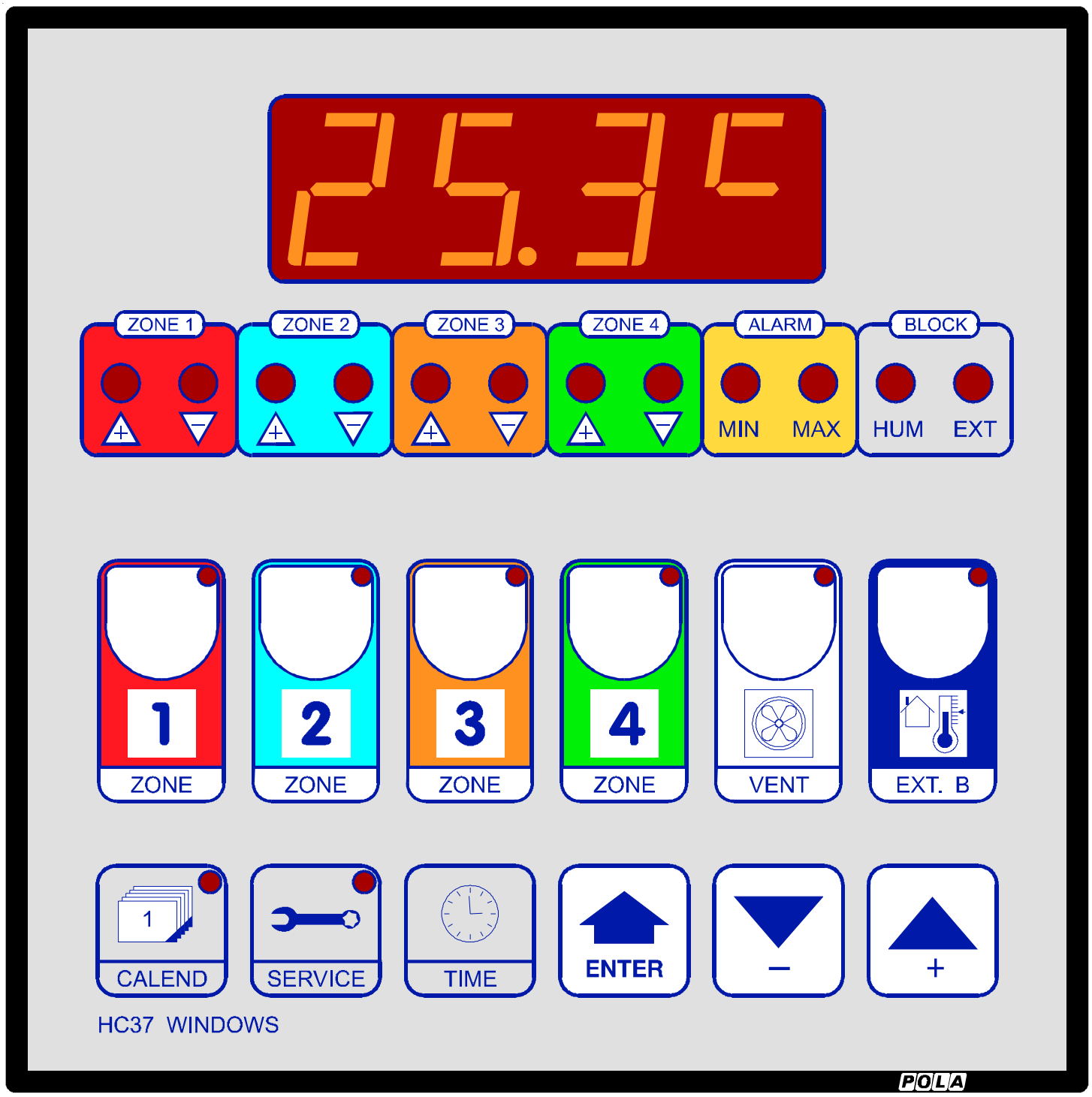

25.3C
ZONE 1
ZONE 2
ZONE 3
ZONE 4
ALARM
BLOCK
MIN
MAX
HUM
EXT
1
ZONE
2
ZONE
3
ZONE
4
ZONE
VENT
EXT. B
1
CALEND
SERVICE
TIME
ENTER
–
+
HC37 WINDOWS
POLA

TABLE OF CONTENTS

INTRODUCTION TO USER PROGRAMMING

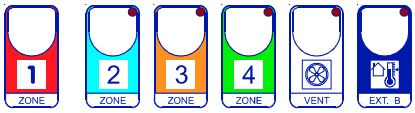
The symbol placed at top of every paragraph indicates:

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

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

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

The setting mode is the same for the various programs you want to run:

Select function desired pushing appropriate ideogram key 

after push 

for start-up settings or 

for common settings.

At this point the message related to the parameter to be set will appear on display in alternance with the parameter value: use 

to increase, or 

to decrease the value to be set, when required value has been reached, push 

for entering data.

In the case of sequential settings at this point the next parameter message will appear; act as already explained.

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

To escape from operation setting push the specific flashing key.

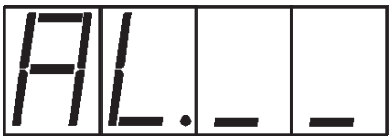
ZONE 1 SETTING

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

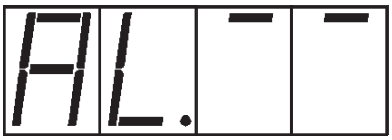
At this point (only in feedback potentiometer type) this message will be displayed instead of the *Minimum % opening.*
Press **+** or **-** to modify , press **ENTER** to confirm.

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

At this point (if the alarm is operating) this message will be displayed instead of the *°C Minimum alarm temperature value.*
Press **+** or **-** to modify , press **ENTER** to confirm.



At this point (if the alarm is operating) this message will be displayed instead of the *°C Maximum alarm temperature 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 the set's temperature because the displayed temperature is daily calculated from calendar setting.

In normal condition (not in programming) press **ZONE 1** key to display Zone 1 temperature probe; if humidity probe is connected press now **ZONE 1** key to display Zone 1 humidity probe value.
In feed-back potentiometer working press **ZONE 1** for at least two seconds to display % Zone 1 flap real position.

ZONE 2 SETTING

Operate like in ZONE 1setting, but press **ZONE 2** key.

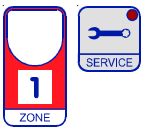
ZONE 3 SETTING

Operate like in ZONE 1setting, but press **ZONE 3** key.

ZONE 4 SETTING

Operate like in ZONE 1setting, but press **ZONE 4** key.

ZONE 1 PARAMETERS PROGRAMMING



Press together **ZONE 1** and **SERVICE**:

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

TYPE *Zone 1 type working*:
=0 : no-working (zone disabled).
=1 : proportional floating actioning (without flap response potentiometer).
=2 : feedback proportional actioning, with connection of flap response potentiometer. (see **INSt** par. function ***PotE***).

nE.bA (only with ***tYPE= 1***) *°C zone 1 neutral band* .

b.CLO (only with ***tYPE= 1***) *°C zone 1 close modulation band.*

b.OPE (only with ***tYPE= 1***) *°C flap open modulation band.*

t.On (only with ***tYPE= 1***) *Zone 1 on time (in Seconds.decimals)*.

t.OF (only with ***tYPE= 1***) *Zone off maximum time (in Seconds.decimals)*.

b.Pro (solo con ***tYPE=2***) *°C zone 1 proportional band* .

ALAr *Zone 1 minimum and maximum temperature alarm*:
=0 : no-working.
=1: working (**ZONE1**+**ENTER** keys to programme)

CALE (only with ***tYPE= 1***) *Zone 1 set mode.*
=0 ; programming indipendent from calendar (**ZONE 1**+**ENTER** keys).
=1 ; programming dipendent from calendar (calculated day by day)

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

ZONE 2 PARAMETERS PROGRAMMING

Press **ZONE 2** together with **SERVICE** and work like on ZONE 1.

