

# Installation and service instructions

for contractors

# VIESSMANN

## Vitodens 343-F

### Type WS4A

Compact Energy Tower with a gas fired condensing boiler as compact model

Natural gas and LPG version

(GC no) 47-819-08

*For applicability, see the last page*



## VITODENS 343-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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Preparing for installation

## Product information

### Vitodens 343-F, WS4A

Set up for operation with natural gas.

May be converted to LPG.

The Vitodens 343-F should generally only be delivered to those countries specified on the type plate. For deliveries to alternative countries, an approved contractor, on his own initiative, must arrange individual approval in accordance with the law of the land.

## Handling

To protect the equipment, transport the system inside its crate, where possible. Whilst handling the device, leave the pallet beneath the unit, where possible.

**!** **Please note**  
To avoid equipment damage whilst handling the device without its crate or pallet, never place the device on its front or side panels or apply loads to these areas.

Height of unit when tilted

- With pallet 2395 mm
- Without pallet 2085 mm

## Positioning

### Installation room requirements

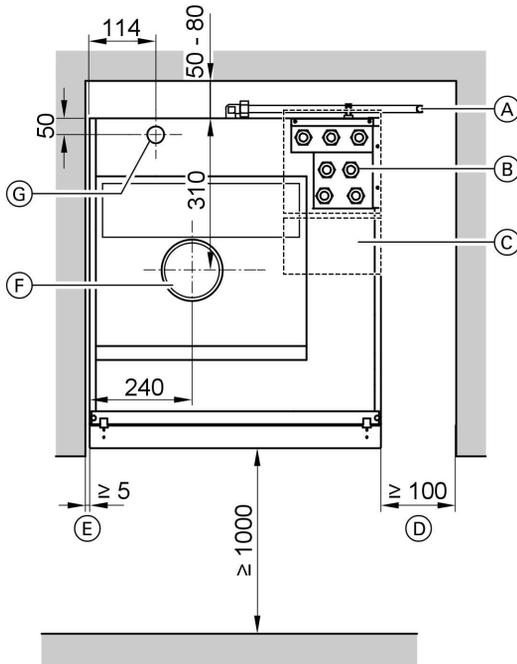
Required room height: min. 2400 mm.

Total weight incl. DHW fill: 495 kg.

**!** **Please note**  
To prevent building damage, observe the permissible floor loading.

## Clearance dimensions

All measurements in mm. If appliance is fitted in a cupboard additional space for the DHW expansion vessel (see G3 instructions) and an approx. 40l solar expansion vessel have to be considered.



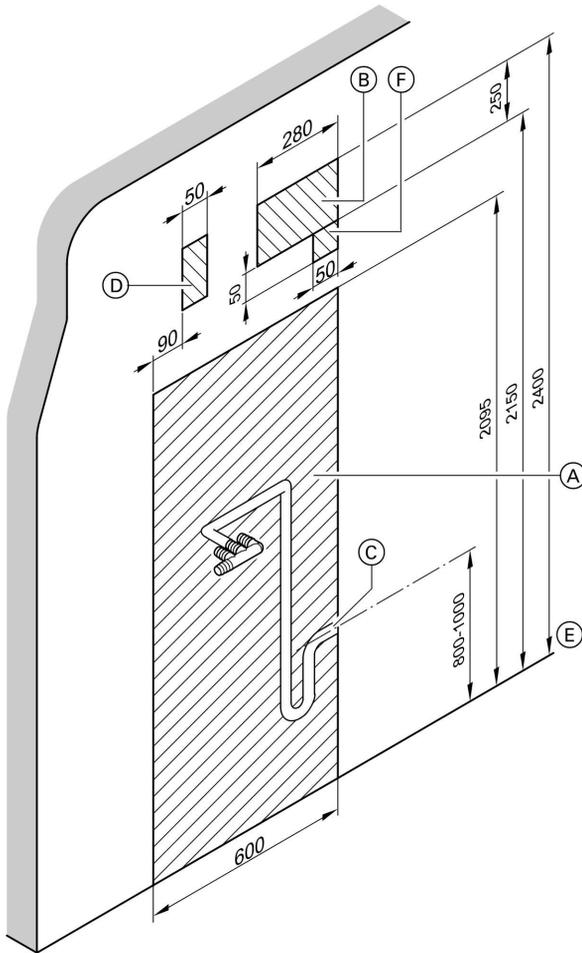
Plan view

- (A) T&P valve drain pipe
- (B) Hydraulic connections
- (C) Cable entry
- (D) Required clearance for the T&P valve drain (either on the left or on the right)

- (E) Required clearance for removing the front panel (also maintain this clearance when fitting the fascia frame)
- (F) Balanced flue connection
- (G) Gas connection

Preparing for installation

## On site connections

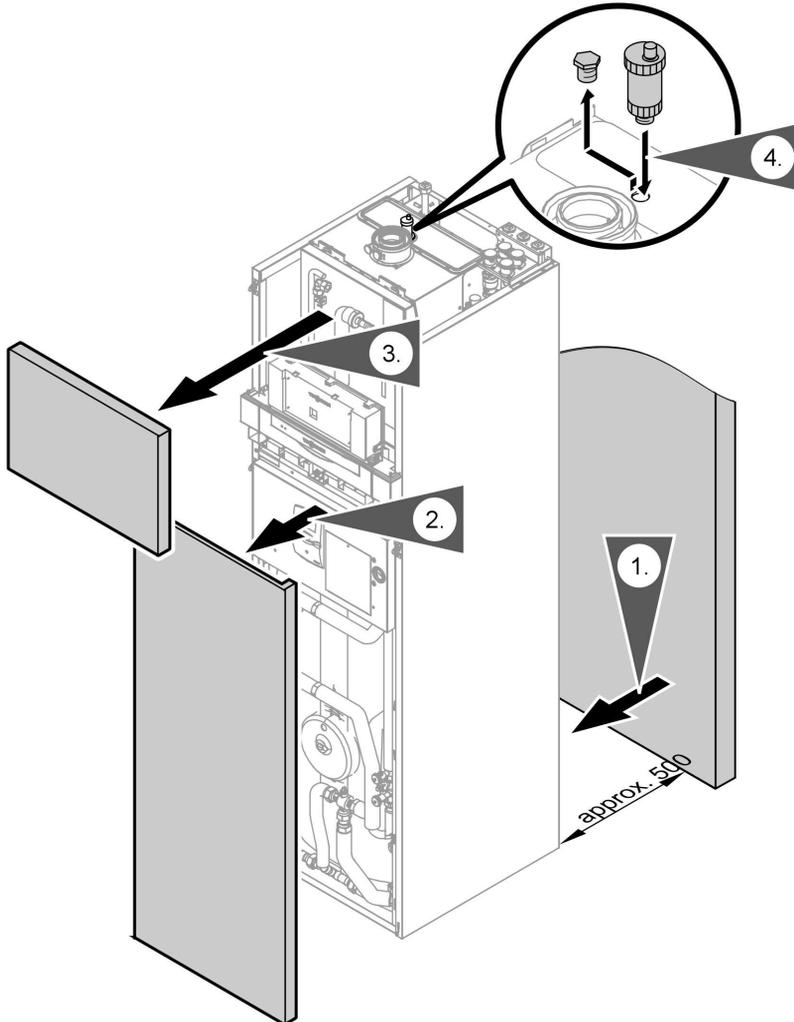


- (A) Vitodens dimensions
- (B) Area for on-site hydraulic connections
  - Compulsory with connection panel
  - Recommendation without connection panel

- (C) Condensate drain
- (D) Gas connection
- (E) Top edge – finished floor
- (F) Cable entry
  - Allow all cables/leads to protrude approx. 2000 mm from the wall

## Preparing the installation of the compact boiler

### Removing the front panels and fitting the quick acting air vent valve



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1. Position the compact boiler at a distance of approx. 500 mm from the on-site drain connection.

2. Pull the lower front panel at its upper edge forward and lift out upwards.



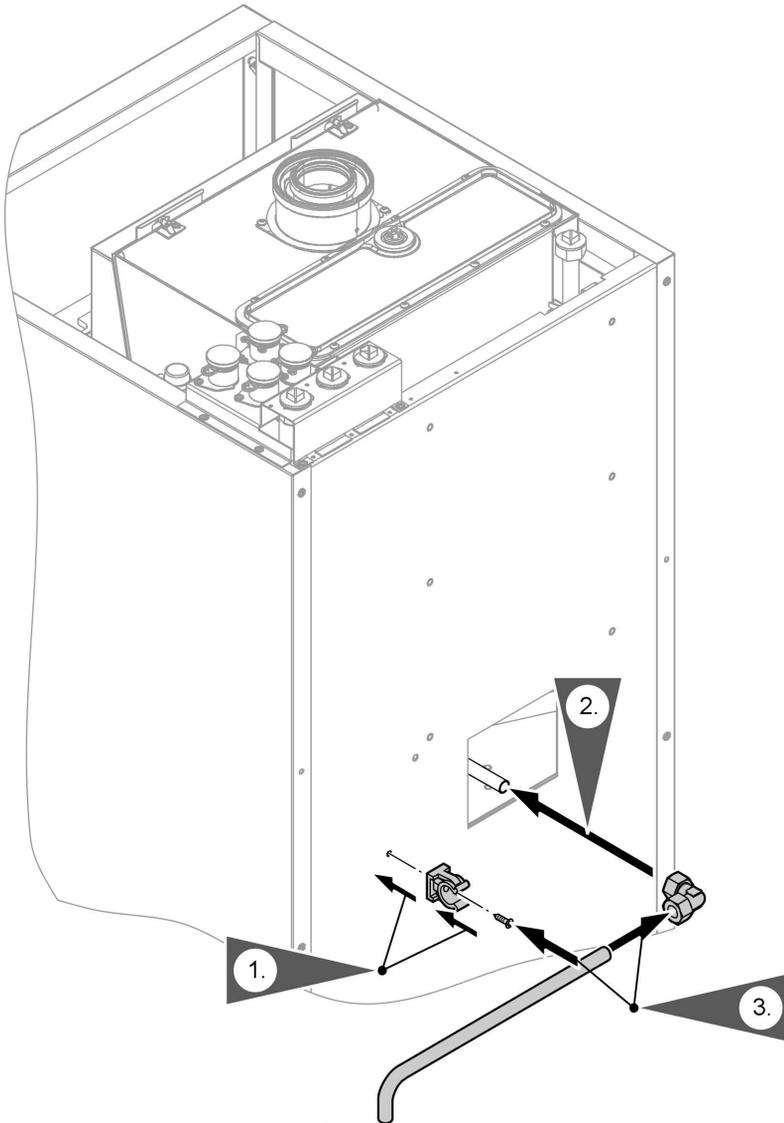
Preparing for installation

### Preparing the installation of the compact boiler (cont.)

3. Pull the front panel at its upper edge forward and lift out upwards.
4. Remove the plugs from the top of the compact boiler and insert the quick acting air vent valve (secured to the top of the boiler).

**Preparing the installation of the compact boiler (cont.)**

**Fitting the T&P valve drain line**



## Preparing for installation

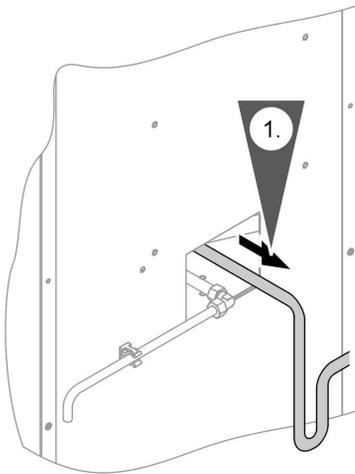
### Preparing the installation of the compact boiler (cont.)

1. Fit the retaining clip to the back panel.
2. Secure the elbow fitting to the pre-assembled drain pipe.
3. Fit the drain pipe to the elbow fitting.
4. Connect the drain pipe to the on-site drain connection.

#### **Note**

*The drain line may be fitted either on the r.h. or the l.h. side to suit local conditions.*

## Connecting the condensate hose



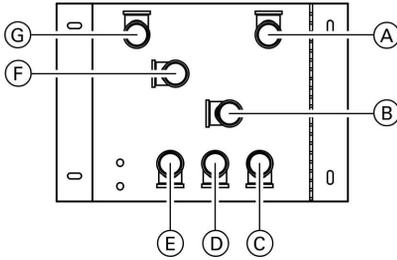
1. Pull the drain hose from the opening and route as backup loop (siphon).
2. Fill approx. 100 ml water into the drain hose.
3. Connect the drain hose to the on-site drain connection.
4. Push the boiler against the wall.

#### **Note**

*Test for leaks prior to finalising the positioning.*

## Preparing the installation of the compact boiler (cont.)

### On-site connections at the connection panel (accessory)



Installation position, see page 8.  
All connections  $R_p \frac{3}{4}$ "

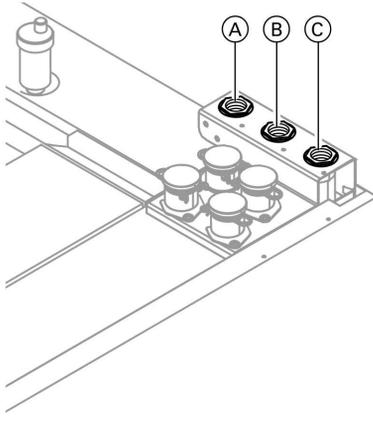
- Ⓐ Solar flow
- Ⓑ Heating flow
- Ⓒ Cold water
- Ⓓ DHW circulation
- Ⓔ DHW
- Ⓕ Heating return
- Ⓖ Solar return



Connection panel installation instructions.

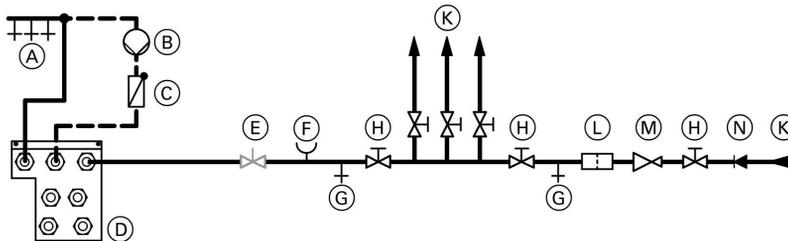
## Fitting the connections

### Connections on the DHW side



Connect the pipework on the DHW side with detachable fittings. Seal off those connections that are not required.

- (A) DHW Rp 3/4"
- (B) DHW circulation Rp 3/4"
- (C) Cold water Rp 3/4"



- |   |                                     |
|---|-------------------------------------|
| (A) DHW                                   | (G) Drain valve                     |
| (B) DHW circulation pump                  | (H) Shut-off valve                  |
| (C) Spring-loaded check valve             | (K) Cold water                      |
| (D) Hydraulic connection area<br>Vitodens | (L) Drinking water filter           |
| (E) Flow regulating valve                 | (M) Pressure reducer                |
| (F) Pressure gauge connection             | (N) Non-return valve/pipe separator |

## Fitting the connections (cont.)

Observe DIN 1988 and DIN 4753 [or local regulations] for the connection on the DHW side.



### Danger

DHW temperatures in excess of 60 °C can lead to scalding. Install an anti-scalding protection when temperatures in excess of 60 °C occur.

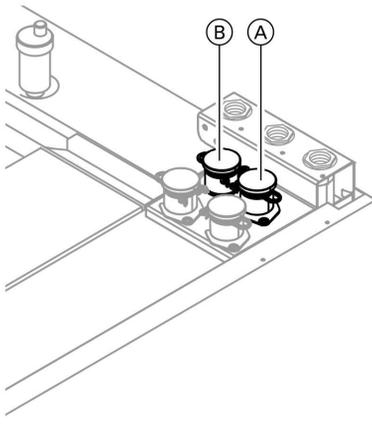
### Note

The safety valve, shut-off valve and drain valve plus the check valve on the DHW side are already integrated into the boiler.

### Note

Please read the additional mandatory installation and maintenance instructions to comply with G3 Building regulation and the requirements of the UK Water Supply (Water Fittings) Regulations/Scottish Water Bylaws.

## Heating circuit connection

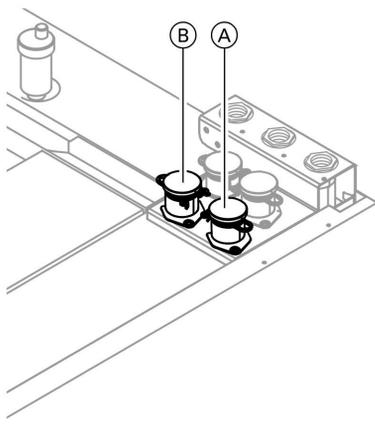


1. Flush the heating system thoroughly.
2. Connect the heating circuit.

- Ⓐ Heating flow (Multi-connect system)
- Ⓑ Heating return (Multi-connect system)

## Fitting the connections (cont.)

### Solar circuit connection



Connect the solar circuit.

**Note**

*The solar circuit pump is integrated into the Vitodens.*



Solar heating system installation instructions.

- Ⓐ Solar flow (Multi-connect system)
- Ⓑ Solar return (Multi-connect system)

### Flue gas connection

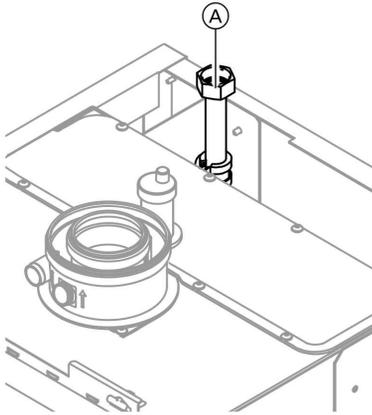
Connect the balanced flue.



Flue gas system installation instructions.

## Fitting the connections (cont.)

### Gas connection



Ⓐ Gas connection

#### **Notes regarding operation with LPG**

*We recommend the installation of an external safety solenoid valve when installing the compact boiler in rooms below ground level.*

1. Carry out a leak/soundness test.



#### **Please note**

Excessive test pressure may damage the compact boiler and the gas valve. Max. test pressure 150 mbar. Where higher pressure is required for soundness tests, separate the compact boiler and the gas valves from the gas supply pipe (undo the fitting).

2. Vent the gas supply pipe.



#### **Conversion to other gas types:**

See "Commissioning, inspection, maintenance"

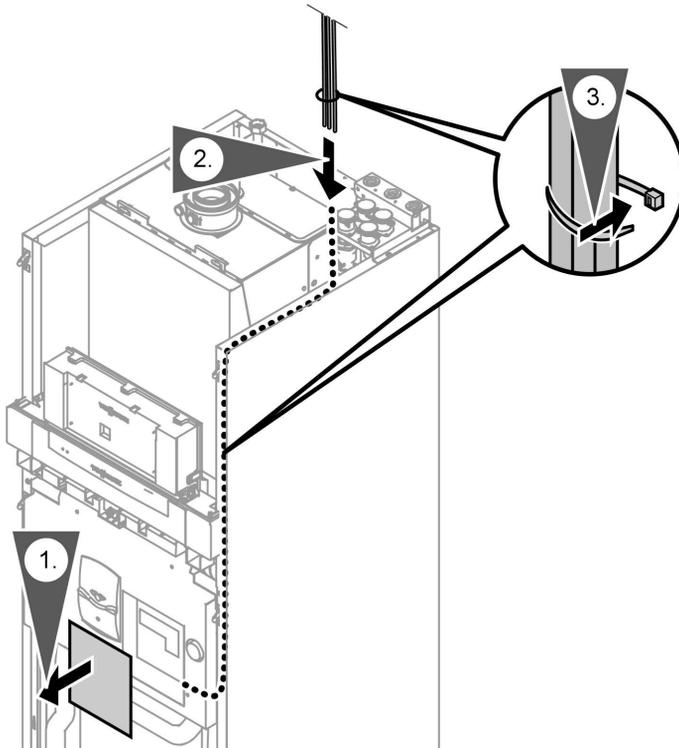
## Electrical connections



#### **Information regarding the connection of accessories**

For details of accessories, also observe their separate installation instructions provided.

## Electrical connections (cont.)



1. Remove the cover from the wiring chamber.

2. Route the external cables between the side panel and the cap panel and route them to the wiring chamber.



### **Please note**

Power cables will be damaged if they contact hot parts.

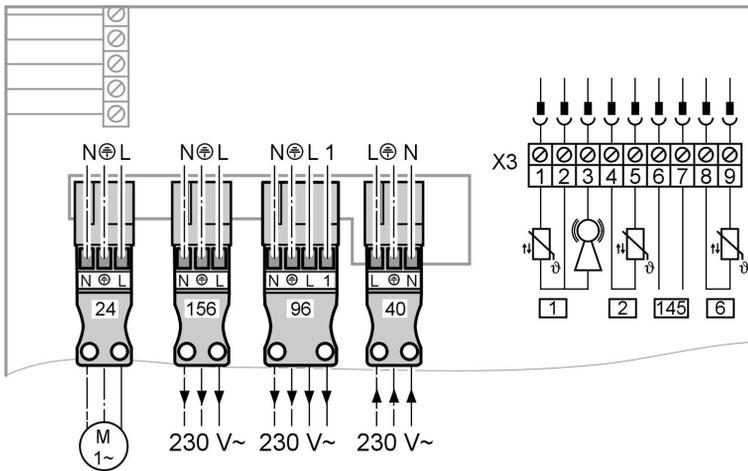
When routing and securing power cables on site, ensure that the maximum permissible temperatures for these cables are not exceeded.



## Electrical connections (cont.)

3. Bundling cables with cable ties and securing them to the side panel

### External connections at the control unit



#### Plug 230 V

- 24** Solar circuit pump (connected in the delivered condition)
- 40** Power supply

- ⚠ Danger**  
 Incorrect core terminations can cause severe injuries and damage to the equipment.  
 Take care not to interchange wires "L1" and "N".
- Install an isolator in the power supply line that simultaneously isolates all non-earthed conductors from the mains with at least 3 mm contact separation.
- Max. fuse rating 16 A.

- 96** Power supply accessories (230 V/50 Hz). Where the boiler is installed in a wet area, the connection of accessories to the power supply must not be carried out at the control unit. The power supply for accessories can be made immediately at the control unit, if the compact boiler is installed outside wet areas. This connection is directly controlled with the system ON/OFF switch (max. 3 A).

- 156** See **96**.

