Heating project 2010

1. INTRODUCTION 4
1.1. Abbreviation....4
2. TECHNICAL FEATURE....4
2.1. Electric feature....4
2.1.1. Power supply:....4
2.1.2. Input: 4
2.1.3. Output:....4
2.1.4. Gear motor (Cochlea motor) temporization: 5
2.1.5. Regulations/display indications 5
3. OPERATIVE MODE 7
3.1. STANDBY mode....7
3.2. STARTUP procedure....7
3.2.1. FAN ACC procedure 7
LOAD WOOD procedure 8
3.2.2. FIRE ON procedure....10
3.2.3. WORK procedure 11
3.3. WORK status....14
3.4. ECONOMY procedure....14
3.5. SAFETY BODY procedure 15
3.6. CLEANING BRAZIER procedure....15
3.7. SHUTDOWN procedure 17
3.7.1. Safety time between SHUTDOWN procedure and STARTUP procedure 17
4. Temperature and other information avaiable from display....18
4.1.1. HOW SEE the set point temperature....18
4.1.2. HOW SEE smoke temperature and Smoke extrator fan speed....18
4.1.3. HOW SEE the working power set....19
4.2. Common variation by keyboard: 20
4.2.1. HOW CHANGE the set point temperature....20
4.2.2. HOW CHANGE the working power 21
5. USER MENU 22
5.1. SET the Clock – UT01 (not used in this version)....23
5.1.1. SET the current day 23
5.1.2. HOW SET the current hour – UT02 (not used in this version)....23
5.1.3. HOW SET the current minute – UT03 (not used in this version) 23
5.2. CRONOTERMOSTAT procedure –UT05-UT06-UT07-UT08-UT09-UT10 (not used in this version) 23
5.2.1. HOW SET a schedule 24
6. TECHNICAL MENU....25
6.1. HOW SET/CHANGE working parameters 25
6.2. SERVICE function 28
HOW SEE the service hours 28
6.2.1. HOW SEE the partial working hours 30
6.2.2. HOW SEE the total working hours 32
6.2.3. HOW RESET the partial working hours....33
6.3. OPTIMIZATION function 33
6.3.1. HOW CHANGE the optimization 34
6.4. ECONOMY STOP function....35
6.4.1. HOW SET/CHANGE economy stop. 36
6.5. HISTORICAL ALARM MEMORY....36
6.5.1. HOW SEE historical alarm memory 37
6.5.2. HOW RESET historical alarm memory....38
6.6. PARAMETERS DATABASE....39

6.6.1. HOW SET a different parameter list 39
6.7. CHECK the load wood carrying capacity 42
7. ALARM function 43
7.1. NO ACC alarm 43
7.2. NO FIRE alarm 44
7.3. BLACK OUT alarm 45
7.4. FAN FAIL alarm 46
7.5. SIC - DEP FAIL alarm 47
7.6. SOND alarm 48
7.7. HOT alarm 49
7.8. SERVICE alarm 50
8. REMOTE Control functions 51
8.1. WORKING POWER: auto 51
8.2. TURBO mode 52
8.3. ECONO mode 54
8.4. SLEEP mode 56
8.5. PARTICULAR cases 58
8.6. TIMER ON / timer off / AUTO 58
8.7. PARAMETER settings features 58

1. INTRODUCTION

1.1. ABBREVIATION

ST	Thermocouple smokes temperature
RT	Room temperature
ET	External thermostat
TH	Safety thermostat
SP	Safety pressure switch
ENC	Encoder (read RPM of Smoke extractor fan)
SEF	Smoke extractor fan (with PWM fan speed control)
AFM	Ambient fan motor (with PWM fan speed control)
GM	Gear Motor (coclea motor)
SH	Startup heater
SPT	Set-point temperature

2. TECHNICAL FEATURE

2.1. ELECTRIC FEATURE

2.1.1. POWER SUPPLY:

Voltage:	230Vca ± 15%, 50/60 Hz

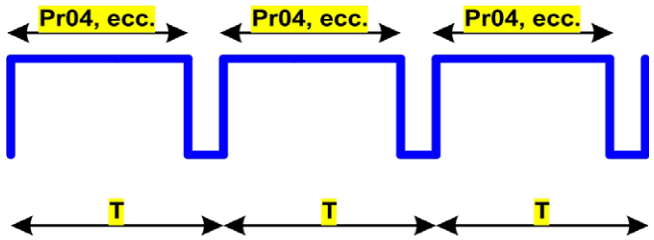
2.1.2. INPUT:

ST	Thermocouple smokes temperature	Thermocouple J type
RT	Room temperature	NTC 10 kΩ
AT	Remote thermostat (available from the software where it is foreseeing)	Contact
ST	Safety thermostat	230Vac
SP	Safety pressure switch	230Vac
	Serial connection	(Use with adapter)
ENC	Encoder (read RPM of Smoke extractor fan)	+5V
	Keyboard - Display	

2.1.3. OUTPUT:

SEF	Smoke extractor fan (with PWM fan speed control)	230 Vac (TRIAC)
AFM	Ambient fan motor (with PWM fan speed control)	230 Vac (TRIAC)
GM	Gear Motor (coclea motor)	230 Vac (TRIAC)
SH	Start up heater	230 Vac (ON-OFF)

2.1.4. GEAR MOTOR (COCHLEA MOTOR) TEMPORIZATION:



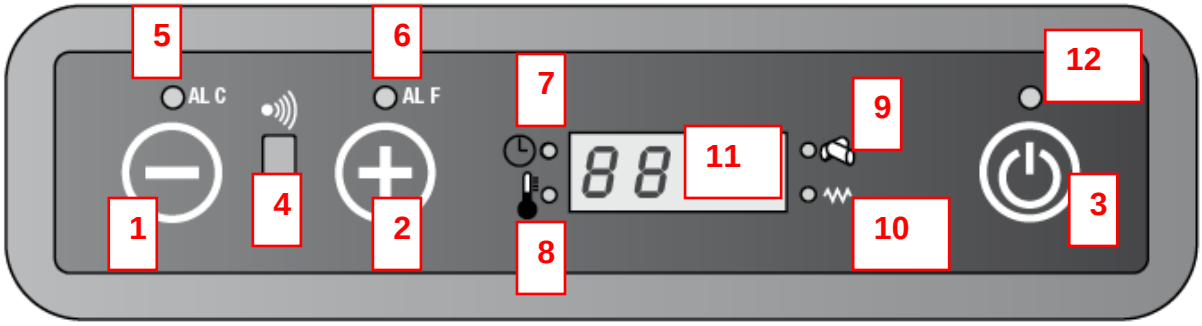
The endless screw (cochlea) works using a time system as follows: a cycle T= 6 sec. is established. In this period the motor is activated for a time Pr04-Pr05-Pr06-Pr07-Pr08-Pr09-Pr10 according to the set working phase.

2.1.5. REGULATIONS/DISPLAY INDICATIONS

The PCB is made in order to respect the follow regulations:

- EN 55011
- EN 61000-3-2
- IEC/EN 61000-4-2, -4, -5, -6, -8, -9, -11, -29

Display indications and functions keys



1. Temperature/power decreasing
2. Temperature/power increasing
3. On/Off
4. Remote control receiver
5. ALC alarm led
6. ALF alarm led
7. Timed thermostat led
8. Temperature led
9. Pellets led
10. Startup heater led
11. Display
12. Led On/off

1. Temperature/power decreasing
When in set temperature menù, the button allows to decrease the set temperature from 40 °C to 7 °C.
When in set power menù, the button allows to decrease the working power from 5 to 1.

2. Temperature/power increasing
When in set temperature menù , the button allows to increase the temperature from 7 °C to 40 °C.
When in set power menù, the button allows to increase the working power from 1 to 5.

3. On/Off
Press this key for 2 seconds: the stove lights or shuts down.

4. Remote control receiver
Sensor that receives commands from the remote control

5. ALC alarm led
This led flashes when there is an alarm

6. ALF alarm led
This led flashes when there is an alarm

7. Timed thermostat led
This led indicates that the weekly or daily programming is activated. In this PCB version the timer on/timer off programming is available only by remote control.

8. Temperature led
This led lights when the programmed temperature is reached. The display will show “ECO” and the room temperature.

9. Pellet led
This led flashes every time the pellets loading inside the stove takes place.

10. Startup heater led
This led lights only when startup heater is on

11. Display
The various operation modes of the stove are visualized on the display, as well as the temperature and the working power set by the user.
If the stove should malfunction, the display will read the relative error messages.

12. On/Off led

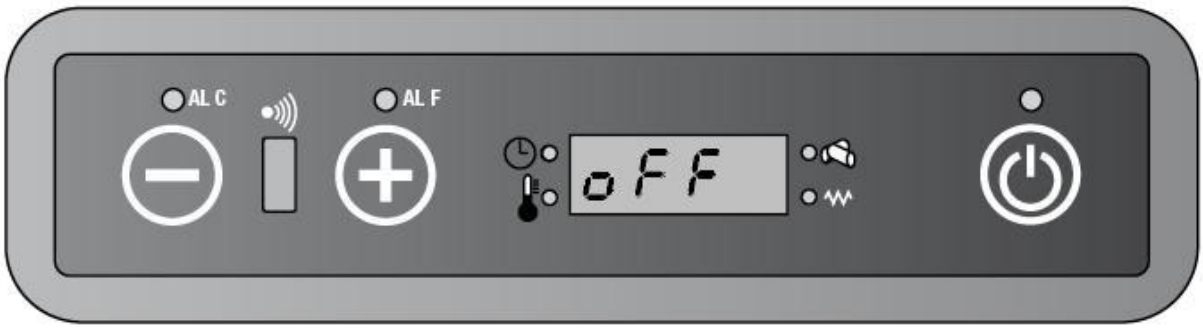
The led On/Off shows the differents operation mode of the stoves:

- lights if the stove is turning on or is already on.
- Off if the stove is shut down
- Blinking during the shutdown procedure.

3. OPERATIVE MODE

3.1. STANDBY MODE

When the unit is still turn off the display shows OFF. The Led On/Off is turn off.

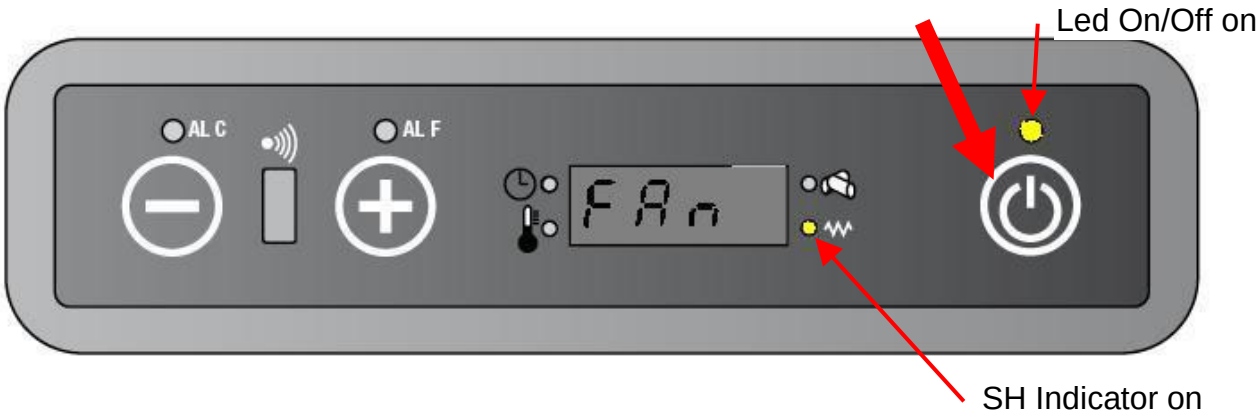


3.2. STARTUP PROCEDURE

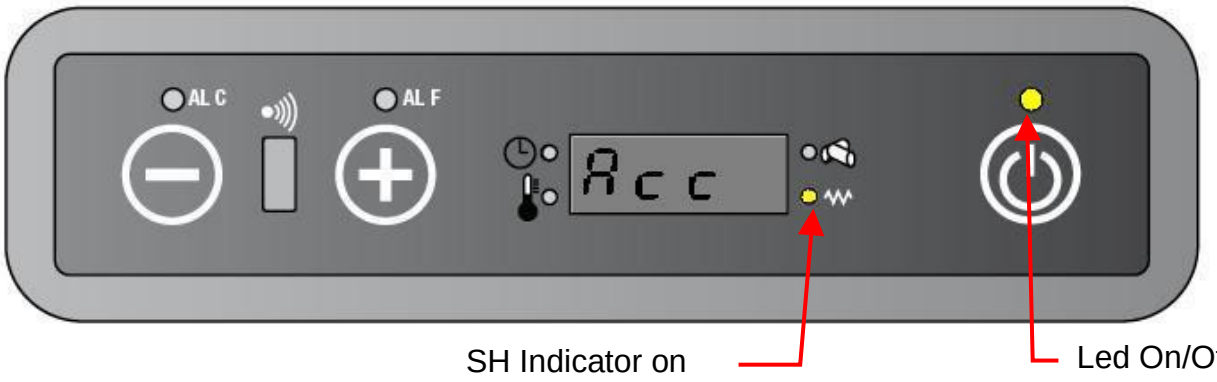
3.2.1. FAN ACC PROCEDURE

FAN ACC PROCEDURE is of use to check that the flue is free by the SPS (Safety Pressure Switch) while the SEF (Smoke Extractor Fan) is running. Moreover, the SH (Startup Heater) is switched on.

Press key 3 ⏻ on the display or on the remote control for same seconds to turn on the unit:



(on-off + SEND)



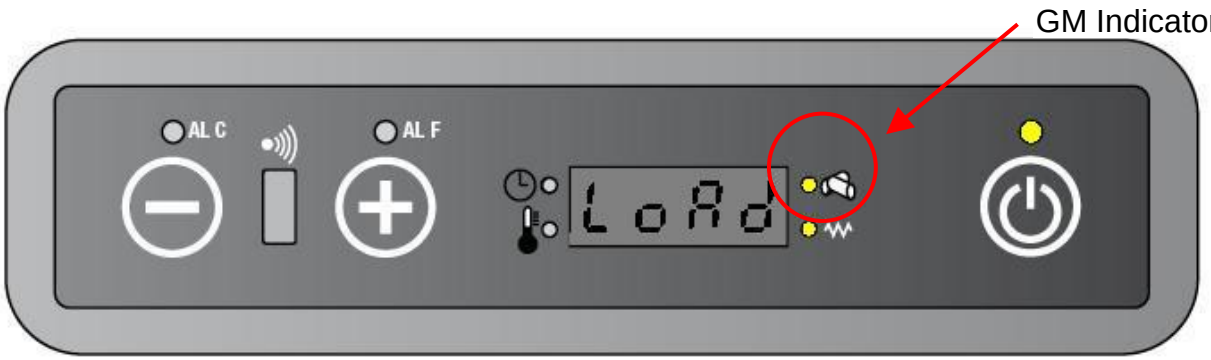
Duration: 90 (Ninety) seconds.

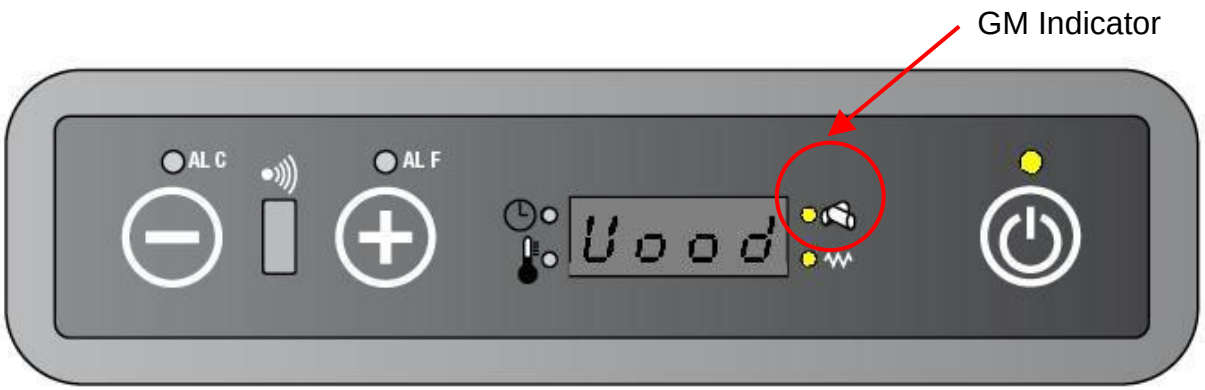
a - Startup SEF (Smoke extractor fan) at speed set by parameter PR 16.
b - Startup the SH (Startup heater)
c - The startup heater led is turn on
d - AFM (Ambient fan motor) is still turn off
e - GM (Cochlea motor) is still turn off
f - The display shows alternately "FAn / Acc"
g - The On/Off led is turn on

LOAD WOOD PROCEDURE

LOAD WOOD PROCEDURE is of use to bring the wood from the tank to the brazier by an endless screw said cochlea. This cochlea is set in motion by a gear motor (GM).
Duration: until the ST (Smoke temperature) < PR 13, catch up with a gradient of 3°C/minute more or less.

a - SEF is still at speed set by parameter PR 16
b - SH is still turn on.
c - The startup heater led is turn on
d - AFM is still turn off.
e - Starts up the GM at speed set by parameter PR04
f - The display shows alternately "LoAd / Wood" and when the GM is running
g - The On/Off led is on



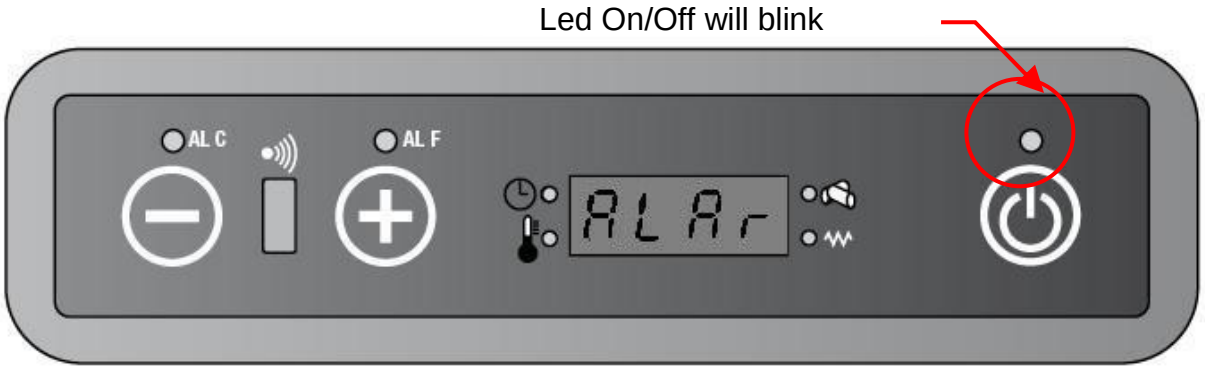


If **LOAD WOOD PROCEDURE** should go on more of PR0 1,

a - then the **STARTUP PROCEDURE** will be aborted.

b - the PCB will begin the **SHUTDOWN PROCEDURE**.

c - the display will show "Alar No Acc".

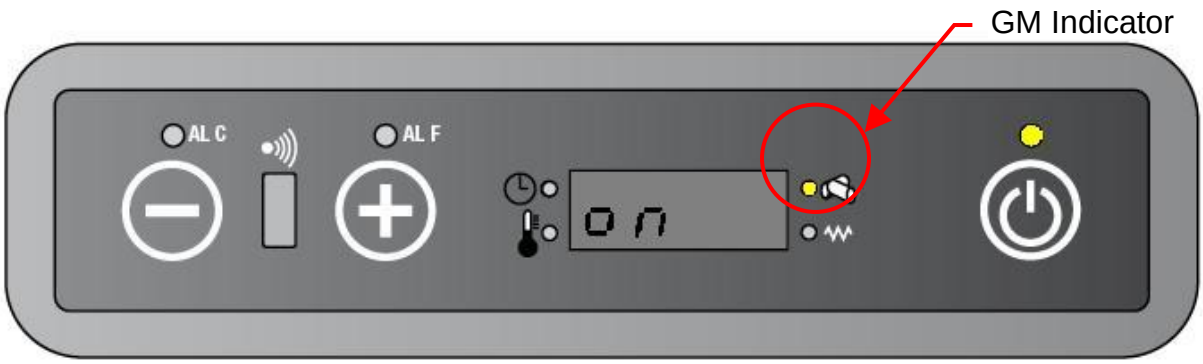


d - else **STARTUP PROCEDURE** go on with:

3.2.2. FIRE ON PROCEDURE

FIRE ON PROCEADURE is of use to check that the fire is still turn on.
Duration : until ST > PR 13 for a time like PR02 and the ST don't decrease.

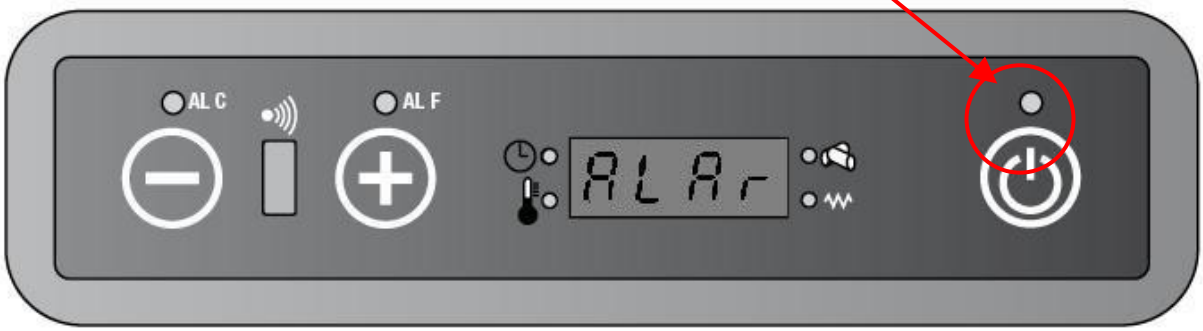
a - SEF is still at speed set by parameter PR 17.
b - SH is being turned off.
c - The startup heater led is being turned off
d - AFM is still turn off until the ST < PR 15 afterwards AFM will work at max speed for 5 (five) seconds afterwards set by parameter PR 16.
e - The GM works at speed set by parameter PR05.
f - The display shows alternately "FirE / on" and when the GM is working.
g - The Led On/Off is on



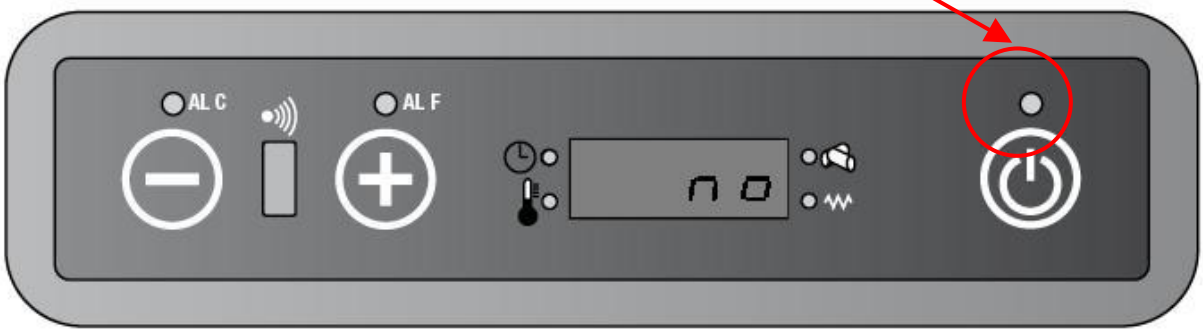
If **FIRE ON PROCEDURE** should go on more of PR02,

- then the **STARTUP PROCEDURE** will be aborted.
- The PCB will begin the **STUTDOWN PROCEDURE**.
- The display will show alternately "Alar / no/ F irE".
- The led On/off will blink

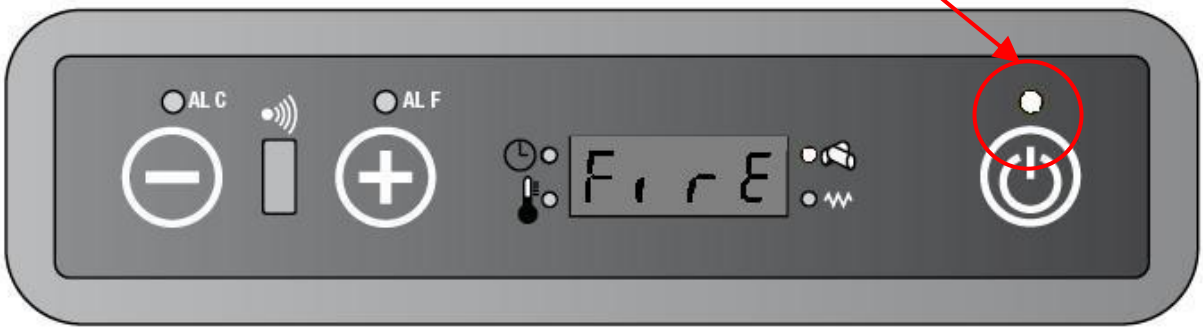
Led On/Off will blink



Led On/Off will blink



Led On/Off will blink



else **STARTUP PROCEDURE** go on with:

3.2.3. WORK PROCEDURE

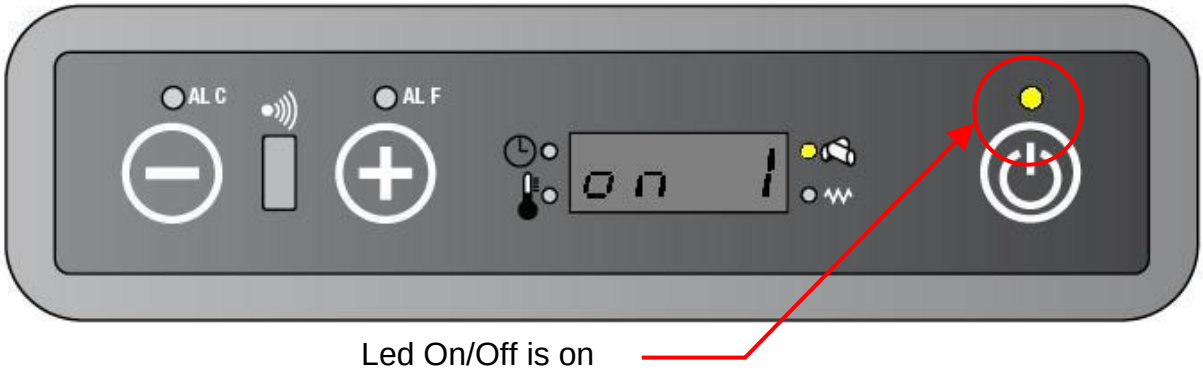
WORK PROCEDURE is the end of **STARTUP PROCEDURE**. Now the unit is still turn on regularly.

a - SEF is still at speed set by working power.
b - SH is still turn off.
c - AFM is still turn off until the ST < PR 15 afterwards AFM will work at max speed for 5 (five) seconds afterwards at set by power capacity.

