

Service instructions

for contractors

VIESSMANN

Vitodens 200-W

Type **WB2B**, 45 and 60 kW

Wall mounted gas fired condensing boiler

Natural gas and LPG version

For applicability, see the last page



VITODENS 200-W



Safety instructions



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

Safety instructions explained



Danger

This symbol warns against the risk of injury.



Please note

This symbol warns against the risk of material losses and environmental pollution.

Note

Details identified by the word "Note" contain additional information.

Target group

These instructions are exclusively designed for qualified personnel.

- Work on gas equipment must only be carried out by a qualified gas fitter.
- Work on electrical equipment must only be carried out by a qualified electrician.
- The system must be commissioned by the system installer or a qualified person authorised by the installer.

Regulations

Observe the following when working on this system

- all legal instructions regarding the prevention of accidents,
- all legal instructions regarding environmental protection,

- the Code of Practice of relevant trade associations,
- all current safety regulations as defined by DIN, EN, DVGW, TRGI, TRF, VDE and all locally applicable standards.

If you smell gas



Danger

Escaping gas can lead to explosions which may result in serious injury.

- Never smoke. Prevent naked flames and sparks. Never switch lights or electrical appliances ON or OFF.
- Close the gas shut-off valve.
- Open windows and doors.
- Remove all people from the danger zone.
- Notify your gas or electricity supplier from outside the building.
- Shut off the electricity supply to the building from a safe place (outside the building).

If you smell flue gas



Danger

Flue gas can lead to life-threatening poisoning.

- Shut down the heating system.
- Ventilate the boiler room.
- Close all doors leading to the living space.

Safety instructions (cont.)

Working on the system

- When using gas as fuel, also close the main gas shut-off valve and safeguard against unauthorised reopening.
- Isolate the system from the power supply and check that it is no longer 'live', e.g. by removing a separate fuse or by means of a main isolator.
- Safeguard the system against unauthorised reconnection.



Please note

Electronic modules can be damaged by electro-static discharges.
Touch earthed objects, such as heating or water pipes, to discharge static loads.

Repair work



Please note

Repairing components which fulfil a safety function can compromise the safe operation of your heating system.
Replace faulty components only with original Viessmann spare parts.

Ancillary components, spare and wearing parts



Please note

Spare and wearing parts which have not been tested together with the heating system can compromise its function. Installing non-authorised components and non-approved modifications/conversion can compromise safety and may invalidate our warranty.
For replacements, use only original spare parts from Viessmann or those which are approved by Viessmann.

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Steps - commissioning, inspection and maintenance

For further information regarding the individual steps, see the page indicated

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Steps - commissioning, inspection and . . . (cont.)

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Further details regarding the individual steps

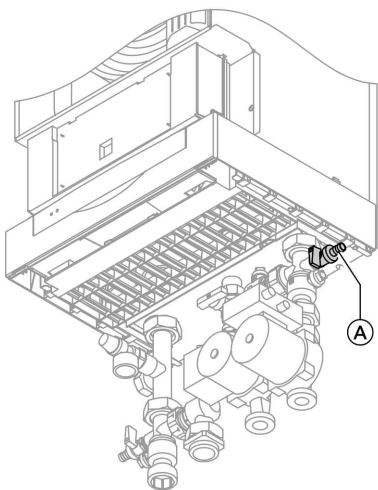
Filling the heating system



Please note

Unsuitable fill water increases the level of deposits and corrosion and may lead to boiler damage.

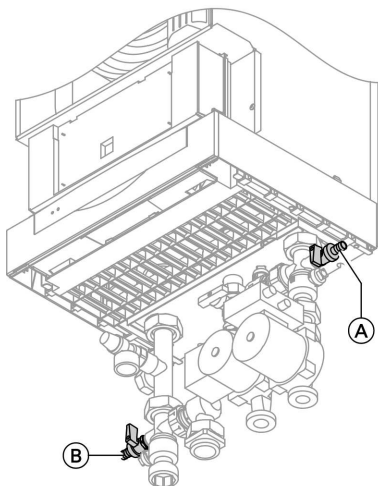
- Thoroughly flush the entire heating system prior to filling it with water.
- Only use fill water of potable quality.
- Soften fill water with a water hardness in excess of the following values, e.g. with a small softening system for heating water (see the Viessmann Vitoset pricelist):
 - Vitodens 200-W to 45 kW: 3.0 mol/m³
 - Vitodens 200-W from 60 kW and multi-boiler systems: 2.0 mol/m³
- An antifreeze additive suitable for heating systems can be mixed with the fill water. The antifreeze manufacturer must verify its suitability.



1. Check the inlet pressure of the diaphragm expansion vessel.
2. Close the gas shut-off valve.
3. Fill the heating system at the boiler fill & drain valve (A) (on the connection set, accessories or on-site). (Minimum system pressure > 1.0 bar).
4. Close boiler fill & drain valve (A).

Further details regarding the individual steps (cont.)

Venting the boiler



1. Close the shut-off valves on the heating water side.
2. Connect the drain hose at the boiler fill & drain valve (B) (on the connection set, accessories or on-site).
3. Open valves (A) and (B) and vent using mains pressure until no more air noise is audible.
4. Close valves (A) and (B) and open the heating water shut-off valves.

Venting the heating system

1. Close the gas shut-off valve and switch ON the control unit ON/OFF switch.
2. Activate the venting program via coding address "2F:1".

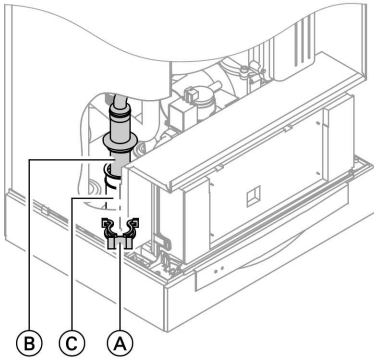
Note

To call up code 1 and for setting the coding address, see page 37.
For function and sequence of the venting program, see page 99.
Whilst the venting program runs, the display shows **"EL"** (constant temperature control unit) or **"Entlüftung"** (venting) (weather-compensated control unit).

3. Check the system pressure.

Further details regarding the individual steps (cont.)

Filling the siphon with water



1. Remove retaining clip (A) and pull out insert (B).
2. Fill siphon (C) with water and reassemble.

Note
Install the supply hose the correct way round.

Setting the time and date (if required) – only for weather-compensated control units

Note

- During commissioning, or after a prolonged time out of use, it may be necessary to reset the time and date, if the time flashes in the display.
- During commissioning these terms appear in German (delivered condition):

Date (see step 2)



Time (see step 1)



Press the following keys:

1. (+)/(-) for the current time.
2. (OK) to confirm; "Datum" (date) is displayed.
3. (+)/(-) for the current date.
4. (OK) to confirm.

Further details regarding the individual steps (cont.)

Selecting the language (if required) – only for weather-compensated control units

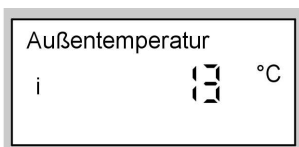
Note

When the unit is first taken into operation the display is in German (default language setting):

Select heating circuit (see step 1.)



Outside temperature (see step 3.)



Press the following keys:

1. **i** "Heizkreis wählen" (select heating circuit) is displayed.
2. **OK** to confirm; wait approx. 4 s.
3. **i** press this button again, "Außentemperatur" (outside temperature) is displayed.
4. **-** for the required language.
5. **OK** to confirm.

Checking the gas type

The boiler is equipped with an electronic combustion control unit that adjusts the burner for optimum combustion in accordance with the prevailing gas quality.

- The boiler can be operated with natural gas in the Wobbe index range 10.0 to 16.1 kWh/m³ (36.0 to 58.0 MJ/m³) without conversion.
- Convert the burner for operation with LPG (see "Gas type conversion" on page 11).

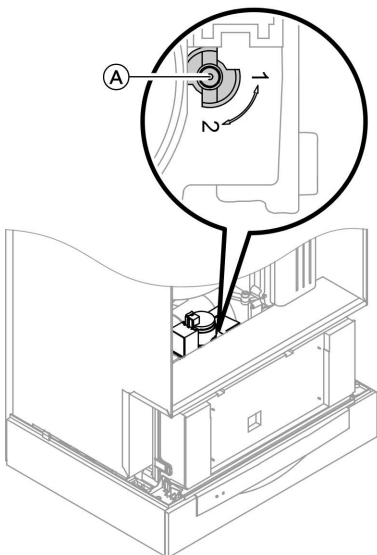
1. Determine the gas type and Wobbe index by asking your local gas supply utility or LPG supplier.
2. Convert the burner for operation with LPG (see page 11).
3. Record the gas type in the service report on page 115.

Further details regarding the individual steps (cont.)

Wobbe index ranges

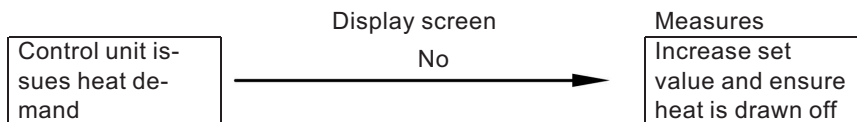
| Gas type | Wobbe index range | |
|---------------------|--------------------|-------------------|
| | kWh/m ³ | MJ/m ³ |
| Delivered condition | | |
| Natural gas E | 12.0 to 16.1 | 43.2 to 58.0 |
| or | | |
| Natural gas LL | 10.0 to 13.1 | 36.0 to 47.2 |
| After conversion | | |
| LPG P | 20.3 to 21.3 | 72.9 to 76.8 |

Gas type conversion (only for operation with LPG)

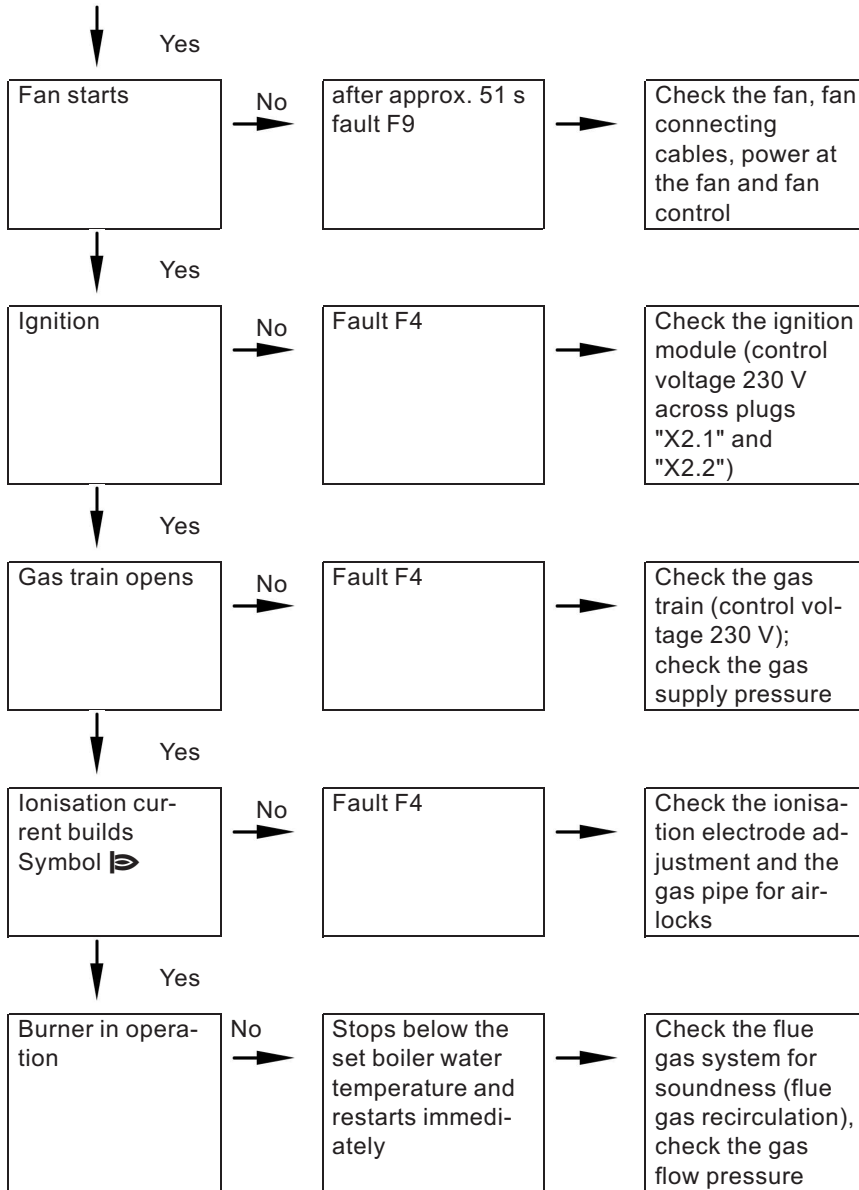


1. Set adjusting screw (A) at the gas train to "2".
2. Switch ON/OFF switch "N" ON.
3. Adjust the gas type in coding address "82" (for a detailed description of the individual steps, see page 88):
 - Call up code 2
 - In coding address "11", select value "9"
 - In coding address "82", select value "1" (operation with LPG)
 - In code "11" select value ≠ "9".
 - Terminate code 2.
4. Open the gas shut-off valve.

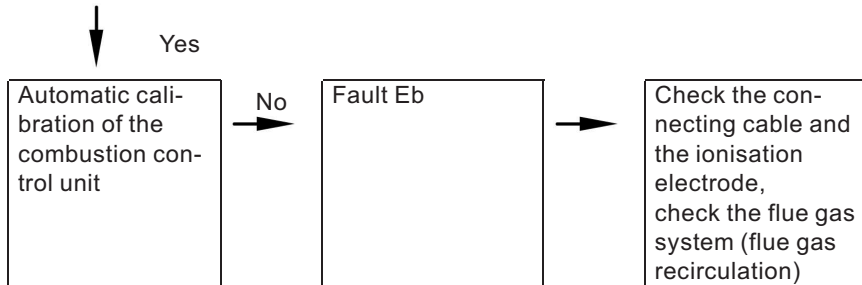
Function sequence and possible faults



Further details regarding the individual steps (cont.)



Further details regarding the individual steps (cont.)



For further details regarding faults, see page 71.

Checking the static and supply pressure



Danger

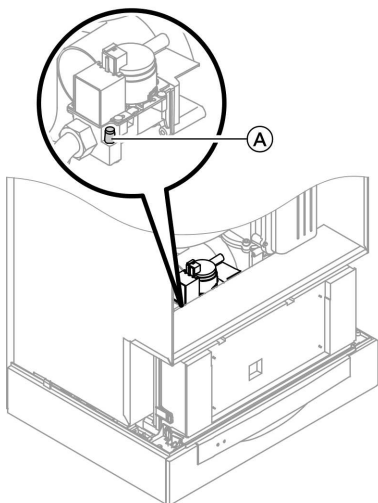
CO build-up as a result of an incorrect burner setup can have serious health implications.

Carry out a CO test prior to and after work on gas equipment.

Operation with LPG

Flush the LPG tank twice during commissioning/replacement. Thoroughly vent the tank and gas supply lines after flushing.

Further details regarding the individual steps (cont.)



1. Close the gas shut-off valve.
2. Release screw (A) inside test connector "PE" on the gas train, but do not remove it; then connect the pressure gauge.
3. Open the gas shut-off valve.
4. Measure the static pressure and record it in the service report on page 115.
Set value: max. 57.5 mbar.
5. Start the boiler.

Note

During commissioning, the boiler can enter a fault state because of airlocks in the gas pipe. After approx. 5 s press "↑ RESET" to reset the burner.


6. Check the supply (flow) pressure.
Set values:
 - Natural gas 20 mbar
 - LPG 50 mbar

Note

Use suitable test equipment with a resolution of at least 0.1 mbar to measure the supply pressure.

7. Record the actual value in the service report.
Take the action shown in the following table.
8. Shut down the boiler, close the gas shut-off valve, remove the pressure gauge and close test port (A) with the screw.

Further details regarding the individual steps (cont.)

9.  **Danger**
 Gas escaping from the test nipple leads to a risk of explosions.
 Check for soundness.






Open the gas shut-off valve, start the boiler and check for soundness at test connector (A).

| Supply (flow) pressure for natural gas | Supply (flow) pressure for LPG | Measures |
|--|--------------------------------|---|
| below 15 mbar | below 42.5 mbar | Do not start the boiler. Notify your mains gas or LPG supplier. |
| 15 to 25 mbar | 42.5 to 57.5 mbar | Start the boiler. |
| above 25 mbar | above 57.5 mbar | Install a separate gas pressure governor upstream of the system and regulate the inlet pressure to 20 mbar for natural gas or 50 mbar for LPG. Notify your mains gas or LPG supplier. |

Setting the maximum output

Note

You can limit the maximum output for **heating operation**. The limit is set via the modulation range. The max. adjustable heating output is limited upwards by the boiler coding card.

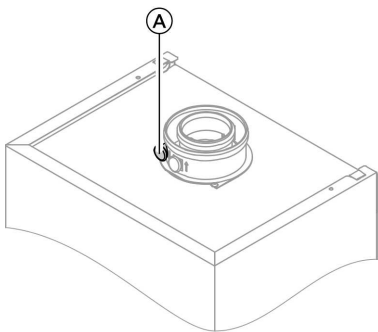
1. Start the boiler.
2. Press  and  simultaneously until a value flashes (e.g. "85") and "►" appears. In the delivered condition, this value represents 100 % of rated output.
 On weather-compensated control units, the display additionally shows **"Max. output"**.
3. With  /  select the required value in % of rated output as maximum output.
4. Confirm the set value with .
5. Record the settings for maximum output on the additional type plate included with the "technical documentation". Affix the type plate next to the original type plate on top of the boiler.

Further details regarding the individual steps (cont.)

Note

The output can also be limited for DHW heating. For this, change coding address "6F" in code 2.

Checking the balanced flue system for soundness (annular gap check)



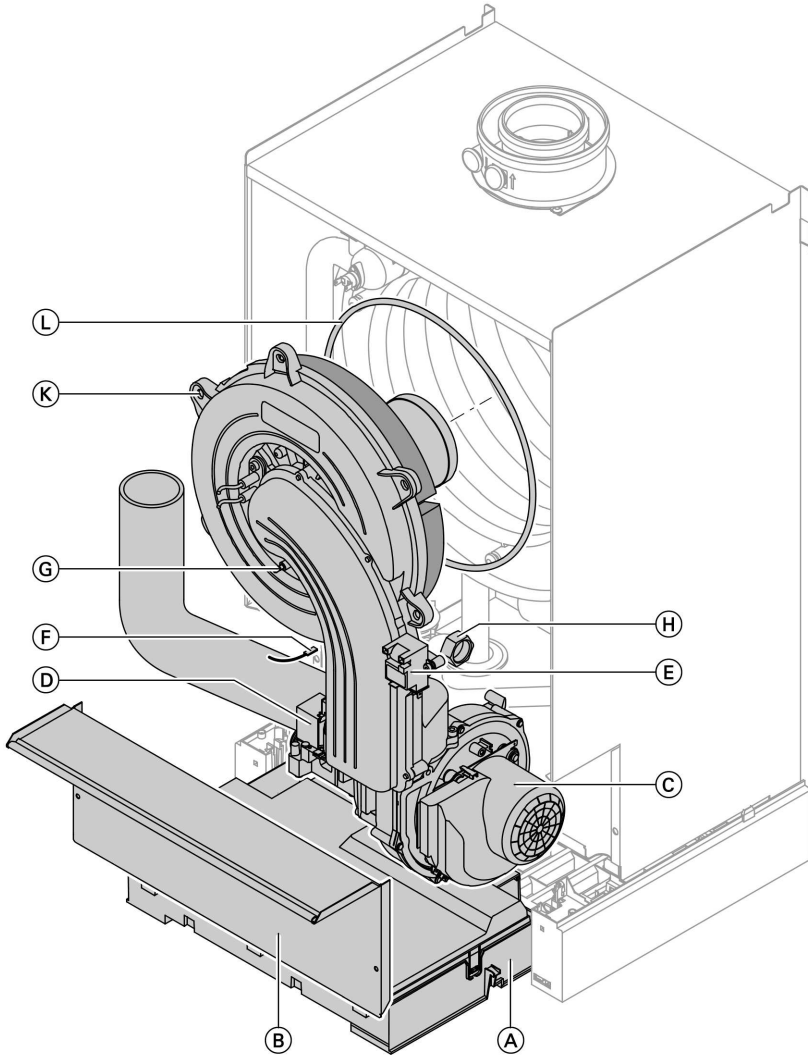
Ⓐ Combustion air port

For balanced flue systems tested together with the wall mounted gas fired boiler, some authorities waive the requirement for a soundness test (overpressure test) during commissioning by the flue gas inspector. We recommend that your heating engineer carries out a simple soundness test during the commissioning of your system. For this, it would be sufficient to check the CO₂ or O₂ concentration in the combustion air at the annular gap of the balanced flue pipe.

The flue pipe is deemed to be sound if the CO₂ concentration in the combustion air is no higher than 0.2 % or the O₂ concentration is at least 20.6 %. If actual CO₂ values are higher or O₂ values are lower, then pressure test the flue pipe with a static pressure of 200 Pa.