## Electrical connections (cont.)

### Low voltage plugs

- 1** Outside temperature sensor (only for weather-compensated control units).  
Terminals X3.1 - X3.2.  
Installation:
- North or north-western wall, 2 to 2.5 m above ground level; in multi-storey buildings, in the upper half of the second floor
  - Not above windows, doors or ventilation outlets
  - Not immediately below balconies or gutters
  - Never render over
  - 2-core lead, max. 35 m length with a cross-section of 1.5 mm<sup>2</sup>
- 2** Flow temperature sensor for low loss header (accessories)  
Terminals X3.4 - X3.5.
- 6** Solar temperature sensor  
Terminals X3.8 - X3.9.  
NOTE: If no solar panels are fitted to the appliance the solar sensor has to be connected otherwise the appliance is going into an error code. Also switch relay 1 off (see page 64 Manual mode 0).
- 145** KM BUS subscriber (accessories)  
Terminals X3.6 - X3.7.
- Vitotrol 200 or 300 remote control
  - Vitocom 100
  - Extension kit for a heating circuit with mixer
  - Vitosolic
  - External extension H1 or H2
- Refit the cover to the wiring chamber (see page 18).

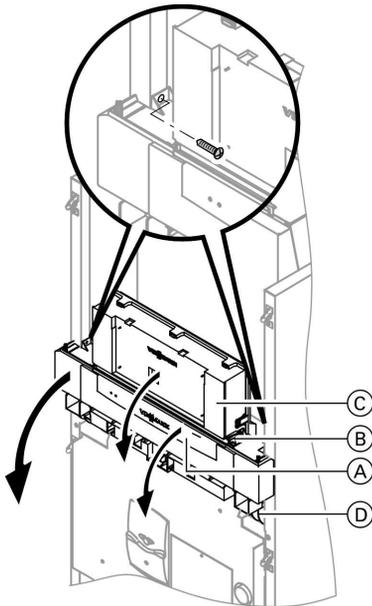


**Steps - commissioning, inspection and . . . (cont.)**

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## Further details regarding the individual steps

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



1. Open flap (A).
2. Release the side closures (B) and pivot control unit (C) forward.
3. Release the side screws and pivot control unit (C) down with its retaining frame (D).

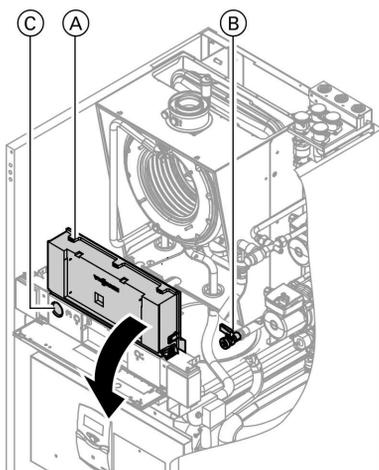
### Filling the heating system



#### Please note

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

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



1. Check the inlet pressure of the diaphragm expansion vessel.
2. Close the gas shut-off valve.
3. Pivot control unit (A) down (see page 23.)
4. Fill the heating system at fill valve (B) in heating return (B). minimum system pressure > 0.8 bar (see pressure gauge (C) behind the hinged cover).

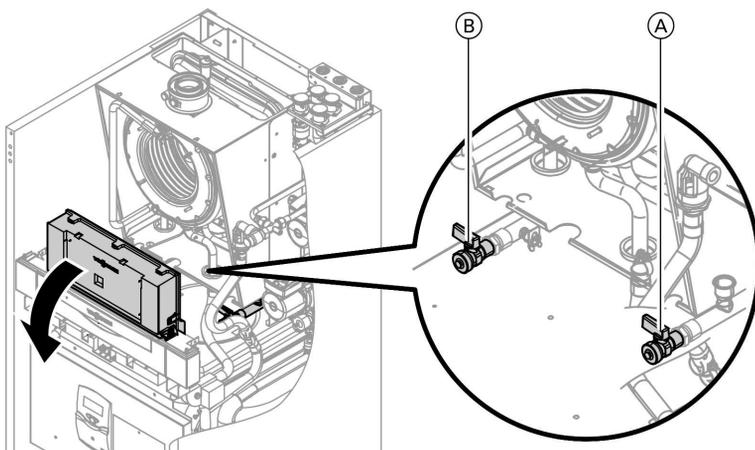
#### **Note**

*If the control unit had **not already** been switched ON before filling began: The diverter valve is in centre position and the system will be completely filled.*

5. If the control unit **had already** been switched ON before filling began:  
In code 1, set coding address "2F:2" (see page 66).  
At this point, the diverter valve is in its central position.  
Whilst the fill program runs, the display shows "**bF**" (constant temperature control unit) or "**Filling**" (weather-compensated control unit).
6. Close boiler fill & drain valve .
7. Set coding address "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 to valve (B) and connect it to a drain outlet.
3. Open valves (A) and (B), and vent at mains pressure until no sound of escaping air can be heard.
4. Close valves (A) and (B) and open the heating water shut-off valves.

### Venting the heating system

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

#### **Note**

To call up code 1 and for setting the coding address, see page 66.  
For function and sequence of the venting program, see page 121.  
Whilst the venting program runs, the display shows "EL" (constant temperature control unit) or "Venting" (weather-compensated control unit).

Commissioning, inspection, maintenance

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

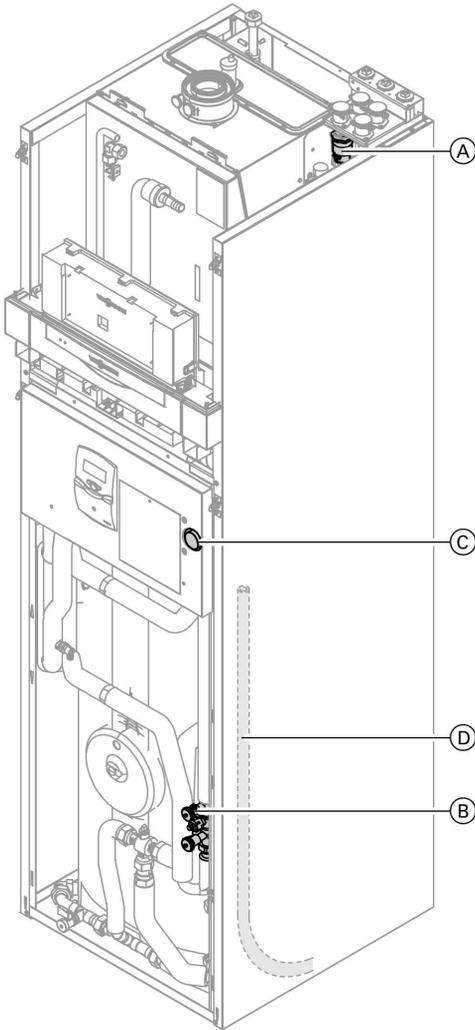
3. Check the system pressure.

### Filling the solar circuit



Solar heating system installation and service instructions

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



- Ⓐ Non-return valve, solar circuit
- Ⓑ Solar circuit fill valve

- Ⓒ Solar circuit pressure gauge
- Ⓓ Sight glass, Tyfocor container

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



**Please note**

Overheated collector areas and overheated heat transfer medium can cause burns/scalding and equipment damage.

When working on the collector and the solar circuit, protect the collector area against solar irradiation.

1. Thoroughly flush the on-site pipework.
2. Open non-return valve (A).
3. Fill the solar circuit via fill valve (B) with "Tyfocor G-LS". Check the system pressure at pressure gauge (C).  
Minimum system pressure: 1.7 bar.  
Permiss. operating pressure: 3.5 bar.



**Please note**

To prevent equipment damage, use exclusively "Tyfocor G-LS". Never fill with water!

4. Close ball valve of fill valve (B).
5. Open the air vent valve at the solar collector.
6. Start the solar circuit pump.
  - At the Vitosolic 100 select "MM" with (+)/(-) and confirm with (OK).
  - Select "1" with (+)/(-) and confirm with (+).  
The solar circuit pump starts.
7. Let the pump run until the solar circuit is fully vented. Check the system pressure at pressure gauge (C). Below 1.7 bar top up with "Tyfocor G-LS".
8. Close the air vent valve at the solar collector.
9. Switch OFF the solar circuit pump. At the Vitosolic 100 select "4" with (+)/(-) and confirm with (OK).

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

### Setting the time and date (if required)

#### Note

- Falls bei Erstinbetriebnahme oder nach längerer Stillstandzeit die Uhrzeit im Display blinkt, müssen Uhrzeit und Datum neu eingestellt werden.
- Bei Erstinbetriebnahme erscheinen die Begriffe in deutsch (Anlieferungszustand):

#### Uhrzeit (siehe Arbeitsschritt 1.)



#### Datum (siehe Arbeitsschritt 2.)



Folgende Tasten drücken:

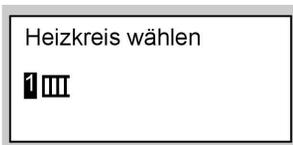
1.  $\oplus/\ominus$  für aktuelle Uhrzeit.
2.  $\text{OK}$  zur Bestätigung, "Datum" erscheint.
3.  $\oplus/\ominus$  für aktuelles Datum.
4.  $\text{OK}$  zur Bestätigung.

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

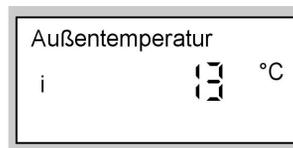
#### Note

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

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



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



Press the following keys:

1.  $\text{i}$  "Heizkreis wählen" (select heating circuit) is displayed.
2.  $\text{OK}$  to confirm; wait approx. 4 s.



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

3.  press this button again, "**Außentemperatur**" (outside temperature) is displayed.
4.  for the required language.
5.  to confirm.

## Checking the gas type

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

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

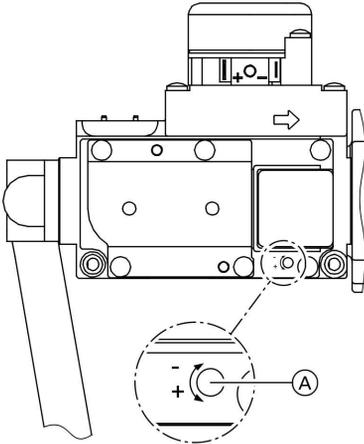
The compact boiler can be operated in the Wobbe index range 10.0 to 16.1 kWh/m<sup>3</sup> (36.0 to 58.0 MJ/m<sup>3</sup>).

- Convert the burner for operation with LPG (see "Gas type conversion" on page 31).

1. Determine the gas type and Wobbe index by asking your local gas supply utility or LPG supplier.
2. Convert the burner for operation with LPG (see page 30).
3. Record the gas type in the service report on page 143.

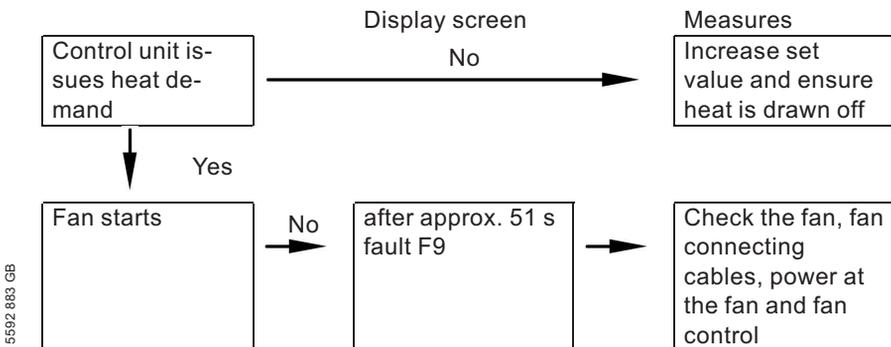
**Further details regarding the individual steps (cont.)**

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



1. Turn the adjusting screw (A) (Allen screw 2.5 mm) on the gas train clockwise as far as possible towards "-" (approx. 30 turns).
2. Switch ON/OFF switch "I" ON.
3. Adjust the gas type in coding address "82" (for a detailed description of the individual steps, see page 112):
  - Call up code 2
  - In coding address "11", select value "9"
  - In coding address "82", select value "1" (operation with LPG)
  - Set code "11" ≠ "9".
  - Terminate code 2.
4. Open the gas shut-off valve.
5. Affix label "G31" (included with the technical documentation) above the natural gas label on the cover panel.

**Function sequence and possible faults**

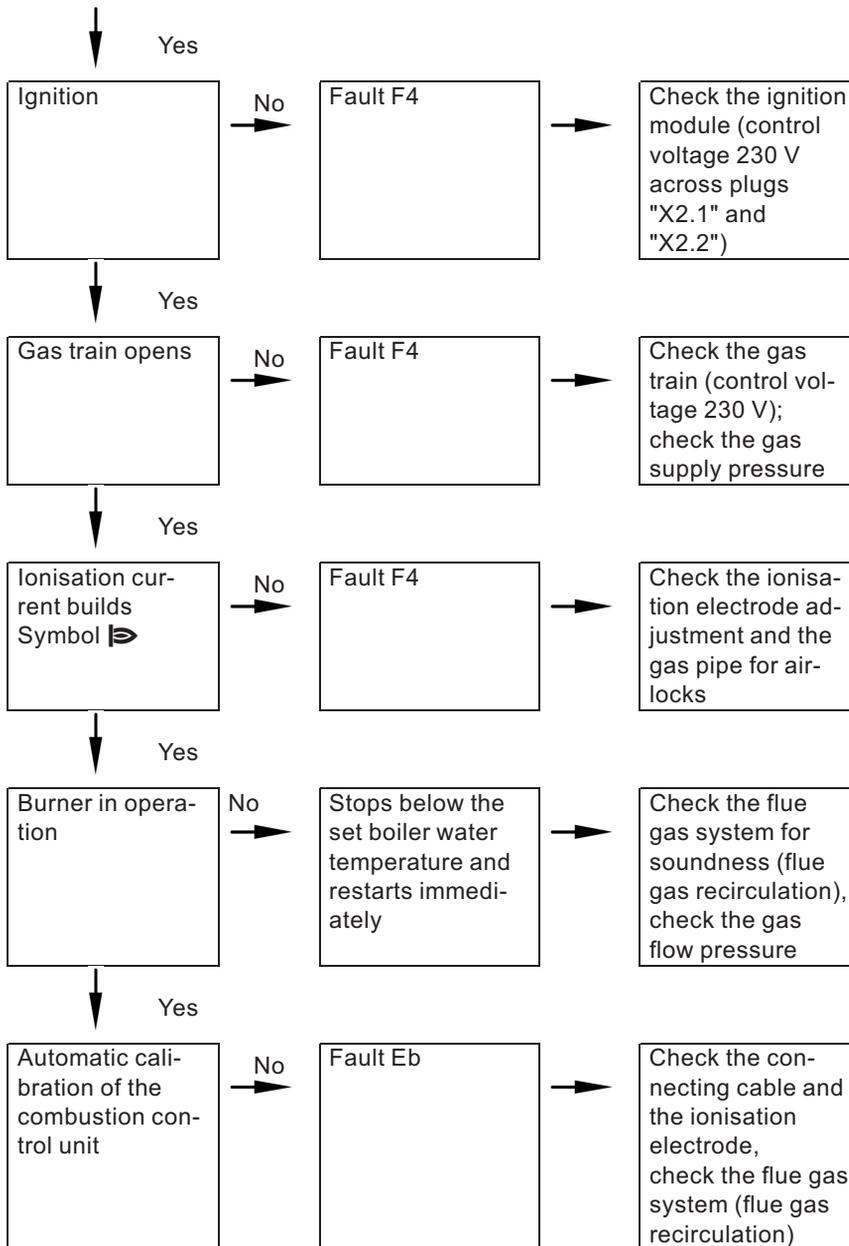


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Service



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



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

For further details regarding faults, see page 92.

### Checking the static and supply pressure



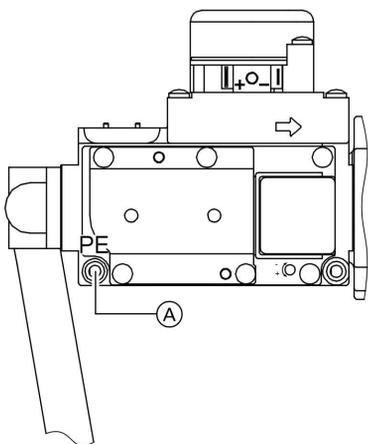
#### **Danger**

Higher CO emissions can lead to poisoning.

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

#### **Operation with LPG**

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



1. Close the gas shut-off valve.
2. Undo the screw inside test connector "PE" (A) at the gas train but do not remove it, and connect the pressure gauge.
3. Open the gas shut-off valve.
4. Check the static pressure; it should be a max. of 57.5 mbar. Record the actual value in the service report.
5. Start the compact boiler.

#### **Note**

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

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

6. Check the supply (flow) pressure; this should be as follows:
  - Natural gas 20 mbar
  - LPG 50 mbar

**Note**

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

Record the actual value in the service report.  
Take the action shown in the following table.

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

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

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

Supply (flow) pressure for natural gas	Supply (flow) pressure for LPG	Measures
below 17.4 mbar	below 42.5 mbar	Do not start the boiler. Notify your mains gas or LPG supplier.
17.4 to 25 mbar	42.5 to 57.5 mbar	Start the boiler.
in excess of 25 mbar	in excess of 57.5 mbar	Install a separate gas pressure governor upstream of the system and regulate the inlet pressure to 20 mbar for natural gas or 50 mbar for LPG. Notify your mains gas or LPG supplier.

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

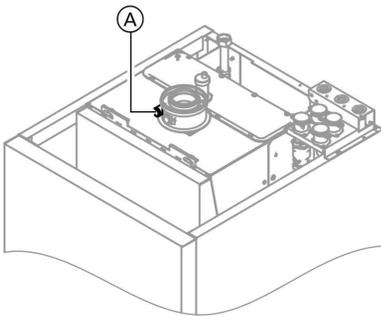
### Setting the maximum output

#### Note

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

1. Start the compact boiler.
2. Press  and  simultaneously until "100" flashes in the display (= 100 % of rated output) and "Max. output" and " appear.
3. With / select the required value in % of rated output as maximum output.
4. Confirm the set value with .
5. Record the settings for maximum output on the additional type plate included with the "technical documentation". Affix the additional type plate next to the original type plate on top of the compact boiler.

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



 Combustion air port

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

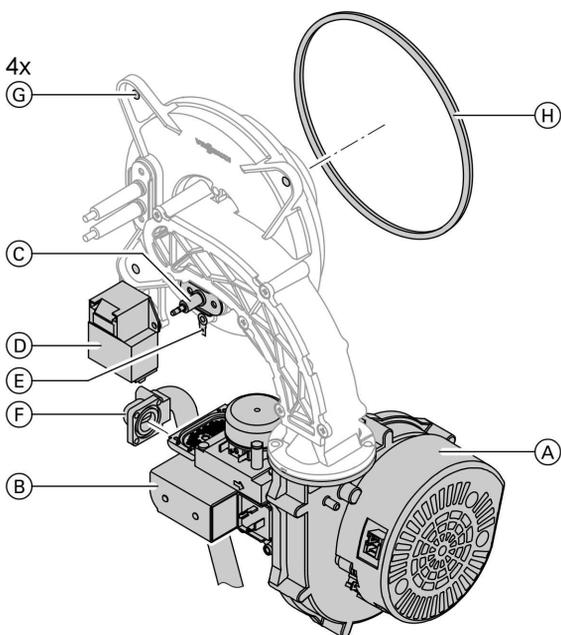
We recommend that your heating engineer carries out a simple soundness test during the commissioning of your system. For this, it would be sufficient to check the CO<sub>2</sub> or O<sub>2</sub> concentration in the combustion air at the annular gap of the balanced flue pipe.

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

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.

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



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



#### **Please note**

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

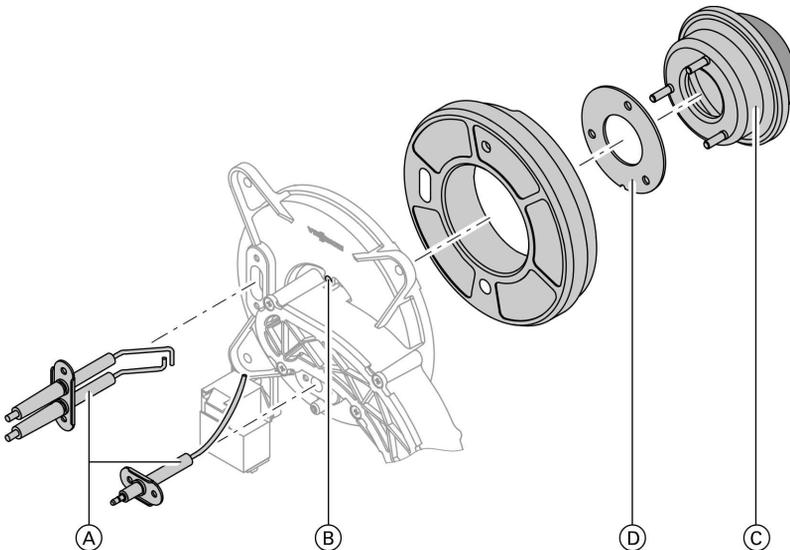


**Further details regarding the individual steps (cont.)**

6. Check burner gasket (H) for damage.  
Generally replace the burner gasket **every 2 years**.

**Checking the burner gauze assembly**

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

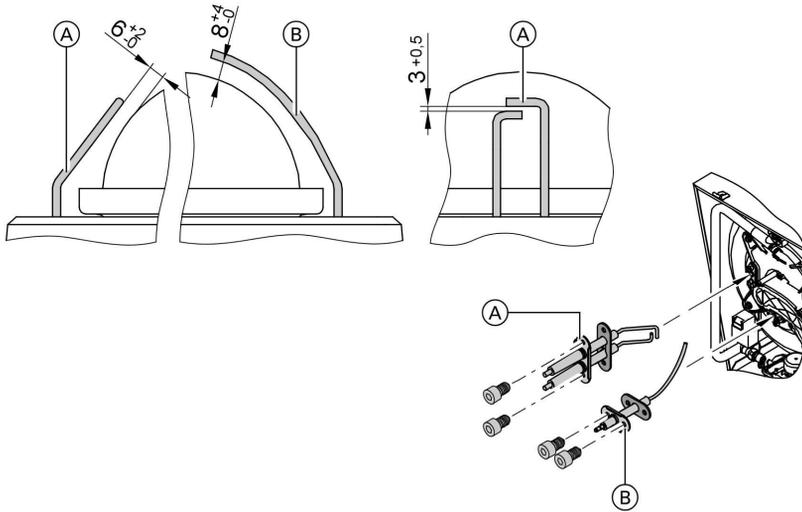


1. Remove electrodes (A).
2. Release three nuts (B) and remove burner gauze assembly (C).
3. Remove old burner gauze assembly gasket (D).
4. Insert a new burner gauze assembly with a new gasket and secure with three nuts.

