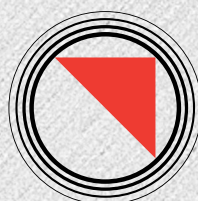


**CONTROL PANEL**

# **RIELLOtech**

**PRIME ACS**

## **INSTALLATION, OPERATION AND MAINTENANCE MANUAL**



**RIELLO**

RIELLO S.p.A.

Via Ing. Pilade Riello, 7  
37045 Legnago (VR)  
Tel. +39 0442630111

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: **RIELLO**

models:

**RIELLOtech CLIMA COMFORT, RIELLOtech CLIMA TOP,  
RIELLOtech CLIMA MIX, RIELLOtech PRIME and RIELLOtech PRIME 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 **RIELLOtech** 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.

Riello S.p.A.

---

**RANGE**

<b>MODEL</b>	<b>CODE</b>
RIELLOtech PRIME ACS	20010437

## CONTENTS

---

General Safety Information	5
Precautions	5
Product description	6
Identification	6
Technical specifications	7
Accessories	7
Unpacking the product	8
Dimensions and weight	8
Installation	9
Accessing internal components	11
Electrical connections	12
Positioning the sensors	13
Wiring diagrams	14
Layout	15
Description of functions	16
Useful information	18

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 20013515 Rev. 4 (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 RIELLO 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.

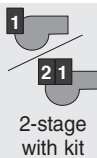


## PRODUCT DESCRIPTION


**RIELLOtech PRIME ACS** control panels are thermostatic control panels for boilers with single stage jet burners for central heating and domestic hot water production in storage cylinders. All thermostatic control devices comply with applicable technical and safety standards, and are housed in an ABS box and protected by a cover.

All the electrical control and safety devices in **RIELLOtech PRIME ACS** control panels are factory tested in compli-

ance 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.

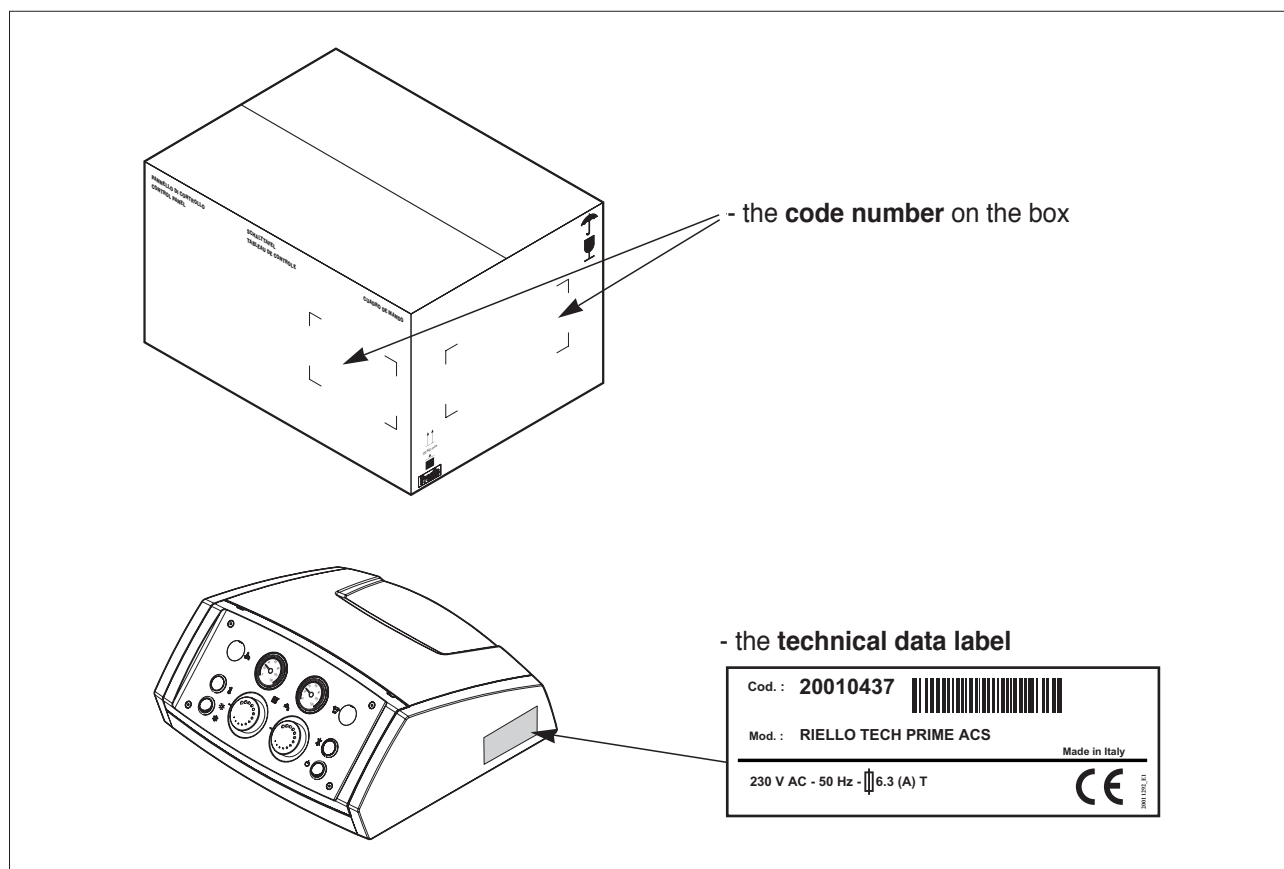
### APPLICATION CHART

	Burner	Cascaded boilers	Cascaded boilers	Solar water heating systems	DHW storage cylinders	Direct zone	1st mixed zone	2nd mixed zone
RIELLOtech PRIME ACS	 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

