

# Service instructions

for contractors

**VIESSMANN**

## **Vitodens 333-F**

### **Type WS3A**

Compact gas fired condensing boiler  
6.6 to 26 kW natural gas and LPG version

*For applicability, see the last page*



## **VITODENS 333-F**



## Safety instructions



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

### Safety instructions explained



#### **Danger**

This symbol warns against the risk of injury.



#### **Please note**

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

### **Note**

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

### **Target group**

These instructions are exclusively designed for qualified personnel.

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

### **Regulations**

Observe the following when working on this system

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

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

### **If you smell gas**



#### **Danger**

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

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

### **If you smell flue gas**



#### **Danger**

Flue gas can lead to life-threatening poisoning.

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

## Safety instructions (cont.)

### Working on the system

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



#### **Please note**

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

### Repair work



#### **Please note**

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

### Ancillary components, spare and wearing parts



#### **Please note**

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

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## Steps - commissioning, inspection and maintenance

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

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## Further details regarding the individual steps

### Filling the heating system



#### Please note

- Unsuitable fill water increases the level of deposits and corrosion and may lead to boiler damage.
- Thoroughly flush the entire heating system prior to filling it with water.
- Only use fill water of potable quality.
- Soften fill water with hardness exceeding 3.0 mmol/l e.g. use a small softening system for heating water (see Vitoset price list).
- An antifreeze 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).
4. If the control unit was already switched ON before filling began: Switch ON the control unit and activate the filling program via code "2F:2".

#### Note

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

#### Note

*To call up coding level 1 and for setting the coding address, see page 41.*

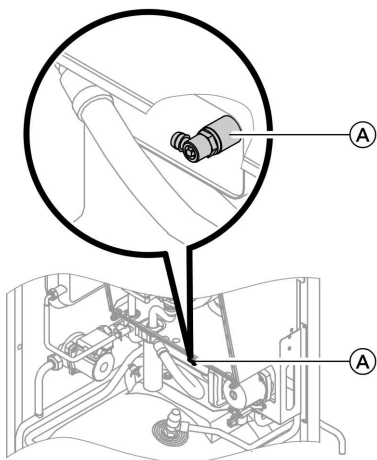
*For function and details of the fill program, see page 100.*

*Whilst the fill program is running, the display shows "bF" (Vitotronic 100) or "Befüllung" (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 heating water side.
2. Connect the drain hose on valve (A) with a drain.
3. Open valve (A) and filling valve in the heating return and vent using mains pressure until no more air noise can be heard.
4. Close valve (A) and the fill valve in the heating return and open the shut-off valves on the heating water side.

### 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 41.

For function and sequence of the venting program, see page 100.

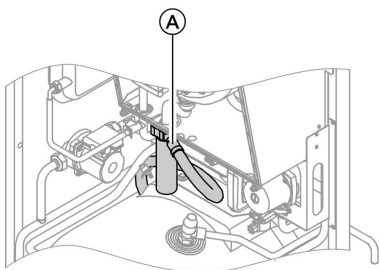
Whilst the venting program is running, the display shows "**EL**" (Vitoltronic 100) or "**Entlüftung**" (venting) (Vitoltronic 200).

3. Check the system pressure.



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

#### Filling the siphon with water



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

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

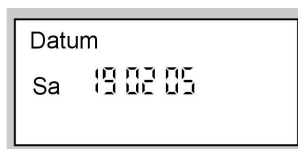
##### Note

- 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.
- During commissioning these terms appear in German (delivered condition):

##### Time (see step 1)



##### Date (see step 2)



Press the following keys:

1.  $\oplus/\ominus$  for the current time.
2.  $\text{OK}$  to confirm; "Datum" (date) is displayed.
3.  $\oplus/\ominus$  for the current date.
4.  $\text{OK}$  to confirm.

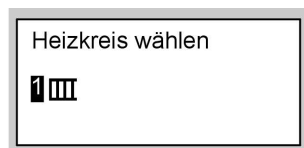
## Further details regarding the individual steps (cont.)

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






#### Note

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

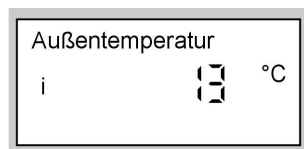
#### Select heating circuit (see step 1.)



Press the following keys:

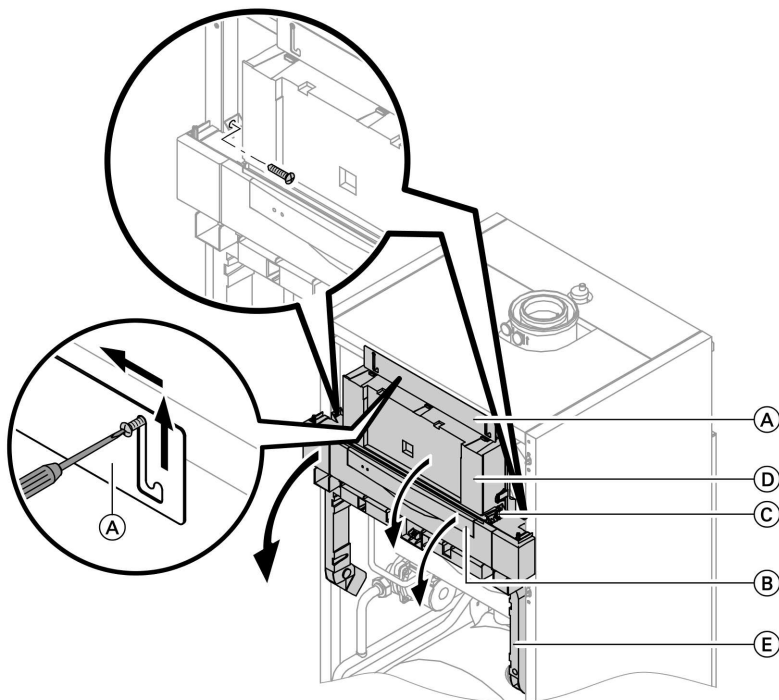
1.  **"Heizkreis wählen"** (select heating circuit) is displayed.
2.  to confirm; wait approx. 4 s.
3.  press this button again, **"Außentemperatur"** (outside temperature) is displayed.
4.  for the required language.
5.  to confirm.

#### Outside temperature (see step 3.)



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

### Pivoting down the control unit for commissioning and maintenance work



1. Undo two screws and push panel (A) up and to the left.
2. Open flap (B).
3. Release side closures (C) and pivot control unit (D) forward.
4. Release the side screws and pivot control unit (D) down with its retaining frame (E).

### Checking the gas type

#### Note

*In the delivered condition, the Vitodens 333-F is set up for natural gas E.*

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

1. Check the gas type and Wobbe index (Wo) with your mains gas or LPG supplier and compare them with the details on the burner label.
2. If these details do not match, convert the burner to the available gas type.



Conversion kit installation instructions.

3. Adjust the gas type via coding address "1E" at the control unit.

#### Note

To call up code 1 and for setting the coding address, see page 41.

4. Record the gas type in the service report on page 118.

### Wobbe index ranges

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

### Gas type conversion



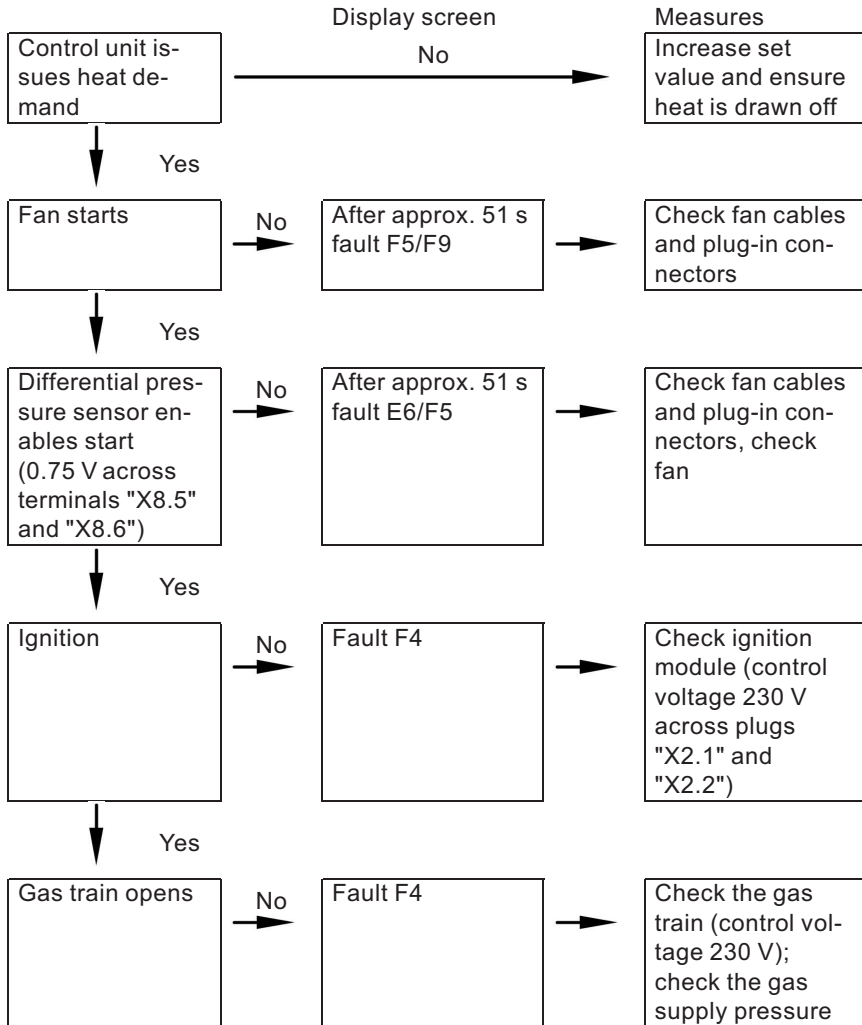
Gas restrictor installation instructions

### Gas restrictor allocation

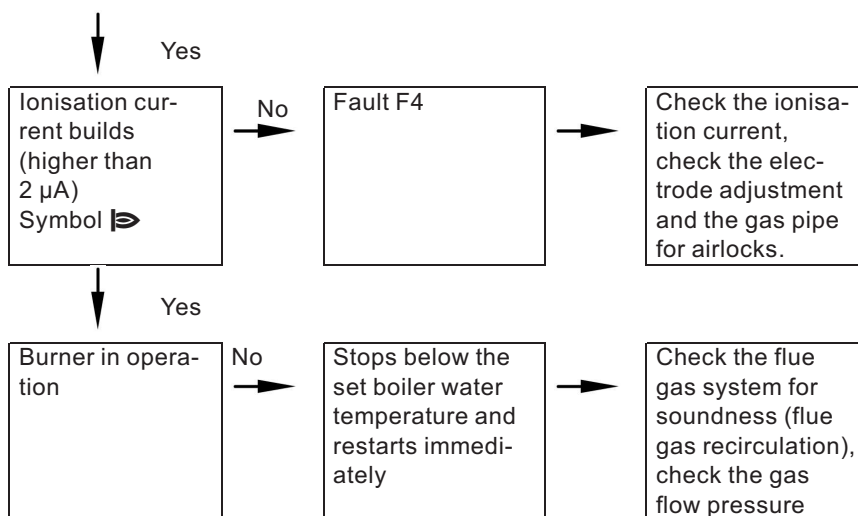
Rated output		kW	26
Internal Ø gas restrictor			
Gas			
■ Natural gas E	mm		5.95
■ Natural gas LL	mm		6.73
■ LPG P	mm		4.4

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

#### Function sequence and possible faults



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



For further details regarding faults, see page 71.

## Checking the static and supply pressure



### **Danger**

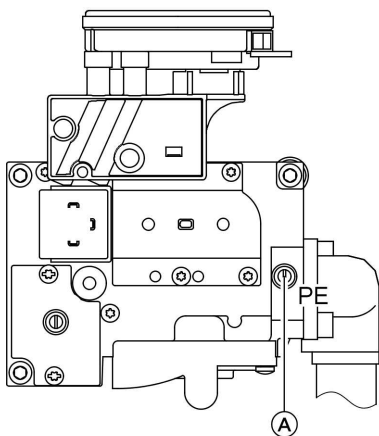
CO build-up as a result of an incorrect burner setup can have serious health implications.

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

### **Operation with LPG**

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

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



1. Close the gas shut-off valve.
2. Release screw (A) inside test connector "PE" on the gas train, but do not remove it; then connect the pressure gauge.
3. Open the gas shut-off valve.
4. Measure the static pressure and record it in the service report on page 118.  
Set value: max. 57.5 mbar
5. Start the boiler.

### Note

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

6. Check the supply (flow) pressure.

Set value:

- Natural gas: 20 mbar
- LPG: 37/50 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 118.  
Take the action shown in the following table.
8. Shut down the boiler, close the gas shut-off valve, remove the pressure gauge and close test port (A) with the screw.
9. Open the gas shut-off valve and start up the boiler.



### Danger

Gas escaping from the test port leads to a risk of explosion.

Check test connector (A) for soundness.






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

Supply (flow) pressure for nat- ural gas	Supply (flow) pressure for LPG	Measures
below 17.4 mbar	below 42.5 mbar	Do not start the boiler. Notify your mains gas or LPG supplier.
17.4 to 25 mbar	25 to 57.5 mbar	Start the boiler.
above 25 mbar	above 57.5 mbar	Install a separate gas pressure gover- nor upstream of the system and regu- late the inlet pressure to 20 mbar for natural gas or 50 mbar for LPG. Notify your mains gas or LPG supplier.

## Setting the maximum output

### Note

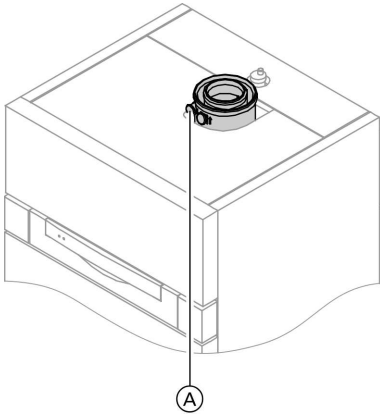
You can limit the maximum output for **heating operation**. The limit is set via the modulation range.

1. Start the boiler.
2.  +  press simultaneously:  
 "100" flashes (equals 100% of rated output) and " is displayed.  
 On weather-compensated control units, the display additionally shows "**Max.heating output**".  
 press for the required value in % of rated output as max. output.  
 to confirm.
3. Record the setting for the maximum 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.



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

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



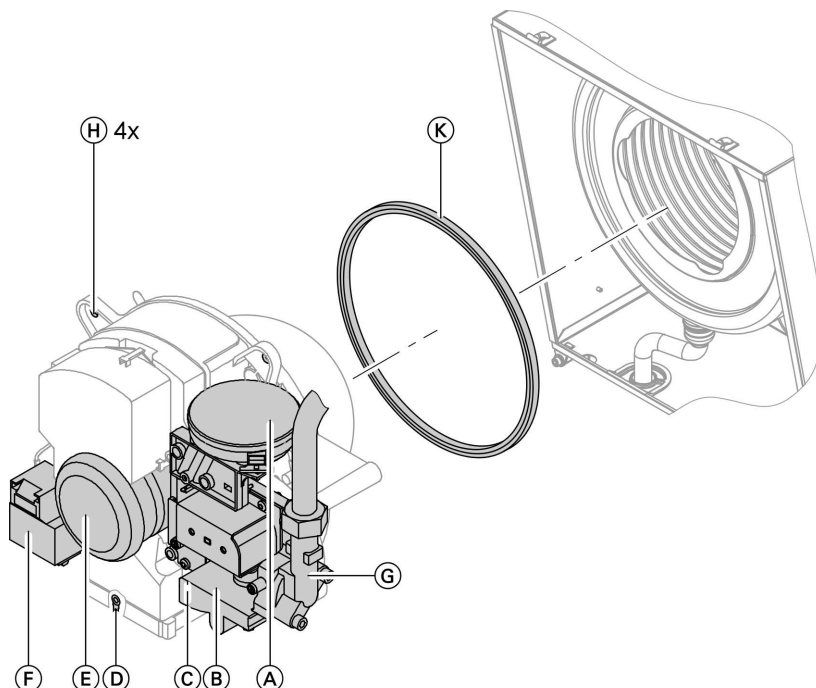
- Ⓐ Combustion air port (ventilation air)

For balanced flue systems tested together with the wall mounted gas fired boiler, some authorities waive the requirement for a soundness test (overpressure test) during commissioning by the flue gas inspector. We recommend that your heating engineer carries out a simple soundness test during the commissioning of your system. For this, it would be sufficient to check the CO<sub>2</sub> or O<sub>2</sub> concentration in the combustion air at the annular gap of the balanced flue pipe.

