

Service instructions for heating engineers

VIESSMANN

Vitodens 200

type WB2, 48.6 to 66.3/44 to 60 kW

Wall-mounted gas-fired condensing
boiler with integral boiler control unit

Natural gas and LPG version

See notes on applicability, page 2.



VITODENS 200



Safety instructions



Please follow these safety instructions closely to prevent accidents and material losses.

Work on the equipment

Installation, initial start-up, inspection, maintenance and repairs must only be carried out by a competent person (heating engineer/installation contractor).

Before working on the equipment/heating system, isolate the mains electrical supply (e.g. by removing a separate mains fuse or by means of a mains electrical isolator) and safeguard against unauthorised reconnection.

Close the main gas shut-off valve and safeguard against unauthorised reopening.

Work on gas equipment

This must only be carried out by an approved contractor. Please observe all commissioning work specified for gas installations acc. to TRGI or TRF and all local regulations.

Repair work

It is not permitted to carry out repairs on parts that fulfil a safety function. Use only original Viessmann spare parts, or equivalent parts that have been approved by Viessmann.

Initial start-up


The initial start-up must be carried out by the installer of the system or a designated commissioning engineer; all actual values should be recorded in a commissioning/service report.

Instructing the system user

The system installer must hand the operating instructions to the system user and instruct him/her in the operation of the system.

Safety instruction

In this instruction manual, this heading denotes information which must be observed to prevent accidents and material losses.

 *This symbol denotes important information which must be observed to prevent material losses.*

Applicability

12.2 to 48.6 kW/11 to 44 kW

from serial no.

Natural gas version

7142124 2 00001____

7159979 2 00001____

LPG version

7159981 2 00001____

16.6 to 66.3 kW/15 to 60 kW

from serial no.

Natural gas version

7142125 2 00001____

7159980 2 00001____

LPG version

7159982 2 00001____

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Steps – initial start-up, inspection and maintenance

For further instructions concerning the individual steps see pages indicated.

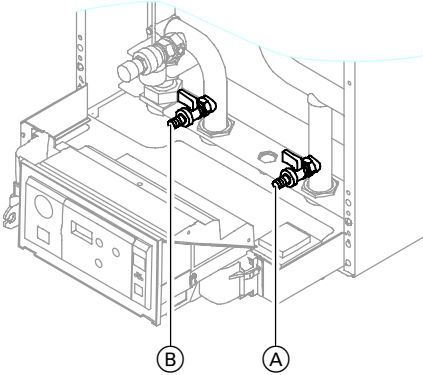
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Steps – initial start-up, inspection and maintenance (cont.)

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Further details regarding the individual steps

Filling the heating system



1. Check the inlet pressure of the diaphragm expansion vessel.
2. Fill the system via tap (A), vent the system and check the system pressure (min. system pressure > 0.8 bar).
3. Close the shut-off valves on the heating water side of the system.
4. Connect the drain hose to ball valve (B).
5. Open ball valves (A) and (B), and vent until no further air noises are audible.
6. Close ball valves (A) and (B), and open the shut-off valves on the heating water side.

Further details regarding the individual steps (cont.)

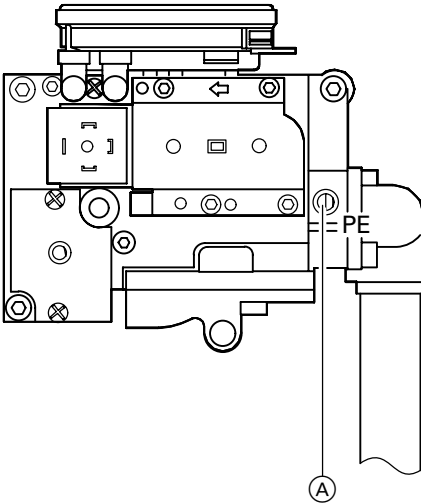
Checking the idle and the supply pressure

⚠ Safety instruction

Measure the CO value before and after any work on gas appliances, to prevent any health hazards and to ensure the perfect operational condition of the system.

LPG version:

Flush the LPG tank twice after installation or replacement.
Thoroughly vent the tank and gas lines after flushing.



Idle pressure

1. Close the gas shut-off valve.
2. Release the screw inside test nipple "PE" Ⓐ on the gas combination valve, but do not remove, and connect the pressure gauge.
3. Open the gas shut-off valve.
4. Check the idle pressure; it should be
 - max. 25 mbar for natural gas and
 - max. 57.5 mbar for LPG.Record the actual value in the service report.
5. Start up the boiler.

For function sequence and possible faults during the initial start-up, see page 10.
On start-up, the boiler can enter a fault state because of airlocks in the gas pipe.
After approx. 5 seconds, press key "⏏" to reset the burner.

Further details regarding the individual steps (cont.)

Gas supply pressure (flow pressure)

6. Test the supply pressure (flow pressure); it should be
- 17.4 to 25 mbar for natural gas,
 - 42.5 to 57.5 mbar for LPG.

measure the supply pressure.

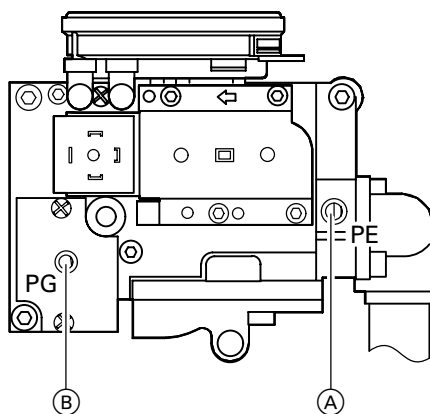
Record the actual value in the service report.

Use suitable test equipment with a resolution of at least 0.1 mbar to

Take the action shown in the table.

Supply pressure (flow pressure) for natural gas		LPG	Check
below 17.4 mbar	below 42.5 mbar		
17.4 up to 25 mbar	42.5 up to 57.5 mbar	Start up the boiler.	
over 25 mbar	over 57.5 mbar	Install a separate gas pressure governor upstream of the system and regulate the pressure to 20 mbar for natural gas or 50 mbar for LPG. Notify your mains gas or LPG supplier.	

7. Shut down the boiler, close the gas shut-off valve, remove the pressure gauge and close test nipple "PE" (A) with the screw.

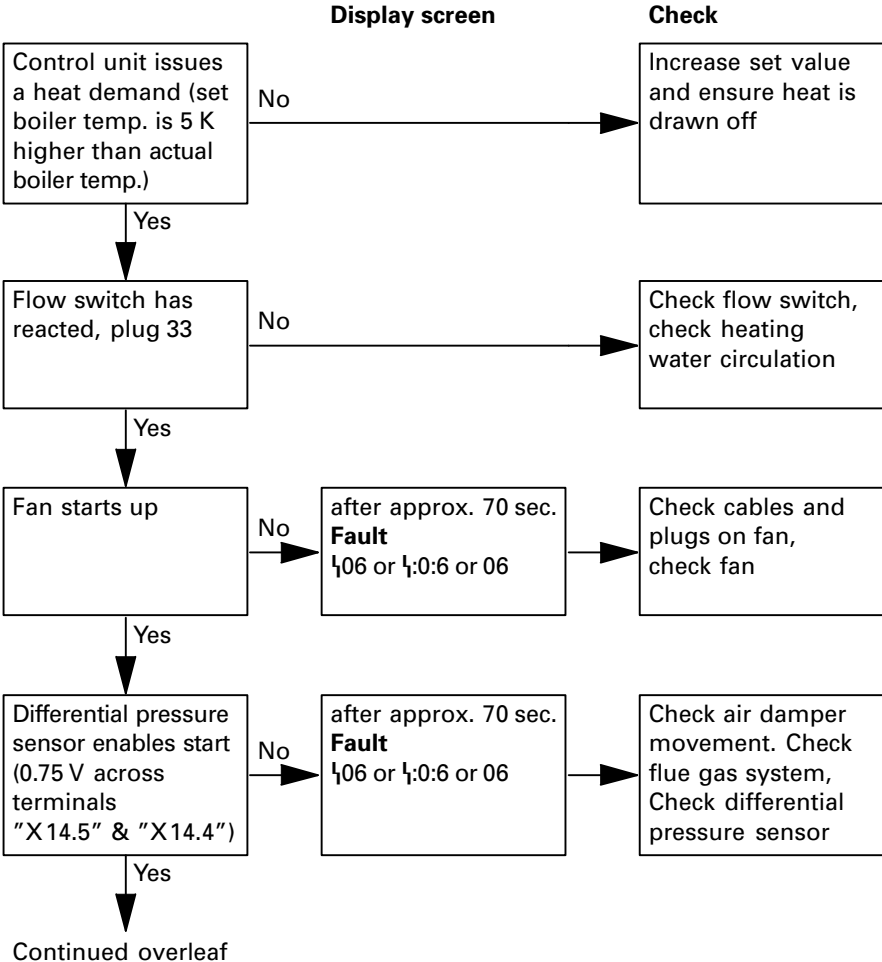


8. Check the closing function of the gas combination valve:
- Connect the pressure gauge to test nipple "PG" (B).
 - Start up the boiler.
 - Switch off the control unit.
 - The nozzle pressure (vacuum) must rise to 0 mbar within 1 second. Replace the gas valve if the nozzle pressure rises more slowly.
9. Remove the pressure gauge, and close test nipple "PG" (B) with the screw.
10. **⚠ Safety instructions**
Open the gas shut-off valve and check for leaks on test nipples "PE", "PG" and all gas connections.

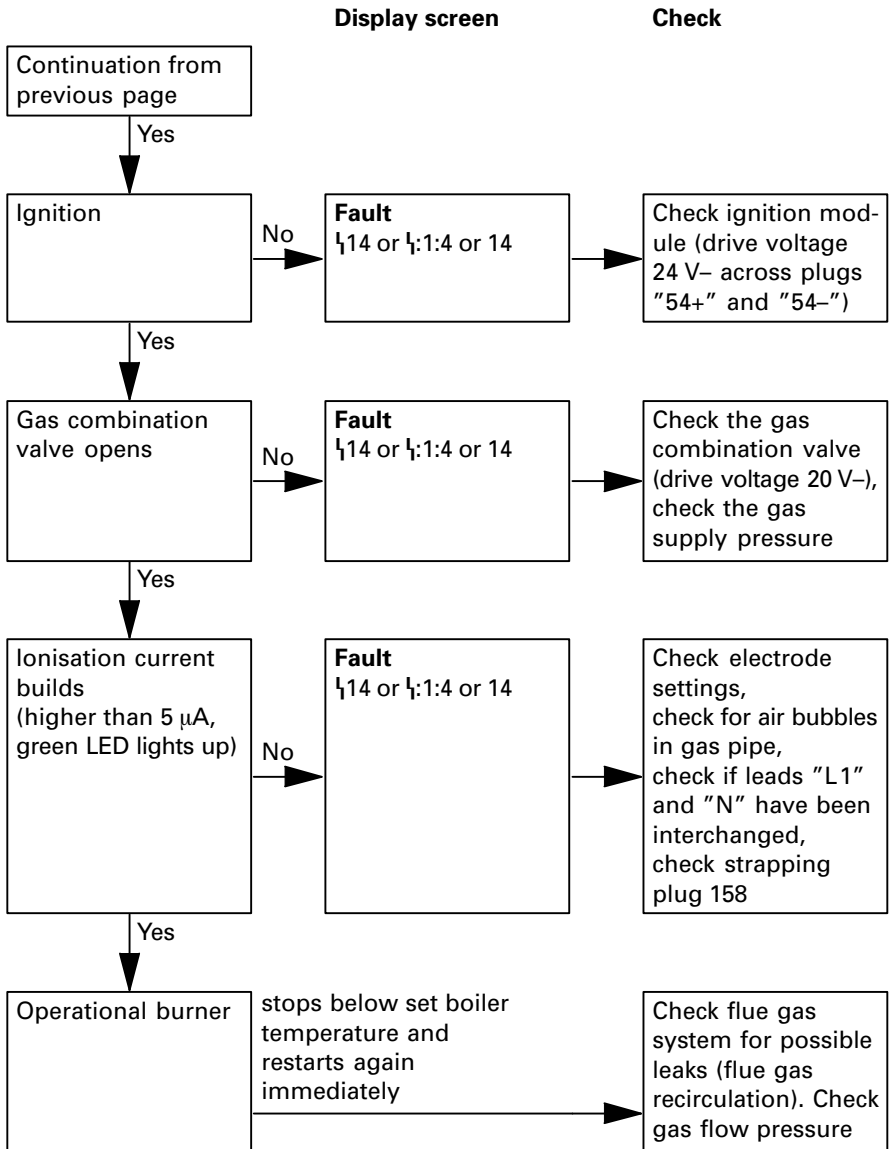
Further details regarding the individual steps (cont.)

Function sequence and possible errors during the initial start-up

For further details see "Troubleshooting".



Further details regarding the individual steps (cont.)



Further details regarding the individual steps (cont.)

Check the CO₂ settings

Vitodens 200 is, depending on version, set up in the factory for natural gas E or LPG P.

In case of initial start-up or maintenance, check the CO₂ level on the boiler connection fitting.

Please note:

The MatriX burner for Vitodens 200 is preset for the entire gas group. Therefore, the burner requires no further setting or adjustment.

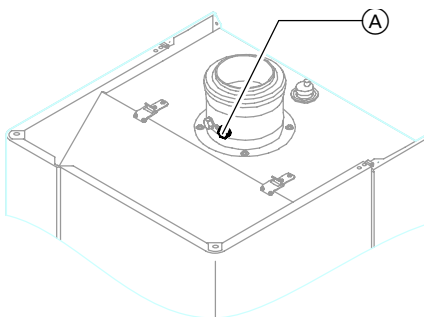
Depending on the Wobbe index, the CO₂ content reaches levels of

- 6.6 to 10.0% for natural gas E,
- 7.0 to 10.0% for natural gas LL and
- approx. 10.0% for LPG P

Compare the measured CO₂ value with the above CO₂ value ranges of the individual groups (enquire the gas group from your mains or LPG gas supplier).

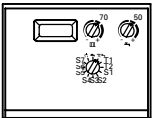
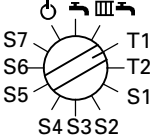
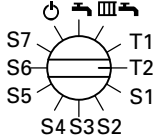
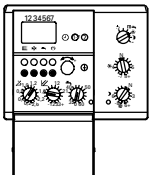
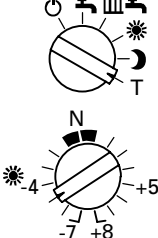
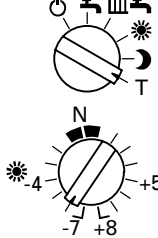
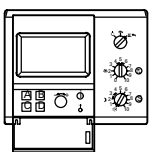
If the actual CO₂ value deviates by more than 1% for natural gas or 0.5% for LPG, proceed as follows:

- Check whether the correct gas restrictor has been installed (see page 116).
- Carry out a leak test (BF system) (see page 16).



1. Connect a flue gas analyser at flue gas outlet (A) ("flue gas" port).
2. Start up the boiler.
3. Create a heat demand (see table on page 13).

Further details regarding the individual steps (cont.)

<p>Steps</p> <p>Control unit type</p>	<p>4. Select the lower rated thermal load and check the CO₂ content</p>	<p>5. Select the upper rated thermal load and check the CO₂ content If value deviates by more than 1%, see page 12</p>	<p>6. Terminate the setting mode</p>
<p>Control unit for constant temperature mode</p> 	 <p>S7 T1 S6 T2 S5 S1 S4 S3 S2</p>	 <p>S7 T1 S6 T2 S5 S1 S4 S3 S2</p>	<ul style="list-style-type: none"> ■ Select the required heating program. ■ Enter actual values into the service report. ■ Close the test port.
<p>Control unit for weather-compensated mode with standard programming unit</p> 	 <p>T N -4 -7 +8</p>	 <p>T N -4 -7 +8</p>	<ul style="list-style-type: none"> ■ Select the required heating program. ■ Set rotary selector "☀" to the required value. ■ Enter actual values into the service report. ■ Close the test port.
<p>Control unit for weather-compensated mode with menu-guided Comfortrol programming unit</p> 	<p>→ SYSTEM "D" → INSTALLER SETUP "C" → CODE PLS "B-C-C-B" → DIAGNOSIS "A" → RELAY TEST "A" With menu item CONTINUE "A" up to code 10: MODULATION <ST.90> CLOSED BURNER <ST.41> ON</p>	<p>With menu item CONTINUE "A" up to code 11: MODULATION <ST.90> OPEN BURNER <ST.41> ON</p>	<ul style="list-style-type: none"> ■ Close the programming unit. ■ Enter actual values into the service report. ■ Close the test port.

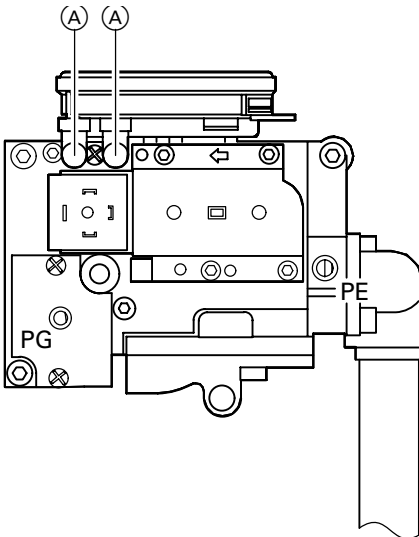
Further details regarding the individual steps (cont.)

Max. output

The max. output can be limited for the **heating operation**.

You set this limit via the modulation range.

The control pressure acts as standard value for setting the required output.



1. Start up the boiler.
2. Select the upper rated heating output:
See table on page 13.
3. Remove the caps from test nipples (A) of the gas combination valve.
4. Connect the gauge to both test nipples (A).

Please note:

Control pressure = differential pressure.

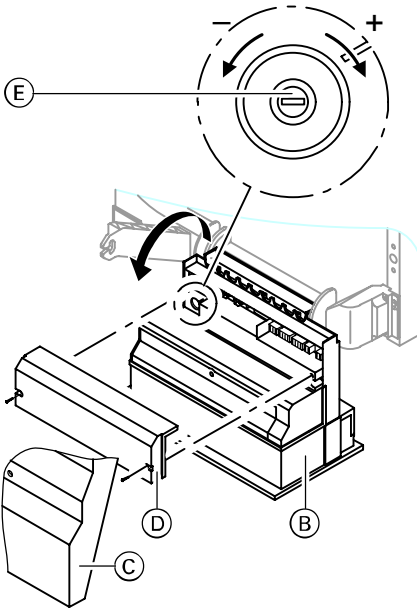
This lies between 0.25 and 4 mbar.

Use a suitable pressure gauge with a range from 0 to 10 mbar.

Vacuum pressure is applied to both test nipples. The vacuum pressure on the test nipple with the "+" symbol is lower, and that on the test nipple with the "-" is higher.