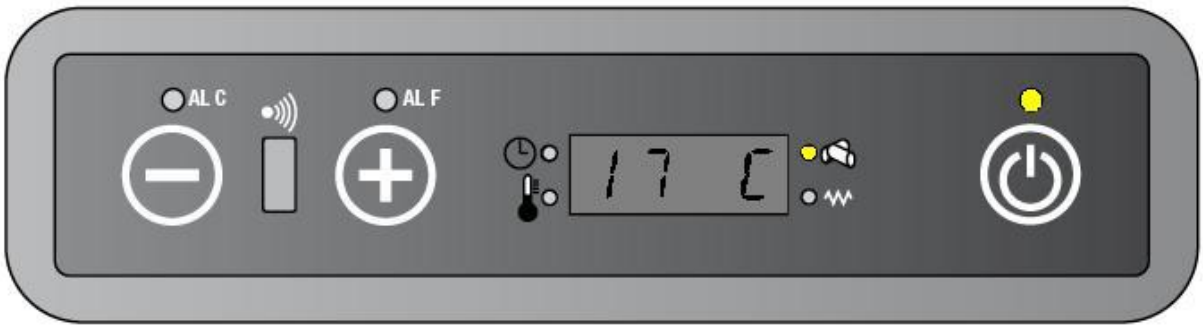
d - The GM works at speed set by working power.

e - The display shows alternately the working power and the room temperature. And also when the GM is working.

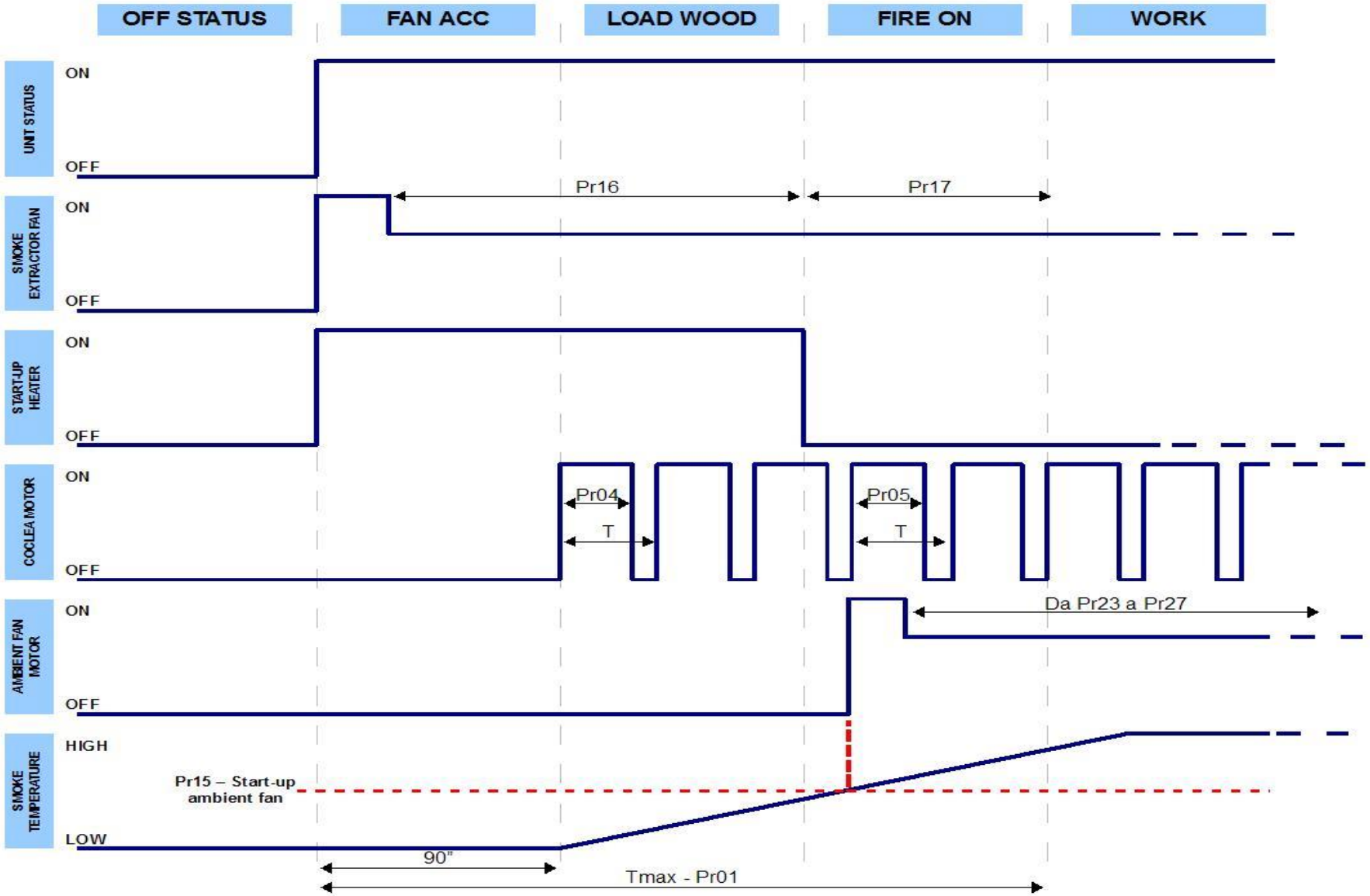
f - Led On/off is on



Led On/Off is on



STARTUP PROCEDURE



3.3. WORK STATUS

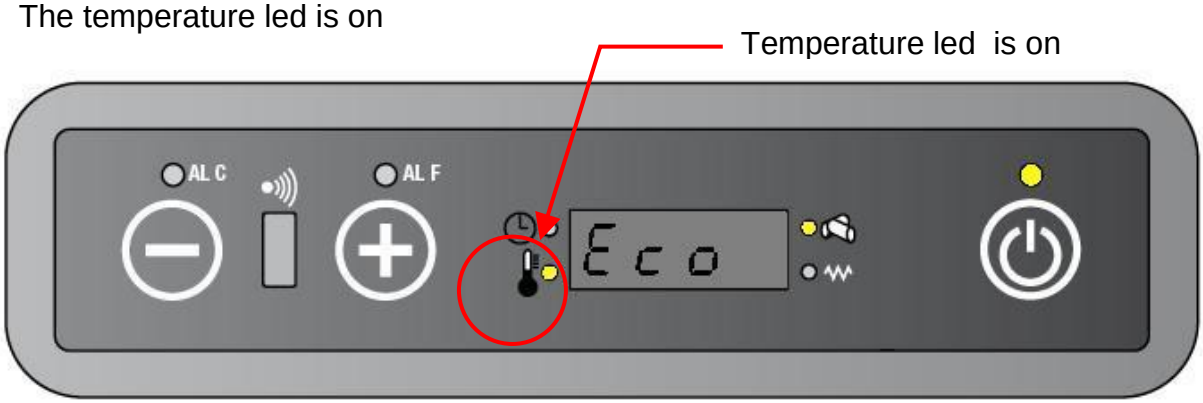
The unit works as follow:

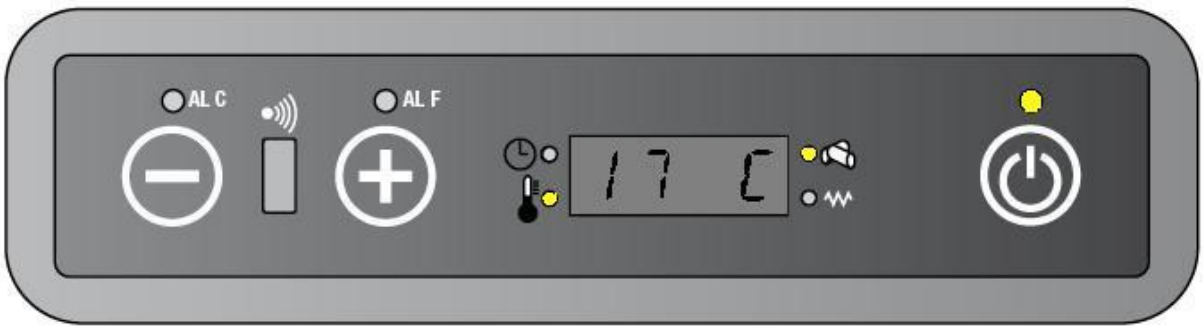
a - SEF is still at speed set by working power.
b - SH is still turn off.
c - AFM is still at speed set by working power.
d - The GM works at speed by working power.
e - The display shows the working power, the room temperature and when the GM is working.

3.4. ECONOMY PROCEDURE

When the room temperature is more than the set-point temperature (RT≥SPT), the unit begins to work in Economy procedure, that is as indicate for on1 working power .

a - SEF is still at speed set by parameter PR 18..
b - SH is still turn off.
c - AFM is still at speed set by parameter PR23.
d - The GM works at speed set by parameter PR06.
e - The display shows "Eco", the room temperature and when the GM is working.
f - The temperature led is on





If the room temperature is less than the set-point temperature – 0,5 degrease (RT<SPT-0,5°C), than it will come back at setting power capacity.

N.B: During the **ECONOMY PROCEDURE** is possible check the set-point temperature, Smoke Extractor Speed, Smoke temperature and change the set-point temperature and power capacity like described into the **WORKS STATUS.**

3.5. SAFETY BODY PROCEDURE

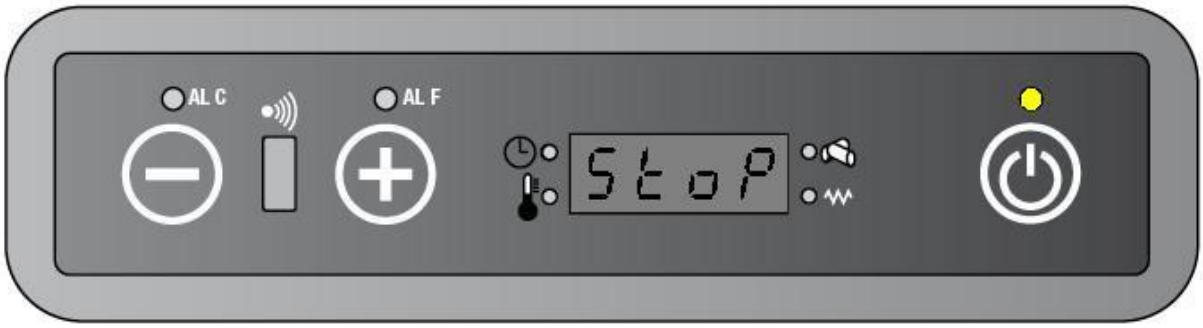
If the ST> PR 14 than the unit begin the **SAFETY BODY PROCEDURE**:

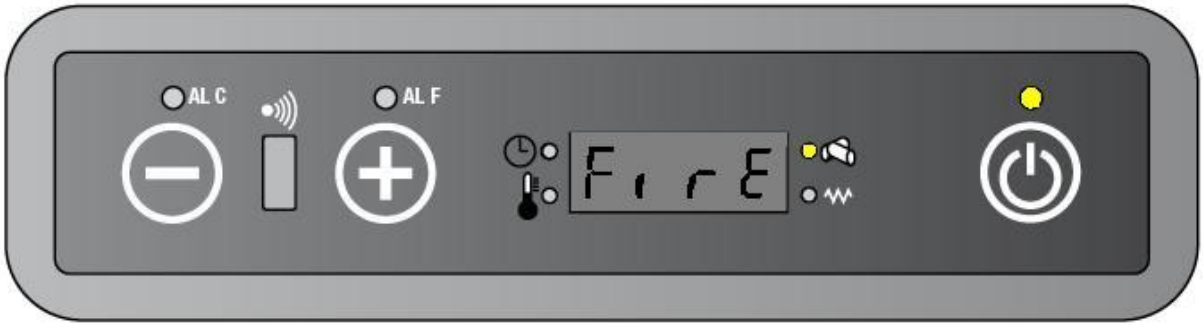
a - SEF is still at speed set by parameter PR 18..
b - SH is still turn off.
c - AFM is still at speed set by parameter PR27.
d - The GM works at speed set by parameter PR06.

3.6. CLEANING BRAZIER PROCEDURE

During the works status or Economy procedure, the **CLEANING BRAZIER PROCEDURE** is activated at regular intervals set by parameter PR03 and the procedure go on for a time set by parameter PR 12 with the following feature:

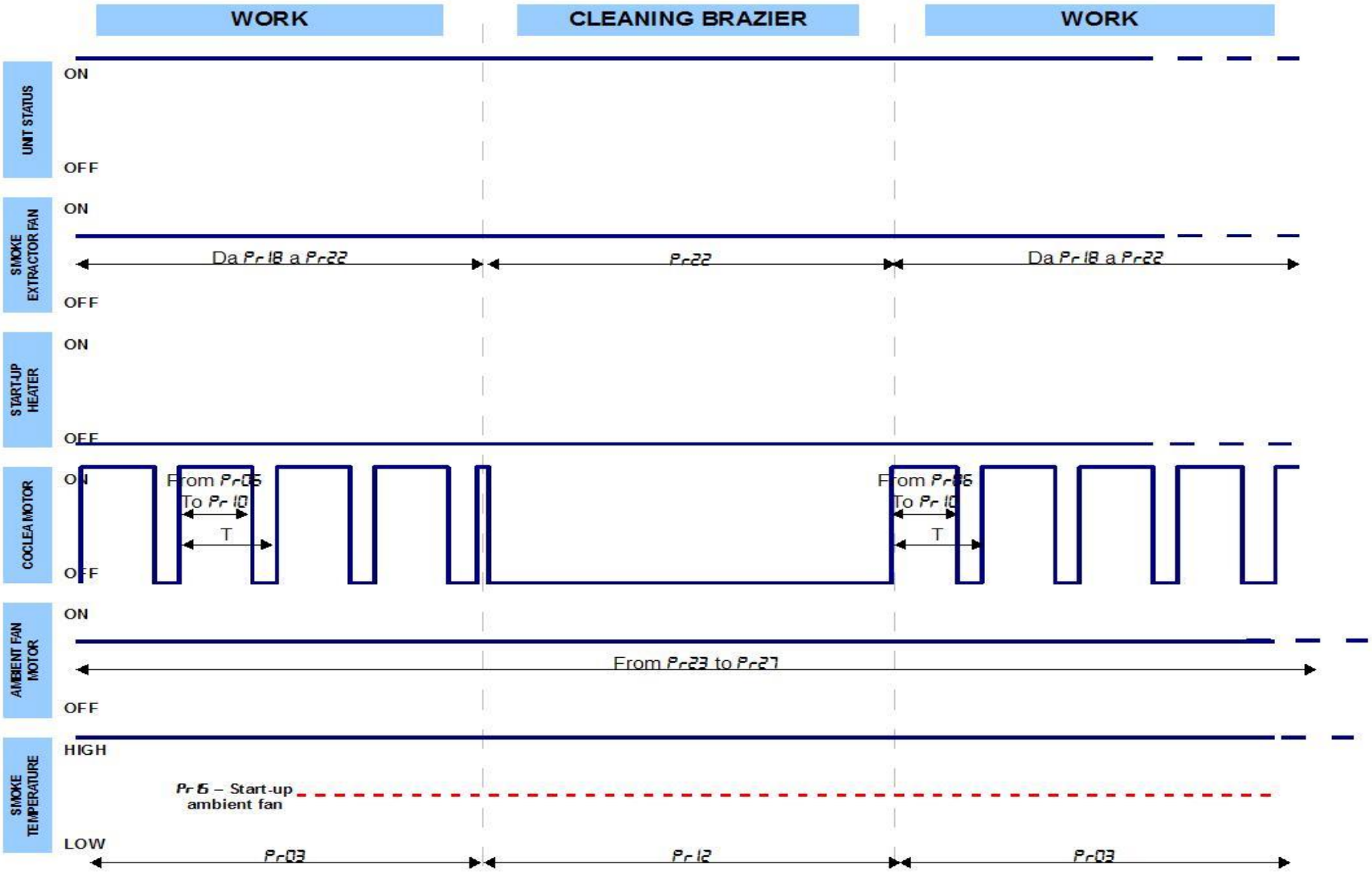
a - SEF is still at maximum speed available.
b - SH is still turn off.
c - AFM is still at speed set by working power.
d - The GM works at speed set by parameter PR06.
e - The display shows "StoP FirE"





Afterwards the unit get back to work as set by WORK status

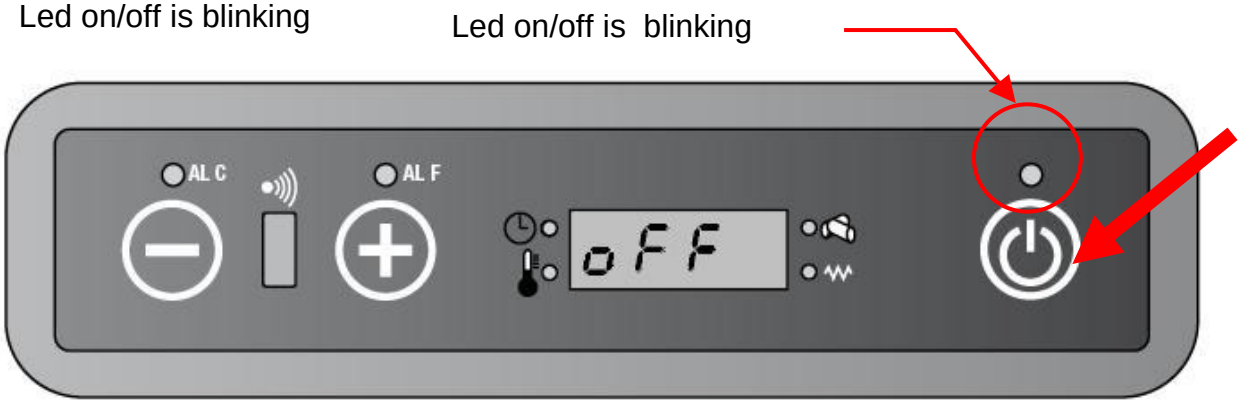
WORKING STATUS

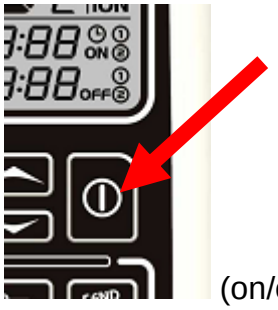


3.7. SHUTDOWN PROCEDURE

When the unit is still working if it is pressed key 3 ⏻ on the display or on the remote control for same seconds the unit turns off.

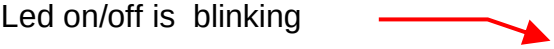
a - SEF is still at maximum speed available until the ST>PR 13.
b - SH is still turn off.
c - AFM is still at maximum speed until the ST>PR 15.
d - GM is being switched off.
e - The display shows OFF
f - Led on/off is blinking

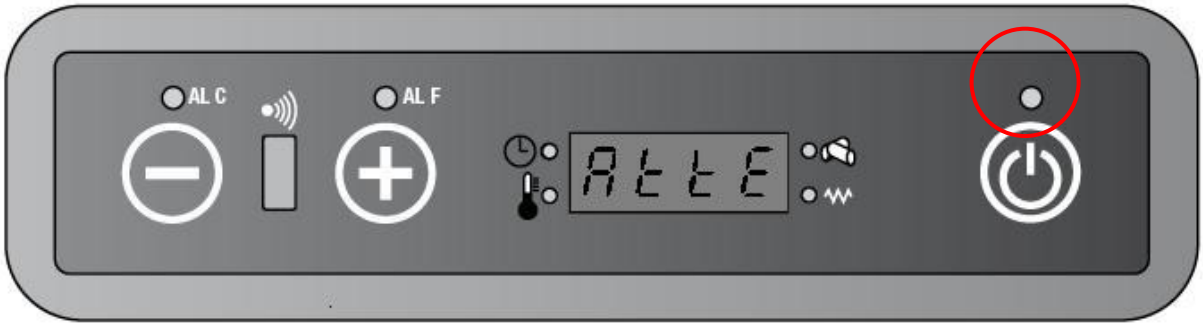



(on/off + SEND)

3.7.1. SAFETY TIME BETWEEN SHUTDOWN PROCEDURE AND STARTUP PROCEDURE

If during the **SHUTDOWN PROCEDURE** the user try to press key 3 ⏻ than the unit is still in **SHUTDOWN PROCEDURE**, in order to avoid malfunction and needless risk, the display will show "oFF / AttE" (OFF Attention!).
This safety time go on for 10 (ten) minutes again after that ST<PR 13



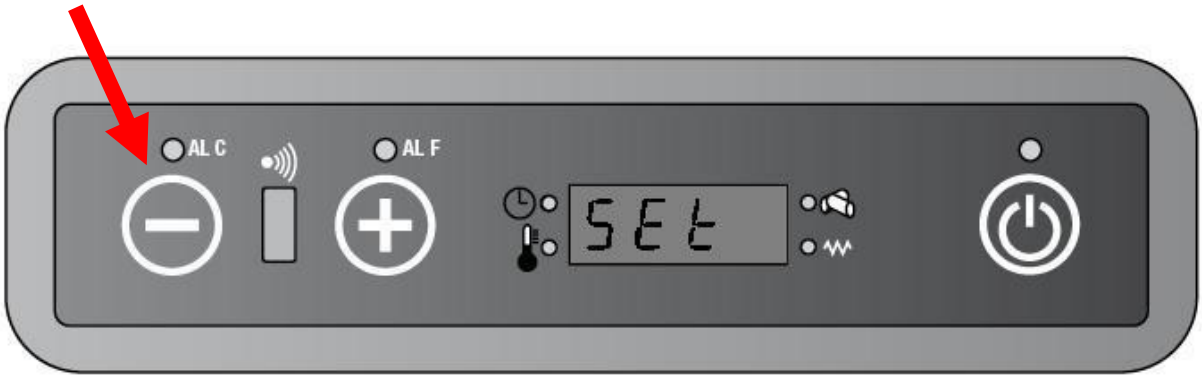


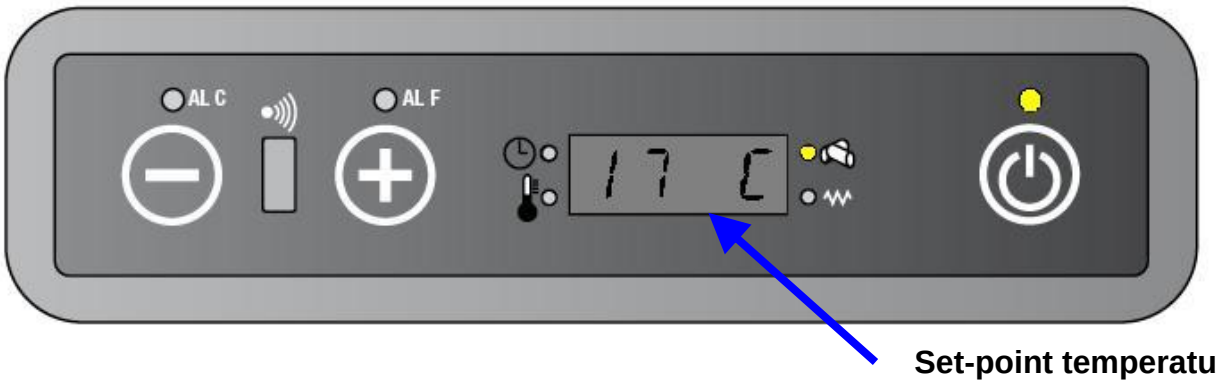
4. TEMPERATURE AND OTHER INFORMATION AVAIABLE FROM DISPLAY

It will be able see on the display:

4.1.1. HOW SEE THE SET POINT TEMPERATURE

- Press key 1 to enter the set temperature menù. The display will show alternately "Set/ set point temperature".





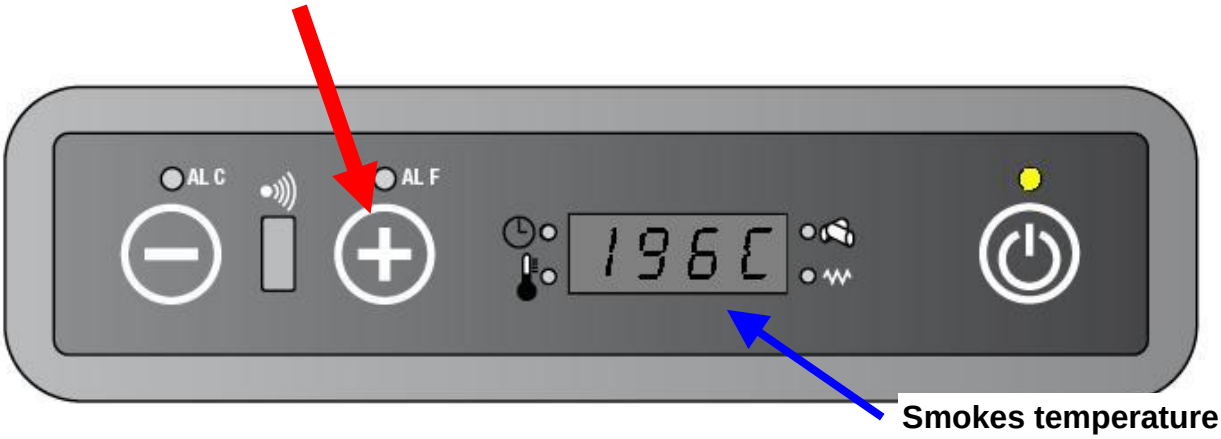
Set-point temperature

After 6 seconds will come back to the current visualization.