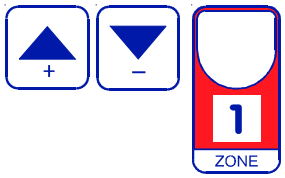
ZONE 3 PARAMETERS PROGRAMMING

Press **ZONE 3** together with **SERVICE** and work like on ZONE 1.

ZONE 4 PARAMETERS PROGRAMMING

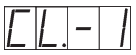
Press **ZONE 4** together with **SERVICE** and work like on ZONE 1.

FLAP POTENTIOMETER INITIALIZATION PROCEDURE



ZONE 1: Only if you have selected in **ZONE 1-SERVICE *tYPE= 2*** function.

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



Value on delivery: **=0**

The program CLOSES the Zone 1flap (lamp + flashes) and *the Flap 1 potentiometer resistence value* is displayed.

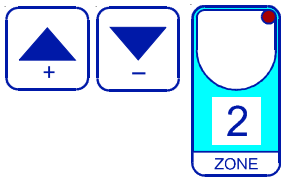
When the flap has closed, press **ENTER** to record the value:

Value on delivery: **=1000**

At this point the program OPENS the Zone 1flap (lamp **-** 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.



ZONE 2: Only if you have selected in **ZONE 2-SERVICE *tYPE= 2*** function.

Press **+** / **-** / **ZONE 2** together for at least 1 second:

Value on delivery: **=0**

The program CLOSES the Zone 2 flap (lamp + flashes) and *the Flap 2 potentiometer resistence value* is displayed.

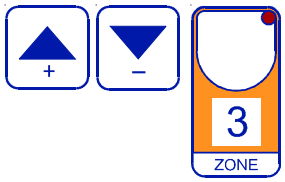
When the flap has closed, press **ENTER** to record the value:

Value on delivery: **=1000**

At this point the program OPENS the Zone 2 flap (lamp **-** flashes) and *the Flap2 potentiometer resistence value* is displayed.

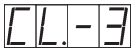
When the flap has opened, press **ENTER** to record the value:

At this point the program returns automatically to the run mode.



ZONE 3: Only if you have selected in **ZONE 3-SERVICE *tYPE= 2*** function.

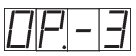
Press **+** / **-** / **ZONE 3** together for at least 1 second:



Value on delivery: **=0**

The program CLOSES the Zone 3 flap (lamp + flashes) and *the Flap 3 potentiometer resistence value* is displayed.

When the flap has closed, press **ENTER** to record the value:

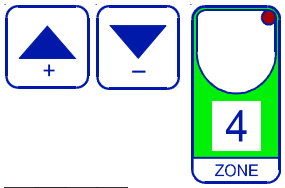


Value on delivery: **=1000**

At this point the program OPENS the Zone 3 flap (lamp **-** flashes) and *the Flap3 potentiometer resistence value* is displayed.

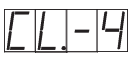
When the flap has opened, press **ENTER** to record the value:

At this point the program returns automatically to the run mode.



ZONE 4: Only if you have selected in **ZONE 4-SERVICE *tYPE= 2*** function.

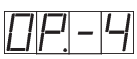
Press **+** / **-** / **ZONE 4** together for at least 1 second:



Value on delivery: **=0**

The program CLOSES the Zone 4 flap (lamp + flashes) and *the Flap 4 potentiometer resistence value* is displayed.

When the flap has closed, press **ENTER** to record the value:



Value on delivery: **=1000**

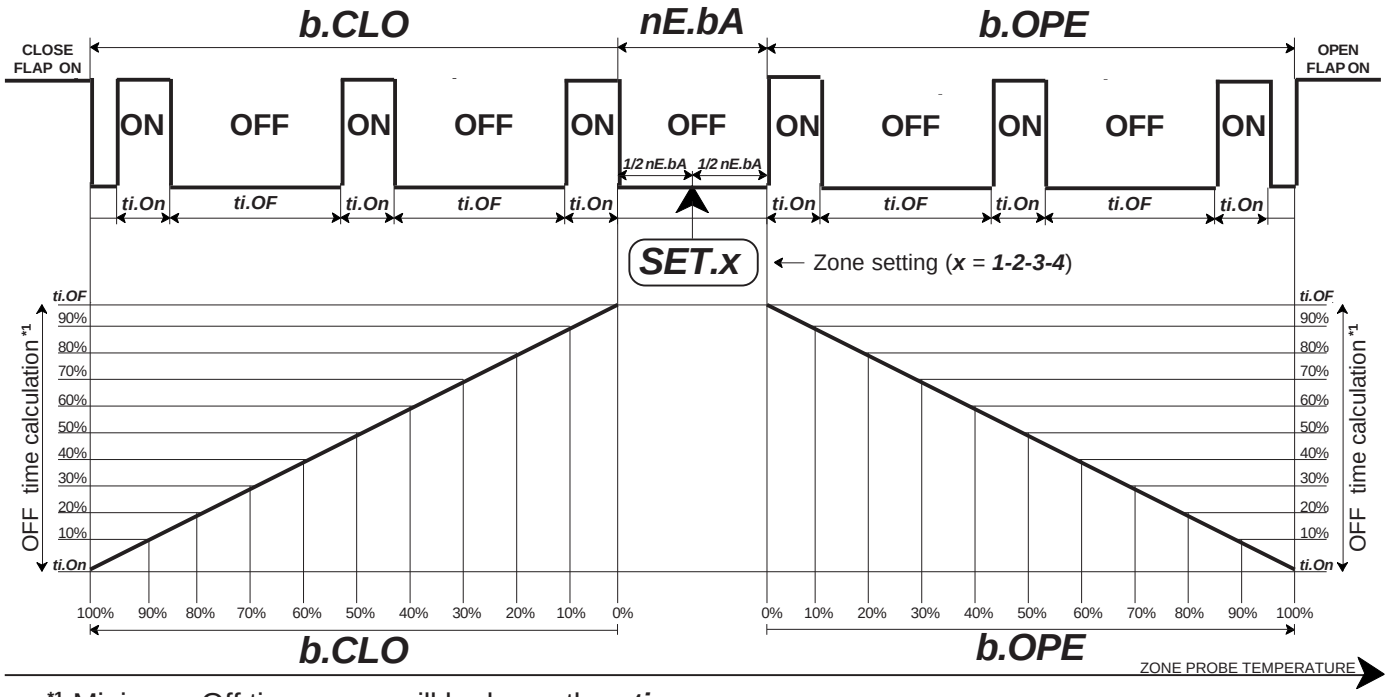
At this point the program OPENS the Zone 4 flap (lamp **-** flashes) and *the Flap4 potentiometer resistence value* is displayed.

When the flap has opened, press **ENTER** to record the value:

At this point the program returns automatically to the run mode.

