



MODULRAM

Instruction Manual

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1 | Oven technical information

Colocar etiqueta
com especificações técnicas

Oven with control panel ELE.L14



2 | Connections to be made to the oven (control panel ELE.L14)

2.1 STEAM, WATER, DRAIN AND ELECTRICAL CONNECTIONS

STEAM OUTPUT

To ensure a successful baking process, the steam output must be independent from the exhaust output. Install an aluminum tube of 80mm in diameter to separate the steam output from the exhaust output.

WATER INPUT

The connection of water to the oven should have the following characteristics:

- Water pressure must be set between 290kPa (2,9bar) and 340kPa (3,4bar);
- If pressure is below this figure install a water pressure booster pump.
- If pressure is above this figure, install a pressure regulator.
- It is advisable to apply a water softener before connecting the water to the oven, in order to avoid sedimentation of limestone in the steam parts, as this will prolong its life and improve its effectiveness.

WATER QUALITY

parameter	parameter value	unit
aluminium	200	µg/l Al
ammonium	0,5	mg/l NH
odour	3	Fator de diluição
cloride	250	mg/l Cl
clorite	0,7	mg/l ClO2
clorate	0,7	mg/l ClO3
conductivity	2 500	µS/cm a 20°C
color	20	mg/l PtCo
iron	200	µg/l Fe
manganese	50	µg/l Mn
microcystin	1	µg/l
oxidisability	5	mg/l O2
pH	≥ 6,5 e ≤ 9,5	unidades de pH
taste	3	Fator de diluição
sodium	200	200 mg/l Na
sulphate	250	mg/l SO4
turbidity	4	UNT
total indicative dose (I ID)	0,1	mSv
Radão	500	Bq/l
Tritio	100	Bq/l

water parameters values table listed in annex I of DL 152/2017 of december 7th (amendment of DL 306/2007 of august 27 th).

Grade of water hardness	Calcium carbonate	French degrees	German degrees	Milimales calcium
	mg/l CaCO3	0 fH 0	0 dH 0	mmol/l Ca
Soft	0 - 60	0 - 6	0 - 3,4	0 - 0,6

DRAIN

Connect the drain to the sewage system. The connection must be lower than the oven prover bath (when applicable).

ELECTRICAL INSTALLATION

The electrical installation must be done by qualified technicians. The power cable must be connected directly to the plumbing system.

Prior to doing the electrical installation, the system and the protection device must be checked to ensure they meet the technical specifications of the oven.

The plumbing system must comply with the installation procedures and feature a device to disconnect the equipment from the main power. If the power cable is damaged, it must be replaced by the manufacturer, the nearest after sales service or qualified personnel.

The equipment must be disconnected from the main power before any maintenance work, including light bulb replacement or cleaning, is done. For the purpose, use the electrical installation protection device.

The oven has a terminal identified with the symbol . An external conductor must be connected to this terminal, using a nominal section with 10mm² max, to ensure equipotentiality with all metallic parts of the equipments during the installation.

2.2 CABLE ACCESSORIES THAT COME WITH OVEN



Fig. 1.1
Water input.



Fig. 1.2
Drain.

AIRBORNE NOISE EMISSIONS

The emission sound pressure level does not exceed 70 dB(A) (Annex I, Section 1.7.4.2. point u) of the Portuguese Decree-Law nr 103/2008 of June 24th)

3 | Heating the oven for the first time (control panel ELE.L14)

When the oven is turned on for the first time it will automatically enter Ramalhos mode and show the message **Function Test** or **First Heating** on the display.

You can use the **(B)** or **(C)** , buttons to select one of the following operation options shown on the display:

1) Function Test:

It is used to check the oven is functioning properly after installation. During this phase the oven temperature will not surpass 50° C. To initiate the function test select the option **(A)** .

Note

To return to Ramalhos mode, press the **(Power)** button to turn the oven off and on again.

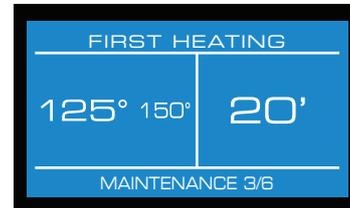
2) First time heating the oven

The process of heating the oven for the first time is extremely important to ensure its future proper functioning and avoid structural problems. The first heating programme must be executed in full and only after it has been completed does the control panel enter normal operation mode. If there is a power cut, the programme will restart in the last temperature recorded with a 25°C margin.

To start this programme, press the **(A)** button.

The whole process will be managed automatically by the control panel.

Throughout the process, the display will show different information alternately. For example:



Note

The first heating process may take up to 6 hours.

END OF FIRST HEATING PROCESS

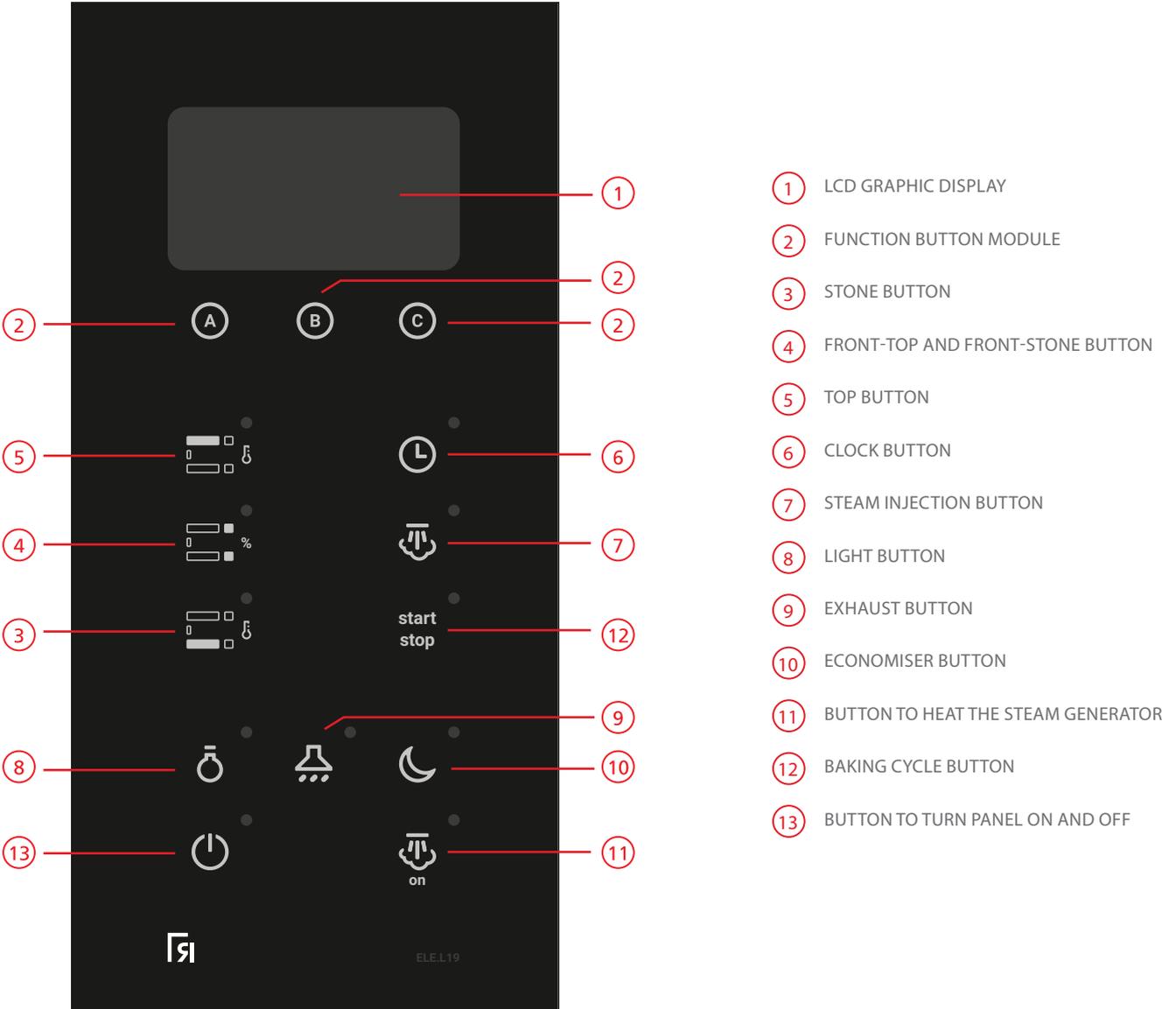
Once all stages of the first heating programme have been completed the control panel will show the following information on the display:



Finally press **(A)** , you may now start the baking cycle.

During the first heating, oven doors should remain closed to prevent its deformation (valve of smoke exit must remain in "open" position).

4 | Description of control panel display ELE.L14



4.1 CREATING A NEW PROGRAMME

The control panel enables the storage of the user's baking preferences and needs. You may store a maximum of 20 programmes.

The programmes may be stored with the recipe name (maximum 15 alphanumeric characters) to enable you to select a programme in a simple and intuitive manner.

In each programme you may store: Baking time; steam injection time; Top, stone, front-top and front-stone temperature.

1. Press **(A)** button.
2. Select the number under which you wish to save the programme using the buttons **(B)** or **(C)**.
3. Press **(A)** button.
4. Press **(B)** button.
5. Using **(B)** or **(C)** choose the characters you wish to use to name the programme. (the first "empty" character can be used to add spaces or delete unwanted characters).
6. In order to save each character press **(A)** (repeat this sequence until you have finished inserting the name you wish to call the programme).
7. In order to permanently save a programme name, continually press **(A)** until the programme appears on the screen.
8. Press **(A)** button.
9. Use **(B)** or **(C)** to select the temperature desired for the top of the oven.
10. Press **(A)** button.
11. Use **(B)** or **(C)** to select the percentage desired for the Front-Top (allows for positive and negative percentages).
12. Press **(A)** button.
13. Use **(B)** or **(C)**, to select the temperature desired for the stone.
14. Press **(A)** button.
15. Use **(B)** or **(C)**, to select the percentage desired for the Front-Top (allows for positive and negative percentages).
16. Press **(A)** button.
17. Use **(B)** or **(C)** to choose the baking time (cycle) in minutes.
18. Press **(A)** button.
19. Use **(B)** or **(C)** to choose the steam injection time (TINJE) in seconds. We recommend that this time not exceed 4 seconds.
20. Continually press **(A)** button until you return to the main menu.

