

Control manual

EN

USER

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Serie:
BETA REV
TETRIS 2
TETRIS W REV
ZETA REV
ZETA SKY

IC208CX EVO rel. firmware



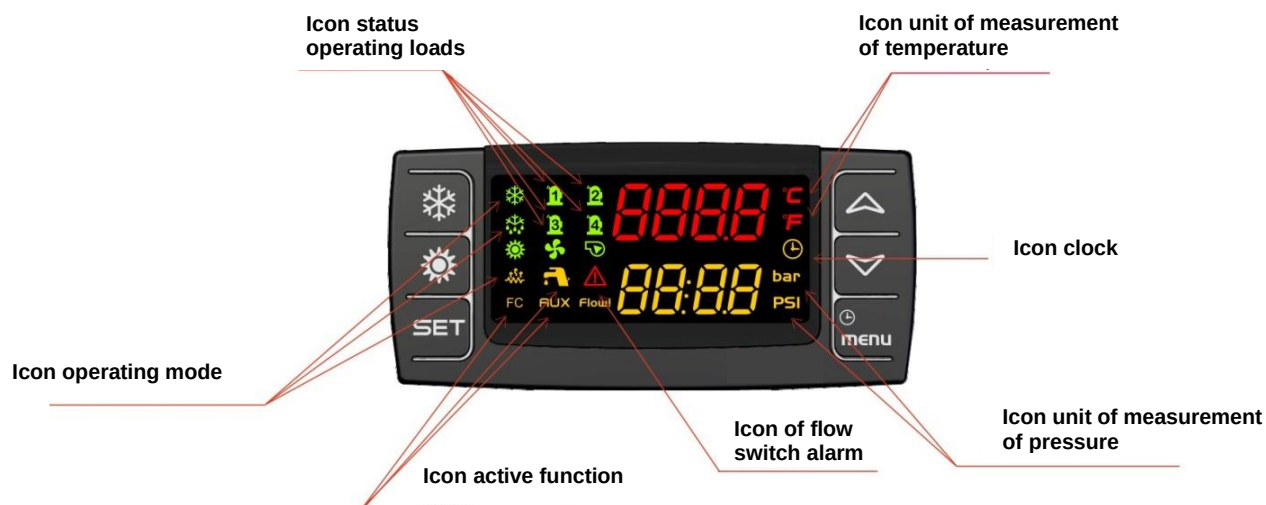
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1. USER INTERFACE



ICONS AND LEDS OF THE DISPLAY

°C -°F BAR-PSI	On when a circuit temperature or pressure is displayed
	On in programming if the displays view temperature or pressure set points or differentials
	On when the lower display views the time. On in programming if the lower display views the working hours of the loads or the time. Flashing in functions menu if time remaining to the start of defrosting is viewed.
	Flashes if at least one alarm is triggered
menu	On during menu navigation
	On if the heaters (antifreeze/support) are on
Flow!	Flashes if the digital input of the flow meter is active with pump running
	On it at least one of the water pumps or the supply fan is on.
	On if at least one condensation fan is on
1 2 3 4	On if the relative compressor is on; flashes if compressor switch-on is timed
AUX	On if the auxiliary output is active
	On if the machine is on and represents Heating or Cooling operating status depending on the logic set in the parameter CF58
	The icon flashes during the interval count between defrosts; the icon is on steady during the defrost phase

1.1 VIEW DISPLAY OF THE ICHILL AND REMOTE TERMINALS WITH THE DEVICE SET TO REMOTE OFF

If the device is set to remote OFF with the contact open, the display shows the OFF label with the LED flashing.



1.2 VIEW DISPLAY OF THE ICHILL AND REMOTE TERMINALS WITH THE DEVICE IN STD-BY

The information to be displayed must be selected by setting parameter dP10.

View "Stby" label displayed with the unit OFF from the key or supervision.



Probe value display



OFF label display



1.3 VIEW DISPLAY WITH UNIT CONFIGURED AS CONDENSING

If the controller is configured to manage condensing units (CF03=1):

- a digital input must be configured as "cooling request"; if the input is active, the unit is on in chiller mode and the upper display views "OnC"
- a digital input can be configured as "heating request"; if the input is active, the unit is on in heat pump mode and the upper display views "OnH".

