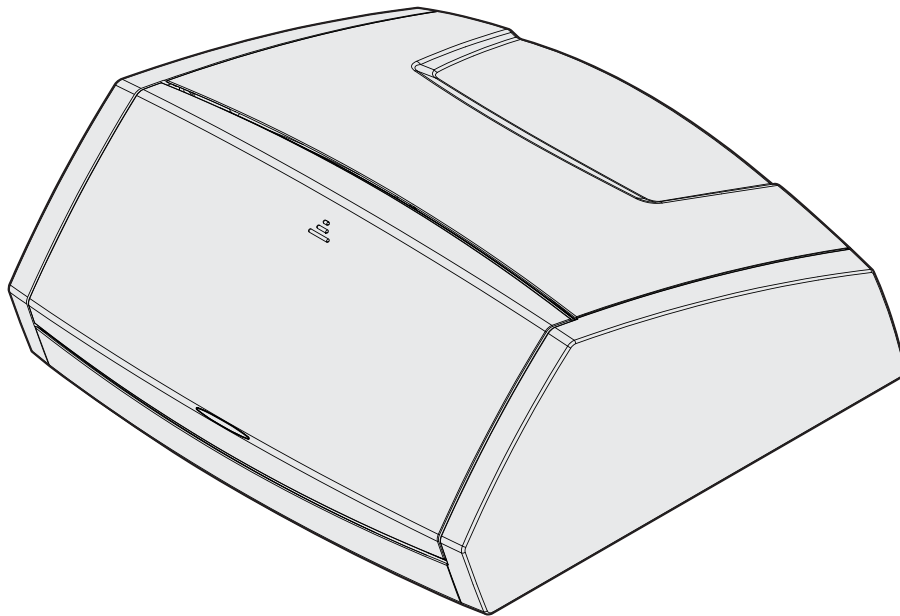


INSTALLATION, OPERATION AND
MAINTENANCE MANUAL

TBOX BASIC R



RIELLO S.p.A.

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RIELLO S.p.A.
Società con Socio unico soggetta alla
direzione e coordinamento di Riello Group SPA
Sede legale e amministrativa
37045 Legnago (VR)
Via Ing. Pilade Riello, 7
Cap. soc. € 7.117.400,00 i.v.
Reg. delle Imp. di Verona N. 02641790239
C.F. e Part. IVA 02641790239

Lecco, 18th January 2012

The company

**Riello SpA Heating Products Direction
Via Risorgimento 13
23900 Lecco
ITALY**

hereby declares that the control panels bearing the brand: **THERMITAL**

models:

**TBOX CLIMA COMFORT, TBOX CLIMA TOP, TBOX CLIMA MIX,
TBOX BASIC and TBOX BASIC ACS**

conform to European Directive 2004/108/EC (Electromagnetic Compatibility), to European Directive 2006/95/EC (Low Voltage) and to the following European standards:

| | |
|-------------------|---|
| EN 60730-1:2000 | Automatic electrical controls for household and similar use. |
| EN 60730-2-9:2000 | Part 2: Particular requirements for temperature sensing controls. |
| EN 60529:1992 | Specification for degrees of protection provided by enclosures (IP code). |
| EN 61000-6-2:2001 | Electromagnetic compatibility. Immunity per industrial environments. |
| EN 61000-6-3:2001 | Electromagnetic compatibility. Emission standard for residential, commercial and light-industrial environments. |



Marco Tagliaferri
Heating Products Director
Riello S.p.A.

Dear heating engineer,

*Congratulations on having chosen a **TBOX** control panel. You have selected a quality product that is designed to give dependable, efficient and safe service and to provide comfort in the home for many years to come. This manual provides information that is essential to the installation of the appliance. Used in conjunction with your own knowledge and expertise it will enable you to install the appliance quickly, easily, and correctly.*

Once again, please accept our thanks and our congratulations on your choice of product.

THERMITAL


RANGE


| MODEL | CODE |
|--------------|-------------|
| TBOX BASIC R | 20011804 |

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The following symbols are used in this manual:

 = Identifies actions that require caution and adequate preparation

 = Identifies actions that you MUST NOT do








This manual, Code 20013533 Rev. 2 (06/12) is made up of 20 pages.

GENERAL SAFETY INFORMATION

-  Check that the product is complete and undamaged as soon as you remove it from its packaging. Contact the reseller from whom you purchased the product if you notice any problems.
-  This product must be installed by a legally qualified heating engineer. (In Italy heating engineers are regulated by law 37 of the 22/01/2008.) On completion of the installation, the installer must issue the owner with a declaration of conformity confirming that the installation has been completed to the highest standards in compliance with the instructions provided by THERMITAL in this instruction manual, and that it conforms to all applicable laws and standards.
-  This control panel is designed and made for use with boilers generating hot water up to 110°C, and must be used exclusively for this purpose and within its specified performance limits.
-  The manufacturer declines all responsibility, contractual or other, for damage to property or injury to persons or animals caused by improper installation, adjustment, maintenance or use.
-  This instruction manual is an integral part of the product. It must be kept safe and must ALWAYS accompany the product, even if it is sold to another owner or transferred to another user or to another installation.
If you damage or lose this manual, order a replacement immediately from your local Technical Assistance Centre.

PRECAUTIONS

The operation of any appliance that uses electrical power demands that a number of fundamental safety precautions be respected. In particular:

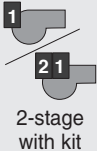

-  Always turn the electrical power supply OFF at the main switch before commencing any cleaning or maintenance.
-  Do not tamper with or adjust the safety or control devices without prior authorisation and instructions from the boiler's manufacturer.
-  Never pull, disconnect, or twist the electrical cables coming from the appliance even if it is disconnected from the mains electricity supply.
-  Dispose of packaging materials in compliance with applicable standards and legislation governing the disposal of urban, domestic and industrial waste.
-  Never switch the control panel on even for a short period if the safety devices are not functioning correctly or have been tampered with.
-  All maintenance and repairs must be carried out by a legally qualified heating engineer.
-  Do not use water to extinguish fire in the control panel. Switch power OFF at the mains power switch to isolate the control panel electrically first. Then use a class E fire extinguisher (marked "SUITABLE FOR LIVE ELECTRICAL ITEMS") to extinguish the flames.


