INNOVENS PRO

Installation, User and Service Manual

High-efficiency wall-hung gas boiler

MCA

45

65

90

115

De Dietrich

SUSTAINABLE COMFORT®

Contents

1 Safety

1.1 General safety instructions

For the installer:

> ⚠ **Danger**
> If you smell gas:
>
> 1. Do not use naked flames, do not smoke and do not operate electrical contacts or switches (doorbell, lighting, motor, lift etc).
> 2. Shut off the gas supply.
> 3. Open the windows.
> 4. Trace possible leaks and seal them off immediately.
> 5. If the leak is upstream of the gas meter, notify the gas company.

> ⚠ **Danger**
> If you smell flue gases:
>
> 1. Switch the boiler off.
> 2. Open the windows.
> 3. Trace possible leaks and seal them off immediately.

> ⚠ **Caution**
> After maintenance or repair work, check the entire heating installation to ensure that there are no leaks.

For the end user:

⚠ **Danger**
If you smell gas:

1. Do not use naked flames, do not smoke and do not operate electrical contacts or switches (doorbell, lighting, motor, lift etc).
2. Shut off the gas supply.
3. Open the windows.
4. Evacuate the property.
5. Contact a qualified installer.

⚠ **Danger**
If you smell flue gases:

1. Switch the boiler off.
2. Open the windows.
3. Evacuate the property.
4. Contact a qualified installer.

⚠ **Warning**
Do not touch the flue gas pipes. Depending on the boiler settings, the temperature of the flue gas pipes can rise to over 60°C.

⚠ **Warning**
Do not touch radiators for long periods. Depending on the boiler settings, the temperature of the radiators can rise to over 60°C.

⚠ **Warning**
Be careful when using the domestic hot water. Depending on the boiler settings, the temperature of domestic hot water can rise to over 65°C.

⚠ **Warning**
The use of the boiler and the installation by you as the end-user must be limited to the operations described in this manual. All other actions may only be undertaken by a qualified fitter/engineer.

⚠ **Warning**
The condensation drain must not be changed or sealed. If a condensate neutralisation system is used, the system must be cleaned regularly in accordance with the instructions provided by the manufacturer.

⚠ **Caution**
Ensure that the boiler is regularly serviced. Contact a qualified installer or arrange a maintenance contract for the servicing of the boiler.

⚠ **Caution**
Only genuine spare parts may be used.

ℹ **Important**
Regularly check for the presence of water and pressure in the heating installation.

1.2 Recommendations

⚠ **Danger**
This appliance can be used by children aged eight and above and people with a physical, sensory or mental disability, or with a lack of experience and knowledge, provided they are supervised and instructed in how to use the appliance in a safe manner and understand the associated dangers. Children must not be allowed to play with the appliance. Cleaning and user maintenance should not be carried out by children without adult supervision.

⚠ **Warning**
Installation and maintenance of the boiler must be carried out by a qualified installer in accordance with local and national regulations.

⚠ **Warning**
The installation and maintenance of the boiler must be undertaken by a qualified installer in accordance with the information in the supplied manual, doing otherwise may result in dangerous situations and/or bodily injury.

⚠ **Warning**
Removal and disposal of the boiler must be carried out by a qualified installer in accordance with local and national regulations.

⚠ **Warning**
If the mains lead is damaged, it must be replaced by the original manufacturer, the manufacturer's dealer or another suitably skilled person to prevent hazardous situations from arising.

⚠ **Warning**
Always disconnect the mains supply and close the main gas tap when working on the boiler.

⚠ **Warning**
Check the entire system for leaks after maintenance and servicing work.

⚠ **Danger**
For safety reasons, we recommend fitting smoke and CO alarms at suitable places in your home.

⚠ **Caution**
- Make sure the boiler can be reached at all times.
- The boiler must be installed in a frost-free area.
- If the power cord is permanently connected, you must always install a main bipolar switch with an opening gap of at least 3 mm (EN 60335-1).
- Drain the boiler and central heating system if you are not going to use your home for a long time and there is a chance of frost.
- The frost protection does not work if the boiler is out of operation.
- The boiler protection only protects the boiler, not the system.
- Check the water pressure in the system regularly. If the water pressure is lower than 0.8 bar, the system must be topped up (recommended water pressure between 1.5 and 2 bar).

ⓘ **Important**
Keep this document near to the boiler.

ⓘ **Important**
Only remove the casing for maintenance and repair operations. Refit all panels when maintenance work and servicing are complete.

ⓘ **Important**
Instruction and warning labels must never be removed or covered and must be clearly legible throughout the entire service life of the boiler. Damaged or illegible instructions and warning stickers must be replaced immediately.

ⓘ **Important**
Modifications to the boiler require the written approval of **De Dietrich**.

1.3 Liabilities

1.3.1 Manufacturer's liability

Our products are manufactured in compliance with the requirements of the various Directives applicable. They are therefore delivered with the C€ marking and any documents necessary. In the interests of the quality of

our products, we strive constantly to improve them. We therefore reserve the right to modify the specifications given in this document.

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

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

1.3.2 Installer's liability

The installer is responsible for the installation and initial commissioning of the appliance. The installer must observe the following instructions:

- Read and follow the instructions given in the manuals provided with the appliance.
- Install the appliance in compliance with prevailing legislation and standards.
- Carry out initial commissioning and any checks necessary.
- Explain the installation to the user.
- If maintenance is necessary, warn the user of the obligation to check the appliance and keep 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 system, you must abide by the following instructions:

- Read and follow the instructions given in the manuals provided with the appliance.
- Call on a qualified professional to carry out installation and initial commissioning.
- Get your installer to explain your installation to you.
- Have the required inspections and maintenance carried out by a qualified installer.
- Keep the instruction manuals in good condition close to the appliance.

2   About this manual

2.1   Symbols used

2.1.1   Symbols used in the manual

This manual uses various danger levels to draw attention to special in-structions. We do this to improve user safety, to prevent problems and to guarantee correct operation of the appliance.

> **Danger**
> Risk of dangerous situations that may result in serious personal injury.

> **Danger of electric shock**
> Risk of electric shock.

> **Warning**
> Risk of dangerous situations that may result in minor personal in-jury.

> **Caution**
> Risk of material damage.

> **Important**
> Please note: important information.

> **See**
> Reference to other manuals or pages in this manual.

2.2   Abbreviations

PCU	PCB for managing burner operation
PWM	Pulse wide modulation
SCU	Control panel PCB
SU	Safety PCB

3 Technical specifications

3.1 Homologations

3.1.1 Certifications

Tab.1   Certifications

CE identification number	PIN 0063CL3333
Class NOx[1]	6
Type of connection	B_{23}, B_{23P}, B_{33}
	$C_{13(X)}$, $C_{33(X)}$, C_{43P}, C_{53}, $C_{63(X)}$, $C_{93(X)}$
(1) EN 15502–1	

3.1.2 Unit categories

Tab.2   Unit categories

Country	Category	Gas type	Connection pressure (mbar)
Ireland	$II_{2H3B/P}$	G20 (H-gas) G30/G31 (butane/propane)	20 30

3.1.3 Directives

In addition to the legal requirements and guidelines, the supplementary guidelines in this manual must also be followed.

Supplements or subsequent regulations and guidelines that are valid at the time of installation shall apply to all regulations and guidelines specified in this manual.

3.1.4 Factory test

Before leaving the factory, each boiler is optimally set and tested for:

- Electrical safety.
- Adjustment of (O_2).
- Water tightness.
- Gas tightness.
- Parameter setting.

3.2 Technical data

Tab.3   General

MCA			45	65	90	115
Nominal output (Pn) Central heating operation (80°C/60°C)	min-max 🏭(1)	kW	8.0 - 40.8 40.8	12.0 - 61.5 61.5	14.1 - 84.2 84.2	18.9 - 103.9 103.9
Nominal output (Pn) Central heating operation (50°C/30°C)	min-max 🏭(1)	kW	8.9 - 43.0 43.0	13.3 - 65.0 65.0	15.8 - 89.5 89.5	21,2 - 109,7 109.7
Nominal load (Qnh) Central heating operation (Hi)	min–max 🏭(1)	kW	8.2 - 41.2 41.2	12.2 - 62.0 62.0	14.6 - 86.0 86.0	19.6 - 107.0 107.0
Nominal load (Qnh) CH operation (Hi) G31 (propane)	min	kW	8.8	12.2	22.1	21.2

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Nominal load (Qnh) Central heating operation (Hs)	min–max ⛏[1]	kW	9.1 - 45.7 45.7	13.6 - 68.8 68.8	16.2 - 95.5 95.5	21.9 - 118.8 118.8
Full load central heating efficiency (Hi) (80/60 °C) (92/42/EEC)		%	99.1	99.2	97.9	97.1
Full load central heating efficiency (Hi) (50°C/30°C)		%	102.9	104.6	104.1	102.5
Part load central heating efficiency (Hi) (return temperature 60°C)		%	97.5	98.3	96.6	96.5
Part load central heating efficiency (92/42/EEC) (return temperature 30°C)		%	110.6	110.4	108.1	108.0
(1) Factory setting						

Tab.4 Gas and flue gas data

MCA			45	65	90	115
Gas inlet pressure G20 (H gas)	min-max	mbar	17 - 25	17 - 25	17 - 25	17 - 25
Gas inlet pressure G25 (L gas)	min-max	mbar	20 - 30	20 - 30	20 - 30	20 - 30
Gas inlet pressure G31 (propane)	min-max	mbar	37 - 50	37 - 50	37 - 50	37 - 50
Gas consumption G20 (H gas)[1]	min.–max.	m^3/h	0.9 - 4.4	1.3 - 6.6	1.5 - 9.1	2.0 - 11.3
Gas consumption G25 (L gas)[1]	min-max	m^3/h	1.0 - 5.1	1.5 - 7.6	1.8 - 10.6	2.4 - 13.2
Gas consumption G31 (propane)[1]	min-max	m^3/h	0.4 - 1.7	0.5 - 2.5	0.9 - 3.5	0.9 - 4.4
Gas resistance G20 (H gas)[2]	max	mbar	1.0	2.0	2.5	3.0
NOx annual emissions G20 (H gas) O2 = 0%		mg/kWh	37	32	45	46
Flue gas quantity	min-max	kg/h g/s	14 - 69 3.9 - 19.2	21 - 104 5.8 - 28.9	28 - 138 7.8 - 38.3	36 - 173 10.0 - 48.1
Flue gas temperature	min-max	°C	30 - 67	30 - 68	30 - 68	30 - 72
Maximum counter pressure		Pa	150	100	160	220
(1) Gas consumption based on lower heating value under standard conditions: T=288.15 K, p=1013.25 mbar. Gag 30.33; G25 29.25; G31 88.00 MJ/m3 (2) Gas resistance between boiler connection and measurement point on the gas valve unit						

Tab.5 Central heating circuit data

MCA			45	65	90	115
Water content		l	4.3	6.4	9.4	9.4
Water operating pressure	min	bar	0.8	0.8	0.8	0.8
Water operating pressure (PMS)	max	bar	4.0	4.0	4.0	4.0
Water temperature	max	°C	110.0	110.0	110.0	110.0
Operating temperature	max	°C	90.0	90.0	90.0	90.0
Hydraulic resistance (ΔT=20K)		mbar	90	140	140	250

Tab.6 Electrical data

MCA			45	65	90	115
Supply voltage		V~	230	230	230	230
Power consumption – full load	max	W	68	88	125	199

MCA			45	65	90	115
Power consumption - part load	max	W	18	23	20	45
Power consumption - standby	max	W	5	6	4	7
Electrical protection index[1]		IP	X4D[1]	X4D[1]	X4D[1]	X4D[1]
Fuses	Main PCU	A	6.3 2.0	6.3 2.0	6.3 2.0	6.3 2.0

(1) Splashproof; under certain conditions, the boiler may be installed in damp areas, such as bathrooms.

Tab.7   Other data

MCA			45	65	90	115
Total weight (empty)		kg	53	60	67	68
Minimum mounting weight[1]		kg	49	56	65	65
Average acoustic level at a distance of one metre from the boiler		dB(A)	45	45	52	51

(1) Without front panel.

Tab.8   Technical parameters

MCA			45	65	90	115
Condensing boiler			Yes	Yes	Yes	Yes
Low-temperature boiler[1]			No	No	No	No
B1 boiler			No	No	No	No
Cogeneration space heater			No	No	No	No
Combination heater			No	No	No	No
Rated heat output	$Prated$	kW	41	62	84	104
Useful heat output at nominal heat output and high temperature operation[2]	P_4	kW	40.8	61.5	84.2	103.9
Useful heat output at 30% of rated heat output and low temperature regime[1]	P_1	kW	13.7	20.5	27.9	34.7
Seasonal space heating energy efficiency	η_s	%	94	94	-	-
Useful efficiency at rated heat output and high temperature regime[2]	η_4	%	89.3	89.4	88.2	87.5
Useful efficiency at 30% of rated heat output and low temperature regime[1]	η_1	%	99.6	99.5	97.4	97.3
Auxiliary electricity consumption						
Full load	$elmax$	kW	0.068	0.088	0.125	0.199
Part load	$elmin$	kW	0.018	0.023	0.020	0.045
Standby mode	P_{SB}	kW	0.005	0.006	0.004	0.007
Other items						
Standby heat loss	P_{stby}	kW	0.101	0.110	0.123	0.123
Ignition burner power consumption	P_{ign}	kW	-	-	-	-
Annual energy consumption	Q_{HE}	GJ	124	187	-	-
Sound power level, indoors	L_{WA}	dB	53	53	60	59
Emissions of nitrogen oxides	NO_X	mg/kWh	33	29	41	41

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(1) Low temperature means 30 °C for condensing boilers, 37 °C for low temperature boilers and 50 °C (at heater inlet) for other heating appliances.

(2) High temperature operation means 60 °C return temperature at heater inlet and 80 °C feed temperature at heater outlet.

See
The back cover for contact details.

3.3 Sensor specifications

3.3.1 Outside sensor specifications

Tab.9 Outside sensor

Temperature	°C	-20	-16	-12	-8	-4	0	4	8	12	16	20	24
Resistance	Ohm	2392	2088	1811	1562	1342	1149	984	842	720	616	528	454

3.3.2 Flow sensor, domestic hot water sensor

Tab.10 Flow sensor, domestic hot water sensor

Temperature in °C	0	10	20	25	30	40	50	60	70	80	90
Resistance in Ω	32014	19691	12474	10000	8080	5372	3661	2535	1794	1290	941

3.3.3 Boiler sensor, return sensor

Tab.11 Boiler sensor, return sensor

Temperature in °C	-20	-10	0	10	20	25	30	40	50	60	70	80	90	100	110
Resistance in Ω	98932	58879	36129	22804	14773	12000	9804	6652	4607	3252	2337	1707	1266	952	726

3.4 Dimensions and connections

Fig.1 Dimensions

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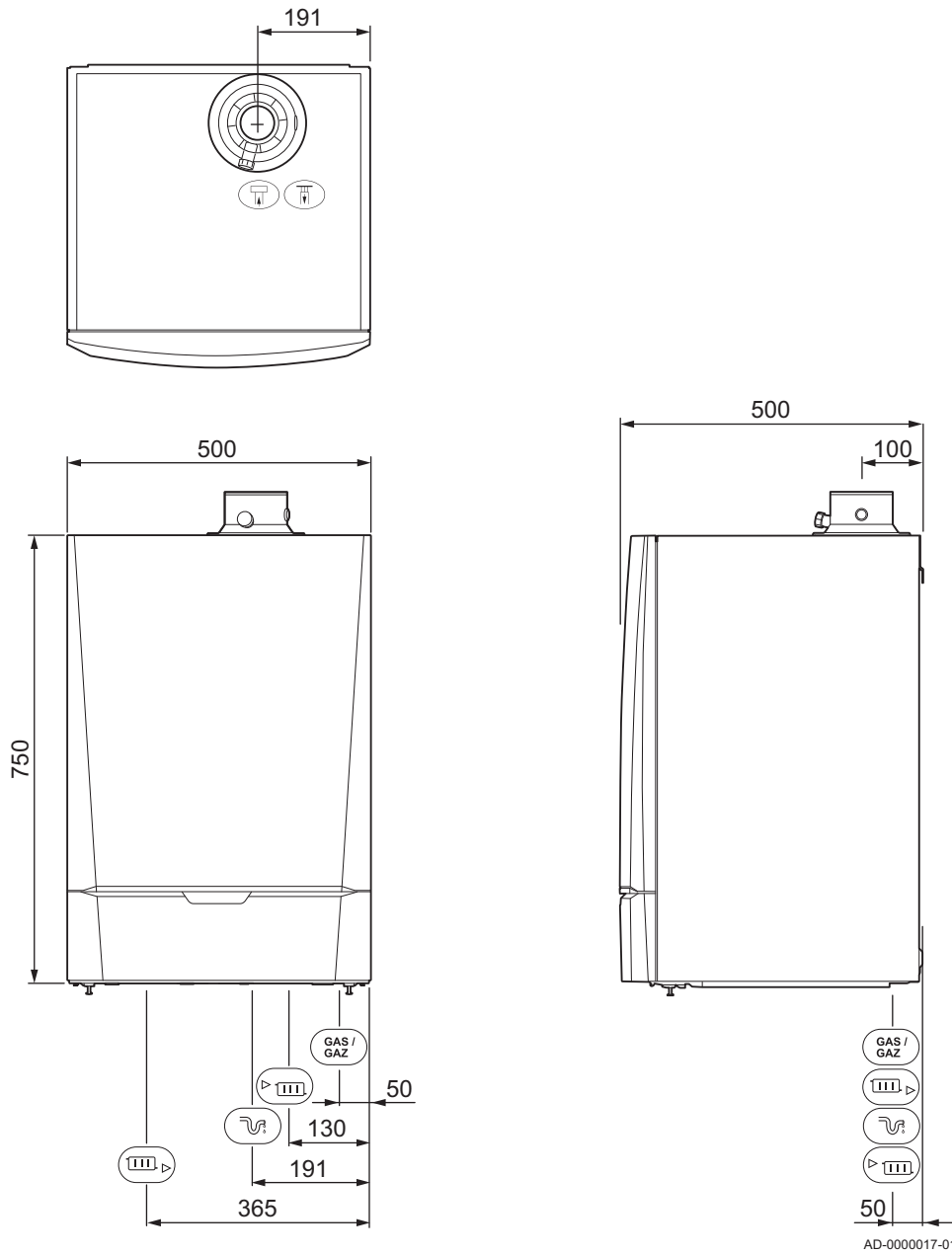
Tab.12 Connections

Symbol	Connection	MCA 45	MCA 65	MCA 90	MCA 115
⊤	Flue gas outlet	Ø 80 mm	Ø 100 mm	Ø 100 mm	Ø 100 mm
⊤	Air supply	Ø 125 mm	Ø 150 mm	Ø 150 mm	Ø 150 mm
∿	Siphon	32 mm	32 mm	32 mm	32 mm
▸▥	CH supply	1 ¼ inch male thread	1 ¼ inch male thread	1 ¼ inch male thread	1 ¼ inch male thread
▥▸	CH return	1 ¼ inch male thread	1 ¼ inch male thread	1 ¼ inch male thread	1 ¼ inch male thread
GAS/ GAZ	Gas	¾ inch male thread	¾ inch male thread	¾ inch male thread	¾ inch male thread

3.5 Electrical diagram

Fig.2 Electrical diagram
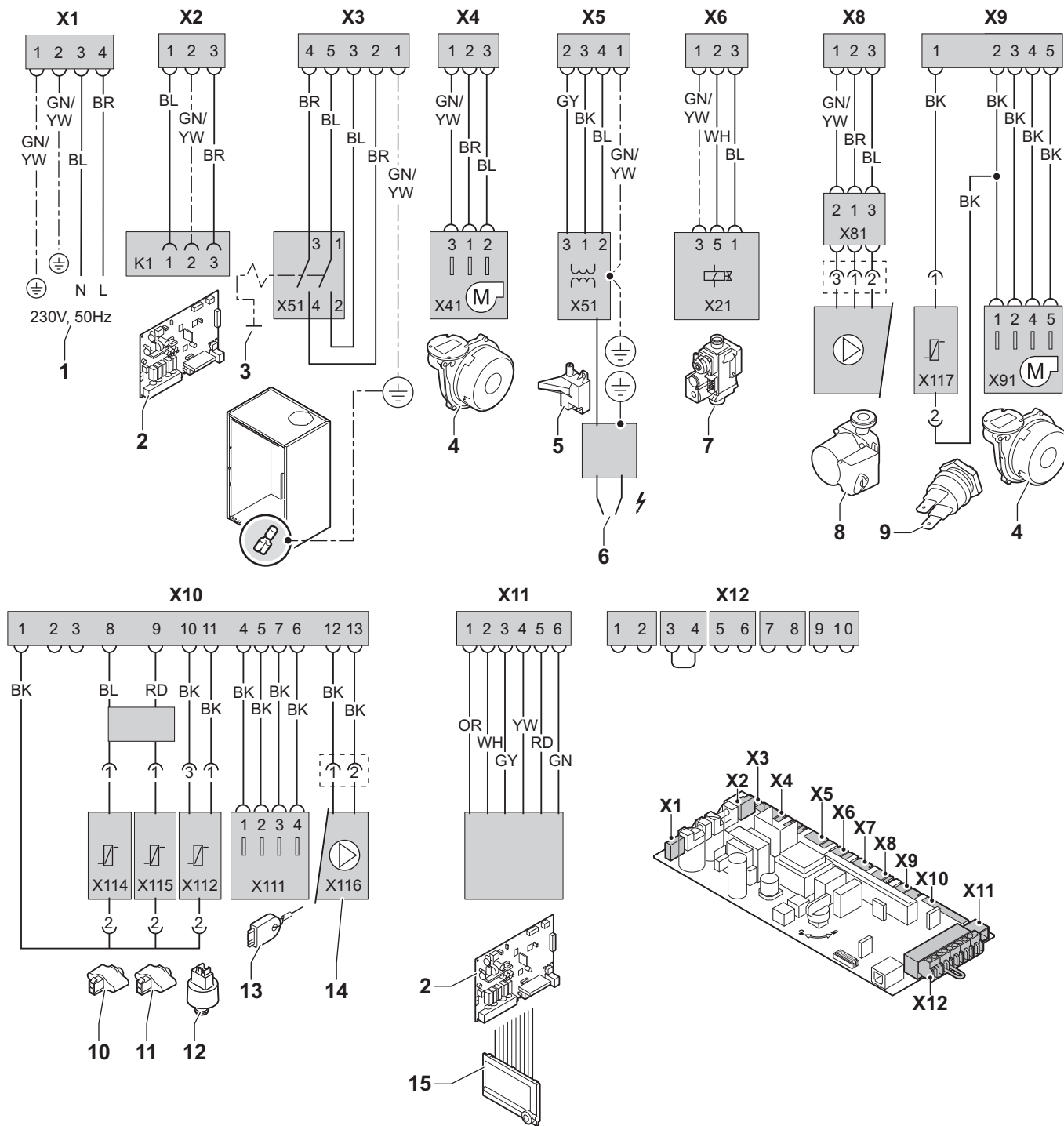
1	Power supply (P)	13	Storage parameter (PSU)
2	Extended PCB (SCU)	14	Circulating pump (PWM pump)
3	On/off switch (S)	15	Display (DIS)
4	Fan (FAN)	BK	Black
5	Ignition transformer (IT)	BL	Blue
6	Ignition pin (E)	BR	Brown
7	Gas combination block (GB)	GN	Green
8	Circulating pump (pump A)	GY	Grey
9	High limit switch (HLS)	RD	Red
10	Return sensor (RTS)	OR	Orange
11	Flow sensor (FTS)	WH	White
12	Pressure switch (PS)	YW	Yellow

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4   Description of the product

4.1   General description

The MCA boiler has the following characteristics:

- High-efficiency heating.
- Limited emissions of polluted substances.
- Ideal choice for cascade configurations.
- Equiped with control panel DIEMATIC iSystem or IniControl.
- Option to produce domestic hot water using a separate hot water appliance.

4.2   Operating principle

4.2.1   Circulating pump

■   Model not supplied with circulating pump

The boiler is supplied without a pump. Take the boiler resistance and system resistance into account when selecting a pump.

> ⚠ **Caution**
> The pump may have a maximum input of 200 W. Use an auxiliary relay for a pump with greater power.

> 📖 **See**
> Technical data, page 12

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

■   Pump settings

The pump settings for a modulating circulating pump controlled by the control unit can be modified using parameters $P28$ and $P29$:

- If there is insufficient flow in the radiators or if they do not warm up completely, the minimum pump speed can be increased using parameter $P28$.
- If there are audible flowing noises in the system, the maximum pump speed must be lowered using parameter $P29$ (bleed the CH installation first).

> ⚠ **Caution**
> The pump may have a maximum input of 200 W. Use an auxiliary relay for a pump with greater power.

4.2.2   Cascade system

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

> ℹ **Important**
> Contact us for more information.

4.2.3   Water flow

The modulating control of the boiler limits the maximum temperature difference between the flow and return and the maximum rise velocity of the flow temperature. As a result, the boiler is virtually unaffected by low water flow. In all cases, maintain a minimum water flow of 0.4 m³/h. If progressive calorifier control is activated with parameter $P35$, then maintain a minimum water flow of 0.8 m³/h.

4.2.4   Calorifier connection

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

> **i** **Important**
> Contact us for more information.

4.3   Main components

Fig.3   Main components
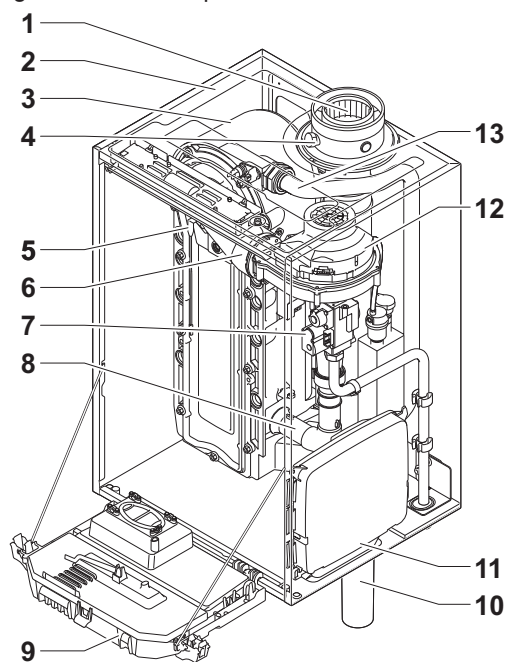
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1   Flue gas outlet/air supply
2   Casing/air box
3   Heat exchanger (CH)
4   Flue gas measuring point
5   Ionisation/ignition electrode
6   Mixer tube
7   Combined gas valve unit
8   Air intake silencer
9   Instrument box
10 Siphon
11 Housing for PCBs
12 Fan
13 Water flow pipe

4.4   Standard delivery

The delivery includes:

- Suspension bracket and fasteners for wall mounting
- Mounting template
- Connection cable for pump (MCA 45 - 65 - 90 - 115)
- Documentation
- One package with the control panel DIEMATIC iSystem or IniControl.

This manual only deals with the standard scope of supply. For the installation or mounting of any accessories delivered with the boiler, refer to the corresponding mounting instructions.

4.5   Accessories and options

Various accessories can be obtained for the boiler.

> **i** **Important**
> Contact us for more information.

5 Before installation

5.1 Installation regulations

> **Warning**
> The boiler must be installed by a qualified installer in accordance with local and national regulations.

5.2 Choice of the location

5.2.1 Type plate

Fig.4 Position of type plate

AD-0000013-02
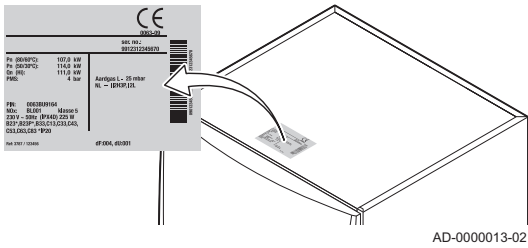
The type plate on top of the boiler features the boiler serial number and important boiler specifications, for example the model and unit category. The dF and dU codes are also stated on the type plate.

5.2.2 Boiler position

Fig.5 Installation area

AD-0000014-02
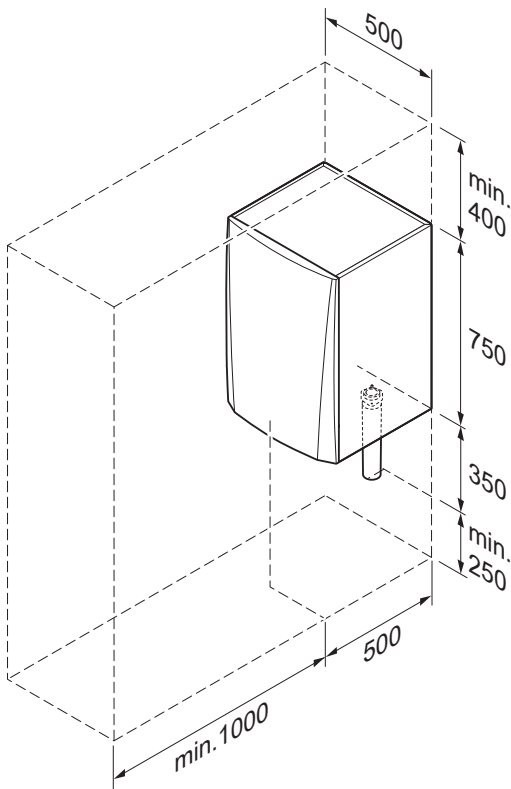
- Use the guidelines and the required installation space as a basis for determining the correct place to install the boiler.
- When determining the correct installation space, take account of the permitted position of the flue gas discharge and/or air supply outlet.
- Ensure that there is sufficient space around the boiler for good access and ease of maintenance.

> **Danger**
> It is forbidden to store, even temporarily, combustible products and substances in the boiler or near the boiler.

> **Warning**
> - Fix the appliance to a solid wall capable of bearing the weight of the boiler when full of water and fully equipped.

> **Caution**
> - The boiler must be installed in a frost-free area.
> - A connection to the drain must be present for the condensate drain close to the boiler.

5.3 Ventilation

Fig.6 Space for ventilation
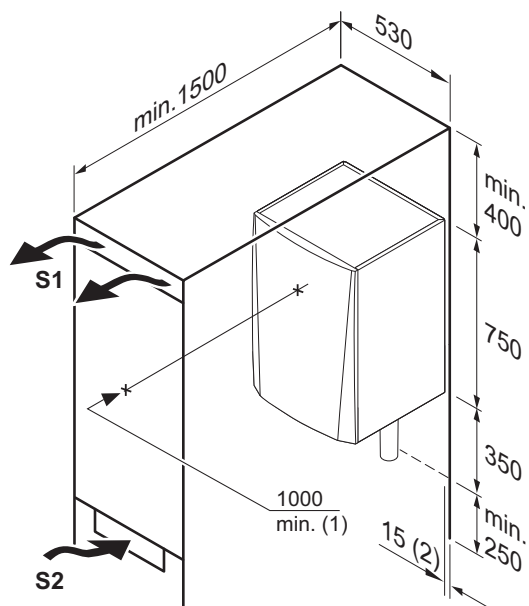
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(1) Distance between the front of the boiler and the internal wall of the casing.
(2) Space on either side of the boiler.

If the boiler is installed in a closed casing, observe the minimum dimensions indicated. Also allow for openings to prevent the following hazards:

• Accumulation of gas
• Heating of the casing

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

6   Installation

6.1   General

> ⚠ **Warning**
> The boiler must be installed by a qualified installer in accordance with local and national regulations.

6.2   Preparation

6.2.1   Positioning the boiler

Fig.7   Mounting the boiler

AD-0000018-02

The fitting bracket on the back of the casing can be used to mount the boiler directly on the suspension bracket.

The boiler is supplied with a mounting template.

1. Attach the mounting template of the boiler to the wall using adhesive tape.

> ⚠ **Warning**
> • Use a level to check whether the mounting template is hanging perfectly horizontally.
> • Protect the boiler against building dust and cover the connection points for the flue gas outlet and air supply. Only remove this cover to assemble the relevant connections.

2. Drill 2 holes of Ø 10 mm.

> ℹ **Important**
> The extra holes are intended for use in the event that one of the two fastening holes is not suitable for correct fastening of the plug.

3. Fit the Ø 8 mm plugs.
4. Attach the suspension bracket to the wall with the Ø 10 mm bolts supplied.
5. Mount the boiler on the suspension bracket.

6.3   Hydraulic connections

6.3.1   Rinsing the system

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

Before a new boiler can be connected to an existing or new system, the entire system must be thoroughly cleaned and flushed. This step is absolutely crucial. The flushing helps to remove residue from the installation process (weld slag, fixing products etc.) and accumulations of dirt (silt, mud etc.)

> ℹ **Important**
> Flush the system with a volume of water equivalent to at least three times the volume of the system. Flush the DHW pipes with a volume of water equivalent to at least 20 times the volume of the pipes.
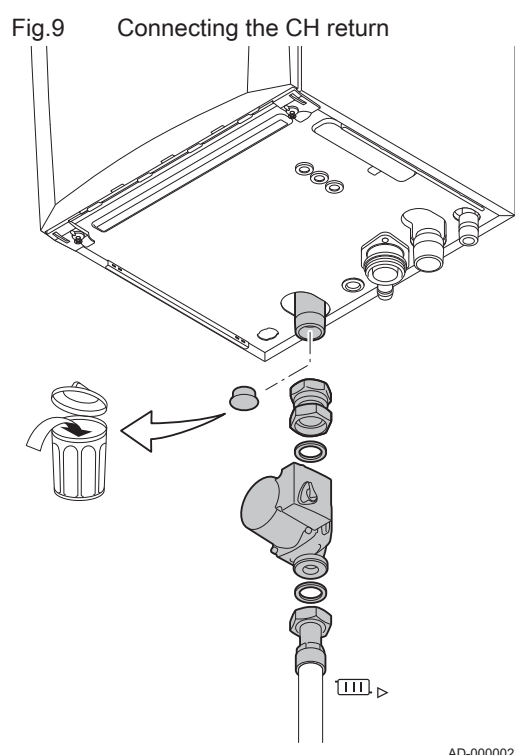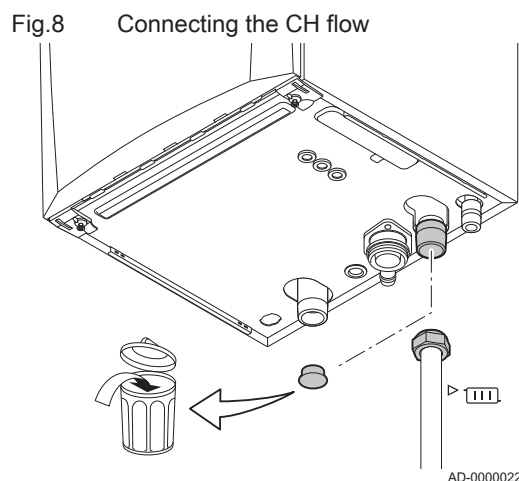
6.3.2 Connecting the heating circuit

Fig.8 Connecting the CH flow

AD-0000022-02

Fig.9 Connecting the CH return

AD-0000023-02

1. Remove the dust cap from the CH flow connection ▶Ⅲ at the bottom of the boiler.
2. Fit the outlet pipe for CH water to the CH flow connection.

3. For filling and tapping the boiler, install a filling and drain valve in the system.
4. Remove the dust cap from the CH return connection Ⅲ▶ at the bottom of the boiler.
5. Fit the inlet pipe for CH water to the CH return connection.
6. Install the pump in the CH return pipe.

📖 **See**
For the pump's electrical connection: Connecting the pump, page 34

ℹ️ **Important**
Fit a service shut-off valve in the CH flow pipe and the CH return pipe to facilitate servicing work.

⚠️ **Caution**
• When fitting service shut-off valves, position the filling and drain valve, the expansion vessel and the safety valve between the shut-off valve and the boiler.
• Carry out any welding work required at a safe distance from the boiler or before the boiler is fitted.
• If using synthetic pipes, follow the manufacturer's (connection) instructions.

Fig.10   Connecting the condensate dis-
          charge pipe
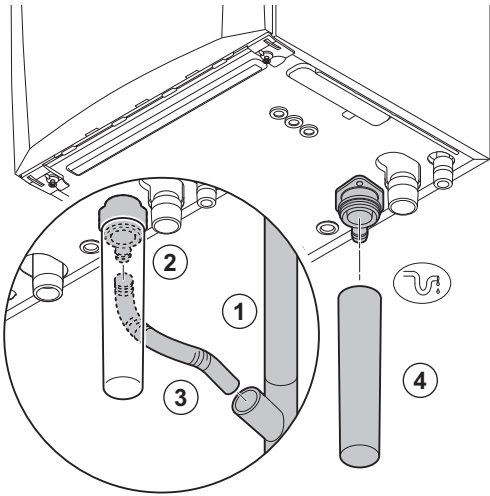
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6.3.3   Connecting the condensate discharge pipe

1. Fit a plastic drain pipe of Ø 32 mm or larger, terminating in the drain.
2. Insert the flexible condensate drain hose into the pipe.
3. Fit a stench-trap or siphon in the drain pipe.

