

dixell®

iCHiLL

IC200CX Series



Quick reference guide

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1 GENERAL ADVICE



PLEASE READ BEFORE USING THIS MANUAL

- This manual is part of the product and should be kept near the instrument for easy and quick reference.
- The instrument shall not be used for purposes different from those described hereunder. It cannot be used as a safety device.
- Check the application limits before proceeding.

SAFETY PRECAUTIONS

- Check the supply voltage is correct before connecting the instrument.
- Do not expose to water or moisture: use the controller only within the operating limits avoiding sudden temperature changes with high atmospheric humidity to prevent formation of condensation
- Warning: disconnect all electrical connections before any kind of maintenance.
- The instrument must not be opened.
- In case of failure or faulty operation send the instrument back to the distributor or to "Dixell s.r.l." (see address) with a detailed description of the fault.
- Consider the maximum current which can be applied to each relay (see the technical Data).
- Ensure that the wires for probes, loads and the power supply are separated and far enough from each other, without crossing or intertwining.
- Fit the probe where it is not accessible by the end user.
- In case of applications in industrial environments, the use of mains filters (our mod. FT1) in parallel with inductive loads could be useful.

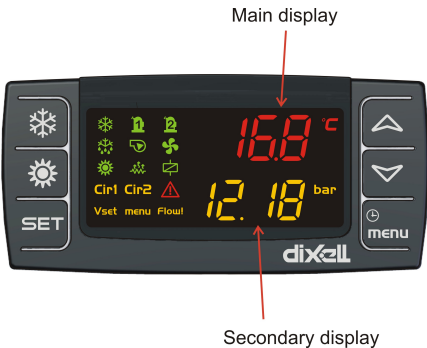
2 IC200 CX TABLE OF THE FEATURES

CHARACTERISTICS	IC206CX	IC208CX
N° KEYS		
6	●	●
RELAYS		
6	●	
8		●
DIGITAL INPUTS		
11	Config	Config
ANALOG INPUTS		
4 NTC – PTC 2 NTC - PTC - 4÷20mA - 0 ÷ 5Volt	Config	Config
PROPORTIONAL OUTPUTS		
2 configurables (signal 0÷10V)	Config	Config
2 configurables (signal 0÷10V, PWM)	Config	Config
SERIAL OUTPUTS		
TTL with Mod-BusRtu protocol	●	●
Remote Keyboard VICX620 (up to 2 remote keyboards with probe on board)	●	●
POWER SUPPLY		
12 Vac/dc (+15%;-10%)	●	●
24 Vac/dc (± 10%)	Opt	Opt
MAIN DISPLAY (UPPER DISPLAY)		
± 4 digits with decimal point	●	●
SECONDARY DISPLAY (LOWER DISPLAY)		
± 4 digits with decimal point	●	●
OTHER		
Clock on board	Opt	Opt
Buzzer	Opt	Opt

- configurable = configurable through parameter
- opt = optional
- ● = default

3 USER INTERFACE

3.1 DISPLAY CONFIGURATION

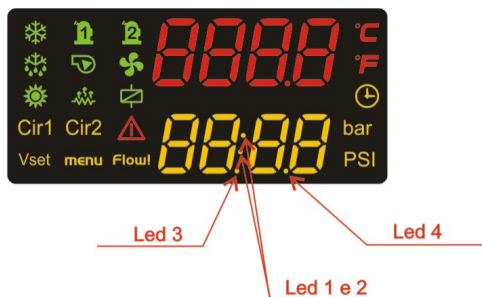


3.2 ICONS MEANING

ICON	MEANING / FUNCTIONNING
°C - °F BAR-PSI	Lighted when the display shows a temperature or pressure
1 2	Lighted when a compressor is activated Blinking = when the delay of activation is running
!	Alarm: blinking in case of alarm
↑↑↑ ~	Lighted if anti freeze heaters/ integration heating / boiler are activated
Flow!	Flow alarm/ (differential) pressure switch / supply fan thermal (air / air unit): is blinking if the configuration of the digital input is active

	Lighted when the bottom display shows the RTC Lighted during the programming parameters if it is time based Lighted in function menu when the display shows the defrost delay
	Water pump: lighted if at least one pump is activated
	Condenser fan: lighted if at least one fan is active
Vset	Lighted if Dynamic set point or Energy saving are active
menu	Lighted during menu navigation
	Lighted if auxiliary output is active
	Lighted when the controller is ON
Cir1 Cir2	Lighted when the display shows probes values of circuit 1 or circuit 2
	Lighted when the defrost is activated Blinking during the counting of the interval between defrost

3.3 MEANING / FUNCTIONNING OF THE BOTTOM DISPLAY LED



Led # 1 – 2 (With RTC)

If the bottom display shows the RTC the leds are both blinking.

Led # 1 – 2 In function Menu

During the time counting to the next defrost for one or both circuits the leds are both blinking.

LED during parameters programming

In Pr2 level: led #3 indicates the visibility of the parameter; the led #1 and #2 show if the parameter can be modified or not.

In Pr3 level: led #3 and #4 indicate the visibility of the parameter; the led #1 and #2 show if the parameter can be modified or not.

4 DISPLAY LAYOUT

4.1 HOW TO READ THE MEASUREMENT LIST

With the icon Cir1 on, push UP or Down keys to display the labels of the information of the circuit 1.

With the icon Cir2 on, push UP or Down keys to display the labels of the information of the circuit 2.

Each measurement is defined by a label that indicates which if it is a pressure a temperature or a time.

4.2 READ PROBE VALUES OF CIRCUIT 1 OR 2

To swap between the information of the two circuits use the UP and DOWN key to select a label then push SET, check the led.

Example in fig.1

Icon Cir1 is on: the top display shows the value of the output evaporator temperature (12.8°C) of the circuit 1; the bottom display shows Out 1 (outlet temperature evaporator 1). Push SET key to swap to the circuit 2. **Fig2**

Icon Cir2 is on: the top display shows the value of the output evaporator temperature (11.7°C) of the circuit 2, the bottom display shows Out 2.

Fig.1



Fig.2



5 DISPLAY INFORMATION

5.1 READ THE SET POINT VALUE

Push and release the **SET** key, the set value is displayed.

In stand-by the bottom display shows **SetC** (set chiller), by pushing SET again the next label is **SetH** (set heat pump).

If the unit is running the only set displayed is related to the running mode.

5.2 MODIFY THE SET POINT

- 1) Push **SET** key for at least **3** seconds
- 2) Use the **UP** or **DOWN** key to modify the setpoint. In chiller it is possible to modify the chiller set point, in heat pump it is possible to modify the heat pump set point, in std-by it is possible to modify both the set point.
- 3) Push **SET** to confirm or wait the timeout (15seconds).

5.3 READ THE ACTIVE SETPOINT DURING ENERGY SAVING OR DYNAMIC SETPOINT

If the unit is running in chiller or heat pump, the Energy Saving or the Dynamic Setpoint activity is signalled by the blinking of the Vset icon.

Chiller mode: push **SET** one time, the bottom display shows the **SetC** (set chiller) while the top display shows the set value. Only if the Energy saving or the Dynamic Setpoint are active, pushing another time the **SET** key, the bottom display shows “**SEtC**” (real setpoint), and the top display shows the setpoint that the unit is really using for the thermoregulation.

Heat pump mode: push **SET** one time, the bottom display shows the **SetH** (set Heat pump) while the top display shows the set value. Only if the Energy saving or the Dynamic Setpoint are active, pushing

another time the **SET** key, the bottom display shows “**Setr**” (real setpoint), and the top display shows the setpoint that the unit is really using for the thermoregulation.



5.4 KEY FUNCTION

KEY	ACTION	FUNCTION
	Push and release	Show chiller set point SetC and heat pump SetH
	Push once again	In chiller or heat pump if the Energy saving or the Dynamic setpoint are enabled it shows the real setpoint Setr , the led is blinking.
	Push for 3 seconds	Set point modification
	During the programming: push once	To enter parameter modification or confirm a value
	Push when an alarm is showed in menù ALrM	To reset the alarm
	Push once with probe label showed on the bottom display (press up or down starting from default visualization)	To read probes values of circuit 1 or circuit 2
	Push once	To read probes value
	Pushing once during the programming	To change the group of parameters, to change the parameter, to change the value of the parameter
	Push for 1 second during the programming when the display visualize Pr1 or Pr2	1 time shows the Pr2 programming level 2 times shows the Pr3 programming level
	Push once	To read probes value
	Pushing once during the programming	To change the group of parameters, to change the parameter, to change the value of the parameter
	Push once	To turn ON or turn OFF the controller (in chiller or heat pump depending from CF51 parameter)

	Push once	To turn ON or turn OFF the controller (in chiller or heat pump depending from CF51 parameter)
	Push once	To enter the function Menu
	Push for 3 seconds	To set the clock (controller with clock on board)
	Pushing once during the programming	To exit from a group of parameter

5.5 KEY COMBINANTION

KEY	ACTION	FUNCTION
 	Push for 3 seconds together	Enter the programming parameters
	Only in Pr3 level: push SET and DOWN key	Select the parameter level visibility Pr1 / Pr2 / Pr3
 	Push once together	Exit the programming parameters
	Push 5 seconds in heat pump mode	Manual defrost
 	Only in Pr3 programming level: push SET and then the MENU key	In Pr3 defines if the parameter can be modified or not in the other levels.

6 REMOTE TERMINAL

The iCHILL can be connected to a remote keyboard (max 2 remote keyboards).

The remote keyboard with probe on board can be used for the regulation of the machine.

The maximum length of the cable is 150mt (shielded cable is recommended).

Use the connection cable **CAB/CJ30** (2x0.2 mm²) to interface the ichill connector to the shielded wire.

In case of communication problems (hardware problems or bad connection) the upper display shows "noL" (no link).

7 FIRST INSTALLING

7.1 ON BOARD CLOCK (OPTIONAL)

Giving power supply the bottom display shows “rtC” alternated to a temperature or pressure value: **It is necessary to set the RTC (Real time clock).**

ATTENTION

The RTC function is an option and it is not possible to update the instrument It is necessary to order the instrument already complete of this features.

With a prolonged power failure (several days) it is necessary to setup the clock again.

7.2 RTC SETUP

1. Push **Menu** key for 3 seconds until the bottom display shows “Hour” and the top display shows its value.
2. Push **SET** one time: the value is blinking.
3. Use the Up and Down keys to adjust it. Push **SET** one time to confirm.
4. Push up or down keys and repeat the operations 2. 3. and 4. for all the RTC parameters:
 - **Min:** minutes (0÷60)
 - **UdAy:** day of the week (**Sun** = Sunday, **Mon** =Monday, **tuE** =Tuesday, **UEd** = Wednesday, **tHu** = Thursday, **Fri** =Friday, **SAt** =Saturday)
 - **dAy:** day of the month (0÷31)
 - **MntH:** month (1÷12)
 - **yEAR:** year (00÷99)

8 ANALOG AND DIGITAL OUTPUT CONFIGURATION

8.1 ANALOG INPUT PB1 - PB2 – PB5 – PB6

Parameters involved:

CF08 = Configuration PB1

CF09 = Configuration PB2

CF12 = Configuration PB5

CF13 = Configuration PB6

- 0. Not enabled
- 1. Temperature probe **PTC** for compressor #1 discharge
- 2. Temperature probe **NTC** for evaporator inlet
- 3. Temperature probe **NTC** for evaporator #1 outlet
- 4. Temperature probe **NTC** for evaporator #2 outlet
- 5. Temperature probe **NTC** for common evaporator outlet
- 6. Temperature probe **NTC** for common hot water condenser inlet
- 7. Temperature probe **NTC** for hot water of the condenser circuit #1 inlet
- 8. Temperature probe **NTC** for hot water of the condenser circuit #2 inlet
- 9. Temperature probe **NTC** for hot water of the condenser circuit #1 outlet
- 10. Temperature probe **NTC** for hot water of the condenser circuit #2 outlet
- 11. Temperature probe **NTC** for hot water of the condenser common outlet
- 12. Temperature probe **NTC** (external temperature) for dynamic setpoint / boiler / change over
- 13. Temperature probe **NTC** for combined defrost circuit #1
- 14. Temperature probe **NTC** for combined defrost circuit #2
- 15. Temperature probe **NTC** for auxiliary output #1
- 16. Temperature probe **NTC** for auxiliary output #2
- 17. Temperature probe **NTC** for condensing circuit #1
- 18. Temperature probe **NTC** for condensing circuit #2

Every analogue input can be configured as digital input; after the number 18, the values **o 1 ... c38** allow the configuration of the analogue input as digital inputs with the same meaning (o 1= remote ON/OFF, o 2= Remote chiller / heat pump,).

