



**ELECTRIC WALL BOILER
ONLY HEATING**

Elektra.. 18 kW N 016 Trolley series

Power supply: 400 V / 50 Hz + N (three-phase power)



USER AND MAINTENANCE MANUAL



*EQUIPMENT CONFORM TO EC DIRECTIVE 2006/95 / EC. And built in compliance with IEC 60335-2-21:
2012 IEC 60335-1: 2010 EN 60335-2-21: 2003 + A1: 2005 + A2: 2008 - EN 60335-1: 2012 - EN 62233: 2008*



ELECTRIC WALL BOILER

Series ELEKTRA.. N 016 Trolley

Presentation

Thank you for choosing an electric wall boiler FIAMMA, built with the most modern technologies, safe and tough materials, so as to ensure maximum efficiency of use, total quality of the device and extreme safety for user. The series Elektra.. is built according to European standards dir. machines 2006/42 - IEC 60335-1:2010 with EN 60335-2-21:2003 +A1:2005+A2:2008 - EN 60335-1:2012 - EN 62233:2008.

The obtained results can be summarized in the following key points:

- noiseless functioning, thanks to maximum insulation of the device by means of innovative special materials that ensures minimum heat loss.*
- high degree of reliability, thanks to a careful choice of materials and to server tests carried out during production for each unit built.*
- high performance with maximum efficiency, thanks to a modulation of electric power to the heating elements, according to the actual need of energy by the system or the need of sanitary water. The system D.E.S. manages the device with temperature probes positioned in each sensitive point of the boiler, so as to manage both comfort and economy functioning, in order to reduce power consumption when the device is not used at the maximum capacity or demand.*
- the appliance is fully adjustable both in water temperature of the heating system (with the possibility to choice of system at high and low temperature for the underfloor systems) and in the domestic hot water temperature.*
- The assembly of the components has been realized in order to allow an easy access to them, all from the front of the unit, for ordinary and extraordinary maintenance.*

We recommend you to follow our instructions, and we suggest to contact the area authorized service FIAMMA in order to prepare a planned maintenance contract which can ensure suitable operation at maximum efficiency and safety, so that your machine use can go a long way. In renewing our thanks, our technical department and our sales network, are at your disposal for any further information.

FIAMMA GIRO s.r.l.
Company group



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WARNINGS:



THIS EQUIPMENT MAY BE USED BY CHILDREN FROM 8 YEARS AND UP TO PERSONS WITH CAPACITY PHYSICAL, SENSORY OR MENTAL CAPABILITIES OR LACK OF EXPERIENCE AND KNOWLEDGE, A CONDITION THAT SUPERVISION OR WHO WILL GET DIRECTIONS FOR USE IN THE DEVICE SAFELY TO UNDERSTAND THE RISKS INVOLVED. CHILDREN SHOULD NOT PLAY WITH THE APPLIANCE. CLEANING AND MAINTENANCE SHOULD NOT BE MADE BY CHILDREN WITHOUT SUPERVISION.



FOR DIRECT CONNECTION TO THE MAINS, YOU MUST PROVIDE A DEVICE THAT MAKE THE DISCONNECT THE NETWORK WITH A DISTANCE CONTACT OPENING ALLOWING THE COMPLETE DISCONNECT THE CONDITIONS OF OVERVOLTAGE CATEGORY III, UNDER THE RULES OF INSTALLATION.



IF THE POWER CABLE IS DAMAGED, IT MUST BE REPLACED BY THE MANUFACTURER OR THE TECHNICAL ASSISTANCE SERVICE OR OTHERWISE BY A PERSON WITH SIMILAR QUALIFICATION IN ORDER TO PREVENT ANY RISK.



WATER CAN DRIP FROM EXHAUST DEVICE AGAINST OVERPRESSURE AND THE HOSE MUST BE LEFT OPEN THE ATMOSPHERE.



THE DEVICE AGAINST OVERPRESSURE SHALL BE OPERATED REGULARLY TO REMOVE DEPOSITS OF LIMESTONE AND TO CHECK THAT ARE BLOCKED.



THE EXHAUST PIPE CONNECTED TO THE DEVICE AGAINST OVERPRESSURE MUST BE INSTALLED IN SLOPE AND CONTINUE DOWN IN A PROTECTED BY ICE FORMATION.

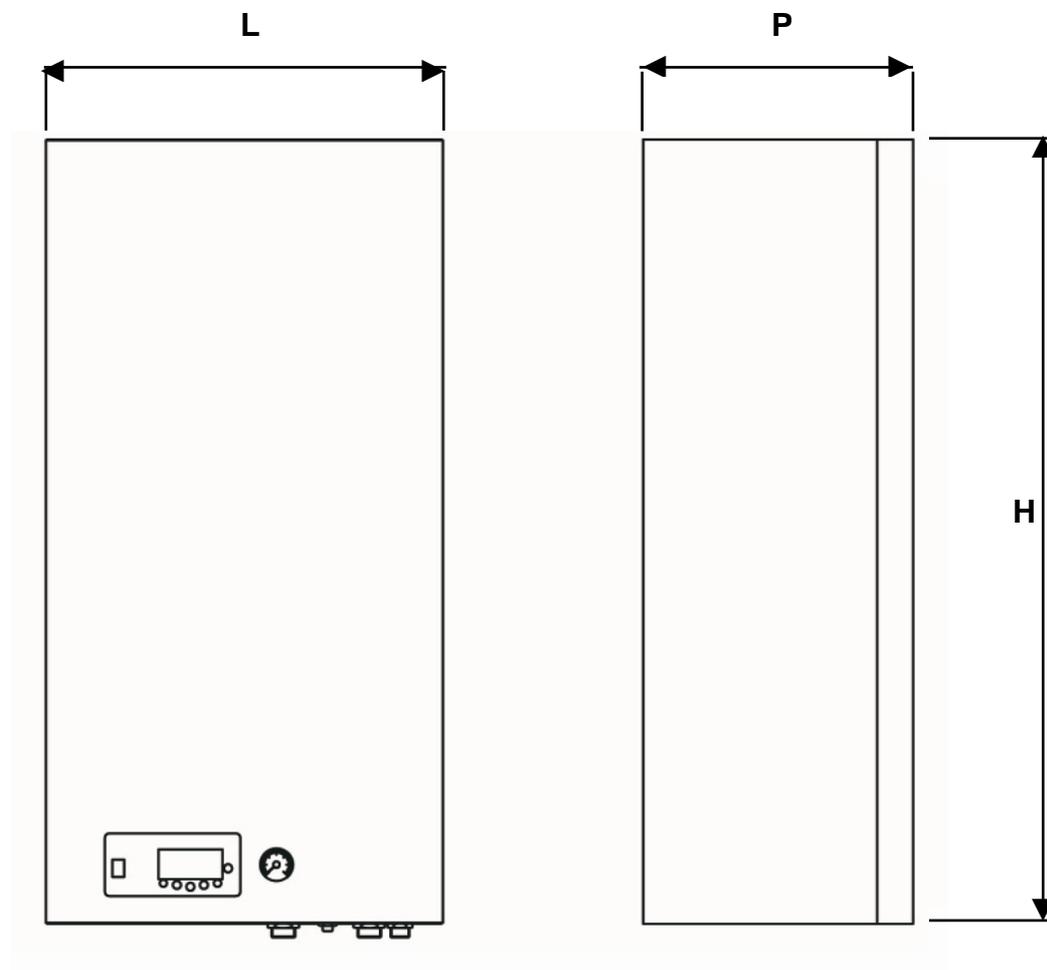


DIMENSIONS

The series **Elektra.. N 016** has four power levels, but the same overall dimensions:

Elektra 18 kW N 016 TROLLEY

18 kW maximum electrical output



Appliance dimension:

L (Width): 400 mm

H (Height): 875 mm

P (Depth): 300 mm

Weight: 39 kg

Packaging dimensions:

