USER'S PROGRAMMING MANUAL

UCPxx.2

INDEX

1 GENERAL ADVICE

1.1 PLEASE READ BEFORE USING THIS MANUAL

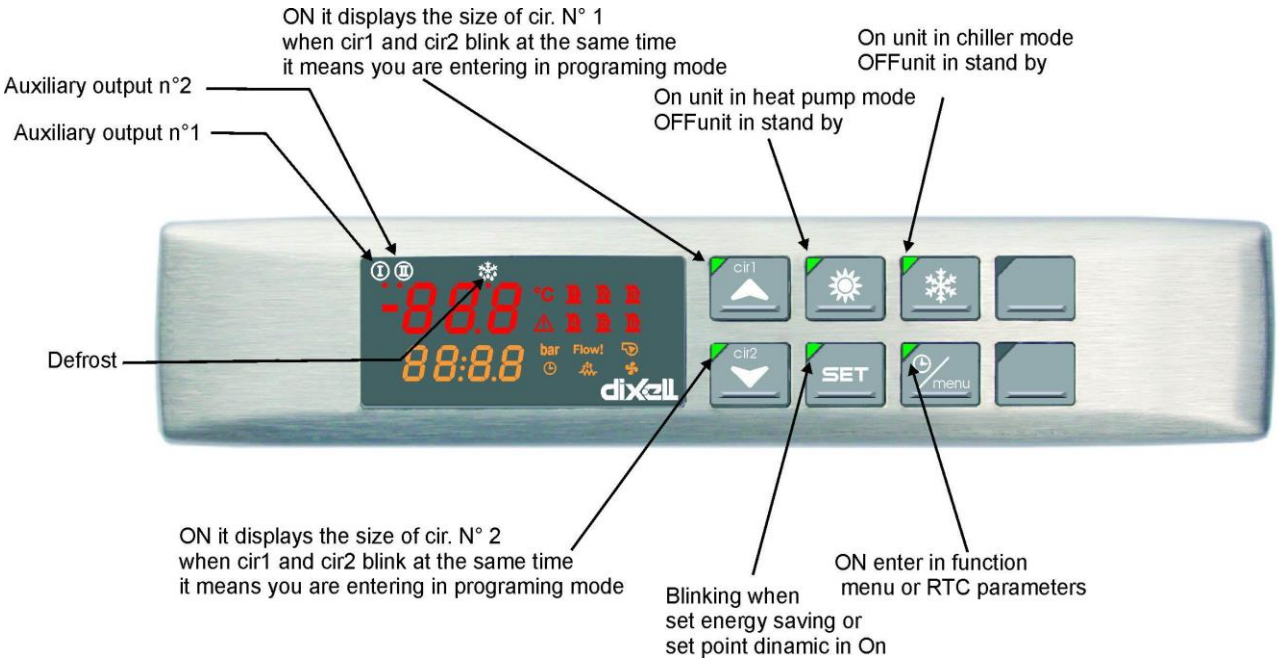
- This manual is part of the product and should be kept near the instrument for easy and quick reference.
- The instrument shall not be used for purposes different from those described hereunder. It cannot be used as a safety device.
- Check the application limits before proceeding.