**Note**  
Torque: 4 Nm

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

**Checking and adjusting the ignition and ionisation electrodes**



Ⓐ Ignition electrodes

Ⓑ Ionisation electrode

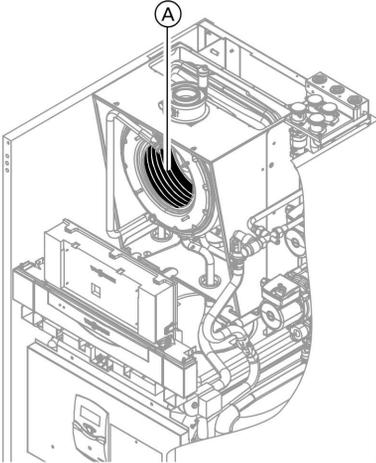
1. Check the electrodes for wear and contamination.
2. Clean the electrodes with a small brush (not with a wire brush) or emery paper.

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 gasket Ⓐ. Tighten the electrode fixing screws with 2.5 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. If required, clean heating surfaces (A) with a brush or flush 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.

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*

2. Install the burner and torque nuts diagonally with 4 Nm.
3. Fit the gas supply pipe with a new gasket.

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

4. Check the gas connections for soundness.



**Danger**

Escaping gas leads to a risk of explosion.

Check all fittings for soundness.

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

## Checking the condensate drain

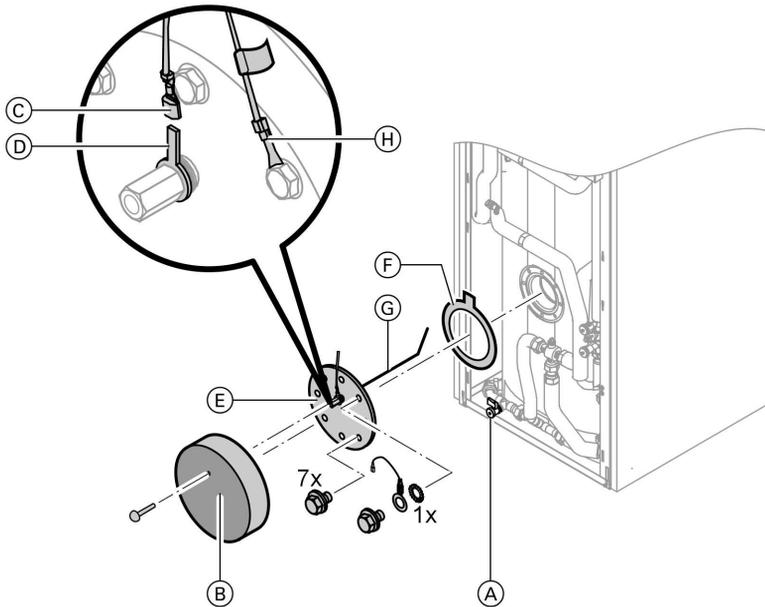
Check that the condensate can freely drain.

## Cleaning the DHW cylinder

**Note**

*DIN 1988 specifies a visual inspection and (if required) cleaning no later than two years after the cylinder has been taken into use and thereafter according to requirements.*

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



1. Drain the DHW cylinder. For this, close the on-site shut-off valve and open drain valve (B).
2. Remove thermal insulation hood (B).
3. Pull cable (C) from anode connection (D).
4. Remove flange lid (E).
5. Remove loose deposits with a high pressure cleaner.
  - ! **Please note**  
When cleaning the inside, only use plastic cleaning utensils.
6. Use a chemical cleaning agent to remove hard deposits that cannot be removed by a high pressure cleaner.
  - ! **Please note**  
To prevent material losses, only use plastic tools to clean the interior; never use cleaning agents containing hydrochloric acid.
7. Thoroughly flush the DHW cylinder after cleaning.
8. Close drain valve (A).

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

#### Checking and replacing the impressed current anode (if required)

1. Check impressed current anode (G) for damage (see page 41).
2. If required, remove impressed current anode (G) from flange lid (E) and fit a new electrode.
3. Bend impressed current anode (G) in accordance with the pattern of the old electrode.

#### Returning the DHW cylinder into use

1. Insert new gasket (F) under flange lid (E) (see page 41).
2. Fit flange lid (E) and tighten the screws with a maximum torque of 25 Nm.
3. Push cable (C) onto anode connection (D).
4. Open the on-site shut-off valve and check for leaks.
5. Install thermal insulation hood (B).



#### Please note

To safeguard the protective effect ensure during installation, that impressed current anode (G) has no contact with the internal indirect coil. After the installation, check the resistance between cable (C) and anode connection (D) – the resistance must go towards infinity.

#### Checking the diaphragm expansion vessel and heating circuit 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".

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

2. If the inlet pressure of the diaphragm expansion vessel is lower than the static system pressure, top up with nitrogen until the inlet pressure is raised by 0.1 to 0.2 bar.
3. Top up your heating system with water and vent until the filling pressure of a cooled system is 0.1 to 0.2 bar higher than the inlet pressure of the diaphragm expansion vessel.  
Permiss. operating pressure: 3 bar

## Checking the diaphragm expansion vessel and solar circuit 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 sufficient nitrogen to raise the inlet pressure to its set value. For the set value, see the solar collector service instructions.
3. Top up with "Tyfocor G-LS" and vent until the filling pressure of a cooled system is 0.3 to 0.5 bar higher than the inlet pressure of the diaphragm expansion vessel.  
Minimum system pressure: 1.7 bar.  
Permiss. operating pressure: 3.5 bar.

**!** **Please note**  
To prevent equipment damage, use exclusively "Tyfocor G-LS". Never fill with water!

## Checking the Tyfocor drip container

The container should not fill any higher than approx. 10 cm. In case of a higher fluid level:

- Check the function of the solar circuit safety valve.
- Check the diaphragm expansion vessel in the solar circuit.
- Solar collectors and/or diaphragm expansion vessel incorrectly sized.

1. Check the fill level in the sight hose  
Ⓧ (see page 26) (the drip container itself cannot be visually inspected).



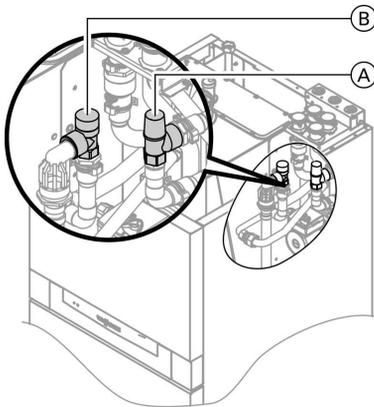
### Further details regarding the individual steps (cont.)

2. Release the hose tie on sight hose (D), pull the sight hose out and drain its contents into a suitable container.
3. Secure sight hose (D) again with cable ties.

**Note**

*The container has a capacity of approx. 9 l.*

### Checking the function of all safety valves



Check the function of the safety valves on the solar side (A) and the heating circuit side (B).

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



**Danger**

Escaping gas leads to a risk of explosion.

Check gas equipment for soundness.

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

### Checking the combustion quality

The electronic combustion control unit automatically ensures an optimum combustion quality. Only the combustion values need to be checked during commissioning and maintenance. For this, check the CO<sub>2</sub> or O<sub>2</sub> content. For a function description of the electronic combustion control unit, see page 127.

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

The CO<sub>2</sub> content must be within the following ranges (upper and lower output):

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

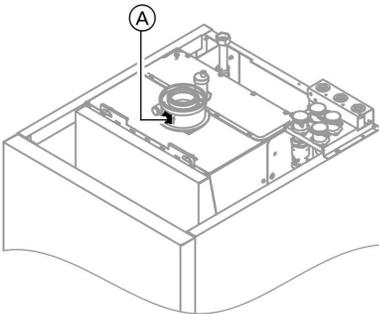
For all gas types, the O<sub>2</sub> content must be between 4.4% and 6.9 %.

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

- Check the balanced flue system for soundness, see page 35.
- Check the ionisation electrode and connecting cable, see page 38.
- Check the parameters of the combustion control unit, see page 112.

#### Note

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



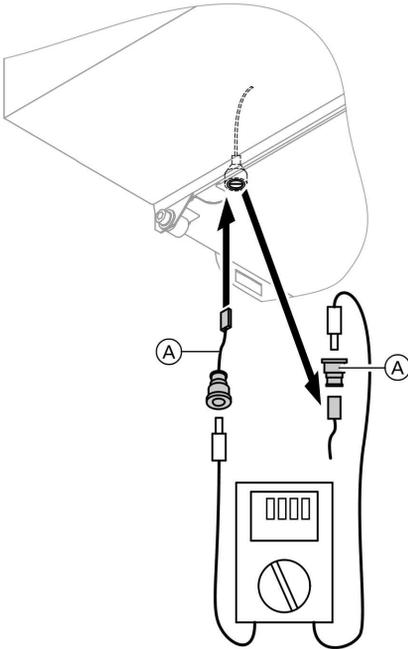
1. Connect a flue gas analyser at flue gas port (A) on the boiler flue connection.
2. Open the gas shut-off valve, start the compact boiler and create a heat demand.
3. Adjust the lower output.
  - Press both keys  and  simultaneously until the display shows "Relay test".
  - With  in the display, select "Base load".

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

4. Check the CO<sub>2</sub> content. Should the actual value deviate by more than 1 % from the above range, implement the steps from page 45 (possibly replace the burner).
5. Enter actual values into the service report.
6. Adjust the upper output.
  - With ⊕/⊖ in the display, select "Full load".
7. Check the CO<sub>2</sub> content. Should the actual value deviate by more than 1 % from the above range, implement the steps from page 45 (possibly replace the burner).
8. After testing, press ⊗.
9. Enter actual values into the service report.

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

### Checking the ionisation current



(A) Adaptor cable (available as accessory)

1. Pull the cable off and connect test equipment (adaptor cable available as accessory).
2. Adjust the upper output.
  - Press  $\square$  and  $\text{OK}$  simultaneously for at least 2 s.
  - With  $\oplus/\ominus$  in the display, select "Full load".

#### Note

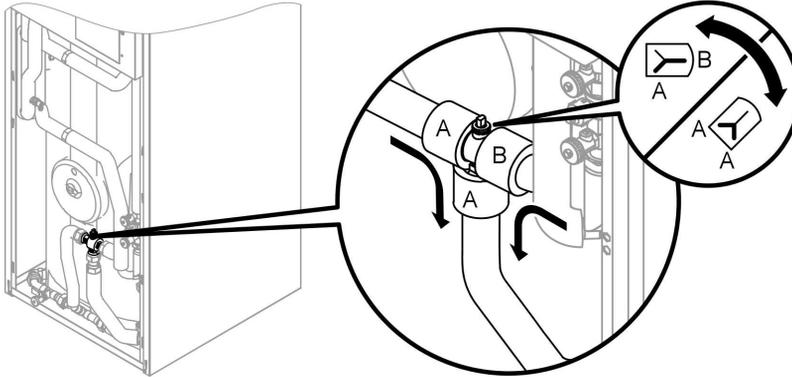
The minimum ionisation current should be at least  $4 \mu\text{A}$  as soon as the flame builds (approx. 2–3 s after opening the gas train).

3. Ionisation current  $< 4 \mu\text{A}$ :
  - Check the electrode gap, see page 38.
  - Check the control unit power supply.
4. After testing, press  $\text{OK}$ .
5. Record the actual value in the service report.

### Matching the cylinder volume that can be heated

The cylinder volume that can be heated by the compact boiler can be reduced in favour of heating by solar collectors. For this, change the position of the three-way valve.

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



### Delivered condition:

The compact boiler heats the total cylinder volume (approx. 250 l).  
Valve position: A - AB

### Optional change:

The compact boiler heats only the upper cylinder volume (approx. 80 l).  
Valve position: B - AB

## Matching the control unit to the heating system

### Note

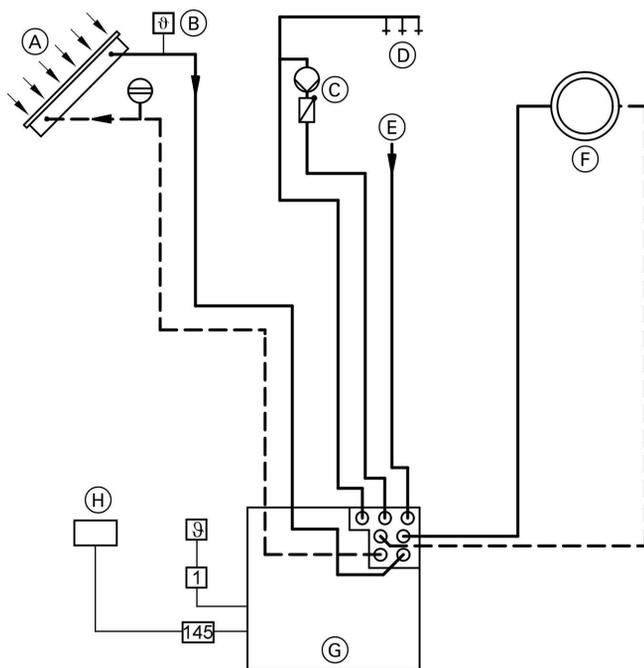
*Subject to the equipment level, the control unit must be matched to the system. Various system components are recognised automatically by the control unit and the relevant codes are adjusted automatically.*

- For the selection of an appropriate design, see the following diagrams.
- For coding steps, see page 66.

### System version 1

#### One heating circuit without mixer A1

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



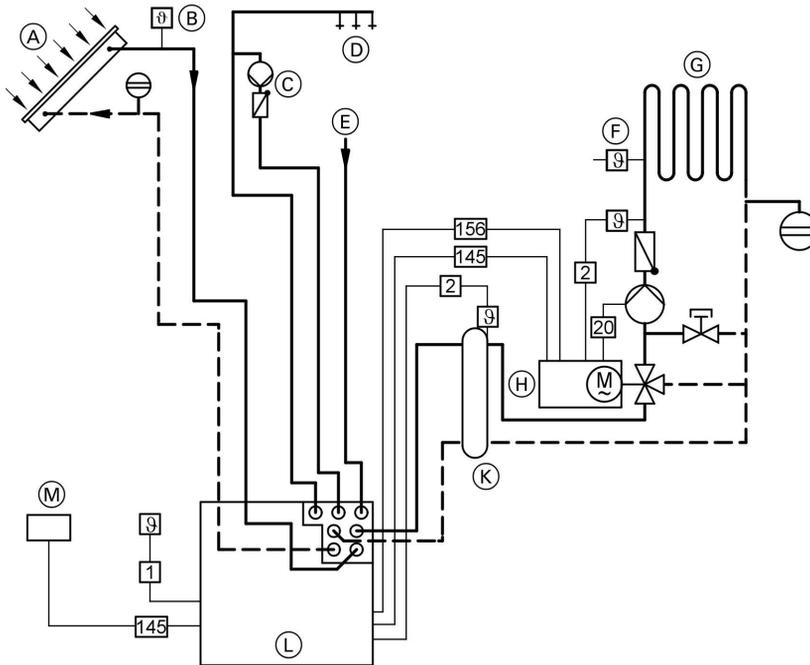
- 1 Outside temperature sensor
- A Solar collectors
- B Collector temperature sensor
- C DHW circulation pump
- D DHW
- E Cold water
- F Heating circuit
- G Vitodens
- H Vitotrol 200 or 300

Required coding	Address
Operation with natural gas (delivered condition)	82:0
or	
Operation with LPG	82:1

**System version 2**

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

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



- |     |                              |   |  |
|-----|------------------------------|---|--|
| 1   | Outside temperature sensor   | E | Cold water                                     |
| 2   | Flow temperature sensor      | F | High limit thermostat (underfloor heating)     |
| 20  | Heating circuit pump         | G | Heating circuit                                |
| 145 | KM BUS                       | H | Extension kit for a heating circuit with mixer |
| 156 | Power supply (extension kit) | K | Low loss header                                |
| A   | Solar collectors             | L | Vitodens                                       |
| B   | Collector temperature sensor | M | Vitotrol 200 or 300                            |
| C   | DHW circulation pump         |   |  |
| D   | DHW                          |   |  |

Required coding	Address
Operation with natural gas (delivered condition) or Operation with LPG	82:0 82:1
One heating circuit with mixer and DHW cylinder	00:4

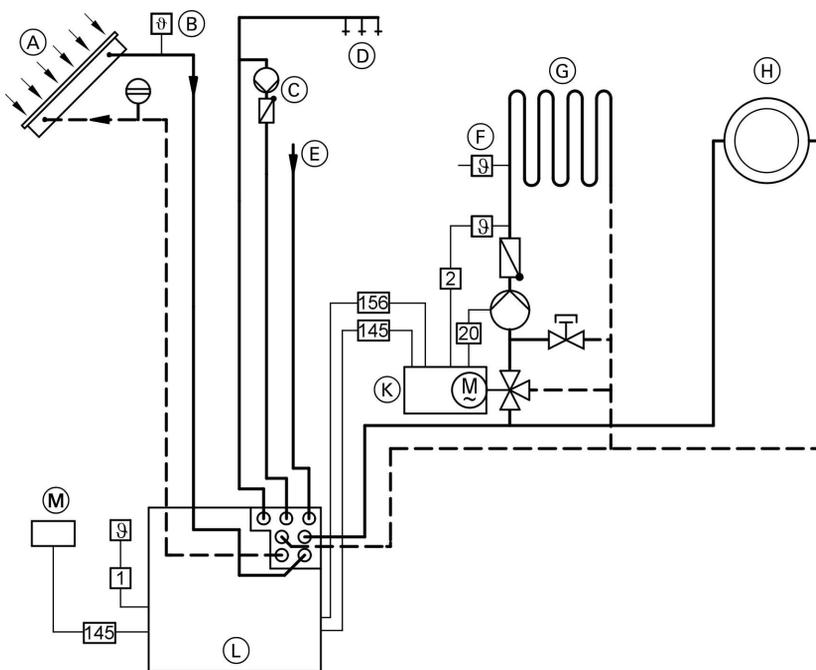
**Further details regarding the individual steps (cont.)**

**System version 3**

**One heating circuit without mixer A1 and one heating circuit with mixer M2**

**Note**

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



- |     |                              |   |  |
|-----|------------------------------|---|--|
| 1   | Outside temperature sensor   | E | Cold water                                     |
| 2   | Flow temperature sensor      | F | High limit thermostat (underfloor heating)     |
| 20  | Heating circuit pump         | G | Underfloor heating circuit                     |
| 145 | KM BUS                       | H | Heating circuit                                |
| 156 | Power supply (extension kit) | K | Extension kit for a heating circuit with mixer |
| A   | Solar collectors             | L | Vitotens                                       |
| B   | Collector temperature sensor | M | Vitotrol 200 or 300                            |
| C   | DHW circulation pump         |   |  |
| D   | DHW                          |   |  |

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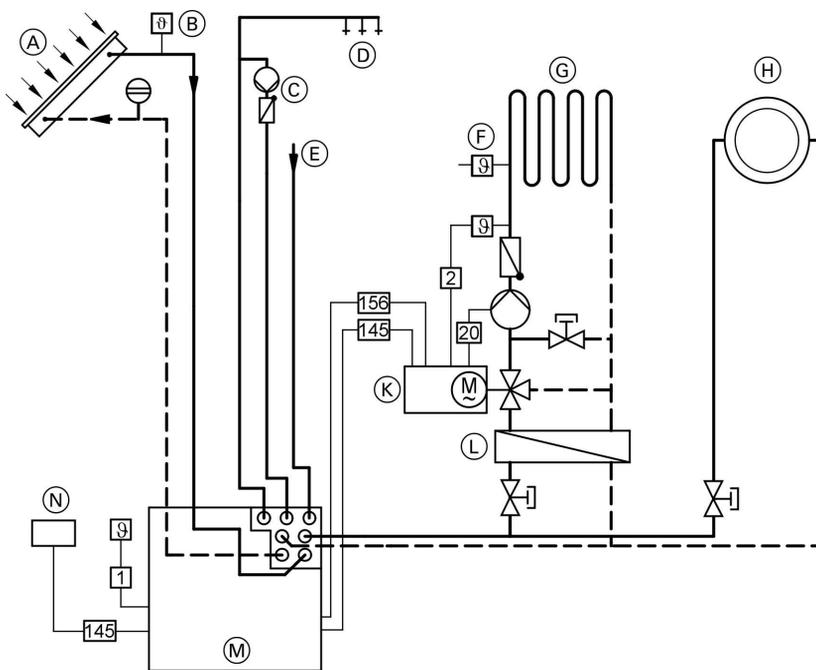
Service

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

Required coding	Address
Operation with natural gas (delivered condition) or Operation with LPG	82:0  82:1

**System version 4**

**One heating circuit without mixer A1 and one heating circuit with mixer M2 with system separation**



- |     |                              |   |  |
|-----|------------------------------|---|--|
| 1   | Outside temperature sensor   | E | Cold water                                     |
| 2   | Flow temperature sensor      | F | High limit thermostat (underfloor heating)     |
| 20  | Heating circuit pump         | G | Underfloor heating circuit                     |
| 145 | KM BUS                       | H | Heating circuit                                |
| 156 | Power supply (extension kit) | K | Extension kit for a heating circuit with mixer |
| A   | Solar collectors             | L | Heat exchanger for system separation           |
| B   | Collector temperature sensor |   |  |
| C   | DHW circulation pump         |   |  |
| D   | DHW                          |   |  |



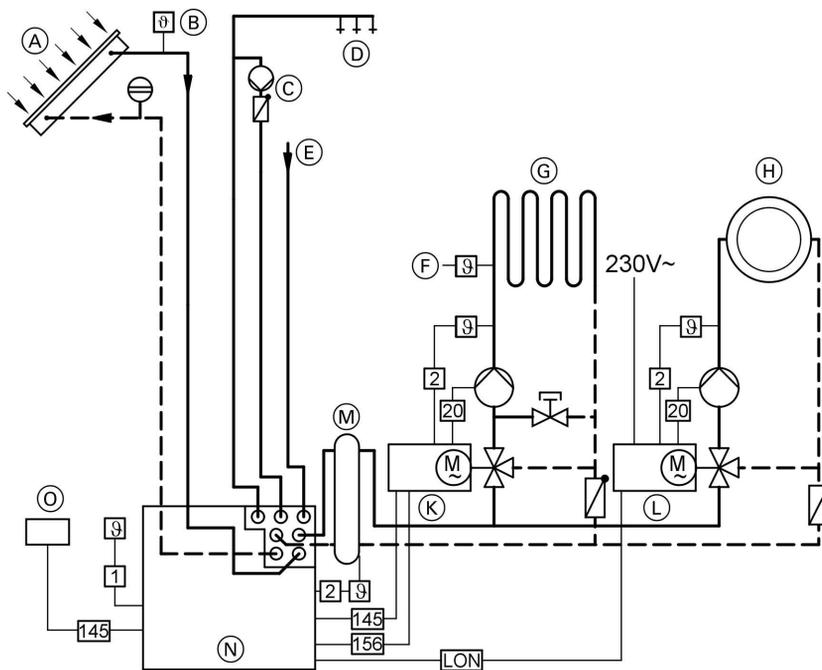
**Further details regarding the individual steps (cont.)**

