

Control panel

# B - FM126

# B2 - FM159



## Installation and Service Manual

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# 1 Symbols used

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## Caution danger

Risk of injury and damage to equipment. Attention must be paid to the warnings on safety of persons and equipment

## i Specific information

Information must be kept in mind to maintain comfort

## Reference

Refer to another manual or other pages in this instruction manual

DHW: Domestic hot water

# 2 Important recommendations

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 For a proper operating of the boiler, follow carefully the instructions.

 Any intervention on the appliance and heating equipment must be carried out by a qualified engineer.

 The manufacturer is not liable for any improper use of the appliance or failure to maintain or install the unit correctly (the user shall take care to ensure that the system is installed by a qualified engineer).

 Keep to the polarity shown on the terminals: phase (L), neutral (N) and earth .

 To guarantee protection against the corrosion of domestic hot water calorifiers fitted with a titanium anode (Titan Active System® protection system), always leave the control panel switched on. To switch off the heating or the domestic hot water, use the Summer or Antifreeze mode.

# 3 Description

## 3.1 General

Electrical board for heating which includes the production of domestic hot water as a priority.

The control panel B equips the boilers De Dietrich GT 120 / GT 220.

The control panel B2 equips the boilers De Dietrich GT 220 - GTUC220.

**The standard delivery of panel B/B2 includes :**

- 1 B/B2 control panel
- 1 Boiler sensor measuring the temperature in the boiler

**The following options can be ordered :**

- Non settable ambient thermostat (Package AD 140)
- Settable ambient thermostat (Package AD 137)
- Wireless settable ambient thermostat (Package AD 200)
- DHW sensor with Titan Active System® simulation connector for the connection of a domestic hot water calorifier without titanium anode (Package AD 212)

## 3.2 Presentation

**The control panel B, for controlling a 1-stage burner, includes:**

- 1 Boiler thermostat
- 1 domestic hot water thermostat
- The Titan Active System® function for tank with titanium anode
- 1 electronic thermostat
- 1 Safety thermostat

If 2 ambient thermostats are also added (option), the board allows 2 direct circuits to be controlled.

**The control panel B2, for controlling a 2-stage burner, includes:**

- 1 Boiler thermostat for 2-stage burner
  - The 1st stage is controlled in relation to the setting of the electronic thermostat.
  - The 2nd stage is controlled in relation to the setting of the electronic thermostat, offset by -4°C.
  - If producing domestic hot water, the 2 stages are activated.
- 1 domestic hot water thermostat
- The Titan Active System® function for tank with titanium anode
- 1 electronic thermostat
- 1 Safety thermostat

By adding 1 room thermostat, it is possible to control 1 direct circuit.

The boiler thermostat regulates the boiler operating temperature.

The safety thermostat with manual reset ensures that the boiler operates safely.

 **In the event that there is an abnormal rise in the temperature in the boiler 110° C. Advise your installation engineer.**

If domestic hot water is being heated, the domestic hot water thermostat allows the average temperature of the stored domestic hot water to be regulated giving priority to the preparation of domestic hot water.

Whenever there is a demand for domestic hot water, the domestic hot water priority starts the burner and the dhw pump stops the heating pumps. On the summer setting, the boiler temperature is not maintained between two domestic loads. The temperature of the domestic hot water is measured with the dhw sensor.

### 3.3 Technical specifications

Electricity supply : 230V (-10%, +10%) - 50 HZ

Value of the water probes (Boiler and Domestic hot water)

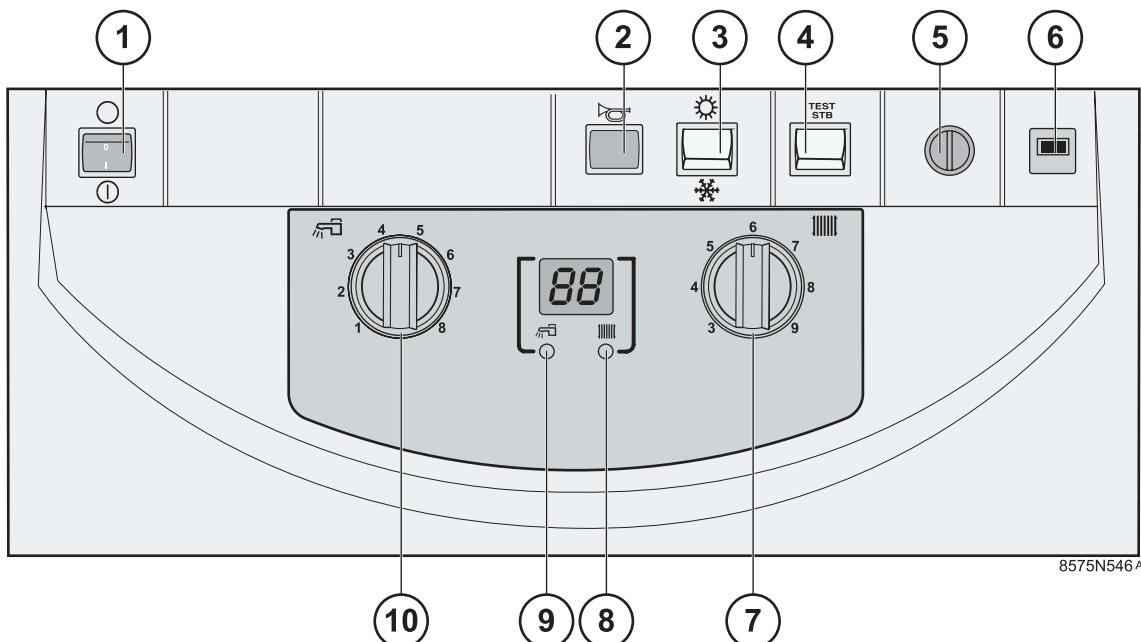
Temperature in °C	Resistance in ohm	Temperature in °C	Resistance in ohm
0°C	32 014 Ω	50°C	3 661 Ω
10°C	19 691 Ω	60°C	2 535 Ω
20°C	12 474 Ω	70°C	1 794 Ω
30°C	8 080 Ω	80°C	1 290 Ω
40°C	5 372 Ω	90°C	941 Ω

#### Conformity / Marking

This product complies to the requirements to the european directives and following standards:

- 2006/95/EC Low Voltage Directive
- Reference Standard: EN 60.335.1
- 2004/108/EC Electromagnetic Compatibility Directive
- Generic standards: EN1000-6-3 , EN 61000-6-1

## 4 Presentation



### 1. General ON (1) / OFF (○) switch

Position (1) : Start

Position (○) : Stop

### 2. Alarm indicator

This indicator lights up when the burner is on safety (failure).

### 3. Summer (sun) / Winter (snowflake) switch

WINTER position (snowflake) : Heating and domestic hot water working.

SUMMER position (sun) : Only domestic hot water operating. If no accumulator is connected, the boiler remains off.

**i** The stopping of the heating accelerator is set at 12 minutes after moving to "Summer" mode.

### 4. Test-STB button

Button kept pressed down, safety thermostat test cutting the pump(s).

### 5. Safety thermostat with manual reset

Set to 110° C

### 6. B control panel: Timed circuit breaker (4 A)

B2 control panel: Timed circuit breaker (6 A)

### 7. Electronic thermostat

Set the boiler temperature between 30° C and 90° C using manual setting.

### 8. Indicator lights up

Boiler temperature display.

