RADIANT®

Heating technology since 1959

Instruction Manual
for model

RAIN 30 E/R

External wall mounted heating only boiler

CE 0694

RAIN 30 E.R - RAD - ING - MAN.INST - 1605.1 - DIGITECH - AUSTRALIA

Technical specification **RADIANT BRUCIATORI S.p.A.** Montelabbate (PU)

Australian
HYDRONIC SUPPLIES
HYDRONIC HEATING EQUIPMENT

This appliance is supplied by
Australian Hydronic Supplies Pty Ltd
PO Box 8609
Carrum Downs, Victoria 3201

ABN: 83 123 887 267

Phone: (03) 9708 2600
Fax: (03) 9708 2700

E-mail: admin@hydronicsupplies.com.au
sales@hydronicsupplies.com.au

Website: www.hydronicsupplies.com.au

6. **Maintenance** (authorised personnel)

1. GENERAL INFORMATION

1.1 General warnings

⚠ **Professionally qualified authorised in accordance with current laws and standards and in line with the manufacturer's instructions must install the appliance.**

⚠ **With 'Professionally qualified authorised is intended a personnel with technical knowledge in the field of installation and maintenance of components for central heating water production system for domestic and industrial use.**

⚠ **The appliance must be used solely for the purpose for which it has been designed and manufactured: central heating water production. Any other use is deemed as improper and as such dangerous. Under no circumstances will the manufacturer be held responsible for damage or injury to persons or animals caused by errors in the installation and/or use of the appliance, or through non-compliance with current local and national standards and/or the manufacturer's instructions.**

⚠ **The installation, operation and maintenance manual forms an integral and essential part of the product and must be kept near the appliance always.**

⚠ **This manual must be kept in a safe place and made available for any future reference. If the appliance is sold or transferred to a different owner, this must follow the appliance to be red by the new owner and/or installer.**

⚠ **The warnings contained in this chapter have been written for the appliance user, the installer and the service engineer or authorised person.**

⚠ **The user manual must be read carefully as it provides information on the operation and the operating limits of the appliance.**

⚠ **This appliance must be used exclusively in a pressurised central heating system, not suitable for use as a pool heater.**

- After the removal of all the packaging, check that the appliance has not been damaged. In case of doubt, do not attempt to use the product but refer to the supplier. Packing materials (cardboard box, wooden crate, nails, staples, plastic bags, polystyrene, etc.) must not be left within reach of children in that these items represent a potential hazard and must be disposed of in a responsible manner.
- Before carrying out any cleaning or maintenance operations, disconnect the appliance from the mains electricity supply by switching off at the main switch and/or any other isolating device.
- Do not obstruct the air intake or flue exhaust grills.
- Do not obstruct the air intake or flue exhaust terminals.
- In the case of a fault and/or malfunction in the appliance, shut down the system. Do not interfere with or attempt any repairs. Call for professionally qualified technical assistance only.
- Any warranty repairs to the appliance must be carried out exclusively by the manufacturer's authorised service centre using original spare parts. Non-compliance with the above requirements may compromise the safety of the appliance and invalidate the warranty. In order to guarantee the efficiency of the appliance and its correct operation, it must be serviced regularly by professionally qualified personnel in line with the manufacturer's instructions.
- When the appliance is no longer required for use, any parts that may constitute potential sources of danger must be rendered harmless.
- Only original accessories or optional extras (including electrical parts) must be used with the appliance.
- Should there be a smell of gas present in the room where the appliance is installed, **DO NOT** attempt to activate any electric switches, telephones or any other equipment that may cause sparks. Open doors and windows immediately to create a current of air and ventilate the room. Shut-off the main gas supply valve (at the meter), or on the cylinder in the case of bottled gas, and call an authorised service centre.
- **Do not attempt to interfere with or modify the appliance in any way.**

- As dictated by current legislation, this appliance **must be installed exclusively by qualified authorised.** Before starting the boiler for the first time, make sure that it is connected to a water supply and central heating system compatible with its performance characteristics.
- The room must be ventilated in accordance with AS/NZS5601 by means of an air intake positioned at floor level and protected with a grill. Make sure the grill does not reduce the passage section.
- The air inflow from adjacent rooms is allowed providing that those rooms are in depression with respect to the atmosphere and that **there are not fireplace or fan installed**. When the appliance is installed outdoor, i.e. on balcony or terrace, make sure it is not directly exposed to atmospheric agents / conditions to prevent any damage to components which would lead to a warranty invalidation. It is recommended to provide the boiler with a protective casing/box against bad whether conditions.
- **Check the gas type and technical data reported on the packing and on the rating plate** located on the inside of the front casing. Also check that the burner is appropriate for the type of gas to burn.
- **Make sure that the pipes and fittings used for the gas service are installed in accordance with AS/NZS5601 perfectly tight and that there are no gas leaks**.
- Prior to start-up, the central heating pipes should be flushed to remove any residues that could compromise the operation of the appliance.
- The appliance can be regarded as being electrically safe when it has been connected to an efficient earth system installed in accordance with the requirements of current electrical safety standards. This fundamental safety requirement must be checked and verified. In case of doubt, have the electrical system checked by a qualified electrician. The manufacturer will not be held liable for any damage or injury caused as a result of an ineffective or non-existent earth system.
- The domestic power supply must be checked by a qualified electrician to ensure that it can support the maximum power absorption of the appliance, as indicated on the appliance data plate (positioned on the inside of the front casing). In particular, make sure that the cable ratings are adequate for the power absorbed.
- Do not use adapters; multiple sockets or extension leads to connect the appliance to the mains power supply.
- The appliance must be connected to the mains power supply through an appropriate electrical isolator in accordance with the current wiring regulations.
- When using an electrical appliance, a few fundamental rules must be observed:
- Do not touch the appliance with damp or wet parts of the body or when barefoot
- Do not pull on the electric wires
- Do not leave the appliance exposed to atmospheric elements (rain, sun, etc,) unless these conditions have been expressly provided for.
- Do not allow the appliance to be used by children or anyone unfamiliar with its operation.
- The user must not replace the power supply cable.
- If the cable is damaged in any way, switch off the appliance and have the cable replaced by a suitably qualified electrician.
- **When the appliance is no longer required for use, switch off the main power supply, to switch all electrical components off (circulating pump, burner etc.)**

1.2 Product conformity

RADIANT BRUCIATORI S.p.A. declares that all its products are manufactured to a high specification and in compliance with the relevant standards.

All **RADIANT** boilers are **CE** certified and possess technical and functional characteristics that comply with the following standards:

UNI EN 297 for GAS-FIRED CENTRAL HEATING BOILERS TYPE B OF NOMINAL HEAT INPUT ≤ 70 kW

EN 483 for GAS-FIRED CENTRAL HEATING BOILERS TYPE C OF NOMINAL HEAT INPUT ≤ 70 kW

UNI EN 677 for GAS-FIRED CENTRAL HEATING BOILERS. SPECIFIC REQUIREMENTS FOR CONDENSING BOILERS WITH NOMINAL HEAT INPUT ≤ 70 kW

Gas fired boilers also comply with the following directives:

GAS APPLIANCES DIRECTIVE 90/396 CEE for CE compliance

LOW VOLTAGE DIRECTIVE 2006/95 CEE

ELECTROMAGNETIC COMPATIBILITY DIRECTIVE 2004/108 CEE

BOILER EFFICIENCY DIRECTIVE 92/42 CEE

The materials used such as copper, brass, stainless steel, etc. form a compact, homogeneous, highly functional unit that is easy to install and simple to operate. In its simplicity, the wall-mounted appliance is equipped with all the appropriate accessories required to make it a fully independent boiler capable of satisfying central heating needs. All boilers are fully inspected and are accompanied by a quality certificate, signed by the inspector, and a guarantee certificate. This manual must be kept in a safe place and must **accompany the boiler at all times.**

RADIANT BRUCIATORI S.p.A. will not be held responsible for any misinterpretation of this manual resulting from the inaccurate translation of same.

RADIANT BRUCIATORI S.p.A. will not be held responsible for the consequences in the case of non-observance of the instructions contained in this manual or in the case where actions not specifically described herein are undertaken.

Radiant Bruciatori S.p.A. declare that no substances harmful to health are contained in the appliance or used during appliance manufacture and have not used or intend to use any of the following substances in the manufacture of Radiant heating products.

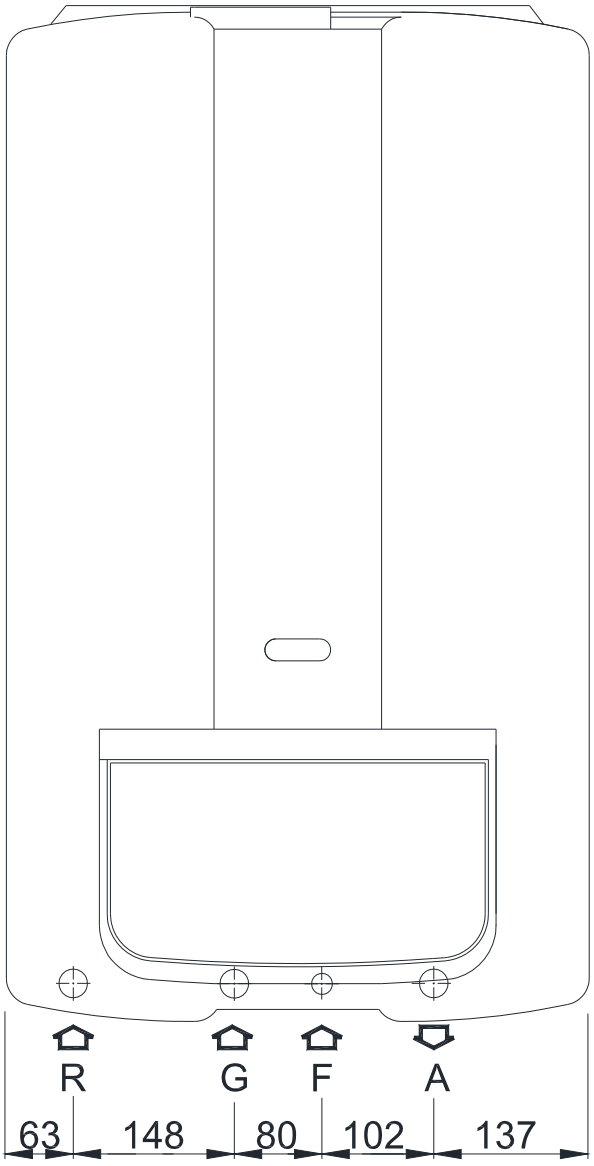
- **Asbestos**
- **Mercury**
- **CFC's.**

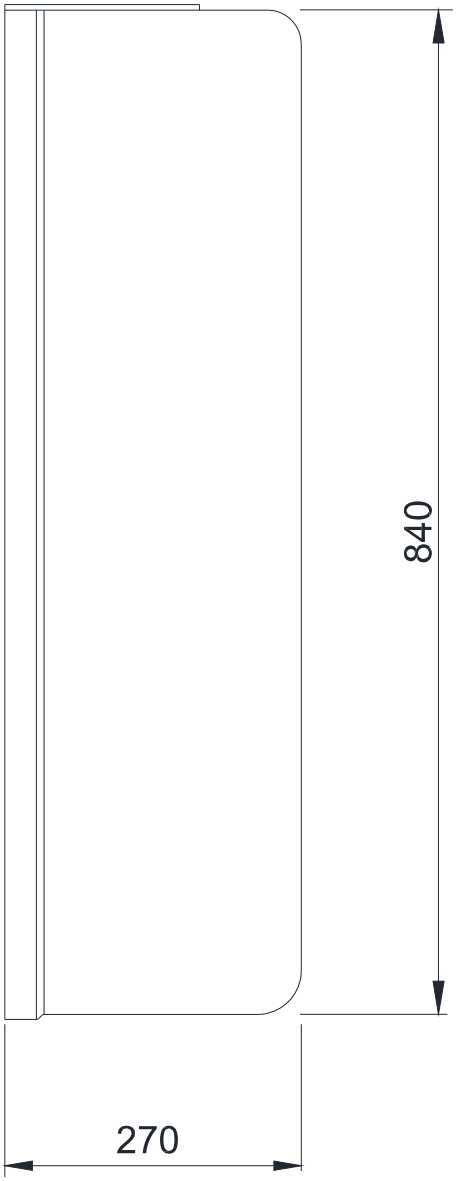
2. TECHNICAL CHARACTERISTICS

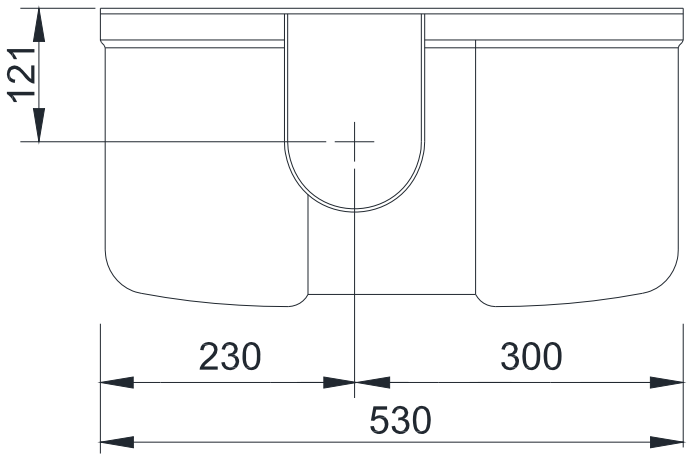
2.1 Technical data

Model		**RAIN 30 E/R**
Heat Input max	kW	34.5
Heat Input min	kW	19
Heat Output max	kW	32.36
Heat Output min	kW	17.21
Efficiency 100% (full load)	%	93.80
Efficiency 30% (partial load)	%	91.80
GAS DIRECTIVE 92/42/ECC - Efficiency marking	stars	3
NOx class (European Standard UNI EN 297 – pr A5)	class	2
Central Heating circuit		
Central Heating water temperature setting (min-max)	°C	30-80
Max. heating working temperature	°C	80
Max. working pressure (heating)	litres	3
Min. working pressure (heating)	bar	0.3
Expansion vessel capacity	bar	7
Dimensions (Boiler casing size)		
Width	mm	530
Height	mm	840
Depth	mm	270
Weight (net)	kg	44
Hydraulic connections		
Central heating flow connection	Ø	3/4”
Central heating return connection	Ø	3/4”
Cold water mains connection	Ø	1/2”
Gas connection	Ø	3/4”
Flue systems		
Horizontal flue system – kit E	Ø mm	80
Max. Flue length	mm	15
Vertical flue system – kit F	Ø mm	80
Max. Flue length	mm	3
Gas Supply		
Natural Gas		
Test point pressure (main burner jets Ø 1.35 mm)	kPa	0.75
Gas consumption	MJ/h	137
Universal LPG		
Test point pressure (main burner jets Ø 0.78 mm)	kPa	2.50
Gas consumption	MJ/h	132
Electrical supply		
Power supply	V/Hz	230/50
Electrical power consumption	W	155
Electrical protection	IP	X4D

2.2 Dimensions



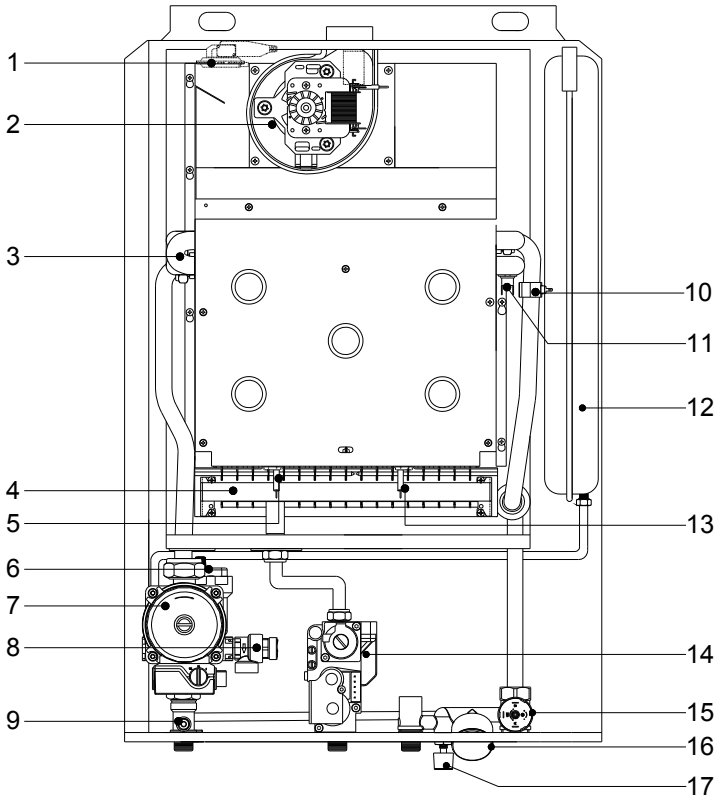




LEGEND

R	HEATING RETURN	Ø3/4”
A	HEATING FLOW	Ø3/4”
G	GAS	Ø3/4”
F	COLD WATER INLET	Ø1/2”