**RIELLOtech PRIME ACS** control panels are identified by:



## TECHNICAL SPECIFICATIONS

Description	RIELLOtech PRIME ACS	
Power supply	230 (+/-10%) ~ 50	V ~ Hz
Maximum current draw	6,3	A
Main power switch (two pole)	250 ~ 10(4)	V ~ A
Summer/Winter selector (single 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
Boiler control thermostat (TR) - field of adjustment	30 ÷ 82 (+/-3)	°C
Storage cylinder control thermostat (TB) - field of adjustment	0 ÷ 70 (+/-3)	°C
Minimum temperature thermostat (Tm)		
Control range	30 ÷ 90 (+/-3)	°C
Working setting	40	°C
Maximum temperature thermostat (TL82)		
Control range	30 ÷ 90 (+/-3)	°C
Working setting	82	°C
Boiler overtemperature dispersal thermostat (TL90)		
Control range	30 ÷ 90 (+/-3)	°C
Working setting	90	°C
Boiler temperature gauge (TeC)	0 ÷ 120	°C
Storage cylinder temperature gauge (TeB)	0 ÷ 120	°C
Index of protection	X4D	IP
Cable length	3	m

(\*) Homologated

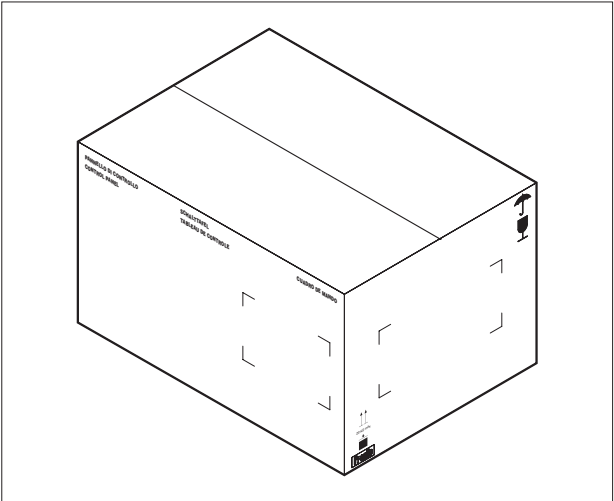
## ACCESSORIES

The following accessories are available, to be ordered separately:

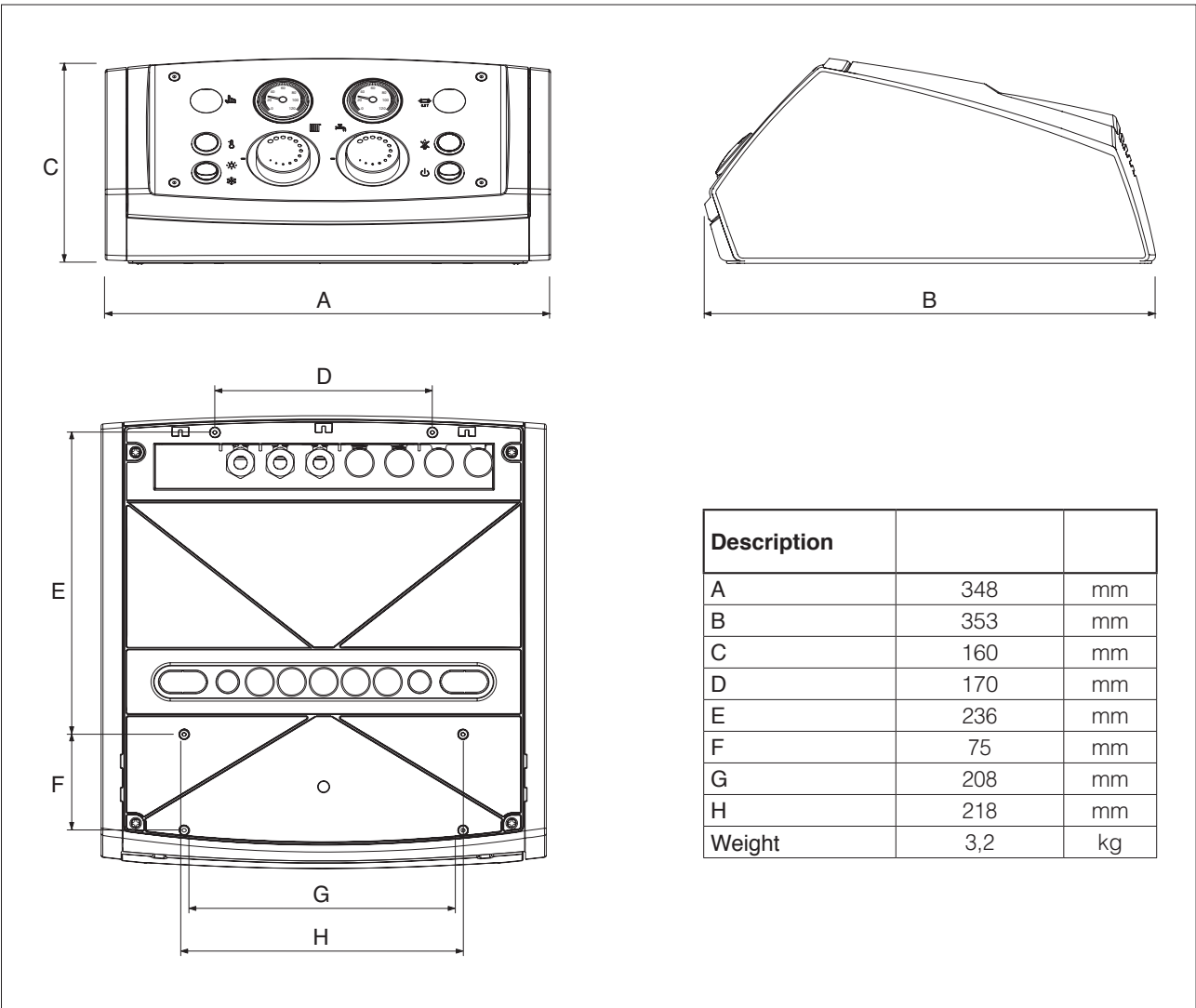
ACCESSORY	CODE
Two-stage burner control kit	4031067
Wall mounting kit	20010056