4.1.2. HOW SEE SMOKE TEMPERATURE AND SMOKE EXTRATOR FAN SPEED

- Hold key 2 for 5 seconds. You will see alternately the smoke extractor fan speed

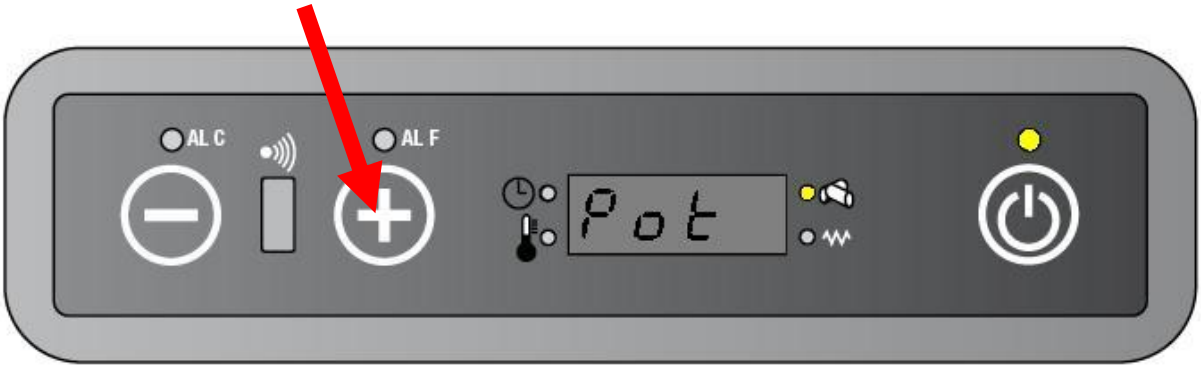
and the smokes temperature:

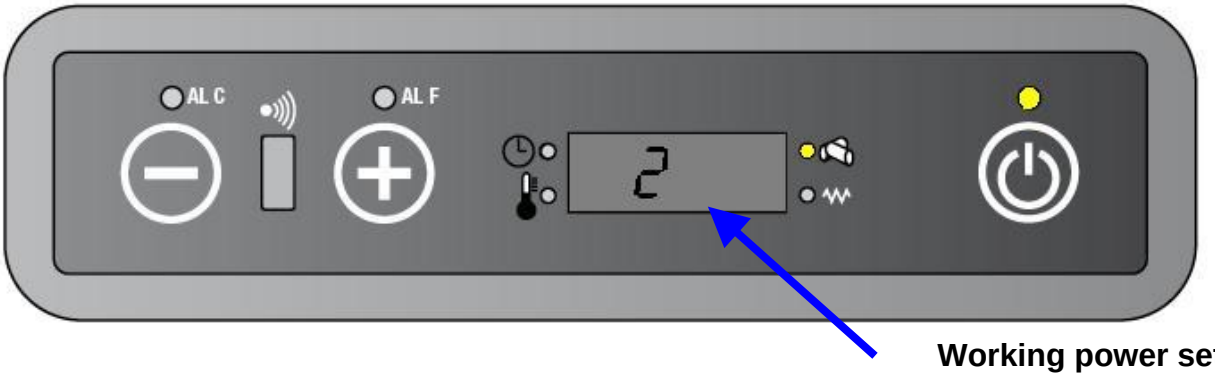


When release key, the display will come back to show the current status (Power capacity and room temperature.

4.1.3. HOW SEE THE WORKING POWER SET

- Press key 2 to enter the set power menu'. The display will show alternately "Pot/ the working power set"





Working power set

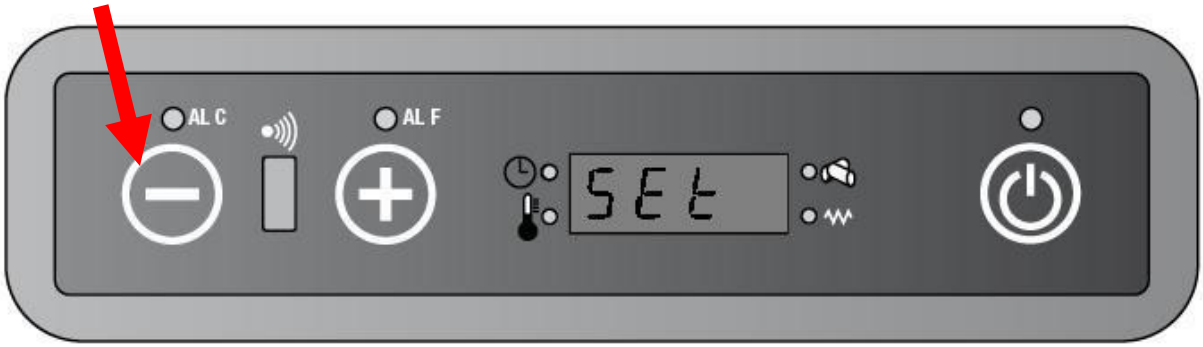
After 6 seconds will come back to the current visualization.

4.2. COMMON VARIATION BY KEYBOARD:

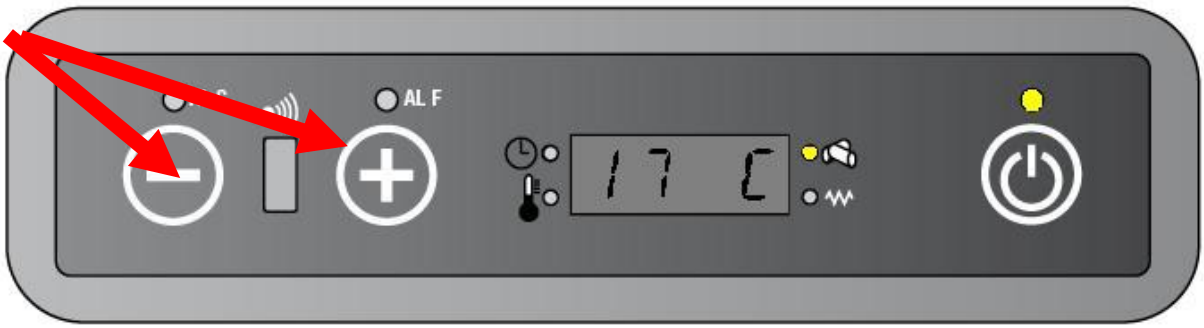
It will be able change with the keyboard:

4.2.1. HOW CHANGE THE SET POINT TEMPERATURE

Press key 1 (the display show the set point temperature).

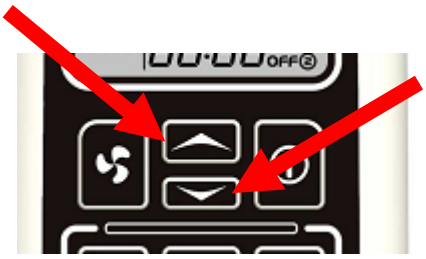


Press key 1 for decrease the temperature or press key 2 for increase the temperature.



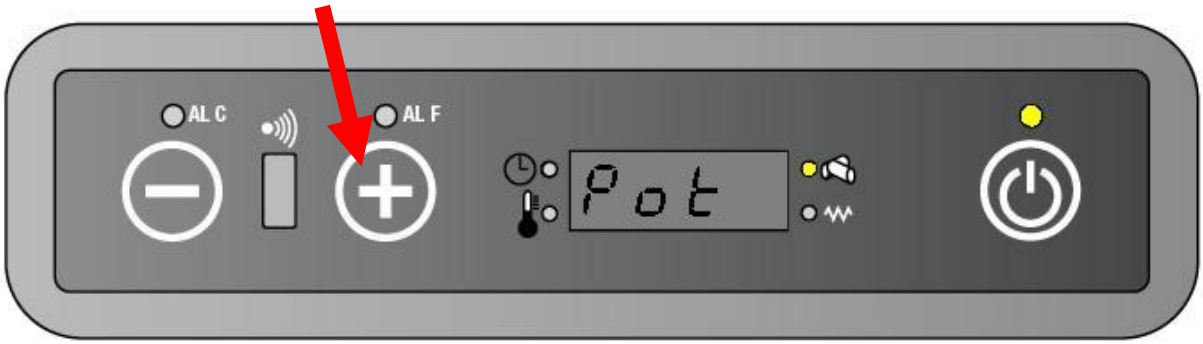
After 6 seconds will come back to the current visualization.

By remote control: press or button (+ SEND) in order to change the set temperature

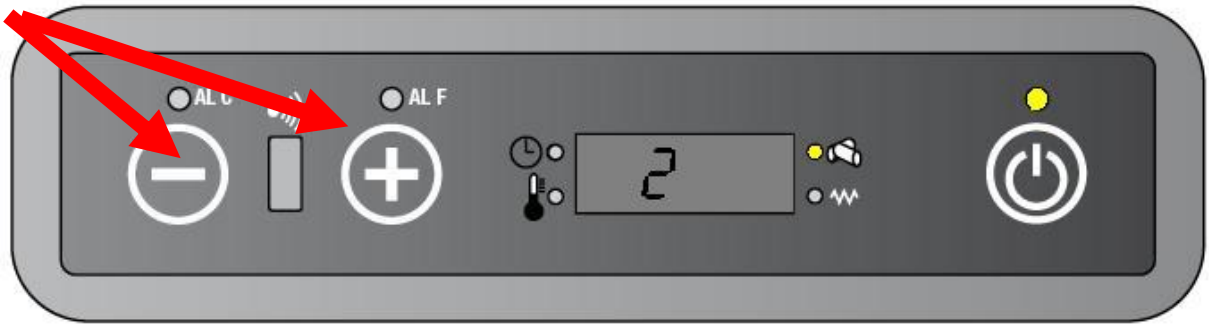


4.2.2. HOW CHANGE THE WORKING POWER

Press key 2 (the display shows the set power menù).



Press key 1 for decrease the working power or press key 2 for increase the working power.



After 6 seconds will come back to the current visualization.

By remote control: press button (+ SEND) in order to change the working power

When the user changes the working power the Smoke Extractor Fan (SEF), Ambient Fan (AFM) and Gear motor (GM) must work as indicate in the follow table:

POWER CAPACITY – REFERENCE PARAMETERS

Power capacity status (showed on the display)	Power capacity status (showed on the	SEF SPEED	AFM	GM

	remote control)			
On 1	[redacted]	PR18	PR23	PR06
On 2	[redacted]	PR19	PR24	PR07
On 3	[redacted]	PR20	PR25	PR08
On 4	[redacted]	PR21	PR26	PR09
On 5	[redacted]	PR22	PR27	PR10

NOTE: When the user change the working power, the SEF speed changes with steps of 150 RPM/minute.

EXAMPLE: if the user change the power capacity from 5 to 1 then the SEF speed decreases from 2450RPM to 2100RPM with 3 steps (2300-2150-2100).

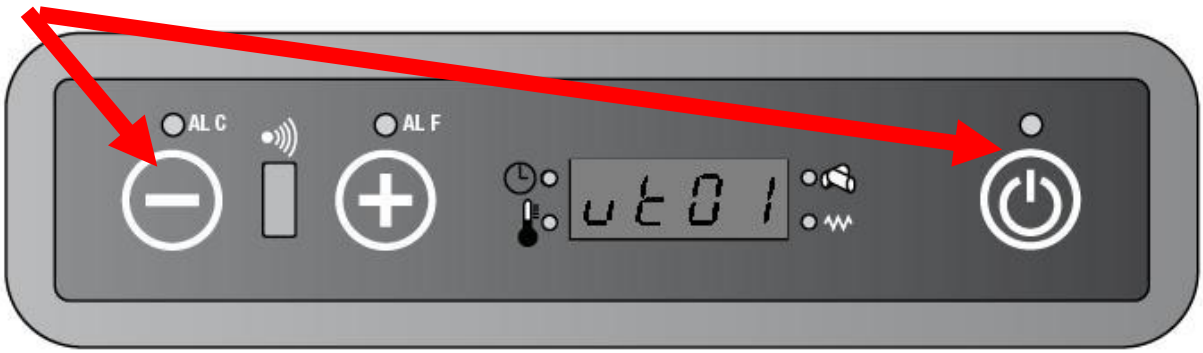
5. USER MENU

The PCB is equipped with a menu that it is accessible by the keyboard. In this PCB version this menu is used only for setting the parameters of the stove (UT04).
The function that allows to activate or deactivate the stove at the wished time is available only by remote control. So UT05-UT06-UT07-UT08-UT09-UT10 are not used.
This menu is used from the user and from the technician and it is so subdivided:

MENU	DESCRIPTION		AVAILABLE FOR
UT0 1	Current day – Cronothermostat deactivation		User
UT02	Current hour		User
UT03	Current minutes		User
UT04	Service parameter		Technician (*)
UT05	Timer ON 1	Cycle 1	User
UT06	Timer OFF 1		User
UT07	Select activation day for timer 1		User
UT08	Timer ON 2	Cycle 2	User
UT09	Timer OFF 2		User
UT 10	Select activation day for timer 2		User

(*) See the relative chapter.

The menu can be entered by pressing key 1 and than repeatedly key 3.



Every time that key 3 is pressed, the PCB will shift at next position.

The menu can be leaved automatically if no one key is pressed for 60 (sixty) seconds.

5.1. SET THE CLOCK – UT01 (NOT USED IN THIS VERSION)

The clock is set with the follow procedures:

5.1.1. SET THE CURRENT DAY

- Press key1 and than key 3 until UT01 will appear on the display.
- Press key 1 or key 2, to set the current day in a unit of 1 day. (key 1 decrease, key 2 increase).
- Set the day with follow acronym:

ACRONYM	DAY
DAY 1	Monday
DAY2	Tuesday
DAY3	Wednesday
DAY4	Friday
DAY5	Thursday
DAY6	Saturday
DAY7	Sunday
0FF	Timing not active

Note: If UT0 1 is set as OFF the **CRONOTERMOSTAT PROCEDURE** doesn't work

5.1.2. HOW SET THE CURRENT HOUR – UT02 (NOT USED IN THIS VERSION)

- Press key 1 and than key 3 twice until UT02 and the hour will appear on the display.
- Press key 1 or key 2, to set the current hour in a unit of 1 hour. (key 1 decrease, key 2 increase). Hold the button for fast changing.

5.1.3. HOW SET THE CURRENT MINUTE – UT03 (NOT USED IN THIS VERSION)

- Press key 1 and than repeatedly key 3 until UT03 and the minutes will appear on the display.
- Press key 1 or key 2, to set the current minute in a unit of 1 minute. (key 1 decrease, key 2 increase). Hold the button for fast changing.

5.2. CRONOTERMOSTAT PROCEDURE –UT05-UT06-UT07-UT08-UT09-UT10 (NOT USED IN THIS VERSION)

The **CRONOTERMOSTAT PROCEDURE** is of use to schedule the unit **STARTUP** and **SHUTDOWN**.

- **STATUP** and **SHUTDOWN** scheduled works like described in previous chapters.

- A **STARTUP** and a **SHUTDOWN** make cycle.
- A cycle cannot be divided.
- A cycle can be scheduled on different day.
- It is possible to schedule two different cycle with different timing.
- This schedule must not be superimposable.

Therefore, each schedule need set:

a - STARTUP (menu UT05 for cycle 1 or UT08 for cycle 2)
b - SHUTDOWN (menu UT06 for cycle 1 or UT09 for cycle 2)
c - ACTIVATION DAYS (menu UT07 for cycle 1 or UT 10 for cycle 2)

5.2.1. HOW SET A SCHEDULE

We show like set the cycle 1. (Select the right menu for set the cycle 2).

- Press key 1 and then repeatedly key 3 until UT05 will appear on the display.
- Press key 1 or key 2, to set the **STARTUP** time in a unit of 10 (ten) minutes. Hold the button for fast changing.
- Press key 1 and then repeatedly key 3 until UT06 will appear on the display.
- Press key 1 or key 2, to set the **SHUTDOWN** time in a unit of 10 (ten) minutes. Hold the button for fast changing.
- Press key 1 and then repeatedly key 3 until UT07 will appear on the display.
- Press key 1 to select the day and press key 2 to activate or deactivate the day.

EXAMPLE: the display shows OFF1.
OFF1 means that the schedule is deactivated in the DAY1 (Monday).
If press key 2 the display show ON1.
ON1 Means that schedule is activated in the DAY1 (Monday).
If press key 1 the display show OFF2.
OFF2 means that the schedule is deactivated in the DAY2 (Tuesday).
If press key 2 the display show ON1.
ON2 Means that schedule is activated in the DAY2 (Tuesday).
And so on.

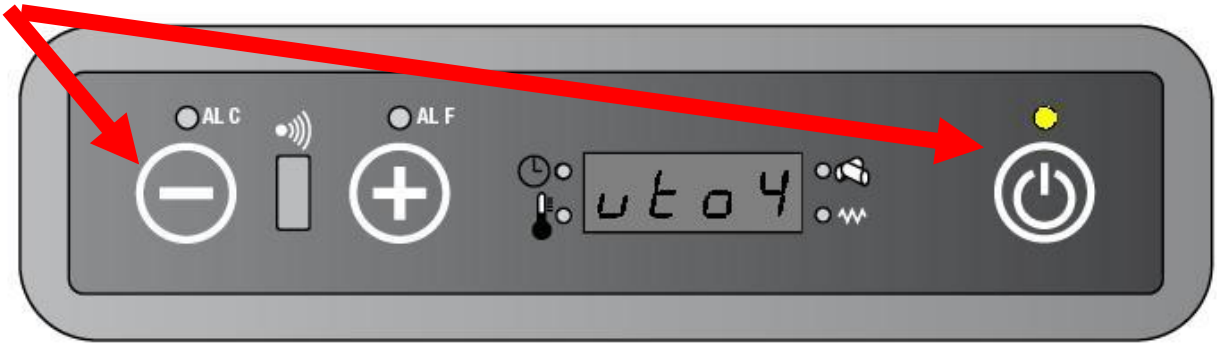
6. TECHNICAL MENU

Like described in the previous chapter, the menu UT04 allows to enter at the special menu reserved only at qualified people.

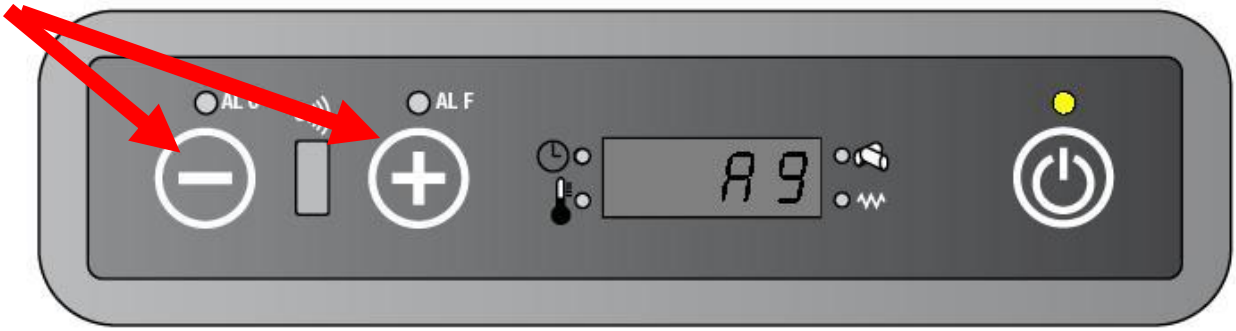
6.1. HOW SET/CHANGE WORKING PARAMETERS

In order to enter at **THECHNICAL MENU**:

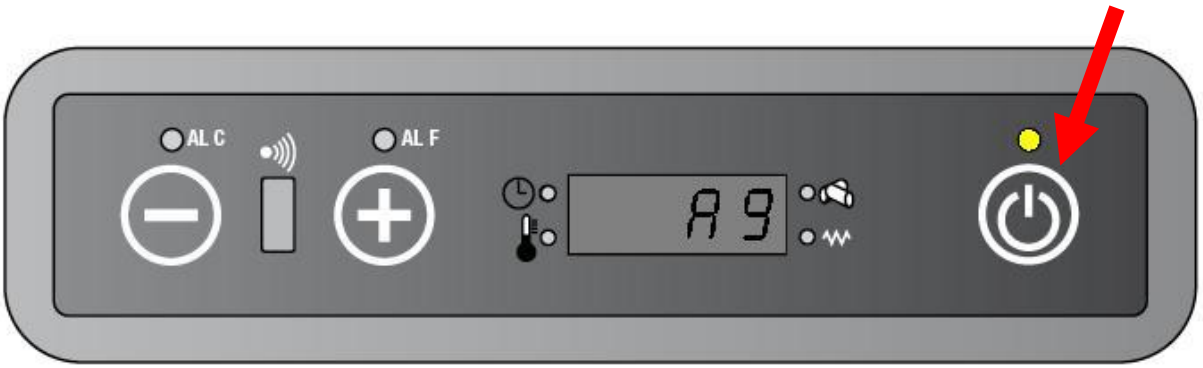
- Press key 1 and than repeatedly key 3 until UT04 will appear on the display.



- Press repeatedly key 1 or key 2 until A9 will appear on the display. Hold the button for fast changing.

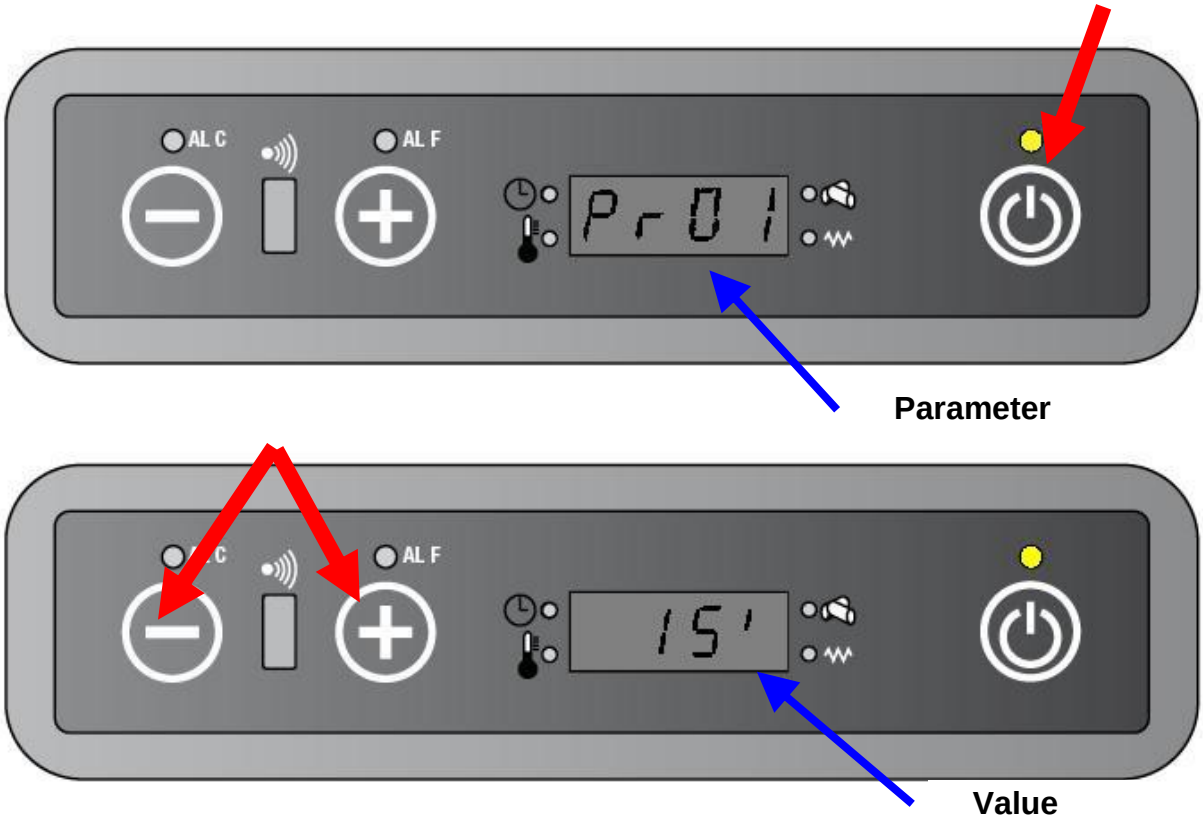


- Press key 3 in order to enter at TECHNICAL MENU.



- The display will show PR0 1.

By key 3 will be able to scroll the TECHNICAL MENU (PR0 1, PR02, PR03,…PR28.) and change the working parameters by the key 1 or key 2. Hold the button for fast changing.



