User manual

CLIMATIC 40

ECOLEAN (A BOX/R407C) - HYDROLEAN
AIRCOOLAIR
AIRCUBE

MUL37E-0607 07-2013

1. CLIMATIC 40 CONTROL

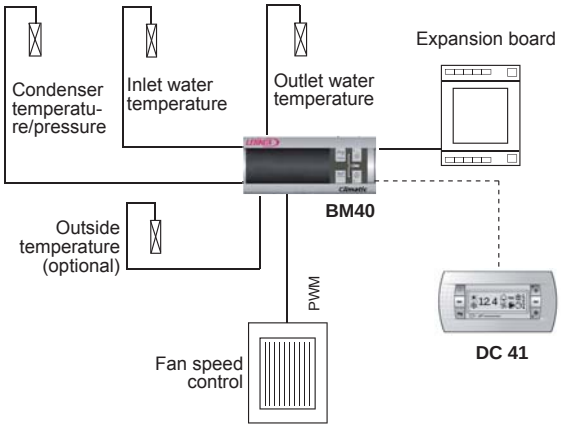
The CLIMATIC 40 controller is an electronic device that manages following ranges :

- **ECOLEAN** : Air-water chiller
  EAC/EAR units
- **HYDROLEAN** : Water-Water chiller / Heat pump / Chiller with remote condenser
  SWC / SWH / SWR units
- **AIRCOOLAIR** : Air-Air units
  ANCM/ANHM units
- **AIRCUBE** : condensing units
  KSCM - KSHM units

The thermostat allows the following operations:

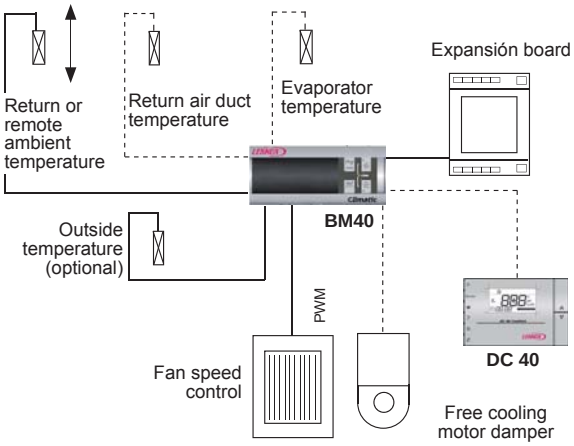
- Unit ON/OFF.
- Select system operating mode.
- Set point adjustment.
- Alarm signal relay.
- Display temperature, status of unit and pending alarms.
- Programming of time bands.
- BMS comunications.
- Possibility of remote ON/OFF

ECOLEAN - EAC/EAR
HYDROLEAN - SWC / SWH / SWR



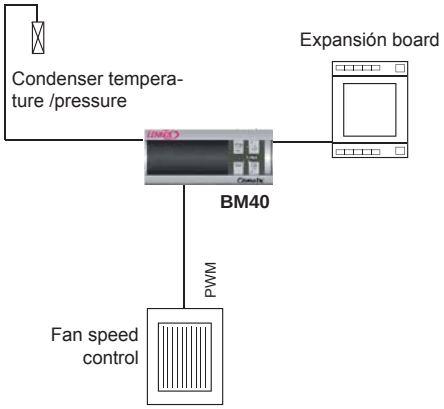
- Inlet and outlet water, temperature/pressure condenser and outdoor temperature probes (optional).
- Proportional regulation based on inlet water temperature (cooling and heating mode).
- Defrost cycle (heat pump units), with pressure tranducer.
- Condensing pressure control with temperature probe or pressure transducer (except SWR units).
- Flow switch, antifreeze, high and low pressure protections.
- Compressors, water pump.
  Fans and electrical heater management (except on HYDROLEAN units).

AIRCOOLAIR - ANCM/ANHM



- Return / remote ambient, evaporator, temperature/pressure condenser and outdoor temperature probes (optional).
- Proportional regulation based on remote ambient /return temperature (cooling, heating and automatic mode).
- Defrost cycle (heat pump units), with pressure tranducer.
- Condensing pressure control with temperature probe or pressure transducer.
- Antifreeze, high and low pressure protections.
- Compressors, indoor and o utdoor fans, electrical heater and freecooling (optional) management.

AIRCUBE - KSCM/KSHM

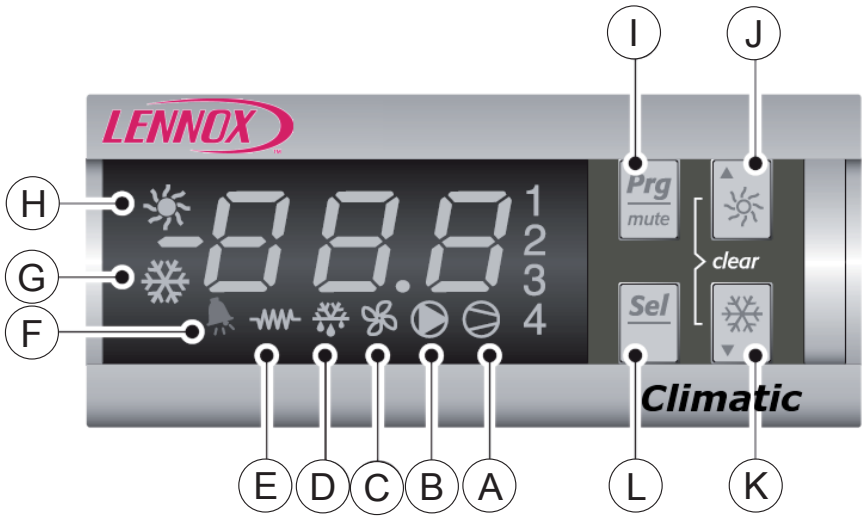


- Condenser temperature/pressure probes.
- Regulation based on remote free voltage contacts.
- Defrost cycle (heat pump units), with pressure tranducer.
- Condensing pressure control with temperature probe or pressure transducer.
- High and low pressure protections.
- Compressors, indoor (optional) and outdoor fans.

CLIMATIC 40 CONTROL

The figure and the table below show the symbols present on the display and on the keypad,together with their meanings:
The main screeen shows:

- Inlet water temperature for ECOLEAN and HYDROLEAN,
- Ambient temperature for AIRCOOLAIR and,
- unit status (On/Off) for AIRCUBE.



SYMBOL	DESCRIPTION	
	LED ON	LED FLASHING
1 or 2	Compressor 1 and /or 2 (circuit 1) ON.	Start up request.
2 or 3	Compressor 3 and /or 4 (circuit 2) ON.	Start up request.
A	At least 1 compressor ON.	
B	Water pump/Indoor fan ON.	Start up request.
C	Condenser fan ON.	
D	Defrost active.	Start up request.
E	Electrical heater ON.	Start up request.
F	Alarm active.	
G	Cooling mode.	Cooling mode request.
H	Heat pump mode.	Heat pump mode. Request.

BUTTON	DESCRIPTION	TIME
I	Go up a sub-group inside the programming area.	Press once
L	Access the direct parameters.	Press for 5 s
	Select item inside the programming area / confirm changes to the parameters.	Press once
I+L	Program parameters afters entering password.	Press for 5 s
J	Select top item inside the programming area.	Press once
	Increase value.	Press once
	Switch from standby to heat pump mode and vice-versa.	Press for 5 s
	Provides immediate access to the condenser and evaporator pressure and temperature probes.	Press once
K	Select bottom item inside the programming area.	Press once
	Decrease value.	Press once
	Switch from stand-by to chiller mode and vice-versa.	Press for 5 s
	Provides immediate access to the condenser and evaporator pressure and temperature probes.	Press once
J+K	Manual alarm reset.	Press for 5 s
	Immediately reset the hour counter (inside the programming area).	Press for 5 s
L+J	Force manual defrost on both circuits.	Press for 5 s

1. CLIMATIC 40 CONTROL

1.1.- ECOLEAN / HYDROLEAN

1.1.1.- TURN ON/OFF THE UNIT

In order to **turn on the unit**, press the " ☀ " button for **5 seconds**, for the heat pump mode, or the " ❄ " button, for the cooling mode.
The display shows unit's operating mode together with the symbols of the working elements (compressors, water pump etc.).
In order to **turn off the unit**, press the " ☀ " button for **5 seconds** (if the unit is working in heat pump mode) or the " ❄ " button (if the unit is working in the cooling mode).

1.1.2.- SELECTING THE UNIT´S OPERATING MODE

If the unit is on stand-by, the operating mode is selected at start-up (as explained above).
If the unit is working in cooling or heating mode, in order to change the operating mode, you first have to turn the unit off, and only then can you turn it on in the operating mode you want.

1.1.3.- SELECTING THE WATER TEMPERATURE OF THE SYSTEM

To modify unit's working set point, you have to change parameter **r1** (cool set point) or parameter **r3** (heat set point).
To see how to change a parameter, see chapter 3 *MENU (SETTINGS AND OPERATING HOURS DISPLAY MENU* paragraph).

1.2.- AIRCUBE

1.2.1.- TURN ON/OFF THE UNIT

The unit is turned on by closing the On/Off contact and turned off by opening it (see section 1, *advanced functions*, for more details).

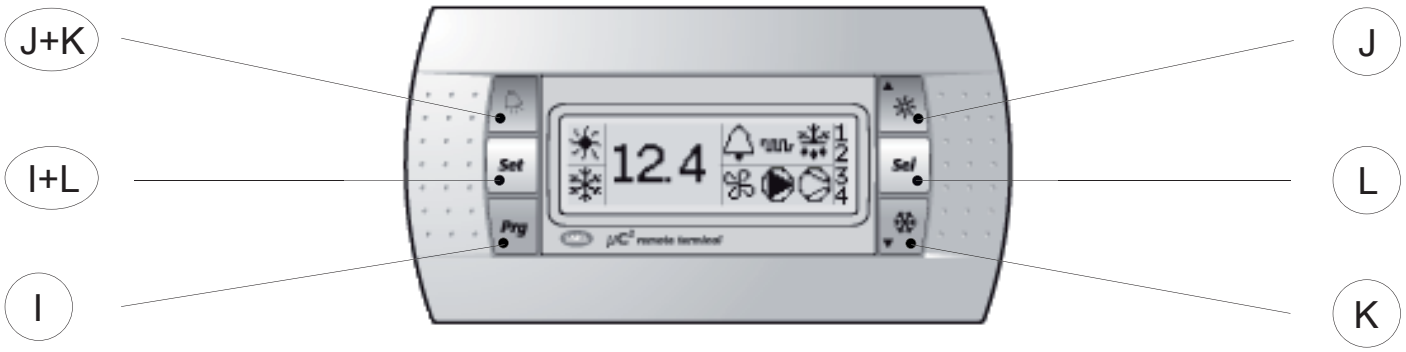
1.2.2.- SELECTING THE UNIT´S OPERATING MODE

The heating mode is selected by opening the remote changeover contact while the cooling mode is selected byclosing it (see section 2, *advanced functions*, for more details).

NOTE
There are no set points to be made for Aircube units because the compressors are directly controlled by remote contacts.

