


EV9326 Digital controller with 6 outputs for electric bread ovens, with cooking timer and rapid heating functions

E ENGLISH

1 IMPORTANT

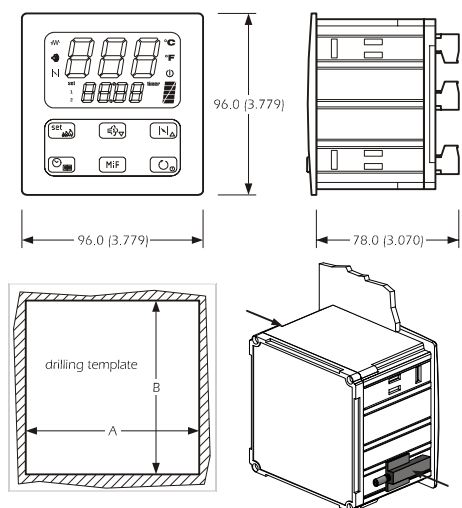
1.1 Important

Read these instructions carefully before installation and use and follow all warnings regarding installation and for the electric connection. Keep these instructions with the instrument for future reference.

 The instrument must be disposed of in compliance with local Standards relative to the collection of electrical and electronic appliances.

1.2 Dimensions and installation

Panel with supplied brackets with screws; dimensions in mm (in).



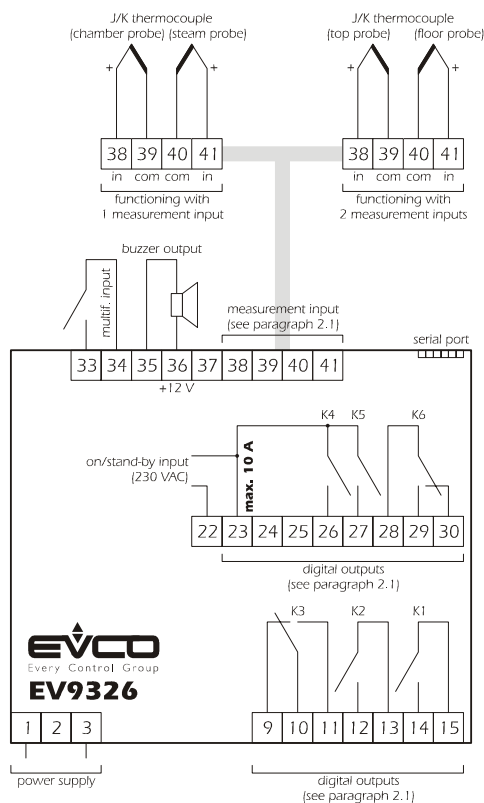
DIMENS.	MINIMUM	TYPICAL	MAXIMUM
A	92.0 (3.622)	92.0 (3.622)	92.8 (3.653)
B	92.0 (3.622)	92.0 (3.622)	92.8 (3.653)

Installation recommendations:

- the thickness of the panel must not exceed 4.0 mm (0.157 in)
- position the brackets as indicated in the drawing in this paragraph, moderate the coupling torque
- make sure that the working conditions (temperature of use, humidity, etc.) lie within the limits indicated in the technical data
- do not install the instrument in proximity of heat sources (resistances, hot air pipes, etc.), appliances with strong magnets (large diffusers, etc.), places subject to direct sunlight, rain, humidity, excessive dust, mechanical vibrations or jerks
- in compliance with Safety Standards, protection against any contact with electrical parts must be assured via correct installation of the instrument. All parts that ensure protection must be fixed in a way that they cannot be removed without the aid of a tool.

1.3 Electric connection

With reference to the wiring diagram: the serial port is the port for the communication with the supervising system (through a serial interface, via TTL, with MODBUS communication protocol) or with the programming key; the port must not be used for two purposes at the same time.



Recommendations for the electric connection:

- do not operate on the terminal boards using electric or pneumatic
- if the instrument has been taken from a cold place to a hot place, the humidity could condense inside; wait for about one hour before applying power
- check that the power supply voltage, the frequency and the electric operational power of the instrument correspond with those of the local power supply
- disconnect the power supply before performing any type of maintenance
- supply the probes with protection able to isolate them from any contact with metal parts or use isolated probes
- do not use the instrument as a safety device
- for repairs and information regarding the instrument, contact the Evco sales network.

2 PRELIMINARY CONSIDERATIONS

2.1 Preliminary considerations

The instrument can be configured to function with 1 measurement input (default, chamber probe) or with 2 measurement inputs (top probe and floor probe). If functioning with 1 measurement input it is however possible to enable a second probe (steam probe) to subordinate the injection of steam at the temperature of the same. Functioning with 1 measurement input allows to independently set the power distributed to the top to that distributed to the floor. Functioning with 2 measurement inputs allows to independently set the top and floor work temperatures.

The utilities managed by the digital outputs (i.e. relays K1 ... K6) are the following:

RELAY	MANAGED UTILITY
K1	top
K2	floor
K3	can be set (default chamber light)
K4	airhole
K5	steam injection
K6	can be set (default steam generator)

To set the type of functioning (with 1 measurement input rather than 2) see paragraph 4.1. However, to set the utility managed by relay K3 and relay K6 see paragraph 4.2.

2.2 Management of the utilities

Top.

If functioning with 1 measurement input:

- the output is switched on in cyclical mode, preferably when the floor output is off (the parameter c1 establishes the cycle time. The procedure given in paragraph 4.4 can be used to set the duration of output switch-on, intended as a percentage of the time established with parameter c1)
 - the cyclical activity is subject to the chamber temperature (chamber probe), to the work set-point and parameter r0.
- If functioning with 2 measurement inputs:
- the output activity depends mainly on the top temperature (top probe), the top set-point and parameter r0.

Floor.