PRODUCT DESCRIPTION

TBOX BASIC R control panels are thermostatic control panels for use with dedicated central heating boilers equipped with single stage jet burners. All thermostatic control devices comply with applicable technical and safety standards, and are housed in an ABS box.

All the electrical control and safety devices in **TBOX BASIC R** control panels are factory tested in compliance with applicable technical standards. Control panels may be installed on top of the boiler or on one of its side panels, using the optional side panel mounting kit.

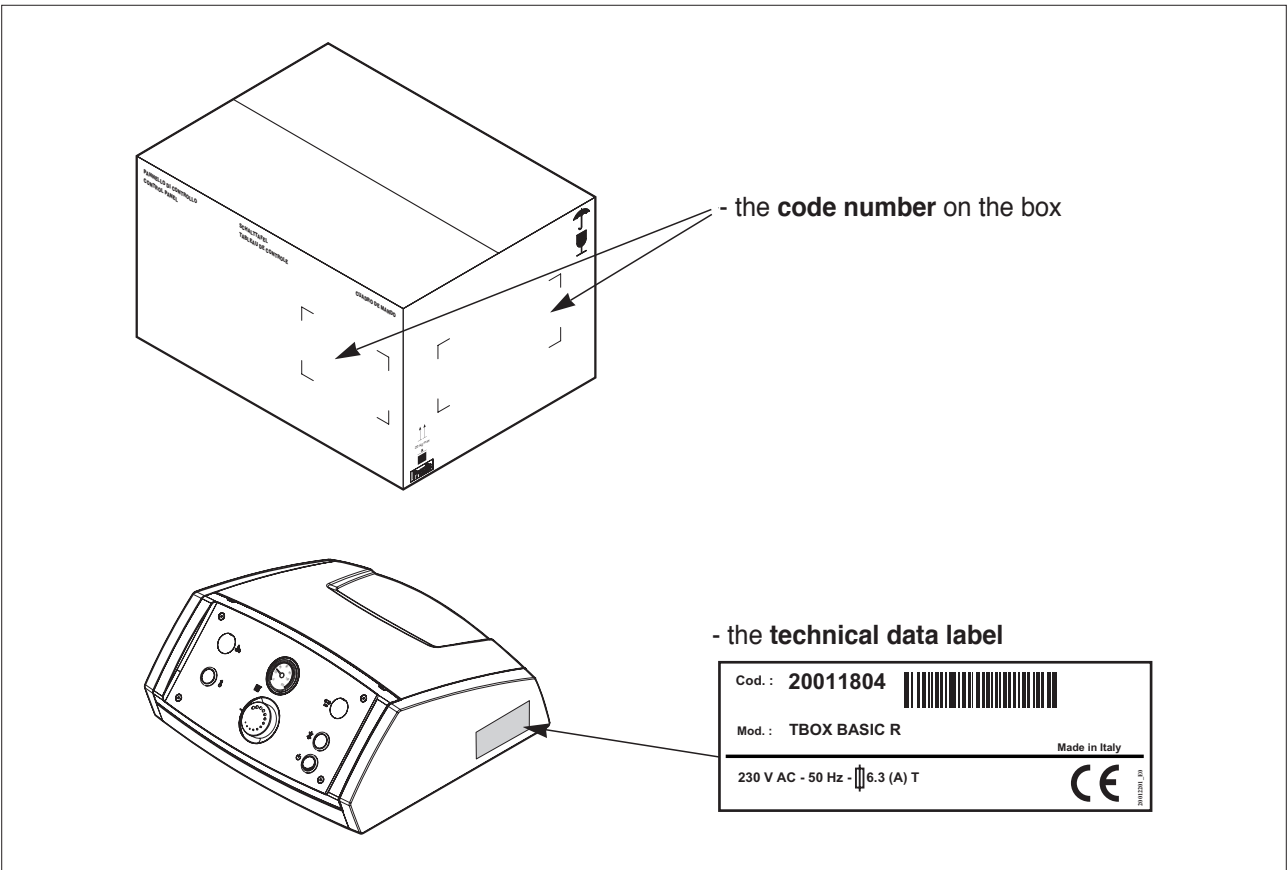
APPLICATION CHART

| | Burner | Cascaded boilers | Cascaded boilers | Solar water heating systems | DHW storage cylinders | Direct zone | 1st mixed zone | 2nd mixed zone |
|--------------|---|------------------|------------------|-----------------------------|-----------------------|---|----------------|----------------|
| TBOX BASIC R |  2-stage with kit | | | | |  | | |

 To make the electrical connections to the various system components and to the burner, refer to the instructions on page 12 and to the specific instructions supplied with each item and with the burner.

IDENTIFICATION

TBOX BASIC R control panels are identified by:



TECHNICAL SPECIFICATIONS

| Description | TBOX BASIC R | |
|---|-------------------|--------|
| Power supply | 230 (+/-10%) ~ 50 | V ~ Hz |
| Maximum current draw | 6,3 | A |
| Main power switch (two pole) | 250 ~ 10(4) | V ~ A |
| Fuse | 250 ~ 6,3 T | V ~ A |
| Power consumption | - | W |
| Function indicators | 230 | V |
| Manual reset safety thermostat (TS) (*) | 110 (+0/-6) | °C |
| Control thermostat (TR) field of adjustment | 30 ÷ 82 (+/-3) | °C |
| Minimum temperature thermostat (Tm) | | |
| control range | 30 ÷ 90 (+/-3) | °C |
| working setting | 40 | °C |
| Boiler temperature gauge (TeC) | 0 ÷ 120 | °C |
| Index of protection | X4D | IP |
| Cable length | 3 | m |