> ⚠ **Danger**
> The siphon must always be filled with water. This prevents flue
> gases from entering the room.

> ⚠ **Caution**
> • Never seal the condensate drain.
> • The drain pipe must slope down at least 30 mm per metre, the
>   maximum horizontal length is 5 metres.
> • Condensed water must not be discharged into a gutter.

6.4   Gas connection

> ⚠ **Warning**
> • Before starting work on the gas pipes, turn off the main gas tap.
> • Before installing, check that the gas meter has sufficient capaci-
>   ty. Take into account the consumption of all appliances.
> • Notify the local energy company if the gas meter has insufficient
>   capacity.

Fig.11   Connecting the gas pipe

AD-0000025-02

1. Remove the dust cap from the gas supply pipe $^{GAS/}_{GAZ}$ at the bottom of
    the boiler.
2. Fit the gas supply pipe.
3. Fit a gas tap in this pipe, directly underneath the boiler.
4. Fit the gas pipe to the gas tap.

> ⚠ **Caution**
> • Remove dirt and dust from the gas pipe.
> • Always perform welding work at a sufficient distance from the
>   boiler.

> **ℹ Important**
> We recommend installing a gas filter to prevent clogging of the
> gas valve unit.

6.5   Air supply/flue gas connections

The boiler is suitable for the following types of flue gas connections:
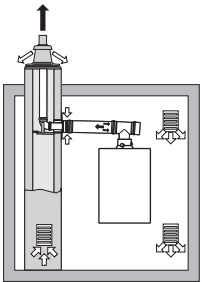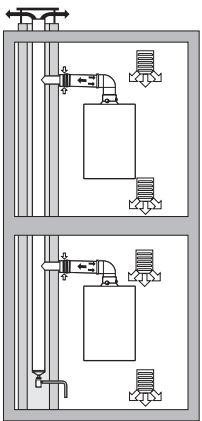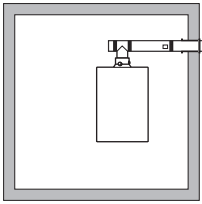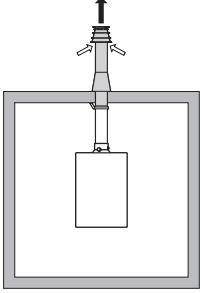
> 📖 **For more information, see**
> Certifications, page 12
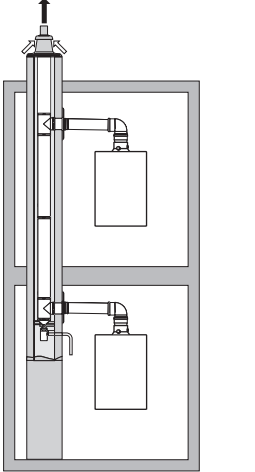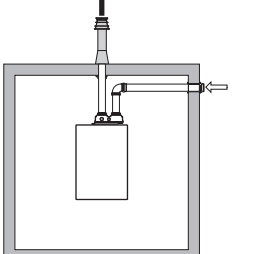
6.5.1 Classification
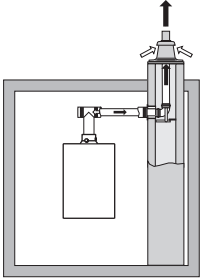
> **ℹ Important**
>
> • The installer is responsible ensuring that the right type of flue gas outlet system is used and that the diameter and length are correct.
> • Always use connection materials and roof terminal supplied by the same manufacturer. Consult the manufacturer for compatibility details.

Tab.13   Types of flue gas connections

Type	Principle	Description	Permitted manufacturers[1]
B_{23} B_{23P}	AD-3000924-01	Room-ventilated version • Without down-draught diverter. • Flue gas discharge via the roof. • Air from the installation area.	Connection material and roof terminal: • Cox Geelen • Poujoulat • Ubbink
B_{33}	AD-3000925-01	Room-ventilated version • Without down-draught diverter. • Joint flue gas discharge via the roof, with guaranteed natural draft. (at all times underpressure in the joint discharge duct) • Flue gas discharge rinsed with air, air from the installation area (special construction).	Connection material: • Cox Geelen • Poujoulat • Ubbink
$C_{13(X)}$	AD-3000926-01	Room-sealed version • Discharge in the outside wall. • Inlet opening for the air supply is in the same pressure zone as the discharge (e.g. a combined outside wall feed-through). • Parallel not permitted	Outside wall terminal and connection material: • Cox Geelen
$C_{33(X)}$	AD-3000927-01	Room-sealed version • Flue gas discharge via the roof. • Inlet opening for the air supply is in the same pressure zone as the discharge (e.g. a concentric roof feed-through).	Roof terminal and connection material • Cox Geelen • Poujoulat • Ubbink

Type	Principle	Description	Permitted manufacturers[1]
C$_{43P}$ [2]	AD-3000928-01	Combined air supply and flue gas outlet system (CLV) with overpressure. • Concentric (preferably). • Parallel (if concentric is not possible). • Minimum permitted pressure difference between the air supply and the flue gas outlet is -200 Pa (including -100 Pa wind pressure). • The channel must be designed for a nominal flue gas temperature of 25°C • Place a condensation drain, equipped with a siphon, at the bottom of the channel. • Maximum permissible recirculation of 10%. • The common outlet should be appropriate for a pressure of at least 200 Pa. • The roof feed-through must be designed for this configuration and must cause a draught in the channel. • A draught diverter is not permitted. **i** **Important** • The fan speed must be adapted for this configuration. • Contact us for more information.	Connecting material to the common channel: • Cox Geelen • Poujoulat • Ubbink
C$_{53}$	AD-3000929-02	Connection in different pressure zones • Closed unit. • Separate air supply duct. • Separate flue gas discharge duct. • Discharging into various pressure areas. • The air supply and the flue gas outlet must not be placed on opposite walls.	Connection material and roof terminal: • Cox Geelen • Poujoulat • Ubbink
C$_{63(X)}$		This type of unit is supplied by the manufacturer without a supply and discharge system.	When selecting the material, please note the following: • Condensed water must flow back to the appliance • The material must be resistant to the flue gas temperature of this appliance. • Maximum permissible recirculation of 10%. • The air supply and the flue gas outlet must not be placed on opposite walls. • Minimum permitted pressure difference between the air supply and the flue gas outlet is -200 Pa (including -100 Pa wind pressure).

Type	Principle	Description	Permitted manufacturers[1]
C$_{93(X)}$ [3]	AD-3000931-01	Room-sealed version • Air supply and flue gas discharge duct in shaft or ducted: - Concentric. - Air supply from existing duct. - Flue gas discharge via the roof. - Inlet opening for the air supply is in the same pressure zone as the discharge.	Connection material and roof terminal: • Cox Geelen • Poujoulat • Ubbink

(1) The material must also satisfy the material property requirements from the relevant chapter.
(2) EN 15502-2-1: 0.5 mbar suction due to depression
(3) See table for shaft or duct requirements

6.5.2 Requirements for shaft for C$_{93}$

Tab.14   Minimum dimensions of shaft or duct

Version (D)	Without air supply		With air supply	
	Ø duct	▫ duct	Ø duct	▫ duct
Rigid 80 mm	130 mm	130 x 130 mm	140 mm	130 x 130 mm
Rigid 100 mm	160 mm	160 x 160 mm	170 mm	160 x 160 mm
Rigid 150 mm	200 mm	200 x 200 mm	220 mm	220 x 220 mm
Concentric 80/125 mm	145 mm	145 x 145 mm	145 mm	145 x 145 mm
Concentric 100/150 mm	170 mm	170 x 170 mm	170 mm	170 x 170 mm
Concentric 150/200 mm	270 mm	270 x 270 mm	-	-

Fig.12   Minimum dimensions of shaft or duct

AD-3000330-02
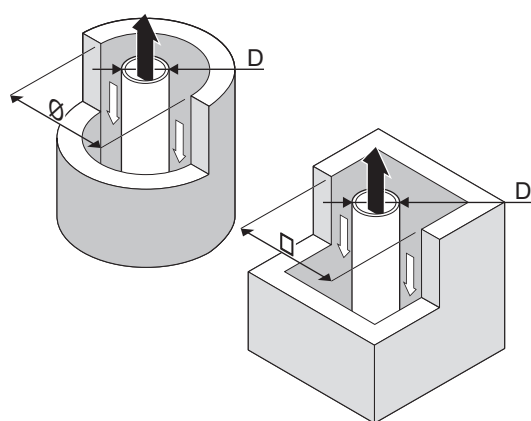
i Important
The shaft must comply with the air density requirements of the local regulations.

i Important
• Always clean shafts thoroughly when using lining pipes and/or an air supply connection.
• It must be possible to inspect the lining duct.

6.5.3 Material

Use the string on the flue gas outlet material to check whether it is suitable for use on this appliance.

Fig.13   Sample string

AD-3001120-01
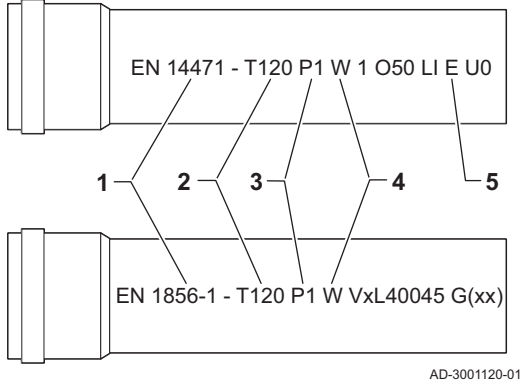
1 **EN 14471 of EN 1856–1**: The material is CE approved according to this standard. For plastic this is EN 14471, For aluminium and stainless steel this is EN 1856-1.
2 **T120**: The material has temperature class T120. A higher number is also allowed, but not lower.
3 **P1**: The material falls into pressure class P1. H1 is also allowed.
4 **W**: The material is suitable for draining condensation water (W='wet'). D is not allowed (D='dry').
5 **E**: The material falls into fire resistance class E. Class A to D are also allowed, F is not allowed. Only applicable to plastic.

⚠ **Warning**
- The coupling and connection methods may vary depending on the manufacturer. It is not permitted to combine pipes, coupling and connection methods from different manufacturers. This also applies to roof feed-throughs and common channels.
- The materials used must comply with the prevailing regulations and standards.

Tab.15   Overview of material properties

Version	Flue gas outlet		Air supply	
	Material	Material properties	Material	Material properties
Single-wall, rigid	• Plastic[1] • Stainless steel[2] • Thick-walled, aluminium[2]	• With CE marking • Temperature class T120 or higher • Condensate class W (wet) • Pressure class P1 or H1 • Fire resistance class E or better[3]	• Plastic • Stainless steel • Aluminium	• With CE marking • Pressure class P1 or H1 • Fire resistance class E or better[3]
(1) according to EN 14471 (2) according to EN 1856 (3) according to EN 13501-1				

6.5.4   Dimensions of flue gas outlet pipe

⚠ **Warning**
The pipes connected to the flue gas adapter must satisfy the following dimension requirements.

Fig.14   Dimensions of concentric connection

AD-3000962-01

d_1 External dimensions of flue gas outlet pipe
D_1 External dimensions of air supply pipe
L_1 Length difference between flue gas outlet pipe and air supply pipe
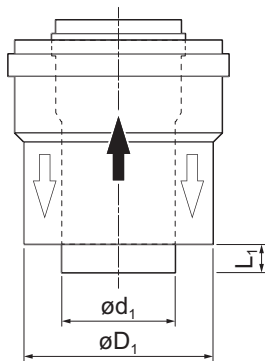
Tab.16   Dimensions of pipe

	d_1 (min-max)	D_1 (min-max)	L_1[1] (min-max)
80/125 mm	79.3 - 80.3 mm	124 - 125.5 mm	0 - 15 mm
100/150 mm	99.3 - 100.3 mm	149 - 151 mm	0 - 15 mm
(1) Shorten the inner pipe if the length difference is too great.			

6.5.5   Length of the air and flue gas pipes

The maximum length of the flue gas outlet and air supply channel vary depending on the appliance type; consult the relevant chapter for the correct lengths.

Fig.15   Room-ventilated version

AD-0000028-02

Important

- When using bends, the maximum chimney length (L) must be shortened according to the reduction table.
- For adaptation to another diameter use approved transitions

■ **Room-ventilated model (B23, B23P, B33)**
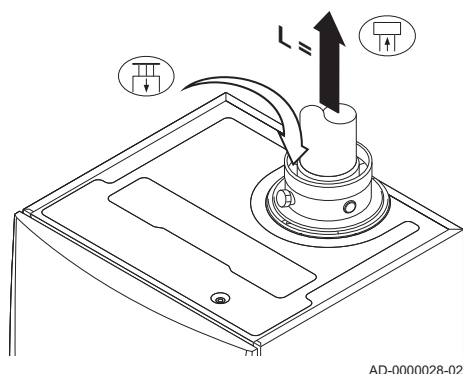
L   Length of the flue gas outlet channel to roof feed-through

⊞   Connecting the flue gas outlet

⊞   Connecting the air supply

With a room-ventilated version, the air supply opening stays open; only the flue gas outlet opening is connected. This will ensure that the boiler obtains the necessary combustion air directly from the installation area.

⚠ Caution

- The air supply opening must stay open.
- The installation area must be equipped with the necessary air supply openings. These openings must not be obstructed or shut off.

Tab.17   Maximum length (L)

Diameter	80 mm	90 mm	100 mm	110 mm	130 mm[1]
MCA 45	39 m	40 m[1]	40 m[1]	40 m[1]	40 m[1]
MCA 65	11 m	17 m	26 m	40 m	40 m[1]
MCA 90	10 m	16 m	24 m	40 m	40 m[1]
MCA 115	8 m	13 m	19 m	38 m	40 m[1]
(1) Retaining the maximum chimney length, it is possible to use an extra 5 x 90º or 10 x 45º elbows.					

■ **Room-sealed model (C13(X), C33(X), C63(X), C93(X))**

Fig.16   Room-sealed version (concentric)

AD-0000029-02
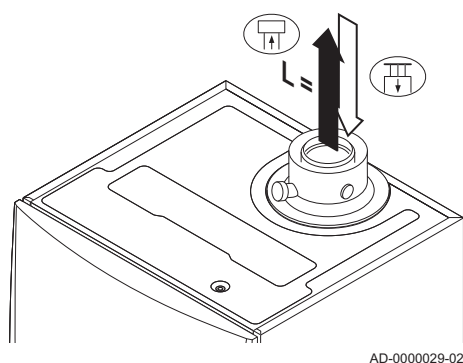
⊞   Connecting the flue gas outlet

⊞   Connecting the air supply

With a room-sealed version, both the flue gas outlet and the air supply openings are connected (concentrically).

Tab.18   Maximum chimney length (L)

Diameter	80/125 mm	100/150 mm[1]
MCA 45	20 m	20 m[1]
MCA 65	4 m	18 m
MCA 90	4 m	17 m
MCA 115	-	13 m
(1) Retaining the maximum chimney length, it is possible to use an extra 5 x 90º or 10 x 45º elbows.		

Fig.17   Different pressure areas

AD-0000030-02

■ **Connection in different pressure areas (C$_{53}$)**
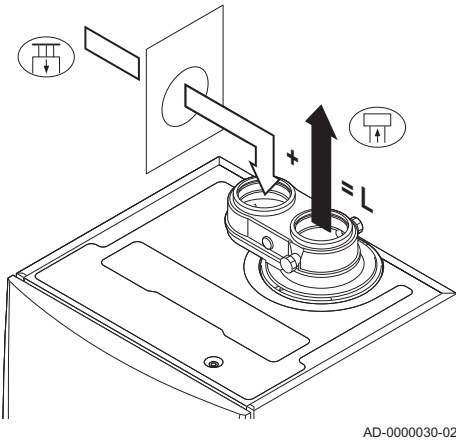
L   Total length of the flue gas outlet and air supply duct
⊞   Connecting the flue gas outlet
⊞   Connecting the air supply

A 100/100 mm flue gas adapter (accessory) must be fitted for this connection.

Combustion air supply and flue gas discharge are possible in different pressure areas and semi-CLV systems, with the exception of the coastal area. The maximum permitted height difference between the combustion air supply and the flue gas outlet is 36 m.

Tab.19   Maximum length (L)

Diameter	80 mm	90 mm	100 mm	110 mm	130 mm[1]
MCA 45	29 m	40 m	40 m[1]	40 m[1]	40 m[1]
MCA 65	5 m	10 m	16 m	34 m	40 m[1]
MCA 90	-	-	17 m	37 m	40 m[1]
MCA 115	-	-	14 m	31 m	40 m[1]
(1) Retaining the maximum chimney length, it is possible to use an extra 5 x 90º or 10 x 45º elbows.					

■ **Reduction table**

Tab.20   Pipe reduction for each element used (parallel)

Diameter	80 mm	90 mm	100 mm	110 mm	130 mm	150 mm	250 mm	300 mm
45° bend	1.2 m	1.3 m	1.4 m	1.5 m	1.0 m	1.2 m	2.0	2.4
90° bend	4.0 m	4.5 m	4.9 m	5.4 m	1.8 m	2.1 m	3.5	4.2

Tab.21   Pipe reduction for each element used (concentric)

Diameter	80/125 mm	100/150 mm	130/200 mm	150/220 mm
45° bend	1.0 m	1.0 m	1.5 m	1.5 m
90° bend	2.0 m	2.0 m	3.0 m	3.0 m

6.5.6   Additional guidelines

■ **Installation**

• For installing the flue gas outlet and air supply materials, refer to the instructions of the manufacturer of the relevant material. After installation, check at least all flue gas outlet and air supply parts for tightness.

> ⚠ **Warning**
> If the flue gas outlet and air supply materials are not installed in accordance with the instructions (e.g. not leak-proof, not correctly bracketed), this can result in dangerous situations and/or physical injury.

• Make sure that the flue gas outlet pipe towards the boiler has a sufficient gradient (at least 50 mm per metre) and that there is a sufficient conden-

sate collector and discharge (at least 1 m before the outlet of the boiler). The bends used must be larger than 90° to guarantee the gradient and a good seal on the lip rings.

■ Condensation

- Direct connection of the flue gas outlet to structural ducts is not permitted because of condensation.
- If condensate from a plastic or stainless steel pipe section can flow back to an aluminium part in the flue gas outlet, this condensate must be discharged via a collector before it reaches the aluminium.

> **i** Important
> Contact us for more information.

6.5.7 Connecting the flue gas outlet and air supply

Fig.18 Connecting the flue gas outlet and air supply

ø80/125 mm
ø100/150 mm
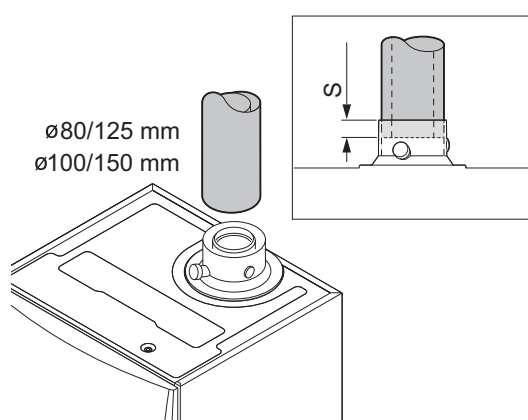
AD-0000034-01

S Insertion depth 25 mm

1. Connect the flue gas outlet pipe and the air supply pipe to the boiler.
2. Fit the subsequent flue gas outlet pipes and air supply pipes in accordance with the manufacturer's instructions.

> ⚠ **Caution**
> - The pipes must not be resting on the boiler.
> - Fit the horizontal parts sloping down towards the boiler, with a gradient of 50 mm per metre.

6.6 Mounting the outside temperature sensor

6.6.1 Recommended positions

Place the outside sensor in a position that covers the following characteristics:

- On a façade of the area to be heated, on the north if possible.
- Half way up the wall of the area to be heated.
- Under the influence of changes in the weather.
- Protected from direct sunlight.
- Easy to access.

Fig.19
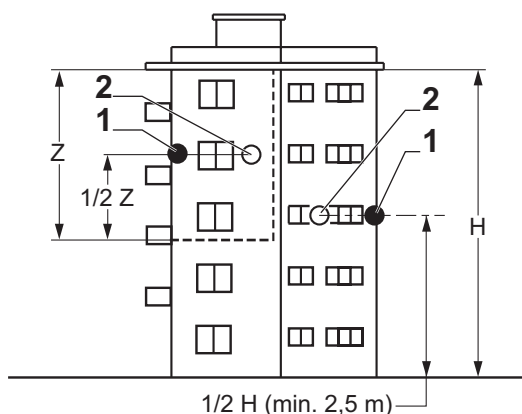
MW-8800N001-3

1 Recommended position
2 Possible position
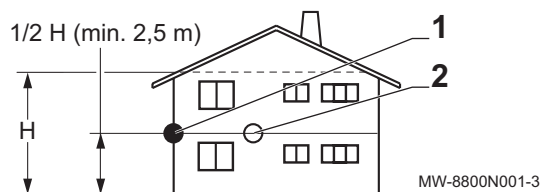
H Inhabited height controlled by the sensor
Z Inhabited area controlled by the sensor

Fig.20

MW-8800N003-6

6.7   Electrical connections
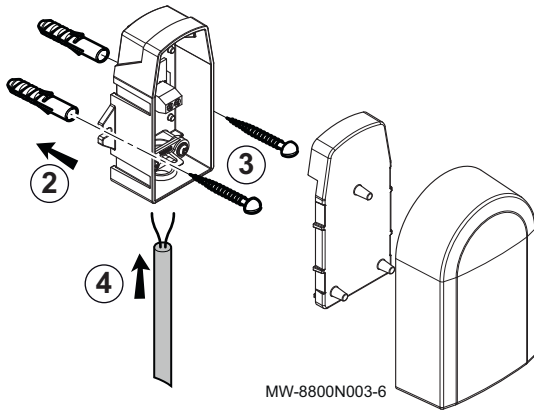
6.6.2   Fitting the outside temperature sensor

1. Put the 2 dowels in place, delivered with the sensor (drill diameter 6 mm).
2. Secure the sensor using the screws provided.
3. Connect the sensor to the boiler using an electric cable with maximum cross-section of 2x1.5 mm² (not provided).

6.7.1   Control unit

The table gives important connection values for the control unit.

Tab.22   Connection values for control unit

Supply voltage	230 VAC/50 Hz
Main fuse value F1 (230 VAC)	6.3 AT
Fuse value F2 (230 VAC)	2 AT
Fan	230 VAC

> **Danger of electric shock**
> The following components of the boiler are connected to a 230 V power supply:
>
> • Electrical connection to circulating pump.
> • Electrical connection to gas combination block.
> • Electrical connection to fan.
> • Control unit.
> • Ignition transformer.
> • Power supply cable connection.

The boiler has several control, protection and regulation connection options. The standard PCB can be extended with optional PCBs.

> **For more information, see**
> Optional electrical connections, page 137

6.7.2   Recommendations

> **Warning**
>
> • Electrical connections must always be made with the power supply disconnected and only by qualified installers.
> • The boiler is completely pre-wired. Never change the internal connections of the control panel.
> • Make sure you establish an earth connection before connecting the electricity.

Establish the electrical connections in accordance with:

• The instructions of the current standards.
• The instructions of the wiring diagrams supplied with the boiler.
• The recommendations in this manual.

• Separate the sensor cables from the 230 V cables.

> ⚠ **Caution**
>
> • Outside the central heating boiler: Use 2 cables spaced at least 10 cm apart.

6.7.3   Access to the connectors

Fig.21   Access to the connectors
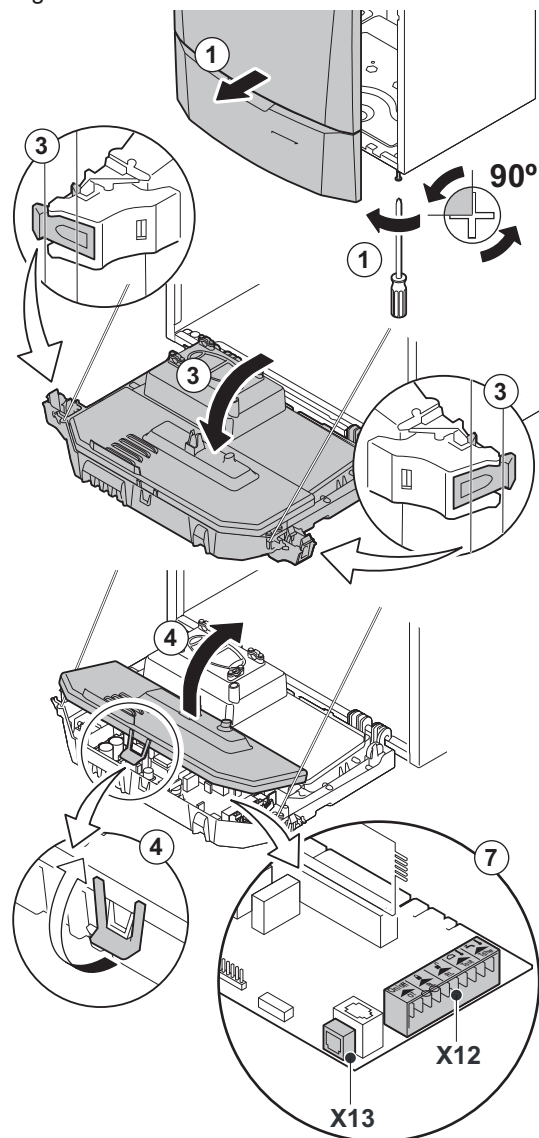
AD-3000075-01

Various thermostats and regulators can be connected to the standard PCB (PCU) (connector **X12**).

Access to the connectors:

1. Unscrew the two screws located under the front housing by a quarter turn and remove the front housing.
2. Guide the cables from the regulator or the thermostat through the round grommet(s) on the right-hand side of the boiler bottom plate.
3. Tilt the instrument box forwards by opening the clips on the sides.
4. Open the instrument box by opening the clip on the front.
5. Guide the relevant connection cable(s) through the instrument box via the grommet(s) provided.
6. Unscrew the strain relief clamps as required (in front of the connector) and guide the cables underneath.
7. Connect the cables to the appropriate terminals on the connector.
8. Screw the strain relief clamps securely into position and close the control panel.

Fig.22   Connecting the power supply cable

AD-0000038-01

6.7.4   Connection options for the standard PCB

■   **Connecting the PWM pump**

The energy-efficient modulating pump must be connected to the standard PCB of the PCU. Proceed as follows:

1. Connect the power supply cable and the cable for the PWM signal to the pump.
2. Remove the grommet from the opening in the middle of the base of the boiler.
3. Pass the pump power supply cable through the base of the boiler and seal the opening by tightening the bayonet fitting to the cable.
4. Pass the PWM cable from the pump through one of the grommets on the right in the base of the boiler.
5. Connect the pump power supply cable to the cable in the instrument box that is connected with connector X8.
6. Connect the pump PWM cable to the cable in the instrument box that is connected with connector X10.
7. Add the pump cables to the cable bundles by opening and closing the cable bundle bands.
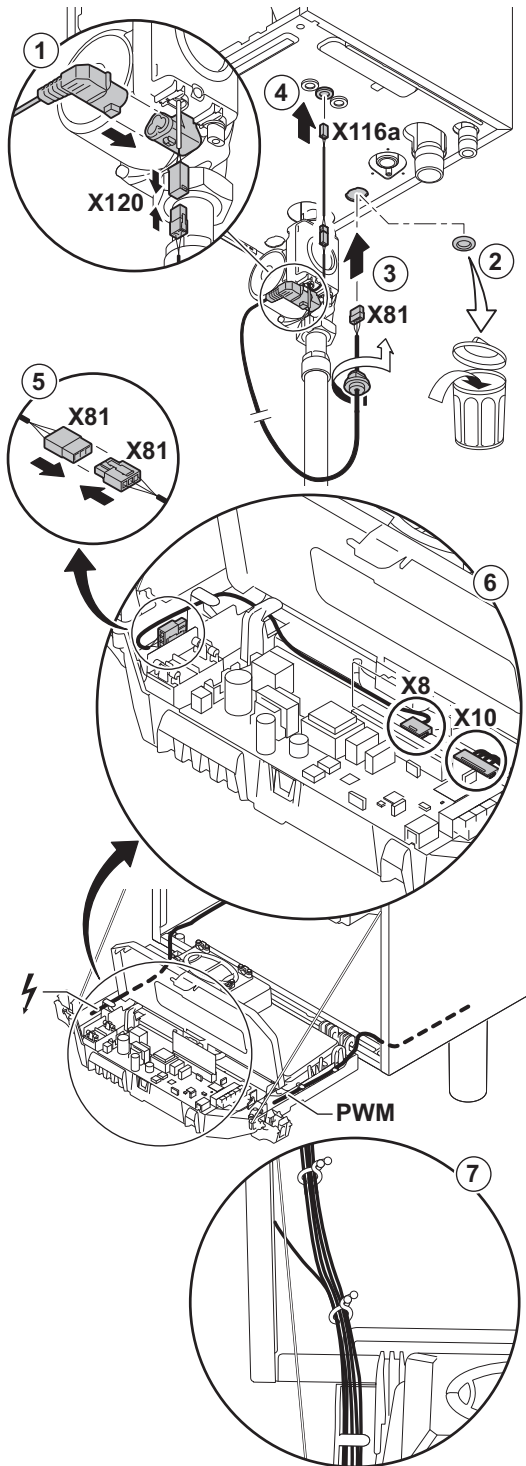
Fig.23   Connecting the power supply cable
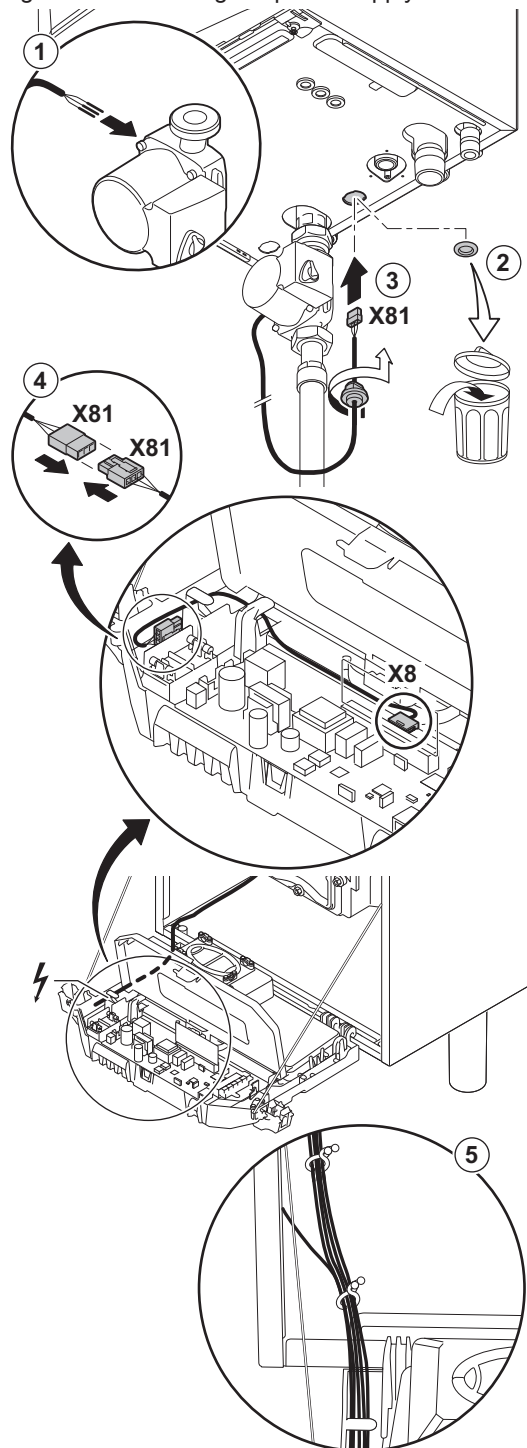
AD-0000043-01

■ **Connecting the pump**

The pump must be connected to the standard PCB of the PCU. Proceed as follows:

1. Connect the cable supplied with the boiler to the pump.
2. Remove the grommet from the opening in the middle of the base of the boiler.
3. Pass the pump cable through the base of the boiler and seal the opening by tightening the bayonet fitting to the cable.
4. Connect the pump cable to the cable in the instrument box that is connected with connector X8.
5. Add the pump cable to the cable bundles by opening and closing the cable bundle bands.

■ **Connecting a PC/laptop**

Fig.24   Connecting a PC/laptop
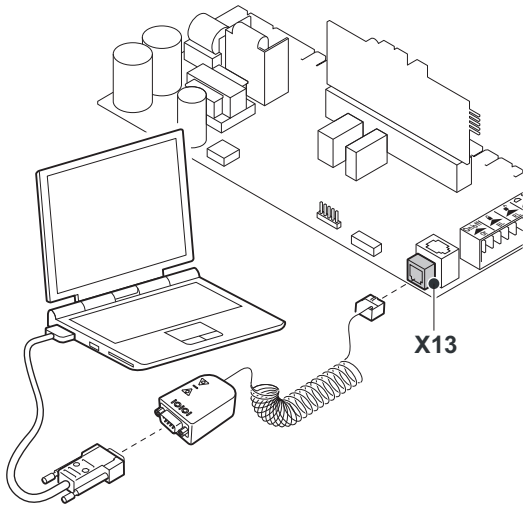
A PC or laptop can be connected to the telephone connector using the optional **Recom** interface Using the **Recom** PC/Laptop service software, you can enter, change and read out various boiler settings.

X13

AD-0000051-01

6.7.5   Connecting a direct heating circuit

Fig.25

C002903-B
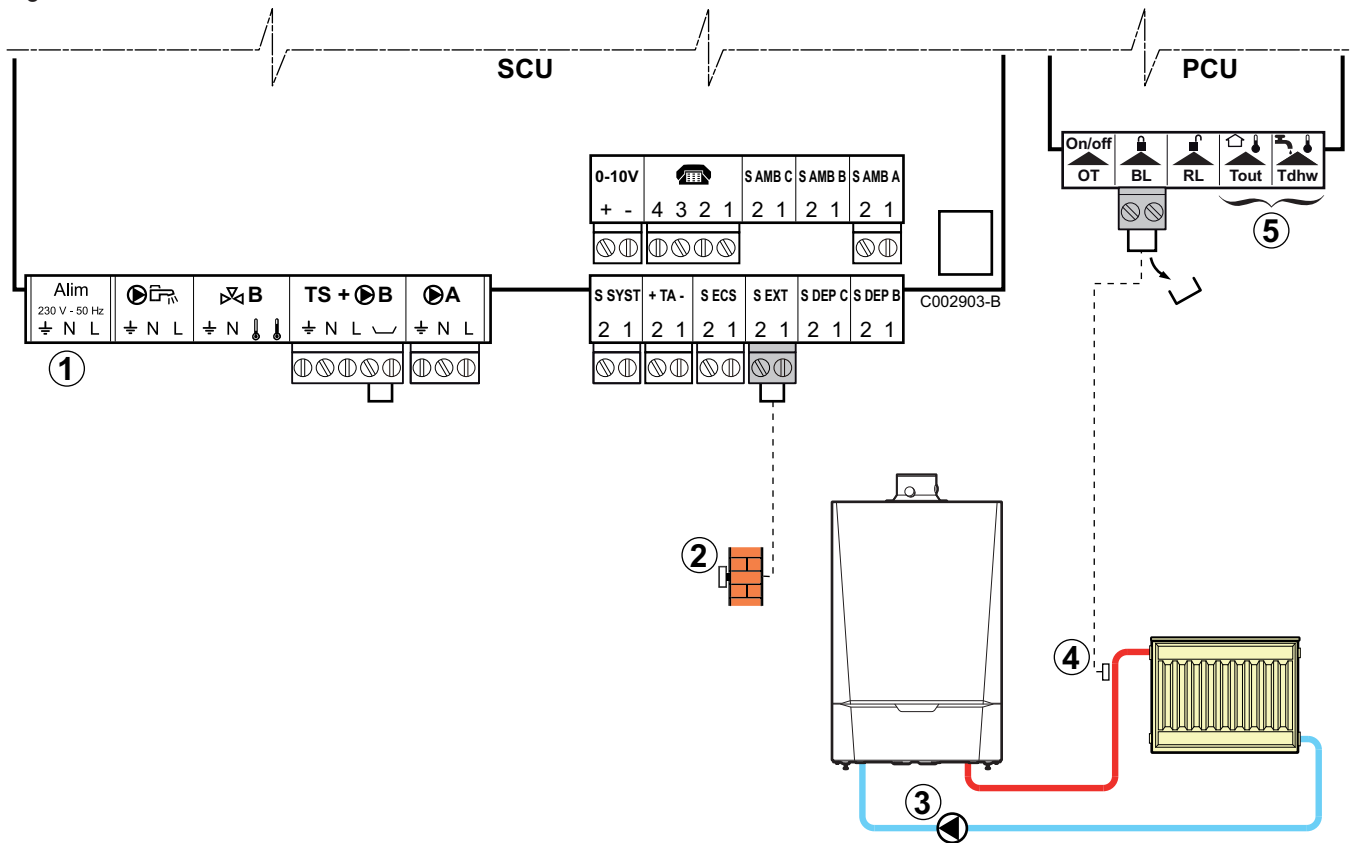
1 Do not connect anything to the terminal block.
2 Connect the outdoor temperature sensor.