If functioning with 1 measurement input:

- the output is switched on in cyclical mode, preferably when the top output is off (the parameter c1 establishes the cycle time. The procedure given in paragraph 4.4 can be used to set the duration of output switch-on, intended as a percentage of the time established with parameter c1)

- the cyclical activity is subject to the chamber temperature (chamber probe), to the work set-point and parameter r0.

If functioning with 2 measurement inputs:

- the output activity depends mainly on the floor temperature (floor probe), the floor set-point and parameter r6.

Chamber light.

The output is activated in manual mode.

Through the multifunction input it is also possible to activate the output in remote mode.

Airhole.

The output is activated in the following conditions:

- before the conclusion of the cooking timer count (of the time established with the parameter c5), for the time established with parameter c6
- in manual mode, for the time established for parameter c7.

Steam injection.

The output activity depends mainly on parameter t0.

Through the multifunction input it is also possible to activate the output in remote mode.

Steam generator.

If functioning with 1 measurement input:

- if the steam probe is not enabled, the output is activated in manual mode
- if the steam probe is enabled, the output is enabled in manual mode, after which the activity of the same will depend on the temperature of the steam (steam probe), the steam set-point and parameter t3.

If functioning with 2 measurement inputs, the output is activated in manual mode.

Alarm.

The output is activated during a temperature alarm.

Through the multifunction input it is also possible to activate the output in remote mode.

Cooking timer.

The output is activated during the cooking timer count.

Acoustics.

The output is activated in the following conditions:

- before the conclusion of the cooking timer count (of the time established with the parameter c9), for the time established with parameter c4
- during an alarm or an error, with continuous contribution.

On/Stand-by.

The output is activated during the "on" state (see paragraph 3.1).

In spite of the fact that the instrument can manage the 10 utilities stated in this paragraph, there are 6 digital outputs available. Make sure that the desired utility is managed by the instrument (see paragraph 2.1).

3 USER INTERFACE

3.1 Preliminary considerations

The following functioning states exist:

- the "on" state (the instrument is powered and on: the regulators can be on)
- the "stand-by" state (the instrument is powered but switched off via software: the regulators are off)
- the "off" state (the instrument is not powered).


Successively, the term "switch-on" means the passage from the stand-by state to the on state. The term "switch-off" means the passage from the on state to the stand-by state.

When powered, the instrument re-proposes the state that it was in when the power supply was disconnected.

3.2 Instrument switch-on/off

To pass from the stand-by state to the on state (and vice versa):


- make sure no procedure is in progress

- press  for 1s.

Through the on/stand-by input it is also possible to pass from the on state to the stand-by state in remote mode.

To pass from the on to the stand-by state in remote mode:

- activate the on/stand-by input (the instrument remains in the stand-by state for the entire duration of input activation).

If the on/stand-by input is active, it will not be allowed to pass from the stand-by state to the on state by pressing the  key.

3.3 The display

If functioning with 1 measurement input, if the instrument is in the on state:

- the upper part of the display will show the size established with parameter P5:
 - if P5 = 0, the display will show the chamber temperature
 - if P5 = 1, the display will show the work set-point
- the lower part of the display will show the size established with parameter P6:
 - if P6 = 0, the display will show the chamber temperature
 - if P6 = 1, the display will show the work set-point (in this case the "set" LED will be on)
 - if P6 = 2, the display will show the value of the cooking timer or its count if the timer is active (in this case the "timer" LED will be on); the value of the cooking timer is displayed in the hours:minutes format.

See also paragraphs 3.5 and 3.7.


If functioning with 2 measurement inputs, if the instrument is in the on state:

- the upper part of the display will show the size established with parameter P5:
 - if P5 = 0, the display will show the top temperature
 - if P5 = 1, the display will show the top set-point



- if P5 = 2, the display will show the floor temperature
- if P5 = 3, the display will show the floor set-point
- the lower part of the display will show the size established with parameter P6:
- if P6 = 0, the display will show the top temperature
- if P6 = 1, the display will show the top set-point (in this case the "set" LED and the "1" LED will be on).
- if P6 = 2, the display will show the value of the cooking timer or its count if the timer is active (in this case the "timer" LED will be on); the value of the cooking timer is displayed in the hours:minutes format
- if P6 = 3, the display will show the floor temperature
- if P6 = 4, the display will show the floor set-point (in this case the "set" LED and the "2" LED will be on).

See also paragraphs 3.5 and 3.7.

If the instrument is in the stand-by state:



- the upper part of the display will be off
- the lower part of the display will be off
- the LED  will be on.

3.4 Temporary setting of the quantity shown by the upper part of the display during the on state

- make sure no procedure is in progress
- press  and  for 1s several times: the upper part of the display will show one of the labels given in the tables in paragraph 3.5 for 2 secs, after which it will show the corresponding value.

Any power supply cut-off causes the display of the quantity established with parameter P5 to be restored.

3.5 Learning the quantity shown by the upper part of the display during the on state

- make sure no procedure is in progress
- press  and : if functioning with 1 measurement input, the upper part of the display will show one of the labels given in the following table for 2 seconds:



LABEL	MEANING
Pb	chamber temperature
SP	work set-point
PbS	steam temperature

If the steam probe is not enabled (parameter P4 = 0), the "PbS" label will not be displayed.

if functioning with 2 measurement inputs, the upper part of the display will show one of the labels given in the following table for 2 seconds:



LABEL	MEANING
Pb1	temperature of the top
SP1	top set-point
Pb2	temperature of the floor
SP2	floor set-point

3.6 Temporary setting of the quantity shown by the lower part of the display during the on state

- make sure no procedure is in progress
- press  and  for 1s several times: the lower part of the display will show one of the labels given in the tables in paragraph 3.7 for 2 secs, after which it will show the corresponding value.

Any power supply cut-off causes the display of the quantity established with parameter P6 to be restored.

