Service instructions

for heating engineers

Vitodens 333
Type WS3A
Compact gas fired condensing boiler
4.2 to 13 kW natural gas version
6.6 to 26 kW natural gas and LPG version

For applicability, see the last page

VITODENS 333

5692 619 GB 8/2005

Please keep safe

Safety instructions

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

Safety instructions explained

Danger
This symbol warns against the risk of injury.

! **Please note**
This symbol warns against the risk of material losses and environmental pollution.

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

Target group

These instructions are exclusively designed for qualified personnel.

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

Regulations

Observe the following when working on this system

- all legal instructions regarding the prevention of accidents,
- all legal instructions regarding environmental protection,
- the Code of Practice of relevant trade associations,
- all current safety regulations as defined by DIN, EN, DVGW, TRGI, TRF, VDE and all locally applicable standards.

If you smell gas

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

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

If you smell flue gas

Danger
Flue gas can lead to life-threatening poisoning.

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

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Safety instructions (cont.)

Working on the system

- When using gas as fuel, also close the main gas shut-off valve and safeguard against unauthorised reopening.
- Isolate the system from the power supply and check that it is no longer 'live', e.g. by removing a separate fuse or by means of a mains 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 – initial start-up, 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 with water.
- Only use fill water of potable quality.
- Fill water with a water hardness in excess of 3.58 mmol/l must be softened, e.g. with the small softening system for heating water (see the Vitoset pricelist).
- An anti-freeze additive suitable for heating systems can be mixed with the fill water.

1. Check the inlet pressure of the diaphragm expansion vessel.

2. Close the gas shut-off valve.

3. Fill the heating system at the fill valve in the heating return (on the connection set or on site). Minimum system pressure > 0.8 bar).

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

4. If the control unit had already been switched ON before filling began: Start the control unit and activate the fill program via coding "2F:2".

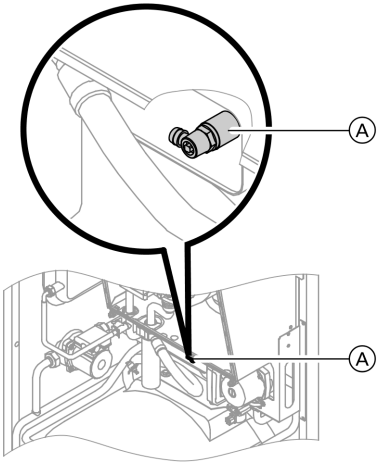
   Note
   To call up coding level 1 and for setting the coding address, see page 39.
   For function and details of the fill program, see page 100.
   *Whilst the fill program runs, the display shows **"bF"** (Vitotronic 100) or **"Filling"** (Vitotronic 200).*

5. Close the boiler fill & drain valve.

6. Set code "2F:0".

Further details regarding the individual steps (cont.)

Venting the boiler



1. Close the shut-off valves on the primary side.
2. Connect the drain hose on valve Ⓐ with a drain outlet.
3. Open valve Ⓐ and fill valve in the heating return and vent at mains pressure, until no sound of escaping air can be heard.
4. Close valve Ⓐ and fill valve in the heating return and open the primary shut-off valves.

Venting the heating system

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

   Note
   To call up coding level 1 and for setting the coding address, see page 39.
   For the function and sequence of the venting program, see page 100.
   *Whilst the venting program runs, the display shows "**EL**" (Vitotronic 100) or "**Venting**" (Vitotronic 200).*
3. Check the system pressure.

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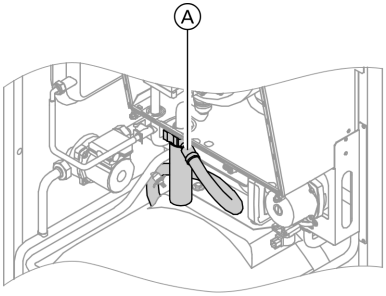
Further details regarding the individual steps (cont.)

Filling the siphon with water



1. Remove the retaining clip and siphon Ⓐ.
2. Fill the siphon with water.
3. Fit the siphon Ⓐ and secure with the retaining clip.

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

Note
During commissioning, or after a prolonged time out of use, it may be necessary to reset the time and date, if the time flashes in the display.

Press the following keys:

1. ⊕/⊖ for the current time.
2. OK to confirm; "**Date**" is displayed.
3. ⊕/⊖ for the current date.
4. OK to confirm.

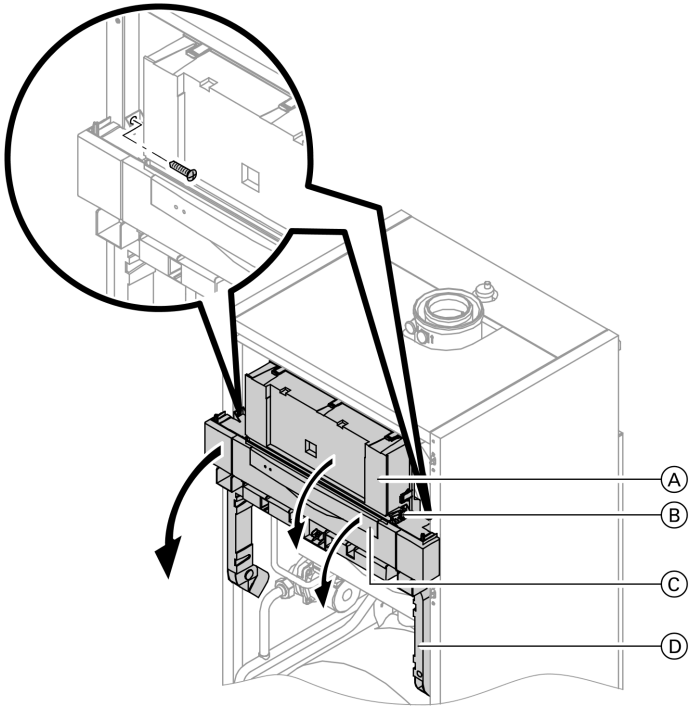
Language selection (if required) - only for weather-compensated control units

Press the following keys:

1. i "**Select a heating circuit**" will be displayed.
2. OK to confirm; wait approx. 4 s.
3. i Press again.
4. ⊖ for the required language.
5. OK to confirm.

Further details regarding the individual steps (cont.)

Pivot down the control unit for commissioning and maintenance work



Ⓐ Control unit
Ⓑ Closures
Ⓒ Flap
Ⓓ Retaining frame

1. Open flap Ⓒ.

2. Release side closures Ⓑ and pivot control unit Ⓐ forward.

3. Release the side screws and pivot control unit Ⓐ down with its retaining frame Ⓓ.

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Further details regarding the individual steps (cont.)

Checking the gas type

Note
In the delivered condition, the Vitodens 333 is set up for natural gas E.
The boiler can be operated in the Wobbe index range 12.0 to 16.1 kWh/m³ (43.2 to 58.0 MJ/m³).

1. Determine the gas type and Wobbe index (Wo) by asking your local mains gas or LPG supplier.

2. Compare the gas category (type) and group with the details on the burner label.

3. The burner must be converted according to the details provided by the mains gas or the LPG supplier to match the fuel provided, if these details do not match.

   Conversion kit installation instructions.

   Wobbe index range after conversion:
   - **Natural gas LL**
     10.0 to 13.1 kWh/m³ (36.0 to 47.2 MJ/m³)
   - **LPG P (only 26 kW)**
     21.4 to 22.5 kWh/m³ (76.9 to 81.0 MJ/m³)

4. **When converting to LPG (only 26 kW)**
   Adjust coding address "1E:1" (see page 39).

5. Record the gas type in the service report on page 117.

Gas type conversion

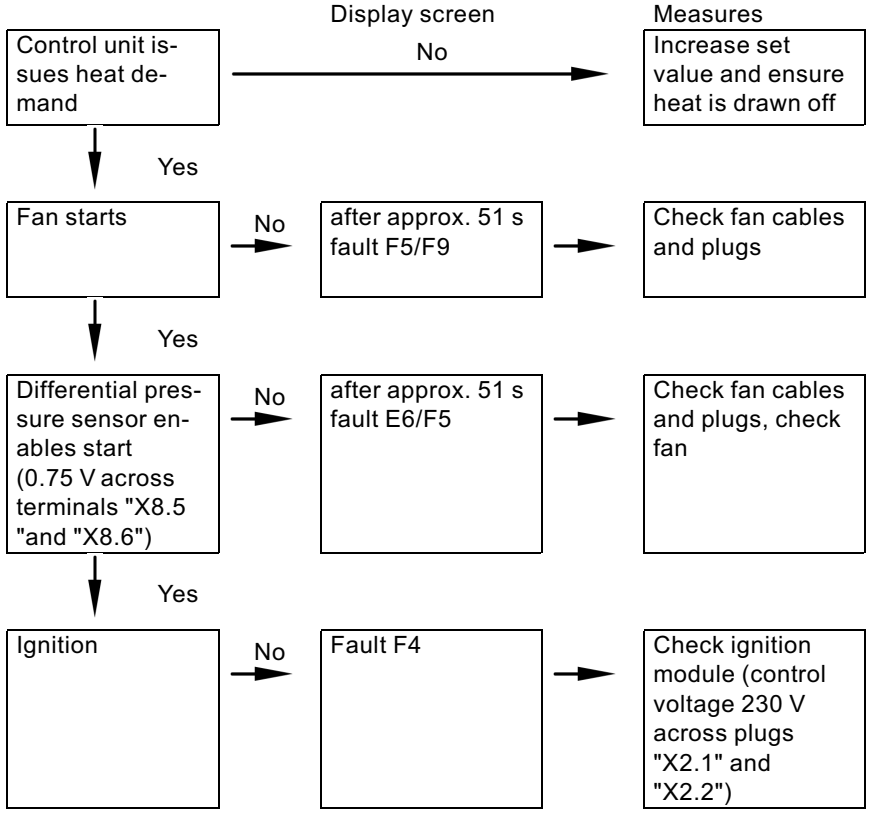
Gas restrictor installation instructions

Further details regarding the individual steps (cont.)

Gas restrictor allocation

Rated output	**kW**	**13**	**26**
Gas restrictor, internal ∅			
Gas			
■ Natural gas E	mm	4.8	5.95
■ Natural gas LL	mm	5.3	6.73
■ LPG P	mm	—	4.4

Function sequence and possible faults



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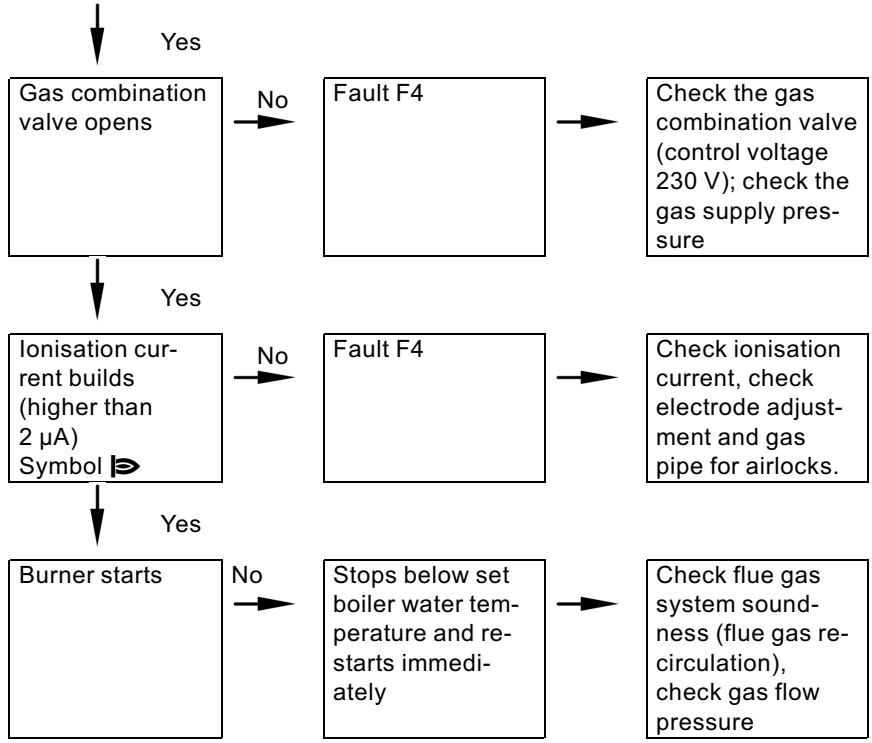
Further details regarding the individual steps (cont.)



For further details regarding faults, see page 69.

Checking the static and supply pressure

Danger
CO build-up as a result of incorrect burner setting can have serious health implications.
Carry out a CO test prior to, and after, work on gas equipment.

Operation with LPG (only 26 kW)
Flush the LPG tank twice during commissioning/replacement. Thoroughly vent the tank and gas lines after flushing.

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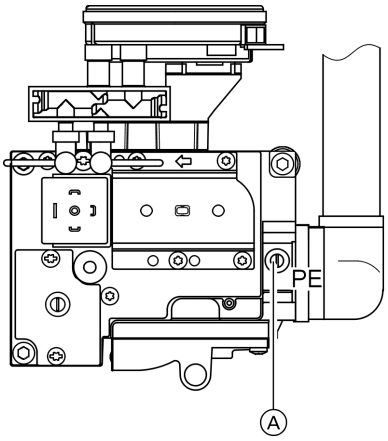
Further details regarding the individual steps (cont.)



1. Close the gas shut-off valve.

2. Release screw Ⓐ inside test nipple "PE" on the gas combination valve, but do not remove it; then connect the pressure gauge.

3. Open the gas shut-off valve.

4. Record the static pressure and record it in the service report on page 117.
Set value: max. 57.5 mbar

5. Start up the boiler.

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

6. Check the supply (flow) pressure.

Set value:
- Natural gas: 20 mbar
- LPG (only 26 kW): 50 mbar

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

7. Record the actual value in the service report on page 117.
Take the action shown in the table.

Supply (flow) pressure for natural gas	**Supply (flow) pressure for LPG (only 26 kW)**	**Measures**
below 17.4 mbar	below 42.5 mbar	Never start up. Notify your mains gas or LPG supplier.
17.4 to 57.5 mbar	42.5 to 57.5 mbar	Start up the boiler.
in excess of 57.5 mbar	in excess of 57.5 mbar	Install a separate gas governor downstream of the system and regulate the inlet pressure to 20 mbar for natural gas or 50 mbar for LPG. Notify your mains gas or LPG supplier.

Further details regarding the individual steps (cont.)

8. Shut down the boiler, close the gas shut-off valve, remove the pressure gauge and close test nipple Ⓐ 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 explosion.
Check test nipple Ⓐ for soundness.

Setting the max. output

Note
*The maximum output can be limited for **heating operation**. You can limit the output via the modulation range.*

1. Start up the boiler.

2. Press ⏻ + 🌡 simultaneously: "**100**" flashes (corresponds to 100% of rated output) and "⌲" is displayed.
On weather-compensated control units, the display additionally shows "**Max. output**".
⊕/⊖ for the required value in % of rated output as max. output.
OK to confirm.

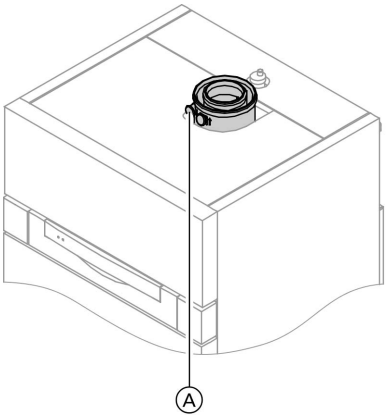
3. Record the setting for max. output on the additional type plate supplied with the "technical documentation". Affix the type plate next to the type plate on top of the boiler.

Checking the balanced flue system soundness (annular gap check)

For balanced flue systems tested together with the wall mounted gas fired boiler, some authorities waive the requirement for a soundness test (pressure test) during commissioning by the flue gas inspector.

Further details regarding the individual steps (cont.)

We recommend that your heating engineer carries out a simple leak test during the commissioning of your system. For this it would be sufficient to check the CO_2 concentration in the combustion air at the annular gap of the balanced flue pipe.



Ⓐ Combustion air aperture (ventilation air)

The flue pipe is deemed to be sound if the CO_2 concentration in the combustion air is no higher than 0.2 % or the O_2 concentration is at least 20.6 %. If actual CO_2 values are higher or O_2 values are lower, then pressure check the flue pipe at a static pressure of 200 Pa.

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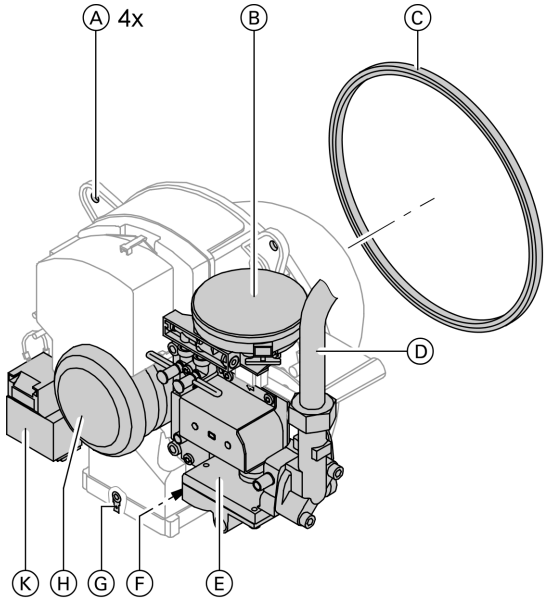
Further details regarding the individual steps (cont.)

Removing the burner and checking the burner gasket (replace gasket every two years)



Ⓐ Nuts
Ⓑ Differential pressure sensor
Ⓒ Burner gasket
Ⓓ Gas supply pipe
Ⓔ Gas train
Ⓕ Ionisation electrode
Ⓖ Earth stud
Ⓗ Fan motor
Ⓚ Ignition device

1. Switch OFF the control unit ON/ OFF switch and the power supply.

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

3. Pull off electrical cables from fan motor Ⓗ, differential pressure sensor Ⓑ, gas valve Ⓔ, ionisation electrode Ⓕ, ignition unit Ⓚ and earth stud Ⓖ.

4. Release gas supply pipe fitting Ⓓ.

5. Release four nuts Ⓐ and remove the burner.

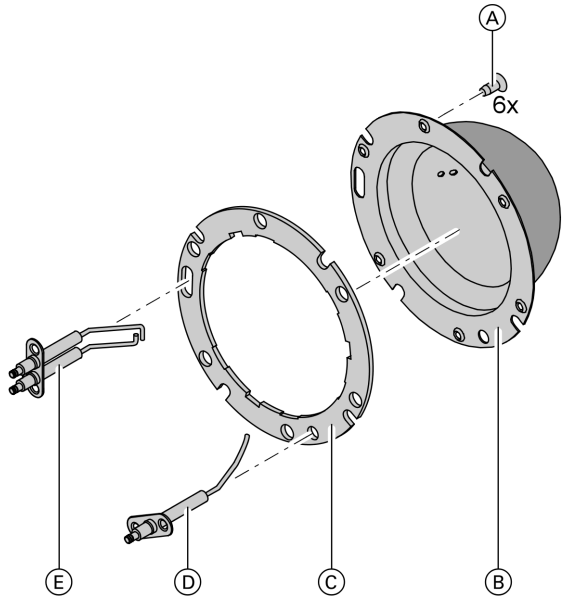
Please note
Prevent damage to the wire mesh.
Never rest the burner on the gauze assembly.

Further details regarding the individual steps (cont.)