Further details regarding the individual steps (cont.)

**Removing the burner and checking the burner gasket
(replace gasket every 2 years)**

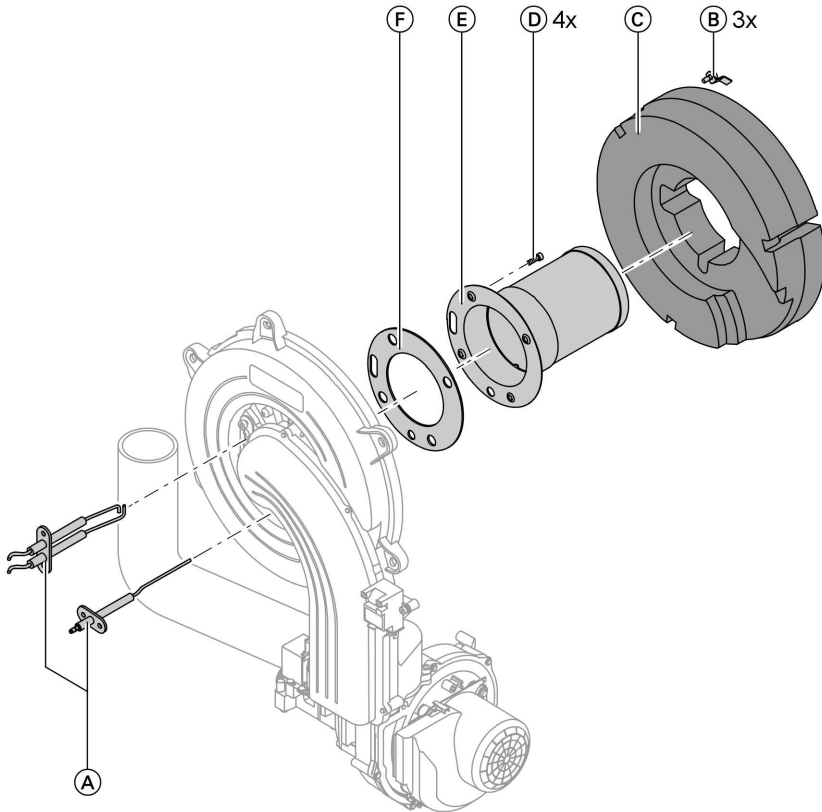


Further details regarding the individual steps (cont.)

1. Switch OFF the main power supply at the control unit and the ON/OFF switch.
2. Close the gas shut-off valve and safeguard against reopening.
3. Pivot control unit (A) forward.
4. Remove cover panel (B).
5. Pull cables from fan motor (C), gas train (D), ignition unit (E), earth tab (F) and ionisation electrode (G).
6. Release gas supply pipe (H) fitting.
7. Undo six screws (K) and remove the burner.
8. Check burner gasket (L) for damage.
Generally replace the burner gasket **every 2 years**.

Further details regarding the individual steps (cont.)

Checking the burner gauze assembly & replacing, if required

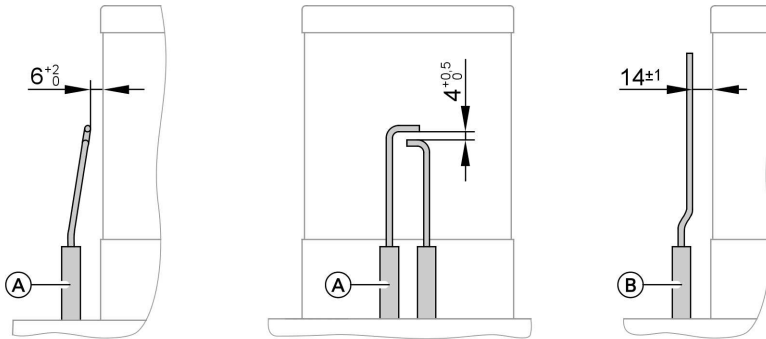


1. Remove electrodes (A).
2. Undo three retaining clips (B) at thermal insulation ring (C) and remove thermal insulation ring (C).
3. Release four Torx screws (D) and remove burner gauze assembly (E).
4. Remove old burner gauze assembly gasket (F).
5. Insert a new burner gauze assembly with a new gasket and secure with four Torx screws.
6. Refit the thermal insulation ring (C) and electrodes (A).

Note
Torque: 4.5 Nm

Further details regarding the individual steps (cont.)

Checking and adjusting the ignition and ionisation electrodes



(A) Ignition electrodes

(B) Ionisation electrode

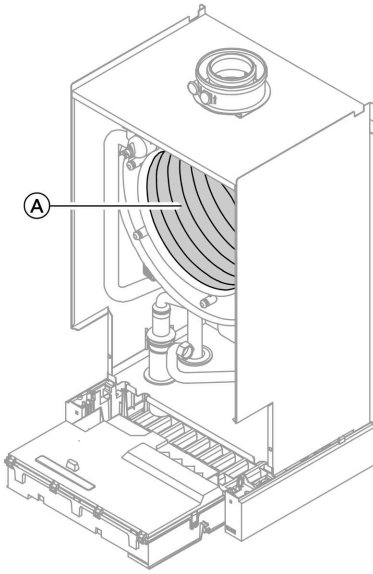
1. Check the electrodes for wear and contamination.
2. Clean the electrodes with a small brush (not with a wire brush) or emery paper.
3. Check the electrode gaps. If the gaps are not as specified or the electrodes are damaged, replace and align the electrodes together with new gaskets. Tighten the electrode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

! **Please note**
Do not damage
the wire gauze.

Cleaning the combustion chamber/heat exchanger and installing the burner

- !** **Please note**
Scratches on parts that are in contact with flue gases can lead to corrosion.
Only use plastic brushes and NOT wire brushes.

Further details regarding the individual steps (cont.)



1. If required, clean heating surfaces (A) with a brush or flush with water.
Apply a solvent and potassium-free cleaning agent if 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).
 - Thoroughly flush with water.

Note

*Fauch 600 and Antox 75 E are supplied by
Hebro Chemie GmbH
Rostocker Straße 40
D 41199 Mönchengladbach*

2. Install the burner and torque screws diagonally with 12 Nm.
3. Fit the gas supply pipe with a new gasket. Torque fittings with 10 Nm.
4. Check the gas connections for soundness.



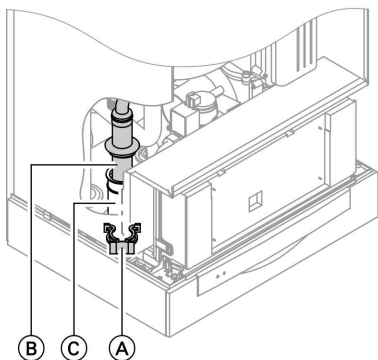
Danger

Escaping gas leads to a risk of explosion.
Check all fittings for soundness.

5. Connect the electrical cables/leads to each corresponding component.

Further details regarding the individual steps (cont.)

Checking the condensate drain and cleaning the siphon



1. Remove retaining clip (A) and pull out insert (B).
2. Clean siphon (C) and check that the condensate can freely drain off.
3. Fill siphon (C) with water and reassemble.

Note

Never twist the supply hose during assembly.

Checking the diaphragm expansion vessel and system pressure

Note

Carry out this test on a cold system.

1. Drain the system, or close the cap valve on the diaphragm expansion vessel and reduce the pressure, until the pressure gauge indicates "0".
2. If the inlet pressure of the diaphragm expansion vessel is lower than the static system pressure, top up with nitrogen until the inlet pressure is raised by 0.1 to 0.2 bar.
3. Top up your heating system with water and vent until the filling pressure of a cooled system is 0.1 to 0.2 bar higher than the inlet pressure of the diaphragm expansion vessel.
Permiss. operating pressure: 4 bar

Checking all gas equipment for soundness at operating pressure



Danger

Escaping gas leads to a risk of explosion.
Check gas equipment for soundness.

Further details regarding the individual steps (cont.)

Flue gas emissions test

The electronic combustion control unit automatically ensures an optimum combustion quality. Only the combustion values need to be checked during commissioning and maintenance. For this, check the CO₂ or O₂ content. For a function description of the electronic combustion control unit, see page 105.

CO₂ or O₂ content

The CO₂ content must be within the following ranges (upper and lower output):

- 7.7 to 9.2% for natural gas E and LL
- 9.3 to 10.9% for LPG P

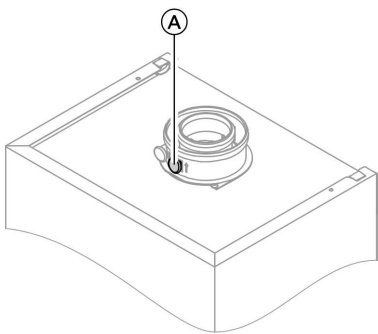
For all gas types, the O₂ content must be between 4.4% and 6.9%.

If the actual CO₂ or O₂ values lie outside their respective ranges, proceed with the following steps:

- Check the balanced flue system for soundness, see page 16.
- Check the ionisation electrode and connecting cable, see page 20.
- Check the parameters of the combustion control unit, see page 88.

Note

During commissioning, the combustion control unit carries out an automatic calibration. This may lead to CO emissions in excess of 1000 ppm for a short time.





1. Connect a flue gas analyser at flue gas port (A) on the boiler flue connection.



2. Open the gas shut-off valve, start the boiler and create a heat demand.

3. Adjust the lower output.

Constant temperature control unit:

-  +  press simultaneously: "1" is shown.

Weather-compensated control unit:

-  +  press simultaneously: "Relay test" and then "Base load" is shown.

Further details regarding the individual steps (cont.)

4. Check the CO₂ content. Should the actual value deviate from the above ranges by more than 1 %, implement steps from page 23.

Weather-compensated control unit:

⊕ press:
"Full load" is shown.

5. Enter actual values into the service report.

7. Check the CO₂ content. Should the actual value deviate from the above ranges by more than 1 %, implement steps from page 23.

6. Adjust the upper output.

Constant temperature control unit:

⊕ press:
"2" is shown.

8. After testing, press ⊙.

9. Enter actual values into the service report.

Matching the control unit to the heating system

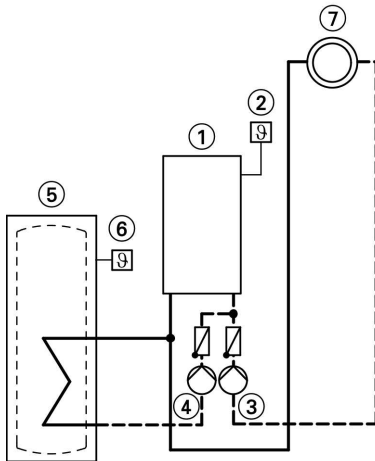
The control unit must be matched to the equipment level of the system. Various system components are recognised automatically by the control unit and the relevant codes are adjusted automatically.

- For the selection of an appropriate design, see the following diagrams.
- For coding steps, see page 37.

Further details regarding the individual steps (cont.)

System version 1

One heating circuit without mixer A1 (with/without DHW heating)



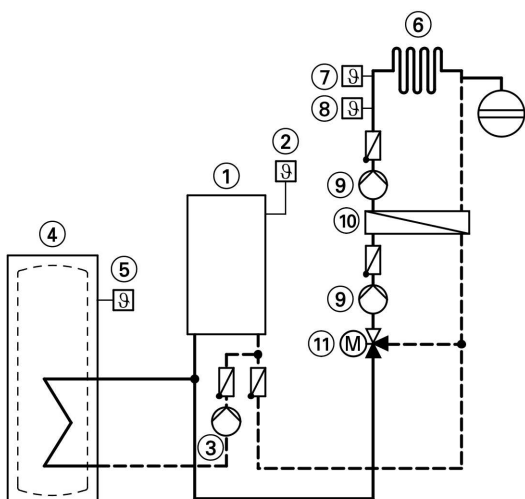
- ① Vitodens 200-W
- ② Outside temperature sensor (only for weather-compensated control units)
or
Vitolrol 100 (only for constant temperature control units)
- ③ Heating circuit pump
- ④ Cylinder primary pump
- ⑤ DHW cylinder
- ⑥ Cylinder temperature sensor
- ⑦ Heating circuit without mixer A1

| Required coding | Address |
|---|---------|
| Function relay of the internal extension: Cylinder primary pump | 53:3 |

Further details regarding the individual steps (cont.)

System version 2

One heating circuit with mixer M2 with system separation (with/without DHW heating)



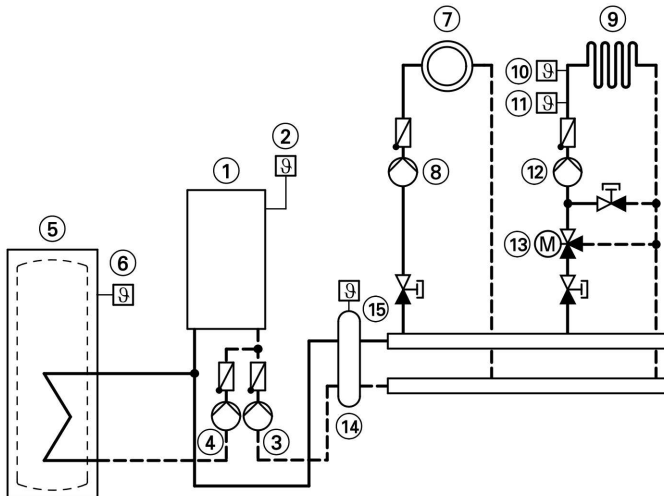
- ① Vitodens 200-W
- ② Outside temperature sensor
- ③ Cylinder primary pump
- ④ DHW cylinder
- ⑤ Cylinder temperature sensor
- ⑥ Heating circuit with mixer M2
- ⑦ Temperature limiter for limiting the max. temp. of underfloor heating systems
- ⑧ Flow temperature sensor M2
- ⑨ Heating circuit pump M2
- ⑩ Heat exchanger for system separation
- ⑪ Extension kit for one heating circuit with mixer M2

| Required coding | Address |
|---|---------|
| One heating circuit with mixer | |
| ■ with DHW cylinder | 00:4 |
| ■ without DHW cylinder | 00:3 |
| Function relay of the internal extension: Cylinder primary pump | 53:3 |

Further details regarding the individual steps (cont.)

System version 3

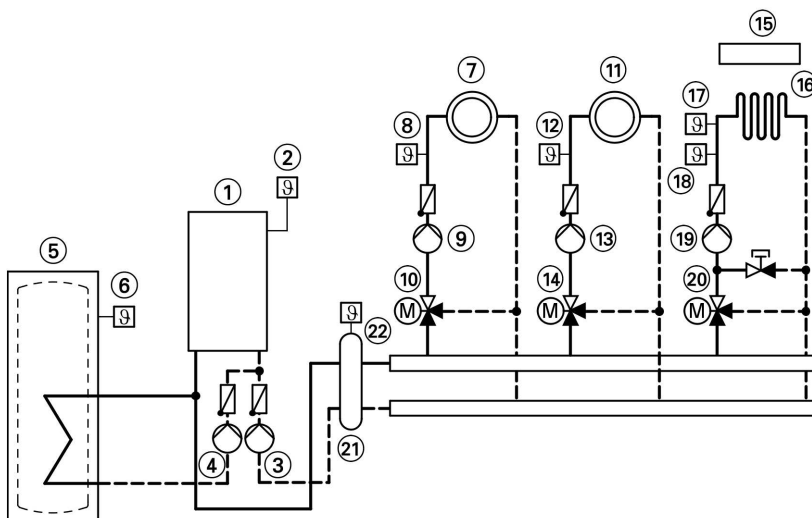
One heating circuit without mixer A1 and one heating circuit with mixer M2, with low loss header (with/without DHW heating)



- | | |
|------------------------------------|---|
| ① Vitodens 200-W | ⑩ Temperature limiter for limiting the max. temp. of underfloor heating systems |
| ② Outside temperature sensor | ⑪ Flow temperature sensor M2 |
| ③ Boiler circuit pump | ⑫ Heating circuit pump M2 |
| ④ Cylinder primary pump | ⑬ Extension kit for one heating circuit with mixer M2 |
| ⑤ DHW cylinder | ⑭ Low loss header |
| ⑥ Cylinder temperature sensor | ⑮ Flow temperature sensor, low loss header |
| ⑦ Heating circuit without mixer A1 | |
| ⑧ Heating circuit pump A1 | |
| ⑨ Heating circuit with mixer M2 | |

Further details regarding the individual steps (cont.)

System version 4
Three or more heating circuits with mixer and low loss header (with/without DHW heating)



- ① Vitodens 200-W
- ② Outside temperature sensor
- ③ Boiler circuit pump
- ④ Cylinder primary pump
- ⑤ DHW cylinder
- ⑥ Cylinder temperature sensor
- ⑦ Heating circuit with mixer M1
- ⑧ Flow temperature sensor M1
- ⑨ Heating circuit pump M1
- ⑩ Extension kit for one heating circuit with mixer M1
- ⑪ Heating circuit with mixer M2
- ⑫ Flow temperature sensor M2
- ⑬ Heating circuit pump M2
- ⑭ Extension kit for one heating circuit with mixer M2
- ⑮ Vitotronic 200-H
- ⑯ Heating circuit with mixer M3
- ⑰ Temperature limiter for limiting the max. temp. of underfloor heating systems
- ⑱ Flow temperature sensor M3
- ⑲ Heating circuit pump M3
- ⑳ Extension kit for one heating circuit with mixer M3
- ㉑ Low loss header
- ㉒ Flow temperature sensor, low loss header

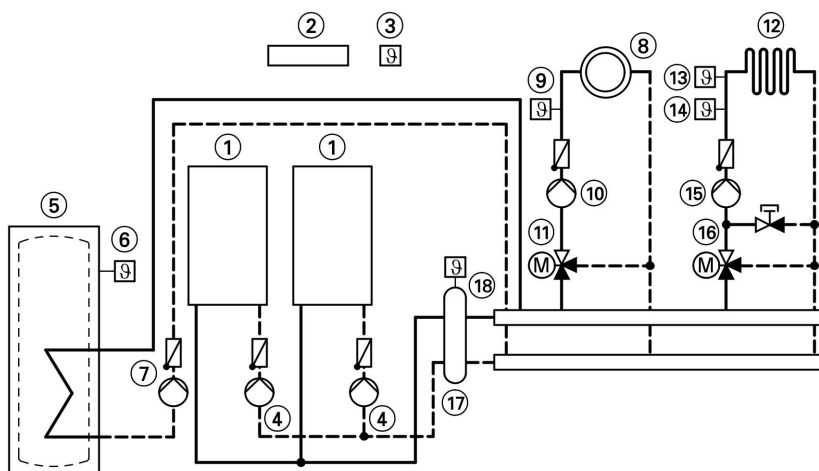
| Required coding | Address |
|---|---------|
| Function relay of the internal extension: Cylinder primary pump | 53:3 |

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Further details regarding the individual steps (cont.)

System version 5

Multi-boiler system with several heating circuits with mixer and low loss header (with/without DHW heating)



- | | |
|--|---|
| <ul style="list-style-type: none"> ① Vitodens 200-W ② Vitotronic 300-K ③ Outside temperature sensor ④ Boiler circuit pump ⑤ DHW cylinder ⑥ Cylinder temperature sensor ⑦ Cylinder primary pump ⑧ Heating circuit with mixer M2 ⑨ Flow temperature sensor M2 ⑩ Heating circuit pump M2 ⑪ Extension kit for one heating circuit with mixer M2 | <ul style="list-style-type: none"> ⑫ Heating circuit with mixer M3 ⑬ Temperature limiter for limiting the max. temp. of underfloor heating systems ⑭ Flow temperature sensor M3 ⑮ Heating circuit pump M3 ⑯ Extension kit for one heating circuit with mixer M3 ⑰ Low loss header ⑱ Flow temperature sensor, low loss header |
|--|---|

| Required coding | Address |
|---|---------|
| Multi-boiler system with Vitotronic 300-K | 01:2 |

Further details regarding the individual steps (cont.)

Note

Codes for multi-boiler system, see
Vitoltronic 300-K installation and service instructions

Adjusting the heating curves (only for weather-compensated control units)

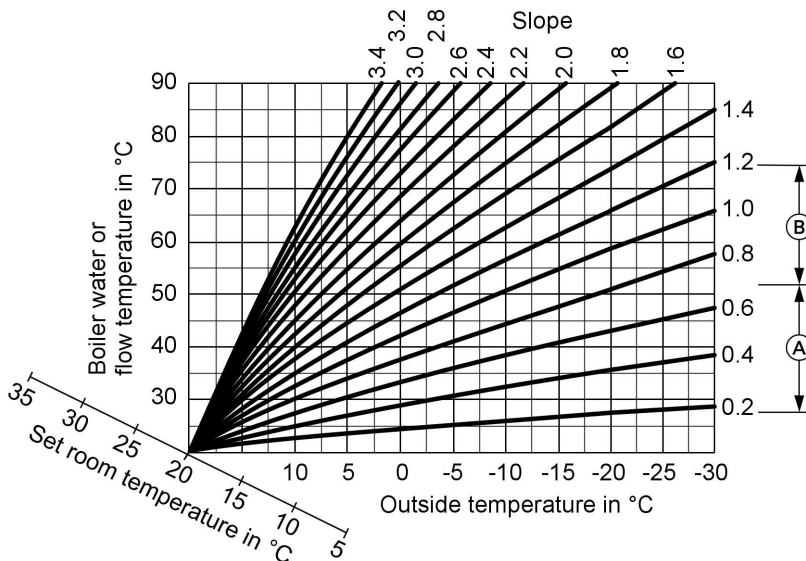
The heating curves illustrate the relationship between the outside temperature and the boiler water or flow temperature.

