

EVJ536N2

Temperature and Humidity controller for Seasoning, 2.8" display with touch keys



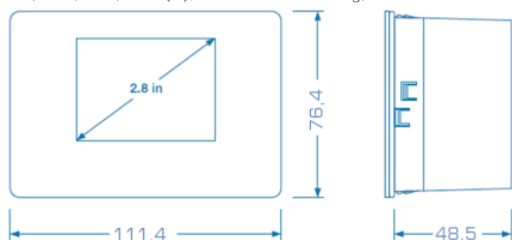
PLEASE READ CAREFULLY
and save this document
CONSIDER THE ENVIRONMENT

1. ENGLISH

- Temperature and humidity controller for Seasoning with 6 cycles (programs) made by three processes with configurable parameters.
- Humidity probe EVCO EVHTP500/EVHTP520 only; Cabinet and auxiliary probes.
- 12Vac/dc power supply
- Real time clock RTC and memory for data logging and BLE for communication with APP EVconnect (Android).
- Door switch or configurable
- 6 relay configurable outputs, 30 A res. @ 250 VAC compressor relay Alarm Buzzer
- TTL communication port for optional RS485/RTC external interface alternative to BLE/LOG (Cap. First Handling).

2. DIMENSION AND INSTALLING

Dimensions in 11,4x76,4x48,5mm (in): Front Panel mounting.

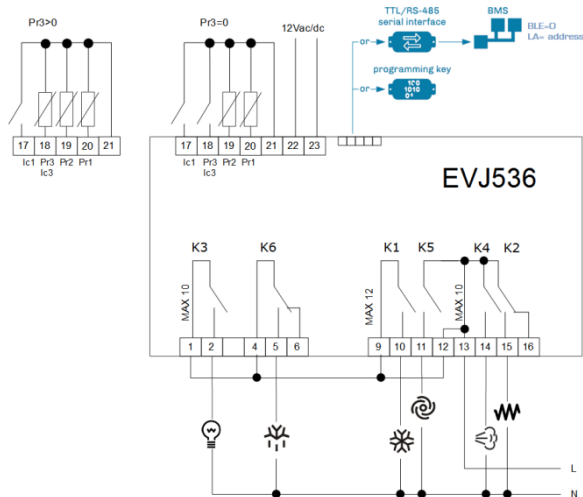


INSTALLATION PRECAUTIONS

- The thickness of the panel must be between 0.8 and 2.0 mm (1/32 and 1/16 in)
- Ensure that the working conditions are within the limits stated in the *TECHNICAL SPECIFICATIONS* section.
- Do not install the device close to heat sources, equipment with a strong magnetic field, in places subject to direct sunlight, rain, damp, excessive dust, mechanical vibrations or shocks.
- In compliance with safety regulations, the device must be installed properly to ensure adequate protection from contact with electrical parts. All protective parts must be fixed in such a way as to need the aid of a tool to remove them.

3. ELECTRICAL CONNECTION

- BE AWARE OF**
- Use cables of an adequate section for the current running through them.
 - To reduce any electromagnetic interference connect the power cables as far away as possible from the signal cables.
 - The unit does not support 4...20mA or 0.10V humidity probes.



- Default values**
- K1 = 30A= compressor
 - K2 = 8A= Heating
 - K3 = 16A= Light
 - K4 = 8A= Humidify
 - K5 = 5A= Evaporator Fan
 - K6 = 8A= Defrost
 - Pr1= Cabinet probe
 - Pr2= Humidity EVCO probe EVHTP500/EVHTP520
 - Pr3 / ic3 = Evaporator / Configurable / Digital input
 - ic1= Door switch or configurable

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.

4. 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. **Check the value of parameter P0.** Configure the device with configuration parameters: relay uc1...uc6, inputs Pr2 Pr3 e ic1 and uc3;
4. Then check that the remaining settings are appropriate;
5. Disconnect the device from the mains.
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, necessary set BLE=0.
8. Power up the device.



Touch the ON-OFF key for 2", the device alternatively turns on or Off.



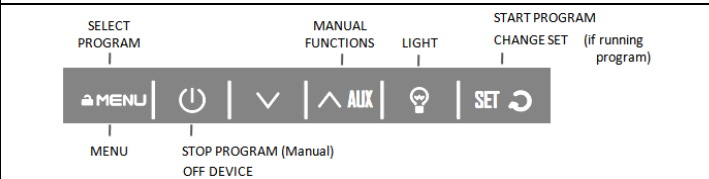
When the device is off, the display shows the off icon for some seconds and then turn to black for energy saving.
BE AWARE: after turning on the unit the regulation re-starts automatically if a cycle was running before the black-out.