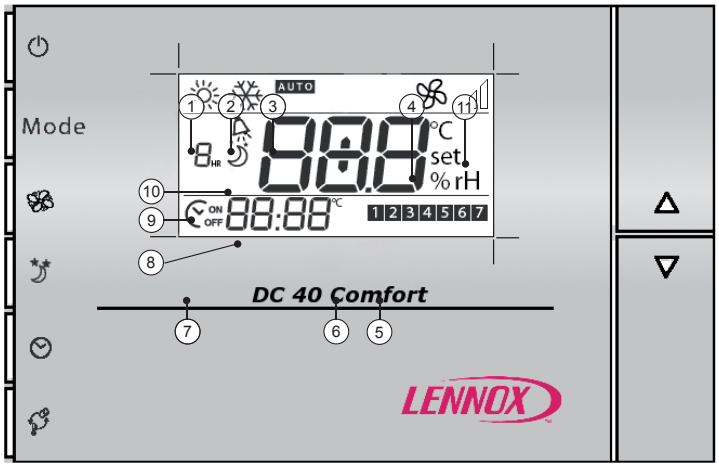
2.- DC41 REMOTE CONTROL (ECOLEAN / HYDROLEAN) OPTION

The DC41 terminal is an optional keypad that allows the Climatic 40 controller to be managed remotely. The buttons and indications on the display faithfully reproduce the Climatic 40 user interface.



3.- DC40 REMOTE TERMINAL (AIRCOOLAIR)

The illustration and the table below show the symbols that appear on the display and on the keypad and their meanings.
OFF appears in the main field of the display if the machine is off, or the set point if the machine is working.



BUTTON	NAME	DESCRIPTION
⏻	POWER	Switch from stand-by to ON and vice-versa.
Mode	MODE	Change operating mode (cooling, heating, automatic).
	FAN	Switch the indoor fan from automatic mode to always ON and vice-versa.
	SLEEP	Activates/deactivates the sleep mode.
	CLOCK	Activates/deactivates the time bands.
	TEMP.	Shows the set point when the unit is OFF.
▲▼	UP/DOWN	Set the temperature.

Secundary functions:

BUTTON	BUTTON PRESS	FUNCTION
	3 seconds	Sets sleep differential value of the current operating mode.
	3 seconds	Sets the time bands (hour, day, set point).
	5 seconds	Clock setting.
	3 seconds	Reset alarms.

Display symbols:

SYMBOL	MEANING	SYMBOL	MEANING
1	Heating mode.	7	On/Off time bands.
2	Cooling mode.	8	Sleep mode.
3	Automatic mode.	9	Duration or sleep mode.
4	Set point.	10	Alarm.
5	Day of the week (weekday, weekend).	11	Indoor fan mode.
6	Hour/Temperature.		

3.1.- TURN ON/OFF THE UNIT WITH REMOTE CONTROL DC40 (AIRCOOLAIR)

To **turn on** the unit press the " ⏻ " button.
The display shows current operating mode.

3.2.- SELECTING THE UNIT´S OPERATING MODE

Once the unit is turned on, you can select Cooling, Heating or Automatic mode just pressing the "**Mode**" button. In the automatic mode you just choose the set point and the system automatically switches from cooling to heating mode, depending on the position of the ambient temperature with respect to the set point.

3.3.- SELECTING DESIRED ROOM TEMPERATURE

If unit is working, the " ▲▼ " buttons allow the desired room temperature to be select (set-point).
The "↑" button allows the current set point to be increased by 0.5ºC.
The "↓" button allows the current set point to be decreased by 0.5ºC.

3.4.- SELECTING THE FAN OPERATING MODE (Aircoolair)

In order to be able to select a fan operating mode, the unit's operating mode (cooling, heating or auto) must be selected.
Pressing the side button " " scrolls through the following modes: FAN CONSTANTLY ON, or AUTO
FAN CONSTANTLY ON: Fan is ON continuously and the " " simbol will appear.
AUTO: Fan on and off together with the compressor or with the freecooling, the " " symbol will appear.

3.5.- SLEEP FUNCTION

This function increases (in cooling mode) or decreases (in heating mode) the operating set point according to the lower level of comfort required during the night.
Not possible with time bands program.

ACTIVATION

Press " " button once. The display shows " " symbol with "1_{HR}" flashing.
In this way, sleep function will work for 1 hour.
If you want it to work for longer, press " " button repeatedly while "1_{HR}" is still flashing (each press of the button increases by 1 hour, till max 9 hours).
Finally, the display shows the " " symbol with the number of hours you choose.

DEACTIVATION

Press the " " button once and the sleep function will be deactivated (if it was activated before). The " " symbol disappears from the display.

DIFFERENTIAL SETTINGS

Press " " button for 3 seconds. The sleep differential (the value by which you increase or decrease the comfort set point) appears on the display.
Use the " ▲▼ " buttons to set the value, then press the " " button to accept.
Note that cooling and heating modes have different sleep differential values, so you can modify only the current operating mode's value.

3.6.- CLOCK SETTINGS

To set current time:
1. Press the " ⏲ " button for 6 seconds. "rtc" and current time appears on the display (hours are flashing).
2. Set the hour using the " ▲▼ " buttons.
3. Press the " ⏲ " button to accept. Minutes start flashing on the display.
4. Set the minutes using the " ▲▼ " buttons.
5. Press the " ⏲ " button to accept. "day" and the number of the day of the week appear on the display (Monday=1, Tuesday=2 etc.)
6. Set the day by using the " ▲▼ " buttons.
7. Press the " ⏲ " button to accept.

3.7.- TIME BANDS PROGRAM

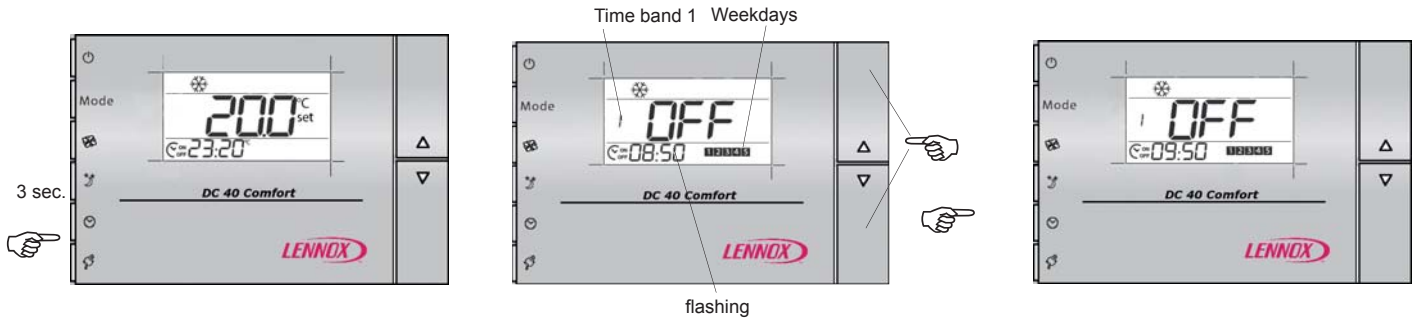
This function allows you to programme time bands during the week, each one with a different set point. In this way you can adapt the cooling/heating provided by the unit according to each moment of the day.
You can set two time bands for the weekdays and another two for the weekend.

CONFIGURATION

a) Enter time bands menu.

b) Set 1ST time band for weekday start hour.

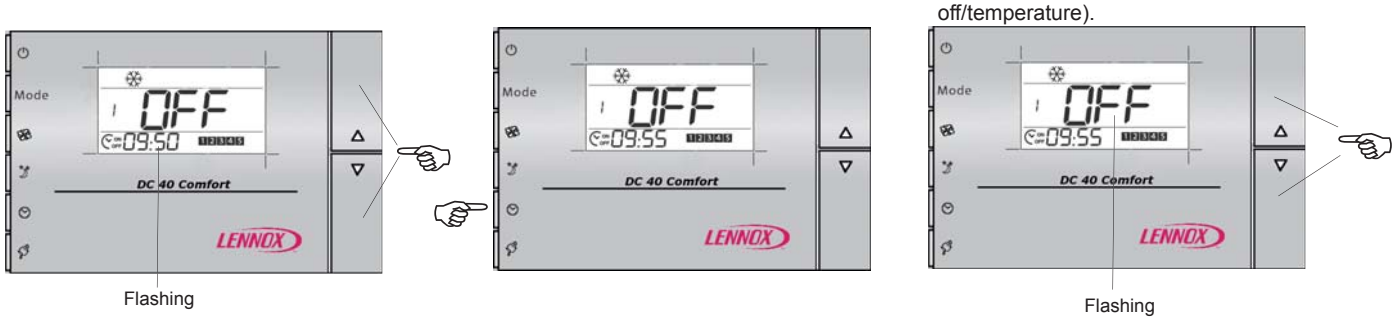
c) Accept.



d) Set 1ST time band of weekday start minutes.

e) Accept.

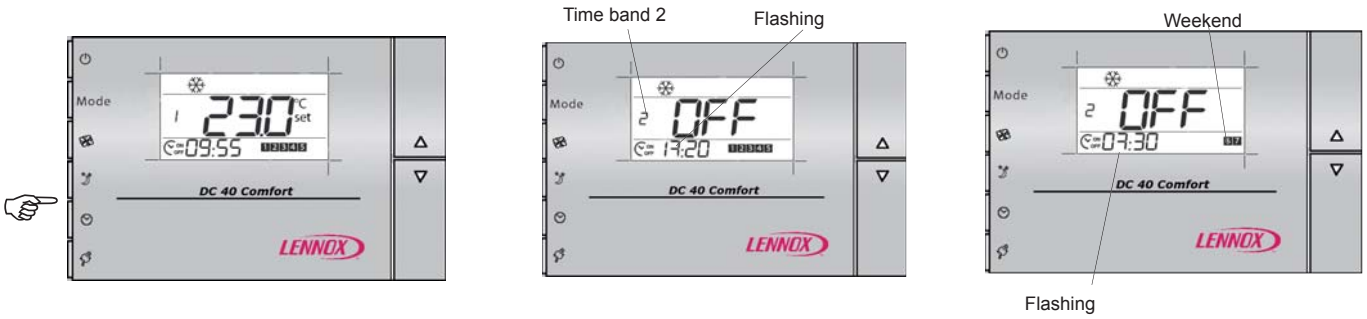
f) Set 1ST time band of weekday set point (on/off/temperature).



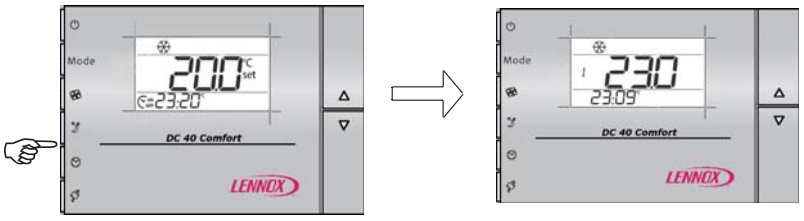
g) Accept.

h) Repeat steps b-c-d-e-f-g to programme 2nd time band for weekdays.

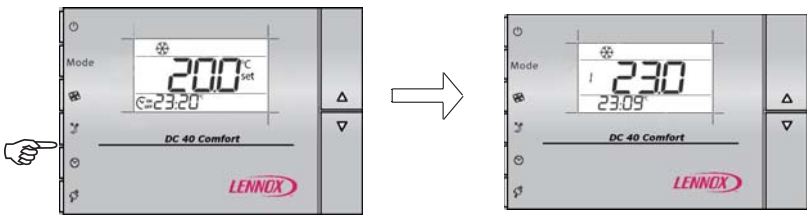
i) Repeat steps b-c-d-e-f-g-h to programme the two time bands for weekends.



ACTIVATION



DEACTIVATION



EXAMPLE IN SUMMER

Hour	Weekdays	Weekend
8:00 (Time band 1)	22°C	OFF
18:00 (Time band 2)	23°C / 25°C	OFF

NOTE: You must set the DC40 clock before programming time bands.

Time bands programs keep current operating mode (if it was in cool mode, it keeps working in cool mode; if it was in automatic mode, it keeps working in automatic mode, etc.).

Access to the menu :

A) PROBES DISPLAY MENU

1 sec.