6. Check the burner gasket Ⓒ for damage.
Generally replace the burner gasket **every 2 years**.

Checking the burner gauze assembly

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



Ⓐ Torx screws
Ⓑ Burner gauze
Ⓒ Burner gauze gasket
Ⓓ Ionisation electrode
Ⓔ Ignition electrodes

1. Remove electrodes Ⓓ and Ⓔ.

2. Release the six Torx screws Ⓐ and remove the burner gauze assembly Ⓑ.

3. Remove the old burner gauze gasket Ⓒ.

4. Insert a new burner gauze assembly with a new gasket and secure it with six Torx screws.

Note
Torque: 3.5 Nm

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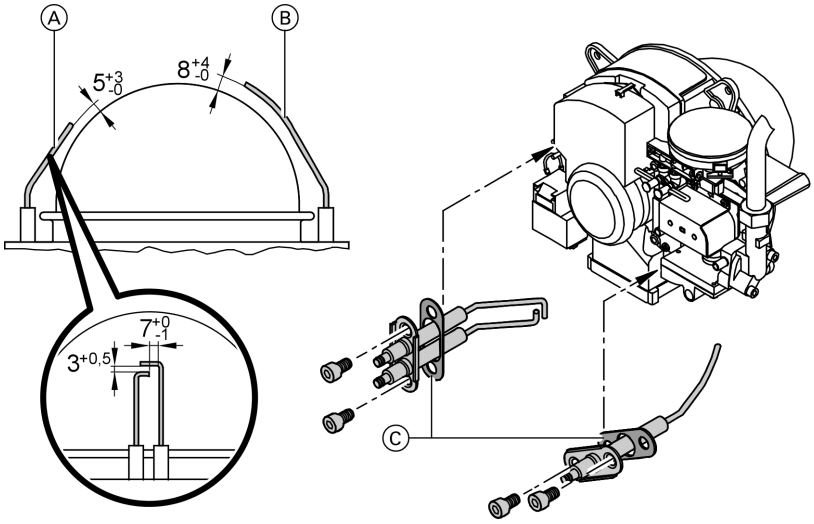
Further details regarding the individual steps (cont.)

Checking and adjusting the ignition and ionisation electrodes



Ⓐ Ignition electrodes

Ⓑ Ionisation electrode
Ⓒ Gasket

1. Check electrodes Ⓐ and Ⓑ for wear and contamination.

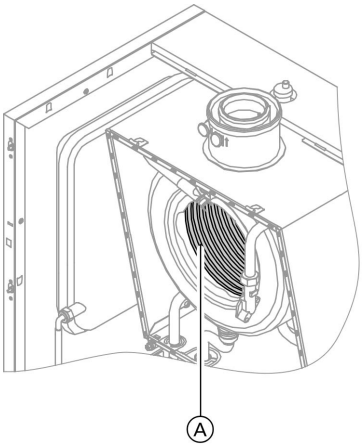
2. Clean the electrodes with a small brush (not with a wire brush) or emery paper.

   Please note
   Never damage the wire mesh.

3. Check clearances. If the gaps are not as specified or the electrodes are damaged, replace and align the electrodes together with new gaskets Ⓒ. Tighten the electrode fixing screws with 2 Nm.

Further details regarding the individual steps (cont.)

Cleaning the combustion chamber/heating surfaces and fitting the burner



1. If required, clean the combustion chamber and heating surfaces Ⓐ with a brush or flush with water.

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

2. Apply a solvent/potassium-free cleaning agent if residues remain:
   - Remove soot deposits with alkaline cleaning agents with additional surfactants (e.g. Fauch 600).
   - Remove coatings and surface discolouration (yellow-brown) with slightly acidic, chloride-free cleaning agents based on phosphoric acid (e.g. Antox 75 E).
   - Thoroughly flush with water.

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

3. Install the burner and torque nuts diagonally with 4 Nm.

4. Secure the gas supply pipe with a new gasket.

5. Check the gas connections for soundness.

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

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

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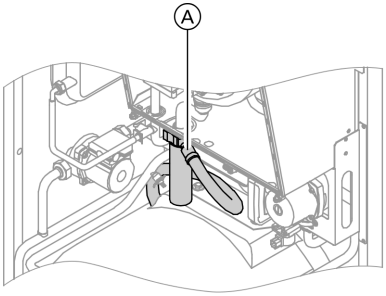
Further details regarding the individual steps (cont.)

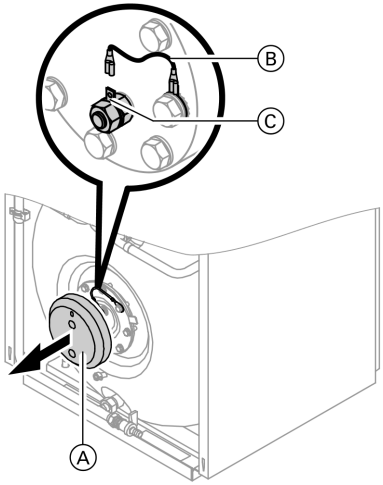
Checking the condensate drain and cleaning the siphon



1. Check that the condensate can freely drain at siphon Ⓐ.
2. Remove the retaining clip and the siphon.
3. Clean the siphon.
4. Fit the siphon and secure with the retaining clip.

Testing the anode earth current with an anode tester

Note
We recommend that the magnesium anode function is checked annually. This function test can be carried out without interrupting operation by measuring the earth current with an anode tester.



1. Remove cover Ⓐ.
2. Pull earth cable Ⓑ from push-on tab Ⓒ.
3. Connect the tester (up to 5 mA) in series between push-on tab Ⓒ and earth cable Ⓑ.
   - The anode is OK if the indicated current is > 0.3 mA.
   - Visually inspect the anode if the current measures < 0.3 mA or if there is no current at all (see page 22).

Ⓐ Cover
Ⓑ Earth cable
Ⓒ Push-on tab

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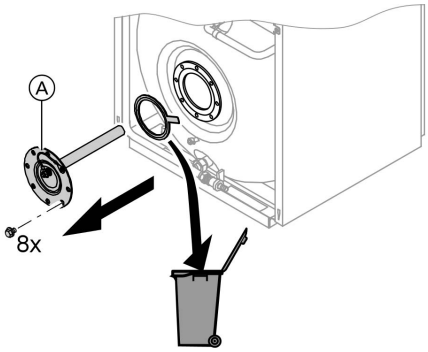
Further details regarding the individual steps (cont.)

Cleaning the DHW cylinder

Note
DIN 1988 requires a visual inspection and (if necessary) cleaning every two years after the cylinder has been taken into use and thereafter according to requirements.



1. Drain the DHW cylinder.
2. Remove flange lid Ⓐ.
3. Disconnect the cylinder from the pipework to prevent contaminants entering the pipe system.
4. Remove loose deposits with a high pressure cleaner.

   Please note
   Only use plastic utensils for cleaning the inside of the cylinder.

5. Use a chemical cleaning agent to remove hard deposits that cannot be removed by a high pressure cleaner.

   Please note
   Never use hydrochloric cleaning agents.

6. Thoroughly flush the DHW cylinder after cleaning.

Checking and replacing the magnesium anode (if required)

Check the magnesium anode. We recommend you change the magnesium anode if it has been reduced down to 10 to 15 mm Ø.

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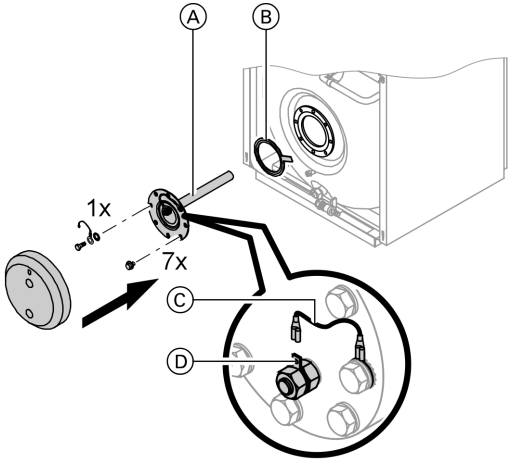
Further details regarding the individual steps (cont.)

Returning the DHW cylinder to use



Ⓐ Flange lid
Ⓑ Gasket
Ⓒ Earth cable
Ⓓ Push-on tab

1. Reconnect the DHW cylinder to the pipework.
2. Insert new gasket Ⓑ underneath the flange lid Ⓐ.
3. Fit the flange lid and tighten the screws with a maximum torque of 25 Nm.
4. Push earth cable Ⓒ onto push-on tab Ⓓ.
5. Fill the cylinder with potable water.

Checking all gas equipment for soundness at operating pressure

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

Further details regarding the individual steps (cont.)

Flue gas emissions test

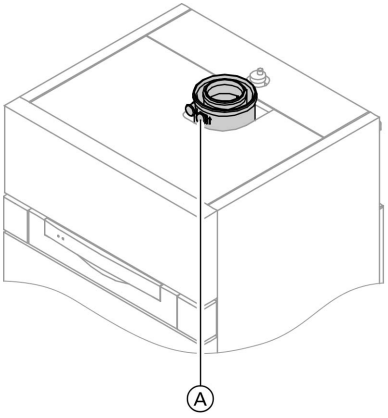
The Vitodens 333 is set up in the factory for natural gas E and can, with the aid of a conversion kit, be converted to natural gas LL or LPG P (only 26 kW).
During commissioning or maintenance, check the CO_2 level at the flue outlet.

Note
The MatriX burner of the Vitodens 333 is preset for the entire gas group. Therefore, the burner requires no further setting or adjustment.

Subject to the Wobbe index, the CO_2 content fluctuates between
- 6.6 to 10.0% for natural gas E
- 7.0 to 10.0% for natural gas LL
- 8.5 to 10.5% for LPG P (only 26 kW)

Compare the actual CO_2 value with the above CO_2 value ranges for the individual gas groups (check the gas group with your mains gas or LPG supplier).
If the actual CO_2 value deviates by more than 1% for natural gas or 0.5% for LPG (only 26 kW), proceed as follows:
- Check that the correct gas restrictor has been installed.
- Check the balanced flue system for soundness, see page 16.

Maintain limits to EN 483 and EN 297 (CO content < 1000 ppm).



1. Connect a flue gas analyser at the flue gas port Ⓐ on the flue outlet.
2. Open the gas shut-off valve, start the boiler and create a heat demand.
3. Select the lower rated output.
   Constant temperature control unit:
   Press ⏻ + OK simultaneously: "**1**" is shown.
   Weather–compensated control unit:
   Press ⏻ + OK simultaneously: "**Relay test**" and then "**Base load**" is shown.
4. Check the CO_2 content. If the value lies outside the above range, take the measures listed on page 24.

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Further details regarding the individual steps (cont.)

5. Record the actual value on page 117 of the commissioning/ service report.

6. Select the upper rated output.
Constant temperature control unit:
Press ⏻ + OK simultaneously:
"**1**" is shown.
Press ⊕:
"**2**" is shown.
Weather–compensated control unit:
Press ⏻ + OK simultaneously:
"**Relay test**" is shown.
Press ⊕:
"**Full load**" is shown.

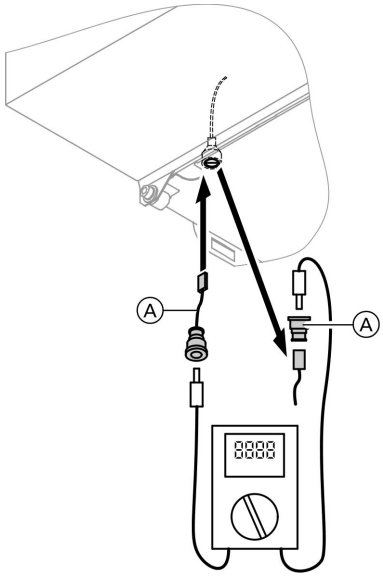
7. Check the CO_2 content. If the value lies outside the above range, take the measures listed on page 24.

8. After testing, press OK.

9. Record the actual value on page 117 of the commissioning/ service report.

Further details regarding the individual steps (cont.)

Checking the ionisation current



Ⓐ Adaptor line (accessories)

1. Connect the test instrument according to the adjacent diagram.

2. Adjusting the upper output:
Constant temperature control unit:
Press ⏻ + OK simultaneously: "**1**" is shown.
Press ⊕: "**2**" is shown.
Weather–compensated control unit:
Press ⏻ + OK simultaneously: "**Relay test**" is shown in the display.
Press ⊕: "**Full load**" is shown in the display.

3. Ionisation current when the flame is first established: min. 2 µA
Steps to take if the ionisation current < 2 µA:
- Check the electrode gap, see page 19.
- Check the control unit power supply.

4. Press OK.
Operation with the upper rated output is terminated.

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Further details regarding the individual steps (cont.)

5. Record the actual value in the service report on page 117.

Matching the control unit to the heating system

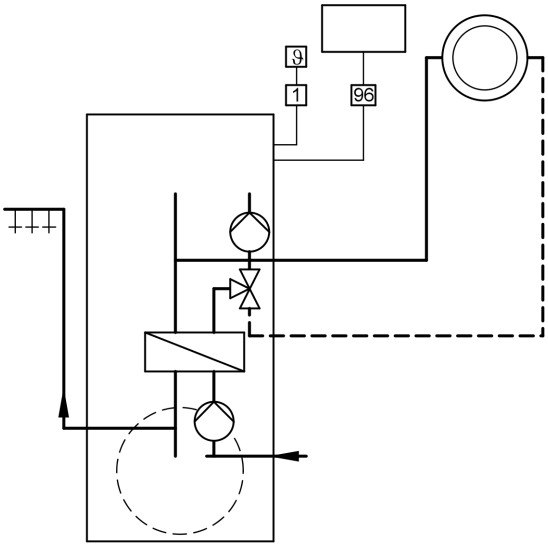
Note

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

- *For the selection of an appropriate design, see the following diagrams.*
- *For coding steps, see page 39.*

System version 1

One heating circuit without mixer A1



1 Outside temperature sensor (only for control units for weather-compensated operation)
or

96 Vitotrol 100 (only for constant temperature control units)

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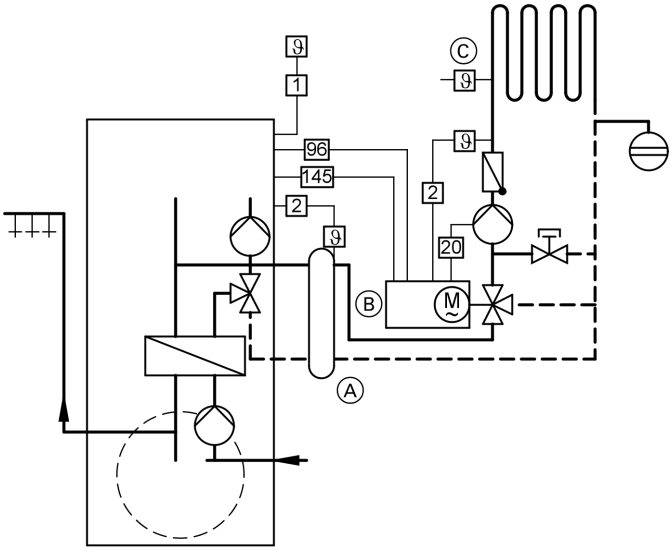
Further details regarding the individual steps (cont.)

Required coding	
Operation with LPG	1E:1

System version 2
One heating circuit with mixer M2 and a low loss header



1 Outside temperature sensor
2 Flow temperature sensor
20 Heating circuit pump
96 Power supply (extension kit)
145 KM BUS
A Low loss header
B Extension kit for a heating circuit with mixer
C Maximum temperature thermostat (underfloor heating)

Required coding	
Operation with LPG	1E:1
System with only one heating circuit with mixer and DHW heating	00:4

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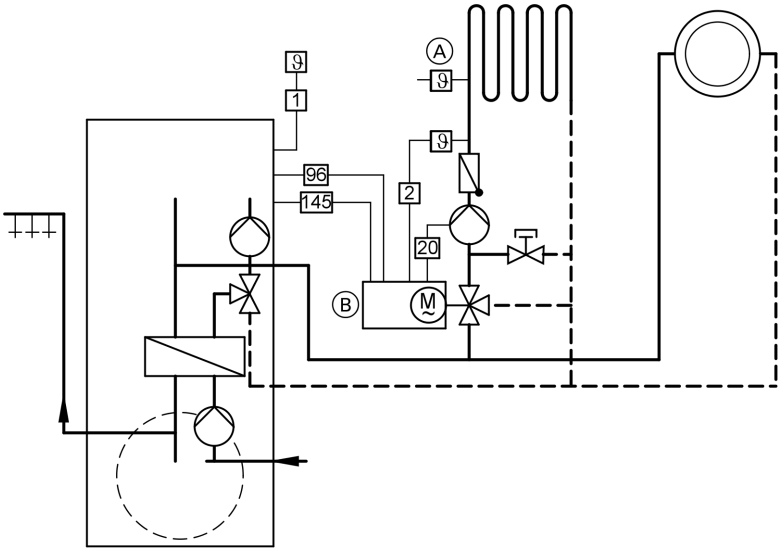
Further details regarding the individual steps (cont.)

System version 3
One heating circuit without mixer A1 and one heating circuit with mixer M2



1	Outside temperature sensor	Ⓐ	Maximum temperature thermostat (underfloor heating)
2	Flow temperature sensor	Ⓑ	Extension kit for a heating circuit with mixer
20	Heating circuit pump		
96	Power supply (extension kit)		
145	KM BUS		

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.

Required coding	
Operation with LPG	1E:1

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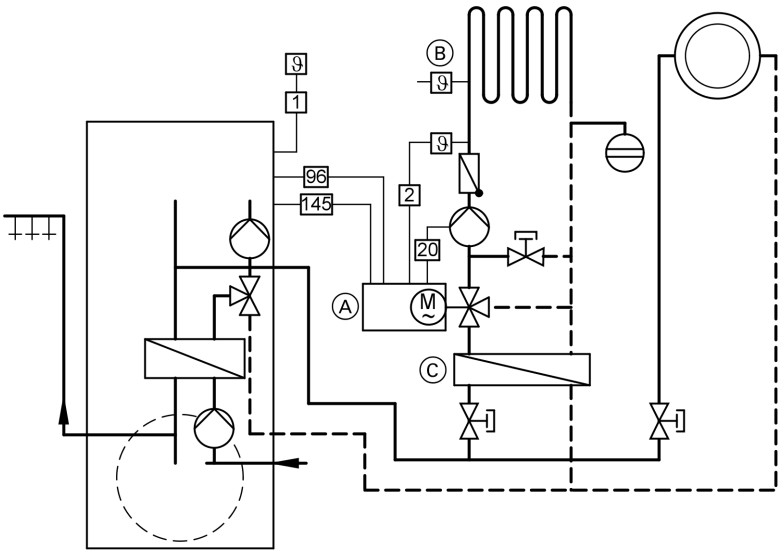
Further details regarding the individual steps (cont.)