5. USER INTERFACE AND MAIN KEY FUNCTIONS

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 De-humidify, Humidify cycles.
💧	Humidify request Humidify relay		
🌫	De-Humidify request de-Humidify relay		Delay when de-humidify with compressor.
🔥	Heating request Heating relay		
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
⬆	Over the sepoint Under the sepoint		
🔒	keyboard status		
🚪	open Door	Door closed	
🔄	Running Cycle	No cycle running	Cycle in stand-by, another function is running.

6. KEY COMMANDS

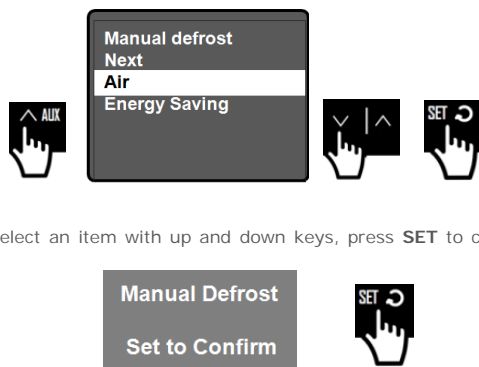
Key commands can be direct (upper functions) or by 2 seconds time based (lower functions MENU-STOP/OFF):



BACK or **EXIT FROM A SUBMENU OR THE SETPOINT**: touch the key.

7. AUX KEY FUNCTIONS

User 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 (Energy Saving). Other functions will proceed following their process until the end (Defrost, Air Change).
Some functions may not be visible if the unit status is not running or the model does not support the function itself.

Manual defrost: Execute a defrost, if the evaporator probe is present "Pr3=5" and the evaporator condition allows it. With no evaporator probe configured the defrost is time based.

Air: it executes a stop regulation interval with Air output enabled.
Next: it jumps to next process/phase (dripping, drying, seasoning) of a program skipping the loaded countdown in that moment.

Air Change: Run-Rest and Defrost do no skip, but follow their own regulation.
Energy Saving: Enable the energy saving function changing the "temperature set + r4 differential". Repeat the operation to disable the function.

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

OFF key to EXIT

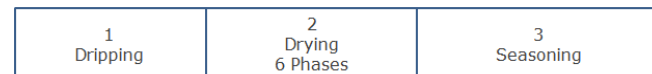
8. LIGHT COMMAND KEY

Touch once the light command to turn ON or OFF the light.

The light output turns on by opening the door if ic1=7/8/9.

9. PROGRAMS

A program is made by 3 sequential processes:



Each process or phase is provided with its own temperature and humidity set-points and timer. The regulation proceeds until all the processes are completed and after the seasoning (3) it must be manually stopped.

10. START A PROGRAM

SELECT THE PROGRAM

Touch **MENU** to list the programs, select an item with up or down arrows and push **SET**:



CHANGE THE SETPOINTS AND TIMER BEFORE STARTING

To change temperature and humidity setpoints and/or the time duration of any process push **MENU** for 2" and enter the selected program (see the program configuration).

START A SELECTED CYCLE

After selecting a program, touch **SET** key and cycle starts: the icon is on.

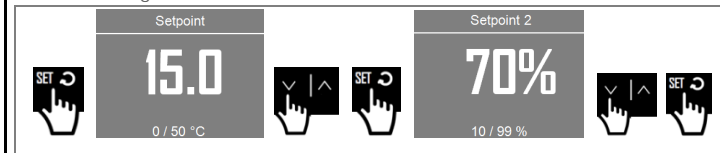


The lower part of the display shows the running program, the process and the phase with the countdown time.

