PRESET PROGRAMS

This processor is already programmed with the following (variable) settings.
To return to these settings at any time, press **+ / -** and **ENTER** together for at least 1 second ***boot*** message is displayed:

On this table are shown setting values at delivery, you are advised to record all the settings made in table below such as to have an immediate reference for the Programming and run modes.

HEAT

Parameter	Value on delivery	Value on customer
t.HEA	21.0°c	
SERVICE		
tYPE	=1	
d.HEA	0.2°c	
t.on.H	1.0''	
t.oF.H	60.0''	
InPu	=1	
CALE	=0	

COOL

Parameter	Value on delivery	Value on customer
t.COL	32.0°c	
H.COL	90.0%Rh	
SERVICE		
tYPE	=1	
I.Hun	=1	
d.COL	0.2°c	
d.Hun	1.0%Rh	
CALE	=0	

VENT

Parameter	Value on delivery	Value on customer
t.vEn	25.0°c	
SP._ _	=0	
t.on.P	0.0'	
t.oF.P	10.0'	
PArt	=1	
SERVICE		
n.SPE	=5	
d.vEn	0.2°c	
Star	=0	
rEG.V	10	
rit.F	0''	
CALE	=0	

ALARM

Parameter	Value on delivery	Value on customer
t.AL._	15.0°c	
t.AL.-	35.0°c	
SERVICE		
tYPE	=1	
r.AL._	-6.0°c	
r.AL.-	6.0°c	
dt.AL	0.0°c	
tc.AL	0'	

FLAP

Parameter	Value on delivery	Value on customer
t.FL.1	23.0°c	
Po._1	0%	
Po.-1	100%	
t.FL.2	23.0°c	
Po._2	0%	
Po.-2	100%	
t.FL.3	23.0°c	
Po._3	0%	
Po.-3	100%	
SERVICE		
n.FLA	=1	
tYP.1	=1	
AnE.1	=0	
nE.B.1	0.2°c	
b.CL.1	3.0°c	
b.OP.1	3.0°c	
t.On.1	1.0''	
t.OF.1	60.0''	
Pro.1	5.0°c	
InP.1	=1	
tYP.2	=1	
AnE.2	=0	
nE.B.2	0.2°c	
b.CL.2	3.0°c	
b.OP.2	3.0°c	
t.On.2	1.0''	
t.OF.2	60.0''	
Pro.2	5.0°c	
InP.2	=1	
tYP.3	=1	
AnE.3	=0	
nE.B.3	0.2°c	
b.CL.3	3.0°c	
b.OP.3	3.0°c	
t.On.3	1.0''	
t.OF.3	60.0''	
Pro.3	5.0°c	
InP.3	=1	
CALE	=0	

Parametri INSt

Parameter	Value on delivery	Value on customer
P. 0	0%	
P. 1	20%	
P. 2	40%	
P. 3	60%	
P. 4	80%	
P. 5	100%	
P. 6	100%	
P. 7	100%	
P. 8	100%	
P. 9	100%	
P. 10	100%	
t.oF.d	0''	
t.on.d	2''	
Ad.vE	0.0°C	
Ad.HE	0.0°C	
Ad.F1	0.0°C	
Ad.F2	0.0°C	
Ad.F3	0.0°C	
Ad.PS	0.0°C	
Ad.Hu	0.0%Rh	
Ad.ES	0.0°C	
tEnP	=1	
EmEr	=0	
H.CHA	0.0%Rh	
r. 1	0.0 °	
r. 2	1.0 °	
r. 3	1.0 °	
r. 4	1.0 °	
r. 5	1.0 °	
r. 6	1.0 °	
r. 7	1.0 °	
r. 8	1.0 °	
r. 9	1.0 °	
r. 10	1.0 °	

EXT.T

Parameter	Value on delivery	Value on customer
t.bLO	10.0°c	
SERVICE		
tYPE	=0	
u.bLo	=10	
i.Pro	no.op	
CHA-	no.op	
t.CHA	no.op	

As it is company policy to continually improve the products the Manufactures reserve the right to make any modifications thereto without prior notice. They cannot be held for any damage due to malfunction.

POLA® CE 28.10.09

HC46

SL 6.G

HANDBOOK

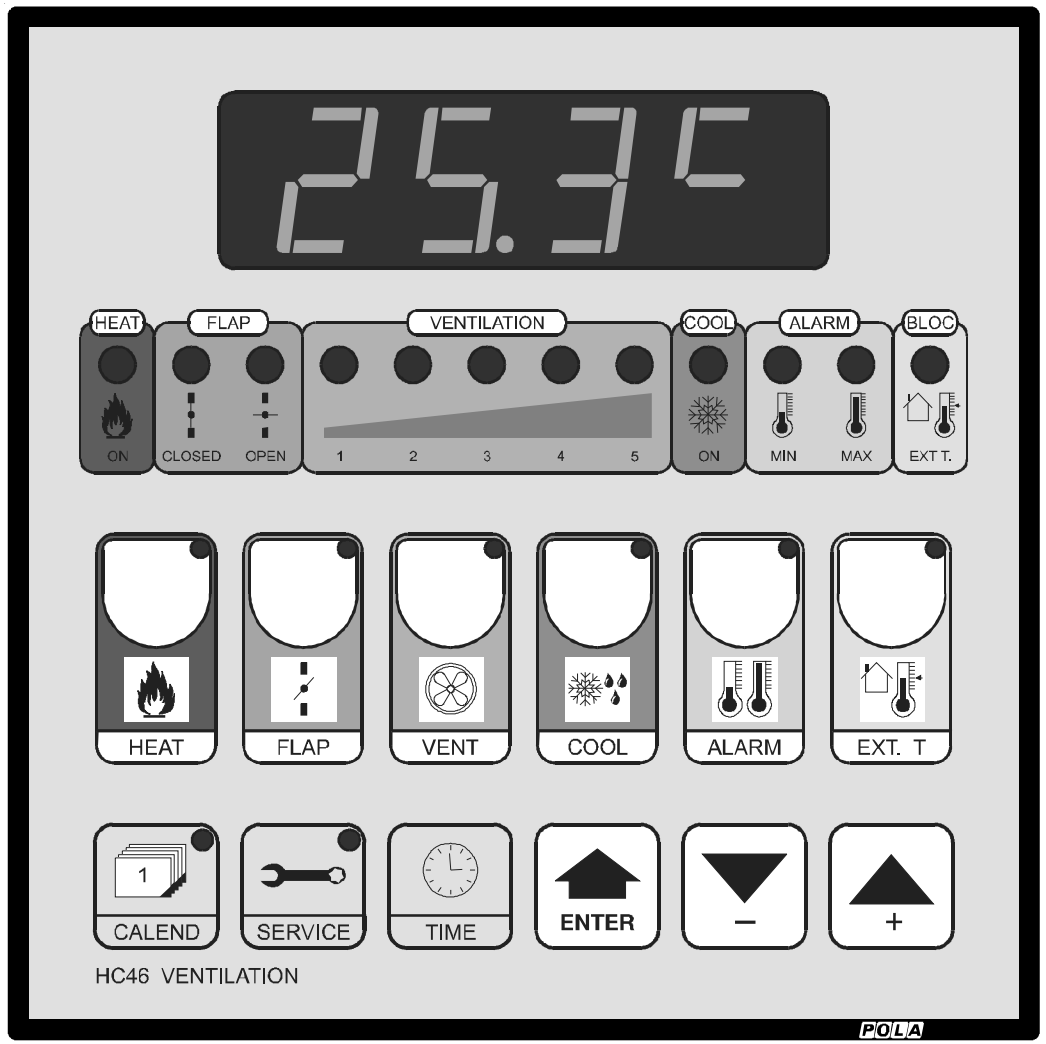


TABLE OF CONTENTS

TECHNICAL DATA

Power supply	
Line voltage	220-240Vac
Frequency	50/60Hz
Cabinet	
Material	PVC
Dimensions	144x144x77mm
Weight	KG 1
Protection degree	IP20
Outputs	
Maximum relay contacts load	4A AC1
Serial output	TTL 2400 baud
Inputs	
Probe measuring range	-50.0...+115.0°C
Instrument precision	0.2°C
Temperature probe reading precision	0.2°C
Temperature setting range	-50.0...+115.0°C
Probe connection	2 wire without screen
Humidity probe signal	4-20mA
Temperature range	
Operatibility	-10...+40°C
Storage	-40...+85°C

CE DECLARATION OF CONFORMITY

POLA® declares that your **HC46** model is conform to following European normatives:

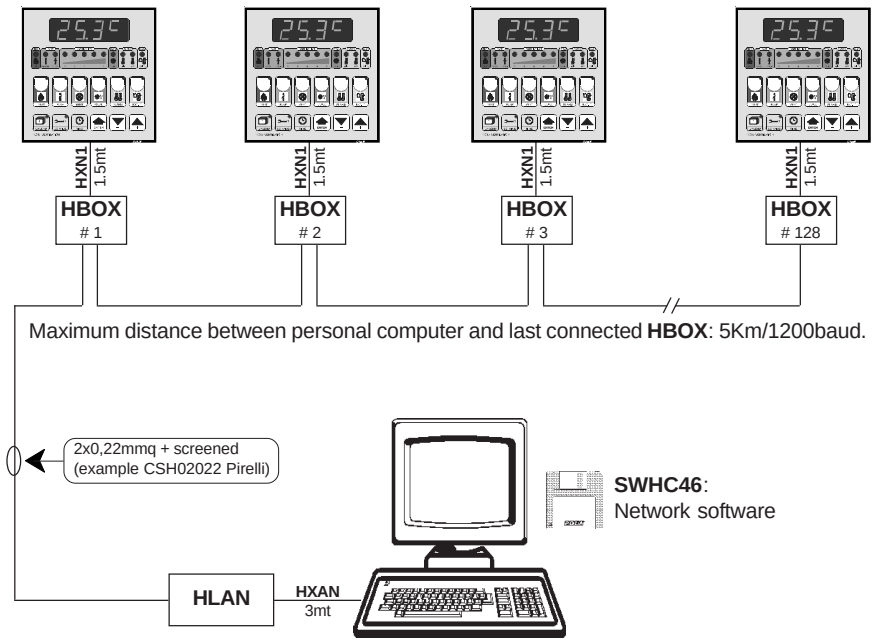
EN 50081-1 (1992) (Emission)
EN 50082-2 (1995) (Immunity)

referred to directive **EE 89/336** and subsequent **92/31** about electro-magnetic compatibility (**EMC**)

and it is conform to directive **EEC 72/23** and subsequent **EEC 93/68** about low voltage safety (**LVD**).

Measure was performed by an
ACCREDITATED COMPETENT BODY.

CONNECTION IN NETWORK WITH P.C.



To realize network system for 10 **HC46** (for example) order:

n. 10 **HBOX** (Nodal element with **HXN1** cable).
n. 1 **HLAN** (Network driver with **HXAN** cable).
n. 1 **SWHC46** (Network software).

