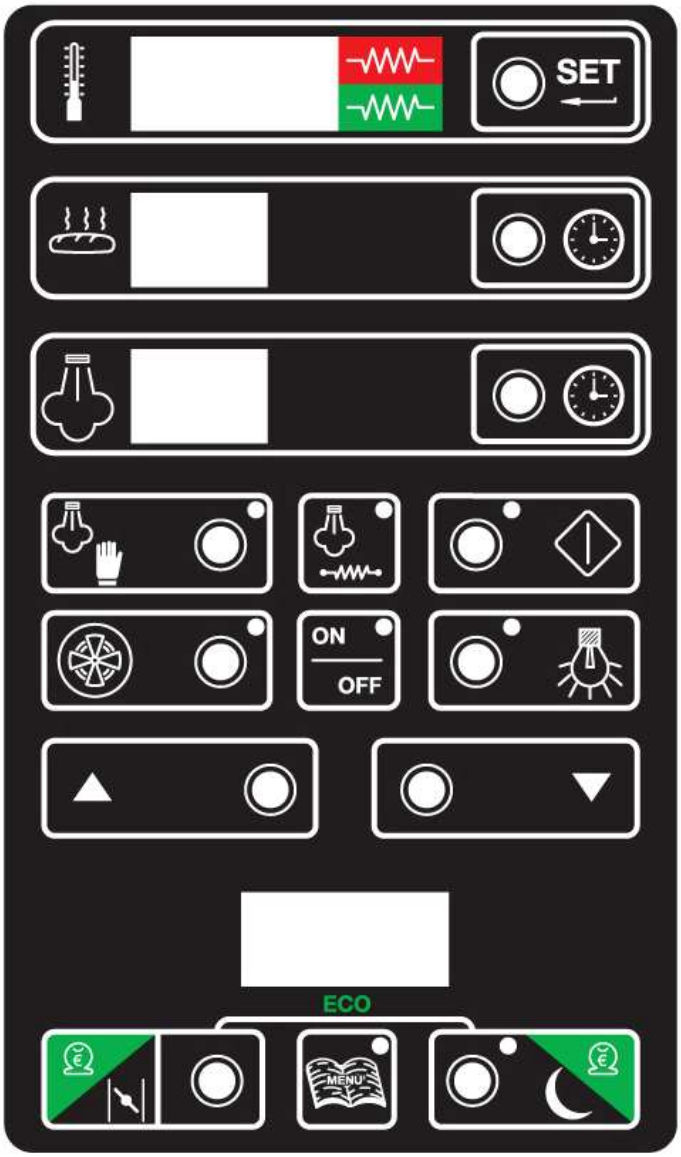
# CONTROL PANEL

# ELECTRIC OVEN




## INSTRUCTION MANUAL

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## 0) DEFINITIONS

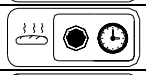
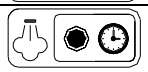
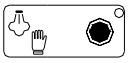
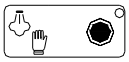
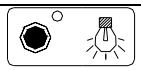
The electronic control panel for the oven comes in two versions:

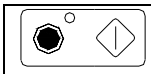
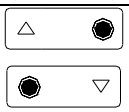
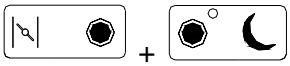
**STAR:** basic version, no programming possible

**ORION:** with additional buttons and displays for programming the baking cycles

The buttons on the panel and their functions are listed below

**STAR and ORION model panel buttons**

| Button figure | Button name | Button function |
|---|---|---|
|  | On/Off | *When the LED is on*, the panel is in **standby mode**: the oven is off. Pressing the button turns the oven on.<br><br>*When the LED is off:* the oven is on: in this mode, the panel may be in **start baking** mode (when the baking cycle is being performed) or in **stop** mode (at the end of a baking cycle, or before the start). Pressing the button turns the oven off. |
|  | Temperature setting | Sets the temperature of the baking chamber (°C) |
|  | Time setting | Sets the baking time (min) |
|  | Steam setting | For a manual program (in start and stop baking mode for the **STAR** version), pressing this button sets the steam emission time. If an automatic program is running (from 01 to 99 for the **ORION** version), the  display shows how many seconds manual delivery lasts, achieved by pressing the  button. |
|  | Manual steam opening | Opens the steam solenoid valve. This button activates steam delivery for the time set on the steam display  (during this time, the display is on). If an automatic program is running (from 01 to 99 for the **ORION** version), pressing this button activates steam delivery for as long as the button remains held down. The  display shows for how many seconds delivery itself lasts. |
|  | Turning on steam generator heating resistor | This enables or disables the steam generator resistor. The LED on the button itself signals that the steam generator is active (when the LED is on, the resistor is in temperature control mode) or not active (when the LED is off) |
|  : | Turning on the light | This turns on the light to illuminate the baking chamber (the LED is on when the light is on). |

