Installation and service instructions

for contractors

Vitotronic 100
Type GC7B
Boiler control unit
Vitotronic 300-K
Type MW1B
Weather-compensated control for a multi boiler system (cascade)

VITOTRONIC 100
VITOTRONIC 300-K

5815091 GB 11/2018

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 may only be carried out by a registered gas fitter.
- Work on electrical equipment may 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.

Danger
Hot surfaces and fluids can lead to 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
If 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 distribution board).

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.
Inform 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-sealable.

Extractors

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

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

Index

5815091

Index

5815091

Index (cont.)

Liability

Viessmann accepts no liability for loss of profit, unattained savings, or other direct or indirect consequential losses resulting from use of the Vitocom 300 or Vitodata internet services, or for damage resulting from inappropriate use.
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Viessmann accepts no liability for SMS, email or fax services provided by network operators. The terms and conditions of the relevant network operators apply in this context.

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.

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 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.

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).

5815091

Product information

These instructions describe the following control units:
- **Vitotronic 100, type GC7B**
  Control of the boiler water temperature for each boiler in the cascade
- **Vitotronic 300-K, type MW1B**
  Weather-compensated control of a multi boiler system (cascade)

The Vitotronic 100, type GC7B is designed to control the boiler water temperature of the respective boiler in the cascade.

The Vitotronic 300-K, type MW1B is designed for weather-compensated control of a multi boiler system (cascade).

In multi boiler systems, boiler water temperatures can vary between individual boilers. The common flow temperature for the heating system is specified by the Vitotronic 300-K using weather compensation.

System examples

For available system examples, see **www.viessmann-schemes.com**

Other applicable documents

- Boiler installation instructions
- Boiler service instructions

Opening the control unit

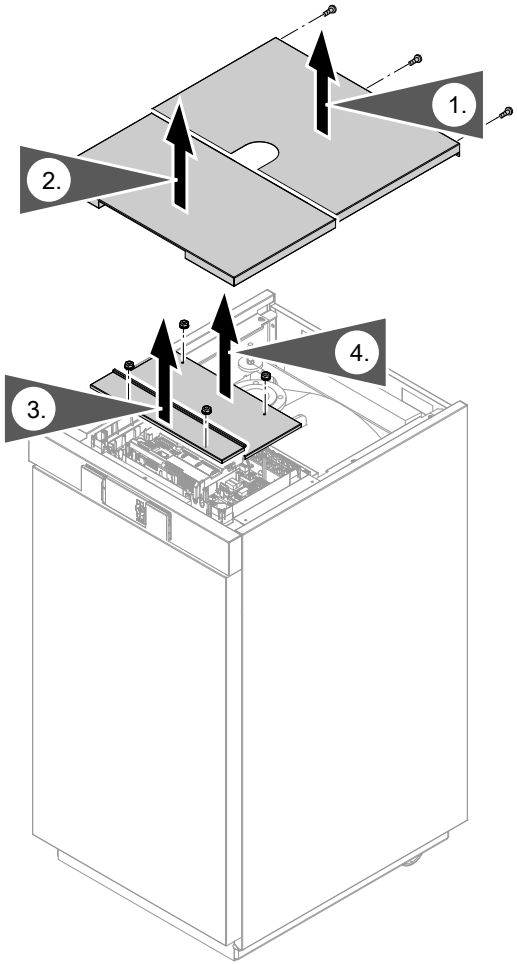


Fig. 1

Installing the LON communication module (standard delivery)

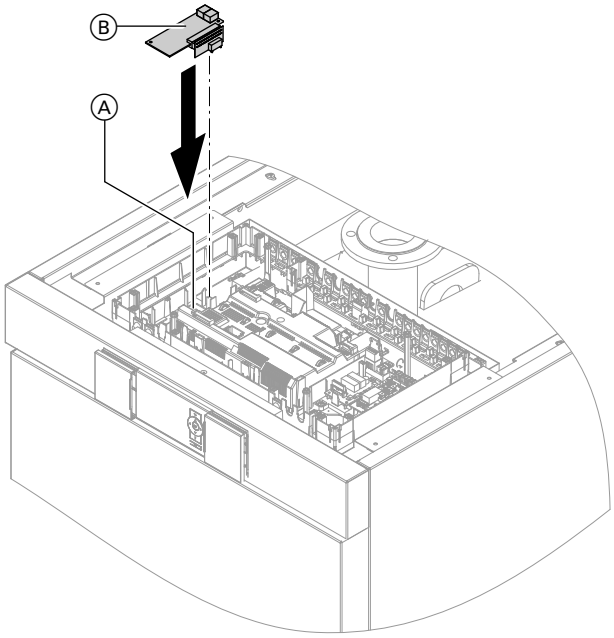


Fig. 2

Ⓐ Main PCB
Ⓑ LON communication module

For codes to be configured during commissioning, see chapter "Connecting the control unit to the LON".

Note
When using Vitocrossal as a "twin boiler", two LON communication modules must be installed.

Installing the base and back panel

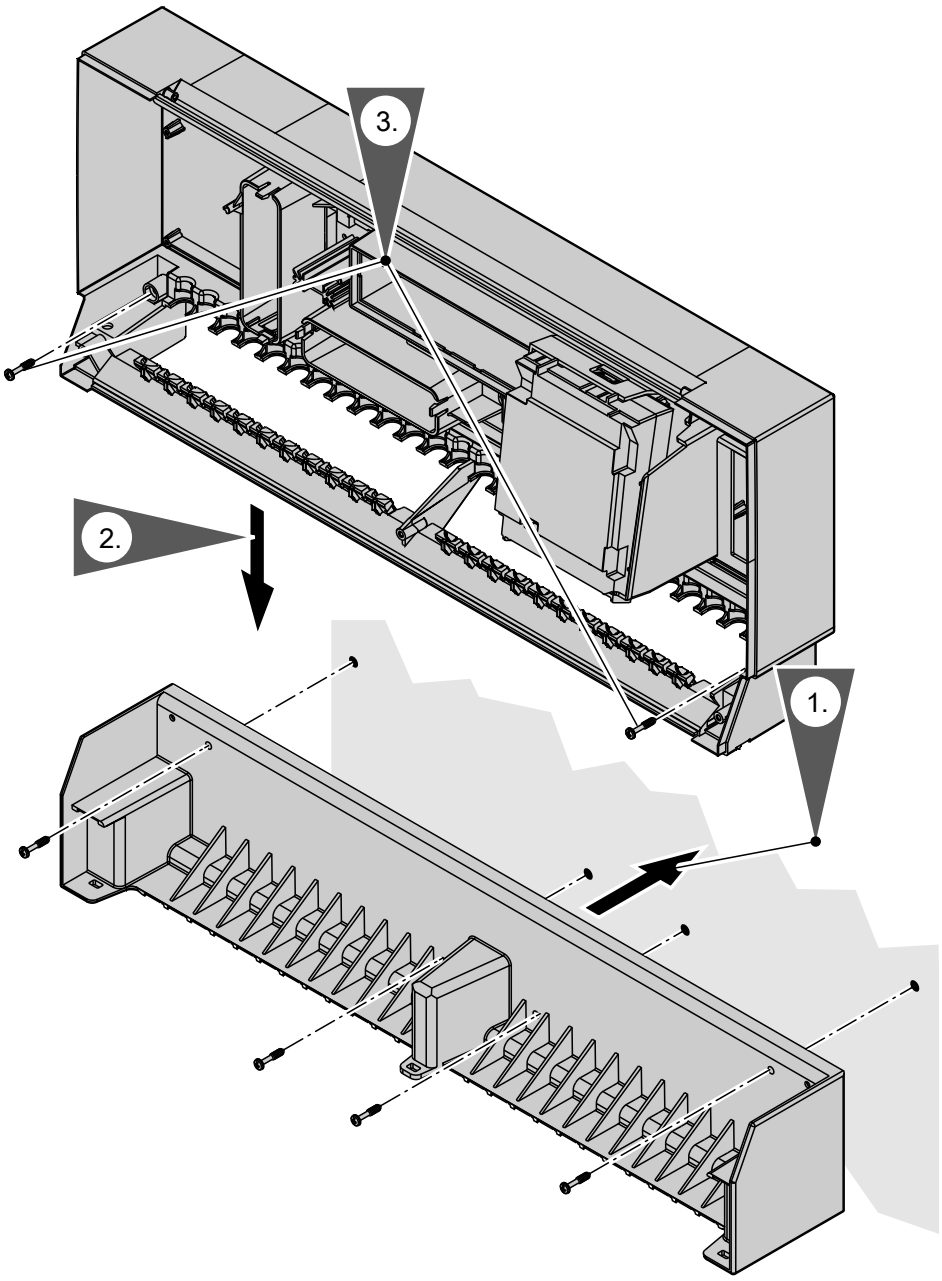


Fig. 3

Attaching the front panel

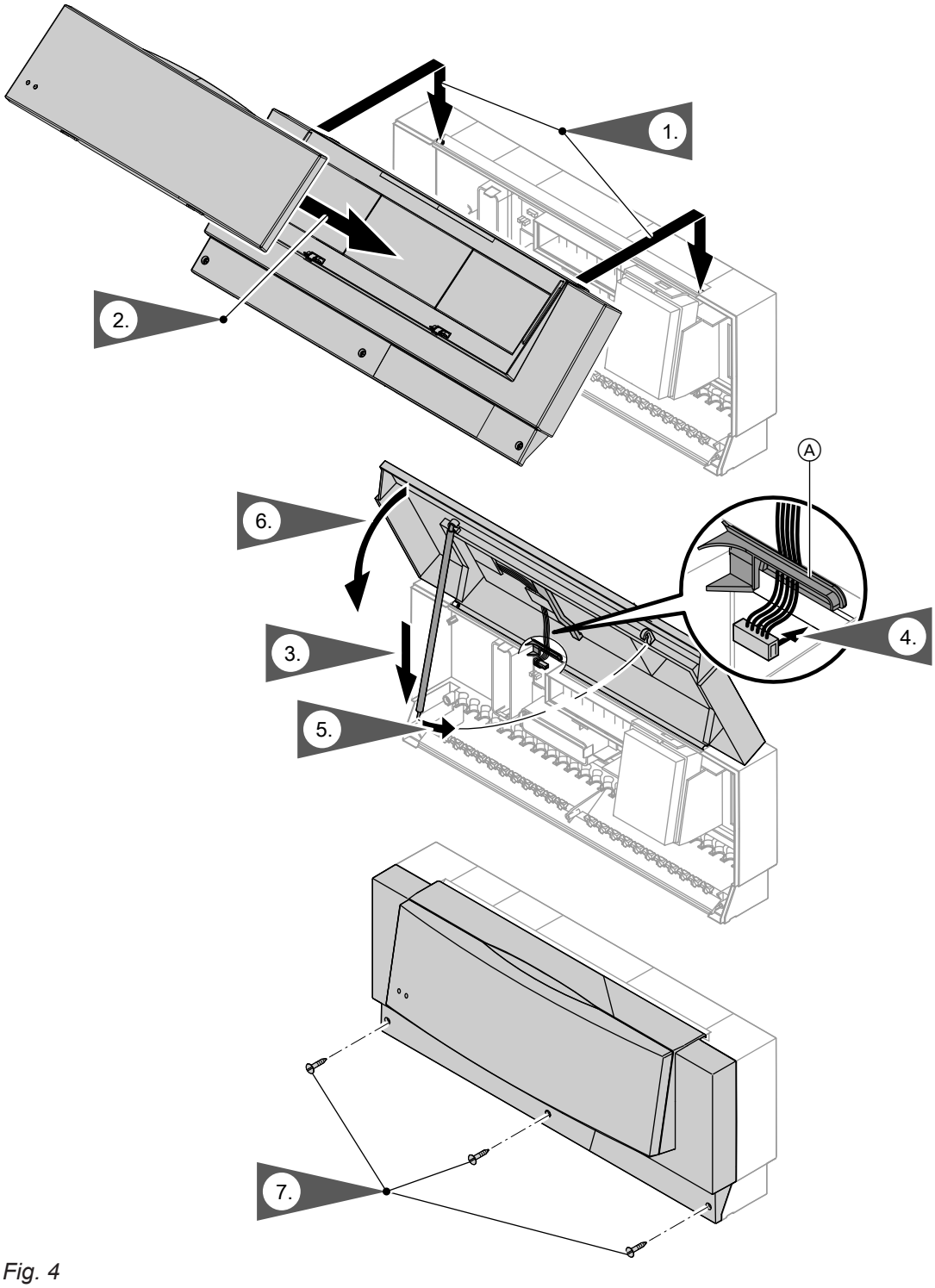


Fig. 4

Ⓐ Cable locking tab

Opening the control unit

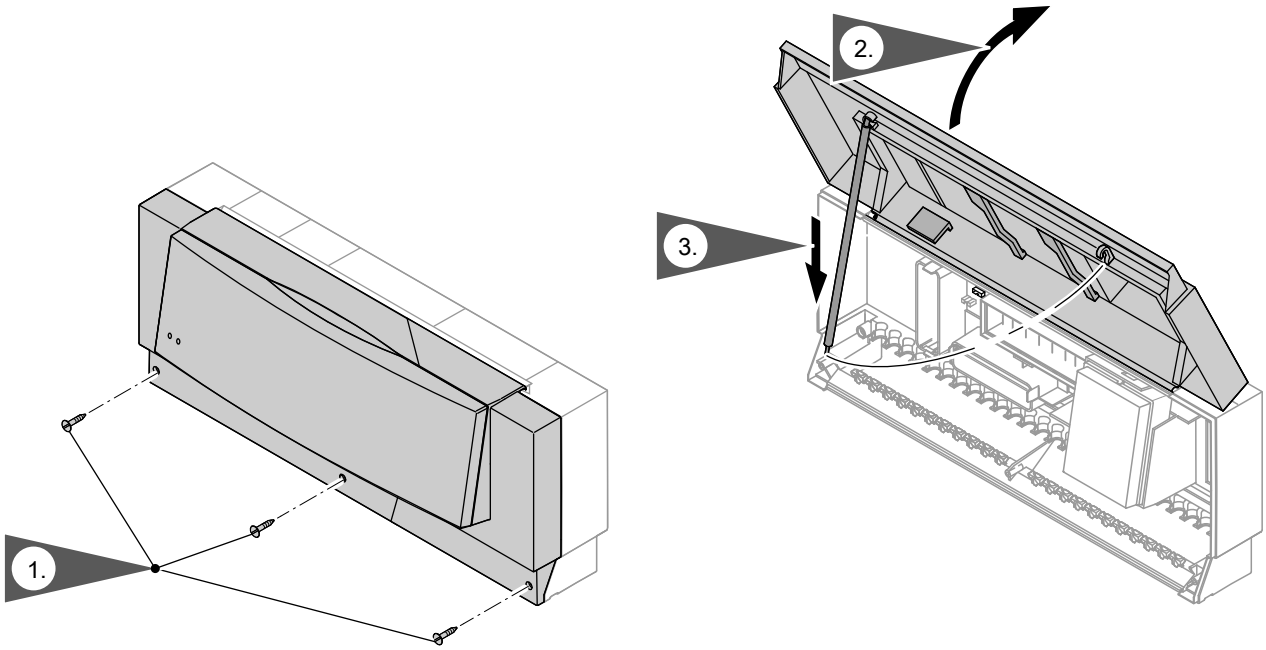


Fig. 5

Inserting cables/leads and applying

Route cables out of the cable channel into the control unit from below.

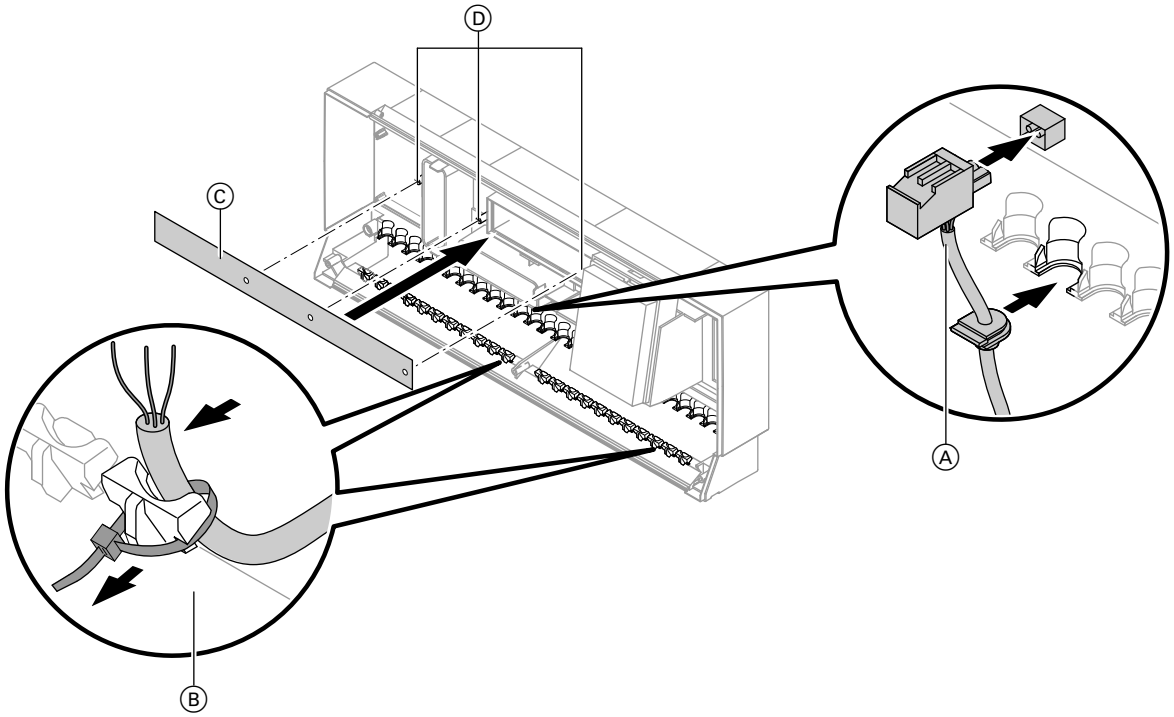


Fig. 6

Ⓐ Cables with moulded strain relief
Ⓑ On-site cables; strip up to 100 mm insulation.
Ⓒ Plug-in connection diagram
Ⓓ Fem. mouldings for plug-in connection diagram

Overview of electrical connections

Danger
Incorrect wiring can lead to serious injury from electrical current and result in appliance damage.
Take the following measures to prevent wires drifting into the adjacent voltage area:
- Route LV leads <42 V and >42 V/230 V~ cables separately.
- Only strip the minimum of insulation from cables as close as possible to the terminals and bundle tightly to the corresponding terminals.
- Secure cables with cable ties.

When connecting external switching contacts and on-site components, observe the insulation requirements of IEC/EN 60335-1.

Please note
Electronic assemblies can be damaged by electrostatic loads.
Before beginning work, touch an earthed object, such as a heating or water pipe to discharge any static.

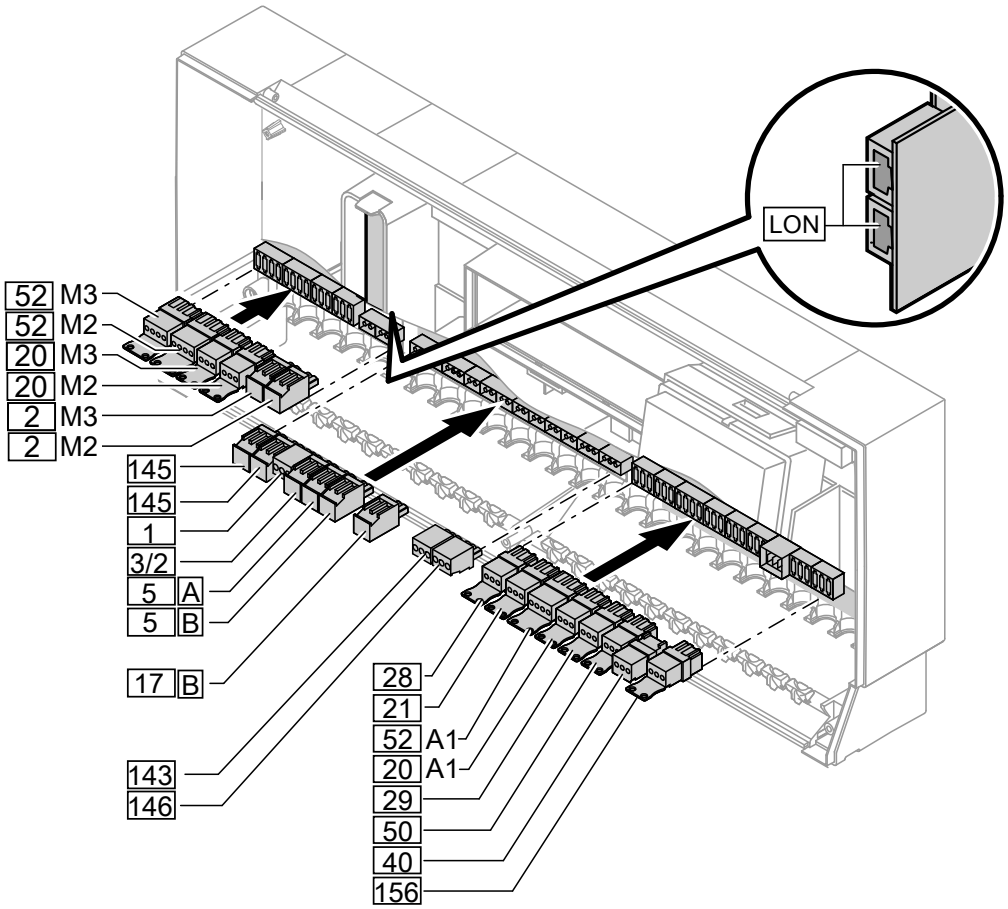


Fig. 7

Extension connections for heating circuits 2 and 3, each with mixer

Plug	Component
2 M2/M3	Flow temperature sensor, heating circuit (accessories)
20 M2/M3	Heating circuit pump
52 M2/M3	Mixer motor, mixer extension kit

Connections on the low voltage PCB

Plug	Component
1	Outside temperature sensor
3/2	Common flow temperature sensor
5 A	One of the following temperature sensors: ▪ Cylinder temperature sensor ▪ Top cylinder temperature sensor in a cylinder loading system

Overview of electrical connections (cont.)