Press the " ☀▲ " button to enter probes display menu.
" b01" or "b02", appears on the display (depending on the unit's configuration).
Once the probe is selected, after a few seconds, "b01" turns into its temperature/ pressure measure.

B) SETPOINT SETTINGS AND OPERATING HOURS DISPLAY MENU

5 sec.

Press " Sel " button for 5 seconds.
" — ⌐ — ", appears on the display.
Move inside the menu as explained below.

C) PARAMETERS EDITING MENU

a) Press " Pgr " and " Sel", at the same time, for 5 seconds.

b) Set password " 22 " by the " ☀▲ " and " ❄▼ " buttons.

c) Press " Sel ", to accept.

d) Press " Sel ", to enter parameters Editing menu.

To go to different values in the menu, proceed as above, the:

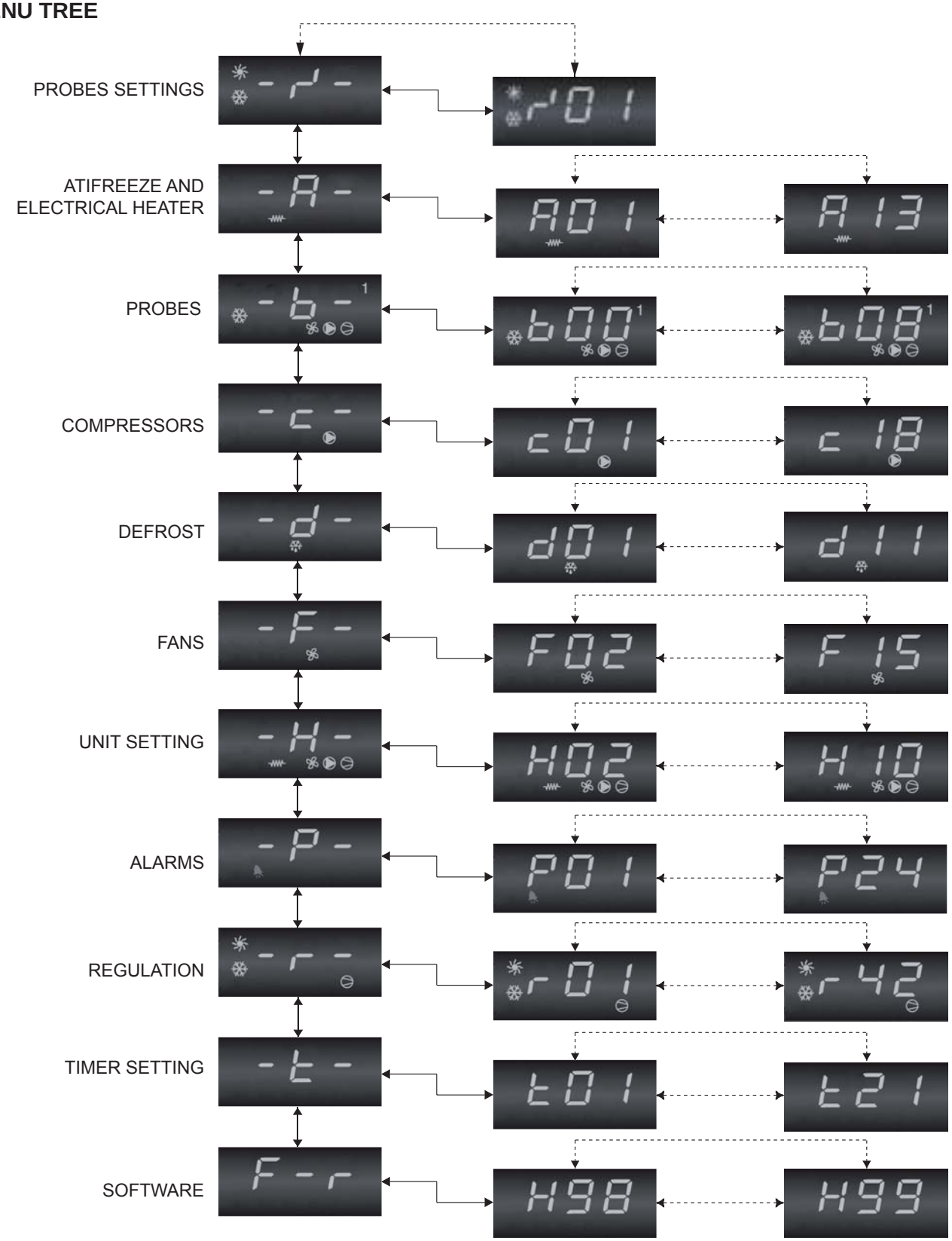
Go up a sub-group inside the programming area.

UP or increase valve.

Go down a sub-group or accept parameter modifications inside the programming area.

Down or decrease valve.

MENU TREE



NOTES:

a) Parameters that have been modified without being confirmed using the " Sel " button will return to their previous value.

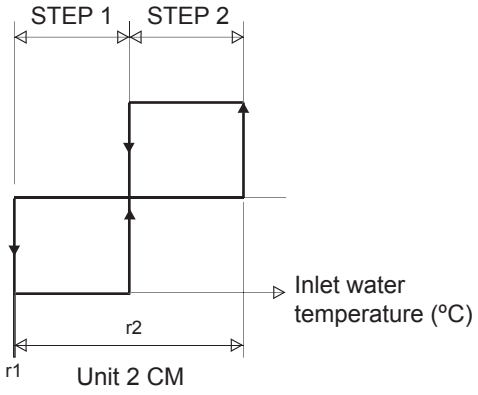
b) After confirming a modification, escape up to the main menu to save it; otherwise, modifications will be cancelled.

c) If no operations are performed on the keypad for 60 seconds, the controller exits the parameter editing menu on timeout and any changes are cancelled.

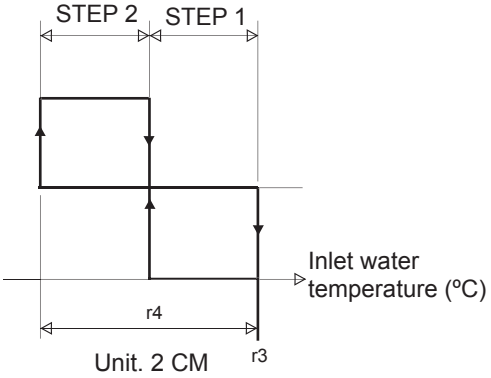
1.- ECOLEAN / HYDROLEAN

Inlet water temperature is thermostatically controlled via set point and tolerance range (differential) as shown in the following diagrams:

1.1- COOLING OPERATING MODE



1.2- HEATING OPERATING MODE



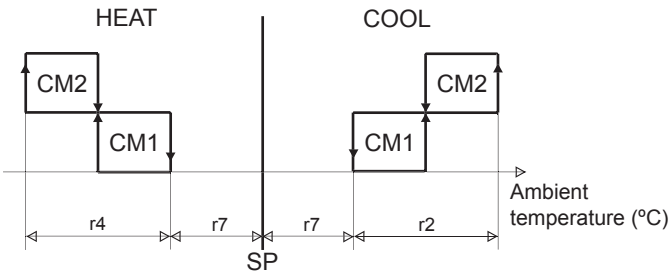
1.3- AFFECTED PARAMETERS

Par.	DESCRIPTION	VALUE UNIT 1CM.			VALUE UNIT 2CM.			VALUE UNIT 3CM.			VALUE UNIT 4CM.		
		MIN.	MAX.	DEF.	MIN.	MAX.	DEF.	MIN.	MAX.	DEF.	MIN.	MAX.	DEF.
r1	Cooling set point	10	22	11	9	22	10	8	22	9	8	22	9
r2	Cooling differential.	0.3	50	2	0.3	50	3	0.3	50	4	0.3	50	4
r3	Heating set point.	20	45	41	20	45	42	20	45	43	20	45	43
r4	Heating differential	0.3	50	2	0.3	50	3	0.3	50	4	0.3	50	4
r7	Dead zone (HYDROLEAN)	1.0	50	1.0	1.0	50	1.0	1.0	50	1.0	1.0	50	1.0

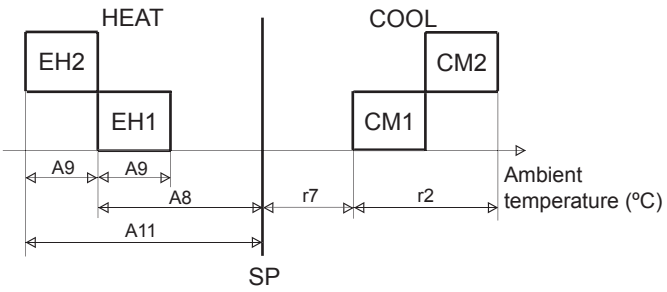
2.- AIRCOOLAIR

Ambient (or return air duct) temperature is thermostatically controlled via set point and tolerance range (differential) as shown in the following diagrams:

2.1- AUTOMATIC MODE (Heat pump)



2.2- AUTOMATIC MODE (Cooling only+Electrical heater)



2.3- AFFECTED PARAMETERS

Par.	DESCRIPTION	UNIT 1 COMPRESSOR			UNIT 2 COMPRESSORS			UNIT 3 COMPRESSORS		
		MIN.	MAX.	DEF.	MIN.	MAX.	DEF.	MIN.	MAX.	DEF.
SP	Set point (DC40).	8	32	23	8	32	23	8	32	23
r2	Cooling differential.	0.3	50	1	0.3	50	2	0.3	50	4
r4	Heating differential.	0.3	50	1	0.3	50	2	0.3	50	4
r7	Dead zone.	0.3	50	0.5	0.3	50	0.5	0.3	50	0.5
A8	SP E.H. 1 cool / SP E.H. 1 heat	0	20	1.5/2.5	0	20	1.5/3.5	0	20	1.5/4.5
A9	Differential E.H.	0.3	50	1	0.3	50	1	0.3	50	1
A11	SP E.H. 2 cool.	0	20	2.5	0	20	2.5	0	20	2.5

3.- AIRCUBE

Aircube is regulated by digital input. (see section 7, *advanced functions*, for more details).

1.- REMOTE ON/OFF

This function allows you to turn the unit on/off by a simply remote contact :

- Contacts 95-96 for ECOLEAN and AIRCOOLAIR units,
- Contact 890-891 for HYDROLEAN,
- Contacts 88-89 for AIRCUBE units

Close contact = ON; Open contact = OFF.

2.- REMOTE CHANGEOVER WINTER/SUMMER

On heat pump units (HYDROLEAN and AIRCOOLAIR in cooling only + electrical heater), cooling or heating mode can be selected by a remote contact :

- contacts 97-98 for AIRCOOLAIR units
- Contact 892-893 for HYDROLEAN units

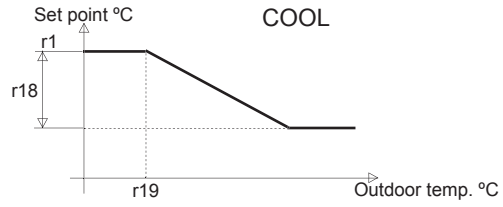
Close contact = Cooling.; Open contact = Heating.
To activate this function set parameter **H06=1.**

WARNING
On Aircoolair units, remote changeover doesn't work if the automatic mode has been selected by DC40.