### When preparing domestic hot water

### 9. Indicator lights up

Domestic hot water display.

### 10. Electronic thermostat

Regulating the storage temperature of domestic hot water between 10° C and 80° C.

**i** After switching on, the system performs an automatic purge of the accumulator interchanger for one minute by intermittently operating the domestic load pump and the heating pump. This purge sequence is deactivated if the temperature in the accumulator is above 25° C.

# 5 Commissioning

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 **The first start-up is to be performed by your installation/commissioning engineer**

Before starting the boiler, check if the installation **is filled with water**

Start the boiler in the following order :

- Place the boiler thermostat 7 in the required position. If necessary, change the position of the maximum temperature.
- When preparing domestic hot water:  
Place thermostat 10 on the required setting. Setting 6 (approx 60° C) recommended.

**This value must always be below the temperature limiter for the domestic hot water load.**

- Check that safety thermostat 5 is properly set. To do so, Unscrew the safety thermostat cover and press the reset button using a screwdriver.
- Place the Summer / Winter switch 3 on Winter .
- Place the Stop /Start 1 switch on Start .

# 6 Assembly, electrical connections and installer's settings

## 6.1 Control panel assembly

 Refer to the manual delivered with the boiler.

## 6.2 Connecting the boiler sensor

 Refer to the manual delivered with the boiler.

## 6.3 Electrical connections

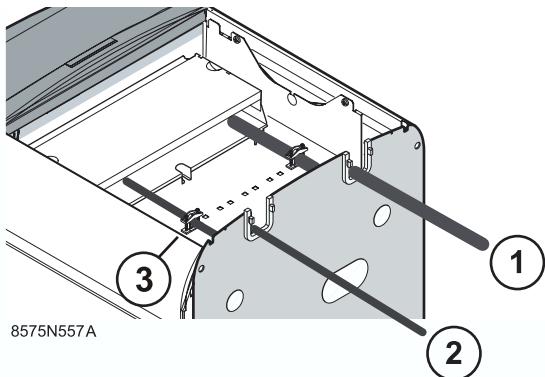
 Only qualified professionals may carry out electrical connections, always with the power off.

 As the electrical wiring has been carefully checked in the factory, the internal connections on the control panel must not be changed in any way.

Electrical connections must match the electrical diagrams delivered with the equipment and comply with the instructions in the manual.

The equipment must have a power supply equipped with a omnipolar switch with an opening distance above 3 mm. The earthing must comply with the NFC 15.100 (France) or the RGPT (Belgium) standards.

### ■ GT 120



② Sensors

③ Cable clamps

All connections are made with the terminal boxes designed for that purpose on the back of the boiler's command board.

The connection cables enter the boiler via the openings on the back panel, these openings may be used later for cable guides.

These cables will be fixed on to the control panel with cable clips (supplied in a separate bag).

 The available output per outlet is 450 W (2 A, with  $\cos \varphi = 0,7$ ) and the inrush current must be lower than 16 A.

The sensor cables have to be separated from the 230V circuit cables.

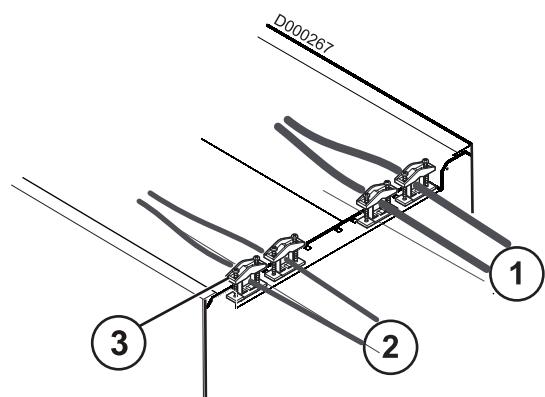
 In the boiler : Use the 2 wire guides on either side of the boiler.

Outside the boiler : Use 2 pipes or cable guides at least 10 cm apart.

All electrical connections are made on the marked bars located under the boiler's card screen. Power supply connection is made using a 3 wire cable with a  $1,5 \text{ mm}^2$  diameter on the 3 plot bar (terminals 1, 2, 3) located under the boiler's card card. For other electrical connections, use the 3 wire cable with a diameter of  $0,75 \text{ mm}^2$ .

Keep to the polarity shown on the terminals: phase (L), neutral (N) and earth  $\text{---}$ .

