Innovens Pro

EN

Wall-hung gas condensing boilers

MCA 45 - 65 - 90 - 115

Installation and Service Manual

300024827-001-01

De Dietrich

EG declaration of conformity

The device complies with the standard type described in the EG declaration of conformity. It was manufactured and commissioned in accordance with European directives.

The original of the declaration of compliance is available from the manufacturer.

EG - VERKLARING VAN OVEREENSTEMMING
EC - DECLARATION OF CONFORMITY
EG - KONFORMITÄTSERKLÄRUNG
DÉCLARATION DE CONFORMITÉ CE

Fabrikant/Manufacturer/Hersteller/Fabricant	**: Remeha B.V.**
Adres/Address/Adresse	**: Kanaal Zuid 110**
Stad,Land/City,Country/Land,Ort/Ville, pays	**: Postbus 32, NL-7300 AA Apeldoorn**
verklaart hiermede dat de toestel(len)	**: MCA (Innovens Pro)**
this is to declare that the following product(s)	**:**
erklärt hiermit das die Produk(te)	**:**
déclare ici que les produit(s) suivant(s)	**:**
op de markt gebracht door	**: De Dietrich Thermique**
distributor	**: 57, rue de la Gare, F-67580**
Vertreiber	**:**
Commercialisé (s) par	**:**

voldoet/voldoen aan de bepalingen van de onderstaande EEG-richtlijnen:
is/are in conformity with the following EEC-directives:
den Bestimmungen der nachfolgenden EG-Richtlinien entspricht/entsprechen:
répond/répondent aux directives CEE suivantes:

EEG-Richtlijn:	**2009/142/EC[3)]**	**toegepaste normen:**
EEC-Directive:	**2009/142/EC**	**tested and examined to the following norms:**
EG-Richtlinie:	**2009/142/EG**	**verwendete Normen, normes appliquées:**
CEE-Directive:	**2009/142/CE**	**EN 297 (1994*), EN 483 (1999*), EN 656 (1999*), EN 677 (1998*), EN 15417 (2006*), EN 15420 (2006*)**
	92/42/EEG **92/42/EEC** **92/42/EWG** **92/42/CEE**	
	2006/95/EEG[1)] **2006/95/EEC** **2006/95/EWG** **2006/95/CEE**	**EN 60335-1 (2002*)** **EN 60335-2-102 (2006*)**
	2004/108/EEG[2)] **2004/108/EEC** **2004/108/EWG** **2004/108/CEE**	**EN 55014-1 (2007*), EN 60335-2-102 (2006*)** **EN 61000-3-2 (2000*), 61000-3-3 (1995*)**
	97/23/EEG **97/23/EEC** **97/23/EWG** **97/23/CEE**	**(art. 3, lid 3)** **(article 3, sub 3)** **(Art. 3, Abzats 3)** **(art.3 section 3)**

CE
10

*) inclusief (eventuele) aanvulling, including (if any) completion
einschließlich (falls vorhanden) Vervollständigung, y compris (le cas échéant) complément
1) tot, until, bis, juscu´à ce que 16-01-2007: 73/23/EEG
2) tot, until, bis, juscu´à ce que 20-07-2009: 89/336/EEG
3) tot, until, bis, juscu´à ce que 04-01-2010: 90/396/EEG

Apeldoorn, august 2010

W.F. Tijhuis
Approval manager
703/2010/08/181

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Contents

1 Introduction

1.1 Symbols used

In these instructions, various danger levels are employed to draw the user's attention to particular information. In so doing, we wish to safeguard the user's safety, obviate hazards and guarantee correct operation of the appliance.

DANGER

Risk of a dangerous situation causing serious physical injury.

WARNING

Risk of a dangerous situation causing slight physical injury.

CAUTION

Risk of material damage.

Signals important information.

Signals a referral to other instructions or other pages in the instructions.

1.2 Abbreviations

- **3CE**: Collective conduit for sealed boiler
- **DHW**: Domestic hot water
- **PPS**: Polypropylene hardly inflammable
- **PCU**: Primary Control Unit - PCB for managing burner operation
- **PSU**: Parameter Storage Unit - Parameter storage for PCBs PCU and SU
- **SCU**: Secondary Control Unit - control panel PCB
- **SU**: Safety Unit - Safety PCB
- **Hi**: Lower heating value LHV (Nett)
- **Hs**: Higher heating value HHV (Gross)

1.3 General

1.3.1. Manufacturer's liability

Our products are manufactured in compliance with the requirements of the various applicable European Directives. They are therefore delivered with CE marking and all relevant documentation.

In the interest of customers, we are continuously endeavouring to make improvements in product quality. All the specifications stated in this document are therefore subject to change without notice.

Our liability as the manufacturer may not be invoked in the following cases:

- Failure to abide by the instructions on using the appliance.
- Faulty or insufficient maintenance of the appliance.
- Failure to abide by the instructions on installing the appliance.

1.3.2. Installer's liability

The installer is responsible for the installation and inital start up of the appliance. The installer must respect the following instructions:

- Read and follow the instructions given in the manuals provided with the appliance.
- Carry out installation in compliance with the prevailing legislation and standards.
- Perform the initial start up and carry out any checks necessary.
- Explain the installation to the user.
- If a maintenance is necessary, warn the user of the obligation to check the appliance and maintain it in good working order.
- Give all the instruction manuals to the user.

1.3.3. User's liability

To guarantee optimum operation of the appliance, the user must respect the following instructions:

- Read and follow the instructions given in the manuals provided with the appliance.
- Call on qualified professionals to carry out installation and initial start up.
- Get your installer to explain your installation to you.
- Have the required checks and services done.
- Keep the instruction manuals in good condition close to the appliance.

This appliance is not intended to be used by persons (including children) whose physcial, sensory or mental capacity is impaired or persons with no experience or knowledge, unless they have the benefit, through the intermediary of a person responsible for their safety, of supervision or prior instructions regarding use of the appliance. Care should be taken to ensure that children do not play with the appliance.

1.4 Homologations

1.4.1. Certifications

CE identification no	**PIN 0063CL3333**
NOx classification	**5 (Standards EN)**
Type of connection	Chimney: B_{23} (1), B_{23P} (1),
	Flue gas outlet: C_{13} , C_{33} , C_{43} , C_{53} , C_{63} , C_{83} , C_{93}
(1) IP20	

1.4.2. Equipment categories

Gas category	Gas type	Connection pressure (mbar)
II_{2ESi3P}	Natural gas H (G20)	20
	Natural gas L (G25)	25
	Propane (G31)	37

The boiler is preset in the factory to operate on natural gas H (G20).

For operation on another group of gases:

- With DIEMATIC iSystem: "Adapting to another gas type", page 64.
- With IniControl: "Adapting to another gas type", page 96.

For operation on another type of gas, see chapter: "Adapting to another gas type", page 64.

1.4.3. Additional Directives

Apart from the legal provisions and Directives, the additional Directives described in these instructions must also be observed.

For all provisions and Directives referred to in these instructions, it is agreed that all addenda or subsequent provisions will apply at the time of installation.

WARNING

Installation of the appliance must be done by a qualified engineer in accordance with prevailing local and national regulations.

1.4.4. Factory test

Before leaving the factory, each boiler is set for optimum performance and tested to check the following items:

- Electrical safety
- Adjustment (CO_2)
- Water tightness
- Gas tightness
- Parameter settings

2 Safety instructions and recommendations

2.1 Safety instructions

DANGER

If you smell gas:

1. Do not use a naked flame, do not smoke, do not operate electrical contacts or switches (doorbell, light, motor, lift, etc..).
2. Shut off the gas supply.
3. Open the windows.
4. Trace possible leaks and seal them immediately.
5. If the gas leak is before the gas meter, contact the gas supplier.

DANGER

If you smell flue gases:

1. Switch the appliance off.
2. Open the windows.
3. Trace possible leaks and seal them immediately.

2.2 Recommendations

WARNING

- Installation and maintenance of the boiler must be carried out by a qualified professional in compliance with prevailing local and national regulations.
- When working on the boiler, always disconnect the boiler from the mains and close the main gas inlet valve.
- After maintenance or repair work, check all installations to ensure that there are no leaks.

CAUTION

The boiler must be installed in a frost-free environment.

Keep this document close to the place where the boiler is installed.

Casing components

Only remove the casing for maintenance and repair operations. Put the casing back in place after maintenance and repair operations.

Instructions stickers

The instructions and warnings affixed to the appliance must never be removed or covered and must remain legible during the entire lifespan of the appliance. Immediately replace damaged or illegible instructions and warning stickers.

Modifications

Modifications may only be made to the boiler after the written permission of **De Dietrich Thermique** to do so.

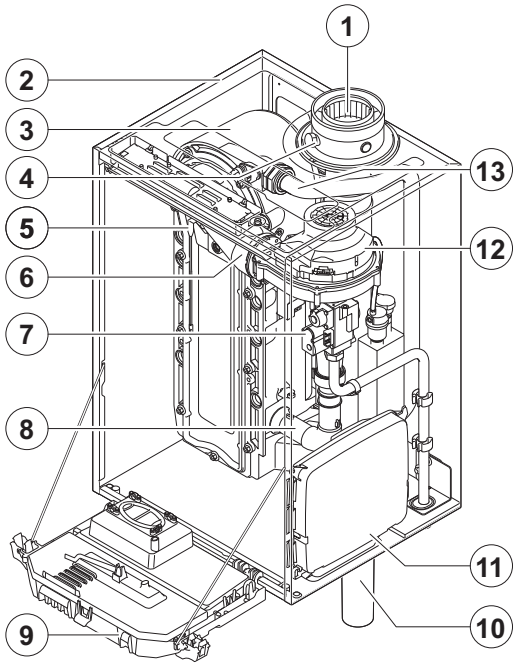
3 Technical description

3.1 General description

Wall-hung gas condensing boilers

- High efficiency heating (Production of domestic hot water can be ensured by a separate hot water calorifier).
- Low pollutant emissions.
- **DIEMATIC iSystem** or **IniControl** electronic control panel.
- Flue gas evacuation by a forced flue, chimney or bi-flow type connection.
- Very suitable for cascade systems with several boilers.

3.2 Main parts



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1	Flue gas discharge pipe / Air intake
2	Casing/air box
3	Heat exchanger (Central heating)
4	Outlet for measuring combustion gases
5	Ignition/ionization electrode
6	Mixer pipe
7	Combined venturi and gas valve unit
8	Air intake silencer
9	Instrument box
10	Siphon
11	Box for the control PCBs
12	Fan
13	Water flow pipe

3.3 Operating principle

3.3.1. Shunt pump

The boiler is supplied without a pump. When choosing a pump, take account of the boiler resistance and system resistance.

See chapter: "Technical specifications", page 13.

If possible, install the pump directly under the boiler on the return connection.

See chapter: "Connection of the heating circuit", page 22.

CAUTION

The pump may have a maximum input of 200 W. Use an auxiliary relay for a pump with a larger input.

3.3.2. System in cascade

The boiler is ideally suited for a cascade system. There are a number of standard solutions available. For example:

- Cascade sets (quick assembly) for the installation of 2 to 7 boilers next to each other or 3 to 10 boilers mounted back to back on a free-standing frame. When the boilers are mounted next to each other, they can be mounted either on the wall or on a free-standing frame.

Please contact us for further information.

3.3.3. Calorifier connection

A calorifier can be connected to the boiler. Our product range includes various calorifiers.

Please contact us for further information.

The calorifier can be connected to the boiler in two ways:

- Using a 3-way diverting valve.
- Using a calorifier pump.

3.3.4. Water flow rate

The boiler's modulating control system limits the maximum difference in temperature between the heating flow and return and the maximum speed at which the flow temperature increases. For this reason the boiler is, so to speak, insensitive to a flow which is too low.
In all cases, maintain a minimum water flow of 0,4 m^3/h.

If DHW regulation is progressively activated with parameter P35, then maintain a minimum water flow of 0,8 m^3/h.

3.4 Technical specifications

Boiler type			MCA 45	MCA 65	MCA 90	MCA 115
General						
Flow rate setting	Adjustable		Modulating, Start/Stop, 0 - 10 V			
Nominal output (Pn) Heating System (80/60 °C)	minimum-maximum	kW	8,0 - 40,0	12,0 - 61,0	14,1 - 84,2	16,6 - 107,0
	Factory setting	kW	40,0	61,0	84,2	107,0
Nominal output (Pn) Heating System (50/30 °C)	minimum-maximum	kW	8,9 - 43,0	13,3 - 65,0	15,8 - 89,5	18,4 - 114,0
	Factory setting	kW	43,0	65,0	89,5	114,0
Nominal input (Qn) Heating System (Hi)	minimum-maximum	kW	8,2 - 41,2	12,2 - 62,0	14,6 - 86,0	17,2 - 110,2
	Factory setting	kW	41,2	62,0	86,0	110,2
Nominal input(Qn) Heating System (Hs)	minimum-maximum	kW	9,1 - 45,7	13,6 - 68,8	16,2 - 95,5	19,1 - 122,4
	Factory setting	kW	45,7	68,8	95,5	122,4
Heating efficiency under full load (Hi) (80/60 °C)	-	%	97,2	98,3	97,9	96,6
Heating efficiency under full load (Hi) (50/30 °C)	-	%	102,9	104,6	104,1	102,5
Heating efficiency under partial load (Hi) (Return temperature 60°C)	-	%	97,5	98,3	96,6	96,5
Heating efficiency under partial load (EN 92/42)(Return temperature 30°C)	-	%	107,7	108,9	108,1	107,1
Data on the gases and combustion gases						
Gas consumption G20 (Natural gas H)	minimum-maximum	m^3/h	0,9 - 4,4	1,3 - 6,6	1,5 - 9,1	1,8 - 11,7
Gas consumption G31 (Propane)	minimum-maximum	m^3/h	0,3 - 1,7	0,5 - 2,5	0,6 - 3,5	0,6 - 4,7
NOx-Emission per year (EN 483)		mg/kWh	37	32	45	46
Mass flue gas flow rate	minimum-maximum	Kg/h	14 - 69	21 - 104	28 - 138	36 - 178
Flue gas temperature	minimum-maximum	°C	30 - 67	30 - 68	30 - 68	30 - 72
Maximum counter pressure		Pa	150	100	160	220
Characteristics of the heating circuit						
Water content		l	5,5	6,5	7,5	7,5
Water operating pressure	minimum	kPa (bar)	80 (0,8)	80 (0,8)	80 (0,8)	80 (0,8)
Water operating pressure (PMS)	maximum	kPa (bar)	400 (4,0)	400 (4,0)	400 (4,0)	400 (4,0)
Water temperature	maximum	°C	110	110	110	110
Operating temperature	maximum	°C	90	90	90	90
Water resistance (ΔT = 20K)		mbar	90	130	140	250
Electrical characteristics						
Power supply voltage		V/Hz	230/50	230/50	230/50	230/50
Power consumption - Full load	maximum	W	68	88	125	199
Power consumption - Part load	maximum	W	18	23	20	45
Power consumption - Standby	maximum	W	5	6	4	7
Electrical protection index		IP	X4D	X4D	X4D	X4D
Other characteristics						
Weight (empty)	Total	kg	53	60	67	68
	Mounting(1)	kg	49	56	65	65
Acoustic level at 1 metre		dBA	45	45	52	51

(1) Front panel removed

3.4.1. Sensor characteristics

Outside sensor		Outlet sensor circuit B+C Domestic hot water sensor		Boiler sensor Return sensor	
-20 °C	2392 Ω	0 °C	32014 Ω	-20 °C	98932 Ω
-16 °C	2088 Ω	10 °C	19691 Ω	-10 °C	58879 Ω
-12 °C	1811 Ω	20 °C	12474 Ω	0 °C	36129 Ω
-8 °C	1562 Ω	25 °C	10000 Ω	10 °C	22804 Ω
-4 °C	1342 Ω	30 °C	8080 Ω	20 °C	14773 Ω
0 °C	1149 Ω	40 °C	5372 Ω	25 °C	12000 Ω
4 °C	984 Ω	50 °C	3661 Ω	30 °C	9804 Ω
8 °C	842 Ω	60 °C	2535 Ω	40 °C	6652 Ω
12 °C	720 Ω	70 °C	1794 Ω	50 °C	4607 Ω
16 °C	616 Ω	80 °C	1290 Ω	60 °C	3252 Ω
20 °C	528 Ω	90 °C	941 Ω	70 °C	2337 Ω
24 °C	454 Ω			80 °C	1707 Ω
				90 °C	1266 Ω
				100 °C	952 Ω
				110 °C	726 Ω

4 Installation

4.1 Regulations governing installation

WARNING

Installation of the appliance must be done by a qualified engineer in accordance with prevailing local and national regulations.

4.2 Package list

4.2.1. Standard delivery

The boiler is composed of 2 packages:

- 1 boiler package including:
  - The boiler, fitted with a connection cable
  - Mounting rail and mounting accessories for wall mounting
  - Mounting template
  - Installation and Service Manual
  - User Guide
- 1 control panel package including:
  - The DIEMATIC iSystem or IniControl control panel
  - module assembly instructions

4.2.2. Accessories

Various options are available depending on the configuration of the installation:

Boiler options	
Description	**package**
Hydraulic connection kit - MCA 45	HC137
Hydraulic connection kit - MCA 65 / 90 / 115	HC139
Right gas valve 3/4"	HC158
3-speed heating pump - MCA 45	HC141
Electronic heating pump - MCA 45	HC142
3-speed heating pump - MCA 65	HC143
3-speed heating pump - MCA 90	HC145
Primary pump - MCA 45 / 65 / 90	HC147
3-way valve with motor 1"	HC15
Low loss header HW PLUS 70	HC28
Low loss header HW 200	HC29

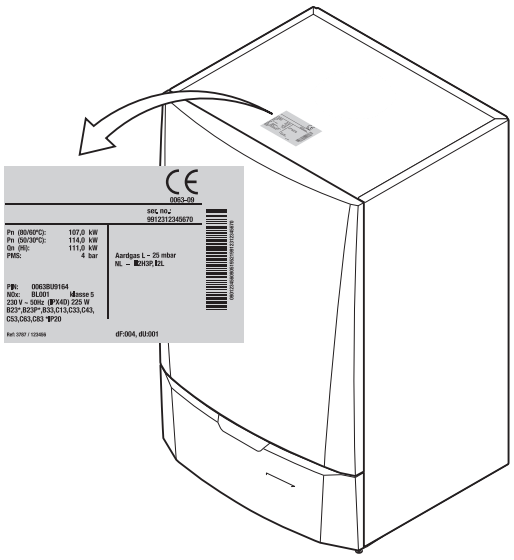
Boiler options	
Description	**package**
Condensates neutralisation station	HC33
Bracket for neutralisation station HC 33	HC34
2 kg refill of granulats to neutralisation station HC 33	HC35
Condensates neutralisation station (Boilers up to 120 kW)	DU13
Condensates neutralisation station (Boilers from 120 to 350 kW)	DU14
Condensates neutralisation station (Boilers above 350 kW)	DU15

Control system options	
Description	**package**
Optional PCB for 3-way valve Diematic iSystem	AD249
System sensor	AD250
Outside radio-controlled temperature sensor Diematic iSystem	AD251
Boiler radio module	AD252
Radio remote control Diematic iSystem	AD253
Interactive remote control Diematic iSystem	AD254
BUS connection cable (length 12 m)	AD134
voice remote monitoring module	AD152
Outlet sensor after 3-way valve	AD199
A simplified remote control with room sensor	FM52

Domestic hot water tank options	
Description	**package**
Heating / DHW inversion valve	HC 134
Boiler/DHW tank connection kit BL / BP / BSC / DT	EA 121
DHW sensor	AD 212

4.3 Choice of the location

4.3.1. Data plate



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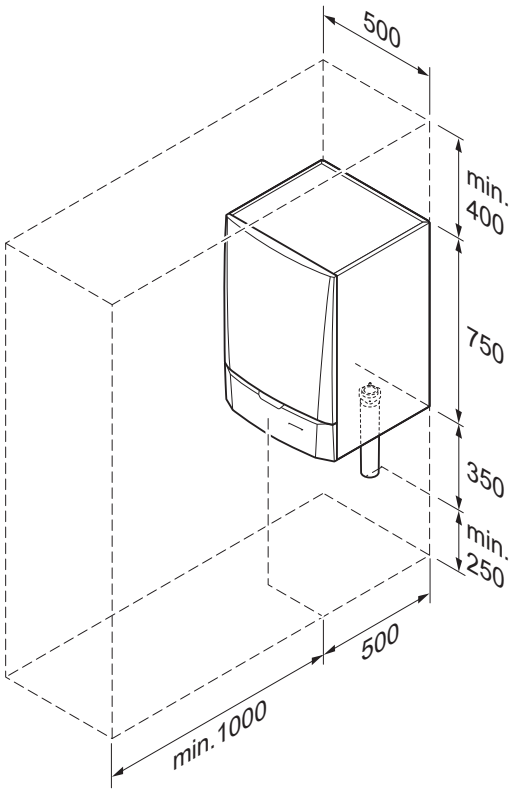
The data plate located on top of the boiler provides important information on the appliance: serial number, model, gas category, etc.

4.3.2. Location of the boiler



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- Before mounting the boiler, decide on the ideal position for mounting, bearing the Directives and the dimensions of the appliance in mind.
- When choosing the position for mounting the boiler, bear in mind the authorised position of the combustion gas discharge outlets and the air intake opening.
- To ensure adequate accessibility to the appliance and facilitate maintenance, leave enough space around the boiler.

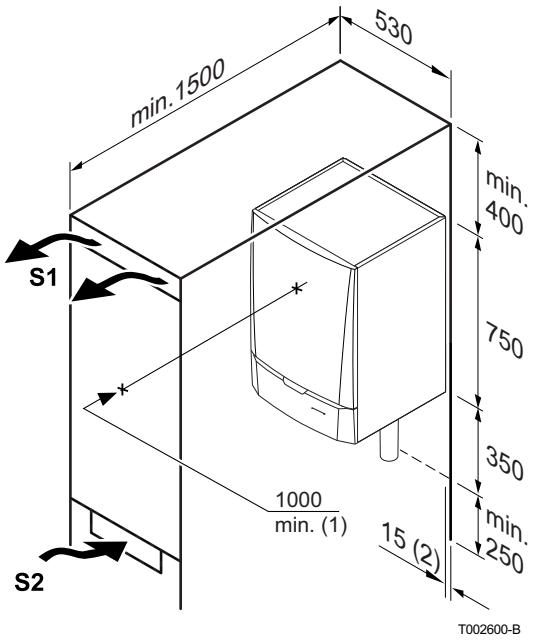
WARNING

- Fix the appliance to a solid wall capable of bearing the weight of the appliance when full of water and fully equipped.
- It is forbidden to store inflammable products and materials in the boiler room or close to the boiler, even temporarily.

CAUTION

- The boiler must be installed in a frost-free environment.
- A connection to the mains drainage system for the discharge of condensate must be available close to the boiler.

4.3.3. Ventilation



(1) Distance between the front of the boiler and the internal wall of the casing box.

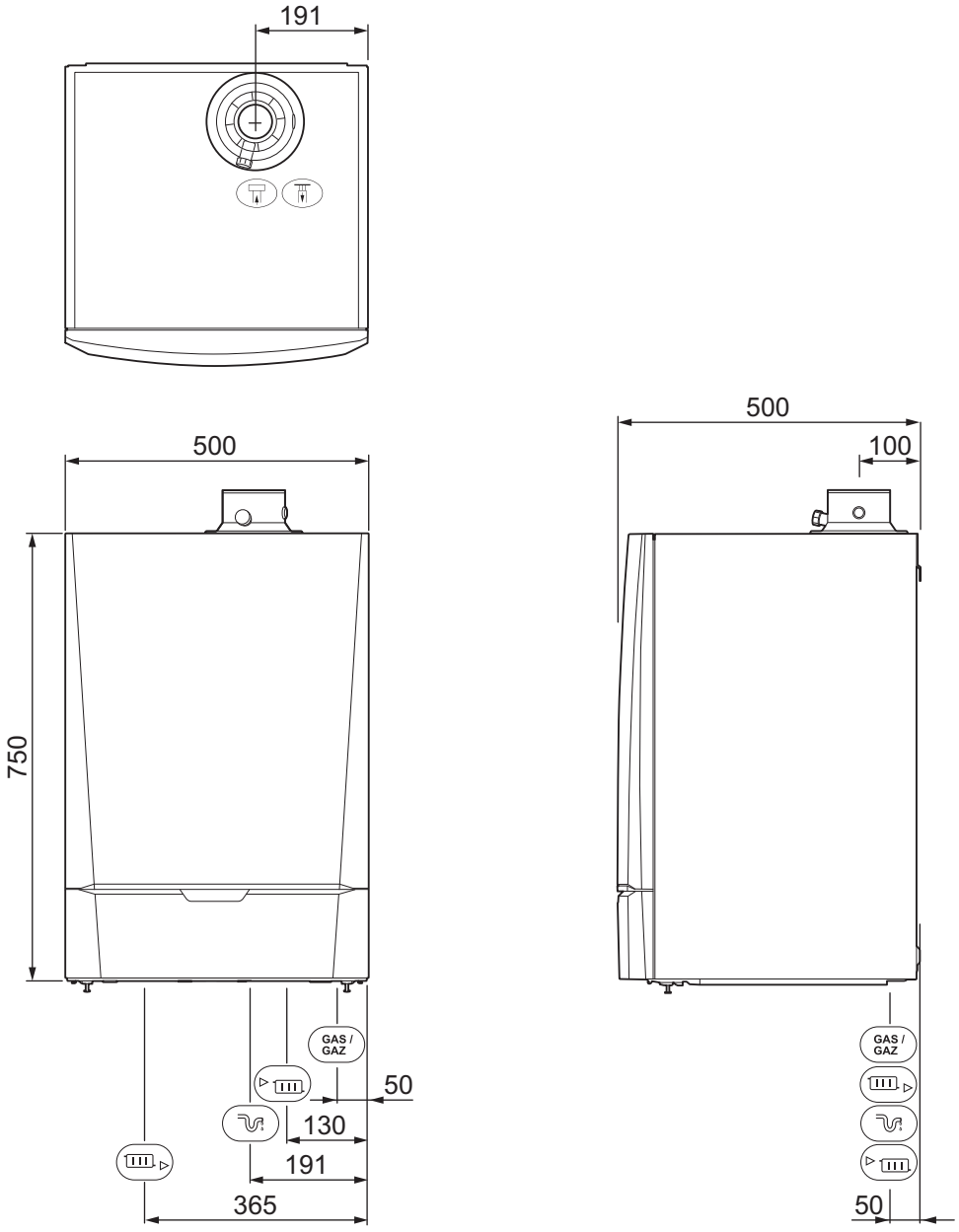
(2) Distance to allow on either side of the boiler.

If the boiler is installed in a closed casing, respect the minimum dimensions given in the diagram opposite. Also allow openings to obviate the following hazards:

- Accumulation of gas
- Heating of the box

Minimum cross section of the openings: **S1** + **S2** = 150 cm^2

4.3.4. Main dimensions



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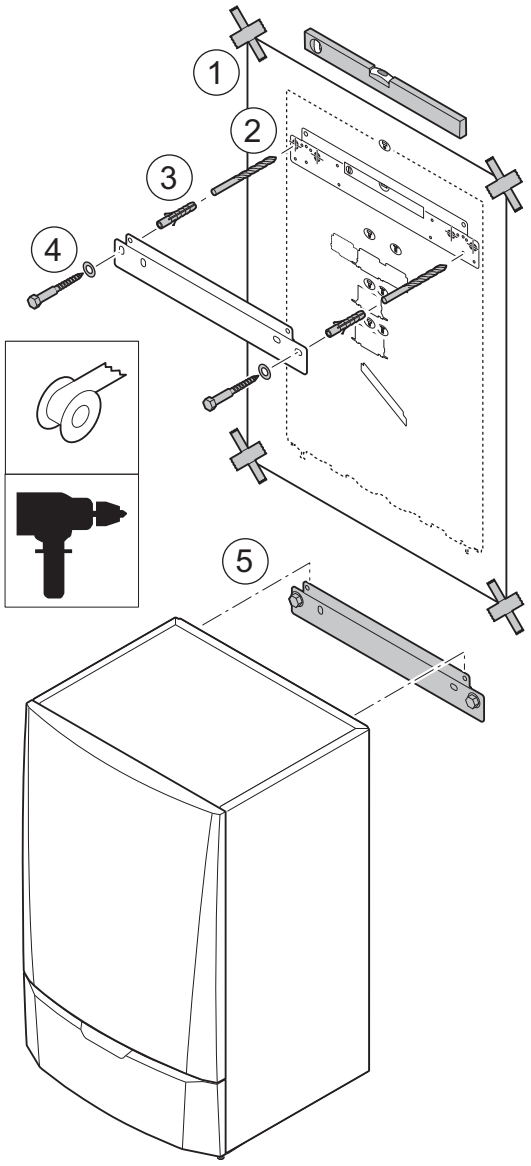
	Connection of the combustion gas exhaust pipe; Ø 80 mm (≤ 45 kW / Ø 100 mm≥ 65 kW
	Connection of the air intake pipe; Ø 125 mm (≤ 45 kW) / Ø 150 mm≥ 65 kW
	Siphon connection bush
	Heating circuit return; 1 ¼" Male thread
Gas / Gaz	Gas connection; ¾" Male thread
	Heating circuit flow; 1 ¼" Male thread

4.4 Positioning the boiler



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The boiler is delivered with a mounting template.

A suspension clamp situated at the rear of the casing enables the boiler to be directly suspended on the mounting bracket.

1. Position the mounting template to the wall with adhesive tape.

CAUTION

- Using a spirit level, check that the mounting axis is perfectly horizontal.
- During mounting, cover up the connection points for the air supply and the combustion gas exhaust, to protect the boiler and its connections from dust. Only remove this protection at the time when these connections are made.

2. Drill 2 holes with a Ø of 10 mm.
3. Insert the rawplugs with a Ø of 10 mm.
4. Attach the mounting bracket to the wall with the provided bolts with a Ø of 10 mm.
5. Hang the boiler on the mounting bracket.

4.5 Hydraulic connections

4.5.1. Flushing the system

Installation must be carried out in accordance with the prevailing regulations, the codes of practice and the recommendations in these instructions.

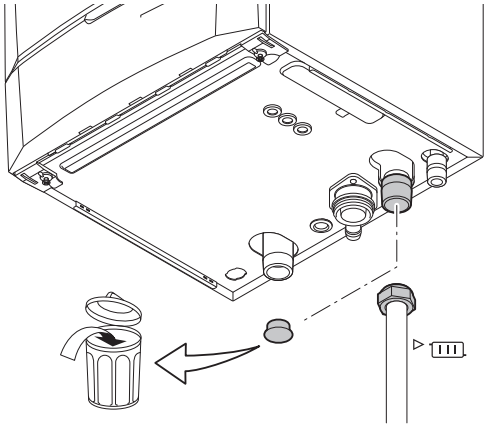
Installing the boiler in new installations (installations less than 6 months old)

- Clean the installation with a universal cleaner to eliminate debris from the appliance (copper, hemp, flux).
- Thoroughly flush the installation until the water runs clear and shows no impurities.

Installing the boiler in existing installations

- Remove sludge from the installation.
- Flush the installation.
- Clean the installation with a universal cleaner to eliminate debris from the appliance (copper, hemp, flux).
- Thoroughly flush the installation until the water runs clear and shows no impurities.

4.5.2. Connection of the heating circuit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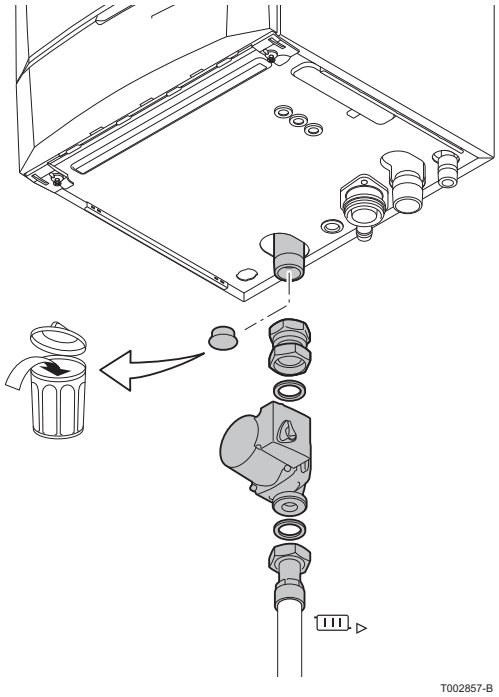
1. Remove the anti-dust plug located on the heating outlet connection under the boiler.
2. Connect the heating water outlet pipe to the heating flow connection.
3. Install a filling and drainage valve on the installation for filling and draining the boiler.



4. Remove the anti-dust plug located on the heating return connection under the boiler.
5. Connect the heating water return pipe to the heating return connection.
6. Fit the pump in the return pipe.
   For the electrical connection of the pump, see chapter: "Connecting the pump", page 33

To facilitate maintenance work, we recommend mounting a shut off valve on the heating flow and return pipes.

CAUTION

- The heating pipe must be mounted in accordance with prevailing provisions.
- If installing shut off valves, position the filling/ drainage valve and the expansion vessel between the shut off valves and the boiler.

4.5.3. Connecting the expansion vessel

Install the expansion vessel on the heating return pipe .

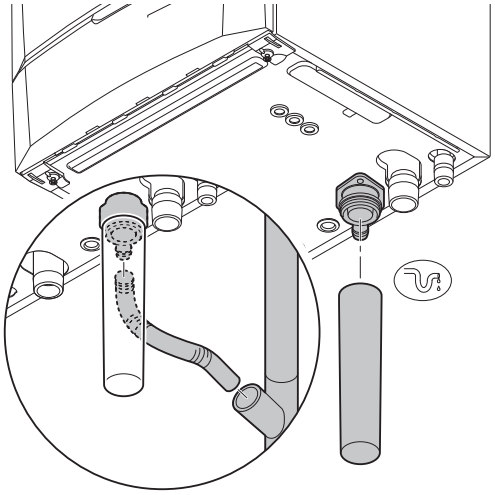
Refer to the table below to determine the expansion vessel required for the installation.

Conditions of validity of the table:

- 3-bar safety valve
- Average water temperature: 70 °C
  Supply temperature: 80 °C
  Return temperature: 60 °C
- The filling pressure in the system is lower than or equal to the initial pressure in the expansion vessel

Initial pressure of the expansion vessel	Volume of the expansion vessel depending on the volume of the installation (in litres)							
	100	125	150	175	200	250	300	> 300
0.5 bar	4,8	6,0	7,2	8,4	9,6	12,0	14,4	Volume of the installation x 0,048
1 bar	8,0	10,0	12,0 (1)	14,0	16,0	20,0	24,0	Volume of the installation x 0,080
1.5 bar	13,3	16,6	20,0	23,3	26,6	33,3	39,9	Volume of the installation x 0,133
(1) Factory configuration								

4.5.4. Connecting the condensate discharge pipe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1. Fit the condensate drain hose and the syphon of the boiler : these are supplied separately.
2. Mount a standard drainage pipe, Ø 32 mm or more, leading to the mains drainage system.
3. Insert into this the hose of the condensate drain.
4. Mount a trap or a siphon in the discharge pipe.

CAUTION

Do not make a fixed connection owing to maintenance work on the siphon.

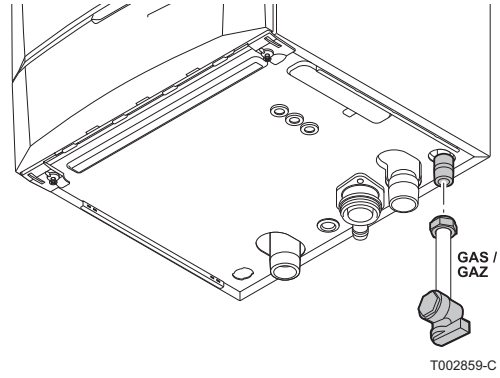
- Do not plug the condensate discharge pipe.
- Set the discharge pipe at a gradient of at least 30 mm per metre, maximum horizontal length 5 metres.
- Do not drain condensation water into a roof gutter at any time.
- Connect the condensate discharge pipe in accordance with prevailing standards.

4.6 Gas connection

WARNING

- Close the main gas valve before starting work on the gas pipes.
- Before mounting, check that the gas meter has sufficient capacity. To do this, you should keep in mind the consumption of all appliances.
- If the gas meter has too low a capacity, inform the energy supply company.

The diameters of the pipes must be defined in accordance with the standards in force in your country.



T002859-C

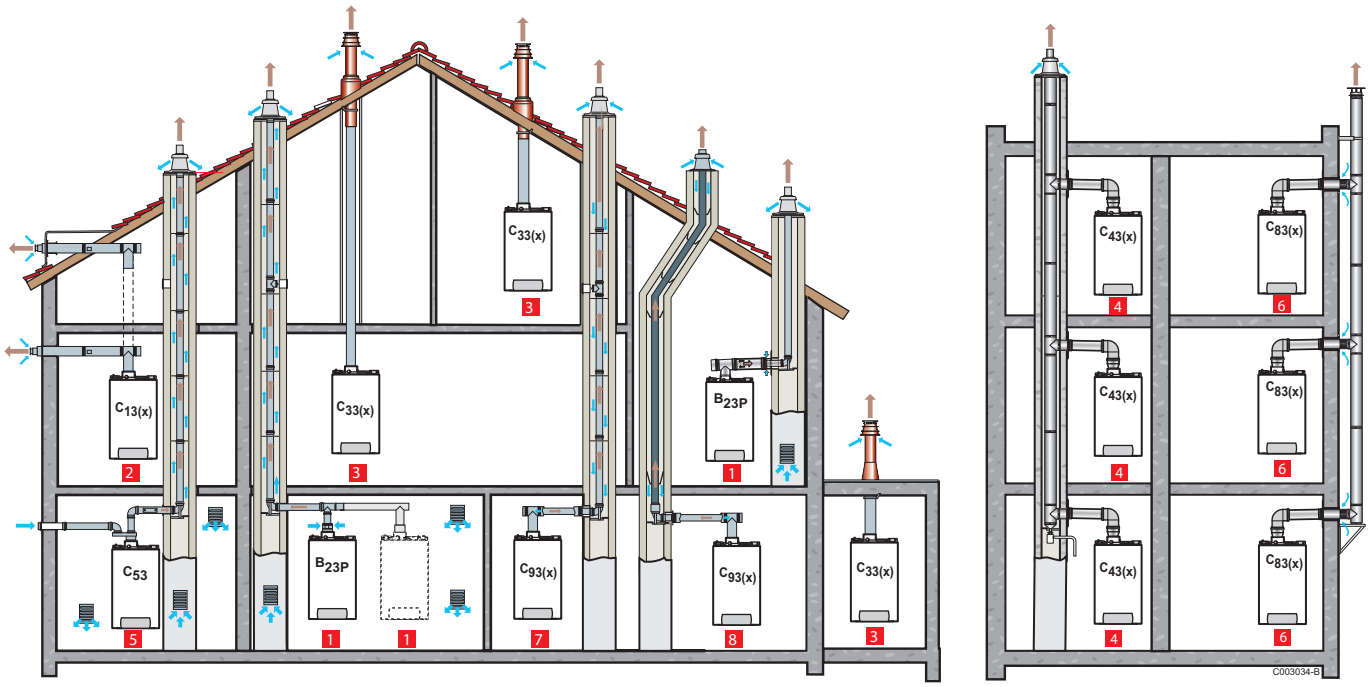
1. Remove the anti-dust plug located on the gas connection **GAS/ GAZ** under the boiler.
2. Connect the gas inlet pipe.
3. Mount a gas isolation valve on this pipe, directly under the boiler.
4. Connect the gas pipe to the gas shut off valve.

CAUTION

- Ensure that there is no dust in the gas pipe.
- We recommend installing a gas filter on the gas pipe to prevent clogging of the gas valve unit.
- Connect the gas pipe in accordance with prevailing standards and regulations.

4.7 Flue gas system connections

4.7.1. Classification



1 **Configuration B_{23} - B_{23P}**
Connection to a chimney using a connection kit (combustive air taken from the boiler room)

2 **Configuration C_{13}**
Air/flue gas connection by means of concentric pipes to a horizontal terminal (so-called forced flue)

3 **Configuration C_{33}**
Air/flue gas connection by means of concentric pipes to a vertical terminal (roof outlet)

4 **Configuration C_{43}**
Air/flue gas connection to a collective conduit for watertight boilers (3CE P system)

5 **Configuration C_{53}**
Air and flue gas connection separated by means of a bi-flow adapter and single pipes (combustive air taken from outside)

6 **Configuration C_{83}**
Flue gas connection to a collective conduit for sealed boilers. The air supply is individual via a terminal coming from outside the building.

7 **Configuration C_{93}**
Air/flue gas connection by concentric pipes in the boiler room and single pipes in the chimney (combustive air in counter current in the chimney)

8 **Configuration C_{93}**

Air/flue gas connection by concentric pipes in the boiler room and single flex in the chimney (combustive air in counter current in the chimney)

WARNING

- Only factory components are authorised for connecting the boiler and the terminal.
- The clear section must comply with the standard.
- The chimney must be swept before the installation of the evacuation conduit.

4.7.2. Lengths of the air/flue gas pipes

For configurations B23 and C93, the lengths given in the table are valid for horizontal conduits with a maximum length of 1 metre. For each additional metre of horizontal conduit, subtract 1.2 m from the vertical length Lmax

Type of air/flue gas connection			Diameter	Maximum length in metres			
				MCA 45	MCA 65	MCA 90	MCA 115
B_{23} B_{23P}	Chimney (rigid or flexible duct in chimney, combustive air taken from the premises)	PPS	80 mm(1)	23,5 m	-	-	-
			110 mm(1)	-	55 m	45 m	44 m
			80 mm(2)	21 m	-	-	-
			110 mm(2)	-	29,5 m	24 m	17,5 m
C_{13}	Concentric pipes connected to a horizontal terminal	Alu or PPS	80/125 mm	16 m	-	-	-
			100/150 mm	-	9 m	8 m	5,9 m
C_{33}	Concentric pipes connected to a vertical terminal	aluminium	80/125 mm	14,5 m	-	-	-
			100/150 mm	-	11,5 m	10 m	9,4 m
C_{43}	Collective conduit for sealed boiler (3 CEP)	To determine the size of such a system, consult the supplier of the 3 CEP conduit.					
C_{53}	Bi-flow adapter and separate single air/flue gas ducts (combustive air taken from outside)	aluminium	80/125 mm 2 x 80 mm	20,5 m	-	-	-
			100/150 mm 2 x 100 mm	-	23 m	17,5 m	11 m(3) 5 m(4)
C_{83}	Collective conduit for sealed boiler	To determine the dimensions of such a system, refer to the supplier of the collective conduit.					

(1) Rigid duct
(2) Flexible duct
(3) Air
(4) Flue gases

Type of air/flue gas connection			Diameter	Maximum length in metres			
				MCA 45	MCA 65	MCA 90	MCA 115
C_{93}	Concentric pipes in the boiler room Single conduits in the chimney (combustive air in counter-current)	aluminium	80/125 mm 80 mm	15 m	-	-	-
			80/125 mm 100 mm	11,5 m	-	-	-
			110/150 mm 110 mm	-	11 m	12,5 m	10 m
	Concentric pipes in the boiler room Single flexible pipe in the chimney (combustive air in counter-current)	PPS	80/125 mm 80 mm	12 m	-	-	-
			110/150 mm 110 mm	-	16,5 m	13,5 m	9,4 m
(1) Rigid duct (2) Flexible duct (3) Air (4) Flue gases							

WARNING

Maximum length = lengths of the straight air/flue gas ducts + equivalent lengths of other components

For the list of flue gas system accessories and the equivalent lengths, refer to the current price list.

4.7.3. Additional Directives

- Please refer to the manufacturer's instructions for the material in question when installing the flue gas discharge and air supply materials. If the flue gas discharge and air supply materials are not installed according to the instructions (e.g. they are not leakproof, not clamped in place etc.), this may cause hazardous situations and/or result in bodily injury. After assembly, check at least all flue gas and air–carrying parts for tightness.
- Connection of the combustion gas exhaust directly to the buildings brick chimneys or flues is forbidden for condensation reasons.
- Always clean the ducts thoroughly in cases where lining pipes are used and/or a connection of the air-supply.
- It must be possible to inspect the flue or chimney.
- In cases where condensate coming from the stainless steel or plastic sections of the flue gas pipe can be driven back towards the aluminium section, this condensate must be removed using a collecting device before the aluminium section is reached.
- For long, aluminium, combustion-gas exhaust pipes it is initially necessary to consider the relatively high quantity of corrosive products which are brought together with the condensate from the exhaust pipe. The siphon on the equipment requires regular cleaning or, preferably, an additional condensate collector can be installed above the equipment.
- The combusted gas discharge pipe must be sufficiently inclined towards the boiler (at least 50 mm per metre) and an adequate condensate collection tank and discharge system constructed (at least 1 m before the boiler opening). The elbows fitted must be at more than 90° to guarantee the provision of an adequate gradient and tightness on the lip rings.

Please contact us for further information.