3.- DYNAMIC SET POINT OPTION

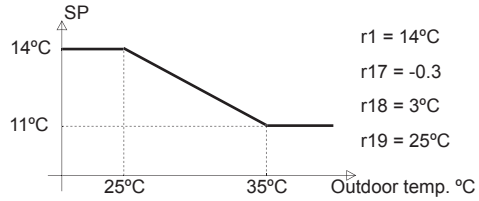
With this function, which needs to incorporate an additional outdoor temperature probe, it's possible to adjust the set point dynamically based on ambient temperature.
The set point value can be increased or decreased when the external conditions are more advantageous, thus achieving extra energy saving.
Dynamic set point must be activated in the factory.
The user must set the parameters as shown in the graphics below:

ECOLEAN / HYDROLEAN

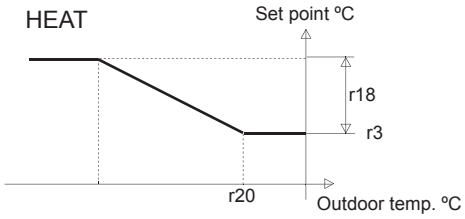


SP = r1 + (T.ext. - r19) x r17

EXAMPLE



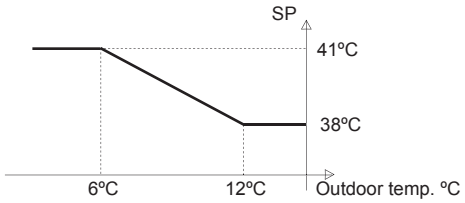
r1 = 14ºC
r17 = -0.3
r18 = 3ºC
r19 = 25ºC



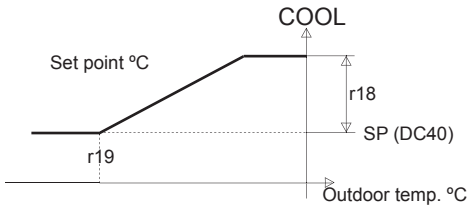
SP = r3 + (T.ext. - r20) x r31

EXAMPLE

r3 = 38ºC
r18 = 3ºC
r20 = 12ºC
r31 = -0.5

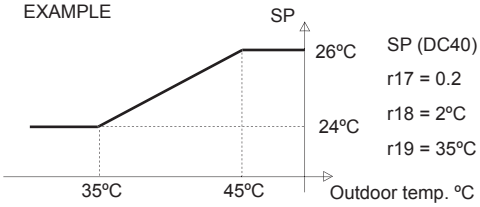


AIRCOOLAIR

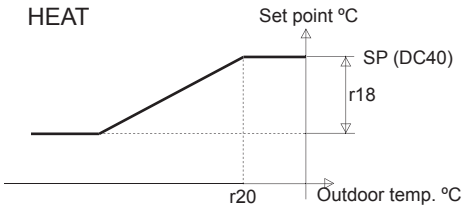


SP = SP(DC40) + (T.ext. - r19) x r17

EXAMPLE



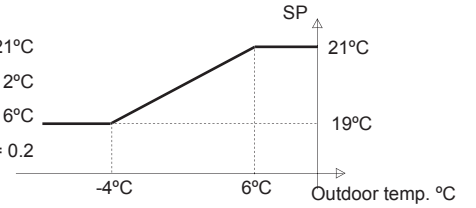
SP (DC40) = 24ºC
r17 = 0.2
r18 = 2ºC
r19 = 35ºC



SP = SP(DC40) + (T.ext. - r20) x r31

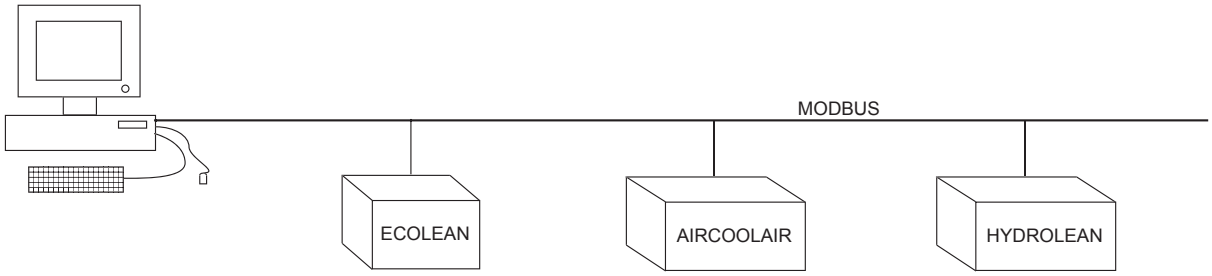
EXAMPLE

SP (DC40) = 21ºC
r18 = 2ºC
r20 = 6ºC
r31 = 0.2



4.- BMS COMMUNICATIONS OPTION

Given the growing and unstoppable trend towards Building Automation, driven by powerful and ever-evolving connectivity, the Climatic 40 controller offers the possibility of communicating with Building Management Systems (BMS) via Modbus protocol.
The Modbus standard interface is integrated into the control, so you don't need any sort of gateway, router, etc.
In order for you to connect to the RS485 serial line, we provide the TTL-RS485 converter as an option for Ecolean and Aircube units.
Aircoolair units don't need the converter (it's integrated) but they do need the ambient or duct remote sensor option.



For further information, please see BMS communication manual : "ModBus for CLIMATIC 40". Please contact LENNOX customer service.

5.- TIME BANDS PROGRAM (ECOLEAN)

The Climatic 40 controller allows 2 time bands to be programmed for each day, each with a different set point.
The setting parameters are explained in the following table:**

	COOLING			HEATING		
	TIME		SET POINT	TIME		SET POINT
1st TIME BAND	Rest of the day		r1	Rest of the day		r3
2nd TIME BAND	Start	(hour:minutes) **t06:t07**	r21	Start	(hour:minutes) **t10:t11**	r22
	End	(hour:minutes) **t08:t09**		End	(hour:minutes) **t12:t13**	

EXAMPLE (Cooling):

HOUR	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
8:00-18:00	11ºC	11ºC	11ºC	11ºC	11ºC	11ºC	11ºC
18:00-8:00 (t06:t07-t08-t09)	16ºC	16ºC	16ºC	16ºC	16ºC	16ºC	16ºC

WARNING
Set internal clock before programming time bands (t01=hour, t02=minutes, t03=day, t04=month, t05=year).
To deactivate time bands programme, set start time = end time.

6.- LOW NOISE (Except HYDROLEAN)

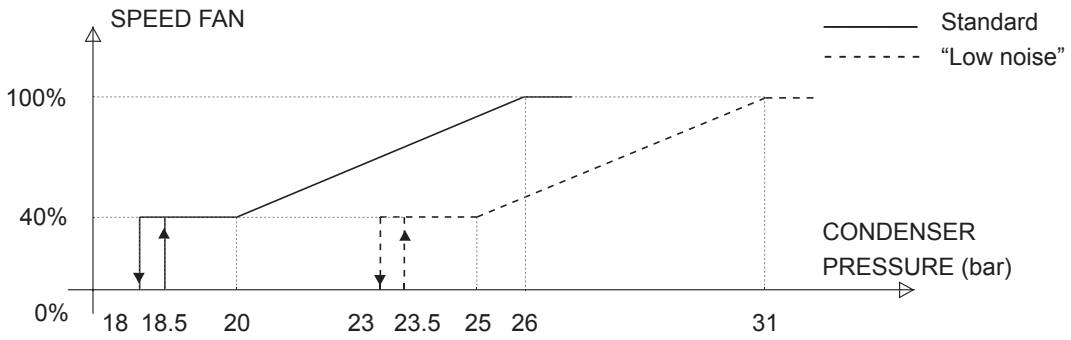
This function is available only in the following units:

ECOLEAN	EAC + kit -15ºC y EAR 251-812 SM
AIRCOOLAIR	ANCM + kit -15ºC y ANHM 22E-86D
AIRCUBE	KSCM + kit -15ºC y KSHM 22E-86D

This function moves the condensing pressure set point in order to lower the fan speed and thus reduce noise (specifically at night). If low noise is active during cooling, the condenser control set points are increased by 5º bar. If low noise is active in heating, the set points are reduced by 1º bar.
Set **F15=3** to active this function.
Also set the following parameters:

COOLING			**HEATING**		
TIME		**FAN**	**TIME**		**FAN**
Rest of day		**Standard**	Rest of day		**Standard**
Start	(hour:minutes) **t14:t15**	**LOW NOISE**	Start	(hour:minutes) **t18:t19**	**LOW NOISE**
End	(hour:minutes) **t16:t17**		End	(hour:minutes) **t20:t21**	

Low noise cooling mode shift is illustrated in the following picture.



7.- ANALOGIC / DIGITAL INPUT

PROBES TABLE

PROBE	**ECOLEAN / HYDROLEAN**		**AIRCOOLAIR**		**AIRCUBE**	
	EAC SWC/SWR/SWH	EAR	ANCM	ANHM	KSCM	KSHM
DC40 (b21)			Ambient temperature			
b1	Inlet water temperature		Return or remote ambient temperature **			
b2	Outlet water temperature		1st Circuit evaporator temperature			
b3*	1st Circuit condenser temperature	Outdoor temperature **	1st Circuit condenser temperature	Outdoor temperature **	1st Circuit condenser temperature	
b4	Outdoor temperature **	1st Circuit condenser pressure	Outdoor temperature **	1st Circuit condenser pressure		1st Circuit condenser pressure
b6			2st Circuit evaporator temperature			
b7*			2st Circuit condenser temperature		2st Circuit condenser temperature	
b8		2st Circuit condenser pressure		2st Circuit condenser pressure		2st Circuit condenser pressure

* Except: EAC 1003-1103-1303-1403-1604-1804-SM
ANCM 112D-128D-152D.
KSCM 112D-128D-152D-214D

** Optional elements.

NOTE:
Optional kits could change probes settings.

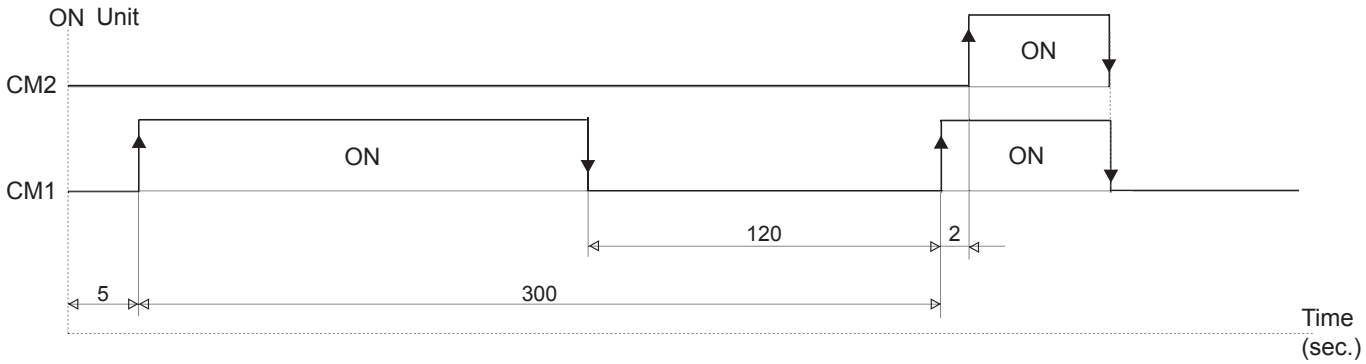
DIGITAL INPUT TABLE

DIGITAL INPUT	ECOLEAN / HYDROLEAN		AIRCOOLAIR		AIRCUBE	
	EAC SWC/SWR/SWH	EAR	ANCM	ANHM	KSCM	KSHM
ID1	Flow switch		Termal overload fan		ON/OFF	
ID2		Cool/Heat	Cool/Heat	Cool/Heat		Cool/Heat
ID3	High pressure circuit 1					
ID4	Low pressure circuit 1					
ID5	ON/OFF		ON/OFF		Step 1	
ID6					Step 3	
ID7					Step 2	
ID8	High pressure circuit 2					
ID9	Low pressure circuit 2					
ID10					Step 4	