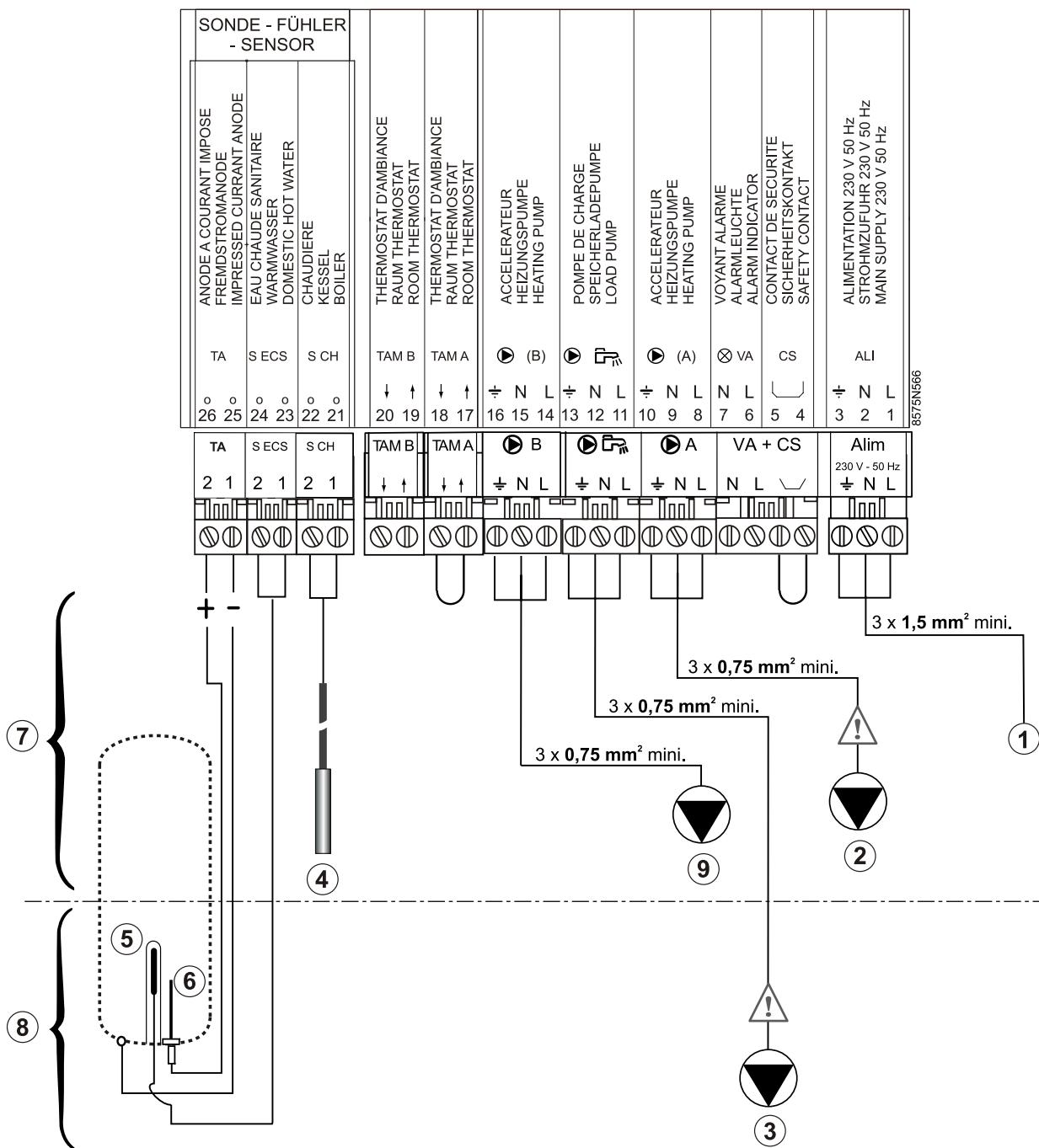
### ■ GT 220



① Power supply 230 V

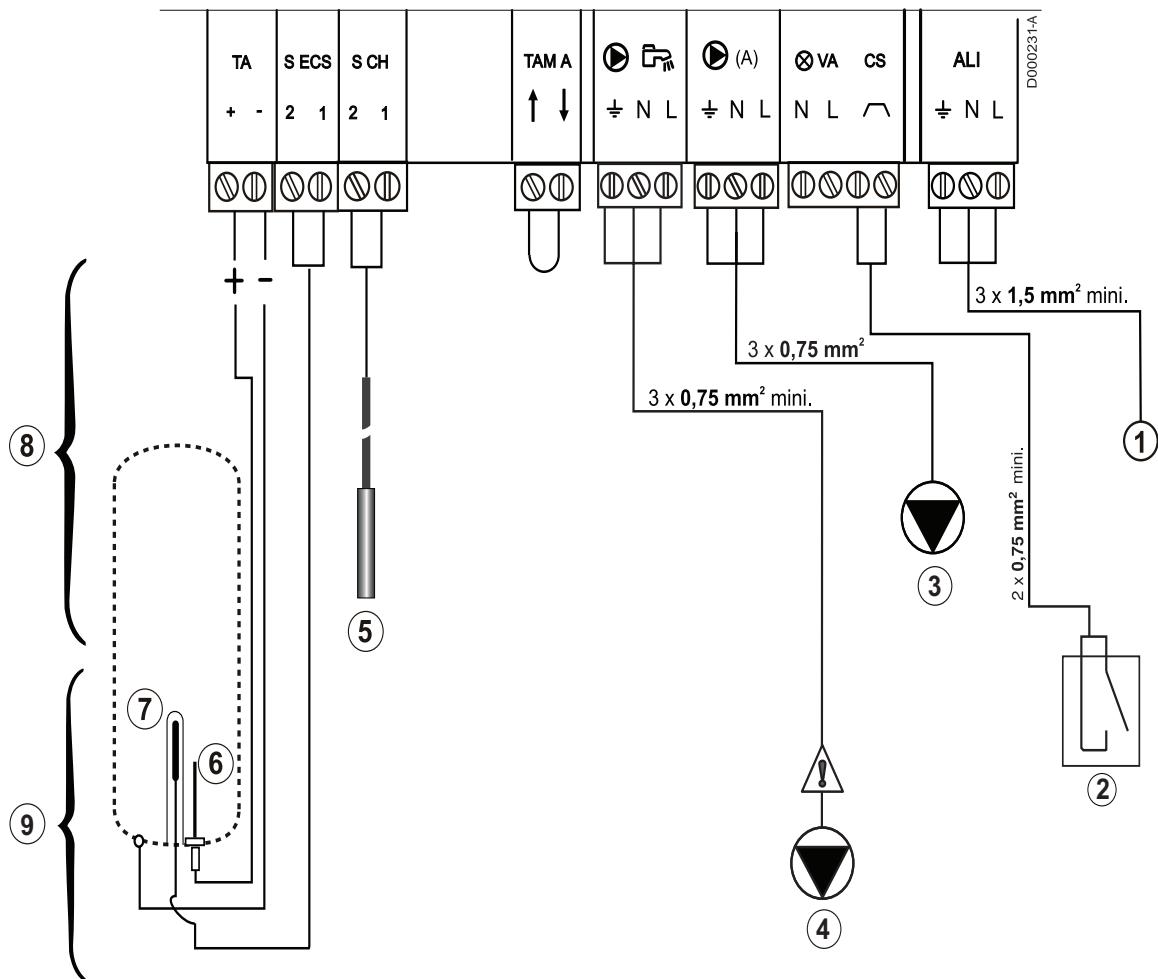
### 6.3.1 Basic connections

#### ■ B control panel



- |   |                                    |
|---|------------------------------------|
| 1 | Power supply 230 V                 |
| 2 | Heating pump Circuit A             |
| 3 | DHW pump                           |
| 4 | Boiler sensor                      |
| 5 | Domestic hot water sensor          |
| 6 | Titanium anode                     |
| 7 | Boiler with or without accumulator |
| 8 | Boiler with accumulator            |
| 9 | Heating pump Circuit B             |

## ■ B2 control panel



- |   |                                    |
|---|------------------------------------|
| 1 | Power supply 230 V                 |
| 2 | Flue gas thermostat                |
| 3 | Heating pump Circuit A             |
| 4 | DHW pump                           |
| 5 | Boiler sensor                      |
| 6 | Domestic hot water sensor          |
| 7 | Titanium anode                     |
| 8 | Boiler with or without accumulator |
| 9 | Boiler with accumulator            |

