Installation and service instructions

for contractors

Vitodens 200-W
Type B2HA, 120 and 150 kW
Wall mounted gas condensing boiler
Natural gas and LPG version

VITODENS 200-W

5817719 GB 4/2022

Please keep safe.

Safety instructions

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

Safety instructions explained

⚠ **Danger**
This symbol warns against the risk of injury.

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

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

Target group

These instructions are exclusively intended for qualified contractors.

- Work on gas installations must only be carried out by a registered 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 to be observed

- National installation regulations
- Statutory regulations for the prevention of accidents
- Statutory regulations for environmental protection
- Codes of practice of the relevant trade associations
- Relevant country-specific safety regulations

Safety instructions for working on the system

Working on the system

- Where gas is used as the fuel, close the main gas shut-off valve and safeguard it against unintentional reopening.
- Isolate the system from the power supply, e.g. by removing the separate fuse or by means of a mains isolator, and check that it is no longer 'live'.
- Safeguard the system against reconnection.
- Wear suitable personal protective equipment when carrying out any work.

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Safety instructions (cont.)

⚠ **Danger**
Hot surfaces and fluids can result in burns or scalding.
- Before maintenance and service work, switch OFF the appliance and let it cool down.
- Never touch hot surfaces on the boiler, burner, flue system or pipework.

! **Please note**
Electronic assemblies can be damaged by electrostatic discharge. Prior to commencing work, touch earthed objects such as heating or water pipes to discharge static loads.

Repair work

! **Please note**
Repairing components that fulfil a safety function can compromise the safe operation of the system. Replace faulty components only with genuine Viessmann spare parts.

Auxiliary components, spare and wearing parts

! **Please note**
Spare and wearing parts that have not been tested together with the system can compromise its function. Installing non-authorised components and making non-approved modifications or conversions can compromise safety and may invalidate our warranty.
For replacements, use only original spare parts supplied or approved by Viessmann.

Safety instructions (cont.)

Safety instructions for operating the system

If you smell gas

Danger
Escaping gas can lead to explosions which may result in serious injury.
- Do not 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.
- Evacuate any people from the danger zone.
- Notify your gas or electricity supply utility from outside the building.
- Have the power supply to the building shut off 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 installation site.
- Close doors to living spaces to prevent flue gases from spreading.

What to do if water escapes from the appliance

Danger
When water escapes from the appliance there is a risk of electrocution.
Switch off the heating system at the external isolator (e.g. fuse box, domestic power distribution).

Danger
If water escapes from the appliance, there is a risk of scalding.
Never touch hot heating water.

Condensate

Danger
Contact with condensate can be harmful to health.
Never let condensate touch your skin or eyes and do not swallow it.

Flue systems and combustion air

Ensure that flue systems are clear and cannot be sealed, for instance due to accumulation of condensate or other external causes.
Ensure an adequate supply of combustion air.
Instruct system users that subsequent modifications to the building characteristics are not permissible (e.g. cable/pipework routing, cladding or partitions).

Danger
Leaking or blocked flue systems, or an inadequate supply of combustion air can cause life threatening poisoning from carbon monoxide in the flue gas.
Ensure the flue system is in good working order. Vents for supplying combustion air must be non-closable.

Extractors

Operating appliances that extract air to the outside (extractor hoods, extractors, air conditioning units, central vacuum cleaning systems, etc.) can create negative pressure. If the boiler is operated at the same time, this can lead to a reverse flow of flue gas.

Safety instructions (cont.)

⚠ **Danger**
The simultaneous operation of the boiler and appliances that extract air to the outside can result in life threatening poisoning due to reverse flow of the flue gas.
Fit an interlock circuit or take suitable steps to ensure an adequate supply of combustion air.

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Index (cont.)

Disposal of packaging

Please dispose of packaging waste in line with statutory regulations.

Symbols

Symbol	Meaning
	Reference to other document containing further information
	Step in a diagram: The numbers correspond to the order in which the steps are carried out.
	Warning of material losses and environmental pollution
	Live electrical area
	Pay particular attention.
	▪ Component must audibly click into place. or ▪ Acoustic signal
	▪ Fit new component. or ▪ In conjunction with a tool: Clean the surface.
	Dispose of component correctly.
	Dispose of component at a suitable collection point. Do **not** dispose of component in domestic waste.

The steps in connection with commissioning, inspection and maintenance are found in the "Commissioning, inspection and maintenance" section and identified as follows:

Symbol	Meaning
	Steps required during commissioning
	Not required during commissioning

Symbol	Meaning
	Steps required during inspection
	Not required during inspection
	Steps required during maintenance
	Not required during maintenance

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Intended use

The appliance is intended solely for installation and operation in sealed unvented heating systems that comply with EN 12828, with due attention paid to CECS215-2017 and the associated installation, service and operating instructions. It is only designed for heating up heating water that is of potable water quality.

Intended use presupposes that a fixed installation in conjunction with permissible, system-specific components has been carried out.

The appliance is intended exclusively for domestic or semi-domestic use; even users who have not had any instruction are able to operate the appliance safely.

Commercial or industrial usage for a purpose other than heating the building or DHW shall be deemed inappropriate.

Any usage beyond this must be approved by the manufacturer in each individual case.

Incorrect usage or operation of the appliance (e.g. the appliance being opened by the system user) is prohibited and will result in an exclusion of liability. Incorrect usage also occurs if the components in the heating system are modified from their intended use (e.g. if the flue gas and ventilation air paths are sealed).

The oil condensing boilers are approved as units. The unit consisting of boiler body and burner ensures optimum operation. Operation with other burners is therefore not permissible.

Product information

Vitodens 200-W, type B2HA

The selected gas category in the delivered condition and the associated nominal gas pressure are given on the boiler type plate. The type plate also shows the other gas types and pressures with which the boiler can be operated. A conversion within the stated natural gas groups is not required. For conversion to LPG (without conversion kit), see "Commissioning, inspection and maintenance".
The **Vitodens 200-W** may only be delivered to countries listed on the type plate. For deliveries to other countries, approved contractors must arrange individual approval on their own initiative and in accordance with the law of the country in question.

Multi boiler system
For the installation of a multi boiler system, observe the installation instructions for the multi boiler system accessories.

System examples

System examples with hydraulic and electrical connection diagrams and function descriptions are available to help setting up the heating system.

Detailed information regarding system examples:
www.viessmann-schemes.com

Maintenance parts and spare parts

Maintenance parts and spare parts can be identified and ordered directly online.

Maintenance parts and spare parts (cont.)

Viessmann Partnershop

Login:
https://shop.viessmann.com/

Viessmann spare part app

www.viessmann.com/etapp

Download on the App Store

GET IT ON Google Play

Preparing for installation

Dimensions and connections

Please note
To prevent appliance damage, connect all pipework free of load and torque stress.

With integral low loss header

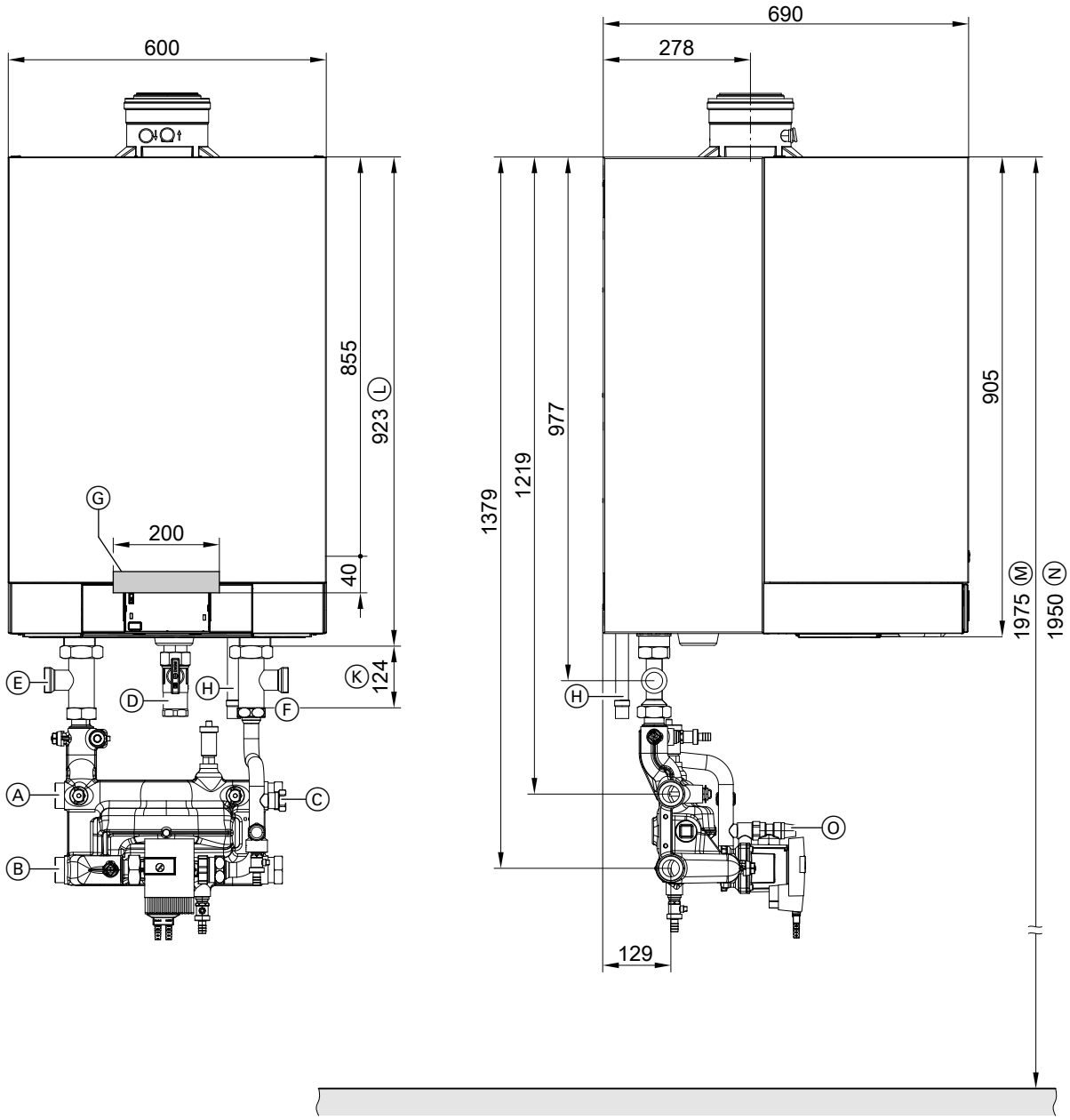


Fig. 1

Ⓐ Heating flow G 2
Ⓑ Heating return G 2
Ⓒ Expansion vessel G 1
Ⓓ Gas connection R 1
Ⓔ Cylinder flow G 1½
Ⓕ Cylinder return G 1½
Ⓖ Cable entry area at the back
Ⓗ Condensate drain
Ⓚ If DHW cylinder connection set (accessories) is being used
Ⓛ Without connection sets (accessories)
Ⓜ Recommended dimension (single boiler system)
Ⓝ Recommended dimension (multi boiler system)
Ⓞ Safety valve

Preparing for installation (cont.)

Preparing for boiler installation

Note
This boiler (IP rating: IP X4 D) is approved for installation in wet rooms inside safety zone 1, to VDE 0100, providing hosed water is prevented.
Observe DIN VDE 0100.

1. Prepare the water connections. Thoroughly flush the heating system.

2. Prepare gas connection to TRGI [or local regulations].

3. Prepare the electrical connections.
   - The appliance is delivered fitted with a power cable (approx. 2 m long).
     Note
     Connect the power cable to the electricity supply using a fixed connection.
   - Power supply: 230 V, 50 Hz, fuse rating max. 16 A
   - Accessory cables: 0.75 mm^2 flexible PVC cable with required number of cores for external connections.

Mounting the boiler and making connections

Removing boiler from packaging and levelling

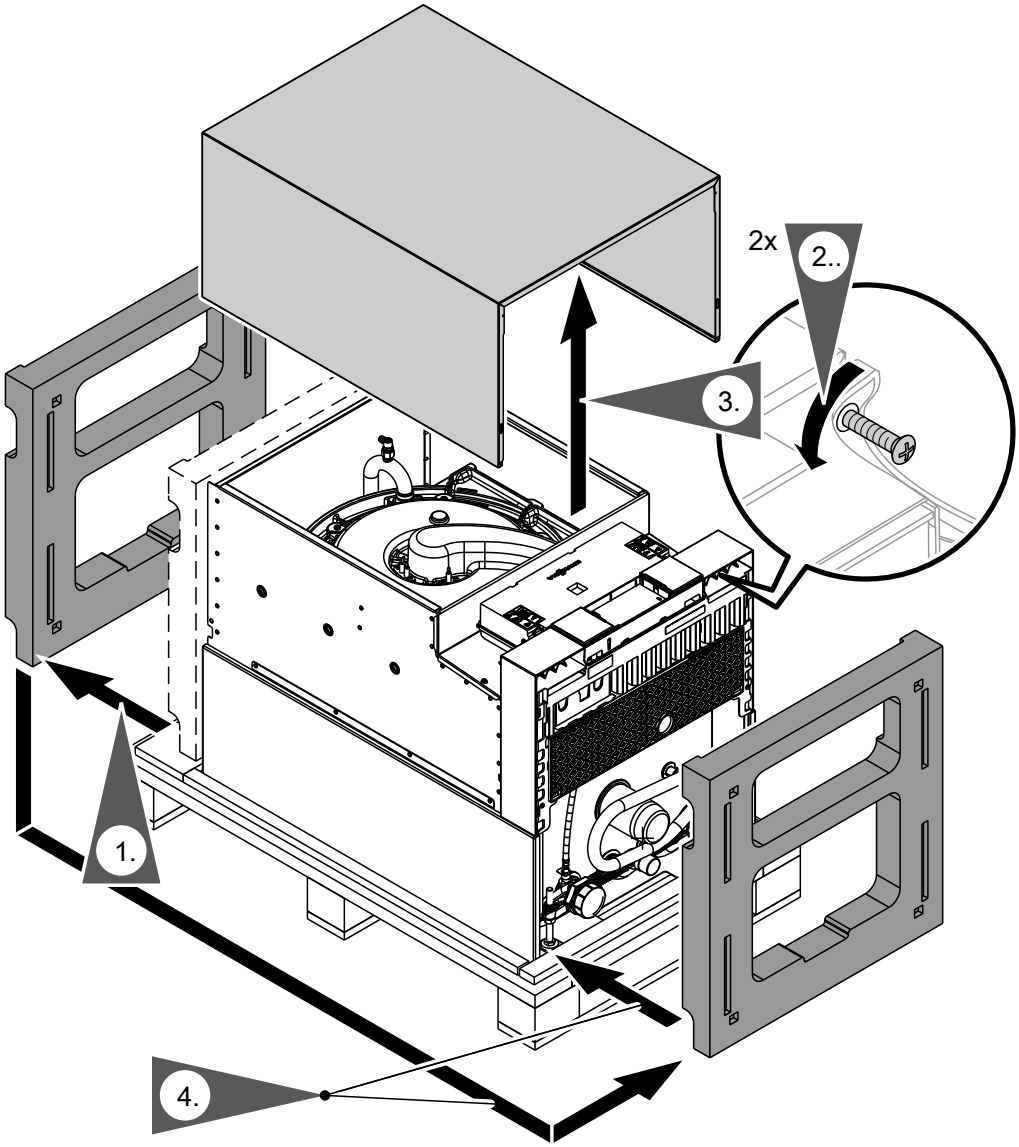


Fig. 2

1. Remove packing cushions and keep them safe. They are used as a support during levelling.

2. Undo the 2 screws on the underside.

3. Remove front panel.

4. Push packing cushions onto the underside of the boiler.

Mounting the boiler and making connections (cont.)

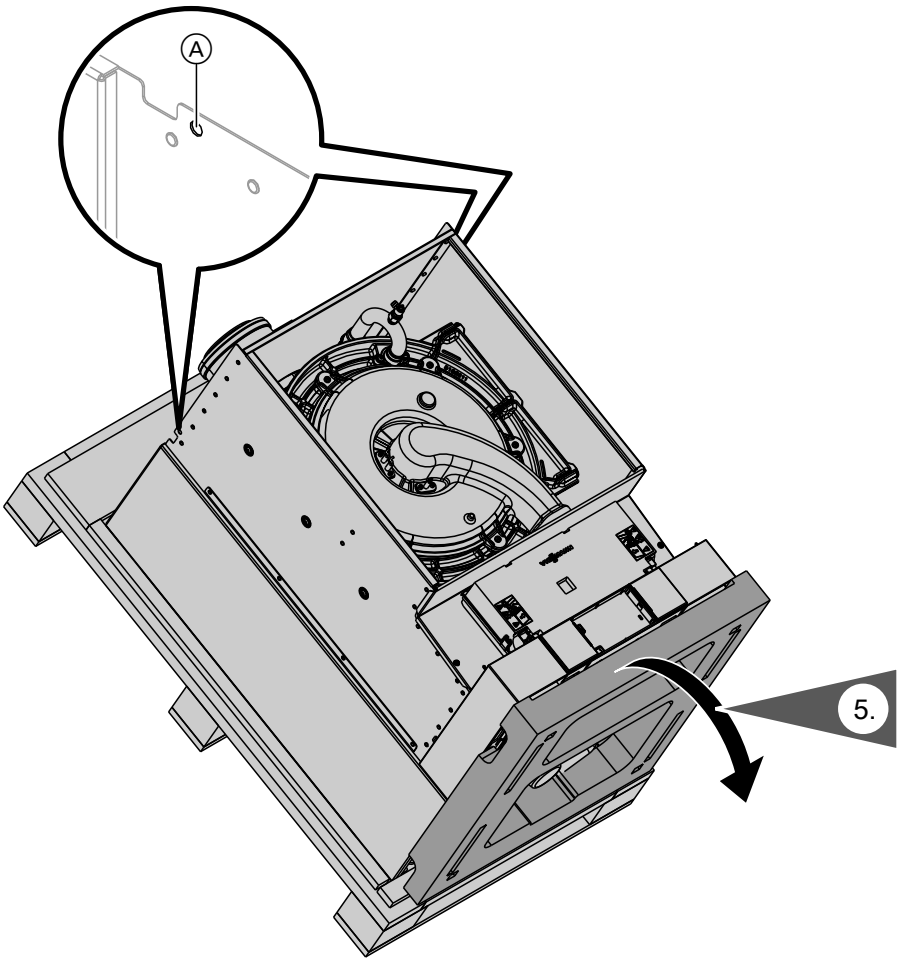


Fig. 3

Ⓐ ∅ 9 mm drilled holes for attaching lifting gear

5. ! **Please note**
To prevent damage,
do not level boiler without packing cushions.

Level boiler with pallet.

Fitting the wall mounting bracket

Note
The enclosed screws and rawl plugs are only suitable for concrete. For other construction materials, use fixing materials that are suitable for 145 kg loads.

Mounting the boiler and making connections (cont.)

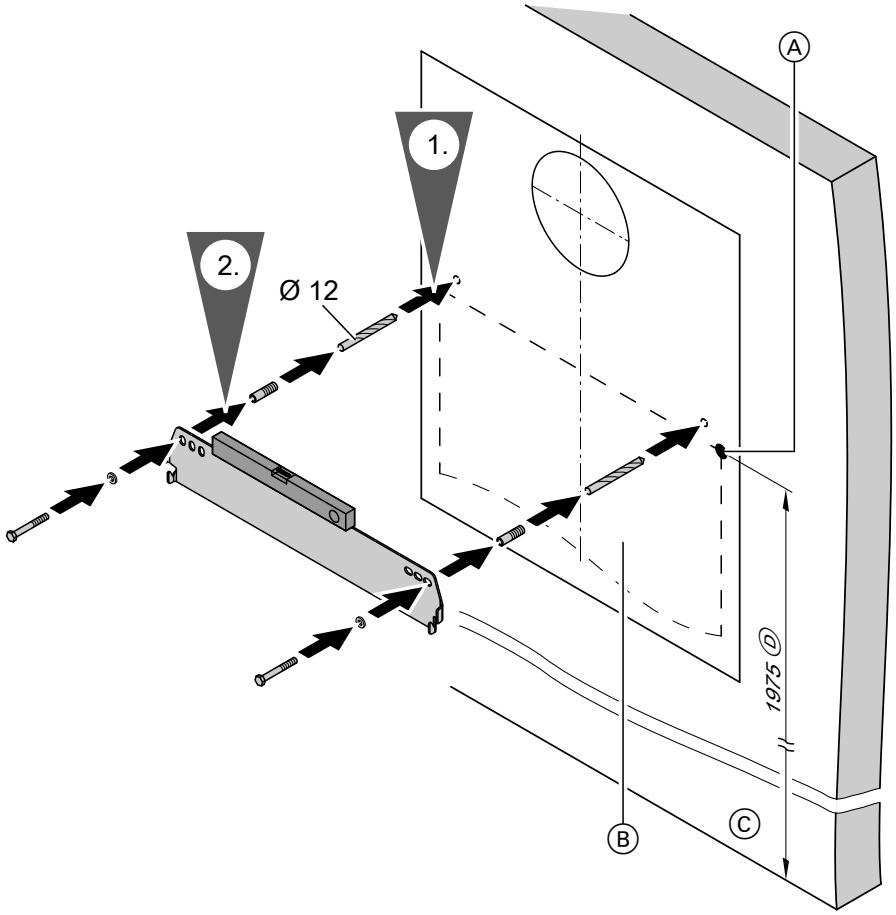


Fig. 4

Ⓐ Reference point, boiler top edge
Ⓑ Installation template (included with the boiler)
Ⓒ Top edge, finished floor
Ⓓ Recommendation

Mounting the boiler and making connections (cont.)

Hooking the boiler onto the wall mounting bracket and levelling it

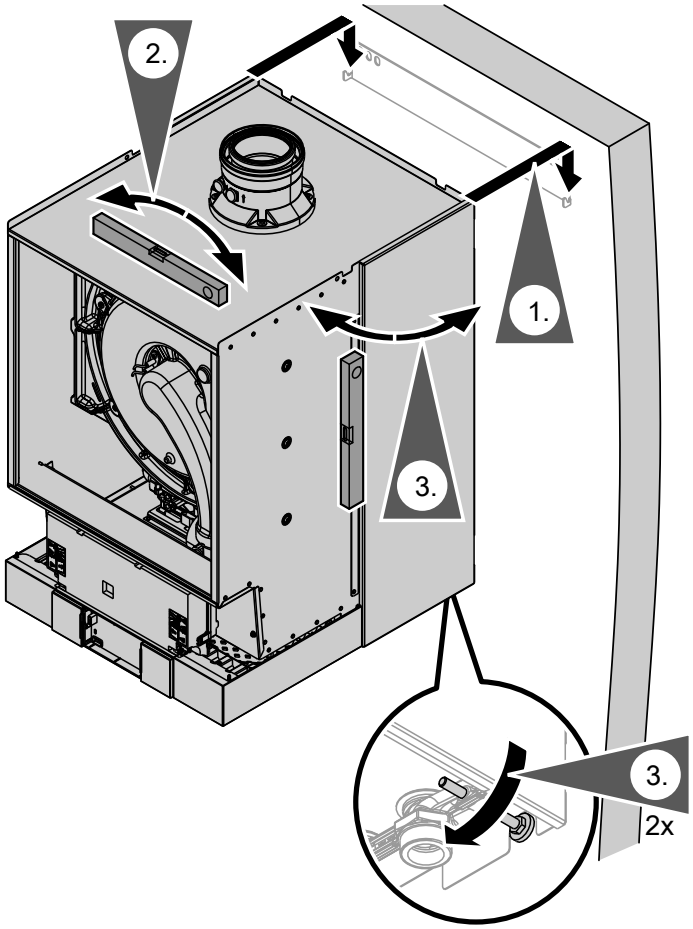


Fig. 5

Connection on the heating water side

With integral low loss header

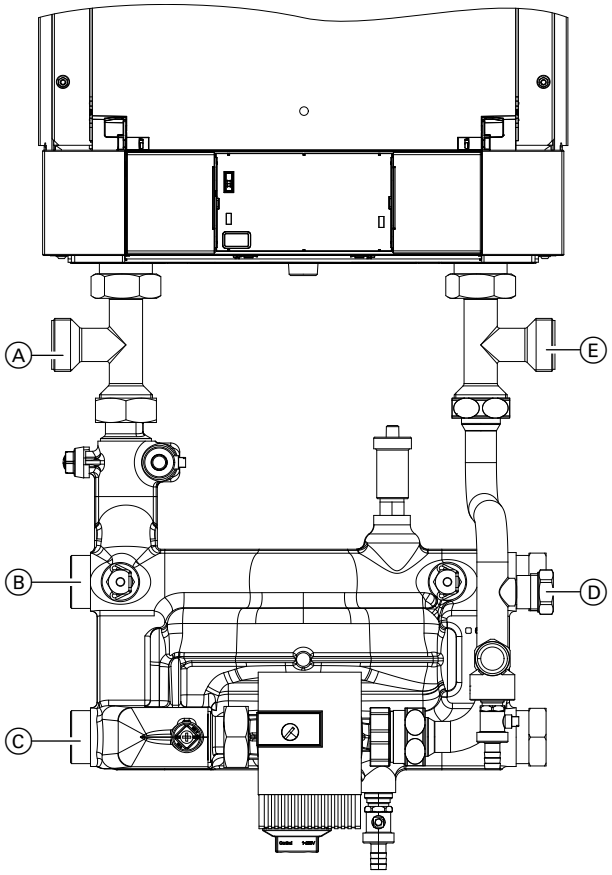


Fig. 6

Ⓐ Cylinder flow
Ⓑ Heating flow
Ⓒ Heating return
Ⓓ Expansion vessel
Ⓔ Cylinder return

Flue gas connection

Note
The "System certificate" and "Skoberne GmbH flue system" labels enclosed with the technical documentation may only be used in conjunction with the Viessmann flue system made by Skoberne.

Do not carry out **commissioning** until the following conditions are met:
- Free passage through the flue gas pipes.
- Flue system with positive pressure is gas-tight.
- Inspection port covers checked for secure and tight seating.
- Apertures for ensuring sufficient combustion air supply are open and cannot be closed off.
- Applicable regulations on installing and commissioning flue systems have been followed.

Danger
Leaking or blocked flue systems or an insufficient supply of combustion air cause life threatening poisoning due to carbon monoxide in the flue gas.
Ensure the flue system is in good working order. Vents for interconnected combustion air supply must be non-closable in open flue operation. Prevent condensate drainage via a wind protector.

Flue gas connection (cont.)

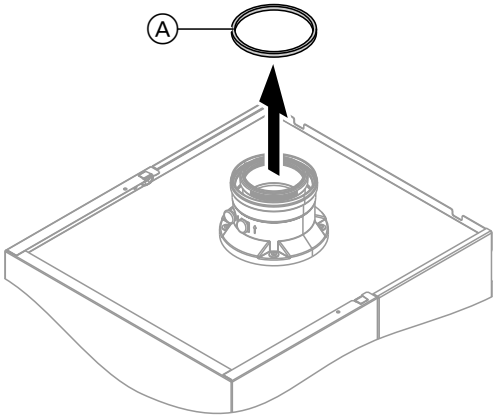


Fig. 7

Flue system installation instructions

1. Only for **open** flue operation:
   Remove outer gasket Ⓐ (ventilation air).

2. Connect flue pipe or balanced flue pipe.

Condensate connection

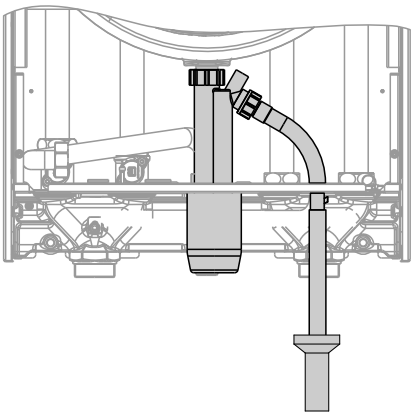


Fig. 8

1. Pull the condensate hose far enough out so that no unnecessary bends are created inside the boiler. Check the tightness of the trap connection.

2. Connect the condensate hose with a constant fall and a pipe vent to the drain network or to a neutralising system.

   Note
   Observe local waste water regulations.

Gas connection

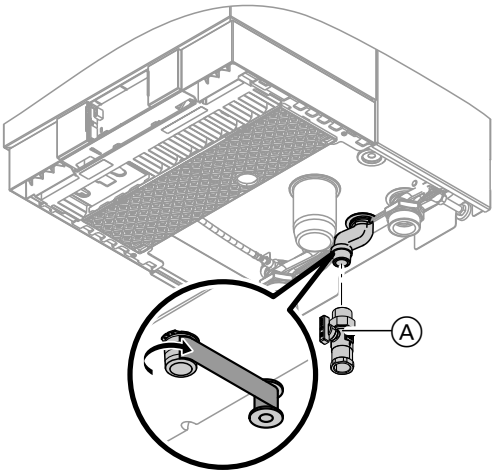


Fig. 9

Information on operation with LPG
When installing the boiler in rooms below ground level we recommend fitting an external safety solenoid valve.

1. Seal gas shut-off valve Ⓐ into the gas connection.

Gas connection (cont.)

2. Carry out a tightness test.

Note
Only use suitable and approved leak detection agents (EN 14291) and devices for the tightness test. Leak detection agents with unsuitable constituents (e.g. nitrides, sulphides) can cause material damage.
Remove residues of the leak detection agent after testing.

! **Please note**
Excessive test pressure will damage the boiler and the gas train.
Max. test pressure 150 mbar (15 kPa).
Where higher pressure is required for tightness tests, disconnect the boiler and the gas train from the main supply pipe (undo the fitting).

