

INSTRUCTIONS FOR USE

CHOCOLATE CABINET
+4 ÷ +18°C
Relative Humidity 45%-65%
fully CFC and HCFC free

VC68



GENERAL WARNINGS

- The warnings in this booklet have been drawn up for the safety of yourself and others. We therefore warmly recommend reading them carefully before installing and using the appliance.
- The Manufacturer declines any responsibility if the instructions herein are ignored or if the appliance is tampered with.
- The packing materials carrying the symbol  can be recycled; place them in the special containers or areas for collection.
- When the appliance is decommissioned, cut the power supply wire and eliminate any other parts that could constitute a hazard.
- Observe local regulations for the disposal of this type of appliance.
- Not for household use.

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1. INSTALLATION



IMPORTANT

THE MANUFACTURER DECLINES ALL RESPONSIBILITY IF INSTALLATION IS NOT CARRIED OUT BY PROPERLY QUALIFIED PERSONNEL OR IF THE INSTRUCTIONS IN THIS MANUAL ARE NOT OBSERVED

1.1 PRELIMINARIES

Remove the protective film from the outer surfaces.

Carefully clean the inside of the appliance with warm water and neutral soap, then rinse and dry thoroughly.



ATTENTION !

DO NOT WASH WITH DIRECT OR HIGH PRESSURE JETS OF WATER AS THIS COULD CAUSE INFILTRATION WHICH COULD COMPROMISE PROPER OPERATION OF THE APPLIANCE OR THE SAFETY SYSTEM

Place the appliance in its permanent position and adjust the feet so that it is perfectly aligned. Make sure that minimum clearance is observed, to allow use and maintenance operations.

1.2 CHECKS

Check that there are no sources of heat in the close vicinity.

Check that the electricity supply available complies with the rating plate on the appliance, and especially that the mains voltage is within a tolerance of +/-10% of the value required.



ATTENTION !

THE MANUFACTURER DECLINES ALL RESPONSIBILITY FOR ANY DAMAGE CAUSED BY FAILURE TO EARTH THE APPLIANCE

1.3 CONNECTION

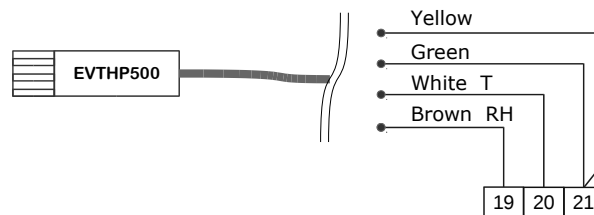
Plug into the socket without adapters, multiple plugs and/or extensions.



DO NOT OBSTRUCT THE AIR VENTS IN THE APPLIANCE CABINET

ATTENTION !

EVHTP500 PROBE CONNECTION



PRECAUTIONS FOR ELECTRICAL CONNECTION

- If using an electrical or pneumatic screwdriver, adjust the tightening torque.
- Moving the device from cold to warm places, there may be internal condensing. Wait about an hour before switching on the power.
- Make sure that the supply voltage, electrical frequency and power are within the set limits. See the section *TECHNICAL SPECIFICATIONS*.
- Disconnect the power supply before doing any type of maintenance.
- Do not use the device as safety device.
- For repairs and for further information, contact the EVCO sales network.

FIRST HANDLING

1. Install following the instructions given in the section *DIMENSION AND INSTALLING*.
 2. Power up the device as shown in the section *ELECTRICAL CONNECTION*.
 3. Configure the device output with relay parameters uc1..uc6, input parameters Pr2 Pr3 e ic1 and uc3;
 4. Then check if the remaining settings are appropriate;
 5. Disconnect the device from the mains supply.
 6. Make the electrical connection as shown in the section *ELECTRICAL CONNECTION* without powering up the device.
 7. To connect the unit to an RS-485 network connect the interface **EVIF22TSX** or **EVIF23TSX** (With RTC). A network communication is alternative to local transmission and data recording, set BLE=0.
 8. Power up the device.
-

2 USE



IMPORTANT

THE APPLIANCE HAS BEEN DESIGNED FOR THE PRESERVATION OF FOODSTUFF: WE ACCEPT NO RESPONSIBILITY IF IT IS USED FOR ANY OTHER PURPOSE

2.1 CONTROL PANEL



The controls on the telethermostat are described in the table on the following page.



WARNING!

DO NOT USE ELECTRICAL APPLIANCES INSIDE THE FREEZER COMPARTMENTS

LED	ON	OFF	BLINKING
	Cooling request De-humidify request	compressor Off	- Protection delay time
	Defrost	-	- Defrost delay time - Dripping
	Evaporator fans on	Evaporator fan off	Evaporator fan delay time
	Humidify request Humidify relay		
	De-Humidify request de-Humidify relay		Delay when de-humidify with compressor.
	Heating request Heating relay De-Humidify Request Compressor + Heating		
HACCP	HACCP Alarm logged	-	New alarm logged
	Energy saving	-	-
	Maintenance	-	Collegamento remoto
C/F/ %	Unit of measurement	-	
AUX	Auxiliary function Auxiliary relay	Auxiliary not active	
	Light on by key	Light off	Light on by door open
			Active alarm
	Probe value above the or under the setpoint.		
	Keyboard status		
	Open Door	Door closed	
	Running Cycle	No cycle running	Cycle in stand-by, another function is running.

2.2 USE

Device ON/OFF



Touch the ON-OFF key for 2", the device alternatively turns On or Off.
When the device is off, the display shows the off icon for some seconds. Then it turns to black for energy saving.



WARNING!

THE APPLIANCE MUST BE AT AN APPROPRIATE STEADY TEMPERATURE BEFORE PUTTING FOOD INSIDE

KEY COMMANDS

LED	Direct	Delayed: press 2 seconds
MENU		To access the MENU functions - Language - Parameters - Probe Value
	Backward from a Menu	Turns On or Off instantaneously the unit regulation, display turns to black after a minute.
V	Reduce a value or move down the prompt in a list of elements.	
 AUX	Increase a value or move up the prompt in a list of elements. To access the AUX functions	
	Turn On or Off manually the light output relay.	
SET	To change or confirm the setpoint, Select or confirm the element or a value.	

LOCK UNLOCK THE KEYBOARD

After a minute without operating the keyboard is automatically locked .

Push any keys for two seconds to unlock the keyboard .

AUX FUNCTIONS

User auxiliary manual commands are available touching the AUX key:



CONFIRM: Select an item with up and down keys, press **SET** to confirm or  to abort:



Some functions can be disabled by repeating the same procedure (Manual Energy Saving). Other functions will proceed following their process until the end of the function (manual defrost).

Some functions may not be visible if the unit status is not running or the model does not support the function itself.