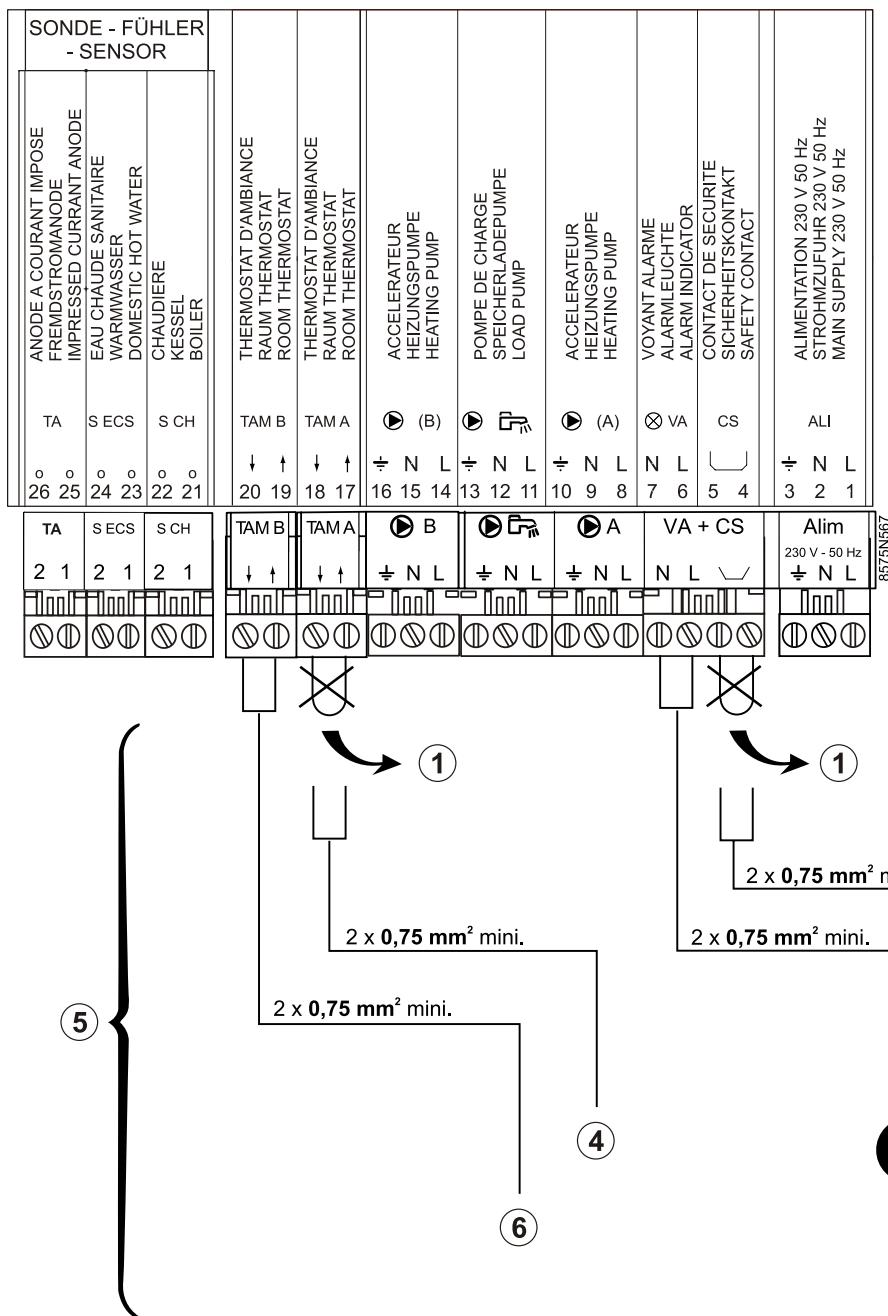
**⚠** The sensor cables have to be separated from the 230V circuit cables.

In the boiler : Use the 2 wire guides on either side of the boiler.

Outside the boiler : Use 2 pipes or cable guides at least 10 cm apart.

## 6.3.2 Connecting the options

### ■ B control panel



- 1 Remove bridge
- 2 Safety contact
- 3 Alarm indicator
- 4 Room thermostat Circuit A
- 5 Boiler with or without accumulator
- 6 Room thermostat Circuit B

If only one circuit is used, connect the ambient thermostat to circuit A and do not bridge this connector.

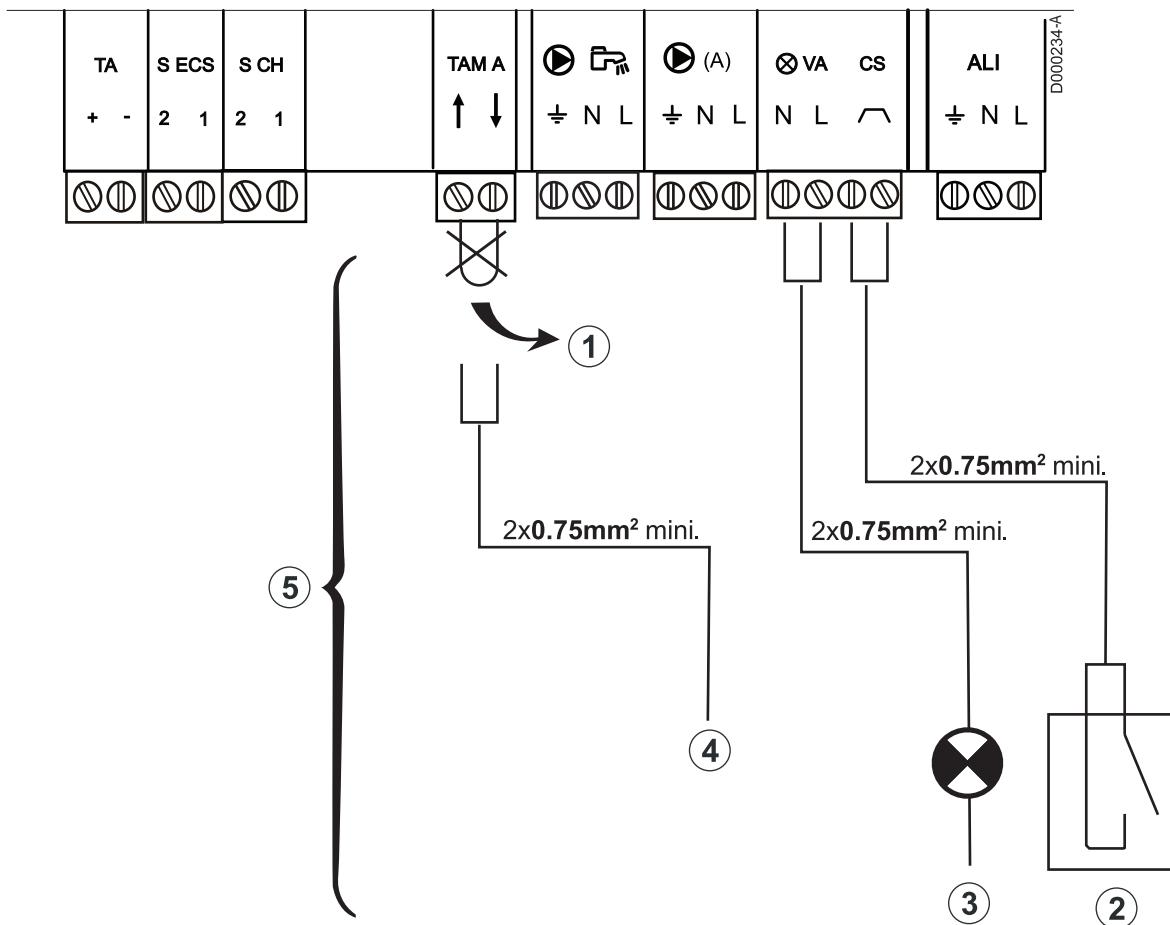
- **Connection to a flue gas thermostat (TF)**

When used in combination with a wood fired boiler : the flue gas thermostat is connected on the terminals (CS) after having removed the existing bridge.

- **Safety contact connection (CS)**

Terminals (CS) after having removed the bridge : allows the connection of a safety device (e.g. low water pressure switch, fire safety, ...).

## ■ B2 control panel



- 1** Remove bridge
- 2** Safety contact
- 3** Alarm indicator
- 4** Room thermostat Circuit A
- 5** Boiler with or without accumulator

- **Connection to a flue gas thermostat (TF)**

When used in combination with a wood fired boiler : the flue gas thermostat is connected on the terminals (CS) after having removed the existing bridge.

- **Safety contact connection (CS)**

Terminals (CS) after having removed the bridge : allows the connection of a safety device (e.g. low water pressure switch, fire safety,...).