Network capacity

Line speed	1200/9600 baud
Line level	EIA RS-485 modified (low slew rate)
Total user nodes	128
Line lenght	5 Km/1200 baud - 1 Km/9600 baud
Optisulation **HLAN** and **HBOX**	5000 Vrms
Communication and intelligence	68HC11 POLA MASK (advanced 6800 architecture)
Power supply	200-240 Vac 50-60Hz (other voltage on request)
Operatibility	-10...+55°C
Data integrity	-40...+85°C
HLAN dimensions	113x78x43mm
HBOX dimensions	90x78x43mm

CE EMC LVD

INTRODUCTION TO USER PROGRAMMING

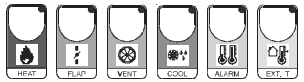
The symbol placed at top of every paragraph indicates:

: Start-up settings to be performed only at plant they determine working mode suited for the kind of plant existent (heating, equipments, flap tipology, etc.)

: User common settings normally utilized during operation procedures (temperature, settings, speed, etc.).

: View only operations (temperature, speed, etc.) without changing settings.

Setting mode is the same for various programmations to be executed:

Select function desired pushing appropriate ideogram key 

after push SERVICE for start-up settings or ENTER for user common settings.

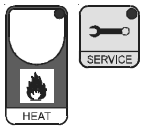
At this point on display will appear parameter's message to be set in alternance with parameter's value: use + for increase, or − for decrease value to be set, when value required has reached push ENTER for entering data.

If settings are multiple (sequentially) at this point will appear again next parameter's message so you can operate such as before explained.

At the last settings the system will return in normal operating mode.

To escape from setting operation push specific flashing key.

HEAT PARAMETERS PROGRAMMING



Press **HEAT** together with **SERVICE**:
this message will be displayed.

Press ENTER to go forward, press + or − to modify.

TYPE *Heat operation mode*:
=1 ; 1 stage actioning (1 relay, on/off valve).
=2 ; heat / 0 / cool actioning (2 relays, mixing valve) with **HR24**[*1] slot.
=3 ; heat / 0 / cool actioning (2 relays, mixing valve) with **HPAL**[*2] slot.

dIFA *°C heating differential.*

tonH *Heat on time (in Seconds.decimals)*.

toFH *Heat off maximum time (in Seconds.decimals)*.

InPu *Heat temperature sensor.*
=1 ; heat works on ventilation probe.
=2 ; heat works with indipendent probe (see *Installation diagram*).

CALE *Heat set mode.*
=0 ; programming indipendent from calendar (**HEAT**+**ENTER** keys).
=1 ; programming dipendent from calendar (calculated day by day).

At this point pressing **ENTER** you can return at the beginning of the list's programming (message ***S.E.r.v.*** will be displayed). You can press **SERVICE** at any time to exit and return to the run mode.

***1** Heating floating actioning requests **HR24+HDY5** [N.2] connection.

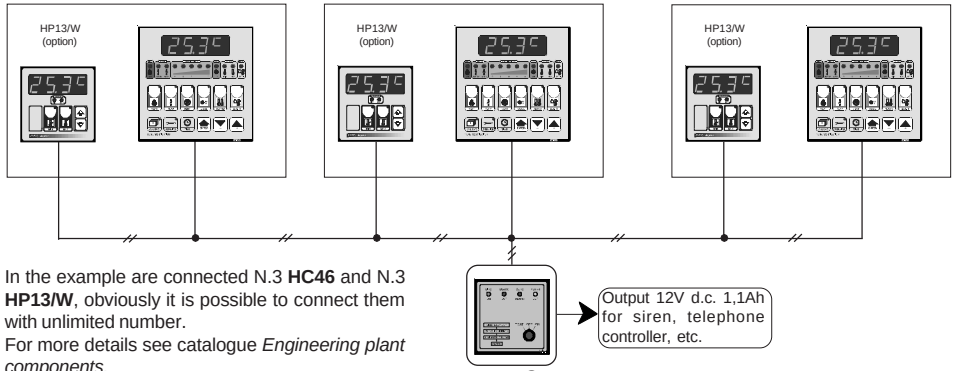
***2** Heating floating actioning requests **HPAL** optional slot.
When **HPAL** is used, it cuts out the connections of all other peripherals (**HR24**, **HAD8**, etc.).
In any case consider that **HPAL** slot outputs are available on **HR24**+**HDY5** [N.2] optional slot.

For more details on actioning mode see Operating diagrams pag.28.

ALARM CONNECTION

IMPORTANT:
in order to avoid that **HC46** malfunction causes damage to animal's health we suggest to install an indipendent minimum-maximum alarm system (example our **HP13/W** model).

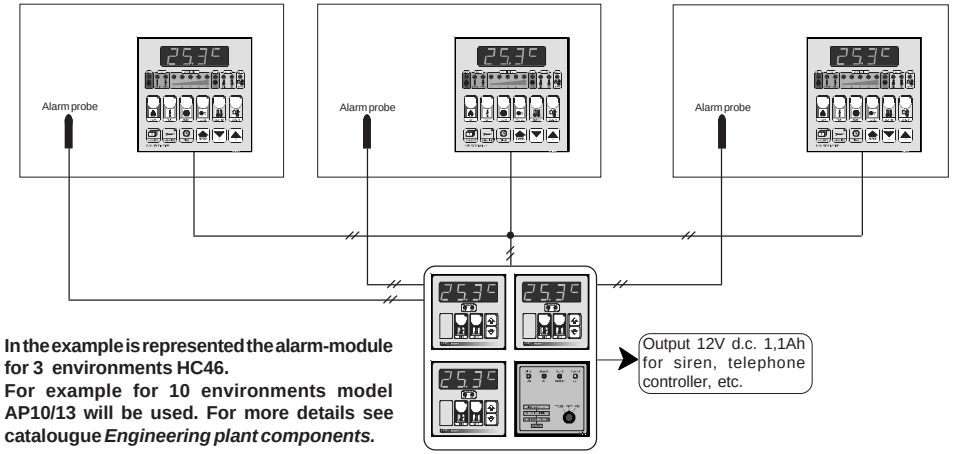
Solution 1: **AP01** alarm receives the signal in parallel of all alarms and it provides to control a 12V d.c. output (with alarm buffer battery 1.1 Ah) to connect siren, telephone dialer, etc. Furthermore when there is a black-out the alarm operates.



In the example are connected N.3 **HC46** and N.3 **HP13/W**, obviously it is possible to connect them with unlimited number.
For more details see catalogue *Engineering plant components.*

AP01 (option)

Solution 2 : **AP03/13** alarm receives the signal in parallel of all alarms of **HC46** and it controls the indipendent alarm of every single zone (through N.3 **HP13**). It provides, moreover, to control of a 12V d.c. output (with alarm buffer battery 1.1 Ah) to connect siren, telephone dialer, etc. Furthermore when there is a black-out the alarm operates.

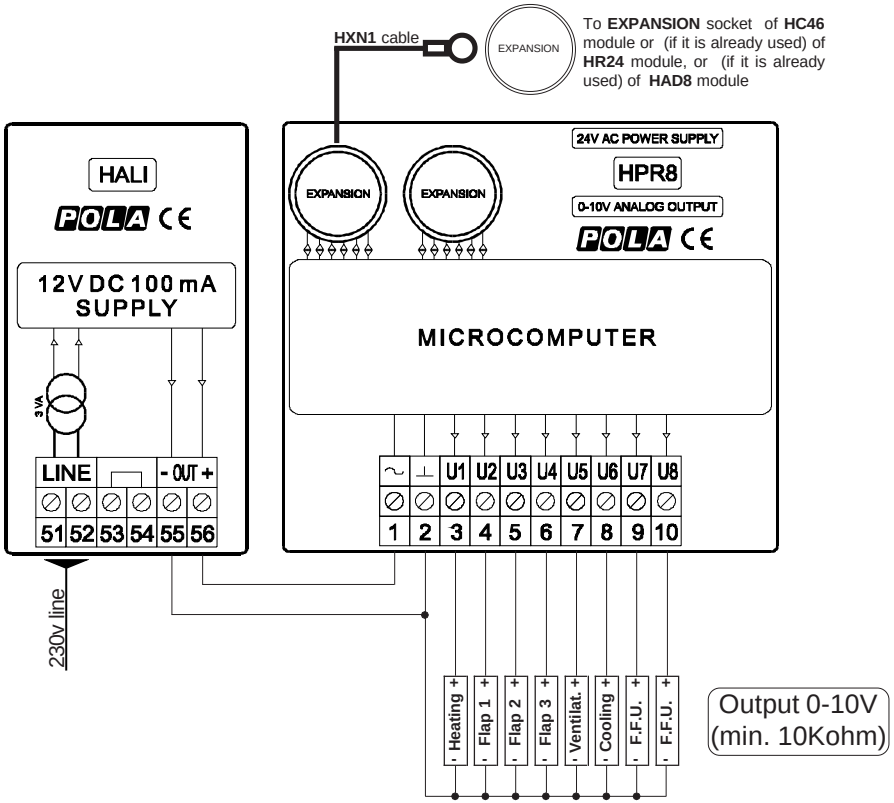


In the example is represented the alarm-module for 3 environments HC46.
For example for 10 environments model AP10/13 will be used. For more details see catalougue *Engineering plant components.*

AP03/13 (option)

HPR8 SLOT CONNECTION

HPR8: 8 Proportional 0-10V outputs.



HPR8 peripheral assignment (0-10V) output	
HPR8 output	**0-10V output**
U1	HEATING
U2	FLAP 1
U3	FLAP 2
U4	FLAP 3
U5	VENTILATION
U6	COOLING
U7	F.F.U.
U8	F.F.U.

HEAT, **VENTILATION** and **COOL** outputs are always present; for the **HEAT** the proportional band is ***d.HEA*** (see page 4), for the **VENTILATION** the proportional band is ***d.VEn*** (see page 12), for the **COOL** the proportional band is ***d.COL*** (see page 14). In the proportional mode with 0-10V output at set output voltage is =0, after set+ proportional band is = 10V

HEAT SETTING

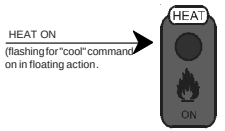
Press **HEAT** and then **ENTER**:
this message will be displayed instead of the *°C Heat temperature value.*
Press **+** or **-** to modify [*1], press **ENTER** to exit.

[*1] If now ***CALE*** message appears it means that a calendar operating mode is inserted so it is not possible to change set because the displayed temperature is daily calculated from calendar setting.

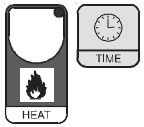
In normal condition (not in programming) press **HEAT** key to display heat temperature probe (can be the same of ventilation or an indipipendent one), or humidity probe (if it is installed).

HEAT ACTIONING INDICATION

The lights situated at the bottom of the display show the state of the Heat.

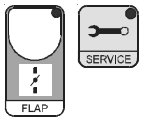


HEAT TIME WORK VIEWING



Press **HEAT** together with **TIME**:
h.HEA message will be displayed instead of the *Total hour heat work*.
In calendar operation mode this counting is zeroed at the beginning of cycle.
In no calendar mode press **ENTER** key for more than 2 seconds to zeroe counting. Press **HEAT** to exit.

FLAPS PARAMETERS SETTING



Press **FLAP** together with **SERVICE**:
this message will be displayed.

Press ENTER to go forward, press + or − to modify.

nFLA *Number of zone to operate:*
=1 ; N° 1 Zone/Flap actioning.
=2 ; N° 2 Zones/Flap actioning *1.
=3 ; N° 3 Zones/Flap actioning *1.

