EK 340A

ON-OFF digital controller for electrical pizza ovens

smart guide

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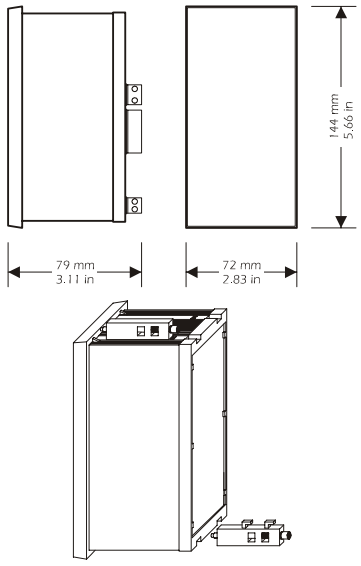
ENGLISH

1 PREPARATIONS

1.1 How to install the instrument

Panel mounting, panel cut out 67 x 138 mm (2.63 x 5.43 in), with screw brackets (supplied by the builder).



installation with screw brackets; moderate the clamping torque, in order not to damage box and screw brackets.

2 OPERATION

2.1 How to turn the instrument ON/OFF

▪ press ⏻ for 2 s

During the normal operation the instrument shows the temperature the chamber probe is reading (in the display at the top), the percentage of power supplied to the top heating group (in the LED bar at the top) and the percentage of power supplied to the floor heating group (in the LED bar at the bottom).

2.2 How to silence the buzzer

▪ press ▼

2.3 How to activate/deactivate function Quick heating

▪ press 🔥 for 2 s (1)

During this function the instrument supplies the maximum power both to the top heating group and to the floor heating group.

The temperature the instrument deactivates the function automatically is " [working setpoint - (temperature you have set with parameter c3)] " .

(1) if parameter c2 has value 0, the function will not be enabled; if parameter c2 has value 2, the function will automatically be activated every time you will turn the instrument ON; if parameter c2 has value 3, the function will automatically be activated every time you will turn the instrument ON or pressing 🔥 for 2 s

2.4 How to turn the chamber light ON/OFF

▪ press 💡

3 WORKING SETPOINT

3.1 How to set the working setpoint

▪ press °C/°F

▪ press ▲ or ▼ within 4 s (2)

▪ press °C/°F

(2) you can set the working setpoint between the limits you have set with parameters rA1 and rA2.

4 PERCENTAGE OF POWER SUPPLIED TO THE HEATING GROUPS

4.1 How to set the percentage of power supplied to the heating groups

To modify the value of the percentage of power supplied to the

top heating group:

- press
- press or within 4 s [3]
- press

The time the top output is turned ON is " {[(time you have set with parameter c1) / 10} x (number of bars turned ON in the LED bar at the top) " [4] .

To modify the value of the percentage of power supplied to the floor heating group:

- press during the modification of the percentage of power supplied to the top heating group
- press or within 4 s [3]
- press

The time the floor output is turned ON is " {[(time you have set with parameter c1) / 10} x (number of bars turned ON in the LED bar at the bottom) " [4] .

(3) if parameter c0 has value 1, the modification of the percentage of power supplied to a heating group will automatically provoke the supply of the maximum power to the other one and vice versa; if parameter c0 has value 2, the modification of the percentage of power supplied to a heating group will automatically provoke an adjustment of the other one such as to guarantee that the sum of bars turned ON will always be 10

(4) the outputs are turned ON as much as possible alternatively.

5 CONFIGURATION PARAMETERS

5.1 How to set configuration parameters

Configuration parameters are arranged on two levels.

To gain access the first level:

- press and for 4 s : the instrument will show PA

To select a parameter:

- press or

To modify the value of the parameter:

- press and or

To gain access the second level:

- gain access the first level
- press or to select PA
- press and or to select " **-19** "
- press and for 4 s : the instrument will show P0

To quit the procedure:

- press and for 4 s or do not operate for about 60 s.

6 SIGNALS

6.1 Signals

LED	MEANING
	LED regulator if it is lit, the temperature the chamber probe is reading is below the working setpoint
	LED top and floor if they are lit, the top output and the floor output will be turned ON
	LED quick heating if it is lit, function Quick heating will be activated
	LED chamber light if it is lit, the chamber light will be lit
°C	LED Celsius degree if it is lit, the unit of measure of the temperature showed by the instrument will be Celsius degree
°F	LED Fahrenheit degree if it is lit, the unit of measure of the temperature showed by the instrument will be Fahrenheit degree
	LED ON STAND-BY if it is lit, the instrument will be in the STAND-BY mode (turned OFF)

