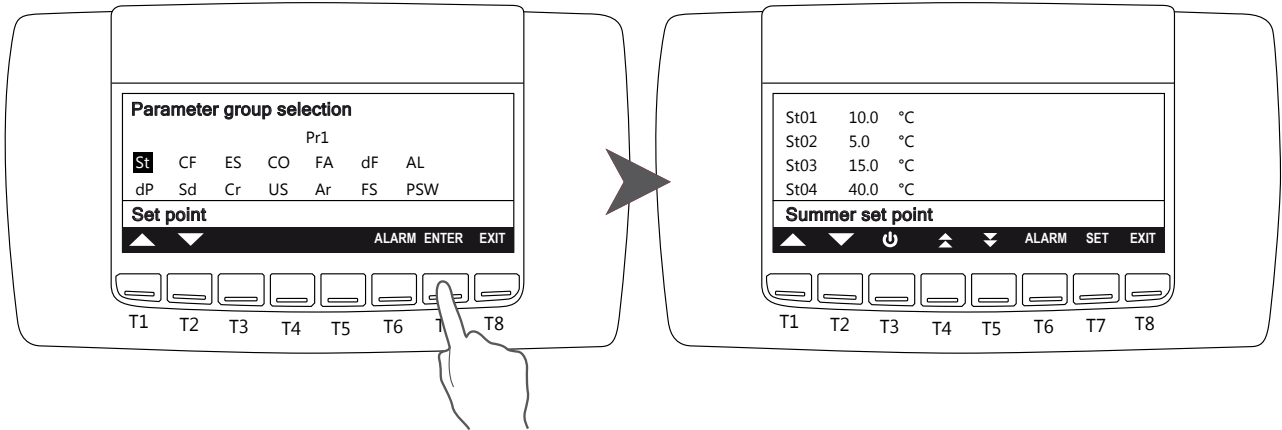
The values available in the group of parameters "Dynamic set point" (**Sd**) are: dynamic set point: summer offset (Sd01), dynamic set point: winter offset (Sd02), dynamic set point: summer outside temp. (Sd03), dynamic set point: winter outside temp. (Sd04), dynamic set point: summer differential temp. (Sd05) and dynamic set point: winter differential temp.(Sd06).

For more informations about the parameters see par. 6.3.1 and 6.3.2.

Weather compensated function

This function makes it possible to activate the weather compensation sensor in order to optimize the efficiency of the unit. Automatically it modifies the set-point value with respect to external air temperature: a calculation is performed on the set-point to provide a revised value of set point for higher ambient conditions (see example given below). This function makes it possible to save energy and to operate the unit in severe ambient conditions. This function is only active in heating mode.
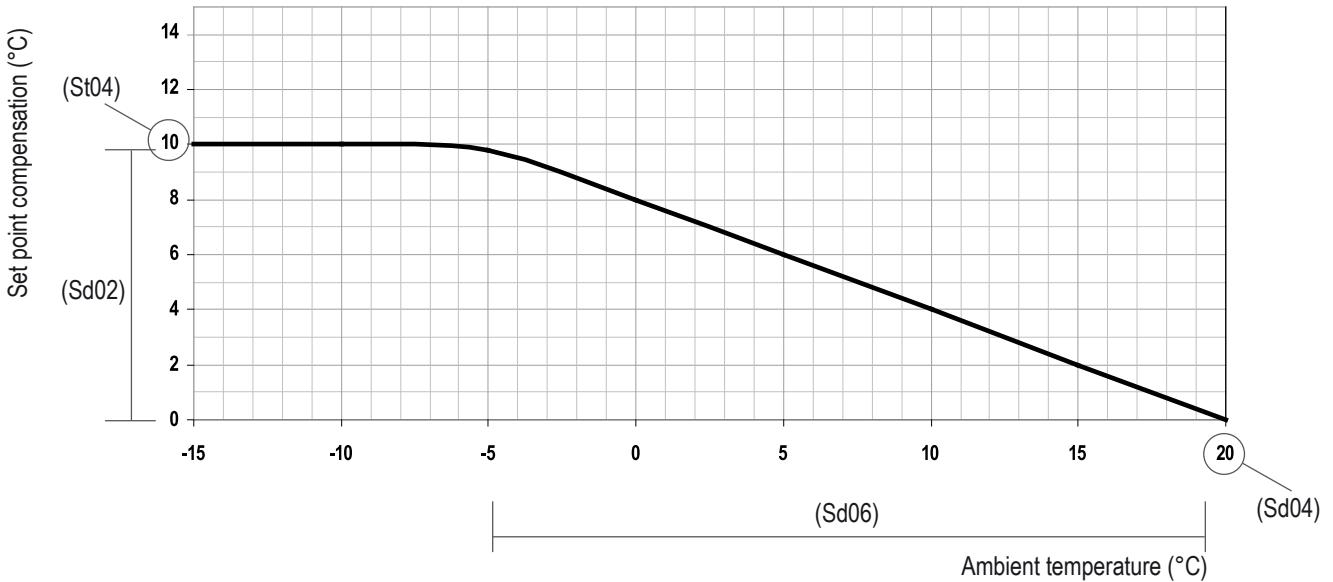
All units are factory set with the weather compensated function activated. The slope starts at +20°C with a differential of 10°C.

With the energy saving mode activated, if the SET key is pressed twice the bottom of the display shows the SEtTR (weather compensated set point) label that is the specific set point calculated by the microprocessor control for the measured ambient temperature condition.
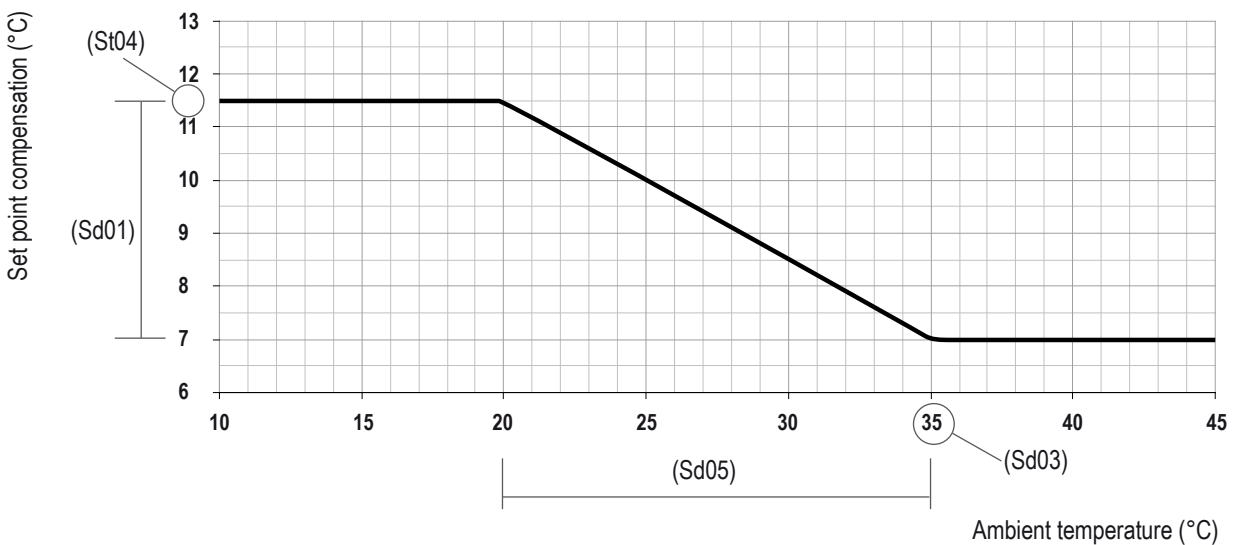
The values available in the group of parameters "Sanitary circuit" (**FS**) are: Sanitary water priority (FS02), Sanitary water set point (FS03), Sanitary water proportional band (FS04) .
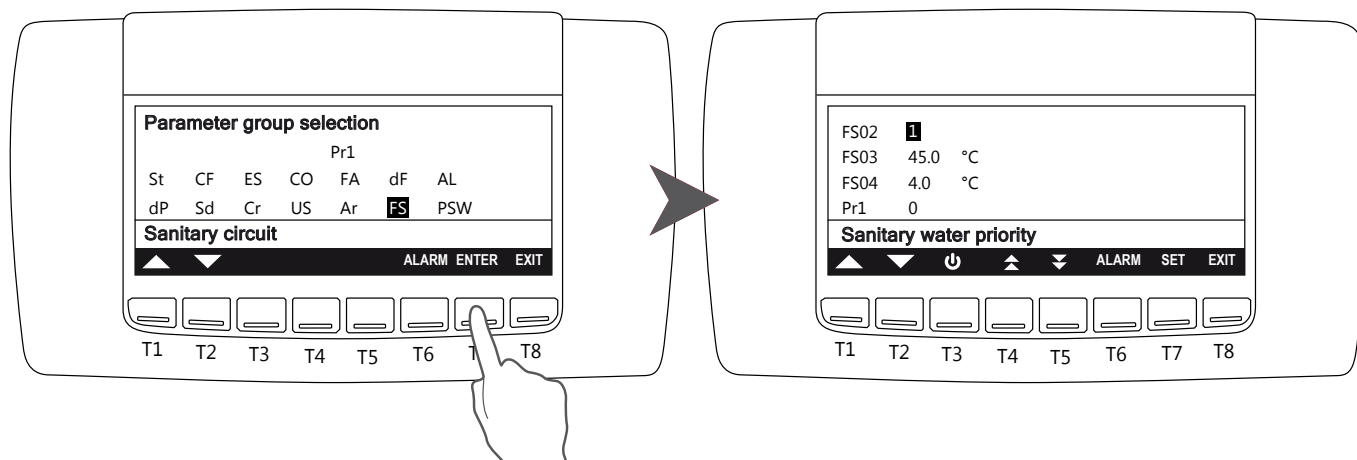
2.7.2 Time bands setting

To access the group of parameters for setting the time bands, select **ES**

ES01	Start of operation range N°1 (0÷24)	**ES17**	Energy saving differential in heat pump operation
ES02	End of operation range N°1 (0÷24)	**ES18**	Maximum operating time of the unit in OFF by RTC if the unit is forced into ON by key.
ES03	IStart of operation range N°2 (0÷24)	**ES19**	Time band 1 Domestic hot water: start
ES04	End of operation range N°2 (0÷24)	**ES20**	Time band 1 Domestic hot water: end
ES05	Start of operation range N°3 (0÷24)	**ES21**	Time band 2 Domestic hot water: start
ES06	End of operation range N°3 (0÷24)	**ES22**	Time band 2 Domestic hot water: end
ES07	Monday with time band in energy saving Monday operation with automatic on/off switch	**ES23**	Time band 3 Domestic hot water: start
ES08	Tuesday with time band in energy saving Tuesday operation with automatic on/off switch	**ES24**	Time band 3 Domestic hot water: end
ES09	Wednesday with time band in energy saving Wednesday operation with automatic on/off switch	**ES25**	Monday: time band selection
ES10	Thursday with time band in energy saving Thursday operation with automatic on/off switch	**ES26**	Tuesday: time band selection
ES11	Friday with time band in energy saving Friday operation with automatic on/off switch	**ES27**	Wednesday: time band selection
ES12	Saturday with time band in energy saving Saturday operation with automatic on/off switch	**ES28**	Thursday: time band selection
ES13	Sunday with time band in energy saving Sunday operation with automatic on/off switch	**ES29**	Friday: time band selection
ES14	Increased energy saving set in chiller operation	**ES30**	Saturday: time band selection
ES15	Energy saving differential in chiller operation	**ES31**	Sunday: time band selection
ES16	Increasing set energy saving in heat pump operation	**ES32**	Energy saving: domestic hot water set point offset

The combinations of time bands that can be set on different days of the week are:

0 = none

1 = Time band 1

2 = Time band 2

3 = Time band 1 and 2

4 = Time band 3

5 = Time band 1 and 3

6 = Time band 2 and 3

7 = All time bands

Operating modes

The possible operating modes are:

- **Automatic ON-OFF**: automatic switching on and off of the unit according to set times.
- **Energy Saving**: Allows you to set two different set points, for example one for the day and one for the night.
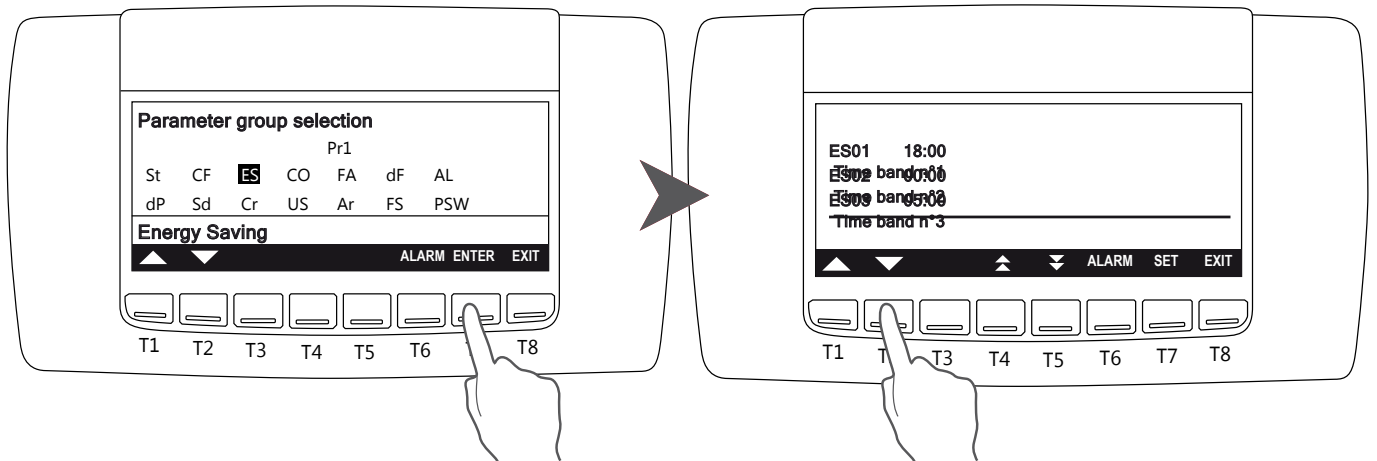
Up to three time bands can be set.

Select the time to be changed by moving with T1 and T2 keys confirm the parameter select with T7 key than change the values with T1 and T2 keys.

Press T5 key to view all available parameters.

2.7.2 Setting date and time

To enter this menu select [icon] moving between the icons with the keys [▲] and [▼] and press ENTER .

Press [▲] and [▼] to select the value you want to edit than press SET . The selected parameter will start blinking, press [▲] and [▼] to set the value and than press SET to confirm.

Pressing [▼] it is possible to read the information about the Energy saving, ON/OFF scheduling and time bands. To modify the hour of the time band and to enable the function is necessary to insert the password, in case you do not have a password, you can only view the different parameters..