8.- TIMING AND DELAYS

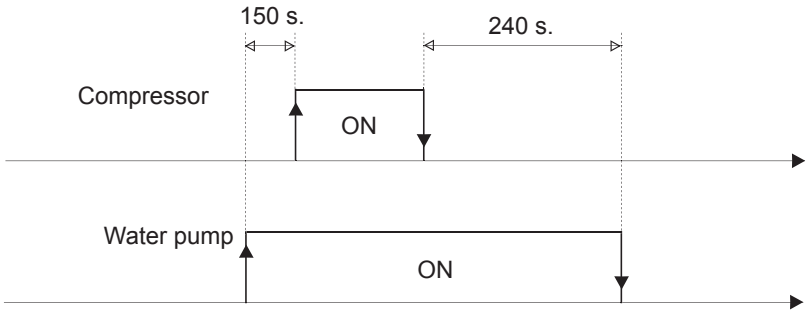
COMPRESSOR

In order to protect compressors from destructively cycling on and off, following protection delays have been set:



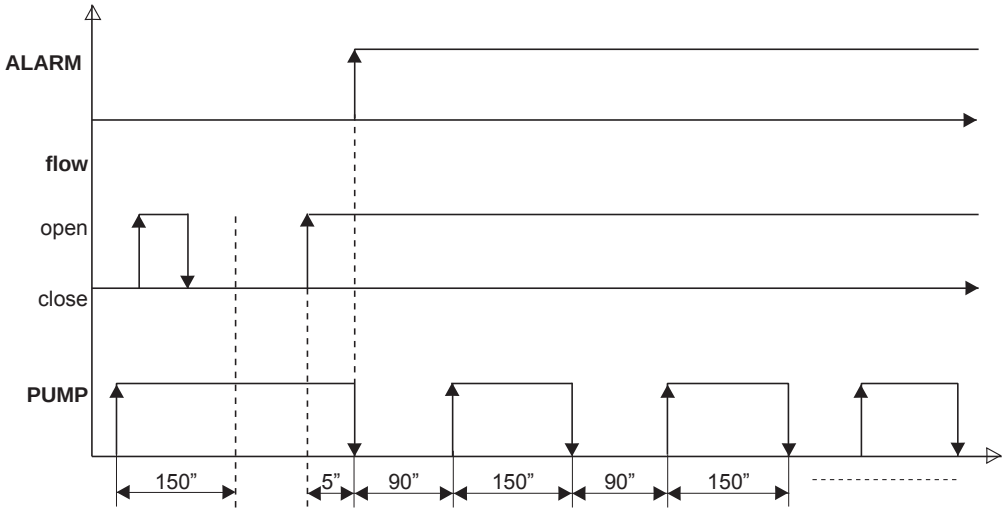
COMPRESSOR- WATER PUMP (ECOLEAN / HYDROLEAN)

In both heating and cooling modes, the compressors start 150 seconds after the water pump has started, in order to stabilize the water system.
In addition to that, the water pump stops 4 minutes after the last compressor has stopped, in order to take advantage of the remaining thermal energy in the exchanger.



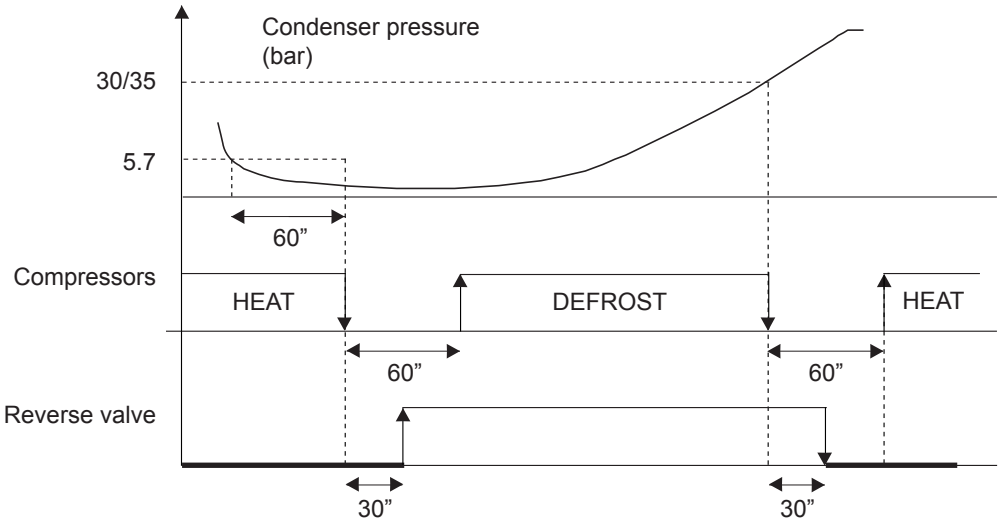
WATER PUMP- WATER FLOW SWITCH (ECOLEAN / HYDROLEAN)

The water flow switch ensures that the water pump does not work when there is no water flow. At first, there is a by-pass during the first 150 seconds of water pump operation which operates according to the water flow switch signal. When the alarm has been activated, the water pump is stopped. The water pump starts again every 90 seconds for 150 seconds, in order to try to reset the alarm. This procedure is repeated 5 times and after that the pump remains stopped until the alarm is reset manually.



9.- DEFROST (EXCEPT HYDROLEAN)

The defrosting process is activated during heating mode in the heat pump units, when the outside temperature is low and the outdoor coil is likely to be frozen. To melt the ice, the defrosting function will switch the unit to cooling operation for a short period.
During defrosting mode, the low pressure is at minimum level, so the pressure switch is disabled in this mode.
The defrost cycle is illustrated in the following picture.



If the pressure does not reach 30/35 bars within 8 minutes from the start of the defrost cycle, the cycle finishes because of maximum time and the display shows “dF1” or “dF2” (according to the circuit).
The time between two defrost cycles for the same circuit is 40 minutes. The time between two defrost cycles of the two circuits is 10 minutes.

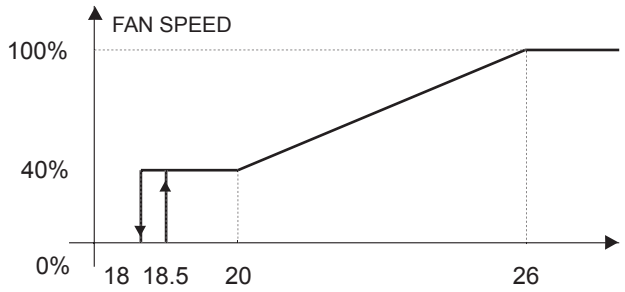
10.- CONDENSER FAN SPEED CONTROL (EXCEPT HYDROLEAN)

The function of the fan speed control is to prevent very low condensing temperatures during cooling mode operation at outside temperatures of between 0ºC and 46ºC.
Depending on the unit, this function could be:

1.1.- PROPORTIONAL CONTROL BASED ON PRESSURE

Models: ECOLEAN: . . . . . EAC + kit -15ºC and EAR 251-812 SM
AIRCOOLAIR: . . . ANCM + kit -15ºC and ANHM 22E-86D
AIRCUBE:. . . . . KSCM + kit -15ºC and KSHM 22E-86D

In this case, it is a proportional fan speed control, which varies the fan voltage supplied to the fan.

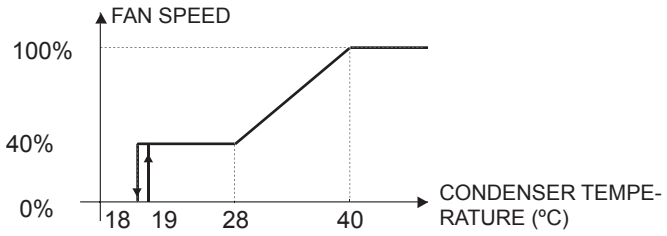


NOTE
At start-up the fan works at maximum speed for 20 seconds, so as to overcome the mechanical inertia of the motor.

1.2.- PROPORTIONAL CONTROL BASED ON PRESSURE TEMPERATURE

Models: ECOLEAN: . . . . . EAC 251-812 SM
AIRCOOLAIR: . . ANCM 22E-86D
AIRCUBE:. . . . . KSCM 22E-86D

In this case too, it is a proportional fan speed control, which varies the voltage supplied to the fan.

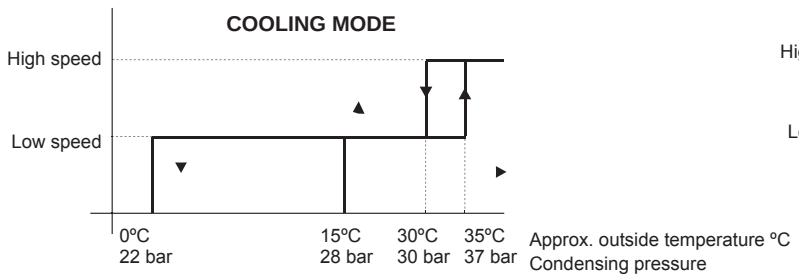


NOTA
At start-up, the fan works at maximum speed for 20 seconds, so as to overcome the mechanical inertia of the motor.
The same time is observed with regard to compressor start-up (irrespective of the condensing temperature) in order to improve temperatures probes reading.

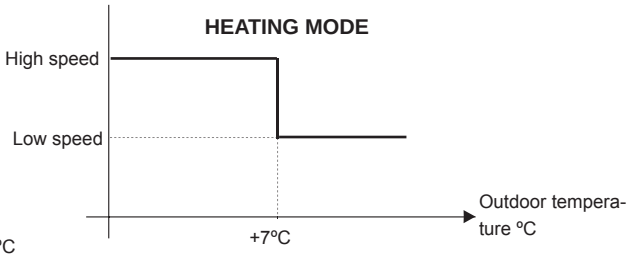
1.3.- ON/OFF CONTROL BASED ON PRESSURE
Models: ECOLEAN: EAR* 1003-1804 SM
AIRCOOLAIR: ANHM* 112D-152D
AIRCUBE: KSHM* 112D-214D

ON/OFF, through the control and change between high and low fan speed through pressure switches.
The fans for these models incorporate 2 speeds. The fans work on high or low speed according to :

COOLING MODE:
The on/off and low/high fan speed is managed according to the condensing pressure. See the illustration below:



HEATING MODE (heat pump units only). The low/high fan speed is managed according to the outdoor temperature thermostat. See the illustration below:



NOTE*: In these same models, but in cooling only version, the fan speed management is the same, apart from that, the ON/OFF signal is provide by a pressure switch instead of the control.

11.- FREE COOLING (AIRCOOLAIR)

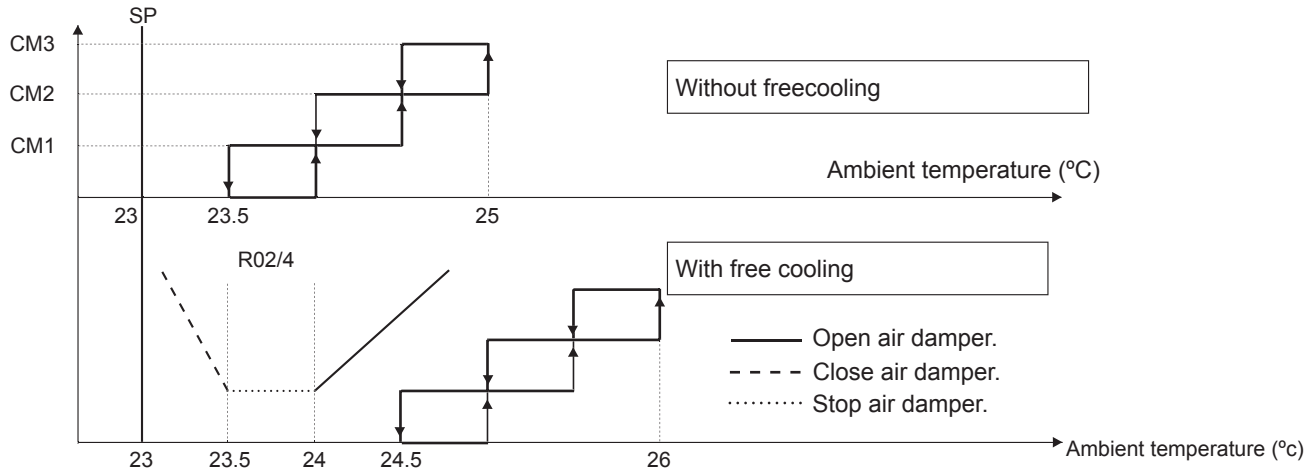
OPTION

This option takes advantage of external conditions for cooling mode.

