

# Service instructions

for contractors

# VIESSMANN

## Vitodens 200-W

### Type WB2C

Wall mounted gas condensing boiler

4.8 to 35 kW natural gas and LPG version

Gas Council no.:

41-819-14; 41-819-15; 41-819-16; 41-819-17 (system boilers)

47-819-09; 47-819-10; 47-819-11 (combi boilers)

*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,
- Gas Safety (Installation & Use) Regulations
  - the appropriate Building Regulation either the Building regulations, the Building Regulation (Scotland), Building Regulations (Northern Ireland),
  - the Water Fittings Regulation or Water Bylaws in Scotland,
  - the current I.E.E. Wiring Regulations.

### **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).

## Safety instructions (cont.)

### 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.

### 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

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

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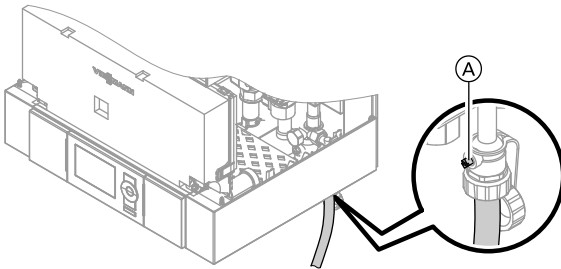
## Further details regarding the individual steps

### 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 hardness exceeding 300 ppm (3.0 mol/m<sup>3</sup>), e.g. using a small softening system for heating water (see Viessmann Vitoset pricelist).
  - An antifreeze additive suitable for heating systems can be added to the fill water. The antifreeze manufacturer must verify its suitability.



1. Check the pre-charge pressure of the diaphragm expansion vessel.
2. Close the gas shut-off valve.
3. Fill the heating system via boiler drain & fill valve (A) in the heating return (at the connection set or on site) (minimum system pressure > 1.0 bar).

#### Note

*If the control unit has not been switched ON prior to filling the system, then the servomotor of the diverter valve will still be in its central position, and the system will be completely filled.*

#### Note

*If an external filling loop is fitted, it must meet the requirements of the Water Fittings Regulations 1999 Section G 24.1 and G 24.2.*



## Further details regarding the individual steps (cont.)

- If the control unit had already been switched ON before filling began:  
Switch control unit ON and activate filling function (see next chapter).

- Close boiler drain & fill valve (A).

### Activating filling function with weather-compensated control units:

- Press **OK** and **≡** simultaneously for approx. 4 s.
- "Service functions"
- "Filling"

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

#### Note

At the commissioning stage, the display is in German (default setting)

#### Extended menu:

- ≡**
- "Settings"

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

During commissioning, or after prolonged time out of use, the time and date need to be reset.

#### Extended menu:

- ≡**

- Ending filling function:  
Press **OK** or **↶**.

### Activating filling function with constant temperature control units:

- Press **OK** and **≡** simultaneously for approx. 4 s.
- Select "④" with **▶** and confirm with **OK**.  
When the filling function is active, "bF on" will be displayed.
- Ending filling function:  
Press **↶**.

- "Language"

Sprache	
Deutsch	DE <input checked="" type="checkbox"/>
Cesky	CZ <input type="checkbox"/>
Dansk	DK <input type="checkbox"/>
English	GB <input type="checkbox"/>
Wählen mit <b>◀▶</b>	

- Set the required language with **▲/▼**.

- "Settings"

- "Time / Date"

- Set current time and date.

## Further details regarding the individual steps (cont.)

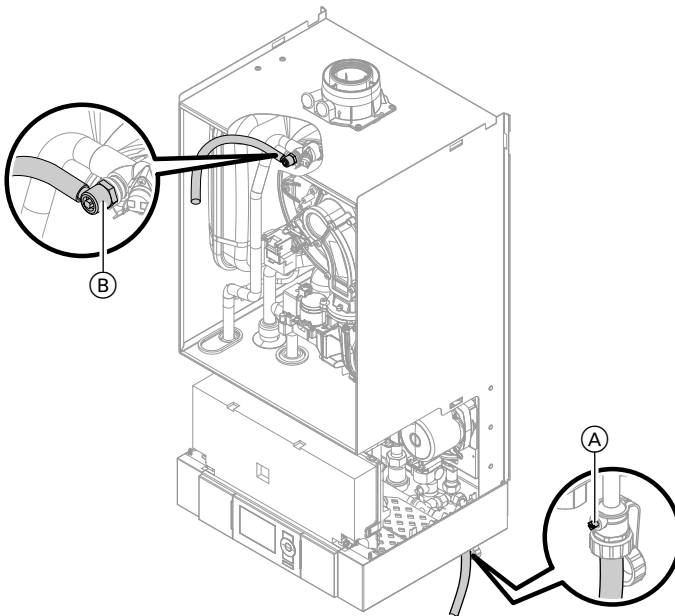
### Setting the time and date (if required) - for constant temperature control units

The time and date need to be reset during commissioning or after prolonged time out of use. After starting the system, the display flashes the time (Ⓢ).

Press the following keys:

1. ▲/▼ for the required time.
2. **OK** to confirm; the new time unit is saved, Ⓢ appears.
3. ▲/▼ for the required date.
4. **OK** to confirm; the new date is saved.

### Venting the boiler



1. Close the shut-off valves on the heating water side.
2. Connect the drain hose between top valve (B) and a drain outlet.
3. Open valves (A) and (B), and vent at mains pressure until no sound of escaping air can be heard.

## Further details regarding the individual steps (cont.)

4. Close valves (A) and (B), remove the filling equipment and open the shut-off valves on the heating water side.

### Venting the heating system


1. Close the gas shut-off valve and switch the control unit ON.
2. Activate venting program (see next steps).

#### Note


*For function and sequence of the venting program, see page 126.*

3. Check the system pressure.




#### Activating the venting program with weather-compensated control units:

1. Press **OK** and  simultaneously for approx. 4 s.
2. "Service functions"

#### 3. "Venting"

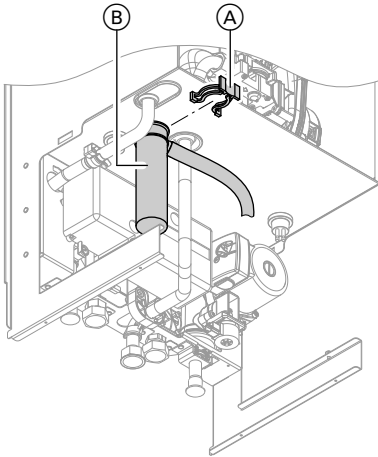
4. Terminating venting program:  
Press **OK** or .

#### Activating venting program with constant temperature control units:

1. Press **OK** and  simultaneously for approx. 4 s.
2. Select "5" with  and confirm with **OK**.  
When the venting function is active, "EL on" will be displayed.
3. Terminating venting program:  
Press .

## Further details regarding the individual steps (cont.)

### Filling the siphon with water



1. Remove retaining clip (A) and siphon (B).
2. Fill siphon (B) with water.
3. Fit siphon (B) and secure with retaining clip (A).

### Designating heating circuits – only for weather-compensated control units

In the delivered condition, the heating circuits are designated "Heating circuit 1", "Heating circuit 2" and "Heating circuit 3" (if installed).

If the system user prefers, the heating circuits can be designated differently to suit the specific system.

To enter names for heating circuits:



Operating instructions

### Checking the gas type

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

- Consequently, for natural gas there is no adjustment required across the entire Wobbe index range.

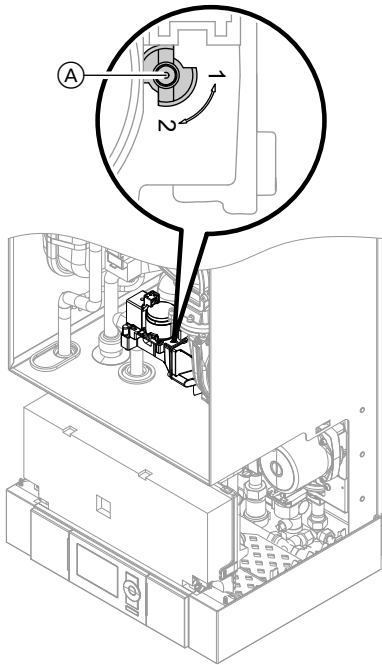
The boiler can be operated in the Wobbe index range 9.5 to 15.2 kWh/m<sup>3</sup> (34.2 to 54.7 MJ/m<sup>3</sup>).

- Convert the burner for operation with LPG (see "Gas type conversion" on page 13).

## Further details regarding the individual steps (cont.)

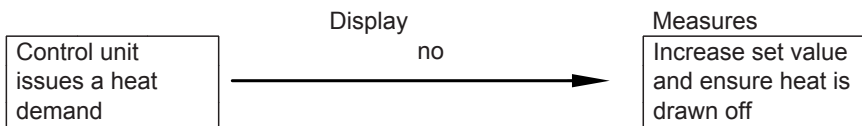
1. Determine the gas type and Wobbe index by asking your local gas supply utility or LPG supplier.
2. Convert the burner for operation with LPG (see page 13).
3. Record the gas type in the service report on page 144.

### Gas type conversion (only for operation with LPG)

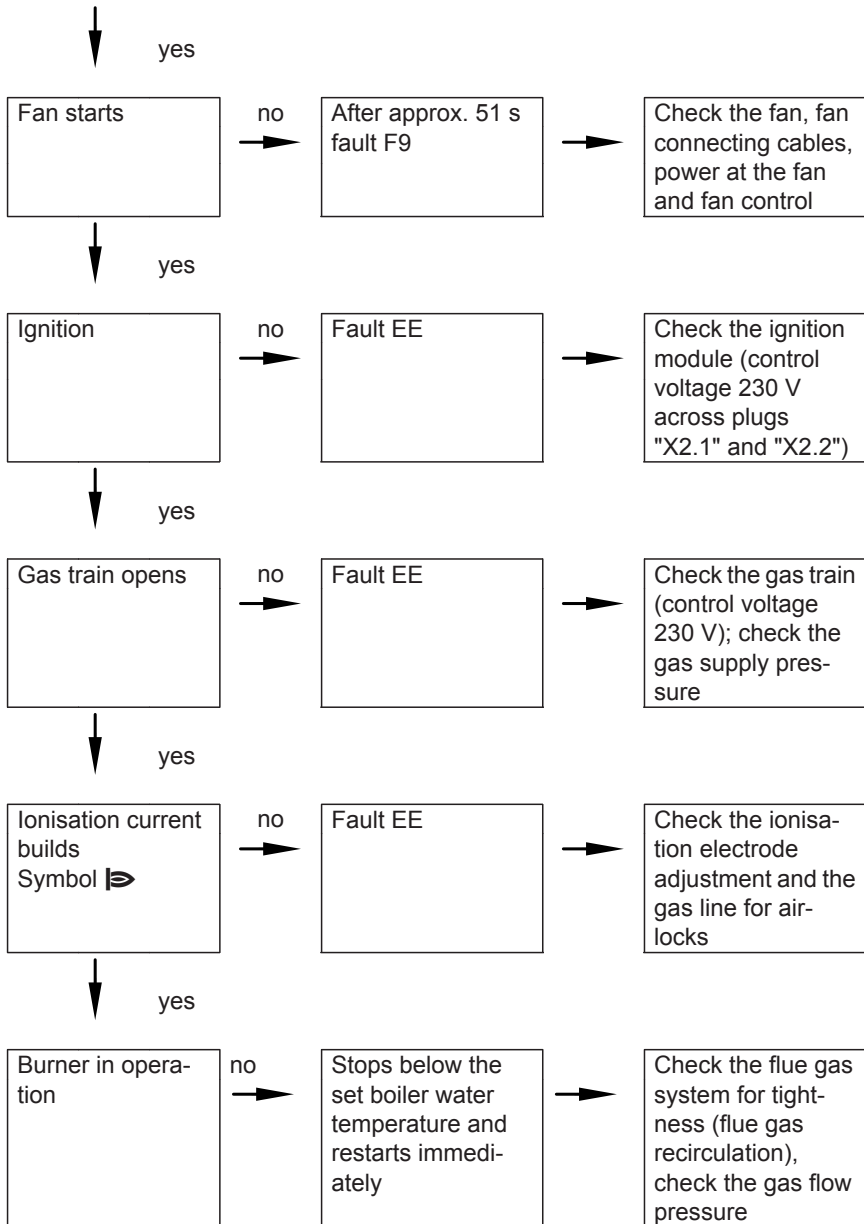


1. Set adjusting screw (A) at the gas train to "2".
2. Turn ON/OFF switch (I) ON.
3. Select the gas type in coding address "82":
  - Call up code 2
  - **"General"** (control unit for weather-compensated mode) or Group **"1"** (constant temperature control units) - call up
  - In coding address "11", select value "9"
  - In coding address "82", select value "1" (LPG operation)
  - In code "11" select value ≠ "9".
  - End service functions.
4. Open the gas shut-off valve.
5. Affix label "G31" (supplied with the technical documentation) adjacent to the type plate on the top.

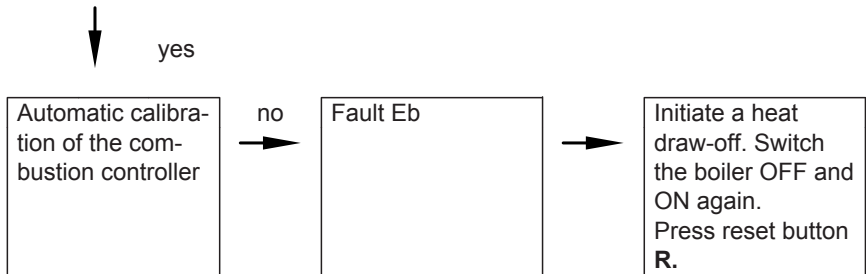
### Function sequence and possible faults



**Further details regarding the individual steps (cont.)**



## Further details regarding the individual steps (cont.)



For further fault details, see page 91.

## Checking the static and supply pressure



### Danger

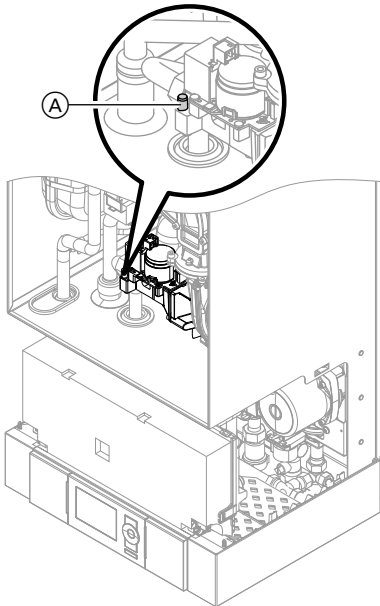
CO build-up as a result of an incorrect burner setup can have serious health implications.

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. Undo screw (A) inside test nipple "IN" on the gas train but do not remove it, and 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 144.  
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 line. After approx. 5 s press reset button R to reset the burner.*

6. Check the supply (flow) pressure.

Set value:

- Natural gas: 20 mbar
- LPG: 37 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 on page 144.  
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 nipple (A) with the screw.
9. Open the gas shut-off valve and start the boiler.



### Danger

Gas escaping from the test nipple leads to a risk of explosions.

Check test nipple (A) for tightness.




## Further details regarding the individual steps (cont.)

Supply pressure (flow pressure)		Measures
for natural gas	for LPG	
below 17.4 mbar	below 25 mbar	Do not start the boiler. Notify your gas supply utility or LPG supplier.
17.4 to 25 mbar	25 to 47 mbar	Start the boiler.
above 25 mbar	above 47 mbar	Install a separate gas pressure governor upstream of the system and regulate the supply pressure to 20 mbar for natural gas or 37 mbar for LPG. Notify your gas supply utility or LPG supplier.




## Setting the maximum output

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.

### Weather-compensated control unit:

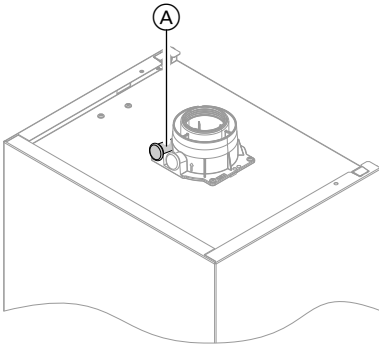
1. Press **OK** and  simultaneously for approx. 4 s.
2. **"Service functions"**
3. **"Max. output"**
4. **"Change?"** Select **"Yes"**.  
A value flashes on the display (e.g. "85"). In the delivered condition, this value represents 100 % of rated output.
5. Select required value.

### Constant temperature control unit:

1. Press **OK** and  simultaneously for approx. 4 s.
2. Select  **"③"** and confirm with **OK**.  
A value flashes on the display (e.g. "85") and  appears. In the delivered condition, this value represents 100 % of rated output.
3. Select required value and confirm with **OK**.

## Further details regarding the individual steps (cont.)

### Checking the balanced flue system tightness (annular gap check)



Ⓐ Combustion air aperture

For balanced flue systems tested together with the wall mounted gas fired boiler, the requirement for a tightness test during commissioning by the flue gas inspector is not applicable.

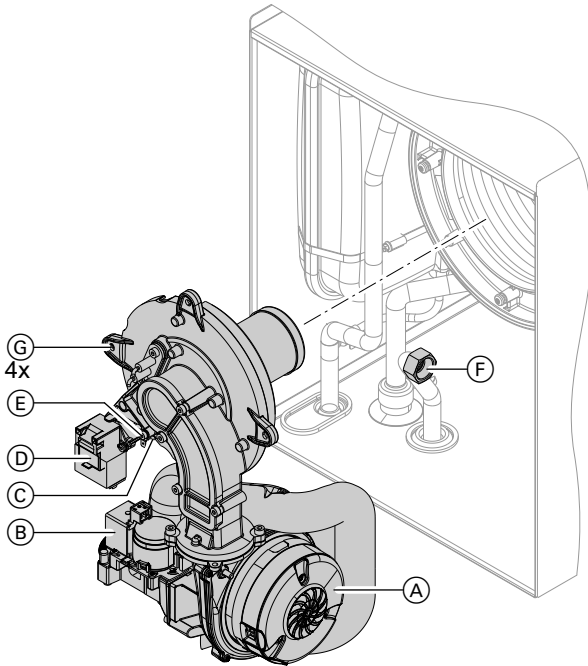
We recommend that your heating engineer carries out a simple leak/tightness test during the commissioning of your system. For this, it would be sufficient to check the  $\text{CO}_2$  or  $\text{O}_2$  concentration in the combustion air at the annular gap of the balanced flue pipe.

The flue pipe is deemed to be gas-tight if the  $\text{CO}_2$  concentration in the combustion air is no higher than 0.2 % or the  $\text{O}_2$  concentration is at least 20.6 %.

If actual  $\text{CO}_2$  values are higher or  $\text{O}_2$  values are lower, then pressure test the flue pipe with a static pressure of 200 Pa.

## Further details regarding the individual steps (cont.)

### Burner removal



1. Switch OFF the main power supply and the ON/OFF switch at the control unit.
2. Close the gas shut-off valve and safeguard against reopening.
3. Pull cables from fan motor (A), gas train (B), ionisation electrode (C), ignition unit (D) and earth tab (E).
4. Release gas supply pipe fitting (F).
5. Undo four screws (G) and remove the burner.



**Please note**

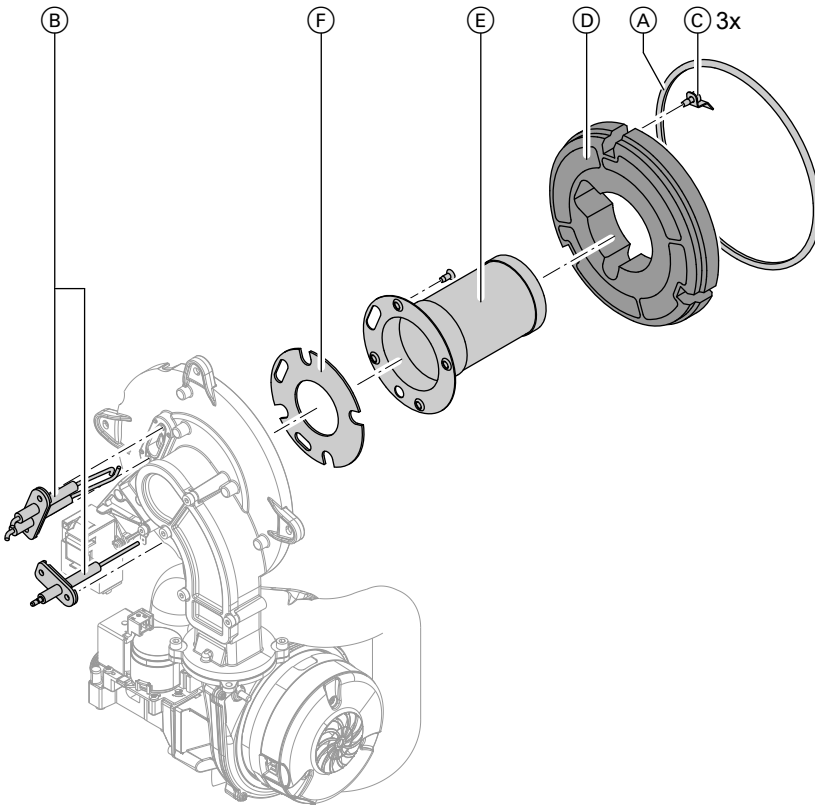
To prevent damage, never rest the burner on the gauze assembly.

### Checking the burner gasket and the burner gauze assembly

Check burner gasket (A) and burner gauze assembly (E) for damage and replace if required.



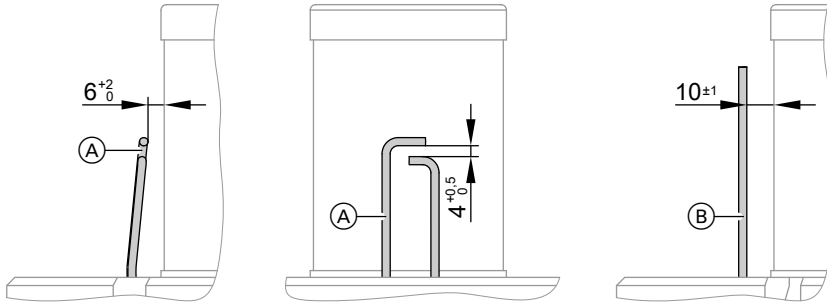
**Further details regarding the individual steps (cont.)**



1. Remove electrodes (B).
2. Undo three retaining clips (C) at thermal insulation ring (D) and remove thermal insulation ring (D).
3. Undo four Torx screws and remove burner gauze assembly (E) with its gasket (F).
4. Insert and secure a new burner gauze assembly (E) with a new gas-gasket (F).  
Torque: 3.5 Nm.
5. Refit thermal insulation ring (D).
6. Refit electrodes (B).  
Torque: 4.5 Nm.