System version 4
One heating circuit without mixer A1, one heating circuit with mixer M2 and system separation



1	Outside temperature sensor	Ⓐ	Extension kit for a heating circuit with mixer
2	Flow temperature sensor	Ⓑ	Maximum temperature thermostat (underfloor heating)
20	Heating circuit pump	Ⓒ	Heat exchanger for system separation
96	Power supply (extension kit)		
145	KM BUS		

Required coding	
Operation with LPG	1E:1

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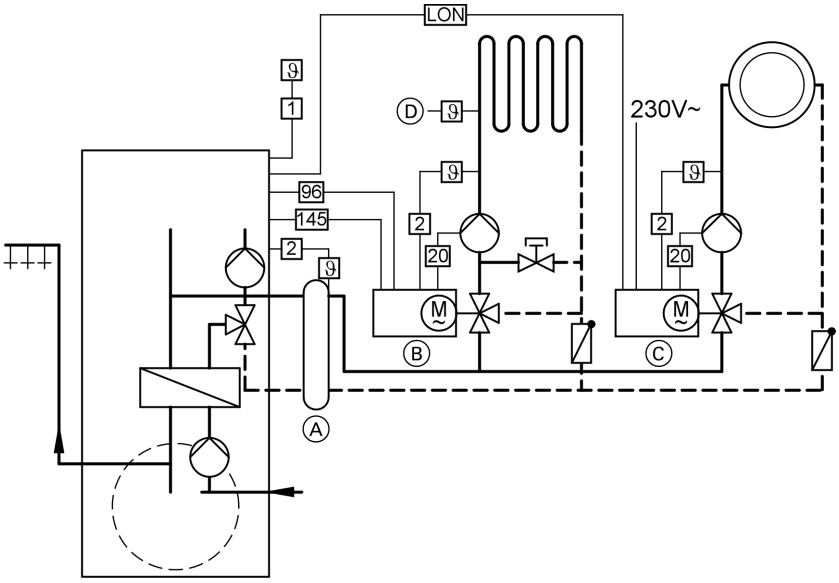
Further details regarding the individual steps (cont.)

System version 5
One heating circuit with mixer M2 (with extension kit), one heating circuit with mixer (with the Vitotronic 050) and low loss header



1 Outside temperature sensor
2 Flow temperature sensor
20 Heating circuit pump
96 Power supply (extension kit)
145 KM BUS
Ⓐ Low loss header
Ⓑ Extension kit for a heating circuit with mixer
Ⓒ Vitotronic 050
Ⓓ Maximum temperature thermostat (underfloor heating)

Required coding	
Operation with LPG	1E:1
System with only one heating circuit with mixer and DHW heating	00:4

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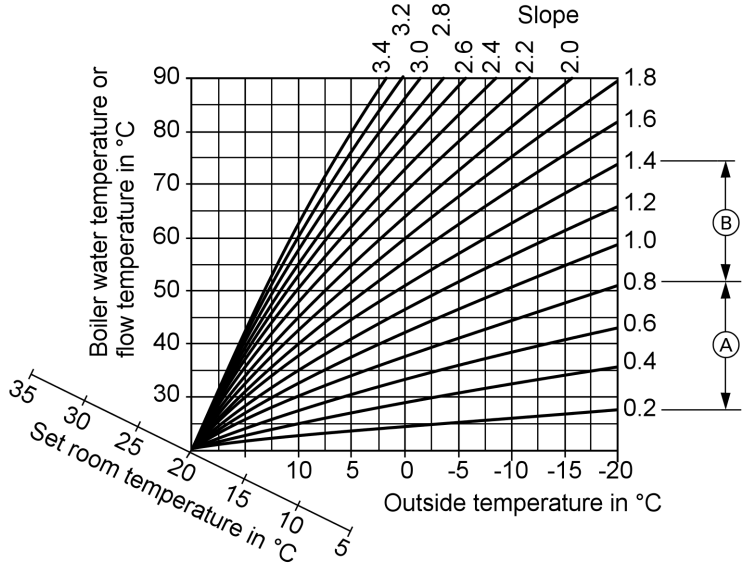
Further details regarding the individual steps (cont.)

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

The heating curves illustrate the relationship between the outside temperature and the boiler water or the flow temperature.
To put it simply: The lower the outside temperature, the higher the boiler water or flow temperature.

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

Settings in the delivered condition:
- Slope = 1.4
- Level = 0



Ⓐ Heating curve slope for underfloor heating systems

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

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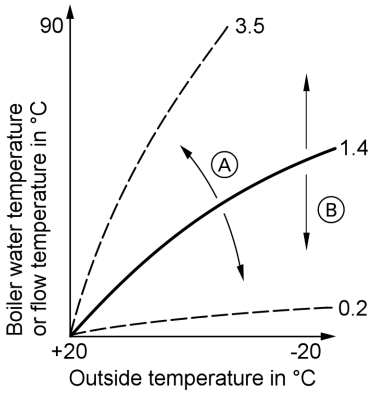
Further details regarding the individual steps (cont.)

Changing slope and level



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

1. Change the slope with coding address "d3" in code 1 (see page 39).
   Setting range 2 to 35 (equals slope 0.2 to 3.5).

2. Change the level in coding address "d4" in code 1 (see page 39).
   Setting range -13 to +40 K.

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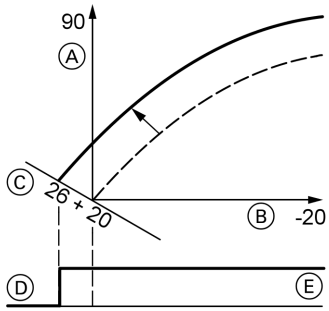
Further details regarding the individual steps (cont.)

Adjusting the set room temperature

Standard room temperature



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

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

Press the following keys:

1. ⊕ "1 |||" flashes.

2. OK to select heating circuit A1 (heating circuit without mixer)
or

3. ⊕ "2 |||" flashes.

4. OK to select heating circuit M2 (heating circuit with mixer)

5. Adjust the set day temperature with rotary selector "🌡☀".
The value will be automatically accepted after approx. 2 s. Accordingly, the heating curve is adjusted along the set room temperature axis, which results in modified start-up/shutdown characteristics of the heating circuit pumps if heating circuit pump logic is active.

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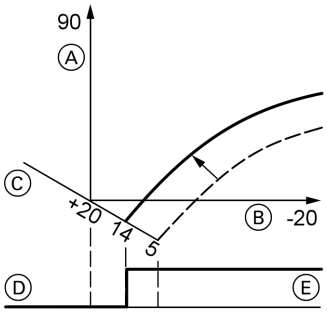
Further details regarding the individual steps (cont.)

Reduced room temperature



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

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

Press the following keys:

1. ⊕ "1 |||" flashes.

2. OK to select heating circuit A1 (heating circuit without mixer)
or

3. ⊕ "2 |||" flashes.

4. OK to select heating circuit M2 (heating circuit with mixer)

5. [🌙] Calling up the set night temperature.

6. ⊕/⊖ Change the value.

7. OK Confirm the value.

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

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

Installation instructions
LON communication module

Note
The data transfer via the LON system can take 2 to 3 min.

Setting up LON user numbers

Adjust the user number via coding address "77" (see the following table).

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

Further details regarding the individual steps (cont.)

Updating the LON user list

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

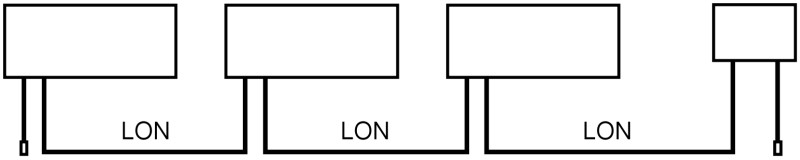
Press the following keys:

1. ⌂ + OK simultaneously for approx. 2 s
User check initiated (see page 37).

2. ⊕ The user list is updated after approx. 2 min.
The user check is completed.

Single boiler system with Vitotronic 050 and Vitocom 300

Note
*In each heating system, **only one Vitotronic** may be programmed as fault manager.*

Boiler control unit	**Vitotronic 050**	**Vitotronic 050**	**Vitocom**
			
User no. 1 Code "77: 1"	User no. 10 **Set code** "77: 10"	User no. 11 **Set code** "77: 11"	User no. 99
Control unit is fault manager **Set code** "79: 1"	Control unit is not fault manager Code "79: 0"	Control unit is not fault manager Code "79: 0"	Control unit is fault manager
Send time via LON Code "7b: 1"	Time received via LON **Set code** "81: 3"	Time received via LON **Set code** "81: 3"	Time received via LON
Transmit outside temperature via LON **Set code** "97: 2"	The outside temperature is received via LON **Set code** "97: 1"	The outside temperature is received via LON **Set code** "97: 1"	—
Fault monitoring LON user code "9C:20"	Fault monitoring LON user code "9C:20"	Fault monitoring LON user code "9C:20"	—

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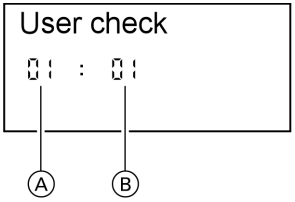
Further details regarding the individual steps (cont.)

Implementing a user check (in conjunction with the LON system with a weather-compensated control unit)

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

Preconditions:
- The control unit must be programmed as fault manager (code "79:1").
- The LON user number must be programmed in all control units (see page 35).
- The fault manager LON user list must be up to date (see page 35).



Ⓐ Consecutive number in the user list
Ⓑ User number

Press the following keys:

1. ⌂ + OK simultaneously for approx. 2 s
The user check has been initiated.

2. ⊕/⊖ for the required user.

3. OK Activating a check. "**Check**" flashes until its completion. The display and all key illuminations for the selected user flash for approx. 60 s.
- "**Check OK**" is displayed during communication between both devices.
- "**Check not OK**" is displayed if there is no communication between both devices; check the LON connection.

4. Repeat points 2 and 3 to check further users.

5. ⌂ + OK simultaneously for approx. 1 s
The user check is completed.

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.

Further details regarding the individual steps (cont.)

Scanning and resetting the "maintenance" display

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

- For a constant temperature control unit:
  The defaulted hours run or the defaulted interval with clock symbol "🕘" (subject to setting)
- For a weather-compensated control unit:
  "**Maintenance**"

Note
Set code "24:1" and then code "24:0" if maintenance is carried out before maintenance is displayed; the set maintenance parameters for hours run and intervals are then reset to 0.

Press the following keys:

1. ⓘ The maintenance scan is active.

2. ⊕/⊖ Scan maintenance messages.

3. OK The maintenance display will be cleared (for a weather-compensated control unit: "Acknowledge: Yes" re-confirm with OK). The red fault display continues to flash.

Note
An acknowledged maintenance message can be redisplayed by pressing OK (approx. 3 s).

After maintenance has been carried out

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

Note
A new maintenance message will be displayed 7 days later, if coding address "24" is not reset.

2. Reset the burner hours run, burner starts and consumption, if required
Press the following keys:
ⓘ Scanning is active (see page 67).
⊕/⊖ for the selected value.
⊛ the selected value will be set to "0".
⊕/⊖ for further scans.
OK Scanning is completed.

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Code 1

Calling up code 1

Note

- *On weather-compensated control units, codes are displayed as plain text.*
- *Codes which are irrelevant (due to the system equipment level or the setting of other codes) will not be displayed.*
- *For heating systems with one heating circuit without mixer and one heating circuit with mixer, initially the possible coding addresses "A0" to "d4" are scrolled for the heating circuit without mixer A1 and then those for the heating circuit with mixer M2.*

Press the following keys:

1. ⏻ + 🛁 simultaneously for approx. 2s.

2. ⊕/⊖ for the required coding address; the address flashes.

3. OK to confirm.

4. ⊕/⊖ for the selected value.

5. OK to confirm; the display briefly shows "**accepted**" (weather-compensated control unit); the address flashes again.

6. ⊕/⊖ for the selection of further addresses.

7. ⏻ + 🛁 simultaneously for approx. 1 s to terminate code 1.

Summary

Coding

Coding in the delivered condition		**Possible change**	
System designs			
00:2	System version 1: 1 heating circuit without mixer A1, with DHW heating	00:4	System version 2, 5: 1 heating circuit with mixer M2, with DHW heating
		00:6	System version 3, 4: 1 heating circuit without mixer A1 and 1 heating circuit with mixer M2, with DHW heating

Code 1 (cont.)

Coding in the delivered condition		Possible change	
Max. boiler temp.			
06:...	Maximum limit of the boiler water temperature, defaulted in °C by the boiler coding card	06:20 to 06:127	Maximum limit of the boiler water temperature within the ranges defaulted by the boiler
Gas type			
1E:0	Operation with natural gas	1E:1	Operation with LPG
Venting/filling			
2F:0	Program enabled	2F:1	Ventilation program disabled
		2F:2	Filling program enabled
User no.			
77:1	LON user number (only for weather-compensated control units)	77:2 to 77:99	LON user number, adjustable from 1 to 99: 1 - 4 = Boiler 5 = Cascade 10 - 98 = Vitotronic 050 99 = Vitocom ***Note*** *Allocate each number once **only**.*
Summer econ. A1/M2			
A5:5	With heating circuit logic function (only for weather-compensated control units)	A5:0	Without heating circuit pump logic function
Min. flow temp. A1/M2			
C5:20	Electronic minimum limit of the flow temperature 20 °C (only for weather-compensated control units)	C5:1 to C5:127	Minimum limit adjustable from 1 to 127 °C
Max. flow temp. A1/M2			
C6:75	Electronic maximum limit of the flow temperature 75 °C (only for weather-compensated control units)	C6:10 to C6:127	Maximum limit adjustable from 10 to 127 °C

Code 1 (cont.)

Coding in the delivered condition		Possible change	
Slope A1/M2			
d3:14	Heating curve slope = 1.4 (only for weather-compensated control units)	d3:2 to d3:35	Heating curve slope adjustable from 0.2 to 3.5 (see page 32)
Level A1/M2			
d4:0	Heating curve slope = 0 (only for weather-compensated control units)	d4:–13 to d4:40	Heating curve level adjustable from –13 to 40 (see page 32)

Code 2

Calling up code 2

Note

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

Press the following keys:

1. [⌂] + [⌂] simultaneously for approx. 2s.

2. (OK) to confirm.

3. ⊕/⊖ for the required coding address; the address flashes.

4. (OK) to confirm; the value flashes.

5. ⊕/⊖ for the selected value.

6. (OK) to confirm; the display briefly shows "**accepted**" (for weather-compensated control units); the address flashes again.

7. ⊕/⊖ for the selection of further addresses.

8. [⌂] + [⌂] simultaneously for approx. 1 s to terminate code 2.

Overall summary

The coding addresses are grouped according to the following **function areas**. The respective function area is shown on the display.

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Code 2 (cont.)

The areas are scanned in the following sequence with ⊕/⊖:

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

Note
For heating systems with one heating circuit without mixer and one heating circuit with mixer, initially the possible coding addresses "A0" to "Fb" are scrolled for the heating circuit without mixer A1 and then those for the heating circuit with mixer M2.

Coding

Coding in the delivered condition		Possible change	
System designs			
00:2	System version 1: 1 heating circuit without mixer A1, with DHW heating	00:4	System version 2, 5: 1 heating circuit with mixer M2, with DHW heating
		00:6	System version 3, 4: 1 heating circuit without mixer A1 and 1 heating circuit with mixer M2, with DHW heating
Boiler/burner			
06:...	Maximum limit of the boiler water temperature, defaulted in °C by the boiler coding card	06:20 to 06:127	Maximum limit of the boiler water temperature within the ranges defaulted by the boiler
1E:0	Operation with natural gas	1E:1	Operation with LPG
21:0	No burner maintenance indication	21:1 to 21:9999	The number of hours to run before the burner should be serviced is adjustable from 1 to 9999 h

Code 2 (cont.)

Coding in the delivered condition		Possible change	
23:0	No time interval for burner maintenance	23:1 to 23:24	Interval adjustable from 1 to 24 months
24:0	No "**Maintenance**" display	24:1	"**Maintenance**" display (the address is automatically set and must be manually reset after a service has been carried out)
25:0	ⓘ: No outside temperature sensor or fault monitoring recognised (only for constant temperature control units)	25:1	Outside temperature sensor and fault monitoring recognised
28:0	No burner interval ignition	28:1	The burner will be force-started for 30 s after 5 h
2E:0	Without external extension	2E:1	With external extension (automatic recognition)
2F:0	Program disabled	2F:1	Ventilation program enabled
		2F:2	Filling 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 of the internal circulation pump when operated as boiler circuit pump in %, defaulted by the boiler coding card	31:0 to 31:100	Set speed adjustable from 0 to 100 %
32:0	Influence of the signal "External blocking" on the circulation pumps: All pumps in control function	32:1 to 32:15	Influence of the signal "External blocking" on the circulation pumps: see the following table

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Code 2 (cont.)

Coding	Internal circulation pump	Heating circuit pump Heating circuit without mixer	Heating circuit pump Heating circuit with mixer	Cylinder primary pump
0	Control funct.	Control funct.	Control funct.	Control funct.
1	Control funct.	Control funct.	Control funct.	OFF
2	Control funct.	Control funct.	OFF	Control funct.
3	Control funct.	Control funct.	OFF	OFF
4	Control funct.	OFF	Control funct.	Control funct.
5	Control funct.	OFF	Control funct.	OFF
6	Control funct.	OFF	OFF	Control funct.
7	Control funct.	OFF	OFF	OFF
8	OFF	Control funct.	Control funct.	Control funct.
9	OFF	Control funct.	Control funct.	OFF
10	OFF	Control funct.	OFF	Control funct.
11	OFF	Control funct.	OFF	OFF
12	OFF	OFF	Control funct.	Control funct.
13	OFF	OFF	Control funct.	OFF
14	OFF	OFF	OFF	Control funct.
15	OFF	OFF	OFF	OFF

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

Coding	Internal circulation pump	Heating circuit pump Heating circuit without mixer	Heating circuit pump Heating circuit with mixer	Cylinder primary pump
0	Control funct.	Control funct.	Control funct.	Control funct.
1	Control funct.	Control funct.	Control funct.	OFF
2	Control funct.	Control funct.	OFF	Control funct.
3	Control funct.	Control funct.	OFF	OFF
4	Control funct.	OFF	Control funct.	Control funct.
5	Control funct.	OFF	Control funct.	OFF
6	Control funct.	OFF	OFF	Control funct.

Code 2 (cont.)

Coding	Internal circulation pump	Heating circuit pump Heating circuit without mixer	Heating circuit pump Heating circuit with mixer	Cylinder primary pump
7	Control funct.	OFF	OFF	OFF
8	OFF	Control funct.	Control funct.	Control funct.
9	OFF	Control funct.	Control funct.	OFF
10	OFF	Control funct.	OFF	Control funct.
11	OFF	Control funct.	OFF	OFF
12	OFF	OFF	Control funct.	Control funct.
13	OFF	OFF	Control funct.	OFF
14	OFF	OFF	OFF	Control funct.
15	OFF	OFF	OFF	OFF
16	ON	Control funct.	Control funct.	Control funct.
17	ON	Control funct.	Control funct.	OFF
18	ON	Control funct.	OFF	Control funct.
19	ON	Control funct.	OFF	OFF
20	ON	OFF	Control funct.	Control funct.
21	ON	OFF	Control funct.	OFF
22	ON	OFF	OFF	Control funct.
23	ON	OFF	OFF	OFF

Coding in the delivered condition		Possible change	
Boiler/burner			
52:0	Without flow temperature sensor for low loss header	52:1	With flow temperature sensor for low loss header (automatic recognition)
54:0	Without solar control unit	54:1	With Vitosolic 100 (automatic recognition)
		54:2	With Vitosolic 200 (automatic recognition)

Code 2 (cont.)