Connect the pressure gauge accordingly.

Further details regarding the individual steps (cont.)



5. Release the bottom part of control unit (B) and pivot down.
6. Unscrew protective cover (C) and rear casing lid (D).
7. Turn potentiometer (E) with a screwdriver anticlockwise, until the control pressure corresponds to the required output in accordance with the table below.

Please note:

Whilst checking the pressure, wait approx. 5 minutes, until the pressure has stabilised.

8. Remove the pressure gauge fittings from test nipples (A) and seal the nipples with the caps.
9. Assemble control unit (B), flip it up and secure with screws.
10. Record the settings for max. output on the type plate included with the "Technical documentation". Affix the type plate on the inside of the front cover of the front panel.

Rated output* ¹ kW	11	15	20	25	30	35	40	44	45	50	55	60
Control pressure at rated output												
11-44 kW mbar	0.25	0.46	0.83	1.29	1.86	2.53	3.31	4.00	—	—	—	—
15-60 kW mbar	—	0.25	0.44	0.69	1.00	1.36	1.78	2.15	2.25	2.78	3.36	4.00

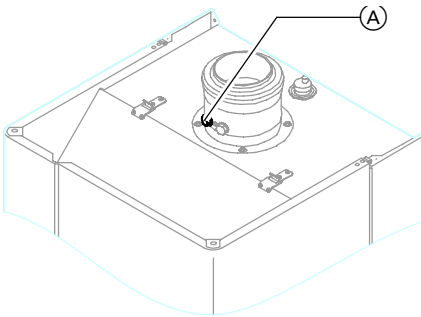
*¹Rated output relative to T_V/T_R 75/60 °C, gas G 20/G 25 and 8.5% CO₂ content.

Further details regarding the individual steps (cont.)

Leak testing the BF system (checking the circular gap)

For balanced flue systems tested together with the gas-fired wall-mounted boilers, some Federal States (e.g. Nordrhein-Westfalia) waive the leak test (overpressure test) during commissioning by the district chimney sweep. We recommend that your heating engineer carries out a simple leak test during the initial start-up of your system. It would be sufficient to check the CO₂ concentration in the combustion air at the annular gap in the BF line. The flue pipe is deemed to be sufficiently tight, if the CO₂ concentration in the combustion air is a maximum of 0.2% and the O₂ concentration is a minimum of 20.6%.

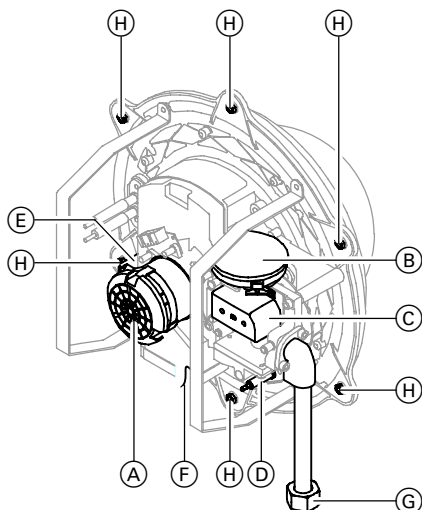
If actual CO₂ values are higher or O₂ values are lower, then you must test the flue pipe for leaks at a static overpressure of 200 Pa.



Ⓐ Combustion air test nipple
(ventilation air)

Further details regarding the individual steps (cont.)

Removing the burner and checking the burner gasket for leaks



1. Switch off the system on the control unit and the mains electrical supply.
2. Close the gas shut-off valve and safeguard against re-opening.
3. Pull the electrical cables off fan motor (A), differential pressure sensor (B), gas valve (C), ionisation electrode (D), ignition unit (E) and earth (F).
4. Loosen gas connection pipe (G).
5. Slacken six nuts (H) and remove the burner.

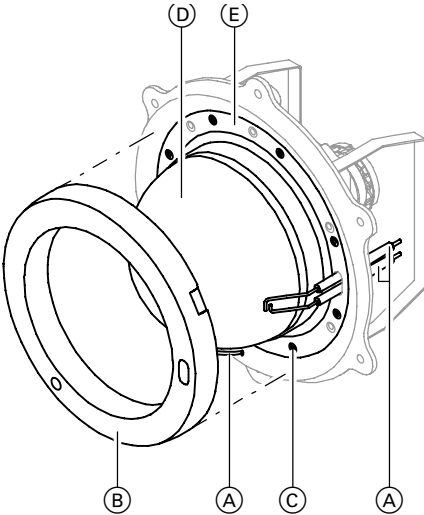
⚠ Do not rest the burner on the gauze assembly (wire mesh).

6. Check the burner gasket for damage (U-shaped gasket, see parts list) and replace if necessary.

⚠ Generally, replace the burner gasket every two years.

Further details regarding the individual steps (cont.)

Checking the burner gauze assembly



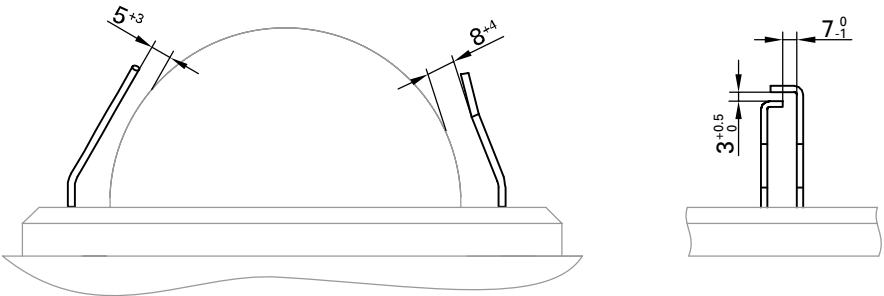
Replace the burner gauze assembly if the wire mesh is damaged.

1. Remove electrodes (A).
2. Turn thermal insulation ring (B) clockwise and remove.
3. Slacken eight Torx screws (C), and remove burner gauze assembly (D) and assembly gasket (E).
4. Insert a new burner gauze assembly (D) with new assembly gasket (E), and secure with eight Torx screws.

Torque: 4.5 Nm

5. Refit thermal insulation ring (B).

Checking and adjusting the ignition and ionisation electrodes

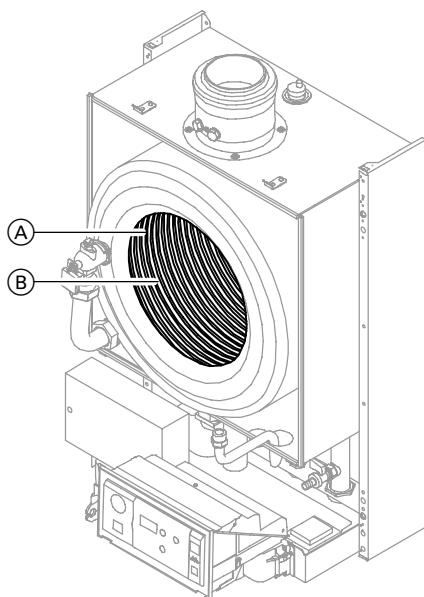


1. Check the electrodes for wear and contamination.
2. Clean the electrodes with a small brush or emery paper.
3. Check all clearances. If the gaps are not as specified or the electrodes are damaged, replace and align the electrodes together with new gaskets. Tighten the fixing screws with 2 Nm.

⚠ Ensure that wire mesh is not damaged.

Further details regarding the individual steps (cont.)

Cleaning the combustion chamber/heating surfaces and installing the burner



1. Clean combustion chamber (A) and heating surfaces (B), if required, with a brush, or flush with water.

⚠ *Avoid scratching parts that are in contact with flue gases. Only use plastic brushes and NOT wire brushes.*

Apply a solvent-/potassium-free cleaning agent where residues remain:

- Remove soot deposits with alkaline cleaning agents with additional surfactants (e.g. Fauch 600).
- Remove coatings and surface discolouration (yellow-brown) with slightly acidic, chloride-free cleaning agents based on phosphoric acid (e.g. Antox 75 E).
- Flush thoroughly with water.

Please note:

*Fauch 600 and Antox 75 E are supplied by
Hebro Chemie GmbH
Rostocker Straße 40
D-41199 Mönchengladbach
(CH):
Intec Bassersdorf AG
Grindelstrasse 12
Postfach
CH-8303 Bassersdorf*

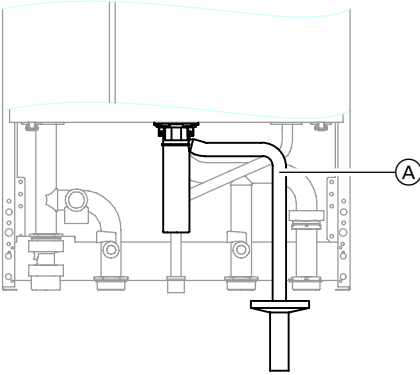
2. Install the burner and torque diagonally to 4.5 Nm.
3. Secure the gas connection pipe with a new gasket.

⚠ **Safety instruction**
Carry out a leak test.

4. Connect the electrical leads to the corresponding components.

Further details regarding the individual steps (cont.)

Checking the condensate drain



Check that the condensate can freely drain (at siphon (A)), and clean the siphon if necessary.

Checking the neutralizing system (accessory)

1. Check the pH value of the condensate with a pH test strip. Replace the granulate if the pH value reaches < 6.5 .

Please note:

Part no. for pH test strips:
9517 678.

2. In case of contamination:
Flush the neutralisation system with tap water.
Observe the manufacturer's instructions regarding the neutralisation system.

3. Top up to the marking.

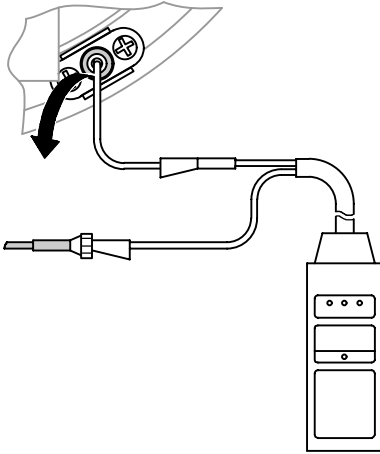
The granulate is used up as it neutralises the condensate. The red marker strip indicates the minimum fill height.

Further details regarding the individual steps (cont.)

Checking the ionisation current

⚠ Safety instruction

Switch OFF the system ON/OFF switch on the control unit before connecting the test equipment.



1. Connect the test equipment acc. to the diagram.
2. Start up the boiler set to the higher rated output:
Set emission test switch "A#" on the control unit to "B".

The minimum ionisation current should be at least $5\mu\text{A}$ as soon as the flame is established (approx. 2-3 seconds after opening the gas combination valve).

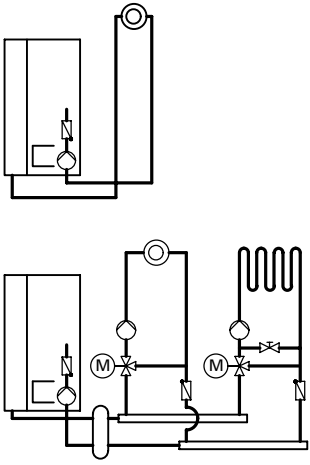
3. If the ionisation current is $< 5\mu\text{A}$
 - check the electrode gap (see page 18);
 - check the control unit power supply.
4. Set the emissions test switch after the test to "C".
5. Record the actual value in the service report.

Further details regarding the individual steps (cont.)

Matching coding addresses to the heating system

(control unit for weather-compensated mode)

The control unit must be matched to the system equipment.

	Standard programming unit control	Comfortrol programming unit control
<p>As delivered condition</p> 	<p>Design "04:00" Heating system with one heating circuit without mixer, and without DHW heating.</p> <p>or</p> <p>Heating system with low loss header and heating circuits downstream with separate heating circuit control, and without DHW heating.</p>	<p>Design "000:000"</p>

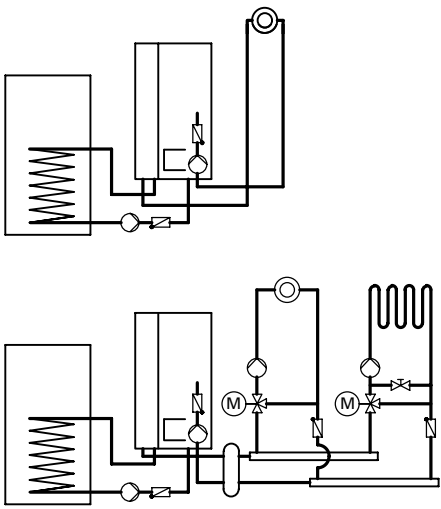
Further details regarding the individual steps (cont.)

Adjusting the heating system design

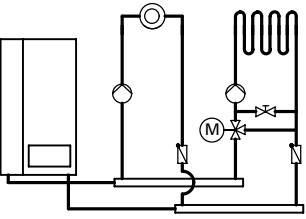
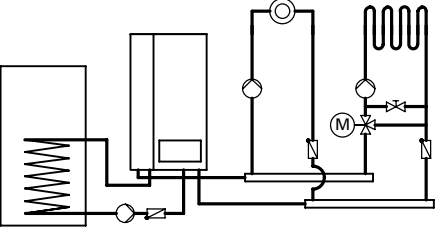
- For selection of an appropriate design, see the following diagram.
- Coding steps
 - with standard programming unit, see page 62,
 - with Comfortrol programming unit, see page 81.

Please note:

If there is no directly connected heating circuit without mixer, set the coding address to "22:01" (for standard programming unit) or "008:001" (for Comfortrol programming unit).

	Standard programming unit control	Comfortrol programming unit control
	Design "04:01" Heating system with one heating circuit without mixer, and with DHW heating.	Design "000:001" or Heating system with low loss header and heating circuits downstream with separate heating circuit control, and with DHW heating.
	<i>The coding is automatically adjusted during DHW cylinder sensor connection when operating with a DHW cylinder.</i>	

Further details regarding the individual steps (cont.)

	Standard programming unit control	Comfortrol programming unit control
	<p>Design "04:02"</p> <p>Heating system with one heating circuit with mixer and one heating circuit without mixer, without DHW heating.</p>	<p>Design "000:002"</p>
	<p>Design "04:03"</p> <p>Heating system with one heating circuit with mixer and one heating circuit without mixer, with DHW heating.</p>	<p>Design "000:003"</p>

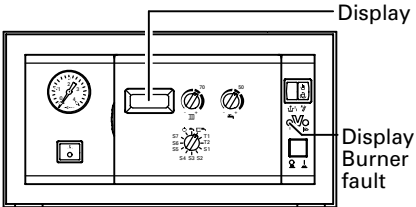
For further adjustments, see coding summary

- with standard programming unit from page 67,
- with Comfortrol programming unit from page 84.

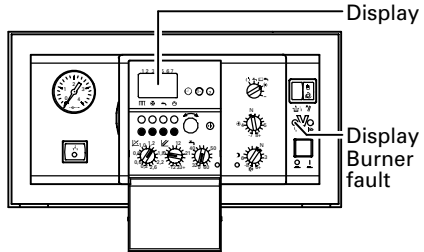


Diagnosis using the control unit

Control unit for constant temperature mode



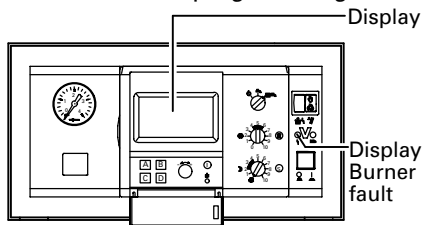
Control unit for weather-compensated mode with standard prog. unit




Diagnosis table: Faults with fault display on the control unit

Fault message		Display Burner fault, red	System characteristics
Control unit for constant temp. mode	Control unit for weather-compensated mode with standard programming unit		
—	—	—	The boiler does not start
—	—	—	The boiler constantly starts and stops
—	↳:1: 0	FAULT: OUTSIDE TEMPERATURE SENSOR	Activates after 0 °C outside temperature
—	↳:1: 8		
—	↳:2: 0	FAULT: FLOW TEMPERATURE SENSOR	Heating circuit supply temperature too low
—	↳:2: 8		
1 ≡ 3	↳:3: 0	FAULT: BOILER TEMPERATURE SENSOR	Boiler cools down
≡ 3	↳:3: 8		
—	↳:4: 0	FAULT: FLOW TEMPERATURE SENSOR	Mixer opens
—	↳:4: 8		Mixer closes

Control unit for weather-compensated mode
with Comfortrol programming unit



Open flap → fault scan "A"

Cause	Check
—	Check sequence (see page 10)
Flue gas system leaks	Check the flue gas system for leaks.
Outside temperature sensor Short circuit or cable break	Check the outside temperature sensor (see page 38)
Flow temperature sensor low loss header Short circuit or cable break	Check the flow temperature sensor (see page 39)
Boiler temperature sensor Short circuit or cable break	Check the boiler temperature sensor (see page 39)
Flow temperature sensor Short circuit	 Mixer motor installation instructions
Flow temperature sensor Cable break	

Diagnosis using the control unit (cont.)

Fault message		Display Burner fault, red	System characteristics	
Control unit for constant temp. mode	Control unit for weather-compensated mode with standard programming unit Comfortrol programming unit			
1 ≡ 5	↳:5: 0	FAULT: DHW CYLINDER TEMPERATURE SENSOR	OFF	Domestic hot water cylinder cools down
≡ 5	↳:5: 8			
1 ≡ 6	↳:6: 0	—	OFF	Boiler cools down
≡ 6	↳:6: 8			
1 ≡ 6	↳:6: 1	—	OFF/ON	Boiler cools down
≡ 6	↳:6: 9			
1 ≡ 7	—	—	OFF	No heating
≡ 7				
—	↳:7: 0	FAULT: 70	OFF	Activation after 20 °C daytime set value, 14 °C night set value.
—	↳:7: 8	FAULT: 78	OFF	Activation after 20 °C daytime set value, 14 °C night set value.
A ≡ 1	↳:A: 1	FAULT: A1	Flashing	Boiler operates in emergency mode (after 30 minutes BUS fault)
			OFF	Boiler cools down
—	↳:A: 2	FAULT: A2	OFF	—

Cause	Check
DHW cylinder temperature sensor Short circuit or cable break	Check the DHW cylinder temperature sensor (see page 39)
Incorrect coding at coding address 27 (standard programming unit)	Set the coding address 27 to 0
Incorrect coding at coding address 31 (standard programming unit)	Set the coding address 31 to 0
short circuit – M clock thermostat	Check M clock thermostat connections
M clock thermostat cable break or incorrect coding	Check M clock thermostat connections Check coding
Short circuit – WS/RS remote control unit	Check the WS/RS remote control unit
Cable break – WS/RS remote control unit or incorrect coding	Check the WS/RS remote control unit Check coding
BUS fault	Check the seating of circuit board VR 20. Check the BUS connection on plug "X5.3-X5.4" (e.g. extension kit for heating circuit with mixer or Vitocom) for correct connection and function (if necessary, disconnect the wires for fault finding purposes).
Internal BUS connection break	Check the variable speed heating circuit pump and its connecting cables. Check the DIP switch settings are correct on LGM29 circuit board.
KM BUS fault to Vitocom	Check connections or Vitocom

Diagnosis using the control unit (cont.)