3. Purge the gas line.

Conversion to alternative gas types:
See "Commissioning, inspection and maintenance".

Opening the control unit enclosure

! **Please note**
Electronic assemblies can be damaged by electrostatic discharge.
Prior to commencing any work, touch earthed objects such as heating or water pipes to discharge static loads.

Opening the control unit enclosure (cont.)

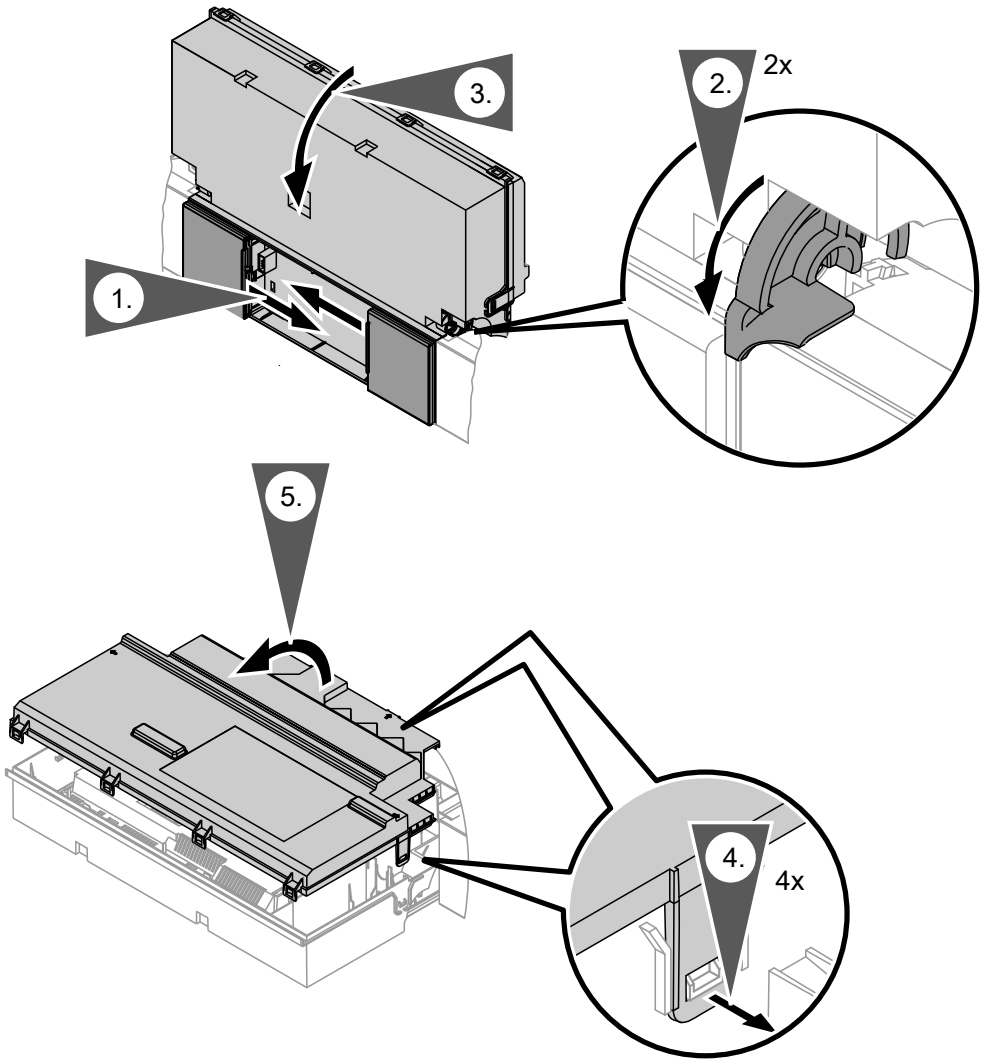


Fig. 10

Electrical connections

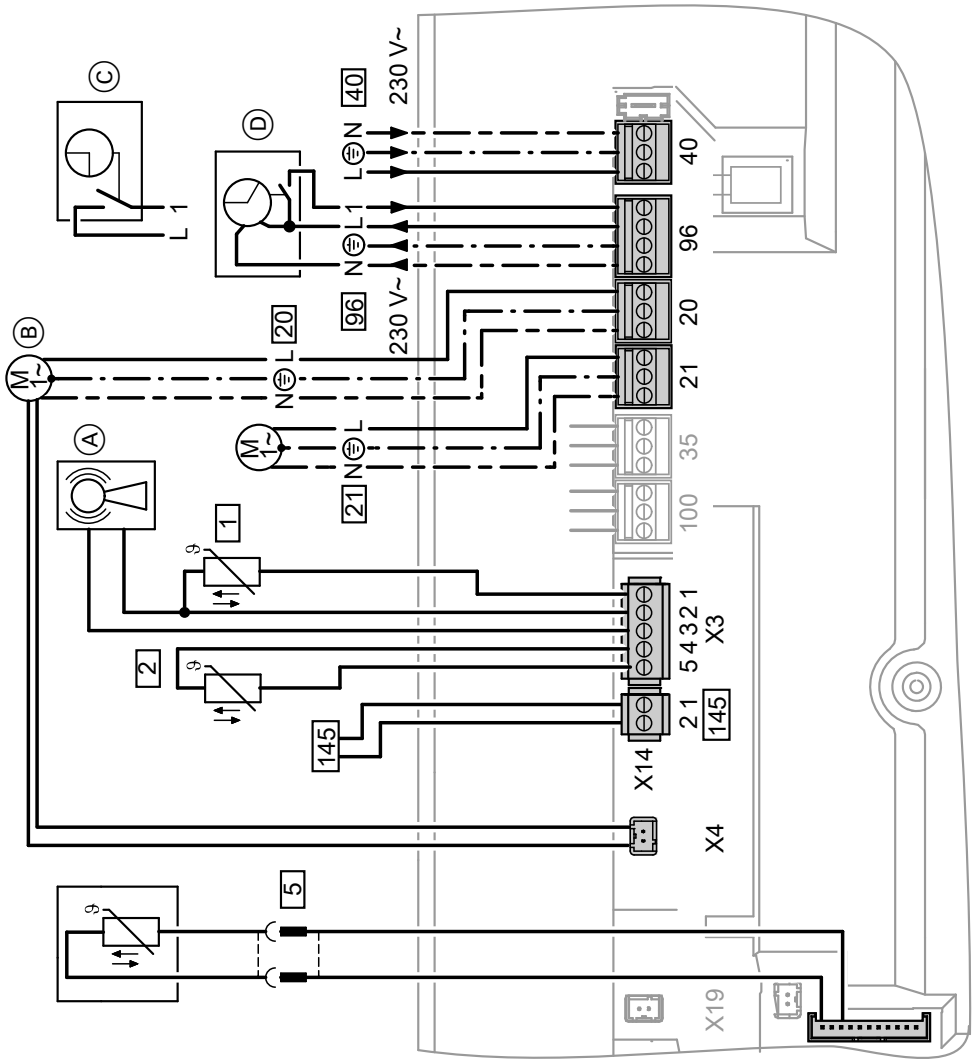


Fig. 11

Ⓐ Radio clock receiver
Ⓑ Heating circuit pump or boiler circuit pump
Ⓒ Vitotrol 100 UTDB (only for constant temperature control units)
When making this connection, remove jumper between "1" and "L".
Ⓓ Vitotrol 100 UTA (only for constant temperature control units)
or
Vitotrol 100 UTDB-RF wireless receiver
When making this connection, remove jumper between "1" and "L".

Connections to 230 V~ plugs

20 Boiler circuit pump or heating circuit pump, variable speed with 0 - 10 V connection
21 Circulation pump, connection options:
- DHW circulation pump
- External heating circuit pump
- Circulation pump for cylinder heating

40 Power supply
96
- Power supply for accessories
- External demand/blocking
- Vitotrol 100 UTA
- Vitotrol 100 UTDB
- Vitotrol 100 UTDB-RF

Connections to LV plugs

1 Outside temperature sensor
2 Flow temperature sensor for low loss header (accessories)

Electrical connections (cont.)

5 Cylinder temperature sensor (supplied with DHW cylinder connection set)

145 KM-BUS subscriber (accessories)
- Vitotrol 200-A or 300-A remote control
- Vitocom 100
- Mixer extension kit
- Solar control module, type SM1
- Vitosolic
- AM1 extension
- EA1 extension
- Wireless base station

Information on connecting accessories
When connecting accessories observe the separate installation instructions provided with them.

Circulation pump at plug 20

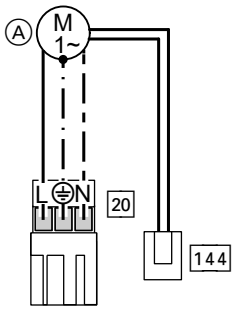


Fig. 12

Insert plug 144 (0 - 10 V connection) at X4.

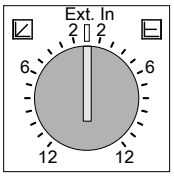
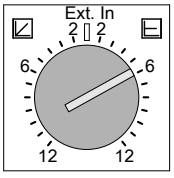
Rated current	2(1) A~
Rated voltage	230 V ~

Ⓐ High-efficiency circulation pump, speed-controlled via 0 - 10 V control voltage

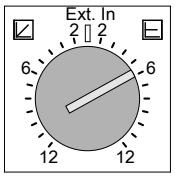
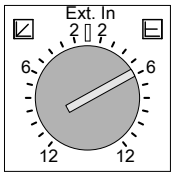
Circulation pump VI Para 30/1-12

Rated voltage		V~	230
Power consumption	max.	W	310
	min.		16

Adjust function of circulation pump

Hydraulic connection/connection requirements	Control unit setting Coding address/group	Circulation pump setting
Single boiler system with: ▪ Heating circuit without mixer ▪ Connection without low loss header and without heating water buffer cylinder	▪ Max. pump speed: E6: ... /heating circuit ▪ Min. pump speed: E7: ... /heating circuit For further details, see following diagram and chapter "Heating circuit ..." under code 2.	Ext. In 
Single boiler system Connection of the heating circuits to the heating water buffer cylinder	30:0/Boiler/2	 Recommended for Δt = 15 K ▪ 120 kW: = 3 ≙ 6.87 m³/h ▪ 150 kW: = 6 ≙ 8.60 m³/h

Electrical connections (cont.)

Hydraulic connection/connection requirements	Control unit setting Coding address/group	Circulation pump setting
Single boiler system Connection of heating circuits with connection set with integral low loss header	30:0/boiler/2	 Recommended for Δt = 15 K ▪ 120 kW: = 4 ≙ 6.87 m³/h ▪ 150 kW: = 6 ≙ 8.40 m³/h
Multi boiler system	30:0/Boiler/2	 Recommended for Δt = 15 K ▪ 120 kW: = 3 ≙ 6.87 m³/h ▪ 150 kW: = 6 ≙ 8.60 m³/h
Multi-stage circulation pump (on site)	30:0/Boiler/2	

Residual head of circulation pump (coding address E6 and E7)

When connecting a heating circuit without mixer and without low loss header or heating water buffer cylinder, the circulation pump is controlled as a function of the outside temperature. The min. and max. speeds of the circulation pump are limited by the settings for coding addresses E6 and E7.

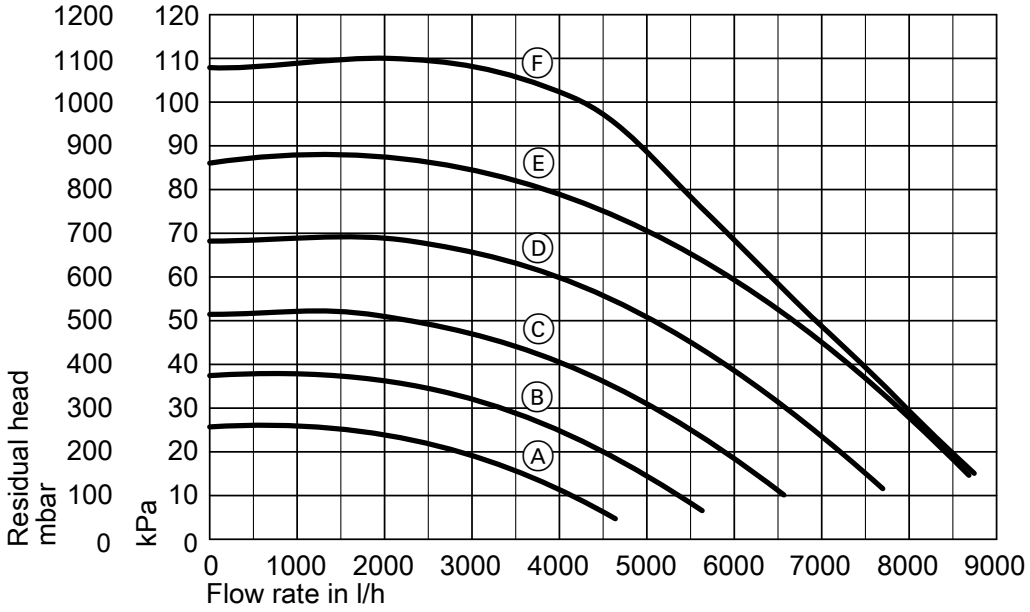


Fig. 13

Electrical connections (cont.)

Setting for coding addresses E6, E7

Curve	Coding address value	Pump rate, circulation pump
Ⓑ	50	50 %
Ⓒ	60	60 %
Ⓓ	70	70 %
Ⓔ	80	80 %
Ⓕ	90	90 %
Ⓖ	100	100 %

Circulation pump at plug 21

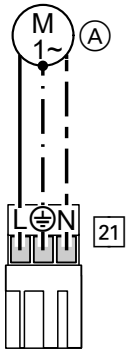


Fig. 14

Ⓐ Circulation pump

Note
Connect DHW circulation pumps with standalone functions directly to the 230 V ~ supply.

Rated current 2(1) A~
Rated voltage 230 V ~

Set function of connected component in coding address "39"

Function	Code
DHW circulation pump	39:0
Heating circuit pump for heating circuit without mixer A1	39:1
Circulation pump for cylinder heating (delivered condition)	39:2

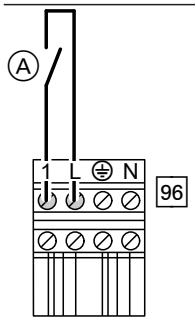
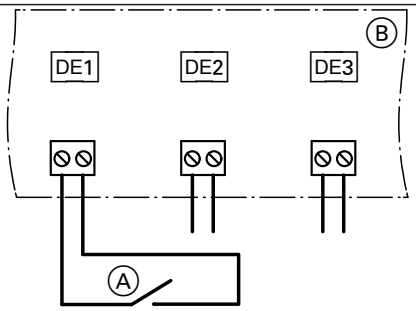
External demand via switching contact

Connection options:
- EA1 extension (accessory, see separate installation instructions)
- Plug 96

When the contact is closed, burner operation is load-dependent. The boiler water is heated to the set value selected in parameter/coding address "9b" in the **"General"/1** group. The boiler water temperature is limited by this set value and by the electronic maximum limit (coding address "06" in the **"Boiler"/2** group).

! **Please note**
Live contacts lead to short circuits or phase failure.
The external connection **must be floating** and meet the requirements of protection class II.

Electrical connections (cont.)

Plug 96	EA1 extension
 Ⓐ Floating contact (when connecting, remove jumper between L and 1)	 Ⓐ Floating contact Ⓑ EA1 extension
Parameters/codes ▪ "4b:1" in the **"General"/1** group ▪ Effect of the function on the relevant heating circuit pump: Parameter/coding address "d7" in the **"Heating circuit"** group (only for weather-compensated control units) ▪ Effect of the function on the circulation pump for cylinder heating: Parameter/coding address "5F" in the **"DHW"/3** group	**Parameters/codes** ▪ Set "3A" (DE1), "3b" (DE2) or "3C" (DE3) to 2 in the **"General"/1** group ▪ Effect of the function on the relevant heating circuit pump: Parameter/coding address "d7" in the **"Heating circuit"** group (only for weather-compensated control units) ▪ Effect of the function on the circulation pump for cylinder heating: Parameter/coding address "5F" in the **"DHW"/3** group

External demand via 0 – 10 V input

Connection at 0 – 10 V input at **EA1 extension**.
Ensure DC separation between the earth conductor and the negative pole of the on-site power source.

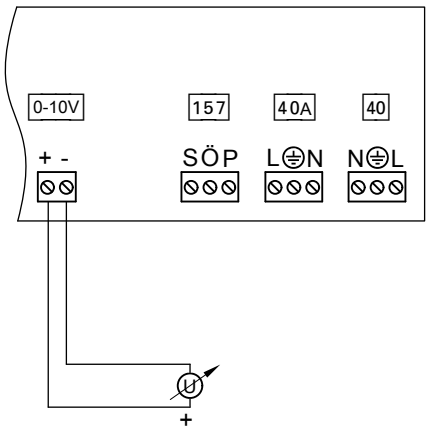


Fig. 15

0 to 1 V	No specification for set boiler water temperature
1 V	Set value 10 °C
10 V	Set value 100 °C

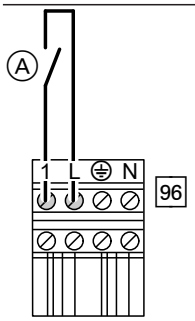
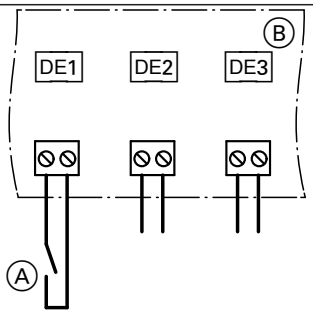
External blocking via switching contact

Connection options:
- Plug 96
- EA1 extension (accessory, see separate installation instructions)

When the contact is closed, the burner is switched off. The heating circuit pump and (if installed) the circulation pump for cylinder heating are switched according to the set parameter/code (see the following table "Parameters/codes").

Electrical connections (cont.)

! **Please note**
Live contacts lead to short circuits or phase failure.
The external connection **must be floating** and meet the requirements of protection class II.

Plug 96	EA1 extension
	
Ⓐ Floating contact (when connecting, remove jumper between L and 1)	Ⓐ Floating contact Ⓑ EA1 extension
Parameters/codes ▪ "4b:2" in the **"General"/1** group ▪ Effect of the function on the heating circuit pump: Parameter/coding address "d6" in the **"Heating circuit"** group (only for weather-compensated control units) ▪ Effect of the function on the circulation pump for cylinder heating: Parameter/coding address "5E" in the **"DHW"/3** group	**Parameters/codes** ▪ Set "3A" (DE1), "3b" (DE2) or "3C" (DE3) to 3 or 4 in the **"General"/1** group ▪ Effect of the function on the heating circuit pump: Parameter/coding address "d6" in the **"Heating circuit"** group (only for weather-compensated control units) ▪ Effect of the function on the circulation pump for cylinder heating: Parameter/coding address "5E" in the **"DHW"/3** group

Outside temperature sensor 1

Fitting outside temperature sensor RF (wireless accessory):

Wireless base station

Fitting location for outside temperature sensor

- North or north-westerly wall, 2 to 2.5 m above ground level; in multi storey buildings, in the top half of the second floor
- Not above windows, doors or vents
- Not immediately below balconies or gutters
- Never render over

Outside temperature sensor connection

2-core lead, length up to 35 m with a cross-section of 1.5 mm^2

Power supply for accessories at plug 96

230 V ~
Where the boiler is sited in a wet room, accessories outside the wet area must not be connected to the power supply at the control unit. If the boiler is not sited in a wet room, the power supply for accessories can be connected at the control unit. This connection is switched directly with the ON/OFF switch of the control unit.

If the total system current exceeds 6 A, connect one or more extensions directly to the mains supply via an ON/OFF switch (see next chapter).

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Electrical connections (cont.)

Power supply and KM BUS connection of accessories

Danger
Incorrectly executed electrical installations can result in injuries from electrical current and damage to the appliance.
- Route extra low voltage (ELV) leads < 42 V and > 42 V/230 V~ cables separately.
- Strip as little of the insulation is possible, directly before the terminals, and bundle tightly to the corresponding terminals.
- Secure cables with cable ties.

Power supply to all accessories via heat source control unit

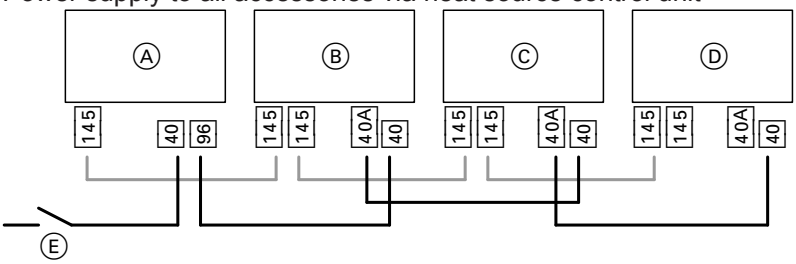

Fig. 16

Some accessories with direct power supply

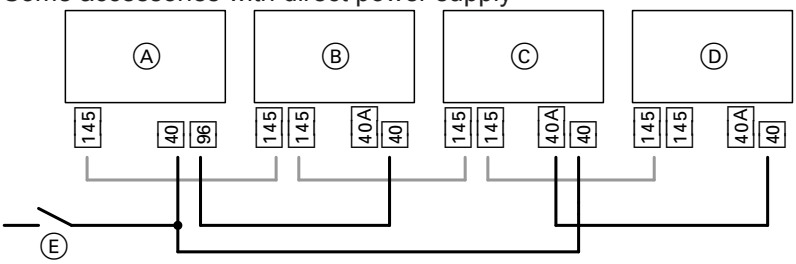

Fig. 17

Ⓐ Heat source control unit
Ⓑ Extension kit for heating circuit with mixer M2
Ⓒ Extension kit for heating circuit with mixer M3
Ⓓ AM1 extension, EA1 extension and/or solar control module, type SM1

If the current flowing to the connected working parts (e.g. circulation pumps) is higher than the fuse rating of the respective accessory: Only use the output concerned to control an on-site relay.

Ⓔ ON/OFF switch
40 Mains input
40A Power outlet
96 Control unit power outlet
145 KM BUS connection

Accessories	Internal fuse protection
Extension kit for heating circuit with mixer	2 A
AM1 extension	4 A
EA1 extension	2 A
Solar control module, type SM1	2 A

Electrical connections (cont.)

Power supply 40

Danger
Incorrectly executed electrical installations can result in injuries from electrical current and damage to the appliance.

Connect the power supply and implement all safety measures (e.g. RCD circuit) in accordance with the following regulations:
- IEC 60364-4-41
- IEEE Wiring Regulation; BS 7671:2018
- Connection conditions of the local grid operator

- Install an isolator in the power cable to provide omnipolar separation from the mains for all active conductors, corresponding to overvoltage category III (3 mm) for complete isolation. The isolator must be fitted in the permanent electrical installation, in line with installation requirements.
  We also recommend installing a pulse current-sensitive RCD (RCD class A).
- Connect the power cable to the electricity supply using a fixed connection.
- If the power supply to the appliance is connected with a flexible power cable, ensure that the live conductors are pulled taut before the earth conductor in the event of strain relief failure. The length of the earth conductor wire will depend on the design.
- Max. fuse rating 16 A.

Danger
The absence of system component earthing can lead to serious injury from electric current if an electrical fault occurs.
The appliance and pipework must be connected to the equipotential bonding of the building.

Routing connecting cables/leads

Please note
If connecting cables come into contact with hot components they will be damaged.
When routing and securing connecting cables on site, ensure that the maximum permissible temperatures for these cables are not exceeded.

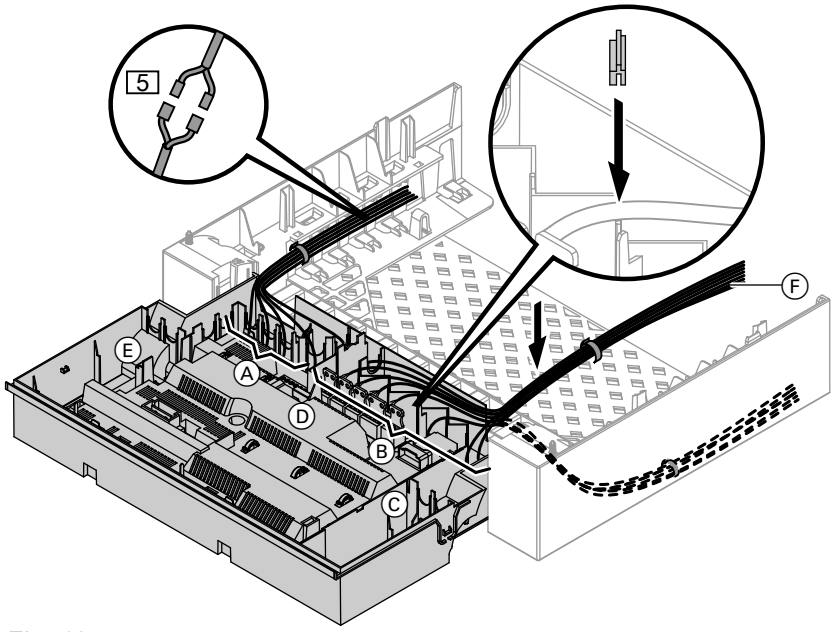

Fig. 18

Ⓐ LV terminals
Ⓑ 230 V terminals
Ⓒ Internal extension
Ⓓ Main PCB
Ⓔ Communication module

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Electrical connections (cont.)

Ⓕ Accessory 230 V connections
5 Plugs for connecting the cylinder temperature sensor to the cable harness

Remove the existing cable grommet when using cables with a larger cross-section (up to ∅ 14 mm). Secure the cable with cable grommet Ⓕ integrated into the casing base (black).

Closing the control unit enclosure and inserting the programming unit

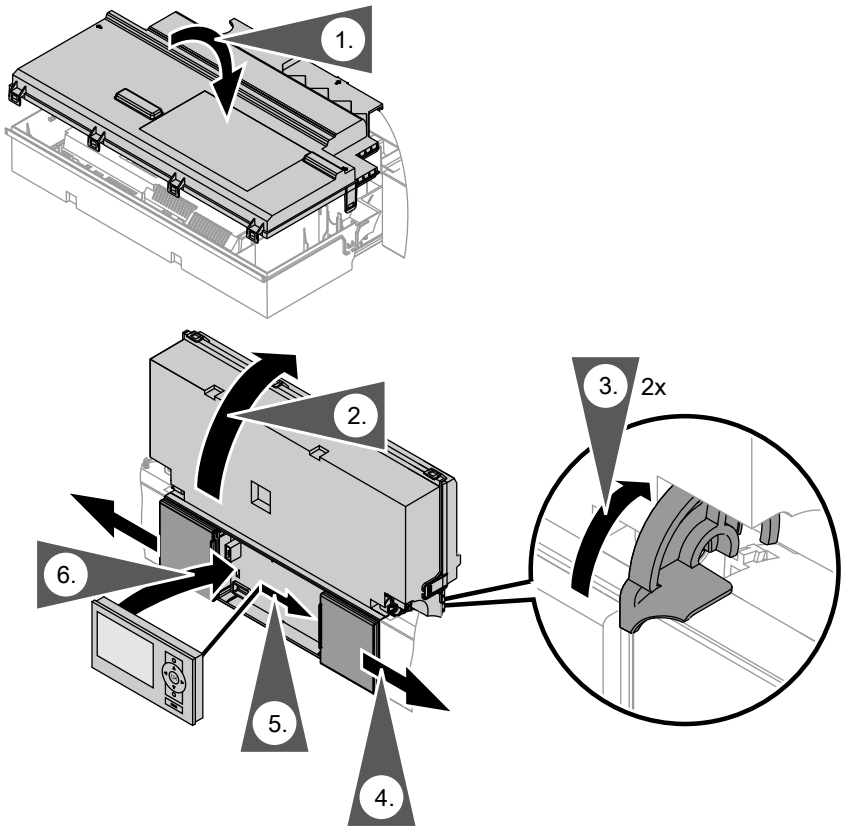

Fig. 19

Insert the programming unit (packed separately) into the control unit support.

Note
The programming unit can also be inserted into a wall mounting base (accessories) near the boiler.