4.2 HOW THE BAKING CYCLE WORKS

SELECTING A PRE-SET PROGRAMME

To select a baking programme, you must press the NPRO **(B)** button (name of the desired programme) and the **(A)** button (OK) to validate.

The control panel will upload the programme definitions and program the different areas accordingly.

After the product is loaded and the door is closed, press the **(start stop)** button to start the baking cycle.

You cannot start a baking cycle if there is an active breakdown warning message or the message "COLD STEAM" shows on the display. After the baking cycle has started, the control panel will show the message "baking in course".

• Baking in course

As soon as the baking cycle starts, the steam injection and baking time counters are activated.

The baking cycle ends when the counter reaches zero.

The control panel will activate an acoustic sound and show the message "END OF BAKING CYCLE".

• INCREASE OR DECREASE BAKING CYCLE "BAKING TIME"

At any time during the baking cycle you can increase or decrease the duration of the baking cycle. In order to do so, press the clock button **(C)** quickly and change the baking time.

Press the OK **(A)** function button to validate the new baking time.

SUGGESTED TEMPERATURES

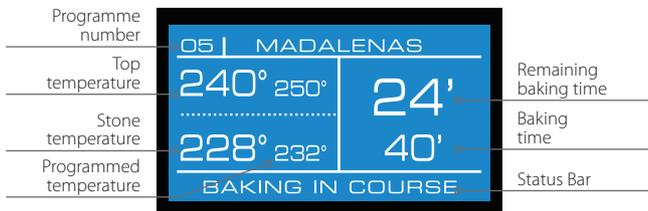
BREAD 50 gr				PASTRIES			
TOP	FRONT-TOP	FRONT-STONE	STONE	TOP	FRONT-TOP	FRONT-STONE	STONE
260°	+ 10%	+ 5%	230°	210°	+ 10%	+ 5%	190°

During the normal period of use of the oven, doors should not remain open too long, except and only to load and unload products.

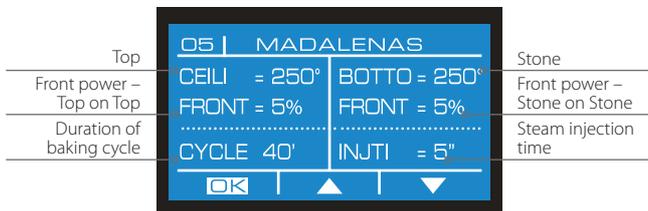
4.3 LCD DISPLAY MODULE

GRAPHIC LCD SCREEN

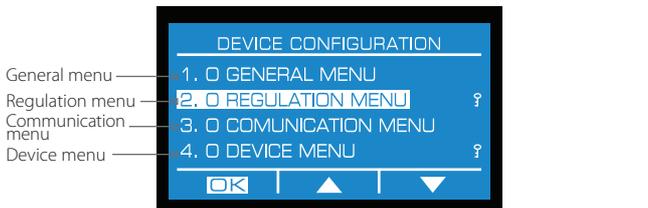
When the baking cycle is underway, this is the screen that should be seen:



Programme function screen:

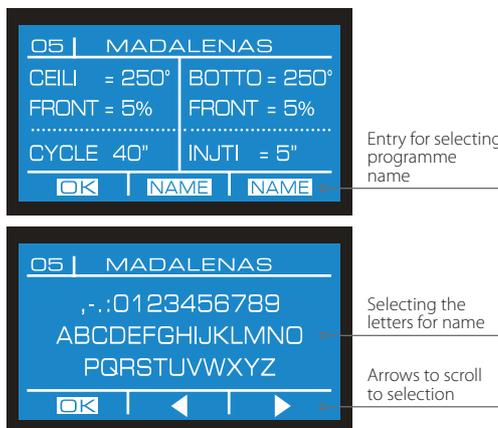


MENU function screen:



Only Ramalhos can access the menus marked with a key.

The following display enables you to edit or alter the name of a programme, except for the manual:

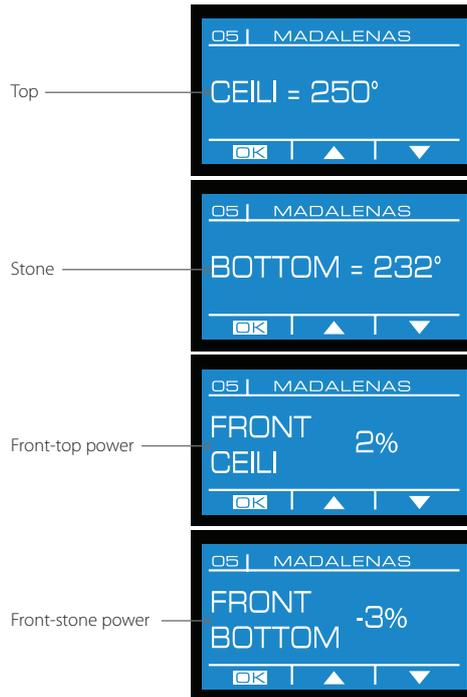


4.4 PROGRAMME MODULE

TOP, FRONT AND STONE BUTTONS

These buttons carry the following functions (according to the length of time they are pressed):

- By quickly pressing the top, front or stone buttons you can access some of the screens that edit status:



These screens enable you to edit the programme definitions.

In **manual programming** the definitions altered are saved permanently.

In a **programme and during a baking cycle**, the fields are altered temporarily.

When the baking cycle ends the control panel restores the stored programme settings.

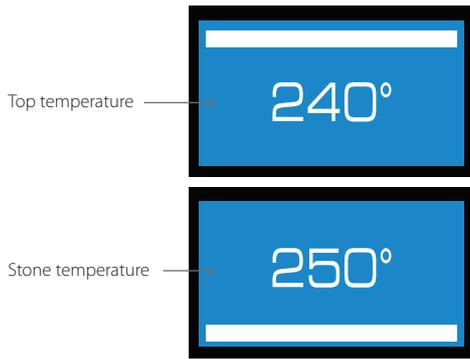
In a **programme and when the baking cycle is not underway**, the alterations are stored permanently in the corresponding programme.

With the Front button  you can access the definitions for FRONT_TOP and FRONT_STONE.

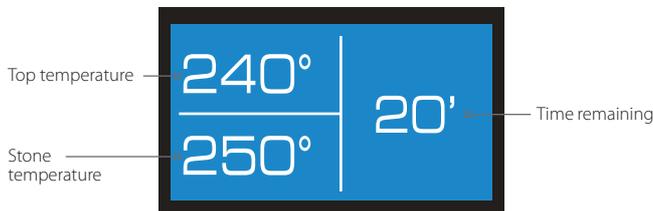
- by pressing this button once you will view the FRONT_TOP;

- if you press it again you will view the FRONT_STONE.

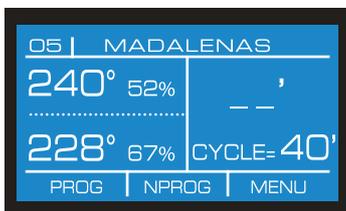
- By pressing  or , for 3 seconds, you can view the oven temperature in big numbers. The bar at the top indicates the top temperature while the bar at the bottom indicates the stone temperature.



By lightly pressing or when the previous screens are shown, you can access information on the temperature of the top and stone in addition to the time remaining to complete the baking cycle.

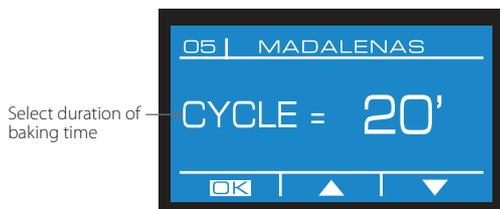


- By pressing the button for more than 3 seconds, you may view the real temperature of the resistances. This procedure allows you to calculate the actual amount of electricity that has been consumed by the oven, on the Top and Stone, at that exact moment.

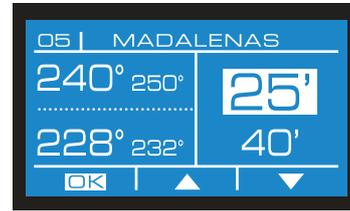


BAKING TIME

This button allows you to set the baking time. When pressed and **the baking cycle is not on**, the screen will show the following information:



The information is stored in the selected programme. If the cycle is underway, the changes in time are temporary and are not stored in the selected programme. When the button is pressed **throughout the baking cycle** the display will show the following information



In both situations, the changes made to the baking time, whether increasing it or reducing it, are temporary.

Note

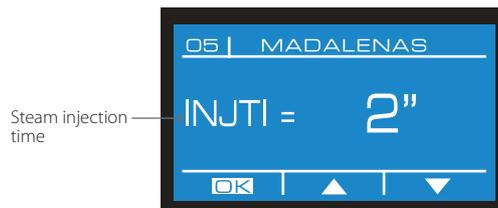
If you wish to directly access the clock settings menu press the button for 3 seconds.

STEAM INJECTION BUTTON

On the main screen, quickly press this button to inject steam manually during or out of the baking cycle.

You can also set the injection time in this programme by changing the STEAM parameter (steam injection time for the selected programme). The change will be saved in the selected programme.

Steam injection time can also be edited outside the programming mode. Simply press the button until you enter the configuration that enables you to edit steam injection time.



Whenever the control panel injects steam, the button lights up.

Note

If the control panel activates the message "COLD STEAM", it means that the temperature of the steam generator is below the parameter defined by the manufacturer and one cannot start a baking cycle or inject steam

4.5 ADDITIONAL FUNCTIONS

OVEN LIGHT

This button allows you to turn the oven light on.

The oven light can be turned on/off manually or with the timer, i.e. it will be on for the period of time previously defined for the timer. In order to set this timer you must go to the Menu → **General Menu** and access general settings which can be found in General Parameters.

EXHAUST BUTTON

This button allows you to turn on or off the oven exhaust (if the pilot light is on, the exhaust is working).

The exhaust can be programmed to turn off automatically once the time previously programmed has ended. If the time remaining on the TEXT is zero, the exhaust will turn on/off automatically; if the TEXT still shows time remaining, the exhaust can be turned on/off manually or with the timer.