- (M) Vitodens
- (N) Vitotrol 200 or 300

Required coding	Address
Operation with natural gas (delivered condition) or Operation with LPG	82:0  82:1

**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**



- |                                     |   |
|-------------------------------------|---|
| <b>1</b> Outside temperature sensor | <b>156</b> Power supply (extension kit) |
| <b>2</b> Flow temperature sensor    | <b>(A)</b> Solar collectors             |
| <b>20</b> Heating circuit pump      | <b>(B)</b> Collector temperature sensor |
| <b>145</b> KM BUS                   | <b>(C)</b> DHW circulation pump         |

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Service



Commissioning, inspection, maintenance

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

- |  |  |
|--|--|
| Ⓓ DHW  | Ⓚ Extension kit for a heating circuit with mixer |
| Ⓔ Cold water                                 | Ⓛ Vitotronic 200-H                               |
| Ⓕ High limit thermostat (underfloor heating) | Ⓜ Low loss header                                |
| Ⓖ Underfloor heating circuit                 | Ⓝ Vitodens                                       |
| Ⓗ Heating circuit                            | Ⓞ Vitotrol 200 or 300                            |

Required coding	Address
Operation with natural gas (delivered condition) or Operation with LPG	82:0 82:1
One heating circuit with mixer and DHW cylinder	00:4

## Adjusting the heating curves

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

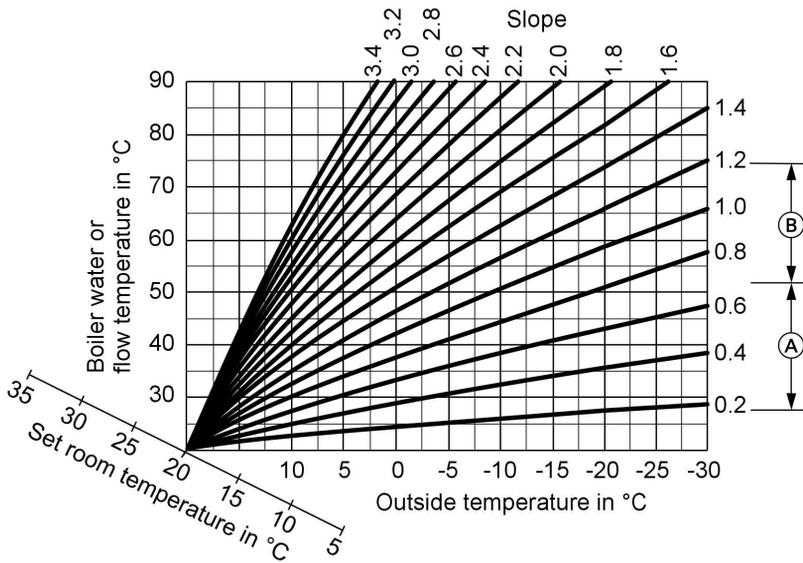
To put it simply: The lower the outside temperature, the higher the boiler water or flow temperature.

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

Settings in the delivered condition:

- Slope = 1.4
- Level = 0

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

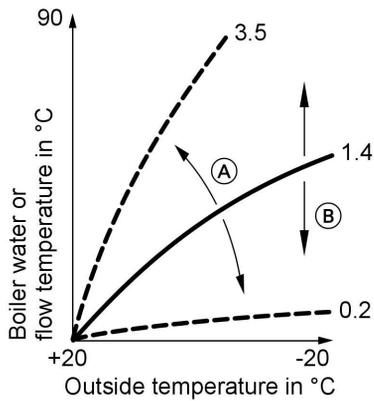


Ⓐ Heating curve slope for underfloor heating systems

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

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

### Changing the slope and level



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

#### 1. Slope:

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

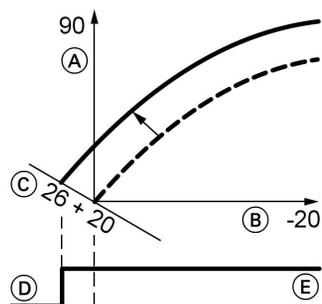
#### 2. Level:

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"

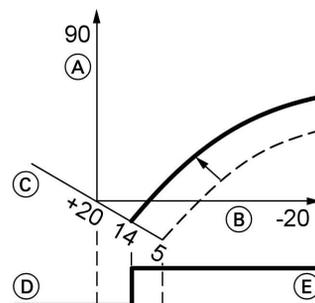
Press the following keys:

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

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

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

**Reduced room temperature**



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

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

Press the following keys:

1. (+) "1 IIII" flashes.

Service

Commissioning, inspection, maintenance

**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**

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

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

Installation instructions  
LON communication module

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

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

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

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

Boiler control unit	Vitotronic 200-H	Vitotronic 200-H	Vitocom
Subscriber no. 1 Code "77:1"	Subscriber no. 10 Code "77:10"	Subscriber no. 11 <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:

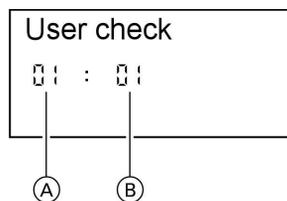
1. + simultaneously for approx. 2 s. Subscriber check initiated (see page 59).

**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 58)
- The LON subscriber list in the fault manager must be up to date (see page 58)



- (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.

## Adjusting the Vitosolic 100

The first time the boiler control unit is started, the Vitosolic 100 enters an initialisation phase (the ON indicator flashes alternately red and green) and then goes into automatic mode. Various adjustments can be made at the Vitosolic 100 to match the control unit to the actual system conditions.

### Calling up the setting level

1. Select "HO" with .
2. Press for approx. 3 s; the following will be displayed:  
  
SEL
3. Select the required parameter with / (see the following pages). Confirm with . The following flashes:  
  
SEL

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



4. Set the required value with (+)/(-). Confirm with (OK).

**Note**

*After approx. 2 min, the display reverts to the standard display, subject to no further adjustments or confirmation being entered.*

**Setting the system details and functions**

**Special functions SF**

**Delivered condition: SF 5**

Setting range	Description
SF 5	No special function
SF 6	No special function
SF 7	Suppressing re-heating by the compact boiler Re-heating the DHW cylinder is suppressed as long as the solar circuit pump is running. In coding address " 67" (boiler control unit), enter a third set DHW temperature (lower than the first set DHW temperature). The suppression is lifted when the set value is not achieved by the solar heating system.
SF 8	Additional function for DHW heating. The additional DHW heating function (second set DHW temperature, e.g code "58:60") must be programmed at the boiler control unit, and the fourth DHW phase must be enabled.

Commissioning, inspection, maintenance

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

#### $\Delta T$ control unit DO/DF

Delivered condition: DO 6.0  $\pm$  6 °C; DF 4.0  $\pm$  4 °C

Setting range	Description
DO 1.5 – DO 10.0 DF 1.0 – DF 9.5	The control unit determines the differential between the collector temperature and the cylinder temperature and compares these with the selected starting temperature differential "DO". The solar circuit pump is switched ON when this value is exceeded. The solar circuit pump is switched OFF if the actual temperature falls below the selected stopping temperature differential "DF".  <b>Note</b> <i>DO can be set a minimum of 0.5 K higher than DF and DF a maximum of 0.5 K below DO.</i>

#### Maximum cylinder temperature SX

Delivered condition: SX 60.0  $\pm$  60 °C

Setting range	Description
SX 2.0 – SX 90.0	This prevents a further heating of the cylinder when the selected value is exceeded. At the factory, the maximum cylinder temperature is enabled by FN = 1.

#### Collector limit temperature CL

Delivered condition: CL 140.0  $\pm$  140 °C

Setting range	Description
CL 110.0 – CL 200.0	The solar circuit pump is switched OFF to protect the solar components when this temperature is exceeded.

**Further details regarding the individual steps (cont.)****Maximum collector temperature CX****Delivered condition: CX 120.0  $\pm$  120 °C**

Setting range	Description
CX 100.0 – CX 190.0	The solar circuit pump is switched ON (collector cooling) when this temperature (solar circuit idle, maximum cylinder temperature has been reached) is exceeded. For this, the cylinder temperature can exceed the maximum cylinder temperature "SX", but no higher than 90 °C (safety shutdown).

**Minimum collector temperature CN****Delivered condition: CN 10.0  $\pm$  10 °C**

Setting range	Description
CN -10.0 – CN 90.0	Minimum starting temperature that must be exceeded before the solar circuit pump can start. This prevents the pump starting too frequently. This function is disabled at CN = 10 °C. -10.0 to + 9.9 °C for frost protection 10.1 to 90 °C for minimum temperature function

**Maximum cylinder temperature FN****Delivered condition: FN 1**

Setting range	Description
FN 0	Maximum cylinder temperature control disabled; the solar circuit pump is controlled in accordance with the selected starting and stopping temperature differential
FN 1	Maximum cylinder temperature control enabled
FN 2	Maximum cylinder temperature control disabled; return cooling function enabled
FN 3	Maximum cylinder temperature control enabled without priority; collector cooling function enabled

Commissioning, inspection, maintenance

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

#### Maximum flow rate FX

Delivered condition: FX 3.0  $\pm$  3.0 l/min

Setting range	Description
FX 0.0 – FX 20.0	Select the flow rate in accordance with the installed collectors (see Vitosol service instructions)

#### Heat transfer medium ME

Delivered condition: ME 1 (never adjust)

Setting range	Description
ME 0	Water
ME 1	Tyfofocor G-LS

#### Manual mode MM

Delivered condition: MM 4 (automatic mode)

Setting range	Description
MM 0	Relay 1 and 2 OFF
MM 1	Relay 1 (solar circuit pump) ON, relay 2 OFF
MM 2	Relay 1 (solar circuit pump) OFF, relay 2 ON
MM 3	Relay 1 (solar circuit pump) ON, relay 2 ON
MM 4	Automatic mode

### 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. "Service" flashes in the programming unit display:

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

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

### Note

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

### After a service has been carried out

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

### Note

If coding address "24" is not reset, the "Service" message reappears after 7 days.

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

Press the following keys:

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

## Code 1

### Calling up code 1

**Note**

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

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. + approx. 1 s simultaneously, to terminate coding 1.

Press the following keys:

1. + simultaneously for approx. 2 s.

## Overview

### Coding

<b>Coding in the delivered condition</b>	<b>Possible change</b>		
<b>System design</b>			
00 :2	System design 1: 1 heating circuit without mixer A1, with DHW heating	00 :4	System design 2, 5: 1 heating circuit with mixer M2, with DHW heating
		00 :6	System design 3, 4: 1 heating circuit without mixer A1; 1 heating circuit with mixer M2, with DHW heating

**Code 1 (cont.)**

<b>Coding in the delivered condition</b>		<b>Possible change</b>	
<b>Max. boiler water temp.</b>			
06:...	Maximum limit of the boiler water temperature, defaulted by the boiler coding card	06:20 to 06:75	Maximum limit of the boiler water temperature within the ranges defaulted by the compact boiler
<b>Venting/filling</b>			
2F:0	Venting program/fill program disabled	2F:1 2F:2	Venting program enabled Fill program enabled
<b>Subscriber no.</b>			
77:1	LON subscriber number	77:2 to 77:99	LON subscriber number, adjustable from 1 to 99: 1-4 = Compact boiler 5 = Never adjust 10 - 98 = Vitotronic 200-H 99 = Vitocom  <b>Note</b> <i>Allocate each number only once.</i>
<b>Summer econ. A1</b>			
A5:5	With heating circuit pump logic function	A5:0	Without heating circuit pump logic function
<b>Min. flow temp. A1</b>			
C5:20	Electronic minimum flow temperature limit 20 °C	C5:1 to C5:75	Minimum limit adjustable from 1 to 75 °C
<b>Max. flow temp. A1</b>			
C6:75	Electronic maximum flow temperature limit set to 75 °C	C6:10 to C6:75	Maximum limit adjustable from 10 to 75 °C
<b>Slope A1</b>			
d3:14	Heating curve slope = 1.4	d3:2 to d3:35	Heating curve slope adjustable from 0.2 to 3.5 (see page 54)
<b>Level A1</b>			
d4:0	Heating curve level = 0	d4:-13 to d4:40	Heating curve level adjustable from -13 to 40 (see page 54)

## Coding

### Code 1 (cont.)

## Coding

Coding in the delivered condition		Possible change	
<b>Summer econ. M2</b>			
A5:5	With heating circuit pump logic function	A5:0	Without heating circuit pump logic function
<b>Min. flow temp. M2</b>			
C5:20	Electronic minimum flow temperature limit 20 °C	C5:1 to C5:75	Minimum limit adjustable from 1 to 75 °C
<b>Max. flow temp. M2</b>			
C6:75	Electronic maximum flow temperature limit set to 75 °C	C6:10 to C6:75	Maximum limit adjustable from 10 to 75 °C
<b>Slope M2</b>			
d3:14	Heating curve slope = 1.4	d3:2 to d3:35	Heating curve slope adjustable from 0.2 to 3.5 (see page 54)
<b>Level M2</b>			
d4:0	Heating curve level = 0	d4:-13 to d4:40	Heating curve level adjustable from -13 to 40 (see page 54)

### Code 2

## Complete overview

### 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.

**Code 2** (cont.)

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 :

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

### Code 2 (cont.)

## Coding

Coding in the delivered condition		Possible change	
<b>System design</b>			
00 :2	System design 1: 1 heating circuit without mixer A1, with DHW heating	00 :4	System design 2, 5: 1 heating circuit with mixer M2, with DHW heating
		00 :6	System design 3, 4: 1 heating circuit without mixer A1; 1 heating circuit with mixer M2, with DHW heating
<b>Boiler/burner</b>			
06:...	Maximum limit of the boiler water temperature, defaulted by the boiler coding card	06:20 to 06:75	Maximum limit of the boiler water temperature within the ranges defaulted by the compact boiler
11:≠9	No access to the coding addresses for the parameters of the combustion control unit (see page 112)	11:9	Access to the coding addresses for the parameters of the combustion control unit enabled (see page 112)
21:0	No service display Burner	21:1 to 21:100	The number of hours run before the burner should be serviced is adjustable from 100 to 10000 hours (each step represents 100 hours)
23:0	No time interval for burner service	23:1 to 23:24	Interval adjustable from 1 to 24 months
24:0	No "Service" display	24:1	"Service" display (the address is automatically set and must be manually reset after a service has been carried out)
28:0	No burner interval ignition	28:1	The burner is force-started once every 24 hours



**Code 2 (cont.)**

Coding in the delivered condition		Possible change	
2E:0	Without external extension	2E:1	With external extension (automatic setting on connection)
2F:0	Venting program/fill program disabled	2F:1	Venting program enabled
		2F:2	Fill program enabled
32:0	Influence of the signal "External blocking" on circulation pumps: All pumps in control function	32:1 to 32:15	Influence of the signal "External blocking" on circulation pumps: see the following table

Value address 32 ...	Internal circulation pump	Heating circuit pump Heating circuit without mixer	Heating circuit pump Heating circuit with mixer	Cylinder primary pump
0	Control funct.	Control funct.	Control funct.	Control funct.
1	Control funct.	Control funct.	Control funct.	OFF
2	Control funct.	Control funct.	OFF	Control funct.
3	Control funct.	Control funct.	OFF	OFF
4	Control funct.	OFF	Control funct.	Control funct.
5	Control funct.	OFF	Control funct.	OFF
6	Control funct.	OFF	OFF	Control funct.
7	Control funct.	OFF	OFF	OFF
8	OFF	Control funct.	Control funct.	Control funct.
9	OFF	Control funct.	Control funct.	OFF
10	OFF	Control funct.	OFF	Control funct.
11	OFF	Control funct.	OFF	OFF
12	OFF	OFF	Control funct.	Control funct.
13	OFF	OFF	Control funct.	OFF
14	OFF	OFF	OFF	Control funct.
15	OFF	OFF	OFF	OFF

**Code 2** (cont.)

Coding in the delivered condition		Possible change	
<b>Boiler/burner</b>			
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

Value address 34 ...	Internal circulation pump	Heating circuit pump Heating circuit without mixer	Heating circuit pump Heating circuit with mixer	Cylinder primary pump
0	Control funct.	Control funct.	Control funct.	Control funct.
1	Control funct.	Control funct.	Control funct.	OFF
2	Control funct.	Control funct.	OFF	Control funct.
3	Control funct.	Control funct.	OFF	OFF
4	Control funct.	OFF	Control funct.	Control funct.
5	Control funct.	OFF	Control funct.	OFF
6	Control funct.	OFF	OFF	Control funct.
7	Control funct.	OFF	OFF	OFF
8	OFF	Control funct.	Control funct.	Control funct.
9	OFF	Control funct.	Control funct.	OFF
10	OFF	Control funct.	OFF	Control funct.
11	OFF	Control funct.	OFF	OFF
12	OFF	OFF	Control funct.	Control funct.
13	OFF	OFF	Control funct.	OFF
14	OFF	OFF	OFF	Control funct.
15	OFF	OFF	OFF	OFF

**Code 2** (cont.)

Value address 34 ...	Internal circulation pump	Heating circuit pump Heating circuit without mixer	Heating circuit pump Heating circuit with mixer	Cylinder primary pump
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	
<b>Boiler/burner</b>			
52:0	Without flow temperature sensor for low loss header	52:1	With flow temperature sensor for low loss header (automatic setting on recognition)
54:1	With a Vitosolic 100. Never adjust.		
<b>DHW</b>			
56:0	Set DHW temperature adjustable from 10 to 60 °C	56:1	Set DHW temperature adjustable from 10 to above 60 °C (subject to boiler coding card) Observe the maximum permissible DHW temperature
58:0	Without auxiliary function for DHW heating	58:10 to 58:60	Input of a second set DHW value, adjustable from 10 to 60 °C (observe coding address 56)

## Coding

**Code 2** (cont.)

<b>Coding in the delivered condition</b>		<b>Possible change</b>	
65:...	Information regarding the type of diverter valve (not adjustable)	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	3. Set DHW value	67:0 67:60	Set DHW value adjustable from 0 to 60 °C
6C:100	Set speed; internal circulation pump with DHW heating 100 %	6C:0 to 6C:100	Set speed adjustable from 0 to 100 %
6F:...	Maximum output for DHW heating; defaulted by the boiler coding card	6F:0 to 6F:100	Max. output during DHW heating adjustable from 0 to 100 %
71:0	DHW circulation pump: According to time program: "ON" (separate switching times are possible for the Vitotrol 300)	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: According to time program: "ON"	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: According to time program: "ON "	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"
<b>General</b>			
76:0	Without LON communication module	76:1	With LON communication module; automatic recognition



**Code 2 (cont.)**

Coding in the delivered condition		Possible change	
77 :1	LON subscriber number	77 :2 to 77 :99	LON subscriber number, adjustable from 1 to 99: 1-4 = Compact boiler 5 = Never adjust 10 - 98 = Vitotronic 200-H 99 = Vitocom  <b>Note</b> <i>Allocate each number only once.</i>
79:1	Control unit is fault manager	79:0	Control unit is not fault manager
7b:1	Send time via LON	7b:0	Do not send time via LON
7F:1	Detached house	7F:0	Apartment block Separate adjustment of holiday program and time program for DHW heating, as option
80:1	With 5 s delay for fault message; message is displayed if fault is present for at least 5 s	80:0	Without time delay
		80:2 to 80:199	Time delay adjustable from 10 to 995; 1 step = 5 s
81:1	Automatic summer/winter time changeover	81:0	Manual summer/winter time changeover
		81:2	Radio clock module is automatically detected
		81:3	Accept time via LON
82:0	Operation with natural gas	82:1	Operation with LPG (only adjustable if coding address 11:9 has been set; see page 112)
88 :0	Temperature displayed in °Celsius	88 :1	Temperature display in ° Fahrenheit
8A:175	Never adjust		
90:128	Time constant for calculating the adjusted outside temperature 21.3 hours	90:0 to 90:199	Fast (low values) or slow (high values) matching of the flow temperature, subject to the set value when the outside temperature changes; 1 step = 10 min



Coding

**Code 2** (cont.)

<b>Coding in the delivered condition</b>		<b>Possible change</b>	
91:0	No external heating program changeover via the external extension	91:1	The external heating program changeover affects the heating circuit without mixer
		91:2	The external heating program changeover affects the heating circuit with mixer
		91:3	The external heating program changeover affects the heating circuit without mixer and the heating circuit with mixer
95:0	Without Vitocom 100 communication interface	95:1	With the Vitocom 100 communication interface; automatic recognition
97:0	The outside temperature of the sensor connected to the control unit is utilised internally	97:1	Outside temperature is accepted from the LON
		97:2	The outside temperature at the sensor connected to the control unit will be used internally and transmitted via the LON 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	No minimum set boiler water temperature in case of external demand	9b:1 to 9b:75	Set temperature adjustable from 1 to 75 °C



## Code 2 (cont.)

Coding in the delivered condition		Possible change	
9C:20	Monitoring LON subscribers When there is no response from a subscriber, values defaulted by the control unit continue to be used for a further 20 min. Only then will a fault message be issued.	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 a heating circuit with mixer	9F:0 to 9F:40	Differential temperature adjustable from 0 to 40 K
<b>Boiler circuit, mixer circuit</b>			
A0:0	Without remote control	A0:1	With Vitotrol 200 (automatic recognition)
		A0:2	With Vitotrol 300 (automatic recognition)
A3:2	Outside temperature below 1 °C: Heating circuit pump "ON" Outside temperature above 3 °C: Heating circuit pump "OFF"  <b>Note</b> <i>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.</i>	A3:-9 to A3:15	Heating circuit pump "ON/OFF" (see the following table)

Coding

**Code 2** (cont.)

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

Coding in the delivered condition		Possible change	
<b>Boiler circuit, mixer circuit</b>			
A4:0	With frost protection	A4:1	<p>No frost protection, adjustment only possible if coding address "A3: -9" has been selected.</p> <p><b>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>



**Code 2 (cont.)**

<b>Coding in the delivered condition</b>		<b>Possible change</b>	
A5:5	With heating circuit pump logic function (economy circuit): Heating circuit pump "OFF" if the outside temperature (AT) is 1 K higher than the set room temperature ( $RT_{set}$ ) $AT > RT_{set} + 1 K$	A5:0	Without heating circuit pump logic function
		A5:1 to A5:15	With heating circuit pump logic function: Heating circuit pump "OFF", if (see the following table)

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

**Code 2** (cont.)

<b>Coding in the delivered condition</b>		<b>Possible change</b>	
<b>Boiler circuit, mixer circuit</b>			
A6:36	Extended economy mode <b>disabled</b>	A6:5 to A6:35	Extended economy mode is enabled, i.e. the burner and heating circuit pump are switched OFF and the mixer will be closed at a variable value that is adjustable between 5 and 35 °C plus 1 °C. This value is based on the adjusted outside temperature, comprising the actual outside temperature and a time constant that takes the cooling down of an average building into consideration.
A7:0	Without mixer economy function	A7:1	With mixer economy function (extended heating circuit pump logic): Heating circuit pump also "OFF" if the mixer was closed longer than for 20 min. Heating circuit pump "ON", if the mixer changes to control mode.
A8:1	Heating circuit with mixer M2 creates a demand for the internal circulation pump	A8:0	Heating circuit with mixer M2 (mixer circuit) creates no demand for the internal circulation pump
A9:7	With pump idle time: Heating circuit pump "OFF" in case the set value is changed by changing the operating mode or the set room temperature	A9:0	Without pump idle time
		A9:1 to A9:15	With pump idle time; adjustable from 1 to 15



**Code 2 (cont.)**

Coding in the delivered condition		Possible change	
b0:0	With remote control: Heating mode/reduced mode: weather-compensated* <sup>1</sup>	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	Heating with room temperature hook-up must be programmed for remote control and for the heating circuit: Room influence factor 8* <sup>1</sup>	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-controlled heating circuit pump logic function * <sup>1</sup>	b5:1 to b5:8	Heating circuit pump logic function; see the following table

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

\*<sup>1</sup>Change the code for the heating circuit without mixer A1 or for the heating circuit with mixer M2 only, if the remote control unit affects that heating circuit.