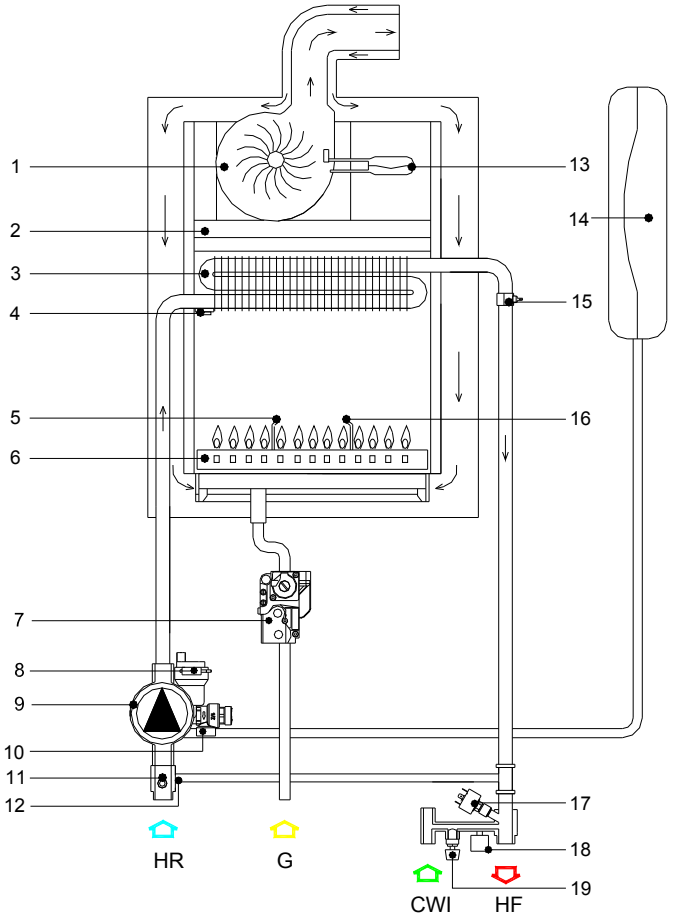
2.3 Internal parts of the boiler



LEGEND

1. AIR PRESSURE SWITCH
2. FAN
3. HEAT EXCHANGER
4. MULTIGAS BURNER
5. IGNITION ELECTRODE
6. AUTOMATIC AIR VENT
7. CIRCULATION PUMP
8. HEATING CIRCUIT 3 bar PRESSURE RELIEF VALVE
9. SYSTEM DRAIN VALVE
10. HEATING SENSOR
11. HEATING SAFETY THERMOSTAT
12. EXPANSION VESSEL
13. IGNITION TRANSFORMER
14. ELECTRONIC GAS VALVE
15. WATER PRESSURE SWITCH
16. WATER PRESSURE GAUGE
17. FILLING TAP

2.4 Water circuit



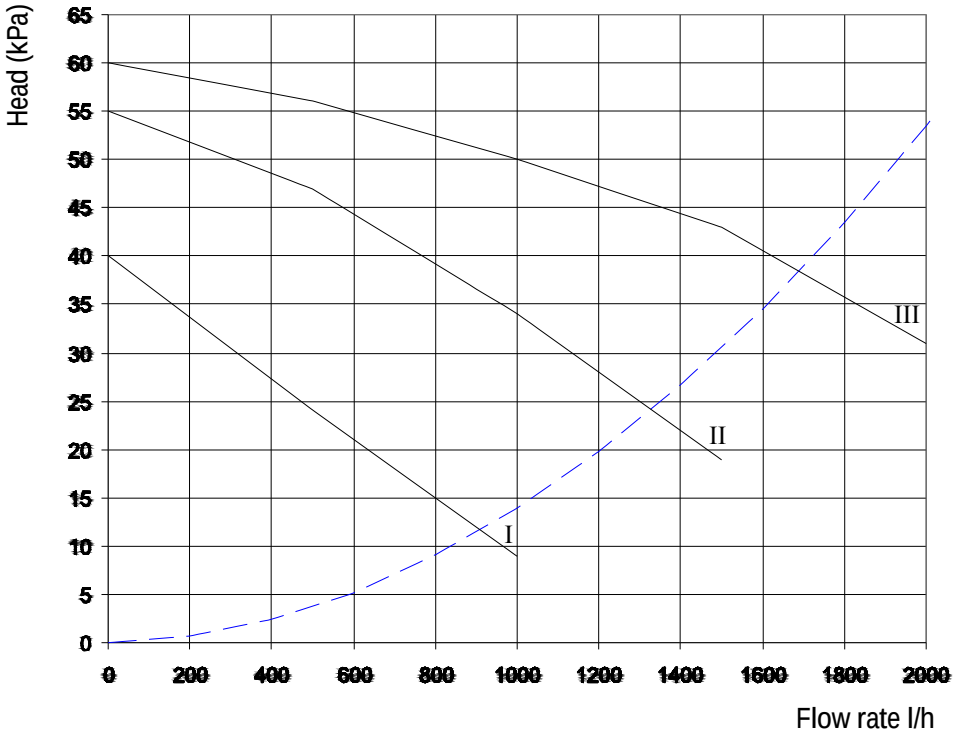
LEGEND

HR HEATING RETURN		**CWI**	COLD WATER INLET
HF HEATING FLOW		**G**	GAS

LEGEND

1. FAN
2. FLUE HOOD
3. HEAT EXCHANGER
4. HEATING SAFETY THERMOSTAT
5. IGNITION ELECTRODE
6. MULTIGAS BURNER
7. ELECTRONIC GAS VALVE
8. AUTOMATIC AIR VENT VALVE
9. CIRCULATING PUMP
10. HEATING CIRCUIT 3 bar PRESSURE RELIEF VALVE
11. SYSTEM DRAIN VALVE
12. AUTOMATIC BY-PASS
13. AIR PRESSURE SWITCH
14. EXPANSION VESSEL
15. HEATING SENSOR
16. FLAME IONISATION ELECTRODE
17. WATER PRESSURE SWITCH
18. WATER PRESSURE GAUGE
19. FILLING TAP

2.5 Circulation pump head/flow graph



III Available head at maximum speed

II Available head at second speed

I Available head at minimum speed

Appliance losses

2.6 DIGITECH® printed circuit board - SM 20019

Technical characteristics

Adjustments possible by service personnel only

- Standard (30/80°C) / reduced (25-40°C) central heating temperature
- Central Heating timer - (adjustable from 0 to 7,5 minutes)
- Central Heating pump overrun timer
- Minimum Gas pressure setting
- Maximum Heating Load

User settings

- On/Off
- Heating Temperature setting (30-80°C) – (25-40°C)
- Summer only mode / Winter only mode / Summer + Winter mode selection

Operation/Functions display

- Lock-Out
- Water deficiency indicator
- Temperature display

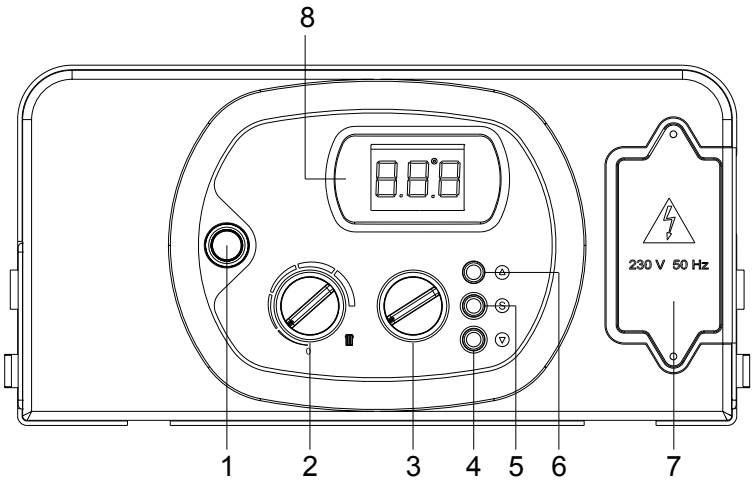
➔ ***When the boiler is switched off at the switch on the control panel, the word OFF appears on the display. The central heating frost protection system, nevertheless, remain enabled. If the boiler was previously on, it is switched off and the post-ventilation, pump overrun and circulation pump inactivity protection functions are enabled.***

➔ ***The remote control, where fitted, remains active and illuminated.***

2.7 Control panel

LEGEND

1. ON/OFF BUTTON
2. HEATING TEMPERATURE CONTROL KNOB
3. NOT OPERATIVE KNOB.
4. OUTSIDE TEMPERATURE DISPLAY (ONLY WITH OPTIONAL OUTDOOR SENSOR).
5. SERVICE BUTTON.
6. WINTER MODE SELECTION BUTTON.
7. TERMINAL BOARD FOR EXTERNAL WIRING.
8. TEMPERATURE, ERROR CODE AND OPERATING STATUS DISPLAY .



3. INSTALLATION (authorised personnel)

3.1 Reference standard

This appliance meets the requirements of:
AS 4552-2005 Gas fired water heaters for Hot water supply and/or Central Heating

- IPX4D rating for electrical appliances.
- EMC DIRECTIVE 89/336 CEE
- LVD DIRECTIVE 73/23 CEE
- BOILER EFFICIENCY DIRECTIVE 92/42 CEE

Failure to install a gas appliance correctly and in accordance with the above norms could lead to prosecution. It is in the interest of the installer and safety that the law is complied with.
The manufacturer's instructions form an integral part of the installation and should be left with the appliance but do not over ride in anyway statutory obligations.

3.2 Installation requirements

Please refer to local and national standards in force in the Country of destination of the product. In particular the manufacturer recommends: Installation must be in accordance with the following; Manufacturer's installation instructions, AS5601.1 'gas installations' for installation and pipe sizing, local gas fitting regulations, Municipal building codes, Local electrical regulations and any other Statutory regulation.

For Australia – refer to AS 5601 and local authority for minimum clearances as illustrated below:

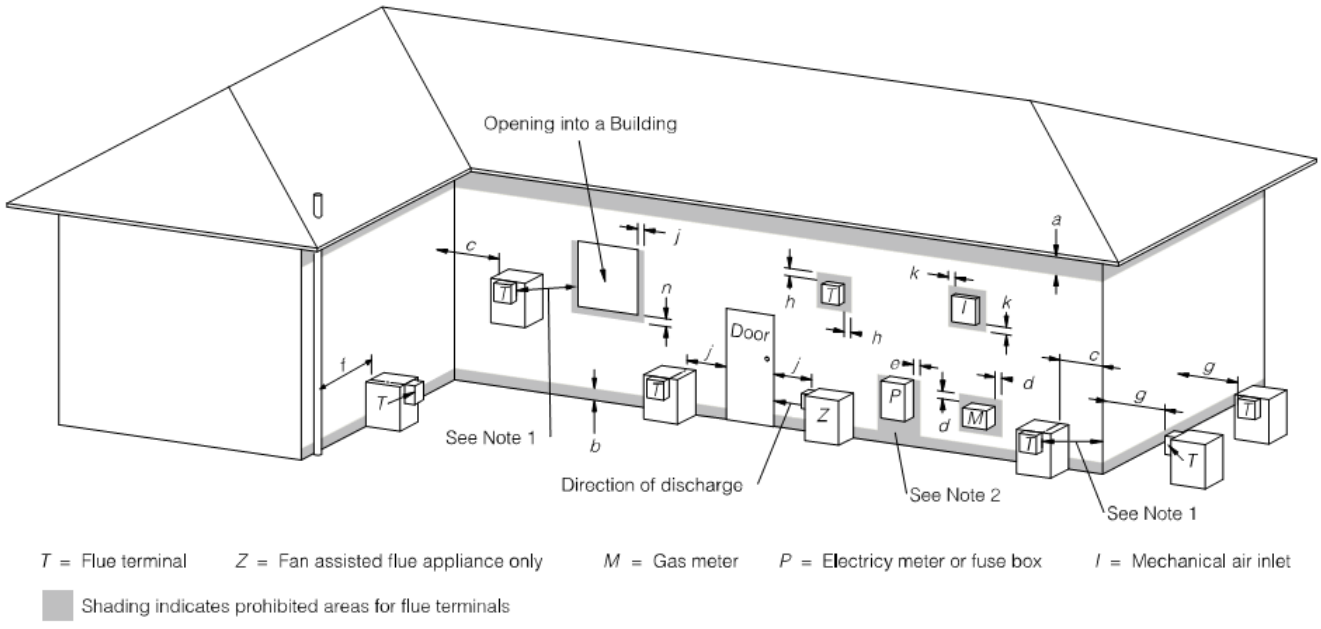


FIGURE 6.2 MINIMUM CLEARANCES REQUIRED FOR *BALANCED LUE* TERMINALS, FAN-ASSISTED *FLUE TERMINALS*, ROOM–SEALED APPLIANCE TERMINALS OR THE TERMINALS OF OUTDOOR APPLIANCES

⚠ **The presence of threaded connections on the gas line, require that the room in which the appliance is installed is ventilated by means of air intakes.**

3.3 Unpacking

- **The materials (cardboard) used for packing the appliance are fully recyclable.**
- **It is recommended that the packing material is only removed prior to installing the boiler. The manufacturer will not be held responsible for damage caused by incorrect storage of the product.**
- **Packing materials (plastic bags, polystyrene, nails, etc.) must not be left within reach of children, in that these items represent a potential hazard.**

A. Place the packed appliance on the floor (see fig. 1) making sure that the "up" arrow is facing down. Remove the staples and open out the four flaps of the box.

B. Rotate the boiler 90° while manually supporting it from underneath

C. Lift the box and remove the protections. Lift the boiler by grasping the rear part and proceed with the installation.

STORAGE & HANDLING

Please note that prior to installation the Radiant boilers should be stored in the horizontal position with no more than three boilers to a stack;
Ensure that the boilers are stored in dry conditions and be aware that the carton is a tow-man lift;

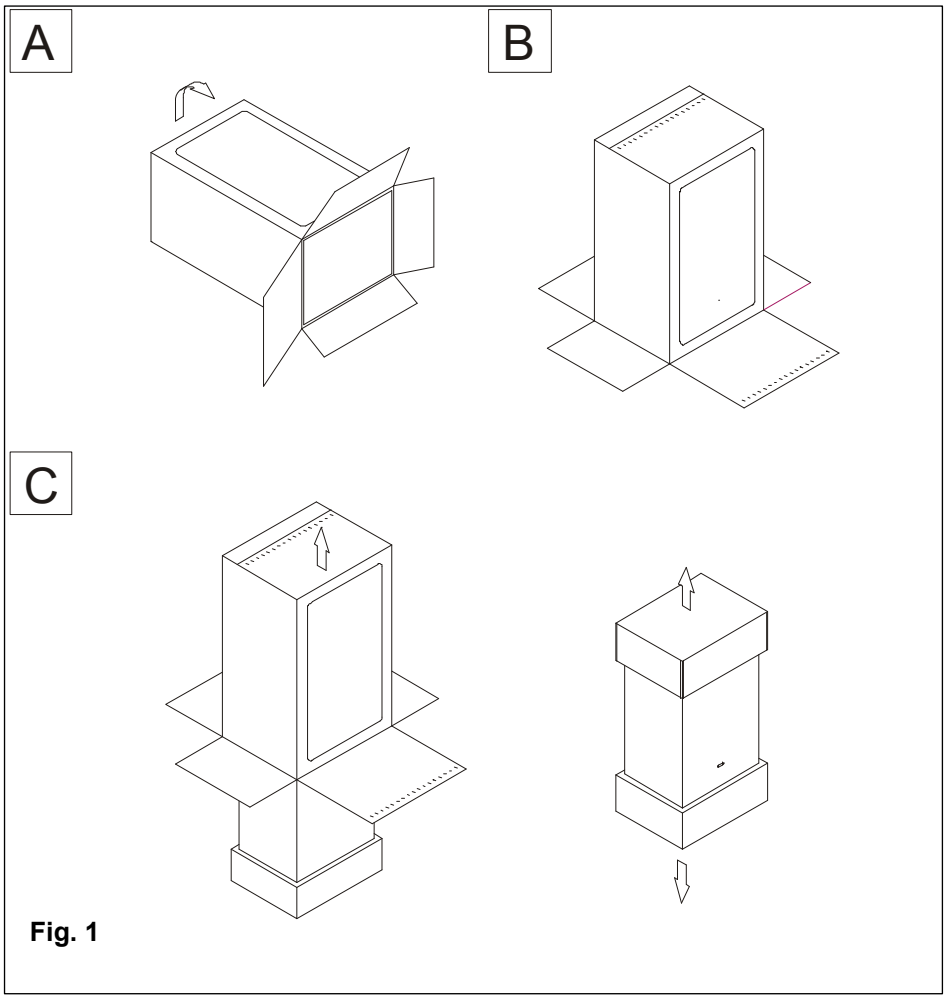


Fig. 1

3.4 Installing the boiler

- **The appliance has been designed for outdoor installation. The ABS material boiler casing is approved for exposition to atmospheric agents and, in particular, to UV rays.**
- **The appliance must be installed exclusively on a flat vertical solid wall capable of supporting its weight**.
- If the place where the boiler is installed is subsequently transformed from outodoor to indoor (i.e. verandas obtained by covering balconies and terraces by means of window surfaces); the new location must be in conformity to the relevant local standards.