ECONOMISER BUTTON

This panel has a system that reduces instant consumed electric power (Economiser) and ensures that the instant consumed electric power does not surpass the consumption indicated by the control panel.

The manufacturer has provided a table which corresponds to the power set for each element in the oven (TOP, STONE, FRONT_TOP, FRONT_STONE and STEAM).

You can select two different power reducers; the maximum reduction, ECO=MAX, where the power is reduced from 100% to 33% approximately, and a minimum reduction, ECO=MIN, which corresponds approximately to a reduction of 50%.

The exact value in KW is shown on the control panel and corresponds to the power table set by the manufacturer.

When the display is on, the economiser mode previously selected by you is activated; the control panel automatically saves the status to use it in the event of a power cut or a delayed start-up.

In order to select the ECO value desired, you should use the screens and modify the ECO value in General Parameters.

The maximum consumption value in Kw is indicated whenever the economiser is activated. It indicates a value which will not surpass the value set in the control panel with regard to the total value that you can define.

BUTTON TO HEAT THE STEAM GENERATOR

This button activates the steam generator.

If this function is off, the generator is also off and does not heat steam or enable steam injection to occur.

When the steam generator is activated you will hear an acoustic sound and the button  lights up.

You may see the actual temperature of the steam generator by pressing the button  , for two seconds.

4.6 ON BUTTON AND CYCLE BUTTON MODULE

BAKING CYCLE BUTTON

This button is used in order to turn the baking cycle ON/OFF. By pressing this button the baking cycle will start. The steam injection timer will inject steam for the period of time set in the selected programme.

The baking timer will start and show the time remaining until the baking cycle is complete. When the minute symbol (') starts to flash, it means that the baking cycle is in the process of "Baking".

When the cycle time reaches zero, an acoustic sound will be heard and the relay will be activated intermittently (the clock button turns off). The oven light will turn on for the period of time defined in the programme. The baking cycle will be activated until it is turned off manually or until another baking cycle starts.

In order to turn the baking cycle off press the cycle button for 2 seconds.

ON/OFF BUTTON

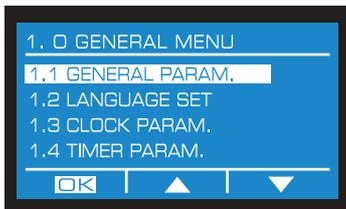
Turns the panel on or off.

If the control panel is stopped, the screen is off and all of the control panel outputs are off. In order to turn the control panel on or off this button needs to be pressed for 2 seconds. If the control panel is deactivated and there is a programmed delayed start-up, the start-up screen will be shown until then.

4.7 GENERAL CONFIGURATION

This menu shows the several options available in the GENERAL SETTINGS menu.

By pressing OK you will access the selected sub-menu. To return to the main menu you should select the first option and press the button .

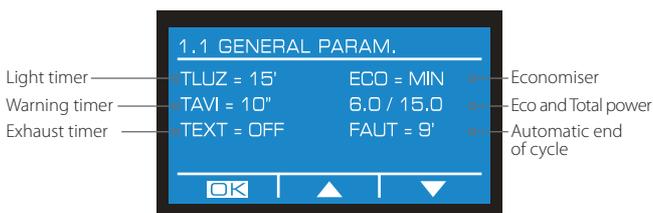


If clock mode is activated when the control panel is turned on, it will show the present time and the time and date automatic start-up is scheduled. To cancel automatic start-up on a specific day, press the  button for a few seconds and wait for the control panel to turn off.

4.7.1 GENERAL PARAMETER

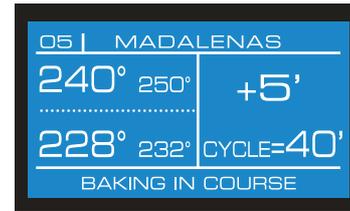
In the General Parameter menu you can select the light and warning timer, the exhaust timer and the end of cycle, automatic or manual.

The parameter TIMER WARNING enables the definition of the period of time the acoustic signal will be active (when there is a warning message, when the baking process is over, etc).



The parameter “automatic end of cycle” enables you to end the baking cycle when the acoustic signal is heard and the display shows “Baking complete”.

When FAUT=SI, the baking timer will not stop when it reaches 0. It will continue working and showing the symbols +0, +1, etc until it reaches +10. These symbols indicate the amount of time that has been added to the baking time. Every +2' a 4" warning (2 beeps) is heard to remind you that the baking time is over.



4.7.2 LANGUAGE PARAMETER

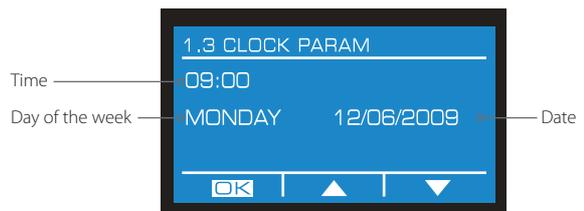
The language parameter enables you to select the language used in the warning messages. The following languages are available: Portuguese, Spanish, English or French (other languages will be introduced in the future).

The oven temperature can be shown in degrees Celsius or Fahrenheit.



4.7.3 CLOCK PARAMETER

In the Clock Parameter you can set the present date and time. You can access this menu through the GENERAL SETTINGS menu and then select CLOCK SETTINGS, or press the CLOCK button for a few seconds when the baking cycle is off.



4.7.4 PROGRAMMING AUTOMATIC START-UP

The oven can be programmed to start automatically on a specific date and time defined by you:



Use the **(B)** or **(C)** buttons to select the start time and the **(A)** button to validate. Use the **(A)** button to select the START-UP PARAMETER and activate the ON position. Use the **(A)** button to select the weekday and the **(B)** or **(C)** button to validate the chosen option, according to the following scheme:

X - Initiates start-up.

- - Does not initiate start-up.

Continue pressing the **(A)** button to return to the start menu.

Press the **(P)** button to turn off the panel.



1. If you wish to cancel an automatic start-up, press the button again until the control panel turns off.
2. If there is a pre-set start-up and you wish to start beforehand, press the key until the control panel turns ON.
3. To change the time of automatic start-up on a specific day, press the **(A)** button for a few seconds and use the selection buttons to set a new time.

4.8 BREAKDOWN WARNING MESSAGES

Some breakdowns will activate a warning message that shows up on some displays. The warning relay will also be activated until the breakdown is acknowledged and a button is pressed. The warning relay will then be deactivated but the warning message will continue showing on the display until the problem is solved. Breakdowns deactivate all heating outputs of the control panel. Following is a list of possible breakdowns:

Code / Message	Problem	Solution
E1 TOP display ---	The TOP thermocouple is ruptured or reversed.	Call for technical assistance.
E2 STONE display ---	The STONE thermocouple is ruptured or reversed.	Call for technical assistance.
E3 TOP display -H-	The STEAM thermocouple is ruptured or reversed.	Call for technical assistance.
E10 TOP display Htd	The control panel temperature is set too high.	Check if the temperature of the control panel is too high or call for technical assistance.
E11 TOP display Hto	The oven temperature is set too high.	Call for technical assistance.

4.9 SOLUTIONS TO PROBLEMS

Breakdowns	Problem	Solution
· The light in one of the chambers does not turn on	1. Light bulbs are burnt out.	1. Substitute the burnt out light bulbs.
· None of the lights in any of the chambers turn on	1. Light and transformer protection breakers are off. 2. Light bulbs are burnt out.	1. Call for technical assistance.
· The oven is on and the heating temperature has been selected but the oven will not heat up	1. Oven's internal breakers are off.	1. Call for technical assistance.
· The bread is baked on the inside but not on the outside	1. Oven is too hot	1. Reduce the oven temperature a little.
· The bread is well baked but does not rise as it should	1. Oven is not hot enough.	1. Increase the oven temperature a little.
· There are sprinkles of water visible on the oven stones	1. Water pressure is over 340kPa.	1. Lower the water pressure below 340kPa (install a pressure regulator).
· There is not enough steam output	1. Water pressure is under 290kPa.	1. Increase the water pressure to or above 290kPa (install water pump, if necessary).
· The baking throughout the oven is not uniform	1. No voltage in one of the phases.	1. Check all three phases or call for technical assistance.
· The chamber has no bath.	1. Breaker is off. 2. Solenoid is jammed. 3. Resistance is damaged.	1. Call for technical assistance.
· The chamber panel does not turn on	1. Panel is damaged.	1. Call for technical assistance.
· "PAR" rupture: top, stone or steam	1. Top, stone or steam probe is damaged.	1. Substitute probe that is 1.0 m from the top or stone. If it is the steam probe it is at a distance of 2.5 m.

Note

If following the instructions in the solutions provided above does not solve your problem, or if a different problem emerges, request technical assistance from Ramalhos.

5 | Oven Maintenance (control panel ELE.L14)

5.1 GENERAL CLEANING OF THE OVEN

The oven must be cleaned on a regular basis and whenever needed to prevent the formation of crusts that cannot be easily removed.

The equipment must be disconnected from the main power before any maintenance work, including light bulb replacement or cleaning, is done. For the purpose, use the electrical installation protection device.

Cleaning must be done as follows:

1. Never soak the oven electrical or electronic parts in water. Do not use abrasive products (sandpaper, etc) as they may scratch the oven.
2. Use an appropriate cleaning product to clean stainless steel surfaces.
3. Use a damp cloth to clean the external surfaces (except for the control panel).

Note
Do not use water jets to clean the oven.

5.2 TIGHTENING THE SPRINGS AND DOOR STOPS

Adjust compensation springs on the doors. Follow instructions below.



Fig. 2.1
Loosen the screws on the left side panel.



Fig. 2.2
Remove protection isolation.



Fig. 2.3
...until the springs and door stop are showing.



Fig. 2.4
Tighten springs.



Fig. 2.5
Tighten door stop.

5.3 MAINTENANCE OF GLASS DOORS

CLEANING THE GLASS DOORS

With time the glass doors build up sediments. Therefore, they must be cleaned on a regular basis.

Use warm water (between 30-40°C) to clean the glass. It should **not be cleaned with cold water** as the temperature differential may cause the glass to break. A suitable detergent may also be used.