Manual defrost: It executes a defrost if the evaporator probe is present "Pr3=5" and the evaporator condition allows it. If no evaporator probe is configured the defrost is time based.

Over temp: it changes the SET temperature to "SET+/-r6" value for the time "r7". With r7=0 the function is disabled. A defrost can be postponed with d4.

Extra rH: it changes the humidity SET2 into "h4" value for the time set in "h5". With "h5=0" the function is disabled.

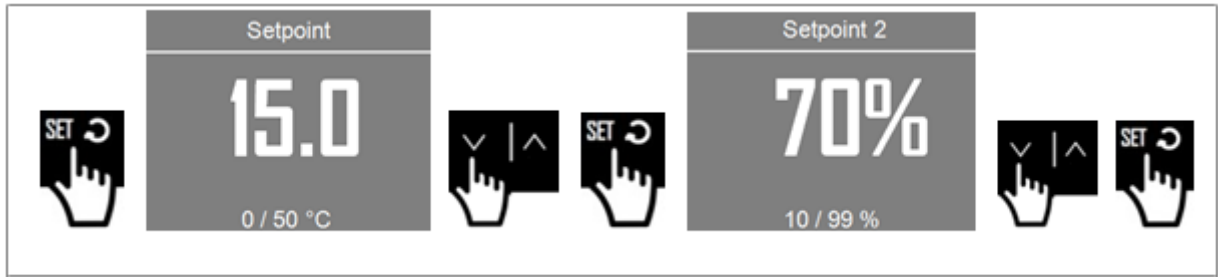
Energy Saving: Enabling the energy saving function changes the SET1 into "SET1 + r4 differential". Repeat the operation to disable the function.

Aux: available if the auxiliary output is configured as manual control "u6".

CHANGING THE SETPOINTS

It is possible to change the temperature and humidity setpoint values as follow:

1. Push **SET** key, the temperature setpoint appears with the available minimum and maximum range.
-



2. Push up or down arrows to change the value and then **SET** to confirm;
3. The humidity SET2 appears;
4. Push up or down arrows to change the value and then **SET** to confirm to exit.

INTERMEDIATE EXIT: wait 5 seconds or push to exit and abort the changed value on the display.

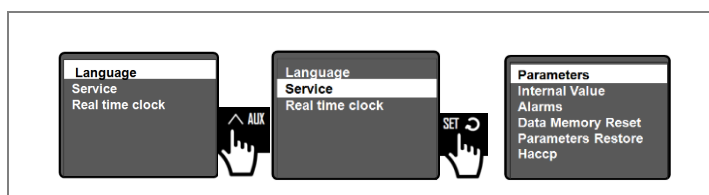
MENU - CONFIGURATION

Touch the key for 2 seconds to enter the configuration.

	Language Select the interface language. Service To show configuration Parameters, Alarms, Alarm Reset and Statistics. Real time Clock To set the Clock if enabled. Available only if the clock option is available.
--	---

LANGUAGE To select the operative language. Basic languages I-GB other depending on version updates (N.A.).

MENU_SERVICE To configure the I/O, reading values and maintenance.



SERVICE MENU ITEMS

Parameters To access and configure parameters

Internal value To show I/O values.

Alarms To show the list of active alarms

Reset data memory Alarm Reset (**code 149**)

Parameters Restore Re-load original parameter map. BE AWARE (*)

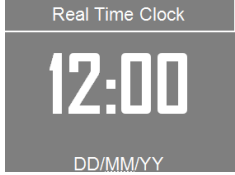
Haccp Show the HACCP Log from last Alarm Reset.



(*) custom configuration can be different from default values. By re-loading the original values, the loads connected to relay outputs can be damaged or wrongly perform if not corresponding.

REAL TIME CLOCK

Real time clock functions are available if provided on board or connected with external interfaces EVIF23TSX or EVIF25TBX (Evlink), Enter this menu to set the clock. Function related to Clock:

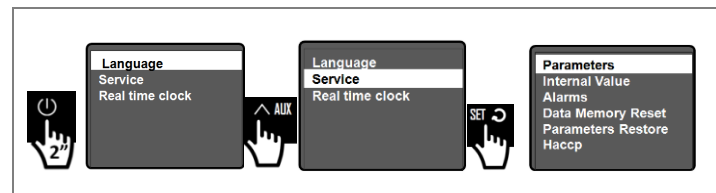
	Enter the Clock menu and: push SET and change year value YY; push SET and change month value MM; push SET and change day value DD; push SET and change hour value; push SET and change minutes value; EXIT the menu with 
---	---

Regulation functions available with the clock function:

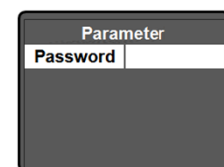
- **daily defrost:** Hd1..Hd6.
- **daily Energy Saving:** H01..H02

PARAMETERS AND PASSWORDS

ENTER: Push MENU key for 2 seconds;



PASSWORD



Enter the password using directly the up or down arrows, the pass background color turns to green, push SET to confirm:
password value corresponding to "**PS1=1**" to enter level 1 parameters.
password value corresponding to "**PAS=-19**" to enter all the parameters.

2.3 REGULATION

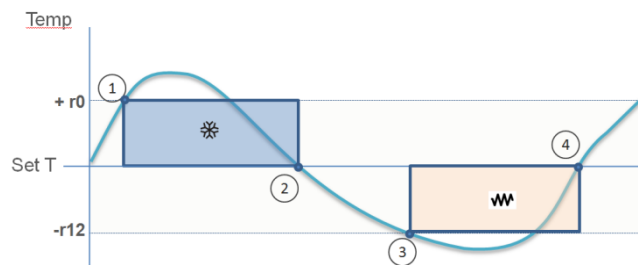
Temperature regulation

The temperature setpoint can be set between the limits min "r1" and max "r2".

The temperature is regulated with the following outputs:

❄️ Cooling between "SET+r0= on" (1) and "SET=off" (2).

🔥 Heating between "SET-r12= on" (3) and "SET=Off" (4).

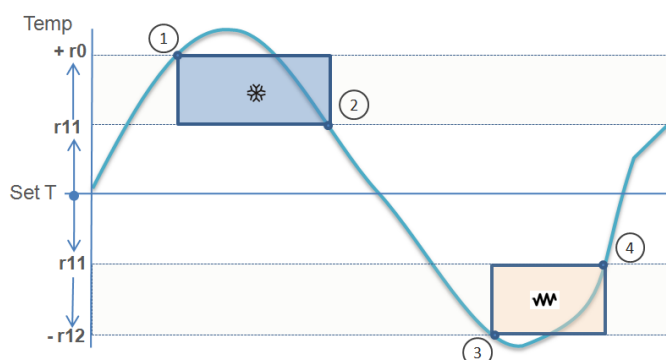


TEMPERATURE REGULATION WITH NEUTRAL ZONE

Available by setting "r11<>0" the value is inserted between the SET and the differential:

❄️ Cooling regulation "SET+r11+r0= on" (1) and "SET+r11=off" (2).