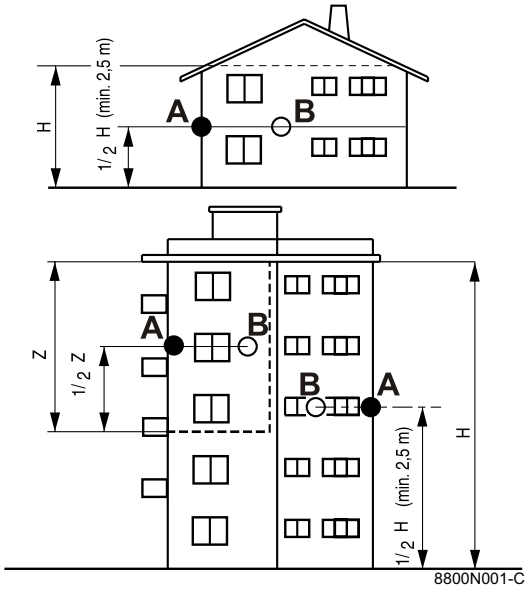
4.8 Installing the outside sensor

4.8.1. Choice of the location

It is important to select a place that allows the sensor to measure the outside conditions correctly and effectively.

Advised positions:

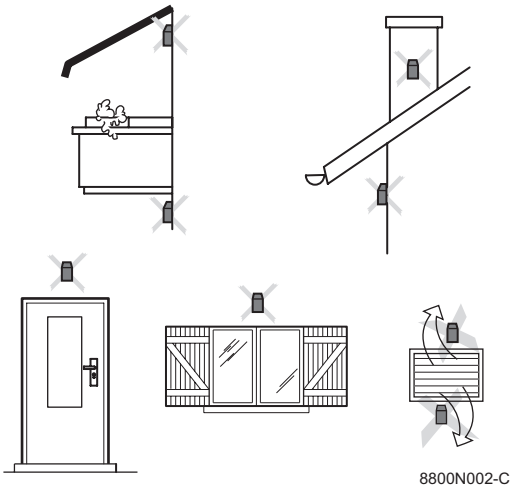
- on one face of the area to be heated, on the north if possible
- half way up the wall in the room to be heated
- under the influence of meteorological variations
- protected from direct sunlight
- easy to access



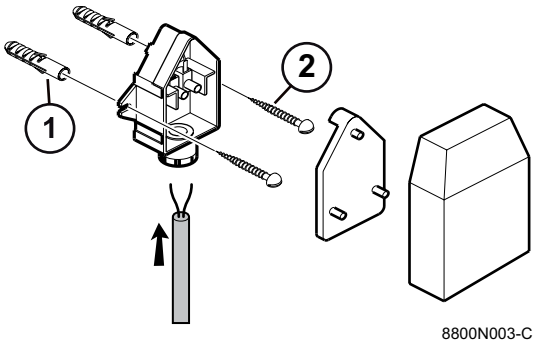
A	Recommended position
B	Possible position
H	Inhabited height controlled by the sensor
Z	Inhabited area controlled by the sensor

Positions to be avoided:

- masked by a building element (balcony, roof, etc.)
- close to a disruptive heat source (sun, chimney, ventilation grid, etc.)



4.8.2. Connecting the outside sensor



Mount the sensor using the screws and dowels provided.

① Inserts

② Ø4 wood screw

For the connection of the outside temperature sensor, refer to the chapter "Electrical Connections".

4.9 Electrical connections

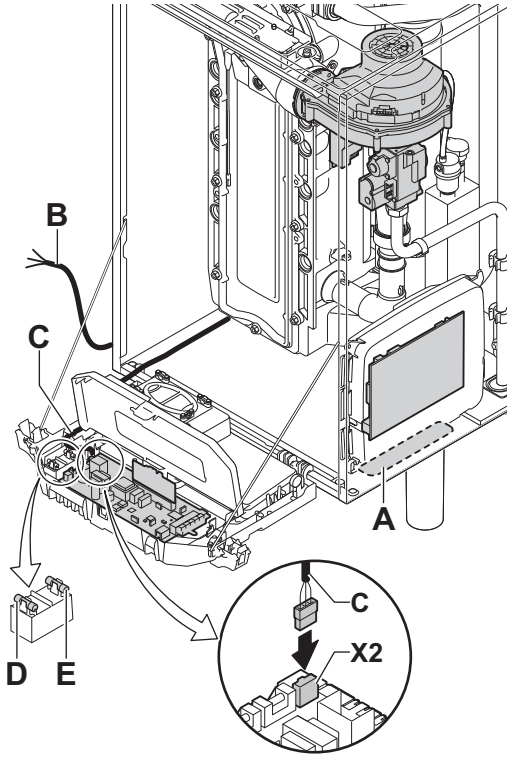
4.9.1. Control unit

The boiler is fully pre-wired. The mains supply is made via the cable **C** connected to the mains. All other external connections can be made to the connection connectors (low voltage). The main characteristics of the control unit are described in the table below.

Power supply voltage	230 V AC/50 Hz
Rating of the main fuse F1(230 V AC)	6.3 AT
Fuse rating F2(230 V AC)	2 AT
Fan	230 V AC

CAUTION

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



T002039-A

A	Routing of the 230 V cables
B	Power supply cable
C	Cable of housing for control PCBs
D	6,3 AT fuse
E	2 AT fuse

CAUTION

The following components of the appliance are at a voltage of 230 V:

- Electrical connection of the heating pump (Central heating).
- Electrical connection of the combined gas valve unit.
- Electrical connection of the fan.
- The majority of components in the control panel.
- Most parts of the housing for control PCBs.
- Ignition transformer.
- Connection of the power supply cable.

4.9.2. Recommendations

WARNING

- Only qualified professionnals may carry out electrical connections, always with the power off.
- The boiler is entirely pre-wired. Do not modify the connections inside the control panel.
- Earth the appliance before making any electrical connections.

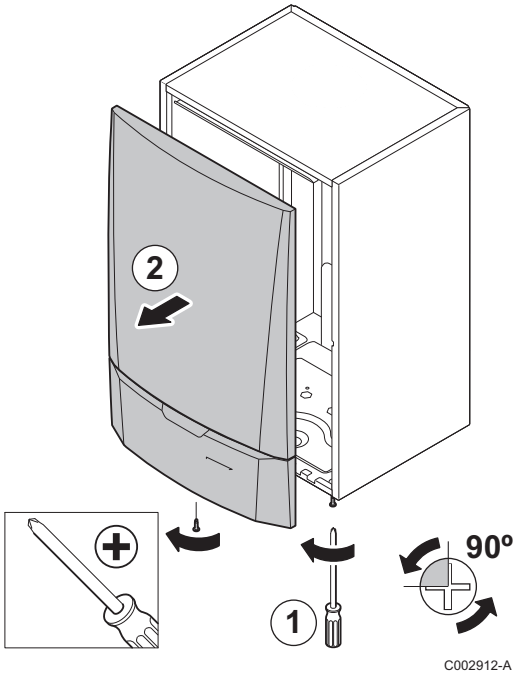
Make the electrical connections of the boiler according to:

- The instructions of the prevailing standards.
- The instructions on the electrical diagrams provided with the boiler.
- The recommendations in the instructions.

CAUTION

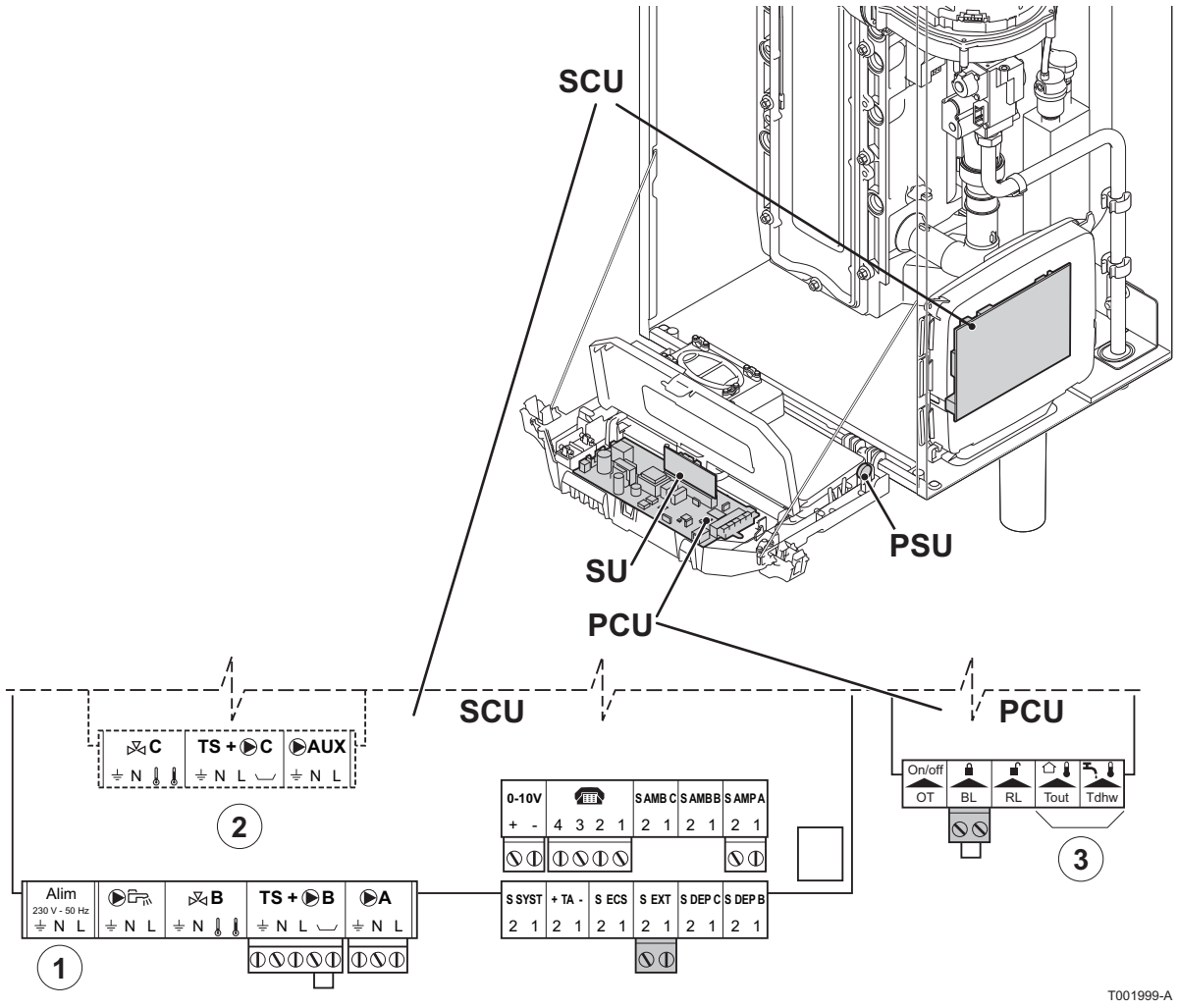
- Separate the sensor cables from the 230 V cables.
- Outside the boiler: Use 2 pipes or cable guides at least 10 cm apart.

4.9.3. Fitting and connecting the control panel



1. Unscrew the 2 screws under the front panel by a quarter turn.
2. Remove the front panel.
3. Fit and connect the control panel.
   To fit and connect the control panel, see the brochure delivered in the control panel package.

4.9.4. Position of the PCBs



① Do not connect anything to the terminal block.

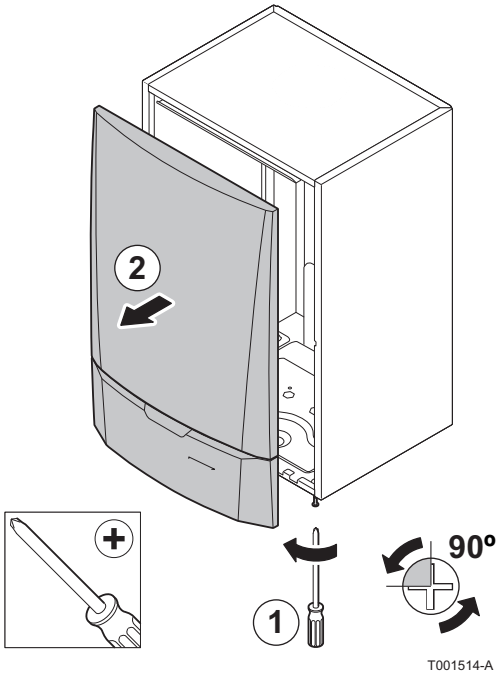
② Optional PCB (Package AD249)

③ Do not connect anything to the terminal block.

4.9.5. Accessing the connection terminal blocks

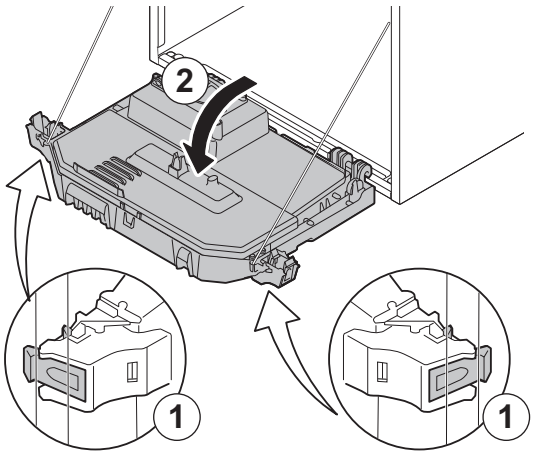
To access the connection terminal blocks, proceed as follows:

1. Unscrew the 2 screws under the front panel by a quarter turn.
2. Remove the front panel.



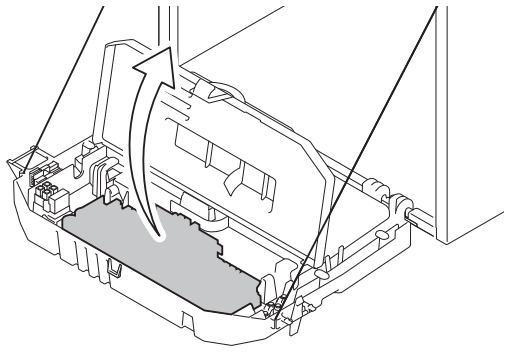
T001514-A

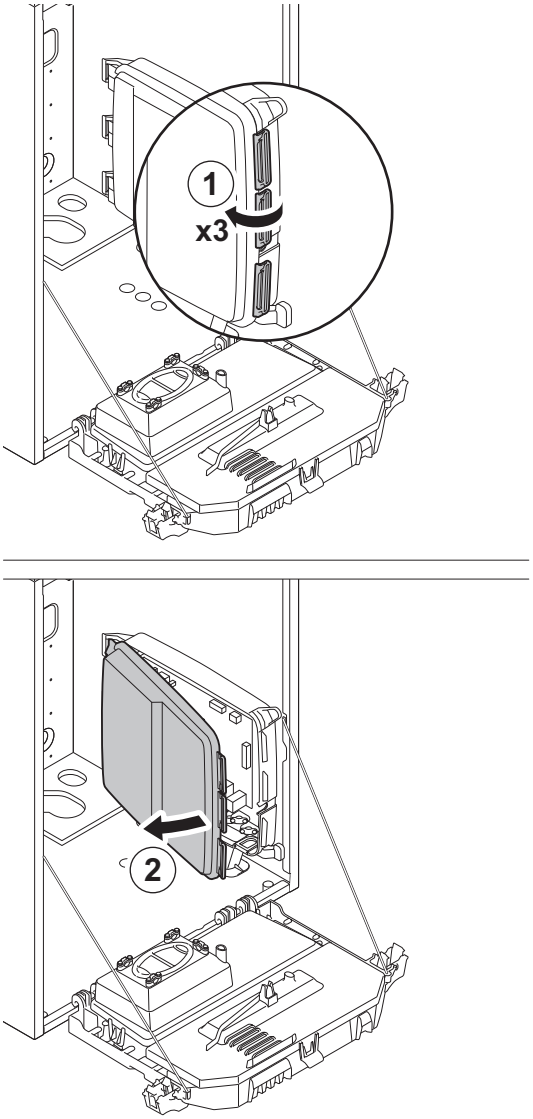
3. Tilt the control box forwards by opening the holding clips located at the sides.
4. Open the tooling box by opening the clip fastener on the front side.



T001991-A

5. Lift the control panel cover.


T002040-A



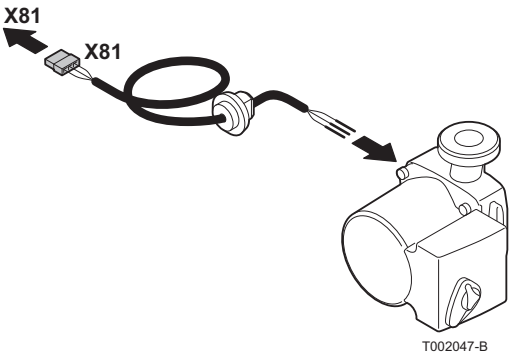
T002862-A

6. Unclip the PCB cover.

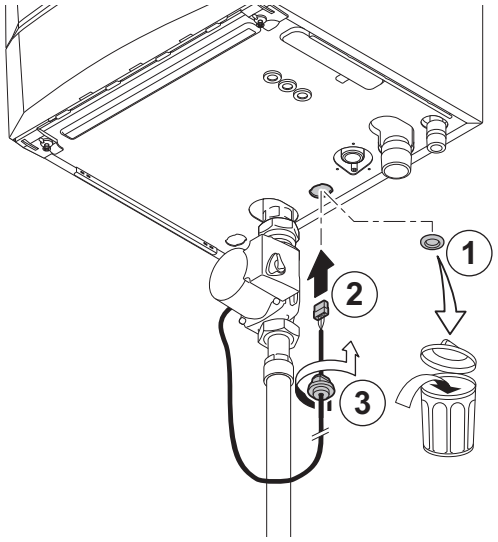
4.9.6. Connecting the pump

The pump must be connected to standard control PCB (PCU). To do this, proceed as follows:

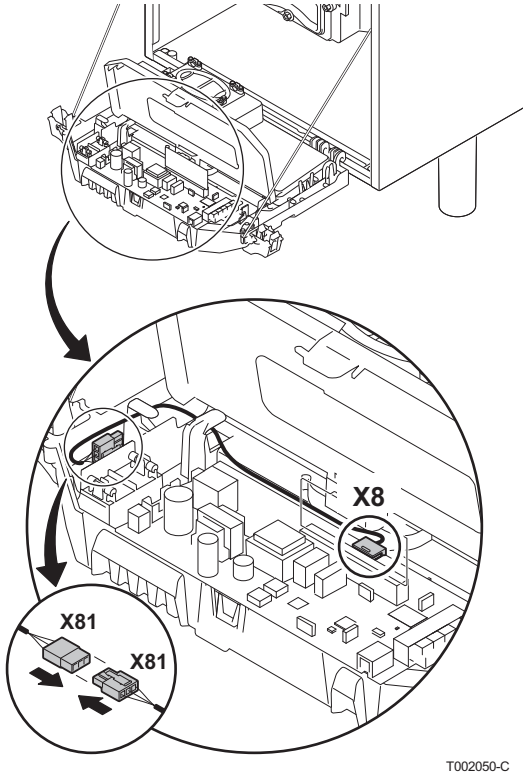
1. Connect the cable, that is delivered with the boiler, to the pump.



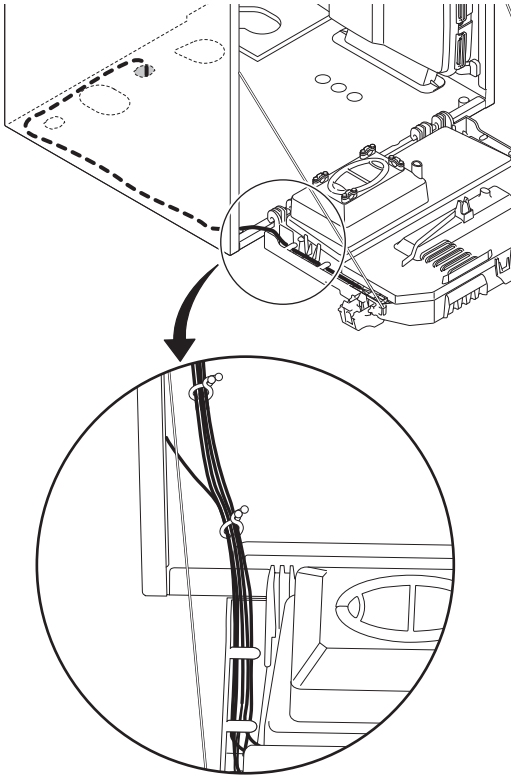
T002047-B



2. Remove the grommet from the opening in the middle of the base of the boiler. Pass the pump connection cable through the base of the boiler and seal the opening again by tightening the bayonet fitting to the cable.

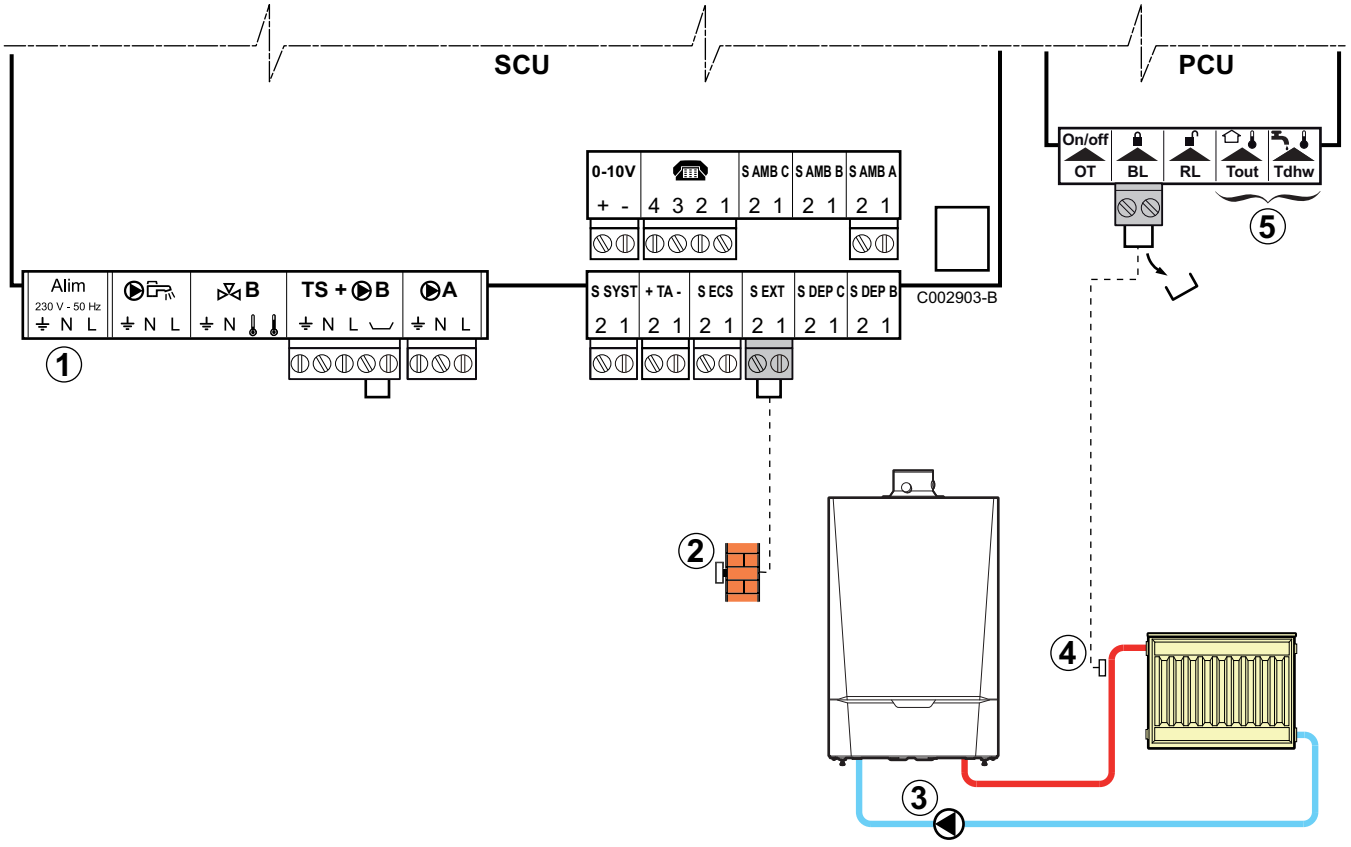


3. Connect the pump connection cable to the cable in the instrument box that is connected with connector **X8**.



4. Connect the pump connection cable to the cable bundle by opening and closing the cable bundle bands.

4.9.7. Connecting a direct heating circuit



① Do not connect anything to the terminal block.

② Connect the outside temperature sensor.

The sensor connection is optional on installations with an **IniControl** control panel.

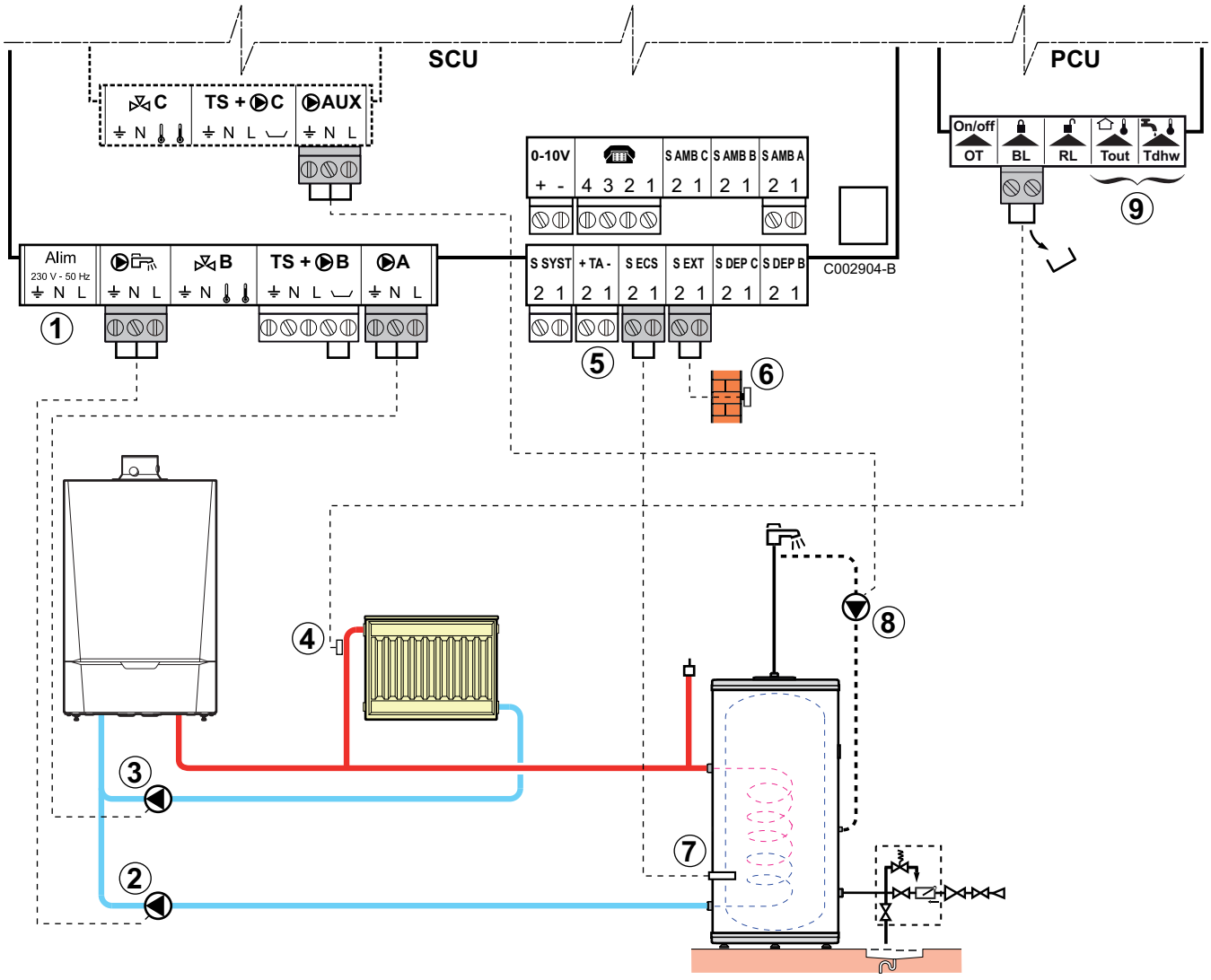
③ Heating connection pump.

④ Connect a safety thermostat if the heating circuit is for underfloor heating.

- Remove the bridge.
- Connect the wires from the safety thermostat to the connector.

⑤ Do not connect anything to the terminal block.

4.9.8. Connecting a direct heating circuit and a domestic hot water tank



① Do not connect anything to the terminal block.

② Domestic load pump connection

③ Connect the heating pump

④ Connect a safety thermostat if the heating circuit is for underfloor heating.

- Remove the bridge.
- Connect the wires from the safety thermostat to the connector.

⑤ Connect the DHW tank anode.

CAUTION

- If the tank is fitted with a Titan Active System® impressed current anode, connect the anode to the inlet (+ TA on the anode, - on the tank).
- If the tank is not fitted with an impressed current anode, put the simulation connector in place (delivered with the DHW sensor - package AD212).

⑥ Connect the outside temperature sensor.

The sensor connection is optional on installations with an **IniControl** control panel.

⑦ Connect the DHW sensor (Package AD212).

⑧ Connect the domestic hot water looping pump (Optional).

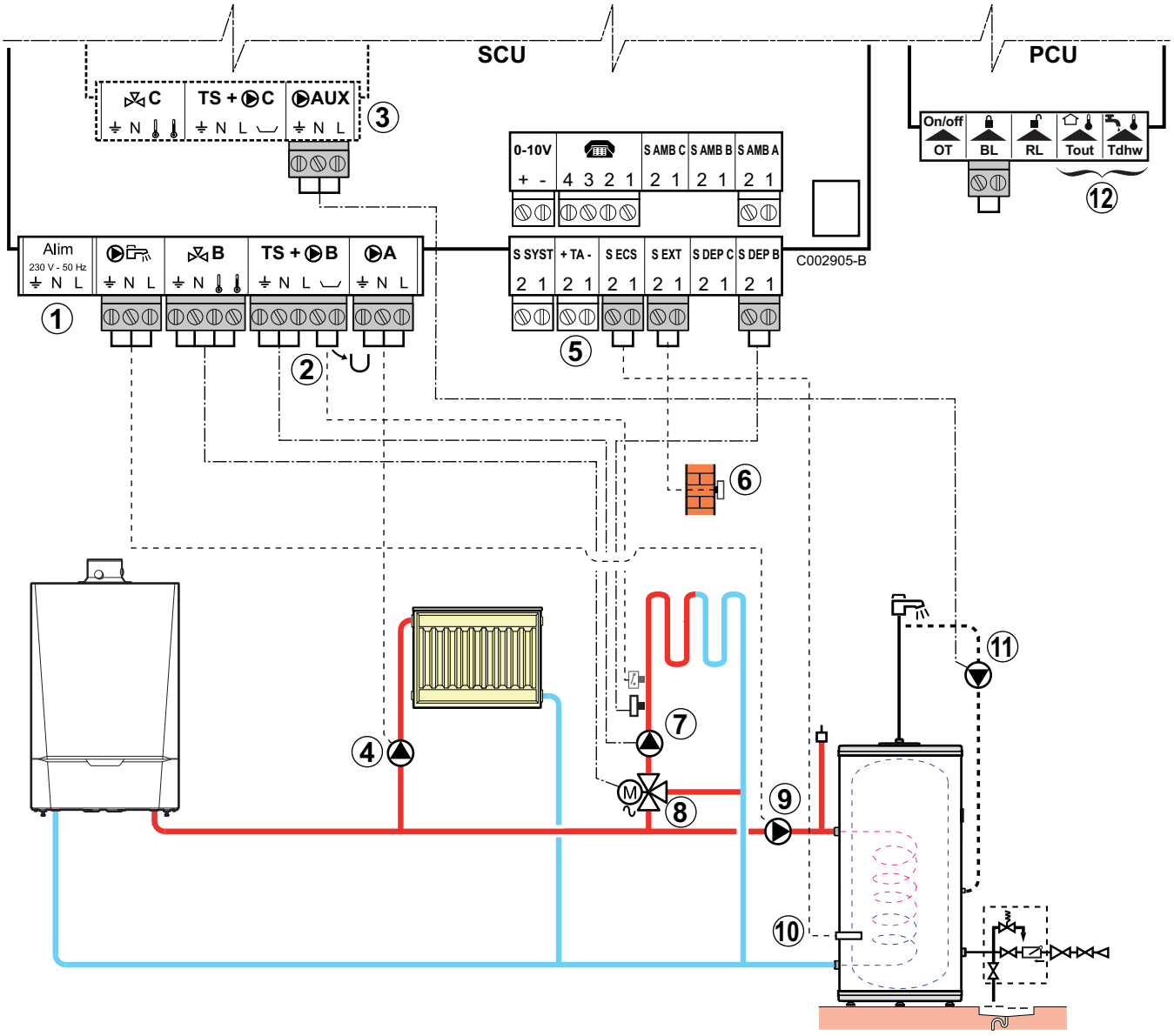
⑨ Do not connect anything to the terminal block.

DIEMATIC iSystem - Settings to be made for this type of installation			
Parameters	**Access**	**Settings to be made**	**See**
INSTALLATION	Installer level Menu **#SYSTEM**	**EXTENDED**	"Displaying the parameters in extended mode", page 67
If a domestic hot water looping pump is connected to **AUX** on the terminal block: **O.PUMP AUX**(1)	Installer level Menu **#SYSTEM**	**DHW LOOP**	"Setting the parameters specific to the installation", page 68
If safety thermostat is connected to **BL** on the connection terminal block: **IN.BL**	Installer level Menu **#PRIMARY INSTAL.P**	**TOTAL STOP**	"Professional settings", page 79
(1) The parameter is only displayed if **INSTALLATION** is set to **EXTENDED**			

IniControl - Settings to be made for this type of installation
No further adjustments are necessary

4.9.9. Connecting two circuits and a domestic hot water tank

This configuration is only possible with the DIEMATIC iSystem control panel.



① Do not connect anything to the terminal block.

② Connect a safety thermostat if the heating circuit is for underfloor heating.

- Remove the bridge.
- Connect the wires from the safety thermostat to the connector.

③ Connecting an additional circuit to the AD249 option.

④ Connect the heating pump (circuit **A**).

If underfloor heating is being used, put a safety thermostat in place after the heating pump. The safety thermostat will shut down the heating pump in the event of overheating.

⑤ Connect the DHW tank anode.

CAUTION

- If the tank is fitted with a Titan Active System® impressed current anode, connect the anode to the inlet (+ TA on the anode, - on the tank).
- If the tank is not fitted with an impressed current anode, put the simulation connector in place (delivered with the DHW sensor - package AD212).

⑥ Connect the outside temperature sensor.

The sensor connection is optional on installations with an **IniControl** control panel.

⑦ Connect the heating pump (circuit **B**).

⑧ Connect the 3-way valve (circuit **B**).

⑨ Domestic load pump connection.

⑩ Connect the DHW sensor (Package AD212).

⑪ Connect the domestic hot water looping pump to the **AUX** outlet on the AD249 option.

⑫ Do not connect anything to the terminal block.

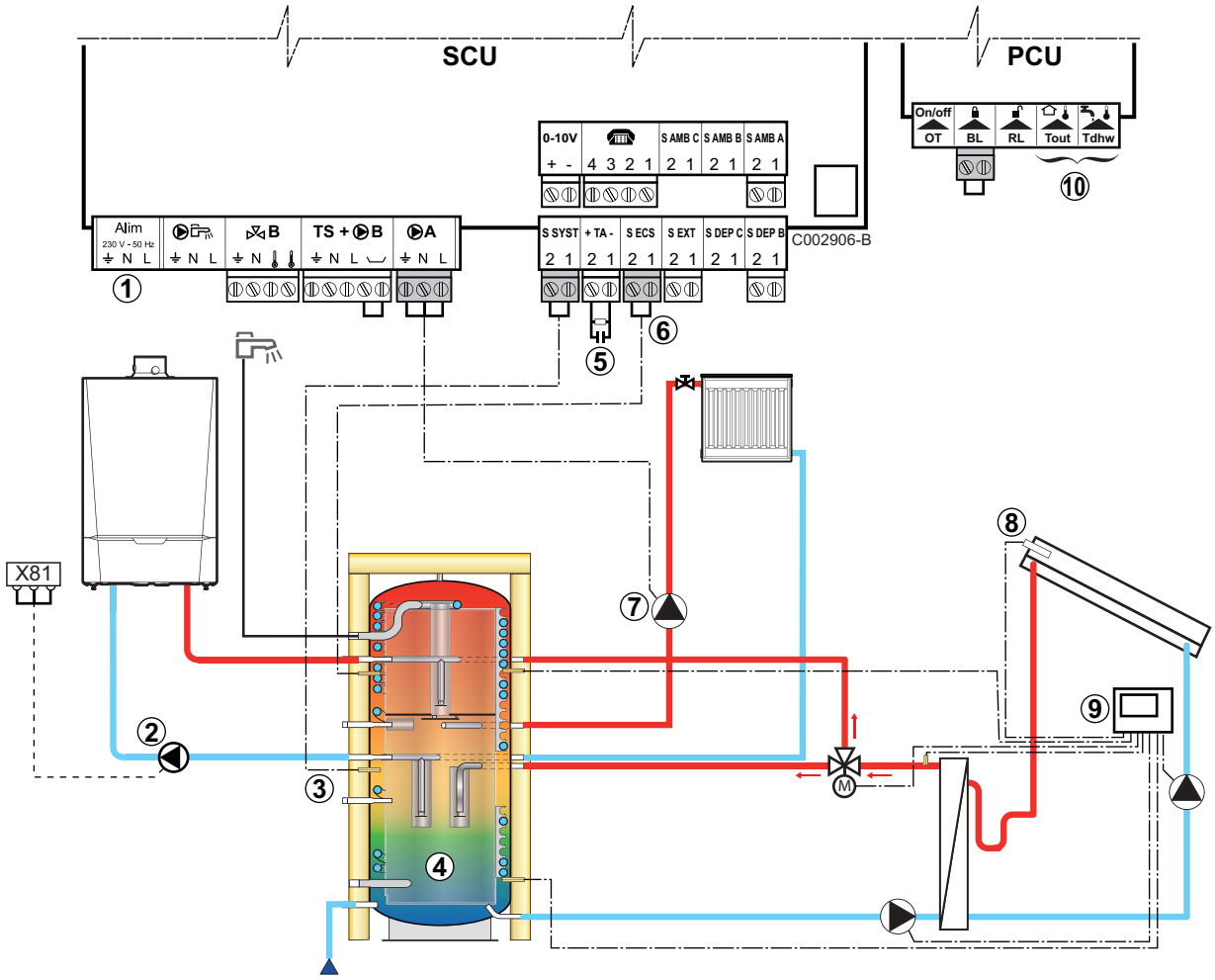
4.9.10. Hot water storage tank connection

This configuration is only possible with the DIEMATIC iSystem control panel.

■ QUADRO DU storage tank

In this installation example, the storage tank (type QUADRO DU) incorporates a domestic hot water zone. The boiler starts up systematically to maintain the domestic hot water zone in the storage tank or to maintain the independent tank at temperature.

If the storage tank does not have a DHW zone, use an independent domestic hot water tank.



① Do not connect anything to the terminal block.

② Connect the load pump from the buffer tank.

③ Connect the sensor from the storage tank (Package AD250).

④ Buffer tank.

⑤ Connect the DHW tank anode.

If the tank is not fitted with an impressed current anode, put the simulation connector in place (delivered with the DHW sensor - package AD212).

⑥ Connect the DHW sensor (Package AD212).

⑦ Connect the heating pump (Circuit A).

⑧ Solar sensor probe.

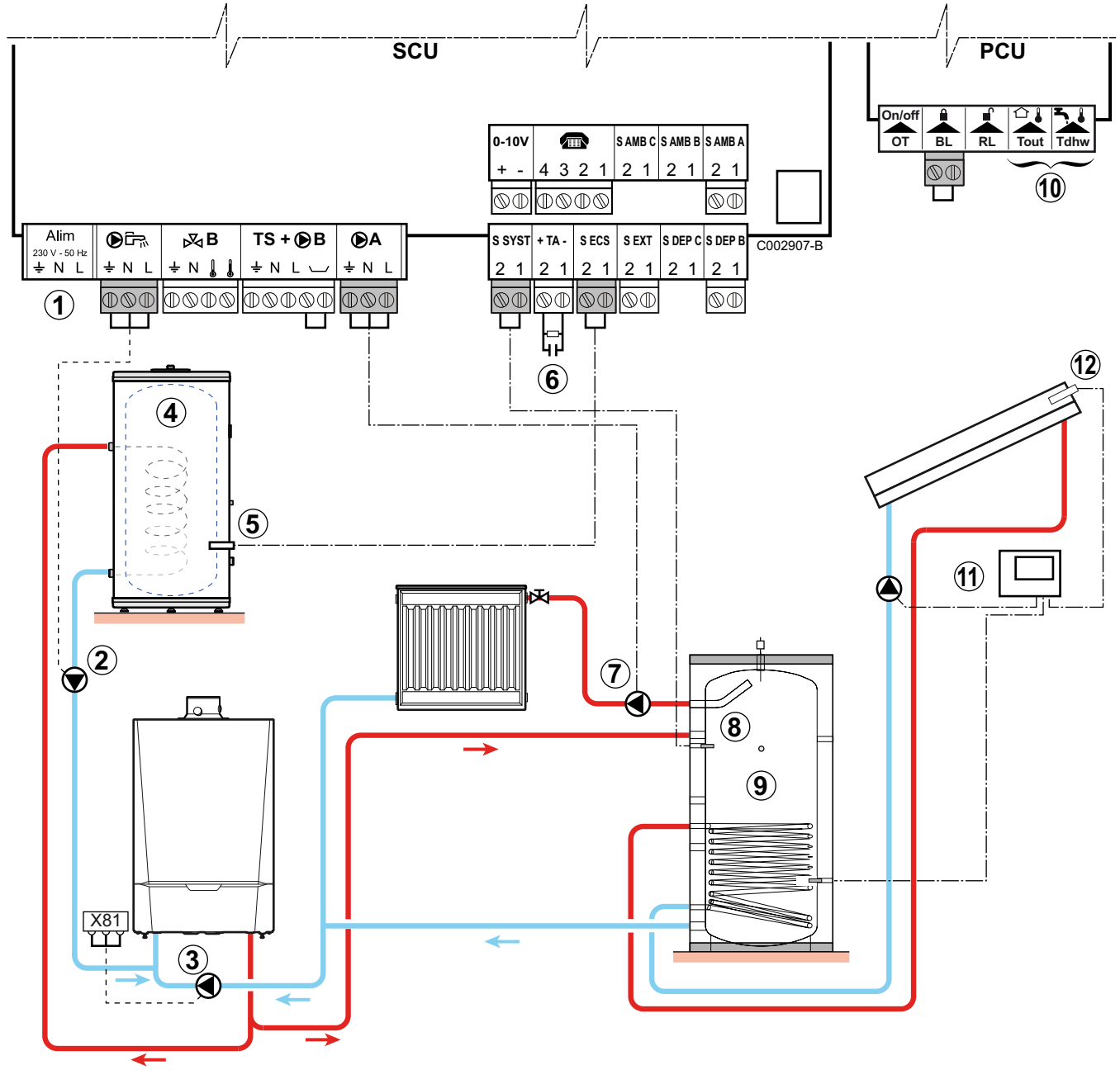
⑨ Connect the solar station to the solar collectors.

⑩ Do not connect anything to the terminal block.

DIEMATIC iSystem - Settings to be made for this type of installation			
Parameters	**Access**	**Settings to be made**	**See**
INSTALLATION	Installer level Menu **#SYSTEM**	**EXTENDED**	☞ "Displaying the parameters in extended mode", page 67
I.SYST(1)	Installer level Menu **#SYSTEM**	**STORAGE TANK**	☞ "Setting the parameters specific to the installation", page 68
(1) The parameter is only displayed if **INSTALLATION** is set to **EXTENDED**			

The DHW part is maintained at the DHW set point by the boiler.
The heating zone is maintained at the set temperature calculated according to the outside temperature. The zone is reheated when the heating buffer temperature sensor ③ falls -6°C below the calculated set temperature.
Reheating in the heating zone stops when the heating buffer temperature rises above the calculated set temperature.

■ PS storage tank and DHW tank connected to the boiler



① Do not connect anything to the terminal block.

② D.H.W. load pump

③ Buffer tank load pump.

④ Connect a domestic hot water tank if the storage tank ⑨ is only used for heating

⑤ Connect the DHW sensor (Package AD212).

⑥ Connect the DHW tank anode.

If the tank is not fitted with an impressed current anode, put the simulation connector in place (delivered with the DHW sensor - package AD212).

⑦ Connect the heating pump (Circuit **A**).

⑧ Solar sensor probe.

⑨ Buffer tank.

⑩ Do not connect anything to the terminal block.

⑪ Connect the solar station to the solar collectors.