UNPACKING THE PRODUCT

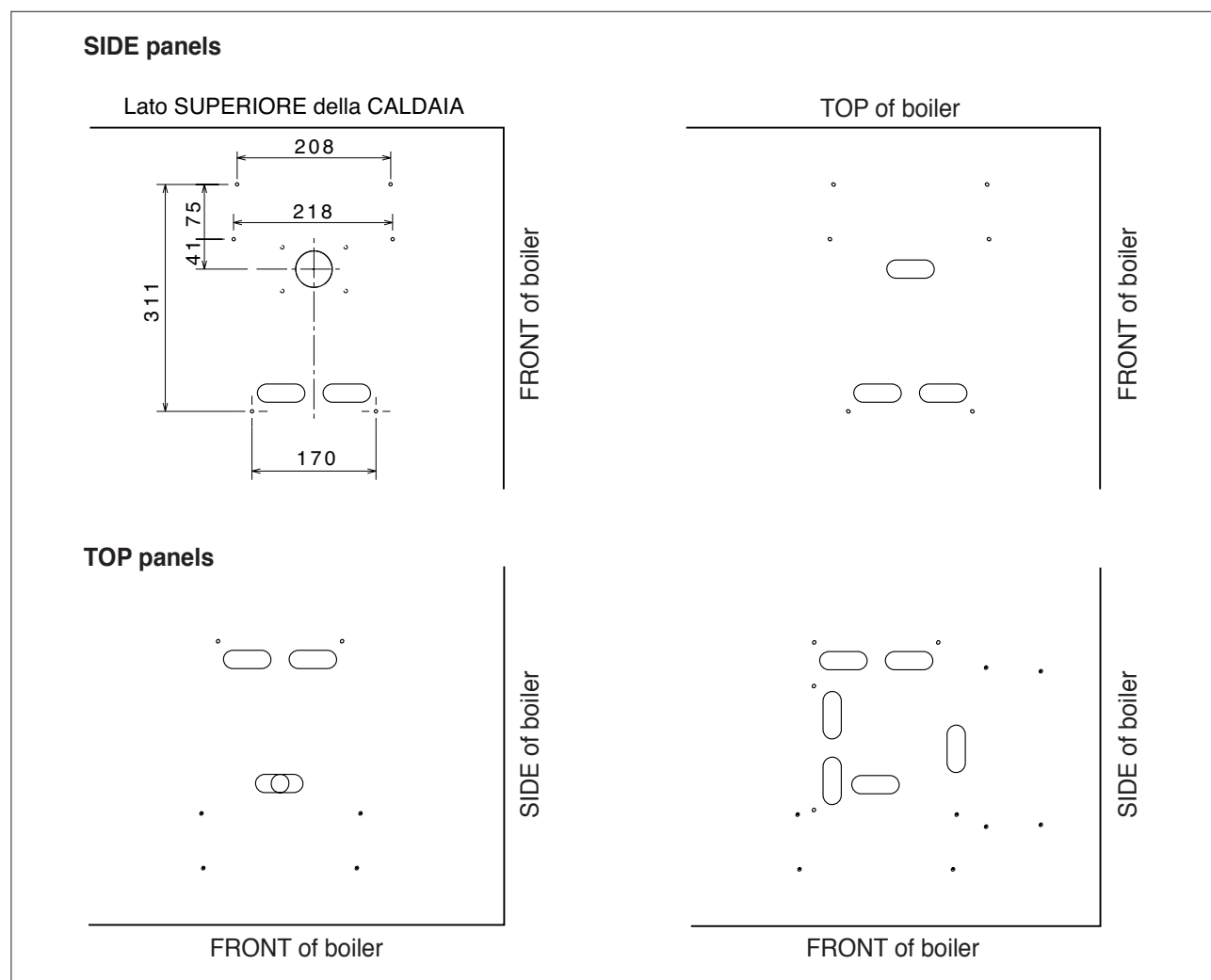
RIELLOtech PRIME ACS control panels come in a cardboard box that also contains the instruction manual.



DIMENSIONS AND WEIGHT



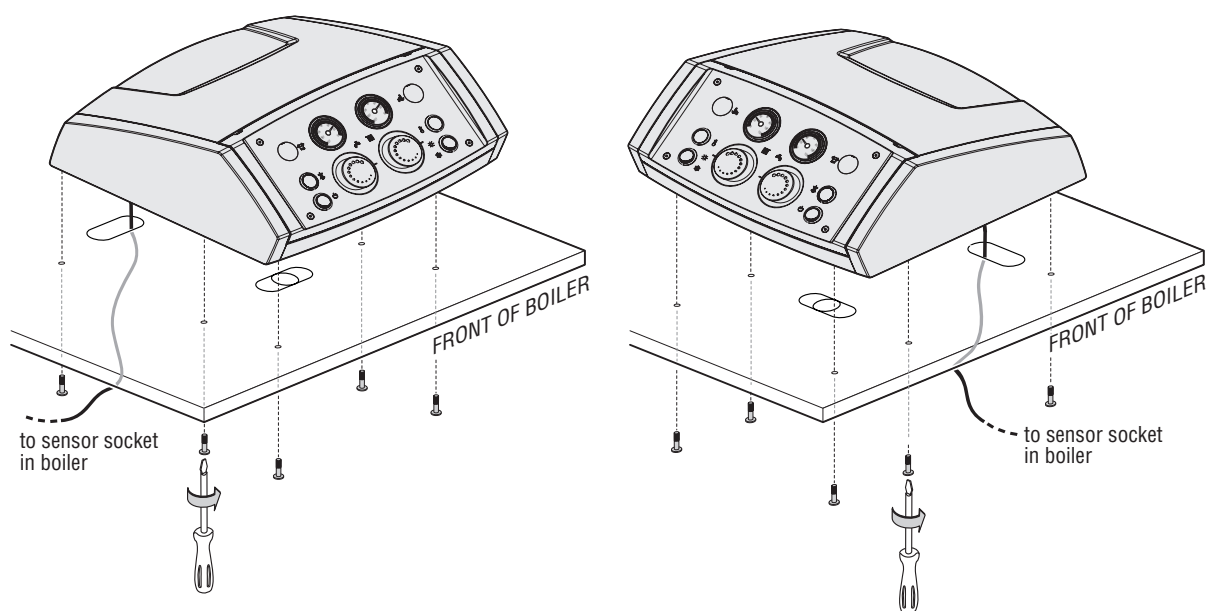
**RIELLOtech PRIME ACS** control panels can be installed either on the top of the boiler or on one of its side panels. Before commencing installation, check the arrangement of the holes on the top panel or side panel of the boiler.