| | | |
|---|---|---|
|  | Start baking | **ON STOP** panel status: when the chamber is not heated, pressing this button caused the buzzer to sound, indicating that the command has been refused (as the chamber is not heated). When the chamber is heated, activating this function in stop mode causes the baking time counter to start (the relative LED lights up). For the **ORION** version, activating an automatic program forces the steam program to run and any manual steam damper commands will be reset.<br>When the panel is in **ON START** mode, baking is interrupted. |
|  : | Extractor | Turns the extractor on or off. The LED for this button indicates whether the extractor is on (LED on) or off (LED off). This button can be pressed to turn the extractor off and back on. Each time the panel is turned off, when it is turned on again, the extractor is off, even if it was on when the panel was turned off. |
|  and | Adjustment buttons | These increase or decrease the value of the parameter that is being set. If parameters are not being set, when the panel is ON, the temperatures read by the probes are displayed (steady red=top; steady green=bottom; flashing red=steam generator). |
|  + | Valve + programmer | When pressed simultaneously for at least 3 seconds, these activate/deactivate the ECONOMISER.<br>When the LED is on, the economiser in the panel is active (for the STAR panel, not active individually). |
|  | Automatic start | This activates and deactivates automatic start for the oven. It gives access to the weekly oven power-on schedule (when the panel is in STANDBY mode, if the indicator light is on, an automatic power-on program is active) |
| **Buttons active in ORION model only** | | |
| **Three-digit display** | Programming display | The first two digits from the left indicate the active program (0-99), the third digit indicates the stage (0-9) |
|  | Steam outlet valve | When pressed consecutively for at least 2 seconds, this opens and closes the steam outlet valve (unless the panel is in programming mode) Managed by the PR19 parameter |
|  | Programming | In ON STOP baking mode, this chooses an automatic program to be run. There is one manual program (00) and ninety-nine automatic programs (from 01 to 99). If the manual program is selected, upon confirmation, the LED on the button itself will go off and the display indicating the program will also go off. Holding this button down for more than 3 seconds gives access to programming mode. Managed by the PR19 parameter |

## 1) TECHNICAL CHARACTERISTICS OF THE PANEL

### 1.1) STAR version

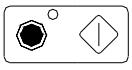
3 x opto-isolated digital inputs - 12 VAC/DC
3 x analogue inputs from Fe-Co thermocouple -100 +900 ºC with automatic cold junction compensation
5 x relay outputs - 230 VAC 5 A with 230 VAC anti-disturbance filter
1 x relay output - 230 VAC 16 A for direct LIGHT command with 230 VAC anti-disturbance filter
1 x RS485 serial port
1 x buzzer to signal end of baking
13 x buttons
7 x 0.5" high efficiency displays of which 3 are DUAL COLOUR (red and green)
7 x 3 mm LEDs
EEPROM for manual program
Clock with battery backup
12 VAC power supply with mains filter

### 1.2) ORION version

3 x opto-isolated digital inputs - 12 VAC/DC
3 x analogue inputs from Fe-Co thermocouple -100 +900 ºC with automatic cold junction compensation
6 x relay outputs - 230 VAC 5 A with 230 VAC anti-disturbance filter
1 x relay output - 230 VAC 16 A for direct LIGHT command with 230 VAC anti-disturbance filter
1 x RS485 serial port
1 x RS232 serial port with standard 9-pole Cannon connector
1 x buzzer to signal end of baking
14 x buttons
10 x 0.5" high efficiency displays of which 3 are DUAL COLOUR (red and green)
8 x 3 mm LEDs
EEPROM for 100 programs each consisting of at least 9 stages
Clock with battery backup
12 VAC power supply with mains filter

### 1.3) Preliminary information: ALARMS

When the panel is turned on, if all the conditions for correct operation are not satisfied, the control emits an acoustic signal accompanied by a code that indicates the type of problem detected.

- INT: panel temperature control probe disconnected
    - Check that the temperature control probe is securely attached to the appropriate terminals on the back of the panel, and that the terminals are securely attached to the control.
- BEEP sound: if the actual temperature at the top of the oven is less than the "set temperature" – "lower/upper deviation" (Pr10 parameter) or higher than the "set temperature" – "lower/upper deviation" (Pr10 parameter), when the  button is pressed, the panel emits a BEEP and the program does not start. To silence it, press  .
- The same applies to the temperature at the bottom of the oven.