8.2 ANALOG INPUT CONFIGURATION PB3 - PB4

Parameter involved:

CF10 = Configuration PB3

CF11 = Configuration PB4

- 0 Not enabled
- 1 Temperature probe **PTC** for compressor #1 discharge
- 2 Temperature probe **NTC** for evaporator inlet
- 3 Temperature probe **NTC** for evaporator #1 outlet
- 4 Temperature probe **NTC** for evaporator #2 outlet
- 5 Temperature probe **NTC** for common evaporator outlet
- 6 Temperature probe **NTC** for common hot water condenser inlet
- 7 Temperature probe **NTC** for hot water of the condenser circuit #1 inlet
- 8 Temperature probe **NTC** for hot water of the condenser circuit #2 inlet
- 9 Temperature probe **NTC** for hot water of the condenser circuit #1 outlet
- 10 Temperature probe **NTC** for hot water of the condenser circuit #2 outlet
- 11 Temperature probe **NTC** for hot water of the condenser common outlet

- 12 Temperature probe **NTC** (external temperature) for dynamic setpoint / boiler / change over
- 13 Temperature probe **NTC** for combined defrost circuit #1
- 14 Temperature probe **NTC** for combined defrost circuit #2
- 15 Temperature probe **NTC** for auxiliary output #1
- 16 Temperature probe **NTC** for auxiliary output #2
- 17 Condenser probe circuit 1 (temperature **NTC** / pressure **4÷20 mA** / ratio-metric **0÷ 5Volt**)
- 18 Condenser probe circuit 2 (temperature **NTC** / pressure **4÷20 mA** / ratio-metric **0÷ 5Volt**)
- 19 Evaporator pressure probe circuit 1 (pressure **4÷20 mA** / ratio-metric **0÷ 5Volt**)
- 20 Evaporator pressure probe circuit 1 (pressure **4÷20 mA** / ratio-metric **0÷ 5Volt**)
- 21 Auxiliary output 1 pressure probe control (**4÷20 mA** / ratio-metric **0÷ 5Volt**).
- 22 Auxiliary output 2 pressure probe control (**4÷20 mA** / ratio-metric **0÷ 5Volt**).
- 23 Dynamic setpoint pressure probe (**4÷20 mA**)

Every analogue input can be configured as digital input; after the number 18, the values **o 1 ... c38** allow the configuration of the analogue input as digital inputs with the same meaning (o 1= remote ON/OFF, o 2= Remote chiller / heat pump,).

8.3 DIGITAL INPUT CONFIGURATION ID1 – ID18

Parameters involved:

CF24 = Configuration ID1...**CF34** = Configuration ID18

- 0. Not enabled
- 1. Remote ON / OFF
- 2. Remote chiller / heat pump
- 3. Flow switch evaporator pump / supply fan overload
- 4. Flow switch condenser pump
- 5. Antifreeze heater circuit 1
- 6. Antifreeze heater circuit 2
- 7. High pressure switch circuit 1
- 8. High pressure switch circuit 2
- 9. Low pressure switch circuit 1
- 10. Low pressure switch circuit 2
- 11. Compressor 1 high pressure
- 12. Compressor 2 high pressure
- 13. Compressor 1 overload
- 14. Compressor 2 overload
- 15. Condenser fan overload of circuit 1
- 16. Condenser fan overload of circuit 2
- 17. Condenser fan overload of circuit 1 and 2 (common condenser)
- 18. Evaporator water pump overload
- 19. Support evaporator water pump overload
- 20. Condenser water pump overload
- 21. Support condenser water pump overload
- 22. End defrost of circuit 1
- 23. End defrost of circuit 2
- 24. Energy Saving
- 25. Pressure switch / compressor 1 oil
- 26. Pressure switch / compressor 2 oil
- 27. Pump down pressure switch of circuit 1
- 28. Pump down pressure switch of circuit 2
- 29. Generic alarm n°1
- 30. Generic alarm n°2
- 31. RTC disabled
- 32. Supplay fan enabled (the unit works only with the supplay fan)

- 33. Thermoregulation request (motocondensing unit)
- 34. Cooling request (motocondensing unit)
- 35. Heating request (motocondensing unit)
- 36. Request step 2 (motocondensing unit)
- 37. Request step 3 (motocondensing unit)
- 38. Request step 4 (motocondensing unit)

8.4 DIGITAL OUTPUT (RELAY) CONFIGURATION RL1- RL8

Parameter involved:

CF35= Configuration RL1...**CF42=** Configuration RL8

- 0. Not enabled
- 1. Alarm
- 2. Evaporator water pump / Supply fan
- 3. Evaporator support water pump
- 4. Anti-freeze heater / integration heating / boiler circuit 1
- 5. Anti-freeze heater / integration heating / boiler circuit 2
- 6. Condenser water pump
- 7. Condenser support water pump
- 8. 4-way valve for chiller / heat pump inversion of the circuit 1
- 9. 4-way valve for chiller / heat pump inversion of the circuit 2
- 10. 1° condenser fan step ON/OFF control of the circuit 1
- 11. 2° condenser fan step ON/OFF control of the circuit 1
- 12. 3° condenser fan step ON/OFF control of the circuit 1
- 13. 1° condenser fan step ON/OFF control of the circuit 2
- 14. 2° condenser fan step ON/OFF control of the circuit 2
- 15. 3° condenser fan step ON/OFF control of the circuit 2
- 16. Solenoid valve of the pump-down circuit 1
- 17. Solenoid valve of the pump-down circuit 2
- 18. Auxiliary output circuit 1
- 19. Auxiliary output circuit 2
- 20. Solenoid valve Intermittent for screw compressor 1
- 21. Solenoid valve of the liquid injection for compressor 1
- 22. Solenoid valve water side for chiller and heat pump circuit 1
- 23. Solenoid valve water side for heat pump circuit 1
- 24. Solenoid valve water side for chiller and heat pump circuit 2
- 25. Solenoid valve water side for heat pump circuit 2
- 26. Valve for geothermal function
- 27. Direct start-up : compressor 1 relay
Part Winding 1 of the compressor 1
- 28. Part Winding 2 of the compressor 1
- 29. Capacity step valve 1 compressor 1
- 30. Capacity step valve 2 compressor 1
- 31. Capacity step valve 3 compressor 1
- 32. By-pass gas valve compressor 1 start
- 33. Direct start: compressor 2 start
Part Winding 1 of the compressor 2
- 34. Part Winding 2 of the compressor 2
- 35. Capacity step valve 1 compressor 2
- 36. By-pass gas valve compressor 2 start

8.5 ANALOG OUTPUT CONFIGURATION 0 ÷ 10 VOLT (OUT1 E OUT2)

Parametri:

CF43 = Analog output OUT1 configuration

CF44 = Analog output OUT2 configuration

- 0 = output disabled
- 1 = 0..10V output for compressor 1 inverter controlled
- 2 = 0..10V output for compressor 2 inverter controlled
- 3 = 0..10V output for auxiliary output 1
- 4 = 0..10V output for auxiliary output 2
- 5 = 0..10V output for geothermal function
- 6 = 0..10V output for condenser fan circuit 1
- 7 = 0..10V output for condenser fan circuit 2
- 8 = 0..10V output for modulating evaporator pump
- 9 = 0..10V output for modulating condenser pump
- o1..c26 = ON / OFF output for external relay management (same meaning of relays configuration)

8.6 CONFIGURAZIONE N° 2 USCITE ANALOGICHE 0 ÷ 10 VOLT / TAGLIO DI FASE (OUT3 E OUT4)

Parametri:

CF45 = Configurazione uscita analogica n° 3

CF46 = Configurazione uscita analogica n° 4

- 0 = output disabled
- 1 = 0..10V output for compressor 1 inverter controlled
- 2 = 0..10V output for compressor 2 inverter controlled
- 3 = 0..10V output for auxiliary output 1
- 4 = 0..10V output for auxiliary output 2
- 5 = 0..10V output for geothermal function
- 6 = 0..10V output for condenser fan circuit 1
- 7 = 0..10V output for condenser fan circuit 2
- 8 = PWM output for condenser fan circuit 1
- 9 = PWM output for condenser fan circuit 2
- o1..c26 = OFF output for external relay management (same meaning of relays configuration)

9 PROGRAMMING WITH THE “HOT KEY 64”

9.1 DOWNLOAD: HOW TO PROGRAM AN INSTRUMENT WITH A PROGRAMMED “HOT KEY”

1. Turn off the instrument supply
2. Insert the hot key.
3. Turn on the power supply.
4. Immediately the parameters are downloaded.

During the download the regulation is locked and the top display shows the “**doL**” blinking label. At the end of the download will appear:

“**End**” if the programming procedure is completely OK, after 30seconds the regulation starts automatically.

“**Err**” if the programming procedure has found an error and the parameter have not been transferred. In this case turn off and then on the instrument supply to repeat the operation or remove the hot key, with power supply off, to restart the regulation.

9.2 UPLOAD: HOW TO PROGRAM A “HOT KEY” WITH THE PARAMETERS OF THE INSTRUMENT

1. Turn on the power supply.
2. Insert the hot key.
3. Enter the function Menu.
4. Select the **UPL** function (on the bottom display).
5. Push **SET** key and immediately the instrument starts transfer the parameters into the Hot key.

During the upload the regulation is locked and the top display shows the “**UPL**” blinking label. At the end of the UPLOAD will appear:

“**End**” if the programming procedure is completely OK, after 30seconds the regulation starts automatically.

“**Err**” if the programming procedure has found an error and the parameter have not been transferred. Repeat the procedure.

To exit the UPL function push the MENU key or wait the time-out.

10 PROGRAMMING USING THE KEYBOARD

Through the instrument keyboard it is possible to enter the programming. In all the three accessible levels the user can show and modify both value and visibility of the parameters. To ensure an easy navigation through the different levels the common parameters have been named and grouped under a family name.

The three levels of programming:

- Pr1 User level
- Pr2 Maintenance level
- Pr3 OEM level

10.1 PASSWORD DEFAULT VALUES

- Password level Pr1 = 1
- Password level Pr2 = 2
- Password level Pr3 = 3

Each password can be changed, the range is from 0 to 999.

10.2 ENTER THE PR1 - PR2 - PR3 PROGRAMMING LEVELS

Pr1 LEVEL:

Push **SET** + **DOWN** together for 3 seconds, the top display shows the PAS label and the bottom display shows the Pr1 label. The leds Cir1 and Cir2 are blinking to inform that you now are in PR1 programming level.