REPLACING THE GLASS OF THE DOORS

Proceed as follows to replace an outer glass of an oven door:

1. Begin by unscrewing stainless steel end caps (see pic.3)
2. Loosen screws by using Torx Screwdriver T4 (see pic. 3.1)
3. Remove old glass and place new one in the right position
4. Then tighten screws and end caps (Note: to prevent the glass from breaking, the screws should not be too tight).



Picture. 3



Picture. 3.1

To replace its inner glass, loosen screws by using wrench SW 13mm.

After placing new glass, it is necessary to seal it by using a high temperature silicone.

5.4 SUBSTITUTING LIGHT BULBS

Light bulbs can only be substituted with bulbs that are **12 Volts; 20 Watts**, if not, the lighting system can be damaged



Fig. 4.1
Loosen the screws on the right panel.



Fig. 4.2
Loosen the light bulb socket holder.



Fig. 4.3
Remover the socket.



Fig. 4.4
Substitute light bulb.

Importante note

Before starting to substitute the light bulbs, unplug the oven from the electric socket.

Warning

Do not look directly at the light bulbs when they are turned on.

5.5 CHANGING STONE



Fig. 5.1
Loosen lower frame screws.



Fig. 5.2
Remove frame.



Fig. 5.3
Remove stone.

5.6 CLEANING THE STEAMERS (version with steam device)



Fig. 6.1
Loosen the back steam output.



Fig. 6.2
Loosen the back panel.

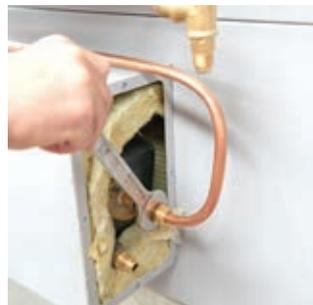


Fig. 6.3
Loosen the water input tube.



Fig. 6.4
Loosen the oval flange.

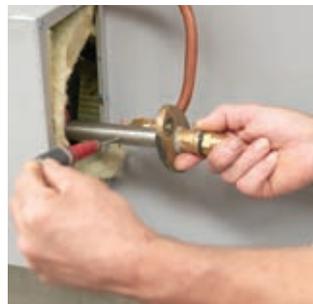


Fig. 6.5
Remove the filter and clean the limestone from all of the openings.

By putting the filter back in its original position, it is necessary to check the connector and if it is damaged it must be replaced.

Important

This should be done biannually.

5.7 CLEANING THE SOLENOID

When the solenoid allows water to pass it is necessary to clean its interior.

It is also possible that the seal is damaged (fig. 7.5). In this case, it is necessary to substitute the part.



Fig. 7.1
Loosen the nut (remove it).



Fig. 7.2
Remove the coil.



Fig. 7.5
Check if the piston is damaged or dirty, clean or substitute it. Reassemble the solenoid and open the water valve.



Fig. 7.3
Loosen the nut against the solenoid.



Fig. 7.4
Carefully remove the piston.

Note

Water source connected to the oven should always be shut off when cleaning the solenoids.

5.8 TABLE OF MAINTENANCE FREQUENCY

Maintenance	Frequency	How to do it
· Steamers	Biannually	See page 16 (cleaning steamers).
· Stones	Daily	Vacuum all of the stones.
· Chambers	Weekly	Should be heated up to baking temperature especially when they have been stopped for a long time in order to avoid oxidation.
· Cleaning the outside of the oven	Weekly	Use warm water (30°C to 40°C) and avoid using abrasive products. On electronic panels avoid using water and any type of liquid. Do not use water jets.
· Glass and doors	Monthly	Clean with warm water and cleaning products when removed from door. Avoid using iron fillings or sandpaper to keep glass from getting scratched.

MAINTENANCE WARNINGS

Notwithstanding the fulfilment of the aforementioned deadlines, the oven has a system that warns the operator of the need to carry out periodic maintenance. This warning is a general preventative warning. Therefore, the shorter term maintenance tasks must be carried out regardless of there being a warning signal.

This warning shows up with the message **"SAT MAINTENANCE"** on the display. This message will be shown on the display as long as the condition that triggered the warning persists.

After the maintenance process has been concluded, the warning must be cancelled as it will reappear in a programmed manner.

In order to do so, proceed as follows:

1. Press the **C** button to access equipment configuration.
2. Press the **C** button to select the **4.0 Service menu** parameter.
3. Press the **A** button to access the working hours.
4. Press the **B** button to reset the number of hours remaining until the next maintenance warning appears.
5. Press the **A** button to validate and exit the menu.

Oven with control panel ELE.D14



6 | Connections to be made to the oven (control panel ELE.D14)

6.1 STEAM, WATER, DRAIN AND ELECTRICAL CONNECTIONS

STEAM OUTPUT

To ensure a successful baking process, the steam output must be independent from the exhaust output.

Install an aluminum tube of 80mm in diameter to separate the steam output from the exhaust output.

WATER INPUT

The connection of water to the oven should have the following characteristics:

- Water pressure must be set between 290kPa (2,9bar) and 340kPa (3,4bar);
- If pressure is below this figure install a water pressure booster pump.
- If pressure is above this figure, install a pressure regulator.
- It is advisable to apply a water softener before connecting the water to the oven, in order to avoid sedimentation of limestone in the steam parts, as this will prolong its life and improve its effectiveness.

DRAIN

Connect the drain to the sewage system. The connection must be lower than the oven prover bath (when applicable).

ELECTRICAL INSTALLATION

The electrical installation must be done by qualified technicians. The power cable must be connected directly to the plumbing system.

Prior to doing the electrical installation, the system and the protection device must be checked to ensure they meet the technical specifications of the oven.

The plumbing system must comply with the installation procedures and feature a device to disconnect the equipment from the main power. If the power cable is damaged, it must be replaced by the manufacturer, the nearest after sales service or qualified personnel.

The equipment must be disconnected from the main power before any maintenance work, including light bulb replacement or cleaning, is done. For the purpose, use the electrical installation protection device.

The oven has a terminal identified with the symbol . An external conductor must be connected to this terminal, using a nominal section with 10mm² max, to ensure equipotentiality with all metallic parts of the equipments during the installation.

6.2 CABLE ACCESSORIES THAT COME WITH OVEN



Fig. 1.1
Water input.



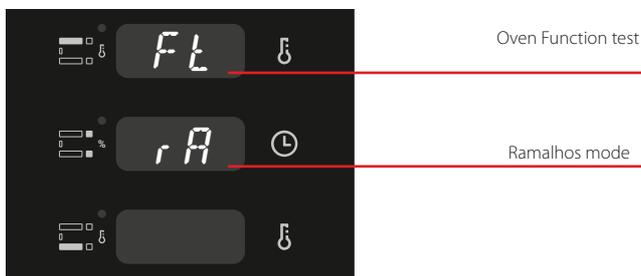
Fig. 1.2
Drain.

7 | First time heating process (control panel ELE.D14)

When the oven is turned on for the first time it will automatically enter Ramalhos mode and show the message: **Function Test** or **First Heating** on the display of the control panel. You can use the **+** or **-** buttons to select one of the operation options shown alternately on the display:

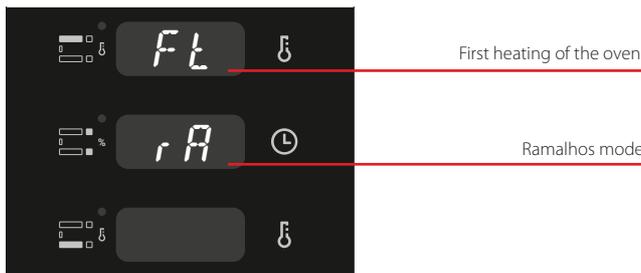
1) Function Test:

It is used to check the oven is functioning properly after installation. During this phase the oven temperature will not surpass 50° C. To initiate the function test press the **0** button.



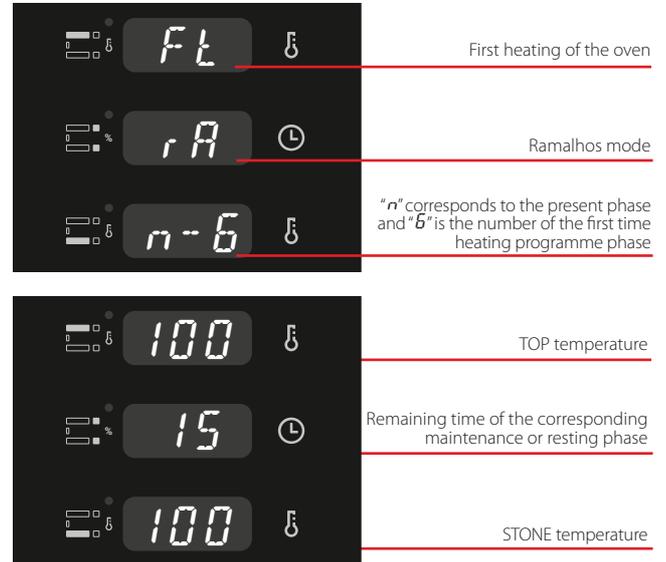
Note
To return to Ramalhos mode, press the **0** button to turn the oven off and on again.

2) First time heating the oven



Heating the oven for the first time is extremely important to ensure its future proper functioning and avoid structural problems. The first heating programme must be executed in full and only after it has been completed does the control panel enter normal operation mode. If there is a power cut, the programme will restart in the last temperature re-

corded with a 25°C margin. To start this programme press the **0** button.



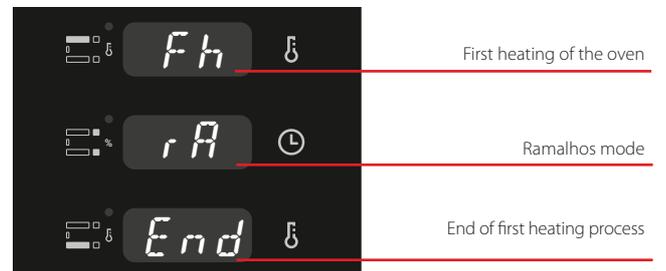
The whole process will be managed automatically by the control panel.

Throughout the process the display will alternately show different information, namely:

Note
The first heating process may take up to 6 hours.