## Further details regarding the individual steps (cont.)

### Checking and adjusting the ignition and ionisation electrodes



Ⓐ Ignition electrodes

Ⓑ Ionisation electrode

1. Check the electrodes for wear and contamination.
2. Clean the electrodes with a small brush (not with a wire brush) or sand paper.
3. Check the electrode gaps. If the gaps are not as specified or the electrodes are damaged, replace the electrodes together with new gaskets and adjust them as required. Tighten the electrode fixing screws with 4.5 Nm.

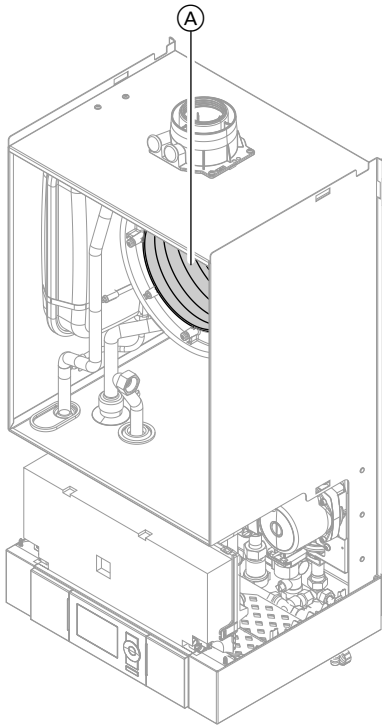
### Cleaning the heat exchanger and installing the burner




#### Please note

Scratches on parts that are in contact with flue gas can lead to corrosion.  
**Never use brushes to clean the heat exchanger.**

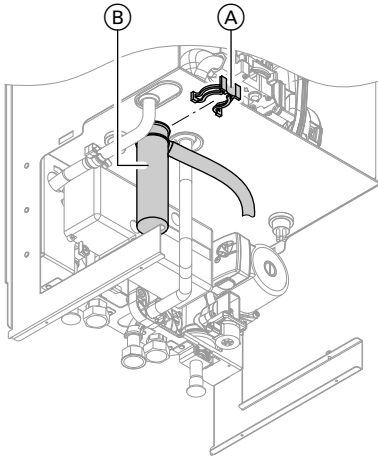
## Further details regarding the individual steps (cont.)



1. Use a vacuum cleaner to remove residues from heat exchanger (A) inside the combustion chamber.
  2. If required, spray slightly acidic, chloride-free cleaning agents based on phosphoric acid (e.g. Antox 75 E) onto heat exchanger (A) and let the solution soak in for approx. 20 min.
  3. Thoroughly flush heat exchanger (A) with water.
  4. Install the burner and torque the screws diagonally with 8.5 Nm.
  5. Fit the gas supply pipe with a new gasket.
  6. Check the gas connections for tightness.
-  **Danger**  
Escaping gas leads to a risk of explosion.  
Check all fittings for gas tightness.
7. Connect the electrical cables/leads to each corresponding component.

## Further details regarding the individual steps (cont.)

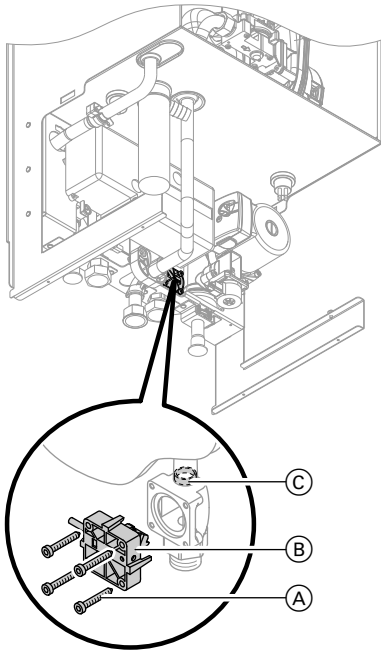
### Checking the condensate drain and cleaning the siphon



1. Check that the condensate can drain freely at the siphon.
2. Remove retaining clip (A) and siphon (B).
3. Clean siphon (B).
4. Fill siphon (B) with water and fit it to the boiler. Position retaining clip (A).

## Further details regarding the individual steps (cont.)

### Checking the flow limiter (only for gas combi boilers)



1. Switch OFF the control unit, shut off the cold water line and drain the DHW side of the boiler.

2. Undo Allen screws (A).

#### **Note**

*Residual water may escape during dismantling.*

3. Remove flow switch (B) and take out flow limiter (C) downwards.

4. Check flow limiter (C); replace in case of excessive scaling or damage. Refit flow switch (B).

### 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 pre-charge pressure of the diaphragm expansion vessel is lower than the static system pressure, top up with nitrogen until the pre-charge pressure is raised by 0.1 to 0.2 bar.
3. Top up with water until the filling pressure of the cooled system is min. 1.0 bar and 0.1 to 0.2 bar higher than the pre-charge pressure of the expansion vessel.  
Permiss. operating pressure: 3 bar



## Further details regarding the individual steps (cont.)

### Checking all gas equipment for tightness at operating pressure



#### **Danger**

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

#### **Note**

*For the tightness test, use only suitable and approved leak detecting agents (EN 14291) and devices. Leak detecting agents with unsuitable constituents (e.g. nitrites, sulphides) can lead to material damage.*

*Remove residues of the leak detecting agent after testing.*

### Checking the combustion quality

The electronic combustion controller automatically ensures an optimum combustion quality. Only the combustion values need to be checked during commissioning and maintenance. For this, check the CO<sub>2</sub> or O<sub>2</sub> content. For a description of the electronic combustion controller functions, see page 132.

#### **Note**

*Operate the appliance with uncontaminated combustion air to prevent operating faults and damage.*

#### **CO<sub>2</sub> or O<sub>2</sub> content**

- The CO<sub>2</sub> content must be within the following limits (upper and lower output):
  - 7.7 to 9.2 % for natural gas H
  - 9.3 to 10.9 % for LPG P
- For all gas types, the O<sub>2</sub> content must be between 4.4 % and 6.9 %.

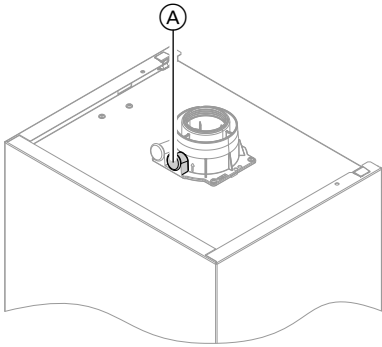
If the actual CO<sub>2</sub> or O<sub>2</sub> values lie outside their respective ranges, proceed with the following steps:

- Check the balanced flue system for tightness, see page 18.
- Check the ionisation electrode and connecting cable, see page 21.

#### **Note**


*During commissioning, the combustion controller carries out an automatic calibration. Only test the emissions approx. 30 s after the burner has started.*

## Further details regarding the individual steps (cont.)






1. Connect a flue gas analyser at flue gas aperture (A) on the boiler flue connection.
2. Open the gas shut-off valve, start the boiler and create a heat demand.
3. Select the lower output (see page 26).
4. Check the CO<sub>2</sub> content. Should the actual value deviate from the above ranges by more than 1 %, implement steps from page 25.
5. Enter actual values into the service report.
6. Select the upper output (see page 26).
7. Check the CO<sub>2</sub> content. Should the actual value deviate from the above ranges by more than 1 %, implement steps from page 25.
8. After testing, press **OK**.
9. Enter actual values into the service report.

### Selecting the upper/lower output for weather-compensated control units:

1. Press **OK** and  simultaneously for approx. 4 s.
2. "Actuator test"
3. Select the lower output:  
**"Base load start"** and confirm with **OK**.
4. Select the upper output:  
**"Full load start"** and confirm with **OK**.

### Selecting the upper/lower output for constant temperature control units:

1. Press **OK** and  simultaneously for approx. 4 s.  
"⌚" flashes on the display.
2. Select "⌚" with  and confirm with **OK**.  
The display shows "I".
3. Select the lower output:  
Press **OK**.
4. Select the upper output:  
Press **OK**, select "2" with  and confirm with **OK**.

### Note

*If the actual CO<sub>2</sub> or O<sub>2</sub> and CO values deviate from the stated range, check the balanced flue systems for leaks. If the flue installation is OK, change the gas valve or contact the Viessmann service department.*

## Further details regarding the individual steps (cont.)

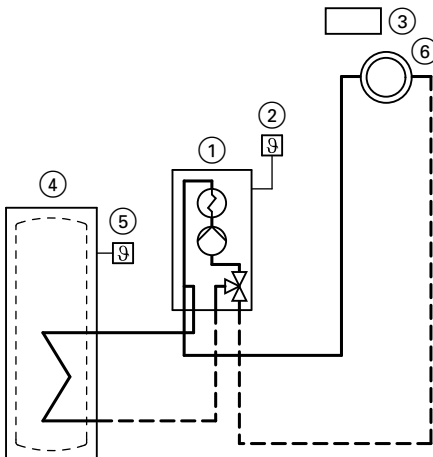
### Matching the control unit to the heating system

Subject to the equipment level, the control unit must be matched to 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 scheme, see the following diagrams.
- For coding steps, see page 39.

#### System version 1

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



ID: 4605145\_1001\_01

- |   |   |
|---|---|
| <ul style="list-style-type: none"> <li>① Vitodens 200-W</li> <li>② Outside temperature sensor (only for weather-compensated control units)</li> <li>③ Vitotrol 100 (only for constant temperature control units)</li> </ul> | <ul style="list-style-type: none"> <li>④ DHW cylinder</li> <li>⑤ Cylinder temperature sensor</li> <li>⑥ Heating circuit without mixer A1 (heating circuit 1)</li> </ul> |
|---|---|

## Further details regarding the individual steps (cont.)

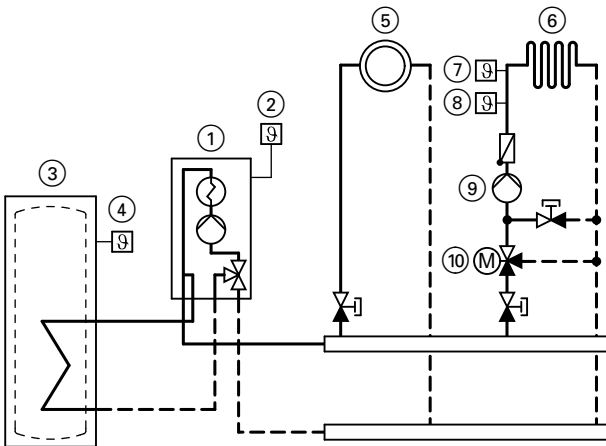
Function/system components	Code	
	Adjust	Delivered condition
Operation with LPG	82:1	82:0
System <b>with</b> DHW circulation pump: DHW circulation pump connection at internal extension H1 or H2	—	53:1

### System version 2

#### One heating circuit without mixer A1 and one heating circuit with mixer M2 (with/without DHW heating)

##### Note

The flow rate of the heating circuit without mixer must be at least 30 % greater than the flow rate of the heating circuit with mixer.



ID: 4605146\_1001\_01

- |  |  |
|--|--|
| ① Vitodens 200-W                                       | ⑥ Heating circuit with mixer M2 (heating circuit 2)                                      |
| ② Outside temperature sensor                           | ⑦ Temperature limiter for limiting the maximum temperature of underfloor heating systems |
| ③ DHW cylinder   | ⑧ Flow temperature sensor M2   |
| ④ Cylinder temperature sensor                          | ⑨ Heating circuit pump M2  |
| ⑤ Heating circuit without mixer A1 (heating circuit 1) |  |

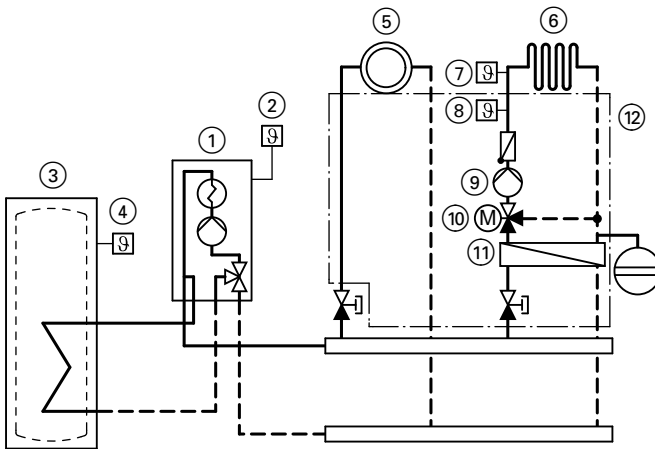
**Further details regarding the individual steps (cont.)**

- ⑩ Extension kit for one heating circuit with mixer M2

Function/system components	Code	
	Adjust	Delivered condition
Operation with LPG	82:1	82:0
System <b>only</b> with one heating circuit with mixer with extension kit for mixer (without unregulated heating circuit)		
■ with DHW cylinder	00:4	00:6
■ without DHW cylinder	00:3	00:5
System <b>with</b> DHW circulation pump DHW circulation pump connection at internal extension H1 or H2:	—	53:1

**System version 3**

**One heating circuit without mixer A1 and one heating circuit with mixer M2 with system separation (with/without DHW heating)**



ID: 4605147\_1001\_01

- ① Vitodens 200-W
- ② Outside temperature sensor
- ③ DHW cylinder
- ④ Cylinder temperature sensor
- ⑤ Heating circuit without mixer A1 (heating circuit 1)
- ⑥ Heating circuit with mixer M2 (heating circuit 2)



**Further details regarding the individual steps (cont.)**

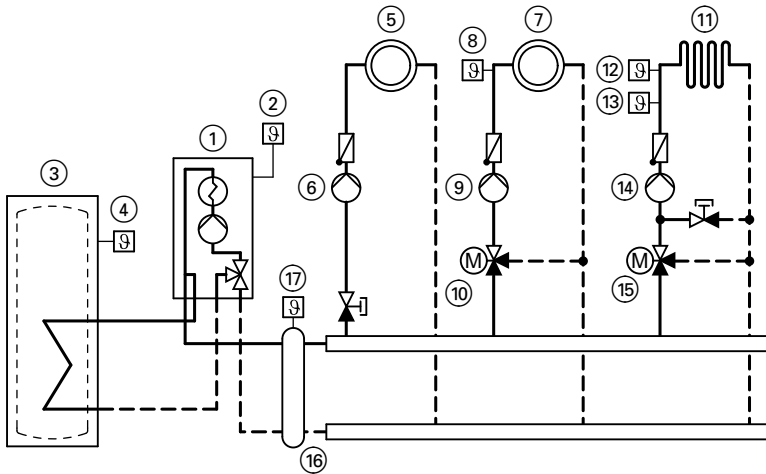
- ⑥ Heating circuit with mixer M2 (heating circuit 2)
  - ⑦ Temperature limiter for limiting the maximum temperature of underfloor heating systems
  - ⑧ Flow temperature sensor M2
  - ⑨ Heating circuit pump M2
- ⑩ Extension kit for one heating circuit with mixer M2
  - ⑪ Heat exchanger for system separation
  - ⑫ Sub-mounting kit with mixer (accessory)

Function/system components	Code	
	Adjust	Delivered condition
Operation with LPG	82:1	82:0
System <b>only</b> with one heating circuit with mixer with extension kit for mixer (without unregulated heating circuit)		
■ with DHW cylinder	00:4	00:6
■ without DHW cylinder	00:3	00:5
System <b>with</b> DHW circulation pump: DHW circulation pump connection at internal extension H1 or H2	—	53:1

## Further details regarding the individual steps (cont.)

### System version 4

One heating circuit without mixer, one heating circuit with mixer M2 (with extension kit), one heating circuit with mixer M3 (with extension kit) and low loss header (with/without DHW heating)



ID: 4605149\_1001\_01

- |  |  |
|--|--|
| ① Vitodens 200-W                                       | ⑪ Heating circuit with mixer M3 (heating circuit 3)                                      |
| ② Outside temperature sensor                           | ⑫ Temperature limiter for limiting the maximum temperature of underfloor heating systems |
| ③ DHW cylinder   | ⑬ Flow temperature sensor M3   |
| ④ Cylinder temperature sensor                          | ⑭ Heating circuit pump M3  |
| ⑤ Heating circuit without mixer A1 (heating circuit 1) | ⑮ Extension kit for one heating circuit with mixer M3                                    |
| ⑥ Heating circuit pump A1                              | ⑯ Low loss header  |
| ⑦ Heating circuit with mixer M2 (heating circuit 2)    | ⑰ Flow temperature sensor, low loss header   |
| ⑧ Flow temperature sensor M2                           |  |
| ⑨ Heating circuit pump M2                              |  |
| ⑩ Extension kit for one heating circuit with mixer M2  |  |

## Further details regarding the individual steps (cont.)

Function/system components	Code	
	Adjust	Delivered condition
Operation with LPG	82:1	82:0
System <b>only</b> with two heating circuits with mixer with extension kit for mixer (without unregulated heating circuit)		
■ with DHW cylinder	00:8	00:10
■ without DHW cylinder	00:7	00:9
System <b>without</b> DHW circulation pump: Heating circuit pump A1 connection at internal extension H1 or H2	53:2	53:1
System <b>with</b> DHW circulation pump: Heating circuit pump A1 connection at extension AM1, terminal A1	—	33:1
DHW circulation pump termination at extension AM1, terminal A2	—	34:0
System with low loss header	04:0	04:1

## 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.

### Note

*If the heating system includes heating circuits with mixers, then the flow temperature of the heating circuit without mixer is higher by a selected differential (8 K in the delivered condition) than the flow temperature of the heating circuits with mixers.*

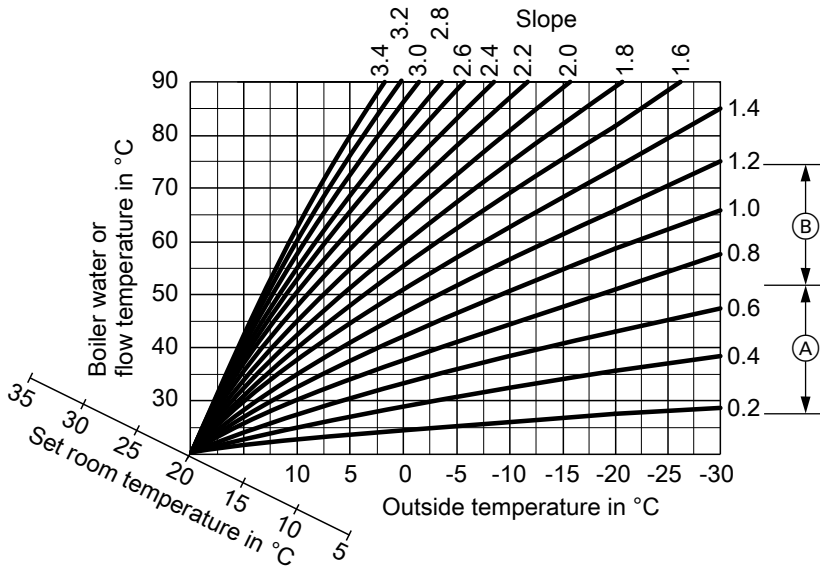
*The differential temperature can be changed at coding address 9F.*

Settings in the delivered condition:

- Slope = 1.4
- Level = 0



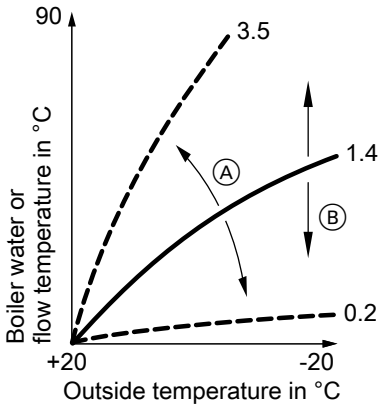
**Further details regarding the individual steps (cont.)**



- Ⓐ 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



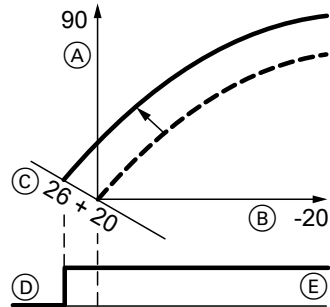
- (A) Changing the slope
- (B) Changing the level (vertical parallel offset of the heating curve)

### Extended menu:

1. 
2. "Heating"
3. Select heating circuit.
4. "Heating curve"
5. "Slope" or "Level"
6. Select heating curve according to the system requirements.

### Adjusting the set room temperature


#### Standard room temperature



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

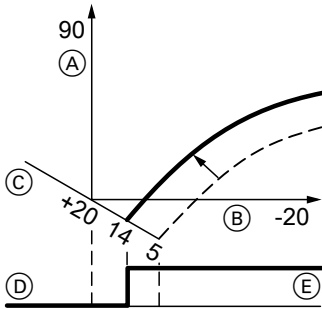
- (A) Boiler water temperature or flow temperature in °C
- (B) Outside temperature in °C
- (C) Set room temperature in °C
- (D) Heating circuit pump "OFF"
- (E) Heating circuit pump "ON"

#### Adjustment of the standard room temperature:

 Operating instructions


## Further details regarding the individual steps (cont.)

### Reduced room temperature



- Ⓒ Set room temperature in °C
- Ⓓ Heating circuit pump "OFF"
- Ⓔ Heating circuit pump "ON"

### Adjustment of the reduced room temperature:


 Operating instructions

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

- Ⓐ Boiler water temperature or flow temperature in °C
- Ⓑ Outside temperature in °C

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

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

 Installation instructions  
LON communication module

### Note

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

***Only one Vitotronic** may be programmed as fault manager.*


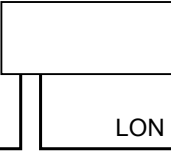
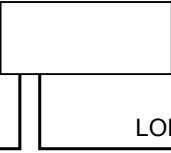
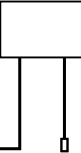
### Note

*The data transfer via LON can take several minutes.*

### Single boiler system with Vitotronic 200-H and Vitocom 300 (example)

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

**Further details regarding the individual steps** (cont.)

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 <b>Set</b> 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"	The control unit receives the time <b>Set</b> code "81:3"	The control unit receives the time <b>Set</b> code "81:3"	Device receives the time
Control unit transmits outside temperature <b>Set</b> code "97:2"	The control unit receives the outside temperature <b>Set</b> code "97:1"	The control unit receives the outside temperature <b>Set</b> code "97:1"	—
LON subscriber fault monitoring Code "9C:20"	LON subscriber fault monitoring Code "9C:20"	LON subscriber fault monitoring Code "9C:20"	—

**Carrying out a LON subscriber check**

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


Preconditions:

- 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 36)
- The LON subscriber list in the fault manager must be up to date (see page 36)

**2. "Service functions"**

**3. "Subscriber check"**

**Carrying out a subscriber check:**

1. Press **OK** and  simultaneously for approx. 4 s.

## Further details regarding the individual steps (cont.)

4. Select subscriber (e.g. subscriber 10).  
The subscriber check for the selected subscriber is introduced.
- Successfully tested subscribers are designated with **"OK"**.
  - Unsuccessfully tested subscribers are designated with **"Not OK"**.