Fault message		Display Burner fault, red	System characteristics	
Control unit for constant temp. mode	Control unit for weather-compensated mode with standard programming unit Comfortrol programming unit			
A ≡ 4	↳:A: 4	FAULT: A4	OFF	Pump runs at maximum speed or pump inoperative
A ≡ 5	↳:A: 5	FAULT: A5	OFF	—
—	—	FAULT: B1	OFF	Constant heating
b ≡ 2	↳:b: 2	FAULT: B2	OFF	Boiler cools down
b ≡ 3	↳:b: 3	FAULT: B3	OFF	No adjustment possible via service level
b ≡ 6	↳:b: 6	FAULT: B6 BURNER CONTROL UNIT FAULTY	OFF	Boiler cools down
↳ C C	↳:C: C	FAULT: CC (204 ^{*1})	ON	Burner control unit fault
1 ≡ C	c : _8	FAULT: C8	OFF	The boiler does not start
≡ C	c : _0	FAULT: C0		


^{*1}Call up display of fault codes from the fault memory.

Cause	Check
Break in the BUS connection to the variable speed heating circuit pump or faulty pump	Check the cable connection to the heating circuit pump or check the heating circuit pump
Short circuit/break in the BUS connection to the extension kit for the heating circuit with mixer	Check cable connection to the extension kit (plug "X5"). Check coding acc. to the heating system design. Check correct connection via "Brief scan" – Control unit with standard programming unit see page 76. – Control unit with Comfortrol programming unit see page 94.
Break in the BUS connection to the Comfortrol programming unit	Check the cable connections to the programming unit
Sensor inputs are not properly read	Check the correct sensor connections on plugs "X6" and "X7" as well as the connection cables to the sensors for damage. Check the interconnecting cable connections to all other external connections. Possibly remove plug connections.
Internal fault on VR 20 PCB	Replace the VR 20 PCB
AD converter faulty – burner control unit	Replace the PCB on the LGM29 burner control unit
Fault because of a temporary on-site power failure	Press reset key "⏏" once
Air pressure sensor Cable break	Check wiring
Air pressure sensor Short circuit	Replace sensor

Diagnosis using the control unit (cont.)

Fault message		Control unit for weather-compensated mode with standard programming unit	Comfortrol programming unit	Display Burner fault, red	System characteristics
Control unit for constant temp. mode					
—	↳E: 4 or ↳E: __	FAULT: E4	OFF	—	
—	↳F: 2	FAULT: F2	OFF	—	
↳F 4	↳F: 4	FAULT: F4	OFF	—	
—	↳F: 5	FAULT: F5	OFF	—	
↳F 9	↳F: 9	FAULT: F9 (249 ^{*1})	OFF/ON	Burner control unit fault	
F ≡ b	↳F: b	FAULT: FB	Flashing	Burner control unit emergency mode	
↳F d	↳F: d	FAULT: FD (253 ^{*1})	ON	Burner control unit fault	
↳F E	↳F: E	FAULT: FE (254 ^{*1})	ON	Burner control unit fault	
↳0 2	↳0: 2	FAULT: 02 (002 ^{*1})	ON	Burner control unit fault	

^{*1}Call up display of fault codes from the fault memory.

Cause	Check
Fault at the connected Vitotronic 050 heating circuit control unit	Check the Vitotronic 050 heating circuit control unit and the BUS connection on plug "X5" (see page 46)
Vitocom error	Check Vitocom
Fault signal – variable speed heating circuit pump	Check the variable speed heating circuit pump
Fault message regarding the extension kit for one heating circuit with mixer	Check the extension kit and its coding
Incorrect operation in conjunction with Vitosoft	Press reset key "⏏" once
Burner control unit faulty	Replace PCB, LGM29 burner control unit
Burner control unit parameter fault	Replace PCB, LGM29 burner control unit
—	<p>Check the ignition module, the ignition electrodes, the ionisation electrode and cable harness "X13" for damage (see page 97/98).</p> <p>Check the electrode adjustment (see page 18, 21).</p> <p>Check the flue gas system for leaks. Then press reset key "⏏" once.</p> <p>If this fault message persists when starting burner, replace LGM29 burner control unit.</p> <p> Installation instructions for LGM29 burner control unit PCB</p>
The safety chain (temperature limiter) has activated or insufficient heat is drawn off	Check the thermocouple (see page 43). Vent the whole system and check the heating circuit circulation.

Diagnosis using the control unit (cont.)

Fault message			Display Burner fault, red	System characteristics
Control unit for constant temp. mode	Control unit for weather-compensated mode with standard programming unit	Comfortrol programming unit		
↳ 0 4	↳:0: 4	FAULT: 04 (004*1)	ON	Burner control unit fault
↳ 0 5	↳:0: 5	FAULT: 05 (005*1)	ON	Burner control unit fault
↳ 0 6	↳:0: 6	FAULT: 06 (006*1)	ON	Burner control unit fault
↳ 0 7	↳:0: 7	FAULT: 07 (007*1)	ON	Burner control unit fault
↳ 0 8	↳:0: 8	FAULT: 08 (008*1)	ON	Burner control unit fault
↳ 0 9	↳:0: 9	FAULT: 09 (009*1)	ON	Burner control unit fault
↳ 0 A	↳:0: A	FAULT: 0A (010*1)	ON	Burner control unit fault

*1 Call up display of fault codes from the fault memory.

Cause	Check
Fan speed	Check flue gas system sizing against details specified in Vitodens Technical Guide.
Fan speed	Check flue gas system for leaks and unrestricted flow. Check cable connections to fan motor and fan power supply (see page 97/98).
The air pressure threshold for ignition is not reached	Check differential pressure sensor (see page 40). Check air damper. Check flue gas system sizing against details specified in Vitodens Technical Guide. Check flue gas system for leaks and unrestricted flow. Check cable connections to fan motor and fan power supply (see page 97/98).
Fan speed	Check flue gas system sizing against details specified in Vitodens Technical Guide.
Fan speed	Check flue gas system for leaks and unrestricted flow.
Fan speed	Check cable connections to fan motor and fan power supply (see page 97/98).
The base level of the air pressure threshold in standby position is incorrect	Check differential pressure sensor (see page 40). Check flue gas system sizing against details specified in Vitodens Technical Guide. Check flue gas system for leaks and unrestricted flow. Check cable connections to fan motor and fan power supply (see page 97/98).

Diagnosis using the control unit (cont.)

Fault message		Display Burner fault, red	System characteristics	
Control unit for constant temp. mode	Control unit for weather-compensated mode with standard programming unit Comfortrol programming unit			
1 1 4	1:1: 4	FAULT: 14 (021 *1)	ON	Burner control unit fault
1 0 C	1:0: C	FAULT: 0C (012 *1)	ON	Burner control unit fault
1 0 d	1:0: d	FAULT: 0D (013 *1)	ON	Burner control unit fault
1 2 5	1:2: 5	FAULT: 25	OFF	Boiler runs with a high boiler water temperature
1 2 6	1:2: 6	FAULT: 26	OFF	Boiler runs with constant modulation
1 3 5	1:3: 5	FAULT: 35	OFF	Boiler does not start
1 ≡ 5	5 : _1	FAULT: 51	OFF	No DHW heating
≡ 5	5 : _9	FAULT: 59		

*1 Call up display of fault codes from the fault memory.

Cause	Check
No flame signal present	<p>Check the electrical connection (see page 97/98).</p> <p>Check the ionisation current (see page 21).</p> <p>Check the gas pressure (see page 9).</p> <p>Check the gas combination valve (see page 9).</p> <p>Check the ignition and the ignition module (see page 97/98).</p> <p>Check the ignition electrodes (see page 18).</p> <p>Check the condensate drain (see page 20).</p> <p>Check the flue gas system for leaks.</p>
Flame signal still present after the system has been switched off	<p>Check the electrodes and the electrode block (see page 18).</p> <p>Check the gas combination valve (see page 9).</p>
The equipment is still disabled	Press the reset key "⏮" once
Emissions test switch "⚡" has been on "⏻" for 30 mins.	Set emissions test switch "⚡" to "⏻"
Setting mode for the upper or lower rated output is active (test setting)	Set the heating program selector switch to the required mode or close the cover of the Comfortrol programming unit
Emissions test switch "⚡" set to "⏻" and reset key "⏮" activated	Set emissions test switch "⚡" to "⏻", and press reset key "⏮" once
Draw-off sensor Short circuit or cable break	Check sensor / wiring

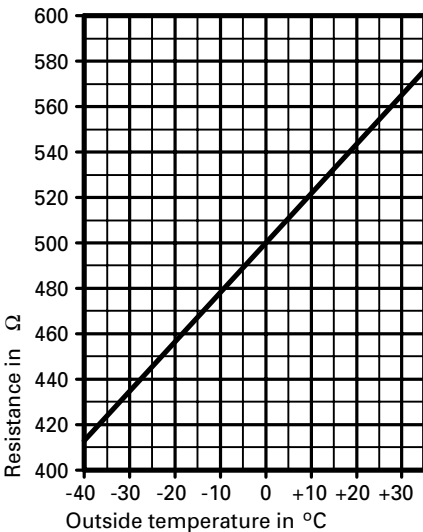
Repairs

Scanning the actual and set temperatures for:

- Control unit for constant temperature mode, see page 59.
- Control unit for weather-compensated mode with
 - standard programming unit, see page 77,
 - Comfortrol programming unit, see page 95.

Checking the outside temperature sensor

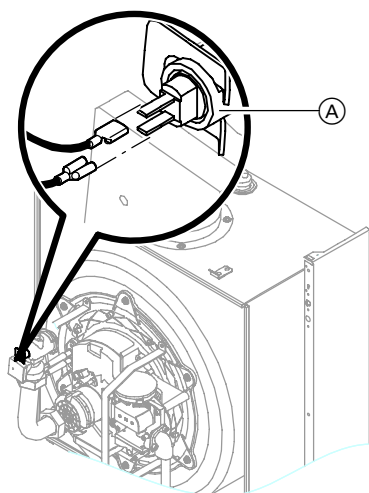
(control unit for weather-compensated mode)



1. Pull plug-in connector "X6" off the control unit.
2. Test the resistance across terminals "X6.3" and "X6.4" on the pulled connector and compare with the curve.
3. Where actual values strongly deviate from the curve values, disconnect the wires at the sensor and repeat test directly at the sensor.
4. Depending on the result, replace the cable or the outside temperature sensor.

Repairs (cont.)

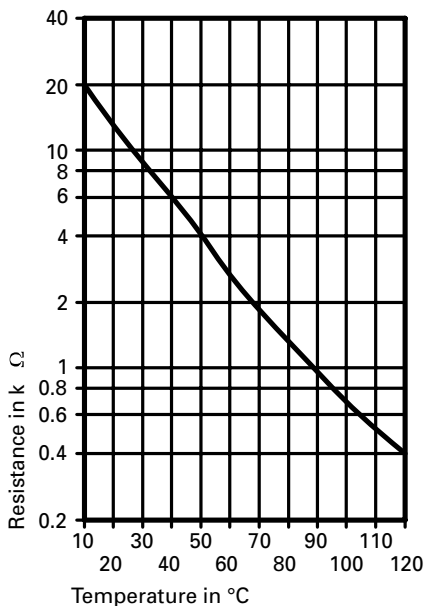
Checking the boiler temperature sensor, DHW cylinder temperature sensor or the low loss header flow temperature sensor



1. Boiler temperature sensor:
Pull the cables off boiler temperature sensor (A).
DHW cylinder temperature sensor or low loss header flow temperature sensor:
Pull plug "X7" off.
2. Check the sensor resistance and compare actual values with the curve.
3. Replace the sensor in case of severe deviation.

⚠ Safety instruction

The boiler temperature sensor is immersed in the heating water. Drain the boiler before replacing the sensor.



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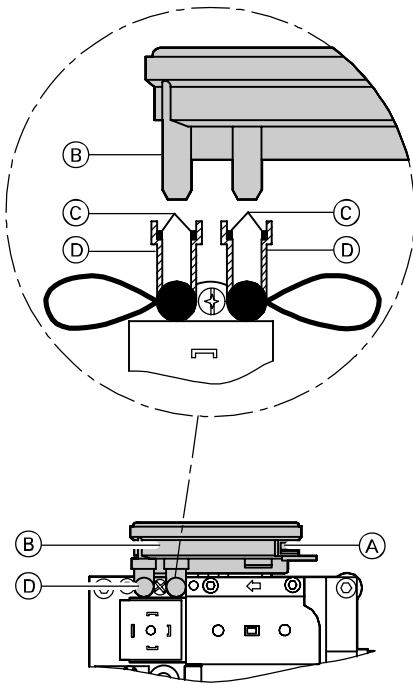
Repairs (cont.)

Checking and replacing the pressure differential sensor

In case of fault messages concerning the pressure differential sensor, check the sensor:

- for correct installation
- for correct electrical connection
- for correct position of the O-rings in the adaptor
- for closure of the test nipples with plugs.

Replace the sensor if fault messages still persist.

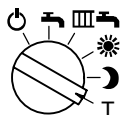


Checking the O-rings:

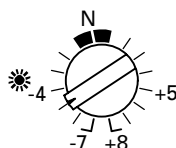
1. Pull off electrical plug (A).
2. Remove sensor (B) by pulling it upwards.
3. Ensure that both O-rings (C) are properly inserted into orifices (D) of the adaptor.
4. Insert the sensor with connection nipples into the gas combination valve adaptor and push in until it clicks into place.
5. Reconnect the electrical plug-in connector on the sensor.

Repairs (cont.)

Relay test (standard programming unit)



1. Set the heating program selector switch to "T".



2. Select the required position using rotary selector "☀".

Function	Rotary selector "☀"	Flashing display
Three-way valve drive (DHW cylinder)	N	l:0: 4
Heating circuit pump A	-1	l:0: 2
Heating circuit pump with extension kit for a heating circuit with mixer	-2	l:0: 3
Mixer open	+1	l:0: 8
Mixer closed	+2	l:0: 7
DHW circulation pump	-4	l:0: d
No function	-3	l:0: 1
Burner start with lower rated output and heating circuit pump ON	-5	Display of boiler water temperature
Burner start with upper rated output and heating circuit pump ON	-6	Fault code display from the fault memory (see page 26)

3. Return the heating program selector and rotary selector "☀" to their original positions.

Repairs (cont.)

Relay test (for Comfortrol programming unit)

Open flap:

Menu item	Key
→ SYSTEM	"D"
→ INSTALLER SETUP	"C"
→ CODE PLEASE	"B-C-C-B"
→ DIAGNOSIS	"A"
→ RELAY TEST	"A"

Please note:

The programming unit must be plugged into the control unit before a relay test can be carried out. Relays which have not been mentioned are not relevant. The burner stays off during the relay test, if there is no heat demand.

You can select the required relay with menu item "CONTINUE" "A" and check its function.

Display

Meaning

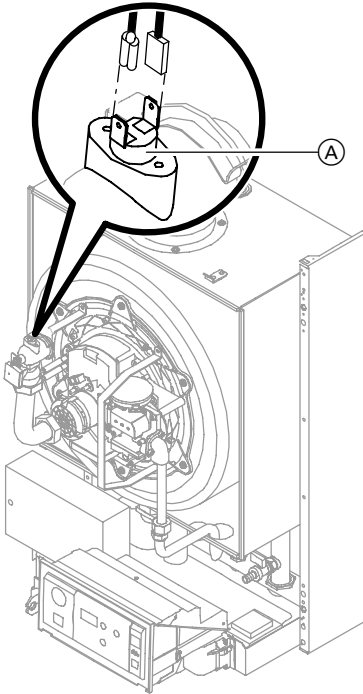
01	- Burner 1 st stage <ST41> ON	N/A
02	- Heating circuit pump A <ST20> ON	Circulation pump
03	- Heating circuit pump B <ST20B> ON	Heating circuit pump for extension kit with mixer
04	- Cylinder loading pump <ST21> ON	Three-way valve (DHW cyl. loading)
07	- Mixer HC B <ST52B> CLOSED	Mixer closed* ¹
08	- Mixer HC B <ST52B> OPEN	Mixer open* ¹
10	- Modulation <ST90> CLOSED	Burner (lower output) Circulation pump
11	- Modulation <ST90> OPEN	burner (upper output) Circulation pump
13	- DHW circulation pump <ST28> ON	DHW circulation pump* ²
14	- Central fault message <ST50> ON	Central fault message* ²

*¹Only with mixer extension kit, part no. 7450 058.

*²Only with the connection extension, part no. 7404-582.

Repairs (cont.)

Checking the safety chain

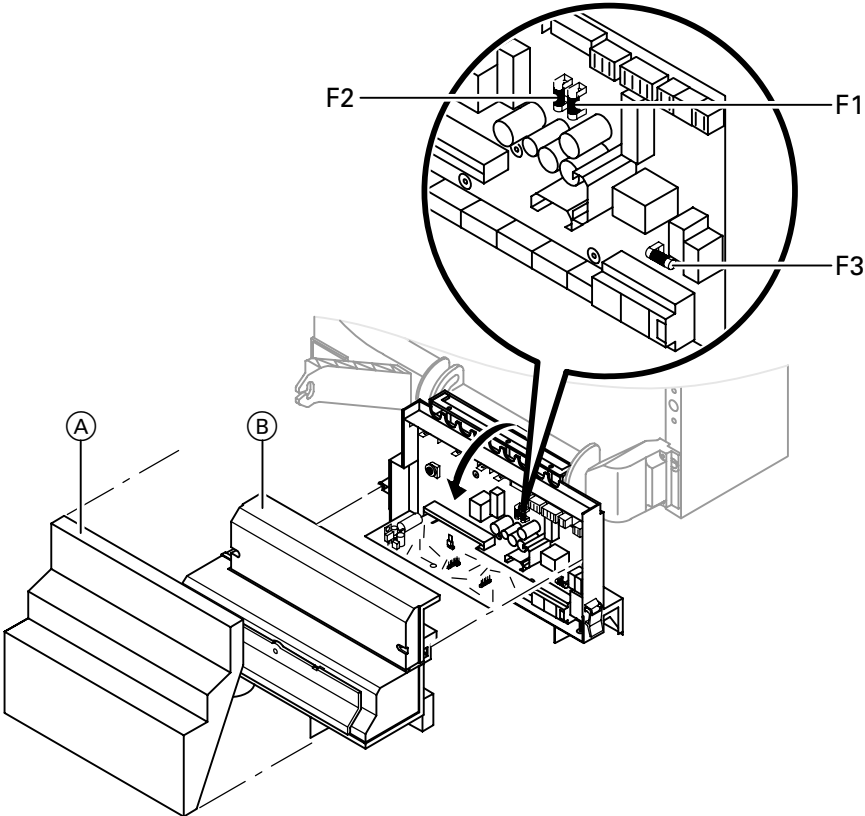


If the burner control unit cannot be reset after a fault shutdown, although the boiler water temperature is below approx. 90 °C:

- Pull off one cable of thermocouples (A).
- Check thermocouple continuity with a multimeter.
- Remove faulty thermocouples.
- Coat replacement thermocouples with heat conducting paste and install.
- After commissioning, press reset key "↕" on the control unit.