🔥 Heating regulation "SET-r11-r12" = on (3) and "SET-r11" = OFF (2).



if "r11<0" the neutral zone is available only for heating side 3-4.

TEMPERATURE REGULATION and DE-HUMIDIFY WITH COMPRESSOR

By setting "rd4=1" the de-humidify function with compressor is enabled, while setting "rd4=2" the same function is performed by turning on also the Heating output on with the Compressor.

TEMPERATURE PRIORITY OVER DE-HUMIDIFY with compressor if "rd4>0".

The "r14" parameter can be configured as the following priority:

0 = Temperature and humidity are independent and follow their requests.

1 = Heat: if the temperature drifts up, the de-humidify is suspended.

2 = Heat-Cool: if the temperature drifts up or down, the de-humidify is suspended.

3 = Cool: if the temperature drifts-down, the de-humidify is suspended.



HEATING MODULATION

The heating output can be modulated with "r13" by setting a duty cycle interval between 10 and 60". The "r13=60" value (default) means that the heating relay is always on when the request of heating is active.

Be aware that **increasing the switching frequency** of the relay may introduce long term contact duration concerning.

For **safety reasons** the fan stop temperature "F1" must be set very high to avoid stopping the fan during the heating.



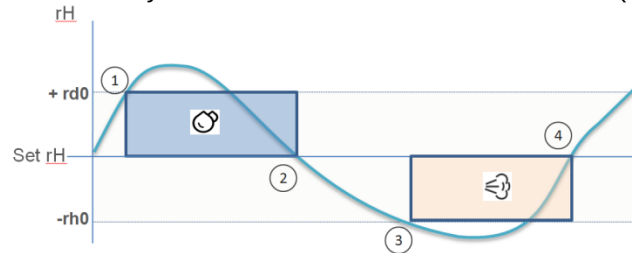
OPEN DOOR

The regulation can be suspended depending on "ic1" digital input function.
Regulation can be restarted by forcing the timer setting "i3".

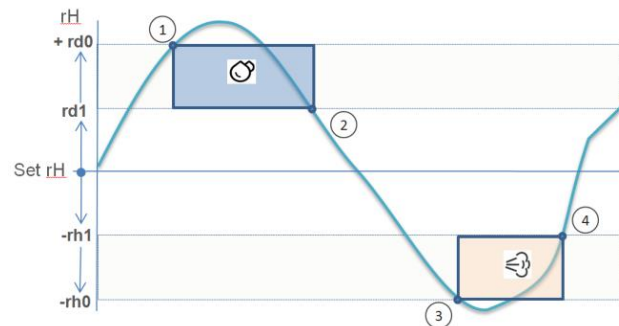
Humidity regulation Set2

The Humidity is basically controlled by the following algorithms:

- 🕒 de-humidify is controlled between "SET2+rd0=On" (1) and "SET2=Off" (2).
- 👉 humidify is controlled between "SET2-rh0=On" (3) and "SET2=Off" (4).



A **NEUTRAL ZONE** is available by setting "rh1" for the humidify process and "rd1" for the de-humidify process.



OPEN DOOR regulation is suspended depending on "ic1" digital input function. Cooling regulation can be restarted by forcing the time parameter "i3".



DE-HUMIDIFY WITH COMPRESSOR (default rd4=1)

Setting "rd4=0" the function is disabled, while setting the following values:
"rd4=1" to use the compressor in de-humidify function.
"rd4=2" to use the compressor+heating in de-humidify function

EVAPORATING FAN



Evaporating fan follows the "F0" parameter. default=1

FAN STATUS

Parameter "F0" allows the following behaviors:

- 0= "Fans on with regulation on" (intended as compressor, heating, humidify, de-umidify).
F0=0 also allows to control fan cycles (*);
- 1= Always ON, (default),
- 2= ON with regulation ON,
- 3= With temperature threshold F1, if the evaporator probe is enabled "Pr3=5".
- 4= ON with regulation On and threshold F1, if the evaporator probe is enabled "Pr3=5".



It is advised to use "F0= 3 or 4" values only without heating elements. For safety

reason the fan stop temperature "F1" must be wisely set to avoid stopping the fan during the heating function.

OTHER SETTINGS

FAN TEMPERATURE THRESHOLD "F1" to lock for high temperature if "Pr3=5"

Working with heating elements F1 must be set at high values to avoid turning the fan off.

DEFROST with "F2" fan mode to determine the fan status.

DRIPPING with "F3" to determine the fan stop time after the defrost.

The uc()=14 as "evaporator fan 2" function it is not available on this model.

FAN CYCLES F0=0 (*)

By using "F0=0" the evaporators fan can follows on-off cycles depending on the active function:

- 1) when there are **no temperature or humidity requests**: F11_on e F12_off;
- 2) when there is a **de-humidity request** with compressor and the De-humidify relay is not configured: rd2_On time - rd3_Off time;
- 3) when there is a **humidity request** and there is no Humidify relay configured: rh2_On time - rh3_Off time;

DEFAULT VALUES: the following values allows to operate the normal function,

Fan_on values must be >0 and Fan_Off values must be equal to 0:

"F11, rd2 and rh2 = 60"

"F12, rd3 and rh3 = 0"

when there is a regulation request the fans turns or remains on.

TO ACTIVATE A CYCLE: By setting "F12, rd3 and rh3>0" the fan cycling function is activated when requested.



TO STOP THE FUN DURING A FUNCTION

Setting "F11 =0, rd2 =0 or rh2 =0" the fan output is disabled for the duration of the requested function. The function is not appropriate with heating elements on.

BE AWARE that the increasing number of the fan **relay switching** may cause a long term relay contact concern. It is advised to balance the load (heating-cooling) and the switching timing to preserve the relay.

OTHER REGULATION

COMPRESSOR PROTECTION (default value: C2=3 minutes)



Power on: the first compressor start can be delayed with "C0" minutes.

PROTECTION: during normal regulation "C2" keeps the compressor off for the time set in minutes, while "C3" keeps the compressor on for a minimum time in seconds.



"C3" minimum compressor on time function overrides the thermoregulation even outside the temperature or humidity band until it is expired.

PROBE SAFETY: if a faulty or wrong probe connection events happen, the display shows "--.-". The compressor follows the "C4" (off) & "C5" (on) time in minutes.