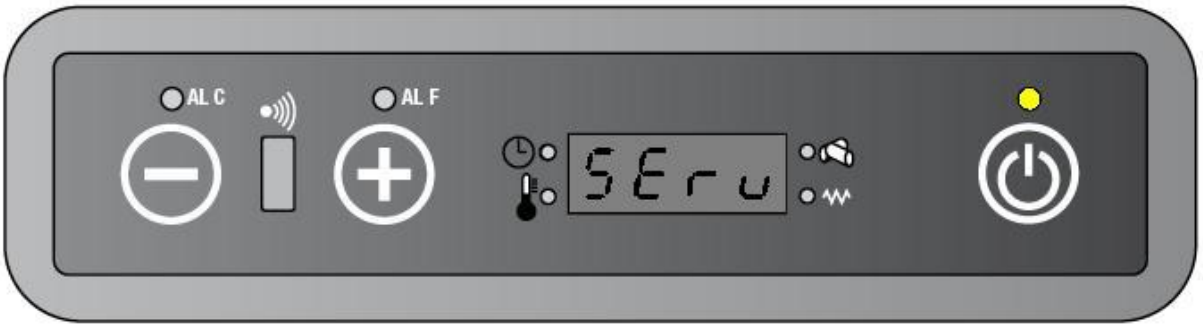
See the follow list with the extended parameters meaning:

The menu can be leaved by pressing repeatedly key 3 (after UT10 there's the exit from the menu and the display will come back to show the current status) or automatically if no one key is pressed for 60 (sixty) seconds.

PARAMETER	DESCRIPTION	RANGE	VALUE	UNIT
PR0 1	Maximum time of START-UP procedure cycle (until the Smoke temperature set by parameter PR 13 is not reached)	From 1' to 18'	15	Minutes
PR02	Maximum time of FIRE ON procedure	From 1' to 15'	6	Minutes
PR03	Time between two CLEANING BRAZIER procedure	From 10' to 90'	60	Minutes
PR04	Time ON for Cochlea Motor during the **LOAD WOOD PROCEDURE**.	From 0,2" to 3"	1,6	Seconds
PR05	Time ON for Cochlea Motor during the **FIRE ON PROCEDURE**"	From 0,2" to 3"	1,6	Seconds
PR06	Time ON for Cochlea Motor during the working power 1	From 0,2" to 3"	1,8	Seconds
PR07	Time ON for Cochlea Motor during the working power 2	From 0,3" to 3"	1,9	Seconds
PR08	Time ON for Cochlea Motor during the working power 3	From 0,4" to 4,5"	2,2	Seconds
PR09	Time ON for Cochlea Motor during the working power 4	From 0,5" to 5,0"	2,4	Seconds
PR 10	Time ON for Cochlea Motor during the working power 5	From 0,5" to 6"	2,6	Seconds
PR 1 1	Delay alarm activation	From 30" to 240"	240	Seconds
PR 12	Time ON for **CLEANING BRAZIER PROCEDURE**	From 0" to 240"	30	Seconds
PR 13	Minimum smoke temperature in order to account the unit in **FIRE ON PROCEDURE**	From 40° to 120°	50	°C
PR 14	Activation temperature of **SAFETY BODY PROCEDURE**	From 130° to 260°	220	°C
PR 15	Minimum smoke temperature for turning on the ambient fan motor	From 40° to 110°	90	°C
PR 16	Smoke extractor fan speed on **LOAD WOOD PROCEDURE**	From 600 to 2780	2100	RPM
PR 17	Smoke extractor fan speed on **FIRE ON PROCEDURE**	From 600 to 2780	2100	RPM
PR 18	Smoke extractor fan speed on **WORK STATUS** at working power 1	From 600 to 2780	2100	RPM
PR 19	Smoke extractor fan speed on **WORK STATUS** at working power 2	From 600 to 2780	2200	RPM
PR 20	Smoke extractor fan speed on **WORK STATUS** at working power 3	From 600 to 2780	2300	RPM
PR2 1	Smoke extractor fan speed on **WORK STATUS** at working power 4	From 600 to 2780	2350	RPM
PR22	Smoke extractor fan speed on **WORK STATUS** at working power 5	From 600 to 2780	2450	RPM
PR23	Ambient fan motor speed on **WORK STATUS** at working power 1	From 1 to 23	12	Number
PR24	Ambient fan motor speed on **WORK STATUS** at working power 2	From 2 to 26	15	Number
PR25	Ambient fan motor speed on **WORK STATUS** at working power 3	From 3 to 30	17	Number
PR26	Ambient fan motor speed on **WORK STATUS** at working power 4	From 5 to 35	19	Number
PR27	Ambient fan motor speed on **WORK STATUS** at working power 5	From 7 to 35	21	Number
PR28	Shutdown on the set-point temperature	From OFF to 15	Off	Number

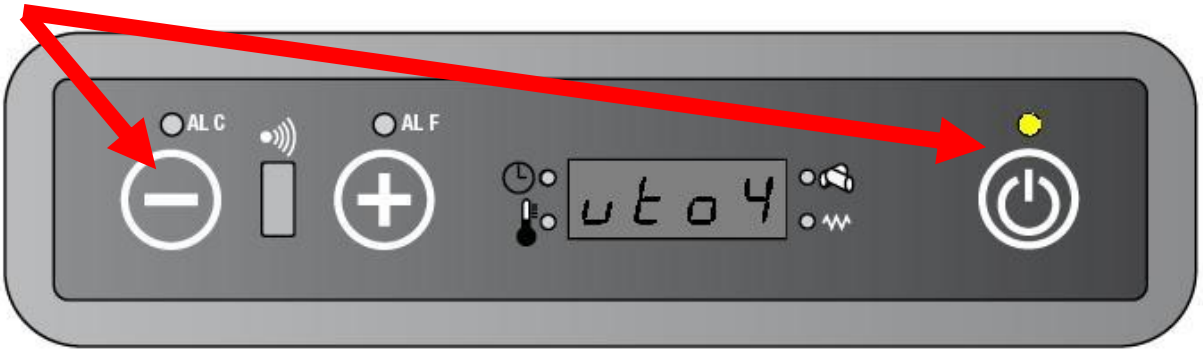
6.2. SERVICE FUNCTION

The PCB count the **PARTIAL WORKING HOURS** in order to make possible a schedule maintenance.
The service hours are setting by parameter PR45, usually 900 (nine hundred) hours.
When the PCB count arrive at set by parameter PR45, the unit shows "SErv" on the display until the service assistance set in the **RESET CODE**. Meantime the unit work however.

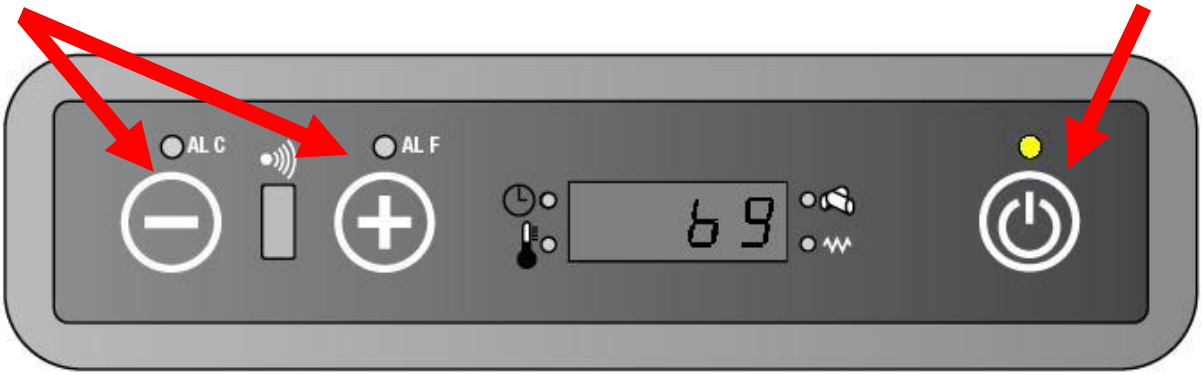


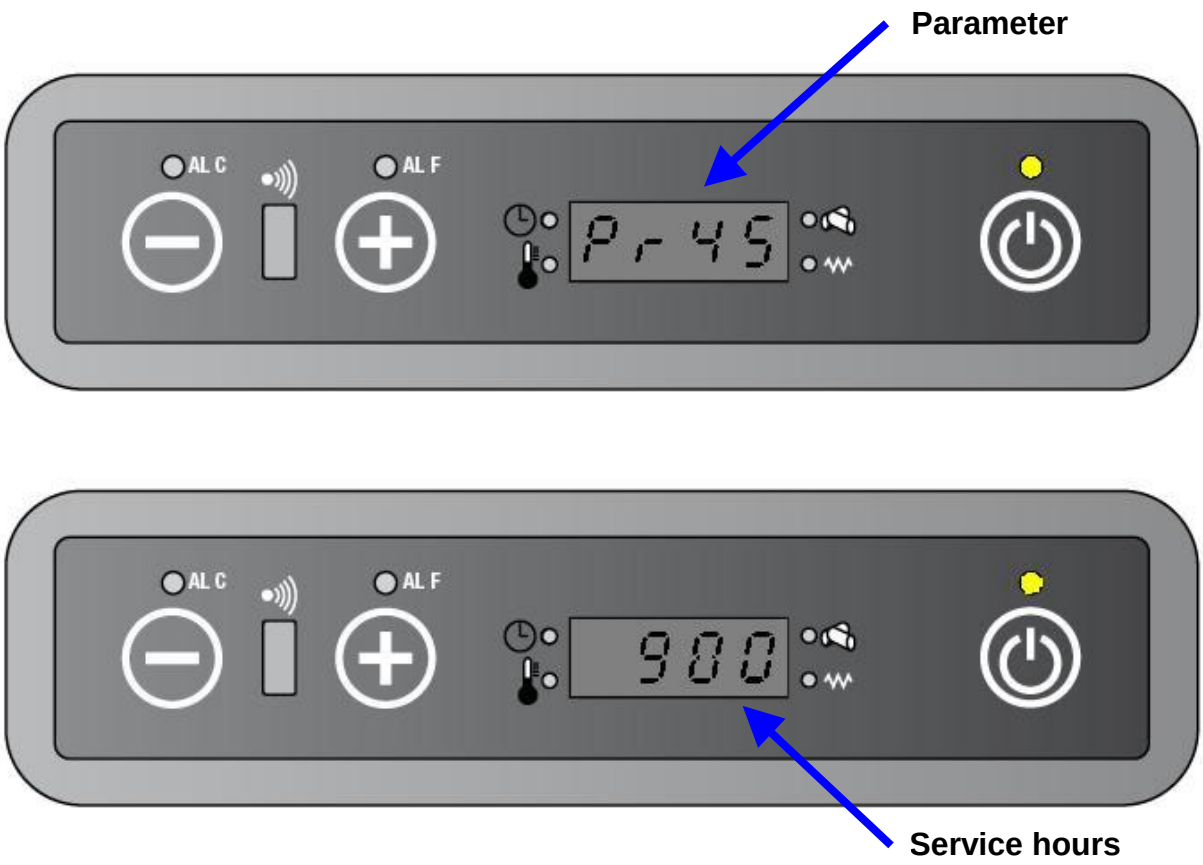
HOW SEE THE SERVICE HOURS

- Press key 1 and then repeatedly key 3 until UT04 will appear on the display.



- Press repeatedly key 1 or key 2 until B9 will appear on the display. Hold the button for fast changing.
- Press key 3 in order to see the parameter PR45.





- The display will show alternately “PR45 / 900”

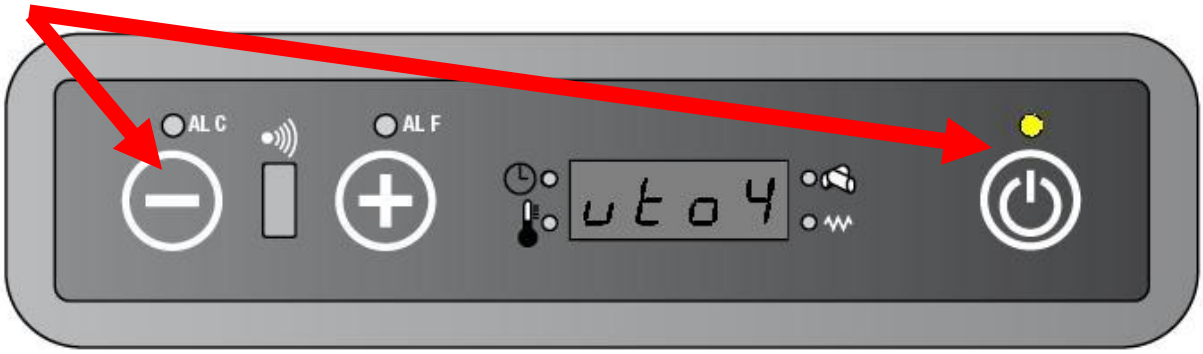
After 6 seconds will come back to the current status visualization.

PARAMETER	DESCRIPTION	RANGE	VALUE	UNIT
PR45	Service hours (not to be modified)		900	Hours

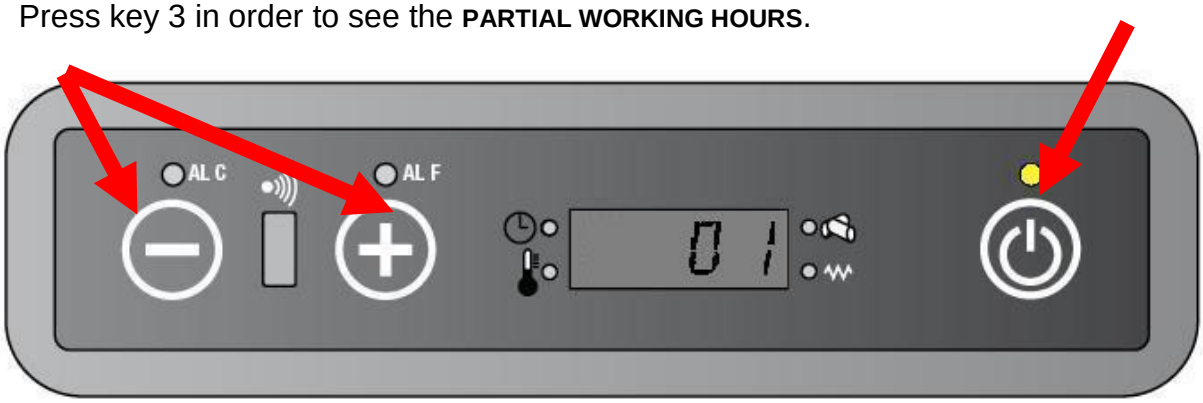
6.2.1. HOW SEE THE PARTIAL WORKING HOURS

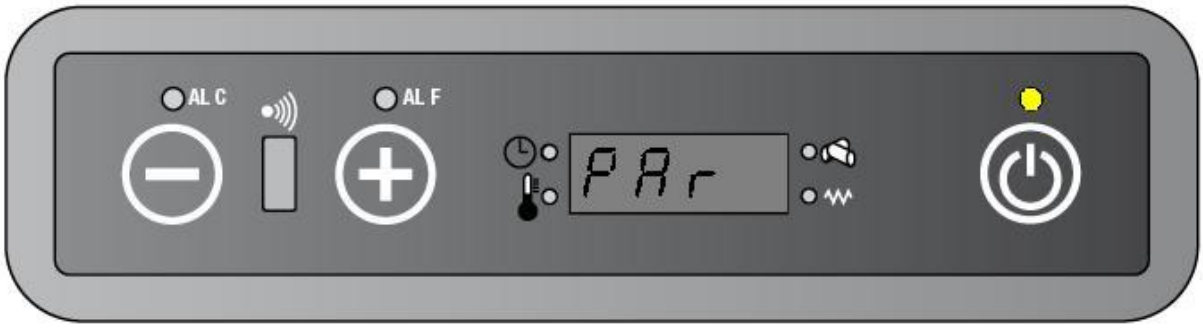
The **PARTIAL WORKING HOURS** is the time between a schedule maintenance and the following.

- Press key 1 and repeatedly key 3 until UT04 will appear on the display.

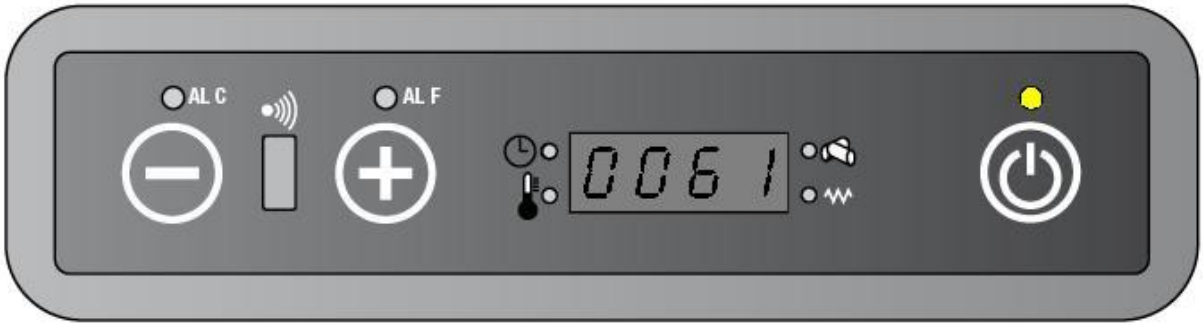


- Press repeatedly key 1 or key 2 until 01 will appear on the display
- Press key 3 in order to see the **PARTIAL WORKING HOURS**.





Partial working hour



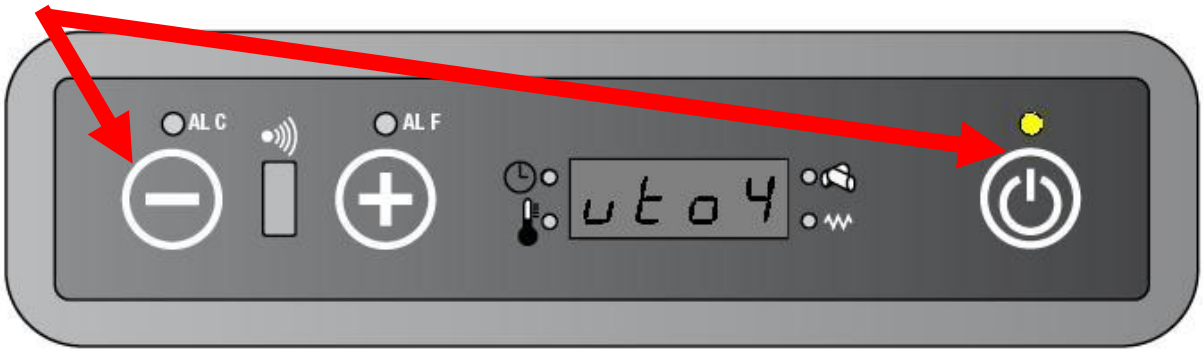
- The display show alternately "PAR / **PARTIAL WORKING HOURS**"

After 6 seconds will come back to the current status visualization.

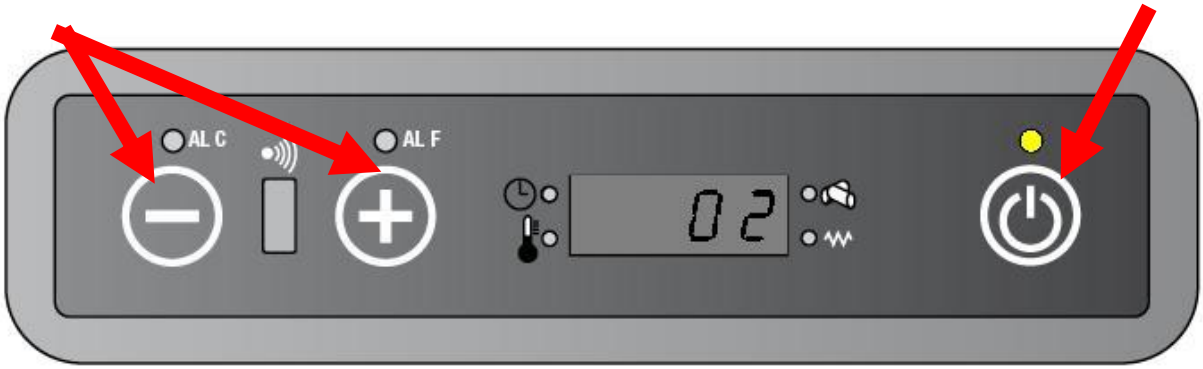
6.2.2. HOW SEE THE TOTAL WORKING HOURS

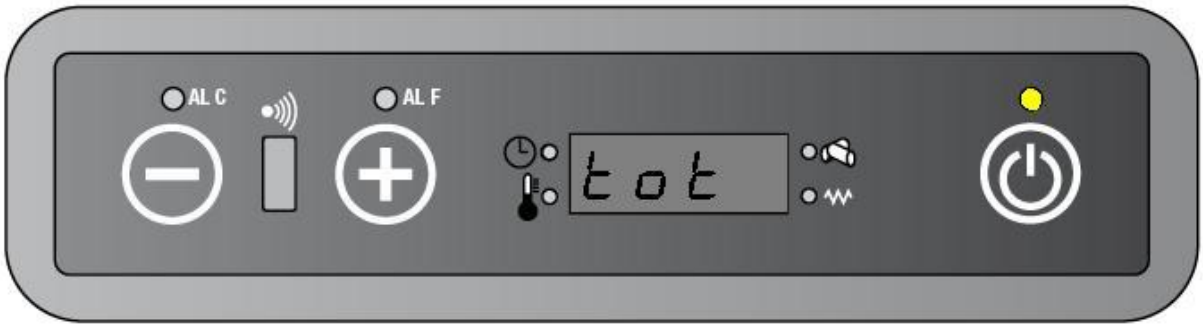
The **TOTAL WORKING HOURS** is the working time from the first startup.

- Press key 1 and repeatedly key 3 until UT04 will appear on the display.

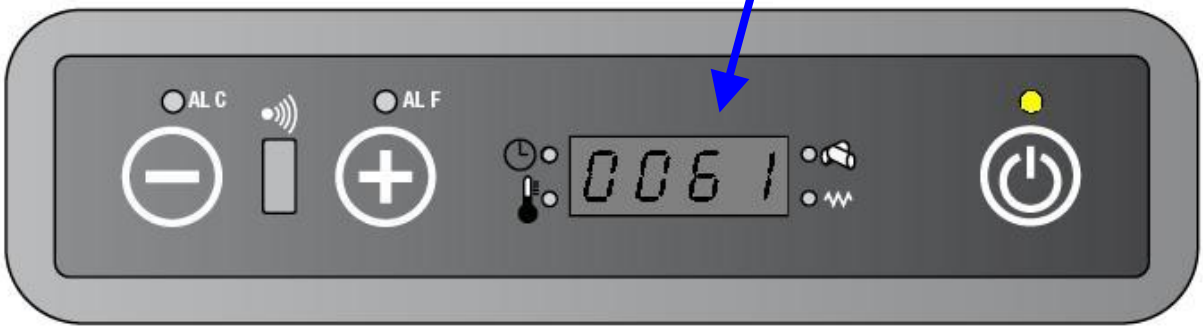


- Press repeatedly key 1 or key 2. until "02" will appear on the bottom display.
- Press key 3 in order to see the **TOTAL WORKING HOURS**.





Total working hour

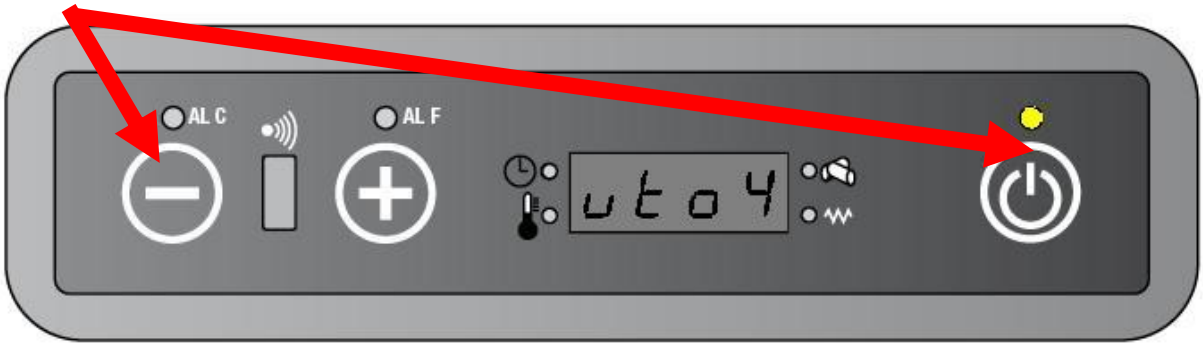


- The display show alternately "tot / **TOTAL WORKING HOURS**"

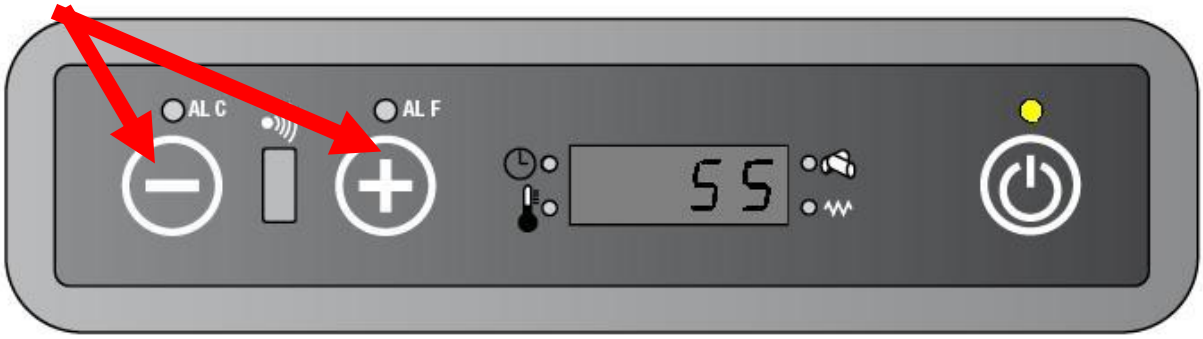
After 6 seconds will come back to the current status visualization.