### Note

To carry out a new subscriber check, create a new subscriber list with menu item **"Delete list?"**

### Note

If the subscriber check is carried out by another control unit, the subscriber number and **"Wink"** are shown on the display for approx. 1 min.

## Scanning and resetting the Service display

After the limits specified in coding addresses "21" and "23" have been reached, the red fault indicator flashes and the following appears on the programming unit display:

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

### Scanning and resetting service

Press **OK** to acknowledge a service message.


### Note

An acknowledged service message that was not reset reappears:

- On a weather-compensated control unit, on the following Monday.
- On a constant temperature control unit, after seven days.

### After a service has been carried out (reset service)

#### Weather-compensated control unit

1. Press **OK** and  simultaneously for approx. 4 s.
2. **"Service functions"**
3. **"Service reset"**

### Note

The selected service parameters for hours run and time interval restart at 0.

## Further details regarding the individual steps (cont.)

### Constant temperature control unit

Reset code 24:1 to 24:0.

#### **Note**

*The selected service parameters for hours run and time interval restart at 0.*

### 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.

## Calling up coding level 1

### Calling up coding level 1

#### Note

- On weather-compensated control units, codes are displayed as plain text.
- Codes that have no function due to the heating system equipment level or the setting of other codes are not displayed.
- Heating systems with one heating circuit without mixer and one or two heating circuits with mixer:  
The heating circuit without a mixer is designated "**Heating circuit 1**" and the heating circuits with mixer as "**Heating circuit 2**" or "**Heating circuit 3**".

If the heating circuits were given individual designations, the selected designation and "**HC1**", "**HC2**" or "**HC3**" appear instead.

#### Weather-compensated control unit:

1. Press **OK** and **≡**: simultaneously for approx. 4 s.
2. "**Coding level 1**"
3. Select group of required coding address:
  - "**General**"
  - "**Boiler**"
  - "**DHW**"
  - "**Solar**"
  - "**Heating circuit 1/2/3**"
  - "**All cod. or solar**"

In this group, all coding addresses from coding level 1 (except the coding addresses from the "**Solar**" group) are displayed in ascending order.

4. Select coding address.
5. Select value according to the following tables and confirm with **OK**.
6. **If you want to reset all codes to their delivered condition:**  
Select "**Standard setting**" in "**Coding level 1**".

#### Note

This also resets codes from coding level 2.

#### Constant temperature control unit:

1. Press **OK** and **≡**: simultaneously for approx. 4 s.
2. With **▶**, select "**①**" for coding level 1 and confirm with **OK**.  
"1" flashes on the display for the coding addresses in group 1.
3. Select group of the required coding address with **▲/▼**. For example, "1" for group "General" (see following section):  
Confirm selected group with **OK**.
4. Select coding address with **▲/▼**.
5. Select value according to the following tables with **▲/▼** and confirm with **OK**.



## Calling up coding level 1 (cont.)

- 6. If you want to reset all codes to their delivered condition:**  
 Select ▶ "⑦" and confirm with **OK**.  
 When "H" flashes, confirm with **OK**.

### Note

*This also resets codes from coding level 2.*

## General/Group 1

"General" - select for weather-compensated control units (see page 39).

"1" - select for constant temperature control units (see page 39).

## Coding

Coding in the delivered condition		Possible change	
<b>System design</b>			
00:1	System version 1: One heating circuit without mixer (A1), without DHW heating	00:2 to 00:10	For system schemes, see the following table:

Value address 00: ...	System version	Description
2	1	One heating circuit without mixer (heating circuit 1), with DHW heating (code is adjusted automatically)
3	2, 3	One heating circuit with mixer (heating circuit 2), without DHW heating
4	2, 3	One heating circuit with mixer (heating circuit 2), with DHW heating
5	2, 3	One heating circuit without mixer (heating circuit 1) and one heating circuit with mixer (heating circuit 2), without DHW heating (code is adjusted automatically)
6	2, 3	One heating circuit without mixer (heating circuit 1) and one heating circuit with mixer (heating circuit 2), with DHW heating (code is adjusted automatically)
7	4	One heating circuit with mixer (heating circuit 2) and one heating circuit with mixer (heating circuit 3), without DHW heating
8	4	One heating circuit with mixer (heating circuit 2) and one heating circuit with mixer (heating circuit 3), with DHW heating



## General/Group 1 (cont.)

Value address 00: ...	System version	Description
9	4	One heating circuit without mixer (heating circuit 1), one heating circuit with mixer (heating circuit 2) and one heating circuit with mixer (heating circuit 3), without DHW heating (code is adjusted automatically)
10	4	One heating circuit without mixer (heating circuit 1), one heating circuit with mixer (heating circuit 2) and one heating circuit with mixer (heating circuit 3), with DHW heating (code is adjusted automatically)

Coding in the delivered condition		Possible change	
<b>Internal circulation pump function</b>			
51:0	Internal circulation pump always starts when there is a heat demand	51:1	System with low loss header: When there is a heat demand, the internal circulation pump only starts when the burner is operational (with pump run-on)
		51:2	System with heating water buffer cylinder: When there is a heat demand, the internal circulation pump only starts when the burner is operational (with pump run-on)

<b>Subscriber no.</b>			
77:1	LON subscriber number (only for weather-compensated control units)	77:2 to 77:99	LON subscriber number, adjustable from 1 to 99: 1 - 4 = Boiler 5 = Cascade 10 - 98 = Vitotronic 200-H 99 = Vitocom  <b>Note</b> <i>Allocate each number only once.</i>

**General/Group 1** (cont.)

Coding in the delivered condition		Possible change	
<b>Detached house/apartment building</b>			
7F:1	Detached house (only for weather-compensated control units)	7F:0	Apartment building Separate adjustment of holiday program and time program for DHW heating, as option
<b>Lock out controls</b>			
8F:0	All control elements active	8F:1	All control elements locked out
		8F:2	Only standard settings can be controlled
<b>Set flow temperature for ext. demand</b>			
9b:70	Set flow temperature for external demand 70 °C	9b:0 to 9b:127	Set flow temperature for external demand adjustable from 0 to 127 °C (limited by boiler-specific parameters)

**Boiler/Group 2**

"Boiler" - select for weather-compensated control units (see page 39).

"2" - select for constant temperature control units (see page 39).

**Coding**

Coding in the delivered condition		Possible change	
<b>Single/multi-boiler system</b>			
01:1	Do not adjust (only for constant temperature control units)		
<b>Burner service in 100 hours</b>			
21:0	No service interval (hours run) selected	21:1 to 21:100	The number of hours run before the burner should be serviced is adjustable from 100 to 10 000 h One adjusting step $\triangleq$ 100 h

## Boiler/Group 2 (cont.)

Coding in the delivered condition		Possible change	
<b>Service interval in months</b>			
23:0	No time interval for burner service	23:1 to 23:24	Interval adjustable from 1 to 24 months
<b>Service status</b>			
24:0	No display " <b>Service</b> " indication	24:1	Display " <b>Service</b> " indication (address is automatically set and must be manually reset after the service)
<b>Filling/Venting</b>			
2F:0	Venting program/fill program disabled	2F:1	Venting program enabled
		2F:2	Fill program enabled

## DHW/Group 3

"DHW" - select for weather-compensated control units (see page 39).

"3" - select for constant temperature control units (see page 39).

## Coding

Coding in the delivered condition		Possible change	
<b>Set DHW temp reheat suppression</b>			
67:40	For solar DHW heating: Set DHW temperature 40 °C. Reheating is suppressed above the selected set temperature (DHW heating blocked by the boiler). Cannot be adjusted on gas condensing combi boilers.	67:0 to 67:95	Set DHW temperature adjustable from 0 to 95 °C (limited by boiler-specific parameters)



**DHW/Group 3 (cont.)**

Coding in the delivered condition		Possible change	
<b>Enable DHW circulation pump</b>			
73:0	DHW circulation pump: "ON" according to time program (only for weather-compensated control units and gas condensing boilers)	73:1 to 73:6	"ON" from once per hour for 5 min up to 6 times per hour for 5 min during the time program
		73:7	Constantly "ON"

**Solar/Group 4**

"Solar" - select for weather-compensated control units (see page 39).

"4" - select for constant temperature control units (see page 39).

**Note**

*The solar group is only displayed if a solar control module, type SM1, is connected.*

**Coding**

Coding in the delivered condition		Possible change	
<b>Speed control collector pump</b>			
02:0	Solar circuit pump is not speed-controlled	02:1	Solar circuit pump is speed-controlled with wave pack control
		02:2	Solar circuit pump is speed-controlled with PWM control
<b>Cylinder maximum temperature</b>			
08:60	The solar circuit pump will stop when the actual cylinder temperature reaches 60 °C (maximum cylinder temperature).	08:10 to 08:90	The maximum cylinder temperature can be adjusted from 10 to 90 °C

## Solar/Group 4 (cont.)

Coding in the delivered condition		Possible change	
<b>Reducing stagnation time</b>			
0A:5	To protect the system components and heat transfer medium, the speed of the solar circuit pump is reduced when the differential between the actual cylinder temperature and set cylinder temperature is less than 5 K.	0A:0 to 0A:40	The differential between the set cylinder temperature and the start point for reducing the stagnation time can be adjusted from 0 to 40 K.
<b>Nominal flow rate</b>			
0F:70	The flow rate in the collector circuit at the maximum pump speed is set to 7 l/min.	0F:1 to 0F:255	Flow rate in the collector circuit adjustable from 0.1 to 25.5 l/min
<b>Extended control functions</b>			
20:0	No extended control functions enabled	20:1	Auxiliary function for DHW heating
		20:2	Differential temperature control 2
		20:3	Differential temperature control 2 and auxiliary function
		20:4	Differential temperature control 2 for central heating backup
		20:5	Thermostat function
		20:6	Thermostat function and auxiliary function
		20:7	Solar heating via external heat exchanger without additional temperature sensor
		20:8	Solar heating via external heat exchanger with additional temperature sensor
		20:9	Solar heating of two DHW cylinders

## Heating circuit 1, heating circuit 2, heating circuit 3/Group 5

"Heating circuit ..." - select for weather-compensated control units (see page 39).

"5" - select for constant temperature control units (see page 39).

### Coding

Coding in the delivered condition		Possible change	
<b>Summer eco function outside temperature</b>			
A5:5	With heating circuit pump logic function (economy circuit): Heating circuit pump "OFF" when the outside temperature (AT) is 1 K higher than the set room temperature ( $RT_{set}$ ) $AT > RT_{set} + 1$ 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"; see the following table

Parameter address	With heating circuit pump logic function: Heating circuit pump "OFF"
<b>A5:...</b>	
1	$AT > RT_{set} + 5$ K
2	$AT > RT_{set} + 4$ K
3	$AT > RT_{set} + 3$ K
4	$AT > RT_{set} + 2$ K
5	$AT > RT_{set} + 1$ K
6	$AT > RT_{set}$
7	$AT > RT_{set} - 1$ K
to	
15	$AT > RT_{set} - 9$ K

## Heating circuit 1, heating circuit 2, heating... (cont.)

Coding in the delivered condition		Possible change	
<b>Summer eco function absolute</b>			
A6:36	Extended economy function <b>disabled</b> (only for weather-compensated control units)	A6:5 to A6:35	Extended economy control enabled, i.e. the burner and heating circuit pump will be stopped and the mixer closed at a variable value, adjustable between 5 and 35 °C plus 1 °C. The base value is the adjusted outside temperature. This value is based on the actual outside temperature and a time constant that takes the cooling down of an average building into consideration.
<b>Mixer eco function</b>			
A7:0	Without mixer economy function (only for a weather-compensated control unit and heating circuit with mixer)	A7:1	With mixer economy function (extended heating circuit pump logic): Heating circuit pump also "OFF": <ul style="list-style-type: none"> <li>■ If a mixer has been closed for longer than 20 min.</li> </ul> Heating circuit pump "ON": <ul style="list-style-type: none"> <li>■ If the mixer changes to control function</li> <li>■ If there is a risk of frost</li> </ul>
<b>Pump idle time transition red. mode</b>			
A9:7	With pump idle time: Heating circuit pump "OFF" if the set value is altered 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

## Heating circuit 1, heating circuit 2, heating... (cont.)

Coding in the delivered condition		Possible change	
<b>Weather-compensated/room temperature hook-up</b>			
b0:0	With remote control: Heating mode/reduced mode: Weather-compensated (only for weather-compensated control units; change the code only for the heating circuit with mixer)	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

### Summer eco function room temperature

b5:0	With remote control: No room temperature-dependent heating circuit pump logic function (only for weather-compensated control units; change the code only for the heating circuit with mixer)	b5:1 to b5:8	Heating circuit pump logic function, see the following table:
------	--	--------------	---

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

Coding in the delivered condition		Possible change	
<b>Flow temperature minimum limit</b>			
C5:20	Electronic minimum flow temperature limit 20 °C (only for weather-compensated control units)	C5:1 to C5:127	Minimum limit adjustable from 1 to 127 °C (limited by boiler-specific parameters)



## Heating circuit 1, heating circuit 2, heating... (cont.)

<b>Coding in the delivered condition</b>		<b>Possible change</b>	
<b>Flow temperature maximum limit</b>			
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 boiler-specific parameters)
<b>Heating program - changeover</b>			
d5:0	The external heating program changeover changes the heating program to "Constant room temperature" or "Standby mode" (only for weather-compensated control units)	d5:1	The external heating program changeover changes to "Constant operation with standard room temperature" (independent of coding address 3A, 3b and 3C)
<b>Ext. heating program changeover to heating circuit</b>			
d8:0	No heating program changeover via extension EA1	d8:1	Heating program changeover via input DE1 at extension EA1
		d8:2	Heating program changeover via input DE2 at extension EA1
		d8:3	Heating program changeover via input DE3 at extension EA1
<b>Max. pump speed in standard mode</b>			
E6:...	Maximum speed of the variable speed heating circuit pump in % of the max. speed in standard mode. Value is defaulted by boiler-specific parameters (only for weather-compensated control units).	E6:0 to E6:100	Maximum speed adjustable from 0 to 100 %



## Heating circuit 1, heating circuit 2, heating... (cont.)

Coding in the delivered condition		Possible change	
<b>Min. pump speed</b>			
E7:30	Minimum speed of the variable speed heating circuit pump: 30 % of the maximum speed (only for weather-compensated control units)	E7:0 to E7:100	Minimum speed adjustable from 0 to 100 % of the maximum speed
<b>Screed function</b>			
F1:0	Screed drying function disabled (only for weather-compensated control units)	F1:1 to F1:6	Screed drying function adjustable in accordance with 6 optional temperature/time profiles (see page 126)
		F1:15	Constant flow temperature 20 °C
<b>Party mode time limit</b>			
F2:8	Time limit for party mode or external heating program changeover via key: 8 h (only for weather-compensated control units)* <sup>1</sup>	F2:0	No time limit for party mode* <sup>1</sup>
		F2:1 to F2:12	Time limit adjustable from 1 to 12 h* <sup>1</sup>
<b>Pump control in "Only DHW"</b>			
F6:25	In the "Only DHW" operating mode, the internal circulation pump is permanently ON (only for constant temperature control units)	F6:0	In the "Only DHW" operating mode, the internal circulation pump is permanently OFF
		F6:1 to F6:24	In the "Only DHW" operating mode, the internal circulation pump will be started for 10 min each time, 1 to 24 times per day.

\*<sup>1</sup> Party mode ends **automatically** in the "Heating and DHW" program, when the system changes over to operation with standard room temperature.

## Heating circuit 1, heating circuit 2, heating... (cont.)

Coding in the delivered condition		Possible change	
<b>Pump control in "Standby mode"</b>			
F7:25	In "Standby mode", the internal circulation pump is permanently ON (only for constant temperature control units)	F7:0	In "Standby mode", the internal circulation pump is permanently OFF
		F7:1 to F7:24	In "Standby mode", the internal circulation pump will be started for 10 min each time 1 to 24 times per day.
<b>Start temperature raising</b>			
F8:-5	Temperature limit for terminating the reduced mode -5 °C, see example on page 129. 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
<b>End temperature raising</b>			
F9:-14	Temperature limit for raising the reduced set room temp. -14 °C, see example on page 129. (only for weather-compensated control units)	F9:+10 to F9:-60	Temperature limit for raising the set room temperature to the value selected for standard mode adjustable from +10 to -60 °C
<b>Increase set flow temperature</b>			
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 130 (only for weather-compensated control units)	FA:0 to FA:50	Temperature rise adjustable from 0 to 50 %



## Heating circuit 1, heating circuit 2, heating... (cont.)

<b>Coding in the delivered condition</b>		<b>Possible change</b>	
<b>Duration set flow temperature increase</b>			
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 130 (only for weather-compensated control units)	Fb:0 to Fb:150	Duration adjustable from 0 to 300 min; 1 step $\triangleq$ 2 min



## Calling up coding level 2

### Calling up coding level 2

#### Note

- In coding level 2, all codes are accessible, including the codes from coding level 1.
- Codes that have no function due to the heating system equipment level or the setting of other codes are not displayed.
- Heating systems with one heating circuit without mixer and one or two heating circuits with mixer:  
The heating circuit without a mixer is designated **"Heating circuit 1"** and the heating circuits with mixer as **"Heating circuit 2"** or **"Heating circuit 3"**.  
If the heating circuits were given individual designations, the selected designation and **"HC1"**, **"HC2"** or **"HC3"** appear instead.

#### Weather-compensated control unit:

1. Press **OK** and  simultaneously for approx. 4 s.
2. Press **OK** and  simultaneously for approx. 4 s.
3. **"Coding level 2"**

4. Select group of required coding address:

- **"General"**
- **"Boiler"**
- **"DHW"**
- **"Solar"**
- **"Heating circuit 1/2/3"**
- **"All cod. or solar"**




In this group, all coding addresses (except the coding addresses from the **"Solar"** group) are displayed in ascending order.

5. Select coding address.
6. Select value according to the following tables and confirm with **"OK"**.
7. **If you want to reset all codes to their delivered condition:**  
Select **"Standard setting"** in **"Coding level 2"**.

#### Note

*This also resets codes from coding level 1.*

#### Constant temperature control unit:

1. Press **OK** and  simultaneously for approx. 4 s.
2. Press **OK** and  simultaneously for approx. 4 s.
3. With , select **"②"** for coding level 2 and confirm with **OK**.  
**"I"** flashes on the display for the coding addresses in group 1.

## Calling up coding level 2 (cont.)

4. Select group of the required coding address with ▲/▼. For example, "1" for group "General" (see following section):  
Confirm selected group with **OK**.
5. Select coding address with ▲/▼.
6. Select value according to the following tables with ▲/▼ and confirm with **OK**.
7. **If you want to reset all codes to their delivered condition:**  
Select ▶ "⑦" and confirm with **OK**.  
When "⌘" flashes, confirm with **OK**.

### Note

*This also resets codes from coding level 1.*

## General/Group 1

"General" - select for weather-compensated control units (see page 53).

"1" - select for constant temperature control units (see page 53).

## Coding

Coding in the delivered condition		Possible change	
00:1	System version 1: One heating circuit without mixer (A1), without DHW heating	00:2 to 00:10	For system schemes, see the following table:

Value address 00: ...	System version	Description
2	1	One heating circuit without mixer (heating circuit 1), with DHW heating (code is adjusted automatically)
3	2, 3	One heating circuit with mixer (heating circuit 2), without DHW heating
4	2, 3	One heating circuit with mixer (heating circuit 2), with DHW heating
5	2, 3	One heating circuit without mixer (heating circuit 1) and one heating circuit with mixer (heating circuit 2), without DHW heating (code is adjusted automatically)
6	2, 3	One heating circuit without mixer (heating circuit 1) and one heating circuit with mixer (heating circuit 2), with DHW heating (code is adjusted automatically)

## General/Group 1 (cont.)

Value address 00: ...	System version	Description
7	4	One heating circuit with mixer (heating circuit 2) and one heating circuit with mixer (heating circuit 3), without DHW heating
8	4	One heating circuit with mixer (heating circuit 2) and one heating circuit with mixer (heating circuit 3), with DHW heating
9	4	One heating circuit without mixer (heating circuit 1), one heating circuit with mixer (heating circuit 2) and one heating circuit with mixer (heating circuit 3), without DHW heating (code is adjusted automatically)
10	4	One heating circuit without mixer (heating circuit 1), one heating circuit with mixer (heating circuit 2) and one heating circuit with mixer (heating circuit 3), with DHW heating (code is adjusted automatically)

Coding in the delivered condition		Possible change	
11:≠9	No access to the coding addresses for the combustion controller parameters	11:9	Access open to the coding addresses for the combustion controller parameters
25:0	Without outside temperature sensor (for constant temperature control units)	25:1	With outside temperature sensor (automatic recognition)
32:0	Without extension AM1	32:1	With extension AM1 (automatic recognition)
33:1	Function output A1 at extension AM1: Heating circuit pump	33:0	Function output A1: DHW circulation pump
		33:2	Function output A1: Circulation pump for cylinder heating
34:0	Function output A2 at extension AM1: DHW circulation pump	34:1	Function output A2: Heating circuit pump
		34:2	Function output A2: Circulation pump for cylinder heating
35:0	Without extension EA1	35:1	With extension EA1 (automatic recognition)

**General/Group 1** (cont.)

<b>Coding in the delivered condition</b>		<b>Possible change</b>	
36:0	Function output [157] at extension EA1: Fault message	36:1	Function output [157]: Feed pump
		36:2	Function output [157]: DHW circulation pump
3A:0	Function input DE1 at extension EA1: without function	3A:1	Function input DE1: Heating program changeover
		3A:2	Function input DE1: External demand with set flow temperature. Function internal circulation pump: Coding address 3F
		3A:3	Function input DE1: External blocking. Function internal circulation pump: Coding address 3E
		3A:4	Function input DE1: External blocking with fault message input Function internal circulation pump: Coding address 3E
		3A:5	Function input DE1: Fault message input
		3A:6	Function input DE1: Brief operation, DHW circulation pump (pushbutton function). DHW circulation pump runtime adjustment: Coding address 3d



## General/Group 1 (cont.)

Coding in the delivered condition		Possible change	
3b:0	Function input DE2 at extension EA1: without function	3b:1	Function input DE2: Heating program changeover
		3b:2	Function input DE2: External demand with set flow temperature. Function internal circulation pump: Coding address 3F
		3b:3	Function input DE2: External blocking. Function internal circulation pump: Coding address 3E
		3b:4	Function input DE2: External blocking with fault message input Function internal circulation pump: Coding address 3E
		3b:5	Function input DE2: Fault message input
		3b:6	Function input DE2: Brief operation, DHW circulation pump (pushbutton function). DHW circulation pump runtime adjustment: Coding address 3d