**Code 2** (cont.)

<b>Coding in the delivered condition</b>		<b>Possible change</b>	
<b>Boiler circuit, mixer circuit</b>			
C5:20	Electronic minimum flow temperature limit 20 °C	C5:1 to C5:75	Minimum limit adjustable from 1 to 75 °C
C6:74	Electronic maximum flow temperature limit 74 °C	C6:10 to C6:75	Maximum limit adjustable from 10 to 75 °C
d3:14	Heating curve slope = 1.4	d3:2 to d3:35	Heating curve slope adjustable from 0.2 to 3.5 (see page 54)
d4:0	Heating curve level = 0	d4:-13 to d4:40	Heating curve level adjustable from -13 to 40 (see page 54)
d5:0	The external heating mode changeover switches the heating program to "Constant operation with reduced room temperature"	d5:1	The external heating program changeover switches to "Constant central heating with standard room temperature"
E1:1	With remote control: Set day temperature is adjustable at the remote control unit from 10 to 30 °C	E1:0	Set day temperature adjustable from 3 to 23 °C
		E1:2	Set day temperature adjustable from 17 to 37 °C
E2:50	Heating with room temperature hook-up must be programmed for remote control and for the heating circuit: No display correction of the actual room temperature	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
F1:0	Screed drying function disabled (only for weather-compensated control units).	F1:1 to F1:5	Screed drying function adjustable in accordance with five optional temperature/time profiles (see page 122)
		F1:6 to F1:15	Constant flow temperature 20 °C

## Code 2 (cont.)

Coding in the delivered condition		Possible change	
F2:8	Time limit for party mode 8 hours or external heating program changeover via key *1	F2:0	No time limit for party mode
		F2:1 to F2:12	Time limit adjustable from 1 to 12 hours *1
F8:-5	For the operation in reduced room temperature mode, the set room temperature will be raised (up to the temperature limit set by coding address F9) to a value subject to the outside temperature, if the outside temperature falls below -5 °C. Observe the setting of coding address A3.	F8:+10 to F8:-60	Limit for raising the temperature in reduced mode adjustable from +10 to -60 °C
		F8:-61	Function disabled
F9:-14	Below an outside temperature of -14 °C, the set room temperature will be raised to the value selected as set room temperature, if the system operates with the standard room temperature	F9:+10 to F9:-60	Limit for raising the set room temperature to the value selected for standard mode adjustable from +10 to -60 °C
FA:20	Raising the set flow temperature for the transition from operation with reduced temperature to operation with standard room temperature 20 %	FA:0 to FA:50	Raising the set flow temperature for the transition from reduced room temperature mode to standard room temperature mode, adjustable from 0 to 50 %
Fb:30	Duration for raising the set flow temperature (see coding address FA): 60 min	Fb:0 to Fb:150	Duration for raising the set flow temperature adjustable from 0 to 150 (corresponds to 0 to 300 min)

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

## Coding

### 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 and brief scans	Press  and  simultaneously for approx. 2 s.	Press	86
Relay test	Press  and  simultaneously for approx. 2 s.	Press	88
Max. output (heating mode)	Press  and  simultaneously for approx. 2 s.	Press	35
Operating conditions and sensors	Press	Press	89
Service scan	(if "Service" flashes)	Press	64
Adjusting the display contrast	Press  and  simultaneously; the display darkens	–	–
	Press  and  simultaneously; the display becomes lighter	–	–
Calling up acknowledged fault messages	Press  for approx. 3 s		92
Fault history	Press  and  simultaneously for approx. 2 s	Press	92
Subscriber check (in conjunction with LON system)	Press  and  simultaneously for approx. 2 s	Press  and  simultaneously	59
Emissions test function "A/B"	Press  and  simultaneously for approx. 2 s.	Press  and  simultaneously	–
Coding level 1 Plain text display	Press  and  simultaneously for approx. 2 s	Press  and  simultaneously	66
Coding level 2 Numerical display	Press  and  simultaneously for approx. 2 s	Press  and  simultaneously	68
Resetting codes to their delivered condition	Press  and  simultaneously for approx. 2 s; then	–	84

Service scans

**Temperatures, boiler coding card and brief scans**

- 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:

- Slope A1 – level A1
- Slope M2 – level M2
- Outside temp. adj. The adjusted outside temperature can be reset to the actual outside temperature with .
- Outside temp. actual
- Boiler temp. Set
- Boiler temp. actual
- DHW temp. set
- DHW temp. actual
- DHW outlet temp. actual
- DHW outlet temp. Set
- Flow temp. Set Heating circuit with mixer
- Flow temp. actual Heating circuit with mixer
- Mixed flow temp. set Low loss header
- Mixed flow temp. actual Low loss header
- Boiler coding card
- Scan 1 to Scan 8

Brief scan	Display screen					
	0	0	0	0	0	0
1	Software version Control unit		Equipment version		Burner control unit version	
2	System designs 01 to 06 Display in accordance with the system equipment level		Number of KM BUS subscribers	Maximum demand temperature		



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

Brief scan	Display screen					
	0	0	0	0	0	0
3	0	Software version Programming unit	Software version Mixer extension 0: no mixer extension	Software version Solar control unit 0: no solar control unit	Software version LON module 0: no LON module	Software version External extension 0: no external extension
4	Software version Burner control unit		Type Burner control unit		Equipment type	
5	0: no external demand 1: external demand	0: no external blocking 1: external blocking	0	External 0 to 10 V hook-up Display in % 0: no external hook-up		
6	Number of LON subscribers		Check digit	Max. output Details in %		
	<b>Boiler</b>		<b>Heating circuit A1 (without mixer)</b>		<b>Heating circuit M2 (with mixer)</b>	
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
	<b>Internal circulation pump</b>		<b>Heating circuit pump to connection extension</b>			
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

Service scans

## Checking outputs (relay test)

### Vitotronic 200

- Press the following keys:
1.  $\odot$  +  $\text{OK}$  simultaneously for approx. 2 s.
  2.  $\oplus/\ominus$  for the required relay output.
  3.  $\text{OK}$  Relay test is completed.

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

Display	Explanation
Base load	Burner modulation lower output
Full load	Burner modulation upper output
Int. pump ON	Int. pump/output 20 ON
Heating valve	Diverter valve set to heating mode
Valve central pos.	Diverter valve in central position (filling)
DHW valve	Diverter valve set to DHW mode
Heating circuit p. M2 ON	Mixer extension
Mixer CLOSE	Mixer extension
Mixer OPEN	Mixer extension
Output int. ON	Output $\square 28$ Internal extension
Heating circuit p. A1 ON	Ext. Extension H1
Cylinder pump ON	Ext. Extension H1
DHW circ. pump ON	Ext. Extension H1
Central fault ON	Ext. Extension H1

### Vitosolic 100

The solar circuit pump can be started with the relay test at the Vitosolic 100.

#### Note

*Terminate the relay test after completing the test (see below).*

1. Select "MM" with  $\oplus/\ominus$ .  
Confirm with  $\text{OK}$ . The following flashes:
2. Select "1" with  $\oplus/\ominus$ .  
Confirm with  $\text{OK}$ .

SEL

#### Note

*Now the solar circulation pump operates continuously.*



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

3. Select "4" with  $\oplus/\ominus$ .  
The Vitosolic 100 returns to automatic mode.

### Scanning operating conditions and sensors

#### Vitotronic 200

Press the following keys:

- |                       |  |                       |                                       |
|-----------------------|--|-----------------------|---------------------------------------|
| 1. $\textcircled{i}$  | "Select heating circuit" is displayed. | 3. $\textcircled{i}$  | press again.                          |
| 2. $\textcircled{OK}$ | to confirm; wait approx. 4 s.          | 4. $\oplus/\ominus$   | for the required operating condition. |
|                       |  | 5. $\textcircled{OK}$ | 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
Subscriber no.	Programmed subscriber no. in the LON system
Holiday program	If a holiday program has been entered
Departure date	Date
Return date	Date
Outside temperature, ... °C	Actual value
Boiler water temp., ... °C	Actual value
Flow temperature, ... °C	Actual value (only for mixer circuit M2)
Standard	Set value
Room temperature, ... °C	Actual value
Room temperature, ... °C	Actual value
Ext. set room temp., ... °C	For external hook-up
DHW temperature, ... °C	Actual DHW temperature
Mixed flow temp., ... °C	Actual value, only with low loss header
Burner, ...h	Actual hours run
Burner starts, ...	Hours run and burner starts (reset after maintenance with $\oplus$ to "0").
Time	
Date	
Burner OFF/ON	
Int. pump OFF/ON	Output 20



## Service scans

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

Display screen	Explanation
Int. output OFF/ON	Cylinder primary pump
Heating circuit pump OFF/ON	If an external extension or extension kit for one heating circuit with mixer is installed
Central fault message OFF/ON	If an external extension is installed
Mixer OPEN/CLOSE	If an extension kit for one heating circuit with mixer is installed
Various languages	The respective languages can be selected as permanent display language with 

## Vitosolic 100

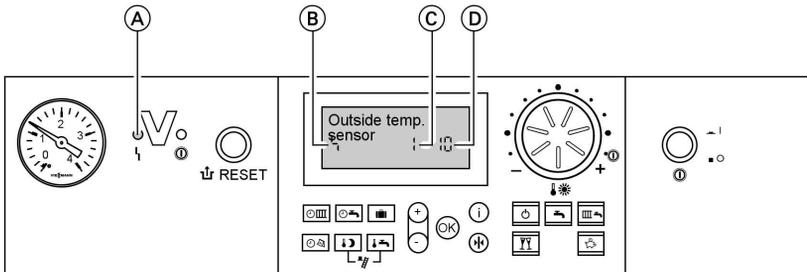
Select the required scan with  or

.

Display	Explanation
AH	Solar energy in kW/h
CL	Collector limit temperature
CN	Minimum collector temperature
CX	Maximum collector temperature
SX	Maximum DHW cylinder temperature
TC	Collector temperature
TS	Cylinder temperature
T3	Temperature sensor 3
VN	Software version

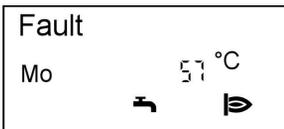
## Fault display

### 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 "⬆️".  
 The display flashes "Fault" if a fault message is issued



Plain text fault displays:

- Burner control unit
- Outside temperature sensor
- Flow sensor
- Boiler sensor
- Mixed flow sensor
- Cylinder sensor
- Flue gas sensor
- DHW outlet sensor
- Room temperature sensor
- Collector sensor
- Solar DHW sensor
- Remote control
- Subscriber fault

### Checking and acknowledging faults

#### Note

*If an acknowledged fault is not removed, the fault message will be re-displayed the following day at 07:00 h.*

**Press the following keys:**

1. (i) for the current fault.
2. (+)/(-) for further fault messages.



### Fault display (cont.)

3.  All fault messages are acknowledged simultaneously, the fault display will be deleted and the red fault indicator continues to flash.

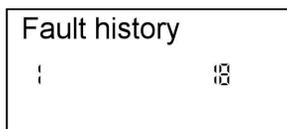
### Calling up acknowledged fault messages

Press the following keys:

1.  for approx. 3 s.
2.  for the acknowledged fault.

### 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	System characteristics	Cause	Measures
0F	Control mode	Service	Service the equipment. After the service, set coding address "24:0".

**Fault codes** (cont.)

<b>Fault code on the display</b>	<b>System characteristics</b>	<b>Cause</b>	<b>Measures</b>
10	Regulates as if the outside temperature was 0 °C	Outside temperature sensor shorted out	Check the outside temperature sensor (see page 99).
18	Regulates as if the outside temperature was 0 °C	Outside temperature sensor lead broken	Check the outside temperature sensor (see page 99).
20	Regulates without flow temperature sensor (low loss header)	System flow temperature sensor shorted out	Check the low loss header sensor (see page 101).
28	Regulates without flow temperature sensor (low loss header)	System flow temperature sensor lead broken	Check the low loss header sensor (see page 101).
30	Burner blocked	Boiler water temperature sensor shorted out	Check the boiler water temperature sensor (see page 101).
38	Burner blocked	Boiler water temperature sensor lead broken	Check the boiler water temperature sensor (see page 101).
40	Mixer closes.	Heating circuit with mixer M2 flow temperature sensor shorted out	Check the flow temperature sensor.
48	Mixer closes.	Heating circuit M2 flow temperature sensor lead broken	Check the flow temperature sensor.
50	No DHW heating	Cylinder temperature sensor shorted out	Check sensors (see page 101).
58	No DHW heating	Cylinder temperature sensor lead broken	Check sensors (see page 101).
92	Control mode	Solar: Collector temperature sensor S1 at the Vitosolic shorted out	Check the sensor (see page 102).

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Service



**Fault codes** (cont.)

<b>Fault code on the display</b>	<b>System characteristics</b>	<b>Cause</b>	<b>Measures</b>
9A	Control mode	Solar: Lead of the collector temperature sensor S1 at the Vitosolic broken	Check the sensor (see page 102).
93	Control mode	Solar: Sensor S3 at the Vitosolic shorted out	Check the sensor (see page 102).
9b	Control mode	Solar: Lead of the sensor S3 at the Vitosolic broken	Check the sensor (see page 102).
94	Control mode	Solar: Cylinder temperature sensor S2 at the Vitosolic shorted out	Check sensor.
9C	Control mode	Lead of the cylinder temperature sensor S2 at the Vitosolic broken	Check the sensor (see page 102).
9F	Control mode	Solar control unit fault message	See solar control unit service instructions.
A6	Control mode	Impressed current anode faulty; no protective current	Check impressed current anode cable contacts (see page 42)
A7	Control mode as per delivered condition	Faulty programming unit.	Replace the programming unit.
b0	Burner blocked	Flue gas temperature sensor shorted out	Check the flue gas temperature sensor (see page 104).
b8	Burner blocked	Flue gas temperature sensor lead broken	Check the flue gas temperature sensor (see page 104).
b1	Control mode as per delivered condition	Communication fault; programming unit (internal)	Check connections and replace the programming unit, if necessary.

**Fault codes** (cont.)

<b>Fault code on the display</b>	<b>System characteristics</b>	<b>Cause</b>	<b>Measures</b>
b4	Regulates as if the outside temperature was 0 °C	Internal fault	Replace the control unit.
b5	Control mode as per delivered condition	Internal fault	Replace the control unit.
b7	Burner blocked.	Boiler coding card missing, faulty or incorrect boiler coding card	Plug in boiler coding card or replace it, if faulty.
bA	Mixer M2 continues to regulate.	Communication fault, extension kit for mixer circuit M2	Check the extension kit connections and coding. Start the extension kit.
bC	Control mode without remote control	Communication fault – Vitotrol remote control, heating circuit A1	Check connections, cable, coding address "A0" and the remote control DIP switches.
bd	Control mode without remote control	Communication fault, Vitotrol remote control, heating circuit M2	Check connections, cable, coding address "A0" and the remote control DIP switches.
bE	Control mode	Vitotrol remote control incorrectly programmed	Check remote control DIP switch setting (see page 126)
bF	Control mode	Incorrect LON communication module	Replace the LON communication module.
C2	Control mode	Communication fault, solar control unit	Check connections and coding address "54".
Cd	Control mode	Communication fault Vitocom 100 (KM BUS)	Check connections and the Vitocom 100.
CE	Control mode	Communication fault - ext. extension	Check connections and settings of coding address "2E".
CF	Control mode	Communication fault, LON communication module	Replace the LON communication module.

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Service



**Fault codes** (cont.)

<b>Fault code on the display</b>	<b>System characteristics</b>	<b>Cause</b>	<b>Measures</b>
dA	Control mode without room influence	Room temperature sensor, heating circuit A1 shorted out	Check the room temperature sensor, heating circuit A1.
db	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	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 126)
dE	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 126)
E4	Burner blocked	Internal fault	Replace the control unit.
E5	Burner blocked	Internal fault	Check the ionisation electrode and cables. Check the flue gas system for soundness. Press "⬆️ RESET"; replace the control unit, if required.
E8	Burner in a fault state	The ionisation current lies outside the permissible range	Check the ionisation electrode and cable. Press "⬆️ RESET".
E9	Burner in a fault state	The ionisation current lies outside the permissible range during calibration	Check the ionisation electrode and cable. Press "⬆️ RESET".

**Fault codes** (cont.)

<b>Fault code on the display</b>	<b>System characteristics</b>	<b>Cause</b>	<b>Measures</b>
EA	Burner in a fault state	The ionisation current lies outside the permissible range during calibration	Check the ionisation electrode and cable. Press "↑ RESET".
Eb	Burner in a fault state	Heat draw-off repeatedly too low during calibration	Initiate heat draw-off and trigger manual calibration (see page 112) Press "↑ RESET".
EC	Burner in a fault state	The ionisation current lies outside the permissible range during calibration	Check the ionisation electrode and cable. Press "↑ RESET".
Ed	Burner in a fault state	Internal fault	Replace the control unit.
F0	Burner blocked	Internal fault	Replace the control unit.
F1	Burner in a fault state	Flue gas temperature limiter has responded.	Check the heating system water level. Vent the system. Press "↑ RESET" after the flue gas system has cooled down.
F2	Burner in a fault state	The temperature limiter has responded.	Check the heating system water level. Check the circulation pump. Vent the system. Check the temperature limiter and connecting cables. Press "↑ RESET".
F3	Burner in a fault state	Flame signal is already present at burner start.	Check the ionisation electrode and connecting cable. Press "↑ RESET".

Service

**Fault codes** (cont.)

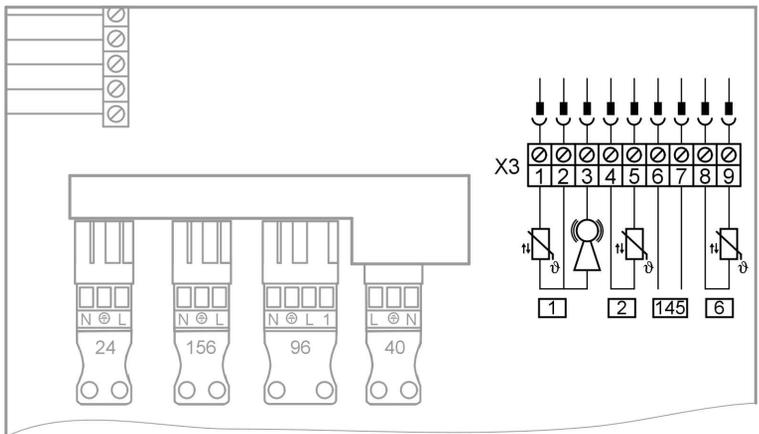
<b>Fault code on the display</b>	<b>System characteristics</b>	<b>Cause</b>	<b>Measures</b>
F4	Burner in a fault state	No flame signal.	Check the ionisation electrode and cable, measure the ionisation current, check the gas pressure, check the gas train, ignition, ignition module, ignition electrodes and the condensate drain. Press " <b>↑</b> RESET".
F8	Burner in a fault state	The fuel valve closes too late.	Check the gas train. Check both control paths. Press " <b>↑</b> RESET".
F9	Burner in a fault state	Fan speed too low during the burner start	Check the fan, check the fan cables and supply; check the fan control. Press " <b>↑</b> RESET".
FA	Burner in a fault state	Fan not at standstill	Check the fan, fan connecting cables and fan control. Press " <b>↑</b> RESET".
FC	Burner in a fault state	Gas train faulty or faulty modulation valve control; or flue gas path blocked	Check the gas train. Check the flue gas system. Press " <b>↑</b> RESET".
Fd	Burner in a fault state	Faulty burner control unit or boiler coding card	Check ignition electrodes and connecting cables. Press " <b>↑</b> RESET". If the fault cannot be removed, check the boiler coding card or replace it, if required, or replace the control unit.

**Fault codes (cont.)**

Fault code on the display	System characteristics	Cause	Measures
FE	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	Burner blocked or in a fault state	Internal fault or "⬆️ RESET" key blocked	Start the equipment again. Replace the control unit, if the equipment will not restart.