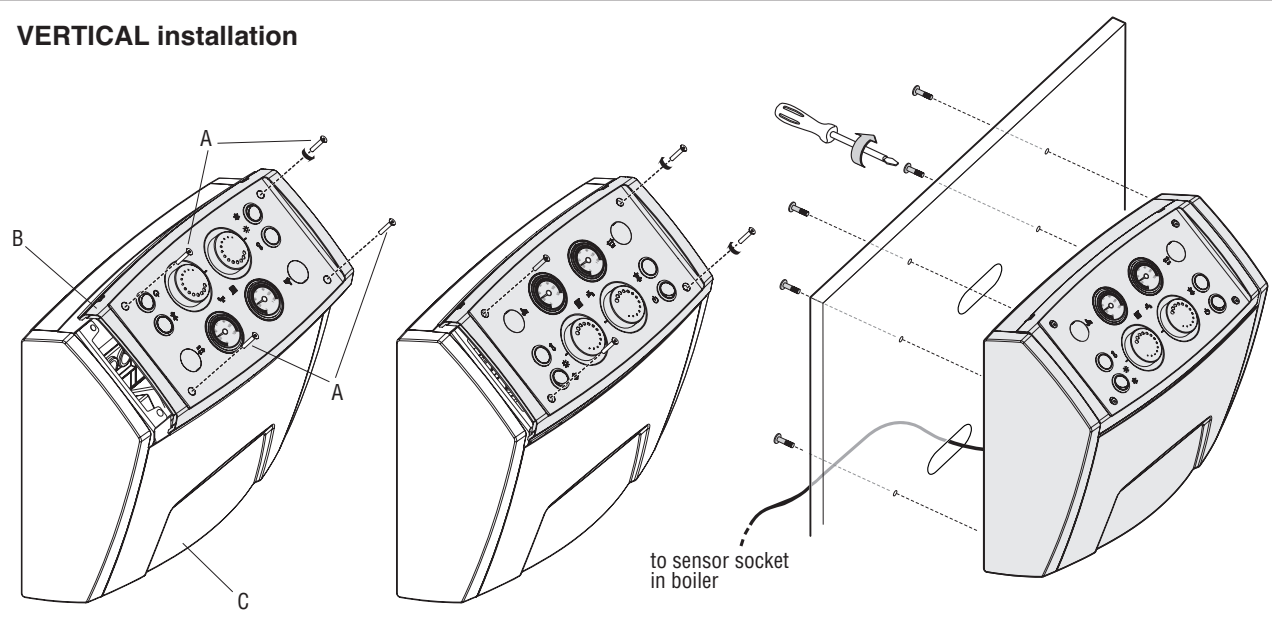
Once you have identified the right holes for the type of installation required, proceed as follows:

- 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

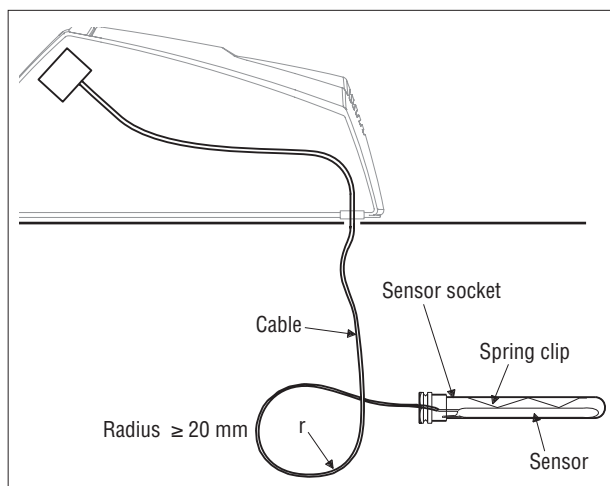


Before you can install the control panel on a boiler side panel, proceed as follows:

- 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.

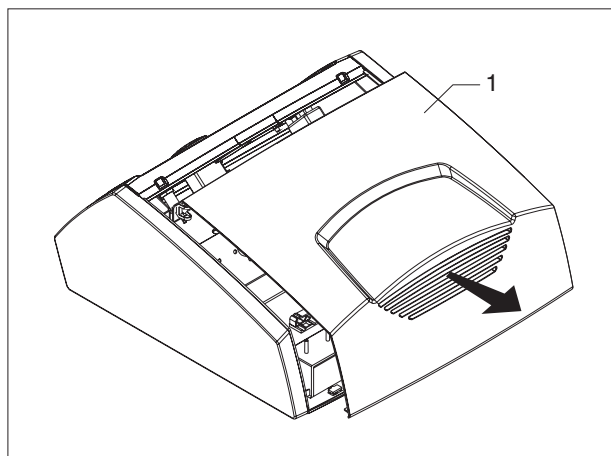


## ACCESSING INTERNAL COMPONENTS

Only personnel from Riello's 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 mm<sup>2</sup> 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.