The flue pipe is deemed to be sound if the CO<sub>2</sub> concentration in the combustion air is no higher than 0.2 % or the O<sub>2</sub> concentration is at least 20.6 %. If actual CO<sub>2</sub> values are higher or O<sub>2</sub> values are lower, then pressure test the flue pipe with a static pressure of 200 Pa.

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

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

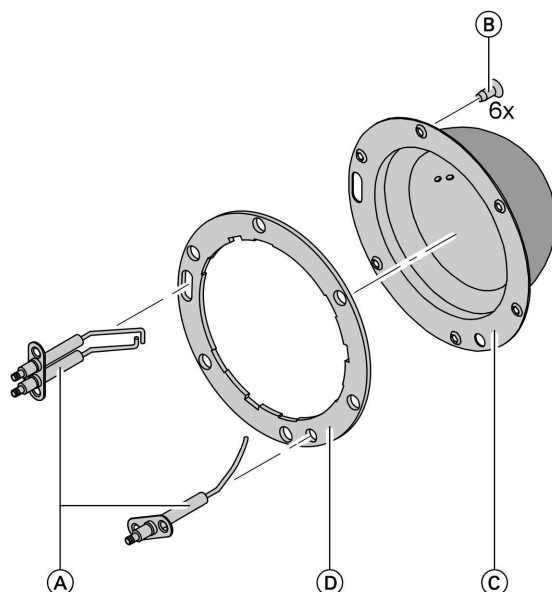


1. Switch OFF the mains power supply to the control unit at the ON/OFF switch.
2. Close the gas shut-off valve and safeguard against reopening.
3. Pull electrical cables from differential pressure sensor (A), gas valve (B), ionisation electrode (C), earth tab (D), fan motor (E) and ignition unit (F).
4. Undo the fixing screws of gas connection flange (G).
5. Release four nuts (H) and remove the burner.  
  
**! Please note**  
Prevent damage to the wire gauze.  
Never rest the burner on the gauze assembly.
6. Check burner gasket (K) for damage.  
Generally replace the burner gasket **every 2 years**.

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

### Checking the burner gauze assembly

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



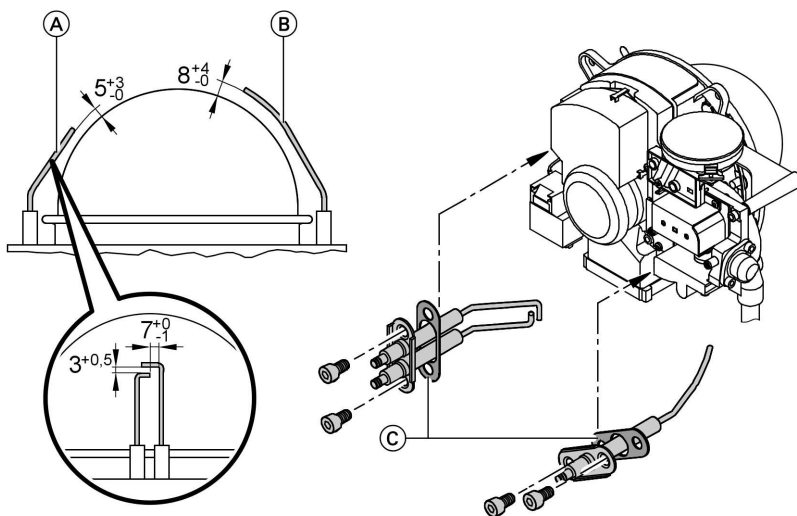
1. Remove electrodes (A).
2. Release six Torx screws (B) and remove burner gauze assembly (C).
3. Remove old burner gauze assembly gasket (D).
4. Insert a new burner gauze assembly with a new gasket and secure with six Torx screws.

**Note**

*Torque: 3.5 Nm*

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

## Checking and adjusting the ignition and ionisation electrodes



(A) Ignition electrodes

(B) Ionisation electrode

(C) Gasket

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

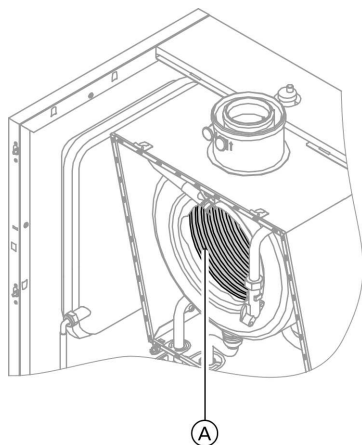


#### Please note

Do not damage the wire gauze.

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

## Cleaning the combustion chamber/heating surfaces and fitting the burner



1. Clean the combustion chamber and heating surfaces (A) with a brush if necessary or rinse with water.



#### **Please note**

Scratches on parts that 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.



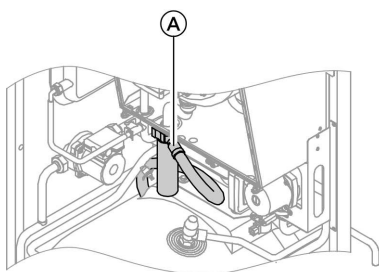
#### **Danger**

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

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

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

### Checking the condensate drain and cleaning the siphon

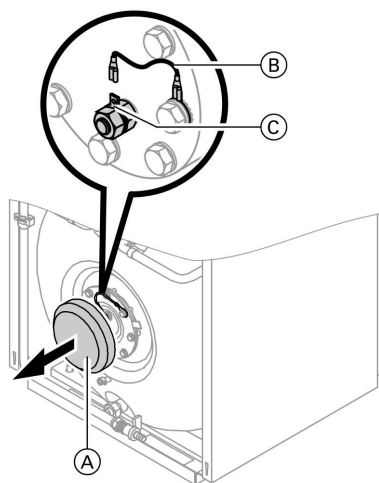


1. Check at siphon (A), that the condensate can freely drain off.
2. Remove the retaining clip and the siphon.
3. Clean the siphon.
4. Fit the siphon and secure with the retaining clip.

### 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.*



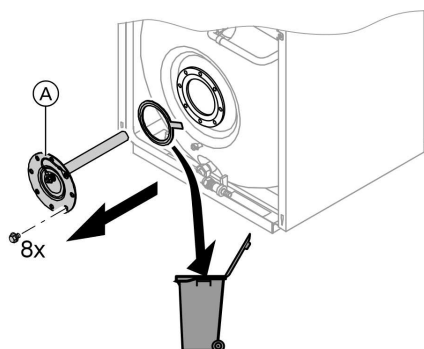
1. Remove cover (A).
2. Pull earth lead (B) from tab (C).
3. Connect the tester (up to 5 mA) in series between tab (C) and earth cable (B).
  - The anode is OK if the indicated current is  $> 0.3$  mA.
  - Visually inspect the anode, if the current measures  $< 0.3$  mA or if there is no current at all (see page 23).

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

### Cleaning the DHW cylinder

#### Note

*DIN 1988 requires a visual inspection and (if required) cleaning at latest two years after the cylinder has been taken into use and thereafter according to requirements.*



1. Drain the DHW cylinder.

2. Remove flange lid (A).

3. Disconnect the DHW cylinder from the pipe system to prevent contamination from entering the pipe system.

4. Remove loose deposits with a high pressure cleaner.



#### Please note

When cleaning the inside, only use plastic cleaning utensils.

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



#### Please note

Never use hydrochloric acid based cleaning agents.

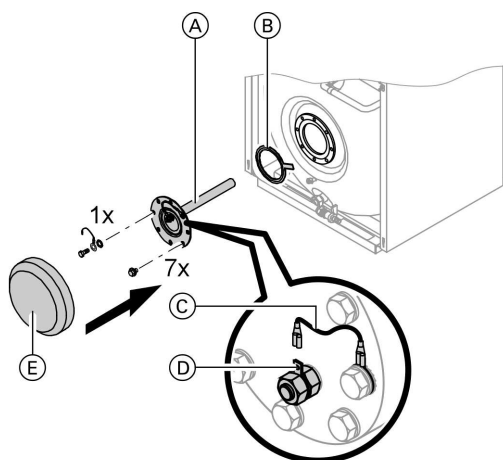
6. Thoroughly flush the DHW cylinder after cleaning.

### Checking and replacing the magnesium anode (if required)

Check the magnesium anode. If it is discovered that the anode has degraded to 10 to 15 mm Ø, we recommend replacing the magnesium anode.

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

### Returning the DHW cylinder into use



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

### Checking the diaphragm expansion vessel and system pressure

#### Note

Carry out this test on a cold system.

1. Drain the system, or close the cap valve on the diaphragm expansion vessel and reduce the pressure, until the pressure gauge indicates "0".
2. If the inlet pressure of the diaphragm expansion vessel is lower than the static system pressure, top up with nitrogen until the inlet pressure is raised by 0.1 to 0.2 bar. ►►



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

3. Top up your heating system with water and vent until the filling pressure of a cooled system is 0.1 to 0.2 bar higher than the inlet pressure of the diaphragm expansion vessel.  
Permiss. operating pressure: 3 bar

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



#### **Danger**

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

### Flue gas emissions test

The Vitodens 333-F is preset for natural gas E in the factory and can be converted to natural gas LL or LPG P using a conversion kit.

During commissioning or maintenance, check the CO<sub>2</sub> level at the boiler flue outlet.

#### **Note**

*The Matrix burner of the Vitodens 333-F is preset respectively for the entire gas category. The burner requires no modification or readjustment.*

Subject to the Wobbe index, the CO<sub>2</sub> content fluctuates between:

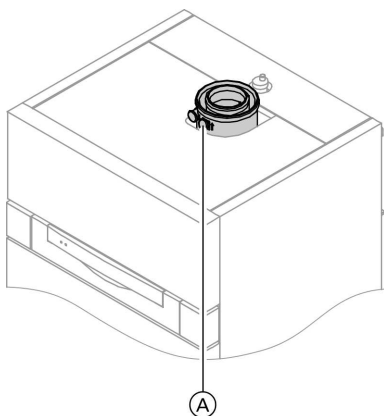
- 6.6 to 10.0% for natural gas E
- 7.0 to 10.0% for natural gas LL
- 8.5 to 10.5% for LPG P

Compare the actual CO<sub>2</sub> value with the above CO<sub>2</sub> value ranges for the individual gas groups (check the gas group with your mains gas or LPG supplier).

If the actual CO<sub>2</sub> value deviates by more than 1% for natural gas or 0.5% for LPG, check the following:

- Check that the correct gas restrictor has been fitted.
  - Check the balanced flue system for soundness, see page 17.
- Maintain limits to EN 483 and EN 297 (CO content < 1000 ppm).

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



1. Connect a flue gas analyser at test port **A** (on the boiler flue outlet).
2. Open the gas shut-off valve, start the boiler and create a heat demand.
3. Select the lower output.

#### **Constant temperature control unit:**

+ press simultaneously:  
"1" is shown.

#### **Weather-compensated control unit:**

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

4. Check the CO<sub>2</sub> content. If the value lies outside the above range, take the measures listed on page 25.
5. Record the actual value on page 118 of commissioning/service report.
6. Select the upper output.

#### **Constant temperature control unit:**

+ press simultaneously:  
"1" is shown.  
 press:  
"2" is shown.

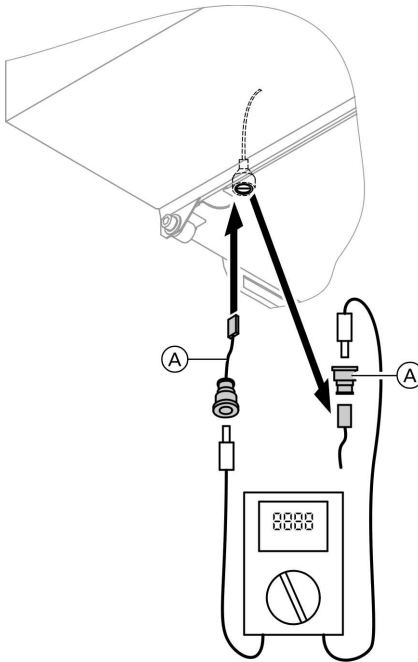
#### **Weather-compensated control unit:**

+ press simultaneously:  
"Relay test" is shown.  
 press:  
"Full load" is shown.

7. Check the CO<sub>2</sub> content. If the value lies outside the above range, take the measures listed on page 25.
8. After testing, press .
9. Record the actual value on page 118 of commissioning/service report.

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

### Checking the ionisation current



(A) Adaptor cable (available as accessory)

1. Connect the test equipment according to the diagram.

2. Adjusting the upper output:

**Constant temperature control unit:**

+ press simultaneously:  
"1" is shown.  
 press:  
"2" is shown.

**Weather-compensated control unit:**

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

3. Ionisation current when the flame is first established: min. 4  $\mu$ A  
Steps in case the ionisation current is < 4  $\mu$ A:

- Check the electrode gap
- Check the control unit power supply.

4. Press .

Operation with the upper output is terminated.

5. Record the actual value in the service report.

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

### Matching the control unit to the heating system

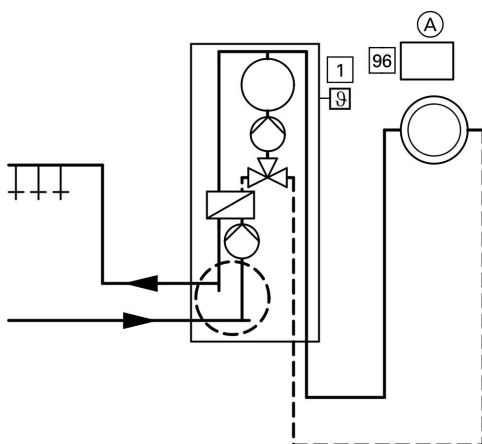
#### Note

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

- For the selection of an appropriate design, see the following diagrams.
- For coding steps, see page 41.