## 2) OVEN OPERATION

### 2.0 Panel status

**STAR version**

**ON:** The panel is on when the ON/OFF button LED is off.
There are two types of operation:

**ON START**: This is when the ON/OFF button LED is off and the Start Baking button has been pressed. It is the classic baking condition with the oven on and the countdown timer activated.

**ON STOP**: This is when the ON/OFF button LED is off at the end of baking or before pressing the Start Baking button. This oven is actually on, but the baking control timer is not on a countdown. In ON stop mode, programming can be accessed by pressing  .

**STANDBY**: The ON/OFF button LED is on. In Standby mode, the  button is also active and turns the oven on from a program.

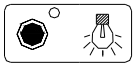
### 2.1 – Turning on the oven

Press the ON/OFF button. When the LED on the button goes off, the oven is ON and is the temperatures in the baking chamber and in the steam generator are below those set, temperature control starts automatically.

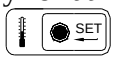
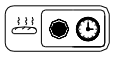
### 2.2 - Turning off the oven

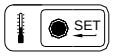
To turn off the resistors, set the panel to ***standby*** mode. In this mode, any automatic oven power-on is active and certain settings are allowed (ORION model only)

### 2.3 - Operations that can be performed with panel in standby mode

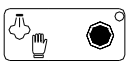
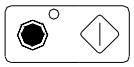
 : Turning on the light

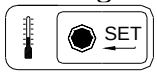
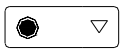
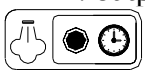
 : enables or disables automatic oven power-on (for time setting, see paragraph 3.0).

 +  : pressed simultaneously for at least 5 seconds, these give access to clock calibration. Once this function is activated, the  button is active to set the hours from 0 to 23;  to vary the minutes from 0 to 59;  to set the day of the week from 1 to 7 (1=Monday, 2=Tuesday, … 7=Sunday). When setting is complete, press  +  simultaneously for 5 seconds to store the data.

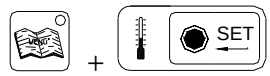
 +  pressed for at least 5 seconds loads the default parameters (manual program 0 and underground parameters)

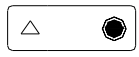
#### 2.3.1 – Panel test

 +  : pressed simultaneously for 5 seconds gives access to the hardware test and the three-digit display will show the software version. Within this function, the following buttons are active:

- o  : to view the status of the TC1 ambient thermocouple, the GF cold junction (temperature inside the panel), the TC2 thermocouple, the ID1 and ID3 digital inputs and the 3 digital inputs simultaneously.
- o  : operating test for all buttons
- o  : manual output test. The  and  buttons are active to vary the status of the output selected.
- o  : output test with automatic scanning.
- o  : display test with automatic scanning. (pressing again goes back). The dual colour digits are first scanned with the red colour and then with the green colour. During the period in which the displays are all on, the 3 dual colour displays change colour periodically.
- o  : pressed for at least 5 seconds activates probe calibration (offset and gain of the TC1 thermocouple, the GF cold junction and the TC2 and TC3 thermocouples)
    - **CAUTION: using this function risks *ALTERING THE SETTINGS* on the panel.**

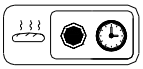
**ORION Model**

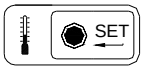
-  pressed simultaneously for 5 seconds load the default parameters (automatic programs 1-99).
  - **CAUTION: using this function risks *ALTERING THE SETTINGS* on the panel.**

-  : checks the number of set points that have changed compared to the panel's default data.
-  : tests that the displays are all ON (the 3 dual colour displays change colour every 2 seconds)

## 2.4 – Buttons enabled when in ON mode:

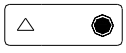
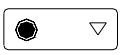
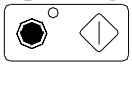
In ON START mode

-  : varies the partial baking temperature of the stage in progress: it can be either increased or decreased, bringing it to 0. It also resets any baking finished flag and silences the buzzer if it is sounding to show that baking has ended. It this mode, it is possible to recommence.

-  : varies the temperature setting **temporarily** for the stage in progress only. Press the button again to store the variation which, nevertheless, for automatic programs, will not modify the set point for this stage. The temporary set point is reset automatically when moving to stop mode or changing stage.

-  : **For the Orion version with programs only,** this button (if enabled from the Pr19 parameter) opens or closes the steam discharge valve (if present in the oven)

## 2.5 – Setting a program

To choose a baking program, press  , choose the program by pressing  and  , press  again and start the program by pressing  .