(*) Homologated

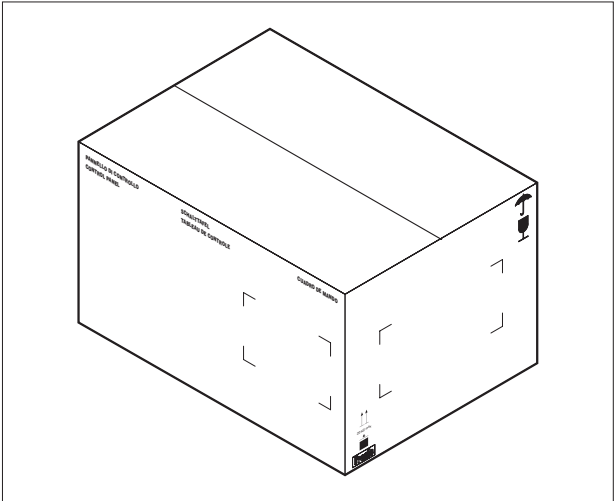
ACCESSORIES

The following accessories are available, to be ordered separately:

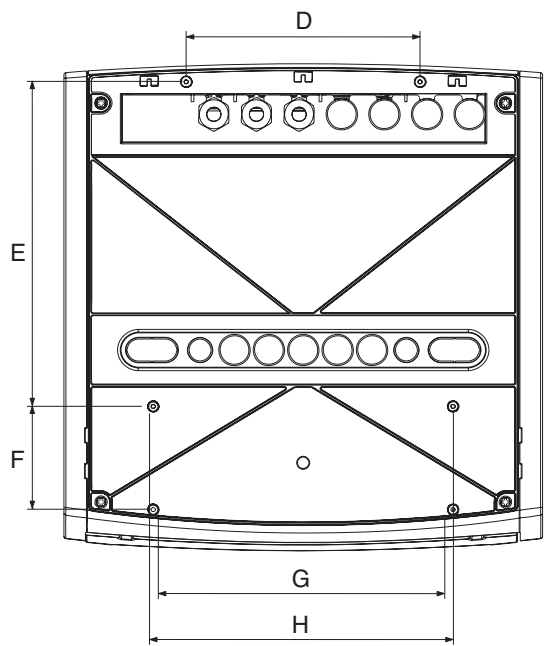
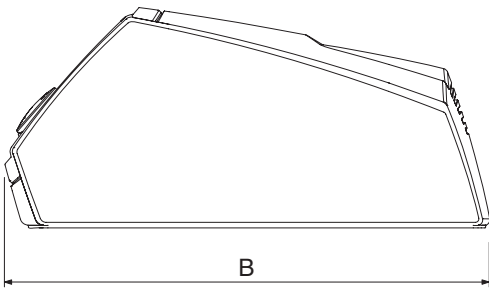
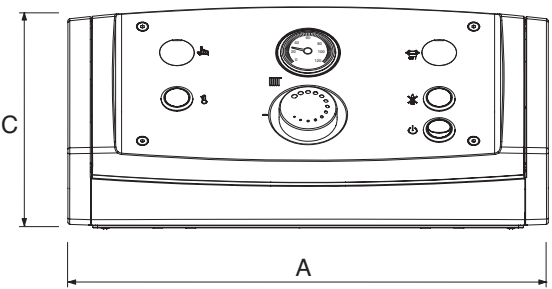
| ACCESSORY | CODE |
|------------------------------|----------|
| Two-stage burner control kit | 4031067 |
| Wall mounting kit | 20010056 |

UNPACKING THE PRODUCT

TBOX BASIC R control panels come in a cardboard box that also contains the instruction manual.