> **i** **Important**
> The outdoor sensor connection is optional on installations with a Inicontrol control panel.

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 Do not connect anything to the terminal block.

6.7.6   Connecting a direct heating circuit and a domestic hot water tank

Fig.26

1   Do not connect anything to the terminal block.
2   Connect the domestic hot water booster pump.
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 anode for the domestic hot water tank.

> **i   Important**
> If the domestic hot water 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 domestic hot water tank is not fitted with an impressed current anode, install the simulation connector (delivered with the DHW sensor – package **AD212**).

6   Connect the outdoor temperature sensor.

> **i   Important**
> The outdoor sensor connection is optional on installations with a Inicontrol control panel.

7   Connect the domestic hot water sensor (package **AD212**).
8   Connect the domestic hot water circulation loop pump (optional).
9   Do not connect anything to the terminal block.

■   **Settings to be made for connecting a direct heating circuit and a domestic hot water tank – DIEMATIC iSystem**

Tab.23

Parameters	Access	Settings to be made	See chapter
INSTALLATION	Installer level **#SYSTEM** menu	**EXTENDED**	"Displaying the parameters in extended mode"
If a domestic hot water circulation loop pump is connected to ▶A on the terminal block: **O.PUMP A**[1]	Installer level **#SYSTEM** menu	**DHW LOOP**	"Setting the parameters specific to the installation"
If a safety thermostat is connected to **BL** on the terminal block: **IN.BL**	Installer level **#PRIMARY INSTAL.P** menu	**TOTAL STOP**	"Professional settings"
(1) The parameter is only displayed if the **INSTALLATION** parameter is set to **EXTENDED**			

■   **Settings to be made for connecting a direct heating circuit and a domestic hot water tank – Inicontrol**

No additional settings are necessary for this type of installation.

6.7.7 Connecting two direct heating circuits and a domestic hot water tank

> **i** **Important**
> This configuration is only possible with the DIEMATIC iSystem control panel.

Fig.27

C002905-B

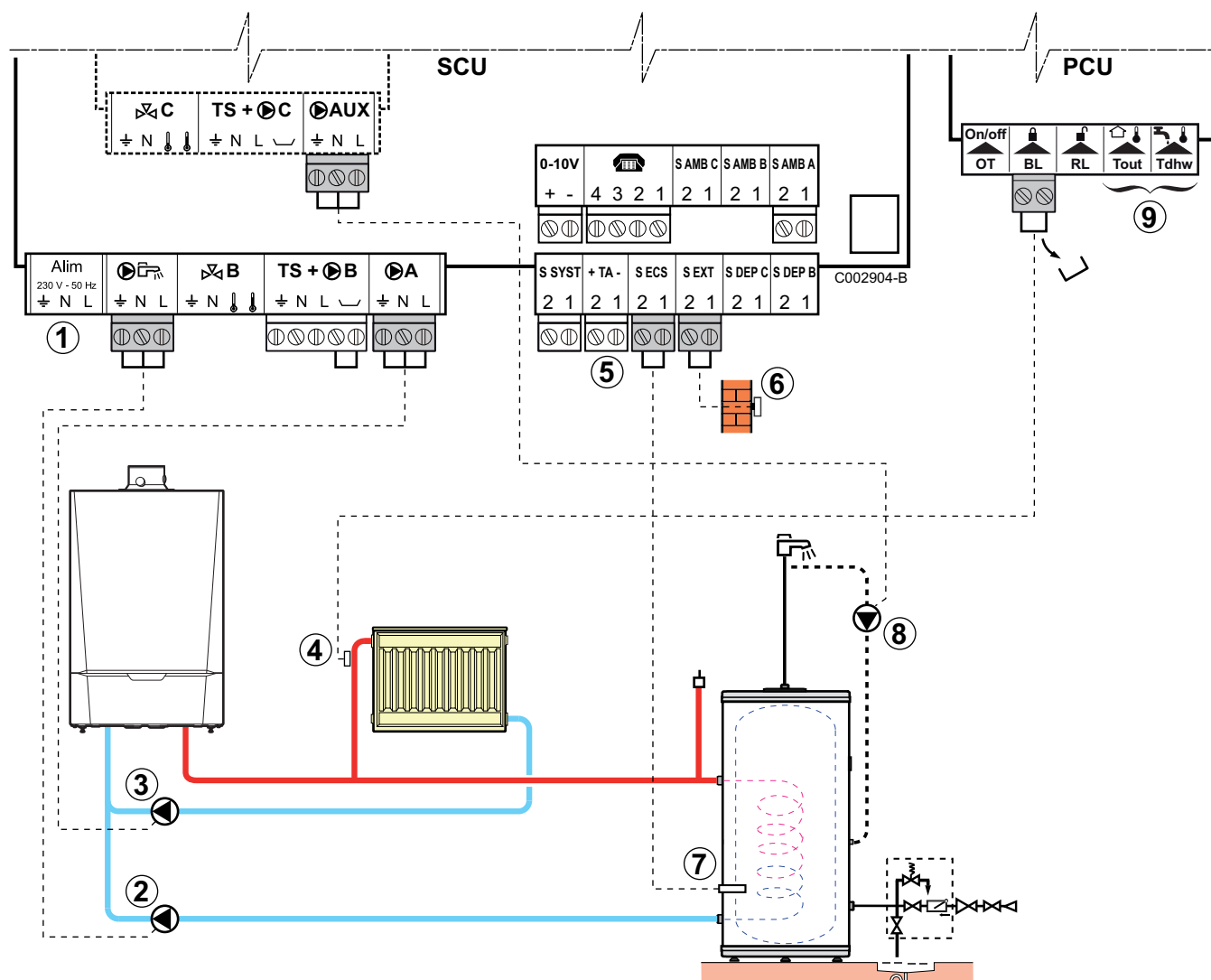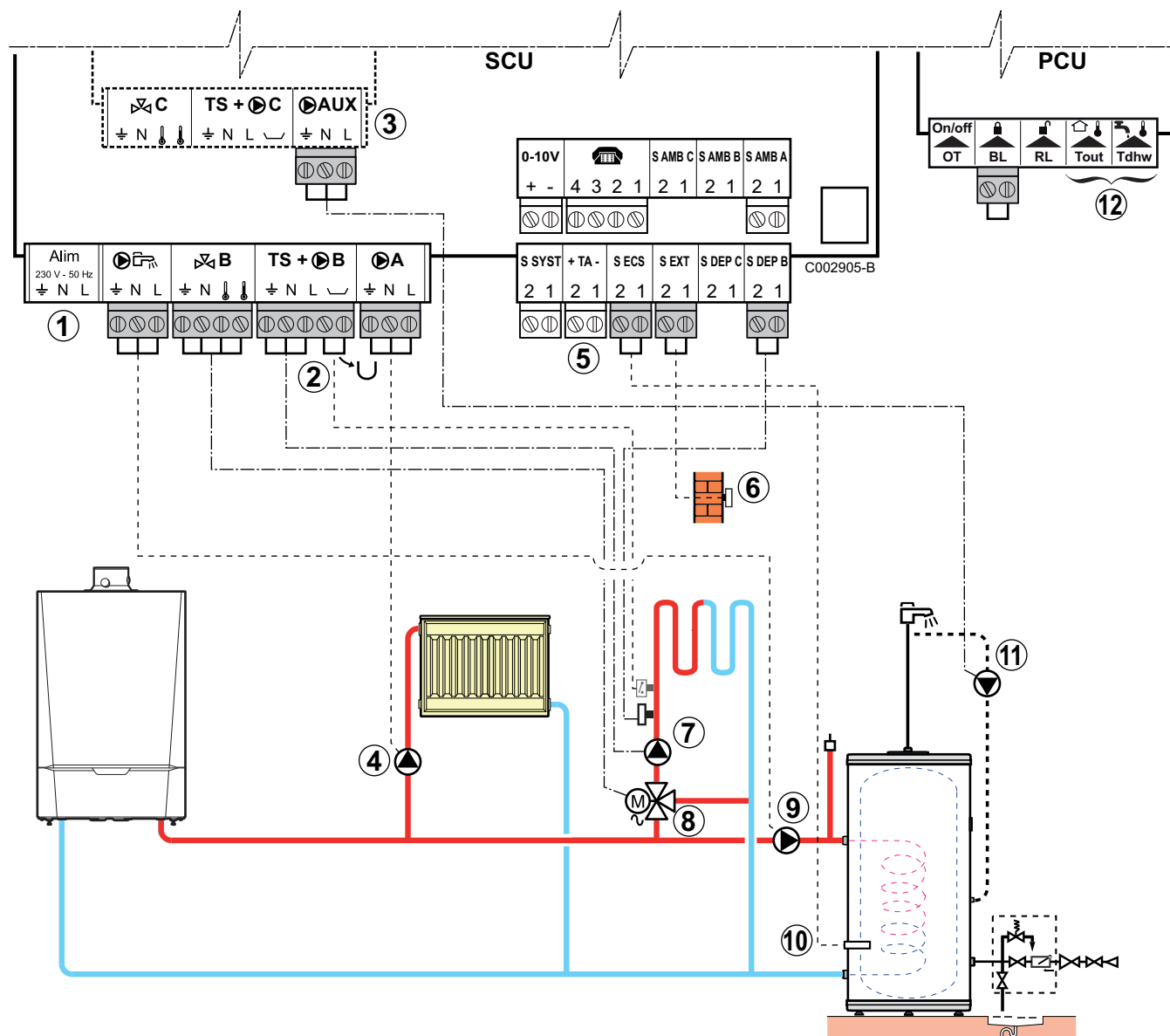1 Do not connect anything to the terminal block.
2 Connect a safety thermostat if the heating circuit is for underfloor heating.

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

3 Connect an additional circuit to option **AD249**.
4 Connect the heating circulating pump (Circuit **A**).

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

5 Connect the anode for the domestic hot water tank.

> **i** **Important**
> If the domestic hot water 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 domestic hot water tank is not fitted with an impressed current anode, install the simulation connector (delivered with the DHW sensor – package **AD212**).

6 Connect the outdoor temperature sensor.

The sensor connection is optional on boilers with a Inicontrol control panel.

7 Connect the heating circulating pump (Circuit **B**).
8 Connect the 3-way valve (circuit **B**).

9   Connect the domestic hot water booster pump.
10   Connect the domestic hot water sensor (package **AD212**).

11   Connect the domestic hot water circulation loop pump to the ▶ **AUX** outlet on the option **AD249**.
12   Do not connect anything to the terminal block.

6.7.8   Connecting a buffer tank

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

■   Connecting a QUADRO DU buffer tank

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

ℹ **Important**
If the buffer tank does not have a DHW zone, use an independent domestic hot water tank.

The boiler maintains the domestic hot water at the DHW set point.

The heating zone is maintained at the set temperature calculated according to the outside temperature. The zone is reheated when the temperature at the heating tank sensor (3) drops below the calculated set point of -6 °C. The reheating is stopped when the temperature at the heating tank passes above the calculated set point.

Fig.28
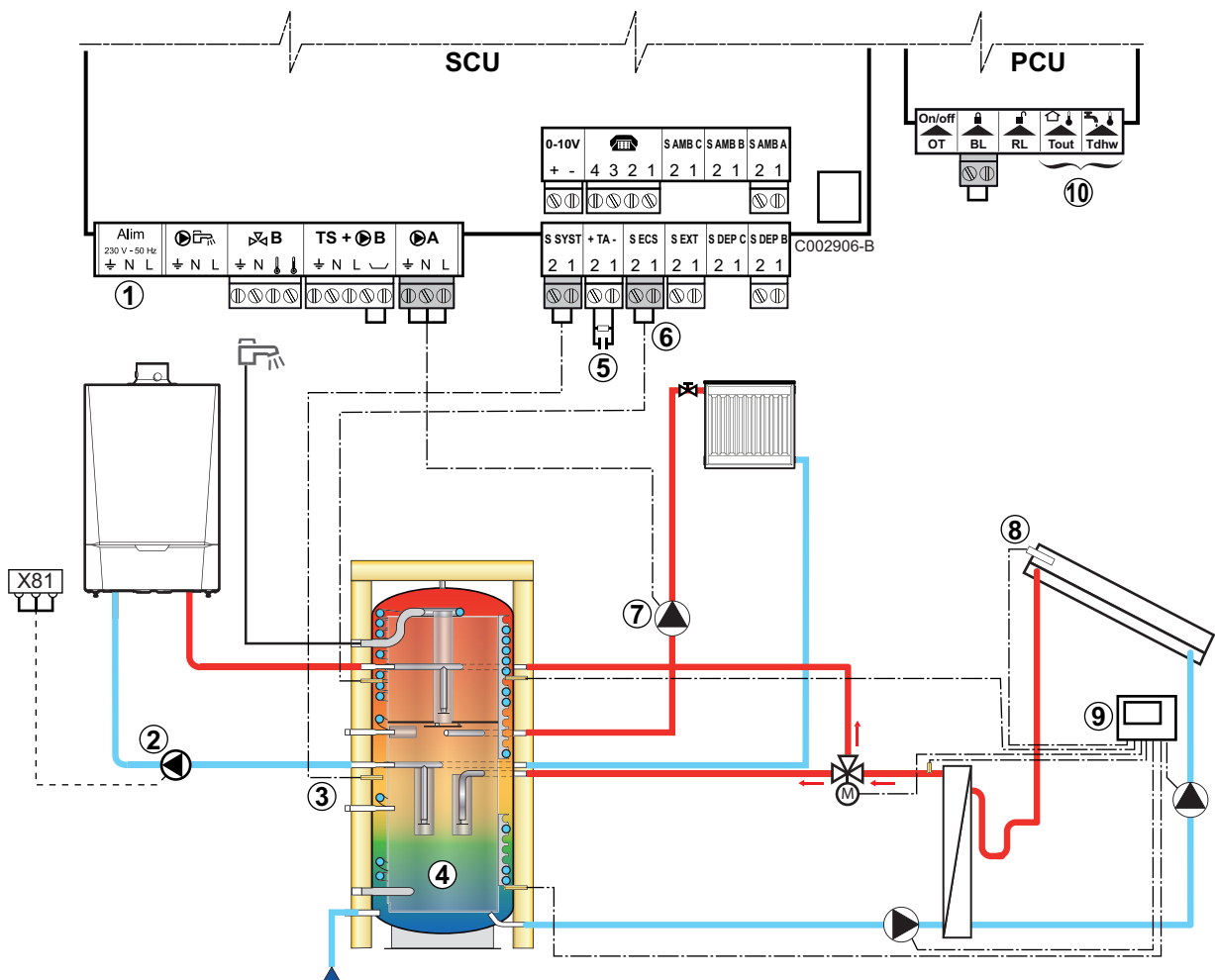
1   Do not connect anything to the terminal block.
2   Connect the booster pump for the buffer tank.
3   Connect the buffer tank sensor (package **AD250**).

4   Buffer tank

5   Connect the buffer tank anode.

> **i** **Important**
> If the buffer tank is not fitted with an impressed current anode, install the simulation connector (delivered with the DHW sensor – package **AD212**).

6   Connect the domestic hot water sensor (package **AD212**).
7   Connect the heating pump (**A** circuit).
8   Solar collector sensor
9   Connect the solar station to the solar collectors.
10 Do not connect anything to the terminal block.

– **Settings to be made to connect a QUADRO DU buffer tank – DIEMATIC iSystem**

Tab.24

Parameters	Access	Settings to be made	See chapter
INSTALLATION[1]	Installer level – **#SYSTEM** menu	EXTENDED	"Displaying the parameters in extended mode"
I.SYST[1]	Installer level – **#SYSTEM** menu	STORAGE TANK	"Setting the parameters specific to the installation"
(1) The parameter is only displayed if the **INSTALLATION** parameter is set to **EXTENDED**.			

■ **Connecting a PS buffer tank and a domestic hot water tank to the boiler**

> ℹ️ **Important**
> The boiler maintains the domestic hot water at the DHW set point. The heating zone is maintained at the set temperature calculated according to the outdoor temperature. The zone is reheated when the temperature at the heating tank sensor drops below the calculated set point of -6 °C. The reheating is stopped when the temperature passes above the calculated set point.

Fig.29

C002907-B
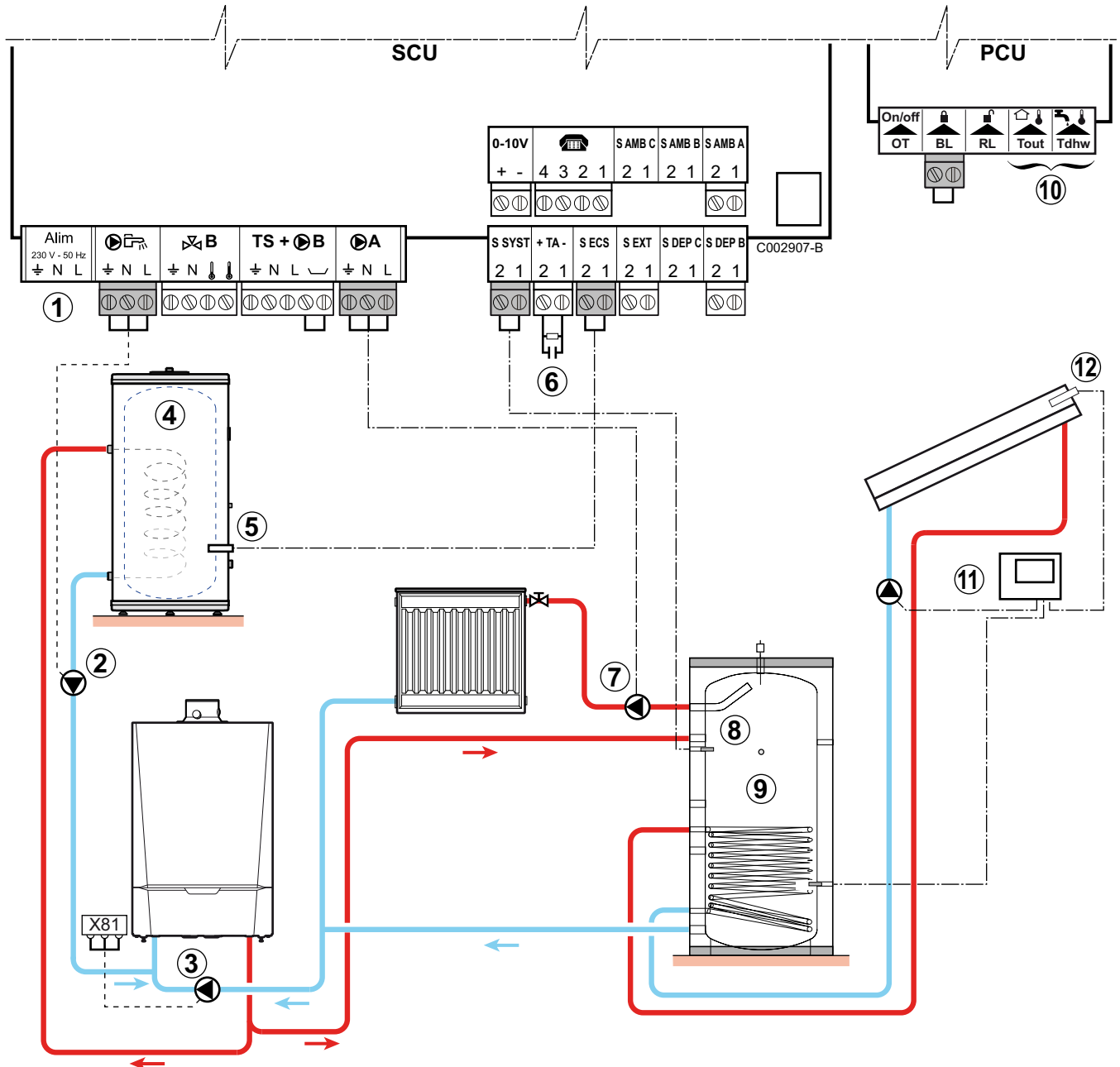
1 Do not connect anything to the terminal block.
2 Domestic hot water booster pump
3 Buffer tank booster pump
4 Connect a domestic hot water tank if the buffer tank (9) is only used for heating
5 Connect the domestic hot water sensor (package **AD212**).

6 Connect the buffer tank anode.

> ℹ️ **Important**
> If the buffer tank is not fitted with an impressed current anode, install the simulation connector (delivered with the DHW sensor – package **AD212**).

7 Connect the heating pump (**A** circuit).
8 Solar collector sensor
9 Buffer tank

10 Do not connect anything to the terminal block
11 Connect the solar station to the solar collectors

12 Solar collector sensor

– **Settings to be made for connecting a buffer tank and a domestic hot water tank – DIEMATIC iSystem**

Tab.25

Parameters	Access	Settings to be made	See
INSTALLATION	Installer level – **#SYSTEM** menu	EXTENDED	"Displaying the parameters in extended mode"
I.SYST[1]	Installer level – **#SYSTEM** menu	STORAGE TANK	"Displaying the parameters in extended mode"
(1) The parameter is only displayed if the **INSTALLATION** parameter is set to **EXTENDED**			

■ **Connecting a mixed domestic hot water tank to the PS buffer tank**

> **i** **Important**
> The domestic hot water tank is loaded from the buffer tank If, during domestic hot water loading, the temperature of the buffer tank falls below the primary domestic hot water set point (PRIM.TEMP.DHW parameter), the boiler maintains the latter at temperature to guarantee the loading of the domestic hot water tank. The heating zone is maintained at the set temperature calculated according to the outdoor temperature. The zone is reheated when the temperature at the heating tank sensor drops below the calculated set point of -6 °C. The reheating is stopped when the temperature at the heating tank passes above the calculated set point.

> **i** **Important**
> The boiler only starts up production of domestic hot water if the buffer tank is not hot enough to guarantee domestic hot water tank loading.

Fig.30
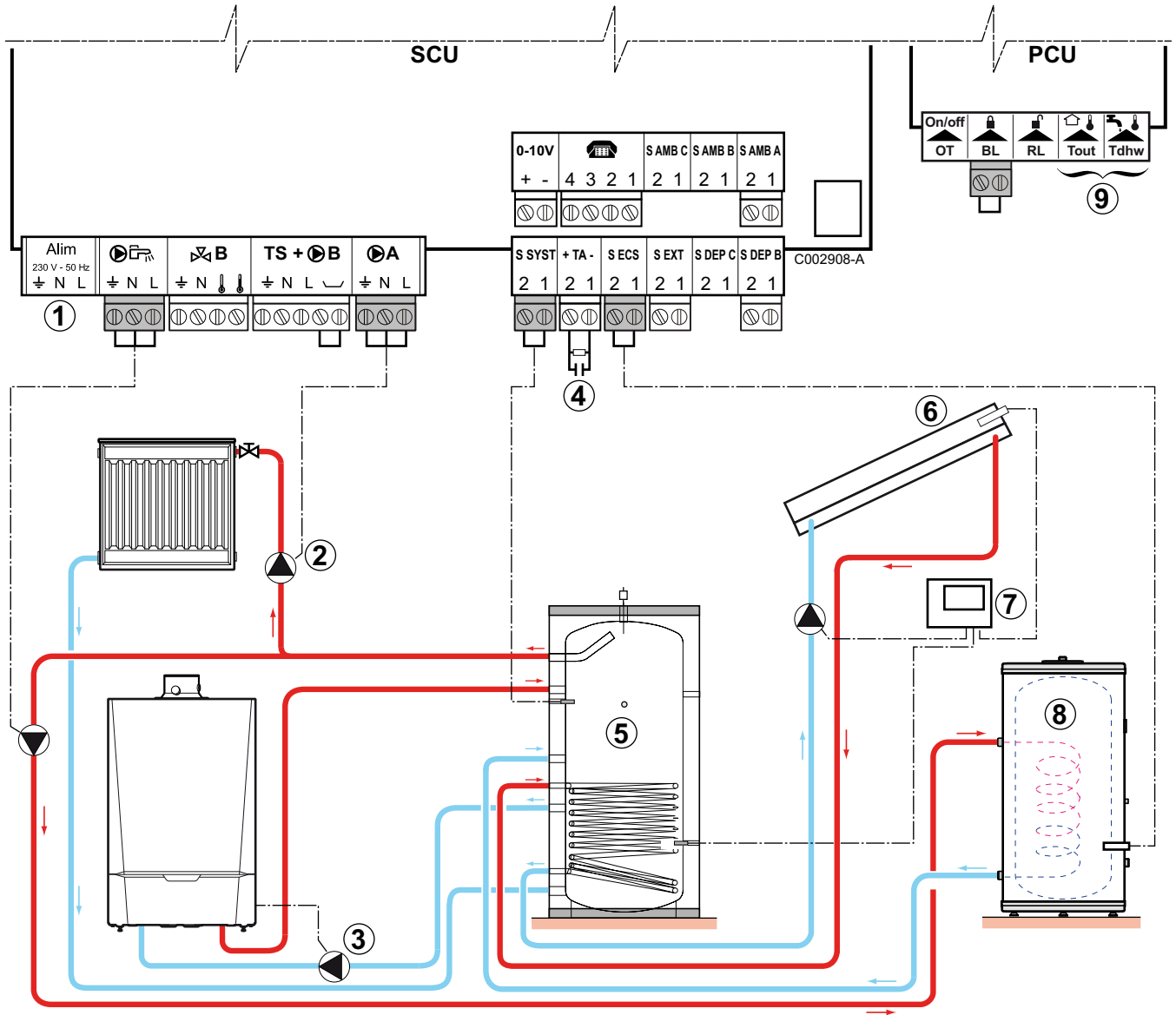
1 Do not connect anything to the terminal block.
2 Connect the heating pump (**A** circuit).
3 Buffer tank booster pump
4 Connect the buffer tank anode.

> **i** **Important**
> If the buffer tank is not fitted with an impressed current anode, install the simulation connector (delivered with the domestic hot water sensor – package **AD212**).

5 Buffer tank
6 Solar collector sensor
7 Connect the solar station to the solar collectors.
8 Domestic hot water tank

  Connect the domestic hot water sensor.
9 Do not connect anything to the terminal block.

– **Settings to be made for connecting a PS buffer tank and a domestic hot water tank – DIEMATIC iSystem**

Tab.26

Parameters	Access	Settings to be made	See chapter
INSTALLATION	Installer level **#SYSTEM** menu	EXTENDED	"Displaying the parameters in extended mode"
I.SYST[1]	Installer level **#SYSTEM** menu	ST.TANK+DHW	"Setting the parameters specific to the installation"

Parameters	Access	Settings to be made	See chapter
(1) The parameter is only displayed if the **INSTALLATION** parameter is set to **EXTENDED**.			

6.7.9 Connecting a swimming pool

> **i** Important
> This configuration is only possible with the DIEMATIC iSystem control panel.

Fig.31

C002298-i
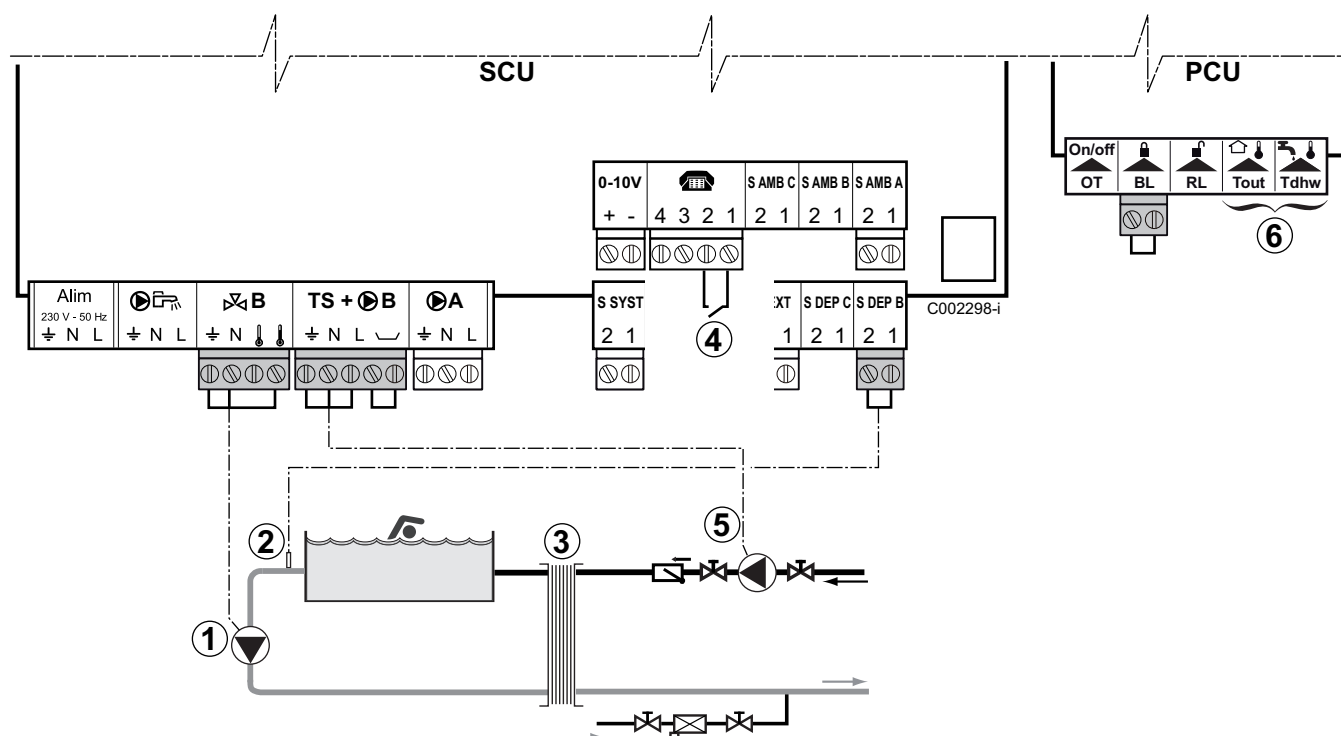
1 Connect the swimming pool secondary circuit pump.
2 Connect the swimming pool temperature sensor.
3 Plate heat exchanger.
4 Pool heating cut-off control.

5 Connect the swimming pool primary circuit pump.
6 Do not connect anything to the terminal block.

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

■ **Settings to be made to connect a swimming pool – DIEMATIC iSystem**

Tab.27

Parameters	Access	Settings to be made	See chapter
INSTALLATION	Installer level **#SYSTEM** menu	**EXTENDED**	"Displaying the parameters in extended mode"
CIRC.B	Installer level **#SYSTEM** menu	**SWIM.P.**	"Setting the parameters specific to the installation"

Parameters	Access	Settings to be made	See chapter
If **I.TEL** is used I.TEL	Installer level **#SYSTEM** menu	0/1 **B**	"Setting the parameters specific to the installation"
MAX.CIRC.B	Installer level **#SECONDARY LIMITS** menu	Set the **MAX.CIRC.B** value to the temperature which corresponds to the needs of the exchanger	"Professional settings"

■   **Controlling the swimming pool circuit**

The control system can be used to manage a swimming pool circuit in two 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 outlet ▶ **B** on the connection terminal block. The **MAX.CIRC.B** temperature is therefore guaranteed during **B** programme comfort periods in summer and winter alike.
- Connect the pool sensor (package AD212) to the S DEP B inlet on the connection terminal block.
- Set the set point of the pool sensor in the range 5 - 39 °C using the 🌡 key.

Case 2: The pool already has a control 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 outlet ▶ **B** on the connection terminal block.
  The **MAX.CIRC.B** temperature is therefore guaranteed during **B** programme comfort periods in summer and winter alike.

> **i**   **Important**
> The pool can also be connected to the **C** circuit by adding an optional additional three-way valve. With the option of package AD249:
>
> - Connect to the terminal blocks marked **C**.
> - Set the parameters on circuit **C**.

■   **Secondary circuit pump timer programme**

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

■   **Switching off the pool function**

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

6.7.10   Connecting a mixed domestic hot water tank

> **i   Important**
> This configuration is only possible with the DIEMATIC iSystem control panel.

Fig.32
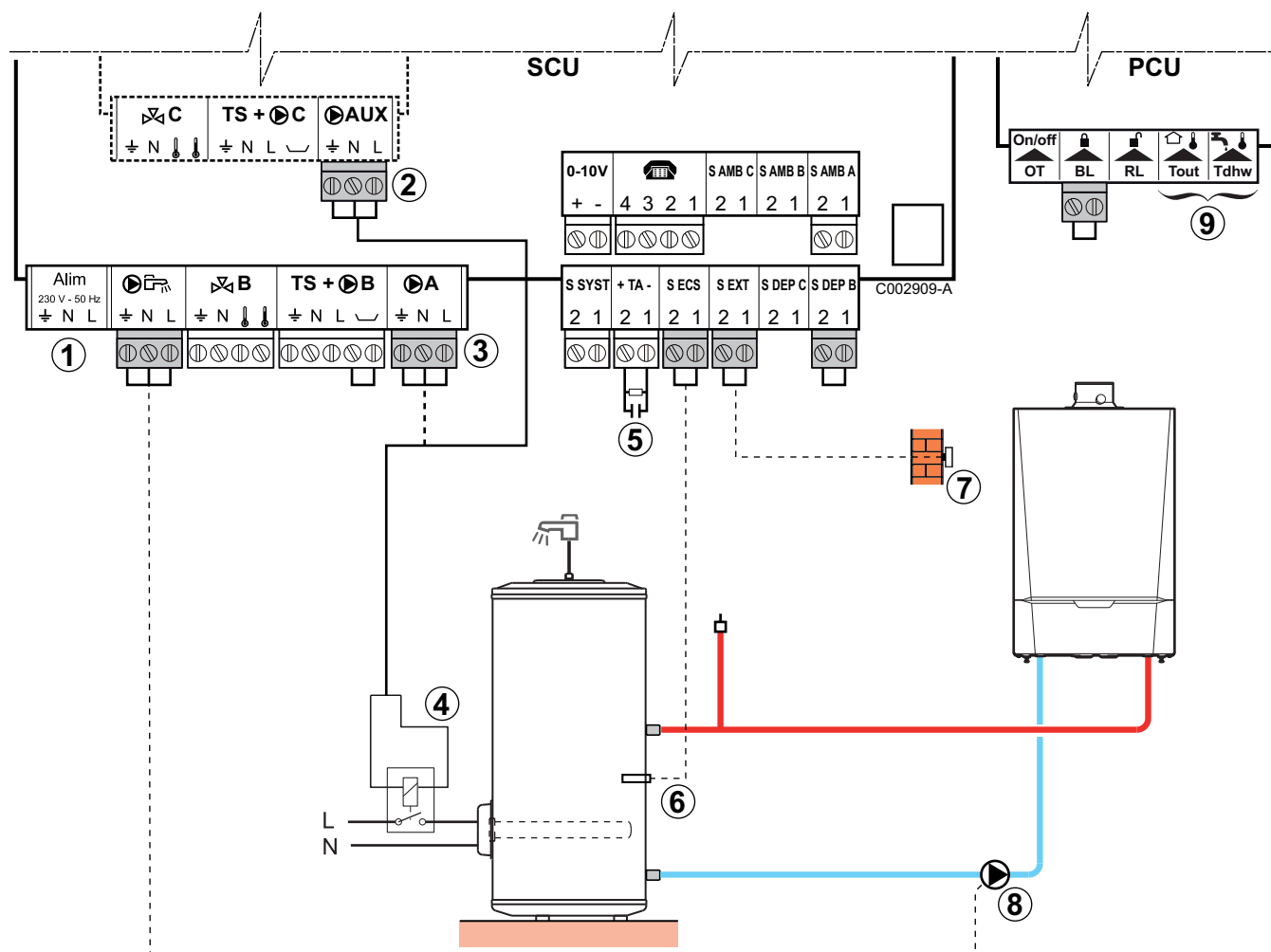
1   Do not connect anything to the terminal block.
2   It is possible to connect the mixed tank using option AD249
3   Circuit outlet A: it is possible to connect the mixed tank
4   Power control relay to the immersion heater
5   Connect the buffer tank anode.

> **i   Important**
> If the buffer tank is not fitted with an impressed current anode, install the simulation connector (delivered with the domestic hot water sensor – package **AD212**).

6   Connect the domestic hot water sensor (package **AD212**).
7   Connect the outdoor temperature sensor.

   The sensor connection is optional on boilers with a Inicontrol control panel.
8   Domestic hot water booster pump
9   Do not connect anything to the terminal block.

■   **Settings to be made for the connection of a mixed domestic hot water tank**

Tab.28

Parameters	Access	Settings to be made	See chapter
INSTALLATION	Installer level **#SYSTEM** menu	**EXTENDED**	"Displaying the parameters in extended mode"

Parameters	Access	Settings to be made	See chapter
If the electric domestic hot water tank is connected to ▶A: **CIRC.A**[(1)]	Installer level **#SYSTEM** menu	**DHW ELEC**	"Setting the parameters specific to the installation"
If the electric domestic hot water tank is connected to ▶AUX: **S.AUX**[(1)]	Installer level **#SYSTEM** menu	**DHW ELEC**	
(1) The parameter is only displayed if the **INSTALLATION** parameter is set to **EXTENDED**			

6.7.11   Connecting the options

Example options for connection: TELECOM remote voice monitoring module, remote controls for circuits A and B, second domestic hot water tank, etc.