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.

Settings in the delivered condition:

- Slope = 1.4
- Level = 0

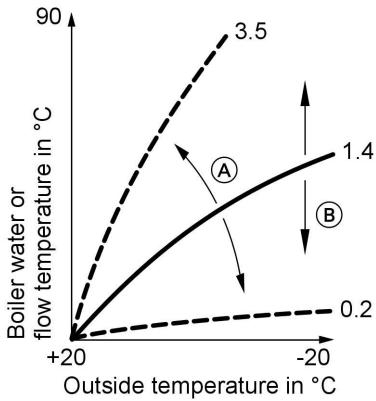


Ⓐ Heating curve slope for underfloor heating systems

Ⓑ Heating curve slope for low temperature heating systems (according to the Energy Savings Order [Germany])

Further details regarding the individual steps (cont.)

Changing the slope and level



- (A) Changing the slope
- (B) Changing the level (vertical parallel offset of the heating curve)

1. Slope:

Change with coding address "d3" in code 1.
Setting range 2 to 35 (equals slope 0.2 to 3.5).

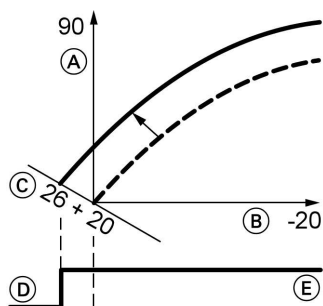
2. Level:

Change with coding address "d4" in code 1.
Setting range -13 to +40 K.

Further details regarding the individual steps (cont.)

Adjusting the set room temperature

Standard room temperature



Example 1: Adjustment of standard room temperature from 20 to 26 °C

- (A) Boiler water temperature or flow temperature in °C
- (B) Outside temperature in °C
- (C) Set room temperature in °C
- (D) Heating circuit pump "OFF"
- (E) Heating circuit pump "ON"

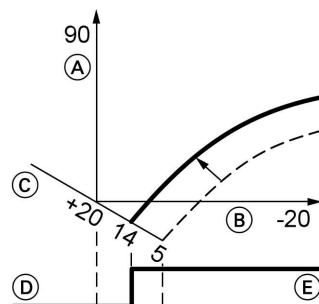
Press the following keys:

1. \oplus "1 IIII" flashes.
2. OK to select heating circuit A1 (heating circuit without mixer)
or
3. \oplus "2 IIII" flashes.
4. OK to select heating circuit with mixer M2.

5. Adjust the set day temperature with rotary selector "↓☀".

The value will be automatically accepted after approx. 2 s. Accordingly, the heating curve is adjusted along set room temperature axis (C), which results in modified start/stop characteristics of the heating circuit pumps if heating circuit pump logic function is active.

Reduced room temperature









Example 2: Adjustment of reduced room temperature from 5 °C to 14 °C

- (A) Boiler water temperature or flow temperature in °C
- (B) Outside temperature in °C
- (C) Set room temperature in °C
- (D) Heating circuit pump "OFF"
- (E) Heating circuit pump "ON"

Press the following keys:

1. \oplus "1 IIII" flashes.


Further details regarding the individual steps (cont.)

- 2.  to select heating circuit A1 (heating circuit without mixer)
or
- 3.  "2■■■" flashes.
- 4.  to select heating circuit with mixer M2.
- 5.  Call up the set night temperature.
- 6.  Change the value.
- 7.  Confirm the value.

Connecting the control unit to the LON system (only for weather-compensated control units)

The LON communication module (accessories) must be plugged in.

Note
The data transfer via LON can take several minutes.



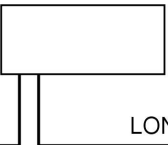
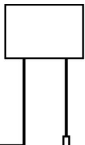
 Installation instructions
LON communication module

Single boiler system with Vitotronic 200-H and Vitocom 300

Set up the LON subscriber numbers and further functions via code 2 (see the following table).

Note
*In the same LON system, the same number **cannot** be allocated twice.*

Only one Vitotronic may be programmed as fault manager.

| Boiler control unit | Vitotronic 200-H | Vitotronic 200-H | Vitocom |
|---|---|---|---|
|  |  |  |  |
| Subscriber no. 1 Code "77:1" | Subscriber no. 10 Code "77:10" | Subscriber no. 11 Set code "77:11" | Subscriber no. 99 |
| Control unit is fault manager Code "79:1" | Control unit is not fault manager Code "79:0" | Control unit is not fault manager Code "79:0" | Device is fault manager |
| Control unit transmits the time Code "7b:1" | Control unit receives the time Set code "81:3" | Control unit receives the time Set code "81:3" | Device receives the time |

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Further details regarding the individual steps (cont.)



| Boiler control unit | Vitotronic 200-H | Vitotronic 200-H | Vitocom |
|--|---|---|---------|
| Control unit transmits outside temperature Set code "97:2" | Control unit receives outside temperature Set code "97:1" | Control unit receives outside temperature Set code "97:1" | — |
| LON subscriber fault monitoring Code "9C:20" | LON subscriber fault monitoring Code "9C:20" | LON subscriber fault monitoring Code "9C:20" | — |

Updating the LON subscriber list

Only possible if all subscribers are connected and the control unit is programmed to be fault manager (code "79:1").

2.  The subscriber list is updated after approx. 2 min.
The subscriber check is completed.

Press the following keys:

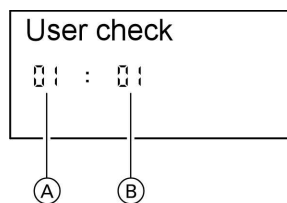
1.  +  simultaneously for approx. 2 s.
Subscriber check initiated (see page 34).

Carrying out a subscriber check

Communication with the system devices connected to the fault manager is tested with a subscriber check.

Precondition:

- The control unit must be programmed as **fault manager** (code "79:1")
- The LON subscriber number must be programmed in all control units (see page 33)
- The LON subscriber list in the fault manager must be up to date (see page 33)



- (A) Consecutive number in the subscriber list
- (B) Subscriber number

Further details regarding the individual steps (cont.)

Press the following keys:

- | | |
|--|---|
| <p>1. + simultaneously for approx. 2 s. The subscriber check has been initiated.</p> <p>2. for the required subscriber.</p> <p>3. Check is enabled "Check" flashes until its completion. The display and all key illuminations for the selected subscriber flash for approx. 60 s.</p> | <p>4. "Check OK" is displayed during communication between both devices. or "Check not OK" is displayed if there is no communication between both devices. Check the LON connection.</p> <p>5. Repeat points 2 and 3 to check further subscribers.</p> <p>6. + simultaneously for approx. 1 s. The subscriber check is completed.</p> |
|--|---|

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.

Scanning and resetting the "Service" display

The red fault indicator flashes when the limits set via coding address "21" and "23" have been reached. The programming unit display flashes:

- On a constant temperature control unit:
The defaulted hours run or the defaulted interval with clock symbol "⌚" (subject to setting)
- On a weather-compensated control unit:
"Service"



Note

Set code "24:1" and then code "24:0" if a service is carried out before the service display is shown; the set service parameters for hours run and interval are then reset to 0.


Press the following keys:

1. The service scan is active.
2. Scan service messages.

Further details regarding the individual steps (cont.)

3.  The service display will be cleared (for a weather-compensated control unit: "Acknowledge: Yes", reconfirm with ). The red fault display continues to flash.

Note

An acknowledged service message can be redisplayed by pressing  (approx. 3 s).

After a service has been carried out

1. Reset code "24:1" to "24:0".
The red fault indicator extinguishes.






Note

If coding address "24" is not reset, the "Service" message reappears:

- *On a constant temperature control unit:
After 24 hours*
- *On a weather-compensated control unit:
At 07:00 h on Monday*

2. Reset the burner hours run, burner starts and consumption, if required.

Press the following keys:

-  Scanning is active.
-  for the selected value.
-  The selected value will be set to "0".
-  for further scans.
-  Scanning is completed.










Code 1

Calling up code 1

Note

- *On weather-compensated control units, codes are displayed as plain text.*
- *Codes that are irrelevant due to the system equipment level or the setting of other codes will not be displayed.*
- *Heating systems with one heating circuit without mixer and one heating circuit with mixer:
Initially, the possible coding addresses "A0" to "d4" for the heating circuit without mixer A1 are scanned; then the coding addresses for the heating circuit with mixer M2 are scanned.*

Press the following keys:

1.  +  simultaneously for approx. 2 s.
2.  for the required coding address; the address flashes.
3.  to confirm.
4.  for the selected value.
5.  to confirm; the display briefly shows "**accepted**" (weather-compensated control unit); the address flashes again.
6.  for the selection of further addresses.
7.  +  press simultaneously for approx. 1 s; code 1 is terminated.

Coding

Code 1 (cont.)

Overview

Coding

| Coding in the delivered condition | | Possible change | |
|---------------------------------------|--|-----------------|--|
| System design | | | |
| 00 :1 | System version 1: 1 heating circuit without mixer A1, without DHW heating | 00 :2 | System version 1: 1 heating circuit without mixer A1, with DHW heating |
| | | 00 :3 | System version 2, 4, 5: 1 heating circuit with mixer M2, without DHW heating |
| | | 00 :4 | System version 2, 4, 5: 1 heating circuit with mixer M2, with DHW heating |
| | | 00 :5 | System version 3: 1 heating circuit without mixer A1 and 1 heating circuit with mixer M2, without DHW heating |
| | | 00 :6 | System version 3: 1 heating circuit without mixer A1; 1 heating circuit with mixer M2, with DHW heating |
| Single and multi-boiler system | | | |
| 01:1 | Single boiler system (only for constant temperature control units) | 01:2 | Multi-boiler system with Vitotronic 300-K |
| Max. boiler water temp. | | | |
| 06:... | Maximum boiler water temperature limit (defaulted by the boiler coding card) | 06:20 to 06:127 | Maximum limit of the boiler water temperature within the ranges defaulted by the boiler |
| Venting/filling | | | |
| 2F:0 | Venting program/fill program disabled | 2F:1 | Venting program enabled |
| | | 2F:2 | Fill program enabled |

Code 1 (cont.)

| Coding in the delivered condition | | Possible change | |
|--|--|------------------------|---|
| Subscriber no. | | | |
| 77:1 | LON subscriber number | 77:2 to 77:99 | LON subscriber number, adjustable from 1 to 99: 1 - 4 = Boiler 5 = Cascade 10 - ... = Vitotronic 200-H 99 = Vitocom Note <i>Allocate each number only once.</i> |
| DHW priority A1 | | | |
| A2:2 | Cylinder priority to heating circuit pump | A2:0 | Without cylinder priority for heating circuit pump |
| DHW priority M2 | | | |
| A2:2 | Cylinder priority applicable to heating circuit pump and mixer | A2:0 | Without cylinder priority applicable to heating circuit pump and mixer |
| | | A2:1 | Cylinder priority only applicable to mixer |
| | | A2:3 to A2:15 | Reduced priority applied to mixer (the heating circuit receives a reduced amount of energy) |
| Summer econ. A1/M2 | | | |
| A5:5 | With heating circuit pump logic function (only for weather-compensated control units) | A5:0 | Without heating circuit pump logic function |
| Min. flow temp. A1/M2 | | | |
| C5:20 | Electronic minimum flow temperature limit 20 °C (only for weather-compensated control units) | C5:1 to C5:127 | Minimum limit adjustable from 10 to 127 °C (limited by the boiler coding card) |
| Max. flow temp. A1/M2 | | | |
| C6:74 | Electronic maximum flow temperature limit 74 °C (only for weather-compensated control units) | C6:10 to C6:127 | Maximum limit adjustable from 10 to 127 °C (limited by the boiler coding card) |



Coding

Code 1 (cont.)

| Coding in the delivered condition | | Possible change | |
|-----------------------------------|--|-----------------------|--|
| Slope A1/M2 | | | |
| d3:14 | Heating curve slope = 1.4 (only for weather-compensated control units) | d3:2 to d3:35 | Heating curve slope adjustable from 0.2 to 3.5 (see page 30) |
| Level A1/M2 | | | |
| d4:0 | Heating curve level = 0 (only for weather-compensated control units) | d4:-13 to d4:40 | Heating curve level adjustable from -13 to 40 (see page 30) |









Code 2






Calling up code 2



Note

- On weather-compensated control units, codes are displayed as plain text.
- Codes that are irrelevant due to the system equipment level or the setting of other codes will not be displayed.

Press the following keys:

1.  +  simultaneously for approx. 2 s.
2.  to confirm.
3.  /  for the required coding address; the address flashes.
4.  to confirm; the value flashes.
5.  /  for the selected value.

6.  to confirm; the display briefly shows "accepted" (for weather-compensated control units); the address flashes again.
7.  /  for the selection of further addresses.
8.  +  press simultaneously for approx. 1 s; code 2 is terminated.

The coding addresses are grouped according to the following **function areas**. The respective function area is shown on the display. The areas are scanned in the following sequence with  / .

Code 2 (cont.)

| Function area | Coding addresses |
|--|------------------|
| System design | 00 |
| Boiler/burner | 06 to 54 |
| DHW | 56 to 73 |
| General | 76 to 9F |
| Heating circuit A1 (heating circuit without mixer) | A0 to Fb |
| Heating circuit with mixer M2 | A0 to Fb |

Note

Heating systems with one heating circuit without mixer and one heating circuit with mixer:

Initially, the possible coding addresses "A0" to "Fb" for the heating circuit without mixer A1 are scanned; then the coding addresses for the heating circuit with mixer M2 are scanned.

Coding

| Coding in the delivered condition | Possible change |
|---|--|
| System design | |
| 00 :1 System version 1: 1 heating circuit without mixer A1, without DHW heating | 00 :2 System version 1: 1 heating circuit without mixer A1, with DHW heating |
| | 00 :3 System version 2, 4, 5: 1 heating circuit with mixer M2, without DHW heating |
| | 00 :4 System version 2, 4, 5: 1 heating circuit with mixer M2, with DHW heating |
| | 00 :5 System version 3: 1 heating circuit without mixer A1; 1 heating circuit with mixer M2, without DHW heating |
| | 00 :6 System version 3: 1 heating circuit without mixer A1; 1 heating circuit with mixer M2, with DHW heating |



Coding

Code 2 (cont.)

| Coding in the delivered condition | | Possible change | |
|--|---|------------------------|--|
| 01:1 | Single boiler system (only for constant temperature control units) | 01:2 | Multi-boiler system with Vitotronic 300-K |
| Boiler/burner | | | |
| 06:... | Maximum limit of the boiler water temperature, defaulted by the boiler coding card | 06:20 to 06:127 | Maximum limit of the boiler water temperature within the ranges defaulted by the boiler |
| 07:1 | Boiler number in multi-boiler systems | 07:2 to 07:4 | Boiler number 2 to 4 in multi-boiler systems |
| 0d:0 | Function "Emergency mode in case of the system pressure is too low" disabled | 0d:1 | Function "Emergency mode in case of the system pressure is too low" enabled. The burner starts with the lower output. The fault message "A2" will be displayed (see page 74) as long as the system operates in emergency mode. |
| 0E:0 | System pressure below maximum value. | 0E:1 | Max. system pressure exceeded during operation. Fault message "A4" is displayed as long as the max. system pressure is exceeded. After the fault has been removed, reset the coding address manually to 0. Note <i>The value is set automatically.</i> |
| 11:≠9 | No access to the coding addresses for the parameters of the combustion control unit (see page 88) | 11:9 | Access to the coding addresses for the parameters of the combustion control unit enabled (see page 88) |



Code 2 (cont.)

| Coding in the delivered condition | | Possible change | |
|--|---|------------------------|---|
| 21:0 | No maintenance interval (operating hours) selected | 21:1 to 21:9999 | The number of hours run before the burner should be serviced is adjustable from 1 to 9999 h |
| 23:0 | No time interval for burner service selected | 23:1 to 23:24 | Interval adjustable from 1 to 24 months |
| 24:0 | The service display is reset | 24:1 | Service display (value displayed automatically) |
| 25:0 | No outside temperature sensor or remote monitoring recognised (only in ① for constant temperature control units) | 25:1 | Outside temperature sensor and fault monitoring recognised |
| 28:0 | No burner interval ignition | 28:1 | The burner will be force-started for 30 s every 5 h |
| 2E:0 | Without external extension | 2E:1 | With external extension (automatic setting on connection) |
| 2F:0 | Venting program/fill program disabled | 2F:1 | Venting program enabled |
| | | 2F:2 | Fill program enabled |
| 30:1 | Variable speed circulation pump in the heating circuit connection set (automatic adjustment) | 30:0 | Circulation pump in the heating circuit connection set, without variable speed (e.g. temporarily for service) |
| 31:... | Set speed of the circulation pump in the heating circuit connection set, when operated as boiler circuit pump in %, defaulted by the boiler coding card | 31:0 to 31:100 | Set speed adjustable from 0 to 100 % |
| 32:0 | Influence of the signal "External blocking" on circulation pumps: All pumps in control function | 32:1 to 32:15 | Influence of the signal "External blocking" on circulation pumps: see the following table |

Code 2 (cont.)**Note**

Generally, the burner will be blocked when signal "External blocking" is enabled.

| Value address 32: ... | Circulation pump in the heating circuit connection set | Heating circuit pump Heating circuit without mixer | Heating circuit pump Heating circuit with mixer | Cylinder primary pump |
|-----------------------|--|--|---|-----------------------|
| 0 | Control funct. | Control funct. | Control funct. | Control funct. |
| 1 | Control funct. | Control funct. | Control funct. | OFF |
| 2 | Control funct. | Control funct. | OFF | Control funct. |
| 3 | Control funct. | Control funct. | OFF | OFF |
| 4 | Control funct. | OFF | Control funct. | Control funct. |
| 5 | Control funct. | OFF | Control funct. | OFF |
| 6 | Control funct. | OFF | OFF | Control funct. |
| 7 | Control funct. | OFF | OFF | OFF |
| 8 | OFF | Control funct. | Control funct. | Control funct. |
| 9 | OFF | Control funct. | Control funct. | OFF |
| 10 | OFF | Control funct. | OFF | Control funct. |
| 11 | OFF | Control funct. | OFF | OFF |
| 12 | OFF | OFF | Control funct. | Control funct. |
| 13 | OFF | OFF | Control funct. | OFF |
| 14 | OFF | OFF | OFF | Control funct. |
| 15 | OFF | OFF | OFF | OFF |

| Coding in the delivered condition | | Possible change | |
|-----------------------------------|---|-----------------|---|
| Boiler/burner | | | |
| 34:0 | Influence of the signal "External demand" on the circulation pumps: All pumps in control function | 34:1 to 34:23 | Influence of the signal "External demand" on the circulation pumps: see the following table |

Code 2 (cont.)

| Value address 34: ... | Circulation pump in the heating circuit connection set | Heating circuit pump Heating circuit without mixer | Heating circuit pump Heating circuit with mixer | Cylinder primary pump |
|------------------------------|---|---|--|------------------------------|
| 0 | Control funct. | Control funct. | Control funct. | Control funct. |
| 1 | Control funct. | Control funct. | Control funct. | OFF |
| 2 | Control funct. | Control funct. | OFF | Control funct. |
| 3 | Control funct. | Control funct. | OFF | OFF |
| 4 | Control funct. | OFF | Control funct. | Control funct. |
| 5 | Control funct. | OFF | Control funct. | OFF |
| 6 | Control funct. | OFF | OFF | Control funct. |
| 7 | Control funct. | OFF | OFF | OFF |
| 8 | OFF | Control funct. | Control funct. | Control funct. |
| 9 | OFF | Control funct. | Control funct. | OFF |
| 10 | OFF | Control funct. | OFF | Control funct. |
| 11 | OFF | Control funct. | OFF | OFF |
| 12 | OFF | OFF | Control funct. | Control funct. |
| 13 | OFF | OFF | Control funct. | OFF |
| 14 | OFF | OFF | OFF | Control funct. |
| 15 | OFF | OFF | OFF | OFF |
| 16 | ON | Control funct. | Control funct. | Control funct. |
| 17 | ON | Control funct. | Control funct. | OFF |
| 18 | ON | Control funct. | OFF | Control funct. |
| 19 | ON | Control funct. | OFF | OFF |



Code 2 (cont.)