Repairs (cont.)

Checking fuses



1. Switch OFF the mains power.
2. Flip down the control unit and remove covers (A) and (B).
3. Check fuse F1, F2 and F3.

When replacing fuses, observe the following:

F1: 4 A (slow), 250 V
(max. dissipated energy \cong 1.6 W)

or
6.3 A (slow), 250 V
(max. dissipated energy \cong 2.5 W)

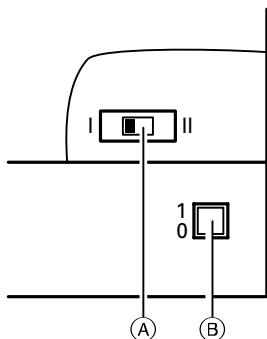
F2: 2.5 A (slow), 250 V
(max. dissipated energy \cong 1 W)

F3: 6.3 A (slow), 250 V
(max. dissipated energy \cong 2.5 W).

Repairs (cont.)

Extension kit for one heating circuit with mixer

Checking the rotational direction of mixer motor




- (A) Switch for rotational direction
- (B) Main ON/OFF switch "ⓐ"

1. Switch OFF and restart the motor at the main ON/OFF switch. The device will carry out the following self-test:
 - close mixer (150 seconds)
 - pump on (10 seconds)
 - open mixer (10 seconds)
 - close mixer (10 seconds)
 Then normal control mode recommences.

2. Note the rotational direction of the mixer motor during the self-test. Then set the mixer manually to "Open".

The flow temperature sensor must now sense a higher temperature. If the temperature falls, either the motor is turning in the wrong direction or the mixer set is incorrectly fitted.

 *Mixer installation instructions*

3. Adjust the rotational direction of the mixer motor (if required).
 - Switch position I for the central heating return from the l.h. side (as delivered condition).
 - Switch position II for central heating return from the r.h. side

DIP switch S1.1



If an extension kit for a heating circuit with mixer and a Vitotronic 050 are connected, the DIP switch S1.1 on the extension kit must be set to "OFF".

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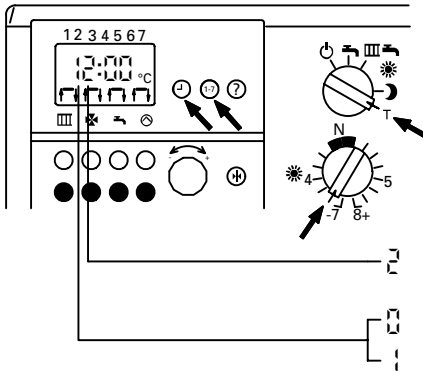
Repairs (cont.)

Checking Vitotronic 050 (accessory)

To select a Vitotronic 050, the Viessmann 2-wire BUS extension module is required in the boiler control unit, plus an additional communication module in Vitotronic 050.

Checking the Viessmann 2-wire BUS and the data connection to Vitotronic 050

With standard programming unit



1. Set the heating program selector switch to "T".
2. Set rotary selector "☀" to "-6".
3. Simultaneously press keys "⌚" and "1-7".
4. Evaluate the display.

With Vitotronic 050

Expansion module not recognised
Expansion module recognised

5. Check the correct installation if the extension module or Vitotronic 050 are not recognised.

Please note:

A green LED on the expansion module flashes if the data bus is OK. The data cable "X5.3" - "X5.4" may be interchanged, if the LED is not lit.

Repairs (cont.)

With menu-guided Comfortrol programming unit

1. Check the Comfortrol programming unit via brief scan 2, to establish whether the extension module is installed.

Calling up brief scan 2

Open cover:

Menu item

→ SYSTEM

→ OPERATING STATE

→ CONTINUE

Key

"D"

"B"

"A"

until the text
"Brief scan 2"
is displayed

Expansion module

Here, the final digit means:

2____0 = No expansion module
Viessmann 2-wire BUS
recognised

2____1 = Expansion module
Viessmann 2-wire BUS
recognised

Vitotronic 050

The 2nd digit from the left means:

_2____ = Extension kit for a heating
circuit with mixer or
Vitotronic 050 recognised

Please note:

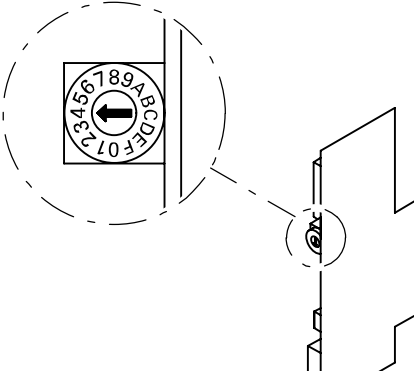
A green LED on the expansion module flashes if the data bus is active. The data cable "X5.3" - "X5.4" may be interchanged, if the LED is not lit.

Connection and wiring diagrams,
see pages 99/100.

2. Check the correct installation if the extension module or Vitotronic 050 are not recognised.

Repairs (cont.)

Check the rotary selector setting on the communication module of Vitotronic 050



The communication module rotary selector must be set to "4".

Please note:



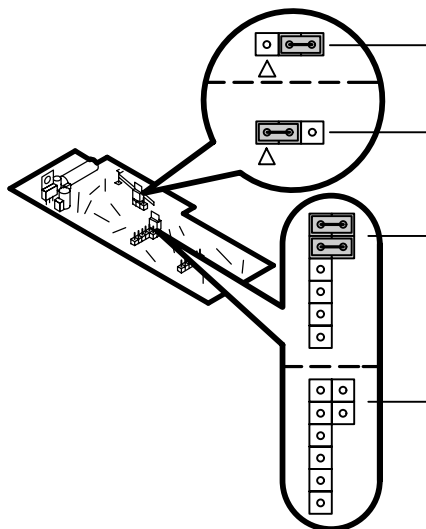
Please observe the respective installation documents for Vitotronic 050.

Set the rotary selector to "5" if, in addition to Vitotronic 050, an extension kit for one heating circuit with mixer is also connected.

Set the rotary selector on any additional Vitotronic 050 which may be connected to "6", etc.

Strapping plug configuration and coding

Strapping plug configuration on circuit board VR 20



Strapping plug "X6"

As delivered condition without function "External burner blocking".

Including "External burner blocking" function (only if the contact on plug "X6.1-X6.2" is connected).

Strapping plugs "X2" - "X4"

As delivered condition without extension module Viessmann 2-wire BUS:

Two strapping plugs installed as shown.

With extension module Viessmann 2-wire BUS:

Both strapping plugs removed.

External demand (on site)

With standard programming unit

Change coding address "30:00" to "30:01" and "35:00" to "35:01".

With Comfortrol programming unit

Change coding address "011:000" to "011:001" and "027:000" to "027:001".

Please note:

The boiler is started according to the setting of coding address "125" (standard programming unit) or "0C5" (Comfortrol programming unit).

The boiler water temperature is maintained according to the setting of coding address "102" (standard programming unit) or "0A2" (Comfortrol programming unit).

Strapping plug configuration and coding (cont.)

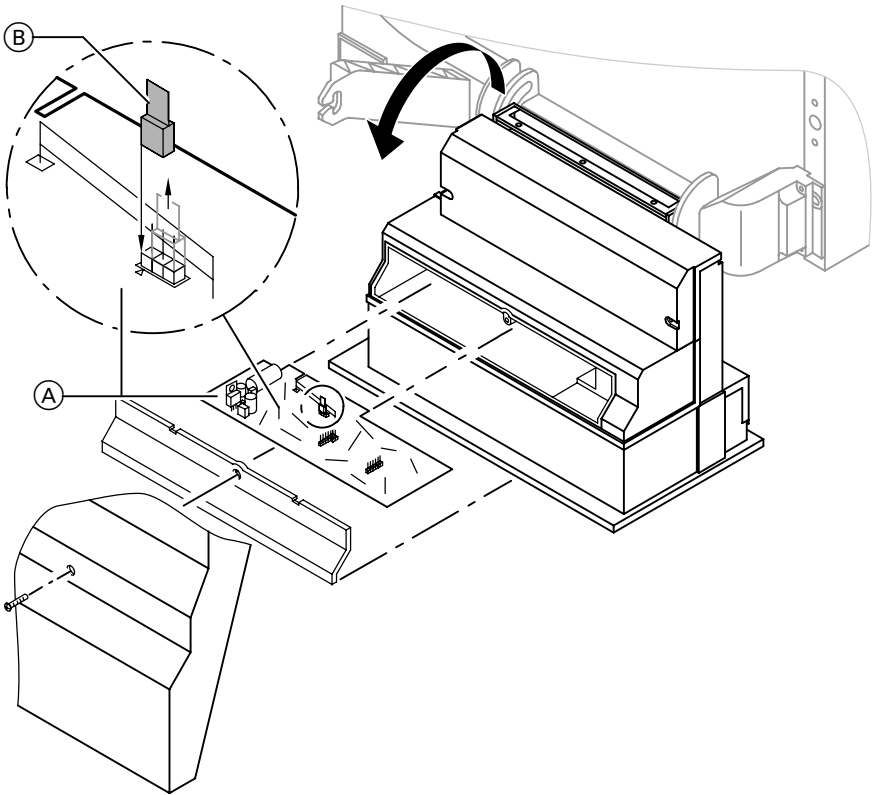
External blocking

(only if the contact on plug "X6.1-X6.2" is connected)

1. Pull out circuit board VR 20 (A).
2. Re-position strapping plug "X6" (B).
3. Re-fit circuit board (A).

Please note:

The boiler is shut down according to the setting of coding address "108" (standard programming unit) or "0A8" (Comfortrol programming unit).



Strapping plug configuration and coding (cont.)

External heating program changeover (telephone contact)




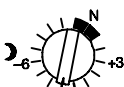

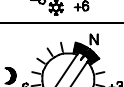


An auxiliary device (e.g. Vitocom 300) must be connected for this function.

The heating program, which was manually preselected on the boiler control unit, can only be changed from a central control station or via telephone and code transmitter. The changeover occurs between the heating programs allocated in the

table. However, the heating program selector position remains unchanged. A further call-up reloads the preselected heating program.

With standard programming unit

Change coding address "35:00" to "35:01".

Preselected heating program	Changed heating program (after telephone call)
	<ul style="list-style-type: none"> ■ Constant central heating with standard room temperature ■ Constant DHW heating
	Standby mode with frost protection
 	Standby mode with frost protection
 	<ul style="list-style-type: none"> ■ Constant central heating with standard room temperature ■ Constant DHW heating
	Standby mode with frost protection
	<ul style="list-style-type: none"> ■ Constant central heating with standard room temperature ■ Constant DHW heating

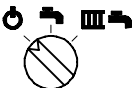
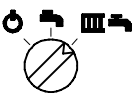
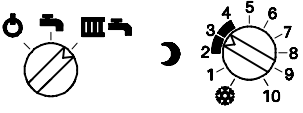

Strapping plug configuration and coding (cont.)

With Comfortrol programming unit

Please note:

If the heating circuit has been changed over via telephone, the display will show the additional text (with the flap closed): "TELE.PROG."

Change coding address "011:000" to "011:001".

Preselected heating program	Changed heating program (after telephone call)
	<ul style="list-style-type: none"> ■ Constant central heating with standard room temperature ■ Constant DHW heating
	<p>Standby mode with frost protection</p>
	<p>With code "0C8:001" (as delivered condition): Standby mode with frost protection</p> <hr/> <p>With code "0C8:000":</p> <ul style="list-style-type: none"> ■ Constant central heating with standard room temperature ■ Constant DHW heating
	<p>Standby mode with frost protection</p>

Function description

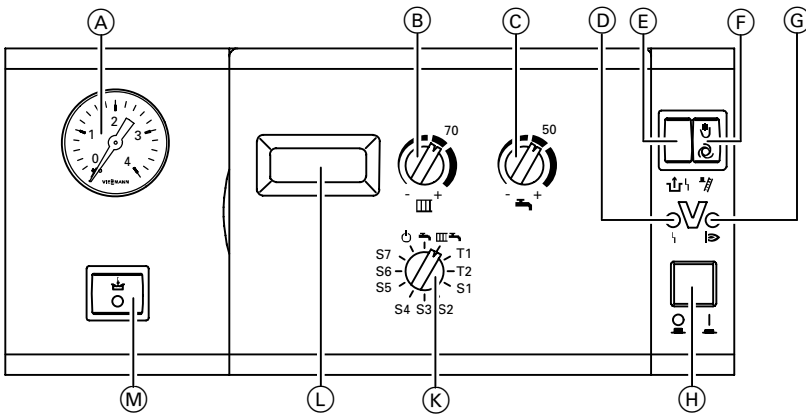
Heating mode

The set boiler water temperature will be maintained when a demand is being raised by the room temperature-dependent clock thermostat, and the heating program is set to central heating and DHW "III →".

If there is no demand, the boiler water temperature will be held to the preselected frost protection temperature (5 °C – burner ON, 50 °C – burner OFF).

The circulation pump characteristics after burner shutdown can be selected with position "S1" of the heating program selector switch (see page 55).

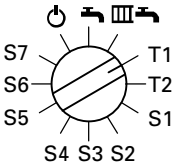
The DHW cylinder can be briefly heated (if installed) to 60 °C by setting the heating program selector switch to "S4" (see page 56). You can select limited system frost protection using position "S6" of the heating program selector switch (see page 57).



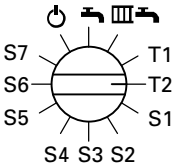
- Ⓐ Gauge
- Ⓑ Rotary selector
"Heating water temperature"
- Ⓒ Rotary selector
"DHW temperature"
- Ⓓ Burner fault display
- Ⓔ Burner fault reset
- Ⓕ Emissions test switch

- Ⓖ Burner operation display
- Ⓗ System ON/OFF switch
- Ⓚ Heating program selector switch
 - ⏻ Standby mode
 - Only DHW
 - III → Heating and DHW
- Ⓛ Display
- Ⓜ N/A

Test settings "T1" and "T2"



T1 – Heating mode with lower rated output



T2 – Heating mode with maximum set output

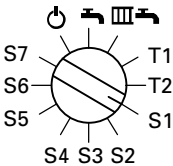
Please note:

In test position "T2", the fault memory will also be displayed.

Changing parameters in service positions "S1" to "S7"

Changing parameters in service positions "S1" to "S7" influences the control unit and system parameters.

The following steps for changing parameters apply to all service positions.



1. Select the service position on the heating program selector switch.
The display shows: "--"
The current parameter will be displayed after approx. 2 sec.



2. Turn rotary selector "↻" fully clockwise.
The maximum value flashes in the display.

Please note:

If rotary selector "↻" is positioned to the right of the central position, turn it first anticlockwise beyond the centre.



3. Turn rotary selector "↻" fully anticlockwise.
The minimum value flashes in the display.
4. Set the required value with rotary selector "↻".
5. Set the heating program selector switch to another position.
The value is now saved.

Changing parameters in service positions "S1" to "S7" (cont.)**S1 – Pump run-on time when using a clock thermostat**

The clock thermostat input will only be evaluated in heating mode. The boiler water temperature will be maintained and the circulation pump remains switched ON, if the clock thermostat issues a heat demand.

The burner will be switched OFF without request. You can set the run-on time for the circulation pump.


For setting steps, see page 54.

Parameter	Circulation pump behaviour
0	OFF immediately after burner switch-off
1 to 120 As delivered condition: "2" (2 min run-on)	1 to 120 minutes run-on. Setting step range: 1 to 10 minutes in 1 min. steps, 15 to 120 minutes in 5 min. steps.

S2 – External blocking

Subject to set parameters, different components are disabled when contact "X6.1" - "X6.2" closes.

Please note:

Change strapping plug "X6" on circuit board VR20 to 

For setting steps, see page 54.

Parameter	Blocked-out components
0	Burner
1	Heating circuit and DHW heating
2	Heating circuit
3	Domestic hot water heating

Changing parameters in service positions "S1" to "S7" (cont.)

S3 – Max. boiler water temperature if DHW is heated

The display shows values in °C. As delivered condition: "78".

For setting steps, see page 54.

*Control unit setting range 50 to 125°C, limited by the thermostat to 84°C.
To optimise control characteristics, only select boiler water temperatures up to a maximum of 78°C.*

S4 – Additional function for heating DHW (for gas-fired boilers)

The DHW cylinder will briefly be heated by the additional function to 60 °C. You can select the frequency.

For setting steps, see page 54.

Parameter	Heating frequency
0 (as delivered condition)	Additional function inactive
1 to 30	1 Every time DHW is heated, it will be heated to 60 °C to 30 Every 30th DHW heating it will be heated to 60 °C

S5 – DHW heating

Different options for DHW heating may be selected.

For setting steps, see page 54.

Parameter	Domestic hot water heating
0 As delivered condition – gas-fired boiler	no DHW heating
1	DHW cylinder temp. control
2	DHW cylinder temp. control (optimised)* ¹
3	N/A
4	N/A
5	N/A
6	N/A

*¹Automatic adjustment, if a DHW cylinder temperature sensor is connected; can be manually changed to "1".

Changing parameters in service positions "S1" to "S7" (cont.)

S6 – Limited system frost protection

Limited frost protection for the system can be achieved by switching the circulation pump ON for 10 minutes. You can select the switching frequency.

For setting steps, see page 54.

Parameter	Switching cycle
0	Circulation pump will not be switched on
1 to 24	1 to 24 times daily; switch on circulation pump

S7 – M clock thermostat

For setting steps, see page 54.

Parameter	Pump function
Without M clock thermostat	0 —
With M clock thermostat and room temperature hook-up. Set boiler water temperature is selected by control unit in such a way that set room temperature selected on clock thermostat is maintained inside the room as accurately as possible. Burner will be enabled when room temperature hysteresis falls below its limits; burner will be switched OFF when its limits are exceeded.	1
	2
	3
	4
	5
	6
	7
	8
	9
Please note: For settings 1 to 9, the link on the M clock thermostat must be open (as delivered condition).	Set room temperature hysteresis ± 0.5 Pump "ON" when room temperature hysteresis falls below its limits. Pump run-on (S1) will be activated when room temp. hysteresis is exceeded. ± 1.0 ± 1.5 ± 2.0 ± 2.5 ± 3.0 ± 3.5 ± 4.0 Pump runs continuously*1




Installation instructions
M clock thermostat

*1The burner will be constantly enabled as room temperature hysteresis cannot be set.