Flap 1 settings

FYP1 *Flap 1 operation mode*:
=1 ; floating actioning *2.
=2 ; proportional actioning *3.
=3 ; associative actioning *4.
=4 ; automatic floating/associative actioning *5.
=5 ; hand floating/associative actioning *6.
=6 ; actioning with pressure meter *7.

AnE1 *Flap 1 position with external anenometer intervention (if it is connected) *8:*
=0 : No action on Flap 1.
=1 : Fully closed Flap 1 with block Anemometer 1 on.
=2 : Fully closed Flap 1 with block Anemometer 2 on.
=3 : Fully open Flap 1 with block Anemometer 1 on.
=4 : Fully open Flap 1 with block Anemometer 2 on

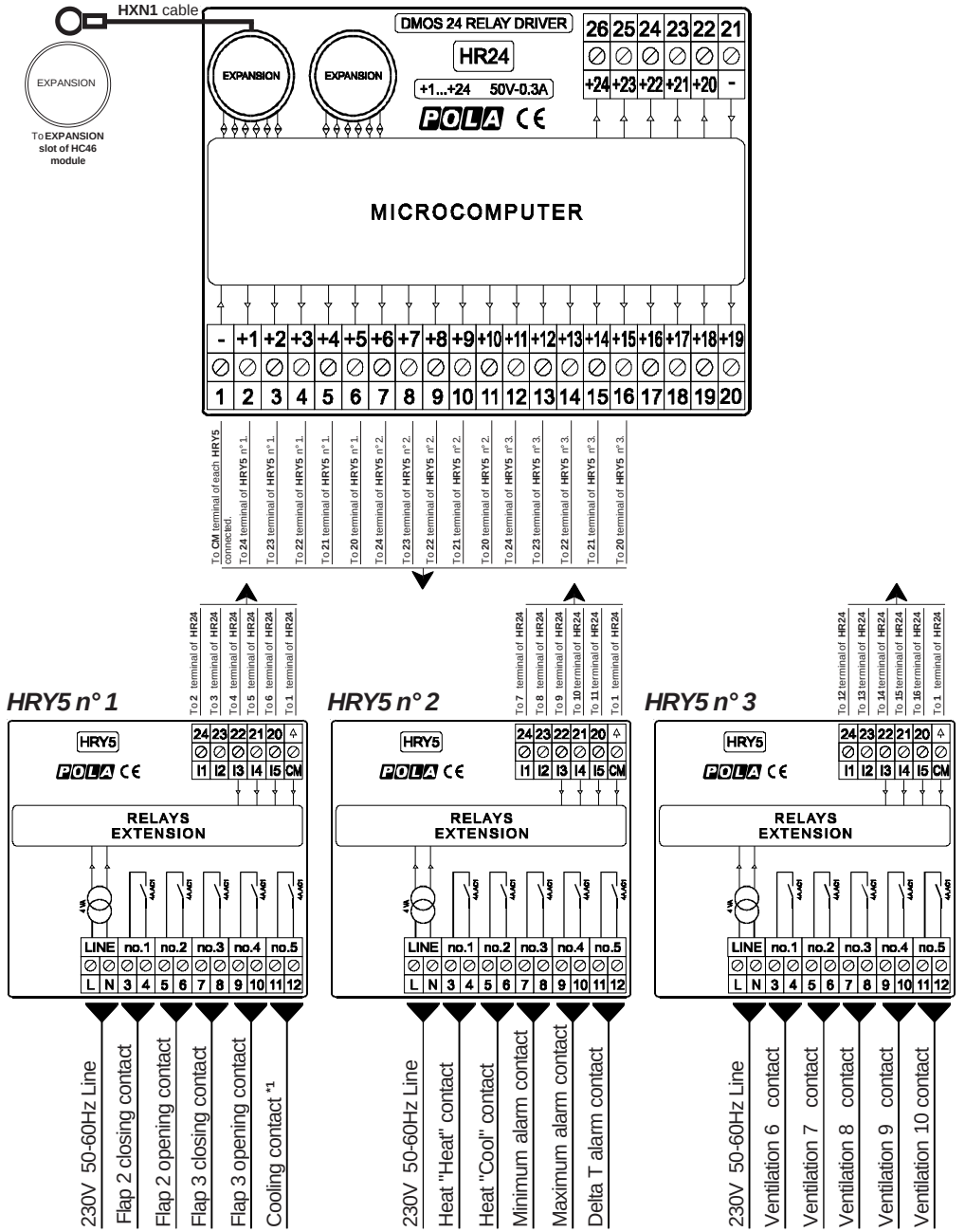
nEb1 (only with ***tYP.1= 1***) *°C Flap 1 neutral band* .
bCL1 (only with ***tYP.1= 1***) *°C Flap 1 close modulation band.*
bOP1 (only with ***tYP.1= 1***) *°C Flap 1 open modulation band.*
Fon1 (only with ***tYP.1= 1***) *Flap 1 on time (in Seconds.decimals)*.
FoF1 (only with ***tYP.1= 1***) *Flap 1 off maximum time (in Seconds.decimals)*.
Pro1 (only with ***tYP.1= 2*** , ***tYP.1= 4*** , ***tYP.1= 5***) *°C Flap 1 proportional band* .
InP1 (only with ***tYP.1= 1*** , ***tYP.1= 2*** , ***tYP.1= 4*** , ***tYP.1= 5***) *Flap 1 temperature sensor.*
=1 ; flap 1 works on ventilation probe.
=3 ; flap 1 works with indipendent probe *9

Flap 2 settings — (only with ***n.FLA= 2*** or ***n.FLA=3***) —

FYP2 *Flap 2 operation mode*:
=1 ; floating actioning *2.
=2 ; proportional actioning *3.
=3 ; associative actioning *4.
=4 ; automatic floating/associative actioning *5.
=5 ; hand floating/associative actioning *6.
=6 ; actioning with pressure meter *7.

HR24 SLOT WIRE DIAGRAM

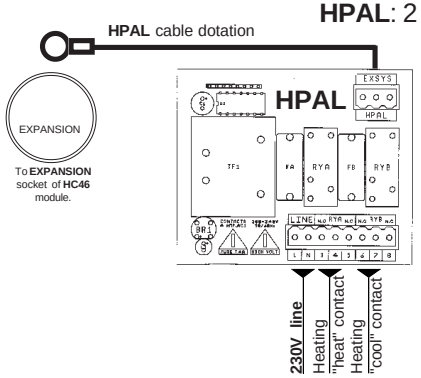
HR24: 24 relays drive extension. **HRY5**: 5 relays output extension.



1** If on **HC46** the cooling contact is used for auxiliary ventilation (see **VENT-SERVICE**,F.AUS*** function) this **HRY5**$^{N.1}$ contact is the real cooling contact.

HPAL SLOT WIRE DIAGRAM

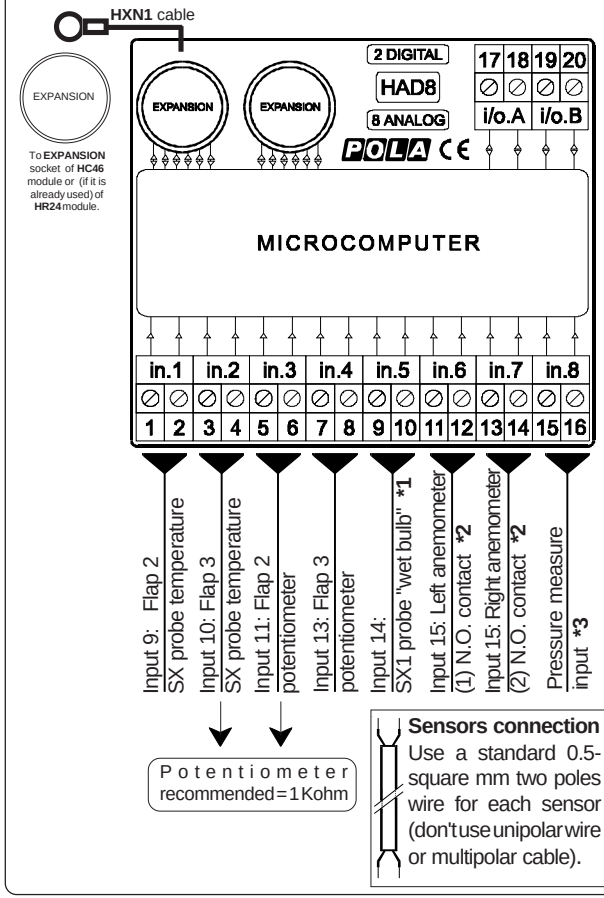
HPAL: 2 relays output extension.



Attention:
HPAL slot connection excludes the use of all other expansion slot (**HAD8**, **HR24**).
Outputs available on **HPAL** slot (floating heating) are available also on **HR24** slot.

HAD8 SLOT DIAGRAM

HAD8: 8 analog input + 2 digital input/output.

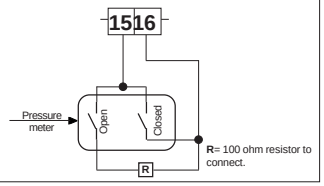


Sensors connection
Use a standard 0.5-square mm two poles wire for each sensor (don't use unipolar wire or multipolar cable).

*1 In the case of working with psychrometer "dry bulb" (see **COOL-SERVICE**, ***i.Hun=2***) is the probe of ventilation, while "wet bulb" probe is the probe connected on **HAD8** slot.

*2 Anemometric function is done with **HP33/W** option (see **FLAP-SERVICE**, ***AnE.x*** function).

*3 In the case of working with pressure measurement (see **FLAP-SERVICE**, ***tYPE=6***) connect it as shown in diagram below (connect a 100 ohm resistor).



AnE.2 *Flap 2 position with external anenometer intervention (if it is connected) *8:*
=0 : No action on Flap 2.
=1 : Fully closed Flap 2 with block Anemometer 1 on.
=2 : Fully closed Flap 2 with block Anemometer 2 on.
=3 : Fully open Flap 2 with block Anemometer 1 on.
=4 : Fully open Flap 2 with block Anemometer 2 on

nEb.2 (only with ***tYP.2= 1***) *°C Flap 2 neutral band* .
bCL.2 (only with ***tYP.2= 1***) *°C Flap 2 close modulation band.*
bOP.2 (only with ***tYP.2= 1***) *°C Flap 2 open modulation band.*
Hon.2 (only with ***tYP.2= 1***) *Flap 2 on time (in Seconds.decimals)*.
HoF.2 (only with ***tYP.2= 1***) *Flap 2 off maximum time (in Seconds.decimals)*.
Pro.2 (only with ***tYP.2= 2*** , ***tYP.2= 4*** , ***tYP.2= 5***) *°C Flap 2 proportional band* .
InP.2 (only with ***tYP.2= 1*** , ***tYP.2= 2*** , ***tYP.2= 4*** , ***tYP.2= 5***) *Flap 2 temperature sensor.*
=1 *;* Flap 1 works on ventilation probe.
=9; Flap 1 works with indipendent probe *9

Flap 3 settings (only with ***n.FLA=3***)

FYP.3 *Flap 3 operation mode*:
=1 ; floating actioning *2.
=2 ; proportional actioning *3.
=3 ; associative actioned *4.
=4 ; automatic floating/associative actioning *5.
=5 ; hand floating/associative actioning *6.
=6 ; actioning with pressure meter *7.