**General/Group 1** (cont.)

<b>Coding in the delivered condition</b>		<b>Possible change</b>	
3C:0	Function input DE3 at extension EA1: without function	3C:1	Function input DE3: Heating program changeover
		3C:2	Function input DE3: External demand with set flow temperature. Function internal circulation pump: Coding address 3F
		3C:3	Function input DE3: External blocking. Function internal circulation pump: Coding address 3E
		3C:4	Function input DE3: External blocking with fault message input Function internal circulation pump: Coding address 3E
		3C:5	Function input DE3: Fault message input
		3C:6	Function input DE3: Brief operation, DHW circulation pump (pushbutton function). DHW circulation pump runtime adjustment: Coding address 3d
3D:5	DHW circulation pump runtime for short operation: 5 min	3D:1 to 3D:60	DHW circulation pump runtime adjustable from 1 to 60 min
3E:0	Internal circulation pump stays in control mode at signal "External blocking"	3E:1	Internal circulation pump stops at signal "External blocking"
		3E:2	Internal circulation pump starts at signal "External blocking"

## General/Group 1 (cont.)

Coding in the delivered condition		Possible change	
3F:0	Internal circulation pump stays in control mode at signal "External demand"	3F:1	Internal circulation pump stops at signal "External demand"
		3F:2	Internal circulation pump starts at signal "External demand"
51:0	Internal circulation pump always starts when there is a heat demand	51:1	System with low loss header: When there is a heat demand, the internal circulation pump only starts when the burner is operational (with pump run-on)
		51:2	System with heating water buffer cylinder: When there is a heat demand, the internal circulation pump only starts when the burner is operational (with pump run-on)
52:0	Without flow temperature sensor for low loss header	52:1	With flow temperature sensor for low loss header (automatic recognition)
53:1	Function connection <span style="border: 1px solid black; padding: 0 2px;">28</span> of the internal extension: DHW circulation pump	53:0	Function connection <span style="border: 1px solid black; padding: 0 2px;">28</span> : Central fault
		53:2	Function connection <span style="border: 1px solid black; padding: 0 2px;">28</span> : External heating circuit pump (heating circuit 1)
		53:3	Function connection <span style="border: 1px solid black; padding: 0 2px;">28</span> : External circulation pump for cylinder heating



## General/Group 1 (cont.)

Coding in the delivered condition		Possible change	
54:0	Without solar thermal system	54:1	With Vitosolic 100 (automatic recognition)
		54:2	With Vitosolic 200 (automatic recognition)
		54:3	With solar control module SM1 without auxiliary function (automatic recognition)
		54:4	With solar control module SM1 with auxiliary function, e.g. central heating backup (automatic recognition)
6E:50	Do not adjust		
76:0	Without LON communication module (only for weather-compensated control units)	76:1	With LON 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: 1 - 4 = Boiler 5 = Cascade 10 - 98 = Vitotronic 200-H 99 = Vitocom  <b>Note</b> <i>Allocate each number only once.</i>
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	Does not transmit time

## General/Group 1 (cont.)

Coding in the delivered condition		Possible change	
7F:1	Detached house (only for weather-compensated control units)	7F:0	Apartment building Separate adjustment of holiday program and time program for DHW heating, as option
80:6	A fault message is displayed, providing a fault is active for at least 30 s	80:0	Immediate fault message
		80:2 to 80:199	The minimum fault duration before a fault message is issued is adjustable from 10 s to 995 s; 1 step $\pm$ 5 s
81:1	Automatic summer/winter time changeover	81:0	Manual summer/winter time changeover
		81:2	Use of the radio clock receiver (automatic recognition)
		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)
86:0	Do not adjust		
87:0	Do not adjust		
88:0	Temperature displayed in °C (Celsius)	88:1	Temperature displayed in °F (Fahrenheit)
8A:175	Do not adjust!		
8F:0	All control elements active	8F:1	All control elements locked out
		8F:2	Only standard settings can be controlled
90:128	Time constant for calculating the adjusted outside temperature 21.3 h	90:1 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 $\pm$ 10 min
94:0	Without Open Therm extension	94:1	With Open Therm extension (automatic recognition)

**General/Group 1** (cont.)

<b>Coding in the delivered condition</b>		<b>Possible change</b>	
95:0	Without Vitocom 100 communication interface	95:1	With 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	The control unit transmits the outside temperature to the Vitotronic 200-H
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
99:0	Do not adjust		
9A:0	Do not adjust		
9b:70	Set flow temperature for external demand 70 °C	9b:0 to 9b:127	Set flow temperature for external demand adjustable from 0 to 127 °C (limited by boiler-specific parameters)
9C:20	Monitoring LON subscribers. If a subscriber fails to respond, the values specified inside the control unit will be used after 20 min. Only then will a fault message be 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/Group 2**

"Boiler" - select for weather-compensated control units (see page 53).

## Boiler/Group 2 (cont.)

"2" - select for constant temperature control units (see page 53).

### Coding

Coding in the delivered condition		Possible change	
01:1	Do not adjust (only for constant temperature control units)		
04:1	Minimum burner pause subject to the boiler load (specified by boiler coding card)	04:0	Minimum burner pause set permanently (specified by boiler coding card)
06:...	Maximum limit of the boiler water temperature, specified in °C by the boiler coding card	06:20 to 06:127	Maximum limit of the boiler water temperature within the ranges specified by the boiler
0d:0	Do not adjust		
0E:0	Do not adjust		
13:1	Do not adjust		
14:1	Do not adjust		
15:1	Do not adjust		
21:0	No service interval (hours run) selected	21:1 to 21:100	The number of hours run before the burner should be serviced is adjustable from 100 to 10 000 h One adjusting step $\hat{=}$ 100 h
23:0	No time interval for burner service	23:1 to 23:24	Interval adjustable from 1 to 24 months
24:0	No display " <b>Service</b> " indication	24:1	Display " <b>Service</b> " indication (address is automatically set and must be manually reset after the service)
28:0	No burner interval ignition	28:1 to 28:24	Time interval adjustable from 1 to 24 h. The burner is force-started once every 30 s (only when operating with LPG)
2E:0	Do not adjust		

**Boiler/Group 2** (cont.)

Coding in the delivered condition		Possible change	
2F:0	Venting program/fill program disabled	2F:1	Venting program enabled
		2F:2	Fill program enabled
30:1	Internal variable speed circulation pump (automatic adjustment)	30:0	Internal circulation pump without variable speed (e.g. temporarily for service)
31:...	Set speed in % of the internal circulation pump when operated as boiler circuit pump, specified by the boiler coding card	31:0 to 31:100	Set speed adjustable from 0 to 100 %
38:0	Status burner control unit: Operational (no fault)	38:≠0	Status burner control unit: Fault

**DHW/Group 3**

"DHW" - select for weather-compensated control units (see page 53).

"3" - select for constant temperature control units (see page 53).

**Coding**

Coding in the delivered condition		Possible change	
56:0	Set DHW temperature adjustable from 10 to 60 °C	56:1	Set DHW temperature adjustable from 10 to above 60 °C
			<b>Note</b> <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	Entry of a 2nd set DHW temperature; adjustable from 10 to 60 °C (note coding address "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



**DHW/Group 3** (cont.)

<b>Coding in the delivered condition</b>		<b>Possible change</b>	
5b:0	DHW cylinder directly connected to the boiler	5b:1	DHW cylinder connected downstream of the low loss header
5E:0	Circulation pump for cylinder heating stays in control mode at signal "External blocking"	5E:1	Circulation pump for cylinder heating stops at signal "External blocking"
		5E:2	Circulation pump for cylinder heating starts at signal "External blocking"
5F:0	Circulation pump for cylinder heating stays in control mode at signal "External demand"	5F:1	Circulation pump for cylinder heating stops at signal "External demand"
		5F:2	Circulation pump for cylinder heating starts at signal "External demand"
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
65:...	Information regarding the type of diverter valve (not adjustable): 0: No diverter valve 1: Viessmann diverter valve 2: Wilo diverter valve 3: Grundfos diverter valve		



**DHW/Group 3 (cont.)**

Coding in the delivered condition		Possible change	
67:40	For solar DHW heating: Set DHW temperature 40 °C. Reheating is suppressed above the selected set temperature (DHW heating blocked by the boiler).	67:0 to 67:95	Set DHW temperature adjustable from 0 to 95 °C (limited by boiler-specific parameters)
6C:100	Set speed; internal circulation pump with DHW heating 100 %	6C:0 to 6C:100	Set speed adjustable from 0 to 100 %
6d:0	Draw-off function disabled (only for gas condensing combi boiler)	6d:1 to 6d:15	Draw-off function with a runtime of 1 to 15 min
6F:...	Maximum output for DHW heating in %, specified by the boiler coding card	6F:0 to 6F:100	Max. output for DHW heating adjustable from min. output 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	"ON" from once per hour for 5 min up to 6 times per hour for 5 min during the time program
		73:7	Constantly "ON"

**Solar/Group 4**

"Solar" - select for weather-compensated control units (see page 53).

"4" - select for constant temperature control units (see page 53).

**Note**

*The solar group is only displayed if a solar control module, type SM1, is connected.*

## Solar/Group 4 (cont.)

### Coding

Coding in the delivered condition		Possible change	
00:8	The solar circuit pump starts when the collector temperature exceeds the actual cylinder temperature by 8 K.	00:2 to 00:30	The differential between the actual cylinder temperature and the start point for the solar circuit pump can be adjusted from 2 to 30 K.
01:4	The solar circuit pump stops when the differential between the collector temperature and the actual cylinder temperature is less than 4 K.	01:1 to 01:29	The differential between the actual cylinder temperature and the stop point for the solar circuit pump can be adjusted from 1 to 29 K.
02:0	Solar circuit pump is not speed-controlled	02:1	Solar circuit pump is speed-controlled with wave pack control
		02:2	Solar circuit pump is speed-controlled with PWM control
03:10	The temperature differential between the collector temperature and actual cylinder temperature is regulated to 10 K.	03:5 to 03:20	The differential temperature control between collector temperature and actual cylinder temperature can be adjusted from 5 to 20 K
04:5	Controller amplification of the speed control 5 %/K.	04:1 to 04:10	Controller amplification adjustable from 1 to 10 %/K
05:10	Minimum speed of the solar circuit pump 10 % of the maximum speed	05:1 to 05:100	Minimum speed of the solar circuit pump is adjustable from 1 to 100 %
06:80	Maximum speed of the solar circuit pump 80 % of the maximum possible speed	06:1 to 06:100	Maximum speed of the solar circuit pump is adjustable from 1 to 100 %.



**Solar/Group 4** (cont.)

<b>Coding in the delivered condition</b>		<b>Possible change</b>	
07:0	Interval function of the solar circuit pump switched OFF	07:1	Interval function of the solar circuit pump switched ON. To capture the collector temperature more accurately, the solar circuit pump starts for short cycles.
08:60	The solar circuit pump will stop when the actual cylinder temperature reaches 60 °C (maximum cylinder temperature).	08:10 to 08:90	The maximum cylinder temperature can be adjusted from 10 to 90 °C
09:130	The solar circuit pump stops if the collector temperature reaches 130 °C (maximum collector temperature to protect the system components).	09:20 to 09:200	The temperature can be adjusted from 20 to 200 °C
0A:5	To protect the system components and heat transfer medium, the speed of the solar circuit pump is reduced when the differential between the actual cylinder temperature and set cylinder temperature is less than 5 K.	0A:0 to 0A:40	The differential between the set cylinder temperature and the start point for reducing the stagnation time can be adjusted from 0 to 40 K.
0b:0	Collector frost protection function switched OFF	0b:1	Collector frost protection function switched ON (not required with Viessmann heat transfer medium).
0C:1	Delta T monitoring switched ON. No flow rate captured in the collector circuit, or flow rate too low.	0C:0	Delta T monitoring switched OFF.

## Solar/Group 4 (cont.)

Coding in the delivered condition		Possible change	
0d:1	Night circulation monitoring switched ON. Unintentional flow rate is captured in the collector circuit (e.g. at night).	0d:0	Night circulation monitoring switched OFF.
0E:1	Calculation of solar yield with Viessmann heat transfer medium	0E:2	Calculation of solar yield with water as heat transfer medium (do not select as operation is only possible with Viessmann heat transfer medium)
		0E:0	Calculation of solar yield switched OFF
0F:70	The flow rate in the collector circuit at the maximum pump speed is set to 7 l/min.	0F:1 to 0F:255	Flow rate in the collector circuit adjustable from 0.1 to 25.5 l/min
10:0	Target temperature control switched OFF (see coding address 11)	10:1	Target temperature control switched ON
11:50	Set cylinder temperature for solar 50 °C. <ul style="list-style-type: none"> <li>■ Target temperature control switched ON (code 10:1): Temperature at which the solar heated water in the DHW cylinder is to be stratified.</li> <li>■ Extended control functions set to heat two DHW cylinders (code 20:8): If the actual temperature of a DHW cylinder reaches the selected set cylinder temperature, heating is transferred to the second DHW cylinder.</li> </ul>	11:10 to 11:90	The set cylinder temperature for solar can be adjusted from 10 to 90 °C

**Solar/Group 4** (cont.)

Coding in the delivered condition		Possible change	
12:20	Minimum collector temperature 20 °C. The solar circuit pump is not started until the minimum collector temperature set at the collector temperature sensor is exceeded.	12:0	Minimum collector temperature function switched OFF
		12:1 to 12:90	The minimum collector temperature is adjustable from 1 to 90 °C
20:0	No extended control functions enabled	20:1	Auxiliary function for DHW heating
		20:2	Differential temperature control 2
		20:3	Differential temperature control 2 and auxiliary function
		20:4	Differential temperature control 2 for central heating backup
		20:5	Thermostat function
		20:6	Thermostat function and auxiliary function
		20:7	Solar heating via external heat exchanger without additional temperature sensor
		20:8	Solar heating via external heat exchanger with additional temperature sensor
22:8	Start temperature differential for central heating backup: 8 K. Switching output <input type="checkbox"/> 22 is switched ON when the temperature at sensor <input type="checkbox"/> 7 exceeds the temperature at sensor <input type="checkbox"/> 10 by the selected value.	22:2 to 22:30	Start temperature differential for central heating backup is adjustable from 21 to 30 K

## Solar/Group 4 (cont.)

Coding in the delivered condition		Possible change	
23:4	<p>Stop temperature differential for central heating backup: 4 K.</p> <p>Switching output [22] is switched OFF when the temperature at sensor [7] falls below the stop point. The stop point is the sum of the temperature at sensor [10] and the value selected for the stop temperature differential.</p>	23:2 to 23:30	<p>Stop temperature differential for central heating backup is adjustable from 1 to 29 K</p>
24:40	<p>Start temperature for thermostat function 40 °C.</p> <p>Start temperature for thermostat function <math>\leq</math> stop temperature for thermostat function: Thermostat function e.g. for reheating. Switching output [22] is switched ON when the temperature at sensor [7] falls below the start temperature for the thermostat function.</p> <p>Start temperature for thermostat function <math>&gt;</math> stop temperature for thermostat function: Thermostat function e.g. for utilising excess heat. Switching output [22] is switched ON when the temperature at sensor [7] exceeds the start temperature for the thermostat function.</p>	24:0 to 24:100	<p>Start temperature for thermostat function is adjustable from 0 to 100 K</p>



**Solar/Group 4** (cont.)

<b>Coding in the delivered condition</b>		<b>Possible change</b>	
25:50	<p>Stop temperature for thermostat function 50 °C.</p> <p>Start temperature for thermostat function <math>\leq</math> stop temperature for thermostat function:</p> <p>Thermostat function e.g. for reheating. Switching output [22] is switched OFF when the temperature at sensor [7] exceeds the start temperature for the thermostat function.</p> <p>Start temperature for thermostat function <math>&gt;</math> stop temperature for thermostat function:</p> <p>Thermostat function e.g. for utilising excess heat. Switching output [22] is switched OFF when the temperature at sensor [7] falls below the start temperature for the thermostat function.</p>	25:0 to 25:100	Start temperature for thermostat function is adjustable from 0 to 100 K
26:1	Priority for DHW cylinder 1 – with alternate heating Only when setting code 20:8.	26:0	Priority for DHW cylinder 1 – without alternate heating
		26:2	Priority for DHW cylinder 2 – without alternate heating
		26:3	Priority for DHW cylinder 2 – with alternate heating
		26:4	Alternate heating without priority for one DHW cylinder



## Solar/Group 4 (cont.)

Coding in the delivered condition		Possible change	
27:15	Alternate heating time 15 min. The DHW cylinder without priority is heated at most for the duration of the set alternate heating time if the DHW cylinder with priority is heated up.	27:5 to 27:60	The alternate heating time is adjustable from 5 to 60 min
28:3	Alternate pause duration 3 min. After the set alternate heating time for the DHW cylinder without priority has expired, the rise in collector temperature is captured during the alternate heating time.	28:1 to 28:60	The alternate pause duration is adjustable from 1 to 60 min

## Heating circuit 1, heating circuit 2, heating circuit 3/Group 5

"Heating circuit ..." - select for weather-compensated control units (see page 53).

"5" - select for constant temperature control units (see page 53).

## Coding

Coding in the delivered condition		Possible change	
A0:0	Without remote control (only for weather-compensated control units)	A0:1	With Vitotrol 200A (automatic recognition)
		A0:2	With Vitotrol 300A (automatic recognition)



## Heating circuit 1, heating circuit 2, heating... (cont.)

Coding in the delivered condition		Possible change	
A1:0	All settings that can be made at the remote control can be executed (only for Vitotrol 200A and constant temperature control units)	A1:1	Only party mode can be set at the remote control
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)



### Please note

If a value below 1 °C is selected, there is a risk of pipes outside the thermal envelope of the building freezing up.

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

Parameter Address A3:...	Heating circuit pump	
	"ON"	"OFF"
-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	to
15	14 °C	16 °C

## Heating circuit 1, heating circuit 2, heating... (cont.)

Coding in the delivered condition		Possible change	
A4:0	With frost protection (only for weather-compensated control units)	A4:1	No frost protection; this setting is only possible if code "A3:-9" has been selected.  <b>Note</b> See "Please note" regarding coding address "A3"
A5:5	With heating circuit pump logic function (economy circuit): Heating circuit pump "OFF" when 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"; see the following table

Parameter address A5:...	With heating circuit pump logic function: Heating circuit pump "OFF"
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	$AT > RT_{set} - 9 \text{ K}$

## Heating circuit 1, heating circuit 2, heating... (cont.)

Coding in the delivered condition		Possible change	
A6:36	Extended economy function <b>disabled</b> (only for weather-compensated control units)	A6:5 to A6:35	Extended economy control enabled, i.e. the burner and heating circuit pump will be stopped and the mixer closed at a variable value, adjustable between 5 and 35 °C plus 1 °C. The base value is the adjusted outside temperature. This value is based on 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 a weather-compensated control unit and heating circuit with mixer)	A7:1	With mixer economy function (extended heating circuit pump logic): Heating circuit pump also "OFF": <ul style="list-style-type: none"> <li>■ If a mixer has been closed for longer than 20 min.</li> </ul> Heating pump "ON": <ul style="list-style-type: none"> <li>■ If the mixer changes to control function</li> <li>■ If there is a risk of frost</li> </ul>
A8:1	Heating circuit with mixer creates a demand for the internal circulation pump (only for weather-compensated control units)	A8:0	Heating circuit with mixer creates no demand for the internal circulation pump
A9:7	With pump idle time: Heating circuit pump "OFF" if the set value is altered 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

## Heating circuit 1, heating circuit 2, heating... (cont.)

Coding in the delivered condition		Possible change	
b0:0	With remote control: Heating mode/reduced mode: Weather-compensated (only for weather-compensated control units; change the code only for the heating circuit with mixer)	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 and for the heating circuit, operation with room temperature hook-up must be programmed: Room influence factor 8 (only for weather-compensated control units; change the code only for the heating circuit with mixer)	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-dependent heating circuit pump logic function (only for weather-compensated control units; change the code only for the heating circuit with mixer)	b5:1 to b5:8	Heating circuit pump logic function, see the following table:

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

## Heating circuit 1, heating circuit 2, heating... (cont.)

Coding in the delivered condition		Possible change	
C5:20	Electronic minimum flow temperature limit 20 °C (only for weather-compensated control units)	C5:1 to C5:127	Minimum limit adjustable from 1 to 127 °C (limited by boiler-specific parameters)
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 boiler-specific parameters)
d3:14	Heating curve slope = 1.4	d3:2 to d3:35	Heating curve slope adjustable from 0.2 to 3.5 (see page 32)
d4:0	Heating curve level = 0	d4:-13 to d4:40	Heating curve level adjustable from -13 to 40 (see page 32)
d5:0	The external heating program changeover changes the heating program to "Constant operation with reduced room temperature" or "Standby mode" (only for weather-compensated control units)	d5:1	The external heating program changeover changes to "Constant operation with standard room temperature" (independent of coding address 3A, 3b and 3C)
d6:0	Heating circuit pump stays in control mode at signal "External blocking"	d6:1	Heating circuit pump stops at signal "External blocking" (subject to coding addresses 3A, 3b and 3C)
		d6:2	Heating circuit pump starts at signal "External blocking" (subject to coding addresses 3A, 3b and 3C)
d7:0	Heating circuit pump stays in control mode at signal "External demand"	d7:1	Heating circuit pump stops at signal "External demand" (subject to coding addresses 3A, 3b and 3C)
		d7:2	Heating circuit pump starts at signal "External demand" (subject to coding addresses 3A, 3b and 3C)

## Heating circuit 1, heating circuit 2, heating... (cont.)

Coding in the delivered condition		Possible change	
d8:0	No heating program changeover via extension EA1	d8:1	Heating program changeover via input DE1 at extension EA1
		d8:2	Heating program changeover via input DE2 at extension EA1
		d8:3	Heating program changeover via input DE3 at extension EA1
E1:0	Do not adjust		
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 external variable speed heating circuit pump (only for weather-compensated control units)	E5:1	With external variable speed heating circuit pump (automatic recognition)
E6:...	Maximum speed of the variable speed heating circuit pump in % of the max. speed in standard mode. Value is defaulted by boiler-specific parameters (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 maximum speed (only for weather-compensated control units)	E7:0 to E7:100	Minimum speed adjustable from 0 to 100 % of the maximum speed



## Heating circuit 1, heating circuit 2, heating... (cont.)

Coding in the delivered condition		Possible change	
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"
E9:45	Speed of the variable speed heating circuit pump: 45 % of the maximum 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 F1:6	Screed drying function adjustable in accordance with 6 optional temperature/time profiles (see page 126)
		F1:15	Constant flow temperature 20 °C
F2:8	Time limit for party mode or external heating program changeover via key: 8 h (only for weather-compensated control units) <sup>*1</sup>	F2:0	No time limit for party mode <sup>*1</sup>
		F2:1 to F2:12	Time limit adjustable from 1 to 12 h <sup>*1</sup>
F5:12	Run-on time of the internal circulation pump in heating mode: 12 min (only for constant temperature control units)	F5:0	No run-on time for the internal circulation pump
		F5:1 to F5:20	Run-on time of the internal circulation pump adjustable from 1 to 20 min

<sup>\*1</sup> Party mode ends **automatically** in the "Heating and DHW" program, when the system changes over to operation with standard room temperature.