Coding in the delivered condition		Possible change	
Domestic hot water			
56:0	Set DHW temperature adjustable from 10 to 60 °C	56:1	Set DHW temperature adjustable from 10 to above 60 °C ***Note*** *Maximum value subject to boiler coding card Observe the max. permissible DHW temperature*
58:0	Without auxiliary function for DHW heating	58:10 to 58:60	Input of a second set DHW value, adjustable from 10 to 60 °C (observe the coding addresses "56" and "63")
63:0	No default interval for auxiliary function for DHW heating (only for constant temperature control units)	63:1	Auxiliary function for DHW heating, 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; do not adjust.	65:0	Without diverter valve
		65:1	Viessmann diverter valve
		65:2	Wilo diverter valve
		65:3	Grunfos diverter valve
67:40	With the Vitosolic: third set DHW temperature 40 °C	67:0	Without third set DHW temperature
		67:1 to 67:60	Third set DHW temperature adjustable from 1 to 60 °C (subject to the setting of coding address "56")
6C:100	Set speed of the internal cylinder primary pump 100 %	6C:0 to 6C:100	Set speed adjustable from 0 to 100 %
6F:...	Maximum output for DHW heating in %; defaulted by the boiler coding card	6F:0 to 6F:100	Max. output during DHW heating adjustable from min. output to 100 %

Code 2 (cont.)

Coding in the delivered condition		Possible change	
71:0	DHW circulation pump: "ON" subject to DHW time program (for the Vitotrol 300, separate switching times are possible) (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 DHW 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 DHW time program (only for weather-compensated control units)	73:1 to 73:6	During the time program 1x/h "ON" for 5 min up to 6x/h "ON" for 5 min
		73:7	Permanently "ON"
General			
76:0	Without LON communication module (only for weather-compensated control units)	76:1	With LON communication module (automatic recognition)
77:1	LON user number (only for weather-compensated control units)	77:2 to 77:99	LON user number, adjustable from 1 to 99: 1 - 4 = Boiler 5 = Cascade 10 - 98 = Vitotronic 050 99 = Vitocom ***Note*** *Allocate each number once **only**.*
79:0	The control unit is not the fault manager (only for weather-compensated control units)	79:1	Control unit is fault manager

Code 2 (cont.)

Coding in the delivered condition		Possible change	
7b:1	Without LON communication module (only for weather-compensated control units)	7b:0	Do not send time via LON
7F:1	Detached house (only for weather-compensated control units)	7F:0	Apartment block As option, separate adjustment of holiday program and time program for DHW heating
80:1	A fault message is displayed, providing a fault is active for at least 5 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 = 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	Accept time via LON
88:0	Temperature displayed in °C (Celsius)	88:1	Temperature displayed in °F (Fahrenheit)
8A:175	Do not adjust		
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 set value when the outside temperature changes; 1 step = 10 min

Code 2 (cont.)

Coding in the delivered condition		Possible change	
91:0	No external heating program changeover via external extension (only for weather-compensated control units)	91:1	The external heating program changeover affects the heating circuit without mixer
		91:2	The external heating program changeover affects the heating circuit with mixer
		91:3	The external heating program changeover affects the heating circuit without mixer and the heating circuit with mixer
95:0	Without Vitocom 100 communication interface	95:1	With Vitocom 100 communication interface (automatic recognition)
97:0	The outside temperature of the sensor connected to the control unit is utilised internally (only for weather-compensated control units)	97:1	The outside temperature is accepted by the LON BUS
		97:2	The outside temperature of the sensor connected to the control unit will be utilised internally and is transmitted via the LON BUS to any connected Vitotronic 050.
98:1	Viessmann system number (in conjunction with monitoring of several systems via Vitocom 300)	98:1 to 98:5	System number adjustable from 1 to 5
9b:0	Minimum set boiler water temperature for external demand	9b:1 to 9b:127	Minimum set boiler water temperature adjustable from 1 to 127 °C

Code 2 (cont.)

Coding in the delivered condition		Possible change	
9C:20	Monitoring LON users. If a user fails to respond, the values defaulted 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	The time is 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
Heating circuit A1/M2			
A0:0	Without remote control (only for weather-compensated control units)	A0:1	With Vitotrol 200 (automatic recognition)
		A0:2	With Vitotrol 300 (automatic recognition)

Code 2 (cont.)

Coding in the delivered condition		Possible change	
A3:2	Outside temperature below 1 °C: Heating circuit pump "ON" Outside temperature above 3 °C: Heating circuit pump "OFF" ! **Please note** When selecting a value below 1 °C there is a risk of pipes outside the thermal envelope of the house being damaged by frost. The standby mode, in particular, should be taken into consideration, e.g. during holidays.	A3:–9 to A3:15	Heating circuit pump "ON/OFF" (see the following table)

Parameters 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 to 15	1 °C to 14 °C	3 °C 16 °C

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Code 2 (cont.)

Coding in the delivered condition		Possible change	
Heating circuit A1/M2			
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. ***Note*** *Observe the note for code "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 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 A5:...	With heating circuit pump logic function: Heating circuit pump "OFF"
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 to	AT > RT_{Set} -v1 K
15	AT > RT_{Set} - 9 K

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Code 2 (cont.)

Coding in the delivered condition		Possible change	
Heating circuit A1/M2			
A6:36	Extended economy function **disabled** (only for weather-compensated control units)	A6:5 to A6:35	Extended economy function enabled, i.e. the burner and heating circuit pump will be switched OFF and the mixer will be closed at a variable value, which is adjustable between 5 and 35 °C plus 1 °C. This value is based on the adjusted outside temperature, comprising the actual outside temperature and a time constant, which takes the cooling down of an average building into consideration.
A7:0	Without mixer economy function (only for weather-compensated control units)	A7:1	With mixer economy function (extended heating circuit pump logic): Heating circuit pump also "OFF": If a mixer has been closed for longer than 20 min. Heating pump "ON": ■ If the mixer changes to control mode ■ After cylinder heating (for 20 min) ■ If there is a risk of frost
A8:1	Heating circuit with mixer M2 creates a demand for the internal circulation pump (only for weather-compensated control units)	A8:0	Heating circuit M2 creates no demand for the internal circulation pump

Code 2 (cont.)

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

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Code 2 (cont.)

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

Coding in the delivered condition		Possible change	
Heating circuit A1/M2			
C5:20	Electronic minimum limit of the flow temperature 20 °C (only for weather-compensated control units)	C5:1 to C5:127	Minimum limit adjustable from 1 to 127 °C
C6:74	Electronic maximum limit of the flow temperature 74 °C (only for weather-compensated control units)	C6:10 to C6:127	Maximum limit adjustable from 10 to 127 °C
d3:14	Heating curve slope = 1.4 (only for weather-compensated control units)	d3:2 to d3:35	Heating curve slope adjustable from 0.2 to 3.5 (see page 32)
d4:0	Heating curve slope = 0 (only for weather-compensated control units)	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" (only for weather-compensated control units)	d5:1	The external heating program changeover changes the heating program to "Constant central heating with standard room temperature"

Code 2 (cont.)

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

Code 2 (cont.)

Coding in the delivered condition		Possible change	
E9:45	Speed of the external variable speed heating circuit pump: 45 % of the maximum speed in reduced temperature mode (only for weather-compensated control units)	E9:0 to E9:100	Speed adjustable from 0 to 100 % of maximum speed during operation with reduced room temperature
F2:8	Time limit for party mode 8 h or external heating program changeover via the keyboard (only for weather-compensated control units) *1	F2:0	No time limit for party mode*1
		F2:1 to F2:12	Time limit adjustable from 1 to 12 h*1
F5:12	Run-on time of the internal circulation pump in heating mode (only for constant temperature control units)	F5:0	No run-on time of the internal circulation pump
		F5:1 to F5:20	Run-on time of the internal circulation pump adjustable from 1 to 20 min
F6:25	In the "DHW only" operating mode, the internal circulation pump is permanently ON (only for weather-compensated control units)	F6:0	In the "DHW only" operating mode, the internal circulation pump is permanently OFF
		F6:1 to F6:24	In the "DHW only" operating mode, the internal circulation pump will be started 1 to 24 times per day for 10 min respectively.
F7:25	In the "Standby" operating 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 the "Standby" mode, the internal circulation pump in operating mode will be started 1 to 24 times per day for 10 min respectively.

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

Code 2 (cont.)

Coding in the delivered condition		Possible change	
F8:–5	Temperature limit for terminating the reduced mode -5 ºC, see example on page 103. 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 ºC, see example on page 103 (only for weather-compensated control units)	F9:+10 to F9:–60	Temperature limit adjustable from +10 to -60 °C
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 104 (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 104 (only for weather-compensated control units).	Fb:0 to Fb:150	Duration adjustable from 0 to 300 min; 1 step ≙ 2 min)

Code 2 (cont.)

Coding in the delivered condition		Possible change	
Heating circuit M2			
F1:0	Screed drying function disabled (only for weather-compensated control units)	F1:1 to F1:5	Screed drying function adjustable in accordance with five optional temperature/time profiles (see page 101) ***Note*** *Observe the screed supplier's instructions.* Observe DIN 4725–2. The report to be provided by the heating contractor must contain the following heat-up details: ■ Heat-up data with respective flow temperatures ■ Max. flow temperature achieved ■ Operating condition and outside temperature during handover The function continues after a power failure or after the control unit has been switched OFF. Heating program "Heating and DHW" will be started after the screed function has been terminated or if the address is manually set to 0.
		F1:6 to F1:15	Constant flow temperature 20 °C

Resetting codes to the delivered condition

Press the following keys:

1. [⚑] + [⚑] simultaneously for approx. 2s

2. ⊕ "Basic settings? Yes" is displayed.

3. OK to confirm

or

4. ⊕/⊖ to select "Basic setting? No".

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Service level summary

Function	Key combination	Exit	Page
Temperatures, boiler coding card, brief scans	⏻ and 🛁 simultaneously for approx. 2 s	Press OK	62
Relay test	⏻ and OK simultaneously for approx. 2 s	Press OK	66
Max. output (heating mode)	⏻ and 🌡 simultaneously for approx. 2 s	Press OK	15
Operating conditions and sensors	Press ⓘ	Press OK	67
Maintenance scan	ⓘ (if "Maintenance" flashes)	Press OK	38
Adjusting the display contrast	OK and ⊕ simultaneously; the display darkens	–	–
	OK and ⊖ simultaneously; the display becomes lighter	–	–
Calling up acknowledged fault messages	OK for approx. 3 s		70
Fault history	🛁 and OK simultaneously for approx. 2 s	Press OK	71
User check (in conjunction with LON system)	🛁 and OK simultaneously for approx. 2 s	Press 🛁 and OK simultaneously	37
Emissions test function "🧹"	Weather–compensated control unit: 🌡 and 🌙 simultaneously for approx. 2 s Constant temperature control unit: 🌡 and 🌡 simultaneously for approx. 2 s	🌡 and 🌙 or 🌡 and 🌡 simultaneously for approx. 1 s, alternatively will be selected automatically after 30 min	–
Coding level 1	⏻ and 🛁 simultaneously for approx. 2 s	⏻ and 🛁 simultaneously for approx. 1 s	39
Coding level 2	🛁 and 🛁 simultaneously for approx. 2 s	🛁 and 🛁 simultaneously for approx. 1 s	41

Service level summary (cont.)

Function	Key combination	Exit	Page
Resetting codes to the delivered condition	⌂ and ⌂ simultaneously for approx. 2 s; press ⊕	–	60

Temperatures, boiler coding card and brief scans

Constant temperature control unit

Press the following keys:

1. ⏻ + ⌂ simultaneously for approx. 2 s

2. ⊕/⊖ for the required scan.

3. OK End scan.

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

	Display screen				
Brief scan	0	0	0	0	0
0	0	System designs 1 to 6 Display in accordance with the system equipment level	Software version Control unit		Software version Programming unit
1	Software version Solar control unit 0: w/o solar control unit	Software version Burner control unit		Software version External extension 0: w/o external extension	0
E	0: w/o external demand 1: external demand	0: w/o external blocking 1: external blocking	External 0 to 10 V hook-up Display in % 0: w/o external hook-up		
3	0	0	Set boiler water temperature		
A	0	0	Highest demand temperature		

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

	Display screen				
Brief scan	8	8	8	8	8
4	0	Burner control unit type		Boiler type	
5	0	0	Set cylinder temperature		
b	0	0	Max. output in %		
C	0	Boiler coding card (hexadecimal)			
c	0	Boiler version		Burner control unit version	
d	0	0	0	Variable speed pump 0 w/o 1 Wilo 2 Grundfos	Software version variable speed pump 0: w/o variable speed pump

Weather–compensated control unit

Press the following keys:

1. ⏻ + 🧹 simultaneously for approx. 2 s

2. ⊕/⊖ for the required scan.

3. OK Relay test ended.

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

Display screen	Explanation
Slope A1 – level A1	
Slope M2 – level M2	
Adj. outside temperature	The adjusted outside temperature can be reset to the actual outside temperature with ⊕.
Actual outside temperature	
Set boiler temp.	
Actual boiler temp.	
Set DHW temp.	
Actual DHW temp.	
Actual DHW outlet temperature	
Set DHW outlet temp.	
Set flow temperature	Heating circuit with mixer
Actual flow temperature	Heating circuit with mixer

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

Display screen	Explanation
Set mixed flow temp.	Low loss header
Actual mixed flow temp.	Low loss header
Boiler coding card	
Brief scan 1 to 8	

	Display screen					
Brief scan	0	0	0	0	0	0
1	Software version Control unit		Equipment version		Burner control unit version	
2	System designs 01 to 06 Display in accordance with the system equipment level		Number of KM BUS users	Maximum demand temperature		
3	0	Software version Programming unit	Software version Mixer extension 0: w/o mixer extension	Software version Solar control unit 0: w/o solar control unit	Software version LON module 0: w/o LON module	Software version External extension 0: w/o external extension
4	Software version Burner control unit		Type Burner control unit		Boiler type	
5	0: w/o external demand 1: external demand	0: w/o external blocking 1: external blocking	0	External 0 to 10 V hook-up Display in % 0: w/o external hook-up		
6	Number of LON users		Check digit	Max. output Details in %		

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

	Display screen					
Brief scan	8	8	8	8	8	8
	Boiler		**Heating circuit A1 (w/o mixer)**		**Heating circuit M2 (with mixer)**	
7	0	0	Remote control 0: w/o 1: Vitotrol 200 2: Vitotrol 300	Software version Remote control 0: w/o remote control	Remote control 0: w/o 1: Vitotrol 200 2: Vitotrol 300	Software version Remote control 0: w/o remote control
	Internal circulation pump		**Heating circuit pump to connection extension**			
8	Variable speed pump 0: w/o 1: Wilo 2: Grundfos	Software version variable speed pump 0: w/o variable speed pump	Variable speed pump 0: w/o 1: Wilo 2: Grundfos	Software version variable speed pump 0: w/o variable speed pump	Variable speed pump 0: w/o 1: Wilo 2: Grundfos	Software version variable speed pump 0: w/o variable speed pump

Checking outputs (relay test)

Constant temperature control units

Press the following keys:

1. ⏻ + OK simultaneously for approx. 2 s

2. ⊕/⊖ Control relay outputs.

3. OK Relay test ended.

Subject to the actual equipment level, the following relay outputs can be controlled:

Display screen	Explanation
1	Burner modulation base load

Checking outputs (relay test) (cont.)

Display screen	Explanation
2	Burner modulation full load
3	Internal pump / output 20 "ON"
4	Heating mode diverter valve
5	Valve, centre position
6	DHW valve
10	Output 28 Internal extension
11	Heating circuit pump A1 external extension
12	Cylinder primary pump external extension
13	DHW circulation pump external extension
14	Central fault message external extension

Weather–compensated control unit

Press the following keys:

1. ⏻ + OK simultaneously for approx. 2 s

2. ⊕/⊖ Control relay outputs.

3. OK Relay test ended.

Subject to the actual equipment level, the following relay outputs can be controlled:

Display screen	Explanation
Base load	Burner modulation lower output
Full load	Burner modulation upper output
Int. pump ON	Int. pump/output 20 "ON"
Heating valve	Diverter valve set to heating mode
Valve central pos.	Diverter valve in centre position (filling)
DHW valve	Diverter valve set to DHW mode
Heat. circ. pump M2 ON	Mixer extension
Close mixer	Mixer extension
Open mixer	Mixer extension
Output int.	Internal extension
Heat. circ. pump A1 ON	External extension
Cylinder primary pump ON	External extension
DHW circ. pump ON	External extension
Central fault message ON	External extension

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Scanning operating conditions and sensors

Constant temperature control units

Press the following keys:

1. ⓘ
2. ⊕/⊖ for the required operating condition.
3. OK End scan.

Subject to the actual equipment level, the following operating conditions can be scanned:

Display screen			Explanation
1	15	°C/°F	Actual outside temperature
3	65	°C/°F	Actual boiler water temperature
5	50	°C/°F	Actual cylinder temperature
5□	45	°C/°F	Solar – actual DHW temperature
6	70	°C/°F	Actual value – collector sensor
▲ 263572		h	Burner hours run (after maintenance, reset with ⊕⊖ to "0")
▲▲▲ 030529			Burner starts (after maintenance, reset with ⊕⊖ to "0")
▲▲▲▲ 030417			Fuel consumption

Weather–compensated control unit

Press the following keys:

1. ⊕ "1 |||" flashes.
2. OK to select heating circuit without mixer A1
   or
3. ⊕ "2 |||" flashes.
4. OK to select heating circuit with mixer M2.
5. ⓘ
6. ⊕/⊖ for the required operating condition.
7. OK End scan.

Subject to the actual equipment level for heating circuits A1 and M2, the following operating conditions can be scanned:

Display screen	Explanation
User no.	Encoded user no. in the LON system
Holiday mode	If a holiday program has been entered.
Departure day	Date

Scanning operating conditions and sensors (cont.)

Display screen	Explanation
Return day	Date
Outside temperature, ... °C	Actual value
Boiler water temperature, ... °C	Actual value
Flow temperature, ... °C	Actual value (only for mixer circuit M2)
Standard room temperature, ... °C	Set value
Room temperature, ... °C	Actual value
Ext. set room temp, ... °C	For external hook-up
DHW temperature, ... °C	Actual DHW temperature
Solar DHW temp., ... °C	Actual value
Collector temperature, ... °C	Actual value
Mixed flow temp., ... °C	Actual value, only with low loss header
Burner, ...h	Actual hours run
Burner starts, ...	Hours run and burner starts (reset after maintenance ⊕ to "0").
Solar energy, ... kW/h	
Time	
Date	
Burner OFF/ON	
Int. pump OFF/ON	Output 20
Int. output OFF/ON	If an internal extension is installed
Heating circuit pump OFF/ON	If an external extension or extension kit for one heating circuit with mixer is installed
Cylinder pump ON/OFF	If an external extension is installed
DHW circulation pump OFF/ ON	If an external extension is installed
Central fault message OFF/ ON	If an external extension is installed
Mixer open/closed	If an extension kit for a heating circuit with mixer is installed
Various languages	The respective languages can be selected as permanent display language with OK.

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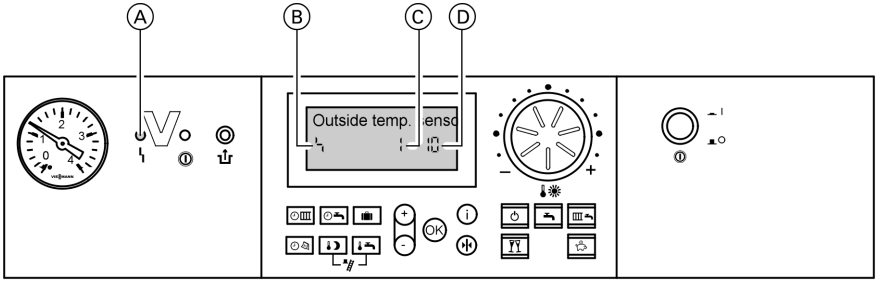
Fault display

Fault display structure

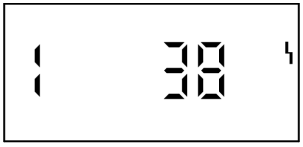


Ⓐ Fault display
Ⓑ Fault symbol
Ⓒ Fault number
Ⓓ Fault code

The red fault indicator flashes for every fault.
A fault in the burner control unit causes the display to show "⚠".