**⚠** The sensor cables have to be separated from the 230V circuit cables.

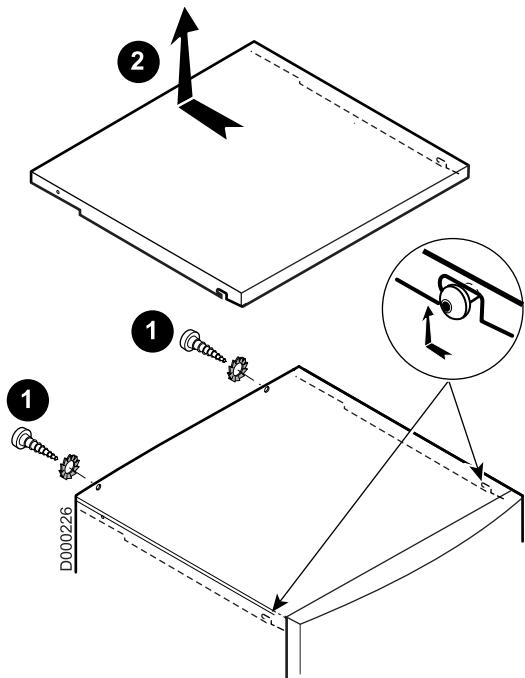
In the boiler : Use the 2 wire guides on either side of the boiler.

Outside the boiler : Use 2 pipes or cable guides at least 10 cm apart.

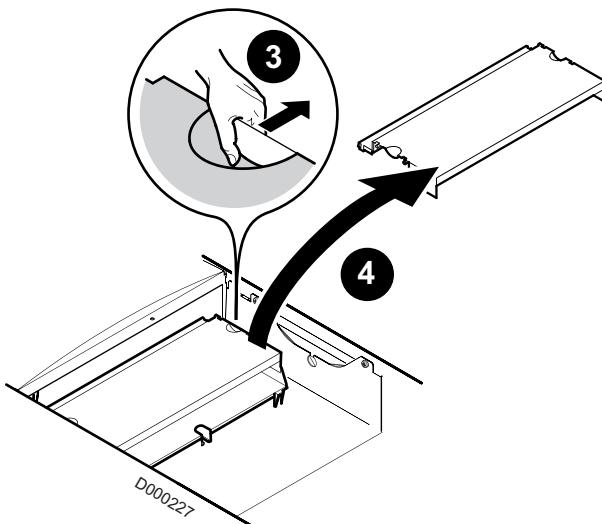
## 6.4 Installer's settings

**!** The settings below have different functions and configure the installation. They may only be changed by a qualified professional.

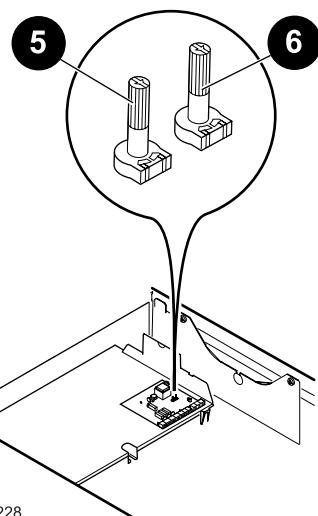
- Access to the potentiometers for setting the domestic hot water pump timer and the domestic hot water load temperature limiter.



- Take out the 2 nuts and bolts from the back of the boiler.
- Remove the upper panel from the boiler.



- Loosen the protection for the flat bars on either side.
- Disassemble the protective cover from the flat bars.
- Set the domestic hot water load temperature limiter**



The potentiometer (6) on the boiler's flat bar allows the temperature of the boiler to be regulated whilst the hot water is being heated.

The load temperature setting may be between 60 and 90° C (factory setting 75° C).

- Setting the timer for the domestic hot water pump**

The potentiometer (5) on the boiler's flat bar allows the timing of the domestic hot water pump to be set.

The timer has a setting range from 0 to 10 minutes (factory setting 4 minutes).

- Reassembly**

When the setting has finished, assemble the protective cover for the bars and the upper panel in the reverse order as disassembly.

**!** Do not leave out the toothed washers.

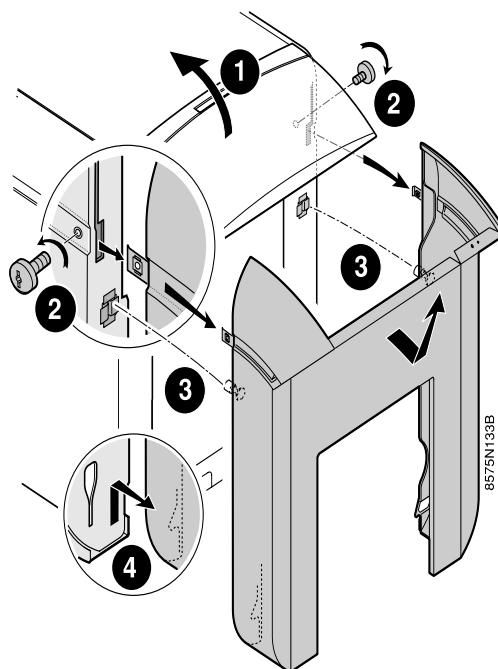
## 6.5 Deactivating hot water priority

When the domestic hot water priority is deactivated, the heating is not cut off during the hot water heating phases.

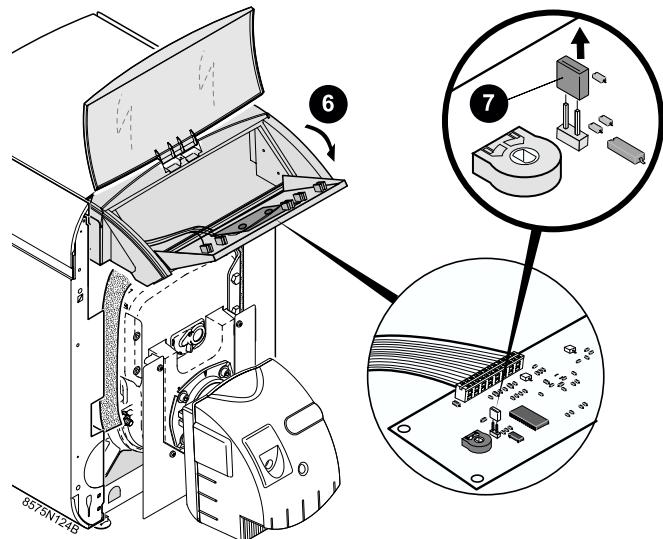


Cut the power supply to the boiler.

### ■ GT 120



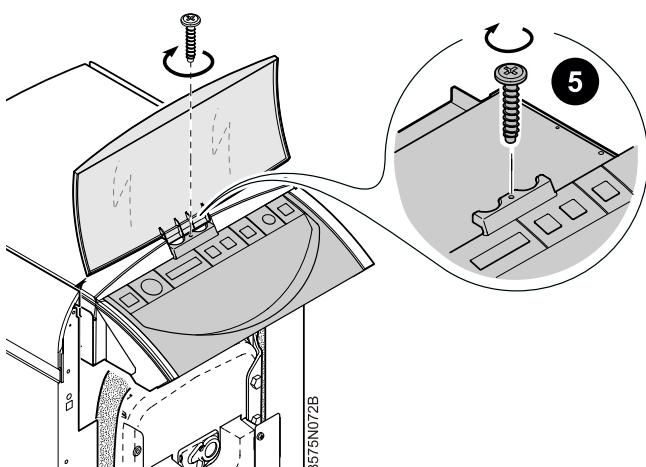
- ➊ Lift up the glass.
- ➋ Unscrew the 2 holding screws located on the side panels.
- ➌ Take out the front panel from the clips and from the notches, by pulling it towards you.
- ➍ Take out the panel from the notches at the bottom of the side panels.