Fig.33

C002916-A
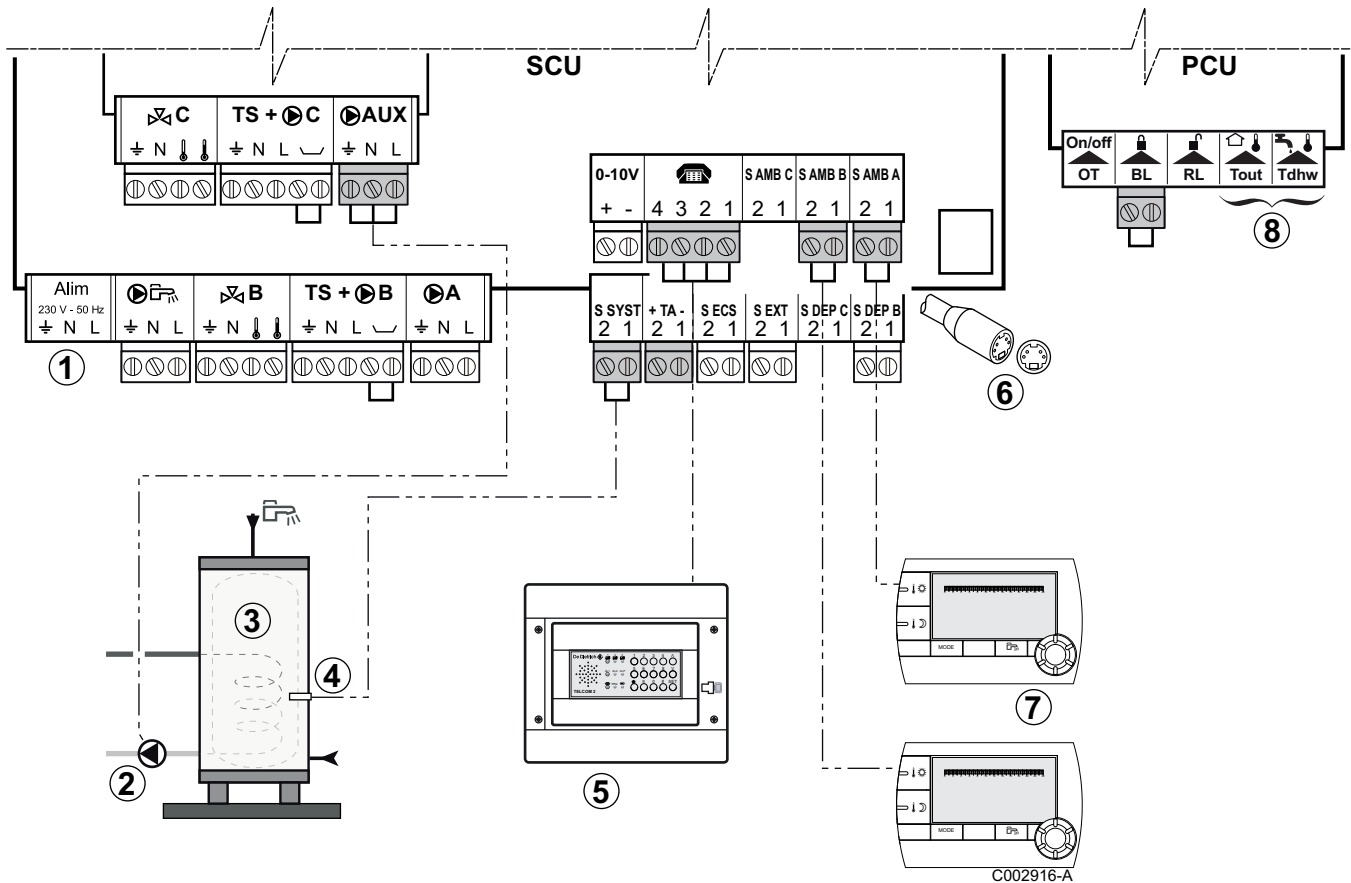
1 Do not connect anything to the terminal block.
2 Connect the booster pump from the second domestic hot water tank.

   Only for the DIEMATIC iSystem control panel
3 Second domestic hot water tank

   Only for the DIEMATIC iSystem control panel
4 Connect the domestic hot water tank sensor from the second domestic hot water tank.

   Only for the DIEMATIC iSystem control panel

5 Connect the TELCOM remote voice monitoring module (depending on availability in your country).
6 BUS cascade connection, VM.
7 Connect the remote control (package AD254 or FM52).
8 Do not connect anything to the terminal block.

■   Settings to be made for connecting optional equipment –
      DIEMATIC iSystem

Tab.29

Parameters	Access	Settings to be made	See chapter
INSTALLATION	Installer level **#SYSTEM** menu	EXTENDED	"Displaying the parameters in extended mode"
If the second domestic hot water tank is connected to **S.AUX**.[1]	Installer level **#SYSTEM** menu	DHW	"Setting the parameters specific to the installation"
(1) The parameter is only displayed if the **INSTALLATION** parameter is set to **EXTENDED**.			

6.7.12   Connecting boilers in cascade with a domestic hot water tank downstream of a low-loss header

Fig.34

C002910-B

1   Master boiler with DIEMATIC iSystem control panel
2   Slave boiler 2 with DIEMATIC iSystem or Inicontrol control panel
3   Slave boiler 3 with DIEMATIC iSystem or Inicontrol control panel
4   BUS cable
5   Boiler pump

6   Low-loss header
7   Connect the cascade flow sensor to the **S SYST** terminal block on the master boiler
8   Domestic hot water booster pump
9   Connect the domestic hot water sensor (package AD212).

■   Settings to be made for connections in a cascade

Tab.30   Master boiler – DIEMATIC iSystem

Parameters	Access	Settings to be made	See chapter
INSTALLATION	Installer level **#SYSTEM** menu	EXTENDED	"Displaying the parameters in extended mode"
P.DHW[1]	Installer level **#SYSTEM** menu	PUMP	"Setting the parameters specific to the installation"

| Parameters	Access	Settings to be made	See chapter
CASCADE[1]	Installer level #NETWORK menu	ON	"Configuring the network"
MASTER CONTROLER[1]	Installer level #NETWORK menu	ON	"Configuring the network"
SYSTEM NETWORK[1]	Installer level #NETWORK menu	AJOUT GENE MANU	"Configuring the network"
(1) The parameter is only displayed if the INSTALLATION parameter is set to EXTENDED.			

Tab.31   Slave boilers – DIEMATIC iSystem

Parameters	Access	Settings to be made	See chapter
INSTALLATION	Installer level #SYSTEM menu	EXTENDED	"Displaying the parameters in extended mode"
CASCADE[1]	Installer level #NETWORK menu	ON	"Configuring the network"
MASTER CONTROLER[1]	Installer level #NETWORK menu	OFF	"Configuring the network"
SLAVE NUMBER[1]	Installer level #NETWORK menu	2, 3, ...	"Configuring the network"
(1) The parameter is only displayed if the INSTALLATION parameter is set to EXTENDED.			

Tab.32   Slave boilers – Inicontrol

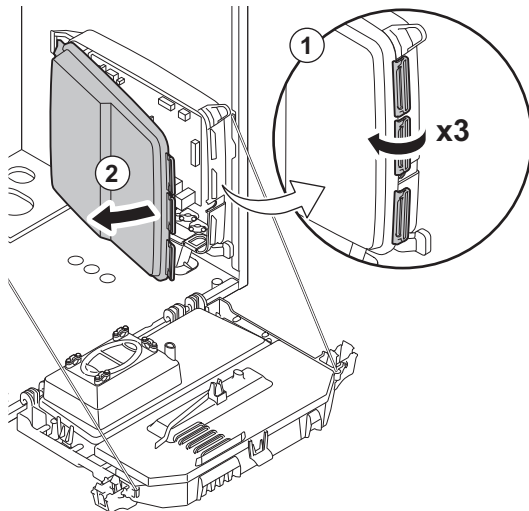| Parameters	Access	Settings to be made	See chapter
$S\ 14$: System in cascade	Installer level	1	"Description of the parameters"
$S\ 15$: Address of the slave boilers	Installer level	2, 3, ...	"Description of the parameters"

6.7.13   PCBs

The PCBs are positioned in the PCB housing.

The following PCBs are already installed in the PCB housing:

• SCU-D4

Fig.35   Open housing for PCBs

AD-3000341-01

6.8 Filling the installation

6.8.1 Water quality and water treatment

In many cases, the boiler and central heating system can be filled with normal tap water and water treatment will not be necessary.

The quality of the CH water must comply with certain limit values, which can be found in the **Water quality instructions**. The guidelines in these instructions must be followed at all times.

6.8.2 Filling the siphon

> ⚠️ **Danger**
> The siphon must always be sufficiently filled with water. This prevents flue gases from entering the room.

1. Remove the siphon.
2. Fill the siphon up with water.
3. Fit the siphon.
   ⇨ Check whether the siphon is firmly fitted in the boiler.

Fig.36   Filling the siphon
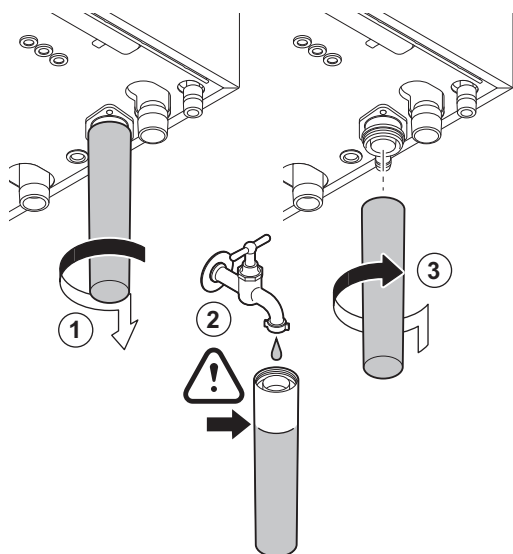
AD-0000086-01

6.8.3 Filling the system

> ⚠️ **Caution**
> Before filling, open the valves on every radiator in the installation.

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

1. Fill the central heating system with clean tap water.

> ℹ️ **Important**
> The recommended water pressure is between 1.5 and 2 bar.

2. Check the water-side connections for tightness.

> ℹ️ **Important**
> After switching on the power and if there is adequate water pressure, the boiler always runs through an automatic venting program lasting approximately 3 minutes (air may escape via the automatic air vent during filling). If the water pressure is lower than 0.8 bar, the symbol ⌐╥ will appear. If the water pressure is too low, top up the CH installation.

> ⚠ **Caution**
> - Carry out the filling within 30 minutes to avoid the venting program starting up. That would indeed be undesirable if the boiler is not filled. Switch the boiler off if the CH installation is not being topped up immediately.
> - When venting, prevent water from getting into the boiler casing and electrical parts of the boiler.

7   Commissioning – DIEMATIC iSystem

7.1   General

Follow the steps set out in the paragraphs below to put the boiler into operation.

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

7.2   Gas circuit

Fig.37   Gas valve unit measuring points

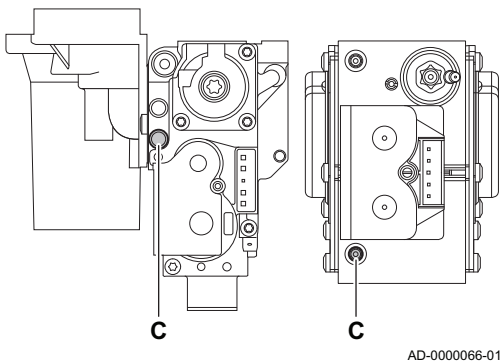

AD-0000066-01

> ⚠ **Warning**
> Ensure that the boiler is disconnected from the power supply.

1. Open the main gas tap.
2. Open the boiler gas tap.
3. Unscrew the two screws located under the front housing by a quarter turn and remove the front housing.
4. Tilt the instrument box forwards by opening the clips on the sides.
5. Check the gas inlet pressure at the measuring point **C** on the gas valve unit.

> ⚠ **Warning**
> • The gas pressure measured on measurement point **C** is the gas inlet pressure at the boiler connection point reduced by the resistance of the internal gas pipe. See Technical data, page 12
> • For authorised gas pressures, see: Unit categories, page 12

6. Vent the gas supply pipe by unscrewing the measuring point on the gas valve unit.
7. Tighten the measuring point again when the pipe has been fully vented.
8. Check all connections for gas tightness. The test pressure may be a maximum of 60 mbar.

7.3   Hydraulic circuit

1. Check the siphon; it should be fully filled with clean water.
2. Check the water-side connections for tightness.

7.4   Electrical connections

1. Check the electrical connections.

7.5   Commissioning the appliance

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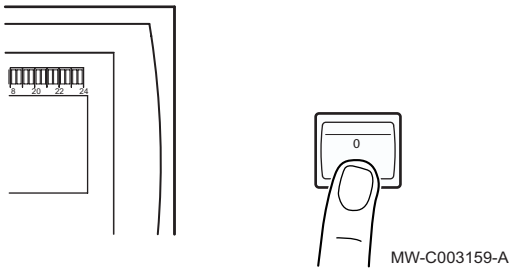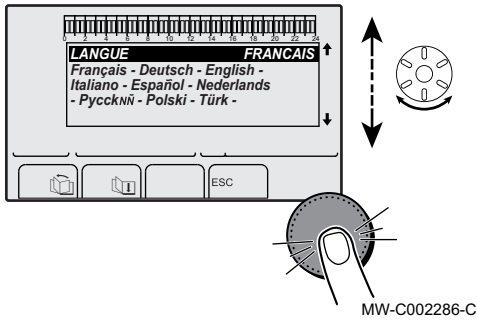3. Open the boiler gas valve.

Fig.38

MW-C003159-A

4. Switch the power on with the boiler's on/off switch.

Fig.39

LANGUE   FRANCAIS
Français - Deutsch - English -
Italiano - Español - Nederlands
- Pусский - Polski - Türk -

ESC

MW-C002286-C

5. The first time the boiler is powered up, the #LANGUAGE parameter is displayed.
   ⇨ Select the desired language by turning the rotary button.
6. Confirm by pressing the rotary button.
   ⇨ The boiler will begin an automatic venting-programme (which lasts approx. three minutes) and will do this every time the power supply is isolated.

7.5.1   Error during the start-up procedure

If there is a problem, the error is displayed on the screen.

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

If there is no information on the display:

1. Check the mains supply voltage.
2. Check the fuses.
3. Check the connection of the power cable to the X1 connector on the PCU PCB.

7.6   Gas settings

7.6.1   Adjusting to a different gas type

> ⚠ **Warning**
> Only a qualified engineer may carry out the following operations.

The factory setting of the boiler is for operation with the natural gas group G20 (H gas).

Before operating with a different type of gas, carry out the following steps.

Tab.33   If operating on propane

Boiler type	Action
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	Replace the current gas valve unit with the propane gas valve unit according to the instructions supplied with the propane conversion kit

Boiler type	Action
MCA 115	Rotate the adjusting screw **A** in a clockwise direction until it is closed, then: Rotate the adjusting screw **A** on the gas valve unit 3½–4 turns in an anticlockwise direction

1. Set the fan speed using parameters.
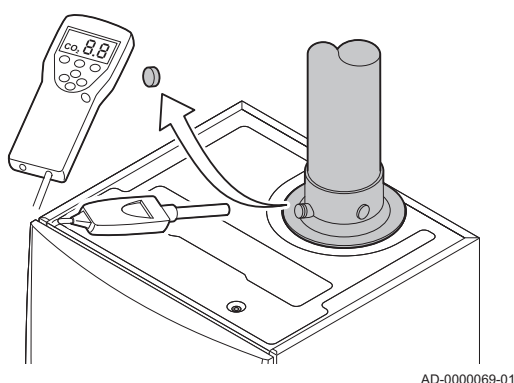2. Check the setting of the gas/air ratio.

For more information, see
Checking and setting the gas/air ratio, page 55
Parameters – DIEMATIC iSystem, page 88
Parameters – Inicontrol, page 102

7.6.2 Checking and setting the gas/air ratio

Fig.40 Flue gas measuring point

AD-0000069-01

1. Unscrew the cap from the flue gas measuring point.
2. Insert the probe for the flue gas analyser into the measurement opening.

Warning
During measurement, seal the opening around the sensor fully.

Important
The flue gas analyser must have a minimum accuracy of ±0.25% O_2.

3. Measure the percentage of O_2 in the flue gases. Take measurements at full load and at part load.

Important
Measurements must be taken with the front casing off.

■ **Performing the full load test**

Fig.41 Setting to full load

AD-0000529-01

1. Press the two ⊟! keys at the same time.
   ⇨ The _H3_ symbol appears on the display. The boiler is now set to full load.

■ **Checking/setting values for O_2 at full load**

1. Measure the percentage of O_2 in the flue gases.
2. Compare the measured value with the checking values in the table.

Tab.34 Checking/setting values for O_2 at full load for G20 (H gas)

Values at full load for G20 (H gas)	O_2 (%)[1]
MCA 45	4,3 - 4,8[1]
MCA 65	4,3 - 4,8[1]
MCA 90	3,4 - 3,9[1]
MCA 115	4,2 - 4,7[1]

Values at full load for G20 (H gas)	O_2 (%)[1]
(1) Nominal value	

Tab.35   Checking/setting values for O_2 at full load for G30/G31 (butane/propane)

Values at full load for G30/G31 (butane/propane)	O_2 (%)[1]
MCA 45	4,7 - 5,2[1]
MCA 65	4,9 - 5,4[1]
MCA 90	4,9 - 5,4[1]
MCA 115	4,9 - 5,4[1]
(1) Nominal value	

> **Caution**
> The O_2 values at full load must be lower than the O_2 values at low load.

3. If the measured value is outside of the values given in the table, correct the gas/air ratio.
4. Using adjusting screw **A**, adjust the percentage of O_2 for the gas type being used to the nominal value. This should always be inside the highest and lowest setting limit.

Fig.42   Position of adjusting screw A

A   A

AD-0000067-01
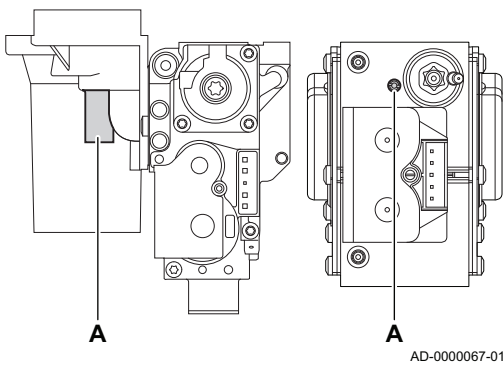
Fig.43   Setting to low load

AD-0000528-01

■   **Performing the low load test**

1. Press the ⊟ key several times until ⌐3 appears on the display.
    ⇨ The boiler is now set to low load.

■   **Checking/setting values for O_2 at part load**

1. Measure the percentage of O_2 in the flue gases.
2. Compare the measured value with the checking values in the table.

Tab.36   Checking/setting values for O_2 at part load for G20 (H gas)

Values at part load for G20 (H gas)	O_2 (%)[1]
MCA 45	5,7[1] - 6,2
MCA 65	4,8[1] - 5,3
MCA 90	4,8[1] - 5,3
MCA 115	5,6[1] - 6,1

Values at part load for G20 (H gas)	O_2 (%)[1]
(1) Nominal value	

Tab.37   Checking/setting values for O_2 at part load for G30/G31 (butane/propane)

Values at part load for G30/G31 (butane/propane)	O_2 (%)[1]
MCA 45	5,7[1] - 6,2
MCA 65	5,7[1] - 6,2
MCA 90	5,7[1] - 6,2
MCA 115	5,7[1] - 6,2
(1) Nominal value	

⚠ **Caution**
The O_2 values at low load must be higher than the O_2 values at full load.

3. If the measured value is outside of the values given in the table, correct the gas/air ratio.
4. Using adjusting screw **B**, adjust the percentage of O_2 for the gas type being used to the nominal value. This should always be inside the highest and lowest setting limit.
5. Set the boiler back to the normal operating status.
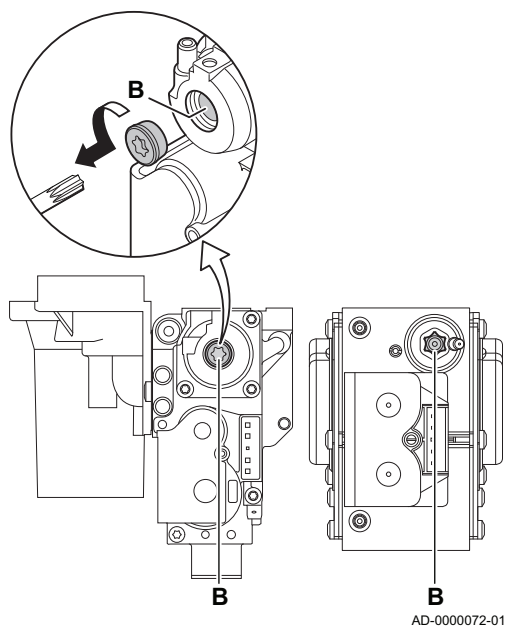
Fig.44   Position of adjusting screw B

AD-0000072-01

7.6.3   Performing the full load test (DIEMATIC iSystem)

1. From the start page, press the 🔧 key.
   ⇨ The **EMISSION MESURMENTS** menu appears on the display.
2. Turn the rotary button until **PMAX** is displayed.

Fig.45

MW-C002271-02

Fig.46

AUTO => PMAX

C002347-F-04
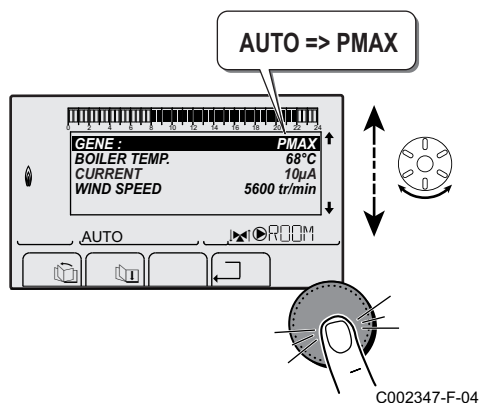
3. Confirm the selection.
    ⇨ The boiler is now set to full load.

7.6.4   Checking/setting values for O_2 at full load

1. Measure the percentage of O_2 in the flue gases.
2. Compare the measured value with the checking values in the table.

Tab.38   Checking/setting values for O_2 at full load for G20 (H gas)

Values at full load for G20 (H gas)	O_2 (%)[1]
MCA 45	4,3 - 4,8[1]
MCA 65	4,3 - 4,8[1]
MCA 90	3,4 - 3,9[1]
MCA 115	4,2 - 4,7[1]
(1) Nominal value	

Tab.39   Checking/setting values for O_2 at full load for G30/G31 (butane/propane)

Values at full load for G30/G31 (butane/propane)	O_2 (%)[1]
MCA 45	4,7 - 5,2[1]
MCA 65	4,9 - 5,4[1]
MCA 90	4,9 - 5,4[1]
MCA 115	4,9 - 5,4[1]
(1) Nominal value	

⚠ **Caution**
The O_2 values at full load must be lower than the O_2 values at low load.

3. If the measured value is outside of the values given in the table, correct the gas/air ratio.

Fig.47   Position of adjusting screw A

AD-0000067-01

Fig.48

MW-C002271-02

Fig.49

C002348-F-04

4. Using adjusting screw **A**, adjust the percentage of O_2 for the gas type being used to the nominal value. This should always be inside the highest and lowest setting limit.
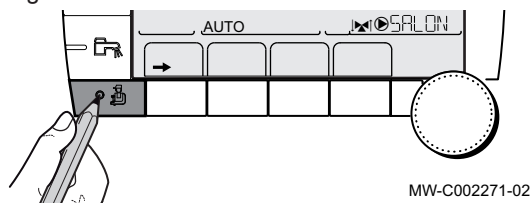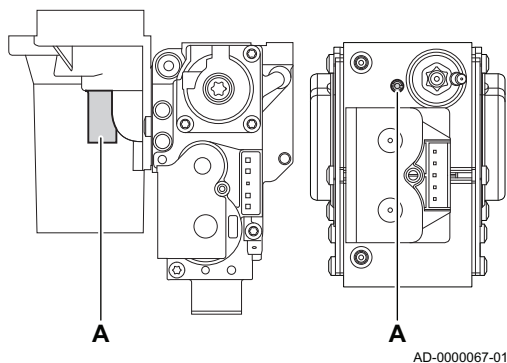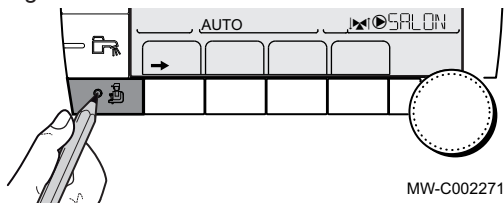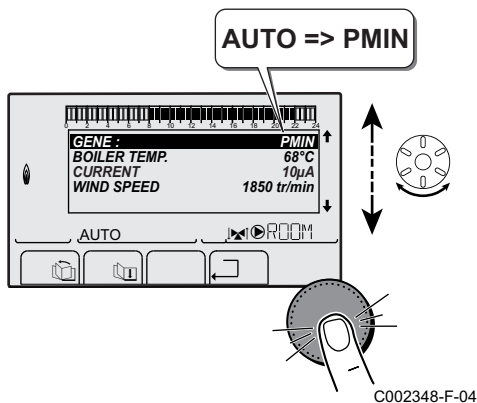
7.6.5   Performing the low load test (DIEMATIC iSystem)

1. From the start page, press the 🔧 key.
   ⇨ The **EMISSION MESURMENTS** menu appears on the display.
2. Turn the rotary button until **PMIN** is displayed.

3. Confirm the selection.
   ⇨ The boiler is now set to low load.

7.6.6   Checking/setting values for O_2 at part load

1. Measure the percentage of O_2 in the flue gases.
2. Compare the measured value with the checking values in the table.

Tab.40   Checking/setting values for O_2 at part load for G20 (H gas)

Values at part load for G20 (H gas)	O_2 (%)[1]
MCA 45	5,7[1] - 6,2
MCA 65	4,8[1] - 5,3
MCA 90	4,8[1] - 5,3
MCA 115	5,6[1] - 6,1

Values at part load for G20 (H gas)	O_2 (%)[1]
(1) Nominal value	

Tab.41   Checking/setting values for O_2 at part load for G30/G31 (butane/propane)

Values at part load for G30/G31 (butane/propane)	O_2 (%)[1]
MCA 45	5,7[1] - 6,2
MCA 65	5,7[1] - 6,2
MCA 90	5,7[1] - 6,2
MCA 115	5,7[1] - 6,2
(1) Nominal value	

Fig.50   Position of adjusting screw B

AD-0000072-01

⚠ **Caution**
The O_2 values at low load must be higher than the O_2 values at full load.

3. If the measured value is outside of the values given in the table, correct the gas/air ratio.
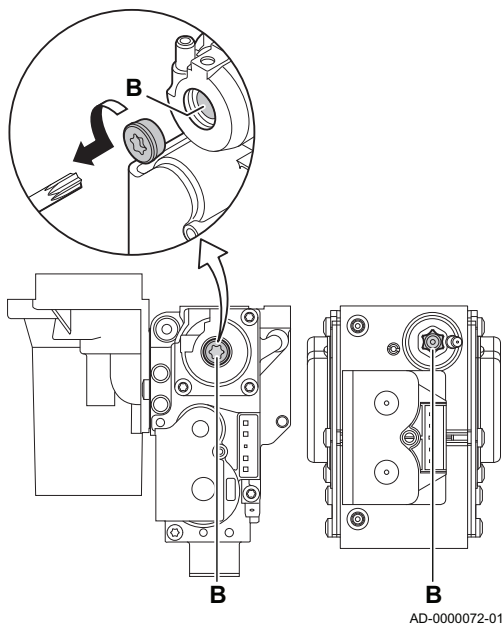4. Using adjusting screw **B**, adjust the percentage of O_2 for the gas type being used to the nominal value. This should always be inside the highest and lowest setting limit.
5. Set the boiler back to the normal operating status.

7.7   Configuring the system

7.7.1   Displaying the parameters in extended mode

The display mode on the control panel is set as standard in such a way as to show only the standard parameters. It is possible to switch to extended mode by proceeding as follows:
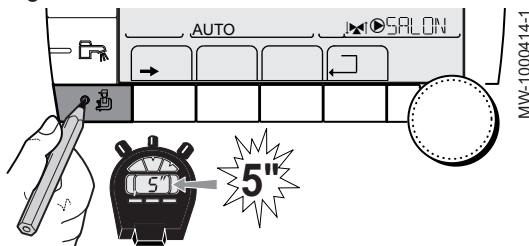
1. Go to the Installer level by pressing the 🔧 key for approx. five seconds.
2. Select the **#SYSTEM** menu by turning the settings button.
3. Set the **INSTALLATION** parameter to **EXTENDED**.

Fig.51

MW-10004414-1

■ **#SYSTEM menu – Installer level**

Tab.42

| Parameters	Description	Factory setting	Customer setting
INSTALLATION	• **CLASSIC**: displays the parameters of a conventional installation. • **EXTENDED**: displays all parameters.	CLASSIC	

> **i** **Important**
> Whatever action is performed on the keys, the control unit switches back to **CLASSIC** mode after 30 minutes.

7.7.2 Setting the parameters specific to the installation

Fig.52
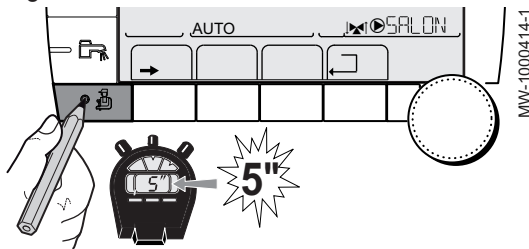
1. Go to the Installer level by pressing the 🖳 key for five seconds.
2. Select the **#SYSTEM** menu.
3. Set the following parameters according to the connections made to the PCBs.

■ **#SYSTEM menu – Installer level menu**

Certain parameters are displayed:

• according to certain system configurations,
• according to the options, circuits or sensors actually connected.

Tab.43

Parameters	Description	Factory setting	Customer setting
CIRC.A[1].[2]	Circuit A type: • **DISAB.**: no data on the circuit displayed. • **DIRECT**: used as a direct heating circuit. • **H.TEMP**: enables operation of circuit A in summer despite manual or automatic summer shut-down. • **DHW**: connection of a second domestic hot water tank. • **DHW ELEC**: used to control the immersion heater according to the timer program on circuit A, in summer mode. • **PROGRAM.**: used as an independent programmable outlet.	DIRECT	
CIRC.B[1]	Circuit B type: • **DIRECT**: used as a direct heating circuit. • **3WV**: connection of a 3-way valve circuit (e.g. underfloor heating). • **SWIM.P.**: use of the circuit for pool management.	3WV	
CIRC.C[1]	Circuit C type: • **DIRECT**: used as a direct heating circuit. • **3WV**: connection of a 3-way valve circuit (e.g. underfloor heating). • **SWIM.P.**: use of the circuit for pool management.	3WV	

Parameters	Description	Factory setting	Customer setting
S.POMPE A[1][2]	Configuration of the pump A outlet: • **CH.PUMP A**: Circuit A heating pump: The ▶ A outlet is used control the pump on circuit A • **CIRC.AUX**: used to take over the functions of the **S.AUX** parameter, without adding the PCB + sensor option (package AD249). • **DHW LOOP**: used to control the domestic hot water circulation loop pump according to the domestic hot water timer program and force its operation during a domestic hot water override. • **PRIMARY PUMP**: ▶ A outlet active if a heating demand is present on the domestic hot water circuit. • **ORDER BURNER**: ▶ A outlet active if a burner request is present. • **FAILURE**: ▶ A outlet active if a fault occurs. • **VM PUMP**: ▶ A outlet active if at least one of the VM circuits connected is required. • **DEF.CASC**: ▶ A outlet active if a fault occurs on one of the boilers in the cascade.	CH.PUMP A	
P.DHW[1]	DHW PUMP outlet type: • **PUMP**: use of a domestic hot water tank booster pump on the ▶ outlet. • **RV**: Use of a reversal valve for domestic hot water production (not used).	PUMP	
S.AUX[1][3]	Configuration of the Auxiliary and Domestic Hot Water outlet: • **DHW LOOP**: used to control the domestic hot water circulation loop pump according to the domestic hot water timer program and force its operation during a domestic hot water override. • **PRIMARY PUMP**: ▶ S.AUX outlet active if a heating demand is present on the domestic hot water circuit. • **ORDER BURNER**: ▶ AUX outlet active if a burner request is present. • **FAILURE**: ▶ AUX outlet active if a fault occurs. • **DHW**: used as the primary circuit to manage a second domestic hot water tank. • **DHW ELEC**: used to control the immersion heater according to the timer program on the auxiliary circuit, in summer mode. • **PROGRAM.**: used as an independent programmable outlet. • **VM PUMP**: ▶ AUX outlet active if at least one of the VM circuits connected is required. • **DEF.CASC**: ▶ AUX outlet active if a fault occurs on one of the boilers in the cascade.	DHW LOOP	
I.SYST[1]	Automatic configuration of the SYSTEM inlet: • **SYSTEM**: sensor inlet used to connect the common flow sensor in a cascade system. • **DHW STRAT**: use of the domestic hot water tank with two sensors (top and bottom). • **BUFFER TANK**: buffer tank assigned to heating only. • **ST.TANK+DHW**: buffer tank for heating and domestic hot water.	SYSTEM	

Parameters	Description	Factory setting	Customer setting
O.TEL[1]	Configuration of the SYSTEM outlet: • **FAILURE**: telephone outlet closed in the event of a fault. • **REVISION**: telephone outlet closed in the event of service display. • **DEF+REV**: telephone outlet closed in the event of a fault or service display.	FAILURE	
CT.TEL[1]	Direction of the on/off contact (see table below): • **CLOSE**: contact closed. • **OPEN**: contact open.	CLOSE	
I.TEL[1]	Configuration of the telephone inlet: • **ANTIFR**: trips the boiler's frost protection system. • **0/1 A**: on/off contact, enables use of **I.TEL** as a frost protection inlet on circuit A. • **0/1 B**: on/off contact, enables use of **I.TEL** as a frost protection inlet on circuit B. • **0/1 A+B**: on/off contact, enables use of **I.TEL** as a frost protection inlet on circuits A and B. • **0/1 C**: on/off contact, enables use of **I.TEL** as a frost protection inlet on circuit C. • **0/1 A+C**: on/off contact, enables use of **I.TEL** as a frost protection inlet on circuits A and C. • **0/1 B+C**: on/off contact, enables use of **I.TEL** as a frost protection inlet on circuits B and C. • **0/1 A+B+C**: on/off contact, enables use of **I.TEL** as a frost protection inlet on circuits A, B and C. • **0/1 DHW**: on/off contact, enables use of **I.TEL** as a frost protection inlet on the domestic hot water circuit. • **0/1 A+DHW**: on/off contact, enables use of **I.TEL** as a frost protection inlet on circuit A and on the domestic hot water circuit. • **0/1 B+DHW**: on/off contact, enables use of **I.TEL** as a frost protection inlet on circuit B and on the domestic hot water circuit. • **0/1 A+B+DHW**: on/off contact, enables use of **I.TEL** as a frost protection inlet on circuits A, B and on the domestic hot water circuit. • **0/1 C+DHW**: on/off contact, enables use of **I.TEL** as a frost protection inlet on circuit C and on the domestic hot water circuit. • **0/1 A+C+DHW**: on/off contact, enables use of **I.TEL** as a frost protection inlet on circuits A, C and DHW. • **0/1 B+C+DHW**: on/off contact, enables use of **I.TEL** as a frost protection inlet on circuits B, C and on the domestic hot water circuit. • **0/1 AUX**: on/off contact, enables use of **I.TEL** as a frost protection inlet on the **S.AUX** auxiliary circuit if the option **(AD249)** is connected or if the **O.PUMP A** parameter is set to **CIRC.AUX**. When **I.TEL** is not active, the auxiliary circuit adopts the **BOILER MAX** maximum generator temperature.	ANTIFR	

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

(2) If the pump integrated into the boiler is used for circuit A (**CIRC.A** parameter set to **DIRECT**), the ▶ A outlet is free

(3) The parameter is only displayed if the **S.POMPE A** parameter is set to **CIRC.AUX** or the 3-way valve PCB option is connected

■   **Influence of the CT.TEL parameter setting on the I.TEL contact**

Tab.44

CT.TEL	I.TEL	☏ contact closed	☏ contact open
CLOSE	**ANTIFR**	The frost protection 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 frost protection mode is active on the circuit concerned.
	0/1 B	The mode selected on the circuit is active.	The frost protection mode is active on the circuit concerned.
	0/1 A+B	The mode selected on the circuits is active.	The frost protection mode is active on the circuits concerned.
	0/1 C	The mode selected on the circuit is active.	The frost protection mode is active on the circuit concerned.
	0/1 A+C	The mode selected on the circuits is active.	The frost protection mode is active on the circuits concerned.
	0/1 B+C	The mode selected on the circuits is active.	The frost protection mode is active on the circuits concerned.
	0/1 A+B+C	The mode selected on the circuits is active.	The frost protection mode is active on the circuits concerned.
	0/1 DHW	The mode selected on the domestic hot water circuit is active.	The frost protection mode is active on the domestic hot water circuit.
	0/1 A+DHW	The mode selected on the circuits is active.	The frost protection mode is active on the circuits concerned.
	0/1 B+DHW	The mode selected on the circuits is active.	The frost protection mode is active on the circuits concerned.
	0/1 A+B+DHW	The mode selected on the circuits is active.	The frost protection mode is active on the circuits concerned.
	0/1 C+DHW	The mode selected on the circuits is active.	The frost protection mode is active on the circuits concerned.
	0/1 A+C+DHW	The mode selected on the circuits is active.	The frost protection mode is active on the circuits concerned.
	0/1 B+C+DHW	The mode selected on the circuits is active.	The frost protection 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 outdoor temperature.
OPEN	**ANTIFR**	The mode selected on the boiler is active.	The frost protection mode is active on all boiler circuits.
	0/1 A	The frost protection mode is active on the circuit concerned.	The mode selected on the circuit is active.
	0/1 B	The frost protection mode is active on the circuit concerned.	The mode selected on the circuit is active.
	0/1 A+B	The frost protection mode is active on the circuits concerned	The mode selected on the circuits is active
	0/1 C	The frost protection mode is active on the circuit concerned.	The mode selected on the circuit is active.
	0/1 A+C	The frost protection mode is active on the circuits concerned	The mode selected on the circuits is active

CT.TEL	I.TEL	☎ contact closed	☎ contact open
	0/1 B+C	The frost protection mode is active on the circuits concerned	The mode selected on the circuits is active
	0/1 A+B+C	The frost protection mode is active on the circuits concerned	The mode selected on the circuits is active
	0/1 DHW	The frost protection mode is active on the domestic hot water circuit.	The mode selected on the domestic hot water circuit is active.
	0/1 A+DHW	The frost protection mode is active on the circuits concerned	The mode selected on the circuits is active
	0/1 B+DHW	The frost protection mode is active on the circuits concerned	The mode selected on the circuits is active
	0/1 A+B+DHW	The frost protection mode is active on the circuits concerned	The mode selected on the circuits is active
	0/1 C+DHW	The frost protection mode is active on the circuits concerned	The mode selected on the circuits is active
	0/1 A+C+DHW	The frost protection mode is active on the circuits concerned	The mode selected on the circuits is active
	0/1 B+C+DHW	The frost protection 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 outdoor temperature.	• The ▶ AUX outlet on the connection terminal block is active. • The boiler operates at a set point temperature equal to **BOILER MAX**.