## 3) PROGRAMMING THE OVEN

### 3.0 – Automatic Start  :

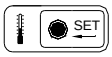
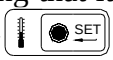
Pressing this button with the panel in ON STOP mode gives access to programming for automatic power-on. In particular, the following buttons set the following parameters:

 to vary the hours from 0 to 23;

 to vary the minutes from 0 to 59;

 to vary the day of the week from 1 to 7 (1=Monday 2=Tuesday … 7=Sunday);

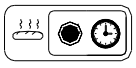
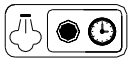
 : **For the Orion panel with 99 programs only**, to set the program number to be started that day (if the button is enabled by the PR19 parameter).

*Programming procedure:* press  for at least 2 seconds. The power-on already programmed closest to the current time will appear (the default panel setting has power-ons programmed for 06:00 every day). To set a different value to the one present, first press  to choose the day of the week and then  and  to set the hours and minutes of the time at which the oven is to start automatically. To set power-on times for other days, repeat the procedure described above, remembering that it is first necessary to choose the day to program (  ) then the hours and minutes (  and  ) and the program  . Once all the changes have been made, press  again to store them.

If the panel is now set to standby mode and automatic power-on is activated (by pressing the  button), when the hours and minutes of the day of the week coincide with the hours and minutes set in the program for that day, the oven will come on automatically on the chosen program and temperature control will be activated on the set point of the chosen program (the temperature and program display will come on) N.B. for certain days of the week, automatic power-on can be **disabled** in two ways:

a) By setting a program number >99 (two dashes -- will appear on the program display)
b) By setting midnight, 00 hours and 00 minutes

### 3.1 - Making changes to the manual program

Select the parameter (  temperature,  time in minutes,  steam time in seconds), edit it using the adjustment buttons and press the parameter button again to store it

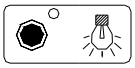
With the Pr17=1 parameter, pressing  displays the messages SP and CL and the required temperature can be set for the top of the oven (RED display). Pressing the same button a second time displays the messages SP and PL and the required temperature can be set for the bottom of the oven (GREEN display).

If there is a need to use two substantially different temperatures between the top and bottom of the oven, set a suitable value in the Pr10 parameter, entering a figure that is greater than the difference between the two temperatures by 20 units. For example: If SET TOP is set to 240°C and SET BOTTOM to 200°C, the difference between the two values is 240-200= **40**, **therefore** enter **60** in the Pr10 parameter.

When the Pr17 parameter = 0, the procedure is the same but only one temperature value will be set (RED display).

Two further buttons are active only when setting one of the three parameters described above (as long as the number flashes):

 ( for the **ORION** version only, and if the PR19 parameter is activated) this makes it possible to set how many minutes before the end of the baking cycle the outlet that commands the automatic steam discharge valve (if present) is activated.

 When the Pr17 parameter=0, this button pressed in sequence, allows 2 underground parameters to be set:

- PC between 0 and 100% Top percentage
- PP between 0 and 100% Bottom percentage

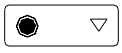
N.B. these two parameters refer to the underground parameter Pr15. If this is set to 100, the sum of the top and bottom percentages cannot exceed 100%. If it does, the other value is reduced automatically.

**3.2 - Making changes to an automatic program** *(ORION version only)*

With the instrument in stop mode, press  then use  and  to select a number between "01 and 99" (automatic programs). Follow the instructions below to edit the values set on the selected program:

1 - press  for at least 3 seconds until the first display on the right (number of stages) flashes
2 – Choose the number of stages to enter in the program using the adjustment buttons (from 1 to 9) then press  to program the first stage (no. 1 appears on the display on the right and flashes slowly).
3 – Follow the instructions in chapter 3.1 to program temperatures and times in stage 1. Within an automatic program, using the  button allows 3 values to be set in sequence:

1) Steam time between 0 and the maximum value of the Pr6 parameter in seconds
2) Number of puffs (nS display) of steam between 0 and 9
3) Pause between puffs (tP display) of steam between 0 and 99 seconds

To vary the values, use the  and  buttons and to confirm any changes, press  which also moves on to the next parameter.

To move to the next stage, press  (no. 2 now starts to flash on the display on the right) and repeat the operations performed for stage 1. Repeat the procedure for all the stages.