Or if the controller is configured to manage condensing units (CF03=1) and a digital input is configured as "thermoregulation request":

- if the input is active:
 - the unit can be switched on in chiller mode via the keyboard and the display shows "OnC"; the STD-BY mode can be selected via the keyboard and the display shows "On"
 - the unit can be switched on in heat pump mode via the keyboard and the display shows "OnH"; the STD-BY mode can be selected via the keyboard and the display shows "On"
- if the input is not active, the unit is off and the display shows "OFF"



2. VIEW THE CONTROLLED VARIABLES

Circuit 1 is always displayed by default in normal operation.

The displayed circuit is indicated by the **Cir1** (circuit 1) or **Cir2** (circuit 2) icon.

2.1 HOW TO DISPLAY ALL VARIABLES INSIDE A CIRCUIT

Press keys  or  to display the values of the probes connected to the instrument.

A label corresponds with each selected probe, which identifies the temperature or pressure values shown on the display (see upper and lower display tables)

Example:

Fig.1: the upper display shows the circuit 1 evaporator output temperature and the lower display shows the Out1 label. Press the **SET** key to display the same probe of circuit 2, if configured.

Fig.1



Fig.2 : the upper display shows the circuit 2 evaporator output temperature and the lower display shows the Out2 label. Press the **SET** key to display the same probe of circuit 1.

Fig.2



3. OTHER DISPLAY VIEWS

3.1 HOW TO VIEW THE SET POINT

Press and release the **SET** key; the icons identifying the circuit switch off and the work set point is displayed. With the unit in stand by, the first time the **SET** key is pressed, the lower display views **SetC** (set chiller) and the second time it is pressed **SetH** (set heat pump). With unit on in heating or cooling mode, only the set point relative to the operating status is displayed.

3.2 HOW TO MODIFY THE SET POINT

- 1) Press the **SET** key for at least **3** seconds.
 - 2) Modify the value by pressing the **UP** or **DOWN** keys
- To store the new set point, press the **SET** key or wait for the time out to exit programming.

3.3 HOW TO VIEW THE ACTUAL OPERATING SET POINT WITH ENERGY SAVING (DOUBLE SET POINT) OR THE ACTIVATED DYNAMIC SET POINTS

With the unit in chiller mode: the first time the **SET** key is pressed, **SetC** (chiller set point) appears on the lower display and the set value appears on the upper display. The second time the **SET** key is pressed with the energy saving or dynamic set point activated, the **SEtr** (actual working set point) appears on the lower display and the actual working set point of the machine appears on the upper display.

With the unit in the heat pump mode: the first time the **SET** key is pressed, **SetH** (heat pump set point) appears on the lower display and the set value appears on the upper display. The second time the **SET** key is pressed with the energy saving or dynamic set point activated, the **SEtr** (actual working set point) appears on the lower display and the actual working set point of the machine appears on the upper display.

CAUTION

The actual **SETR** set point is only displayed if the energy saving or dynamic set point are active.

3.4 FUNCTION OF THE KEYS



KEY	ACTION	FUNCTION
	Press and release with default display	Displays the set point in chiller mode (SetC label) and/or in heat pump mode (SetH label)
	Press and release twice with default display	With the unit in chiller or heat pump mode, if the energy saving function or the dynamic set point is enabled, the actual working set point (Setr label) is displayed; the Vset icon is on.
	Press for 3 seconds and release with default display	Modify chiller/heat pump set point (only chiller if the unit is in this mode, only heat pump if the unit is in this mode, chiller and heat pump with unit in std-by)
	Press and release in ALrM menu	Allows you to reset the alarm
	Press and release with view of one probe label in lower display	Allows you to alternate the display view of the quantities of circuit 1 and of circuit 2
	Press and release	Allows you to view the temperatures/pressures in the upper/lower display.
	Press and release	Allows you to view the temperatures/pressures in the upper/lower display.
	Press and release	Switches the machine on/off in chiller/heat pump depending on instrument programming.
	Press and release	Switches the machine on/off in chiller/heat pump depending on instrument programming.
	Press and release	Grants access to the functions menu
	Press for 3 seconds and release	Allows you to adjust the time.

4. FIRST START-UP

4.1 INSTRUMENT WITH CLOCK ON BOARD

If when you power the instrument, the lower display views the message **"rtC"** alternated with the temperature/pressure, **it means that you must adjust the clock.**

If the probes that are set up to check the unit are not connected or are faulty, the corresponding alarm will appear on the two displays. You can still set the clock or proceed with the programming.