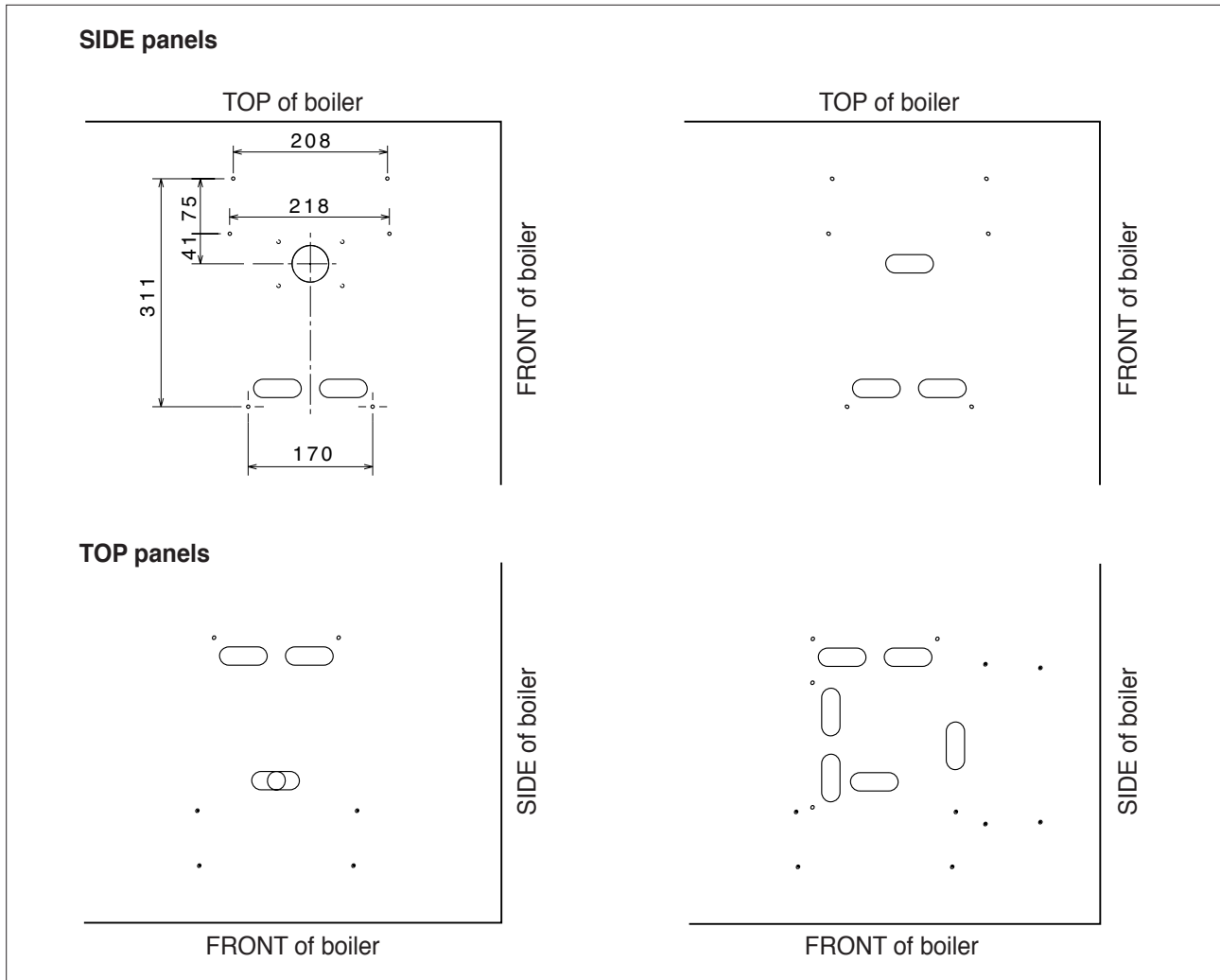
DIMENSIONS AND WEIGHT



| Description | | |
|-------------|-----|----|
| A | 348 | mm |
| B | 353 | mm |
| C | 160 | mm |
| D | 170 | mm |
| E | 236 | mm |
| F | 75 | mm |
| G | 208 | mm |
| H | 218 | mm |
| Weight | 2,7 | kg |

ASSEMBLY

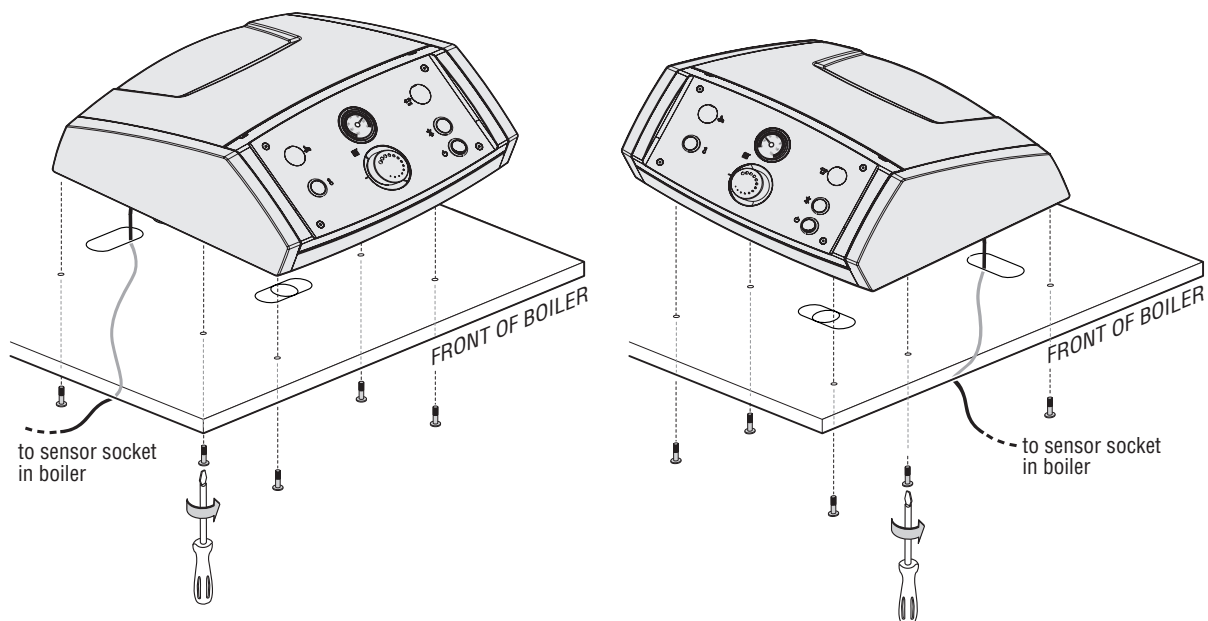
TBOX BASIC R control panels can be installed either on the top of the boiler or on one of its side panels. Before commencing installation, check the arrangement of the holes on the top panel or side panel of the boiler.



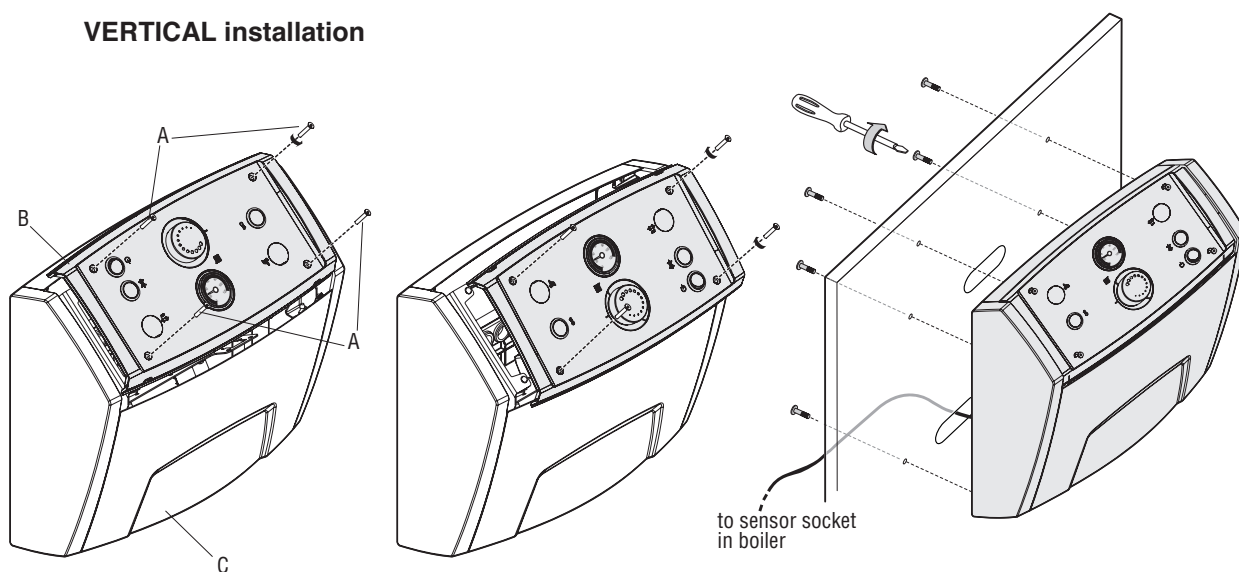
Once you have identified the right holes for the type of installation required, proceed as follows:

- Push out the pre-formed slots on the boiler casing corresponding to the oval cable grommets in the control panel
- Perforate the membranes of the control panel cable grommets. Pull out the thermostat cable and route it through the slot in the top panel
- Secure the control panel to the boiler casing.