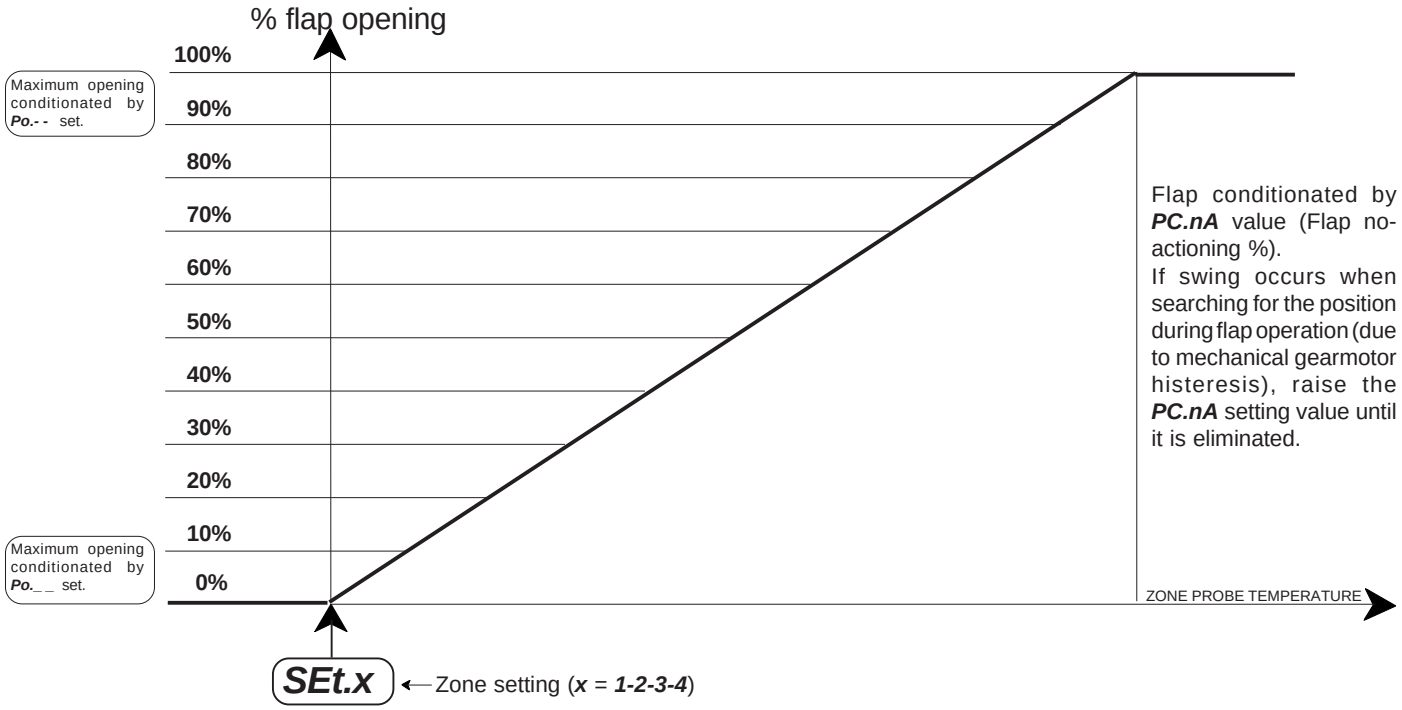
FLAP OPERATIVE DIAGRAMS

tYPE=1 proportional floating actioning.



*1 Minimum Off time never will be lower than ***ti.on***

tYPE=2 Feedback proportional actioning (with flap potentiometer response).



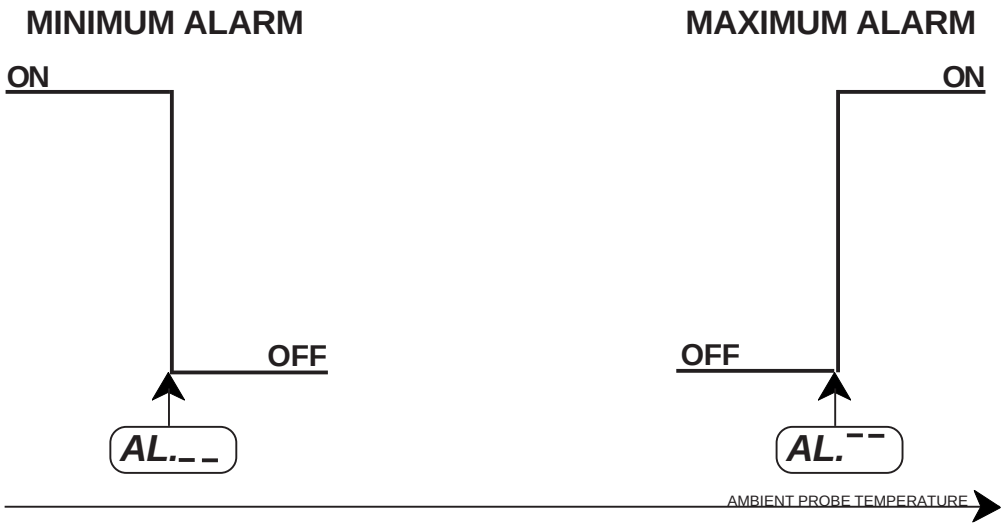
With ***Perc*** different from ***0*** to temperature set reaching (***SEt.x***) the flap is positionated on % value set in ***PErc***.
Flap closing is limited by setting of percentage of minimum opening ***Po.***_ _ .
Flap opening is limited by setting of percentage of maximum opening ***Po.- -*** and ***Po.- E***.
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.

tYPE=2 *and* ***Pote= 2*** Feedback proportional actioning with automatic correction of mistake

The actuation of the flap is similar to that with ***Pote=1***, but while in that case the operation of the flap was conditioned by ***PC.nA*** setting (minimum % of operation, which has the purpose to avoid annoying oscillations during the search of the flap position, due to mechanical hysteresis).
With ***Pote=2*** this value is calculated automatically at each movement of the flap (every each flap movement the difference between the percentage of theoretical opening and the real one is calculated, and this correction is applied on the next shift).
In this way, the system is self-correcting at every movement of the flap.
If you set this type of operation the program also checks at every movement the functionality of the potentiometer response.
if there are some anomalies the program reports the fact (see special messages on the display) and inserts emergency operation, which consists in the complete opening of the flaps when the zone temperature rises above the set temperature and in closure of the flaps when the zone temperature falls below the set one.

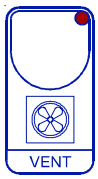
To ensure a satisfactory operation, the run time of the flap between the position completely open and the one completely closed is advisable to be at least 30 seconds. (anyway even for shoterter pediod of time the works the same way. Accuracy in % is obviously lower).

TEMPERATURE ALARM OPERATIVE DIAGRAM



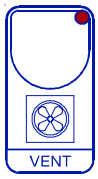
VENT SETTING

HEATING SETTING



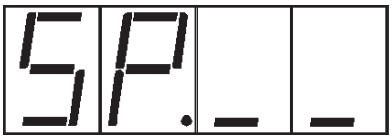
Press **VENT** and then **ENTER**:
this message will be displayed (if Heating function is able) instead of the *°C Heating temperature value.*
Press **+** or **-** to modify [*1], press **ENTER** to confirm.

VENTILATION SETTING

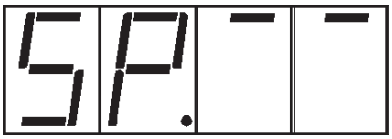


[*2] : at this point this message will be displayed (if Ventilation function is able) instead of the *°C Ventilation temperature value.*
Press **+** or **-** to modify [*1], press **ENTER** to confirm.

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



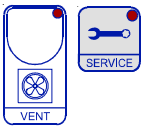
At this point this message will be displayed instead of the *Maximum speed %.*
Press **+** or **-** to modify, press **ENTER** to exit.



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

In normal condition (not in programming) press **VENT** key to display ventilation temperature probe. Press **VENT** key for at least two seconds to display % ventilation insert.

VENTILATION PARAMETERS PROGRAMMING



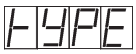
Press together **VENT** and **SERVICE**:

Press 

to go forward, press 

or 

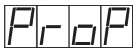
to modify.



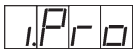
Heating and Ventilation type working :
=0 : No-working (Heating and Ventilation disable).
=1 : Heating able [*1].
=2 : Ventilation able.
=3 : Heating [*1] + Ventilation able.

(only with ***tYPE=1*** and ***tYPE=3***)
°C Heating differential .