4.2 HOW TO ADJUST THE CLOCK

1. Press the **Menu** button for a few seconds until the lower display reads "**Hour**" and the upper display the stored time.
2. Press the **SET** key: the time starts to flash.
3. Adjust the time with the down and UP keys. Confirm the time by pressing the **SET** key; the controller displays the next setting.
4. Repeat operations 2. 3. and 4. on the other clock 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)
 - **yEA**: year (00÷99)

5. FUNCTIONS MENU

Press the "menu" key allows you to:

- View and reset alarms present (**ALrM**)
- View and delete alarm log (**ALOG**)
- Upload parameters from the instrument in the key (**UPL**)
- Enable-disable functioning of a single circuit from keyboard (**CrEn**)
- Enable-disable functioning of a single compressor from keyboard (**COEn**)
- View and reset the working hours of the controlled loads (**Hour**)
- View and reset the number of start-ups of each compressor (**COSn**)
- View the value of the probe for the dynamic set point (**PbdS**)
- View the supply temperature of the compressors (**COdt**)
- View the operating percentage of the proportional outputs to control the speed of the condensation fans (**Cond**)
- View the operating percentage of the 4 proportional outputs (**Pout**)
- Enable-disable functioning of the evaporator and condenser pumps (**PoEn**)
- View the time remaining to start defrost of the two circuits (only if the unit is configured as heat pump) **dF**)
- View the temperature of the probes controlling the auxiliary outputs (**uS**)
- View the temperature of the probes on board the remote terminals VICX 620 (**trEM**)
- Enable or disable the recovery function (**REC**)

5.1 ALARM: HOW TO VIEW THE STATUS OF AN ALARM

All alarms in the machine are displayed in the **Alrm** function.

If the alarm is reset automatically, the alarm message will also be removed when the alarm is restored.

If the alarm is reset manually, the alarm code and the word "rst" or "no" will be displayed, depending on whether the alarm can be reset or not.

5.2 HOW TO VIEW THE TEMPERATURE OF THE PROBES ON BOARD THE REMOTE TERMINALS 1 AND 2 (OPTIONAL)

You can view the temperature value of the probe on board the remote terminal in the functions menu **trEM FUNCTION** displays the temperature value of the remote terminals; identification label in the **trEM function**:

- **trE1** value measured by the NTC probe of remote terminal 1
- **trE2** value measured by the NTC probe of remote terminal 2

To display the values of the probes:

- Use the **UP** or **DOWN** keys to select the **trEM** function and press **SET**
- The **trE1** label will appear on the lower display, whereas the measured temperature will appear on the upper display.
- Use the UP or DOWN keys to view the temperature value of remote terminal 2

To go back to the normal view, press the MENU key or wait for time to run out.

6. UNIT SELECTION - OPERATING MODE - ENABLING - SWITCH-ON - SWITCH-OFF

THE MACHINE CAN BE SWITCHED ON AND OFF AS FOLLOWS:

- From the keyboard
- From time bands (see switch-on and switch-off with time bands)
- From a digital input configured as remote ON/OFF

6.1 SWITCHING THE MACHINE ON AND OFF FROM A KEYBOARD

SWITCHING THE UNIT ON AND OFF IN CHILLER - HEAT PUMP MODE FROM A KEYBOARD

Press and release the  key to switch the unit on and off in the relevant mode. The LED near the key is on when the unit is on.

You can switch from chiller mode to heat pump mode by simply switching the unit off.

Press and release the  key to switch the unit on and off in heat pump mode. The LED near the key is on when the unit is on.

You can switch from chiller mode to heat pump mode by simply switching the unit off.

SETTING THE UNIT IN (STAND-BY)

The instrument is in stand by when the LED near the  or  key is off. The stand-by mode is set every time the unit is switched off in chiller or heat pump mode. Even in stand by mode the controller can:

- View the measured variables on the display
- Manage the alarm situations by viewing and reporting it.

6.2 SWITCHING THE MACHINE ON AND OFF FROM A DIGITAL INPUT

SWITCHING ON OR OFF FROM A DIGITAL INPUT

From a digital input configured as remote ON/OFF that generates OFF operation according to the selected or active polarity

- It is priority compared to the keyboard
- The unit can be switched on and off from the keyboard only with contact 1-2 closed
- With contact 1-2 open, the instrument returns to the status before activation

6.3 SELECTING THE CHILLER - HEAT PUMP OPERATING MODE

Parameter CF59 allows you to choose and enable the switch-on mode of the unit.

Par. CF59 = 0

The switch-on selection of a unit configured as a chiller with heat pump is carried out by keyboard.