CONDENSING and CONDENSING FAN (default: to be configured)

Condensing fan follow the compressor on status if no condensing probe is configured. By enabling the condensing probe Pr3=1 the following controls are available:

"Fc1+Fc2" Temperature threshold to turn on the condenser fan;

"Fc1" condenser fan off temperature threshold;

"Fc3" condenser fan off time after compressor off;



CONDENSER ALARM

"C6" threshold for high condensing when dangerous for the compressor;

"C7" threshold for high condensing alarm that stop the compressor after "C8" time delay in minutes. A manual reset of the power supply is requested to restart the controls.

DEFROST



The defrost control is performed after the "d0" interval if >0 and can be selected among the following mode "d1": 0=electric heater, 1= hot gas, 2=stop compressor.

TEMPERATURE THRESHOLD is determined by "d2" and is available only if the evaporator probe is enabled "Pr3=5".

MAXIMUM DURATION determined by the time interval "d3" in minutes.

DEFROST AT POWER ON determined by the parameter "d4": 0 = no , 1 = post overcooling, 2=power-on & post-overcooling.

DEFROST DELAY: "d5" in minutes following the "d4" selection.

DISPLAY LOCKED in DEFROST using "d11": 0=not locked, 1= locked.

COMPRESSOR STATUS PRE DEFROST time to keep the compressor on before hot gas defrost: 0=no enabled, d15>0 enabled.



DEFROST OUTPUT AS HEATER / DE-HUMIDIFY FUNCTION

Setting "rd5=1" it is possible to use the defrost output also as alternative heating element the heating relay if not available.

AUXILIARY RELAY (default value: to be configured)

When configured with "uc ()=15" the auxiliary relay works as follow:

- on-off relay based on the **cabinet probe reading** if no auxiliary probe configured;
- on-off relay based on the the **auxiliary probe reading** if Pr3=4;
- Manual On-Off via AUX key.

After setting the output relay, configure the regulation as follow:

"u6" Heating regulation (0), cooling regulation (1), manual via AUX key (2).

"u7" Setpoint temperature to turn off the output if "u6=0 or 1".

"u8" Temperature differential of "u7" to turn on the output if "u6=0 or 1".

For probe error the relay is open.

AUX MANUAL FUNCTION

By setting "u6=2" the auxiliary relay can be turned on or off entering the **AUX** menu and selecting **AUX** function.

DIGITAL INPUT 1 CONFIGURATION

The digital input 1 can be configured in "ic1" parameter, default door switch (7):

0= Disabled,

1= **Energy Saving**;

2= **Alarm Multifunction**; Only signaling

3= Reserved;

4= **Remote Onoff**; Turns Off and On the unit.

5= **Thermal switch**; "i8" events , interval "i7". if "i8"=0 auto reset

6= Reserved;

7= **Door open 1** : Compressor and Fan off, Light on;

8= **Door open 2** : Compressor off, Fan and Light on;

9= **Door open 3** : Light on;

Input polarity is determined by "iP1":

0= active function with closed contact ; 1= active function with open contact.

OPEN DOOR (default value: ic1=7)

Regulation is suspended while the compressor can follow "i3" settings:

"i3=-1" the compressor follows its regulation;

"i3=0" compressor goes off;

"i3>0" the compressor goes off, it will restart after this delay in minutes.

CONFIGURATION INPUT 3

By selecting the parameter "Pr3" the following functions are available:

- 0 = Digital input (configuration via ic3)
- 1 = Condenser probe (condenser fan and alarms)
- 2 = Core probe (only display)
- 3 = External air probe (only display)
- 4 = Auxiliary probe (regulation u6,u7,u8)
- 5 = Defrost probe 2 (defrost control)

PRESSURE SWITCH CONFIGURATION

By selecting the parameter "**Pr3=0**" it is possible to configure also the function of the digital input via "**ic3**" parameter: 0 disabled e 1=pressure switch (see alarms).

RELAY OUTPUT CONFIGURATION



EXPERT USER ONLY

Relay functions are configurable through uc1..6 parameters that corresponds to the K1..K6 outputs. The default configuration:

- 0 = Unused
- 1 = Umidify (rh) K4
- 2 = De-Umidify (drh) (the function is performed by the compressor)
- 3 = Alarm
- 4 = Compressor K1
- 5 = Heating K2
- 6 = Condenser fan
- 7 = Device status on or off,
- 8 = Air change
- 9 = Light K3
- 10 = Compressor 2
- 11 = Evaporator fan K5
- 12 = Defrost K6
- 13 = Reserved
- 14 = Evaporator fan 2 (Low speed fan)
- 15 = AUX (Auxiliary u6,7,8)



The reloading procedure of a default map is available only for the default configuration in "MENU_SERVICE_Parameters Restore" and it must be done disconnecting the loads. Be aware to accurately verify the functions related to the relay outputs, configuration errors may activate unwanted loads.

EVCONNECT EVLINK and MODBUS via RS485



Communication functions are in mutual exclusion: the presence of embedded or remote EVLINK (eg EVIF25TBX) prevents the user to connect a RS485 serial interface EVIF22TSX o EVIF23TSX and vice versa.

Parameters involved:

Hr0 enables the clock function 0=no 1=Yes. Connecting an EVLINK "Hr0" is automatically enabled and the "rtc" alarm appears. If the EVLINK is removed or fails the RTC alarm appears. Inserting a EVIF23TSX the Hr0 parameter must be manually set.

BLE= enable EVLINK. BLE=1 and LA=247 the EVLINK communication is enabled while modbus communication is disabled. BLE=0 the serial interfaces EVIF22/23TSX for RS485 and MODBUS

communication can operate.

PA1= 824 service password access from EVCONNECT APP.

PA2= 642 user password access from EVCONNECT APP. It allows the use of EVCONNECT APP in user mode, the parameter change via APP is not available.

LOCAL PARAMETER PASSWORD

To access the parameters with local password via keyboard:

PAS=-19 service password for all the parameters;

PS1= 1 password to access level 1 parameter.

21. TECHNICAL DATA

Purpose of the control device:		function controller.	
Construction of the controller device:		build-in electronic device.	
Case:		Plastic Self extinguish or Open frame.	
Category of heat and fire resistance:		D.	
Mounting methods:		panel with elastic mounting flaps or backpanel with double stick tape	
Front Panel degree of protection:		IP65	
Connections:			
screw connector for wires up to 2,5 mm².		Removable terminals by request 2,5 mm²;	TTL Picoblade.
Maximum lenght for connection cable:			
power supply: 10 m (32,8 ft)		analog inputs: 10 m (32,8 ft)	
digita inputs: 10 m (32,8 ft)		digital outputs: 10 m (32,8 ft).	
Operating temperature:		-5 .. 55 °C (32..131 °F).	
Storage temperature:		-10 .. 70 °C (-13 .. 158 °F).	
Operating humidity:		from 10 to 90 % not condensing.	
Pollution status of the control device:		2.	
Conformity:			
RoHS 2011/65/CE		WEEE 2012/19/EU	REACH (CE) n. 1907/2006
EN 60730-1		IEC 60730-1	
Power supply:		12vac/dc (±10%), 50/60Hz(±3 Hz), 10 VA max	
Earthing methos for the control device		None.	
rated impulse-withstand voltage:		4 KV.	
Over-voltage category:		III	
Sftware class structure:		A.	
Real time clock:		Incorporated lithium battery	
Clock drift:		≤ 60 s/month a 25 °C (77 °F).	
Clock battery autonomy in blackout:		> 6 months 25 °C (77 °F).	
Clock battery charging time:		24 h (supplied from the device).	
Analogue inputs:		2 for PTC or NTC sensor (cabinet and auxiliary probe*). 1 humidity Evco probe EVHTP500	
Digital inputs:		1 configurable	