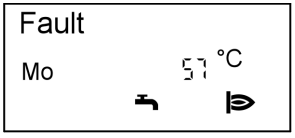
Constant temperature control units

In case of faults, the fault code and fault symbol will be displayed at the programming unit



Weather–compensated control units

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



Plain text fault displays:
- Burner control unit
- Outside temperature sensor
- Flow sensor
- Boiler sensor
- Mixed flow sensor
- DHW cylinder sensor
- Flue gas sensor
- DHW outlet sensor

Fault display (cont.)

- Room temperature sensor
- Fault - user

Checking and acknowledging faults

Note
If an acknowledged fault is not removed, the fault message will be re-displayed after 24 h.

Constant temperature control units

Press the following keys:

1. ⊕/⊖ for further fault codes.

2. OK all fault messages are acknowledged simultaneously, the fault display will be cancelled and the red fault indicator continues to flash.

Weather–compensated control units

Press the following keys:

1. i for the current fault.

2. ⊕/⊖ for further fault messages.

3. OK all fault messages are acknowledged simultaneously, the fault display will be cancelled and the red fault indicator continues to flash.

Calling up acknowledged fault messages

Press the following keys:

1. OK for approx. 3 s.

2. ⊕/⊖ for the acknowledged fault.

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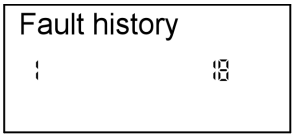
Calling up fault codes from the fault memory (fault history)

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



1. [🔧] + (OK) simultaneously for approx. 2 s
2. ⊕/⊖ for individual fault codes.
3. ***Note***
   All saved fault codes can be deleted with ⊕.
4. (OK) Terminate the scan.

Fault codes

Fault code in the display	Const.	Weath.-comp.	System characteristics	Cause	Remedy
0F	X	X	Control mode	Maintenance	Carry out maintenance. After the maintenance, set code "24:0".
10	X	X	Controls as if the outside temperature was 0 °C	Outside temperature sensor shorted out	Check the outside temperature sensor (see page 79)
18	X	X	Controls as if the outside temperature was 0 °C	Outside temperature sensor lead broken	Check the outside temperature sensor (see page 79)
20	X	X	Regulated without flow temperature sensor (low loss header)	System flow temperature sensor shorted out	Check the low loss header sensor (see page 80)
28	X	X	Regulated without flow temperature sensor (low loss header)	System flow temperature sensor lead broken	Check the low loss header sensor (see page 80)

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Fault codes (cont.)

Fault code in the display	Const.	Weath.-comp.	System characteristics	Cause	Remedy
30	X	X	Burner blocked	Boiler water temperature sensor shorted out	Check the boiler water temperature sensor (see page 80)
38	X	X	Burner blocked	Boiler water temperature sensor lead broken	Check the boiler water temperature sensor (see page 80)
40		X	Mixer closes	Mixer circuit M2 flow temperature sensor shorted out	Check flow temperature sensor
48		X	Mixer closes	Mixer circuit M2 flow temperature sensor lead broken	Check flow temperature sensor
50	X	X	No DHW heating	Cylinder primary temperature sensor shorted out	Check sensors (see page 80)
51	X	X	No DHW heating	Outlet temperature sensor shorted out	Check sensors (see page 80)
58	X	X	No DHW heating	Cylinder primary temperature sensor lead broken	Check sensors (see page 80)
59	X	X	No DHW heating	Draw off temperature sensor short circuit	Check sensors (see page 80)

Fault codes (cont.)

Fault code in the display	Const.	Weath.-comp.	System characteristics	Cause	Remedy
92	X	X	Control mode	Collector temperature sensor shorted out	Check sensor
93	X	X	Control mode	Solar: Sensor S3 shorted out	Check sensor
94	X	X	Control mode	Solar: Cylinder primary temperature sensor shorted out	Check sensor
9A	X	X	Control mode	Collector temperature sensor lead broken	Check sensor
9b	X	X	Control mode	Solar: Sensor S3 lead broken	Check sensor
9C	X	X	Control mode	Solar: Cylinder primary temperature sensor lead broken	Check sensor
9F	X	X	Control mode	Solar control unit fault message	See solar control unit service instructions
A7		X	Control operation as per the delivered condition	Faulty programming unit	Replace programming unit
b0	X	X	Burner blocked	Flue gas temperature sensor short circuit	Check flue gas temperature sensor
b1	X	X	Control operation as per the delivered condition	Communication error programming unit	Check connections and replace the programming unit if required

Fault codes (cont.)

Fault code in the display	Const.	Weath.-comp.	System characteristics	Cause	Remedy
b4	X	X	Controls as if the outside temperature was 0 °C	Internal fault	Replace control unit
b5	X	X	Control operation as per the delivered condition	Internal fault	Replace control unit
b7	X	X	Burner blocked	Boiler coding card fault	Plug in boiler coding card or replace, if faulty
b8	X	X	Burner blocked	Flue gas temperature sensor break	Check flue gas temperature sensor
bA		X	Mixer "Close"	Communication fault – extension kit for heating circuit M2	Check the extension kit connections and coding; start the extension kit
bC		X	Control mode without remote control	Communication fault - Vitotrol remote control, heating circuit A1	Check connections, cable/lead and coding address "A0"
bd		X	Control mode without remote control	Communication fault - Vitotrol remote control, heating circuit M2	Check connections, cable/lead and coding address "A0"
bE		X	Control mode	Vitotrol remote control incorrectly encoded	Check remote control DIP switch setting (see page 105)
bF		X	Control mode	Incorrect LON communication module	Replace the LON communication module

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Fault codes (cont.)

Fault code in the display	Const.	Weath.-comp.	System characteristics	Cause	Remedy
C2	X	X	Control mode	Communication fault - solar control unit	Check the connections and settings of coding address "54"
C5	X	X	Control mode, max. pump speed	Communication error – variable speed internal pump	Check the coding address "30" settings; check the DIP switch settings in the pump wiring chamber: Switch 1: OFF, Switch 2: ON
C6		X	Control mode, max. pump speed	Communication fault - external variable speed heating circuit pump, heating circuit M2	Check the coding address "E5" settings; check the DIP switch settings in the pump wiring chamber: Switch 1: OFF, Switch 2: ON
C7	X	X	Control mode, max. pump speed	Communication fault - external variable speed heating circuit pump, heating circuit A1	Check the coding address "E5" settings; check the DIP switch settings in the pump wiring chamber: Switch 1: ON, Switch 2: OFF
Cd	X	X	Control mode	Communication fault Vitocom 100 (KM BUS)	Check connections, Vitocom 100 and coding address "95"
CE	X	X	Control mode	Communication fault – ext. extension	Check connections and coding address "2E"

Fault codes (cont.)

Fault code in the display	Const.	Weath.-comp.	System characteristics	Cause	Remedy
CF		X	Control mode	Communication fault - LON communication module	Replace the LON communication module
dA		X	Control mode without room influence	Room temperature sensor, heating circuit A1 shorted out	Check the room temperature sensor – heating circuit A1
db		X	Control mode without room influence	Room temperature sensor, heating circuit M2 shorted out	Check the room temperature sensor – heating circuit M2
dd		X	Control mode without room influence	Room temperature sensor, heating circuit A1 lead broken	Check the room temperature sensor, heating circuit A1 and the remote control DIP switch setting (see page 105)
dE		X	Control mode without room influence	Room temperature sensor, heating circuit M2 lead broken	Check the room temperature sensor, heating circuit M2 and the remote control DIP switch setting (see page 105)
E4	X	X	Burner blocked	Fault – supply voltage 24 V	Replace control unit
E5	X	X	Burner blocked	Flame amplifier fault	Replace the control unit.

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Fault codes (cont.)

Fault code in the display	Const.	Weath.-comp.	System characteristics	Cause	Remedy
E6	X	X	Burner fault	Flue gas/ ventilation system blocked	Check the flue gas/ventilation system and differential pressure sensor; press "⇧"
F0	X	X	Burner blocked	Internal fault	Replace control unit
F1	X	X	Burner fault	Flue gas temperature limiter has responded	Check flue gas path/route, press "⇧"
F2	X	X	Burner fault	The temperature limiter has responded	Check the heating system fill level, the circulation pump, the temperature limiter and interconnecting cables/leads; ventilate the system; press "⇧"
F3	X	X	Burner fault	Flame signal is already present at burner start	Check the ionisation electrode and interconnecting leads; press "⇧"
F4	X	X	Burner fault	No flame signal.	Check the ionisation electrode, ignition, ignition module, interconnecting cables and leads, gas pressure, gas combination valve and the ionisation current; press "⇧"
F7	X	X	Burner blocked	Differential pressure sensor faulty	Check differential pressure sensor and lead

Fault codes (cont.)

Fault code in the display	Const.	Weath.-comp.	System characteristics	Cause	Remedy
F8	X	X	Burner fault	The fuel valve closes too late	Check the gas combination valve and both control paths; press "↺"
F9	X	X	Burner fault	Fan speed too low during burner start	Check the fan, fan connecting cables, fan power supply and control; press "↺"
FA	X	X	Burner fault	Fan not at standstill	Check fan, fan connecting cables and fan control; press "↺"
Fd	X	X	Burner blocked	Fault burner control unit	Check the ignition electrodes and connecting cables/leads; check whether there are strong fields of interference (EMC) near the equipment; press "↺". Replace the control unit if the fault persists.
FE	X	X	Burner blocked or in a fault state	Strong interference (EMC) field nearby or faulty main PCB	Start the boiler again. Replace the control unit if the equipment will not restart.
FF	X	X	Burner blocked or in a fault state	Strong interference (EMC) field nearby or internal fault	Start the boiler again. Replace the control unit if the equipment will not restart.

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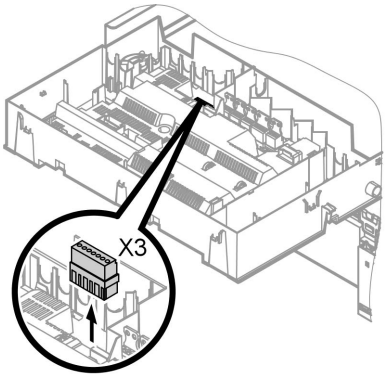
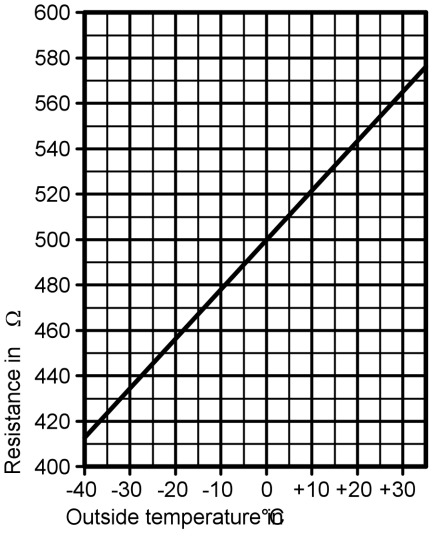
Repairs

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





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

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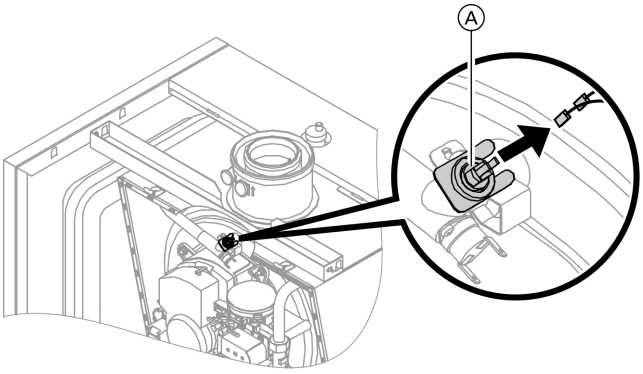
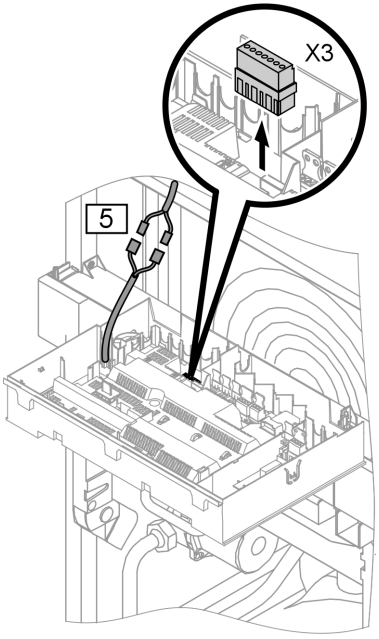
Repairs (cont.)

Check the boiler temperature sensor, cylinder primary temperature sensor or flow temperature sensor for the low loss header

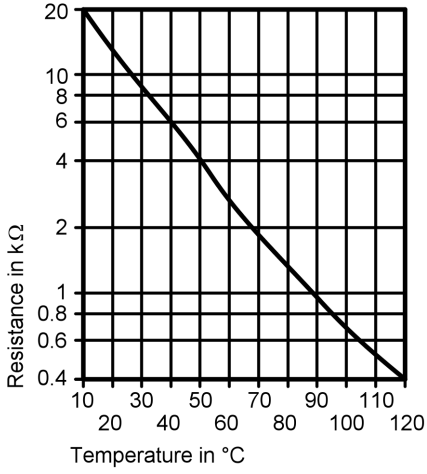


Ⓐ Boiler water temperature sensor

Repairs (cont.)



5 Plug for the cylinder primary temperature sensor



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1. ■ **Boiler water temperature sensor**
   Pull the leads off the boiler temperature sensor and check the resistance.
   ■ **Cylinder primary temperature sensor**
   Pull the plug 5 from the cable harness on the control unit and measure the resistance.
   ■ **Flow temperature sensor**
   Pull plug "X3" off the control unit and measure the resistance across terminals "X3.4" and "X3.5".

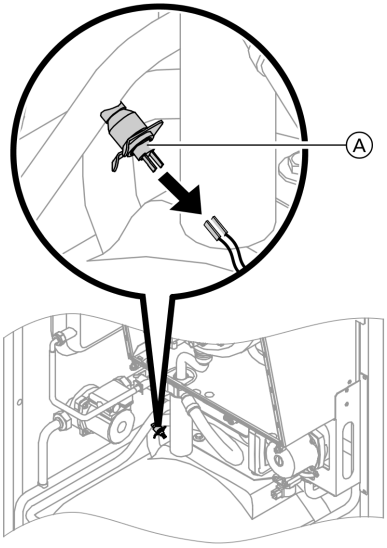
2. Check the sensor resistance and compare the actual values with the curve.

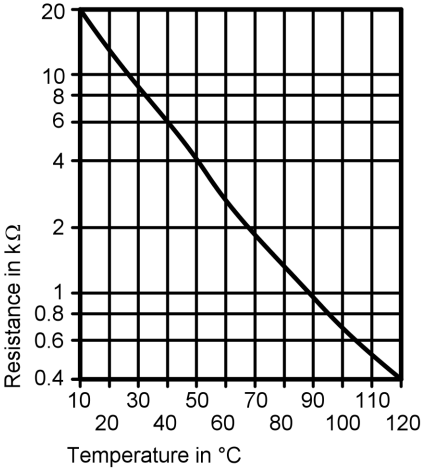
3. Replace the sensor in cases of severe deviation.

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

Repairs (cont.)

Check the outlet temperature sensor





1. Pull the leads off the outlet temperature sensor Ⓐ.
2. Check the sensor resistance and compare it with the curve.
3. Replace the sensor in cases of severe deviation.

Danger
The outlet temperature sensor is immersed in the DHW (risk of scalding).
Drain the secondary side of the boiler before replacing the sensor.

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 gas system has cooled down by pressing the reset button "⇧".

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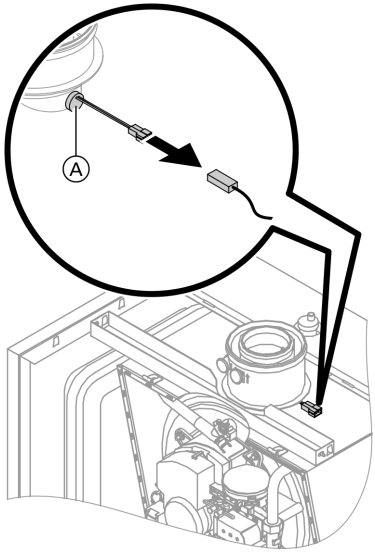
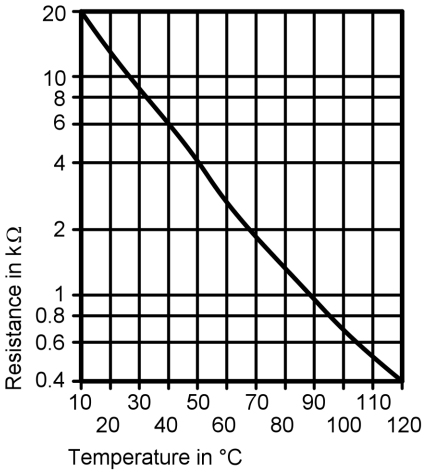
Repairs (cont.)



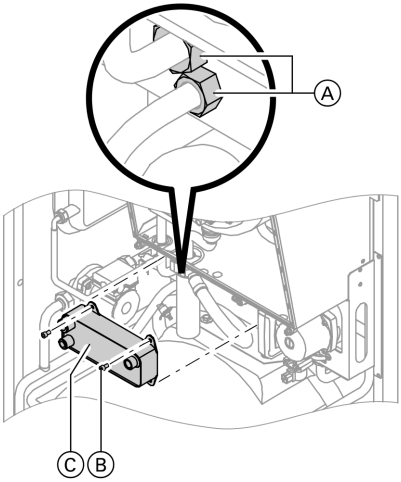


1. Pull the leads off the flue gas temperature sensor Ⓐ.
2. Check the sensor resistance and compare it with the curve.
3. Replace the sensor in cases of severe deviation.

Checking the plate-type heat exchanger

Drain the primary and secondary side of the boiler.
During removal, small amounts of water may trickle out and escape from the removed plate-type heat exchanger.

Repairs (cont.)



Ⓐ Compression fittings
Ⓑ Screws
Ⓒ Plate-type heat exchanger

1. Shut off and drain the boiler on the primary and the secondary side.
2. Release the side closures and pivot the control unit forward.
3. Remove the siphon.
4. Release the compression fittings Ⓐ, screws Ⓑ and pull out the plate-type heat exchanger Ⓒ.
5. Check the primary and secondary connections for contamination and scaling; if necessary, replace the plate-type heat exchanger.
6. Lubricate the new gaskets/seals. Install in reverse order with new gaskets.

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 temperature limiter.

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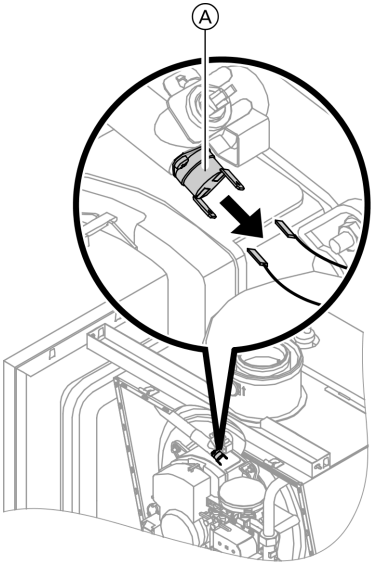
Repairs (cont.)