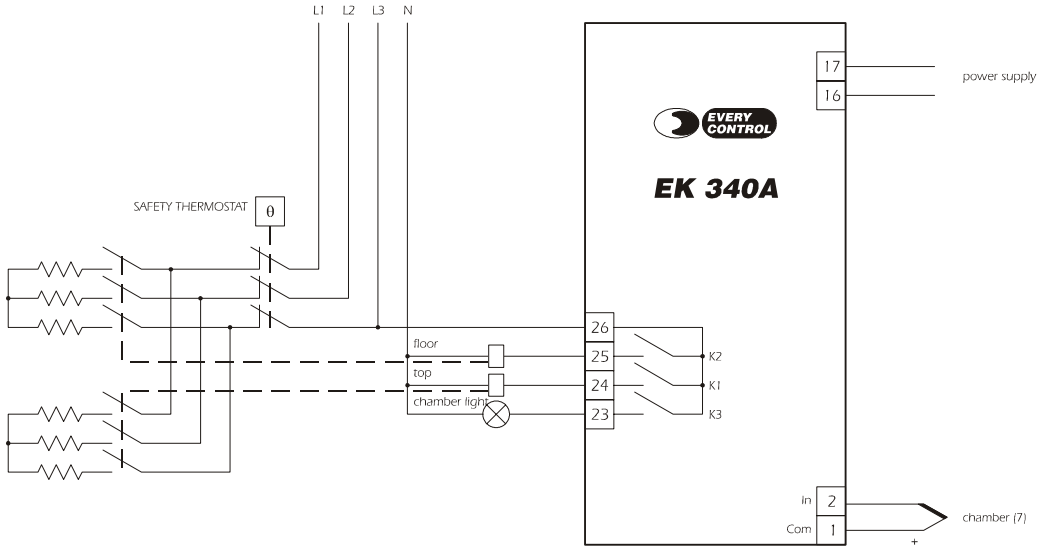
7 ALARMS

7.1 Alarms

	REASONS	REMEDIES	EFFECTS
E2 corrupted memory data alarm	there is a corruption of the configuration data in the memory of the instrument	turn OFF the power supply of the instrument: unless the alarm disappears, you will have to change the instrument	▪ the access to the setting procedures will not be allowed ▪ all outputs will be turned OFF
E0 chamber probe alarm	▪ the kind of chamber probe you have connected is not right	▪ look at parameter /0 ▪ test the integrity of the probe	▪ the top output will be turned OFF ▪ the floor output will be turned OFF

10 ELECTRICAL CONNECTION

10.1 Electrical connection



(7) provide the probe with a protection able to protect it against contacts with metal parts or use insulated probes.

	▪ the chamber probe plays up ▪ the connection instrument-chamber probe is wrong ▪ the temperature the chamber probe is reading is outside the limits allowed by the working range of the instrument	▪ test connection instrument-probe ▪ test the temperature close to the probe	
E0C cold joint alarm	there is a defect in the cold joint of the instrument	turn OFF the power supply of the instrument: unless the alarm disappears, you will have to change the instrument	▪ the top output will be turned OFF ▪ the floor output will be turned OFF
AL 1 first temperature alarm	the temperature the chamber probe is reading is outside the limit you have set with parameter AA1	test the temperature close to the probe (look at parameters AA0, AA1 and AA4)	no effect
AL2 second temperature alarm	the temperature the chamber probe is reading is outside the limit you have set with parameter Ab1	test the temperature close to the probe (look at parameters Ab0, Ab1 and Ab4)	no effect

The indications showed by the instrument flashes, except the indications "**AL1**" and "**AL2**" (they are alternated with the temperature the chamber probe is reading) and the buzzer utters an intermittent beep.

8 TECHNICAL DATA

8.1 Technical data

Box: self-extinguishing grey.

Size: 72 x 144 x 79 mm (2.83 x 5.66 x 3.11 in).

Installation: panel mounting, panel cut out 67 x 138 mm (2.63 x 5.43 in), with screw brackets (supplied by the builder).

Frontal protection: IP 54.

Connections: extractable terminal blocks with pitch 7.5 mm (0.29 in) for cables up to 2.5 mm² (0.38 sq in, power supply and outputs) and with pitch 5 mm (0.19 in) for cables up to 2.5 mm² (0.38 sq in, input).

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

Power supply: 230 Vac, 50/60 Hz, 4 VA (standard) or 115 Vac, 50/60 Hz, 4 VA (by request).

Alarm buzzer: included.

Measure inputs: 1 (chamber probe) for "J" or "K" thermocouples.

Working range: from 0 to 700 °C (32 to 999 °F) for "J" thermocouple, from 0 to 999 °C (32 to 999 °F) for "K" thermocouple.

Setpoint range: from 0 to 999 °C (0 to 999 °F).

Resolution: 1 °F with unit of measure in Fahrenheit, 1 °C with unit of measure in Celsius.

Display: one red LED 3-digit displays 13.2 mm (0.51 in) high, two LED bars (10 red LED), output status indicators, indicators of the unit of measure of the temperature showed by the instrument.

Outputs: 3 relays: one 8 A @ 250 Vac relay for top heating group control (NO), one 8 A @ 250 Vac relay for floor heating group control (NO), one 8 A @ 250 Vac relay for chamber light control (NO); the maximum current allowed on terminal 26 is 10 A.