Clock / time bands configuration

Clock setting	10 : 07
Data setting	05 / 7 / 14
Dat of the week	Tuesday

▲ ▼ ⯅ ⯆ ALARM SET EXIT

T1 T2 T3 T4 T5 T6 T7 T8

Clock / time bands configuration

| Energy saving | Disabled |
| ON/OFF scheduling | Disabled |

⯅ ⯆ ALARM EXIT

T1 T2 T3 T4 T5 T6 T7 T8

Clock / time bands configuration

	Start	Stop
Time band n°1	18:00	00:00
Time band n°2	05:00	19:00
Time band n°3	00:00	08:00

⯅ ⯆ ALARM EXIT

T1 T2 T3 T4 T5 T6 T7 T8

Clock / time bands configuration

	Energy saving	Auto ON-OFF
Monday	Disabled	Disabled
Tuesday	Disabled	Disabled
Wednesday	Disabled	Disabled

⯅ ⯆ ALARM EXIT

T1 T2 T3 T4 T5 T6 T7 T8

2.7.3 Compressor maintenance

To enter this menu select [icon] moving between the icons with the keys [▲] and [▼] and press ENTER .
It is possible to display the compressors working hour and the number of activations. Select the circuit with the keys [▲] and [▼] than press ENTER to display the parameters. The disabling function of the compressors ENB/DIS is only possible by service people.
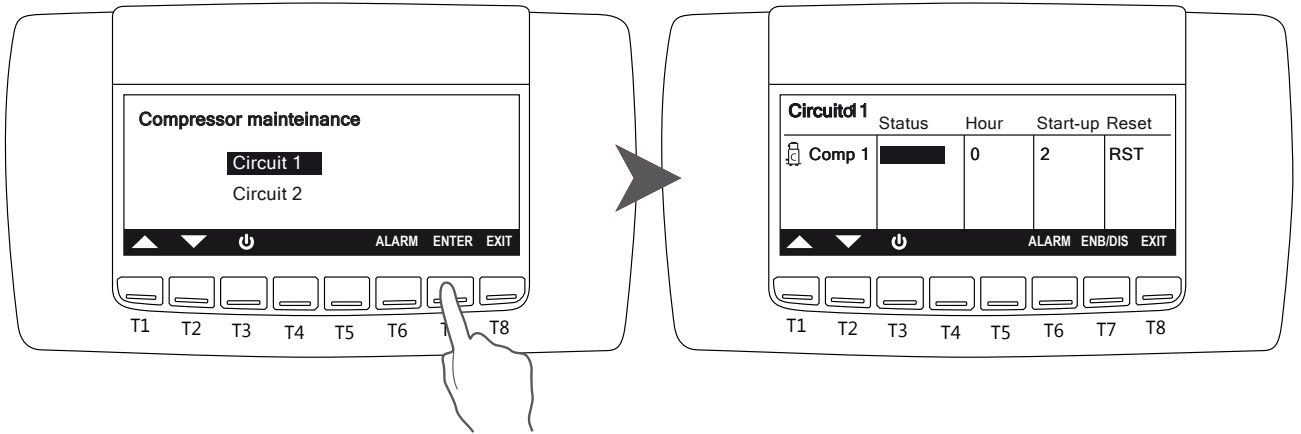
2.7.4 Water pumps

To enter this menu select [icon] moving between the icons with the keys [▲] and [▼] and press ENTER .
It is possible to display the working hours of water pumps. The function RESET is only possible by service people.
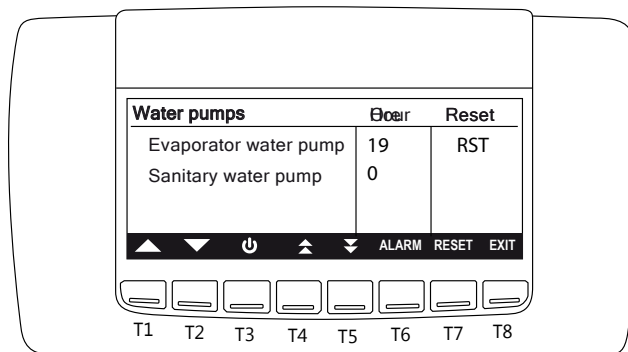
2.7.5 Circuit maintenance

To enter this menu select [icon] moving between the icons with the keys [▲] and [▼] and press ENTER .
It is possible to display the status of the circuits. The function ENB/DIS is only possible by service people.
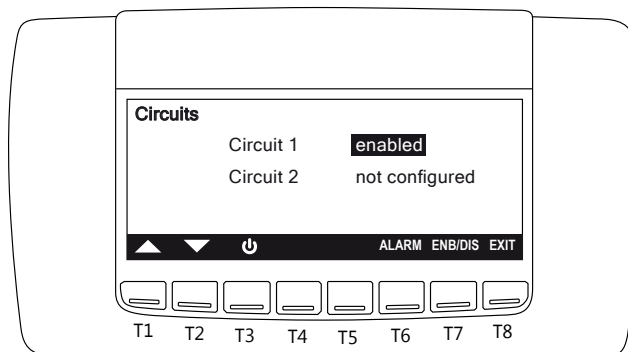
2.7.6 Alarms

To enter this menu select 🔔 moving between the icons with the keys ⬆ and ⬇ and press ENTER.

For the management of alarms see par. 6.5.
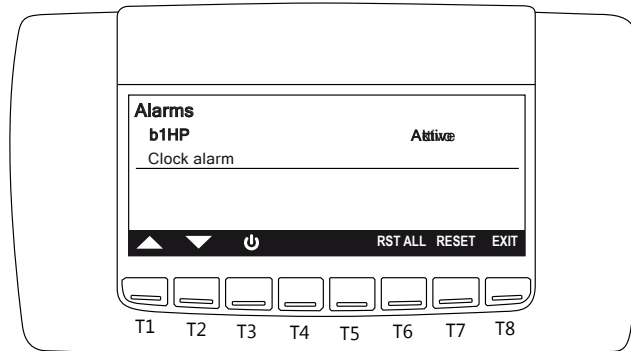
2.7.7 Alarm log

To enter this menu select 📖 moving between the icons with the keys ⬆ and ⬇ and press ENTER.

Pressing ⬆ and ⬇ it is possible to read the last 99 alarms. The function of reset of all alarms RST ALL is only possible by service people.
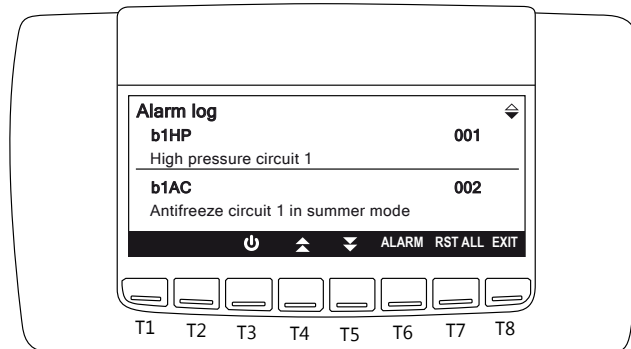
2.7.8 Defrost

To enter this menu select ❄ moving between the icons with the keys ⬆ and ⬇ and press ENTER.

For each circuit it is possible to read the status of the defrost and, after selecting the circuit, pressing the ENTER key it is possible to display some parameters relating to the defrosting of the circuit (values related to the probes and to the set points).
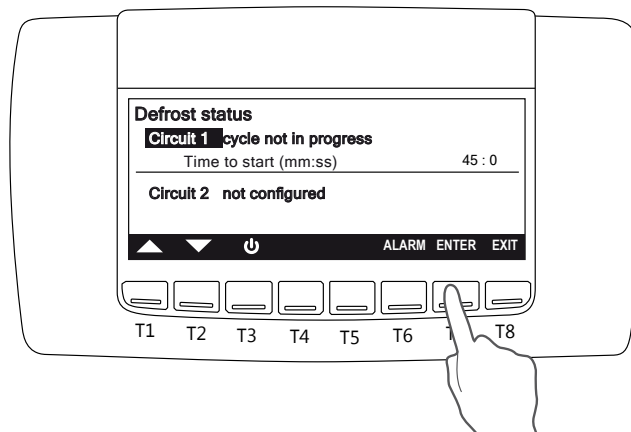
Press ⬆ and ⬇ to display all the available parameters.

Defrost circ. 1:	cycle not in progress	⬍
Condenser 1 probe	36.2 bar	
Evaporator 1 probe	N.C.	
Defrost start set	6.0 bar	
Reale defrost set point	7.0 bar	

❄ ⏻ ⬆ ⬇ ALARM EXIT

T1 T2 T3 T4 T5 T6 T7 T8

Defrost circ. 1:	cycle not in progress	⬍
Defrost end set	36.2 bar	
Combined defrost probe	N.C.	
Combined defrost start set	6.0 bar	
Combined defrost end set	7.0 bar	

❄ ⏻ ⬆ ⬇ ALARM EXIT

T1 T2 T3 T4 T5 T6 T7 T8
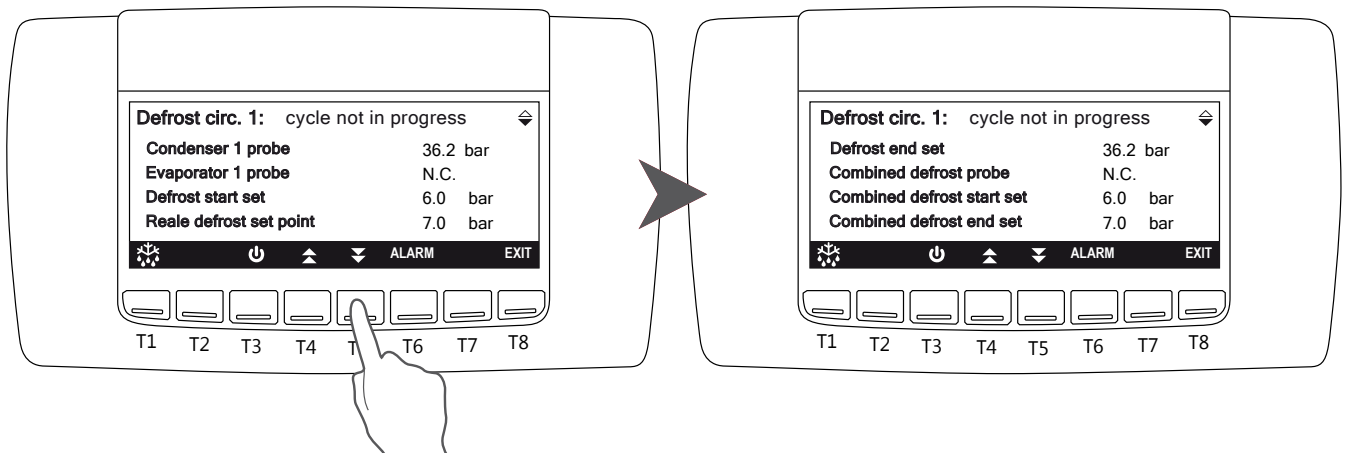
2.7.9 Eletrical heater

To enter this menu select ⬆ moving between the icons with the keys ⬆ and ⬇ and press ENTER .
It is possible to read the status of the electrical heaters.

Heaters	Liquid solenoid valves	⬍
R1 〰 OFF	SV1 Not configured	
R1 Not configured	SV2 Not configured	

⏻ ⬆ ⬇ ALARM EXIT

T1 T2 T3 T4 T5 T6 T7 T8
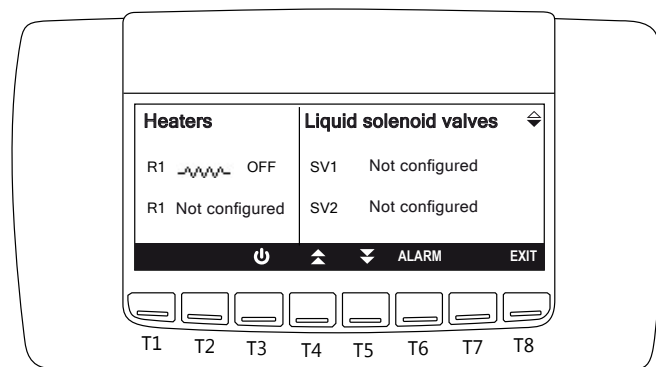
2.7.10 I/O Status (Input/Output)

To enter this menu select **I/O** moving between the icons with the keys ⬆ and ⬇ and press ENTER .
It is possible to display: probes status, analog input and output, digital input and output.

I/O Status
Analog input
Analog output
Digital input
Digital output

⬆ ⬇ ⏻ ALARM ENTER EXIT

T1 T2 T3 T4 T5 T6 T7 T8
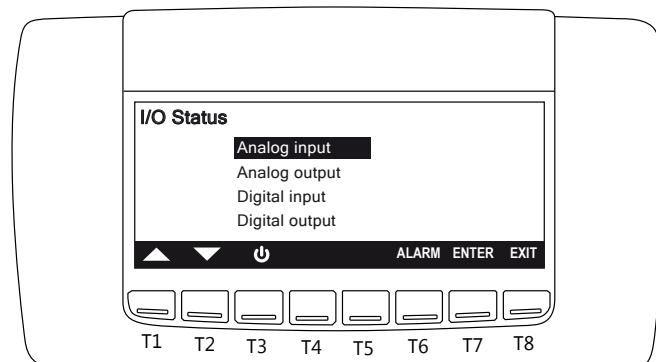
2.7.11 Screw compressor (If available)

To enter this menu select [icon] moving between the icons with the keys [up] and [down] and press `ENTER`.

In the main screen it is possible to display the discharge temperature and the liquid injection set point. Press [up] and [down] keys to select the required circuit than press `ENTER` key to read the discharge temperature and the status of the valves.
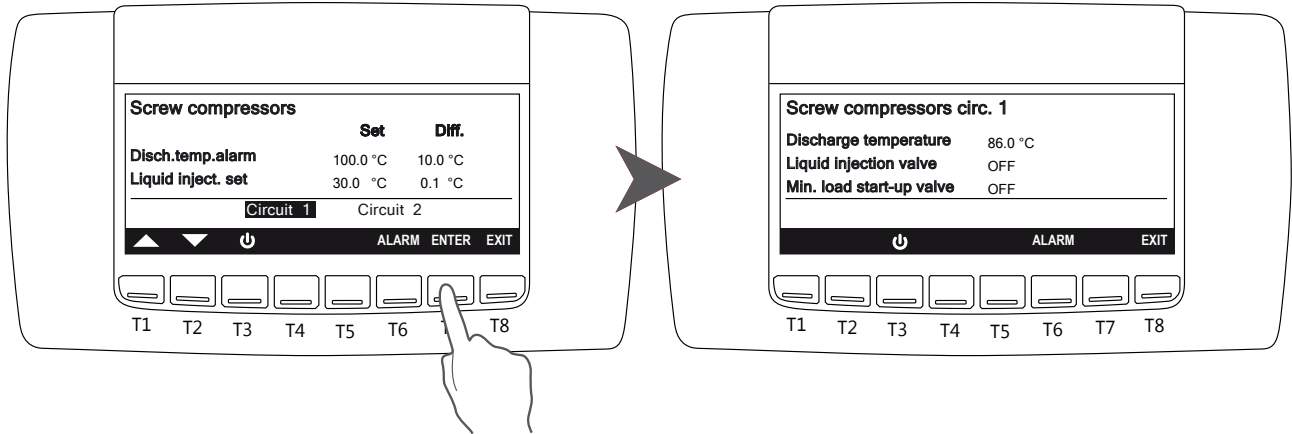
2.7.12 Auxiliary output

To enter this menu select [AUX] moving between the icons with the keys [up] and [down] and press `ENTER`.