Plug	Component
5 B	Bottom cylinder temperature sensor in a cylinder loading system
17 B	Temperature sensor, cylinder loading system
143	External connections
145	KM-BUS subscriber (accessories)
146	External connections
LON	LON BUS, connecting cable for data exchange with the Vitotronic 100, Vitotronic 200-H, Vitocom and Vitogate

Connections on the 230 V~ PCB

Plug	Component
20 A1	One of the following circulation pumps: ▪ Heating circuit pump for heating circuit 1 without mixer ▪ Primary cylinder loading pump for cylinder loading system
21	Circulation pump for cylinder heating
28	DHW circulation pump
29	Distribution pump
40	Power supply
50	Central fault message facility
52 A1	Mixing valve, heat exchanger set
156	Power supply for accessories

Connecting the sensors

Connecting the extension for heating circuits 2 and 3, each with mixer

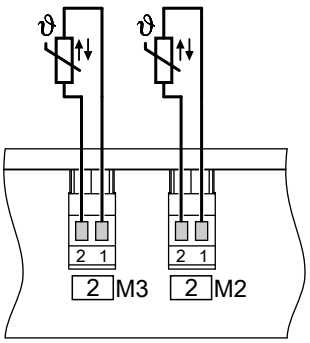


Fig. 8

2 M2 Flow temperature sensor, heating circuit (accessories)
2 M3 Flow temperature sensor, heating circuit (accessories)

5815091

Connecting the sensors (cont.)

Low voltage PCB

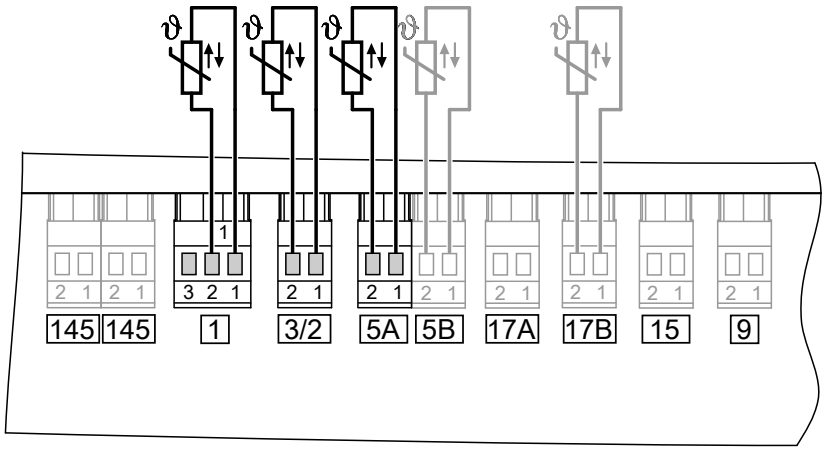


Fig. 9

- [1] Outside temperature sensor
- [3]/[2] Flow temperature sensor, common heating flow
- [5][A] Cylinder temperature sensor 1
- [5][B] Cylinder temperature sensor 2 for cylinder loading system (accessories)
- [9] No function
- [15] No function
- [17][A] No function
- [17][B] Temperature sensor, cylinder loading system (accessories)

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 upper half of the second floor.
- Not above windows, doors or ventilation outlets.
- 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

Connecting the pumps

Available connections

- [20] Heating circuit pump
  or
  Primary cylinder loading pump for cylinder loading system
- [21] Circulation pump for cylinder heating
- [28] DHW circulation pump
- [29] Distribution pump

Connecting the pumps (cont.)

230 V~ pumps

Rated current: 4(2) A~

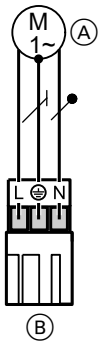


Fig. 10

Ⓐ Pump
Ⓑ To the control unit

230 V~ pumps with power consumption greater than 2 A or high efficiency circulation pumps

Pumps with switching input

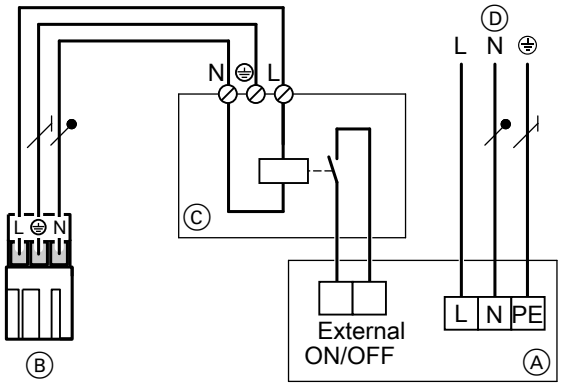


Fig. 11

Ⓐ Pump
Ⓑ To the control unit
Ⓒ Contactor
Ⓓ Separate power supply (observe manufacturer's instructions)

Pumps without switching input

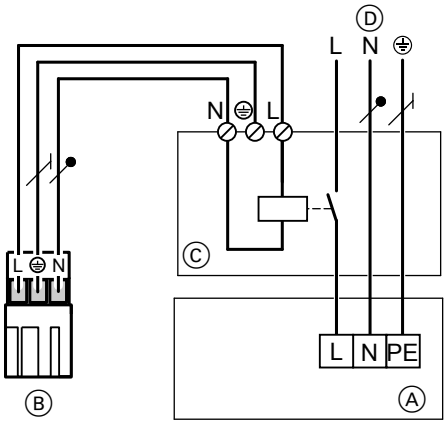


Fig. 12

Ⓐ Pump
Ⓑ To the control unit
Ⓒ Contactor
Ⓓ Separate power supply (observe manufacturer's instructions)

5815091

Connecting the pumps (cont.)

400 V~ pumps

Rated current for switching the contactor: 4(2) A~

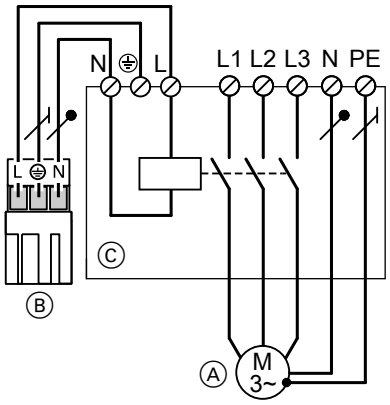


Fig. 13

Ⓐ Pump
Ⓑ To the control unit
Ⓒ Contactor

Pumps in the underfloor heating circuit

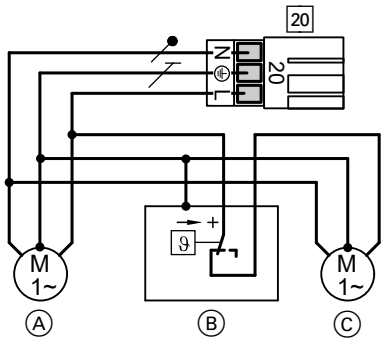


Fig. 14

The common power consumption of both pumps must **not exceed 2 A**.

20 Control unit
Ⓐ Primary heating circuit pump
Ⓑ Temperature limiter
Ⓒ Secondary heating circuit pump (for system separation)

Connecting the pumps (cont.)

Temperature limiter for maximum temperature limiter (accessories)

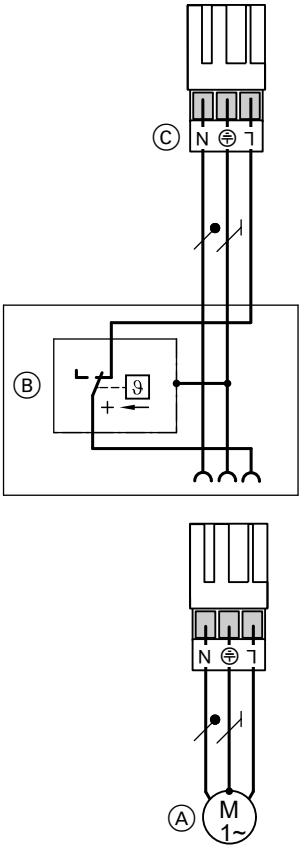


Fig. 15

Ⓐ Heating circuit pump
Ⓑ Temperature controller/temperature limiter
Ⓒ Plug [20] of the temperature controller/temperature limiter to the control unit

Electromechanical temperature limiter using the liquid expansion principle
- Switches the heating circuit pump off when the set value has been exceeded.
- The flow temperature is only slowly reduced in this situation, i.e. it may be several hours before the system restarts again automatically.
- Connection: Screw terminals for 1.5 mm^2

Specification

Setting range	30 to 80 °C
Switching differential	
▪ Immersion thermostat	Max. 11 K
▪ Contact thermostat	Max. 14 K

Connecting actuators

Extension connections for heating circuits 2 and 3, each with mixer

Plug	Component
[52] M2/M3	Mixer motor, mixer extension kit

5815091

Connecting actuators (cont.)

Connections on the 230 V~ PCB

Plug	Component
52 A1	Mixing valve, heat exchanger set

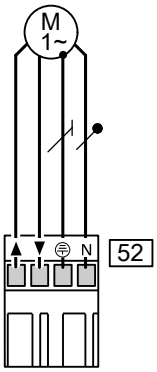


Fig. 16

▲ OPN
▼ CLOSE

Rated voltage	230 V~
Rated current	Max. 0.2 (0.1) A~
Runtime	5 to 199 s

Setting runtime

The runtime can be set at the following coding addresses:
- in conjunction with plug 52 A1:
  - "40" in the **"General"** group
  - "6A" in the **"DHW"** group
- In conjunction with plug 52 M2/M3:
  "C3" in the **"Heating circuit..."** group

Connecting a central fault message facility

Plug 50: All faults of the entire system are passed on, e.g. even including faults on a Vitotronic 100.

Rated voltage	230 V~
Rated current	Max. 4(2) A~

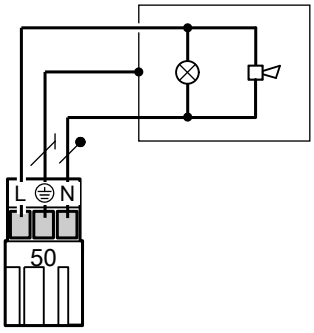


Fig. 17

External demand via switching contact

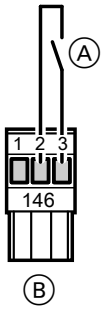
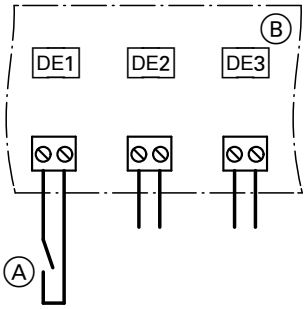
Connection options:
- Plug 146
- EA1 extension (accessory: See page 90).

With the contact closed, the boiler burners are started subject to load. They heat to the set flow temperature selected in **coding address "9b"** in the **"General"** group. The temperature is limited by this set value and the electronic maximum flow temperature limit (coding address "37" in the **"Cascade"** group).

Connection

! **Please note**
'Live' contacts lead to short circuits or phase failure.
The external connection **must be potential-free**.

External demand via switching contact (cont.)

Plug 146	EA1 extension
	
Ⓐ Floating contact Ⓑ Plug 146 of the control unit	Ⓐ Floating contact Ⓑ EA1 extension

Codes

Plug 146	EA1 extension
No coding required.	Set "5d" (DE1), "5E" (DE2) or "5F" (DE3) in the **"General"** group to 2.

External demand via 0-10 V input

Connection at the 0 – 10 V input of the EA1 extension (accessory: See page 90).

Note
Ensure DC separation between the earth conductor and the negative pole of the on-site voltage source.

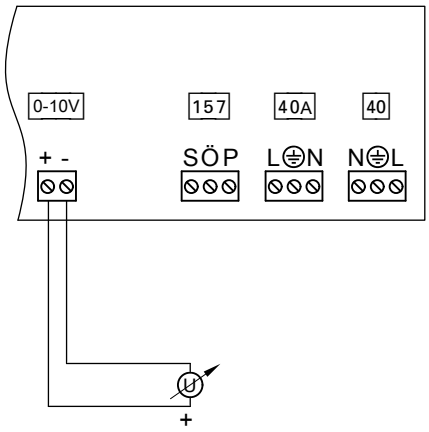


Fig. 18

0 – 1 V ≙ No default set flow temperature
1 V ≙ Set value 10 °C
10 V ≙ Set value 100 °C
Observe coding address "1E" in the **"General"** group.

External blocking via switching contact

Connection options:
- Plug 143
- EA1 extension (accessory: See page 90).

Closing this contact leads to a controlled burner shutdown on **all** boilers. Any connected distribution pump istops. Shut-off devices close.

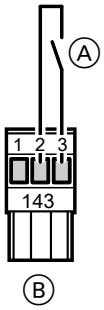
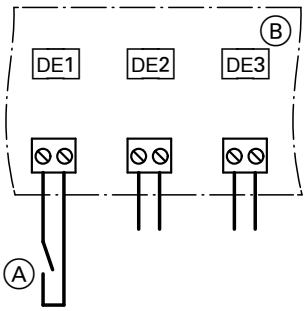
5815091

External blocking via switching contact (cont.)

Note
*The heating system has **no frost protection** while it is shut off.*

Connection

! **Please note**
'Live' contacts lead to short circuits or phase failure.
The external connection **must be potential-free**.

Plug 143	**EA1 extension**
	
Ⓐ Floating contact Ⓑ Plug 143 of the control unit	Ⓐ Floating contact Ⓑ EA1 extension

Codes

Plug 143	**EA1 extension**
In coding address "99" in the **"General"** group determine, what the input should influence.	Set "5d" (DE1), "5E" (DE2) or "5F" (DE3) in the **"General"** group to 3 or 4.

External mixer CLOSE/mixer OPEN

Connection at **plug** 143.

! **Please note**
'Live' contacts lead to short circuits or phase failure.
The external connection **must be potential-free**.

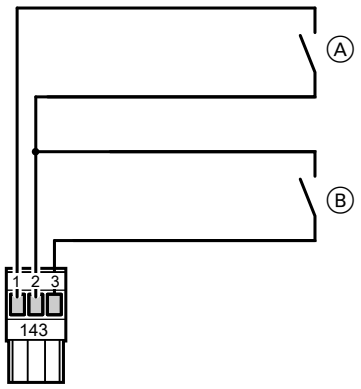


Fig. 19

Ⓐ External mixer OPEN (floating contact)
Ⓑ External mixer CLOSE (floating contact)

External mixer CLOSE/mixer OPEN (cont.)

Codes

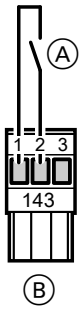
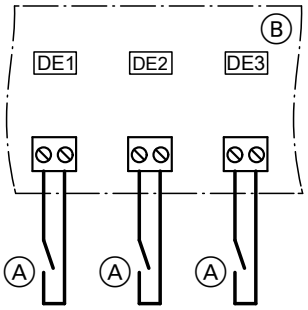
External mixer OPEN	External mixer CLOSE
In coding address "9A" in the **"General"** group, assign the function to the heating circuits.	In coding address "99" in the **"General"** group, assign the function to the heating circuits.

External heating program changeover

Optional connections:
- Plug 143
- Extension EA1 (accessory, see chapter "Components")

Connection

Please note
'Live' contacts lead to short circuits or phase failure.
The external connection **must be potential-free**.

Plug 143	Extension EA1
	The changeover can be achieved **separately** for heating circuits 1 to 3. 
Ⓐ Floating contact Ⓑ Plug 143 on control unit	Ⓐ Floating contact Ⓑ Extension EA1

Preselected heating program (Contact open)		Code	Changed heating program (Contact closed)
⏻	Central heating OFF/DHW OFF	"d5:0" in the **"Heating circuit ..."** group (Delivered condition)	Constant operation with reduced room temperature/DHW heating OFF
or			
🚿	Central heating OFF/ DHW heating ON	"d5:1" in the **"Heating circuit ..."** group	Constant operation with standard room temperature, DHW heating in accordance with coding address "64" in the **"DHW"** group
or			
🚿	Central heating ON/DHW heating ON		

External heating program changeover (cont.)

Codes

Plug 143	Extension EA1
Via coding address "91" in the **"General"** group, the function can be assigned to the heating circuits.	Set "5d" (DE1), "5E" (DE2) or "5F" (DE3) in group **"General"** to 1. Via coding address "d8" in the **"Heating circuit..."** group, the function can be assigned to the heating circuits.

Making the LON connection

The Viessmann LON is designed for "line" bus topology with a terminator at both ends (accessories).
The transfer distances for LON are subject to the electrical properties of the relevant cable. For this reason, only use the specified cable types. Use only one cable type within each LON.

Cable types (on site):
- 2-core cable, CAT5, screened
- JY(St)Y 2 x 2 x 0.8 mm (telephone cable)

Observe the requirements for cabling and operation of the LON interface FTT 10-A.

All Viessmann appliances are connected with RJ45 plugs. The Viessmann LON always requires cores "1" and "2" plus the screen. The cores are interchangeable.
Up to 30 LON subscribers may be connected.

Note
When connecting external switching contacts and on-site components, observe the insulation requirements of IEC/EN 60335-1.

Connection examples

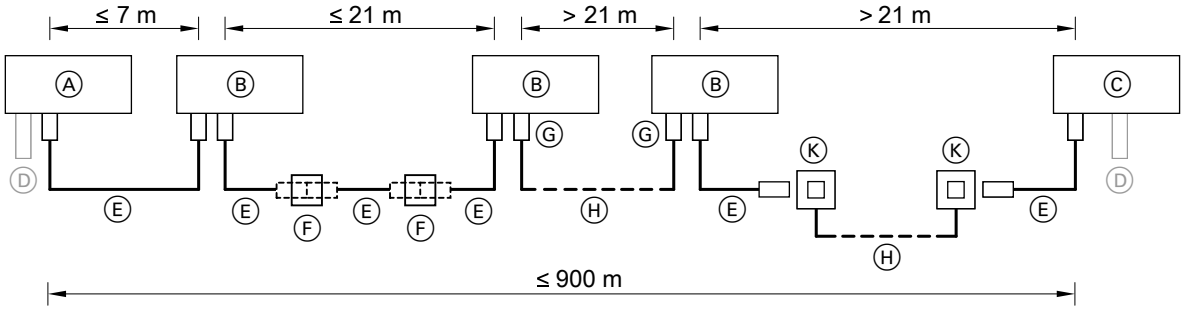


Fig. 20

Pos.	Designation
Ⓐ	Boiler and heating circuit control unit or Vitocontrol
Ⓑ	LON subscriber, e.g. heating circuit control unit
Ⓒ	Vitocom or Vitogate
Ⓓ	Terminator (2 pce) Integrated into Viessmann appliances with only one LON interface
Ⓔ	LON cable, 7 m long
Ⓕ	LON coupling
Ⓖ	LON plug-in connector (2 pce)
Ⓗ	Connecting cable
Ⓚ	LON socket (2 pce)

Making the LON connection (cont.)

Always position LON subscribers with integrated terminators at the start or end of the LON:
- E.g. always position Vitocontrol at the start of the LON (position Ⓐ).
- E.g. always position Vitocom 100, type LAN1 at the end of the LON (position Ⓒ).

Power supply

Isolators for non-earthed conductors
- The mains isolator or "Emergency stop" **must** simultaneously isolate from the power supply all non-earthed conductors with a minimum contact separation of 3 mm.
- We additionally recommend installing an AC/DC-sensitive RCD, type B, for DC (fault) currents that can occur with energy efficient equipment.
- If **no** mains isolator or "Emergency stop" is set, isolate all non-earthed conductors simultaneously from the power supply by means of an upstream circuit breaker with a minimum contact separation of 3 mm.

Power supply for accessories and external components
- For accessories and external components that will not be connected to the control unit, we recommend making the power connection to the same MCB/fuse, or at the very least in-phase with the control unit.
- Connection to the same MCB/fuse provides additional safety in the event of the power being switched off. Observe the power consumption of the connected consumers.

Additional regulations for oil and gas combustion equipment
- Observe the national combustion equipment ordinance for your local region.
- For oil and gas combustion equipment above 100 kW an "emergency stop switch" must be installed outside the installation room, in line with the Sample Combustion Ordinance "FeuVO".
- For combustion equipment to EN 50156-1, the "emergency stop switch" installed on site must comply with the requirements of EN 50156-1.

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

Connect the power supply and implement all safety measures (e.g. RCD circuit) in accordance with the following regulations:
- IEC 60364-4-41
- VDE regulations
- Technical connection requirements specified by the local power supply utility
- Protect the power cable on site with a fuse/MCB of up to 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.

Danger
Incorrect core assignment can result in serious injury and damage to the appliance.
Never interchange cores "L" (brown) and "N" (blue).

Colour coding to IEC 60757:

BN	Brown (L)
BK	Black
BU	Blue (N)
GY	Grey
GNYE	Green/yellow (PE)

Recommended power cable
- 3-core cable, flexible
- Cable cross-section: 1.5 mm^2
- Rated voltage: 300 V/500 V
- Temperature resistance: Min. 70 °C
- If the mains connection is made with a flexible power cable, it must be ensured 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.

Power supply (cont.)

Control unit power supply

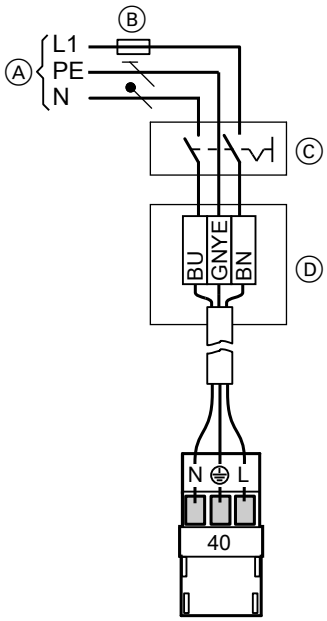


Fig. 21

Ⓐ Mains voltage 230 V~
Ⓑ Fuse 16 A
Ⓒ Mains isolator, 2-pole (on site)
Ⓓ Junction box (on site)

1. Check whether the power cable to the control unit has appropriate fuse protection.
2. Connect the power cable in the junction box and at plug 40 (on site).
3. Insert plug 40 into the control unit.

Commissioning steps

Commissioning step	Vitotronic 100, Type GC7B Page	Vitotronic 300-K, Type MW1B Page
Selecting the language	—	28
Setting the date and time	—	28
Matching the coding addresses to the system version	28	29
Selecting the boiler sequence	—	29
Connecting the control unit to the LON	30	30
Checking actuators and sensors	31	32
Setting the heating curve	—	33

Setting the language

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

Fig. 22

Setting the date and time

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

Control unit operating instructions

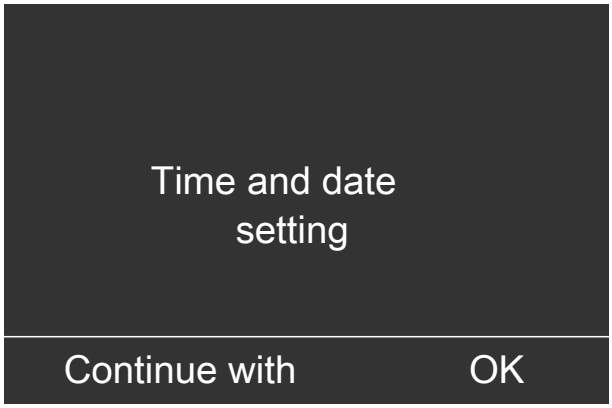


Fig. 23

Matching up the coding addresses

Vitotronic 100, type GC7B

Check all addresses in **Code 1** and adjust if required.