HORIZONTAL installation




VERTICAL installation

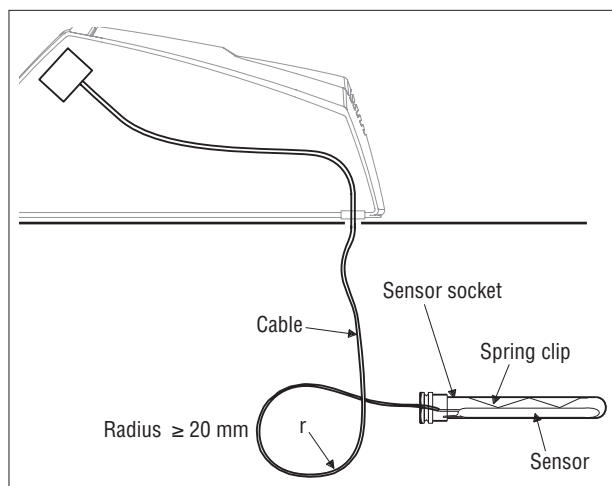


Before you can install the control panel on a boiler side panel, proceed as follows:

- Remove the 4 screws (A).
- Remove the front trim (B), turn it through 180°, and fit it back on the body of the control panel (C).
- Install the control panel as instructed above.

A dedicated wall mounting kit is available. Refer to the instructions provided with the kit for details on installation.

 Carefully unwind the thermostat cables and route them through the relevant grommets. Insert the thermostat sensors in the corresponding sockets in the boiler. Fix the sensors securely in place. Use the cable straps provided to secure the sensor cables.

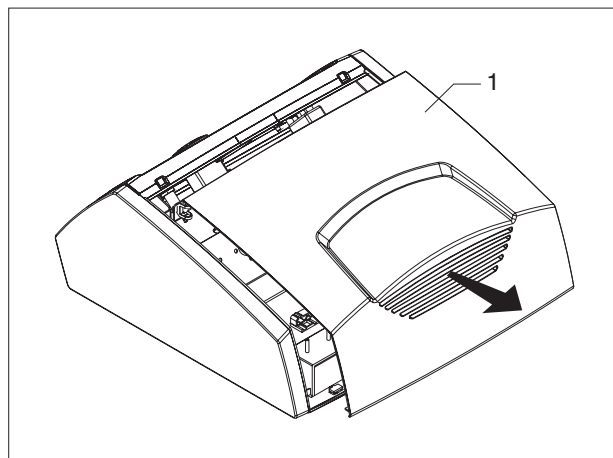


ACCESSING INTERNAL COMPONENTS

Only personnel from Technical Assistance Service or professionally qualified heating engineers are allowed to access components inside the control panel.

Proceed as follows if you need to access components inside the control panel:

- Turn the system OFF at the mains power switch
- Remove the top panel (1) by pulling it outwards.



ELECTRICAL CONNECTIONS

All electrical connections must be made by a legally qualified heating engineer according to the following instructions. (In Italy heating engineers are regulated by law 37 of the 22/01/2008.)

⚠ The following instructions are mandatory:

- 1 - Use a single pole magnetic thermal trip switch and disconnector conforming to IEC-EN standards (with a contact gap of at least 3 mm);
 - 2 - Respect the L (Phase) - N (Neutral) polarity. Keep the ground wire about 2 cm longer than the power wires.
 - 3 - Use cables with a cross section of 1.5 mm² or more, complete with end terminals;
 - 4 - Always refer to the electrical wiring diagrams in this manual when performing any electrical work.
 - 5 - Make sure the appliance is connected to an effective ground.
- Proceed as instructed in the "ACCESSING INTERNAL COMPONENTS" section above to access the terminals inside the control panel.
 - Route the connection cables through the cable grommets in the casing of the boiler or secured by the side mounting bracket. Alternatively, use the holes provided for cable glands or spiral sleeving. To use these holes, push out the pre-formed hole covers in the corresponding positions on the control panel.
 - See the "WIRING DIAGRAMS" section for information on how to connect up the individual devices.

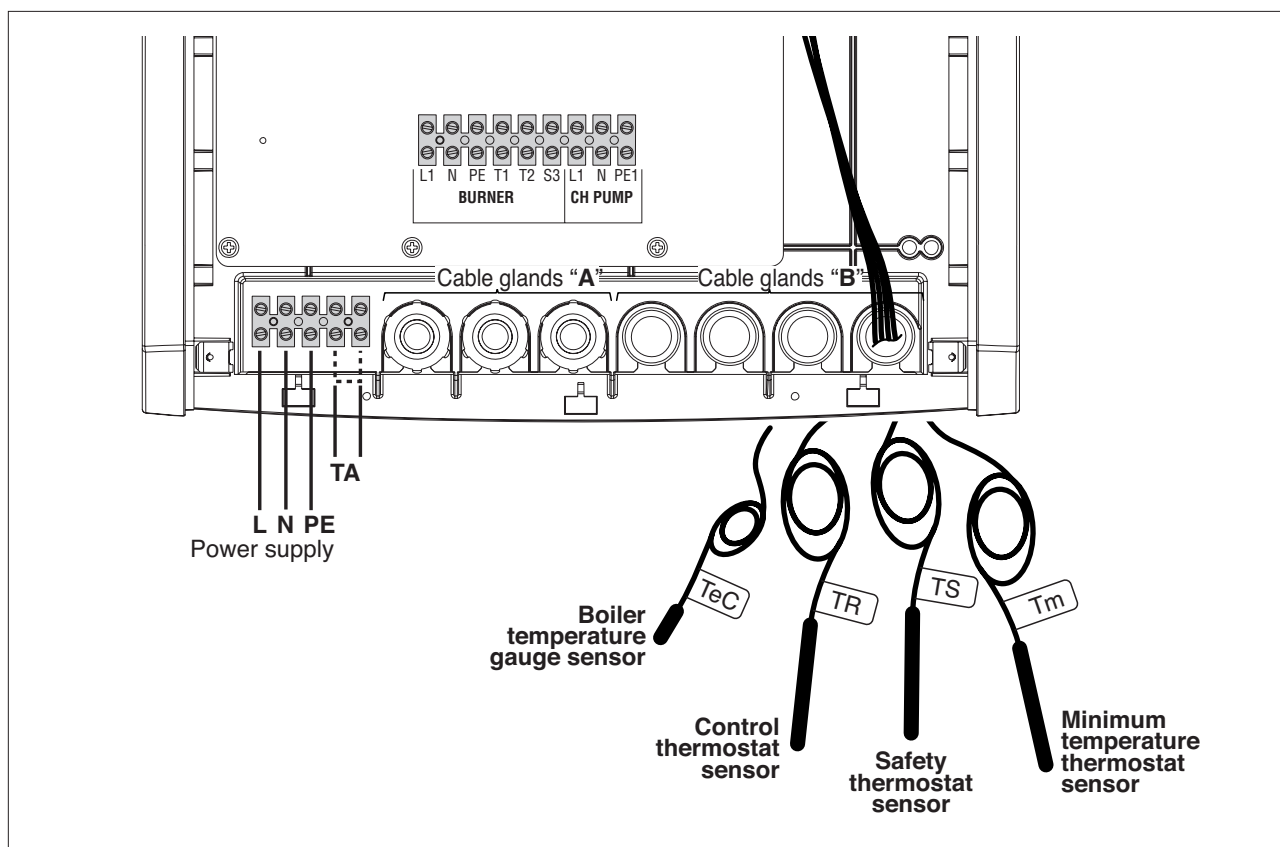
- Tighten the screws on the cable clamps and screw up the cable glands to secure the cables against pulling. Secure the cables to the casing of the boiler as necessary.