In order to allow access to the interior of the boiler for maintenance purposes, it is important that the necessary clearances indicated in figure 1 are respected. To make the installation easier, the boiler is supplied with a template to enable the pipe connections to be positioned prior to fixing the appliance to the wall.

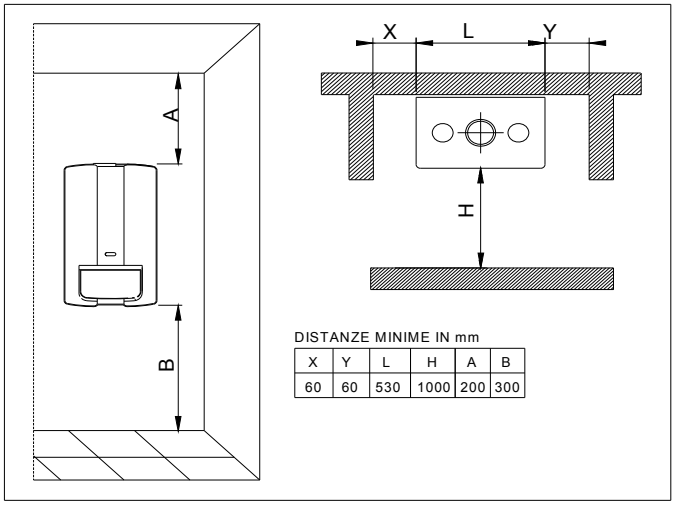
To install the boiler, proceed as follows (see fig. 2):

a. Use a spirit level (of not less than 25 mm long) to mark a horizontal line on the wall where the boiler is to be fitted.

b. Position the top of the template along the line drawn with the level, respecting the distances indicated. Then mark the centres of the positions of the two wall-plugs or anchors. Finally, mark the positions of the water and gas pipes.

c. Remove the template and install the domestic hot and cold water pipes, the gas supply pipe and the central heating pipes using the fittings supplied with the boiler.

d. Fix the boiler to the wall using the wall plugs or bracket and connect the pipes.



X	Y	L	H	A	B
60	60	530	1000	200	300

Fig. 1

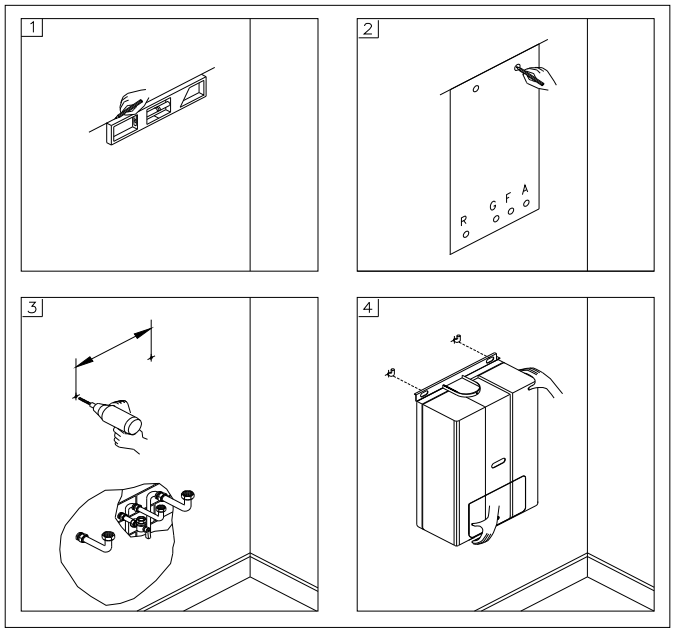


Fig. 2

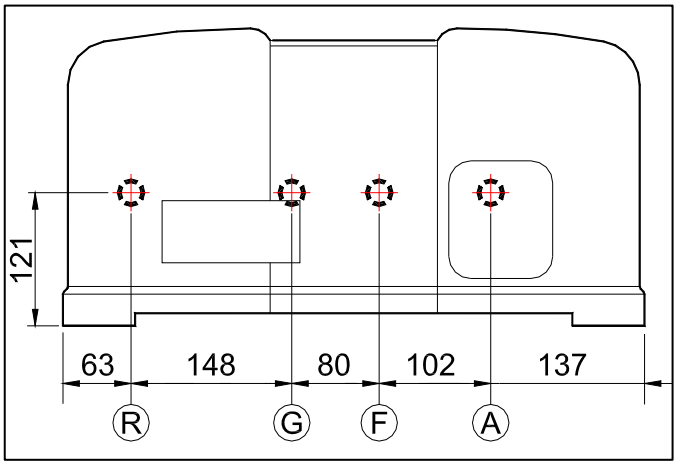
3.5 Water connections

In order to safeguard the heat exchanger and circulation pump, especially in case of boiler replacement, it is recommended that the system is hot-flushed to remove any impurities (especially oil and grease) from the pipes and radiators.

Make sure that the central heating pipes are not used to earth the electrical system. The pipes are totally unsuitable for this purpose.

Isolation Valves must be installed on the heating circuit. This will facilitate all maintenance and service operations where the boiler needs to be drained.

- To prevent vibration and noise coming from the system, do not use pipes of reduced diameter, short radius elbows or severe reductions in the cross sections of the water passages.



LEGEND

R	HEATING RETURN	Ø3/4”
A	HEATING FLOW	Ø3/4”
G	GAS	Ø3/4”
F	COLD WATER INLET	Ø1/2”

Central heating circuit

In order to prevent scaling or deposits in the primary heat exchanger, the mains supply water to the heating circuit must be treated according to the requirements of local standards.

This treatment is indispensable in the case where the circuit is frequently topped-up or when the system is often either partially or fully drained.

The outlet connection of the boiler safety valve must be connected to a discharge trap. The manufacturer will not be held responsible for flooding caused by the operation of the safety valve in the case of system overpressure.

3.6 Gas Connection

⚠ **The connection to the gas supply must be carried out by professionally qualified personnel in accordance with relevant standards:**

⚠ **When connecting the boiler to the gas supply pipe, only use appropriate washers and gas fittings. The use of hemp, Teflon tape and similar materials is not allowed.**

Before installing the boiler, check the following:

- The pipe work must have a section appropriate for the flow rates requested and the pipe lengths installed, and must be fitted with all the safety and control devices provided for by current standards. For Australia refer to AS5601.
- The gas supply line must be a minimum of a 22 mm diameter pipe with an uninterrupted supply from meter to boiler and comply with current standards and regulations.
- ***Check the internal and external seals of the gas supply system.***
- A gas shut-off valve must be installed upstream of the appliance
- The gas pipe work must have and bigger or equal section to the one of the boiler.
- Before starting up the boiler, make sure that the type of gas corresponds to that for which the appliance has been set-up (see gas type label inside the boiler).
- The gas supply pressure must be between the values reported on the rating plate (see gas type label inside the boiler).
- Prior to installation, it is good practice to ensure that there are no machining residues on the gas supply pipe.
- Conversion of the appliance from natural gas to LPG or vice versa must be carried out by qualified **authorised** personnel;

3.7 Electrical connections

General warnings

⚠ **The connection to the mains power supply must be carried out by professionally qualified personnel, registered in accordance with current legislation and authorised by Radiant Bruciatori s.p.a.**

⚠ **Always check to make sure that the appliance has an efficient earth system. This requirement is only satisfied if it has been properly connected to an efficient earth system installed in accordance with the requirements of current safety standards and carried out by professionally qualified personnel.**

This basic safety measure must be checked, verified and carried out by professionally qualified personnel. In case of doubt, have the electrical system checked by a qualified electrician. The manufacturer will not be held liable for any damage or injury caused as a result of an inefficient or inexistent earth system;

- The boiler functions with an alternating current of 230 V and 50 Hz and has maximum power absorption of 155 W. **The appliance should be protected by a 3 A fuse.** The connection to the mains electricity supply must be via a single-pole switch, with at least 3 millimetres gap between open contacts, mounted upstream of the appliance. Make sure that the positions of the live and neutral wires correspond to the wiring diagram;
- Ensure the domestic power supply is checked by a qualified electrician to ensure that it can support the maximum power absorption of the appliance, as indicated on the rating plate. In particular, make sure that the cable sizes are adequate for the power absorbed by the appliance;
- The power supply cable must not be replaced by the user. if the cable is damaged in any way, switch off the appliance and have the cable replaced by a suitably qualified electrician;
- The power supply cable must be at least of section 1mm^2;

When using an electrical appliance, a few fundamental rules must be observed:

- Do not touch the appliance with damp or wet parts of the body or when barefoot.
- Do not pull on the electric wires.
- Do not leave the appliance exposed to atmospheric elements (rain, sun, etc,) unless these conditions have been expressly provided for.
- Do not allow the appliance to be used by children or anyone unfamiliar with its operation;

Remote control connection

Connect the power supply to the terminal board inside the control panel as follows:

a. Switch off the power supply at the main switch.
b. Remove the front case panel of the boiler.
c. Slacken the screws and remove plate A (see fig. 1).
d. With the plate removed, connect the wires to the terminal board B as follows:

- Connect the earth wire (normally coloured green/yellow) to the terminal marked with the earth symbol " ⏚ ".
- Connect the neutral wire (normally coloured blue) to the terminal marked with the letter "N".
- Connect the live wire (normally coloured brown) to the terminal marked with the letter "L".
- Terminals identified by the letters: Ta ⇒ Room thermostat
  Se ⇒ Outside temperature sensor

When the wires have been connected, place plate "A" back to position.

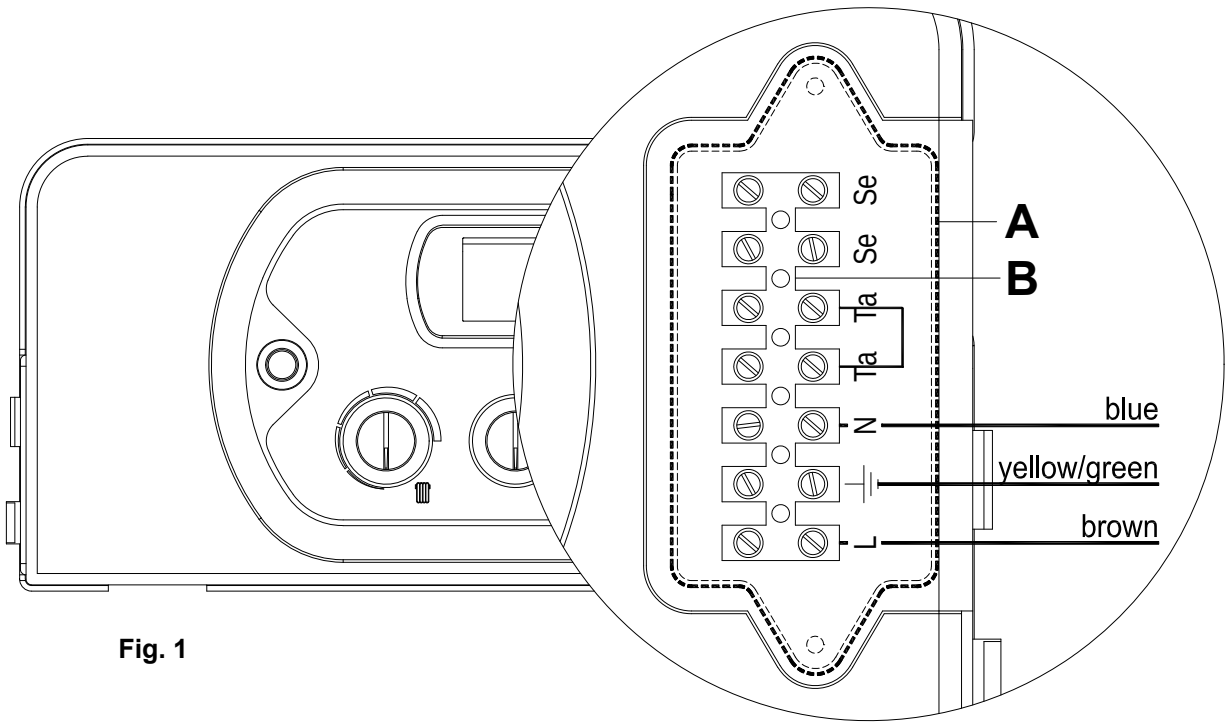
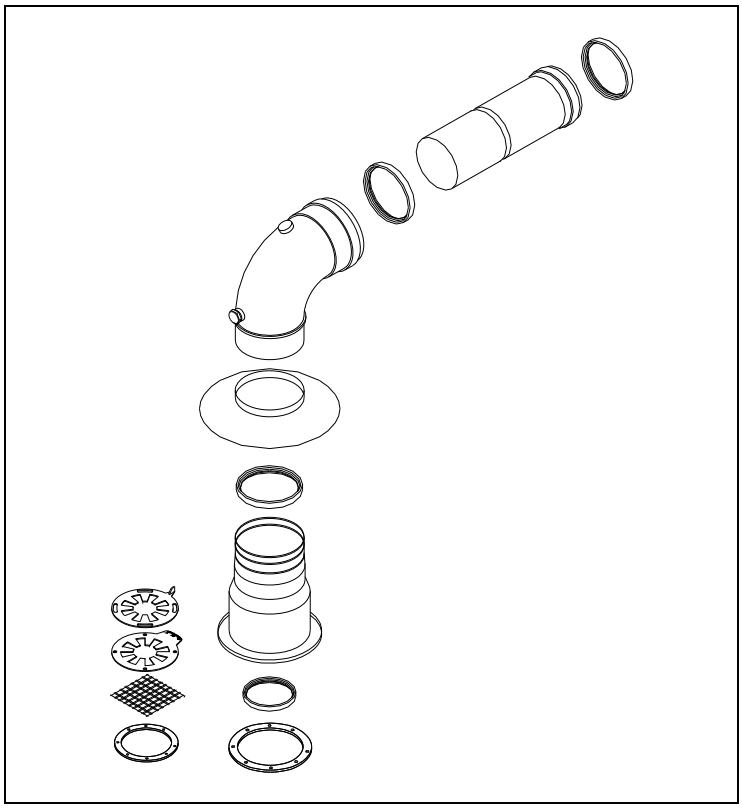


Fig. 1

3.8 Flue connections

Flue type - Kit E

Horizontal flue kit Ø80 orientabiles to 360°.