1.2 SAFETY PRECAUTIONS

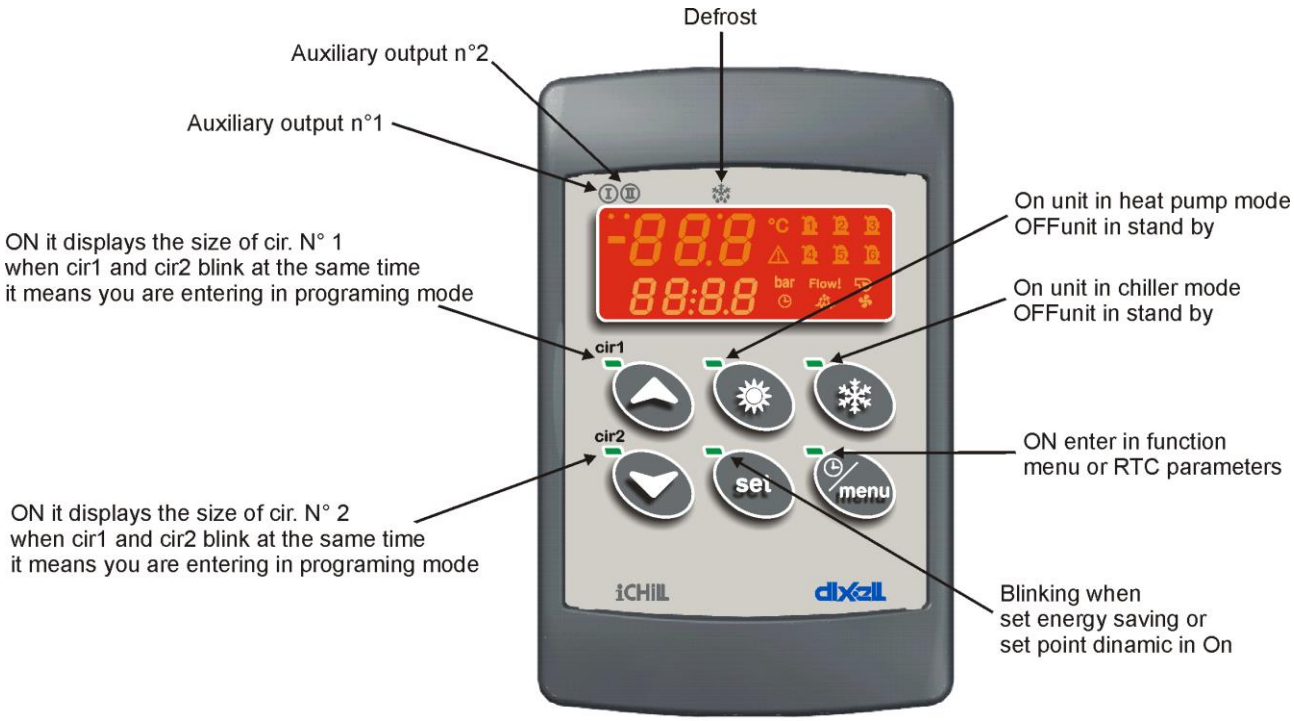
- Check the supply voltage is correct before connecting the instrument.
- Do not expose to water or moisture: use the controller only within the operating limits avoiding sudden temperature changes with high atmospheric humidity to prevent formation of condensation
- Warning: disconnect all electrical 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 Thermowell (see address) with a detailed description of the fault.
- Consider the maximum current which can be applied to each relay (see 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 in parallel with inductive loads could be useful.

2 USER INTERFACE

2.1 FUNCTION OF THE LEDS OF THE KEY BUTTONS



2.2 USE OF THE LED ON THE MODELS CONREC2 REMOTE PANELS



2.3 KEY FUNCTION

KEY	ACTION	FUNCTION
set	Push and release	Show chiller set point **SetC** and heat pump **SetH**
	Push once	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 the release	Change between chiller / heat pump
	During the programming: push one time	Select a parameter or confirm a value
	Push once with probe label showed on the bottom display	Change between the read-out of the circuit 1 and the circuit 2 and viceversa
cir1	Push once	Select the readings of the first circuit
	Pushing once during the programming	To change the parameter code or value
	Push for 1 second during the programming	1 time shows the Pr2 programming level 2 time shows the Pr3 programming level
cir2	Push once	Select the readings of the second circuit
	Pushing one time during the programming	To change the parameter code or value
	Push once	Turn the chiller on, if the unit is on led is on The led is blinking if there is a power on delay or during the pump down
	Push once	Turn the heat pump on, if the unit is on led is on The led is blinking if there is a power on delay or during the pump down
menu	Push once	enter the function Menu
	Push for 3 seconds	To set RTC parameters (if the RTC is inside)
	Pushing once during the programming	To exit from a group of parameter

2.4 KEY COMBINATION

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

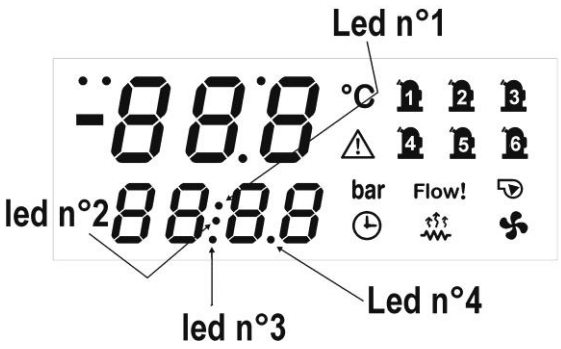
2.5 LED AND ICONS

ICON	LED	FUNCTION
	ON	Auxiliary relay #1 active
	OFF	Auxiliary relay #1 not active
	ON	Auxiliary relay #2 active
	OFF	Auxiliary relay #2 not active
	BLINKING	Defrost delay counting active
	ON	Defrost
	OFF	Defrost end

2.6 DISPLAY AND ICONS

ICON	MEANING / FUNCTIONNING
°C	Celsius degrees: ON for temperature measurements of probe values or parameters
°F	Fahrenheit degrees: ON for temperature measurements of probe values or parameters
bar	Bar: ON for pressure measurements of probe values, setpoint or parameters
PSI	Psi: ON for pressure measurements of probe values, setpoint or parameters
	ON = compressor 1 active Blinking = compressor 1 delay counting
	ON = compressor 2 active Blinking = compressor 2 delay counting
	General alarm: blinking if there is an alarm not identified by an icon
	Anti freeze heaters/ integration heating / boiler: ON if the output is on
Flow!	Flow alarm/ (differential) pressure switch / supply fan thermal (air / air unit) : is blinking if the configuration of the digital input is active
	Real time clock: On when the bottom display show the RTC ON during the programming with time based parameter value In function menu indicates the defrost delay counting
	Water pump: On if at least one of the four configurable pump group is on
	Condenser fan: ON if at least one of the PWM or relay outputs for fan control is active

2.7 MEANING/ FUNCTIONNING OF THE BOTTOM DISPLAY LED



Led # 1 – 2 (With RTC)
If the bottom display shows the RTC the 1 and 2 leds are blinking.