(only with ***tYPE=1*** and ***tYPE=3***)
Heating working probe (Probe 1, Probe 2 , Probe 3).



(only with ***tYPE=2*** and ***tYPE=3***)
°C Ventilation proportional band .



(onli with ***tYPE=2*** and ***tYPE=3***),
(only with ***tYPE=1*** in **EXT.BLOCK-SERVICE**)
*°C ventilation proportional band increase (**ProP**):*
for every °C of lowering of external temperature (referred to external block SET programmed with **EXT.B**+**ENTER** keys).
Maximum increase of proportional band is double of ***ProP*** setting.

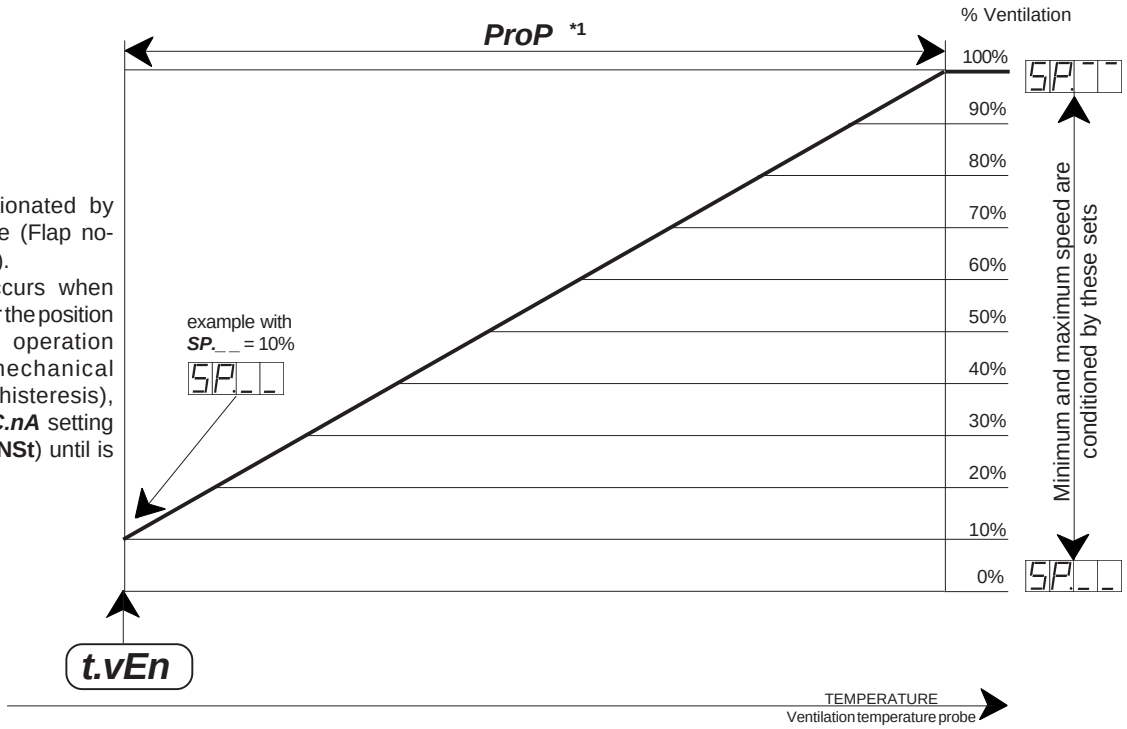
Heating / Ventilation set mode.
=0 ; Heating / Ventilation programming indipendent from calendar.
=1 ; Heating programming dipendent from calendar (calculated day by day).
=2 ; Ventilation programming dipendent from calendar (calculated day by day).
=3 ; Heating / Ventilation programming dipendent from calendar (calculated day by day).

At this point pressing **ENTER** you can return at the beginning of the programming list (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 command activation exclude ***rit.C*** function (see **EXTERNAL BLOCKS PARAMETER PROGRAMMING**).

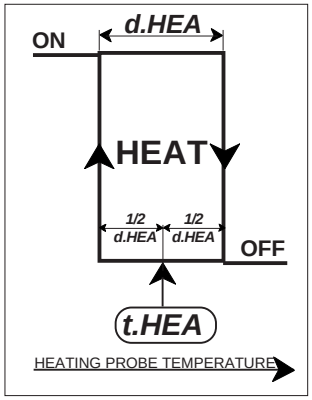
VENTILATION OPERATIVE DIAGRAM

Flap conditionated by ***PC.nA*** value (Flap no-actioning %).
If swing occurs when searching for the position during flap operation (due to mechanical gearmotor histeresis), raise the ***PC.nA*** setting value (see **INSt**) until is eliminated.



*1 In the case of proportional band (***ProP***) conditioned by external temperature (see **EXT.T**+**SERVICE** , ***i.Pro*** function), ***ProP*** value is so computed: for each °C of decreasing of external temperature, starting from set ***t.ESt*** value (programmed with **EXT.T** + **ENTER** keys) ventilation's proportional band increase of a quantity ***i.Pro*** (up to a maximum value equal to ***ProP***).

HEATING OPERATIVE DIAGRAM



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 confirm.

At this point (only in feedback potentiometer mode) this message will be displayed instead of the *Maximum % opening flap with external block on.*
Press **+** or **-** to modify , press **ENTER** to confirm.

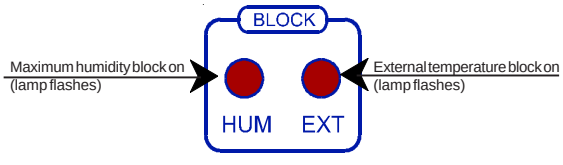
At this point (if installated humidity probe) this message will be displayed instead of the *% Rh humidity value* [*1].
Press **+** or **-** to modify , press **ENTER** to exit.

[*1] Above this humidity's value, the humidity's block operates (flashing **HUM** lamp) that produces a change of temperature's set of flaps, or a change of the opening % (when potentiometer oparates).
These values can be in **EXT.B** programmed, function ***d.tEn*** or ***d.PEr***.
The humidy's value can be single for each zone (4 values) or only one for all 4 zones (single value), on the ground of required programme in **EXT.B-SERVICE**, function ***I.Hun***

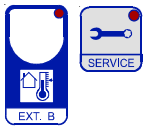
In normal condition (not in programming) press **EXT.B** key to display external temperature probe.

EXTERNAL BLOCK VIEWING

The light situated at the bottom of display shows the state of the Max humidity block and Minimum external temperature block.



EXTERNAL BLOCKS PARAMETERS PROGRAMMING



Press together **EXT.B** and **SERVICE**:

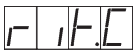
Press 

to go forward, press 

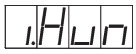
or 

to modify.

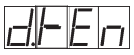
Type of influence on flap of external temperature block.
=0 ; no-working (block disable).
=1 ; under setting of external temperature (**EXT.B**+**ENTER** keys) it is possible to operate with maximum opening banking, and humidity block is able (see ***d.tEn***, ***d.PEr*** function).



(only with ***tYPE=1*** in relative **ZONE-SERVICE** set).
On time (in seconds) closing flap with EXT BLOCK on
(These are the seconds that pass between all open flap and the reaching of intermediate limit-switch, when working without flap response's potentiometer).



Type of humidity reading.
=0 ; no-working (humidity reading disable).
=1 ; One 4-20mA humidity probe for all 4 zones (**in-2** input on **HAD8** slot)[*1].
=2 ; Four 4-20mA humidity probes (one for every zone) [*1].
=3 ; One psychrometric humidity probe for all 4 zones (**in-2** input **HAD8** slot)[*1].
=4 ; Four psychrometric humidity probes (one for every zone) [*1].



(only with ***tYPE=1*** in **EXT.B-SERVICE** and with ***tYPE=1*** in the relative **ZONE 1/4-SERVICE** functions).
°C variation (+ o -) zones set to maximum humidity block on.