Matching up the coding addresses (cont.)

Check the following coding addresses and adjust accordingly in **Code 2**:

Code	Group	Function
"01"	2	Multi boiler system
"98"	1	Viessmann system number
"9C"	1	Monitoring LON subscribers

Vitotronic 300-K

Check all addresses in **Code 1** and adjust if required.

Check the following coding addresses and adjust accordingly in **Code 2**:

Code	Group	Function
"39"	**"Cascade"**	Permanent lead boiler
"3A"	**"Cascade"**	Permanent last boiler
"4C"	**"General"**	Plug 20 function
"4d"	**"General"**	Plug 29 function
"4E"	**"General"**	Plug 52 function
"55"	**"DHW"**	Cylinder temperature control function
"7A"	**"General"**	Central control
"98"	**"General"**	Viessmann system number
"9C"	**"General"**	Monitoring LON subscribers

Selecting the boiler sequence

Only Vitotronic 300-K

Extended menu:

1. ☰
2. **"Boiler sequence"**
3. Select the required boiler sequence.
4. **OK** to confirm

The following codes in "Cascade" group can influence the boiler sequence:

Code	Function
"38"	Lead boiler and boiler sequence changeover
"39"	Permanent lead boiler
"3A"	Permanent last boiler
"41" to "44"	ECO thresholds

- Every boiler can be disabled or enabled subject to outside temperature by means of the ECO threshold.
- The ECO threshold has no effect if a boiler is required to achieve the set flow temperature in the case of enabled boilers failing.
- If all boilers in a system are disabled by the ECO threshold, at least the lead boiler remains in operation.

Connecting the control unit to the LON

- **LON communication module**
  - Vitotronic 300-K: Standard delivery (fitted at the factory)
  - Vitotronic 100: Standard delivery
- In the same LON system, each subscriber number can only be allocated **once**.
- Within an individual LON, the system number (coding address "98" in the **"General"** group) must always be the same.
- **Only one control unit** may be coded as fault manager.
- Data transfer via LON can take several minutes.

Example of a multi boiler system

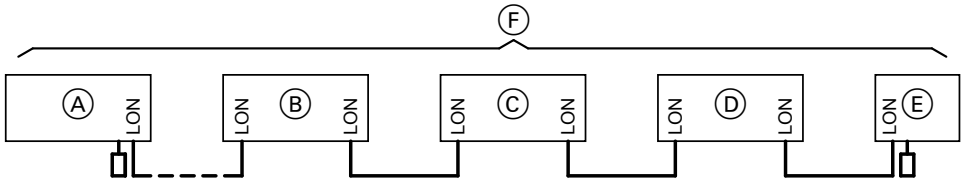


Fig. 24

Ⓐ Vitotronic 100
Ⓑ Vitotronic 100
Ⓒ Vitotronic 300-K
Ⓓ Vitotronic 200-H
Ⓔ Vitocom or Vitogate
Ⓕ LON

Vitotronic 100 Ⓐ	**Vitotronic 100 Ⓑ**	**Vitotronic 300-K Ⓒ**	**Vitotronic 200-H Ⓓ**	**Vitocom or Vitogate Ⓔ**
Multi boiler system Set code "01:2" in group 2.	Multi boiler system Set code "01:2" in group 2.	—	—	—
Boiler number 1 Set code "07:1" in group 2.	Boiler number 2 Set code "07:2" in group 2.	—	—	—
With LON communication module. Code "76:1" in group 1 is recognised automatically.	With LON communication module. Code "76:1" in group 1 is recognised automatically.	With LON communication module. Code "76:1" in the **"General"** group is recognised automatically.	With LON communication module. Code "76:1" in the **"General"** group is recognised automatically.	—
—	—	Number of connected boilers. Set codes "35:1" to "35:4" in the **"Cascade"** group.	—	—
Subscriber number 1 Set code "77:1" in group 1.	Subscriber number 2 Set code "77:2" in group 1.	Subscriber number 5 Set code "77:5" in the **"General"** group.	Subscriber number 10 Set code "77:10" in the **"General"** group.	▪ Vitogate 300: Subscriber number 97 ▪ Vitogate 200: Subscriber number 98 ▪ Vitocom: Subscriber number 99
Control unit is not fault manager. Set code "79:0" in group 1.	Control unit is not fault manager. Set code "79:0" in group 1.	Control unit is fault manager. Set code "79:1" in the **"General"** group.	Control unit is not fault manager. Set code "79:0" in the **"General"** group.	Device is fault manager
—	—	Control unit transmits the time. Set code "7b:1" in the **"General"** group.	The control unit receives the time. Set code "81:3" in the **"General"** group.	Device receives the time

5815091

Connecting the control unit to the LON (cont.)

Vitotronic 100 Ⓐ	Vitotronic 100 Ⓑ	Vitotronic 300-K Ⓒ	Vitotronic 200-H Ⓓ	Vitocom or Vitogate Ⓔ
—	—	Control unit transmits outside temperature. Set code "97:2" in the **"General"** group.	Control unit receives the outside temperature. Set code "97:1" in the **"General"** group.	—
Viessmann system number. Set code "98:1" in group 1.	Viessmann system number. Set code "98:1" in group 1.	Viessmann system number. Set code "98:1" in the **"General"** group.	Viessmann system number. Set code "98:1" in the **"General"** group.	—
LON subscriber remote monitoring. Set code "9C:20" in group 1.	LON subscriber remote monitoring. Set code "9C:20" in group 1.	LON subscriber remote monitoring. Set code "9C:20" in the **"General"** group.	LON subscriber remote monitoring. Set code "9C:20" in the **"General"** group.	—

Carrying out a LON subscriber check

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

Preconditions:
- 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 identified with **"OK"**.
- Unsuccessfully tested subscribers are identified with **"Not OK"**.
  Note
  To carry out a new subscriber check, create a new subscriber list: ***"Delete list?"*** *(Subscriber list is being updated).*

Note
- *Vitotronic 100:*
  During the subscriber check, the display for the relevant subscriber flashes for approx. 1 min.
- *Vitotronic 200-H:*
  During the subscriber check, the display for the relevant subscriber flashes the subscriber no. for approx. 1 min and displays ***"Wink"****.*

Checking actuators and sensors, Vitotronic 100

Carrying out a relay test

Service menu:

1. Press **OK** and ☰ simultaneously for approx. 4 s.
   🔧 flashes on the display.
2. Press ▶ to select ⇄.
3. **OK** to confirm

   Note
   Before an actuator is selected, all actuators are switched to zero volt.
4. ▲/▼ for desired actuator (output): See the table below.

Checking actuators and sensors, Vitotronic 100 (cont.)

5. **OK** to confirm
   The display shows the number for the activated actuator and **"ON"**.

Note
The actuators listed in the table can be tested at the relay outputs, subject to system equipment level and control unit.

Display	Explanation
0	All actuators are off.
1	Burner operates at min. output. Butterfly valve is OPEN
2	Burner operates at max. output. Butterfly valve is CLOSED
3	Output [20] active (butterfly valve with reset spring)
10	Internal extension output active

Note
Connected pumps start during burner operation.

Checking sensors, Vitotronic 100

Actual temperatures can be called up in the **i** menu.

Operating instructions

Checking actuators and sensors, Vitotronic 300-K

Carrying out a relay test, Vitotronic 300-K

Service menu:

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

   Note
   Before an actuator is selected, all actuators are switched to zero volt.

Note
The actuators listed in the table can be tested at the relay outputs, subject to system equipment level and control unit.

Display		Explanation
"All actuators"	OFF	All actuators are off.
"Output 20"	ON	Actuator at output [20] A1
"Output 52"	OPN	Actuator at output [52] A1
"Output 52"	Neutral	
"Output 52"	CLOSE	
"Cylinder loading pump"	ON	Actuator at output [21]
"DHW circulation pump"	ON	Actuator at output [28]
"Output 29"	ON	Actuator at output [29]
"Central fault message"	ON	Central fault message facility at output [50]
"Heating circuit pump HC2"	ON	Actuator at output [20] M2
"Mixer HC2"	OPN	Actuator at output [52] M2
"Mixer HC2"	CLOSE	
"Heating circuit pump HC3"	ON	Actuator at output [20] M3
"Mixer HC3"	OPN	Actuator at output [52] M3
"Mixer HC3"	CLOSE	
"EA1 output 1"	ON	Contact "P - S" on plug [157] of EA1 extension closed.

5815091

Checking actuators and sensors, Vitotronic 300-K (cont.)

Display		Explanation
"AM1 output 1"	ON	Actuator at output A1
"AM1 output 2"	ON	Actuator at output A2
"Solar circuit pump"	ON	Solar circuit pump at output 24 at solar control module, type SM1
"Solar circ pmp min"	ON	Solar circuit pump at output 24 at solar control module, type SM1 set to min. speed.
"Solar circ pmp max"	ON	Solar circuit pump at output 24 at solar control module, type SM1 set to max. speed.
"SM1 output 22"	ON	Actuator at output 22 at solar control module, type SM1

Information regarding the mixer motor rotational direction
The flow temperature must rise when the mixer opens. If the temperature drops, the motor is turning in the wrong direction or the mixer set is incorrectly fitted (observe the mixer installation instructions).

Checking sensors, Vitotronic 300-K

Service menu:

1. Press **OK** and ☰ simultaneously for approx. 4 s.
2. **"Diagnosis"**
3. ▲/▼ for the required group: See overview on page 65.
4. ▲/▼ for the actual temperature of the desired sensor

Adjusting the heating curve

The heating curve can only be set at the Vitotronic 300-K.

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

Factory settings:
- Slope = 1.4
- Level = 0

Adjusting the heating curve (cont.)

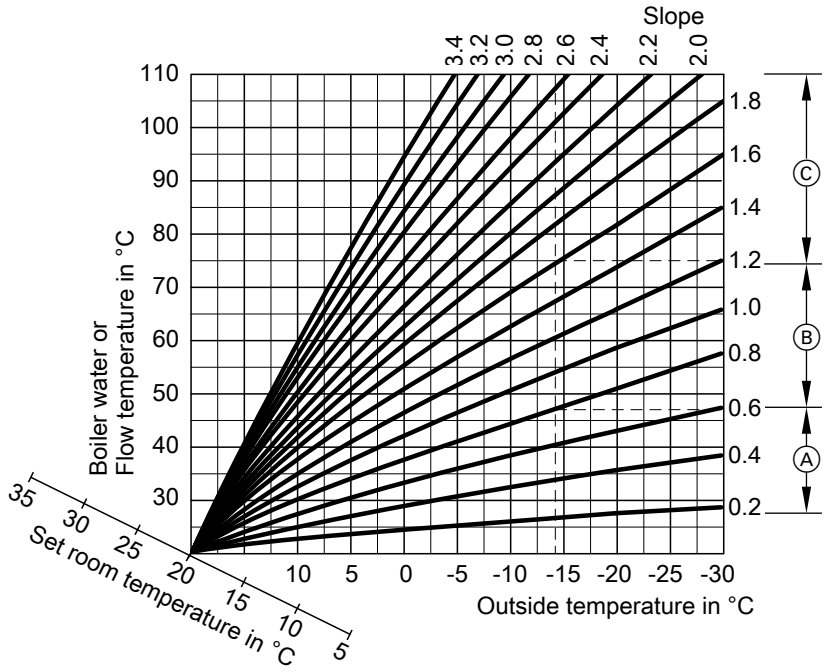


Fig. 25

Example for outside temperature −14 °C
Ⓐ Underfloor heating system, slope 0.2 to 0.8
Ⓑ Low temperature heating system, slope 0.8 to 1.6
Ⓒ Heating systems with a boiler water temperature in excess of 75 °C, slope greater than 1.6

Adjusting the set room temperature

Individually adjustable for each heating circuit.
The heating curve is moved 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

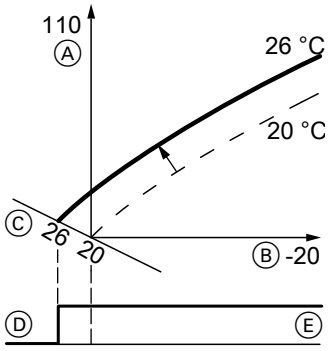


Fig. 26 Adjusting the standard set room temperature from 20 to 26 °C

Ⓐ 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

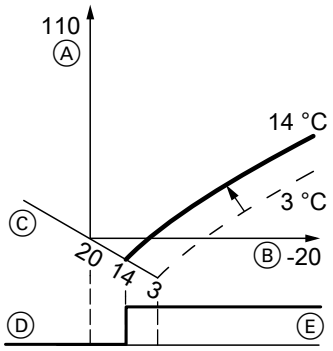


Fig. 27 Adjusting the reduced set room temperature from 3 to 14 °C

Ⓐ 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

Adjusting the heating curve (cont.)

Changing the reduced set room temperature

Operating instructions

Changing the slope and level

Individually adjustable for each heating circuit.

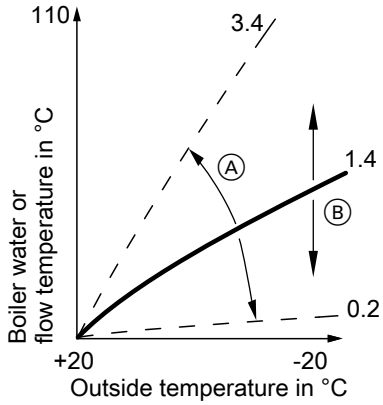


Fig. 28

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

Extended menu:

1. ☰
2. **"Heating"**
3. ◄/► for the required heating circuit if necessary
4. **"Heating curve"**
5. **"Slope"** or **"Level"**
6. Set the values according to system requirements.

Coding levels

There are 2 coding levels:
- Coding level 1
  The most frequently used codes are listed here.
  The codes of coding level 1 are displayed as plain text.
- Coding level 2
  All codes are included here, including those of coding level 1.

Calling up coding levels

- Codes are displayed according to the system version: See page 9.
- The codes are divided into groups:
  - **"General"**
  - **"Cascade"**
  - **"DHW"**
  - **"Solar"**
  - **"Heating circuit ..."**
  - **"All codes standard unit"**:
    In this group, all coding addresses are displayed in ascending order.
    Note
    *The coding addresses in the **"Solar"** group are not shown.*
  - **"Standard setting"**
- Heating systems with one heating circuit without mixer and one or two heating circuits with mixer:
  Below, 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 have been given individual designations, the selected name and designation **"HC1"**or **"HC2"** or **"HC3"** appears.

Coding level 1

Service menu:

1. Press **OK** and ☰ simultaneously for approx. 4 s.
2. **"Coding level 1"**
3. ▲/▼ for the group of the required coding address
4. ▲/▼ for the required coding address
5. ▲/▼ for the required value according to the following tables

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

Coding level 2

Service menu:

1. Press **OK** and ☰ simultaneously for approx. 4 s.
2. Press **OK** and ⮌ simultaneously for approx. 4 s.
3. **"Coding level 2"**
4. ▲/▼ for the group of the required coding address
5. ▲/▼ for the required coding address
6. ▲/▼ for the required value according to the following tables

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

Resetting codes to their delivered condition

This also resets codes in the other coding level.

Resetting codes to their delivered condition (cont.)

Coding level 1

Service menu:

1. Press **OK** and ☰ simultaneously for approx. 4 s.
2. **"Coding level 1"**
3. ▲/▼ for the **"default setting"** group

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

Coding level 2

Service menu:

1. Press **OK** and ☰ simultaneously for approx. 4 s.
2. Press **OK** and ⮌ simultaneously for approx. 4 s.
3. **"Coding level 2"**
4. ▲/▼ for the **"default setting"** group

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

Coding for Vitotronic 100

Boiler service instructions

Coding level 1, Vitotronic 300-K

General, Vitotronic 300-K

Coding

Coding in the delivered condition		Possible change	
System design			
00:1	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: ...	Description
2	One heating circuit without mixer A1 (heating circuit 1), **with** DHW heating, automatic recognition.
3	One heating circuit with mixer M2 (heating circuit 2), **without** DHW heating.
4	One heating circuit with mixer M2 (heating circuit 2), **with** DHW heating.
5	One heating circuit without mixer A1 (heating circuit 1), one heating circuit with mixer M2 (heating circuit 2), **without** DHW heating, automatic recognition.
6	One heating circuit without mixer A1 (heating circuit 1), one heating circuit with mixer M2 (heating circuit 2), **with** DHW heating, automatic recognition.
7	Two heating circuits with mixer M2 (heating circuit 2) and M3 (heating circuit 3), **without** DHW heating.
8	Two heating circuits with mixer M2 (heating circuit 2) and M3 (heating circuit 3), **with** DHW heating.
9	One heating circuit without mixer A1 (heating circuit 1), two heating circuits with mixer M2 (heating circuit 2) and M3 (heating circuit 3), **without** DHW heating, automatic recognition.
10	One heating circuit without mixer A1 (heating circuit 1), two heating circuits with mixer M2 (heating circuit 2) and M3 (heating circuit 3), **with** DHW heating, automatic recognition.

Coding in the delivered condition		Possible change	
Servomotor runtime			
40:125	Actuator runtime at plug 52 A1 125 s	40:5 to 40:199	Runtime adjustable from 5 to 199 s.
Subscriber no.			
77:5	LON subscriber number	77:1 to 77:99	LON subscriber number, adjustable from 1 to 99: 1 to 4 = Boiler control unit 5 = Cascade control unit 10 to 97 = Vitotronic 200-H 98 = Vitogate 99 = Vitocom
Detached house/Apartment building			
7F:1	Detached house	7F:0	Apartment building Holiday program and time program for DHW heating can be set separately

▶▶

Coding level 1, Vitotronic 300-K (cont.)

Coding in the delivered condition		Possible change	
General			
8F:0	Control in standard menu and extended menu enabled ***Note*** *The relevant code is only activated when you exit the service menu: See page 65.*	8F:1	Operation disabled in standard menu **and** extended menu
		8F:2	Operation enabled in standard menu, but disabled in extended menu
Set flow temperature for external demand			
9b:70	Set flow temperature for external demand is 70 °C.	9b:0	No set value specified
		9b:1 to 9b:127	Set flow temperature adjustable from 1 to 127 °C.

Cascade, Vitotronic 300-K

Coding

Coding in the delivered condition		Possible change	
Number of boilers in cascade			
35:4	4 boilers connected to the Vitotronic 300-K	35:1 to 35:4	1 to 4 boilers connected to the Vitotronic 300-K
Min. system flow temperature			
36:0	Electronic minimum system flow temperature limit set to 0 °C.	36:1 to 36:127	Minimum limit adjustable from 0 to 127 °C
Max. system flow temperature			
37:80	Electronic maximum system flow temperature limit set to 80 °C.	37:20 to 37:127	Maximum limit adjustable from 20 to 127 °C ***Note*** *Value must be lower than the lowest value of coding address "06" in group 2 of every Vitotronic 100.*
Control type			
3b:1	Standalone **parallel** boiler circuit: With flow temperature sensor: See page 79.	3b:0	Standalone **parallel** boiler circuit: Without flow temperature sensor: See page 79.
		3b:2	Standalone **serial** boiler circuit: Without flow temperature sensor: See page 79.
		3b:3	Standalone **serial** boiler circuit: With flow temperature sensor: See page 79.
		3b:4	Sequential control method with flow temperature sensor: See page 80.

Coding level 1, Vitotronic 300-K (cont.)

Coding in the delivered condition		Possible change	
Control strategy			
3C:2	Conventional boiler strategy 2: See page 81. ***Note*** *We recommend utilising a condensing strategy: See page 80.*	3C:0	Condensing strategy: See page 80.
		3C:1	Conventional boiler strategy 1: See page 81.

DHW, Vitotronic 300-K

Coding

Coding in the delivered condition		Possible change	
DHW			
67:40	For solar DHW heating: Set DHW temperature 40 °C. Reheating is suppressed above the selected set temperature (DHW heating by the boiler only if solar energy is insufficient).	67:0	No set value 3
		67:10 to 67:95	Set DHW temperature adjustable from 10 to 95 °C (limited by boiler-specific parameters). Observe setting for coding address "56".
Enable DHW circulation pump			
73:0	DHW circulation pump: ON according to time program	73:1 to 73:6	During the time program ON 1 to 6 x/h for 5 min
		73:7	Permanently ON

Solar, Vitotronic 300-K

Only in conjunction with solar control module, type SM1.

Coding

Coding in the delivered condition		Possible change	
Speed control solar circuit pump			
02:...	Data dependent on the software version of solar control module SM1	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.

Coding level 1, Vitotronic 300-K (cont.)

Coding in the delivered condition		Possible change	
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, Vitotronic 300-K

Coding

Coding in the delivered condition		Possible change	
Priority DHW heating			
A2:2	Cylinder priority control for 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
Economy function outside temperature			
A5:5	With heating circuit pump logic function (economy mode): Heating circuit pump OFF when the outside temperature (OT) is 1 K higher than the set room temperature (RT_{set}) OT > RT_{set} +1 K	A5:0	Without heating circuit pump logic function
		A5:1 to A5:15	With heating circuit pump logic function: Heating circuit pump switched off: See the following table

Code 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

5815091

Coding level 1, Vitotronic 300-K (cont.)

Code address A5: ...	With heating circuit pump logic function: Heating circuit pump off
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 mixer economy function			
A7:0	Only for heating circuits with mixer: Without mixer economy function	A7:1	With mixer economy function: Heating circuit pump also OFF: ▪ Mixer tries closing for more than 20 min Heating circuit pump ON: ▪ Mixer in control mode ▪ If there is a risk of frost
Pump idle time, reduced mode transition			
A9:7	With pump idle time (heating circuit pump switched off) For function description: See page 83. ***Note*** *The max. idle period is 10 h.*	A9:0	Without pump idle time
		A9:1 to A9:15	With pump idle time, adjustable from 1 to 15. 1: Short idle time 15: Long 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
Room temperature economy function			
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

Code 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}

Coding level 1, Vitotronic 300-K (cont.)