*N.B. as a baking cycle can be divided into 9 consecutive stages, there is a limitation of the total time of the baking cycle equal to 9 hours and 50 minutes. The baking time display will show the sum of the baking times of the various stages: the display will be in minutes if the total time does not exceed 99 minutes; in hours and tens of minutes if this value is exceeded (an LED to the right of the hours indicates this condition).*

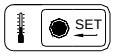
4 - In order to store the program, press  for at least 3 seconds (if activated by the PR19 parameter). To delete all the changes that have just been made (not yet saved permanently) press 

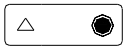
## 4) PROCEDURE FOR BAKING USING A MANUAL PROGRAM

- Make sure the water shut-off valves are open and that the oven power switch is set to “I”;

- Release the emergency/stop button (if engaged).

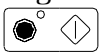
- Turn on the oven by pressing 

. Immediately after power-on, the digital panel automatically scans the status of the oven and, if there are any problems with the system (disconnected probe for example), it emits an error signal (see paragraph 1.3). At the end of the check (once any anomalies have been solved), manual programming begins and the top display 

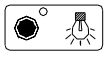
will show the temperature measured at the top of the oven in the baking chamber (red, steady numbers displayed). It is possible to press 

to switch to displaying the temperature measured at the bottom of the oven (green, steady numbers displayed), the temperature measured in the steam generator (red, flashing numbers displayed) and then back to the temperature at the top of the oven. If the temperature inside the oven is lower than the set temperature, the resistors come on and temperature control begins.

  Make any changes to the manual program, following the instructions set out in chapter 3.1

- once any changes have been made, wait for the set temperature to be reached inside the baking chamber. As soon as the oven reaches operating temperature, put the product in then press 
to activate the baking time counter. In this condition, the three-digit display displays the temperature at the top of the oven (in red) and at the bottom (in green) alternately.

- When the operator considers it necessary, press 
to activate steam delivery.

- During baking, if required, the selectors can control the extractor 
to enable or disable extraction of the steam in front of the baking chamber, the lights 
to turn lighting on or off in the baking chamber and steam generator heating 
to enable or disable steam generator temperature control.

- At the end of the baking time, an acoustic signal alerts the operator. **Caution: at the end of the countdown, the signal sounds but temperature control is <u>NOT</u> interrupted.**

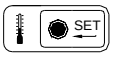
- Once the baked product is removed from the oven, the baking chamber is ready for a new batch.

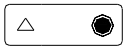
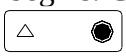
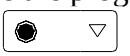
- At the end of the day, press 

to turn off the panel. It is then advisable to press the emergency button.

## 5) PROCEDURE FOR USING A BAKING PROGRAM

- Make sure the water, gas/diesel shut-off valves are open and that the oven power switch is set to "I". Close the baking chamber door.
- Release the emergency/stop button (if engaged).
- Turn on the oven by pressing 

. Immediately after power-on, the digital panel automatically scans the status of the oven and, if there are any problems with the system, it emits an error signal (see paragraph 1.3). At the end of the check (once any anomalies have been solved), the program active when the oven was last turned off is selected and the top display 

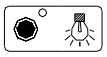
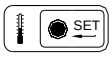
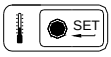
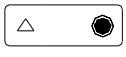
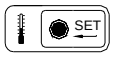
will show the temperature measured at the top of the oven in the baking chamber (red, steady numbers displayed). It is possible to press  to switch to displaying the temperature measured at the bottom of the oven (green, steady numbers displayed), the temperature measured in the steam generator (red, flashing numbers displayed) and then back to the temperature at the top of the oven. If the temperature inside the oven is lower than the set temperature, the resistors come on and temperature control begins. Choose the program to be activated: if a manual program is to be run, press  and use  and  to set the value "00" or, for automatic programs, set a value between "01" and "99".
- Make any changes to the program, following the instructions set out in chapter 3.2 for the automatic program.
- Once any changes have been made, wait for the set temperature to be reached inside the baking chamber. As soon as the oven reaches operating temperature, put the product in then press  to activate the baking time counter. . In this condition, the three-digit display displays the temperature at the top of the oven (in red) and at the bottom (in green) alternately.
- Steam delivery starts automatically according to the values set in the program, but if the operator considers it necessary, press  and hold it down to activate steam delivery in manual mode.
- During baking, if required, the selectors can control the extractor  to enable or disable extraction of the steam in front of the baking chamber, the lights  to turn lighting on or off in the baking chamber and steam generator heating  to enable or disable steam generator temperature control.
- At the end of the baking time, an acoustic signal alerts the operator. **Caution: at the end of the countdown, the signal sounds but temperature control is <u>NOT</u> interrupted.**
- Once the baked product is removed from the oven, the baking chamber is ready for a new batch.
- At the end of the day, press 

to turn off the panel. It is then advisable to press the emergency button.
- with the instrument on in start baking mode only:
  -  : varies the partial baking temperature of the stage in progress: it can be either increased or decreased, bringing it to 0. It also resets any baking finished flag and silence the buzzer if it is sounding to show that baking has ended. It this mode, it is possible to recommence.
  - 

: varies the temperature setting **temporarily** for the stage in progress only. Press the button again to store the variation which, nevertheless, for automatic programs, will not modify the set point for this stage. The temporary set point is reset automatically when moving to stop mode or changing stage.