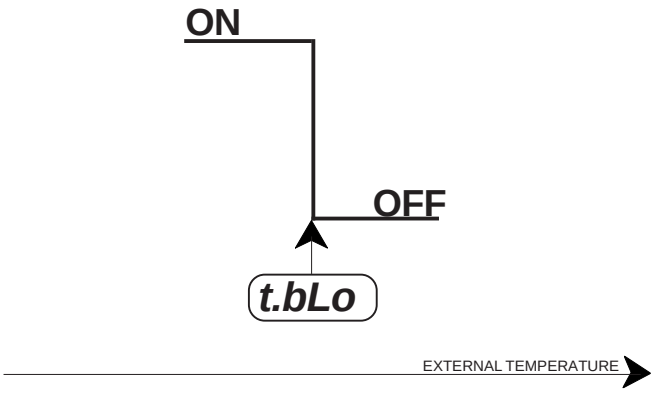
(only with ***tYPE=1*** in **EXT.B-SERVICE** and with ***tYPE=2*** in the relative **ZONE1/4-SERVICE** functions).
°% variation (+ o -) opening flap to maximum humidity block.

At this point pressing **ENTER** you can return at the beginning of the programming list (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.

EXT.BLOCK OPERATIVE DIAGRAM

With external temperature block on (**EXT.B** lamp flashing) the program is conditioned in this mode:
in "without flap response potentiometer" mode (***tYPE=1*** in **ZONE-SERVICE**) when external temperature block is on the flaps close for some time (***rit.C*** in **EXT.B-SERVICE**) in such a way to catch the intermediate limit-switch.
In "with flap potentiometer response" mode (***tYPE=2*** in **ZONE-SERVICE**) when external temperature block is on the flaps limit the maximum % open (setting by **EXT.B** in ***PO.--*** function).
In the case of ventilation actioning external the temperature block on can condition proportional band calculation (see **VENT-SERVICE**, ***i.Pro*** function).



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

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

SCAn Time of temperature scanning viewing (in seconds) *1.

PoFE (only with ***tYPE=2*** in the relative **ZONE-SERVICE**) *Flap operation mode:*
*=1 : Proportional actioning with fixed no-action % *2.*
*=2 : Proportional actioning with auto-tracking on position search *3.*
*=3 : Proportional actioning referred to % ventilation inserted *4.*

Pc.nA (only with ***PotE=1*** and ***PotE=3***) *Flap no-actioning % *2.*

PEr-C (only with ***PotE=1*** and ***PotE=2***) *Flap positioning % at temperature Set*.

P. 1 (only with ***PotE=3***) *Flap % position at 1% ventilation speed *4*.

P. 10 (only with ***PotE=3***) *Flap % position at 10% ventilation speed *4*.

P. 20 (only with ***PotE=3***) *Flap % position at 20% ventilation speed *4*.

P. 30 (only with ***PotE=3***) *Flap % position at 30% ventilation speed *4*.

P. 40 (only with ***PotE=3***) *Flap % position at 40% ventilation speed *4*.

P. 60 (only with ***PotE=3***) *Flap % position at 60% ventilation speed *4*.

P. 80 (only with ***PotE=3***) *Flap % position at 80% ventilation speed *4*.

P.100 (only with ***PotE=3***) *Flap % position at 100% ventilation speed *4*.

tEn.4 *Zone 4 temperature probe input *5.*
=1 / =4 *;* Input where the temperature probe of zone 4 works.

t.uEn *Ventilation temperature probe input *6.*
=1 /=16 *;* Input where the ventilation temperature probe works.

AnE.1 *Flap 1 position with external anenometer intervention *7:*
=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.

AnE.2 *Flap 2 position with external anenometer intervention *7:*
=0 : No action on Flap 2.
=1 : Fully closed flap 2with block Anemometer 1 on.
=2 : Fully closed flap 2with block Anemometer 2 on.
=3 : Fully open flap 2with block Anemometer 1 on.
=4 : Fully open flap 2with block Anemometer 2 on.

AnE.3 *Flap 3 position with external anenometer intervention *7:*
=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.

AnE.4 *Flap 4 position with external anenomether block intervention *7:*
=0 : No action on Flap 4.
=1 : Fully closed flap 4 with block Anemometer 1 on.
=2 : Fully closed flap 4 with block Anemometer 2 on. .
=3 : Fully open flap 4 with block Anemometer 1 on.
=4 : Fully open flap 4 with block Anemometer 2 on.

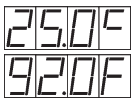
Ad.-1 *°C Input 1 temperature probe correction *8.*

Ad.-2 *°C Input 2 temperature probe correction *8.*

Ad.-3 *°C Input 3 temperature probe correction *8.*

Ad.-4 *°C Input 4 temperature probe correction *8.*

tEnP ***=1*** ; °C (0,1° resolution).
=2 ; °F (0,1° resolution).



Example temperature representation with ***tEnP = 1***
Example temperature representation with ***tEnP = 2***

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

1** If the set time is different from ***0 in normal conditions (not programming) on display will appear alternatively to the programmed time in ***SCAn*** the temperatures of the individual zones (the displayed area is reported by lighting of the zone relative lamp).

***2** Flap actioning is proportional with fixed flap no- action %*(**PC.nA**)* .
If swing occurs when searching for the position during flap operation (due to mechanical gearmotor histeresis), it raises the ***PC.nA*** setting value until is eliminated.
If the potentiometer doesn't work, the actioning operates in "emergency" and it opens and closes the flap on the ground of the required temperature on the relative zone; this anomaly is present on display (see *Particular messagges on display*) and an the alarm starts working.

***3** The actioning of flap starts with the self-acquisition of the error precision on the setting of flaps; in this way when each flap starts, the program calculates the error and corrects it with the next actioning.
If the potentiometer doesn't work, the actioning operates in "emergency" and it opens and closes the flap on the ground of the required temperature on the relative zone; this anomaly is present on display (see *Particular messagges on display*) and an the alarm starts working.

4** The position of flap at the different % of ventilation can be programmed with ***P. 1, ***P.10*** settings, etc.

5** If there is an actioning with 4 internal temperature probes and 4 potentiometers of response, the connection of the potentiometer of zone 4 requests to operate with **HAD8** input expansion's slot, or when it is set ***tEn.4=1 or ***tEn.4=2*** or ***tEn.4=3*** zone 4 requires the same environmental probe of zone1 or 2 or 3; in this way the input 4 can accept the input of the potentiometer of the zone 4 (in this case **HAD8** slot is not necessary).

6** Ventilation probe can be one of the zone's probes or (t.vEn=16***) an indipendent probe (in this case **HAD8** slot is necessary).

***7** To connect anemometer contacts see *HAD8 slot connection.*

***8** 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℃.

SPECIAL MESSAGGES ON DISPLAY

In normal condition on display appears temperature of selected zone.
Some special conditions can cause following messages:

***** When selected probe has an open circuit wire failure.

***** When selected probe has a short circuit wire failure.

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

When selected function is not working.

Humidity viewing (example with 80.2%).

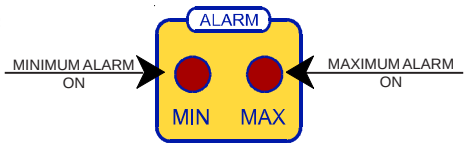
Anemometer 1block on.

Anemometer 2 block on.

*1 In this case alarm output relay is on.

ALARM STATE INTERVENT VIEWING

The light situated at the bottom of display shows the state of alarm.
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 one of **ZONE** key.



ALARM INTERVENTION VIEWING (example with ZONE 1).

Press **ZONE 1** key for more than 5 seconds:
Alarm hour intervention will be displayed.
Press **ZONE 1**:
Alarm ambient temperature will be displayed.
Press **ZONE 1** to exit.