## Heating circuit 1, heating circuit 2, heating... (cont.)

Coding in the delivered condition		Possible change	
F6:25	In the "Only DHW" operating mode, the internal circulation pump is permanently ON (only for constant temperature control units)	F6:0	In the "Only DHW" operating mode, the internal circulation pump is permanently OFF
		F6:1 to F6:24	In the "Only DHW" operating mode, the internal circulation pump will be started for 10 min each time, 1 to 24 times per day.
F7:25	In "Standby mode", the internal circulation pump is permanently ON (only for constant temperature control units)	F7:0	In "Standby mode", the internal circulation pump is permanently OFF
		F7:1 to F7:24	In "Standby mode", the internal circulation pump will be started for 10 min each time 1 to 24 times per day.
F8:-5	Temperature limit for terminating the reduced mode -5 °C, see example on page 129. 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 129. (only for weather-compensated control units)	F9:+10 to F9:-60	Temperature limit for raising the set room temperature to the value selected for standard mode adjustable from +10 to -60 °C




## Heating circuit 1, heating circuit 2, heating... (cont.)

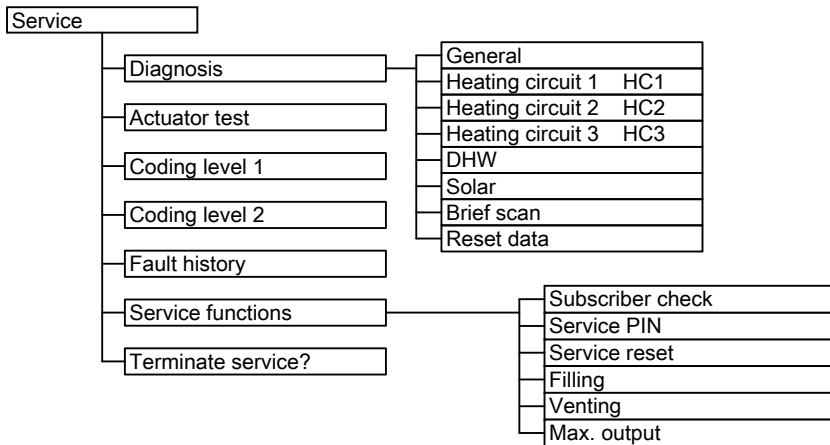
<b>Coding in the delivered condition</b>		<b>Possible change</b>	
FA:20	Raising the set boiler water temperature or the set flow temperature when changing from operation with reduced room temperature to operation with standard room temperature, by 20 %. See example on page 130 (only for weather-compensated 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 130 (only for weather-compensated control units)	Fb:0 to Fb:150	Duration adjustable from 0 to 300 min; 1 step $\triangleq$ 2 min

## Calling up the service menu

### Only for weather-compensated control units

Press **OK** and  simultaneously for approx. 4 s.

#### Service menu overview



## Diagnosis

### Scanning operating data

- Weather-compensated control unit:  
 Operating data can be scanned in six areas. See "**Diagnosis**" in the service menu overview.  
 Operating data on heating circuits with mixers and solar can only be scanned if the components are installed in the system.  
 For further information on operating data, see chapter "Brief scan".
- Constant temperature control unit:  
 Operating data can be scanned in the "i" menu.



Operating instructions

For further information on operating data, see chapter "Brief scan".


## Diagnosis (cont.)

### Note

"- - -" appears on the display if a sensor that has been scanned is faulty.

### Calling up operating data

#### Weather-compensated control unit


1. Press **OK** and  simultaneously for approx. 4 s.

2. **"Diagnosis"**

### Resetting operating data

Saved operating data (e.g. hours run) can be reset to 0.  
The value "Adjusted outside temp" is reset to the actual value.

#### Weather-compensated control unit

1. Press **OK** and  simultaneously for approx. 4 s.

2. **"Diagnosis"**

3. **"Reset data"**

### Brief scan

In the brief scan, you can scan temperatures, software versions and connected components, for example.

#### Weather-compensated control unit

1. Press **OK** and  simultaneously for approx. 4 s.


2. **"Diagnosis"**

3. **"Brief scan"**.

4. Press **OK**.  
The display shows 9 lines with 6 fields each.


3. Select required group, e.g. **"General"**.

#### Constant temperature control unit

 Operating instructions, chapter "Scanning information"

4. Select required value (e.g. **"Burner starts"**) or **"All details"**.

#### Constant temperature control unit

 Operating instructions, chapter "Scanning information"

## Diagnosis (cont.)

Diagnose Kurzabfrage						
1:	1	F	0	A	1	2
2:	0	0	0	0	0	0
3:	0	0	0	0	0	0
4:	0	0	0	0	0	0

Wählen mit 

For an explanation of the relevant values in the individual lines and fields, see the following table:




Line (brief scan)	Field					
	1	2	3	4	5	6
1:	Software version Control unit		Equipment version		Burner control unit version	
2:	System schemes 01 to 10		Number of KM BUS subscribers	Maximum demand temperature		
3:	Switching state of flow switch (only for combi boilers)	Software version Programming unit	Software version Mixer extension 0: No mixer extension	Software version Solar control module SM1	Software version LON module	0
4:	Software version Burner control unit		Type Burner control unit		Appliance type	
5:	0: no external demand 1: external demand	0: no external blocking 1: external blocking		External hook-up 0 - 10 V Display in °C 0: no external hook-up		
6:	Number of LON subscribers		Check digit	Max. output Details in %		



**Diagnosis** (cont.)

Line (brief scan)	Field					
	1	2	3	4	5	6
7:	<b>Heating circuit A1 (without mixer)</b> Remote control 0: without 1: Vitotrol 200A 2: Vitotrol 300A or Vitohome		<b>Heating circuit M2 (with mixer)</b> Remote control 0: without 1: Vitotrol 200A 2: Vitotrol 300A or Vitohome		<b>Heating circuit M3 (with mixer)</b> Remote control 0: without 1: Vitotrol 200A 2: Vitotrol 300A or Vitohome	
8:	<b>Internal circulation pump</b> Variable speed pump 0: without 1: Wilo 2: Grundfos		<b>Heating circuit pump, heating circuit M2</b> Variable speed pump 0: without 1: Wilo 2: Grundfos		<b>Heating circuit pump, heating circuit M3</b> Variable speed pump 0: without 1: Wilo 2: Grundfos	
9:	Internal details for calibration				Software version Extension AM1	Software version Extension EA1

**Constant temperature control unit**

1. Press **OK** and  simultaneously for approx. 4 s. "🌀" flashes on the display.
2. Confirm with **OK**.
3. Select the required scan with  / . For example, "b" for "Max. output" (see following table):

**Diagnosis** (cont.)

4. Confirm selected scan with **OK**.

**For explanations of individual scans, see the following table:**

Brief scan	Display				
0	Switching state of flow switch (only for combi boilers)	System schemes 1 to 2	Software version Control unit		Software version Programming unit
1	Software version Solar control module SM1	Software version Burner control unit		External extension software version 0: no external extension	Software version Multi-boiler control unit
E			External hook-up 0 - 10 V Display in °C 0: no external hook-up		
3			Set boiler water temperature		
A			Highest demand temperature		
4		Burner control unit type	Appliance type		
5			Set cylinder temperature		
b	Diverter valve status 0: not available 1: Heating 2: Central position 3: DHW heating		Max. output in %		
C		Boiler coding card (hexadecimal)			
c		Version Appliance		Version Burner control unit	



**Diagnosis** (cont.)

Brief scan	Display				
0	0	0	0	0	0
d				Variable speed pump 0 w/o 1 Wilo 2 Grundfos	Software version Variable speed pump 0: no variable speed pump
F ①	Code 53 setting	Internal details for calibration			
<b>Extension AM1</b>					
F ②	Software version	Output A1 configuration (value corresponds to code 33 setting)	Output A1 switching state 0: OFF 1: ON	Output A2 configuration (value corresponds to code 34 setting)	Output A2 switching state 0: OFF 1: ON
<b>Extension EA1</b>					
F ③	Output 157 configuration (value corresponds to code 36 setting)	Output 157 switching state 0: OFF 1: ON	Input DE1 switching state 0: open 1: closed	Input DE2 switching state 0: open 1: closed	Input DE3 switching state 0: open 1: closed
F ④	Software version		External hook-up 0 - 10 V Display in %		
<b>Solar control module SM1</b>					
F ⑤	Stagnation time of the solar thermal system in h				
F ⑥	Night circulation of the solar thermal system (number)				
F ⑦	Monitoring reheating suppression for heating (number)				
F ⑧				Solar central heating backup 0: disabled 1: enabled	Output 22 switching state 0: OFF 1: ON



## Diagnosis (cont.)

Brief scan	Display				
	<b>Open Therm extension (if installed)</b>				
F ⑨	Software version	DHW heating status	External hook-up 0 - 10 V Display in %		

## Checking outputs (relay test)

### Weather-compensated control unit

1. Press **OK** and simultaneously for approx. 4 s.
2. "Actuator test"

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

Display	Explanation
Start base load	Burner operates at minimum output; internal pump starts
Start full load	Burner operates at maximum output; internal pump starts
Start internal output	Internal output  (internal pump) enabled
Start valve heating	Diverter valve set to heating mode
Start valve centre	Diverter valve in central position (filling/draining)
Start valve cylinder	Diverter valve set to DHW mode
Start htg circ pump HC2	Heating circuit pump output enabled (extension to heating circuit with mixer)
Open mixer HC2	"Mixer open" output enabled (extension to heating circuit with mixer)
Close mixer HC2	"Mixer closed" output enabled (extension to heating circuit with mixer)
Start htg circ pump HC3	Heating circuit pump output enabled (extension to heating circuit with mixer)
Open mixer HC3	"Mixer open" output enabled (extension to heating circuit with mixer)
Close mixer HC3	"Mixer closed" output enabled (extension to heating circuit with mixer)
Start outp. int. exten. H1	Output at internal extension enabled
Start AM1 output 1	Output A1 at extension AM1 enabled
Start AM1 output 2	Output A2 at extension AM1 enabled
Start EA1 output 1	Contacts P - S at plug  for extension EA1 closed



## Checking outputs (relay test) (cont.)

Display	Explanation
Start solar circuit pump	Solar circuit pump [24] output at solar control module SM1 enabled
Start solar circ pmp min	Solar circuit pump output at solar control module SM1 switched to minimum speed
Start solar circ pmp max	Solar circuit pump output at solar control module SM1 switched to maximum speed
Start sol. output [22]	Output [22] at solar control module SM1 enabled

## Constant temperature control unit

1. Press **OK** and **≡**: simultaneously for approx. 4 s. "P" flashes on the display.
2. Select ▶ "C" and confirm with **OK**.
3. Select required actuator (output) with ▲/▼ (see following table):
4. Confirm selected actuator with **OK**. The display shows the number for the activated actuator and "ON".

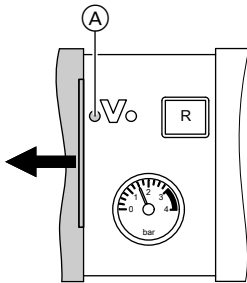
The following actuators (relay outputs) can be controlled subject to system design:

Display	Explanation
1	Burner operates at minimum output; internal pump starts
2	Burner operates at maximum output; internal pump starts
3	Internal output [20] (internal pump) is enabled
4	Diverter valve set to heating mode
5	Diverter valve in central position (filling/draining)
6	Diverter valve set to DHW mode
10	Internal extension output enabled
15	Solar circuit pump [24] output at solar control module SM1 enabled
16	Solar circuit pump output at solar control module SM1 switched to minimum speed
17	Solar circuit pump output at solar control module SM1 switched to maximum speed
18	Output [22] at solar control module SM1 enabled
19	Contacts P - S at plug [157] for extension EA1 closed
20	Output A1 at extension AM1 enabled
21	Output A2 at extension AM1 enabled

## Fault display

### Weather-compensated control unit

If there is a fault, the red fault indicator **(A)** flashes. "**Δ**" flashes on the display and "**Fault**" is shown.



The fault code is displayed with **OK**. For an explanation of the fault code, see the following pages.

For some faults, the type of fault is also displayed in plain text.

### Acknowledging a fault

Follow the instructions on the display.

#### Note

*The fault message is shown in the standard display of the short menu.*

*A fault messaging facility, if connected, will be switched OFF.*

*If an acknowledged fault is not remedied, the fault message will be re-displayed the following day and the fault message facility restarted.*

### Calling up acknowledged faults

Select "**Fault**" in the standard menu. The current faults will be displayed in a list.

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

The 10 most recent faults (including resolved ones) are saved and can be scanned.

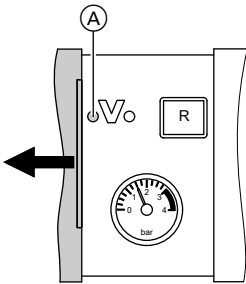
Faults are sorted by date.

1. Press **OK** and **≡** simultaneously for approx. 4 s.
2. "**Fault history**"
3. "**Display?**"

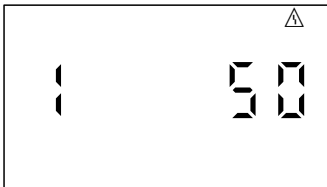
## Fault display (cont.)

### Constant temperature control unit

If there is a fault, the red fault indicator (A) flashes. The two-digit fault code and (subject to the type of fault) "△" or "⚡" flash on the programming unit display.



Other current faults can be displayed with ▲/▼. For an explanation of the fault codes, see the following pages.



Example: Fault code "50"

### Acknowledge fault

Press **OK**; the standard display is shown again.

A fault messaging facility, if connected, will be switched OFF.

If an acknowledged fault is not remedied, the fault message will be re-displayed the following day and the fault message facility restarted.

### Calling up acknowledged faults

Press **OK** for approx. 4 s.

The 10 most recent faults (including resolved ones) are saved and can be scanned.

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

The 10 most recent faults (including those remedied) are saved and can be called up.

Faults are sorted by date.

1. Press **OK** and **≡** simultaneously for approx. 4 s.
2. Select "▲" and enable fault history with **OK**.
3. Select fault messages with ▲/▼.

**Fault codes**

<b>Dis- played fault code</b>	<b>Const.</b>	<b>Weath.- comp.</b>	<b>System char- acteristics</b>	<b>Cause</b>	<b>Measures</b>
10	X	X	Controls as if the outside temperature was 0 °C	Short circuit, outside temperature sensor	Check the outside temperature sensor (see page 105)
18	X	X	Controls as if the outside temperature was 0 °C	Lead break, outside temperature sensor	Check the outside temperature sensor (see page 105)
20	X	X	Regulates without flow temperature sensor (low loss header)	Short circuit, system flow temperature sensor	Check the low loss header sensor (see page 106)
28	X	X	Regulates without flow temperature sensor (low loss header)	Lead break, system flow temperature sensor	Check the low loss header sensor (see page 106)
30	X	X	Burner blocked	Short circuit, boiler water temperature sensor	Check the boiler water temperature sensor (see page 106)
38	X	X	Burner blocked	Lead break, boiler water temperature sensor	Check the boiler water temperature sensor (see page 106)
40		X	Mixer closes	Short circuit, flow temperature sensor, heating circuit 2 (with mixer)	Check flow temperature sensor
44		X	Mixer closes	Short circuit, flow temperature sensor, heating circuit 3 (with mixer)	Check flow temperature sensor



**Fault codes** (cont.)

Dis-played fault code	Const.	Weath.-comp.	System characteristics	Cause	Measures
48		X	Mixer closes	Lead break, flow temperature sensor, heating circuit 2 (with mixer)	Check flow temperature sensor
4C		X	Mixer closes	Lead break, flow temperature sensor, heating circuit 3 (with mixer)	Check flow temperature sensor
50	X	X	No DHW heating	Short circuit, cylinder temperature sensor or comfort sensor	Check the cylinder temperature sensor (see page 106) or comfort sensor (see page 108)
51	X	X	No DHW heating	Short circuit, outlet temperature sensor	Check sensor (see page 108)
58	X	X	No DHW heating	Lead break, cylinder temperature sensor or comfort sensor	Check the cylinder temperature sensor (see page 106) or comfort sensor (see page 108)
59	X	X	No DHW heating	Lead break, outlet temperature sensor	Check sensor (see page 108)
90	X	X	Control mode	Short circuit, temperature sensor <span style="border: 1px solid black; padding: 0 2px;">7</span>	Check sensor <span style="border: 1px solid black; padding: 0 2px;">7</span> on the solar control module
91	X	X	Control mode	Short circuit, temperature sensor <span style="border: 1px solid black; padding: 0 2px;">10</span>	Check sensor <span style="border: 1px solid black; padding: 0 2px;">10</span> on the solar control module.
92	X	X	No DHW heating	Short circuit, collector temperature sensor	Check temperature sensor <span style="border: 1px solid black; padding: 0 2px;">6</span> on the solar control module or the Vitosolic sensor

**Fault codes** (cont.)

Dis- played fault code	Const.	Weath.- comp.	System char- acteristics	Cause	Measures
93	X	X	Control mode	Short circuit, cylinder temperature sensor	Check temperature sensor at connection S3 to the Vitosolic 100.
94	X	X	No DHW heating	Short circuit, cylinder temperature sensor	Check temperature sensor [5] on the solar control module or the Vitosolic sensor
98	X	X	Control mode	Lead break, temperature sensor [7]	Check sensor [7] on the solar control module
99	X	X	Control mode	Lead break, temperature sensor [10]	Check sensor [10] on the solar control module.
9A	X	X	No DHW heating	Lead break, collector temperature sensor	Check temperature sensor [6] on the solar control module or the Vitosolic sensor
9b	X	X	Control mode	Lead break, cylinder temperature sensor	Check temperature sensor at connection S3 to the Vitosolic 100.
9C	X	X	No DHW heating	Lead break, cylinder temperature sensor	Check temperature sensor [5] on the solar control module or the Vitosolic sensor
9E	X	X	Control mode	No flow rate in the collector circuit or flow rate too low, or temperature limiter has responded	Check solar circuit pump and solar circuit. Acknowledge fault message.



**Fault codes** (cont.)

Dis- played fault code	Const.	Weath.- comp.	System char- acteristics	Cause	Measures
9F	X	X	Control mode	Solar control module or Vitosolic faulty	Replace solar control module or Vitosolic
A7		X	Control mode as per delivered condition	Programming unit faulty	Replace programming unit
b0	X	X	Burner blocked	Short circuit, flue gas temperature sensor	Check the flue gas temperature sensor
b1	X	X	Control mode as per delivered condition	Communication error, programming unit	Check connections and replace the programming unit if required
b5	X	X	Control mode as per delivered condition	Internal fault	Replace the control unit
b7	X	X	Burner blocked	Boiler coding card faulty	Plug in boiler coding card or replace if faulty
b8	X	X	Burner blocked	Lead break, flue gas temperature sensor	Check the flue gas temperature sensor
bA		X	Mixer regulates to 20 °C flow temperature.	Communication error, extension kit for heating circuit 2 (with mixer)	Check extension kit connections and code
bb		X	Mixer regulates to 20 °C flow temperature.	Communication error, extension kit for heating circuit 3 (with mixer)	Check extension kit connections and code



**Fault codes** (cont.)

<b>Dis- played fault code</b>	<b>Const.</b>	<b>Weath.- comp.</b>	<b>System char- acteristics</b>	<b>Cause</b>	<b>Measures</b>
bC		X	Control mode without remote control	Communication error, remote control Vitotrol heating circuit 1 (without mixer)	Check connections, lead, coding address "A0" and remote control settings (see page 132)
bd		X	Control mode without remote control	Communication error, remote control Vitotrol heating circuit 2 (with mixer)	Check connections, lead, coding address "A0" and remote control settings (see page 132)
bE		X	Control mode without remote control	Communication error, remote control Vitotrol heating circuit 3 (with mixer)	Check connections, lead, coding address "A0" and remote control settings (see page 132)
bF		X	Control mode	Incorrect LON communication module	Replace the LON communication module
C1	X	X	Control mode	Communication error extension EA1	Check electrical connections
C2	X	X	Control mode	Communication error, solar control module or Vitosolic	Check solar control module or Vitosolic
C3	X	X	Control mode	Extension AM1 communication error	Check electrical connections



**Fault codes** (cont.)

<b>Dis- played fault code</b>	<b>Const.</b>	<b>Weath.- comp.</b>	<b>System char- acteristics</b>	<b>Cause</b>	<b>Measures</b>
C4	X	X	Control mode	Communica- tion error, Open Therm extension	Check Open Therm extension
C5	X	X	Control mode, max. pump speed	Communica- tion error, var- iable speed internal pump	Check the setting of coding address "30"
C6		X	Control mode, max. pump speed	Communica- tion error, external vari- able speed heating circuit pump, heat- ing circuit 2 (with mixer)	Check setting of coding address "E5"
C7	X	X	Control mode, max. pump speed	Communica- tion error, external vari- able speed heating circuit pump, heat- ing circuit 1 (without mixer)	Check setting of coding address "E5"
C8		X	Control mode, max. pump speed	Communica- tion error, external vari- able speed heating circuit pump, heat- ing circuit 3 (with mixer)	Check setting of coding address "E5"
Cd	X	X	Control mode	Communica- tion error, Vitocom 100 (KM BUS)	Check connec- tions, Vitocom 100 and coding address "95"

**Fault codes** (cont.)

<b>Dis- played fault code</b>	<b>Const.</b>	<b>Weath.- comp.</b>	<b>System char- acteristics</b>	<b>Cause</b>	<b>Measures</b>
CE	X	X	Control mode	Communica- tion error, ext. extension	Check electrical connections
CF		X	Control mode	Communica- tion error, LON commu- nication mod- ule	Replace the LON communication module
d6	X	X	Control mode	Input DE1 at extension EA1 reports a fault	Remove fault at the appliance con- cerned
d7	X	X	Control mode	Input DE2 at extension EA1 reports a fault	Remove fault at the appliance con- cerned
d8	X	X	Control mode	Input DE3 fault at exten- sion EA1	Check connection to input DE3
dA		X	Control mode without room influence	Short circuit, room temper- ature sensor, heating circuit 1 (without mixer)	Check room tem- perature sensor, heating circuit 1
db		X	Control mode without room influence	Short circuit, room temper- ature sensor, heating circuit 2 (with mixer)	Check room tem- perature sensor, heating circuit 2
dC		X	Control mode without room influence	Short circuit, room temper- ature sensor, heating circuit 3 (with mixer)	Check room tem- perature sensor, heating circuit 3



**Fault codes** (cont.)

Dis-played fault code	Const.	Weath.-comp.	System characteristics	Cause	Measures
dd		X	Control mode without room influence	Lead break, room temperature sensor, heating circuit 1 (without mixer)	Check room temperature sensor for heating circuit 1 and remote control settings (see page 132).
dE		X	Control mode without room influence	Lead break, room temperature sensor, heating circuit 2 (with mixer)	Check room temperature sensor for heating circuit 2 and remote control settings (see page 132).
dF		X	Control mode without room influence	Lead break, room temperature sensor, heating circuit 3 (with mixer)	Check room temperature sensor for heating circuit 3 and remote control settings (see page 132).
E0		X	Control mode	Fault external LON subscriber	Check connections and LON subscribers
E1	X	X	Burner in a fault state	The ionisation current lies outside the permissible range	Check the ionisation electrode and cable. Press reset button <b>R</b> .
E2	X	X	Burner in a fault state	The ionisation current lies outside the permissible range	Check the ionisation electrode and cable. Press reset button <b>R</b> .
E3	X	X	Burner in a fault state	The ionisation current lies outside the permissible range	Check the ionisation electrode and cable. Press reset button <b>R</b> .
E4	X	X	Burner blocked	Fault, supply voltage 24 V	Replace the control unit.