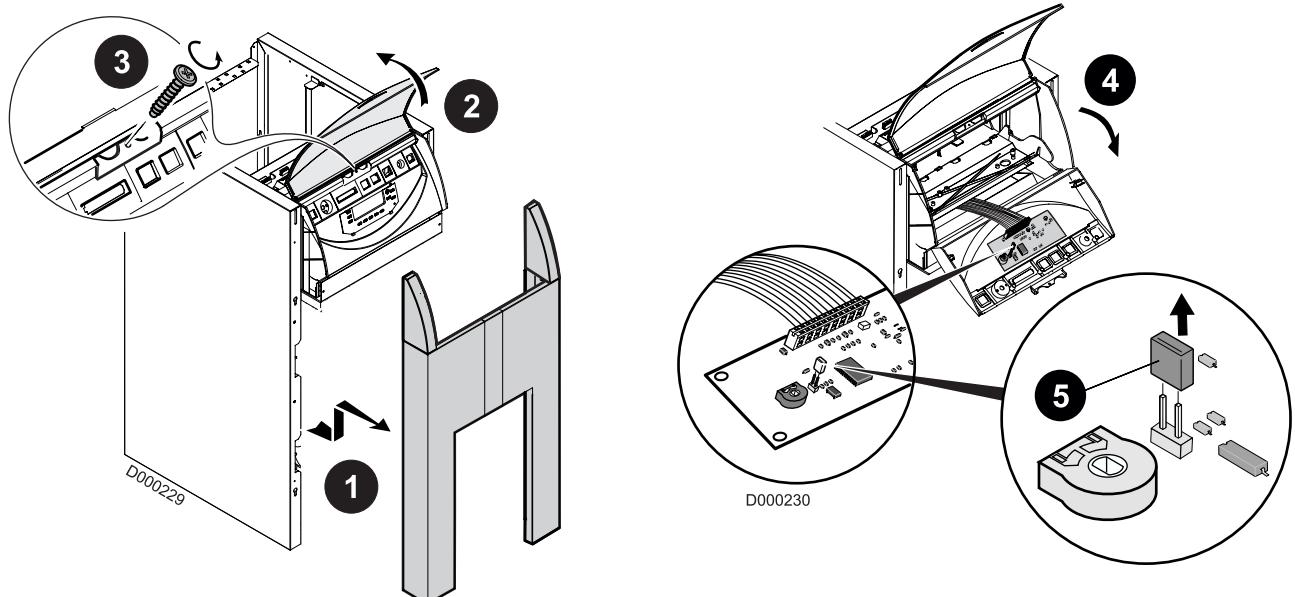
- ➏ Turn the panel.

- ➐ Take out the shunt (bridge).

Reclose the command box and replace the front panel in the reverse order.



- ➎ Turn the screw on the front panel of the command box.



- 1** Remove the front panel (lift and pull).
- 2** Lift up the glass.
- 3** Turn the screw on the front panel of the command box.

- 4** Turn the panel.
- 5** Take out the shunt (bridge).

Reclose the command box and replace the front panel in the reverse order.

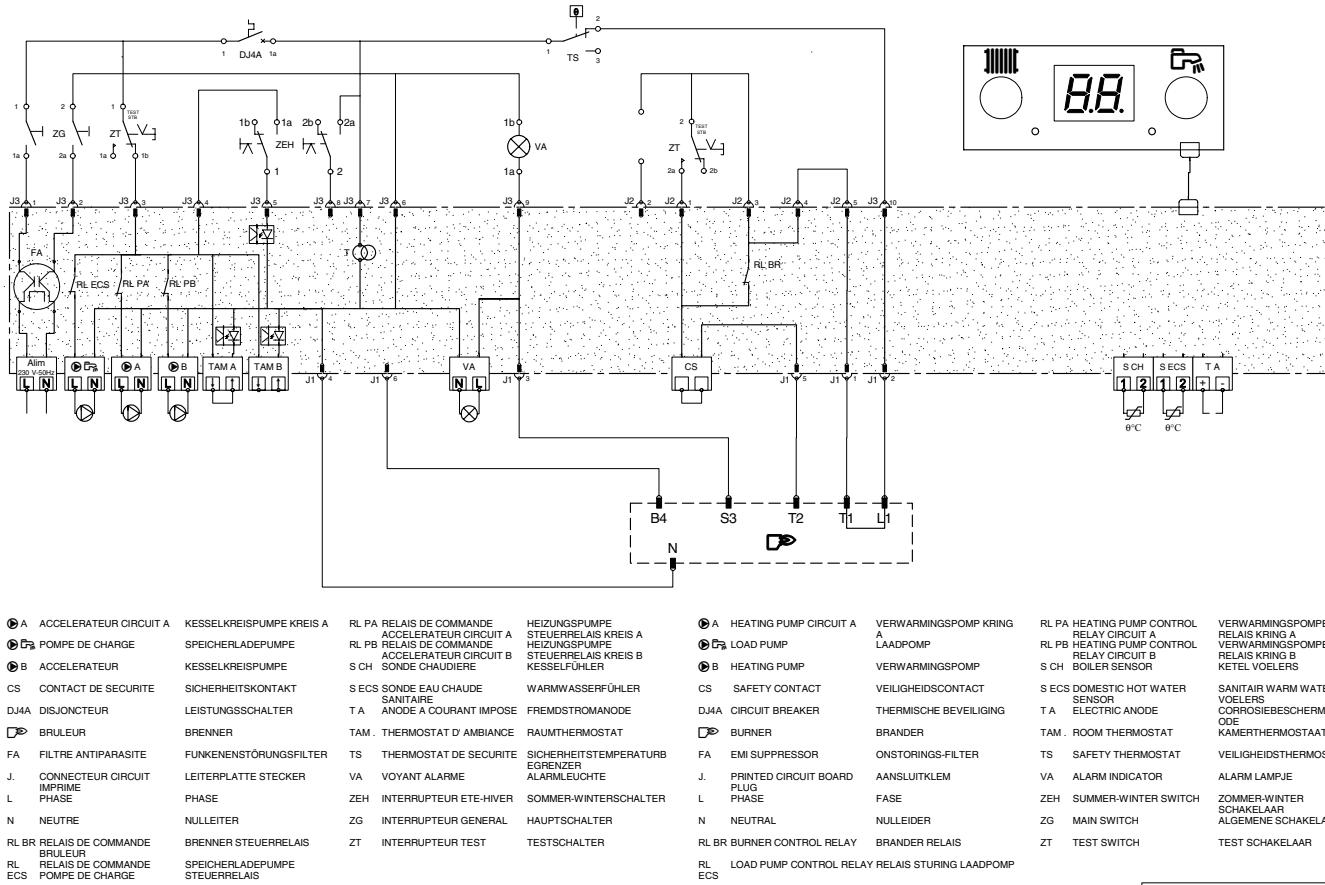
## 6.6 Heating pump timing

The timer for the heating pump is set at 12 minutes after the room thermostat contact has opened or when switching into summer mode.

If there are two heating pumps connected with two room thermostats, the timer is deactivated if one of the heating pumps still works.