9 WORKING SETPOINT AND CONFIGURATION PARAMETERS

9.1 Working setpoint

LABEL	MIN.	MAX.	U.M.	DEF.	WORKING SETPOINT
	rA1	rA2	°C/°F [5]	0	working setpoint

9.2 First level parameters

LABEL	MIN.	MAX.	U.M.	DEF.	PASSWORD
PA	-90	100	–	0	password

LABEL	MIN.	MAX.	U.M.	DEF.	MEASURE INPUTS
/1	-10	10	°C/°F [5]	0	chamber probe calibration

LABEL	MIN.	MAX.	U.M.	DEF.	REGULATOR
rA0	-15	-1	°C/°F [5]	-2	hysteresis (differential, it is relative to the working setpoint)

9.3 Second level parameters

LABEL	MIN.	MAX.	U.M.	DEF.	MEASURE INPUTS
/0	10	11	–	10	kind of probe (10 = "J" Tc, 11 = "K" Tc)
/1	-10	10	°C/°F [5]	0	chamber probe calibration
/2	0	6	–	3	probe reading speed (0 = fast, ... , 6 = slow)
/4	0	1	–	0	display of non meaningful zeros (1 = YES)
/8	0	1	–	1	unit of measure temperature (0 = Fahrenheit degree, 1 = Celsius degree)

LABEL	MIN.	MAX.	U.M.	DEF.	REGULATOR
rA0	-15	-1	°C/°F [5]	-2	hysteresis (differential, it is relative to the working setpoint)
rA1	0	rA2	°C/°F [5]	0	minimum value you can assign to the working setpoint
rA2	rA1	999	°C/°F [5]	300	maximum value you can assign to the working setpoint

LABEL	MIN.	MAX.	U.M.	DEF.	FIRST ALARM
AA0	1	99	°C/°F [5]	2	hysteresis (differential, it is relative to AA1, it is important if AA4 ≠ 1)
AA1	-99	999	°C/°F [5]	0	first temperature alarm threshold (it is important if AA4 ≠ 1); look at AA4 as well
AA3	0	999	min	0	first temperature alarm exclusion time since you turn the instrument ON (it is important if AA4 ≠ 1)
AA4	1	7	–	1	kind of temperature alarm (1 = it will never be activated, 2 = absolute lower temperature alarm, 3 = absolute upper temperature alarm, 4 = lower temperature alarm relative to the working setpoint, 5 = upper temperature alarm relative to the working setpoint, 6 = lower temperature alarm relative to the working setpoint with automatic calculation and enabling, 7 = upper temperature alarm relative to the working setpoint with automatic calculation and enabling)

LABEL	MIN.	MAX.	U.M.	DEF.	SECOND ALARM
Ab0	1	99	°C/°F [5]	2	hysteresis (differential, it is relative to Ab1, it is important if Ab4 ≠ 1)
Ab1	-99	999	°C/°F [5]	0	second temperature alarm threshold (it is important if Ab4 ≠ 1); look at Ab4 as well
Ab3	0	999	min	0	second temperature alarm exclusion time since you turn the instrument ON (it is important if Ab4 ≠ 1)
Ab4	1	7	–	1	kind of temperature alarm (1 = it will never be activated, 2 = absolute lower temperature alarm, 3 = absolute upper temperature alarm, 4 = lower temperature alarm relative to the working setpoint, 5 = upper temperature alarm relative to the working setpoint, 6 = lower temperature alarm relative to the working setpoint with automatic calculation and enabling, 7 = upper temperature alarm relative to the working setpoint with automatic calculation and enabling)

LABEL	MIN.	MAX.	U.M.	DEF.	POWER
c0	0	2	–	0	connection between the percentages of power supplied to the heating groups (0 = no connection, 1 = the modification of the percentage of power supplied to a heating group will automatically provoke the supply of the maximum power to the other one and vice versa, 2 = the modification of the percentage of power supplied to a heating group will automatically provoke an adjustment of the other one such as to guarantee that the sum of bars turned ON will always be 10)
c1	1	999	s	80	cycle time to turn ON the top output and the floor output during the normal operation
c2	0	3	–	1	event giving the activation of function Quick heating (0 = function not enabled, 1 = pressing button quick heating for 2 s, 2 = turning the instrument ON, 3 = turning the instrument ON or pressing button quick heating for 2 s)
c3	-99	0	°C/°F [5]	-10	temperature the instrument deactivates function Quick heating automatically (it is relative to the working setpoint) [6]

LABEL	MIN.	MAX.	U.M.	DEF.	RESERVED
L1	–	–	–	–	reserved
L2	–	–	–	–	reserved
L3	–	–	–	–	reserved
L4	–	–	–	–	reserved

(5) the unit of measure depends on parameter /8

(6) the temperature the instrument deactivates function Quick heating automatically is " working setpoint - c3 " .