Wall mounting base installation instructions

Steps - commissioning, inspection and maintenance

Commissioning steps
Inspection steps
Maintenance steps

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Opening the boiler

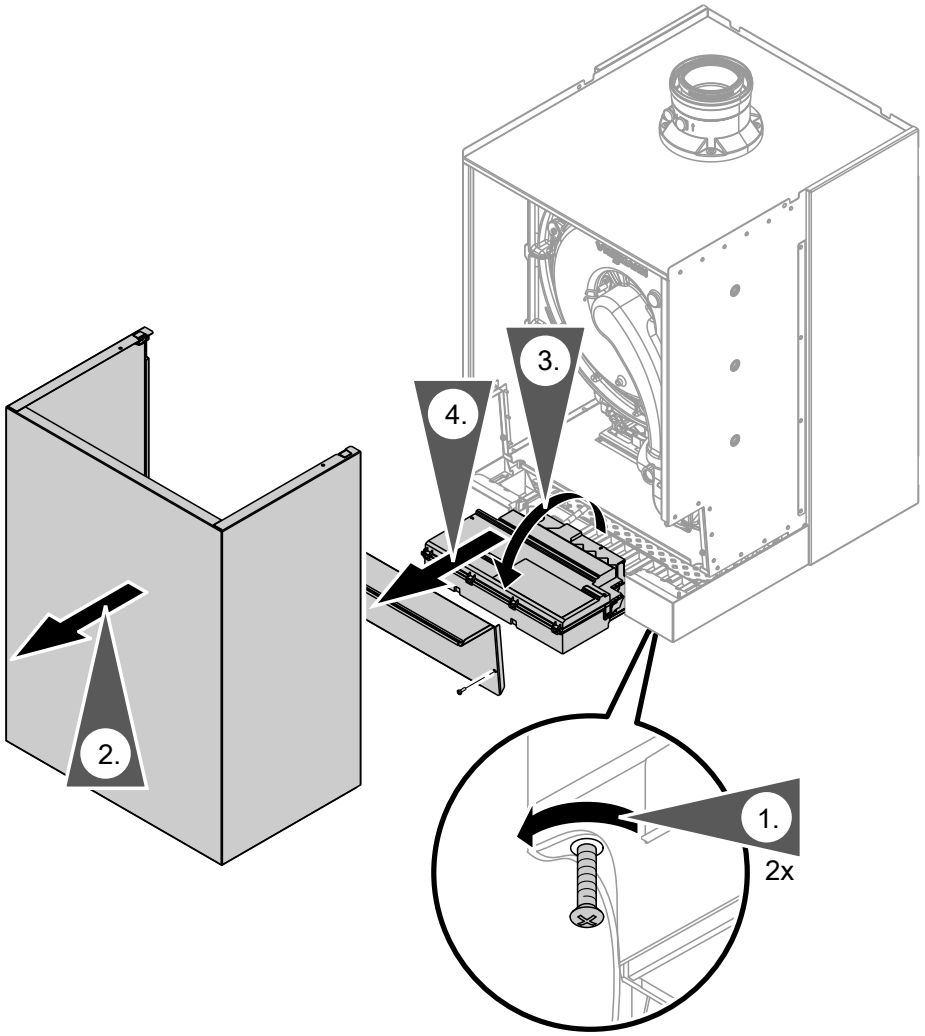


Fig. 20

Filling the heating system

Fill water

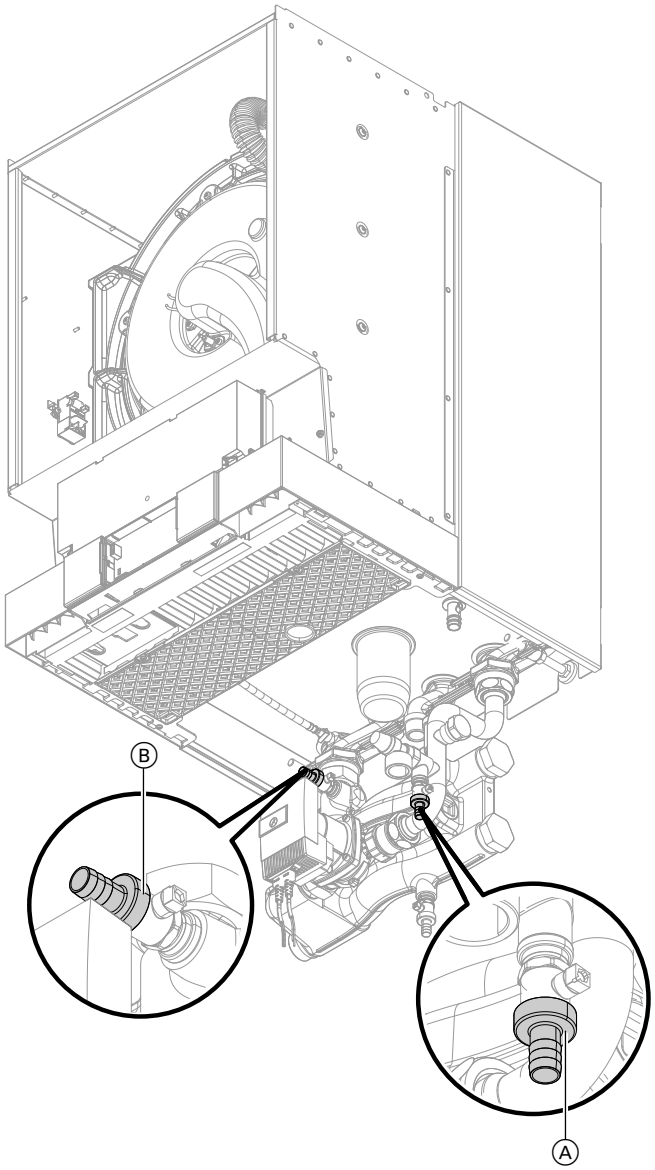
As a heat transfer medium for DHW heating, the heating water must meet fluid category ≤ 3. This requirement is met if water of potable quality is used as heating water. For example, if additives are used, the additive manufacturer must specify which category the treated heating water comes under.

Please note
Unsuitable fill water increases the level of deposits and corrosion and may lead to appliance damage.

- Flush the heating system thoroughly before filling.
- Only use fill water of potable water quality.
- Special antifreeze suitable for heating systems can be added to the fill water. The antifreeze manufacturer must verify its suitability.
- Fill and top-up water with a water hardness in excess of over 300 ppm must be softened, e.g. with a small softening system for heating water.

Filling the heating system (cont.)

With low loss header



1. Check the pre-charge pressure of the diaphragm expansion vessel.
2. Close the gas shut-off valve.
3. Connect supply hose to boiler drain & fill valve Ⓐ. Push the drain hose onto valve Ⓑ and connect to a drain outlet.
4. Fill the heating system via boiler drain & fill valve Ⓐ until no more air bubbles are visible. Minimum system pressure > 1.0 bar (0.1 MPa). Permiss. operating pressure: 6 bar (0.6 MPa).
5. Close boiler drain & fill valve Ⓐ and drain valve Ⓑ.

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

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

Extended menu:

1. ☰
2. **"Settings"**
3. **"Language"**
4. Set the required language with ▲/▼.

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Selecting the language (if required) – only for… (cont.)

Fig. 21

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

The time and date need to be reset during commissioning or after a prolonged time out of use (approx. 18 days).

1. ☰
2. **"Settings"**
3. **"Time / Date"**
4. Set current time and date.

Note
When time and date have been set, the control unit automatically checks the function of the flue gas temperature sensor. The display shows: ***"Test, flue gas temp sensor"*** *and* ***"Active"****.*
For further details regarding the flue gas temperature sensor test, *see page 94.*

Venting the heating system

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

   Note
   For function and sequence of the venting program, *see page 105.*

3. Check the system pressure.

Activating the venting function

Weather-compensated control unit

Service menu

1. Press **OK** and ☰ simultaneously for approx. 4 s.
2. **"Service functions"**
3. **"Venting"**
   Venting function is enabled.
4. End the venting function:
   Press **OK** or ⮌.

Constant temperature control unit

Service menu

1. Press **OK** and ☰ simultaneously for approx. 4 s.
2. Select **"⑤"** with ▸ and confirm with **OK**.
   "ON" flashes.
3. Activate the venting function with **OK**.
   "EL on" is shown constantly.
4. End the venting function:
   Press ⮌.

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Filling the trap with water

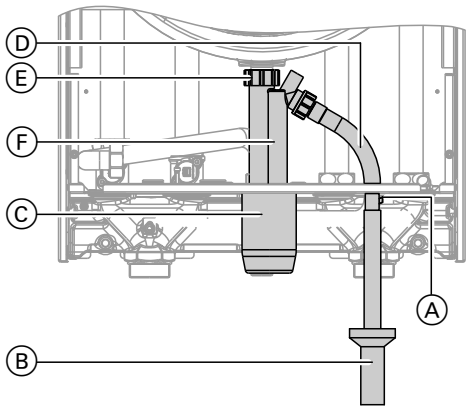

Fig. 22

1. Pull off cap Ⓒ downwards.
2. Undo hose Ⓓ.
3. Undo union nut Ⓔ and pull off trap Ⓕ downwards.
4. Fill trap Ⓕ with water and refit.
5. Refit hose Ⓓ.
6. Push on cap Ⓒ from below.

Checking all connections on the heating water and DHW sides for leaks

Checking the power supply

Designating heating circuits – only for weather-compensated control units

In the delivered condition, heating circuits are designated "Heating circuit 1", "Heating circuit 2" and "Heating circuit 3" (if installed).
If the system user prefers, heating circuits can be renamed to suit the specific system.

To enter names for heating circuits:

Operating instructions

Checking the gas type

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

- For operation with natural gas, no adjustment is therefore required across the entire Wobbe index range.
  The boiler can be operated in the Wobbe index range 9.5 to 15.2 kWh/m^3 (34.2 to 54.7 MJ/m^3).
- For operation with LPG, the burner must be converted (see "Converting the gas type" on page 35).

1. Determine the gas type and Wobbe index by asking your local gas supply utility or LPG supplier.
2. For operation with LPG, convert the burner (see page 35).
3. Record the gas type in the report on page 112.

Gas type conversion (only for operation with LPG)

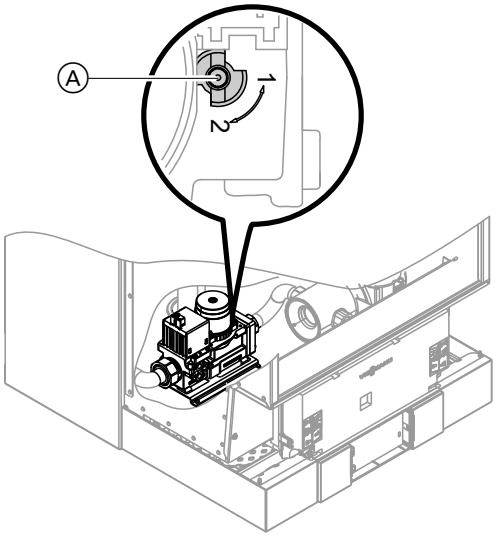

Fig. 23

1. Set adjusting screw Ⓐ on the gas train to "2".
2. Turn ON/OFF switch "⏻" to ON.
3. Select the gas type in coding address "82":
   - Calling up code 2
   - Call up **"General"** (weather-compensated control unit)
     or
     Group **"1"** (constant temperature control unit)
   - In coding address "11", select value "9"
   - In coding address "82", select value "1" (LPG operation)
   - In code "11", select value ≠ "9".
   - End service functions.
4. Open the gas shut-off valve.
5. Affix label "G 31" (included with the technical documentation) in a clearly visible position near the gas train on the cover panel.

Function sequence and possible faults

	Display		Measure
Control unit issues a heat demand	No →		Increase set value and ensure heat is drawn off
↓ Yes			
Fan starts	No →	After approx. 51 s fault F9	→ Check the fan, fan connecting cables, power at the fan and fan control
↓ Yes			
Ignition	No →	Fault EE	→ Check ignition module (control voltage 230 V across plugs "X2.1" and "X2.2"). Check the gas supply.
↓ Yes			
Gas train opens	No →	Fault EE	→ Check the gas train (control voltage 230 V~); check the gas supply pressure.
↓ Yes			
Ionisation current builds Symbol ⊳	No →	Fault EE	→ Check setting of ionisation electrode. Purge the gas line.

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Function sequence and possible faults (cont.)

Yes

Burner in operation	No →	Shuts down below the set boiler water temperature and restarts immediately	→	Check the flue system for tightness (flue gas recirculation); check the gas flow pressure.

Yes

Automatic calibration of the combustion controller	No →	Fault E3	→	Ensure adequate heat transfer. Press reset button **R**.
		Fault Eb	→	Check gap between ionisation electrode and burner gauze assembly. Check allocation of gas type (coding address 82, gas train setting). Check flue system; remedy flue gas recirculation if required. Press reset button **R**.

For further details regarding faults, see page 81.

Checking the static pressure and supply pressure

Danger
CO formation as a result of incorrect burner adjustment can have serious health implications. Always carry out a CO test before and after work on gas appliances.

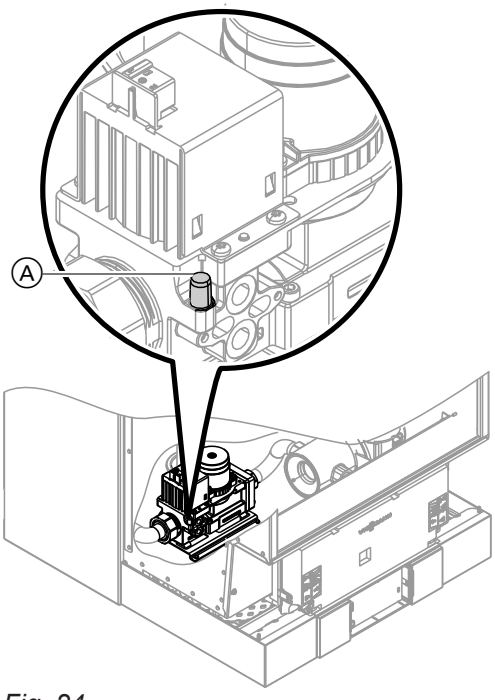

Fig. 24

Operation with LPG
Purge the LPG tank twice on commissioning or replacement. Vent the tank and gas connection line thoroughly after purging.

1. Close the gas shut-off valve.
2. Undo screw Ⓐ inside test connector "PE" on 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 and record the actual value in the report on page 112.
   Set value: Max. 57.5 mbar (5.75 kPa)
5. Start the boiler.

Note
*During commissioning, the appliance can enter a fault state because of airlocks in the gas line. After approx. 5 s, press **R** to reset the burner.*

Checking the static pressure and supply pressure (cont.)

6. Check the supply (flow) pressure. For set values, see the following table.

   Note
   Use a suitable measuring device with a resolution of at least 0.1 mbar (0.01 kPa) to check the supply pressure.

7. Record the actual value in the report.
   Proceed as indicated in the following table.

8. Shut down the boiler. Close the gas shut-off valve, remove the pressure gauge and close test connector Ⓐ with the screw.

9. **Danger**
   Gas escaping from the test connector leads to a risk of explosion.
   Check for gas tightness.

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

Supply pressure (flow pressure)					**Measures**
For natural gas				**For LPG**	
H	**E, E+, M**	**L, LL, S, K**	**Lw**		
Below 13 mbar (1.3 kPa)	Below 17 mbar (1.7 kPa)	Below 18 mbar (1.8 kPa)	Below 16 mbar (1.6 kPa)	Below 25 mbar (2.5 kPa)	Do not commission the boiler. Notify your gas supply utility or LPG supplier.
13 to 33 mbar (1.3 to 3.3 kPa)	17 to 33 mbar (1.7 to 3.3 kPa)	18 to 33 mbar (1.8 to 3.3 kPa)	16 to 33 mbar (1.6 to 3.3 kPa)	25 to 57.5 mbar (2.5 to 5.75 kPa)	Start the boiler.
Above 33 mbar (3.3 kPa)	Above 33 mbar (3.3 kPa)	Above 33 mbar (3.3 kPa)	Above 33 mbar (3.3 kPa)	Above 57.5 mbar (5.75 kPa)	Install a separate gas pressure governor upstream of the system. Set the pre-charge pressure to 20 mbar (2.0 kPa) for natural gas and 50 mbar (5.0 kPa) for LPG. Notify your gas supply utility or LPG supplier.

Setting the max. heating output

A limit can be set on the maximum heating output for **heating operation**. The limit is set via the modulation range. The upper limit of the max. adjustable heating output is set by the coding card.

Weather-compensated control unit

Service menu

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

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Setting the max. heating output (cont.)

Constant temperature control unit

Service menu

1. Press **OK** and ☰ simultaneously for approx. 4 s.
2. Select **"③"** with ▸ and confirm with **OK**.
   The display shows **"FL"** and **"on"** flashes.
3. Confirm with **OK** and ensure the flow rate is sufficient.
   While flow rate measuring is active, **"FL"** flashes on the display and **"on"** is shown.
4. When the required flow rate is reached, the set heating output (e.g. **"85"**) flashes on the display and **"🔥"** is shown. In the delivered condition, this value represents 100 % of the rated heating output.
5. Select the required value and confirm with **OK**.

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

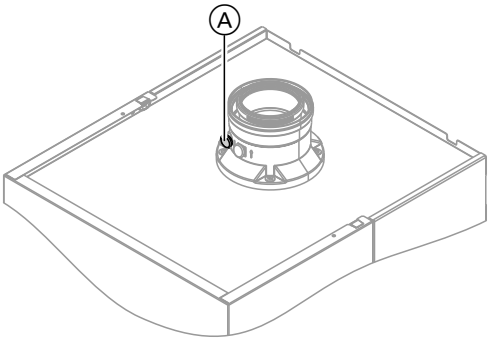

Fig. 25

Ⓐ Combustion air aperture

For balanced flue systems tested together with the heat generator, there is no requirement for a tightness test (overpressure test) during commissioning by the flue gas inspector.

In this case, we recommend that a simple tightness test is carried out during system commissioning. For this, check the CO_2 or O_2 concentration in the combustion air at the annular gap of the balanced flue pipe.
If the CO_2 concentration is less than 0.2 % or the O_2 concentration is greater than 20.6 %, the flue pipe is deemed to be sufficiently gas-tight.
If actual CO_2 values are greater or O_2 values are lower, then pressure test the flue pipe with a static pressure of 200 Pa.

Please note
If the test port is not sealed, combustion air is drawn in from the room.
After the tightness test, re-seal the test port with the plug.

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Removing the burner and checking the burner gasket

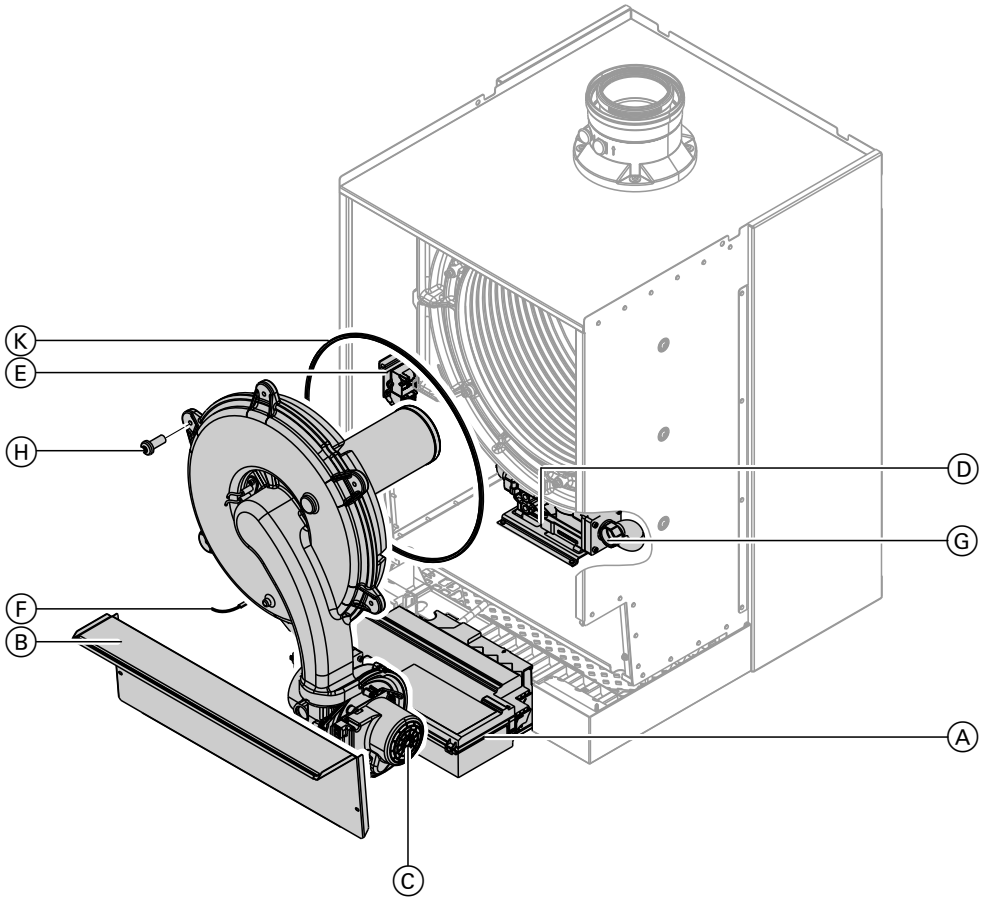

Fig. 26

1. Turn off the ON/OFF switch on the control unit and the power supply.
2. Close the gas shut-off valve and safeguard against reopening.
3. Unlock control unit Ⓐ and pivot forwards.
4. Remove cover panel Ⓑ.
5. Pull cables from fan motor Ⓒ, gas train Ⓓ, ignition unit Ⓔ and ionisation electrode Ⓕ.
6. Undo gas supply pipe fitting Ⓖ.
7. Undo the 6 screws Ⓗ and remove the burner.

> **!** **Please note**
> To prevent damage,
> never touch the mesh of the burner gauze assembly.

8. Check burner gasket Ⓚ for damage. Replace gasket if required.

Checking the burner gauze assembly and replacing it if required

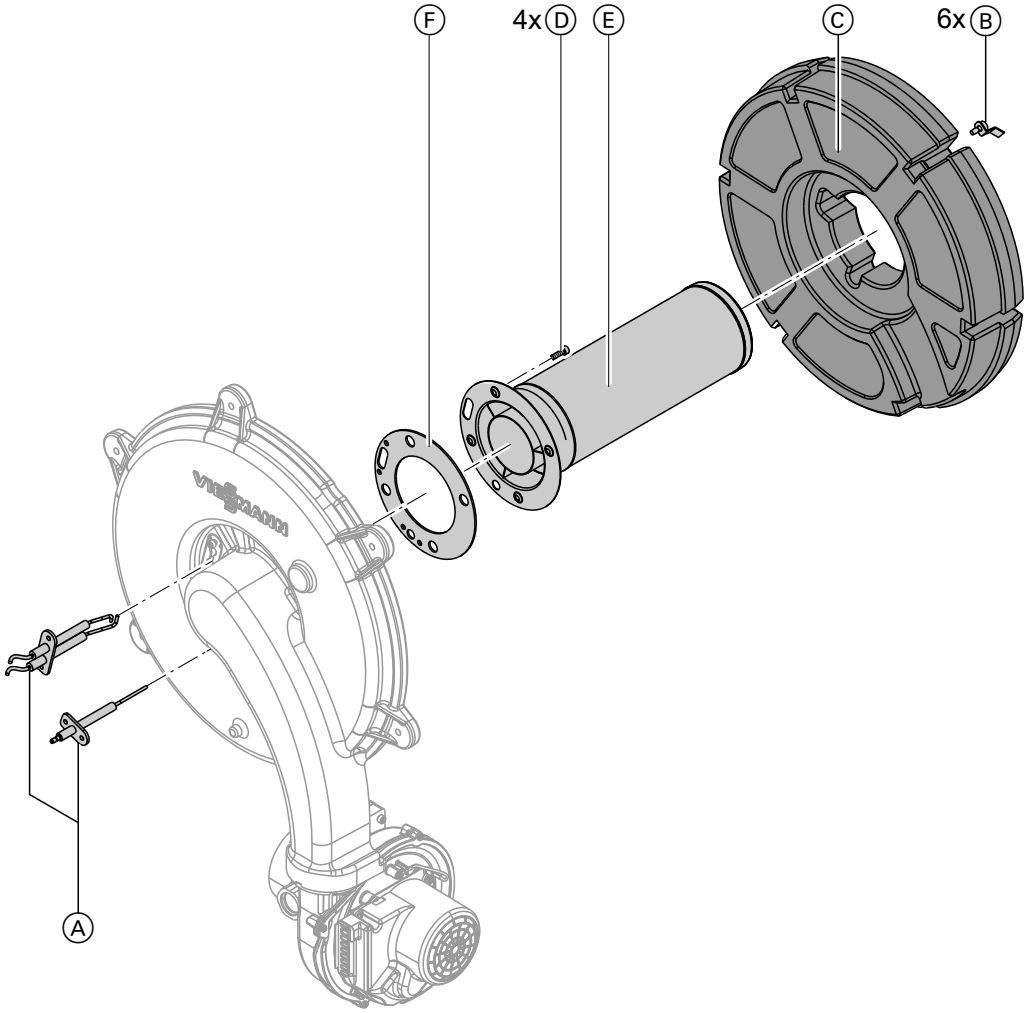

Fig. 27

1. Remove electrodes Ⓐ.
2. Undo the 6 retaining clips Ⓑ on thermal insulation ring Ⓒ and remove thermal insulation ring Ⓒ.
3. Undo the 4 Torx screws Ⓓ and remove burner gauze assembly Ⓔ with burner gauze assembly gasket Ⓕ.
4. Insert new burner gauze assembly Ⓔ with new gasket Ⓕ and secure with 4 Torx screws.
   Torque: 3.0 Nm
5. Refit thermal insulation ring Ⓒ and electrodes Ⓐ.

Note
Tightening torque for screws of electrodes Ⓐ and retaining clips Ⓑ: 3.0 Nm.

Checking the back draught safety device

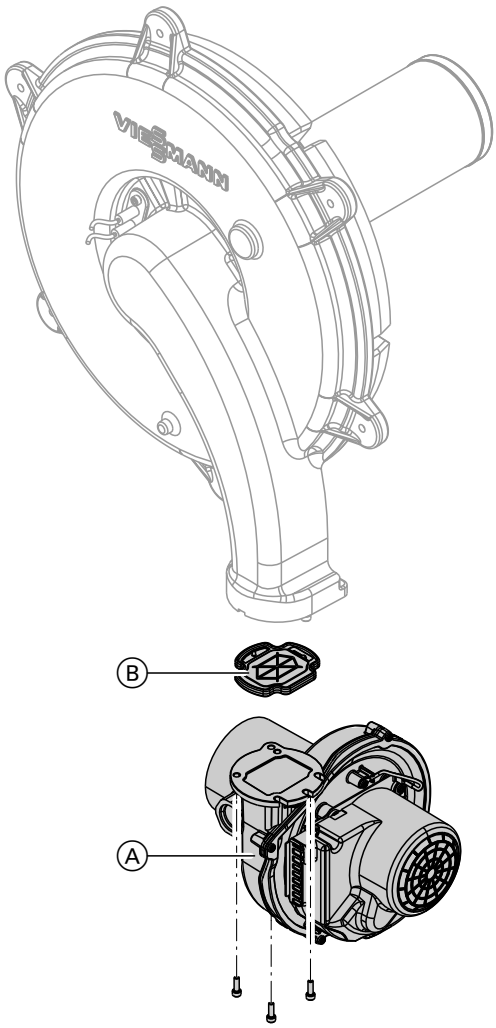

Fig. 28

1. Undo the 3 screws and remove fan Ⓐ.
2. Remove back draught safety device Ⓑ.
3. Check the damper and gasket for dirt and damage. Replace if required.
4. Refit back draught safety device Ⓑ.
5. Refit fan Ⓐ and secure with 3 screws. Torque: 3.0 Nm.

Checking and adjusting the ignition and ionisation electrodes

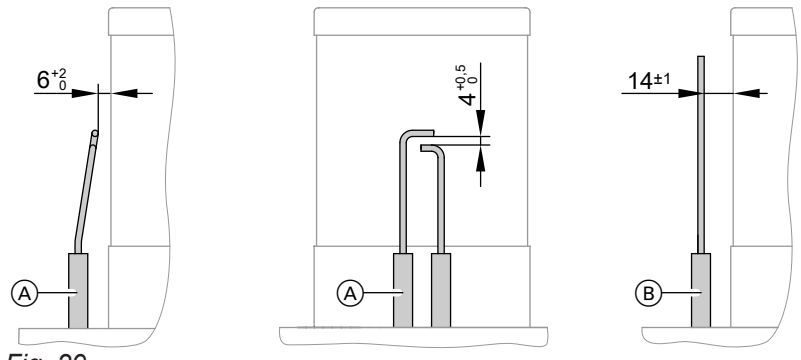

Fig. 29

Ⓐ Ignition electrodes
Ⓑ Ionisation electrode

Checking and adjusting the ignition and… (cont.)

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

   Please note
   Burner gauze assembly mesh:
   Do not damage.

3. Check the electrode gaps. If the gaps are not as specified or the electrodes are damaged, replace the electrodes and gaskets and adjust them as required. Tighten the electrode fixing screws with a torque of 3 Nm.

Cleaning the heating surfaces

Please note
Scratches to the surfaces of the heat exchanger that come into contact with hot gas can result in corrosion damage. Brushing can cause deposits to become lodged in the gaps between the coils. **Never use brushes to clean the heating surfaces.**

Please note
Prevent damage due to cleaning water.
Cover electronic components with suitable watertight material.

Note
Discolouration on the heat exchanger surface is a normal sign of use. It has no bearing on the function and service life of the heat exchanger.
The use of chemical cleaning agents is not required.

1. Use a vacuum cleaner to remove combustion residues from heating surface Ⓐ of the heat exchanger.
2. Flush heating surface Ⓐ with water.
3. Check condensate drain. Clean the trap: See the following chapter.
4. Check the thermal insulation mat (if installed) in the heat exchanger for damage, replace if necessary.

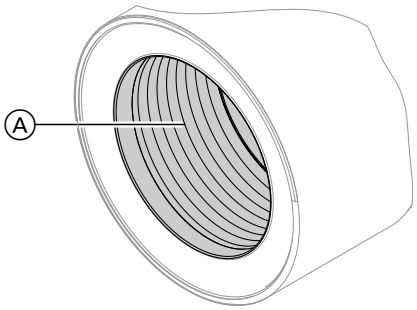

Fig. 30

Installing the burner

1. Insert the burner and tighten the screws diagonally. Torque: 8.5 Nm
2. Install the gas supply pipe with a new gasket and tighten the fitting. Torque: 15 Nm
3. Check the gas connections for tightness.

   Danger
   Escaping gas leads to a risk of explosion.
   Check the fitting for gas tightness.

4. Connect the electrical cables/leads to the corresponding components.

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Checking the condensate drain and cleaning the trap

Note
If condensate escapes at vent aperture Ⓐ or Ⓑ, clean or (if necessary) replace the following drain line.