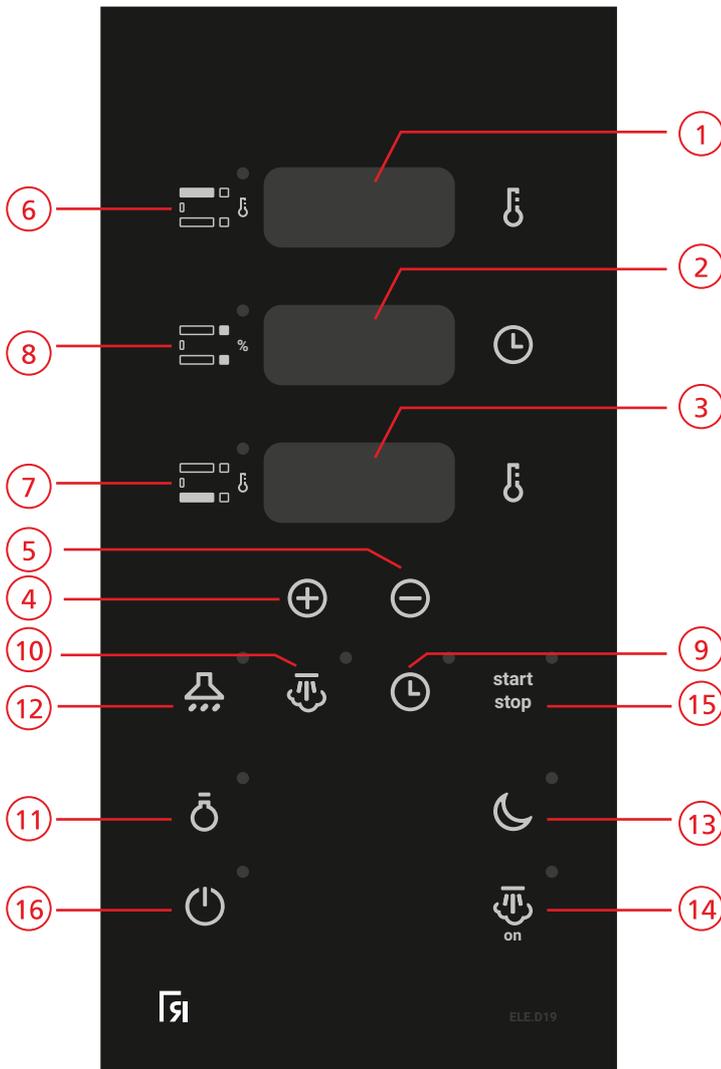
END OF FIRST HEATING PROCESS

Once all stages of the first heating programme are completed the control panel will show the following information:



Finally press **0**, you may now start the baking cycle.

8 | Description display of control panel ELE.D14



- ① TOP DISPLAY
- ② CLOCK DISPLAY
- ③ STONE DISPLAY
- ④ BUTTON TO INCREASE NUMBERS
- ⑤ BUTTON TO DECREASE NUMBERS
- ⑥ TOP TEMPERATURE BUTTON
- ⑦ STONE TEMPERATURE BUTTON
- ⑧ BUTTON FOR FRONT-TOP POWER AND FRONT-STONE
- ⑨ CLOCK BUTTON
- ⑩ STEAM INJECTION BUTTON
- ⑪ LIGHT BUTTON
- ⑫ EXHAUST BUTTON
- ⑬ ECO BUTTON
- ⑭ BUTTON TO HEAT THE STEAM GENERATOR
- ⑮ CYCLE BUTTON
- ⑯ ON BUTTON

8.1 OPERATION OF CONTROL PANEL ELE.D14

The control panel will automatically carry out a series of actions which ease the baking process. The actions that you would have to carry out throughout a baking cycle, namely start the timer, inject steam, change the baking temperature, are done automatically and you only need to press the cycle button on the control panel.

SETTING THE TEMPERATURE

Press the TOP or STONE button to access temperature selection for TOP and STONE. The correspondent display and button will flash. Use the  and  buttons to select the desired value and validate by pressing the corresponding flashing button (TOP or STONE).

SETTING THE ELECTRIC POWER FOR FRONT-TOP AND FRONT-STONE

Lightly press the  button to select the electric power for FRONT-TOP and FRONT-STONE. The value for FRONT-TOP electric power is seen on the TOP display in % over the TOP electric power. To validate press the  button. Following, the value for FRONT-STONE is seen on the STONE display in % over the STONE value.

SETTING THE BAKING TIME

Lightly press the  button to select the desired baking time in minutes. The clock button and display will flash. Following, set the time and confirm by pressing the  button again.

SETTING THE DURATION OF STEAM INJECTION

Press the  button for 2 seconds to select the duration of steam injection in seconds. The button pilot light and the superior display will flash. Set the value for steam injection shown on the display and save by pressing the same  button. When the steam button  is flashing it means that it is not possible to inject steam as the temperature is still below the required value.

As soon as the button stops flashing, the steam injection system is ready to inject steam and the baking cycle can start.

END OF BAKING WARNING MESSAGE

You can program the duration of the "end of baking" warning message in seconds. Press the  button for two seconds and the pilot light and superior display will flash. The display will show the actual duration of the warning message. Define the desired duration and save by pressing the  button again.

When the baking cycle starts, the timer will show the remain-

ing time until 0 is reached. An acoustic signal indicating the end of the baking cycle will be heard. This signal is activated intermittently by the relay and is on for the pre-set period of time. Press any button to cancel the warning.

If the baking cycle is not stopped when the baking time is over, the timer will continue to add time and the oven will continue baking. The clock will be intermittent to alert you to this situation. In the following 2nd, 4th, 6th, 8th and 10th minutes the control panel will activate a brief intermittent warning sound. In the 10th minute the control panel ends the baking cycle automatically.

8.2 ADDITIONAL FUNCTIONS

OVEN LIGHT

Enables one to turn the oven light on and off.

EXHAUST BUTTON

Enables one to turn the oven exhaust system on and off.

ECONOMISER BUTTON

This control panel has a system that reduces instant consumed electric power (Economiser) and ensures that the instant consumed electric power does not surpass 50% of the electric power installed in the chamber.

To select the desired ECO value, you must press the  button. This button will be lit while it is activated.

The maximum consumption value in Kw is indicated whenever the economiser is activated. It indicates a value which will not surpass the value set in the control panel with regard to the total value that you can define.

BUTTON TO HEAT THE STEAM GENERATOR

This button activates the steam generator.

If this function is off the generator is also off and does not heat steam or enable steam injection to occur. When the steam generator is activated you will hear an acoustic sound and the button  lights up.

You may see the actual temperature of the steam generator by pressing the button , for two seconds.

8.3 PROGRAMMING AUTOMATIC START-UP

The automatic start-up enables the control panel to turn on the oven automatically after a certain period of time. In this case there is no need to press the  button manually.

The maximum period of time that you can set for the automatic start-up in hours/minutes is 99h59.

To activate the automatic start-up, press the  button for more than 2 seconds.

The display will show the hours and minutes set by you. For example 12 hours and 0 minutes.



Hours display (programmed)

Minutes display (programmed)

If the time shown on the display is not changed, the countdown for the next automatic start-up will start automatically in 5 seconds.

To change the time of the automatic start-up, press  or  button.

Initially you are given the option to change the hours. Press the  button to validate and save your alteration. Next, the minutes indicator will start flashing. Alter the minutes following the same procedure used for the hours.

The programmed time is saved and will be displayed whenever you access the automatic start-up feature.

After validating the minutes, the countdown for the automatic start-up begins.



Hours display (countdown)

Minutes display (countdown)

Seconds display (countdown)

Throughout this process the  button and the  letter on the hour display will flash.

When the timer reaches 0, the control panel will turn on automatically.

During the countdown:

- Should you wish to change the remaining time, press the  button for two seconds and follow the previous indications.
- Press the  button lightly to cancel the automatic start-up and turn the control panel on.
- In the event of a power cut, the automatic start-up will restart from the moment it took place, i.e. will continue on for the amount of time the power cut lasted.

8.4 SUGGESTED TEMPERATURES

BREAD 50 gr				PASTRIES			
TOP	FRONT-TOP	FRONT-STONE	STONE	TOP	FRONT-TOP	FRONT-STONE	STONE
260°	+ 10%	+ 5%	230°	210°	+ 10%	+ 5%	190°

8.5 BREAKDOWN WARNING MESSAGES

Some breakdowns will activate a warning message that shows up on some displays. The warning relay will also be activated until the breakdown is acknowledged and a button is pressed. The warning relay will then be deactivated but the warning message will continue showing on the display until the problem is solved. Breakdowns deactivate all heating outputs of the control panel. Following is a list of possible breakdowns:

Code / Message	Problem	Solution
E1 TOP display 	The TOP thermocouple is ruptured or reversed.	Call for technical assistance.
E2 STONE display 	The STONE thermocouple is ruptured or reversed.	Call for technical assistance.
E3 TOP display 	The STEAM thermocouple is ruptured or reversed.	Call for technical assistance.
E10 TOP display 	The control panel temperature is set too high.	Check if the temperature of the control panel is too high or call for technical assistance.
E11 TOP display 	The oven temperature is set too high.	Call for technical assistance.

8.6 SOLUTIONS TO PROBLEMS

Problem	Problem	Solution
· The light in one of the chambers does not turn on	1. Light bulbs are burnt out.	1. Substitute the burnt out light bulbs.
· None of the lights in any of the chambers turn on	1. Light and transformer protection breakers are off. 2. Light bulbs are burnt out.	1. Call for technical assistance.
· The oven is on and the heating temperature has been selected but the oven will not heat up	1. Oven's internal breakers are off.	1. Call for technical assistance.
· The bread is baked on the inside but not on the outside	1. Oven is too hot.	1. Reduce the oven temperature a little.
· The bread is well baked but does not rise as it should	1. Oven is not hot enough.	1. Increase the oven temperature a little.
· Bread bottom crust too dark	1. Oven floor and ceiling temperatures have a difference of more than 30°C 2. Very low temperatures are being used;	1. Readjust both oven floor and ceiling temperatures so that the difference between them does not exceed 30°C 2. Increase oven floor and ceiling temperatures (not exceeding the maximum difference of 30°C as described above)
· There are sprinkles of water visible on the oven stones	1. Water pressure is over 340kPa.	1. Lower the water pressure below 340kPa (install a pressure regulator).
· There is not enough steam output	1. Water pressure is under 290kPa.	1. Increase the water pressure to or above 290kPa (install water pump, if necessary).
· The baking throughout the oven is not uniform	1. No voltage in one of the phases.	1. Check all three phases or call for technical assistance.
· The chamber has no bath.	1. Breaker is off. 2. Solenoid is jammed. 3. Resistance is damaged.	1. Call for technical assistance.
· The chamber panel does not turn on	1. Panel is damaged.	1. Call for technical assistance.
· "PAR" rupture: top, stone or steam	1. Top, stone or steam probe is damaged.	1. Substitute probe that is 1.0 m from the top or stone. If it is the steam probe it is at a distance of 2.5 m.