Code address b5: ...	With heating circuit pump logic function:	
	Heating circuit pump off	Heating circuit pump on
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	
Min. flow temperature, heating circuit			
C5:20	Electronic flow temperature minimum limit 20 °C (only for operation with standard room temperature)	C5:1 to C5:127	Minimum limit adjustable from 1 to 127 °C (limited by boiler-specific parameters).
Max. flow temperature, heating circuit			
C6:75	Electronic maximum flow temperature limit set to 75 °C.	C6:10 to C6:127	Maximum limit adjustable from 10 to 127 °C (limited by boiler-specific parameters).
Operating program changeover			
d5:0	With external operating program changeover (observe setting of coding addresses "5d", "5E", "5F" and "91" in the **"General"** group). Changeover "Constant central heating with reduced room temperature" or "Standby mode" (subject to set reduced room temperature)	d5:1	Changeover to "Constant operation with standard room temperature"
Ext. operating program changeover to heating circuit			
d8:0	With EA1 extension: No operating program changeover	d8:1	Operating program changeover via input DE1
		d8:2	Operating program changeover via input DE2
		d8:3	Operating program changeover via input DE3
Screed drying			
F1:0	Screed drying not active	F1:1 to F1:6	Only for heating circuits with mixer: Screed drying adjustable, with choice of 6 temperature/time profiles: See page 83.
		F1:15	Constant flow temperature 20 °C: See page 83.

Coding level 1, Vitotronic 300-K (cont.)

Coding in the delivered condition		Possible change	
Party mode time limit			
F2:8	Time limit for party mode or external operating program changeover with pushbutton: 8 h ***Note*** ▪ *Observe settings of coding addresses "5d", "5E", "5F" in the **"General"** group as well as "d5" and "d8" in the **"Heating circuit..."** group.* ▪ *In the "Heating and DHW" operating program, party mode ends **automatically** when the system changes over to operation with standard room temperature.*	F2:0	No time limit
		F2:1 to F2:12	Time limit adjustable from 1 to 12 h.
Start temperature raising			
F8:–5	Temperature limit for terminating reduced mode –5 °C: See example on page 85. Observe setting of coding address "A3".	F8:+10 to F8:–60	Temperature limit adjustable from +10 to –60 °C.
		F8:–61	Function disabled
End temperature raising			
F9:–14	Temperature limit for terminating reduced room temperature –14 °C: See example on page 85.	F9:+10 to F9:–60	Limit for raising the set room temperature to the value selected for standard mode, adjustable from +10 to –60 °C.
Set flow temperature increase			
FA:20	Set boiler water temperature or set flow temperature is raised by 20 % when switching from operation with reduced room temperature to operation with standard room temperature: See example on page 86.	FA:0 to FA:50	Temperature increase adjustable from 0 to 50 %.
Duration set flow temperature increase			
Fb:30	Duration of the increased set flow temperature (see coding address "FA") is 60 min: See example on page 86.	Fb:0 to Fb:150	Duration adjustable from 0 to 300 min. 1 step ≙ 2 min

Coding level 2, Vitotronic 300-K

General, Vitotronic 300-K

Coding

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

Coding level 2, Vitotronic 300-K (cont.)

Value, address 00: ...	Description
2	One heating circuit without mixer A1 (heating circuit 1), **with** DHW heating, automatic recognition.
3	One heating circuit with mixer M2 (heating circuit 2), **without** DHW heating.
4	One heating circuit with mixer M2 (heating circuit 2), **with** DHW heating.
5	One heating circuit without mixer A1 (heating circuit 1), one heating circuit with mixer M2 (heating circuit 2), **without** DHW heating, automatic recognition.
6	One heating circuit without mixer A1 (heating circuit 1), one heating circuit with mixer M2 (heating circuit 2), **with** DHW heating, automatic recognition.
7	Two heating circuits with mixer M2 (heating circuit 2) and M3 (heating circuit 3), **without** DHW heating.
8	Two heating circuits with mixer M2 (heating circuit 2) and M3 (heating circuit 3), **with** DHW heating.
9	One heating circuit without mixer A1 (heating circuit 1), two heating circuits with mixer M2 (heating circuit 2) and M3 (heating circuit 3), **without** DHW heating, automatic recognition.
10	One heating circuit without mixer A1 (heating circuit 1), two heating circuits with mixer M2 (heating circuit 2) and M3 (heating circuit 3), **with** DHW heating, automatic recognition.

Coding in the delivered condition		Possible change	
12:5	With EA1 extension: DHW circulation pump runtime for brief operation: 5 min	12:1 to 12:60	Runtime adjustable from 1 to 60 min
1E:0	With EA1 extension (analogue input 0 – 10 V): Temperature demand from 0 to 100 °C: 1 V ≙ 10 °C 10 V ≙ 100 °C	1E:1	Temperature demand from 30 to 120 °C: 1 V ≙ 30 °C 10 V ≙ 120 °C
2E:0	Never adjust		
2F:0	Never adjust		
40:125	Actuator runtime at plug 52A1 125 s	40:5 to 40:199	Runtime adjustable from 5 to 199 s
4A:0	Sensor 17 A not installed.	4A:1	No function
4b:0	Sensor 17 B not installed	4b:1	Sensor 17 B installed (e.g. temperature sensor cylinder loading system), is detected automatically.
4C:0	Connection at plug 20A1: Heating circuit pump	4C:1	Primary cylinder loading pump for cylinder loading system
4d:1	Connection at plug 29: Shunt pump	4d:0	Distribution pump
4E:1	Connection at plug 52A1: 3-way mixing valve for return temperature control	4E:2	Motor for 3-way mixing valve, cylinder loading system
4F:5	Run-on time, shunt or distribution pump 5 min	4F:0	No pump run-on

5815091

Coding level 2, Vitotronic 300-K (cont.)

Coding in the delivered condition		Possible change	
		4F:1 to 4F:60	Run-on time adjustable from 1 to 60 min
54:0	Without solar thermal system	54:1	With Vitosolic 100; automatic recognition.
		54:2	With Vitosolic 200; automatic recognition.
		54:3	With solar control module, type SM1, without auxiliary function; automatic recognition.
		54:4	With solar control module, type SM1, with auxiliary function, e.g. central heating backup; automatic recognition.
5b:0	Without EA1 extension	5b:1	With EA1 extension; automatic recognition.
5C:0	Function of output 157 at EA1 extension: Central fault message	5C:1	Feed pump
		5C:2	No function
		5C:3	Heating circuit pump A1 is switched to low speed (reduced mode).
		5C:4	Heating circuit pump M2 is switched to low speed (reduced mode).
		5C:5	Heating circuit pump M3 is switched to low speed (reduced mode).
5d:0	Function of input DE1 at EA1 extension: No function	5d:1	Operating program changeover
		5d:2	External demand with minimum set flow temperature Selection of set value at coding address "9b" in the **"General"** group
		5d:3	External enable
		5d:4	External enable with fault message
		5d:5	Fault message input
		5d:6	Brief operation, DHW circulation pump (pushbutton function) Selection of DHW circulation pump runtime setting at coding address "12" in the **"General"** group
5E:0	Function of input DE2 at EA1 extension: No function	5E:1	Operating program changeover
		5E:2	External demand with minimum set flow temperature Selection of set value at coding address "9b" in the **"General"** group
		5E:3	External enable
		5E:4	External enable with fault message
		5E:5	Fault message input
		5E:6	Brief operation, DHW circulation pump (pushbutton function) Selection of DHW circulation pump runtime setting at coding address "12" in the **"General"** group
5F:0	Function of input DE3 at EA1 extension:	5F:1	Operating program changeover

Coding level 2, Vitotronic 300-K (cont.)

Coding in the delivered condition		Possible change	
	No function	5F:2	External demand with minimum set flow temperature Selection of set value at coding address "9b" in the **"General"** group
		5F:3	External enable
		5F:4	External enable with fault message
		5F:5	Fault message input
		5F:6	Brief operation, DHW circulation pump (pushbutton function) Selection of DHW circulation pump runtime setting at coding address "12" in the **"General"** group
6E:50	No display correction for outside temperature	6E:0 to 6E:49	Display correction –5 K to Display correction –0.1 K
		6E:51 to 6E:99	Display correction +0.1 K to Display correction +4.9 K
76:0	Without LON communication module	76:1	With LON communication module; automatic recognition.
77:5	LON subscriber number	77:1 to 77:99	LON subscriber number, adjustable from 1 to 99: 1 to 4 = Boiler control unit 5 = Cascade control unit 10 to 96 = Vitotronic 200-H 97 = Vitogate 300, type BN/MB 98 = Vitogate 200, type KNX 99 = Vitocom 300, type LAN3 or Vitocom 100, type LAN1
78:1	LON communication enabled	78:0	LON communication disabled
79:1	Control unit is fault manager	79:0	Control unit is not fault manager
7A:0	Without central control of heating circuits	7A:1	With central operation (see page 84): Heating circuit without mixer A1 (heating circuit 1)
		7A:2	Heating circuit with mixer M2 (heating circuit 2)
		7A:3	Heating circuit with mixer M3 (heating circuit 3)
7B:1	Control unit transmits the time.	7B:0	No time transmission
7F:1	Detached house	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	Fault message is issued immediately.
		80:2 to 80:199	Minimum fault duration before a fault message is issued, adjustable from 10 to 995 s. 1 step ≙ 5 s
81:1	Automatic summer/wintertime changeover	81:0	Manual summer/wintertime changeover

Coding level 2, Vitotronic 300-K (cont.)

Coding in the delivered condition		Possible change	
		81:2	Use of radio clock receiver; automatic recognition.
		81:3	The control unit receives the time.
82:3	Summertime starts: March	82:1 to 82:12	January to December
83:5	Summertime starts: Week 5 of the selected month	83:1 to 83:5	Week 1 to week 5 of the selected month
84:7	Summertime starts: Last Sunday of the selected month	84:1 to 84:7	Monday to Sunday
85:10	Wintertime starts: October	85:1 to 85:12	January to December
86:5	Wintertime starts: Week 5 of the selected month	86:1 to 86:5	Week 1 to week 5 of the selected month
87:7	Summertime starts: Last Sunday of the selected month	87:1 to 87:7	Monday to Sunday
88:0	Temperature displayed in °C (Celsius)	88:1	Temperature displayed in °F (Fahrenheit)
8A:175	Never adjust		
8F:0	Operation enabled in standard menu and extended menu. ***Note*** *The relevant code is only activated when you exit the service menu:* *See page 65.*	8F:1	Operation disabled in standard menu **and** extended menu.
		8F:2	Operation enabled in standard menu, but disabled in extended menu.
90:128	Time constant for calculating the changed outside temperature 21.3 h	90:1 to 90:199	Subject to the set value, the flow temperature is adjusted quickly (lower values) or slowly (higher values) when the outside temperature changes. 1 step ≙ 10 min
91:0	Connection at terminals 1 and 2 in plug 143 disabled (external operating program changeover): See page 23.	91:1	Contact affects the following heating circuits: Heating circuit without mixer A1 (heating circuit 1)
		91:2	Heating circuit with mixer M2 (heating circuit 2)
		91:3	Heating circuit without mixer A1 (heating circuit 1) and heating circuit with mixer M2 (heating circuit 2)
		91:4	Heating circuit with mixer M3 (heating circuit 3)
		91:5	Heating circuit without mixer A1 (heating circuit 1) and heating circuit with mixer M3 (heating circuit 3)

Coding level 2, Vitotronic 300-K (cont.)

Coding in the delivered condition		Possible change	
		91:6	Heating circuit with mixer M2 (heating circuit 2) and M3 (heating circuit 3)
		91:7	Heating circuit without mixer A1 (heating circuit 1) and heating circuits with mixer M2 (heating circuit 2) and M3 (heating circuit 3)
96:1	With extension for heating circuits 2 and 3 with mixer	96:0	Without extension for heating circuits 2 and 3 with mixer
97:2	The control unit transmits the outside temperature to the Vitotronic 200-H	97:0	The outside temperature of the sensor connected to the control unit is only utilised internally.
		97:1	The control unit receives the outside temperature from the Vitotronic 200-H.
98:1	Viessmann system number (in conjunction with monitoring several systems via Vitocom).	98:1 to 98:5	System number adjustable from 1 to 5.
99:0	Connection at terminals 2 and 3 in plug [143] disabled (external blocking/external mixer CLOSE): See page 23.	99:1	No function
		99:2	External mixer CLOSE Heating circuit with mixer M2 (heating circuit 2)
		99:3	No function
		99:4	External mixer CLOSE Heating circuit with mixer M3 (heating circuit 3)
		99:5	No function
		99:6	External mixer CLOSE Heating circuit with mixer M2 (heating circuit 2) and M3 (heating circuit 3)
		99:7	No function
		99:8	External enable
		99:9	No function
		99:10	External enable/External mixer CLOSE Heating circuit with mixer M2 (heating circuit 2) and M3 (heating circuit 3)
		99:11	No function
		99:12	External enable/External mixer CLOSE Heating circuit with mixer M3 (heating circuit 3)
		99:13	No function
		99:14	External enable/External mixer CLOSE Heating circuit with mixer M2 (heating circuit 2) and M3 (heating circuit 3)
		99:15	No function

Coding level 2, Vitotronic 300-K (cont.)

Coding in the delivered condition		Possible change	
9A:0	Connection at terminals 1 and 2 in plug [143] disabled (external mixer OPEN): See page 23.	9A:1	No function
		9A:2	External mixer OPEN Heating circuit with mixer M2 (heating circuit 2)
		9A:3	No function
		9A:4	External mixer OPEN Heating circuit with mixer M3 (heating circuit 3)
		9A:5	No function
		9A:6	External mixer OPEN Heating circuit with mixer M2 (heating circuit 2) and M3 (heating circuit 3)
		9A:7	No function
9b:70	Set flow temperature for external demand 70 °C	9b:0	No set value specified
		9b:1 to 9b:127	Set flow temperature adjustable from 1 to 127 °C
9C:20	LON subscriber monitoring If there is no response from a subscriber for 20 min, the values specified in the control unit are used. Only then will a fault message be issued.	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 circuits with mixer M2 and M3	9F:0 to 9F:40	Differential temperature adjustable from 0 to 40 K.

Cascade, Vitotronic 300-K

Coding

Coding in the delivered condition		Possible change	
35:4	4 boilers connected to the Vitotronic 300-K.	35:1 to 35:4	1 to 4 boilers connected to the Vitotronic 300-K.
36:0	Electronic minimum system flow temperature limit set to 0 °C	36:1 to 36:127	Minimum limit adjustable from 0 to 127 °C
37:80	Electronic maximum system flow temperature limit set to 80 °C.	37:20 to 37:127	Maximum limit adjustable from 20 to 127 °C. ***Note*** *Value must be lower than the lowest value of coding address "06" in group 2 of every Vitotronic 100.*
38:0	No lead boiler or boiler sequence changeover: See function description in chapter "Cascade control"	38:1	Lead boiler changeover: Every first day of the month, the boiler with the shortest number of hours run by its burner becomes the lead boiler.

Coding level 2, Vitotronic 300-K (cont.)

Coding in the delivered condition		Possible change	
		38:2 to 38:200	Lead boiler changeover after 200 to 20,000 hours run 1 step ≙ 100 hours run
39:0	No permanent lead boiler	39:1 to 39:4	Boiler 1, 2, 3 or 4 is permanent lead boiler
3A:0	No permanent last boiler	3A:1 to 3A:4	Boiler 1, 2, 3 or 4 is permanently last boiler
3b:1	Standalone **parallel** boiler circuit: With flow temperature sensor: See page 79.	3b:0	Standalone **parallel** boiler circuit: Without flow temperature sensor: See page 79.
		3b:2	Standalone **serial** boiler circuit: Without flow temperature sensor: See page 79.
		3b:3	Standalone **serial** boiler circuit: With flow temperature sensor: See page 79.
		3b:4	Sequential control method with flow temperature sensor: See page 80
3C:2	Conventional boiler strategy 2: See page 82.	3C:0	Condensing strategy: See page 80.
		3C:1	Conventional boiler strategy 1: See page 81.
3d:1	Output statement for condensing strategy and conventional boiler strategy 1	3d:0	No output statement ***Note*** *Vitotronic 300-K regulates only according to conventional boiler strategy 2.*
3E:0	Distribution pump runsl only if there is a heat demand.	3E:1	Distribution pump always runs; shutdown through "External blocking" signal.
3F:0	Without cylinder priority control for distribution pump	3F:1	With cylinder priority control for distribution pump
41:31	No ECO threshold, boiler 1	41:−30 to 41:+30	ECO threshold, boiler 1; adjustable from −30 to +30 °C.
42:31	No ECO threshold, boiler 2	42:−30 to 42:+30	ECO threshold, boiler 2; adjustable from −30 to +30 °C.
43:31	No ECO threshold, boiler 3	43:−30 to 43:+30	ECO threshold, boiler 3; adjustable from −30 to +30 °C.
44:31	No ECO threshold, boiler 4	44:−30 to 44:+30	ECO threshold, boiler 4; adjustable from −30 to +30 °C.
45:60	Start integral threshold set to 60 K x minute.	45:1 to 45:255	Start integral threshold adjustable from 1 to 255 K x minute.

Coding level 2, Vitotronic 300-K (cont.)

Coding in the delivered condition		Possible change	
			Note *A boiler or burner stage will shut down if this value is exceeded.*
46:40	Shutdown integral threshold set to 40 K x minute.	46:1 to 46:255	Shutdown integral threshold adjustable from 1 to 255 K x minute. ***Note*** *A boiler or burner stage will shut down if this value is exceeded.*
47:15	Shutdown differential set to 15 K.	47:2 to 47:30	Shutdown differential adjustable from 2 to 30 K. ***Note*** *One boiler or one burner stage will shut down if the actual flow temperature exceeds the set flow temperature by this value.*
48:35	Never adjust		
49:40	Never adjust		

DHW, Vitotronic 300-K

Coding

Coding in the delivered condition		Possible change	
55:0	Cylinder heating, hysteresis ±2.5 K	55:1	Adaptive cylinder heating enabled: See page 89.
		55:2	Cylinder temperature control with 2 cylinder temperature sensors: See page 89.
		55:3	Cylinder temperature control, cylinder loading system: See page 89.
56:0	Set DHW temperature adjustable from 10 to 60 °C.	56:1	Set DHW temperature adjustable from 10 to 95 °C. ***Note*** *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 95 °C (observe coding address "56").
59:0	Cylinder heating: Set start point –2.5 K Set shutdown point +2.5 K	59:1 to 59:10	Start point adjustable from 1 to 10 K below set value.
5A:0	For DHW heating: The set flow temperature is determined by the highest system flow temperature demand.	5A:1	For DHW heating: The set flow temperature is determined by the cylinder flow temperature demand.

Coding level 2, Vitotronic 300-K (cont.)

Coding in the delivered condition		Possible change	
	This temperature can be called up in the **"Diagnosis"** menu under **"General"** (**"Common demand temp."**): See page 65.		This temperature can be called up in the **"Diagnosis"** menu under **"General"** (**"Common demand temp."**): See page 65.
60:20	During DHW heating, the boiler water temperature is up to 20 K higher than the set DHW temperature.	60:10 to 60:50	Differential between common flow temperature and set DHW temperature adjustable from 10 to 50 K.
61:1	Circulation pump for cylinder heating starts immediately.	61:0	Circulation pump for cylinder heating starts subject to boiler water temperature.
62:10	Circulation pump with max 10 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.
64:2	In party mode and after external changeover to constant operation with the standard room temperature: Constant DHW heating enabled and DHW circulation pump ON.	64:0	No DHW heating DHW circulation pump switched off
		64:1	DHW heating and DHW circulation pump according to time program
66:4	Input of the set DHW temperature: At the controller programming unit and all installed Vitotrol 300 remote control units.	66:0	At the controller programming unit
		66:1	At the controller programming unit and the remote control unit of the heating circuit without mixer A1 (heating circuit 1)
		66:2	At the controller programming unit and the remote control unit of the heating circuit with mixer M2 (heating circuit 2)
		66:3	At the controller programming unit and the remote control unit of the heating circuit with mixer M3 (heating circuit 3)
		66:5	At the remote control of the heating circuit without mixer A1 (heating circuit 1)
		66:6	At the remote control of the heating circuit with mixer M2 (heating circuit 2)
		66:7	At the remote control of the heating circuit with mixer M3 (heating circuit 3)
67:40	For solar DHW heating: Set DHW temperature 40 °C. Reheating is suppressed above the selected set temperature (DHW heating by the boiler only if solar energy is insufficient).	67:0	No set value 3
		67:10 to 67:95	Set DHW temperature adjustable from 10 to 95 °C (limited by boiler-specific parameters). Observe setting for coding address "56".
68:8	With 2 cylinder temperature sensors (code "55:2"): Cylinder heating shutdown point at set value x 0.8	68:2 to 68:10	Factor adjustable from 0.2 to 1. 1 step ≙ 0.1

Coding level 2, Vitotronic 300-K (cont.)

Coding in the delivered condition		Possible change	
69:7	With 2 cylinder temperature sensors (code "55:2"): Cylinder heating start point at set value x 0.7	69:1 to 69:9	Factor adjustable from 0.1 to 0.9. 1 step ≙ 0.1
6A:75	Runtime, servomotor, mixing valve, heat exchanger set, Vitotrans 222, (80 and 120 kW): 75 s	6A:10 to 6A:255	For heat exchanger set Vitotrans 222 (240 kW): Set 113 s. Runtime adjustable from 10 to 255 s.
70:0	DHW circulation pump ON according to time program when DHW heating is enabled.	70:1	DHW circulation pump ON according to time program.
71:0	DHW circulation pump: ON according to time program.	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.	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.	73:1 to 73:6	During the time program ON 1 to 6 x/h for 5 min.
		73:7	Permanently ON.
75:0	DHW circulation pump ON in economy mode according to time program.	75:1	DHW circulation pump OFF in economy mode.

Solar, Vitotronic 300-K

Only in conjunction with solar control module, type SM1

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	Shutdown temperature differential for solar circuit pump 4 K	01:1 to 01:29	Shutdown temperature differential adjustable from 1 to 29 K.
02:...	Coding dependent on the software version of solar control module SM1	02:0	Solar circuit pump not speed-controlled
		02:1	With wave packet control function Do not adjust
		02:2	Solar circuit pump speed-controlled with PWM control
03:10	Temperature differential for the start of speed control 10 K	03:5 to 03:20	Temperature differential adjustable from 5 to 20 K.
04:4	Controller gain of speed control 4 %/K	04:1 to 04:10	Controller gain adjustable from 1 to 10 %/K

Coding level 2, Vitotronic 300-K (cont.)