#### System version 1

##### One heating circuit without mixer A1



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

- (A) 96 Vitotrol 100 (only for constant  
temperature control units)

#### Required coding

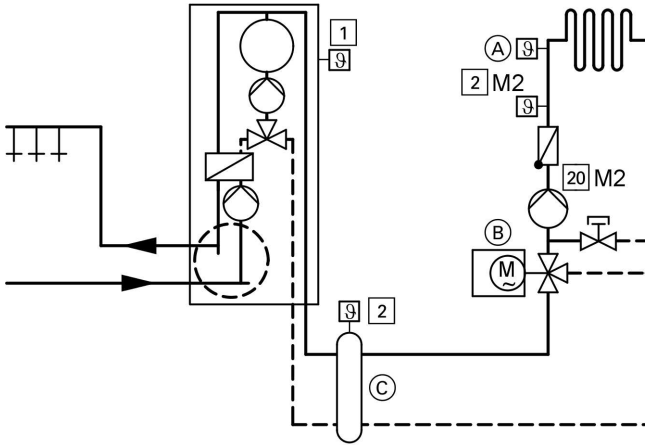
Operation with LPG

1E:1

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

#### System version 2

#### One heating circuit with mixer M2 and a low loss header



- 1 Outside temperature sensor
- 2 M2 Flow temperature sensor
- 20 M2 Heating circuit pump
- (A) High limit thermostat (under-floor heating)

- (B) Extension kit for a heating circuit with mixer
- (C) Low loss header

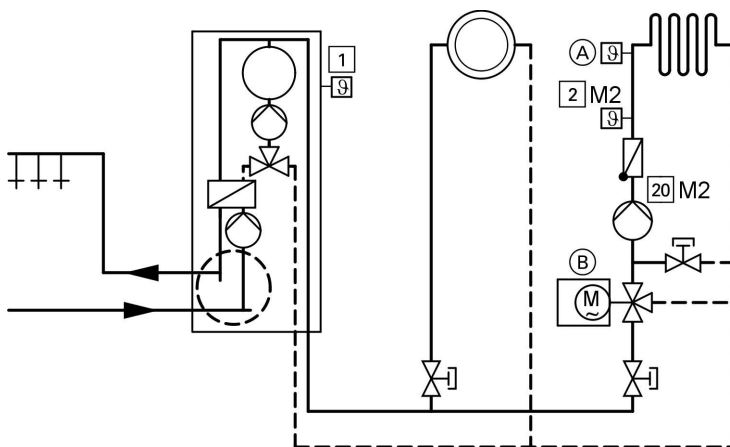
#### Required coding

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

## 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
- 2 M2 Flow temperature sensor
- 20 M2 Heating circuit pump

- (A) High limit thermostat (under-floor heating)
- (B) Extension kit for a heating circuit with mixer

### Note

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

### Required coding

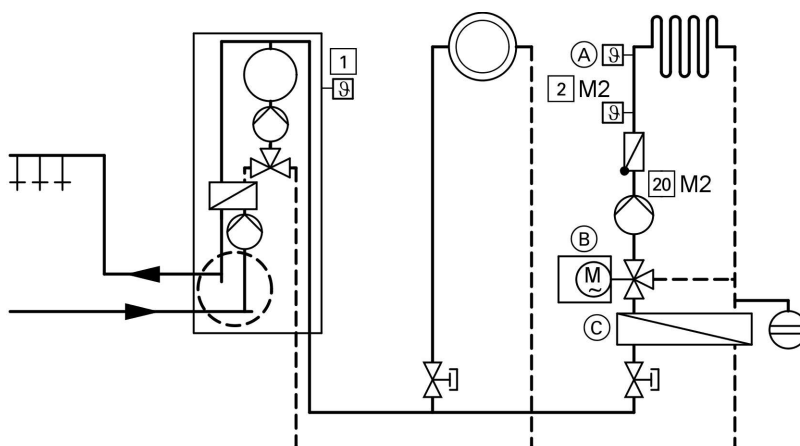
Operation with LPG

1E:1

## 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
- 2 M2 Flow temperature sensor
- 20 M2 Heating circuit pump
- (A) High limit thermostat (under-floor heating)

- (B) Extension kit for a heating circuit with mixer
- (C) Heat exchanger for system separation

### Required coding

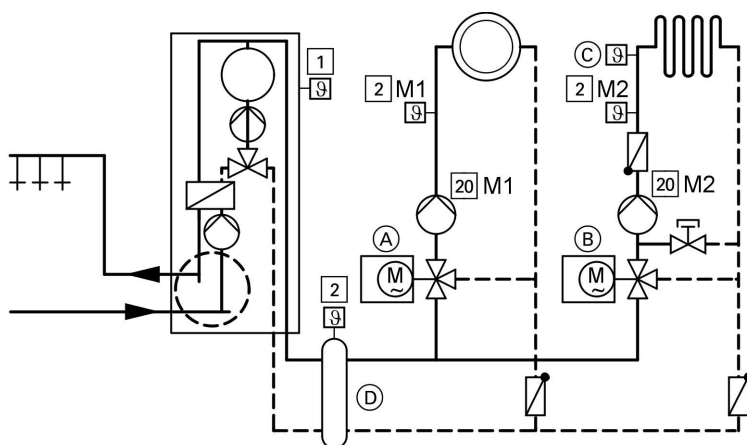
Operation with LPG

1E:1

## 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 200-H) and low loss header



- |    |                               |    |   |
|----|-------------------------------|----|---|
| 1  | Outside temperature sensor    | 20 | M2 Heating circuit pump                           |
| 2  | M1 Flow temperature sensor    |    | Heating circuit with mixer M2                     |
|    | Heating circuit with mixer M1 | A  | Vitotronic 200-H                                  |
| 2  | M2 Flow temperature sensor    | B  | Extension kit for a heating circuit with mixer M2 |
|    | Heating circuit with mixer M2 | C  | High limit thermostat (under-floor heating)       |
| 20 | M1 Heating circuit pump       | D  | Low loss header                                   |
|    | Heating circuit with mixer M1 |    |   |

### Required coding

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



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

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

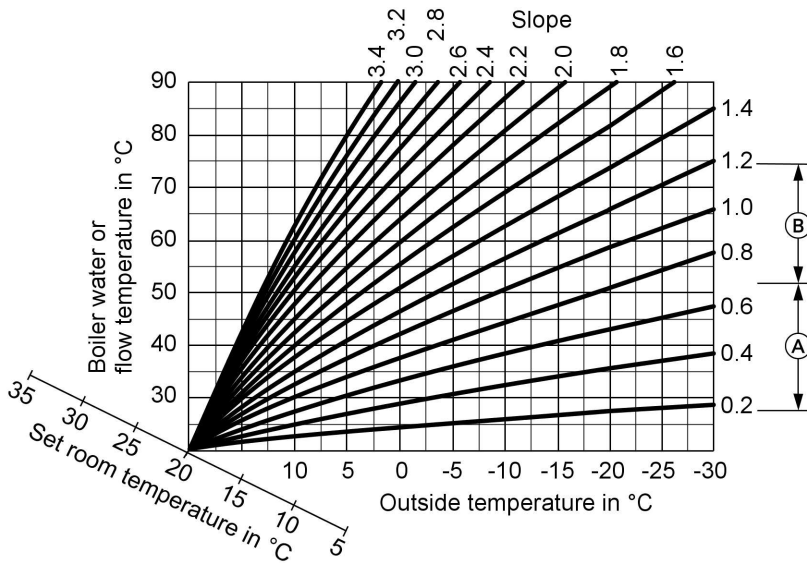
The heating curves illustrate the relationship between the outside temperature and the boiler water or flow temperature.

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

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

Settings in the delivered condition:

- Slope = 1.4
- Level = 0

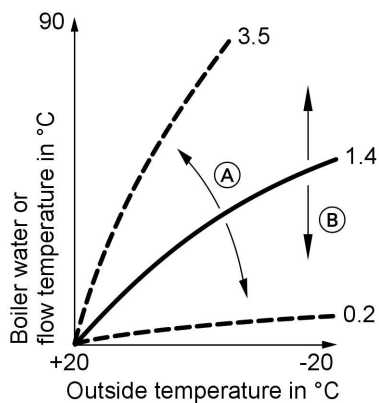


(A) Heating curve slope for underfloor heating systems

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

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

### Changing the slope and level



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

#### 1. Slope:

Change with coding address "d3" in code 1.

Setting range 2 to 35 (equals slope 0.2 to 3.5).

#### 2. Level:

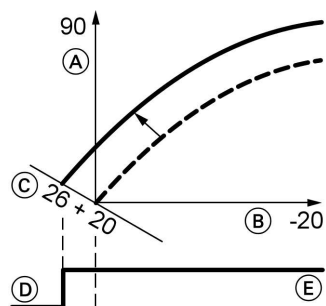
Change with coding address "d4" in code 1.

Setting range -13 to +40 K.

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

### Adjusting the set room temperature

#### Standard room temperature



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

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

Press the following keys:

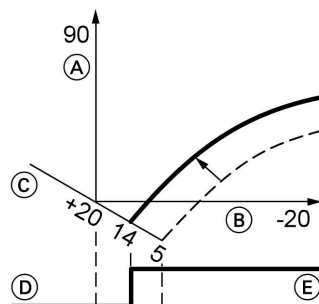
1.  $\oplus$  "1 IIII" flashes.
2.  $\text{OK}$  to select heating circuit A1 (heating circuit without mixer)  
or
3.  $\oplus$  "2 IIII" flashes.
4.  $\text{OK}$  to select heating circuit with mixer M2.

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

The value will be automatically accepted after approx. 2 s.

Accordingly, the heating curve is adjusted along set room temperature axis (C), which results in modified start/stop characteristics of the heating circuit pumps if heating circuit pump logic function is active.

#### Reduced room temperature










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

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

Press the following keys:

1.  $\oplus$  "1 IIII" flashes.

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

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

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

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



Installation instructions  
LON communication module

#### Note

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



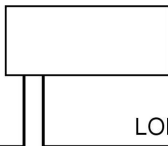
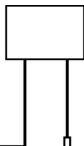
### Single boiler system with Vitotronic 200-H and Vitocom 300

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

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

#### Note

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

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



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

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



**Updating the LON subscriber list**

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

2. 

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

Press the following keys:

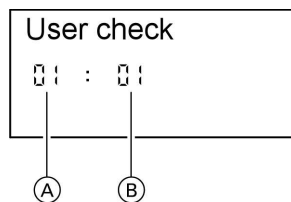
1.  +  simultaneously for approx. 2 s.  
Subscriber check initiated (see page 37).

**Carrying out a subscriber check**

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

Precondition:







- The control unit must be programmed as **fault manager** (code "79:1")
- The LON subscriber number must be programmed in all control units (see page 36)
- The LON subscriber list in the fault manager must be up to date (see page 36)



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

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

Press the following keys:

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

## Scanning and resetting the "Service" display



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

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



### Note

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


Press the following keys:

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

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

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

**Note**

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

### After a service has been carried out






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

**Note**

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

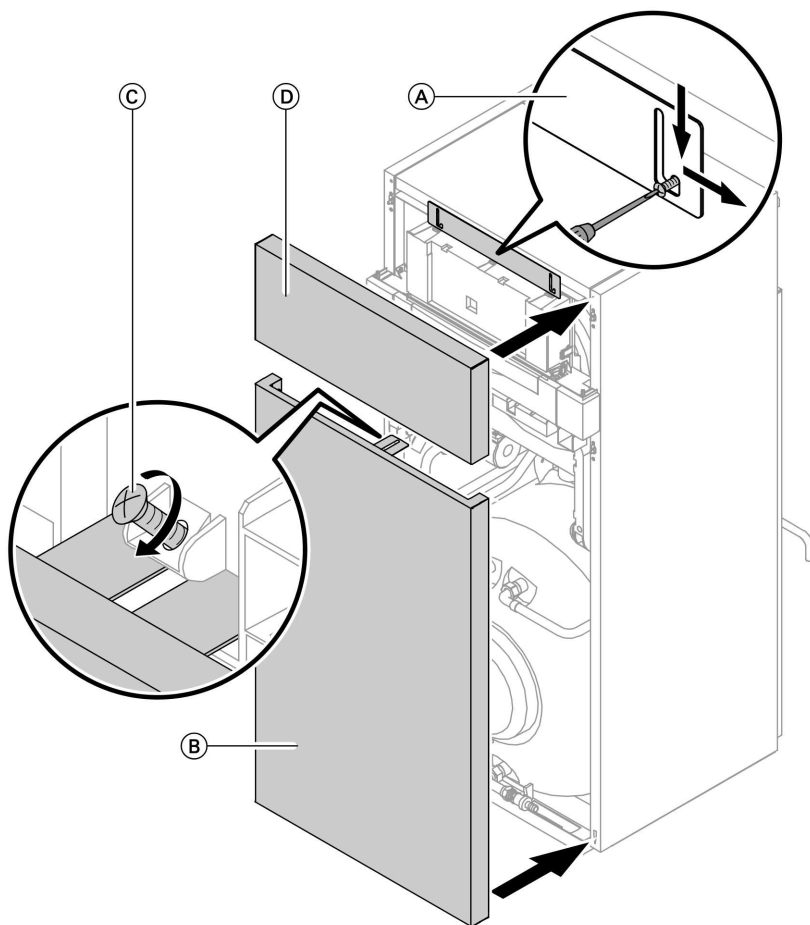
2. Reset the burner operating hours, burner starts and consumption if required

Press the following keys:

-  Scanning is active (see page 68).  
 for the selected value.  
 the selected value will be set to "0".  
 for further scans.  
 Scanning is completed.

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

**Locking the control unit and fitting the front panels**



1. Push panel (A) to the right and down, then tighten both screws.
2. Fit front panel (B) at the bottom and tighten screw (C).
3. Fit front panel (D) at the top.












## Code 1

### Calling up code 1

#### Note

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

Press the following keys:

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

### Overview

#### Coding

Coding in the delivered condition		Possible change	
System design			
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 water 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	Programs disabled	2F:1	Venting program enabled
		2F:2	Filling program enabled
Subscriber no.			
77:1	LON subscriber number (only for weather-compensated control units)	77:2 to 77:99	LON subscriber number, adjustable from 1 to 99: 1 - 4 = Boiler 5 = Cascade 10 - 98 = Vitotronic 200-H 99 = Vitocom  <b>Note</b> <i>Allocate each number only once.</i>
Summer econ. A1/M2			
A5:5	With heating circuit pump logic function (only for weather-compensated control units)	A5:0	Without heating circuit pump logic function
Min. flow temp. A1/M2			
C5:20	Electronic minimum flow temperature limit 20 °C (only for weather-compensated control units)	C5:1 to C5:127	Minimum limit adjustable from 10 to 127 °C
Max. flow temp. A1/M2			
C6:74	Electronic maximum flow temperature limit 74 °C (only for weather-compensated control units)	C6:10 to C6:127	Maximum limit adjustable from 10 to 127 °C









**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 33)
Level A1/M2			
d4:0	Heating curve level = 0 (only for weather-compensated control units)	d4:–13 to d4:40	Heating curve level adjustable from –13 to 40 (see page 33)


**Code 2****Calling up code 2****Note**



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

Press the following keys:


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

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

7.  for the selection of further addresses.

8.  +  press simultaneously for approx. 1 s; code 2 is terminated.

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

The areas are scanned in the following sequence with :

## Coding

### Code 2 (cont.)

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

#### Note

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

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

## Coding

### Coding

Coding in the delivered condition		Possible change	
System design			
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

**Code 2 (cont.)**

<b>Coding in the delivered condition</b>		<b>Possible change</b>	
21:0	No maintenance interval (operating hours) selected	21:1 to 21:9999	The number of hours run before the burner should be serviced is adjustable from 1 to 9999 h
23:0	No time interval for burner maintenance	23:1 to 23:24	Interval adjustable from 1 to 24 months
24:0	No <b>"Service"</b> display	24:1	<b>"Service"</b> display (the address is automatically set and must be manually reset after a service has been carried out)
25:0	With outside temperature sensor for constant temperature control units: No recognition of outside temperature sensor or fault monitoring	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	Venting program/filling program disabled	2F:1	Venting program enabled
		2F:2	Filling program enabled
30:1	Internal circulation pump, variable speed (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

**Code 2** (cont.)

<b>Coding</b>	<b>Internal circulation pump</b>	<b>Heating circuit pump Heating circuit without mixer</b>	<b>Heating circuit pump Heating circuit with mixer</b>	<b>Cylinder primary pump</b>
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

<b>Coding</b>	<b>Internal circulation pump</b>	<b>Heating circuit pump Heating circuit without mixer</b>	<b>Heating circuit pump Heating circuit with mixer</b>	<b>Cylinder primary pump</b>
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.)