It is possible to read informations about auxiliary outputs.
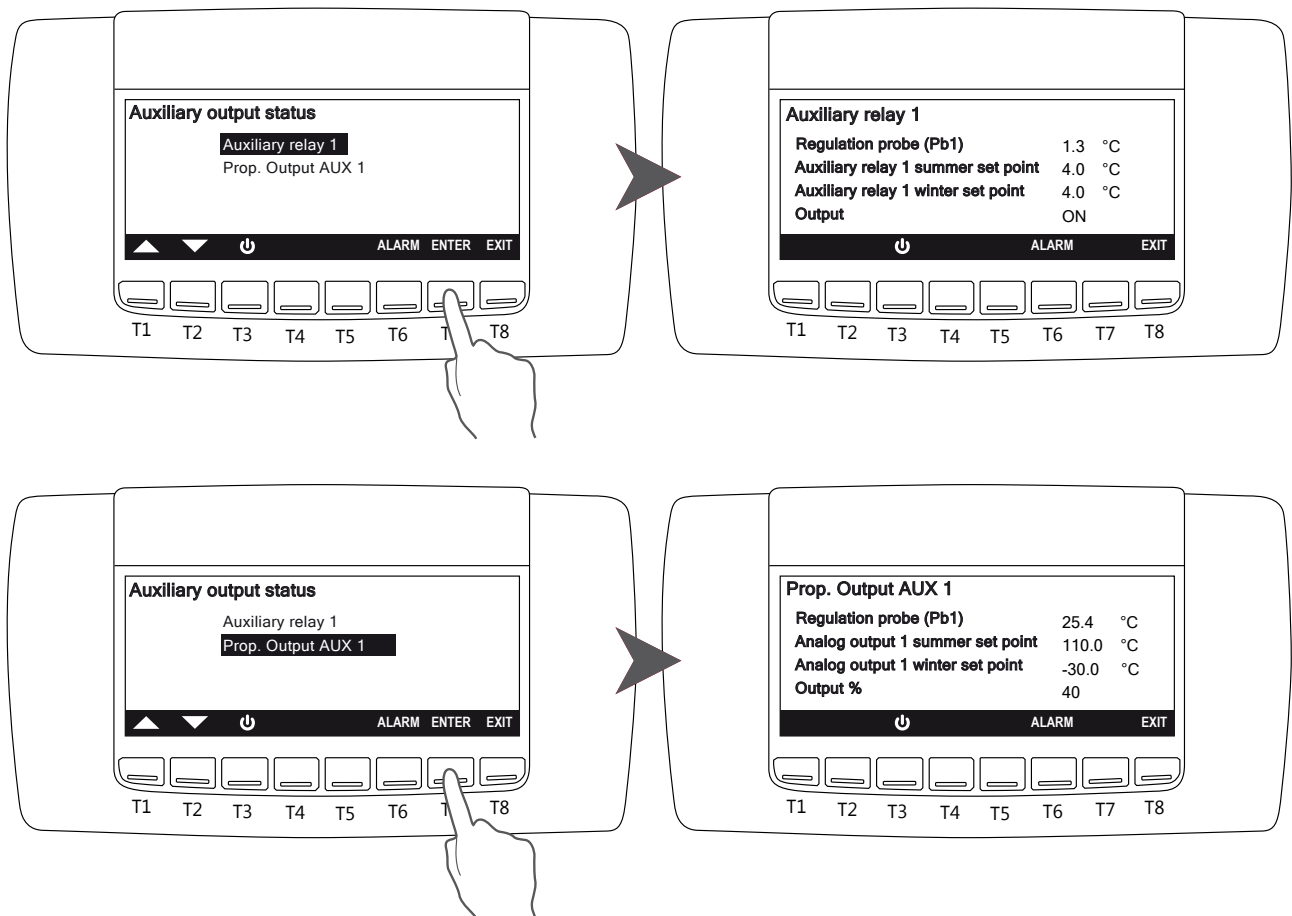
2.7.13 Sanitary water

To enter this menu select moving between the icons with the keys ▲ and ▼ and press ENTER .

It is possible to read informations of the sanitary water regulation. Press SET key to modify the values.
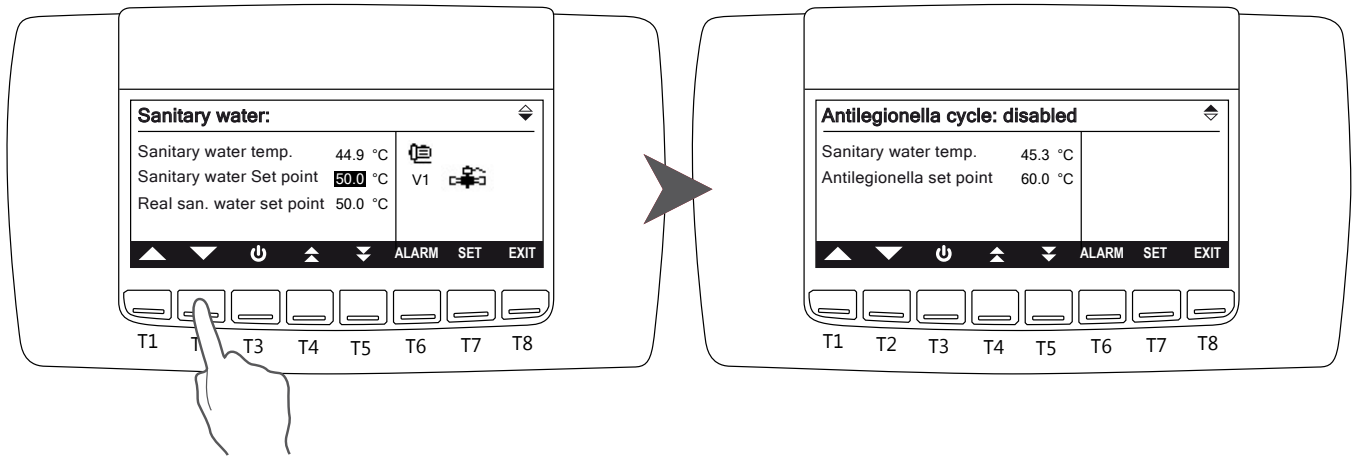
2.7.14 Upload / download

To enter this menu select HOTKEY moving between the icons with the keys ▲ and ▼ and press ENTER .
This function is allowed only to the service.
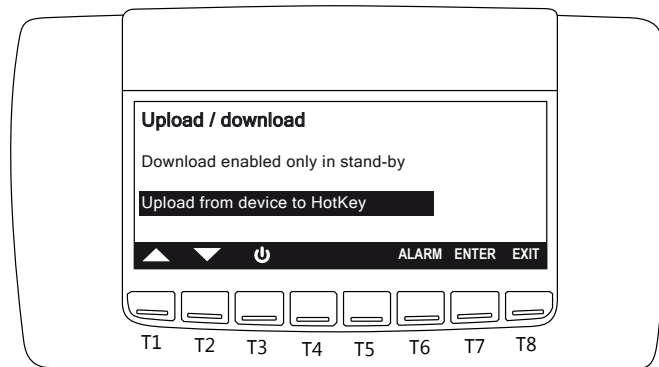
2.7.15 Control panel

To enter this menu select moving between the icons with the keys ▲ and ▼ and press ENTER .
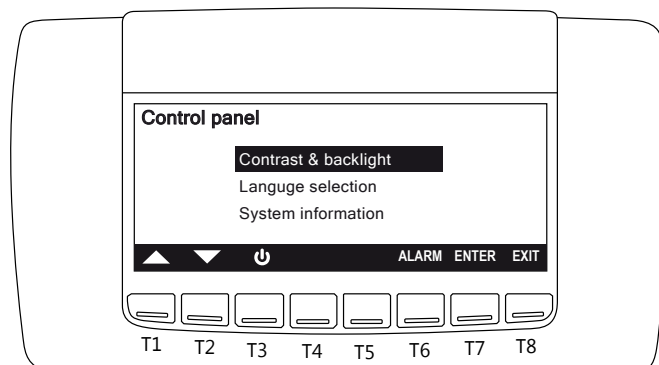
2.8 Acoustic signal silencing

Pressing and releasing one of the keys; the buzzer is switched off, even if the alarm condition remains in place.

3. DIAGNOSIS AND TROUBLESHOOTING

3.1 Fault finding

All units are checked and tested at the factory before shipment, however, during operation an anomaly or failure can occur.

> ⚠️ BE SURE TO RESET AN ALARM ONLY AFTER YOU HAVE REMOVED THE CAUSE OF THE FAULT; REPEA-TED RESET MAY RESULT IN IRREVOCABLE DAMAGE TO THE UNIT.

Code	Alarm Description	Cause	Solution
ACF1	Configuration alarm	Wrong configuration of microprocessor control system.	Contact the company.
ACF2	Configuration alarm		
ACF3	Configuration alarm		
ACF4	Configuration alarm		
ACF5	Configuration alarm		
ACF6	Configuration alarm		
ACF7	Configuration alarm		
ACF8	Configuration alarm		
ACF9	Configuration alarm		
AEE	Eeprom alarm	Severe hardware damage in the microprocessor control system.	Switch OFF the unit and, after few second switch ON the unit; if the alarm appears again contact the service.
AEFL	User water flow switch alarm	Presence of air or dirtiness in the user hydraulic system.	Bleed carefully the user hydraulic system or check and clean the water strainer.
AEUn	Compressor unloading alarm (only units with 2 compressors)	User water temperature is too high.	Wait until the user water temperature is lower.
AHFL	Domestic hot water flow switch alarm	Presence of air or dirtiness in the user hydraulic system.	Bleed carefully the user hydraulic system or check and clean the water strainer.

Code	Alarm Description	Cause	Solution
AP1	Alarm user inlet water temperature sensor	Wrong electrical connection, Sensor defect.	Check the electrical connection of the sensor to the terminal board, if correct call the service to replace the sensor.
AP10	Alarm safety domestic hot water sensor		
AP2	Alarm user outlet water temperature sensor		
AP3	Alarm pressure transducer		
AP4	Alarm finned coil sensor / defrost sensor		
AP5	Alarm domestic hot water inlet temperature sensor		
AP6	Alarm domestic hot water outlet temperature sensor		
AP7	Alarm ambient sensor	Wrong electrical connection, Sensor defect.	Check the electrical connection of the sensor to the terminal board, if correct call the service to replace the sensor.
AP8	Not used		
AP9	Not used		
AtE1	Evaporator water pump 1 overload		
AtE2	Evaporator water pump 2 overload		
B1 HP	High pressure switch circuit 1	In heating mode: Insufficient user circuit water flow; Insufficient domestic hot water circuit water flow. In cooling mode: Insufficient air flow at the source fan; Insufficient domestic hot water circuit water flow.	Restore the correct user circuit water flow. Restore the correct domestic hot water circuit water flow. Restore the correct air flow to spurce fan. Restore the correct domestic hot water circuit water flow.
b1AC	Anti-freeze alarm circuit 1 (cooling mode)	Too low water temperature	Check user temperature set point; Check user water flow.
b1AH	Anti-freeze alarm circuit 1 (heating mode)	Too low water temperature	Check user temperature stet point.
b1dF	Wrong defrost circuit 1 (maximum time admitted)	Defrost time too long; Outside temperature outside the working limits; Refrigerant charge leakage.	Check defrost set point; Restore normal working conditions; Find leakage and repair.
b1hP	High pressure transducer alarm circuit 1	Transducer defect	Replace the faulty transducer.
B1LP	Low pressure switch circuit 1	Refrigerant charge leakage.	Find leakage and repair.
b1IP	Low pressure transducer alarm circuit 1	Transducer defect	Replace the faulty transducer.

b1tF	Overload source fan alarm	Fan input current outside operation limits.	Check the proper operation of the source fan and, in case replace it.
C1tr	Compressor 1 overload	Compressor 1 input current outside operation limits.	Replace the compressor.
C2tr	Compressor 2 overload	Compressor 1 input current outside operation limits.	Replace the compressor.

TABLE OF THE PARAMETERS

Parameter	Description	min	max	u.m.	Resolution
ST 1	Chiller Setpoint	ST02	ST03	°C/°F	dec/int
ST 2	Chiller Setpoint	-50.0 -58	ST01	°C °F	dec/int
ST 3	Chiller maximum Setpoint	ST01	110.0 230	°C °F	dec/int
ST 4	Heat pump setpoint	ST05	ST06	°C/°F	dec/int
ST 5	Heat pump minimum Setpoint	-50.0 -58	ST04	°C °F	Dec int
ST 6	Heat pump maximum Setpoint	ST04	110.0 230	°C °F	Dec int
ST 7	Regulation band in chiller mode	0.1 0	25.0 45	°C °F	Dec int
ST 8	Regulation band in chiller heat pump	0.1 0	25.0 45	°C °F	Dec int
ST 9	Thermoregulation probe selection in chiller 0= Temperature probe NTC for evaporator inlet 1= Temperature probe NTC for evaporator outlet 1 2= Temperature probe NTC for evaporator outlet 2 3= Temperature probe NTC for common evaporator outlet 4= Temperature NTC probe from remote panel 1 5= Temperature NTC probe from remote panel 2	0	5		
ST 10	Thermoregulation probe selection in heat pump 0= Temperature probe NTC for evaporator inlet 1= Temperature probe NTC for evaporator outlet 1 2= Temperature probe NTC for evaporator outlet 2 3= Temperature probe NTC for common evaporator outlet 4= Temperature NTC probe from remote panel 1 5= Temperature NTC probe from remote panel 2 6= Temperature probe for water common inlet of the condenser 7= Temperature probe for water inlet of the circuit # 1 condenser 8= Temperature probe for water inlet of the circuit # 2 condenser 9= Temperature probe for water outlet of the circuit # 1 condenser 10= Temperature probe for water outlet of the circuit # 2 condenser 11= Temperature probe for water common otlet of the condenser ATTENTION To have the same thermoregulation for chiller and heat pump mode, set the parameters ST09 and ST10 with the same value	0	11		
ST 11	Type of thermoregulation 0= Proportional 1= Neutral zone	0	1		
Pr1	Password	0	999		
Pr2	Password	0	999		
Pr3	Password	0	999		

Display read-out					
Parameter	Description	min	max	M. u.	Resolution
dP 1	Default read-out of the top display	0	24		
dP 2	Default read-out of the bottom display	0	28		
dP 3	Default display read-out configuration top / bottom 0= Configurable 1= Top display: Evaporator IN, Bottom display: Evaporator OUT 2= Top display: Condenser IN, Bottom display: Condenser OUT 3=Top display: temperature/Condensing pressure, Bottom Display: evaporating pressure	0	3		
dP4	Top display default read-out of the remote terminal_1 0= the read-out depends on the paremeters dP01 – dP02 – dP03 1= the read-out shows the NTC probe of the remote panel.	0	1		

Parameter	Description	min	max	M. u.	Resolution
dP5	Top display default read-out of the remote terminal_2 0= the read-out depends on the paremeters dP01 – dP02 – dP03 1= the read-out shows the NTC probe of the remote panel.	0	1		
dP6	Not used	0	33		
dP7	Not used	0	33		
dP8	Not used	0	33		
dP9	Not used	0	33		
	Config uration				
Parameter	Description	min	max	M. u.	Resolution
	Unit Mode l				
CF 1	Type of unit 0= Air / air Chiller 1= Air / water Chiller 2= Water / water Chiller	0	2		
CF 2	Selection type rof unit 1= only chiller 2= only heat pump 3= chiller and heat pump	1	3		

Parameter	Description	min	max	M. u.	Resolution
CF 3	Condensing unit 0= no 1= si	0	1		
	Compr essors				
CF 4	Compressors number for circuit 1 1= 1 2= 2 3= 3 4= 4	0	4		
CF 5	Compressors number for circuit 2 0= 0 1= 1 2= 2 3= 3	0	3		
CF 6	Number of compressor parzialization 0= none 1= 1 2= 2 3= 3	0	3		
	Analog Inputs				
CF 7	Pressure or temperature analogue input functioning 0 = Temperature / pressure NTC – 4÷20 mA : The condensing temperature is controlled with NTC probe while for the evaporating pressures of the circuits 1 and 2 and the pressure probe configured as auxiliary output 1 and 2 are controlled with 4÷20mA transducers. 1 = Pressure control with 4÷20 mA: To control the evaporating and condensing pressures it is necessary a 4÷20mA transducer. 2 = Temperature / pressure NTC – 0÷5Vdc: The condensing temperature is controlled with NTC probe while for the evaporating pressures of the circuits 1 and 2 and the pressure probe configured as auxiliary output 1 and 2 are controlled with 0÷5Vdc transducers. 3 = Pressure control with 0÷5Vdc: To control the evaporating and condensing pressures it is necessary a ratiometric 0÷5Vdc transducer.	0	3		
CF 8	PB1 Configuration If configured as digital input	0 o 1	36 C91		
CF 9	PB2 Configuration If configured as digital input	0 o 1	36 C91		
CF 10	PB3 Configuration If configured as digital input	0 o 1	45 C91		