Led # 1 – 2 In function Menu
During the time counting to the next defrost for one or both circuits the led 1 and 2 are blinking.

LED Parameter programming
In Pr2 level: led #3 indicates the visibility while the #1 and #2 show if the parameter can be modified or not.
In Pr3 level: led #3 and #4 indicate the visibility while the #1 and #2 show if the parameter can be modified or not.

3 REMOTE TERMINAL

The iCHILL can be connected with 2 remote terminals. For the connections use shielded cable for a maximum lenght of 150mt. In case of no communication between the instrument and the remotes the upper display shows "**noL"** (no link).

4 TABLE OF THE PARAMETERS

MENU SELECTION

Label	Description
ALL	Shows all the parameters
ST	Shows only the Thermoregulation parameters
CO	Shows only the compressor parameters

Thermoregulation					
Parameter	**Description**	**min**	**max**	**u.m.**	**Resolution**
ST 1	Chiller Setpoint Allow to modify the setpoint of the unit in chiller mode	7	15	°C	dec
ST 2	Heat pump Setpoint Allow to modify the setpoint of the unit in heat pump mode	35	45	°C	dec
ST 7	Regulation band in chiller mode	0.1	25.0	°C	Dec
ST 8	Regulation band in chiller heat pump	0.1	25.0	°C	Dec
Pr1	Password	0	999		
Remote terminal					
CF 74	Remote Panel configuration 0= Not enabled 2= without NTC ambient temperature sensor	0	2		
Serial Address					
CF 85	Firmware Release				
Load maintenance					
CO 26	Compressor 1 hour counter set (See maintenance request)	0	999	10 Hr	10 Hr
CO 27	Compressor 2 hour counter set (See maintenance request)	0	999	10 Hr	10 Hr
CO 32	"Evaporator pump / Supply fan" hour counter set (See maintenance request)	0	999	10 Hr	10 Hr

5 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

5.1 PASSWORD DEFAULT VALUES

- Password level Pr1 = **1**

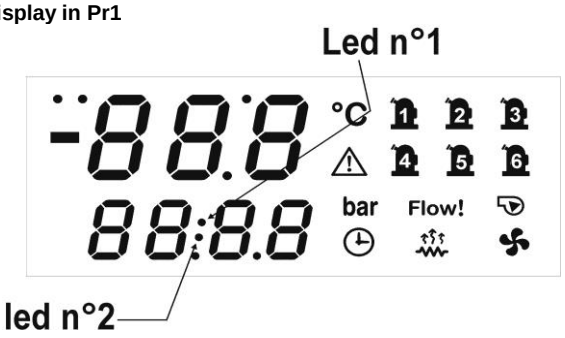
5.2 ENTER THE PR1 PROGRAMMING LEVEL

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, 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



- 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.

5.3 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).

5.4 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) Inside the family select the "**Pr1 - 1**", Pr1 on the bottom display, the current password value 1 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.

6 UNIT START- STOP

The unit start stop can be done from one of the following operations:

- From keyboards
- Digital input configured as remote ON/OFF

6.1 START – STOP AND STAND- BY FROM KEYBOARD

TURN THE UNIT ON IN CHILLER OR HEAT PUMP MODE FROM THE KEYBOARD

Push and release the key allows to start in chiller mode. When the unit is running the corresponding led is on.
IMPORTANT: To change from chiller to heat pump and viceversa the unit must be set in stand-by before continuing.

Push and release the key allows to start in heat pump mode. When the unit is running the corresponding led is on.
IMPORTANT: To change from chiller to heat pump and viceversa the unit must be set in stand-by before continuing.

STAND- BY (OR UNIT OFF, NOT RUNNING)

The unit is considered in stand by when the leds and are both off. The stand-by is reached each time the Chiller or the Heat Pump are turned off. During the stand by the user can:

- Show all the probe measurements
- Detect and reset the alarm events.

6.2 UNIT START- STOP FROM DIGITAL INPUT

Turn on or off the unit from digital input

Set the digital input as remote ON/OFF, depending on the input polarity it can generate the unit off

- The digital input overrides the keyboard command.
- The keyboard can run only if the digital input is not active.
- When the digital input is not active the instrument restore its status (had before the digital input activation).