| Value address 34: ... | Circulation pump in the heating circuit connection set | Heating circuit pump Heating circuit without mixer | Heating circuit pump Heating circuit with mixer | Cylinder primary pump |
|-----------------------|--|--|---|-----------------------|
| 20 | ON | OFF | Control funct. | Control funct. |
| 21 | ON | OFF | Control funct. | OFF |
| 22 | ON | OFF | OFF | Control funct. |
| 23 | ON | OFF | OFF | OFF |

| Coding in the delivered condition | | Possible change | |
|-----------------------------------|--|-----------------|---|
| Boiler/burner | | | |
| 38:0 | Status burner control unit: Operational (no fault) | 38:#0 | Status fault, burner control unit |
| 51:0 | Circulation pump in the heating circuit connection set always starts when there is a heat demand | 51:1 | If the burner operates, the circulation pump in the heating circuit connection set will only be started when there is a heat demand. System with heating water buffer cylinder. |
| 52:0 | Without flow temperature sensor for low loss header | 52:1 | With flow temperature sensor for low loss header (automatic adjustment on connection) |
| 53:1 | Function connection ^[28] of the internal extension: DHW circulation pump | 53:0 | Function connection ^[28] : Central fault |
| | | 53:2 | Function connection ^[28] : External heating circuit pump (heating circuit A1) |
| | | 53:3 | Function connection ^[28] : External cylinder primary pump |
| 54:0 | Without solar control unit | 54:1 | With Vitosolic 100 (automatic adjustment on connection) |
| | | 54:2 | With Vitosolic 200 (automatic adjustment on connection) |



Code 2 (cont.)

| Coding in the delivered condition | | Possible change | |
|-----------------------------------|---|----------------------|---|
| DHW | | | |
| 56:0 | Set DHW temperature adjustable from 10 to 60 °C | 56:1 | Set DHW temperature adjustable from 10 to above 60 °C Note <i>Maximum value subject to boiler coding card. Observe the max. permissible DHW temperature.</i> |
| 58:0 | Without auxiliary function for DHW heating | 58:10 to 58:60 | Input of a second set DHW value, adjustable from 10 to 60 °C (observe coding addresses "56" and "63") |
| 59:0 | Cylinder heating: Starting point -2.5 K Stopping point +2.5 K | 59:1 to 59:10 | Starting point adjustable from 1 to 10 K below the set value |
| 5b:0 | DHW cylinder directly connected to the boiler | 5b:1 | DHW cylinder connected downstream of the low loss header |
| 60:20 | During DHW heating, the boiler water temperature is max. 20 K higher than the set DHW temperature | 60:5 to 60:25 | The difference between the boiler water temperature and the set DHW temperature is adjustable from 5 to 25 K |
| 62:2 | Circulation pump with 2 min run-on time after cylinder heating | 62:0 | Circulation pump without run-on |
| | | 62:1 to 62:15 | Run-on time adjustable from 1 to 15 min |
| 63:0 | Without auxiliary function for DHW heating (only for constant temperature control units) | 63:1 | Auxiliary function: 1 x daily |
| | | 63:2 to 63:14 | Every 2 days to every 14 days |
| | | 63:15 | 2 x daily |

Code 2 (cont.)

| Coding in the delivered condition | | Possible change | |
|--|--|------------------------|--|
| 67:40 | With the Vitosolic: Third set DHW temperature = 40 °C | 67:0 | Without third set DHW temperature |
| | | 67:1 to 67:60 | Third set DHW temperature adjustable from 1 to 60 °C (subject to the setting of coding address "56") |
| 6F:... | Maximum output for DHW heating in %, defaulted by the boiler coding card | 6F:0 to 6F:100 | Max. output during DHW heating adjustable from 0 to 100 % |
| 71:0 | DHW circulation pump: "ON" in accordance with the time program (only for weather-compensated control units) | 71:1 | "OFF" during DHW heating to the first set value |
| | | 71:2 | "ON" during DHW heating to the first set value |
| 72:0 | DHW circulation pump: "ON" in accordance with the time program (only for weather-compensated control units) | 72:1 | "OFF" during DHW heating to the second set value |
| | | 72:2 | "ON" during DHW heating to the second set value |
| 73:0 | DHW circulation pump: "ON" in accordance with the time program (only for weather-compensated control units) | 73:1 to 73:6 | during the time program "ON" 1x/hour for 5 min "ON" up to 6x/hour for 5 min |
| | | 73:7 | permanently "ON" |
| | | | |
| General | | | |
| 76:0 | Without LON communication module (only for weather-compensated control units) | 76:1 | With LON communication module; automatic recognition |
| | | 76:2 | With KM BUS/cascade communication module; automatic recognition |
| 77 :1 | LON subscriber number (only for weather-compensated control units) | 77 :2 to 77 :99 | LON subscriber number, adjustable from 1 to 99 (see page 33). |
| | | | Note <i>Allocate each number only once.</i> |



Code 2 (cont.)

| Coding in the delivered condition | | Possible change | |
|--|---|------------------------|---|
| 79:1 | With LON communication module: Control unit is fault manager (only for weather-compensated control units) | 79:0 | Control unit is not fault manager |
| 7b:1 | With LON communication module: The control unit transmits the time (only for weather-compensated control units) | 7b:0 | Do not transmit time |
| 7E:0 | Without flue gas cascade (only for constant temperature control units) | 7E:1 | With flue gas cascade |
| 7F:1 | Detached house (only for weather-compensated control units) | 7F:0 | Apartment block Separate adjustment of holiday program and time program for DHW heating, as option |
| 80:1 | A fault message is displayed, providing a fault is active for at least 5 s | 80:0 | Immediate fault message |
| | | 80:2 | The fault message is issued after a delay that is adjustable from 10 s to 995 s; 1 step = 5 s |
| | | 80:199 | |
| 81:1 | Automatic summer/winter time changeover | 81:0 | Manual summer/winter time changeover |
| | | 81:2 | Radio clock module is automatically detected |
| | | 81:3 | With LON communication module: The control unit receives the time |
| 82:0 | Operation with natural gas | 82:1 | Operation with LPG (only adjustable if coding address 11:9 has been set; see page 88) |
| 88:0 | Temperature displayed in °C (Celsius) | 88:1 | Temperature displayed in °F (Fahrenheit) |
| 8A:175 | Never adjust | | |



Code 2 (cont.)

| Coding in the delivered condition | | Possible change | |
|--|--|------------------------|--|
| 90:128 | Time constant for calculating the adjusted outside temperature 21.3 hours | 90:0 to 90:199 | Fast (low values) or slow (high values) matching of the flow temperature, subject to the set value when the outside temperature changes; 1 step = 10 min. |
| 91:0 | No external heating program changeover via external extension (only for weather-compensated control units) | 91:1 | The external heating program changeover affects the heating circuit without mixer |
| | | 91:2 | The external heating program changeover affects the heating circuit with mixer |
| | | 91:3 | The external heating program changeover affects the heating circuit without mixer and the heating circuit with mixer |
| 95:0 | Without Vitocom 100 communication interface | 95:1 | With the Vitocom 100 communication interface; automatic recognition |
| 97:0 | With LON communication module: The outside temperature of the sensor connected to the control unit is utilised internally (only for weather-compensated control units) | 97:1 | The control unit receives the outside temperature |
| | | 97:2 | Control unit transmits outside temperature |
| 98:1 | Viessmann system number (in conjunction with monitoring several systems via Vitocom 300) | 98:1 to 98:5 | System number adjustable from 1 to 5 |
| 9b:70 | Minimum set boiler water temperature in case of external demand | 9b:1 to 9b:127 | Minimum set boiler water temperature adjustable from 1 to 127 °C (limited by the boiler coding card) |

Code 2 (cont.)

| Coding in the delivered condition | | Possible change | |
|--|--|------------------------|---|
| 9C:20 | Monitoring LON subscribers When there is no response from a subscriber, values defaulted by the control unit are used after 20 min and a fault message is issued (only for weather-compensated control units) | 9C:0 | No monitoring |
| | | 9C:5 to 9C:60 | Time adjustable from 5 to 60 min |
| | | | |
| 9F:8 | Differential temperature 8 K; only in conjunction with the mixer circuit (only for weather-compensated control units) | 9F:0 to 9F:40 | Differential temperature adjustable from 0 to 40 K |
| Boiler circuit, mixer circuit | | | |
| A0:0 | Without remote control (only for weather-compensated control units) | A0:1 | With Vitotrol 200 (automatic recognition) |
| | | A0:2 | With Vitotrol 300 (automatic recognition) |
| A2:2 | Cylinder priority applicable to heating circuit pump and mixer | A2:0 | Without cylinder priority applicable to heating circuit pump and mixer |
| | | A2:1 | Cylinder priority applies only to the mixers. The mixer is closed whilst the cylinder is being heated; the heating circuit pump runs. |
| | | A2:3 to A2:15 | Reduced priority applied to mixer (the heating circuit receives a reduced amount of energy) |
| A3:2 | Outside temperature below 1 °C: Heating circuit pump "ON" Outside temperature above 3 °C: Heating circuit pump "OFF" | A3:-9 to A3:15 | Heating circuit pump "ON/OFF" (see the following table) |

Code 2 (cont.)**Please note**

When selecting a value below 1 °C, there is a risk of pipes outside the thermal envelope of the building being damaged by frost.

The standby mode, in particular, should be taken into consideration, e.g. during holidays.

| Parameter Address A3:... | Heating circuit pump | |
|-----------------------------|----------------------|----------|
| | "ON" at | "OFF" at |
| -9 | -10 °C | -8 °C |
| -8 | -9 °C | -7 °C |
| -7 | -8 °C | -6 °C |
| -6 | -7 °C | -5 °C |
| -5 | -6 °C | -4 °C |
| -4 | -5 °C | -3 °C |
| -3 | -4 °C | -2 °C |
| -2 | -3 °C | -1 °C |
| -1 | -2 °C | 0 °C |
| 0 | -1 °C | 1 °C |
| 1 | 0 °C | 2 °C |
| 2 | 1 °C | 3 °C |
| to | to | |
| 15 | 14 °C | 16 °C |

| Coding in the delivered condition | | Possible change | |
|--------------------------------------|--|-----------------|---|
| Boiler circuit, mixer circuit | | | |
| A4:0 | With frost protection (only for weather-compensated control units) | A4:1 | No frost protection, adjustment only possible if coding address "A3: -9" has been selected. |
| | | | Note <i>Observe the note for code "A3"</i> |



Code 2 (cont.)

| Coding in the delivered condition | | Possible change | |
|--|---|------------------------|--|
| A5:5 | With heating circuit pump logic function (economy circuit): Heating circuit pump "OFF" if the outside temperature (AT) is 1 K higher than the set room temperature (RT_{set}) $AT > RT_{set} + 1 \text{ K}$ (only for weather-compensated control units) | A5:0 | Without heating circuit pump logic function |
| | | A5:1 to A5:15 | With heating circuit pump logic function: Heating circuit pump "OFF", if (see the following table) |

| Parameter address A5:... | With heating circuit pump logic function: Heating circuit pump OFF, if |
|-------------------------------------|---|
| 1 | $AT > RT_{set} + 5 \text{ K}$ |
| 2 | $AT > RT_{set} + 4 \text{ K}$ |
| 3 | $AT > RT_{set} + 3 \text{ K}$ |
| 4 | $AT > RT_{set} + 2 \text{ K}$ |
| 5 | $AT > RT_{set} + 1 \text{ K}$ |
| 6 | $AT > RT_{set}$ |
| 7 | $AT > RT_{set} - 1 \text{ K}$ |
| to | |
| 15 | $AT > RT_{set} - 9 \text{ K}$ |

Code 2 (cont.)

| Coding in the delivered condition | | Possible change | |
|--|--|------------------------|--|
| Boiler circuit, mixer circuit | | | |
| A6:36 | Extended economy function disabled (only for weather-compensated control units) | A6:5 to A6:35 | Extended economy mode is enabled, i.e. the burner and heating circuit pump are switched OFF and the mixer will be closed at a variable value that is adjustable between 5 and 35 °C plus 1 °C. This value is based on the adjusted outside temperature, comprising the actual outside temperature and a time constant that takes the cooling down of an average building into consideration. |
| A7:0 | Without mixer economy function (only for weather-compensated control units) | A7:1 | With mixer economy function (extended heating circuit pump logic): Heating circuit pump also "OFF" if the mixer was closed longer than 20 min. Heating pump "ON": <ul style="list-style-type: none"> ■ If the mixer changes to control mode or ■ After cylinder heating (for 20 min) or ■ If there is a risk of frost |
| A8:1 | Heating circuit with mixer M2 creates a demand for the circulation pump in the heating circuit connection set (only for weather-compensated control units) | A8:0 | Heating circuit with mixer M2 creates no demand for the circulation pump in the heating circuit connection set |

Code 2 (cont.)

| Coding in the delivered condition | | Possible change | |
|--|---|------------------------|--|
| A9:7 | With pump idle time: Heating circuit pump "OFF" if the set value changes through a change in operating mode or through a change in the set room temperature (only for weather-compensated control units) | A9:0 | Without pump idle time |
| | | A9:1 to A9:15 | With pump idle time; adjustable from 1 to 15 |
| | | | |
| b0:0 | With remote control: Heating mode/reduced mode: weather-compensated (only for weather-compensated control units; change the coding only for the heating circuit with mixer M2) | b0:1 | Heating mode: weather-compensated Reduced mode: with room temperature hook-up |
| | | b0:2 | Heating mode: with room temperature hook-up Reduced mode: weather-compensated |
| | | b0:3 | Heating mode/reduced mode: with room temperature hook-up |
| b2:8 | With remote control. Heating with room temperature hook-up must be programmed for the heating circuit: Room influence factor 8 (only for weather-compensated control units; change the coding only for the heating circuit with mixer M2) | b2:0 | Without room influence |
| | | b2:1 to b2:64 | Room influence factor adjustable from 1 to 64 |
| b5:0 | With remote control: No room temperature-compensated heating circuit pump logic function (only for weather-compensated control units; change the coding only for the heating circuit with mixer M2) | b5:1 to b5:8 | Heating circuit pump logic function; see the following table |

Code 2 (cont.)

| Parameter address b5:... | With heating circuit pump logic function: Heating circuit pump OFF, if |
|--------------------------|--|
| 1: | enabled $RT_{actual} > RT_{set} + 5 \text{ K}$; disabled $RT_{actual} < RT_{set} + 4 \text{ K}$ |
| 2: | enabled $RT_{actual} > RT_{set} + 4 \text{ K}$; disabled $RT_{actual} < RT_{set} + 3 \text{ K}$ |
| 3: | enabled $RT_{actual} > RT_{set} + 3 \text{ K}$; disabled $RT_{actual} < RT_{set} + 2 \text{ K}$ |
| 4: | enabled $RT_{actual} > RT_{set} + 2 \text{ K}$; disabled $RT_{actual} < RT_{set} + 1 \text{ K}$ |
| 5: | enabled $RT_{actual} > RT_{set} + 1 \text{ K}$; disabled $RT_{actual} < RT_{set}$ |
| 6: | enabled $RT_{actual} > RT_{set}$; disabled $RT_{actual} < RT_{set} - 1 \text{ K}$ |
| 7: | enabled $RT_{actual} > RT_{set} - 1 \text{ K}$; disabled $RT_{actual} < RT_{set} - 2 \text{ K}$ |
| 8: | enabled $RT_{actual} > RT_{set} - 2 \text{ K}$; disabled $RT_{actual} < RT_{set} - 3 \text{ K}$ |

| Coding in the delivered condition | | Possible change | |
|--------------------------------------|---|-----------------|--|
| Boiler circuit, mixer circuit | | | |
| C5:20 | Electronic minimum flow temperature limit 20 °C (only for weather-compensated control units) | C5:1 to C5:127 | Minimum temperature limit adjustable from 1 to 127 °C (limited by the boiler coding card) |
| C6:74 | Electronic maximum flow temperature limit 74 °C (only for weather-compensated control units) | C6:10 to C6:127 | Maximum temperature limit adjustable from 10 to 127 °C (limited by the boiler coding card) |
| d3:14 | Heating curve slope = 1.4 (only for weather-compensated control units) | d3:2 to d3:35 | Heating curve slope adjustable from 0.2 to 3.5 (see page 30) |
| d4:0 | Heating curve level = 0 (only for weather-compensated control units) | d4:-13 to d4:40 | Heating curve level adjustable from -13 to 40 (see page 30) |
| d5:0 | The external heating program changeover alters the heating program to "Constant operation with reduced room temperature" (only for weather-compensated control units) | d5:1 | The external operating mode changeover alters to "Constant central heating with standard room temperature" |



Code 2 (cont.)

| Coding in the delivered condition | | Possible change | |
|--|--|------------------------|--|
| E1:1 | With remote control: The set day temperature is adjustable at the remote control unit from 10 to 30 °C (only for weather-compensated control units) | E1:0 | Set day temperature adjustable from 3 to 23 °C |
| | | E1:2 | Set day temperature adjustable from 17 to 37 °C |
| E2:50 | With remote control: No display correction for the actual room temperature (only for weather-compensated control units) | E2:0 to E2:49 | Display correction -5 K to Display correction -0.1 K |
| | | E2:51 to E2:99 | Display correction +0.1 K to Display correction +4.9 K |
| | | | |
| E5:0 | Without variable speed heating circuit pump (only for weather-compensated control units) | E5:1 | With variable speed heating circuit pump; will be recognised automatically |
| E6:65 | Maximum speed of the variable speed heating circuit pump 65 % of the max. speed in standard mode (only for weather-compensated control units) | E6:0 to E6:100 | Maximum speed adjustable from 0 to 100 % |
| E7:30 | Minimum speed of the variable speed heating circuit pump 30 % of the max. speed (only for weather-compensated control units) | E7:0 to E7:100 | Minimum speed adjustable from 0 to 100 % of max. speed |
| E8:1 | Minimum speed in operation with reduced room temperature subject to the setting in coding address "E9" (only for weather-compensated control units) | E8:0 | Speed subject to the setting in coding address "E7" |



Code 2 (cont.)

| Coding in the delivered condition | | Possible change | |
|-----------------------------------|--|----------------------|--|
| E9:45 | Speed of the external variable speed heating circuit pump 45 % of the max. speed during operation with reduced room temperature (only for weather-compensated control units) | E9:0 to E9:100 | Speed adjustable from 0 to 100 % of the maximum speed during operation with reduced room temperature |
| F1:0 | Screed drying function disabled (only for weather-compensated control units). | F1:1 to F1:5 | Screed drying function adjustable in accordance with 5 optional temperature/time profiles (see page 100) |
| | | F1:6 to F1:15 | Constant flow temperature 20 °C |
| F2:8 | Time limit for party mode 8 hours or external heating program changeover via the keyboard (only for weather-compensated control units) *1 | F2:0 | No time limit for party mode |
| | | F2:1 to F2:12 | Time limit adjustable from 1 to 12 hours *1 |
| F5:12 | Run-on time of the circulation pump in the heating circuit connection set in heating mode 12 min (only for constant temperature control units) | F5:0 | No run-on time for the circulation pump in the heating circuit connection set |
| | | F5:1 to F5:20 | Run-on time of the circulation pump in the heating circuit connection set adjustable from 1 to 20 min |

*1 Party mode ends **automatically** in heating program "III" when the system changes over to operation with standard room temperature.

Code 2 (cont.)

| Coding in the delivered condition | | Possible change | |
|--|---|------------------------|---|
| F6:25 | In the "DHW only" operating mode, the circulation pump in the heating circuit connection set is permanently ON (only for constant temperature control units) | F6:0 | In the "DHW only" operating mode, the circulation pump in the heating circuit connection set is permanently OFF |
| | | F6:1 to F6:24 | In the "DHW only" operating mode, the circulation pump in the heating circuit connection set will be started 1 to 24 times per day for 10 min respectively. |
| F7:25 | In the "Standby" operating mode, the circulation pump in the heating circuit connection set is permanently ON (only for constant temperature control units) | F7:0 | In the "Standby" operating mode, the circulation pump in the heating circuit connection set is permanently OFF |
| | | F7:1 to F7:24 | In the "Standby" operating mode, the circulation pump in the heating circuit connection set will be started 1 to 24 times per day for 10 min respectively. |
| F8:-5 | Temperature limit for terminating the reduced mode -5 °C, see example on page 102. Observe the setting of coding address "A3". (only for weather-compensated control units) | F8:+10 to F8:-60 | Temperature limit adjustable from +10 to -60 °C |
| | | F8:-61 | Function disabled |
| F9:-14 | Temperature limit for raising the reduced set room temp. -14 °C, see example on page 102. (only for weather-compensated control units) | F9:+10 to F9:-60 | Temperature limit adjustable from +10 to -60 °C |





Coding

Code 2 (cont.)

| Coding in the delivered condition | | Possible change | |
|-----------------------------------|---|----------------------|--|
| FA:20 | Raising the set boiler water temperature or the set flow temperature when changing from operation with reduced room temperature to operation with standard room temperature, by 20 %. See example on page 103 (only for weather-compensated control units). | FA:0 to FA:50 | Temperature rise adjustable from 0 to 50 % |
| Fb:30 | Duration for raising the set boiler water temperature or the set flow temperature (see coding address "FA") 60 min. See example on page 103 (only for weather-compensated control units). | Fb:0 to Fb:150 | Duration adjustable from 0 to 300 min; 1 step $\hat{=}$ 2 min |



Resetting codes to their delivered condition

Constant temperature control unit:

1.  +  simultaneously for approx. 2 s.