AnE.3 *Flap 3 position with external anenometer intervention (if it is connected) *8:*
=0 : No action on Flap 3.
=1 : Fully closed Flap 3 with block Anemometer 1 on.
=2 : Fully closed Flap 3 with block Anemometer 2 on.
=3 : Fully open Flap 3 with block Anemometer 1 on.
=4 : Fully open Flap 3 with block Anemometer 2 on

nEb.3 (only with ***tYP.3= 1***) *°C Flap 3 neutral band* .
bCL.3 (only with ***tYP.3= 1***) *°C Flap 3 close modulation band.*
bOP.3 (only with ***tYP.3= 1***) *°C Flap 3 open modulation band.*
Hon.3 (only with ***tYP.3= 1***) *Flap 3 on time (in Seconds.decimals)*.
HoF.3 (only with ***tYP.3= 1***) *Flap 3 off maximum time (in Seconds.decimals)*.
Pro.3 (only with ***tYP.3= 2*** , ***tYP.3= 4*** , ***tYP.3= 5***) *°C Flap 3 proportional band* .
InP.3 (only with ***tYP.3= 1*** , ***tYP.3= 2*** , ***tYP.3= 4*** , ***tYP.3= 5***) *Flap 3 temperature sensor.*
=1 *;* Flap 3 works on ventilation probe.
=10; Flap 3 works with indipendent probe *9

CALE *Flaps set mode.*
=0 ; programming indipendent from calendar (**FLAP**+**ENTER** keys).
=1 ; programming dipendent from calendar (calculated day by day).

***1** ;FLAP 2 and FLAP 3 actioning requests **HR24**+**HRY5**$^{N.1}$+**HAD8** optional slot connection.

2** ; ***tYP.x=1 : Flap is actioned on the ground of environmental temperature if floating mode. This type of actioning doesn't request any response potentiometer and it is used as shown in *Floating actioning diagram* on page 29.
If another flap is set in proportional/associative way (see ***5** or ***6**) when the actioning works in associative way the programmed flap for floating actioning is completly closed.

3** ; ***tYP.x=2 : Flap is actioned on the ground of environmental temperature in proportional mode. This type requests response flap potentiometer and it is used as shown in *Feedback proportional actioning diagram* on page 29.
If another flap is set in proportional/associative way (see ***5** or ***6**) when the actioning works in associative way the programmed flap for proportional actioning is completly closed.
With ***typ.x = - 2*** 0-10v output is enable (see page 36).

4** ; ***tYP.x=3 : Flap is actioned in associative mode; at each start of one of ventilator's steps, it corresponds an opening fixed position of flap that can be in **INST** programmed on page 20 in ***P=0***, ***P=1***, ***P=2***, ***P=3***, ***P=4***, ***P=5*** functions.
This type of actioning requests response potentiometer.
With ***typ.x = - 3*** 0-10v output is enable (see page 36).

5** ; ***tYP.x=4 : Flap is actioned in this way: with fans turned off (under set temperature of start ***t.vEn*** ventilation) Flap works in floating way and on the ground of the temperature that the probe takes (see *Floating actioning diagram* on page 29).
When fans start (above set temperature of start ***t.vEn*** ventilation) Flap works in associative mode; at each start of one of ventilator's steps, it corresponds an opening fixed position of flap that can be in **INST** programmed on page 20 in ***P=0***, ***P=1***, ***P=2***, ***P=3***, ***P=4***, ***P=5*** functions.
This type of actioning requests response potentiometer.
When the system works from floating to associative the other possible flap that are set with floating or proportional actioning (see ****2*** in ***tYP.x=1*** and ****3*** in ***tYP.x=2***) are completly closed.
With ***typ.x = - 4*** 0-10v output is enable (see page 36).

6** ; ***tYP.x=5 : Flap is actioned in this way:
with 37-38 contact open (see pag. 33) Flap works in floating mode and on the ground of the temperature that the probe takes *(*see *Floating actioning diagram* on page 29.
with 37-38 contact closed (see pag. 33) Flap works in associative mode; at each start of one of ventilator's steps, it corresponds an opening fixed position of flap that can be in **INST** programmed on page 20 in ***P=0***, ***P=1***, ***P=2***, ***P=3***, ***P=4***, ***P=5*** functions.
This type of actioning requests response potentiometer.
When the system works from floating to associative the other possible flap that are set with floating or proportional actioning (see ****2*** in ***tYP.x=1*** and ****3*** in ***tYP.x=2***) are completly closed.
With ***typ.x = - 5*** 0-10v output is enable (see page 36).

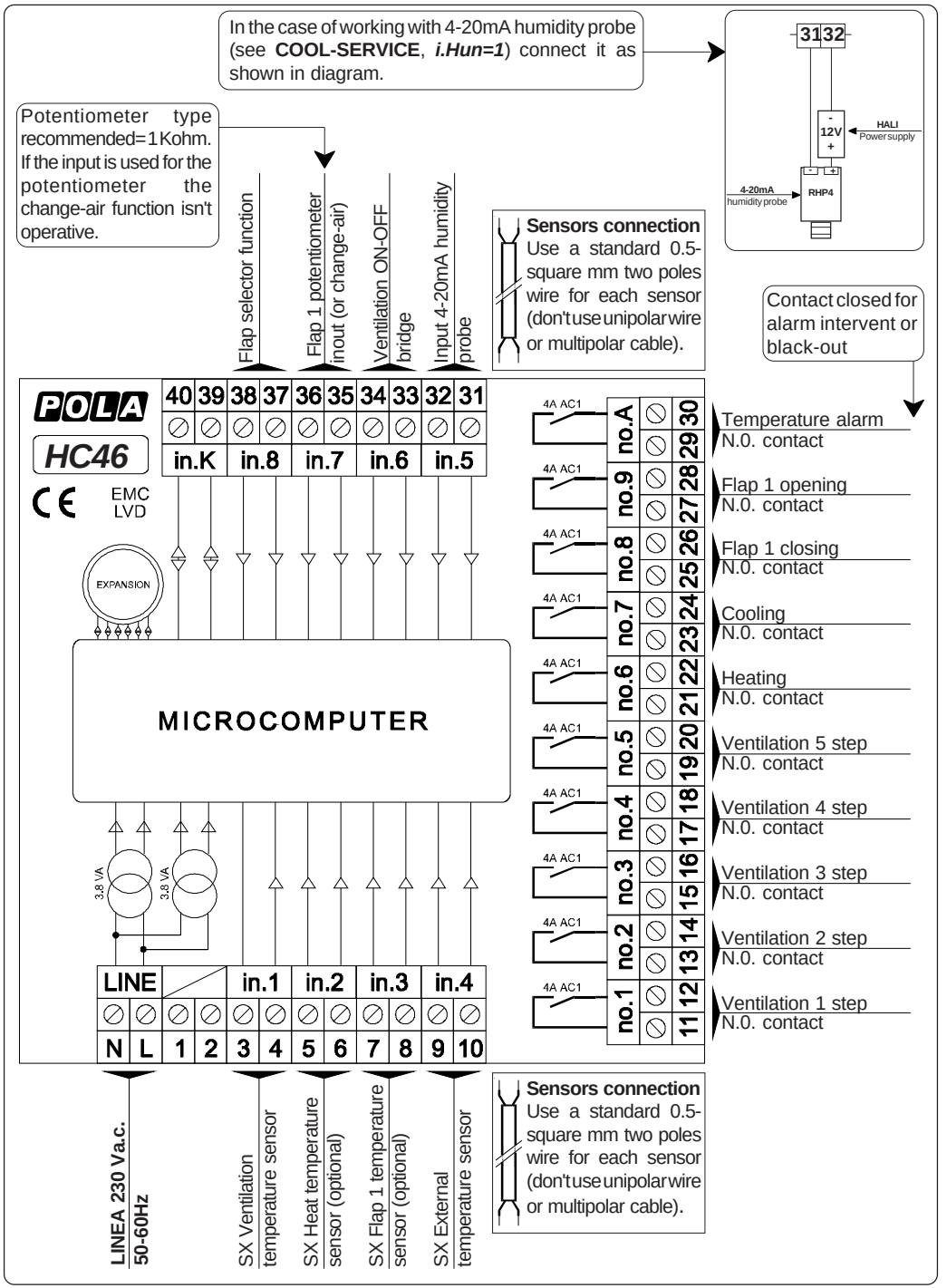
7** ;tYP.x=6*** : Flap is actioned with depression meter instrument (for this connection see *Wiring diagrams* on pag. 34).
To set the different actioning times see **INSt** pag. 20 ***t.oF.d*** and ***t.on.d*** function.
The depression meter instrument connection requests **HAD8** optional slot (see pag. 34).

***8** ; The anemometer connection requests **HAD8** optional slot and **HP33/W** anemometer controller optional module (see pag. 34).

***9** ; When the actioning works with Flap 2 or Flap 3 indipendent probe it is requested to connect **HAD8** optional slot (see pag. 34).

For more details on actioning mode see Operating diagrams pag.29.

WIRING DIAGRAMS



INSTALLATION

HC46 installation.
Place the module in a clean and dry site.
Connect electric wires such as shown in diagram.

How to connect the power line.
Connect power line on **L-N** terminals; protect supply with adequate fuse.

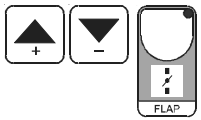
How to connect the auxiliary contacts:
Connect **11-22.....29-30** terminals on the terminals block (contacts up to **4AMP.AC1**) to the loads as shown in the diagram.
Protect contacts with a **4AMP.F** fuses.

How to connect probes and control signals.
Connect the provided sensors as shown in the diagram: for remote connections use a standard 0,5-square millimetre two-pole wire for each sensor, taking great care over the connection, by insulating and sealing carefully the joints.
In case of strong radio-interference insert a ferrite sleeve in the cable near regulator.

How to connect response flap potentiometer.
Connect the provided flap potentiometer as shown in the diagram: for remote connections use a standard 0,5-square millimetre two-poles wire for each potentiometer, taking great care over the connections.
In case of strong radio-interference insert a ferrite sleeve in the cable near regulator.
The program calculates the precision's mistake of flap operation that avoids annoying swings during flap position required (due to flap mechanical hysteresis), value is automatically calculated at each flap moving (at each moving it is calculated the difference between the theoretic opening percentage and the real one; and this correction is set on the next moving).
In this way the system autocorrects itself at each flap moving response potentiometer if this kind of actioning is set, the programme verifies the functionality at each moving; if there are some anomalies the programme indicates the inconvenient (see *Particulary message on display*) and it connects the emergency functioning that consists with the complete opening flap when the temperature zone grows upon the required temperature set, and with the closing flap when the temperature zone falls under the required set.

This kind of actioning permits a good functioning only if the flap's time work between the all open position and that one all closed is at least 30 seconds (in any case even for inferior times the system works in a right way, obviously the imprecision % on the position is superior).

FLAP POTENTIOMETER INITIALIZATION PROCEDURE

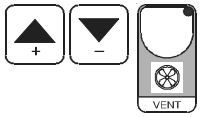


FLAP 1: Only if you have selected in **FLAP-SERVICE** ***tYP.1= 1*** or ***=3*** or ***=4*** *or* ***=5*** function.

Press **+** / **-** / **FLAP** together for at least 1 second:

The program CLOSES the Flap 1 (lamp **CLOSED** flashes) and *the Flap 1 potentiometer resistence value* is displayed.
When the flap has closed, press **ENTER** to record the value:

At this point the program OPENS the Flap 1 (lamp **OPEN** flashes) and *the Flap1 potentiometer resistence value* is displayed.
When the flap has opened, press **ENTER** to record the value:
At this point the program returns automatically to the run mode.