Pr2 LEVEL:

Starting from Pr1 level push the UP key for 2 seconds and the bottom display will show Pr2. The top display still shows PAS.

Push the SET key and the top display will show the 0 blinking value; set the password level using the UP and DOWN keys then confirm with SET key.

Pr3 LEVEL:

Starting from the Pr2 level push the UP key for 2 seconds and the bottom display will show Pr3. The top display still shows PAS.

After selecting the level push the SET key and the top display will show the 0 blinking value where to insert the password.

Set the password level using the UP and DOWN keys then confirm with SET key.

Depending on the password value there will be the different level access, if the password is wrong the instrument shows the password value again.

ATTENTION:

For all the programming levels Pr1, 2, 3: the CF family (or configuration parameters) can not be changed if the unit is running in chiller or heat pump. To change this parameters is necessary to set the unit in stand-by and then enter the programming again.

During the defrost the dF family can't be programmed.

10.3 HOW TO CHANGE A PARAMETER VALUE

Enter the programming

1. Push the **SET + DOWN** keys together for 3 seconds;
2. Select the parameter label with up and down keys;
3. Push **SET** to enter the parameter value;
4. Change the value with **UP** or **DOWN** keys;
5. Push "**SET**" to confirm, after some seconds the display shows the next parameter;
6. Exit: Push **SET + UP** together when a parameter label is displayed or wait 15seconds without pushing a key.

NOTE: a new parameter value is confirmed also after the 15 seconds of timeout is expired (without pushing SET key to confirm).

10.4 CHANGE THE PASSWORD VALUE

Pr1 LEVEL

Remember that it is necessary to know the old password value.

- 1) Enter the Pr1 level
- 2) Select a parameter family.
- 3) Select "**Pr1**" on the bottom display; the current password value is on the top display. Push the SET key to change the value that now is blinking.
- 4) Use the UP or DOWN key to insert the NEW PASSWORD value, then push SET to confirm the new value.
- 5) The top display blinks for some seconds and then shows the next parameter.
- 6) Exit the programming pushing SET + UP together or wait the timeout.

Pr2 LEVEL

Remember that it is necessary to know the old password value.

1. Enter the Pr2 level
2. Select a parameter family.
3. Select the "**Pr2**" on the bottom display; the current password value on the top display. Push the SET key to change the value that now is blinking.
4. Use the UP or DOWN key to insert the NEW PASSWORD value, then push SET to confirm the new value.
5. The top display blinks for some seconds and then shows the next parameter
6. Exit the programming pushing SET + UP together or wait the timeout.

Inside the Pr2 level it is possible to change also the Pr1 password.

Pr3 LEVEL

Remember that it is necessary to know the old password value.

1. Enter the Pr3 level
 2. Select a parameter family.
 3. Select the "**Pr3**" on the bottom display; the current password value on the top display. Push the SET key to change the value that now is blinking.
 4. Use the UP or DOWN key to insert the NEW PASSWORD value, then push SET to confirm the new value.
 5. The top display blinks for some seconds and then shows the next parameter
 6. Exit the programming pushing SET + UP together or wait the timeout.
- Inside the Pr3 level it is possible to change also the Pr1 and Pr2 passwords.

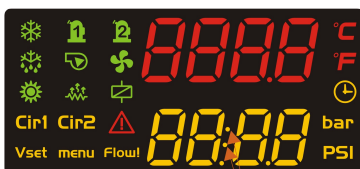
10.5 ENTER THE PROGRAMMING LEVEL PR1

Enter the Pr1 "User level":

1. Push the **SET** + **DOWN** keys together for 3 seconds. The top display shows PAS while the bottom display shows Pr1 labels.
2. Push **SET** key and the top display shows a blinking 0, with **UP** or **DOWN** insert the Pr1 password. Push **SET** and, if the value is correct, the top display will show the first family of parameters "**ALL**". Otherwise set the password again.
3. Select a parameter family with **DOWN** or **UP** keys.
4. Push **SET** to enter, the bottom display shows the first available parameter label while the top display shows its value.

The user can shows and modify all the parameters belonging to this family.

Parameter status, leds and bottom display in Pr1



Led 1 and 2

- If the selected parameter can not be changed the leds 1 and 2 are blinking.
- In Pr1 level the user can not see and change any parameter of Pr2 and Pr3.
- The MENU key allows to exit from a family to reselect another without exit the Pr1 level.
- To exit completely the programming push SET + UP.

10.6 ENTER THE PROGRAMMING LEVEL PR2

Enter the Pr2 "maintenance level":

1. Push the **SET** + **DOWN** keys together for 3 seconds. The top display shows PAS while the bottom display shows Pr1 labels.
2. Push UP key for 2 seconds and the top display will show Pr2.
3. Push **SET** key and the top display shows a blinking 0, with **UP** or **DOWN** insert the Pr2 password. Push **SET** and, if the value is correct, top display will show the first family of parameters "**ALL**". Otherwise set the password again.

4. Select a parameter family with **DOWN** or **UP** keys.
5. Push **SET** to enter, the bottom display shows the first available parameter label while the top display shows its value.

The user can shows and modify all the paramters belonging to this family.

Parameter status, leds and bottom display in Pr2



- Leds 1 / 2 are blinking: the parameter can not be changed.
- All the leds are off: the parameter ca not be seen in Pr1 level.
- Led 3 is on: the parameter can be seen in Pr1 level.
- Led 3 blinking: the parameter can be showed and changed in Pr2, showed but not changed in Pr1.
- Leds 1 / 2 / 3 are blinking: the parameter can't be showed and changed in Pr2 and in Pr1.
- In Pr2 level the user can not see and change any parameter of Pr3 level.
- The MENU key allows to exit from a family to reselect another without exit the Pr2 level.
- The MENU key allows to pass to Pr1 starting from a family label.
- To exit completely the programming push SET + UP.

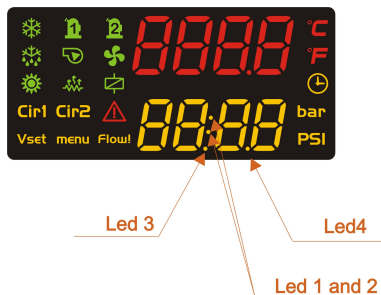
10.7 ENTER THE PROGRAMMING LEVEL PR3

Enter the Pr3 "OEM level ":

1. Push the **SET** + **DOWN** keys together for 3 seconds. The top display shows PAS while the bottom display shows Pr1 labels.
2. Push UP key for 2 seconds and the top display will show Pr2.
1. Push UP key again for 2 seconds and the top display will show Pr3
3. Push **SET** key and the top display shows a blinking 0, with **UP** or **DOWN** insert the Pr3 password. Push **SET** and, if the value is correct, top display will show the first family of parameters "**ALL**". Otherwise set the password again.
4. Select a parameter family with **DOWN** or **UP** keys.
5. Push **SET** to enter, the bottom display shows the first available parameter label while the top display shows its value.

The user can shows and modify all the paramters belonging to this family.

Parameter status, leds and bottom display in Pr3



- Leds 1 / 2 are blinking: the parameter can not be changed in Pr1 and Pr2 level.
- All the leds are off: the parameter is available only in Pr3.
- Led 4 on: the parameter can be changed also in Pr2.
- Led 4 blinking: the parameter is visible but not modifiable in Pr2.
- Leds 3 / 4 on: the parameter is visible and modifiable in Pr2 and in Pr1.
- Leds 3 / 4 blinking: the parameter is visible but not modifiable in Pr1 and in Pr2.
- The MENU key allows to exit from a family to reselect another without exit the Pr2 level.
- The MENU key allows to pass to Pr1 starting from a family label.
- To exit completely the programming push SET + UP.

11 FUNCTION MENU “ M ” KEY

The function Menu is composed of the following items:

- 1) Show and reset the alarms **ALrM**
- 2) Compressor overload alarm reset **COtr**
- 3) Show and reset the alarm log **ALOG**
- 4) Upload the parameter into the Hot Key **UPL**
- 5) Enable – disable one or the two circuits **CrEn**
- 6) Enable – disable one of the compressors **COEn**
- 7) Enable – disable one of the pumps **POEn**
- 8) Display the compressor discharge temperature **COdt**
- 9) Show and reset the number of compressor running hour **Hour**
- 10) Show and reset the number of compressor starts-up **COSn**
- 11) Show the condensing fan speed percentage of the proportional output **Cond**
- 12) Show the percentage of the proportional output 0 ÷ 10 Vdc **Pout**
- 13) Time counting to next defrost cycle, under heat pump mode, **dF**
- 14) Show the probe temperatures that enabled to control the auxiliary output **uS**
- 15) Show the probe the temperature of the remote panels **trEM**

MENU FUNCTION ACCESS: Push and release the **M** key.

11.1 ALARM LIST: SHOW AND RESET

ALrM FUNCTION

Enter the function MENU pushing M key one time

- 1) Use the **UP** or **DOWN** to select the ALrM label
- 2) Push **SET** key (Nothing happens if there are no active alarm events)

- 3) Bottom display: alarm label code. Top display: label **rSt** to reset or **NO** if it is not possible.
- 4) Use the **UP** or **DOWN** to scroll the alarm list.
- 5) Pushing SET when the rSt label is displayed the corresponding alarm will be reset, then the display shows next alarm in the list, pushing SET again the alarm is reset and the display shows next alarm etc. Nothing happens by pushing SET when the label NO is displayed, in this case push UP or DOWN to move to another alarm label.
- 6) To exit the ALrM reset function push MENU one time or wait the timeout.

11.2 COMPRESSOR OVERLOAD ALARM RESET

COtr function resets the compressor overload alarm event.

Within the COtr function all the active compressor overload alarms are displayed in a list.

Labels involved in COtr: **CO1r = compressor 1 overload reset ... CO2r = compressor 2 overload reset**. Labels CO1r – CO2r are available if the digital inputs have been previously configured.

ATTENTION

The **COtr** menù is displayed only if the compressor overload alarm is at manual reset (after AL25 alarm events per hour the alarm is at manual reset).

MANUAL ALARM RESET PROCEDURE

Enter Menu function

1. Use **UP** or **DOWN** key and select the COtr on the bottom display.
2. Push **SET** one time, if there are active alarms the bottom display shows the alarm label eg. CO1r (for compressor 1) while the top display shows the label rSt to reset the alarm or NO if the alarm can not be reset. Use the UP or DOWN keys to scroll all the alarm list.
3. Nothing happens by pushing SET when the label NO is displayed.
4. Pushing SET when the rSt label is displayed the corresponding alarm will be reset after the password: bottom display = ArSt while the top display = PAS.
5. Push SET and the top display blinks 0 while the bottom shows PAS. Insert the password using UP or DOWN key (see AL60 parameter). If the password is OK the ArSt blinks for per 3seconds, if the password value is not correct the top display blinks 0 while the bottom shows PAS. If within 5 seconds no value is inserted the display label come back to CO1r function.
6. To exit the COtr function push MENU or wait the timeout.

11.3 COMPRESSOR OVERLOAD PASSWORD.

The default value is **0**; to change this value enter Pr3 level, search AL60 parameter and modify its value.

11.4 ALARM LOG LIST

ALOG FUNCTION TO SEE THE ALARM LOG

The function and the alarm codes are visible only if there are alarm events. If many events are active at the same time the list displayed by increasing order.