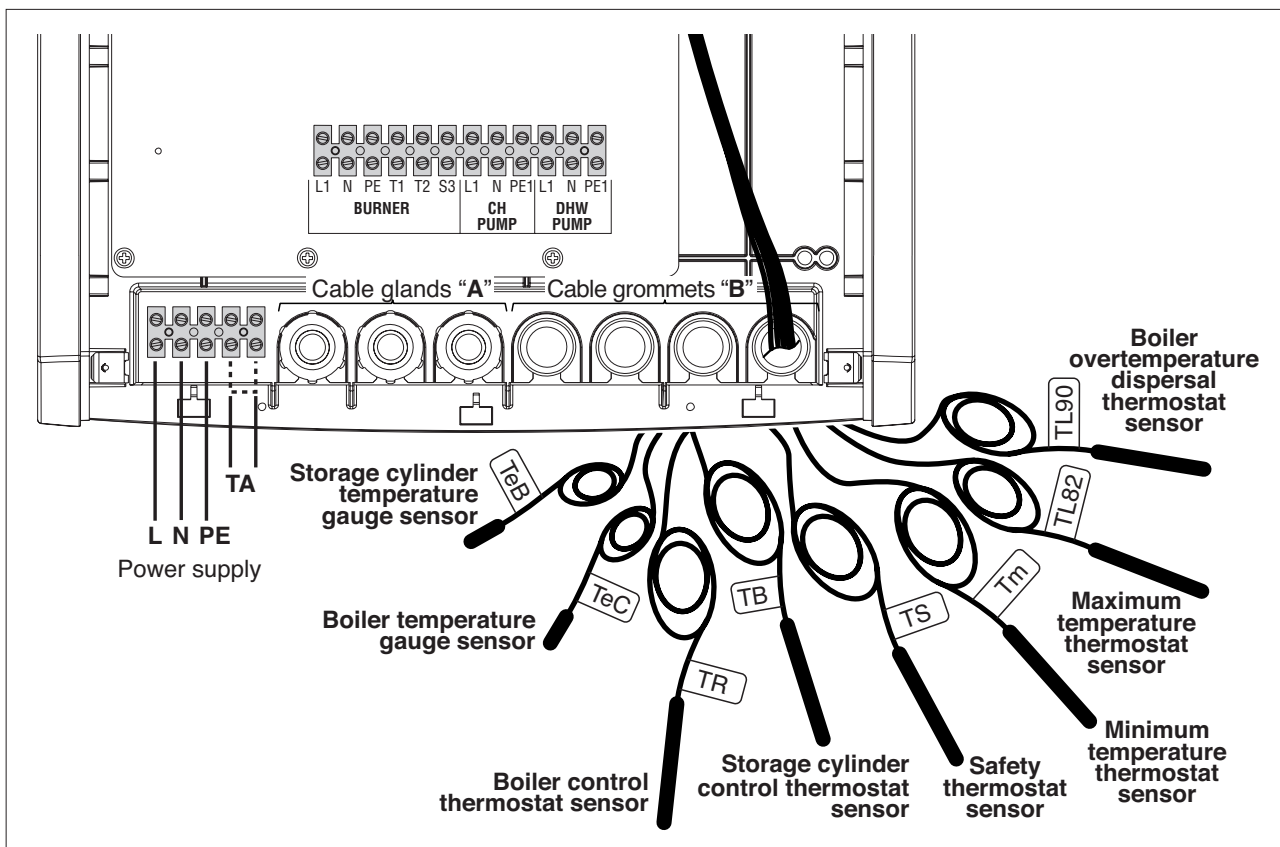


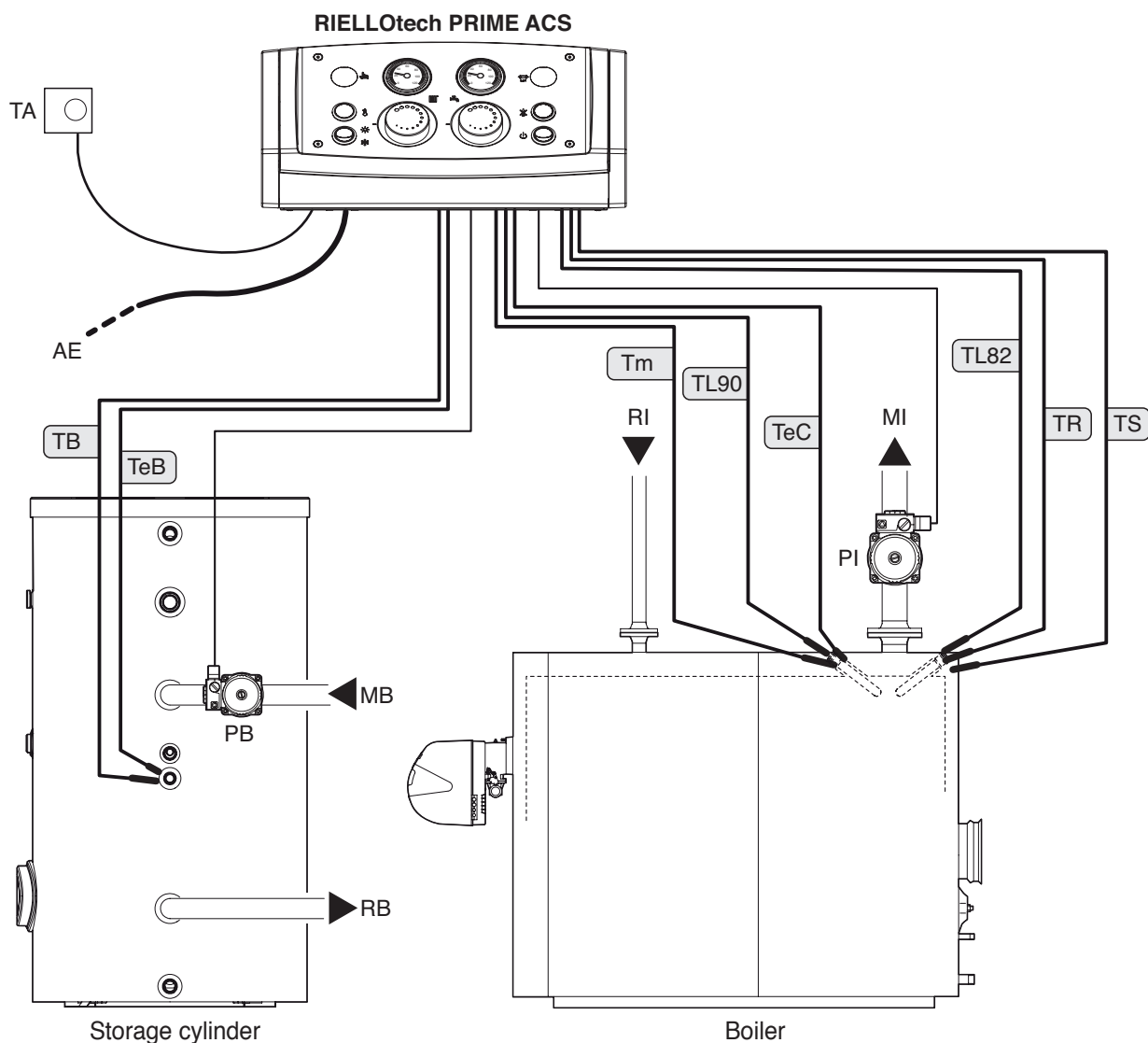
It is strictly forbidden to use gas and/or water pipes to ground the appliance.