Width: 440 mm

Height: 940 mm

Depth: 390 mm

Weight: 41 kg



Hydraulic connections - Dimensional of connection arrangement

M Heating delivery: $\frac{3}{4}$ " M

R Heating return: $\frac{3}{4}$ " M

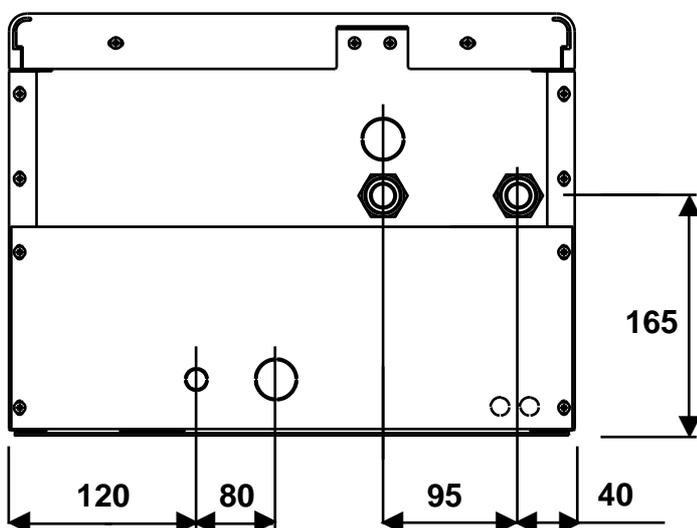
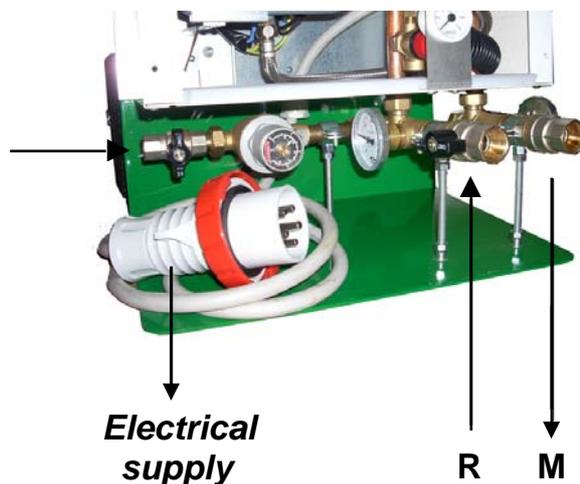
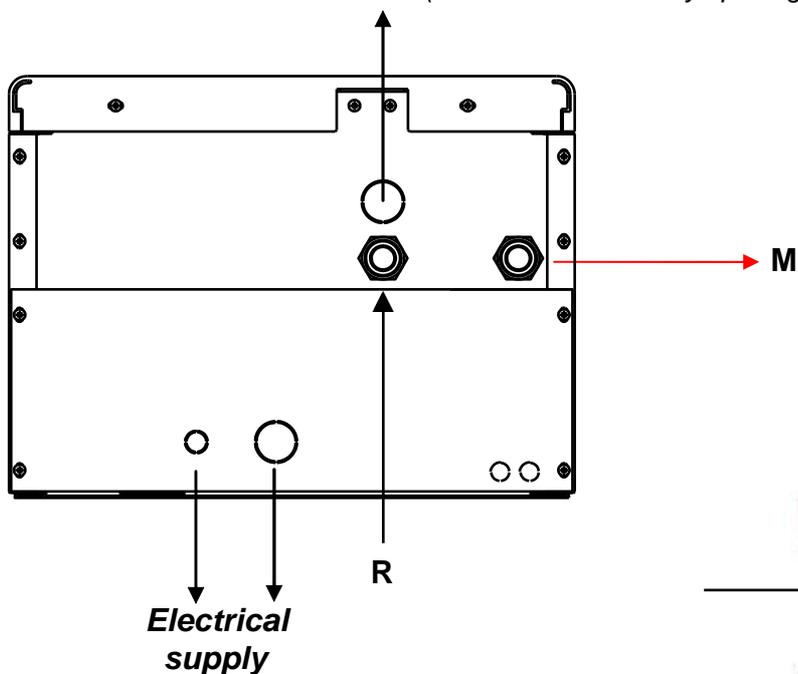
VSR Heating safety valve (0,3 MPa - 3 bar): $\frac{1}{2}$ " F

RC Manual filling tap (restoring water pressure)

The unit is expected to be connected in a continuous manner to the water mains without the use of a set of junctions.

Bottom view (under the boiler)

VSR (It must be removed by opening knock-out)





MAIN TECHNICAL FEATURES

Elektra 18 kW N 016 TROLLEY 18 kW maximum electrical output

Three-phase electrical supply: 400 V - 50 Hz.

Weight: 39 kg.

Electrical / heat power available at heating of 18 kW obtained by n°.3

Resistance group (n°.3 da 3x2 kW).

Maximum head available at the pump of 7 m.c.a.

Expansion vessel capacity of 10 liters.

Safety valve of heating circuit of 0,3 MPa (3 bar).

Maximum heating operating pressure: 0,25 MPa (2,5 bar).

Minimum operating pressure in the heating circuit: 0,06 MPa (0,6 bar).

Maximum limit of thermal safety heating circuit - boiler body: 100°C.



CONTROL PANEL



General switch

Display



hydrometer

The control panel is composed of: display, function selection keys, general switch and the hydrometer it is placed in the lower left corner in front of the unit (see image above).

Using analogical hydrometer

The analogical hydrometer control panel has a dial with unit of measure in a bar, by 0 to 6 bar. The water pressure in the heating system is indicated by the index of the black arrow.

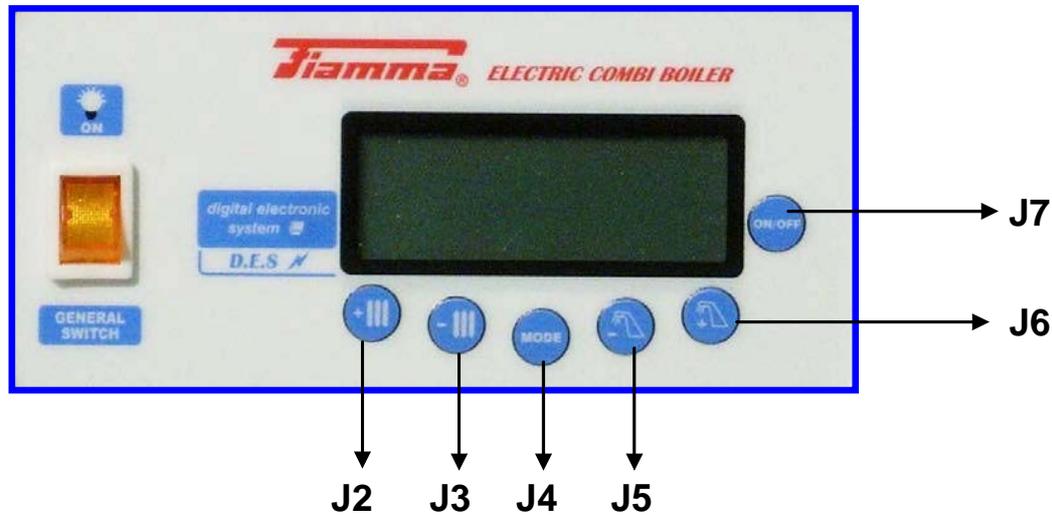
The optimum pressure for the system is between 1 and 1,5 bar.

More than 1,5 bar you can have a maximum pressure of the 2 bar (maximum expansion of the system during the rise in temperature). More than 2 bar pressure the system is not in the range of operation, and the mechanical safety valve (preset to 3 bar) can start to lose water (to access the valves remove the knockout openings at the valves, see page 2 hydraulic installation diagram).

The minimum operating pressure is 0,8 bar (+/-0,2 bar). The differential positive or negative tolerance is due to the operation of the water pressure switch with fixed setting..



Keyboard panel (Control panel)



Meaning of the keys in user mode

Key	Function
-III (J5)	Change and set parameters
+III (J6)	Change and set parameters
ON/OFF (J7)	- ON - OFF switching (long press) - Display temperature output / Display setpoint output - Unlock error of safety thermostat
MODE (J4)	Summer – winter switching (long press)
+III (J2)	Display / Increase of heating setpoint (or room temperature)
-III (J3)	Display / Decrease of heating setpoint (or room temperature)

TURNING ON THE BOILER

The boiler is switched-on by means of the general switch located on the left of the display in the instrument panel of the boiler. Pressing the switch upward to the ON position, it will light in the presence of three-phase supply (400 V - 50 Hz). Then, it shall be pressed the **ON-OFF (J7)** on the keypad to switch the power from stand-by to the operating position, the display will light up of blue and will appear various symbols signaling function/faults etc. At this point it shall be chosen the mode of operation, summer or winter operation.



CHOICE OF THE OPERATION MODE (Winter/Summer)

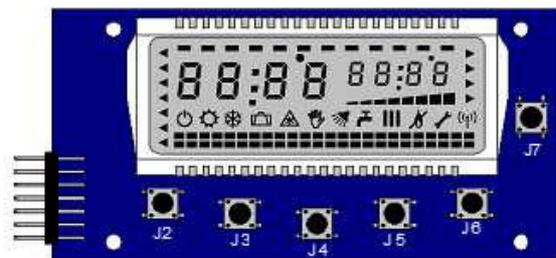
Pressing the key **MODE (J4)**, it will be chosen the mode of operation, wintry or summery. Pressing repeatedly each time for at least 5 seconds, you switch from WINTER to SUMMER or from SUMMER to WINTER then. When the device will be in WINTER mode, on the display will appear the Symbol ❄️ (snow). When the device will be in SUMMER mode, on the display will appear the Symbol ☀️ (sun).

TEMPERATURE VARIATION OF THE HEATING CIRCUIT

When the apparatus has been set with the snow symbol (❄️) for the wintry functioning, you can change the maximum temperature of heating circuit pressing one of the two keys with the radiator symbol located on the left of the display (+III and -III keys). The key with the symbol +III (J2), increases the temperature, and the key with the symbol -III (J3) decreases the temperature.