⚠ Use the terminals provided to connect all 230 V power users to ground.

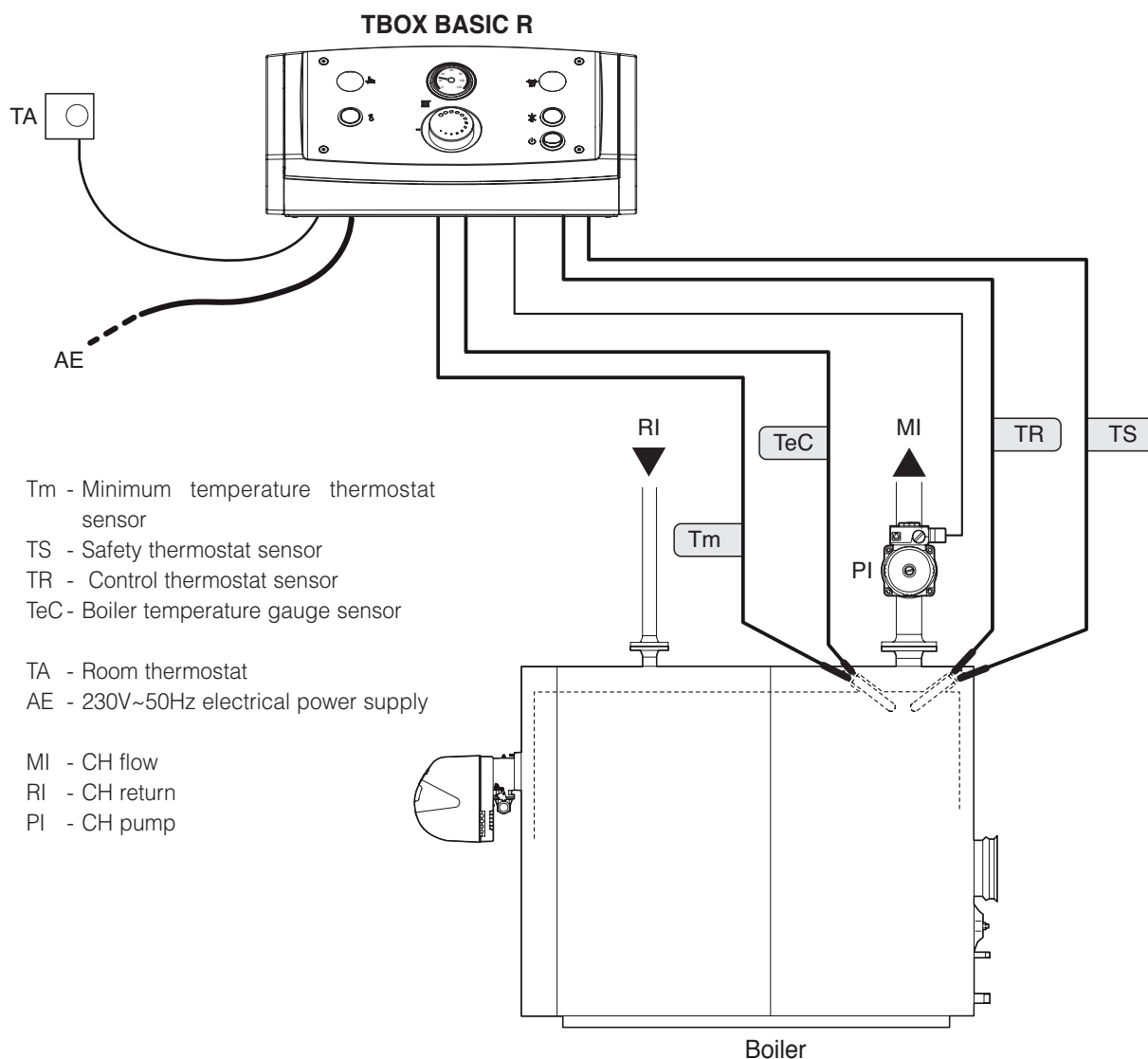
⊖ It is strictly forbidden to use gas and/or water pipes to ground the appliance.

⊖ Do not route the power cable or room thermostat cables near hot surfaces (like heating circuit flow pipes). Use a suitable class of cable if there is any possibility of contact with parts at temperatures above 50°C.

The manufacturer declines all responsibility for damage caused by failing to ground the appliance adequately or by failure to respect the wiring diagrams provided in this manual.