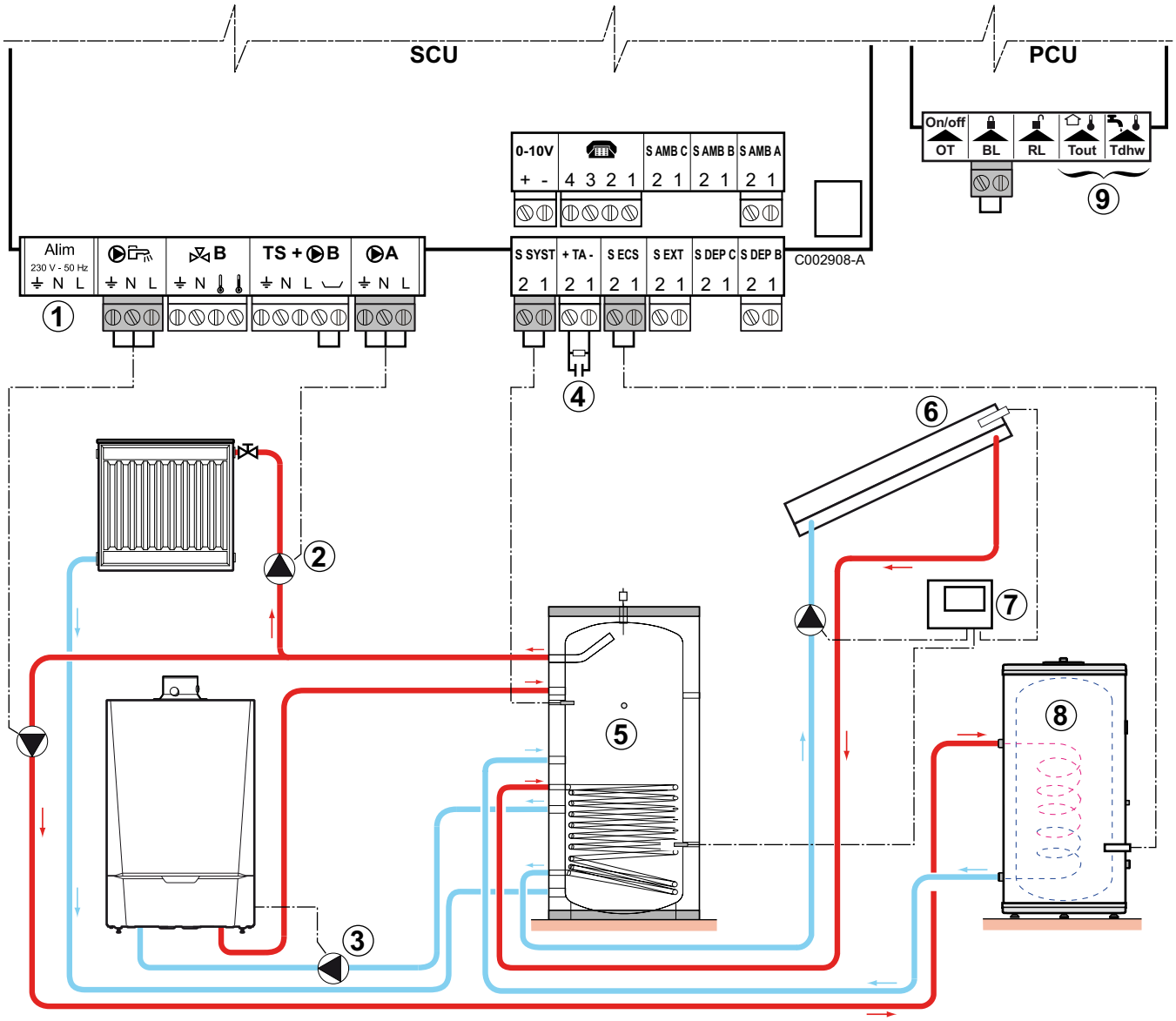
⑫ Solar sensor probe

DIEMATIC iSystem - Settings to be made for this type of installation			
Parameters	**Access**	**Settings to be made**	**See**
INSTALLATION	Installer level Menu **#SYSTEM**	**EXTENDED**	☞ "Displaying the parameters in extended mode", page 67
I.SYST(1)	Installer level Menu **#SYSTEM**	**STORAGE TANK**	☞ "Setting the parameters specific to the installation", page 68
(1) The parameter is only displayed if **INSTALLATION** is set to **EXTENDED**			

The DHW part is maintained at the DHW set point by the boiler.
The heating zone is maintained at the set temperature calculated according to the outside temperature. The zone is reheated when the heating buffer temperature sensor falls -6°C below the calculated set temperature. Reheating in the heating zone stops when the heating buffer temperature rises above the calculated set temperature.

PS storage tank and DHW tank connected to the storage tank

The boiler only starts up production of domestic hot water if the storage tank is not hot enough to guarantee tank loading.



① Do not connect anything to the terminal block.

② Connect the heating pump (Circuit **A**).

③ Buffer tank load pump

④ Connect the DHW tank anode.

If the tank is not fitted with an impressed current anode, put the simulation connector in place (delivered with the DHW sensor - package AD212).

⑤ Buffer tank.

⑥ Solar sensor probe.

⑦ Connect the solar station to the solar collectors.

⑧ Domestic hot water boiler.
Connect the DHW sensor.

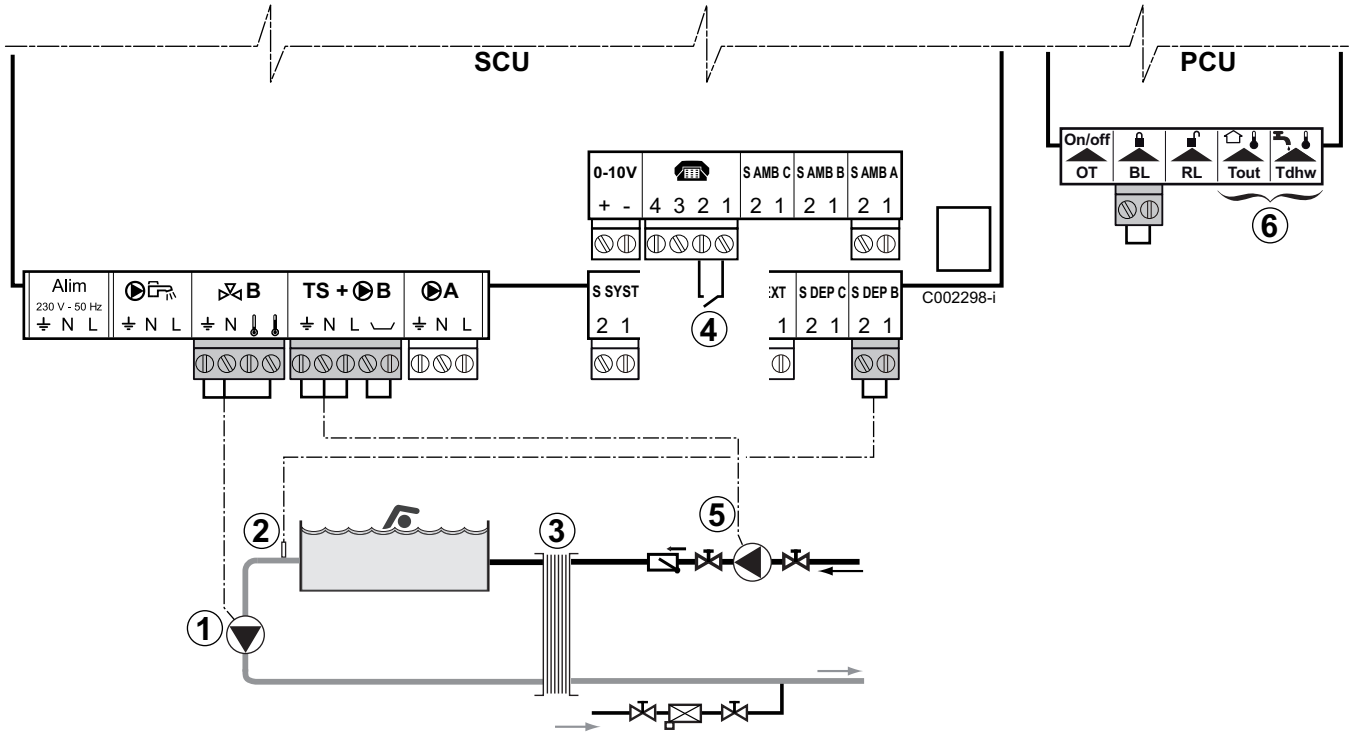
⑨ Do not connect anything to the terminal block.

DIEMATIC iSystem - Settings to be made for this type of installation			
Parameters	**Access**	**Settings to be made**	**See**
INSTALLATION	Installer level Menu **#SYSTEM**	**EXTENDED**	"Displaying the parameters in extended mode", page 67
I.SYST(1)	Installer level Menu **#SYSTEM**	**ST.TANK+DHW**	"Setting the parameters specific to the installation", page 68
(1) The parameter is only displayed if **INSTALLATION** is set to **EXTENDED**			

The DHW tank is loaded from the storage tank. If, during DHW loading, the temperature of the storage tank falls below the primary DHW set point (parameter **PRIM.TEMP.DHW**), the boiler maintains the latter at temperature to guarantee the loading of the DHW tank. The heating zone is maintained at the set temperature calculated according to the outside temperature. The zone is reheated when the heating buffer temperature sensor falls -6°C below the calculated set temperature. Reheating in the heating zone stops when the heating buffer temperature rises above the calculated set temperature.

4.9.11. Pool connection

This configuration is only possible with the DIEMATIC iSystem control panel.



① Connect the secondary swimming pool pump.

② Connect the swimming pool sensor.

③ Plate heat exchanger.

④ Pool heating cut-off control

When the parameter **I.TEL:** is on **0/1 B**, the swimming pool is no longer heated when the contact is open (factory setting), only the antifreeze continues to be active.
The contact direction can still be adjusted by the parameter **CT.TEL**.

⑤ Connect the primary swimming pool pump.

⑥ Do not connect anything to the terminal block.

DIEMATIC iSystem - Settings to be made for this type of installation			
Parameters	**Access**	**Settings to be made**	**See**
INSTALLATION	Installer level Menu **#SYSTEM**	**EXTENDED**	"Displaying the parameters in extended mode", page 67
CIRC. B:	Installer level Menu **#SYSTEM**	**SWIM.P.**	"Setting the parameters specific to the installation", page 68
If **I.TEL:** is used **I.TEL:**	Installer level Menu **#SYSTEM**	**0/1 B**	
MAX. CIRC. B	Installer level Menu **#SECONDARY LIMITS**	Set the value of **MAX.CIRC.B** to the temperature corresponding to the needs of the exchanger	"Professional settings", page 79

Controlling the pool circuit

The control system can be used to manage a swimming pool circuit in both cases:

Case 1: The control system regulates the primary circuit (boiler/exchanger) and the secondary circuit (exchanger/pool).

- Connect the primary circuit pump (boiler/exchanger) to the **B** outlet on the connection terminal block. The temperature **MAX. CIRC. B** is then guaranteed during comfort periods on programme **B** in summer and winter alike.
- Connect the swimming pool sensor (package AD212) to the **S DEP B** inlet on the connection terminal block.
- Set the set point of the pool sensor using key in the range 5 - 39°C.

Case 2: The pool has already a regulation system that is to be kept. The control system only regulates the primary circuit (boiler/exchanger).

- Connect the primary circuit pump (boiler/exchanger) to the **B** outlet on the connection terminal block.
  The temperature **MAX. CIRC. B** is then guaranteed during comfort periods on programme **B** in summer and winter alike.

The swimming pool can also be connected to circuit **C** by adding the AD249 option:

- Make the connection to the terminal blocks marked **C**.
- Set the parameters for circuit **C**.

■ Hourly programming of the secondary circuit pump

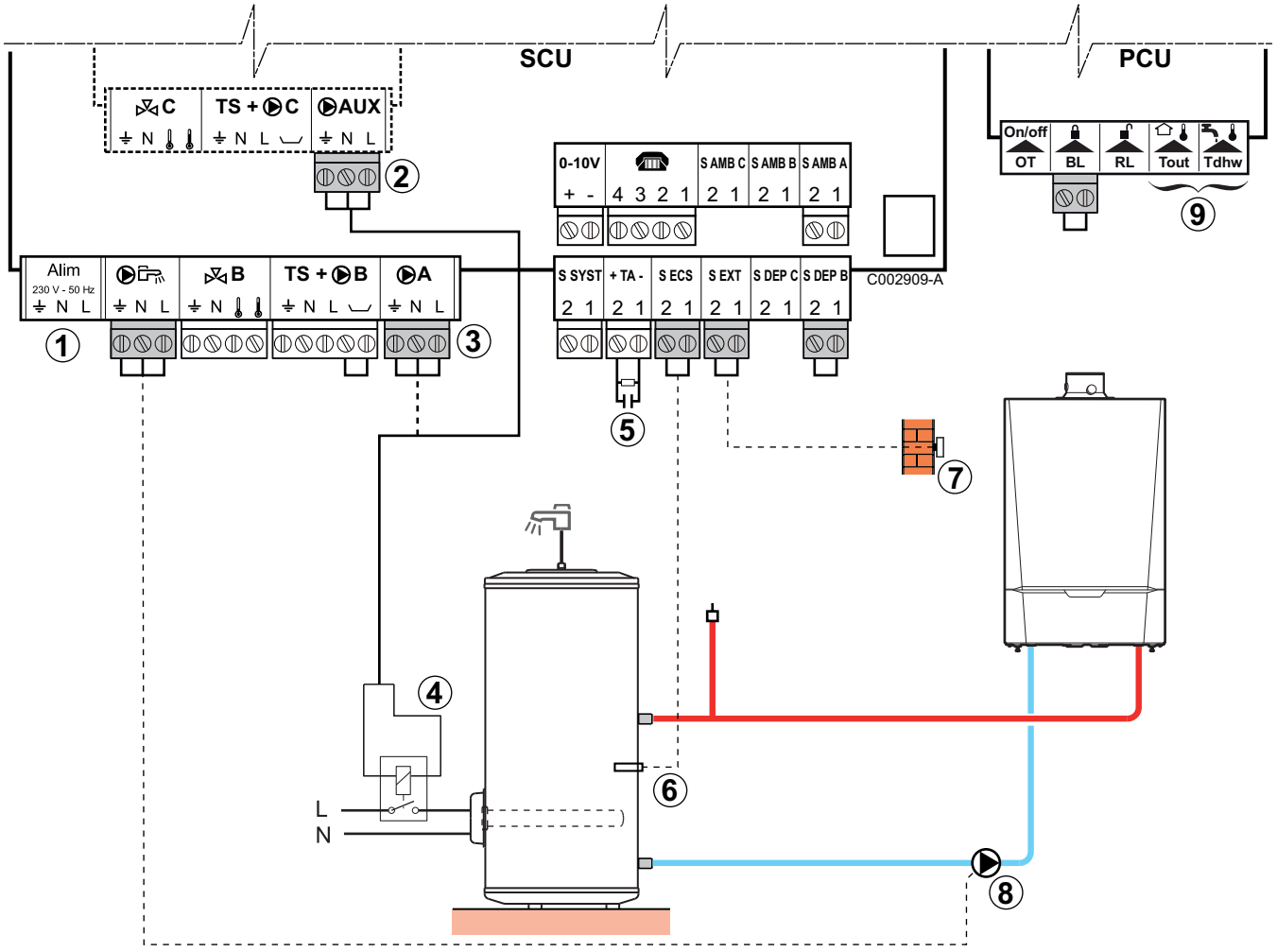
The secondary pump operates during programme **B** comfort periods in summer and winter alike.

■ Stopping

To prepare your pool for winter, consult your pool specialist.

4.9.12. Connecting a mixed tank

This configuration is only possible with the DIEMATIC iSystem control panel.



① Do not connect anything to the terminal block.

② Option of connecting the electric tank (with AD249 option)
or to ③

③ Outlet circuit **A** - Option of connecting the electric tank (or to ②)

④ Power control relay to the electrical resistor

⑤ Connect the DHW tank anode.

If the tank is not fitted with an impressed current anode, put the simulation connector in place (delivered with the DHW sensor - package AD212).

⑥ Connect the DHW sensor (Package AD212).

⑦ Connect the outside temperature sensor.

The sensor connection is optional on installations with an **IniControl** control panel.

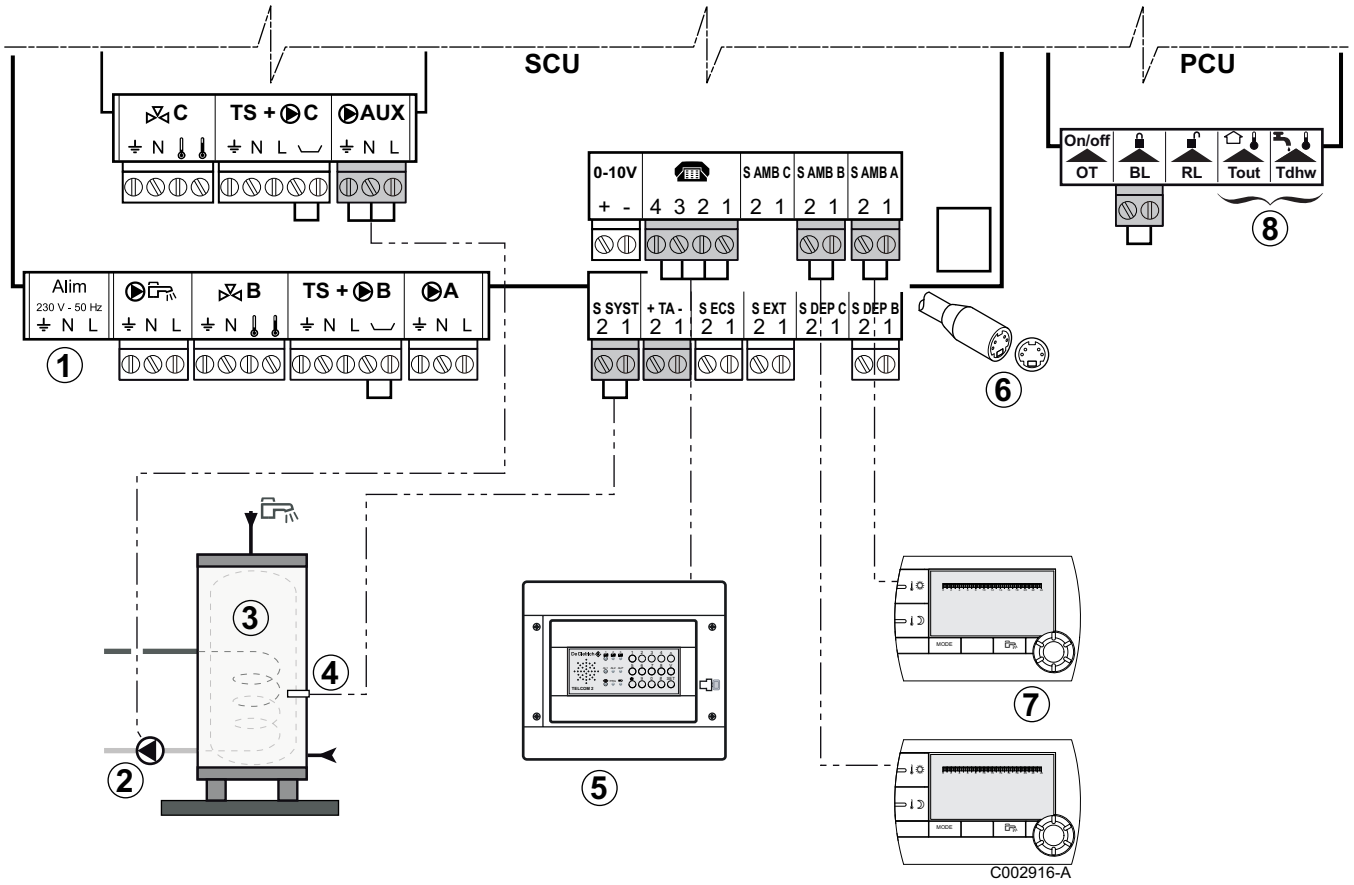
⑧ D.H.W. load pump.

⑨ Do not connect anything to the terminal block.

DIEMATIC iSystem - Settings to be made for this type of installation			
Parameters	**Access**	**Settings to be made**	**See**
INSTALLATION	Installer level Menu **#SYSTEM**	**EXTENDED**	"Displaying the parameters in extended mode", page 67
If the electric tank is connected to ⏵**A**: **CIRC. A:**(1)	Installer level Menu **#SYSTEM**	**DHW ELEC**	"Setting the parameters specific to the installation", page 68
If the electric tank is connected to ⏵**AUX**: **S.AUX**(1)	Installer level Menu **#SYSTEM**	**DHW ELEC**	
(1) The parameter is only displayed if **INSTALLATION** is set to **EXTENDED**			

4.9.13. Connecting the options

For example: TELCOM remote vocal monitoring module, remote controls for circuits **A** and **B**, second DHW tank



① Do not connect anything to the terminal block.

② Connect the load pump of the second tank (Only for DIEMATIC iSystem control panel).

③ Second domestic hot water tank (Only for DIEMATIC iSystem control panel).

④ Connect the DHW sensor of the second tank (Only for DIEMATIC iSystem control panel).

⑤ Connect the TELCOM remote vocal monitoring module (depending on its availability in your country).

⑥ Connecting the BUS cascade, VM

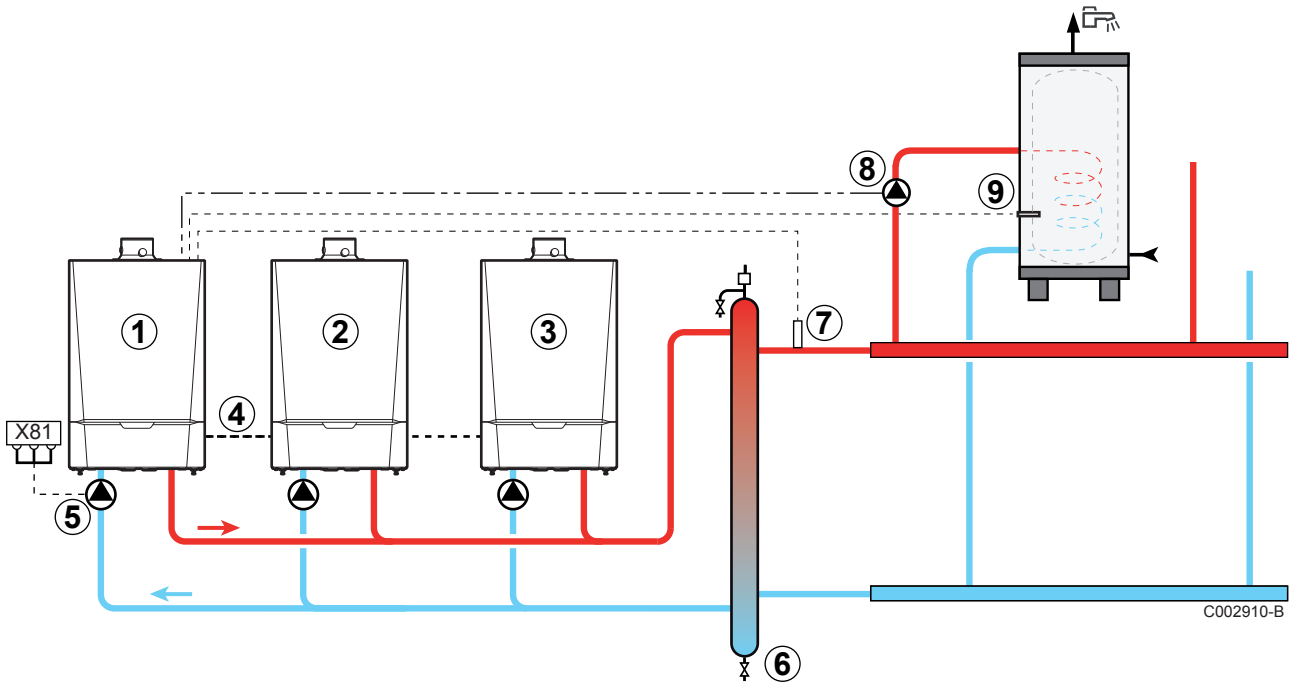
⑦ Connect the remote control (Package AD254/FM52).

⑧ Do not connect anything to the terminal block.

Diematic iSystem - Settings to be made to connect a second tank			
Parameters	**Access**	**Settings to be made**	**See**
INSTALLATION	Installer level Menu **#SYSTEM**	**EXTENDED**	"Displaying the parameters in extended mode", page 67
If second tank connected: **S.AUX:**(1)	Installer level Menu **#SYSTEM**	**DHW**	"Setting the parameters specific to the installation", page 68
(1) The parameter is only displayed if **INSTALLATION** is set to **EXTENDED**			

4.9.14. Connection in cascade

■ DHW tank after the mixing tank



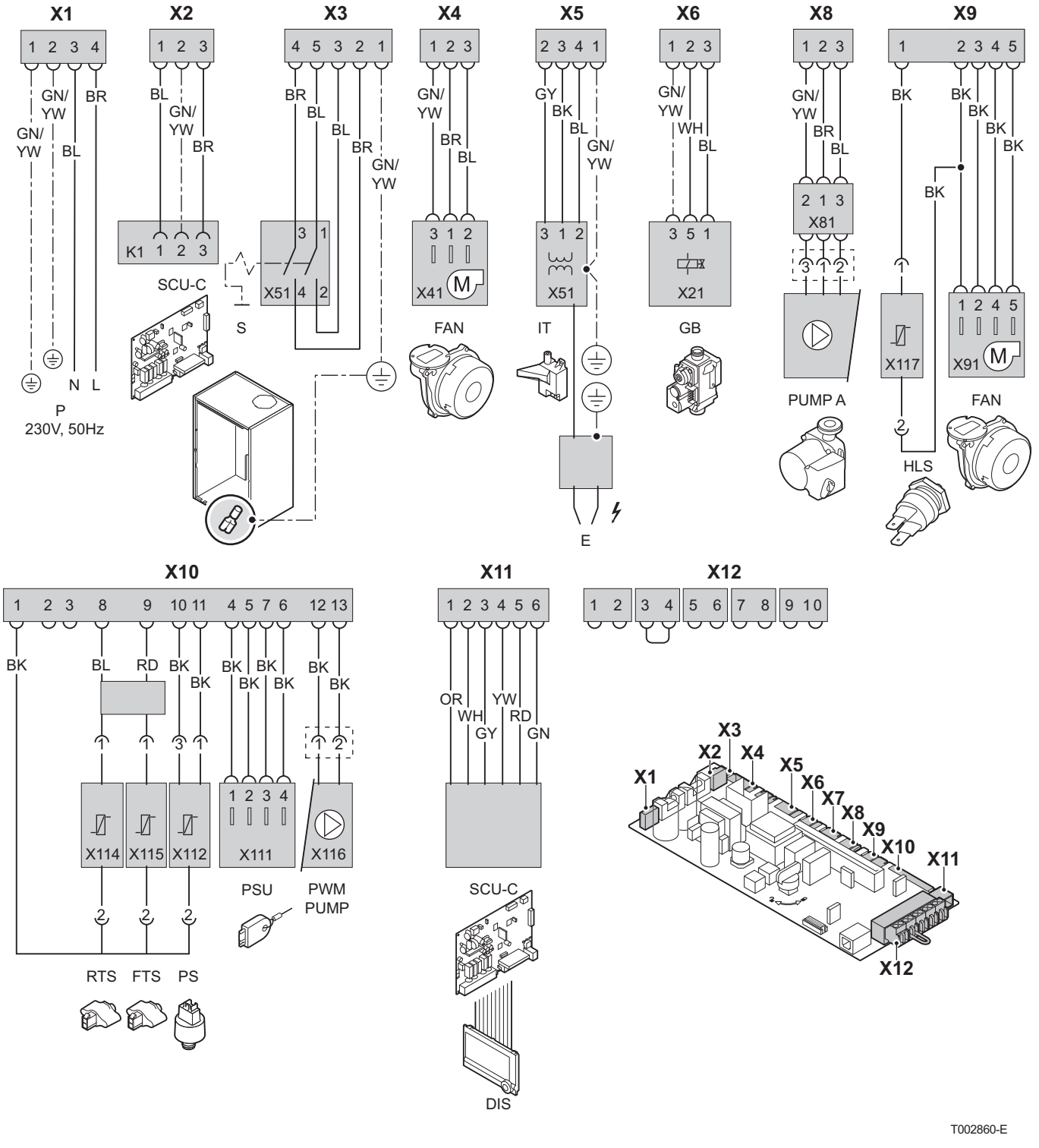
①	Master boiler (DIEMATIC iSystem)
②	Secondary boiler (DIEMATIC iSystem or IniControl)
③	Secondary boiler (DIEMATIC iSystem or IniControl)
④	Cable **BUS**
⑤	Boiler pump
⑥	Low loss header
⑦	Cascade outlet sensor Connect the sensor to the terminal block **S SYST** on the master boiler.
⑧	D.H.W. load pump
⑨	Connect the DHW sensor (Package AD212)

DIEMATIC iSystem - Settings to be made for this type of installation: Master boiler			
Parameters	**Access**	**Settings to be made**	**See**
INSTALLATION	Installer level Menu **#SYSTEM**	**EXTENDED**	☞ "Displaying the parameters in extended mode", page 67
P.DHW(1)	Installer level Menu **#SYSTEM**	**PUMP**	☞ "Setting the parameters specific to the installation", page 68
CASCADE:(1)	Installer level Menu **#NETWORK**	**ON**	☞ "Configuring the network", page 86
MASTER CONTROLLER(1)	Installer level Menu **#NETWORK**	**ON**	
SYSTEM NETWORK(1)	Installer level Menu **#NETWORK**	**ADD GENE MANU**	
(1) The parameter is only displayed if **INSTALLATION** is set to **EXTENDED**			

DIEMATIC iSystem - Settings to be made for this type of installation: Follower boilers			
Parameters	**Access**	**Settings to be made**	**See**
INSTALLATION	Installer level Menu **#SYSTEM**	**EXTENDED**	☞ "Displaying the parameters in extended mode", page 67
CASCADE:(1)	Installer level Menu **#NETWORK**	**ON**	☞ "Configuring the network", page 86
MASTER CONTROLLER(1)	Installer level Menu **#NETWORK**	**OFF**	
SLAVE NUMBER(1)	Installer level Menu **#NETWORK**	2, 3, ...	
(1) The parameter is only displayed if **INSTALLATION** is set to **EXTENDED**			

IniControl - Settings to be made for this type of installation: Follower boilers			
Parameters	**Access**	**Settings to be made**	**See**
CASCADE: 5 1 4	Installer level	1	☞ "Parameter descriptions", page 103
SLAVE NUMBER 5 1 5	Installer level	2, 3, ...	

4.10 Electrical diagram



P	Power supply	**E**	Ignition power relay	**FTS**	Flow sensor
SCU	Extended control PCB	**GB**	Combined venturi and gas valve unit	**PS**	Pressure sensor
S	On/Off switch	**PUMP A**	Shunt pump	**PSU**	Parameter storage for PCBs PSU and SU
FAN	Fan	**HLS**	Safety thermostat	**PWM PUMP**	Modulation signal from the boiler pump
IT	Ignition transformer	**RTS**	Return sensor	**DIS**	Display

4.11 Filling the system

4.11.1. Water treatment

In most cases, the boiler and the central heating installation can be filled with normal tap water and no water treatment will be necessary.

WARNING

Do not add chemical products to the central heating water without first consulting a water treatment professional. For example: antifreeze, water softeners, products to increase or reduce the pH value, chemical additives and/or inhibitors. These may cause faults in the boiler and damage the heat exchanger.

- Rinse the central heating installation with at least 3x the volume of the central heating installation. Flush the DHW pipes with at least 20 times the volume of the pipes.

For an optimum functioning of the boiler, the water of the installation must comply with following characteristics:

		Total installed heat output (kW)			
		≤ 70	**70 - 200**	**200 - 550**	**> 550**
Degree of acidity (water non-treated)	pH	7 - 9	7 - 9	7 - 9	7 - 9
Degree of acidity (water treated)	pH	7 - 8,5	7 - 8,5	7 - 8,5	7 - 8,5
Conductivity at 25°C	µS/cm	≤ 800	≤ 800	≤ 800	≤ 800
Chlorides	mg/l	≤ 150	≤ 150	≤ 150	≤ 150
Other components	mg/l	< 1	< 1	< 1	< 1
Total water hardness(1)	°f	1 - 35	1 - 20	1 - 15	1 - 5
	°dH	0,5 - 20,0	0,5 - 11,2	0,5 - 8,4	0,5 - 2,8
	mmol/l	0,1 - 3,5	0,1 - 2,0	0,1 - 1,5	0,1 - 0,5

(1) For installations that are heated at constant high temperatures with a total installed heat output; up to 200 kW a maximum total water hardness of 8,4 °dH (1,5 mmol/l, 15 °f) applies and for above 200 kW a maximum total water hardness of 2,8 °dH (0,5 mmol/l, 5 °f) applies

If a water treatment is necessary, **De Dietrich Thermique** recommends the following manufacturers:

- Cillit
- Climalife
- Fernox
- Permo
- Sentinel

4.11.2. Filling the siphon

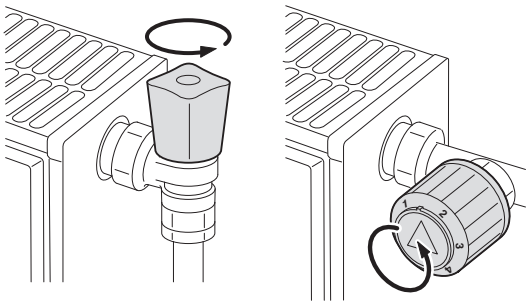
T002037-B

1. Remove the siphon.
2. Fill the siphon with water. This must be completely filled.
3. Re-assemble the siphon.

CAUTION

Fill the water siphon before starting the boiler to avoid combustion products escaping from the boiler.

4.11.3. Filling the system



T000181-B

T001507-B

CAUTION

Before filling, open the valves on every radiator in the installation.

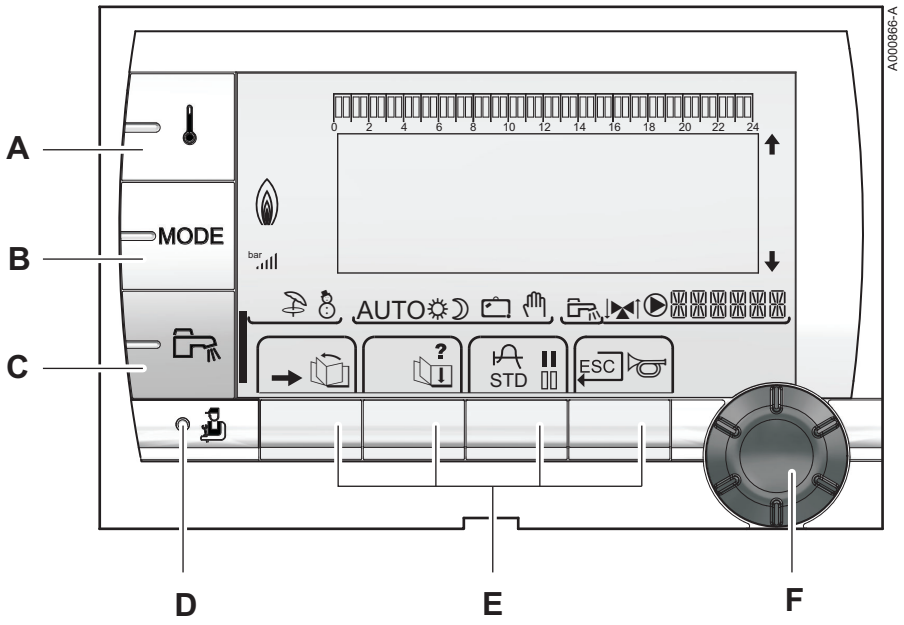
In order to be able to read off the water pressure from the boiler display, the boiler must be switched on.

1. Fill the system with clean tap water (advised water pressure is between 1,5 and 2 bar).
2. Check the tightness of the water connections.

5 Commissioning - DIEMATIC iSystem

5.1 Control panel

5.1.1. Description of the keys

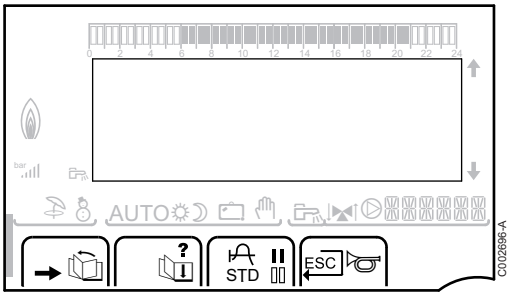


A	Temperature setting key (heating, DHW, swimming pool)
B	Operating mode selection key
C	DHW override key
D	Key to access the parameters reserved for the installer
E	Keys on which the function varies as and when selections are made
F	Rotary setting button:

- Turn the rotary button to scroll through the menus or modify a value
- Press the rotary button to access the selected menu or confirm a value modification

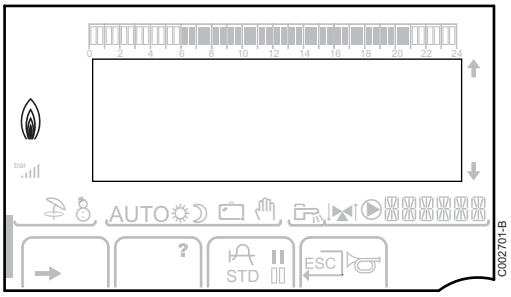
5.1.2. Description of the display

■ Key functions



→	Access to the various menus
	Used to scroll through the menus
	Used to scroll through the parameters
?	The symbol is displayed when help is available
	Used to display the curve of the parameter selected
STD	Reset of the time programmes
	Selection of comfort mode or selection of the days to be programmed
	Selection of reduced mode or deselection of the days to be programmed
	Back to the previous level
ESC	Back to the previous level without saving the modifications made
	Manual reset

■ Flame output level



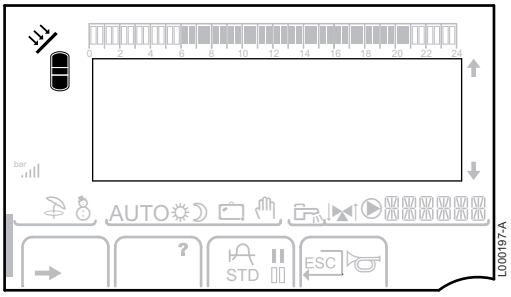
The whole symbol flashes: The burner starts up but the flame is not yet present

Part of the symbol flashes: Output is increasing

Steady symbol: The required output has been reached

Part of the symbol flashes: Output is dropping

Solar (If connected)



The solar load pump is running

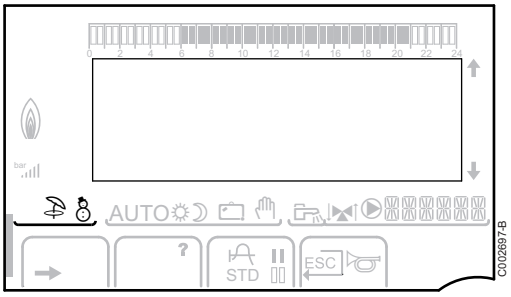
The top part of the tank is reheated to the tank set point

The entire tank is reheated to the tank set point

The entire tank is reheated to the solar tank set point

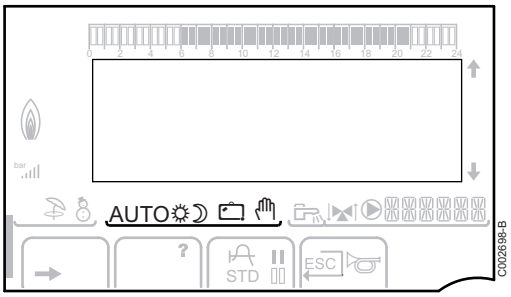
The tank is not loaded - Presence of the solar control system

Operating modes



Summer mode: The heating is off. Domestic hot water continues to be produced

WINTER mode: Heating and domestic hot water working



AUTO Operation in automatic mode according to the timer programme

Comfort mode: The symbol is displayed when a DAY override (comfort) is activated

- Flashing symbol: Temporary override
- Steady symbol: Permanent override

Reduced mode: The symbol is displayed when a NIGHT override (reduced) is activated

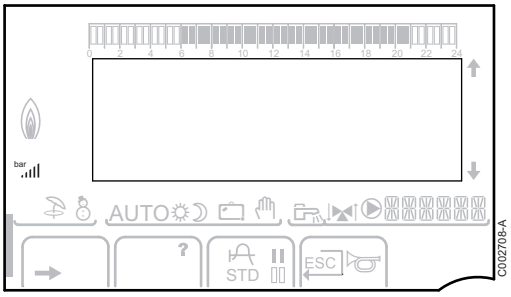
- Flashing symbol: Temporary override
- Steady symbol: Permanent override

Holiday mode: The symbol is displayed when a HOLIDAY override (antifreeze) is activated

- Flashing symbol: Holiday mode programmed
- Steady symbol: Holiday mode active

Manual mode

System pressure



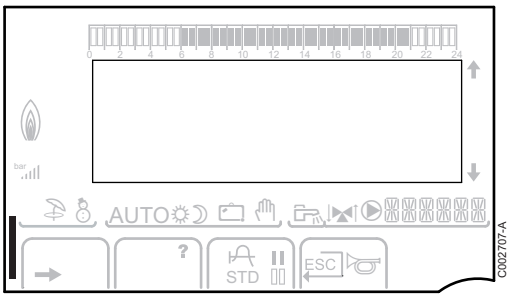
bar Pressure indicator: The symbol is displayed when a water pressure sensor is connected.

- Flashing symbol: The water pressure is insufficient.
- Steady symbol: The water pressure is sufficient.

Water pressure level

- : 0,9 to 1,1 bar
- : 1,2 to 1,5 bar
- : 1,6 to 1,9 bar
- : 2,0 to 2,3 bar
- : > 2,4 bar

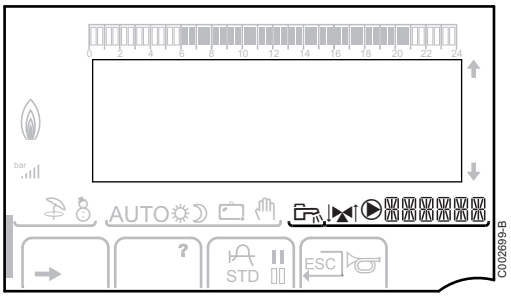
Domestic Hot Water override



A bar is displayed when a DHW override is activated:

- Flashing bar: Temporary override
- Steady bar: Permanent override

Other information



The symbol is displayed when domestic hot water production is running.

Valve indicator: The symbol is displayed when a 3-way valve is connected.

- : 3-way valve opens
- : 3-way valve closes

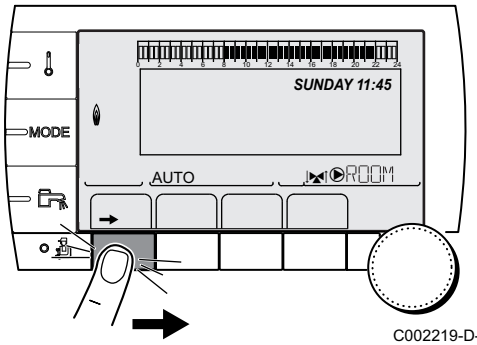
The symbol is displayed when the pump is operating.

Name of the circuit for which the parameters are displayed.

5.1.3. Access to the various browsing levels

■ User level

The information and settings in the User level can be accessed by everyone.

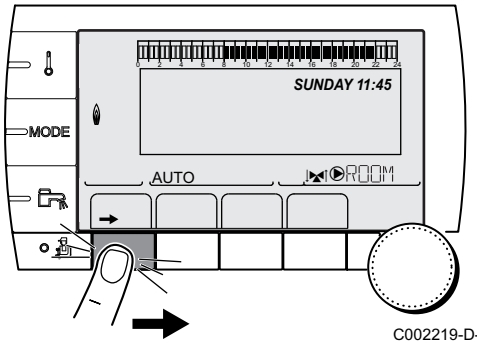


C002219-D-04

1. Press the → key.

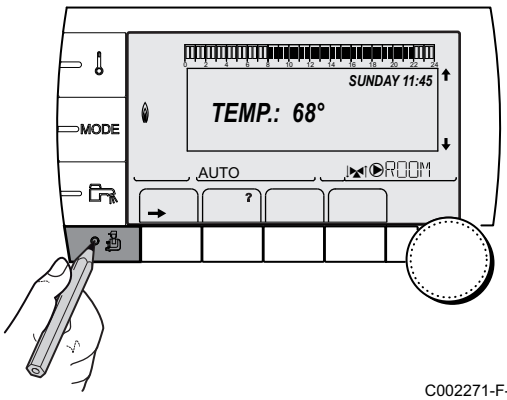
■ Installer level

The information and settings in the Installer level can be accessed by experienced people.