## 6) CHANGING THE UNDERGROUND PARAMETERS

*CAUTION: we recommend that only qualified personnel change the parameters as any variations could jeopardise the correct operation of the product and resetting the default values could delete certain special functions programmed.*

With the instrument in stop mode or in start baking mode, press  and  simultaneously for at least 5 seconds to access the settings for the underground parameters. In this function, the following buttons are active:  to move to the next parameter,  to return to the previous parameter and  e  to vary the value of each parameter. To store any changes, go through all the parameters until the end and press  again. This will exit the function and the changes will be saved automatically. The parameters are as follows:

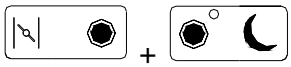
| parameter no. | Limits | Recommended value | Description |
|---|---|---|---|
| Pr 1 | 0-1 | 0 | Selecting centigrade/Fahrenheit 0=°C 1=°F |
| Pr 2 | 0-10 °C | 1 °C | Chamber regulation differential |
| Pr 3 | 0-2 | 1 | Enabling safety circuit breaker input 0=no 1=yes 2=yes + siren |
| Pr 4 | 20-120 sec | 60 | Time for one top of oven/bottom of oven cycle |
| Pr 5 | 0-99 sec | 3 | Signal delay time for acoustic signal at end of baking |
| Pr 6 | 0-99 sec | 20 | Maximum time that can be set for the steam |
| Pr 7 | 0-400 °C | 300 | Making temperature that can be set for the chamber |
| Pr 8 | 0-400 °C | 250 | Steam generator set point (if = 0, the probe is disabled) |
| Pr 9 | 0-10 °C | 1 °C | Steam generator regulation differential |
| Pr 10 | 0-300 °C | 20 °C | Upper/lower deviation to activate start baking. E.g. with baking set point of 220 °C, start baking (with Pr 10 set to 20) is active between 200°C and 240°C. If the temperature in the chamber is outside this range, when the start baking button is pressed, the timer does not start counting and the panel emits a warning beep. |
| Pr 11 | 0-1 | 0 | Economiser: if Pr 11=0 the panel will be slave, if Pr11=1 the panel will master (commanding economisation). By default, the "MASTER" panel is always the second from the top (the user can change this setting is required) |
| Pr 12 | 1-4 | 1 | For the panel set as "master", Pr 12 represents the number of chambers present excluding the master (for an oven with 4 chambers, this parameter will be set to 3 on the master panel); For the panel set as "slave", Pr 12 represents the chamber number (excluding the master chamber, therefore for an oven with 4 chambers, for example, the first from the top will be "1", the third will be "2" and the fourth will be "3"; remember that the second is the "MASTER") |
| Pr 13 | 0-10 | 0 | Maximum number of loads to be suppressed on reheating with the economiser (to be set especially on the MASTER panel: the default setting for this value is 3 for an oven with three chambers and 4 for an oven with four chambers) |
| Pr 14 | 0-1 | 1 | Enabling maximum power on top/bottom before entering the Start Baking activation range. If Pr 14=0, the economiser is always active. If Pr 14 = 1, when the temperature in the chamber is lower that the START baking activation temperature, all the resistors come on at once. |
| Pr 15 | 100-200% | 100 | Maximum percentage that can be set for the top/bottom ratio. If Pr 15 = 100, when the resistors at the top of the oven are active, the ones at the bottom of the oven are off (and vice versa) and on unit is always on. If Pr 15 < 100, when the resistors at the top of the oven are active, the ones at the bottom of the oven are off (and vice versa) but there are moments when both units are off. If Pr 15 > 100 there is always one unit on but there are moments when both units are on. |
| Pr 16 | 1-99 | 20 | Load cycling time when the economiser is active |
| Pr 17 | 0-1 | 1 | temperature control mode 0 = chamber probe only 1 = separate top/bottom probes |
| Pr 18 | 0-1 | 1 | Buzzer sounding mode 0 = continuous 1 = intermittent |

| | | | |
|---|---|---|---|
| Pr 19 | 0-1 | 0 STAR version<br>1 ORION version | Enabling program button and damper 0=off 1=enabled |
| Pr 20 | 0-1 | 1 | Power-on again after power failure<br>0 = power-on with settings as before the failure<br>1 = power-on in standby mode |