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.**



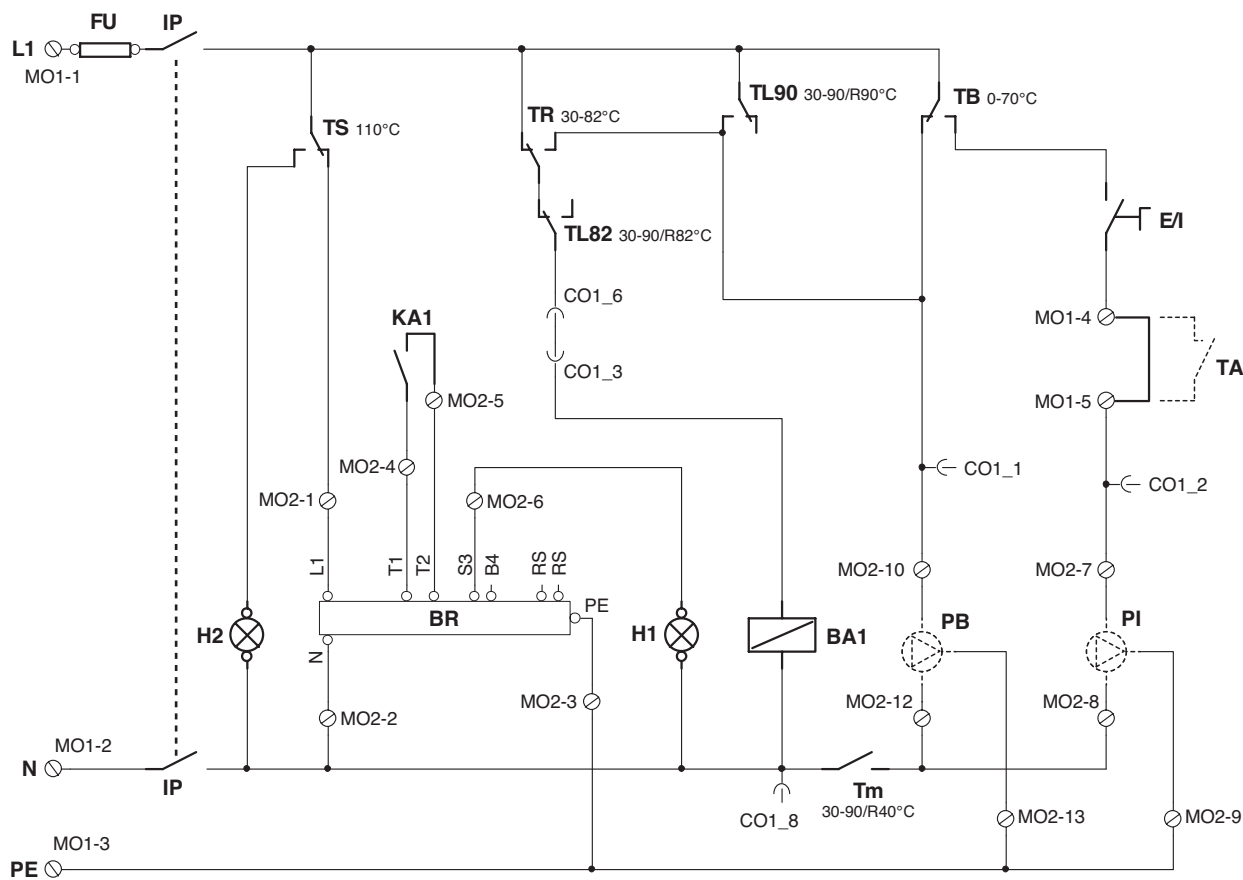


Tm - Minimum temperature thermostat sensor  
 TS - Safety thermostat sensor  
 TL90 - Boiler overtemperature dispersal thermostat sensor  
 TL82 - Maximum temperature thermostat sensor  
 TR - Boiler control thermostat sensor  
 TB - Storage cylinder control thermostat sensor  
 TeC - Boiler temperature gauge sensor  
 TeB - Storage cylinder temperature gauge sensor