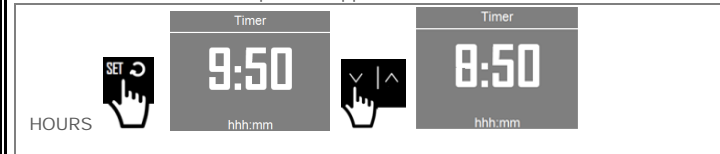
11. CHANGING THE SETTING OF A RUNTIME PROCESS

If enabled in your unit, it is possible to change the setpoints and time duration as follow:

1. Push **SET** key, the temperature setpoint appears with the available 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 SET2 to confirm
5. The timer of the process appears,



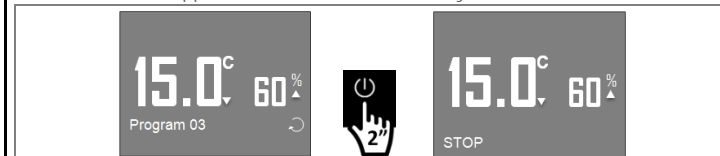
6. Push **SET** and then up or down arrows to change the hours on the left, push **SET** to confirm
7. Push **SET** and then up or down arrows to change the minutes on the right, push **SET** to confirm.

INTERMEDIATE EXIT: wait 5 seconds or push

12. END OF A PROGRAM

AUTOMATIC END After all the countdown timers of the 3 processes are expired, the cycle is finished and the "END" label appears on the bottom, the regulation proceed until the manual stop.

MANUAL STOP available at any time, keep pushed the off key to stop the cycle, the "STOP" label appears for some seconds, the cycle icon is off.



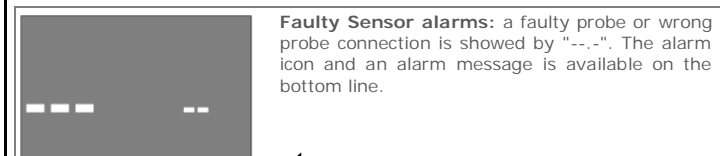
The same cycle or another program can be selected to be restarted.

13. ALARMS

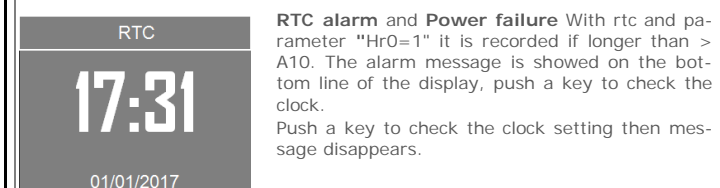
All the alarms events are displayed by rotation on the bottom line of the display.

TEMPERATURE and HUMIDITY ALARMS are available during the final part of the program: **the 3d process of Seasoning**.

SILENCING TE 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 With rtc and parameter "Hr0=1" it is recorded if longer than > A10. The alarm message is showed on the bottom line of the display, push a key to check the clock. Push a key to check the clock setting then message disappears.

LIST OF THE ACTIVE ALARMS

All the active alarms are also listed into MENU_SERVICE_ALARMS.

LIST OF HACCP ALARMS LOG

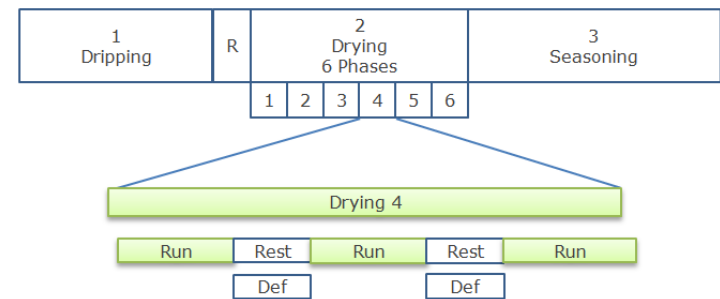
All the Haccp alarm are listed into the MENU_SERVICE_HACCP log.

14. MENU - PROGRAM CONFIGURATION

Touch the **MENU** key for 2 seconds to enter the **loaded program** configuration, push **SET** and then select the item with up or down and the **SET** to confirm.



Program values can be changed by the user also during a running cycle. The new value will be loaded if the corresponding process/phase hasn't been executed yet or with next program restarts.



At the end of the Dripping process it is possible to activate a Rest period. The whole Drying process is made by 6 phases where the Run-Rest function is available.

It is also possible to activate a **defrost during the Rest duration**, both will follow their timers. BY default the **defrost is manual**, to enable the automatic timer set "d0">0".