Other inputs:	* configurable auxiliary probe or pressure switch.
Digital output:	6 configurable electromechanical relays:
(K1) Compressor:	SPST 30 A res. @ 250 VAC
(K2) Heating:	SPDT 8 A res. @ 250 VAC;
(K3) Light:	SPST 16A res. @ 250 VAC
(K4) Huidify:	SPST 8 A res. @ 250 VAC;
(K5) Evaporator fan	SPST 5 A res. @ 250 VAC;
(K6) defrost	SPDT 8 A res. @ 250 VAC;
Type1 or type 2 action	Type 1.
Additional features for Type1 or type 2 action	C.
Display:	TFT 2,8 inches, 16 colors, 320 x 240 pixel.
Buzzer:	on board.
Communication port:	TTL picoblade for parameter key or RS485 MODBUS converter (alternative to BLE)

PARAMETERS KEY

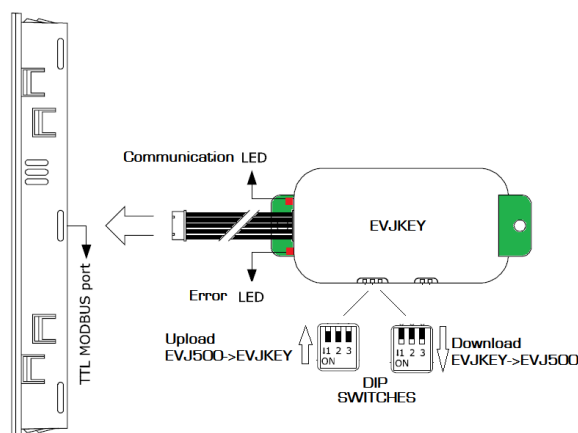
Using the EVJKEY key follow these steps:

1. Power Supply is off;
2. **UPLOAD** from **REGULATOR to EVJKEY**: insert the cable to TTL and the EVJKEY dip-switches 1-2-3 set to OFF.
or
DOWNLOAD from **EVJKEY to REGULATOR**: insert the cable to TTL and the EVJKEY dip-switches 1-2-3 set to ON.
3. TURN THE POWER ON

for some seconds the two leds blink together, during the data transfer the "communication led" is blinking:

DATA TRANSFER OK "communication led" is on.

DATA TRANSFER OK "error led" is on.



2.4 PARAMETERS

LEVEL 1 PARAMETERS password PS1=1

CA1	0.0	Probe 1 calibration
CA2	0.0	Probe 2 calibration
r0	2.0	Heating differential
r12	-2.0	Cooling differential
rd0	3.0	De-humidify differential
rh0	-3.0	Humidify differential
d0	0 hours	defrost interval
d2	8	End defrost temperature
d3	30 min	Defrost duration
PLi	1	Light key configuration in stand-by
Pbu	2	Buzzer enabled for alarm and keys

ALL PARAMETER LIST PAS

	N.	PAR.	DEF.	SETPOINT	MIN... MAX. (°C)
		SET	nv	form keyboard	r1..r2
		SET2	nv	form keyboard	h1..h2
	N.	PAR.	DEF.	ANALOG INPUTS	MIN... MAX.
	1	CA1	0	Ambient probe offset	-25..+25 °C/F
	2	CA2	0	Humidity Probe Offset	-25..+25 %rH
	3	CA3	0	Auxiliary Probe Offset	-25..+25 °C/F
	4	P0	1	Probe Type	0=ptc 1=ntc
	5	P1	1	Enable °C Decimal Point	0=no 1=yes
	6	P2	0	Temperature Unit Of Measurement	0 = Celsius 1 = Fahrenheit
	7	Pr3	5	Probe 3 configuration	0 = Digital input 1 = Condenser Probe 2 = Core Probe 3 = External Air 4 = Auxiliary Probe 5 = Defrost 2 Probe
	8	P5	1	Value Displayed (left side) Setting to 0 the display is off.	0 = None 1 = Input 1 2 = Input 2 3 = Input 3
	9	P6	2	Value Displayed 2 (right side). Setting to 0 the display is off	4 = Setpoint 1 (T) 5 = Setpoint 2 (rH)
	10	P8	5	Display Refresh Time to increase/decrease a digit.	0..255 1/10 dec s
	11	P9	5	Display 2 Refresh Time to increase/decrease a digit.	0..255 1/10 dec s
	N.	PAR.	DEF.	TEMPERATURE	MIN... MAX.
	12	r0	2	Setpoint cooling Differential. (SET+r0) (SET+r11+r0 if neutral zone)	0,1..15 °C/F
	13	r1	4	Minimum Setpoint Temp	-30.. r2 °C/F
	14	r2	18	Maximum Setpoint Temp	r1.. +99 °C/F
	15	r4	0	Setpoint Offset in Energy	0..99 °C/F

			Saving	
16	r5	0	Disable Humidity regulation during Over Temp	0=no 1 =Yes
17	r6	0	Define the value of the temperature setpoint "SET +/- r6" in Over Temp	-40..+99 °C/F
18	r7	0	OverTemp time duration	0..240 min
19	r11	0	Neutral Zone Value. With r11>0 the value is active for heating or cooling. With r11<0 the value is active only for heating function.	-10..+10 °C/F
20	r12	-2	Setpoint Heating Differential (SET-r12) (SET-r11-r12 if neutral zone).	-25..-0,1 °C/F
21	r13	60	Heating Duty Cycle. "r13=60" = always on, 0= Off.	0..60" s
22	r14	2	Temperature Priority control: if >0 the unit stops de-humidify (with compressor) to adjust temperature first.	0 = Disabled 1 = Heating (if T° rises) 2 = Heat/Cool 3 = Cooling (if T° drops)
N.	PAR.	DEF.	HUMIDITY	MIN... MAX.
23	h1	45	Minimum setpoint 2	0..h2 %rH
24	h2	65	Maximum setpoint 2	h1..100 %rH
25	h4	0	Setpoint of Extra Humidity using AUX key manual function. The value of "h4" replace SET2 for the time set in "h5".	0..100 %rH
26	h5	0	Extra humidity duration. 0= function not enabled.	0..240 min
N.	PAR.	DEF.	DE-HUMIDIFY REGULATION	MIN... MAX.
27	rd0	5	De-Humidity differential. (SET2+rd0) (SET2+rd1+rd0 if neutral Zone)	1..25 %rH
28	rd1	0	De-Humidify Neutral Zone	0..10 %rH
28	rd2	5	Fan On Time in De_humidify. 0= fan off.	0..240 " s
30	rd3	60	Fan Off Time In De-Humidify. 0=normal function.	0..240 " s
31	rd4	2	De-Humidify with Compressor or compressor and heater. 0= temperature and de-humidity outputs are	0 = Disabled 1 = Compressor 1 2 = Compressor and Heat