ON-OFF KEY (Display symbols)

The **ON/OFF (J7)** key, in addition to put the boiler in stand-by mode, allows to reset (unlock) the apparatus in case of high temperature lock. If the lock would be caused by lack of water pressure alarm, the recovery will be automatic after that the hydric pressure will



be restored at the minimum operating level (0,08 MPa - 0,8 bar) by means of the operating and the closure of the charging tap placed under the boiler (black handle). The display has several symbols, signaling in addition to operation modes, also the various alarm or system displays:

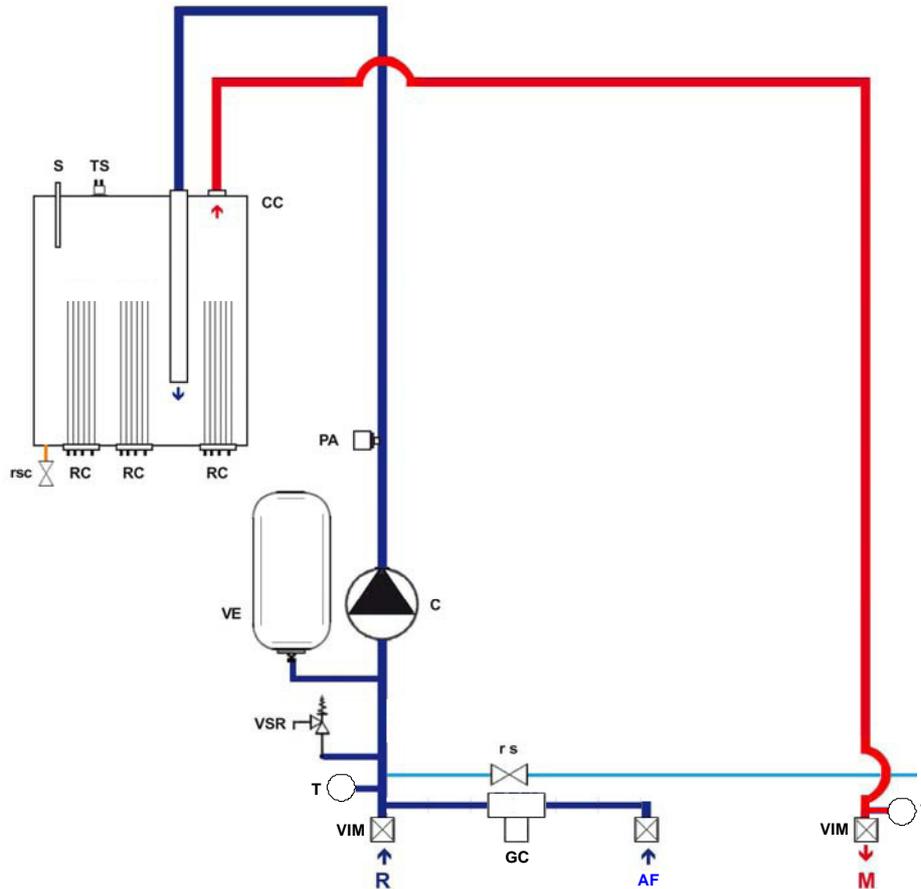
Symbol	Meaning
	Malfunction
	Request of burner switch-on
	Heating request
	Parameter menu activated
	Anti-freeze request activated
	Winter mode
	Summer mode
	OFF mode
Level of modulation	Indicates the instantaneous power of the boiler by 0 to 100%



INSTALLATION TECHNICAL NOTE FOR INSTALLER AND TECHNICAL MAINTENANCE

HYDRAULIC SCHEME

(Elektra 18 kW N 016 TROLLEY version)

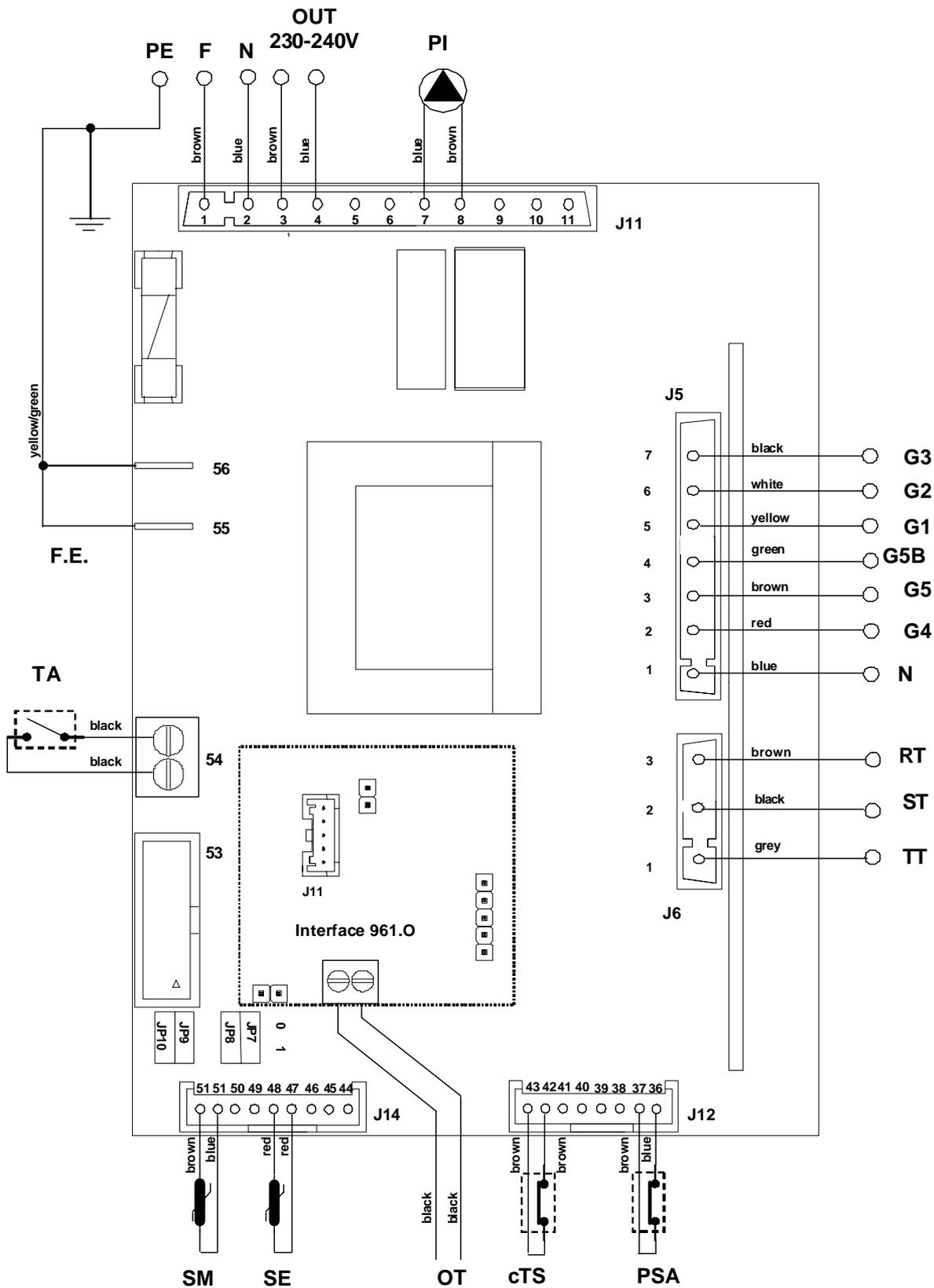


Legend

- **TS** Safety thermostat.
- **PA** Water pressure switch.
- **VSR** Safety valve heating circuit 1/2"x0,3 MPa (3 bar).
- **VE** Expansion vessel heating circuit.
- **R** Hydraulic connection inlet heating circuit.
- **M** Hydraulic connection outlet heating circuit.
- **rsc** Drain valve of boiler body.
- **GC** Automatic loading group.
- **rs** Filling tap.
- **CC** Boiler body.
- **S** Thermowell for immersion sensor.
- **RC** Boiler resistance 6 kW.
- **AF** Cold Water
- **T** Termometer
- **VIM** Manual interception ball valve