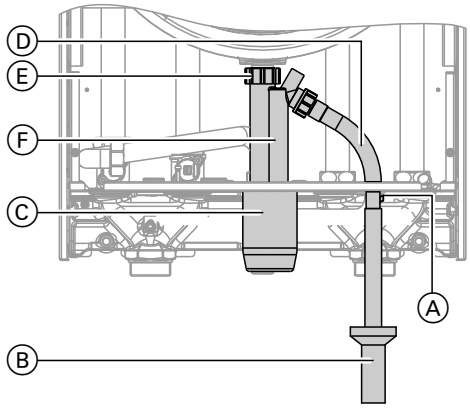

Fig. 31

1. Pull off cap Ⓒ downwards.
2. Undo hose Ⓓ.
3. Undo union nut Ⓔ and pull trap downwards.
4. Clean trap Ⓕ.
5. Check that the condensate can drain freely to the drain network.
6. Fill trap Ⓕ with water and reassemble.
7. Refit hose Ⓓ.
8. Push on cap Ⓒ from below.

On multi boiler systems:
Clean the trap in the flue gas header as well.

Checking the neutralising system (if installed)

Checking the diaphragm expansion vessel and system pressure

Note
Carry out this test on a cold system.

1. Drain the system or close the cap valve on the diaphragm expansion vessel and reduce the pressure until the pressure gauge indicates "0".
2. If the pre-charge pressure of the diaphragm expansion vessel is lower than the static system pressure: Top up with nitrogen until the pre-charge pressure is 0.1 to 0.2 bar (10 to 20 kPa) higher than the static pressure.
3. Top up with water until the charge pressure of the cooled system is 0.1 to 0.2 bar (10 to 20 kPa) higher than the pre-charge pressure of the diaphragm expansion vessel.
   Permiss. operating pressure: 6 bar (0.6 MPa)

Checking the safety valve function

Checking the firm seating of electrical connections

Checking all gas equipment for tightness at operating pressure

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

Note
Only use suitable and approved leak detection agents (EN 14291) and devices for the leak test. Leak detection agents with unsuitable constituents (e.g. nitrides, sulphides) can cause material damage.
Remove residues of the leak detection agent after testing.

Checking the combustion quality

The electronic combustion controller automatically ensures optimum combustion quality. During commissioning/maintenance, only the combustion values need to be checked. For this, measure the CO content plus the CO_2 or O_2 content. For a description of the electronic combustion controller functions, see page 109.

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

CO content
- The CO content must be < 1000 ppm for all gas types.

CO_2 or O_2 content
- The CO_2 content must be within the following limits for the lower and upper heating output respectively:
  - 7.5 to 9.6 % for natural gas E and LL
  - 9.0 to 11.3 % for LPG P
- The O_2 content must be between 3.8 and 7.3 % for all gas types.

If the actual CO_2 or O_2 values lie outside their respective ranges, check the balanced flue system for tightness, see page 38.

Note
During commissioning, the combustion controller carries out an automatic calibration. Allow approx. 30 s after the burner has started before testing the emissions.

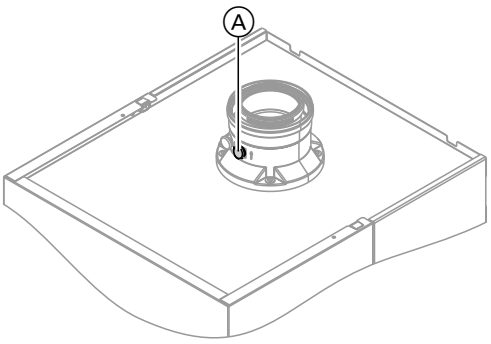

Fig. 32

1. Connect a flue gas analyser at flue gas port Ⓐ on the boiler flue connection.
2. Open the gas shut-off valve, start the boiler and create a heat demand.
3. Set the lower heating output (see page 45).
4. Check the CO_2 content. Should the actual value deviate from the aforementioned ranges by more than 1 %, implement measures detailed on page 44.
5. Enter the actual value into the report.
6. Set the upper heating output (see page 45).
7. Check the CO_2 content. Should the actual value deviate from the aforementioned ranges by more than 1 %, implement measures detailed on page 44.
8. After testing, press **OK**.
9. Enter the actual value into the report.

Checking the combustion quality (cont.)

Selecting the upper/lower heating output

Weather-compensated control unit

Service menu

1. Press **OK** and ☰ simultaneously for approx. 4 s.
2. **"Actuator test"**
3. Select the lower heating output:
   Select **"Base load OFF"**. Then **"Base load ON"** appears and the burner runs at its lower heating output.
4. Select the upper heating output:
   Select **"Full load OFF"**. Then **"Full load ON"** appears and the burner runs at its upper heating output.
5. End output selection:
   Press ⮌.

Constant temperature control unit

Service menu

1. Press **OK** and ☰ simultaneously for approx. 4 s.
2. Use ▸ to select **"⇄"** and confirm with **OK**.
   The display shows **"I"** and **"ON"** flashes.
3. Select the lower heating output:
   Press **OK**, **"ON"** will be displayed constantly.
4. Select the upper heating output:
   Press ⮌.
5. Select **"2"** with ▸, **"ON"** flashes.
6. Press **OK**, **"ON"** will be displayed constantly.
7. End output selection:
   Press ⮌.

Checking the flue system for unrestricted flow and tightness

Checking the external LPG safety valve (if installed)

Matching the control unit to the heating system

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

For individual coding steps, see page 50.

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

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

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

Note
If the heating system includes heating circuits with mixers, then the flow temperature of the heating circuit without mixer is higher by a selected differential (8 K in the delivered condition) than the flow temperature of the heating circuits with mixers.
The differential temperature is adjustable via coding address "9F" in the ***"General"*** *group.*

Adjusting the heating curves (only for… (cont.)

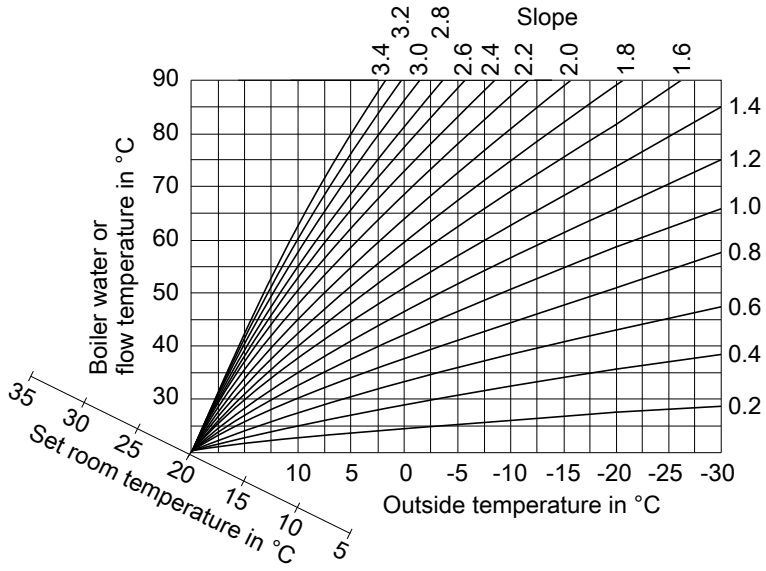

Fig. 33

Slope setting ranges:
- Underfloor heating systems: 0.2 to 0.8
- Low temperature heating systems: 0.8 to 1.6

Selecting the set room temperature

Individually adjustable for each heating circuit.
The heating curve is offset along the set room temperature axis. With the heating circuit pump logic function active, the curve modifies the start and stop characteristics of the heating circuit pump.

Standard set room temperature

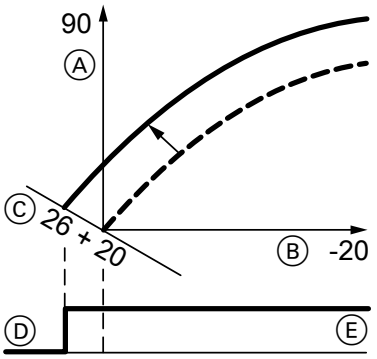

Fig. 34 Example 1: Adjustment of the standard set room temperature from 20 to 26 °C

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

Changing the standard set room temperature

Operating instructions

Reduced set room temperature

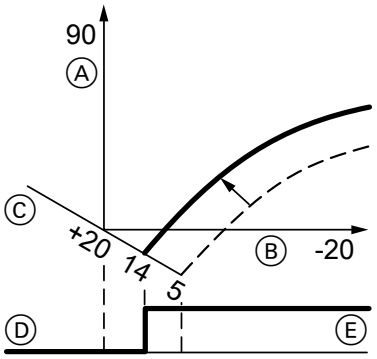

Fig. 35 Example 2: Adjustment of the reduced set room temperature from 5 °C to 14 °C

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

Changing the reduced set room temperature

Operating instructions

Changing the slope and level

Individually adjustable for each heating circuit.

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Adjusting the heating curves (only for… (cont.)

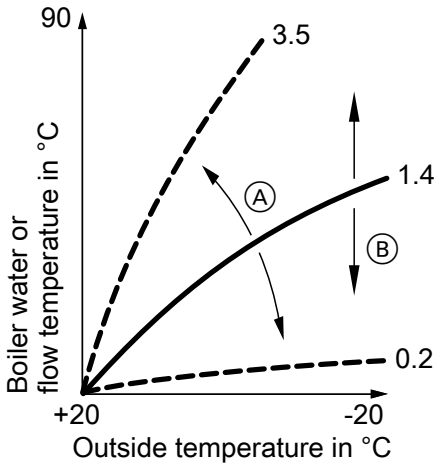


Fig. 36

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

Press the following buttons for the extended menu:

1. ☰:	to call up the menu.
2. "Heating"	select
3. ◄ / ►	to select the heating circuit.
4. "Heating curve"	select
5. "Slope" or **"Level"**	to change the heating curve in accordance with requirements.

Connecting the control unit to the LON

The LON communication module must be plugged in.

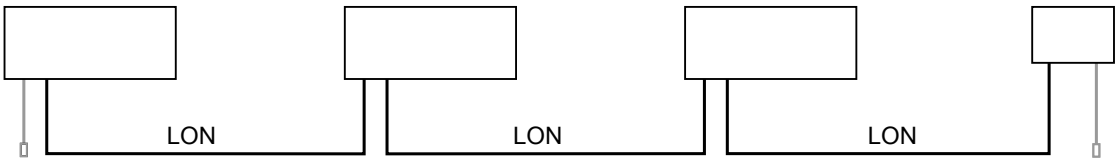
Note
The data transfer via LON can take several minutes.

Example: Single boiler system with Vitotronic 200-H and Vitocom 200

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

Note
*The same subscriber number must **not** be allocated twice within the LON.*
***Only one Vitotronic** may be programmed as fault manager.*

All coding addresses in the table are listed in the "General" group.

Boiler control unit	Vitotronic 200-H	Vitotronic 200-H	Vitocom
			
Subscriber no. 1 Code "77:1"	Subscriber no. 10 Code "77:10"	Subscriber no. 11 **Set** code "77:11".	Subscriber no. 99
Control unit is fault manager. Code "79:1"	Control unit is not fault manager. Code "79:0"	Control unit is not fault manager. Code "79:0"	Device is fault manager.
Control unit transmits the time. Code "7b:1"	Control unit receives the time. **Set** code "81:3".	Control unit receives the time. **Set** code "81:3".	Device receives the time.
Control unit sends outside temperature. **Set** code "97:2".	Control unit receives outside temperature. **Set** code "97:1".	Control unit receives outside temperature. **Set** code "97:1".	—

Connecting the control unit to the LON (cont.)

Boiler control unit	Vitotronic 200-H	Vitotronic 200-H	Vitocom
Viessmann system number. Code "98:1"	Viessmann system number. Code "98:1"	Viessmann system number. Code "98:1"	—
LON subscriber fault monitoring. Code "9C:20"	LON subscriber fault monitoring. Code "9C:20"	LON subscriber fault monitoring. Code "9C:20"	—

Carrying out a LON subscriber check

The subscriber check is used to test communication with the system devices connected to the fault manager.

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

Service menu:

1. Press **OK** and ☰ simultaneously for approx. 4 s.
2. **"Service functions"**
3. **"Subscriber check"**
4. Select subscriber (e.g. subscriber 10).
5. Start the subscriber check with **"OK"**.

- Successfully tested subscribers are designated with **"OK"**.
- Unsuccessfully tested subscribers are identified with **"Not OK"**.
  Note
  To perform another subscriber check:
  *Create a new subscriber list with **"Delete list?"** (subscriber list is updated).*

Note
*During the subscriber check, the display of the relevant subscriber shows the subscriber no. and **"Wink"** for approx. 1 min.*

Calling up and resetting the "Service" display

The red fault indicator flashes when the limits set in coding addresses "21" and "23" have been reached. (Coding address in group **"Boiler"** (weather-compensated control unit) or group 2 (constant temperature control unit).)

Weather-compensated control unit

Display

"Service" and **"🔧"**

Acknowledging a service

Press **OK**.
Perform maintenance.

Note
An acknowledged service message that has not been reset reappears the following Monday.

After maintenance has been carried out, reset the codes

Service menu:

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

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

Constant temperature control unit

Display

The specified hours run or the specified time interval with calendar symbol **"📅"** (subject to setting) and **"🔧"**

Acknowledging a service

Press **OK**.
Perform maintenance.

Note
An acknowledged service message that has not been reset reappears after 7 days.

After maintenance has been carried out, reset the codes

Reset code "24:1" in group 2 to "24:0".

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Calling up and resetting the "Service" display (cont.)

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

Fitting the front panel

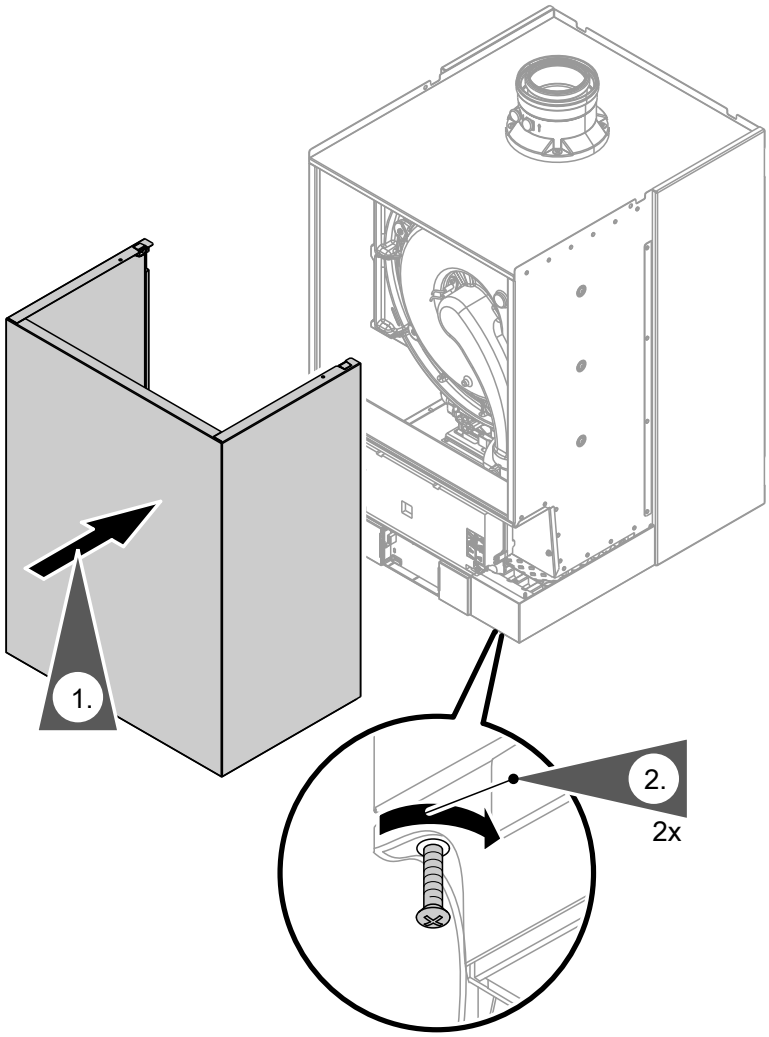

Fig. 37

Note
Ensure the locking screws are fitted before operating the appliance.

Instructing the system user

The system installer should hand the operating instructions to the system user and instruct the user in operating the system.

Calling up coding level 1

- On weather-compensated control units, codes are displayed as plain text.
- Codes that are not assigned due to the heating system equipment level or the setting of other codes are not displayed.
- Heating systems with one heating circuit without mixer and one or two heating circuits with mixer: The heating circuit without mixer is designated **"Heating circuit 1"** and the heating circuits with mixer as **"Heating circuit 2"** or **"Heating circuit 3"**. If the heating circuits were given individual designations, the selected designation and **"HC1"**, **"HC2"** or **"HC3"** appear instead.

The codes are divided into groups

Weather-compensated control unit
- **"General"**
- **"Boiler"**
- **"DHW"**
- **"Solar"**
- **"Heating circuit 1/2/3"**
- **"All codes std device"**
  In this group, all coding addresses from coding level 1 (except the coding addresses from the **"Solar"** group) are displayed in ascending order.
- **"Standard setting"**

Constant temperature control unit
1: **"General"**
2: **"Boiler"**
3: **"DHW"**
4: **"Solar"**
5: **"Heating circuit 1"**
6: **"All codes std device"**
In this group, all coding addresses are displayed in ascending order.
7: **"Standard setting"**

Calling up coding level 1

Weather-compensated control unit

1. Press **OK** and ☰: simultaneously for approx. 4 s.
2. **"Coding level 1"**
3. Select the group of required coding addresses.
4. Select the coding address.
5. Set the value according to the following tables and confirm with **OK**.

Constant temperature control unit

1. Press **OK** and ☰: simultaneously for approx. 4 s.
2. Select **"①"** with ▸ for coding level 1 and confirm with **OK**.
3. **"I"** flashes on the display for the coding addresses in group 1.
4. Select the group of the required coding address with ▲/▼ and confirm with **OK**.
5. Select coding address with ▲/▼.
6. Set value according to the following tables with ▲/▼ and confirm with **OK**.

Resetting all codes to their delivered condition

Weather-compensated control unit

Select **"Standard setting"**.

Note
This also resets the codes at coding level 2.

Constant temperature control unit

Select **"7"** with ▸ and confirm with **OK**.
When **"⊢"** flashes, confirm with **OK**.

Note
This also resets the codes at coding level 2.

General/group "1"

Select **"General"** for weather-compensated control units (see page 50).

Select **"1"** for constant temperature control units (see page 50).

General/group "1" (cont.)

Coding

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

Value, address 00: ...	System version	Description
2	1	One heating circuit without mixer A1 (heating circuit 1), with DHW heating (code is set automatically)
3	2.3	One heating circuit with mixer M2 (heating circuit 2), without DHW heating
4	2.3	One heating circuit with mixer (heating circuit 2), with DHW heating
5	4	One heating circuit without mixer A1 (heating circuit 1) and one heating circuit with mixer M2 (heating circuit 2), without DHW heating (code is set automatically)
6	4	One heating circuit without mixer A1 (heating circuit 1) and one heating circuit with mixer M2 (heating circuit 2), with DHW heating (code is set automatically)
7	4	One heating circuit with mixer M2 (heating circuit 2) and one heating circuit with mixer M3 (heating circuit 3), without DHW heating
8	4	One heating circuit with mixer M2 (heating circuit 2) and one heating circuit with mixer M3 (heating circuit 3), with DHW heating
9	4	One heating circuit without mixer A1 (heating circuit 1), one heating circuit with mixer M2 (heating circuit 2) and one heating circuit with mixer M3 (heating circuit 3), without DHW heating (code is set automatically)
10	4	One heating circuit without mixer A1 (heating circuit 1), one heating circuit with mixer M2 (heating circuit 2) and one heating circuit with mixer M3 (heating circuit 3), with DHW heating (code is set automatically)

Coding in the delivered condition		Possible change	
Internal circulation pump function			
51:0	System with low loss header: The internal circulation pump always starts when there is a heat demand.	51:1	System with low loss header: The internal circulation pump only starts upon heat demand if the burner is running. The circulation pump stops on expiry of the run-on time.
		51:2	System with heating water buffer cylinder: The internal circulation pump only starts upon heat demand if the burner is running. The circulation pump stops on expiry of the run-on time.

General/group "1" (cont.)

Coding in the delivered condition		Possible change	
Subscriber no.			
77:1	LON subscriber number (only for weather-compensated control units)	77:2 to 77:99	LON subscriber number, adjustable from 1 to 99: 1 - 4 = Boiler 5 = Cascade 10 - 97 = Vitotronic 200-H 98 = Vitogate 99 = Vitocom ***Note*** *Allocate each number **only** once.*
Detached house/apartment building			
7F:1	Detached house (only for weather-compensated control units)	7F:0	Apartment building Holiday program and time program for DHW heating can be set separately.
Lock out controls			
8F:0	Operation enabled in standard menu and extended menu. ***Note*** *The relevant code is only enabled when you exit the service menu.*	8F:1	Operation blocked in standard menu **and** extended menu. Emissions test mode can be enabled.
		8F:2	Operation enabled in standard menu, but blocked in extended menu. Emissions test mode can be enabled.
Set flow temperature for external demand			
9b:70	Set flow temperature for external demand 70 °C	9b:0 to 9b:127	Set flow temperature for external demand adjustable from 0 to 127 °C (limited by boiler-specific parameters)

Boiler/group "2"

Select **"Boiler"** for weather-compensated control units (see page 50).

Select **"2"** for constant temperature control units (see page 50).

Coding

Coding in the delivered condition		Possible change	
Single/multi boiler system			
01:1	Single boiler system (only for constant temperature control units)	01:2	Multi boiler system with Vitotronic 300-K
Boiler number			
07:1	Boiler number in multi boiler systems (only for constant temperature control units)	07:2 to 07:8	Boiler number 2 to 8 in multi boiler systems

Boiler/group "2" (cont.)

Coding in the delivered condition		Possible change	
Burner service in 100 hours			
21:0	No service interval set (in hours run)	21:1 to 21:100	The number of hours run before the burner should be serviced is adjustable from 100 to 10,000 h One step ≙ 100 h
Service interval in months			
23:0	No time set for burner service interval	23:1 to 23:24	Interval adjustable from 1 to 24 months
Service status			
24:0	**"Service"** not shown on the display	24:1	**"Service"** is shown on the display (address is automatically set and must be manually reset after a service has been carried out)
Filling/venting			
2F:0	Venting program/filling program disabled	2F:1	Venting program enabled
		2F:2	Filling program enabled

DHW/group "3"

Select **"DHW"** for weather-compensated control units (see page 50).

Select **"3"** for constant temperature control units (see page 50).

Coding

Coding in the delivered condition		Possible change	
Set DHW temperature reheating suppression			
67:40	For solar DHW heating: set DHW temperature 40 °C. Reheating is suppressed above the selected set temperature (boiler only starts as backup if the rise in the cylinder temperature is too low). Cannot be adjusted on gas condensing combi boilers.	67:0 to 67:95	Set DHW temperature adjustable from 0 to 95 °C (limited by boiler-specific parameters)
Enable DHW circulation pump			
73:0	DHW circulation pump: "ON" according to time program (only for weather-compensated control unit)	73:1 to 73:6	"ON" from once per hour for 5 min up to 6 times per hour for 5 min during the time program
		73:7	Constantly "ON"

Solar/group "4"

Select **"Solar"** for weather-compensated control units (see page 50).
Select **"4"** for constant temperature control units (see page 50).

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

Solar/group "4" (cont.)

Coding

Coding in the delivered condition		Possible change	
Speed control solar circuit pump			
02:...	Coding dependent on the software version of solar control module SM1/SM1A	02:0	Solar circuit pump is not speed-controlled
		02:1	With wave packet control function Never adjust
		02:2	Solar circuit pump is speed-controlled with PWM control
Maximum cylinder temperature			
08:60	The solar circuit pump is switched off when the actual DHW temperature reaches the maximum cylinder temperature (60 °C).	08:10 to 08:90	Set DHW temperature adjustable from 10 to 90 °C.
Stagnation time reduction			
0A:5	Temperature differential for stagnation time reduction (reduction in the speed of the solar circuit pump to protect system components and heat transfer medium) 5 K.	0A:0	Stagnation time reduction not active.
		0A:1 to 0A:40	Temperature differential adjustable from 1 to 40 K.
Flow rate solar circuit			
0F:70	Solar circuit flow rate at the maximum pump speed 7 l/min.	0F:1 to 0F:255	Flow rate adjustable from 0.1 to 25.5 l/min, 1 step ≙ 0.1 l/min.
Extended solar control functions			
20:0	No extended control function enabled	20:1	Auxiliary function for DHW heating
		20:2	Differential temperature control 2.
		20:3	Differential temperature control 2 and auxiliary function.
		20:4	Differential temperature control 2 for central heating backup.
		20:5	Thermostat function
		20:6	Thermostat function and auxiliary function
		20:7	Solar heating via external heat exchanger without additional temperature sensor
		20:8	Solar heating via external heat exchanger with additional temperature sensor
		20:9	Solar heating of 2 DHW cylinders

Heating circuit 1, heating circuit 2, heating circuit 3/group "5"

Select **"Heating circuit ..."** for weather-compensated control units (see page 50).

Select **"5"** for constant temperature control units (see page 50).

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

Coding

Coding in the delivered condition		Possible change	
Priority DHW heating			
A2:2	Cylinder priority applicable to heating circuit pump and mixer	A2:0	Without cylinder priority applicable to heating circuit pump and mixer
		A2:1	Cylinder priority only applicable to mixer
		A2:3 to A2:15	Reduced priority applicable to mixer (the heating circuit receives a reduced amount of energy)
Economy function outside temperature			
A5:5	With heating circuit pump logic function (economy control): Heating circuit pump "OFF" if outside temperature (OT) is 1 K higher than the set room temperature (RT_{set}) OT > RT_{set} + 1 K (only for weather-compensated control units)	A5:0	Without heating circuit pump logic function
		A5:1 to A5:15	With heating circuit pump logic function: heating circuit pump "OFF" (see the following table)

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

Coding in the delivered condition		Possible change	
Extended economy function adjusted outside temperature			
A6:36	Extended economy control **disabled** (only for weather-compensated control units)	A6:5 to A6:35	Extended economy control active, i.e. the burner and heating circuit pump will stop and the mixer close at a variable value, adjustable between 5 and 35 °C plus 1 °C. The basis for this is the adjusted outside temperature. This is composed of the actual outside temperature and a time constant that takes account of the way an average building cools down.

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

Coding in the delivered condition		Possible change	
Extended economy function mixer			
A7:0	Without mixer economy function (only for weather-compensated control units and heating circuits with mixer)	A7:1	With mixer economy function (extended heating circuit pump logic): Heating circuit pump also "OFF": ▪ If the mixer has been attempting to close for longer than 20 min. Heating circuit pump "ON": ▪ If the mixer changes to control function ▪ If there is a risk of frost
Pump idle time, transition reduced mode			
A9:7	With pump idle time: heating circuit pump "OFF" if the set value is altered through a change in operating mode or through a change in the set room temperature (only for weather-compensated control units)	A9:0	Without pump idle time
		A9:1 to A9:15	With pump idle time, adjustable from 1 to 15. The higher the value, the longer the pump idle time.
Weather-compensated/room temperature hook-up			
b0:0	With remote control: heating mode/reduced mode: weather-compensated (only for weather-compensated control units; only change the code for the heating circuit with mixer)	b0:1	Heating mode: weather-compensated Reduced mode: with room temperature hook-up
		b0:2	Heating mode: with room temperature hook-up Reduced mode: weather-compensated
		b0:3	Heating mode/reduced mode: with room temperature hook-up
Economy function room temperature			
b5:0	With remote control: no room temperature-dependent heating circuit pump logic function (only for weather-compensated control units; only change the code for the heating circuit with mixer)	b5:1 to b5:8	For heating circuit pump logic function, see the following table:

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

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

Coding in the delivered condition		Possible change	
Min. flow temperature heating circuit			
C5:20	Electronic minimum flow temperature limit 20 °C (only for weather-compensated control units)	C5:1 to C5:127	Minimum limit adjustable from 1 to 127 °C (limited by boiler-specific parameters)
Max. flow temperature heating circuit			
C6:74	Electronic maximum flow temperature limit 74 °C (only for weather-compensated control units)	C6:10 to C6:127	Maximum limit adjustable from 10 to 127 °C (limited by boiler-specific parameters)
Heating program - changeover			
d5:0	The external operating program changeover switches the operating program to "Constant operation with reduced room temperature" or "standby mode" (only for weather-compensated control units)	d5:1	The external operating program changeover switches to "Constant operation at standard room temperature" (subject to coding address 3A, 3b and 3C)
Ext. heating program changeover to heating circuit			
d8:0	No operating program changeover via EA1 extension	d8:1	Operating program changeover via input DE1 at EA1 extension
		d8:2	Operating program changeover via input DE2 at EA1 extension
		d8:3	Operating program changeover via input DE3 at EA1 extension
Screed function			
F1:0	Screed drying disabled (only for weather-compensated control units).	F1:1 to F1:6	Screed drying can be set with 6 adjustable temperature/time profiles (see page 105)
		F1:15	Constant flow temperature 20 °C
Party mode time limit			
F2:8	Time limit for party mode or external operating program changeover via pushbutton: 8 h (only for weather-compensated control units)[*1]	F2:0	No time limit for party mode[*1]
		F2:1 to F2:12	Time limit adjustable from 1 to 12 h[*1]
Pump control in "Only DHW"			
F6:25	In the "Only DHW" operating mode, the circulation pump in the heating circuit connection set is constantly on (only for constant temperature control units)	F6:0	In "Only DHW" operating mode, the circulation pump in the heating circuit connection set is constantly off.
		F6:1 to F6:24	In the "Only DHW" operating mode, the circulation pump in the heating circuit connection set is started 1 to 24 times per day for 10 min each time.
Pump control in "standby mode"			
F7:25	In "standby mode", the circulation pump in the heating circuit connection set is constantly on (only for constant temperature control units)	F7:0	In "standby mode", the circulation pump in the heating circuit connection set is constantly off
		F7:1 to F7:24	In "standby mode", the circulation pump in the heating circuit connection set is started 1 to 24 times per day for 10 min each time.