7.7.3 Naming the circuits and generators

1. Go to the Installer level by pressing the 🔧 key for five seconds.
2. Select the **#NAMES OF THE CIRCUITS** menu.

Fig.53

MW-5000002-1
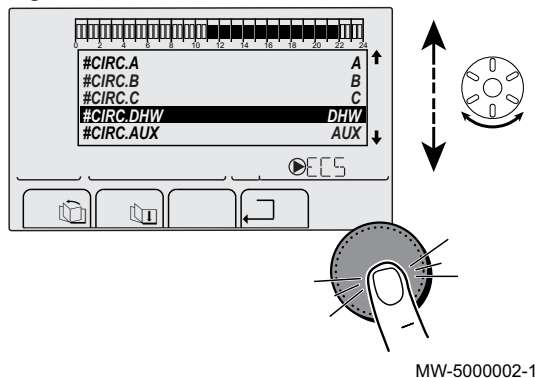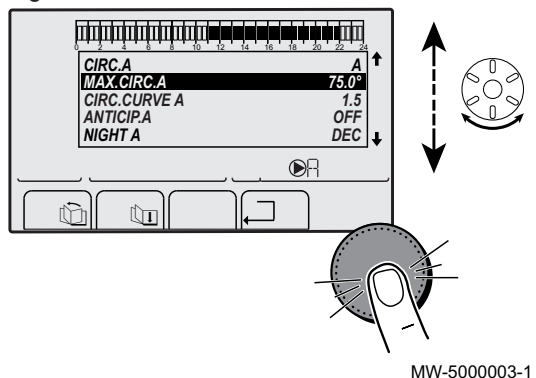
3. Select the circuit or generator to be renamed by turning the settings button.
4. Select the first character by turning the settings button until the desired letter is displayed.

Fig.54

MW-5000003-1

Fig.55

C002344-E-04
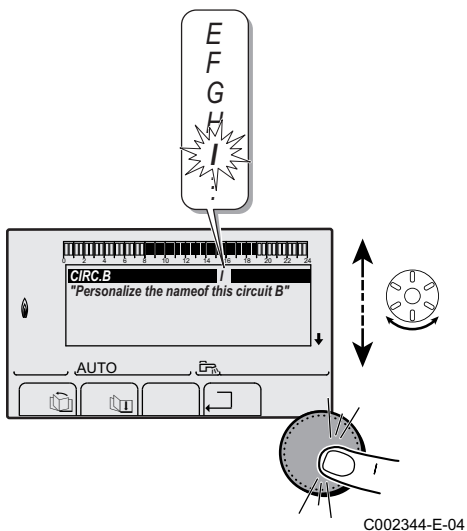
5. Confirm the character by pressing the settings button.
6. Then enter a second character by pressing the settings button or leave an empty space by turning the settings button.
7. Choose the other characters in the same way. The input zone may contain up to six characters.

Fig.56

C002345-D-04
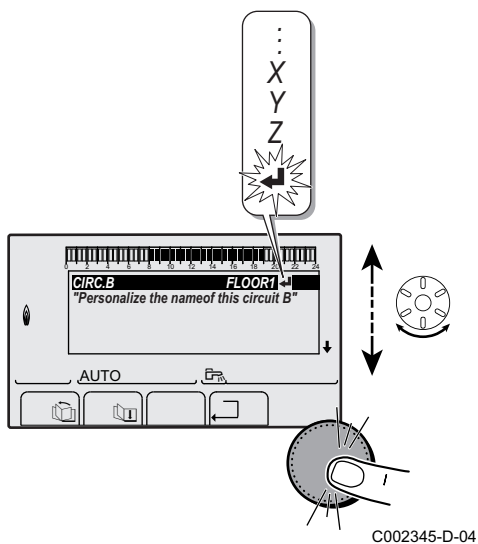
8. Confirm the new name by pressing the settings button when the symbol ⏎ is displayed on the screen.

> **i** **Important**
> If the name contains 6 characters, it is automatically confirmed when the last character is confirmed.

■ **Installer level – #NAMES OF THE CIRCUITS menu**

Tab.45

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	

7.7.4   Setting the heating curve

Fig.57

MW-C002235-2

1. Go to the Installer level by pressing the 🔧 key for approximately 5 seconds, using a suitable tool.
2. Select the **#SECONDARY INSTAL.P** menu by turning the settings button.
3. Confirm the selection by pressing the settings button.

Fig.58

C002316-E-04

4. Select the **CIRC.CURVE ..** parameter by turning the settings button.
5. Confirm the selection by pressing the settings button.
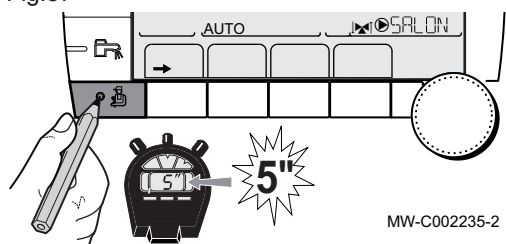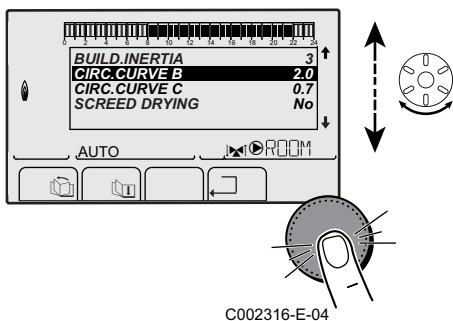
Fig.59
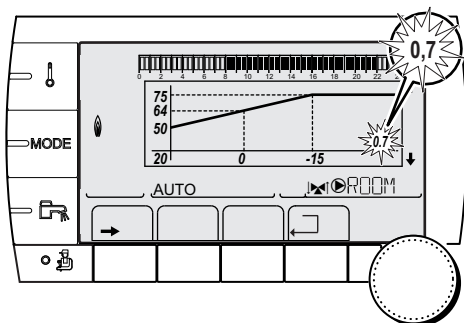
C002318-B-04

Fig.60

C002317-D-04

6. Modify the value by turning the settings button.
   Modify the value while displaying the curve by pressing the 🗝 key.
7. Confirm the new value by pressing the settings button.

> **ℹ Important**
> Cancel by pressing the ESC key.

> **ℹ Important**
> **0.7 =** Set heating gradient.

Fig.61
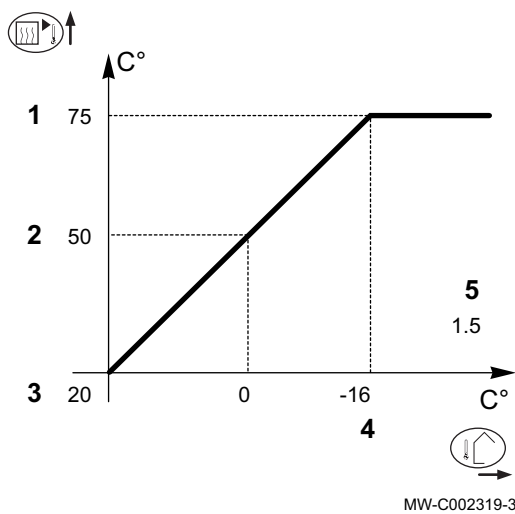
MW-C002319-3

■ **Heating curve without base point temperature (BCT)**

1 Maximum temperature of the circuit
2 Water temperature in the circuit for an outdoor temperature of 0 °C
3 **DAY** set point for the circuit
4 Outdoor temperature for which the maximum water temperature in the circuit is reached
5 Value of the CIRC.CURVE .. heating gradient
  Outdoor temperature
  Heating water temperature

> **i Important**
> **2** and **4** are automatically recalculated and repositioned when the heating gradient is modified.

Fig.62

MW-C002320-3
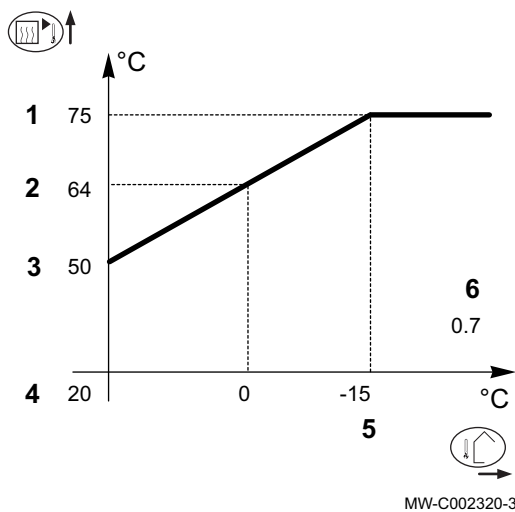
■ **Heating curve with base point temperature**

1 Maximum temperature of the circuit
2 Water temperature in the circuit for an outside temperature of 0 °C
3 Value of the base point temperature
4 Room temperature set point in comfort mode
5 Outside temperature for which the maximum water temperature in the circuit is reached
6 Value of the heating gradient
  Outside temperature
  Heating water temperature

> **i Important**
> **2** and **5** are automatically recalculated and repositioned when the heating gradient is modified.

7.8 Final instructions

1. Remove the measuring equipment.
2. Screw the cap on to the flue gas measuring point.
3. Seal the gas valve unit.
4. Put the front casing back.
5. Heat the central heating system up to approximately 70°C.
6. Switch the boiler off.
7. Vent the central heating system after approx. 10 minutes.
8. Turn on the boiler.
9. Check the water pressure. If necessary, top up the central heating system.

Fig.63   Example filled-in sticker

Adjusted for / Réglée pour / Ingesteld op / Eingestellt auf / Regolato per / Ajustado para / Ρυθμισμένο για / Nastawiony na / настроен для / Reglat pentru / настроен за / ayarlanmıştır / Nastavljen za / beállítva/ Nastaveno pro / Asetettu kaasulle / Justert for/ indstillet til/ ضبط ل :	Parameters / Paramètres / Parameter / Parametri / Parámetros / Παράμετροι / Parametry / Параметры / Parametrii / Параметри / Parametreler / Paraméterek / Parametrit / Parametere / Parametre / المعلمات :
☑ Gas _G20_ _____ __20__ mbar	_DP003 - 3300_ _GP007 - 3300_ _GP008 - 2150_ _GP009 -_
☑ C(10)3(X) ☐ C(12)3(X) ☐	

AD-3001124-01

10. Fill in the following data on the sticker included, and attach it next to the data plate on the appliance.
    - The gas supply pressure;
    - If set to overpressure application, fill in the type;
    - The parameters modified for the changes mentioned above.
11. Instruct the user in the operation of the system, boiler and controller.
12. Inform the user of the maintenance to be performed.
13. Hand over all manuals to the user.
14. Confirm the commissioning with a signature and a company stamp.
    ⇨ The boiler is now ready for operation.

8 Commissioning – Inicontrol

8.1 General

Follow the steps set out in the paragraphs below to put the boiler into operation.

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

8.2 Gas circuit

Fig.64   Gas valve unit measuring points

C   C

AD-0000066-01

> ⚠ **Warning**
> Ensure that the boiler is disconnected from the power supply.

1. Open the main gas tap.
2. Open the boiler gas tap.
3. Unscrew the two screws located under the front housing by a quarter turn and remove the front housing.
4. Tilt the instrument box forwards by opening the clips on the sides.
5. Check the gas inlet pressure at the measuring point **C** on the gas valve unit.

> ⚠ **Warning**
> • The gas pressure measured on measurement point **C** is the gas inlet pressure at the boiler connection point reduced by the resistance of the internal gas pipe. See Technical data, page 12
> • For authorised gas pressures, see: Unit categories, page 12

6. Vent the gas supply pipe by unscrewing the measuring point on the gas valve unit.
7. Tighten the measuring point again when the pipe has been fully vented.
8. Check all connections for gas tightness. The test pressure may be a maximum of 60 mbar.

8.3 Hydraulic circuit

1. Check the siphon; it should be fully filled with clean water.
2. Check the water-side connections for tightness.

8.4 Electrical connections

1. Check the electrical connections.

8.5 Commissioning the appliance

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

> 📖 **See**
> "Adapting to another gas type"

1. Tilt the control box upwards again and fasten it using the clips located at the sides.
2. Open the main gas valve.
3. Open the gas valve on the boiler.
4. Turn on the boiler using the on/off switch.
5. Set the components (thermostats, regulator) 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:
Brief display of all display segments, for verification.
$\boxed{F}$: $\boxed{X}\boxed{X}$: Software version
$\boxed{P}$: $\boxed{X}\boxed{X}$: Parameter version
The version numbers are displayed alternately.

7. A vent cycle of a duration of around three minutes is carried out automatically.

> **ⓘ Important**
> If a domestic hot water sensor is connected and the anti-legionella function is activated, the boiler starts to heat the water in the domestic hot water tank as soon as the vent program is completed.

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

Tab.46

Heat demand‖‖‖‖	Heat demand stopped
$\boxed{1}$: Fan on	$\boxed{1}$: Post ventilation
$\boxed{2}$: Attempt to ignite the burner	$\boxed{5}$: Burner stopped
	$\boxed{6}$: Post-circulation of the pump
$\boxed{3}$: Heating cycle	$\boxed{0}$: Standby

In standby mode, the screen normally displays $\boxed{0}$, as well as the water pressure and the ‖‖‖, ⊙⌂↓ and ⊟⟋ symbols.

8.5.1   Error during the start-up procedure

No information appears on the display	• Check the mains supply voltage • Check the main fuses • Check the fuse in the control panel: (F1 = 6.3 AT, F2 = 2 AT) • Check the connection of the mains lead to the **X1** connector in the control box.
An error is indicated on the display by the ⚠ error symbol and a flashing error code	• The meaning of the error codes is given in the error table. • Press the **RESET** key for 3 seconds to restart the boiler.

> **ⓘ Important**
> In economy mode, the boiler will not run a domestic hot water cycle after a central heating cycle.

8.6   Gas settings

8.6.1   Adjusting to a different gas type

> **⚠ Warning**
> Only a qualified engineer may carry out the following operations.

The factory setting of the boiler is for operation with the natural gas group G20 (H gas).

Before operating with a different type of gas, carry out the following steps.

Tab.47   If operating on propane

Boiler type	Action
MCA 45	Rotate the adjusting screw **A** on the venturi 4¾ turns in a clockwise direction

Boiler type	Action
MCA 65	Rotate the adjusting screw **A** on the venturi 6½ turns in a clockwise direction
MCA 90	Replace the current gas valve unit with the propane gas valve unit according to the instructions supplied with the propane conversion kit
MCA 115	Rotate the adjusting screw **A** in a clockwise direction until it is closed, then: Rotate the adjusting screw **A** on the gas valve unit 3½–4 turns in an anticlockwise direction

1. Set the fan speed using parameters.
2. Check the setting of the gas/air ratio.

📖 **For more information, see**
Checking and setting the gas/air ratio, page 55
Parameters – DIEMATIC iSystem, page 88
Parameters – Inicontrol, page 102

8.6.2 Checking and setting the gas/air ratio

Fig.65 Flue gas measuring point

AD-0000069-01

1. Unscrew the cap from the flue gas measuring point.
2. Insert the probe for the flue gas analyser into the measurement opening.

⚠️ **Warning**
During measurement, seal the opening around the sensor fully.

ℹ️ **Important**
The flue gas analyser must have a minimum accuracy of ±0.25% O_2.

3. Measure the percentage of O_2 in the flue gases. Take measurements at full load and at part load.

ℹ️ **Important**
Measurements must be taken with the front casing off.

Fig.66 Setting to full load

AD-0000529-01

■ **Performing the full load test**

1. Press the two 目: keys at the same time.
   ⇨ The $H3$ symbol appears on the display. The boiler is now set to full load.

■ **Checking/setting values for O_2 at full load**

1. Measure the percentage of O_2 in the flue gases.

2. Compare the measured value with the checking values in the table.

Tab.48   Checking/setting values for O_2 at full load for G20 (H gas)

Values at full load for G20 (H gas)	O_2 (%)[1]
MCA 45	4,3 - 4,8[1]
MCA 65	4,3 - 4,8[1]
MCA 90	3,4 - 3,9[1]
MCA 115	4,2 - 4,7[1]
(1) Nominal value	

Tab.49   Checking/setting values for O_2 at full load for G30/G31 (butane/propane)

Values at full load for G30/G31 (butane/propane)	O_2 (%)[1]
MCA 45	4,7 - 5,2[1]
MCA 65	4,9 - 5,4[1]
MCA 90	4,9 - 5,4[1]
MCA 115	4,9 - 5,4[1]
(1) Nominal value	

⚠ **Caution**
The O_2 values at full load must be lower than the O_2 values at low load.

3. If the measured value is outside of the values given in the table, correct the gas/air ratio.
4. Using adjusting screw **A**, adjust the percentage of O_2 for the gas type being used to the nominal value. This should always be inside the highest and lowest setting limit.

Fig.67   Position of adjusting screw A
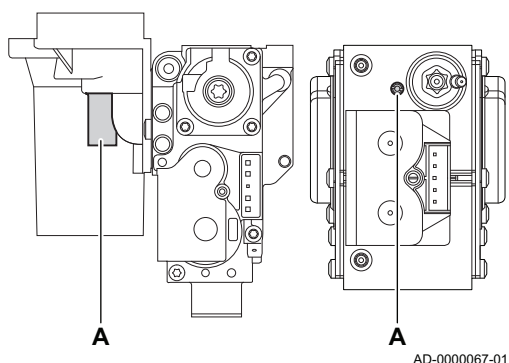
A   A

AD-0000067-01

■   **Performing the low load test**

1. Press the ⊟ key several times until $L3$ appears on the display.
   ⇨ The boiler is now set to low load.

Fig.68   Setting to low load

AD-0000528-01

■   **Checking/setting values for O_2 at part load**

1. Measure the percentage of O_2 in the flue gases.

2. Compare the measured value with the checking values in the table.

Tab.50   Checking/setting values for O_2 at part load for G20 (H gas)

Values at part load for G20 (H gas)	O_2 (%)[1]
MCA 45	5,7[1] - 6,2
MCA 65	4,8[1] - 5,3
MCA 90	4,8[1] - 5,3
MCA 115	5,6[1] - 6,1
(1) Nominal value	

Tab.51   Checking/setting values for O_2 at part load for G30/G31 (butane/propane)

Values at part load for G30/G31 (butane/propane)	O_2 (%)[1]
MCA 45	5,7[1] - 6,2
MCA 65	5,7[1] - 6,2
MCA 90	5,7[1] - 6,2
MCA 115	5,7[1] - 6,2
(1) Nominal value	

⚠ **Caution**
The O_2 values at low load must be higher than the O_2 values at full load.

3. If the measured value is outside of the values given in the table, correct the gas/air ratio.
4. Using adjusting screw **B**, adjust the percentage of O_2 for the gas type being used to the nominal value. This should always be inside the highest and lowest setting limit.
5. Set the boiler back to the normal operating status.

Fig.69   Position of adjusting screw B

AD-0000072-01

Fig.70   Setting to full load

AD-4000059-01
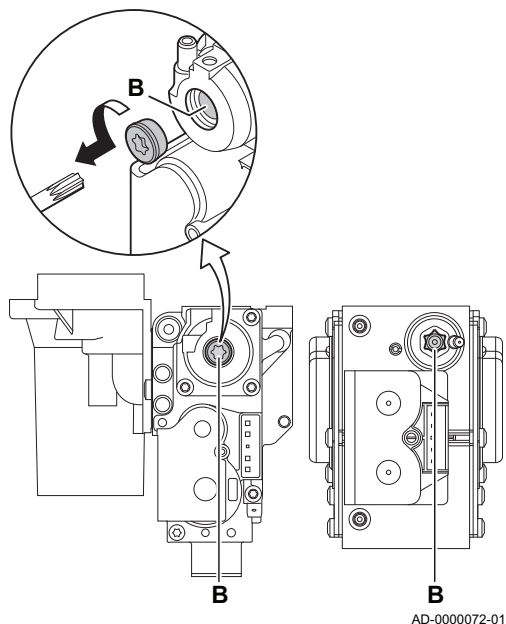
8.6.3   Performing the full load test (IniControl)
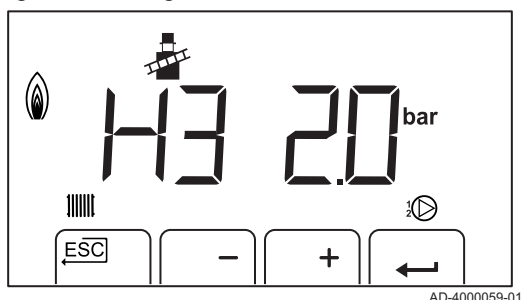
1. Press the two 🔳 keys at the same time.
   ⇨ The $H3$ symbol appears on the display. The boiler is now set to full load.

8.6.4   Checking/setting values for O₂ at full load

1. Measure the percentage of O_2 in the flue gases.
2. Compare the measured value with the checking values in the table.

Tab.52   Checking/setting values for O_2 at full load for G20 (H gas)

Values at full load for G20 (H gas)	O_2 (%)[1]
MCA 45	4,3 - 4,8[1]
MCA 65	4,3 - 4,8[1]
MCA 90	3,4 - 3,9[1]
MCA 115	4,2 - 4,7[1]
(1) Nominal value	

Tab.53   Checking/setting values for O_2 at full load for G30/G31 (butane/propane)

Values at full load for G30/G31 (butane/propane)	O_2 (%)[1]
MCA 45	4,7 - 5,2[1]
MCA 65	4,9 - 5,4[1]
MCA 90	4,9 - 5,4[1]
MCA 115	4,9 - 5,4[1]
(1) Nominal value	

Caution
The O_2 values at full load must be lower than the O_2 values at low load.

3. If the measured value is outside of the values given in the table, correct the gas/air ratio.
4. Using adjusting screw **A**, adjust the percentage of O_2 for the gas type being used to the nominal value. This should always be inside the highest and lowest setting limit.

Fig.71   Position of adjusting screw A

AD-0000067-01

Fig.72   Setting to low load

AD-4000060-01
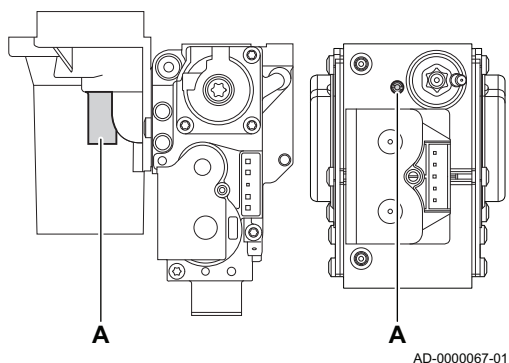
8.6.5   Performing the low load test (IniControl)
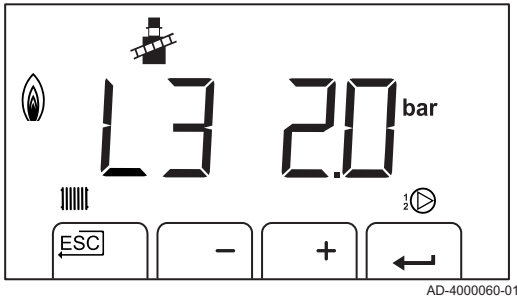
1. Press the ⊟ key several times until $L3$ appears on the display.
   ⇨ The boiler is now set to low load.

8.6.6   Checking/setting values for O_2 at part load

1. Measure the percentage of O_2 in the flue gases.
2. Compare the measured value with the checking values in the table.

Tab.54   Checking/setting values for O_2 at part load for G20 (H gas)

Values at part load for G20 (H gas)	O_2 (%)[1]
MCA 45	5,7[1] - 6,2
MCA 65	4,8[1] - 5,3
MCA 90	4,8[1] - 5,3
MCA 115	5,6[1] - 6,1
(1) Nominal value	

Tab.55   Checking/setting values for O_2 at part load for G30/G31 (butane/propane)

Values at part load for G30/G31 (butane/propane)	O_2 (%)[1]
MCA 45	5,7[1] - 6,2
MCA 65	5,7[1] - 6,2
MCA 90	5,7[1] - 6,2
MCA 115	5,7[1] - 6,2
(1) Nominal value	

⚠ **Caution**
The O_2 values at low load must be higher than the O_2 values at full load.

3. If the measured value is outside of the values given in the table, correct the gas/air ratio.

Fig.73   Position of adjusting screw B
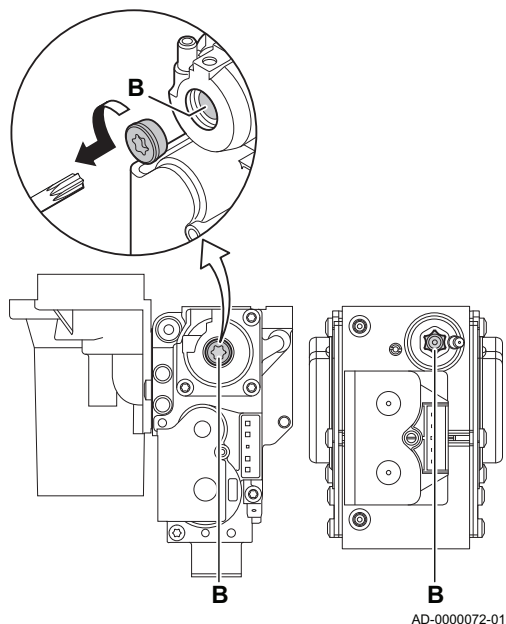
AD-0000072-01

4. Using adjusting screw **B**, adjust the percentage of O_2 for the gas type being used to the nominal value. This should always be inside the highest and lowest setting limit.
5. Set the boiler back to the normal operating status.

8.7   Checklists and configuring the system

8.7.1   Setting the heating curve

1. Press the two ⛊ keys at the same time and then press the **[+]** key until the ⚠ symbol flashes in the menu bar.
2. Select the installer menu using the ⟵ key.
   ⇨ $\boxed{C\!O\!d\!E}$ appears in the display
3. Using the **[-]** or **[+]** keys, enter the installer code $\boxed{0\!0}\ \boxed{1\!2}$.
4. Press the **[+]** key until the 🛠 symbol is displayed.
5. Press the **[+]** key until $\boxed{S}$ appears: $\boxed{3}$.

■ **Heating curve without base point temperature (BCT)**

1 Maximum temperature of the $\boxed{P\ 1}$ circuit
2 Water temperature in the circuit for an outdoor temperature of 0 °C
3 **JOUR** set point for the $\boxed{S\ 1}$ circuit
4 Outdoor temperature for which the maximum water temperature in the circuit is reached
5 Value of the heating curve: $\boxed{S\!3}$ parameter
 🡑 Outdoor temperature
 ▥ Heating water temperature

Fig.74

MW-C002319-3
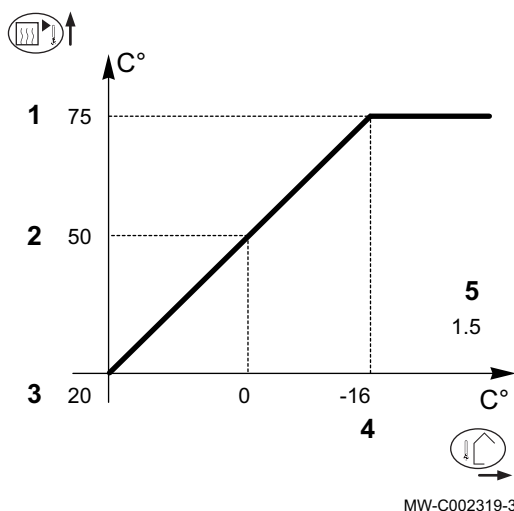
8.8   Final instructions

1. Remove the measuring equipment.
2. Screw the cap on to the flue gas measuring point.
3. Seal the gas valve unit.
4. Put the front casing back.
5. Heat the central heating system up to approximately 70°C.
6. Switch the boiler off.

Fig.75   Example filled-in sticker

Adjusted for / Réglée pour / Ingesteld op / Eingestellt auf / Regolato per / Ajustado para / Ρυθμισμένο για / Nastawiony na / настроен для / Reglat pentru / настроен за / ayarlanmıştır / Nastavljen za / beállítva/ Nastaveno pro / Asetettu kaasulle / Justert for/ indstillet til/ ضبط لـ :	**Parameters** / Paramètres / Parameter / Parametri / Parámetros / Παράμετροι / Parametry / Параметры / Parametrii / Параметри / Parametreler / Paraméterek / Parametrit / Parametere / Parametre / العملات :
☑ Gas *G20*	*DP003 - 3300*
20 mbar	*GP007 - 3300*
	GP008 - 2150
☑ C(10)3(X)	*GP009 -*
☐ C(12)3(X)	
☐	

AD-3001124-01

7. Vent the central heating system after approx. 10 minutes.
8. Turn on the boiler.
9. Check the water pressure. If necessary, top up the central heating system.
10. Fill in the following data on the sticker included, and attach it next to the data plate on the appliance.
    - The gas supply pressure;
    - If set to overpressure application, fill in the type;
    - The parameters modified for the changes mentioned above.
11. Instruct the user in the operation of the system, boiler and controller.
12. Inform the user of the maintenance to be performed.
13. Hand over all manuals to the user.
14. Confirm the commissioning with a signature and a company stamp.
    ⇨ The boiler is now ready for operation.

9 Operation

9.1 Control panel description – DIEMATIC iSystem

9.1.1 Description of the keys

Fig.76
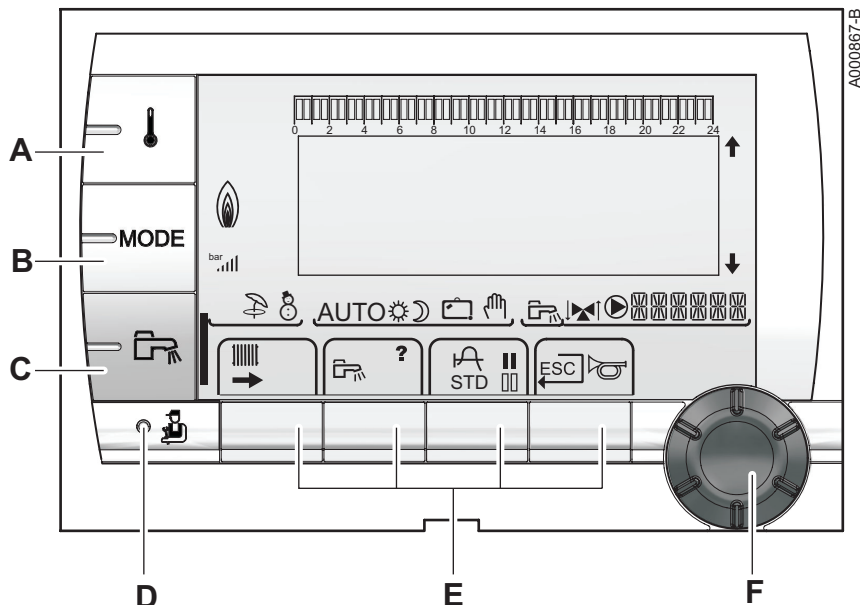
A Temperature setting key (heating, DHW, swimming pool)
B Operating mode selection key
C DHW override key
D Key to access the parameters reserved for the installer
E Keys on which the function varies as and when selections are made

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

9.1.2 Description of the display

■ Functions of the keys

Fig.77

→   Access to the various menus
       Menu scrolling
       Parameter scrolling
?   Help available
       Display the curve of the selected parameter
STD Resetting the timer programs to zero
‖   Selection of the time range in comfort mode
⫿   Selection of the time range in reduced mode
       Back to the previous level
ESC Back to the previous level without saving the modifications made
       Manual reset

■ Flame output level

Fig.78
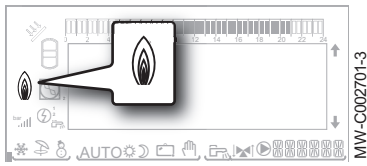
Entire symbol flashes: Burner start-up but no flame

Part of the symbol flashes: output increase

Fixed symbol: requested output attained

Part of the symbol flashes: output decrease

■ Solar

The indicator is present if a solar domestic hot water tank is connected.

Fig.79
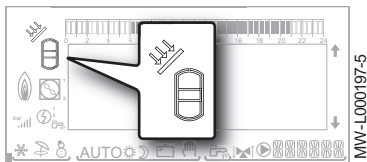
Solar booster pump running

Top part of the tank reheated to the solar domestic hot water set point

Top and middle part of the tank reheated to the solar domestic hot water set point

Entire tank reheated to the solar domestic hot water set point

Tank not loaded and solar control system present
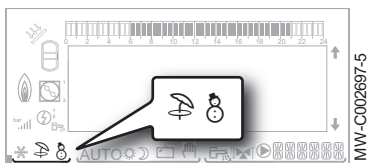
■ Summer / Winter Modes

Fig.80

Summer mode on:

- heating off,
- domestic hot water continues to be produced.

Winter mode on:

- heating running,
- domestic hot water continues to be produced.

■ Operating mode

Fig.81

AUTO **AUTOMATIQUE** mode activated according to the timer program

DAY mode: **DAY** override activated

- Steady symbol: permanent override,
- Flashing symbol: temporary override.

NIGHT mode: **NIGHT** override activated.

- Steady symbol: permanent override,
- Flashing symbol: temporary override.

HOLIDAYS mode: **HOLIDAYS** override activated.

- Steady symbol: **HOLIDAYS** mode active,
- Flashing symbol: **HOLIDAYS** mode programmed.

MANUEL mode activated

Installation pressure

Fig.82
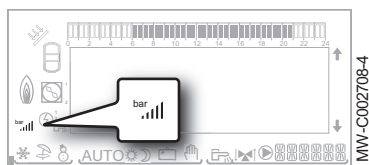
bar   Pressure indicator: hydraulic pressure sensor connected

- Steady symbol: hydraulic pressure sufficient
- Flashing symbol: hydraulic pressure insufficient

Hydraulic pressure level

.	0.9 to 1.1 bar
.ı	1.2 to 1.5 bar
.ıl	1.6 to 1.9 bar
.ıll	2.0 to 2.3 bar
.ılll	> 2.4 bar

Domestic hot water override

A vertical bar is displayed at bottom left when a domestic hot water override is activated.

Fig.83

Steady symbol: permanent override

Flashing symbol: temporary override
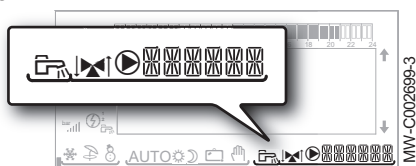
Information about the circuits

Fig.84

Domestic hot water production running

Three-way valve connected:

- 3-way valve open
- 3-way valve closed

Pump running

Name of the circuit for which the parameters are displayed

9.1.3   Accessing the various browsing levels

Accessing the User level

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

Press the ➞ key to access the User level parameters.