Freecooling is enabled when outdoor temperature is 1ºC lower than indoor temperature; when the former is:

- < 10ºC, the compressors are deactivated and the air intake gate fully opened in order to refresh with outdoor air only (sufficient under these conditions).
- >10ºC, the air intake gate opens and delays the compressors, which turn on only if there would be insufficient outdoor fresh air to achieve the comfort setpoint.

The illustration below shows freecooling regulation.



To get a constant air renewal, when freecoling conditions are satisfied, the damper is mantained opened partially (20%), according to the following values.

Par.	DESCRIPTION	Min.	Max.	Def.
r40	This indicates when to carry out the minimum opening of the damper. 0= Never. 1= with freecooling. 2= with freeheating. 3= with freecooling and freeheating 4= always, except with freecooling y freeheating. 5= always, except with freeheating. 6= always, except with freecooling. 7= always 8= only for cooling mode. 9= only for heating mode.	0	9	1
r41	% minimum percentage opening damper.	0	100	20

PAR.	DESCRIPTION	MIN.	MAX.	VAR.	UD.	BY DEFAULT		
						ECOLEAN	AIRCOOLAIR	AIRCUBE
Antifreeze and electrical heater								
A01	Antifreeze alarm set point.	A7	A4	0.1	ºC	3,0	2	------
A02	Antifreeze differential.	0,3	122	0.1	ºC	5,0	5	------
A03	By-pass time for antifreeze alarm.	0	150	1	sec.	0	30	------
A04	Antifreeze heater set point.	A1	R16	0.1	ºC	4,5	------	------
A05	Antifreeze heater differential.	0,3	50	0.1	ºC	1,0	------	------
A08	Auxiliary heater absolute set point (1st step).	A1	R16	0.1	ºC	35	------	------
	Auxiliary heater relative set point (1st step).	0	20	0.1	ºC	------	1.5 (ANCM) 2.5 (ANHM 22E-43E) 3.5 (ANHM 52D-86D) 4.5 (ANHM 112D-152D)	------
A9	Auxiliary heater differential.	0	20	0.1	ºC	1	1	------
A11	Auxiliary heater absolute set point (2st step).	A1	R16	0.1	ºC	33	------	------
	Auxiliary heater relative set point (1st step).	0	20	0.1	ºC	------	2.5 (ANCM 52D-86D)	------
A13	Lower discharge air temperature in freecooling.	A7	R16	0.1	ºC	------	7	------
Probes								
b0	Config. of probe to be shown on the display: 0= probe B1. 1= probe B2 2= probe B3. 3= probe B4 4= probe B5. 5= probe B6 6= probe B7. 7= probe B8 8= Set point without compensation. 9= Dynamic set point with possible compensation. 10= Remote ON/OFF digital input status. 11= Terminal DC40 probe.	0	11	1	N	0	11	10
b1	Probe B1.	------	------	------	ºC			
b2	Probe B2.	------	------	------	ºC			
b3	Probe B3.	------	------	------	ºC			
b4	Probe B4	------	------	------	ºC/bar			
b5	Probe B5.	------	------	------	ºC			
b6	Probe B6.	------	------	------	ºC			
b7	Probe B7.	------	------	------	ºC			
b8	Probe B8.	------	------	------	ºC/bar			
b21	Probe DC40.	------	------	------	ºC			
Timming and delays								
C01	Min. compressor ON time.	0	999	1	sec.	0	0	0
C02	Min. compressor OFF time.	0	999	1	sec.	120	120	120
C03	Delay between 2 starts of the same compressor.	0	999	1	sec.	300	300	300
C04	Delay between starts of the 2 compressor.	0	999	1	sec.	2	2	2
C05	Delay between 2 shut-downs of the 2 compressors.	0	999	1	sec.	0	0	0
C06	Delay at start up.	0	999	1	sec.	5	5	5
C07	Delay in switching on the compressor after switching on the pump.	0	999	1	sec.	150	0	0
C08	Delay in switching off the compressor after switching off the pump.	0	150	1	min.	4	0	0
C10	Compressor 1 timer.	0	8000	100	hours			
C11	Compressor 2 timer.	0	8000	100	hours			
C12	Compressor 3 timer.	0	8000	100	hours			
C13	Compressor 4 timer.	0	8000	100	hours			
C14	Compressor operation timer threshold (0=not used).	0	100	100	hours	0	0	0
C15	Evaporator pump timer.	0	8000	100	hours			
C17	Minimum time between 2 pump starts.	0	150	1	min.	0	0	0
C18	Minimum pump/indoor fan ON time.	0	150	1	min.	0	1	0

PAR.	DESCRIPTION	MIN.	MAX.	VAR.	UD.	BY DEFAULT		
						ECOLEAN	AIRCOOLAIR	AIRCUBE
Defrost								
d01	Defrosting cycle activation.	0	1	1	flag	1	1	1
d03	Start defrosting pressure.	1	D04	0.1	bar	5.7	5.7	5.7
d04	End defrosting pressure.	D03	/12	0.1	bar	35	30	30
d05	Min. time to start a defrosting cycle.	10	150	1	sec.	60	60	60
d06	Min. duration of a defrosting cycle.	0	150	1	sec.	0	0	0
d07	Max. duration of a defrosting cycle.	1	150	1	min.	8	8	8
d08	Delay between 2 defrosting cycle requests with in the same circuit.	10	150	1	min.	40	40	40
d09	Defrosting delay between the 2 circuits.	0	150	1	min.	10	10	10
Fan								
F02	Fan operating mode: 0= Always ON. 1= Depending on compressor (in parallel operating mode). 2= Depending on compressors in ON/OFF control. 3= Depending on compressors in speed control mode.	0	3	1	int.	1 (EAC 1003-1804) 2 (EAR 1003-1804) 3 (EAC/EAR 251-812)	1 (ANCM 112D-152D) 2 (ANHM 112D-152D) 3 (ANCM/HM 22E-86D)	1 (KSCM 112D-214D) 2 (KSHM 112D-214D) 3 (KSCM/HM 22E-86D)
F05	Temp. value for min. speed cooling.	-40	176	0.1	ºC	28	28	28
	Pressure value for min. speed cooling.	/11	/12	0.1	bar	20 (if F2=3) / 22 (if F2=2)	20 (if F2=3) / 22 (if F2=2)	20 (if F2=3) / 22 (if F2=2)
F06	Differential value for max. speed in cooling mode (temp).	0	50	0.1	ºC	12	12	12
	Differential value for max. speed in cooling mode (pres).	0	30	0.1	bar	6	6	6
F07	Fan shut-down differential in cooling mode (temp).	0	50	0.1	ºC	10	10	10
	Fan shut-down differential in cooling mode (pres).	0	F5	0.1	bar	2	2	2
F08	Temperature value for min. speed in heating mode.	-40	176	0.1	ºC	30	30	30
	Pressure value for min speed cooling.	/11	/12	0.1	bar	12 (if F3=3) / 22 (if F3=2)	12 (if F3=3) / 22 (if F3=2)	12 (if F3=3) / 22 (if F3=2)
F09	Differential value for max. speed in heating mode (temp).	0	50	0.1	ºC	1	1	1
	Differential value for max. speed in heating mode (pres).	0	30	0.1	bar	5	5	5
F10	Fan shut-down differential in heating mode (temp).	0	50	0.1	ºC	0	0	0
	Fan shut-down differential in heating mode (pres).	0	F8	0.1	bar	13	13	13
F11	Fan starting time.	0	120	1		20	20	20
F15	Activation Low Noise: 0= Deactivate. 1= Activate only in cooling mode. 2= Activate only in heating mode. 3= Activate both in cooling and heating mode.	0	3	1	flag	0	0	0
F16	Differential Low Noise in cooling mode.	0	50	0.1	bar	5	5	5
F17	Differential Low Noise in heating mode.	0	50	0.1	bar	1	1	1
Setting								
H06	Activate remote change over: 0= Deactivate. 1= Activate.	0	1	1	flag	0	0	0 (KSCM) 1 (KSHM)
H07	ON/OFF remoto: 0= Deactivate. 1= Activate.	0	1	1	flag	1	1	1
H10	Serial address.	1	200	1	ud.	1	1	1
H23	Activate Modbus.	0	1	1	flag	0	0	0
H97	Expansion board software version.	0	999	1	flag			
H99	Software version.	0	999	1	flag			
Alarms								
P04	Enable part load in high pressure: 0= Capacity control deactivated. 1= Capacity control activated for high pressure. 2= Capacity control activated for low pressure. 3= Capacity control activated for high and low pres.	0	3	1	flag	1	1	1

PAR.	DESCRIPTION	MIN.	MAX.	VAR.	UD.	BY DEFAULT		
						ECOLEAN	AIRCOOLAIR	AIRCUBE
Regulation								
r1	Cooling set point.	R13	R14	0.1	ºC	11 (EAC/EAR 251-431) 10 (EAC/EAR 472-812) 9 (EAC/EAR 1003-1804)	24	------
r2	Differential in cooling mode.	0.3	50	0.1	ºC	2 (EAC/EAR 251-431) 3 (EAC/EAR 472-812) 4 (EAC/EAR 1003-1804)	1 (ANCM/HM 22E-43E) 2 (ANCM/HM 52D-86D) 4 (ANCM/HM 112D-152D)	------
r3	Heating set point.	R15	R16	0.1	ºC	41 (EAC/EAR 251-431) 42 (EAC/EAR 472-812) 43 (EAC/EAR 1003-1804)	22	------
r4	Differential in heating mode.	0.3	50	0.1	ºC	2 (EAC/EAR 251-431) 3 (EAC/EAR 472-812) 4 (EAC/EAR 1003-1804)	1 (ACHM 22E-43E) 2 (ANHM 52D-86D) 4 (ANHM 112D-152D)	------
r7	Dead zone.	1	50	0.1	ºC	------	0.5	------
r17	Cooling compensation constant.	-5	5	0.1	------	0	0	------
r18	Maximum distance from the set point.	0.3	20	0.1	ºC	3	2	------
r19	Start compensation temerature in cooling mode.	-40	176	0.1	ºC	25	35	------
r20	Start compensation temerature in heating mode.	-40	176	0.1	ºC	12	6	------
r21	Second cooling set point.	R13	R14	0.1	ºC	16	28	------
r22	Second heating set point.	R15	R16	0.1	ºC	35	18	------
r23	Select automatic change over probe.	0	8	1	flag	0	0	------
r24	Automatic change over set point.	R15	R16	0.1	ºC	------	23	------
r25	Outside temp. set point to stop compressors.	-40	80	0.1	ºC	-15	-15	-15
r31	Heating compensation constant.	-5	5	0.1	------	0	0	0
Clock								
t01	Real Time Clock (RTC) hours.	0	23	1	------			
t02	Real Time Clock (RTC) minutes.	0	59	1	------			
t03	Real Time Clock (RTC) days.	1	31	1	------			
t04	Real Time Clock (RTC) month.	1	12	1	------			
t05	Real Time Clock (RTC) years.	0	99	1	------			
t06	Start hours for 2nd set point in cooling.	0	23	1	------	0	0	0
t07	Start mimutes for 2nd set point in cooling.	0	59	1	------	0	0	0
t08	End hours for 2nd set point in cooling.	0	23	1	------	0	0	0
t09	End minutes for 2nd set point in cooling.	0	59	1	------	0	0	0
t10	Start hours for 2nd set point in heating.	0	23	1	------	0	0	0
t11	Start mimutes for 2nd set point in heating.	0	59	1	------	0	0	0
t12	End hours for 2nd set point in heating.	0	23	1	------	0	0	0
t13	End minutes for 2nd set point in heating.	0	59	1	------	0	0	0
t14	Start hours for 2nd low noise cooling.	0	23	1	------	0	0	0
t15	Start mimutes for 2nd low noise in cooling.	0	59	1	------	0	0	0
t16	End hours for 2nd low noise in cooling.	0	23	1	------	0	0	0
t17	End minutes for 2nd low noise in cooling.	0	59	1	------	0	0	0
t18	Start hours for 2nd low noise in heating.	0	23	1	------	0	0	0
t19	Start mimutes for 2nd low noise in heating.	0	59	1	------	0	0	0
t20	End hours for 2nd low noise in heating.	0	23	1	------	0	0	0
t21	End minutes for 2nd low noise in heating.	0	59	1	------	0	0	0

WARNING
Default values could vary depending on optional kits or improvements.