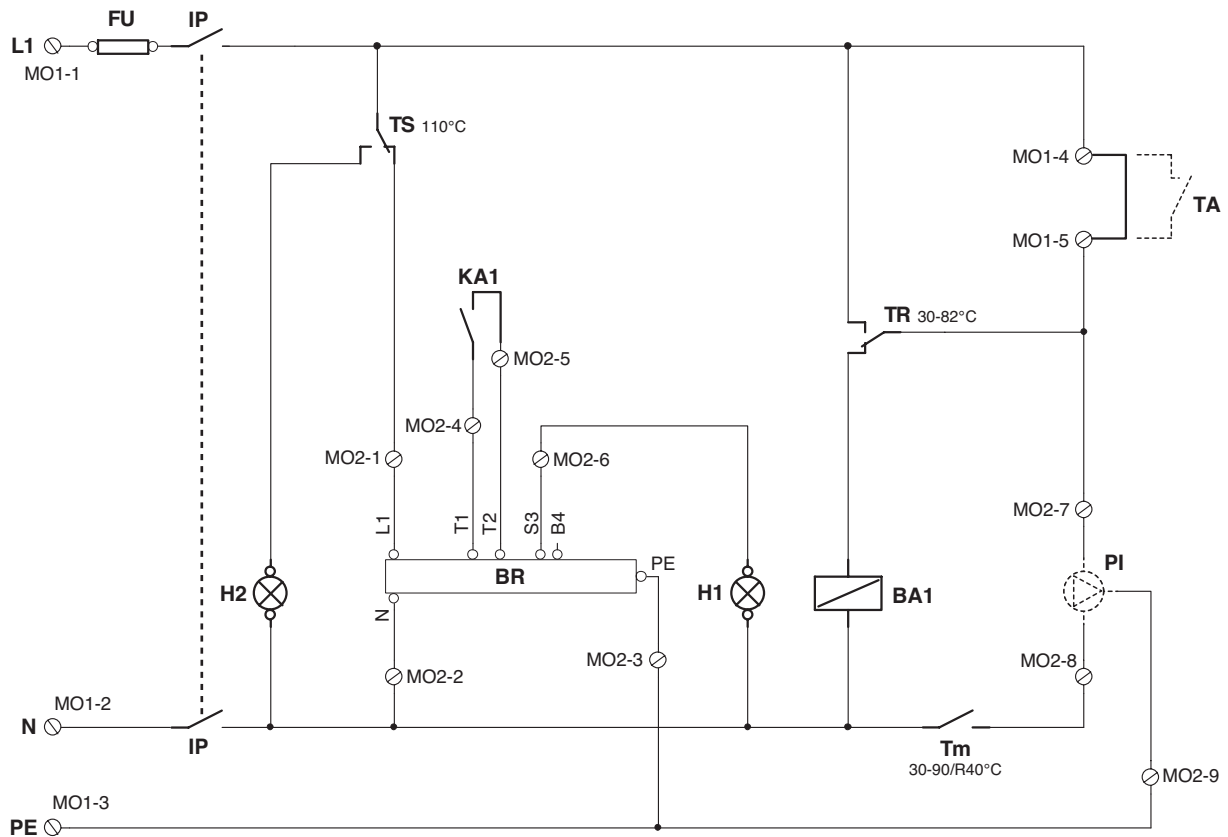
POSITIONING THE SENSORS



⚠ Refer to the manual supplied with the boiler to identify the sensor sockets correctly.

⚠ Insert the thermostat sensors in the corresponding sockets and fix them securely in place. Use the cable straps provided to secure the sensor cables.

WIRING DIAGRAMS

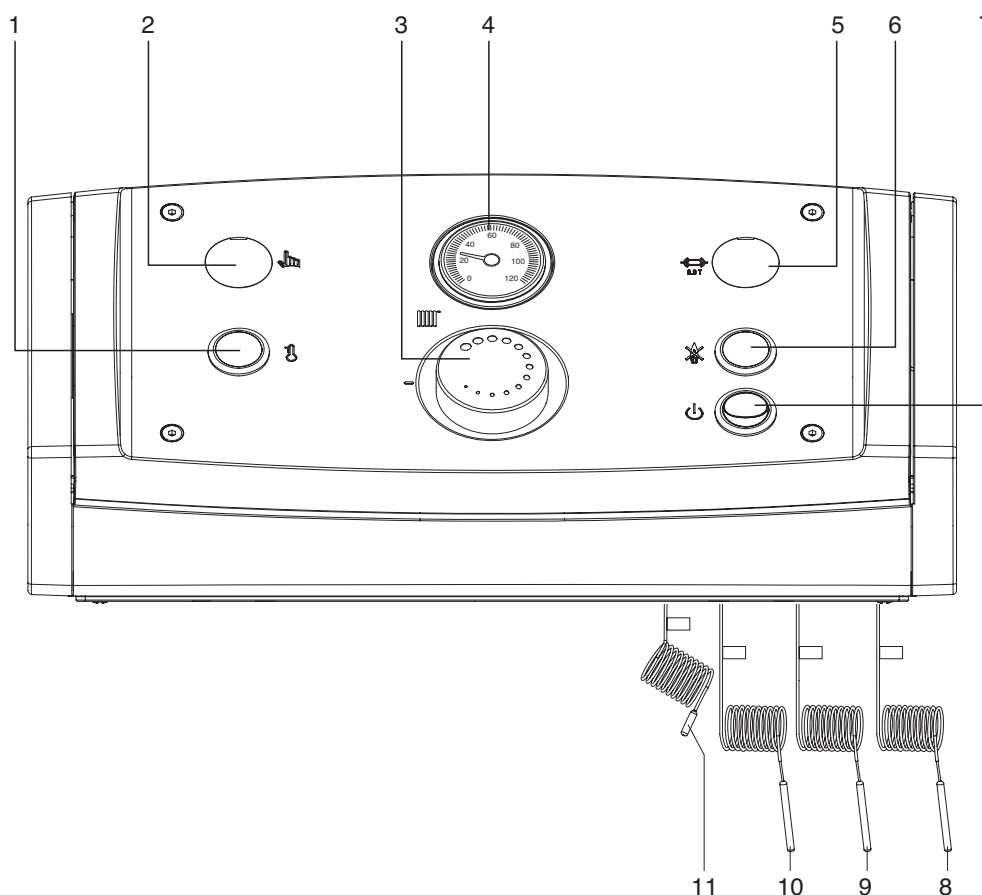


- L1-N-PE 230V~50Hz power supply
 FU Fuse 6.3 A-T
 IP Main switch
 TS Manual reset safety thermostat (110°C)
 TR Control thermostat (30-82°C)
 Tm Minimum temperature thermostat (30-90/R40°C)
 KA1 Relay contacts
 BA1 Relay coil
 BR Burner
 H1 Burner lockout indicator
 H2 Overtemperature indicator