Enter the function Menu

1. Select ALOG
2. Push **SET** one time. Nothing happens if there are no active alarm events.
3. The bottom display shows the alarm label, the top display shows a number in the range 00 to 99.
4. Use the UP or DOWN keys to scroll the list.
5. To exit the ALOG function push MENU or wait the timeout.

11.5 ERASE THE ALARM LOG LIST

ALOG FUNCTION TO ERASE THE LOG LIST

1. Enter the function Menu.
2. Use the **UP** or **DOWN** keys to select ALOG on the bottom display.
3. Push the **SET** key.
4. Push **UP** or **DOWN** keys and search the **ArSt** label on the bottom display; the top display shows PAS.
5. Push **SET**: the bottom display shows **PAS** and the top display shows 0 value blinking.
6. Insert the password
7. If the password is OK the label **ArST** blinks for 5 seconds then the display returns to normal condition read-out (probes).
8. If the password is not correct the display shows **PAS** again. in any case is possible to scroll the list with **UP** or **DOWN**
9. To exit push the M key one time or wait the timeout.

11.6 PASSWORD VALUE OF THE ALARM LIST

The default value is **0** to change this value enter Pr3 level under the AL parameter family.

THE ALARM LIST CONTAINS 100 EVENTS IN A FIFO STRUCTURE. WHEN THE MEMORY IS FULL ANY NEW ALARM WILL ERASE THE OLDEST.

11.7 DISABLE – ENABLE A SINGLE CIRCUIT

Through the instruments keyboard is possible to completely disable a single circuit for maintenance or to use just a cooling part of of the unit.

CrEn FUNCTION enables – disables a circuit from keyboard.

Label involved with CrEn function: **Cr1E = circuit 1, Cr2E = circuit 2**

HOW TO DISABLE A CIRCUIT

Enter the function Menu

1. Use **UP** or **DOWN** keys to select CrEn on the bottom display
2. Push **SET** key: the bottom display = **Cr1E**, top display = **En**.
3. Select the circuit 1 or 2 with UP or DOWN key (Cr1E or Cr2E).
4. Push **SET** key for 3 seconds when; the top display shows the **En** blinking label. Using UP or DOWN key, choose the label **dis** (Disabled) or **En** (Enabled), then push SET key to confirm the new selection. The display shows next circuit status.
5. To exit the CrEn function push MENU key or wait the timeout.

12 TABLE OF THE OUTPUT STATUS IN ALARM CONDITION

The alarm codes are made of letters and numbers to define the different typologies:.

12.1 ALARM: “A” TYPE AND STATUS OF THE LOADS IN CASE OF ALARM

Alarm Code	Alarm description	Compressor	Anti freeze heaters Boiler	Support heaters	Evap. Pump. Supply fan	Condenser Pump	Ventilaz. cond. Cir1 Cir2	Auxiliary relay
ALti	Low air temperature of the evaporator inlet (air / air unit) Alarm							
AEFL	Evaporator flow alarm	Yes	Yes (boiler)		Yes (3)		Yes	
ACFL	Condenser flow alarm	Yes				Yes (3)	Yes	
AtSF	Fan supply overload alarm	Yes		Yes	Yes		Yes	
AEUn	Unloading signalling from high temp of evaporator water							
AELt	Low temperature of the evaporator inlet in Heat Pump mode	Yes						
Aedt	Differential temperature alarm (between temperature inlet and outlet)	Yes						
AtE1	Water pump overload alarm evaporator 1	Yes (4)	Yes (boiler) (5)		Yes		Yes	
AtE2	Water pump overload alarm support evaporator 2	Yes (4)	Yes (boiler)		Yes		Yes	

			(5)					
AtC1	Water pump overload alarm condenser 1	Yes (4)				Yes	Yes	
AtC2	Water pump overload alarm support condenser 2	Yes (4)				Yes	Yes	
AEP1	Water pump maintenance evaporator 1							
AEP2	Water pump maintenance support evaporator 2							
ACP1	Water pump maintenance condenser 1							
ACP2	Water pump maintenance support condenser 2							
ArtC	Clock alarm							
Atr1	Remote terminal n° 1 configured but not connected							
Atr2	Remote terminal n° 2 configured but not connected							
ArtF	clock failure							
ALc1	Generic alarm n°1	Yes			Yes	Yes	Yes	Yes
ALc2	Generic alarm n°2 and AL56=0							
ALc2	Generic alarm n°2 and AL56=1	Yes			Yes	Yes	Yes	Yes
AEE	Eeprom alarm	Yes			Yes	Yes	Yes	Yes
AFr	Power supply frequency alarm (if CF54=2, 4)	Yes			Yes	Yes	Yes	Yes
ACF1	Configuration alarm	Yes			Yes	Yes	Yes	Yes
ACF2	Configuration alarm	Yes			Yes	Yes	Yes	Yes
ACF3	Configuration alarm	Yes			Yes	Yes	Yes	Yes
ACF4	Configuration alarm	Yes			Yes	Yes	Yes	Yes
ACF5	Configuration alarm	Yes			Yes	Yes	Yes	Yes
ACF6	Configuration alarm	Yes			Yes	Yes	Yes	Yes
ACF7	Configuration alarm	Yes			Yes	Yes	Yes	Yes

ACF8	Configuration alarm	Yes			Yes	Yes	Yes	Yes
ACF9	Configuration alarm	Yes			Yes	Yes	Yes	Yes
AC10	Configuration alarm	Yes			Yes	Yes	Yes	Yes
AC11	Configuration alarm	Yes			Yes	Yes	Yes	Yes
AEht	High water temperature inlat evaporator	Yes						

- (1) = with probe configured as anti-freeze / boiler control and Ar10 = 0
 (2) = with probe configured as auxiliary relay control
 (3) = with manual alarm procedure
 (4) = Off compressors spenti with only 1 water pump configured or with 2 pumps but both in alarm from the corresponding digital inputs.
 (5) = Boiler heaters off with only 1 water pump configured or with 2 pumps but both in alarm from the corresponding digital inputs (in this case the boiler heaters are on only with thermoregulation anti-freeze setpoint as evaporator protection function)

12.2 ALARM: “B” TYPE AND STATUS OF THE LOADS IN CASE OF ALARM

Alarm Code	Alarm description	Compressors of the circuit (n)	Compressors of the other circuit	Fan condensing of the circuit (n)	Fan condensing of the other circuit
b(n)HP	High pressure switch of the circuit (n)	Yes		Yes after 60 seconds	
b(n)LP	Low pressure switch of the circuit (n)	Yes		Yes	
b(n)AC	Anti-freeze in chiller of the circuit (n)	Yes		Yes	
b(n)AH	Anti-freeze in heat pump of the circuit (n)	Yes		Yes	
b(n)hP	High condensing pressure of the circuit (n)	Yes		Yes after 60 seconds	
b(n)hP	High condensing temperature from NTC of the circuit (n)	Yes		Yes after 60 seconds	
b(n)LP	Low condensing pressure - (evaporating with low pressure transducer) with transducer of the circuit of the (n)	Yes		Yes	

b(n)IP	Low condensing temperature NTC circuit (n)	Yes		Yes	
b(n)IF	Fan overload circuit (n)	Yes		Yes	
b(n)PH	Pump down alarm in stop regulation of the circuit (n)	Yes		Yes	
b(n)PL	Pump down in regulation start-up of the circuit (n)	Yes		Yes	
b(n)dF	Bad defrost circuit (n)				
b(n)Cu	Unloading from condenser high temp/press of the circuit (n)				
b(n)Cu	Unloading from evaporator low temp/press of the circuit (n)	Yes		Yes	
b(n)rC	Recovery function disabled in circuit (n)				
b(n)ds	Circuit (n) disabled from keyboard	Yes		Yes	
b(n)Ac	Anti-freeze circuit (n) message in chiller				
b(n)Ah	Anti-freeze circuit (n) message in heat pump				

(**n**) identifies the circuit 1 or 2

12.3 ALARM: “C” TYPE AND STATUS OF THE LOADS IN CASE OF ALARM

Alarm Code	Alarm description	Compressor (n)	Compressors not involved
C(n)HP	Compressor(n) high pressure switch	Yes	
C(n)oP	Compressor(n) oil pressure switch / Oil level switch	Yes	
C(n)tr	Compressor(n) overload	Yes	
C(n)dt	Compressor high discharge temperature	Yes	
C(n)dS	Compressor (n) disabled from keyboard	Yes	
C(n)Mn	Compressor(n) maintenance		

(**n**) identifies the compressor 1, 2 , 3 , 4 , 5 , 6

13 TABLE OF THE PARAMETERS

Thermoregulation					
Par	Description	min	max	u.m.	Resol ution
ST 1	Chiller Setpoint Allow to modify the setpoint of the unit in chiller mode	ST02	ST03	°C/°F	dec/int
ST 2	Chiller minimum Setpoint Minimum setpoint limit for ST 1	-50.0 -58	ST01	°C °F	dec/int
ST 3	Chiller maximum Setpoint Maximum setpoint limit for ST 1	ST01	70.0 158	°C °F	dec/int
ST 4	Heat pump setpoint Allow to modify the setpoint of the unit in heat pump mode	ST05	ST06	°C/°F	dec/int
ST 5	Heat pump minimum Setpoint Minimum setpoint limit for ST 4	-50.0 -58	ST04	°C °F	Dec int
ST 6	Heat pump maximum Setpoint Maximum setpoint limit for ST 4	ST04	70.0 158	°C °F	Dec int
ST 7	Regulation band in chiller mode	0.0 0	25.0 45	°C °F	Dec int
ST 8	Regulation band in heat pump mode	0.0 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 keyboard 1 5= Temperature NTC probe from remote keyboard 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 keyboard 1 5= Temperature NTC probe from remote keyboard 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 outlet of the condenser <u>ATTENTION</u> 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		
ST 12	Set point for change over function	-50.0 -58	70.0 158	°C °F	Dec Int
ST 13	Differential for change over function	0.1 1	25.0 45	°C °F	Dec Int
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	15		
dP 2	Default read-out of the bottom display	0	18		
dP 3	Default display read-out configuration top / bottom 0= Configurable (parameters dP1 and dP2) 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		
dP 4	Display visualization in stand by mode 0= the display visualizes "Stby" 1= the display visualizes what defined by parameters dP1 and dP2 2= the display visualizes "OFF"	0	2		
Display read-out of the remote keyboards					
dP 5	Display default read-out of the remote keyboard 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		
dP 6	Display default read-out of the remote keyboard 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		
dP 7	Display visualization of the remote keyboard 1 in stand by mode 0= the display visualizes "Stby" 1= the display visualizes what defined by parameters dP1 and dP2 2= the display visualizes "OFF"	0	2		
dP 8	Display visualization of the remote keyboard 2 in stand by mode 0= the display visualizes "Stby" 1= the display visualizes what defined by parameters dP1 and dP2 2= the display visualizes "OFF"	0	2		
Pr1	Password	0	999		
Pr2	Password	0	999		
Pr3	Password	0	999		
Configuration					
Parameter	Description	min	max	M. u.	Resolution
Unit Model					
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	0	3		
CF 3	Motocondensing unit 0= no 1= si	0	1		
Compressors					
CF 4	Number of compressors circuit 1 1= 1 2= 2	1	2		
CF 5	Number of compressors circuit 2 0= 0 1= 1	0	1		