Changing parameters in service positions "S1" to "S7" (cont.)

S7 – M clock thermostat (cont.)

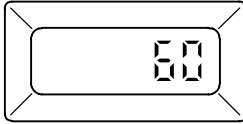
Parameter		Pump function
Without M clock thermostat and with link on input clock thermostat with switched output	10	Pump run-on active, when the burner has been switched OFF; pump "ON" with burner "ON"
With M clock thermostat The set boiler water temperature is influenced by the room temperature set on the clock thermostat. The boiler water temperature will be maintained at the set value selected on the control unit if the room temperature is set to 20 °C.	11	For each 1 K set room temp., the boiler water temp. changes from its set value by
	12	
	13	
	14	
	15	
	16	
	17	
	18	
	19	
	20	
<p>Please note: For settings 11 to 20, the link on the M clock thermostat must be closed.</p>		<p>1 K Pump "ON" and burner "ON". 2 K Pump run-on (S1) will be activated when the burner is switched OFF. 3 K 4 K 5 K 6 K 7 K 8 K 9 K 10 K</p>
<p> <i>Installation instructions M clock thermostat</i></p>		

Scanning temperatures

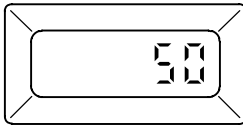
The display can show the set and actual values for the

- boiler water temperature, and the
- DHW temperature.

Scanning actual temperatures



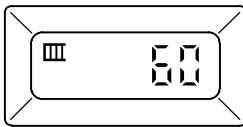
Boiler water temperature:
In operating mode,
"⏻" standby mode and
"III 🔌" heating and DHW
will be displayed.



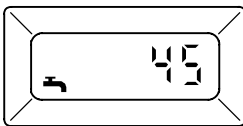
DHW cylinder temperature (gas-fired
boiler) or draw-off temperature
(gas-fired combination boiler):
In operating mode,
"🔌" only DHW
will be displayed.
*Rotary selector "🔌" must **not** be
turned fully anticlockwise.*

Scanning and changing set temperatures

The set value change will flash for approx. 5 sec.
Then the relevant actual temperature will be displayed.



Select the required boiler water
temperature on rotary selector "III".



Set the required DHW cylinder
temperature with rotary
selector "🔌".

Function description

Heating mode

The control unit determines a set boiler water temperature subject to the outside temperature or the room temperature (if a room temperature-dependent remote control is connected) and the slope/level of the heating curve.

The determined set boiler water temperature is then transferred to the burner control unit.

From the set and actual boiler water temperatures, the burner control unit calculates the modulation level and controls the burner accordingly.

The burner control unit limits the boiler water temperature:

- by the limit thermostat to 84 °C,
- by the electronic high limit thermostat to 82 °C.

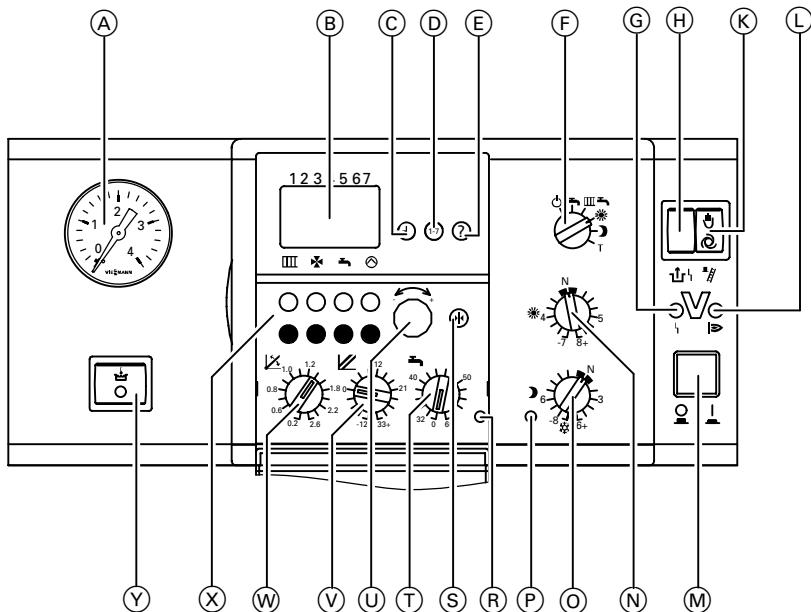
The thermocouple in the safety chain locks out the burner control unit at 100 °C boiler water temperature.

Supplementary DHW heating

The supplementary heating facility will be activated if a control period of 10 minutes (e.g. 22:10 to 22:20 hrs) has been selected. This period must lie outside the control range for normal DHW heating, to enable the control unit to recognise the signal.

You can set the temperature value for supplementary heating in coding address "107".

Function description (cont.)

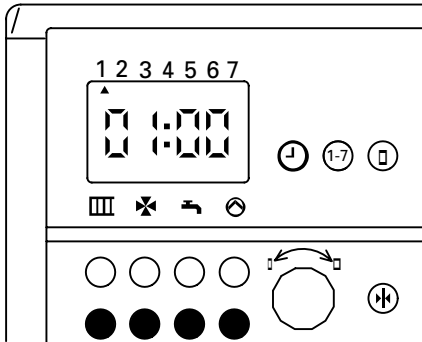


- (A) Gauge
- (B) Display
- (C) Time setting
- (D) Weekday setting
- (E) Scanning temperatures
- (F) Heating program selector switch
 - ☐ Standby mode
 - ☐ Only DHW
 - ☐ Heating and DHW
 - ☐ Constant standard room temperature
 - ☐ Constantly reduced room temperature
 - T Test position
- (G) Burner fault display
- (H) Burner fault reset
- (K) Emissions test switch
- (L) Burner operation display
- (M) System ON/OFF switch
- (N) ☐ Rotary selector
"Standard room temperature"
- (O) ☐ Rotary selector
"Reduced room temperature"
- (P) Display
"Reduced room temperature"
- (R) Display "DHW heating"
- (S) ☐ Key "Base settings"
- (T) ☐ Rotary selector
"DHW temperature"
- (U) ☐ Rotary selector
- (V) ☐ Rotary selector
"Level of the heating curve"
- (W) ☐ Rotary selector
"Slope of the heating curve"
- (X) Start-up and shutdown timing keys
- (Y) N/A

Calling up coding level 1

Please note:

For a summary of the coding addresses of coding level 1, see page 67.



1. Calling up the coding level

Simultaneously press red key "☒" and blue key "☒".

Hold the keys down until after approx. 5 seconds "01:00" is displayed.

2. Coding address selection

Press key "⌚" and turn rotary selector "↻" clockwise, until the required coding address is displayed.

3. To change the coding address value

Press key "1-7" and turn rotary selector "↻" until the required value appears.

4. Terminating coding

Press red key "☒".

Heating curves



The heating curves illustrate the relationship between the outside temperature and the boiler water or the flow temperature.

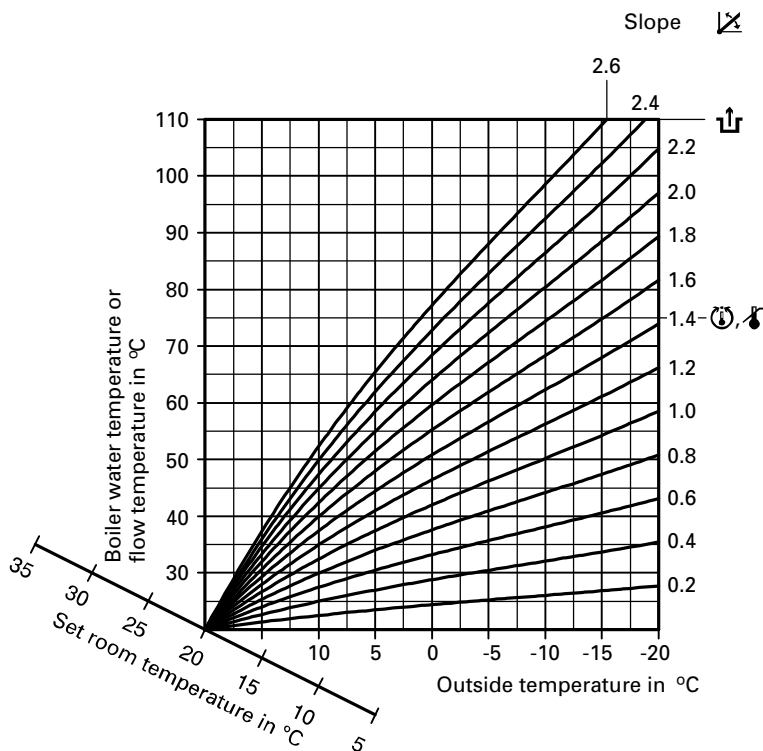
To put it simply, the lower the outside temperature, the higher the boiler water or flow temperature.

The room temperature again depends on the boiler water or the flow temperature.

If different room temperatures are set, the curves will be adjusted parallel to the set room temperature axis.

Settings in as delivered condition:

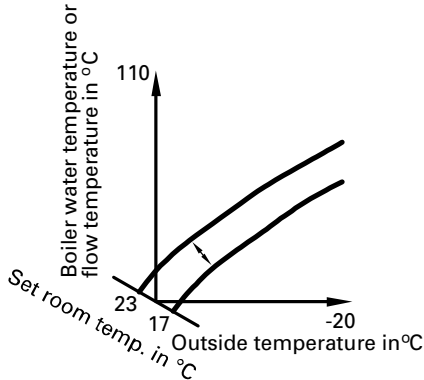
- Slope "  " = 1.4
- Level "  " = 0



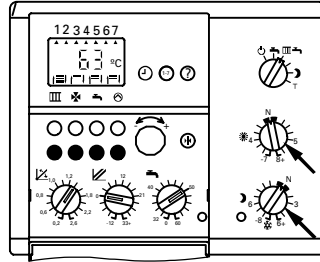
Adjusting heating curves

Set room temperature

Designs "04:00" and "04:01":
Heating circuit **without** mixer
Designs "04:02" and "04:03":
Heating circuit **with** mixer

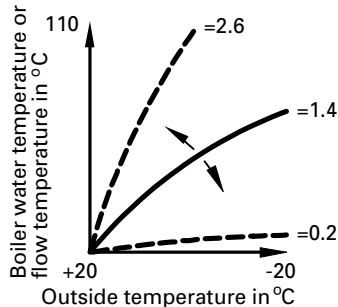


Control unit setting:

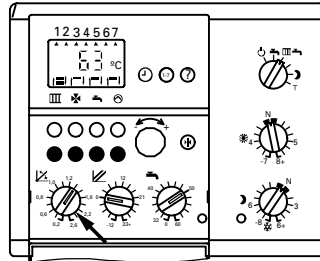


Heating curve slope

Designs "04:00" and "04:01":
Heating circuit **without** mixer
Designs "04:02" and "04:03":
Heating circuit **with** mixer



Control unit setting:



Designs "04:02" and "04:03":
Heating circuit **without** mixer

Setting of coding address "08"

Slope setting range

"08:00" = 0.2 to "08:15" = 2.6

(Change per step: 0.2)

As delivered condition: "08:09" = 1.4.

Adjusting heating curves (cont.)

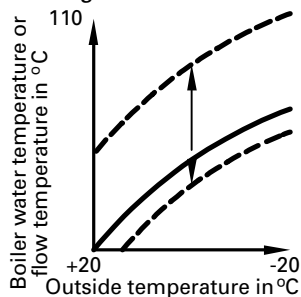
Heating curve level

Designs "04:00" and "04:01":

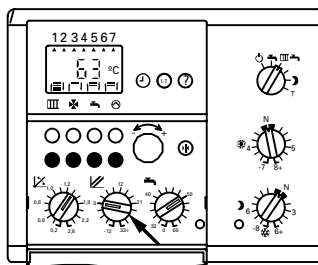
Heating circuit **without** mixer

Designs "04:02" and "04:03":

Heating circuit **with** mixer

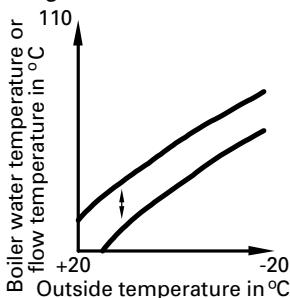


Control unit setting:



Differential temperature

Designs "04:02" and "04:03"



Setting of coding address "07"

Setting range for differential temp. of

"07:00" = 6 K to "07:15" = 36 K

(Change per step: 2 K)

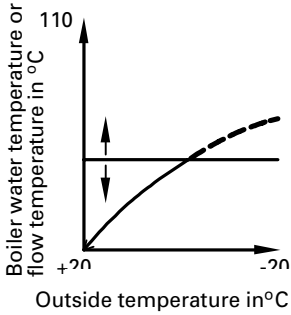
As delivered condition: "07:01" = 8 K.

Please note:

If Vitotronic 050 is connected, the set differential temperatures add up (as delivered condition respectively 8 K). Therefore set the differential temperature on Vitotronic 050 appropriately lower.

Adjusting heating curves (cont.)

Maximum temperature limit



Heating circuit **without** mixer
Setting of coding address "06"
Setting range of the max. temp. of
"06:01" = 40 °C to "06:15" = 110 °C
(Change per step: 5 K)
As delivered condition: "06:10" = 85 °C.

Heating circuit **with** mixer
Setting of coding address "05"
Setting range of the max. temp. of
"05:00" = 35 °C to "05:15" = 110 °C
(Change per step: 5 K)
As delivered condition: "05:08" = 75 °C.

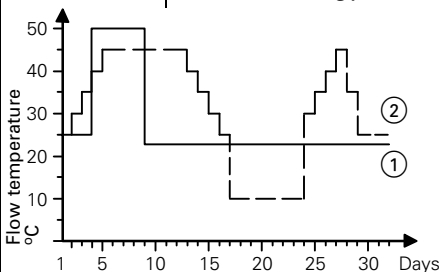
Summary coding level 1

Safety instruction

Coding addresses that are not described here must not be changed.

For a sequence of steps to call up coding level 1, see page 62.

Coding in the as delivered condition Address:value	Function mode	Code change Address:value	Possible change
Boiler			
03:00	No DHW heating	03:01 03:02 *1 03:14 03:15	DHW cylinder temperature control Cylinder temperature control (optimised) Screed drying acc. to two optional temperature-time profiles. Observe DIN 4725-2. Screed-drying acc. to temperature profile ① (DIN 4725) *2 Screed drying acc. to temperature profile ② (ZV Parquet and under-floor technology) *2



*1 Automatic adjustment, if a DHW cylinder temperature sensor is connected, can be manually changed to "01".

*2 After this function is completed, the system automatically changes over to the operating mode "Heating and DHW".

Summary coding level 1 (cont.)

Coding in the as delivered condition Address:value	Function mode	Code change Address:value	Possible change
---	---------------	------------------------------	-----------------

Boiler (cont.)

06:10	Maximum temperature limit set to 85 °C	06:00 to 06:15	Max. temperature limit variable between 35 and 110 °C
30:00	External heating program changeover	30:01	External request
35:00	External demand or external heating program change blocked	35:01	External demand or external heating program change enabled
40:01	Boiler water temp. display	40:00	Time display

Heating circuits

04:00 * ¹	One heating circuit without mixer or heating system with low loss header, and without DHW heating	04:01 * ¹ 04:02 04:03 * ¹	One heating circuit without mixer or heating system with low loss header, plus DHW heating One heating circuit without mixer, one heating circuit with mixer, without DHW heating One heating circuit without mixer, one heating circuit with mixer and with DHW heating.
05:08 * ¹	Maximum temperature limit set to 75 °C	05:00 to 05:15	Max. temperature limit variable between 35 and 110 °C
07:01 * ²	Differential temperature set to 8 K	07:00 to 07:15	Differential temperature variable between 6 and 36 K

*¹For systems without mixer, the address without mixer and with recognition of the DHW heating will be set automatically, and therefore must be manually reset.

*²Only for heating system designs "04:02" and "04:03".

Summary coding level 1 (cont.)

Coding in the as delivered condition Address:value	Function mode	Code change Address:value	Possible change
---	----------------------	--	------------------------

Heating circuits (cont.)

08:09 ^{*1}	Heating circuit without mixer: Heating curve slope " $\frac{1}{x}$ " set to "1.4"	08:00 to 08:15	Heating circuit without mixer: Slope " $\frac{1}{x}$ " variable between "0.2" and "2.6"
22:00	Heating circuit pump "ON" for heating system designs "04:02" and "04:03" (connection to plug "20A")	22:01	Heating circuit pump "OFF" for heating system designs "04:02" and "04:03"

DHW cylinder

10:01	The circulation pump starts immediately.	10:00	Circulation pump will be switched on subject to boiler temperature
13:00	Circulation pump with run-on, up to max. 10 min	13:01	Circulation pump without run-on
14:00	Set boiler water temp. for DHW cylinder loading acc. to set DHW cylinder temp. +20 K	14:01	Set boiler water temperature during DHW cylinder loading equals 78 °C
15:01	With DHW priority control	15:00	Without DHW priority control
21:00	Optional connection DHW circulation pump	21:01	Output signal DHW heating enabled (not when operating with a boiler circuit pump)
23:00	Setting range for DHW temperature 32 to 60 °C	23:01	Setting range for DHW temperature 52 to 80 °C

^{*1}Only for heating system designs "04:02" and "04:03".

Summary coding level 1 (cont.)

Coding in the as delivered condition Address:value	Function mode	Code change Address:value	Possible change
Heating circuit pump			
11:01	Heating circuit pump speed for reduced mode acc. to coding address "044: _ _" of coding level 2	11:00	Heating circuit pump speed for reduced mode acc. to coding address "046: _ _" of coding level 2
12:01	With variable speed heating circuit pump (automatic recognition)	12:00	Stepped heating circuit pump (e.g. transfer mode for service)
16:01	With heating circuit pump logic function	16:00	Without heating circuit pumps logic function
17:00	Heating circuit without mixer present	17:01	Heating circuit with mixer present
Remote control			
20:00	Without WS or RS remote control unit	20:01	With WS or RS remote control unit* ¹
32:01 33:00	Weather-compensated mode in heating and reduced mode	32:00* ² 33:00* ²	With room temperature hook-up in heating and reduced mode
		32:00* ² 33:01* ²	Weather-compensated mode in heating mode With room temperature hook-up in reduced mode

*¹The address is automatically set and must be manually reset.

*²Do not adjust in the RS remote control connection.

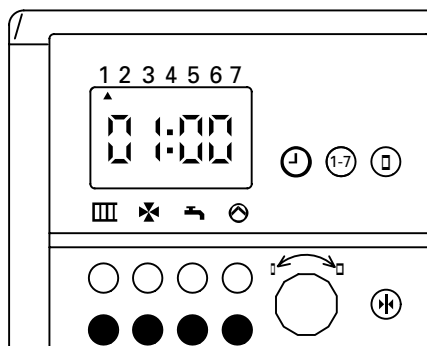
Summary coding level 1 (cont.)