7 DISPLAY LAYOUT

As default, In normal condition, the display shows the circuit 1 information.
The displayed circuit is indicated from the corresponding led **Cir1** on (UP key), or **Cir2** (circuit 2, **DOWN** key).

7.1 HOW TO SHOW THE MEASUREMENT LIST.

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

7.2 SHOW THE 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
Led cir1 is on: the top display shows the value of the output evaporator temperature (7.8°C) of the circuit 1,
The bottom display shows Out 1. Push SET key to swap to the circuit 2.
Example in Fig2
Led cir2 is on: the top display shows the value of the output evaporator temperature (7.9°C) of the circuit 2, the bottom display shows Out 2.

Fig.1

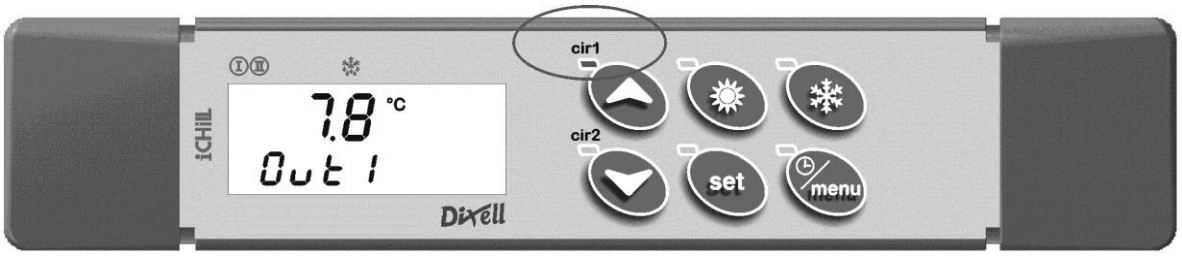
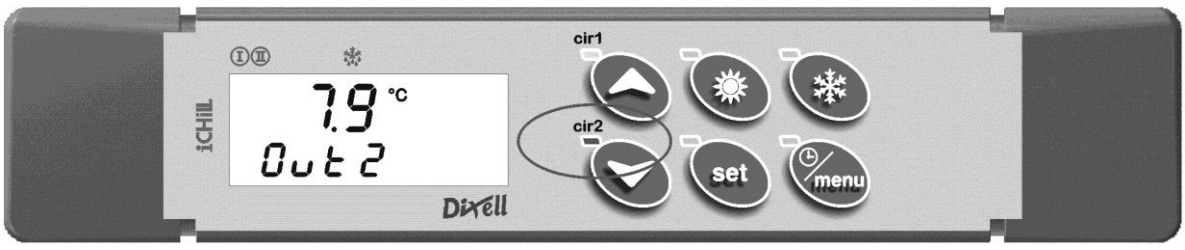


Fig.2



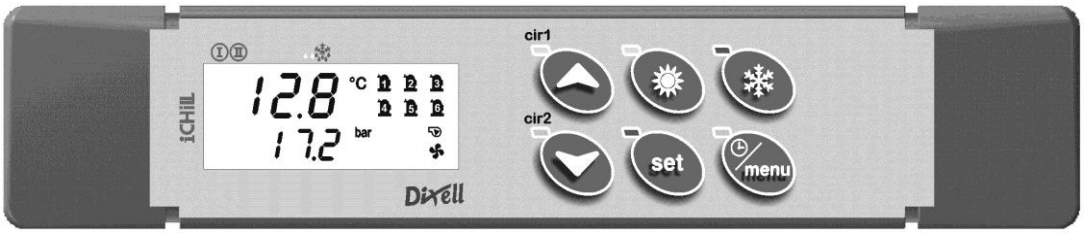
8 DISPLAY INFORMATION

8.1 SHOW THE SET POINT VALUE

Push and release the **SET** key, the leds of the circuits are off and 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.

8.2 MODIFY THE SET POINT

1) Push **SET** key for at least **3** seconds: the leds of the circuits are off and the set value is blinking.
2) Use the **UP** or **DOWN** key to modify the setpoint.
3) Push **SET** to confirm or wait the timeout (15seconds).



8.3 DISPLAY IN REMOTE OFF

From digital input configured as remote ON/OFF: the active input sets the unit in OFF (even when the unit is a motocondensing unit).
The top display shows **"OFF** ", the led of the decimal point is blinking.

9 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) Display the compressor discharge temperature **COdt**
5) Show and reset the number of compressor running hour **Hour**
6) Show and reset the number of compressor starts-up **COSn**

MENU FUNCTION ACCESS: Push and release the **M** key.
MENU FUNCTION EXIT: Push and release the **M** key or wait the 15seconds timeout limit.
With the **UP** or **DOWN** keys move inside the label list.

9.1 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.

9.2 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.**

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 alrm 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 AL parameter family). 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.
7. Repeat operation 1 – 5 to reset the other alarms.