**Fault codes** (cont.)

Dis- played fault code	Const.	Weath.- comp.	System char- acteristics	Cause	Measures
E5	X	X	Burner blocked	Fault, flame amplifier	Replace the control unit.
E7	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 button <b>R</b> .
E8	X	X	Burner in a fault state	The ionisation current lies outside the permissible range	Check the ionisation electrode and cable. Press reset button <b>R</b> .
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 button <b>R</b> .
Eb	X	X	Burner in a fault state	Heat draw-off repeatedly too low during calibration	Initiate a heat draw-off. Switch the boiler OFF and ON again. Press reset button <b>R</b> .
EC	X	X	Burner in a fault state	Parameter fault during calibration	Press reset button <b>R</b> or Replace boiler coding card and press reset button <b>R</b> .
Ed	X	X	Burner in a fault state	Internal fault	Replace the control unit.



**Fault codes** (cont.)

Dis-played fault code	Const.	Weath.-comp.	System characteristics	Cause	Measures
EE	X	X	Burner in a fault state	Flame signal is not present or too weak at burner start	Check the ionisation electrode and connecting cable, measure the ionisation current, check the gas supply (gas pressure and gas flow limiter), check the gas train, ignition, ignition module, ignition electrodes and the condensate drain. Press reset button <b>R</b> .
EF	X	X	Burner in a fault state	The flame is lost immediately after it has built (during the safety time).	Check the gas supply (gas pressure and gas flow limiter), check the flue gas/ventilation air system for flue gas recirculation, check the ionisation electrode (replace if required). Press reset button <b>R</b> .
F0	X	X	Burner blocked	Internal fault	Replace the control unit.
F1	X	X	Burner in a fault state	Flue gas temperature limiter has responded.	Check the heating system fill level. Vent the system. Press reset button <b>R</b> after the flue system has cooled down.

**Fault codes** (cont.)

Dis- played fault code	Const.	Weath.- comp.	System char- acteristics	Cause	Measures
F2	X	X	Burner in a fault state	The temperature limiter has responded.	Check the heating system fill level. Check the circulation pump. Vent the system. Check the temperature limiter and connecting cables. Press reset button <b>R</b> .
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 button <b>R</b> .
F8	X	X	Burner in a fault state	The fuel valve closes too late.	Check the gas train. Check both control paths. Press reset button <b>R</b> .
F9	X	X	Burner in a fault state	Fan speed too low during burner start	Check the fan, the fan connecting cables and power supply; check the fan control. Press reset button <b>R</b> .
FA	X	X	Burner in a fault state	Fan not at standstill	Check the fan, fan connecting cables and fan control. Press reset button <b>R</b> .
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 flue gas system. Press reset button <b>R</b> .



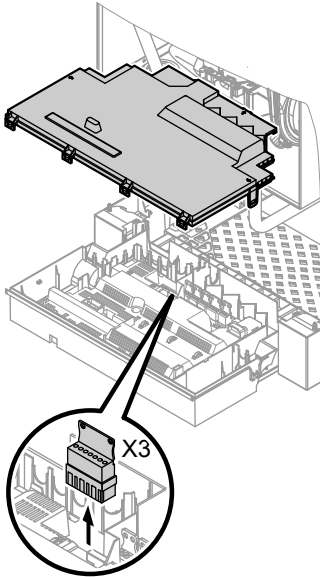
**Fault codes** (cont.)

Dis-played fault code	Const.	Weath.-comp.	System characteristics	Cause	Measures
Fd	X	X	Burner in a fault state	Fault, burner control unit	Check ignition electrodes and connecting cables. Check whether a strong interference (EMC) field exists near the appliance.  Press reset button <b>R</b> . Replace control unit if the fault persists.
FE	X	X	Burner blocked or in a fault state	Boiler coding card or main PCB faulty	Press reset button <b>R</b> . Replace boiler coding card or control unit if the fault persists.
FF	X	X	Burner blocked or in a fault state	Internal fault or reset button <b>R</b> blocked	Start the appliance again. Replace the control unit if the appliance will not restart.

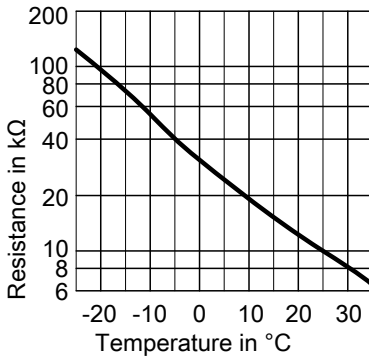


## Repairs

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



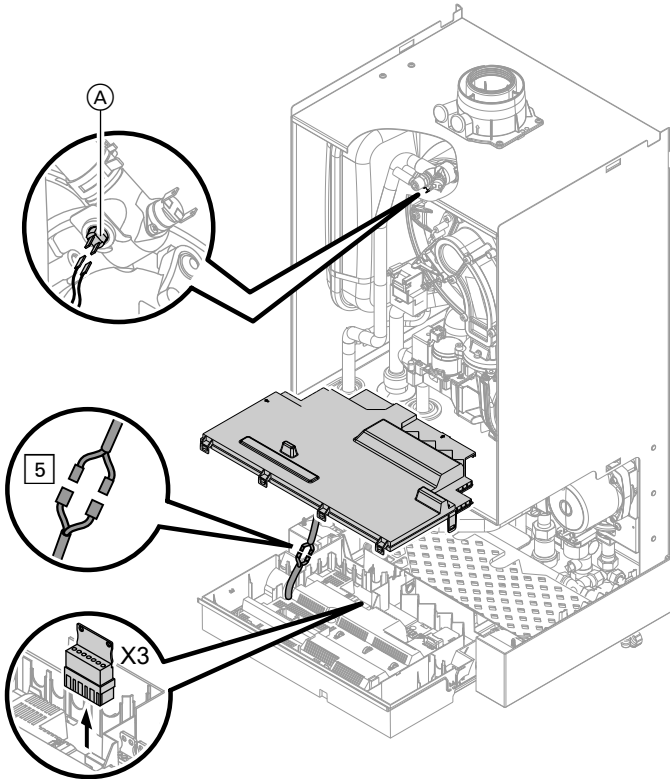
1. Pull plug "X3" from the control unit.



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 deviate severely from the curve values, disconnect the wires at the sensor and repeat test on the sensor itself.
4. Subject to result, replace the lead or the outside temperature sensor.

**Repairs** (cont.)

**Checking the boiler temperature sensor, cylinder temperature sensor or flow temperature sensor of the 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**

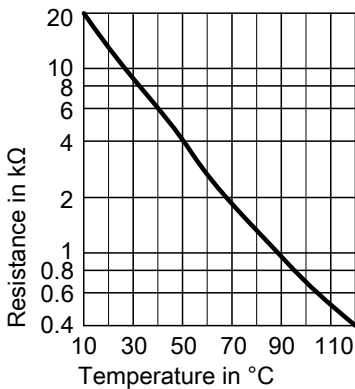
Pull plug [5] from the cable harness at the control unit and check the resistance.

■ **Low loss header 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.



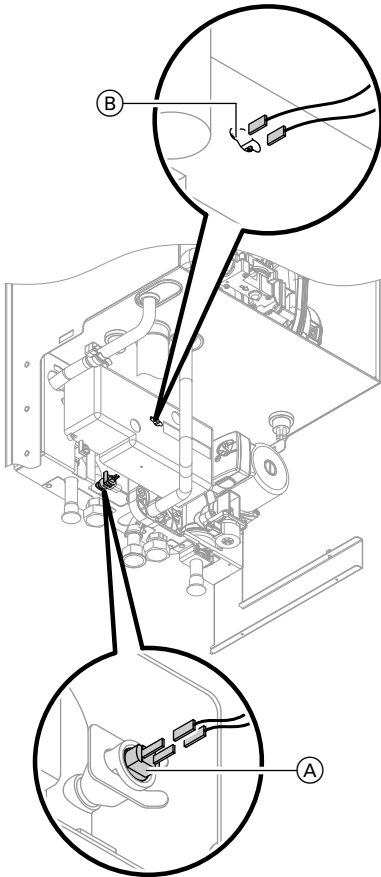
**Danger**

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

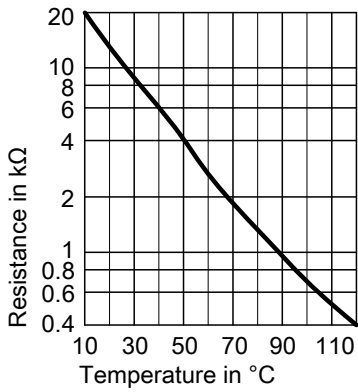
Drain the boiler on the heating water side before replacing the sensor.

## Repairs (cont.)

### Checking the outlet temperature sensor or comfort sensor (gas combi boilers only)



1. Disconnect the leads from outlet temperature sensor (A) or comfort sensor (B).
2. Check the sensor resistance and compare it with the curve.

**Repairs** (cont.)

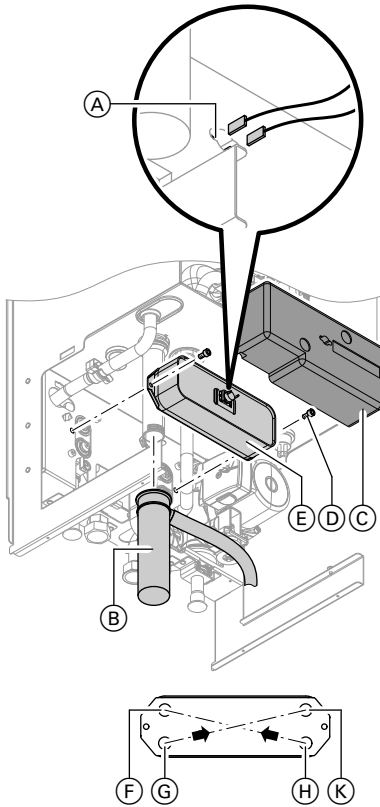
3. Replace the sensor in case of severe deviation.

**Note**

*Water can leak when replacing the outlet temperature sensor. Close the cold water shut-off valve. Drain the DHW line and the plate heat exchanger (DHW side).*

**Repairs** (cont.)

**Checking the plate heat exchanger**




- (F) Heating return
- (G) Cold water
- (H) Heating flow
- (K) DHW

1. Shut off and drain the boiler on its heating water and DHW side.
2. Release the side closures and pivot the control unit forward.
3. Pull the leads from comfort sensor (A).
4. Remove the retaining clip and siphon (B).
5. Remove thermal insulation (C).
6. Undo screws (D) and remove plate heat exchanger (E) through the front.

**Note**

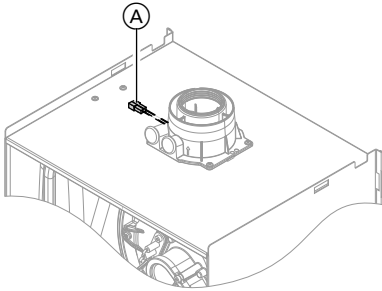
*During removal, small amounts of water may trickle out and escape from the plate heat exchanger.*

7. Check the DHW side for scaling and if required clean or replace the plate heat exchanger.
8. Check the heating water side for contamination and if required clean or replace the plate heat exchanger.
9. Install in reverse order with new gaskets.
10.  **Danger**  
Escaping gas leads to a risk of explosion.  
Check gas equipment for tightness.

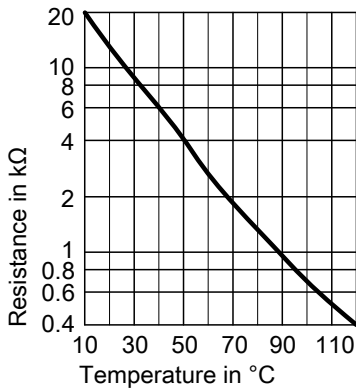
## Repairs (cont.)

### Checking the flue gas temperature sensor

The flue gas temperature sensor locks out the boiler when the permissible flue gas temperature is exceeded. Reset the interlock after the flue system has cooled down by pressing reset button **R**.



1. Pull the leads from flue gas temperature sensor (A).

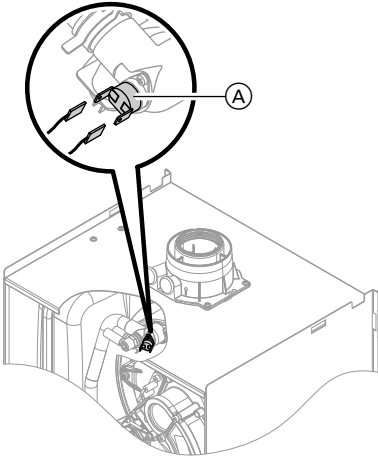


2. Check the sensor resistance and compare it with the curve.
3. Replace the sensor in case of severe deviation.

### Checking the temperature limiter

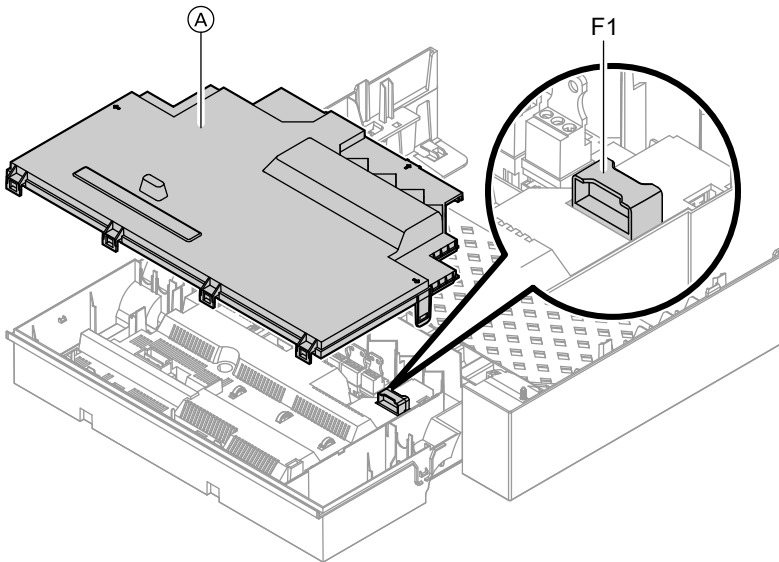
If the burner control unit cannot be reset after a fault shutdown, although the boiler water temperature is below approx. 75 °C, check the following:

## 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. Coat the replacement temperature limiter with heat conducting paste and install it.
5. After commissioning, press reset button **R** on the control unit.

## Checking the fuse



1. Switch OFF the power.
2. Release the side closures and pivot the control unit down.



**Repairs** (cont.)

3. Remove cover (A).

4. Check fuse F1 (see connection and wiring diagram).

**Extension kit for heating circuit with mixer**



**Checking the setting of rotary selector S1**

The rotary selector on the PCB of the extension kit defines the assignment to the relevant heating circuit.

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.*

Heating circuit	Rotary selector S1 setting
Heating circuit with mixer M2 (heating circuit 2)	2 
Heating circuit with mixer M3 (heating circuit 3)	4 

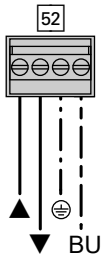


Mixer installation instructions

**Checking the rotational direction of the mixer motor**

After being switched ON, the boiler implements a self-test. During this, the mixer is opened and closed again.

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



1. Remove the upper casing cover of the extension kit.




**Danger**

An electric shock can be life-threatening.

Before opening the boiler, disconnect from the mains voltage, for example at the fuse or the main isolator.

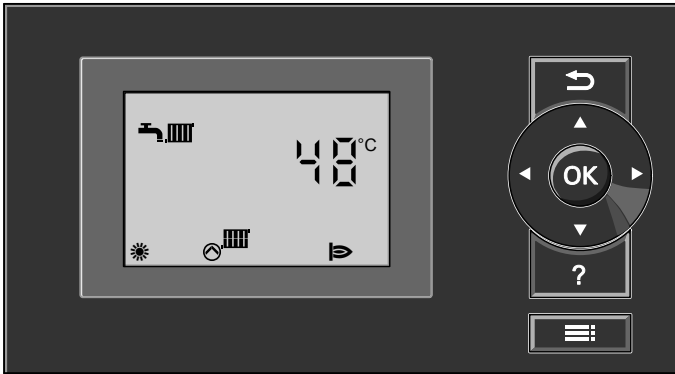
## Repairs (cont.)

2. At plug , swap the cores at terminals "▲" and "▼".
3. Refit the casing cover.

### Checking the Vitotronic 200-H (accessories)

The Vitotronic 200-H is connected to the control unit via the LON cable. To test the connection, carry out a subscriber check at the boiler control unit (see page 36).

## Constant temperature control unit



### Heating mode

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.

Flow temperature setting range: 20 to 74 °C.

### DHW heating with gas fired combi boilers

If the flow switch detects that hot water is being extracted (> 3 l/min) then the burner, circulation pump and 3-way valve are switched on or changed over. The burner modulates according to the DHW outlet temperature and is limited by the temperature limiter (82 °C) on the boiler side.

### DHW heating with a gas fired boiler

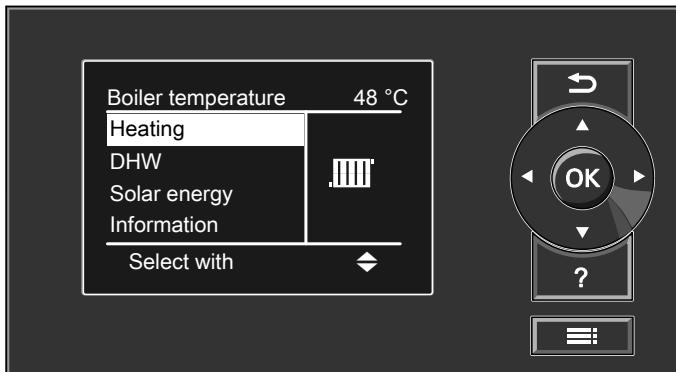
The burner, the circulation pump and the three-way valve are started or changed over if the cylinder temperature lies 2.5 K below the set cylinder temperature.

## Function description

### Constant temperature control unit (cont.)

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



### Heating mode

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.

## Weather-compensated control unit (cont.)

### DHW heating with gas fired combi boilers

If the flow switch detects that hot water is being extracted ( $> 3 \text{ l/min}$ ) then the burner, circulation pump and 3-way valve are switched on or changed over. The burner modulates according to the DHW outlet temperature and is limited by the temperature limiter ( $82 \text{ }^\circ\text{C}$ ) on the boiler side.

### DHW heating with a gas fired boiler

The burner, the circulation pump and the three-way valve are started or changed over 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.

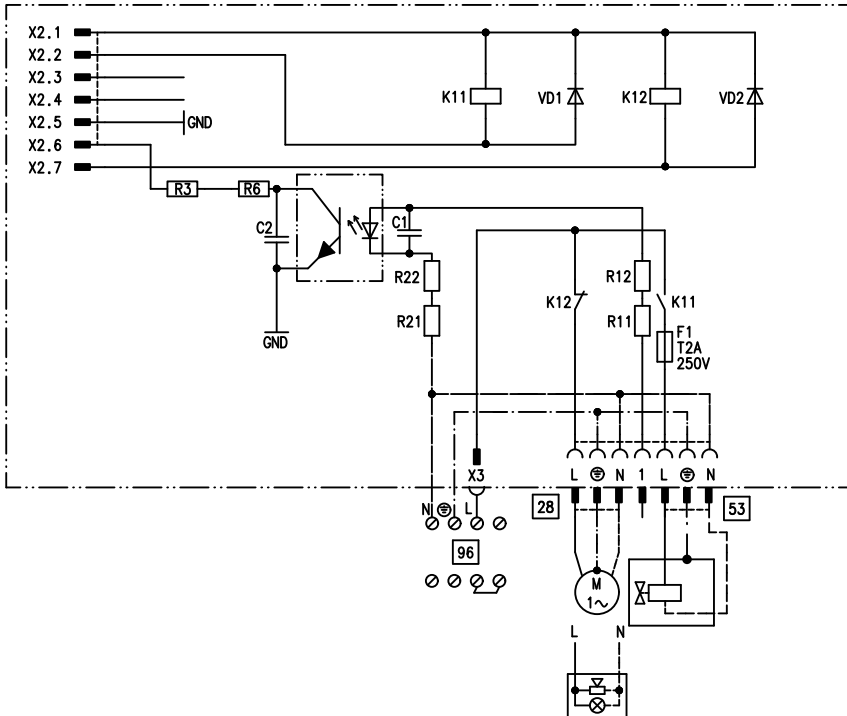
### Boosting DHW heating

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".