Coding in the as delivered condition Address:value	Function mode	Code change Address:value	Possible change
Changeover between summer and winter			
47:01	Automatic summer/ winter changeover	47:00	Manual summer/winter changeover
50:03	Summer starts: March	50:01 to 50:12	January to December
51:05	Summer starts: last week of the month	51:01 to 51:05	Week 1 to Week 5 of the selected month
52:07	Summer starts: last day of the week (Sunday)	52:01 to 52:07	Monday to Sunday
53:10	Winter starts: October	53:01 to 53:12	January to December
54:05	Winter starts: last week of the month	54:01 to 54:05	Week 1 to Week 5 of the selected month
55:07	Winter starts: last day of the week (Sunday)	55:01 to 55:07	Monday to Sunday



Calling up coding level 2

Please note:



For systems with wall mounting fixtures, the programming unit must be plugged into the control unit, if coding is to be carried out at coding level 2. For a summary of the coding addresses of coding level 2, see page 73.





1. Call up coding level 1

Simultaneously press the red key " and the blue key "". Hold the keys down until after approx. 5 seconds "01:00" is displayed.



2. Call up coding level 2

Simultaneously press the red key " and the blue key "". Hold both keys down until after approx. 5 secs. (e.g. to "0:00").


3. Selecting the coding address

Press key " and turn the rotary selector " clockwise, until the required coding address is displayed.

4. To change the coding address value

Press key " and turn the rotary selector " until the required value of the coding address appears.

5. Terminating coding

Press the red key "".

Summary coding level 2

For a sequence of steps to call up coding level 2, see page 72.

Coding in the as delivered condition Address:value	Function mode	Code change Address:value	Possible change
Boiler			
038:040	Minimum flow temp. in heating mode	038:020 to 038:127	
042:075	Maximum boiler water temp. in heating mode	042:020 to 042:127	Max. possible boiler temperature 82 °C
102:075	Set boiler water temperature for external demand 75 °C	102:000 to 102:127	Setting range of the set boiler water temp. 0 to 127 °C (max. possible boiler water temp. 82 °C)
108:000	Signal external blocking enabled: see the following table	108:001 to 108:007	Signal external blocking enabled: see the following table

Modification types – coding address 108 “External blocking”

Coding	Heating circuit pump	Heating circuit with mixer (extension kit)		Circulation pump for DHW cylinder loading	Burner
		Heating circuit pump	Mixer		
108:000	x	x	x	x	Blocked
108:001	OFF	OFF	Closed	OFF	Blocked
108:002	x	x	x	OFF	Blocked
108:003	x	OFF	Closed	x	Blocked
108:004	OFF	x	x	x	Blocked
108:005	OFF	x	x	OFF	Blocked
108:006	OFF	x	x	x	Blocked
108:007	OFF	OFF	Closed	x	Blocked

x = in a normal control function

Control unit for weather-compensated mode with standard prog. unit

Summary coding level 2 (cont.)

Coding in the as delivered condition Address:value	Function mode	Code change Address:value	Possible change
---	---------------	------------------------------	-----------------

Boiler (cont.)

125:000	Signal external demand activated: see the following table	125:001 to 125:011	Signal external demand activated: see the following table
---------	--	--------------------------	--

Modification types coding address 125 "External demand"

Coding	Heating circuit pump	Heating circuit with mixer (extension kit)		Circulation pump for DHW cylinder loading	Boiler water temperature
		Heating circuit pump	Mixer		
125:000	ON	OFF	Closed	OFF	Will be maintained at the set value acc. to coding address "102"
125:001	OFF	OFF	Closed	OFF	
125:002	×	OFF	Closed	OFF	
125:003	OFF	×	×	OFF	
125:004	ON	×	×	OFF	
125:005	×	×	×	OFF	
125:006	OFF	OFF	Closed	×	
125:007	ON	OFF	Closed	×	
125:008	×	OFF	Closed	×	
125:009	OFF	×	×	×	
125:010	ON	×	×	×	
125:011	×	×	×	×	

× = in a normal control function

Summary coding level 2(cont.)

Coding in the as delivered condition Address:value	Function mode	Code change Address:value	Possible change
Heating circuit pump			
044:020	Minimum heating circuit pump speed	044:001 to 044:100 *1	Lowest value for the lower heating circuit pump speed (do not set below: "020") Highest value for lower heating circuit pump speed
045:065	Highest heating circuit pump speed	045:001 to 045:100 *1	Lowest value for upper heating circuit pump speed Highest value for upper heating circuit pump speed
046:045	Heating circuit pump speed in reduced mode	046:001 to 046:100 *1	Lowest heating circuit pump speed in reduced mode Highest heating circuit pump speed in reduced mode
DHW cylinder			
100:020 *2	Differential temperature between the set boiler water temperature and the set DHW cylinder temperature during DHW heating	100:010 to 100:050	Differential temperature setting range 10 to 50 °C
107:060	Temperature supplementary function DHW heating (DHW quickly to 60 °C)	107:061 to 107:090	Setting range between 61 and 90 °C (max. possible boiler water temperature 82 °C)

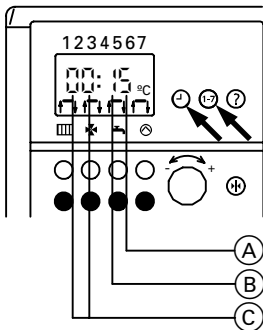
*1Each step represents approx. 20 rpm

*2Only effective with coding 14:00.

Please note:

For all non-listed coding addresses "255" will be displayed.

Brief scan



Simultaneously press keys "⊖" and "1-7".

Meaning of the display:

- Ⓐ set DHW plan in coding address 03^{*1}
- Ⓑ set heating plan in coding address 04^{*1}

Ⓒ KM BUS users:

02 with burner control unit
(12) plus Vitocom 100

03 with burner control unit and
variable speed heating circuit
pump
(13) plus Vitocom 100

06 with burner control unit and
extension kit for one heating
circuit with mixer^{*2}
(16) plus Vitocom 100

07 with burner control unit,
extension kit for one heating
circuit with mixer^{*2} and variable
speed heating circuit pump
(17) plus Vitocom 100

^{*1}For systems with wall mounting fixture,
plug the programming unit into the
control unit.

^{*2}The system only recognises the
extension kit if it is connected via the
KM BUS.
Not if connected via the 2-wire
Viessmann BUS.

Scanning temperatures

The programming unit enables the temperatures of connected sensors to be scanned as set and actual values.

Scanning actual temperatures

1. Select the ID of the respective temperature from the table.

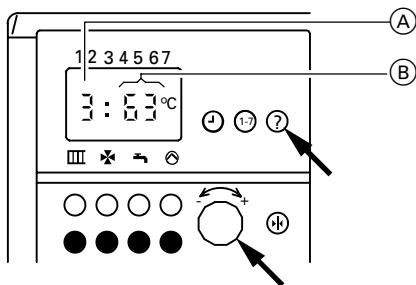
ID	Meaning of the display	Actual temperature in °C (display example)
1* ¹	Outside temperature	1: 8 °C
2	Low loss header temperature	2: 45 °C
3	Boiler water temperature	3: 63 °C
4* ²	Flow temperature	4: 44 °C
5* ³	DHW cylinder temperature	5: 50 °C
7* ⁴	Room temperature	7: 20 °C

*¹The display value takes weather conditions into consideration, such as wind, solar radiation and the wall temperature of the building.

*²Only in connection with the extension kit for heating circuits with mixer.

*³Only if the sensor is connected or activated.

*⁴Only if the programming unit is set into the wall mounting fixture as room temperature-dependent remote control unit.



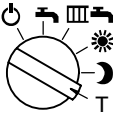
2. Press key "?" and turn the rotary selector "-/+ " anticlockwise or clockwise, until the ID (A) for the corresponding temperature is shown on the display. At the same time the current temperature (B) will be displayed.

Scanning temperatures (cont.)

Scanning set temperatures

Please note:

For systems with wall mounting fixture the programming unit must be plugged into the control unit to be able to scan set temperatures.

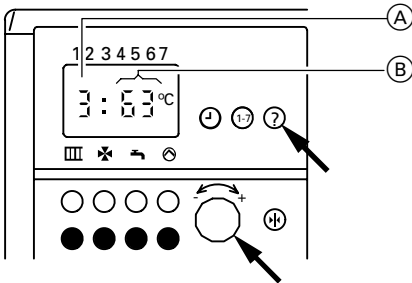


1. Set the heating program selector switch to "T".
The display, the LED "Reduced room temperature" and the LED "DHW heating" flash.
2. Select the ID of the respective temperature from the table.

ID	Meaning of the display	Set temperature in °C (display example)
3	Set boiler water temperature	3: 65 °C
4*1	Set flow temperature	4: 44 °C
5*2	Set DHW water temperature	5: 55 °C

*1 Only in connection with the extension kit for heating circuits with mixer.

*2 Only if the sensor is connected or activated.



3. Press key "?" and turn the rotary selector "-/+ " anticlockwise or clockwise, until the ID (A) for the corresponding temperature is shown on the display.
At the same time the current temperature (B) will be displayed.

Function description

Heating mode

The control unit determines a set boiler water temperature subject to the outside temperature or the room temperature (if a room temperature-dependent remote control is connected) and the slope/level of the heating curve.

The determined set boiler water temperature is then transferred to the burner control unit.

From the set and actual boiler water temperatures, the burner control unit calculates the modulation level and controls the burner accordingly.

The burner control unit limits the boiler water temperature:

- by the limit thermostat to 84 °C,
- by the electronic high limit thermostat to 82 °C.

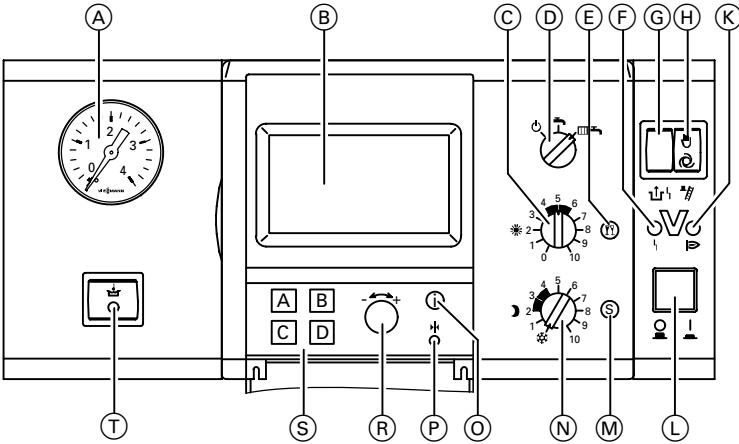
The thermocouple in the safety chain locks out the burner control unit at 100 °C boiler water temperature.

Supplementary DHW heating

The supplementary heating facility will be activated if a control period of 10 minutes (e.g. 22:10 to 22:20 hrs) has been selected. This period must lie outside the control range for normal DHW heating to enable the control unit to recognise the signal.

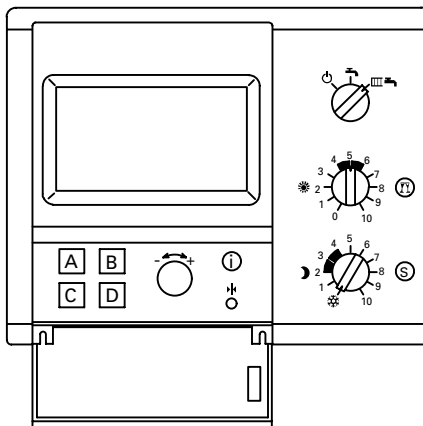
You can set the temperature value for supplementary heating in coding address "0A7".

Function description (cont.)



- | | |
|--|---|
| <ul style="list-style-type: none"> (A) Gauge (B) Display (C) ☀ Rotary selector
"Standard room temperature" (D) Heating program selector switch
 <ul style="list-style-type: none"> ⏻ Standby mode 🔌 Only DHW 🏠🔌 Heating and DHW (E) Party key (F) Burner fault display (G) Burner fault reset | <ul style="list-style-type: none"> (H) Emissions test switch (K) Burner operation display (L) System ON/OFF switch (M) Economy key (N) 🌙 Rotary selector
"Reduced room temperature" (O) Information key (P) Key "Base settings" (R) ⬅➡ Rotary selector (S) Selection keys (T) N/A |
|--|---|

Calling up coding address



Open flap:	
Menu item	Key
→ SYSTEM	"D"
→ INSTALLER SETUP	"C"
→ CODE PLEASE:	"B-C-C-B"
→ CODE 1	"B"
or	
CODE 2	"C"

All settings are implemented in the menu "Contractor adjustment", where you will find "Code 1" (the most important coding addresses in plain text) and "Code 2" (all coding addresses).

Select the required coding address by pressing "A" (CONTINUE) or "B" (BACK).
Change the relevant coding address with the rotary selector "-↔+" (CHANGE).
Confirm the change by pressing "D" (the changeover will then be saved).

Any changes made and confirmed in code 1 will be automatically adopted into code 2 and vice-versa.

Heating curves

The heating curves illustrate the relationship between the outside temperature and the boiler water or the flow temperature.

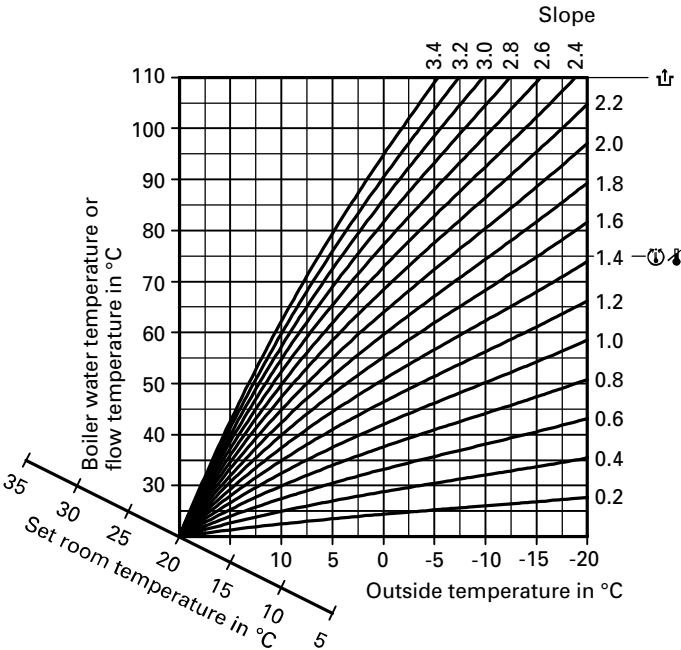
To put it simply, the lower the outside temperature, the higher the boiler water or flow temperature.

The room temperature again depends on the boiler water or the flow temperature.

If different room temperatures are set, the curves will be adjusted parallel to the set room temperature axis.

Settings in the as delivered condition:

- *Slope* = 1.4
- *Level* = 0



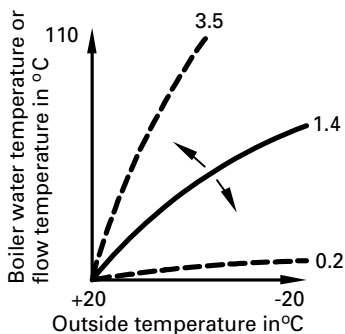
Adjusting heating curves

Please note:

Heating circuit A = Heating circuit **without** mixer

Heating circuit B = Heating circuit **with** mixer

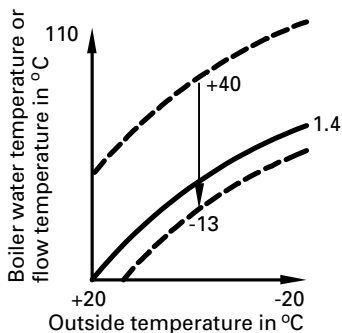
Heating curve slope



After opening the programming unit flap, follow the following menu path:

- | Menu item | Key |
|---------------------|-----|
| → HEATING CIRCUIT A | "A" |
| or | |
| HEATING CIRCUIT B | "B" |
| → HEATING CURVE | "B" |
| → CHANGE | "A" |

Heating curve level



After opening the programming unit flap, follow the following menu path:

- | | |
|---------------------|---------|
| → HEATING CIRCUIT A | "A" |
| or | |
| HEATING CIRCUIT B | "B" |
| → HEATING CURVE | "B" |
| → CHANGE | 2 x "A" |

Control unit for weather-compensated mode with Comfortrol prog. unit

Summary of coding addresses

Safety instruction

Coding addresses that are not described here must not be changed.

For a sequence of steps to call up the coding addresses, see page 81.

Coding in the as delivered condition Address:value	Function mode	Coding change Address:value	Possible change
Boiler			
011:000	External demand or external heating program change blocked	011:001	External demand or external heating program change enabled
027:000	External heating program changeover	027:001	External request
038:020	Minimum flow temp. in heating mode	038:020 to 038:127	
042:075	Maximum boiler water temperature in heating mode	042:020 to 042:127	Max. possible boiler water temp. 82 °C
099:000	Optional connection DHW circulation pump	099:001	Output signal DHW heating active
0A2:075	Set boiler water temperature for external demand 75 °C	0A2:000 to 0A2:127	Setting range of the set boiler water temp. 0 to 127 °C (max. possible boiler water temp. 82 °C)

Summary of coding addresses (cont.)

Coding in the as delivered condition Address:value	Function mode	Coding change Address:value	Possible change
---	----------------------	--	------------------------

Boiler (cont.)

0A8:000	Signal external blocking enabled: see the following table	0A8:001 to 0A8:007	Signal external blocking enabled: see the following table
---------	--	--------------------------	--

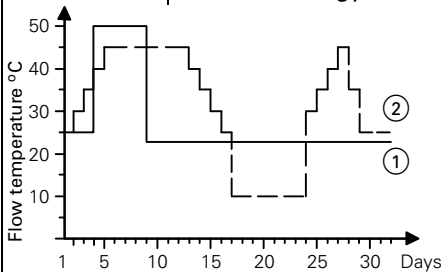
Modification options – coding address 0A8 “External blocking”

Coding	Heating circuit pump	Heating circuit with mixer (extension kit)		Circulation pump for DHW cylinder loading	Burner
		Heating circuit pump	Mixer		
0A8:000	x	x	x	x	Blocked
0A8:001	OFF	OFF	Closed	OFF	Blocked
0A8:002	x	x	x	OFF	Blocked
0A8:003	x	OFF	Closed	x	Blocked
0A8:004	OFF	x	x	x	Blocked
0A8:005	OFF	x	x	OFF	Blocked
0A8:006	OFF	x	x	x	Blocked
0A8:007	OFF	OFF	Closed	x	Blocked

x = in a normal control function

Summary of coding addresses (cont.)