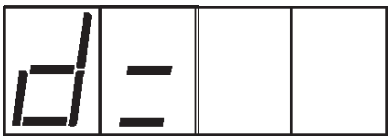
AMBIENT TEMPERATURE OF THE LAST 99 DAYS VIEWING

Press the key of function that must be seen (**ZONE 1-ZONE2-ZONE-3, ZONE-4, VENT, 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 recordings of 10 days ago);
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.

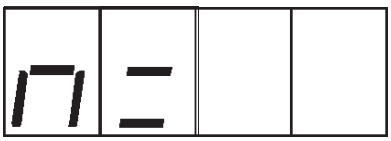
TIME (CLOCK SETTING)

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.

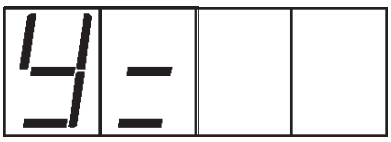
At this point this message will be displayed instead of the *Set the current Day.*
Press **+** or **-** to modify , press **ENTER** to confirm.



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 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.).

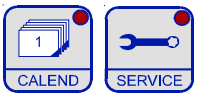
Watch clock is maintained for more than 10 years also if power is off.

CALENDAR CURVES SETTING

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

Zone 1 temperature set, Zone 2 temperature set, Zone 3 temperature set, Zone 4 temperature set, Heating temperature set, Ventilation temperature set.

By previous explained settings (**ZONE 1**+**SERVICE** keys, **ZONE 2**+**SERVICE** keys, etc.) are selected parameter that will be calendarized.
So during calendar programming operations on display will appear only selected parameters (follows complete list).
Proceed in this way:



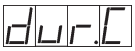
Press together **CALEND** and **SERVICE**:
this message will be displayed.

Press 

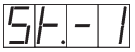
to go forward, press 

or 

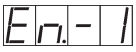
to modify.



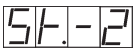
this message will be displayed instead of the
Duration day of calendar.



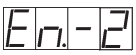
(if qualified) this message will be displayed instead of the
°C Zone 1 temperature start cycle.



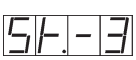
(if qualified) this message will be displayed instead of the
°C Zone 1 temperature end cycle.



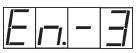
(if qualified) this message will be displayed instead of the
°C Zone 2 temperature start cycle.



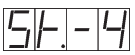
(if qualified) this message will be displayed instead of the
°C Zone 2 temperature end cycle.



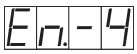
(if qualified) this message will be displayed instead of the
°C Zone 3 temperature start cycle.



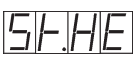
(if qualified) this message will be displayed instead of the
°C Zone 3 temperature end cycle.



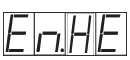
(if qualified) this message will be displayed instead of the
°C Zone 4 temperature start cycle.



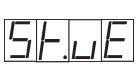
(if qualified) this message will be displayed instead of the
°C Zone 4 temperature end cycle.



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



(if qualified) this message will be displayed instead of the
°C Heating temperature end cycle.

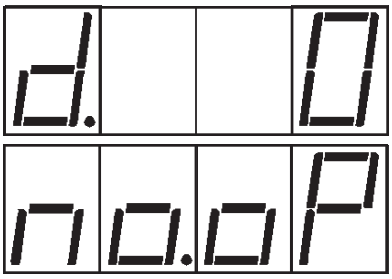


(if qualified) this message will be displayed instead of the
°C Ventilation temperature start cycle.

(if qualified) this message will be displayed instead of the
°C Ventilation temperature end cycle.

For more details on actioning mode see **CALENDAR'S PROGRAMMING EXAMPLE.**

START CALENDAR CYCLE

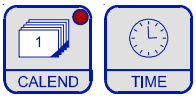


Press **CALEND** together with **ENTER**:
if calendar is not operating on display will appear ***no.op*** message; if calendar is operating on display will appear actual calendar's day (***d. x***).
Change it by means of **+** or **-** in order to set ***d. 1*** (calendar start) or negative values (day 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

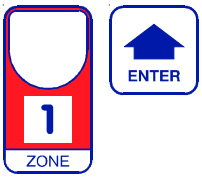
Every time it's possible to change calendar day, such as previous explained.
You can exclude calendar setting ***d. 0*** (***no.op***) and press **ENTER**:
in this way you can set directly function by means of specific keys (example **ZONE 1+ENTER** keys permit to set Zone 1 temperature).
Setting again 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 **ZONE 1** for Zone 1 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's function in progress for that set.

CALENDAR'S PROGRAMMING EXAMPLE

Suppose to "calendarize" only Zone 1 set (**ZONE 1+SERVICE** keys, ***CALE=1*** function), for this calendar cycle:

Zone 1 start 30.0℃, after 100 days 20.0℃.

Proceed in this way:
Press **CALE**+**SERVICE** keys; on display will appear ***dur.C*** and we set by means of **-** or **+** keys ***d.100*** (desired days of cycle value).

After **ENTER** confirm will appear ***St.-1*** message and so we set ***St.-1*** = 30.0℃ (desired start value).

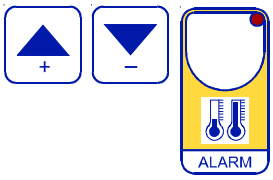
After **ENTER** confirm will appear ***En.-1*** message and so we set ***En.-1*** = 20.0℃ (desired end value).

At this point pressing **ENTER** you can return at the beginning of the setting (***C.A.L.E.*** messagge on display); this because in the example we have simulated only Zone 1 setting, otherwise appears also the other zones' impostation.
You can press **SERVICE** at any time to exit and return to the run mode.

So calendar will operate for 100 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**.

MANUAL MODE



In some start-up condition may be useful to work in "hand" mode.

Press **+** / **-** / **EXT.B** keys together for at least one second: ***HAnd*** message will be displayed (release now keys); on display it will appear ***HAnd*** message.

Press **+** keys until is displayed number required to be hand (see table in **State indication lamps**).

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.

STATE INDICATION LAMPS

The light situated at the bottom of display shows the state of the various relay as set out below.

Led	State	N° Relay	Contacts
ZONE 1 "+"	Flap 1 close on	1	11-12
ZONE 1 "-"	Flap 1 open on	2	13-14
ZONE 2 "+"	Flap 2 close on	3	15-16
ZONE 2 "-"	Flap 2 open on	4	17-18
ZONE 3 "+"	Flap 3 close on	5	19-20
ZONE 3 "-"	Flap 3 open on	6	21-22
ZONE 4 "+"	Flap 4 close on	7	23-24
ZONE 4 "-"	Flap 4 open on	8	25-26
ALARM "MIN"	Alarm maximum on	10	29-30
ALARM "MAX"	Alarm minimum on	10	29-30
BLOCK "HUM" *1	Humidity maximum block on		
BLOCK "EXT" *1	External temperature block on	10	27-28

*1 Flashing when Maximum humidity block and Minimum external temperature block intervene.

HC37 installation.
Place the module in a clean and dry site.
Connect electric wires such as shown in diagram.