6.2.3. HOW RESET THE PARTIAL WORKING HOURS

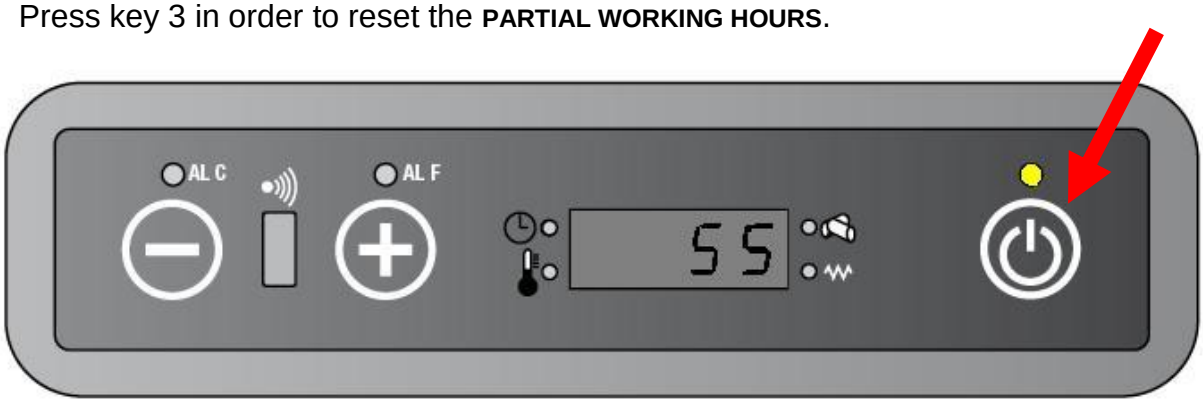
- Press key 1 and then repeatedly key 3 until UT04 will appear on the display



- Press repeatedly key 1 or key 2. until 55 will appear on the bottom display. Hold the button for fast changing.



- Press key 3 in order to reset the **PARTIAL WORKING HOURS**.



6.3. OPTIMIZATION FUNCTION

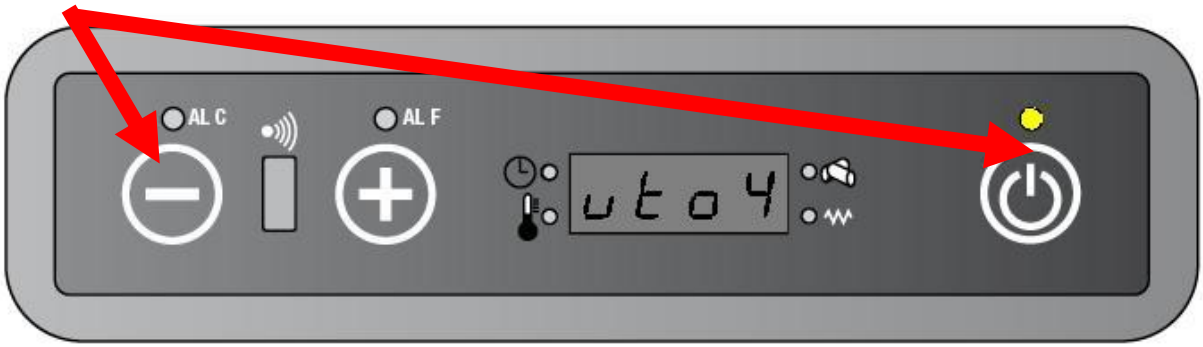
It can optimize the working status by the variation of SEF (Smoke Extractor Fan) speed or the GM (Gear Motor) speed by password C9 from UT04 menu.

- CASP is call the SEF variation.
- CPEL is call the GM variation.

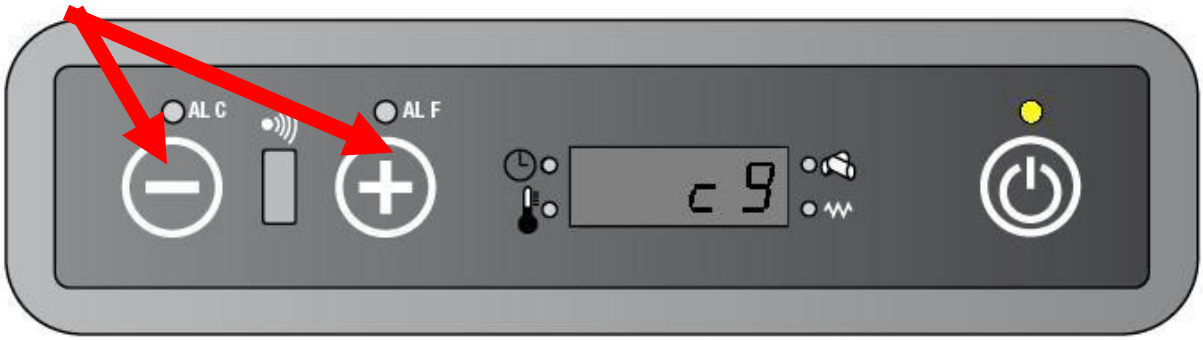
This change is a per cent variation of the relative **WORKING PARAMETERS**.
(From PR18 to PR22 for SEF – From PR06 to PR10 for GM)

6.3.1. HOW CHANGE THE OPTIMIZATION

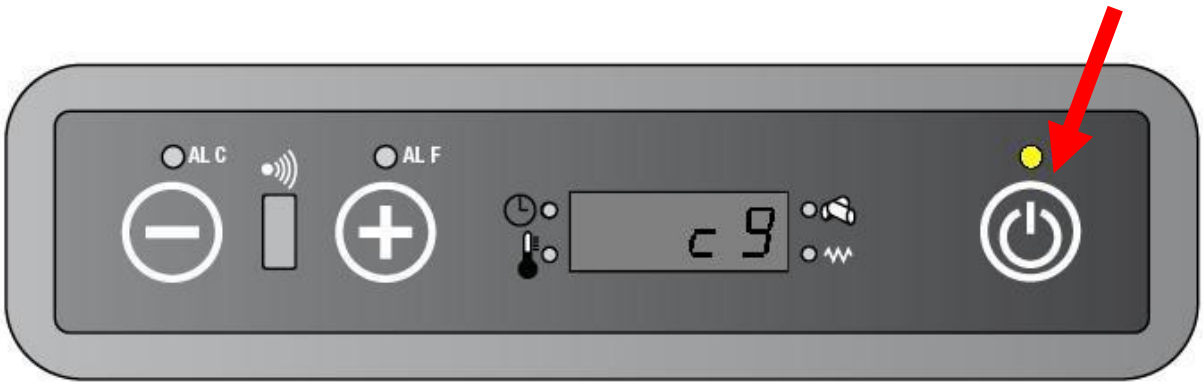
- Press key 1 and then repeatedly key 3 until UT04 will appear on the display



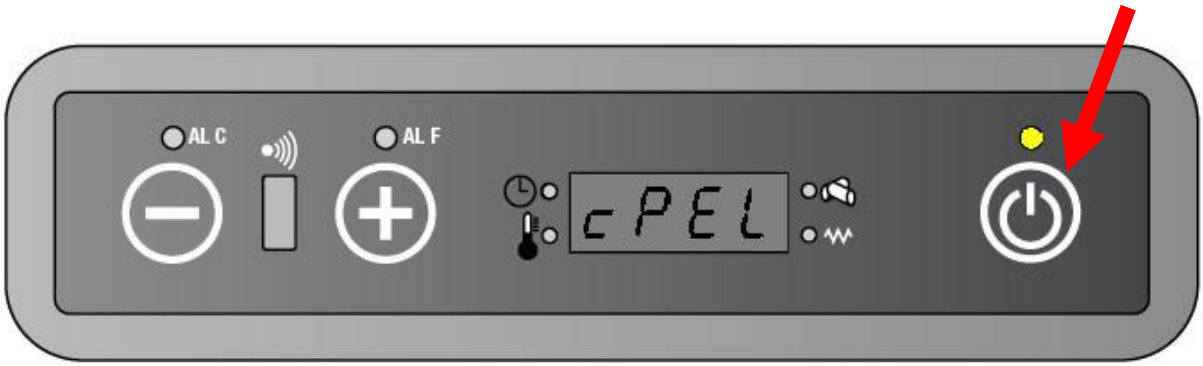
- Press repeatedly key 1 or key 2 until C9 will appear on the display. Hold the button for fast changing.

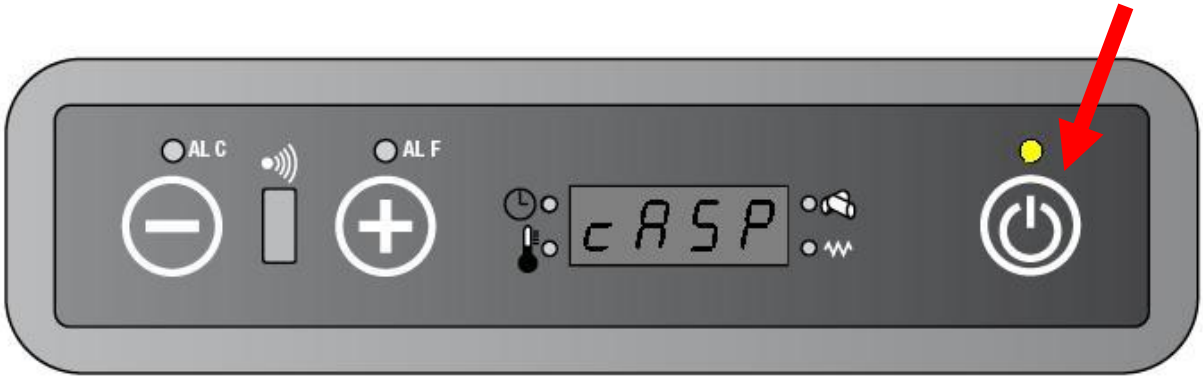


- Press key 3 for enter into submenu.

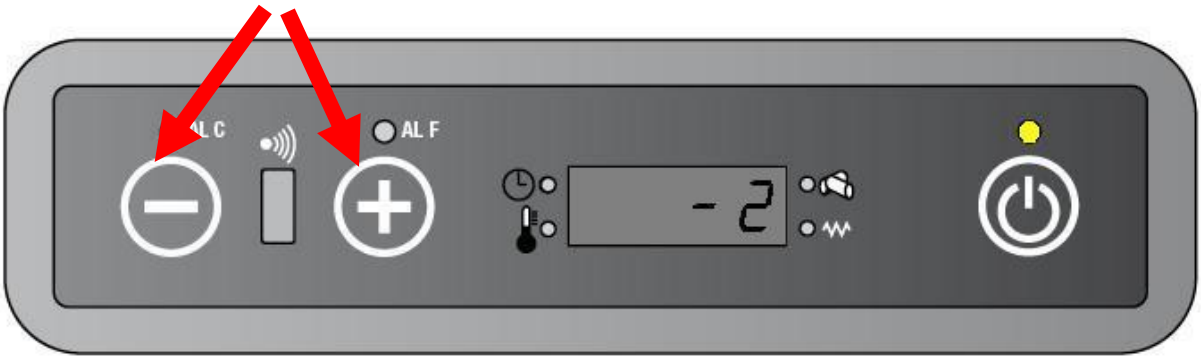


- Press key 3 in order to select CPEL or CASP.





- Press key 1 or key 2 to set the variation.



The variation range is from -5 (minus five) to 5 (plus five). Every variation point is equivalent to a per cent variation of 5 (five).
The default values are:

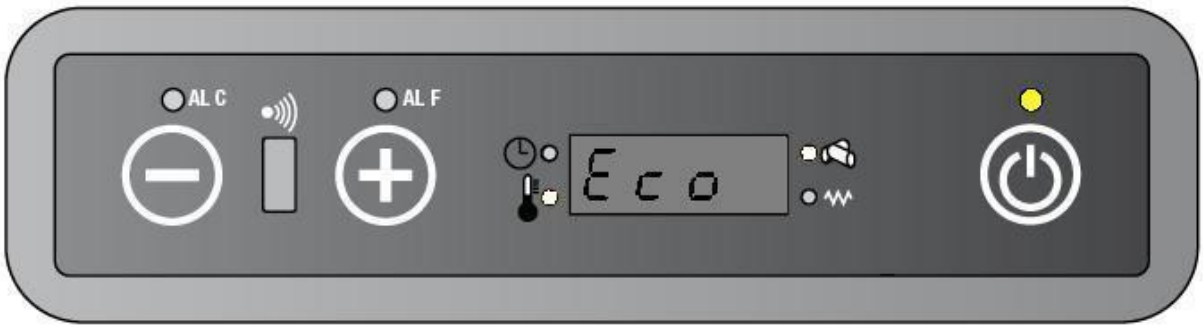
Cpel = 0

Casp = 0

6.4. ECONOMY STOP FUNCTION

The **ECONOMY STOP FUNCTION** is available by the parameters PR28.
If PR28 is set OFF then It is normal that the unit works at **ECONOMY PROCEDURE** with RT (Room temperature) ≥ SPT (Set-point temperature) and never it stops, whatever it is the RT.
If PR28 is different from OFF, usually 2 (two), then the **ECONOMY STOP FUNCTION** is active.

The **ECONOMY STOP FUNCTION** switch-offs the unit if the RT ≥ SPT + PR28 for a consecutive time of 30 (thirty) seconds.
The unit switch-off follows the **SHOUTDOWN PROCEDURE**.
The unit will be able startup automatically only if the unit was shutdown by the **ECONOMY STOP FUNCTION**.
The **ECONOMY STOP FUNCTION** switch-ons the unit if the RT ≤ SPT - PR28 for a consecutive time of 30 (thirty) seconds.
The unit switch-on follows the **STATUP PROCEDURE**.
While the unit is still **ECONOMY STOP FUNCTION** the display show "Eco Stop".



6.4.1. HOW SET/CHANGE ECONOMY STOP.

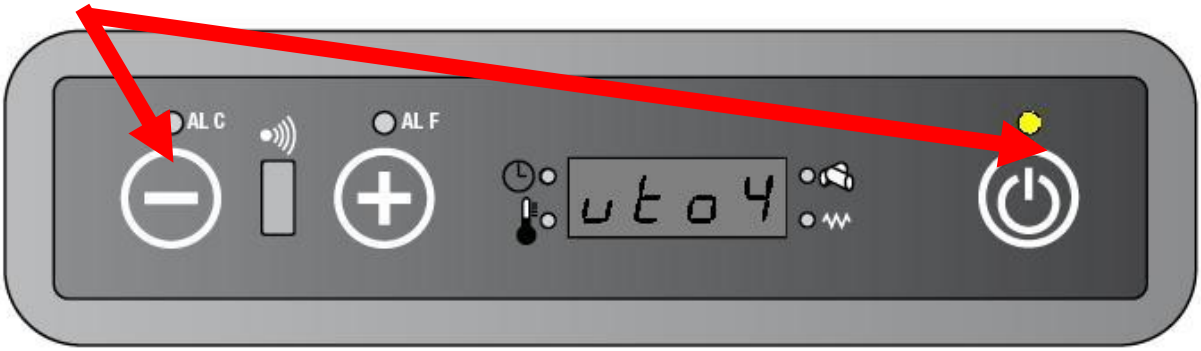
Follow the instruction describes into the **HOW SET/CHANGE WORKING PARAMETERS** paragraph and select the parameter PR28 for activate the **ECONOMY STOP FUNCTION**.
Press key 1 or key 2, to set the PR28 in a unit of 1 (one) degrease.

6.5. HISTORICAL ALARM MEMORY

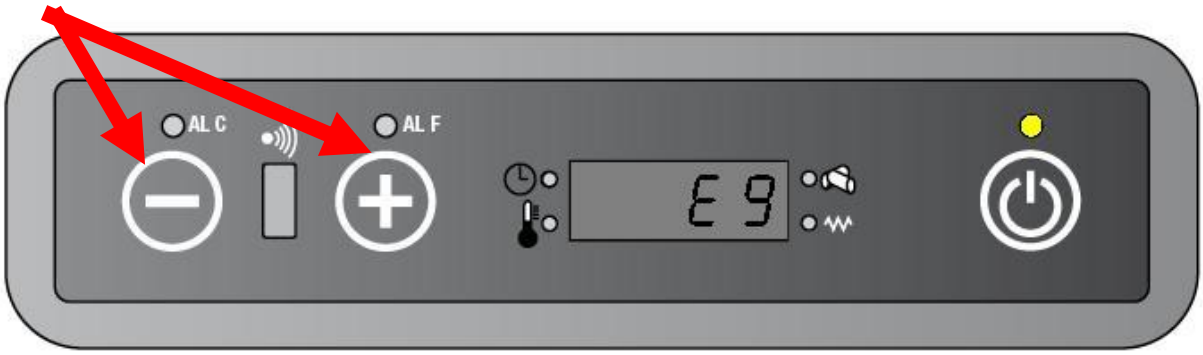
It is available a **HISTORICAL ALARM MEMORY** accessible by password E9 from menu UT04.
The **HISTORICAL ALARM MEMORY** records last 5 (five) alarm.
The **HISTORICAL ALARM MEMORY** reset is available by password 99 from menu UT04.

6.5.1. HOW SEE HISTORICAL ALARM MEMORY

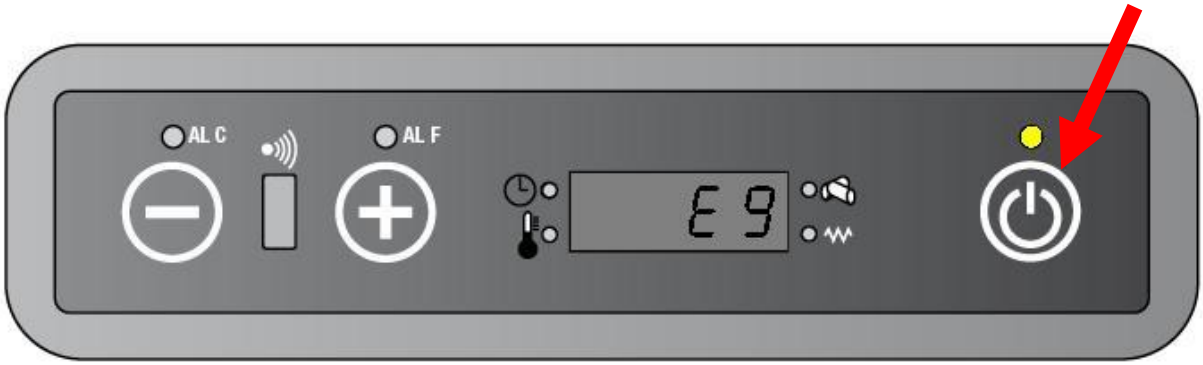
- Press key 1 and repeatedly key 3. until UT04 will appear on the display.



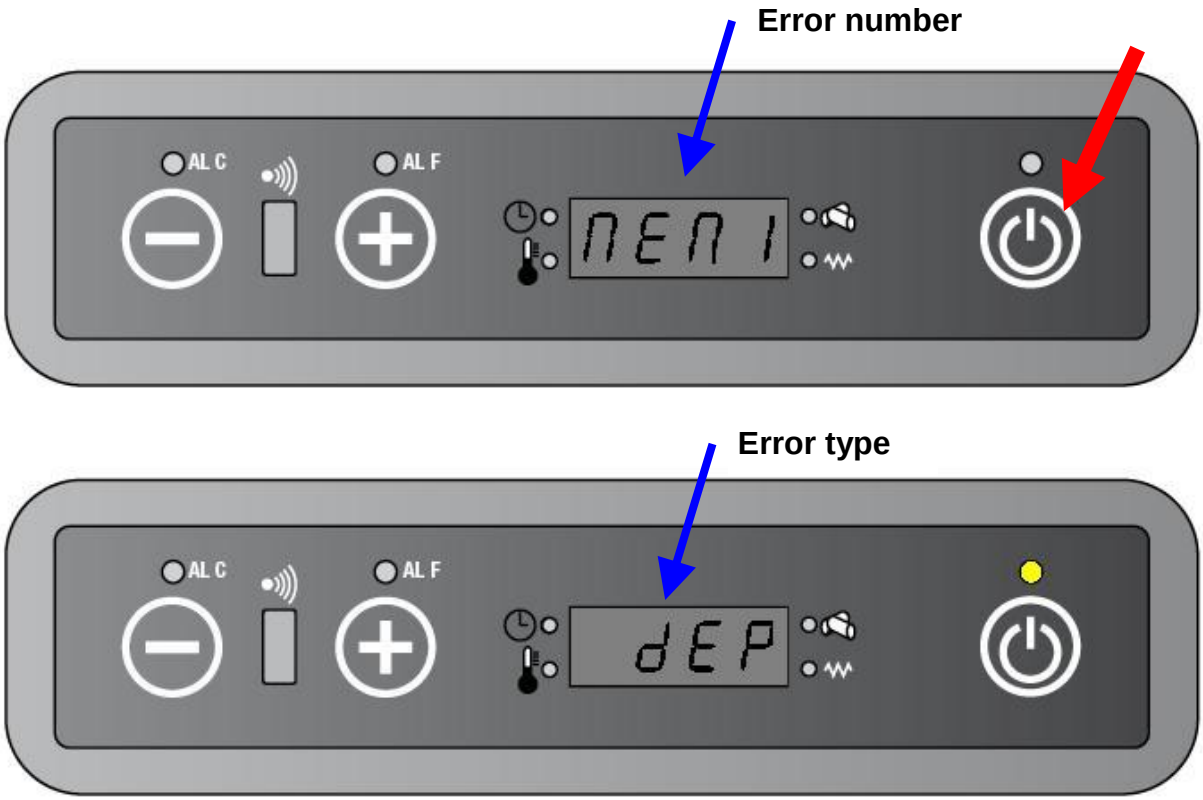
- Press repeatedly key 1 or key 2 until E9 will appear on the display. Hold the button for fast changing.



- Press key 3 for enter into submenu.

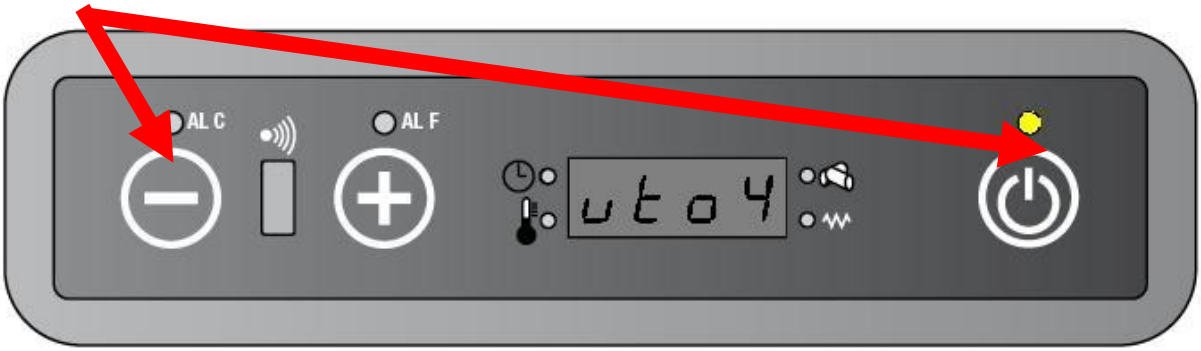


- The display will show alternately the error number and the error type. Press key 3 to scroll the alarm

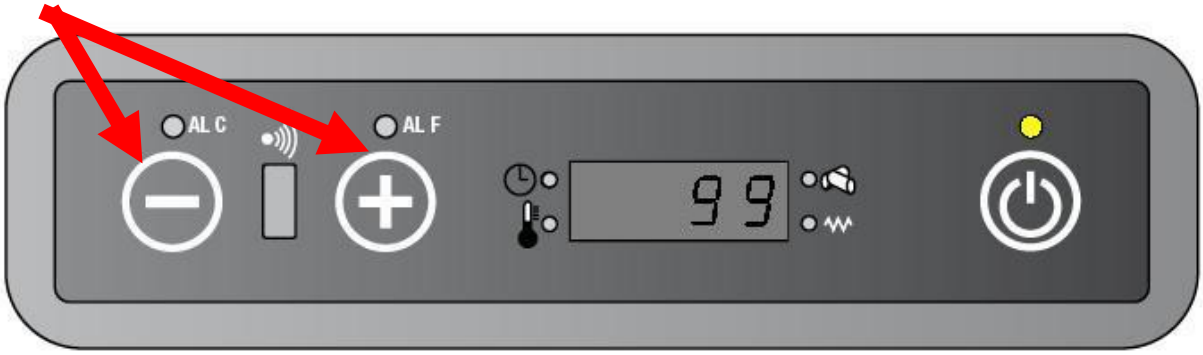


6.5.2. HOW RESET HISTORICAL ALARM MEMORY

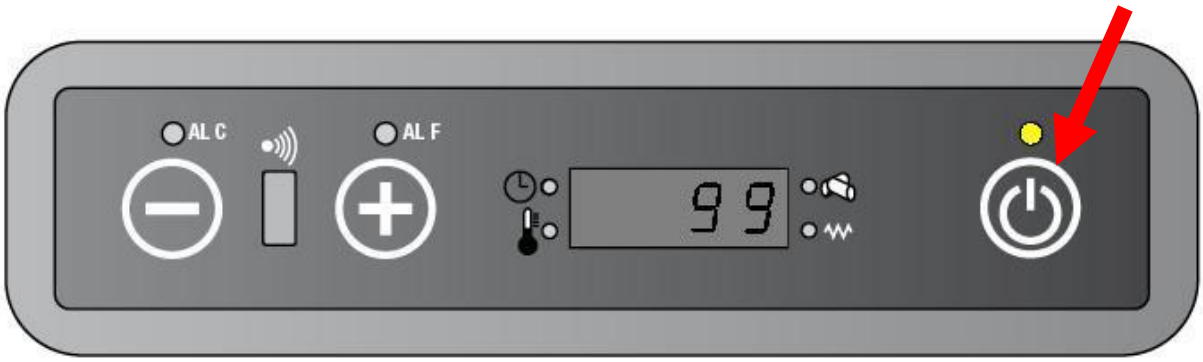
- Press key 1 and then repeatedly key 3 until UT04 will appear on the display.



- Press repeatedly key 1 or key 2 until 99 will appear on the display. Hold the button for fast changing.