Fig.85

> **i**   **Important**
> To cancel an input, press the ESC key.
> To go back to the previous display, press the ⏎ key.
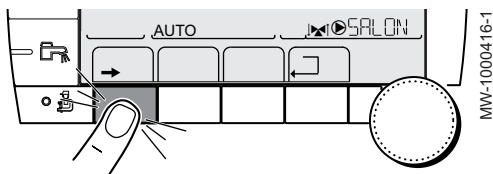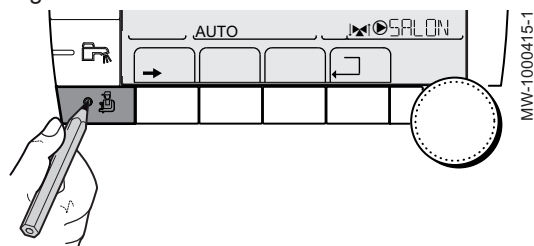
Accessing the Installer level

The information and settings in the Installer level can be accessed by people qualified to do so.

Fig.86

From the User menu, press the key using a suitable tool to access the Installer level parameters.

Fig.87
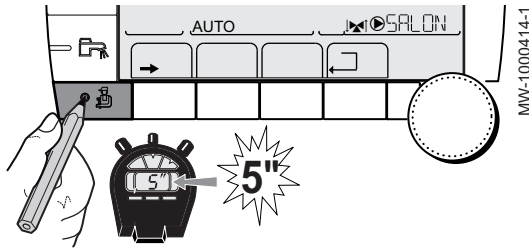
Important

To cancel an input, press the ESC key.

To go back to the main display, press the ⌐ key twice.

It is also possible to access the Installer level at any time by pressing only the 🔧 key for approx. 5 seconds, using a suitable tool.

■ **Accessing the After Sales Service Level**

The information and settings in the After Sales Service level can be accessed by the professional handling the After Sales Service.

1. Go to the User level by pressing the ➡ key.

Fig.88
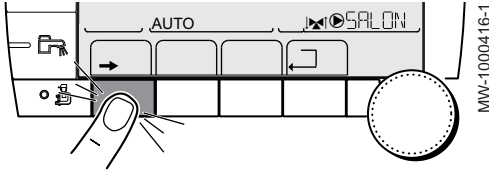
Fig.89

2. Go to the After Sales Service level by pressing the 🔧 key for approximately 5 seconds, using a suitable tool.

3. Go back to the main display by pressing the ⌐ key twice.
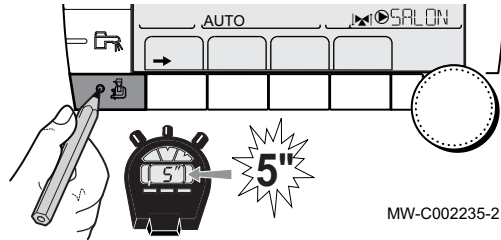
Important

Cancel the input by pressing the ESC key.

Important

It is also possible to access the After Sales Service level by pressing only the 🔧 key for approx. 10 seconds, using a suitable tool.

9.1.4 Browsing in the menus

Fig.90

Turn the settings button to select:

• a menu,
• a parameter,
• a value.

This action also enables the value for a parameter to be modified once it has been selected.
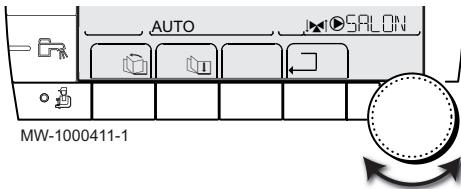
Important

To go back to the previous display, press the ⌐ key.

It is possible to use the 📖 and 📖 keys instead of the settings button.

Fig.91

Press the settings button to confirm:

• a menu,
• a parameter,
• a value.
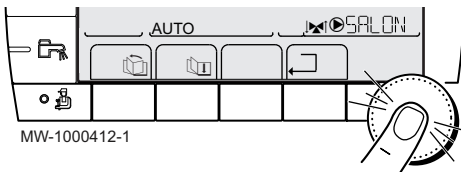
Important

To cancel an input, press the ESC key.

It is possible to use the 📖 and 📖 keys instead of the settings button.

Fig.92
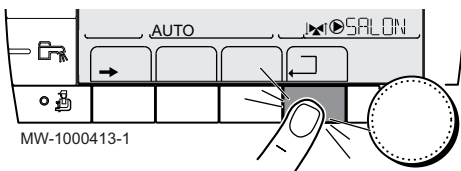
Press the return key ⌐ as many times as needed to return to the main display.

9.1.5   Shutdown

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 **HOLIDAYS** mode (to take advantage of the heating pump's anti-fouling function).

9.1.6   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 (pump post-circulation active).
- If the water temperature in the buffer tank is less than 4 °C, it is reheated to its set point.

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

The **HOLIDAYS** mode protects:

- The installation if the outdoor 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 domestic hot water tank temperature is lower than 4 °C (the water is reheated to 10 °C).

See

9.2 Control panel description – Inicontrol

9.2.1 Description of the keys

Fig.93

A ⏎ return, **Escape** ESC or manual reset 🔄
B Heating temperature ||||| or **[-]** key
C Domestic hot water temperature 🚿 or **[+]** key
D ←⏎ [Enter] key

E 🧹 [Chimney sweep] keys

Press keys **A** and **B** simultaneously
F 📖 [Menu] keys

Press keys **C** and **D** simultaneously

9.2.2 Description of the display

■ Functions of the keys

Fig.94
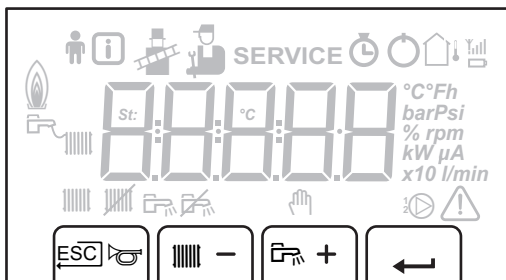
ESC	Back to the previous level without saving the modifications made
🔄	Manual reset
|||||	Central heating function:
	Access to the max. heating temperature parameter
[-]	To reduce a value
🚿	Domestic hot water function:
	Access the domestic hot water temperature parameter.
[+]	To increase a value
←⏎	Access the selected menu or confirm a value modification

■ **Operating modes**

Fig.95
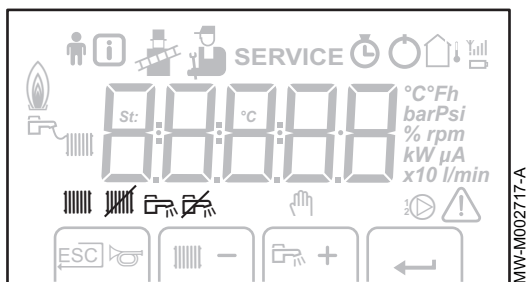
|||||| Heating pump A status

|||||| Central heating off:

The heating function is deactivated

Domestic hot water pump status

Domestic hot water is stopped

Fig.96
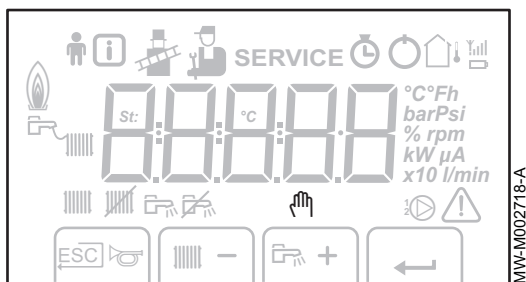
Manual mode

■ **Flame output level**

Fig.97
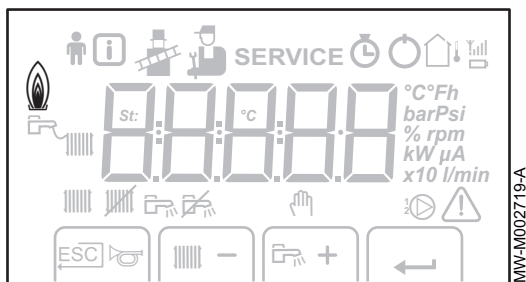
Weak output level: 0 - 25%

Average output level: 25 - 50%

Strong output level: 50 - 75%

Output level: 75 - 100%

■ **Installation pressure**

Fig.98
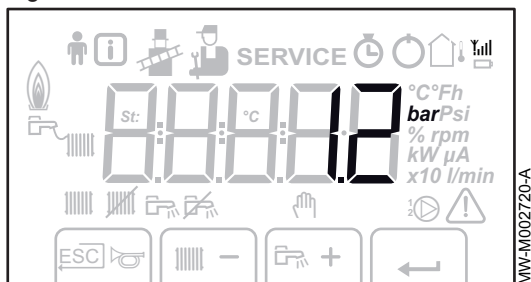
bar Pressure indicator:

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

Fig.99
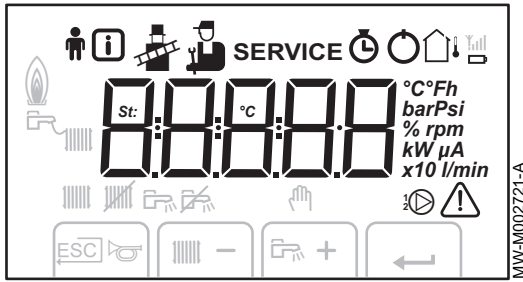
■ Other Information

	User menu:
	User level parameters can be changed
	Information menu:
	Reading the various current values
	Chimney sweep mode:
	Forced high or part load for O_2 measurement
	Service menu:
	Installer level parameters can be changed
SERVICE	Display with the symbols:
	f + SERVICE + $\boxed{A}$ (Maintenance message)
	Hour counter menu:
	Readout of the operating hours, number of successful start-ups and hours on mains supply
	On/off switch:
	After 5 lock-outs, the device must be switched off/on again
	Outdoor temperature sensor present
	The symbol is displayed when the boiler pump is operating
	Malfunction:
	The boiler indicates a malfunction. This is indicated by a $\boxed{d}$ or $\boxed{L}$ code and a flashing display.

9.2.3 Shutting down the system

⚠ **Caution**
Do not switch off the boiler.

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

1. Press the ▥ key until **OFF** is displayed.
2. Press the ⎁ key until **OFF** is displayed.

9.2.4 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 (pump post-circulation active).
- If the water temperature in the buffer tank is less than 4 °C, it is reheated to its set point.

⚠ **Caution**
- Frost protection does not function if the appliance is switched off.
- The boiler protection only protects the boiler, not the system. To protect the installation, set the appliance to **HOLIDAY** mode

ℹ **Important**
With the Inicontrol control panel, the **HOLIDAY** mode is only available if a room sensor is connected to the boiler.

The **HOLIDAY** mode protects:

- The installation if the outdoor 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 domestic hot water tank temperature is lower than 4 °C (the water is reheated to 10 °C).

📖 See

10 Settings

10.1 Parameters – DIEMATIC iSystem

📖 **For more information, see**
Checking and setting the gas/air ratio, page 55

10.1.1 Modifying 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 their own preferences.

📖 **See**
User Guide for modifying user settings.

■ **Selecting the language**

Fig.100

1. Go to the Installer level by pressing the 🔧 key for five seconds.
2. Select the **#LANGUAGE** menu by turning the settings button.
3. Select the desired language.
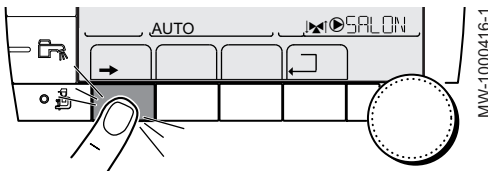
– **LANGUAGE parameter– Installer level**

Tab.56

Setting	Description
FRANCAIS	Display in French
ENGLISH	Display in English
DEUTSCH	Display in German
ITALIANO	Display in Italian
ESPAÑOL	Display in Spanish
NEDERLANDS	Display in Dutch
POLSKY	Display in Polish
TÜRK	Display in Turkish
PYCCKий	Display in Russian

■ **Calibrating the sensors**

Fig.101

1. Access the User level: press the ➡ key.
2. Select the **#SETTING** menu.

ℹ **Important**
• 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.

📖 **See**
For a detailed explanation of menu browsing, refer to the chapter: "Browsing in the menus".

3. Set the following parameters:
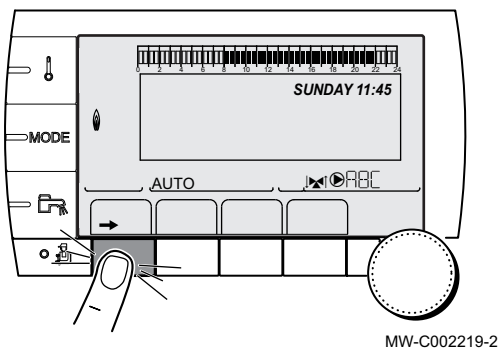
– **User level – #SETTING menu**

Tab.57

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 only starts for domestic hot water needs. • The ⌇ symbol is displayed.	22 °C	
	OFF	Heating is never shut down automatically		
CALIBR.OUT		Calibration of the outdoor sensor: used to correct the outdoor temperature	Outdoor temperature	
CALIBR.ROOM A[1][2]		Calibration of the room temperature sensor on circuit A. Perform this setting two hours after switching on when the room temperature has stabilised	Room temperature on circuit A	
OFFSET ROOM A[1][3]	-5.0 to +5.0 °C	Room temperature offset on circuit A: used to set a room temperature offset. Perform this setting two hours after switching on when the room temperature has stabilised	0.0	
ANTIFR.ROOM A	0.5 to 20 °C	Room temperature at which frost protection on circuit A is activated	6 °C	
CALIBR.ROOM B[1][2][4]		Calibration of the room temperature sensor on circuit B Perform this setting two hours after switching on when the room temperature has stabilised	Room temperature on circuit B	
OFFSET ROOM B[1][3][4]	-5.0 to +5.0 °C	Room temperature offset on circuit B: used to set a room temperature offset. Perform this setting two 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 frost protection is activated on circuit B	6°C	
CALIBR.ROOM C[1][2][4]		Calibration of the room temperature sensor on circuit C Perform this setting two hours after switching on when the room temperature has stabilised	Room temperature on circuit C	
OFFSET ROOM C[1][3][4]	-5.0 to +5.0 °C	Room temperature offset on circuit C: used to set a room temperature offset. Perform this setting two hours after switching on when the room temperature has stabilised	0.0	
ANTIFR.ROOM C[4]	0.5 to 20 °C	Room temperature at which frost protection on circuit C is activated	6 °C	

(1) The parameter is only displayed if the **INSTALLATION** parameter is set to **EXTENDED**
(2) . The parameter is only displayed if a room temperature 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

■ **Professional settings**

1. Go to the User level by pressing the ➡ key.

2. Go to the Installer level by pressing the 🔧 key, using a suitable tool.

MW-C002235-2
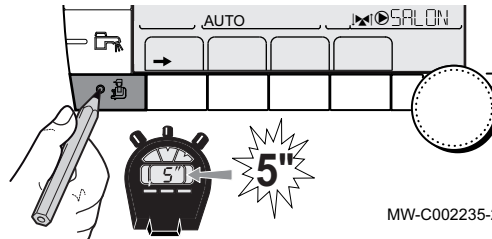
3. Select the desired menu by turning the settings button.

– #PRIMARY LIMITS menu - Installer Level

Certain parameters are displayed:

• according to certain system configurations,
• according to the options, circuits or sensors actually connected.

Tab.58

Parameters	Description	Factory setting	Customer setting
BOILER MAX	Maximum boiler temperature. Can be set from 20 to 90°C.	80 °C	
MAX.R.HEAT	Maximum boiler output during heating. Can be set from 0 to 100%.	100%	
MAX.DHW	Maximum boiler output in domestic hot water mode. Can be set from 0 to 100%.	100%	
MIN.VENT.	Minimum fan speed. Can be set from 1000 to 5000 rpm.		
MAX.VENT.BOIL	Maximum fan speed in heating mode. Can be set from 1000 to 7000 rpm.		
MAX.VENT.DHW	Maximum fan speed in domestic hot water mode. Can be set from 1000 to 7000 rpm.		
START RPM	Fan start-up speed. Can be set from 1000 to 5000 rpm.		
MIN.PUMP SPEED	Minimum pump speed. Can be set from 20 to 100%.	40%	
MAX.PUMP SPEED	Maximum pump speed. Can be set from 20 to 100%.	100%	

– Installer level – #PRIMARY LIMITS menu

Tab.59

Gas type used	Parameter	Unit	45 kW	65 kW	90 kW	115 kW
H gas (G20)	MIN.VENT.	rpm	1500	1600	1700	1800
	MAX.VENT.BOIL	rpm	5600	5800	6200	7000
	MAX.VENT.DHW	rpm	5600	5800	6200	7000
	START RPM	rpm	2500	2500	2500	2500
L gas (G25)	MIN.VENT.	rpm	1500	1600	1700	1800
	MAX.VENT.BOIL	rpm	5600	5800	6200	7000
	MAX.VENT.DHW	rpm	5600	5800	6200	7000
	START RPM	rpm	2500	2500	2500	2500

Gas type used	Parameter	Unit	45 kW	65 kW	90 kW	115 kW
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 RPM	rpm	2500	2500	2500	2500

– **Installer level – #SECONDARY LIMITS menu**

Tab.60

Parameters	Description	Factory setting
MAX.CIRC.A	Maximum temperature (Circuit A) Can be set from 30 to 95 °C. 📖 **See** MAX.CIRC.A, MAX.CIRC.B and MAX.CIRC.C	75 °C
MAX.CIRC.B	Maximum temperature (Circuit B) Can be set from 20 to 95 °C. 📖 **See** MAX.CIRC.A, MAX.CIRC.B and MAX.CIRC.C	50 °C
MAX.CIRC.C	Maximum temperature (Circuit C) Can be set from 20 to 95 °C. 📖 **See** MAX.CIRC.A, MAX.CIRC.B and MAX.CIRC.C	50 °C
OUT.ANTIFREEZE	Outdoor temperature at which the installation's frost protection is activated. Below this temperature, the pumps run permanently and the minimum temperatures for each circuit are respected. If set to **NIGHT: STOP**, the reduced temperature is maintained on each circuit (**#SECONDARY INSTAL.P** menu). Can be set: • **NO**: frost protection is not activated. • from -8 to +10 °C	+3 °C
HCZP D A[1][2]	Curve base temperature in Day mode (Circuit A) Can be set: • **NO** • from 20 to 90 °C	**NO**
HCZP N A[1][2]	Curve base temperature in Night mode (Circuit A) Can be set: • **NO** • from 20 to 90 °C	**NO**
HCZP D B[1][2]	Curve base temperature in Day mode (Circuit B) Can be set: • **NO** • from 20 to 90 °C	**NO**
HCZP N B[1][2]	Curve base temperature in Night mode (Circuit B) Can be set: • **NO** • from 20 to 90 °C	**NO**
HCZP D C[1][2]	Curve base temperature in Day mode (Circuit C) Can be set: • **NO** • from 20 to 90 °C	**NO**

Parameters	Description	Factory setting
HCZP N C[(1)(2)]	Curve base temperature in Night mode (Circuit C) Can be set: • **NO** • from 20 to 90 °C	**NO**
PRIM.TEMP.DHW	Boiler temperature set point if producing domestic hot water Can be set from 50 to 95 °C.	65°C
(1) The parameter is only displayed if the **INSTALLATION** parameter is set to **EXTENDED**. (2) The parameter can be set to the heating curve by pressing the ⌂ key.		

–   Installer level – menu #PRIMARY INSTAL.P

Parameter	Description	Factory setting	Customer setting
BURN.MIN.RUN	Setting the minimum burner operating time (in heating mode). Can be set from 0 to 180 seconds.	30 seconds	
TIMER GENE P.[(1)]	Maximum post-operation duration of the generator pump. Can be set from 0 to 99 minutes.	4 minutes	
IN.BL[(2)]	Configuration of the **BL** input of the **PCU** PCB: • **TOTAL STOP**: If the contact is open, heating and domestic hot water production are off. Automatic restart when the contact closes. Opening the contact generates a message. • **SAFETY MODE**: If the contact is open, the boiler goes into safety lock-down. The boiler needs to be reset to restart.	TOTAL STOP	
BOILER.INERTIA	Characterisation of boiler inertia. Can be set from 1 to 255 seconds.	35 seconds	
(1) The parameter is only displayed if the **INSTALLATION** parameter is set to **EXTENDED**. (2) The menu is only displayed if the **INSTALLATION** parameter is set to **EXTENDED**.			

–   Installer level – #SECONDARY INSTAL.P menu

Tab.61

Parameter	Adjustment range	Description	Factory setting	Customer setting
BUILD.INERTIA[(1)]	0 (10 hours) to 10 (50 hours)	Characterisation of the building's inertia: • 0: building with low thermal inertia. • 3: building with normal thermal inertia. • 10: 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 gradient of circuit A 📖 **See** "CIRC.CURVE .."	1.5	
ANTICIP.A[(1)]	NO, 0.0 to 10.0	Activation and adjustment of the anticipation time 📖 **See** "ANTICIP.A", ANTICIP.B, ANTICIP.C"	NO	
ROOM INFL.A[(2)]	0 to 10	Influence of the room sensor A 📖 **See** "ROOM INFL.A, ROOM INFL.B and ROOM INFL.C"	3	

Parameter	Adjustment range	Description	Factory setting	Customer setting
CIRC.CURVE B[2]	0 to 4	Heating gradient of the circuit B See "CIRC.CURVE .."	0.7	
ANTICIP.B[1]	0.0 to 10.0	Activation and adjustment of the anticipation time See "ANTICIP.A", ANTICIP.B, ANTICIP.C"	NO	
ROOM INFL.B[2]	0 to 10	Influence of the room sensor B See "ROOM INFL.A, ROOM INFL.B and ROOM INFL.C"	3	
CIRC.CURVE C[2]	0 to 4	Heating gradient of the circuit C See "CIRC.CURVE .."	0.7	
ANTICIP.C[1]	0.0 to 10.0	Activation and adjustment of the anticipation time See "ANTICIP.A", ANTICIP.B, ANTICIP.C"	NO	
ROOM INFL.C[2]	0 to 10	Influence of the room sensor C See "ROOM INFL.A, ROOM INFL.B and ROOM INFL.C"	3	
SCREED DRYING	NO, FL.DRY.B, FL.DRY.C, B+C	Screed drying See "SCREED DRYING"	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	Number of days of screed drying	0	
NIGHT[2]	DEC.	The reduced temperature is maintained (Night mode) See "NIGHT"	DEC.	
	STOP	Boiler is off (Night mode) See "NIGHT"		
IN 0-10V	NO / TEMPERATURE / POWER %	Activating the 0--10 V function See "0-10 V function"	NO	
VMIN/OFF 0-10V[2][4]	0 to 10 V	Voltage corresponding to the minimum set point	0.5 V	
VMAX 0-10V[2][4]	0 to 10 V	Voltage corresponding to the maximum set point	10 V	

Parameter	Adjustment range	Description	Factory setting	Customer setting
CONS.MIN 0-10V[2][4]	0 to 100 °C 0 to 100%	Minimum temperature or relative output set point	5 °C/0%	
CONS.MAX 0-10V[2][4]	5 to 100 °C 5 to 100%	Maximum temperature or relative output set point	100 °C 80%	
BAND WIDTH[2]	4 to 16 K	Control system 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[2]	0 to 16 K	Minimum temperature difference between the boiler and the valves	4 K	
H.PUMP DELAY[2]	0 to 15 minutes	Time delay on shutdown of heating pumps. The time delay on heating pump shutdown prevents the boiler overheating.	4 minutes	
DHW.PUMP DELAY[2]	2 to 15 minutes	Time delay for the shut-down of the domestic hot water pump. The time delay for the domestic hot water load pump shut-down prevents the boiler and the heating circuits overheating (only if a booster 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.	OFF	
	OFF	The heating curves can only be modified manually.		
PRIORITY DHW	TOTAL	Pool heating and reheating interrupted 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	Parallel heating and domestic hot water production if the hydraulic connection allows. ⚠ **Caution** Risk of overheating on the direct circuit.		
LEG PROTEC		The anti-legionella function acts to prevent the development of legionella, the bacteria responsible for legionnaires' disease, in the DHW tank.	NO	
	NO	Anti-legionella function not activated		
	DAILY	The tank is superheated every day according to the settings.		
	WEEKLY	The tank is superheated every Saturday according to the settings.		
START.TIM.LEG.P [5]	00:00 to 23:30	Anti-legionella start-up time	04:00 (increment: 30 minutes)	
DURAT.LEG.PROTECT[5]	0 to 360 min	Anti-legionella running time	60 minutes (increment: 30 minutes)	
OPTIM. DHW[6]	NO	The function is deactivated	NO	
	BOILER.T.	In heating mode, if the boiler temperature exceeds **PRIM.TEMP.DHW** by + 3 °C and the DHW tank needs are not met, the domestic hot water booster pump starts.		
	TEMP.SYST	In heating mode, if the system temperature exceeds **PRIM.TEMP.DHW** by 3 °C and the DHW tank needs are not met, the domestic hot water booster pump starts.		

Parameter	Adjustment range	Description	Factory setting	Customer setting
ON.DHW[6]	NO	The function is deactivated	NO	
	BOILER.T.	In DHW mode, the domestic hot water booster pump starts up only if the boiler temperature is 5 °C higher than the **WATER TEMP.** set point.		
	TEMP.SYST	In DHW mode, the domestic hot water booster pump starts up only if the system temperature is 5 °C higher than the **DHW TEMP.** set point.		

(1) The parameter is only displayed if the **INSTALLATION** parameter is set to **EXTENDED**.
(2) The parameter can be set to the heating curve by pressing the ⌐⌂ key.
(3) The parameter is only displayed if **SCREED DRYING** is not **NO**.
(4) The parameter is only displayed if the **IN 0-10V** parameter is set to **ON**.
(5) The parameter is only displayed if **LEG PROTEC** is not **NO**.
(6) The parameter is only displayed if **P.DHW** is set to **PUMP**.

Fig.102

— **MAX. CIRC. ...**

> ⚠ **Caution**
> If using underfloor heating, do not modify the factory setting (50 °C). Regulations require a safety system independent of the control system, with manual reset, which cuts the heat supply to the underfloor heating circuit when the temperature of the fluid reaches 65°C (DTU 65–14).

Connect a safety thermostat to the **BL** contact on the pump connector.

— **HEATING CURVE ...**

Heating curve of circuits A, B or C
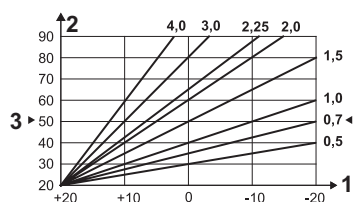
1 Outdoor temperature (°C)
2 Water flow temperature (°C)
3 Maximum temperature of circuit A - B - C

Fig.103

— **ANTICIP.A, ANTICIP.B, ANTICIP.C**

1 Room temperature set point - Comfort
2 Room temperature set point - Reduced
3 Timer program
4 Anticipation time = Accelerated reheating phase
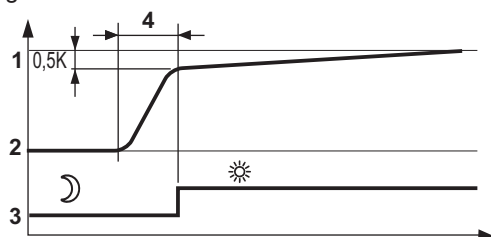
The anticipation function calculates the heating restart time to reach the desired room temperature less 0.5 K at the time programmed for switching to comfort mode. The start time of the timer program corresponds to the end of the accelerated reheating phase.

The start time of the timer program corresponds to the end of the accelerated reheating phase.

The function is activated by setting a value different from **NO**.

The set value corresponds to the time estimated to be necessary for the system to return the installation to the correct temperature (at an outside temperature of 0 °C), starting from a residual room temperature corresponding to the reduced night time set point.

Anticipation is optimised if a room temperature sensor is connected.

The control unit will automatically fine tune the anticipation time.

> **i** **Important**
> This function is dependent on the surplus power available in the installation.

– SCREED DRYING

Used to force a constant flow temperature or a series of successive temperature levels to accelerate screed drying on underfloor heating.

The settings for these temperatures must follow the screed layer's recommendations.

Activation of this parameter (setting other than **NO**) forces the permanent display of **SCREED DRYING** and deactivates all other control system functions.

When screed drying is active on a circuit, all other circuits (e.g. domestic hot water) are shut down. The use of this function is only possible on circuits B and C.

Fig.104
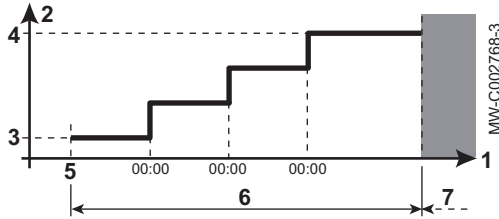
1   Days
2   Heating set point temperature (°C)
3   **START DRYING TEMP**
4   **STOP DRYING TEMP**
5   Today
6   **NB DAYS DRYING**
7   Normal regulation (drying completed)

Example

Fig.105

1   Days
2   Heating set point temperature (°C)
3   **START DRYING TEMP**: 20 °C
4   **STOP DRYING TEMP**: 47 °C
5   Start of drying
6   **NB DAYS DRYING**
7   Normal regulation (drying completed)
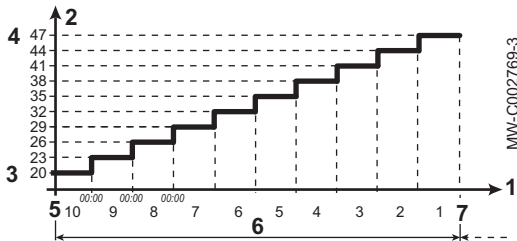
> **i** **Important**
> Every day at midnight (00:00): the setpoint (**START DRYING TEMP**) is recalculated and the number of remaining days (**NB DAYS DRYING**) is decreased.

– ROOM INFL.A, ROOM INFL.B or ROOM INFL.C

This function is used to adjust the influence of the room sensor on the water temperature for the circuit concerned.

Tab.62

Setting	Description
0	No influence: remote control mounted in a location with no influence
1	Slight influence
3	Average influence: recommended setting
10	Operates like a room thermostat

– NIGHT

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

For circuits without a room temperature sensor	• **NIGHT**: **DEC.** (Reduction): The lower temperature is maintained during reduced periods. The circuit pump operates constantly. • **NIGHT**: **STOP** (Shut-down): Heating is shut down during reduced periods. When installation frost protection is active, the reduced temperature is maintained during reduced periods.

For circuits with a room temperature sensor	• When the room temperature is lower than the room temperature sensor set point: The lower temperature is maintained during reduced periods. The circuit pump operates constantly. • When the room temperature is higher than the room temperature sensor set point: The boiler is shut down during reduced periods. When installation frost protection is active, the reduced temperature is maintained during reduced periods.

– **0-10 V function**

This function enables control of the boiler by an external system comprising a 0-10 V output connected to the 0-10 V input. This control imposes a temperature or output set point on the boiler. It is imperative that the parameter **BOILER MAX** is greater than **CONS.MAX 0-10V** if it is temperature-controlled.

Fig.106
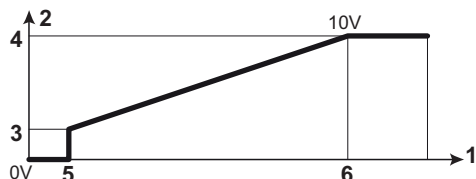
1	Flow set point temperature (°C) or output (%)
2	Voltage on the input (V) – DC
3	0 V
4	**CONS.MIN 0-10V**
5	**CONS.MAX 0-10V**
6	**VMIN/OFF 0-10V**
7	**VMAX 0-10V**
8	10 V
x	Voltage on the input
y	Boiler temperature or relative output

If the input voltage is lower than **VMIN/OFF 0-10V**, the boiler is off.

The boiler set point temperature strictly corresponds to the 0-10 V input. The secondary circuits on the boiler continue to run but have no effect on the boiler's water temperature. If using the 0-10 V input and a secondary circuit on the boiler, the external control unit providing the voltage of 0-10 V must always demand a temperature at least equal to the needs of the secondary circuit.

■ **Configuring the network**

1. Access the Installer level: press the 🔧 key for approximately five seconds.
2. Select the **#NETWORK** menu.

Fig.107

> **i** **Important**
> • 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.

> 📖 **See**
> For a detailed explanation of menu browsing, refer to the chapter: "Browsing in the menus"

3. Set the following parameters:

– **Installer level – #NETWORK menu**

> **i** **Important**
> The menu is only displayed if the **INSTALLATION** parameter is set to **EXTENDED**.
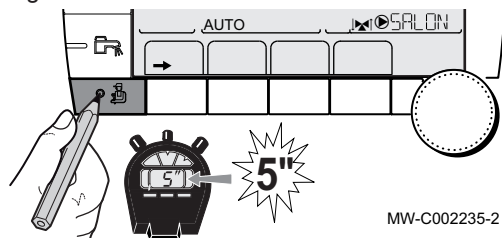
Tab.63

Parameter	Description	Factory setting	Customer setting
CASCADE	Cascade system: • **ON** • OFF	OFF	

Parameter	Description	Factory setting	Customer setting
VM NETWORK[1]	Specific menu: Enlist the VM in cascade mode **See** "Connecting the VM in cascade"		
MASTER CONTROLER [2]	Configure this control system as master on the BUS • **ON** • OFF	**ON**	
SYSTEM NETWORK[3]	Specific menu: Enlist generators or VM in cascade mode **See** "Connecting the VM in cascade"		
FUNCT[3]	• TRADITIONAL: Cascade operation: Successive tripping of the various generators in the cascade according to requirements. • PARALLEL: Parallel cascade operation: If the outdoor temperature is lower than the **PARALLEL CASC.** value, all generators are started up at the same time.	TRADITIONAL	
PARALLEL CASC.[4]	Outdoor temperature tripping all stages in parallel mode Can be set from -10 to 20 °C	10 °C	
TIMER GENE P.CASC[2]	Minimum duration of post-operation of the generator pump Can be set from 0 to 30 min	0 min	
INTER STAGE TIMER[2]	Time delay for starting up or shutting down generators Can be set from 1 to 30 min	4 min	
SLAVE NUMBER[5]	Set the slave generator's network address Can be set from 2 to 10	2	

(1) The parameter is only displayed if **CASCADE** is set to **OFF**
(2) The parameter is only displayed if **CASCADE** is set to **ON**
(3) The parameter is only displayed if **MASTER CONTROLER** is set to **ON**
(4) The parameter is only displayed if **FUNCT** is set to **PARALLEL**
(5) The parameter is only displayed if **MASTER CONTROLER** is set to **OFF**

– User level – #SETTING menu

Tab.64

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 seven days • 1 ... 10: The master boiler is always the one defined by this value	AUTO	

(1) The parameter is only displayed if **CASCADE** is set to **ON** and **MASTER CONTROLER** to **ON**

– Connecting appliances in cascade

In a cascade configuration, it is possible to enlist generators and/or VM as slave units.

Proceed as follows:

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

Fig.108

CASCADE   ON
MASTER CONTROLLER   ON
SYSTEM NETWORK
FUNCT   TRADITIONAL
INTER STAGE TIMER   4'

AUTO

MW-C002409-2
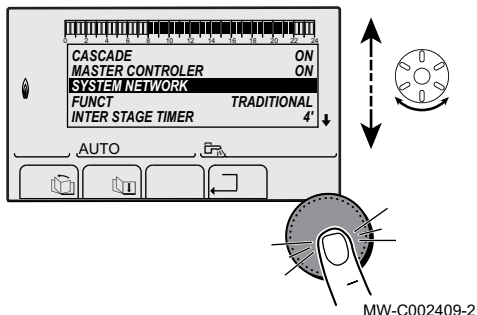
2. Select **SYSTEM NETWORK** and press the rotary button to access the specific menu.

Fig.109

NB.NETWORK ELEMENTS   4
ADD SLAVE
ERASE NETWORK

AUTO

C002410-C-04
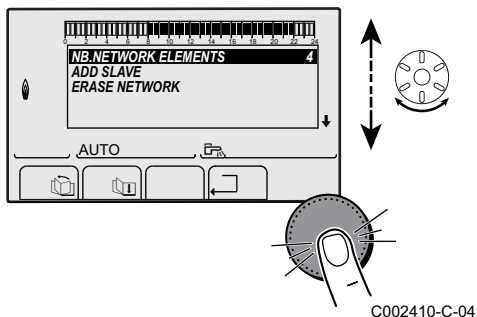
3. To add a slave appliance to the network, select **ADD SLAVE**.

Fig.110

ADD SLAVE   4
GENE: 2, 5,
VM: 29,

AUTO

C002412-B-04
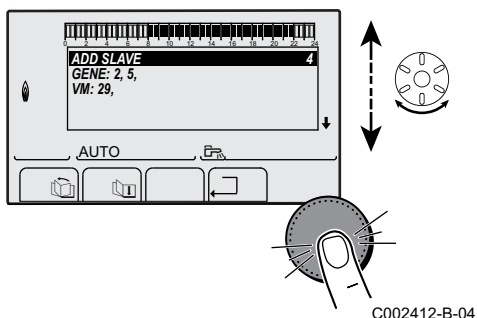
4. The screen displayed allows you to choose numbers of slave boilers to be added to the network. Numbers 2 to 10 are dedicated to the generators and numbers 20 to 39 to the VM. Turn the rotary button to scroll through the numbers and press to confirm the number chosen. Press ⌐ to go back to the previous list.