9.3 COMPRESSOR OVERLOAD PASSWORD.

The default value is **0** to change this value enter Pr3 level (not allowed to the end user) under the AL parameter family.

9.4 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 the 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.

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

9.5 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**
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 (Cr1E or Cr2E).
4. Push **SET** key for 3 seconds when one of the two Cr1E, Cr2E label are displayed. The top display shows the **En** blinking label, use the UP or DOWN to change in **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.

9.6 READ-OUT OF A CIRCUIT NOT ENABLED

If one circuit is disabled the bottom display shows diS alternated with the label name of the measurement selected.
Circuit 1 = diS the bottom display shows **b1dS** = circuit 1 disabled.
Circuit 2 = diS the bottom display shows **b2dS** = circuit 2 disabled.
The **b2dS** label appears only if the 2nd circuit is configured,

9.7 ENABLE OR DISABLE A SINGLE COMPRESSOR

Through the instruments keyboard is possible to disable a single compressor for maintenance or to lock it when malfunctioning.
COEn FUNCTION compressors running status.
Label involved in COEn function: **CO1E = Compressor 1 status… CO6E = Compressor 6 status**
The COEn function uses only the compressors configured by the corresponding output parameters.
Enter the function Menu
1. Use the **UP** or **DOWN** keys to select COEn.
2. Push SET key: bottom display = CO1E, top display = En
3. Select the compressor with UP or DOWN.
4. Push SET for 3 seconds when the label corresponds to the compressor to disable: CO1E -. The top display shows the blinking En label, use the UP or DOWN key and change to diS (Compressor disabled) or En (compressor enabled) then push SET to confirm, the display shows next item.
5. To exit the COEn function push MENU key or wait the timeout.

9.8 READ-OUT OF A COMPRESSOR NOT ENABLED

During the normal running condition a disabled compressor is displayed with a blinking label alternated with the measurement value of the display.
If the compressor is disabled these the corresponding labels: C1dS = compressor 1 disabled, C2dS = compressor26 disabled
The label C1dS, C2dS are available only if the corresponding compressor is configured.

9.9 READ-OUT OF THE COMPRESSOR DISCHARGE TEMPERATURE PROBE

The menu function allows to read-out the compressor temperature probes.
COdt FUNCTION shows the discharge temperatures
Label involved in **Codt** function: **CO1t** Compressor 1 discharge temperature, **CO2t** Compressor 2 discharge temperature
1. Use the **UP** or **DOWN** keys to select **COdt**
2. Push SET key: bottom display = **CO1t**, top display = temperature value of that probe.
3. Use the UP or DOWN kys to scroll the list: **CO1t** or **CO2t**
4. To exit the COEn function push MENU key or wait the timeout

ATTENTION
The labels **Codt** are available only if the corresponding compressor probe is configured.
The display resolution is 0.1°C until the read-out is 99.9, over 100°C it is 1°C.

9.10 READ-OUT OF THE RUNNING HOURS

This menu allows to shows all the time running hours of the compressors, supply fan and pumps.
Hour FUNCTION to show the controlled load consumption
Label involved in the Hour function:
CO1H Compressor 1 running hours , CO2H Compressor 2 running hours.
EP1H Evaporator water pump running hours
The labels are displayed only if the corresponding output is present and configured.
The running hours is displayed on the top display, the resolution is x 10 hours (eg 2 means 20 hours, 20 means 200hours)

Enter the function Menu

1. Use the UP or DOWN keys to select Hour
2. Push SET key: bottom display = above labels, top display = hours x10. The time is on.
3. Use the UP or DOWN keys to scroll the list.
4. To exit the Hour function push MENU key or wait the timeout

9.11 READ-OUT OF THE COMPRESSOR STARTS-UP

For each compressor is possible to show the number of starts-up.
COSn FUNCTION: number of starts-up of the compressor
Label involved in COSn function: **C1S** number of compressor 1 starts-up, **C2S** number of compressor 2 starts-up
The labels are displayed only if the corresponding output is present and configured
The number of starts-up is displayed on the top display, the resolution is x 10 (eg 2 means 20 starts, 20 means 200starts)

Enter the function Menu

1. Use the UP or DOWN keys to select **COSn**.
2. Push **SET** one time: the label of the first load C1S is showed on the top display, the bottom display shows the number x10.
3. With UP or DOWN scroll the compressor list.
4. To exit the Hour function push MENU key or wait the timeout