AUTOMATIC SWITCH-ON OF THE UNIT IN CHILLER - HEAT PUMP MODE FROM REMOTE WITH A DIGITAL INPUT

Par. CF59 = 1

The switch-on selection of a unit configured as a chiller with heat pump is carried out by digital inputs with 11-8 numbering

- The selection is enabled is a digital input is configured as a chiller request or heat pump request). If no digital input has been configured, the unit **REMAINS in stand - by**
- the chiller, heat pump selection from a keyboard is disabled; the unit can only be switched on and off from a keyboard in the operating mode selected by the digital input

Proceed as follows to set parameter CF59=1 and therefore enable the chiller/heat pump selection from a digital input:

The selection of the chiller/heat pump exchange from a digital input excludes the exchange from a serial output.

1. Switch the unit off from the keyboard
2. Simultaneously press **SET** + **DOWN** for 3 sec; the PAS label will appear on the upper display and the Pr1 label on the lower display
3. Press **SET**; a flashing 0 will appear on the upper display. Use **UP** or **DOWN** to enter the password of level Pr1=34 and then press **SET**. **"ALL"** appears on the upper display (the first set of parameters)
4. select the CF set with the **DOWN** and **UP** keys.
5. Once the CF set is selected, press **SET** and the instrument displays the label and the code of the first parameter in the set on the lower display, and its value on the upper one.
6. Select parameter CF59 with the **DOWN** and **UP** keys and set it between 0 and 1.



ATTENTION:
The parameters are all factory-set
therefore, there is no need to change them. If
this is necessary, contact
Technical Assistance.
The warranty expires immediately if
the above parameters are changed
improperly.



7. ENERGY SAVING FUNCTION

7.1 ENERGY SAVING FUNCTION FROM A DIGITAL INPUT (DOUBLE SET POINT)

If one of the digital inputs is configured as Energy Saving, upon its activation:

- at the set point of the machine is applied to an offset of the parameters ES14 and ES16 (differentiated for chiller and heat pump);
- the disconnection differential of the compressors is set at the value set in parameters ES15 and ES17 (differentiated for chiller and heat pump modes)

7.2 ENERGY SAVING FUNCTION AND SWITCH-ON AND SWITCH-OFF WITH TIME BANDS

The function can be used if the controller has the clock on board.

Programming time bands:

parameters ES01 - ES06 let you set the start and end time bands

Enabling time bands:

parameters ES07 - ES13 allow the time bands to be enabled for each day of the week.

The parameters are structured in the following way; the parameter consists of two figures:

- the left digit "X" allows you to enable or disable the time bands concerning the Energy Saving (see the table below)
- the right digit "Y" allows you to enable or disable the time bands concerning machine switch-off (see the table below)

Energy saving or unit ON/OFF from time bands	0= operation from time bands is disabled 1= operation from time band 1 is enabled 2= operation from time band 2 is enabled 3= operation from time band 1 + 2 is enabled 4= operation from time band 3 is enabled 5= operation from time band 1 + 3 is enabled 6= operation from time band 2 + 3 is enabled 7= operation from time band 1 + 2 + 3 is enabled
Values of Par. ES07 - ES13	X Y where X ranges from 0 to 7 and represents enabling/operation with time bands for energy saving where Y ranges from 0 to 7 and represents enabling/operation with time bands for automatic switch-on/off

VIEWING THE ENERGY SAVING / AUTOMATIC SWITCH-ON AND OFF CONFIGURATION PARAMETERS ON THE DISPLAY



Energy Saving Set Point:

parameters ES10 - ES13 let you set the offsets to be added to/subtracted from the standard set points and differential values to be used when the function is active