Note

If following the instructions in the solutions provided above does not solve your problem, or if a different problem emerges, request technical assistance from Ramalhos.

9 | Oven Maintenance (control panel ELE.D14)

9.1 GENERAL CLEANING OF THE OVEN

The oven must be cleaned on a regular basis and whenever needed to prevent the formation of crusts that cannot be easily removed.

The equipment must be disconnected from the main power before any maintenance work, including light bulb replacement or cleaning, is done. For the purpose, use the electrical installation protection device.

Cleaning must be done as follows:

1. Never soak the oven electrical or electronic parts in water. Do not use abrasive products (sandpaper, etc) as they may scratch the oven.
2. Use an appropriate cleaning product to clean stainless steel surfaces.
3. Use a damp cloth to clean the external surfaces (except for the control panel).

Note

Do not use water jets to clean the oven.

9.2 TIGHTENING THE SPRINGS AND DOOR STOPS

Adjust compensation springs on the doors. Follow instructions below.



Fig. 2.1
Loosen the screws on the left side panel.



Fig. 2.2
Remove protection isolation.



Fig. 2.3
...until the springs and door stop are showing.



Fig. 2.4
Tighten springs.



Fig. 2.5
Tighten door stop.

9.3 MAINTENANCE OF GLASS DOORS

CLEANING THE GLASS DOORS

With time the glass doors build up sediments. Therefore, they must be cleaned on a regular basis.

Use warm water (between 30-40°C) to clean the glass. It should **not be cleaned with cold water** as the temperature differential may cause the glass to break. A suitable detergent may also be used.

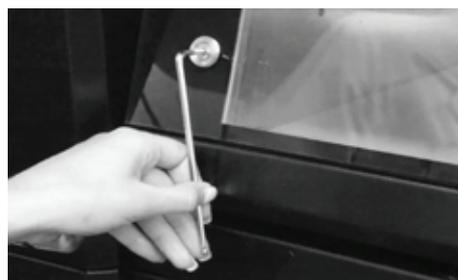
REPLACING THE GLASS OF THE DOORS

Proceed as follows to replace an outer glass of an oven door:

1. Begin by unscrewing stainless steel end caps (see pic.3)
2. Loosen screws by using Torx Screwdriver T4 (see pic. 3.1)
3. Remove old glass and place new one in the right position
4. Then tighten screws and end caps (Note: to prevent the glass from breaking, the screws should not be too tight).



Picture. 3



Picture. 3.1

To replace its inner glass, loosen screws by using wrench SW 13mm.

After placing new glass, it is necessary to seal it by using a high temperature silicone.

9.4 SUBSTITUTING LIGHT BULBS

Light bulbs can only be substituted with bulbs that are **12 Volts; 20 Watts**, if not, the lighting system can be damaged



Fig. 4.1
Loosen the screws on the right panel.



Fig. 4.2
Loosen the light bulb socket holder.



Fig. 4.3
Remove the socket.



Fig. 4.4
Substitute light bulb.

Importante note

Before starting to substitute the light bulbs, unplug the oven from the electric socket.

Warning

Do not look directly at the light bulbs when they are turned on.

9.5 CHANGING STONE



Fig. 5.1
Loosen lower frame screws.



Fig. 5.2
Remove frame.



Fig. 5.3
Remove stone.

9.6 CLEANING THE STEAMERS (version with steam device)



Fig. 6.1
Loosen the back steam output.



Fig. 6.2
Loosen the back panel.

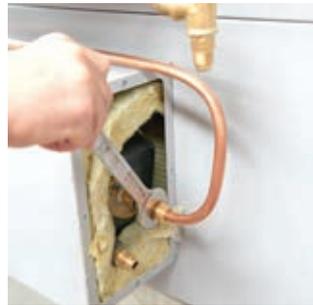


Fig. 6.3
Loosen the water input tube.



Fig. 6.4
Loosen the oval flange.



Fig. 6.5
Remove the filter and clean the limestone from all of the openings.

By putting the filter back in its original position, it is necessary to check the connector and if it is damaged it must be replaced.

Important

This should be done biannually.

9.7 CLEANING THE SOLENOID

When the solenoid allows water to pass it is necessary to clean its interior.

It is also possible that the seal is damaged (fig. 7.5). In this case, it is necessary to substitute the part.



Fig. 7.1
Loosen the nut (remove it).



Fig. 7.2
Remove the coil.



Fig. 7.5
Check if the piston is damaged or dirty, clean or substitute it. Reassemble the solenoid and open the water valve.



Fig. 7.3
Loosen the nut against the solenoid.



Fig. 7.4
Carefully remove the piston.

Note

Water source connected to the oven should always be shut off when cleaning the solenoids.

9.8 TABLE OF MAINTENANCE FREQUENCY

Maintenance	Frequency	How to do it
· Steamers	Biannually	See page 27 (cleaning steamers).
· Stones	Daily	Vacuum all of the stones.
· Chambers	Weekly	Should be heated up to baking temperature especially when they have been stopped for a long time in order to avoid oxidation.
· Cleaning the outside of the oven	Weekly	Use warm water (30°C to 40°C) and avoid using abrasive products. On electronic panels avoid using water and any type of liquid. Do not use water jets.
· Glass and doors	Monthly	Clean with warm water and cleaning products when removed from door. Avoid using iron fillings or sandpaper to keep glass from getting scratched.

MAINTENANCE WARNINGS

Notwithstanding the fulfilment of the aforementioned deadlines, the oven has a system that warns the operator of the need to carry out periodic maintenance. This warning is a general preventative warning. For such, the shorter term maintenance tasks must be carried out regardless of there being a warning signal.

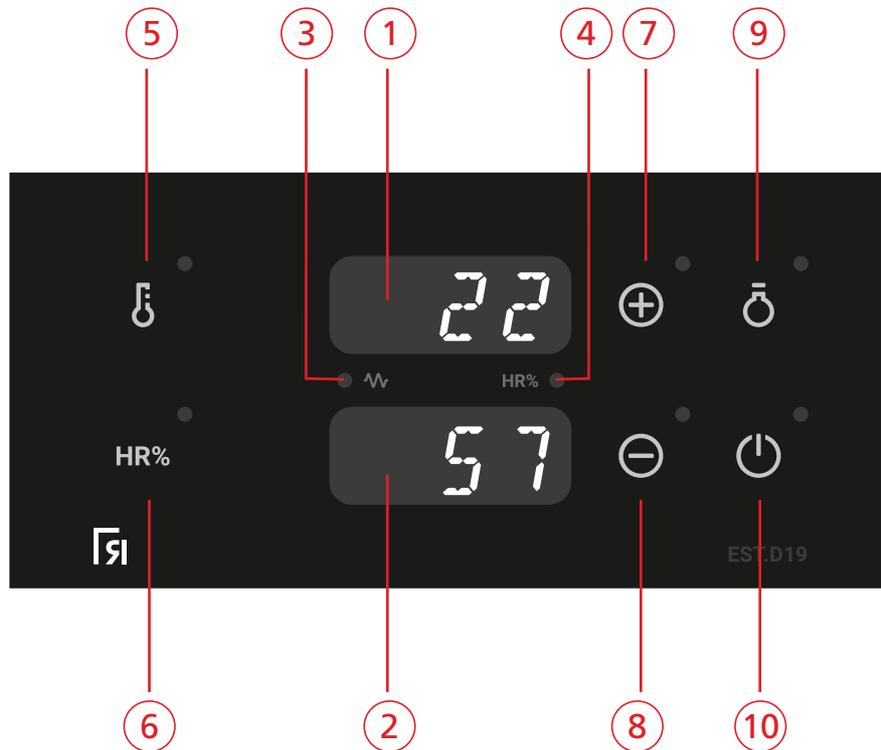
This warning shows up with the message **lch** on the display. This message will be shown on the display as long as the condition that triggered the warning persists.

After the maintenance process has been concluded, the warning must be cancelled as it will reappear in a programmed manner.

In order to do so, proceed as follows:

1. Press the **+** button for 3 seconds to access the parameter **dr**.
2. Press the **+** button for 3 seconds to reset the number of hours remaining until the next maintenance warning appears.
3. Press the **start/stop** button to validate and exit the menu.

10 | Description of the front panel of the prover control panel



- 1** TEMPERATURE DISPLAY
Digital display for viewing prover temperature.
- 2** HUMIDITY DISPLAY
Digital display for viewing prover humidity.
- 3** PROVER HEATING PILOT LIGHT
Turns on the resistances to heat the prover to the desired temperature.
- 4** HUMIDITY PILOT LIGHT
Activates the production of humidity to reach the desired level of humidity inside the prover.
- 5** TEMPERATURE BUTTON
This button has two functions. Pressing once allows for the editing of the temperature inside the prover between 0.....60°C. A prolonged pressing will turn the heating ON or OFF. If the led button is lit, the heating is turned on.
- 6** HUMIDITY BUTTON
This button features two distinct functions. When pressed once it enables the user to edit the humidity of the prover between 30 ... 90%. When this button is pressed for 2" it turns on or off the humidity in the prover. If the LED is lit the humidity is on.
- 7** INCREASE VALUE BUTTON
This button when pressed after the buttons  or , will increase the value shown on the display.
- 8** DECREASE VALUE BUTTON
This button when pressed after the buttons  or , will decrease the value shown on the display.
- 9** LIGHT BUTTON
This button enables the user to turn the light on or off. The light will remain on for the duration of time previously set by the manufacturer and will turn off automatically.
- 10** TECLA ON/OFF
If you press the button for more than 2 seconds, the control panel will be turned ON or OFF. If the led button is lit, it means the control panel has been turned off.