[*1] *In the "Heating and DHW" program, party mode ends **automatically** when the system changes over to operation at standard room temperature.*

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

Coding in the delivered condition		Possible change	
Start temperature raising			
F8:-5	Temperature limit for terminating reduced mode -5 ºC, see example on page 107. Observe setting for coding address "A3". (Only for weather-compensated control units)	F8:+10 to F8:-60	Temperature limit adjustable from +10 to -60 ºC
		F8:-61	Function disabled
End temperature raising			
F9:-14	Temperature limit for raising reduced set room temperature -14 ºC; see example on page 107. (only for weather-compensated control units)	F9:+10 to F9:-60	Temperature limit for raising the set room temperature to the value selected for standard mode adjustable from +10 to -60 ºC
Set flow temperature increase			
FA:20	Raising the set boiler water temperature or set flow temperature by 20 % when changing from operation with reduced room temperature to operation with standard room temperature. See example on page 107 (only for weather-compensated control units).	FA:0 to FA:50	Temperature rise adjustable from 0 to 50 %
Duration set flow temperature increase			
Fb:60	Duration for raising the set boiler water temperature or set flow temperature (see coding address "FA") is 60 min. See example on page 107 (only for weather-compensated control units).	Fb:0 to Fb:240	Duration adjustable from 0 to 240 min

Calling up coding level 2

- **All** codes are accessible in coding level 2.
- Codes that are not assigned due to the heating system equipment level or the setting of other codes are not displayed.
- The heating circuit without mixer is designated **"Heating circuit 1"** and the heating circuits with mixer as **"Heating circuit 2"** or **"Heating circuit 3"**. If the heating circuits were given individual designations, the selected designation and **"HC1"**, **"HC2"** or **"HC3"** appear instead.

The codes are divided into groups

Weather-compensated control unit

- **"General"**
- **"Boiler"**
- **"DHW"**
- **"Solar"**
- **"Heating circuit 1/2/3"**
- **"All codes std device"**
  In this group, all coding addresses (except the coding addresses from the **"Solar"** group) are displayed in ascending order.
- **"Standard setting"**

Constant temperature control unit

1: **"General"**
2: **"Boiler"**
3: **"DHW"**
4: **"Solar"**
5: **"Heating circuit 1"**
6: **"All codes std device"**
In this group, all coding addresses are displayed in ascending order.
7: **"Standard setting"**

Calling up code 2

Weather-compensated control unit

1. Press **OK** and ☰ simultaneously for approx. 4 s.
2. Press **OK** and ⮌ simultaneously for approx. 4 s.
3. **"Coding level 2"**
4. Select the group of required coding addresses.
5. Select the coding address.
6. Set the value according to the following tables and confirm with **OK**.

Constant temperature control unit

1. Press **OK** and ☰ simultaneously for approx. 4 s.
2. Press **OK** and ⮌ simultaneously for approx. 4 s.
3. Select **"②"** with ▸ for coding level 2 and confirm with **OK**.
4. **"I"** flashes on the display for the coding addresses in group 1.
5. Select the group of the required coding address with ▲/▼ and confirm with **OK**.
6. Select coding address with ▲/▼.
7. Set value according to the following tables with ▲/▼ and confirm with **OK**.

Resetting all codes to their delivered condition

Weather-compensated control unit

Select **"Standard setting"**.

Note
This also resets the codes at coding level 1.

Constant temperature control unit

Select **"7"** with ▸ and confirm with **OK**.
When **"⊣"** flashes, confirm with **OK**.

Note
This also resets the codes at coding level 1.

General/group "1"

Select **"General"** for weather-compensated control units (see page 59).

Select **"1"** for constant temperature control units (see page 59).

Coding

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

General/group "1" (cont.)

Value, address 00: ...	System version	Description
2	1	One heating circuit without mixer A1 (heating circuit 1), with DHW heating (code is set automatically)
3	2, 3	One heating circuit with mixer M2 (heating circuit 2), without DHW heating
4	2, 3	One heating circuit with mixer (heating circuit 2), with DHW heating
5	4	One heating circuit without mixer A1 (heating circuit 1) and one heating circuit with mixer M2 (heating circuit 2), without DHW heating (code is set automatically)
6	4	One heating circuit without mixer A1 (heating circuit 1) and one heating circuit with mixer M2 (heating circuit 2), with DHW heating (code is set automatically)
7	4	One heating circuit with mixer M2 (heating circuit 2) and one heating circuit with mixer M3 (heating circuit 3), without DHW heating
8	4	One heating circuit with mixer M2 (heating circuit 2) and one heating circuit with mixer M3 (heating circuit 3), with DHW heating
9	4	One heating circuit without mixer A1 (heating circuit 1), one heating circuit with mixer M2 (heating circuit 2) and one heating circuit with mixer M3 (heating circuit 3), without DHW heating (code is set automatically)
10	4	One heating circuit without mixer A1 (heating circuit 1), one heating circuit with mixer M2 (heating circuit 2) and one heating circuit with mixer M3 (heating circuit 3), with DHW heating (code is set automatically)

Coding in the delivered condition		Possible change	
11:≠9	No access to the coding addresses for the parameters of the combustion controller	11:9	Access to the coding addresses for the parameters of the combustion controller open
25:0	Without outside temperature sensor (for constant temperature control units)	25:1	With outside temperature sensor (automatic recognition)
2A:0	Without wireless outside temperature sensor	2A:1	With wireless outside temperature sensor (automatic recognition)
		2A:2	Wireless outside temperature sensor not used.
2d:1	With flow sensors (do not adjust)		
32:0	Without AM1 extension	32:1	With AM1 extension (automatic recognition)
33:1	Function of output A1 at AM1 extension: heating circuit pump	33:0	Function of output A1: DHW circulation pump
		33:2	Function of output A1: circulation pump for cylinder heating
34:0	Function of output A2 at AM1 extension: DHW circulation pump	34:1	Function of output A2: heating circuit pump
		34:2	Function of output A2: circulation pump for cylinder heating
35:0	Without EA1 extension	35:1	With EA1 extension (automatic recognition)
36:0	Function of output 157 at EA1 extension: fault message	36:1	Function of output 157: feed pump
		36:2	Function of output 157: DHW circulation pump
39:2	Function of output 21: circulation pump for cylinder heating	39:0	Function output 21: DHW circulation pump
		39:1	Function of output 21: heating circuit pump

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General/group "1" (cont.)

Coding in the delivered condition		Possible change	
3A:0	Function, input DE1 at EA1 extension: not assigned	3A:1	Function of input DE1: operating program changeover
		3A:2	Function of input DE1: external demand with set flow temperature. Set flow temperature setting: coding address 9b. Internal circulation pump function: coding address 3F
		3A:3	Function of input DE1: external blocking. Internal circulation pump function: coding address 3E
		3A:4	Function of input DE1: external blocking with fault message input Internal circulation pump function: coding address 3E
		3A:5	Function of input DE1: fault message input
		3A:6	Function of input DE1: brief operation of the DHW circulation pump (pushbutton function). DHW circulation pump runtime setting: coding address 3d
3b:0	Function, input DE2 at EA1 extension: not assigned	3b:1	Function of input DE2: operating program changeover
		3b:2	Function of input DE2: external demand with set flow temperature. Set flow temperature setting: coding address 9b. Internal circulation pump function: coding address 3F
		3b:3	Function of input DE2: external blocking. Internal circulation pump function: coding address 3E
		3b:4	Function of input DE2: external blocking with fault message input Internal circulation pump function: coding address 3E
		3b:5	Function of input DE2: fault message input
		3b:6	Function of input DE2: brief operation of the DHW circulation pump (pushbutton function). DHW circulation pump runtime setting: coding address 3d
3C:0	Function, input DE3 at EA1 extension: not assigned	3C:1	Function of input DE3: operating program changeover
		3C:2	Function of input DE3: external demand with set flow temperature Set flow temperature setting: coding address 9b. Internal circulation pump function: coding address 3F

General/group "1" (cont.)

Coding in the delivered condition		Possible change	
		3C:3	Function of input DE3: external blocking. Internal circulation pump function: coding address 3E
		3C:4	Function of input DE3: external blocking with fault message input Internal circulation pump function: coding address 3E
		3C:5	Function of input DE3: fault message input
		3C:6	Function of input DE3: brief operation of the DHW circulation pump (pushbutton function). DHW circulation pump runtime setting: coding address 3d
3d:5	DHW circulation pump runtime for brief operation: 5 min	3d:1 to 3d:60	Runtime of DHW circulation pump adjustable from 1 to 60 min
3E:0	Boiler circuit pump remains in control mode at "External blocking" signal.	3E:1	Boiler circuit pump is stopped at "External blocking" signal.
		3E:2	Boiler circuit pump is started at "External blocking" signal.
3F:0	Boiler circuit pump remains in control mode at "External demand" signal.	3F:1	Boiler circuit pump is stopped at "External demand" signal.
		3F:2	Boiler circuit pump is started at "External demand" signal.
4b:0	Function of output [96]: room thermostat (Vitotrol 100) for constant temperature control units	4b:1	External demand
		4b:2	External blocking
51:0	System with low loss header: the boiler circuit pump is always started when there is a heat demand.	51:1	System with low loss header: boiler circuit pump is only started at heat demand if the burner is running. The circulation pump stops on expiry of the run-on time.
		51:2	System with heating water buffer cylinder: boiler circuit pump is only started at heat demand if the burner is running. The circulation pump stops on expiry of the run-on time.
52:0	Without flow temperature sensor for low loss header	52:1	With flow temperature sensor for low loss header (automatic recognition)
53:1	Function of terminal [28] of internal extension: DHW circulation pump	53:0	Function of terminal [28]: central fault
		53:2	Function of terminal [28]: external heating circuit pump (heating circuit 1)
		53:3	Function of terminal [28]: external circulation pump for cylinder heating
54:0	Without solar thermal system	54:1	With Vitosolic 100 (automatic recognition)

General/group "1" (cont.)

Coding in the delivered condition		Possible change	
		54:2	With Vitosolic 200 (automatic recognition)
		54:3	With solar control module SM1 without auxiliary function (automatic recognition)
		54:4	With solar control module SM1 with auxiliary function, e.g. central heating backup (automatic recognition)
6E:50	No correction of measured outside temperature	6E:0 to 6E:100	Outside temperature correction in 0.1 K steps 0 to 49 = -5 K to -0.1 K 51 to 100 = 0.1 K to 5 K
76:0	Without communication module	76:1	With LON communication module (automatic recognition; only for weather-compensated control units)
		76:2	With cascade communication module (automatic recognition; only for constant temperature control units)
77:1	LON subscriber number (only for weather-compensated control units)	77:2 to 77:99	LON subscriber number, adjustable from 1 to 99: 1 - 4 = Boiler 5 = Cascade 10 - 97 = Vitotronic 200-H 98 = Vitogate 99 = Vitocom ***Note*** *Allocate each number **only** once.*
79:1	With LON communication module: control unit is fault manager (only for control unit for weather-compensated operation)	79:0	Control unit is not fault manager
7b:1	With LON communication module: control unit transmits the time (only for control unit for weather-compensated operation)	7b:0	No time transmission.
7F:1	Detached house (only for weather-compensated control units)	7F:0	Apartment building Holiday program and time program for DHW heating can be set separately
80:6	A fault message is issued if a fault is present for at least 30 s.	80:0	Immediate fault message
		80:2 to 80:199	Minimum fault duration until fault message occurs, adjustable from 10 s to 995 s; 1 step ≙ 5 s
81:1	Automatic summer/wintertime changeover	81:0	Manual summer/wintertime changeover
		81:2	Use of the radio clock receiver (automatic recognition)
		81:3	With LON communication module: Control unit receives the time.
82:0	Operation with natural gas	82:1	Operation with LPG (only adjustable if coding address 11:9 has been set)

General/group "1" (cont.)

Coding in the delivered condition		Possible change	
88:0	Temperature display in °C (Celsius)	88:1	Temperature display in °F (Fahrenheit)
8A:175	Never adjust		
8F:0	Control in standard menu and extended menu enabled ***Note*** *The relevant code is only enabled when you exit the service menu.*	8F:1	Operation blocked in standard menu **and** extended menu. Emissions test mode can be enabled.
		8F:2	Operation enabled in standard menu, but blocked in extended menu. Emissions test mode can be enabled.
90:128	Time constant for calculating adjusted outside temperature 21.3 h	90:1 to 90:199	Subject to the set value, the flow temperature is adjusted quickly (low values) or slowly (high values) when the outside temperature changes; 1 step ≙ 10 min
94:0	Without OpenTherm extension	94:1	With OpenTherm extension (automatic recognition)
95:0	Without Vitocom 100 communication interface	95:1	With Vitocom 100 communication interface (automatic recognition)
97:0	With LON communication module: outside temperature of the sensor connected to the control unit is utilised internally (only for weather-compensated control units)	97:1	Control unit receives outside temperature
		97:2	The control unit transmits the outside temperature to the Vitotronic 200-H
98:1	Viessmann system number (in conjunction with monitoring of several systems via Vitocom 300)	98:1 to 98:5	System number is adjustable from 1 to 5
99:0	Do not adjust		
9A:0	Do not adjust		
9b:70	Set flow temperature for external demand 70 °C	9b:0 to 9b:127	Set flow temperature for external demand adjustable from 0 to 127 °C (limited by boiler-specific parameters)
9C:20	Monitoring LON subscribers. If a subscriber fails to respond, the control unit's internal default values will be used after 20 min. Only then will a fault message be issued. (Only for weather-compensated control units)	9C:0	No monitoring
		9C:5 to 9C:60	Time adjustable from 5 to 60 min
9F:8	Differential temperature 8 K; only in conjunction with heating circuit with mixer (only for weather-compensated control units)	9F:0 to 9F:40	Differential temperature adjustable from 0 to 40 K

Boiler/group "2"

Select **"Boiler"** for weather-compensated control units (see page 59).

Select **"2"** for constant temperature control units (see page 59).

Boiler/group "2" (cont.)

Coding

Coding in the delivered condition		Possible change	
01:1	Single boiler system (only for constant temperature control units)	01:2	Multi boiler system with Vitotronic 300-K
04:1	Minimum burner pause time subject to boiler load (specified by boiler coding card)	04:0	Minimum burner pause time set permanently (specified by boiler coding card)
06:...	Maximum limit of the boiler water temperature, specified in °C by the boiler coding card	06:20 to 06:127	Maximum limit of boiler water temperature within the ranges specified by the boiler
07:1	Boiler number in multi boiler systems (only for constant temperature control units)	07:2 to 07:8	Boiler number 2 to 8 in multi boiler systems
08:...	Maximum burner heating output in kW, in multi boiler systems	08:0 to 08:199	Maximum burner heating output adjustable in 1 kW increments, from 0 to 199 kW (limited by boiler-specific parameters)
0d:0	Never adjust.		
0E:0	Never adjust.		
13:1	Never adjust.		
14:1	Never adjust.		
15:1	Never adjust.		
21:0	No service interval set (in hours run)	21:1 to 21:100	The number of hours run before the burner should be serviced is adjustable from 100 to 10,000 h One step ≙ 100 h
23:0	No time set for burner service interval	23:1 to 23:24	Interval adjustable from 1 to 24 months
24:0	**"Service"** not shown on the display	24:1	**"Service"** is shown on the display (address is automatically set and must be manually reset after a service has been carried out)
28:0	No burner interval ignition	28:1 to 28:24	Interval adjustable from 1 h to 24 h. The burner is force-started for 30 s (only when operating with LPG).
2E:0	Do not adjust		
2F:0	Venting program/filling program disabled	2F:1	Venting program enabled
		2F:2	Filling program enabled
30:3	Boiler circuit pump variable speed via 0-10 V interface	30:0	▪ Connection of multi-stage boiler circuit pump ▪ Operation with low loss header (single or multi boiler system)
		30:1	Boiler circuit pump speed-controlled
		30:2	Boiler circuit pump speed-controlled with flow rate
31:...	Set speed in % of the circulation pump when operated as boiler circuit pump, specified by the coding card	31:0 to 31:100	Set speed adjustable from 0 to 100 %
38:0	Burner control unit status: operational (no fault)	38:≠0	Burner control unit status: fault

DHW/group "3"

Select **"DHW"** for weather-compensated control units (see page 59).

Select **"3"** for constant temperature control units (see page 59).

Coding

Coding in the delivered condition		Possible change	
56:0	Set DHW temperature adjustable from 10 to 60 °C	56:1	Set DHW temperature adjustable from 10 to over 60 °C ***Note*** *Max. value 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 temperature, adjustable from 10 to 60 °C (observe coding addresses "56" and "63")
59:0	Cylinder heating: Start point -2.5 K Stop point +2.5 K	59:1 to 59:10	Start point adjustable from 1 to 10 K below the set value
5b:0	DHW cylinder directly connected to the boiler	5b:1	DHW cylinder connected downstream of the low loss header
5E:0	Circulation pump for cylinder heating remains in control mode at "External blocking" signal.	5E:1	Circulation pump for cylinder heating is stopped at "External blocking" signal.
		5E:2	Circulation pump for cylinder heating is started at "External blocking" signal.
5F:0	Circulation pump for cylinder heating remains in control mode at "External demand" signal.	5F:1	Circulation pump for cylinder heating is stopped at "External demand" signal.
		5F:2	Circulation pump for cylinder heating is started at "External demand" signal.
60:20	During DHW heating, the boiler water temperature is max. 20 K higher than the set DHW temperature.	60:5 to 60:25	The differential between the boiler water temperature and the set DHW temperature is adjustable from 5 to 25 K
62:2	Circulation pump with 2 min run-on time after cylinder heating	62:0	No circulation pump run-on
		62:1 to 62:15	Run-on time adjustable from 1 to 15 min
63:0	Without auxiliary function for DHW heating (only for constant temperature control units)	63:1	Auxiliary function: 1 x daily
		63:2 to 63:14	Every 2 days to every 14 days
		63:15	2 x daily
65:0	Never adjust		

DHW/group "3" (cont.)

Coding in the delivered condition		Possible change	
67:40	For solar DHW heating: set DHW temperature 40 °C. Reheating is suppressed above the selected set temperature (boiler only starts as backup if the rise in the cylinder temperature is too low).	67:0 to 67:95	Set DHW temperature adjustable from 0 to 95 °C (limited by boiler-specific parameters)
6F:...	Max. heating output for DHW heating in %; specified by boiler coding card	6F:0 to 6F:100	Max. heating output for DHW heating adjustable from min. heating output to 100 %
71:0	DHW circulation pump: "ON" according to time program (only for weather-compensated control unit)	71:1	"OFF" during DHW heating to set value 1
		71:2	"ON" during DHW heating to set value 1
72:0	DHW circulation pump: "ON" according to time program (only for weather-compensated control units)	72:1	"OFF" during DHW heating to set value 2
		72:2	"ON" during DHW heating to set value 2
73:0	DHW circulation pump: "ON" according to time program (only for weather-compensated control unit)	73:1 to 73:6	"ON" from once per hour for 5 min up to 6 times per hour for 5 min during the time program
		73:7	Constantly "ON"

Solar/group "4"

Select **"Solar"** for weather-compensated control units (see page 59).
Select **"4"** for constant temperature control units (see page 59).

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

Coding

Coding in the delivered condition		Possible change	
00:8	Start temperature differential for solar circuit pump 8 K.	00:2 to 00:30	Start temperature differential adjustable from 2 to 30 K.
01:4	Stop temperature differential for solar circuit pump 4 K.	01:1 to 01:29	Stop temperature differential adjustable from 1 to 29 K.
02:0	Solar circuit pump is not speed-controlled.	02:1	Solar circuit pump is speed-controlled with wave packet control.
		02:2	Solar circuit pump is speed-controlled with PWM control.
03:10	Temperature differential for the start of the speed control 10 K.	03:5 to 03:20	Temperature differential adjustable from 5 to 20 K.
04:4	Controller amplification of speed control 4 %/K.	04:1 to 04:10	Controller amplification adjustable from 1 to 10 %/K.
05:10	Min. speed of solar circuit pump 10 % of maximum speed.	05:2 to 05:100	Min. speed of the solar circuit pump is adjustable from 2 to 100 %.

Solar/group "4" (cont.)

Coding in the delivered condition		Possible change	
06:75	Max. speed of solar circuit pump 75 % of the maximum possible speed.	06:1 to 06:100	Max. speed of the solar circuit pump is adjustable from 1 to 100 %.
07:0	Interval function of solar circuit pump switched off.	07:1	Interval function of solar circuit pump switched on. To capture the collector temperature more accurately, the solar circuit pump periodically starts for a short duration.
08:60	Set DHW temperature (maximum cylinder temperature) 60 °C.	08:10 to 08:90	Set DHW temperature adjustable from 10 to 90 °C.
09:130	Maximum collector temperature (to protect system components) 130 °C.	09:20 to 09:200	Temperature adjustable from 20 to 200 °C.
0A:5	Temperature differential for stagnation time reduction (reduction in the speed of the solar circuit pump to protect system components and heat transfer medium) 5 K.	0A:0	Stagnation time reduction is disabled.
		0A:1 to 0A:40	Temperature differential adjustable from 1 to 40 K.
0b:0	Frost protection function for solar circuit switched off.	0b:1	Frost protection function for solar circuit switched on (not required with Viessmann heat transfer medium).
0C:1	Delta T monitoring switched on. No flow rate captured in the solar circuit, or flow rate too low.	0C:0	Delta T monitoring switched off.
0d:1	Night-time DHW circulation monitoring switched on. Unintentional flow in the solar circuit is captured (e.g. at night).	0d:0	Night-time DHW circulation monitoring switched off.
0E:1	Heat statement in conjunction with Viessmann heat transfer medium.	0E:2	Never adjust
		0E:0	No heat statement.
0F:70	Solar circuit flow rate at max. pump speed 7 l/min.	0F:1 to 0F:255	Flow rate adjustable from 0.1 to 25.5 l/min. 1 step ≙ 0.1 l/min
10:0	Target temperature control switched off (see coding address "11").	10:1	Target temperature control switched on.
11:50	Set solar DHW temperature 50 °C. ▪ Target temperature control switched on (code "10:1"): Temperature at which the solar heated water is to be stratified into the DHW cylinder. ▪ If code "20:9" (heating of two DHW cylinders) is set: When one DHW cylinder reaches its set DHW temperature, the second DHW cylinder is heated.	11:10 to 11:90	The set solar DHW temperature is adjustable from 10 to 90 °C.
12:10	Minimum collector temperature (minimum start temperature for the solar circuit pump) 20 °C.	12:0	No minimum limit enabled.
		12:1 to 12:90	Minimum collector temperature adjustable from 1 to 90 °C.

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Solar/group "4" (cont.)

Coding in the delivered condition		Possible change	
20:0	No extended control function enabled.	20:1	Auxiliary function for DHW heating
		20:2	Differential temperature control 2
		20:3	Differential temperature control 2 and auxiliary function
		20:4	Differential temperature control 2 for central heating backup
		20:5	Thermostat function
		20:6	Thermostat function and auxiliary function
		20:7	Solar heating via external heat exchanger without additional temperature sensor.
		20:8	Solar heating via external heat exchanger with additional temperature sensor.
		20:9	Solar heating of two DHW cylinders.
22:8	Start temperature differential with central heating backup (code "20:4" must be set) 8 K.	22:2 to 22:30	Start temperature differential adjustable from 2 to 30 K.
23:4	Stop temperature differential with central heating backup (code "20:4" must be set) 4 K.	23:2 to 23:30	Stop temperature differential adjustable from 1 to 29 K.
24:40	Start temperature for thermostat function (code "20:5" or "20:6" must be selected) 40 °C.	24:0 to 24:100	Start temperature for thermostat function adjustable from 0 to 100 K.
25:50	Stop temperature for thermostat function (code "20:5" or "20:6" must be selected) 50 °C.	25:0 to 25:100	Stop temperature for thermostat function adjustable from 0 to 100 K.
26:1	Priority for DHW cylinder 1 **with** cyclical heating. (Code "20:9" must be set).	26:0	Priority for DHW cylinder 1 **without** cyclical heating.
		26:2	Priority for DHW cylinder 2 **without** cyclical heating.
		26:3	Priority for DHW cylinder 2 **with** cyclical heating.
		26:4	Cyclical heating without priority for either DHW cylinder.
27:15	Cyclical heating time 15 min. Once the DHW cylinder with priority is heated up, the DHW cylinder without priority is heated for a maximum duration equal to the set cyclical heating time.	27:5 to 27:60	The cyclical heating time is adjustable from 5 to 60 min.
28:3	Cyclical pause time 3 min. After the set cyclical heating time for the DHW cylinder without priority has expired, the rise in collector temperature is captured during the cyclical pause time.	28:1 to 28:60	Cyclical pause time is adjustable from 1 to 60 min.

Heating circuit 1, heating circuit 2, heating circuit 3/group "5"

Select **"Heating circuit ..."** for weather-compensated control units (see page 59).

Select **"5"** for constant temperature control units (see page 59).

Coding

Coding in the delivered condition		Possible change	
A0:0	Without remote control	A0:1	With Vitotrol 200-A/200-RF (automatic recognition)
		A0:2	With Vitotrol 300-A or Vitocomfort 200 (automatic recognition)
A1:0	All possible settings at the remote control can be accessed	A1:1	Only party mode can be set at the remote control (only for Vitotrol 200-A/200-RF)
A2:2	Cylinder priority applicable to heating circuit pump and mixer	A2:0	Without cylinder priority applicable to heating circuit pump and mixer
		A2:1	Cylinder priority only applicable to mixer
		A2:3 to A2:15	Reduced priority applicable to mixer (the heating circuit receives a reduced amount of energy)
A3:2	Outside temperature below 1 °C: Heating circuit pump "ON" Outside temperature above 3 °C: Heating circuit pump "OFF"	A3:-9 to A3:15	Heating circuit pump "ON/OFF" (see the following table)

! **Please note**
When selecting a value below 1 °C, there is a risk of pipes outside the thermal envelope of the building freezing up.
Standby mode in particular should be taken into consideration, e.g. during holidays.

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

Coding in the delivered condition		Possible change	
A4:0	With frost protection (only for weather-compensated control units).	A4:1	No frost protection; this setting is only possible if code "A3:-9" has been selected.

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

Coding in the delivered condition		Possible change	
			Note *"Important", observe for code "A3".*
A5:5	With heating circuit pump logic function (economy control): Heating circuit pump "OFF" if outside temperature (OT) is 1 K higher than the set room temperature (RT_{set}) OT > RT_{set} + 1 K (only for weather-compensated control units)	A5:0	Without heating circuit pump logic function
		A5:1 to A5:15	With heating circuit pump logic function: heating circuit pump "OFF" (see the following table)

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

Coding in the delivered condition		Possible change	
A6:36	Extended economy control **disabled** (only for weather-compensated control units)	A6:5 to A6:35	Extended economy control active, i.e. the burner and heating circuit pump will stop and the mixer close at a variable value, adjustable between 5 and 35 °C plus 1 °C. The basis for this is the adjusted outside temperature. This is composed of the actual outside temperature and a time constant that takes account of the way an average building cools down.
A7:0	Without mixer economy function (only for weather-compensated control units and heating circuits with mixer)	A7:1	With mixer economy function (extended heating circuit pump logic): Heating circuit pump also "OFF": ▪ If the mixer has been attempting to close for longer than 20 min. Heating circuit pump "ON": ▪ If the mixer changes to control function ▪ If there is a risk of frost
A8:1	Heating circuit with mixer creates a demand for the boiler circuit pump (only for weather-compensated control units)	A8:0	Heating circuit with mixer creates no demand for the boiler circuit pump.