3.7 Learning the quantity shown by the lower part of the display during the on state

- make sure no procedure is in progress
- press  and : if functioning with 1 measurement input, the lower part of the display will show one of the labels given in the following table for 2 seconds:


LABEL	MEANING
Pb	chamber temperature
SP	work set-point
tine	value of the cooking timer or its count if the timer is active
PbS	steam temperature

If the steam probe is not enabled (parameter P4 = 0), the "PbS" label will not be displayed.


if functioning with 2 measurement inputs, the lower part of the display will show one of the labels given in the following table for 2 seconds:

LABEL	MEANING
Pb1	temperature of the top
SP1	top set-point
tine	value of the cooking timer or its count if the timer is active
Pb2	temperature of the floor
SP2	floor set-point

3.8 Chamber light switch on/off

- make sure no procedure is in progress
- press 

Using the multifunction input, it is also possible to cause the same effect caused by pressing the key  in remote mode.

If the chamber light is not managed by any digital output, pressing the  key will cause the display of the "no" indication for 1s in the lower part of the display.

3.9 Buzzer silencing

- make sure no procedure is in progress
- press a key (the first time the key is pressed, the associated effect is not caused).









Pressing the key also causes the deactivation of the acoustic output and the buzzer output.

Using the multifunction input, it is also possible to deactivate the buzzer, the acoustic output and the buzzer output in remote mode.


4 SETTINGS

4.1 Setting the type of functioning (with 1 measurement input rather than 2)

To access the procedure:

- make sure that the instrument is in stand-by state and that no procedure is in progress
- press  and  for 4s: the upper part of the display will show "PA"
- press : the lower part of the display will show the corresponding value
- press  or  within 15s to set "743"
- press 
- press  and  for 4s: the upper part of the display will show "Pb".

To modify the type of functioning:



- press : the lower part of the display will show the corresponding value.

The meaning of the values is the following:

VALUE	MEANING
1	functioning with 1 measurement input (default, chamber probe)
2	functioning with 2 measurement inputs (top probe and floor probe)

- press  or  within 15s
- press 











To exit the procedure:

- press  and  for 4s.

The modification of the type of functioning does not cause the configuration parameters default value to be restored.

4.2 Setting the utility managed by the relay K3 and the relay K6


To access the procedure:

- make sure that the instrument is in stand-by state and that no procedure is in progress
- press  and  for 4s: the upper part of the display will show "PA"
- press : the lower part of the display will show the corresponding value
- press  or  within 15s to set "743"
- press 
- press  and  for 4s: the upper part of the display will show "Pb"
- press  or  to select "do3" or "do6".

The label meaning is the following:

LABEL	MEANING
do3	utility managed by the third digital output (relay K3)
do6	utility managed by the sixth digital output (relay K6)

To modify the utility managed by an output:

- press : the lower part of the display will show the corresponding value.

The meaning of the values is the following:

VALUE	MEANING
0	not used
1	chamber light
2	steam generator
3	alarm
4	cooking timer
5	acoustics
6	on/stand-by







- press  or  within 15s
- press 

To exit the procedure:

- press  and  for 4s.

4.3.1 Setting the work set-point (only if functioning with 1 measurement input)

- make sure that the instrument is in on state and that no procedure is in progress

- press : the lower part of the display will show "SP", the upper part the corresponding value and the LED  will flash
- press  or  within 15s; see also parameters r1 and r2
- press  3 times or do not operate for 15s: the LED  will switch-off, after which the instrument will exit the procedure.







To exit the procedure in advance:

- do not operate for 15s (any modifications will be saved).







It is also possible to set the work set-point via the SP parameter.

4.3.2 Setting the top set-point and the floor set-point (only if functioning with 2 measurement inputs)

To modify the top set-point:

- make sure that the instrument is in on state and that no procedure is in progress
- press : the lower part of the display will show "SP1", the upper part the corresponding value and the LED  will flash
- press  or  within 15s; see also parameters r1 and r2
- press  2 times or do not operate for 15s: the LED  will switch-off, after which the instrument will exit the procedure.

To modify the floor set-point:

- press  during the modification of the top set-point: the lower part of the display will show "SP2", the upper part the corresponding value and the LED  will flash
- press  or  within 15s; see also parameters r7 and r8
- press : the LED  will switch-off, after which the instrument will exit the procedure.

To go back to previous levels:

- press  several times during the procedure.






To exit the procedure in advance:

- do not operate for 15s (any modifications will be saved).







It is also possible to set the top set-point via parameter SP1 and the floor set-point via parameter SP2.

4.4 Setting the power distributed to the top and the power distributed to the floor (only if functioning with 1 measurement input)

To modify the power distributed to the top:

- press  during the modification of the work set-point: the lower part of the display will show "Po1", the upper part the corresponding value and a proportioned number of bars of the LED  will flash
- press  or  within 15s; see also parameters c0 and c1
- non operate per 15 s: the LED  will switch-off, after which the instrument will exit the procedure.

To modify the power distributed to the floor:

- press  during the modification of the power distributed to the top: the lower part of the display will show "Po2", the upper part the corresponding value and a proportioned number of bars of the LED  will flash
- press  or  within 15s; see also parameters c0 and c1
- press : the LED  will switch-off, after which the instrument will exit the procedure.

To go back to previous levels:

- press  several times during the procedure.









To exit the procedure in advance:

- do not operate for 15s (any modifications will be saved).

It is also possible to set the power distributed to the top through parameter Po1 and the power distributed to the floor through parameter Po2.

4.5 Setting the configuration parameters







To access the procedure:

- make sure that the instrument is in stand-by state and that no procedure is in progress
- press  and  for 4s: the upper part of the display will show "PA"
- press : the lower part of the display will show the corresponding value
- press  or  within 15s to set "-19"
- press  or do not operate for 15s
- press  and  for 4s: if functioning with 1 measurement input, the upper part of the display will show "SP"; if functioning with 2 measurement inputs, the upper part of the display will show "SP1".