2.  press.

Weather-compensated control unit:

1.  +  simultaneously for approx. 2 s.

2. 

3. 

 / 

"Factory set? Yes" appears.

to confirm or

to select "Factory set? No".

Service level overview

| Function | Key combination | Exit | Page |
|--|---|--|------|
| Temperatures, boiler coding card and brief scans | Press and simultaneously for approx. 2 s | Press | 62 |
| Relay test | Press and simultaneously for approx. 2 s | Press | 65 |
| Max. output (heating mode) | Press and simultaneously for approx. 2 s | Press | 15 |
| Operating conditions and sensors | Press | Press | 66 |
| Service scan | (if "Service" flashes) | Press | 35 |
| Adjusting the display contrast | Press and simultaneously; the display darkens | – | – |
| | Press and simultaneously; the display becomes lighter | – | – |
| Calling up acknowledged fault messages | Press for approx. 3 s | | 70 |
| Fault history | Press and simultaneously for approx. 2 s | Press | 71 |
| Subscriber check (in conjunction with LON) | Press and simultaneously for approx. 2 s | Press and simultaneously | 34 |
| Emissions test function "A/B" | Weather-compensated control unit: Press and for approx. 2 s simultaneously Constant temperature control unit: Press and for approx. 2 s simultaneously | and or and simultaneously for approx. 1 s, alternatively automatic after 30 min | – |
| Coding level 1 Plain text display | Press and simultaneously for approx. 2 s | Press and simultaneously for approx. 1 s | 37 |
| Coding level 2 Numerical display | Press and simultaneously for approx. 2 s | Press and simultaneously for approx. 1 s | 40 |



Service scans

Service level overview (cont.)

| Function | Key combination | Exit | Page |
|--|--|------|------|
| Resetting codes to their delivered condition | Press and simultaneously for approx. 2 s; then | – | 60 |

Temperatures, boiler coding card and brief scans

Weather-compensated control unit

- Press the following keys:
- + simultaneously for approx. 2 s.
 - for the required scan.
 - Scanning is completed.

The following values can be scanned, subject to the actual system equipment level:

| Display screen | Explanation | |
|-------------------------|--|----------------------------|
| Slope A1 – level A1 | The adjusted outside temperature can be reset to the actual outside temperature with . | |
| Slope M2 – level M2 | | |
| Outside temp. adj. | | |
| Outside temp. actual | | |
| Boiler temp. set | | |
| Boiler temp. actual | | |
| DHW temp. set | | |
| DHW temp. actual | | |
| DHW outlet temp. actual | | Only for combi boilers |
| DHW outlet temp. set | | Only for combi boilers |
| Flow temp. set | | Heating circuit with mixer |
| Flow temp. actual | | Heating circuit with mixer |
| Mixed flow temp. set | | Low loss header |
| Mixed flow temp. actual | | Low loss header |
| Boiler coding card | | |
| Brief scan 1 to 8 | | |

| Brief scan | Display screen | | | | | |
|------------|----------------------------------|--|-------------------|--|--------------------------------|--|
| | | | | | | |
| 1 | Software version Control unit | | Equipment version | | Burner control unit version | |



Temperatures, boiler coding card and brief . . . (cont.)

| Brief scan | Display screen | | | | | |
|------------|--|---|--|---|--|---|
| | 0 | 0 | 0 | 0 | 0 | 0 |
| 2 | System designs 01 to 06 Display in accordance with the system equipment level | | Number of KM BUS subscribers | Maximum demand temperature | | |
| 3 | 0 | Software version Programming unit | Software version Mixer extension 0: no mixer extension | Software version Solar control unit 0: no solar control unit | Software version LON module 0: no LON module | Software version External extension 0: no external extension |
| 4 | Software version Burner control unit | | Type Burner control unit | Equipment type | | |
| 5 | 0: no external demand 1: external demand | 0: no external blocking 1: external blocking | 0 | External 0 to 10 V hook-up Display in °C 0: no external hook-up | | |
| 6 | Number of LON subscribers | | Check digit | Max. output Details in % | | |
| | Boiler | | Heating circuit A1 (without mixer) | | Heating circuit M2 (with mixer) | |
| 7 | 0 | 0 | Remote control 0: w/o 1: Vitotrol 200 2: Vitotrol 300 | Software version Remote control 0: no remote control | Remote control 0: w/o 1: Vitotrol 200 2: Vitotrol 300 | Software version Remote control 0: no remote control |

Temperatures, boiler coding card and brief . . . (cont.)

| Brief scan | Display screen | | | | | |
|------------|---|--|---|--|---|--|
| | 0 | 0 | 0 | 0 | 0 | 0 |
| | Circulation pump in the heating circuit connection set | | | Heating circuit pump to connection extension | | |
| 8 | Variable speed pump 0: w/o 1: Wilo 2: Grundfos | Software version Variable speed pump 0: no variable speed pump | Variable speed pump 0: w/o 1: Wilo 2: Grundfos | Software version Variable speed pump 0: no variable speed pump | Variable speed pump 0: w/o 1: Wilo 2: Grundfos | Software version Variable speed pump 0: no variable speed pump |

Constant temperature control unit

- Press the following keys:
1. + simultaneously for approx. 2 s.
 2. for the required scan.
 3. Scanning is completed.

The following values can be scanned, subject to the actual system equipment level:

| Brief scan | Display screen | | | | |
|------------|---|--------------------------------------|-------------------------------|---|-----------------------------------|
| | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | System designs 1 to 6 | Software version Control unit | | Software version Programming unit |
| 1 | Software version Solar control unit 0: no solar control unit | Software version Burner control unit | | Software version External extension 0: no external extension | 0 |





Temperatures, boiler coding card and brief . . . (cont.)

| Brief scan | Display screen | | | | |
|------------|---|---|--|--|--|
| 0 | 0 | 0 | 0 | 0 | 0 |
| E | 0: no external demand 1: external demand | 0: no external blocking 1: external blocking | External 0 to 10 V hook-up Display in % 0: no external hook-up | | |
| 3 | 0 | 0 | Set boiler water temperature | | |
| A | 0 | 0 | Highest demand temperature | | |
| 4 | 0 | Burner control unit type | | Equipment type | |
| 5 | 0 | 0 | Set cylinder temperature | | |
| b | 0 | 0 | Max. output in % | | |
| C | 0 | Boiler coding card (hexadecimal) | | | |
| c | 0 | Version Equipment | | Version Burner control unit | |
| d | 0 | 0 | 0 | Variable speed pump 0 w/o 1 Wilo 2 Grundfos | Software version Variable speed pump 0: no variable speed pump |

Checking outputs (relay test)

Weather-compensated control unit

Press the following keys:

1.  +  simultaneously for approx. 2 s.
2.  for the required relay output.
3.  Relay test is completed.

The following relay outputs can be controlled subject to system design:

| Display screen | Explanation |
|----------------------|-----------------------------|
| Base load | Burner modulation base load |
| Full load | Burner modulation full load |
| Int. pump ON | Int. output 20 |
| Heating circuit pump | Mixer extension |
| M2 ON | |



Service scans

Checking outputs (relay test) (cont.)

| Display screen | Explanation |
|----------------------------|--|
| Mixer OPEN | Mixer extension |
| Mixer CLOSE | Mixer extension |
| Output int. ON | Output 28 internal extension |
| Heating circuit pump A1 ON | External extension H1 |
| Cylinder pump ON | External extension H1 |
| DHW circ. pump ON | External extension H1 |
| Central fault ON | External extension H1 |

Constant temperature control unit

- Press the following keys:
- ⏏ + OK simultaneously for approx. 2 s.
 - +/- for the required relay output.
 - OK Relay test is completed.

The following relay outputs can be controlled subject to system design:

| Display screen | Explanation |
|----------------|--|
| 1 | Burner modulation base load |
| 2 | Burner modulation full load |
| 3 | Internal pump / output 20 "ON" |
| 10 | Output 28 internal extension |
| 11 | Heating circuit pump A1 External extension H1 |
| 12 | Cylinder primary pump External extension H1 |
| 14 | Central fault message External extension H1 |

Scanning operating conditions and sensors

Weather-compensated control unit

- Press the following keys:
- i "Select heating circuit" is displayed.
 - OK to confirm; wait approx. 4 s.
 - i press again.
 - +/- for the required operating condition.
 - OK Scanning is completed.

Scanning operating conditions and sensors (cont.)




The following operating conditions can be scanned, subject to the actual system equipment level for heating circuit A1 and heating circuit with mixer M2:

| Display screen | Explanation |
|---------------------------|---|
| Participant no. | Programmed subscriber no. in the LON system |
| Holiday program | If a holiday program has been entered |
| Departure date | Date |
| Return date | Date |
| Outdoor temp., ... °C | Actual value |
| Boiler temp., ... °C | Actual value |
| Supply temp., ... °C | Actual value (only for mixer circuit M2) |
| Normal | Set value |
| room temp., ... °C | |
| Room temperature, ... °C | Actual value |
| Ext. room t.setpt, ... °C | For external hook-up |
| DHW temp., ... °C | Actual DHW temperature |
| Solar DHW temp. ... °C | Actual value |
| Collector temp., ... °C | Actual value |
| Com. supply temp., ... °C | Actual value, only with low loss header |
| Burner, ...h | Actual hours run |
| Burner cycles, ... | Hours run and burner starts (reset after maintenance with \oplus to "0"). |
| Solar energy, ... kW/h | |
| Time | |
| Date | |
| Burner OFF/ON | |
| Intern. pump OFF/ON | Output 20 |
| Intern. output OFF/ON | Output 28, if an internal extension is installed |
| Htg. circ. pump OFF/ON | If an external extension or extension kit for one heating circuit with mixer is installed |
| DHW pump OFF/ON | If an external extension is installed |
| Recirc. pump OFF/ON | If an external extension is installed |
| Centr. fault ind. OFF/ON | If an external extension is installed |
| Mix. valve OPEN/CLOSE | If an extension kit for one heating circuit with mixer is installed |
| Solar pump OFF/ON | If a Vitosolic is installed |
| Solar pump, ...h | Actual hours run |
| Various languages | The respective languages can be selected as permanent display language with \odot |



Scanning operating conditions and sensors (cont.)

Constant temperature control unit

Press the following keys:

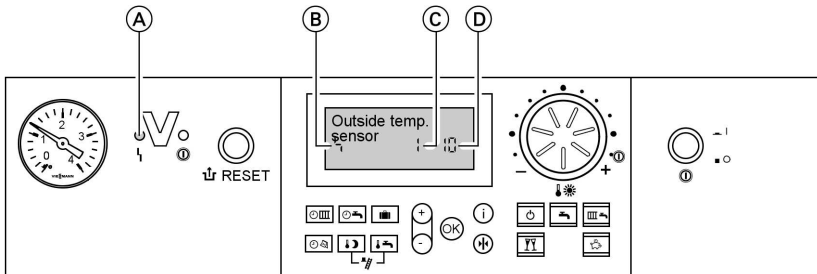
1.  press.
2.  for the required operating condition.
3.  Scanning is completed.

The following operating conditions can be scanned, subject to the actual system equipment level:

| Display screen | Explanation |
|-------------------|---|
| 1 15 °C/°F | Actual outside temperature |
| 3 65 °C/°F | Actual boiler water temperature |
| 5 50 °C/°F | Actual cylinder temperature (if a cylinder temperature sensor is installed) |
| 5□ 45 °C/°F | Solar - actual DHW temperature |
| 6 70 °C/°F | Actual collector temperature |
| ▲ 263572 h | Burner hours run (after a service, reset with  to "0") |
| ▲▲▲ 030529 | Burner starts (after a service, reset with  to "0") |
| ▲▲▲▲▲ 001417 h | Solar circuit pump hours run |
| ▲▲▲▲▲▲ 002850 | Solar energy in kWh |

Fault display

Fault display layout



- (A) Fault display
- (B) Fault symbol
- (C) Fault number
- (D) Fault code

The red fault indicator flashes for every fault.

A fault in the burner control unit causes the display to show "1↑".

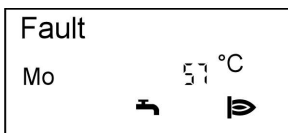
Constant temperature control unit

In case of a fault, the fault code and fault symbol is displayed at the programming unit



Weather-compensated control unit

The display flashes "Fault" if a fault message is issued



Plain text fault displays:

- Burner module
- Outdoor sensor
- Supply sensor
- Boiler sensor
- Com.supply sens.
- DHW sensor
- Flue gas sensor
- DHW outlet sensor
- Room sensor



Fault display (cont.)

- Collector sensor
- Solar DHW sensor
- Remote control
- Fault participant

Checking and acknowledging faults

Note

If an acknowledged fault is not removed, the fault message will be re-displayed:

- *With a constant temperature control unit after 24 h*
- *With a weather-compensated control unit at 7:00 h the next day*

Constant temperature control unit

Press the following keys:

1. \oplus/\ominus for further fault codes.
2. OK All fault messages are acknowledged simultaneously, the fault display will be deleted and the red fault indicator continues to flash.

Weather-compensated control unit

Press the following keys:

1. i for the current fault.
2. \oplus/\ominus for further fault messages.
3. OK All fault messages are acknowledged simultaneously, the fault display will be deleted and the red fault indicator continues to flash.

Calling up acknowledged fault messages

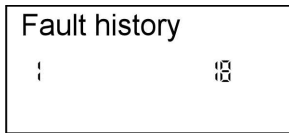
Press the following keys:

1. OK for approx. 3 s.
2. \oplus/\ominus for the acknowledged fault.

Fault display (cont.)

Calling up fault codes from the fault memory (fault history)

The 10 most recent faults are saved and may be scanned.
The faults are ordered by date, thus the most recent fault is fault number 1.



Press the following keys:

1. + simultaneously for approx. 2 s.
2. for individual fault codes.
3. **Note**
All saved fault codes can be deleted with .
4. Scanning is completed.

Fault codes

| Fault code on the display | Const. | Weath.-comp. | System characteristics | Cause | Measures |
|---------------------------|--------|--------------|---|--|--|
| 0F | X | X | Control mode | Service | Service the equipment. After the service, set coding address "24:0". |
| 10 | | X | Regulates as if the outside temperature was 0 °C | Outside temperature sensor shorted out | Check the outside temperature sensor (see page 82). |
| 18 | | X | Regulates as if the outside temperature was 0 °C | Outside temperature sensor lead broken | Check the outside temperature sensor (see page 82). |
| 20 | | X | Regulates without flow temperature sensor (low loss header) | System flow temperature sensor shorted out | Check the low loss header sensor (see page 83). |



Fault codes (cont.)

| Fault code on the display | Const. | Weath.-comp. | System characteristics | Cause | Measures |
|----------------------------------|---------------|---------------------|---|---|--|
| 28 | | X | Regulates without flow temperature sensor (low loss header) | System flow temperature sensor lead broken | Check the low loss header sensor (see page 83). |
| 30 | X | X | Burner blocked | Boiler water temperature sensor shorted out | Check the boiler water temperature sensor (see page 83). |
| 38 | X | X | Burner blocked | Boiler water temperature sensor lead broken | Check the boiler water temperature sensor (see page 83). |
| 40 | | X | Mixer closes | Heating circuit with mixer M2 flow temperature sensor shorted out | Check the flow temperature sensor. |
| 48 | | X | Mixer closes | Heating circuit M2 flow temperature sensor lead broken | Check the flow temperature sensor. |
| 50 | X | X | No DHW heating | Cylinder temperature sensor shorted out | Check the sensor (see page 83). |
| 58 | X | X | No DHW heating | Cylinder temperature sensor lead broken | Check the sensor (see page 83). |



Fault codes (cont.)

| Fault code on the display | Const. | Weath.-comp. | System characteristics | Cause | Measures |
|----------------------------------|---------------|---------------------|-------------------------------|---|------------------------------------|
| 92 | X | X | Control mode | Collector temperature sensor shorted out; connects to the Vitosolic at S1 | Check the sensor at the Vitosolic. |
| 93 | X | X | Control mode | Cylinder temperature sensor shorted out; connects to the Vitosolic at S3 | Check the sensor at the Vitosolic. |
| 94 | X | X | Control mode | Temperature sensor shorted out; connects to the Vitosolic at S2 | Check the sensor at the Vitosolic. |
| 9A | X | X | Control mode | Collector temperature sensor lead broken; connects to the Vitosolic at S1 | Check the sensor at the Vitosolic. |
| 9b | X | X | Control mode | Cylinder temperature sensor lead broken; connects to the Vitosolic at S3 | Check the sensor at the Vitosolic. |



Fault codes (cont.)

| Fault code on the display | Const. | Weath.-comp. | System characteristics | Cause | Measures |
|----------------------------------|---------------|---------------------|---|--|---|
| 9C | X | X | Control mode | Temperature sensor lead broken; connects to the Vitosolic at S2 | Check the sensor at the Vitosolic. |
| 9F | X | X | Control mode | Solar control unit fault; displayed if a fault without fault code occurs at the solar control unit | Check the solar control unit (see solar control unit service instructions). |
| A2 | | X | Emergency mode with system pressure that is too low, triggered by code "0d" (see page 42) | System pressure too low | Top up with water |
| A4 | | X | Control mode | Max. system pressure exceeded | Check system pressure. Check the function and sizing of the diaphragm expansion vessel. Vent the heating system. Code "0E" is set to 1 to document the fault. After the fault has been removed, reset manually to 0. |
| A7 | | X | Control mode as per delivered condition | Faulty programming unit. | Replace the programming unit. |

Fault codes (cont.)

| Fault code on the display | Const. | Weath.-comp. | System characteristics | Cause | Measures |
|----------------------------------|---------------|---------------------|---|--|---|
| b1 | X | X | Control mode as per delivered condition | Communication fault; programming unit (internal) | Check connections and replace the programming unit, if necessary. |
| b4 | X | X | Regulates as if the outside temperature was 0 °C | Internal fault | Replace the control unit. |
| b5 | X | X | Control mode as per delivered condition | Internal fault | Replace the control unit. |
| b7 | X | X | Burner blocked | Boiler coding card missing, faulty or incorrect boiler coding card | Plug in boiler coding card or replace it, if faulty. |
| bA | | X | Mixer M2 regulates to a flow temperature of 20 °C | Communication fault – extension kit for heating circuit M2 | Check the extension kit connections and coding. Start the extension kit. |
| bC | | X | Control mode without remote control | Communication fault – Vitotrol remote control, heating circuit A1 | Check connections, cable, coding address "A0" and remote control DIP switches (see page 104). |
| bd | | X | Control mode without remote control | Communication fault, Vitotrol remote control, heating circuit M2 | Check connections, cable, coding address "A0" and remote control DIP switches (see page 104). |
| bE | | X | Control mode | Vitotrol remote control incorrectly programmed | Check remote control DIP switch settings (see page 104). |

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Fault codes (cont.)

| Fault code on the display | Const. | Weath.-comp. | System characteristics | Cause | Measures |
|----------------------------------|---------------|---------------------|-------------------------------|--|--|
| bF | | X | Control mode | Incorrect LON communication module | Replace the LON communication module. |
| C2 | X | X | Control mode | Communication fault, solar control unit | Check connections and coding address "54". |
| C5 | X | X | Control mode, max. pump speed | Communication fault, variable speed circulation pump in the heating circuit connection set | Check the setting of coding address "30" |
| C6 | | X | Control mode, max. pump speed | Communication fault, variable speed circulation pump, heating circuit M2 | Check setting of coding address "E5" |
| C7 | X | X | Control mode, max. pump speed | Communication fault, variable speed circulation pump, heating circuit A1 | Check setting of coding address "E5" |
| Cd | X | X | Control mode | Communication fault Vitocom 100 (KM BUS) | Check connections and the Vitocom 100. |
| CE | X | X | Control mode | Communication fault - ext. extension | Check connections and settings of coding address "2E". |



Fault codes (cont.)

| Fault code on the display | Const. | Weath.-comp. | System characteristics | Cause | Measures |
|----------------------------------|---------------|---------------------|-------------------------------------|--|---|
| CF | | X | Control mode | Communication fault, LON communication module | Replace the LON communication module. |
| dA | | X | Control mode without room influence | Room temperature sensor, heating circuit A1 shorted out | Check the room temperature sensor, heating circuit A1. |
| db | | X | Control mode without room influence | Room temperature sensor, heating circuit with mixer M2 shorted out | Check the room temperature sensor, heating circuit with mixer M2. |
| dd | | X | Control mode without room influence | Room temperature sensor, heating circuit A1 lead broken | Check the room temperature sensor, heating circuit A1 and the remote control DIP switch settings (see page 104). |
| dE | | X | Control mode without room influence | Room temperature sensor, heating circuit with mixer M2 lead broken | Check the room temperature sensor, heating circuit with mixer M2 and the remote control DIP switch settings (see page 104). |
| E4 | X | X | Burner blocked | Supply voltage fault | Replace the control unit. |



Fault codes (cont.)

| Fault code on the display | Const. | Weath.-comp. | System characteristics | Cause | Measures |
|----------------------------------|---------------|---------------------|-------------------------------|--|---|
| E5 | X | X | Burner blocked | Internal fault | Check the ionisation electrode and cable. Check the flue gas system for soundness. Press "↑ RESET". |
| E6 | X | X | Burner blocked | System pressure too low | Top up with water. |
| E8 | X | X | Burner in a fault state | The ionisation current lies outside the permissible range | Check the ionisation electrode and cable. Press "↑ RESET". |
| E9 | X | X | Burner in a fault state | The ionisation current lies outside the permissible range during calibration | Check the ionisation electrode and cable. Check the flue gas system for soundness. Press "↑ RESET". |
| EA | X | X | Burner in a fault state | The ionisation current lies outside the permissible range during calibration | Check the ionisation electrode and cable. Press "↑ RESET". |
| Eb | X | X | Burner in a fault state | Heat draw-off repeatedly too low during calibration | Initiate heat draw-off and trigger manual calibration (see page 88) Press "↑ RESET". |







Fault codes (cont.)

| Fault code on the display | Const. | Weath.-comp. | System characteristics | Cause | Measures |
|----------------------------------|---------------|---------------------|-------------------------------|--|---|
| EC | X | X | Burner in a fault state | The ionisation current lies outside the permissible range during calibration | Check the ionisation electrode and cable. Press "↑ RESET". |
| Ed | X | X | Burner in a fault state | Internal fault | Replace the control unit. |
| F0 | X | X | Burner blocked | Internal fault | Replace the control unit. |
| F2 | X | X | Burner in a fault state | The temperature limiter has responded. | Check the heating system fill level. Check the circulation pump. Check the temperature limiter and connecting cables. Vent the system. Press "↑ RESET". |
| F3 | X | X | Burner in a fault state | Flame signal is already present at burner start. | Check the ionisation electrode and connecting cable. Press "↑ RESET". |



Fault codes (cont.)