CF 11	PB4 Configuration If configured as digital input	0 o 1	45 C91			
CF 12	PB5 Configuration If configured as digital input	0 o 1	45 C91			
CF 13	PB6 Configuration If configured as digital input	0 o 1	45 C91			
CF 14	PB7 Configuration If configured as digital input	0 o 1	36 C91			
CF 15	PB8 Configuration If configured as digital input	0 o 1	36 C91			
CF 16	PB9 Configuration If configured as digital input	0 o 1	36 C91			
CF 17	PB10 Configuration If configured as digital input	0 o 1	36 C91			
	Probe Offset					
CF 18	PB1 Offset	-12.0 -21	12.0 21	°C °F	Dec int	
CF 19	PB2 Offset	-12.0 -21	12.0 21	°C °F	Dec int	
CF 20	PB3 Offset	-12.0 -21 -5.0 -72	12.0 21 5.0 72	°C ° F b a r psi	Dec int dec int	
CF 21	PB4 Offset	-12.0 -21 -5.0 -72	12.0 21 5.0 72	°C ° F b a r psi	Dec int dec int	
CF 22	PB5 Offset	-12.0 -21 -5.0 -72	12.0 21 5.0 72	°C ° F b a r psi	Dec int dec int	
CF 23	PB6 Offset	-12.0 -21 -5.0 -72	12.0 21 5.0 72	°C ° F b a r psi	Dec int dec int	
CF 24	PB7 Offset	-12.0 -21	12.0 21	°C °F	Dec int	
CF 25	PB8 Offset	-12.0 -21	12.0 21	°C °F	Dec int	
CF 26	PB9 Offset	-12.0 -21	12.0 21	°C °F	Dec int	
CF 27	PB10 Offset	-12.0 -21	12.0 21	°C °F	Dec int	
CF 28	Pressure value at 4mA or 0.5 Vdc of the PB3 transducer	0 0	50.0 725	Bar psi	Dec int	

CF 29	Pressure value at 20mA or 5 Vdc of the PB3 transducer	0 0	50.0 725	Bar psi	Dec int	
CF 30	Pressure value at 4mA or 0.5 Vdc of the PB4 transducer	0 0	50.0 725	Bar psi	Dec int	
CF 31	Pressure value at 20mA or 5 Vdc of the PB4 transducer	0 0	50.0 725	Bar psi	Dec int	
CF 32	Pressure value at 4mA or 0.5 Vdc of the PB5 transducer	0 0	50.0 725	Bar psi	Dec int	
CF 33	Pressure value at 20mA or 5 Vdc of the PB5 transducer	0 0	50.0 725	Bar psi	Dec int	
CF 34	Pressure value at 4mA or 0.5 Vdc of the PB6 transducer	0 0	50.0 725	Bar psi	Dec int	
CF 35	Pressure value at 20mA or 5 Vdc of the PB6 transducer	0 0	50.0 725	Bar psi	Dec int	
	Digital Inputs					

CF 36	Configuration of ID1	0	c91		
CF 37	Configuration of ID2	0	c91		
CF 38	Configuration of ID3	0	c91		
CF 39	Configuration of ID4	0	c91		
CF 40	Configuration of ID5	0	c91		
CF 41	Configuration of ID6	0	c91		
CF 42	Configuration of ID7	0	c91		
CF 43	Configuration of ID8	0	c91		
CF 44	Configuration of ID9	0	c91		
CF 45	Configuration of ID10	0	c91		
CF 46	Configuration of ID11	0	c91		
CF 47	Configuration of ID12	0	c91		
CF 48	Configuration of ID13	0	c91		
CF 49	Configuration of ID14	0	c91		
CF 50	Configuration of ID15	0	c91		
CF 51	Configuration of ID16	0	c91		
CF 52	Configuration of ID17	0	c91		
CF 53	Configuration of ID18	0	c91		
	Relay Outputs				
CF 54	Configuration of RL1	0	c89		
CF 55	Configuration of RL2	0	c89		
CF 56	Configuration of RL3	0	c89		
CF 57	Configuration of RL4	0	c89		
CF 58	Configuration of RL5	0	c89		
CF 59	Configuration of RL6	0	c89		
CF 60	Configuration of RL7	0	c89		
CF 61	Configuration of RL8	0	c89		
CF 62	Configuration of RL9	0	c89		
CF 63	Configuration of RL10	0	c89		
CF 64	Configuration of RL11	0	c89		
CF 65	Configuration of RL12	0	c89		
CF 66	Configuration of RL13	0	c89		
CF 67	Configuration of RL14	0	c89		
	Condensing proportional				
CF 68	Circuit 1 output signal: 0= 0 – 10Vdc 1= 4 ÷ 20mA 2= PWM for mono phase fan control board	0	2		
CF 69	Circuit 2 output signal: 0= 0 – 10V 1= 4 ÷ 20Ma 2= PWM for mono phase fan control board	0	2		
	Proportional				

CF 70	Proportional output "out 3" 0= Not enabled 1= Modulated evaporator water pump 2= Modulated Free cooling valve 3= Not used 4= Auxiliary output 0÷10V n° 1 5= Auxiliary output 0÷10V n° 2 6= Proportional output for inverter compressor 1 (circuit1) 7= Proportional output for inverter compressor 2 (circuit 2) Relay driver ON / OFF	0 o 1	7 c59		
CF 71	Proportional output "out 4" 0= Not enabled 1= Modulated evaporator water pump 2= Modulated Free cooling valve 3= Not used 4= Auxiliary output 0÷10V n° 1 5= Auxiliary output 0÷10V n° 2 6= Proportional output for inverter compressor 1 (circuit1) 7= Proportional output for inverter compressor 2 (circuit 2) Relay driver ON / OFF	0 o 1	7 c59		
CF 72	Proportional output "out 5" 0= Not enabled 1= Modulated evaporator water pump 2= Modulated Free cooling valve 3= Not used 4= Auxiliary output 0÷10V n° 1 5= Auxiliary output 0÷10V n° 2 6= Proportional output for inverter compressor 1 (circuit1) 7= Proportional output for inverter compressor 2 (circuit 2) Relay driver ON / OFF	0 o 1	7 c59		
CF 73	Proportional output "out 6" 0= Not enabled 1= Modulated evaporator water pump 2= Modulated Free cooling valve 3= Not used 4= Auxiliary output 0÷10V n° 1 5= Auxiliary output 0÷10V n° 2 6= Proportional output for inverter compressor 1 (circuit1) 7= Proportional output for inverter compressor 2 (circuit 2) Relay driver ON / OFF	0 o 1	7 c59		
	Remote keyboard				
CF 74	Remote keyboard 1 configuration 0= Not enabled 1= Enabled model with ambient temperature sensor 2= Enabled model without ambient temperature sensor	0	2		
CF 75	Remote Panel 2 configuration 0= Not enabled 1= Enabled model with ambient temperature sensor 2= Enabled model without ambient temperature sensor	0	2		
CF 76	Offset of the probe of the remote terminal 1	-12.0 -21	12.0 21	°C °F	Dec int
CF 77	Offset of the probe of the remote terminal 2	-12.0 -21	12.0 21	°C °F	Dec int
	Icon functio n				
CF 78	Icon function 0= chiller / heat pump 1= chiller / heat pump	0	1		
	Chiller / heat pump selection mode				
CF 79	0= Chiller / Heat pump selection by keyboard 1= Chiller / Heat pump selection by digital input 2= Chiller / Heat pump selection by analogue input	0	2		
	Automatic Change over				
CF 80	Automatic change over setpoint for chiller/ heat pump selection (CF79 = 2)	-50.0 -58	110.0 230	°C °F	Dec int
CF 81	Automatic change over differential (CF79 = 2)	0.1 0	25.0 45	°C °F	Dec int
	Unit of measurement				
CF 82	°C or °F selection 0= °C / °BAR 1= °F / °psi	0	1		

		Supply voltage frequency				
CF 83	Power supply frequency 0= 50 Hz 1= 60 Hz 2= Vcc power supply (ATTENTION When CF83 = 2 the proportional outputs for fan control are not enabled and the frequency alarm is inhibited)		0	2		
		Serial Address				
CF 84	Serial Modbus address		1	247		
CF 85	Firmware Release (only reading)					
CF 86	Eeprom parameter map (only reading)					
		Regulation of unbalanced compressors (different power)				
CF 87	Compressor 1 capacity		0	100%		
CF 88	Compressor 2 capacity		0	100%		
CF 89	Compressor 3 capacity		0	100%		
CF 90	Compressor 4 capacity		0	100%		
CF 91	Compressor 5 capacity		0	100%		
CF 92	Compressor 6 capacity		0	100%		
CF 93	Maximum number of start up of the compressor in 15 minutes 0= Not enabled		0	15		
		Working mode of the compressor				
CF 94	Working mode of the compressor 0 = chiller and heat pump 1 = only chiller 2 = only heat pump		0	2		
		Hybrid exchangers				
CF 95	Enable hybrid exchangers		0	1		
		Buzzer presence				
CF 96	Buzzer presence (0=disabled, 1=enabled)		0	1		
		Chiller operations				

		Chiller operations				
CF 97	Chiller operation (1=only compressor; 2=only Free cooling; 3=compressors and Free cooling)		0	3		
		Dynamic Setpoint				
Parameters	Description		min	max	M. u.	Resolution
Sd 1	Maximum dynamic Offset in chiller mode		-30.0 -54	30.0 54	°C °F	Dec int
Sd 2	Maximum dynamic Offset in heat pump mode		-30.0 -54	30.0 54	°C °F	Dec int
Sd 3	External air setpoint in chiller mode		-50.0 -58	110.0 230	°C °F	Dec int
Sd 4	External air setpoint in heat pump mode		-50.0 -58	110.0 230	°C °F	Dec int
Sd 5	External air differential in chiller mode		-30.0 -54	30.0 54	°C °F	Dec int
Sd 6	External air differential in heat pump mode		-30.0 -54	30.0 54	°C °F	Dec int
Sd 7	Dynamic set point: summer offset analog 1		-30.0 -54	30.0 54	°C °F	Dec int

Sd 8	Dynamic set point: winter offset analog 1	-30.0 -54	30.0 54	°C °F	Dec int
Sd 9	Summer outside temperature analog 1	-50.0 -58	110.0 230	°C °F	Dec int
Sd 10	Winter outside temperature analog 1	-50.0 -58	110.0 230	°C °F	Dec int
Sd 11	Summer outside temp. differential analog 1	-30.0 -54	30.0 54	°C °F	Dec int
Sd 12	Winter outside temp. differential analog 1	-30.0 -54	30.0 54	°C °F	Dec int
Sd 13	Dynamic set point: summer offset analog 2	-30.0 -54	30.0 54	°C °F	Dec int
Sd 14	Dynamic set point: winter offset analog 2	-30.0 -54	30.0 54	°C °F	Dec int
Sd 15	Summer outside temperature analog 2	-50.0 -58	110.0 230	°C °F	Dec int
Sd 16	Winter outside temperature analog 2	-50.0 -58	110.0 230	°C °F	Dec int
Sd 17	Summer outside temp. differential analog 2	-30.0 -54	30.0 54	°C °F	Dec int
Sd 18	Winter outside temp. differential analog 2	-30.0 -54	30.0 54	°C °F	Dec int
Sd 19	Dynamic set point: summer offset relay AUX1	-30.0 -54	30.0 54	°C °F	Dec int
Sd 20	Dynamic set point: winter offset relay AUX1	-30.0 -54	30.0 54	°C °F	Dec int
Sd 21	Summer outside temperature relay AUX1	-50.0 -58	110.0 230	°C °F	Dec int
Sd 22	Winter outside temperature relay AUX1	-50.0 -58	110.0 230	°C °F	Dec int
Sd 23	Summer temperature differential relay AUX1	-30.0 -54	30.0 54	°C °F	Dec int
Sd 24	Winter temperature differential relay AUX1	-30.0 -54	30.0 54	°C °F	Dec int
Sd 25	Dynamic set point: summer offset relay AUX2	-30.0 -54	30.0 54	°C °F	Dec int
Sd 26	Dynamic set point: winter offset relay AUX2	-30.0 -54	30.0 54	°C °F	Dec int
Sd 27	Summer outside temperature relay AUX2	-50.0 -58	110.0 230	°C °F	Dec int
Sd 28	Winter outside temperature relay AUX2	-50.0 -58	110.0 230	°C °F	Dec int
Sd 29	Summer temperature differential relay AUX2	-30.0 -54	30.0 54	°C °F	Dec int
Sd 30	Winter temperature differential relay AUX2	-30.0 -54	30.0 54	°C °F	Dec int

Energy saving					
Parameters	**Description**	**min**	**max**	**udm**	**Risoluzione**
ES 1	Start of the Time band 1 (0÷24)	0	24.00	Hr	10 Min
ES 2	End of the Time Band 1 (0÷24)	0	24.00	Hr	10 Min
ES 3	Start of the Time band 2 (0÷24)	0	24.00	Hr	10 Min
ES 4	End of the Time Band 2 (0÷24)	0	24.00	Hr	10 Min
ES 5	Start of the Time band 3 (0÷24)	0	24.00	Hr	10 Min
ES 6	End of the Time Band 3 (0÷24)	0	24.00	Hr	10 Min
ES 7	Monday: energy saving activated Automatic unit on-off	0 - 0	7 - 7		

ES 8	Tuesday energy saving activated Automatic unit on-off	0 - 0	7 - 7		
ES 9	Wednesday energy saving activated Automatic unit on-off	0 - 0	7 - 7		
ES 10	Thursday energy saving activated Automatic unit on-off	0 - 0	7 - 7		
ES 11	Friday energy saving activated Automatic unit on-off	0 - 0	7 - 7		
ES 12	Saturday energy saving activated Automatic unit on-off	0 - 0	7 - 7		
ES 13	Sunday energy saving activated Automatic unit on-off	0 - 0	7 - 7		
ES 14	Energy Saving setpoint offset in chiller mode	-30.0 -54	30.0 54	°C °F	Dec int
ES 15	Energy Saving differential in chiller mode	0.1 0	25.0 45	°C °F	Dec int
ES 16	Energy Saving setpoint offset in heat pump mode	-30.0 -54	30.0 54	°C °F	Dec int
ES 17	Energy Saving differential in heat pump mode	0.1 0	25.0 45	°C °F	Dec int
ES 18	Maximum ON time when the unit is switched on by keyboard starting from OFF state by RTC 0= Not enabled	1	250	Min	10 Min
ES 19	Start of the Time band 1 Sanitary water (0÷24)	0	24.00	Hr	10 Min
ES 20	End of the Time band 1 Sanitary water (0÷24)	0	24.00	Hr	10 Min
ES 21	Start of the Time band 2 Sanitary water (0÷24)	0	24.00	Hr	10 Min
ES 22	End of the Time band 2 Sanitary water (0÷24)	0	24.00	Hr	10 Min
ES 23	Start of the Time band 3 Sanitary water (0÷24)	0	24.00	Hr	10 Min
ES 24	End of the Time band 3 Sanitary water (0÷24)	0	24.00	Hr	10 Min
ES 25	Monday: Sanitary water 2nd set point activation	0	7		
ES 26	Tuesday: Sanitary water 2nd set point activation	0	7		
ES 27	Wednesday: Sanitary water 2nd set point activation	0	7		
ES 28	Thursday: Sanitary water 2nd set point activation	0	7		
ES 29	Friday: Sanitary water 2nd set point activation	0	7		
ES 30	Saturday: Sanitary water 2nd set point activation	0	7		
ES 31	Sunday: Sanitary water 2 set point activation	0	7		
ES 32	2nd set point Sanitary water offset	-30.0 -54	30.0 54	°C °F	Dec int
ES 33	2nd set point Sanitary water differential	0.1 0	25.0 45	°C °F	Dec int
Compressors rack					
Cr1	Type of functioning compressor rack 0= Not enabled 1= regulation by ST09 probe 2 = regolation by pressure probe (Evaporator pressure probe)	0	2		
Cr2	Set point compressor suction probe	Cr03	Cr04	Bar Psi	Dec int
Cr3	Minimum set point compressor suction probe	0	Cr03	Bar Psi	Dec int
Cr4	Maximum set point compressor suction probe	Cr03	50 725	Bar Psi	Dec int
Cr5	Regulation band suction probe	0.1 1	14.0 203	Bar Psi	Dec int
Cr6	Set energy saving compressor rack	0.0 0	50.0 725	Bar psi	Dec int

		min	max	udm	Risoluzione
Cr7	Differential energy savingcompressor rack	0.1 1	14.0 203	Bar Psi	Dec int
Cr8	Number of compressors enabled in case of failure probe 0 ÷ 6	0	6		
Cr9	Number od ventilation step in case of failure probe 0 ÷ 4	0	4		