To select a parameter:




- press  or 

To modify a parameter:







- press : the lower part of the display will show the corresponding value
- press  or  within 15s
- press  or do not operate for 15s.
- To exit the procedure:
- press  and  for 4s or do not operate for 60s (any modifications will be saved).




Cut the instrument power supply off after modification of the parameters.

4.6 Restore the default value of the configuration parameters

- make sure that the instrument is in stand-by state and that no procedure is in progress
- press  and  for 4s: the upper part of the display will show "PA"
- press : the lower part of the display will show the corresponding value



- press  or  within 15s to set "743"

- press  or do not operate for 15s
- press  and  for 4s: the upper part of the display will show "Pb"
- press  or  to select "dEF"
- press : the lower part of the display will show the corresponding value

- press  or  within 15s to set "149"
- press  or do not operate for 15s: the upper part of the display will show "dEF" flashing for 4s, after which "dEF" will switch on

- cut the instrument power supply off.

To exit the procedure in advance:

- press  and  for 4s during the procedure (i.e. before setting "149": restore will not be carried out).

Make sure that the default value of the parameters is appropriate.

5 COOKING TIMER

5.1 Preliminary considerations

The cooking timer allows to start the reverse count of a time. The count is shown in the lower part of the display; during the count the "timer" LED is on and the timer output is activated.

Before conclusion of the count (of the time established with parameter c9) the buzzer and the acoustic output are activated, for the time established with parameter c4.

Before conclusion of the count (of the time established with parameter c5) the airhole is activated, for the time established with parameter c6. Using the multifunction input, it is also possible to start/interrupt the cooking timer in remote mode.

5.2 Setting the cooking timer

- make sure that the instrument is in the on state, that the cooking timer count is not in progress and that no procedure is in progress
- press and : the lower part of the display shows the value of the cooking timer; the left part and the "timer" LED will flash.

The value of the cooking timer is displayed in the hours:minutes format.

To modify the hour:

- press or within 15s
- press : the right part will flash.

To modify the minutes:

- press or within 15s.

The cooking timer can be set between 00:00 and 24:00 h:min.

- press : the "timer" LED will switch-off, after which the instrument will exit the procedure.

To go back to previous levels:

- press several times during the procedure.

To exit the procedure in advance:

- do not operate for 15s (any modifications will be saved).

The cooking timer can also be set when the count is in progress (this modification is temporary, i.e. any power supply cut-off causes the value set with the procedure given at the start of this paragraph to be restored). If the value is set at 00:00 h:min, the count will be interrupted, the "timer" LED will switch-off and the buzzer will be activated for 3 seconds.

5.3 Starting the cooking timer

- press during timer setting: the "timer" LED will switch on.

Alternatively:

- make sure that the instrument is in on state and that no procedure is in progress
- press : the "timer" LED will switch on.

5.4 Cooking timer start and switch-off of the instrument on conclusion of the timer

- make sure that the instrument is in on state and that no procedure is in progress
- press for 4s: the "timer" LED switches-on and the LED will flash; the instrument will switch-off when the count has been concluded.

5.5 Interrupting the cooking timer

- press for 1s: the "timer" LED switches off and the buzzer will be activated for 3s.

6 STEAM GENERATOR

6.1 Preliminary considerations

The steam generator allows to subordinate the steam injection to its own state.

If functioning with 1 measurement input, if the steam probe is not enabled, pressing the and keys for 1s will cause the steam generator to switch on and successive pressing causes its switch-off; steam injection is allowed on condition that the steam generator is on.

If functioning with 1 measurement input, if the steam probe is not enabled, pressing the and keys for 1s will enable the steam generator, after which the activity of the same will depend on the temperature of the steam (steam probe), the steam set-point and parameter t3 (successive pressing of the keys causes the steam generator to be disabled); steam injection is allowed on condition that the temperature of the steam is above that established with the steam set-point or at the minimum. Once the steam set-point has been reached, above the "steam set-point - t4".

If functioning with 2 measurement inputs, pressing the and keys for 1s will cause the steam generator to switch on and successive pressing causes its switch-off; steam injection is allowed on condition that the steam generator is on.

If the steam generator is not managed by any digital output, pressing the and keys will cause the display of the "no" indication for 1s in the lower part of the display. In this case, steam injection is always allowed.

7 STEAM INJECTION

7.1 Preliminary considerations

The functioning mode of the steam injection depends on parameter t0.

If the parameter t0 is set at 0, pressing the key causes the injection of steam for the time established with parameter t2 or for the entire duration that the key is pressed. The parameter t1 establishes the minimum time that can pass between the two successive injections.

If the parameter t0 is set at 1, pressing the key will enable the automatic injection of the steam (in cyclical mode: parameter t2 establishes the duration of the injector switch-on and parameter t1 establishes the duration of switch-off).

Using the multifunction input, it is also possible to cause the same effect caused by pressing the key in remote mode.

Steam injection is subordinate to the steam generator state (see paragraph 6.1).

7.2 Quick setting of the parameter t2

- make sure that the instrument is in on state and that no procedure is in progress
- press and : the upper part of the display will show "t2", the lower part the corresponding value and the LED will flash.

The parameter t2 can be set between 1 and 250 ds.

- press or within 15s

- press : the LED will switch-off, after which the instrument will exit the procedure.

To exit the procedure in advance:

- do not operate for 15s (any modifications will be saved).

7.3 Activation of the injector in manual mode (only if parameter t0 is set at 0)

- make sure that the instrument is in on state and that no procedure is in progress
- press : the LED will switch-on and the injector will be activated, both for the time established with parameter t2 or for the entire duration that the key is pressed.

The injector must not be deactivated in manual mode.

7.4 Enabling of automatic steam injection (only if parameter t0 is set at 1)

- make sure that the instrument is in on state and that no procedure is in progress
- press : the LED will switch-on and the injector will be activated in cyclical mode according to that established with parameters t1 and t2 (until the key is pressed again).