10.1 PROGRAMMING THE CONTROL PANEL OF THE PROVER

With the control panel ON, select the desired temperature and humidity levels. The control panel will maintain these parameters until they have been changed by the user.

- ON: If the control panel is turned off (OFF), press the  button for 2 seconds or more to turn it on. It will assume the previously programmed temperature and humidity levels.
- INCREASE OR DECREASE value: To modify the parameters for humidity or temperature, briefly press the corresponding button and the value will appear on the display. In order to alter this value use the buttons  or  to increase or decrease the respective value. To validate the selected value, briefly press the button corresponding to the value that was altered once again.
- REGULATING THE PROVER TEMPERATURE: To turn the temperature regulator ON or OFF, press the button  for 2 seconds. If the led light is on, the temperature regulator is turned on.
- REGULATING THE HUMIDITY: The humidity can only be regulated when the led light of the button  is turned on. To turn the humidity control panel ON or OFF, press this button for 2 seconds.
- OFF: When the button  is pressed for 2 seconds or more, the control panel goes from ON to OFF. When OFF, the led light of the button remains on. In this situation, the displays, outputs and buttons are turned off with the exception of the light that can be turned on to allow for its cleaning.

10.2 MAINTENANCE OF THE PROVER

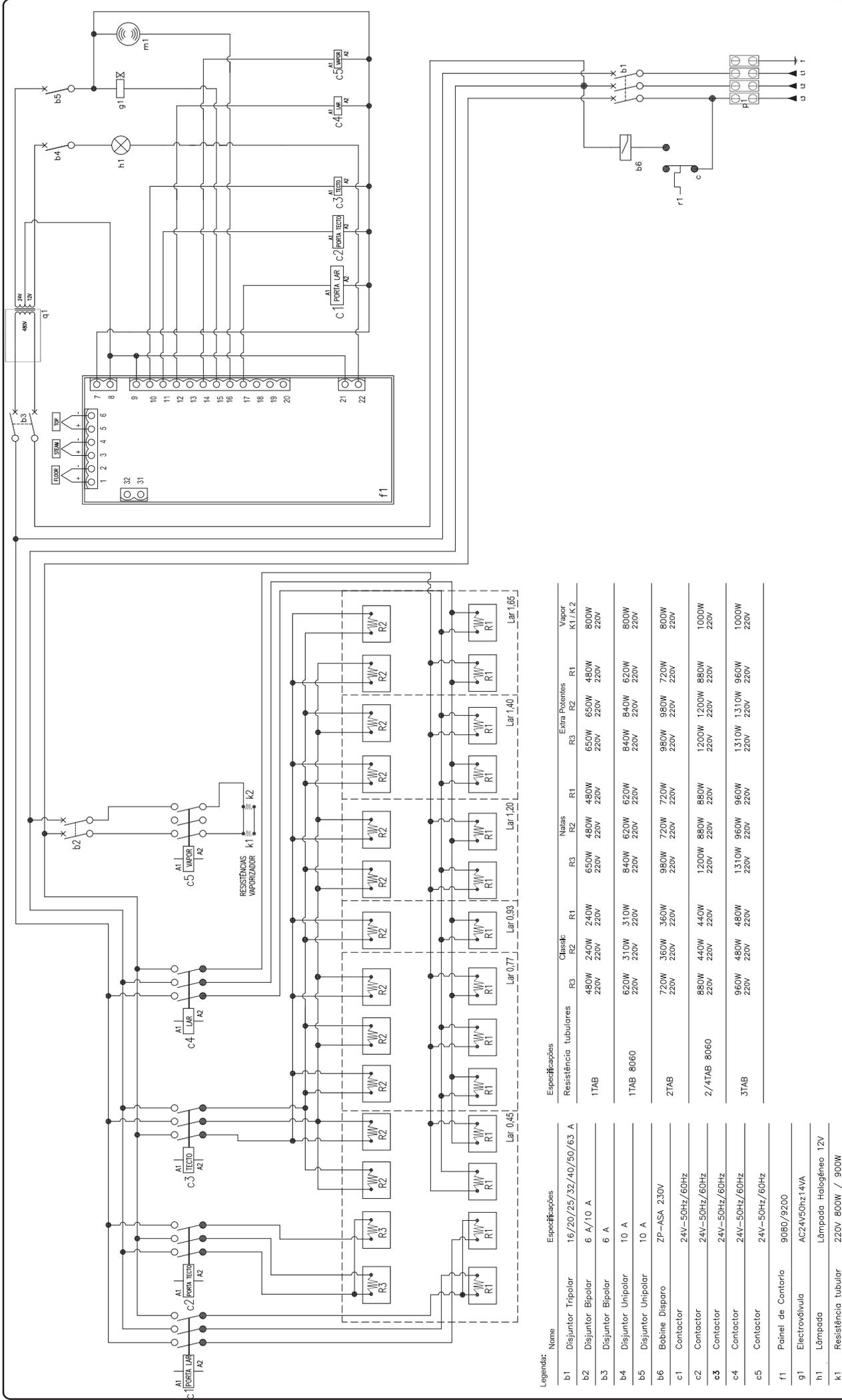
CLEANING THE SEPTIC BOX



Remove the water from the container on a monthly basis.

10.3 POSSIBLE BREAKDOWNS OF THE PROVER CONTROL PANEL

Message/ Code	Causes	Solution
E1	Rupture or reversal of the main probe.	Substitute the probe or contact Doyon technical assistance.
E4	Humidity sensor.	Contact Doyon technical assistance.
E5	Rupture or reversal of the safety thermostat sensor.	Substitute the probe or contact Doyon technical assistance.
E10	Internal temperature of the panel is above 70 °C.	If the temperature is below 65 °C the oven will resume operation.
E11	The oven temperature is too high.	Once the temperature is below the safety temperature limit the oven will resume operation.
E14	Safety thermostat went off.	Reset thermal cutoff or contact Doyon technical assistance.
E20	Motor thermal cutoff.	Allow the motor to cool down until the message disappears. If the message continues to show up contact Doyon technical assistance.
E52	No water.	Open the water inlet or turn the controller off and on again.



Nome	Especificações		Especificações						Vapor K1/K2		
	Classif.	Resistência tubulares	R3	R1	R3	R2	R1	R3		R2	R1
b1 Disjuntor Tripolar	16/20/25/32/40/50/63 A										
b2 Disjuntor Bipolar	6 A/10 A		480W 220V	240W 220V	650W 220V	480W 220V	480W 220V	650W 220V	480W 220V	800W 220V	
b3 Disjuntor Bipolar	6 A										
b4 Disjuntor Unipolar	10 A		620W 220V	310W 220V	840W 220V	620W 220V	620W 220V	840W 220V	620W 220V	800W 220V	
b5 Disjuntor Unipolar	10 A										
b6 Bobine Disparo	ZP-ASA 230V		720W 220V	360W 220V	980W 220V	720W 220V	720W 220V	980W 220V	720W 220V	800W 220V	
c1 Contactor	24V-50Hz/60Hz		880W 220V	440W 220V	1200W 220V	880W 220V	880W 220V	1200W 220V	880W 220V	1000W 220V	
c2 Contactor	24V-50Hz/60Hz										
c3 Contactor	24V-50Hz/60Hz										
c4 Contactor	24V-50Hz/60Hz		960W 220V	480W 220V	1310W 220V	960W 220V	960W 220V	1310W 220V	960W 220V	1000W 220V	
c5 Contactor	24V-50Hz/60Hz										
f1 Painel de Contorlo	9080/9200										
g1 Electroválvula	AC24V50Hz/14VA										
h1 Lâmpada	Lâmpada Halogéneo 12V										
k1 Resistência tubular	220V 800W / 900W										
k2 Resistência tubular	220V 800W / 900W										
m1 Besouro Luminoso	DELECSA 24V										
p1 Borne da calha	WDU 10/35 - CREME										
p1 Borne da calha	WDU 10/35 - AZUL										
p1 Borne da calha	WPE 10/35 - TERRA										
q1 Transformador	230V-12V-24V 150VA										
r1 Termóstato	50 - 400°C										