PROGRAM 1..6 STRUCTURE

1 - DRIPPING (*)		
DURATION	Hours	0= skip process
CORE SET	°C/°F	only display
SET 1 temperature	°C/°F	cabinet regulation temperature
SET 2 Humidity	%	0=humidity not regulated
Low speed fan	Y/N	Low speed fan on (Evap fan stopped)
Run-Rest	Y/N	execute a Rest at the end of the drip
2- DRIYNG (*) PHASE 1..6		
DURATION	Hours	
SET 1 temperature	°C/°F	cabinet regulation temperature
SET 2 Humidity	%	0=humidity not regulated
low speed fan	Y/N	Low speed fan relay
Run-Rest	Y/N	Enable Run-Rest function
3- SEASONING (*)		
DURATION	Days	
SET 1 temperature	°C/°F	cabinet regulation temperature
SET 2 Humidity	%	0=humidity not regulated
Low speed fan	Y/N	Low speed fan relay
Run-Rest	Y/N	Enable Run-Rest function

MENU COMMON PROGRAM FUNCTIONS

Programm 03	Function
Run	Running interval time
Rest	Resting duration time
Air Control	Select Air change in processes 1..3 (*)
Air Interval	Air Interval if >0. if 0 = only manual.
Air Time	Enable Air Change if >0
Language	

Run-Rest

The Run-Rest is a common repetitive function available by selecting it at the end of the **Dripping** (1) and along the whole **Driyng 1..6** phases (2) or in seasoning(3)

The "Rest" function is repeated if the interval time is >0, during the "Rest" time no regulation is executed. It is possible to combine a defrost by enabling the parameter "d13=1". Configuration parameters are available under MENU.

(*) Air change

The Air Change is a common repetitive function that activates the Air relay after an interval time, while the regulation is turned off. If no relay is configured the function just stop the regulation control for the time duration. Configuration parameters are available under the MENU. **By default the function is manual.**

MANUAL FUNCTION (Default) with Air interval=0 and operating with **AUX** key.

CYCLING FUNCTION

If "Air Interval > 0 hours" the function repeats after each interval with the following Control Process:

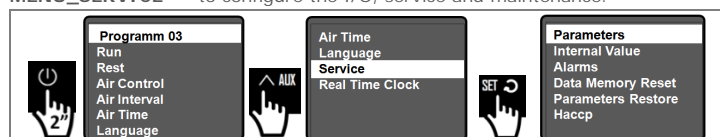
- 0= all the processes 1-2-3 (dripping-driyng-seasoning),
- 1= only 1 & 2 dripping-driyng processes,
- 2= only 2 & 3 drying-seasoning processes,
- = only 1 & 3 dripping-seasoning processes.

15. OTHER MENU CONFIGURATION

Air Time Language Service Real Time Clock	Configuration
Language	Select language
Service	To show configuration Parameters, Alarms, REset alarms 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. This version fully supports "I" and "E".

MENU_SERVICE to configure the I/O, service and maintenance.



Parameters

To access and configure parameters
Internal value To show I/O values of the I/O signals and variables.
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 may be different from default values. By re-loading the original values the loads can be damaged 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:

Real Time Clock

12:00

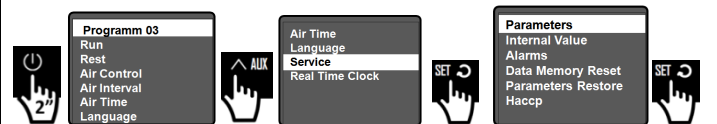
DD/MM/YY

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 related to the clock:
 - **daily defrost time table:** Hd1..Hd6 if enabled the unit always performs the defrosts at the selected times.
 - **daily Air change time table:** F31..F36 if enabled the unit always performs the Air Change at the selected times.
 - **daily Energy Saving** H01..H02

16. PARAMETERS AND PASSWORDS

ENTER: Push MENU key for 2 seconds;



Parameter

Password

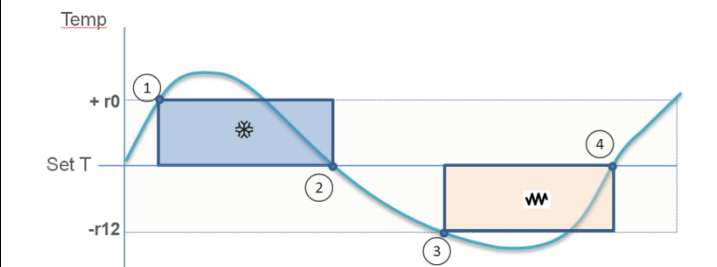
Enter the password using directly the up or down arrows, the pass background color turns to green, push SET to confirm:
 password value corresponding to "PS1=1" to enter level 1 parameters.
 password value corresponding to "PAS=-19" to enter all the parameters.