CF 6	Number of capacity steps 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	18 C38		
CF 9	PB2 Configuration If configured as digital input	0 o 1	18 C38		
CF 10	PB3 Configuration If configured as digital input	0 o 1	23 C38		
CF 11	PB4 Configuration If configured as digital input	0 o 1	23 C38		
CF 12	PB5 Configuration If configured as digital input	0 o 1	18 C38		
CF 13	PB6 Configuration If configured as digital input	0 o 1	18 C38		
Probe Offset					
CF 14	PB1 Offset	-12.0 21	12.0 21	°C °F	Dec int
CF 15	PB2 Offset	-12.0 21	12.0 21	°C °F	Dec int
CF 16	PB3 Offset	-12.0 -21 -5.0 -72	12.0 21 5.0 72	°C °F bar psi	Dec int dec int
CF 17	PB4 Offset	-12.0 -21 -5.0 -72	12.0 21 5.0 72	°C °F bar psi	Dec int dec int
CF 18	PB5 Offset	-12.0 21	12.0 21	°C °F	Dec int
CF 19	PB6 Offset	-12.0 21	12.0 21	°C °F	Dec int
CF 20	Pressure value at 4mA or 0.5 Vdc of the PB3 transducer	0 -14	50.0 725	Bar psi	Dec int
CF 21	Pressure value at 20mA or 5 Vdc of the PB3 transducer	0 -14	50.0 725	Bar psi	Dec int

CF 45	OUT 3 configuration 0= Not enabled 1= 0..10V signal for compressor 1 inverter controlled 2= 0..10V signal for compressor 2 inverter controlled 3= 0..10V signal for auxiliary output 1 4= 0..10V signal for auxiliary output 1 5= 0..10V signal for geothermal function 6= 0..10V signal for condenser fan circuit 1 7= 0..10V signal for condenser fan circuit 2 8= PWM signal for condenser fan circuit 1 9= PWM signal for condenser fan circuit 2 o1 ... c26 signal to drive external relay	0 o 1	9 c26		
CF 46	OUT 4 configuration 0= Not enabled 1= 0..10V signal for compressor 1 inverter controlled 2= 0..10V signal for compressor 2 inverter controlled 3= 0..10V signal for auxiliary output 1 4= 0..10V signal for auxiliary output 1 5= 0..10V signal for geothermal function 6= 0..10V signal for condenser fan circuit 1 7= 0..10V signal for condenser fan circuit 2 8= PWM signal for condenser fan circuit 1 9= PWM signal for condenser fan circuit 2 o1 ... c26 signal to drive external relay	0 o 1	9 c26		
Remote keyboard					
CF 47	Remote keyboard 1 configuration 0= Not enabled 1= with NTC temperature sensor on board 2= without NTC temperature sensor on board	0	2		
CF 48	Remote keyboard 2 configuration 0= Not enabled 1= with NTC temperature sensor on board 2= without NTC temperature sensor on board	0	2		
CF 49	Offset of the probe mounted on the remote keyboard 1	-12.0 -21	12.0 21	°C °F	Dec int
CF 50	Offset of probe mounted on the remote keyboard 2	-12.0 -21	12.0 21	°C °F	Dec int
Icon function					
CF 51	Icon and keys for chiller and heat pump 0=  chiller /  heat pump 1=  chiller /  heat pump	0	1		
Chiller / heat pump selection mode					
CF 52	Chiller / heat pump selection 0= selection by keys on the keyboard 1= selection by digital input 2= selection by probe	0	2		
Unit of measurement					
CF 53	Unit of measurement 0= °C / °BAR 1= °F / °psi	0	1		
Voltage frequency					

CF 54	Power supply frequency 0= disabled 1= Frequency 50 Hz and only signalling alarm 2= Frequency 50 Hz and alarm (all output OFF in case of alarm) 3= Frequency 60 Hz and only signalling alarm 4= Frequency 60 Hz and alarm (all output OFF in case of alarm) (ATTENTION: if the condenser fan is not controlled by cut of phase signal (PWM) the parameter CF54 can be configured at 0 value and the frequency alarm is not enabled)	0	4		
Serial Address					
CF 55	Serial address	1	247		
CF 56	Firmware Release (this parameter is only in reading)				
CF 57	Eeprom parameter map (this parameter is only in reading)				
Enabling compressors					
CF 58	Enabling compressors 0= chiller and heat pump 1= only chiller 2= only heat pump	0	2		
Pr1	Password	0	999		
Pr2	Password	0	999		
Pr3	Password	0	999		
Dynamic Setpoint					
Param eters	Description	min	max	M. u.	Resolu tion
Sd 1	Maximum offset for dynamic setpoint function in chiller	-30.0 -54	30.0 54	°C °F	Dec int
Sd 2	Maximum offset for dynamic setpoint function in heat pump	-30.0 -54	30.0 54	°C °F	Dec int
Sd 3	Setpoint of outside temperature for dynamic setpoint function in chiller	-50.0 -58	70.0 158	°C °F	Dec int
Sd 4	Setpoint of outside temperature for dynamic setpoint function in heat pump	-50.0 -58	70.0 158	°C °F	Dec int
Sd 5	Differential of outside temperature for dynamic setpoint function in chiller	-30.0 -54	30.0 54	°C °F	Dec int
Sd 6	Differential of outside temperature for dynamic setpoint function in heat pump	-30.0 -54	30.0 54	°C °F	Dec int
Pr1	Password	0	999		
Pr2	Password	0	999		
Pr3	Password	0	999		
Energy saving					
Param eters	Description	min	max	udm	Risolu zione
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	Offset for Energy Saving function in chiller mode	-30.0 -54	30.0 54	°C °F	Dec int
ES 15	Differential for Energy Saving function in chiller	0.1 1	25.0 45	°C °F	Dec int
ES 16	Offset for Energy Saving function in heat pump	-30.0 -54	30.0 54	°C °F	Dec int
ES 17	Differential for Energy Saving in heat pump	0.1 1	25.0 45	°C °F	Dec int
ES 18	Maximum working time of the unit when switched on from keyboard (and the unit is OFF by Energy saving) 0= Not enabled	0	250	Min	10 Min
Pr1	Password	0	999		
Pr2	Password	0	999		
Pr3	Password	0	999		
Compressors					
Param eters	Description	min	max	udm	Risolu zione
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.	1	250	Sec	
CO 4	OFF delay time between two compressors or compressor and valve	0	250	Sec	
CO 5	Delay time to activate the thermoregulation starting from the power on	0	250	10 Sec	10 sec
Partialization (Capacity Control)					
CO 6	Functioning (see Capacity Control) 0= On/off steps 1= Continuous insertion of the steps and direct action 2= Continuous insertion of the steps and reverse action 3= Continuous insertion of the steps	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	ON time of the intermittent solenoid valve for screw compressor 0= the function is not enabled	0	250	Sec	
CO 9	OFF time of the intermittent solenoid valve for screw compressor	0	250	Sec	
Compressor start-up					
CO 10	Compressor start-up selection 0= Direct 1= Part - winding	0	1		

CO 11	Part - winding start-up time. To change the time delay between the activation of two contactors of the two compressor circuits	0	100	Sec/10	0.1 sec
CO 12	By-pass gas valve start-up time / automatic start-unloading valve (capacity step control)	0	250	sec	
Rotating – Balancing – Compressors Thermoregulation					
CO 13	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 14	Circuit balancing (See Circuit balancing) 0= Circuit saturation 1= Circuit balancing	0	1		
Evaporator water pump / supply fan					
CO 15	Operative mode of the evaporator pump / supply fan 0= Not enabled (evaporator pump or supply fan). 1= ON/OFF: continuous operation type 1 When the unit is running in Chiller or Heat Pump the pump or the supply fan is running. In std-by or remote OFF mode, the pump is OFF. 2= ON/OFF: on if called by compressor When a compressor is running, the pump or the supply fan is running. 3= ON/OFF: continuous operation type 2 When the unit is running in Chiller or Heat Pump or in STD-By or in OFF, the pump or the supply fan is running. 4= Modulation: continuous operation type 1 When the unit is running in Chiller or Heat Pump the pump or the supply fan is running. In std-by or remote OFF mode, the pump is OFF. 5= Modulation: on if called by compressor When a compressor is running, the pump or the supply fan is running. 6= Modulation: continuous operation type 2 When the unit is running in Chiller or Heat Pump or in STD-By or in OFF, the pump or the supply fan is running.	0	6		
CO 16	ON compressor delay after water pump / supply fan start-up	1	250	10 sec	10 sec
CO 17	OFF delay evaporator water pump / supply fan after compressor switching OFF. This delay is also active when the unit is turned in stand-by	0	250	Min	
CO 18	Number of running hours for evaporator pump rotation	0	999	10Hr	10Hr
CO 19	Contemporary working time of the pumps during rotation	0	250	Sec	
Condenser water pump					

CO 20	Operative mode of the condenser pump 0= Not enabled 1= ON/OFF: continuous operation type 1 When the unit is running in Chiller or Heat Pump the pump is running. In std-by or remote OFF mode, the pump is OFF. 2= ON/OFF: on if called by compressor When a compressor is running, the pump is running. 3= ON/OFF: continuous operation type 2 When the unit is running in Chiller or Heat Pump or in STD-By or in OFF, the pump is running. 4= Modulation: continuous operation type 1 When the unit is running in Chiller or Heat Pump the pump is running. In std-by or remote OFF mode, the pump is OFF. 5= Modulation: on if called by compressor When a compressor is running, the pump is running. 6= Modulation: continuous operation type 2 When the unit is running in Chiller or Heat Pump or in STD-By or in OFF, the pump is running.	0	6		
CO 21	Delay time to switch off the pump starting from compressor deactivation or when the unit is placed in std-by	0	250	Min	
CO 22	Number of running hours for condenser pump rotation	0	999	10Hr	10Hr
CO 23	Contemporary working time of the pumps during rotation	0	250	Sec	
Load maintenance					
CO 24	Compressor 1: number of working hour to signalling maintenance warning	0	999	10 Hr	10 Hr
CO 25	Compressor 2: number of working hour to signalling maintenance warning	0	999	10 Hr	10 Hr
CO 26	Evaporator pump / supply fan: number of working hour to signalling maintenance warning	0	999	10 Hr	10 Hr
CO 27	Support evaporator pump / supply fan: number of working hour to signalling maintenance warning	0	999	10 Hr	10 Hr
CO 28	Condenser pump: number of working hour to signalling maintenance warning	0	999	10 Hr	10 Hr
CO 29	Support condenser pump: number of working hour to signalling maintenance warning	0	999	10 Hr	10 Hr
Pump down					
CO 30	Pump down operating mode (See pump down ON/OFF function) 0= Not enabled 1= Pump down enabled only during the switching off 2= Pump down enabled during the switching off and switching on 3= in Chiller mode pump down enabled only during the switching off 4= in Chiller mode pump down enabled during the switching off and switching on	0	4		
CO 31	Pump-down pressure setpoint (See pump down ON/OFF function)	0 0	50.0 725	Bar psi	Dec int
CO 32	Pump-down pressure differential (See pump down ON/OFF function)	0 0	14.0 203	Bar psi	Dec int
CO 33	Maximum pump-down time duration at start-up and stop (See pump down ON/OFF function)	0	250	Sec	
Evaporator Unloading					
CO 34	Unloading compressor setpoint in chiller to prevent high temperature of the evaporator water inlet (See unloading function).	-50 -58	70.0 158	°C °F	Dec int
CO 35	Unloading Differential. From high temperature of the evaporator water inlet (See unloading function).	0.1 1	25.0 45	°C °F	Dec int
CO 36	Delay time to engage the Unloading function from high temperature of the evaporator water inlet (See unloading function).	0	250	Sec	10sec