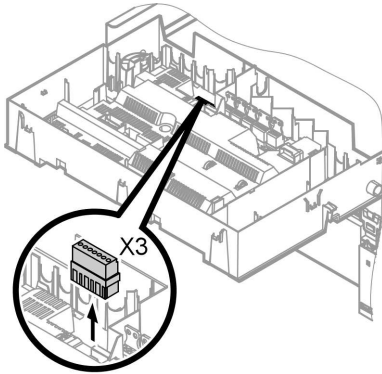
| Fault code on the display | Const. | Weath.-comp. | System characteristics | Cause | Measures |
|----------------------------------|---------------|---------------------|-------------------------------|--|---|
| F4 | X | X | Burner in a fault state | No flame signal. | Check the ionisation electrode and cable, measure the ionisation current, check the gas pressure, check the gas train, ignition, ignition module, ignition electrodes and the condensate drain. Press "  RESET". |
| F7 | X | X | Burner blocked | Short circuit or water pressure sensor lead broken | Check the water pressure sensor and the interconnecting cable. |
| F8 | X | X | Burner in a fault state | The fuel valve closes too late. | Check the gas train. Check both control paths. Press "  RESET". |
| F9 | X | X | Burner in a fault state | Fan speed too low during the burner start | Check the fan, check the fan connecting cables and supply, check the fan control. Press "  RESET". |
| FA | X | X | Burner in a fault state | Fan not at standstill | Check the fan, fan connecting cables and fan control. Press "  RESET". |

Fault codes (cont.)

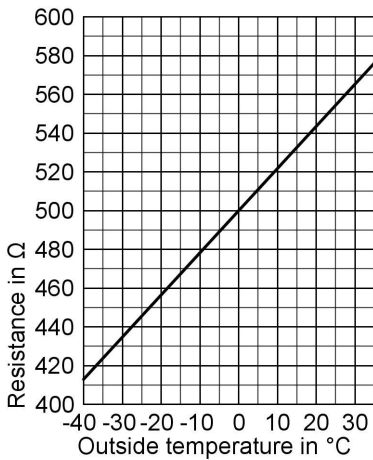
| Fault code on the display | Const. | Weath.-comp. | System characteristics | Cause | Measures |
|----------------------------------|---------------|---------------------|------------------------------------|---|---|
| FC | X | X | Burner in a fault state | Gas train faulty or faulty modulation valve control; or flue gas path blocked | Check the gas train. Check the flue gas system. Press " ↑ RESET". |
| Fd | X | X | Burner blocked | Fault at the burner control unit | Check ignition electrodes and connecting cables. Check the boiler coding card. Check whether a strong interference (EMC) field exists near the equipment. Confirm " ↑ RESET" : Replace control unit if the fault persists. |
| FE | X | X | Burner blocked or in a fault state | Strong interference (EMC) field nearby or faulty main PCB | Start the equipment again. Replace the control unit if the equipment will not restart. |
| FF | X | X | Burner blocked or in a fault state | Internal fault or " ↑ RESET" key blocked | Start the equipment again. Replace the control unit if the equipment will not restart. |

Repairs

Checking the outside temperature sensor (weather-compensated control unit)

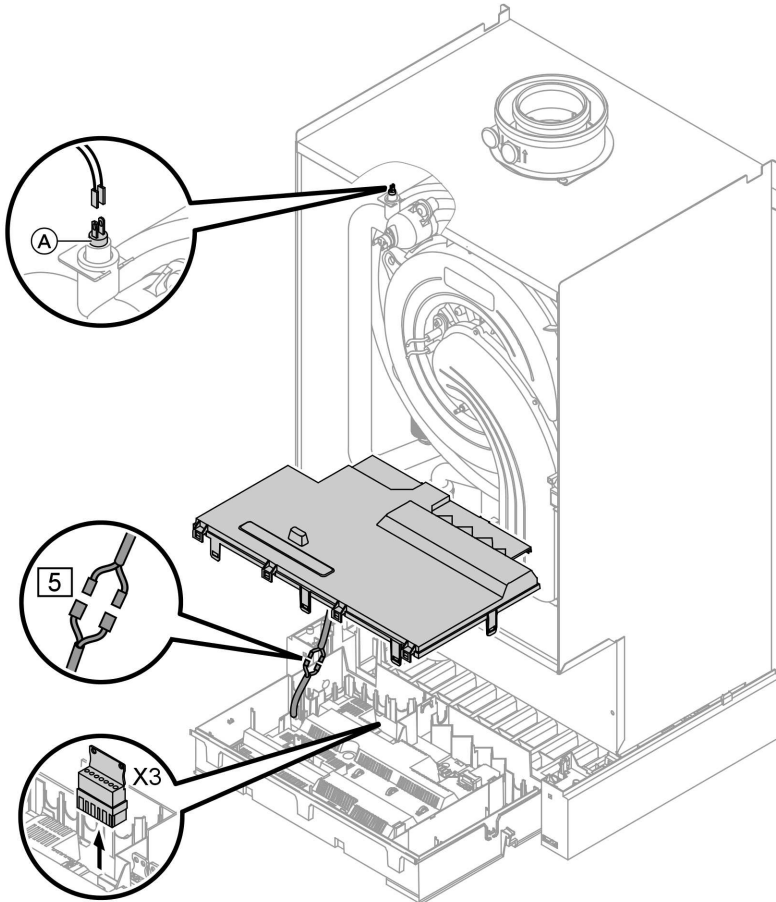


1. Pull plug "X3" from the control unit.
2. Test the resistance of the outside temperature sensor across terminals "X3.1" and "X3.2" on the disconnected plug and compare it with the curve.
3. Where actual values strongly deviate from the curve values, disconnect the wires at the sensor and repeat test immediately at the sensor.
4. Subject to result, replace the lead or the outside temperature sensor.



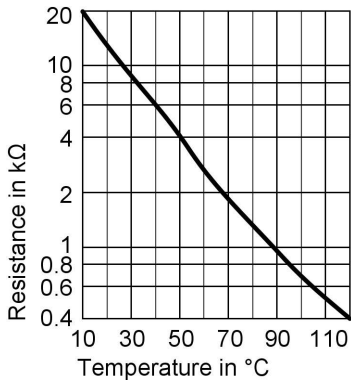
Repairs (cont.)

Checking the water temperature sensor, the cylinder temperature sensor or the flow temperature sensor for a low loss header



Repairs (cont.)

1. ■ Boiler water temperature sensor: Pull the leads from boiler water temperature sensor (A) and check the resistance.
■ Cylinder temperature sensor: Pull plug [5] from the cable harness at the control unit and check the resistance.
■ Flow temperature sensor: Pull plug "X3" from the control unit and check the resistance across terminals "X3.4" and "X3.5".



2. Check the sensor resistance and compare the actual values with the curve.
3. Replace the sensor in case of severe deviation.



Danger

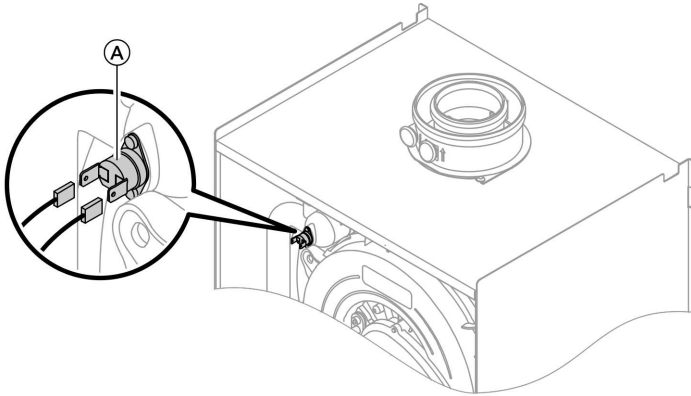
The boiler water temperature sensor is immersed in the heating water (risk of scalding).

Drain the boiler before replacing the sensor.

Checking the temperature limiter

Check the temperature limiter, if the burner control unit cannot be reset after a fault shutdown, although the boiler water temperature is below approx. 75 °C.

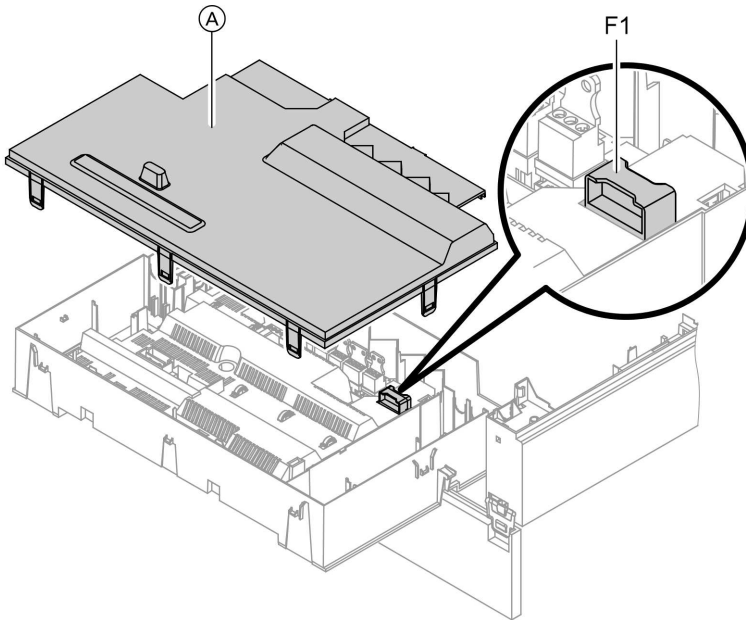
Repairs (cont.)



1. Pull the leads from temperature limiter (A).
2. Check the continuity of the temperature limiter with a multimeter.
3. Remove the faulty temperature limiter.
4. Install a new temperature limiter.
5. After commissioning, press reset button "↑ RESET" at the control unit.

Repairs (cont.)

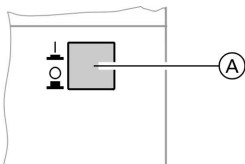
Checking the fuse



1. Switch OFF the power.
2. Release the side closures and pivot the control unit down.
3. Remove cover (A).
4. Check fuse F1 (see connection and wiring diagram).

Extension kit for heating circuit with mixer

Checking the rotational direction of the mixer motor



1. Switch ON/OFF switch (A) at the extension kit first OFF and then ON again. The device will carry out the following self-test:
 - Mixer "Close" (150 s)
 - Pump "ON" (10 s)
 - Mixer "Open" (10 s)
 - Mixer "Close" (10 s)



Repairs (cont.)

Then standard control mode resumes.

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

Note

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



Mixer installation instructions

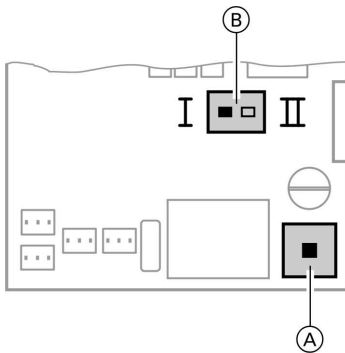
Changing the rotational direction of the mixer motor (if required)



Danger

An electric shock can be life-threatening.

Before opening the equipment, switch OFF the ON/OFF switch and mains voltage, for example at the fuse or the main isolator.



1. Remove the lower and upper housing cover of the extension kit.



Extension kit installation instructions



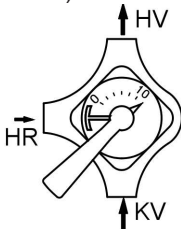
(A) ON/OFF switch

(B) Rotational direction switch

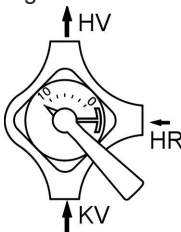
Repairs (cont.)

2. Change over the rotational direction switch:

Switch position I for central heating return from the left (delivered condition).



Switch position II for central heating return from the right.






Checking the Vitotronic 200-H (accessories)




The Vitotronic 200-H is connected to the control unit via the LON. To test the connection, carry out a subscriber check at the boiler control unit (see page 34).

Changing the combustion control parameters



The parameters are changed via the coding addresses in code 2.

Calling up coding addresses

1. Press  and  simultaneously for approx. 2 s; confirm with .

2. Select required coding address "11" with  or ; the address flashes; confirm with ; the value flashes.

Repairs (cont.)

3. Adjust value "9" with ⊕ or ⊖; confirm with ⊙. The green ON indicator flashes.
Access to the coding addresses of the parameters is open.
 4. Select the required coding address with ⊕ or ⊖ (see the following table) and change the value.
 5. To exit, set the value of coding address 11≠ 9; then press  and  simultaneously for approx. 1 s. Coding has been terminated.
- Note**
If setting the parameters is not concluded via coding address 11, the system automatically terminates the parameter change after approx. 25 min.

Coding

| Coding in the delivered condition | | Possible change | |
|-----------------------------------|-------------------------------|----------------------|---|
| Burner | | | |
| 7d:0 | Air factor correction 0 | 7d:-5 to 7d:10 | Note <i>A change is only possible if manual calibration was first carried out via coding address "85".</i> Air factor correction adjustable from - 5 to 10. Each step represents an air factor modification of approx. 0.01. |
| 82:0 | Operation with natural gas | 82:1 | Operation with LPG |
| 83:15 | Ignition start gas volume 15% | 83:0 to 83:31 | Start gas volume adjustable from 0 to 31 % |
| 84:0 | Start capacity correction 0 % | 84:-8 to 84:7 | Start capacity correction adjustable from -16 to +14 %. One step equals 2 %. |

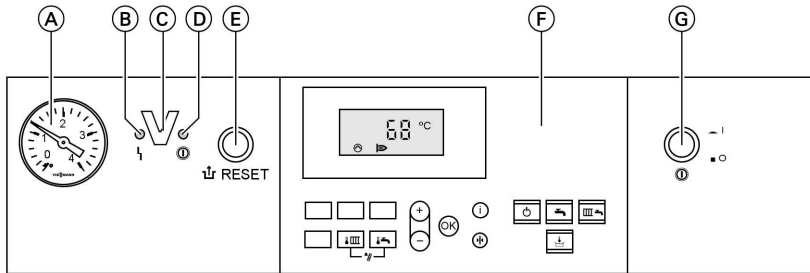


Repairs (cont.)

| Coding in the delivered condition | | Possible change | |
|--|---------------|------------------------|---|
| 85:0 | Standard mode | 85:1 | <p>Manual calibration of the combustion control unit. The red fault indicator also flashes during calibration. The process has terminated when the red indicator no longer flashes (after approx. 1 min). The air factor can then be manually altered in coding address "7d".</p> <p>Note <i>Heat must be drawn off during manual calibration.</i></p> |

Constant temperature control unit

Control and display elements



- (A) Pressure gauge
- (B) Fault indicator (red)
- (C) Optolink interface
only in conjunction with the diagnostic adaptor (accessory) and Vitosoft (accessory)
- (D) ON indicator (green)
- (E) Reset button
- (F) User interface
- (G) ON/OFF switch

Keys at the user interface:

- | | | | |
|--|------------------------------|--|---------------------------|
| | Set boiler water temperature | | Heating and DHW |
| | Set DHW temperature | | No function |
| | Emissions test function | | Setting values |
| | Standby mode | | Confirmation |
| | DHW only | | Information |
| | | | Standard settings (Reset) |

Heating operation

The selected set boiler water temperature will be maintained when a demand is being raised by the room thermostat and the heating program is set to DHW and central heating "". The boiler water temperature will be maintained at the default frost protection temperature when there is no demand.

The electronic temperature limiter inside the burner control unit limits the boiler water temperature to 82 °C. Flow temperature setting range: 40 to 74 °C.

Constant temperature control unit (cont.)

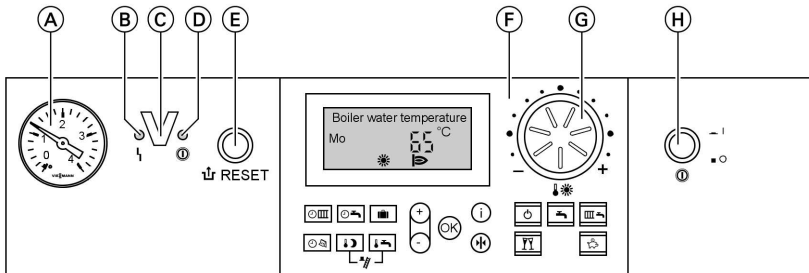
DHW heating

The burner and the cylinder primary pump are started if the cylinder temperature lies 2.5 K below the set cylinder temperature.

In the delivered condition, the set boiler water temperature is 20 K higher than the set DHW temperature (adjustable via coding address "60"). The burner will be switched OFF and the circulation pump run-on time will begin, if the actual cylinder temperature exceeds the set cylinder temperature by 2.5 K.

Weather-compensated control unit



















Control and display elements



- | | |
|--|---|
| (A) Pressure gauge | (D) ON indicator (green) |
| (B) Fault indicator (red) | (E) Reset button |
| (C) Optolink interface only in conjunction with the diagnostic adaptor (accessory) and Vitosoft (accessory) | (F) User interface |
| | (G) Rotary selector for standard room temperature |
| | (H) ON/OFF switch |

Weather-compensated control unit (cont.)

Keys at the user interface:

| | | | |
|---|---|---|---------------------------|
|  | Central heating time program |  +  | Emissions test function |
|  | DHW heating and DHW circulation pump time programs (if connected to the control unit) |  | Standby mode |
|  | Holiday program |  | DHW only |
|  | Time/date |  | Heating and DHW |
|  | Reduced room temperature |  | Party mode |
|  | Set DHW temperature |  | Economy mode |
| | |  /  | Setting values |
| | |  | Confirmation |
| | |  | Information |
| | |  | Standard settings (Reset) |

Heating operation

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

The determined set boiler water temperature is transferred to the burner control unit. From the set and actual boiler water temperatures, the burner control unit calculates the modulation level and regulates the burner accordingly.

The electronic temperature limiter inside the burner control unit limits the boiler water temperature to 82 °C.

DHW heating

The burner and the cylinder primary pump are started if the cylinder temperature lies 2.5 K below the set cylinder temperature.

In the delivered condition, the set boiler water temperature is 20 K higher than the set DHW temperature (adjustable via coding address "60"). The burner will be switched OFF and the circulation pump run-on time will begin, if the actual cylinder temperature exceeds the set cylinder temperature by 2.5 K.

Function description

Weather-compensated control unit (cont.)