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

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

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

Coding in the delivered condition		Possible change	
C5:20	Electronic minimum flow temperature limit 20 °C (only for weather-compensated control units)	C5:1 to C5:127	Minimum limit adjustable from 1 to 127 °C (limited by boiler-specific parameters)
C6:74	Electronic maximum flow temperature limit 74 °C (only for weather-compensated control units)	C6:10 to C6:127	Maximum limit adjustable from 10 to 127 °C (limited by boiler-specific parameters)
d3:14	Heating curve slope = 1.4	d3:2 to d3:35	The heating curve slope is adjustable from 0.2 to 3.5 (see page 45)

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

Coding in the delivered condition		Possible change	
d4:0	Heating curve level = 0	d4:–13 to d4:40	The heating curve level is adjustable from –13 to 40 (see page 45)
d5:0	The external operating program changeover switches the operating program to "Constant operation with reduced room temperature" or "standby mode" (only for weather-compensated control units)	d5:1	The external operating program changeover switches to "Continuous operation at standard room temperature" (subject to coding addresses 3A, 3b and 3C).
d6:0	Heating circuit pump stays in control mode at "External blocking" signal.	d6:1	Heating circuit pump is switched off at "External blocking" signal (subject to coding addresses 3A, 3b and 3C).
		d6:2	Heating circuit pump is switched on at "External blocking" signal (subject to coding addresses 3A, 3b and 3C).
d7:0	Heating circuit pump stays in control mode at "External demand" signal.	d7:1	Heating circuit pump is switched off at "External demand" signal (subject to coding addresses 3A, 3b and 3C).
		d7:2	Heating circuit pump is switched on at "External demand" signal (subject to coding addresses 3A, 3b and 3C).
d8:0	No operating program changeover via EA1 extension	d8:1	Operating program changeover via input DE1 at EA1 extension
		d8:2	Operating program changeover via input DE2 at EA1 extension
		d8:3	Operating program changeover via input DE3 at EA1 extension
E1:1	Never adjust.		
E2:50	With remote control: no display correction for the actual room temperature (only for weather-compensated control units)	E2:0 to E2:49	Display correction –5 K to Display correction –0.1 K
		E2:51 to E2:99	Display correction +0.1 K to Display correction +4.9 K
E5:0	Never adjust.		
E6:...	Maximum speed of the variable speed heating circuit pump in % of the max. speed in standard mode. Value is specified by boiler-specific parameters (only for weather-compensated control units).	E6:0 to E6:100	Maximum speed adjustable from 0 to 100 %
E7:30	Minimum speed of the variable speed heating circuit pump: 30 % of the max. speed (only for weather-compensated control units)	E7:0 to E7:100	Minimum speed adjustable from 0 to 100 % of maximum speed
F1:0	Screed drying disabled (only for weather-compensated control units).	F1:1 to F1:6	Screed drying adjustable, with choice of 6 temperature/time profiles (see page 105)
		F1:15	Constant flow temperature 20 °C

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

Coding in the delivered condition		Possible change	
F2:8	Time limit for party mode or external operating program changeover via pushbutton: 8 h (only for weather-compensated control units)[*1]	F2:0	No time limit for party mode[*1]
		F2:1 to F2:12	Time limit adjustable from 1 to 12 h[*1]
F5:12	Run-on time of the boiler circuit pump in heating mode: 12 min (only for constant temperature control units)	F5:0	No boiler circuit pump run-on time
		F5:1 to F5:20	Boiler circuit pump run-on time adjustable from 1 to 20 min
F6:25	In "Only DHW" mode, the boiler circuit pump is constantly on (only for constant temperature control units)	F6:0	In "Only DHW" mode, the boiler circuit pump is constantly off
		F6:1 to F6:24	In "Only DHW" mode, the boiler circuit pump is started 1 to 24 times per day for 10 min each time.
F7:25	In "standby mode", the boiler circuit pump is constantly on (only for constant temperature control units)	F7:0	In "standby mode", the boiler circuit pump is constantly off
		F7:1 to F7:24	In "standby mode", the boiler circuit pump is started 1 to 24 times per day for 10 min each time.
F8:-5	Temperature limit for terminating reduced mode -5 ºC, see example on page 107. Observe setting for coding address "A3". (Only for weather-compensated control units)	F8:+10 to F8:-60	Temperature limit adjustable from +10 to -60 ºC
		F8:-61	Function disabled
F9:-14	Temperature limit for raising reduced set room temperature -14 ºC; see example on page 107 (only for weather-compensated control units).	F9:+10 to F9:-60	Temperature limit for raising the set room temperature to the value selected for standard mode adjustable from +10 to -60 ºC
FA:20	The set boiler water or flow temperature is raised by 20 % when changing from operation with reduced room temperature to operation with standard room temperature. See example on page 107 (only for weather-compensated control units).	FA:0 to FA:50	Temperature rise adjustable from 0 to 50 %
Fb:60	Duration for raising the set boiler water temperature or set flow temperature (see coding address "FA") is 60 min. See example on page 107 (only for weather-compensated control units).	Fb:0 to Fb:240	Duration adjustable from 0 to 240 min

[*1] *In the "Heating and DHW" program, party mode ends **automatically** when the system changes over to operation at standard room temperature.*

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Service level

Weather-compensated control unit

Calling up the service menu:

1. Press **OK** and ☰ simultaneously for approx. 4 s.
2. Select required menu. See following diagram.

To exit the service level:

1. Select **"Terminate service?"**.
2. Select **"Yes"**.
3. Confirm with **OK**.

Note
The system exits the service level automatically after 30 min.

Constant temperature control unit

Calling up the service level:

1. Press **OK** and ☰ simultaneously for approx. 4 s.
   "🔧" flashes on the display.
2. Select required function. See following pages.

Leaving the service level

1. Select **"Serv"** ⑦ with ▸.
2. Confirm with **OK**.
   "OFF" flashes.
3. Confirm with **OK**.

Note
The system exits the service level automatically after 30 min.

Overview of service menu for weather-compensated mode

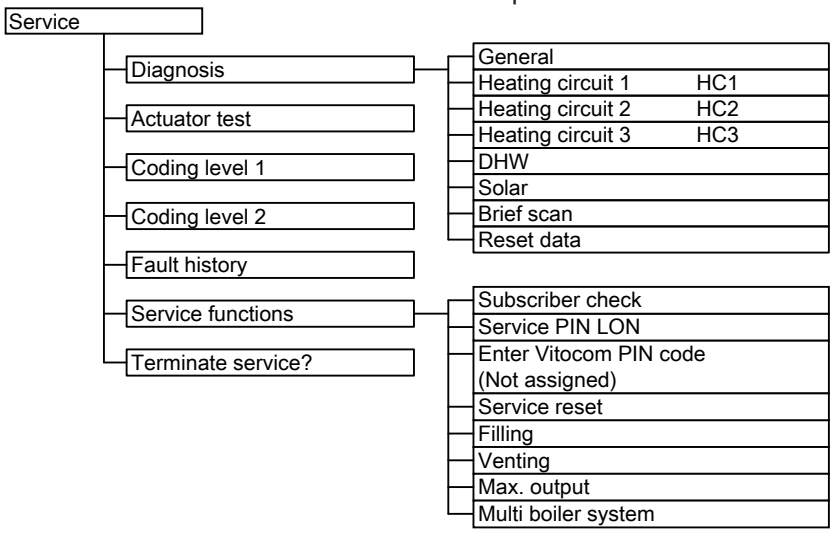

Fig. 38

Note
*Do **not** adjust menu item **"Multi-boiler system"**.*
The menu item turns a weather-compensated control unit into a constant temperature control unit.

Diagnosis

Operating data

Weather-compensated control unit

Checking operating data

- Operating data can be called up in 6 areas. See **"Diagnosis"** in the service menu overview.
- Operating data on heating circuits with mixer and solar can only be called up if the components are installed in the system.
- For further information on operating data, see chapter "Brief scan".

Calling up operating data

1. Press **OK** and ☰ simultaneously for approx. 4 s.
2. **"Diagnosis"**
3. Select the required group, e.g. **"General"**.

   Note
   *If a called up sensor is faulty, **"- - -"** appears on the display.*

Resetting operating data

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

1. Press **OK** and ☰ simultaneously for approx. 4 s.
2. **"Diagnosis"**
3. **"Reset data"**
4. Select required value (e.g. **"Burner starts"**) or **"All details"**.

Constant temperature control unit

Checking operating data

- Operating data can be called up in the **"i"** menu.
- For further information on operating data, see chapter "Brief scan".

Calling up operating data

1. Press **OK** and ☰ simultaneously for approx. 4 s.
2. Select the required information with ▲/▼.

   Note
   *If a called up sensor is faulty, **"- - -"** appears on the display.*

Resetting operating data

Saved operating data (e.g. hours run) can be reset to **"0"**.

1. Press **OK** and ☰ simultaneously for approx. 4 s.
2. Select the required information with ▲/▼.
3. Confirm with **OK**, **"⊣⊢"** flashes.
4. Confirm with **OK**, the value is reset.

Brief scan

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

Weather-compensated control unit

1. Press **OK** and ☰ simultaneously for approx. 4 s.
2. **"Diagnosis"**
3. **"Brief scan"**.
4. Press **OK**.
   The display shows 9 rows with 6 fields each.

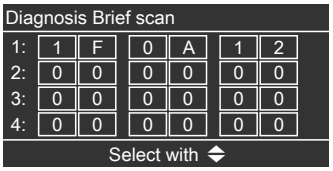

Fig. 39

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Diagnosis (cont.)

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

Row (brief scan)	Field					
	1	**2**	**3**	**4**	**5**	**6**
1:	System scheme 01 to 10		Software version Control unit		Software version Programming unit	
2:	0	0	Appliance version		Appliance ID CU-ID	
3:	0		Number of KM-BUS subscribers		Software version, solar control module SM1	
4:	Software version Burner control unit		Type Burner control unit		Version, burner control unit	
5:	Internal details for calibration			0	Software version, AM1 extension	Software version, EA1 extension
6:	0	0	0	Switching state, flow sensor 1: flow rate too low or no flow	0	0
7:	LON Subnet address/system number		LON Node address		0	
8:	LON SBVT configuration	LON Software version, communication coprocessor	LON Neuron chip software version		Number of LON subscribers	
9:	**Heating circuit A1 (without mixer)**		**Heating circuit M2 (with mixer)**		**Heating circuit M3 (with mixer)**	
	Remote control 0: without 1: Vitotrol 200/ 200-A/ 200-RF 2: Vitotrol 300/ 300-A or Vitohome	Software version, remote control	Remote control 0: without 1: Vitotrol 200/ 200-A/ 200-RF 2: Vitotrol 300/ 300-A or Vitohome	Software version, remote control	Remote control 0: without 1: Vitotrol 200/ 200-A/ 200-RF 2: Vitotrol 300/ 300-A or Vitohome	Software version, remote control

Diagnosis (cont.)

Row (brief scan)	Field					
	1	2	3	4	5	6
10: (Only for KM-BUS circulation pumps)	**Internal circulation pump**		**Heating circuit pump, heating circuit M2**		**Heating circuit pump, heating circuit M3**	
	Variable speed pump 0: without 1: Wilo 2: Grundfos	Software version, variable speed pump 0: no variable speed pump	Variable speed pump 0: without 1: Wilo 2: Grundfos	Software version Variable speed pump 0: no variable speed pump	Variable speed pump 0: without 1: Wilo 2: Grundfos	Software version Variable speed pump 0: no variable speed pump
11:	0	0	Software version Mixer extension, heating circuit M2 0: no mixer extension	0	Software version Mixer extension, heating circuit M3 0: no mixer extension	0

Constant temperature control unit

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

For explanations of individual scans, see the following table:

Brief scan	Display				
0	0	0	0	0	0
0		System scheme 1 to 2	Software version Control unit		Software version Programming unit
1			Adjusted outside temperature		
3			Set boiler water temperature		
4			Common demand temperature		
5			Set cylinder temperature		
6		Number of KM-BUS subscribers		Number of LON subscribers	
7	SNVT configuration 0: auto 1: Tool	Software version Communication coprocessor		Software version LON communication module	
8		Subnet address/system number		Node address	
9		Burner control unit type		Appliance type	
A	Diverter valve status 0: not installed 1: heating 2: central position 3: DHW heating	Flow rate 1: flow rate too low or no flow	Max. heating output in %		
b		Boiler coding card (hexadecimal)			
c		Flow rate (specified in l/h)			
C		Version Appliance		Version Burner control unit	

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Diagnosis (cont.)

Brief scan	Display				
8	8	8	8	8	8
d				0	0
E ①	Software version Solar control module, type SM1	Software version Burner control unit			Software version Cascade module
F ①	Code 53 setting	Internal details for calibration			
	AM1 extension				
F ②	Software version	Output A1 configuration (value corresponds to code 33 setting)	Output A1 switching state 0: OFF 1: ON	Output A2 configuration (value corresponds to code 34 setting)	Output A2 switching state 0: OFF 1: ON
	EA1 extension				
F ③	Output 157 configuration (Value corresponds to setting of code 36 in group 1 **"General"**)	Output 157 switching state 0: OFF 1: ON	Input DE1 switching state 0: open 1: closed	Input DE2 switching state 0: open 1: closed	Input DE3 switching state 0: open 1: closed
F ④	Software version		External hook-up 0 - 10 V Display in %		
	Solar control module SM1				
F ⑤	Stagnation time of the solar thermal system in h				
F ⑥	Night-time DHW circulation, solar thermal system (number)				
F ⑦	Differential temperature monitoring				
F ⑧				Solar central heating backup 0: disabled 1: enabled	Output 22 switching state 0: OFF 1: ON
	OpenTherm extension (if installed)				
F ⑨	Software version	DHW heating status	External hook-up 0 - 10 V Display in %		

Checking outputs (relay test)

Weather-compensated control unit

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

Checking outputs (relay test) (cont.)

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

Display		Explanation
All actuators	Off	All actuators are off
Base load	On	Burner operated at minimum output; circulation pump is started
Full load	On	Burner operated at maximum output; circulation pump is started
Output, internal	On	Output [20] active (boiler circuit pump)
Output 21/28	On	Output [21] active (circulation pump for cylinder heating)
Heating circ pump HC2	On	Heating circuit pump output enabled (extension to heating circuit with mixer)
Mixer HC2	Open	"Mixer open" output enabled (extension to heating circuit with mixer)
Mixer HC2	Close	"Mixer close" output enabled (extension to heating circuit with mixer)
Heating circ pump HC3	On	Heating circuit pump output enabled (extension to heating circuit with mixer)
Mixer HC3	Open	"Mixer open" output enabled (extension to heating circuit with mixer)
Mixer HC3	Close	"Mixer close" output enabled (extension to heating circuit with mixer)
Outp. int. exten. H1	On	Output at internal extension enabled
AM1 output 1	On	Output A1 at extension AM1 enabled
AM1 output 2	On	Output A2 at extension AM1 enabled
EA1 output 1	On	Contact P - S at plug [157] of extension EA1 closed
Solar circuit pump	On	Solar circuit pump output [24] on solar control module SM1 active
Solar circ pmp min	On	Solar circuit pump output on solar control module SM1 switched to minimum speed
Solar circ pmp max	On	Solar circuit pump output on solar control module SM1 switched to maximum speed
SM1 output 22	On	Output [22] on solar control module SM1 active

Constant temperature control unit

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

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

Display	Explanation
0	All actuators are off
1	Burner operated at minimum output; circulation pump is started
2	Burner operated at maximum output; circulation pump is started
3	Output [20] active (boiler circuit pump)
10	Internal extension output enabled
15	Solar circuit pump output [24] on solar control module SM1 active
16	Solar circuit pump output on solar control module SM1 switched to minimum speed
17	Solar circuit pump output on solar control module SM1 switched to maximum speed
18	Output [22] on solar control module SM1 active
19	Contact P - S at plug [157] of extension EA1 closed
20	Output A1 at extension AM1 enabled
21	Output A2 at extension AM1 enabled
22	Output [21] active (circulation pump for cylinder heating)

Fault display

Weather-compensated control unit

In the event of a fault, red fault indicator Ⓐ flashes.
"⚠" flashes on the display and **"Fault"** is shown.

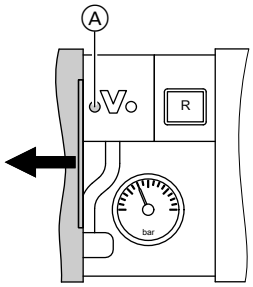

Fig. 40

Press **OK** to display the fault code.
For an explanation of the fault code, see the following pages.
For some faults, the type of fault is also displayed in plain text.

Acknowledging a fault

Follow the instructions on the display.

Note
- *The fault message is transferred to the standard menu.*
- *Any fault message facility connected will be switched off.*
- *If an acknowledged fault is not remedied, the fault message will be redisplayed the following day and the fault message facility restarted.*

Calling up acknowledged faults

Select **"Fault"** in the standard menu. Current faults will be listed.

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

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

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

Deleting the fault history

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

Constant temperature control unit

In the event of a fault, red fault indicator Ⓐ flashes.
The 2-digit fault code and (subject to the type of fault) **"⚠"** or **"⇧"** flash on the programming unit display.

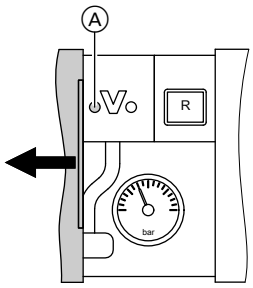

Fig. 41

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

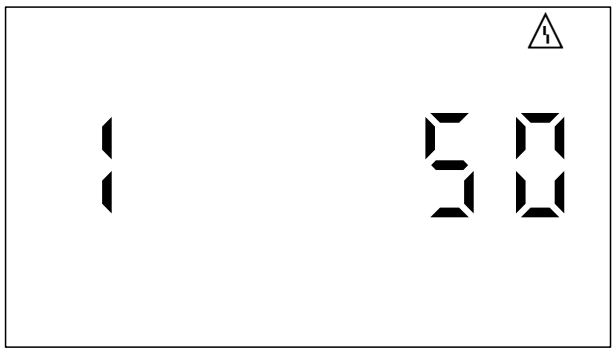

Fig. 42 Example: Fault message "50"

Acknowledging a fault

Press **OK**. The default display reappears on the display screen.
Any fault message facility connected will be switched off.

Fault display (cont.)

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

Calling up acknowledged faults

Hold down **OK** for approx. 4 s.
The 10 most recent faults (including those remedied) are saved and can be called up.

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

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

Faults are sorted by date.

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

Deleting the fault history

While the list is displayed, press **OK** until ⫞ flashes. Confirm with **OK**.

Fault codes

Fault code displayed	Const.	Weather-comp.	System characteristics	Cause	Measures
10	X	X	Regulates as if the outside temperature were 0 °C.	Short circuit, outside temperature sensor	Check outside temperature sensor (see page 90)
18	X	X	Regulates as if the outside temperature were 0 °C.	Lead break, outside temperature sensor	Check outside temperature sensor (see page 90)
19	X	X	Regulates as if the outside temperature were 0 °C.	Communication interruption, outside temperature sensor RF (outside temperature sensor RF, KM-BUS to wireless base station, wireless base station or wireless repeater faulty or defective)	Check wireless connection (place outside temperature sensor RF and wireless repeater close to the boiler). Check KM-BUS to wireless base station. Log off outside temperature sensor and wireless repeater, then log them on again. Wireless base station Replace outside temperature sensor RF. Replace wireless repeater. Replace wireless base station.
1A	X	X	Burner blocked	Flow sensor 1, left (plug 163) faulty	Replace sensor (see page 93)
1b	X	X	Burner blocked	Flow sensor 2, right (plug 163A) faulty	Replace sensor (see page 93)
1F	X	X	Burner blocked	Differential flow rate too large	Clean heat exchanger by flushing.

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Fault codes (cont.)

Fault code displayed	Const.	Weather-comp.	System characteristics	Cause	Measures
20	X	X	Regulates without flow temperature sensor (low loss header)	Short circuit, system flow temperature sensor	Check low loss header sensor (see page 91)
28	X	X	Regulates without flow temperature sensor (low loss header)	Lead break, system flow temperature sensor	Check low loss header sensor (see page 91) If no low loss header sensor is connected, set code 52:0.
30	X	X	Burner blocked	Short circuit, boiler water temperature sensor	Check boiler water temperature sensors (see page 91)
38	X	X	Burner blocked	Lead break, boiler water temperature sensor	Check boiler water temperature sensors (see page 91)
40		X	Mixer is being closed.	Short circuit, flow temperature sensor, heating circuit 2 (with mixer)	Check flow temperature sensor (see page 96)
44		X	Mixer is being closed.	Short circuit, flow temperature sensor, heating circuit 3 (with mixer)	Check flow temperature sensor (see page 96)
48		X	Mixer is being closed.	Lead break, flow temperature sensor, heating circuit 2 (with mixer)	Check flow temperature sensor (see page 96)
4C		X	Mixer is being closed.	Lead break, flow temperature sensor, heating circuit 3 (with mixer)	Check flow temperature sensor (see page 96)
50	X	X	No DHW heating by the boiler	Short circuit, cylinder temperature sensor	Check cylinder temperature sensor (see page 91)
58	X	X	No DHW heating	No DHW heating by the boiler	Check cylinder temperature sensor (see page 91)
90	X	X	Control mode	Short circuit, temperature sensor [7]	Check sensor [7] on solar control module.
91	X	X	Control mode	Short circuit, temperature sensor [10]	Check sensor [10] on solar control module.
92	X	X	No solar DHW heating	Short circuit, collector temperature sensor	Check temperature sensor [6] on solar control module or sensor on the Vitosolic.
93	X	X	Control mode	Short circuit, collector return temperature sensor	Check temperature sensor at terminal S3 on the Vitosolic.
94	X	X	No solar DHW heating	Short circuit, cylinder temperature sensor	Check temperature sensor [5] on solar control module or sensor on the Vitosolic.
98	X	X	Control mode	Lead break, temperature sensor [7]	Check sensor [7] on solar control module.

Fault codes (cont.)

Fault code displayed	Const.	Weather-comp.	System characteristics	Cause	Measures
99	X	X	Control mode	Lead break, temperature sensor [10]	Check sensor [10] on solar control module.
9A	X	X	No solar DHW heating	Lead break, collector temperature sensor	Check temperature sensor [6] on solar control module or sensor on the Vitosolic.
9b	X	X	Control mode	Lead break, collector return temperature sensor	Check temperature sensor at terminal S3 on the Vitosolic.
9C	X	X	No solar DHW heating	Lead break, cylinder temperature sensor	Check temperature sensor [5] on solar control module or sensor on the Vitosolic.
9E	X	X	Control mode	No flow rate in solar circuit or flow rate too low, or temperature limiter has responded.	Check solar circuit pump and solar circuit. Acknowledge fault message.
9F	X	X	Control mode	Solar control module or Vitosolic fault	Replace solar control module or Vitosolic.
A3		X	Burner blocked.	Flue gas temperature sensor incorrectly positioned.	Fit flue gas temperature sensor correctly (see page 93).
A4		X	Control mode	Max. system pressure exceeded	Check system pressure (max. system pressure 6 bar). Check the function and sizing of the diaphragm expansion vessel. Vent the heating system.
A7		X	Control mode as per delivered condition	Programming unit faulty	Replace the programming unit.
b0	X	X	Burner blocked	Short circuit, flue gas temperature sensor	Check flue gas temperature sensor.
b1	X	X	Control mode as per delivered condition	Communication error, programming unit	Check connections; replace programming unit if necessary.
b5	X	X	Control mode as per delivered condition	Internal fault	Replace control unit.
b7	X	X	Burner blocked	Boiler coding card fault	Plug in boiler coding card or replace if faulty.
b8	X	X	Burner blocked	Lead break, flue gas temperature sensor	Check flue gas temperature sensor.
bA		X	Mixer regulates to 20 °C flow temperature.	Communication error, extension kit for heating circuit 2 (with mixer)	Check extension kit connections and code.
bb		X	Mixer regulates to 20 °C flow temperature.	Communication error, extension kit for heating circuit 3 (with mixer)	Check extension kit connections and code.

Fault codes (cont.)

Fault code displayed	Const.	Weather-comp.	System characteristics	Cause	Measures
bC		X	Control mode without remote control	Communication error, Vitotrol remote control, heating circuit 1 (without mixer)	Check connections, cable, coding address "A0" in **"Heating circuit"** group and remote control DIP switches (see page 108). With wireless remote controls: check radio path connections; place remote control and wireless repeater close to the boiler. Check KM-BUS connection to wireless base station. Replace the wireless components.
bd		X	Control mode without remote control	Communication error, Vitotrol remote control, heating circuit 2 (with mixer)	Check connections, cable, coding address "A0" in the **"Heating circuit"** group and remote control settings (see page 108). With wireless remote controls: check radio path connections; place remote control and wireless repeater close to the boiler. Check KM-BUS connection to wireless base station. Replace the wireless components.
bE		X	Control mode without remote control	Communication error, Vitotrol remote control, heating circuit 3 (with mixer)	Check connections, cable, coding address "A0" in the **"Heating circuit"** group and remote control settings (see page 108). With wireless remote controls: check radio path connections; place remote control and wireless repeater close to the boiler. Check KM-BUS connection to wireless base station. Replace the wireless components.
bF		X	Control mode	Incorrect LON communication module	Replace LON communication module.
C1	X	X	Control mode	Communication error, EA1 extension	Check connections.
C2	X	X	Control mode	Communication error, solar control module or Vitosolic	Check solar control module or Vitosolic.
C3	X	X	Control mode	Communication error, AM1 extension	Check connections.

Fault codes (cont.)

Fault code displayed	Const.	Weather-comp.	System characteristics	Cause	Measures
C4	X	X	Control mode	Communication error, OpenTherm extension	Check OpenTherm extension.
C5	X	X	Control mode, max. pump speed	Communication error, variable speed pump	Check pump KM-BUS.
Cd	X	X	Control mode	Communication error, Vitocom 100 (KM-BUS)	Check connections, Vitocom 100 and coding address "95" in group **"General"/1**
CF		X	Control mode	Communication error, LON communication module	Replace LON communication module.
d6	X	X	Control mode	Input DE1 at EA1 extension reports a fault.	Remedy fault at appliance concerned.
d7	X	X	Control mode	Input DE2 at EA1 extension reports a fault.	Remedy fault at appliance concerned.
d8	X	X	Control mode	Input DE3 at EA1 extension reports a fault.	Remedy fault at appliance concerned.
dA		X	Control mode without room influence	Short circuit, room temperature sensor, heating circuit 1 (without mixer)	Check room temperature sensor, heating circuit 1.
db		X	Control mode without room influence	Short circuit, room temperature sensor, heating circuit 2 (with mixer)	Check room temperature sensor, heating circuit 2.
dC		X	Control mode without room influence	Short circuit, room temperature sensor, heating circuit 3 (with mixer)	Check room temperature sensor, heating circuit 3.
dd		X	Control mode without room influence	Lead break, room temperature sensor, heating circuit 1 (without mixer)	Check room temperature sensor, heating circuit 1 and remote control settings (see page 97)
dE		X	Control mode without room influence	Lead break, room temperature sensor, heating circuit 2 (with mixer)	Check room temperature sensor, heating circuit 2 and remote control settings (see page 97)
dF		X	Control mode without room influence	Lead break, room temperature sensor, heating circuit 3 (with mixer)	Check room temperature sensor, heating circuit 3 and remote control settings (see page 97)
E0		X	Control mode	External LON subscriber error	Check connections and LON subscribers.

Fault codes (cont.)

Fault code displayed	Const.	Weather-comp.	System characteristics	Cause	Measures
E1	X	X	Burner in a fault state	Ionisation current too high during calibration	Check gap between ionisation electrode and burner gauze assembly (see page 41). In open flue operation, prevent high levels of dust in the combustion air. Press reset button **R**.
E2	X	X	Burner in a fault state	Heating water flow rate too low during calibration. Flow switch caused shutdown.	Ensure adequate circulation volume. Check flow switch. Remove scaling and blockages. Press reset button **R**.
E3	X	X	Burner in a fault state	Heat transfer too low during calibration. Temperature limiter caused shutdown.	Ensure adequate heat transfer. Press reset button **R**.
E4	X	X	Burner blocked	Fault, supply voltage 24 V	Replace control unit.
E5	X	X	Burner blocked	Flame amplifier fault	Replace control unit.
E7	X	X	Burner in a fault state	Ionisation current too low during calibration	Check ionisation electrode: ▪ Distance to burner gauze assembly (see page 41) ▪ Electrode contaminated ▪ Connecting cable and plug-in connections Check flue system; remove flue gas recirculation if required. Press reset button **R**.
E8	X	X	Burner in a fault state	Ionisation current lies outside the permissible range	Check gas supply (gas pressure and gas flow switch), gas train and connecting cable. Check assignment of gas type (see page 35). Check ionisation electrode: ▪ Distance to burner gauze assembly (see page 41) ▪ Electrode contaminated Press reset button **R**.

Fault codes (cont.)

Fault code displayed	Const.	Weather-comp.	System characteristics	Cause	Measures
EA	X	X	Burner in a fault state	Ionisation current not within permissible range during calibration (excessive deviation from previous level)	Check flue system; remove flue gas recirculation if required. In open flue operation, prevent high levels of dust in the combustion air. Press reset button **R**. Following several unsuccessful reset attempts, replace the boiler coding card and press reset button **R**.
Eb	X	X	Burner in a fault state	Repeated flame loss during calibration	Check gap between ionisation electrode and burner gauze assembly (see page 41). Check assignment of gas type (see page 35). Check flue system; remove flue gas recirculation if required. Press reset button **R**.
EC	X	X	Burner in a fault state	Parameter error during calibration	Press reset button **R**. or Replace boiler coding card and press reset button **R**.
Ed	X	X	Burner in a fault state	Internal fault	Replace control unit.
EE	X	X	Burner in a fault state	Flame signal at burner start not present or insufficient.	Check gas supply (gas pressure and gas flow switch). Check gas train. Check ionisation electrode and connecting cable. Check ignition: ▪ Connecting cables to ignition module and ignition electrode ▪ Ignition electrode gap and contamination (see page 41). Check condensate drain. Press reset button **R**.

Fault codes (cont.)

Fault code displayed	Const.	Weather-comp.	System characteristics	Cause	Measures
EF	X	X	Burner in a fault state	Flame is lost immediately after it has built (during safety time).	Check gas supply (gas pressure and gas flow switch). Check balanced flue system for flue gas recirculation. Check ionisation electrode (replace if required): ▪ Distance to burner gauze assembly (see page 41) ▪ Electrode contaminated Press reset button **R**.
F0	X	X	Burner blocked	Internal fault	Replace control unit.
F1	X	X	Burner in a fault state	Flue gas temperature has exceeded limit.	Check heating system fill level. Vent the system. Press reset button **R** after flue system has cooled down.
F2	X	X	Burner in a fault state	Temperature limiter has responded.	Check heating system fill level. Check circulation pump. Vent the system. Check temperature limiter and connecting cables. Press reset button **R**.
F3	X	X	Burner in a fault state	Flame signal is already present at burner start.	Check ionisation electrode and connecting cable. Press reset button **R**.
F6	X	X	Burner in a fault state	Temperature values of the boiler water temperature sensors vary too widely from one another.	Replace boiler water temperature sensors.
F8	X	X	Burner in a fault state	Fuel valve closes too late.	Check gas train. Check both control paths. Press reset button **R**.
F9	X	X	Burner in a fault state	Fan speed too low during burner start	Check the fan, fan connecting cables, fan power supply and fan control. Press reset button **R**.
FA	X	X	Burner in a fault state	Fan idle state not reached	Check the fan, fan connecting cables and fan control. Press reset button **R**.
FC	X	X	Burner in a fault state	Gas train faulty, modulation valve control faulty or flue gas path blocked	Check gas train. Check flue system. Press reset button **R**.