C002219-D-04

1. Press the → key.



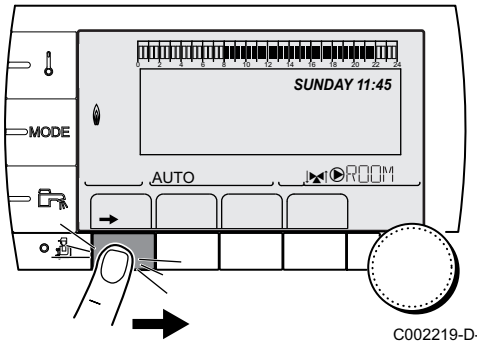
C002271-F-04

2. Press the key.

It is also possible to access the installer level by pressing only the key for around 5 seconds.

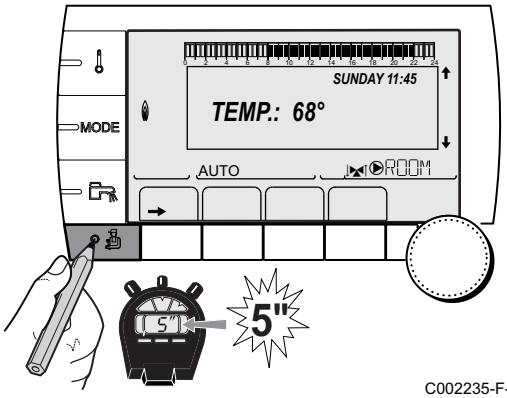
■ After Sales level

The After Sales Service information and settings can be accessed by the professional providing the After Sales Service.



C002219-D-04

1. Press the → key.

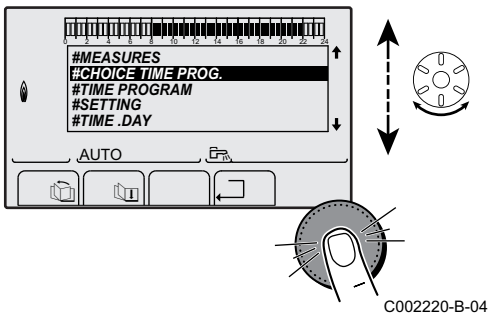


C002235-F-04

2. Press key for around 5 seconds.

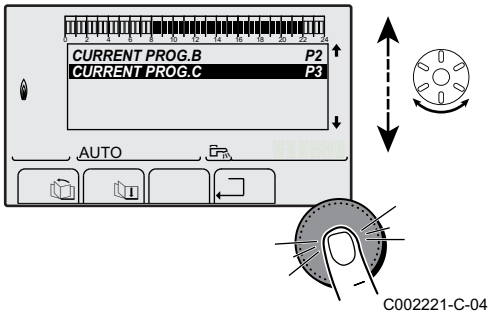
It is also possible to access the After Sales level by pressing only the key for around 10 seconds.

5.1.4. Browsing in the menus



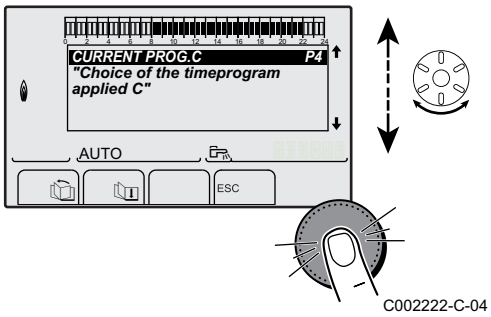
C002220-B-04

1. To select the desired menu, turn the rotary button.
2. To access the menu, press the rotary button.
   To go back to the previous display, press the key ⮌.



C002221-C-04

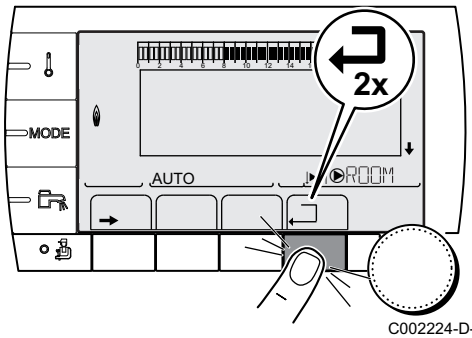
3. To select the desired parameter, turn the rotary button.
4. To modify the parameter, press the rotary button.
   To go back to the previous display, press the key ⮌.



C002222-C-04

5. To modify the parameter, turn the rotary button.
6. To confirm, press the rotary button.

To cancel, press key ESC.



C002224-D-04

7. To go back to the main display, press key ⮌ 2 times.

It is possible to use the ⧉ and ⧉ keys instead of the rotary button.

5.2 Check points before commissioning

5.2.1. Preparing the boiler for commissioning

WARNING

Do not put the boiler into operation if the supplied gas is not in accordance with the approved gas types.

Preparatory procedure for boiler commissioning:

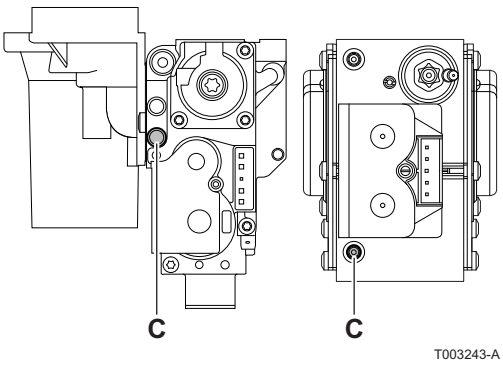
- Check that the gas type supplied matches the data shown on the boiler's data plate.
- Check the gas circuit.
- Check the hydraulic circuit.
- Check the water pressure in the heating system.
- Check the electrical connections to the thermostat and the other external controls.
- Check the other connections.
- Test the boiler at full load. Check the setting of the gas/air ratio and, if necessary, correct it.
- Test the boiler at part load. Check the setting of the gas/air ratio and, if necessary, correct it.
- Finalizing work.

5.2.2. Gas circuit

WARNING

Ensure that the boiler is switched off.

1. Open the main gas supply.
2. Open the gas valve on the boiler.
3. Unscrew the two screws located under the front panel by a quarter turn and remove the panel.
4. Tilt the control box forwards by opening the holding clips located at the sides.
5. Check the gas supply pressure at the pressure outlet **C** on the gas valve unit.



WARNING

To ascertain the gas types permitted, see chapter: "Equipment categories", page 8

6. Check the tightness of the gas connections made after the gas valve unit in the boiler.
7. Check the tightness of the gas line, including the gas valves. The test pressure must not exceed 60 mbar.
8. Purge the gas supply pipe within the boiler by unscrewing the pressure outlet on the gas block. Tighten the measurement point when the pipe has been sufficiently purged.
9. Check the tightness of the gas connections in the boiler.

5.2.3. Hydraulic circuit

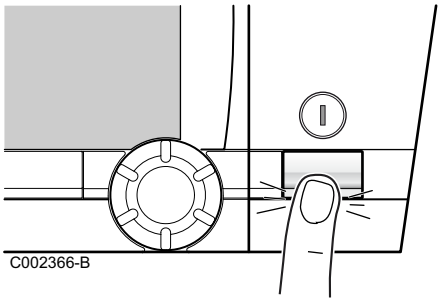
- Check the syphon — this must be completely filled with clean water.
- Check that there are no leaks on the hydraulic connections.

5.2.4. Electrical connections

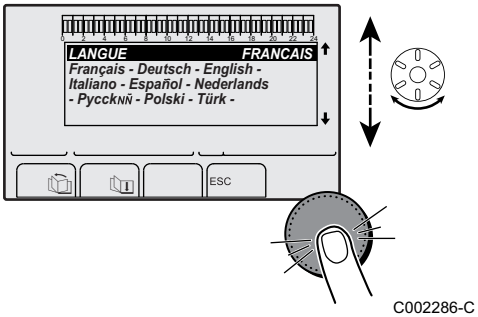
- Check the electrical connections.

5.3 Commissioning the boiler

1. Tilt the control box upwards again and fasten it using the clips located at the sides.
2. Open the main gas supply.
3. Open the gas valve on the boiler.


C002366-B

4. Turn on the boiler using the on/off switch.



C002286-C

5. The first time the boiler is powered up, the **LANGUAGE** menu is displayed. Select the desired language by turning the rotary button.
6. To confirm, press the rotary button.

The boiler will begin an automatic venting-programme (which lasts approx. 3 minutes) and will do this every time the power supply is isolated.

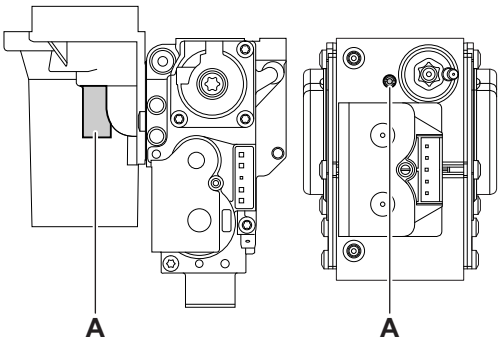
Error during the start-up procedure:

- No information is shown on the display:
  - Check the mains supply voltage
  - Check the fuses
  - Check the connection of the power cable to the connector X1 on the PCU PCB
- If there is a problem, the error is displayed on the screen.

See chapter: "Messages (Code type Bxx or Mxx)", page 122

If a DHW sensor is connected and the anti-legionella function is activated, the boiler starts to heat the water in the DHW tank as soon as the vent programme has been completed. The heating time depends on the size of the DHW installation.

5.4 Gas settings



5.4.1. Adapting to another gas type

WARNING

Only a qualified engineer may carry out the following operations.

The boiler is preset in the factory to operate on natural gas H (G20).

For operation on another group of gases, carry out the following operations.

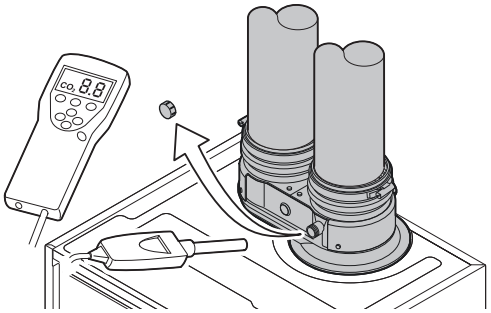
In case of functioning on propane:

1.

Boiler type	For conversion to propane
MCA 45	Rotate the adjusting screw **A** on the venturi 4¾ turns in a clockwise direction
MCA 65	Rotate the adjusting screw **A** on the venturi 6½ turns in a clockwise direction
MCA 90	Fit the gas restrictor in the gas block
MCA 115	First turn the setting screw **A** clockwise until it is closed, then: Rotate the adjusting screw **A** on the gas block 3,5- 4 turns in an anticlockwise direction

2. Regulate the fan speed as indicated in the table (if required):
See chapter: "Professional settings", page 79
3. Set the air/gas ratio. For more detailed information on this subject, see the following paragraphs:
"Setting the air/gas ratio (Full load)", page 65
"Setting the air/gas ratio (Part load)", page 66

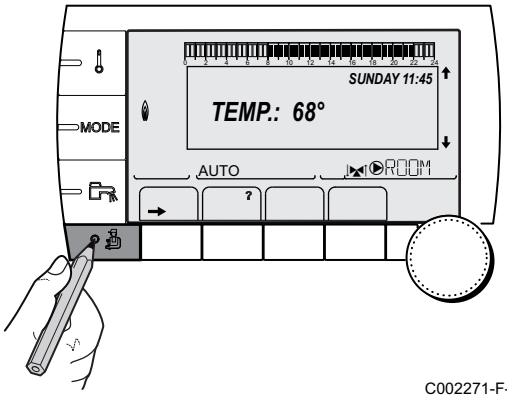
5.4.2. Setting the air/gas ratio (Full load)


T001581-B

1. Unscrew the plug of the flue gas measurement point.
2. Connect the flue gas analyser.

WARNING

Ensure that the opening around the sensor is completely sealed when taking measurements.

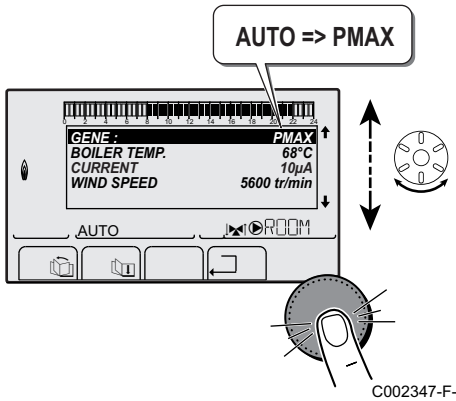


C002271-F-04

3. In the main display, press key . The menu **#EMISSION MEASUREMENTS** is displayed on the screen.

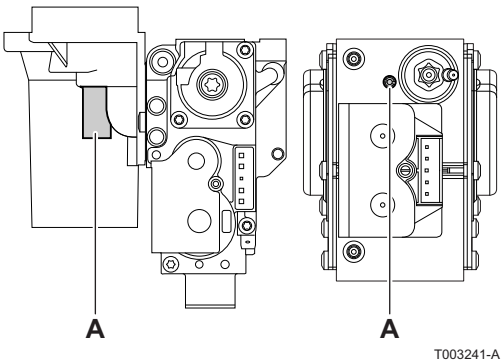
If an automatic vent cycle is running, it is not possible to perform these operations.

4. The characteristics of the generator are displayed.



C002347-F-04

5. Turn the rotary button until **PMAX** is displayed. The full load is set.
6. Measure the percentage of O_2 or CO_2 in the flue gases.
7. Compare the values measured with the checking values given in the table (Front panel removed):



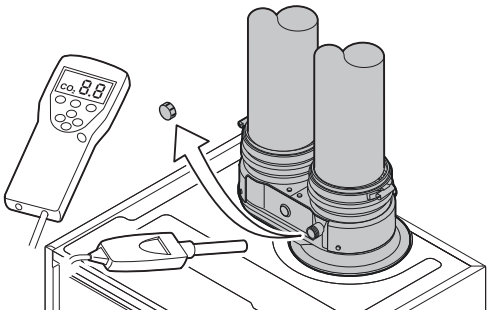
T003241-A

8. If necessary, adjust the gas/air ratio using the adjusting screw (**A**).

O_2/CO_2 control and setting values for gas H (G20) at full load				
Boiler type	**Setting value**		**Checking value**	
	O_2 (%)	**CO_2 (%)**	**O_2 (%)**	**CO_2 (%)**
MCA 45	4,8 ± 0,2	9,0 ± 0,1	4,8 ± 0,5	9,0 ± 0,2
MCA 65	4,8 ± 0,2	9,0 ± 0,1	4,8 ± 0,5	9,0 ± 0,2
MCA 90	3,9 ± 0,2	9,5 ± 0,1	3,9 ± 0,5	9,5 ± 0,2
MCA 115	4,7 ± 0,2	9,1 ± 0,1	4,7 ± 0,5	9,1 ± 0,2

O_2/ CO_2 control and setting values for propane (G31) at full load				
Boiler type	Setting value		Checking value	
	O_2 (%)	CO_2 (%)	O_2 (%)	CO_2 (%)
MCA 45	4,6 ± 0,2	10,7 ± 0,1	4,6 ± 0,5	10,7 ± 0,2
MCA 65	4,6 ± 0,2	10,7 ± 0,1	4,6 ± 0,5	10,7 ± 0,2
MCA 90	4,6 ± 0,2	10,7 ± 0,1	4,6 ± 0,5	10,7 ± 0,2
MCA 115	4,9 ± 0,2	10,5 ± 0,1	4,9 ± 0,5	10,5 ± 0,2

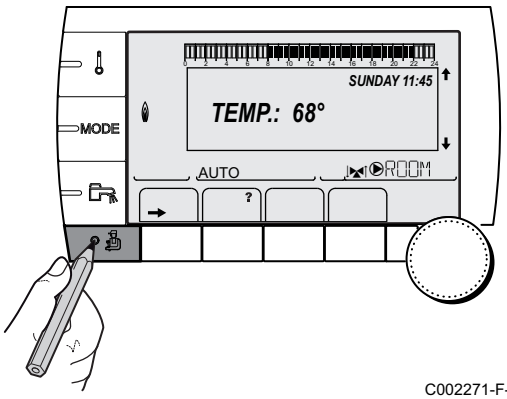
5.4.3. Setting the air/gas ratio (Part load)


T001581-B

1. Unscrew the plug of the flue gas measurement point.
2. Connect the flue gas analyser.

WARNING

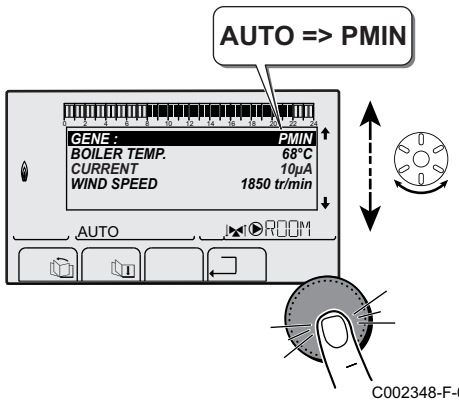
Ensure that the opening around the sensor is completely sealed when taking measurements.



C002271-F-04

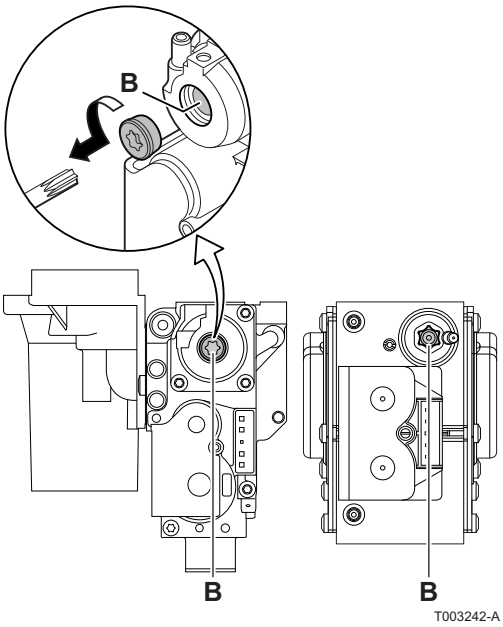
3. In the main display, press key . The menu **#EMISSION MEASUREMENTS** is displayed on the screen.

If an automatic vent cycle is running, it is not possible to perform these operations.



C002348-F-04

4. The characteristics of the generator are displayed.
5. Turn the rotary button until **PMIN** is displayed. The part load is set.
6. Measure the percentage of O_2 or CO_2 in the flue gases.
7. Compare the values measured with the checking values given in the table (Front panel removed):



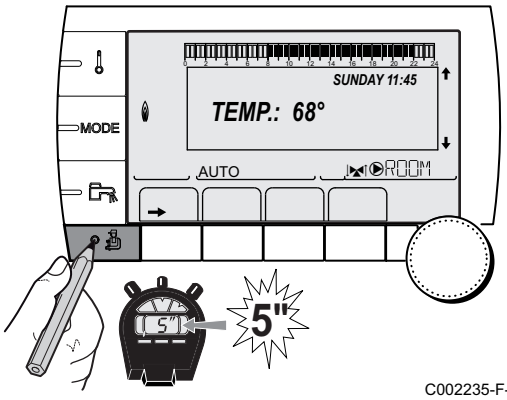
8. If necessary, adjust the gas/air ratio using the adjusting screw (**B**).

O_2/CO_2 control and setting values for gas H (G20) at low speed				
Boiler type	**Setting value**		**Checking value**	
	O_2 (%)	**CO_2 (%)**	**O_2 (%)**	**CO_2 (%)**
MCA 45	4,8 ± 0,2	9,0 ± 0,1	4,8 ± 0,5	9,0 ± 0,2
MCA 65	4,8 ± 0,2	9,0 ± 0,1	4,8 ± 0,5	9,0 ± 0,2
MCA 90	3,9 ± 0,2	9,5 ± 0,1	3,9 ± 0,5	9,5 ± 0,2
MCA 115	4,3 ± 0,2	9,3 ± 0,1	4,3 ± 0,5	9,3 ± 0,2

O_2/CO_2 control and setting values for propane (G31) at low speed				
Boiler type	**Setting value**		**Checking value**	
	O_2 (%)	**CO_2 (%)**	**O_2 (%)**	**CO_2 (%)**
MCA 45	4,6 ± 0,2	10,7 ± 0,1	4,6 ± 0,5	10,7 ± 0,2
MCA 65	4,6 ± 0,2	10,7 ± 0,1	4,6 ± 0,5	10,7 ± 0,2
MCA 90	4,6 ± 0,2	10,7 ± 0,1	4,6 ± 0,5	10,7 ± 0,2
MCA 115	4,9 ± 0,2	10,5 ± 0,1	4,9 ± 0,5	10,5 ± 0,2

5.5 Checks and adjustments after commissioning

5.5.1. Displaying the parameters in extended mode



The display mode on the control panel is set as standard in such a way as only to show the conventional parameters. It is possible to switch to extended mode by proceeding as follows:

1. Access the installer level: Press key for around 5 seconds.
2. Select the menu **#SYSTEM**.

- Turn the rotary button to scroll through the menus or modify a value.
- Press the rotary button to access the selected menu or confirm a value modification.

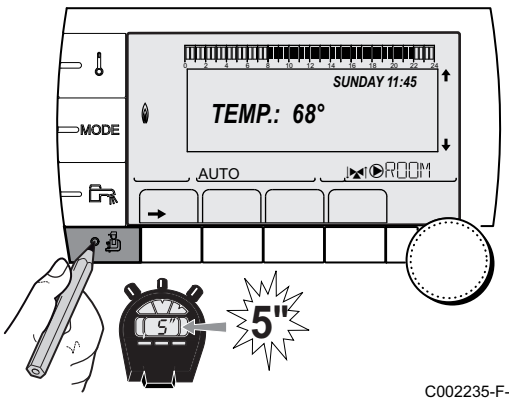
For a detailed explanation of menu browsing, refer to the chapter: "Browsing in the menus", page 60

3. Set parameter **INSTALLATION** to **EXTENDED**.

Installer level - Menu #SYSTEM				
Parameter	**Adjustment range**	**Description**	**Factory setting**	**Customer setting**
INSTALLATION	**CLASSIC**	Displays the parameters of a conventional installation	**CLASSIC**	
	EXTENDED	Displays all parameters		

Regardless of what is done to the keys, the regulator switches back to **CLASSIC** mode after 30 minutes.

5.5.2. Setting the parameters specific to the installation



C002235-F-04

1. Access the installer level: Press key for around 5 seconds.
2. Select the menu **#SYSTEM**.

- Turn the rotary button to scroll through the menus or modify a value.
- Press the rotary button to access the selected menu or confirm a value modification.

For a detailed explanation of menu browsing, refer to the chapter: "Browsing in the menus", page 60

3. Set the following parameters according to the connections made to the PCBs:

Installer level - Menu #SYSTEM				
Parameter	**Adjustment range**	**Description**	**Factory setting**	**Customer setting**
CIRC. A: (1)(2)	**DIRECT**	Use as a direct heating circuit	**DIRECT**	
	PROGRAM.	Use as an independent programmable outlet		
	H.TEMP	Enables operation of circuit A in summer despite manual or automatic summer shutdown		
	DHW	Connection of a second domestic hot water tank		
	DHW ELEC	Used to control the electrical resistor according to the timer programme on circuit A in summer mode		
	DISAB.	No data for circuit A is displayed		
CIRC. B: (1)	**3WV**	Connecting a circuit with 3-way valve (For example: Underfloor heating)	**3WV**	
	SWIM.P.	Using the circuit for pool management		
	DIRECT	Use of circuit in direct heating circuit		
CIRC. C: (1)	**3WV**	Connecting a circuit with 3-way valve (For example: Underfloor heating)	**3WV**	
	SWIM.P.	Using the circuit for pool management		
	DIRECT	Use of circuit in direct heating circuit		
O.PUMP A (1) (2)	**CH.PUMP A**	Heating pump circuit A: The ⏵A outlet is used to control the pump on circuit A	**CH.PUMP A**	
	CIRC.AUX	Used to resume the functions of the **S.AUX:** parameter without adding the PCB + sensor option (Package AD249)		
	DHW LOOP	Used to control the domestic hot water looping pump according to the DHW timer programme and force its operation during an override		
	PRIMARY PUMP	The outlet ⏵A is active if a heating demand is present on the secondary pump		
	ORDER BURNER	The outlet ⏵A is active when a burner demand is present		
	FAILURE	The outlet ⏵A is active if an fault is detected		
P.DHW (1)	**PUMP**	Use of a tank load pump on the ⏵ outlet	**PUMP**	
	RV	Use of a reversal valve for DHW production (Not used)		

(1) The parameter is only displayed if **INSTALLATION** is set to **EXTENDED**
(2) If the pump incorporated in the boiler is used for circuit A (parameter **CIRC. A:** set to **DIRECT**), the ⏵A outlet is free
(3) The parameter is only displayed if the parameter **O.PUMP A** is set to **CIRC.AUX** or the 3-way valve PCB option is connected

Installer level - Menu #SYSTEM				
Parameter	**Adjustment range**	**Description**	**Factory setting**	**Customer setting**
S.AUX (1)(3)	**DHW LOOP**	Use as a domestic loop pump	**DHW LOOP**	
	PROGRAM.	Use as an independent programmable outlet		
	PRIMARY PUMP	The outlet ⏵AUX is active if a heating demand is present on the secondary pump		
	ORDER BURNER	The outlet ⏵AUX is active when a burner demand is present		
	DHW	Use of primary circuit of second DHW tank		
	FAILURE	The outlet ⏵AUX is active if an fault is detected		
	DHW ELEC	Used to control the electrical resistor according to the timer programme on circuit AUX in summer mode		
I.SYST (1)	**SYSTEM**	The inlet sensor is used to connect the common flow sensor of a cascade system	**SYSTEM**	
	STORAGE TANK	Hot water storage tank affected to heating only		
	DHW STRAT	Using the DHW tank with 2 sensors (top and bottom)		
	ST.TANK+DHW	Hot water storage tank affected to heating and domestic hot water		
O. TEL: (1)	**FAILURE**	The telephone outlet is closed in the event of failure	**FAILURE**	
	REVISION	The telephone outlet is closed in the event of revision display		
	DEF+REV	The telephone outlet is closed in the event of failure or revision display		
CT.TEL (1)	**CLOSE**	See table below.	**CLOSE**	
	OPEN			

(1) The parameter is only displayed if **INSTALLATION** is set to **EXTENDED**
(2) If the pump incorporated in the boiler is used for circuit A (parameter **CIRC. A:** set to **DIRECT**), the ⏵A outlet is free
(3) The parameter is only displayed if the parameter **O.PUMP A** is set to **CIRC.AUX** or the 3-way valve PCB option is connected

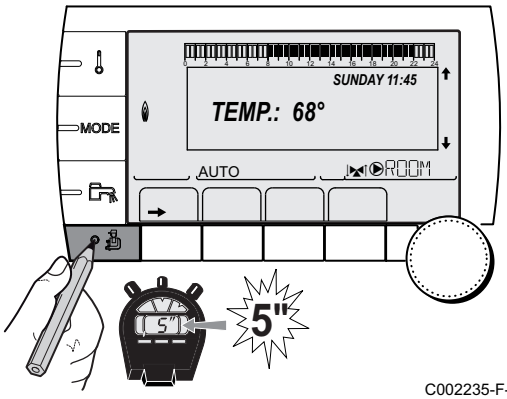
Installer level - Menu #SYSTEM				
Parameter	**Adjustment range**	**Description**	**Factory setting**	**Customer setting**
I.TEL: (1)	**ANTIFR**	Start anti-freeze in boiler command	**ANTIFR**	
	0/1 A	ON or OFF contact: **I.TEL:** can be used as an antifreeze activation inlet on circuit A		
	0/1 B	ON or OFF contact: **I.TEL:** can be used as an antifreeze activation inlet on circuit B		
	0/1 A+B	ON or OFF contact: **I.TEL:** can be used as an antifreeze activation inlet on circuit A+B		
	0/1 C	ON or OFF contact: **I.TEL:** can be used as an antifreeze activation inlet on circuit C		
	0/1 A+C	ON or OFF contact: **I.TEL:** can be used as an antifreeze activation inlet on circuit A+C		
	0/1 B+C	ON or OFF contact: **I.TEL:** can be used as an antifreeze activation inlet on circuit B+C		
	0/1 A+B+C	ON or OFF contact: **I.TEL:** can be used as an antifreeze activation inlet on circuit A+B+C		
	0/1 DHW	ON or OFF contact: **I.TEL:** can be used as an antifreeze activation inlet on circuit ECS		
	0/1 A+DHW	ON or OFF contact: **I.TEL:** can be used as an antifreeze activation inlet on circuit A+ECS		
	0/1 B+DHW	ON or OFF contact: **I.TEL:** can be used as an antifreeze activation inlet on circuit B+ECS		
	0/1 A+B+DHW	ON or OFF contact: **I.TEL:** can be used as an antifreeze activation inlet on circuit A+B+ECS		
	0/1 C+DHW	ON or OFF contact: **I.TEL:** can be used as an antifreeze activation inlet on circuit C+ECS		
	0/1 A+C+DHW	ON or OFF contact: **I.TEL:** can be used as an antifreeze activation inlet on circuit A+C+ECS		
	0/1 B+C+DHW	ON or OFF contact: **I.TEL:** can be used as an antifreeze activation inlet on circuit B+C+ECS		
	0/1 AUX	ON or OFF contact: **I.TEL:** can be used as an antifreeze activation inlet on circuit AUX (**S.AUX:** if the AD249 option is connected or the parameter **O.PUMP A** is set to **CIRC.AUX**) When **I.TEL:** is not active, the auxiliary circuit (AUX) follows the maximum boiler temperature (parameter **BOILER MAX**).		

(1) The parameter is only displayed if **INSTALLATION** is set to **EXTENDED**
(2) If the pump incorporated in the boiler is used for circuit A (parameter **CIRC. A:** set to **DIRECT**), the ⏵A outlet is free
(3) The parameter is only displayed if the parameter **O.PUMP A** is set to **CIRC.AUX** or the 3-way valve PCB option is connected

Influence of the parameter setting CT.TEL on the I.TEL: contact			
CT.TEL	**I.TEL:**	**contact closed**	**contact open**
CLOSE	**ANTIFR**	The antifreeze mode is active on all boiler circuits.	The mode selected on the boiler is active.
	0/1 A	The mode selected on the circuit is active.	The antifreeze mode is active on the circuit concerned.
	0/1 B	The mode selected on the circuit is active.	The antifreeze mode is active on the circuit concerned.
	0/1 A+B	The mode selected on the circuits is active.	The antifreeze mode is active on the circuits concerned.
	0/1 C	The mode selected on the circuit is active.	The antifreeze mode is active on the circuit concerned.
	0/1 A+C	The mode selected on the circuits is active.	The antifreeze mode is active on the circuits concerned.
	0/1 B+C	The mode selected on the circuits is active.	The antifreeze mode is active on the circuits concerned.
	0/1 A+B+C	The mode selected on the circuits is active.	The antifreeze mode is active on the circuits concerned.
	0/1 DHW	The mode selected on the DHW circuit is active.	The antifreeze mode is active for the DHW circuit.
	0/1 A+DHW	The mode selected on the circuits is active.	The antifreeze mode is active on the circuits concerned.
	0/1 B+DHW	The mode selected on the circuits is active.	The antifreeze mode is active on the circuits concerned.
	0/1 A+B+DHW	The mode selected on the circuits is active.	The antifreeze mode is active on the circuits concerned.
	0/1 C+DHW	The mode selected on the circuits is active.	The antifreeze mode is active on the circuits concerned.
	0/1 A+C+DHW	The mode selected on the circuits is active.	The antifreeze mode is active on the circuits concerned.
	0/1 B+C+DHW	The mode selected on the circuits is active.	The antifreeze mode is active on the circuits concerned.
	0/1 AUX	▸ The ⏵AUX outlet on the connection terminal block is active. ▸ The boiler operates at a set point temperature equal to **BOILER MAX**.	▸ The ⏵AUX outlet on the connection terminal block is not active. ▸ The boiler operates with a set point temperature as a function of the outside temperature.

Influence of the parameter setting CT.TEL on the I.TEL: contact			
CT.TEL	**I.TEL:**	**contact closed**	**contact open**
OPEN	**ANTIFR**	The mode selected on the boiler is active.	The antifreeze mode is active on all boiler circuits.
	0/1 A	The antifreeze mode is active on the circuit concerned.	The mode selected on the circuit is active.
	0/1 B	The antifreeze mode is active on the circuit concerned.	The mode selected on the circuit is active.
	0/1 A+B	The antifreeze mode is active on the circuits concerned	The mode selected on the circuits is active
	0/1 C	The antifreeze mode is active on the circuit concerned.	The mode selected on the circuit is active.
	0/1 A+C	The antifreeze mode is active on the circuits concerned	The mode selected on the circuits is active
	0/1 B+C	The antifreeze mode is active on the circuits concerned	The mode selected on the circuits is active
	0/1 A+B+C	The antifreeze mode is active on the circuits concerned	The mode selected on the circuits is active
	0/1 DHW	The antifreeze mode is active for the DHW circuit.	The mode selected on the DHW circuit is active.
	0/1 A+DHW	The antifreeze mode is active on the circuits concerned	The mode selected on the circuits is active
	0/1 B+DHW	The antifreeze mode is active on the circuits concerned	The mode selected on the circuits is active
	0/1 A+B+DHW	The antifreeze mode is active on the circuits concerned	The mode selected on the circuits is active
	0/1 C+DHW	The antifreeze mode is active on the circuits concerned	The mode selected on the circuits is active
	0/1 A+C+DHW	The antifreeze mode is active on the circuits concerned	The mode selected on the circuits is active
	0/1 B+C+DHW	The antifreeze mode is active on the circuits concerned	The mode selected on the circuits is active
	0/1 AUX	▸ The ⏵AUX outlet on the connection terminal block is not active. ▸ The boiler operates with a set point temperature as a function of the outside temperature.	▸ The ⏵AUX outlet on the connection terminal block is active. ▸ The boiler operates at a set point temperature equal to **BOILER MAX**.

5.5.3. Naming the circuits and generators

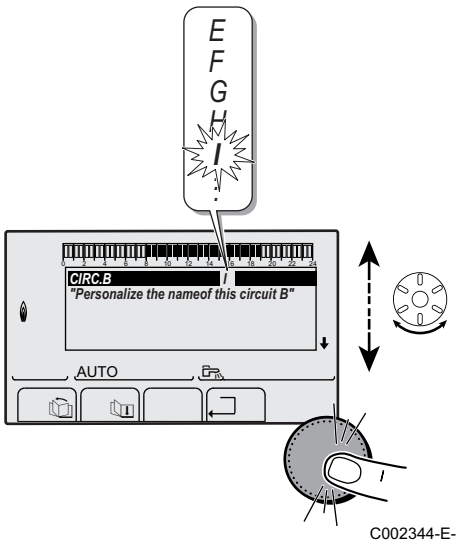


C002235-F-04

1. Access the installer level: Press key for around 5 seconds.
2. Select the menu **#NAMES OF THE CIRCUITS**.

- Turn the rotary button to scroll through the menus or modify a value.
- Press the rotary button to access the selected menu or confirm a value modification.

For a detailed explanation of menu browsing, refer to the chapter: "Browsing in the menus", page 60



C002344-E-04

3. Select the circuit or generator you wish to rename.

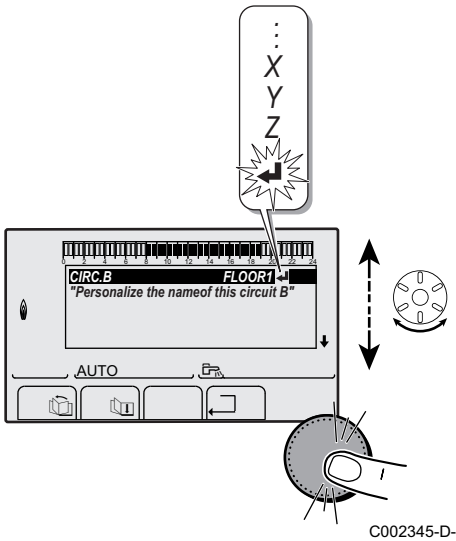
Installer level - Menu #NAMES OF THE CIRCUITS		
Parameter	**Description**	**Name given by the customer**
CIRC. A:	Circuit A	
CIRC. B:	Circuit B	
CIRC. C:	Circuit C	
CIRC.AUX	Auxiliary circuit	
CIRC.DHW	Domestic hot water circuit	
GENE	Generator	

4. Turn the rotary button to choose the first character from the list. To confirm, press the rotary button.
5. Then press again to enter a second character or turn the rotary button to leave an empty space.
6. Choose the other characters in the same way. The input zone may contain up to 6 characters.

To move from one character to another, turn the rotary button. To exit without modifications, press key ESC.

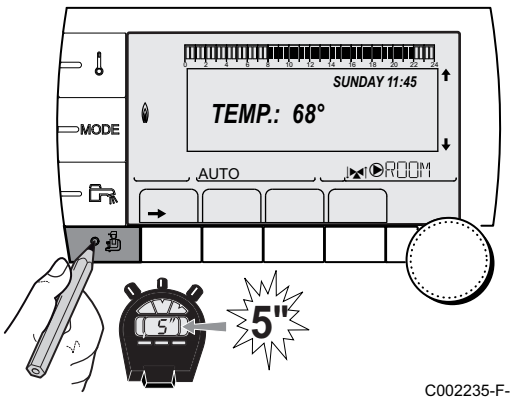
7. To confirm the name, press the rotary button and then turn the button slightly anti-clockwise. When the symbol ↵ appears, press the rotary button. The name is confirmed.

If the name reaches 6 characters, it is automatically confirmed when the last character is confirmed.



C002345-D-04

5.5.4. Setting the heating curve

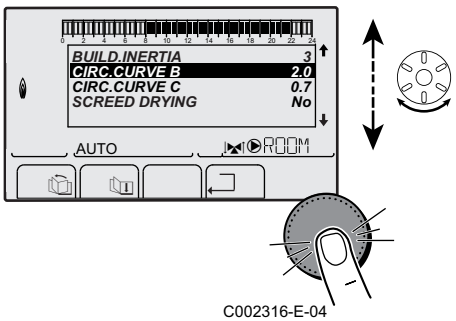


C002235-F-04

1. Access the installer level: Press key for around 5 seconds.
2. Select the menu **#SECONDARY INSTAL.P**.

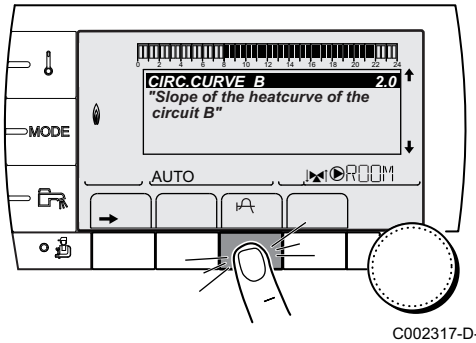
- Turn the rotary button to scroll through the menus or modify a value.
- Press the rotary button to access the selected menu or confirm a value modification.

For a detailed explanation of menu browsing, refer to the chapter: "Browsing in the menus", page 60.



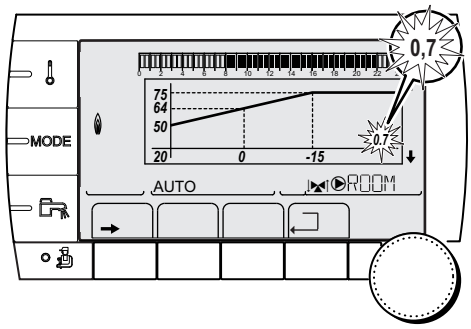
C002316-E-04

3. Select the parameter **CIRC. CURVE ...**.



C002317-D-04

4. To modify the value directly, turn the rotary button.
   To modify the value by displaying the curve, press key .

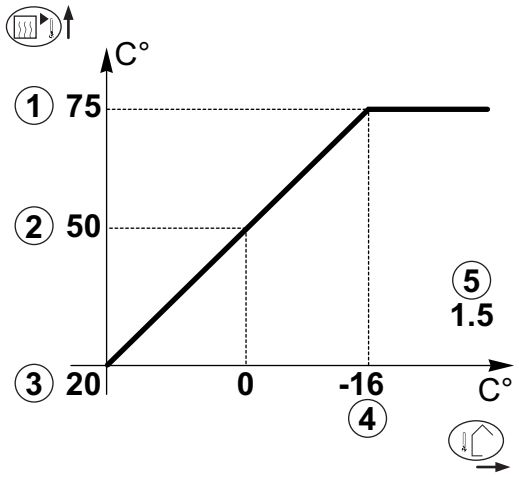


C002318-B-04

5. To modify the curve, turn the rotary button.
6. To confirm, press the rotary button.
   To cancel, press key ESC.

0.7 = Heating curve set.

■ Heating curve without BCT



C002319-B

① Maximum temperature of the circuit

② Water temperature in the circuit for an outside temperature of 0°C

③ **DAY** set point on the circuit

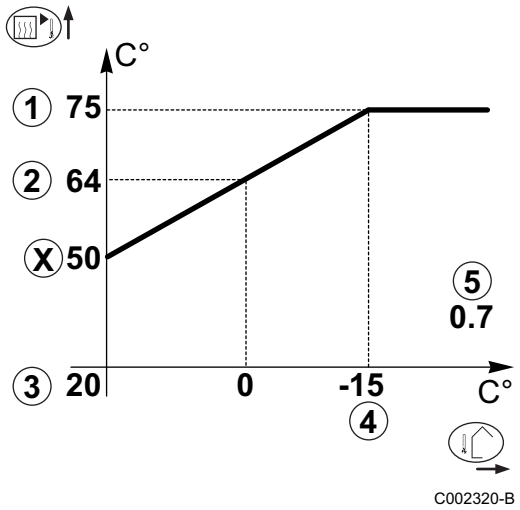
④ Outside temperature for which the maximum water temperature in the circuit is reached

⑤ Value of the heating curve
Select the parameter **CIRC. CURVE ...**

When you modify the heating curve, ② and ④ are recalculated and repositioned automatically.

■ Heating curve with BCT

The **BCT** (Base heat Curve Temperature) parameter allows a minimum operating temperature to be imposed on the heating circuit (this temperature may be constant if the circuit gradient is nil).



① Maximum temperature of the circuit

② Water temperature in the circuit for an outside temperature of 0°C

③ **DAY** set point on the circuit

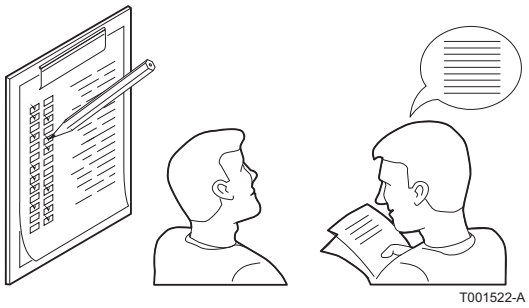
④ Outside temperature for which the maximum water temperature in the circuit is reached

⑤ Value of the heating curve
Select the parameter **CIRC. CURVE ...**

x Value set to the parameter **HCZP D**

When you modify the heating curve, ② and ④ are recalculated and repositioned automatically.

5.5.5. Finalizing work

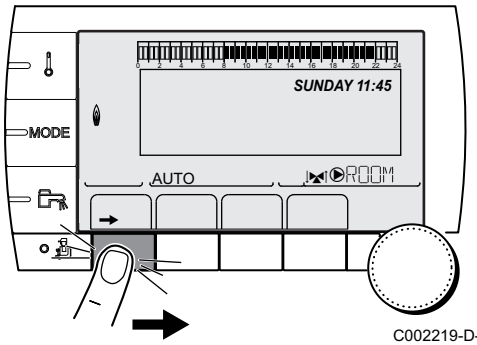


1. Remove the measuring equipment.
2. Put the flue gas sampling plug back in place.
3. Refit the front panel. Tighten the two screws by a quarter turn.
4. Raise the temperature in the heating system to approximately 70°C.
5. Shut down the boiler.
6. After about 10 minutes, vent the air in the heating system.
7. Checking the hydraulic pressure. If necessary, top up the water level in the heating system (recommended hydraulic pressure between 1,5 and 2 bar).
8. Tick the gas category used on the data plate.
9. Explain the operation of the installation, the boiler and the regulator to the users.
10. Inform the user of the periodicity of maintenance work to be carried out. Input the service date and the contact details of the installer.
11. Give all the instruction manuals to the user.

Commissioning of the boiler is now complete.

The various boiler parameters are preset in the factory. These factory settings are suitable for the most common heating systems. For other systems and situations, the parameters can be modified.

5.6 Reading out measured values



C002219-D-04

The various values measured by the appliance are displayed in the **#MEASURES** menu.

1. To access user level: Press the ➞ key.
2. Select the menu **#MEASURES**.

- Turn the rotary button to scroll through the menus or modify a value.
- Press the rotary button to access the selected menu or confirm a value modification.

For a detailed explanation of menu browsing, refer to the chapter: "Browsing in the menus", page 60.