## Internal extensions (accessories)

### Internal extension H1



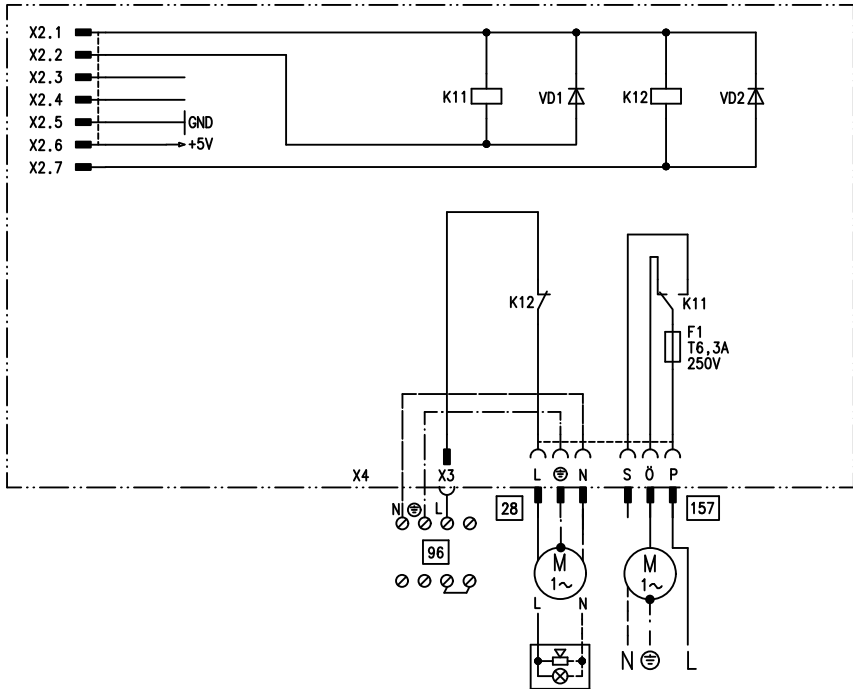
The internal extension is integrated into the control unit housing. The following alternative functions can be connected to relay output [28]. The function is allocated via coding address "53":

- 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")
- Circulation pump for cylinder heating (coding address "53:3")

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

## Internal extensions (accessories) (cont.)

### Internal extension H2



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":

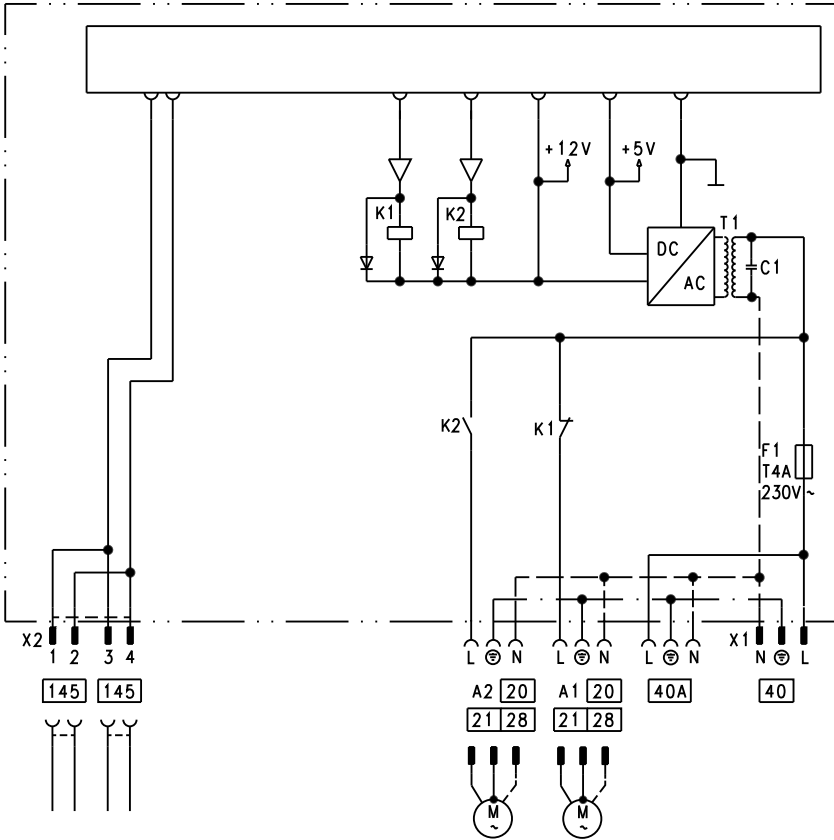
- Central fault message (coding address "53:0")
- DHW circulation pump (coding address "53:1") (only for weather-compensated operation)

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

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

**External extensions (accessories)**

**Extension AM1**



- A1 Circulation pump
- A2 Circulation pump
- 40 Power supply [terminals]

- 40A Power supply terminal for additional accessories
- 145 KM BUS



## External extensions (accessories) (cont.)

### Functions

One of the following circulation pumps can be connected to each of the terminals A1 and A2:

- Heating circuit pump for the heating circuit without mixer
- Circulation pump for cylinder heating
- DHW circulation pump

### Allocating functions for outputs A1 and A2

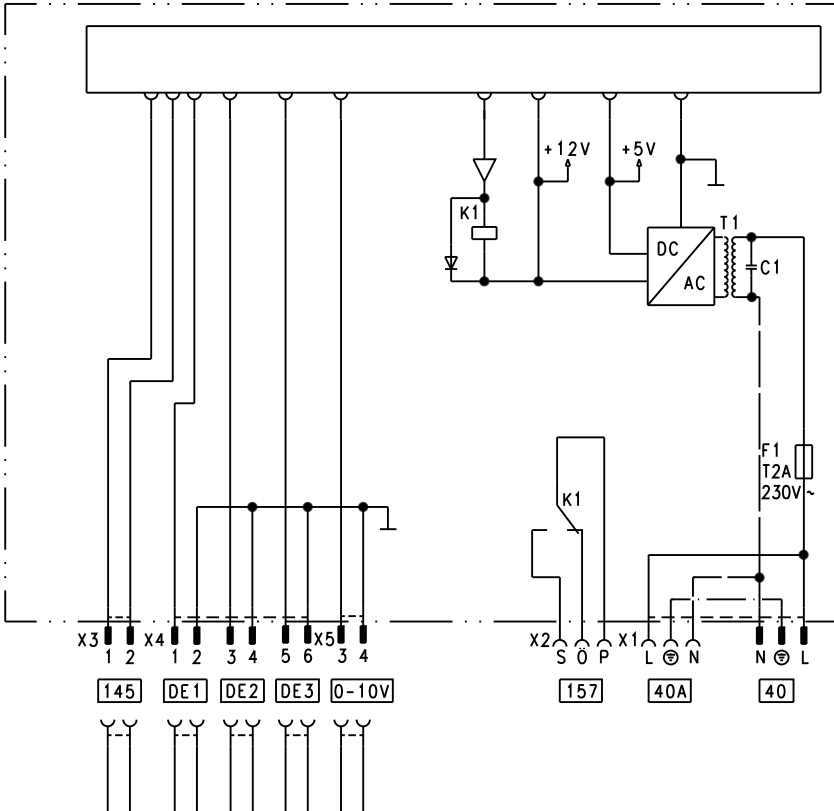
Select the function for these outputs via the codes on the boiler control unit:

- Output A1: Code 33
- Output A2: Code 34

Function	Code	
	Output A1	Output A2
DHW circulation pump <span style="border: 1px solid black; padding: 0 2px;">28</span>	33:0	34:0 (delivered cond.)
Heating circuit pump <span style="border: 1px solid black; padding: 0 2px;">20</span>	33:1 (delivered cond.)	34:1
Circulation pump for cylinder heating <span style="border: 1px solid black; padding: 0 2px;">21</span>	33:2	34:2

**External extensions (accessories) (cont.)**

**Extension EA1**



DE1 Digital input 1

DE2 Digital input 2

DE3 Digital input 3

0 - 10 V 0 - 10 V input

40 Power supply [terminals]

40A Power supply terminal for additional accessories

157 Central fault message/feed pump/DHW circulation pump (zero volt)

145 KM BUS

## External extensions (accessories) (cont.)

### Digital data inputs DE1 to DE3

The following functions can be connected alternatively:

- External heating program changeover for each heating circuit
- External blocking
- External blocking with fault message input
- External demand with minimum boiler water temperature
- Fault message input
- Short operation of the DHW circulation pump

The hooked-up contacts must correspond to protection class II.

### Input function assignment

Select the input functions via the codes on the boiler control unit:

- DE1: Code 3A
- DE2: Code 3b
- DE3: Code 3C

### Assigning the heating program changeover function to the heating circuits

Assign the heating program changeover function for the respective heating circuit via code d8 at the boiler control unit:

- Changeover via input DE1: Code d8:1
- Changeover via input DE2: Code d8:2
- Changeover via input DE3: Code d8:3

Select the effect of the heating program changeover via code d5:

Set the duration of the changeover via code F2.

### Effect on the pumps of external blocking function

The effect on the internal circulation pump is selected with code 3E.

The effect on the relevant heating circuit pump is selected with code d6.

The effect on a circulation pump for cylinder heating is selected with code 5E.

### Effect on the pumps of the external demand function

The effect on the internal circulation pump is selected with code 3F.

The effect on the relevant heating circuit pump is selected with code d7.

The effect on a circulation pump for cylinder heating is selected with code 5F.

### DHW circulation pump runtime for brief operation

The runtime is set in code 3d.

### Analogue input 0 - 10 V

The 0 - 10 V hook-up provides an additional set boiler water temperature:

0 - 1 V taken as "no default set boiler water temperature".

1 V  $\hat{=}$  set value 10 °C

10 V  $\hat{=}$  set value 100 °C

### Output 157

The following functions can be connected to output 157:

- Feed pump to substation  
or
- DHW circulation pump  
or
- Fault message facility

## External extensions (accessories) (cont.)

### Function assignment

Select the function of output 157 via code 36 at the boiler control unit.

## Control functions

### External heating program changeover

The "External heating program changeover" function is connected via extension EA1. There are 3 inputs available at extension EA1 (DE1 to DE3).

The function is selected via the following codes:

Heating program changeover	Code
Input DE1	3A:1
Input DE2	3b:1
Input DE3	3C:1

Assign the heating program changeover function for the respective heating circuit via code d8 at the boiler control unit:

Heating program changeover	Code
Changeover via input DE1	d8:1
Changeover via input DE2	d8:2
Changeover via input DE3	d8:3

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

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

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

## Control functions (cont.)

Heating program changeover	Code
No heating program changeover	F2:0
Duration of the heating program changeover 1 to 12 hours	F2:1 to F2:12

The heating program changeover stays enabled 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" and "External blocking and fault message input" functions are connected via extension EA1. There are 3 inputs available at extension EA1 (DE1 to DE3).

The function is selected via the following codes:

External blocking	Code
Input DE1	3A:3
Input DE2	3b:3
Input DE3	3C:3

External blocking and fault message input	Code
Input DE1	3A:4
Input DE2	3b:4
Input DE3	3C:4

The effect on the internal circulation pump is selected with code 3E.

The effect on the relevant heating circuit pump is selected with code d6.

## External demand

The "External demand" function is connected via extension EA1. There are 3 inputs available at extension EA1 (DE1 to DE3).

The function is selected via the following codes:

## Control functions (cont.)

External demand	Code
Input DE1	3A:2
Input DE2	3b:2
Input DE3	3C:2

The effect on the internal circulation pump is selected with code 3F.  
The effect on the relevant heating circuit pump is selected with code d7.

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.

For a certain period, the diverter valve is alternately set towards heating and DHW heating. The burner is switched OFF during the venting program.

Activate venting program: See "Venting the heating system".

## Fill program

In the delivered condition, the diverter valve is set to its central position, enabling the system to be filled completely. After switching ON the control unit, the diverter valve no longer goes into its central position.

Afterwards, the diverter valve can be moved via the fill function into the central position (see "Filling the heating system"). In this position, the control unit can be switched OFF, and the system can be filled completely.

### Filling with the control unit switched ON

If the system is to be filled with the control unit switched ON, the diverter valve is moved in the fill program to its central position and the pump starts. When the function is enabled, the burner shuts down. The program is automatically disabled after 20 min.

## Screed drying function

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

## Control functions (cont.)

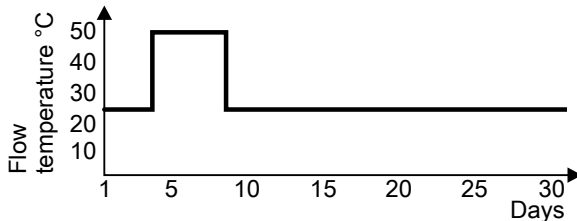
When the screed drying function is activated, the heating circuit pump of the mixer circuit is switched ON and the flow temperature will be held in accordance with the selected profile. After completion (30 days), the mixer circuit will again be regulated automatically via the set parameters.

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

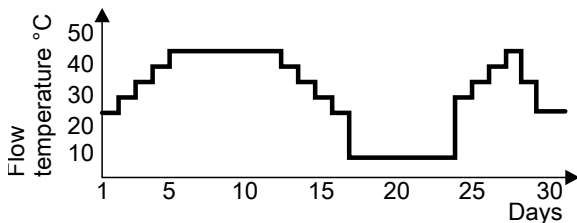
- Heat-up data with respective flow temperatures
- Max. flow temperature achieved
- Operating conditions and outside temperature during handover

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

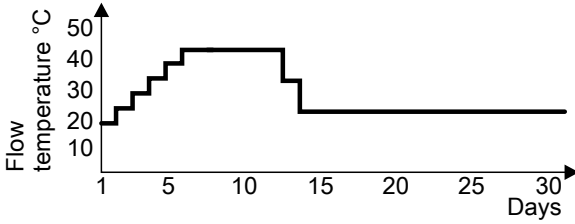


### Temperature profile 2: (ZV parquet and flooring technology) code F1:2

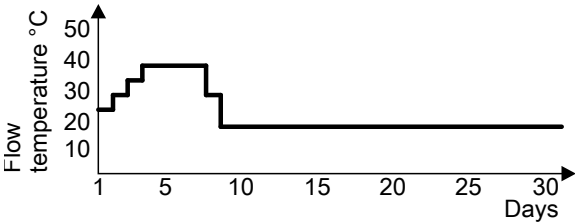


**Control functions** (cont.)

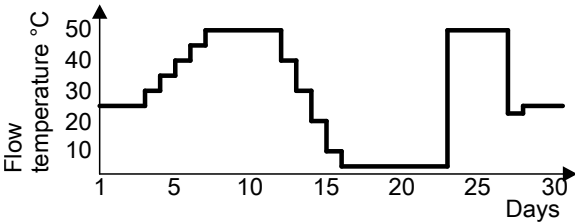
**Temperature profile 3: Code F1:3**



**Temperature profile 4: Code F1:4**



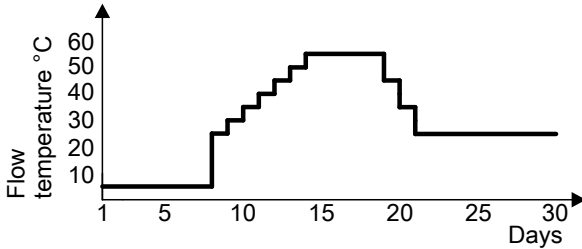
**Temperature profile 5: Code F1:5**



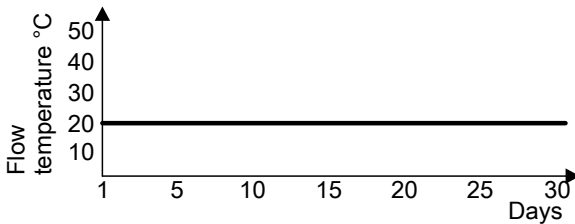


## Control functions (cont.)

### Temperature profile 6: Code F1:6



### Temperature profile 7: Code F1:15



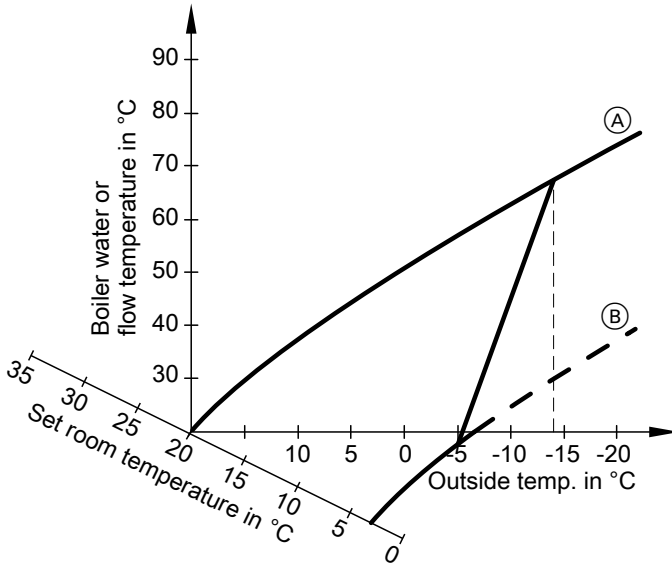
## Raising the reduced room temperature

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

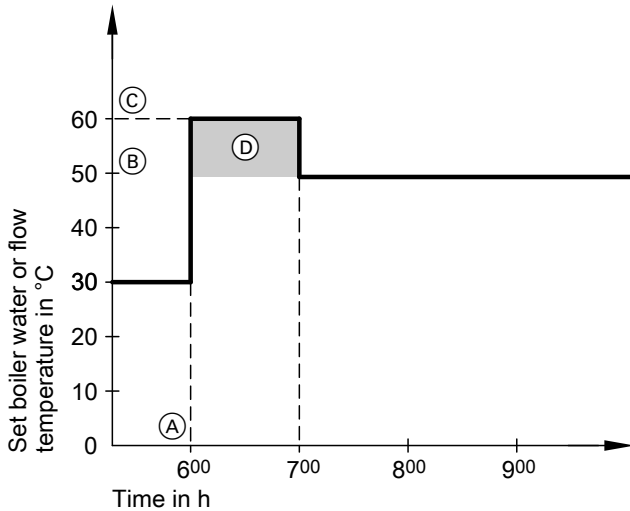
### Reducing the heat-up time

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 or flow temperature can be adjusted in coding addresses "FA" and "Fb".

## Control functions (cont.)

### Example using the settings in the delivered condition



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

## Allocating heating circuits to the remote control

The heating circuit allocation must be configured when commissioning the Vitotrol 200A or Vitotrol 300A.

Heating circuit	Configuration	
	Vitotrol 200A	Vitotrol 300A
The remote control affects the heating circuit without mixer A1	H 1	HK1
The remote control affects the heating circuit with mixer M2	H 2	HK2
The remote control affects the heating circuit with mixer M3	H 3	HK3

### Note

*One heating circuit can be allocated to the Vitotrol 200A.*

*Up to three heating circuits can be allocated to the Vitotrol 300A.*

*If the heating circuit allocation is later cancelled, reset coding address A0 for this heating circuit to 0 (fault message bC, bD, bE).*

## Electronic combustion controller

The electronic combustion controller utilises the physical correlation between the level of the ionisation current and the air factor  $\lambda$ . For all gas qualities, the maximum ionisation current results with air factor 1.

The ionisation signal is evaluated by the combustion controller, 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<sub>2</sub> content or the O<sub>2</sub> content of the flue gas is measured. The actual values enable the prevailing air factor to be determined. The relationship between the CO<sub>2</sub> or O<sub>2</sub> content and air factor  $\lambda$  is illustrated in the following table.

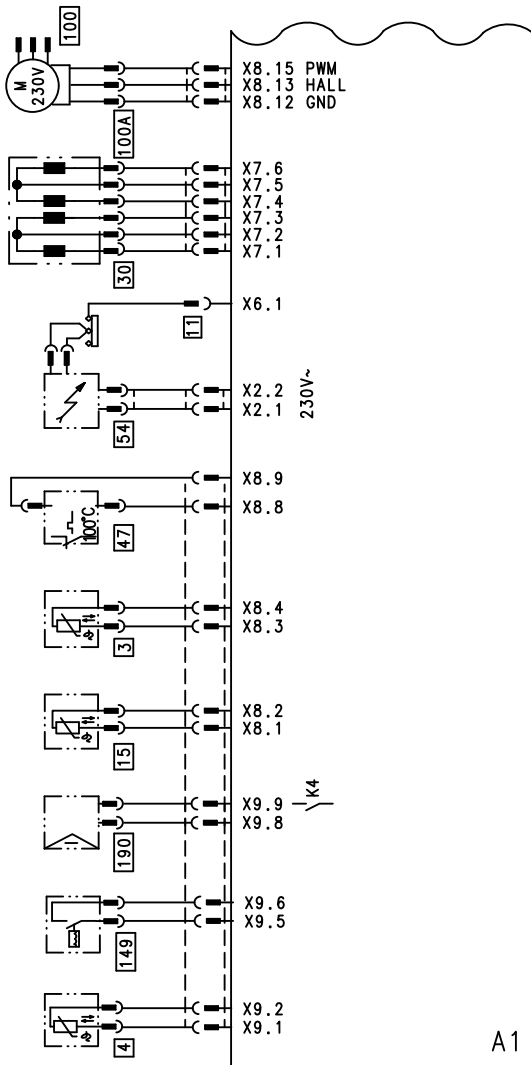
## Electronic combustion controller (cont.)

### Air factor $\lambda$ – CO<sub>2</sub>/O<sub>2</sub> content

Air factor $\lambda$	O <sub>2</sub> content (%)	CO <sub>2</sub> content (%) for natural gas H	CO <sub>2</sub> content (%) for LPG P
1.24	4.4	9.2	10.9
1.27	4.9	9.0	10.6
1.30	5.3	8.7	10.3
<b>1.34</b>	<b>5.7</b>	<b>8.5</b>	<b>10.0</b>
1.37	6.1	8.3	9.8
1.40	6.5	8.1	9.6
1.44	6.9	7.8	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. During calibration, higher than normal CO emissions may occur briefly.