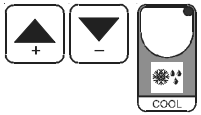


FLAP 2: Only if you have selected in **ZONE 2-SERVICE** ***tYP.2= 2*** or ***=3*** or ***=4*** *or* ***=5*** function.

Press **+** / **-** / **VENT** together for at least 1 second:

The program CLOSES the Flap 2 and
the Flap 2 potentiometer resistence value is displayed.
When the flap has closed, press **ENTER** to record the value:

At this point the program OPENS the Flap 2 and
the Flap 2 potentiometer resistence value is displayed.
When the flap has opened, press **ENTER** to record the value:
At this point the program returns automatically to the run mode.



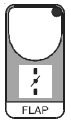
FLAP 3: Only if you have selected in **ZONE 2-SERVICE** ***tYP.3= 2*** or ***=3*** or ***=4*** *or* ***=5***. function.

Press **+** / **-** / **COOL** together for at least 1 second:

The program CLOSES the Flap 3 and
the Flap 3 potentiometer resistence value is displayed.
When the flap has closed, press **ENTER** to record the value:

At this point the program OPENS the Flap 3 and
the Flap 3 potentiometer resistence value is displayed.
When the flap has opened, press **ENTER** to record the value:
At this point the program returns automatically to the run mode.

FLAP SETTING



Press **FLAP** and then **ENTER**:
this message will be displayed instead of the
°C Flap 1 temperature value.
Press **+** or **-** to modify [*1], press **ENTER** to exit.

At this point (only in feedback potentiometer type) this message will be displayed instead of the *Minimum % opening Flap 1.*
Press **+** or **-** to modify , press **ENTER** to confirm.

At this point (only in feedback potentiometer type) this message will be displayed instead of the *Maximum % opening Flap 1.*
Press **+** or **-** to modify , press **ENTER** to exit.

At this point (only in feedback potentiometer type) this message will be displayed instead of the *°C Flap 2 temperature value.*
Press **+** or **-** to modify [*1], press **ENTER** to exit.

At this point (only in feedback potentiometer type) this message will be displayed instead of the *Minimum % opening Flap 2.*
Press **+** or **-** to modify , press **ENTER** to confirm.

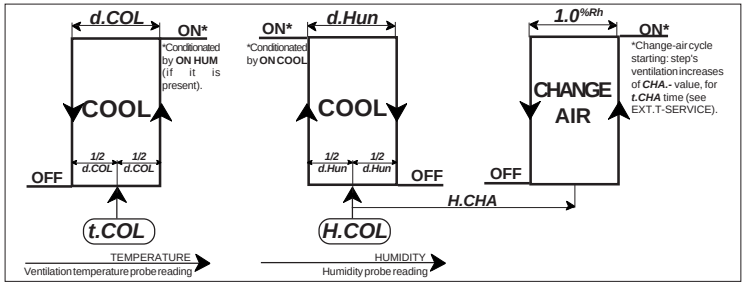
At this point (only in feedback potentiometer type) this message will be displayed instead of the *Maximum % opening Flap 2.*
Press **+** or **-** to modify , press **ENTER** to exit.

At this point (only in feedback potentiometer type) this message will be displayed instead of the *°C Flap 3 temperature value.*
Press **+** or **-** to modify [*1], press **ENTER** to exit.

At this point (only in feedback potentiometer type) this message will be displayed instead of the *Minimum % opening Flap 3.*
Press **+** or **-** to modify , press **ENTER** to confirm.

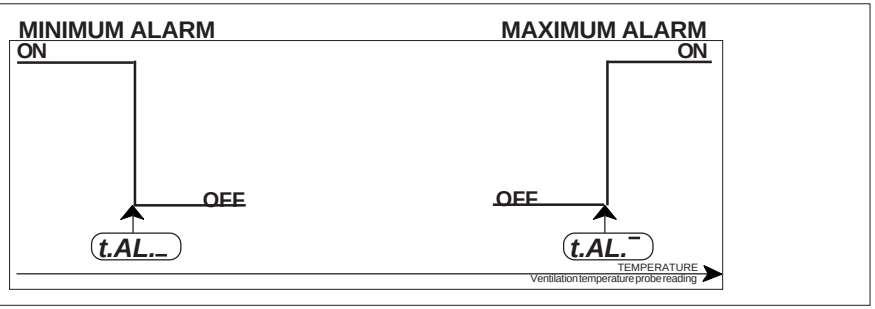
At this point (only in feedback potentiometer type) this message will be displayed instead of the *Maximum % opening Flap 3.*
Press **+** or **-** to modify , press **ENTER** to exit.

COOL OPERATIVE DIAGRAM

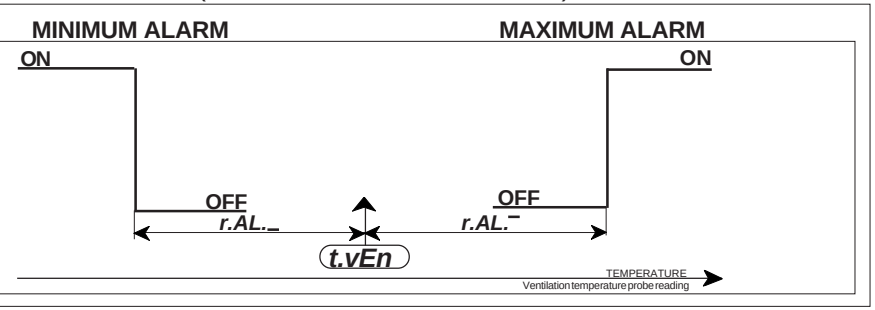


ALARM OPERATIVE DIAGRAM

tYPE=1 Minimum and maximum set in absoloution mode.

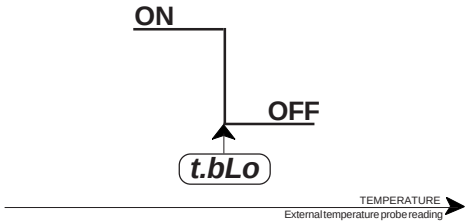


tYPE=2 Relative alarms set (referred to ventilation set ***t.vEn***).



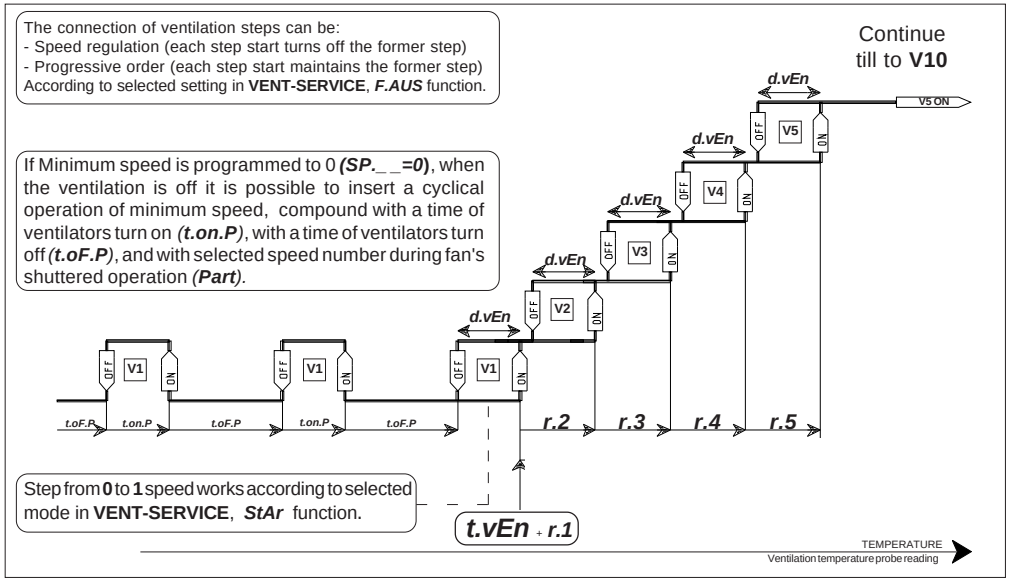
EXT.BLOCK OPERATIVE DIAGRAM

With external block on (lamp **EXT.B** flashing) the program is conditionated in this mode:
with ***tYPE=1*** (see **EXT.T-SERVICE**) the maximum speed ventilation can be conditionated by ***v.BLO*** setting (see **EXT.T-SERVICE**).
with ***tYPE=2*** (see **EXT.T-SERVICE**) the ventilation proportional band (***ProP***) can be increased by ***i.Pro*** setting (see **EXT.T-SERVICE**).



VENTILATION OPERATIVE DIAGRAMS

Main ventilation



*1 If now ***CALE*** message appears it means that a calendar operating mode is inserted so it is not possible to change set because the displayed temperature is daily calculated from calendar setting.

*1 If now ***ASSo*** message appears it means that a pressure measurement operating mode is inserted, so the setting message doesn't appear .

*1 If now ***DEPr*** message appears it means that a depression meter instrument operating mode is inserted, so the setting message doesn't appear .

FLAP TEMPERATURE PROBE VIEWING

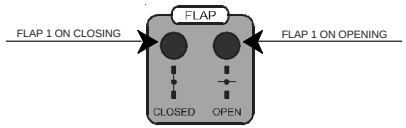
In normal condition (not in programming and with flap actioning referred to temperature) press **FLAP** key to display Flap 1 temperature probe; if Flap 2 actioning is present press now **FLAP** key to display Flap 2 temperature probe value (***FLA.2*** message will be displayed instead of the Flap 2 temperature probe value), if Flap 3 actioning is present press now **FLAP** key to display Flap 3 temperature probe value (***FLA.3*** message will be displayed instead of the Flap 3 temperature probe value)

FLAP POSITION VIEWING

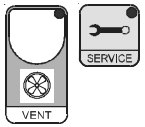
When it is working in flap feedback potentiometer press **FLAP** key for at least two seconds: ***P.FL.1*** message will be displayed instead of the % Flap 1 real position.
After if Flap 2 actioning is present ***P.FL.2*** message will be displayed instead of the % Flap 2 real position.
After if Flap 3 actioning is present ***P.FL.3*** message will be displayed instead of the % Flap 2 real position.

FLAP 1 ACTIONING INDICATION

The lights situated at the bottom of the display show the state of the Flap 1 relay of actioning.



VENTILATION PARAMETERS PROGRAMMING



Press **VENT** together with **SERVICE**:
this message will be displayed.

Press ENTER to go forward, press + or − to modify.

nSPE *Steps of ventilation's number* ***1**.

dUEn *°C Ventilation differentialx* ***2**.

SFAr *Start ventilation action mode* ***3**.
=0 ;0 to 1 step becomes in normal mode
=1 ; 0 to 1 step becomes with a momentary 10 seconds at speed 2.
=2 ; 0 to 1 step becomes with a momentary 5 seconds at speed 3..

rEGu *Number of step fan in speed mode* ***4**.

r1dF *Speed step on delay seconds.*

CALE *Ventilation set mode.*
=0 ; programming indipendent from calendar (**VENT**+**ENTER** keys).
=1 ; programming dipendent from calendar (calculated day by day).