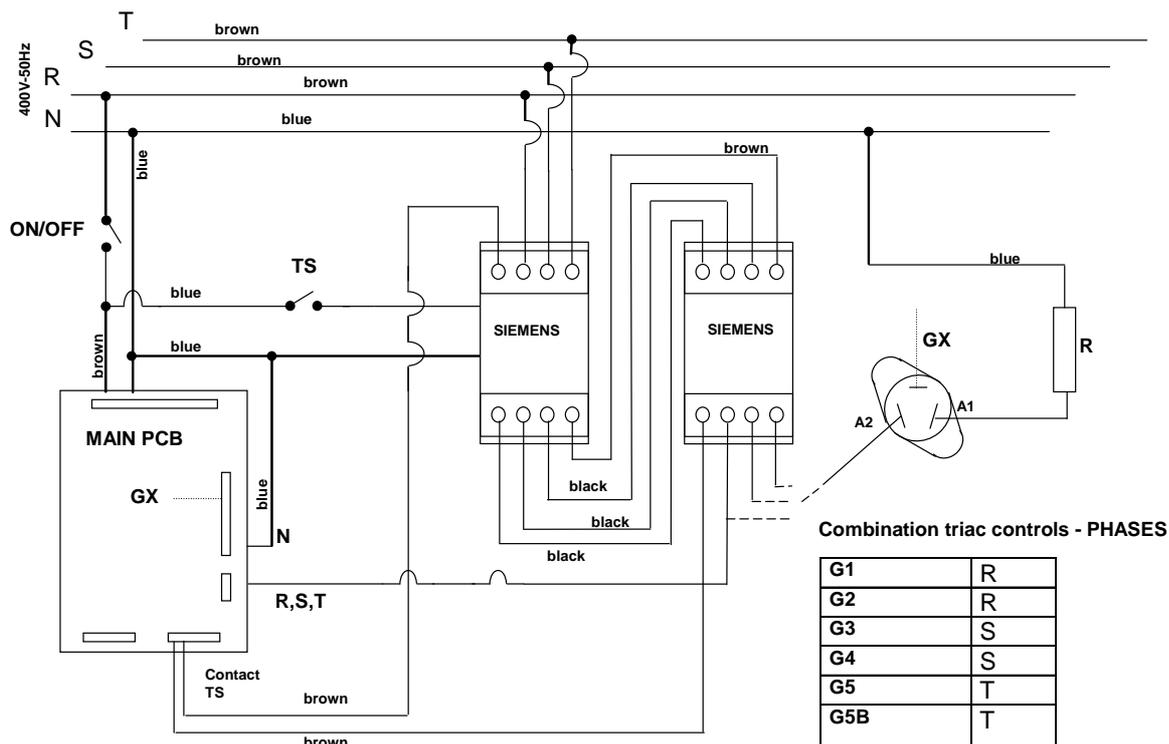


CONNECTING SCHEME





MAIN ELECTRIC SCHEME

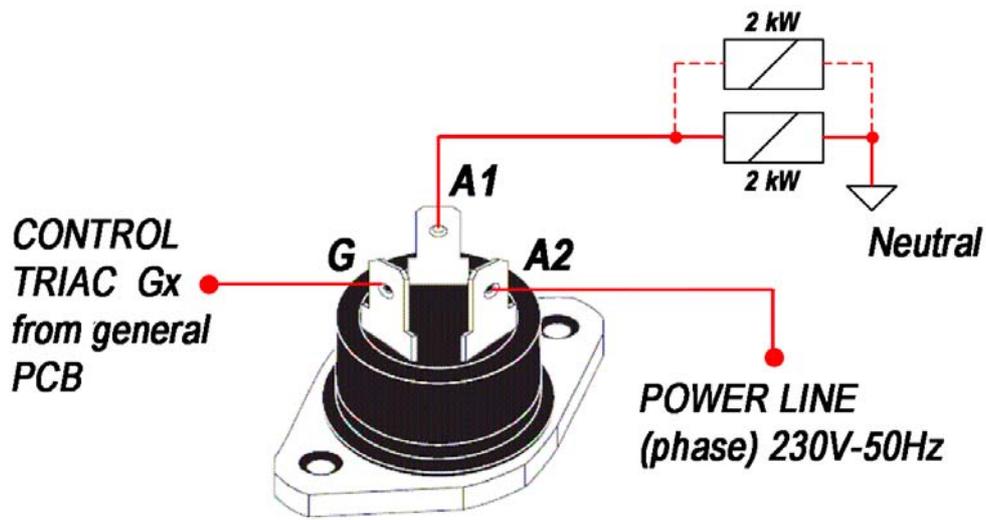


Legend electric scheme

Single phase	F
Neutral	N
Selected phase from contactor	RT-ST-TT
Electric pump (circolatore a prevalenza variabile)	PI
Control of contact TS on contactor of power (C-NO)	cTS
Control gate triac n°1 (4 KW power)	G1
Control gate triac n°2 (2 KW power)	G2
Control gate triac n°3 (4 KW power)	G3
Control gate triac n°4 (2 KW power)	G4
Control gate triac n°5 (4 KW power)	G5
Control gate triac n°5B (2 KW power)	G5B
Delivery heating probe (ntc sensor)	SM
External probe (sensor)	SE
Water pressure switch	PSA
Safety thermostat	TS
Room thermostat (terminal provided)	TA
Connection with remote control OpenTherm (optional)	OT
General switch (Also disconnects power to the board)	ON/OFF
Functional ground derived from the point ground	F.E.
Properly grounded point this application	PE



TRIAC – Connection scheme



GREEN electric wire from 4 point J5 plug	GATE G5B	TRIAC 5B (2 kW)	BLACK electric wire 2,5 mmq section ϕ
WHITE electric wire from 6 point J5 plug	GATE G2	TRIAC 2 (2 kW)	BLACK electric wire 2,5 mmq section ϕ
BLACK electric wire from 7 point J5 plug	GATE G3	TRIAC 3 (4 kW)	BLACK electric wire 4 mmq section ϕ
RED electric wire from 2 point J5 plug	GATE G4	TRIAC 4 (2 kW)	BLACK electric wire 2,5 mmq section ϕ
BROWN electric wire from 3 point J5 plug	GATE G5	TRIAC 5 (4 kW)	BLACK electric wire 4 mmq section ϕ
YELLOW electric wire from 5 point J5 plug	GATE G1	TRIAC 1 (4 kW)	BLACK electric wire 4 mmq section ϕ



MANUFACTURE CONSTANTS

Function	Value
Maximum temperature primary circuit	80 °C
Time of pump functioning in anti-lock	10 sec
Intervention time anti-lock pump	24 hour
Temperature antifreeze On (only circulator)	< 8 °C
Temperature antifreeze On (heat exchanger ignition)	< 5 °C
Temperature antifreeze Off	> 20 °C

SETPOINT AND PARAMETERS

Function	Default	Range
Heating setpoint	60 °C	30 ÷ 75 °C
Floor heating setpoint	30 °C	10 ÷ 40 °C
Room setpoint (with external probe present)	20 °C	10 ÷ 30 °C

PARAMETERS

Function	Display	Def.	Range
External probe start up	P : 1	0	0 – 1
Building coefficient of dispersion	P : 2	35	5 ÷ 35 °C
Sanitary post circulation	P : 3	15	1 ÷ 180 sec
Heating post circulation	P : 4	30	1 ÷ 180 sec
Heating exchanger circulation starting	P : 5	0	0 ÷ 240 sec
Min. ignition temperature circulator	P : 6	30	0 ÷ 50 °C
Delivery differential of sanitary	P : 7	15	0 ÷ 20 °C
Type kettle present	P : 8	0	0 = Internal probe 1 = External thermostat 2 = External probe
Type of sensor required tank	P : 9	0	0 = flow switch and three-way pneumatic 1 = flow meter and electric three-way
Application heated screed	P : 11	1	0 = Boiler 1 = Heated screed
Supply type	P : 12	1	0 = single-phase 1 = three-phase

TEMPERATURES

Function	Display
Delivery temperature	t :Ch
External temperature	t :EP
Offset setpoint of external probe	t :SE



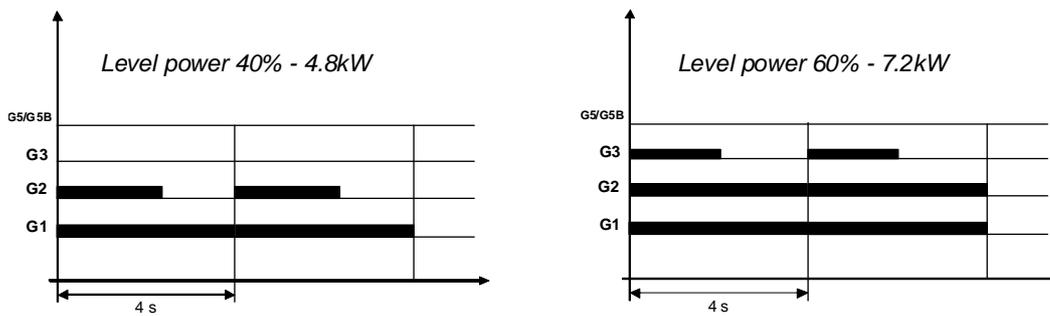
SELECTION JUMPERS (move the jumpers with no power board)



Jumper	0	1	Default
JP7	High temperature (radiator)	Low temperature (floor)	0
JP8	Combined	Heating only	0
JP9	Sanitary with tank	Sanitary instantaneous	0

CONTROL OF MAIN HEAT EXCHANGER (BOILER BODY)

According to the required power during the heat request, the controls by G1 to G3, G5 and G5B related to the main exchanger are turned on all or partially. The actuation of each control is reduced to a lapse of 4 seconds. Higher is the required power, more the control will remain operative in this lapse. The power in heating or during a sanitary request is calculated by PID algorithm. Please see in the pictures below two examples related to 40% and 60% of total power (12 kW).