Coding in the as delivered condition Address:value	Function mode	Coding change Address:value	Possible change
Boiler (cont.)			
0B2:___	Fault memory		
0B3:___	Fault memory		
0B8:000	No DHW heating	0B8:001 0B8:002 *1 0B8:014 0B8:015	DHW cylinder thermostat Cylinder temperature control (optimised) Note the screed-drying function acc. to two selectable temperature-time profiles. Observe DIN 4725-2. Screed drying acc. to temperature profile ① (DIN 4725)*2 Screed drying acc. to temperature profile ② (ZV Parquet and under-floor technology)*2



*1 Automatic adjustment, if a DHW cylinder temperature sensor is connected, can be manually changed to "001".

*2 After this function is completed, the system automatically changes over to the operating mode "Heating and DHW".

Summary of coding addresses (cont.)

Coding in the as delivered condition Address:value	Function mode	Coding change Address:value	Possible change
Boiler (cont.)			
0C5:000	Signal external demand activated: see the following table	0C5:001 to 0C5:011	Signal external demand activated: see the following table

Modification options coding address 0C5 "External demand"

Coding	Heating circuit pump	Heating circuit with mixer (extension kit)		Circulation pump for DHW cylinder loading	Boiler water temperature
		Heating circuit pump	Mixer		
0C5:000	ON	OFF	Closed	OFF	Will be maintained at the set value acc. to coding address "0A2"
0C5:001	OFF	OFF	Closed	OFF	
0C5:002	×	OFF	Closed	OFF	
0C5:003	OFF	×	×	OFF	
0C5:004	ON	×	×	OFF	
0C5:005	×	×	×	OFF	
0C5:006	OFF	OFF	Closed	×	
0C5:007	ON	OFF	Closed	×	
0C5:008	×	OFF	Closed	×	
0C5:009	OFF	×	×	×	
0C5:010	ON	×	×	×	
0C5:011	×	×	×	×	

× = in a normal control function

Summary of coding addresses (cont.)

Coding in the as delivered condition Address:value	Function mode	Coding change Address:value	Possible change
Boiler (cont.)			
0C8:001	External heating program changeover Contact opened: Central heating on/ DHW heating ON (acc. to time program). Contact closed: central heating off/ DHW heating off.	0C8:000	External heating program changeover Contact opened: Central heating ON/ DHW heating ON (acc. to time program). Contact closed: constant central heating ON/DHW ON (independent of set time program).
Heating circuits			
000:000	One heating circuit without mixer or heating system with low loss header, and without DHW heating	000:001 ^{*1} 000:002 ^{*2} 000:003 ^{*1, 2}	One heating circuit without mixer or heating system with low loss header, plus DHW heating One heating circuit without mixer, one heating circuit with mixer, without DHW heating One heating circuit without mixer, one heating circuit with mixer and with DHW heating
014:000 ^{*3}	Party key "YY" affects heating circuit B	014:001 ^{*3}	Party key "YY" affects heating circuit A and B
DHW cylinder			
003:001	With priority switching to heating circuit pump(s)	003:000	Without priority switching to heating circuit pump(s)

^{*1}The coding for systems with DHW heating is automatically recognised.

^{*2}These codings also apply to one heating circuit without mixer and one heating circuit with mixer.

^{*3}Only for heating system designs "000:002" and "000:003" (heating systems with one heating circuit with mixer).

Summary of coding addresses (cont.)

Coding in the as delivered condition Address:value	Function mode	Coding change Address:value	Possible change
DHW cylinder (cont.)			
007:000	Setting range for DHW temp. 10 to 60 °C	007:001	Setting range for DHW temp. 10 to 70 °C Warning Observe max. permissible DHW cylinder water temp.
017:001	The circulation pump starts immediately	017:000	The circulation pump will be switched on subject to the boiler temp.
018:000	Circulation pump with run-on	018:001	Circulation pump without run-on
028:000	During DHW heating, the boiler water temp. is a max. of 20 K higher than the set DHW cylinder temp.	028:001	During DHW heating, the boiler water temp. is limited by the high limit thermostat to 78 °C.
047:___	Actual temp. at the DHW cylinder temp. sensor <input type="text" value="4"/> in °C (no adjustment possible)		
0A0:020 *1	Differential temp. between the set boiler water temp. and the set DHW cylinder temp. during DHW heating	0A0:010 to 0A0:050	Differential temp. setting range 10 to 50 °C
0A7:060	Set value of the "Auxiliary function for DHW heating" (DHW heats quickly to 60 °C)	0A7:061 to 0A7:070	Setting range between 61 and 70 °C

*1Only effective with coding 028:000.

Summary of coding addresses (cont.)

Coding in the as delivered condition Address:value	Function mode	Coding change Address:value	Possible change
Heating circuit pump			
005:001	With heating circuit pump logic function	005:000	Without heating circuit pump logic function
006:001	Heating circuit pump speed for reduced mode acc. to coding address "044: _ _"	006:000	Heating circuit pump speed for reduced mode acc. to coding address "046: _ _"
008:000	Heating circuit pump "ON" for heating system designs "000:002" and "000:003" (connection to plug "20A")	008:001	Heating circuit pump "OFF" for heating system designs "000:002" and "000:003"
013:001	With variable speed heating circuit pump (automatic recognition)	013:000	Stepped heating circuit pump (e.g. transfer mode for service)
044:020	Minimum heating circuit pump speed	044:001 to 044:100 ^{*1}	Lowest value for the lower heating circuit pump speed (do not set below "020") Highest value for lower heating circuit pump speed
045:065	Highest heating circuit pump speed	045:001 to 045:100 ^{*1}	Lowest value for upper heating circuit pump speed Highest value for upper heating circuit pump speed

^{*1}Each step represents approx. 20 rpm

Summary of coding addresses (cont.)

Coding in the as delivered condition Address:value	Function mode	Coding change Address:value	Possible change
Heating circuit pump (cont.)			
046:045	Heating circuit pump speed in reduced mode	046:001 to 046:100 *1	Lowest heating circuit pump speed in reduced mode Highest heating circuit pump speed in reduced mode
Programming unit or remote control unit			
009:000	Boiler water temp. display	009:001	Display of outside temp.
019:000	Weather-compensated mode (WS function) for all connected heating circuits	019:001 *2	<ul style="list-style-type: none"> ■ For systems with one heating circuit without mixer or one heating circuit with mixer: Operation with room temp. hook-up (RS function) ■ For systems with one heating circuit without mixer and one heating circuit with mixer: Weather-compensated mode (WS function) for the heating circuit without mixer and operation with room temp. hook-up (RS function) for the heating circuit with mixer

*1 Each step represents approx. 20 rpm

*2 This conversion is only appropriate if the programming unit is set into the wall mounting fixture.

Summary of coding addresses (cont.)

Coding in the as delivered condition Address:value	Function mode	Coding change Address:value	Possible change
Programming unit or remote control unit (cont.)			
019:000 (cont.)	Weather-compensated mode (WS function) for all connected heating circuits	019:002 ^{*1}	<ul style="list-style-type: none"> ■ For systems with one heating circuit without mixer or one heating circuit with mixer: Weather-compensated mode (WS function) in heating mode and operation with room temperature hook-up (RS function) in setback mode ■ For systems with one heating circuit without mixer and one heating circuit with mixer: Weather-compensated mode (WS function) for the heating circuit without mixer and weather-compensated mode in heating mode and operation with room temp. hook-up in setback mode (WS/RS function) for the heating circuit with mixer
020:000	Without WS or RS remote control unit	020:001	With WS or RS remote control unit ^{*2}
049:___	Hours run "hundreds" 3 rd digit from the left	049:000	Resetting the hours run
050:___	Hours run "units" 3 rd digit and "tens" 2 nd digit from the left	050:000	Resetting the hours run

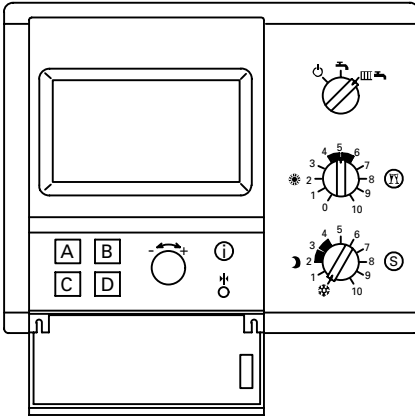
^{*1}This conversion is only appropriate if the programming unit is set into the wall mounting fixture.

^{*2}The address is automatically set and must be manually reset.

Summary of coding addresses (cont.)

Coding in the as delivered condition Address:value	Function mode	Code change Address:value	Possible change
Programming unit or remote control unit (cont.)			
0D5:000	Standard display with closed flap	0D5:001	Large display of time and outside temperature with closed flap
0D6:000	Temp. display in "°C" (° Celsius)	0D6:001	Temperature display in "°F" (° Fahrenheit)
Changeover between summer and winter			
0C7:003	Automatic (radio clock module will be automatically recognised)	0C7:000 0C7:001 0C7:002	S/W. manual changeover/ change of date blocked S/W. automatic changeover S/W. manual changeover/ change of date enabled
0C9:003	Summer starts: March	0C9:001 to 0C9:012	January to December
0D0:005	Summer starts: last week of the month	0D0:001 to 0D0:005	Week 1 to week 5 of the selected month
0D1:007	Summer starts: last day of the week (Sunday)	0D1:001 to 0D1:007	Monday to Sunday
0D2:010	Winter starts: October	0D2:001 to 0D2:012	January to December
0D3:005	Winter starts: last week of the month	0D3:001 to 0D3:005	Week 1 to week 5 of the selected month
0D4:007	Winter starts: last day of the week (Sunday)	0D4:001 to 0D4:007	Monday to Sunday

Brief scan



Calling up brief scan 1

Open cover:

Menu item

→ SYSTEM

→ OPERATING STATE

→ CONTINUE

Key

"D"

"B"

"A"

until "Brief scan 1" appears.

The figures representing the 3rd and 4th digit from the left (e.g. __02__) here have the following meaning:

02 with burner control unit

(12) plus Vitocom 100

03 with burner control unit and variable speed heating circuit pump

(13) plus Vitocom 100

06 with burner control unit and extension kit for one heating circuit with mixer*¹

(16) plus Vitocom 100

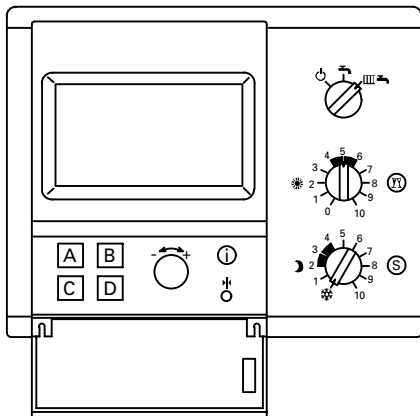
07 with burner control unit, extension kit for one heating circuit with mixer*¹ and variable speed heating circuit pump

(17) plus Vitocom 100

*¹The system only recognises the extension kit if it is connected via the KM BUS.

Not if connected via the 2-wire Viessmann BUS.

Scanning temperatures



The following set and actual values can be scanned in the display of the Comfortrol programming unit:

- Outside temperature
- Boiler water temperature
- Flow temperature of the extension kit for the heating circuit with mixer
- Room temperature (if the Comfortrol programming unit together with the wall mounting fixture is used as remote control).

Open cover:


Menu item	Key
→ HEATING CIRCUIT A or	"A"
HEATING CIRCUIT B or	"B"
SYSTEM	"D"
→ OPERATING STATE	"C" or "B"
→ CONTINUE	"A"

- DHW temperature

Open cover:

Menu item	Key
→ DHW	"C"
→ DHW CYLINDER	"A"
→ OPERATING STATE	"C"

Control unit for weather-compensated mode with Comfortrol prog. unit

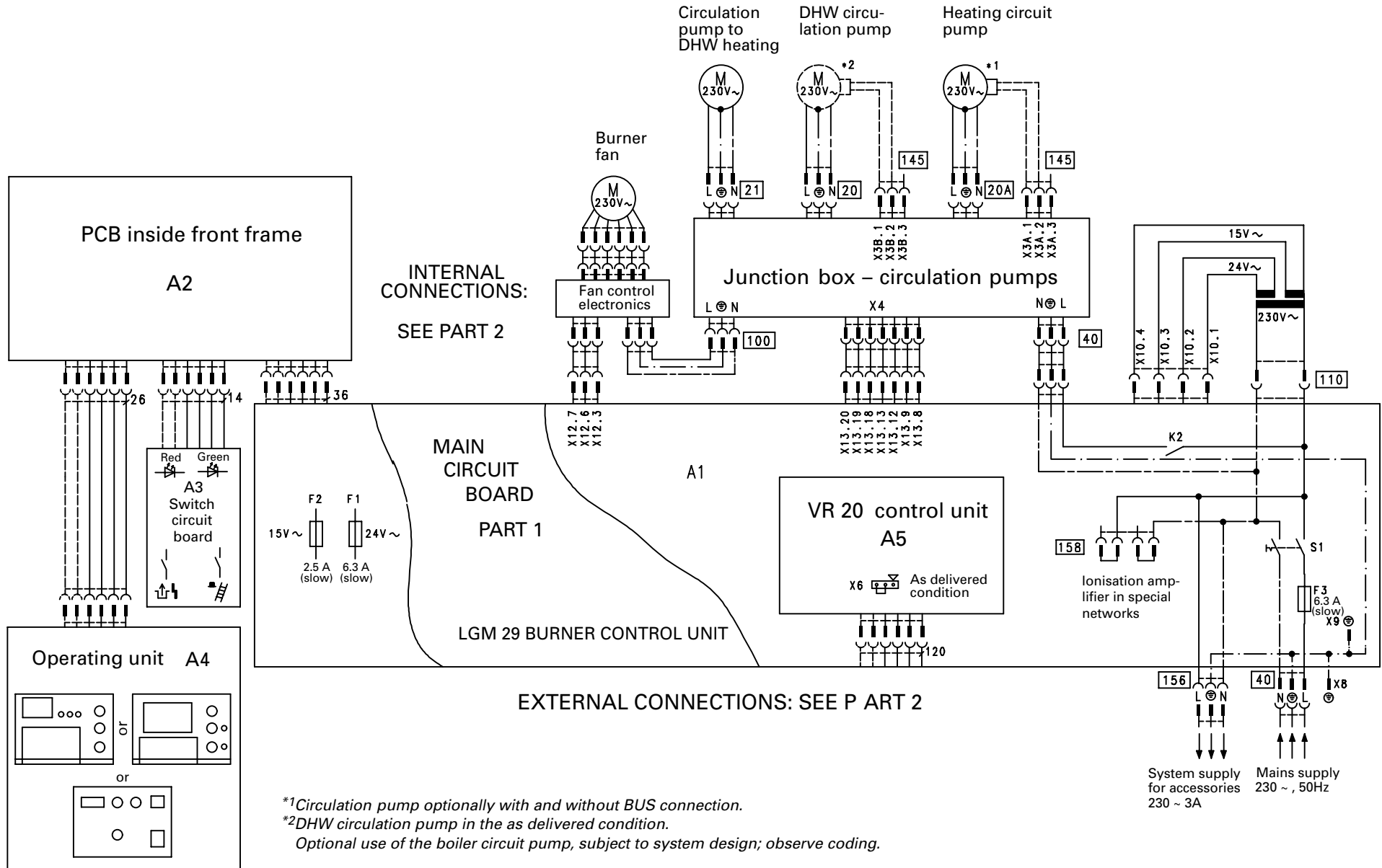


Connection and wiring diagram – power supply and pump connections

INTERNAL ASSEMBLIES

EXTERNAL PUMP CONNECTIONS

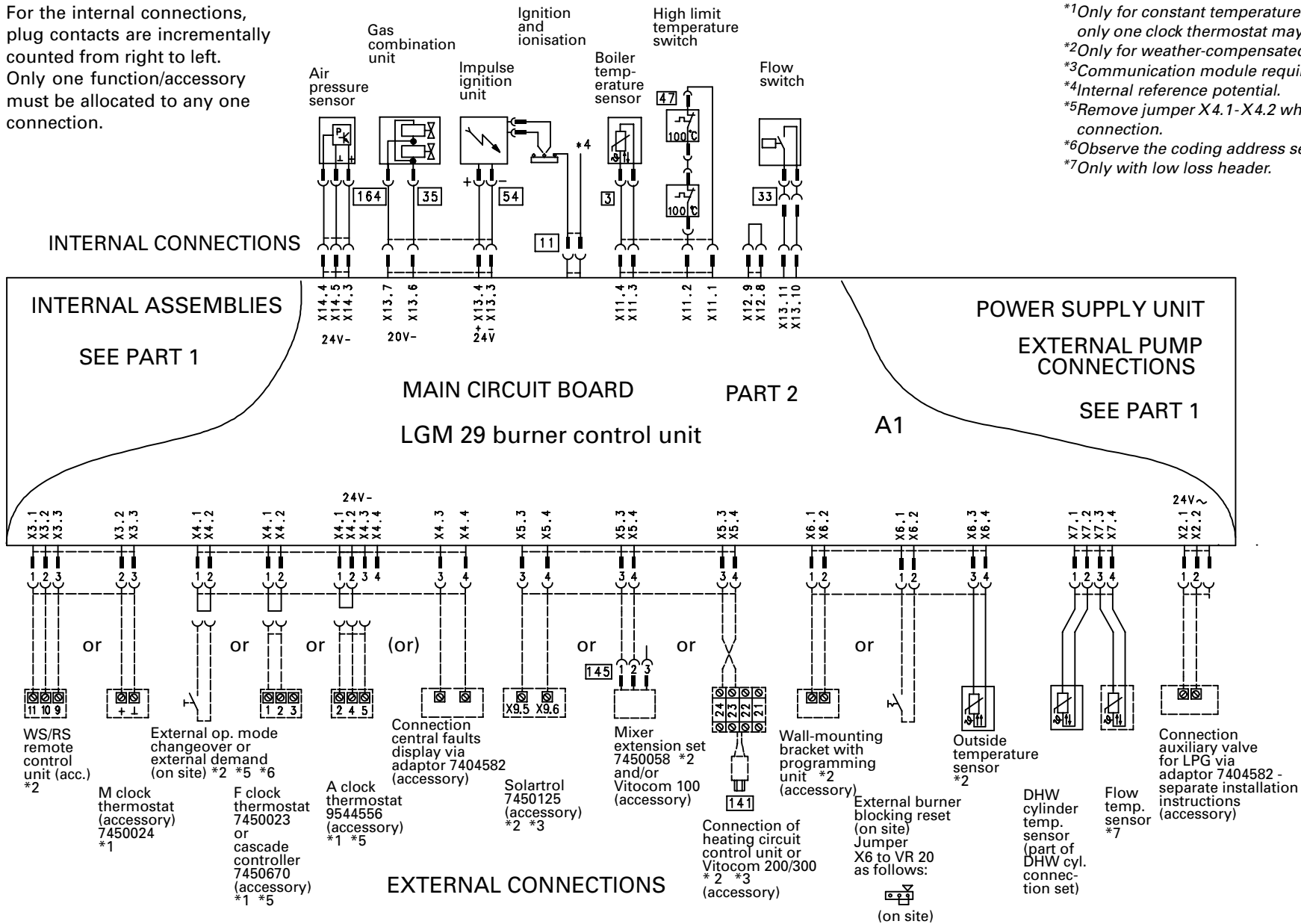
INTERNAL POWER SUPPLY



Connection and wiring diagram – heating components

For the internal connections, plug contacts are incrementally counted from right to left. Only one function/accessory must be allocated to any one connection.