1. Pull the leads off the temperature limiter.
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.
5. After commissioning, press reset button "⇫" on the control unit.

Checking and replacing the differential pressure sensor

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

- Correct installation
- Electrical connection
- Correct position of the O-rings inside the adaptor
- Plugs in test nipples

Replace the sensor if fault messages persist.

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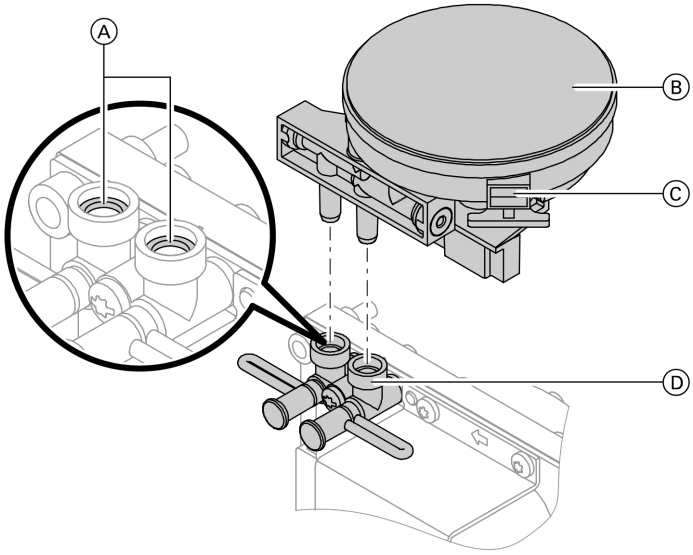
Repairs (cont.)

Checking O-rings:



Ⓐ O-rings
Ⓑ Sensor
Ⓒ Plug-in connection
Ⓓ Adaptor

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

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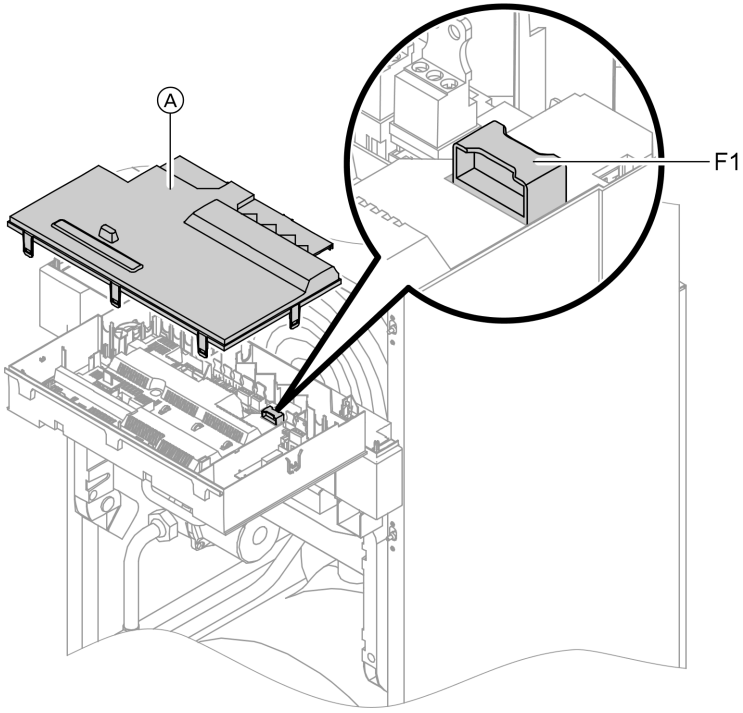
Repairs (cont.)

Checking the fuse



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

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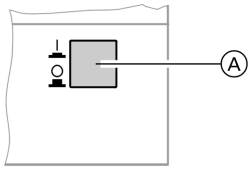
Repairs (cont.)

Extension kit for heating circuit with mixer

Checking the rotational direction of the mixer motor

1.



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

Standard control mode then recommences.

2. Observe 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 falls, either the motor is turning in the wrong direction or the mixer set is incorrectly fitted.

Mixer installation instructions

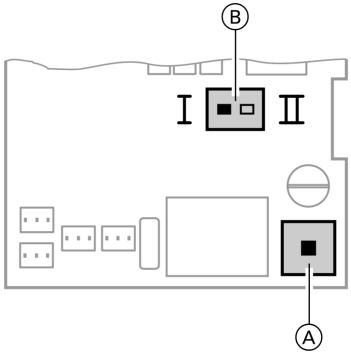
Changing the rotational direction of the mixer motor (if required)

1. **Danger**
An electric shock can be life-threatening.
When opening the equipment, switch OFF the ON/OFF switch and mains voltage, for example at the fuse or the mains isolator.

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

Extension kit installation instructions

3.



Ⓐ ON/OFF switch
Ⓑ Rotational direction switch
Change the rotational direction switch:

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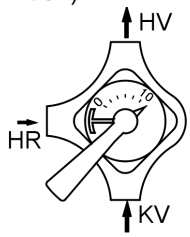
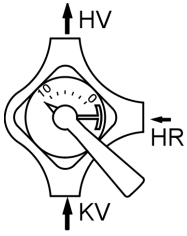
Repairs (cont.)

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



- Switch position II for central heating return from the right.

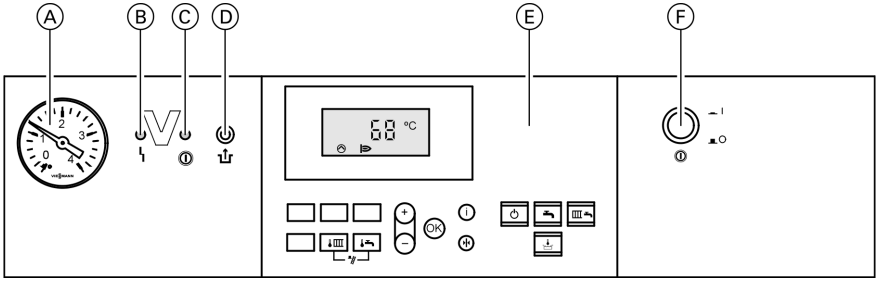


Checking the Vitotronic 050 (accessories)

The Vitotronic 050 is connected with the control unit via the LON connecting cable. To test the connection, implement a user check at the boiler control unit (see page 37).

Constant temperature control unit

Controls and display elements



Ⓐ Pressure gauge
Ⓑ Fault display (red)
Ⓒ ON indicator (green)
Ⓓ Reset button

Ⓔ Control panel:
- Set boiler water temperature
- Set DHW temperature
- Emissions test function
- Standby mode:
- DHW only
- Heating and DHW
- No function
- ⊖/⊕ Setting values
- OK Confirmation
- i Information
- Standard setting (Reset)

Ⓕ ON/OFF switch

Heating mode

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

The boiler water temperature will be limited:
- to 74 °C by the thermostat inside the burner control unit.
- to 82 °C by the electronic temperature limiter inside the burner control unit (during DHW heating to 87 °C).
- to 100 °C by the temperature limiter in the safety chain (interlocks the burner control unit).

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Constant temperature control unit (cont.)

Heating the DHW storage cylinder from cold

The heating circuit pump is switched ON and the three-way diverter valve will be changed over, if the cylinder primary temperature sensor captures a temperature lower than the set temperature.

- At a boiler water temperature ≥ set DHW temperature, the cylinder primary pump will be switched ON.
- At a boiler water temperature ≤ set DHW temperature, the burner will be switched ON and, after the required boiler water temperature has been reached, the cylinder primary pump will be switched ON.

The cylinder is then heated up to the set DHW temperature. Heating stops when the set temperature has been reached at the cylinder primary temperature sensor and at the outlet temperature sensor.
After heating, the cylinder primary pump and the three-way diverter valve remain ON for a further 30 s.

Reheating when DHW is drawn off

When DHW is drawn off, cold water enters at the bottom of the cylinder. The heating circulation pump is switched ON and the three-way diverter valve is changed over, if the cylinder primary temperature sensor captures a temperature lower than the set temperature.

- At a boiler water temperature ≥ set DHW temperature, the cylinder primary pump will be switched ON.
- At a boiler water temperature ≤ set DHW temperature, the burner will be switched ON and, after the required boiler water temperature has been reached, the cylinder primary pump will be switched ON.

The DHW is regulated to the set temperature via the cylinder primary temperature sensor.
The cylinder continues to be heated up after the draw-off process has ended, until the set DHW temperature has been reached at the cylinder primary temperature sensor.
The cylinder primary pump and the three-way diverter valve remain ON for a further 30 s.

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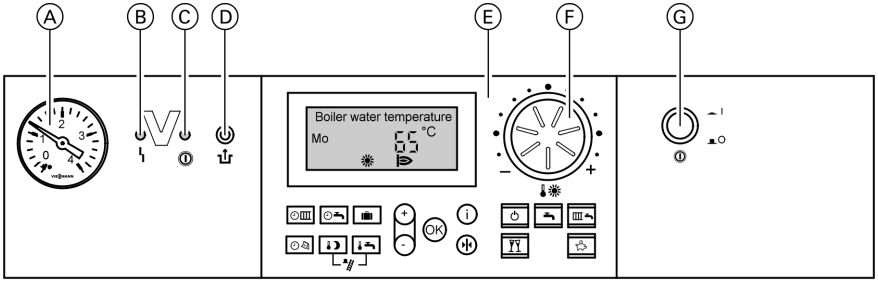
Weather–compensated control unit

Controls and display elements



Ⓐ Pressure gauge
Ⓑ Fault display (red)
Ⓒ ON indicator (green)
Ⓓ Reset button

Ⓔ Control panel:
- Time program, central heating
- Time program DHW heating/DHW circulation pump (if connected to the control unit)
- Holiday mode
- Date/time
- Reduced room temperature
- Set DHW temperature
- + Emissions test function
- Standby mode:
- DHW only
- Heating and DHW
- Party mode
- Economy mode
- ⊖/⊕ Setting values
- OK Confirmation
- i Information
- Standard setting (Reset)

Ⓕ Rotary selector for the standard room temperature
Ⓖ ON/OFF switch

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Weather–compensated control unit (cont.)

Heating mode

The control unit determines a set boiler water temperature subject to the outside temperature or room temperature (if a room temperature-dependent remote control is connected) and the slope/level of the heating curve. The determined set boiler water temperature is 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 boiler water temperature will be limited:
- to 74 °C by the thermostat inside the burner control unit.
- to 82 °C by the electronic temperature limiter inside the burner control unit (during DHW heating to 87 °C).
- to 100 °C by the temperature limiter in the safety chain (interlocks the burner control unit).

Heating the DHW storage cylinder from cold

The heating circuit pump is switched ON and the three-way diverter valve will be changed over, if the cylinder primary temperature sensor captures a temperature lower than the set temperature.
- At a boiler water temperature ≥ set DHW temperature, the cylinder primary pump will be switched ON.
- At a boiler water temperature ≤ set DHW temperature, the burner will be switched ON and, after the required boiler water temperature has been reached, the cylinder primary pump will be switched ON.

The cylinder is then heated up to the set DHW temperature. Heating stops when the set temperature has been reached at the cylinder primary temperature sensor and at the outlet temperature sensor.
After heating, the cylinder primary pump and the three-way diverter valve remain ON for a further 30 s.

Reheating when DHW is drawn off

When DHW is drawn off, cold water enters at the bottom of the cylinder.

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Weather–compensated control unit (cont.)

The heating circulation pump is switched ON and the three-way diverter valve is changed over, if the cylinder primary temperature sensor captures a temperature lower than the set temperature.

- At a boiler water temperature ≥ set DHW temperature, the cylinder primary pump will be switched ON.
- At a boiler water temperature ≤ set DHW temperature, the burner will be switched ON and, after the required boiler water temperature has been reached, the cylinder primary pump will be switched ON.

The DHW is regulated to the set temperature via the cylinder primary temperature sensor.
The cylinder continues to be heated up after the draw-off process has ended, until the set DHW temperature has been reached at the cylinder primary temperature sensor.
The cylinder primary pump and the three-way diverter valve remain ON for a further 30 s.

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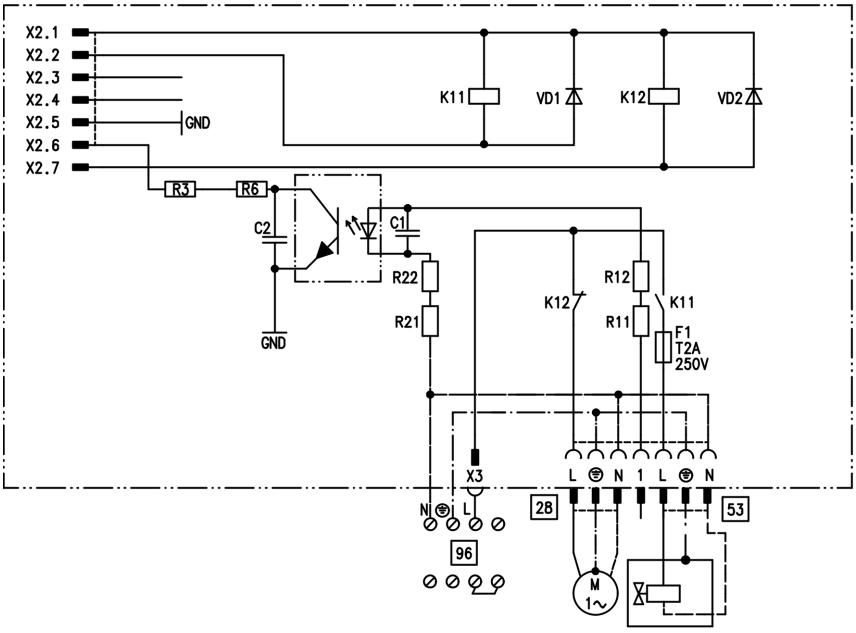
Extensions for external connections

Internal extension H1

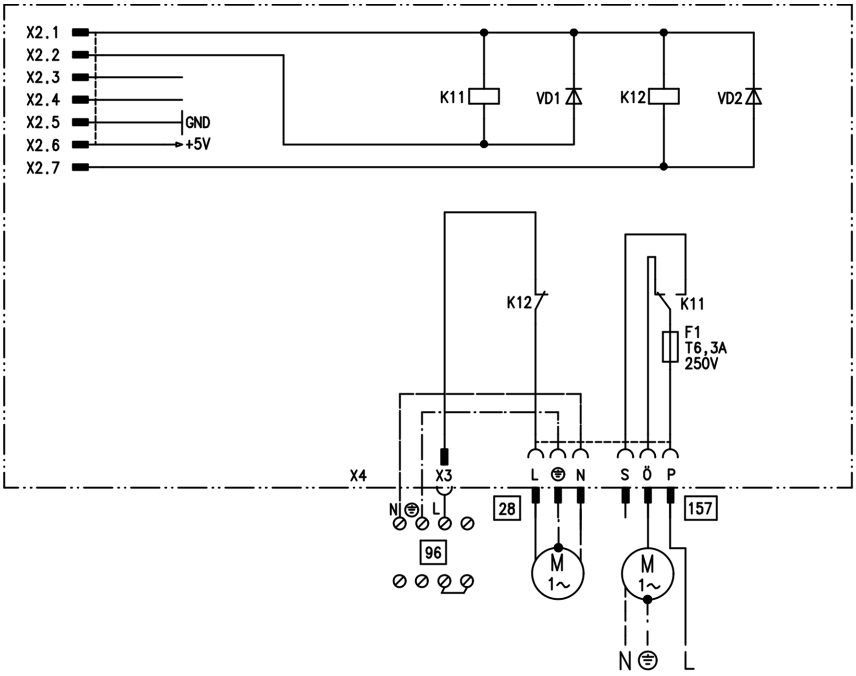


The internal extension H1 is integrated into the control unit casing. The cylinder primary pump is connected to relay output 28.

An external safety valve can be connected to 53.

Extensions for external connections (cont.)

Internal extension H2 (accessories)



The internal extension H2 is integrated into the control unit casing instead of the internal extension H1. The cylinder primary pump is connected to relay output [28].

An external extractor fan interlock can be connected to [157].

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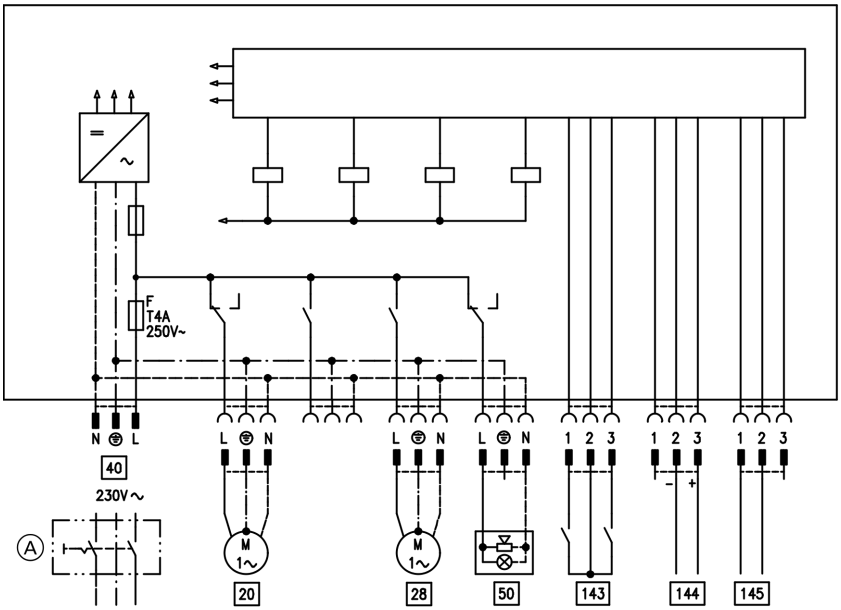
Extensions for external connections (cont.)

External extension H1 (accessories)



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

- Ⓐ Mains isolator (on site)
- [20] Heating circuit pump for the heating circuit without mixer
- [28] DHW circulation pump
- [40] Power supply
- [50] Central fault message
- [143] ■ External blocking (terminals 2 - 3)
  ■ External demand (terminals 1 - 2)
  ■ External heating program changeover (terminal 1 - 2)
  The allocation of function "External heating program changeover" is set via coding address "91".
- [144] External set value 0 to 10 V
- [145] KM BUS

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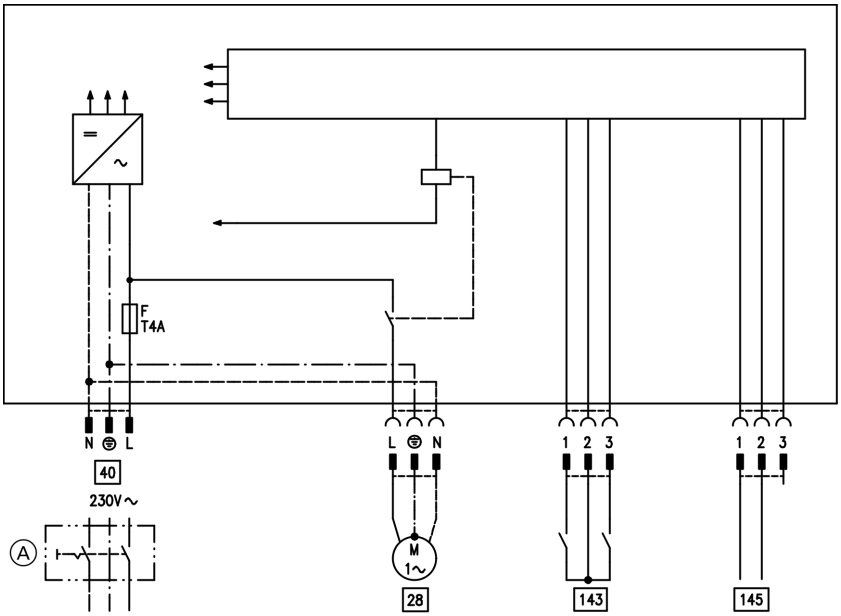
Extensions for external connections (cont.)