<b>Coding</b>	<b>Internal circulation pump</b>	<b>Heating circuit pump Heating circuit without mixer</b>	<b>Heating circuit pump Heating circuit with mixer</b>	<b>Cylinder primary pump</b>
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	
DHW			
56:0	Set DHW temperature adjustable from 10 to 60 °C	56:1	Set DHW temperature adjustable from 10 to above 60 °C  <b>Note</b> <i>Maximum value subject to boiler coding card Observe the maximum permissible DHW temperature</i>
58:0	Without auxiliary function for DHW heating	58:10 to 58:60	Input of a second set DHW value, adjustable from 10 to 60 °C (observe 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	Diverter valve by Viessmann
		65:2	Diverter valve by Wilo
		65:3	Diverter valve by Grundfos
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; internal circulation pump with DHW heating 100 %	6C:0 to 6C:100	Set speed adjustable from 0 to 100 %





**Code 2 (cont.)**

Coding in the delivered condition		Possible change	
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 %
71:0	DHW circulation pump: "ON" in accordance with the DHW time program (for 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 subscriber number (only for weather-compensated control units)	77:2 to 77:99	LON subscriber number, adjustable from 1 to 99: 1 - 4 = Boiler 5 = Cascade 10 - 98 = Vitotronic 200-H 99 = Vitocom  <b>Note</b> <i>Allocate each number only once.</i>

**Code 2** (cont.)

<b>Coding in the delivered condition</b>		<b>Possible change</b>	
79:0	The control unit is not the fault manager (only for weather-compensated control units)	79:1	Control unit is fault manager
7b:1	Send time via LON (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 Separate adjustment of holiday program and time program for DHW heating, as option
80:1	A fault message is displayed, providing a fault is active for at least 5 s	80:0	Immediate fault message
		80:2 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 the set value when the outside temperature changes; 1 step = 10 min



**Code 2 (cont.)**

<b>Coding in the delivered condition</b>		<b>Possible change</b>	
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 200-H
98:1	Viessmann system number (in conjunction with monitoring several systems via Vitocom 300)	98:1 to 98:5	System number adjustable from 1 to 5
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



## Coding

### Code 2 (cont.)

Coding in the delivered condition		Possible change	
9C:20	Monitoring LON subscribers. If a subscriber 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
<b>Heating circuit A1/M2</b>			
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	<p>Outside temperature below 1 °C: Heating circuit pump "ON"</p> <p>Outside temperature above 3 °C: Heating circuit pump "OFF"</p> <p><b>!</b> <b>Please note</b> When selecting a value below 1 °C, there is a risk of pipes outside the thermal envelope of the building being damaged by frost. The standby mode, in particular, should be taken into consideration, e.g. during holidays.</p>	A3:-9 to A3:15	Heating circuit pump "ON/OFF" (see the following table)

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

**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.  <b>Note</b> <i>Observe the note for code "A3"</i>
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 <sub>set</sub> ). AT > RT <sub>set</sub> + 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	$AT > RT_{set} + 5\text{ K}$
2	$AT > RT_{set} + 4\text{ K}$
3	$AT > RT_{set} + 3\text{ K}$
4	$AT > RT_{set} + 2\text{ K}$
5	$AT > RT_{set} + 1\text{ K}$
6	$AT > RT_{set}$
7	$AT > RT_{set} - 1\text{ K}$
to	
15	$AT > RT_{set} - 9\text{ K}$

## Code 2 (cont.)

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



**Code 2** (cont.)

<b>Coding in the delivered condition</b>		<b>Possible change</b>	
A9:7	With pump idle time: 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 time
		A9:1 to A9:15	With pump idle time; adjustable from 1 to 15
b0:0	With remote control: Heating mode/reduced mode: weather-compensated (only for weather-compensated control units; change the coding only for the heating circuit with mixer M2)	b0:1	Heating mode: weather-compensated Reduced mode: with room temperature hook-up
		b0:2	Heating mode: with room temperature hook-up Reduced mode: weather-compensated
		b0:3	Heating mode/reduced mode: with room temperature hook-up
b2:8	With remote control 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:



**Code 2 (cont.)**

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

Coding in the delivered condition		Possible change	
Heating circuit A1/M2			
C5:20	Electronic minimum flow temperature limit 20 °C (only for weather-compensated control units)	C5:1 to C5:127	Minimum limit adjustable from 1 to 127 °C
C6:74	Electronic maximum flow temperature limit 74 °C (only for weather-compensated control units)	C6:10 to C6:127	Maximum limit adjustable from 10 to 127 °C
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 33)
d4:0	Heating curve level = 0 (only for weather-compensated control units)	d4:–13 to d4:40	Heating curve level adjustable from –13 to 40 (see page 33)
d5:0	The external heating program changeover alters the heating program to "Constant operation with reduced room temperature" (only for weather-compensated control units)	d5:1	The external heating program changeover changes the heating program to "Constant central heating with standard room temperature"

**Code 2** (cont.)

<b>Coding in the delivered condition</b>		<b>Possible change</b>	
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 external variable speed 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 in coding address "E9" (only for weather-compensated control units)	E8:0	Speed subject to the setting in coding address "E7"



## Code 2 (cont.)

Coding in the delivered condition		Possible change	
E9:45	Speed of the external variable speed heating circuit pump: 45 % of the maximum speed in reduced temperature mode (only for weather-compensated control units)	E9:0 to E9:100	Speed adjustable from 0 to 100 % of the maximum speed during operation with reduced room temperature
F2:8	Time limit for party mode or external operating mode changeover via key 8 h (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 constant temperature 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 "Standby mode", the internal circulation pump is permanently ON (only for constant temperature control units)	F7:0	In "Standby mode", the internal circulation pump is permanently OFF
		F7:1 to F7:24	In "Standby mode", the internal circulation pump 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.)

<b>Coding in the delivered condition</b>		<b>Possible change</b>	
F8:-5	Temperature limit for terminating the reduced mode -5 °C, 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 °C, 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 $\triangleq$ 2 min








**Code 2** (cont.)

Coding in the delivered condition		Possible change	
Heating circuit with mixer M2			
F1:0	Screed drying function disabled (only for weather-compensated control units).	F1:1 to F1:5	<p>Screed drying function adjustable in accordance with five optional temperature/time profiles (see page 101)</p> <p><b>Note</b> <i>Observe the screed supplier's instructions.</i></p> <p>Observe DIN 4725–2. The report to be provided by the heating contractor must contain the following heat-up details:</p> <ul style="list-style-type: none"><li>■ Heat-up data with respective flow temperatures</li><li>■ Max. flow temperature achieved</li><li>■ Operating condition and outside temperature during handover</li></ul> <p>The function continues after power failure or after the control unit has been switched OFF. Heating program "Heating and DHW" will be started after the screed drying function has been terminated or if the address is manually set to 0.</p>
		F1:6 to F1:15	Constant flow temperature 20 °C

## Resetting codes to their delivered condition

Press the following keys:





1.  +  simultaneously for approx. 2 s.
2.  "Standard setting? Yes" appears.
3.  to confirm  
or
4.  to select **"Standard setting? No"**.

## Service level overview


Function	Key combination	Exit	Page
Temperatures, boiler coding card, brief scans	and  approx. 2 s simultaneously	Press	64
Relay test	and  approx. 2 s simultaneously	Press	67
Max. output (heating mode)	and  approx. 2 s simultaneously	Press	16
Operating conditions and sensors	Press	Press	68
Service scan	(if "Service" flashes)	Press	38
Adjusting the display contrast	and  simultaneously; the display darkens	–	–
	and  simultaneously; the display becomes lighter	–	–
Calling up acknowledged fault messages	for approx. 3 s		72
Fault history	and  approx. 2 s simultaneously	Press	73
Subscriber check (in conjunction with LON system)	and  approx. 2 s simultaneously	and  simultaneously	37
Emissions test function "A"	Weather-compensated control unit: and  approx. 2 s simultaneously Constant temperature control unit: and  approx. 2 s simultaneously	and  or  and  simultaneously for approx. 1 s, alternatively automatic after 30 min	–
Coding level 1	and  approx. 2 s simultaneously	and  approx. 1 s simultaneously	41
Coding level 2	and  approx. 2 s simultaneously	and  approx. 1 s simultaneously	43
Resetting codes to the delivered condition	and  simultaneously for approx. 2 s; then	–	62





## Temperatures, boiler coding card and brief scans

### Weather-compensated control unit

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

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

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

	Display screen			
Brief scan				
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 subscribers	Maximum demand temperature









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






	Display screen					
Brief scan	0	0	0	0	0	0
3	0	Software version Program- ming unit	Software version Mixer exten- sion 0: no mixer exten- sion	Software version Solar control unit 0: no solar control unit	Software version LON module 0: no LON module	Software version External extension 0: no external extension
4	Software version Burner control unit		Type Burner control unit		Equipment type	
5	0: no external demand 1: external demand	0: no external blocking 1: external blocking	0	External 0 - 10 V hook-up Display in % 0: no external hook-up		
6	Number of LON subscribers		Check digit	Max. output Details in %		
	Boiler		Heating circuit A1 (without mixer)		Heating circuit with mixer M2	
7	0	0	Remote control 0: w/o 1: Vitotrol 200 2: Vitotrol 300	Software version Remote control 0: no remote control	Remote control 0: w/o 1: Vitotrol 200 2: Vitotrol 300	Software version Remote control 0: no remote control
	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: no variable speed pump	Variable speed pump 0: w/o 1: Wilo 2: Grundfos	Software version Variable speed pump 0: no variable speed pump	Variable speed pump 0: w/o 1: Wilo 2: Grundfos	Software version Variable speed pump 0: no variable speed pump

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

### Constant temperature control unit

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

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

Menu level	Display screen				
Brief scan					
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: no solar control unit	Software version Burner control unit		Software version External extension 0: no external extension	0
E	0: no external demand 1: external demand	0: no external blocking 1: external blocking	External 0 - 10 V hook-up Display in % 0: no external hook-up		
3	0	0	Set boiler water temperature		
A	0	0	Highest demand temperature		
4	0	Burner control unit type		Equipment type	
5	0	0	Set cylinder temperature		
b	0	0	Max. output in %		
C	0	Boiler coding card (hexadecimal)			
c	0	Version Equipment		Version Burner control unit	



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

Brief scan	Display screen				
d	0	0	0	Variable speed pump 0 w/o 1 Wilo 2 Grundfos	Software version Variable speed pump 0: no variable speed pump

### Checking outputs (relay test)

#### Weather-compensated control unit

Press the following keys:

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

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

Display screen	Explanation
Base load	Burner modulation base load
Full load	Burner modulation full load
Intern.pump On	Int. output 20
Htg. system valve	Diverter valve set to heating mode
Valve in middle pos.	Diverter valve in central position (filling/draining)
DHW valve	Diverter valve set to DHW mode
Htg.cir.pump M2 On	Mixer extension
Mix.valve open	Mixer extension
Mix.valve closed	Mixer extension
Intern.output On	Output  internal extension
Htg.cir.pump A1 On	External extension H1
DHW pump On	External extension H1
Recirc.pump On	External extension H1
Centr.fault ind.On	External extension H1

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

### Constant temperature control unit

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

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

Display screen	Explanation
1	Burner modulation base load
2	Burner modulation full load
3	Internal pump / output 20 "ON"
4	Diverter valve set to heating mode
5	Diverter valve in central position (filling/draining)
6	Diverter valve set to DHW mode
10	Output  internal extension
11	Heating circuit pump A1 External extension H1
12	Cylinder primary pump External extension H1
14	Central fault message External extension H1

## Scanning operating conditions and sensors

### Weather-compensated control unit

- Press the following keys:
1. "Select heating circuit" is displayed.
  2. to confirm; wait approx. 4 s.
  3. press again.
  4. for the required operating condition.
  5. Scanning is completed.

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

Display screen	Explanation
Participant no.	Programmed subscriber no. in the LON system
Holiday program	If a holiday program has been entered
Departure date	Date

## Scanning operating conditions and sensors (cont.)

Display screen	Explanation
Return date	Date
Outdoor temp., ... °C	Actual value
Boiler temp., ... °C	Actual value
Supply temp., ... °C	Actual value (only for mixer circuit M2)
Normal	Set value
room temp., ... °C	
Room temperature, ... °C	Actual value
Ext. room t.setpt, ... °C	For external hook-up
DHW temp., ... °C	Actual DHW temperature
Solar DHW temp. ... °C	Actual value
Collector temp., ... °C	Actual value
Com. supply temp., ... °C	Actual value, only with low loss header
Burner, ...h	Actual hours run
Burner cycles, ...	Hours run and burner starts (reset after maintenance with $\oplus$ to "0").
Solar energy, ... kW/h	
Time	
Date	
Burner OFF/ON	
Intern. pump OFF/ON	Output 20
Intern. output OFF/ON	Output 28, if an internal extension is installed
Htg. circ. pump OFF/ON	If an external extension or extension kit for one heating circuit with mixer is installed
DHW pump OFF/ON	If an external extension is installed
Recirc. pump OFF/ON	If an external extension is installed
Centr. fault ind. OFF/ON	If an external extension is installed
Mix. valve OPEN/CLOSE	If an extension kit for one heating circuit with mixer is installed
Solar pump OFF/ON	If a Vitosolic is installed
Solar pump, ...h	Actual hours run
Various languages	The respective languages can be selected as permanent display language with $\text{OK}$

## Constant temperature control unit

Press the following keys:

1.  $\text{i}$  press.

2.  $\oplus/\ominus$  for the required operating condition.

3.  $\text{OK}$  Scanning is completed.

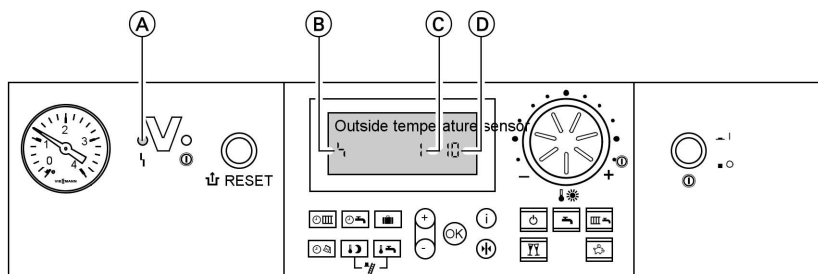
### Scanning operating conditions and sensors (cont.)

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

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

## Fault display

### Fault display layout



(A) Fault display

(B) Fault symbol

(C) Fault number

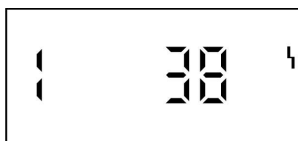
(D) Fault code

The red fault indicator flashes for every fault.

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

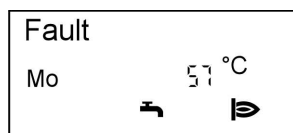
### Constant temperature control unit

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



### Weather-compensated control unit

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



Plain text fault displays:

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



## Fault display (cont.)

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

## Checking and acknowledging faults

### Note

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

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

### Constant temperature control unit

#### Press the following keys:

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

### Weather-compensated control unit

#### Press the following keys:

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

## Calling up acknowledged fault messages

#### Press the following keys:

1.  $\textcircled{\text{OK}}$  for approx. 3 s.
2.  $\oplus/\ominus$  for the acknowledged fault.

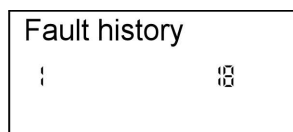


## Fault display (cont.)

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

The 10 most recent faults are saved and may be scanned.

The faults are ordered by date, thus the most recent fault is fault number 1.



Press the following keys:

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

## Fault codes

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

# **Fault codes (cont.)**

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



# **Fault codes (cont.)**

<b>Fault code on the display</b>	<b>Const.</b>	<b>Weath.-comp.</b>	<b>System characteristics</b>	<b>Cause</b>	<b>Measures</b>
59	X	X	No DHW heating	Outlet temperature sensor lead broken	Check sensors (see page 83)
92	X	X	Control mode	Collector temperature sensor short circuit; connects to the Vitosolic at S1	Check the sensor at the Vitosolic.
93	X	X	Control mode	Cylinder temperature sensor shorted out; connects to the Vitosolic at S3	Check the sensor at the Vitosolic.
94	X	X	Control mode	Temperature sensor shorted out; connects to the Vitosolic at S2	Check the sensor at the Vitosolic.
9A	X	X	Control mode	Collector temperature sensor lead broken; connects to the Vitosolic at S1	Check the sensor at the Vitosolic.
9b	X	X	Control mode	Cylinder temperature sensor lead broken; connects to the Vitosolic at S3	Check the sensor at the Vitosolic.