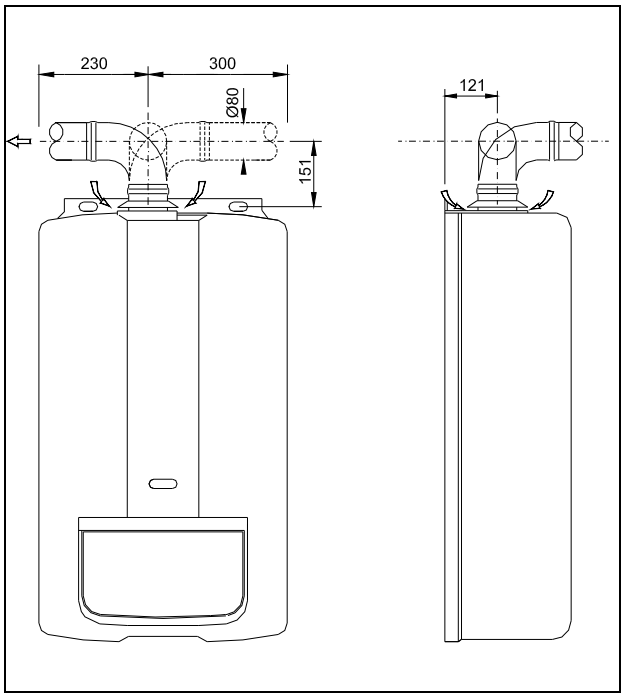
Discharges exhaust gases and draws combustion air by means of two concentric ducts. The external Ø100 duct draws the combustion air while the Ø60 duct discharges the exhaust fumes.
The discharge duct can be connected directly to the outside or can be connected to a suitable combined flue system.

MAXIMUM FLUE LENGTH: 15 m.

The *maximum* flue length (linear equivalent) is obtained by summing the length of linear pipe and the equivalent lengths of each bend fitted.

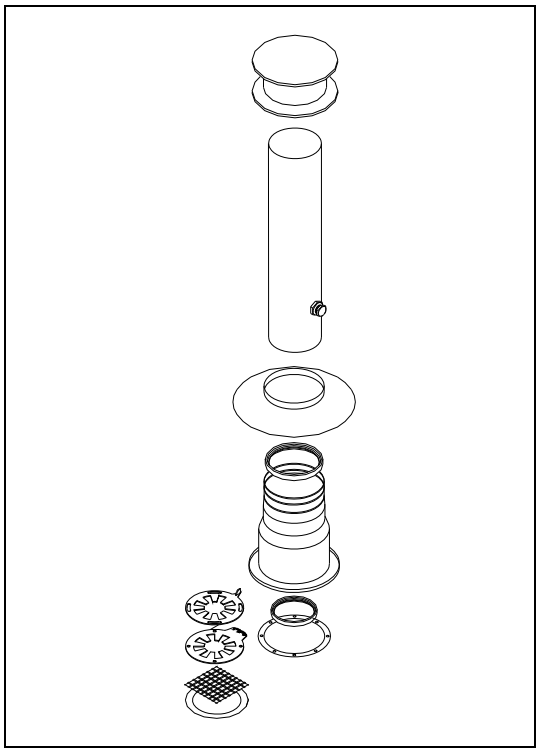
The *linear equivalent* is intended as being the total length of the duct from the connection with the combustion chamber of the appliance, excluding the first bend.
The linear equivalent of additional bends is as follows:
Ø 80 x 90° bend = 1.5 m.
Ø 80 x 45° bend = 1.2 m.

N.B.: *USE ONLY RADIANT TYPE -APPROVED FLUE SYSTEMS FOR DISCHARGING EXHAUST GASES AND DRAWING COMBUSTION AIR.*



Flue type - Kit F

Vertical flue kit Ø80



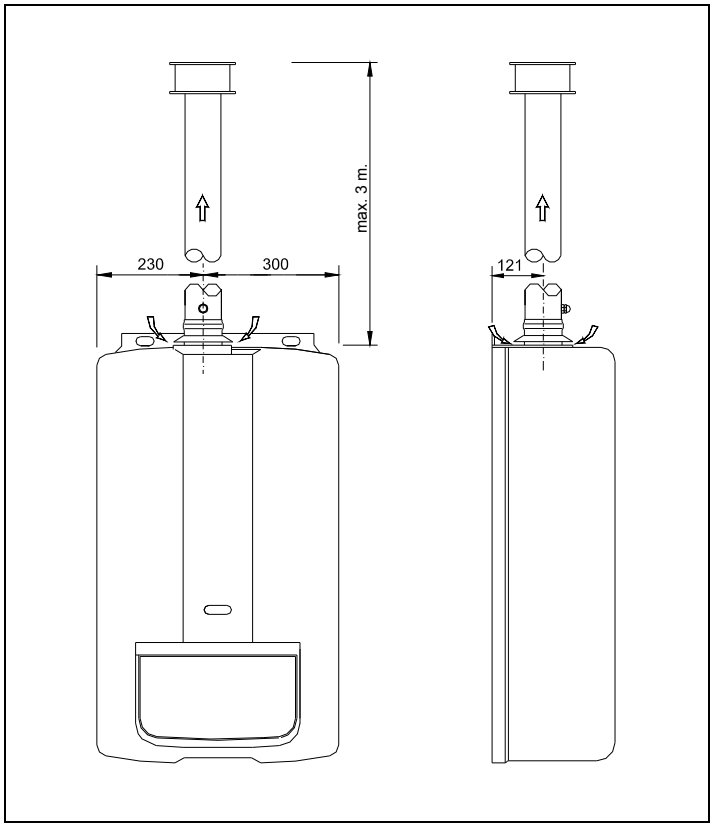
Discharges exhaust gases and draws combustion air by means of two concentric ducts. The external Ø100 duct draws the combustion air while the Ø60 duct discharges the exhaust fumes.
The discharge duct can be connected directly to the outside or can be connected to a suitable combined flue system.

MAXIMUM FLUE LENGTH: 3 m.

The *maximum* flue length (linear equivalent) is obtained by summing the length of linear pipe and the equivalent lengths of each bend fitted.

The *linear equivalent* is intended as being the total length of the duct from the connection with the combustion chamber of the appliance, excluding the first bend.
The linear equivalent of additional bends is as follows:
Ø 80 x 90° bend = 1.5 m.
Ø 80 x 45° bend = 1.2 m.

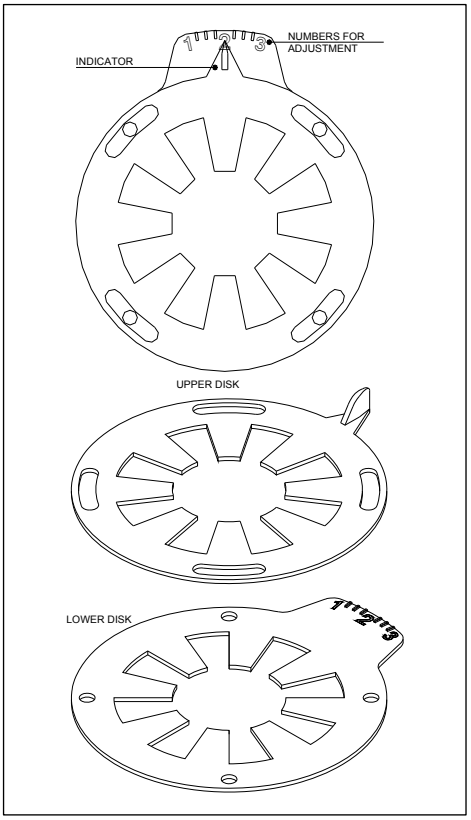
N.B.: *USE ONLY RADIANT TYPE -APPROVED FLUE SYSTEMS FOR DISCHARGING EXHAUST GASES AND DRAWING COMBUSTION AIR.*



Diaphragms system setting

Kit E - horizontal flue kit Ø80 orientabiles to 360°

MAXIMUM FLUE LENGTH (linear length)	POSITION DIAPHRAGM
from **1** to **4 m**	1 ▲ 2 3
from **4** to **8 m**	1 2 ▲ 3
from **8** to **15 m**	1 2 ▲ 3
MAXIMUM FLUE LENGTH	**15 m**



Kit F - vertical flue kit Ø80

MAXIMUM FLUE LENGTH (linear length)	POSITION DIAPHRAGM
from **1** to **3 m**	1 ▲ 2 3
MAXIMUM FLUE LENGTH	**3 m**

4. COMMISSIONING THE APPLIANCE

4.1 General warnings

⚠ **The following operations must be carried out by professionally qualified authorised, registered in accordance with current legislation.**

⚠ **The boiler leaves the factory pre-set and tested for burning either natural Gas or LPG. Nevertheless, when starting the boiler for the first time, make sure that the information on the rating plate corresponds to the type of gas being supplied to the boiler.**

⚠ **Once the system has been filled and the necessary adjustments made, remember to tighten the screws of the gas valve test point and make sure that there are no gas leaks from the test point and from any pipe fittings upstream of the gas valve.**

Preliminary operations

Switching the boiler on for the first time means checking that the installation, regulation and operation of the appliance are correct :

- If the gas supply system is newly installed, then the air present in the pipes can cause the boiler not to light at the first attempt. A number of attempts may be required in order to light the boiler;
- Check that the data on the data plate corresponds to that of the mains supply networks (gas, electricity, water);
- Check that the power supply voltage to the boiler complies with the data plate (230 V – 50 Hz) and that the live, neutral and earth wires are connected properly. Also make sure that the earth connection is sound;
- Check the seals on the gas supply pipe from the mains, and make sure that the meter does not register any flow of gas;
- Turn the gas supply on and purge.
- Test for gas soundness.
- Check that the gas supply is correctly sized for the flow rate required by the boiler and that it is fitted with all the safety and control devices as lay down by current regulations
- Check that the supply of combustion air and exhaust and condensate discharge systems are functioning correctly and in line with current law and national and local standards;
- Check for the presence of permanent aeration/ventilation openings as required by current law for the type of appliances installed.
- Check that the flue duct and its connections to the terminal/chimney comply with the requirements of current law and national and local standards for the type of appliances installed.
- Make sure that any central heating shut-off valves are open.
- Check that the condensate drain system, including outside the boiler (flue system condensate collection devices), allows the condensate to flow freely to the collection devices. If the condensate is discharged to the domestic drainage system, install an inspection trap in the condensate system prior to it entering the drainage system to interrupt the continuity between the two systems.
- Check that there are no exhaust fumes discharged into the system itself.
- Check that there are no flammable materials, chemicals or liquids in the immediate vicinity of the boiler;
- *Flush out both primary circuit (see 4.3 “Flushing the system”).*

4.2 Filling the system

⚠ **Use only clean tap water to fill the system.**

Once the water pipes have been connected, close the gas feed valve and fill the system as follows:

- Check that the circulation pump runs freely;
- Check that the plug of the air vent valve has been slackened slightly to allow air to escape from the system (fig.1);
- Open the filling tap **R** (fig. 2);
- Unscrew the plug on the pump to remove any trapped air, check that the pump is free then re-tighten it when water starts to flow out;
- Open the air vents on the radiators and monitor the air evacuation process. When water starts to flow out of the radiators, close the air vents;
- Use the pressure gauge **M** (fig. 2) to check that the system pressure reaches 1 bar and that the code H2O does NOT appear on the control panel display (see 2.7 section 'Control Panel');
- If, after the above operations, there is a reduction in the pressure, re-open the filling tap **R** until the pressure gauge reads 1 bar and that the code H2O disappears on the control panel display;
- **On completion, make sure that the filling tap R is perfectly closed.**

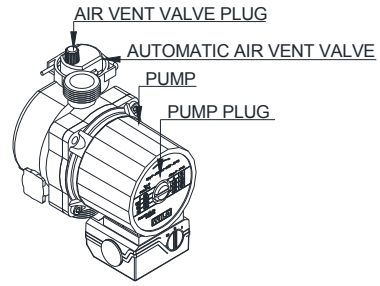


Fig. 1

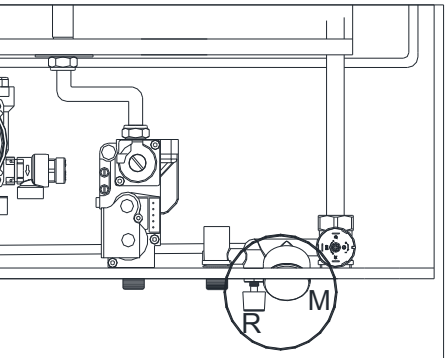


Fig. 2

Emptying the central heating system

Whenever it is necessary to empty the system, proceed as follows:
- turn off the main power supply switch;
- wait for the boiler to cool down;
- turn the system drain tap RS (see fig. 2) and use a container to collect the water that runs out;

4.3 Flushing the system

Failure to flush and add inhibitor to the system will invalidate the appliance working.
All systems must be thoroughly drained and flushed out using additives – corrosion inhibitors and flushing agents/descalers .

To flush out the primary side of this unit.

a. Fill the boiler as per the filling instructions.
b. Using a drain off cock on the lowest point of the system allow the water to drain from the system and boiler.
c. In order to flush the system correctly turn off all radiators open the filling loop and drain cock simultaneously and allow the water to flow through the boiler.
d. Open each individual radiator allowing water to flow through then turn that radiator off and repeat for all radiators on the system.
e. Turn off the filling loop and close the drain cock open all radiators and open the filling to fill the system.
f. Continue to fill the system until the pressure gauge reaches 1 bar.

4.4 Frost protection

The appliance printed circuit board has a built-in frost protection with functions that protect the boiler providing to start the burner and heat the interested parts + components when the temperature goes below minimum set values.

The device comes into operation in the following cases:

- The heating water temperature goes below 5°C, the burner starts automatically until the water temperature reaches the 30°C;
- The room temperature where the REMOTE is fitted goes below 5°C, the burner starts automatically until the room temperature reaches the 5.6°C;

⚠ ***The frost protection function intervenes only if the power supply is on, the gas is opened and the display remains illuminated or appears the word "OFF".***

4.5 Starting up the boiler

Once the system has been filled, proceed as follows:

- Check that the exhaust flue is free of obstructions and correctly connected to the boiler;
- Switch on the power supply to the boiler;
- Open the gas feed valve;
- Place switch **1** in the ON **position** (see 2.7 “Control Panel”)**,** after a few seconds the circulating pump will start to run;
- The boiler will light automatically (with the WINTER mode selected and room thermostat connected);
- ***The automatic ignition system will then light the burner. This operation is repeated for 3 times (every 20 seconds) in case of the boiler should fail to ignite.*** It may however be necessary to repeat the operation in order to eliminate all the air from the pipes. To repeat the operation, wait approximately three minutes before re-attempting to light the boiler. To reset the boiler switch off switch **1** (fig. 1) and switch it back on again and repeat the lighting procedure;
- With the boiler ignited, if the system still emits noises, the operations must be repeated until all the air has been removed;
- Check the pressure in the system. If the pressure has fallen, re-open the filling tap until the code H2O **disappears on the display** and the pressure gauge reads 1 bar on completion, close the filling tap.
- set ON/OFF switch **1** in OFF position, insert a gauge into the pressure point no. 2 (fig. 2). Turn ON the boiler and check the minimum and maximum gas pressure setting in accordance with values stated on the gas data plate (to check maximum gas pressure value, turn ON a hot water tap and check that the maximum pressure is equal to that stated on the gas data plate; to check the minimum gas pressure, close the hot water tap, and select WINTER mode, the pressure gauge will show the minimum gas pressure value for 10 seconds. If the pressure values are not the same as those stated on the gas data plate, calibrate pressure again;
- once the calibration procedure has been completed, unplug the mains lead or turn off the mains switch, close the gas feed valve and remove the gauge from the pressure point; tighten the screw making sure there are no gas leaks;
- after carrying out this operation, return the panel to its correct position and put the front casing back;