Compr essors					
Parameters	Description	min	max	udm	Risoluzione
CO 1	Minimum compressor ON time after the start-up.	0	250	10 sec	10 sec
CO 2	Minimum compressor OFF time after the switching off.	0	250	10 sec	10 sec
CO 3	ON delay time between two compressors or compressor and valve. During this time the led of the next resource is blinking.	1	250	Sec	
CO 4	OFF delay time between two compressors or compressor and valve. During this time the led of the next resource is blinking.	0	250	Sec	
CO 5	Output time delay after the main power supply start-up to the unit. All the loads are delayed in case of frequently power failures.	0	250	10 Sec	10 sec

Capacity Control					
CO 6	Functioning (see Capacity Control) 0= With on/off steps 1= Continuous with steps and direct action 2= Continuous with steps and reverse action 3= Continuous with steps and direct total action	0	3		
CO 7	Start-up with minimum compressor power / automatic start-unloading valve 0 = Only at the compressor start-up (Minimum power automatic start-unloading valve off) 1= At the compressor start-up and during the termoregulation (Minimum power / automatic start-unloading valve off) 2 = Only at the screw compressor start-up (Minimum power automatic start-unloading valve off) 3= At the compressor start-up and during the termoregulation (Minimum power / Unloading valve ON with compressor off)	0	3		
CO 8	Relay ON time of the Solenoid valve Intermittent for screw compressor, with 0 the function is not enabled.	0	250	Sec	
CO 9	Relay OFF time of the Solenoid valve Intermittent for screw compressor	0	250	Sec	

Compressor start-up					
CO 10	Kind of compressor start-up 0= Direct (vedi avviamento compressors) 1= Part - winding 2= Star-delta	0	2		
CO 11	If CO10= 1 part - winding start-up time. To change the time delay between the two contactors of the two compressor circuits. Se CO10= 2 Star-delta start-up time. To change the time delay between the contactor of the line 1 and the contactor of the centre of the star. (see part – winding /start- triangle functioning)	0	100	1/10 Sec	0.1 sec
CO 12	If CO10= 2 Time of Star-delta start. Time delay to turn off the centre star contactor and to turn on the line 2 contactor (see Star-delta functioning)	0	50	1/10 Sec	0.1 sec
CO 13	By-pass gas valve start-up time / automatic start-unloading valve (capacity step control)	0	250	sec	

Rotating – Balancing – Compressors Thermoregulation					
CO 14	Compressor rotation (See compressor rotation) 0 = Sequential 1 = Compressors rotation based on time running hours 2 = Compressors rotation based on number of starts-up	0	2		
CO 15	Circuit balancing (See Circuit balancing) 0= Circuit saturation 1= Circuit balancing	0	1		

Evaporator water pump					

CO 16	Operative mode of the evaporator pump / supply fan (See Evaporator pump function) 0= Not enabled (evaporator pump or supply fan). 1= Continuous. When the unit is running in Chiller or HP the pump or the supply fan is running. 2= With compressor. When a compressor is running also the pump or the supply fan is running.	0	2		
CO 17	ON compressor delay after water pump / supply fan start-up (See water pump functioning).	1	250	10 sec	
CO 18	OFF delay evaporator water pump / supply fan after compressor switching OFF. This delay is also active when the unit is turned in stand-by (See evaporator water pump function).	0	250	Min	
CO 19	Number of time running hours for pump rotation (See water pump group function)	0	999	10Hr	10Hr
CO 20	Time to make run the pumps together before rotating from one to the other (See water pump group function)	0	250	Sec	
	Condenser water pump				
CO 21	Operative mode for condenser water pump (See condenser water pump function) 0= Not enabled. 1= Continuous. When the unit is running in Chiller or HP the is running. 2= With compressor. When a compressor is running also the pump is running.	0	2		
CO 22	Free				
CO 23	OFF delay condenser water pump after compressor switching OFF. This delay is also active when the unit is turned in stand-by (See evaporator water pump function).	0	250	Min	
CO 24	Number of time running hours for pump rotation (See water pump group function).	0	999	10Hr	10Hr
CO 25	Time to make run the pumps together before rotating from one to the other (See water pump group function).	0	250	Sec	
	Load maintenance				
CO 26	Compressor 1 operation time to generate maintenance warning	0	999	10 Hr	10 Hr
CO 27	Compressor 2 operation time to generate maintenance warning	0	999	10 Hr	10 Hr
CO 28	Compressor 3 operation time to generate maintenance warning	0	999	10 Hr	10 Hr
CO 29	Compressor 4 operation time to generate maintenance warning	0	999	10 Hr	10 Hr
CO 30	Compressor 5 operation time to generate maintenance warning	0	999	10 Hr	10 Hr
CO 31	Compressor 6 operation time to generate maintenance warning	0	999	10 Hr	10 Hr
CO 32	"Evaporator pump / Supply fan" operation time to generate maintenance warning	0	999	10 Hr	10 Hr
CO 33	2nd Evaporator pump operation time to generate maintenance warning	0	999	10 Hr	10 Hr
CO 34	Condenser pump operation time to generate maintenance warning	0	999	10 Hr	10 Hr
CO 35	2nd Condenser pump operation time to generate maintenance warning	0	999	10 Hr	10 Hr
	Pump down				
CO 36	Pump down operating mode (See pump down ON/OFF function) 0= Not enabled 1= Unit off with pump–down, unit on without pump–down 2= Unit off with pump–down, unit on with pump–down 3= Chiller mode off with pump–down, chiller mode on without pump–down 4= Chiller mode off with pump–down, chiller mode on with pump–down	0	4		
CO 37	Pump–down pressure setpoint (See pump down ON/OFF function)	0 0	50.0 725	Bar psi	Dec int
CO 38	Pump-down pressure differential (See pump down ON/OFF function)	0.1 1	12.0 174	Bar psi	Dec int
CO 39	Maximum pump–down time duration at start-up and stop (See pump down ON/OFF function)	0	250	Sec	
	Evaporator Unloading				
CO 40	Unloading compressor setpoint in chiller. From high temperature of the evaporator water inlet (See unloading function).	-50.0 -58	110.0 230	°C °F	Dec int
CO 41	Unloading Differential. From high temperature of the evaporator water inlet (See unloading function).	0.1 0	25.0 45	°C °F	Dec int

CO 42	Delay time to engage the Unloading function from high temperature of the evaporator water inlet (See unloading function).	1	250	10 Sec	10sec
CO 43	Maximum unloading duration time to keep activated the Unloading function from high temperature of the evaporator water inlet (See unloading function).	0	250	Min	
	Condenser Unloading				
CO 44	Unloading compressor setpoint. From temperature / pressure in chiller mode (See unloading function).	0 0	50.0 725	Bar psi	Dec int
CO 45	Unloading Differential. From temperature / pressure in chiller mode (See unloading function).	0.1 1	14.0 203	Bar Psi	Dec int
CO 46	Unloading compressor setpoint. From temperature / pressure in HP mode (See unloading function).	0 0	50.0 725	Bar psi	Dec int
CO 47	Unloading Differential. From temperature / pressure in HP mode (See unloading function).	0.0 0	14.0 203	Bar Psi	Dec int
CO 48	Maximum unloading duration time from temperature/pressure control.	1	250	Min	
CO 49	Number of steps for circuit with active unloading 1= 1st step 2= 2nd step 3= 3rd step	1	3		
CO 50	Minimum ON time of the capacity step after the unloading function start (only for capacity compressor)	0	250	Sec	
	Compressor liquid injection				
CO 51	Setpoint of the liquid injection solenoid valve	0 0	150 302	°C °F	Dec / int int
CO 52	Differential of the liquid injection solenoid valve	0.1 1	25.0 45	°C °F	Dec int
	Management resource in neutral zone				
CO 53	Maximum time of work in neutral zone without insert resource	0	250	Min	10 Min
CO 54	Maximum time of work in neutral zone without rotation resource	0	999	Hr	1Hr
	Evaporator low water temperature Unloading				
CO 55	Set point unloading compressor from low evaporator water temperature	-50.0 -58	110.0 230	°C °F	Dec int
CO 56	Differential unloading compressor from low evaporator water temperature	0.1 0	25.0 45	°C °F	Dec int
CO 57	Maximum unloading duration time from low evaporator water temperature	0	250	Min	
	Pump down to time				
CO 58	maximum time pump-down in stopped CO58 = 0 Not enabled	0	250	Sec	
CO 59	maximum time pump-down in started CO59 = 0 Not enabled	0	250	Sec	
	Compressor inverter controlled				
CO 60	Maximum time start up compressor inverter controlled	0	250	sec	
CO 61	Minimum value proportional output from start up compressor	0	100	%	
CO 62	Minimum time capacity variation from start up compressor inverter controlled	0	250	sec	
CO 63	Minimum percentage continuative of work of the compressor inverter controlled before to start counting CO64 time	0	100	%	
CO 64	Maximum time continuative of work of the compressor with percentage less of CO63	0	250	Min	10 Min
CO 65	Time of forcing the compressor inverter controlled to the maximum power	0	250	sec	10sec
CO 66	Maximum time continuative of work of the compressor inverter controlled	0	999	Hr	1Hr

CO 67	Minimum value of the compressor 1 inverter controlled	0	CO68	%	
CO 68	Maximum value of the compressor 1 inverter controlled	CO67	100	%	
CO 69	Minimum value of the compressor 2 inverter controlled	0	CO70	%	
CO 70	Maximum value of the compressor 2 inverter controlled	CO69	100	%	
CO 71	Minimum time capacity variation compressor inverter controlled	1	250	sec	
Tamdem function					
CO 72	Maximum operating time of a single compressor	0	250	Min	
Load maintenance					
CO 73	Sanitary water pump hour counter	0	999	10 Hr	10 Hr
CO 74	Solar panel water pump hour counter	0	999	10 Hr	10 Hr
4 way valve					
CO 75	Forced time to reverse the 4 way valve when the compressor is switched off	0	250	sec	
Compressors capacity					
CO 76	Maximum number of compressors to use in Chiller	1	10		
CO 77	Maximum number of compressors to use in Heat pump	1	10		
CO 78	Maximum number of compressors to use in Sanitary water	1	10		
CO 79	Maximum % output of the inverter compressor in Chiller	1	100	%	
CO 80	Maximum % output of the inverter compressor in Heat pump	1	100	%	
CO 81	Maximum % output of the inverter compressor in Sanitary water	1	100	%	
CO 82	Outside temperature to reduce inverter compressor speed in Heat pump	-50.0 -58 0.0 0	110.0 230 50.0 725	°C °F Bar Psi	Dec int Dec int
CO 83	Hysteresis temperature to reduce inverter compressor speed in Heat pump	0.1 0 0.1 1	25.0 45 14.0 203	°C °F Bar Psi	Dec int Dec int
CO 84	Compressor speed if outside temperature > CO82	0	100	%	
CO 85	Evaporator water pump OFF time if the set point is reached	0	250	10 min	
CO 86	Evaporator water pump OFF time if the machine is STD-BY or OFF	0	250	10 Ore	
CO 87	Evaporator water pump ON time	0	250	Sec	10sec
CO 88	Condenser water pump OFF time if the set point is reached	0	250	10 min	
CO 89	Condenser water pump OFF time if the machine is STD-BY or OFF	0	250	10 Ore	
CO 90	Condenser water pump ON time	0	250	Sec	10sec

CO 91	Minimum time between to switch on of the compressor	0	250	Sec	
CO 92	Compressor activation delay starting from water solenoid valve activation	0	250	Sec	

CO 93	Water solenoid valve de-activation delay starting from compressor de-activation	0	250	Sec	
CO 94	% output of the inverter compressor in defrost	0	100	%	
CO 95	Free cooling water pump operation time to generate maintenance warning	0	999	10 Hr	10 Hr
CO 96	% output of the inverter compressor in unloading	0	100	%	
CO 97	Disable condenser water pump when the machine is working in chiller + domestic hot water 0= condenser pump enabled 1= condenser pump disabled	0	1		
Auxiliary relay menu function					
Auxiliary relay of the circuit 1					
US 1	Auxiliary relay 1 operating mode (See graph and auxiliary relay functions) 0= Not enabled 1= Always available with direct action 2= Available only when the unit is on with direct action 3= Always available with reverse action 4= Available only when the unit is on with reverse action	0	4		
US 2	Analog input configuration for auxiliary relay 1 control. Allows to select which probe value Pb1..Pb10 controls the relay	1	10		
US 3	Auxiliary relay 1 summer minimum set point	-50.0 -58 0.0 0	US5	°C °F B a r Psi	Dec int Dec int
US 4	Auxiliary relay 1 summer maximum set point	US5	110.0 230 50.0 725	°C °F B a r Psi	Dec int Dec int
US 5	Auxiliary relay 1 summer set point	US3	US4	°C °F B a r Psi	Dec int Dec int
US 6	Auxiliary relay 1 winter minimum set point	-50.0 -58 0.0 0	US8	°C °F B a r Psi	Dec int Dec int
US 7	Auxiliary relay 1 winter maximum set point	US8	110.0 230 50.0 725	°C °F B a r Psi	Dec int Dec int
US 8	Auxiliary relay 1 winter set point	US6	US7	°C °F B a r Psi	Dec int Dec int
US 9	Auxiliary relay 1 summer differential	0.1 0 0.1 1	25.0 45 14.0 203	°C °F B a r Psi	Dec int Dec int
US 10	Auxiliary relay 1 winter differential	0.1 0 0.1 1	25.0 45 14.0 203	°C °F B a r Psi	Dec int Dec int
Auxiliary relay circuit 2					
US 11	Auxiliary relay 2 operating mode (See graph and auxiliary relay functions) 0= Not enabled 1= Always available with direct action 2= Available only when the unit is on with direct action 3= Always available with reverse action 4= Available only when the unit is on with reverse action	0	4		
US 12	Analogue input configuration for auxiliary relay 2 control . Allows to select which probe value Pb1..Pb10 controls the relay	1	10		
US 13	Auxiliary relay 2 summer minimum set point	-50.0 -58 0.0 0	US15	°C °F B a r Psi	Dec int Dec int

Code	Description	Min	Max	Unit	Type
US 14	Auxiliary relay 2 summer maximum set point	US15	110.0 230 50.0 725	°C °F Bar Psi	Dec int Dec int
US 15	Auxiliary relay 2 summer set point	US13	US14	°C °F Bar Psi	Dec int Dec int
US 16	Auxiliary relay 2 winter minimum set point	-50.0 -58 0.0 0	US18	°C °F Bar Psi	Dec int Dec int
US 17	Auxiliary relay 2 winter maximum set point	US18	110.0 230 50.0 725	°C °F Bar Psi	Dec int Dec int
US 18	Auxiliary relay 2 winter set point	US16	US17	°C °F Bar Psi	Dec int Dec int

Code	Description	Min	Max	Unit	Type
US 19	Auxiliary relay 2 summer differential	0.1 0 0.1 1	25.0 45 14.0 203	°C °F Bar Psi	Dec int Dec int
US 20	Auxiliary relay 2 winter differential	0.1 0 0.1 1	25.0 45 14.0 203	°C °F Bar Psi	Dec int Dec int
US 21	Maximum operating time of auxiliary realys	0	250	min	
Auxiliary proportional output n° 1				
US 22	Auxiliary proportional output n° 1 operating mode 0= Not enabled 1= Always available with direct action 2= Available only when the unit is on with direct action 3= Always available with reverse action 4= Available only when the unit is on with reverse action	0	4		
US 23	Analogue input configuration for auxiliary control 1 Allows to select which probe value Pb1..Pb10 controls output	1	10		
US 24	Analog output 1 summer minimum set point	-50.0 -58 0.0 0	US26	°C °F Bar Psi	Dec int Dec int
US 25	Analog output 1 summer maximum set point	US26	110.0 230 50.0 725	°C °F Bar Psi	Dec int Dec int
US 26	Analog output 1 summer set point	US24	US25	°C °F Bar Psi	Dec int Dec int
US 27	Analog output 1 winter minimum set point	-50.0 -58 0.0 0	US29	°C °F Bar Psi	Dec int Dec int
US 28	Analog output 1 winter maximum set point	US29	110.0 230 50.0 725	°C °F Bar Psi	Dec int Dec int
US 29	Analog output 1 winter set point	US27	US28	°C °F Bar Psi	Dec int Dec int
US 30	Analog output 1 summer differential	0.1 0 0.1 1	25.0 45 14.0 203	°C °F Bar Psi	Dec int Dec int
US 31	Analog output 1 winter differential	0.1 0 0.1 1	25.0 45 14.0 203	°C °F Bar Psi	Dec int Dec int