- Press key 3 for reset the **HISTORICAL ALARM MEMORY**



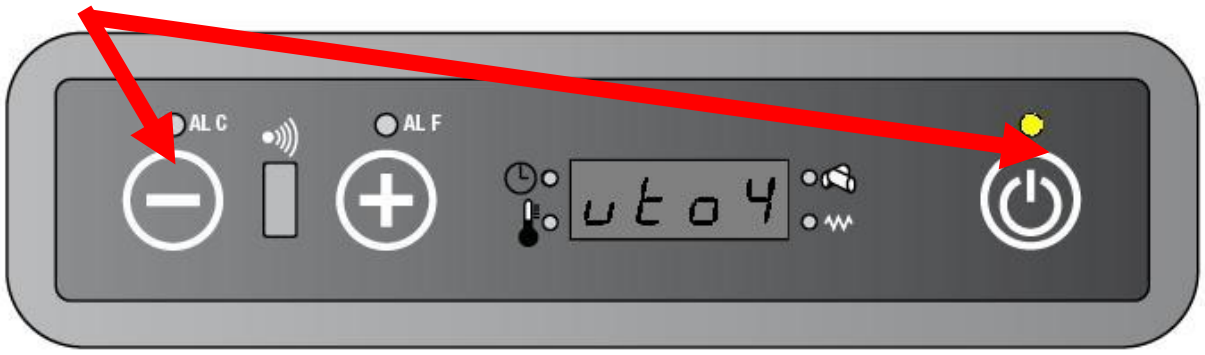
6.6. PARAMETERS DATABASE

It is available change the parameter list by password from menu UT04.
This is suitable in order to use only a PCB that it is used for more units with different size and different configuration parameters.
This parameter list are not modifiable.

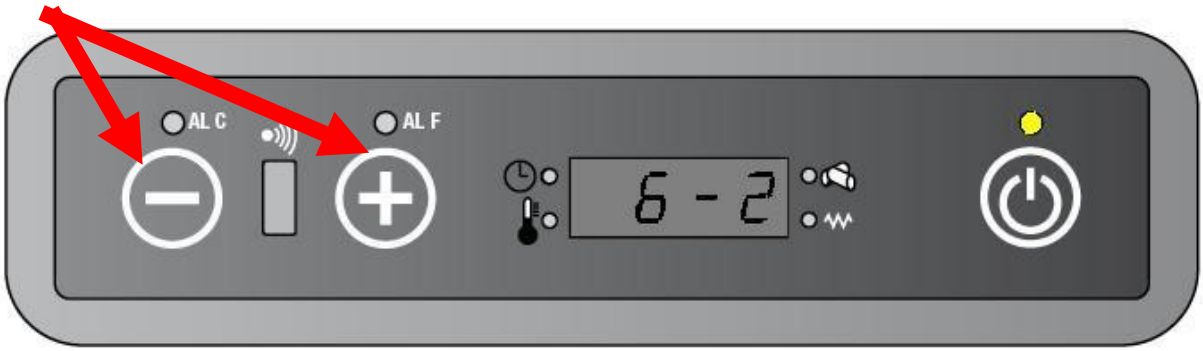
PASSWORD – PARAMETER LIST		
6-0	6- 1	6-2
8-0	8- 1	8-2
12-0	12- 1	12-2

6.6.1. HOW SET A DIFFERENT PARAMETER LIST

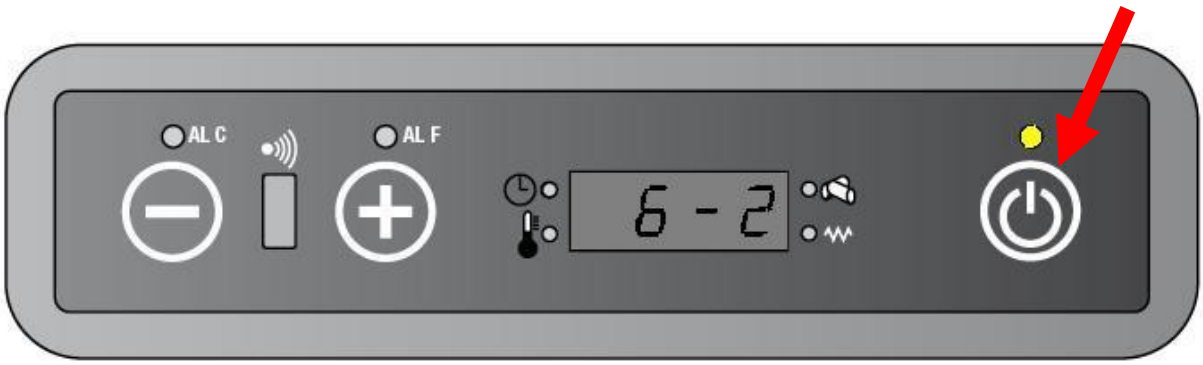
- Press key 1 and then repeatedly key 3 until "UT04" will appear on the display



- Press repeatedly key 1 or key 2 until "6-2" (or 6-0 or 6-1 or 8-0 or 8-1 or 8-2 or 12-0 ecc) will appear on the display. Hold the button for fast changing



- Press key 3 for set the parameter list like current

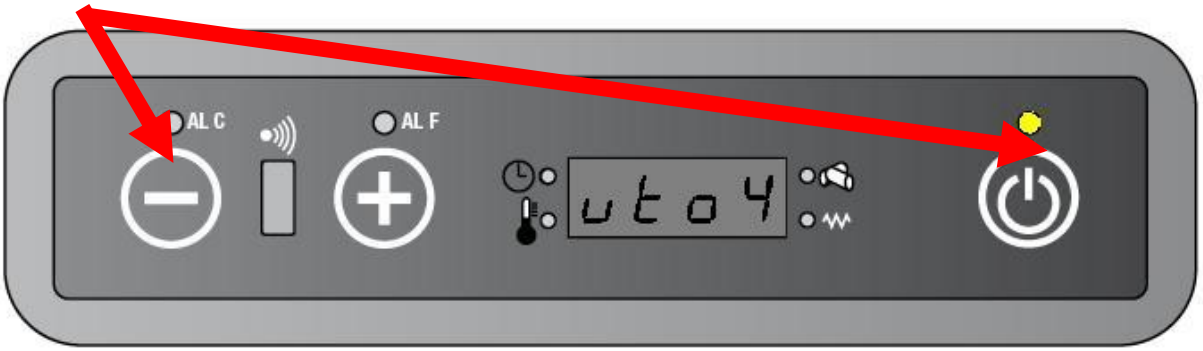


	PARAMETER LIST FOR EACH CONFIGURATION								
Par.	**6-0**	**6- 1**	**6-2**	**8-0**	**8- 1**	**8-2**	**12-0**	**12- 1**	**12-2**
PR0 1	15	15	15	15	15	15	15	15	15
PR02	6	6	6	6	6	6	6	6	6
PR03	60	60	60	60	60	60	60	60	60
PR04	1,6	1,6	1,6	1,8	1,8	1,8	1,9	1,9	1,9
PR05	1,6	1,6	1,6	1,8	1,8	1,8	1,8	1,8	1,8
PR06	1,6	1,6	1,8	1,7	1,7	1,7	1,9	1,9	1,9
PR07	2,1	2,2	1,9	2,2	2,5	1,9	2,2	2,2	2,2
PR08	2,6	2,7	2,2	2,7	3,0	2,4	2,9	2,9	2,9
PR09	2,9	3,2	2,4	3,2	3,7	2,6	3,2	3,5	3,2
PR 10	3,2	3,8	2,6	3,8	4,3	2,8	3,5	4,0	3,5
PR 1 1	240	240	240	240	240	240	240	240	240
PR 12	30	30	30	30	30	30	30	30	30
PR 13	50	50	50	50	50	50	50	50	50
PR 14	259	259	220	259	259	220	259	259	220
PR 15	90	90	90	90	90	90	100	100	100
PR 16	2100	2100	2100	2100	2100	2100	1950	1950	1950
PR 17	2100	2100	2100	2100	2100	2100	2000	2000	2000
PR 18	2100	1800	2100	2100	1500	2100	1950	1800	1950
PR 19	2200	1950	2200	2200	1800	2200	2050	2000	2050
PR20	2300	2100	2300	2300	2000	2300	2150	2150	2150
PR2 1	2350	2200	2350	2350	2200	2450	2250	2250	2250
PR22	2450	2300	2450	2450	2450	2550	2350	2450	2350
PR23	12	12	12	13	12	12	12	12	8
PR24	15	15	15	15	15	15	15	15	9
PR25	17	17	17	17	17	17	17	17	11
PR26	19	19	19	19	19	19	19	19	14
PR27	21	21	21	21	21	21	21	21	17
PR28	Off	Off	Off	Off	Off	Off	Off	Off	Off
PR45	900	900	900	900	900	900	900	900	900
CPEL	0	0	0	0	0	0	0	0	0
CASP	0	0	0	0	0	0	0	0	0

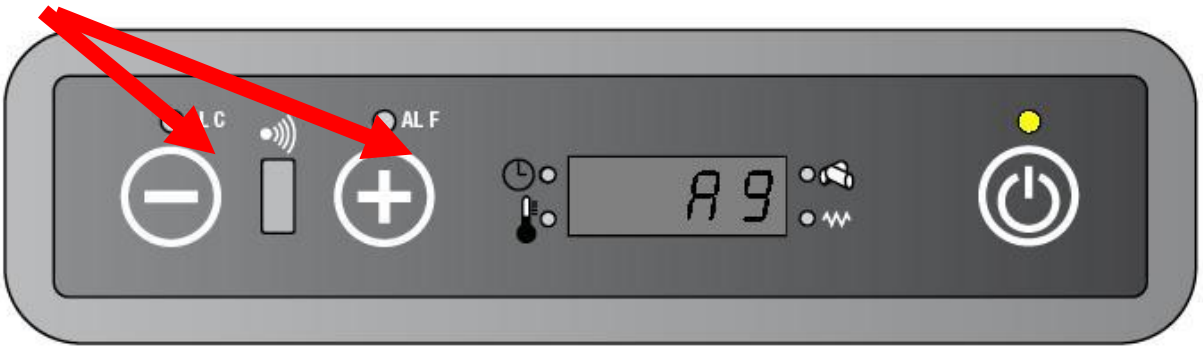
6.7. CHECK THE LOAD WOOD CARRYING CAPACITY

The **LOAD WOOD CARRYING CAPACITY** is checked by from the following procedure:

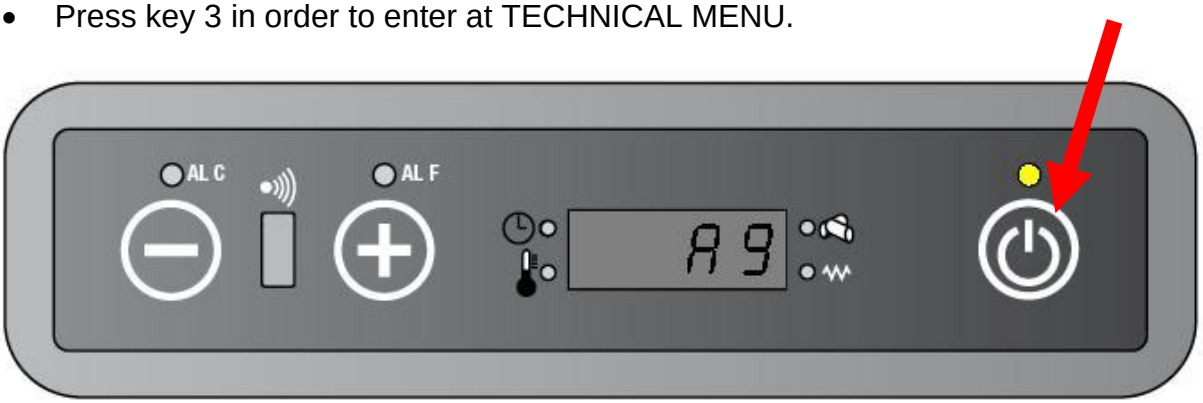
- Press key 1 and repeatedly key 3. until UT04 will appear on the display.



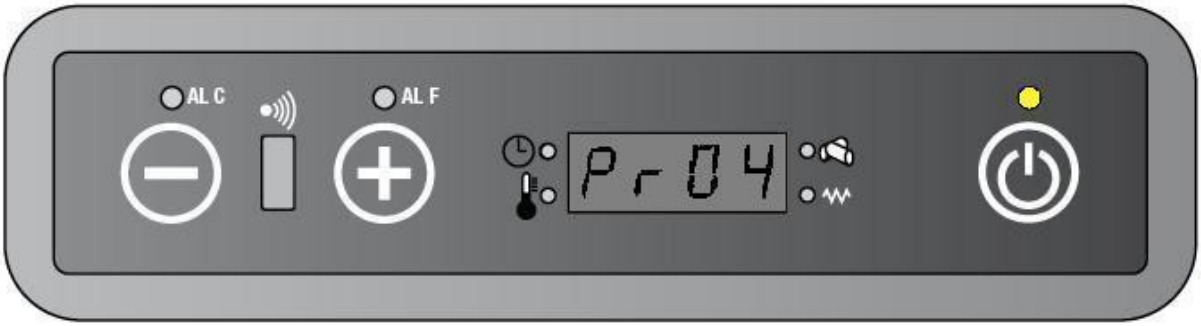
- Press repeatedly key 1 or key 2 until "A9" will appear on the display. Hold the button for fast changing.



- Press key 3 in order to enter at TECHNICAL MENU.



- Press repeatedly key 3. until a carrying capacity parameter (PR04 … PR 10) will appear on the display



- Wait 60 (sixty) seconds without press a key on the keyboard.
- The gear motor begins to run for ten minutes with time set from selected parameter.

After 10 minutes the unit will come back to the standby mode

NOTE: This function works only with unit in **STANDBY MODE**.

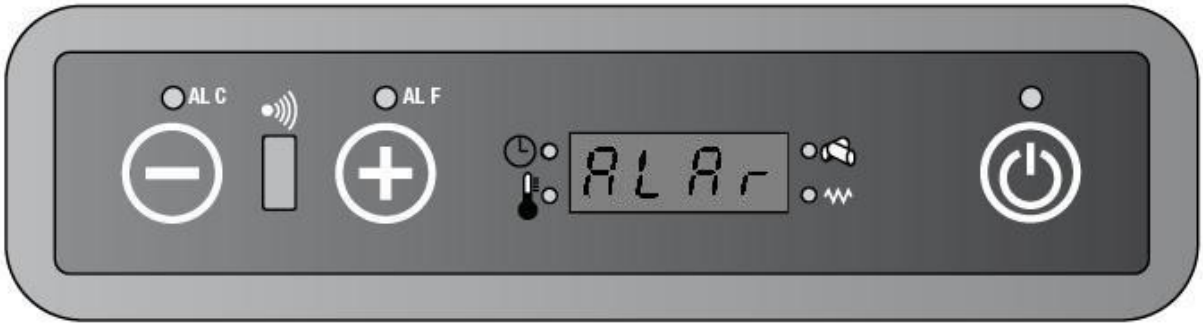
7. ALARM FUNCTION

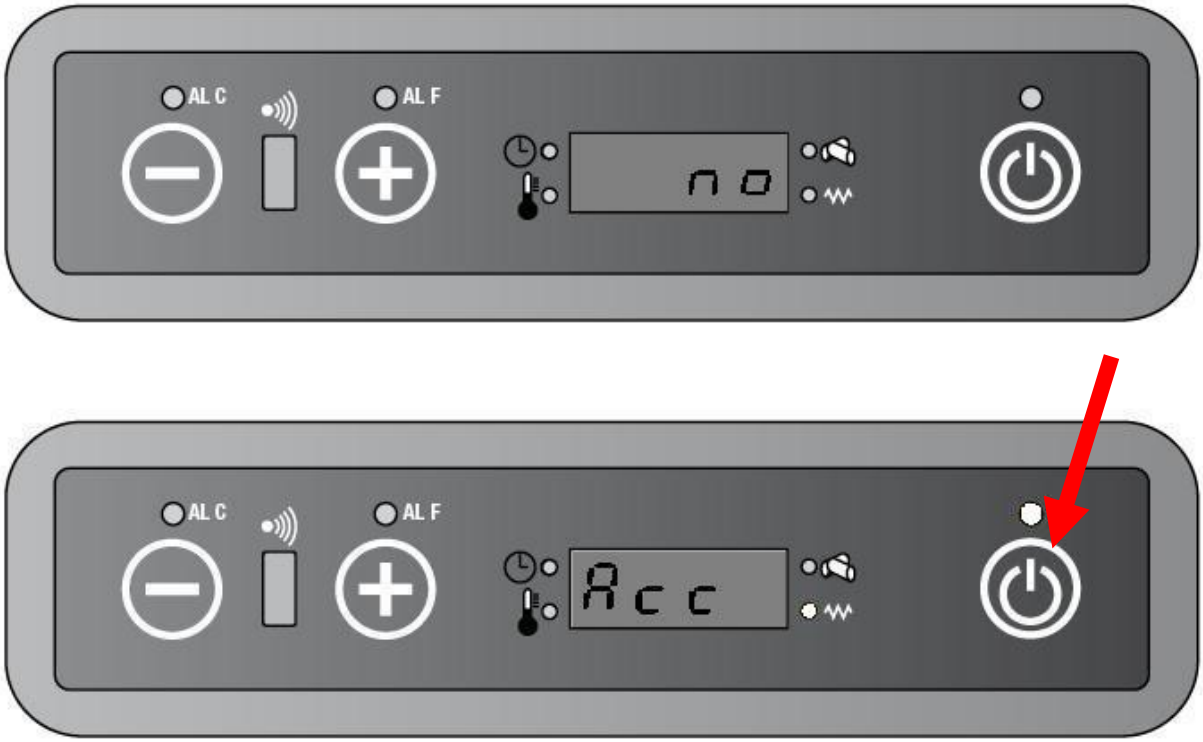
During the current working, it is possible that happen some failure or broken-down.
Every alarm condition must continue for a time set in the parameter PR 11.
In this cases the PCB shutdowns immediately the unit for safety and shows the problem on the display. The shutdown follows the **SHOTDOWN PROCEDURE**.

7.1. NO ACC ALARM

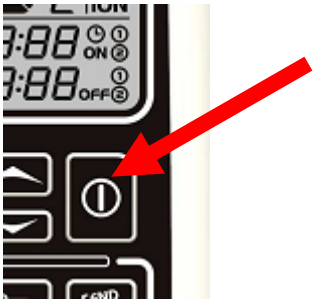
If during **LOAD WOOD PROCEDURE:**
the ST (Smoke temperature) doesn't catch up with a gradient of 3°C/minute the temperature set in the parameter PR 13, in a maximum time set in the parameter PR0 1, then**:**

a - then the **STARTUP PROCEDURE** will be aborted.
b - the PCB will begin the **SHUTDOWN PROCEDURE**.
c - the display will show "ALAR/ No/ Acc"
d - The alarm is still on the display until the user doesn't press the key 3 (or the on/off button on the remote control)





By remote control: press the on/off button (+ SEND) in order to reset the alarm



7.2. NO FIRE ALARM

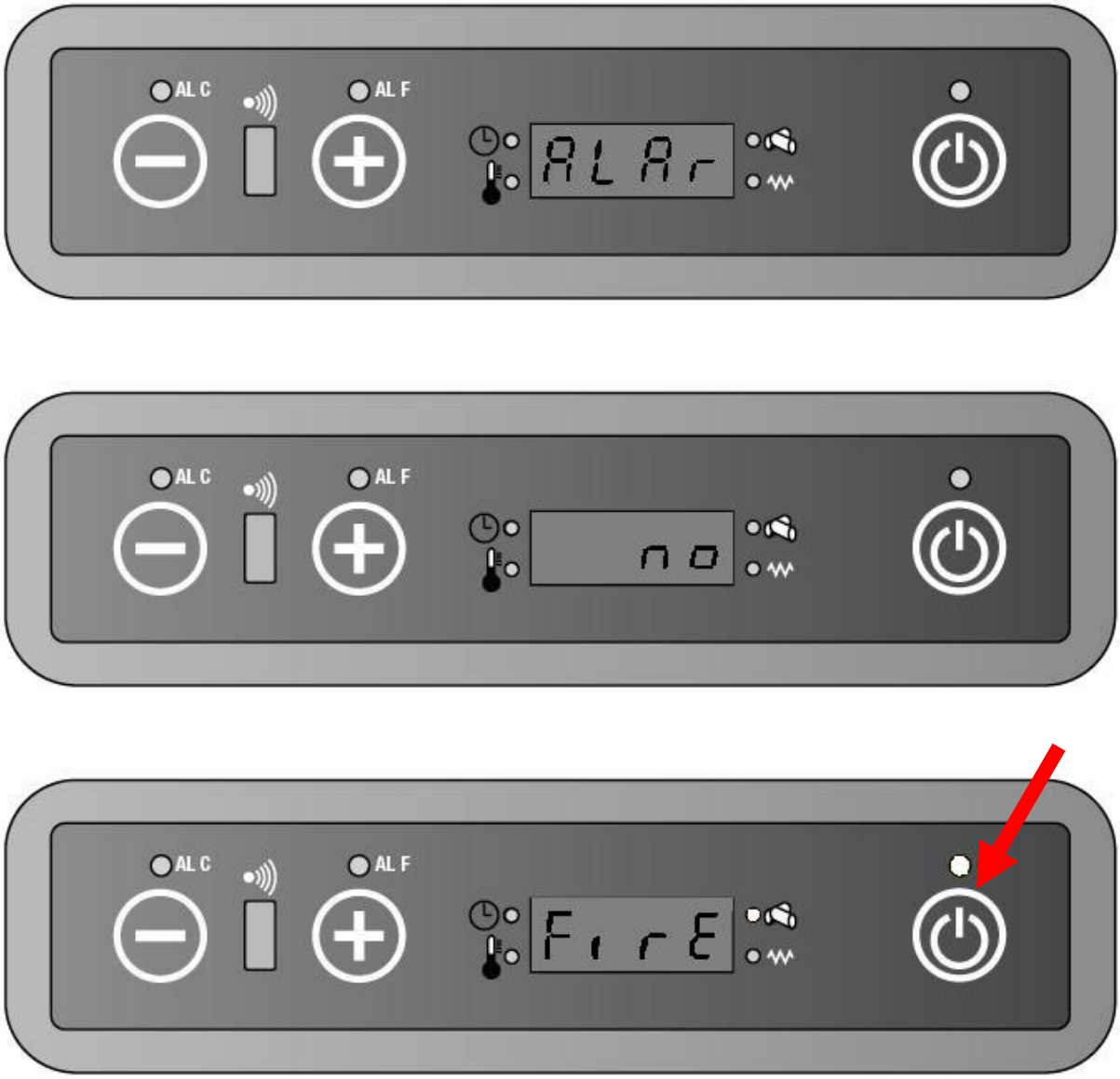
If during **FIRE ON PROCEDURE** the ST > PR 13 for a time set in parameter PR02 and the ST don't decrease, or during the **WORK STATUS** the ST<PR 13 then**:**

a - then the **STARTUP PROCEDURE** will be aborted.

b - the PCB will begin the **SHUTDOWN PROCEDURE**.

c - the display will show "ALAR/ No/ FirE.

d - The alarm is still on the display until the user doesn't press the key 3 (or the on/off button on the remote control)



By remote control: press the on/off button (+ SEND) in order to reset the alarm

7.3. BLACK OUT ALARM

If during the **WORK STATUS,** there is a black out, when the power supply will come back then

a - the PCB begin the **SHUTDOWN PROCEDURE**.

b - the display will show "CooL FirE".

c - When the **SHUTDOWN PROCEDURE** is completed then the unit begin a **STARTUP PROCEDURE** automatically.