## 7) ECONOMISER OPERATION

These panels are equipped with an ECONOMISER that allows you to optimise consumption.
It works as follows: The panels are all linked together. One of these is set as MASTER (PR11 parameter = 1) and manages the others which are set as SLAVES (PR11 parameter = 0). The Pr13 parameter for the master defines how many units must be off during economisation and the panel, based on this value, turns off the resistors in the chambers that are closest to the working temperature, turning them on in the chambers furthest away. The Pr 16 parameter defines the frequency in seconds with which the Master checks the temperature in the chambers.

In order to activate the economiser in a chamber, proceed as follows.

| | | |
|---|---|---|
|  | Valve + programmer | When pressed simultaneously for at least 3 seconds, these activate/deactivate the ECONOMISER. When the LED is on, the economiser in the panel is active. |

It is important to remember that this function ONLY works on the panels where the economiser is active, therefore the power-off of 4 loads is set in the master on only 2 chambers are activated in economisation mode, the loads of these two chambers will always be off. We therefore advise you to set the Pr13 parameter of the master to a value equal to the number of chambers on which the economiser is activated.

On the following pages, we list the recommended parameters to be set on each panel, starting from the top.

PARAMETERS FOR CHAMBER 1
(first from the top)

| parameter no. | Limits | Recommended value |
|---|---|---|
| Pr 1 | 0-1 | 0 |
| Pr 2 | 0-10 °C | 1 °C |
| Pr 3 | 0-2 | 1 |
| Pr 4 | 20-120 sec | 60 |
| Pr 5 | 0-99 sec | 3 |
| Pr 6 | 0-99 sec | 20 |
| Pr 7 | 0-400 °C | 300 |
| Pr 8 | 0-400 °C | 250 |
| Pr 9 | 0-10 °C | 1 °C |
| Pr 10 | 0-300 °C | **40 °C** |
| Pr 11 | 0-1 | **0** |
| Pr 12 | 1-4 | **1** |
| Pr 13 | 0-10 | **0** |
| Pr 14 | 0-1 | 0 |
| Pr 15 | 100-200% | 100 |
| Pr 16 | 1-99 | **20** |
| Pr 17 | 0-1 | 1 |
| Pr 18 | 0-1 | 1 |
| Pr 19 | 0-1 | 0 STAR version<br>1 ORION version |
| Pr 20 | 0-1 | 1 |

PARAMETERS FOR CHAMBER 2
(second from the top)

| parameter no. | Limits | Recommended value |
|---|---|---|
| Pr 1 | 0-1 | 0 |
| Pr 2 | 0-10 °C | 1 °C |
| Pr 3 | 0-2 | 1 |
| Pr 4 | 20-120 sec | 60 |
| Pr 5 | 0-99 sec | 3 |
| Pr 6 | 0-99 sec | 20 |
| Pr 7 | 0-400 °C | 300 |
| Pr 8 | 0-400 °C | 250 |
| Pr 9 | 0-10 °C | 1 °C |
| Pr 10 | 0-300 °C | **40 °C** |
| Pr 11 | 0-1 | **1** |
| Pr 12 | 1-4 | **2 (for oven with 3 chambers)**<br>**3 (for oven with 4 chambers)**<br>**4 (for oven with 5 chambers)** |
| Pr 13 | 0-10 | **3 (for oven with 3 chambers)**<br>**4 (for oven with 4 chambers)**<br>**5 (for oven with 5 chambers)** |
| Pr 14 | 0-1 | 0 |
| Pr 15 | 100-200% | 100 |
| Pr 16 | 1-99 | **20** |
| Pr 17 | 0-1 | 1 |
| Pr 18 | 0-1 | 1 |
| Pr 19 | 0-1 | 0 STAR version<br>1 ORION version |
| Pr 20 | 0-1 | 1 |