8 AIRHOLE

8.1 Preliminary considerations

The airhole is activated in the following conditions:

- before the conclusion of the cooking timer count (of the time established with the parameter c5), for the time established with parameter c6
- in manual mode, by pressing the key for the time established with parameter c7.

8.2 Quick setting of the parameter c7

- make sure that the instrument is in on state and that no procedure is in progress
- press and : the upper part of the display will show "c7", the lower part the corresponding value the left part and the LED will flash.

The parameter c7 is visualised in the minutes:seconds format.

To modify the minutes:

- press or within 15s
- press : the right part will flash.

To modify the seconds:

- press or within 15s.

The parameter c7 can be set between 00:00 and 60:00 min:s.

- press : the LED will switch-off, after which the instrument will exit the procedure.

To go back to previous levels:

- press several times during the procedure.

To exit the procedure in advance:

- do not operate for 15s (any modifications will be saved).

8.3 Activation of the airhole in manual mode

- make sure that the instrument is in on state and that no procedure is in progress
- press : the LED will switch on and the airhole will be activated, both for the time established with parameter c7.

8.4 Deactivation of the airhole in manual mode

- make sure no procedure is in progress
- press : the LED will switch-off.

9 ECONOMY

9.1 Preliminary considerations

The economy allows to reduce the power supplied to the top and the power supplied to the floor by switching an output on when the other is off.

If functioning with 1 measurement input, when the function is in progress the top output and the floor output are switched on for half of the duration of the switch-on set using the procedure given in paragraph 4.4 (intended as a percentage of the time established with parameter c1).

If functioning with 2 measurement inputs, when the function is in progress, the top output and the floor output are switched-on alternately for half the time established with parameter c1.

When the time established with parameter c10 has passed, the function is interrupted.

Through the multifunction input it is also possible to activate the economy function in remote mode.

If the rapid heating function is in progress, the economy function cannot be activated.

9.2 Economy activation

- make sure that the instrument is in the on state, that no procedure is in progress and no rapid heating function is in progress
- press and for 1s.

When the function is in progress the LED will flash for 1s every 4s.

9.3 Economy interruption in manual mode

- make sure no procedure is in progress
- press and for 1s.

10 RAPID HEATING (only if functioning with 1 measurement input)

10.1 Preliminary considerations

The rapid heating allows to reach the work set-point as quickly as possible, supplying 100% of the power both to the top and the floor (i.e. excluding switch-on of the top and floor outputs in a cyclical way with benefit to switch-on in continuous mode).

When the temperature of the chamber reaches the "work set-point - temperature established with parameter c3" value, the function is interrupted.

If the economy function is in progress, the rapid heating cannot be activated.

10.2 Rapid heating activation

- causes the event established with parameter c2:
- if c2 = 1, press for 1s (make sure that the instrument is in the on state, that no procedure is in progress and the economy function is not in progress)
- if c2 = 2, pass from the stand-by state to the on state
- if c2 = 3, press for 1s (make sure that the instrument is in the on state, that no procedure is in progress and the economy function is not in progress) or pass from the stand-by state to the on state.

If parameter c2 is set at 0, the function cannot be activated.

When the function is in progress the upper part of the display shows "F-F" alternately to the quantity established with parameter P5.

10.3 Interruption of rapid heating in manual mode

- make sure no procedure is in progress

- press for 1s.

11 SIGNALS

11.1 Signals

LED	MEANING
	top and floor LED if it is on, the top output and/or the floor output will be on if it flashes, the modification of the work set-point, the top set-point and the floor set-point is in progress (with the procedures indicated in paragraphs 4.3.1 or 4.3.2)
	power distributed to the top LED supplies and indication regarding the power distributed to the top if it flashes, the modification of the power distributed to the top is in progress (with the procedure indicated in paragraph 4.4)
	power distributed to the floor LED supplies and indication regarding the power distributed to the floor if it flashes, the modification of the power distributed to the floor is in progress (with the procedure indicated in paragraph 4.4)
	steam injection LED if it is on: • and the parameter t0 is set at 0, steam injection will be in progress • and the parameter t0 is set at 1, steam injection will be in enabled if it flashes: • rapid setting of parameter t2 is in progress (see paragraph 7.2) • steam injection will not be available (parameter t4)
	airhole LED if it is on, the airhole will be activated in manual mode if it flashes: • the airhole will be activated due to the effect of the conclusion of the cooking timer count (parameter c6) • rapid setting of parameter c7 is in progress (see paragraph 8.2)
°C	degrees Celsius LED if it is on, the unit of measurement of the temperatures will be degrees Celsius (parameter P2)
°F	degrees Fahrenheit LED if it is on, the unit of measurement of the temperatures will be degrees Fahrenheit (parameter P2)
	on/stand-by LED if it is on, the instrument is in the stand-by state if it flashes, the cooking timer count is in progress and on conclusion of the count, the instrument will switch-off if it flashes for 1s every 4s, the economy function will be in progress
timer	cooking timer LED if it is on, the quantity shown by the lower part of the display will be the value of the cooking timer or its count if the timer will be activated if it flashes: • cooking timer setting is in progress • the cooking timer count will be in progress but the lower part of the display will be showing another quantity
set	set-point LED if it is on, the quantity shown by the lower part of the display will be the work set-point value, the top set-point or the floor set-point
1	• the quantity displayed by the lower part of the display will be the top set-point value
2	• the quantity displayed by the lower part of the display will be the floor set-point value
12 INDICATIONS	
12.1 Indications	
INDICAT.	MEANING
F-F	alternately to the quantity established with parameter P5: the rapid heating function will be in progress (only if functioning with 1 measurement input)
decrease time c9	the time established with parameter c9 is missing... 1 second to the conclusion of the cooking timer count
00:00	flashing: the cooking timer count has ended