ANTIFREEZE PROTECTION (ECOLEAN / HYDROLEAN).

This protection is activated by the control of the unit when the outlet water temperature probe (b2), located inside the water exchanger, measures +5 ºC and deactivates when the outlet water temperature probe reaches + 6 ºC again.

When the protection is activated, the following occurs:

- If the unit is operating in STAND-BY mode: the water pump goes on, as does the electrical heater for the water exchanger and the electrical heater of the water tank (if included).

DO NOT TURN OFF THE POWER TO THE UNIT. WHEN THE POWER IS OFF THE ANTI FREEZE PROTECTION WILL NOT OPERATE.

- If the unit is operating on cooling mode: it powers the electrical heater of the water tank, the electrical heater of the water exchanger, and it activates the hot gas injection valve (if the unit incorporates these options).

LOW WATER TEMPERATURE ALARM (ECOLEAN / HYDROLEAN).

This alarm is activated when the outlet water temperature probe (b2) measures a value of + 3 ºC (in standard unit).
The unit is stopped. The alarm can be reset manually when the outlet water temperature reaches + 8 ºC (in standard unit).

NOTE : Low water temperature options can change the values of antifreeze protection and low water temperature alarm.

ANTIFREEZE PROTECTION (AIRCOOLAIR).

The unit is protected by means of a temperature probe located in the indoor piping, when the indoor temperature goes drops 2ºC:

WITHOUT FREECOOLING

- The compressors shut down and the antifreeze alarm goes on.
- The alarm is reset automatically when the temperature reaches 7 ºC.

WITH FREECOOLING

- Air intake gate closes,
- Once the gate is completely closed, the compressors shut down and the antifreeze alarm goes on.

When the air intake gate is closing, if the temperature in the indoor piping goes up 2ºC, the gate stops and stays in the position reached; then, if the temperature reaches goes over 7 ºC, the air damper starts to open or, if the temperature goes down 2ºC, the damper start to close again.

In addition to that, in order to prevent frozen air discharging when freecooling without the compressors working (outdoor temp. <10 ºC), if the temperature in the indoor piping goes down 7 ºC, the air intake gate starts to mix outdoor air with return air, thus increasing the temperature of the discharge air.

DC40

Installation instructions :

1. Separate the cover of the instrument from the bodypart using a screwdriver as shown in Fig. 8.1.
2. Open the instrument with a “hinge” movement, pivoting the cover of the instrument upwards.

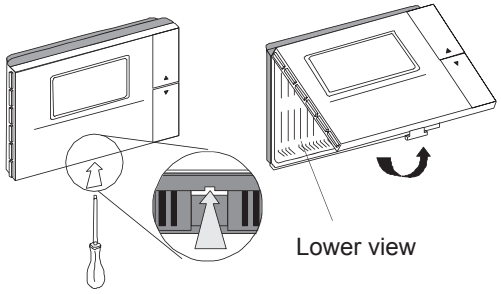


Fig. 8.1

3. Fix the rear part to the wall, taking care that the connection cables pass through the hole in the centre of the rear casing. The distances between the fastening holes are designed so as to be able to fit the DC40 to a flush-mounting connection box compliant with the CEI C.431 - IEC 670 standards. If this is not available, use the fastening holes on the casing as a guide for drilling the holes in the wall, and then use the kit of screws and plugs supplied.
4. Connect the cables to the terminals located in the casing as indicated in the casing itself or in the electrical diagram.

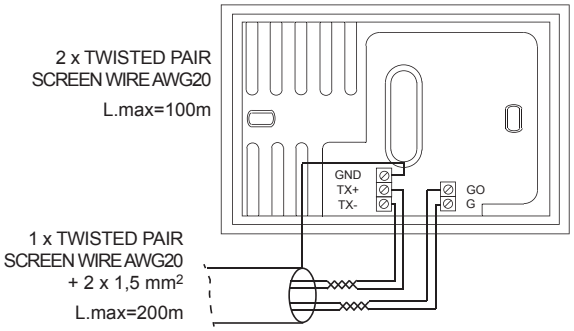


Fig. 8.2

Keep the DC40’s inductive load cables separate from those of any power devices (contactors, etc.) in order to prevent electro-magnetic interference.
Do not lay power and communications cables together

- Run a connection from the electrical box in the outdoor unit to the DC40 device:
  . 91 and 92 terminal blocks respectively to Tx+ and Tx- (Twisted pair for communications).
  . 93 and 94 terminal blocks respectively to GO and G. (Twisted pair for 24VAC power).
  . 90 to GND. (shield).

5. Once the installation is complete, fit the terminal onto the casing by pivoting the cover with a “hinge” movement and close it. When closing, make sure that the pins on the board fit into the corresponding terminals.

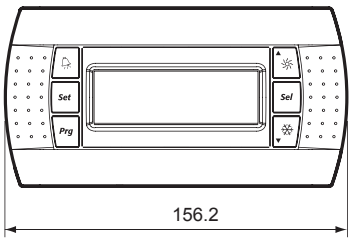
Installation warnings

- Disconnect the power supply before working on the DC40 during operations of assembly, maintenance and replacement.
- The terminal must be fastened to the wall in such a way as to allow the circulation of air through the slits on the rear casing.
- Avoid installing the boards in environments with the following characteristics:
  - Avoid locations where there is a great variation in room temperature.
  - Near doors leading to the outside.
  - On outside walls.
  - Where it will be exposed to direct sunlight or to conditioned air flow.
  - Where there are strong magnetic and/or radio frequency interference (for example, near transmitting antennae).

DC41

Installation instructions:

1. Pass the telephone cable through the hole in the rear of the casing.
2. Fasten the rear of the casing to the box using the round-head screws.
3. Connect the telephone cable to the RJ12 terminal of the DC41.
4. Rest the front panel on the rear of the casing and fasten the assembly using the countersunk screws, as shown in Fig. 8.3.
5. Finally, click the frame in place.



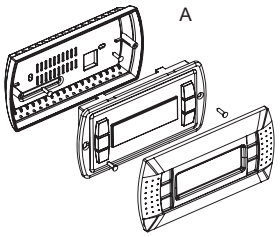


Fig. 8.3

Electrical connections:

1. Disconnect the power supply before working on the DC41 during operations of assembly, maintenance and replacement.

2. Make the connection between the “DT41” power supply and the DC41 terminal using the telephone cable (80 cm) supplied. If the cable is not long enough, use a pin-to-pin telephone cable with a maximum length of 10 m.

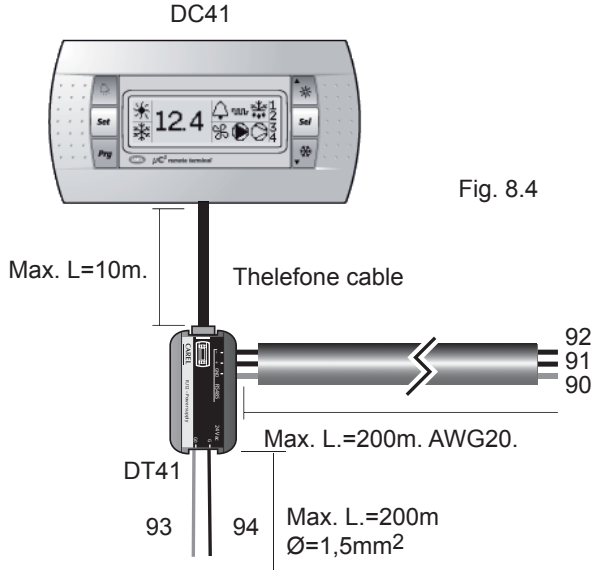


Fig. 8.4

Keep the DC41’s inductive load cables separate from those of any power devices (contactors, etc.) in order to prevent electromagnetic interference.
Do not lay power and communications cables together

2 x TWISTED PAIR SCREEN
WIRE AWG20
Max. L.=100m

1 x TWISTED PAIR
SCREEN WIRE AWG20
+ 2 x 1,5 mm^2
Max. L.=200m

Insert 120Ω terminal resistor between + y - of DT40 device (see electrical drawing) for lines longer then 20 m.

ALARMS/WARNINGS DISPLAY

The unit self-protects by means of safety devices; when any of these safety devices detects an anomaly, this is shown on the Climatic 40 display and, in Aircoolair units only, also on the DC41 display (even if it has a different alarm code), in order to warn the operator.
Depending on the type of anomaly, Climatic 40 shows:

- Alarm. Serious anomaly. This is one that has a direct effect on the operation of the unit.
- Warning. Non-serious anomaly. This is one that has no direct effect on the operation of the unit.

The activation of an alarm results in:

- Alarm code being shown on Climatic 40 display alternately with the main menu.
- Only in Aircoolair units, an alarm code (different from the one for the Climatic 40) being shown on the DC40 display alternately with the main menu.
- A red bell appears on the Climatic 40 display and the alarm relay is activated. (contacts 99-100).
- In some cases, depending on the type of alarm, some of the outputs may be blocked, thus stopping the unit.

The activation of a warning results in:

- A warning code being shown only on the Climatic 40 display, alternately with the main menu.