PARAMETERS FOR CHAMBER 3 (third from the top)

| parameter no. | Limits | Recommended value |
|---|---|---|
| Pr 1 | 0-1 | 0 |
| Pr 2 | 0-10 °C | 1 °C |
| Pr 3 | 0-2 | 1 |
| Pr 4 | 20-120 sec | 60 |
| Pr 5 | 0-99 sec | 3 |
| Pr 6 | 0-99 sec | 20 |
| Pr 7 | 0-400 °C | 300 |
| Pr 8 | 0-400 °C | 250 |
| Pr 9 | 0-10 °C | 1 °C |
| Pr 10 | 0-300 °C | **40 °C** |
| Pr 11 | 0-1 | **0** |
| Pr 12 | 1-4 | **2** |
| Pr 13 | 0-10 | **0** |
| Pr 14 | 0-1 | 0 |
| Pr 15 | 100-200% | 100 |
| Pr 16 | 1-99 | **20** |
| Pr 17 | 0-1 | 1 |
| Pr 18 | 0-1 | 1 |
| Pr 19 | 0-1 | 0 STAR version<br>1 ORION version |
| Pr 20 | 0-1 | 1 |

PARAMETERS FOR CHAMBER 4
(fourth from the top if present)

| parameter no. | Limits | Recommended value |
|---|---|---|
| | | |
| Pr 1 | 0-1 | 0 |
| Pr 2 | 0-10 °C | 1 °C |
| Pr 3 | 0-2 | 1 |
| Pr 4 | 20-120 sec | 60 |
| Pr 5 | 0-99 sec | 3 |
| Pr 6 | 0-99 sec | 20 |
| Pr 7 | 0-400 °C | 300 |
| Pr 8 | 0-400 °C | 250 |
| Pr 9 | 0-10 °C | 1 °C |
| Pr 10 | 0-300 °C | **40 °C** |
| Pr 11 | 0-1 | **0** |
| Pr 12 | 1-4 | **3** |
| Pr 13 | 0-10 | **0** |
| Pr 14 | 0-1 | 0 |
| Pr 15 | 100-200% | 100 |
| Pr 16 | 1-99 | **20** |
| Pr 17 | 0-1 | 1 |
| Pr 18 | 0-1 | 1 |
| Pr 19 | 0-1 | 0 STAR version<br>1 ORION version |
| Pr 20 | 0-1 | 1 |

PARAMETERS FOR CHAMBER 5
5 (fifth from the top if present)

| parameter no. | Limits | Recommended value |
|---|---|---|
| Pr 1 | 0-1 | 0 |
| Pr 2 | 0-10 °C | 1 °C |
| Pr 3 | 0-2 | 1 |
| Pr 4 | 20-120 sec | 60 |
| Pr 5 | 0-99 sec | 3 |
| Pr 6 | 0-99 sec | 20 |
| Pr 7 | 0-400 °C | 300 |
| Pr 8 | 0-400 °C | 250 |
| Pr 9 | 0-10 °C | 1 °C |
| Pr 10 | 0-300 °C | **40 °C** |
| Pr 11 | 0-1 | **0** |
| Pr 12 | 1-4 | **4** |
| Pr 13 | 0-10 | **0** |
| Pr 14 | 0-1 | 0 |
| Pr 15 | 100-200% | 100 |
| Pr 16 | 1-99 | **20** |
| Pr 17 | 0-1 | 1 |
| Pr 18 | 0-1 | 1 |
| Pr 19 | 0-1 | 0 STAR version<br>1 ORION version |
| Pr 20 | 0-1 | 1 |

## 8) TERMINAL BLOCK DESCRIPTION

| | | |
|---|---|---|
| 1 | R1 | oven light |
| 2 | R1 | " " |
| 3 | R2 | top of oven temperature control |
| 4 | R2 | " " |
| 5 | R3 | steam solenoid valve |
| 6 | R3 | " " |
| 7 | R4 | bottom of oven temperature control |
| 8 | R4 | " " |
| 9 | R5 | steam extractor |
| 10 | R5 | " " |
| 11 | R6 | steam generator temperature control |
| 12 | R6 | " " |
| 13 | R7 | fume extraction damper |
| 14 | R7 | " " " |
| 15 | - | buzzer |
| 16 | + | " |
| 25 | ID1 | safety circuit breaker 12 VAC |
| 26 | ID1 | " " " |
| 27 | ID2 | free 12 VAC |
| 28 | ID2 | " " |
| 29 | ID3 | free 12 VAC |
| 30 | ID3 | " " |
| 31 | 12 VAC | panel power supply |
| 32 | 12 VAC | " " |
| 33 | A + | RS485 |
| 34 | B - | RS485 |
| 35 | - | Fe-Co TC1 chamber/top of oven thermocouple |
| 36 | + | " " |
| 37 | - | Fe-Co TC2 steam generator thermocouple |
| 38 | + | " " |
| 39 | - | Fe-Co TC1 bottom of oven thermocouple |
| 40 | + | " " |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