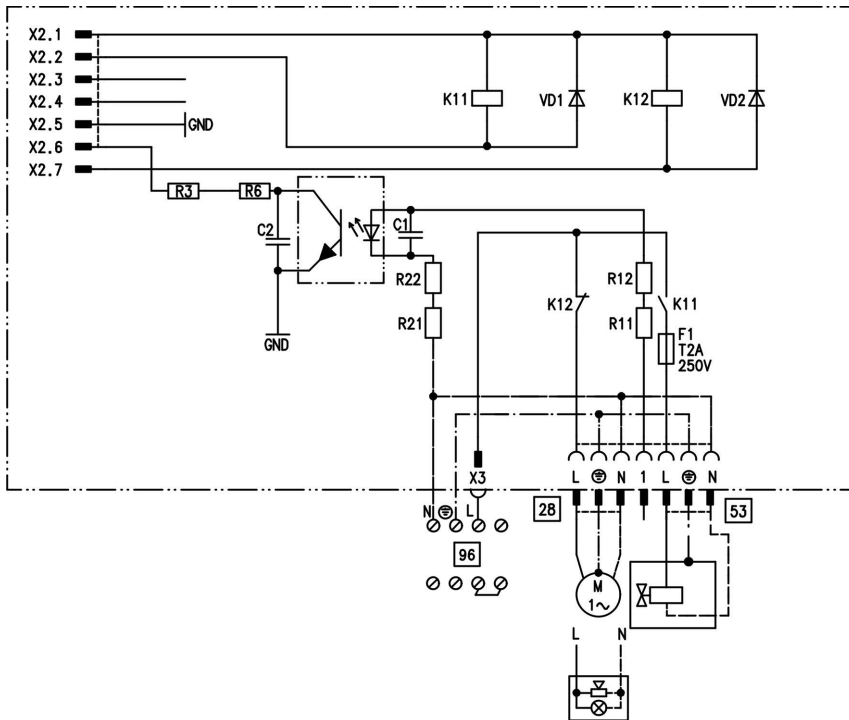
Boosting DHW heating

The booster heating function is activated if a switching period is selected for the fourth time phase.

The set temperature value for the heating boost is adjustable in coding address "58".

Extensions for external connections (accessories)

Internal extension H1



Extensions for external connections . . . (cont.)

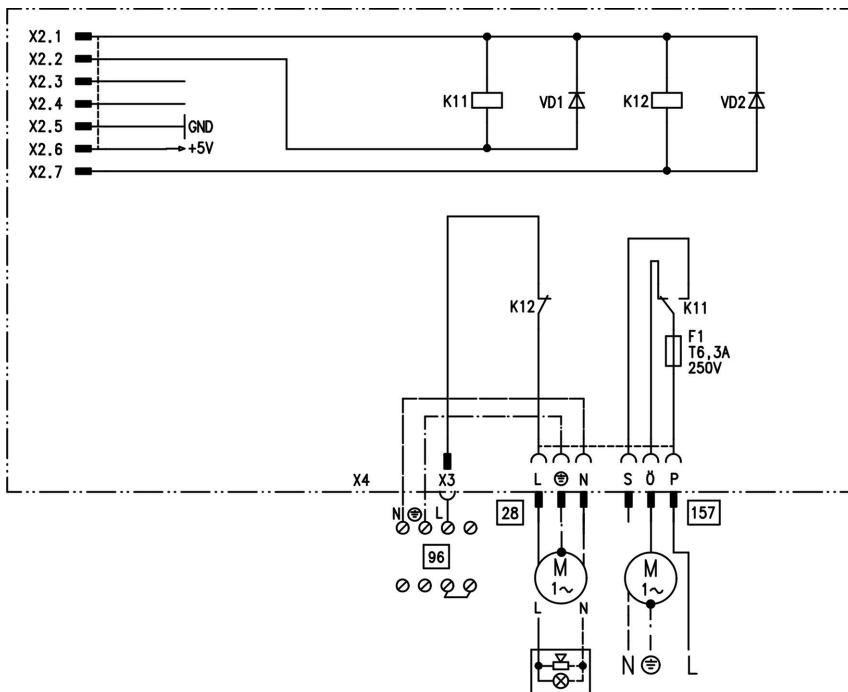
The internal extension is integrated into the control unit housing. The following alternative functions can be connected to relay output [28]. The function is allocated via coding address "53":

- Central fault message (coding address "53:0")
- DHW circulation pump (coding address "53:1") (only for weather-compensated operation)

- Heating circuit pump for a heating circuit without mixer (coding address "53:2")
- Cylinder primary pump (coding address "53:3")

An external safety valve can be connected to [53].

Internal extension H2



Extensions for external connections . . . (cont.)

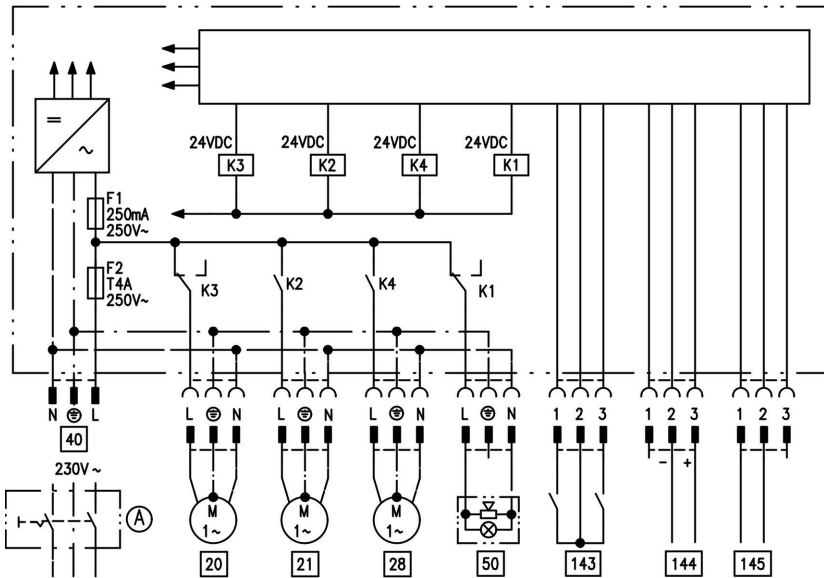
The internal extension is integrated into the control unit housing. The following alternative functions can be connected to relay output [28]. The function is allocated via coding address "53":

- Central fault message (coding address "53:0")
- DHW circulation pump (coding address "53:1") (only for weather-compensated operation)

- Heating circuit pump for heating circuit without mixer (coding address "53:2")
- Cylinder primary pump (coding address "53:3")

An extractor can be switched OFF via connection [157] when the burner starts.

External extension H1



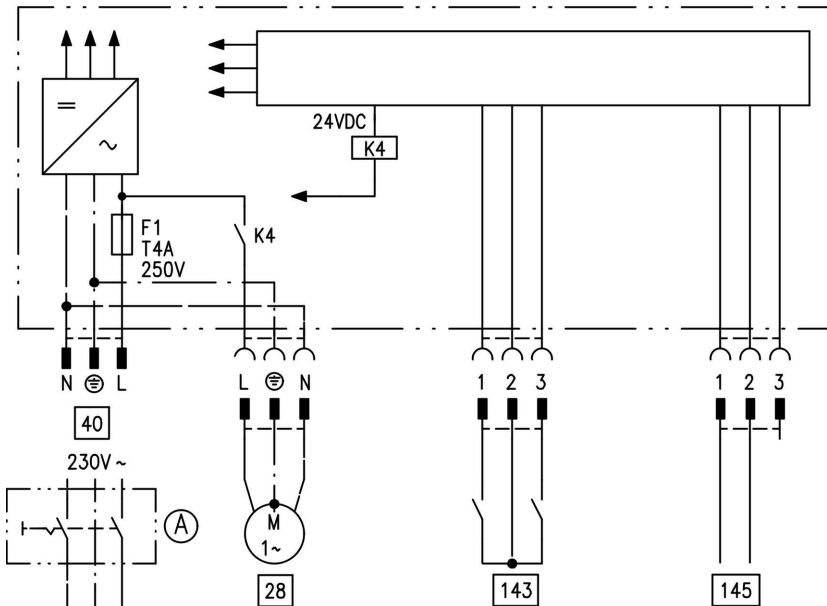
The external extension is connected to the boiler control unit via the KM BUS. The following functions can be controlled or processed simultaneously via the extension:

- (A) ON/OFF switch (on site)
- [20] Heating circuit pump for the heating circuit without mixer
- [21] Cylinder primary pump
- [28] DHW circulation pump (only for weather-compensated operation)

Extensions for external connections . . . (cont.)

- | | |
|---|---|
| <p>40 Power supply</p> <p>50 Central fault message</p> <p>143 ■ External blocking (terminals 2 - 3)</p> <p>■ External demand (terminals 1 - 2)</p> <p>■ External heating program changeover (terminals 1 - 2) (only for weather-compensated operation)</p> <p>The allocation of the function "External heating program changeover" is set via coding address "91".</p> | <p>144 External set value 0 to 10 V</p> <p>145 KM BUS</p> |
|---|---|

External extension H2



Extensions for external connections . . . (cont.)

The external extension is connected to the boiler control unit via the KM BUS. The following functions can be controlled or processed simultaneously via the extension:

- Ⓐ ON/OFF switch (on site)
- 28 DHW circulation pump (only for weather-compensated operation)
- 40 Power supply

- 143 ■ External blocking (terminals 2 - 3)
- External demand (terminals 1 - 2)
- External heating program changeover (terminals 1 - 2) (only for weather-compensated operation)
The allocation of the function "External heating program changeover" is set via coding address "91".
- 145 KM BUS

Control functions

External heating program changeover

The "External heating program changeover" function is connected via external extension input "143". You can select which heating circuits the heating program changeover affects in coding address "91":

| Heating program changeover | Coding |
|--|--------|
| No changeover | 91:0 |
| Heating circuit without mixer A1 | 91:1 |
| Heating circuit with mixer M2 | 91:2 |
| Heating circuit without mixer and heating circuit with mixer | 91:3 |

You can select which direction the heating program changeover takes in coding address "d5":

| Heating program changeover | Coding |
|--|--------|
| Changeover towards "Permanently reduced" or "Permanent standby" mode (subject to the selected set value) | d5:0 |
| Changeover towards "Constant heating mode" | d5:1 |

Control functions (cont.)

The duration of the heating program changeover can be adjusted in coding address "F2":

| Heating program changeover | Coding |
|--|---------------|
| No heating program changeover | F2:0 |
| Duration of the heating program changeover 1 to 12 hours | F2:1 to F2:12 |

The operating mode changeover remains active for as long as the contact remains closed, but at least as long as the duration selected in coding address "F2".

External blocking

The "External blocking" function is connected via the external extension input "143".

In coding address "32", you can select the influence the "Ext. blocking" signal should have on the connected circulation pumps.

External demand

The "External demand" function is connected via the external extension input "143".

In coding address "34" you can select the influence the "Ext. demand" signal should have on the connected circulation pumps.

The minimum set boiler water temperature in case of external demand is selected in coding address "9b".

Venting program

During the venting program, the circulation pump will be alternately switched ON and OFF for 30 s respectively over a period of 20 min.

The burner is switched OFF during the venting program.

The venting program is activated via code "2F:1". The program is automatically disabled after 20 min, and coding address "2F" is set to "0".

Function description

Control functions (cont.)

Filling with the control unit switched ON

If the system is to be filled with the control unit switched ON, code "2F:2" starts the pump.

The burner shuts down if this function is enabled via coding address "2F". The program is automatically disabled after 20 min, and coding address "2F" is set to "0".

Screed drying function

The screed function enables screeds to be dried. For this, always observe the details specified by the screed manufacturer.

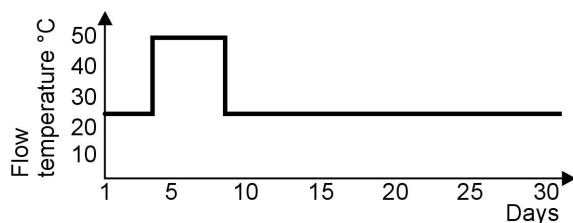
When the screed drying function is activated, the heating circuit pump of the mixer circuit is switched ON and the flow temperature will be held at the selected profile. After completion (30 days), the mixer circuit will again be regulated automatically via the set parameters.

Observe EN 1264. The report to be provided by the heating contractor must contain the following heat-up details:

- Heat-up data with respective flow temperatures
- Max. flow temperature achieved
- Operating condition and outside temperature during handover

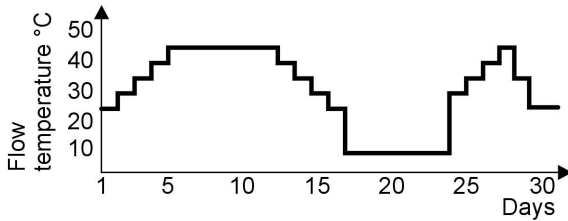
The various temperature profiles are adjustable via coding address "F1". The function continues after power failure or after the control unit has been switched OFF. "Heating and DHW" will be started after the screed drying function has been terminated or if code "F1:0" is manually adjusted.

Temperature profile 1: (EN 1264-4) code "F1:1"

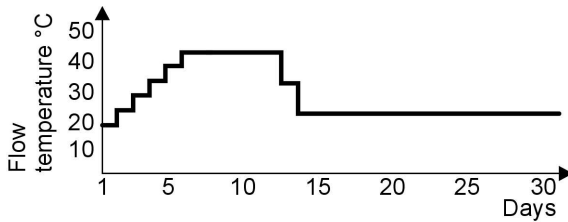


Control functions (cont.)

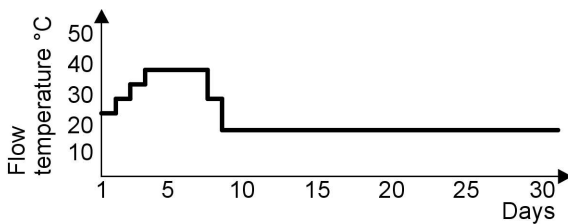
Temperature profile 2: (ZV parquet and flooring technology) code "F1:2"



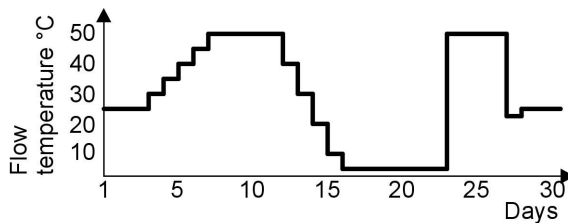
Temperature profile 3: Code "F1:3"



Temperature profile 4: Code "F1:4"



Temperature profile 5: Code "F1:5"

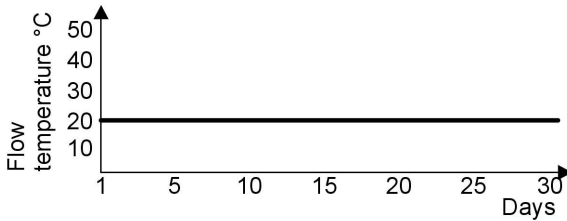


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Function description

Control functions (cont.)

Temperature profile 6 (delivered condition): Code "F1:6"



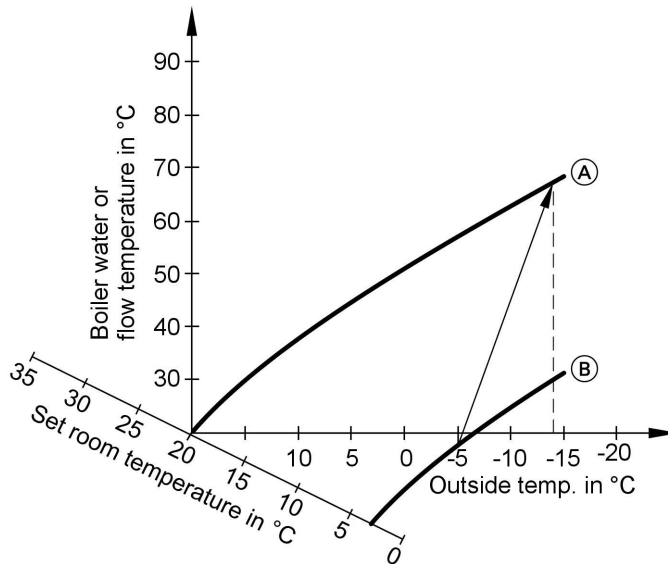
Raising the reduced room temperature

During operation with reduced room temperature, the reduced set room temperature can be automatically raised subject to the outside temperature. The temperature is raised in accordance with the selected heating curve, but no higher than the set standard room temperature.

The outside temperature limits for the start and end of the temperature raising can be adjusted via coding addresses "F8" and "F9".

Control functions (cont.)

Example using the settings in the delivered condition



Ⓐ Heating curve for operation with standard room temperature

Ⓑ Heating curve for operation with reduced room temperature

Reducing the heat-up time

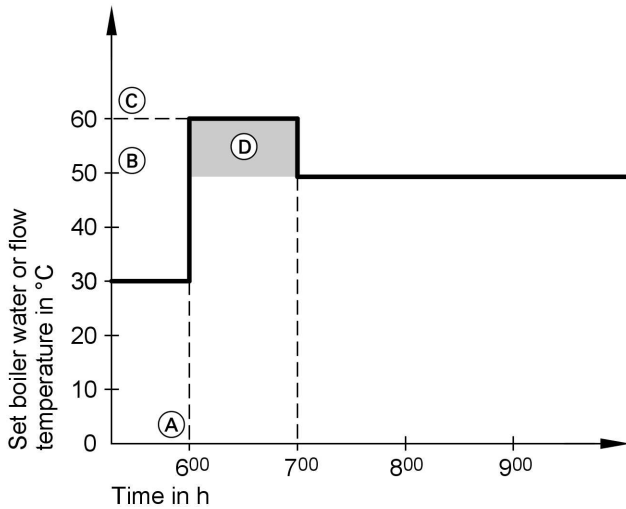
During the transition from operation with reduced room temperature to operation with standard room temperature, the boiler water or flow temperature will be raised in accordance with the selected heating curve. The boiler water or flow temperature can be automatically increased.

The value and duration of the additional increase of the set boiler water temperature or flow temperature can be adjusted in coding addresses "FA" and "Fb".

Function description

Control functions (cont.)

Example using the settings in the delivered condition






- (A) Start of operation with standard room temperature
- (B) Set boiler water or flow temperature in accordance with the selected heating curve
- (C) Set boiler water or flow temperature in accordance with coding address "FA":
 $50\text{ °C} + 20\% = 60\text{ °C}$
- (D) Duration of operation with raised set boiler water or flow temperature in accordance with coding address "Fb":
60 min

Remote control DIP switches

The DIP switches are located on the PCB in the top part of the casing.

Remote control DIP switches (cont.)

| Remote control | DIP switch setting |
|---|--|
| The remote control affects the heating circuit without mixer A1 | ON  1 2 3 4 |
| The remote control affects the heating circuit with mixer M2 | ON  1 2 3 4 |
| When connecting a separate room temperature sensor, set DIP switch "3" to "ON". | ON  1 2 3 4 |

Electronic combustion control unit

The electronic combustion control unit utilises the physical correlation between the size of the ionisation current and the air factor λ . In case of air factor 1, the maximum ionisation current results for all gas qualities. The ionisation signal is evaluated by the combustion control unit, and the air factor is adjusted to between $\lambda=1.24$ and 1.44 . This range provides for an optimum combustion quality. Thereafter, the electronic gas valve regulates the required gas volume subject to the prevailing gas quality.

To check the combustion quality, the CO_2 content or the O_2 content of the flue gas is measured. The actual values enable the prevailing air factor to be determined. The relationship between the CO_2 or O_2 content and air factor λ is illustrated in the following table.

Function description

Electronic combustion control unit (cont.)

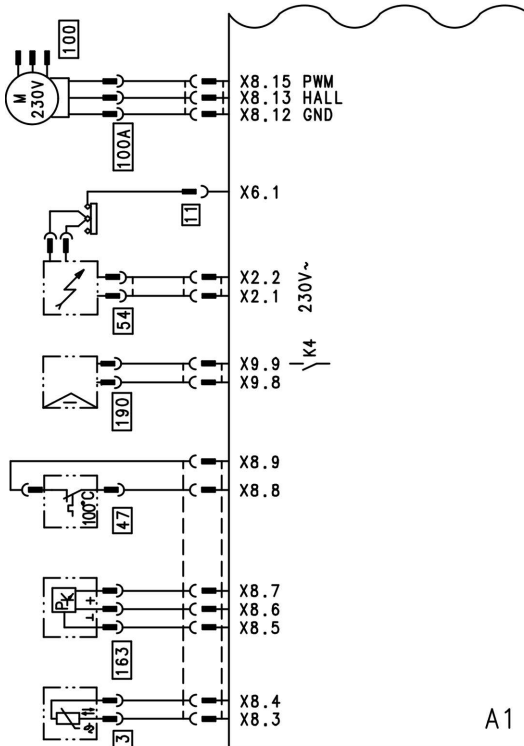
Air factor λ – CO₂/O₂ content

| Air factor λ | O ₂ content (%) | CO ₂ content (%) for natural gas E | CO ₂ content (%) for natural gas LL | CO ₂ content (%) for LPG P |
|----------------------|----------------------------|---|--|---------------------------------------|
| 1.24 | 4.4 | 9.2 | 9.1 | 10.9 |
| 1.27 | 4.9 | 9.0 | 8.9 | 10.6 |
| 1.30 | 5.3 | 8.7 | 8.6 | 10.3 |
| 1.34 | 5.7 | 8.5 | 8.4 | 10.0 |
| 1.37 | 6.1 | 8.3 | 8.2 | 9.8 |
| 1.40 | 6.5 | 8.1 | 8.0 | 9.6 |
| 1.44 | 6.9 | 7.8 | 7.7 | 9.3 |

To achieve an optimum combustion control, the system regularly carries out an automatic self-calibration; also after a power failure (shutdown). For this, the combustion is briefly regulated to max. ionisation current (equals air factor $\lambda=1$). The automatic calibration is carried out shortly after the burner start and lasts approx. 5 s. This may lead to CO emissions in excess of 1000 ppm for a short time.