TA - Room thermostat  
 AE - 230V~50Hz electrical power supply  
 MI - CH flow  
 RI - CH return  
 PI - CH pump  
 MB - Storage cylinder delivery  
 RB - Storage cylinder return  
 PB - Storage cylinder pump

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

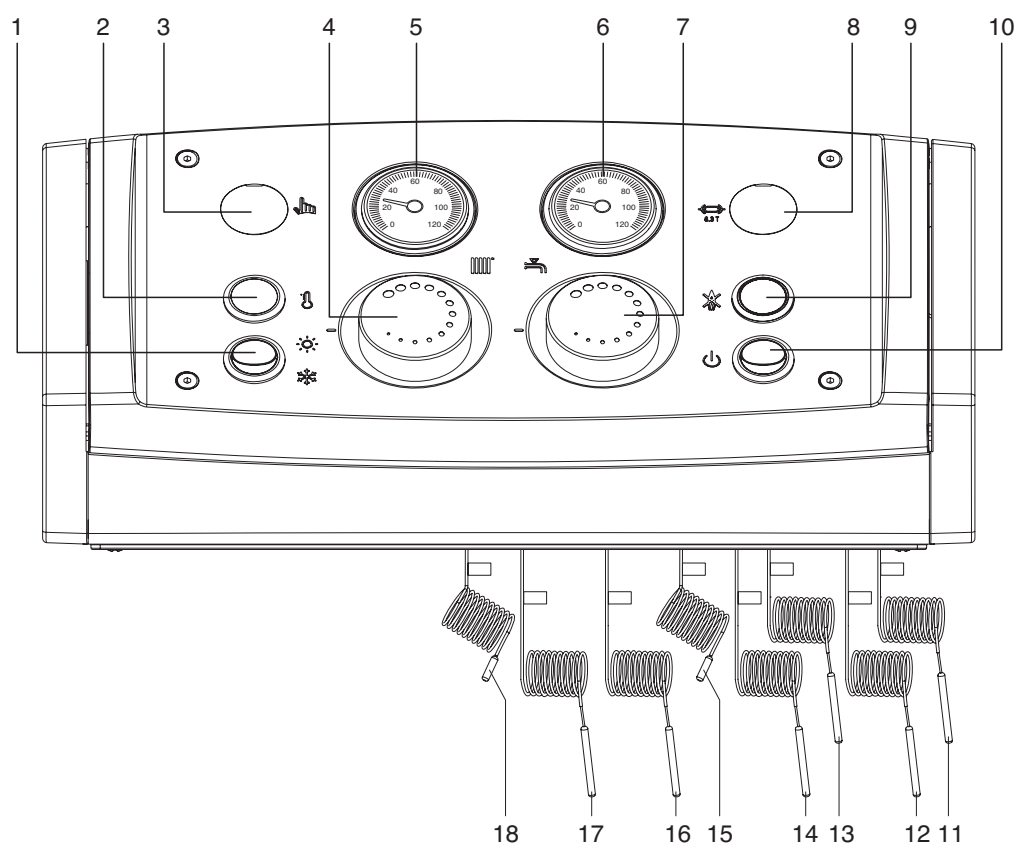
⚠ Insert the thermostat sensors in the corresponding sockets and fix them securely in place. Use the cable straps provided to secure the sensor cables.



L1-N-PE	230V~50Hz power supply
FU	Fuse 6.3 A-T
IP	Main switch
TS	Manual reset safety thermostat (110°C)
TR	Boiler control thermostat (30-82°C)
TB	Storage cylinder control thermostat (0-70°C)
Tm	Minimum temperature thermostat (30-90/R40°C)
TL90	Boiler overtemperature dispersal thermostat
TL82	Maximum temperature thermostat
E/I	Summer/Winter selector
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
PB	Storage cylinder pump



- 1 - Summer/Winter selector
- 2 - Overtemperature indicator
- 3 - Manual reset safety thermostat (110°C)
- 4 - Boiler control thermostat (30-82°C)
- 5 - Boiler temperature gauge
- 6 - Storage cylinder temperature gauge
- 7 - Storage cylinder control thermostat (0-70°C)
- 8 - Fuse
- 9 - Burner lockout indicator
- 10 - Two pole ON/OFF switch
- 11 - Boiler overtemperature dispersal thermostat sensor (TL90) (accessible from inside)
- 12 - Minimum temperature thermostat sensor (Tm) (accessible from inside)
- 13 - Boiler control thermostat sensor (TR)
- 14 - Safety thermostat sensor (TS)
- 15 - Boiler temperature gauge sensor (TeC)
- 16 - Boiler maximum temperature thermostat sensor (TL82) (accessible from inside)
- 17 - Storage cylinder control thermostat sensor (TB)
- 18 - Storage cylinder temperature gauge sensor (TeB)

**!** The cables for the TeB, TB, TL82, TL90, TeC, TS, TR and Tm sensors must be routed out of the electric control panel and through the cable grommets in the boiler during installation.

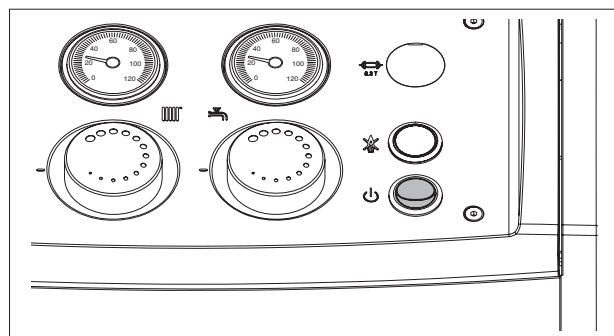
## DESCRIPTION OF FUNCTIONS

**RIELLOtech PRIME ACS** control panels are equipped with 5 homologated electromechanical thermostats, two temperature gauges, a main power ON/OFF switch, a Summer/Winter selector, function indicators, a test button and a protective fuse.