				independent.	
	32	rd5	1	Heating and de-Humidify functions executed with Defrost output if no heating output is available.	0=no 1=Yes
	N.	PAR.	DEF.	HUMIDIFY REGULATION	MIN... MAX.
	33	rh0	-3	Humidify Differential (SET2-rh0) (SET2-rh1-rh0 if neutral zone)	-25..-1 %rH
	34	rh1	0	Humidify Neutral Zone	0..10 % %rH
	35	rh2	5	Humidify Output On Time (or Fan if no rH output configured). 0= Humidify output off.	0..240 " s
	36	rh3	60	Humidify Output Off Time (or Fan if no rH output configured). 0= Humidify output normal.	0..240 " s
	N.	PAR.	DEF.	COMPRESSOR	MIN... MAX.
	37	C0	0	Compressor ON Delay After Power-on	0..240 min
	38	C2	2	Compressor OFF Minimum Time	0..240 min
	39	C3	1	Compressor ON Minimum Time	0..240 " s
	40	C4	10	Compressor OFF Time during Cabinet Probe Alarm	0..240 min
	41	C5	10	Compressor ON Time during Cabinet Probe Alarm	0..240 min
	42	C6	80	Threshold for High Condensation Warning	0..199 ° C/F
	43	C7	90	Threshold for High Condensation Alarm	0..199 ° C/F
	44	C8	0	Compressor Shutdown Alarm Delay for high condensing.	0..15 min
	45	C10	0	Compressor run time for Service	days
	46	C11	10	Compressor 2 On Delay after Compressor 1	0..240 " s
	N.	PAR.	DEF.	DEFROST	MIN... MAX.
	47	d0	0	Defrost interval time	0..99 h
	48	d1	0	Type of Defrost	0 = Electric 1 = Hot gas 2 = Compressor Stop
	49	d2	8	Threshold for Defrost End	-99..+99 ° C/F
	50	d3	30	Defrost Duration	0..99 min
	51	d4	0	Enable Defrost at Power-on	0=no 1=power on 2= post overcooling 3= power on and post overcooling
	52	d5	0	Defrost Delay after	0..99 min

				Power-on	
	53	d6	1	Value Displayed during Defrost	0 = Regulation Value 1 = Display Locked 2 = reserved
	55	d7	0	Dripping Time	0..15 min
	56	d11	0	Enable Defrost Time-Out Alarm	0=NO 1=YES
	57	d15	0	Compressor ON Consecutive Time for Hot Gas Defrost	0..99 min
	N.	PAR.	DEF.	ALARMS	MIN... MAX.
	58	A1	0	Threshold for Low Temperature Alarm	-99..+99 ° ° C/F
	59	A2	0	Low Temperature Alarm Type	0 = Disabled 1 = Relative to Setpoint 2 = Absolute
	60	A4	50	Threshold for High Temperature Alarm	-99..+99 ° C/F
	61	A5	0	HighTemperature Alarm Type	0 = Disabled 1 = Relative to Setpoint 2 = Absolute
	62	A6	120	High Temperature Alarm Delay after Power-on	0..240 min
	63	A7	15	Temperature alarm delay	0..240 min
	64	A8	15	High Temperature Alarm Delay After Defrost	0..240 min
	65	A9	15	High Temperature Alarm Delay after Door Closing	0..240 min
	66	A10	15	Power Failure Duration for PF Alarm Recording	0..240 min
	67	A11	1	High/Low Temperature Alarm Reset Differential	0,1..15 ° C/F
	68	AH1	50	Low Humidity Alarm relative to SET2	0..100 %rH
	69	AH4	50	High Humidity Alarm relative to SET2	0..100 %rH
	70	AH7	30	Humidity Alarm Delay and sensor error.	0..240 min
	N.	PAR.	DEF.	EVAPORATOR FAN	MIN... MAX.
	71	F0	0	Evaporator Fan Mode during Normal Operation. With F0=0 parameters F11-F12, rd2-rd3, rh2-rh3 can enable a fan cycling regulation. For safety reason (use of heating elements and cycles) check the fan control chapter.	0 = ON + Fan Cycling. 1 = ON (default) 2 = ON if regulation ON 3 = Thermoregulated (with F1 relative to Regulation Temperature) 4 = Thermoregulated if Compressor ON (with F1 relative to Regulation Temperature)
	72	F1	99	Threshold for Evaporator Fan Operation with F0=3 or 4. The fan starts under F1 and stops at "F1+F8".	-99..+99 °C/F
	73	F2	0	Evaporator Fan Mode during Defrost	0 = OFF 1 = ON 2 = According to F0

	74	F3	0	Evaporator Fan OFF Maximum Time after Dripping	0..15 min
	75	F7	99	Threshold for Evaporator Fan ON after Dripping (relative to Setpoint)	-99..+99 ° C/F
	76	F8	2	Evaporator Setpoint Differential	0,1..15 ° C/F
	77	F9	5	Evaporator Fan OFF Delay after Compressor OFF	0..240 "
	78	F11	5	Fan On Time with no regulation. To be used with F0=0.	0..240 "
	79	F12	60	Fan Off Time with no Regulation. To be used with F0=0.	0..240 "
	N.	PAR.	DEF.	CONDENSER FAN	MIN... MAX.
	80	Fc1	25	Threshold for Condenser Fan ON	0..99 ° C/F
	81	Fc2	5	Condenser Fan Differential	0,1..15 ° C/F
	82	Fc3	5	Condenser Fan Off delay	0..240 " s
Id	N.	PAR.	DEF.	DIGITAL INPUTS FUNC	MIN... MAX.
	83	i1	0	Lock Display with Open Door	0..240 min
	84	i2	1	Open Door Alarm Delay. -1=disabled 0= immediate	-1..120 min
	85	i3	15	Cooling Inhibition Max Time with Open Door -1=disabled 0= immediate without restarting.	-1..120 min
	86	i5	0	Multi-purpose Input Alarm Delay	0..120 min
	87	i6	60	High Pressure Events Counting Interval	0..120 min
	88	i7	60	Multi-purpose Input Alarm Delay	0..120 min
	89	i8	1	Digital Input Event Counting For Pressure or Thermal Alarm. 0= always automatic, 1= always manual.	0..15
	N.	PAR.	DEF.	UAXILIARY RELAY	MIN... MAX.
	90	u6	0	Auxiliary output configuration. The manual control is operated via AUX key.	0= Heating 1= Cooling 2= Manual
	91	u7	0.0	Auxiliary Setpoint if "u6=1 or 2".	-99..+99 ° C/F
	92	u8	1.0	Auxiliary differential for "u7" if "u6=1 or 2"	0,1..15 ° C/F
	N.	PAR.	DEF.	DIGITAL INPUT CONF.	MIN... MAX.
	93	iC1	7	Multi-purpose Input Function, Door switch: 7,8 or 9.	0 = Disabled 1= Multifunction alarm 2= reserved 3= = reserved