CO 37	Maximum unloading duration time to keep activated the Unloading function from high temperature of the evaporator water inlet (See unloading function).	0	250	Min	
CO 38	Unloading compressor setpoint in chiller to prevent low temperature of the evaporator water inlet (See unloading function).	-50 -58	70.0 158	°C °F	Dec int
CO 39	Unloading Differential to prevent low temperature of the evaporator water inlet (See unloading function).	0.1 1	25.0 45	°C °F	Dec int
CO 40	Maximum unloading duration time to keep activated the Unloading function from low temperature of the evaporator water inlet (See unloading function).	0	250	Min	
Condenser Unloading					
CO 41	Unloading compressor setpoint. From temperature / pressure in chiller mode (See unloading function).	0 0	50.0 725	Bar psi	Dec int
CO 42	Unloading Differential. From temperature / pressure in chiller mode (See unloading function).	0.0 0	14.0 203	Bar Psi	Dec int
CO 43	Unloading compressor setpoint. From temperature / pressure in HP mode (See unloading function).	0 0	50.0 725	Bar psi	Dec int
CO 44	Unloading Differential. From temperature / pressure in HP mode (See unloading function).	0.0 0	14.0 203	Bar Psi	Dec int
CO 45	Maximum unloading duration time from temperature/pressure control.	0	250	Min	
CO 46	Number of steps for circuit with active unloading 1= 1 st step 2= 2 nd step 3= 3 rd step	1	3		
CO 47	Minimum ON time of the capacity step after the unloading function start (only for capacity compressor)	0	250	Sec	
Compressor liquid injection					
CO 48	Setpoint of the solenoid valve (on) of the liquid injection	0 32	150 302	°C °F	Dec / int int
CO 49	Setpoint of the solenoid valve (off) of the liquid injection	0.1 1	25.0 45	°C °F	Dec int
Load management in neutral zone					
CO 50	Maximum working time in neutral zone without steps insertion	0	250	Min	10 Min
CO 51	Maximum working time in neutral zone without steps rotation	0	999	Hr	1Hr
Pump down to time					
CO 52	Maximum time for the activation of the pump-down during the switching off CO58 = 0 Not enabled	0	250	Sec	
CO 53	Maximum time for the activation of the pump-down during the switching on CO59 = 0 Not enabled	0	250	Sec	
Compressor inverter controlled					
CO 54	Time at maximum speed during compressor start up	0	250	sec	
CO 55	Minimum value of the proportional output at compressor start up	0	100	%	
CO 56	Minimum interval time of the capacity variation at compressor start up	1	250	sec	
CO 57	Value under wich starts counting time CO58	0	100	%	
CO 58	Maximum working time of the compressor with percentage lower than CO57	0	250	Min	10 Min
CO 59	Time of forcing the compressor digital scroll to the maximum power	0	250	sec	10sec
CO 60	Maximum working time for compressors rotation	0	999	Hr	1Hr

CO 61	Minimum value of the proportional output digital scroll 0÷10V compressor 1	0	CO62	%	
CO 62	Maximum value of the proportional output digital scroll 0÷10V compressor 1	CO61	100	%	
CO 63	Minimum value of the proportional output digital scroll 0÷10V compressor 2	0	CO64	%	
CO 64	Maximum value of the proportional output digital scroll 0÷10V compressor 2	CO63	100	%	
CO 65	Minimum interval time of the capacity variation	1	250	sec	
Tandem function					
CO 66	Maximum working time for compressors rotation	0	250	Min	
Solenoid valve water side					
CO 67	Delay time for compressor activation starting from solenoid valve activation	0	250	Min	
CO 68	Delay time for solenoid valve deactivation starting from compressor deactivation	0	250	Min	
Unbalanced compressors					
CO 69	Compressor 1 weight	0	100	%	
CO 70	Compressor 2 weight	0	100	%	
CO 71	Maximum numbers of start up per hour 0= function disabled	0	60		
Modulating evaporator water pump					
CO 72	Probe selection (Pb1..Pb6) for modulating evaporator water pump in chiller	0	6		
CO 73	Probe selection (Pb1..Pb6) for modulating evaporator water pump in heat pump	0	6		
CO 74	Set point for modulating evaporator water pump in chiller	-50.0 -58 0 0	70.0 158 50.0 725	°C °F Bar Psi	Dec Int Dec int
CO 75	Proportional band for modulating evaporator water pump in chiller	0.1 1 0.1 1	25.0 45 14.0 203	°C °F Bar Psi	Dec Int Dec int
CO 76	Set point for modulating evaporator water pump in heat pump	-50.0 -58 0 0	70.0 158 50.0 725	°C °F Bar Psi	Dec Int Dec int
CO 77	Proportional band for modulating evaporator water pump in heat pump	0.1 1 0.1 1	25.0 45 14.0 203	°C °F Bar Psi	Dec Int Dec int
CO 78	Minimum value of the signal for the modulation of the pump	0	CO 79	%	
CO 79	Maximum value of the signal for the modulation of the pump	CO 78	100	%	
CO 80	Time at maximum speed when the pump is activated	0	250	sec	
CO 81	Value of the signal when the compressor is OFF or when the unit is in STD-BY or remote OFF	0	100	%	
CO 82	Time at maximum speed during the switching off of the pump	0	250	sec	
Modulating condenser water pump					

CO 83	Probe selection (Pb1..Pb6) for modulating condenser water pump in chiller	0	6		
CO 84	Probe selection (Pb1..Pb6) for modulating condenser water pump in heat pump	0	6		
CO 85	Set point for modulating condenser water pump in chiller	-50.0 -58 0 0	70.0 158 50.0 725	°C Int Dec int	
CO 86	Proportional band for modulating condenser water pump in chiller	0.1 1 0.1 1	25.0 45 14.0 203	°C Int Dec int	
CO 87	Set point for modulating condenser water pump in heat pump	-50.0 -58 0 0	70.0 158 50.0 725	°C Int Dec int	
CO 88	Proportional band for modulating condenser water pump in heat pump	0.1 1 0.1 1	25.0 45 14.0 203	°C Int Dec int	
CO 89	Minimum value of the signal for the modulation of the pump	0	CO90	%	
CO 90	Maximum value of the signal for the modulation of the pump	CO89	100	%	
CO 91	Time at maximum speed when the pump is activated	0	250	sec	
CO 92	Value of the signal when the compressor is OFF or when the unit is in STD-BY or remote OFF	0	100	%	
CO 93	Time at maximum speed during the switching off of the pump	0	250	sec	
Pr1	Password	0	999		
Pr2	Password	0	999		
Pr3	Password	0	999		
Auxiliary relay					
Parameters	Description	min	max	M. U.	Resolution
Auxiliary relay of the circuit 1					
US 1	Auxiliary relay 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 2	Probe selection for auxiliary relay 1 control. Allows to select which probe Pb1..Pb6 controls the relay	1	6		
US 3	Auxiliary relay 1 setpoint	-50.0 -58 0.0 0	70.0 158 50.0 725	°C °F Bar Psi	Dec int Dec int
US 4	Auxiliary relay 1 differential	0.1 1 0.0 0	25.0 45 14.0 203	°C °F Bar Psi	Dec int Dec int
Auxiliary relay circuit 2					
US 5	Auxiliary relay 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 6	Probe selection for auxiliary relay 2 control. Allows to select which probe value Pb1..Pb6 controls the relay	1	6		
US 7	Auxiliary relay 2 setpoint	-50.0 -58 0.0 0	70.0 158 50.0 725	°C °F Bar Psi	Dec int Dec int
US 8	Auxiliary relay 2 differential	0.1 1 0.0 0	25.0 45 14.0 203	°C °F Bar Psi	Dec int Dec int
Auxiliary proportional output n° 1					
US 9	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 10	Probe selection for auxiliary proportional output 1 Allows to select which probe value Pb1..Pb6 controls output	1	6		
US 11	Minimum value of the auxiliary proportional output 1	0	US12	%	
US 12	Maximum value of the auxiliary proportional output 1	US11	100	%	
US 13	Auxiliary proportional output 1 setpoint	-50.0 -58 0.0 0	70.0 158 50.0 725	°C °F Bar Psi	Dec int Dec int
US 14	Auxiliary proportional output 1 differential	0.1 1 0.0 0	25.0 45 14.0 203	°C °F Bar Psi	Dec int Dec int
Auxiliary proportional output n° 2					
US 15	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 16	Probe selection for auxiliary proportional output 2 Allows to select which probe value Pb1..Pb10 controls output	1	6		
US 17	Minimum value proportional output 2	0	US18	%	
US 18	Maximum value proportional output 2	US17	100	%	
US 19	Auxiliary setpoint proportional output 2	-50.0 -58 0.0 0	70.0 158 50.0 725	°C °F Bar Psi	Dec int Dec int
US 20	Differenzential proportional output 2	0.1 1 0.0 0	25.0 45 14.0 203	°C °F Bar Psi	Dec int Dec int
Geothermal function					
US 21	Geothermal function activation 0= only in chiller 1= only in heat pump 2= chiller and heat pump	0	2		

US 22	Temperature to activate geothermal function	0.1 1 0.0 0	25.0 45 14.0 203	°C °F Bar Psi	Dec int Dec int
US 23	Differential to deactivate geothermal function	0.1 1 0.0 0	25.0 45 14.0 203	°C °F Bar Psi	Dec int Dec int
US 24	Time to activate/deactivate geothermal function	0	250	sec	
US 25	Probe 1 selection (Pb1..Pb6) for geothermal function	0	6		
US 26	Probe 2 selection (Pb1..Pb6) for geothermal function	0	6		
US 27	Probes configuration for geothermal function 0= Probe 1 for geothermal function – probe 2 for geothermal function 1= Probe 2 for geothermal function – probe 1 for geothermal function	0	1		
US 28	Geothermal function set point	-50.0 -58 0 0	70.0 158 50.0 725	°C °F Bar Psi	Dec int Dec int
US 29	Geothermal function differential	0.1 1 0.0 0	25.0 45 14.0 203	°C °F Bar Psi	Dec int Dec int
US 30	Direct / reverse action for geothermal function 0= direct action 1= reverse action	0	1		
US 31	Minimum value for geothermal function	0	US32	%	
US 32	Maximum value for geothermal function	US31	100	%	
Pr1	Password	0	999		
Pr2	Password	0	999		
Pr3	Password	0	999		
Condenser fan					
Param eters	Description	min	max	M. U.	Resolu tion
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	Operation time at maximum speed when the fans start	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= two condenser circuits	0	1		
FA 6	Pre-ventilation time before turning on the compressor in chiller mode	0	250	Sec	
Fan in Chiller mode					
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.	30	100	%	