User level - Menu #MEASURES		
Parameter	**Description**	**Unit**
OUTSIDE TEMP.	Outside temperature	°C
ROOMTEMP. A (1)	Room temperature of circuit A	°C
ROOMTEMP. B (1)	Room temperature of circuit B	°C
ROOMTEMP. C (1)	Room temperature of circuit C	°C
BOILER TEMP.	Water temperature in the boiler	°C
PRESSURE	Water pressure in the installation	bar
WATER TEMP. (1)	Water temperature in the DHW tank	°C
INST DWH TEMP. (1)	Instant hot water temperature	°C
STOR.TANK.TEMP (1)	Water temperature in the storage tank	°C
DCW TEMPERATURE	Domestic cold water temperature	°C
SWIMMING P.T.B (1)	Water temperature of the swimming pool on circuit B	°C
SWIMMING P.T.C (1)	Water temperature of the swimming pool on circuit C	°C
OUTLET TEMP. B (1)	Temperature of the flow water in circuit B	°C
OUTLET TEMP. C (1)	Temperature of the flow water in circuit C	°C
SYSTEM TEMP. (1)	Temperature of the system flow water if multi-generator	°C
T.DHW BOTTOM (1)	Water temperature in the bottom of the DHW tank	°C
TEMP.TANK AUX (1)	Water temperature in the second DHW tank connected to the AUX circuit	°C
DHW A TEMP. (1)	Water temperature in the second DHW tank connected to circuit A	°C
BACK TEMP	Temperature of the boiler return water	°C
WIND SPEED	Fan rotation speed	rpm
POWER	Instantaneous boiler output (0%: Burner off or running at minimum output)	%
CURRENT (µA)	Ionization current	µA
NB IMPULS.	Number of burner starts (not restartable) The meter is incremented by 8 every 8 start-ups	
RUNTIME	Number of burner operation hours (not restartable) The meter is incremented by 2 every 2 hours	h
IN 0-10V (1)	Voltage at input 0-10 V	V
SEQUENCE	Control system sequence	
CTRL	Software control number	

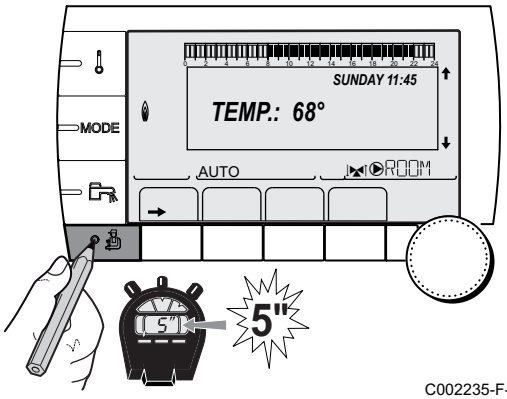
(1) The parameter is only displayed for the options, circuits or sensors actually connected.

5.7 Changing the settings

The boiler control panel is set for the most common heating systems. With these settings, practically all heating systems operate correctly. The user or installer can optimise the parameters according to own preferences.

For the user settings, refer to the user instructions.

5.7.1. Language selection



C002235-F-04

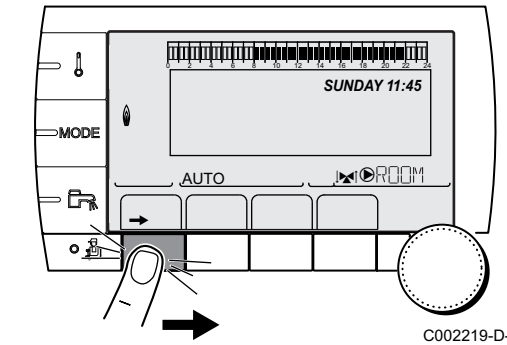
1. Access the installer level: Press key for around 5 seconds.
2. Select the menu **#LANGUAGE**.

- Turn the rotary button to scroll through the menus or modify a value.
- Press the rotary button to access the selected menu or confirm a value modification.

For a detailed explanation of menu browsing, refer to the chapter: "Browsing in the menus", page 60

Installer level - Menu #LANGUAGE	
Adjustment range	**Description**
FRANCAIS	Display in French
DEUTSCH	Display in German
ENGLISH	Display in English
ITALIANO	Display in Italian
ESPANOL	Display in Spanish
NEDERLANDS	Display in Dutch
POLSKI	Display in Polish
РУССКИЙ	Display in Russian
TÜRK	Display in Turkish

5.7.2. Calibrating the sensors



C002219-D-04

1. To access user level: Press the → key.
2. Select the menu **#SETTING**.

- Turn the rotary button to scroll through the menus or modify a value.
- Press the rotary button to access the selected menu or confirm a value modification.

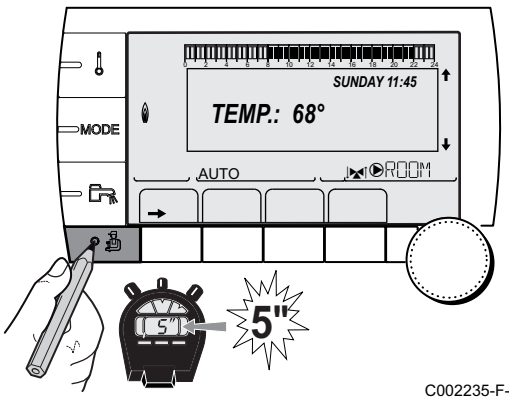
For a detailed explanation of menu browsing, refer to the chapter: "Browsing in the menus", page 60

3. Set the following parameters:

User level - Menu #SETTING				
Parameter	**Adjustment range**	**Description**	**Factory setting**	**Customer setting**
SUM/WIN	15 to 30 °C	Used to set the outside temperature above which heating will be shut down. ▸ The heating pumps are shut down. ▸ The burner will only start for domestic hot water needs. ▸ The symbol appears.	22 °C	
	NO	Heating is never shut down automatically		
CALIBR. OUT		Outside sensor calibration: Used to correct the outside temperature	Outside temperature	
CALIBR. ROOM A (1)(2)		Calibration of the room sensor on circuit A Make this setting 2 hours after switching on, when the room temperature has stabilised	Room temperature of circuit A	
OFFSET ROOM A (1) (3)	-5.0 to +5.0 °C	Room offset on circuit A: Is used to set a room offset Make this setting 2 hours after switching on, when the room temperature has stabilised	0.0	
ANTIFR. ROOM A	0.5 to 20 °C	Room temperature antifreeze activation on circuit A	6 °C	
CALIBR. ROOM B (2)(1)(4)		Calibration of the room sensor on circuit B Make this setting 2 hours after switching on, when the room temperature has stabilised	Room temperature of circuit B	
OFFSET ROOM B (3) (4)(1)	-5.0 to +5.0 °C	Room offset on circuit B: Is used to set a room offset Make this setting 2 hours after switching on, when the room temperature has stabilised	0.0	
ANTIFR. ROOM B (4)	0.5 to 20 °C	Room temperature at which the antifreeze mode is activated on circuit B	6 °C	
CALIBR. ROOM C (4)(1)(2)		Calibration of the room sensor on circuit C Make this setting 2 hours after switching on, when the room temperature has stabilised	Room temperature of circuit C	
OFFSET ROOM C (4) (1)(3)	-5.0 to +5.0 °C	Room offset on circuit C: Is used to set a room offset Make this setting 2 hours after switching on, when the room temperature has stabilised	0.0	
ANTIFR. ROOM C (4)	0.5 to 20 °C	Room temperature antifreeze activation on circuit C	6 °C	

(1) The parameter is only displayed if **INSTALLATION** is set to **EXTENDED**
(2) The parameter is only displayed if a room sensor is connected to the circuit concerned
(3) The parameter is only displayed if no room sensor is connected to the circuit concerned or the sensor has no influence
(4) The parameter is only displayed if the circuit concerned is actually connected

5.7.3. Professional settings



C002235-F-04

1. Access the installer level: Press key for around 5 seconds.
2. Set the following parameters:

- Turn the rotary button to scroll through the menus or modify a value.
- Press the rotary button to access the selected menu or confirm a value modification.

For a detailed explanation of menu browsing, refer to the chapter: "Browsing in the menus", page 60.

Installer level - Menu (#PRIMARY LIMITS)				
Parameter	**Adjustment range**	**Description**	**Factory setting**	**Customer setting**
BOILER MAX	20 to 90 °C	Maximum boiler temperature	80 °C	
MAX.R.HEAT(%) (1)	0-100%	Maximum boiler output during heating	100%	
MAX.DHW(%) (1)(2)	0-100%	Maximum boiler output in DHW	100%	
MIN.VENT. (1)	1000-5000 rpm	Minimum fan speed	See table below	
MAX.VENT.BOIL (1)	1000-7000 rpm	Maximum fan speed setting in heating	See table below	
MAX.VENT.DHW (1)	1000-7000 rpm	Maximum fan speed setting in domestic hot water	See table below	
START RPM (1)	1000-5000 rpm	Optimum start-up speed setting	See table below	
MIN.PUMP SPEED (1)	20-100%	Minimum pump speed	40 %	
MAX.PUMP SPEED (1)	20-100%	Maximum pump speed	100 %	

(1) The parameter is only displayed if **INSTALLATION** is set to **EXTENDED**
(2) The parameter is only displayed if **P.DHW:** is set to **PUMP**The parameter is only displayed if **P.DHW** is set to **PUMP**

Type of gas used	Parameter	Unit	MCA 45	MCA 65	MCA 90	MCA 115
Gas H (G20)	**MIN.VENT.**	rpm	1500	1600	1500	1800
	MAX.VENT.BOIL	rpm	5600	5800	6200	7000
	MAX.VENT.DHW	rpm	5600	5800	6200	7000
	START SP.	rpm	2500	2500	2500	2500
Gas L (G25)	**MIN.VENT.**	rpm	1500	1600	1500	1800
	MAX.VENT.BOIL	rpm	5600	5800	6200	7000
	MAX.VENT.DHW	rpm	5600	5800	6200	7000
	START SP.	rpm	2500	2500	2500	2500
Propane (G31)	**MIN.VENT.**	rpm	1500	1600	2200	1800
	MAX.VENT.BOIL	rpm	5600	5800	6000	6700
	MAX.VENT.DHW	rpm	5600	5800	6000	6700
	START SP.	rpm	2500	2500	2500	2500

Installer level - Menu #SECONDARY LIMITS			
Parameter	**Adjustment range**	**Description**	**Factory setting**
MAX.CIRC.A	20 to 95 °C	Maximum temperature (Circuit A) "**MAX.CIRC...**", page 83	75 °C
MAX.CIRC.B	20 to 95 °C	Maximum temperature (Circuit B) "**MAX.CIRC...**", page 83	50 °C
MAX.CIRC.C	20 to 95 °C	Maximum temperature (Circuit C) "**MAX.CIRC...**", page 83	50 °C
OUT.ANTIFREEZE	**OFF**, -8 to +10 °C	Outside temperature at which the installation's antifreeze protection is activated. Below this temperature the pumps are permanently on and the minimum temperatures for each circuit are respected. When **NIGHT :STOP** is set, the reduced temperature is maintained in each circuit (Menu **#SECONDARY INSTAL.P**). **OFF**: Antifreeze protection is not activated	+3 °C
HCZP D A (1) (2)	**OFF**, 20 to 90 °C	Curve base temperature in Daytime mode (Circuit A)	**OFF**
HCZP N A (1) (2)	**OFF**, 20 to 90 °C	Curve base temperature in Nighttime mode (Circuit A)	**OFF**
HCZP D B (1) (2)	**OFF**, 20 to 90 °C	Curve base temperature in Daytime mode (Circuit B)	**OFF**
HCZP N B (1) (2)	**OFF**, 20 to 90 °C	Curve base temperature in Nighttime mode (Circuit B)	**OFF**
HCZP D C (1) (2)	**OFF**, 20 to 90 °C	Curve base temperature in Daytime mode (Circuit C)	**OFF**
HCZP N C (1) (2)	**OFF**, 20 to 90 °C	Curve base temperature in Nighttime mode (Circuit C)	**OFF**
PRIM.TEMP.DHW (1)	50 to 79 °C	Boiler temperature setting if producing domestic hot water	65 °C

(1) The parameter is only displayed if **INSTALLATION** is set to **EXTENDED**
(2) The parameter can be set to the heating curve by pressing key .

Installer level - Menu #PRIMARY INSTAL.P(1)				
Parameter	**Adjustment range**	**Description**	**Factory setting**	**Customer setting**
BURN.MIN.RUN	0 to 180 seconds	Setting the burner minimum operation time (In heating mode)	30 seconds	
TIMER GENE P. (1)	1 to 30 minutes	Maximum post-operation duration of the generator pump	4 minutes	
IN.BL(1)	**TOTAL STOP**	Configuration of the PCU BL inlet If the contact is open, heating and DHW production are off. Automatic restart when the contact closes.	**TOTAL STOP**	
	SAFETY MODE	Configuration of the PCU BL inlet If the contact is open, the boiler goes into safety lockout. The boiler needs to be reset to restart.		
BOIL.INERTIA	1 to 255 seconds	Characterisation of boiler inertia	35 seconds	

(1) The menu is displayed only if the **INSTALLATION** parameter is set to **EXTENDED**

Installer level - Menu #SECONDARY INSTAL.P				
Parameter	**Adjustment range**	**Description**	**Factory setting**	**Customer setting**
BUILD. INERTIA (1)	0 (10 hours) to 10 (50 hours)	Characterisation of building's inertia: 0 for a building with low thermal inertia. 3 for a building with normal thermal inertia. 10 for a building with high thermal inertia. **Modification of the factory setting is only useful in exceptional cases.**	3 (22 hours)	
CIRC.CURVE A(2)	0 to 4	Heating curve of the circuit A ☞ **"CIRC. CURVE ..."**, page 84	1.5	
ANTICIP.A(1)	0.0 to 10.0	Activation and adjustment of the anticipation time ☞ **"ANTICIP.A**, **ANTICIP.B**, **ANTICIP.C** ", page 84	**NO**	
ROOM INFL. A (1)	0 to 10	Influence of room sensor A ☞ **"ROOM S.INFL"**, page 85	3	
CIRC.CURVE B(2)	0 to 4	Heating curve of the circuit B ☞ **"CIRC. CURVE ..."**, page 84	0.7	
ANTICIP.B(1)	0.0 to 10.0	Activation and adjustment of the anticipation time ☞ **"ANTICIP.A**, **ANTICIP.B**, **ANTICIP.C** ", page 84	**NO**	
ROOM INFL. B (1)	0 to 10	Influence of room sensor B ☞ **"ROOM S.INFL"**, page 85	3	
CIRC.CURVE C(2)	0 to 4	Heating curve of the circuit C ☞ **"CIRC. CURVE ..."**, page 84	0.7	
ANTICIP.C(1)	0.0 to 10.0	Activation and adjustment of the anticipation time ☞ **"ANTICIP.A**, **ANTICIP.B**, **ANTICIP.C** ", page 84	**NO**	
ROOM INFL. C (1)	0 to 10	Influence of room sensor C ☞ **"ROOM S.INFL"**, page 85	3	
SCREED DRYING	**NO, B, C, B+C**	Drying the floor ☞ **"SCREED DRYING"**, page 84	**NO**	
START DRYING TEMP(3)	20 to 50 °C	Screed drying start temperature	20 °C	
STOP DRYING TEMP(3)	20 to 50 °C	Screed drying stop temperature	20 °C	
NB DAYS DRYING(3)	0 to 99		0	

(1) The parameter is only displayed if **INSTALLATION** is set to **EXTENDED**
(2) The parameter can be set to the heating curve by pressing key
(3) The parameter is only displayed if **SCREED DRYING** is other than **OFF**
(4) The parameter is only displayed if **IN 0-10V** is set to **ON**.
(5) The parameter is only displayed if **P.DHW** is set to **PUMP**
(6) If a reversal valve is connected, DHW priority will always be total regardless of the setting.
(7) The parameter is only displayed if **LEG PROTEC** is other than **OFF**

Installer level - Menu #SECONDARY INSTAL.P				
Parameter	**Adjustment range**	**Description**	**Factory setting**	**Customer setting**
NIGHT (1)	**DEC.**	The lower temperature is maintained (Night mode) ☞ **"NIGHT"**, page 85	**DEC.**	
	STOP	The boiler is stopped (Night mode) ☞ **"NIGHT"**, page 85		
IN 0-10V	**OFF** / **TEMPERATURE** / **POWER %**	Activating the control at 0-10 V ☞ "Function 0-10 V", page 86	**OFF**	
VMIN/OFF 0-10V (1)(4)	0 to 10 V	Voltage corresponding to the instruction set minimum	0.5 V	
VMAX 0-10V (1)(4)	0 to 10 V	Voltage corresponding to the instruction set maximum	10 V	
CONS.MIN 0-10V (1)(4)	0 to 100	Minimum set point temperature or output	5	
CONS.MAX 0-10V (1)(4)	5 to 100	Maximum set point temperature or output	100	
BAND WIDTH (1)	4 to 16 K	Control unit bandwidth for the 3-way valves. Option of increasing the bandwidth if the valves are rapid or of reducing it if they are slow.	**12 K**	
BOIL/3WV SHIFT (1)	0 to 16 K	Minimum temperature difference between the boiler and the valves	**4 K**	
H. PUMP DELAY (1)	0 to 15 minutes	Timing of the shutdown of the heating pumps. The timing of heating pump shutdown prevents the boiler overheating.	**4 minutes**	
HW. PUMP DELAY (1)(5)	2 to 15 minutes	Timing of the shutdown of the domestic hot water pump. The timing of the domestic hot water load pump shutdown prevents the boiler and the heating circuits overheating (Only if a load pump is used).	**2 minutes**	
ADAPT	**ON**	Automatic adaptation of the heating curves for each circuit with a room sensor with an influence of >0.	**ON**	
	OFF	The heating curves can only be modified manually.		
PRIORITY DHW(6)	**TOTAL**	Interruption of pool heating and reheating during domestic hot water production.	**TOTAL**	
	SLIDING	Domestic hot water production and heating on the valve circuits if the available output is sufficient and the hydraulic connection allows.		
	NO	Heating and domestic hot water production in parallel if the hydraulic connection allows. ⚠ Risk of overheating in the direct circuit.		

(1) The parameter is only displayed if **INSTALLATION** is set to **EXTENDED**
(2) The parameter can be set to the heating curve by pressing key
(3) The parameter is only displayed if **SCREED DRYING** is other than **OFF**
(4) The parameter is only displayed if **IN 0-10V** is set to **ON**.
(5) The parameter is only displayed if **P.DHW** is set to **PUMP**
(6) If a reversal valve is connected, DHW priority will always be total regardless of the setting.
(7) The parameter is only displayed if **LEG PROTEC** is other than **OFF**

Installer level - Menu #SECONDARY INSTAL.P				
Parameter	**Adjustment range**	**Description**	**Factory setting**	**Customer setting**
LEG PROTEC		The anti legionella function acts to prevent the development of legionella in the dhw tank, these bacteria are responsible for legionellosis.	**OFF**	
	OFF	Anti-legionella function not activated		
	DAILY	The tank is overheated every day from 4:00 o'clock to 5:00 o'clock		
	WEEKLY	The tank is overheated every Saturday from 4:00 o'clock to 5:00 o'clock		
START.TIM.LEG.P(7)	00:00 to 23:30	Antilegionella start-up time	4:00 h (Increment: 30 minutes)	
DURAT.LEG.PROTECT(7)	60 to 360 min	Antilegionella running time	60 minutes (Increment: 30 minutes)	
OPTIM. DHW(5)	**OFF**	The function is deactivated	**OFF**	
	BOILER. T.	When, in heating mode, the boiler temperature exceeds **PRIM.TEMP.DHW** by +3°C and DHW tank needs are not met, the domestic hot water pump starts up		
	SYST.TEMP	When, in heating mode, the system temperature exceeds **PRIM.TEMP.DHW** by +3°C and DHW tank needs are not met, the domestic hot water pump starts up		
ON.DHW(5)	**OFF**	The function is deactivated	**OFF**	
	BOILER. T.	In DHW mode, the DHW load pump starts up only if the boiler temperature is higher than the **WATER TEMP.** set point + 5°C		
	SYST.TEMP	In DHW mode, the DHW load pump starts up only if the system temperature is higher than the **WATER TEMP.** set point + 5°C		

(1) The parameter is only displayed if **INSTALLATION** is set to **EXTENDED**
(2) The parameter can be set to the heating curve by pressing key
(3) The parameter is only displayed if **SCREED DRYING** is other than **OFF**
(4) The parameter is only displayed if **IN 0-10V** is set to **ON**.
(5) The parameter is only displayed if **P.DHW** is set to **PUMP**
(6) If a reversal valve is connected, DHW priority will always be total regardless of the setting.
(7) The parameter is only displayed if **LEG PROTEC** is other than **OFF**

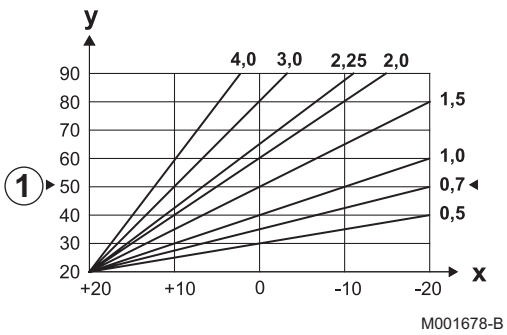
■ MAX.CIRC...

WARNING

If using underfloor heating, do not modify the factory setting (50 °C). To install this, please consult existing legislation.

- In the case of a direct circuit, connect a safety thermostat to the BL contact.
- In the case of a 3-way valve circuit (B or C), connect a safety thermostat to the TS contact.

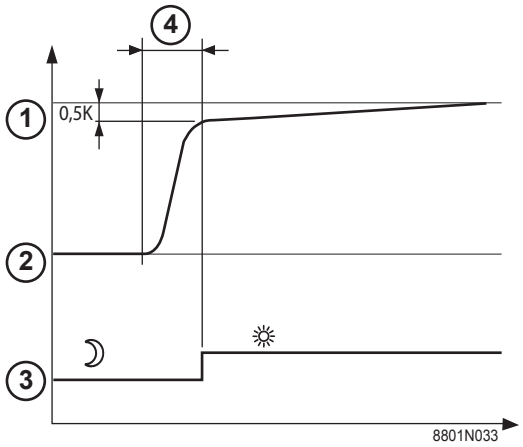
CIRC. CURVE ...



Heating curve circuit A, B or C

x	Outside temperature (°C)
y	Water flow temperature (°C)
①	Maximum temperature of the circuit B - C

ANTICIP.A, ANTICIP.B, ANTICIP.C



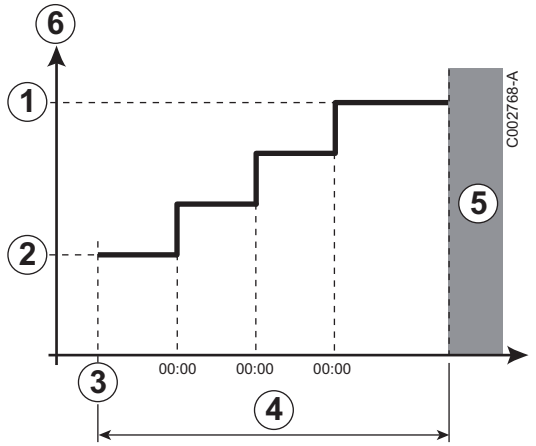
①	Room temperature instruction - Comfort
②	Room temperature instruction - Low
③	Time schedule
④	Anticipation time = Accelerated reheating phase

The anticipation function calculates the heating restart time to reach the desired room temperature less 0.5 K at the time programmed for switching to comfort mode.
The start time of the timed programmed corresponds to the end of the accelerated reheating phase.
The function is activated by setting a different **OFF** value.
The value set corresponds to the time considered necessary to return the installation to the required temperature (outside temperature 0°C), starting from a residual room temperature corresponding to the low nocturnal instruction.
Anticipation is optimised if a room sensor is connected.
The regulator will automatically fine set the anticipation time.

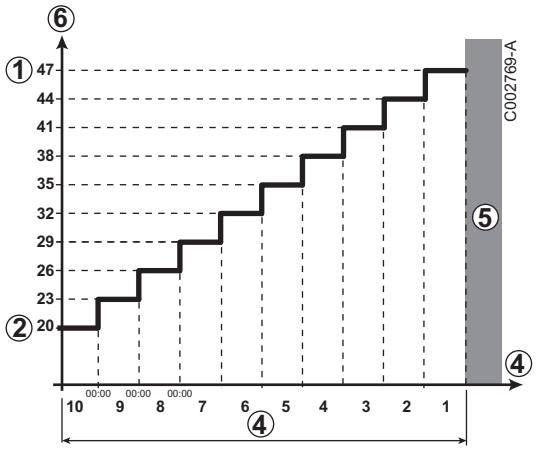
This function is dependent on the surplus output available in the installation.

SCREED DRYING

Used to force a constant flow temperature or a train to accelerate screed drying on underfloor heating.
The setting for these temperatures must follow the screed-layer's recommendations.
The activation of this parameter (setting other than **OFF**) forces the permanent display of **SCREED DRYING** and deactivates all other functions on the control unit.
When floor drying is active on a circuit, all other circuits (e.g. DHW) are shut down. The use of this function is only possible on circuits B and C.



① **STOP DRYING TEMP**
② **START DRYING TEMP**
③ Today
④ **NB DAYS DRYING**
⑤ Normal regulation (End of drying)
⑥ Heating temperature setting (°C)



For example

① **STOP DRYING TEMP**: **47 °C**
② **START DRYING TEMP**: **20 °C**
④ **NB DAYS DRYING**
⑤ Normal regulation (End of drying)
⑥ Heating temperature setting (°C)

Every day at midnight (00:00): the set point (**START DRYING TEMP**) is recalculated and the remaining number of days (**NB DAYS DRYING**) is decremented.

■ ROOM S.INFL

Used to adjust the influence of the room sensor on the water temperature for the circuit concerned.

0	No influence (remote control fitted in a location with no influence)
1	Slight influence
3	Average influence (recommended)
10	Room thermostat type operation

■ NIGHT

This parameter is displayed if at least one circuit does not include a room sensor.

For circuits without a room sensor:

- **NIGHT :DEC.** (Reduced): The reduced temperature is maintained during reduced periods. The circuit pump operates constantly.
- **NIGHT :STOP** (Stop): Heating is shut down during reduced periods. When installation antifreeze is active, the reduced temperature is maintained during reduced periods.

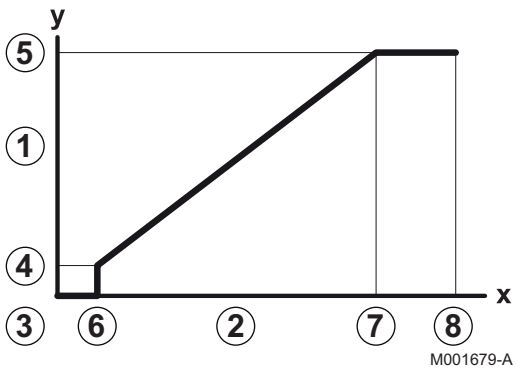
For circuits with a room sensor:

- When the room temperature is lower than the room sensor set point: The reduced temperature is maintained during reduced periods. The circuit pump operates constantly.

- When the room temperature is higher than the room sensor set point: Heating is shut down during reduced periods. When installation antifreeze is active, the reduced temperature is maintained during reduced periods.

Function 0-10 V

This function controls the boiler using an external system that includes a 0-10 V output connected to the 0-10 V input. This command imposes a temperature or output instruction on the boiler. It is necessary to ensure that the **BOILER MAX** parameter is higher than **CONS.MAX 0-10V** if the command is on temperature.

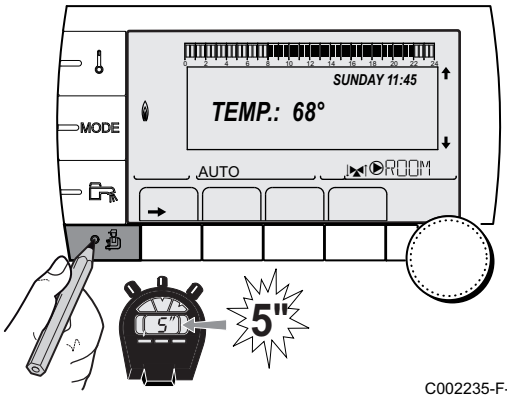


M001679-A

1	Flow set point temperature (°C) or output (%)
2	Voltage at input (V) - DC
3	0 V
4	**CONS.MIN 0-10V**
5	**CONS.MAX 0-10V**
6	**VMIN/OFF 0-10V**
7	**VMAX 0-10V**
8	10 V
x	Voltage at input
y	Boiler temperature or sliding output

If the input voltage is less than **VMIN/OFF 0-10V**, the boiler is off. The boiler temperature setting corresponds strictly to the 0-10 V input. The secondary boiler circuits continue to operate but have no impact on the water temperature in the boiler. If using the 0-10 V input and a secondary boiler circuit, the external regulator providing this 0-10 V power supply must always request a temperature at least equal to the needs of the secondary circuit.

5.7.4. Configuring the network



C002235-F-04

1. Access the installer level: Press key for around 5 seconds.
2. Select the menu **#NETWORK**.

- Turn the rotary button to scroll through the menus or modify a value.
- Press the rotary button to access the selected menu or confirm a value modification.

For a detailed explanation of menu browsing, refer to the chapter: "Browsing in the menus", page 60

3. Set the following parameters:

Installer level - Menu #NETWORK(1)				
Parameter	**Adjustment range**	**Description**	**Factory setting**	**Customer setting**
CASCADE:	**ON** / **NO**	**ON**: System in cascade	**NO**	
VM NETWORK (2)		Specific menu: Enlist VMs in cascade mode ☞ See chapter: "Connecting VM iSystem in cascade", page 89		
MASTER CONTROLLER (3)	**ON** / **NO**	Configure this control system as master on the bus	**ON**	
SYSTEM NETWORK (4)		Specific menu: Enlist generators or VMs in cascade mode ☞ See chapter: "Connecting VM iSystem in cascade", page 89		
FUNCT (4)	**CLASSIC**	Operation in cascade: Successive triggering of the various boilers in the cascade according to requirements	**CLASSIC**	
	PARALLEL	Functioning in parallel cascade: If the outside temperature is lower than the value **PARALLEL CASC.**, all of the boilers are started up at the same time		
PARALLEL CASC. (5)	-10 to 20 °C	Outside temperature triggering all stages in parallel mode	10 °C	
TIMER GENE P. CASC(3)	0 to 30 min	Minimum duration of post-operation of the generator pump	0 mn	
INTER STAGE TIMER (3)	1 to 30 min	Time delay for starting up or shutting down generators.	4 mn	
SLAVE NUMBER (6)	2 to 10	Set the network address of the secondary generator	2	

(1) The menu is displayed only if the **INSTALLATION** parameter is set to **EXTENDED**
(2) The parameter is only displayed if **CASCADE:** is set to **NO**
(3) The parameter is only displayed if **CASCADE:** is set to **ON**
(4) The parameter is only displayed if **MASTER CONTROLLER** is set to **ON**
(5) The parameter is only displayed if **FUNCT** is set to **PARALLEL**
(6) The parameter is only displayed if **MASTER CONTROLLER** is set to **OFF**

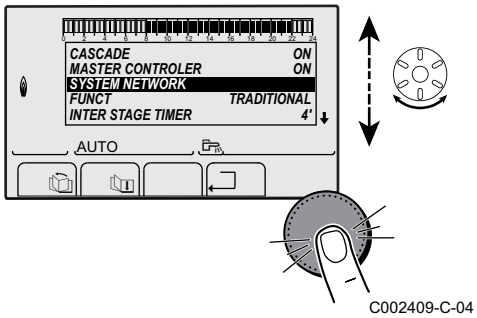
User level - Menu #SETTING				
Parameter	**Adjustment range**	**Description**	**Factory setting**	**Customer setting**
PERMUT(1)	**AUTO** / 1 ... 10	This parameter is used to set the master boiler. ▸ **AUTO**: The master boiler switches automatically every 7 days ▸ 1 ... 10: The master boiler is always the one defined by this value	**AUTO**	

(1) The parameter is only displayed if **CASCADE:** is on **ON** and **MASTER CONTROLLER** on **ON**

■ Connecting appliances in cascade

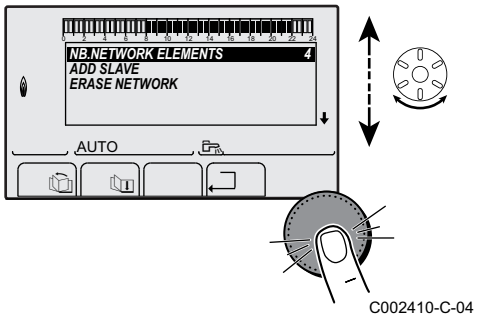
It is possible, in a cascade configuration, to enlist generators and/or VM iSystem as slaves. Proceed as follows:

1. Set parameter **CASCADE:** to **ON**.



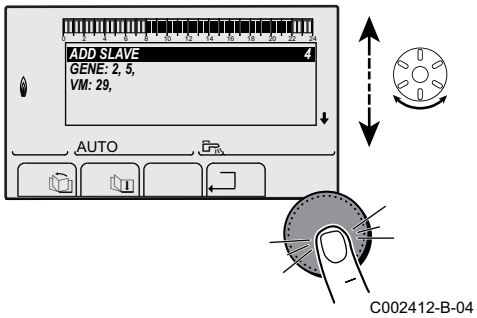
C002409-C-04

2. Select **SYSTEM NETWORK** and press the rotary button to go to the specific menu.



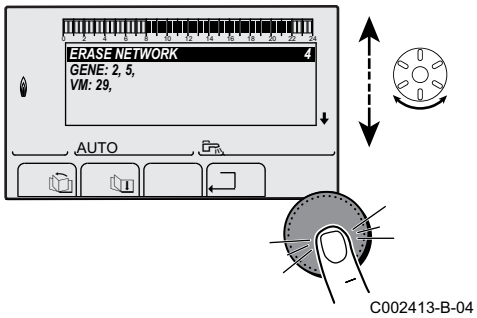
C002410-C-04

3. To add a slave appliance to the network, select **ADD SLAVE**.



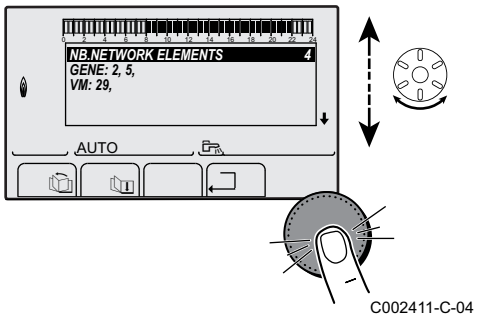
C002412-B-04

4. The screen displayed allows you to choose numbers for the slave boilers to be added to the network. Numbers 2 to 10 are dedicated to the generators and numbers 20 to 39 to the VM iSystem. Turn the rotary button to scroll through the numbers and press to confirm the number chosen. Press ⮐ to go back to the previous list.
5. To remove a slave appliance from the network, select **ERASE NETWORK**.



C002413-B-04

6. The screen displayed allows you to choose the numbers of the slave boilers to be removed from the network. Turn the rotary button to scroll through the numbers and press to remove the number chosen. Press ⮐ to go back to the previous list.



C002411-C-04

7. Select **NB. ELEMENTS.NETWORK**. This screen summarises the elements in the network recognised by the system. Press ⮐ to go back to the previous list.

■ Connecting VM iSystem in cascade

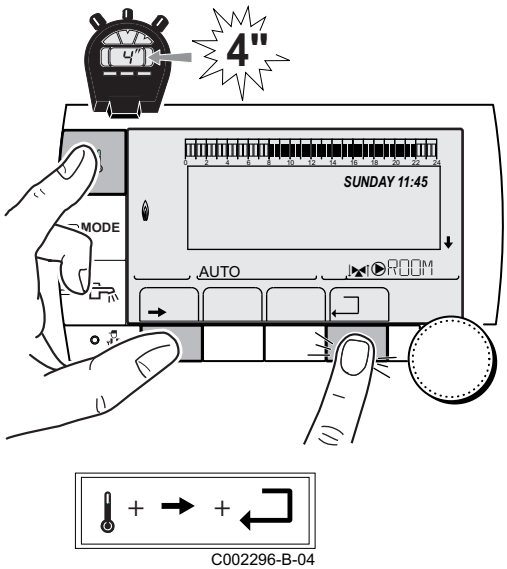
It is possible to assign VMs only as slaves. Proceed as follows:

1. Select **VM NETWORK** and press the rotary button to go to the specific menu.
2. The screen displayed is used to select the numbers of the slave VMs to be added to the network. Numbers 20 to 39 are dedicated to the VMs. Turn the rotary button to scroll through the numbers and press to confirm the number chosen. Press ⮐ to go back to the previous list.
3. To remove a slave VM from the network, select **DELETE VM**.
4. The screen displayed is used to select the numbers of the slave VMs to be removed from the network. Turn the rotary button to scroll through the numbers and press to remove the number chosen. Press ⮐ to go back to the previous list.
5. Select **NB. ELEMENTS.NETWORK**. This screen summarises the elements in the network recognised by the system. Press ⮐ to go back to the previous list.

5.7.5. Return to the factory settings

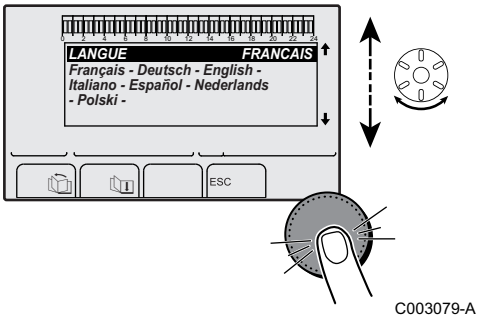
To reset the appliance, proceed as follows:

1. Press key 🌡, → and ⮐ simultaneously for 4 seconds. The menu **#RESET** is displayed.
2. Set the following parameters:



C002296-B-04

Menu #RESET			
Choice of generator	**Parameter**		**Description**
GENERATOR	**RESET**	**TOTAL**	Performs a TOTAL RESET of all parameters
		EXCEPT PROG.	Performs a parameter RESET but retains the timer programmes
		PROG.	Performs a RESET on the timer programmes but retains the parameters
		SENSOR SCU	Performs a RESET of the generator sensors connected
		ROOM SENSOR	Performs a RESET of the room sensors connected



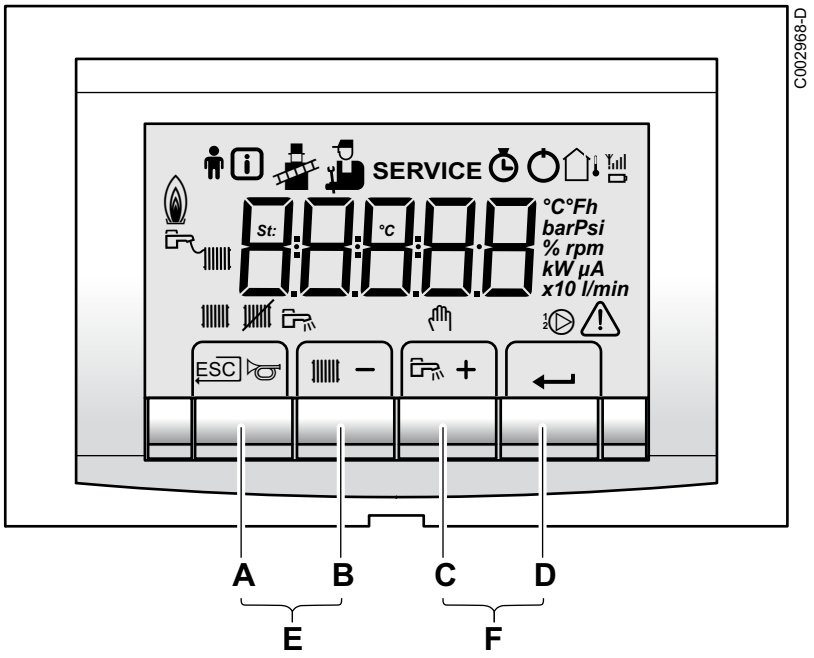
After reset (**TOTAL RESET** and **RESET EXCEPT PROG.**), the control system goes back to the display of the language choice after a few seconds.

1. Select the desired language by turning the rotary button.
2. To confirm, press the rotary button.

6 Commissioning - IniControl

6.1 Control panel

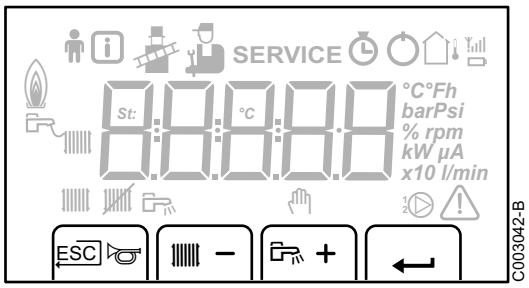
6.1.1. Description of the keys



A	Return button ⏎, Escape ESC or Manual reset
B	Heating temperature button ||||| or **[-]**
C	DHW temperature button or **[+]**
D	⏎ [Enter] Key
E	[Chimney-sweeping] keys Press keys **A** and **B** simultaneously
F	[Menu] keys Press keys **C** and **D** simultaneously

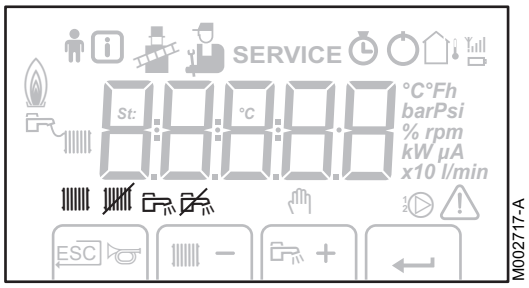
6.1.2. Description of the display

■ Key functions

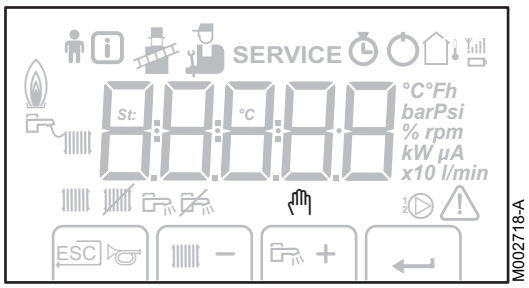


ESC	Back to the previous level without saving the modifications made
	Manual reset
	Central heating function: Access to the max. heating temperature parameter.
[-]	To reduce a value
	DHW function: Access to sanitary hot water temperature parameter.
[+]	To increase a value
↵	Access the selected menu or confirm a value modification

■ Operating modes

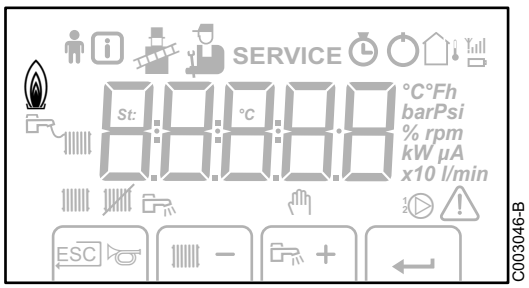


	State heating pump A
	Heating programme deactivated: The heating function is deactivated
	State DHW pump
	DHW deactivated



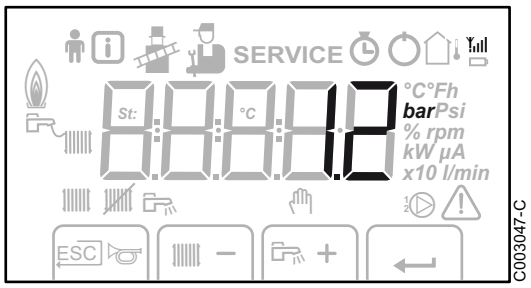
	Manual mode

■ Flame output level



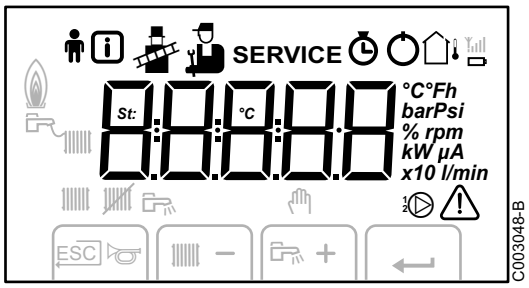
	Low output level 0 - 25 %
	Average output level 25 - 50 %
	High output level 50 - 75 %
	Output level 75 - 100 %

System pressure



bar Pressure indicator:
The symbol is displayed next to the installation's pressure value. If no water pressure sensor is connected, -.- appears on the display

Other information



User menu:
Parameters at user level can be changed

Information menu:
Reading the various current values

Chimney-sweeping position:
Forced full or part load for CO_2 measurement

Service menu:
Parameters at installer level can be changed

SERVICE Display with the symbols:
+ SERVICE + A (Maintenance message)

Hour counter menu:
Readout of the operating hours, number of successful starts and hours on mains supply

On/Off switch:
After 5 lock-outs, the device must be switched off/on again

Outside temperature sensor present

The symbol is displayed when the boiler pump is operating

Defect:
Boiler indicates a fault. This is signalled by a d. or L. code and a flashing display

6.2 Check points before commissioning

6.2.1. Preparing the boiler for commissioning

WARNING

Do not put the boiler into operation if the supplied gas is not in accordance with the approved gas types.

Preparatory procedure for boiler commissioning:

- Check that the gas type supplied matches the data shown on the boiler's data plate.