17. 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:

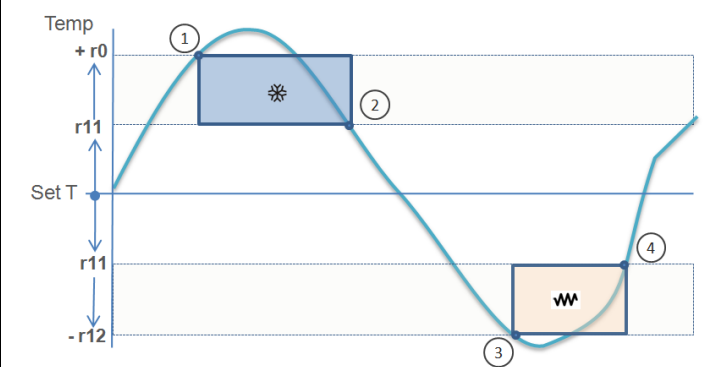
- Cooling between "SET+r0= on" (1) and "SET=off" (2).
- Heating between "SET-r12= on" (3) and "SET=Off" (4).



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.

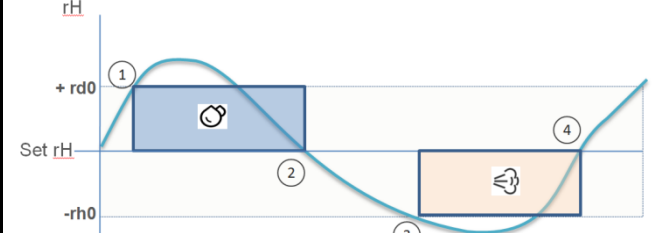
OPEN DOOR

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

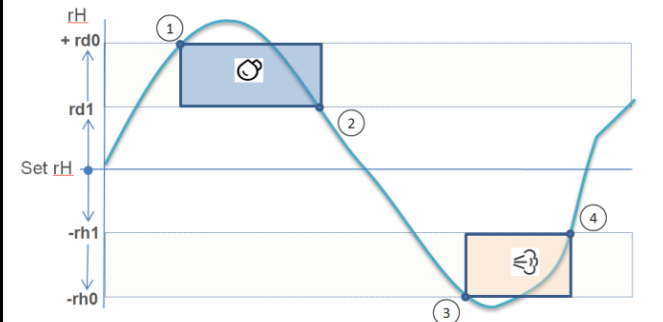
Humidity regulation Set2

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

set **rd4=1** to use the compressor de-humidify function.
 set **rd4=2** to use the compressor de-humidify function together with heating relay.

18. EVAPORATING FAN

Evaporating fan follows the "F0" parameter

FAN STATUS

Parameter "FO" allows the following fan behaviour:
 0= Fans on with regulation on (***)
 1= Always ON, (default)
 2= ON with compressor ON,
 3= Temperature threshold F1, if the evaporator probe is enabled "Pr3=5".
 4= ON with compressor ON, if the evaporator probe is enabled "Pr3=5"



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

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 it off.
DEFROST with "F2" to determine the fan status.
DRIPPING with "F3" to determine the fan stop time after the defrost.

By setting uc()=14 as "evaporator fan 2": if the "low speed fan selection" is enabled, the "evaporator fan 2" runs while the main Evaporator fan is stopped.

FAN CYCLES FO=0

(**) By using "FO=0" the evaporators fans can follow on-off cycle:
 1) when there are **no temperature or humidity request:** F11, F12
 2) when there is a **de-humidity request** with compressor: rd2-rd3
 3) when there is a **humidity request** and there is no humidity relay: rh2-rh3

DEFAULT VALUES: these values allows to operate normal function, Fan_on values F11, rd2 and rh2 =60" 0 while the Fan_Off values F12, rd3 and rh3 are equal to 0": When there is a request the fans turns 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 & F12=0, rd2 or rd3=0 or rh2 & rh3=0 the fan output is disabled even the functions request is to turn it on.

19. 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 value in seconds.
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 configured)

Condensing fan follow the compressor on cycles 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 fan
 "Fc1" condenser fan off Off temperature threshold ".
 "Fc3" fan off time after compressor off.
 "C6" threshold for high condensing dangerous for the compressor.
 "C7" threshold for high condensing alarm that stop the compressor after "C8" time delay in minutes. A manual reset is requested to restart the controls.

DEFROST

BY default the **defrost is manual**, to enable the automatic timer set "d0">0".