10 COMPRESSOR THERMOREGULATION

10.1 THERMOREGULATION PARAMETER DESCRIPTION

Par. **ST01** Chiller Setpoint
It allows to set the chiller working temperature.
Par. **ST04** Heat pump setpoint
It allows to set the Heat pump working temperature.
Par. **ST07** Regulation band width in chiller mode.
The configured resources are distributed inside the regulation band.
Example Unit configured with 2 circuits, 2 compressors and thermoregulation controlled by the evaporator inlet NTC probe. Chiller setpoint: evaporator inlet water = 12°C, evaporator outlet water 7°C: when the evaporator inlet water is 12°C all the compressor outputs are on while when the evaporator inlet water is 7 °C all the compressors are OFF.
Thermoregulation parameters: Par. ST01 = 7 °C / Par. ST07 = 5 °C
Functioning: the regulation band ST07= 5 °C is divided by the number of compressors therefore the step for each resource is 2.5°C, each 2.5 °C if the temperature is increasing or decreasing one of the compressor is turned on or off.
Par. **ST08** Regulation band in heat pump mode
The configured resources are distributed inside the regulation band.
Example Unit configured with 2 circuits, 2 compressors per circuit and thermoregulation controlled by the evaporator outlet NTC probe. Chiller setpoint: evaporator inlet water = 40°C, evaporator outlet water 45°C: when the evaporator outlet water is 40°C all the compressor outputs are on while when the evaporator outlet water is 45 °C all the compressors are OFF.
Thermoregulation parameters: Par. ST04 = 40 °C / Par. ST08 = 5 °C
Functioning: the regulation band ST08=5 °C is divided by the number of resources 6 compressors therefore the step for each resource is 2.5°C, each 0.2.5°C if the temperature is increasing or decreasing one of the resource is turned on or off.

11 LOAD MAINTENANCE

PARAMETERS CO26-CO27 are the set of the running hour counters of the compressors.
They establish, for each load, the number of running hours limit to display a maintenance message.

11.1 COMPRESSOR MAINTENANCE RESQUESTS

Label description	ACP1 (maintenance comp. 1) - ACP2 (maintenance comp. 2)
Activation	Compressor running hours > counter setpoint for that compressor
Reset	Running hour reset (Hour label in Menu function)
Restart	Manual
Icon	⚠ blinking
Actions	Alarm relay and buzzer activated
REGULATIONS	
Actions	Only signalling
Loads	Not modified

The parameter CO32 define the hour set counters for the evaporator water pump.
It establish the load running hours limit of the pump to give a maintenance signalling.

12 MESSAGES - ALARM CODES

the alarm codes are defined by letters and numbers:.
Alarm typology:

- **A** = alarm of the unit
- **b** = alarm of the circuit
- **C** = alarm of the compressor

12.1 AP1 - AP2 - AP3 - AP4 - AP5 PROBE FAILURE

Label on display	**AP1** = PB1 probe alarm…**AP5** = PB5 regulator probe alarm **AP11** keyboard N° 1 probe alarm **AP12** keyboard N° 2 probe alarm
Reason	Probe configured but the read-out is not in the range
Reset	Probe not configured or probe in the right range
Restart	Automatic
Icon	blinking ⚠
Action	Alarm Relay + and buzzer on

12.2 AEFL: EVAPORATOR FLOW ALARM (DIFFERENTIAL PRESSURE SWITCH)

Label o the display	**AEFL** evaporator flow alarm
Origin	Digital input active for 20 s after the water pump is on and, after the digital input itself is activated, for 2 s.
Reset	Digital input not active for 2 s.
Restart	Automatic – Manual after 1 events per hours (Reset procedure in Menu function).
Icon	Blinking **Flow!**
Action	Alarm Relay + and buzzer on only during normal running conditions.

12.3 ACFL: CONDENSER FLOW ALARM (DIFFERENTIAL PRESSURE SWITCH)

Label o the display	**ACFL** condenser flow alarm
Origin	Digital input active for 20 s after the water pump is on and, after the digital input itself is activated, 2 s.
Reset	Digital input not active for 2 s.
Restart	Automatic – Manual after 1 events per hours (Reset procedure in Menu function).
Icon	Blinking **Flow!**
Action	Alarm Relay + and buzzer on only during normal running conditions.

ATTENTION
The alarm relay and the buzzer are activated only if the alarm appears during normal running conditions.
When the temperature setpoint has been reached , the icon **Flow!** blinks without alarm.

12.4 ATE1 EVAPORATOR PUMP OVERLOAD ALARM

Label o the display	**AtE1** (overload pump alarm of evaporator 1)
Origin	Active ID when it is configured as overload pump of evaporator 1 Active ID when it is configured as overload pump of support evaporator 2.
Reset	With active digital input
Restart	Manual (reset procedure in function menu).
Icona	Blinking ⚠

Action	Alarm relay + buzzer ON

12.5 AEE EEPROM ALARM

Label o the display	**AEE**
Origin	Wrong eeprom data
Reset	-------
Restart	Manual
Icon	Blinking ⚠
Action	Alarm relay + buzzer ON