 					4 = Stand-by 5 = Thermal Switch 1 5 = Thermal Switch 2 7 = Compressor + Evaporator Fan OFF, Light ON 8 = Evaporator Fan OFF, Light ON 9 = Compressor + Evaporator Fan OFF, Light ON
	94	iP1	1	Multi-purpose Input 1 Activation. 0= function active for contact closed.	0=closed 1=open
	95	iC3	0	Digital Input 3 configuration Pr3=0.	0= disabled 1= high pressure switch
	96	iP3	0	Multi-purpose Input 3 Activation. 0= function active for contact closed.	0=closed 1=open
	N.	PAR.	DEF.	DIGITAL OUTPUTS CONF.	MIN... MAX.
	97	uc1	4	K1 Output Configuration (C)	0 = Disabled 1 = Humidity
	98	uc2	5	K2 Output Configuration (Ht)	2 = de-Humidfy 3 = Alarm
	99	uc3	9	K3 Output Configuration (L)	4 = Compressor 1 5 = Heating
	100	uc4	1	K4 Output Configuration (rH)	6 = Condenser Fans 7 = ON / STAND-BY
	101	uc5	11	K5 Output Configuration (EF)	8 = Air Change 9 = Light
	102	uc6	12	K6 Output Configuration (Def)	10 = Compressor 2 11 = Evaporator Fans 12 = Defrost 13 = Reserved 14 = Evaporator Fan 2 15 = Auxiliary Relay
	N.	PAR.	DEF.	TOUCH KEYS	MIN... MAX.
	103	POF	1	Enable ON/Stand-by Key	0=no 1=yes
	104	PLi	1	Light button in stand-by	0=no 1= yes
	105	PSr	1	Disable Alarm Output by Silencing the Buzzer	0=no 1= yes
	106	Pbu	2	Enable key and Buzzer Function	0=no 1 = only alarm, no keys 2 = alarm and keys
	N.	PAR.	DEF.	PASSWORD	MIN... MAX.
	107	PAS	-19	Password for all parameters	-99... 999
	108	PS1	1	Level 1 service	-99... 999
	109	PA1	426	Evlink user password	-99... 999
	110	PS2	824	Evlink service password	-99... 999
	N.	PAR.	DEF.	CLOCK	MIN... MAX.
	111	Hr0	0 / 1	Enable clock function. 1= for models provided with rtc or EVLINK on board.	0=no 1=yes
	N.	PAR.	DEF.	DATALOGGER	MIN... MAX.
	112	BLE	1	"1"= EVLINK presence leaving LA, Lb and LP to	0= no (Modbus active) 1= Yes (EVLINK active)

				default. To enable modbus communication via EVIF22/23TSX modules set to "0".	
	113	rE0	15	Recording interval	0..240 min
	114	rE1	4	Select Probes for Data-logger Recording	0=none 1=probe 1; 2= probe 2 3= probe 3; 4= probe 1 e probe 2; 5= all probes
	N.	PAR.	DEF.	REAL TIME DEFROST Hr0=1	MIN... MAX.
	115	Hd1	- - -	1st Daily Defrost Time	0..24 h
	116	Hd2	- - -	2nd Daily Defrost Time	0..24 h
	117	Hd3	- - -	3d Daily Defrost Time	0..24 h
	118	Hd4	- - -	4th Daily Defrost Time	0..24 h
	119	Hd5	- - -	5th Daily Defrost Time	0..24 h
	120	Hd6	- - -	6th Daily Defrost Time	0..24 h
	N.	PAR.	DEF.	MODBUS	MIN... MAX.
RS485	121	LA	247	MODBUS address if BLE=0	1... 247
	122	Lb	3	MODBUS Baud Rate if BLE=0.	0= 2400; 1= 4800 2= 9600; 3= 19200
	123	LP	2	Modbus Parity if BLE=0.	0= None; 1= Odd; 2= Even
	N.	PAR.	DEF.	ENERGY SAVING	MIN... MAX.
	124	HE2	0	Energy Saving Max Duration in manual mode	0..990 min
	125	H01	0	Energy Saving Start Time with rtc Hr0=1	0..23h
	126	H02	0	Energy Saving Duration	0..24h

3 CLEANING AND MAINTENANCE



ALWAYS MAKE SURE THAT THE APPLIANCE IS UNPLUGGED AT THE MAINS BEFORE CARRYING OUT ANY CLEANING OR MAINTENANCE OPERATIONS

IMPORTANT

3.1 ROUTINE OPERATIONS

- Clean the inside of the appliance carefully with warm water and neutral soap. Rinse and dry thoroughly.
- Check that the condensation water drain is free from obstructions: clean if necessary.

-
- Check cleanliness and condition of the door gaskets.
 - Check the state of the power supply wire: it must not have any defects that could compromise its insulation.



ATTENTION !

**AVOID USING AGGRESSIVE DETERGENTS IN GENERAL.
DO NOT USE WIRE PADS, BRUSHES OR METAL SCRAPERS ON THE
STAINLESS STEEL PARTS**

3.2 IDLE TIME

In the event of prolonged idle periods, clean the appliance in the way described above. Leave the doors ajar so that air can circulate and undesirable smells are avoided. Protect the compartment containing the control mechanisms from dust.



ATTENTION !

**DURING CLEANING AND/OR MAINTENANCE OPERATIONS, TAKE GREAT
CARE NOT TO DAMAGE THE COOLING FLUID CIRCUIT IN ANY WAY**

4. TROUBLE SHOOTING



IMPORTANT

THE OPERATIONS DESCRIBED ARE THE FULL RESPONSIBILITY OF WHOEVER CARRIES THEM OUT. IT IS COMPULSORY TO EMPLOY AN AUTHORIZED AFTER-SALES SERVICE ORGANIZATION IN POSSESSION OF THE REQUISITES NEEDED TO CARRY OUT OPERATIONS THAT WILL RESTORE THE FUNCTIONS OF THE APPLIANCE

4.1 ALARMS

All the alarm events are displayed by rotation of the alarm messages on the bottom line of the display.