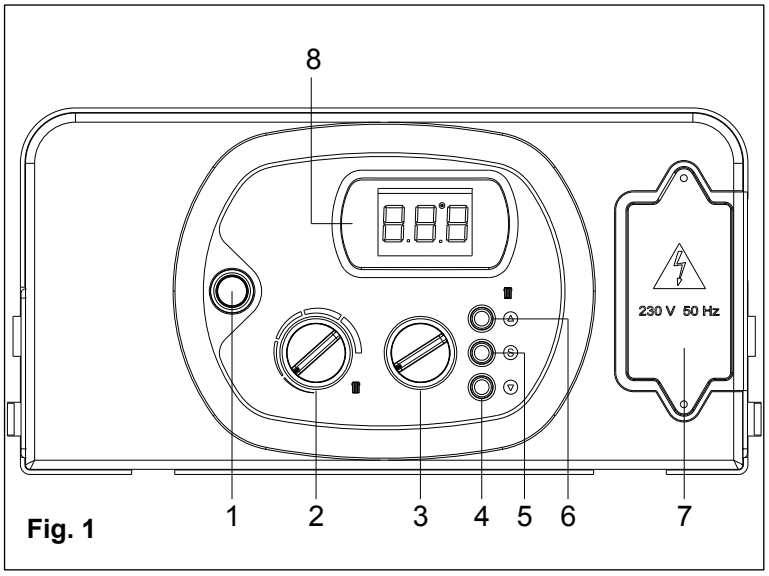


Fig. 1

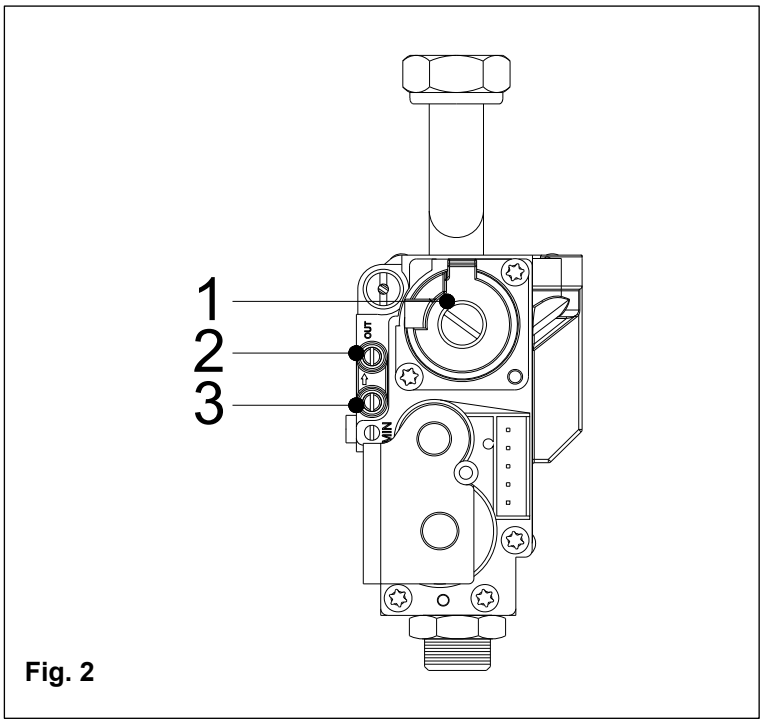


Fig. 2

KEY

1. GAS ADJUSTMENT SCREW
2. GAS PRESSURE POINT - OUTLET
3. GAS PRESSURE POINT – INLET

5. REGULATING THE BOILER

5.1 Parameter table

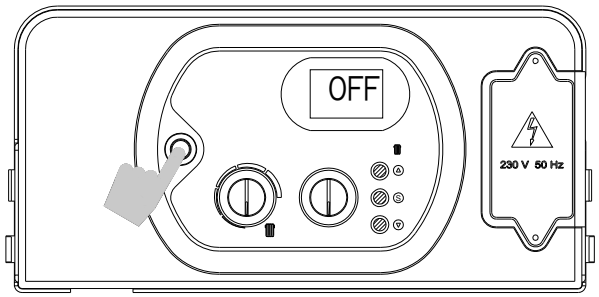
PARAMETER N°	TYPE OF OPERATION	PARAMETER VALUE	FUNCTION
1	Selects the type of boiler	00 01 02	Instantaneous Boiler with storage tank B. w/storage tank Comfort (+7°C)
2	Selects the type of gas	00 01	Natural gas Lpg
3	Sets the central heating temperature	00 01	Standard (30-80°C) Reduced (25-40°C)
4[1]	Selects pump mode during heating phase	00 01	Standard (3' pump overrun) Permanent (pump runs continuously)
5	Water hammer prevention ***(Not applicable)***	00 01	Off On
6	Central heating timer	00-90 (default = 36)	Delays the heating restart to prevent frequent On/Offs, Expressed in steps of 5 sec (factory set at 36 x 5 = 180")
7	Central heating pump overrun timer	00-90 (default = 36)	The overrun timer can be modified. Expressed in steps of 5 sec (factory set at 36 x 5 = 180")
8	D.H.W pump overrun timer ***(Not applicable)***	00-90 (default = 18)	The overrun timer can be modified. Expressed in steps of 5 sec (factory set at 18 x 5 = 90")
9	Minimum gas pressure setting	00-70	Factory set
10	Minimum central heating output setting	00-80	Factory set
11	Maximum gas pressure and maximum central heating output setting	Min gas – 99	Default = 99
12	Ignition sequence setting	00-99	Default = 50
13	D.H.W priority function (2 min delay on dhw function) ***(Not applicable)***	00 01	Off On
14	Not used		
15[2]	Zone management board activation	00 01	Off On
16[3]	Telephone control activation	00 01	Off On

NOTES:

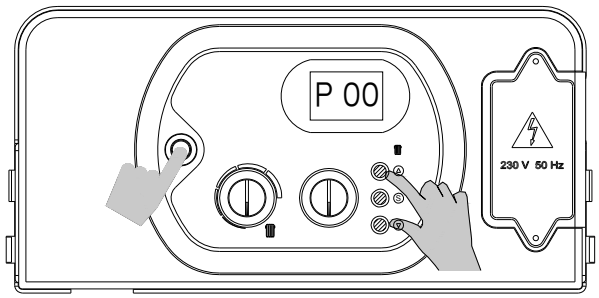
1 - Activate only for "heating only" boilers.
2 - If the heating system has more than one zone, an additional interface board (optional extra) must be installed on the circuit board and parameter 15 set at 01.
3 - To install the telephone control, use non-polarised conductors connected to contact TA of the terminal board in parallel with the remote control if fitted. Set the parameter 16 at 01.

5.2 Setting the parameters

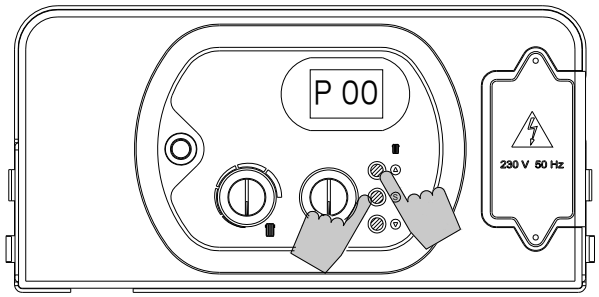
To modify the preset values of the parameters reported in the previous table, open the parameter settings menu as follows:



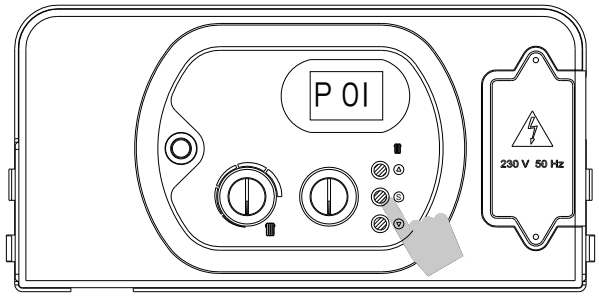
1. Place the On/Off switch in the OFF position.



2. Activate the On/Off switch while keeping buttons ' △ ' and ' ▽ ' pressed. Wait for "P00" to appear on the display.
3. Release buttons ' △ ' and ' ▽ '.



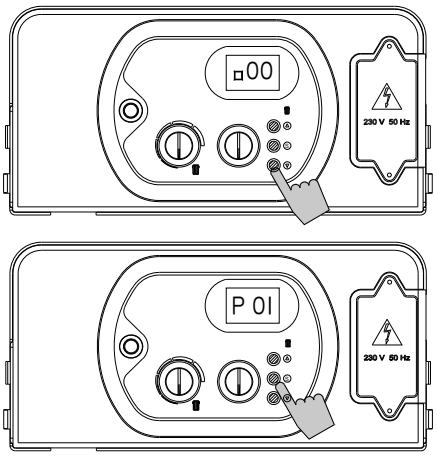
4. Keep button 'S' pressed and use button ' △ ' to select the parameter to modify**.**



5. Release button 'S', then re-press and release it. The display will indicate the value of the parameter to modify.

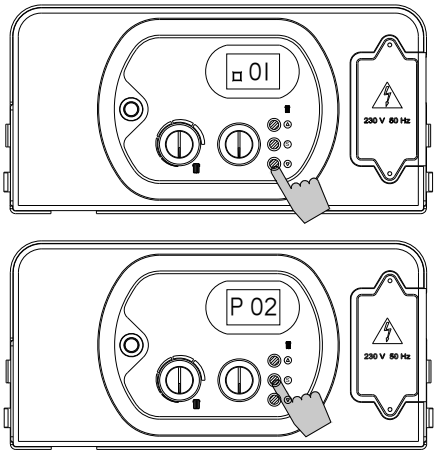
Adjust the value of the parameter using the procedure described in the following pages.

To enter the parameters menu, follow the previously described procedure (steps 1-5).



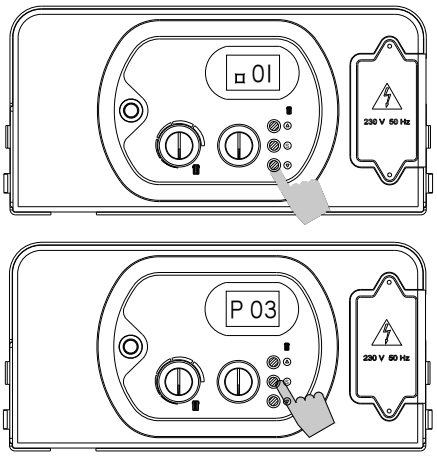
PARAMETER 1 – TYPE OF BOILER

6. Use buttons ' △ ' and ' ▽ ' to modify the value of the parameter:
   00 = Instantaneous boiler
   01 = Storage boiler;
   02 = Storage boiler 'comfort' (+7°C).
7. Press and release button 'S' to confirm. The parameter number P01 will appear on the display.
8. Switch off the appliance and switch it back on again to render the new parameter operative.



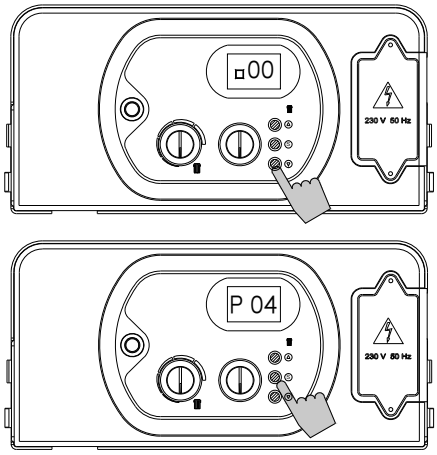
PARAMETER 2 - GAS SUPPLY

6. Use buttons ' △ ' and ' ▽ ' to modify the value of the parameter:
   00 = natural gas
   01 = lpg
7. Press and release button 'S' to confirm. The parameter number P02 will appear on the display.
8. Switch off the appliance and switch it back on again to render the new parameter operative.



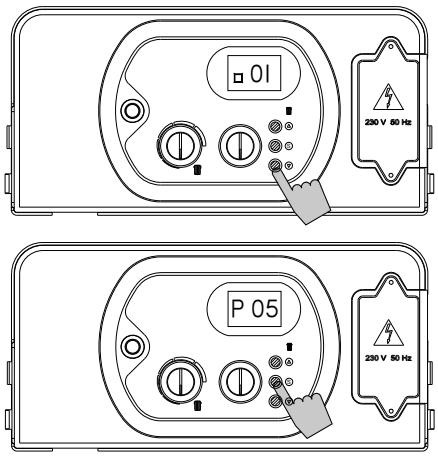
PARAMETER 3 – CENTRAL HEATING TEMPERATURE

6. Use buttons ' △ ' and ' ▽ ' to modify the value of the parameter:
   00 = standard (30 – 80°C)
   01 = reduced (25 – 40 °C) for under-floor heating
7. Press and release button 'S' to confirm. The parameter number P03 will appear on the display.
8. Switch off the appliance and switch it back on again to render the new parameter operative.



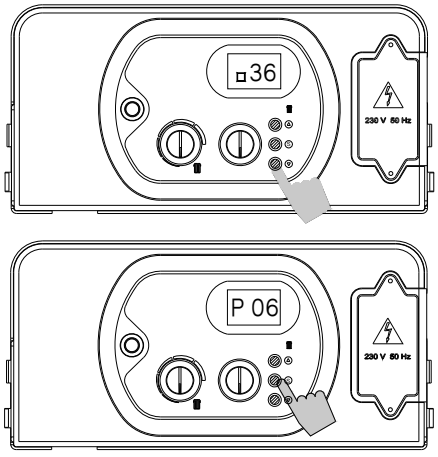
PARAMETER 4 – CENTRAL HEATING PUMP

6. Use buttons ‘ △ ’ and ‘ ▽ ’ to modify the value of the parameter:
   00 = standard (3” overrun)
   01 = permanent (always running)
7. Press and release button ‘S’ to confirm. The parameter number P04 will appear on the display.
8. Switch off the appliance and switch it back on again to render the new parameter operative.



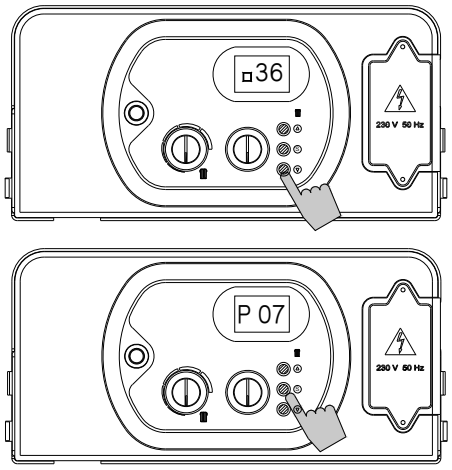
PARAMETER 5 – WATER HAMMER PREVENTION

(Not applicable)



PARAMETER 6 – CENTRAL HEATING TIMER

6. Use buttons ‘ △ ’ and ‘ ▽ ’ to modify the value of the parameter within the prescribed limits
   00 = 0 x 5” = 0”
   90 = 90 x 5” = 450” (7.5 min)
The default value is 36 = 180” = 3 min
7. Press and release button ‘S’ to confirm. The parameter number P06 will appear on the display.
8. Switch off the appliance and switch it back on again to render the new parameter operative.

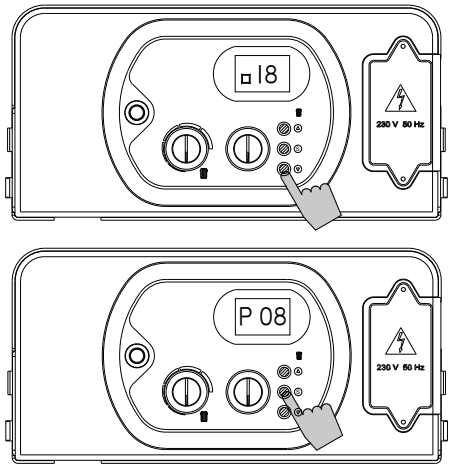


PARAMETER 7 – CENTRAL HEATING PUMP OVERRUN TIMER

6. Use buttons ' △ ' and ' ▽ ' to modify the value of the parameter within the prescribed limits
   00 = 0 x 5" = 0"
   90 = 90 x 5" = 450" (7.5 min)

The default value is 36 = 180" = 3 min

7. Press and release button 'S' to confirm. The parameter number P07 will appear on the display.
8. Switch off the appliance and switch it back on again to render the new parameter operative.



PARAMETER 8 – D.H.W PUMP OVERRUN TIMER

(Not applicable)

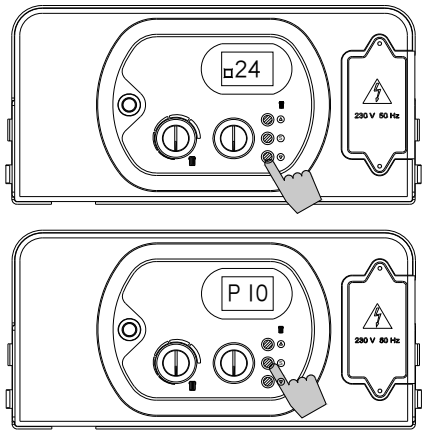
5.3 Regulating the gas pressure

PARAMETER 9 – MINIMUM GAS PRESSURE SETTING
(NATURAL GAS 0.22 KPA / UNIVERSAL LPG 0.80 KPA)

All boilers are factory set with the minimum value at 2 mbar.

If the valve has been replaced, proceed as follows:

6. Use a flat screwdriver to adjust screw D (fig. 1 - Parameter P11);
7. Rotate the screw (D) clockwise to fully tighten it.
8. To set the minimum pressure, rotate the screw (D) counter clockwise for three complete turns.