12.6 AFR: POWER SUPPLY FREQUENCY ALARM

Label on the display	**AFr** (Line frequency alarm)
Origin	The power supply frequency is not equal to the configured one
Reset	Ferquency control parameter adjusted
Restart	Automatic
Icon	Blinking ⚠
Action	Alarm relay + buzzer ON

12.7 ALOC: GENERIC ALARM WITH STOP REGULATION

Label on the display	**ALOC: generic alarm from digital input with stop regulation**
Origin	Digital input configured as generic alarm with stop regulation open
Reset	Digital input configured as generic alarm with stop regulation not active
Restart	manual reset
Icon	Blinking ⚠
Action	Alarm relay + buzzer ON
REGULATION	
Alarm	Alarm relay + buzzer ON
Other loads	OFF

12.8 AEP1 EVAPORATOR MAINTENANCE REQUEST

Label description	**AEP1** (Main water pump)
Activation	Load running hours > counter setpoint for that load
Reset	Running hour reset (Hour label in Menu function)
Restart	Manual
Icon	⚠ blinking
Actions	Alarm relay and buzzer activated
REGULATIONS	
Actions	Only signalling
Loads	Not modified

12.9 B1HP - B2HP HIGH PRESSURE SWITCH CIRCUIT 1 AND 2

Label on display	**b1HP** (high pressure switch circuit #1) **b2HP** (high pressure switch circuit #2)
Reason	The unit is running and the digital input of the high pressure switch is active
Reset	Digital input not active
Restart	Manual (Reset procedure in Menu function)
Icon	blinking ⚠
Action	Alarm Relay + and buzzer on

12.10 B1LP - B2LP LOW PRESSURE SWITCH CIRCUIT 1 AND 2

Label on the display	**b1lP** (low pressure digital input of the circuit 1) **b2lP** (low pressure digital input of the circuit 2)
Origin	• When the condensing probe value is low •
Reset	When the condensing probe temperature is higher than AL03 + AL04 (differential)
Restart	Automatic– Manual after 16 events per hour (Reset procedure in Menu function).
Icon	Blinking ⚠

Action	Alarm Relay + and buzzer on

12.11 B1AC - B2AC - B1AC - B2AC ANTIFREEZE ALARM

Label on the display	**b1AC** (anti-freeze alarm of the circuit #1 in chiller) **b2AC** (anti-freeze alarm of the circuit #2 in chiller) **b1Ac** (anti-freeze alarm signalling of the circuit #1 in chiller) **b2Ac** (anti-freeze alarm signalling of the circuit #2 in chiller) Both the labels are displayed when the alarm is coming from the evaporator inlet probe or evaporator common outlet probe or when there is only one digital input configured.
Origin	Normal conditions, stand-by, remote OFF: when the anti-freeze probe value is lower than 3°C for 2 seconds.
Reset	When the anti-freeze probe value is higher than 7°C
Restart	Automatic – Manual after 1 event per hours (Reset procedure in Menu function).
Icon	Blinking ⚠
Action	If the compressors are turned off and than display shows **b1Ac b2Ac,** the buzzer and the alarm relay are activated.

12.12 B1AH - B2AH ANTI-FREEZE ALARM ON HEAT PUMP MODE

Label o the display	**b1AH** (anti-freeze alarm of the circuit #1 in heat pump) **b2AH** (anti-freeze alarm of the circuit #2 in heat pump) **b1Ah** (anti-freeze alarm signalling of the circuit #1 in heat pump) **b2Ah** (anti-freeze alarm signalling of the circuit #2 in heat pump) Both the labels are displayed when the alarm is coming from the evaporator inlet probe or evaporator common outlet probe or when there is only one digital input configured.
Origin	Normal conditions, stand-by, remote OFF: when the anti-freeze probe value is lower than 3°C for 2 seconds.
Reset	When the anti-freeze probe value is higher than 7°C
Restart	Automatic – Manual after 1 event per hours (Reset procedure in Menu function).
Icon	Blinking ⚠
Action	the compressors are turned off and than display shows **b1AH - b2AH,** the buzzer and the alarm relay are activated.

12.13 C1HP - C2HP COMPRESSOR HIGH PRESSURE ALARMS

Label o the display	**C1HP** (compressor high pressure alarm 1) – **C2HP** (compressor high pressure alarm 6)
Origin	The unit is running and the digital input of the compressor high pressure switch is active
Reset	Digital input not active
Restart	Manual (Reset procedure in Menu function)
Icon	blinking ⚠
Action	Alarm Relay + and buzzer on

12.14 C1TR - C2TR COMPRESSOR OVERLOAD ALARM

Label o the display	**C1tr** (Compressor #1 overload alarm) - **C2tr** (Compressor #2 overload alarm)
Origin	With active digital input
Reset	When the digital input is not active
Restart	Manual
Icon	Blinking ⚠
Action	Alarm relay + buzzer ON
Compressor involved	OFF
Compressor not involved	it follows its regulation.