### Fault codes (cont.)

Fault code on the display	Const.	Weath.-comp.	System characteristics	Cause	Measures
9C	X	X	Control mode	Temperature sensor lead broken; connects to the Vitosolic at S2	Check the sensor at the Vitosolic.
9F	X	X	Control mode	Solar control unit fault; displayed if a fault without fault code occurs at the solar control unit	Check the solar control unit (see solar control unit service instructions).
A7		X	Control mode as per the delivered condition	Faulty programming unit	Replace programming unit
b0	X	X	Burner blocked	Flue gas temperature sensor shorted out	Check the flue gas temperature sensor
b1	X	X	Control mode as per the delivered condition	Communication error, programming unit	Check connections and replace the programming unit, if required
b4	X	X	Regulates as if the outside temperature was 0 °C	Internal fault	Replace the control unit
b5	X	X	Control mode as per the delivered condition	Internal fault	Replace the control unit
b7	X	X	Burner blocked	Boiler coding card fault	Plug in boiler coding card or replace, if faulty



### Fault codes (cont.)

Fault code on the display	Const.	Weath.-comp.	System characteristics	Cause	Measures
b8	X	X	Burner blocked	Flue gas temperature sensor lead broken	Check the flue gas temperature sensor
bA		X	Mixer M2 regulates to a flow temperature of 20 °C.	Communication fault, extension kit for heating circuit M2	Check the extension kit connections and coding. Start the extension kit.
bC		X	Control mode without remote control	Communication fault, Vitotrol remote control, heating circuit A1	Check connections, cable/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 programmed	Check remote control DIP switch setting (see page 105)
bF		X	Control mode	Incorrect LON communication module	Replace the LON communication module
C2	X	X	Control mode	KM BUS lead broken to solar heating control unit	Check the KM BUS cable, the solar control unit and coding address "54"



**Fault codes** (cont.)

<b>Fault code on the display</b>	<b>Const.</b>	<b>Weath.-comp.</b>	<b>System characteristics</b>	<b>Cause</b>	<b>Measures</b>
C5	X	X	Control mode, max. pump speed	Communication error – variable speed internal pump	Check 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 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 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"
CF		X	Control mode	Communication fault, LON communication module	Replace the LON communication module



### Fault codes (cont.)

Fault code on the display	Const.	Weath.-comp.	System characteristics	Cause	Measures
dA		X	Control mode without room influence	Room temperature sensor, heating circuit A1 shorted out	Check the room temperature sensor, heating circuit A1
db		X	Control mode without room influence	Room temperature sensor, heating circuit with mixer M2 shorted out	Check the room temperature sensor, heating circuit with mixer M2
dd		X	Control mode without room influence	Room temperature sensor, heating circuit A1 lead broken	Check the room temperature sensor, heating circuit A1 and the remote control DIP switch settings (see page 105)
dE		X	Control mode without room influence	Room temperature sensor, heating circuit with mixer M2 lead broken	Check the room temperature sensor, heating circuit with mixer M2 and the remote control DIP switch settings (see page 105)
E4	X	X	Burner blocked	Fault, supply voltage 24 V	Replace the control unit
E5	X	X	Burner blocked	Fault, flame amplifier	Replace the control unit.
E6	X	X	Burner in a fault state	Balanced flue system blocked	Check the balanced flue system and differential pressure sensor; press "↑"



### Fault codes (cont.)

Fault code on the display	Const.	Weath.-comp.	System characteristics	Cause	Measures
F0	X	X	Burner blocked	Internal fault	Replace the control unit
F1	X	X	Burner in a fault state	Flue gas temperature limiter has responded	Check flue gas path/route; press "↑"
F2	X	X	Burner in a fault state	The temperature limiter has responded	Check the heating system fill level, the circulation pump, the temperature limiter and interconnecting cables/leads; vent the system; press "↑"
F3	X	X	Burner in a fault state	Flame signal is already present at burner start	Check the ionisation electrode and interconnecting lead; press "↑"
F4	X	X	Burner in a fault state	No flame signal.	Check the ionisation electrode, ignition, ignition module, interconnecting cables/leads, gas pressure, gas train and the ionisation current; press "↑"
F7	X	X	Burner blocked	Differential pressure sensor faulty	Check differential pressure sensor and lead
F8	X	X	Burner in a fault state	The fuel valve closes too late	Check the gas train and both control paths; press "↑"

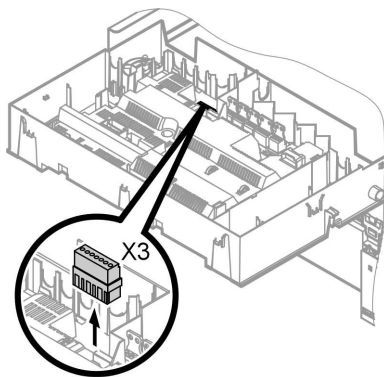


### Fault codes (cont.)

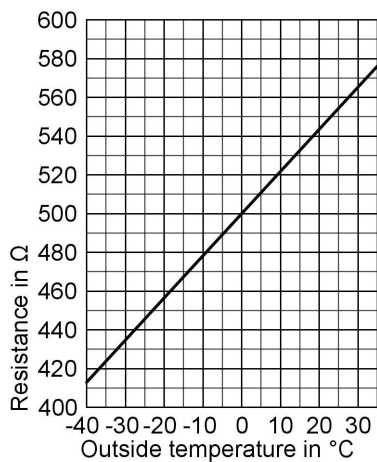
Fault code on the display	Const.	Weath.-comp.	System characteristics	Cause	Measures
F9	X	X	Burner in a fault state	Fan speed too low during burner start	Check the fan, fan connecting cables, fan power supply and control; press "↑"
FA	X	X	Burner in a fault state	Fan not at standstill	Check the fan, fan connecting cables and fan control; press "↑"
Fd	X	X	Burner blocked	Fault at the burner control unit	Check the ignition electrodes and connecting cables/leads; check for any strong interference (EMC) field 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 equipment 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 equipment again. Replace the control unit if the equipment will not restart.

## Repairs

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

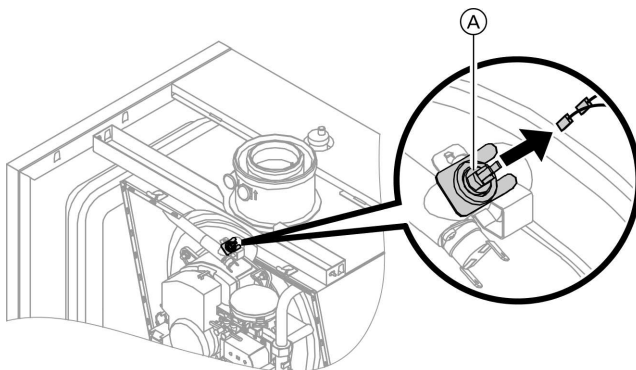


1. Pull plug "X3" from the control unit.
2. Test the resistance of the outside temperature sensor across terminals "X3.1" and "X3.2" on the disconnected plug and compare it with the curve.
3. Where actual values strongly deviate from the curve values, disconnect the wires at the sensor and repeat test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

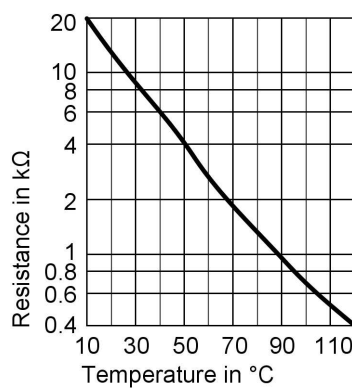
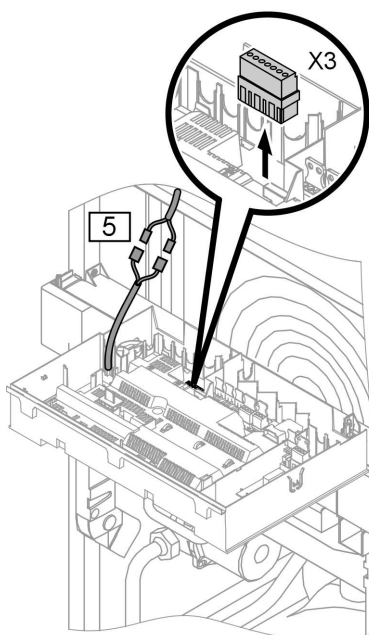


## Repairs (cont.)

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



Ⓐ Boiler water temperature sensor




## Repairs (cont.)

### 1. ■ Boiler water temperature sensor

Pull the leads off the boiler temperature sensor and check the resistance.

#### ■ Cylinder temperature sensor

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

#### ■ Flow temperature sensor

Pull plug "X3" from the control unit and check the resistance across terminals "X3.4" and "X3.5".

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

3. Replace the sensor in case of severe deviation.

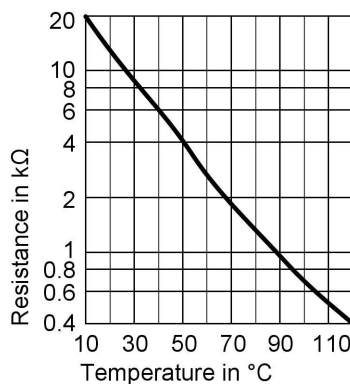
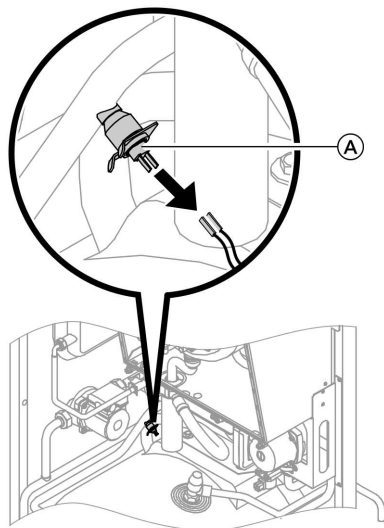



### Danger

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

Drain the boiler before replacing the sensor.

## Checking the outlet temperature sensor



1. Pull the leads from outlet temperature sensor .

2. Check the sensor resistance and compare it with the curve.



## Repairs (cont.)

3. Replace the sensor in case of severe deviation.

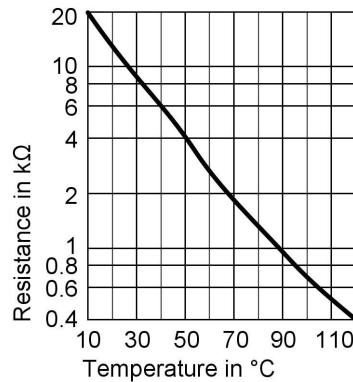
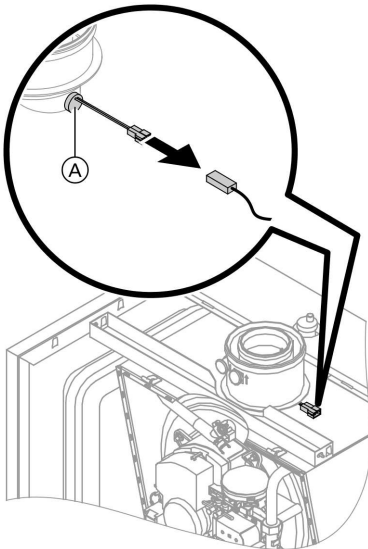


### **Danger**

The outlet temperature sensor is immersed in the DHW (risk of scalding).  
Drain the DHW 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 "↕".



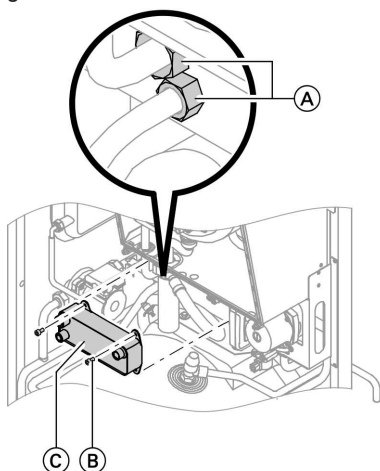
1. Pull the leads from flue gas temperature sensor (A).
2. Check the sensor resistance and compare it with the curve.
3. Replace the sensor in case of severe deviation.

## Repairs (cont.)

### Checking the plate-type heat exchanger

*Drain the boiler on its heating water and DHW side.*

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

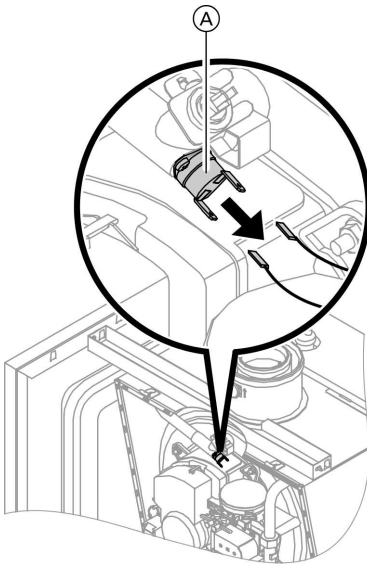


1. Shut off and drain the boiler on its heating water and DHW side.
2. Release the side closures and pivot the control unit forward.
3. Remove the siphon.
4. Release compression fittings (A), screws (B) and pull out plate-type heat exchanger (C).
5. Check the connections on the heating water and DHW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

### Checking the temperature limiter

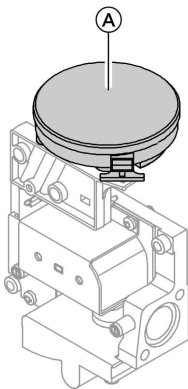
Check the temperature limiter, if the burner control unit cannot be reset after a fault shutdown, although the boiler water temperature is below approx. 75 °C.

## Repairs (cont.)



1. Pull the leads from temperature limiter (A).
2. Check the continuity of the temperature limiter with a multimeter.
3. Remove the faulty temperature limiter.
4. Coat the replacement temperature limiter with heat conducting paste and install it.
5. After commissioning, press reset button "↕" at the control unit.

## Checking and replacing the differential pressure sensor



In the event of fault messages that concern the differential pressure sensor, check the following:

- Seat of differential pressure meter

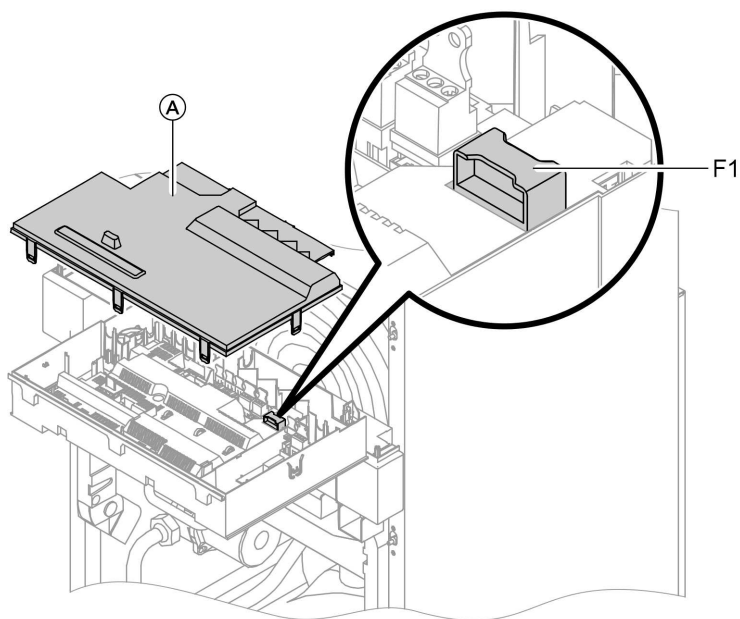
(A)

- Plug-in electrical connection

If the fault persists, replace the differential pressure sensor.

## Repairs (cont.)

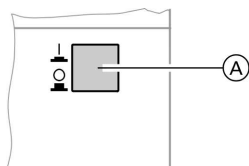
### Checking the fuse



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

### Extension kit for heating circuit with mixer

#### Checking the rotational direction of the mixer motor



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





## Repairs (cont.)

Then standard control mode resumes.

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

### Note

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



Mixer installation instructions

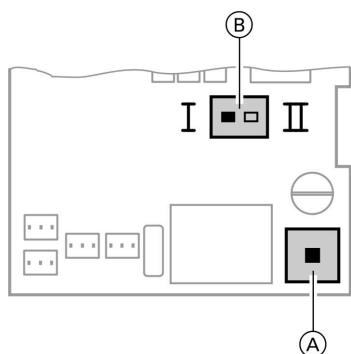
## Changing the rotational direction of the mixer motor (if required)



### Danger

An electric shock can be life-threatening.

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



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



Extension kit installation instructions



(A)

ON/OFF switch

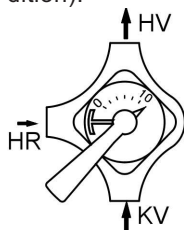
(B)

Rotational direction switch

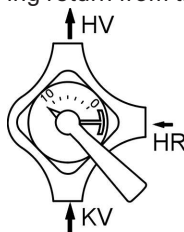
## Repairs (cont.)