**Repairs**

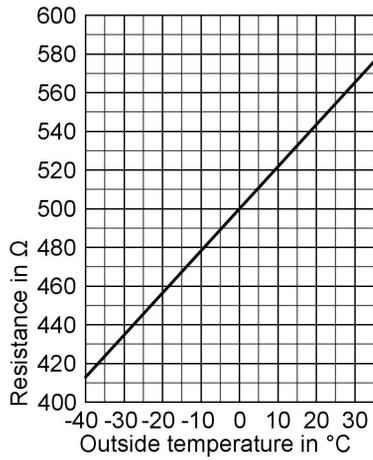
**Checking the outside temperature sensor**



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

Service

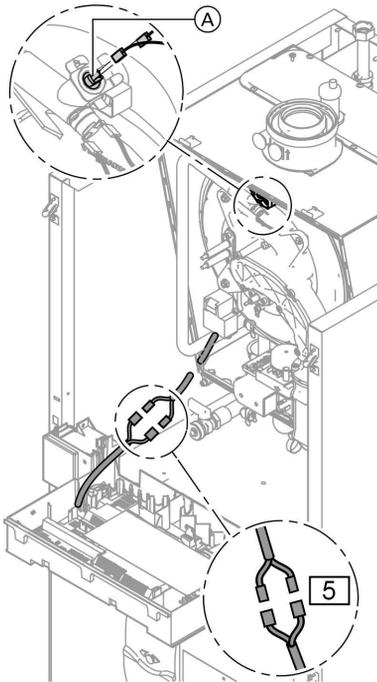
## Repairs (cont.)



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 on the sensor itself.
4. Depending on the result, replace the lead or the outside temperature sensor.

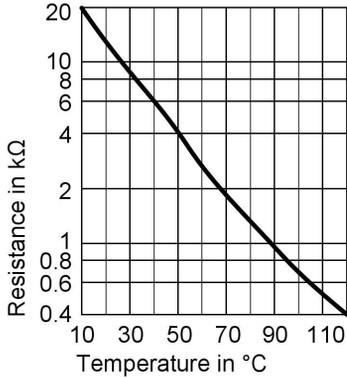
**Repairs (cont.)**

**Boiler water temperature sensor, checking the cylinder temperature sensor or the flow temperature sensor for a low loss header**



1. Boiler water temperature sensor: Pull the leads from boiler water temperature sensor (A) and check the resistance.  
 Cylinder temperature sensor: Pull plug [5] from the cable harness at the control unit and check the resistance.  
 Flow temperature sensor: Pull plug "X3" from the control unit and check the resistance across terminals "X3.4" and "X3.5" (see page 99).

## Repairs (cont.)



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



### Danger

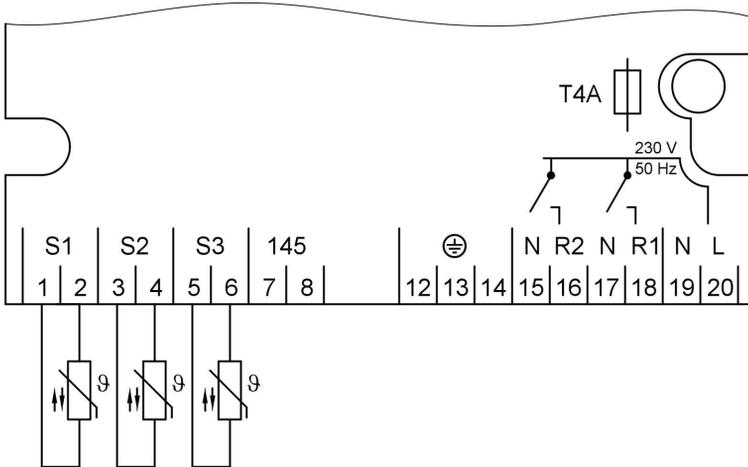
The boiler water temperature sensor is immersed in the heating water (risk of scalding).

Drain the heating water side of the compact boiler before replacing the sensor.

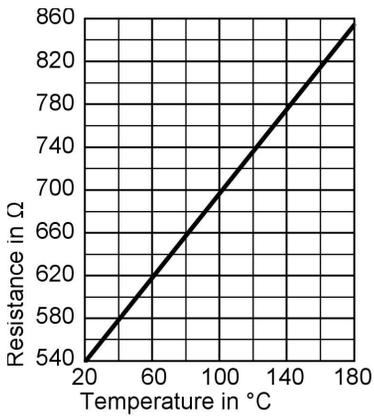
## Checking the collector temperature sensor S1, temperature sensor S2 or S3

1. Remove the cover from the wiring chamber of the Vitosolic 100. ▶▶

**Repairs (cont.)**



- S1 Collector temperature sensor
- S2 Temperature sensor S2
- S3 Temperature sensor S3



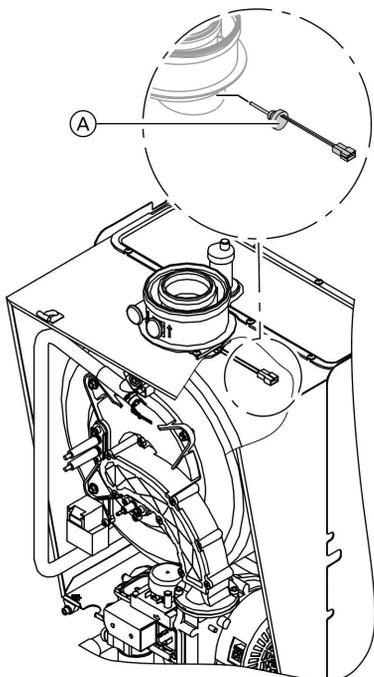
2. Disconnect the respective sensor.
3. Check the sensor resistance and compare it with the curve.
4. Replace the sensor in case of severe deviation.

Service

## Repairs (cont.)

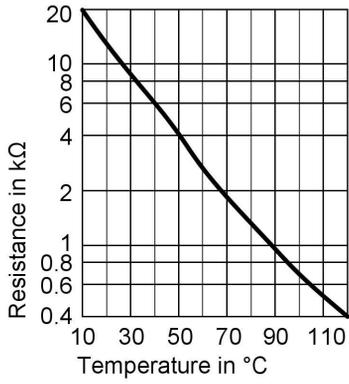
### Checking the flue gas temperature sensor

The flue gas temperature sensor locks out the boiler when the permissible flue gas temperature is exceeded. Reset the interlock after the flue gas system has cooled down by pressing "↑ RESET".



1. Pull the leads from flue gas temperature sensor (A) ..
2. Check the sensor resistance and compare it with the curve.

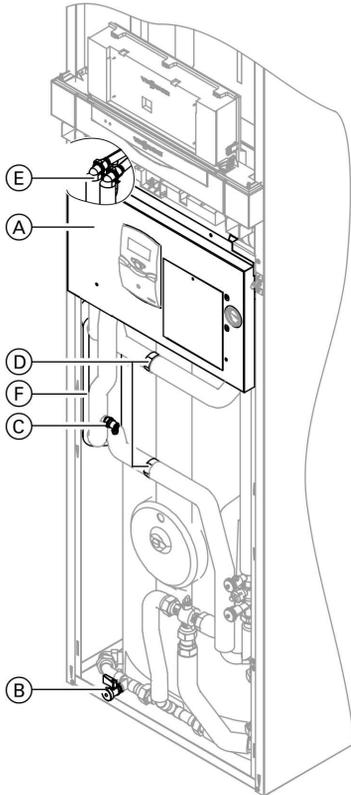
**Repairs (cont.)**



3. Replace the sensor in case of severe deviation.

**Repairs** (cont.)

**Checking the plate-type heat exchanger**



1. Remove cover panel (A).
2. Shut off the heating water side of the compact boiler.
3. Close the on-site shut-off valve.
4. Drain the boiler on the DHW side via drain valve (B).
5. Drain the system on the heating water side via drain valve (C).
6. Undo fittings (D).
7. Pull the locking bracket from plug-in connectors (E) and pull the connections on the heating water side.



## Repairs (cont.)

8. Remove plate-type heat exchanger (F).

**Note**

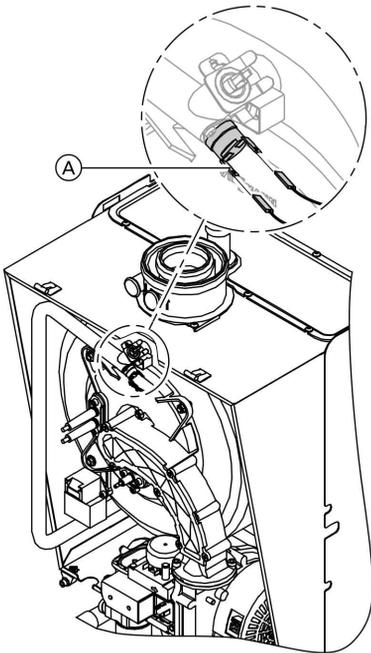
*During removal, small amounts of water may trickle out and escape from the removed plate-type heat exchanger.*

9. Check the connections on the DHW side for scaling and, if required, flush or replace the plate-type heat exchanger.

10. Check the connections on the heating water side for contamination and, if required, flush or replace the plate-type heat exchanger.

11. Lubricate the new gaskets/seals. Install in reverse order with new gaskets.

## Check the temperature limiter



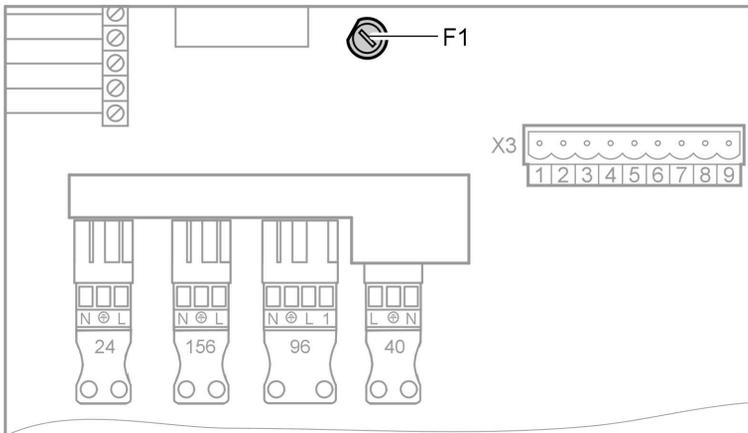
## Troubleshooting

### Repairs (cont.)

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

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

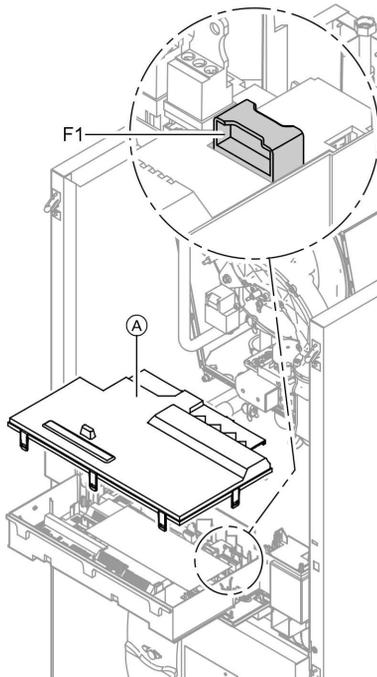
### Checking the fuse in the wiring chamber



1. Switch OFF the power.
2. Remove the cover from the wiring chamber.
3. Check fuse F1.

**Repairs (cont.)**

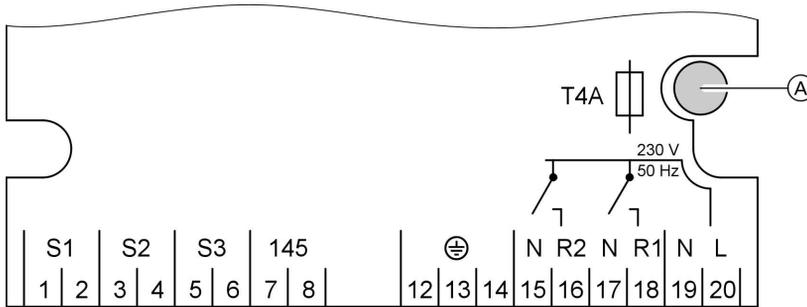
**Checking the fuse in the boiler control unit**



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

**Repairs** (cont.)

**Checking the fuse in the Vitosolic 100**

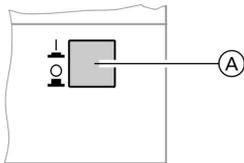


1. Switch OFF the power.
2. Fit the cover of the Vitosolic 100.
3. Check fuse (A).

**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)

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



Mixer installation instructions

**Repairs (cont.)**

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



**Danger**

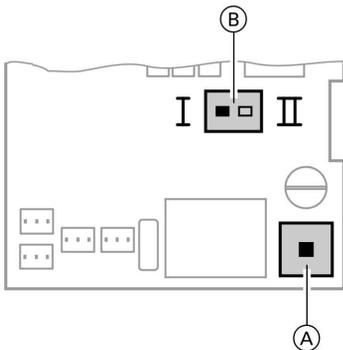
An electric shock can be life-threatening. Before opening the equipment, switch the ON/OFF switch OFF and disconnect the mains voltage, for example at the fuse or the main isolator.

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



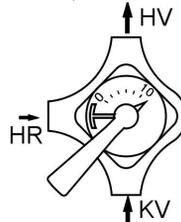
Extension kit installation instructions

- 

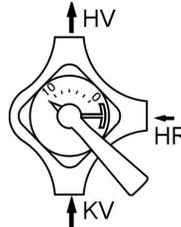


Change over the rotational direction switch.

- 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 cable. To test the connection, carry out a subscriber check at the control unit of the compact boiler (see page 59).

## Repairs (cont.)

### Changing the combustion control parameters

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

#### Calling up coding addresses

1. Press  and  simultaneously for approx. 2 s; confirm with .
2. Select required coding address "11" with  or ; the address flashes; confirm with ; the value flashes.
3. Adjust value "9" with  or ; confirm with . The green ON indicator flashes.  
Access to the coding addresses of the parameters is open.

4. Select the required coding address with  or  (see the following table) and change the value.
5. To exit, set the value of coding address 11≠9; then press  and  simultaneously for approx. 1 s. Coding has been terminated.

#### Note

*If setting the parameters is not concluded via coding address 11, the system automatically terminates the parameter change after approx. 25 min.*

#### Coding

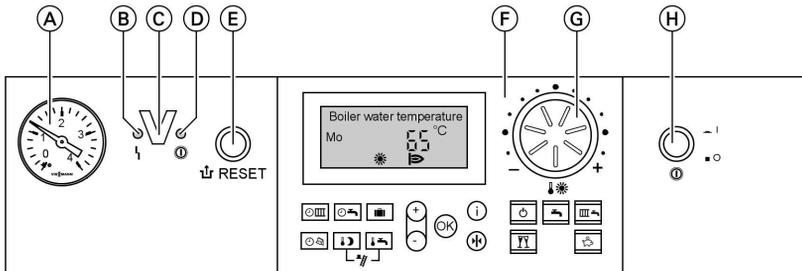
Coding in the delivered condition		Possible change	
<b>Burner</b>			
7d:0	Air factor correction 0	7d:-5 to 7d:10	<p><b>Note</b> <i>A change is only possible if manual calibration was first carried out via coding address "85".</i></p> <p>Air factor correction adjustable from – 5 to 10. Each step represents an air factor modification of approx. 0.01.</p>
82:0	Operation with natural gas	82:1	Operation with LPG
83:0	Correction, ignition start gas volume 0%	83:-10 to 83:+20	Correction, ignition gas volume adjustable from – 10 to +20%.

**Repairs (cont.)**

Coding in the delivered condition		Possible change	
84:0	Start capacity correction 0 %	84:-8 to 84:7	Start capacity correction adjustable from -16 to +14 %. One step equals 2 %.
85:0	Standard mode	85:1	Manual calibration of the combustion control unit. The red fault indicator also flashes during calibration. The process has terminated when the red indicator no longer flashes (after approx. 1 min). The air factor can then be manually altered in coding address "7d".  <b>Note</b> <i>Heat must be drawn off during manual calibration.</i>

## Vitotronic 200, type HO1

### Bedien- und Anzeigeelemente



- (A) Manometer
- (B) Störungsanzeige (rot)
- (C) Optolink-Schnittstelle  
nur in Verbindung mit Diagnose-  
Adapter (Zubehör) und Vitosoft  
(Zubehör)
- (D) Betriebsanzeige (grün)
- (E) Entriegelungstaster
- (F) Bedienfeld
- (G) Drehknopf für die normale Raum-  
temperatur
- (H) Netzschalter

#### Tasten auf dem Bedienfeld:

- |  |   |   |                               |
|--|---|---|-------------------------------|
|  | Zeitprogramm Raumbeheizung  | + | Schornsteinfeger-Prüffunktion |
|  | Zeitprogramme Warmwasserbereitung und Zirkulationspumpe (falls an der Regelung angeschlossen) |   | Abschaltbetrieb               |
|  | Ferienprogramm  |   | Nur Warmwasser                |
|  | Uhrzeit/Datum   |   | Heizen und Warmwasser         |
|  | Reduzierte Raumtemperatur   |   | Partybetrieb                  |
|  | Warmwassertemperatur-Sollwert   |   | Sparbetrieb                   |
|  |   |   | Werteinstellung               |
|  |   |   | Bestätigung                   |
|  |   |   | Information                   |
|  |   |   | Grundeinstellung (Reset)      |

## Vitotronic 200, type HO1 (cont.)

### Heating operation

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

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

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

### DHW heating by the boiler

#### Heating the 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 and, after the required boiler water temperature has been reached, the cylinder primary pump is switched ON when the boiler water temperature  $\leq$  set DHW temperature.

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

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 changed over, 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 and, after the required boiler water temperature has been reached, the cylinder primary pump is switched ON when the boiler water temperature  $\leq$  set DHW temperature.

The cylinder continues to be heated up after the draw off process has terminated, 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.

#### Boosting when DHW is drawn off

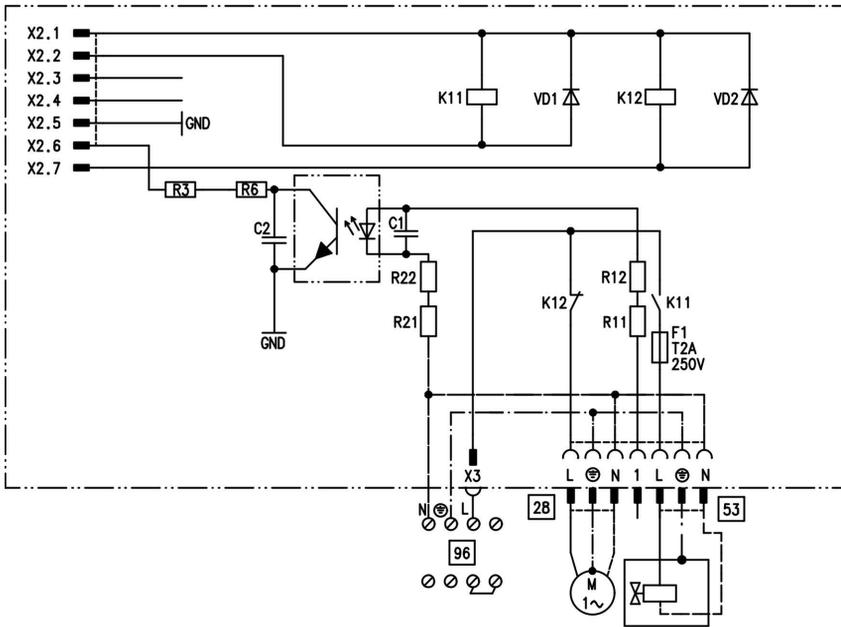
**Vitotronic 200, type HO1 (cont.)**

**DHW heating by solar collectors**

The solar circuit pump will start and the DHW cylinder will be heated up when a temperature differential greater than the starting differential temperature "DO" set at the Vitosolic 100 is established between the collector temperature sensor and the cylinder temperature sensor S2 or S3.

The pump is switched OFF when the actual temperature falls below the stopping temperature differential "DF" between the collector temperature sensor and the highest temperature captured by cylinder sensor S2 or S3.

**Internal extension H1**

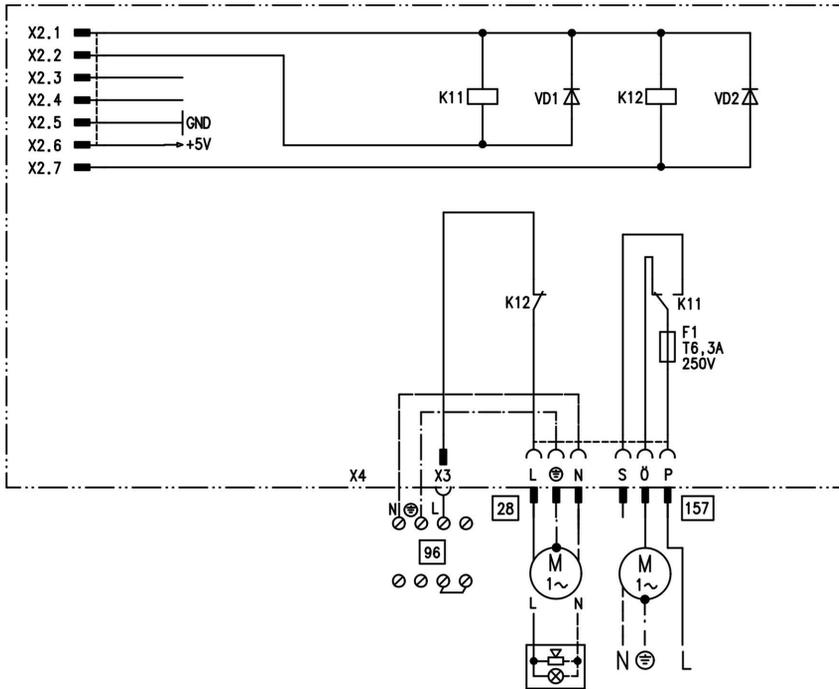


The internal extension is integrated into the control unit casing. The cylinder primary pump is connected to the relay output **21**.