FA 8	Maximum speed for condenser fan in Chiller mode. To set the maximum fan speed percentage value (30..100%), it is related to the fan power supply.	30	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	70.0 158 50.0 725	°C °F Bar 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	70.0 158 50.0 725	°C °F Bar 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 1 0.0 0	25.0 45 14.0 203	°C °F Bar 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 1 0.0 0	25.0 45 14.0 203	°C °F Bar 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 1 0.0 0	25.0 45 14.0 203	°C °F Bar 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.	30	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.	30	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.	30	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	70.0 158 50.0 725	°C °F Bar 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	70.0 158 50.0 725	°C °F Bar 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 1 0.0 0	25.0 45 14.0 203	°C °F Bar 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 1 0.0 0	25.0 45 14.0 203	°C °F Bar 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 1 0.0 0	25.0 45 14.0 203	°C °F Bar 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.	30	100	%	
Hot start					
FA 24	Hot start setpoint	50.0 -58	70.0 158	°C °F	Dec int
FA 25	Hot start differential	0.0 0	25.0 45	°C °F	Dec int
3 step condenser Fan in Chiller mode					
FA 26	ON/OFF regulation FA01 = 2/3 SETpoint step n° 3	50.0 -58 0.0 0	70.0 158 50.0 725	°C °F Bar Psi	Dec int Dec int
3 4 step condenser Fan in heat pump					
FA 27	ON/OFF regulation FA01 = 2/3 SETpoint step n° 3	50.0 -58 0.0 0	70.0 158 50.0 725	°C °F Bar Psi	Dec int Dec int
Pr1	Password	0	999		
Pr2	Password	0	999		
Pr3	Password	0	999		
Antifreeze heaters – Integration heating - boiler					
Parameter	Description	min	max	m. u.	Risolu zione
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	70.0 158	°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	70.0 158	°C °F	Dec int
Ar 4	Regulation band for antifreeze in Heat Pump mode	0.1 0	25.0 45	°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	Probe selection for antifreeze heaters / integration heating 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	Probe selection for antifreeze heaters / integration heating 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.	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 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 temperature setpoint for boiler heaters	-50.0 -58	70.0 158	°C °F	Dec int
Ar 13	Temperature differential for boiler heaters	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 in chiller	50.0 -58	70.0 158	°C °F	Dec int
Ar 16	Proportional band for boiler heaters in chiller	0.1 0	25.0 45	°C °F	Dec int
Boiler function in heat pump					
Ar 17	Setpoint for boiler heaters in Heat Pump	50.0 -58	70.0 158	°C °F	Dec int
Ar 18	Proportional band for boiler heaters in Heat Pump	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	70.0 158	°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
Water pumps on OFF or STD-BY					
Ar 21	Water pump in OFF/ stand-by 0= Always in OFF 1= ON only with antifreeze thermoregulation control	0	1		
Ar 22	Thermoregulation 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 23	Set point for water pump activation	-50.0 -58	70.0 158	°C °F	Dec int
Ar 24	Differential for water pump deactivation	0.1 1	25.0 45	°C °F	Dec int

Pr1	Password	0	999		
Pr2	Password	0	999		
Pr3	Password	0	999		
Defrost					
Parameter	Description	min	max	udm	Risoluzione
dF 1	Defrost configuration: 0= Not enabled 1= Temperature / pressure 2= start depends on par. dF24 stop for time duration 3= start depends on par. dF24 stop for external contact 4= defrost with condenser fan	0	4		
dF 2	Temperature or pressure of the defrost start-up	-50.0 -58 0.0 0	70.0 158 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	70.0 158 50.0 725	°C °F bar psi	Dec int Dec Int
dF 4	Minimum defrost duration	0	250	Sec	
dF 5	Maximum defrost duration	1	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 1 st circuit after parameter DF10 counting	-50.0 -58	70.0 158	°C °F	Dec int
dF 11	Temperature setpoint for combined defrost end of the 1 st circuit.	-50.0 -58	70.0 158	°C °F	Dec int
dF 12	Temperature setpoint for combined defrost of the 2 nd circuit after parameter DF10 counting	-50.0 -58	70.0 158	°C °F	Dec int
dF 13	Temperature setpoint for combined defrost end of the 2 nd circuit	-50.0 -58	70.0 158	°C °F	Dec int
dF 14	Activation of all the steps of the 1 st circuit during the defrost 0= Not enabled 1= Enabled	0	1		
dF 15	Activation of all the steps of the 2 nd circuit during the defrost 0= Not enabled 1= Enabled	0	1		
dF 16	Delay between two compressor activation in defrost (compressors of the same circuit)	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	70.0 158 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	70.0 158 50.0 725	°C °F bar psi	Dec int Dec int

dF 21	Forced defrost differential	0.1 1 0.0 0	25.0 45 14.0 203	°C °F Bar Psi	Dec int Dec int
Defrost operative mode					
dF 22	Defrost start-up in unit 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 in unit with 2 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 from analog input					
Param eters	description	min	max	udm	resolut ion
dF 24	Start / stop defrost probe 0= start and stop with condenser temperature / pressure probe 1= start with evaporator pressure probe / stop with condenser temperature / pressure probe 2= start with condenser temperature / pressure probe / stop with evaporator pressure probe 3= start and stop with evaporator pressure probe	0	3		
Supply fan functioning during defrost cycle					
dF 25	Set point to enable defrost with condenser fan	-50.0 -58	70.0 158	°C °F	Dec int
Defrost with condenser fan					
dF 26	Supply fan status during the defrost cycle 0= Enabled 1= Not enabled	0	1		
Minimum temperature water outlet during defrost					
dF 27	Probe selection for minimum temperature outlet during defrost	0	6		
dF 28	Set point for minimum temperature outlet during defrost	-50.0 -58 0.0 0	70.0 158 50.0 725	°C °F bar psi	Dec int Dec int
Pr1	Password	0	999		
Pr2	Password	0	999		
Pr3	Password	0	999		
Alarms					
Param eters	Description	min	max	m. u.	Resolu tion
Low alarm					
AL 1	Low pressure alarm delay from analog and digital input	0	250	Sec	
AL 2	Low pressure alarm delay if the low pressure switch is used for the pump down. AL02= 0 low pressure alarm not enable during compressor switching off from pump down and if compressor OFF AL02# 0 low pressure alarm enable after AL02 (starting from compressor switch off) time with compressor OFF	0	250	Sec	10 Sec
AL 3	Low pressure alarm setpoint from analogue input	-50.0 -58 0.0 0	70.0 158 50.0 725	°C °F bar psi	Dec int Dec int

AL 4	Low pressure alarm differential from analogue input	0.1 1 0.0 0	25.0 45 14.0 203	°C °F bar psi	Dec int Dec Int
AL 5	Maximum number of low pressure events from digital/analogue inputs: Always manual reset if AL05 = 0 Always 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	70.0 158 50.0 725	°C °F bar psi	Dec int Dec Int
AL 10	High temperature/pressure alarm differential from analogue input	0.1 1 0.0 0	25.0 45 14.0 203	°C °F bar 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		
AL 14	Low oil pressure / oil level when the compressor is OFF 0= alarm disabled 1= alarm enabled	0	1		
Condenser Flow alarm					
AL 15	Condenser water flow configuration 0= Not enabled 1= Enabled only in chiller mode 2= Enabled only in heat pump mode 3= Enabled in chiller and heat pump mode	0	3		
AL 16	Condenser flow switch delay after pump activation	0	250	Sec	
AL 17	Flow switch activation time to generate the manual condenser flow alarm	0	250	Sec	
AL 18	Flow switch activation time to generate the automatic condenser flow alarm	0	250	Sec	
AL 19	Flow switch deactivation time to reset the condenser flow alarm	0	250	Sec	
Evaporator Flow alarm					
AL 20	"Evaporator flow switch / supply fan overload" delay after pump activation	0	250	Sec	
AL 21	Flow switch activation time to generate the manual evaporator flow alarm	0	250	Sec	
AL 22	"Evaporator flow switch / supply fan overload" activation time to generate the automatic alarm	0	250	Sec	

AL 23	"Evaporator flow switch / supply fan overload" deactivation time to reset the alarm	0	250	Sec	
Compressor overload alarm					
AL 24	Compressor overload alarm delay after compressor start-up	0	250	Sec	
AL 25	Maximum number of compressor overload alarm per hour Always manual reset if AL20 = 0 Always automatic reset if AL20 =16 From automatic to manual reset if AL20 =1..15	0	16		
AL 26	Enable compressor overload if compressor is deactivated 0= compressor overload alarm disabled 1= compressor overload alarm enabled	0	1		
AL 27	Compressor overload alarm operation 0= switch off only the compressor 1= switch off the circuit	0	1		
Pump down alarm					
AL 28	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. Always manual reset if AL28 = 0 Always automatic reset if AL28 =16 From automatic to manual reset if AL28 =1..15	0	16		
AL 29	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 AL29 = 0 Always automatic reset if AL29 =16 From automatic to manual reset if AL29 =1..15 and parameter AL30 config.	0	16		
AL 30	Select if the pump down alarm must change from automatic to manual reset: 0= Always automatic reset 1= Manual reset after AL29 alarm events	0	1		
Anti-freeze alarm in Chiller mode					
AL 31	Minimum antifreeze setpoint in chiller	-50.0 -22	AL32	°C °F	Dec int
AL 32	Maximum antifreeze setpoint in chiller	AL31	70.0 158	°C °F	Dec int
AL 33	"Antifreeze / low ambient temperature (air / air unit) / low temperature air outlet (air/air)" alarm setpoint temperature	AL31	AL32	°C/°F	Dec/int
AL 34	"Antifreeze / low ambient temperature (air / air unit) / low temperature air outlet (air/air)" alarm differential temperature	0.1 1	25.0 45	°C °F	Dec int
AL 35	Alarm delay for anti-freeze, low ambient air temperature or low outlet air temperature	0	250	Sec	
AL 36	Maximum number anti-freeze, low ambient air temperature or low outlet air temperature alarm in chiller Always manual reset if AL36 = 0 Always automatic reset if AL36 = 16 From automatic to manual if AL36 = 1..15	0	16		
AL 37	Anti-freeze alarm configuration in chiller 0= when the antifreeze alarm is activated the compressors are switched off; the display shows the alarm label, the buzzer and alarm relay are not activated 1= when the antifreeze alarm is activated the compressors are switched off; the display shows the alarm label, the buzzer and alarm relay are activated, the antifreeze heaters are activated	0	1		

AL 38	Probe selection for antifreeze alarm in chiller mode 0= disabled 1= evaporator inlet temperature 2= evaporator 1 / 2 outlet temperature 3= evaporator 1 / 2 outlet temperature and common outlet temperature 4= external air temperature	0	4		
AL 39	Probe selection for condenser antifreeze alarm 0= disabled 1= condenser common inlet temperature 2= condenser 1 / 2 inlet temperature and common inlet temperature 3= condenser 1 / 2 outlet temperature 4= condenser 1 / 2 outlet temperature and common outlet temperature	0	4		
Anti-freeze alarm in Heat pump mode					
AL 40	Minimum limit of the setpoint in heat pump mode	-50.0 -58	AL39	°C °F	Dec int
AL 41	Maximum limit of the setpoint in heat pump mode	AL38	70.0 158	°C °F	Dec int
AL 42	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)	AL31	AL32	°C/°F	Dec/int
AL 43	Differential of anti freeze alarm in heat pump mode. To reset the anti-freeze, low ambient Temperature (air/air), low temperature air outlet (air/air) alarms.	0.1 1	25.0 45	°C °F	Dec int
AL 44	Antifreeze alarm delay (low outlet temperature for air/air unit) at the start up in heat pump mode	0	250	Sec	
AL 45	Anti-freeze alarm delay for low air ambient temperature or low outlet air temperature in heat pump normal condition.	0	250	Sec	
AL 46	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 AL46 = 0 Always automatic reset AL46 = 16 From automatic to manual reset if AL46 = 1..15	0	16		
AL 47	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		
AL 48	Probe selection for antifreeze alarm in heat pump mode 0= disabled 1= evaporator inlet temperature 2= evaporator 1 / 2 outlet temperature 3= evaporator 1 / 2 outlet temperature and common outlet temperature 4= external air temperature	0	4		
Compressor high discharge temperature					
AL 49	Compressor high discharge temperature setpoint	0 0	150 302	°C °F	Dec / int int
AL 50	Compressor high discharge temperature differential	0 0	25.0 45	°C °F	Dec int