Fig.111

ERASE NETWORK   4
GENE: 2, 5,
VM: 29,

AUTO

MW-C002413-2
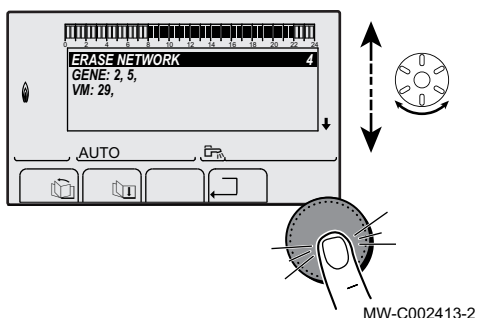
5. To remove a slave appliance from the network, select **ERASE NETWORK**.

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.

Fig.112

C002411-C-04
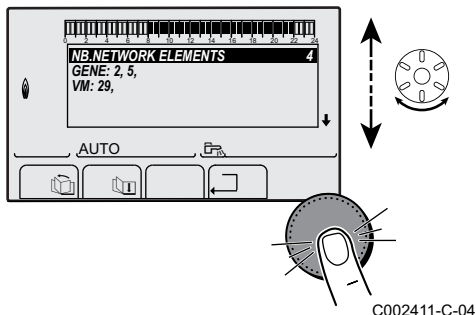
7. Select **NB.NETWORK ELEMENTS**. This screen summarises the elements in the network recognised by the system. Press ⌐ to go back to the previous list.

– Connecting the VM in cascade

It is only possible to enlist VM as slave units. Proceed as follows:

1. Select **VM NETWORK** and press the rotary button to access the specific menu.
2. The screen displayed is used to select the numbers of the slave VM to be added to the network. Numbers 20 to 39 are dedicated to the VM. 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 **ERASE VM**.
4. The screen displayed is used to select the numbers of the slave VM 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.NETWORK ELEMENTS**. This screen summarises the elements in the network recognised by the system. Press ⌐ to go back to the previous list.

■ Return to the factory settings

To reset the appliance, proceed as follows:

1. Go to the **#RESET** menu by pressing the three , ➡ and ⌐ keys simultaneously for 4 seconds.
2. Select the type of initialisation desired by turning the settings button.
3. Confirm the selection by pressing the settings button.
   ⇨ After a **TOTAL RESET** or **EXCEPT PROG.** reset, the control system goes back to displaying the language selection after a few seconds.

Fig.113

C002296-B-04
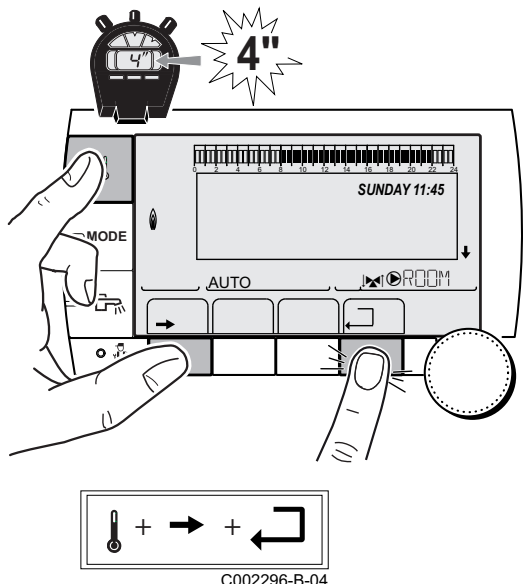
– Menu #RESET

Tab.65

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

10.1.2 Accessing the measured values

Fig.114

MW-C002219-2
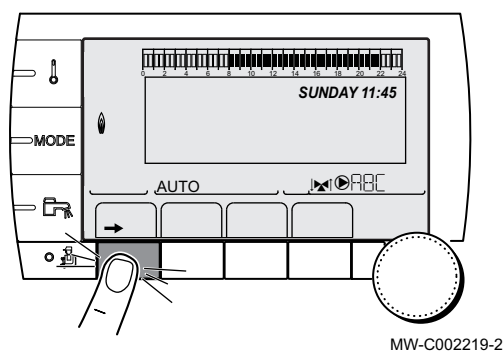
1. Press the ➞ key to access the user level.
2. Select the **#MEASURES** menu.

■ **#MEASURES menu**

Tab.66

Parameter	Description	Unit
OUTSIDE TEMP.	Outside temperature	°C
ROOMTEMP.A [1]	Room temperature on circuit A	°C
ROOMTEMP.B [1]	Room temperature on circuit B	°C
ROOMTEMP.C [1]	Room temperature on circuit C	°C
BOILER TEMP	Measurement of the boiler flow sensor	°C
PRESSURE	Hydraulic pressure in the system	bar (MPa)
DHW TEMP. [1]	Water temperature in the domestic hot water tank	°C
TEMP DHW INST [1]	Instantaneous domestic hot water temperature	°C
STOR.TANK.TEMP [1]	Water temperature in the buffer tank	°C
TEMPERATURE DCW	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]	Water flow temperature in circuit B	°C
OUTLET TEMP.C [1]	Water flow temperature in circuit C	°C
TEMP.SYSTEM [1]	Water flow temperature in the system if multi-generator	°C
T.DHW BOTTOM [1]	Water temperature in the bottom of the domestic hot water tank	°C
TEMP.TANK AUX [1]	Water temperature in the second domestic hot water tank connected to the AUX circuit	°C

Parameter	Description	Unit
TEMP.DHW A	Water temperature in the second domestic hot water tank connected to the A circuit	°C
BACK TEMP	Temperature of the boiler return water	°C
FAN SPEED	Fan rotation speed	rpm
POWER	Instantaneous boiler output 0%: burner off or operating at minimum output	%
CURRENT(µA)	Ionisation current	µA
NB IMPULS.	Number of burner start-ups (cannot be reset). The meter increases by 8 every 8 start-ups	
RUNTIME	Number of burner operating hours (cannot be reset). The meter increases by 2 every 2 hours	h
IN 0-10V [1]	Voltage on the 0--10 V input	V
SEQUENCE	Control system sequence	
CTRL	Software inspection number	
(1) The parameter is only displayed for the corresponding options, circuits or sensors actually connected.		

10.2 Parameters – Inicontrol

For more information, see
Checking and setting the gas/air ratio, page 55

10.2.1 Parameter descriptions

Tab.67   Factory setting

Parameter	Description	Adjustment range	45	65	90	115
$P\,1$	Flow temperature: T_{SET}	20 to 90ºC	80	80	80	80
$P2$	DHW temperature: T_{SET}	40 to 65ºC	60	60	60	60
$P3$	Boiler control/DHW	0 = CH off/DHW off 1 = CH on/DHW on 2 = CH on/DHW off 3 = CH off/DHW on	1	1	1	1
$P4$	ECO setting	0 = Comfort 1 = ECO setting 2 = Controller dependent	2	2	2	2
$P5$	Anticipation resistance	0 = No anticipation resistance for the ON/OFF thermostat 1 = Anticipation resistance for the ON/OFF thermostat	0	0	0	0
$P6$	Display screen	0 = Simple 1 = Extended 2 = Automatic switching to simple after 3 minutes 3 = Automatic switching to simple after 3 minutes; key lock is active	2	2	2	2
$P7$	Post-circulation of the pump	1 to 98 minutes 99 minutes = continuous	3	3	3	3
$P8$	Brightness of display lighting	0 = Dimmed 1 = Bright	1	1	1	1
$P\,17$	Maximum fan speed (central heating)	G20 (H gas) x100 rpm	56	58	62	70

Parameter	Description	Adjustment range	45	65	90	115
P 18	Maximum fan speed (DHW)	G20 (H gas) x100 rpm	56	58	62	70
P 19	Minimum fan speed (CH + DHW)	G20 (H gas) x100 rpm	15	16	17	18
P20	Minimum fan speed (offset)	G20 (H gas)	50	0	0	0
P21	Start speed	G20 (H gas) 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	Reserve		-	-	-	-
P25	Heat curve set point (Maximum outside temperature)	0 to 30ºC[1]	20	20	20	20
P26	Heat curve set point (Flow temperature)	0 to 90ºC[1]	20	20	20	20
P27	Heat curve set point (Minimum outside temperature)	-30 to 0ºC[1]	-15	-15	-15	-15
P28	Setting the pump speed (Minimum pump speed for central heating operation)	2–10 (x 10%)	4	4	4	4
P29	Setting the pump speed (Maximum pump speed for central heating operation)	2–10 (x 10%)	10	10	10	10
P30	Frost protection temperature	-30 to 0ºC	-10	-10	-10	-10
P31	Legionella protection	0 = Off 1 = On[2] 2 = Controller dependent	1	1	1	1
P32	Set point increase for calorifier	0 to 20ºC	20	20	20	20
P33	Switch on temperature for DHW calorifier sensor	2 to 15ºC	5	5	5	5
P34	Control of three-way valve	0 = Normal 1 = Reverse	0	0	0	0
P35	Boiler type	0 = Solo 1 = Open vented 2 = Solo (progressive calorifier control)	0	0	0	0
P36	Blocking input function	0 = Heating activated 1 = Blocking frost protection 2 = Blocking with frost protection 3 = Lockout with frost protection[3]	1	1	1	1
P37	Release function	0 = DHW on 1 = Release input	1	1	1	1
P38	Release waiting time	0 to 255 seconds	0	0	0	0
P39	Gas valve switching time	0 to 255 seconds	0	0	0	0
P40	Fault relay function	0 = Operation signal 1 = Alarm signal	1	1	1	1
P41	GpS connected	0 = Not connected 1 = Connected	0	0	0	0
P42	HRU connected	0 = Not connected 1 = Connected	0	0	0	0

Parameter	Description	Adjustment range	45	65	90	115
$P43$	Mains detection phase	0 = Off 1 = On	0	0	0	0
$P44$	Service message	Do not change	1	1	1	1
$P45$	Service operating hours	Do not change	175	175	175	175
$P46$	Service burning hours	Do not change	30	30	30	30
$P47$	Modulating startpoint	1 to 30°C	25	25	25	20[4]
$P48$	DHW stabilisation time	10 to 100 seconds	100	100	100	20
Ad	Detection of connected SCUs	0 = No detection 1 = Detection	0	0	0	0
dF + dU	Factory setting	To restore the factory settings or when replacing the control unit, enter the values dF and dU from the data plate for parameters dF and dU	X Y	X Y	X Y	X Y

(1) Only with outside sensor
(2) After switching on, the boiler operates once a week at 65°C for the DHW
(3) Pump only
(4) If the boiler is being installed in a cascade system, set parameter $P47$ to 25

Tab.68   Adjustment for gas type G30/G31 (butane/propane)

Parameter	Description	45	65	90	115
$P\ 17$	Maximum fan speed (central heating)	51	53	58	65
$P\ 18$	Maximum fan speed (DHW)	51	53	58	65
$P\ 19$	Minimum fan speed (CH + DHW)	15	16	22	18
$P20$	Minimum fan speed (offset)	50	0	50	0
$P21$	Start speed	25	25	25	25

Tab.69   Adjustment for flue gas overpressure cascade

Parameter	Description	45	65	90	115
$P\ 19$	Minimum fan speed (CH + DHW)	18	18	19[1]	19
$P20$	Minimum fan speed (offset)	0	0	0	0
$P21$	Start speed	25	25	25	25

(1) Use the parameter setting for the gas type if the boiler has been adjusted for G30/G31 (butane/propane).

10.2.2   Modifying 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 their own preferences.

■   Modifying the Installer level parameters

The $P0\ 17$ to $CONF$ parameters must only be edited by a qualified professional. To prevent parameter errors, some parameter settings can only be changed after the special access code $00\ 12$ is entered.

Fig.115
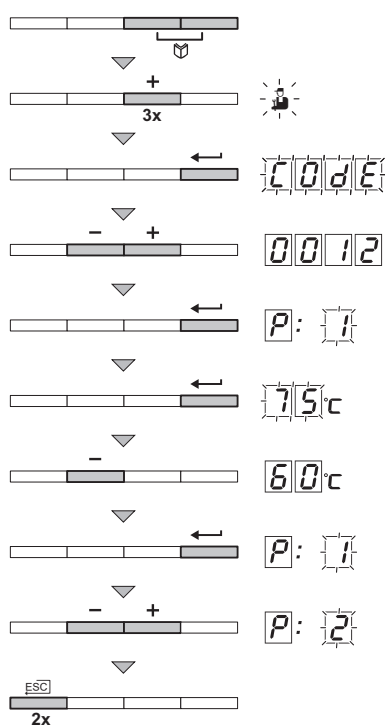
MW-C003059-A

1. Press the two ♒ keys at the same time and then press the **[+]** key
   until the ▦ symbol flashes in the menu bar.
2. Select the installer menu using the ← key.
   ⇨ $COdE$ appears in the display
3. Using the **[-]** or **[+]** keys, enter the installer code 0012.
4. Confirm with the ← key.
   ⇨ $P: 001$ 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 **[+]** keys. In this example,
   use the **[-]** key to reduce the value to 60 °C.
7. Confirm the value with the ← key.
   ⇨ $P: 001$ is displayed with 1 flashing.
8. Set any other parameters by selecting them using the **[-]** or **[+]** keys.
9. Press the ⏋ key twice to exit this menu and return to the initial op-
   erating mode.

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

■ **Setting the maximum output for the heating mode**

The speed can be changed using the $P17$ parameter.

To do this, proceed as follows:

1. Press the two ♒ keys at the same time and then press the **[+]** key
   until the ▦ symbol flashes in the menu bar.
2. Select the installer menu with the ← key.
   ⇨ $COdE$ appears in the display
3. Using the **[-]** or **[+]** keys, enter the installer code 0012.
4. Confirm with the ← key.
   ⇨ $P: 1$ is displayed with 1 flashing.
5. Press the **[+]** key to go to parameter $P: 17$.
6. Confirm with the ← key.
7. Use the **[+]** key to increase the speed of rotation from 46 to 50,
   for example.
8. Confirm the value with the ← key.
9. Press the ⏋ key twice to exit this menu and return to the initial op-
   erating mode.

Fig.116
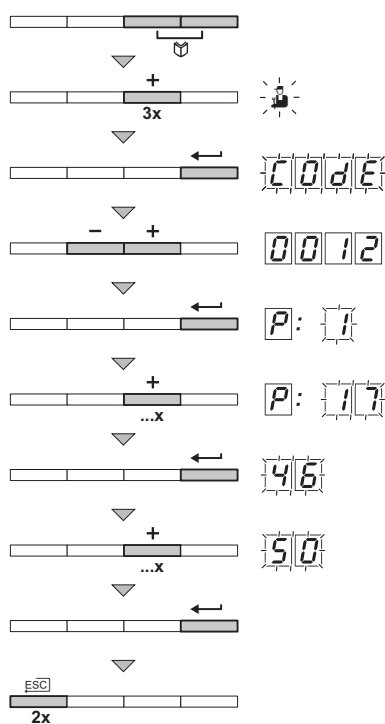
MW-C003060-A

■ Restoring the factory settings: Reset Param

1. Press the two ⧛ keys at the same time and then press the **[+]** key until the 🔧 symbol flashes in the menu bar.
2. Select the installer menu with the ⟵ key.
   ⇨ $\boxed{CODE}$ appears in the display
3. Using the **[-]** or **[+]** keys, enter the installer code $\boxed{0012}$.
4. Confirm with the ⟵ key.
   ⇨ $\boxed{P}$: $\boxed{1}$ is displayed with $\boxed{1}$ flashing.
5. Press the **[+]** key several times.
   ⇨ $\boxed{P}$: $\boxed{CNF}$ is displayed with $\boxed{CN1}$ flashing.
6. Press the ⟵ key.
   ⇨ $\boxed{C.NF}$: $\boxed{X}$ is displayed with $\boxed{X}$ flashing. X shows the current value of the **CN1** parameter.
1. Check this against the value of X on the data plate.
7. Enter the value of X shown on the data plate using the **[-]** or **[+]** keys.
8. Confirm the value with the ⟵ key.
   ⇨ $\boxed{C.NF}$: $\boxed{Y}$ is displayed with $\boxed{Y}$ flashing. Y shows the current value of the **CN2** parameter.
9. Check this against the value of Y on the data plate.
10. Enter the value of Y shown on the data plate using the **[-]** or **[+]** keys.
11. Confirm the value with the ⟍⏌ key.
   ⇨ The factory settings are reset.
12. The display returns to the current operating mode.

■ 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 at the same time and then press the **[+]** key until the 🔧 symbol flashes in the menu bar.
2. Select the installer menu with the ⟵ key.
   ⇨ $\boxed{CODE}$ appears in the display.
3. Using the **[-]** or **[+]** keys, enter the installer code $\boxed{0012}$.
4. Confirm with the ⟵ key.
   ⇨ $\boxed{P}$: $\boxed{1}$ is displayed with $\boxed{1}$ flashing.
5. Press the **[+]** key several times.
   ⇨ $\boxed{P}$: $\boxed{Ad}$ is displayed with $\boxed{Ad}$ flashing.
6. Confirm with the ⟍⏌ key.
   ⇨ Auto-detect is running.
7. The display returns to the current operating mode.

Fig.117
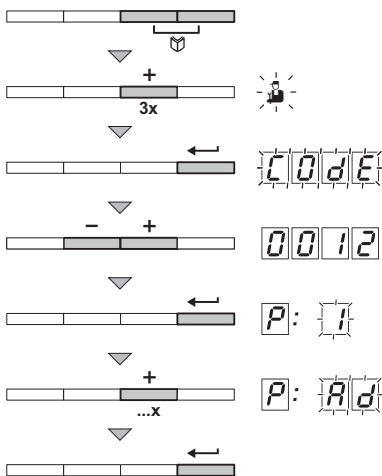
MW-C003062-A

■ Description of the parameters

Tab.70

Parameter	Description	Factory setting 45 kW	Factory setting 65 kW	Factory setting 90 kW	Factory setting 115 kW
$\boxed{P\ 1}$	Maximum flow temperature Can be set from 20 to 90 °C	80	80	80	80
$\boxed{P2}$	Domestic hot water temperature Can be set from 40 to 65 °C.	60	60	60	60
$\boxed{P3}$	Heating/Domestic hot water mode Do not modify this setting	1	1	1	1

Parameter	Description	Factory setting 45 kW	Factory setting 65 kW	Factory setting 90 kW	Factory setting 115 kW
P4	ECO mode Do not modify this setting	2	2	2	2
P5	Anticipation resistance Do not modify this setting	0	0	0	0
P6	Display screen Do not modify this setting	2	2	2	2
P7	Post-circulation of the boiler pump connected to the PCU PCB: • Can be set from 1 to 98 minutes • 99 minutes = Continuous operation	3	3	3	3
P8	Brightness of the display Do not modify this setting	1	1	1	1

– 0-10 V function

This function enables control of the boiler by an external system comprising a 0-10 V output connected to the 0-10 V input. This control imposes a temperature or output set point on the boiler. It is imperative that the parameter P23 is greater than S13.

Fig.118
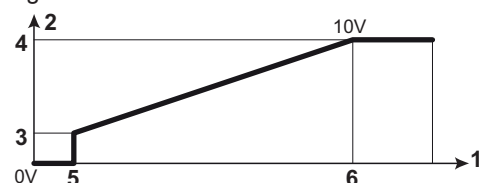
1 Flow set point temperature (°C) or output (%)
2 Voltage on the input (V) – DC
3 0 V
4 Minimum temperature set point S12
5 Maximum temperature set point S13
6 Voltage corresponding to the minimum set point S10
7 Voltage corresponding to the maximum set point S11
8 10 V
x Voltage on the input
y Boiler temperature or relative output

If the input voltage is lower than the voltage corresponding to the minimum set point S10, the boiler is off.

The boiler set point temperature strictly corresponds to the 0-10 V input. The secondary circuits on the boiler continue to run but have no effect on the boiler's water temperature. If using the 0-10 V input and a secondary circuit on the boiler, the external control unit providing the voltage of 0-10 V must always demand a temperature at least equal to the needs of the secondary circuit.

10.2.3 Displaying the measured values

■ Displaying the measured values

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

• St = Status.
• Su = Sub-status.
• t 1 = Flow temperature (°C).
• t 2 = Return temperature (°C).
• t 3 = Tank temperature (°C).
• t 4 = Outdoor temperature (°C).
• t 5 = Solar tank temperature (°C).
• SP = Internal set point (°C).
• FL = Ionisation current (µA).
• nF = Fan speed in rpm
• Pr = Water pressure (bar (MPa))

Fig.119
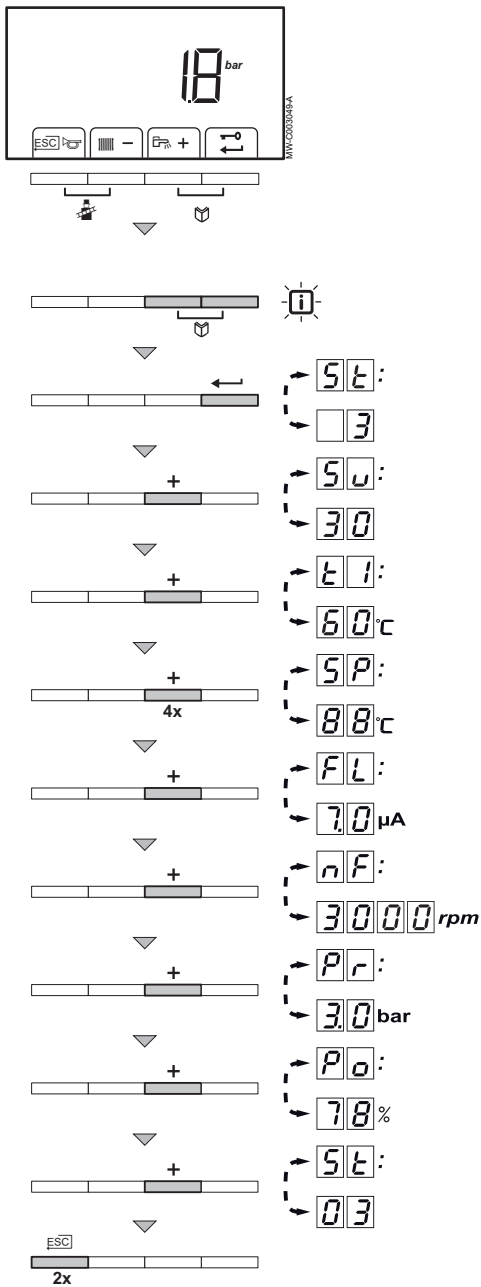
- P_o = Supplied relative heat output (%).

The current values can be read as follows:

1. Press the two ⩗ keys at the same time.
   ⇨ The 𝐢 symbol flashes.
2. Confirm with the ⟵ 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 6 0 °C (for example)
5. Press the **[+]** key successively to scroll through 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 ionisation current 7 0 μA (for example).
8. Press the **[+]** key.
   ⇨ nF is displayed, alternating with the current fan rotation speed 3 000 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 twice to exit this menu and return to the initial operating mode.

Fig.120
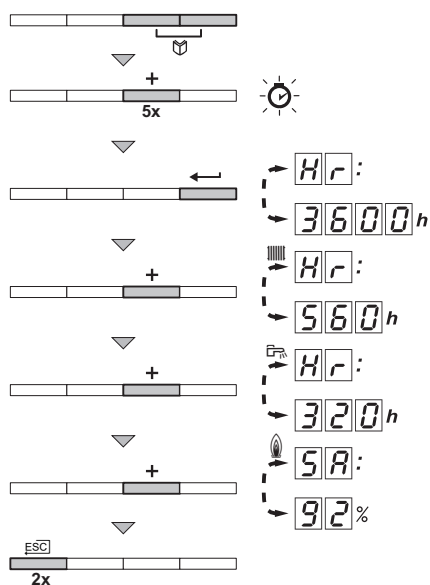
C003058-A

■ **Reading the hour counter and the percentage of successful start-ups**

1. Press the two 📖 keys at the same time and then press the [+] key until the ⏲ symbol flashes in the menu bar.
2. Press the ⟵ key.
    ⇨ Hr is displayed, alternating with the number of boiler operating hours, 3600 (for example).
3. Press the **[+]** key.
    ⇨ The display shows ▥. Hr is displayed, alternating with the number of operating hours in heating mode, 560 (for example).
4. Press the **[+]** key.
    ⇨ The display shows 🚰. Hr is displayed, alternating with the number of operating hours for the production of domestic hot water, 320 (for example).
5. Press the **[+]** key.
    ⇨ The display shows 🔥. SA is displayed, alternating with the percentage of successful start-ups, 92% (for example).
6. Press the ⟶ key twice to exit this menu and return to the initial operating mode.

■ **Status and sub-statuses**

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

Tab.71

Status St		Sub-status Su	
0	Standby	0	Standby
1	Boiler start-up (heat demand)	1	Anti-short cycle
		2	Three-way valve control
		3	Pump start-up
		4	Awaiting correct conditions for burner start-up
2	Burner start-up	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

Status St		Sub-status Su	
3	Burner for central heating operation	30	Temperature control
		31	Limited temperature control (ΔT protection)
		32	Output control
		33	Temperature gradient protection level 1 (retro-modulation)
		34	Temperature gradient protection level 2 (reduced mode)
		35	Temperature gradient protection level 3 (blockage)
		36	Modulate up for flame control
		37	Temperature stabilisation time
		38	Cold start
4	DHW mode active	30	Temperature control
		31	Limited temperature control (ΔT protection)
		32	Output control
		33	Temperature gradient protection level 1 (retro-modulation)
		34	Temperature gradient protection level 2 (reduced mode)
		35	Temperature gradient protection level 3 (blockage)
		36	Modulate up for flame control
		37	Temperature stabilisation time
		38	Cold start
5	Burner stopped	40	Burner stopped
		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	Three-way valve control
		63	Start anti-short cycle
8	Shut-down	0	Waiting for burner start-up
		1	Anti-short cycle
9	Blockage	XX	XX blocking code

Status St		Sub-status Su	
17	Venting	0	Standby
		2	Three-way valve control
		3	Pump start-up
		61	Pump off
		62	Three-way valve control

Status St		Sub-status Su	
17	Venting	0	Standby
		2	Three-way valve control
		3	Pump start-up
		61	Pump off
		62	Three-way valve control

11 Maintenance

11.1 General

• Perform the standard checking and maintenance procedures once a year.
• Perform the specific maintenance procedures if necessary.

> ⚠ **Caution**
>
> • Maintenance operations must be completed by a qualified installer.
> • During inspection or maintenance work, always replace all gaskets of the disassembled parts.
> • We recommend taking out a maintenance contract.
> • Replace defective or worn parts with original spare parts.
> • An annual inspection is mandatory.

11.2 Customising maintenance

> ℹ **Important**
> Maintenance customisation is only possible with the DIEMATIC iSystem control panel

11.2.1 Maintenance message

The control panel has a function that displays a maintenance message.

To configure this function, proceed as follows:

Fig.121

C002272-C-04

1. Access the After Sales level: press and hold the 🔧 key until **#PARAMETERS** is displayed.
2. Select the **#REVISION** menu.

> ℹ **Important**
> • 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.

> 📖 **See**
> For a detailed explanation of menu browsing, refer to the chapter: "Browsing in the menus".

3. Set the following parameters:

■ **After Sales level – #REVISION menu**
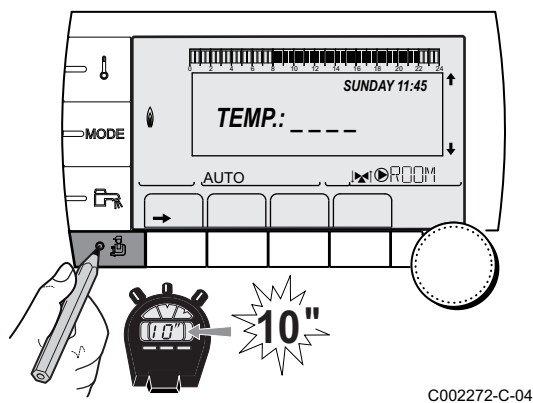
Tab.72

Parameter	Adjustment range	Description
REVISION TYPE	OFF	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	⚠ **Caution** Not applicable. Do not select this setting.
REVISION HOUR[1]	0 to 23	Time at which the **REVISION** display appears
REV.YEAR[1]	2009 to 2099	Year in which the **REVISION** display appears
REVIS.MONTH[1]	1 to 12	Month in which the **REVISION** display appears

Parameter	Adjustment range	Description
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**

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

> **i** **Important**
> 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.

11.2.2 Contact details of the professional for After Sales Support

In order to assist the user if an fault 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:

Fig.122

C002272-C-04

1. Access the After Sales level: press and hold the 🔧 key until #PARAMETERS is displayed.
2. Select the #SUPPORT menu.

> **i** **Important**
> • 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.

> **📖** **See**
> For a detailed explanation of menu browsing, refer to the chapter: "Browsing in the menus".

3. Set the NAME and TEL parameters (see table below).

Fig.123

C002302-D-04

4. When the REVISION message is displayed, press ? to display the professional's telephone number.
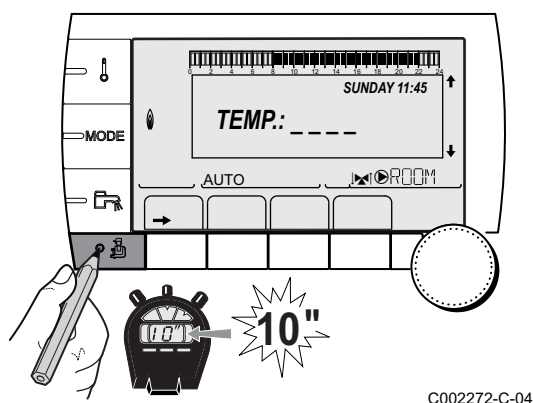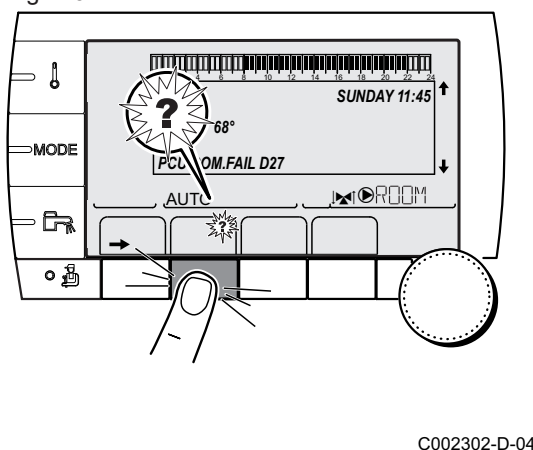
■ **After Sales level – #SUPPORT menu**

Tab.73

Parameter	Description
NAME	Input the installer's name
TEL	Input the installer's telephone number

11.3 Standard inspection and maintenance operations

> ⚠️ **Warning**
> Always wear safety goggles and a dust mask during cleaning work (involving compressed air).

For a service, always perform the following standard inspection and maintenance operations.

> ⚠️ **Caution**
> - Check whether all gaskets have been positioned properly (absolutely flat in the appropriate groove means they are gas tight).
> - During the inspection and maintenance operations, water (drops, splashes) must never come into contact with the electrical parts.

11.3.1 Check the hydraulic pressure

1. Check the hydraulic pressure in the installation.

> ⚠️ **Caution**
> Minimum hydraulic pressure: 0.08 MPa (0.8 bar).
> Recommended hydraulic pressure: between 0.15 MPa and 0.2 MPa (1.5 bar and 2 bar).

> ℹ️ **Important**
> If the hydraulic pressure is lower than 0.08 MPa (0.8 bar):
> - DIEMATIC iSystem control panel
>   : the **bar** symbol flashes.
> - Inicontrol control panel
>   : the pressure value is displayed on the screen.

2. If necessary, top up the heating system with water to increase the hydraulic pressure.

11.3.2 Checking the ionisation current

Check the ionisation current at full load and part load. The value is stable after one minute.

If the value is less than 4 µA, clean or replace the ignition electrode

- DIEMATIC iSystem control panel
  : the ionisation current is displayed in the #MEASURES menu (see chapter: Displaying the measured values).
- Inicontrol control panel
  : see chapter: Displaying the measured values.

11.3.3 Checking the flue gas outlet/air supply connections

Fig.124   Checking flue gas outlet/air supply connections

AD-0000084-01

1. Check the flue gas outlet and air supply connections for condition and tightness.
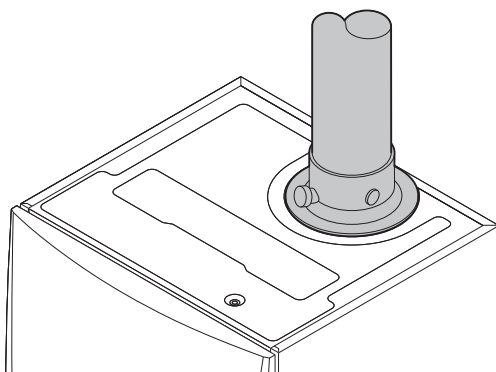
11.3.4 Checking the combustion

Combustion is checked by measuring the O_2 percentage in the flue gas outlet duct.

📖 **For more information, see**
Checking and setting the gas/air ratio, page 55

11.3.5 Checking the automatic air vent

Fig.125 Checking the automatic air vent
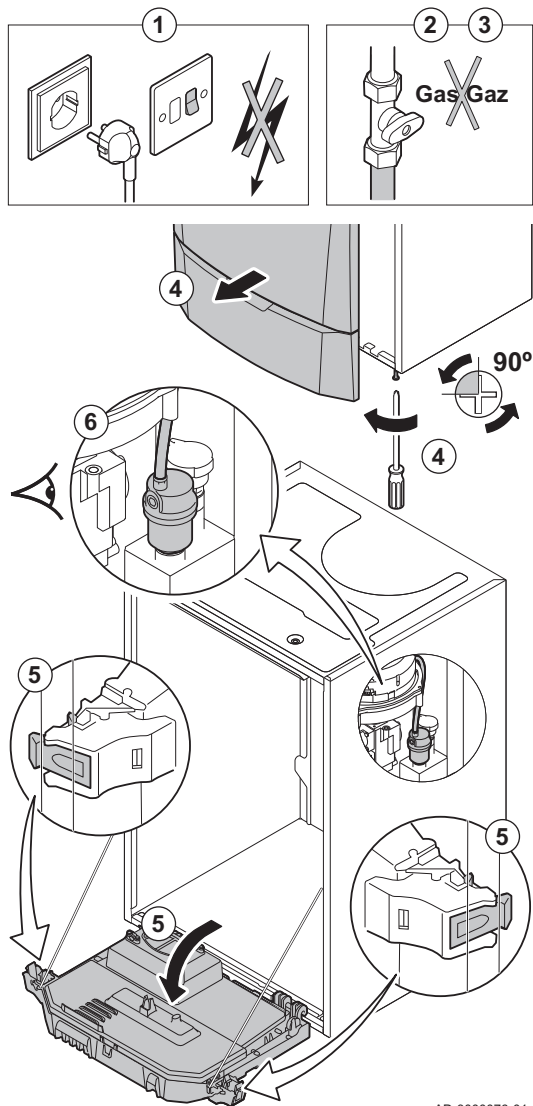
AD-3000076-01

1. Close the gas tap under the boiler.
2. Close the main gas tap.
3. Unscrew the two screws located under the front housing by a quarter turn and remove the front housing.
4. Tilt the instrument box forwards by opening the clips on the sides.
5. Check whether water is visible in the hose of the automatic air vent.
6. In the event of a leak, replace the air vent.

Fig.126   Cleaning the siphon
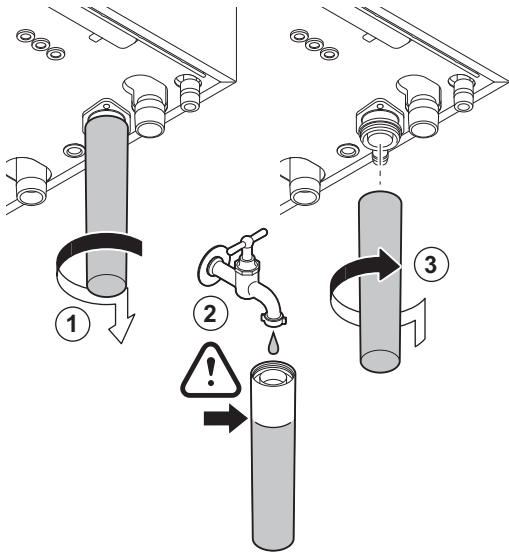
AD-0000086-01

11.3.6   Cleaning the siphon

> ⚠ **Danger**
> The siphon must always be sufficiently filled with water. This prevents flue gases from entering the room.