SILENCING THE BUZZER Alarm sounding can be reset touching **MENU/SET** keys.

	Faulty Sensor alarms: a faulty probe or wrong probe connection is showed by "--.-". The alarm icon and an alarm message is available on the bottom line.
	RTC alarm and Power failure If enabled with "Hr0=1" the RTC alarm appears at the power on after a minute. The black out alarm is recorded when longer than > A10.

LIST OF THE ACTIVE ALARMS

All the active alarms are also listed into MENU_SERVICE_ALARMS.

LIST OF HACCP ALARMS LOG

All the Haccp alarm  are listed into the MENU_SERVICE_HACCP log.

RESET To reset the blinking alarm icon enter the **MENU_SERVICE: Reset data memory**.

PROBE FAILURE: typical problems: open or short circuited sensor, wrong sensor type or bad connection.

"Probe 1 failure" Regulation probe failure, heating regulation is suspended, cooling regulation follows the on-off cycles C4-C5 in minutes.

"Probe 2 failure" Humidity probe failure, humidity and de-humidity regulations are suspended. A time delay to override it can be set using **"AH7"**.

"Probe 3 failure" 3d probe failure. If working as evaporator defrost is performed by time **"d3"**, if working as condenser probe the condenser fan follows the compressor, if working as auxiliary the AUX relay turns off.

TEMPERATURE ALARMS

"**LOW TEMPERATURE**" setting the "A1" threshold.

To configure the alarm: "A2" 0= disabled, 1=relative to SET, 3=absolute value.

"**HIGH TEMPERATURE**" setting the "A4" threshold.

To configure the alarm: "A5" 0= disabled, 1=relative to SET, 3=absolute value.

TEMPERATURE ALARM DELAY

After a power-on with "A6" minutes.

During normal regulation with A7 in minutes.

After a defrost with "A8" in minutes.

After closing the door with "A9" in minutes.

HUMIDITY ALARMS

"**LOW HUMIDITY ALARM**" setting the AH1 relative to SET2.

"**HIGH HUMIDITY ALARM**" setting the AH1 relative to SET2.

Humidity alarm delay "**AH7**" in minutes and after a power-on with "A6" minutes.

POWER FAILURE -

It is signaled after a power failure longer than "A10" in minutes.

RTC CLOCK FAILURE

It appears if the clock is enabled "Hr0=1" and the external modules EVIF23TSX or EVLINK are removed or in case of low battery or battery failure.

DOOR OPEN ALARM

It occurs when the digital input "iC1 = 7/8/9" is active after the "i2" delay in minutes. With "iP1=0" active when contact closed, "iP1=1" active when contact is open. Setting "i2=-1" the alarm is disabled, and "i2=0" the alarm starts when the door is open.

MULTIFUNCTION ALARM

It occurs when the digital input is set as "iC1=2" is active. With "iP1=0" active when contact closed, "iP1=1" active when contact is open.

Regulation is not modified.

THERMAL SWITCH 1 ALARM

It occurs when the digital input "iC1=5" is active. With "iP1=0" active when contact closed, "iP1=1" active when contact is open.

The regulation is suspended and restarts when the alarm disappears. Starting from the very first event, the unit counts the alarm events "i8" during the "i7" interval. When the number of events is reached the alarm must be manually reset. Setting "i8=0" the alarm is always automatic, with "i8=1" the alarm is always manual.

PRESSURE SWITCH ALARM

IF "Ip3=0", it occurs when the digital input is set as "iC3=1" is active. With "iP3=0" active when contact closed, "iP1=3" active when contact is open.

The regulation is suspended and restarts when the alarm disappears. Starting from the very first event, the unit counts the number of alarm events "i8" during the "i6" interval. When the number of events is reached the alarm must be manually reset. Setting "i8=0" the alarm is always automatic, with "i8=1" the alarm is always manual. If the alarm duration is equal to "i6" the alarm counter does not increase.

CONDENSER OVERHEATED

Setting the condenser probe "Pr3=1" and the temperature threshold "**C6**" the unit shows the condenser alarm as soon as the temperature rises above "C6".

COMPRESSOR BLOCKED for high condensing

Setting the condenser probe "Pr3=1" and the temperature threshold "C7" the unit shows the condenser alarm when the temperature rises above "C7" for the time "C8". Compressor regulation is locked. Manual reset is necessary by turning off and the on the unit.



4.2 FAULTS

SYMPTOMS	PROBABLE CAUSE	CHECKS
COMPRESSOR NOT STARTING	Compressor protection cutting in	Closely-spaces starts do not give time for pressure to re-balance: Check that the goods are not placed in the compartment hot or full of water Check the state of the gaskets and the number of times the doors are opened
		The capillary tube is not operating properly: check the loading of the circuit in general and the compressor in particular
	Electrical problems	Power supply voltage is outside the admitted range
		The compressor terminals are not live; check the connections and the state of the contacts upstream from the motor
	Component problems	Compressor has mechanical faults
		Winding split or burnt
POOR PERFORMANCE OR OVERHEATING OF COMPRESSOR	Improper use of the appliance	Type of load: check that the goods are not placed in the compartment hot or full of water
		Compartment doors: check the state of the gaskets and the number of times the doors are opened
		Incoming air is insufficient; check the flow through the cooler condenser
	Fault on the cooling circuit	The amount of cooler is no longer sufficient: check pressure for suction and delivery and look for leaks on the circuit
		Compressor has problems of mechanical output: check pressure for suction and delivery

SYMPTOMS	PROBABLE CAUSE	CHECKS
EXCESS FROST OR ICE ON THE EVAPORATOR	<i>Improper use of the appliance</i>	Type of load: check that the goods are not placed in the compartment hot or full of water
		Compartment doors: check the state of the gaskets and the number of times the doors are opened
		Consider altering the defrosting cycle to accommodate special needs
WATER OVERFLOW FROM SELF- EVAPORATING TRAY	<i>Improper use of the appliance</i>	Type of load: check that the goods are not placed in the compartment hot or full of water
		Compartment doors: check the state of the gaskets and the number of times the doors are opened
	<i>Bad installation</i>	The space around the tray is not aired at all
		Check that the appliance is properly levelled
	<i>Component problems</i>	The self-regulating element has short circuited or is burnt



ATTENTION !

**EVEN WHEN PROPERLY USED, THE PERFORMANCE OF THE APPLIANCE
MAY ALTER OVER TIME; IT IS ADVISABLE TO HAVE IT CHECKED
PERIODICALLY BY AUTHORIZED PERSONNEL**