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

## Extensions for external connections (accessories)

### Internal extension H2



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

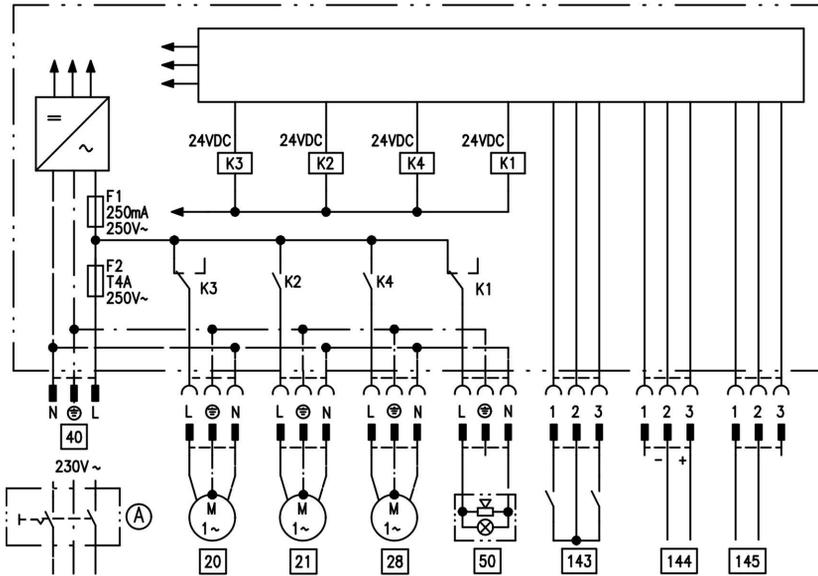
- Central fault message (coding address "53:0")
- DHW circulation pump (coding address "53:1") (only for weather-compensated operation)

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

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

**Extensions for external connections . . . (cont.)**

**External extension H1**



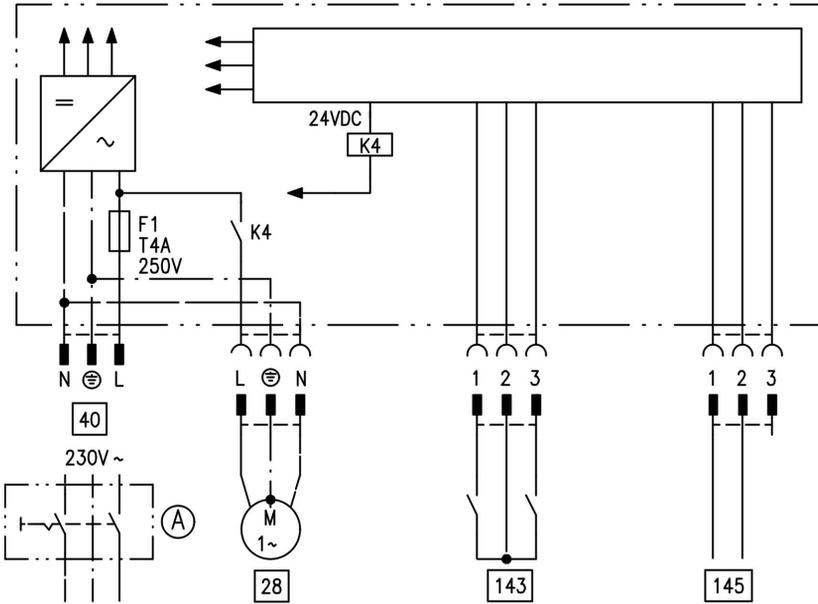
The external extension is connected to the boiler control unit via the KM BUS. The following functions can be controlled or processed simultaneously via the extension:

- Ⓐ 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:

- (A) 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

Function description

## 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.

## Function description

### Control functions (cont.)

#### Filling with the control unit switched ON

If the system is to be filled with the control unit switched ON, 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.

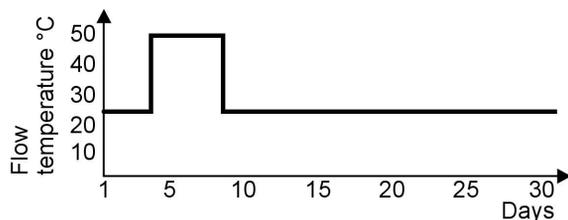
When the screed drying function is activated, the heating circuit pump of the mixer circuit is switched ON and the flow temperature will be held at the selected profile. After completion (30 days), the mixer circuit will again be regulated automatically via the set parameters.

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

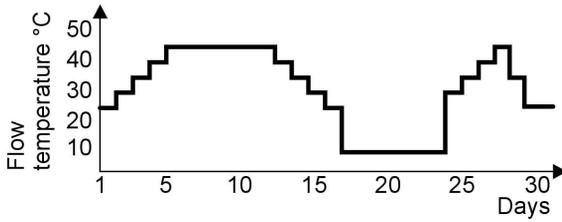
The various temperature profiles are adjustable via coding address "F1". The function continues after power failure or after the control unit has been switched OFF. "Heating and DHW" will be started after the screed drying function has been terminated or if code "F1:0" is manually adjusted.

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

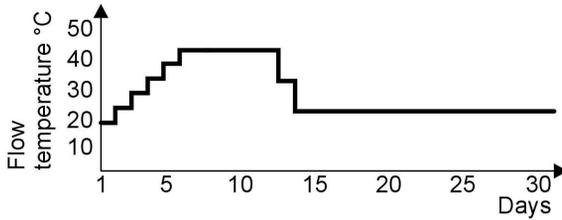


**Control functions** (cont.)

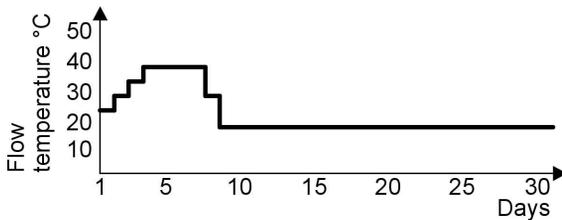
**Temperature profile 2: (ZV parquet and flooring technology) code "F1:2"**



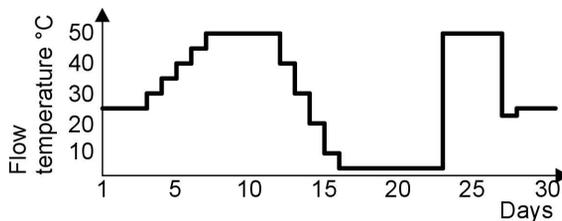
**Temperature profile 3: Code "F1:3"**



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



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



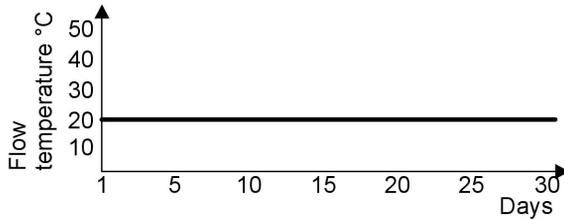
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Service

Function description

## Control functions (cont.)

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



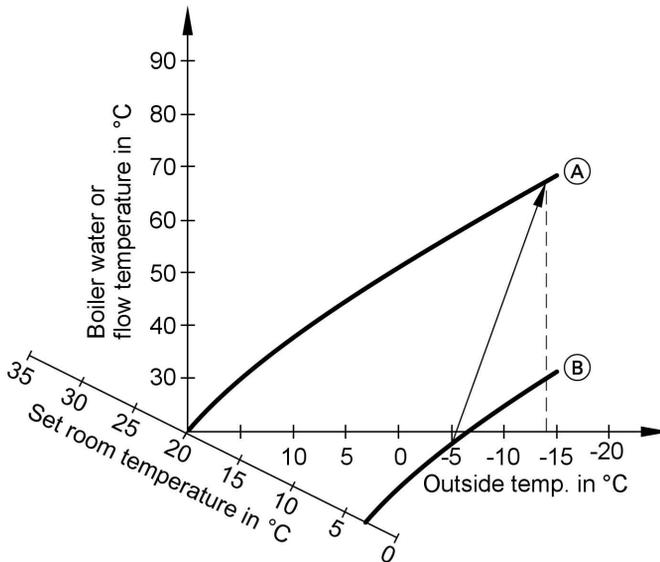
### Raising the reduced room temperature

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

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

## Control functions (cont.)

### Example using the settings in the delivered condition



Ⓐ Heating curve for operation with standard room temperature

Ⓑ Heating curve for operation with reduced room temperature

### Reducing the heat-up time

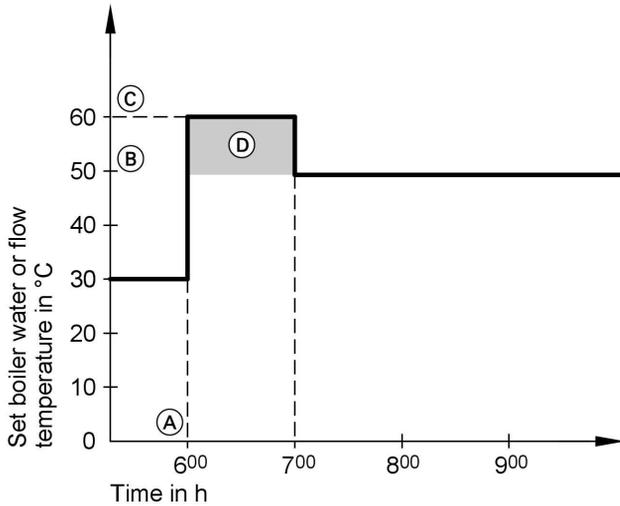
During the transition from operation with reduced room temperature to operation with standard room temperature, the boiler water or flow temperature will be raised in accordance with the selected heating curve. The boiler water or flow temperature can be automatically increased.

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

## Function description

### Control functions (cont.)

#### Example using the settings in the delivered condition



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

### Remote control DIP switches

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

### Remote control DIP switches (cont.)

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

### Electronic combustion control unit

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

To check the combustion quality, the  $\text{CO}_2$  content or the  $\text{O}_2$  content of the flue gas is measured. The actual values enable the prevailing air factor to be determined. The relationship between the  $\text{CO}_2$  or  $\text{O}_2$  content and air factor  $\lambda$  is illustrated in the following table.

## Function description

### Electronic combustion control unit (cont.)

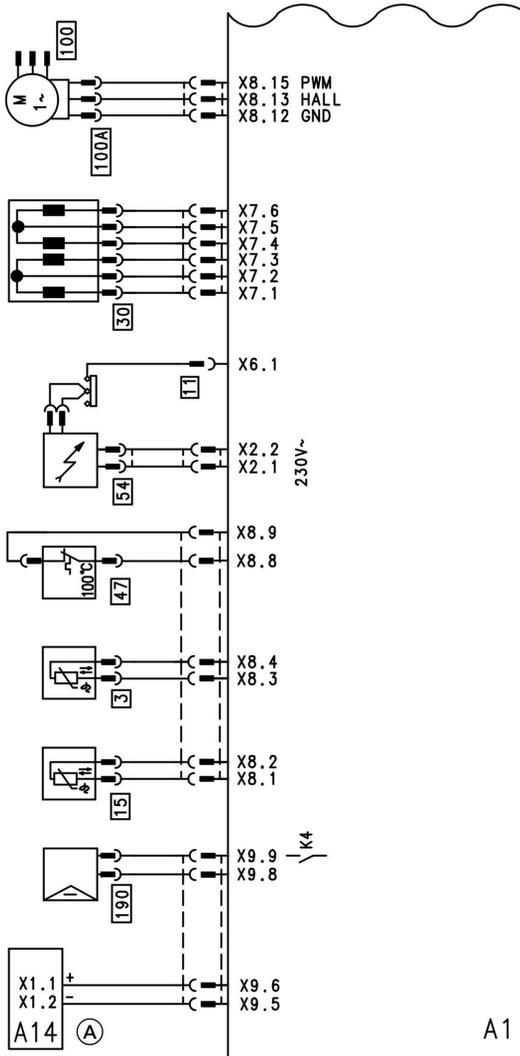
#### Air factor $\lambda$ – CO<sub>2</sub>/O<sub>2</sub> content

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

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

The combustion control unit can also be calibrated manually. e.g. after maintenance or service work (see page 112).

## Connection and wiring diagram – internal connections I



- A1 Main PCB
- X ... Electrical interface
- [3] Boiler water temperature sensor
- [5] Cylinder temperature sensor

- [11] Ionisation electrode
- [15] Flue gas temperature sensor
- [30] Stepper motor for diverter valve
- [35] Gas solenoid valve

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Service



## Designs

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

47 Temperature limiter

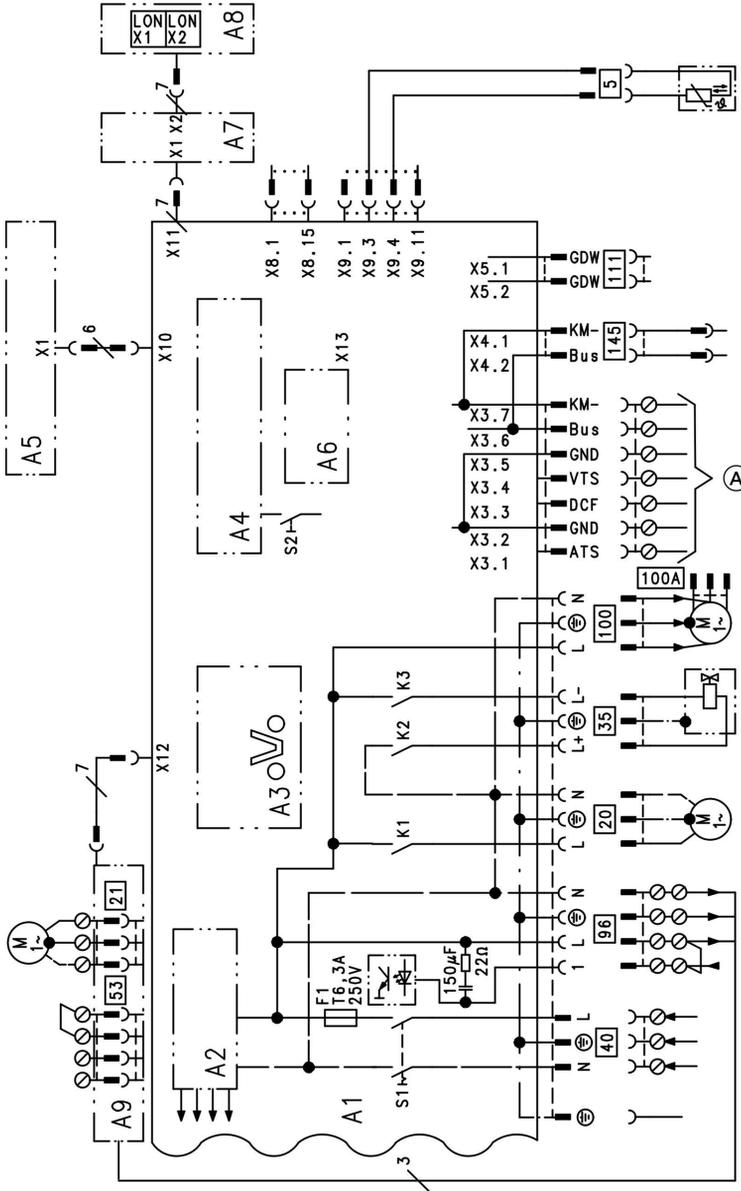
54 Ignition unit

100A Fan motor

190 Modulation coil

A Fault message, impressed current anode

## Connection and wiring diagram – internal connections II



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A1 Main PCB

A2 Main PCB

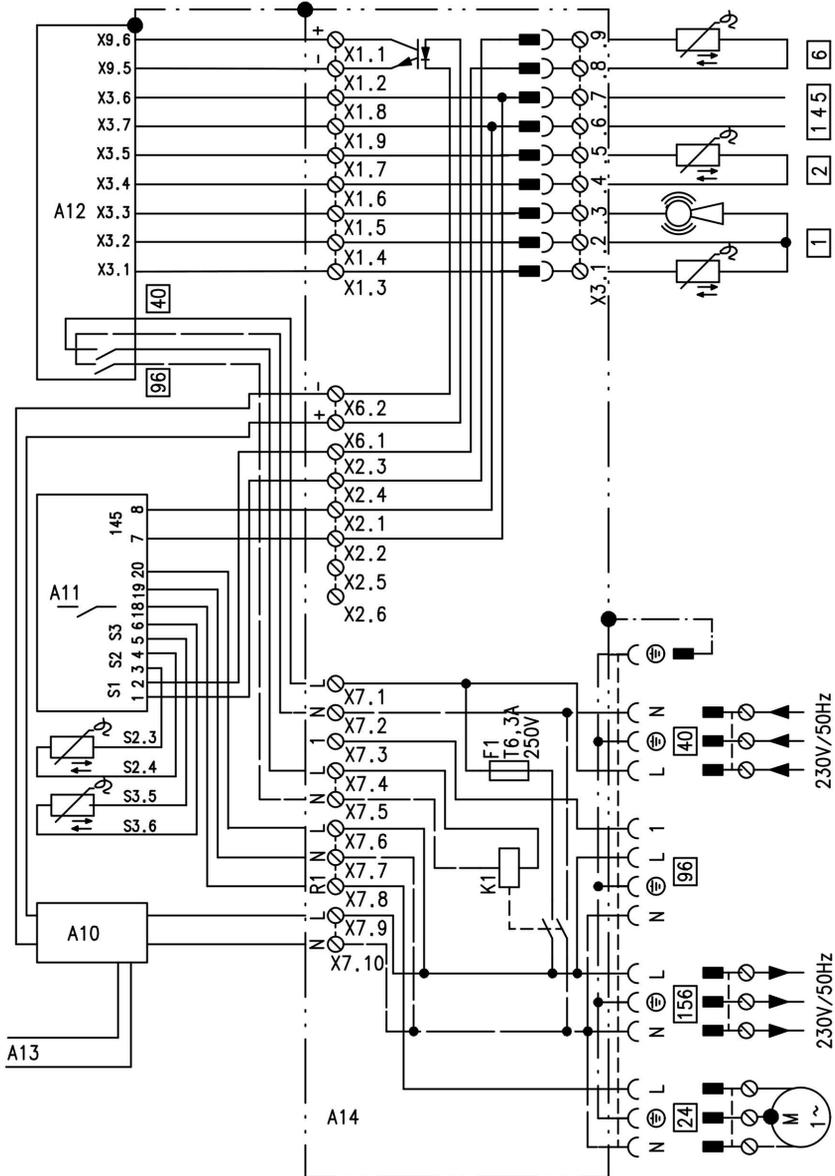
Service



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

A3	Optolink	35	Gas solenoid valve
A4	Burner control unit	40	Mains input 230V/50Hz
A5	Programming unit	53	External safety valve (if installed)
A6	Coding card	96	Power supply, internal extension H1
A8	LON communication module	100	Fan motor
A9	Internal extension H1	111	Gas pressure limiter (accessory)
S1	ON/OFF switch	145	KM BUS
S2	Reset button	190	Modulation coil
X ...	Electrical interface	(A)	To the wiring chamber (see the following page)
5	Cylinder temperature sensor		
20	Circulation pump 230 V		
21	Cylinder primary pump 230V		

Connection and wiring diagrams – external connections



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A10 Impressed current anode PCB

A11 Vitosolic 100



## Designs

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

A12	Vitotronic 200 (boiler control unit)	S3	Cylinder temperature sensor S3 (PCB A11)	
A13	Impressed current anode connection	<table border="1"><tr><td>1</td></tr></table>	1	Outside temperature sensor
1				
A14	Wiring chamber PCB	<table border="1"><tr><td>2</td></tr></table>	2	Flow temperature sensor
2				
S1	Collector temperature sensor (PCB A11)	<table border="1"><tr><td>6</td></tr></table>	6	Collector temperature sensor
6				
S2	Cylinder temperature sensor S2 (PCB A11)	<table border="1"><tr><td>24</td></tr></table>	24	Solar circuit pump 230 V
24				
		<table border="1"><tr><td>40</td></tr></table>	40	Mains input 230V/50Hz
40				
		<table border="1"><tr><td>96</td></tr></table>	96	Power supply of accessories
96				
		<table border="1"><tr><td>145</td></tr></table>	145	KM BUS
145				
		<table border="1"><tr><td>156</td></tr></table>	156	Power supply of accessories
156				

## 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 Flange with gasket	042 Safety spring
003 Gasket	043 Heat exchangers
004 Ti electrode with connecting cable	044 Siphon connection
005 Temperature sensor	046 O-ring Ø28 x 2.5
009 Angled panel	047 Boiler flue connection plug
010 R.h. side panel	048 Pressure gauge and fem. connection
011 L.h. side panel	049 Boiler flue connection Ø60/100
012 Front panel, bottom	050 Burner door
013 Front panel, top	051 Ignition unit
015 Lower thermal insulation	053 Insulation ring
016 Container hose	054 Burner gauze assembly
017 Drip container	055 Burner gauze assembly gasket
018 Safety valve	058 Fan outlet gasket
019 Circulation pump motor UPS 60	059 Radial fan
020 3/2-way valve with stepper motor	060 Mixer
022 Pressure gauge	061 Gas train
023 Retainer, plug-in connector	062 Plug-in connector retainers (set)
024 Drain valve R 1/2"	064 Hook-in lock (set)
025 Shut-off valve DN 20	065 Cap panel with gaskets
028 Gasket set	066 Gas supply pipe
029 Sealing washer Ø21.0 x 30.0 x 2.0	067 Connection pipe HR
030 Fixing elements	068 Ventilation air gasket Ø100
031 Circulation pump motor VIZ 25/5-3	069 Lip seal Ø60
032 Plate-type heat exchanger	070 Diaphragm expansion vessel 10 l
033 Diaphragm safety valve 3 bar	071 Connection line; diaphragm expansion vessel
034 Three-way ball valve G 1"	072 Back panel lid
035 Fill valve DN 20	073 Clip nut
036 Quick acting air vent valve G 3/8"	074 Plug-in connector gasket set
037 Connecting pipe HV	080 Vitodens control unit
038 Thermocouple	081 Back cover
039 Temperature sensor	082 Support
040 Grommets (set)	083 Flap
041 Profiled gasket	084 Pressure gauge retainer
	085 Clip (10 pce.)
	086 Hinge (10 pce.)
	087 Internal extension H1
	088 LON module
	089 Adaptor PCB
	090 Boiler coding card
	091 Fuse 6.3 A slow (10 pce.)
	092 Programming unit



## Parts lists

### Parts lists (cont.)

- 095 Locking clips (10 pcs.)
- 110 Outside temperature sensor
- 112 Flue gas temperature sensor
- 120 Locking handle
- 121 Cylinder temperature sensor
- 122 Hinge pins (10 pce.)
- 127 Impressed current anode PCB
- 129 Vitosolic 100
- 130 Overflow valve
- 131 Pivoting arm l.h./r.h.
- 144 Connection adaptor PCB
- 150 T&P valve