Controls rotation

Every hour the order of ignition of triac G1÷G5B controls is rotated in such a way to partition evenly in time the use of all heating elements.



CONTROL OF EXTERNAL PROBE

Installation and functioning at sliding temperature

For the connection of the External Probe, it shall be used the Original Kit FIAMMA code F.532 provided in the accessories of the electric boilers Elektra. The electrical connection shall be done in the external terminal at the general electric panel already prearranged in the standard cabling of the boiler. The connection must be carried out with junction cables and wires having a minimum section of 1,5 mm and, if possible, avoiding the insertion along with electric lines, digital lines of inverter or other not compatible.



After the connection the external probe must be enabled by means of the introduction of a variation of **P1** parameter, changed from 0 to 1.

Then the setpoint chased by the heating delivery probe will be calculated as follows:

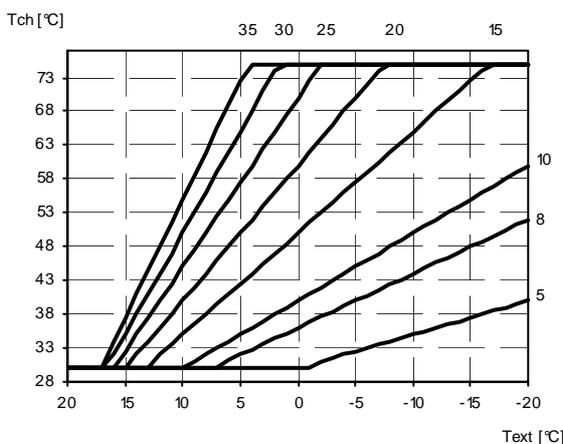
$$T_{ch} [^{\circ}\text{C}] = [(T_{room} [^{\circ}\text{C}] - T_{ext} [^{\circ}\text{C}]) * dc/10] + T_{room} [^{\circ}\text{C}]$$

T_{ch} : heating setpoint calculated by the system

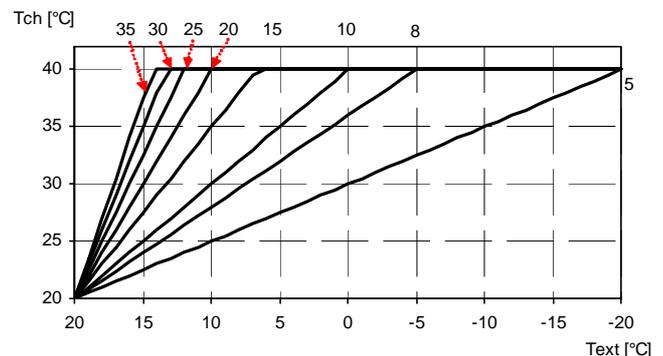
T_{room} : ambient temperature set by the user

T_{ext} : outside temperature measured by the probe

dc: dispersion coefficient of the building can be set by parameter **P2**.



Examples of curves with T_{room} set at 20°C and $JP7 = 0$



Examples of curves with T_{room} set at 20°C and $JP7 = 1$

ANTIFREEZE FUNCTION

In case the delivery probe measures a temperature lower than 7°C, the circulator is activated. If the temperature goes down the value of 4°C, the primary exchanger (boiler body) is turned on until bringing the outlet temperature to 20°C. The antifreeze function is active also with the boiler turned OFF (function in standby mode but with bright switch on).



REQUEST HEATING

*At the closing of the room thermostat contact, if the board is in winter mode, the system pump is only activated if the primary exchanger temperature is higher than the set temperature using the parameter **P6**. If the temperature value detected by the primary exchanger probe is lower than the flow temperature setpoint set, the triacs are turned on in sequence according to the power required. This only occurs after a time set by parameter **P5**, to allow for example the opening of eventual zone valves. The instantaneous power of the boiler and the control of the triac G1÷G5B is by PID controller. At the end of the request, the circulator remains powered for a time equal to the value set by parameter **P4**.*

ISTRUCTION PUMP

The pump consists of a hydraulic system, a wet rotor motor with permanent magnet rotor and an electronic control module with integrated frequency converter. The control module contains a control button, the pump is also equipped with an LED indicator to display the operating status of the pump.

Functions

All functions can be set, activated or deactivated using the command button.

Variable pressure difference ($\Delta p-v$):

The delivery value of the pressure difference is increased linearly between $\frac{1}{2} H$ and H in the permitted flow range. The value of the pressure difference generated by the pump is adjusted to the set delivery value. This control mode is particularly suitable for heating systems with radiators, since the flow noise on the thermostatic valves is reduced.

Difference of constant pressure ($\Delta p-c$):

The delivery value of the pressure difference H is maintained, within the permissible flow range, constantly on the set delivery value up to the maximum characteristic curve. This control mode is recommended for underfloor heating systems or older heating systems with large pipes, but also for all other applications that do not have variable plant characteristic curves, such as boiler drain

Degassing function

During the execution of the automatic venting function (10 min.) The pump works from time to time at low and high speed and transports the air formations out of the pump directly to the system vent valve.



Filling and venting

Fill and vent the system correctly. If direct venting of the rotor compartment is necessary, the venting function can be started manually. By turning the control button to the central position, to the vent symbol, the vent function is activated after 3 seconds.

The duration of the vent function is 10 minutes and is shown by the rapid flashing of the green LED. A certain noise may occur during the venting function.

The process can be interrupted at will by turning the button.

At the end of the 10 minutes the pump stops and automatically switches to the Δp -c max. setting mode.

Then you need to set the adjustment mode and prevalence if the pump does not have to continue to operate in Δp -c max mode.

NOTE: The vent function removes the air accumulated in the pump rotor compartment. This function does not affect the heating system.

Setting the adjustment mode

By turning the control button, the adjustment mode symbol is selected and the desired prevalence/constant speed is set.

Variable pressure difference (Δp -v):

To the left of the central position, the pump is set to Δp -v control mode.

Difference of constant pressure (Δp -c):

To the right of the central position, the pump is set to Δp -v control mode.



MEANING OF THE KEYS OF TEMPERATURE MENU

To log in temperature menu, press simultaneously **-||| (J3)** and **-⌂ (J5)** keys. The symbol  will appear on the display.

Key	Function
ON/OFF (J7)	Exit by temperature menu
+ (J2)	Temperature index increase
- (J3)	Temperature index decrease

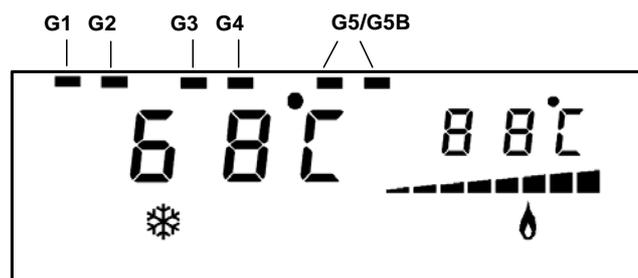
MEANING OF KEYS OF PARAMETERS MENU

To log in parameter menu, press simultaneously **+||| (J2)** and **+⌂ (J6)** keys for 4 seconds. The symbol  will appear on the display.

Key	Function
-⌂ (J5)	Parameter value decrease
+⌂ (J6)	Parameter value increase
ON/OFF (J7)	Exit by parameters menu
+ (J2)	Parameter index increase
- (J3)	Parameter index decrease

“Heating elements status”

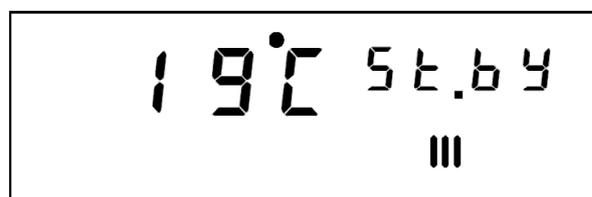
The dashes located in the upper part indicate the heating elements status. Every mark is equivalent to the triac reference: G1 (4 kW), G2 (2 kW), G3 (4 kW), G4 (2 kW), G5 (4 kW) and G5B (2 kW).



HEAD SCREEN APPLICATION

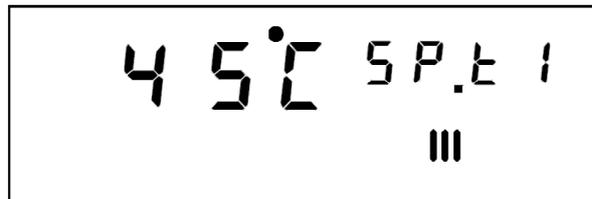
To select the use of the main board on application for screed heater, JP10 = 1 is used.

With the room thermostat open, the system displays the temperature measured by the probe of the primary exchanger and the operating state in which it is located (5t.b4 = stand-by).