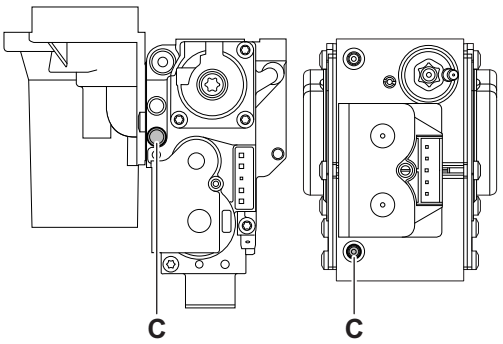
- Check the gas circuit.
- Check the hydraulic circuit.
- Check the water pressure in the heating system.
- Check the electrical connections to the thermostat and the other external controls.
- Check the other connections.
- Test the boiler at full load. Check the setting of the gas/air ratio and, if necessary, correct it.
- Test the boiler at part load. Check the setting of the gas/air ratio and, if necessary, correct it.
- Finalizing work.

6.2.2. Gas circuit

WARNING

Ensure that the boiler is switched off.

1. Open the main gas supply.
2. Open the gas valve on the boiler.
3. Unscrew the two screws located under the front panel by a quarter turn and remove the panel.
4. Tilt the control box forwards by opening the holding clips located at the sides.
5. Check the gas supply pressure at the pressure outlet **C** on the gas valve unit.



WARNING

To ascertain the gas types permitted, see chapter: "Equipment categories", page 8

6. Check the tightness of the gas connections made after the gas valve unit in the boiler.
7. Check the tightness of the gas line, including the gas valves. The test pressure must not exceed 60 mbar.
8. Purge the gas supply pipe within the boiler by unscrewing the pressure outlet on the gas block. Tighten the measurement point when the pipe has been sufficiently purged.
9. Check the tightness of the gas connections in the boiler.

6.2.3. Hydraulic circuit

- Check the syphon — this must be completely filled with clean water.
- Check that there are no leaks on the hydraulic connections.

6.2.4. Electrical connections

- Check the electrical connections.

6.3 Putting the appliance into operation

WARNING

If adapting to another gas type i.e. propane, the gas valve must be adjusted before switching on the boiler.

See chapter: "Adapting to another gas type", page 96

1. Tilt the control box upwards again and fasten it using the clips located at the sides.
2. Open the main gas supply.
3. Open the gas valve on the boiler.
4. Turn on the boiler using the on/off switch.
5. Set the controls (thermostats, control system) so that they request heat.
6. The start-up cycle begins and cannot be interrupted. During the start-up cycle, the display shows the following information:
   A short test where all segments of the display are visible.
   F□:XX : Software version
   P□:XX : Parameter version
   The version numbers are displayed alternately.
7. A vent cycle of a duration of around 3 minutes is carried out automatically.

If a DHW sensor is connected and the anti-legionella function is activated, the boiler starts to heat the water in the DHW tank as soon as the vent programme has been completed.

By pressing the ↵ key for a short time, the current operating status is shown on the display:

Heat demand	Heat demand stopped
1 : Fan ON	1 : Post-ventilation
2 : Boiler is igniting	5 : Burner stop
	6 : Post-circulation of the pump
3 : Heating System	0 : Standby

In addition to 0, in STAND-BY the display normally shows the water pressure and the symbols, and .

Error during the start-up procedure:

- No information is shown on the display:
  - Check the mains supply voltage
  - Check the main fuses
  - Check the fuses on the control panel:
    (F1 = 6,3 AT, F2 = 2 AT)
  - Check the connection of the mains lead to the connector **X1** in the instrument box
- A fault is indicated on the display by the fault symbol ⚠ and a flashing fault code.
  - The meaning of the error codes is given in the error table.
  - Press for 3 seconds on key RESET to restart the boiler.

If the economy setting (eco setting) is on, then, after central heating operation, the boiler will not start to run for hot tap water production.

6.4 Gas settings

6.4.1. Adapting to another gas type

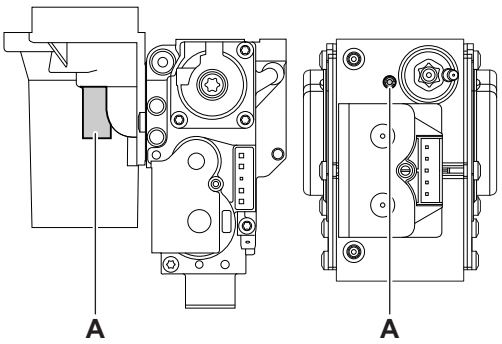
WARNING

Only a qualified engineer may carry out the following operations.

The boiler is preset in the factory to operate on natural gas H (G20).

For operation on another group of gases, carry out the following operations.

In case of functioning on propane:



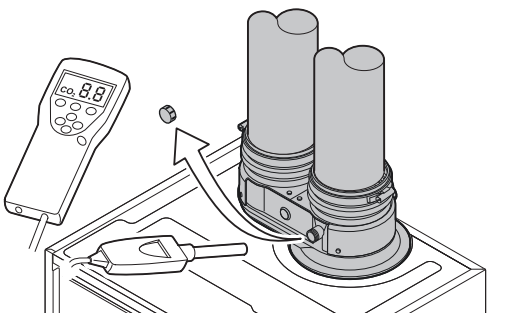
T003241-A

1.

Boiler type	For conversion to propane
MCA 45	Rotate the adjusting screw **A** on the venturi 4¾ turns in a clockwise direction
MCA 65	Rotate the adjusting screw **A** on the venturi 6½ turns in a clockwise direction
MCA 90	Fit the gas restrictor in the gas block
MCA 115	First turn the setting screw **A** clockwise until it is closed, then: Rotate the adjusting screw **A** on the gas block 3,5 - 4 turns in an anticlockwise direction

2. Regulate the fan speed as indicated in the table (if required). The setting can be modified using parameters P17, P18, P19 and P20:
See chapter: "Parameter descriptions", page 103
3. Set the air/gas ratio. For more detailed information on this subject, see the following paragraphs:
"Setting the air/gas ratio (Full load)", page 96
"Setting the air/gas ratio (Part load)", page 97

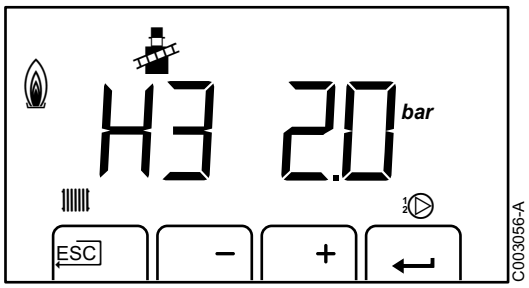
6.4.2. Setting the air/gas ratio (Full load)


T001581-B

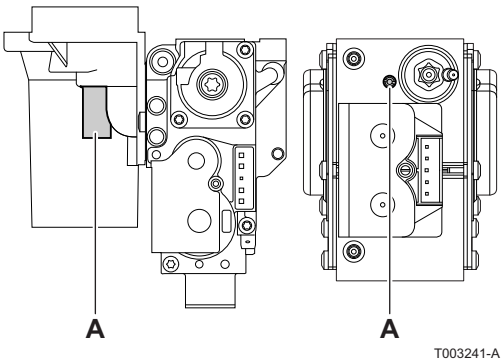
1. Unscrew the plug of the flue gas measurement point.
2. Connect the flue gas analyser.

WARNING

Ensure that the opening around the sensor is completely sealed when taking measurements.



3. Set the boiler to full load. Press keys **A** and **B** simultaneously. The display shows H3. The symbol appears.
4. Measure the percentage of O_2 or CO_2 in the flue gases.
5. Compare the values measured with the checking values given in the table (Front panel removed).

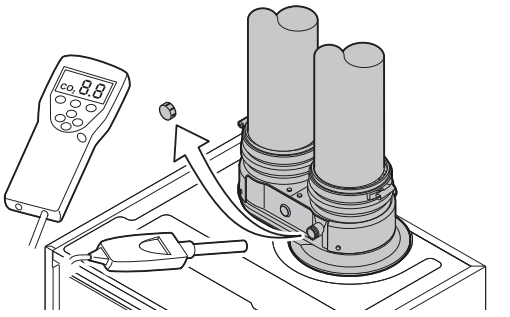


6. If necessary, adjust the gas/air ratio using the adjusting screw (**A**).

O_2/CO_2 control and setting values for gas H (G20) at full load				
Boiler type	**Setting value**		**Checking value**	
	O_2 (%)	**CO_2 (%)**	**O_2 (%)**	**CO_2 (%)**
MCA 45	4,8 ± 0,2	9,0 ± 0,1	4,8 ± 0,5	9,0 ± 0,2
MCA 65	4,8 ± 0,2	9,0 ± 0,1	4,8 ± 0,5	9,0 ± 0,2
MCA 90	3,9 ± 0,2	9,5 ± 0,1	3,9 ± 0,5	9,5 ± 0,2
MCA 115	4,7 ± 0,2	9,1 ± 0,1	4,7 ± 0,5	9,1 ± 0,2

O_2/ CO_2 control and setting values for propane (G31) at full load				
Boiler type	**Setting value**		**Checking value**	
	O_2 (%)	**CO_2 (%)**	**O_2 (%)**	**CO_2 (%)**
MCA 45	4,6 ± 0,2	10,7 ± 0,1	4,6 ± 0,5	10,7 ± 0,2
MCA 65	4,6 ± 0,2	10,7 ± 0,1	4,6 ± 0,5	10,7 ± 0,2
MCA 90	4,6 ± 0,2	10,7 ± 0,1	4,6 ± 0,5	10,7 ± 0,2
MCA 115	4,9 ± 0,2	10,5 ± 0,1	4,9 ± 0,5	10,5 ± 0,2

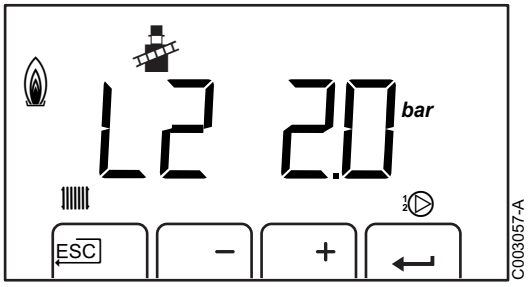
6.4.3. Setting the air/gas ratio (Part load)



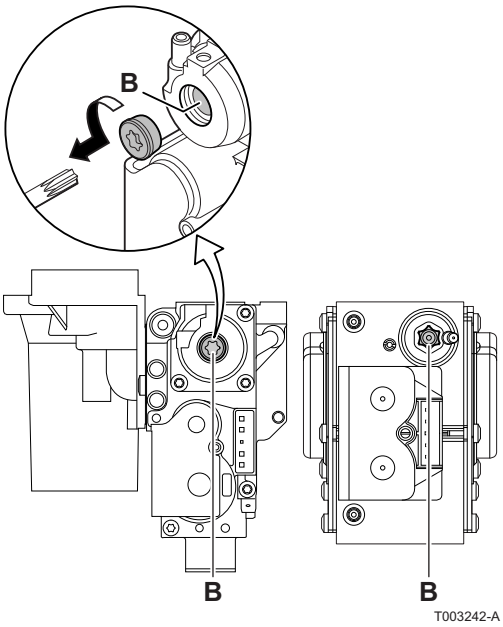
1. Unscrew the plug of the flue gas measurement point.
2. Connect the flue gas analyser.

WARNING

Ensure that the opening around the sensor is completely sealed when taking measurements.



3. Set the boiler to part load. Press the **[-]** key several times until L2 is displayed on the screen.
4. Measure the percentage of O_2 or CO_2 in the flue gases.
5. Compare the values measured with the checking values given in the table (Front panel removed).



6. If necessary, adjust the gas/air ratio using the adjusting screw (**B**).

O_2/CO_2 control and setting values for gas H (G20) at low speed				
Boiler type	**Setting value**		**Checking value**	
	O_2 (%)	**CO_2 (%)**	**O_2 (%)**	**CO_2 (%)**
MCA 45	4,8 ± 0,2	9,0 ± 0,1	4,8 ± 0,5	9,0 ± 0,2
MCA 65	4,8 ± 0,2	9,0 ± 0,1	4,8 ± 0,5	9,0 ± 0,2
MCA 90	3,9 ± 0,2	9,5 ± 0,1	3,9 ± 0,5	9,5 ± 0,2
MCA 115	4,3 ± 0,2	9,3 ± 0,1	4,3 ± 0,5	9,3 ± 0,2

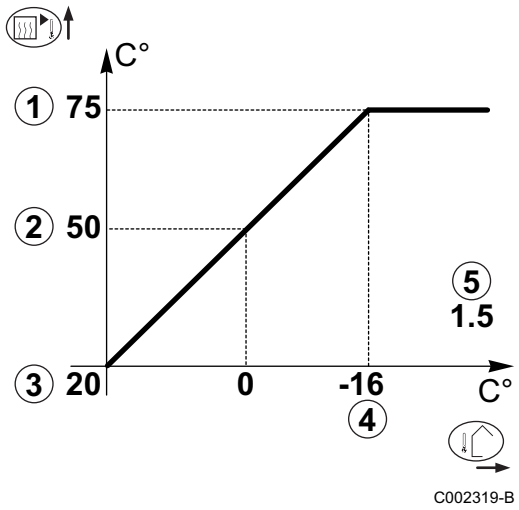
O_2/CO_2 control and setting values for propane (G31) at low speed				
Boiler type	**Setting value**		**Checking value**	
	O_2 (%)	**CO_2 (%)**	**O_2 (%)**	**CO_2 (%)**
MCA 45	4,6 ± 0,2	10,7 ± 0,1	4,6 ± 0,5	10,7 ± 0,2
MCA 65	4,6 ± 0,2	10,7 ± 0,1	4,6 ± 0,5	10,7 ± 0,2
MCA 90	4,6 ± 0,2	10,7 ± 0,1	4,6 ± 0,5	10,7 ± 0,2
MCA 115	4,9 ± 0,2	10,5 ± 0,1	4,9 ± 0,5	10,5 ± 0,2

6.5 Checks and adjustments after commissioning

6.5.1. Setting the heating curve

1. Press the two keys simultaneously and then key **[+]** until the symbol ⚠ flashes on the menu bar.
2. Select the installers menu using the key ↵. CodE appears on the display.
3. Use keys **[-]** or **[+]** to input the installer code 0012.
4. Press key [+] until the symbol is displayed.
5. Press the [+] key until 5:3 is displayed

■ Heating curve without BCT



① Maximum temperature of the circuit P.1

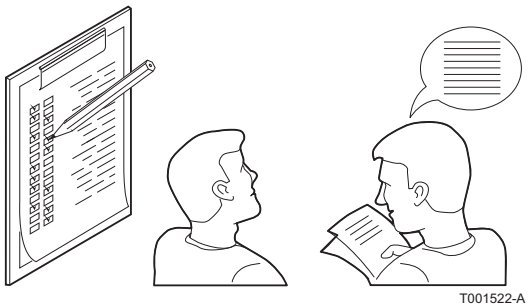
② Water temperature in the circuit for an outside temperature of 0°C

③ **DAY** set point on the circuit S.1

④ Outside temperature for which the maximum water temperature in the circuit is reached

⑤ Value of the heating curve
This value corresponds to the parameter S.3

6.5.2. Finalizing work



1. Remove the measuring equipment.
2. Put the flue gas sampling plug back in place.
3. Refit the front panel. Tighten the two screws by a quarter turn.
4. Push key ↵ to return the boiler to normal operating mode.
5. Raise the temperature in the heating system to approximately 70°C.
6. Shut down the boiler.
7. After about 10 minutes, vent the air in the heating system.
8. Checking the hydraulic pressure. If necessary, top up the water level in the heating system (recommended hydraulic pressure between 1,5 and 2 bar).
9. Tick the gas category used on the data plate.
10. Explain the operation of the installation, the boiler and the regulator to the users.
11. Inform the user of the periodicity of maintenance work to be carried out. Input the service date and the contact details of the installer.
12. Give all the instruction manuals to the user.

Commissioning of the boiler is now complete.

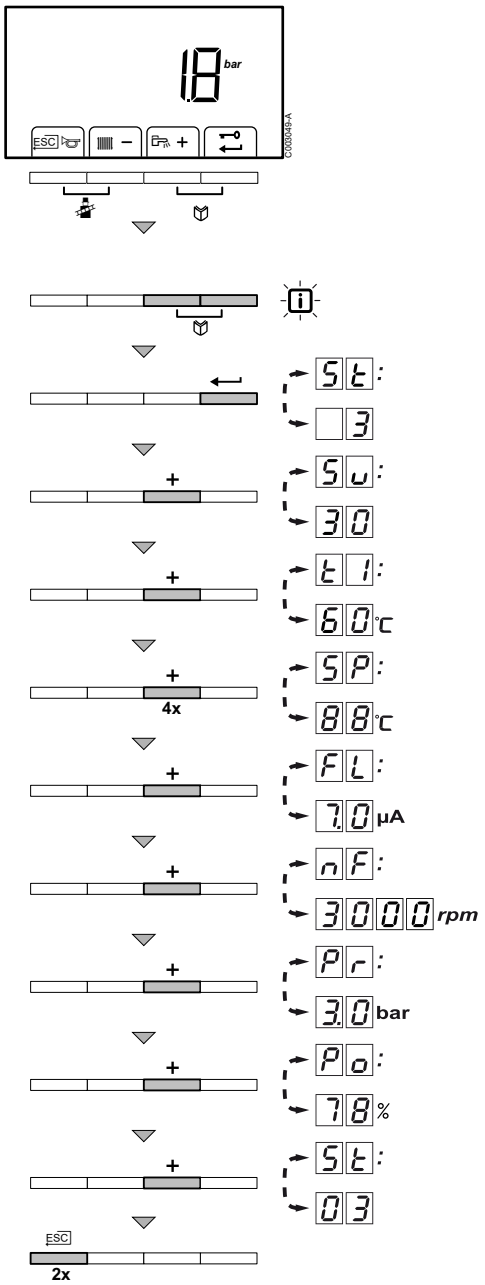
The various boiler parameters are preset in the factory. These factory settings are suitable for the most common heating systems. For other systems and situations, the parameters can be modified.

6.6 Reading out measured values

6.6.1. Reading out measured values

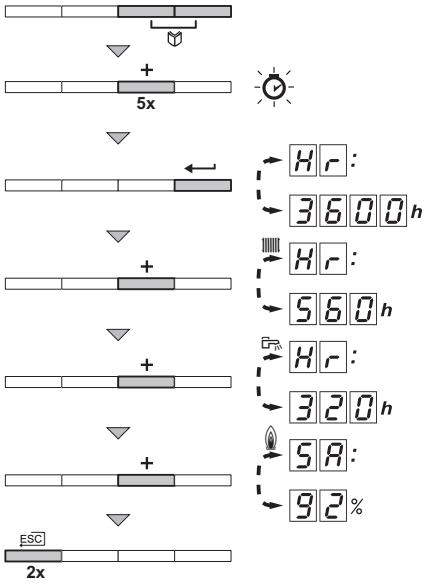
The following current values can be read off the information menu ⓘ:

- St = State.
- Su = Sub-status.
- t1 = Supply temperature (°C).
- t2 = Return temperature (°C).
- t3 = Calorifier temperature (°C).
- t4 = Outside temperature (°C).
- t5 = Solar boiler temperature (°C).
- SP = Internal set point (°C).
- FL = Ionization current (µA).
- nF = Fan speed in rpm.
- Pr = Water pressure (bar).
- Po = Supplied relative heat output (%).



The current values can be read as follows:

1. Press the two keys simultaneously. The symbol flashes.
2. Confirm using key ↵. St is displayed, alternating with the current status 3 (for example).
3. Press the **[+]** key. Su is displayed, alternating with the current sub-status 30 (for example).
4. Press the **[+]** key. t1 is displayed, alternating with the current flow temperature 60°C (for example).
5. Press the **[+]** key successively to scroll down the various parameters. t2, t3, t4, t5 .
6. Press the **[+]** key. SP is displayed, alternating with the internal set point 88°C (for example).
7. Press the **[+]** key. FL is displayed, alternating with the current ionization current 7.0 µA (for example).
8. Press the **[+]** key. nF is displayed, alternating with the current fan rotation speed 3000 rpm (for example).
9. Press the **[+]** key. Pr is displayed, alternating with the current water pressure 3.0 bar (for example). If no water pressure sensor is connected, **[-.-]** appears on the display.
10. Press the **[+]** key. Po is displayed, alternating with the current modulation percentage 78 % (for example).
11. Press the **[+]** key. The readout cycle starts again with St.
12. Press the ⮌ key 2 times to return to the current operating mode.



6.6.2. Readout from the hour counter and percentage of successful starts

1. Press the two keys simultaneously and then key **[+]** until the symbol flashes on the menu bar.
2. Press the key. Hr and the number of hours of boiler operation 3600 (for example) are displayed alternately.
3. Press the **[+]** key. The display shows . Hr is displayed, alternating with the number of operating hours in central heating operation 560 (for example).
4. Press the **[+]** key. The display shows . Hr is displayed, alternating with the number of operating hours used for heating tap water 320 (for example).
5. Press the **[+]** key. The display shows . SA is displayed, alternating with the percentage of successful starts 92 % (for example).
6. Press the key 2 times to return to the current operating mode.

6.6.3. Status and sub-status

The information menu gives the following status and sub-status numbers:

State St		Sub-status Su	
0	Rest	0	Rest
1	Boiler start (Heat demand)	1	Anti-hunting
		2	Control three-way valve
		3	Start pump
		4	Wait for the correct temperatures for burner start
2	Burner start	10	Open flue gas damper/external gas valve
		11	Increase fan speed
		13	Pre-ventilation
		14	Wait for release signal
		15	Burner on
		17	Pre-ignition
		18	Main ignition
		19	Flame detection
		20	Intermediate ventilation
3	Burner for central heating operation	30	Temperature control
		31	Limited temperature control (ΔT safety)
		32	Output control
		33	Temperature protection gradient level 1 (Modulate down)
		34	Temperature protection gradient level 2 (Part load)
		35	Temperature protection gradient level 3 (Blockage)
		36	Modulate up for flame control
		37	Temperature stabilisation time
		38	Cold start

State St		Sub-status Su	
4	DHW mode running	30	Temperature control
		31	Limited temperature control (ΔT safety)
		32	Output control
		33	Temperature protection gradient level 1 (Modulate down)
		34	Temperature protection gradient level 2 (Part load)
		35	Temperature protection gradient level 3 (Blockage)
		36	Modulate up for flame control
		37	Temperature stabilisation time
		38	Cold start
5	Burner stop	40	Burner off
		41	Post ventilation
		42	Close flue gas damper/external gas valve
		43	Recirculation protection
		44	Stop fan
6	Boiler stop (End of heat demand)	60	Pump post circulation
		61	Pump off
		62	Control three-way valve
		63	Start anti-hunting
8	Control stop	0	Wait for burner start
		1	Anti-hunting
9	Blocking	XX	Shutdown code XX
17	Bleed	0	Rest
		2	Control three-way valve
		3	Start pump
		61	Pump off
		62	Control three-way valve

6.7 Changing the settings

The boiler control panel is set for the most common heating systems. With these settings, practically all heating systems operate correctly. The user or installer can optimise the parameters according to own preferences.

6.7.1. Parameter descriptions

Parameter	Description	Adjustment range	Factory setting			
			MCA			
			45	65	90	115
P1	Maximum outlet temperature	20 to 90 °C	80	80	80	80
P2	Domestic hot water temperature	40 to 65 °C	60	60	60	60
P3	Heating / DHW mode	Do not modify	1	1	1	1
P4	ECO mode	Do not modify	2	2	2	2
P5	Anticipation resistance	Do not modify	0	0	0	0
P6	Display screen	Do not modify	2	2	2	2
P7	Post-circulation of the boiler pump connected to the PCU	1 to 98 minutes 99 minutes = continuous	3	3	3	3

(1) Do not modify these factory settings unless absolutely necessary.

Parameter	Description	Adjustment range	Factory setting			
			MCA			
			45	65	90	115
P8	Brightness of display lighting	Do not modify	1	1	1	1
P17	Maximum fan speed (Heating)	Natural gas H (G20)(1) (x100 rpm)	56	58	62	70
		Natural gas L (G25) (x100 rpm)	56	58	62	70
		Propane (G31) (x100 rpm)	56	58	60	67
P18	Maximum fan speed (DHW)	Natural gas H (G20)(1) (x100 rpm)	56	58	62	70
		Natural gas L (G25) (x100 rpm)	56	58	62	70
		Propane (G31) (x100 rpm)	56	58	60	67
P19	Minimum fan speed (Heating+DHW)	Natural gas H (G20)(1) (x100 rpm)	15	16	15	18
		Natural gas L (G25) (x100 rpm)	15	16	15	18
		Propane (G31) (x100 rpm)	15	16	22	18
P20	Minimum fan speed (offset)	Do not modify	50	0	50	0
P21	Start speed	Do not modify (x100 rpm)	25	25	25	25
P22	Minimum water pressure	0 - 3 bar(x 0,1 bar)	8	8	8	8
P23	Maximum flow temperature of system	0 to 90 °C	90	90	90	90
P24	Anti-hunting differential for central heating operation	-15 to 15 °C	3	3	3	3
P25	Heat curve set point (Maximum outside temperature)	Do not modify	20	20	20	20
P26	Heat curve set point (Supply temperature)	Do not modify	20	20	20	20
P27	Heat curve set point (Minimum outside temperature)	Do not modify	-15	-15	-15	-15
P28	Minimum pump speed for central heating operation Setting the pump speed	2 - 10 (x 10 %)	4	4	4	4
P29	Maximum pump speed for central heating operation Setting the pump speed	2 - 10 (x 10 %)	10	10	10	10
P30	Antifreeze temperature	Do not modify	-10	-10	-10	-10
P31	Legionella protection	Do not modify	1	1	1	1
P32	Set point increase for calorifier	Do not modify	20	20	20	20
P33	DHW cut-in temperature DHW sensor	Do not modify	5	5	5	5
P34	Control of three-way valve	Do not modify	0	0	0	0
P35	Boiler type	0 = Heating only 1 = Open vented 2 = Solo (progressive DHW regulation)	0	0	0	0
P36	Shutdown input function	0 = Heating activated 1 = Shutdown without frost-protection 2 = Shutdown with frost protection 3 = Lock-out with frost protection (Pump only)	1	1	1	1
P37	Release function	Do not modify	1	1	1	1

(1) Do not modify these factory settings unless absolutely necessary.

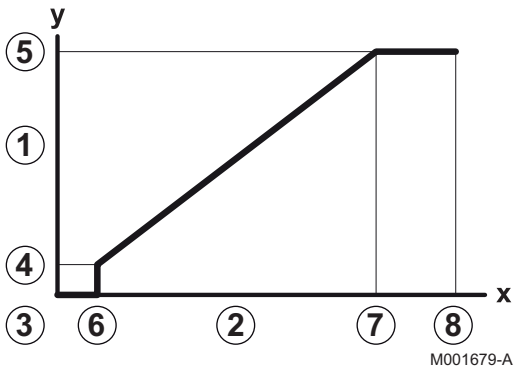
Parameter	Description	Adjustment range	Factory setting			
			MCA			
			45	65	90	115
P38	Release waiting time	0 to 255 seconds	0	0	0	0
P39	Flue gas flap switching time	0 to 255 seconds	0	0	0	0
P40	Fault relay function (Optional)	0 = Operation signal 1 = Alarm signal	1	1	1	1
P41	GpS connected (Optional)	0 = Not connected 1 = Connected	0	0	0	0
P42	HRU connected (Optional)	0 = Not connected 1 = Connected	0	0	0	0
P43	Neutral inversion detection L/N	0 = Stop 1 = Start	0	0	0	0
P44	Maintenance message	Do not modify	1	1	1	1
P45	Service operating hours	Do not modify	175	175	175	175
P46	Service burning hours	Do not modify	30	30	30	30
P47	Modulating startpoint	10 - 40 (°C)	25	25	25	25
P48	DHW stabilisation time	10 - 100 (s)	100	100	100	100
P49	Display units	0 = °C/bar 1 = °F/psi	1	1	1	1
S01	Desired room temperature	5 to 30 °C	20	20	20	20
S02	Shutdown time delay on heating pump A	0 to 15 minutes	4	4	4	4
S03	Heating curve of the circuit A	0 to 40 (x0.1)	15	15	15	15
S04	Anti-freezing protection temperature	-8 to 10 °C -9 °C = Off	3	3	3	3
S05	Charging priority	0 = Interruption of heating during domestic hot water production 1 = Not used 2 = Heating and domestic hot water production in parallel if the hydraulic connection allows	0	0	0	0
S06	Time delay on the DHW pump	2 to 15 minutes	2	2	2	2
S07	Primary DHW temperature	50 to 90 °C	80	80	80	80
S08	Antilegionellosis	0 = Anti-legionella function not activated 1 = The tank is overheated every day from 4 o'clock to 5 o'clock 2 = The tank is overheated every Saturday from 4 o'clock to 5 o'clock	0	0	0	0
S09	Activating the control at 0-10 V	0 = OFF 1 = Temperature 2 = Output	0	0	0	0
S10	Voltage corresponding to the instruction set minimum	0 to 10 V	0.5	0.5	0.5	0.5
S11	Voltage corresponding to the instruction set maximum	0 to 10 V	10	10	10	10
S12	Minimum set point temperature or output	0 to 100	5	5	5	5
S13	Maximum set point temperature or output	5 to 100	100	100	100	100
S14	Cascade	0 = The boiler is not assembled in cascade 1 = System in cascade	0	0	0	0
S15	Address of the secondary boilers (cascade)	2 to 10	2	2	2	2
S16	Inspection	Do not modify	0	0	0	0

(1) Do not modify these factory settings unless absolutely necessary.

Parameter	Description	Adjustment range	Factory setting			
			MCA			
			45	65	90	115
S18	Activation of the TAS function	0 = Deactivation 1 = Activation	1	1	1	1
S19	Telephone input	0 = Anti-freeze (Start anti-freeze in boiler command) 1 = **0/1 A** (ON or OFF contact: **E.TEL:** can be used as an antifreeze activation inlet on circuit A) 2 to 161 = Do not use See table below.	0	0	0	0
S20	Contact direction of telephone input	0 = Closed 1 = Open See table below.	0	0	0	0
S21	Summer/winter setting	15 to 30 °C = Used to set the outside temperature above which heating will be shut down 30.5 °C = Heating is never shut down automatically	22	22	22	22
Ad	Detection of connected SCUs	0 = No detection 1 = Detection	0	0	0	0
dF and dU	Factory setting	To return to the factory settings or if replacing the PCU PCB, enter values dF and dU from the nameplate in parameters dF and dU	X Y	X Y	X Y	X Y
rE	Total reset	Performs a TOTAL RESET of all SCU parameters				
(1) Do not modify these factory settings unless absolutely necessary.						

Influence of the parameter setting S20 on the S19 contact			
S20	S19	☎ contact closed	☎ contact open
0 = Closed	0 = Anti-freeze	The antifreeze mode is active on all boiler circuits.	The mode selected on the boiler is active.
	1 = **0/1 A**	The mode selected on the circuit is active.	The antifreeze mode is active on the circuit concerned.
1 = Open	0 = Anti-freeze	The mode selected on the boiler is active.	The antifreeze mode is active on all boiler circuits.
	1 = **0/1 A**	The antifreeze mode is active on the circuit concerned.	The mode selected on the circuit is active.

0-10 V function:
This function controls the boiler using an external system that includes a 0-10 V output connected to the 0-10 V input. This command imposes a temperature or output instruction on the boiler. It will be necessary to ensure that the parameter **BOILER MAX** is higher than **CONS.MAX 0-10V**.



1	Instruction set outlet temperature (°C)
2	Power input signal (V) - DC
3	0 V
4	S.12
5	S.13
6	S.10
7	S.11
8	10 V
x	Voltage at input

y Boiler temperature / Boiler output

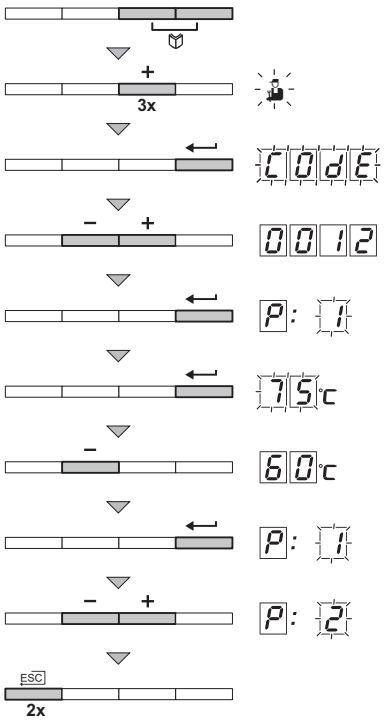
If the input voltage is less than **VMIN/OFF 0-10V**, the boiler is off. The boiler temperature setting corresponds strictly to the 0-10 V input. The secondary boiler circuits continue to operate but have no impact on the water temperature in the boiler. If using the 0-10 V input and a secondary boiler circuit, the external regulator providing this 0-10 V power supply must always request a temperature at least equal to the needs of the secondary circuit.

6.7.2. Modification of the installer-level parameters

Parameters P17 to dF must only be modified by a qualified professional. To prevent unwanted settings, some parameter settings can only be changed after the special access code 0012 is entered.

CAUTION

Modification of the factory settings may be detrimental to the functioning of the appliance.

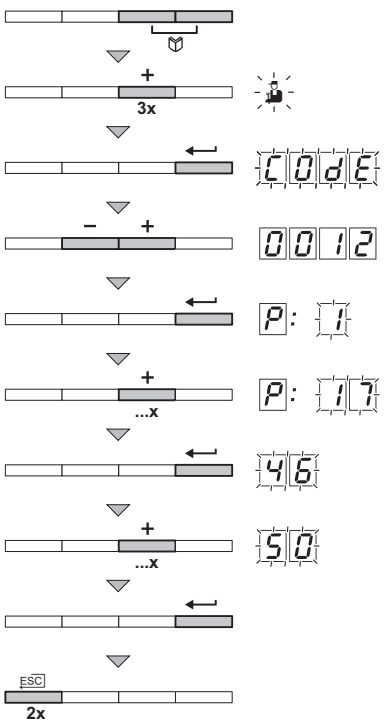


1. Press the two keys simultaneously and then key **[+]** until the symbol flashes on the menu bar.
2. Select the fitter menu using the ↵ key. CODE appears on the display.
3. Use keys **[-]** or **[+]** to input the installer code 0012.
4. Confirm using key ↵. P:1 is displayed with 1 flashing.
5. Press the ↵ key a second time. The value 75°C appears and flashes (for example).
6. Change the value by pressing the **[-]** or **[+]** key. In this example using key **[-]** to 60°C.
7. Confirm the value with the ↵ key: P:1 is displayed with 1 flashing.
8. If necessary, set other parameters by selecting them using the **[-]** or **[+]** keys.
9. Press the ⮌ key 2 times to return to the current operating mode.

The boiler also returns to operating status if no keys are pressed for 3 minutes.

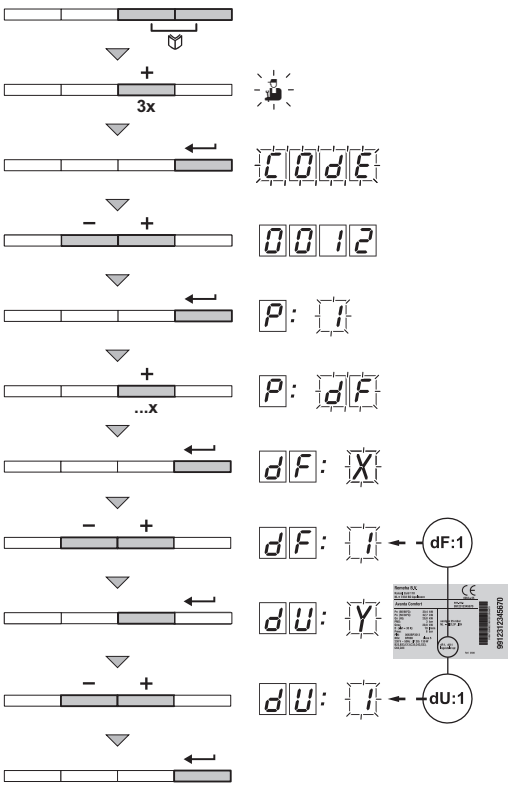
6.7.3. Setting the maximum heat input for central heating operation

The speed can be changed using parameter P17. To do this, proceed as follows:



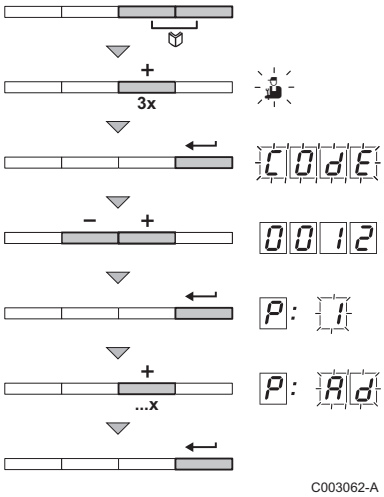
1. Press the two keys simultaneously and then key **[+]** until the symbol flashes on the menu bar.
2. Select the installers menu using the key ↵. CODE appears on the display.
3. Use keys **[-]** or **[+]** to input the installer code 0012.
4. Confirm using key ↵. P:1 is displayed with 1 flashing.
5. Press the **[+]** key to go to parameter P:17.
6. Confirm using key ↵.
7. Press the **[+]** key to increase the speed from 46 to, for example, 50 (see the graphs for the associated heat output).
8. Confirm the value with the ↵ key.
9. Press the ⮌ key 2 times to return to the current operating mode.

6.7.4. Return to the factory settings Reset Param



1. Press the two keys simultaneously and then key **[+]** until the symbol flashes on the menu bar.
2. Select the installers menu using the key ↵. CODE appears on the display.
3. Use keys **[-]** or **[+]** to input the installer code 0012.
4. Confirm using key ↵. P:1 is displayed with 1 flashing.
5. Press the **[+]** key several times. P:dF is displayed with dF flashing.
6. Press the ↵ key. dF:X is displayed with X flashing. This is the current value of X for dF. Check this against the value of X on the type plate.
7. Enter the value of X shown on the type plate using the **[-]** or **[+]** key.
8. Confirm the value with the ↵ key, dF:Y is displayed with Y flashing. This is the current value of Y for dU. Check this against the value of Y on the type plate.
9. Enter the value of Y shown on the type plate using the **[-]** or **[+]** key.
10. Confirm the value with the ⮌ key. The factory settings are reset.
11. The display returns to the current operating mode.

6.7.5. Carrying out an auto-detect



After removing a control PCB, an auto-detect must be carried out. To do this, proceed as follows:

1. Press the two keys simultaneously and then key **[+]** until the symbol flashes on the menu bar.
2. Select the installers menu using the key ⟵. CODE appears on the display.
3. Use keys **[-]** or **[+]** to input the installer code 0012.
4. Confirm using key ⟵. P: 1 is displayed with 1 flashing.
5. Press the **[+]** key several times. P: Ad is displayed with Ad flashing.
6. Confirm using key ⮐. Auto-detect is carried out.
7. The display returns to the current operating mode.

7 Switching off the boiler - DIEMATIC iSystem

7.1 Installation shutdown

CAUTION

Do not switch off the mains supply to the appliance. If the central heating system is not used for a long period, we recommend activating the **HOLIDAYS** mode (to ensure the anti-grip of the heating pump).

7.2 Frost protection

CAUTION

- The antifreeze protection does not function if the appliance is switched off.
- The integrated protection system only protects the boiler, not the installation. To protect the installation, set the appliance to **HOLIDAYS** mode.

The **HOLIDAYS** mode protects:

- The installation if the outside temperature is lower than 3°C (factory setting).
- The room temperature if a remote control is connected and the room temperature is lower than 6 °C (factory setting).
- The domestic hot water tank if the tank temperature is lower than 4 °C (the water is reheated to 10 °C).

To configure the holidays mode: Refer to the user instructions.

8 Switching off the boiler - IniControl

8.1 Installation shutdown

CAUTION

Do not switch off the boiler.

If the central heating system is not used for a long period, we recommend proceeeding as follows:

- Press key until **OFF** is displayed.
- Press key until **OFF** is displayed.

8.2 Frost protection

When the heating water temperature in the boiler is too low, the integrated boiler protection system starts up. This protection functions as follows:

- If the water temperature is lower than 7°C, the heating pump starts up.
- If the water temperature is lower than 4°C, the boiler starts up.
- If the water temperature is higher than 10°C, the boiler shuts down and the circulation pump continues to run for a short time.
- If the water temperature in the storage tank is less than 4°C, it is reheated to its set point.

9 Checking and maintenance

9.1 General instructions

WARNING

- Maintenance operations must be done by a qualified engineer.
- An annual inspection is compulsory.
- Only original spare parts must be used.

- Have the flues swept **at least once a year** or more, depending on the regulations in force in your country.
  See chapter: "Chimney sweep instructions", page 112
- Carry out the inspection and standard maintenance operations once a year.
  See chapter: "Standard inspection and maintenance operations", page 115
- Carry out specific maintenance operations if necessary.
  See chapter: "Specific maintenance operations", page 120

9.2 Chimney sweep instructions

CAUTION

Have the flues swept **at least once a year** or more, depending on the regulations in force in your country. Only a qualified engineer may carry out the following operations.

9.2.1. DIEMATIC iSystem control panel

1. Press the key.
2. Check the combustion each time the flues are swept.
   See chapter: "Setting the air/gas ratio (Full load)", page 65 + "Setting the air/gas ratio (Part load)", page 66
3. To go back to the main display, press key ⌐2 times.

Menu #EMISSION MEASUREMENTS				
Generator	**Function available**	**Description**	**Values displayed**	
Generator name	**AUTO**	normal operation	**BOILER TEMP.** **CURRENT** **WIND SPEED** **BACK TEMP**	°C µA rpm °C
	PMIN	Operating at minimum output	**BOILER TEMP.** **CURRENT** **WIND SPEED** **BACK TEMP**	°C µA rpm °C
	PMAX	Operating at maximum output	**BOILER TEMP.** **CURRENT** **WIND SPEED** **BACK TEMP**	°C µA rpm °C

9.2.2. IniControl control panel

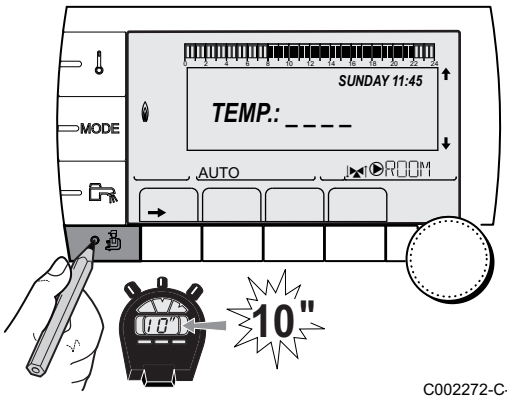
1. Press keys ⌐ and ||||| simultaneously.
2. Check the combustion each time the flues are swept.
   ☞ See chapter: "Setting the air/gas ratio (Full load)", page 96 + "Setting the air/gas ratio (Part load)", page 97
3. To go back to the normal display, press button ⌐.

Menu #EMISSION MEASUREMENTS			
Function available	**Description**	**Values displayed**	
L.8.	Operating at minimum output	System pressure	bar
H.8.	Operating at maximum output	System pressure	bar

9.3 Customising maintenance

Maintenance customisation is only possible with the DIEMATIC iSystem control panel.

9.3.1. Maintenance message



C002272-C-04

The boiler incorporates a function that can be used to display a maintenance message. To set the parameters for this function, proceed as follows:

1. Access the "After Sales" level: Hold down the key until **#PARAMETERS** is displayed.
2. Select the menu **#REVISION**.

- Turn the rotary button to scroll through the menus or modify a value.
- Press the rotary button to access the selected menu or confirm a value modification.

For a detailed explanation of menu browsing, refer to the chapter: "Browsing in the menus", page 60

3. Set the following parameters:

After Sales level - Menu #REVISION		
Parameter	**Adjustment range**	**Description**
TYPE	**NO**	Factory setting No message indicating that maintenance is necessary
	MANU	Recommended setting Signals that maintenance is necessary on the date selected. Set the date using the parameters below.
	AUTO	⚠ Not applicable. Do not select this setting.
REVISION HOUR(1)	0 to 23	Time at which the **REVISION** display appears
REV. YEAR(1)	2008 to 2099	Year in which the **REVISION** display appears
REVIS. MONTH(1)	1 to 12	Month in which the **REVISION** display appears
REVISION DATE(1)	1 to 31	Day on which the **REVISION** display appears
(1) The parameter is only displayed if **MANU** is configured.		

Clearing the maintenance message:

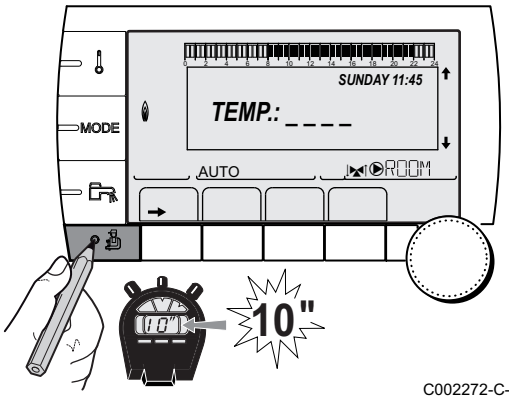
After carrying out the maintenance operations, modify the date in the **#REVISION** menu to clear the message.