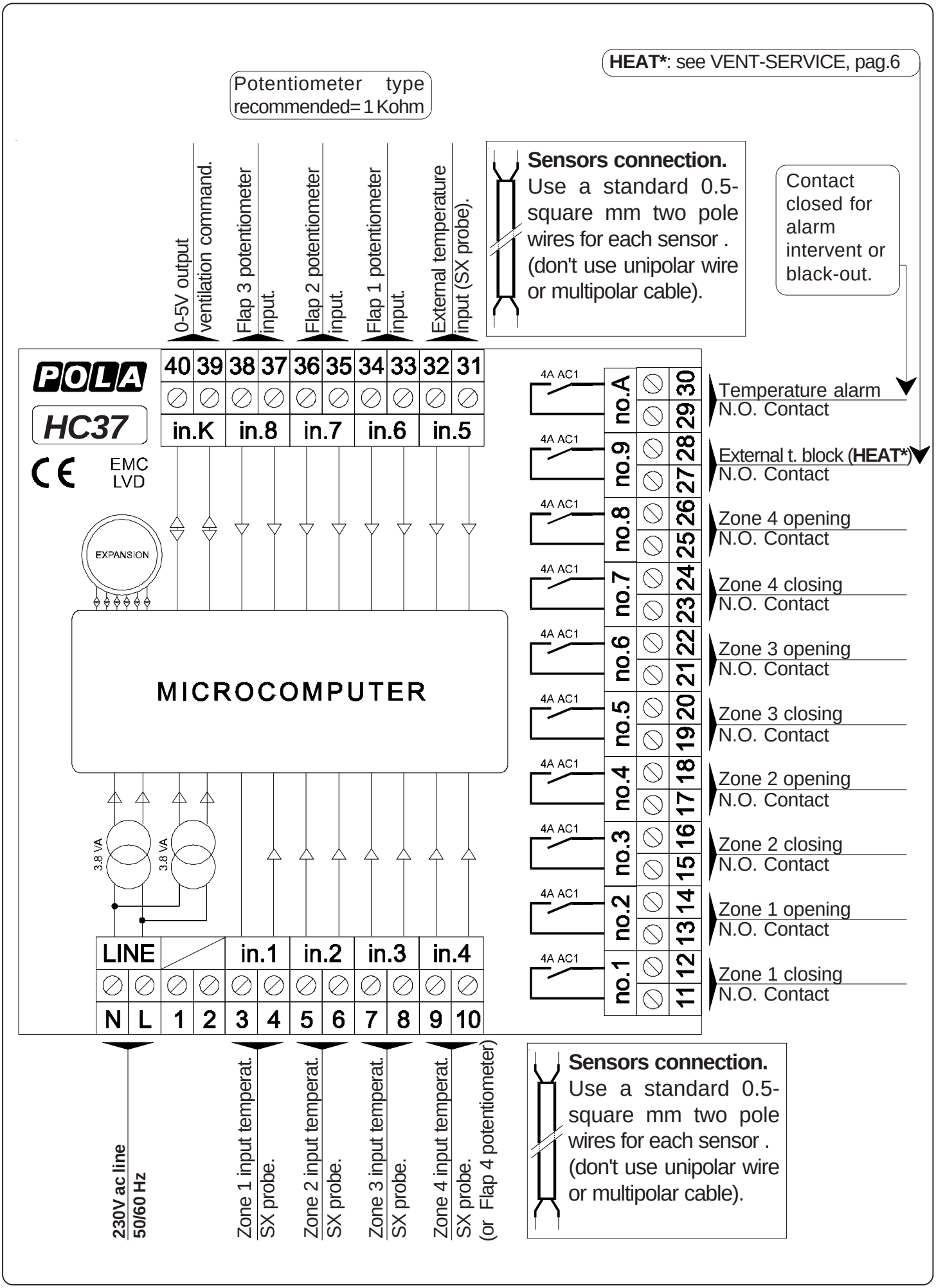
How to connect the power line.
Connect power line on **L-N** terminals; protect supply with adequate fuse.

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 **2AMP.F** fuses.

How to connect probes and control signals.
Connect the provided sensor as shown in the diagram: **for remote connections use a standard 0,5-square millimetre two-poles 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-pole 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.
If the program calculates the precision's mistake of flap (see **INSt**, ***POtE=2***) 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.

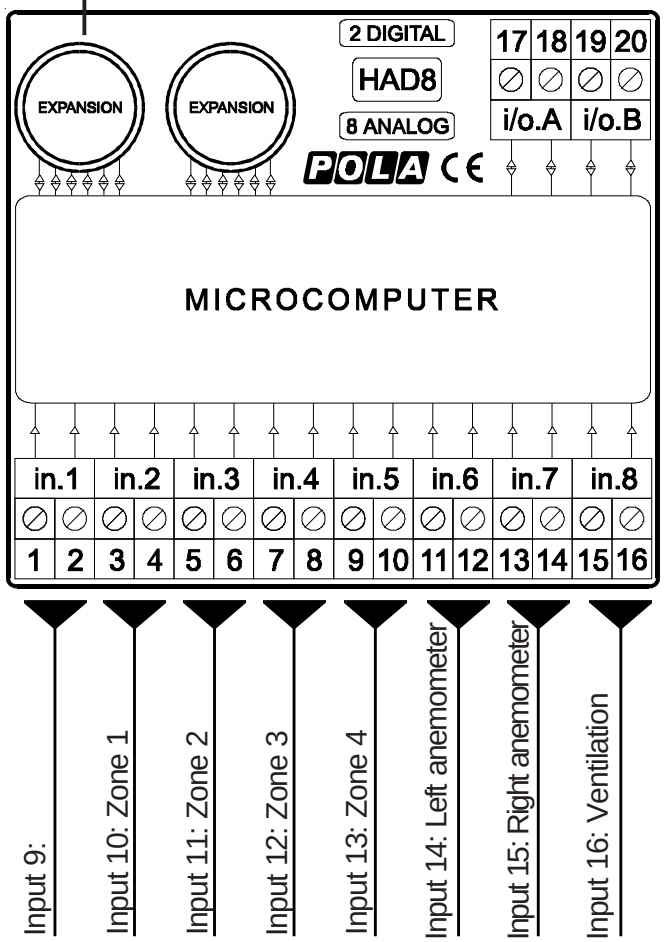
This kind of actioning permits a good functioning only if the flap's time work between the all open position and the one all closed is at least 30 seconds (in any case even for inferior times the system works in a right way, obviously the imprecision % on the position is superior).


HEAT*: see VENT-SERVICE, pag.6
Potentiometer type recommended= 1 Kohm
Sensors connection.
Use a standard 0.5-square mm two pole wires for each sensor . (don't use unipolar wire or multipolar cable).
Contact closed for alarm intervent or black-out.
0-5V output ventilation command.
Flap 3 potentiometer input.
Flap 2 potentiometer input.
Flap 1 potentiometer input.
External temperature input (SX probe).
POLA
HC37
EMC
LVD
40 39 38 37 36 35 34 33 32 31
in.K in.8 in.7 in.6 in.5
EXPANSION
MICROCOMPUTER
3,8 VA
3,8 VA
LINE
in.1 in.2 in.3 in.4
N L 1 2 3 4 5 6 7 8 9 10
4A AC1
no.A 30 29
no.9 28 27
no.8 26 25
no.7 24 23
no.6 22 21
no.5 20 19
no.4 18 17
no.3 16 15
no.2 14 13
no.1 12 11
Temperature alarm N.O. Contact
External t. block (HEAT*) N.O. Contact
Zone 4 opening N.O. Contact
Zone 4 closing N.O. Contact
Zone 3 opening N.O. Contact
Zone 3 closing N.O. Contact
Zone 2 opening N.O. Contact
Zone 2 closing N.O. Contact
Zone 1 opening N.O. Contact
Zone 1 closing N.O. Contact
230V ac line 50/60 Hz
Zone 1 input temperat. SX probe.
Zone 2 input temperat. SX probe.
Zone 3 input temperat. SX probe.
Zone 4 input temperat. SX probe. (or Flap 4 potentiometer)
Sensors connection.
Use a standard 0.5-square mm two pole wires for each sensor . (don't use unipolar wire or multipolar cable).

HAD8 SLOT WIRE DIAGRAM

To **EXPANSION** socket
of **HC37** module.