### 2. Change over the rotational direction switch:

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



Switch position II for central heating return from the right.

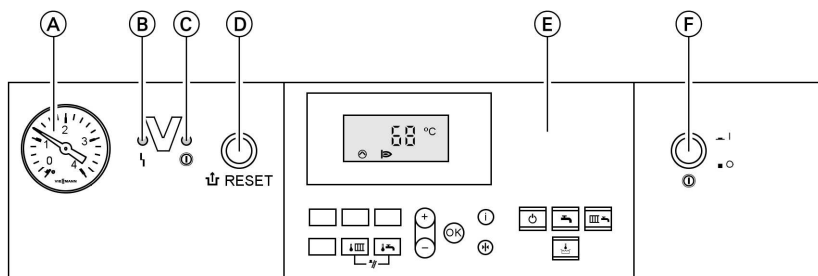


### Checking the Vitotronic 200-H (accessories)

The Vitotronic 200-H is connected to the control unit via the LON connecting cable. To test the connection, implement a subscriber check at the boiler control unit (see page 37).

## Constant temperature control unit

### Control and display elements



- (A) Pressure gauge
- (B) Fault display (red)
- (C) ON indicator (green)

- (D) Reset button
- (E) User interface
- (F) ON/OFF switch

### Keys at the user interface:

- Set boiler water temperature
- Set DHW temperature
- Emissions test function
- Standby mode
- DHW only

- Heating and DHW
- No function
- Setting values
- Confirmation
- Information
- Standard settings (Reset)

### Heating mode

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

The boiler water temperature will be limited:

- To 74 °C by the control thermostat inside the burner control unit.
- To 82 °C by the electronic temperature limiter inside the burner control unit.
- To 100 °C by the temperature limiter in the safety chain (interlocks the burner control unit).

## Constant temperature control unit (cont.)

### Heating the DHW primary 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.

- The DHW primary pump is switched on if the boiler water temperature  $\geq$  set DHW temperature.
- The burner is switched on if the boiler water temperature  $\leq$  set DHW temperature, and the DHW primary pump is switched on when the required boiler water temperature is reached.

The cylinder is then heated up to the set DHW temperature. Heating stops when the set temperature has been reached at the cylinder 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.

### Boosting when DHW is drawn off

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

- The DHW primary pump is switched on if the boiler water temperature  $\geq$  set DHW temperature.
- The burner is switched on if the boiler water temperature  $\leq$  set DHW temperature, and the DHW primary pump is switched on when the required boiler water temperature is reached.

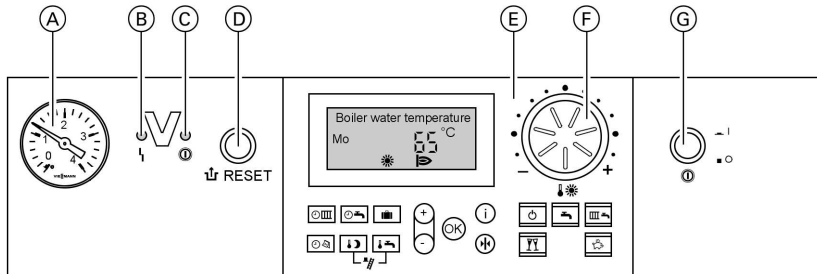
The DHW is controlled to the specified temperature via the cylinder temperature sensor.

The cylinder continues to be heated up after the draw off process has ceased, until the set DHW temperature has been reached at the cylinder temperature sensor.

The cylinder primary pump and the three-way diverter valve remain ON for a further 30 s.

## Weather-compensated control unit

### Control and display elements



- (A) Pressure gauge
- (B) Fault display (red)
- (C) ON indicator (green)
- (D) Reset button
- (E) User interface
- (F) Rotary selector for standard room temperature
- (G) ON/OFF switch

### Keys at the user interface:

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

### Heating mode

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

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

The boiler water temperature will be limited:

### Weather-compensated control unit (cont.)

- To 74 °C by the control thermostat inside the burner control unit.
- To 82 °C by the electronic temperature limiter inside the burner control unit.
- To 100 °C by the temperature limiter in the safety chain (interlocks the burner control unit).

### Heating the DHW primary cylinder from cold

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

- The DHW primary pump is switched on if the boiler water temperature  $\geq$  set DHW temperature.
- The burner is switched on if the boiler water temperature  $\leq$  set DHW temperature, and the DHW primary pump is switched on when the required boiler water temperature is reached.

The cylinder is then heated up to the set DHW temperature. Heating stops when the set temperature has been reached at the cylinder 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.

### Boosting when DHW is drawn off

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

- The DHW primary pump is switched on if the boiler water temperature  $\geq$  set DHW temperature.
- The burner is switched on if the boiler water temperature  $\leq$  set DHW temperature, and the DHW primary pump is switched on when the required boiler water temperature is reached.

The DHW is controlled to the specified temperature via the cylinder temperature sensor.

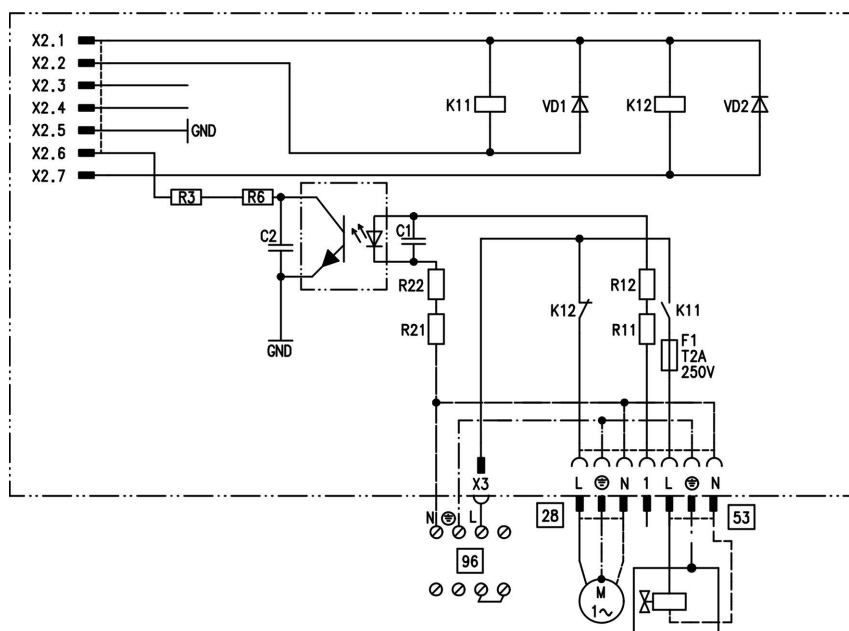
## Weather-compensated control unit (cont.)

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.

## Extensions for external connections

### Internal extension H1

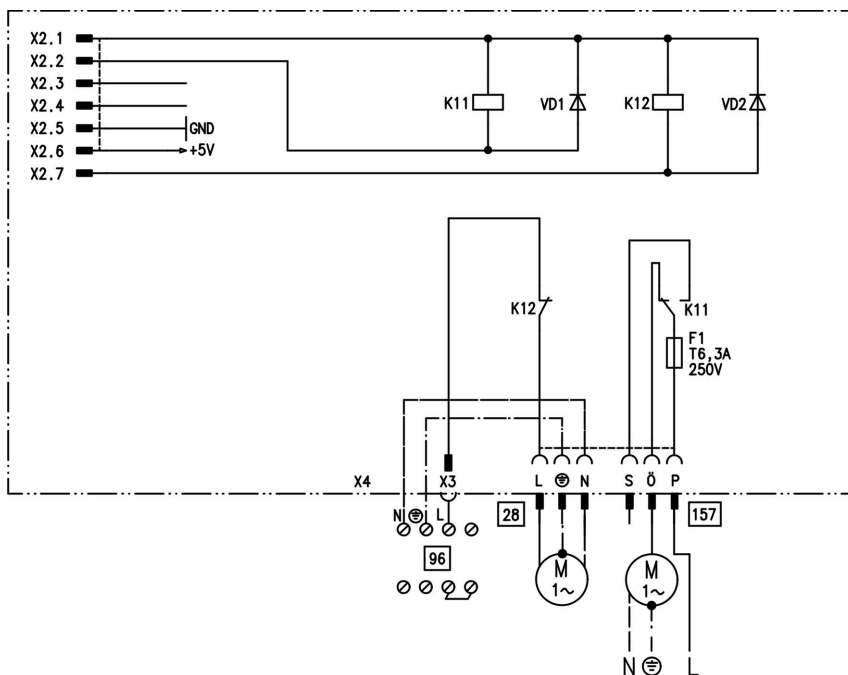


The internal extension H1 is integrated into the control unit casing. The cylinder primary pump is connected to relay output **28**.

An external safety valve can be connected to **53**.

## Extensions for external connections (cont.)

### Internal extension H2 (accessories)



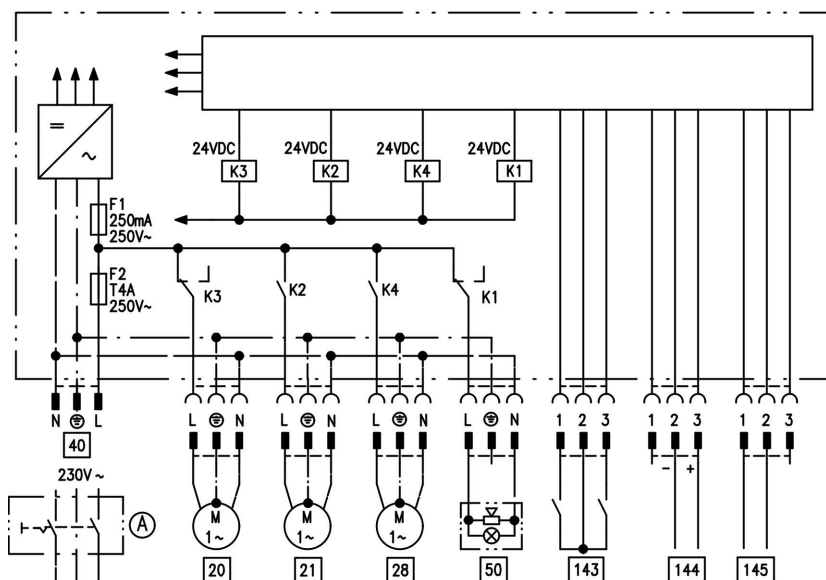
The internal extension H2 is integrated into the control unit casing instead of the internal extension H1.  
The cylinder primary pump is connected to relay output **28**.

An external extractor interlock can be connected to **157**.



## Extensions for external connections (cont.)

### External extension H1



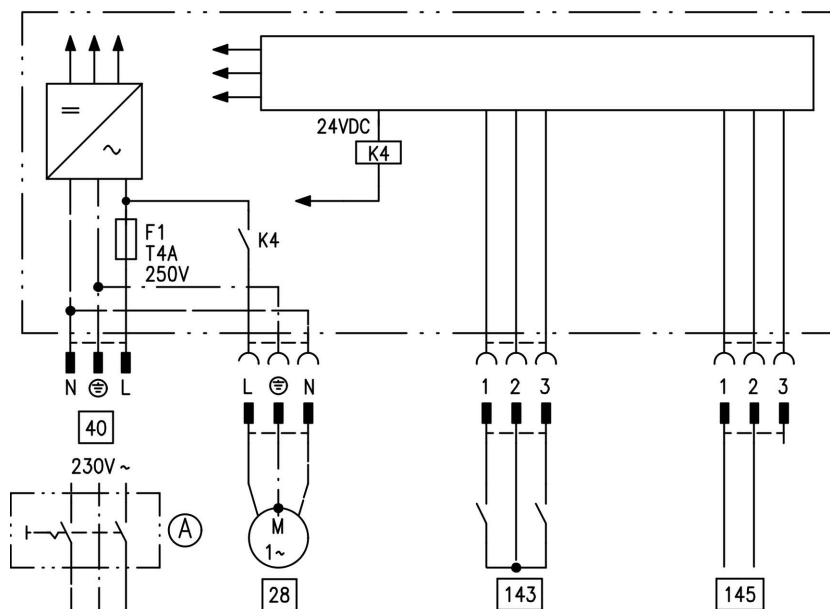
The external extension is connected to the boiler control unit via the KM BUS. The following functions can be controlled or processed simultaneously via the extension:

- (A) ON/OFF switch (on site)
- 20 Heating circuit pump for the heating circuit without mixer
- 21 Cylinder primary pump
- 28 DHW circulation pump (only for weather-compensated operation)
- 40 Power supply
- 50 Central fault message

- 143 ■ External blocking (terminals 2 - 3)
- External demand (terminals 1 - 2)
- External heating program changeover (terminals 1 - 2) (only for weather-compensated operation)  
The allocation of the function "External heating program changeover" is set via coding address "91".
- 144 External set value 0 to 10 V
- 145 KM BUS

## Extensions for external connections (cont.)

### External extension H2



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

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

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

- 145 KM BUS

## Control functions

### External heating program changeover

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

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

You can select which direction the heating program changes over in coding address "D5":

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

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

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

The heating program changeover stays enabled for as long as the contact remains closed, but at least as long as the duration selected in coding address "F2".

## Control functions (cont.)

### External blocking

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

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

### External demand

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

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

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

### Venting program

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

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

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

### Filling program

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

Afterwards, the diverter valve can be moved via code "2F:2" into the central position. In this position, the control unit can be switched OFF, and the system can be filled completely.

## Control functions (cont.)

### Filling with the control unit switched ON

If the system is to be filled with the control unit switched ON, the diverter valve will be moved to its central 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 disabled after 20 min, and coding address "2F" is set to "0".

### Screed drying function

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

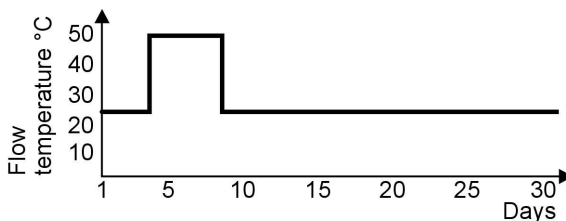
When the screed drying function is activated, the heating circuit pump of the mixer circuit is switched ON and the flow temperature will be held at the selected profile. After completion (30 days), the mixer circuit will again be regulated automatically via the set parameters.