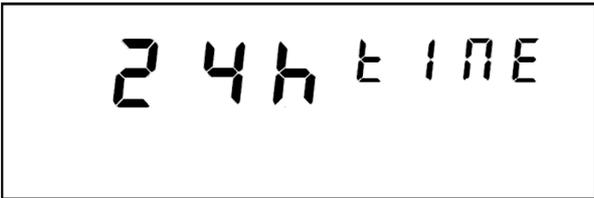
When the user closes the contact of the room thermostat, the system requests the setting of the system design temperature that will be used for the execution of the second part of the test (t. 1b = test 1 - second part) according to UNI EN 1264-4, paragraph 4.1.4, with a duration of 96 hours.



With the keys +III (J2) and -III (J3) you set the project value for the system, then when the **MODE** (J4) key is pressed, the system starts the first part of the test (t. 1a = test 1 - first part) or for 72 hours the delivery temperature is kept at a value of 23°C (from 20°C to maximum 25°C). The circulator is activated when the temperature of 20°C is exceeded (anti-condensation). When the circulator is not active, the system heats the main heat exchanger with a maximum power of 6 kW. The operating hours count is when the temperature measured by the primary exchanger probe has a value above 20°C and stops if it falls below this threshold. The system memorizes the elapsed test time with a resolution of 15 minutes. On the display the wording t. 1a alternates with the number of test hours performed (xxxx). When the temperature is below 20°C, the number of hours is replaced with the word " - - - " to indicate that the count is not advanced. The modulation bar is displayed at the end of the pre-heating phase of the primary exchanger.



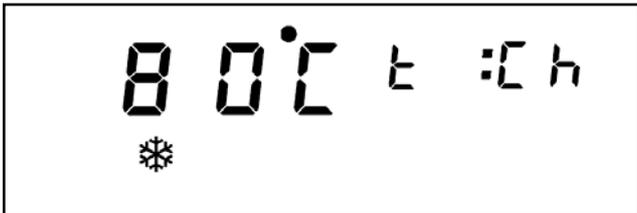
Once the 72 hours of testing have been completed, the system automatically modifies the set-point to be followed at the value set before starting the test (design temperature). The display shows that the second part of the test is being executed with the text t. 1b. The test hours counting continues from the value of 72 hours of the first part only if the temperature measured by the probe of the main heat exchanger is greater than or equal to the design temperature, the other way around the number of hours is replaced with the words " - - - " to indicate that the count does not advance. During this part of the test, the system follows the set-point value set to + 1°C and stops the power resistors if the measured temperature exceeds the set-point by 3°C. At the end of the 168 hours that make up the test 1 (72 hours for part a and 96 hours for b), the system stops the power resistors and the system circulator. At this point the user is asked to set a set-point in hours (t. 1c). This time is used, if necessary, for the continuation of the test (t. 2 test 2) at the design temperature of the system.



If you wish to continue with the second part of the test, set the set point in hours using the keys **+III (J2)** and **-III (J3)** and confirm the value set with **MODE (J4)**. The display shows that the second test is being carried out with the text **h. 2**. The count of the test hours starts again from zero and takes place only if the temperature measured by the probe of the main heat exchanger is higher than or equal to the design temperature, the other way around the number of hours is replaced with the word **"- - -"** to indicate that the count it does not advance. The circulator is activated when the temperature of 20°C is exceeded (anti-condensation). When the circulator is not active, the system heats the main heat exchanger with a maximum power of 6 kW. The modulation bar is displayed at the end of the pre-heating phase of the primary exchanger. At the end of the set time, the system stops the power resistors and the system circulator and displays the **hEEh End**. To allow the system to repeat the test, simply press the room thermostat or, using the **ON-OFF (J7)** key, switch off and on again. At any time the current test can be terminated by opening the room thermostat. At the new closing the system starts again from the beginning. In the event of a power failure, the system resumes from where it left off when it is restored.

“Temperature display”

On the small digits will show **" h :** " followed by the description of the selected temperature while the big digit will show the temperature value.



Function	Display
Delivery temperature	h :Ch
External temperature	h :EP
External probe offset setpoint	h :SE

“Parameters display”

Will show **" P :** " followed by the index of the selected parameter and the large value of the parameter.

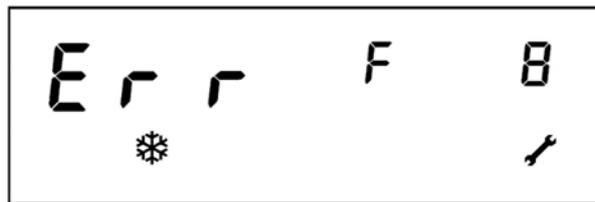




MALFUNCTIONING CODE

In the presence of anomalies shows " Err F X " where X is the corresponding error code.

Code "Err"	Meaning
F 9	Hardware EEPROM failure
F 1	Insufficient system water pressure
F 3	Boiler delivery probe error
F 8	Safety thermostat block. To restore press the ON / OFF (J7) system



RESET OF THE APPARATUS (RESET)

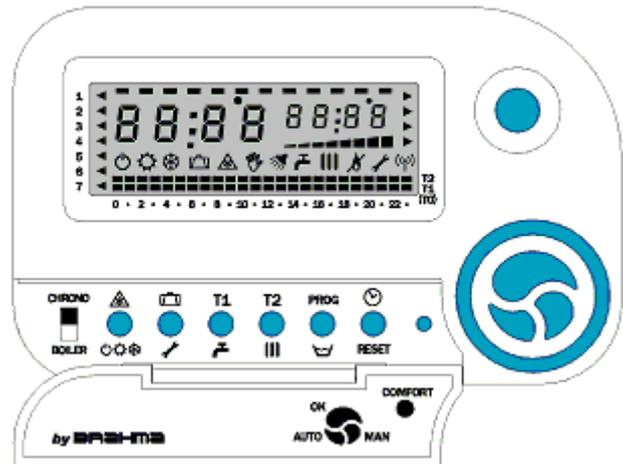
To unlock the device, press the **ON / OFF (J7)** button which also has the "Reset" function.





FUNCTIONING WITH REMOTE CONTROL ENCRONO OT1 or OT2

Elektra.. N 016, can be connected by means of its board and an additional module to install on a prearranged part, to a compatible remote control device **OpenTherm®**, like **Encrono OT1** or **OT2**. This can be obtained by means of the interface board (additional module). When the board finds the connection with the remote control, on the LCD display appears the symbol .



The compatible remote control **OpenTherm** becomes the master of the entire system, therefore almost all the functionalities, as the setting of heating and hot sanitary water set-point or the control of system status, are directly executable by it, in relation with the kind of application on which the board is used. By means of the remote control it is possible to restore (**RESET**) the system from the non-volatile lock status.

The communication between the remote control and the electronic board fitted with **D.E.S.** system can be interrupted in the following ways: Interruption of the connection between remote control and board: in this case, after 1 minute, the board starts to work in local mode.

Noise on communication cable between remote control and board: in this case it is possible that remote control and board do not manage to communicate (wrong data interpretation), therefore, after a certain lapse appears the related error signal. If the noise on the communication cable ends, the dialog between remote control and the board is automatically restored and the malfunction disappears.

TRANSPARENT PARAMETERS

This function is available only with the use of remote control **OT2**. The digital electronic PCB is equipped with 10 parameters adjustable by the installer, in order to set the functioning of the system in conformity to the final application. The parameters have the same meaning of the ones described in the table "parameters".



RANGE OF SETPOINT ADJUSTABLE BY MEANS OF REMOTE CONTROL

<i>Interval of temperature setting with high temperature system (JP7 = 0)</i>	<i>30 °C÷75 °C - step 1 °C Pre-set value: 60 °C</i>
<i>Interval of temperature setting with low temperature system (JP7 = 1)</i>	<i>15 °C÷40 °C - step 1 °C Pre-set value: 30 °C</i>

FUNCTIONING OF BOILER ELEKTRA WITH REMOTE CONTROL

The actuation of heating mode takes place after an heating request from remote control (value of heating setpoint calculated by remote control higher than heating setpoint set by the user on remote control divided by two) and in the winter mode status. It also enabled the relay which controls the valve opening area managed by Enchrone.

CONTROL PANEL IN USER MODE

The pressure of one key/two keys activated the backlighting of LCD display.

Key	Function
-⌂ (J5)	<i>Disabled in Opentherm mode</i>
+⌂ (J6)	<i>Disabled in Opentherm mode</i>
ON/OFF (J7)	<i>Unlock error of safety thermostat - exit temperature visualization</i>
MODE (J4)	<i>Disabled in Opentherm mode</i>
+ (J2)	<i>Disabled in Opentherm mode</i>
- (J3)	<i>Disabled in Opentherm mode</i>

CONTROL PANEL IN TEMPERATURE MENU

The buttons have the same operation described in "Meaning of the keys of temperature menu".

CONTROL PANEL IN THE MENU PARAMETERS

The buttons have the same operation described in "Meaning of keys of parameters menu".