Fault codes (cont.)

Fault code displayed	Const.	Weather-comp.	System characteristics	Cause	Measures
Fd	X	X	Burner in a fault state and additional fault b7 is displayed.	Boiler coding card missing	Insert the boiler coding card. Press reset button **R**. Replace control unit if fault persists.
Fd	X	X	Burner in a fault state	Burner control unit fault	Check ignition electrodes and connecting cables. Check whether a strong interference (EMC) field exists near the appliance. Press reset button **R**. Replace control unit if fault persists.
FE	X	X	Burner blocked or in a fault state	Boiler coding card or main PCB faulty, or incorrect boiler coding card	Press reset button **R**. If the fault persists, check the boiler coding card and replace boiler coding card or control unit if necessary.
FF	X	X	Burner blocked or in a fault state	Internal fault or reset button **R** blocked.	Restart the appliance. Replace the control unit if the appliance will not restart.

Maintenance

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

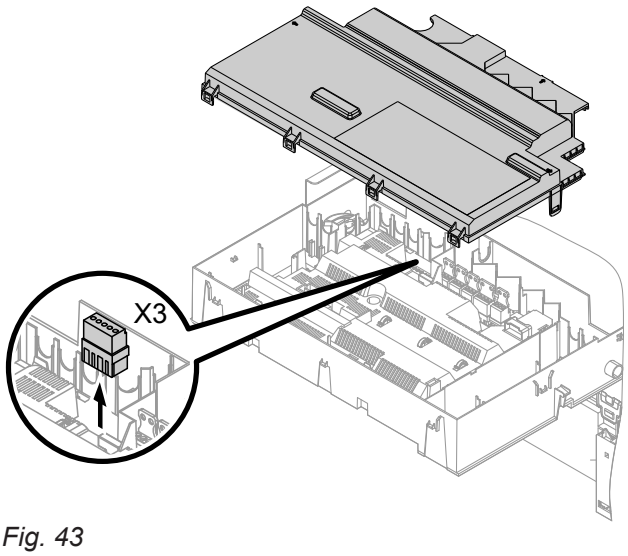

Fig. 43

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Maintenance (cont.)

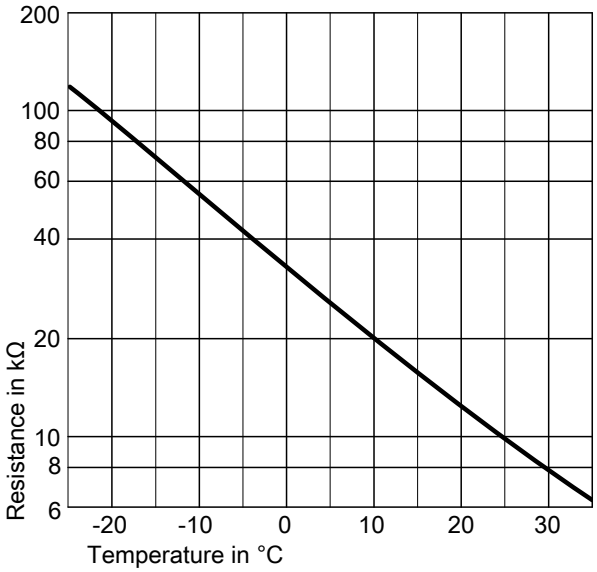

Fig. 44 Sensor type: NTC 10 kΩ

1. Disconnect plug "X3" from the control unit.
2. Test the resistance of the outside temperature sensor across terminals "X3.1" and "X3.2" on the disconnected plug and compare it with the curve.
3. In the event of severe deviation from the curve, disconnect the wires at the sensor and repeat the test on the sensor itself.
4. Depending on the result, replace the lead or the outside temperature sensor.

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

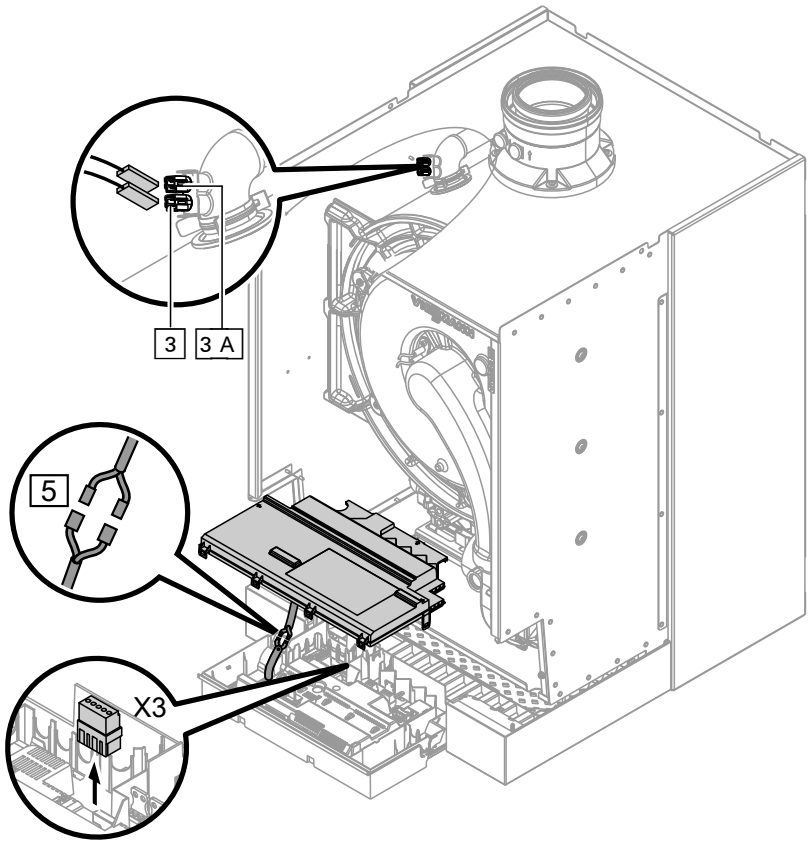

Fig. 45

Maintenance (cont.)

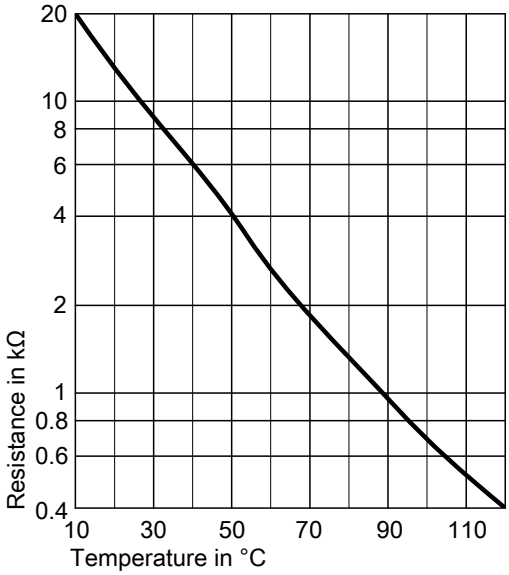

Fig. 46 Sensor type: NTC 10 kΩ

1. ▪ **Boiler water temperature sensors**
   Remove lead to boiler water temperature sensor [3] or [3]A and check the resistance.
   ▪ **Cylinder temperature sensor**
   Pull plug [5] from the cable harness at the control unit and check resistance.
   ▪ **Flow temperature sensor**
   Disconnect plug "X3" at the control unit and check the resistance across terminals "X3.4" and "X3.5".

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

3. In the event of severe deviation replace the sensor.

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

Maintenance (cont.)

Replacing the flow sensor

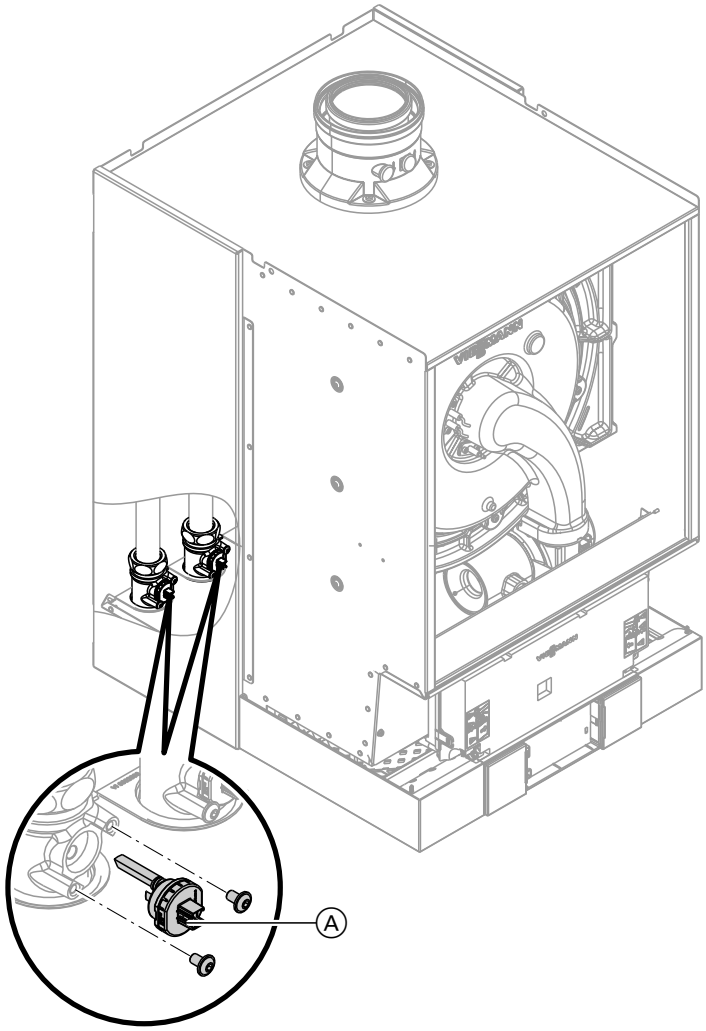

Fig. 47

Note
In the event of a fault, replace both sensors.

1. Drain the boiler on the heating water side.
2. Pull leads from flow sensor Ⓐ.
3. Undo screws and remove faulty flow sensor Ⓐ.
4. Install new flow sensor Ⓐ and secure with the screws.

Checking the flue gas temperature sensor

The flue gas temperature sensor locks out the boiler if the permissible flue gas temperature is exceeded. After the flue system has cooled down, press reset button **R** to cancel the lock.

Maintenance (cont.)

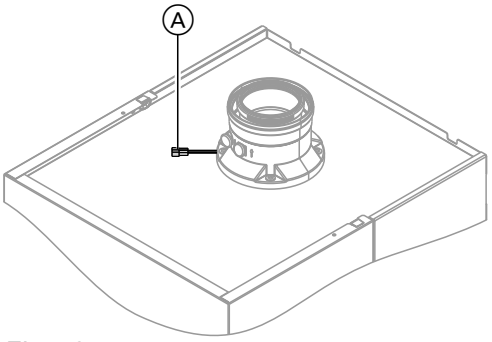

Fig. 48

1. Disconnect leads from flue gas temperature sensor Ⓐ.

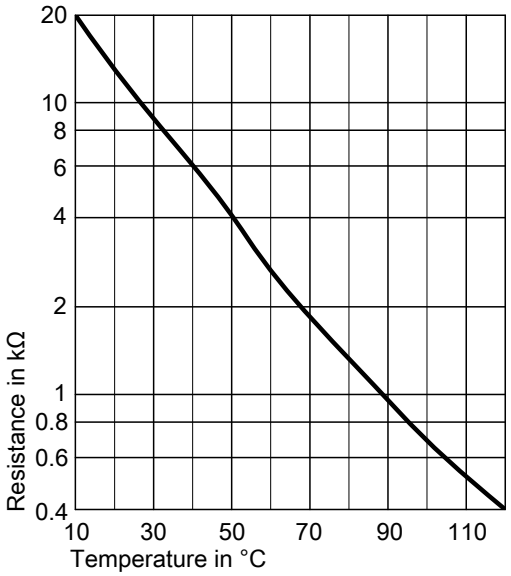

Fig. 49 Sensor type: NTC 10 kΩ

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

3. In the event of severe deviation replace the sensor.

Fault during commissioning (fault A3)

During commissioning, the control unit checks for correct placement of the flue gas temperature sensor. If commissioning is terminated and fault message A3 is displayed:

1. Check whether the flue gas temperature sensor is correctly inserted. See previous diagram.

2. If necessary, correct the position of the flue gas temperature sensor or replace the faulty flue gas temperature sensor.

3. Press reset button **R** and repeat commissioning. The check is repeated until it is completed successfully.

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Maintenance (cont.)

Checking the fuse

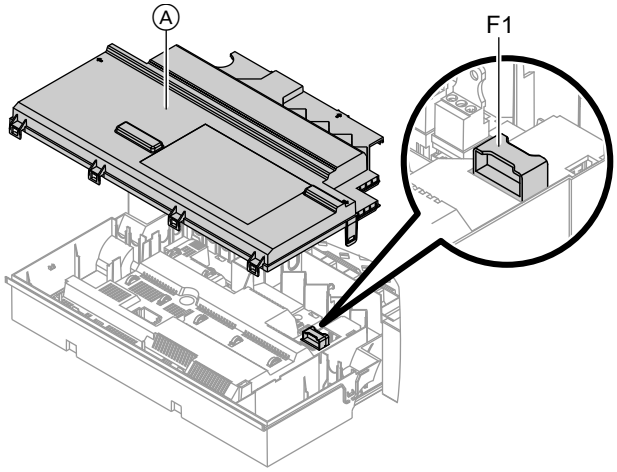

Fig. 50

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

Danger
Incorrect or improperly fitted fuses can lead to an increased risk of fire.
- Insert fuses without using any force. Position fuses correctly.
- Only use structurally identical types with the specified response characteristics.

Mixer extension kit

Checking the setting of rotary selector S1

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

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

Checking the rotational direction of the mixer motor

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

Note
The mixer motor can also be started via the actuator test (see chapter "Checking outputs").

Observe the rotational direction of the mixer motor during its self-test.
Then manually set the mixer back to "Open".
The flow temperature sensor must now capture a higher temperature. If the temperature drops, either the motor is turning in the wrong direction or the mixer insert is incorrectly fitted.

Mixer installation instructions

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

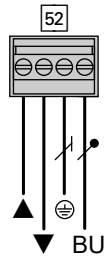

Fig. 51

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

Danger
An electric shock can be life-threatening. Before opening the boiler, disconnect it from the mains voltage, e.g. at the fuse or mains isolator.

2. At plug 52, swap the cores at terminals "▲" and "▼".
3. Refit the casing cover.

Maintenance (cont.)

Check flow temperature sensor

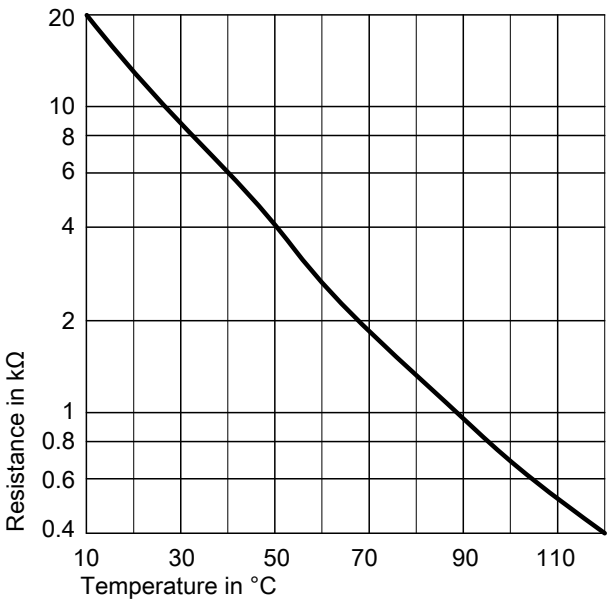

Fig. 52 Sensor type: NTC 10 kΩ

1. Disconnect plug 2 (flow temperature sensor).
2. Check the sensor resistance and compare it to the curve.
   In the event of severe deviation replace the sensor.

Checking the Vitotronic 200-H (accessories)

The Vitotronic 200-H is connected to the control unit via the LON system. To test the connection, carry out a subscriber check at the boiler control unit (page 48).

Replacing the power cable

When replacing the power cable, only use the power cable available as a spare part from Viessmann.

Constant temperature control unit

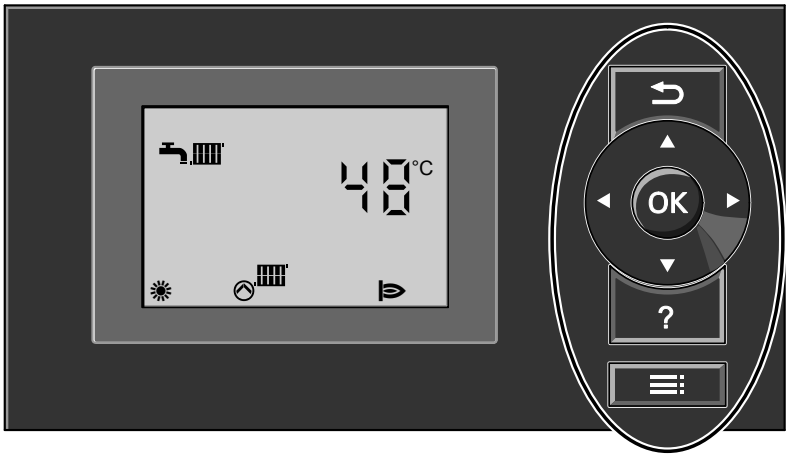

Fig. 53

Heating mode

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

The electronic temperature limiter inside the burner control unit limits the boiler water temperature.
Flow temperature setting range: 20 to 74 °C.

DHW heating

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

In the delivered condition, the set boiler water temperature is 20 K higher than the set DHW temperature (adjustable via coding address "60"). If the actual cylinder temperature exceeds the set cylinder temperature by 2.5 K, the burner shuts down and circulation pump run-on begins.

Weather-compensated control unit

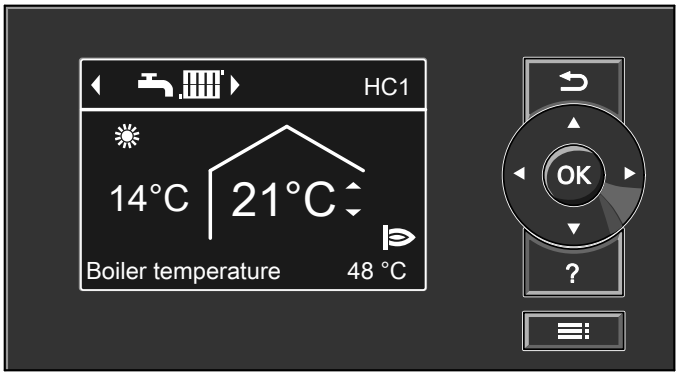

Fig. 54

Weather-compensated control unit (cont.)

Heating mode

The control unit determines a set boiler water temperature subject to outside temperature or room temperature (if a room temperature-dependent remote control is connected) and to the slope/level of the heating curve.
The determined set boiler water temperature is transferred to the burner control unit. From the set and actual boiler water temperatures, the burner control unit calculates the modulation level and regulates the burner accordingly.

The electronic temperature limiter inside the burner control unit limits the boiler water temperature.

DHW heating

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

In the delivered condition, the set boiler water temperature is 20 K higher than the set DHW temperature (adjustable via coding address "60" in group **"DHW"/3**). If the actual cylinder temperature exceeds the set cylinder temperature by 2.5 K, the burner is switched off and the circulation pump run-on time begins.

Boosting DHW heating

This function is activated by specifying a second set DHW temperature via parameter/coding address 58 in the **"DHW"** group and activating the fourth DHW time phase for DHW heating.

Heating is boosted during the periods selected in this time phase.

Internal extensions (accessories)

Internal H1 extension

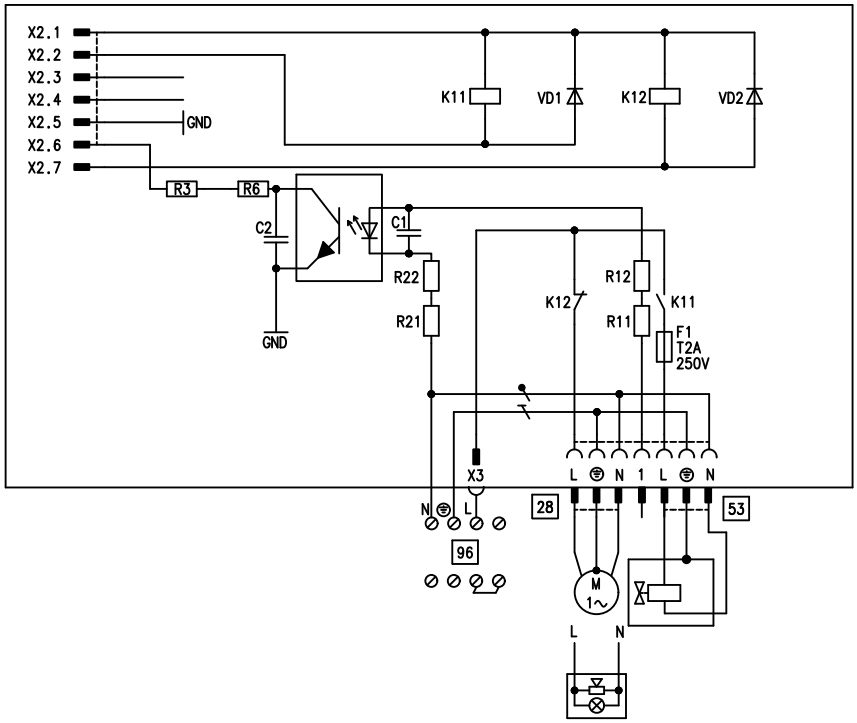

Fig. 55

The internal extension is integrated into the control unit enclosure. The following alternative functions can be connected to relay output 28. The function is assigned via parameter/coding address "53" in the **"General"** group:

- Central fault message (parameter/code "53:0")
- DHW circulation pump (parameter/code "53:1") (only for weather-compensated operation)
  Connect DHW circulation pumps with standalone functions directly to the 230 V ~ supply.
- Heating circuit pump for heating circuit without mixer (parameter/code "53:2")
- Circulation pump for cylinder heating (parameter/code "53:3")

An external safety valve can be linked to connection 53.

Internal extensions (accessories) (cont.)

Internal H2 extension

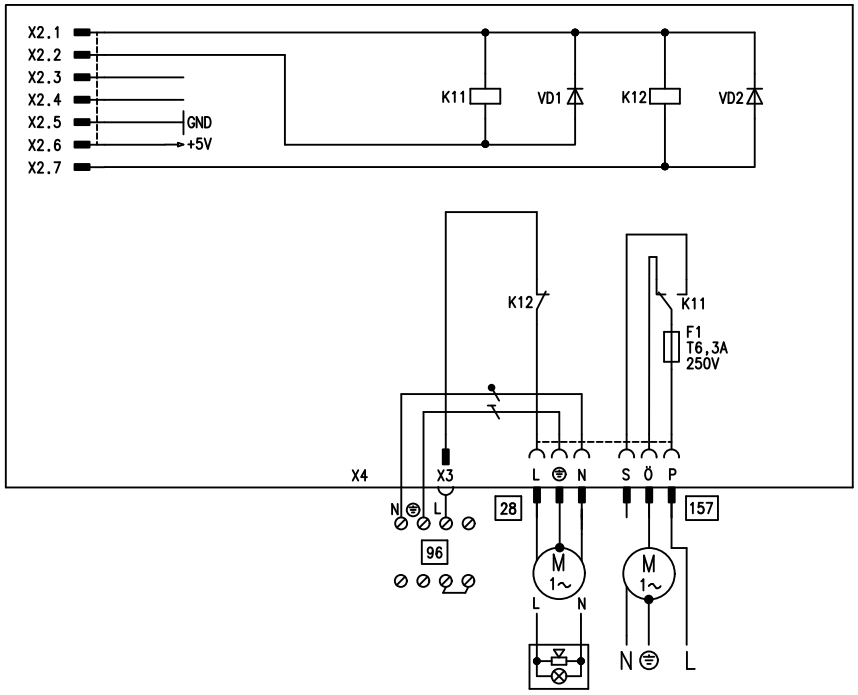

Fig. 56

The internal extension is integrated into the control unit enclosure. The following alternative functions can be connected to relay output 28. The function is assigned via parameter/coding address "53" in the **"General"** group:

- Central fault message (parameter/code "53:0")
- DHW circulation pump (parameter/code "53:1") (only for weather-compensated operation)
  Connect DHW circulation pumps with standalone functions directly to the 230 V ~ supply.
- Heating circuit pump for heating circuit without mixer (parameter/code "53:2")
- Circulation pump for cylinder heating (parameter/code "53:3")

An extractor fan can be switched off via connection 157 when the burner starts.

External extensions (accessories)

AM1 extension

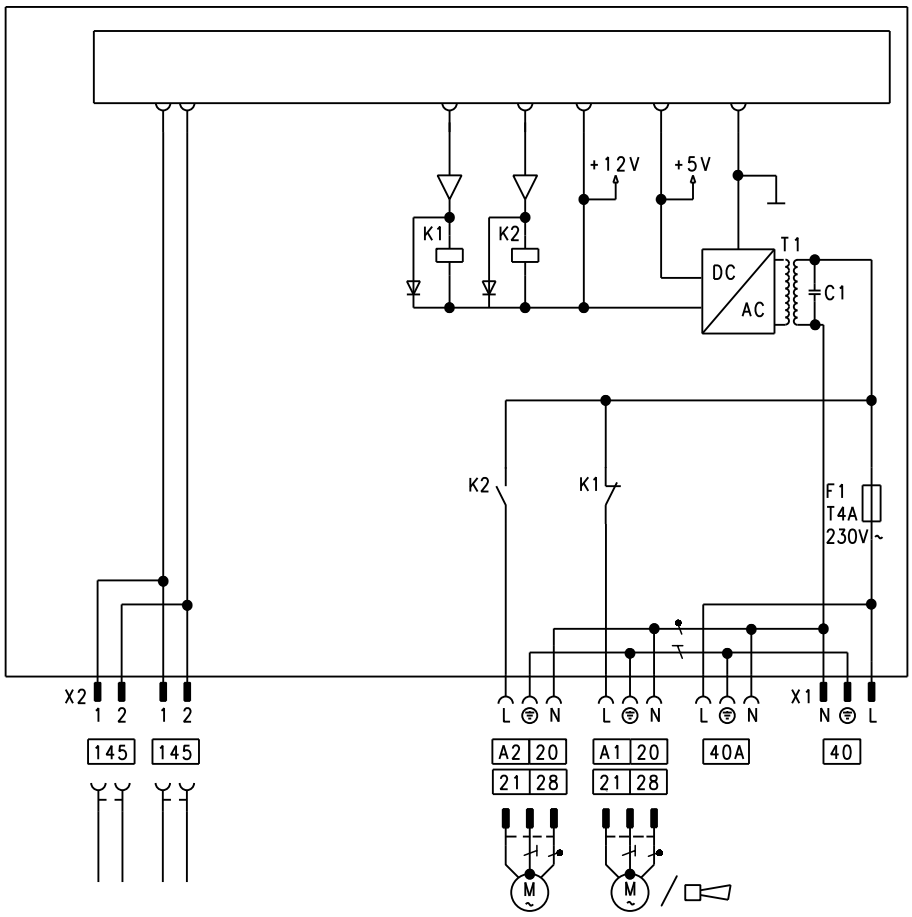

Fig. 57

A1 Circulation pump
A2 Circulation pump
40 Power supply
40 A Power supply for additional accessories
145 KM-BUS

Functions

One of the following circulation pumps can be connected to each of connections A1 and A2:
- Heating circuit pump for heating circuit without mixer
- Circulation pump for cylinder heating
- DHW circulation pump (only for weather-compensated control units)
  Connect DHW circulation pumps with standalone functions directly to the 230 V ~ supply.

Select the output functions via parameter changes/ codes at the boiler control unit.

Function assignment

Function	Parameter/code ("General" group)	
	Output A1	Output A2
DHW circulation pump 28	33:0	34:0 (delivered condition)
Heating circuit pump 20	33:1 (delivered condition)	34:1
Circulation pump for cylinder heating 21	33:2	34:2

External extensions (accessories) (cont.)