The combustion control unit can also be calibrated manually. e.g. after maintenance or service work (see page 88).

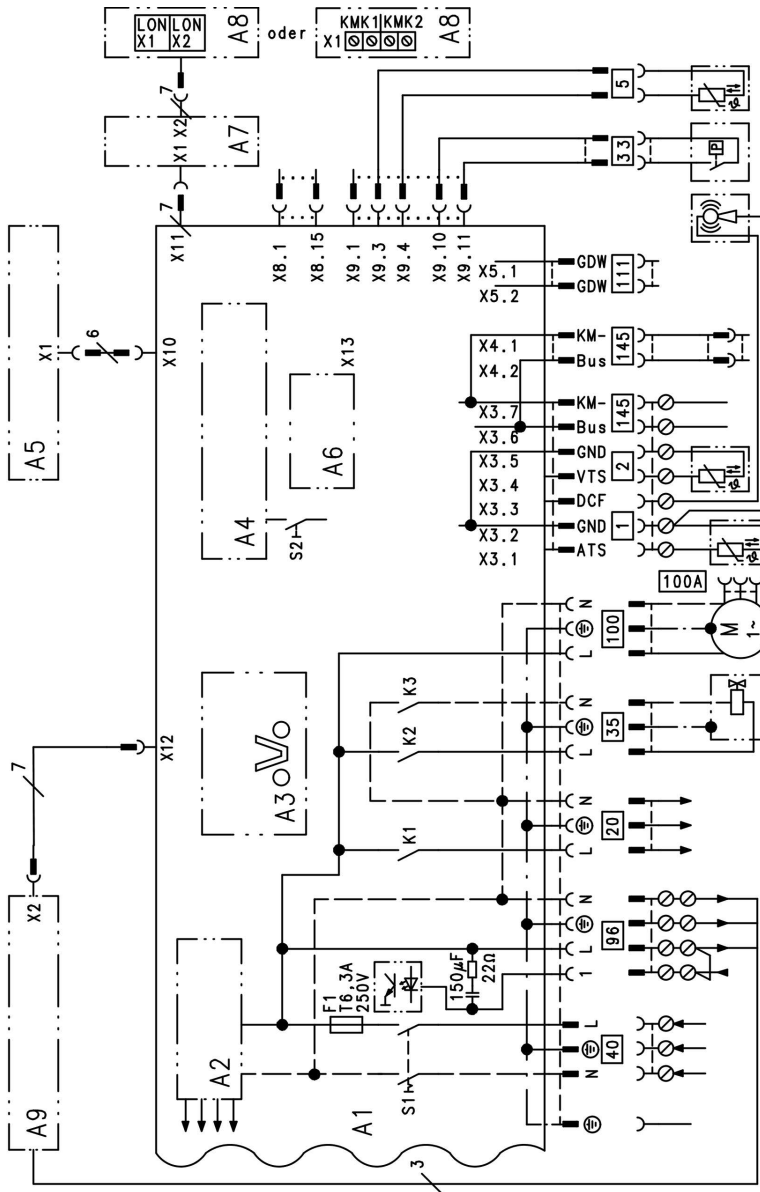
Connection and wiring diagram – internal connections



- A1 Main PCB
- X... Electrical interfaces
- 3 Boiler water temperature sensor
- 11 Ionisation electrode
- 47 Temperature limiter

- 54 Ignition unit
- 100 Fan motor
- 100A Fan motor control
- 163 Water pressure sensor
- 190 Modulation coil

Connection and wiring diagram – external connections



A1 Main PCB

A2 Power supply unit

Connection and wiring diagram – external . . . (cont.)

| | | | |
|------|---|-----|--|
| A3 | Optolink | 5 | Cylinder temperature sensor (plug on the cable harness) |
| A4 | Burner control unit | 20 | Heating circuit pump or boiler circuit pump |
| A5 | Programming unit | 33 | Flow switch |
| A6 | Coding card | 35 | Gas solenoid valve |
| A7 | Connection adaptor | 40 | Power supply |
| A8 | LON communication module or cascade communication module | 96 | Power supply accessories and Vitotrol 100 |
| A9 | Internal extension (accessories) | 100 | Fan motor |
| S1 | ON/OFF switch | 111 | Gas pressure limiter |
| S2 | Reset button | 145 | KM BUS |
| X... | Electrical interfaces | | |
| 1 | Outside temperature sensor | | |
| 2 | Flow temperature sensor, low loss header | | |

Parts lists

Spare parts information

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

Obtain standard parts from your local supplier.

- 001 Quick-acting air vent valve
- 002 Safety spring
- 003 Lip seal Ø 80
- 004 Ventilation air gasket Ø 125
- 005 Condensate hose
- 006 Pressure gauge
- 007 Heat exchanger
- 008 Thermal insulation block
- 009 Condensate hose
- 010 Boiler flue connection
- 011 Gas pipe
- 012 Entry grommets (set)
- 013 Air vent container
- 014 Gasket set
- 015 Flue gas gasket
- 016 Flow switch
- 017 Boiler flue connection plug
- 018 Siphon
- 019 Heating water flow connection pipe
- 020 Heating water return connection pipe
- 021 Wall mounting bracket
- 022 Cover
- 024 Clip Ø 10 (5 pce.)
- 025 Heating water return connection pipe
- 026 Flue gas temperature sensor
- 050 Burner profile packing
- 051 Burner insulation ring
- 052 Cylinder burner gauze assembly
- 053 Burner gauze assembly gasket
- 058 Burner flange gasket
- 059 Radial fan
- 061 Gas train
- 062 Burner door
- 063 Ignition unit
- 070 Ionisation electrode gasket
- 071 Ignition electrode gasket
- 072 Gasket A 17x24x2
- 073 Gas nozzle
- 074 Venturi extension type 4
- 100 Control unit
- 101 Back cover
- 102 Locking bracket
- 103 Support
- 104 Flap
- 105 Pressure gauge retainer
- 106 Clip
- 107 Hinge (10 pce.)
- 108 Coding card
- 109 Fuse
- 110 Vitotronic 100 HC1 (constant temperature operation)
- 111 Vitotronic 200 HO1 (weather-compensated operation)
- 114 Internal connection extension H1
- 115 LON module HO1
- 116 PCB adaptor, LON module (accessories)
- 117 Fuse holder
- 120 Access guard
- 150 Water pressure sensor
- 151 Outside temperature sensor
- 153 Thermocouple
- 154 Temperature sensor
- 200 Front panel
- 201 Fixing clip

Wearing parts

- 054 Ignition electrode
- 055 Ionisation electrode

Parts not shown

- 112 Cable harness "X8/X9"
- 113 Cable harness aux. earth/100/35/54
- 118 Mating plug
- 119 Cable ties (10 pce.)

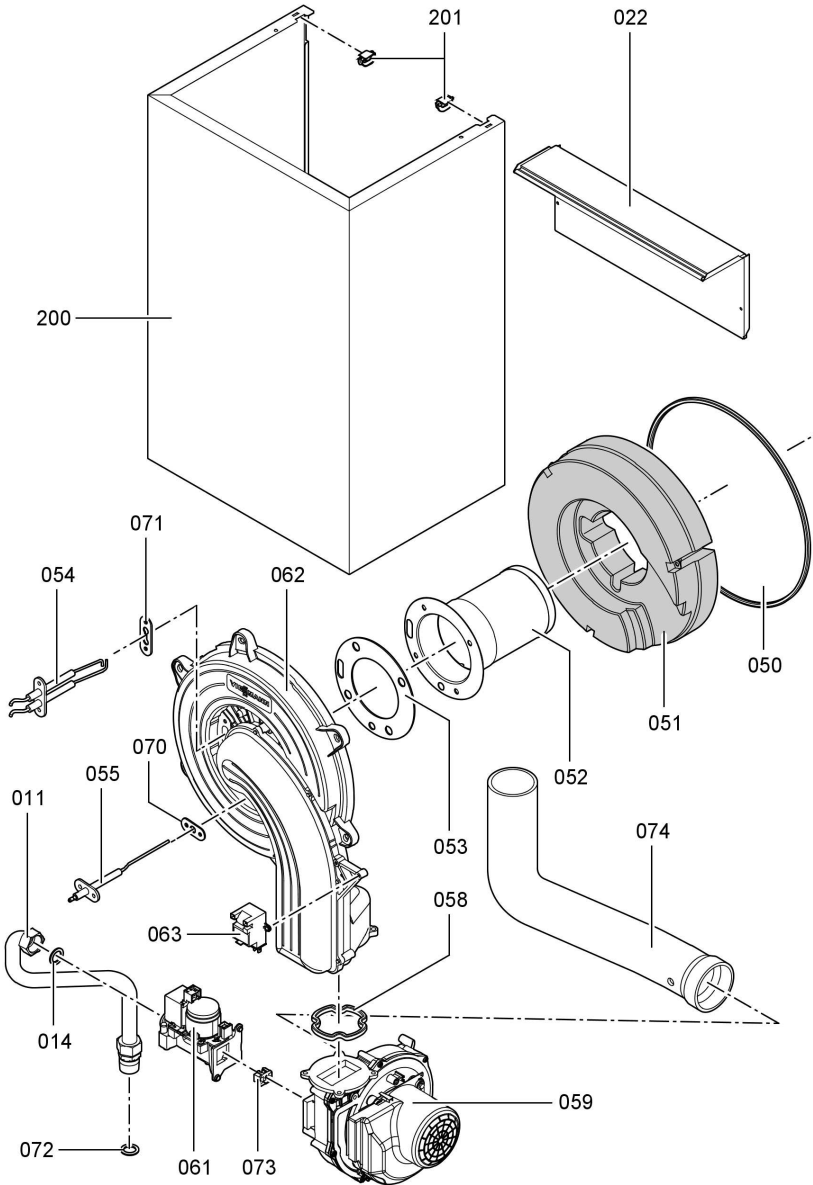


Parts lists (cont.)

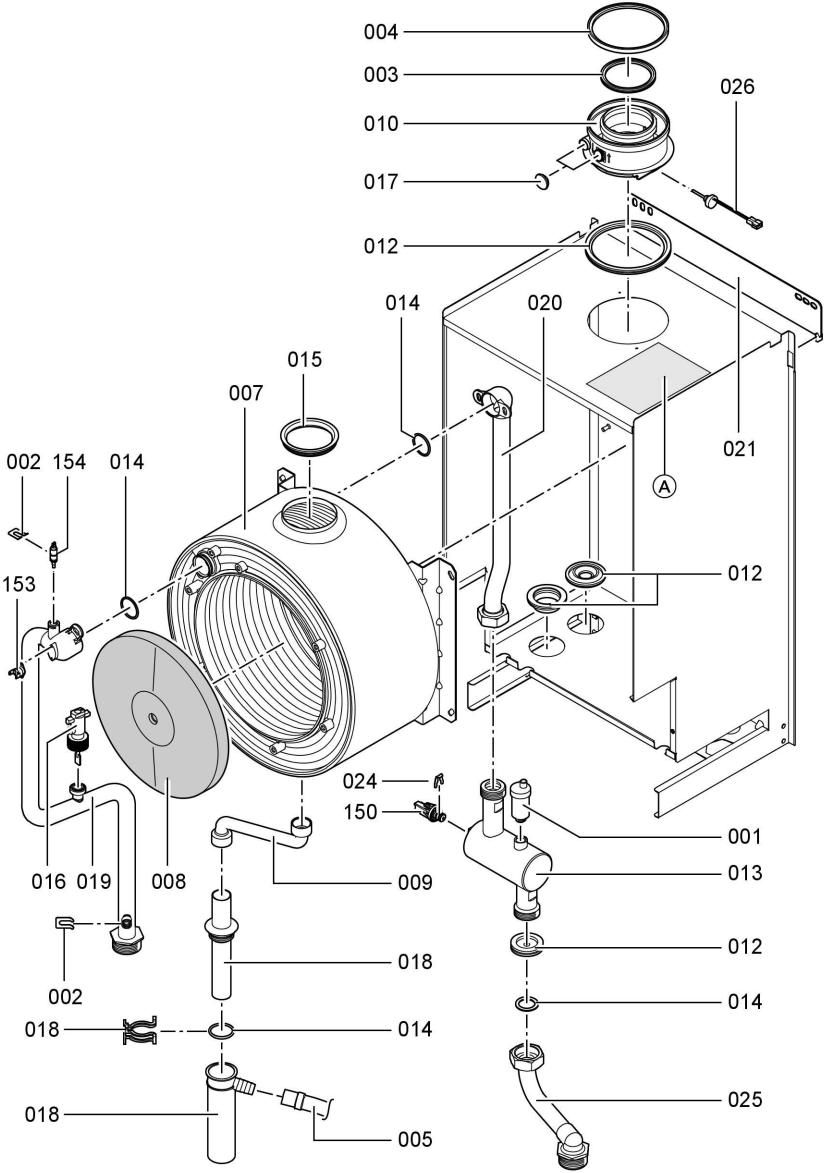
- 202 Spray paint, Vitowhite
- 203 Touch-up paint stick, Vitowhite
- 300 Installation instructions
- 301 Service instructions
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- 303 Operating instructions for weather-compensated mode
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Parts lists

Parts lists (cont.)



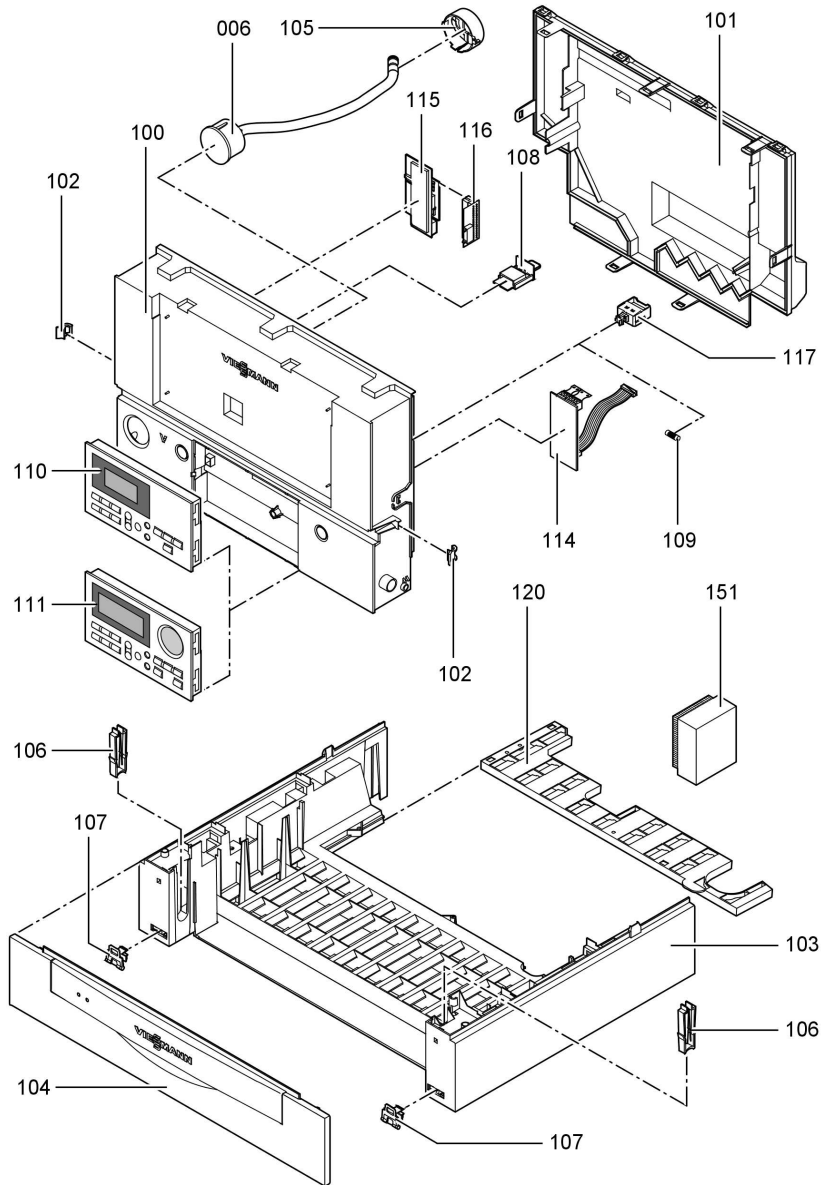
Parts lists (cont.)



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Parts lists

Parts lists (cont.)





| Setting and test values | Date: By: | Set value | Commissioning | Service |
|--|---------------|----------------|---------------|---------|
| Static pressure | <i>mbar</i> | max. 57.5 mbar | | |
| Supply pressure (flow pressure) | | | | |
| <input type="checkbox"/> for natural gas E | <i>mbar</i> | 15-25 mbar | | |
| <input type="checkbox"/> for natural gas LL | <i>mbar</i> | 15-25 mbar | | |
| <input type="checkbox"/> for LPG | <i>mbar</i> | 42.5-57.5 mbar | | |
| <i>Tick gas type</i> | | | | |
| Carbon dioxide content CO₂ | | | | |
| ■ at lower output | <i>% vol.</i> | | | |
| ■ at upper output | <i>% vol.</i> | | | |
| Oxygen content O₂ | | | | |
| ■ at lower output | <i>% vol.</i> | | | |
| ■ at upper output | <i>% vol.</i> | | | |
| Carbon monoxide content CO | | | | |
| ■ at lower output | <i>ppm</i> | | | |
| ■ at upper output | <i>ppm</i> | | | |

Specification

Specification

| | | | |
|------------------|-------------|--|----------------|
| Rated voltage: | 230 V~ | Permissible ambient temperature | |
| Rated frequency: | 50 Hz | ■ during operation: | 0 to +40 °C |
| Rated current: | 6.0 A | ■ during storage | |
| Safety class: | I | and transport: | -20 to +65 °C |
| | IP X 4 D to | | |
| Protection: | EN 60529 | Electronic tempera- ture limiter setting: | 82 °C (fixed) |
| | | Temperature limiter setting: | 100 °C (fixed) |
| | | Line fuse (mains): | max. 16 A |

Gas fired boiler, category II 2N3P

| Rated output range Tv/Tr 50/ 30 °C | kW | 17 - 45 | 17 - 60 |
|---------------------------------------|-------------------|-------------|-------------|
| Rated thermal load range | kW | 16.1 - 42.2 | 16.1 - 56.2 |
| Power consumption | W (max.) | 30 | 50 |
| Connection values | | | |
| In relation to the max. load with | | | |
| Natural gas E | m ³ /h | 4.47 | 5.95 |
| Natural gas LL | m ³ /h | 5.19 | 6.91 |
| LPG | kg/h | 3.30 | 4.39 |
| Product ID | CE-0085 BR 0432 | | |

Note

The supply values are only for documentation purposes (e.g. in the gas contract application) or to estimate the supplementary volumetric settings. Because of factory settings, the gas pressure must not be altered from these settings. Reference: 15 °C, 1013 mbar.

Specification (cont.)
Product characteristics (to EnEV [Germany])

| | | | |
|---|----|---------|---------|
| Rated output range | kW | 17 - 45 | 17 - 60 |
| Efficiency η at | | | |
| ■ 100 % of rated output | % | 96.3 | 96.6 |
| ■ 30 % of rated output | % | 107.3 | 107.4 |
| Standby loss $q_{B,70}$ (max. limit according to EnEV [Germany]) | % | 0.5 | 0.4 |
| Power consumption (max. limit according to EnEV [Germany]) at | | | |
| ■ 100 % of rated output | W | 270 | 311 |
| ■ 30 % of rated output | W | 90 | 104 |

Certificates

Declaration of conformity

Declaration of conformity for the Vitodens 200-W

We, Viessmann Werke GmbH&Co KG, D-35107 Allendorf, confirm as sole responsible body that the product **Vitodens 200-W** complies with the following standards:

EN 483
EN 677
EN 50 165
EN 55 014

EN 60 335
EN 61 000-3-2
EN 61 000-3-3

In accordance with the following Directives, this product is designated with **CE-0085**:

90/396/EEC
89/336/EEC

92/42/EEC
2006/ 95/EC

This product meets the requirements of the Efficiency Directive (92/42/EEC) for **condensing boilers**.

The product characteristics determined as system values for the **Vitodens 200-W as part of EC type testing according to the Efficiency Directive** (see specification table) can be used for the energy assessment of heating and ventilation equipment to DIN V 4701–10.

Allendorf, 1. December 2006

Viessmann Werke GmbH&Co KG



pp. Manfred Sommer

Manufacturer's certificate according to the 1st BImSchV [Germany]

We, Viessmann Werke GmbH&Co KG, D-35107 Allendorf, confirm that the product **Vitodens 200-W** complies with the NO_x limits specified by the 1st BImSchV paragraph 7 (2) [Germany].

Allendorf, 1. December 2006

Viessmann Werke GmbH&Co KG

A handwritten signature in black ink, appearing to read 'M. Sommer', is written over the printed name.

pp. Manfred Sommer

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Applicability

Vitodens 200-W, type WB2B

13 to 45 kW

from serial no.

7194 486 7 00001

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17 to 60 kW

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5692 683 GB Subject to technical modifications.