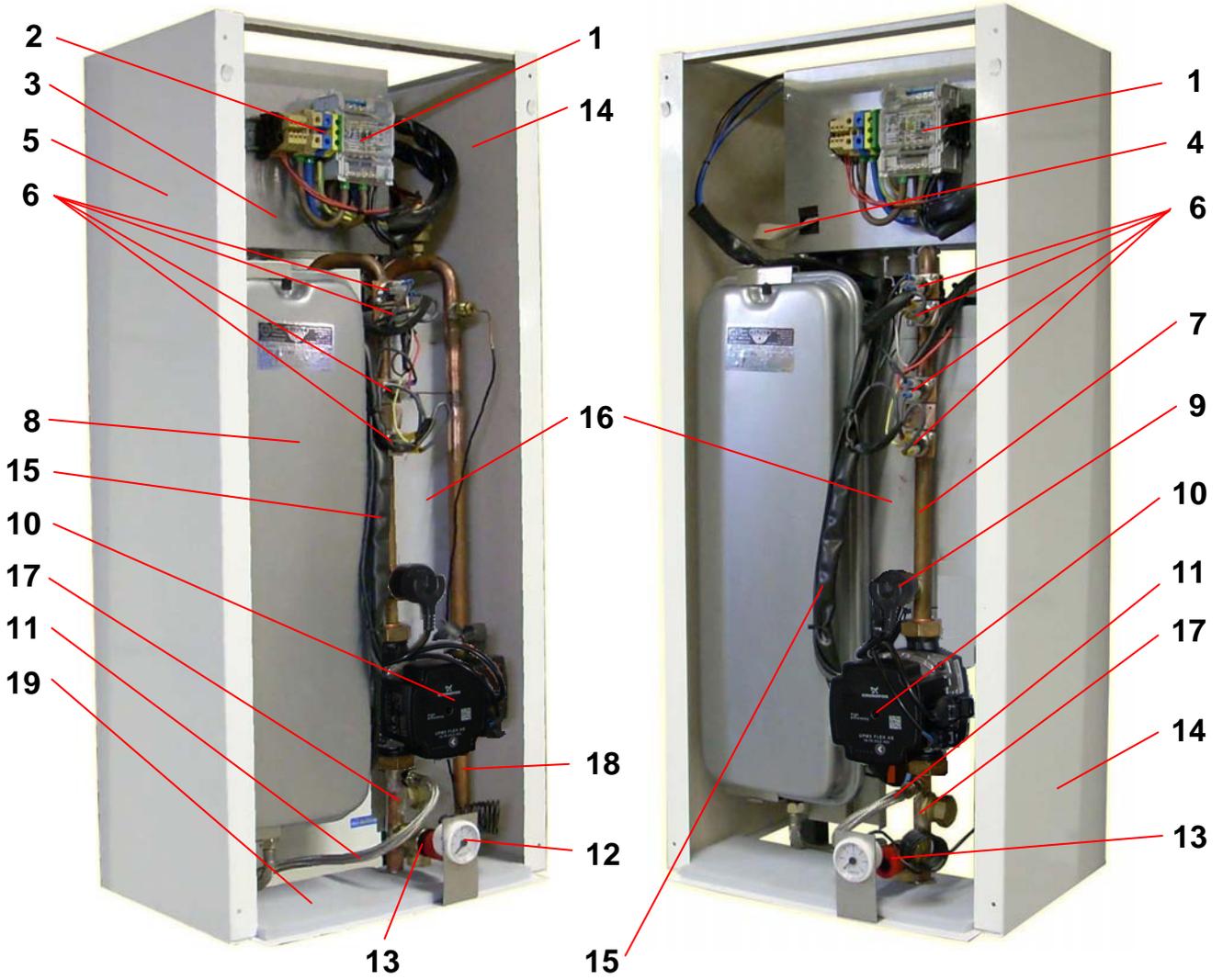
DISPLAY OF MALFUNCTIONS

Code "Err"	Meaning
F 009	<i>Hardware EEPROM failure</i>
F 001	<i>Insufficient system water pressure</i>
F 003	<i>Boiler delivery probe error</i>
F 008	<i>Safety thermostat block. To restore press the ON / OFF (J7) system</i>

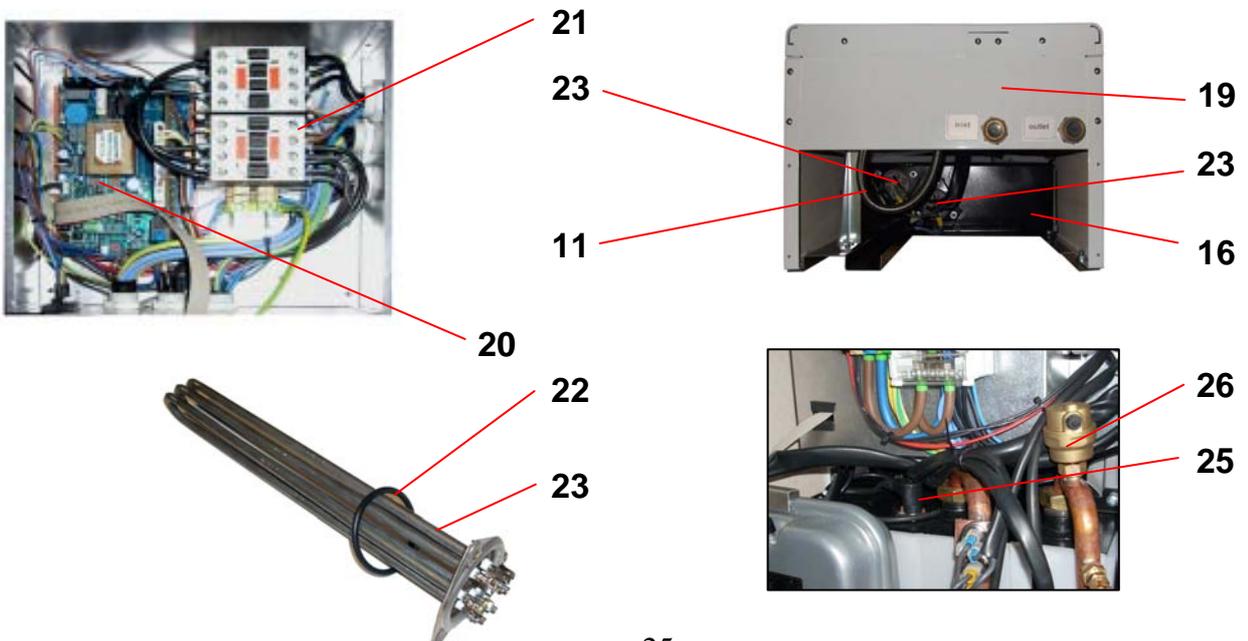
For further details related to remote controls series OT1 / OT2, please see the related technical specifications.