External extension H2 (accessories)



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

- Ⓐ Mains isolator (on site)
- 28 DHW circulation pump
- 40 Power supply
- 143
  - External blocking (terminals 2 - 3)
  - External demand (terminals 1 - 2)
  - External heating program changeover (terminal 1 - 2)
    The allocation of function "External heating program changeover" is set via coding address "91".
- 145 KM BUS

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Control functions

External heating program changeover

The "Ext. heating program changeover" function is connected via the external extension input "143". Coding address "91" enables the selection of which heating circuits the heating program changeover should affect:

The heating program changeover affects:	Coding
No changeover	91:0
Heating circuit without mixer (A1)	91:1
Heating circuit with mixer (M2)	91:2
Heating circuit without mixer and heating circuit with mixer	91:3

With coding address "d5", you can select in which direction the changeover should be made for each heating circuit:

The heating program changeover affects:	Coding
Changeover in the direction of "Constant reduced" or "Constant standby" mode (respectively in accordance with 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".

The heating program changeover affects:	Coding
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 remains active for as long as the contact remains closed, in any case at least as long as the duration selected in coding address "F2".

External blocking

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

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

Control functions (cont.)

External demand

The "External demand" function is connected via the external extension input "143".
In coding address "34" you can select the influence the signal "External demand" should have on the connected circulation pumps.

In coding address "9b" you can select the minimum set boiler water temperature in case of external demand.

Venting program

During the venting program, the circulation pump will be alternately switched ON and OFF for 30 seconds respectively over a period of 20 minutes.
For a certain period, the changeover valve is alternately set towards heating mode and DHW heating.

The burner is switched OFF during the venting program.
The venting program is activated via coding "2F:1". The program is automatically deactivated after 20 min, and the coding address "2F" is set to "0".

Filling program

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

Afterwards, the changeover valve can be moved via coding address "2F:2" into the centre position. In this position, the control unit can be switched OFF, and the 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 changeover will be moved to its centre position via code "2F:2" and the pump will be started.

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

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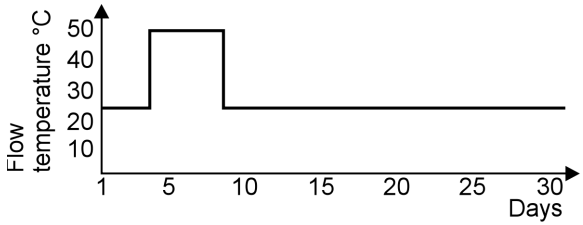
Control functions (cont.)

Screed function

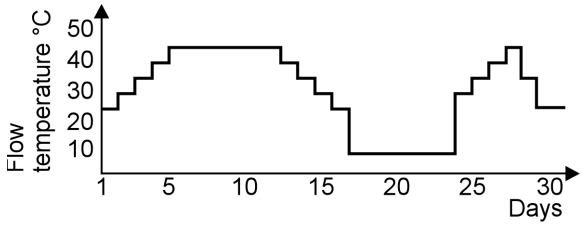
The screed function enables the drying of screed. For this, always observe the details specified by the screed manufacturer.

You can select various temperature profiles.

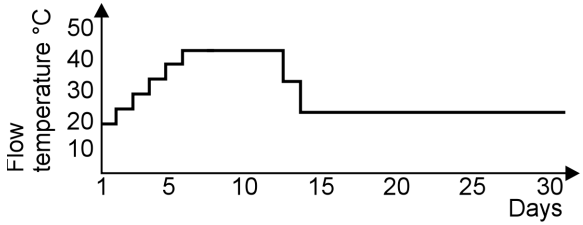
Temperature profile: Diagram 1 (DIN 4725 part 4) code "F1:1"



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



Temperature profile: Diagram 3 code "F1:3"



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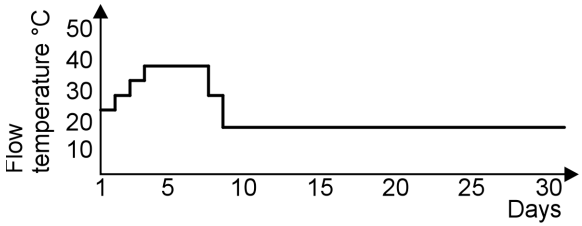
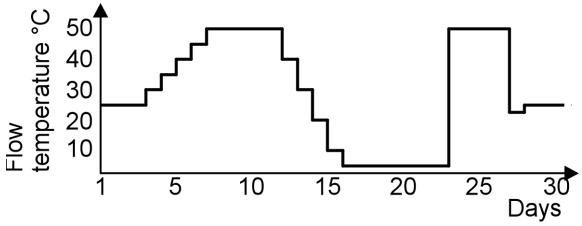
Control functions (cont.)

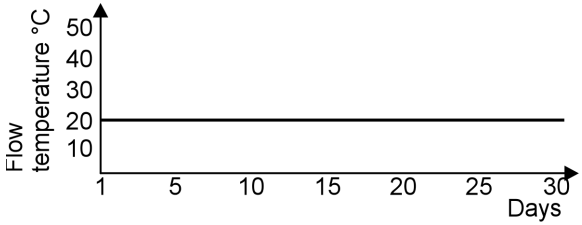
Temperature profile: Diagram 4 code "F1:4"



Temperature profile: Diagram 5 code "F1:5"



Temperature profile: Diagram 6 code "F1:6" (delivered condition)



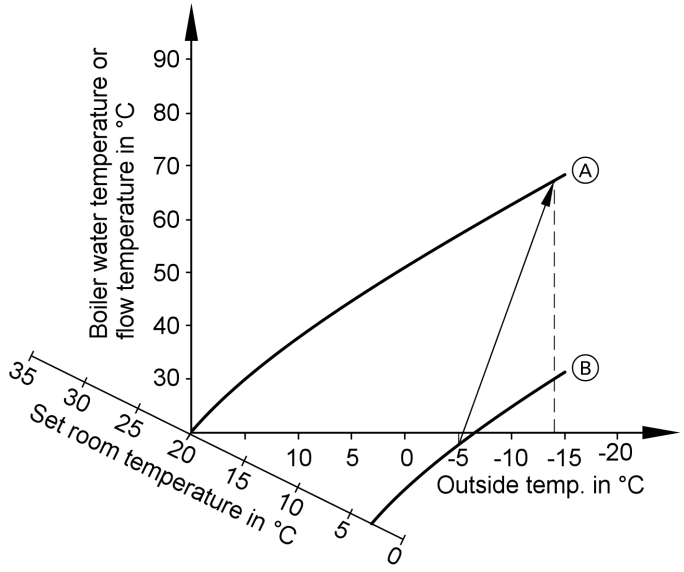
Control functions (cont.)

Raising the reduced room temperature

During operation with reduced room temperature, the reduced set room temperature can be automatically raised subject to outside temperature. The temperature is raised in accordance with the selected heating curve up to the set standard room temperature.

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

Example using the settings in the delivered condition



Ⓐ Heating curve for operation with standard room temperature

Ⓑ Heating curve for operation with reduced room temperature

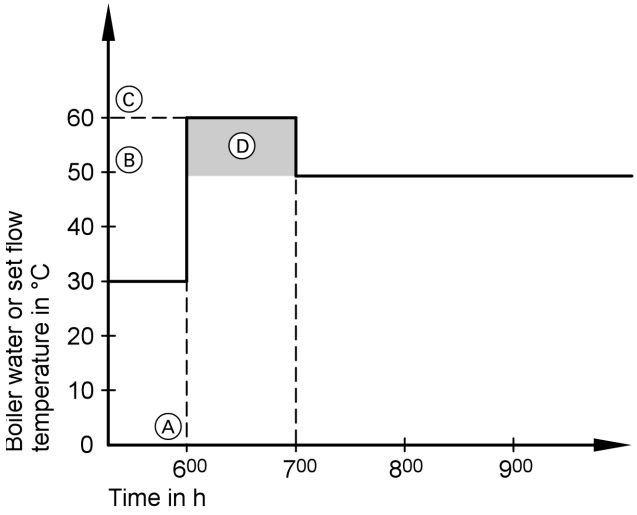
Control functions (cont.)

Reducing the heat-up time

During the transition from operation with reduced room temperature into 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 for the additional increase of the set boiler water temperature or flow temperature can be adjusted in the coding addresses "FA" and "Fb".

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 °C + 20 % = 60 °C

Ⓓ Duration of operation with raised boiler water or flow temperature in accordance with coding address "Fb":
60 min

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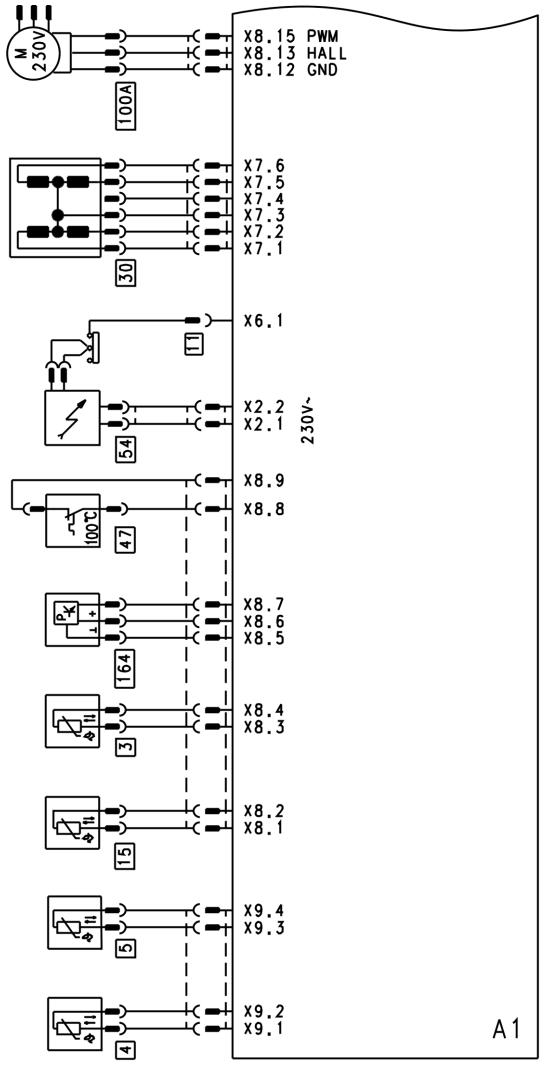
Remote control DIP switch

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

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

Connection and wiring diagram – internal connections



A1 Main PCB
X... Electrical interfaces
3 Boiler water temperature sensor
4 Draw-off temperature sensor
5 Cylinder temperature sensor
11 Ionisation electrode
15 Flue gas temperature sensor
30 Stepper motor for diverter valve

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

47	Thermocouple	100A	Fan motor
54	Ignition device	164	Differential pressure sensor

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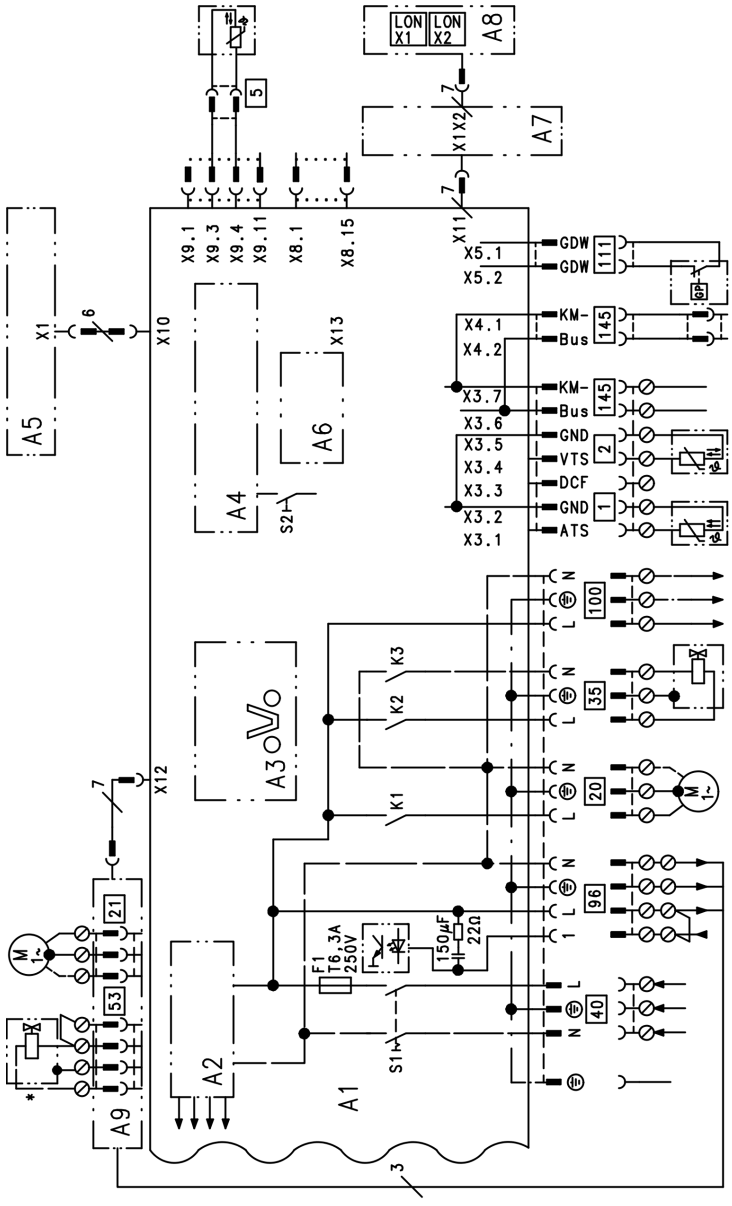
Connection and wiring diagram – external connections



A1 Main PCB A2 Power supply unit

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

A3 Optolink
A4 Burner control unit
A5 Programming unit
A6 Coding card
A7 Connection adaptor
A8 Communication module LON
A9 Internal extension H1 or H2
S1 ON/OFF switch
S2 Reset button
X... Electrical interfaces
[1] Outside temperature sensor
[2] Flow temperature sensor - low loss header
[5] Cylinder temperature sensor
[20] Internal circulation pump
[28] Primary pump
[35] Gas solenoid valve
[40] Power supply
[96] Power supply accessories and Vitotrol 100
[100] Fan motor
[111] Gas governor
[145] KM BUS

Parts lists

Spare parts information
Quote the part and serial no. (see type plate) and the item no. of the required part (as per this parts list).
Obtain standard parts from your local supplier.

001 Heat exchanger connecting pipe with gaskets
002 Flow pipework
003 DHW connecting pipe
004 DHW connecting pipe
005 Cylinder connecting pipe
006 Return connecting pipe
007 Gas connection flange
008 Stratification storage cylinder
009 Siphon
010 Condensate hose
012 Heat exchanger
013 Cap plate (with item 014)
014 Profiled gasket
015 Clip nut
016 Mounting bracket closure
017 Boiler adaptor
018 Plug
019 Air inlet gasket Ø 125
020 Lip seal Ø 80
021 Boiler connection grommets
022 Connecting pipe - diaphragm expansion vessel
023 Diaphragm expansion vessel
024 Pressure gauge and fem. connection
025 Quick-acting air vent valve G ⅜"
026 Overflow valve
027 Safety valve
028 Air vent valve G ⅜"
029 Linear stepper motor
030 Non-return valve
031 Ball valve R ½" with handle
033 Flat packing
034 Set of plug connector retainers
035 Safety spring
036 Plate-type heat exchanger
037 Gasket set – plate-type heat exchanger
040 Grommets (set)
051 Burner (with items 050, 052 to 064)
052 Ignition unit
055 Burner gauze
056 Radial fan
057 Pressure transmitter
058 Gas train
059 Conversion kit for natural gas E (gas restrictor)
060 Conversion kit for natural gas LL (gas restrictor)
061 only for 26 kW: Conversion kit for LPG P (gas restrictor)
064 Burner gauze gasket
069 DHW connecting pipe
100 Control unit
101 Back cover
102 Locking clips (10 pieces)
103 Support
104 Pivot arm
105 Hinge pins (10 pieces)
106 Flap
107 Pressure gauge retainer
108 Clip (10 pieces)
109 Hinge (10 pieces)
110 Boiler coding card
111 Fuse 6.2 A s (10 pieces)
112 Programming unit for constant temperature operation
113 Programming unit for weather-compensated mode
122 LON communication module (accessories)
123 PCB adaptor – LON module (accessories)

Parts lists (cont.)

125 Fuse holder
151 Outside temperature sensor
152 Cylinder temperature sensor
153 Flue gas temperature sensor
154 Thermocouple
155 Temperature sensor
200 Side panels
201 Top front panel
202 Back top panel
203 Front top panel
204 Front bottom panel
205 Tie-bar
206 Adjustable foot
300 Circulation pump motor
301 Circulation pump motor
352 Gasket
354 Anode flange with gasket
355 Thermal insulation – flange

Wearing parts
050 Burner gasket
053 Ignition electrode with gasket
054 Ionisation electrode with gasket
353 Magnesium anode Ø = 26 × 280/250

Parts not shown
032 Gasket set – plug-in connector
038 Special grease
039 Heat conducting paste
062 Burner maintenance set
063 Set of small burner parts
065 Pressure sensor adaptor
115 Ionisation current test lead adaptor
116 Cable harness X8/X9
117 Cable harness 100/35/54 (auxiliary earth)
118 Stepper motor connecting cable
119 Cable harness ionisation/KM BUS (internal)
120 Internal ionisation lead
126 Mating plug
127 Cable fixing
128 Anti-splash protection
207 Fixing elements
208 Touch-up paint stick, Vitowhite
209 Touch-up spray paint, Vitowhite
350 Seal washer
351 Strain relief
400 Operating instructions for constant temperature operation
401 Operating instructions for weather-compensated operation
403 Installation instructions
404 Service instructions
Ⓐ Type plate

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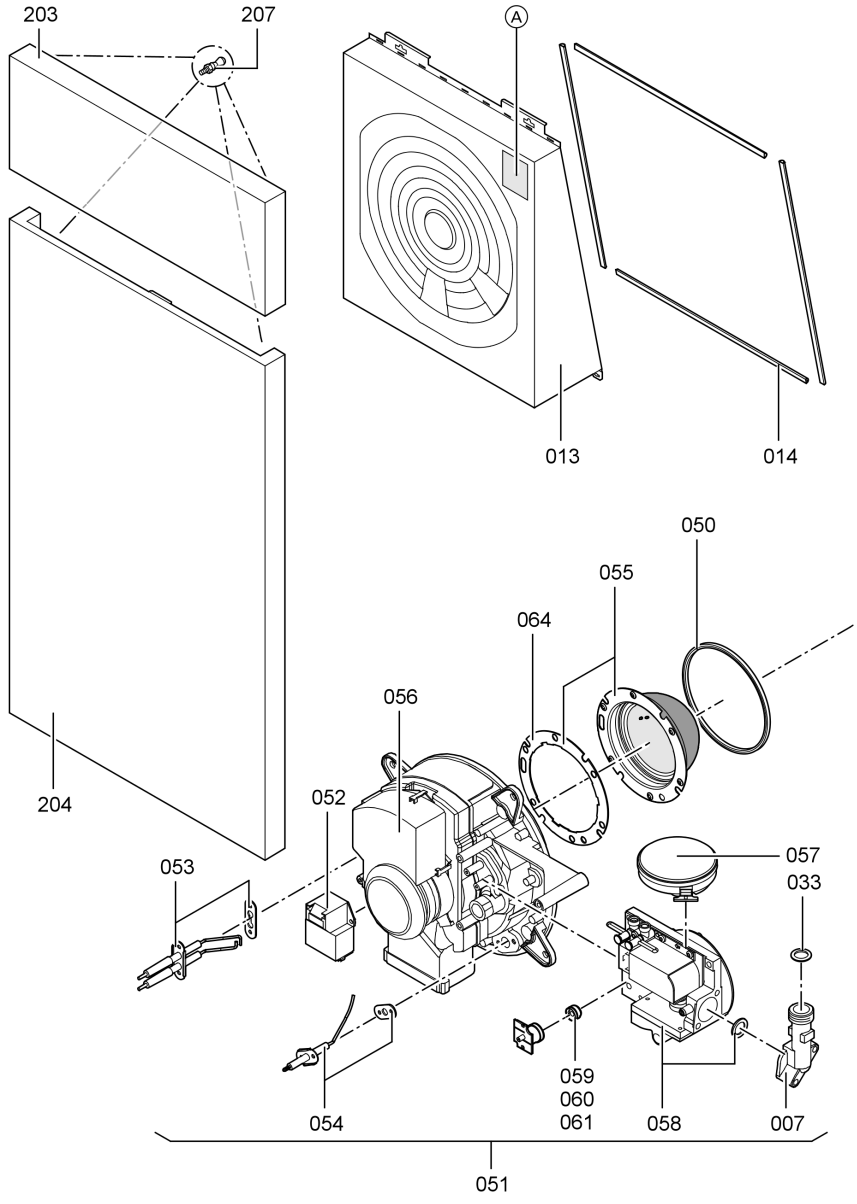
Parts lists (cont.)