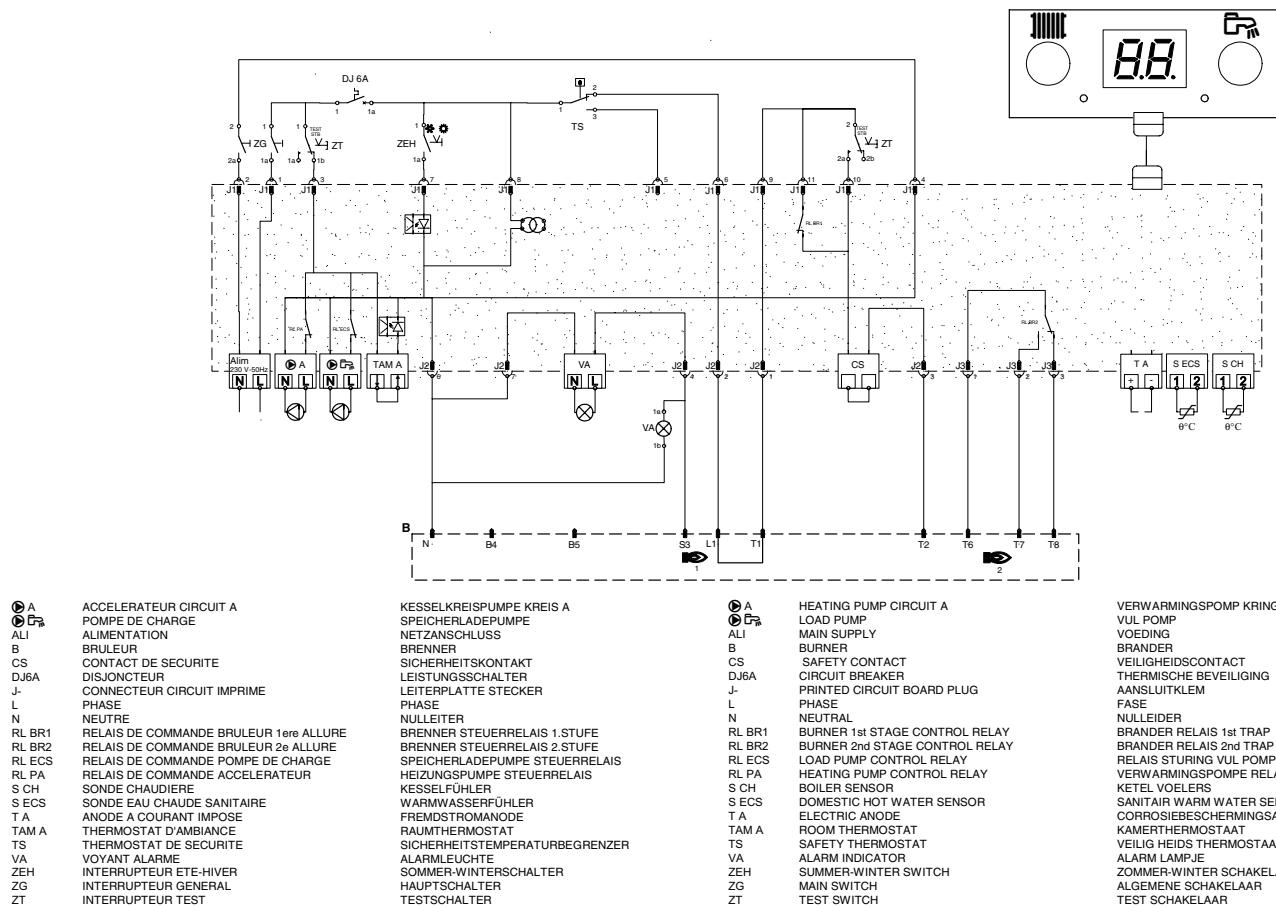
## 6.7 Electrical principle diagram

### ■ B control panel



Plan n° : 300001532-001-B

## ■ B2 control panel



PLAN n° 300007073-001-B

## 7 Alarm messages

In the event of a fault, the display may show the following messages :

Message	Faults	Probable causes	Solution
AL 50	Boiler sensor	The sensor circuit has been broken or short circuited.	Advise the installer. See comments below.
AL 52	Domestic hot water sensor	The sensor is cut	
AL td	Titanium anode	The titanium anode is in open circuit or the tank is empty.	Check that the titanium anode is properly connected or fill the dhw tank.
AL tc		A short circuit has occurred on the titanium anode or connection reversed.	Check that there is no short circuit or an inversion of the wires of the titanium anode.

Operating mode in case of a fault :

**AL 50** : The installation is stopped.

**AL 52** : In case of a hot water sensor fault, the installation continues to operate, but the heating the domestic hot water is no longer assured.

**AL td and AL tc** : Production of domestic hot water is stopped. This may be reactivated for 24 hours by disconnecting and reconnecting the power supply to the boiler.

There are 2 options :

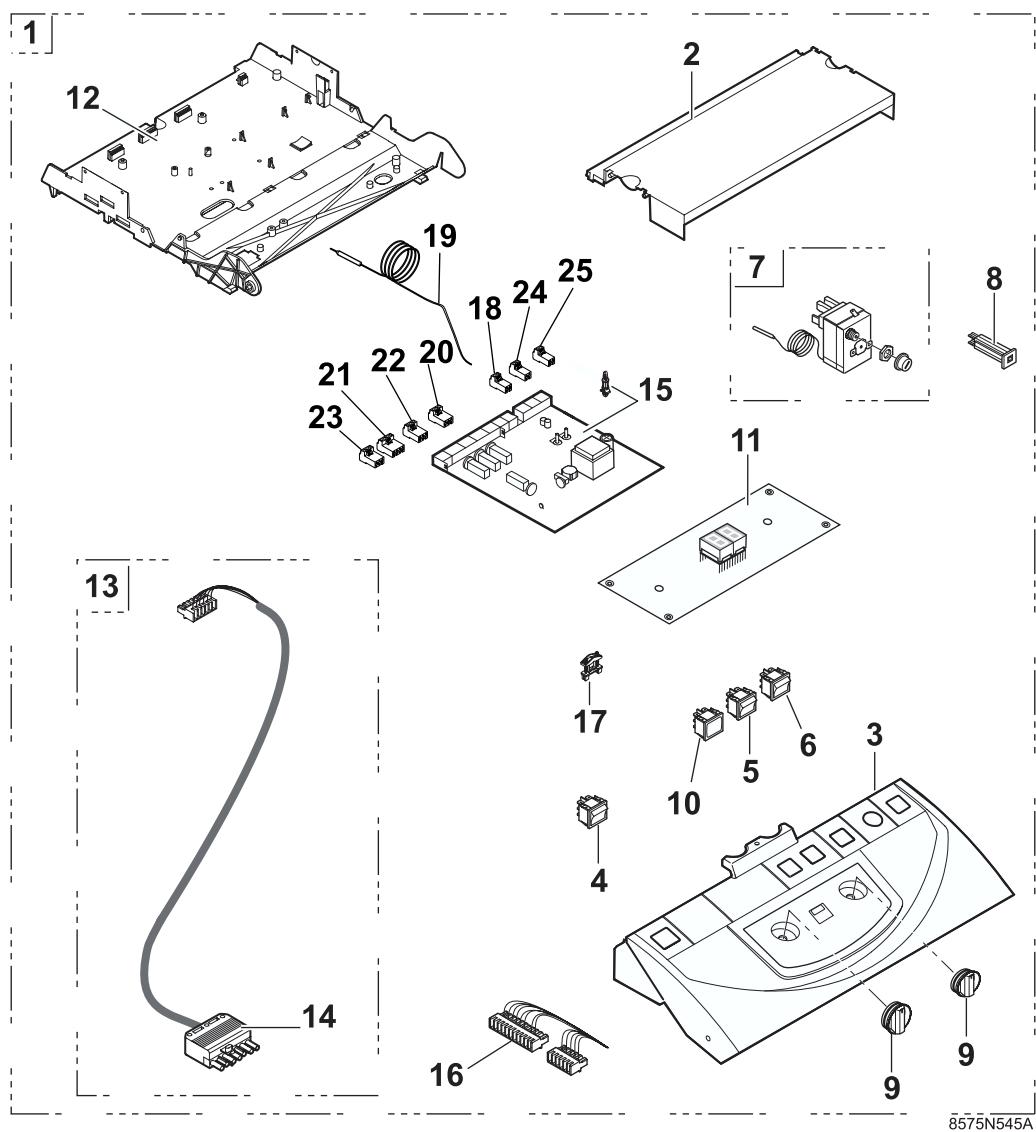
- With a domestic hot water tank protected by a titanium anode: the tank is no longer protected against corrosion.  
Contact **NECESSARILY** your installation engineer.
- With a domestic hot water tank protected by a magnesium anode:  
check that the connector delivered with AD212 package is placed on the sensor p.c.b.. Check that the AD212 container connector, with the 22 kOhm resistance and a 100 nF capacitor, is properly connected to terminals **25 26**.