EA1 extension

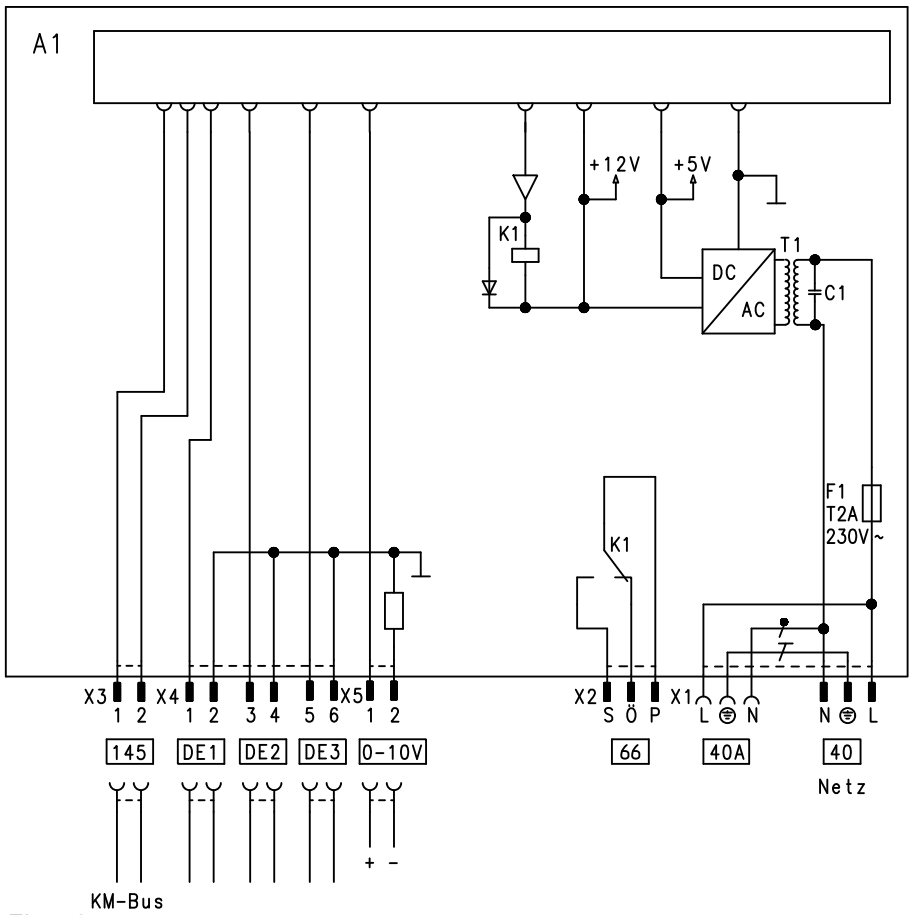

Fig. 58

F1 MCB/fuse
DE1 Digital input 1
DE2 Digital input 2
DE3 Digital input 3
0–10V 0 – 10 V input
40 Power supply
40 A Power supply for additional accessories
66 Central fault message/feed pump/DHW circulation pump (potential-free)
Connect DHW circulation pumps with stand-alone functions directly to the 230 V~ supply.
145 KM BUS

Digital data inputs DE1 to DE3

Alternatively, the following functions can be connected:
- External operating program changeover for each heating circuit
- External blocking
- External blocking with fault message input
- External demand with minimum boiler water temperature
- Fault message input
- Brief operation of the DHW circulation pump

External contacts must be potential-free. When making the connection, adhere to the requirements of protection class II: 8.0 mm air and creep paths and 2.0 mm insulation thickness against 'live' components.

Input function assignment

Select the input functions via the parameter changes/codes in the **"General"** group at the boiler control unit:
- DE1: Parameter/coding address 3A
- DE2: Parameter/coding address 3b
- DE3: Parameter/coding address 3C

Assigning the operating program changeover function to the heating circuits

The allocation of the operating program changeover function for the relevant heating circuit is selected via parameter/coding address d8 in the **"Heating circuit"** group at the boiler control unit:
- Changeover via input DE1: Parameter/code d8:1
- Changeover via input DE2: Parameter/code d8:2
- Changeover via input DE3: Parameter/code d8:3

External extensions (accessories) (cont.)

The effect of the operating program changeover is selected via parameter/coding address d5 in the **"Heating circuit"** group.
The duration of the changeover is set via parameter/coding address F2 in the **"Heating circuit"** group.

Effect of external blocking function on the pumps

The effect on the internal circulation pump is selected via parameter/coding address 3E in the **"General"** group.
The effect on the relevant heating circuit pump is selected via parameter/coding address d6 in the **"Heating circuit"** group.
The effect on a circulation pump for cylinder heating is selected via parameter/coding address 5E in the **"DHW"** group.

Effect of the external demand function on the pumps

The effect on the internal circulation pump is selected via parameter/coding address 3F in the **"General"** group.
The effect on the relevant heating circuit pump is selected via parameter/coding address d7 in the **"Heating circuit"** group.
The effect on a circulation pump for cylinder heating is selected via parameter/coding address 5F in the **"DHW"** group.

DHW circulation pump runtime for brief operation

The DHW circulation pump is started by closing the contact at DE1, DE2 or DE3 by means of a pushbutton. The runtime is set via parameter/coding address "3d" in the **"General"** group.

Analogue input 0 – 10 V

The 0 – 10 V hook-up provides an additional set boiler water temperature:
0 – 1 V is taken as "no set boiler water temperature default".
1 V ≙ Set value 10 °C
10 V ≙ Set value 100 °C
Ensure DC separation between the earth conductor and the negative pole of the on-site power source.

Output 157

The following functions can be connected to output 157:
- Feed pump to substation
  or
- DHW circulation pump
  or
- Fault message facility

Information regarding the feed pump
Function only possible in conjunction with a heating circuit control unit connected via LON.

Information on DHW circulation pumps
Connect DHW circulation pumps with standalone functions directly to the 230 V~ supply.

Function assignment

Select the function of output 157 via coding address "36" in the **"General"** group at the boiler control unit.

Control functions

External operating program changeover

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

The function is selected via the following coding addresses in the **"General"** group:

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

Select the operating program changeover function for the respective heating circuit via coding address "d8" in the **"Heating circuit"** group at the boiler control unit:

Control functions (cont.)

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

You can select the direction of the operating program changeover in coding address "d5" in the **"Heating circuit"** group:

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

The duration of the operating program changeover is set in coding address "F2" in the **"Heating circuit"** group:

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

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

External blocking

The functions "External blocking" and "External blocking with fault message input" are implemented via the EA1 extension. There are 3 inputs available at the EA1 extension (DE1 to DE3).

The function is selected via the following coding addresses in the **"General"** group:

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

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

The effect on the internal circulation pump is selected in coding address "3E" in the **"General"** group.

The effect on the relevant heating circuit pump is selected in coding address "d6" in the **"Heating circuit"** group.

External demand

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

The function is selected via the following coding addresses in the **"General"** group:

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Control functions (cont.)

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

The effect on the internal circulation pump is selected in coding address "3F" in the **"General"** group.
The effect on the relevant heating circuit pump is selected in coding address "d7" in the **"Heating circuit"** group.

The set minimum boiler water temperature for external demand is selected in coding address "9b" in the **"General"** group.

Venting program

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

The burner is switched off during the venting program.
Activating the venting program: See "Venting the heating system".

Screed drying

When activating screed drying, observe the information provided by the screed manufacturer.
When screed drying is activated, the heating circuit pump for the heating circuit with mixer starts and the flow temperature is maintained in accordance with the selected profile. On completion (30 days), the heating circuit with mixer is controlled automatically according to 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 state and outside temperature during handover

Various temperature profiles can be set via coding address "F1" in the **"Heating circuit"** group.
The function continues after a power failure or after the control unit has been switched off. "Heating and DHW" is started when screed drying is finished or if code "F1:0" is set manually.

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

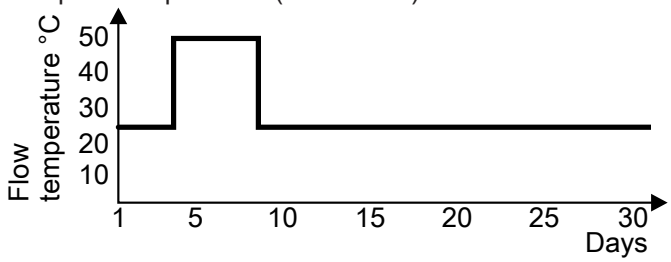

Fig. 59

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

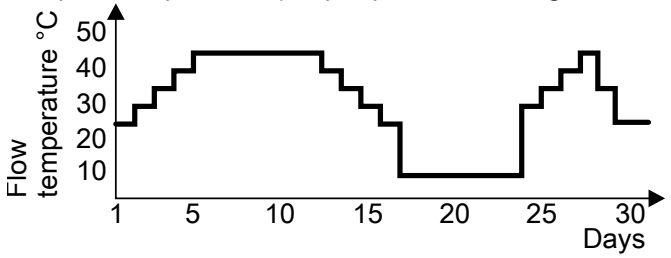

Fig. 60

Control functions (cont.)

Temperature profile 3: Code "F1:3"

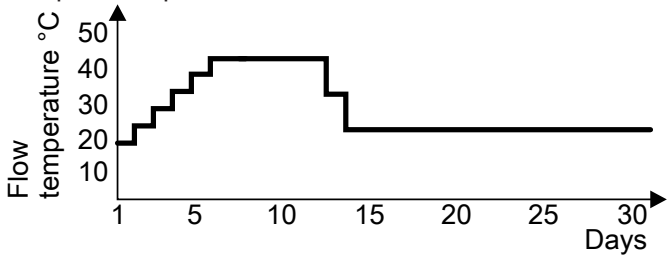

Fig. 61

Temperature profile 4: Code "F1:4"

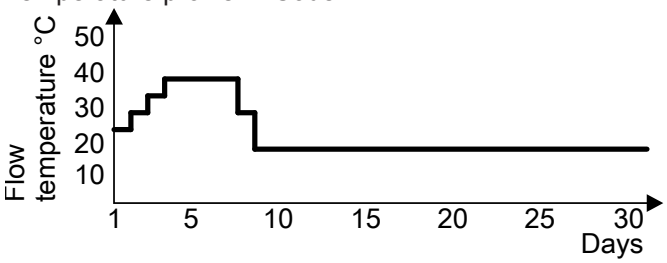

Fig. 62

Temperature profile 5: Code "F1:5"

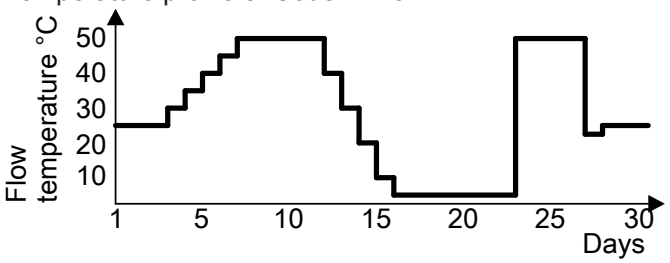

Fig. 63

Temperature profile 6: Code "F1:6"

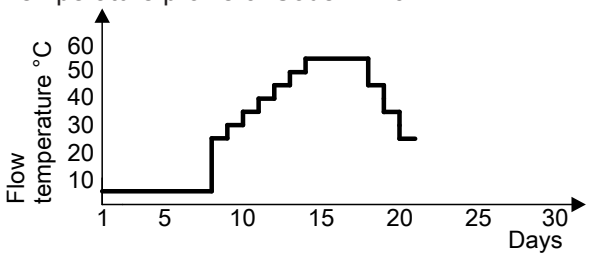

Fig. 64

Temperature profile 7: Code "F1:15"

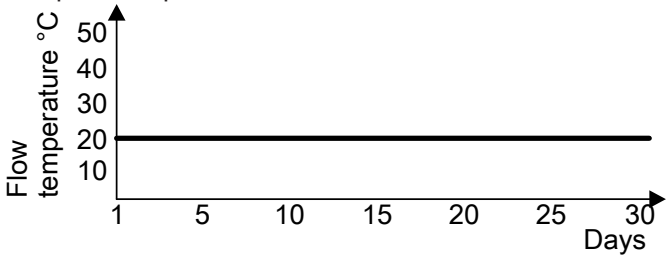

Fig. 65

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Control functions (cont.)

Raising the reduced room temperature

During operation with reduced room temperature, the reduced set room temperature can be automatically raised subject to 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 temperature raising can be set in coding addresses "F8" and "F9" in the **"Heating circuit"** group.

Example using the settings in the delivered condition

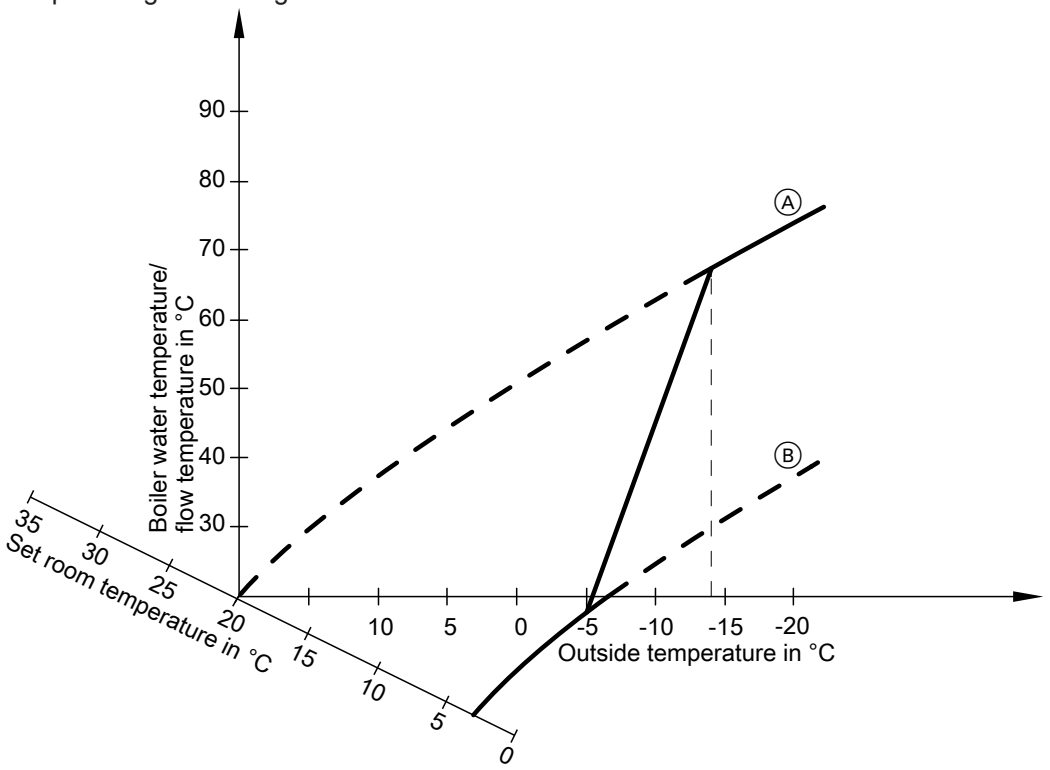


Fig. 66

Ⓐ 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 for the additional raising of the set boiler water temperature or set flow temperature can be set in coding addresses "FA" and "Fb" in the **"Heating circuit"** group.

Control functions (cont.)

Example using the settings in the delivered condition

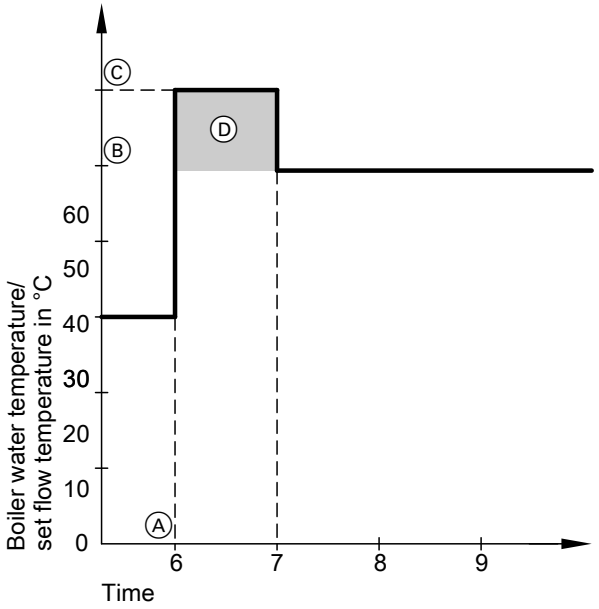


Fig. 67

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

Assigning heating circuits to the remote control

The assignment of heating circuits must be configured during remote control commissioning.

Remote control affects the following heating circuit	Configuration	
	Vitotrol 200A Vitotrol 200 RF	Vitotrol 300A Vitotrol 300 RF
Heating circuit without mixer A1	H 1	Heating circuit 1
Heating circuit with mixer M2	H 2	Heating circuit 2
Heating circuit with mixer M3	H 3	Heating circuit 3

Note
One heating circuit can be assigned to the Vitotrol 200A and 200 RF.
Up to three heating circuits can be assigned to the Vitotrol 300A and 300 RF.
*A maximum of 2 hardwired remote control units **or** 3 wireless remote controls may be connected to the control unit.*
*If the assignment of a heating circuit is later cancelled, reset coding address "A0" in the **"Heating circuit"** group for this heating circuit to 0 (fault message bC, bd, bE).*

Electronic combustion control unit

The electronic combustion controller utilises the physical correlation between the level of the ionisation current and the air ratio λ. The maximum ionisation current is achieved at an air ratio of 1 for all gas qualities. The ionisation signal is evaluated by the combustion controller and the air ratio is adjusted to a value between λ=1.24 and 1.44. This range provides for an optimum combustion quality. Thereafter, the electronic gas valve regulates the required gas volume subject to the prevailing gas quality.

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

Air ratio λ– CO_2/O_2 content

Air ratio λ	O_2 content (%)	CO_2 content (%) for natural gas E	CO_2 content (%) for natural gas LL	CO_2 content (%) for LPG P
1.20	3.8	9.6	9.2	11.3
1.24	4.4	9.2	9.1	10.9
1.27	4.9	9.0	8.9	10.6
1.30	5.3	8.7	8.6	10.3
1.34	**5.7**	**8.5**	**8.4**	**10.0**
1.37	6.1	8.3	8.2	9.8
1.40	6.5	8.1	8.0	9.6
1.44	6.9	7.8	7.7	9.3
1.48	7.3	7.6	7.5	9.0

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 (corresponding to air ratio λ=1). Automatic calibration is carried out shortly after the burner start and lasts approx. 5 s. During calibration, higher than normal CO emissions may occur briefly.

Connection and wiring diagram – internal connections

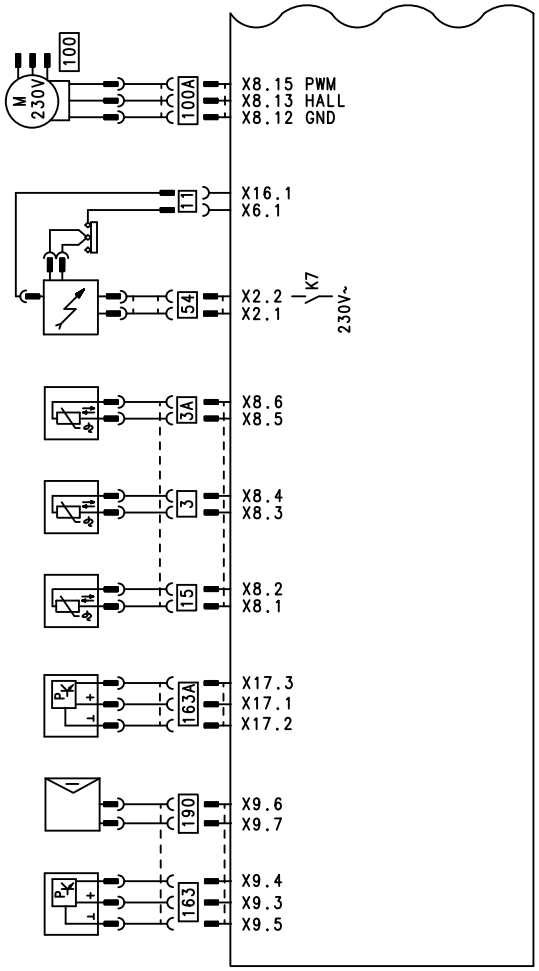


Fig. 68

X... Electrical interfaces
3 Boiler water temperature sensor
3 A Boiler water temperature sensor
11 Ionisation electrode
15 Flue gas temperature sensor
54 Ignition unit
100 Fan motor
100 A Fan motor control
190 Modulation coil
163 A Flow sensor
163 Flow sensor

Connection and wiring diagram – external connections

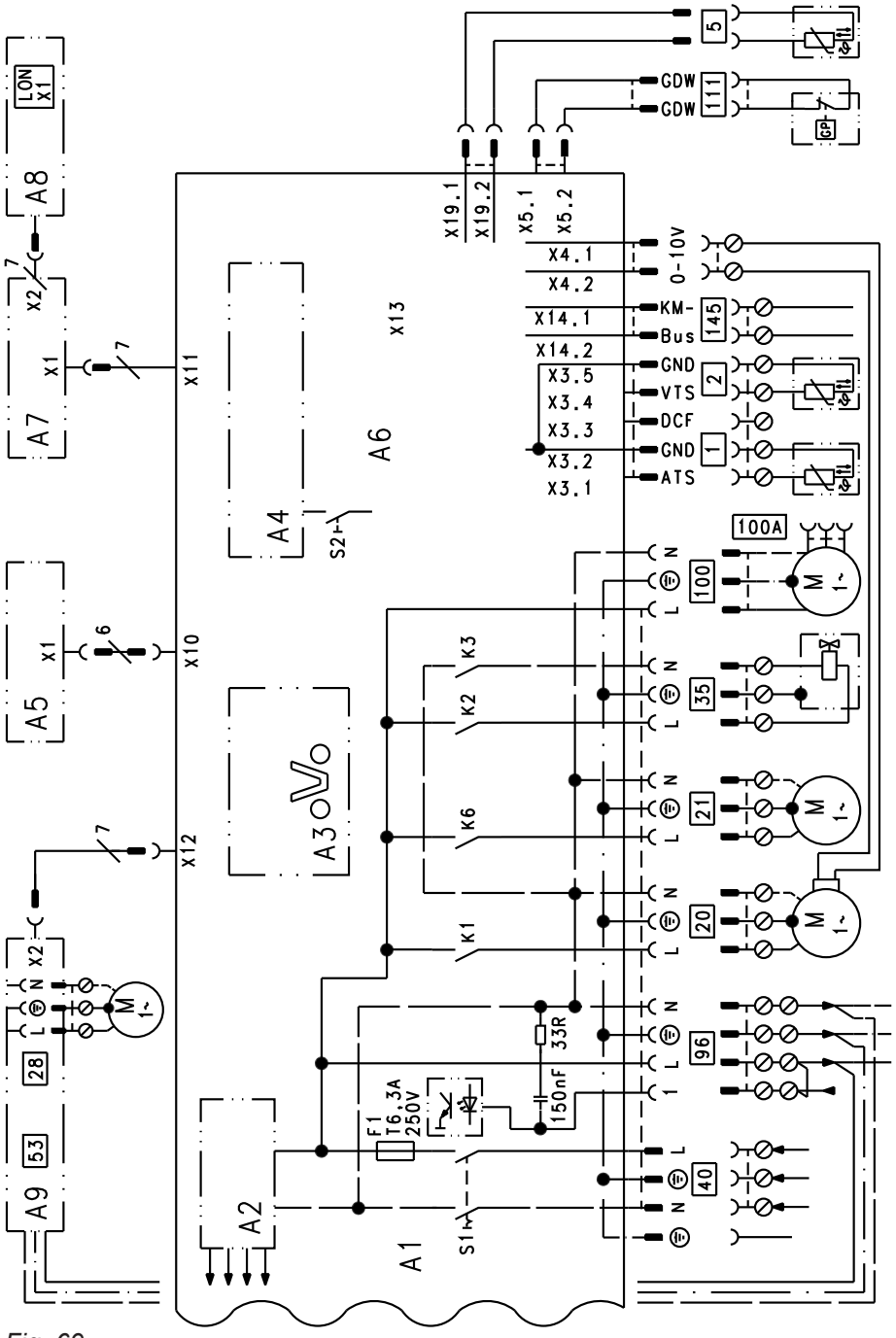


Fig. 69

A1 Main PCB
A2 Switching mode power supply
A3 Optolink
A4 Burner control unit
A5 Programming unit
A6 Coding card
A7 Connection adaptor
A8 LON communication module or cascade communication module
A9 Internal extension (accessories)
S1 ON/OFF switch
S2 Reset button
X... Electrical interfaces

[1] Outside temperature sensor
[2] Flow temperature sensor, low loss header
[5] Cylinder temperature sensor (plug on the cable harness)
[20] Heating circuit pump or boiler circuit pump
[21] Circulation pump for cylinder heating
[28] DHW circulation pump
[35] Gas solenoid valve
[40] Power supply
[96] Power supply for accessories and Vitotrol 100
[100] Fan motor
[111] Gas pressure switch
[145] KM-BUS

Settings and test values		Set value	Commissioning	Maintenance/ service	Maintenance/ service
Date					
Signature					
Static pressure	mbar kPa	≤ 57.5 ≤ 5.75			
Supply pressure (flow pressure)					
☐ For natural gas	mbar kPa	See table "Supply pressure" (Commissioning ...)			
☐ For LPG	mbar kPa				
☐ *Enter gas type*					
Carbon dioxide content CO_2 With natural gas					
▪ At lower heating output	% by vol.	See "Checking the combustion quality" (Commissioning ...)			
▪ At upper heating output	% by vol.				
For LPG					
▪ At lower heating output	% by vol.				
▪ At upper heating output	% by vol.				
Oxygen content O_2					
▪ At lower heating output	% by vol.				
▪ At upper heating output	% by vol.				
Carbon monoxide content CO					
▪ At lower heating output	ppm	< 1000			
▪ At upper heating output	ppm	< 1000			

Gas boiler, category II $_{2N3P}$

Rated heating output range			
T_F/T_R 50/30 °C (Pcond(50/30))	**kW**	**32.0 - 120.0**	**32.0 - 150.0**
T_F/T_R = 80/60 °C (Pn(80/60))	**kW**	**29.1 - 110.9**	**29.1 - 136.0**
Rated heating input range (Qn)	kW	30.3 - 113.3	30.3 - 142.0
Rated voltage	V	230	
Rated frequency	Hz	50	
Rated current	A	6	
Backup fuse (power supply)	A	16	
Power consumption in the delivered condition	W	146	222
Electronic temperature limiter setting (TN) (fixed)	°C	82	
Temperature limiter setting (fixed)	°C	100	
Permiss. operating pressure (PMS)	bar MPa	6 0.6	6 0.6
NO_X	Class	6	6
Connection values relative to max. load with			
Natural gas E	m^3/h	11.99	15.03
Natural gas LL	m^3/h	13.94	17.47
LPG	kg/h	8.86	11.10
Flue gas values			
▪ Mass flow rate (for DHW heating)	g/s	56	70
▪ Temperature (for DHW heating)	°C	70	74
▪ Max. temperature	°C	120	120
Permissible ambient temperature			
▪ During operation:	°C	0 to +40 °C	
▪ During storage and transport:	°C	-20 to +65 °C	
Protection class		I	
IP rating		IP X 4 D to EN 60529	
Weight	kg	130	130
Product ID		CE-0085CN0050	

Note
The supply values are only for reference (e.g. in the gas contract application) or for a supplementary, rough estimate to check the volumetric settings. Due to factory settings, the gas pressure must not be altered from these values. Reference: 15 °C, 1013 mbar.

Flue system types

Available in the following countries	**Flue system types**
AE, AM, AT, BA, BG, BY, CH, CY, CZ, DK, EE, ES, FI, GB, GR, HR, HU, IE, IS, IT, KG, KZ, LI, LT, LU, LV, MT, NL, NO, PL, PT, RO, RS, RU, SE, SK, TR, UA	B_{23}, B_{33}, C_{13}, C_{33}, C_{43}, C_{53}, C_{63}, C_{83}, C_{93}
BE	B_{23}, B_{23P}, B_{33}, C_{13}, C_{33}, C_{43}, C_{53}, C_{83}, C_{83P}, C_{93}
DE, SI	B_{23}, B_{33}, C_{13X}, C_{33X}, C_{43X}, C_{53X}, C_{63X}, C_{83X}, C_{93X}
FR	B_{23}, B_{23P}, B_{33}, C_{13}, C_{33}, C_{43}, C_{53}, C_{63}, C_{83}, C_{83P} C_{93}

(cont.)

Gas categories

Available in the following countries	Gas categories
AE, AT, AM, BA, BG, BY, CH, CZ, DK, EE, ES, FI, GB, GR, HR, IE, IS, IT, KG, KZ, LI, LT, LU, LV, MT, NO, PT, RO, RS, RU, SE, SI, SK, TR, UA	II_{2N3P}/II_{2H3P}
AM, BY, KG, KZ, RU, UA	I_{2N}/I_{2H}
BE, DE, FR	II_{2N3P}
CY	I_{3P}
FR, IT	I_{2HM}
HU	II_{2N3P}/II_{2HS3P}
NL	II_{2EK3P}
PL	II_{2N3P}/II_{2ELw3P}

Hydrogen blending

The gas condensing boiler is suitable for operation with natural gas containing a hydrogen blend of up to 20% by vol.

This mode of operation results in an output reduction of up to 10%.

Declaration of conformity

We, Viessmann Werke GmbH & Co. KG, D-35107 Allendorf, declare as sole responsible body that the named product complies with the European directives and supplementary national requirements in terms of its design and operational characteristics.

Using the serial number, the Declaration of Conformity can be found on the following website:
www.viessmann.co.uk/eu-conformity

Manufacturer's declaration

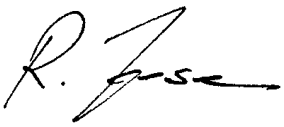
This product meets the requirements of the Efficiency Directive (92/42/EEC) for **condensing boilers**.

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

We, Viessmann Werke GmbH & Co. KG, D-35107 Allendorf, confirm that the product **Vitodens 200-W** complies with the NO_x limits specified by the 1st BImSchV, paragraph 6 [Germany].

Allendorf, 1 February 2018

Viessmann Werke GmbH & Co. KG



Authorised signatory Reiner Jansen
Head of Strategic Quality Management

Keyword index

5817719

Keyword index (cont.)

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