#### **Wearing parts**

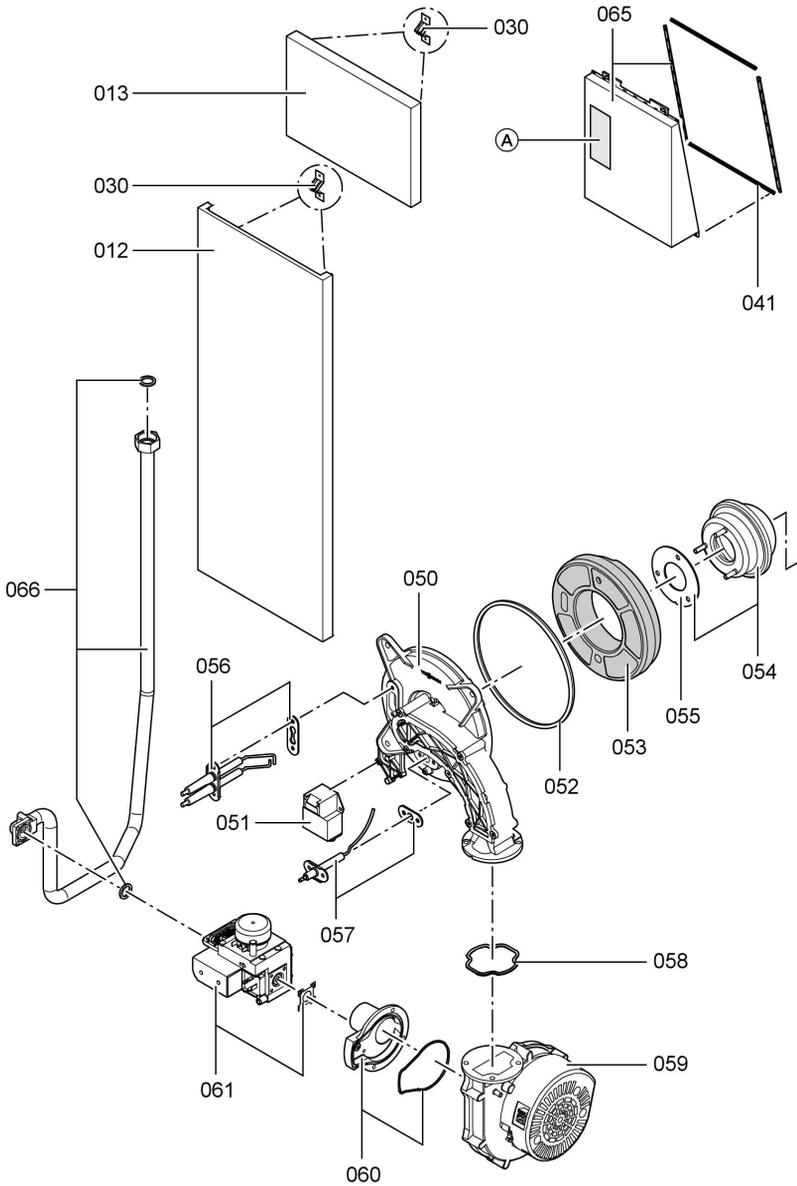
- 052 Burner gasket
- 056 Ignition electrode
- 057 Ionisation electrode

#### **Parts not shown**

- 045 Special grease
- 062 Burner maintenance set
- 063 Set of small burner parts

- 093 Cable harness X8/X9
- 094 Cable harness 100/35/34 (auxiliary earth)
- 096 Cable harness X3
- 097 Cable 96/40/X7
- 098 Cable X2/Vitosolic
- 099 Power cable, stepper motor
- 100 Ionisation cable
- 101 Internal ionisation cable
- 102 Connection cable, impressed current anode
- 103 Connecting cable X7/Vitosolic
- 104 Adaptor, ionisation current test cable
- 105 Cable X6/LED impressed current anode
- 140 Touch-up paint stick, Vitowhite
- 141 Spray paint, Vitowhite
- 142 Installation and service instructions
- 143 Operating instructions
- Ⓐ Type plate

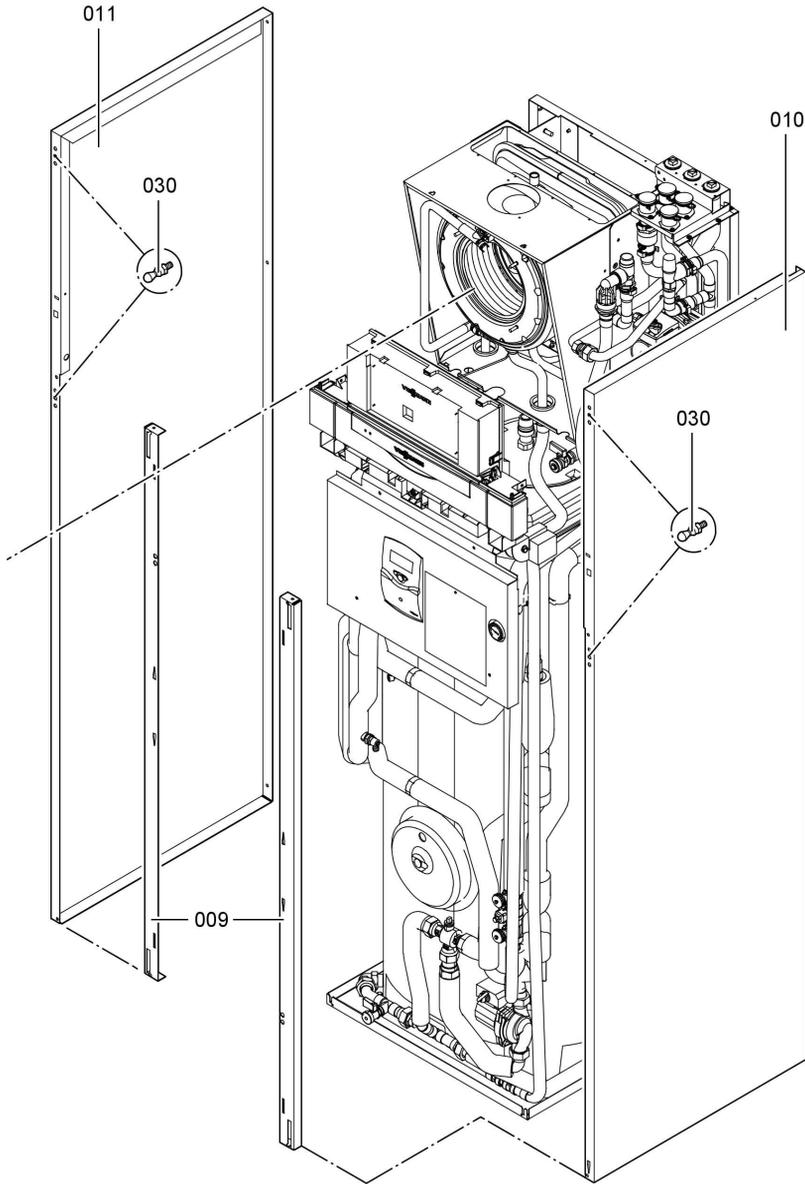
**Parts lists** (cont.)



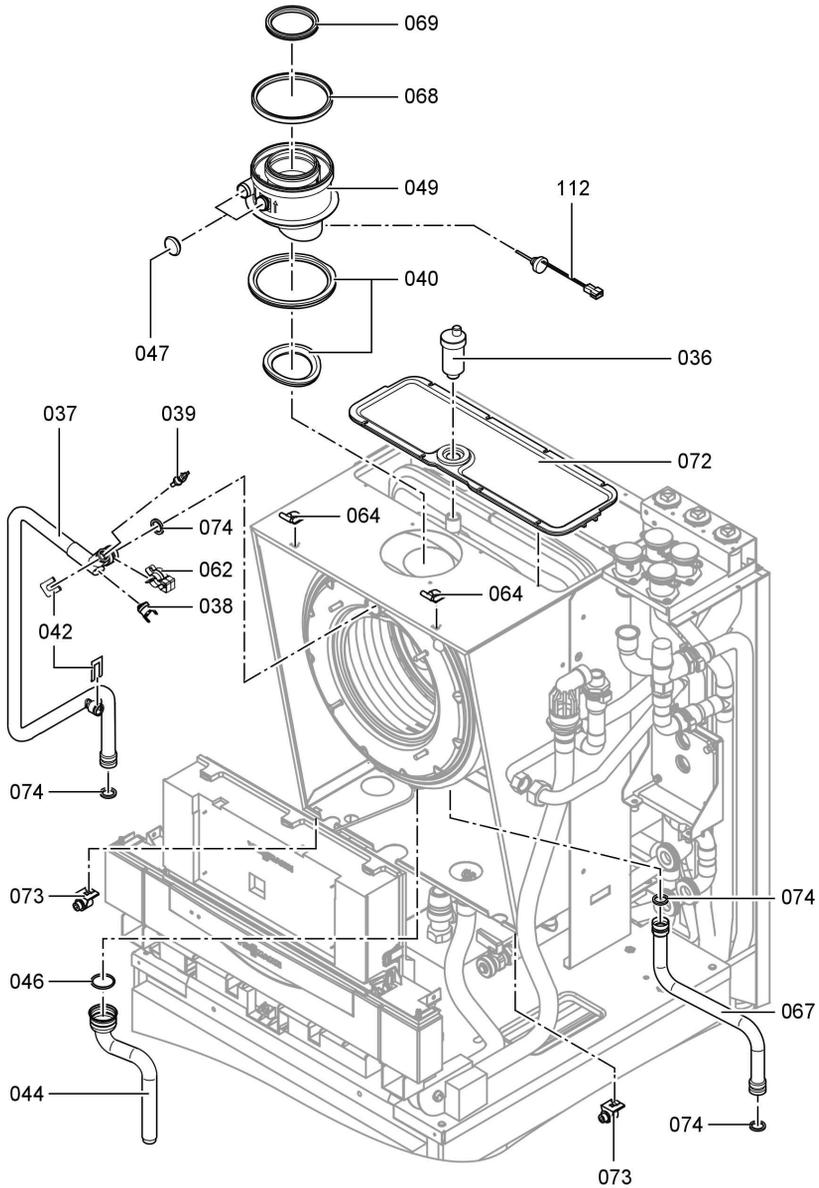
5592 883 GB

**Service**

**Parts lists** (cont.)



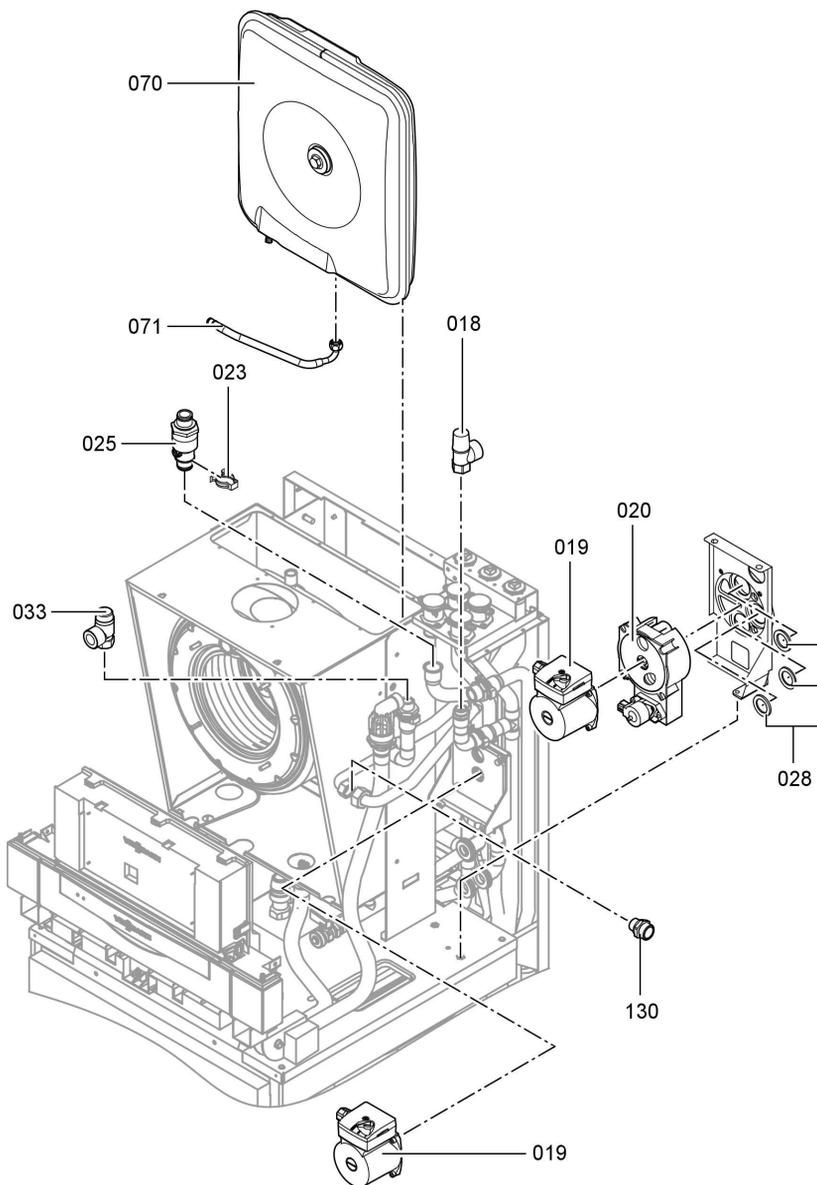
**Parts lists (cont.)**



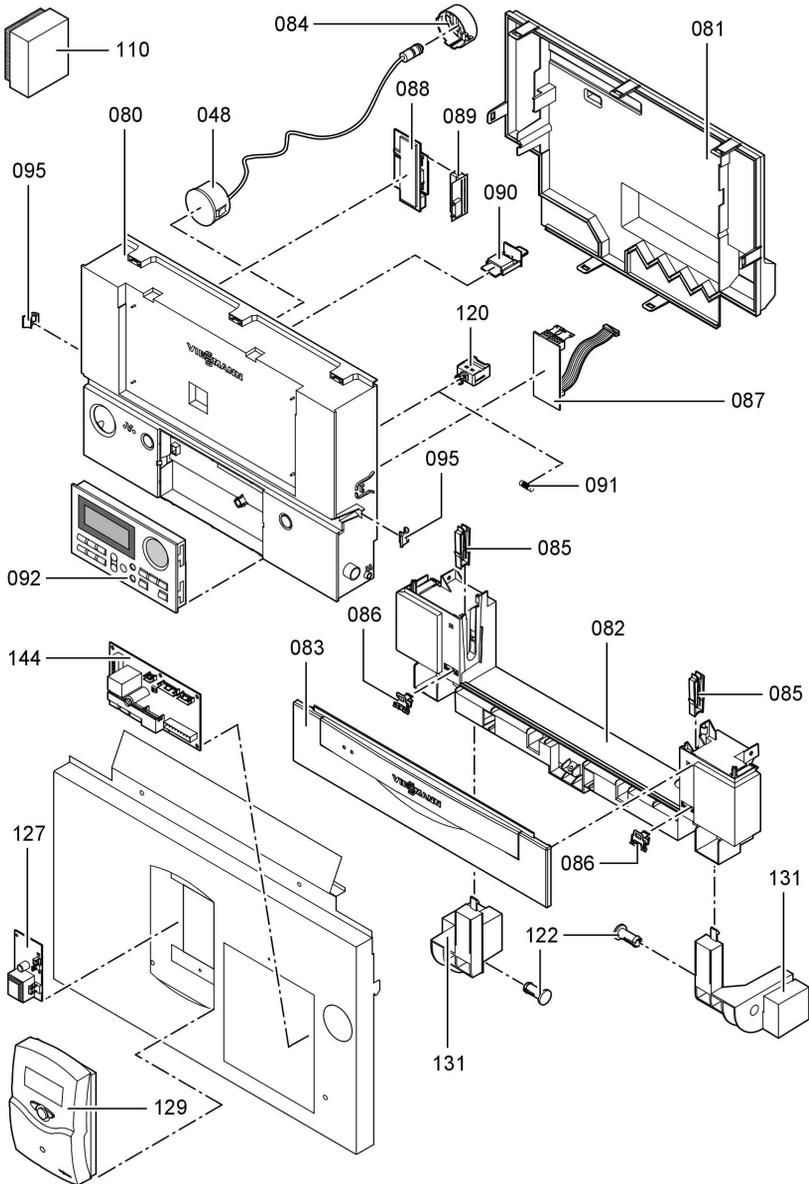
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Service

**Parts lists** (cont.)



**Parts lists (cont.)**

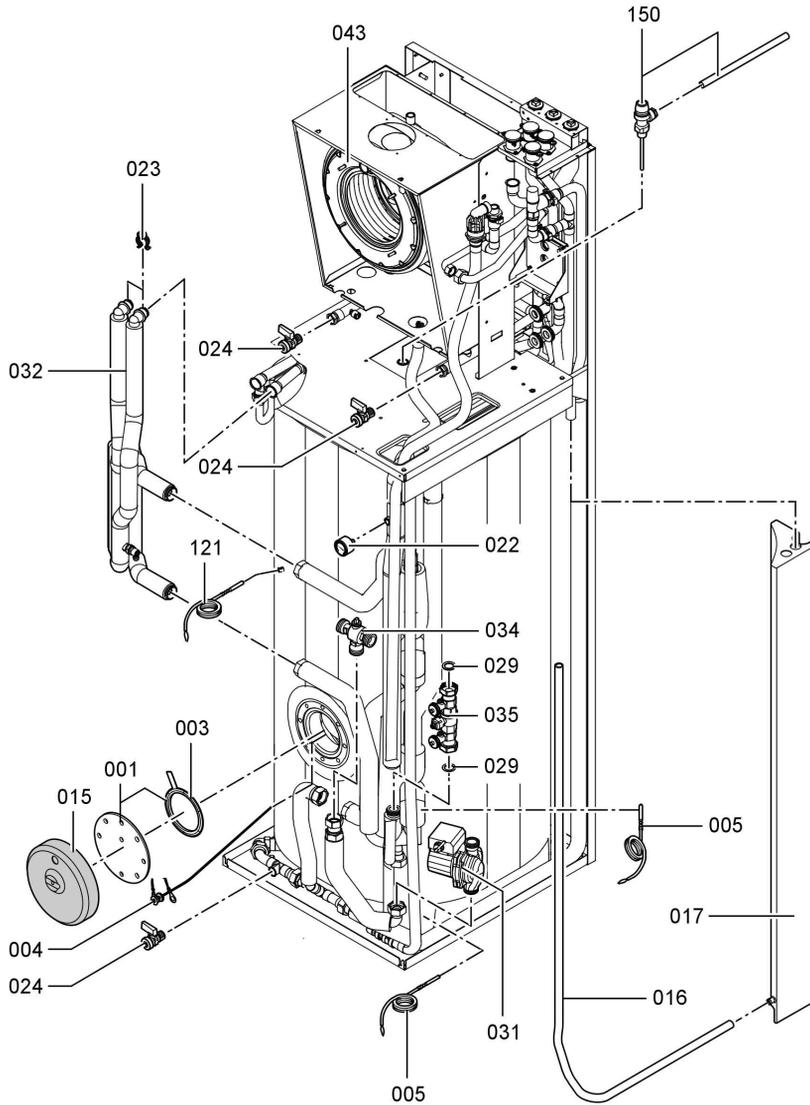


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Service

Parts lists

**Parts lists** (cont.)



**Commissioning/service reports**

Setting and test values		Set value	Commis- sioning	Service
	Date: By:			
<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- 57.5 mbar		
<input type="checkbox"/> for natural gas LL	<i>mbar</i>	17.4- 57.5 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 the lower rated output	<i>% vol.</i>			
■ at the upper rated out- put	<i>% vol.</i>			
<b>Oxygen content O<sub>2</sub></b>				
■ at the lower rated output	<i>% vol.</i>			
■ at the upper rated out- put	<i>% vol.</i>			
<b>Carbon monoxide content CO</b>				
■ at the lower rated output	<i>ppm</i>			
■ at the upper rated out- put	<i>ppm</i>			
<b>Ionisation current</b>	<i>µA</i>	min. 4 µA		

Service

## Specification

### Specification

Rated voltage:	230 V–	Electronic temperature limiter setting:	82 °C
Rated frequency:	50 Hz	Temperature limiter setting:	100 °C (fixed)
Rated current:	6.3 A	Line fuse (mains):	max. 16 A
Safety class:	I		
Protection:	IP X 4 D to EN 60529		
Permissible ambient temperature		Power consumption	
■ during operation:	0 to +40 °C	■ Circulation pumps:	max. 220 W
■ during storage and transport:	-20 to +65 °C	■ Burner:	max. 40 W
		■ Control unit:	max. 10 W

### Gas fired condensing compact boiler, category II <sub>2ELL3P</sub>

<b>Rated output range Tv/Tr 50/30 °C</b>	<b>kW</b>	<b>4.2 to 13</b>
<b>Rated thermal load range</b>		
■ for central heating	kW	3.9 to 12.3
■ for DHW heating	kW	3.9 to 16.7
<b>Connection values</b>		
relative to the max. load with		
Natural gas E	m <sup>3</sup> /h	1.77
Natural gas LL	m <sup>3</sup> /h	2.05
LPG	kg/h	1.31
<b>Product ID</b>		<b>CE-0085 BO 0338</b>

### Note

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

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

<b>Rated output range</b>	kW	4.2 to 13
<b>Efficiency <math>\mu</math> at</b>		
■ 100 % of rated output	%	96.0
■ 30 % of rated output	%	107.4
<b>Standby loss <math>q_{B,70}</math> (max. limit according to EnEV [Germany])</b>	%	0.8
<b>Power consumption (max. limit according to EnEV [Germany])</b>		
at		
■ 100 % of rated output	W	207
■ 30 % of rated output	W	69

Certificates

## Declaration of conformity

### Declaration of conformity for the Vitodens 343-F

We, Viessmann Werke GmbH & Co KG, D-35107 Allendorf, declare as sole responsible body, that the product Vitodens 343-F complies with the following standards:

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

This product is designated with **CE-0085** in accordance with the following Directives:

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

EC Declaration of conformity by an authorised body according to EMVG article 10.2 certificate number: E9 02 08 1730.

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

The product characteristics determined as system values for the product **Vitodens 343-F as part of EC type testing according to the Efficiency Directive** (see specification table), can be utilised to assess the energy consumption of heating and ventilation equipment to DIN V 4701-10 which is specified by the EnEV [Germany].

Allendorf, 4. 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 343-F meets the NO<sub>x</sub> limits specified by the 1st BImSchV paragraph 7 (2) [Germany].

Allendorf, 4. April 2007

Viessmann Werke GmbH&Co KG



pp. Manfred Sommer

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## Applicability

**Gas fired condensing compact boiler**

**Type WS4A**

**4.2 to 13.0 kW**

from serial no.

7288 384 7 00001

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