In the event of maintenance before the maintenance message is displayed:

After carrying out early maintenance operations, it is necessary to set a new date in the **#REVISION** menu.

9.3.2. Contact details of the professional for After Sales Support

In order to assist the user if an error or service message is displayed, it is possible to provide the contact details of the professional to be contacted. To input the professional's contact details, proceed as follows:



C002272-C-04

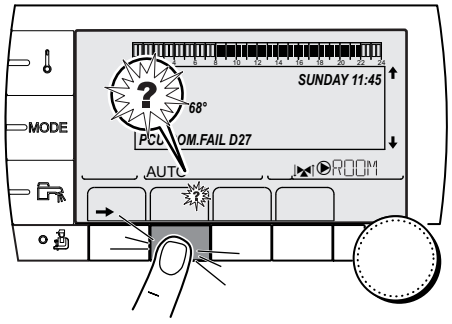
1. Access the "After Sales" level: Hold down the key until **#PARAMETERS** is displayed.
2. Select the menu **#SUPPORT**.

- Turn the rotary button to scroll through the menus or modify a value.
- Press the rotary button to access the selected menu or confirm a value modification.

For a detailed explanation of menu browsing, refer to the chapter: "Browsing in the menus", page 60

3. Set the following parameters:

After Sales level - Menu #SUPPORT	
Parameter	**Description**
NAME	Input the installer's name
TELEPHONE NUM.	Input the installer's telephone number



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When the message **REVISION** is displayed, press **?** to display the professional's telephone number.

9.4 Standard inspection and maintenance operations

CAUTION

- During inspection and maintenance operations, always replace all gaskets on the parts removed.
- If the device is subjected to intensive use at high temperatures (flow temperature > 80°C), the level of stress placed on several parts will be higher than during normal use. You should therefore carefully check parts such as the non-return valve, flue gas pipe, air inlet pipe and siphon. Replace parts if required.

9.4.1. Checking the hydraulic pressure

The hydraulic pressure must reach a minimum of 0,8 bar. .

If the hydraulic pressure is lower than 0.8 bar:

- DIEMATIC iSystem control panel: The symbol **bar** flashes.
- IniControl control panel: The pressure value is displayed on the screen.

The hydraulic pressure must reach a minimum of 0,8 bar.
If the hydraulic pressure is lower than 0.8 bar, the symbol **bar** flashes.

If necessary, top up the water level in the heating system (recommended hydraulic pressure between 1,5 and 2 bar).

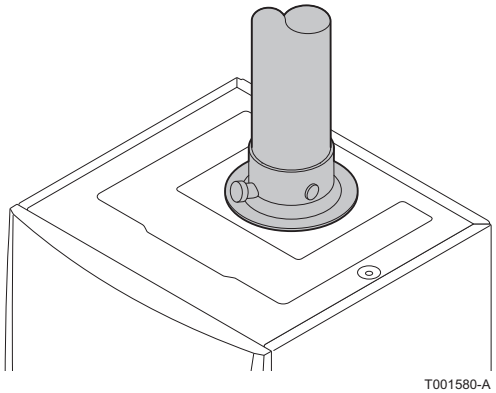
9.4.2. Checking the ionization current

Check the ionization current at full load and low load. The value is stable after 1 minute. If the value is less than 4 µA, clean or replace the ignition electrode.

- **DIEMATIC iSystem control panel**:
  The ionization current is displayed in the menu **#MEASURES**.
  See chapter: "Reading out measured values", page 76
- **IniControl control panel**:
  See chapter: "Reading out measured values", page 100

The ionization current is displayed in the menu **#MEASURES**.
See chapter: "Reading out measured values", page 76

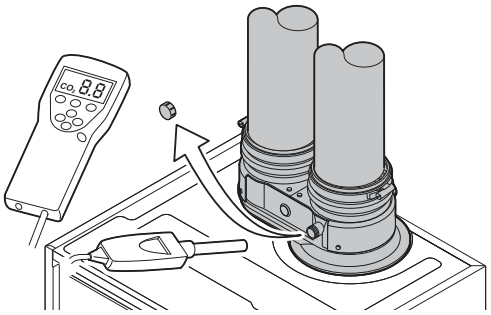
9.4.3. Checking the tightness of the flue gas evacuation and air inlet connections


T001580-A

- Check the tightness of the flue gases evacuation and air inlet connections.

9.4.4. Checking combustion

DIEMATIC iSystem control panel


T001581-B

The check on combustion is done by measuring the percentage of O_2/CO_2 in the flue gas discharge flue. To do this, proceed as follows:

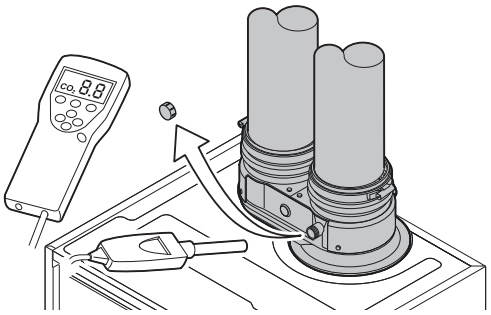
1. Unscrew the plug of the flue gas measurement point.
2. Connect the flue gas analyser.

CAUTION

Ensure that the opening around the sensor is completely sealed when taking measurements.

3. Set the boiler to full load.
See chapter: "Setting the air/gas ratio (Full load)", page 65
The boiler is now operating at full load. Measure the percentage of CO_2 and compare this value with the checking values given.
4. Set the boiler to part load.
See chapter: "Setting the air/gas ratio (Part load)", page 66.
The boiler is now operating on part load. Measure the percentage of CO_2 and compare this value with the checking values given.

IniControl control panel


T001581-B

The check on combustion is done by measuring the percentage of O_2/CO_2 in the flue gas discharge flue. To do this, proceed as follows:

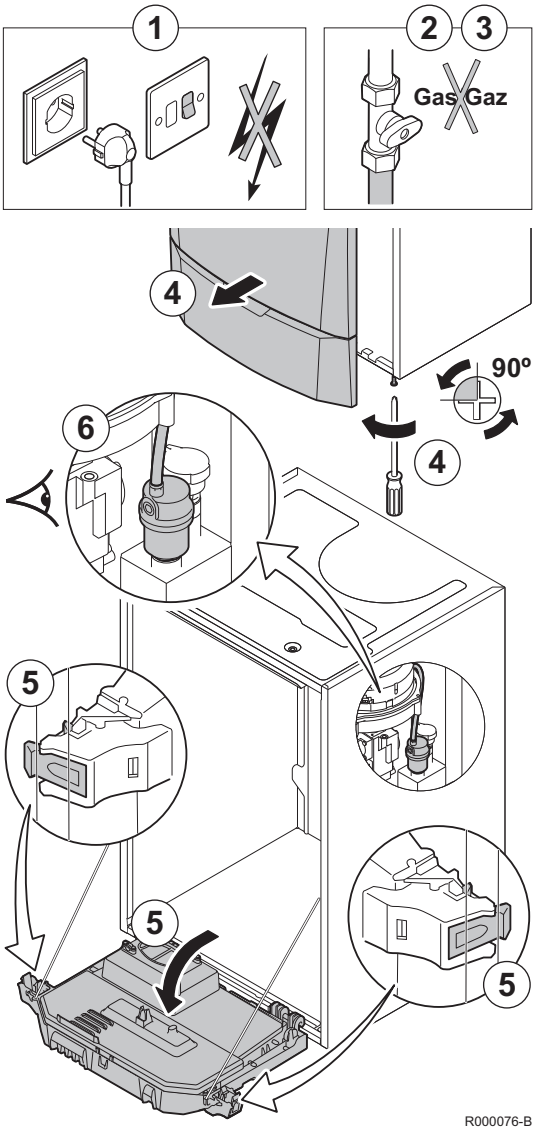
1. Unscrew the plug of the flue gas measurement point.
2. Connect the flue gas analyser.

CAUTION

Ensure that the opening around the sensor is completely sealed when taking measurements.

3. Set the boiler to full load.
See chapter: "Setting the air/gas ratio (Full load)", page 96
The boiler is now operating at full load. Measure the percentage of CO_2 and compare this value with the checking values given.
4. Set the boiler to part load.
See chapter: "Setting the air/gas ratio (Part load)", page 97.
The boiler is now operating on part load. Measure the percentage of CO_2 and compare this value with the checking values given.

9.4.5. Checking the automatic air vent

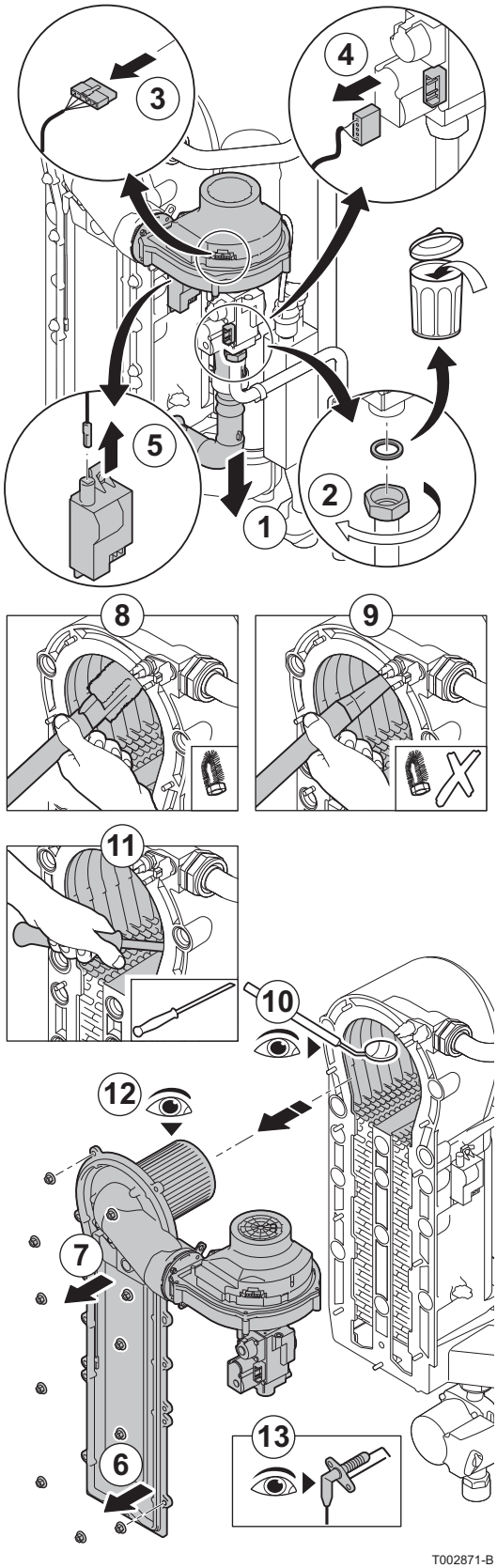


1. Switch off the boiler electrical power supply.
2. Close the gas valve on the boiler.
3. Close the main gas inlet valve.
4. Unscrew the two screws located under the front panel by a quarter turn and remove the panel.
5. Tilt the control box forwards by opening the holding clips located at the sides.
6. Check whether there is any water in the small hose on the automatic air vent.
7. If any leaks are detected, replace the air vent.

9.4.6. Checking the siphon

1. Remove the siphon and clean it.
2. Fill the siphon with water.
3. Put the siphon back in place.

9.4.7. Checking the burner and cleaning the heat exchanger



CAUTION

During inspection and maintenance operations, always replace all gaskets on the parts removed.

1. Remove the air inlet flue on the venturi.
2. Loosen the union on the gas block.
3. Remove the plugs from the fan.
4. Remove the plugs from the gas block.
5. Remove the ignition electrode plug from the ignition transformer.
6. Remove the front plate from the heat exchanger
7. Carefully lift the front plate including the burner and fan from the heat exchanger.
8. Use a vacuum cleaner fitted with a special endpiece (accessory) to clean the top part of the heat exchanger (combustion chamber).
9. Thoroughly clean with the vacuum cleaner again without the top cleaning brush on the endpiece.
10. Check (using a mirror, for example) whether any dust can still be seen. If so, hoover it up.
11. Clean the lowermost part of the heat exchanger with the special cleaning knife (accessory).
12. The burner does not require any maintenance, it is self-cleaning. If necessary, clean the cylindrical burner using compressed air. Check that there are no cracks and/or other tears on the surface of the dismantled burner. If this is not the case, replace the burner.
13. Checking the ignition electrode / ionization sensor.
14. To re-assemble, perform the above actions in reverse order.

CAUTION

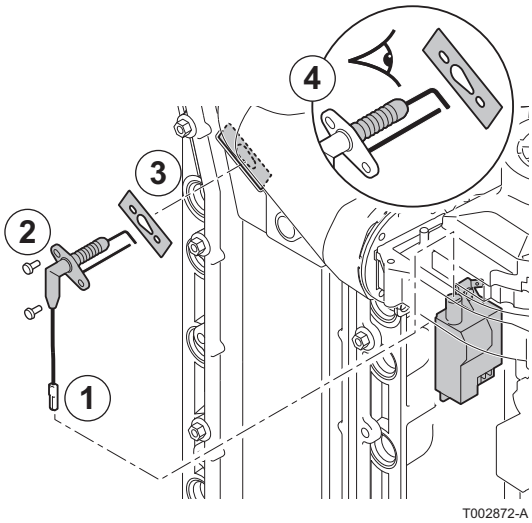
- Remember to reconnect the connector to the fan.
- Check that the gasket is correctly positioned between the mixing elbow and the heat exchanger. (Completely flat in the appropriate groove means it is leak proof).

15. Open the gas inlet valves and switch on the mains supply to the boiler.

9.5 Specific maintenance operations

If the standard inspection and maintenance operations have revealed the necessity to carry out additional maintenance work, proceed as follows, depending on the nature of the work:

9.5.1. Inspection of the ignition electrode

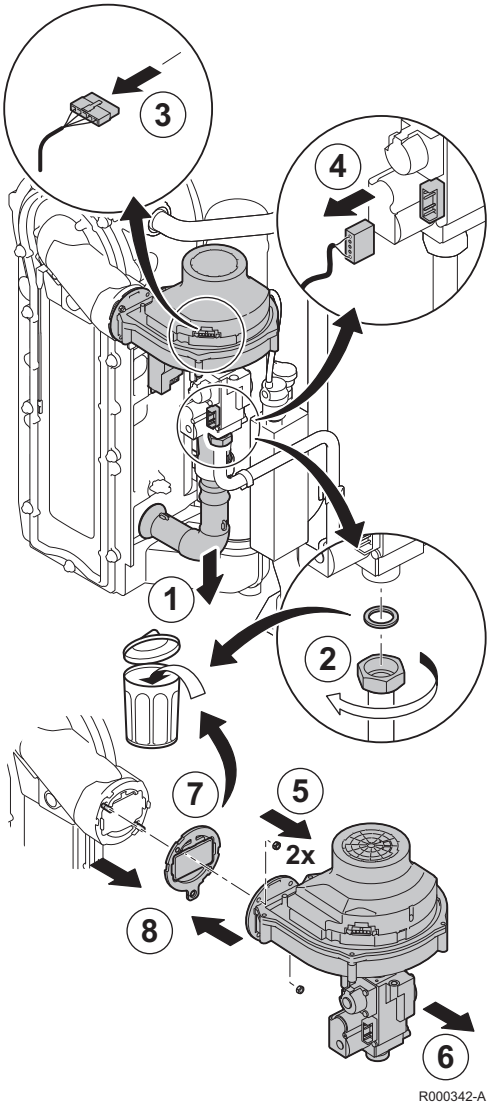


1. Remove the ignition electrode plug from the ignition transformer.

The ignition cable is fixed to the ignition electrode and therefore may not be removed.

2. Unscrew the 2 screws. Remove the unit.
3. Wipe off all traces of deposits using an abrasive cloth.
4. Check the ignition electrode for wear. Replace if necessary.
5. Check the gasket.
6. Refit all parts, replacing those that are damaged.

9.5.2. Replacing the non-return valve



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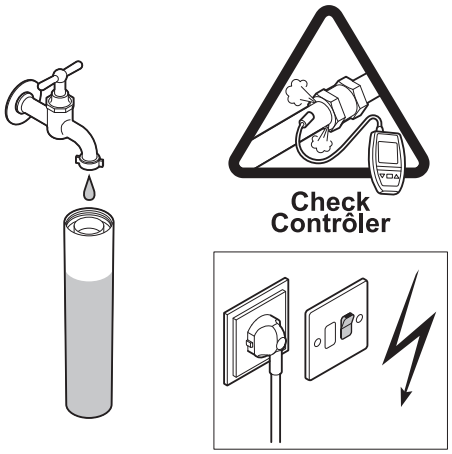
Replace the nonreturn valve when faulty or when the maintenance kit contains one. To do this, proceed as follows:

1. Remove the air inlet flue on the venturi.
2. Loosen the union on the gas block.
3. Remove the plugs from the fan.
4. Remove the plugs from the gas block.
5. Dismantle the fan.
6. Completely remove the fan/mixing elbow unit.
7. Replace the non-return valve located between the mixing elbow and the fan.
8. To re-assemble, perform the above actions in reverse order.

9.5.3. Assembling the boiler



T002874-C

1. Follow the procedure in reverse to re-assemble all of the components.

CAUTION

During inspection and maintenance operations, always replace all gaskets on the parts removed.

2. Fill the siphon with water.
3. Put the siphon back in place.
4. Carefully open the main water valve, fill the installation, vent it and, if need be, top it up with water.
5. Check the seals on the gas and water connections.
6. Switch the boiler back on.

10 Troubleshooting

10.1 Anti-hunting

This display only concerns boilers with the DIEMATIC iSystem control panel.

When the boiler is in Anti-short-cycle operating mode, the symbol **?** flashes.

1. Press the "?" key.
   The message **Operation assured when the restart temperature will be reached** is displayed.

This message is not an error message but an item of information.

10.2 Messages (Code type Bxx or Mxx)

In the case of failure, the control panel displays a message and a corresponding code.

1. Make a note of the code displayed.
   The code is important for the correct and rapid diagnosis of the type of failure and for any technical assistance that may be needed.
2. Switch the boiler off and switch back on.
   The boiler starts up again automatically when the reason for the blocking has been removed.
3. If the code is displayed again, correct the problem by following the instructions in the table below:

Depending on the control panel, the message display is different:

- DIEMATIC iSystem control panel: The code and the message are displayed.
- IniControl control panel: Only the code is displayed.

Code	Messages	Description	Checking / solution
B00	**BL.CRC.PSU**	The PSU PCB is incorrectly configured	Parameter error on the PSU PCB ▸ DIEMATIC iSystem: Set the type of generator again in the menu **#CONFIGURATION** (Refer to the original rating plate) ▸ IniControl: Revert to the factory settings: ☞ See chapter "Return to the factory settings Reset Param", page 108
B01	**BL.MAX BOILER**	Maximum flow temperature exceeded	The water flow in the installation is insufficient ▸ Check the circulation (direction, pump, valves)
B02	**BL.HEATING SPEED**	The increase in flow temperature has exceeded its maximum limit	The water flow in the installation is insufficient ▸ Check the circulation (direction, pump, valves) ▸ Check the water pressure ▸ Check the cleanliness of the heat exchanger
			Sensor error ▸ Check that the sensors are operating correctly ▸ Check whether the boiler sensor has been correctly fitted
B07	**BL.DT OUTL RET.**	Maximum difference between the flow and return temperature exceeded	The water flow in the installation is insufficient ▸ Check the circulation (direction, pump, valves) ▸ Check the water pressure ▸ Check the cleanliness of the heat exchanger
			Sensor error ▸ Check that the sensors are operating correctly ▸ Check whether the boiler sensor has been correctly fitted
B08	**BL.RL OPEN**	The **RL** inlet on the PCU PCB terminal block is open	Parameter error ▸ DIEMATIC iSystem: Set the type of generator again in the menu **#CONFIGURATION** (Refer to the original rating plate) ▸ IniControl: Revert to the factory settings: ☞ See chapter "Return to the factory settings Reset Param", page 108
			Bad connection ▸ Check the wiring
B09	**BL.INV. L/N**	▸ DIEMATIC iSystem: Set the type of generator again in the menu **#CONFIGURATION** (Refer to the original rating plate) ▸ IniControl: Revert to the factory settings: ☞ See chapter "Return to the factory settings Reset Param", page 108	
B10 **B11**	**BL.BL INPUT OPEN**	The **BL** inlet on the PCU PCB terminal block is open	The contact connected to the **BL** inlet is open ▸ Check the contact on the **BL** inlet
			Parameter error ▸ Check the parameter **IN.BL**
			Bad connection ▸ Check the wiring
B13	**BL. PCU COM** **BL.COM PCU-D4**	Communication error with the SCU PCB	Bad connection ▸ Check the wiring
			SCU PCB not installed in the boiler ▸ Install an SCU PCB
B14	**BL.WATER MIS.**	The water pressure is lower than 0,8 bar	Not enough water in the circuit ▸ Top up the installation with water

Code	Messages	Description	Checking / solution
B15	**BL.GAS PRESS**	Gas pressure too low	Incorrect setting of the gas pressure switch on the SCU PCB ▸ Check that the gas valve is fully opened ▸ Checking the gas supply pressure ▸ Check whether the gas pressure control system has been correctly fitted ▸ Replace the gas pressure control system if need be
B16	**BL.BAD SU**	The SU PCB is not recognised	Wrong SU PCB for this boiler ▸ Replace the SU PCB
B17	**BL.PCU ERROR**	The parameters saved on the PCU PCB are impaired	Parameter error on the PCU PCB ▸ Replace the PCU PCB
B18	**BL.BAD PSU**	The PSU PCB is not recognised	Wrong PSU PCB for this boiler ▸ Replace the PSU PCB
B19	**BL.NO CONFIG**	The boiler has not been configured	The PSU PCB has been changed ▸ DIEMATIC iSystem: Set the type of generator again in the menu **#CONFIGURATION** (Refer to the original rating plate) ▸ IniControl: Revert to the factory settings: ☞ See chapter "Return to the factory settings Reset Param", page 108
B21	**BL. COM SU**	Communication error between the PCU and SU PCBs	Bad connection ▸ Check that the SU PCB has been correctly put in place on the PCU PCB ▸ Replace the SU PCB
B22	**BL.FLAME LOS**	No flame during operation	No ionization current ▸ Purge the gas supply to remove air ▸ Check that the gas valve is fully opened ▸ Check the supply pressure ▸ Check the operation and setting of the gas valve unit ▸ Check that the air inlet and flue gas discharge flues are not blocked ▸ Check that there is no recirculation of flue gases
B25	**BL.SU ERROR**	Internal error on the SU PCB	▸ Replace the SU PCB
B26	**BL.DHW. S.**	The DHW tank sensor is disconnected or short circuited	▸ Set the type of generator again in the menu **#CONFIGURATION** (See nameplate) ▸ Check that the sensor is actually connected to the **P.DHW** inlet on the SCU ▸ Check the Ohmic value of the sensor. Replace it if necessary ▸ Check the wiring
B27	**BL.DHW INST**	The sensor on the plate exchanger outlet is disconnected or short circuited	▸ Set the type of generator again in the menu **#CONFIGURATION** (See nameplate) ▸ Check that the sensor is actually connected to the X20 inlet on the PCU ▸ Check the Ohmic value of the sensor. Replace it if necessary ▸ Check the wiring
M04	**REVISION**	A service is required	The date programmed for the service has been reached ▸ Carry out maintenance on the boiler ▸ To clear the inspection, programme another date in the menu **#REVISION** or set the parameter **REVISION TYPE** to **OFF**
M05	**REVISION A**	An A, B or C service is required	The date programmed for the service has been reached ▸ Carry out maintenance on the boiler ▸ To clear the inspection, press key ☜
M06	**REVISION B**		
M07	**REVISION C**		

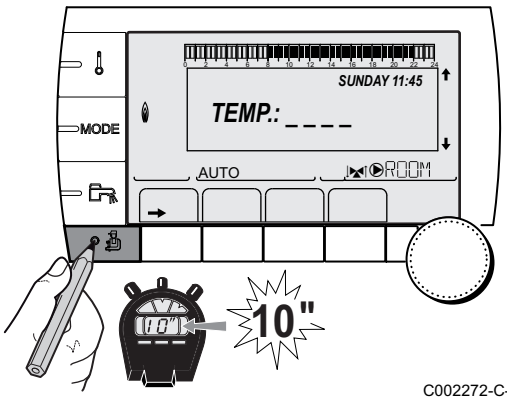
Code	Messages	Description	Checking / solution
M20	**DISGAS**	A boiler vent cycle is underway	Switching the boiler on ▸ Wait 3 minutes
	FL.DRY.B XX DAYS **FL.DRY.C XX DAYS** **FL.DRY.B+C XX DAYS**	Floor drying is active **XX** DAYS = Number of days' floor drying remaining.	Floor drying is underway. Heating on the circuits not concerned is shut down. ▸ Wait for the number of days shown to change to 0 ▸ Set the parameter **SCREED DRYING** to **OFF**
M23	**CHANGE OUTSI.S**	The outside temperature sensor is defective.	Change the outside radio temperature sensor.
	STOP N XX	The shutdown is active **XX** = Number of the active shutdown	A shutdown is underway. The circuits selected for this stop are in Antifreeze mode during the period chosen. ▸ Wait until the end date has been passed ▸ Set the parameter **STOP N XX** to **OFF**

10.3 Message history

10.3.1. DIEMATIC iSystem control panel

The menu (#MESSAGE HISTORIC) is used to consult the last 10 messages displayed by the control panel.

1. Access the "After Sales" level: Hold down the key until **#PARAMETERS** is displayed.
2. Select the menu (#MESSAGE HISTORIC).



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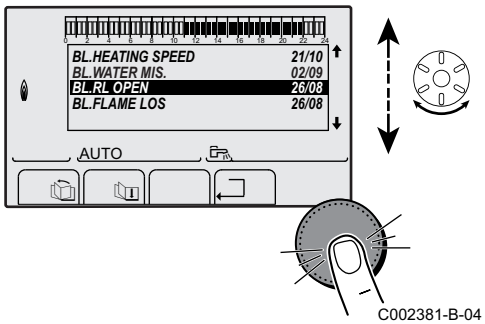
- Turn the rotary button to scroll through the menus or modify a value.
- Press the rotary button to access the selected menu or confirm a value modification.

For a detailed explanation of menu browsing, refer to the chapter: "Browsing in the menus", page 60

3. The list of the last 10 messages is displayed.



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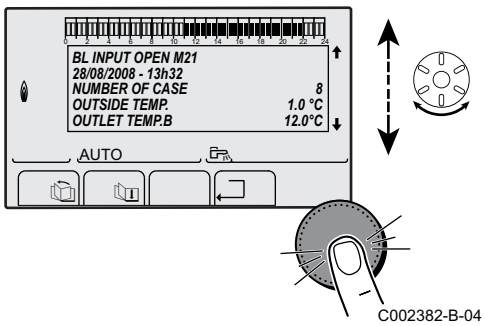


4. Select a message to consult the information pertaining to it.

10.3.2. IniControl control panel

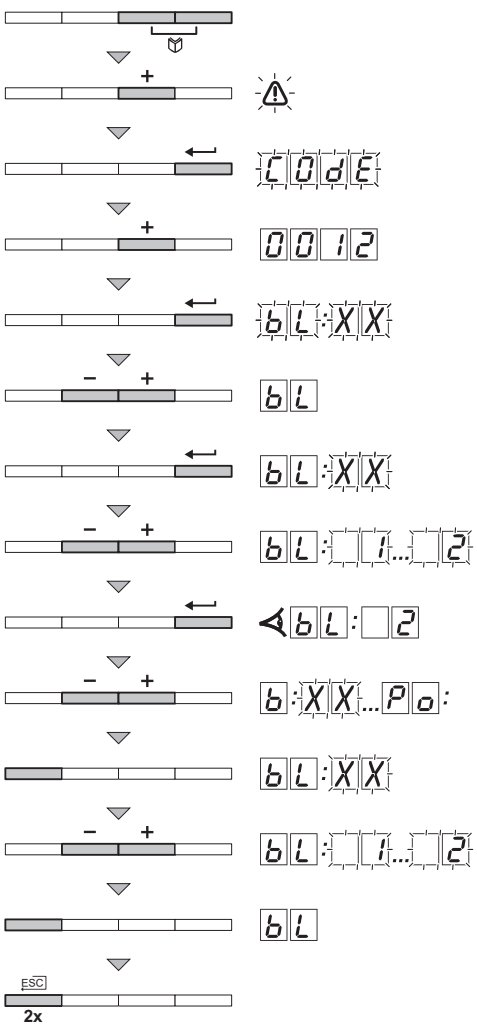
The boiler control is equipped with an error memory. The last 16 errors encountered are recorded in this memory.

In addition to the error codes, the following data are also saved:

- Number of times that the error occured: (n□:XX).
- The flow temperature (t1:XX) and the return temperature (t2:XX) when the error occured.

To view the error memory, you first have to enter access code 0012.

■ Reading the memorised messages



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1. Press the two keys simultaneously and then key **[+]** until the symbol flashes on the menu bar.
2. Select the installers menu using the key ↵. CodE appears on the display.
3. Use keys **[-]** or **[+]** to input the installer code 0012.
4. Press the ↵ key. Er:XX appears on the display.
5. Confirm using key ↵. bL:XX is displayed with XX flashing = Last error which occured, For example 2 .
6. Use the **[-]** or **[+]** key to scroll through the faults or shutdowns.
7. Press the ↵ key to display the details of the faults or shutdowns.
8. Press the **[-]** or **[+]** key to view the following information:
   n:1 = Number of times that the error occured.
   Hr = The number of operating hours.
   t1 = Supply temperature (°C).
   t2 = Return temperature (°C).
   t3 = Calorifier temperature (°C).
   t4 = Outside temperature (°C) (Only with an outside temperature sensor).
   FL = Ionization current (µA).
   nF = Fan speed in rpm.
   Pr = Water pressure (bar).
9. Press the ⮌ key to interrupt the display cycle. bL:XX is displayed with XX flashing = Last error which occured.
10. Press ⮌ times on the key 2 to exit the error memory.

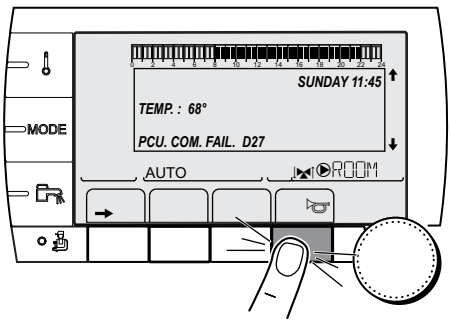
10.4 Faults (Code type Lxx or Dxx)

In the event of operational failure, the control panel flashes and displays an error message and a corresponding code.

Depending on the control panel, the message display is different:

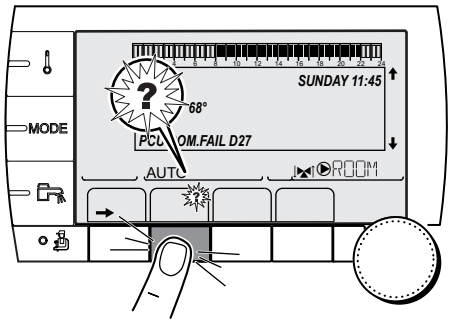
- DIEMATIC iSystem control panel: The code and the message are displayed.
- IniControl control panel: Only the code is displayed.

10.4.1. DIEMATIC iSystem control panel



C002604-B-04

1. Make a note of the code displayed.
   The code is important for the correct and rapid diagnosis of the type of failure and for any technical assistance that may be needed.
2. Press the key. If the code is displayed again, switch off the boiler and then switch it back on.



C002302-D-04

3. Press the **?** key. Follow the instructions displayed to solve the problem.
4. Consult the meaning of the codes in the table below:

10.4.2. IniControl control panel

1. Make a note of the code displayed.
   The code is important for the correct and rapid diagnosis of the type of failure and for any technical assistance that may be needed.
2. Press the key. If the code is displayed again, switch off the boiler and then switch it back on.

10.4.3. List of faults

Code	Faults	Cause of the fault	Description	Checking / solution
L00	**PSU FAIL**	PCU	PSU PCB not connected	Bad connection ▸ Check the wiring between the PCU and PSU PCBs
				PSU PCB faulty ▸ Replace the PSU PCB
L01	**PSU PARAM FAIL**	PCU	The safety parameters are incorrect	Bad connection ▸ Check the wiring between the PCU and PSU PCBs
				PSU PCB faulty ▸ Replace the PSU PCB

Code	Faults	Cause of the fault	Description	Checking / solution
L02	**DEF.OUTLET S.**	PCU	The boiler flow sensor has short-circuited	Bad connection ▸ Check the wiring between the PCU PCB and the sensor ▸ Check that the SU PCB is correctly in place ▸ Check that the sensor has been correctly fitted
				Sensor fault ▸ Check the Ohmic value of the sensor ▸ Replace the sensor if necessary
L03	**DEF.OUTLET S.**	PCU	The boiler flow sensor is on an open circuit	Bad connection ▸ Check the wiring between the PCU PCB and the sensor ▸ Check that the SU PCB is correctly in place ▸ Check that the sensor has been correctly fitted
				Sensor fault ▸ Check the Ohmic value of the sensor ▸ Replace the sensor if necessary
L04	**DEF.OUTLET S.**	PCU	Boiler temp too low	Bad connection ▸ Check the wiring between the PCU PCB and the sensor ▸ Check that the SU PCB is correctly in place ▸ Check that the sensor has been correctly fitted
				Sensor fault ▸ Check the Ohmic value of the sensor ▸ Replace the sensor if necessary
				No water circulation ▸ Vent the air in the heating system ▸ Check the circulation (direction, pump, valves) ▸ Check the water pressure ▸ Check the cleanliness of the heat exchanger
L05	**STB OUTLET**	PCU	Boiler temperature too high	Bad connection ▸ Check the wiring between the PCU PCB and the sensor ▸ Check that the SU PCB is correctly in place ▸ Check that the sensor has been correctly fitted
				Sensor fault ▸ Check the Ohmic value of the sensor ▸ Replace the sensor if necessary
				No water circulation ▸ Vent the air in the heating system ▸ Check the circulation (direction, pump, valves) ▸ Check the water pressure ▸ Check the cleanliness of the heat exchanger

Code	Faults	Cause of the fault	Description	Checking / solution
L06	**BACK S.FAILURE**	PCU	The return temperature sensor has short-circuited	Bad connection ▸ Check the wiring between the PCU PCB and the sensor ▸ Check that the SU PCB is correctly in place ▸ Check that the sensor has been correctly fitted
				Sensor fault ▸ Check the Ohmic value of the sensor ▸ Replace the sensor if necessary
L07	**BACK S.FAILURE**	PCU	The return temperature sensor is on an open circuit	Bad connection ▸ Check the wiring between the PCU PCB and the sensor ▸ Check that the SU PCB is correctly in place ▸ Check that the sensor has been correctly fitted
				Sensor fault ▸ Check the Ohmic value of the sensor ▸ Replace the sensor if necessary
L08	**BACK S.FAILURE**	PCU	Return temperature too low	Bad connection ▸ Check the wiring between the PCU PCB and the sensor ▸ Check that the SU PCB is correctly in place ▸ Check that the sensor has been correctly fitted
				Sensor fault ▸ Check the Ohmic value of the sensor ▸ Replace the sensor if necessary
				No water circulation ▸ Vent the air in the heating system ▸ Check the circulation (direction, pump, valves) ▸ Check the water pressure ▸ Check the cleanliness of the heat exchanger
L09	**STB BACK**	PCU	Return temperature too high	Bad connection ▸ Check the wiring between the PCU PCB and the sensor ▸ Check that the SU PCB is correctly in place ▸ Check that the sensor has been correctly fitted
				Sensor fault ▸ Check the Ohmic value of the sensor ▸ Replace the sensor if necessary
				No water circulation ▸ Vent the air in the heating system ▸ Check the circulation (direction, pump, valves) ▸ Check the water pressure ▸ Check the cleanliness of the heat exchanger

Code	Faults	Cause of the fault	Description	Checking / solution
L10	**DEP-RET>MAX**	PCU	Difference between the flow and return temperatures insufficient	Sensor fault ▸ Check the Ohmic value of the sensor ▸ Replace the sensor if necessary
				Bad connection ▸ Check that the sensor has been correctly fitted
				No water circulation ▸ Vent the air in the heating system ▸ Check the circulation (direction, pump, valves) ▸ Check the water pressure ▸ Check the cleanliness of the heat exchanger ▸ Check that the heating pump is operating correctly
L11	**RET-DEP>MAX**	PCU	Difference between the flow and return temperatures too great	Sensor fault ▸ Check the Ohmic value of the sensor ▸ Replace the sensor if necessary
				Bad connection ▸ Check that the sensor has been correctly fitted
				No water circulation ▸ Vent the air in the heating system ▸ Check the circulation (direction, pump, valves) ▸ Check the water pressure ▸ Check the cleanliness of the heat exchanger ▸ Check that the heating pump is operating correctly
L12	**STB OPEN**	PCU	Maximum boiler temperature exceeded (STB thermostat maximum)	Bad connection ▸ Check the wiring between the PCU PCB and the STB ▸ Check that the SU PCB is correctly in place ▸ Check the electrical continuity of the STB ▸ Check whether the STB has been correctly fitted
				Sensor fault ▸ Replace the STB if necessary
				No water circulation ▸ Vent the air in the heating system ▸ Check the circulation (direction, pump, valves) ▸ Check the water pressure ▸ Check the cleanliness of the heat exchanger

Code	Faults	Cause of the fault	Description	Checking / solution
L14	**BURNER FAILURE**	PCU	5 burner start-up failures	No ignition ▸ Check the wiring between the PCU PCB and the ignition transformer ▸ Check that the SU PCB is correctly in place ▸ Check the ionization/ignition electrode ▸ Check the earthing ▸ SU PCB faulty: Change the PCB
				Ignition arc, but no flame formation ▸ Vent the gas flues ▸ Check that the gas valve is fully opened ▸ Checking the gas supply pressure ▸ Check the operation and setting of the gas valve unit ▸ Check that the air inlet and flue gas discharge flues are not blocked ▸ Check the wiring on the gas valve unit ▸ SU PCB faulty: Change the PCB
				Presence of the flame but insufficient ionization (<3 µA) ▸ Check that the gas valve is fully opened ▸ Checking the gas supply pressure ▸ Check the ionization/ignition electrode ▸ Check the earthing ▸ Check the wiring on the ionization/ignition electrode
L16	**PARASIT FLAME**	PCU	Detection of a parasite flame	Ionization current present when there should not be a flame Ignition transformer defective ▸ Check the ionization/ignition electrode
				Gas valve defective ▸ Check the gas valve and replace if necessary
				The burner remains very hot: CO_2 too high ▸ Set the CO_2
L17	**VALVE FAIL**	PCU	Problem on the gas valve	Bad connection ▸ Check the wiring between the PCU PCB and the gas valve ▸ Check that the SU PCB is correctly in place
				SU PCB faulty ▸ Inspect the SU PCB and replace it if need be
L34	**FAN FAILURE**	PCU	The fan is not running at the right speed	Bad connection ▸ Check the wiring between the PCU PCB and the fan
				Fan defective ▸ Check for adequate draw on the chimney connection ▸ Replace the fan if need be

Code	Faults	Cause of the fault	Description	Checking / solution
L35	**BACK>BOIL FAIL**	PCU	Flow and return reversed	Bad connection ▸ Check that the sensor has been correctly fitted
				Sensor fault ▸ Check the Ohmic value of the sensors ▸ Replace the sensor if necessary
				Water circulation direction reversed ▸ Check the circulation (direction, pump, valves)
L36	**I-CURRENT FAIL**	PCU	The flame went out more than 5 times in 24 hours while the burner was operating	No ionization current ▸ Purge the gas supply to remove air ▸ Check that the gas valve is fully opened ▸ Checking the gas supply pressure ▸ Check the operation and setting of the gas valve unit ▸ Check that the air inlet and flue gas discharge flues are not blocked ▸ Check that there is no recirculation of flue gases
L37	**SU COM.FAIL**	PCU	Communication failure with the SU PCB	Bad connection ▸ Check whether the SU PCB has been correctly fitted into the connector on the PCU PCB ▸ Change the SU PCB
L38	**PCU COM.FAIL**	PCU	Communication failure between the PCU and SCU PCBs	Bad connection ▸ Check the wiring between the PCU and SCU PCBs ▸ DIEMATIC iSystem: Run an **AUTODETECTION** in the menu **#CONFIGURATION** IniControl: Perform the automatic detection function ☞ see chapter "Carrying out an auto-detect", page 109
				SCU PCB not connected or faulty ▸ Replace the SCU PCB
L39	**BL OPEN FAIL**	PCU	The **BL** inlet opened for a short time	Bad connection ▸ Check the wiring
				External cause ▸ Check the device connected to the **BL** contact
				Parameter incorrectly set ▸ Check the parameter **IN.BL**
L40	**TEST.HRU.FAIL**	PCU	HRU/URC unit test error	Bad connection ▸ Check the wiring
				External cause ▸ Suppress the external cause
				Parameter incorrectly set ▸ Check the parameters
L250	**DEF.WATER MIS.**	PCU	The water pressure is too low	Hydraulic circuit incorrectly vented Water leak Measurement error ▸ Top up with more water if necessary ▸ Reset the boiler

Code	Faults	Cause of the fault	Description	Checking / solution
L251	**MANOMETRE FAIL**	PCU	Pressure gauge fault	Wiring problem The manometer is defective Sensor pcb defective ▸ Check the wiring between the PCU PCB and the pressure gauge ▸ Check whether the pressure gauge has been correctly fitted ▸ Replace the pressure gauge if need be
D03 **D04**	**OUTL S.B FAIL.** **OUTL S.C FAIL.**	SCU	Circuit B flow sensor fault Circuit C flow sensor fault Remarks: The circuit pump is running. The 3-way valve motor on the circuit is no longer powered and can be adjusted manually.	Bad connection ▸ Check whether the sensor is connected: ☞ See chapter: "Deletion of sensors from the memory in the PCB", page 136 ▸ Check the link and the connectors ▸ Check that the sensor has been correctly fitted Sensor fault ▸ Check the Ohmic value of the sensor ▸ Replace the sensor if necessary
D05	**OUTSI.S.FAIL.**	SCU	Outside temperature sensor fault Remarks: The boiler operates on **BOILER MAX** temperature. The valve setting is no longer ensured but monitoring the maximum temperature of the circuit after the valve is ensured. Valves may be manually operated. Reheating the domestic hot water remains ensured.	Bad connection ▸ Check whether the sensor is connected: ☞ See chapter: "Deletion of sensors from the memory in the PCB", page 136 ▸ Check the link and the connectors ▸ Check that the sensor has been correctly fitted Sensor fault ▸ Check the Ohmic value of the sensor ▸ Replace the sensor if necessary
D07	**SYST.SENS.FAIL.**	SCU	System sensor fault	Bad connection ▸ Check whether the sensor is connected: ☞ See chapter: "Deletion of sensors from the memory in the PCB", page 136 ▸ Check the link and the connectors ▸ Check that the sensor has been correctly fitted Sensor fault ▸ Check the Ohmic value of the sensor ▸ Replace the sensor if necessary
D09	**DHW S.FAILURE**	SCU	Domestic hot water sensor fault Remarks: Heating of domestic hot water is no longer ensured. The load pump operates. The load temperature of the dhw tank is the same as the boiler.	Bad connection ▸ Check whether the sensor is connected: ☞ See chapter: "Deletion of sensors from the memory in the PCB", page 136 ▸ Check the link and the connectors ▸ Check that the sensor has been correctly fitted Sensor fault ▸ Check the Ohmic value of the sensor ▸ Replace the sensor if necessary

Code	Faults	Cause of the fault	Description	Checking / solution
D11 **D12** **D13**	**ROOM S.A FAIL.** **ROOM S.B FAIL.** **ROOM S.C FAIL.**	SCU	A room temperature sensor fault B room temperature sensor fault C room temperature sensor fault Note: The circuit concerned operates without any influence from the room sensor.	Bad connection ▸ Check whether the sensor is connected: See chapter: "Deletion of sensors from the memory in the PCB", page 136 ▸ Check the link and the connectors ▸ Check that the sensor has been correctly fitted
				Sensor fault ▸ Check the Ohmic value of the sensor ▸ Replace the sensor if necessary
D14	**MC COM.FAIL**	SCU	Communication failure between the SCU PCB and the boiler radio module	Bad connection ▸ Check the link and the connectors
				Boiler module failure ▸ Change the boiler module
D15	**ST.TANK S.FAIL**	SCU	Storage tank sensor fault Note: The hot water storage tank reheating operation is no longer assured.	Bad connection ▸ Check whether the sensor is connected: See chapter: "Deletion of sensors from the memory in the PCB", page 136 ▸ Check the link and the connectors ▸ Check that the sensor has been correctly fitted
				Sensor fault ▸ Check the Ohmic value of the sensor ▸ Replace the sensor if necessary
D16 **D16**	**SWIM.P.B. S.FAIL** **SWIM.P.C. S.FAIL**	SCU	Swimming pool sensor fault circuit B Swimming pool sensor fault circuit C Note: Pool reheating is independent of its temperature.	Bad connection ▸ Check whether the sensor is connected: See chapter: "Deletion of sensors from the memory in the PCB", page 136 ▸ Check the link and the connectors ▸ Check that the sensor has been correctly fitted
				Sensor fault ▸ Check the Ohmic value of the sensor ▸ Replace the sensor if necessary
D17	**DHW 2 S.FAIL**	SCU	Sensor fault tank 2	Bad connection ▸ Check whether the sensor is connected: See chapter: "Deletion of sensors from the memory in the PCB", page 136 ▸ Check the link and the connectors ▸ Check that the sensor has been correctly fitted
				Sensor fault ▸ Check the Ohmic value of the sensor ▸ Replace the sensor if necessary
D27	**PCU COM. FAIL**	SCU	Communication failure between the SCU and PCU PCBs ▸ Check the wiring between the SCU and PCU PCBs ▸ Check that the PCU PCB is powered up (green LED on or flashing) ▸ Change the PCU PCB	
D32	**5 RESET:ON/OFF**	SCU	5 resets done in less than an hour ▸ Switch the boiler off and switch back on	

Code	Faults	Cause of the fault	Description	Checking / solution
D37	**TA-S SHORT-CIR**	SCU	The Titan Active System® is short-circuited ▸ Check that the connection cable between the SCU PCB and the anode is not short-circuited ▸ Check that the anode is not short-circuited Remarks: Domestic hot water production has stopped but can nonetheless be restarted using key . The tank is no longer protected. If a tank without Titan Active System® is connected to the boiler,check that the TAS simulation connector (delivered with package AD212) is fitted to the sensor card.	
D38	**TA-S DISCONNEC**	SCU	The Titan Active System® is on an open circuit ▸ Check that the connection cable between the SCU PCB and the anode is not severed ▸ Check that the anode is not broken Remarks: Domestic hot water production has stopped but can nonetheless be restarted using key . The tank is no longer protected. If a tank without Titan Active System® is connected to the boiler,check that the TAS simulation connector (delivered with package AD212) is fitted to the sensor card.	
D99	**DEF.BAD PCU**	SCU	The SCU software version does not recognise the PCU connected ▸ Update the SCU with the appropriate software version	

10.4.4. Deletion of sensors from the memory in the PCB

The configuration of the sensors is memorised by the SCU PCB. If a sensor fault appears whilst the corresponding sensor is not connected or has been voluntarily removed, please delete the sensor from the SCU PCB memory.