At this point pressing **ENTER** you can return at the beginning of the list's programming (message ***S.E.r.v.*** will be displayed). You can press **SERVICE** at any time to exit and return to the run mode.

***1** Relays for 5 ventilation's steps are inside of **HC46** module: other 5 ventilation's steps can be connected through **HR24**+**HRY5**$^{N.3}$ option slot.

***2** It is the differential on every step of ventilation with working at step.
With ventilation 0-10V working is the Proportional Band.

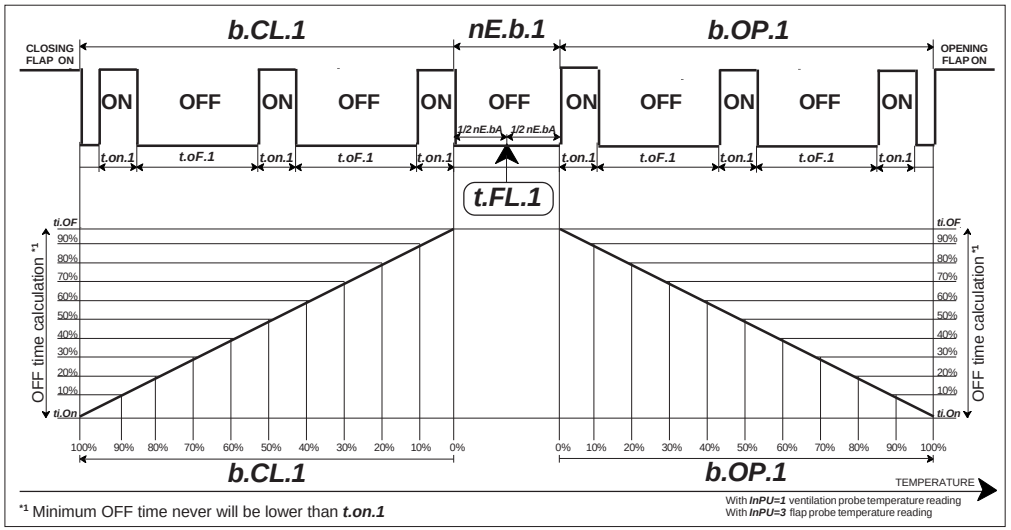
***3** These settings permit to make an easier opening of shutters on ventilators.

***4** If you wish to run the fans with speed adjustment + On/Off (mixed), proceed as follows:
Link terminal 33-34 (see pag. 33).
The ***reg.V*** setting will indicate the speed selected, over that the fans will run in progression (On/Off).
If you wish to run the fans with On/Off (groups), proceed as follows:
Link terminal 33-34 (see pag. 33), and set ***reg.V=0***.

For more details on actioning mode see Operating diagrams pag.30.

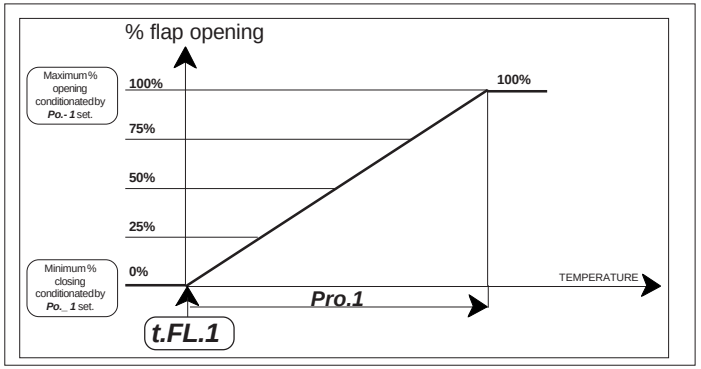
FLAP OPERATIVE DIAGRAMS

tYP.1=1 Floating actioning (example with FLAP 1).



1** Minimum OFF time never will be lower than ***t.on.1

tYP.1=2 feeedback proportional actioning ***2** (example with FLAP 1).



***2** This type of actioning requires the application of a response potentiometer on the flap (**PT** option).
The precision of actioning is conditionated by mechanical gearmotor histeresis: in this way the system autocorrects itself at each flap moving response potentiometer, the programme verifies the functionality at each moving; if there are some anomalies the programme indicates the inconvenient (see Particulary message on display).
To obtain the complete closing and opening flaps, when set 0% is required and 100%, closing and opening relay stays always in "on" condition (this operation is signaled with permanent lightings of its lamps) in order to stop the flap with safety's limit-switch.

tYP.1=3 associative actioning ***2** (example with FLAP 1).

With this mode is possible to associated a Flap position with selected ventilation step (see **INSt**, ***P=0***, ***P=1***, ***P=2***, ***P=3***, ***P=4,*** etc. function).

tYP.1=4 automatic proportional/associative actioning ***2** (example with FLAP 1).

When the ventilation is off the flap works in proportional mode (like in ***tYP.1=2***);
when the ventilation starts the % flap position is set in **INSt** (***P=0***, ***P=1***, ***P=2***, ***P=3***, ***P=4,*** etc function).

tYP.1=5 hand proportional/associative actioning ***2** (example with FLAP 1).

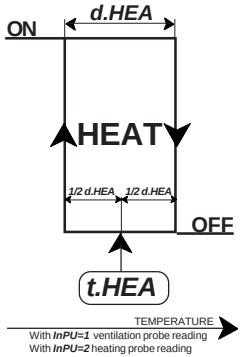
With open 37-38 terminal the flap works in proportional mode (like in ***tYP.1=2***); with closed 37-38 terminal the % flap position is set in **INSt** (***P=0***, ***P=1***, ***P=2***, ***P=3***, ***P=4,*** etc function).

tYP.1=6 actioning with pressure meter.

Flap's actioning is driven by pressure meter (see **INSt**, ***t.of.d*** and ***t.on.d*** function) .

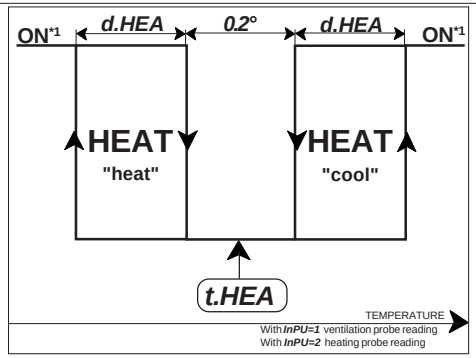
HEAT OPERATIVE DIAGRAMS

tYPE=1 1stage actioning (1 relay, on-off).



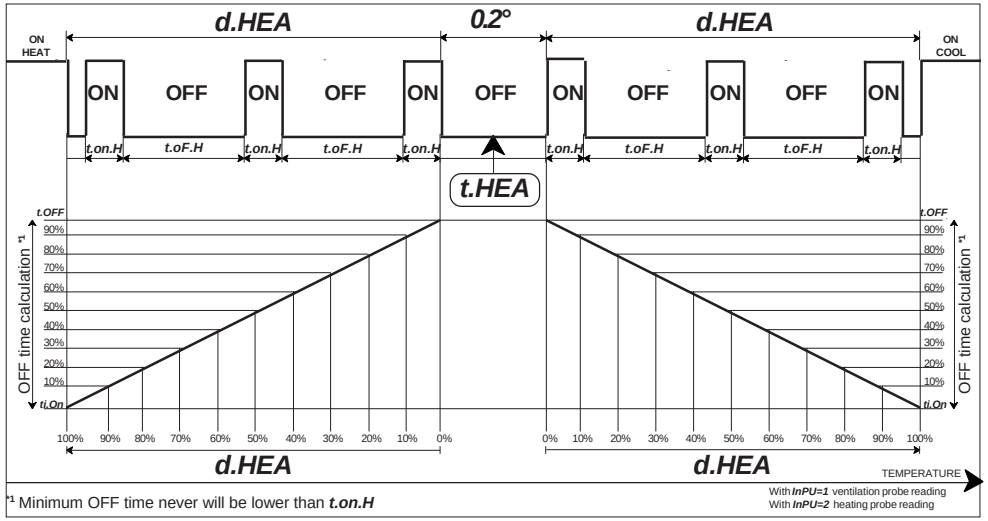
tYPE=2, tYPE= 3 2 stages actioning (2 relay, mixing valve).

Working with:
t.on.H=0.0 or
t.oF.H=0.0



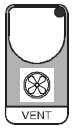
*1 **HEAT "heat"** and **HEAT "cool"** available only with **HPAL** optional slot, or **HR24+HRY5**N.1 optional slot.

Working with: ***t.on.H≠0.0*** e ***t.oF.H≠ 0.0***



*1 Minimum OFF time never will be lower than ***t.on.H***

VENTILATION SETTINGS



Press **VENT** and then **ENTER**:
this message will be displayed instead of the *°C Ventilation temperature value.*
Press **+** or **-** to modify *1, press **ENTER** to confirm.

At this point this message will be displayed instead of the *Minimum step.*
Press **+** or **-** to modify , press **ENTER** to confirm.

If the Minimum step is set to ***=0*** at this point this message will be displayed instead of the *Set shutter running time (minutes with decimals).*
Press **+** or **-** to modify , press **ENTER** to confirm.

At this point this message will be displayed instead of the *Set shutter dwell time (minutes with decimals).*
Press **+** or **-** to modify , press **ENTER** to confirm.

At this point this message will be displayed instead of the *Set shutter step number.*
Press **+** or **-** to modify , press **ENTER** to exit.

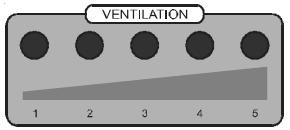
*1 If now ***CALE*** message appears it means that a calendar operating mode is inserted so it is not possible to change set because the displayed temperature is daily calculated from calendar setting.

In normal condition (not in programming) press **VENT** key to display temperature probe.

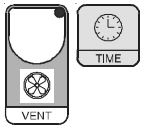
VENTILATION ACTIONING INDICATION

The lights situated at the bottom of the display show the state of the Ventilation.

With the following conditions its ventilation lamp can flash:
- during the waiting time when shutter running time (*Ventilation settings*, ***t.oF.P***),
- during delayed time setting step (see VENT-INST, ***rit.F***),
- during external contact work of air change (see **EXT.B-SERVICE**, ***CHA.-*** and ***t.CHA***)

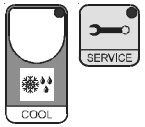


AMBIENT TEMPERATURE OF THE LAST 99 DAYS VIEWING.



Press **VENT** together with **TIME**: ***d=0*** will be displayed (is the day in course)
Press **+** or **-** to modify (example imposing ***d=10*** will be displayed of 10 days ago recordings);
press **TIME**: minimum temperature recording will be displayed.
press **TIME**: time recording will be displayed.
press **TIME**: maximum temperature recording will be displayed.
press **TIME**: time recording will be displayed.
press **TIME** to exit.

COOL PARAMETERS PROGRAMMING



Press **COOL** together with **SERVICE**:
this message will be displayed.

Press ENTER to go forward, press + or − to modify.

FYPE *Cool operation mode*:
=1 ; Cooling actioning conditionated by temperature.
=2 ; Cooling actioning conditionated by temperature and by humidity. *1.

nHun (only with ***tYPE= 2***) *Type of humidity probe.*
=1 ; 4-20mA humidity probe *2.
=2; Psychrometric humidity probe *3.

d.COL *°C Cool temperature differential.*

d.Hun (only with ***tYPE= 2***) *%Rh Cool humidity differential.*

CALE *Cooling set mode.*
=0 ; programming indipendent from calendar (**COOL**+**ENTER** keys).
=1 ; programming dipendent from calendar (calculated day by day).