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

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

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

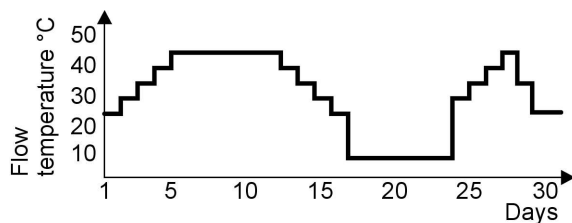
#### Temperature profile 1: (EN 1264-4) code "F1:1"



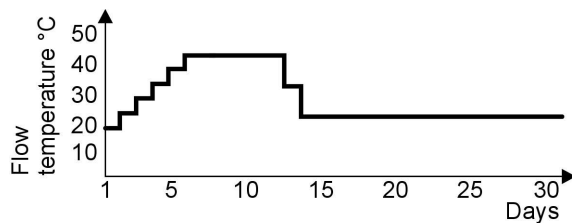
## Function description

### Control functions (cont.)

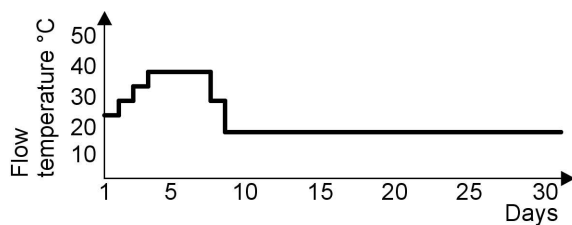
#### Temperature profile 2: (ZV parquet and flooring technology) code "F1:2"



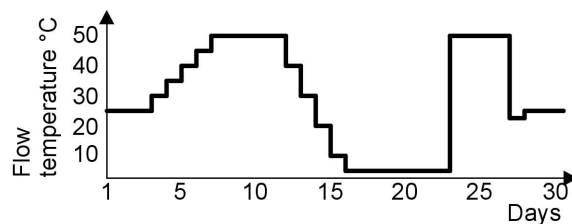
#### Temperature profile 3: Code "F1:3"



#### Temperature profile 4: Code "F1:4"

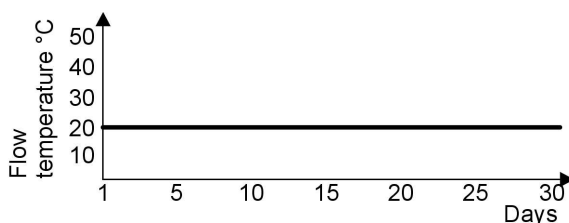


#### Temperature profile 5: Code "F1:5"



## Control functions (cont.)

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



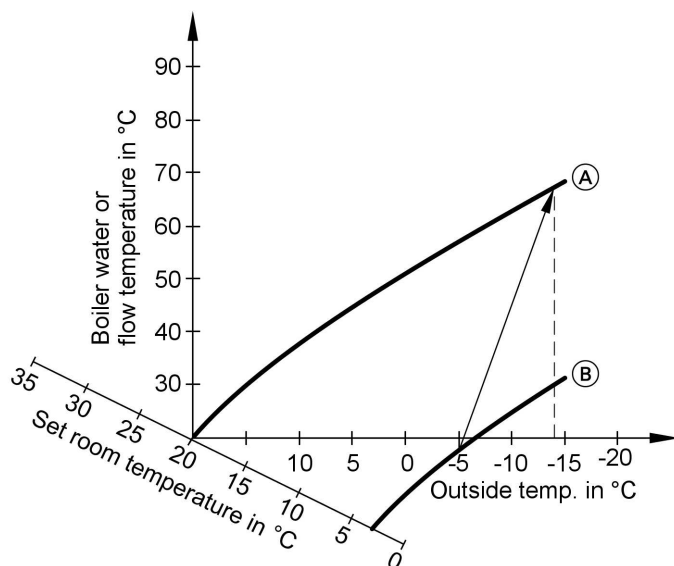
### Raising the reduced room temperature

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

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

## Control functions (cont.)

### Example using the settings in the delivered condition



Ⓐ Heating curve for operation with standard room temperature

Ⓑ Heating curve for operation with reduced room temperature

### Reducing the heat-up time

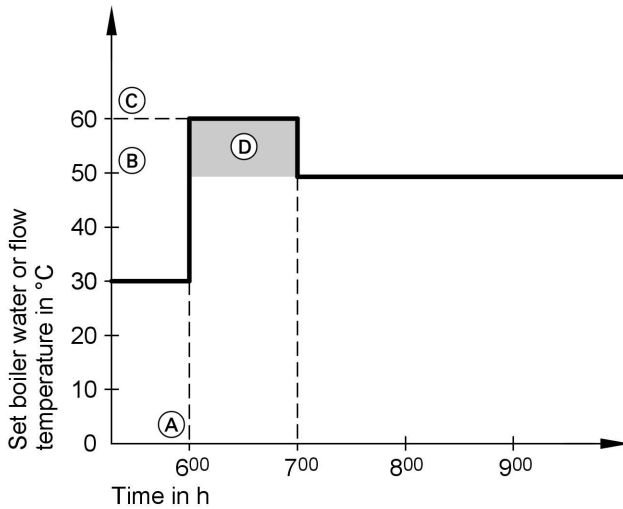
During the transition from operation with reduced room temperature to operation with standard room temperature, the boiler water or flow temperature will be raised in accordance with the selected heating curve. The boiler water or flow temperature can be automatically increased.

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



## Control functions (cont.)

### Example using the settings in the delivered condition






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

## Remote control DIP switches

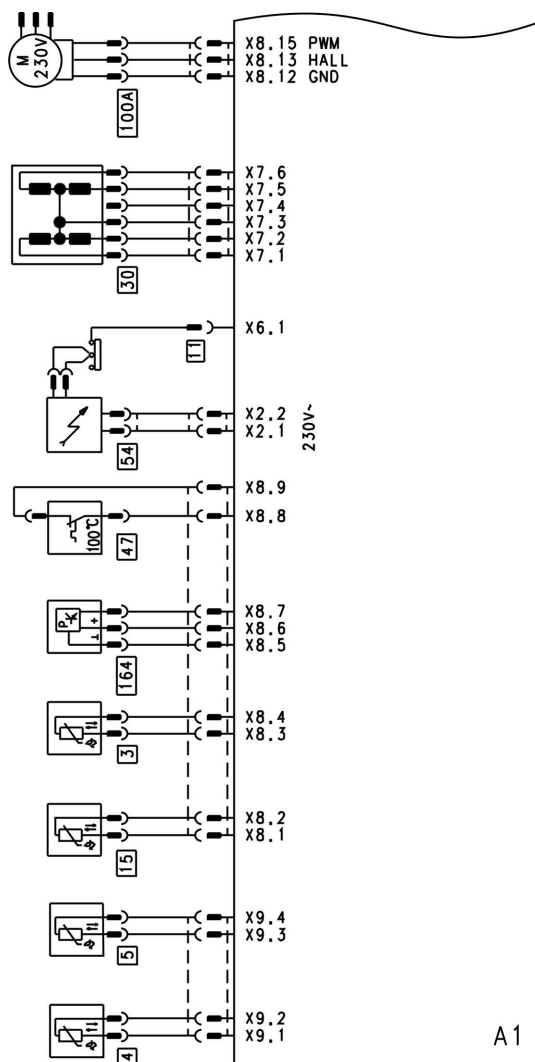
The DIP switches are located on the PCB in the top part of the casing.

## Function description

### Remote control DIP switches (cont.)

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

## Connection and wiring diagram – internal connections



- A1 Main PCB  
X... Electrical interfaces  
[3] Boiler water temperature sensor  
[4] Outlet temperature sensor

- [5] Cylinder primary temperature sensor  
[11] Ionisation electrode  
[15] Flue gas temperature sensor

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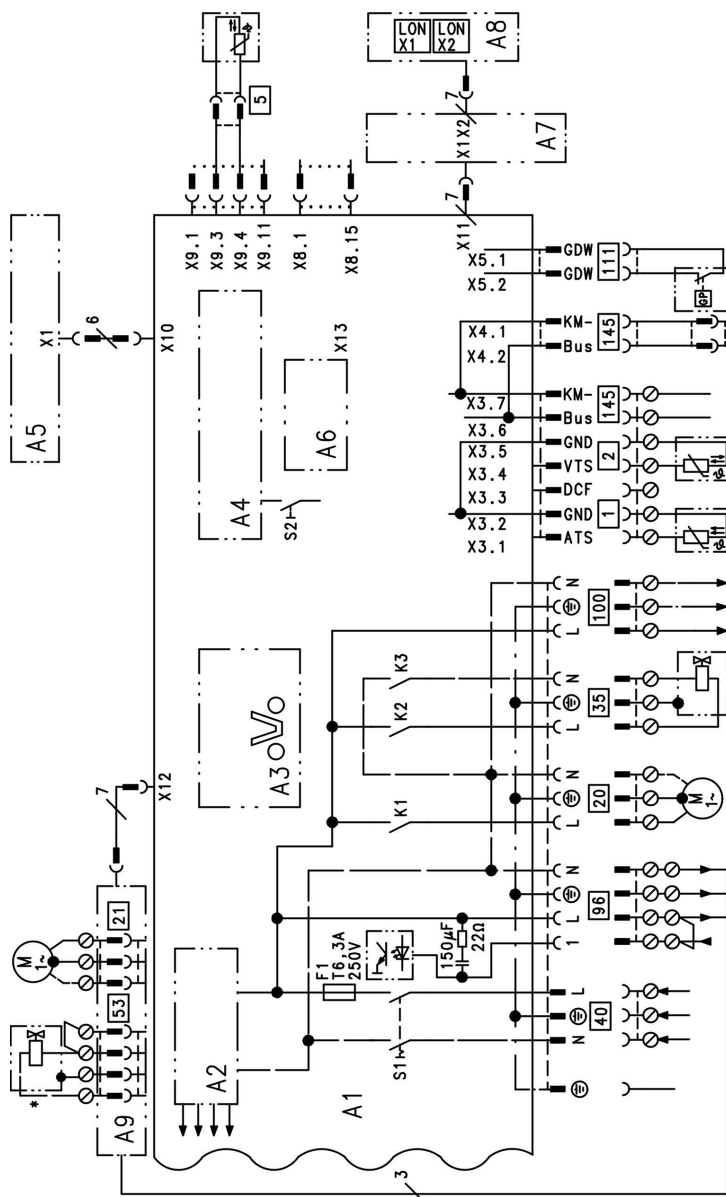


## Designs

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

<div>30</div>	Stepper motor for diverter valve	<div>54</div>	Ignition unit
<div>47</div>	Thermocouple	<div>100</div> A	Fan motor
		<div>164</div>	Differential pressure sensor

## Connection and wiring diagram – external connections



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A1 Main PCB

A2 Power supply unit



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

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

## Parts lists

### Spare parts information

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

*Obtain standard parts from your local supplier.*

- |   |  |
|---|--|
| 001 Heat exchanger connecting pipe with gaskets   | 035 Safety spring                                      |
| 002 Flow pipework                                 | 036 Plate-type heat exchanger                          |
| 003 DHW connecting pipe                           | 037 Plate-type heat exchanger gas-ket set              |
| 004 DHW connecting pipe                           | 040 Grommets (set)                                     |
| 005 Cylinder connecting pipe                      | 051 Burner (with items 050, 052 to 064)                |
| 006 Return connecting pipe                        | 052 Ignition unit                                      |
| 007 Gas connection flange                         | 055 Burner gauze assembly                              |
| 008 Stratification primary cylinder               | 056 Radial fan   |
| 009 Siphon  | 057 Differential pressure sensor                       |
| 010 Condensate hose                               | 058 Gas train  |
| 011 T & P valve                                   | 059 Conversion kit for natural gas E (gas restrictor)  |
| 012 Heat exchanger                                | 060 Conversion kit for natural gas LL (gas restrictor) |
| 013 Cap plate (with item 014)                     | 061 Conversion kit for LPG P (gas restrictor)          |
| 014 Profiled gasket                               | 064 Burner gauze assembly gasket                       |
| 015 Clip nut                                      | 065 Pressure transmitter adaptor                       |
| 016 Mounting bracket closure                      | 067 Pressure sensor adaptor                            |
| 017 Boiler flue connection                        | 069 DHW connecting pipe                                |
| 018 Plug  | 100 Control unit                                       |
| 019 Ventilation air gasket Ø 125                  | 101 Back cover   |
| 020 Lip seal Ø 80                                 | 102 Locking clips (10 pce.)                            |
| 021 Boiler connection grommets                    | 103 Support  |
| 022 Connection line; diaphragm expansion vessel   | 104 Pivot arm  |
| 023 Diaphragm expansion vessel                    | 105 Hinge pins (10 pce.)                               |
| 024 Pressure gauge and fem. connection            | 106 Flap   |
| 025 Quick-acting air vent valve G $\frac{3}{8}$ " | 107 Pressure gauge retainer                            |
| 026 Overflow valve                                | 108 Clip (10 pce.)                                     |
| 027 Safety valve                                  | 109 Hinge (10 pce.)                                    |
| 028 Air vent valve G $\frac{3}{8}$ "              | 110 Boiler coding card                                 |
| 029 Linear stepper motor                          | 111 Fuse 6.3 A slow (10 pce.)                          |
| 030 Non-return valve                              | 112 Programming unit for constant temperature mode     |
| 031 Ball valve R $\frac{1}{2}$ " with handle      | 113 Programming unit for weather-compensated mode      |
| 033 Flat seal set                                 | 122 LON communication module (accessories)             |
| 034 Set of plug connector retainers               | 123 PCB adaptor, LON module (accessories)              |
|   | 125 Fuse holder  |



### Parts lists (cont.)

- 151 Outside temperature sensor
- 152 Cylinder primary 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 panel, top
- 204 Front panel, bottom
- 205 Tie-bar
- 206 Adjustable foot
- 210 Control unit retaining plate
- 300 Circulation pump motor
- 301 Circulation pump motor
- 350 Seal washer
- 351 Strain relief
- 352 Gasket
- 354 Anode flange with gasket
- 355 Thermal insulation; flange

#### **Wearing parts**

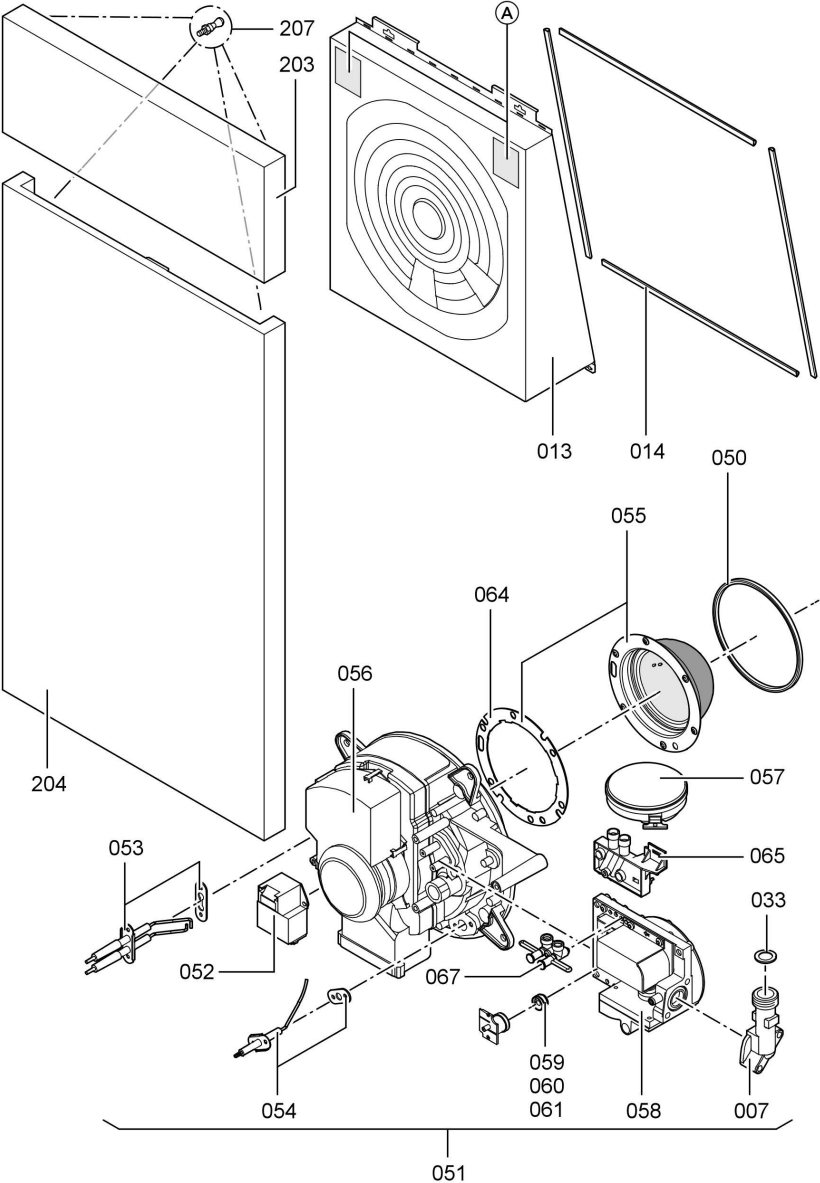
- 050 Burner gasket
- 053 Ignition electrode with gasket
- 054 Ionisation electrode with gasket
- 353 Magnesium anode  $\varnothing = 26 \times 280/250$

#### **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
- 115 Adaptor, ionisation current test cable
- 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
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- 207 Fixing elements
- 208 Touch-up paint stick, Vitowhite
- 209 Spray paint, Vitowhite
- 400 Operating instructions for constant temperature mode
- 401 Operating instructions for weather-compensated mode
- 403 Installation instructions
- 404 Service instructions
- Ⓐ Type plate