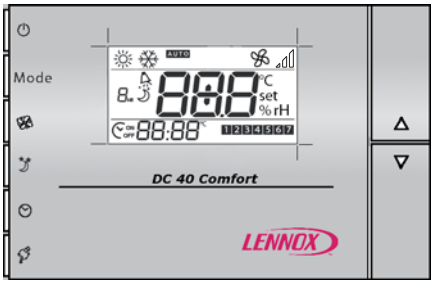
ALARM/WARNING RESET

Some alarms are reset automatically. When the cause is no longer present, they disappear from the display.
Others alarms are reset manually and, once the alarm conditions have disappeared, they need to be reset by the user as shown below:

CLIMATIC 40

5 Sec.

DC 40



3 Sec.

DC 41

5 Sec.

ALARMS/WARNINGS CODES

CL40/ DC41 DISPLAY	DC40 DISPLAY	DESCRIPTION	EFFECT	RESET	ACTION
HP1	HP	High pressure switch alarm, circuit 1. This alarm may indicate the following problems: - High pressure switch protection. - Compressor stopped. - Excessive refrigerant charge. - Insufficient water flow in heating cycle (Ecolean).	Circuit 1 compressors stop	AUTO/MAN. After 3 times in 1 hour	Reset and check: - Coil is clean and not blocked. - Water flow on the heating cycle (Ecolean). - Outdoor fan during cooling cycle. - Indoor fan during heating cycle (Aircoolair). - Compressor protection. - Condenser air temperature is very high. - Refrigerant charge.
HP2		High pressure switch alarm, circuit 2. The same as previous alarm but this time referring to circuit 2.	Circuit 2 compressors stop	AUTO/ MAN. After 3t/h	The same as previous alarm but this time referring to circuit 2.
LP1	LP	Low pressure switch alarm, circuit 1. This alarm may indicate the following problems: - Low refrigerant. - Low water flow in cooling cycle (Ecolean). - Outdoor coil blocked in heating cycle. - Outdoor fan stopped. - Low pressure switch protection.	Circuit 1 compressors stop	AUTO/MAN. After 3 times in 1 hour	Reset and check: - Coil is clean and not blocked. - Water flow on the cooling cycle (Ecolean). - Outdoor fan during heating cycle. - Indoor fan during cooling cycle. - Fuses of the fan. - Evaporation air temperature is very low. - Check refrigerant charge. - Expansion valve.
LP2		Low pressure switch alarm, circuit 2. The same as previous alarm but this time referring to circuit 2.	Circuit 2 compressors stop	AUTO/ MAN. After 3t/h	The same as previous alarm but this time referring to circuit 2.
TP	T	Indoor fan thermal protection alarm. (Aircoolair only): - Fan thermal protection open. - Faulty power supply.	Unit stops	MAN.	Reset and check: - Fan. - Power supply.
TC1		Not used.	------	------	Call Technical Service.
TC2		Not used.	------	------	Call Technical Service.
LA	------	Not used.	------	------	Call Technical Service.

ALARMS/WARNINGS CODES

CL40/ DC41 DISPLAY	DC40 DISPLAY	DESCRIPTION	EFFECT	RESET	ACTION
FL	------	Water flow switch alarm. This indicates low water flow in the unit. (Ecolean) only. After 5 minutes it automatically requires to be reset manually.	Unit stops	AUTO/MAN.	- Check water circuit is not blocked. - Check water filter. - Check water pump operation.
FLb	------	Not used.	------	------	Call Technical Service.
E1	E00	B1 probe error. Faulty probe or connection.	Unit stops	AUTO	Check connection of B1 probe (see electrical diagram), check continuity and change the faulty component.
E2		B2 probe error. Faulty probe or connection.	Unit stops	AUTO	Check connection of B2 probe (see electrical diagram), check continuity and change the faulty component.
E3		B3 probe error. Faulty probe or connection.	Unit stops	AUTO	Check connection of B3 probe (see electrical diagram), check continuity and change the faulty component.
E4		B4 probe/pressure transducer error. Faulty probe or connection.	Unit stops	AUTO	Check connection of B4 probe/pressure transducer (see electrical diagram), check continuity and change the faulty component.
E5		Not used.	------	------	Call Technical Service.
E6		B6 probe error. Faulty probe or connection.	Unit stops	AUTO	Check connection of B6 probe(see electrical diagram), check continuity and change the faulty component.
E7		B7 probe error. Faulty probe or connection.	Unit stops	AUTO	Check connection of B7 probe (see electrical diagram), check continuity and change the faulty component.
E8		B8 probe/pressure transducer error. Faulty probe or connection.	Unit stops	AUTO	Check connection of B8 probe/pressure transducer (see electrical diagram), check continuity and change the faulty component.

ALARMS/WARNINGS CODES

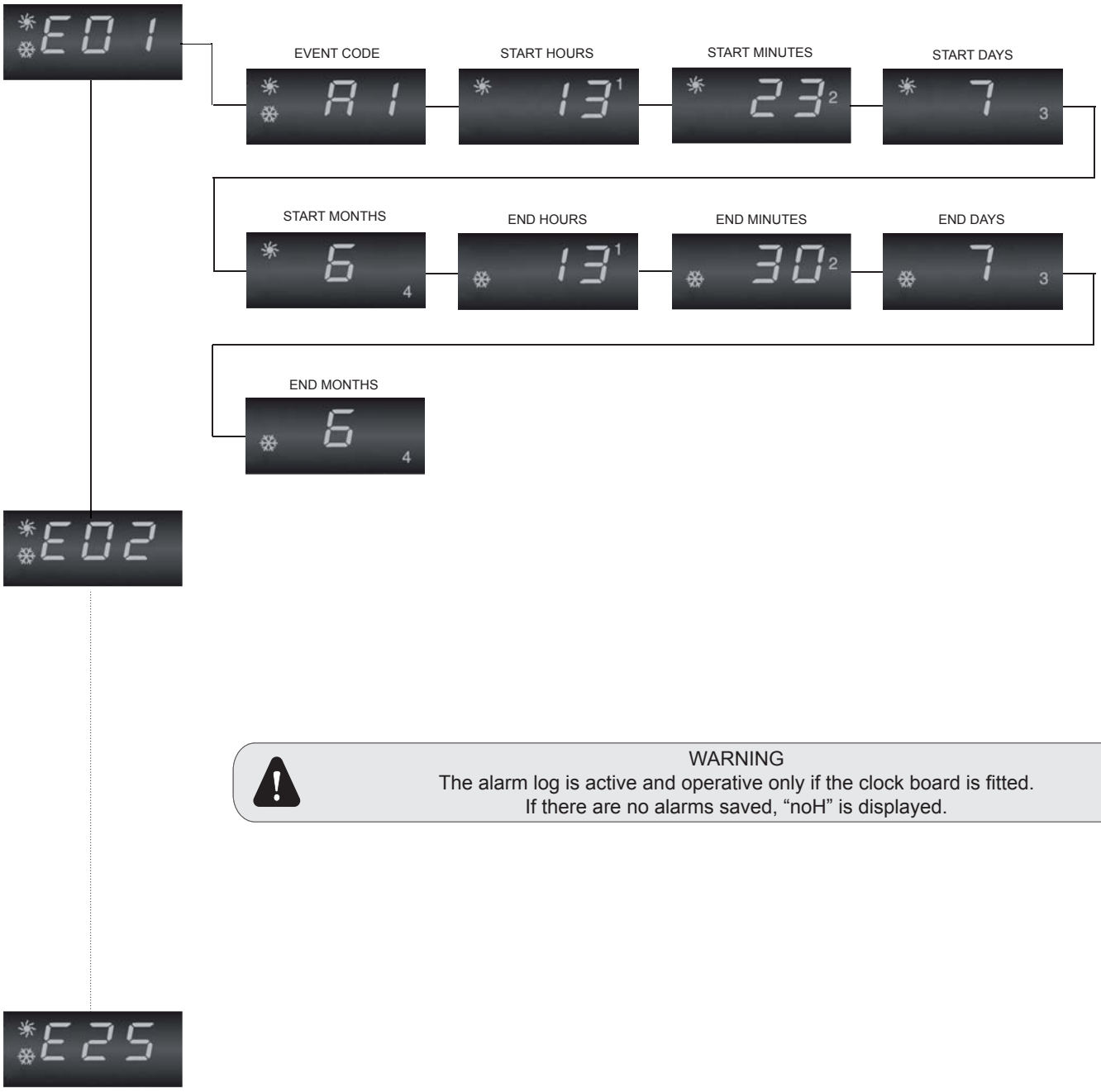
CL40/ DC41 DISPLAY	DC40 DISPLAY	DESCRIPTION	EFFECT	RESET	ACTION
Hcl-4	**Hc**	Warning. Compressor operating time limit exceeded. Disabled by default.	------	AUTO	Check: - Compressor operating time (parameter C10). - Compressor operating time limit (par. C15).
EPr	**------**	Warning. Climatic 40 hardware error.	------	AUTO	Call Technical Service.
Epb	**------**	Warning. Climatic 40 hardware error.	Unit stops	AUTO	Call Technical Service.
ESP	**ESP**	Expansion board error.	Unit stops	AUTO	Check: - Green LED is on inside the board. - J4-J9 connections (see electrical diagram). Call Technical Service.
EL1-2	**------**	Warning. Condensing fan speed control hardware error.	Outdoor fan at maximum speed.	AUTO	- Check CFM board connections (see electrical diagram). Call Technical Service.
dF1-2	**------**	Warning. Circuit 1-2 defrost ends due to maximum time (8 minutes).	------	AUTO	
d1-2	**------**	Warning. Circuit 1-2 defrosting.	------	------	
A1	**A12**	Antifreeze alarm. - ECOLEAN Outlet temperature < 3ºC. Reset MAN. - AIRCOOLAIR circuit 1 indoor piping temperature < 2ºC. Reset AUTO.	-ECOLEAN compressors stop. - AIRCOOLAIR Close freecooling air dumper and stops circuit 1 compressors 1	MAN/AUTO	ECOLEAN: Reset and check: - Check the water filter. - Check water flow. - Check that the water pump is connected to the unit's power supply. AIRCOOLAIR: Check: - Indoor unit air filter. - Air damper working correctly.
A2		Antifreeze alarm, circuit 2. (Aircoolair only). Circuit 2 indoor piping temperature < 2ºC. Reset AUTO.	Close freecooling air dumper and stops circuit 1 compressors 2	AUTO	Check: - Indoor unit air filter. - Air damper working correctly.

ALARMS/WARNINGS CODES

CL40/ DC41 DISPLAY	DC40 DISPLAY	DESCRIPTION	EFFECT	RE	ACTION
Ht	**------**	High ambient temperature warning. Ambient temperature > 40ºC.	------	AUTO	Check location of ambient probe; avoid places where measurement of the ambient temperature by the internal sensor may be altered.
Lt	**------**	Warning the low ambient temperature. Disabled by default.	------	------	Call Technical Service.
AHt	**------**	Not used.	------	------	Call Technical Service.
HLt	**------**	Not used.	------	------	Call Technical Service.
ELS	**------**	Low power supply warning. Power supply < 20.4V.	------	AUTO	Check power supply of controller = 24V (see electrical diagram).
EHS	**------**	High power supply warning. Power supply > 26.4V.	Unit stops	AUTO	Check power supply of controller = 24V (see electrical diagram).
Ed1	**------**	Not used.	------	------	Call Technical Service.
Ed2					
SH1					
SH2					
nO1					
nO2					
LO1					
LO2					
HA1					
HA2					
EP1					
EP2					
ES1					
ES2					
EU1					
EU3					
Eb1					
Eb2					
L					
Ed1					
Ed2					
PH1					
PH2					
SUL					
tEr	**OcH**	Alarm, faulty communication between DC40 and Climatic 40. (Aircoolair only).	Unit stops	AUTO	- DC40 connections (see electrical diagrams). Call Technical Service.
	AcH	Generic alarm. Some active alarms on Climatic 40.	------	------	Check Climatic 40 alarm code and act by accordingly.
	Ahu	Not used.	------	------	Call Technical Service.
	AtE	DC40 internal probe alarm. Faulty internal probe.	------	------	Call Technical Service.
	CEr	DC40 setting error.	------	------	Call Technical Service.
	UEr	DC40 hardware error.	------	------	Call Technical Service.

ALARM LOG

The Climatic 40 has a log where significant events that stop (alarms) or limit (warnings) the operation of the unit are saved.
In order to enter the Alarm Log menu, proceed as explained in chapter 3 *MENU* in the paragraph *PARAMETERS EDITING MENU*, entering the password 44 instead of 22.
Up to 25 events can be saved, highlighting in order: event code, start hours, start minutes, start day, start month, end hours, end minutes, end day, end month.



WARNING
The alarm log is active and operative only if the clock board is fitted.
If there are no alarms saved, “noH” is displayed.

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