7.4. FAN FAIL ALARM

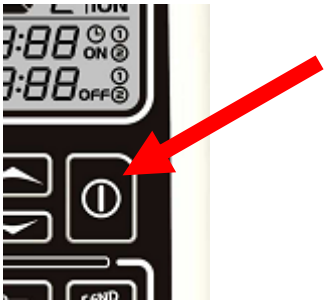
If the PCB doesn't read the smoke extractor fan RPM by the encoder then:

a - the PCB begin the **SHUTDOWN PROCEDURE**

b - the display will show "Alar /Fan/Fail".

c - The alarm is still on the display until the user doesn't press the key 3 (or the on/off button on the remote control)

By remote control: press the on/off button (+ SEND) in order to reset the alarm



7.5. SIC - DEP FAIL ALARM

If the SP (Safety pressure switch) or the TH (Safety thermostat switch) is failed due to open/short circuit then:

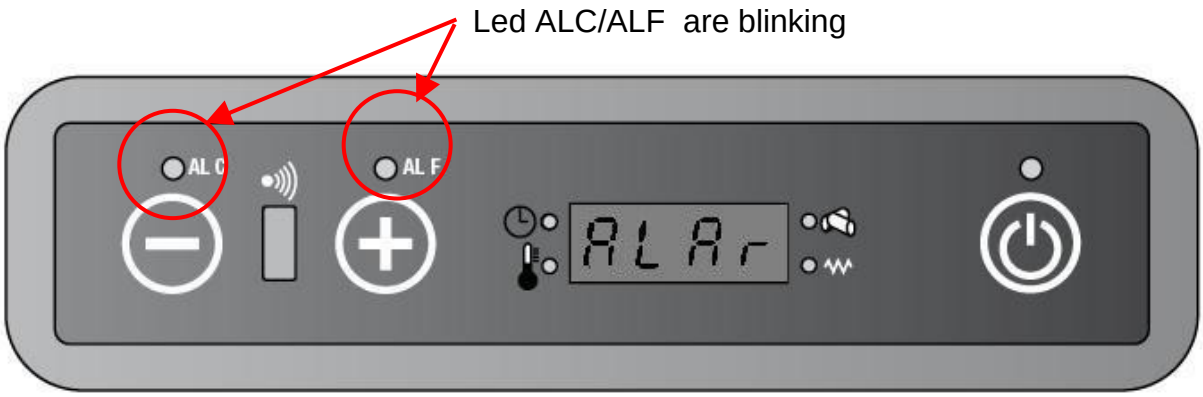
a - the PCB begin the **SHUTDOWN PROCEDURE**

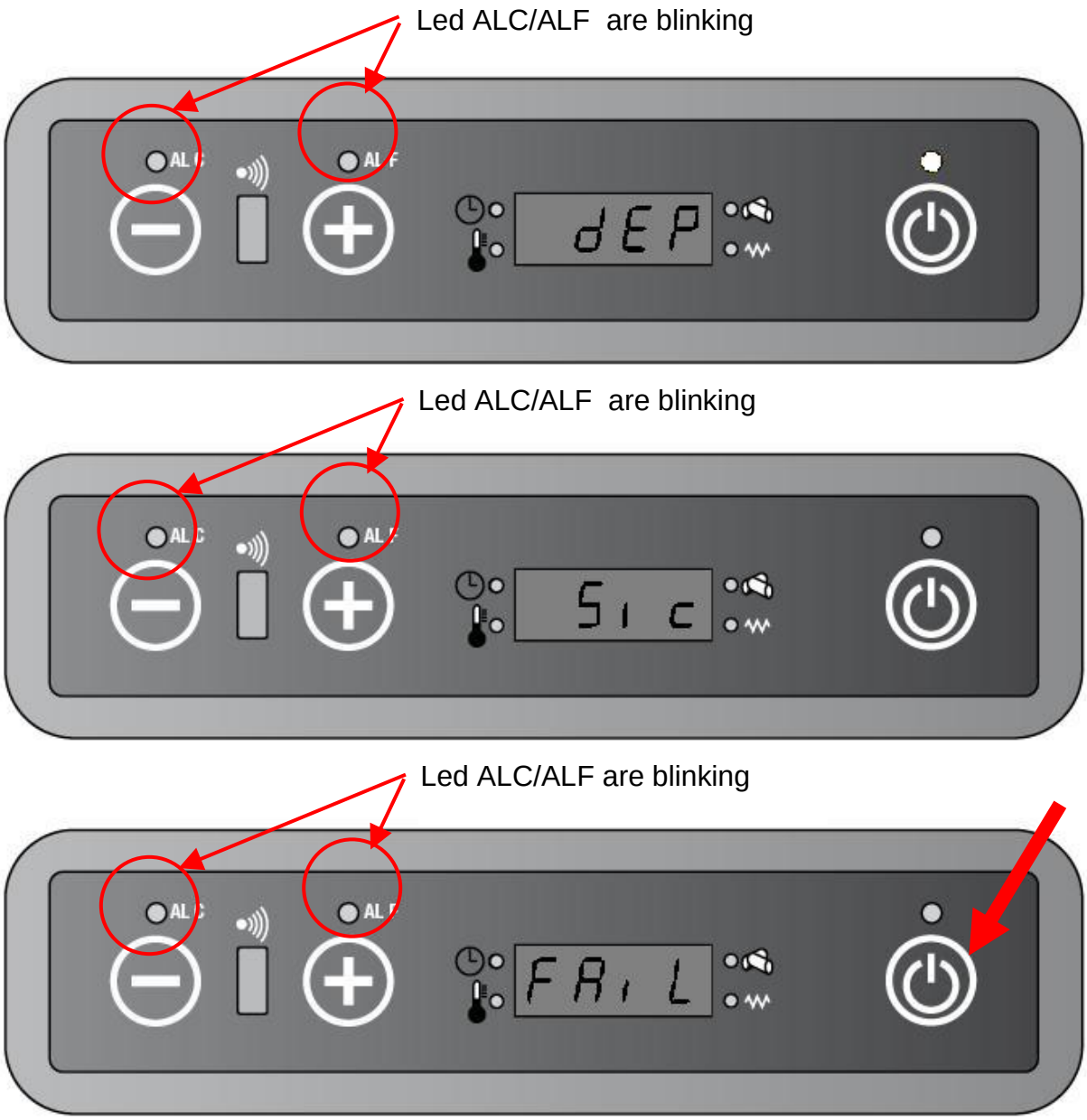
b - the display will show “Alar /Dep/ Sic /FAiL”

c - The ALC led and the ALF led will blink

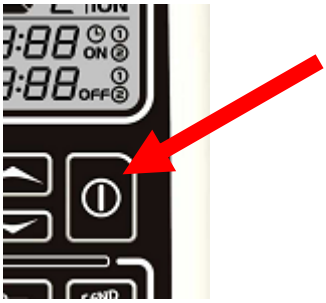
d - The alarm is still on the display until the user doesn’t press the key 3 (or the on/off button on the remote control)

Led ALC/ALF are blinking





By remote control: press the on/off button (+ SEND) in order to reset the alarm



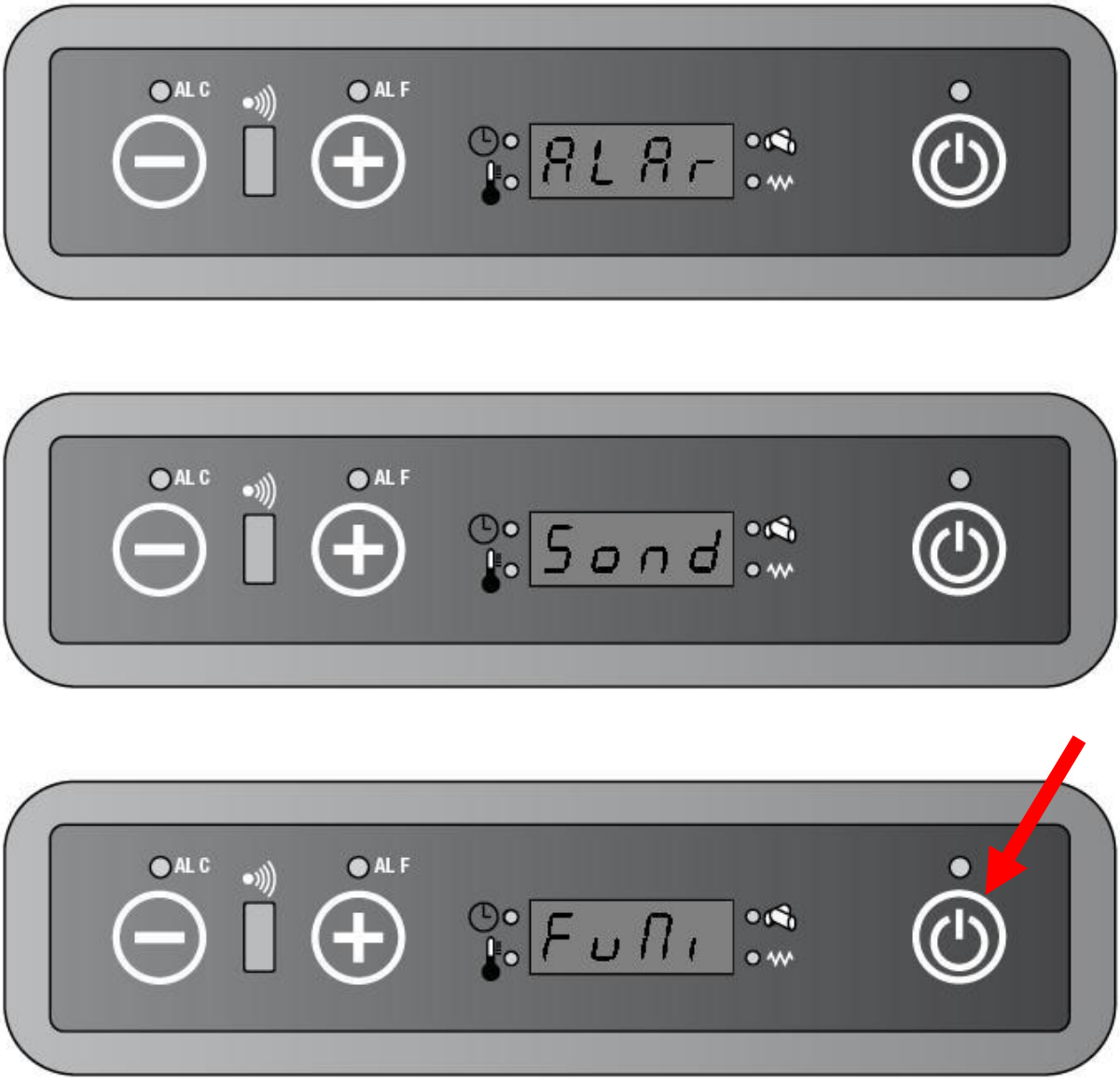
7.6. SOND ALARM

If the ST (Smoke temperature) is failed due to open/short circuit then:

a - the PCB begin the **SHUTDOWN PROCEDURE**

b - the display will show "Alar /Sond/Fumi".

c - The alarm is still on the display until the user doesn't press the key 3(or the on/off button on the remote control)



By remote control: press the on/off button (+ SEND) in order to reset the alarm

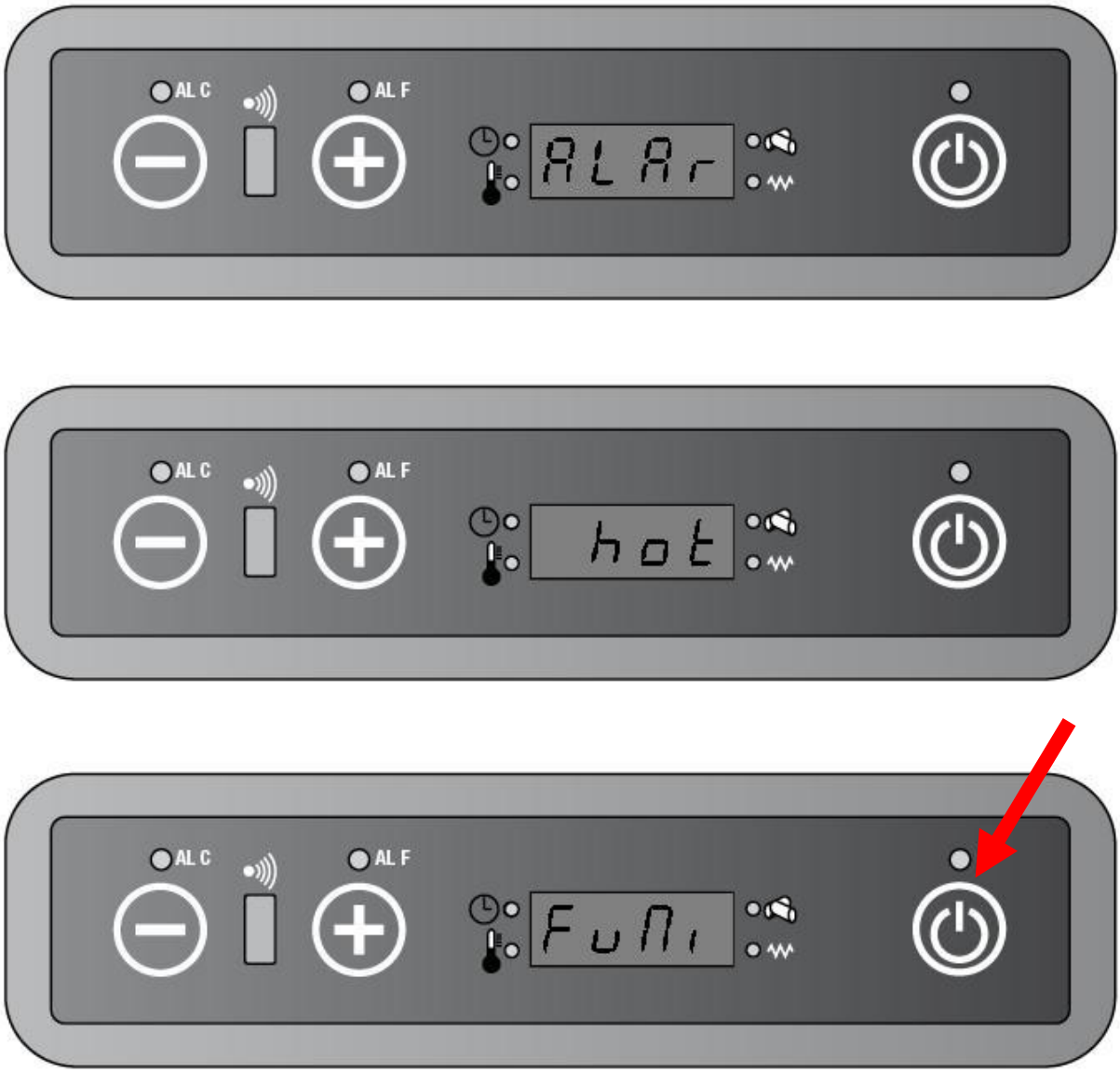
7.7. HOT ALARM

If the ST (Smoke temperature) > 280°C then:

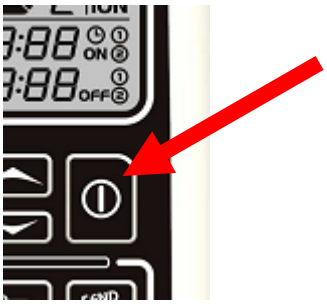
a - the PCB begin the **SHUTDOWN PROCEDURE**

b - the display will show "Alar / Hot /FuMi",.

c - The alarm is still on the display until the user doesn't press the key 3 (or the on/off button on the remote control)



By remote control: press the on/off button (+ SEND) in order to reset the alarm



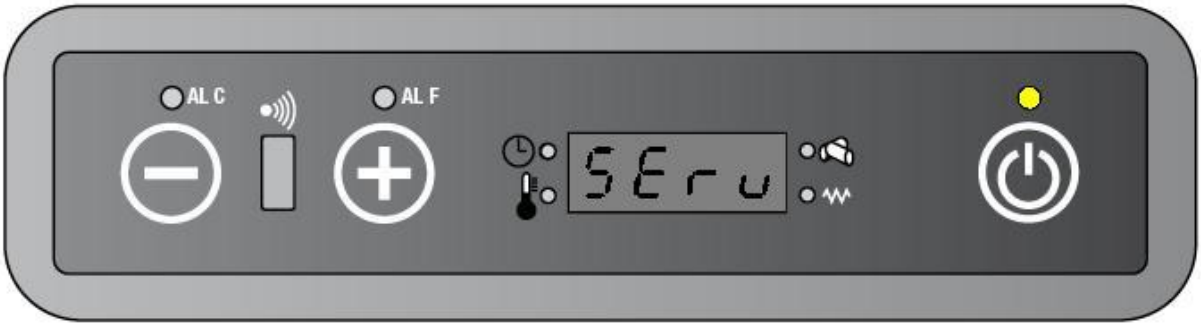
7.8. SERVICE ALARM

If the **PARTIAL WORKING HOURS** > PR45, then

a - The unit work however.

b - The display shows "Serv".

c - The alarm is still until the service assistance set in the **RESET CODE**.(see the specific chapter)



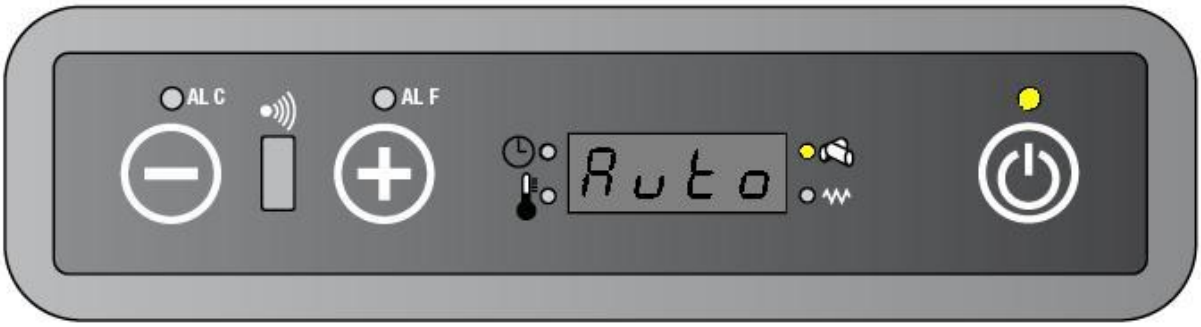
8. REMOTE CONTROL FUNCTIONS

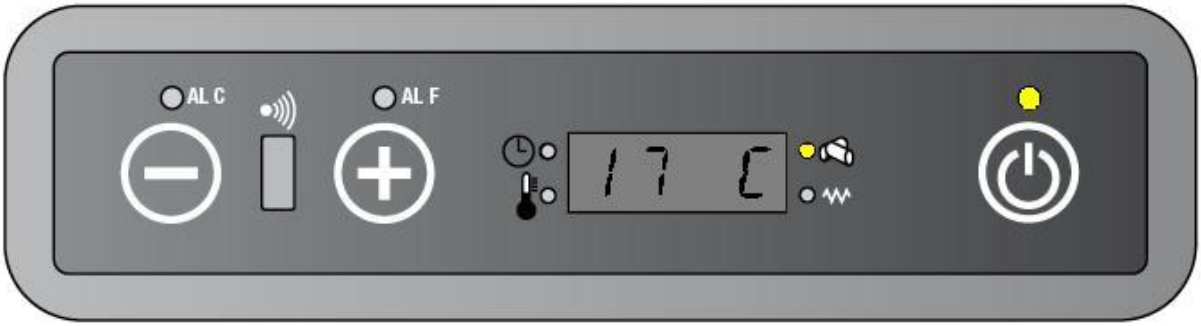
8.1. WORKING POWER: AUTO

WITH THIS FUNCTION the electronic control automatically selects the working power as described below:

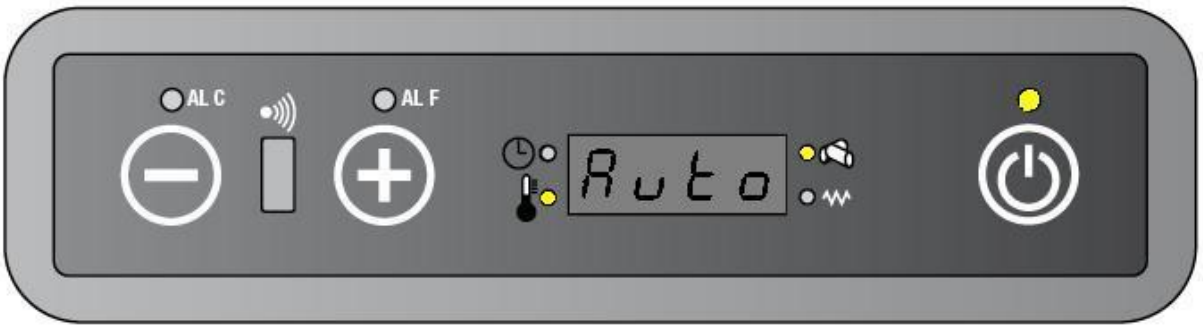
a - If STP - RT ≤ 0,5 °C: the working power is on1
b - If 0,5 °C ≤ SPT - RT ≤ 1 °C: the working power is on2
c - If 1 °C ≤ SPT - RT ≤ 1,5 °C: the working power is on3
d - If 1,5 °C ≤ SPT - RT ≤ 2 °C: the working power is on 4
e - If SPT - RT ≥ 2 °C: the working power is on 5

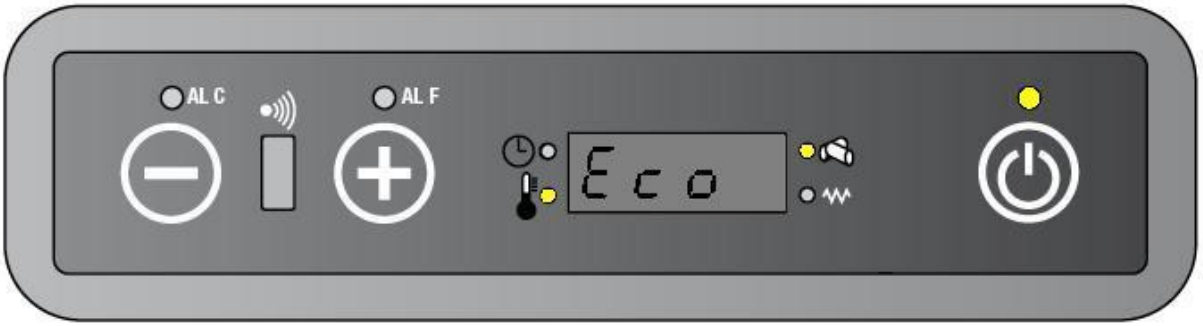
The display will show alternately “Auto / the room temperature”.

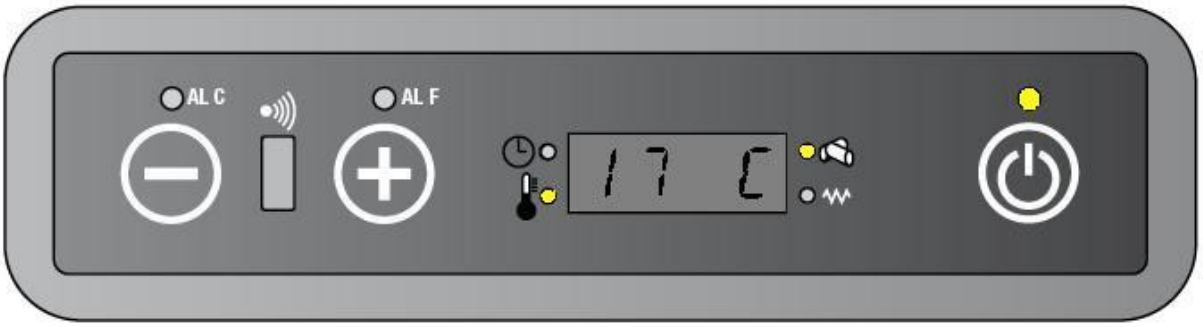




If the room temperature is more than the set-point temperature (RT≥SPT), the unit begin to work in Economy procedure. (see point 3.4).
The display will show alternately “Auto / Eco / the room temperature”.



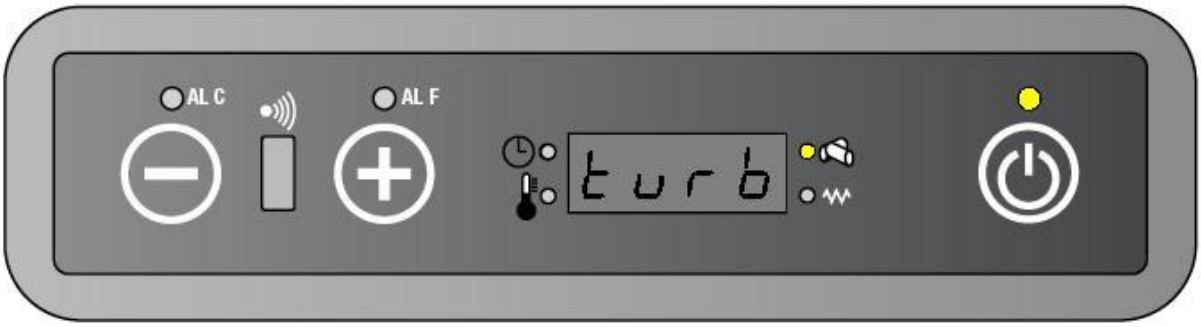


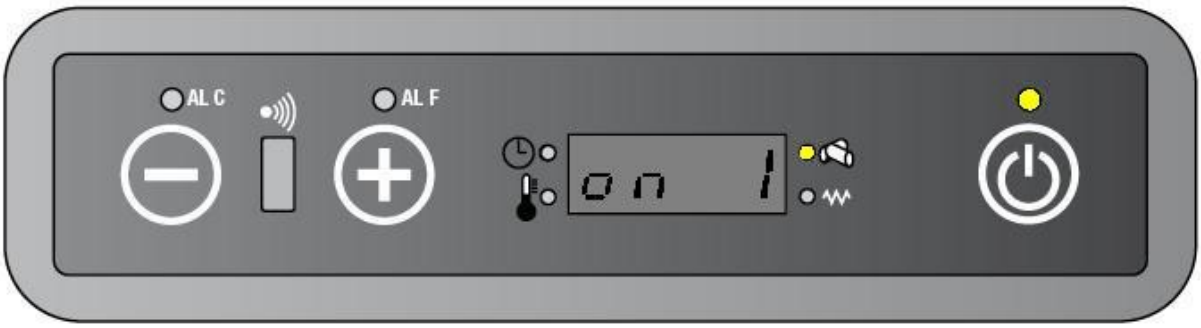


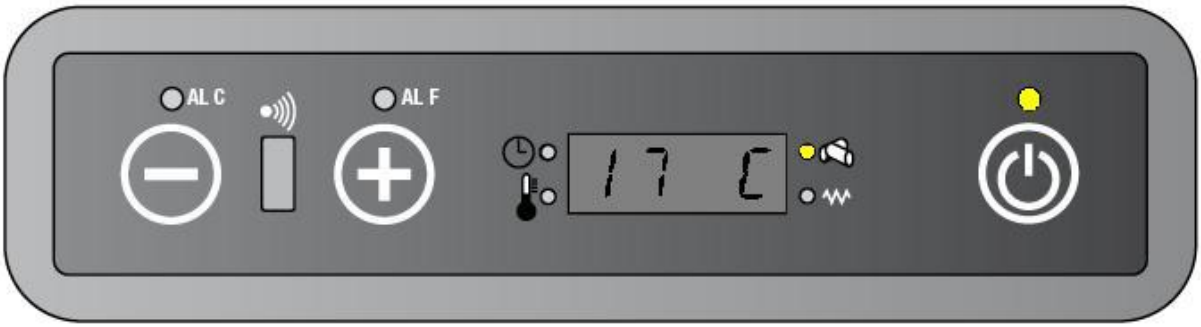
8.2. TURBO MODE

In the TURBO mode the electronic control sets on5 as the working power.
The display will show alternately “Turb/ precedent status (on1 or on2 or on3 or on4 or on5 or Auto) / the room temperature”
This function will be cancelled after 30 minutes or this button is pressed again.