13 ALARMS

13.1 Alarms

CODE	MEANING
AL	<p>chamber temperature alarm (only if functioning with 1 measurement input)</p> <p>Remedies:</p> <ul style="list-style-type: none"> ▪ check the chamber temperature ▪ see parameters A1 and A3 <p>Consequences:</p> <ul style="list-style-type: none"> ▪ the alarm output will be activated ▪ the acoustics output and the buzzer output will be activated
AL1	<p>top temperature alarm (only if functioning with 2 measurement inputs)</p> <p>Remedies:</p> <ul style="list-style-type: none"> ▪ check the top temperature ▪ see parameters A1 and A3 <p>Consequences:</p> <ul style="list-style-type: none"> ▪ the alarm output will be activated ▪ the acoustics output and the buzzer output will be activated
AL2	<p>floor temperature alarm (only if functioning with 2 measurement inputs)</p> <p>Remedies:</p> <ul style="list-style-type: none"> ▪ check the floor temperature ▪ see parameters A5 and A7 <p>Consequences:</p> <ul style="list-style-type: none"> ▪ the alarm output will be activated ▪ the acoustics output and the buzzer output will be activated
id	<p>multifunction input alarm (only if the parameter i5 is set at 5)</p> <p>Remedies:</p> <ul style="list-style-type: none"> ▪ check the causes that brought about the input activation ▪ see parameters i5 and i6 <p>Main consequences:</p> <ul style="list-style-type: none"> ▪ the top output will be deactivated ▪ the floor output will be deactivated ▪ steam injection will not be available ▪ the alarm output will be activated ▪ the acoustics output and the buzzer output will be activated
PF1	<p>power supply cut-off alarm during the cooking timer count</p> <p>Remedies:</p> <ul style="list-style-type: none"> ▪ press a key to restore the normal display ▪ check the causes that brought about the power supply cut-off <p>Main consequences:</p> <ul style="list-style-type: none"> ▪ on power supply restore, the count will continue with a maximum error of 3 min ▪ the acoustics output and the buzzer output will be activated

When the cause of the alarm disappears, the instrument restores normal functioning, except for the power supply cut-off alarm during the cooking timer count (code **PF1**) which requires a key to be pressed.

14 INTERNAL DIAGNOSTICS

14.1 Internal diagnostics

CODE	MEANING
Pr1	<p><u>If functioning with 1 measurement input:</u> chamber probe error</p> <p>Remedies:</p> <ul style="list-style-type: none"> ▪ see parameter P0 ▪ check probe integrity ▪ check the instrument-probe connection ▪ check the chamber temperature <p>Main consequences:</p> <ul style="list-style-type: none"> ▪ the top output and the floor output will be deactivated ▪ the acoustics output and the buzzer output will be activated <p><u>If functioning with 2 measurement inputs:</u> top probe error</p> <p>Remedies:</p> <ul style="list-style-type: none"> ▪ the same as the previous case but relative to the top probe <p>Main consequences:</p> <ul style="list-style-type: none"> ▪ the top output will be deactivated ▪ the acoustics output and the buzzer output will be activated
Pr2	<p><u>If functioning with 1 measurement input:</u> steam probe error</p> <p>Remedies:</p> <ul style="list-style-type: none"> ▪ the same as the previous case but relative to the steam probe <p>Main consequences:</p> <ul style="list-style-type: none"> ▪ the steam generator output will be off ▪ steam injection will not be available ▪ the acoustics output and the buzzer output will be activated <p><u>If functioning with 2 measurement inputs:</u> floor probe error</p> <p>Remedies:</p> <ul style="list-style-type: none"> ▪ the same as the previous case but relative to the floor probe <p>Main consequences:</p> <ul style="list-style-type: none"> ▪ the floor output will be deactivated ▪ the acoustics output and the buzzer output will be activated

When the causes of the alarm have disappeared, the instrument will go back to normal functioning.

15 TECHNICAL DATA

15.1 Technical data

Container: grey self-extinguishing.

Front panel protection rating: IP 54.

Connections: removable terminal boards (power supply, inputs and outputs), 6-pole connector (serial port).

Temperature of use: from 0 to 55 °C (from 32 to 131 °F, 10 ... 90% relative humidity without condensate).

Power supply: 115 ... 230 VAC, 50/60 Hz, 5 VA (approx) or 24 VAC, 50/60 Hz.

Alarm buzzer: incorporated.

Measurement inputs: can be configured:

- 1 (chamber probe) for J/K thermocouple if functioning with 1 measurement input; second input (steam probe) for J/K thermocouple
- 2 (top probe and floor probe) for J/K thermocouple if functioning with 2 measurement inputs.

Digital inputs: 2 inputs:

- on/stand-by input in high voltage (230 VAC) with configurable polarity
- multifunction input, for NO/NC contact (potential-free contact, 5 V 1 mA).

Range of measurement: from -99 to 800 °C (from -99 to 999 °F) for J thermocouple, from -99 to 999 °C (from -99 to 999 °F) for K thermocouple.

Resolution: 1 °C/1 °F.

Digital outputs: 6 relays:

- **top (relay K1):** 8 A res. @ 250 VAC (NO)
- **floor (relay K2):** 8 A res. @ 250 VAC (NO)
- **utility that can be set (relay K3):** 8 A res. @ 250 VAC (contact in exchange)
- **airhole (relay K4):** 8 A res. @ 250 VAC (NO contact)
- **steam injection (relay K5):** 8 A res. @ 250 VAC (NO contact)
- **utility that can be set (relay K6):** 8 A res. @ 250 VAC (contact in exchange).

The maximum current accepted on clamp 23 is 10 A.

To set the utility managed by relay K3 and relay K6, see paragraph 4.2.

Other outputs: buzzer output (12 V, max. 20 mA); the output is activated during alarms and errors, with continuous contribution.

Serial port: port for the communication with the supervising system (through a serial interface, via TTL, with MODBUS communication protocol) or with the programming key.