Coding in the delivered condition		Possible change	
05:10	Min. speed of solar circuit pump 10 % of max. speed	05:2 to 05:100	Minimum speed of the solar circuit pump adjustable from 2 to 100 %
06:75	Max. speed of the solar circuit pump 75 % of max. possible speed	06:1 to 06:100	Maximum speed of solar circuit pump 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 measure 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 reducing the stagnation time (reduction in solar circuit pump speed to protect system components and heat transfer medium) 5 K	0A:0	Stagnation time reduction 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 detected 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 rate in the solar circuit (e.g. at night) is detected.	0d:0	Night-time DHW circulation monitoring switched off
0E:1	Heat statement in conjunction with Viessmann heat transfer medium	0E:2	Do not adjust
		0E:0	No heat statement
0F:70	Solar circuit flow rate at 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
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. ▪ Code "20:9" (heating of 2 DHW cylinders) selected: When the set DHW temperature is achieved in one DHW cylinder, the second DHW cylinder is heated.	11:10 to 11:90	Set solar DHW temperature adjustable from 10 to 90 °C.

Coding level 2, Vitotronic 300-K (cont.)

Coding in the delivered condition		Possible change	
12:20	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.
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
22:8	Start temperature differential for central heating backup 8 K (code "20:4" must be set)	22:2 to 22:30	Start temperature differential adjustable from 2 to 30 K
23:4	Shutdown temperature differential for central heating backup 4 K (code "20:4" must be set)	23:2 to 23:30	Shutdown temperature differential adjustable from 1 to 29 K
24:40	Start temperature for thermostat function 40 °C (code "20:5" or "20:6" must be set)	24:0 to 24:100	Start temperature for thermostat function adjustable from 0 to 100 K.
25:50	Shutdown temperature for thermostat function 50 °C (code "20:5" or "20:6" must be set)	25:0 to 25:100	Shutdown 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 one of the DHW cylinders
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	Cyclical heating time is adjustable from 5 to 60 min.
28:3	Alternate pause time [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 detected during the cyclical pause time.	28:1 to 28:60	Cyclical pause time adjustable from 1 to 60 min.

Coding level 2, Vitotronic 300-K (cont.)

Heating circuit 1, heating circuit 2, heating circuit 3, Vitotronic 300-K

Coding

Coding in the delivered condition		Possible change	
A0:0	Without remote control	A0:1	With Vitotrol 200-A or Vitotrol 200-RF; automatic recognition.
		A0:2	With Vitotrol 300-A; automatic recognition.
A1:0	Only with Vitotrol 200: All settings available on the remote control can be made.	A1:1	Only party mode can be set at the remote control.
A2:2	Cylinder priority control for 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
A3:2	Outside temperature below 1 °C: Heating circ pump switched on Outside temperature above 3 °C: Heating circ pump switched off	A3:–9 to A3:15	Heating circuit pump on/off: See the following table

! **Please note**
With settings below 1 °C there is a risk that pipes outside the thermal envelope of the building could freeze up.
Standby mode in particular must be taken into consideration, e.g. during holidays.

Code 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	A4:1	No frost protection; this setting is only possible if code "A3:–9" has been set.

5815091

Coding level 2, Vitotronic 300-K (cont.)

Coding in the delivered condition		Possible change	
			Please note Observe information on coding address "A3".
A5:5	With heating circuit pump logic function (economy mode): Heating circuit pump OFF when the outside temperature (OT) is 1 K higher than the set room temperature (RT_{set}) OT > RT_{set} + 1 K.	A5:0	Without heating circuit pump logic function
		A5:1 to A5:15	With heating circuit pump logic function: Heating circuit pump off: See the following table

Code 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 mode **disabled**	A6:5 to A6:35	Extended economy mode enabled. This means the burner and heating circuit pump will stop and the mixer will 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 derived from the actual outside temperature and a time constant that takes account of the way an average building cools down.
A7:0	Only for heating circuits with mixer: Without mixer economy function	A7:1	With mixer economy function (extended heating circuit pump logic): Heating circuit pump also OFF: ▪ If the mixer has been trying to close for more than 12 min. Heating circuit pump ON: ▪ If the mixer changes to control function. ▪ If there is a risk of frost.
A9:7	With pump idle time (heating circuit pump switched off): See function description on page 83. ***Note*** *The max. idle time is 10 h*	A9:0	Without pump idle time
		A9:1 to A9:15	With pump idle time, adjustable from 1 to 15. 1: Short idle time 15: Long idle time
AA:2	Never adjust		

Coding level 2, Vitotronic 300-K (cont.)

Coding in the delivered condition		Possible change	
b0:0	With remote control: Heating mode/reduced mode: Weather-compensated	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.
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	Heating circuit pump logic function: See the following table.

Code 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	
b6:0	With remote control: Without quick heat-up/quick setback	b6:1	With quick heat-up/quick setback: See function description on page.
b7:0	With remote control; and operation with room temperature hook-up must be programmed for the heating circuit: Without start optimisation	b7:1	With start optimisation, max. heat-up time offset 2 h 30 min
		b7:2	With start optimisation, max. heat-up time offset 15 h 50 min
b8:10	With remote control; and operation with room temperature hook-up must be programmed for the heating circuit: Heat-up gradient start optimisation 10 min/K	b8:11 to b8:255	Heat-up gradient adjustable from 11 to 255 min/K.

Coding level 2, Vitotronic 300-K (cont.)

Coding in the delivered condition		Possible change	
b9:0	With remote control; and operation with room temperature hook-up must be programmed for the heating circuit: Without learning start optimisation	b9:1	With learning start optimisation
C0:0	With remote control: Without shutdown optimisation (only for weather-compensated control units; only change the code for the heating circuit with mixer)	C0:1	With shutdown optimisation, max. setback time offset 1 h
		C0:2	With shutdown optimisation, max. setback time offset 2 h
C1:0	With remote control: Without shutdown optimisation (only for weather-compensated control units; only change the code for the heating circuit with mixer)	C1:1 to C1:12	With shutdown optimisation of setback time offset adjustable from 10 to 120 min. 1 step ≙ 10 min
C2:0	With remote control: Without learning shutdown optimisation (only for weather-compensated control units; only change the code for the heating circuit with mixer)	C2:1	With learning shutdown optimisation
C3:125	Only for heating circuits with mixer: Mixer runtime 125 s	C3:10 to C3:255	Runtime adjustable from 10 to 255 s.
C4:1	System dynamics: Mixer control characteristics	C4:0 to C4:3	Controller responds too quickly (cycles between OPEN and CLOSE): Select a lower value. Controller responds too slowly (temperature is not held sufficiently): Select a higher value.
C5:20	Electronic minimum flow temperature limit set to 20 °C (only for operation with standard room temperature)	C5:1 to C5:127	Minimum limit adjustable from 1 to 127 °C.
C6:75	Electronic maximum flow temperature limit set to 75 °C	C6:10 to C6:127	Maximum limit adjustable from 10 to 127 °C.
C8:31	With remote control; and operation with room temperature hook-up must be programmed for the heating circuit: No room influence limit	C8:1 to C8:30	Room influence limit adjustable from 1 to 30 K.
d5:0	With external operating program changeover (observe setting at coding address "5d", "5E" and "5F" and "91" in the **"General"** group): Operating program changeover to "Constant central heating with reduced room temperature" or "Standby mode" (subject to the settings of the set reduced room temperature).	d5:1	Operating program switches to "Constant operation with standard room temperature".
d8:0	With EA1 extension: No operating program changeover	d8:1	Operating program changeover via input DE1
		d8:2	Operating program changeover via input DE2

▶▶

Coding level 2, Vitotronic 300-K (cont.)

Coding in the delivered condition		Possible change	
		d8:3	Operating program changeover via input DE3
E1:1	Never adjust		
E2:50	With remote control: No display correction of the actual room temperature	E2:0 to E2:49	Display correction –5 K to Display correction –0.1 K
		E2:51 to E2:99	Display correction +0.1 K to Display correction +4.9 K
F1:0	Screed drying not active	F1:1 to F1:6	Only for heating circuits with mixer: Screed drying adjustable, with choice of 6 temperature/time profiles: See page 83.
		F1:15	Constant flow temperature 20 °C: See page 83.
F2:8	Time limit for party mode or external operating program changeover with pushbutton: 8 h ***Note*** ▪ *Observe settings of coding addresses "5d", "5E", "5F" in the **"General"** group as well as "d5" and "d8" in the **"Heating circuit..."** group.* ▪ *In the "Heating and DHW" operating program, party mode ends **automatically** when the system changes over to operation with standard room temperature.*	F2:0	No time limit
		F2:1 to F2:12	Time limit adjustable from 1 to 12 h.
F8:-5	Temperature limit for terminating reduced mode –5 °C: See example on page 85. Observe setting of coding address "A3".	F8:+10 to F8:–60	Temperature limit adjustable from +10 to –60 °C.
		F8:–61	Function disabled
F9:–14	Temperature limit for terminating reduced room temperature –14 °C: See example on page 85.	F9:+10 to F9:–60	Limit for raising the set room temperature to the value selected for standard mode, adjustable from +10 to –60 °C.
FA:20	Set boiler water temperature or set flow temperature is raised by 20 % when switching from operation with reduced room temperature to operation with standard room temperature: See example on page 86.	FA:0 to FA:50	Temperature increase adjustable from 0 to 50 %.
Fb:30	Period for raising the set boiler water or flow temperature (see coding address "FA") 60 min: See example on page 86.	Fb:0 to Fb:150	Duration adjustable from 0 to 300 min. 1 step ≙ 2 min

Calling up the service menu

Boiler service instructions

Service menu:

1. Press **OK** and ☰ simultaneously for approx. 4 s.
   🔧 flashes on the display.
2. ▲/▼ for the required function: See the following table.

Symbol	Function
🔧	Diagnosis
⇄	Relay test
⚠	Fault history
Code ①	Coding level 1
Code ②	Coding level 2

Exiting the service menu

1. With ▶ select **SERV** ⑦.
2. **OK** to confirm; **"OFF"** flashes.
3. **OK** to confirm

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

Calling up operating data

Operating data can be called up in menu ℹ.

Boiler operating instructions

Brief scan

Service menu:

1. Press **OK** and ☰ simultaneously for approx. 4 s.
   🔧 flashes on the display.
2. **OK** to confirm
3. ▲/▼ for the required function: See the following table.
4. **OK** to confirm

Brief scan	Display				
0	—	System scheme (here 0)	Software version Control unit		Software version Programming unit
3	—	—	Set boiler water 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	

Brief scan (cont.)

Brief scan	Display				
8	8	8	8	8	8
9	—	Burner control unit/burner type 0: 1-stage 1: 2-stage 2: Modulating		Device	
A	—	—	Max. heating output in %		
b	—	Coding card (hexadecimal)			
C	—	Version Device		Version Burner control unit	
d	—	—	—	0	0
E ①	Software version, solar control module, type SM1	Software version, burner control unit		—	Software version LON cascade communication module
F ①	Code 53 setting	Internal details for calibration			

Service indicator

After the limits set at coding addresses "1F", "21" and "23" in group 2 have been reached, the red fault indicator begins to flash and the display shows the following messages:

- The specified hours run and 🔧.
- The specified interval with 🕒 and 🔧.

Acknowledging the service display

To acknowledge a service message, press **OK**.

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

After a service has been carried out (resetting service indicator)

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

Note
The selected service codes for hours run and interval restart at 0.

5815091

Calling up the service menu

Service menu:

1. Press **OK** and ☰ simultaneously for approx. 4 s.
2. ▲/▼ for the required menu: See the following diagram.

Service menu overview

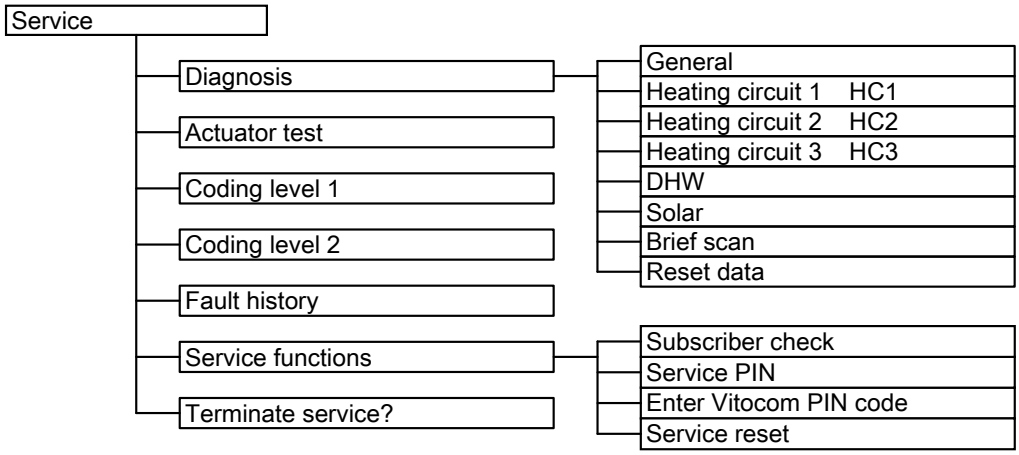


Fig. 29

Note
- ***"Coding level 2"*** *is only displayed if this level has been enabled.*
- ***"Vitocom PIN code entry"*** *is not available.*

Exiting the service menu

The service menu remains active until it is exited with **"Terminate service?"**, or if no key is pressed for 30 min.

Calling up operating data

Operating data can be called up in different areas: See **"Diagnosis"** in the Service menu overview.
Operating data on heating circuits with mixers or on a solar thermal system can only be called up if the relevant components are installed in the system.

For further information on operating data: See chapter "Brief scan".

Calling up operating data

Service menu:

1. Press **OK** and ☰ simultaneously for approx. 4 s.
2. **"Diagnosis"**
3. ▲/▼ for the required group, for example **"General"**.

Note
If a scanned sensor is faulty, "- - -" appears on the display.

Resetting operating data

Saved operating data (e.g. hours run) can be reset to 0.
This resets the value "Adjusted outside temperature" to the actual outside temperature.

Service menu:

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

Calling up operating data (cont.)

3. **"Reset data"**

4. Select required operating data individually or select **"All details"**.

Brief scan

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

Service menu:

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

2. **"Diagnosis"**

3. **"Brief scan"**
An overview of the brief scan appears, with 11 rows and 6 fields.

Fig. 30

	1	2	3	4	5	6
1:	System schemes 01 to 10		Software version, control unit		Software version, programming unit	
2:	0	0	0		Appliance ID (CU-ID)	
3:	0	0	Number of KM-BUS subscribers		Software version Solar control module, type SM1	
4:	0	0	0	0	0	0
5:	0	0	0	0	Software version, AM1 extension	Software version, EA1 extension
6:	0	0	0	0	0	0
7:	Subnet address/system number		Node address		0	0
8:	SNVT config. 0: Auto 1: Tool	Software version Communic. coproc.	Software version Neuron chip		Number of LON subscribers	
	Heating circuit HC1		**Heating circuit HC2**		**Heating circuit HC3**	
9:	Remote control 0: Without 1: Vitotrol 200-A or Vitotrol 200-RF 2: Vitotrol 300-A	Software version Remote control	Remote control 0: Without 1: Vitotrol 200-A or Vitotrol 200-RF 2: Vitotrol 300-A	Software version Remote control	Remote control 0: Without 1: Vitotrol 200-A or Vitotrol 200-RF 2: Vitotrol 300-A	Software version Remote control
10:	0	0	0	0	0	0

5815091

Brief scan (cont.)

	1	2	3	4	5	6
11:	0	0	Software version, extension for heating circuits 2 and 3 with mixer	0	Software version, extension for heating circuits 2 and 3 with mixer	0
			Note *The displays in fields 3 and 5 are **identical**.*			

Service indicator

No service interval can be set at the Vitotronic 300-K.
No service message is displayed.
If a service message is active on any Vitotronic 100, the display of the Vitotronic 300-K shows **"Service"** and flashes.

Confirm with **OK**. **"Subscriber service"** appears.

Acknowledging the service display

To acknowledge a service message, press **OK**.

Note
*If an acknowledged service message is not reset, **"Service"** is displayed again the following Monday.*

Fault display, Vitotronic 100

Boiler service instructions

Fault display, Vitotronic 300-K

- In the event of a fault, the red fault indicator on the control unit flashes. **"Fault"** is shown on the display and ⚠ flashes.
  Press **OK** to display the fault code.
- If a central fault message facility is connected, this is switched on.

For an explanation of fault codes: See chapter "Fault codes, Vitotronic 300-K".

Acknowledging the displayed fault

Follow the instructions on the display.

Note
- *The fault message is applied to the menu.*
- *Any connected message facility is switched off.*
- *If an acknowledged fault is not remedied, the fault message appears again the following day at 07:00 h. The message facility is switched on again.*

Calling up acknowledged fault messages

Extended menu:

1. ☰

2. "Fault"

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.

Note
The list can be deleted.

Service menu:

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

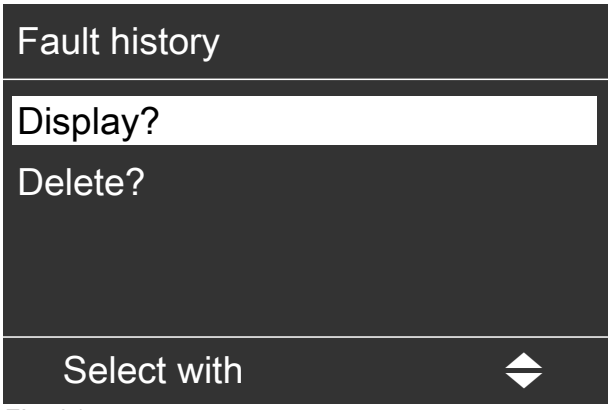


Fig. 31

Fault codes, Vitotronic 300-K

Displayed fault code	System characteristics	Cause	Measures
10	Operates as if the outside temperature was 0 °C.	Short circuit, outside temperature sensor	Check outside temperature sensor: See page 74.
18	Operates as if the outside temperature was 0 °C.	Lead break, outside temperature sensor	Check outside temperature sensor: See page 74
19	Operates as if the outside temperature was 0 °C.	Configuration fault, wireless outside temperature sensor	Without wireless outside temperature sensor: Set code "2E:0" in the **"General"** group.
20	Standalone control unit without flow temperature sensor (flow temperature may not be high enough).	Short circuit, common flow temperature sensor	Check flow temperature sensor: See page 73.
28	Standalone control unit without flow temperature sensor (flow temperature may not be high enough).	Lead break, common flow temperature sensor	Check flow temperature sensor: See page 73.
40	Mixer is being closed.	Short circuit, flow temperature sensor, heating circuit with mixer M2 (heating circuit 2)	Check flow temperature sensor: See page 73.
44	Mixer is being closed.	Short circuit, flow temperature sensor, heating circuit with mixer M3 (heating circuit 3)	Check flow temperature sensor: See page 73.
48	Mixer is being closed.	Lead break, flow temperature sensor, heating circuit with mixer M2 (heating circuit 2)	Check flow temperature sensor: See page 73.
4C	Mixer is being closed.	Lead break, flow temperature sensor, heating circuit with mixer M3 (heating circuit 3)	Check flow temperature sensor: See page 73.
50	Cylinder loading pump ON: DHW temperature target = set flow temperature Priority control is cancelled. Or With cylinder loading system: Cylinder heating is started and stopped via cylinder temperature sensor 2.	Short circuit, cylinder temperature sensor 1	Check cylinder temperature sensor: See page 73.
51	With cylinder loading system: Cylinder heating is started and stopped via cylinder temperature sensor 1.	Short circuit, cylinder temperature sensor 2	Check cylinder temperature sensor: See page 73.
58	Cylinder loading pump ON: DHW temperature target = set flow temperature Priority control is cancelled. Or With cylinder loading system: Cylinder heating is started and stopped via cylinder temperature sensor 2.	Lead break, cylinder temperature sensor 1	Check cylinder temperature sensor: See page 73.

Fault codes, Vitotronic 300-K (cont.)

Displayed fault code	System characteristics	Cause	Measures
59	With cylinder loading system: Cylinder heating is started and stopped via cylinder temperature sensor 1.	Lead break, cylinder temperature sensor 2	Check cylinder temperature sensor: See page 73.
60	Boiler with maximum temperature, no output reduction, mixing valve return temperature control open	Short circuit, temperature sensor 17 A	Check temperature sensor: See page 73.
68	Boiler with maximum temperature, no output reduction, mixing valve return temperature control open	Lead break, temperature sensor 17 A	Check temperature sensor: See page 73. Without temperature sensor: Set code "4A:0" in the **"General"** group.
70	Shunt pump constantly ON. With cylinder loading system: Close 3-way mixing valve; no DHW heating	Short circuit, temperature sensor 17 B	Check temperature sensor: See page 73.
78	Shunt pump constantly ON. With cylinder loading system: Close 3-way mixing valve; no DHW heating	Lead break, temperature sensor 17 A	Check temperature sensor: See page 73. Without temperature sensor: Set code "4b:0" in the **"General"** group.
90	Control mode	Short circuit, temperature sensor 7, connection at the solar control module, type SM1.	Check temperature sensor 7: See separate installation and service instructions.
91	Control mode	Short circuit, temperature sensor 10, connection at the solar control module, type SM1.	Check temperature sensor 10: See separate installation and service instructions.
92	No solar DHW heating	Short circuit, collector temperature sensor, connection of temperature sensor 6 at solar control module, type SM1 or sensor at S1 of the Vitosolic	Check sensor at the solar control unit: See separate installation and service instructions.
93	Control mode	Short circuit, temperature sensor, connection at S3 of the Vitosolic	Check sensor at the solar control unit: See separate installation and service instructions.
94	No solar DHW heating	Short circuit, cylinder temperature sensor, connection of temperature sensor 5 at solar control module, type SM1 or sensor at S2 of the Vitosolic	Check sensor at the solar control unit: See separate installation and service instructions.
98	Control mode	Lead break, temperature sensor 7, connection at the solar control module, type SM1.	Check temperature sensor 7: See separate installation and service instructions. Check coding address "20" in the **"Solar"** group.

Fault codes, Vitotronic 300-K (cont.)