### Main control panel ON/OFF switch (🔌)

This switch connects power to all controlled devices and appliances.

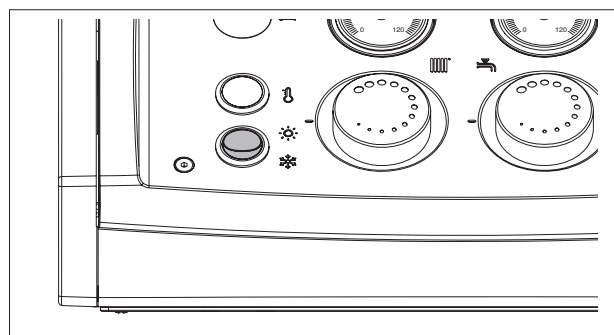
⚠ A delayed action 6.3 A fuse is installed inside the control panel upstream from this switch (see wiring diagram).



### Summer/Winter selector (☀️❄️)

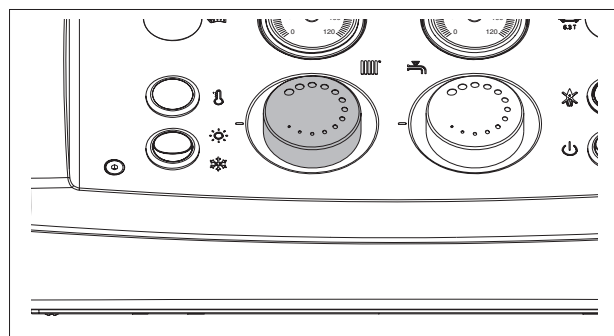
Selects functioning mode:

- Summer (☀️ domestic hot water only)
- Winter (❄️ domestic hot water and central heating)



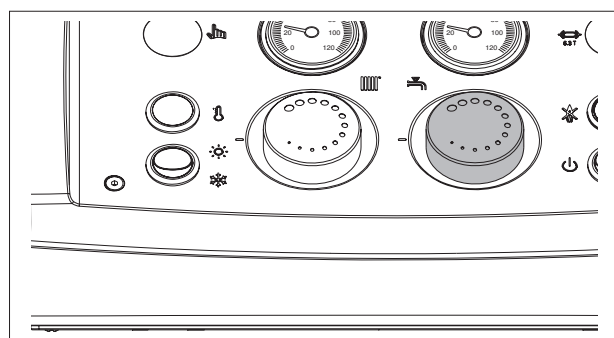
### Boiler control thermostat (|||||)

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






### Storage cylinder control thermostat (🛡️)

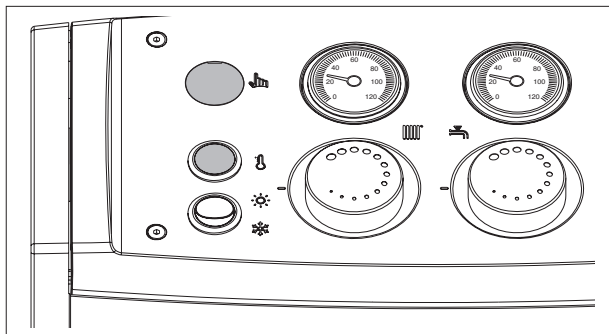
The storage cylinder control thermostat lets you adjust domestic hot water temperature between 0°C and 70°C with priority logic. The recommended setting is around 50°C.



### 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)

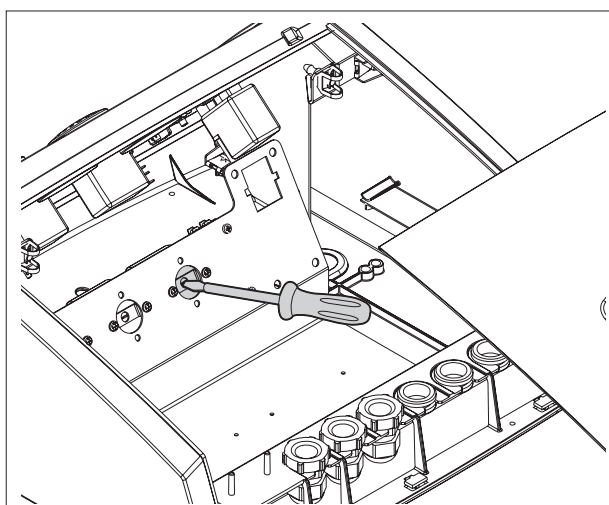
This thermostat prevents cold water from circulating and causing condensation inside the boiler. It is located inside the control panel, and is preset to 40°C. Adjustment requires a suitable tool and is reserved for personnel from **RIELLO's** Technical Assistance Service.

### Maximum temperature thermostat (TL82)

This thermostat cuts in at 82°C during the DHW production cycle to disable the boiler control thermostat. It is located inside the control panel, and is preset to 82°C. Adjustment requires a suitable tool and is reserved for personnel from **RIELLO's** Technical Assistance Service.

### Boiler overtemperature dispersal thermostat (TL90)

CThis thermostat cuts in at 90°C to disperse overtemperature caused by thermal inertia. It is located inside the control panel, and is preset to 90°C. Adjustment requires a suitable tool and is reserved for personnel from **RIELLO'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 .....





**Instructions for the correct disposal of the product  
pursuant to European Directive 2002/96/EC**

At the end of its working life, the product cannot be disposed of as municipal waste. It can be delivered to separate waste collection centres operated by local councils, if such exist, or to the resellers that provide this service. Separate disposal of appliances avoids possible negative consequences for the environment and the health due to unsuitable disposal and allows the recovery of the components, with significant savings in terms of energy and resources. The symbol (crossed-out wheeled bin) shown on the product indicates that the appliance must be disposed of separately.



**RIELLO S.p.A.**  
**37045 Legnago (VR)**  
**Tel. 0442630111 - Fax 044222378 - [www.riello.it](http://www.riello.it)**

**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.**