ES10 Increase in the energy saving set point in chiller mode

ES11 Energy saving differential in chiller mode

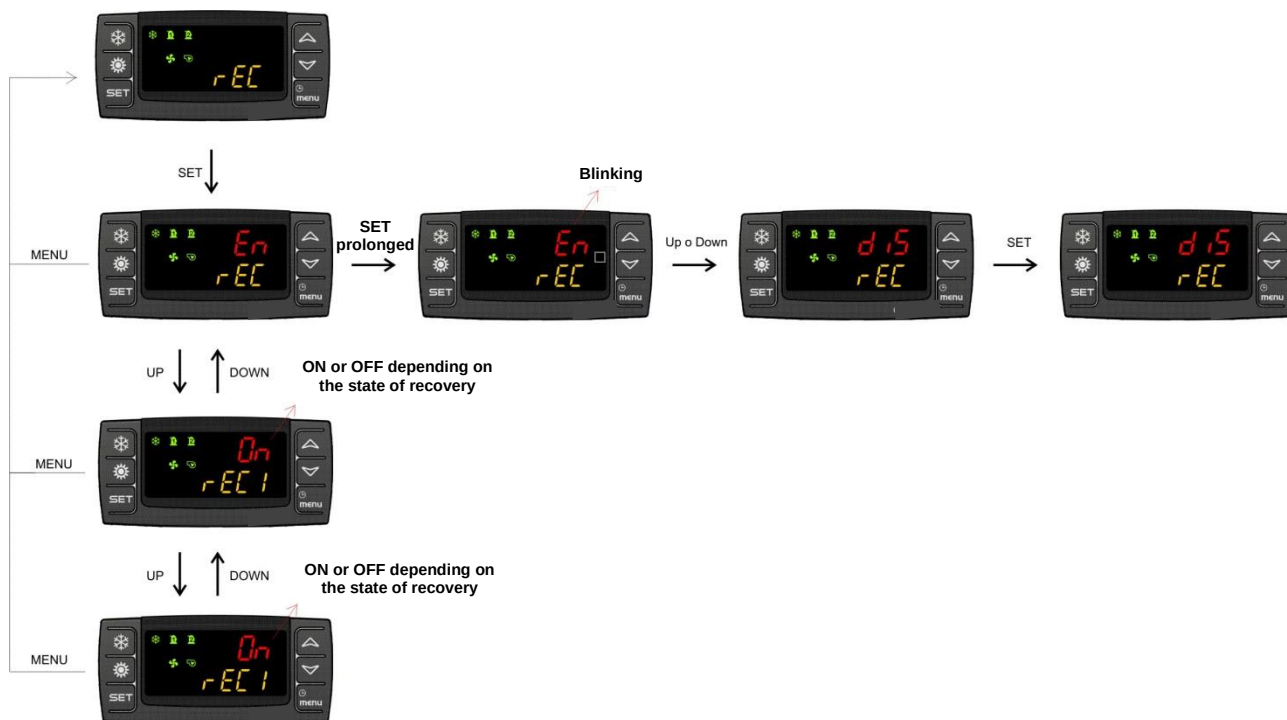
ES12 Increase in the energy saving set point in heat pump mode

ES13 Energy saving differential in heat pump mode

7.3 DISABLING THE RECOVERY FROM THE FUNCTIONS MENU (OPTIONAL)

You can disable and then re-enable the recovery from the functions menu:

- Press the MENU key
- Use the arrow keys to select the rEC menu
- Press the SET key
- The display shows the status of the recovery (En = enabled, diS = disabled)
 - If necessary, press the SET key for a few seconds to disable or re-enable the recovery
 - The En or diS status flashes
 - Use the arrow keys to modify the status
 - Confirm the selection by pressing the SET key
- Press the arrow keys to view the current status of the recovery of circuit1
- Press the arrow keys to view the current status of the recovery of circuit2



8. ALARMS

The alarm messages and codes consist of letters and numbers that identify the different types.

Alarm types:

- Letter **A** = machine alarm
- Letter **b** = circuit alarm
- Letter **C** = compressor alarm

9. OUTPUT BLOCK TABLE

The alarm messages and codes consist of letters and numbers that identify the different types.

9.1 MACHINE ALARM OUTPUT BLOCK TABLE: "A"

Cod. Alarm	Alarm description	Comp.	Boiler Anti-freeze Electric Heaters	Support Electric Heaters	Supply fan Evap. pump	Cond. pump	Cir1 Cir2 cond. Fan	Auxiliary relay
ACFL	Condenser water pump flow switch alarm	Off	/	/		Off (3)	Off	/
AEE	EEPROM Alarm	Off	/	/	Off	Off	Off	Off
AEFL	Evaporator water pump flow switch alarm	Off	Off (boiler)	/	Off (3)	/	Off	/
ALc1	Main unit alarm	Off	/	/	Off	Off	Off	Off
ALc2	Main unit alarm	Off	/	/	Off	Off	Off	Off
ALSF	Phase sequence alarm	Off	Off	Off	Off	Off	Off	Off
ALti	Low air/air unit evaporator input air temperature	/	/	/	/	/	/	/
AP1 ... AP6	PB1 probe.. Probe Pb6 of the controller	(7)	Off (1)	(7)	(7)	(7)	(7)	Off (2)
APE1 ...	PB1 probe.. Probe Pb8 of the I/O	(7)	(7)	(7)	(7)	(7)	(7)	(7)