US 32	Analog output 1 minimum value	0	US33	%	
US 33	Analog output 1 maximum value	US32	100	%	
Auxiliary proportional output n° 2					
US 34	Auxiliary proportional output n° 2 operating mode 0= Not enabled 1= Always available with direct action 2= Available only when the unit is on with direct action 3= Always available with reverse action 4= Available only when the unit is on with reverse action	0	4		
US 35	Analogue input configuration for auxiliary 2 control Allows to select which probe value Pb1..Pb10 controls output	1	10		
US 36	Analog output 2 summer minimum set point	-50.0 -58 0.0 0	US38	°C °F B a r Psi	Dec int Dec int
US 37	Analog output 2 summer maximum set point	US38	110.0 230 50.0 725	°C °F B a r Psi	Dec int Dec int
US 38	Analog output 2 summer set point	US36	US37	°C °F B a r Psi	Dec int Dec int
US 39	Analog output 2 winter minimum set point	-50.0 -58 0.0 0	US41	°C °F B a r Psi	Dec int Dec int
US 40	Analog output 2 winter maximum set point	US41	110.0 230 50.0 725	°C °F B a r Psi	Dec int Dec int
US 41	Analog output 2 winter set point	US39	US40	°C °F B a r Psi	Dec int Dec int

US 42		0.1 0 0.1 1	25.0 45 14.0 203	°C °F Bar Psi	Dec int Dec int
	Analog output 2 summer differential					
US 43		0.1 0 0.1 1	25.0 45 14.0 203	°C °F Bar Psi	Dec int Dec int
	Analog output 2 winter differential					
US 44	Analog output 2 minimum value	0	US45	%	
US 45	Analog output 2 maximum value	US44	100	%	
US 46	Operation mode under minimum value	0	1		
Modulating evaporator water pump						
US 47	Probe 1 selection for evaporator water pump modulation in chiller	0	10		
US 48	Probe 2 selection for evaporator water pump modulation in chiller	0	10		
US 49	Set point for maximum speed of modulationg evaporator water pump in chiller	-50.0 -58 0.0 0	110.0 230 50.0 725	°C °F Bar Psi	Dec int Dec int
US 50	Proportional band for maximum speed of modulationg evaporator water pump in chiller	0.1 0 0.1 1	25.0 45 14.0 203	°C °F Bar Psi	Dec int Dec int
US 51	Minimum speed of the evaporator water pump in chiller	0	100	%	
US 52	Maximum speed of the evaporator water pump in chiller	0	100	%	
US 53	Probe 1 selection for evaporator water pump modulation in Heat Pump	0	10		
US 54	Probe 2 selection for evaporator water pump modulation in Heat Pump	0	10		
US 55	Set point for maximum speed of modulationg evaporator water pump in Heat Pump	-50.0 -58 0.0 0	110.0 230 50.0 725	°C °F Bar Psi	Dec int Dec int
US 56	Proportional band for maximum speed of modulationg evaporator water pump in Heat Pump	0.1 0 0.1 1	25.0 45 14.0 203	°C °F Bar Psi	Dec int Dec int
US 57	Minimum speed of the evaporator water pump in Heat Pump	0	100	%	
US 58	Maximum speed of the evaporator water pump in Heat Pump	0	100	%	
US 59	Speed of the water pump in Free Cooling	0	100	%	
US 60	Speed of the water pump when compressor OFF	0	100	%	
AUX output enable						
US 61	AUX 2 relay operation mode 1= only in Chiller 2= only in Heat pump 3= in Chiller and Heat pump	1	3		
US 62	AUX 1 analog output operation mode 1= only in Chiller 2= only in Heat pump 3= in Chiller and Heat pump	1	3		
US 63	AUX 2 analog output operation mode 1= only in Chiller 2= only in Heat pump 3= in Chiller and Heat pump	1	3		
US 64	AUX 2 relay operation mode 1= only in Chiller 2= only in Heat pump 3= in Chiller and Heat pump	1	3		
Flow meter alarm						
US 65	Evaporator pump flow meter set point	0	99.0	mc/h	

		min	max	M. U.	Resolution
US 66	Evaporator pump flow meter differential	0.1	20.0	mc/h	
US 67	Condenser pump flow meter set point	0	99.0	mc/h	
US 68	Condenser pump flow meter differential	0.1	20.0	mc/h	

Condens er fan					
Parameters	Description	min	max	M. U.	Resolution
FA 1	Fan configuration output 0 = Not enabled 1 = Always on 2 = ON/OFF regulation with steps 3 = ON/OFF Continuous regulation 4 = Proportional speed control	0	4		
FA 2	Fan operating mode 0= Dependent from the compressor 1= Independent from the compressor	0	1		
FA 3	If the condenser fan control is the triac output, when the regulation starts the trigger output will drive the condenser fan at the maximum voltage for the time FA 3 then, then the regulation will follow the temperature/pressure of the probe.	0	250	Sec	
FA 4	Phase shifting of the fan motor	0	8	Micro Sec	250µs
FA 5	Number of condensing circuits 0= one condenser circuit 1= tow condenser circuits	0	1		
FA 6	Pre-ventilation time before turning on the compressor in chiller mode. To turn on the fan at the maximum speed before the compressor and reduce the successive condensing temperature/pressure increasing. (only if FA01=4)	0	250	Sec	

Fan in Chiller mode					

		min	max	M. U.	Resolution
FA 7	Minimum speed for condenser fan in Chiller mode. To set the minimum fan speed percentage value (30..100%), it is related to the fan power supply.	0	100	%	
FA 8	Maximum speed for condenser fan in Chiller mode. To set the maximim fan speed percentage value (30..100%), it is related to the fan power supply.	0	100	%	
FA 9	Proportional speed control FA01 = 4 Temperature or pressure limit to enable the minimum speed FA 7 ON/OFF regulation FA01 = 2/3 SETpoint step n° 1	-50.0 -58 0.0 0	110.0 230 50.0 725	°C ° F B a r Psi	Dec int Dec int
FA 10	Proportional speed control FA01 = 4 Temperature or pressure limit to enable the maximum speed FA 8 ON/OFF regulation FA01 = 2/3 SETpoint step n° 2	-50.0 -58 0.0 0	110.0 230 50.0 725	°C ° F B a r Psi	Dec int Dec int
FA 11	Proportional speed control FA01 = 4 Proportional band for condenser fan control in chiller To set the temperature/pressure differential between the minimum and the maximum of the fan speed regulation. ON/OFF regulation FA01 = 2/3 Differential step circuit n° 1	0.1 0 0.1 1	25.0 45 14.0 203	°C ° F B a r Psi	Dec int Dec int
FA 12	Proportional speed control FA01 = 4 CUT-OFF differential in chiller. To set a temperature/pressure differential to stop the fan. ON/OFF regulation FA01 = 2/3 Differential step circuit n° 2	0.1 0 0.1 1	25.0 45 14.0 203	°C ° F B a r Psi	Dec int Dec int
FA 13	Over ride CUT- OFF in chiller. To set a temperature/pressure differential to keep the minimum fan speed.	0.1 0 0.1 1	25.0 45 14.0 203	°C ° F B a r Psi	Dec int Dec int
FA 14	CUT-OFF time delay. To set a time delay before activating the CUT-OFF function after the fan start-up. If after the compressor start-up the proportional regulator requires to turn off the fan (cut-off) and FA14≠0, the fan is on at the minimum speed for the time set in this parameter. If FA14=0 the function is disabled.	0	250	Sec	
FA 15	Night speed in chiller. To set the maximum fan speed percentage value (30..100%), it is related to the fan power supply.	0	100	%	

Fan in Heat pump mode					

FA 16	Minimum speed for condenser fan in Heat Pump mode. To set the minimum fan speed percentage value (30..100%), it is related to the fan power supply.	0	100	%	
FA 17	Maximum speed for condenser fan in Heat Pump mode. To set the maximum fan speed percentage value (30..100%), it is related to the fan power supply.	0	100	%	
FA 18	Proportional speed control FA01 = 4 Temperature or pressure limit to enable the minimum speed FA16 ON/OFF regulation FA01 = 2/3 SETpoint step n° 1	-50.0 -58 0.0 0	110.0 230 50.0 725	°C °F B a r Psi	Dec int Dec int
FA 19	Proportional speed control FA01 = 4 Temperature or pressure limit to enable the maximum speed FA17 ON/OFF regulation FA01 = 2/3 SETpoint step n° 2	-50.0 -58 0.0 0	110.0 230 50.0 725	°C °F B a r Psi	Dec int Dec int
FA 20	Proportional speed control FA01 = 4 Proportional band for condenser fan control in heat pump To set the temperature/pressure differential between the minimum and the maximum of the fan speed regulation. ON/OFF regulation FA01 = 2/3 Differential step circuit n° 1	0.1 0 0.1 1	25.0 45 14.0 203	°C °F B a r Psi	Dec int Dec int
FA 21	Proportional speed control FA01 = 4 CUT-OFF differential in heat pump. To set a temperature/pressure differential to stop the fan. ON/OFF regulation FA01 = 2/3 Differential step circuit n° 2	0.1 0 0.1 1	25.0 45 14.0 203	°C °F B a r Psi	Dec int Dec int
FA 22	Over ride CUT- OFF in Heat pump. To set a temperature/pressure differential to keep the minimum fan speed.	0.1 0 0.1 1	25.0 45 14.0 203	°C °F B a r Psi	Dec int Dec int
FA 23	Night speed in Heat pump. To set the maximum fan speed percentage value (30..100%), it is related to the fan power supply.	0	100	%	
Hot start					
FA 24	Hot start setpoint	-50.0 -58	110.0 230	°C °F	Dec int
FA 25	Hot start differential	0.1 1	25.0 45	°C °F	Dec int
3 / 4 step condenser Fan in Chiller mode					
FA 26	ON/OFF regulation FA01 = 2/3 SETpoint step n° 3	-50.0 -58 0.0 0	110.0 230 50.0 725	°C °F B a r Psi	Dec int Dec int
FA 27	ON/OFF regulation FA01 = 2/3 SETpoint step n° 4	-50.0 -58 0.0 0	110.0 230 50.0 725	°C °F B a r Psi	Dec int Dec int
3 / 4 step condenser Fan in heat pump					
FA 28	ON/OFF regulation FA01 = 2/3 SETpoint step n° 3	-50.0 -58 0.0 0	110.0 230 50.0 725	°C °F B a r Psi	Dec int Dec int
FA 29	ON/OFF regulation FA01 = 2/3 SETpoint step n° 4	-50.0 -58 0.0 0	110.0 230 50.0 725	°C °F B a r Psi	Dec int Dec int
FA 30	Pre ventilation in Heat Pump (only if FA01 = 4)	0	250	Sec	Sec
FA 31	Post ventilation in Heat Pump	0	250	Sec	10Sec
FA 32	Outside temperature to enable post ventilation in Heat Pump	-50.0 -58	110.0 230	°C °F	Dec int
FA 33	Condenser fan speed during post ventilation	0	100	%	
Condenser fan speed in defrost					
FA 34	Condenser fan speed in defrost	0	100%		

Parameter	Description	min	max	m. u.	Risoluzione
FA 35	Pressure/temperature to force maximum speed in defrost	-50.0 -58 0.0 0	110.0 230 50.0 725	°C ° F B a r Psi	Dec int Dec int

Antifreeze heaters – Integration heating - boiler					
Parameter	Description	min	max	m. u.	Risoluzione
Ar 1	Anti-freeze heaters/integration heating setpoint for air/air unit in Chiller mode. To set a temperature value, below this value the anti-freeze relay is activated.	-50.0 -58	110.0 230	°C °F	Dec int
Ar 2	Regulation band for antifreeze in Chiller mode.	0.1 0	25.0 45	°C °F	Dec Int
Ar 3	Set Anti-freeze heaters/integration heating setpoint for air/air unit in HP mode. To set a temperature value, below this value the anti-freeze relay is activated.	-50.0 -58	110.0 230	°C °F	Dec int
Ar 4	Regulation band for antifreeze in HP mode.	-50.0 -58	110.0 230	°C °F	Dec int
Ar 5	Antifreeze heaters / integration heating in defrost 0= ON only with thermoregulation control 1= ON with thermoregulation and during the defrosting cycle	0	1		
Ar 6	Antifreeze probe to manage heaters / support heaters in Chiller mode. 0= Not enabled 1= Evaporator inlet 2= Evaporator outlet 1 and 2 3= Evaporator outlet 1 and 2 and common outlet	0	3		
Ar 7	Antifreeze probe to manage heaters / support heaters in HP mode. 0= Not enabled 1= Evaporator inlet. 2= Evaporator outlet 1 and 2. 3= Evaporator outlet 1 and 2 and common outlet.	0	3		
Ar 8	Thermoregulation probe for anti-freeze / condenser heaters. 0= not enabled. 1= Condenser common water inlet probe. 2= Condenser common water inlet and condenser inlet 1 / 2 probe. 3= Condenser water outlet 1 / 2 probe. 4= Condenser water outlet 1 / 2 and common outlet.	0	4		
Ar 9	Anti-freeze heaters or condenser/evaporator water pump control with unit in remote OFF or stand-by mode: 0= Control not enable 1=Controlled by anti-freeze thermoregulation.	0	1		
Ar 10	Anti-freeze heaters control for condenser/evaporator faulty probe: 0= Anti-freeze heaters OFF 1= Anti-freeze heaters ON	0	1		

Boiler function					
Ar 11	Boiler function 0=Not enabled 1=Enabled for integration heating 2= Enabled for heating	0	2		
Ar 12	External air temperaure setpoint for boiler heaters (on)	-50.0 -58	110.0 230	°C °F	Dec int
Ar 13	Temperature differential for boiler heaters (off)	0 0	25.0 45	°C °F	Dec int
Ar 14	Time delay before turning the boiler on	0	250		Min

Boiler function in Chiller mode					
Ar 15	Setpoint for boiler heaters (on) in chiller	-50.0 -58	110.0 230	°C °F	Dec int
Ar 16	Proportional band for boiler heaters in chiller	-50.0 -58	110.0 230	°C °F	Dec int

Boiler function in heat pump					
Ar 17	Setpoint for boiler heaters (on) in HP	-50.0 -58	110.0 230	°C °F	Dec int
Ar 18	Proportional band for boiler heaters in HP	0.1 0	25.0 45	°C °F	Dec int
Ar 19	External air setpoint to stop the compressor as integration function	-50.0 -58	110.0 230	°C °F	Dec int