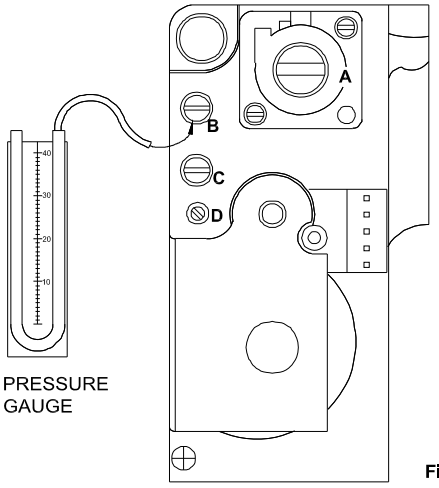
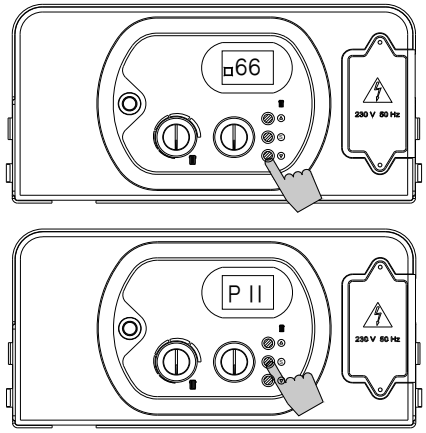


Fig. 1



PARAMETER 10 – MINIMUM CENTRAL HEATING OUTPUT

Before switching on the boiler to adjust the setting, insert a pressure gauge in the pressure take-off point '**B**' on the gas valve (see fig. 1).

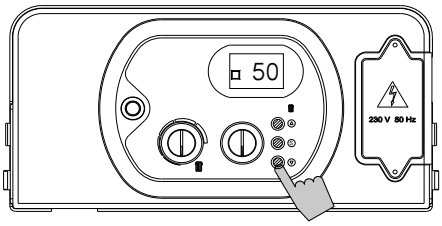
6. Open the parameters menu and select parameter P10 - The pressure gauge will indicate the gas pressure. If this pressure value is different to that on the rating plate of the boiler (see 'Gas pressure adjustment table' 5.4) use buttons ' ⓐ ' and ' ⓥ ' to modify the value of the parameter. The range of settings is 00 – 80.
7. Press and release button 'S' to confirm. The parameter number P10 will appear on the display.
8. Switch off the appliance and switch it back on again to render the new parameter operative.

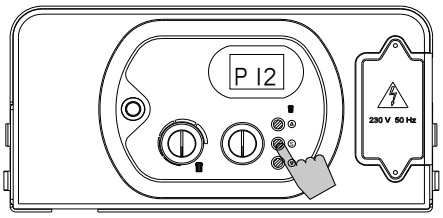
PARAMETER 11 – MAXIMUM CENTRAL HEATING GAS PRESSURE (NATURAL GAS 0.75 KPA / UNIVERSAL LPG 2.50 KPA)

6. Open the parameters menu and select parameter P11. Adjust the value of the parameter to 99.
7. Press button 'S' and release it to confirm. The value P11 will appear on the display.
8. Switch off the appliance and switch it back on again to render the new parameter operative.
9. Press button Press button 'S' for 7 seconds until the number '07' flashes on the display (chimney sweep function). In this way, the boiler will run at maximum heating power for 15 minutes. The pressure gauge will indicate the gas pressure. If this pressure value is different to that on the rating plate of the boiler (see 'Gas pressure adjustment table' 5.4) adjust the gas regulator as follows:

a. remove aluminium plug '**A'** (fig. 1) and use a screwdriver to the rotate the plastic screw to regulate the maximum gas pressure;
b. replace aluminium plug '**A'** on the gas valve;
c. switch off the boiler. Make sure that the pressure gauge is removed and that there are no gas leaks.

6. To set the maximum heating power, then open the parameters menu and adjust parameter P11 from '99' to the required value according to the Pressure-Power correlation diagrams (see 'Gas pressure adjustment table' 5.4).
7. Press and release button 'S' to confirm. The parameter number P11 will appear on the display.
8. Switch off the appliance and switch it back on again to render the new parameter operative.



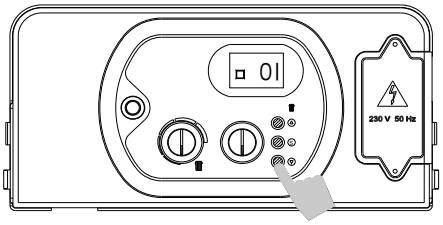


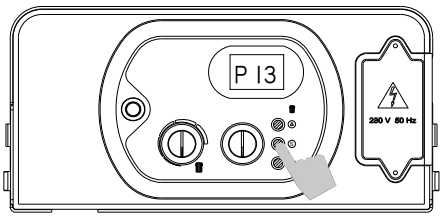
PARAMETER 12 - IGNITION SEQUENCE SETTING
(NATURAL GAS 0.30 KPA / UNIVERSAL LPG 0.97 KPA)

6. Use buttons ' △ ' and ' ▽ ' to modify the value of the parameter within the prescribed limits
   00 = minimum pressure set at the gas valve.
   99 = maximum allowed pressure of the model installed.

The default value is 50.

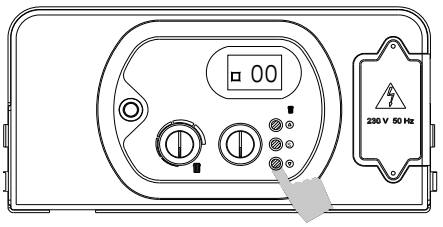
7. Press and release button 'S' to confirm. The parameter number P12 will appear on the display.
8. Switch off the appliance and switch it back on again to render the new parameter operative.

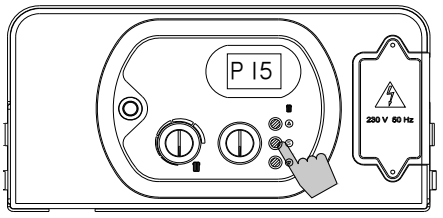




PARAMETER 13 – D.H.W PRIORITY

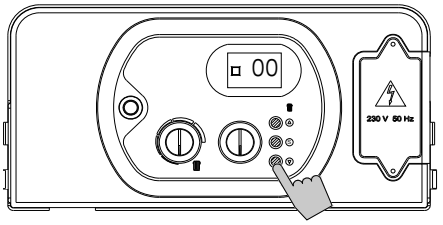
(Not applicable)

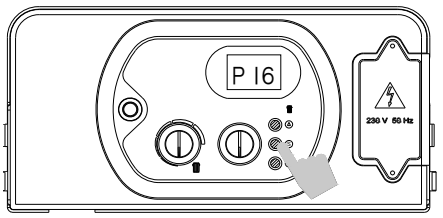




PARAMETER 15 – ZONED SYSTEM

6. If the system is fitted with zone valves, set the parameter P15 at '01'. If a remote control is installed, an extra interface board must be installed to control the zone valves. Then set the parameter at '01'.
7. Press and release button 'S' to confirm. The parameter number P15 will appear on the display.
8. Switch off the appliance and switch it back on again to render the new parameter operative.





PARAMETER 16 – TELEPHONE CONTROL

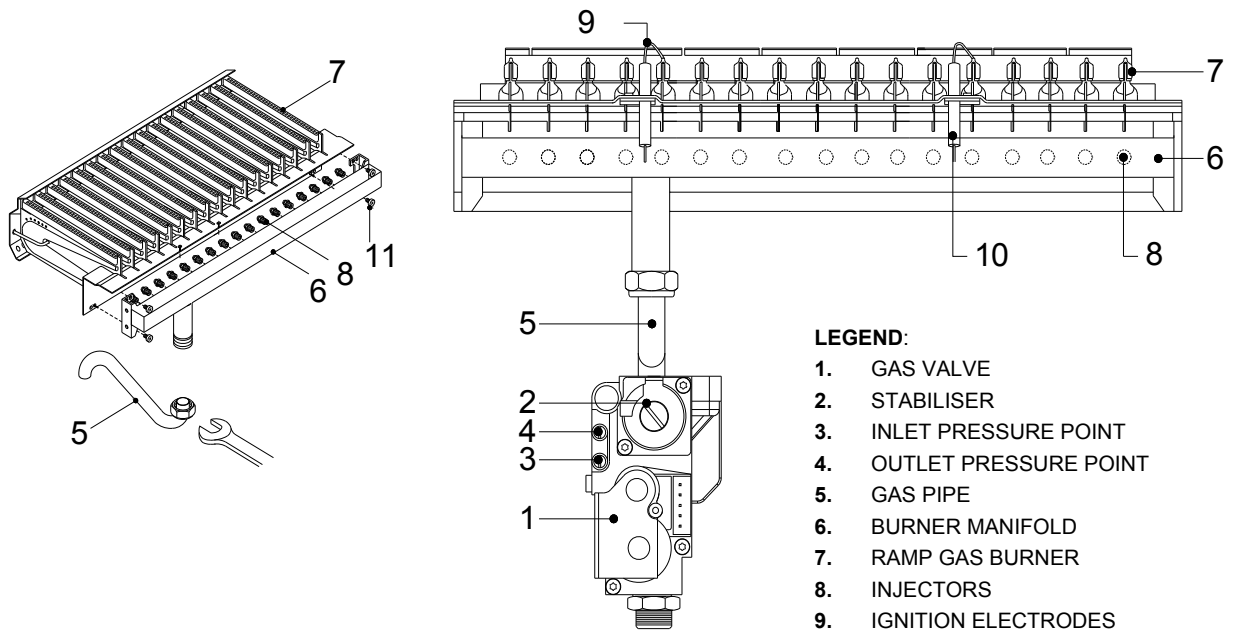
6. If a telephone interface is installed, enable the board by setting parameter P16 at '01';
7. Press and release button 'S' to confirm. The parameter number P16 will appear on the display.
8. Switch off the appliance and switch it back on again to render the new parameter operative. *N.B.: The connection of the telephone interface to contact TA of the terminal board must be wired in parallel with the remote control using two non-polarised conductors.*

5.4 Gas Data (Refer to page 4)

ADJUSTING POWER OUTPUT GAS PRESSURES

KW	19	21	23	25	27	29
NG kpa	0.3	0.37	0.45	0.52	0.6	0.68
ULPG kpa	1.08	1.3	1.55	1.78	2.02	2.25

5.5 Converting the boiler to a different gas type



LEGEND:

1. GAS VALVE
2. STABILISER
3. INLET PRESSURE POINT
4. OUTLET PRESSURE POINT
5. GAS PIPE
6. BURNER MANIFOLD
7. RAMP GAS BURNER
8. INJECTORS
9. IGNITION ELECTRODES
10. FLAME IONISATION ELECTRODES
11. SCREW

Fig.1

- **The conversion of a boiler from burning natural gas to LPG, or vice versa, must be carried out exclusively by professionally qualified personnel, registered in accordance with current legislation.**
- **Check that the gas supply pipe is suitable for the new fuel type.**

Conversion is performed as follows (see fig.1):

1. turn off the main power switch;

2. close the gas cock;

3. substitute the jets on the main burner as follows: undo the gas pipe (5) fig.1 from the burner manifold using a size 24 spanner, separate the burner manifold (6) from the burner ramps (7) by undoing the 4 screw (11);

4. fit new jets to (8) (see 'Technical data tables 5.4' , Main burner jets) the burner suitable for the type of gas the boiler will run on using a no. 7 spanner. **The jets must be fitted with new gaskets;**

5. reassemble the entire burner unit. Use the soapy water method to check for gas leaks each time gas connections are dismantled and reassembled;

6. select the new gas type by changing parameter no.2 (see 'Parameters table' 5.1);

7. to convert the appliance from L.P.G. to Natural Gas proceed with the min. and max. gas pressure adjustment

8. in case the natural gas inlet pressure is 11 mbar, replace the fixed flue diaphragm supplied standard with the boiler, and install the adjustable flue diaphragm, as explained at page 18, adjust the flue diaphragm as described.

9. to convert the appliance from Natural Gas to L.P.G. proceed as follows: screw the gas valve stabiliser (2) completely and measure the gas valve inlet pressure (3) with burner ON; adjust the system pressure regulator according to the Gas Data Table 5.4 (Nominal Supply pressure). In case of G 30 – G31 mix, adjust the inlet pressure according to G31 pressure data.

10. When converting the boiler to work with a different type of gas, remove the existing plate and replace it with the new one supplied in the conversion kit.

6. MAINTENANCE (authorised personnel)

6.1 General Warnings

⚠ **All maintenance operations must be carried out by professionally qualified personnel, authorised by Radiant Bruciatori Spa. For servicing within Australia refer to contact details on page 2 of this manual.**

⚠ **The frequency of boiler maintenance must comply with current law and, nevertheless, should be carried out once a year.**

⚠ **In order to guarantee the long life of the appliance and in accordance with the current gas safety regulations, only use original spare parts**

⚠ **Before carrying out any type of maintenance operation, disconnect the appliance from the mains electricity supply and close the gas valve.**

6.2 Boiler inspection

In order to ensure that the boiler operates efficiently and safely, it is recommended that the appliance is inspected by a suitably competent technician at least once a year.
The following operations should be carried out annually

- Check the condition of the gas seals and replace where necessary.
- Check the condition of the water seals and replace where necessary.
- Visually inspect the condition of the combustion chamber and flame.
- When required, check that the combustion is correctly regulated and if necessary proceed in line with section “Commissioning the boiler”.
- Remove and clean any oxidation from the burner.
- Check that the seal of the room-sealed chamber is undamaged and positioned correctly.
- Check the primary heat exchanger and clean if necessary.
- Check the maximum and minimum modulation pressures and the modulation itself.
- Check the condition and operation of the ignition and gas safety systems. If necessary, remove and clean the scaling from the ignition and flame detection electrodes, paying particular attention to replace them at the correct distance from the burner.
- Check the heating safety systems: temperature limit safety thermostat, pressure limit safety device.
- Check the pre-fill pressure of the expansion vessel (see expansion vessel data plate).
- Check the presence of air intake/permanent ventilation openings correctly sized according to the boiler installed and in respect with current law.
- For safety reasons, periodically check the integrity and operation of the flue gas exhaust system.
- Check that the connection to the mains electricity supply complies with that reported in the boiler’s instruction manual.
- Check the electrical connections inside the control panel.

6.3 Accessing the boiler

All maintenance and control operations require the boiler casing panel to be removed.