- *1 Only for constant temperature mode; only one clock thermostat may be connected.
- *2 Only for weather-compensated mode.
- *3 Communication module required (accessory).
- *4 Internal reference potential.
- *5 Remove jumper X4.1-X4.2 when making this connection.
- *6 Observe the coding address settings.
- *7 Only with low loss header.





Parts list

When ordering spare parts:

Quote the type and serial no. (see type plate) and the item no. of the required part (as per parts list).

Obtain common parts from your local supplier.

Wear parts

026 Ignition electrodes with gasket

027 Ionisation electrode with gasket

Parts

001 Edge protector

009 MAG connection pack

016 Quick-acting air-vent valve

017 Burner (incl. items 018, 020, 026, 027, 056, 088, 094, 096, 100 and 120)

018 Burner gauze assembly

020 Radial fan

028 Gas connection hose
(incl. gaskets)

030 Conversion kit for natural gas E

031 Conversion kit for natural gas LL

032 Conversion kit for LPG

043 Return pipe extension

044 Flow switch

050 Condensate hose

055 Differential pressure sensor

056 Gas valve

057 Grommets

058 Holder spring pack

059 Siphon

086 Thermocouple (100 °C)

087 Temperature sensor (incl.
item 049)

088 Ignition unit

091 Gas pipe

093 Heat exchanger

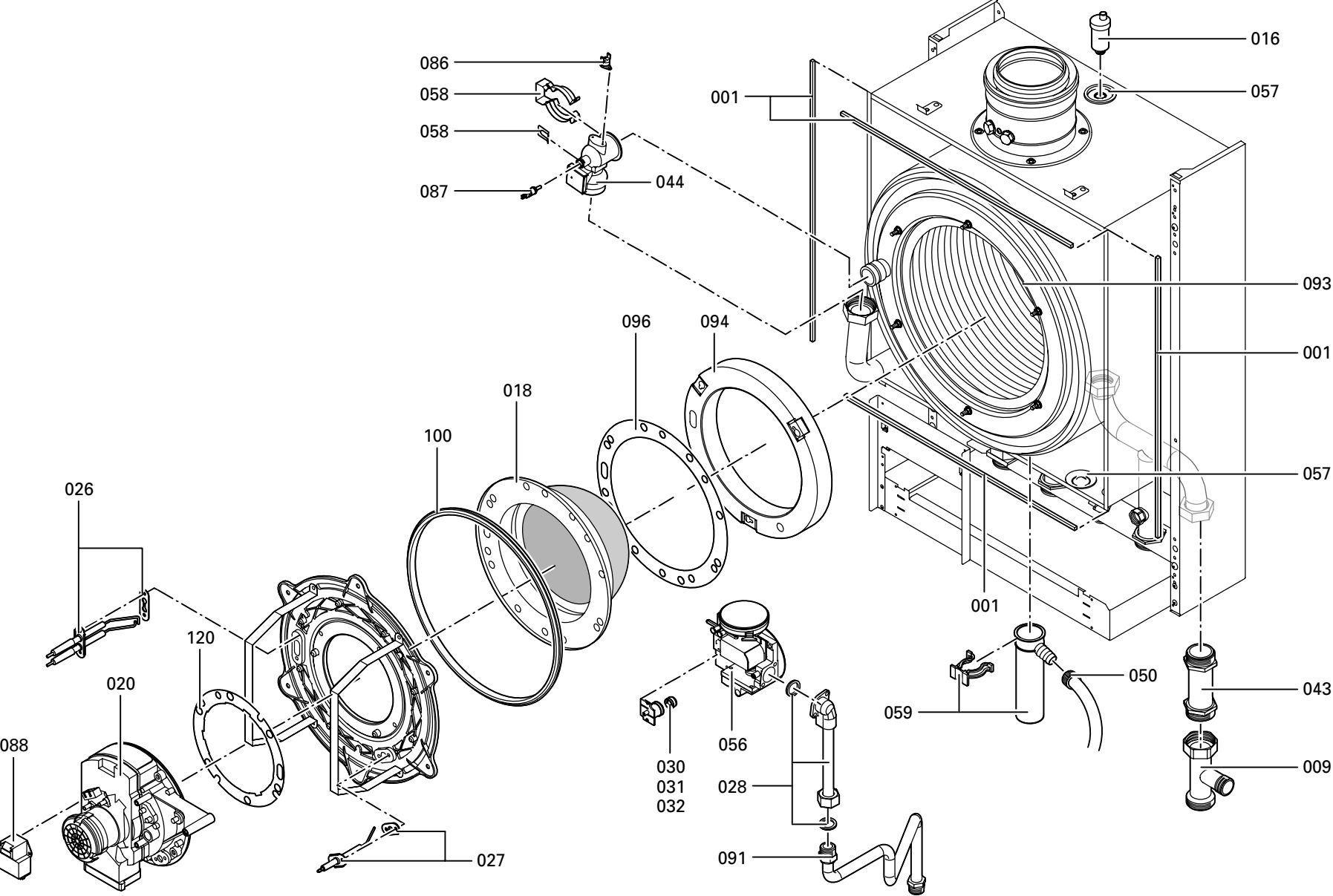
094 Burner insulating ring

096 Burner gauze assy. gasket, large

100 Burner profile packing

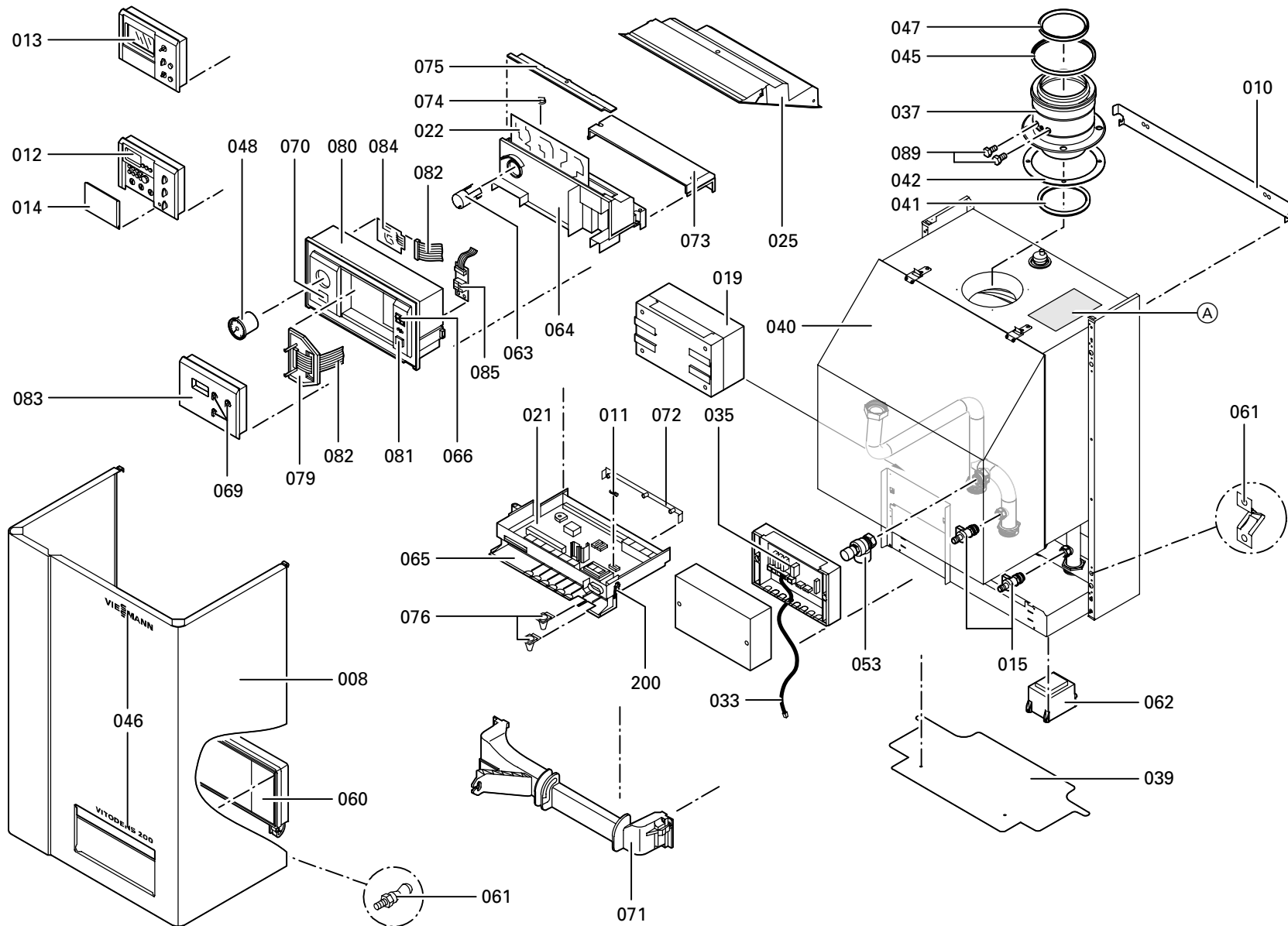
120 Burner gauze gasket

Parts list (cont.)



5692 485 GB

Parts list (cont.)



Parts list (cont.)**Parts**

008 Front panel (incl. items 046, 060 and 061)
 010 Wall mounting frame
 011 Fuse 6.3 amp (slow)
 012 Standard programming unit
 013 Comfortrol programming unit
 014 Hinged flap for standard programming unit
 015 Ball valve
 019 Electronic box – radial fan
 021 Burner control unit LGM29
 022 PCB VR20
 025 Protective cover, control unit
 033 Junction box supply cable
 035 PCB, junction box
 037 Boiler adaptor
 039 Access panel
 040 Sealing panel
 041 Grommet
 042 Flat seal, boiler connector
 045 Lip seal, ventilation air
 046 Label pack
 047 Lip seal, flue gas
 048 Pressure gauge
 053 Safety valve
 060 Hinged cover
 061 Fixing pack
 062 Transformer
 063 Pressure gauge seat
 064 Connection module cover
 065 Connection module
 066 Rocker switch
 069 Rotary selectors for programming unit (3 pieces)
 070 Blanking covers
 071 Mounting bracket
 072 Cable entry strip
 073 Cable gland cover
 074 Potentiometer lid
 075 PCB cover, VR20
 076 Cable gland plug

079 Mounting plate
 080 Programming module
 081 Main ON/OFF button
 082 Ribbon cable, 26 PIN
 083 Programming unit
 084 Adaptor circuit board
 085 Optolink circuit board
 089 Locking screw
 200 Locking bracket

Parts not shown

002 Operating instructions for constant temperature mode
 003 Operating instructions for weather-compensated mode with standard programming unit
 004 Operating instructions for weather-compensated mode with Comfortrol programming unit
 005 Service instructions
 007 Installation instructions
 023 Cable harness "X14"
 024 Cable harness "X11"
 034 Cable harness "X13"
 049 Heat transfer paste
 051 Paint stick, pure white
 052 Spray paint, pure white
 054 Special grease
 067 Ionisation cable harness
 068 Ionisation strapping plug
 077 Female connector for control unit
 078 Control unit pack
 090 Gasket set
 092 Cable harness "X12"
 097 Push plug
 167 Cable ION/PE

Ⓐ Type plate

Commissioning/service report

Setting and test values		Set value	Initial start-up
	Date:		
	By:		
Idle pressure	<i>mbar</i>	max. 57.5 mbar	
Supply pressure (flow pressure)			
<input type="checkbox"/> for natural gas E	<i>mbar</i>	17.4-25 mbar	
<input type="checkbox"/> for natural gas LL	<i>mbar</i>	17.4-25 mbar	
<input type="checkbox"/> for LPG	<i>mbar</i>	42.5-57.7 mbar	
<i>Tick gas type</i>			
Carbon dioxide content CO₂			
<input checked="" type="checkbox"/> at lower rated output	<i>% by vol.</i>		
<input checked="" type="checkbox"/> at higher rated output	<i>% by vol.</i>		
Oxygen content O₂			
<input checked="" type="checkbox"/> at lower rated output	<i>% by vol.</i>		
<input checked="" type="checkbox"/> at higher rated output	<i>% by vol.</i>		
Carbon monoxide content CO			
<input checked="" type="checkbox"/> at lower rated output	<i>ppm</i>		
<input checked="" type="checkbox"/> at higher rated output	<i>ppm</i>		
Ionisation current	<i>μA</i>	min. 3 μA	

Maint./service

Maint./service

Maint./service

Maint./service

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Commissioning/service report (cont.)

Setting and test values		Set value	Maint./service
	Date:		
	By:		
Idle pressure	<i>mbar</i>	max. 57.5 mbar	
Supply pressure (flow pressure)			
<input type="checkbox"/> for natural gas E	<i>mbar</i>	17.4-25 mbar	
<input type="checkbox"/> for natural gas LL	<i>mbar</i>	17.4-25 mbar	
<input type="checkbox"/> for LPG	<i>mbar</i>	42.5-57.7 mbar	
<i>Tick gas type</i>			
Carbon dioxide content CO₂			
<input checked="" type="checkbox"/> at lower rated output	<i>% by vol.</i>		
<input checked="" type="checkbox"/> at higher rated output	<i>% by vol.</i>		
Oxygen content O₂			
<input checked="" type="checkbox"/> at lower rated output	<i>% by vol.</i>		
<input checked="" type="checkbox"/> at higher rated output	<i>% by vol.</i>		
Carbon monoxide content CO			
<input checked="" type="checkbox"/> at lower rated output	<i>ppm</i>		
<input checked="" type="checkbox"/> at higher rated output	<i>ppm</i>		
Ionisation current	<i>μA</i>	min. 3 μA	

Maint./service

Maint./service

Maint./service

Maint./service

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Commissioning/service report (cont.)

Setting and test values	Set value	Maint./service
Date:		
By:		
Idle pressure	<i>mbar</i> max. 57.5 mbar	
Supply pressure (flow pressure)		
<input type="checkbox"/> for natural gas E	<i>mbar</i> 17.4-25 mbar	
<input type="checkbox"/> for natural gas LL	<i>mbar</i> 17.4-25 mbar	
<input type="checkbox"/> for LPG	<i>mbar</i> 42.5-57.7 mbar	
<i>Tick gas type</i>		
Carbon dioxide content CO₂		
■ at lower rated output	<i>% by vol.</i>	
■ at higher rated output	<i>% by vol.</i>	
Oxygen content O₂		
■ at lower rated output	<i>% by vol.</i>	
■ at higher rated output	<i>% by vol.</i>	
Carbon monoxide content CO		
■ at lower rated output	<i>ppm</i>	
■ at higher rated output	<i>ppm</i>	
Ionisation current	<i>μA</i> min. 3 μA	

Maint./service

Maint./service

Maint./service

Maint./service

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Specification

Rated voltage:	230 V~	Setting	
Rated frequency:	50 Hz	electronic	
Rated current:	2.5 A~	high limit thermostat	82 °C
Safety class:	I	Setting	
Protection:	IP X4 D acc. to EN 60529, ensure through design and installation	limit thermostat:	100 °C (fixed)
		Pre-fuse (mains) :	max. 16 amp
		Power consumption	
		■ Burner:	max. 105 W
		■ Control unit:	max. 10 VA
Permissible ambient temperature			
■ in use:	0 to +40 °C		
■ in storage and in transport:	-20 to +65 °C		

Specification (cont.)

Gas-fired boiler, category I₂ELL (natural gas version)
category II₂ELL3 P (LPG version)

Rated output range			
– $T_V/T_R = 50/30$ °C	kW	12.2 to 48.6	16.6 to 66.3
– $T_V/T_R = 80/60$ °C	kW	11 to 44	15 to 60
Rated thermal load range	kW	11.6 to 46.3	15.8 to 63.2
Connection values *1 relative to the max. output			
with gas	with H_{UB}		
Natural gas E	9.45 kWh/m ³ 34.01 MJ/m ³	m ³ /h	4.90
Natural gas LL	8.13 kWh/m ³ 29.25 MJ/m ³	m ³ /h	5.69
LPG	12.79 kWh/kg 46.04 MJ/kg	kg/h	3.62
			6.69
			7.77
			4.94
Product characteristics (acc. to EnEV)			
Efficiency η at			
– 100 % of rated output	%	97.2	97.3
– 30 % of rated output	%	107.1	107.3
Standby losses $q_{B,70}$	%	0.5	0.4
Power consumption *2 at			
– 100 % of rated output	W	277	321
– 30 % of rated output	W	92	107

*1The connection values are only for reference (e.g. in the gas contract application) or to roughly check the supplementary volumetric settings.

Because of the factory settings, the gas pressure must not be altered from these values.

Reference: 15 °C, 1013 mbar

*2Standard characteristics

Gas restrictors

Boiler for	Rated output range (kW) ($T_V/T_R = 80/60$ °C)	11 to 44	15 to 60
Natural gas E	Gas restrictor ID with	E 44	E 60
Natural gas LL	Gas restrictor ID with	LL 44	LL 60
LPG P	Gas restrictor ID with	P 44	P 60

Declaration of conformity for Vitodens 200

We, Viessmann Werke GmbH&Co, D-35107 Allendorf, declare as sole responsible body, that the product with the type code

Vitodens 200

conforms to the following standards:

DIN 4702-6
EN 297
EN 483
EN 625
EN 677
EN 50 165
EN 60 335
EN 61 000-3-2
EN 61 000-3-3

This product is identified in accordance with the following guidelines:

73/ 23/EEC
89/336/EEC
90/396/EEC
92/ 42/EEC

as follows:

CE-0085

Efficiency Guidline conformity via an appropriate body in accordance with EMVG article 10.2, certification number: E9 02 08 1730:

Condensing boilers

The **product characteristics determined** as system values for **Vitodens 200 as part of EC type testing acc. to the Efficiency Guideline** (see Specification table), can be utilised to assess the energy consumption of heating and ventilation equipment acc. to DIN V 4701-10, which is prescribed by the EnEV.

Manufacturer's certificate acc. to 1st BImSchV

We, Viessmann Werke GmbH&Co, D-35107 Allendorf, confirm that the following product meets the NO_x limits specified by the 1st BImSchV paragraph 7 (2):

Vitodens 200

Allendorf, the 1st October 2002

Viessmann Werke GmbH&Co



pp. Manfred Sommer

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