At this point pressing **ENTER** you can return at the beginning of the list's programming (message ***S.E.r.v.*** will be displayed). You can press **SERVICE** at any time to exit and return to the run mode.

***1** It requests to connect the humidity probe that can be of two types:
***2** 4-20mA electronic probe that can be connected with **HALI+RHP4** option (see pag. 33).
***3** Psychrometric probe (dry bulb - wet bulb) that can be connected with **HAD8** option slot (see pag.34).

For more details on actioning mode see Operating diagrams pag.31.

HPAL SLOT HAND MODE

Only if **HPAL** slot is connected:
Press **+** / **-** / **HEAT** keys together for at least one second: ***hp.1*** message will be displayed (release now keys) .
Press **+** keys until is displayed number required to be hand (see table below).
Press **ENTER** key to activate the output.
Pressing again **+** to increase relay number previous relay is disactivated.
Press **HEAT** key to exit and return to the run mode.

HPAL output	State	Note
hP. 1	HEAT "heat"	
hP. 2	HEAT "cool"	

NOTE

HC46 HAND MODE

In some start-up condition may be useful to work in "hand" mode
Press **+** / **-** / **EXT.T** keys together for at least one second: ***HAnd*** message will be displayed (release now keys).
Press **+** keys until is displayed number required to be hand (see table below).
Press **ENTER** key to activate the output.
Pressing again **+** to increase relay number previous relay is disactivated.
Press **EXT.T** key to exit and return to the run mode.

HC46 output	State	Note
1	Ventilation step 1	
2	Ventilation step 2	
3	Ventilation step 3	
4	Ventilation step 4	
5	Ventilation step 5	
6	Heat	
7	Cooling	
8	Flap 1 closing	
9	Flap 1 opening	
10	Main alarm	

HR24 SLOT HAND MODE

Only if **HR24** slot is connected:
Press **+** / **-** / **ALARM** keys together for at least one second: ***HAnd*** message will be displayed (release now keys).
Press **+** keys until is displayed number required to be hand (see table below).
Press **ENTER** key to activate the output.
Pressing again **+** to increase relay number previous relay is disactivated.
Press **ALARM** key to exit and return to the run mode.

HR24 output	State	Note
hr.1	Flap 2 closing	
hr.2	Flap 2 opening	
hr.3	Flap 3 closing	
hr.4	Flap 3 opening	
hr.5	Cooling	
hr.6	Heat "heat"	
hr.7	Heat "cool"	
hr.8	Minimum alarm	
hr.9	Maximum alarm	
hr.10	Delta T alarm	
hr.11	Ventilation step 6	
hr.12	Ventilation step 7	
hr.13	Ventilation step 8	
hr.14	Ventilation step 9	
hr.15	Ventilation step 10	

COOLING SETTING

Press **COOL** and then **ENTER**:
this message will be displayed instead of the
°C Cooling temperature value.
Press **+** or **-** to modify [*1], press **ENTER** to confirm.

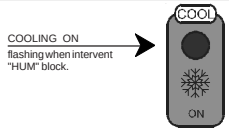
At this point (if humidity probe is installed) this message will be displayed instead of the *% Rh Cooling humidity value.*
Press **+** or **-** to modify , press **ENTER** to confirm.

[*1] If now ***CALE*** message appears it means that a calendar operating mode is inserted so it is not possible to change set because the displayed temperature is daily calculated from calendar setting.

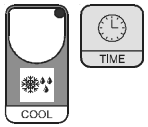
In normal condition (not in programming) press **COOL** key to display cool temperature probe (it is the same of ventilation).
If humidity probe is installed press **COO**L key to display cool humidity probe (in the psychrometer mode pressing COOL key for at least one second ***t.uet*** message will be diaplayed instead of the °C wet bulb temperature probe.

COOL ACTIONING INDICATION

The lights situated at the bottom of the display show the state of the Cooling.

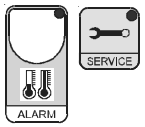


COOL TIME WORK VIEWING



Press **COOL** together with **TIME**:
h.COL message will be displayed instead of the *Total hour cool work*.
In calendar operation mode this counting is zeroed at the beginning of cycle.
In no calendar mode press **ENTER** key for more than 2 seconds to zeroe counting. Press **COOL** to exit.

ALARM PARAMETERS PROGRAMMING



Press **ALARM** together with **SERVICE**:
this message will be displayed.

Press ENTER to go forward, press + or − to modify.

tYPE *Alarm operation mode*:

=*1* ;Minimum and maximum set in absolute mode.
(**ALARM**+**ENTER** keys).

=*2* ;Minimum and maximum set programmables in following ***r.AL._*** and ***r.AL.*** - function (referred to ventilation SET programmed with **VENT**+**ENTER** keys). We suggest to adopt this kind of setting mode if a calendar set mode is used, in order that alarm's sets are day by day set correlated to ventilation's set.

r.AL._ (only with ***tYPE= 2***) *°C minimum temperature alarm relative set,* referred to ventilation SET programmed with **VENT**+**ENTER** keys.
For example, with a ventilation SET (***t.vEn***) = 20.0°C and ***r.AL._*** = -6.0°C minimum alarm will intervene to 14.0°c.

r.AL¯ (only with ***tYPE= 2***) *°C maximum temperature alarm relative set,* referred to ventilation SET programmed with **VENT**+**ENTER** keys.
For example, with a ventilation SET (***t.vEn***) = 20.0°C and ***r.AL.*** = 6.0°C maximum alarm will intervene to 26.0°c.

dtAL *°C increment set maximum alarm temperature value* [*1] (***0.0*** =dt alarm disable) [*1].

tcAL *Maximum alarm sampling minutes increase*[*1] (***0.0*** =dt alarm disable) [*1].

At this point pressing **ENTER** you can return at the beginning of the list's programming (message ***S.E.r.v.*** will be displayed). You can press **SERVICE** at any time to exit and return to the run mode.

***1** The maximum temperature increase alarm controls temperature trends; this makes possible to intervene immediately in case of any failures in the ventilation system, mainly in summer when the maximum temperature values must be kept high.
E.g. with ***dt.AL*=2.0°** and ***tc.AL*= 15'** the alarm will intervene if the ambient temperature increases over 2.0°C in 15minutes.
With setting ***0.0*** this function isn' able.

For more details on actioning mode see Operating diagrams pag.31.

SPECIAL MESSAGGES ON DISPLAY

In normal condition on display appears temperature (or speed) depending on selected key **HEAT, FLAP, VENT, COOL, ALARM, EXT.T** .
Some special conditions can cause following messages:

These messages can be appear pressing one of setting's keys.

CALE When try to change (**+** or **-** **key)** a "calendarized" set.

80.2H Humidity viewing; if it is connected humidity probe.

no.oP When selected function is not working.

rELA When try to change (**+** or **-** key) a "relativized" set.

ASSo When try to change (**+** or **-** key) a Flap that works in "associative" mode.

dEPr When try to change (**+** or **-** key) a flap that works in "pressure meter" mode.

These message appears in automatic mode, and it signalling that there is an anomaly work.

ALAr [*1] When a temperature alarm was intervened.

br.01 [*1] Ventilation probe (input 1) connection is broken.

br.02 [*1] Heat probe (input 2) connection is broken.

br.03 [*1] Flap 1 probe (input 3) connection is broken.

br.04 [*1] External probe (input 4) connection is broken.

br.05 [*1] Humidity probe (input 5) connection is broken

br.09 [*1] Flap 2 probe (input 9) connection is broken.

br.10 [*1] Flap 3 probe (input 10) connection is broken.

br.14 [*1] Wet bulb probe (input 14) connection is broken.

HAd8 When connection of **HAD8** slot is broken.

AnE.1 Anemometer 1block on.

AnE.2 Anemometer 2 block on.

[*1] In this case alarm output relay is on.
[*2] When potentiometer operates, a possible damage can be noted and signaled with this message; during this condition flap works in "emergency" and it opens and closes on the ground of zone set required in floating mode. To remove the message see *Alarm exclusion* pag. 17.
To reset the message, turn off and return on the module.

CALENDAR'S PROGRAMMING EXAMPLE

Suppose to "calendarize" only heating's set (**HEAT+SERVICE** keys, ***CALE= 1*** function), for this calendar cycle:

Heating's start set 30.0°C, after 10 days 25.0°C,
and after other 50 days (total 60 days) it arrives to a definitive 20.0°C set
(it will be possible to set up to 5 periods).

Proceed in this way:
Press **CALE**+**SERVICE** keys; on display will appear ***t.HEA*** and we set by means of **-** or **+** keys ***30.0°*** [C] (desired start value).

After **ENTER** confirm will appear ***dur.1*** message (if other setting where "calendarized" will appear in succession) and so we set ***d=10*** (first period duration).

Continue to set ***t.HEA*** at ***25.0°*** [C] (end of first period equal to begin of second period).

Continue to set ***dur.2*** at ***d=50*** (second period duration).

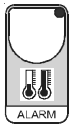
Continue to set ***t.HEA*** at ***20.0°*** [C] (end of second and terminal period).

Terminate calendar program setting ***dur.3*** at ***=0*** and exit by **ENTER** key.

So calendar will operate for 60 days from start decreasing day by day temperature from 30.0° [C] to 20.0° [C] and maintaining after this period 20.0° [C].

To initiate calendar cycle see *Start calendar cycle* on pag. 23

ALARM SETTING



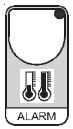
Press **ALARM** and then **ENTER**:
this message will be displayed instead of the
°C Minimum alarm value.
Press **+** or **-** to modify [*1], press **ENTER** to confirm.

At this point this message will be displayed instead of the
°C Maximum alarm value
Press **+** or **-** to modify , press **ENTER** to exit.

[*1] If now ***rELA*** message appears it means that a relative operating mode (see **ALARM SERVICE**, function).

In normal condition (not in programming) press **ALARM** key to display alarm temperature probe (ventilation temperature probe).

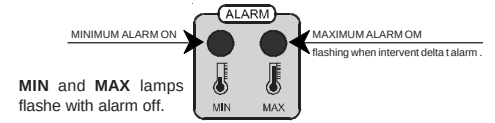
ALARM EXCLUSION



Press **ALARM** key for more than 2 seconds to switch-off alarm:
to confirm exclusion **MIN** and **MAX** lamps flash
Press **ALARM** key for more than 2 seconds to switch-on alarm.

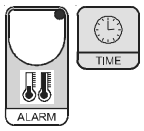
ALARM STATE INTERVENT VIEWING

The lights situated at the bottom of the display show the state of the Alarms.



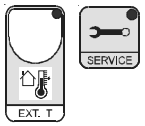
When an alarm intervenes on visor appears flashing this message (it stays also if alarm condition ends). In this way it is possible to remember alarm view intervent and (see next paragraph) alarm conditions.
Flashing display indication can be removed (if cause end) pushing **ALARM** key.

ALARM INTERVENTION VIEWING



Press **ALARM** together with **TIME**:
Alarm hour intervention will be displayed.
Press **TIME**:
Alarm ambient temperature will be displayed.