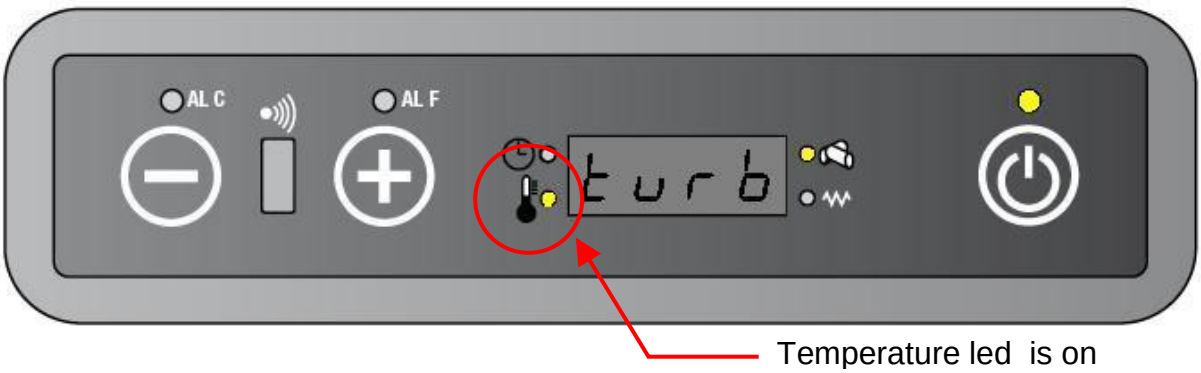
TURBO mode			
Working power	SEF SPEED	AFM	GM
On 5	PR22	PR27	PR10

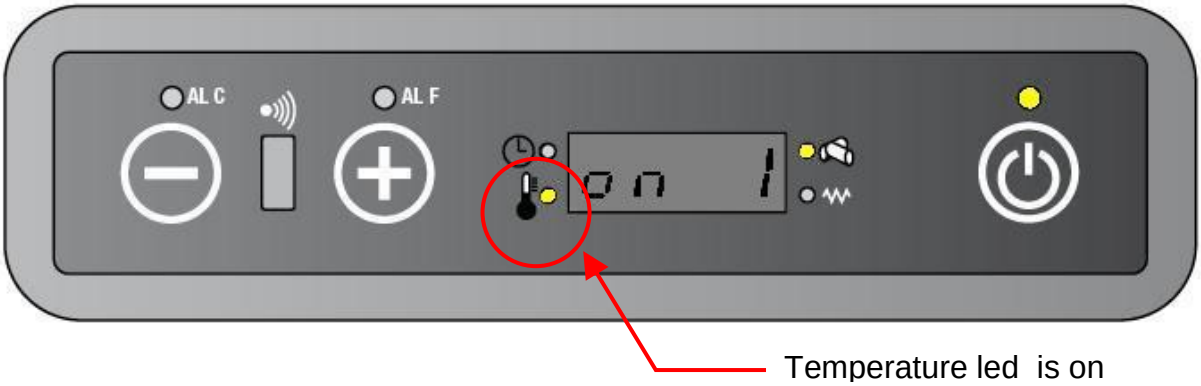




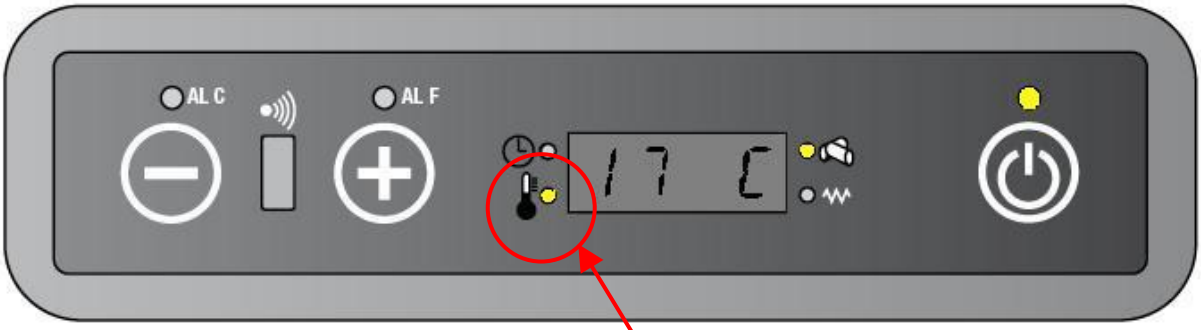


If the room temperature is more than the set-point temperature (RT≥SPT), the unit doesn't work in Economy mode but still work in TURBO mode. The display will show "Turb / the precedent working status (on1 or on2 or on3 or on4 or on5 or Auto) / the room temperature". The temperature LED is on.





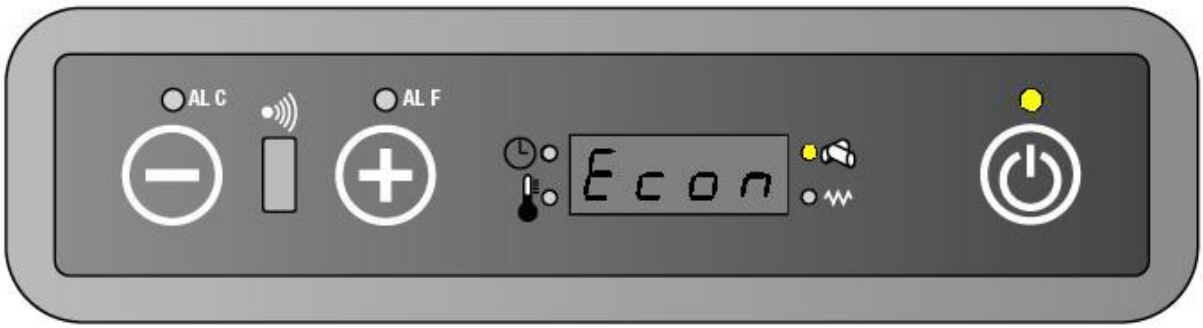
Temperature led is on

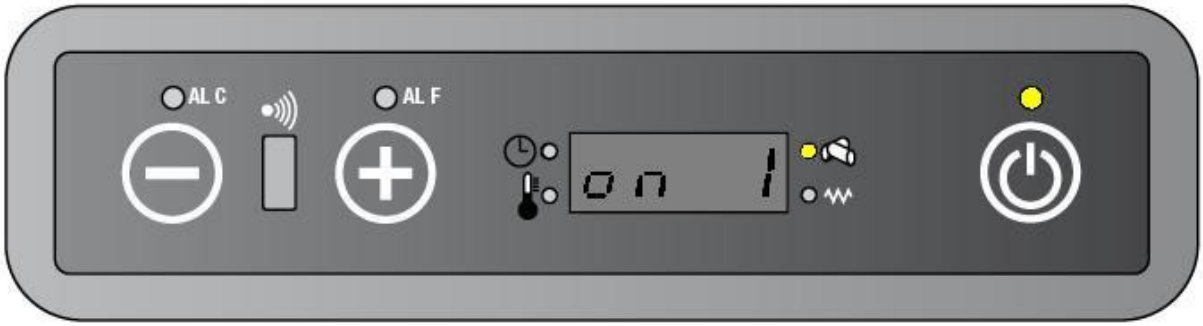


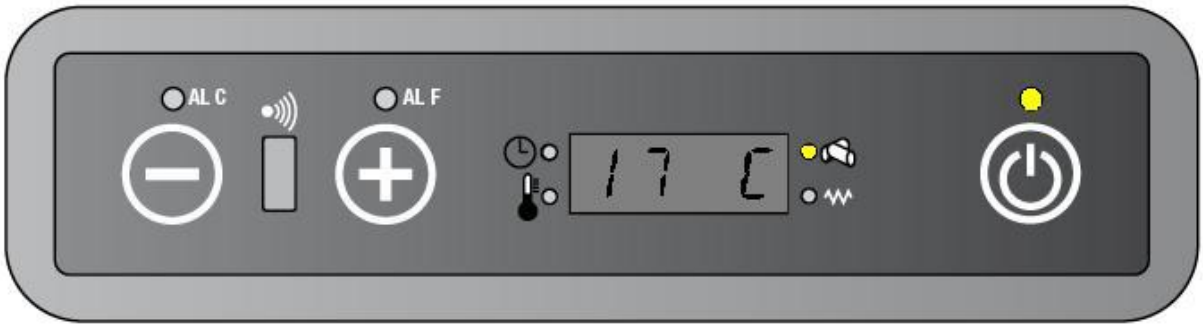
Temperature led is on

8.3. ECONO MODE

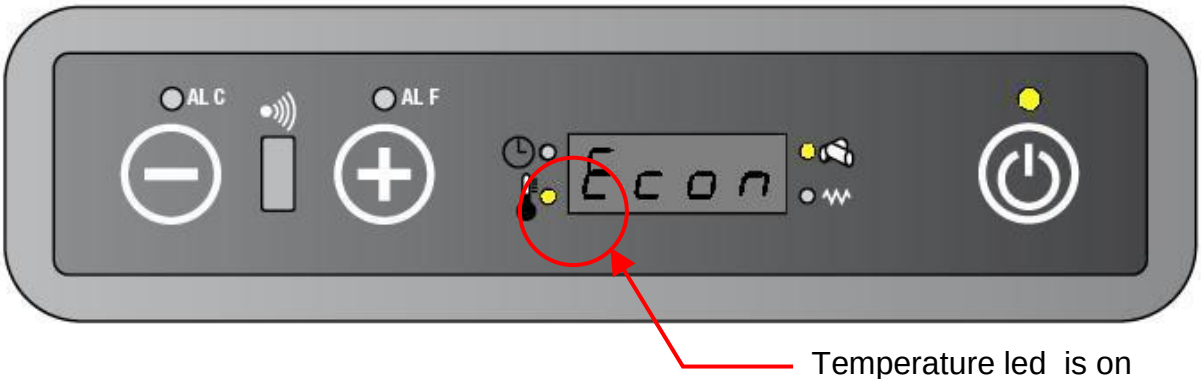
While using the ECONO mode, the stove decreases the working power gradually. The power decreases of one point every 10 minutes until it reaches its minimal value (on 1). The display will show “Econ / the precedent working status (on1 or on2 or on3 or on4 or on5 or Auto)/ the room temperature”.
This function will be cancelled when ECONO button is pressed again

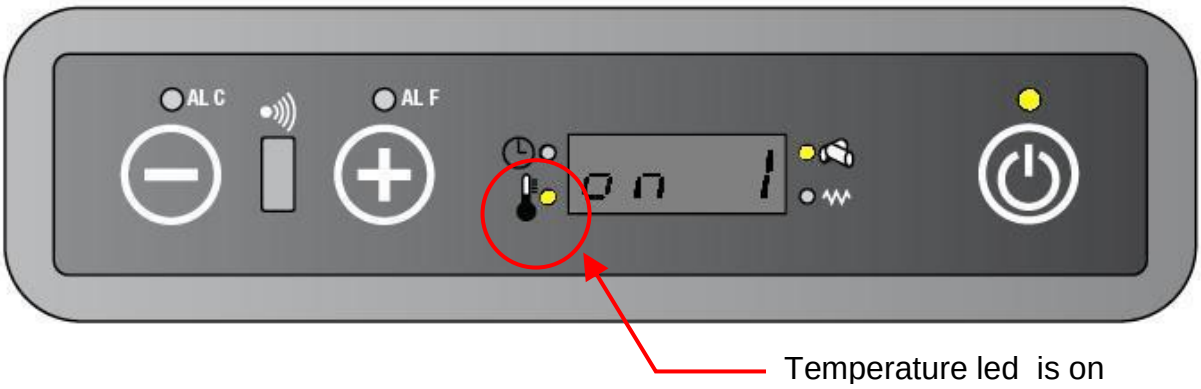


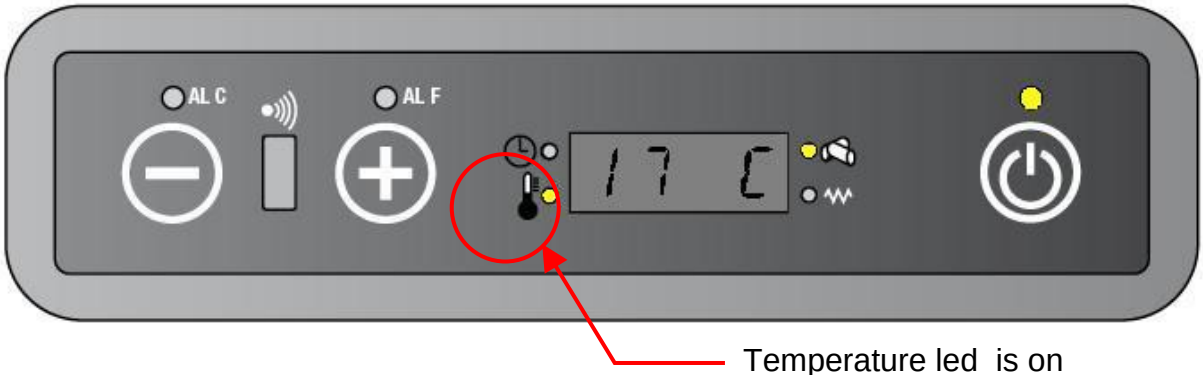




<u>If the room temperature is more than the set-point temperature (RT≥SPT), the unit doesn't work in Economy mode but still work in ECONO mode.</u>The display will show "Econo / the precedent working status (on1 or on2 or on3 or on4 or on5 or Auto) / the room temperature". The temperature LED is on.

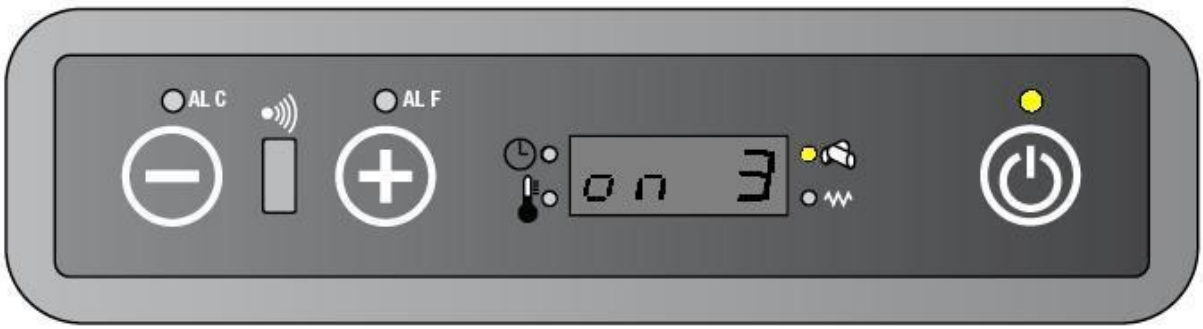


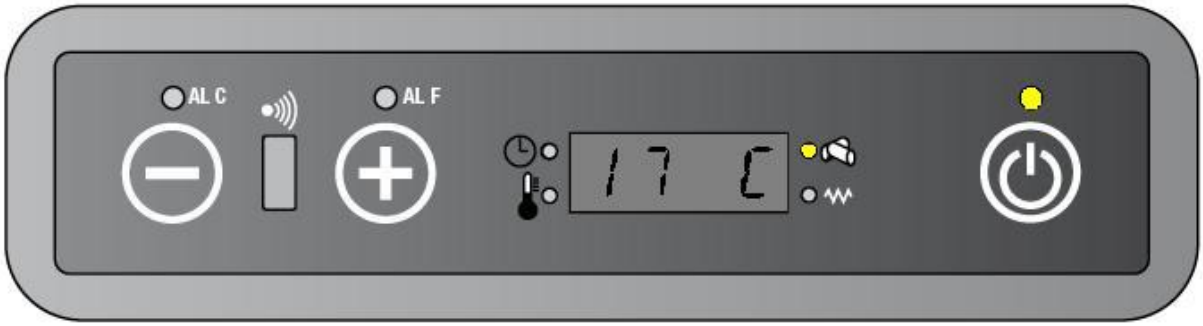




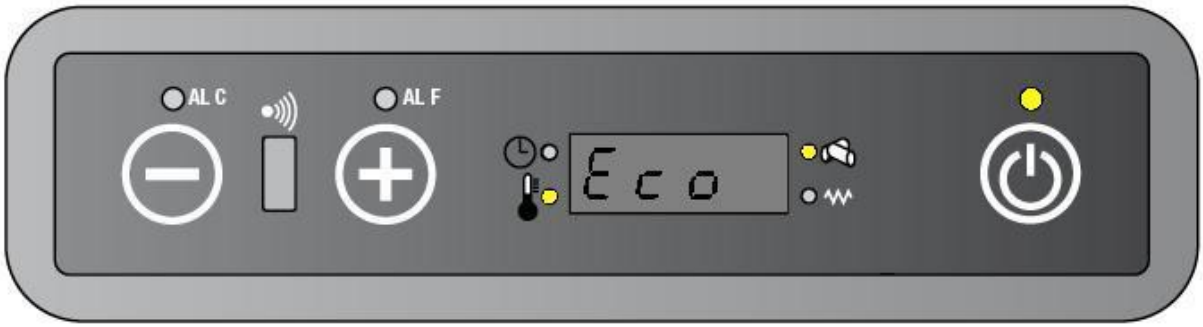
8.4. SLEEP MODE

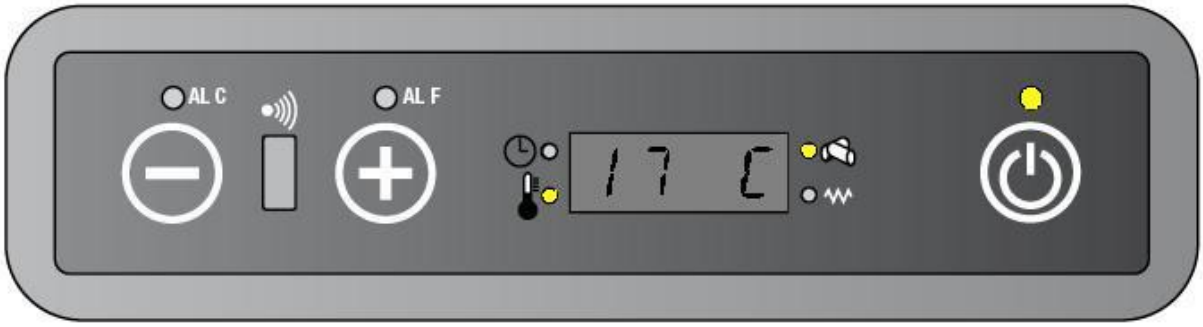
The sleep mode automatically adjust the set point temperature. With this function the set point temperature is decreased of 1 °C one hour after the sleep function has been set.
The display will show “Slee / current working status (on1 or on2 or on3 or on4 or on5 or Eco) / the room temperature.





If the room temperature is more than the set-point temperature (RT≥SPT), the unit begins to work in Economy mode. The temperature LED is on.





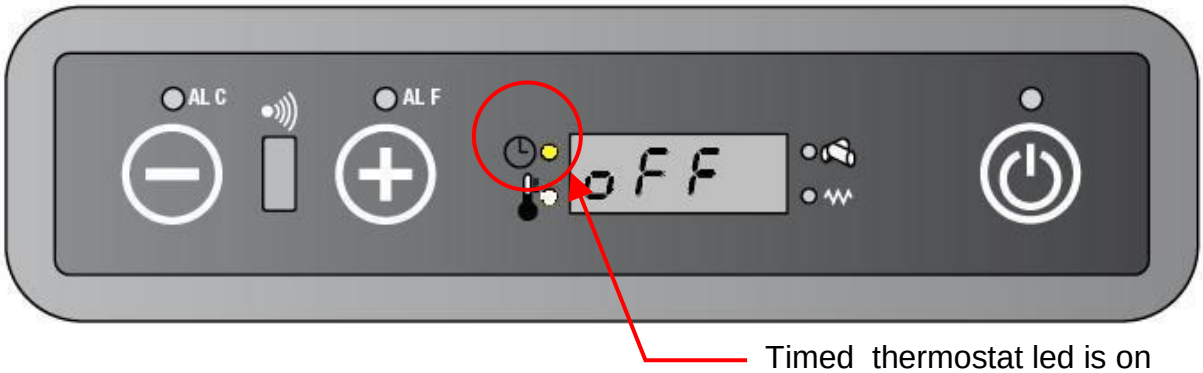
If the unit is working in Auto working power, the Sleep mode function is not available

8.5. PARTICULAR CASES

TURBO + ECONO	If you set TURBO mode+ ECONO mode, the unit will work in TURBO mode for 30 minutes and then in ECONO mode
AUTO POWER + TURBO + ECONO	if you set the Auto power capacity + TURBO + ECONO, the unit will work in TURBO mode for 30 minutes, then the unit will work in ECONO mode until the ECONO function is deactivated. The stove will then work in Auto function.
SLEE + AUTO	If you set the Auto power capacity + SLEEP mode, the unit will work in Auto mode.

8.6. TIMER ON / TIMER OFF / AUTO

The system provides the facility to turn on or to turn off the unit in advance for two times (with AUTO button the timer on/off can be put for every day operation).
When a timer on/timer off programming is activated, the timed thermostat led is on.



8.7. PARAMETER SETTINGS FEATURES

The combination keys can be pressed from remote handset to adjust parameters in the PCB as followed:

- Casp modification by remote control (TURBO + /)

This change is a per cent variation of the SEF speed setting parameters(From PR18 to PR22 for SEF) .
Every variation point is equivalent to a per cent variation of ± 5 (five)

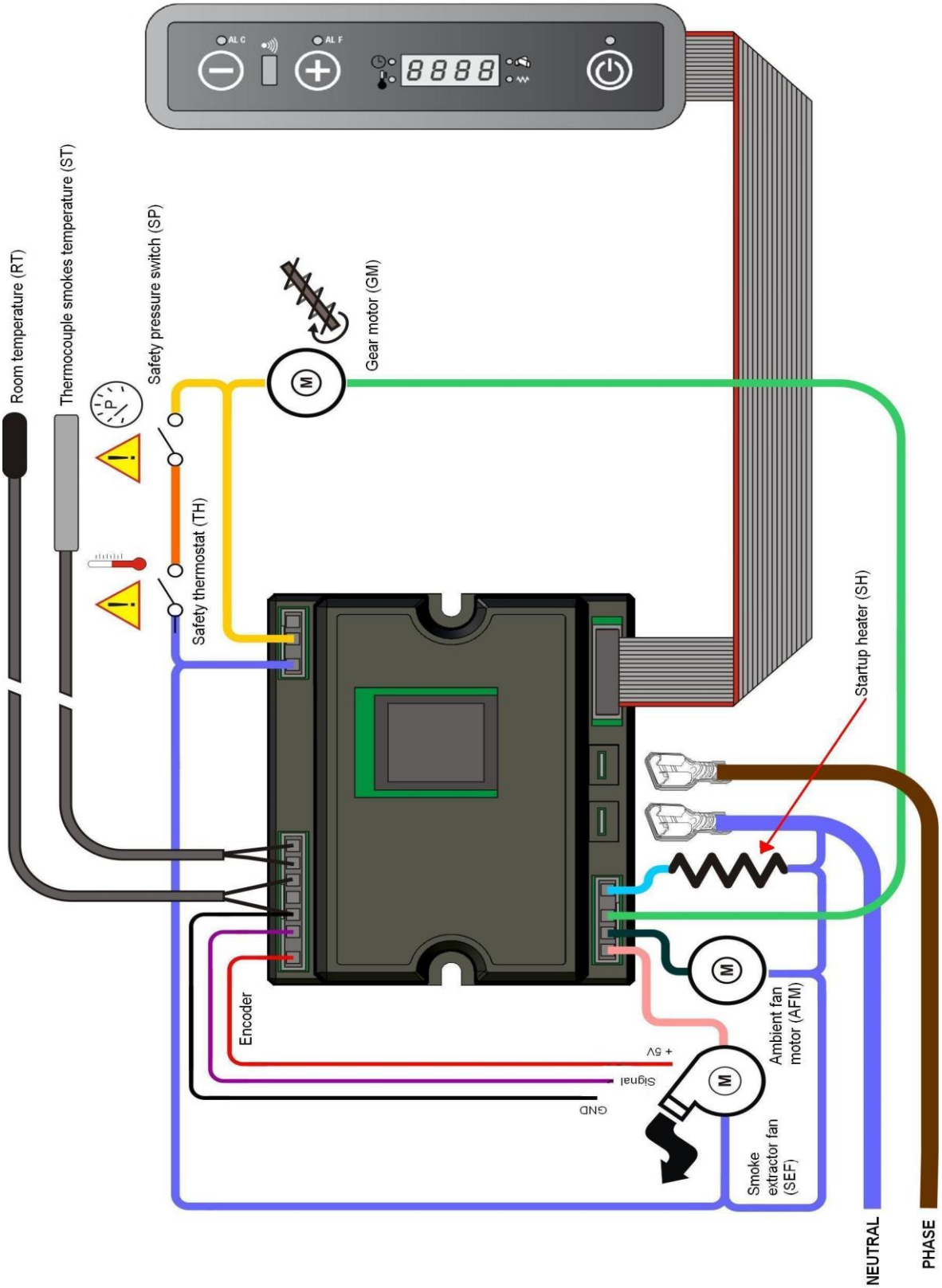
- Cpel modification by remote control (ECONO + /)

This change is a per cent variation of the GM setting parameters (From PR06 to PR10 for GM) .Every variation point is equivalent to a per cent variation of ± 5 (five)

- Cfan modification by remote control (SLEEP and /)

This change is a per cent variation of the AFM setting parameters (From PR23 to PR27 for AFM) .Every variation point is equivalent to a per cent variation of ± 5 (five)

- CANCEL +

Press this combination keys to reset the three parameters.

ELECTRICAL WIRING DIAGRAM