Ramalhos

COMPONENTE/CLIENTE BESTE BESENHO

FORNO MODULAR COM BANHO 220V

DESIGNAÇÃO / DESCRIÇÃO

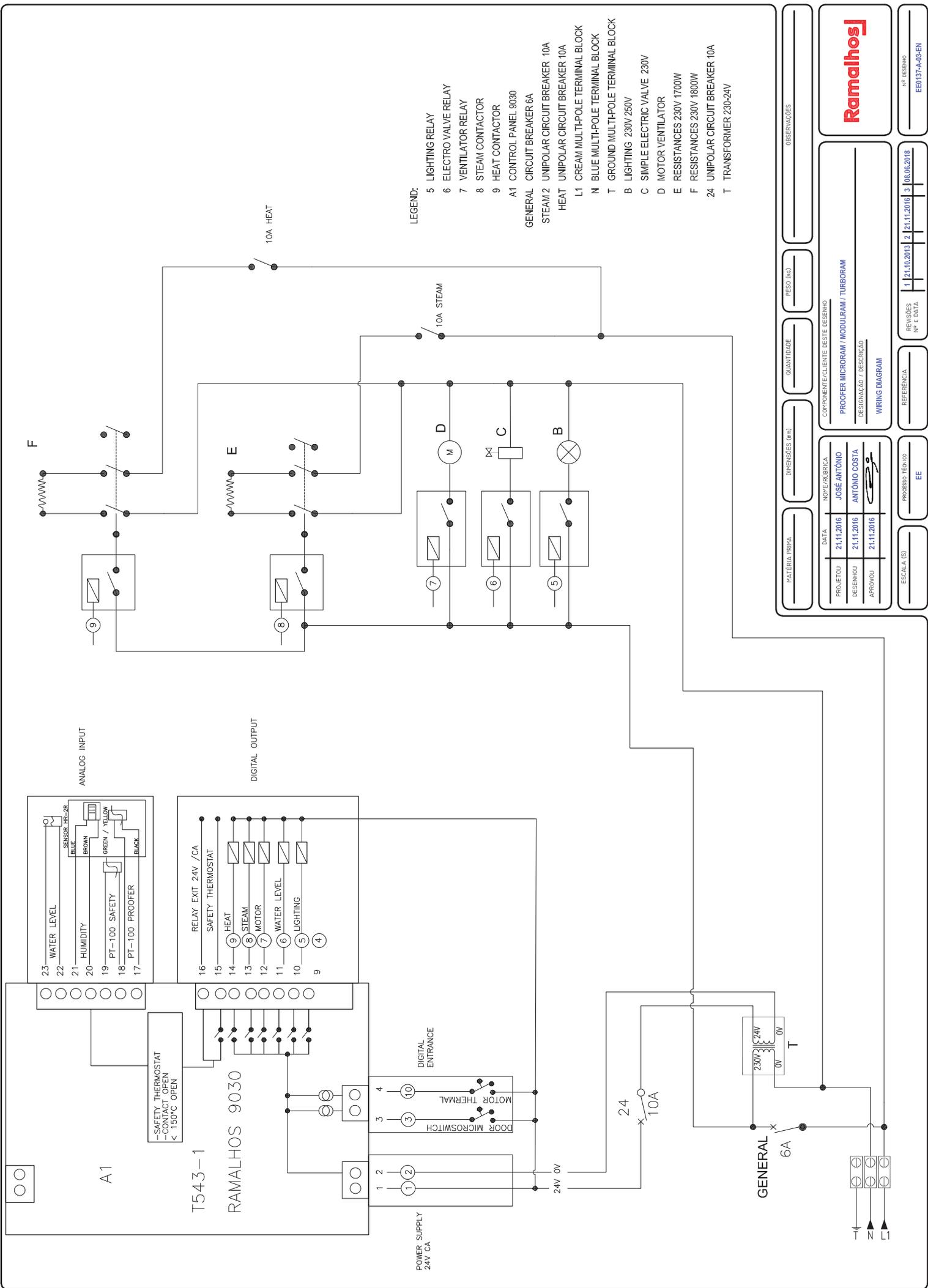
ESQUEMA ELÉCTRICO

MATERIA PRIMA	DIMENSÕES (mm)	QUANTIDADE	PESO (kg)	OBSERVAÇÕES

PROJETO	DATA	NOME/FEBRICA
JOSE ANTONIO	23.03.2011	JOSE ANTONIO
BESENHO	12.02.2021	DANIELA ABRANTES
APROVOU	12.02.2021	

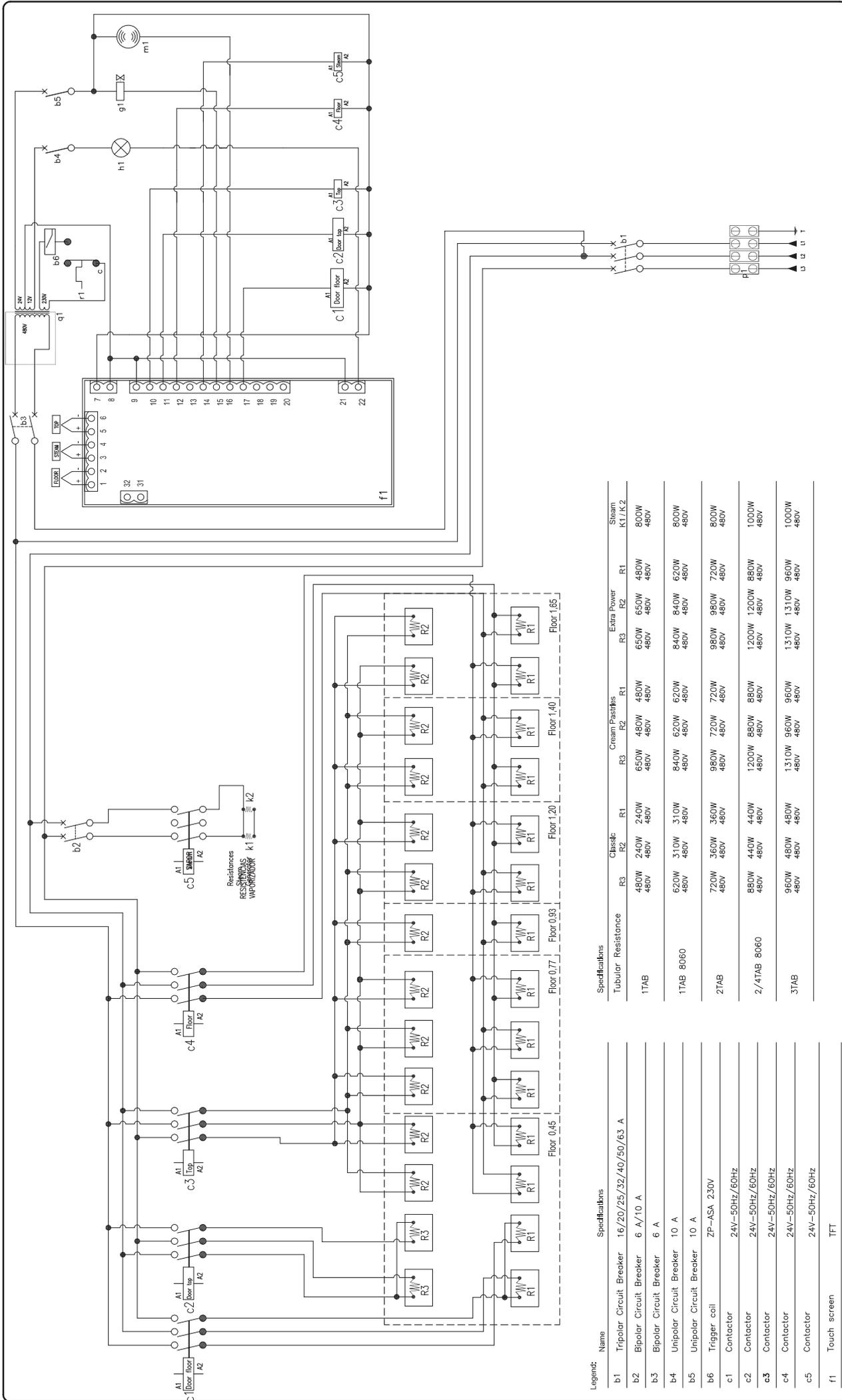
ESCALA (S)	PROCESSO TÉCNICO	REFERÊNCIA
EE	EE	

N.º BESENHO	REVISÕES	N.º DATA
EE0129-A-05-220V	1 21.10.2013 2 05.02.2014 3 30.06.2015	4 20.07.2015 5 12.02.2021 6



Este desenho é propriedade da RAMALHOS, S.A. - É proibido copiar, rasurar e/ou deixar em poder de terceiros sem a permissão do gabinete técnico desta empresa.

MATERIA PRIMA		DIMENSÕES (mm)		QUANTIDADE		PESO (kg)		OBSERVAÇÕES	
DATA		NOME/SUBSCRICIA		COMPONENTE/CLIENTE DESTA REVISÃO		PROOFER		WIRING DIAGRAM	
PROJETOU	21.11.2016	JOSE ANTONIO	PROOFER	MICROGRAM / MODULRAM / TURBORAM	DESIGNAÇÃO / DESCRIÇÃO				
RESENHOU	21.11.2016	ANTONIO COSTA	APROVOU	21.11.2016					
ESCALA (S)	PROCESSO TÉCNICO		REFERÊNCIA		REVISÕES		N.º RESENHO		
EE					1 2 3		EED137-AA-03-EN		



Legend:

Name	Specifications
b1	Tripolar Circuit Breaker 16/20/25/32/40/50/63 A
b2	Bipolar Circuit Breaker 6 A/10 A
b3	Bipolar Circuit Breaker 6 A
b4	Unipolar Circuit Breaker 10 A
b5	Unipolar Circuit Breaker 10 A
b6	Trigger coil ZP-ASA 230V
c1	Contactora 24V-50Hz/60Hz
c2	Contactora 24V-50Hz/60Hz
c3	Contactora 24V-50Hz/60Hz
c4	Contactora 24V-50Hz/60Hz
c5	Contactora 24V-50Hz/60Hz
f1	Touch screen TFT
g1	Control Panel 9080/9200
h1	Electric valve AC24V/50hz/14VA
m1	Lamp Halogen bulb 12V
p1	Multi-Pole Terminal Block WDU 10/35 - CREAM
p1	Multi-Pole Terminal Block WDU 10/35 - BLUE
p1	Multi-Pole Terminal Block WPE 10/35 - GROUND
q1	Transformer 230V-12V-24V 150VA
r1	Thermostat 50 - 400°C

Specifications

	Tubular Resistance			Classic			Cream Pastilles			Extra Power			Steam K1/K.2
	R3	R2	R1	R3	R2	R1	R3	R2	R1	R3	R2	R1	
1TAB	480W 480V	240W 480V	240W 480V	480W 480V	480W 480V	480W 480V	650W 480V	480W 480V	480W 480V	650W 480V	480W 480V	800W 480V	800W 480V
1TAB 8060	620W 480V	310W 480V	310W 480V	840W 480V	620W 480V	620W 480V	840W 480V	620W 480V	620W 480V	840W 480V	620W 480V	800W 480V	800W 480V
2TAB	720W 480V	360W 480V	360W 480V	980W 480V	720W 480V	720W 480V	980W 480V	720W 480V	720W 480V	980W 480V	720W 480V	800W 480V	800W 480V
2/4TAB 8060	880W 480V	440W 480V	440W 480V	1200W 480V	880W 480V	880W 480V	1200W 480V	880W 480V	880W 480V	1200W 480V	880W 480V	1000W 480V	1000W 480V
3TAB	960W 480V	480W 480V	480W 480V	1310W 480V	960W 480V	960W 480V	1310W 480V	960W 480V	960W 480V	1310W 480V	960W 480V	1000W 480V	1000W 480V

Ramalhos

COMPONENTE/CLIENTE BESTE BESENHO

MODULRAM OVEN - CONTROL PANEL WITH STEAM GENERATOR-480V

DESIGNAÇÃO / DESCRIÇÃO

WIRING DIAGRAM

MATÉRIA PRIMA	DIMENSÕES (mm)	QUANTIDADE	PESO (kg)	OBSERVAÇÕES

PROJETO	RESENHO	APROVOU	DATA	NOME/RUBRICA

ESCALA (S)

PROCESSO TÉCNICO

EE

REFERÊNCIA

REVISÕES Nº E DATA

Nº BESENHO

EE0192A-00-EN