16 WORK SET-POINT, POWER DISTRIBUTED AND CONFIGURATION PARAMETERS**16.1 Work set-point**

	MIN.	MAX.	U.M.	1 INPUT	2 INPUTS	WORK SET-POINT
r1	r2	°C/°F (1)	150	not visible	work set-point	
r1	r2	°C/°F (1)	not visible	150	top set-point	
r7	r8	°C/°F (1)	not visible	150	floor set-point	

16.2 Power distributed

PARAM.	MIN.	MAX.	U.M.	1 INPUT	2 INPUTS	POWER DISTRIBUTED
0	100	%	50	not visible	power distributed to the top (percentage of c1); see also c0 and c1	
0	100	%	50	not visible	power distributed to the floor (percentage of c1); see also c0 and c1	

16.3 Configuration parameters

PARAM.	MIN.	MAX.	U.M.	1 INPUT	2 INPUTS	WORK SET-POINT
SP	r1	r2	°C/°F (1)	150	not visible	work set-point
SPS	0	999	°C/°F (1)	100	not visible	steam set-point
SP1	r1	r2	°C/°F (1)	not visible	150	top set-point
SP2	r7	r8	°C/°F (1)	not visible	150	floor set-point
PARAM.	MIN.	MAX.	U.M.	1 INPUT	2 INPUTS	POWER DISTRIBUTED
Po1	0	100	%	50	not visible	power distributed to the top (percentage of c1); see also c0 and c1
Po2	0	100	%	50	not visible	power distributed to the floor (percentage of c1); see also c0 and c1
PARAM.	MIN.	MAX.	U.M.	1 INPUT	2 INPUTS	MEASUREMENT INPUTS
CA1	-25/-50	25/50	°C/°F (1)	0	0	with 1 measurement input, chamber probe inset; with 2 measurement inputs, top probe offset
CA2	-25/-50	25/50	°C/°F (1)	not visible	0	with 1 measurement input, steam probe inset; with 2 measurement inputs, floor probe offset
P0	0	1	----	0	0	type of probe 0 = J 1 = K
P2	0	1	----	0	0	temperature unit of measurement (2) 0 = °C 1 = °F
P4	0	1	----	0	not visible	enabling the steam probe 1 = YES
P5	0	(3)	----	0	0	quantity shown by the upper part of the display during the on state or during normal functioning 0 = with 1 measurement input, chamber temperature; with 2 measurement inputs, top temperature 1 = with 1 measurement input, work set-point; with 2 measurement inputs, top set-point 2 = temperature of the floor 3 = floor set-point
P6	0	(4)	----	2	2	quantity shown by the lower part of the display during the on state or during normal functioning 0 = with 1 measurement input, chamber temperature; with 2 measurement inputs, top temperature 1 = with 1 measurement input, work set-point; with 2 measurement inputs, top set-point 2 = value of the cooking timer or its count if the timer is active 3 = temperature of the floor 4 = floor set-point
PARAM.	MIN.	MAX.	U.M.	1 INPUT	2 INPUTS	MAIN REGULATOR
r0	1	99	°C/°F (1)	5	5	with 1 measurement input, work set-point differential; with 2 measurement inputs, top set-point differential
r1	0	r2	°C/°F (1)	50	50	with 1 measurement input, minimum work set-point; with 2 measurement inputs, top minimum set-point
r2	r1	999	°C/°F (1)	350	350	with 1 measurement input, maximum work set-point; with 2 measurement inputs, top maximum set-point
r6	1	99	°C/°F (1)	not visible	5	floor set-point differential
r7	0	r8	°C/°F (1)	not visible	50	minimum floor set-point
r8	r7	999	°C/°F (1)	not visible	350	maximum floor set-point
r12	0	1	----	0	0	restraint between the top output and the cooking timer 1 = YES - the top output remains off if the cooking timer count is not in progress
r14	0	1	----	0	0	restraint between the floor output and the cooking timer 1 = YES - the floor output remains off if the cooking timer count is not in progress
PARAM.	MIN.	MAX.	U.M.	1 INPUT	2 INPUTS	STEAM INJECTION
t0	0	1	----	0	0	steam injection functioning mode 0 = pressing the  key causes the injection of steam for the time established with parameter t2 or for the entire duration that the key is pressed. The parameter t1 establishes the minimum time that can pass between the two successive injections 1 = pressing the  key enables automatic injection of the steam in cyclical mode (parameter t2 establishes the switch-on duration of the injector and parameter t1 establishes switch-off duration)
t1	0	250	s	1	1	if t0 = 0, minimum time that passes between two successive injections if t0 = 1, injector switch-off duration
t2	1	250	ds (6)	10	10	if t0 = 0, minimum injection duration if t0 = 1, injector switch-on duration
t3	1	99	°C/°F (1)	5	not visible	steam set-point differential
t4	0	99	°C/°F (1)	50	not visible	temperature of the steam below which, once the steam set-point has been reached, the steam injection is no longer available (relative to the steam set-point i.e. "steam set-point - t4") (5)
PARAM.	MIN.	MAX.	U.M.	1 INPUT	2 INPUTS	VARIOUS
c0	0	2	----	0	not visible	restraint between the power distributed to the top and power distributed to the floor 0 = no restraint 1 = the modification of the power supplied to an output automatically causes the supply of the maximum power to the other 2 = the modification of the power supplied to an output causes an automatic adaptation of the power supplied to the other such to guarantee that the sum of the two percentages is always 100
c1	1	999	s	80	80	with 1 measurement input, cycle time for the top output and floor output switch-on, see also Po1 and Po2 with 2 measurement inputs, cycle time for the top output and floor output switch-on, when economy function is in progress (7)
c2	0	3	----	1	not visible	event that causes the activation of the rapid heating function 0 = function cannot be activated 1 = press  for 1s (make sure that the instrument is in the on state, that no procedure is in progress and the economy function is not in progress) 2 = pass from stand-by state to on state 3 = press  for 1s (make sure that the instrument is in the on state, that no procedure is in progress and the economy function is not in progress) or pass from the stand-by state to the on state
c3	0	99	°C/°F (1)	10	not visible	temperature of the chamber over which the rapid heating function is interrupted (relative to the work set-point i.e. "work set-point - c3")
c4	-1	120	s	15	15	duration of buzzer activation and of the acoustic output on conclusion of the cooking timer count; see also c9 (8) (9) -1 = the buzzer and the acoustic output must be deactivated in manual mode by pressing a key
c5	0	60	min	20	20	time that passes between the activation of the airhole and the conclusion of the cooking timer count, see also c6
c6	0	60	min	20	20	duration of the activation of the airhole at conclusion of the cooking timer count, see also c5
c7	00:00	60:00	min:s	00:30	00:30	duration of the activation of the airhole in manual mode
c9	0	120	s	10	10	time that passes between the activation of the buzzer and the acoustic output and the conclusion of the cooking timer count, see also c4
c10	0	999	min	120	120	maximum duration of the economy function (10)
PARAM.	MIN.	MAX.	U.M.	1 INPUT	2 INPUTS	TEMPERATURE ALARMS
A1	0	999	°C/°F (1)	0	0	with 1 measurement input, temperature of the chamber above which the chamber temperature alarm is activated; with 2 measurement inputs, temperature of the top above which the top temperature alarm is activated; see also A3 (11)
A2	0	240	min	0	0	with 1 measurement input, chamber temperature alarm delay; with 2 measurement inputs, top temperature alarm delay