AL 51	Number of compressor high discharge temperature events per hour to determine the alarm reset condition: Always manual reset if AL51 = 0 Always automatic reset if AL51 =16 From automatic to manual if AL51 = 1..15	0	16		
Generic alarm 1					
AL 52	Maximum number of generic alarm events (each event stop the regulation) before turning the alarm from automatic to manual: Always manual AL52 = 0 Always automatic AL52 =16 From manual to automatic if AL52 value is between 1 and 15	0	16		
AL 53	Generic alarm delay time after the digital input activation	0	250	Sec	
AL 54	Generic alarm delay time after the digital input is not activate	0	250	10 sec	10 sec
Generic alarm / signal 2					
AL 55	Functioning generic alarm n° 2 0= only signal always automatic reset 1= the alarm block the unit reset depends on the value of parameter AL56	0	1		
AL 56	Maximum number of generic alarm events before turning the alarm from automatic to manual: Always manual AL56 = 0 Always automatic AL56 =16 From manual to automatic if AL56 value is between 1 and 15	0	16		
AL 57	Generic alarm delay time after the digital input activation	0	250	Sec	
AL 58	Generic alarm delay time after the digital input is not activate	0	250	Sec	10 sec
Alarm relay					
AL 59	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 60	Password value to reset the alarm log or the compressor overload alarm.	0	999		
Reset High pressure / temperature alarm					
AL 61	Maximum number of high pressure / temperature alarm events before turning the alarm from automatic to manual: Always manual AL61 = 0 Always automatic AL61 =16 From manual to automatic if AL61 value is between 1 and 15	0	16		
High water evaporator inlet temperature					
AL 62	Maximum number of high water temperature alarm events Always manual reset if AL62 = 0 Always automatic reset if AL62 =16 From automatic to manual reset if AL62 =1..15	1	16		
AL 63	High water temperature alarm delay time starting from ON compressor	0	250	Sec	10 sec
AL 64	High water evaporator inlet temperature set point	-50.0 -58	70.0 158	°C °F	Dec int
AL 65	High water evaporator inlet temperature differential	0.1 1	25.0 45	°C °F	Dec int
AL 66	Probe selection for high water evaporator inlet temperature Allows to select which probe (Pb1..Pb6) the function uses	1	6		
Low water evaporator inlet temperature					

AL 67	Maximum number of low water temperature alarm events Always manual reset if AL67 = 0 Always automatic reset if AL67 =16 From automatic to manual reset if AL67 =1..15	1	16		
AL 68	Low water temperature alarm delay time starting from ON compressor	0	250	Sec	10 sec
AL 69	Low water evaporator inlet temperature set point	-50.0 -58	70.0 158	°C °F	Dec int
AL 70	Low water evaporator inlet temperature differential	0.1 1	25.0 45	°C °F	Dec int
AL 71	Probe selection for low water evaporator inlet temperature Allows to select which probe value NTC/PTC Pb1..Pb6	1	6		
Inlet / outlet water tempearture differential alarm					
AL 72	Inlet / outlet water tempearture differential alarm enable 0= disabled 1= only in chiller mode 2= only in heat pump mode 3= in chiller and heat pump mode	0	3		
AL 73	Maximum number of Inlet / outlet water tempearture differential alarm Always manual reset if AL73 = 0 Always automatic reset if AL73 =16 From automatic to manual reset if AL73 =1..15	1	16		
AL 74	Inlet / outlet water tempearture differential alarm delay time starting from ON compressor	0	250	Sec	10 sec
AL 75	Inlet / outlet water tempearture differential alarm set point in chiller mode	-50.0 -58	70.0 158	°C °F	Dec int
AL 76	Inlet / outlet water tempearture differential alarm differential in chiller mode	0.1 1	25.0 45	°C °F	Dec int
AL 77	Inlet / outlet water tempearture differential alarm set point in heat pump mode	-50.0 -58	70.0 158	°C °F	Dec int
AL 78	Inlet / outlet water tempearture differential alarm differential in heat pump mode	0.1 1	25.0 45	°C °F	Dec int
AL 79	Probe 1 selection for Inlet / outlet water tempearture differential alarm Allows to select which probe value NTC/PTC Pb1..Pb6	1	6		
AL 80	Probe 2 selection for Inlet / outlet water tempearture differential alarm Allows to select which probe value NTC/PTC Pb1..Pb6	1	6		
Pr1	Password	0	999		
Pr2	Password	0	999		
Pr3	Password	0	999		

14 BLACK-OUT

After the black-out is restored:

1. The instrument restores 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.

15 WIRING CONNECTIONS

15.1 HARDWARE RESOURCES FOR IC206CX MODEL

6 digital outputs (relays) MAX current on the relay contacts relè 5(2)A 250V - MAX common current 10A 250V

11 digital inputs (free of voltage)

6 analogue inputs:

- 4 NTC / PTC probes
- 2 NTC / PTC / pressure transducer 4÷20 mA / pressure transducer ratio-metric 0÷ 5.0 Volt

4 modulating outputs:

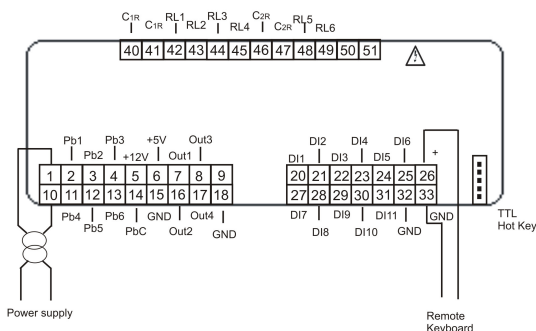
- 2 configurable 0 ÷ 10 Volt
- 2 configurable 0 ÷ 10.0 Volt or cut of phase (for modulating condenser fan)

1 output to connect a remote keyboard (max 2 remote keyboards)

1 TTL output for "Hot Key 64" or for XJ485CX (interface module for monitoring system)

C_{1R} = common line for RL1, RL2, RL3, RL4

C_{2R} = common line for RL5, RL6



15.2 HARDWARE RESOURCES FOR 208CX MODELS

8 digital outputs (relays) MAX current on the relay contacts relè 5(2)A 250V - MAX common current 10A 250V

11 digital inputs (free of voltage)

6 analogue inputs:

- 4 NTC / PTC probes
- 2 NTC / PTC / pressure transducer 4÷20 mA / pressure transducer ratio-metric 0÷ 5.0 Volt

4 modulating outputs:

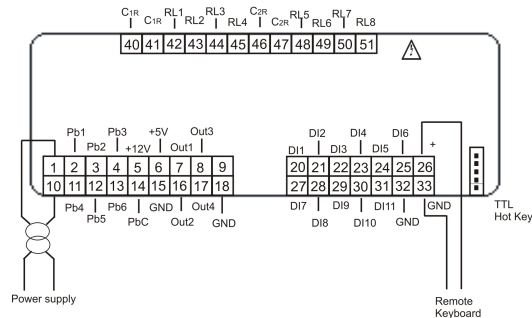
- 2 configurable 0 ÷ 10 Volt
- 2 configurable 0 ÷ 10.0 Volt or cut of phase (for modulating condenser fan)

1 output to connect a remote keyboard (max 2 remote keyboards)

1 TTL output for "Hot Key 64" or for XJ485CX (interface module for monitoring system)

C_{1R} = common line for RL1, RL2, RL3, RL4

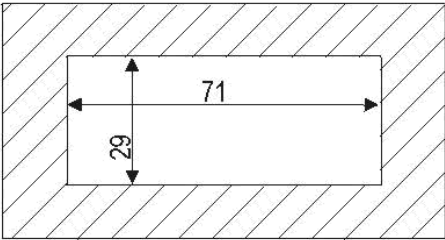
C_{2R} = common line for RL5, RL6, RL7, RL8



16 INSTALLING AND MOUNTING

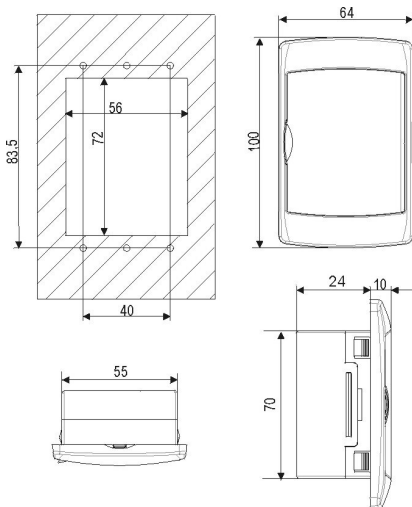
16.1 PANEL CUT-OUT

The instrument must be mounted on vertical panel, with panel cut-out 71x29mm, and fixed using the special bracket supplied.
Avoid locations subject to heavy vibration, corrosive gases or excessive dirt. Ensure ventilation around the instrument.

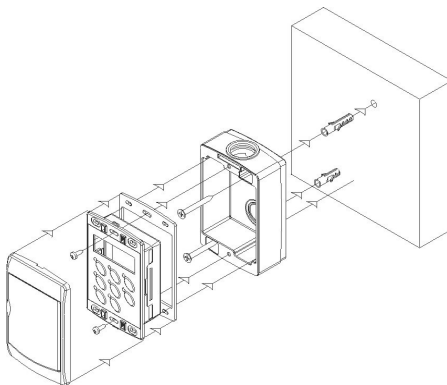


16.2 VERTICAL BOARDS Vi620CX PANEL CUT-OUT

The remote terminals are for panel mounting, panel cut-out 72x56 mm, and screwed with two screws.
The IP65 can be reached with the gasket RGW-V (optional).



WALL MOUNTING: use the vertical V-KIT (black, white and grey) as described in the following scheme:



17 ELECTRICAL CONNECTIONS

The instrument is provided with:

- 2 removable terminal blocks MOLEX MICROFIT 14 and 18 ways for power supply / digital and analogue inputs and modulating outputs
- 1 removable terminal blocks AMP 12 ways for the relay outputs
- 5 ways connector for TTL RS485 interface outputs.

Wire size:

- signal cable AWG 24
- power supply cable AWG 22
- relay output AWG 17

General notes:

- Check the connections and the line voltage before turning on the power supply.
- Keep low voltage cables, such as analogue/digital inputs/outputs and probes, away from power cables and terminals.
- Respect the maximum load current of each relay output, in case of power loads use filtered contactors.

18 TECHNICAL DATA

Housing: self extinguishing ABS.

Case: frontal 32x74 mm; depth 60mm

Mounting: panel mounting in a 29x71mm panel cut-out

Frontal protection: IP65

Display:

Top Display 4 digits with d.p.

Bottom Display 4 digits with d.p.

Power supply:

12Vac -10%÷+15% or

24 Vac/dc ±10% 50/60 Hz

Power absorption: 10VA max.

Analog Inputs: 4 configurable (NTC/PTC/dig. input) + 2 configurable (NTC/PTC/4÷20ma/0÷5V/dig. input)

Digital inputs: # 11 (free voltage)

Relay outputs: **IC206CX:** 6 SPDT 5(2) A, 250Vac, **IC208CX:** 8 SPDT 5(2) A, 250Vac

Max. current on common line: 10A

Data storing: on the non-volatile memory (EEPROM).

Operating temperature: 0÷55 °C.

Storage temperature: -30÷85 °C.

Relative humidity: 20÷85% (no condensing)

Measuring range: - 50÷110 °C (- 58 ÷ 230 °F) NTC / -50.0÷150 °C (-58÷302 °F) PTC or 0÷ 50 bar (0÷725 psi)

Resolution: 0,1 °C or 1 °F

Accuracy of the controller at 25°C: ±0,7 °C ±1 digit

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