1. Dismantle the siphon and clean it.
2. Fill the siphon up with water.
3. Fit the siphon.

Fig.127   Checking the burner and cleaning
the heat exchanger

AD-0000087-02

11.3.7   Checking the burner and cleaning the heat exchanger
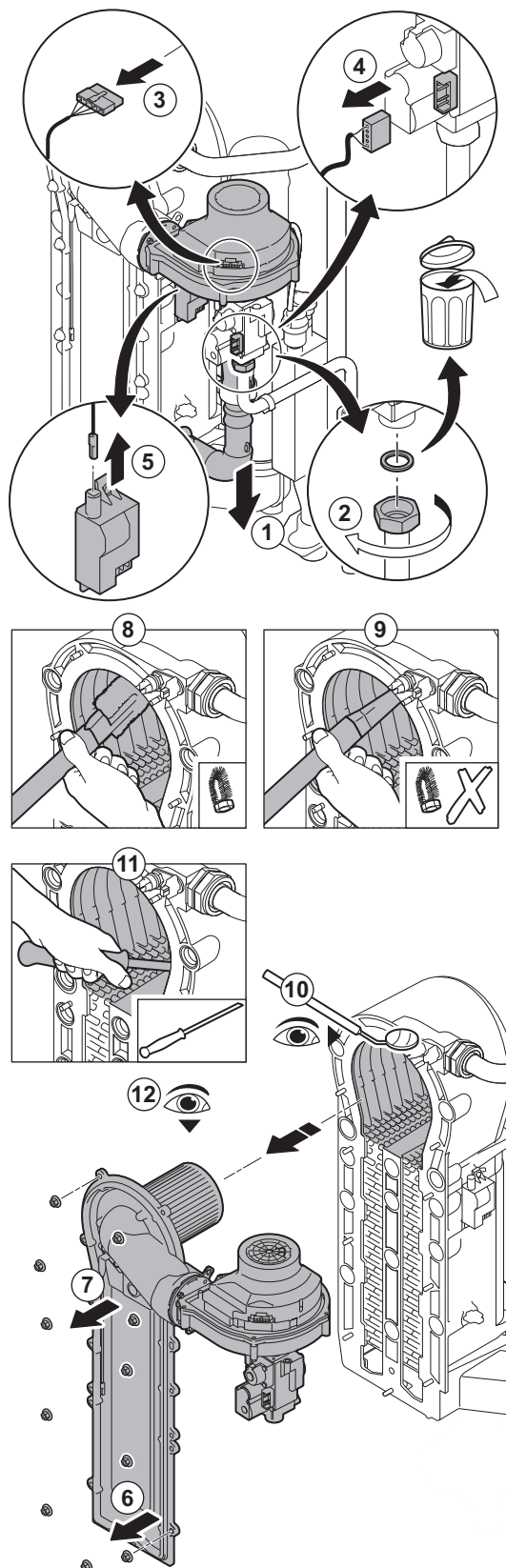
1. Remove the air inlet flue on the venturi.
2. Loosen the gland on the gas valve unit.
3. Remove the plugs from the fan.
4. Remove the plugs from the gas valve unit.
5. Remove the ignition electrode plug from the ignition transformer.
6. Remove the front plate from the heat exchanger.
7. Carefully lift the front plate, including the burner and fan, away 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 (e.g. using a mirror) whether any visible contamination has been left behind. If it has, remove it with the vacuum cleaner.
11. Clean the lower section of the heat exchanger with the special cleaning blade (accessory).
12. Burner maintenance is almost never required; it is self-cleaning:
    - If necessary, carefully clean the cylinder-shaped burner with compressed air.
    - Check that the burner cover of the dismantled burner is free from cracks and/or damage. If not, replace the burner.
13. Reassemble the unit in the reverse order.

> ⚠ **Caution**
> - Remember to reconnect the fan plug.
> - Check that the gasket is correctly positioned between the mixing elbow and the heat exchanger (the gasket must lie absolutely flat in the appropriate groove to ensure that no gas can leak).

11.4 Specific maintenance work

Perform the specific maintenance work if this proves to be necessary following the standard inspection and maintenance work. To conduct the specific maintenance work:

11.4.1 Replacing the ionisation/ignition electrode

Fig.128 Replacing the ionisation/ignition electrode
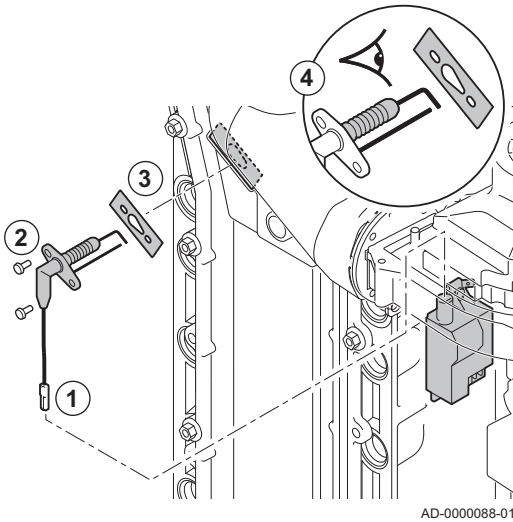
AD-0000088-01

The ionisation/ignition electrode must be replaced if:

• The ionisation current is < 4 μA.
• The electrode is damaged or worn.
• The electrode is included in the service kit.

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

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

2. Remove the two screws.
3. Remove the entire component.
4. Fit the new ionisation/ignition electrode.
5. Reassemble the unit in the reverse order.

11.4.2   Checking the non-return valve

Fig.129   Checking the non-return valve
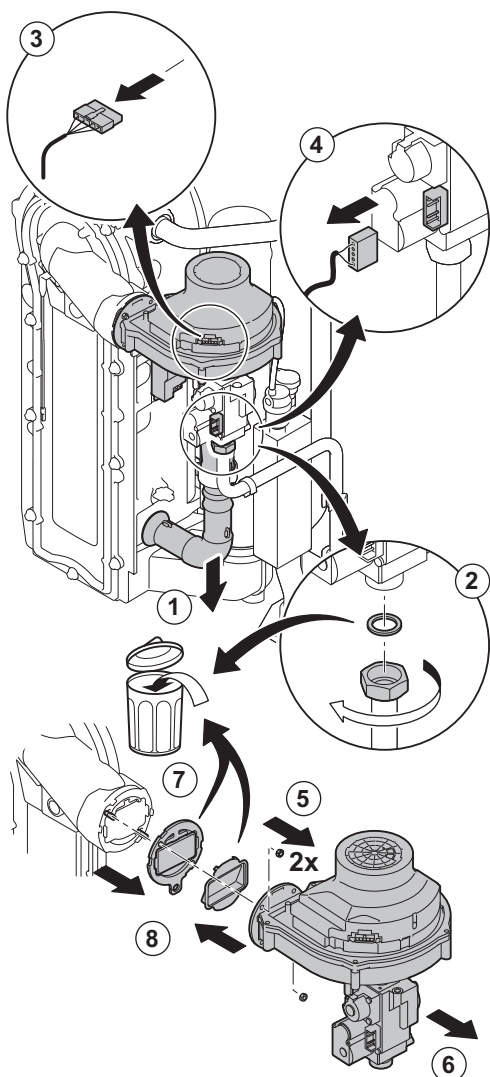
AD-3000342-01

1. Remove the air inlet flue on the venturi.
2. Loosen the gland on the gas valve unit.
3. Remove the plug from the fan.
4. Remove the plug from the gas valve unit.
5. Dismantle the fan.
6. Remove the fan together with the mixing elbow unit.
7. Inspect the non-return valve and replace it in the event of a defect or damage, or if the maintenance kit contains a non-return valve.
8. Reassemble in the reverse order.

11.4.3   Reassembling the boiler

1. Fit all removed parts in the reverse order.

⚠ **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 water tap.
5. Fill the installation with water.
6. Vent the installation.
7. Top up with more water if necessary.
8. Check the tightness of the gas and water connections.
9. Put the boiler back into operation.

12 Troubleshooting

12.1   Anti-short cycle

> **i** **Important**
> This display only concerns boilers with the DIEMATIC iSystem control panel.

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

1. Go to the message by pressing the ? key.
   ⇨ The **Operation assured when the restart temperature will be reached** message is displayed. This message is not an error code. It is intended for information purposes only.

12.2   Error messages

If an error occurs:

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

> **i** **Important**
> • DIEMATIC iSystem control panel
>   : The code and the message are displayed.
> • Inicontrol control panel
>   : Only the code is displayed.

12.2.1   Bxx type messages

Tab.74

Code	Messages	Description
B00	BL.CRC.PSU	The PSU PCB is incorrectly configured.
B01	BL.BOILER MAX	The maximum flow temperature has been exceeded.
B02	BL.HEATING SPEED	The increase in flow temperature has exceeded its maximum limit.
B07	BL.DT OUTL RET.	Maximum difference between the flow and return temperature exceeded.
B08	BL.RL OPEN	The **RL** inlet on the PCU PCB terminal block is open.
B09	BL.INV.L/N	
B10 B11	BL.SC.IN.OPEN	The **BL** inlet on the PCU PCB terminal block is open.
B13	BL.COM PCU-D4	Communication error with the SCU PCB.
B14	BL.WATER MIS.	The hydraulic pressure is lower than 0.8 bar.
B15	BL.GAS PRESS	Gas pressure too low.
B16	BL.BAD SU	The SU PCB is not recognised.
B17	BL.BAD PSU	The parameters saved on the PCU PCB are damaged.
B18	BL.BAD PSU	The PSU PCB is not recognised.
B19	BL.NO CONFIG	The boiler has not been configured.

Code	Messages	Description
B21	BL.COM SU	Error in communication between the PCU and SU.
B22	BL.FLAME LOS	Flame disappeared during operation.
B25	BL.SU ERROR	Internal error on the SU PCB.
B26	BL.DHW. S.	The domestic hot water tank sensor is disconnected or has short-circuited.
B27	BL.DHW INST	The sensor on the plate exchanger outlet is disconnected or short-circuited.

12.2.2   Mxx type messages

Tab.75

Code	Messages	Description
M04	REVISION	A service is required.
M05	REVISION A	An A service is required.
M06	REVISION B	A B service is required.
M07	REVISION C	A C service is required.
M20	DISGAS	A boiler vent cycle is under way.
	FL.DRY.B FL.DRY.C SEC.CHAP.B+C	Screed drying is active. The number of days' drying remaining is displayed.
M23	CHANGE OUTSI.S	The outdoor temperature sensor is defective.
	STOP N 1 to STOP N 10	The shut-down is active.

12.3   Message history

12.3.1   Message History – DIEMATIC iSystem

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

1. Press the 🔧 key for 10 seconds to access the After Sales Service level.
2. Select the **#MESSAGE HISTORIC** menu by turning the settings button.
3. Confirm the selection by pressing the settings button.

Fig.130

C002381-B-04

> **i** Important
> Go back to the previous display by pressing the ⏎ key.

⇨ The list of the last 10 messages is displayed.

Fig.131

C002382-B-04

4. Select the desired message by turning the settings button.
5. Confirm the selection by pressing the settings button to consult the information pertaining to it.

> **i** **Important**
> Scroll down the message by turning the settings button.

6. Go back to the main display by pressing the ⟵ key.

12.3.2 Message history – Inicontrol

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 is also saved:

- Number of times that the error occurred: (r : XX).
- The flow temperature (t 1: XX) and the return temperature (t 2: XX) at the moment when the error occurred.

To access the error memory, enter the access code: 0012.

■ Reading the memorised messages

1. Press the two ⩗ keys at the same time and then press the **[+]** key until the ⚠ symbol flashes in the menu bar.
2. Select the installer menu with the ⟵ key.
   ⇨ $CODE$ appears in the display.
3. Using the **[-]** or **[+]** keys, enter the installer code 0012.
4. Press the ⟵ key.
   ⇨ Er XX appears in the display.
5. Confirm with the ⟵ key.
   ⇨ bL:XX is displayed with XX flashing = Last error encountered, for example 2.
6. Use the **[-]** or **[+]** keys to scroll through the last 16 anomalies or shutdowns.
7. Press the ⟵ key to access the details of the lockout.
8. Press the **[-]** or **[+]** key to view the following data:

Fig.132

C003070-A

r:1	Number of times that the error occurred.
Hr	Number of burner operating hours
t 1	Flow temperature (°C).
t 2	Return temperature (°C).
t 3	Domestic hot water tank temperature (°C).
t 4	Outdoor temperature (°C) (only with an outdoor sensor).
FL	Ionisation current (μA).
rF	Fan speed in rpm.
Pr	Water pressure (bar (MPa)).

9. Press the ⟶ key to interrupt the display cycle.
   bL:XX is displayed with XX flashing = Last error encountered.
10. Press the ⟶ key twice to exit the error memory.

12.4 Faults (Lxx or Dxx code types)

In the event of an operating fault, the control panel flashes.

> **ℹ️ Important**
> • DIEMATIC iSystem control panel
>   : The code and the message are displayed.
> • Inicontrol control panel
>   : Only the code is displayed.

12.4.1 Faults – DIEMATIC iSystem

In the event of operational failure, the control panel flashes and displays an error 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 error and for any technical assistance that may be needed.
2. Press the 🔇 key to clear the fault.
3. If the code is displayed again, switch off the appliance and then switch it back on.

Fig.133

C002604-B-04

4. Press the **?** key to proceed with resolving the problem.
5. If the code is displayed again, follow the instructions shown on the control panel to resolve the problem.
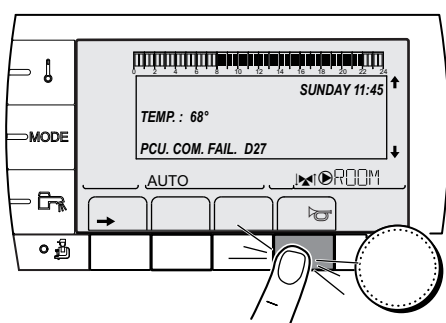
Fig.134
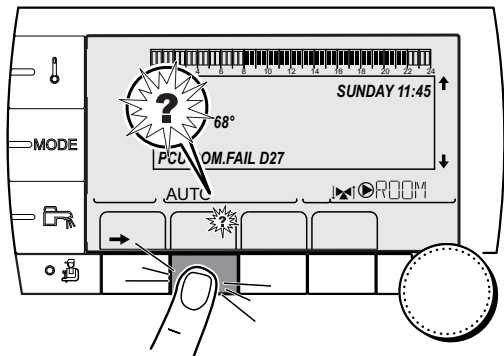
C002302-D-04

12.4.2 Faults – Inicontrol

In the event of an operating fault, the control panel flashes and displays a code.

1. Make a note of the code displayed.
   ⇨ The code is important for the correct and rapid diagnosis of the type of error 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.

12.4.3 Lxx type faults

The PCU PCB is the source of Lxx-type faults.

Tab.76

Code	Messages	Description
L00	PSU FAIL	PSU PCB not connected or defective.
L01	PSU PARAM FAIL	The safety parameters are incorrect.
L02	DEF.OUTLET S.	The boiler flow sensor has short-circuited.
L03	DEF.OUTLET S.	The boiler flow sensor is on an open circuit.
L04	DEF.OUTLET S.	Boiler temperature too low.
L05	STB OUTLET	Boiler temperature too high
L06	BACK S.FAILURE	The return temperature sensor has short-circuited.
L07	BACK S.FAILURE	The return temperature sensor is on an open circuit.
L08	BACK S.FAILURE	Return temperature too low.
L09	STB BACK	Return temperature too high
L10	DEP-RET>MAX	Difference between the flow and return temperatures insufficient.
L11	DT RET-DEP>MAX	Difference between the flow and return temperatures too high.
L12	STB OPEN	Maximum boiler temperature exceeded (maximum STB thermostat).
L14	BURNER FAILURE	Five burner start-up failures.
L16	PARASIT FLAME	Detection of a parasite flame.
L17	VALVE FAIL	Problem on the gas valve. SU PCB defective.
L34	FAN FAILURE	The fan is not running at the right speed.
L35	BACK>BOIL FAIL	Flow and return reversed.
L36	I-CURRENT FAIL	The flame went out more than 5 times in 24 hours while the burner was operating.
L37	SU COM.FAIL	Interruption in communication with the SU PCB. Poor connection.
L38	PCU COM.FAIL	Interruption in communication between the PCU and SCU PCBs. Poor connection or SCU PCB defective.
L39	BL OPEN FAIL	The **BL** inlet opened for a short period of time.
L40	TEST.HRU.FAIL	Heat recovery unit test error:
L250	DEF.WATER MIS.	The water pressure is too low.
L251	MANOMETRE FAIL	Pressure gauge fault.

12.4.4 Dxx type faults

The SCU PCB is the source of Dxx-type faults.

Tab.77

Code	Messages	Description
D03 D04	OUTL S.B FAIL. OUTL S.C FAIL.	Flow sensor fault on circuit B or C. Poor connection or defective sensor. **i** **Important** The pump of the circuit is running. The 3-way valve motor on the circuit is no longer powered and can be adjusted manually.

Code	Messages	Description
D05	OUTSI.S.FAIL.	Outdoor temperature sensor fault. Poor connection or defective sensor. **i** **Important** The boiler set point is equal to the BOILER MAX parameter. The valve setting is no longer guaranteed but monitoring of the maximum temperature of the circuit after the valve is still guaranteed. The valves can be manually operated. Heating the domestic hot water continues to be guaranteed.
D07	AUX.SENS.FAIL	Auxiliary sensor fault. Poor connection or defective sensor.
D09	DHW S.FAILURE	Domestic hot water sensor fault. Poor connection or defective sensor. **i** **Important** Domestic hot water heating is no longer guaranteed. The booster pump is running. The domestic hot water tank load temperature is the same as the boiler temperature.
D11 D12 D13	ROOM S.A FAIL. ROOM S.B FAIL. ROOM S.C FAIL.	Room sensor fault on circuit A, B or C. Poor connection or defective sensor. **i** **Important** The circuit concerned runs without any influence from the room sensor.
D14	MC COM.FAIL	Communication failure between the SCU PCB and the boiler radio module.
D15	ST.TANK S.FAIL	Buffer tank sensor fault. **i** **Important** Domestic hot water tank heating is no longer guaranteed.
D16	SWIM.B S.FAIL SWIM.C S.FAIL	Fault on pool sensor circuit B or C. **i** **Important** Swimming pool heating runs all the time during the circuit's comfort period.
D17	DHW 2 S.FAIL	Domestic hot water tank sensor 2 fault.
D27	PCU COM.FAIL	Interruption in communication between the SCU and PCU PCBs.
D32	5 RESET:ON/OFF	Five resets have been performed in less than an hour
D37	TA-S SHORT-CIR	The Titan Active System® has short circuited.
D38	TA-S DISCONNEC	The Titan Active System® is on an open circuit.
D99	DEF.BAD PCU	The SCU PCB version does not recognise the PCU PCB connected.

12.4.5 Deleting sensors from the PCB memory

The configuration of the sensors is saved by the SCU PCB.

If a fault occurs whilst the corresponding sensor is not connected or has been deliberately removed, the sensor must be deleted from the memory of the SCU PCB.

i **Important**
The outdoor temperature sensor cannot be deleted.

■ **Deleting sensors from the PCB memory – DIEMATIC iSystem**

1. Press the ? key repeatedly until **Do you want to delete this sensor?** is displayed.
2. Select **ON** by turning the rotary button, then press the button to confirm.

■ **Deleting sensors from the PCB memory – Inicontrol**

1. Press the ⌦ key.

12.5 Fault history

12.5.1 Error history – DIEMATIC iSystem

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

1. Access the After Sales level: press and hold the 🔧 key until **#PARAMETERS** is displayed.
2. Select the **#DEFAULT HISTORIC** menu.

Fig.135

C002272-C-04

> **i** Important
> • 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.

> **📖** See
> For a detailed explanation of menu browsing, refer to the chapter: "Browsing in the menus".
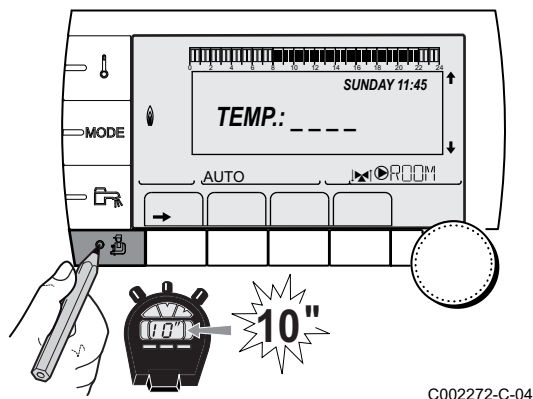
Fig.136
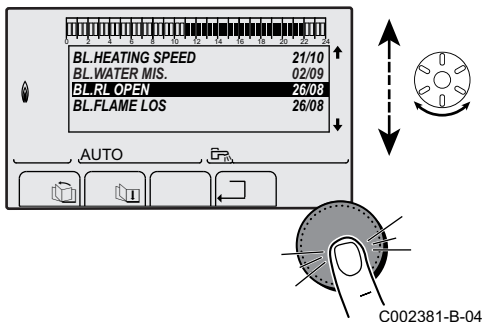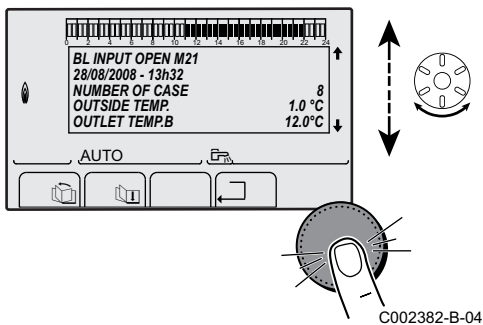
C002381-B-04

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

Fig.137

C002382-B-04

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

12.5.2 Fault history – Inicontrol

Fig.138
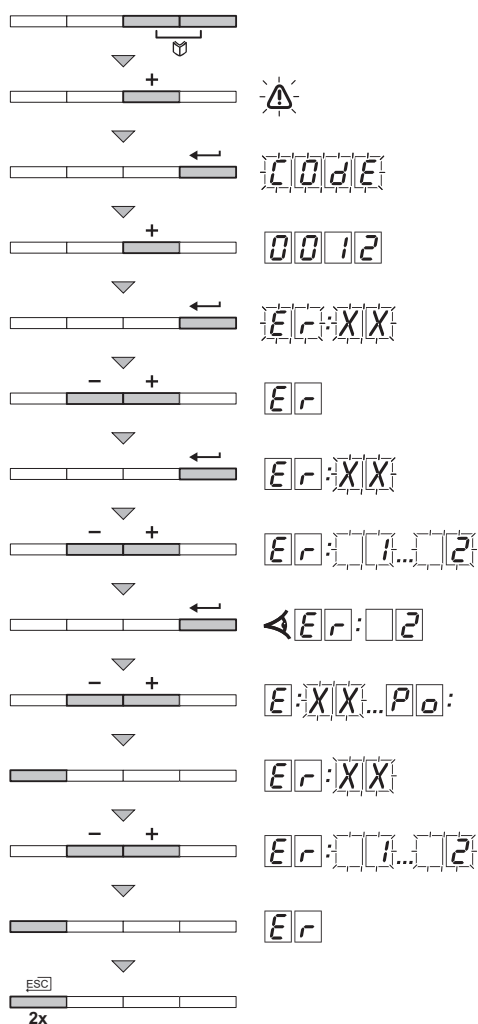
C003068-B

1. Press the two 🛡 keys at the same time and then press the **[+]** key until the ⚠ symbol flashes in the menu bar.
2. Select the installer menu with the ⬅ key.
   ⇨ `CODE` appears in the display
3. Using the **[-]** or **[+]** keys, enter the installer code `0012`.
4. Press the ⬅ key.
   ⇨ `Er XX` appears in the display.
5. The anomaly list or shut-down list can be displayed by pressing the **[-]** or **[+]** key.
6. Confirm with the ⬅ key.
   ⇨ `Er:XX` is displayed with `XX` flashing = Last error encountered, for example `2`.
7. Use the **[-]** or **[+]** keys to scroll through the anomalies or shut-down list.
8. Press the ⬅ key to display the details of the anomalies or shut-downs.
9. Press the **[-]** or **[+]** key to view the following data:

Tab.78

`n: 1`	Number of times that the error occurred
`Hr`	Number of burner operating hours
`t 1`	Flow temperature (°C)
`t 2`	Return temperature (°C)
`t 3`	Domestic hot water tank temperature (°C)
`t 4`	OUtdoor temperature (°C) (only with outdoor sensor)
`FL`	Ionisation current (µA)
`nF`	Fan speed in rpm
`Pr`	Water pressure (bar (MPa))

10. Press the ⏎ key to interrupt the display cycle.
    ⇨ `Er:XX` is displayed with `XX` flashing = Last error encountered.
11. Press the ⏎ key twice to exit the error memory.

12.6 Checking the parameters and the inputs/outputs in test mode

Fig.139

C002272-C-04

12.6.1 Checking the parameters and the inputs/outputs in test mode – DIEMATIC iSystem
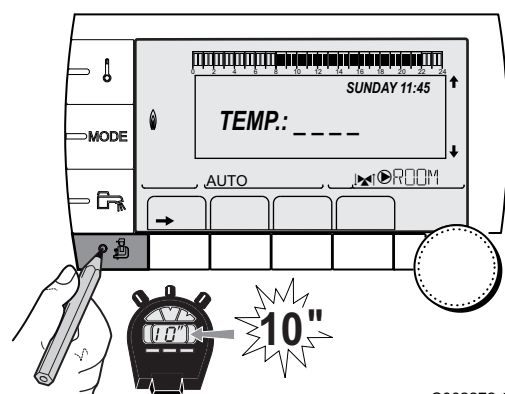
1. Access the After Sales level: press and hold the 🔧 key until **#PARAMETERS** is displayed.
2. Check the following parameters:

ℹ **Important**
- 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.

📖 **See**
For a detailed explanation of menu browsing, refer to the chapter: "Browsing in the menus".

■ **#PARAMETERS menu**

Tab.79

| 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 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	Desired fan rotation speed
MEAN OUTSIDE T	Average outside temperature
CALC.T.BOILER	Temperature calculated by the boiler
BURNER SETPOINT	Set point parameter of the burner
MEAN BOILER T	Average temperature of the boiler flow sensor
BOILER TEMP[1]	Measurement of the boiler flow sensor
BACK TEMP[1]	Temperature of the boiler return water
TEMP.SYSTEM[1]	Water flow temperature in the system if multi-generator
CALC T SYST[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]	Water flow temperature in circuit B
SWIMMING P.T.B	Temperature of the swimming pool water sensor on circuit B
OUTLET TEMP.C[1][3]	Water flow temperature 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 on circuit A
ROOMTEMP.B[1][3]	Room temperature on circuit B
ROOMTEMP.C[1][3]	Room temperature on circuit C
DHW TEMP.[1][3]	Water temperature in the domestic hot water tank
IN 0-10V[1][3]	Voltage on the 0--10 V input
CURRENT[1]	Ionisation current
PRESSURE[1]	Water pressure in the system
STOR.TANK.TEMP[1][3]	Water temperature in the buffer tank
T.DHW BOTTOM[1][3]	Water temperature in the bottom of the domestic hot water tank
TEMP.DHW A[1][3]	Water temperature in the second domestic hot water tank connected to the circuit A
TEMP.TANK AUX[1][3]	Water temperature in the second domestic hot water tank connected to the AUX circuit
KNOB A	Position of the temperature settings button on room temperature sensor A
KNOB B[3]	Position of the temparature settings button on room temperature sensor B
KNOB C[3]	Position of the temperature settings button on room temperature sensor C

Parameter	Description
OFFSET ADAP A[3]	Parallel offset calculated for circuit A
OFFSET ADAP B[3]	Parallel offset calculated for circuit B
OFFSET ADAP C[3]	Parallel offset calculated for circuit C
(1) The parameter can be displayed by pressing the ⌐ key. (2) The parameter is only displayed if **CASCADE** is set to **ON**. (3) The parameter is only displayed for the corresponding options, circuits or sensors actually connected.	

■ **#TEST OUTPUTS menu**

Tab.80

Parameter	Adjustment range	Description
P.CIRC.A	ON/ OFF	Circuit A pump on/off
P.CIRC.B[1]	ON/ OFF	Circuit B pump on/off
P.CIRC.C[1]	ON/ OFF	Circuit C pump on/off
HW.PUMP[1]	ON/ OFF	Domestic hot water pump on/off
AUX.CIRC.[1]	ON/ OFF	Auxiliary outlet on/off
3WV B[1]	REST	No command
	OPEN	Open 3-way valve - circuit B
	CLOSE	Close 3-way valve - circuit B
3WV C[1]	REST	No command
	OPEN	Open 3-way valve - circuit C
	CLOSE	Close 3-way valve - circuit C
TEL.OUTPUT	ON/ OFF	Telephone relay output on/off
(1) The parameter is only displayed for the corresponding options, circuits or sensors actually connected.		

■ **#TEST INPUTS menu – After Sales level**

Tab.81

Parameter	Description
PHONE REM.	Bridge on the telephone input: • 1 = present • 0 = absent
FLAME	Flame presence test • 1 = present • 0 = absent
GAS VALVE	• **OPEN**: open valve • **CLOSE**: close valve
FAILURE	• **ON**: fault display • **OFF**: no fault
SEQUENCE	Control System Sequence
BOIL.	Index of the generator in the system
TYPE	Generator type
R.CTRL A[1]	• **ON**: remote control A present • **OFF**: remote control A absent

Parameter	Description
R.CTRL B[1]	• **ON**: remote control B present • **OFF**: remote control B absent
R.CTRL C[1]	• **ON**: remote control C present • **OFF**: remote control C absent
(1) The parameter is only displayed for the corresponding options, circuits or sensors actually connected.	

■ **#INFORMATION menu**

Tab.82

Parameter	Description
S/N SCU	Serial number of the SCU PCB
CTRL	Software version of the SCU PCB
S/N PCU	Serial number of the PCU PCB
VER.ROM PCU	PCU PCB program version
VERS.PARAM PCU	PCU PCB parameter version
S/N SU	Serial number of the SU PCB
VER.ROM SU	SU PCB program version
VERS.PARAM SU	SU PCB parameter version
MC.VERSION [1]	Program version of the boiler radio module
VERS.SUN[1]	Solar control system software version
NUMBER REMOT A	Remote control version number
NUMBER REMOT B	Remote control version number
NUMBER REMOT C	Remote control version number
CALIBRA.CLOCK[2]	Clock calibration
(1) The parameter is only displayed for the corresponding options, circuits or sensors actually connected. (2) The parameter is only displayed if the **INSTALLATION** parameter is set to **EXTENDED**.	

■ **#CONFIGURATION menu – After Sales level**

Tab.83

Parameter	Adjustment range	Description
MODE:	MONO/ ALL.CIRC	Used to choose if the override made on one remote control applies to a single circuit (**MONO**) or if it must be transmitted to a group of circuits (**ALL.CIRC**)
TYPE		Type of boiler (refer to the original data plate)
AUTODETECTION	OFF/ON	System reset if fault **L38** is displayed
TAS	OFF/ON	Activation of the Titan Active System® function:
DFDU		Generator type

12.6.2 Checking the parameters and the inputs/outputs in test mode – Inicontrol

Check the following parameters in the **#CONFIGURATION – Niveau SAV** menu:

Tab.84

Parameter	Adjustment range	Description
$S.18$	• 0 = no • 1 = yes	Activation of the Titan Active System® function:

12.6.3 Control system sequence

Tab.85

Status	Sub-status	Operating
0	0	Boiler stopped
1	1	Anti-short cycle activated
	2	Opening of the reversal valve
	3	Start-up of the boiler pump
	4	Awaiting burner start-up
2	10	Opening of the gas valve (external)
	11	Fan start-up
	13	The fan switches to the burner start-up speed
	14	Verification of the RL signal (function not active)
	15	Burner switch-on request
	17	Pre-ignition
	18	Ignition
	19	Check flame presence
	20	Awaiting further action after unsuccessful ignition
3/4	30	Burner lit and free modulation on the boiler setpoint
	31	Burner lit and free modulation on a limited setpoint, equal to a return temperature of +25 °C.
	32	Burner lit and free modulation on the boiler setpoint 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 exchanger (7 K in 10 seconds)
	35	Burner stopped 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 ionisation current
	37	Heating: burner lit and minimum modulation after a burner start-up lasting 30 seconds Domestic hot water production: burner lit and minimum modulation after a burner start-up lasting 100 seconds
	38	Burner lit and modulation set 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 shuts down
	41	The fan switches to post-sweeping speed on the burner
	42	The external gas valve closes
	43	Post-sweeping
	44	Stop fan

Status	Sub-status	Operating
6	60	Post-operating of the boiler pump
	61	Stop boiler pump
	62	Closure of the reversal valve
	63	Start anti-short cycle
8	0	Stand-by
	1	Anti-short cycle activated
9	- -	Blocking: The sub-status shows the fault value
10	- -	Blockage
16	- -	Frost protection
17	- -	Venting

13 Disposal

13.1 Removal/recycling

> **i** | **Important**
> Removal and disposal of the boiler must be carried out by a qualified person in accordance with local and national regulations.

To remove the boiler, proceed as follows:

1. Shut off the gas supply.
2. Shut off the water supply.
3. Drain the installation.
4. Remove the siphon.
5. Remove the air supply/flue gas outlet pipes.
6. Disconnect all pipes on the boiler.
7. Remove the boiler.

14 Spare parts

14.1 General

Fig.140   http://pieces.dedietrich-thermique.fr

MW-3000456-01

Only replace defective or worn boiler parts with original parts or recommended parts.

Information about available parts can be found via the website for professionals.
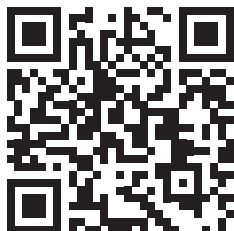
> **Important**
> When ordering a part, you must state the part number of the required part.

14.2 Parts

15 Appendix

15.1 ErP information

15.1.1 Product fiche

Tab.86   Product fiche

De Dietrich - MCA		45	65	90	115
Seasonal space heating energy efficiency class		A	A	-	-
Rated heat output *(Prated or Psup)*	kW	41	62	84	104
Seasonal space heating energy efficiency	%	94	94	-	-
Annual energy consumption	GJ	124	187	-	-
Sound power level L_{WA} indoors	dB	53	53	60	59

See

For specific precautions about assembling, installing and maintaining: Safety, page 6

15.1.2 Package sheet

Fig.141   Package sheet for boilers indicating the space heating energy efficiency of the package

Seasonal space heating energy efficiency of boiler

① 'I' %

Temperature control

from fiche of temperature control

Class I = 1%, Class II = 2%, Class III = 1.5%, Class IV = 2%, Class V = 3%, Class VI = 4%, Class VII = 3.5%, Class VIII = 5%

② + %

Supplementary boiler

from fiche of boiler

Seasonal space heating energy efficiency (in %)

(☐ - 'I') x 0.1 = ± ③ %

Solar contribution

from fiche of solar device

Collector size (in m²)   Tank volume (in m³)   Collector efficiency (in %)   Tank rating (1) A* = 0.95, A = 0.91, B = 0.86, C = 0.83, D - G = 0.81

('III' x ☐ + 'IV' x ☐) x 0.9 x (☐ /100) x ☐ = + ④ %

(1)   If tank rating is above A, use 0.95

Supplementary heat pump

from fiche of heat pump

Seasonal space heating energy efficiency (in %)

(☐ - 'I') x 'II' = + ⑤ %

Solar contribution AND Supplementary heat pump

select smaller value

0.5 x ④ ☐ OR 0.5 x ⑤ ☐ = - ⑥ %

Seasonal space heating energy efficiency of package

⑦ ☐ %

Seasonal space heating energy efficiency class of package

☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
G F E D C B A A+ A++ A+++
<30% ≥30% ≥34% ≥36% ≥75% ≥82% ≥90% ≥98% ≥125% ≥150%

Boiler and supplementary heat pump installed with low temperature heat emitters at 35°C ?

from fiche of heat pump

⑦ ☐ + (50 x 'II') = ☐ %

The energy efficiency of the package of products provided for in this fiche may not correspond to its actual energy efficiency once installed in a building, as this efficiency is influenced by further factors such as heat loss in the distribution system and the dimensioning of the products in relation to building size and characteristics.

AD-3000743-01

I   The value of the seasonal space heating energy efficiency of the preferential space heater, expressed in %.

II	The factor for weighting the heat output of preferential and supplementary heaters of a package as set out in the following table.
III	The value of the mathematical expression: $294/(11 \cdot P_{rated})$, whereby 'Prated' is related to the preferential space heater.
IV	The value of the mathematical expression $115/(11 \cdot P_{rated})$, whereby 'Prated' is related to the preferential space heater.

Tab.87   Weighting of boilers

Psup / (Prated + Psup)[1][2]	II, package without hot water storage tank	II, package with hot water storage tank
0	0	0
0.1	0.3	0.37
0.2	0.55	0.70
0.3	0.75	0.85
0.4	0.85	0.94
0.5	0.95	0.98
0.6	0.98	1.00
≥ 0.7	1.00	1.00
(1) The intermediate values are calculated by linear interpolation between the two adjacent values.		
(2) Prated is related to the preferential space heater or combination heater.		

15.2   EC declaration of conformity

The unit complies with the standard type described in the EC declaration of conformity. It has been manufactured and commissioned in accordance with European directives.

The original declaration of conformity is available from the manufacturer.

15.3   Optional electrical connections

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