Ar 20	External air differential to stop the compressor as integration function	0.1 0	25.0 45	°C °F	Dec int
	Anti freeze alarm				
Ar 21	Termoregulation probe anti freeze alarm in chiller mode 0= Not enabled 1= Evaporator inlet 2= Evaporator outlet 1 and 2 3= Evaporator outlet 1 and 2 and common outlet 4= External temperature	0	4		
Ar 22	Termoregulation probe anti freeze alarm in heat pump mode 0= Not enabled 1= Evaporator inlet 2= Evaporator outlet 1 and 2 3= Evaporator outlet 1 and 2 and common outlet 4= External temperature	0	4		
Ar 23	Termoregulation probe anti freeze alarm water condenser 0= not enabled. 1= Condenser common water inlet probe. 2= Condenser common water inlet and condenser inlet 1 / 2 probe. 3= Condenser water outlet 1 / 2 probe. 4= Condenser water outlet 1 / 2 and common outlet.	0	4		
	Anti freeze alarm				
Ar 24	Water pump / antifreeze alarm in OFF/ stand-by 0= Aways in OFF 1= ON only with thermoregulation control	0	1		
Ar 25	Termoregulation probe water pump in antifreeze mode 0= Not enabled 1= Evaporator inlet 2= Evaporator outlet 1 and 2 3= Evaporator outlet 1 and 2 and common outlet 4= External temperature	0	4		
Ar 26	Set point starting water pump in antifreeze alarm	-50.0 -58	110.0 230	°C °F	Dec int
Ar 27	Differential starting water pump in antifreeze alarm	0.1 0	25.0 45	°C °F	Dec int
Ar 28	Condenser antifreeze heaters set point in chiller mode	-50.0 -58	110.0 230	°C °F	Dec int
Ar 29	Condenser antifreeze heaters differential in chiller mode				
Ar 30	Condenser antifreeze heaters set point in heat pump mode	-50.0 -58	110.0 230	°C °F	Dec int
Ar 31	Condenser antifreeze heaters differential in heat pump mode	0.1 0	25.0 45	°C °F	Dec int
Ar 32	Condenser antifreeze heaters/water pump in STD-BY or OFF by digital input 0= alway OFF 1= follow status of their regulation	0	1		
Ar 33	Condenser antifreeze heaters in case of antifreeze error probe 0= OFF 1= ON	0	1		
Ar 34	Condenser water pump in STD-BY or OFF by digital input 0= alway OFF 1= follows status of their regulation	0	1		
Ar 35	Probe selection to manage condenser water pump in case of antifreeze 0= probe not selected 1= Probe 1 (Pb1) 2= Probe 2 (Pb2) …	0	4		
Ar 36	Condenser water pump set point in case of antifreeze	-50.0 -58	110.0 230	°C °F	Dec int
Ar 37	Condenser water pump differential in case of antifreeze	0.1 0	25.0 45	°C °F	Dec int
Ar 38	Condenser antifreeze alarm delay after unit switching on	0	250	sec	
Ar 39	Condenser antifreeze alarm delay in chiller	0	250	sec	
Ar 40	Number of condenser antifreeze alarms per hour to generate manual alarm in chiller	0	16		
Ar 41	Condenser antifreeze alarm delay in heat pump	0	250	sec	

Parameter	Description	min	max	udm	Risoluzione
Ar 42	Number of condenser antifreeze alarms per hour to generate manual alarm in heat pump	0	16		
Ar 43	Carter heaters set point	-50.0 -58	110.0 230	°C °F	Dec int
Ar 44	Carter heaters differential	0.1 0	25.0 45	°C °F	Dec int

Defrost					
Parameter	Description	min	max	udm	Risoluzione
dF 1	Defrost configuration: 0= Not enabled 1= Start and stop for temperature / pressure 2= Start depends on probe selected by par. dF24 and stop for time duration (dF05) 3= Start depends on probe selected by par. dF24 and stop for external contact 4= Defrost only with condenser fan 5= Start from digital input and stop on probe selected by par. dF24	0	5		
dF 2	Temperature or pressure of the defrost start-up	-50.0 -58 0.0 0	110.0 230 50.0 725	°C °F bar psi	Dec int Dec Int
dF 3	Temperature or pressure of the defrost stop	-50.0 -58 0.0 0	110.0 230 50.0 725	°C °F bar psi	Dec int Dec Int
dF 4	Minimum defrost duration.	0	250	Sec	
dF 5	Maximum defrost duration.	0	250	Min	
dF 6	Time delay between the defrost of two circuits	0	250	Min	
dF 7	OFF compressor delay before the defrost	0	250	Sec	
dF 8	OFF compressor delay after the defrost	0	250	Sec	
dF 9	Defrost interval time of the same circuit	1	99	Min	
dF 10	Temperature setpoint for combined defrost of the 1st circuit after parameter DF10 counting.	-50.0 -58	110.0 230	°C °F	Dec int
dF 11	Temperature setpoint for combined defrost end of the 1st circuit.	-50.0 -58	110.0 230	°C °F	Dec int
dF 12	Temperature setpoint for combined defrost of the 2nd circuit after parameter DF10 counting.	-50.0 -58	110.0 230	°C °F	Dec int
dF 13	Temperature setpoint for combined defrost end of the 2nd circuit.	-50.0 -58	110.0 230	°C °F	Dec int
dF 14	Activation of all the steps of the 1st circuit during the defrost. 0= Not enabled 1= Enabled	0	1		
dF 15	Activation of all the steps of the 2nd circuit during the defrost. 0= Not enabled 1= Enabled	0	1		
dF 16	Time delay between two compressor ON in defrost mode	0	250	Sec	
dF 17	Fan control during defrost / dripping time 0= Not enabled 1= Only in defrost 2= For both functions defrost / dripping time	0	2		
dF 18	Pressure / temperature setpoint to force the ventilation ON during the defrost.	-50.0 -58 0.0 0	110.0 230 50.0 725	°C °F bar psi	Dec int Dec Int
Forced defrost					
dF 19	Minimum time delay before a forced defrost	0	250	sec	
dF 20	Pressure / temperature setpoint for a forced defrost	-50.0 -58 0.0 0	110.0 230 50.0 725	°C °F bar psi	Dec int Dec int

Parameters	description	min	max	udm	resolution
dF 21	Forced defrost differential	0.1 0 0.1 1	25.0 45 14.0 203	°C °F Bar Psi	Dec int Dec int
	Defrost operative mode				
dF 22	Defrost start-up with 2 circuits 0= Independent 1= If both have reached the necessary requirements 2= If one has reached the necessary requirements	0	2		
dF 23	End defrost for two circuits and common ventilation. 0= Independent 1= If both have reached the necessary end defrost requirements 2= If one has reached the necessary end defrost requirements	0	2		
	Start / stop defrost selection				
Parameters	description	min	max	udm	resolution
dF 24	Start / stop defrost probe 0= start and stop with condenser temperatur / pressure probe 1= start with evaporator pressure probe / stop with condenser temperatur / pressure probe 2= start with condenser temperatur / pressure probe / stop with evaporator pressure probe 3= start and stop with evaporator pressure probe	0	3		
	Supply fan operating mode during defrost				
dF 25	Stop supply fan diuring defrost cycle 0= Not enabled 1= enable	0	1		
	Defrost only with				
dF 26	Set point to enable defrost with condenser fan	-50.0 -58	110.0 230	°C °F	Dec int
	Hybrid exchangers				
dF 27	Hybrid exchangers set point 1 in chiller	-50.0 -58 0.0 0	110.0 230 50.0 725	°C °F bar psi	Dec int Dec int
dF 28	Hybrid exchangers set point 2 in chiller	-50.0 -58 0.0 0	110.0 230 50.0 725	°C °F bar psi	Dec int Dec int
dF 29	Hybrid exchangers differential 1 in chiller	0.1 0 0.1 1	25.0 45 14.0 203	°C °F Bar Psi	Dec int Dec int
dF 30	Hybrid exchangers differential 2 in chiller	0.1 0 0.1 1	25.0 45 14.0 203	°C °F Bar Psi	Dec int Dec int
dF 31	Hybrid exchangers set point 1 in heat pump	-50.0 -58 0.0 0	110.0 230 50.0 725	°C °F bar psi	Dec int Dec int
dF 32	Hybrid exchangers set point 2 in heat pump	-50.0 -58 0.0 0	110.0 230 50.0 725	°C °F bar psi	Dec int Dec int
dF 33	Hybrid exchangers differential 1 in heat pump	0.1 0 0.1 1	25.0 45 14.0 203	°C °F Bar Psi	Dec int Dec int
dF 34	Hybrid exchangers differential 2 in heat pump	0.1 0 0.1 1	25.0 45 14.0 203	°C °F Bar Psi	Dec int Dec int
dF 35	Probe selection of the Hybrid exchangers 0= outside temperature 1= condenser temperature/pressure	0	1		
dF 36	Forced time Hybrid exchangers in chiller mode when the compressor is switched on	0	250	sec	
	Defrost dynamic set point				

Parameters	Description	min	max	m. u.	Resolution
dF 37	Max. offset of the Defrost dinamic set point	-50.0 -58	110.0 230	°C °F	Dec int
dF 38	Outside temperature set point of the Defrost dinamic set point	-50.0 -58	110.0 230	°C °F	Dec int
dF 39	Outside temperature differential of the Defrost dinamic set point	-50.0 -58	110.0 230	°C °F	Dec int

Heat recovery					
Parameters	Description	min	max	m. u.	Resolution
rC 1	Sanitary water regulation mode	0	2		
rC 2	Recovery modes 0 = not enabled 1 = 2 indipendent circuit 2 = both the circuit in parallel	0	2		
rC 3	Delay time delay with step forced off	0	250	Sec	
rC 4	Delay time delay with step forced off after the recovery valve activation	0	250	Sec	
rC 5	Recovery minimum time	0	250	Min	
rC 6	Minimum interval time between the end and the beginning of the next recovery	0	250	Min	
rC 7	Temperature setpoint to disable the recovery	-50.0 -58 0.0 0	110.0 230 50.0 725	°C °F Bar Psi	Dec int Dec int
rC 8	Temperature differential to restore the recovery	0.1 0 0.1 1	25.0 45 14.0 203	°C °F Bar Psi	Dec int Dec int
rC 9	Maximum time with recovery disabled (if temperature/pressure within rC6-rC7)	0	250	Min	

Sanitary water					
Parameters	Description	min	max	m. u.	Resolution
FS 1	Sanitary water regulation mode 0= not enabled 1=valves in water circuit 2=valves in gas circuit	0	2		
FS 2	Sanitary water thermoregulation priority 0 = heating / cooling 1 = sanitary water 2 = sanitary water by digital input	0	2		
FS 3	Sanitary water thermoregulation set point	FS05	FS06	°C/°F	dec/int
FS 4	Sanitary water thermoregulation band	0.1 0	25.0 45	°C °F	Dec int
FS 5	Minimum value of the sanitary water set point	-50.0 -58	FS06	°C °F	Dec int
FS 6	Maximum value of the sanitary water set point	FS05	110.0 230	°C °F	Dec int
FS 7	Full loads enabling to reach the sanitary water set point	0	1		
FS 8	Heaters enabling during the sanitary water thermoregulation 0= not enabled 1= compressors + heaters 2= only heaters 3= only compressors	0	3		
FS 9	Operation working time to activate the heaters during the sanitary water thermoregulation	0	250	Min	
FS 10	Time delay to activate the sanitary water valve	0	250	sec	int
FS 11	Reversing cycle delay during sanitary water thermoregulation	0	250	sec	int
FS 12	Antilegionella function operating mode 0 = interval time 1= weekly 2= daily	0	2		
FS 13	Delay time between two Antilegionella cycles	0	250	Hr	0

FS 14	Antilegionella Set point	FS15	FS16	°C/°F	dec/int
FS 15	Minimum value of the Antilegionella set point	-50.0 -58	FS14	°C °F	Dec int
FS 16	Maximum value of the Antilegionella set point	FS14	110.0 230	°C °F	Dec int
FS 17	Hour selection for the Antilegionella activation	0	24.00	Hr	10 min
FS 18	Day selection for the Antilegionella activation	0	7		
FS 19	Minimum operating working time of the Antilegionella cycle	0	250	min	
FS 20	Temperature band for heaters deactivation during Antilegionella cycle	0.1 0	25.0 45	°C °F	Dec int

FS 21	Temperature differential to enable the freecooling function	0.1 0	25.0 45	°C °F	Dec int
FS 22	Temperature differential for the free cooling regulation	0.1 0	25.0 45	°C °F	Dec int
FS 23	Set point for solar panel activation	FS25	FS26	°C/°F	dec/int
FS 24	Differential value for solar panel deactivation	0.1 0	25.0 45	°C °F	Dec int
FS 25	Minimum value of the solar panel set point	-50.0 -58	FS23	°C °F	Dec int
FS 26	Maximum value of the solar panel set point	FS23	110.0 230	°C °F	Dec int
FS 27	Delay time to activate the sanitary water valve starting from pump activation	0	250	sec	
FS 28	Delay time to deactivate the sanitary water pump starting from valve deactivation	0	250	sec	
FS 29	Maximum operating working time of the Antilegionella cycle	0	250	min	
FS 30	Sanitary water: security set point	-50.0 -58	110.0 230	°C °F	Dec int
FS 31	Sanitary water: security differential	0.1 0	25.0 45	°C °F	Dec int
FS 32	Sanitary water: minimum interruption time	0	250	min	
FS 33	Sanitary water pump operation mode	0	1		
FS 34	Free cooling water pump OFF time if chiller only Free cooling	0	250	min	
FS 35	Free cooling water pump ON time if chiller only Free cooling	0	250	sec	
FS 36	Free cooling maximum time	0	250	min	
FS 37	Set point Free cooling	-50.0 -58 0.0 0	110.0 230 50.0 725	°C °F bar psi	Dec int Dec int
FS 38	Proportional band Free coling	0.1 0 0.1 1	25.0 45 14.0 203	°C °F Bar Psi	Dec int Dec int
FS 39	Minimum value Free cooling analog output	0	100	%	
FS 40	Maximum value Free cooling analog output	0	100	%	
FS 41	T1 probe selection for Free cooling 0=disabled, 1=Pb1, 2=Pb2, etc.	0	10		
FS 42	T2 probe selection for Free cooling 0=disabled, 1=Pb1, 2=Pb2, etc.	0	10		
FS 43	Outside temperature set point to force the maximum speed of condenser fan	-50.0 -58	110.0 230	°C °F	
FS 44	Outside temperature differential to force the maximum speed of condenser fan	0.1 0	25.0 45	°C °F	

FS 45	Delay time of condenser fan regulation during Free cooling	0	250	min	
FS 46	Antilegionella cycle opreration mode 0= compressors and heaters 1= compressors are first inserted and then heaters 2= only heaters 3= only compressors	0	3		
FS 47	Evaporator water pump enabled is Sanitary water 0= enabled 1= disabled	0	1		
FS 48	Probe selection to force exit from Sanitary water 0= disabled 1= probe Pb1 2= probe Pb2 ...	0	10		
FS 49	Start production Sanitary water 0= when all compressors are requested 1= when at least one compressor is requested	0	1		
FS 50	Set point to force OFF the compressors during antilegionella cycle	-50.0 -58	110.0 230	°C °F	
FS 51	Compressors safety time in sanitary water 0= safety time enabled 1= safety time disabled	0	1		
FS 52	Set point to enable heaters for low sanitary water temperature	-50.0 -58	110.0 230	°C °F	
FS 53	Proportional band to enable heaters for low sanitary water temperature	0.1 0	25.0 45		
FS 54	Probe selection for low sanitary water temperature 0= disabled 1= Pb1 2= Pb2 ...	0	10		
FS 55	Solar panel opration mode for sanitary water 0= disabled 1= integration to heat pump 2= substitution to heat pump	0	2		
FS 56	Solar panel opration mode for heating 0= disabled 1= integration to heat pump 2= substitution to heat pump	0	2		
FS 57	Probe selection to calculate Dt of solar panel in sanitary water 0= disabled 1= Pb1 2= Pb2 …	0	10		