The parameter AL47 determines the functioning of the overload alarm of the compressors.
If AL47 = 0 single compressor locked when its digital input protection is active, on the display the corresponding alarm message.
If AL47 = 1 all the circuit of the compressor is locked when one digital input protection is active, on the display the corresponding alarm message.

12.15 C1MN - C2MN COMPRESSOR MAINTENANCE

Label o the display	**C1Mn** (Compressor #1 maintenance) - **C2Mn** (Compressor #2 maintenance)
Origin	Compressor running hours > Hour counter setpoint
Reset	Hour reset in function menu
Restart	Manual
Icon	Blinking ⚠
Action	Alarm relay + buzzer ON

Regulation	
Action	Only display warning messages
Loads	Not changed

12.16 ALARM RELAY AND BUZZER

Alarm relay / buzzer outputs

Origin	Alarms still active Alarms not reset
Reset relay alarm	Whitout alarms In stand- by or remote ON-O FF if AL42 = 1
Buzzer silencing	By pushing one of the key of the front panel

The alarm relay is enabled only by configurating the corresponding output resource.

12.17 KEYBOARD ALARM

Alarm code	keyaboard Alarm description
noL	No data communication between the keyaboard and the regulator.
Atr1	keyboard n° 1 set up but not connected to regulator

13 TABLE OF THE OUTPUT STATUS IN ALARM CONDITION

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

13.1 ALARM: "A" TYPE AND CORRESPONDING OUTPUT OFF

Alarm Code	Alarm description	Compressor	Evap. Pump. Supply fan	Auxiliary relay
AP1	Probe PB1 Alarm	Yes		Yes
AP2	Probe PB2 Alarm	Yes		Yes
AP3	Probe PB3 Alarm	Yes		Yes
AP4	Probe PB4 Alarm	Yes		Yes
AP5	Probe PB5 Alarm	Yes		Yes
AEFL	Evaporator flow alarm	Yes	Yes	
ACFL	Condenser flow alarm	Yes		
AtE1	Water pump overload alarm evaporator 1	Yes	Yes	
ArtC	Clock alarm			
ArtF	clock failure			
ALOC	Generic alarm with unit stopped	Yes	Yes	Yes
AEE	Eeprom alarm	Yes	Yes	Yes
AEP1	Evaporator #1 water pump maintenance			

13.2 ALARM: "B" TYPE AND CORRESPONDING OUTPUT OFF

Alarm Code	Alarm description	Compressors of the circuit (*n*)	Compressors of the other circuit
b(*n*)HP	High pressure switch of the circuit **(*n*)**	Yes	
b(*n*)LP	Low pressure switch of the circuit **(*n*)**	Yes	
b(*n*)AC	Anti-freeze in chiller of the circuit **(*n*)**	Yes	
b(*n*)AH	Anti-freeze in heat pump of the circuit **(*n*)**	Yes	
b(*n*)lP	Low condensing temperature NTC circuit **(*n*)**	Yes	
b(*n*)tF	Fan overload circuit **(*n*)**	Yes	
b(*n*)ds	Circuit **(n)** disabled from keyboard	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

13.3 ALARM: "C" TYPE AND CORRESPONDING COMPRESSOR OUTPUT OFF

Alarm Code	Alarm description	Compressor (*n*)
C(*n*)HP	Compressor(*n*) high pressure 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*) maintenane	

(*n*) identifies the compressor 1, 2

14 BLACK-OUT

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

15 TECHNICAL DATA

Housing: self extinguishing ABS.
Case: frontal 185x38 mm; depth 70mm (L format)
Mounting: panel mounting in a 150x31mm panel cut-out
Frontal protection: IP65 with gasket
Display:
Top Display 3 digits with d.p.
Bottom Display 4 digits with d.p.
Connections: Removable screw terminal block 2,5mm2.
Power supply:
24 Vac/dc±10%. 50/60 HZ (optional)
Power absorption: 10VA max.
Inputs: 10 NTC or 6 NTC + 4 (4 ÷ 20ma – 0 ÷ 5Volt)
Digital inputs: # 18 (free voltage)
Relay outputs: 14 SPDT 5(2) A, 250Vac.
Data storing: on the non-volatile memory (EEPROM).
Operating temperature: -10÷60 °C.
Storage temperature: -30÷85 °C**.**
Relative humidity: 20÷85% (no condensing)
Measuring range: - 30÷70 °C (- 22 ÷ 158 °F) NTC / 0÷150 °C (0÷302 °F) PTC or 0÷ 50 bar (0÷725 psi)
Resolution: 0,1 °C or 1 °F (selectable)
Accuracy of the controller at 25°C: ±0,7 °C ±1 digit

Technical information in this manual are not binding.
Thermowell in his pursuit of a policy of constant development
and upgrading of the manual may make
any modifications without prior notice

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