A3	0	2	----	0	0	with 1 measurement input, type of chamber temperature alarm delay; with 2 measurement inputs, type of top temperature alarm delay 0 = no alarm 1 = absolute (i.e. A1) 2 = with 1 measurement input, relative to the work set-point (i.e. "work set-point + A1"); with 2 measurement inputs, relative to the top set-point (i.e. "top set-point + A1")
A4	0	999	°C/°F (1)	not visible	0	floor temperature above which the floor temperature alarm is activated, see also A6 (11)
A5	0	240	min	not visible	0	floor temperature alarm delay
A6	0	2	----	not visible	0	type of floor temperature alarm 0 = no alarm 1 = absolute (i.e. A4) 2 = relative to the floor set-point (i.e. "floor set-point + A4")
PARAM.	MIN.	MAX.	U.M.	1 INPUT	2 INPUTS	DIGITAL INPUTS
i1	0	1	----	0	0	on/stand-by input polarity 0 = live input active 1 = non-live input active
i5	0	6	----	0	0	effect caused by the activation of the multifunction input 0 = no effect 1 = <u>START/INTERRUPTION OF THE COOKING TIMER</u> - the activation of the input will cause the cooking timer to start and the successive activation will cause its interruption 2 = <u>CHAMBER LIGHT SWITCH-ON/OFF</u> - the activation of the input will cause the chamber light to switch-on and the successive activation will cause its switch-off 3 = <u>BUZZER, ACOUSTIC OUTPUT AND BUZZER OUTPUT DEACTIVATION</u> - the activation of the input will cause deactivation of the buzzer, the acoustic output and the buzzer output (activate the input again to deactivate these utilities again) 4 = <u>STEAM INJECTION</u> - in this case: ▪ if t0 = 0, the activation of the input causes the injection of steam for the time established with parameter t2 or for the entire duration that the key is pressed (parameter t1 establishes the minimum time that can pass between the two successive injections) (12) ▪ if t0 = 1, the activation of the input will enable automatic steam injection (in cyclical mode; parameter t2 establishes the duration of the switch-on of the injector and parameter t1 establishes the duration of switch-off) until the input is activated again (12) 5 = <u>DOOR MICRO SWITCH</u> - the activation of the input causes the deactivation of the top output and the floor output, prevents steam injection, displays the flashing "id" code in the upper part of the display and activates the buzzer until the input is deactivated; see also i7 6 = <u>START/STOP OF THE ECONOMY FUNCTION</u> - activation of the input causes the activation of the economy function and successive activation will cause interruption
i6	0	1	----	0	0	type of contact of the multifunction input 0 = NO (input active with closed contact) 1 = NC (input active with open contact)
i7	0	120	min	0	0	multifunction input alarm signal delay (only if i5 = 5)
PARAM.	MIN.	MAX.	U.M.	1 INPUT	2 INPUTS	SERIAL NETWORK (MODBUS)
LA	1	247	----	247	247	instrument address
Lb	0	3	----	2	2	baud rate 0 = 2.400 baud 1 = 4.800 baud 2 = 9.600 baud 3 = 19.200 baud
LP	0	2	----	2	2	parity 0 = none (no parity) 1 = odd 2 = even

(1) the unit of measurement depends on parameter P2

(2) **set the parameters relative to the regulators appropriately after modification of parameter P2**

(3) the value depends on the type of functioning (1 with 1 measurement input and 3 with 2 measurement inputs)

(4) the value depends on the type of functioning (2 with 1 measurement input and 4 with 2 measurement inputs)

(5) steam injection becomes available again when the temperature of the steam reaches the steam set-point again

(6) ds = tenths of second

(7) the top output and the floor output are switched-on alternately for half of the time established with parameter c1

(8) the buzzer and the acoustic output are activated before the conclusion of the cooking timer count (of the time established with the parameter c9), for the time established with parameter c4

(9) if the cooking timer is interrupted (with the procedure given in paragraph 5.4 or by activation of the malfunction input), the duration of buzzer activation and of the acoustic output and the flashing duration of the 00:00 indication will be 3 seconds

(10) if the economy function is in progress, any instrument switch-off will cause interruption of the function. A power cut will not cause interruption of the function but the re-start of the time count established with parameter c10

(11) the parameter differential is 10 °C/18 °F

(12) pressing the key (↵) causes the associated effect.