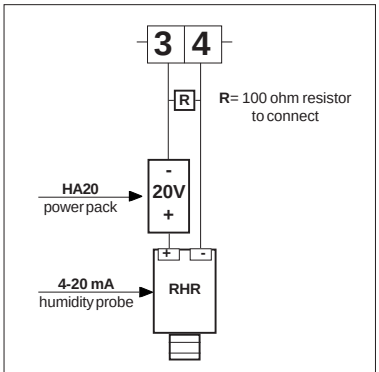
HXN2 cable



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

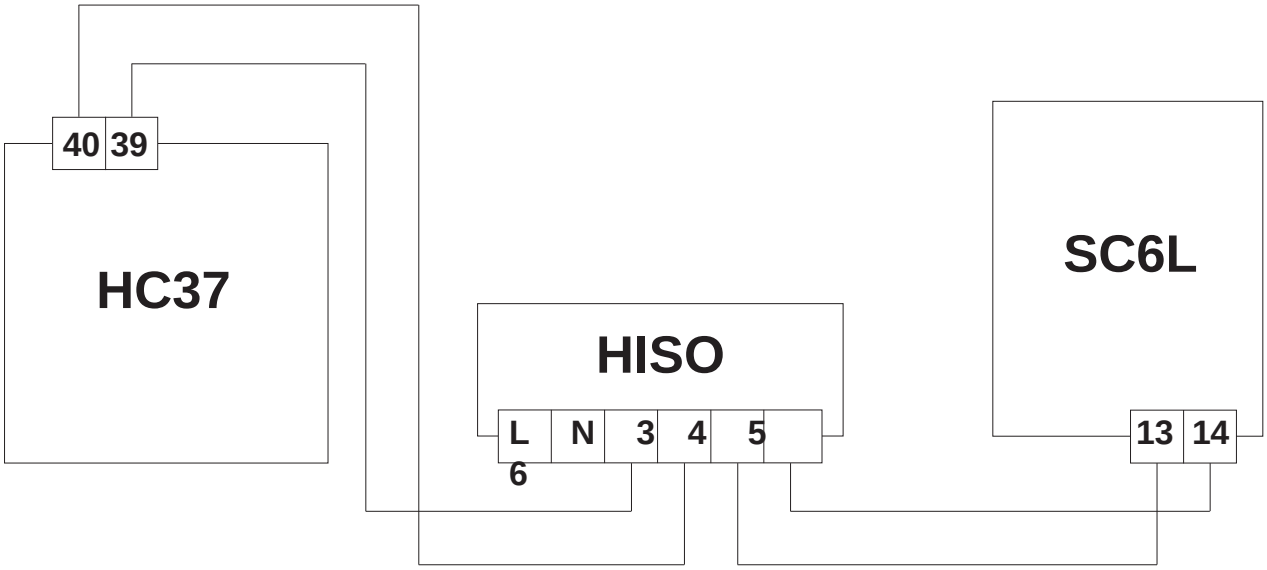
In the case of working with psychrometer (see **EXT.B-SERVICE**, ***tYPE=3*** or ***tYPE=4***) "dry bulb" probe is the probe of job in the relative zone, while "wet bulb" probe is the probe connected on **HAD8** expansion.

In the case of working with a 4-20mA humidity probe (see **EXT.BLOCK-SERVICE**, ***tYPE=1*** or ***tYPE=2***) connect the humidity probe as shown in diagram below.



Connection on 3-4 terminals for one humidity probe for 4 zones.
In the case of more probes:
3-4 = connection zone 1 probe.
5-6 = connection zone 2 probe.
7-8 = connection zone 3 probe.
9-10 = connection zone 4 probe.

VENTILATION CONNECTION



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℃
Instrument precision	0.2℃
Temperature probe reading precision	0.2℃
Temperature setting range	-50.0...+115.0℃
Probe connection	2 wire without screen
Humidity probe signal	4-20mA
Temperature range	
Operatibility	-10...+40℃
Storage	-40...+85℃

CE DECLARATION OF CONFORMITY

POLA® declares that your **HC37** 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.

PRESET PROGRAMS

This processor is 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, it is recommended to record the values of this settings table to have immediate feedback on the type of operation and the programmed setting mode.

ZONE 1

Parameter	Value on delivery	Value on customer
SEt.1	20.0°c	
Po._ _	0%	
Po.- -	100%	
AL._ _	10.0°c	
AL.- -	30.0°c	
SERVICE		
tYPE	=1	
nE.bA	0.2°c	
b.CLO	5.0°c	
b.OPE	5.0°c	
ti.on	1.0"	
ti.OF	60.0"	
b.Pro	5.0°c	
ALAr	=0	
CALE	=0	

ZONE 2

Parameter	Value on delivery	Value on customer
SEt.2	20.0°c	
Po._ _	0%	
Po.- -	100%	
AL._ _	10.0°c	
AL.- -	30.0°c	
SERVICE		
tYPE	=1	
nE.bA	0.2°c	
b.CLO	5.0°c	
b.OPE	5.0°c	
ti.on	1.0"	
ti.OF	60.0"	
b.Pro	5.0°c	
ALAr	=0	
CALE	=0	

ZONE 3

Parameter	Value on delivery	Value on customer
SEt.3	20.0°c	
Po._ _	0%	
Po.- -	100%	
AL._ _	10.0°c	
AL.- -	30.0°c	
SERVICE		
tYPE	=1	
nE.bA	0.2°c	
b.CLO	5.0°c	
b.OPE	5.0°c	
ti.on	1.0"	
ti.OF	60.0"	
b.Pro	5.0°c	
ALAr	=0	
CALE	=0	

ZONE 4

Parameter	Value on delivery	Value on customer
SEt.4	20.0°c	
Po._ _	0%	
Po.- -	100%	
AL._ _	10.0°c	
AL.- -	30.0°c	
SERVICE		
tYPE	=1	
nE.bA	0.2°c	
b.CLO	5.0°c	
b.OPE	5.0°c	
ti.on	1.0"	
ti.OF	60.0"	
b.Pro	5.0°c	
ALAr	=0	
CALE	=0	

VENT

Parameter	Value on delivery	Value on customer
t.HEA	18.0°c	
t.vEn	25.0°c	
SP._ _	1%	
SP.- -	100%	
SERVICE		
tYPE	=0	
d.HEA	0.2°c	
i.vEn	=1	
ProP	4.0°c	
i.Pro	5.0°c	
CALE	=0	

EXT.BLOCK

Parameter	Value on delivery	Value on customer
t.bLo	10.0°c	
Po.- -	100%	
H.bLo	100H	
SERVICE		
tYPE	=0	
rit.C	0.0"	
i.Hun	=0	
d.tEn	0.0°c	
d.PEr	0%	

INSt Parameters

Parameter	Value on delivery	Value on customer
SCAn	0"	
PotE	=2	
Pc.nA	3%	
PErC	0%	
P. 1	0%	
P. 10	10%	
P. 20	20%	
P. 30	30%	
P. 40	40%	
P. 60	60%	
P. 80	80%	
P.100	100%	
tEn.4	=4	
t.vEn	=1	
AnE.1	=0	
AnE.2	=0	
AnE.3	=0	
AnE.4	=0	
Ad.-1	0.0°C	
Ad.-2	0.0°C	
Ad.-3	0.0°C	
Ad.-4	0.0°C	
tEnP	=1	

CALENDAR'S SETTINGS

Parameter	Value on delivery	Value on customer
dur.C	10	
St.-1	20.0°	
En.-1	20.0°	
St.-2	20.0°	
En.-2	20.0°	
St.-3	20.0°	
En.-3	20.0°	
St.-4	20.0°	
En.-4	20.0°	
St.HE	18.0°	
En.HE	18.0°	
St.vE	25.0°	
En.Ve	25.0°	

POLA®

23.04.14