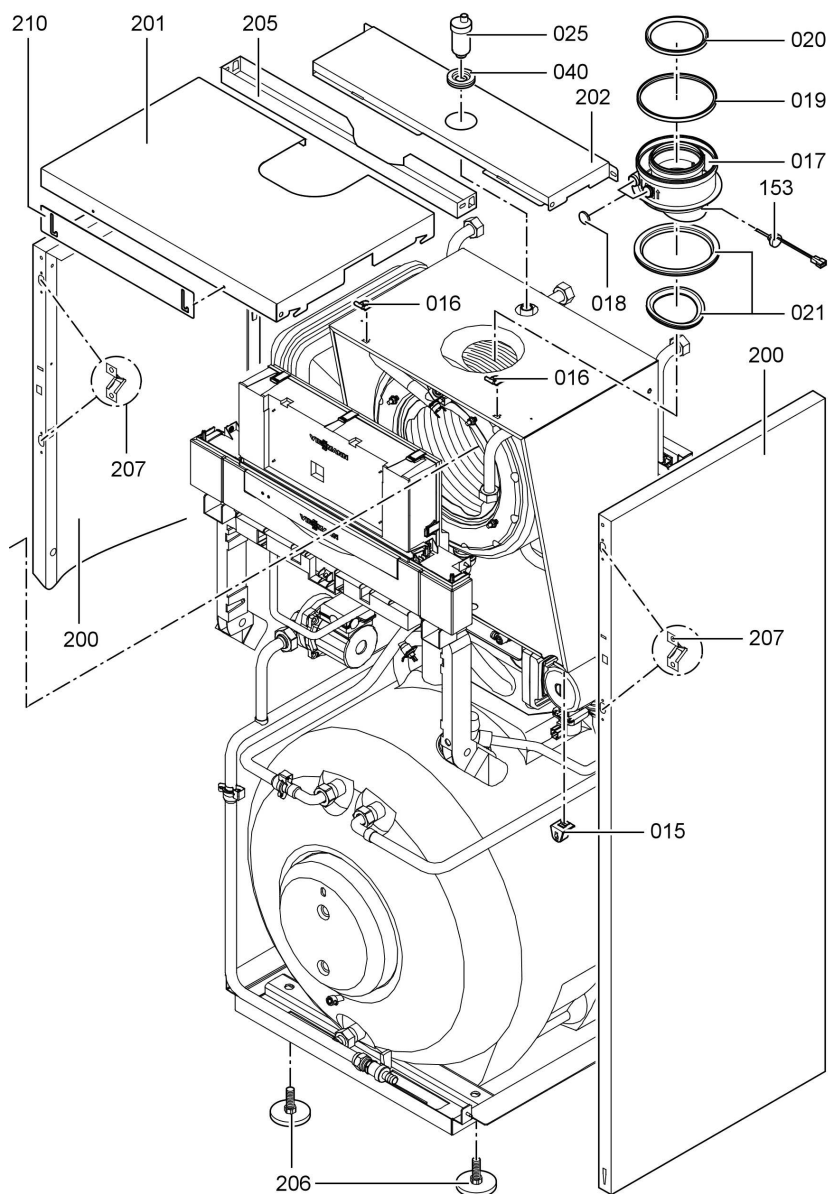


**Parts lists (cont.)**



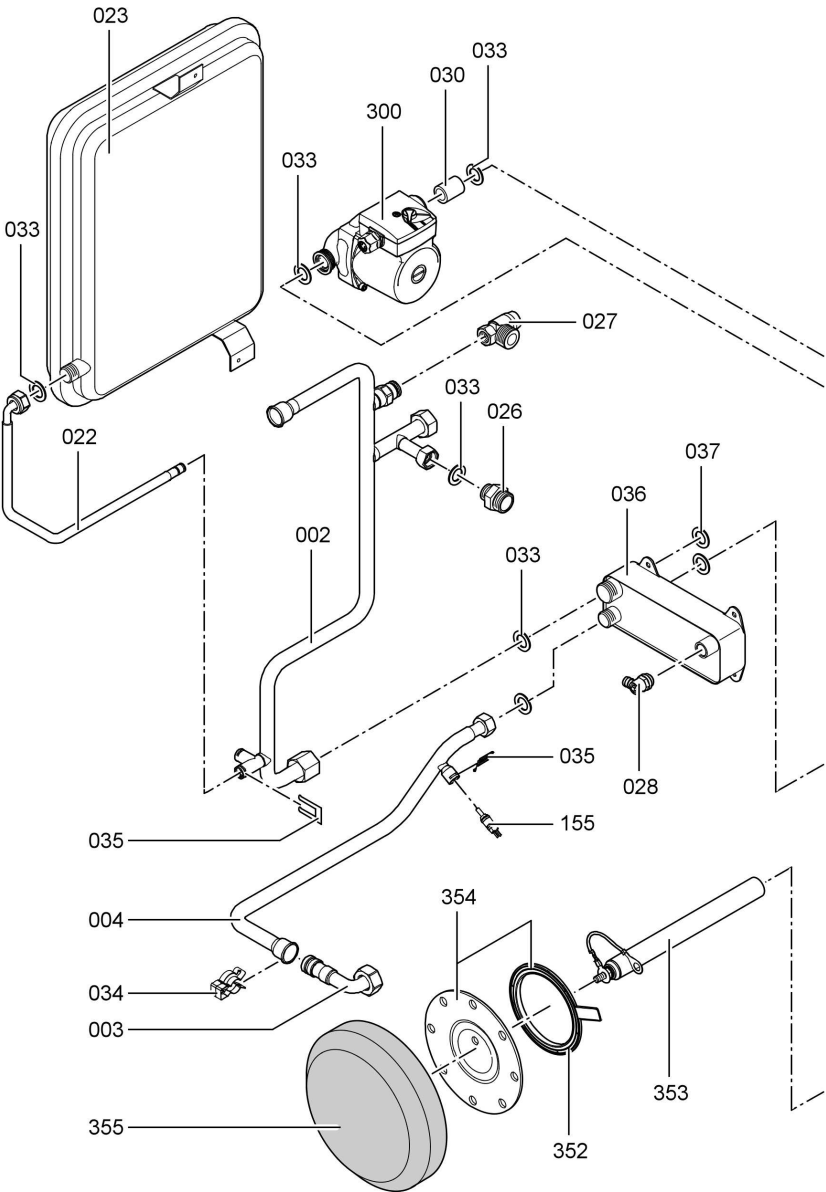
## Parts lists

### Parts lists (cont.)

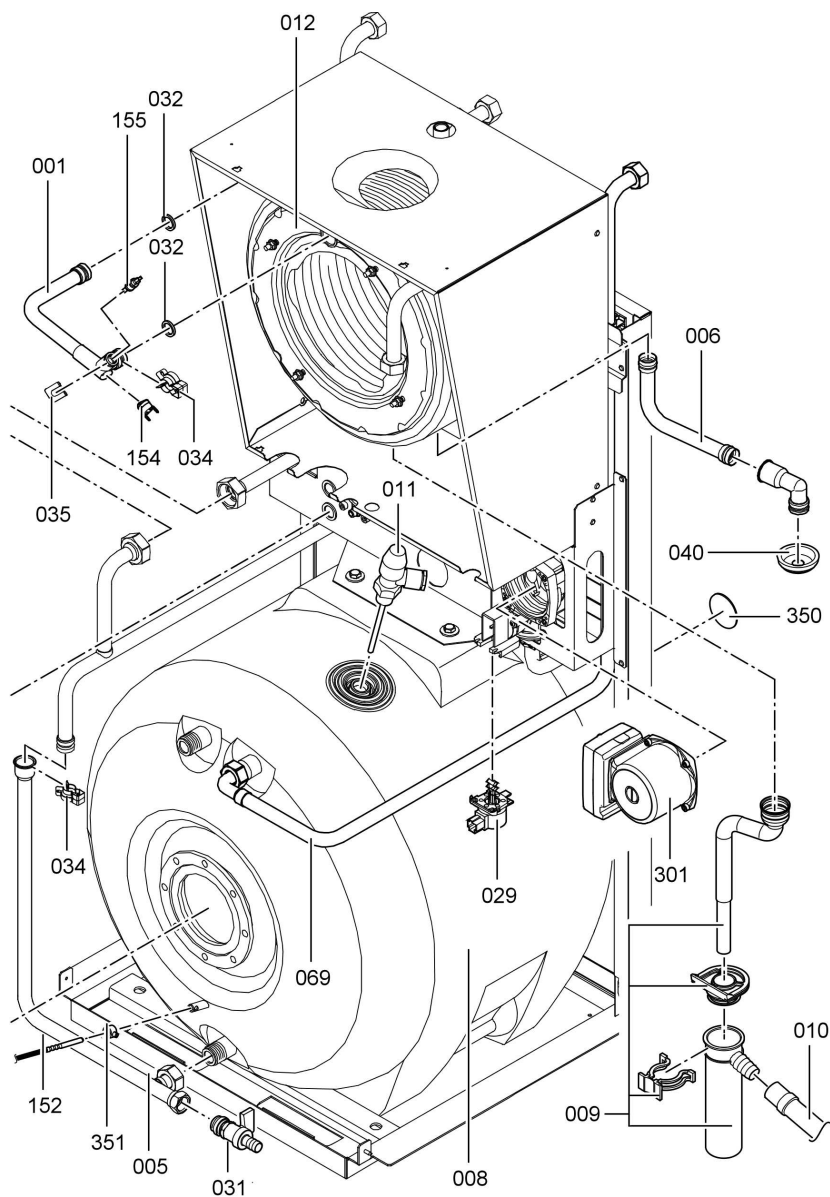


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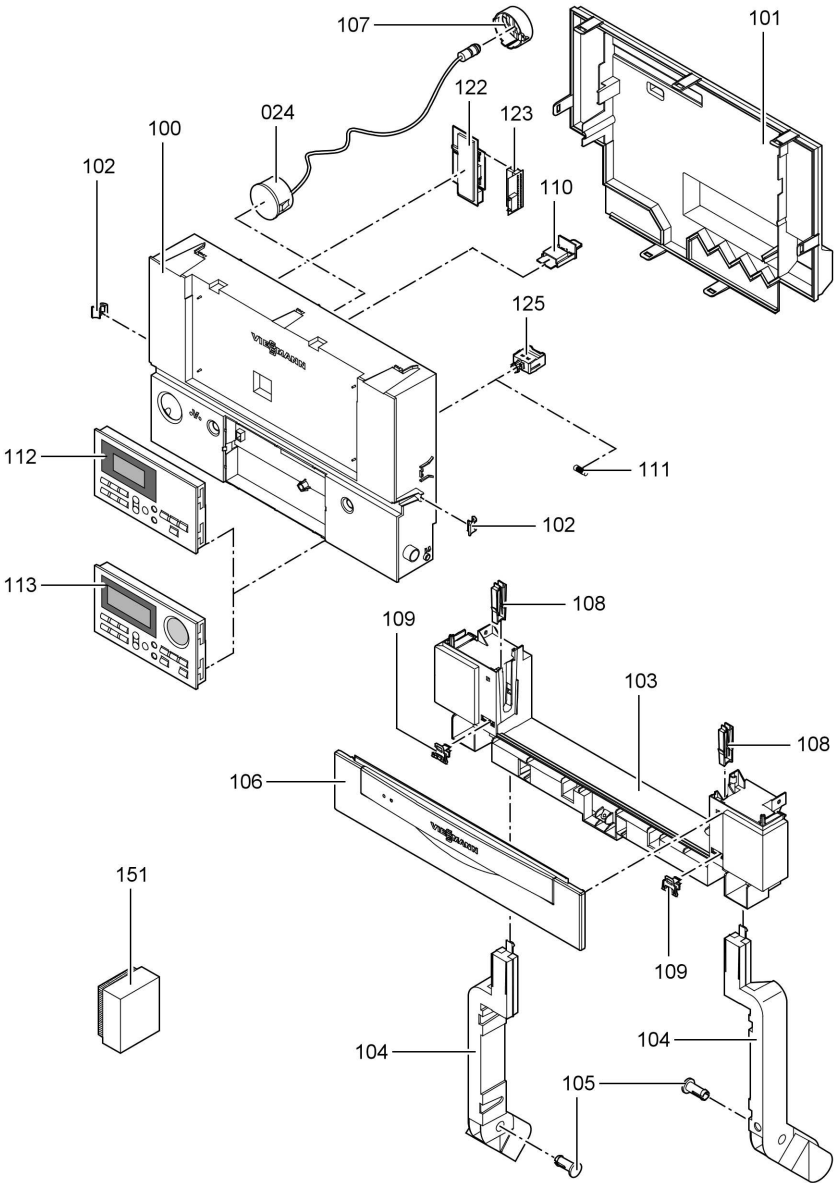
**Parts lists (cont.)**



**Parts lists** (cont.)



**Parts lists (cont.)**



## Commissioning/service reports

Setting and test values	Date: By:	Set value	Initial start-up	Service
<b>Static pressure</b>	<i>mbar</i>	max. 57.5 mbar		
<b>Supply pressure (flow pressure)</b>				
<input type="checkbox"/> for natural gas E	<i>mbar</i>	17.4-25 mbar		
<input type="checkbox"/> for natural gas LL	<i>mbar</i>	17.4-25 mbar		
<input type="checkbox"/> for LPG	<i>mbar</i>	42.5-57.5 mbar		
<i>Tick gas type</i>				
<b>Carbon dioxide content CO<sub>2</sub></b>				
■ at lower rated output	<i>% vol.</i>			
■ at upper rated output	<i>% vol.</i>			
<b>Oxygen content O<sub>2</sub></b>				
■ at lower rated output	<i>% vol.</i>			
■ at upper rated output	<i>% vol.</i>			
<b>Carbon monoxide content CO</b>				
■ at lower rated output	<i>ppm</i>			
■ at upper rated output	<i>ppm</i>			
<b>Ionisation current</b>	<i>µA</i>	min. 4 µA		

## Specification

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

### Gas boiler, category: II2ELL3P

<b>Rated output range</b> $T_v/T_R$ 50/30 °C	<b>kW</b>	<b>6.6 to 26</b>
<b>Rated thermal load range</b>	<b>kW</b>	<b>6.3 to 24.7</b>
<b>Connection values</b> *1		
In relation to the max. load with		
Natural gas E	m <sup>3</sup> /h	2.65
Natural gas LL	m <sup>3</sup> /h	3.08
LPG	m <sup>3</sup> /h	1.94
<b>Product ID</b>		<b>CE–0085 BO 0338</b>

### Product characteristics (to EnEV [Germany])

<b>Rated output range</b>	<b>kW</b>	<b>6.6 to 26</b>
<b>Efficiency</b> $\mu$ at		
■ 100 % of rated output	%	96.3
■ 30 % of rated output	%	107.4
<b>Standby loss</b> $q_{B,70}$ *2	%	0.7
<b>Power consumption</b> *2 at		
■ 100 % of rated output	W	207
■ 30 % of rated output	W	69

\*1 The supply values are only for documentation purposes (e.g. in the gas contract application) or to estimate the supplementary volumetric settings. Because of factory settings, the gas pressure must not be altered from these settings. Reference: 15 °C, 1013 mbar.

\*2 Max. limit to EnEV [Germany]

## Declaration of conformity

### Declaration of conformity for the Vitodens 333-F

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

DIN 4702-6	EN 50 165
DIN 4753	EN 55 014
EN 483	EN 60 335
EN 625	EN 61 000-3-2
EN 677	EN 61 000-3-3

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

90/396/EEC	97/23/EC
89/336/EEC	2006/95/EC
92/ 42/EEC	

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

The **product characteristics** that are determined as system values for the **Vitodens 333-F 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, 2 April 2007

Viessmann Werke GmbH&Co KG



pp. Manfred Sommer



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

We, Viessmann Werke GmbH&Co KG, D-35107 Allendorf, confirm that the product **Vitodens 333-F** complies with the NO<sub>x</sub> limits specified by the 1st BImSchV paragraph 7 (2) [Germany].

Allendorf, 2 April 2007

Viessmann Werke GmbH&Co KG

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

pp. Manfred Sommer

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### Applicability

Compact gas fired condensing boiler

Type WS3A

**6.6 to 26 kW**

from serial no.

7246 172 ...

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D-35107 Allendorf

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