SPARE PARTS

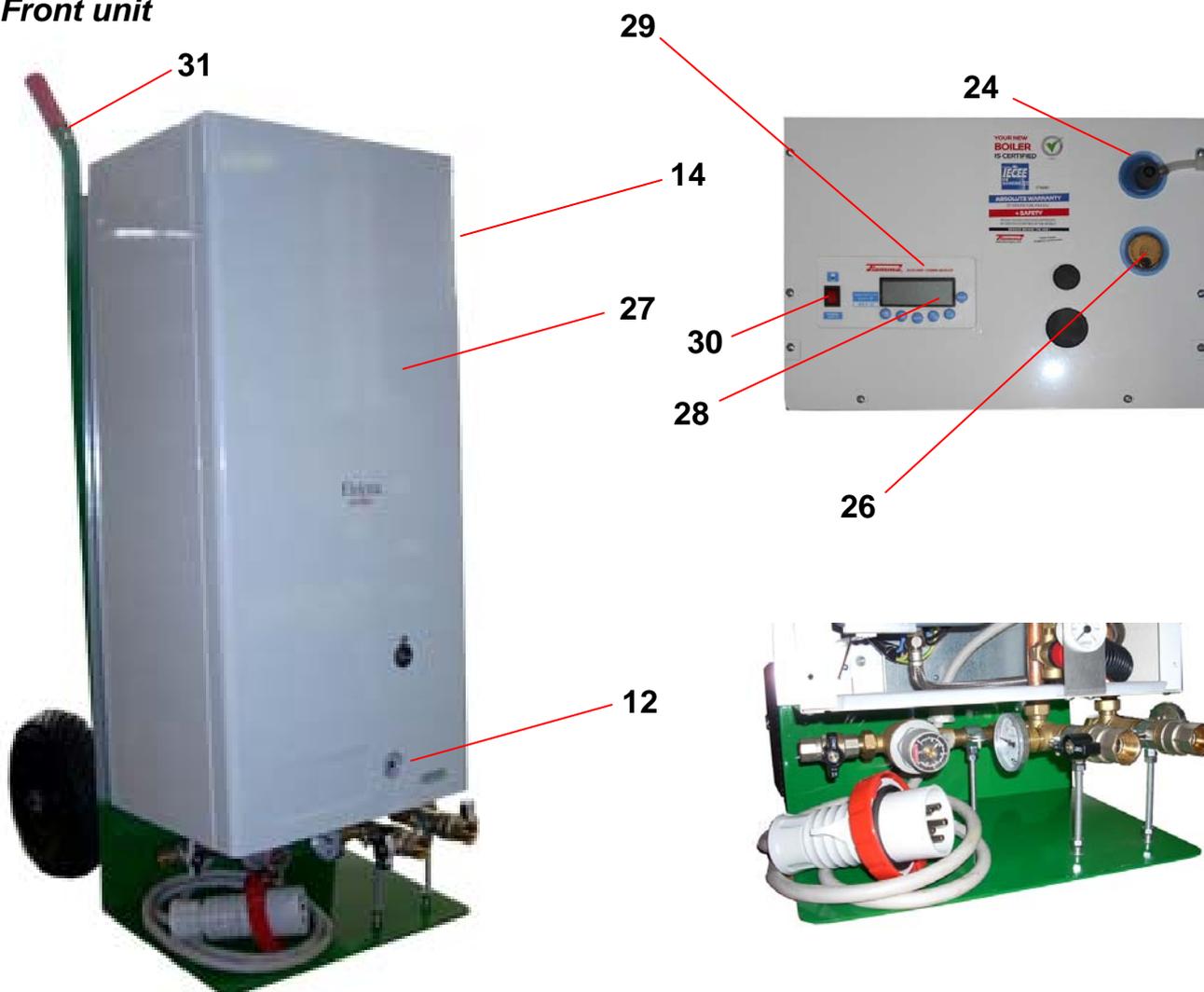


3 Particular - Upper particular / resistance / Boiler body / resistances





Front unit



Spare parts - Legend

1	<i>Tetrapolar terminal block for Elektra 12/18.....</i>	<i>Cod.P.2054</i>
	<i>Tetrapolar terminal block for Elektra 24.....</i>	
2	<i>Terminal of the electric supply line 230-240 V (Ph).....</i>	<i>Cod.P.2073</i>
	<i>Terminal of the electric supply line 230-240 V (blue - N).....</i>	<i>Cod.P.2072</i>
	<i>Terminal line of electrical ground (yellow/green).....</i>	<i>Cod.P.2074</i>
3	<i>General electric box (panel circuit board / contactor).....</i>	
4	<i>Flat cable connection LCD display</i>	<i>Cod.P.2095</i>
5	<i>Left side panel of casing</i>	<i>Cod.P.2030</i>
6	<i>Triac of electric power (40 A - 600 V).....</i>	<i>Cod.P.2293</i>
7	<i>Return tube heat exchanger-pump</i>	<i>Cod.P.2037</i>
8	<i>Expansion vessel 8 liters N/BP 6 kW version.....</i>	<i>Cod.P.289</i>
	<i>Expansion vessel 10 liters N/C/BP 12/18/24 kW version.....</i>	<i>Cod.P.1846</i>
9	<i>Water pressure switch (minimum pressure)</i>	<i>Cod.P.7623</i>
10	<i>Circulator at variable prevalence (electronic pump).....</i>	<i>Cod.P.1953</i>
11	<i>Flexible tube for expansion vessel.....</i>	<i>Cod.P.1572</i>
12	<i>Hydrometer.....</i>	<i>Cod.P.141</i>
13	<i>Heating safety valve 0,3 MPa (3 bar).....</i>	<i>Cod.P.158</i>



14	<i>Right side panel of casing</i>	<i>Cod.P.2029</i>
15	<i>Electrical wiring</i>	<i>Cod.P.7500</i>
16	<i>Body boiler Elektra 6/12 N/C/B/BP-L</i>	<i>Cod.F.1955</i>
	<i>Body boiler Elektra 18 N/C/B/BP-L</i>	<i>Cod.F.1956</i>
	<i>Body boiler Elektra 24 N/C/B/BP-L</i>	<i>Cod.F.1957</i>
17	<i>Return tube (heating plant-dima)</i>	<i>Cod.P.2042</i>
18	<i>Outlet tube hot water heating plant-boiler body</i>	<i>Cod.P.2079</i>
19	<i>Lower panel (lower grid)</i>	<i>Cod.P.2139</i>
20	<i>PCB of operating Elektra N/C/B/BP</i>	<i>Cod.P.2057</i>
21	<i>Contactor of power for Elektra 6</i>	<i>Cod.P.2103</i>
	<i>Contactor of power for Elektra 12</i>	<i>Cod.P.2153</i>
	<i>Contactor of power for Elektra 18</i>	<i>Cod.P.2104</i>
	<i>Contactor of power for Elektra 24</i>	<i>Cod.P.2101</i>
22	<i>O-ring gasket for 3x2 kW electrical resistance for Elektra</i>	<i>Cod.P.2078</i>
23	<i>Electrical resistance 3x1 kW Elektra 6</i>	<i>Cod.P.7410</i>
	<i>Electrical resistance 3x2 kW Elektra 12/18/24</i>	<i>Cod.P.2718</i>
24	<i>Drain tap ¼” for Elektra.. boiler/tank</i>	<i>Cod.P.2190</i>
25	<i>Contact safety thermostat 100°C Elektra</i>	<i>Cod.P.1195</i>
26	<i>Automatic bleed valve (jolly)</i>	<i>Cod.P.7650</i>
27	<i>Front panel Elektra Trolley</i>	<i>Cod.P.2131</i>
28	<i>Display Lcd (Lcd PCB)</i>	<i>Cod.P.1763</i>
29	<i>Instrument panel of Trolley (profil+lexan keyboard P.2099)</i>	<i>Cod.P.2164</i>
30	<i>Lighting general switch (on-off switch)</i>	<i>Cod.P.1099</i>



FIAMMA
GAS & ELECTRIC BOILER



**DICHIARAZIONE DI
 CONFORMITA'**



**DECLARATION OF
 CONFORMITY**

In accordo con - *According to:*

- 2006/95/EC** Direttiva Bassa Tensione (BT) – *Low Voltage Directive (LVD).*
2004/108/EC Direttiva Compatibilità Elettromagnetica - *Electromagnetic compatibility Directive (EMC).*
2011/65/EU Direttiva restrizione uso di determinate sostanze pericolose in apparecchiature elettriche ed elettroniche - *Directive on the restriction of use of certain hazardous substances (RoHS).*
1935/2004 Regolamento riguardante i materiali e gli oggetti destinati a venire a contatto con i prodotti alimentari – *Regulation on materials and articles intended to come into contact with food.*
2009/125/EC Direttiva progettazione ecocompatibile dei prodotti connessi all'energia - *Ecodesign requirements for energy-related products (ErP).*

e successive modifiche - *and further amendments.*

N° di identificazione - <i>Identification No. :</i>	Vedi numero di matricola / <i>See the serial number</i>
Costruttore - <i>Manufacturer :</i>	FIAMMA GIRO s.r.l.
Indirizzo- <i>Address :</i>	via L. Landucci n°.2/B - 51100 PISTOIA ITALY
Telefono - <i>Telephone :</i>	(+39).0573.532812
Telefax – <i>Telefax :</i>	(+39).0573.532890
Tipo di apparecchio - <i>Type of equipment :</i>	Caldaia murale elettrica / <i>Electric wall boiler</i>
Marchio commerciale - <i>Trademark :</i>	 (dicitura FIAMMA / FIAMMA marked)
Tipo / Modello – <i>Type / Model :</i>	Vedi Modello su targhetta dati / <i>See the model in data code</i> ELEKTRA 6-12-18-24 .. <i>ELEKTRA 6-12-18-24 ..</i>

Le norme armonizzate o le specifiche tecniche (designazioni) che sono state applicate in accordo con le regole della buona arte in materia di sicurezza in vigore nella CEE sono :

The following harmonised standards or technical specifications (designations) which comply with good engineering practice in safety matters in force within the EEC have been applied :

Norme o altri documenti normativi <i>Standards or other normative documents</i>	Rapporto di collaudo - Schede tecniche <i>Test report-Technical file</i>
EN 60335-2-21	Nr. AG14S0228076-01
EN 62233	
EN 61000-3-11 ; EN 61000-3-12	
EN 55014-1 ; EN 55014-2	

Le caldaie della serie Elektra... sono certificate CB con documento n°.IT-16587.
The boilers of the Elektra series are CB certified with document number IT-16587.



In qualità di costruttore e/o rappresentante autorizzato della società all'interno della CEE, si dichiara sotto la propria responsabilità che gli apparecchi sono conformi alle esigenze essenziali previste dalle Direttive su menzionate.
As the manufacturer's authorised representative established within EEC, we declare under our sole responsibility that the equipment follows the provisions of the Directives stated above.

Pistoia ,01/10/2015

Giro Luca
 presidente consiglio di amministrazione
 Board Chairman of administration



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