Displayed fault code	System characteristics	Cause	Measures
99	Control mode	Lead break, temperature sensor [10], connection at the solar control module, type SM1.	Check temperature sensor [10]: See separate installation and service instructions. Check coding address "20" in the **"Solar"** group.
9A	No solar DHW heating	Lead break, collector temperature sensor, connection of temperature sensor [6] at solar control module, type SM1 or sensor at S1 of the Vitosolic	Check sensor at the solar control unit: See separate installation and service instructions.
9b	Control mode	Lead break, temperature sensor, connection at S3 of the Vitosolic	Check sensor at the solar control unit: See separate installation and service instructions.
9C	No solar DHW heating	Lead break, cylinder temperature sensor, connection of temperature sensor [5] at solar control module or sensor at S2 of the Vitosolic	Check sensor at the solar control unit: See separate installation and service instructions.
9E	Control mode	No flow or flow rate too low in the solar circuit, or temperature limiter has responded.	Check solar circuit. Acknowledge fault message: See separate installation and service instructions.
9F	Control mode	Fault, solar control module, type SM1 or Vitosolic Displayed if a fault occurs at these devices that has no fault code in the Vitotronic.	Check solar control unit: See separate installation and service instructions.
A7	Control mode	Programming unit fault	Replace the programming unit.
From	Control mode, DHW cylinder may be cold	Cylinder loading system configuration fault: Code "55:3" has been set in the **"DHW"** group but plug [17] [B] is not plugged in and/or codes "4C:1" and "4E:2" in the **"General"** group have not been set.	Insert plug [17] [B] and check codes.
b1	Control mode	Communication error, programming unit	Check connections and replace programming unit if necessary.
b5	Control mode	Internal error	Check PCB is plugged in correctly.
b6	Continuous operation	Invalid hardware recognition	Check coding address "92" in the **"General"** group; "92:187" must be set. ***Note*** *Code "8A:176" in the **"General"** group must be selected for coding address "92" to be displayed.*

Fault codes, Vitotronic 300-K (cont.)

Displayed fault code	System characteristics	Cause	Measures
bA	Mixer CLOSE	Communication error, PCB extension for heating circuits 2 and 3 with mixer	Check that the PCB and ribbon cable are plugged in correctly and replace PCB if necessary.
bC	Control mode without remote control	Communication error, Vitotrol remote control unit, heating circuit without mixer A1 (heating circuit 1)	Check connections, cable (see separate installation and service instructions) and coding address "A0" in the **"Heating circuit..."** group. With wireless remote control: Place the remote control near the wireless base station and check connection: See separate installation and service instructions.
bd	Control mode without remote control	Communication error, Vitotrol remote control unit, heating circuit with mixer M2 (heating circuit 2)	Check connections, cable (see separate installation and service instructions) and coding address "A0" in the **"Heating circuit..."** group. With wireless remote control: Place the remote control near the wireless base station and check connection: See separate installation and service instructions.
bE	Control mode without remote control	Communication error, Vitotrol remote control unit, heating circuit with mixer M3 (heating circuit 3)	Check connections, cable (see separate installation and service instructions) and coding address "A0" in the **"Heating circuit..."** group. With wireless remote control: Place the remote control near the wireless base station and check connection: See separate installation and service instructions.
bF	Control mode No communication via LON	Wrong LON communication module	Replace LON communication module.
C2	Control mode	Lead break, KM-BUS to solar control module, type SM1 or to the Vitosolic	Check KM-BUS cable and appliance. Without solar control unit: Set code "54:0" in the **"General"** group.
CF	Control mode No communication via LON	Communication error, LON communication module of the control unit	Check LON communication module and replace if necessary.
d3	Control mode	Communication error, EA1 extension	Check connections: See page 90. Without EA1 extension: Set code "5b:0" in the **"General"** group.
d5	Burner disabled Frost protection is possible	No communication between boiler circuit and cascade control unit	Check communication by means of a subscriber check; check cables to the Vitotronic 100; check codes.
d6	Control mode	Input DE1 at EA1 extension reports a fault	Remove fault on affected appliance

5815091

Fault codes, Vitotronic 300-K (cont.)

Displayed fault code	System characteristics	Cause	Measures
d7	Control mode	Input DE2 at EA1 extension reports a fault	Remedy fault at affected appliance.
d8	Control mode	Input DE3 at EA1 extension reports a fault.	Remedy fault at affected appliance.
dA	Control mode without room influence	Short circuit, room temperature sensor, heating circuit without mixer A1 (heating circuit 1)	Check room temperature sensor: See page 73.
db	Control mode without room influence	Short circuit, room temperature sensor, heating circuit with mixer M2 (heating circuit 2)	Check room temperature sensor: See page 73.
dC	Control mode without room influence	Short circuit, room temperature sensor, heating circuit with mixer M3 (heating circuit 3)	Check room temperature sensor: See page 73.
dd	Control mode without room influence	Lead break, room temperature sensor, heating circuit without mixer A1 (heating circuit 1)	Check room temperature sensor: See page 73.
dE	Control mode without room influence	Lead break, room temperature sensor, heating circuit with mixer M2 (heating circuit 2)	Check room temperature sensor: See page 73.
dF	Control mode without room influence	Lead break, room temperature sensor, heating circuit with mixer M3 (heating circuit 3)	Check room temperature sensor: See page 73.

Note
If subscriber faults occur, ***"Subscriber fault ..."*** *is displayed.*

Checking temperature sensors

Boiler, cylinder, flow, return and room temperature sensors

Note
- *The flow temperature sensor can be used as a contact or immersion temperature sensor.*
- *The flow temperature sensor of the mixer extension kit is a contact temperature sensor.*
- *The room temperature sensor is connected at terminals 3 and 4 in the Vitotrol 300-A.*

"Vitotrol 300-A" installation and service instructions

Checking temperature sensors (cont.)

Viessmann NTC 10 kΩ (blue ID label)

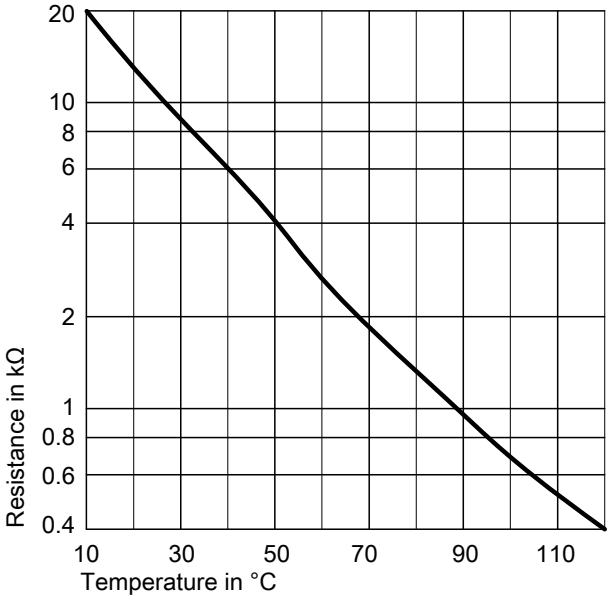


Fig. 32

1. Pull out corresponding plug.
2. Check the sensor resistance and compare it to the curve.
3. In the case of severe deviation, check sensor installation and replace the sensor if necessary.

Outside temperature sensor

Viessmann NTC 10 kΩ (blue ID label)

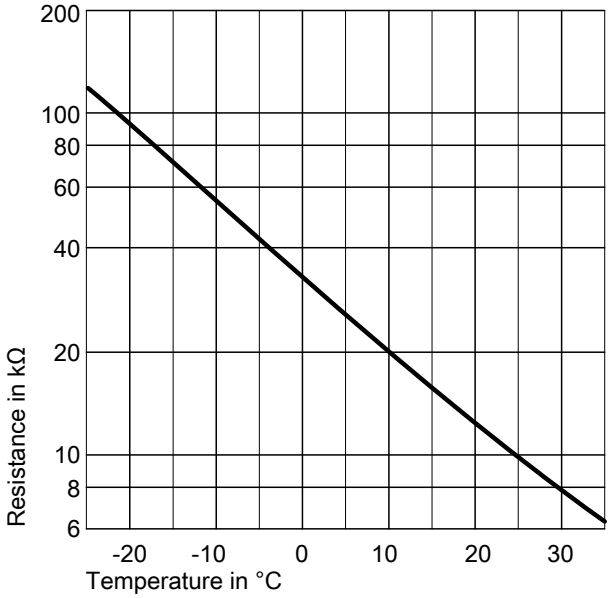


Fig. 33

1. Pull out plug 1.
2. Check the sensor resistance across plug terminals "1" and "2" and compare with the curve.
3. If the results are very different from the curve, disconnect the wires from the sensor and repeat the test on the sensor.
4. Depending on the test result, replace the lead or the outside temperature sensor.

5815091

Ordering parts

The following details are required when ordering parts:
- Serial no. (see type plate Ⓐ)
- Position number of the part (from this parts list)

Vitotronic 300-K

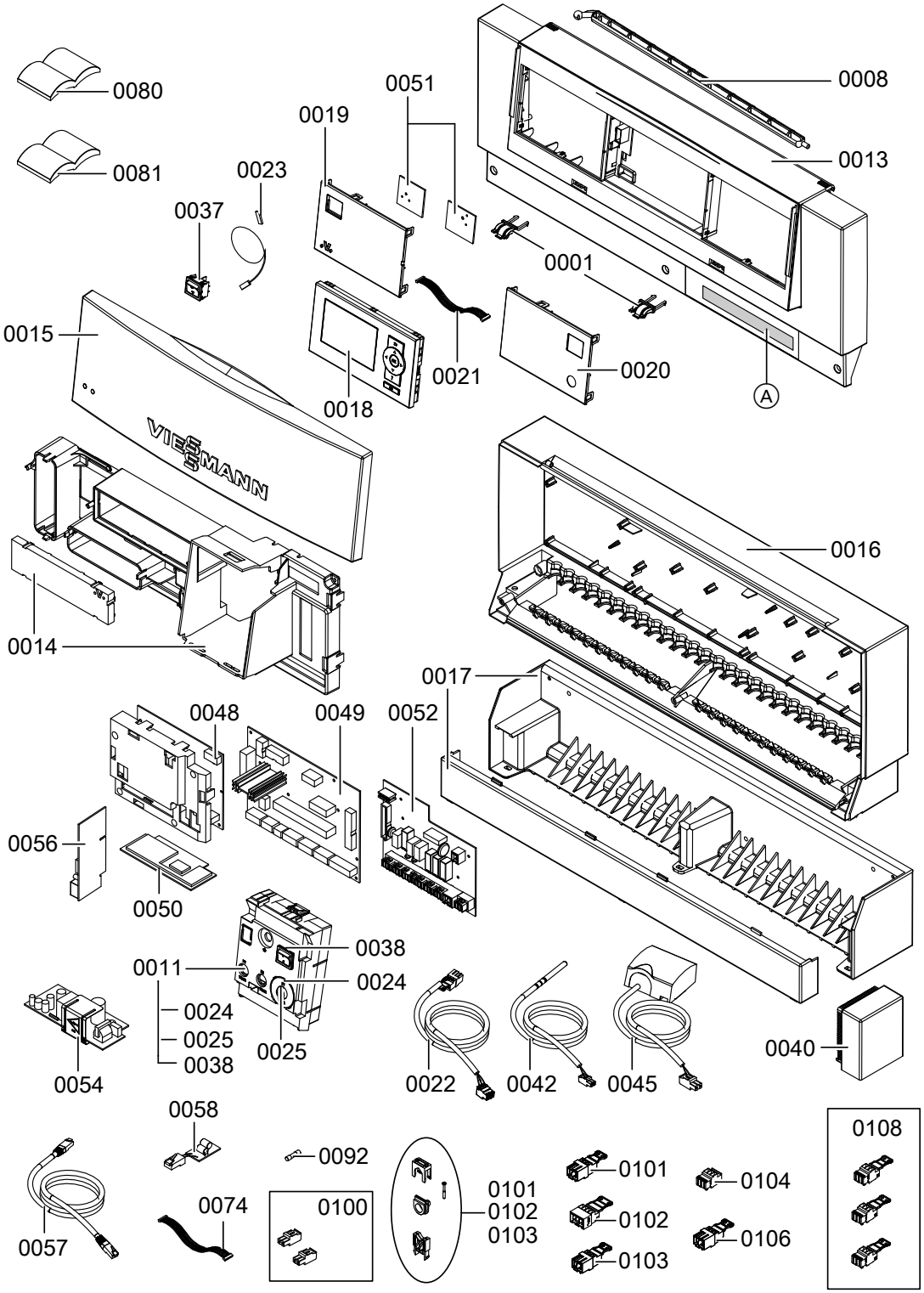


Fig. 34

5815091

Vitotronic 300-K (cont.)

Pos.	Part
0001	Hinge
0008	Supporting stay
0011	Safety part with wiring
0013	Casing front with frame
0014	PCB cover
0015	Front flap
0016	Casing back
0017	Base
0018	Programming unit
0019	Fascia, left
0020	Fascia, right
0021	Ribbon cable, 10-pole
0022	Connecting cable, extension for heating circuits 2 and 3 with mixer
0023	Connecting cable, emissions test switch
0024	Fuse holder cap for control fuse
0025	Fuse holder for control fuse
0037	Emissions test switch, single pole
0038	ON/OFF switch, 2-pole
0040	Outside temperature sensor [1]
0042	Temperature sensor
0045	Contact temperature sensor (flow temperature sensor)
0048	Extension for heating circuits 2 and 3 with mixer, incl. cover
0049	PCB, low voltage
0050	PCB
0051	PCBs, Optolink and emissions test switch
0052	PCB, 230 V~
0054	Power supply unit, PCB
0056	LON communication module
0057	LON cable
0058	Terminator (2 pce)
0074	Connecting cable, 16-pole
0080	Installation and service instructions
0081	Operating instructions
0092	Fuse 6.3 A (slow)/250 V~
0100	Plug for LV (7 pce)
0101	Plug for pumps (3 pce)
0102	Plug [52] (3 pce)
0103	Plug [156] (3 pce)
0104	Power plug [40] (3 pce)
0106	Plug [50] (3 pce)
0108	Plug [143], [145], [146] (3-pole)

Brief description

- The boiler water temperature is regulated by switching the modulating burner.
- The set boiler water temperature is specified by the Vitotronic 300-K.

Functions

Measuring the boiler water temperature:
- Temperature limiter
- Boiler water temperature sensor

Upper control range limits
- Electronic maximum temperature limit:
  - Setting range: 20 °C up to the specification on the coding card
  - Changed at coding address "06" in group 2.

Control sequence

Boiler goes cold

If the boiler water temperature falls 4 K below the set boiler water temperature, the burner starts up. The burner starts its own monitoring program.

Note
The burner start may be delayed by a few minutes, depending on the number of auxiliary circuits and the combustion type.

Boiler heats up

If the boiler water temperature rises above the set value for the boiler water temperature by the shutdown differential of 8 K, the burner stops.

System function description

All codes for the following functions are set on the Vitotronic 300-K.

Cascade control

Brief description

The flow temperature is controlled by starting or stopping the burners or by starting/stopping individual burner stages.

Operation is via 2 control modes:
- Standalone control: See page 79
- Sequential control: See page 80

For each control type, a control strategy is set:
- Condensing strategy: See page 80
- Conventional boiler strategy 1: See page 81
- Conventional boiler strategy 2: See page 81

Set flow temperature

The set flow temperature is determined from the following codes:
- Set flow temperature of heating circuit without mixer A1 (heating circuit 1) and heating circuits with mixer M2 (heating circuit 2) and M3 (heating circuit 3)
- Set flow temperature of further consumers
- Set DHW temperature
- External demands

Control range limits
- Upper control range limits:
  Maximum limit of the system flow temperature (coding address "37" in the **"Cascade"** group)
- Lower control range limits:
  Minimum limit of the system flow temperature (coding address "36" in the **"Cascade"** group)

Standalone control

Boilers connected in parallel	Boilers connected in series
▪ Without and with flow temperature sensor: See the following table. ▪ The cascade control unit specifies the set boiler water temperature for all currently active boilers. Every boiler control unit regulates to the specified set value. The following control strategies are available: ▪ Condensing strategy: See page 80 ▪ Conventional boiler strategy 1: See page 81 ▪ Conventional boiler strategy 2: See page 81 ***Note*** *Vitocrossal, type CI operate in parallel and with condensing strategy.*	▪ Without and with flow temperature sensor: See the following table. ▪ The control strategy is set automatically to conventional boiler strategy 2, code "3C:2" in the **"Cascade"** group: See page 81. ▪ The cascade control unit specifies the set boiler water temperature for all currently active boilers. Every boiler control unit regulates to the specified set value. If the lead boiler (condensing boiler) does not achieve the specified set value, it will only act to control the return temperature of the conventional boiler downstream. The conventional boiler is started late and is also switched off late.

With flow temperature sensor	Without flow temperature sensor
Set code "3b:1" or "3b:3" in the **"Cascade"** group. The control deviation is calculated from the set flow temperature and the actual flow temperature to determine the start and shutdown criteria.	Set code "3b:0" or "3b:2" in the **"Cascade"** group. To determine the start and shutdown criteria, the control deviation is calculated from the set boiler water temperature and the estimated average actual boiler water temperature of the currently active boilers. Only boilers with open motorised butterfly valves are taken into consideration.

Cascade control (cont.)

Sequential control

- With flow temperature sensor
- Set code "3b:4" in the **"Cascade"** group.
- The control strategy is set automatically to conventional boiler strategy 2, code "3C:2" in the **"Cascade"** group: See page 81.
- The cascade control unit regulates to the specified set flow temperature by stipulating the output for each individual boiler. The lead boiler can be operated in modulating mode. All other boilers are operated in 2 stages via a specified output (incl. modulating burners).

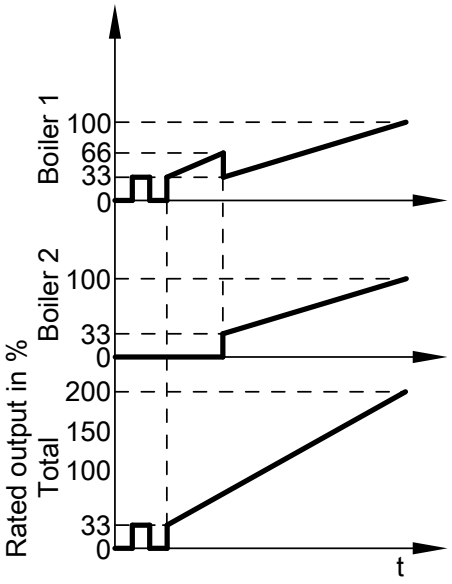
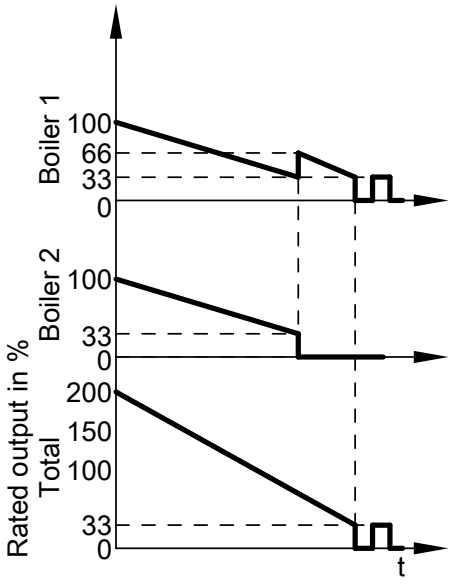
Control strategies

Condensing strategy

Benefit	Optimum utilisation of the condensing effect and long burner runtimes Set code "3C:0" in the **"Cascade"** group. The condensing strategy has the aim of operating as many boilers as possible at the lowest output level.
Start criterion	Boilers are started via an output statement (code "3d:1" in the **"Cascade"** group). An additional boiler starts if the current heat demand can also be covered by the currently active boilers plus the next boiler in the boiler sequence.
Shutdown criterion	The boilers are shut down via a shutdown integral. If the shutdown integral exceeds a limit set at coding address "46" in the **"Cascade"** group, the last started boiler is shut down.

Example (code "3C:0" in the "Cascade " group)

Two-boiler system with modulating burners:
- Boiler 1: 100 % rated heating output (base load set to 33 %)
- Boiler 2: 100 % rated heating output (base load set to 33 %)

Start-up	Shutdown
	

5815091

Cascade control (cont.)

Conventional boiler strategies

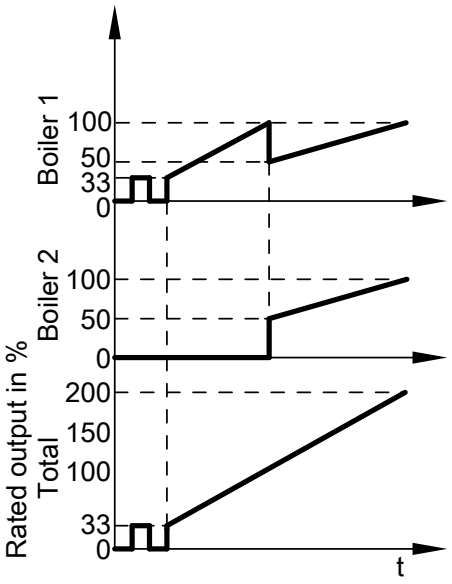
	Conventional boiler strategy 1	Conventional boiler strategy 2
Benefit	As few boilers as possible are active. Set code "3C:1" in the **"Cascade"** group. Conventional boilers are preferably operated at their upper output range to reliably prevent formation of condensate due to low return temperatures. An additional boiler only starts if the maximum output of all currently active burners is insufficient to achieve the set flow temperature. A boiler is shut down when the remaining boilers can achieve the required output on their own.	Long burner runtimes. Code "3C:2" in the **"Cascade"** group (delivered condition). An additional boiler only starts if the maximum output of all currently active burners is insufficient to achieve the set flow temperature. A boiler will be shut down if the burners were ramped down to their minimum output because of a major negative control deviation and the output is still too high.
Start criterion	The boilers are started via a start integral. The next boiler in the boiler sequence is started if the value set at coding address "45" in the **"Cascade"** group is exceeded (see page 29).	The boilers are started via a start integral. The next boiler in the boiler sequence is started if the value set at coding address "45" in the **"Cascade"** group is exceeded (see page 29).
Shutdown criterion	Boilers are switched off by reducing their output (code "3d:1" in the **"Cascade"** group). A boiler is shut down when the current heat demand can be covered without the boiler that was started last.	The boilers are shut down via a shutdown integral. The switch-off criterion is met when the switch-off integral exceeds a limit set at coding address "46" in the **"Cascade"** group and the boiler started last will be switched off.