To remove the casing panel in ABS material, proceed as follows:

a. Remove the fixing screws (see. Fig. 1);

b. Remove the front panel by pulling it outwards;

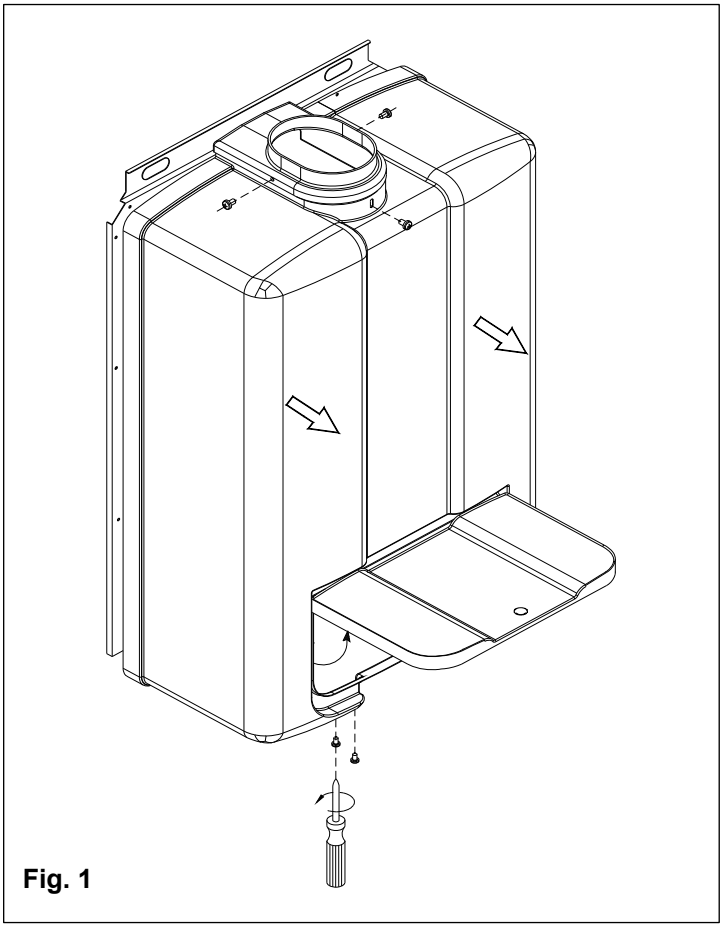


Fig. 1

To access the electrical connections of the control panel, proceed as follows:

- remove the front panel (fig. 1);
- bend the 2 support brackets outwards (fig. 2) and rotate the control panel back side towards the bottom;
- Unscrew the 4 fixing screws (fig. 2) and remove the control panel back side from the front side;

To access the electrical connections of the control panel, proceed as follows:

- remove the front panel (fig. 1);
- bend the 2 support brackets outwards (fig. 2) and rotate the control panel back side towards the bottom;
- Unscrew the 4 fixing screws (fig. 2) and remove the control panel back side from the front side;

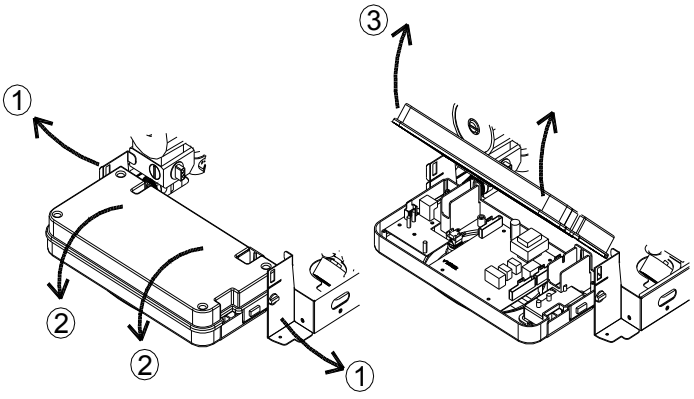


Fig. 2

6.4 Draining the system

If the need arises to drain the system, this can be done as follows:

- Switch the system to “WINTER” mode and ignite the boiler.
- Switch off the power supply to the boiler.
- Wait for the boiler to cool down.
- Connect a hosepipe to the system drain point and locate the other end of the hose in a suitable drainage system.
- Open the system drain valve (see fig. 1).
- Open the air vents on the radiators, starting with the highest and moving down the system to the lowest.
- When the system has been drained, close the radiator breather valves and the drain valve.
- **If only the boiler needs to be drained, close the flow/return isolating valves on the heating circuit and open the drain valve located at the bottom of the boiler on the pump manifold (see fig. 1);**

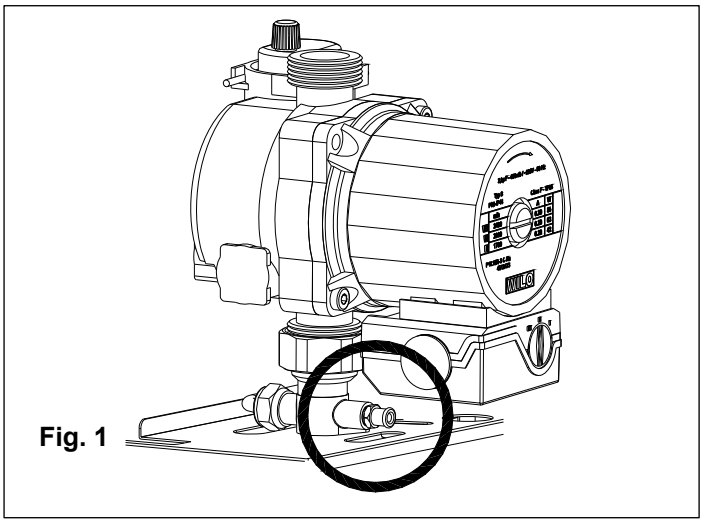
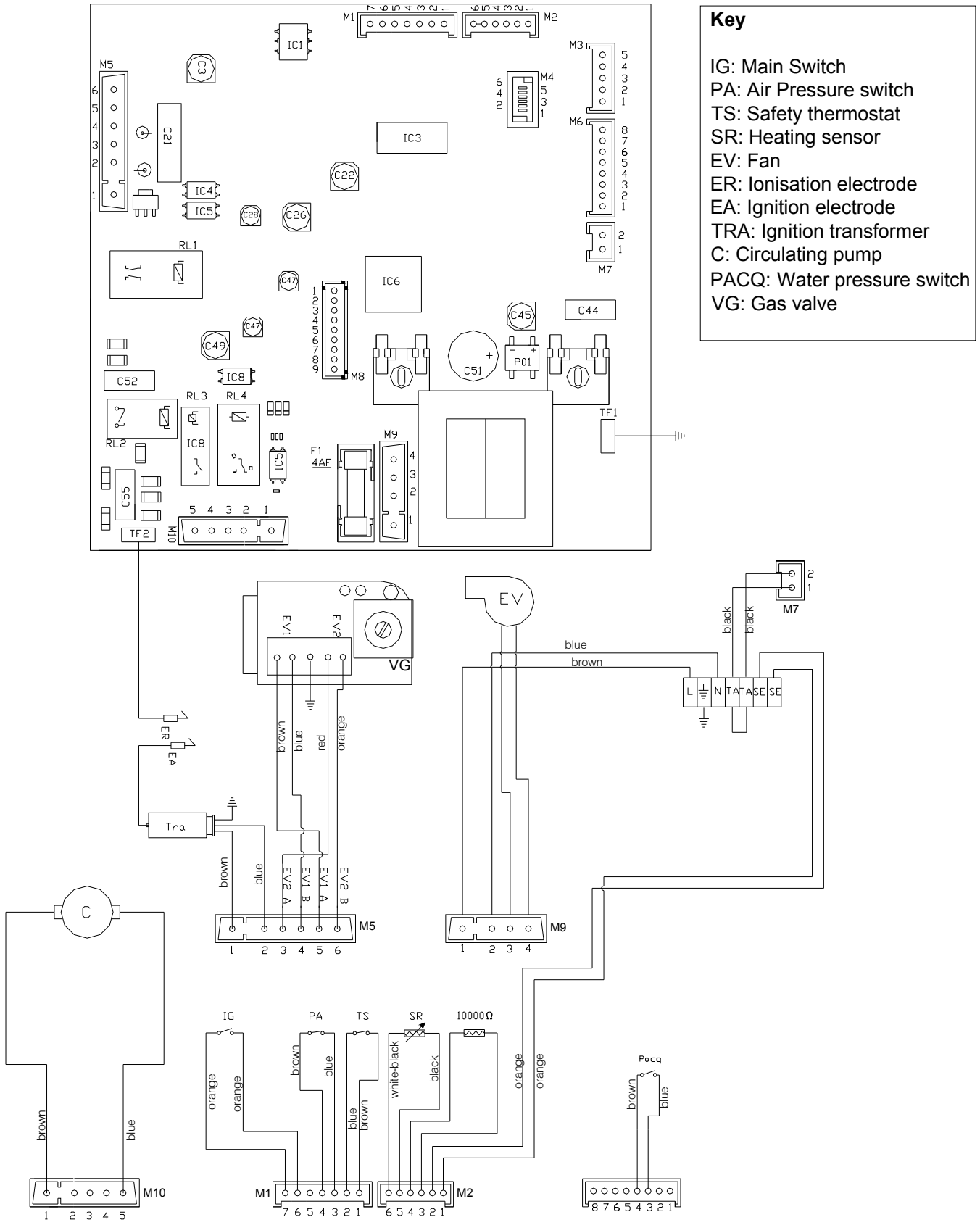


Fig. 1

6.5 Wiring diagrams

PRINTED CIRCUIT BOARD DIGITECH - SM20019
COD. 76677LA



Connecting the room thermostat (Option)

Connect the wires to the terminal board inside the instrument panel as follows:

a. switch off the power supply at the main switch.
b. remove the front case panel of the boiler.
c. slacken the screws and remove plate A (see fig.1).
d. remove jumper TA -TA from the terminal board B;
e. connect the room thermostat/chronostat wires;

When the wires have been connected, place plate "**A**" back to position and then the front case panel.

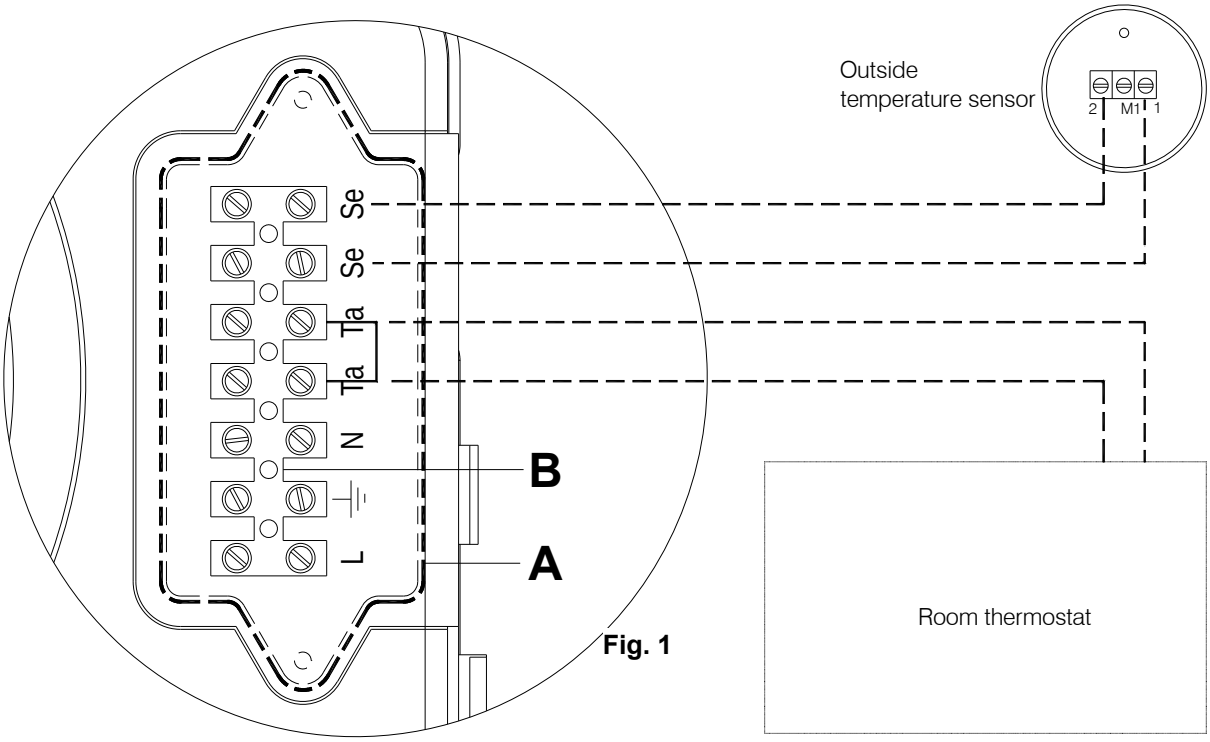


Fig. 1

Connecting the outside temperature sensor (Option)

Connect the wires to the terminal board inside the instrument panel as follows:

a. switch off the power supply at the main switch.
b. remove the front case panel of the boiler.
c. slacken the screws and remove plate A (see fig.1).
d. connect the outside temperature sensor on contacts marked as SE-SE on the terminal board B ;

When the wires have been connected, place plate "**A**" back to position and then the front case panel.

Connecting the remote controller and the outside temperature sensor (option)

Connect the wires to the terminal board inside the instrument panel as follows:

a. switch off the power supply at the main switch.
b. remove the front case panel of the boiler.
c. slacken the screws and remove plate A (see fig.1).
d. remove jumper TA-TA from the terminal board B;
e. connect the remote controller wires.

When the wires have been connected, place plate "**A**" back to position and then the front case panel.

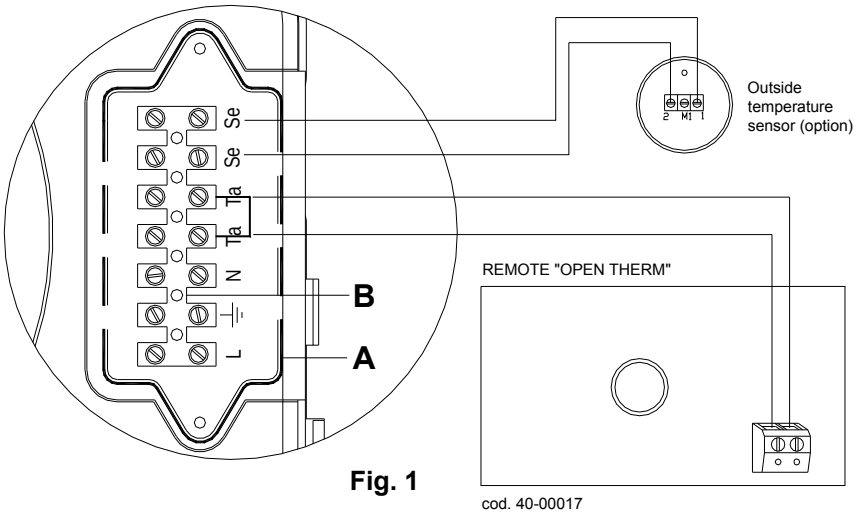


Fig. 1

cod. 40-00017

Connecting the remote controller and the telephone control (option)

Connect the wires to the terminal board inside the instrument panel as follows:

a. switch off the power supply at the main switch.
b. remove the front case panel of the boiler.
c. slacken the screws and remove plate A (see fig.1).
d. remove jumper TA-TA from the terminal board B;
e. connect the remote controller and the telephone control wires;
f. Active the telephone control through the parameter no.16 (chapter 5.1 'Parameters Table')

When the wires have been connected, place plate "**A**" back to position and then the front case panel.

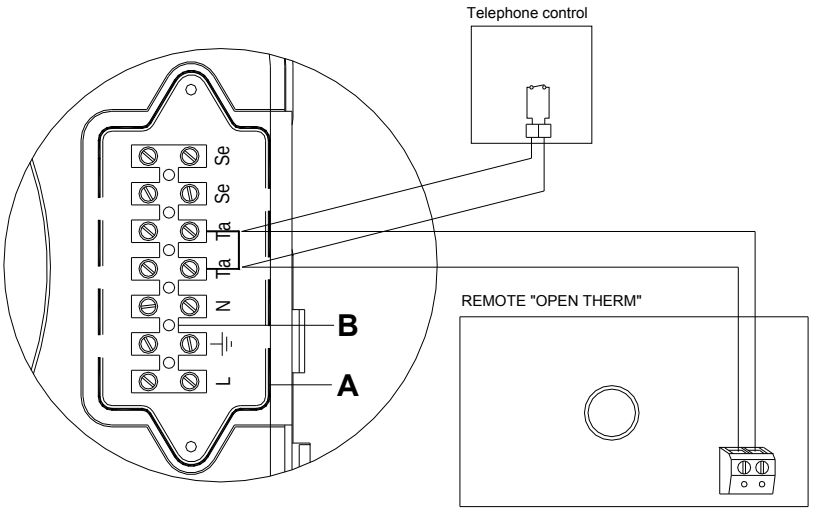
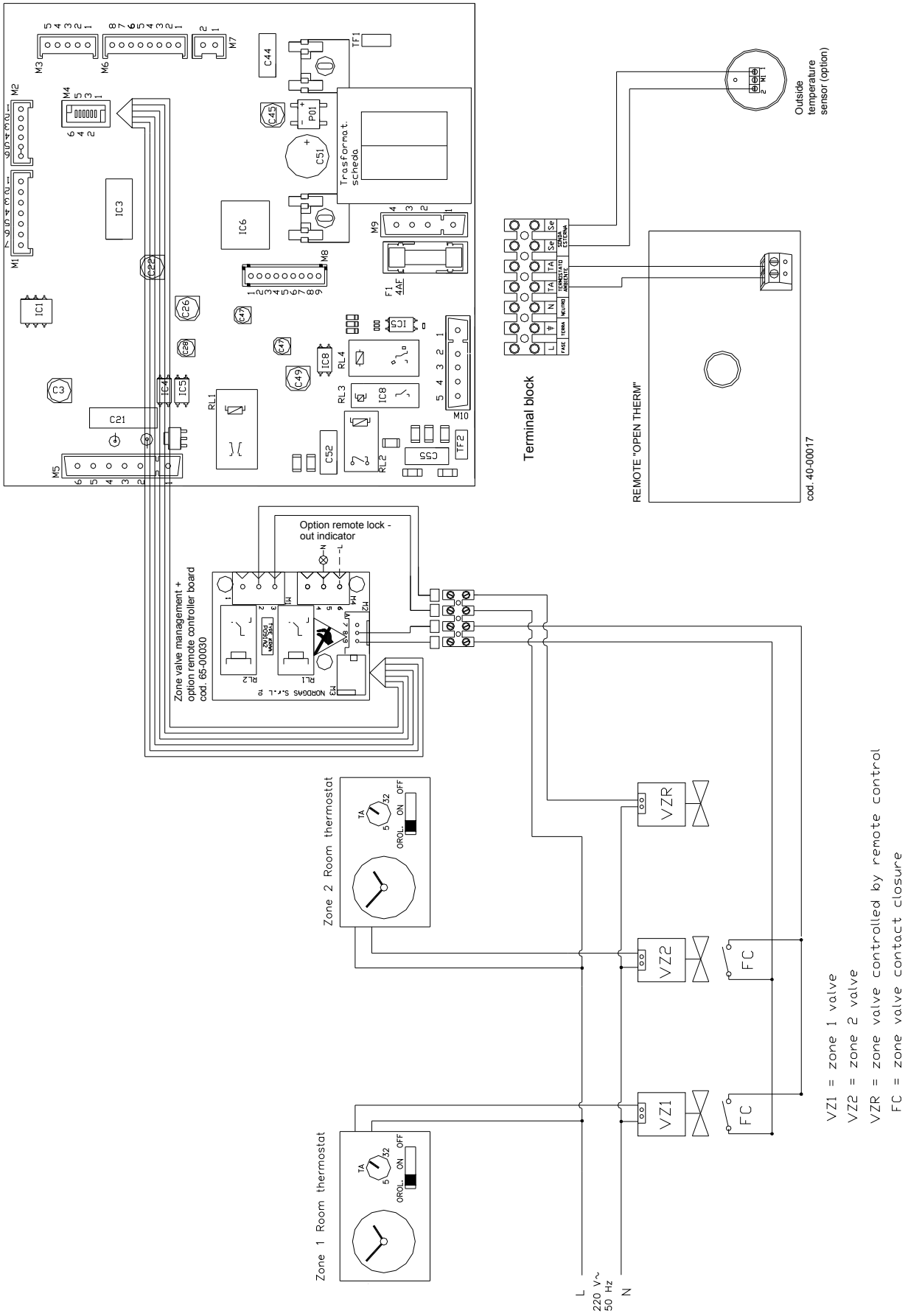