## 8 Spare parts



To order a spare part, quote the reference number next to the part required.

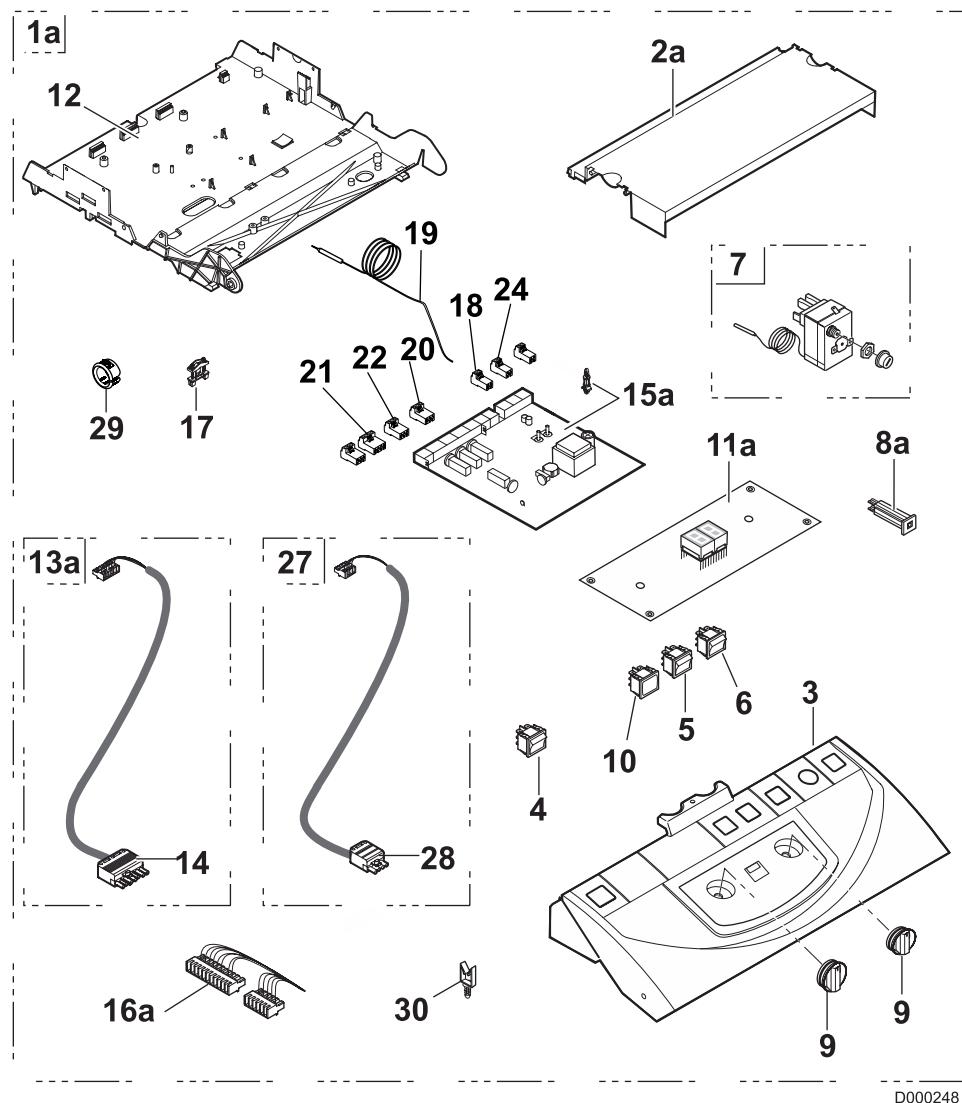
### Control panel B with Titan Active System® function for GT120 / GT220



## ■ B control panel

Ref.	Code no.	Description
1	100001620	Standard complete control panel
2	200001651	Standard card cover
3	9786-4038	Plastic coated panel
4	9532-5027	Green S/S bipolar switch
5	8500-0035	Bipolar switch
6	9532-5028	Bipolar inverstor switch
7	8500-0032	Safety thermostat 110° C
8	9534-0288	Circuit breaker 4A TS710/4A
9	8559-5507	Setting button
10	9521-6220	Red indicator
11	200000243	Basic UC display card
12	9752-5378	Card support
13	8575-4945	Burner cable
14	9531-7395	Burner connector
15	8806-5564	Basic relay card
16	200001789	Standard beam
17	9532-0187	Cable clamps
18	200000625	Connector assembly with label
19	9536-2446	KVT sensor 60 l. 1 m
20	8575-4905	3-bridge pwer supply connector, assembled
21	8575-4922	4-bridge VA+CS connector, assembled
22	8575-4924	Connector 3 pt assembled pump A/VS
23	8575-4926	Connector 3 pt assembled auxiliary pump
24	8575-4920	Connector 2 pt assembled TAM
25	8575-4949	Connector 2 pt assembled TAM B

## Control panel B2 with Titan Active System® function GT220 - GTUC220



## ■ B2 control panel

Ref.	Code no.	Description
1a	100004376	Standard complete control panel
2a	200004950	Standard card cover
3	9786-4038	Plastic coated panel
4	9532-5027	Green S/S bipolar switch
5	8500-0035	Bipolar switch
6a	8500-0034	Test Switch
7	8500-0032	Safety thermostat 110° C
8a	9534-0285	Circuit breaker 6A
9	8559-5507	Setting button
10	9521-6220	Red indicator
11a	200005084	Basic UC display card
12	9752-5378	Card support
13a	200004753	Burner cable 1 stage
14	9531-7395	Burner connector
15a	200004948	Basic relay card
16a	200004772	Standard beam
17	9532-0187	Cable clamps
18	200000625	Connector assembly with label
19	9536-2446	KVT sensor 60 l. 1 m
20	8575-4905	3-bridge power supply connector, assembled
21	8575-4922	4-bridge VA+CS connector, assembled
22	8575-4924	Connector 3 pt assembled pump A/VS
24	8575-4920	Connector 2 pt assembled TAM
27	200004754	Burner cable 2nd stage
28	9531-7384	4-pin plug
29	9532-0532	Grommet
30	9655-0352	Beam mounting FTH15





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