Examples

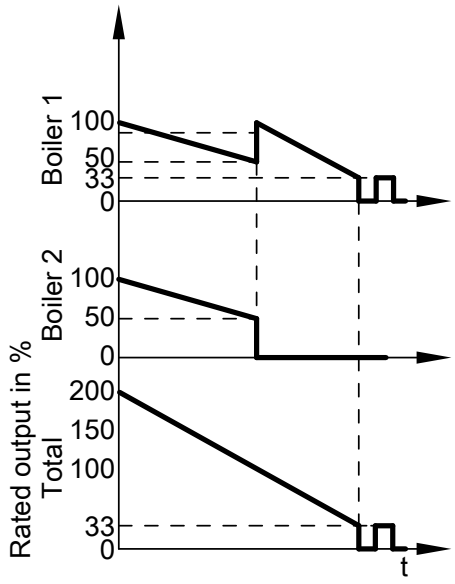
Two-boiler system with modulating burners:
- Boiler 1: 100 % rated heating output (base load set to 33 %)
- Boiler 2: 100 % rated heating output (base load set to 33 %)

Conventional boiler strategy 1 (code "3C:1" in the "Cascade" group)

Start-up



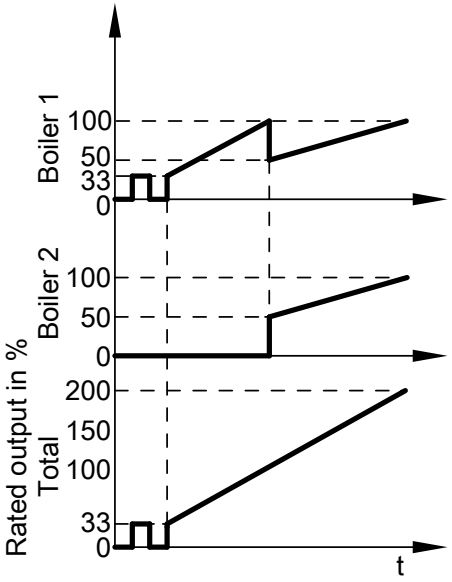
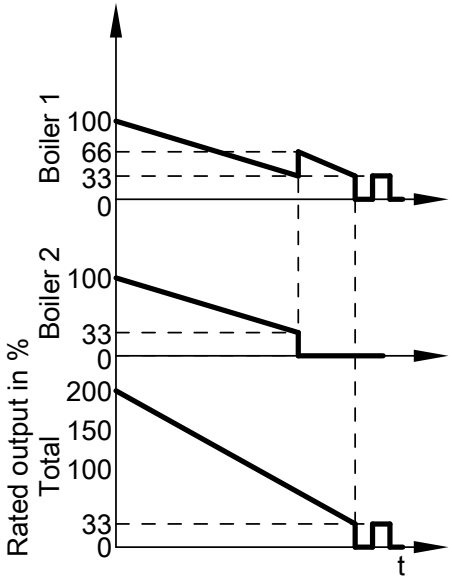
Shutdown



5815091

Cascade control (cont.)

Conventional boiler strategy 2 (code "3C:2" in the "Cascade" group)

Start-up	Shutdown
	

Control of the heating circuits

Brief description

- The control unit has control circuits for one heating circuit without mixer A1 (heating circuit 1) and two heating circuits with mixer M2 (heating circuit 2) and M3 (heating circuit 3).
- The set flow temperature for each heating circuit is determined from the following codes:
  - Outside temperature
  - Set room temperature
  - Operating mode
  - Heating curve slope and level
- The flow temperature of the heating circuit without mixer corresponds to the common system flow temperature.
- The flow temperature of the heating circuits with mixer is regulated by the stepped opening or closing of the mixers.
  The mixer motor control changes the actuating and pause times subject to the control differential (control deviation).

Functions

The heating circuit without mixer is controlled subject to the boiler water temperature and its control range limits.
The heating circuit pump is the only actuator.
The flow temperature of the heating circuits with mixer is measured by the flow temperature sensor of the relevant heating circuit.

- Upper control limit:
  Electronic maximum flow temperature limit
  Coding address "C6" in the **"Heating circuit..."** group.
- Lower control range limit:
  Electronic minimum flow temperature limit
  Coding address "C5" in the **"Heating circuit..."** group.

Time program

The control unit switches over according to the time program. In the **"Heating and DHW"** operating program, the control unit switches between "Central heating with standard room temperature" and "Central heating with reduced room temperature".
Every operating mode has its own set level.
Four time phases per day can be selected.

Outside temperature

A heating curve must be set for matching the control unit to the building and the heating system.

Control of the heating circuits (cont.)

The heating curve characteristics determine the set boiler water temperature subject to outside temperature. The control unit regulates in line with an average outside temperature. This is composed of the actual and the adjusted outside temperature.

Room temperature

Room temperature in conjunction with a remote control and room temperature hook-up (parameter "0A" in the "Heating circuit...") group

The room temperature has a greater influence on the set boiler water temperature than the outside temperature (changed at coding address "b2" in the **"Heating circuit..."** group).

Room temperature in conjunction with heating circuits with mixers

For control differentials (actual value deviation) > 2 K room temperature, the room temperature influence can be increased (coding address "b6" in the **"Heating circuit..."** group):

- **Quick heat-up**
  The set room temperature must be raised by at least 2 K by the following measures:
  - Activating party mode
  - Changing from central heating with reduced temperature to central heating with standard temperature
  - Start optimisation (coding address "b7" in the **"Heating circuit..."** group)

  Quick heat-up stops when the set room temperature has been reached.
- **Quick setback**
  The set room temperature must be reduced by at least 2 K by the following measures:
  - Activating economy mode
  - Changing from central heating with standard temperature to central heating with reduced temperature
  - Shutdown optimisation (coding address "C1" in the **"Heating circuit..."** group)

  Quick setback ends when the set room temperature has been reached.

DHW temperature

Priority control

- With priority control: (code "A2:2" in the **"Heating circuit..."** group):
  The set flow temperature is adjusted to 0 °C during cylinder heating.
  The mixer closes and the heating circuit pump stops.
- Without priority control:
  The heating circuit control unit continues to operate with the same set value.

Heating circuit pump logic – Economy circuits

The heating circuit pump is switched off (set flow temperature set to 0 °C) if one of the following criteria is met:

- The outside temperature exceeds the value set at coding address "A5" in the **"Heating circuit..."** group.
- The adjusted outside temperature exceeds the value set at coding address "A6" in the **"Heating circuit..."** group.
- The mixer has been attempting to close for more than 12 minutes (mixer economy function, coding address "A7" in the **"Heating circuit..."** group).
- The duration of the pump idle time set at coding address "A9" in the **"Heating circuit..."** group has been reached.
  Requirement:
  - There is no risk of frost.
  - Coding address "b0" in the **"Heating circuit..."** group must be set to 0.

  Note
  If, during the pump idle time, the system is switched to heating mode or the set room temperature is increased, the heating circuit pump starts up even if the time has not yet elapsed.
- The actual room temperature exceeds the value set at coding address "b5" in the **"Heating circuit..."** group.

Screed drying

- In conjunction with a heating circuit with mixer
- For drying screeds observe the information provided by the screed manufacturer.
- The heating circuit pump of the heating circuit with mixer is switched on and the flow temperature is maintained in accordance with the selected profile.
- On completion (30 days), the heating circuit with mixer is regulated automatically according to the set parameters.
- Observe EN 1264.
- The report to be provided by the heating contractor must contain the following details on heat-up:
  - Heat-up data with respective flow temperatures
  - Max. flow temperature achieved
  - Operating conditions and outside temperature during handover of the heating system
- Various temperature/time profiles can be set at coding address "F1" in the **"Heating circuit..."** group. See the following diagrams.
- The function continues after a power failure or after the control unit has been switched off. The **"Heating and DHW"** operating program will be enabled if screed drying is terminated or if code "F1:0" in the **"Heating circuit…"** group is set manually.

Meaning of the axis labels

ϑ/°C Set flow temperature in °C
t/d Time in days

Control of the heating circuits (cont.)

Temperature/time profile 1 (to EN 1264-4): Code "F1:1"

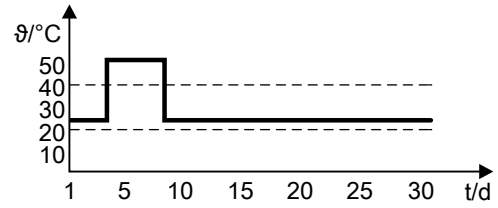


Fig. 35

Temperature/time profile 2 (to ZV parquet and flooring technology): Code "F1:2"

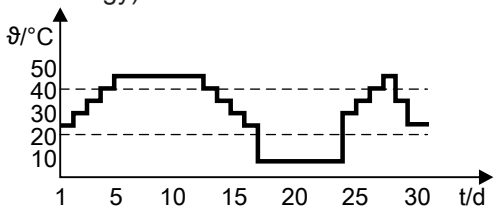


Fig. 36

Temperature/time profile 3 (to ÖNORM): Code "F1:3"

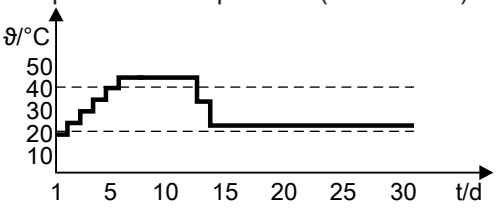


Fig. 37

Temperature/time profile 4: Code "F1:4"

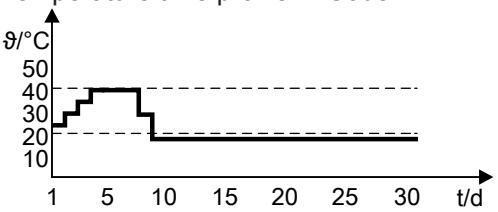


Fig. 38

Temperature/time profile 5: Code "F1:5"

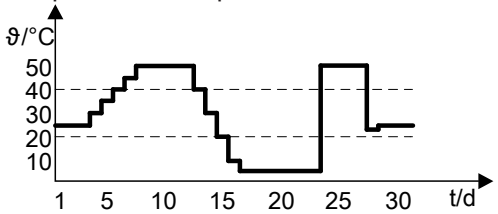


Fig. 39

Temperature/time profile 6: Code "F1:6"

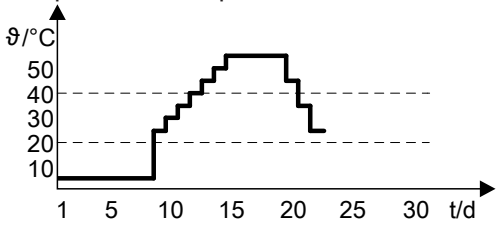


Fig. 40

Temperature/time profile 7: Code "F1:15": Fixed value temperature program
ϑ/°C 20 °C
t/d 30 days

System dynamics

You can influence the control characteristics of the mixers at coding address "C4" in the **"Heating circuit..."** group.

Central control

Central control for a heating circuit can be programmed via coding address "7A" in the **"General"** group. The heating and holiday program then applies to **all** additional heating circuits of the system.
For these heating circuits, when the heating and holiday program is enabled, **"Central control"** is displayed. Any holiday programs that may have been set will be deleted.
Party and economy modes cannot be enabled on **all** control units.

Frost protection

The flow temperature is maintained in accordance with the heating curve for the reduced set room temperature, but at min. 10 °C.
A variable frost limit can be set in accordance with coding address "A3" in the **"Heating circuit..."** group.

5815091

Control of the heating circuits (cont.)

Flow temperature control

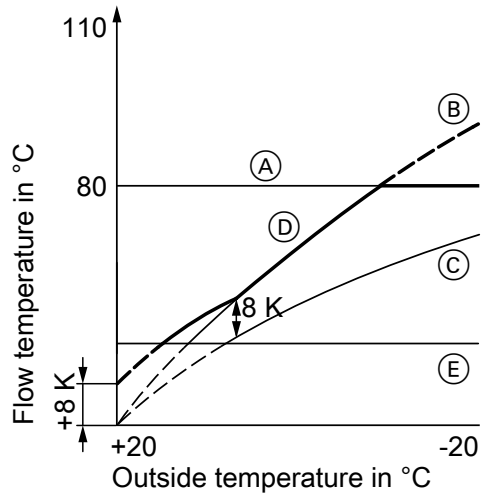


Fig. 41

Ⓐ Maximum flow temperature limit (coding address "37" in the **"Cascade"** group)
Ⓑ Slope = 1.8 for heating circuit without mixer
Ⓒ Slope = 1.2 for heating circuit with mixer
Ⓓ Common flow temperature (at a differential temperature of 8 K)
Ⓔ Lower common flow temperature

Differential temperature:
- The differential temperature can be set at coding address "9F" in the **"General"** group.
- Factory setting 8 K
- The differential temperature is the value by which the common flow temperature should be higher than the highest currently required flow temperature of the heating circuit with mixer.

- System with only one heating circuit with mixer:
  The common set flow temperature is regulated automatically to 8 K above the set flow temperature of the heating circuit with mixer.
- System with heating circuit without mixer and heating circuits with mixer:
  The common set flow temperature operates with its own heating curve. The differential temperature of 8 K to the set flow temperature of the heating circuits with mixer is set at the factory.

Raising the reduced room temperature

During operation at 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 and no higher than the standard set room temperature.

The outside temperature limits for the start and end of temperature raising can be set at coding addresses "F8" and "F9" in the **"Heating circuit..."** group.

Control of the heating circuits (cont.)

Example using the settings in the delivered condition

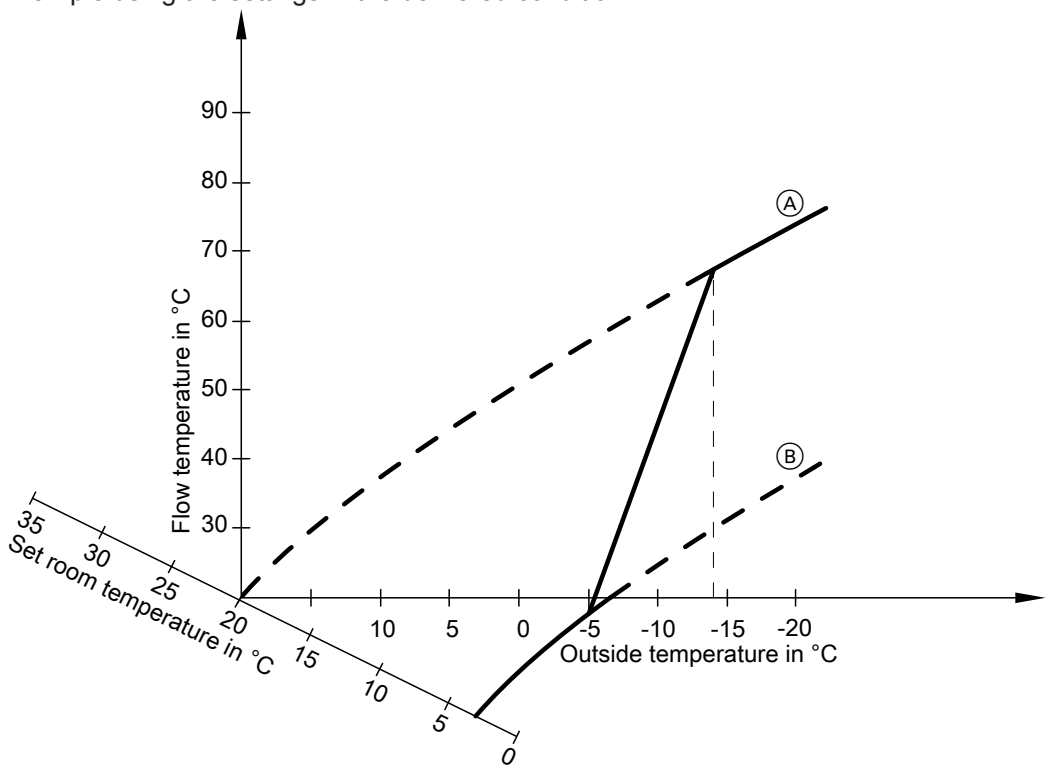


Fig. 42

Ⓐ Heating curve for operation at standard room temperature
Ⓑ Heating curve for operation at 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 increase can be automatically raised.

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

Control of the heating circuits (cont.)

Example using the settings in the delivered condition

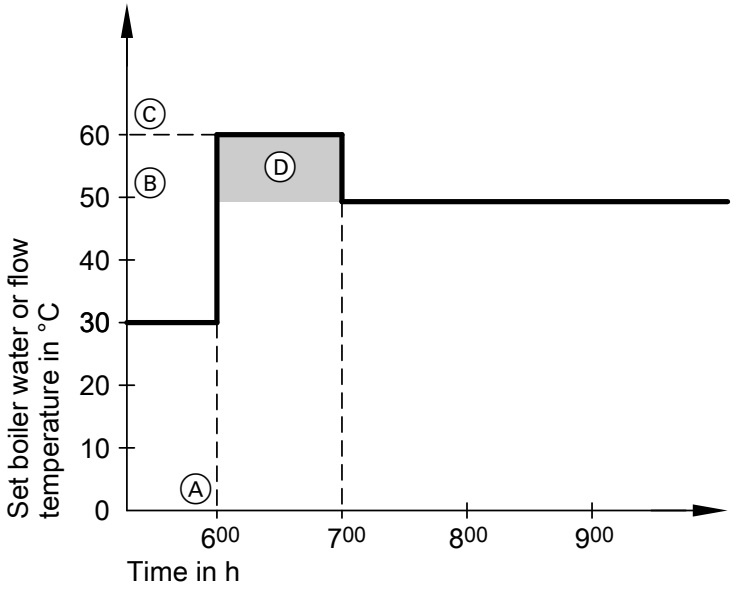


Fig. 43

Ⓐ 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

Control sequence

Mixer circuit

The mixer motor will not be controlled within the "neutral zone" (±1 K).

Flow temperature drops
(Set value −1 K)
The mixer motor receives the signal "Mixer open". The signal duration lengthens with an increasing control differential. The duration of pauses reduces with an increasing control differential.

Flow temperature rises
(Set value +1 K)
The mixer motor receives the signal "Mixer close". The signal duration lengthens with an increasing control differential. The duration of pauses reduces with an increasing control differential.

Cylinder temperature controller for the Vitotronic 300-K

Brief description

- Cylinder temperature control is a constant temperature control. It operates by starting and stopping the circulation pump for cylinder heating.
  The switching differential is ±2.5 K.
- When the DHW cylinder is heated, a set flow temperature is specified that is 20 K higher than the set DHW temperature (change at coding address "60" in the **"DHW"** group).

Cylinder temperature controller for the Vitotronic 300-K (cont.)

Functions

Time program

An automatic or an individual time program may be selected for DHW heating and the DHW circulation pump.
Compared with the heating circuit heat-up phase, DHW heating starts 30 min earlier in automatic mode.
The individual time program enables up to 4 time phases per day to be set for DHW heating and the DHW circulation pump for every day of the week.
All cylinder heating sequences will be completed independently of the time program.

In conjunction with coding address "7F" in the "General" group

- Detached house
  Code "7F:1":
  - Automatic mode
    The heating times for heating circuit 1 are applied to systems with two or three heating circuits.
  - Individual time program
    The time phases for DHW heating and the DHW circulation pump have the same effect on all heating circuits.
- Apartment building
  Code "7F:0":
  - Automatic mode
    For systems with two or three heating circuits, the heating times for the relevant heating circuit will be applied.
  - Individual time program
    The time phases for DHW heating and the DHW circulation pump can be adjusted **individually for each heating circuit**.

Priority control

- With priority control: (code "A2:2" in the **"Heating circuit..."** group):
  The set flow temperature is adjusted to 0 °C during cylinder heating.
  The mixer closes and the heating circuit pump stops.
- Without priority control:
  The heating circuit control unit continues to operate with the same set value.

Frost protection

If the DHW temperature falls below 5 °C, the DHW cylinder will be heated to 20 °C.

Auxiliary function for DHW heating

Select a second set DHW temperature in coding address "58" in the **"DHW"** group. This function is enabled by setting the fourth DHW time phase for DHW heating.

 Operating instructions

Set DHW temperature

The set DHW temperature can be adjusted between 10 and 60 °C.
The set value range can be extended to 95 °C at coding address "56" in the **"DHW"** group.
The set default value of the programming unit and/or the Vitotrol 300-A remote control units can be assigned at coding address "66" in the **"DHW"** group.

DHW circulation pump

This delivers hot water to the draw-off points at adjustable times.
Four time phases can be selected at the control unit for every day.

Auxiliary circuits

DHW heating in conjunction with the heating circuits can be disabled or enabled by changing over the operating program: See coding address "d5" in the **"Heating circuit..."** group.

System with cylinder loading system

The above functions also apply in conjunction with cylinder loading systems.
Set the following codes:
"55:3" in the **"DHW"** group; "4C:1", "4E:2" in the **"General"** group.

System with solar control unit

A third set DHW temperature can be specified at coding address "67" in the **"DHW"** group.
The DHW cylinder is only reheated if the temperature falls below this value.

Control sequence

The following codes in the **" DHW"** group influence the controlled sequence.

Cylinder temperature controller for the Vitotronic 300-K (cont.)

Cylinder heating (code "55:0")

The DHW cylinder goes cold (set value -2.5 K; change at coding address "59"):
- The common set flow temperature is set 20 K higher than the set DHW temperature (change at coding address "60").

The DHW cylinder is hot (set value +2.5 K):
- The common set flow temperature is returned to the set weather-compensated value.
- With pump run-on:
  The circulation pump runs on after cylinder heating until one of the following criteria is met:
  - The set DHW temperature is exceeded by 5 K.
  - The set max. run-on time is reached (coding address "62").
- Without pump run-on (code "62:0").

Adaptive cylinder heating (code "55:1")

With adaptive cylinder heating, the speed of the temperature rise during DHW heating is taken into account.

The DHW cylinder goes cold (set value –2.5 K; change at coding address "59"):
- The common set flow temperature is set 20 K higher than the set DHW temperature (change at coding address "60").

DHW cylinder is hot:
- The control unit checks whether the boiler will still be required to supply heating energy after the cylinder has been heated up or whether residual boiler heat should be transferred to the DHW cylinder.
  Accordingly, the control unit determines the burner and circulation pump shutdown times to prevent the set DHW temperature being substantially exceeded after the cylinder has been heated up.

Cylinder temperature control with 2 cylinder temperature sensors (code "55:2")

Cylinder temperature sensor 1 enables the circulation pump for cylinder heating and is evaluated for stop conditions during the pump run-on time.
Cylinder temperature sensor 2:
If a lot of hot water is drawn off, cylinder heating starts early. If no hot water is drawn off, cylinder heating terminates early.

DHW cylinder goes cold:
- Set value –2.5 K; change at coding address "59"
  or
- Actual DHW temperature at sensor 2 < set DHW temperature x factor for start time (adjustment at coding address "69")

DHW cylinder is hot:
- Set value +2.5 K
  and
- Actual DHW temperature at sensor 2 > set DHW temperature x factor for shutdown time (adjustment at coding address "68")

Code "55:3" in the "DHW" group, cylinder temperature control, cylinder loading system

The DHW cylinder goes cold (set value –2.5 K; change at coding address "59"):
- The common set flow temperature is set 20 K higher than the set DHW temperature (change at coding address "60").
- The primary cylinder loading pump for the cylinder loading system starts up.
- The 3-way mixing valve opens and then regulates to the specified set value.
- The circulation pump for cylinder heating cycles (briefly switches on and off) until the set flow temperature has been reached (set DHW temperature + 5 K). It then runs constantly.
  If, during heating, the actual value falls below the required set temperature, the circulation pump for cylinder heating will temporarily cycle again.