FS 58	Probe selection to calculate Dt of solar panel in heating 0= disabled 1= Pb1 2= Pb2 …	0	10		
FS 59	Dt to enable solar panel in sanitary water	0.1 0	25.0 45		
FS 60	Dt to enable solar panel in heating	0.1 0	25.0 45		
FS 61	Maximum operation time of solar panel if set point not reached	0	250		
FS 62	Probe selection to disable the Free cooling for low temperature	0	10		
FS 63	Set point to disable the Free cooling for low temperature	-50.0 -58	110.0 230	°C °F	
FS 64	Differential to disable the Free cooling for low temperature	0.1 0	25.0 45	°C °F	
FS 65	Probe selection for antifreeze sanitary heaters and water pump regulation 0= probe not selected 1= Probe 1 (Pb1) 2= Probe 2 (Pb2) …	0	10		
FS 66	Antifreeze set point for heaters activation in chiller	-50.0 -58	110.0 230	°C °F	
FS 67	Antifreeze differential for heaters activation in chiller	0.1 0	25.0 45	°C °F	

			min	max	m. u.	Resolution
FS 68	Antifreeze set point for heaters activation in heat pump		-50.0 -58	110.0 230	°C °F	
FS 69	Antifreeze differential for heaters activation in heat pump		0.1 0	25.0 45	°C °F	
FS 70	Antifreeze set point for water pump activation		-50.0 -58	110.0 230	°C °F	
FS 71	Antifreeze differential for water pump activation		0.1 0	25.0 45	°C °F	
FS 72	Valves OUT1 and OUT2 status if set point are reached 0= OUT2 ON 1= both OFF		0	1		
FS 73	Delay time to switch on the compressors in free cooling		0	250	min	

Alarms						
Parameters	Description		min	max	m. u.	Resolution
Low alarm						
AL 1	Low pressure alarm delay from analog and digital input		0	250	Sec	
AL 2	Low pressure alarm delay from digital input after compressor stop if the low pressure switch is used for the pump down. AL02= 0 low pressure alarm not enable with compressor OFF AL02≠ 0 low pressure alarm enable after AL02 time with compressor OFF		0	250	Sec	10 Sec
AL 3	Low pressure alarm setpoint from analogue input		-50.0 -58 0.0 0	110.0 230 50.0 725	°C °F b a r psi	Dec int Dec int
AL 4	Low pressure alarm differential from analogue input		0.1 0 0.1 1	25.0 45 14.0 203	°C °F b a r psi	Dec int Dec Int
AL 5	Maximum number of low pressure events from digital/analogue inputs: Manual reset if AL05 = 0 Automatic reset if AL05 =16 From automatic to manual reset if AL05= 1..15		0	16		
AL 6	Low temperature/pressure alarm during defrost 0= Not enabled 1= Enabled		0	1		
AL 7	Low temperature/pressure alarm delay during defrost		0	250	Sec	
AL 8	Low temperature/pressure alarm with unit in OFF or stand – by: 0 = Not enabled 1= Alarm enabled		0	1		
High Alarm						
AL 9	High temperature/pressure alarm from analogue input		-50.0 -58 0.0 0	110.0 230 50.0 725	°C °F b a r psi	Dec int Dec int
AL 10	High temperature/pressure alarm differential from analogue input		0.1 0 0.1 1	25.0 45 14.0 203	°C °F b a r psi	Dec int Dec int
Oil Alarm						
AL 11	Low oil pressure / level delay from digital input		0	250	Sec	
AL 12	Minimum time for low oil pressure / level from digital input activation in normal working condition.		0	250	Sec	
AL 13	Maximum number of low oil pressure/level events: Always manual reset if AL13= 0 Always automatic reset if AL13 =16 From automatic to manual reset if AL13 = 1..15		0	16		
Flow alarm						

AL 14	Configuration 0= Not enabled 1= Only for chiller 2= Only for heat pump 3= For both chiller and heat pump	0	3		
AL 15	"Flow switch / supply fan overload" alarm delay after pump/fun activation.	0	250	Sec	
AL 16	Flow switch time activation before blocking evaporator water pump	0	250	Sec	
AL 17	"Flow switch / supply fan overload" activation time to generate the alarm	0	250	Sec	
AL 18	"Flow switch / supply fan overload" de-activation time to reset the alarm	0	250	Sec	
Compressor overload alarm					
AL 19	Compressor overload alarm delay after compressor start-up	0	250	Sec	
AL 20	Maximum number of compressor overload alarm events Always manual reset if AL20 = 0 Always automatic reset if AL20 =16 From automatic to manual reset if AL20 =1..15	0	16		
Pump down alarm					
AL 21	Maximum number of pump down alarm events per hour in stop condition. After this number the alarm is logged, displayed and signalled with alarm relay + buzzer. Manual reset if AL21 = 0 Automatic reset if AL21 =16 From automatic to manual reset if AL21 =1..15	0	16		
AL 22	Maximum number of pump down alarm events per hour in start-up condition. After this number the alarm is logged, displayed and signalled with alarm relay + buzzer. Always manual reset if AL22 = 0 Always automatic reset if AL22 =16 From automatic to manual reset if AL21 =1..15 and parameter AL23 config.	0	16		
AL 23	Select if the pump down alarm must change from automatic to manual reset: 0= Always automatic reset 1= Manual reset after AL21 alarm events	0	1		
Anti-freeze alarm in Chiller mode					
AL 24	Minimum antifreeze setpoint in chiller (from –30 °C to AL24)	-50.0 -58	AL26	°C °F	Dec int
AL 25	Maximum antifreeze setpoint in chiller (from AL24 to 70 °C)	AL26	110.0 230	°C °F	Dec int
AL 26	Setpoint temperature for low anti-freeze alarm, low ambient temperature (air/air), low temperature air outlet (air/air). From AL24 to AL25.	AL24	AL25	°C/°F	Dec/int
AL 27	Differential of alarm reset in Chiller mode for anti-freeze, low ambient air temperature or low outlet air temperature alarms.	0.1 0	25.0 45	°C °F	Dec int
AL 28	Alarm delay for anti-freeze, low ambient air temperature or low outlet air temperature. The temperature must be lower than AL26 for this time duration before having the alarm event.	0	250	Sec	
AL 29	Maximum number of alarm events anti-freeze, low ambient air temperature or low outlet air temperature before changing from automatic to manual alarm reset: Always manual reset if AL29 = 0 Always automatic reset if AL29 = 16 From automatic to manual if AL29 = 1. .15	0	16		
AL 30	Anti-freeze alarm configuration in chiller 0= to turn the compressors off when the anti-freeze control probe is lower than AL26 (after the time delay), the display shows the alarm label. Buzzer and Alarm relay are not activated. 1= to turn the compressors off when the anti-freeze control probe is lower than AL26 (after the time delay), the display shows the alarm label. Buzzer and Alarm relay are activated.	0	1		
Anti-freeze alarm in Heat pump mode					
AL 31	Setpoint of the minimum limit in heat pump (va da – 30 °C a AL32)	-50.0 -58	AL33	°C °F	Dec int
AL 32	Setpoint of the maximum limit in heat pump (va da AL31 a 70 °C)	AL33	110.0 230	°C °F	Dec int
AL 33	Anti-freeze alarm setpoint in heat pump Setpoint temperature for low anti-freeze alarm, low ambient temperature (air/air), low temperature air outlet (air/air). (from AL31 to AL32)	AL31	AL32	°C/°F	Dec/int

AL 34	Alarm differential in heat pump. To reset the anti-freeze, low ambient Temperature (air/air), low temperature air outlet (air/air) alarms.	0.1 0	25.0 45	°C °F	Dec int	
AL 35	Anti-freeze alarm delay in HP for low outlet air temperature (air/air) Attention If during the Stand-by or remote off there is an anti-freeze alarm event, and the AL35 <>0, starting the heat pump mode, from keyboard or digital input. In this case the anti- freeze alarm is aborted and the compressor starts for the AL35 time to heat the air or the water. After the AL35 time if the antifreeze probe value is still lower than AL33 setpoint, for maximum AL36 seconds, the unit is stopped and the anti-freeze alarm is generated again.	0	250	Sec		
AL 36	Anti-freeze alarm delay for low air ambient temperature or low outlet air temperature in heat pump normal condition. The detected temperature must be lower than AL33 for the time AL36 before giving the alarm	0	250	Sec		
AL 37	Maximum number of anti-freeze alarm events for low air ambient temperature or low outlet air temperature in heat pump. It sets the alarm reset condition: Always manual reset AL37 = 0 Always automatic reset AL37 = 16 From automatic to manual reset if AL37 = 1..15	0	16			

AL 38	Anti-freeze alarm configuration in heat pump 0= to turn the compressors off when the anti-freeze control probe is lower than AL33 (after the time delay), the display shows the alarm label. Buzzer and Alarm relay are not activated. 1= to turn the compressors off when the anti-freeze control probe is lower than AL33 (after the time delay), the display shows the alarm label. Buzzer and Alarm relay are activated.	0	1			
Compressor high discharge temperature						
AL 39	Compressor high discharge temperature setpoint	0 0	150 302	°C °F	Dec / int int	
AL 40	Compressor high discharge temperature differential	0.1 0	25.0 45	°C °F	Dec int	
AL 41	Number of compressor high discharge temperature events per hour to determine the alarm reset condition: Always manual reset if AL41 = 0 Always automatic reset if AL41 =16 From automatic to manual if AL41 = 1..15	0	16			
Generic alarm 1						
AL 42	Maximum number of generic alarm events (each event stop the regulation) before turning the alarm from automatic to manual: Always manual AL42 = 0 Always automatic AL42 =16 From manual to utomatic if AL42 value is between 1 and 15	0	16			
AL 43	Generic alarm delay time after the digital input activation	0	250	Sec		
AL 44	Generic alarm delay time after the digital input is not activate	0	250	10 sec	10 sec	
Alarm relay						
AL 45	Enable alarm relay with unit in off or stand – by: 0= Alarm output not enabled 1= Alarm output enabled	0	1			
Password reset: Alarm log – Compressor overload						
AL 46	Password value to reset the alarm log, the compressor overload alarm and antifreeze alarm	0	999			
AL 47	Thermal alarm of the compressor 0= lock the compressor 1= lock the whole circuit	0	1			
AL 48	Thermal alarm when the compressor is OFF 0 = Not enabled 1= Alarm enabled	0	1			
Oil alarm in OFF						
AL 49	Oil alarm when the compressor is OFF 0 = Not enabled 1= Alarm enabled	0	1			

	Generic alarm / signal 2				
AL 50	Functioning generic alarm n° 2 0= only signal always automatic reset 1= the alarm block the unit reset depends on the value of parameter AL51	0	1		
AL 51	Maximum number of generic alarm events before turning the alarm from automatic to manual: Always manual AL51 = 0 Always automatic AL51 =16 From manual to utomatic if AL51 value is between 1 and 15	0	16		
AL 52	Generic alarm delay time after the digital input activation	0	250	Sec	
AL 53	Generic alarm delay time after the digital input is not activate	0	250	Sec	
	Reset High pressure / temperature alarm				
AL 54	Maximum number of high pressure / temperature alarm events before turning the alarm from automatic to manual: Always manual AL54 = 0 Always automatic AL54 =16 From manual to utomatic if AL54 value is between 1 and 15	0	16		
	Flow alarm condenser				
AL 55	"Flow switch water condenser alarm delay after pump activation.	0	250	Sec	
AL 56	Maximum time flow switch alarm active befor to block the water pump	0	250	Sec	
AL 57	Minimum "Flow switch water condenser active time duration.	0	250	Sec	
AL 58	Minimum "Flow switch water condenser not active time duration.	0	250	Sec	
	High water evaporator inlet temperature				
AL 59	Maximum number of high water temperature alarm events Always manual reset if AL59 = 0 Always automatic reset if AL59 =16 From automatic to manual reset if AL59 =1..15	1	16		
AL 60	High water temperature alarm delay time from ON compressor	0	250	Sec	10 sec
AL 61	Set point higt water temperature	-50.0 -58	110.0 230	°C °F	Dec int
AL 62	Differential higt water temperature	0.1 0	25.0 45	°C °F	Dec int
AL 63	Analogue input configuration.Allows to select which probe value NTC/PTC (Pb1..Pb10)	1	10		
AL 64	Low pressure alarm delay	0	250	Sec	
	Sanitary water / Solar panel flow switch				
AL 65	Sanitary water flow switch alarm delay	0	250	Sec	
AL 66	San. water flow switch delay to stop pump	0	250	Sec	
AL 67	Sanitary water flow switch activation time	0	250	Sec	
AL 68	San. water flow switch de-activation time	0	250	Sec	
AL 69	Solar panel flow switch alarm delay	0	250	Sec	
AL 70	Solar panel flow switch delay to stop pump	0	250	Sec	

AL 71	Solar panel flow switch activation time	0	250	Sec	
AL 72	Solar panel flow switch de-activation time	0	250	Sec	
	Various configurations				

AL 73	Max. number per hour sanitary water heaters overload alarm
	Always manual if AL73 = 0
	Always automatic if AL73 =16
	If 16>AL73>0:
	  • automatic if number of alarm < AL73
	  • manual if number of alarm = AL73
		0	16		

AL 74	Password request to reset manual antifreeze alarm 0= password requested 1= password not requested	0	1		

AL 75	Max. number per hour sanitary water pump overload
	Always manual if AL75 = 0
	Always automatic if AL75 =16
	If 16>AL75>0:
	  • automatic if number of alarm <
	    AL75
	  • manual if number of alarm =
	    AL75
		0	16		

AL 76	Compressor oil level alarm only signalling 0= automatic / manual reset oil alarm (see AL13) and compressor switch off 1= oil alarm signal only (compressor stays ON)	0	1		
AL 77	Compressor overload alarm operation mode 0= always manual reset 1= always automatic reset	0	1		
AL 78	Dt temperature to generate compressor/circuit differential oil alarm	0.1 1	14.0 203	bar psi	Dec int
AL 79	Differential to reset compressor/circuit differential oil alarm	0.1 1	14.0 203	bar psi	Dec int

AL 80	Max. number per hour compressor/circuit differential oil alarm
	Always manual if AL80 = 0
	Always automatic if AL80 =16
	If 16>AL80>0:
	  • automatic if number of alarm < AL80
	  • manual if number of alarm = AL80
		0	16		

AL 81	Compressor/circuit differential oil alarm operation mode 0= disabled 1= enabled for pistons compressors 2= enabled for screw compressors	0	2		
AL 82	By pass time of the FC flow switch alarm starting from water pump activation	0	250	Sec	
AL 83	FC flow switch time activation before blocking FC water pump	0	250	Sec	
AL 84	FC flow switch activation time to generate the alarm and block the compressor	0	250	Sec	
AL 85	FC flow switch de-activation time to reset the alarm	0	250	Sec	
AL 86	Flow switch alarm reset mode 0= Always manual 1= automatic reset after 1 minute 2= automatic reset after 2 minutes ... 250= automatic reset after 250 minutes	0	250		
AL 87	Evaporator/sanitary water flow switch by-pass time during Out1 / Out2 commutation	0	250	Sec	
AL 88	Number of end defrost alarms to generate manual reset alarm	0	250		
AL 89	Condenser antifreeze alarm: minimum set point value in chiller mode	-50.0 -58	AL91	°C °F	Dec int
AL 90	Condenser antifreeze alarm: maximum set point value in chiller mode	AL91	110.0 230	°C °F	Dec int
AL 91	Condenser antifreeze alarm: set point in chiller mode	AL89	AL90	°C °F	Dec int
AL 92	Condenser antifreeze alarm: differential in chiller mode	0.1 0	25.0 45	°C °F	Dec int
AL 93	Condenser antifreeze alarm: minimum set point value in heat pump mode	-50.0 -58	AL95	°C °F	Dec int
AL 94	Condenser antifreeze alarm: maximum set point value in heat pump mode	AL95	110.0 230	°C °F	Dec int
AL 95	Condenser antifreeze alarm: set point in heat pump mode	AL93	AL94	°C °F	Dec int
AL 96	Condenser antifreeze alarm: differential in heat pump mode	0.1 0	25.0 45	°C °F	Dec int

AL 97	Alarm menu with password 0= no password to enter in password menu 1= password is requested to enter in password menu	0	1		
AL 98	Number of alarm resetted manually to block by password the alarm menu	0	250		
AL 99	Password to reset the alarm log	0	999		

After the black-out is restored:
1. The instrument resores the same operating mode lost after the supply failure.
2. If active, the defrost is aborted.
3. All the timers and time parameters are reloaded.
4. The manual alarm is not reset.