EXTERNAL BLOCKS PARAMETERS PROGRAMMING



Press **EXT.T** together with **SERVICE**:
this message will be displayed.

Press ENTER to go forward, press + or − to modify.

tYPE *Type of influence on ventilation of external temperature block.*
=0 ; no-working (block disable).
=1 ; under external temperature set (**EXT.T**+**ENTER** key, ***t.bLo*** function) ventilation maximum step limit works (programmed on following ***u.BLo*** function).
=2 ; idem 1.

u.bLo (only with ***tYPE=1***) *Maximum step's ventilation with external temperature block on.*

i.Pro *This function isn't able.*

CHA- *This function isn't able.*

F.CHA *This function isn't able.*

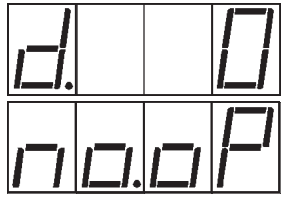
At this point pressing **ENTER** you can return at the beginning of the list's programming (message ***S.E.r.v.*** will be displayed). You can press **SERVICE** at any time to exit and return to the run mode.

*1 To connect humidity probe it is necessary to connect **HAD8** optional slot (see pag. 34).

For more details on actioning mode see Operating diagrams pag.31.

START CALENDAR CYCLE

Press **CALEND** together with **ENTER**:
if calendar is not operating on display will appear ***no.op*** message instead of ***d.o*** message;

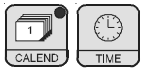


if calendar is operating on display will appear actual calendar's day (***d. x***).
Change it by means of **+** or **-** in order to set ***d. 1*** (calendar start) or negative values (day to calendar start).
For example ***d. -1*** will start calendar tomorrow.
Press **ENTER** to convalidate (on display will appear for 2 seconds ***STAr*** message) or re-press **CALEND** to exit without setting the program.
If operated, from start the calendar will calculate daily all required settings (day's change is at **0:00** A.M.).
Key lamp **CALEND** light indicates calendar inserted function.

CALENDAR MODIFY/EXCLUSION

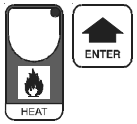
Every time it's possible to change calendar day, such as previous explained.
You can exclude calendar setting ***d. 0*** (***no.op***) and press **ENTER**:
in this way you can set directly function by means of specific keys (example **HEAT+ENTER** keys permit to set heat temperature).
Setting again the day to a valid numeric value calendar returns to operate.

VIEW OF ACTUAL CALENDAR'S DAY



To view actual calendar day without changing it press **CALE** together with **TIME** keys: on display will appear flashing actual calendar day.
Press **CALEND** key to exit.

VIEW OF CALCULATED CALENDAR'S SETS



To view calculated calendar's sets in function of calendar's curve press specific required key (example **HEAT** key for heat temperature set) and then **ENTER**:
on display will appear actual calendar's set.
It you try to change it on display will appear ***CALE*** message to indicate a

CALENDAR CURVES SETTING

By means of these settings is possible to program daily temperature curve for the complete thermal cycle.
Phases programmable are 5. Setting programmable are:

Heat temperature - Flap temperature -Start ventilation temperature-
Ventilation proportional band - Time on fan's shuttered operation - Cooling temperature.

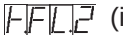
By previous explained settings (**HEAT**+**SERVICE** keys, **FLAP**+**SERVICE** keys, etc.) are selected parameters that will be calendarized.
So during calendar programming operations on display will appear only selected parameters (follows complete list).
Proceed in this way:

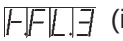
Press **CALEND** together with **SERVICE**:
this message will be displayed.

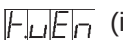
Press  to go forward, press  or  to modify.

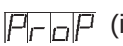
 (if qualified) this message will be displayed instead of the
°C Heat temperature start cycle value.

 (if qualified) this message will be displayed instead of the
°C Flap 1 temperature start cycle value.

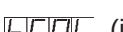
 (if qualified) this message will be displayed instead of the
°C Flap 2 temperature start cycle value.

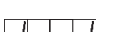
 (if qualified) this message will be displayed instead of the
°C Flap 3 temperature start cycle value.

 (if qualified) this message will be displayed instead of the
°C ventilation start temperature start cycle value.

 (if qualified) this message will be displayed instead of the
°C Ventilation proportional band temperature start cycle value.

 (if qualified) this message will be displayed instead of the
Time on (in minutes) in fan's shuttered operation start cycle value.

 (if qualified) this message will be displayed instead of the
°C Cool temperature start cycle value.

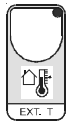
 this message will be displayed instead of the
Duration day first stage of calendar.

After that on display will appear the same settings referred at first cycle arrival settings and so on up to desired phase (up to 5, but it is possible to truncate before setting ***=0*** duration of subsequent phase).

At this point pressing **ENTER** you can return at the beginning of the list's programming (message ***C.A.L.E.*** will be displayed). You can press **SERVICE** at any time to exit and return to the run mode.

For more details on actioning mode see Example calendar setting pag.24.

EXTERNAL BLOCK SETTING



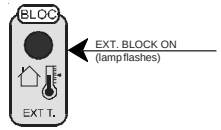
Press **EXT.T** and then **ENTER**:
this message will be displayed instead of the
°C External temperature block value.
Press **+** or **-** to modify, press **ENTER** to exit.

The influence of the external temperature block is determined in **SERVICE EXT.T**.
When the block is in on **EXT.T** lamp flashes.

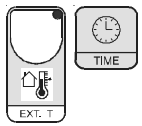
In normal condition (not in programming) press **EXT.T** key to display external temperature probe.

EXTERNAL BLOCK VIEWING

The lights situated at the bottom of the display show the state of the External block.



EXTERNAL TEMPERATURE OF THE LAST 99 DAYS VIEWING



Press **EXT.T** together with **TIME**
: ***d=0*** will be displayed (is the day in course)
Press **+** or **-** to modify (example imposing ***d=10*** will be displayed of 10 days ago recordings);
press **TIME**: minimum temperature recording will be displayed.
press **TIME**: time recording will be displayed.
press **TIME**: maximum temperature recording will be displayed.
press **TIME**: time recording will be displayed.
press **TIME** to exit.

INSt PARAMETERS SETTING

Press **+** , **-** , **SERVICE** together for at least 1 second: this message will be displayed.

Press ENTER to go forward, press + or - to modify.

P.0 (only with ***tYP.x=3***, ***=4***, ***=5*** in **FLAP-SERVICE**) *Flap % position at step 0 ventilation.*

P.1 (only with ***tYP.x=3***, ***=4***, ***=5*** in **FLAP-SERVICE**) *Flap % position at step 1 ventilation.*

It goes on till the number of set step in ***n.SPE*** (see **VENT-SERVICE**).

FoFd (only with ***tip.x=6*** in **FLAP-SERVICE**) *Waiting time seconds of depression meter instrument signal*[*1].

Fond (only with ***tip.x=6*** in **FLAP-SERVICE**) *Flap actioning time seconds with depression meter inst. signal*[*1].

AdUE °*C Ventilation temperature probe correction* [*2].

AdHE (only with ***inPu=2*** in **HEAT-SERVICE**) °*C Heat temperature probe correction* [*2].

AdF1 (only with ***inP.1=3*** , in **FLAP-SERVICE**) °*C Flap 1 temperature probe correction* [*2].

AdF2 (only with ***inP.2=9*** , in **FLAP-SERVICE**) °*C Flap 2 temperature probe correction* [*2].

AdF3 (only with ***inP.3=10*** , in **FLAP-SERVICE**) °*C Flap 3 temperature probe correction* [*2].

AdP5 (only with ***tYPE=2***, ***i.Hun=2*** in **COOL-SERVICE**) °*C "wet bulb" temperature probe correction* [*2].

AdHu (only with ***tYPE=2***, ***i.Hun=1*** in **COOL-SERVICE**) *%Rh 4-20mA humidity probe correction.*

AdE5 °*C External temperature probe correction* [*2].

FEnP *Temperature representation*:
=1 ; °C (0,1° resolution).
=2 ; °F (0,1° resolution).

25.0C Example temperature representation with ***tEnP = 1***
92.0F Example temperature representation with ***tEnP = 2***

EnEr *Type of influence on flaps of temperature alarm*:
=0 ; no-working.
=1 ; Fully open flaps with maximum temperature alarm on.
=2 ; Fully open flaps with delta T and maximum temperature alarm on.

HCHA This function isn' able.

r.1 °C VENT.1 start setting referring to ***t.vEnt*** set.

r.2 °C VENT.2 start setting referring to step start previous.

Continue until to ***r.10***

At this point pressing **ENTER** you can return at the beginning of the list's programming (message ***I.n.S.t.*** will be displayed). You can press **SERVICE** at any time to exit and return to the run mode.

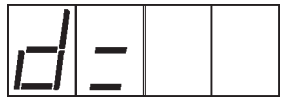
1** On demand of opening or closing of the depression meter instrument that is displayed more than the required time in ***t.Of.d. it follows an actioning of set time required in ***t.On.d*** and so on till the signal of opening and closing of the depression meter instrument is displayed.

***2** You can correct the readings on the various temperature sensor (**+** or **-**).
Attention: temperature probe is specified with a precision of 0.2°C (typically is better than 0.1°C) so to adjust them is required almost a certified thermometer with a precision of 0.05°C.

TIME (CLOCK SETTING)

Press **TIME** together with **ENTER**:
this message will be displayed instead of the *Set the current Hour and minutes.*
Press **+** or **-** to modify, press **ENTER** to exit.

At this point this message will be displayed instead of the *Set the current Day.*
Press **+** or **-** to modify , press **ENTER** to confirm.



At this point this message will be displayed instead of the *Set the current Month.*
Press **+** or **-** to modify , press **ENTER** to confirm.

At this point this message will be displayed instead of the *Set the current Year.*
Press **+** or **-** to modify , press **ENTER** to exit.

Hour, day, month and year right setting is important for various data recording (alarm events, temperature values store, etc.) and for calendar's day change (0:00 A.M.).

Watch clock is maintained for more than 10 years also if power is off.

STATE INDICATION LAMPS

The lights situated at the bottom of the display show the state of the various relay of actioning.

Led	State	N ° Relay	Contact
HEAT	Heat On	6	21-22
FLAP **CLOSED**	Flap 1 closing On	8	25-26
FLAP **OPEN**	Flap 1 opening On	9	27-28
VENTILATION **1** [*1]	Ventilation step 1 On	1	11-12
VENTILATION **2** [*1]	Ventilation step 2 On	2	13-14
VENTILATION **3** [*1]	Ventilation step 3 On	3	15-16
VENTILATION **4** [*1]	Ventilation step 4 On	4	17-18
VENTILATION **5** [*1]	Ventilation step 5 On	5	19-20
COOL [*2]	Cool On	7	23-24
ALARM **MIN** [*3]	Minimum alarm on	10	29-30
ALARM **MAX** [*3] [*4]	Maximum alarm on	10	29-30
BLOCK **EXT.T** [*5]	External temperature block on		

[*1] Flashing during winter fan's shuttered operation (flashing step selected ventilation) and during delay ventilation time (***rit.F***).
[*2] Flashing when it intervenes maximum humidity (only if humidity probe is connected).
[*3] Flashing when alarm is disabled.
[*4] Flashing when it intervenes dt alarm.
[*5] Flashing when it intervenes external temperature block.