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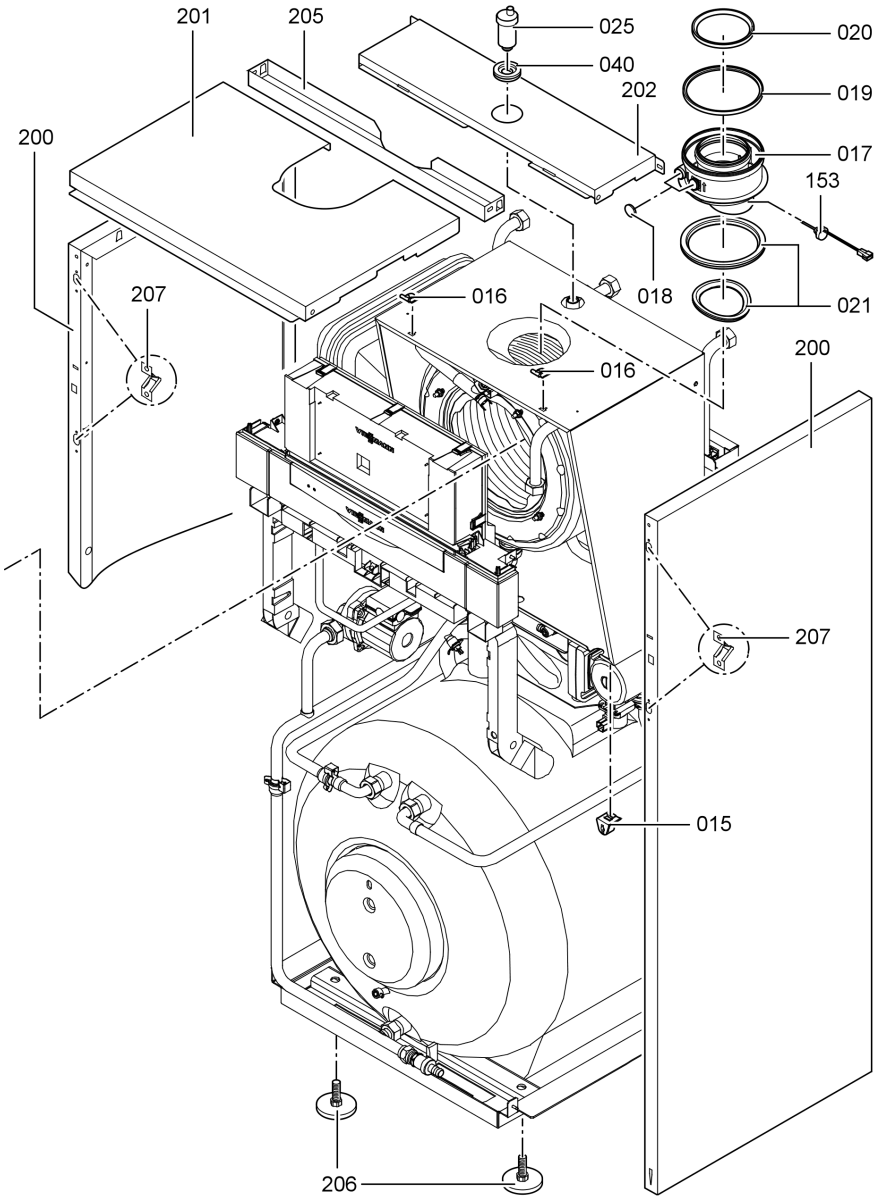
Parts lists (cont.)



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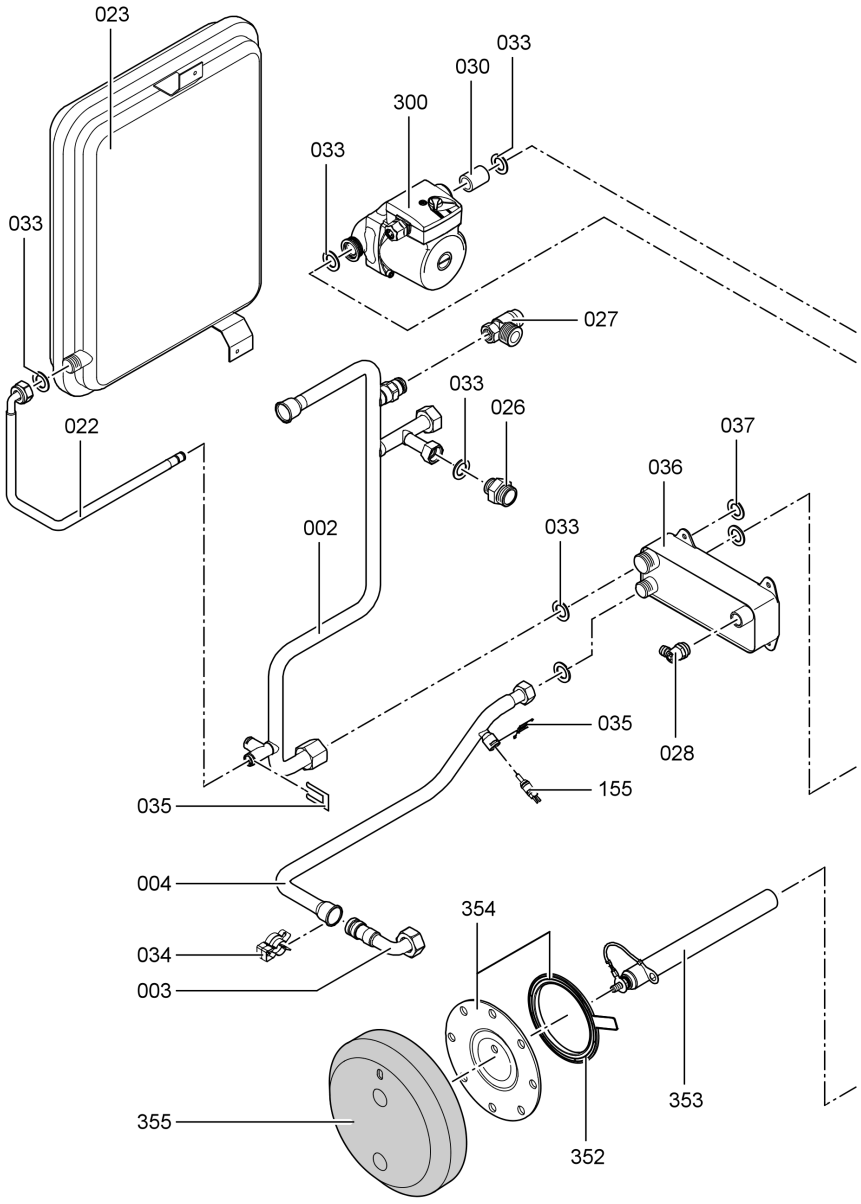
Parts lists (cont.)



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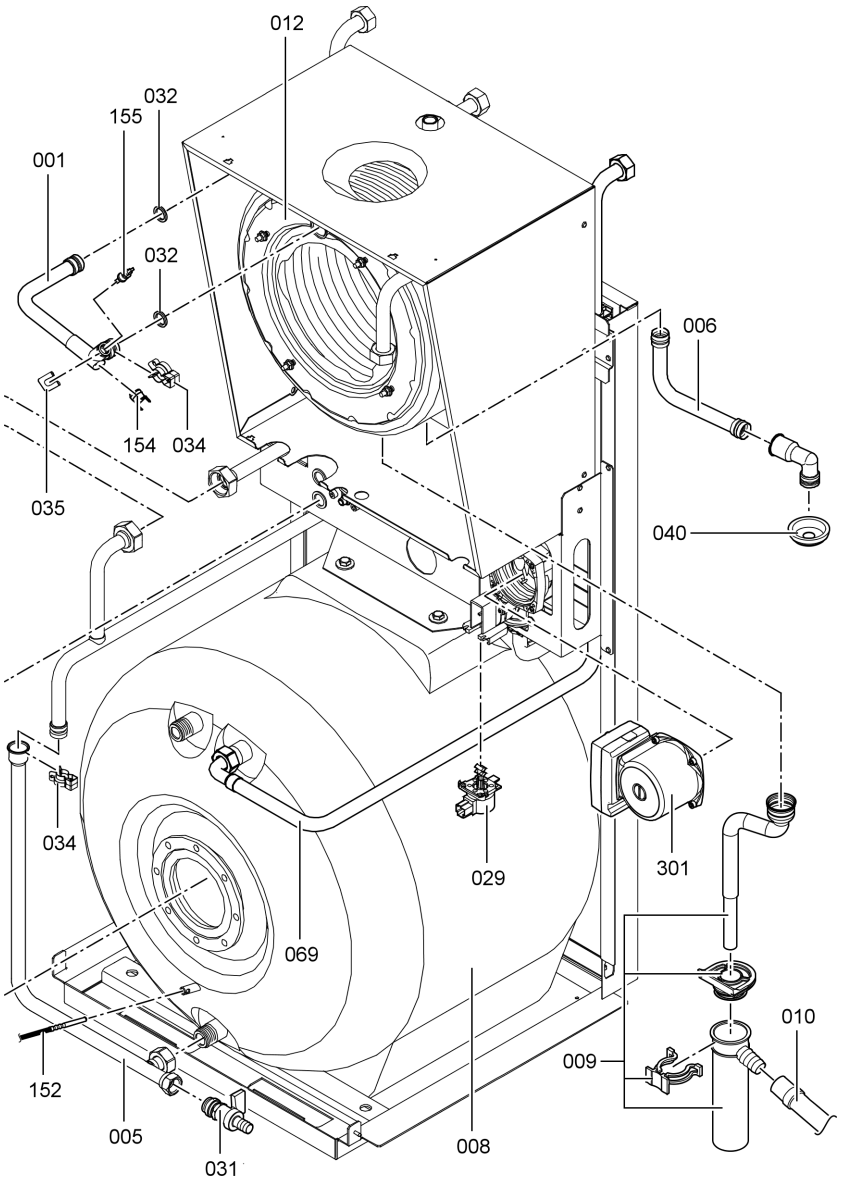
Parts lists (cont.)



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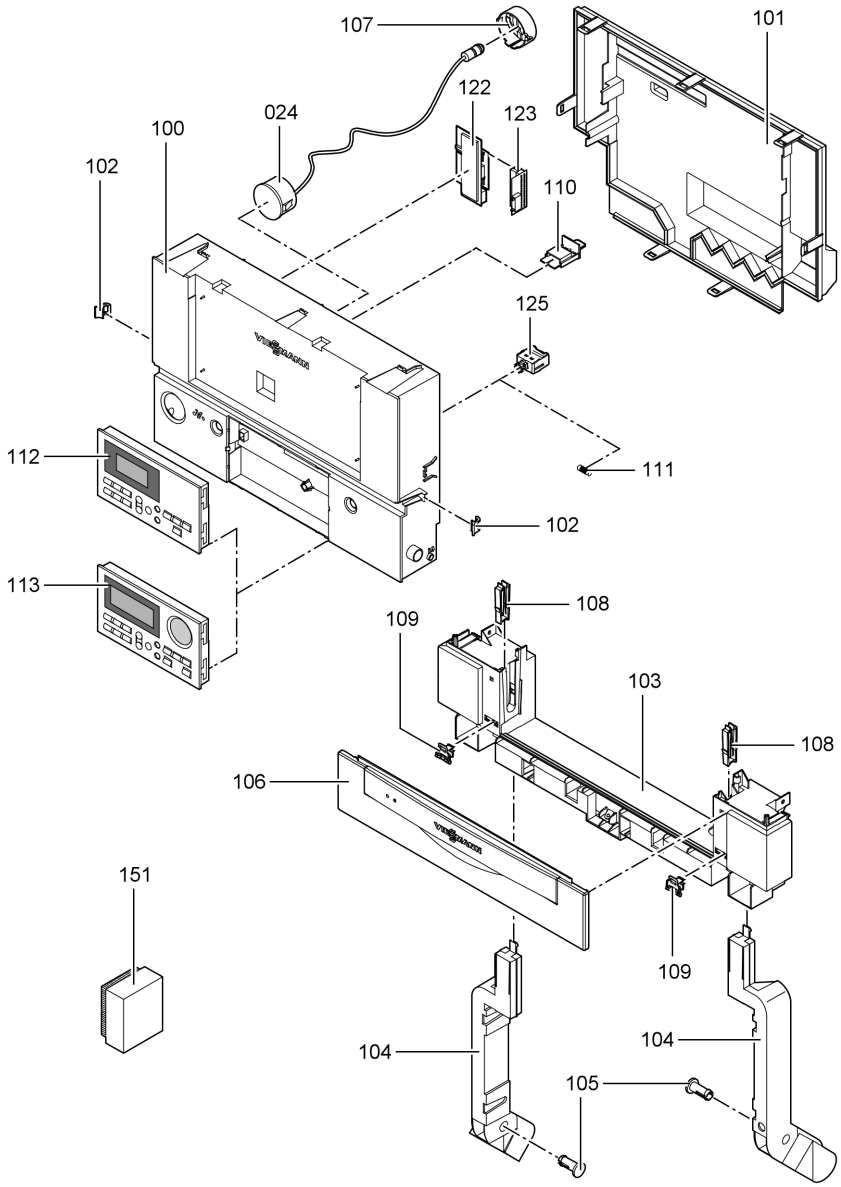
Parts lists (cont.)



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Commissioning/service reports

Setting and test values	Date: By:	Set value	Initial start-up	Maintenance/service
Static pressure	*mbar*	max. 57.5 mbar		
Supply pressure (flow pressure)				
☐ for natural gas E	*mbar*	17.4-57.5 mbar		
☐ for natural gas LL	*mbar*	17.4-57.5 mbar		
☐ for LPG	*mbar*	42.5-57.5 mbar		
Tick gas type				
Carbon dioxide content CO_2				
■ at the lower rated output	*% vol.*			
■ at the upper rated output	*% vol.*			
Oxygen content O_2				
■ at the lower rated output	*% vol.*			
■ at the upper rated output	*% vol.*			
Carbon monoxide content CO				
■ at the lower rated output	*ppm*			
■ at the upper rated output	*ppm*			
Ionisation current	*µA*	min. 2 µA		

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Specification

Rated voltage	230 V~
Rated frequency	50 Hz~
Rated current	6 A~
Protection class	I
Protection	IP X 4 D to EN 60529
Permissible ambient temperature	
■ during operation	0 to +40 °C
■ during storage and transport	-20 to +65 °C
Electronic temperature limiter setting:	82 °C
Temperature limiter setting	100 °C (fixed)
Line fuse (mains)	max. 16 A
Power consumption	
■ Circulation pump	max. 115 W
■ Burner	max. 60 W
■ Control unit	max. 10 VA

Gas fired boiler, category 13 kW: I_{2ELL}, category 26 kW: II_{2ELL3P}

Rated output Tv/TR 50/30 °C		**kW**	**4.2 to 13**	**6.6 to 26**
Rated output range				
for central heating		kW	3.9 to 12.3	6.3 to 24.7
for DHW heating		kW	3.9 to 16.7	—
Connection values *1				
Relative to the max. load				
with:	with H_{uB}			
Natural gas E	9.45 kWh/m³	m³/h	1.77	2.65
	34.02 MJ/m³	l/min		
Natural gas LL	8.13 kWh/m³	m³/h	2.05	3.08
	29.25 MJ/m³	l/min		
LPG	12.79 kWh/kg	m³/h	—	1.94
	46.04 MJ/kg			
Product ID			CE-0085	

Product characteristics (to EnEV [Germany])

Rated output range	kW	4.2 to 13	6.6 to 26
Efficiency μ at			
■ 100 % of rated output	%	96.0	96.3
■ 30% of rated output	%	107.4	107.4
Standby heat loss $q_{B,70}$*2	%	0.8	0.7
Power consumption*2 at			
■ 100 % of rated output	W	207	207
■ 30 % of rated output	W	69	69

*1 *The supply values are only for reference (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.*

*2 *Max. limit to EnEV [Germany]*

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Declaration of conformity

Declaration of conformity for the Vitodens 333

We, Viessmann Werke GmbH & Co KG, D-35107 Allendorf, confirm as sole responsible body that the product **Vitodens 333** complies with the following standards:

DIN 4702–6
DIN 4753
EN 483
EN 625
EN 677
EN 50 165
EN 60 335
EN 61 000-3-2
EN 61 000-3-3

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

90/396/EEC
89/336/EEC
73/ 23/EEC
92/ 42/EEC
97/23/EC

EC Declaration of conformity by an authorised body according to EMVG article 10.2 Certificate number: E9 02 08 1730.
This product meets the requirements of the Efficiency Directive (92/42/EEC) for **Condensing boilers**.
The product characteristics determined as system values for the **Vitodens 333 as part of EC type testing according to the Efficiency Directive (see specification table)** can be used for the energy assessment of heating and ventilation equipment to DIN V 4701–10.

Allendorf 12.07.05

Viessmann Werke GmbH&Co KG

pp. Manfred Sommer

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

We, Viessmann Werke GmbH & Co KG, D-35107 Allendorf, confirm that the **Vitodens 333** product meets the NO_x limits specified by the first BImSchV § 7 (2) [Germany].

Allendorf 12.07.05

Viessmann Werke GmbH&Co KG

pp. Manfred Sommer

Keyword index

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Keyword index (cont.)

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Applicability

Compact gas fired condensing boiler
Type WS3A
4.2 to 13 kW
from serial no.
7190 613 ...
6.6 to 26 kW
from serial no.
7190 614 ...

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5692 619 GB Subject to technical modifications.