Connections to be made by the installer:

- TA Room thermostat
 PI CH pump

LAYOUT



- 1 - Overtemperature indicator
- 2 - Manual reset safety thermostat (110°C)
- 3 - Control thermostat (30-82°C)
- 4 - Boiler temperature gauge
- 5 - Fuse
- 6 - Burner lockout indicator
- 7 - Two pole ON/OFF switch
- 8 - Minimum temperature thermostat sensor (Tm) (accessible from inside)
- 9 - Safety thermostat sensor (TS)
- 10 - Control thermostat sensor (TR)
- 11 - Boiler temperature gauge sensor (TeC)

⚠ The cables for the TS, TR, TeC and Tm sensors must be routed out of the electric control panel and through the cable grommets in the boiler during installation.

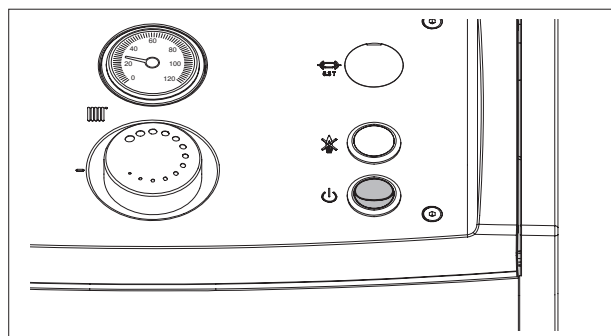
DESCRIPTION OF FUNCTIONS

TBOX BASIC R control panels are equipped with 3 homologated electromechanical thermostats, a temperature gauge, a main power ON/OFF switch, function indicators and a protective fuse.

Main control panel ON/OFF switch (🔌)

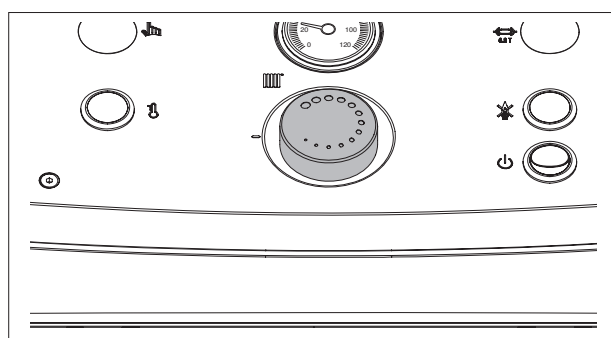
This switch connects power to all controlled devices and appliances.

⚠ A delayed action 6.3 A fuse is installed inside the control panel upstream from this switch (see wiring diagram).



Control thermostat (🌀)

The control thermostat lets you adjust boiler temperature between 60 and 82°C. The recommended setting is around 70°C.

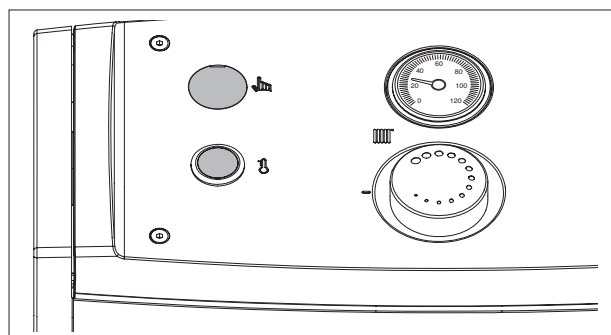


Safety thermostat (TS)

The safety thermostat shuts down the burner if boiler temperature exceeds 110°C.

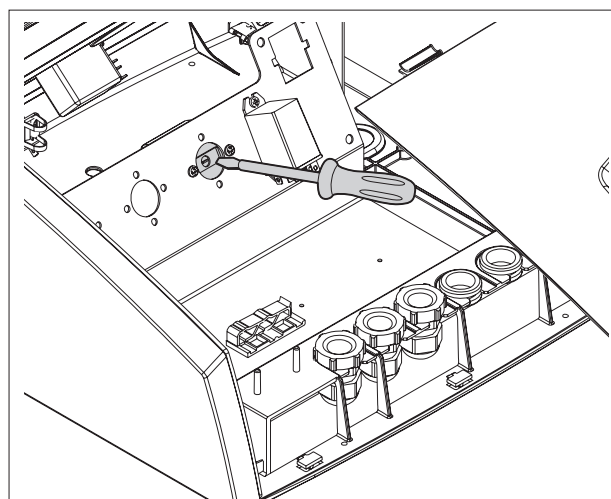
To restore normal functioning, remove the protective cover and press the button 🖱. Use a suitable tool if necessary.

⚠ If the safety thermostat (TS) shuts down the burner, the red warning light 🚫 comes on and any burner error signals on the burner controller are lost.



Minimum temperature thermostat (Tm)

This thermostat prevents cold water from circulating and causing condensation inside the boiler. It is located inside the control panel, and is preset to 40°C. Adjustment requires a suitable tool and is reserved for personnel from THERMITAL's Technical Assistance Service.



USEFUL INFORMATION

SELLER:

Mr.

Address

tel.

INSTALLER:

Mr.

Address

tel.

TECHNICAL ASSISTANCE SERVICE:

Mr.

Address

tel.

BOILER DETAILS

(From Data label):

Make

Type

Serial number

Date of initial start-up

CONTROL PANEL DETAILS

(From product label):

Serial number

Lot

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As part of the company's ongoing commitment to perfecting its range of products,
the appearance, dimensions, technical data, equipment and accessories
may be subject to variation.