## Connection and wiring diagrams – internal connections



A1 Main PCB

X... Electrical interface

3 Boiler water temperature sensor

4 Outlet temperature sensor (gas condensing combi boiler)

11 Ionisation electrode

15 Flue gas temperature sensor

30 Stepper motor for diverter valve

**Connection and wiring diagrams – internal... (cont.)**

47 Temperature limiter

54 Ignition unit

100 Fan motor

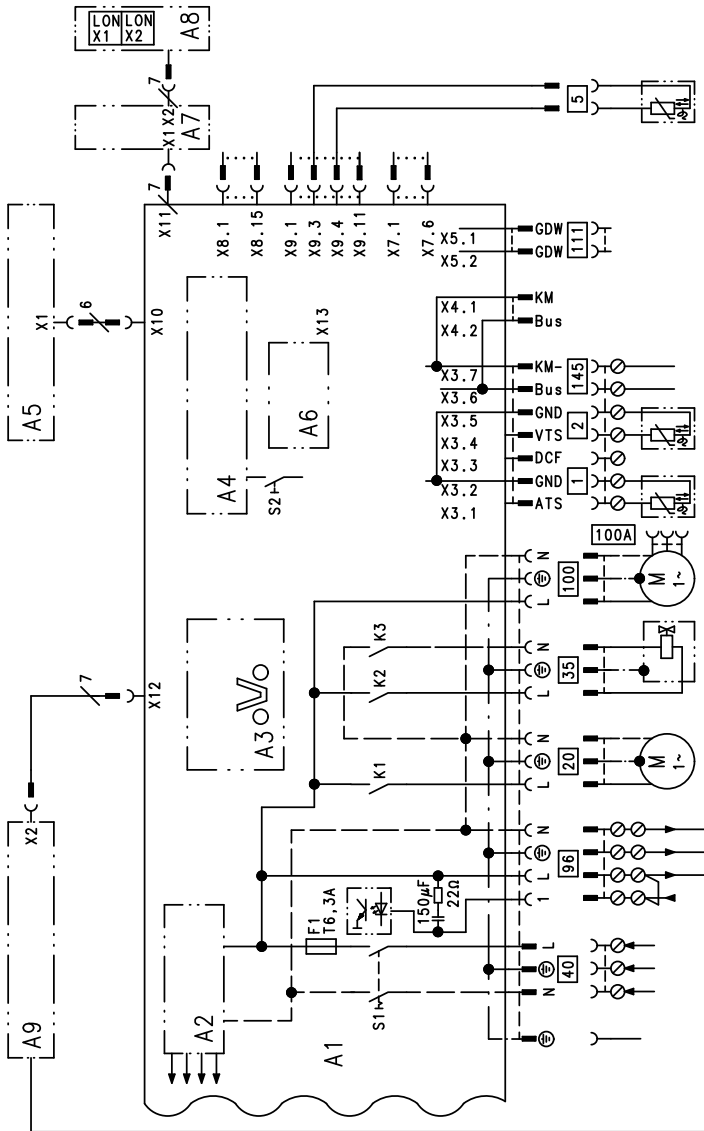
100 A Fan motor control

149 Flow switch

(gas condensing combi boiler)

190 Modulation coil

## Connection and wiring diagram – external connections



- |    |                   |    |                     |
|----|-------------------|----|---------------------|
| A1 | Main PCB          | A4 | Burner control unit |
| A2 | Power supply unit | A5 | Programming unit    |
| A3 | Optolink          | A6 | Coding card         |



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

A7	Connection adaptor	20	Internal circulation pump
A8	LON communication module (Votronic 200)	35	Gas solenoid valve
A9	Internal extension H1 or H2	40	Power supply [terminals]
S1	ON/OFF switch	96	Power supply accessories and Votrol 100
S2	Reset button	100	Fan motor
X...	Electrical interface	100	A Fan motor control
1	Outside temperature sensor	111	Gas pressure limiter
2	Flow temperature sensor, low loss header	145	KM BUS
5	Cylinder temperature sensor (gas condensing boiler) or Comfort sensor (gas condensing combi boiler) (plug on the cable harness)		

## 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.*

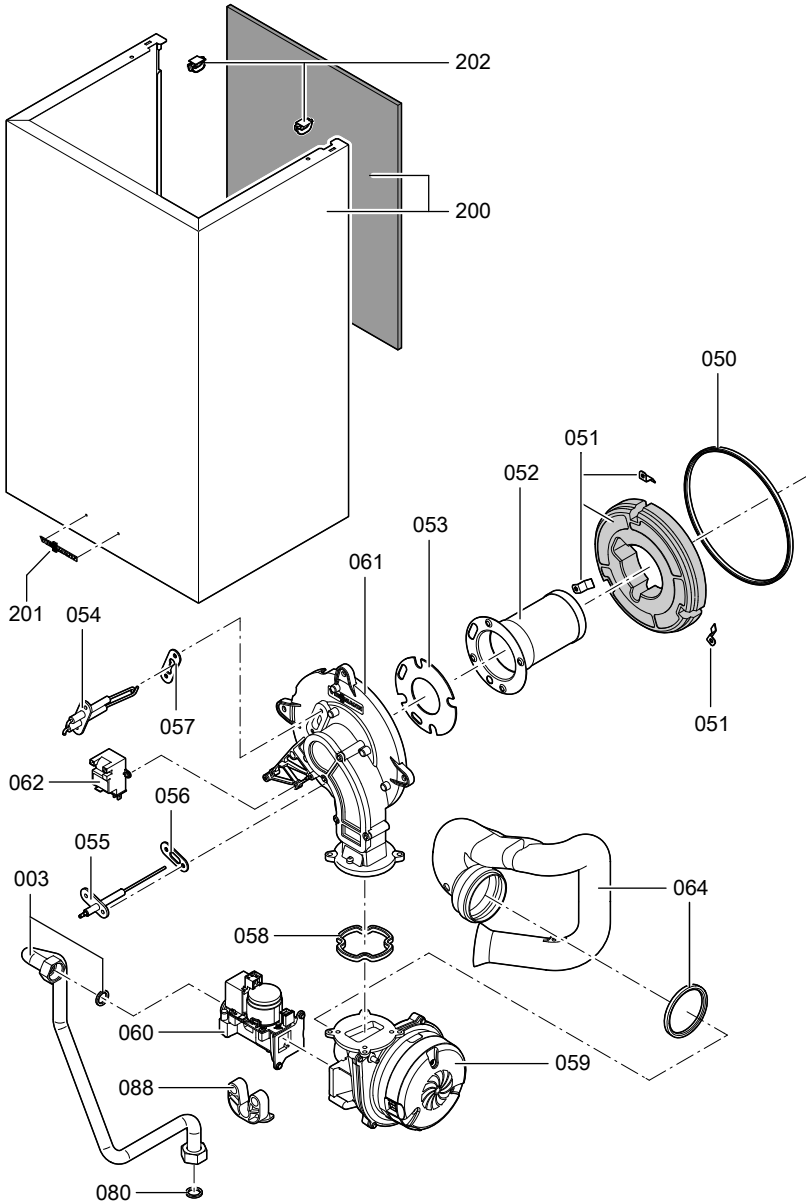
- |  |   |
|--|---|
| 001 Quick-action air vent valve                            | 058 Burner flange gasket  |
| 002 Heat exchanger connecting pipe                         | 059 Burner fan  |
| 003 Gas supply pipe  | 060 Gas train   |
| 004 Heating water return connecting pipe                   | 061 Burner door   |
| 005 Heating water return connection elbow                  | 062 Ignition unit   |
| 006 Pressure gauge   | 064 Venturi extension   |
| 007 Siphon   | 070 Clip $\varnothing$ 8 mm   |
| 008 Heat exchanger   | 071 Grommet   |
| 009 Thermal insulation block                               | 072 Gasket A 10x15x1.5 (set)  |
| 010 Diaphragm expansion vessel                             | 073 Grommet   |
| 011 Connection line for the diaphragm expansion vessel     | 074 Air vent valve  |
| 012 Boiler flue connection                                 | 075 Grommet   |
| 013 Boiler flue connection plug                            | 076 O-ring 20.6x2.6 (set)   |
| 014 Heating water return connection elbow                  | 077 Hose $\varnothing$ 10x1.5x750 mm  |
| 017 Condensate hose  | 078 Locking pin $\varnothing$ 22 mm   |
| 018 Condensate hose  | 079 Flue gas gasket $\varnothing$ 60 mm                                     |
| 020 Gasket set, plate heat exchanger* <sup>2</sup>         | 080 Gas pipe gasket (set)   |
| 021 Plate heat exchanger* <sup>2</sup>                     | 081 Plug-in connector gaskets (set)   |
| 022 Pump motor   | 082 Locking pin   |
| 023 Flow switch* <sup>2</sup>                              | 083 Pipe clip $\varnothing$ 18 mm   |
| 024 Water volume controller* <sup>2</sup>                  | 084 Plug-in connector retainers (set)                                       |
| 025 Linear stepper motor                                   | 085 Hose clip   |
| 026 Thermal insulation, plate heat exchanger* <sup>2</sup> | 086 Flue gas gasket   |
| 027 Plug-in non-return valve                               | 088 Gas supply pipe retaining clip  |
| 030 Control unit support                                   | 100 Vitodens control unit   |
| 031 Access guard   | 101 Back cover  |
| 052 Burner gauze assembly                                  | 102 Boiler coding card  |
| 053 Burner gauze assembly gasket                           | 103 Fuse (10 pce)   |
| 056 Ionisation electrode gasket                            | 104 Fuse holder   |
| 057 Ignition electrode gasket                              | 105 Programming unit for weather-compensated mode                           |
|  | 106 Programming unit for constant temperature operation without time switch |
|  | 107 LON communication module (accessories)                                  |
|  | 108 PCB adaptor, LON module (accessories)                                   |
|  | 109 Internal extension H1   |
|  | 115 Locking bolts, left/right   |
|  | 116 Slider, left/right  |

\*<sup>2</sup> Only for serial no. 7424 987 ..., 7424 989 ..., and 7424 991 ...

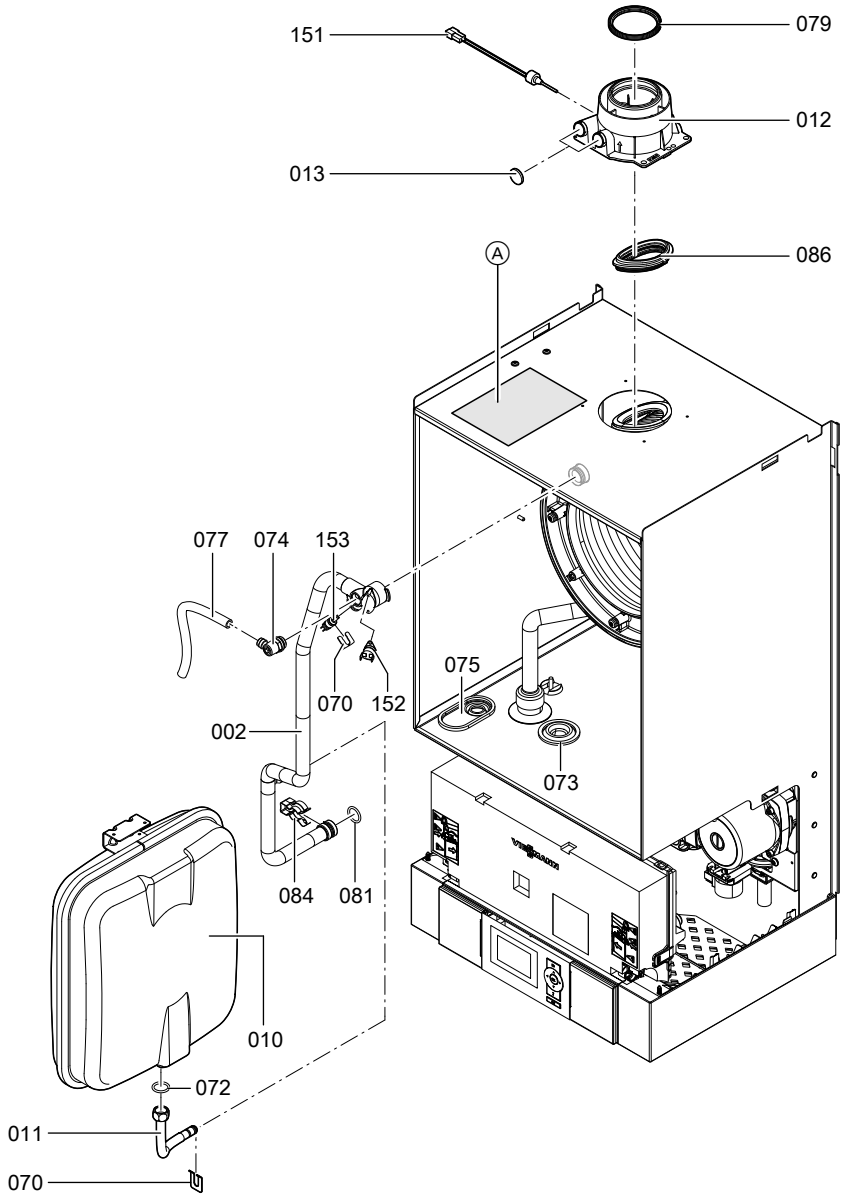
**Parts lists** (cont.)

- |     |  |     |  |
|-----|--|-----|--|
| 117 | Programming unit for constant temperature operation with time switch | 110 | Cable harness X8/X9/ionisation   |
| 150 | Outside temperature sensor   | 111 | Cable harness 100/35/54/earth  |
| 151 | Flue gas temperature sensor  | 112 | Power cable, stepper motor   |
| 152 | Temperature limiter  | 113 | Mating plug  |
| 153 | Temperature sensor   | 114 | Cable fixing   |
| 154 | Comfort sensor <sup>*2</sup>   | 203 | Spray paint, Vitowhite   |
| 200 | Front panel with sealing mat   | 204 | Touch-up paint stick, Vitowhite  |
| 201 | Logo   | 300 | Installation instructions  |
| 202 | Fixing clip  | 301 | Service instructions   |
|     |  | 302 | Operating instructions for constant temperature mode                       |
|     |  | 303 | Operating instructions for weather-compensated mode                        |
|     |  | 304 | Operating instructions for constant temperature operation with time switch |
|     |  | Ⓐ   | Type plate   |
- Wearing parts
- 050 Burner gasket
  - 051 Insulation ring
  - 054 Ignition electrode
  - 055 Ionisation electrode
- Parts not shown
- 063 Gas nozzle
  - 087 Special grease

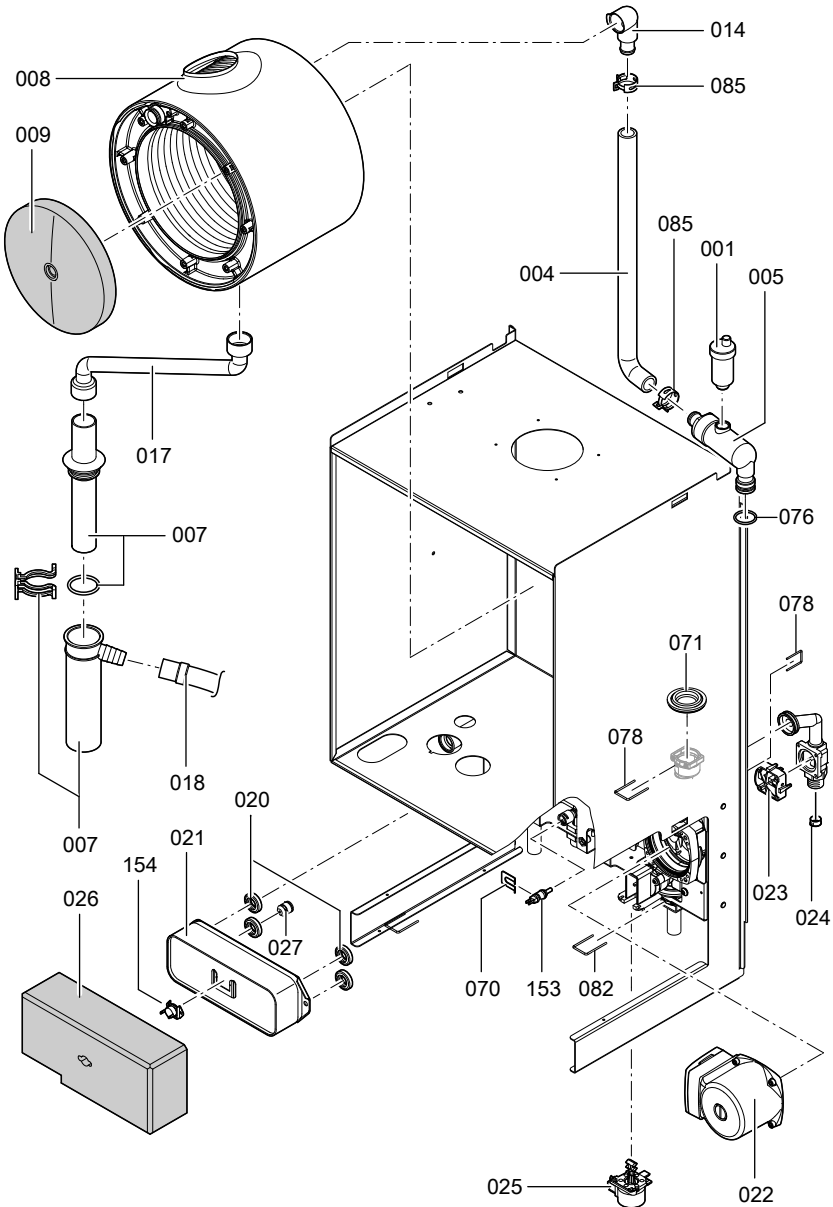
**Parts lists** (cont.)



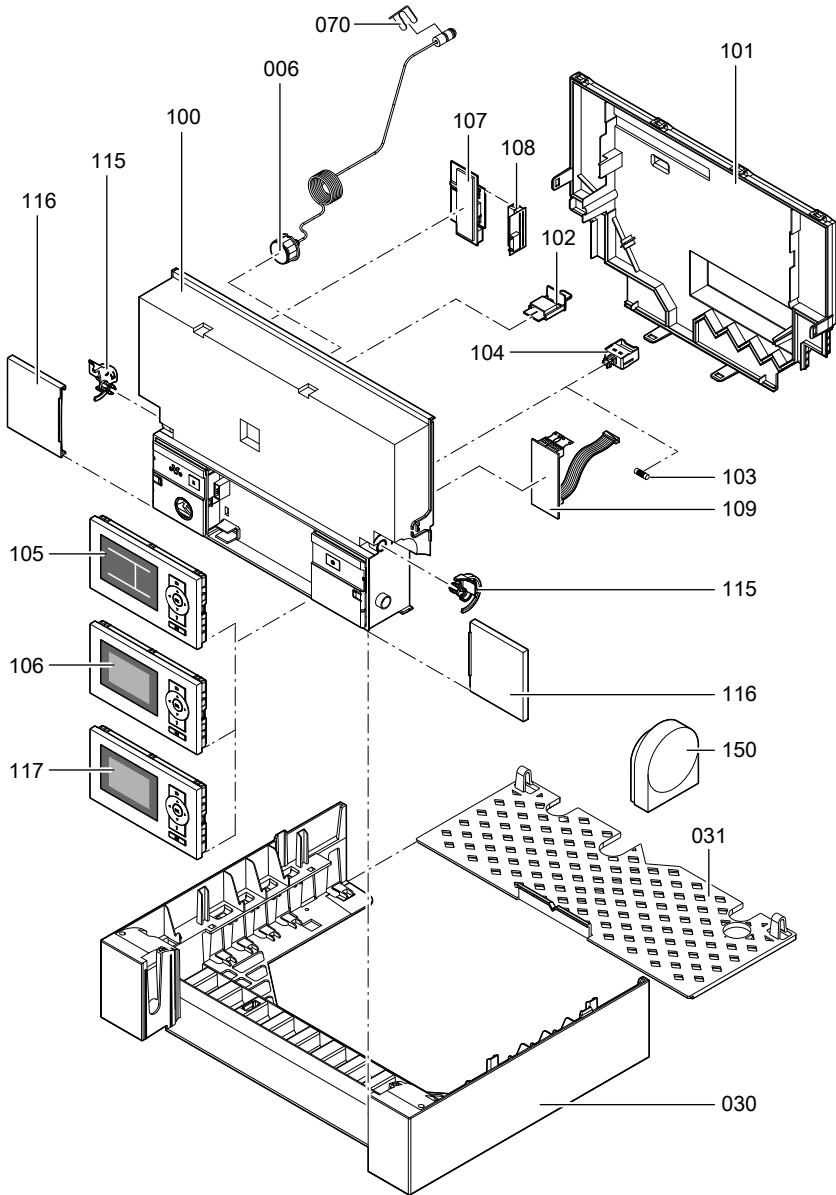
**Parts lists** (cont.)



**Parts lists** (cont.)



Parts lists (cont.)



## Commissioning/service reports

Setting and test values	Date: By:	Set value	Commissioning	Service
<b>Static pressure</b>	<i>mbar</i>	max. 57.5 mbar		
<b>Supply pressure (flow pressure)</b>				
<input type="checkbox"/> for natural gas H	<i>mbar</i>	17.4-25 mbar		
<input type="checkbox"/> for LPG	<i>mbar</i>	25-47 mbar		
<i>Tick gas type</i>				
<b>Carbon dioxide content CO<sub>2</sub></b>				
■ at lower output	<i>% by vol.</i>			
■ at upper output	<i>% by vol.</i>			
<b>Oxygen content O<sub>2</sub></b>				
■ at lower output	<i>% by vol.</i>			
■ at upper output	<i>% by vol.</i>			
<b>Carbon monoxide content CO</b>				
■ at lower output	<i>ppm</i>			
■ at upper output	<i>ppm</i>			



## Specification

Rated voltage	230 V	Electronic temperature limiter setting	82 °C
Rated frequency	50 Hz	Temperature limiter setting	100 °C (fixed)
Rated current	6 A	Line fuse (power supply)	max. 16 A–
Protection class	I		
IP rating	IP X 4 D to EN 60529		
Permissible ambient temperature			
■ during operation	0 to +40 °C		
■ during storage and transport	-20 to +65 °C		

### Gas condensing boiler

Rated output range					
$T_V/T_R$ 50/30 °C	kW	4.8 - 19	6.5 - 26	8.8 - 30	8.8 - 35
$T_V/T_R$ 80/60 °C	kW	4.3 - 17.5	5.9 - 24.1	7.9 - 27.8	7.9 - 32.2
Rated heat input range	kW	4.5 - 17.9	6.2 - 24.7	8.3 - 28.5	8.3 - 33.0
Power consumption in the delivered condition	W	90	105	138	138
<b>Connection values</b> in relation to the max. load with					
natural gas H	m <sup>3</sup> /h	1.89	2.61	3.02	3.49
LPG	kg/h	1.40	1.92	2.22	2.56
<b>Product ID</b>		CE-0085BR0432			

### 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 values. Reference: 15 °C, 1013 mbar.

### Gas condensing combi boiler

<b>Rated output range</b>				
$T_V/T_R$ 50/30 °C	kW	6.5 - 26	8.8 - 30	8.8 - 35
$T_V/T_R$ 80/60 °C	kW	5.9 - 23.7	7.9 - 27.8	7.9 - 32.2
Rated output range for DHW heating	kW	5.9 - 29.3	7.9 - 30.5	7.9 - 35.6
Rated heat input range	kW	6.2 - 30.5	8.3 - 31.3	8.3 - 36.5
Power consumption in the delivered condition	W	105	138	138
<b>Connection values</b> in relation to the max. load				

**Specification** (cont.)

<b>Rated output range</b>				
$T_V/T_R$ 50/30 °C	<b>kW</b>	<b>6.5 - 26</b>	<b>8.8 - 30</b>	<b>8.8 - 35</b>
$T_V/T_R$ 80/60 °C	<b>kW</b>	<b>5.9 - 23.7</b>	<b>7.9 - 27.8</b>	<b>7.9 - 32.2</b>
<b>Rated output range for DHW heating</b>				
	<b>kW</b>	<b>5.9 - 29.3</b>	<b>7.9 - 30.5</b>	<b>7.9 - 35.6</b>
with				
natural gas H	m <sup>3</sup> /h	3.23	3.31	3.86
LPG	kg/h	2.38	2.43	2.85
<b>Product ID</b>		CE-0085BR0432		

**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 values. Reference: 15 °C, 1013 mbar.*

## 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:

DIN 4753	EN 60 335-1
EN 483	EN 60 335-2-102
EN 625	EN 61 000-3-2
EN 677	EN 61 000-3-3
EN 806	EN 62 233
EN 55 014	

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

97/23/EC	2006/95/EC
92/42/EEC	2009/142/EC
2004/108/EC	

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

Allendorf, 20 January 2010

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<sub>x</sub> limits specified by the 1st BImSchV paragraph 7 (2) [Germany].

Allendorf, 20 January 2010

Viessmann Werke GmbH&Co KG

A handwritten signature in black ink, appearing to read 'M. Sommer', with a long horizontal stroke extending to the right.

pp. Manfred Sommer

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## Applicability

### Condensing system boiler

#### Type WB2C

#### 4.8 to 19.0 kW

from serial no.

7424 985 0 00001 ...

#### 6.5 to 26.0 kW

from serial no.

7424 986 0 00001 ...

#### 8.8 to 30.0 kW

from serial no.

7424 990 0 00001 ...

#### 8.8 to 35.0 kW

from serial no.

7424 978 0 00001 ...

### Gas condensing combi boiler

#### Type WB2C

#### 6.5 to 26.0 kW

from serial no.

7124 987 0 00001 ...

#### 8.8 to 30.0 kW

from serial no.

7424 989 0 00001 ...

#### 8.8 to 35.0 kW

from serial no.

7424 991 0 00001 ...

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