DHW cylinder is hot:
- Cylinder temperature sensor 1:
  Actual value ≥ set value
  and
  Cylinder temperature sensor 2:
  Actual value > set value –1.5 K:
- The common set flow temperature is returned to the set weather-compensated value.
- The circulation pump for cylinder heating stops immediately when the 3-way mixing valve is fully opened.
  or
- The circulation pump for cylinder heating stops after expiry of the run-on time that is set at code "62".

EA1 extension

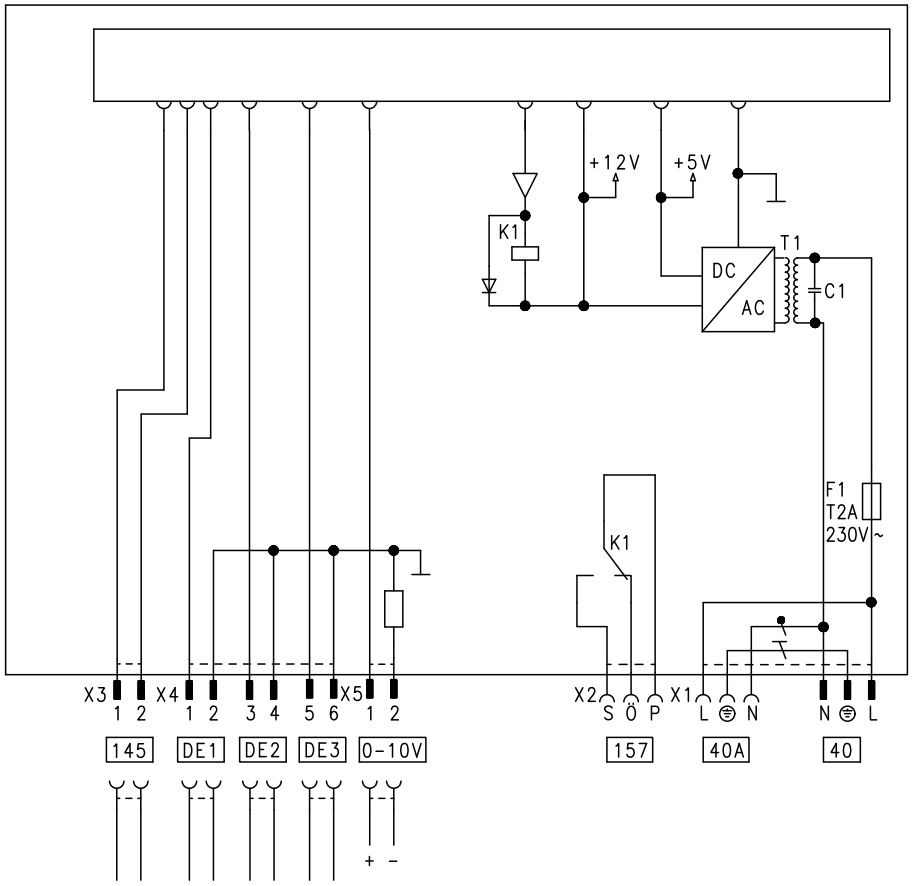


Fig. 44

DE1	Digital input 1
DE2	Digital input 2
DE3	Digital input 3
0 – 10 V	0 – 10 V input

40	Power supply
40 A	Power supply for additional accessories
157	Switching contact (floating)
145	KM BUS

Digital inputs DE1 to DE3

Functions:
- External operating program changeover for heating circuits 1 to 3 separately
- External blocking
- External blocking with fault message input
- External demand with minimum flow temperature
- Fault message input
- Brief operation of the DHW circulation pump

When connecting external contacts, observe the requirements of safety category II, i.e. 8.0 mm air-gap and creep paths or maintain a 2.0 mm insulation thickness against 'live' parts.

Input function assignment

Select the input functions by means of the following codes in the **"General"** group at the boiler control unit:
- DE1: Coding address "5d"
- DE2: Coding address "5E"
- DE3: Coding address "5F"

Assigning the operating program changeover function to the heating circuits

The assignment of the operating program changeover **to the relevant heating circuit** is set at coding address "d8" in the **"Heating circuit..."** group:
- Code "d8:1": Changeover via input DE1
- Code "d8:2": Changeover via input DE2
- Code "d8:3": Changeover via input DE3

Select the effect of the operating program changeover at coding address "d5" in the **"Heating circuit..."** group:

Duration of the operating program changeover
- Contact constantly closed:
  The changeover is enabled as long as the contact is closed.
- Contact only closed briefly via pushbutton:
  The changeover is enabled for the time selected in coding address "F2" in the **"Heating circuit..."** group.

5815091

EA1 extension (cont.)

DHW circulation pump runtime for brief operation

The DHW circulation pump can be started outside the times when it is enabled according to the time program.

The DHW circulation pump is started by closing the contact at DE1, DE2 or DE3 by means of a pushbutton. Set the runtime at coding address "12" in the **"General"** group.

Analogue input 0 – 10 V

The 0 – 10 V hook-up provides an additional set flow temperature:
0 – 1 V is seen as "no set flow temperature".

Note
Ensure DC separation between the LV output and the earth conductor of the on-site power supply.

Coding address "1E" in the **"General"** group:
- "1E:0" ≙ temperature demand adjustable in the range from 0 to 100 °C
  1 V ≙ 10 °C set value change
  10 V ≙ 100 °C set value change
- "1E:1" ≙ temperature demand adjustable in the range from 30 to 120 °C
  1 V ≙ 30 °C set value change
  10 V ≙ 120 °C set value change

Output 157

Connection of a central fault messaging facility or signalling reduced mode (reduction of the heating circuit pump speed).

Select the function of output 157 at coding address "5C" in the **"General"** group.

Vitotronic 300-K

Overview

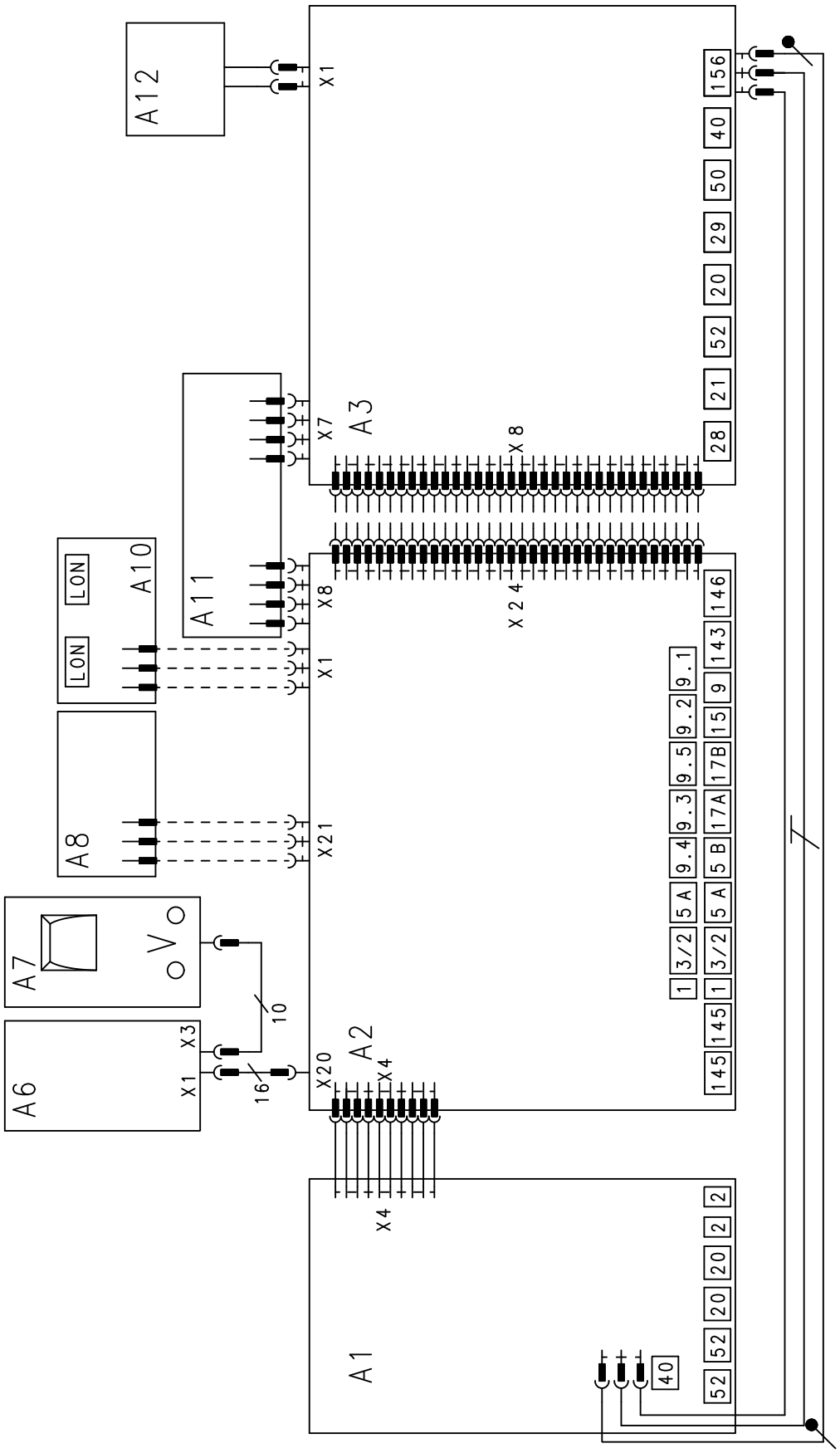


Fig. 45

5815091

Vitotronic 300-K (cont.)

A1 PCB, extension for heating circuits 2 and 3 with mixer
A2 PCB, low voltage
A3 PCB, 230 V~
A6 Programming unit
A7 Optolink PCB/emissions test switch
A8 PCB
A10 LON communication module
A11 Power supply unit, PCB
A12 Programming unit ON/OFF switch
X Electrical interfaces

PCB, 230 V~

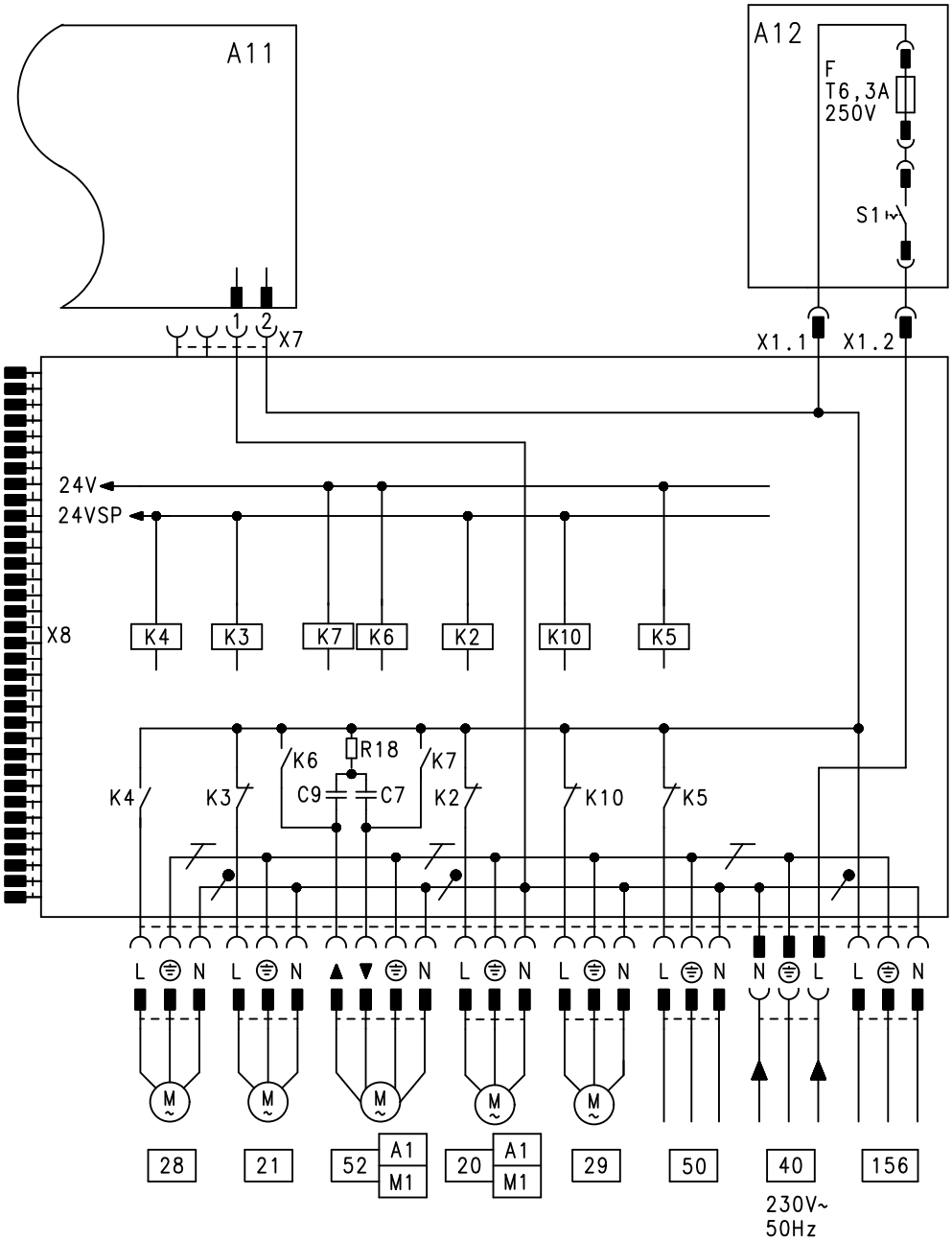


Fig. 46

20 Heating circuit pump
or
Primary cylinder loading pump for cylinder loading system
21 Circulation pump for cylinder heating (accessories)
28 DHW circulation pump (on site)
29 Distribution pump (on site)
40 Power supply, 230 V/50 Hz
50 Output for central fault message
52 Motor for 3-way mixing valve, cylinder loading system
156 Power supply for accessories
F Fuse
K2-K10 Relay

5815091

Vitotronic 300-K (cont.)

S1 ON/OFF switch
X Electrical interfaces

PCB, low voltage

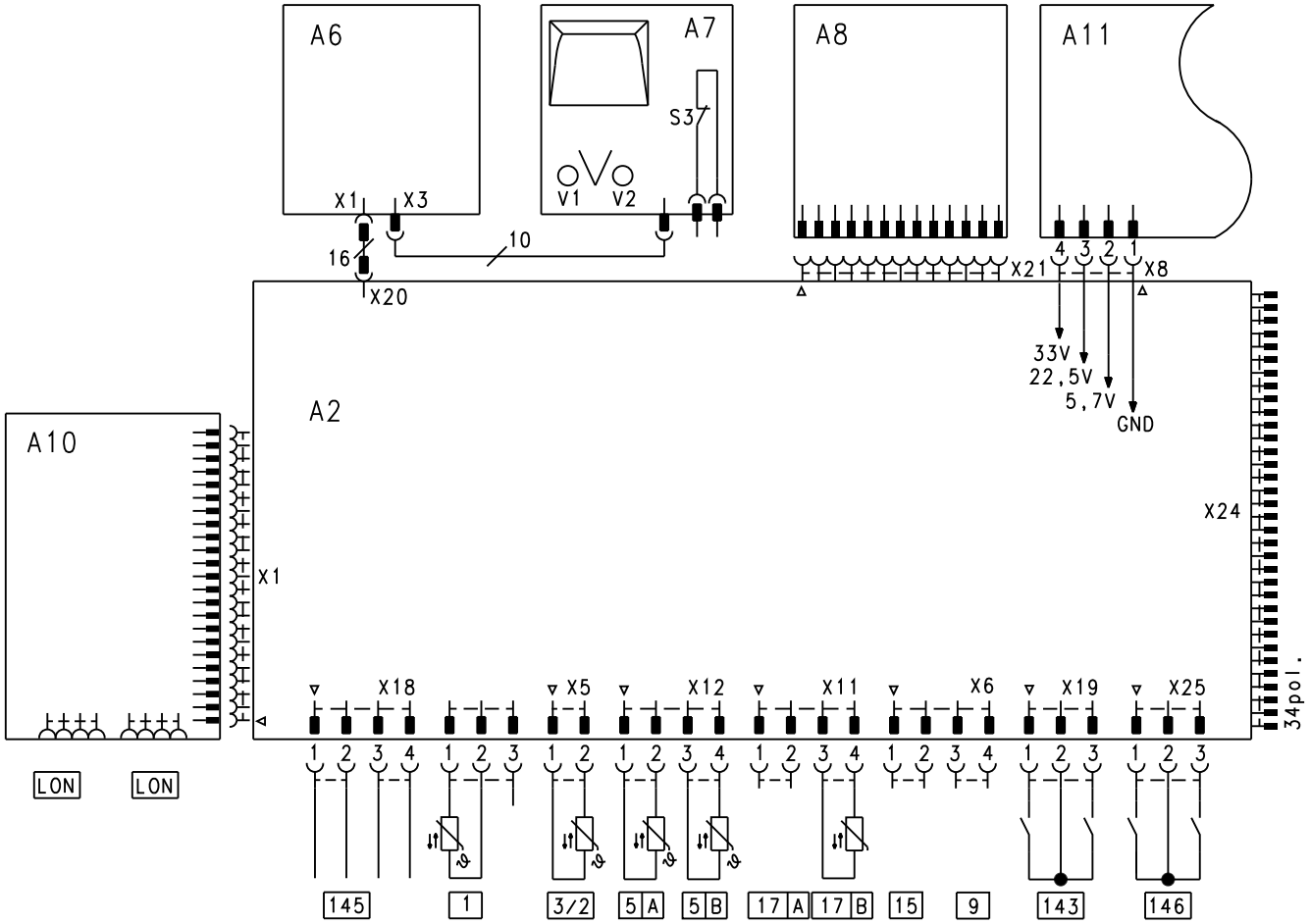


Fig. 47

1 Outside temperature sensor
2 Flow temperature sensor (common system flow temperature)
5 A Cylinder temperature sensor
5 B Cylinder temperature sensor 2 for cylinder loading system
9 No function
15 No function
17 A No function
17 B Temperature sensor, cylinder loading system
143 External connections
145 KM-BUS subscribers
146 External connections
LON Connecting cable for data exchange (accessories)
S3 Emissions test switch
V1 Fault indicator (red)
V2 ON indicator (green)
X Electrical interfaces

5815091

Vitotronic 300-K (cont.)

PCB, extension for heating circuits 2 and 3 with mixer

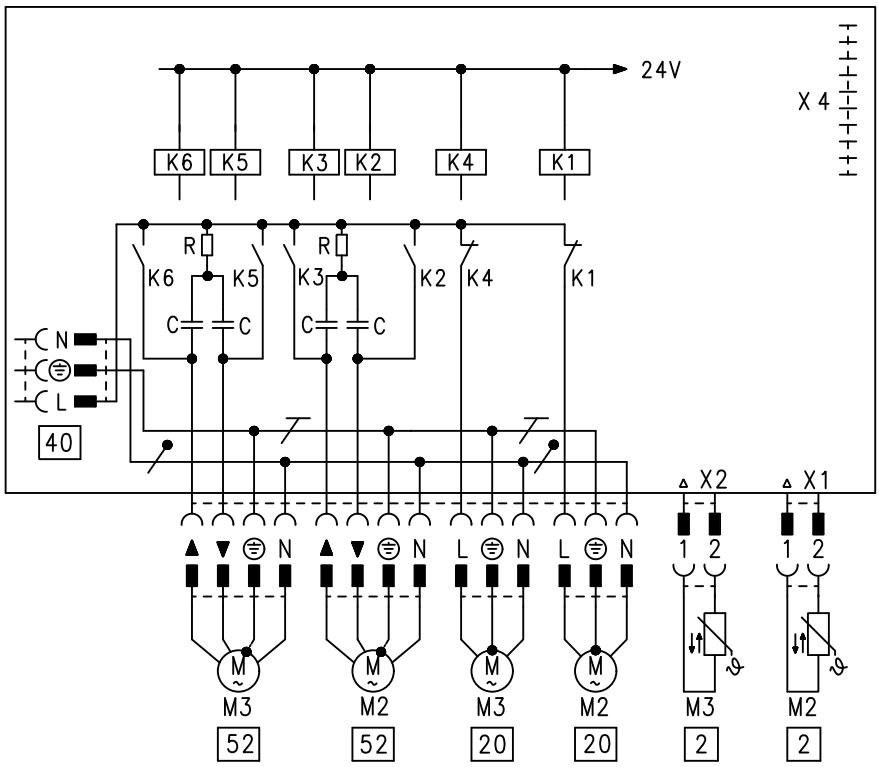


Fig. 48

2	Flow temperature sensors	52	Mixer motors
20	Heating circuit pumps	K1-K6	Relay
40	Power supply	X	Electrical interfaces

Specification, Vitotronic 300-K

Rated voltage	230 V~
Rated frequency	50 Hz
Rated current	6 A~
Power consumption	10 W
Protection class	I
IP rating	IP 20D to EN 60529, ensure through design/installation
Function type	Type 1B to EN 60730-1
Permissible ambient temperature	
▪ Operation	0 to +40 °C Installation in living spaces or boiler rooms (standard ambient conditions)
▪ Storage and transport	–20 to +65 °C

Rated relay output breaking capacity

Plug	Component	Rated breaking capacity
20A1	One of the following circulation pumps: ▪ Primary cylinder loading pump for cylinder loading system ▪ Heating circuit pump	4(2) A, 230 V~
21	Circulation pump for cylinder heating	4(2) A, 230 V~
28	DHW circulation pump	4(2) A, 230 V~
29	Distribution pump	4(2) A, 230 V~
50	Central fault message facility	4(2) A, 230 V~
52A1	Mixing valve, heat exchanger set	0.2 (0.1) A, 230 V~
52M2/M3	Mixer motor, mixer extension kit	0.2 (0.1) A, 230 V~
Total		Max. 6 A, 230 V~

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.
Conformity has been verified with the CE designation.
Using the serial number, the full Declaration of Conformity can be found on the following website:

www.viessmann.co.uk/eu-conformity

Keyword index

5815091

Keyword index (cont.)

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