Fig. 2

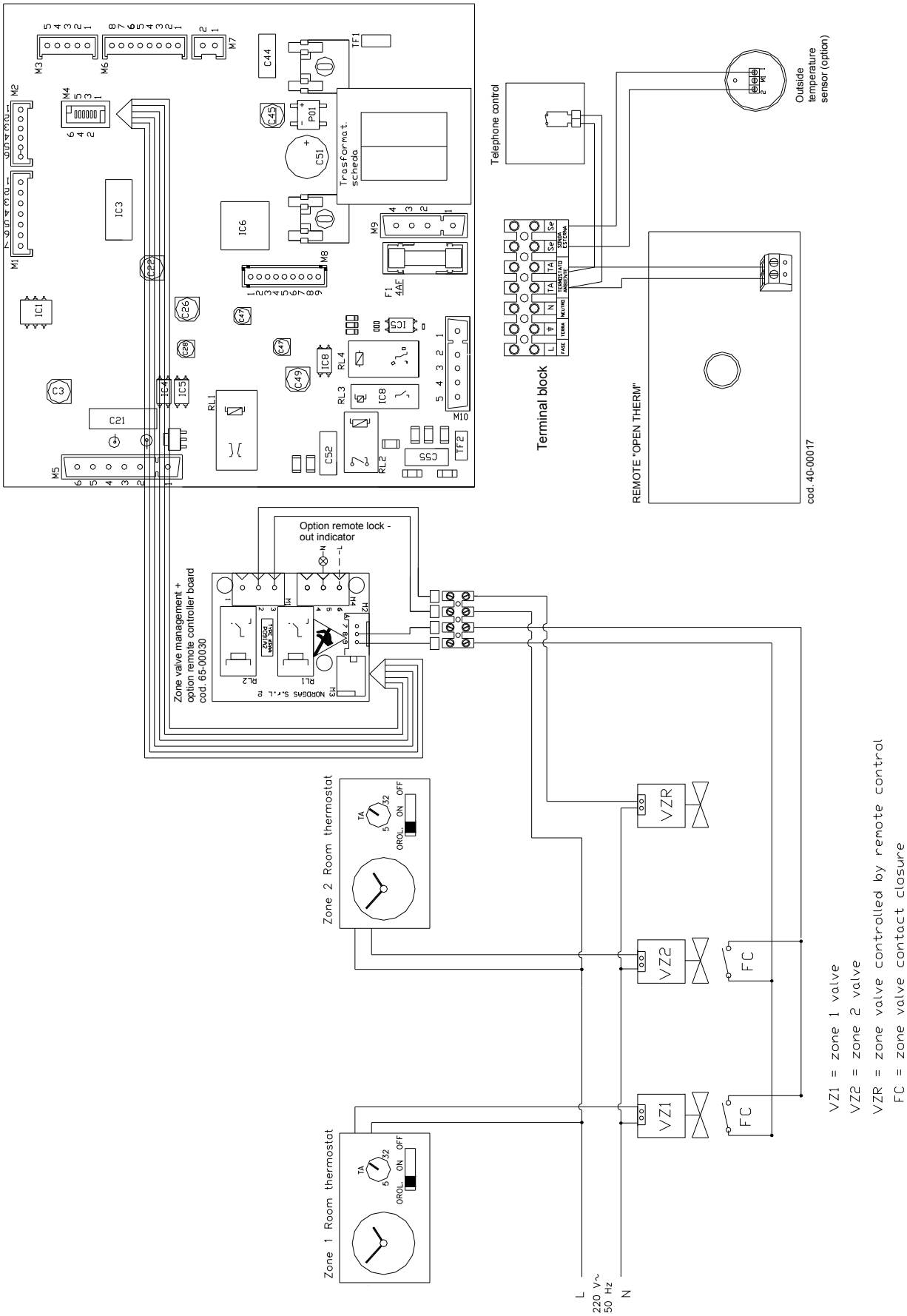
cod. 40-00017

Remote control and zone valves wiring

For the installation of a zone valve p.c.b., it is necessary to access the main p.c.b. for electrical connection (see chapter 6.3 “Accessing the boiler”) and to activate the parameter no. 15 (see chapter 5.1 “parameters table”).



Remote control, zone valves and telephone control wirings



Regulating the Flow temperature in accordance with the outdoor temperature

The outdoor sensor has to be connected directly to circuit board SM20019.

The sensor can thus be managed in one of two ways:

- In case of remote controller + outdoor temperature sensor installation, the climatic compensation curve is set by the remote itself (see remote control installation and operating manual).
- In case of outdoor temperature sensor only installation, the climatic compensation curve is set using the central heating control knob. As the knob (fig. 2) is rotated, the numbers corresponding to the curve shown in figure 1 are displayed.

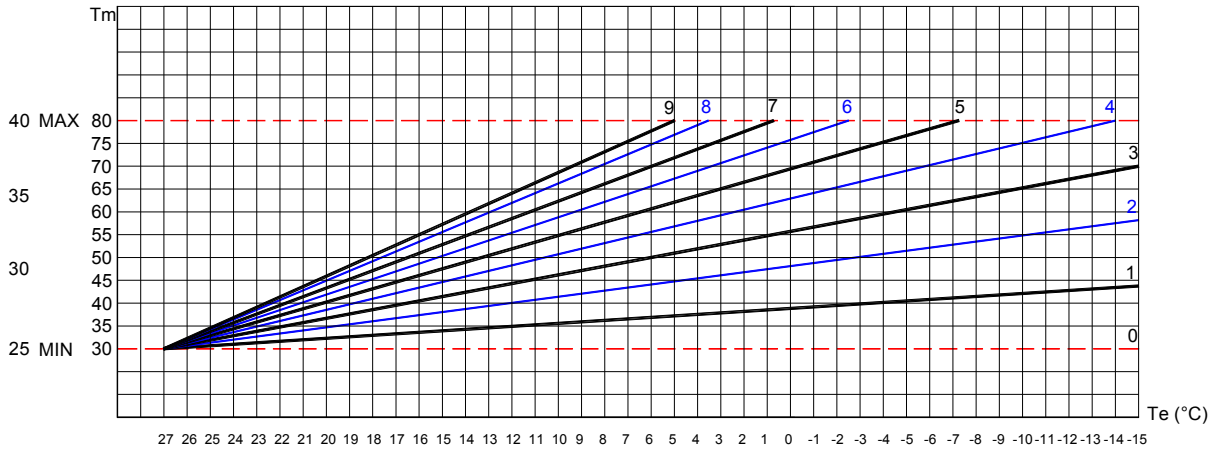
The factors governing the correction is reported in figure 1.

The selection of the compensation curve is determined by the maximum delivery temperature Tm and the minimum outdoor temperature Te.

N.B. *The y-axis values of the delivery temperature Tm refer to standard 80-30 °C appliances or 40-25 °C floor-mounted appliances. The type of appliance can be programmed using parameter 3 (see 5.1 "Parameter programming").*

OUTDOOR SENSOR

DELIVERY TEMPERATURE CORRECTION AS A FUNCTION OF OUTSIDE TEMPERATURE WITH RESPECT TO THE POSITION OF THE HEATING TEMPERATURE CONTROL SET BY THE USER



TM-MAX/MIN = delivery temperature range selected

Fig. 1 Te = Outdoor temperature Tm = delivery temperature

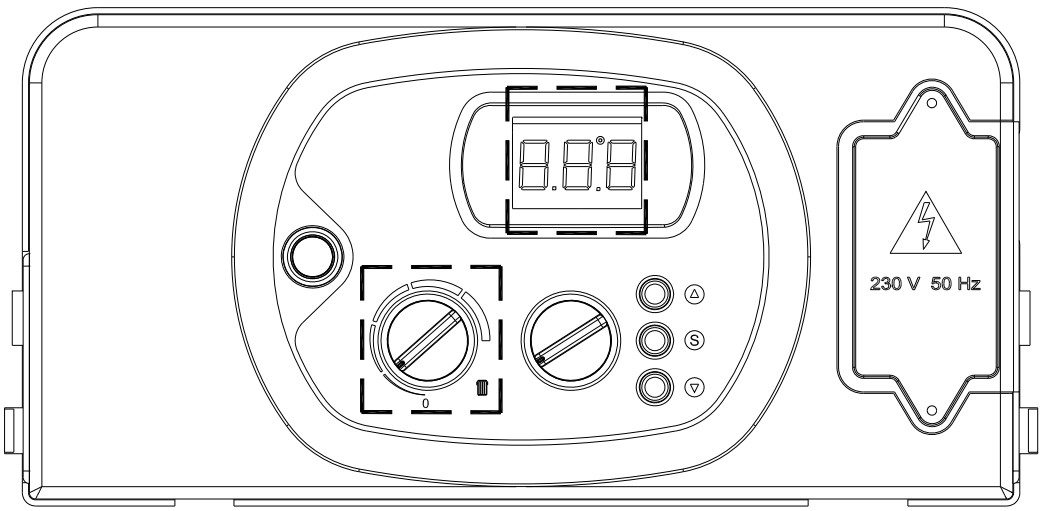


Fig. 2

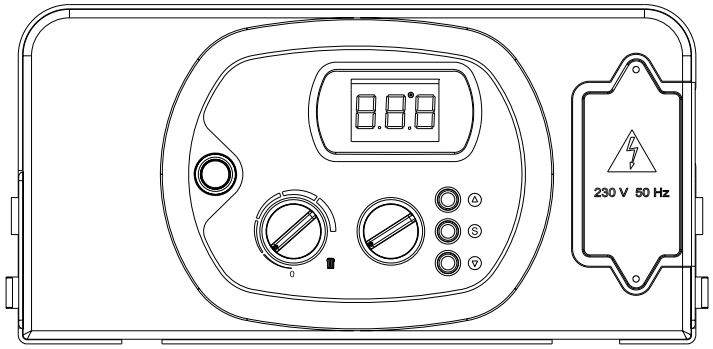
6.6 Troubleshooting

ERROR CODE	PROBLEM	POSSIBLE CAUSE	REMEDY
E01	NO FLAME	*WITH NO IGNITION* **a.** NO GAS. **b.** IGNITION ELECTRODE BROKEN OR EARTHED. **c.** GAS VALVE MALFUNCTION **d.** MECHANICAL MINIMUM ADJUSTMENT (ON GAS VALVE) SET TOO LOW OR SLOW IGNITION ADJUSTMENT SET TOO LOW. **e.** GAS VALVE INLET PRESSURE TOO HIGH (FOR LPG BOILERS ONLY); *WITH IGNITION* **f.** POWER SUPPLY LIVE AND NEUTRAL WIRES INVERTED. **g.** IONISATION ELECTRODE MALFUNCTION. **h.** IONISATION ELECTRODE CABLE DISCONNECTED.	**a.** CHECK MAINS SUPPLY. **b.** REPLACE PART. **c.** REPLACE PART **d.** REGULATE MECHANICAL MINIMUM OR SLOW IGNITION. **e.** CHECK THE MAXIMUM PRESSURE SETTING. **f.** CONNECT THE POWER SUPPLY WIRES CORRECTLY. **g.** REPLACE PART. **h.** CONNECT THE IONISATION ELECTRODE WIRE.
E02	SAFETY THERMOSTAT TRIPPED (95°C)	**i.** THERMOSTAT MALFUNCTION OR OUT OF CALIBRATION. **j.** THERMOSTAT CABLE DISCONNECTED.	**i.** REPLACE PART. **j.** CHECK THE WIRING ;
H20	NO WATER IN THE SYSTEM	**k.** INSUFFICIENT WATER PRESSURE IN THE SYSTEM (STOPS AT 0.3 BAR). **l.** WATER PRESSURE SWITCH CABLE DISCONNECTED. **m.** WATER PRESSURE SWITCH MALFUNCTION.	**k.** FILL THE SYSTEM; **l.** CHECK THE WIRING; **m.** REPLACE PART;
E05	HEATING SENSOR	**n.** SENSOR MALFUNCTION OR OUT OF CALIBRATION (RESISTANCE VALUE 10 kOhms AT 25 °C). **o.** SENSOR CABLE DISCONNECTED OR WET.	**n.** REPLACE PART; **o.** CHECK THE ELECTRICAL CONNECTION;
E14	AIR PRESSURE SWITCH	**p.** SWITCH OUT OF ORDER **q.** INLET OR OUTLET FLUE GAS DUCTS OBSTRUCTED **r.** SWITCH CABLE NOT STABLE	**p.** REPLACE PART **q.** CHECK FLUE GAS DUCTS **r.** CHECK CABLE
E22	PARAMETER PROGRAMMING REQUEST	**s.** LOSS OF MICROPROCESSOR MEMORY.	**s.** REPROGRAM PARAMETERS;

6.7 Diagnostics

■ Error codes:

E01 Ionisation Lock Out
E02 Safety Thermostat Tripped
H2O Low Water Pressure Alarm
E05 Heating Sensor Malfunction
E14 Air Pressure Switch Tripped
E22 Parameter Programming Request



■ Function codes :

Code	Function	Description
07	Flue test function active (Chimney-Sweeper)	Pressing the “service” button for 7 seconds activates the Flue test function. Pressing the boiler off button deactivates the function. The Flue test function operates the boiler at the maximum heating pressure for 15 minutes without any modulation. The function is useful for combustion testing.
08	Frost Protection Central heating circuit	The function is activated when the heating sensor senses a temperature of 5 °C. The boiler operates at minimum gas pressure with the 3-way diverter valve in the winter position. The function is deactivated when the temperature detected by the sensor reaches 30°C.
31	Incompatible Remote Control	Function active when the remote control connected is not compatible with the printed circuit board .

Heating technology since 1959

RADIANT BRUCIATORI s.p.a.
Via Pantanelli, 164/166 - 61025 Loc. Montelabbate (PU)
Tel. +39 0721 9079.1 • fax. +39 0721 9079279
e-mail: tecnico@radiant • Internet: http://www.radiant.it