APE8	expansion							
APt1	Remote terminal probes	(7)	(7)	(7)	(7)	(7)	(7)	(7)
APt2	LAN communication alarm with I/O expansion	Off	Off	Off	Off	Off	Off	Off
ASLA	Condenser water pump 1 circuit breaker	Off (4)	/	/	/	Off	Off	/
AtC1	Support condenser water pump 2 circuit breaker	Off (4)	/	/	/	Off	Off	/
AtC2	Evaporator water pump 1 circuit breaker	Off (4)	Off (boiler) (5)	/	Off	/	Off	/
AtE1	Support evaporator water pump 2 circuit breaker	Off (4)	Yes (boiler) (5)	/	Off		Off	/
AtE2	Supply fan circuit breaker alarm	Off	/	Off	Off	/	Off	/
AtSF	Simultaneous cooling and heating activation request in condensing units	Off	Off	Off	Off	Off	Off	Off
Err								

1= If the probe is configured to control the antifreeze - boiler and Ar10 = 0

2= If the probe is configured to control the auxiliary relay output

3= With the alarm with manual reset

4= Compressors off with only 1 water pump configured or with 2 water pumps configured and both in circuit breaker alarm

5= boiler electric heaters off with only 1 water pump configured or with 2 water pumps configured and both in circuit breaker alarm (in this case the boiler electric heaters are activated only by the antifreeze set point that protects the evaporator)

7= the switching off of the loads depends on the faulty probe; the adjustment probe in error switches off the main loads, the outdoor air probe disables only the dynamic set point

9.2 CIRCUIT ALARM OUTPUT BLOCK TABLE: "B"

Cod. Alarm	Alarm description	Circuit compressors (n)	Other circuit compressors	Condensation ventilation circuit (n)	Other circuit condensation ventilation
b(n)AC	Antifreeze in chiller circuit (n)	Off	/	Off	/
b(n)Ac	Antifreeze warning in chiller circuit (n)	/	/	/	/
b(n)AH	Antifreeze in heat pump circuit (n)	Off	/	Yes	/
b(n)Ah	Antifreeze warning in heat pump circuit (n)	/	/	/	/
b(n)Cu	Unloading warning from circuit condensation press. temp. (n)	/	/	/	/
b(n)dF	Circuit defrosting alarm warning (n)	/	/	/	/
b(n)Eu	Unloading warning from circuit evaporator low temp. (n)	/	/	/	/
b(n)HP	Circuit high pressure switch (n)	Off	/	Off after 60 sec.	/
b(n)hP	Circuit transducer condensation high pressure (n)	Off	/	Off after 60 sec.	/
b(n)hP	Circuit NTC probe condensation high temperature (n)	Off	/	Off after 60 sec.	/
b(n)LP	Circuit low pressure switch (n)	Off	/	Off	/
b(n)LP	Condensation low pressure - (evaporation with low pressure transducer) circuit transducer (n)	Off	/	Off	/
b(n)IP	Circuit NTC probe condensation low	Off	/	Off	/

	temperature (n)				
b(n)rC	Circuit recovery disabling warning (n)	/	/	/	/
b(n)tF	Circuit ventilation circuit breaker alarm (n)	Off	/	Off	/

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

9.3 COMPRESSOR ALARM OUTPUT BLOCK TABLE: "C"

Cod. Alarm	Alarm description	Compressor (n)	Non-relevant circuit compressors
C(n)dt	Compressor supply high temperature	Off	/
C(n)HP	Compressor high pressure switch (n)	Off	/
C(n)tr	Compressor circuit breaker alarm (n) with AL47 = 0 - 1	Off	/
C(n)tr	Compressor circuit breaker alarm (n) with AL47 ≠ from 0	Off	Off

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

9.4 TABLE OF WARNINGS

Cod. Alarm	Alarm description
C(n)Mn	Compressor maintenance (n)
ACP1	Condenser water pump 1 maintenance
ACP2	Condenser water pump 2 maintenance
AEP1	Evaporator water pump 1 maintenance
AEP2	Support evaporator water pump 2 maintenance
AEUn	Evaporator unloading warning
b(n)Cu	Unloading warning from circuit condensation press. temp. (n)
b(n)Eu	Unloading warning from circuit evaporator low temp. (n)
ArtC	Clock adjustment
ArtF	Clock alarm
noL	No communication warning between the keyboard or remote terminal control 2 configured with the same address

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