The outside temperature sensor cannot be deleted.

DIEMATIC iSystem control panel

- Press key **?** repeatedly until **Do you want to delete this sensor?** ous supprimer cette sonde ?"} is displayed.
- Select **ON** by turning the rotary button and press to confirm.

IniControl control panel

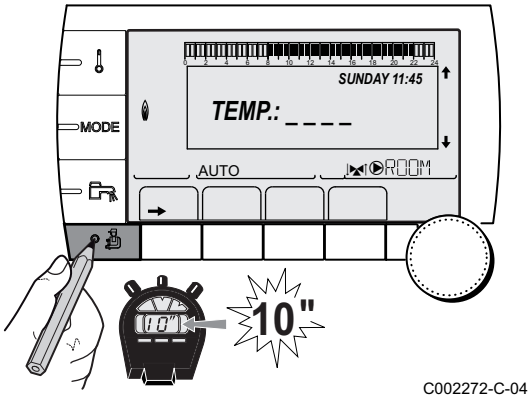
- Press the key.

10.5 Failure history

10.5.1. DIEMATIC iSystem control panel

The menu **#DEFAULT HISTORIC** is used to consult the last 10 faults displayed by the control panel.

1. Access the "After Sales" level: Hold down the key until **#PARAMETERS** is displayed.
2. Select the menu **#DEFAULT HISTORIC**.

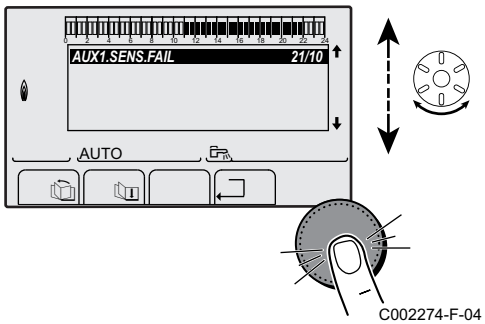


C002272-C-04

- Turn the rotary button to scroll through the menus or modify a value.
- Press the rotary button to access the selected menu or confirm a value modification.

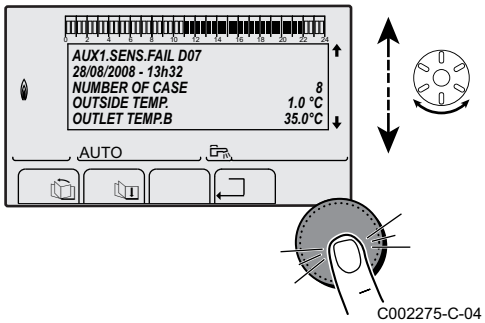
For a detailed explanation of menu browsing, refer to the chapter: "Browsing in the menus", page 60

3. The list of the last 10 faults is displayed.



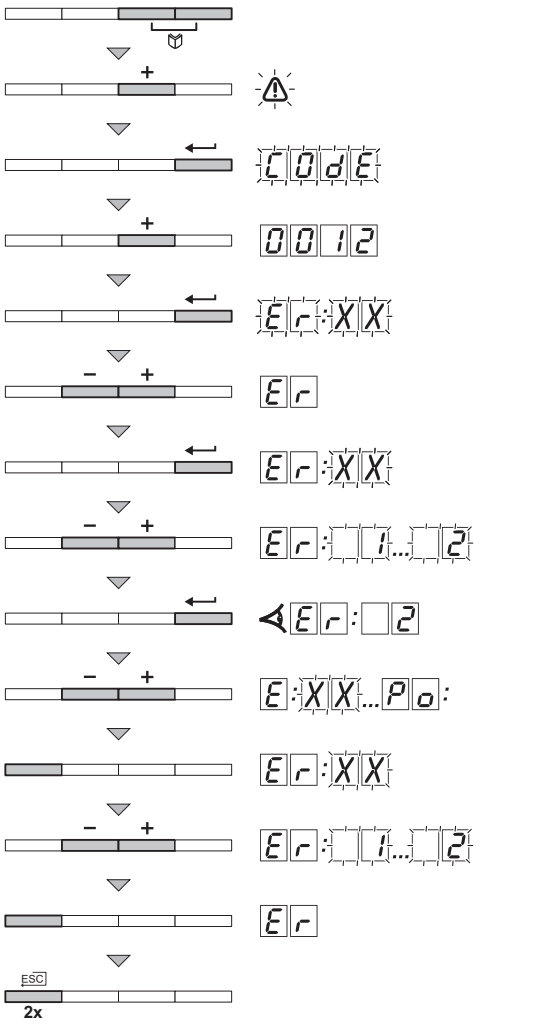
C002274-F-04

4. Select a fault to consult the information pertaining to it.



C002275-C-04

10.5.2. IniControl control panel

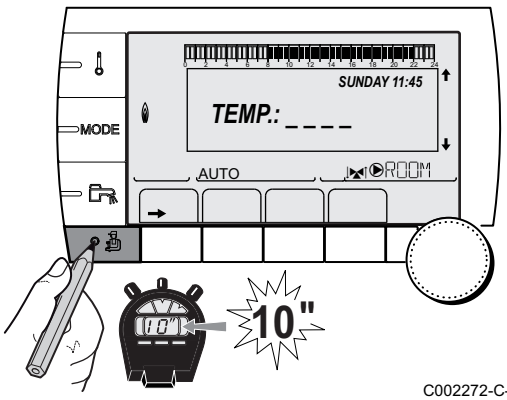


C003068-B

1. Press the two keys simultaneously and then key **[+]** until the symbol flashes on the menu bar.
2. Select the installers menu using the key . CodE appears on the display.
3. Use keys **[-]** or **[+]** to input the installer code 0012.
4. Press the key. Er:XX appears on the display.
5. The fault list or shutdown list can be displayed by pressing the **[-]** or **[+]** key..
6. Confirm using key . Er:XX is displayed with XX flashing = Last error which occured, For example 2 .
7. Use the **[-]** or **[+]** key to scroll through the faults or shutdowns.
8. Press the key to display the details of the faults or shutdowns.
9. Press the **[-]** or **[+]** key to view the following information:
   - n:1 = Number of times that the error occured.
   - Hr = The number of operating hours.
   - t1 = Supply temperature (°C).
   - t2 = Return temperature (°C).
   - t3 = Calorifier temperature (°C).
   - t4 = Outside temperature (°C) (Only with an outside temperature sensor).
   - FL = Ionization current (µA).
   - nF = Fan speed in rpm.
   - Pr = Water pressure (bar).
10. Press the key to interrupt the display cycle. Er:XX is displayed with XX flashing = Last error which occured.
11. Press times on the key 2 to exit the error memory.

10.6 Parameter and input/output check (mode tests)

10.6.1. DIEMATIC iSystem control panel



C002272-C-04

Use the following menus to target the cause of a malfunction.

1. Access the "After Sales" level: Hold down the key until **#PARAMETERS** is displayed.
2. Check the following parameters:

- Turn the rotary button to scroll through the menus or modify a value.
- Press the rotary button to access the selected menu or confirm a value modification.

For a detailed explanation of menu browsing, refer to the chapter: "Browsing in the menus", page 60

After Sales level - Menu #PARAMETERS	
Parameter	**Description**
PERMUT	Master boiler active
STAGE	Number of boilers requesting heating
NB.CASC.:	Number of boilers recognised in the cascade
NB. VM:	Number of DIEMATIC VM control systems recognised in the cascade
POWER %	Current output of the boiler
PERCENT PUMP	Modulating pump command
SPEED FAN (1)	Fan rotation speed
SETPOINT FAN	Fan rotation speed desired
MEAN OUTSIDE T	Average outside temperature
CALC.T. BOILER	Temperature calculated by the boiler
BURNER SETPOINT	Set point parameter of the burner
AVERAGE BOIL.T	Average temperature of the boiler flow sensor
BOILER. T. (1)	Measurement of the boiler flow sensor
BACK TEMP (1)	Temperature of the boiler return water
SYSTEM TEMP. (1)	Temperature of the system flow water if multi-generator
SYST. CALC. T. (2)	System flow temperature calculated by the control system
CALCULATED T. A	Calculated temperature for circuit A
CALCULATED T. B (3)	Calculated temperature for circuit B
CALCULATED T. C (3)	Calculated temperature for circuit C
OUTLET TEMP. B (1) (3)	Temperature of the flow water in circuit B
SWIMMING P.T.B	Temperature of the swimming pool water sensor on circuit B
OUTLET TEMP. C (1) (3)	Temperature of the flow water in circuit C
SWIMMING P.T.C	Temperature of the swimming pool water sensor on circuit C
OUTSIDE TEMP. (1)	Outside temperature
ROOMTEMP. A (1)	Room temperature of circuit A
ROOMTEMP. B (1) (3)	Room temperature of circuit B
ROOMTEMP. C (1) (3)	Room temperature of circuit C
WATER TEMP. (1)(3)	Water temperature in the DHW tank
IN 0-10V (1)(3)	Voltage at input 0-10 V
CURRENT (1)	Ionization current
PRESSURE (1)	Water pressure in the installation
STOR.TANK.TEMP (1) (3)	Water temperature in the storage tank
T.DHW BOTTOM (1)(3)	Water temperature in the bottom of the DHW tank
DHW A TEMP. (1)(3)	Water temperature in the second DHW tank connected to circuit A
TEMP.TANK AUX (1)(3)	Water temperature in the second DHW tank connected to the AUX circuit
KNOB A	Position of temperature setting button on room sensor A
KNOB B(3)	Position of temperature setting button on room sensor B
KNOB C(3)	Position of temperature setting button on room sensor C
OFFSET ADAP A	Parallel trigger calculated for circuit A
OFFSET ADAP B (3)	Parallel trigger calculated for circuit B
OFFSET ADAP C (3)	Parallel trigger calculated for circuit C

(1) The parameter can be displayed by pressing key .
(2) The parameter is only displayed if **CASCADE:** is set to **ON**
(3) The parameter is only displayed for the options, circuits or sensors actually connected

After Sales level - Menu #TEST OUTPUTS		
Parameter	**Adjustment range**	**Description**
P. CIRC. A	**ON / NO**	Stop/start pump circuit A
P. CIRC. B (1)	**ON / NO**	Stop/start pump circuit B
P. CIRC. C (1)	**ON / NO**	Stop/start pump circuit C
HW. PUMP (1)	**ON / NO**	Stop/start domestic hot water pump
AUX.CIRC.(1)	**ON / NO**	On/Off auxiliary outlet
3WV B (1)	**REST**	No command
	OPEN	Opening 3-way valve circuit B
	CLOSE	Closure 3-way valve circuit B
3WV C (1)	**REST**	No command
	OPEN	Opening 3-way valve circuit C
	CLOSE	Closure 3-way valve circuit C
TEL.OUTPUT	**ON / NO**	On/Off telephone relay outlet
(1) The parameter is only displayed for the options, circuits or sensors actually connected		

After Sales level - Menu #TEST INPUTS		
Parameter	**Status**	**Description**
PHONE REM.		Bridge on telephone input (1 = presence, 0 = absence)
FLAME		Flame presence test (1 = presence, 0 = absence)
GAS VALVE	**OPEN/CLOSE**	Opening the valve Closing the valve
FAILURE	**ON**	Fault display
	OFF	No fault
SEQUENCE		Control system sequence. See chapter: "Control system sequence", page 141
BOILER		Index of the generator in the system
TYPE		Generator type
R.CTRL A (1)	**ON**	Presence of a remote control A
	OFF	No remote control A
R.CTRL B (1)	**ON**	Presence of a remote control B
	OFF	No remote control B
R.CTRL C (1)	**ON**	Presence of a remote control C
	OFF	No remote control C
CALIBRA.CLOCK(2)		Clock calibration
(1) The parameter is only displayed for the options, circuits or sensors actually connected (2) The parameter is only displayed if **INSTALLATION** is set to **EXTENDED**		

After Sales level - Menu #CONFIGURATION		
Parameter	**Adjustment range**	**Description**
MODE:	**MONO/ ALL.CIRC.**	To chose if the exemption made for one remote control applies to a single circuit (**MONO**) or if it must be transmitted to a group of circuits (**ALL.CIRC.**)
TYPE		Generator type (Refer to the original rating plate)
AUTODETECTION	**OFF/ON**	System reset if error **L38** is displayed
TAS	**OFF/ON**	Activation of the Titan Active System® function

10.6.2. IniControl control panel

1. Check the following parameters:

After Sales level - Menu #CONFIGURATION		
Parameter	**Adjustment range**	**Description**
5.18 **- TAS**	0 / 1	Activation of the Titan Active System® function

10.6.3. Control system sequence

Control system sequence		
Status	**Sub-status**	**Operation**
0	0	Boiler stopped
1	1	Anti-short cycle activated
	2	Reversal valve opening
	3	Start-up of the boiler pump
	4	Awaiting burner start-up
2	10	Open gas valve (External)
	11	Fan start-up
	13	The fan switches to the burner start-up speed
	14	Check RL signal (Function not active)
	15	Burner on switch request
	17	Pre-ignition
	18	Ignition
	19	Check flame presence
	20	Awaiting further action to unsuccessful ignition
3 / 4	30	Burner lit and free modulation on the boiler instruction
	31	Burner lit and free modulation on a limited instruction, equal to a return temperature of +25°C
	32	Burner ignited and free modulation on the boiler set point but output restricted
	33	Burner lit and descending modulation following too large a rise in temperature on the exchanger (4 K in 10 seconds)
	34	Burner lit and minimum modulation following too large a rise in temperature on the exhanger (7 K in 10 seconds)
	35	Burner off following too large a rise in temperature on the exchanger (9 K in 10 seconds)
	36	Burner lit and ascending modulation to guarantee a correct ionization current
	37	Heating: Burner lit and minimum modulation after a burner start-up lasting 30 seconds DHW production: Burner lit and minimum modulation after a burner start-up lasting 100 seconds
	38	Burner lit and modulation fixed higher than the minimum after burner start-up lasting 30 seconds, if the burner was off for more than 2 hours or after powering up
5	40	The burner will stop
	41	The fan switches to post-sweeping speed on the burner
	42	The external gas valve closes
	43	Post-sweeping
	44	Stop fan
6	60	Post-operation of the boiler pump
	61	Stop boiler pump
	62	Reversal valve closure
	63	Start anti short cycle

Control system sequence		
Status	**Sub-status**	**Operation**
8	0	Stand-by
	1	Anti-short cycle activated
9	--	Blockage: The sub-status shows the error value
10	--	Blocking
16	--	Antifreeze protection
17	--	Bleed

11 Spare parts

11.1 General

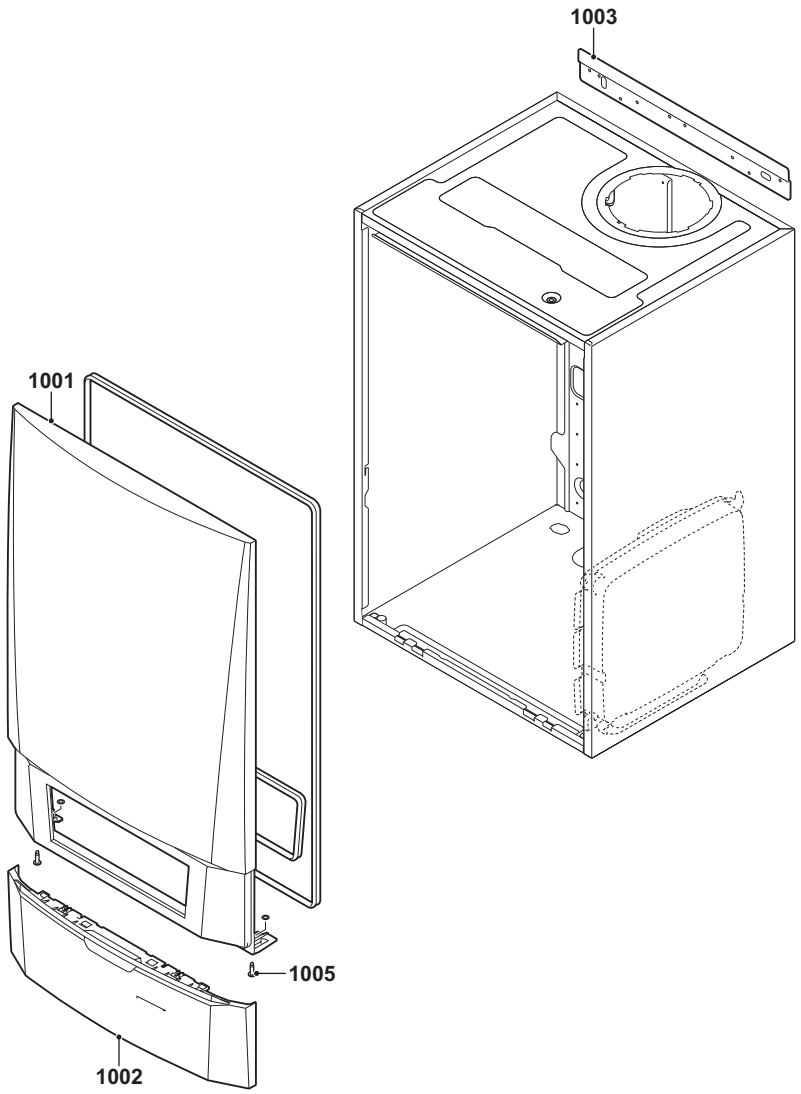
When it is observed subsequent to inspection or maintenance work that a component in the appliance needs to be replaced, use only original spare parts or recommended spare parts and equipment.

To order a spare part, give the reference number shown on the list.

11.2 Spare parts

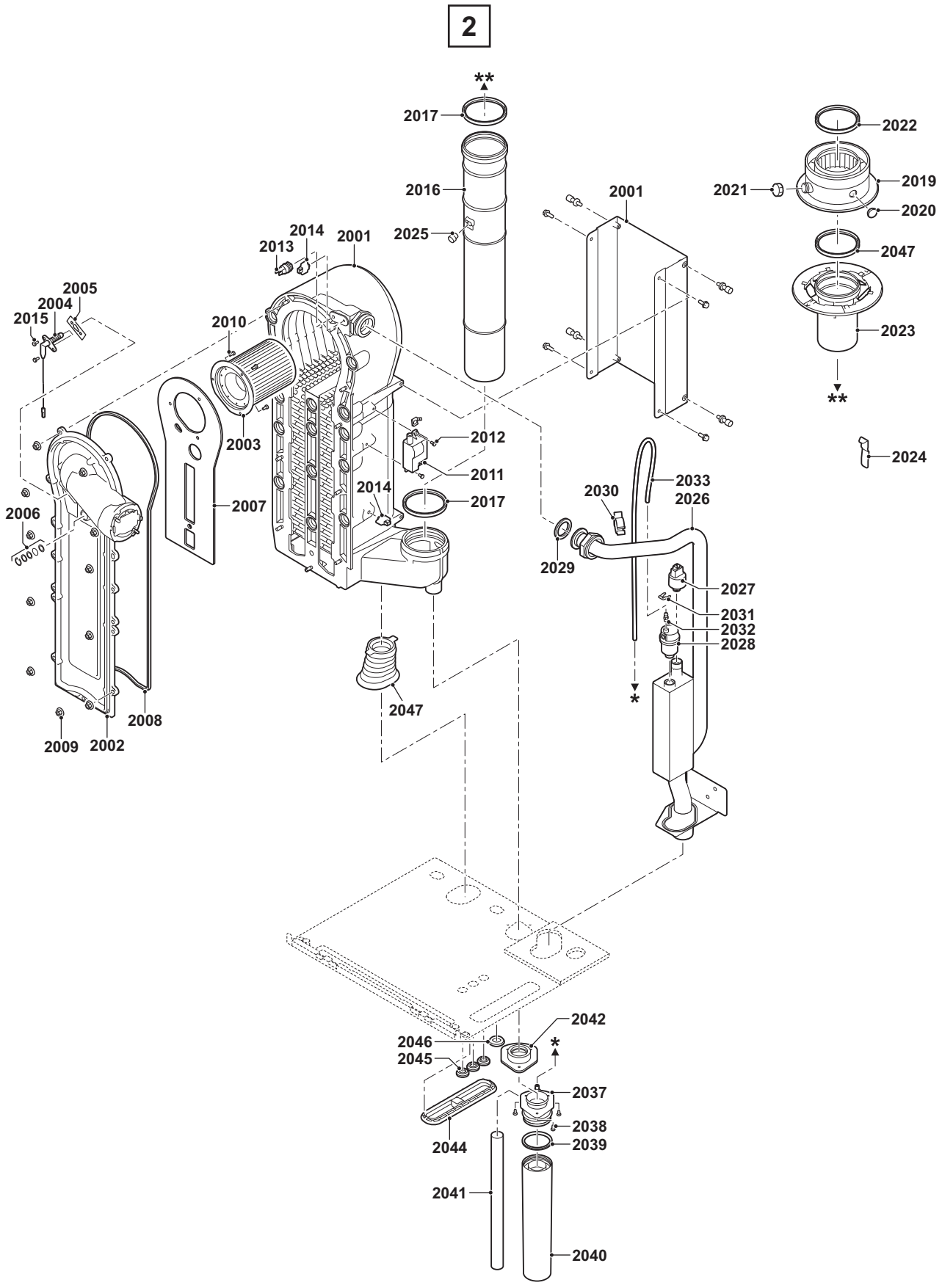
11.2.1. Casing

1



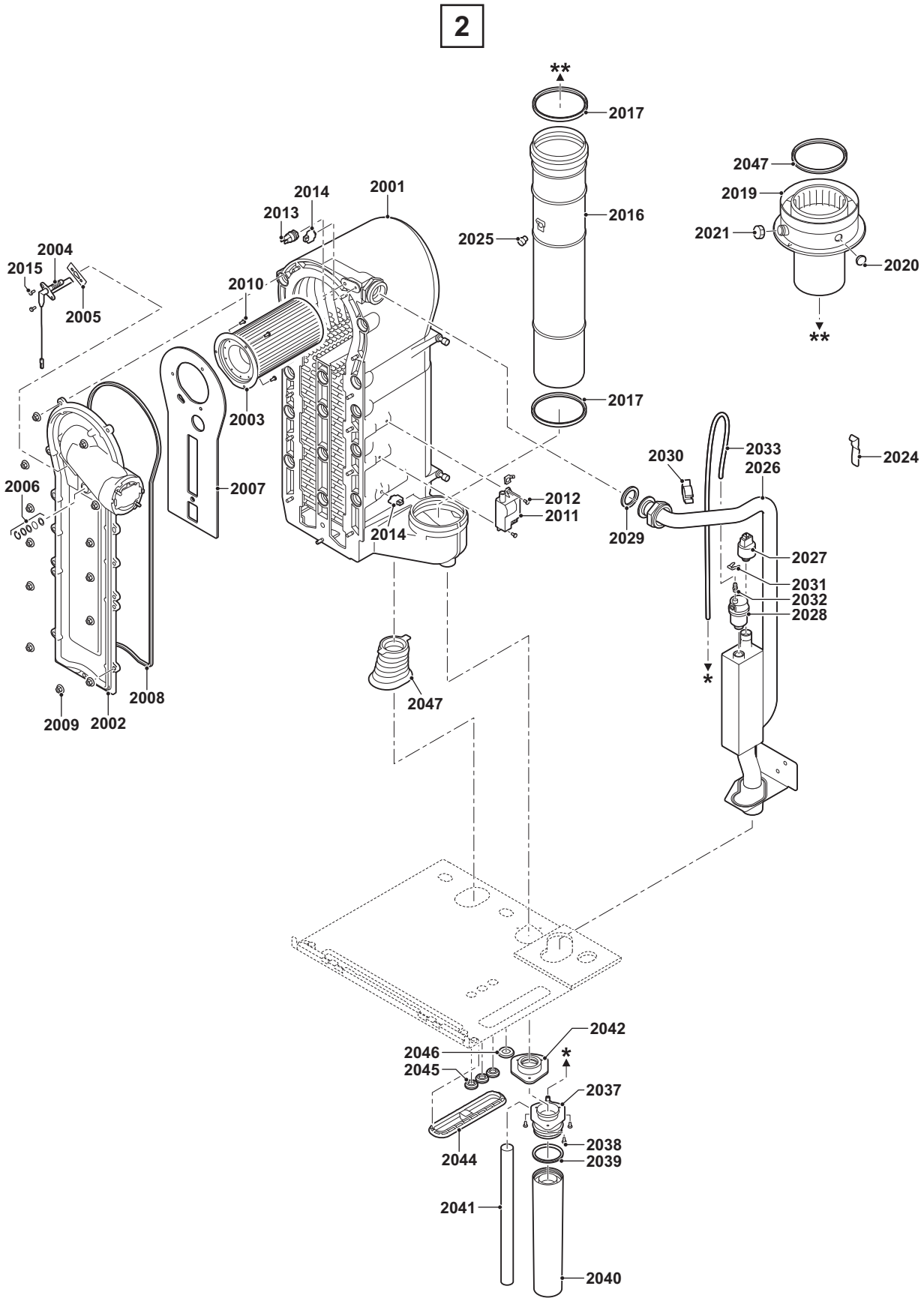
EV 90520-1 T002923-B

11.2.2. Heat exchanger and burner - MCA 45



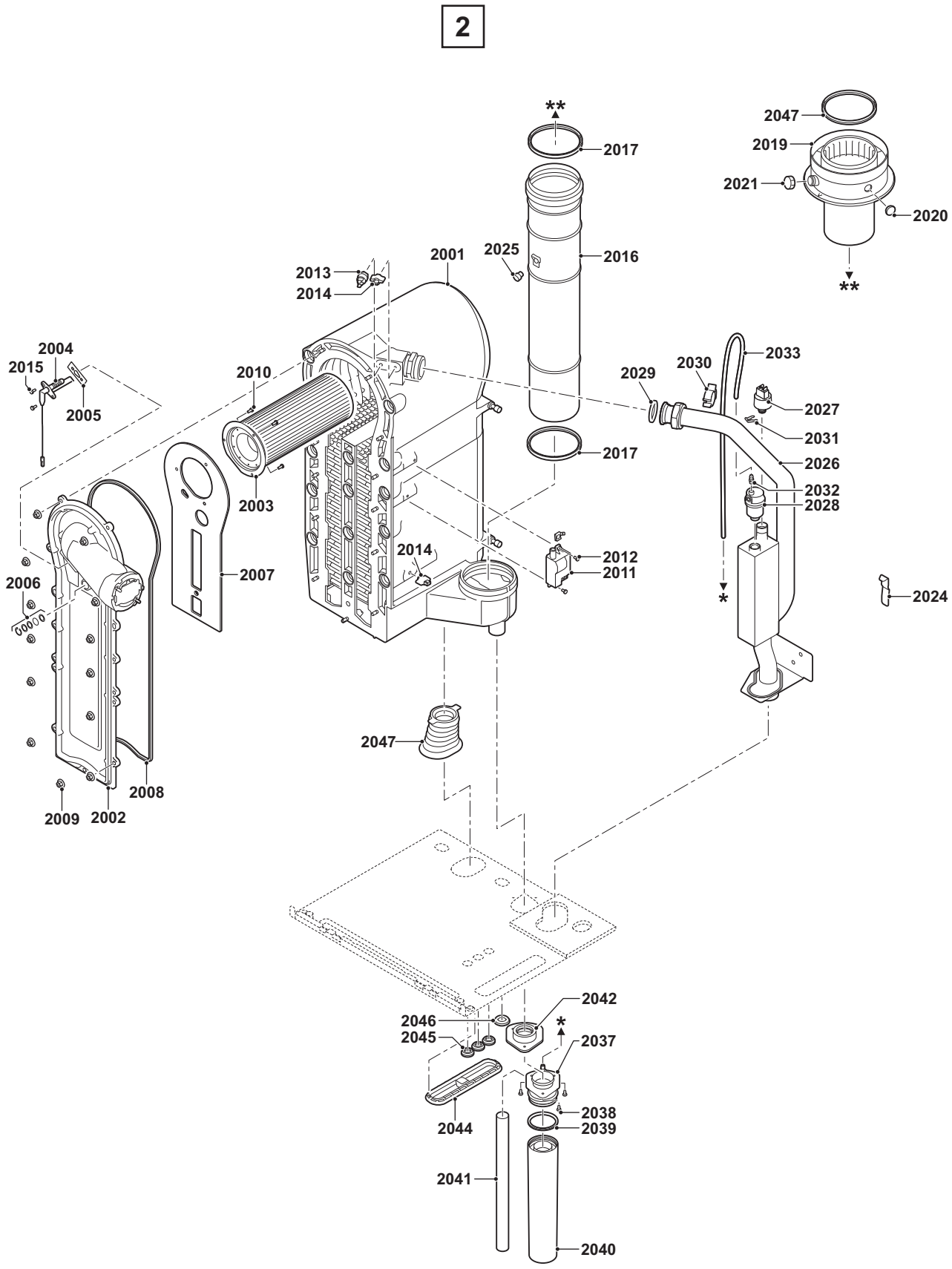
EV 90520-2 T002924-B

11.2.3. Heat exchanger and burner - MCA 65



EV 90521-2 T002930-B

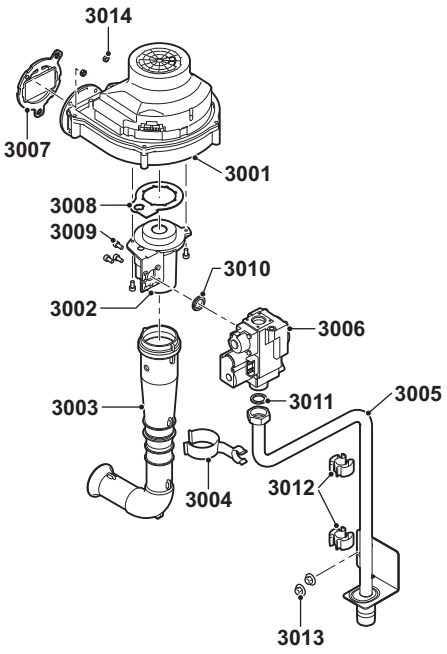
11.2.4. Heat exchanger and burner - MCA 90/115



EV 90522-2 T002936-B

11.2.5. Fan - MCA 45/65

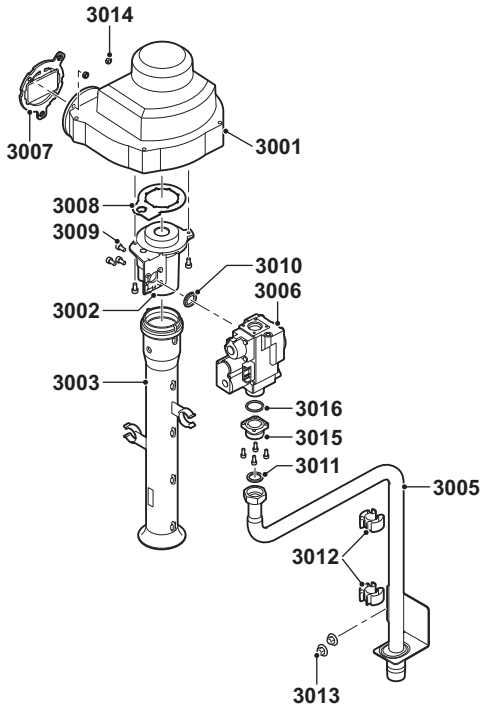
3



EV 90520-3 T002925-B

11.2.6. Fan - MCA 90

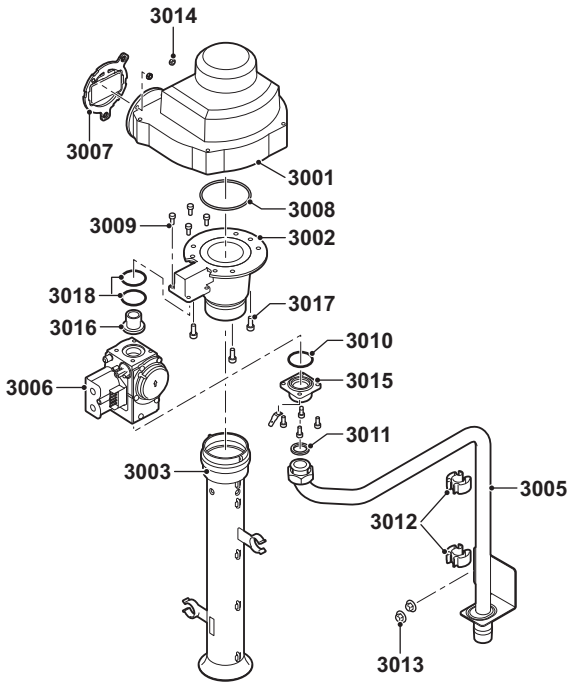
3



EV 90522-3 T002937-A

11.2.7. Fan - MCA 115

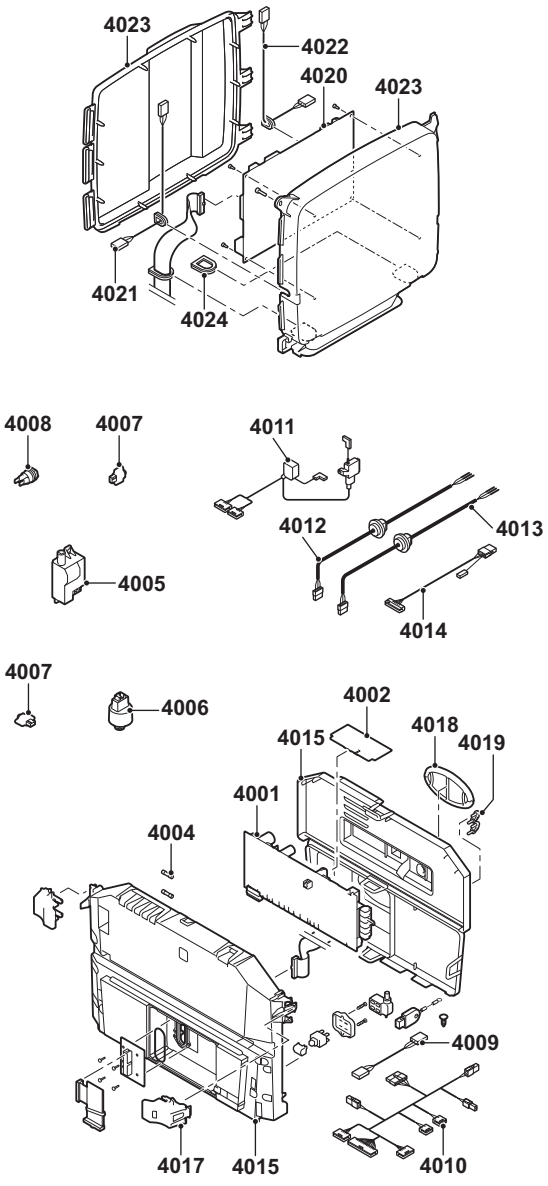
3



EV 90523-3 T002943-C

11.2.8. Control panel

4



11.2.9. Spare parts list

Markers	Code no.	Description	Part	MCA 45	MCA 65	MCA 90	MCA 115
Casing							
1001	S101575	Front casing	1	x	x	x	x
1002	S101612	Top cover (Control panel)	1	x	x	x	x
1003	S101517	Wall suspension bracket	1	x	x	x	x
1005	S101403	Screw	2	x	x	x	x
0	S101557	Boiler back light	1	x	x	x	x
Heat exchanger and burner							
2001	S101560	Heat exchanger 45kW	1	x			
2001	S101551	Heat exchanger 65kW	1		x		
2001	S101550	Heat exchanger 90-115kW	1			x	x
2002	S101564	Heat exchanger front plate	1	x	x	x	x
2003	S54753	Burner - 45 kW	1	x			
2003	S54754	Burner - 65 kW	1		x		
2003	S57477	Burner - 90-115 kW	1			x	x
2004	S101566	Ignition/ionization electrode	1	x	x	x	x
2005	S53489	Sealing plate for the ignition electrode	10	x	x	x	x
2006	S59118	Sight glass	1	x	x	x	x
2007	S54731	Heat exchanger front plate insulation	1	x	x	x	x
2008	S57241	Heat exchanger front plate sealing	1	x	x	x	x
2009	S54755	M6 nut	20	x	x	x	x
2010	S100052	Screw M4x10	20	x	x	x	x
2011	S100619	Ignition transformer with ignition electrode	1	x	x	x	x
2012	S101509	Screw M4x8	5	x	x	x	x
2013	S101005	HL temperature sensor	1	x	x	x	x
2014	S101003	NTC temperature sensor	2	x	x	x	x
2015	S48950	Screw M4x10	50	x	x	x	x
2016	S55993	Flue gas discharge pipe Ø 80 mm (45kW)	1	x			
2016	S55994	Flue gas discharge pipe Ø 100 mm (65-90-115kW)	1		x	x	x
2017	S55914	Leakproof seal Ø 80 mm	5	x			
2018	S55915	Leakproof seal Ø 100 mm	5		x	x	x
2019	S100465	Combustion air/flue gas adapter 80/125 mm	1	x			
2019	S101563	Combustion air/flue gas adapter 100/150 mm	1		x	x	x
2020	S62233	Protective plug for the combustion gas evacuation measurement point	5	x	x	x	x
2021	S62232	Protective plug for the combustion gas evacuation measurement point	5	x	x	x	x
2022	S100855	Leakproof seal Ø 80 mm	5	x			
2022	S101643	Leakproof seal Ø 100 mm	5		x	x	x
2023	S101567	Flue gas discharge pipe connection piece Ø 80 mm	1	x			
2024	S100901	Holding strip for the heat exchanger	1	x	x	x	x
2025	S62288	Grommet for flue gas discharge pipe	1	x	x	x	x
2026	S101568	Water flow pipe Central heating	1	x	x		
2026	S101572	Water flow pipe Central heating	1			x	x
2027	S101632	Pressure sensor	1	x	x	x	x
2028	S101608	Automatic air vent	5	x	x	x	x
2029	S100737	Sealing ring Ø 44x32x4 mm	5	x	x	x	x
2030	S101576	Cable clamp 28-35	5	x	x	x	x
2031	S101644	Clip 10,2	5	x	x	x	x

Markers	Code no.	Description	Part	MCA 45	MCA 65	MCA 90	MCA 115
2032	S100895	Endpiece M7x1	1	x	x	x	x
2033	S101570	Silicone hose 8x2x740	1	x	x	x	x
2037	S101558	Siphon	1	x	x	x	x
2038	S14254	Screw 4,2x9,5	20	x	x	x	x
2039	S101580	Leak proofing ring - Ø 60 mm	1	x	x	x	x
2040	S101559	Siphon cup	1	x	x	x	x
2041	S101606	Siphon hose	1	x	x	x	x
2042	S101581	Siphon gasket	1	x	x	x	x
2044	S101298	Closing plate SCU	1	x	x	x	x
2045	S62727	Grommet Ø 20 mm	15	x	x	x	x
2046	S101607	Grommet Ø 25x35x2 mm	5	x	x	x	x
2047	S101605	Sealing (Heating circuit return)	1	x	x	x	x
Fan							
3001	S59167	Fan Mvlrg 148/1200-3633	1	x			
3001	S59168	Fan Mvlrg 148/1200-3633	1		x	x	
3001	S100036	Fan Mvlrg 148/1200-3633-010202	1				x
3002	S54765	Venturi 45kW	1	x			
3002	S54766	Venturi 65kW	1		x		
3002	S57488	Venturi 90kW	1			x	
3002	S101595	Venturi 115kW	1				x
3003	S101543	Air intake silencer 45-65kW	1	x	x		
3003	S101520	Air intake silencer 90kW	1			x	
3003	S101578	Air intake silencer 115kW	1				x
3004	S101590	Clamp for suction silencer	1	x	x		
3005	S101569	Gas inlet pipe	1	x	x		
3005	S101573	Gas inlet pipe	1			x	
3005	S101515	Gas inlet pipe	1				x
3006	S101596	Gas block Vk8115V1168	1	x	x		
3006	S101597	Gas block 90kW	1			x	
3006	S101510	Gas block 115kW	1				x
3007	S101565	Gasket 83 mm with 45-115 kW valve	1	x	x	x	x
3008	S54777	Venturi gasket	5	x	x	x	x
3009	S48512	Bolt M5x10	10	x	x	x	
3009	S100468	Screw M5x12	10				x
3010	S101591	Set of Gaskets - 45-60kW	1	x	x		
3010	S101592	Set of Gaskets - 90kW	1			x	
3010	S101593	Set of Gaskets - 115kW	1				x
3010	S100363	33x2 O-ringmm	10				x
3011	S56155	Leakproof seal (Ø 23,8x17,2x2 mm	20	x	x	x	x
3012	S101519	Cable clamp	5	x	x	x	x
3013	S54755	Flanged nut M6	20	x	x	x	x
3014	S100055	M5 nut	20	x	x	x	x
3015	S57827	Flange for gas valve unit	1			x	x
3016	S57828	O-ring (Gas inlet pipe) Ø 26,8x22x2,5 mm	1			x	
3016	S101631	Inlet (Venturi)	1				x
3017	S100054	Screw M5x16	20				x
3018	S101664	O-ring (Inlet)	1				x
Control panel							
4001	S101518	PCU-04 PCB	1	x	x	x	x
4002	S100849	SU-01 PCB	1	x	x	x	x
4004	S6778	6,30 glass fuse A slow	10	x	x	x	x

Markers	Code no.	Description	Part	MCA 45	MCA 65	MCA 90	MCA 115
4004	S43562	3,15 glass fuse A slow	10	x	x	x	x
4005	S101619	Ignition transformer with ignition electrode	1	x	x	x	x
4006	S101632	Pressure sensor	1	x	x	x	x
4007	S101003	NTC temperature sensor	2	x	x	x	x
4008	S101005	HL temperature sensor	1	x	x	x	x
4009	S101554	PCU pump cable	1	x	x	x	x
4010	S101561	24 V cable	1	x	x	x	x
4011	S101589	cable form 230V - 45-65-90kW	1	x	x	x	
4011	S101582	cable form 230V - 115kW	1				x
4012	S100845	Electric cable 1500 mm	1	x	x	x	x
4013	S101588	Pump cable	1	x	x	x	x
4014	S101553	Cable for fan	1	x	x	x	x
4015	S101251	Control panel	1	x	x	x	x
4017	S101514	Fastening	2	x	x	x	x
4018	S100861	Oval sealing gasket	5	x	x	x	x
4019	S59372	Draught diverter	1	x	x	x	x
4020	S101773	SCU PCB	1	x	x	x	x
4021	S101555	SCU 230 V cable	1	x	x	x	x
4022	S101556	Cable for interface	1	x	x	x	x
4023	S101513	Box SCU	1	x	x	x	x
4024	S100862	SCU grommet	5	x	x	x	x
0	S62185	Screw Kb30x8	10	x	x	x	x
0	S101252	Outside temperature sensor	1	x	x	x	x
0	S101577	Bundle clip	1	x	x	x	x
0	S101620	Card PSU	1	x	x	x	x

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