Installation and Service Instructions

for use by heating contractor

Vitotronic 200, Type KW6B/HO1B
Digital boiler control unit

Vitotronic 300-K, Type MW2C
Weather-compensated, digital cascade control unit

VITOTRONIC® 200
VITOTRONIC® 300-K

Vitotronic 200

Vitotronic 300-K

Certified as a component part for Viessmann boilers

Product may not be exactly as shown

IMPORTANT

Read and save these instructions for future reference.

5700 299 - 03 06/2016

Please file in Service Binder

Safety, Installation and Warranty Requirements

Please ensure that these instructions are read and understood before commencing installation. Failure to comply with the instructions listed below and details printed in this manual can cause product/property damage, severe personal injury, and/or loss of life. Ensure all requirements below are understood and fulfilled (including detailed information found in manual subsections).

- **Product documentation**
  Read all applicable documentation before commencing installation. Store documentation near boiler in a readily accessible location for reference in the future by service personnel.

  ▶*For a listing of applicable literature, please see section entitled "Important Regulatory and Safety Requirements".*

- **Warranty**
  Information contained in this and related product documentation must be read and followed. Failure to do so renders the warranty null and void.

- **Licensed professional heating contractor**
  The installation, adjustment, service and maintenance of this equipment must be performed by a licensed professional heating contractor.

  ▶*Please see section entitled "Important Regulatory and Installation Requirements".*

- **Advice to owner**
  Once the installation work is complete, the heating contractor must familiarize the system operator/ ultimate owner with all equipment, as well as safety precautions/requirements, shutdown procedure, and the need for professional service annually before the heating season begins.

⚠ WARNING

Installers must follow local regulations with respect to installation of carbon monoxide detectors. Follow the Viessmann maintenance schedule of the boiler contained in this manual.

Operating and Service Documentation

It is recommended that all product documentation such as parts lists, operating and service instructions be handed over to the system user for storage. Documentation is to be stored near boiler in a readily accessible location for reference by service personnel.

Product Information

Vitotronic 300K, Type MW2C
For use with Viessmann boilers only.
Applicable to the following control units

Order No. 7776084□□□□□□□□
Serial No. 7554896□□□□□□□□

Page

About these Instructions

Take note of all symbols and notations intended to draw attention to potential hazards or important product information. These include "WARNING", "CAUTION", and "IMPORTANT". See below.

⚠ WARNING

Indicates an imminently hazardous situation which, if not avoided, could result in loss of life, serious injury or substantial product/property damage.

▶ *Warnings draw your attention to the presence of potential hazards or important product information.*

⚠ CAUTION

Indicates an imminently hazardous situation which, if not avoided, may result in minor injury or product/ property damage.

▶ *Cautions draw your attention to the presence of potential hazards or important product information.*

IMPORTANT

▶ *Helpful hints for installation, operation or maintenance which pertain to the product.*

▶

▶ *This symbol indicates that additional, pertinent information is to be found.*

▶ *This symbol indicates that other instructions must be referenced.*

For your Safety

⚠ CAUTION

Follow these safety instructions closely to avoid the risk of injury and damage to property.

- **Operation**
  Before operating the boiler, make sure you fully understand its method of operation. Your heating contractor should always perform the initial start-up and explain the system. Any warranty is null and void if these instructions are not followed.
- **Flue gas smell**
  - Deactivate heating equipment.
  - Open windows and doors.
  - Inform your heating contractor.
- **Working on the equipment**
  All personnel working on the equipment or the heating system must have the proper qualifications and hold all necessary licenses. Ensure main power to equipment, heating system, and all external controls has been deactivated. Close main gas supply valve. Take precautions in all instances to avoid accidental activation of power during service work.
- **Dangerous conditions**
  - Deactivate main power immediately.
  - Close gas supply valve.
- **Maintenance and cleaning**
  Regular inspection and service by a qualified heating contractor is important to the performance of the boiler. Neglected maintenance impacts on warranty; regular inspection ensures clean, environmentally friendly and efficient operation. We recommend a maintenance contract with a qualified heating contractor.
- **Technical documentation**
  - Installation Instruction and Service Instructions
  - Operating Instructions and User's Information Manual

Additional applicable literature:
- Accessory manuals

If you smell gas

- Don't smoke! Don't use naked flames or cause sparks (e.g. by switching lights or electrical appliances on and off)
- Open windows and doors
- Close the gas shut-off valve
- Inform your heating engineers/service contractors from outside the building
- Observe the safety regulations of your gas supply company (see gas meter) and those of your heating engineers (see start-up or instruction report).

In emergencies

- Immediately switch off the power supply, e.g. at the separate fuse or power supply disconnect switch (unless there is a smell of gas).
- Close the shut-off valves in the oil pipes or close the gas shut-off valve, whichever applicable.
- Use suitable extinguishers in the event of fire.

Installation of additional components

The installation of additional components which have not been tested together with the boiler can adversely affect the function and performance of the boiler.
Our warranty does not cover and we accept no liability for damage attributable to the installation of such components.

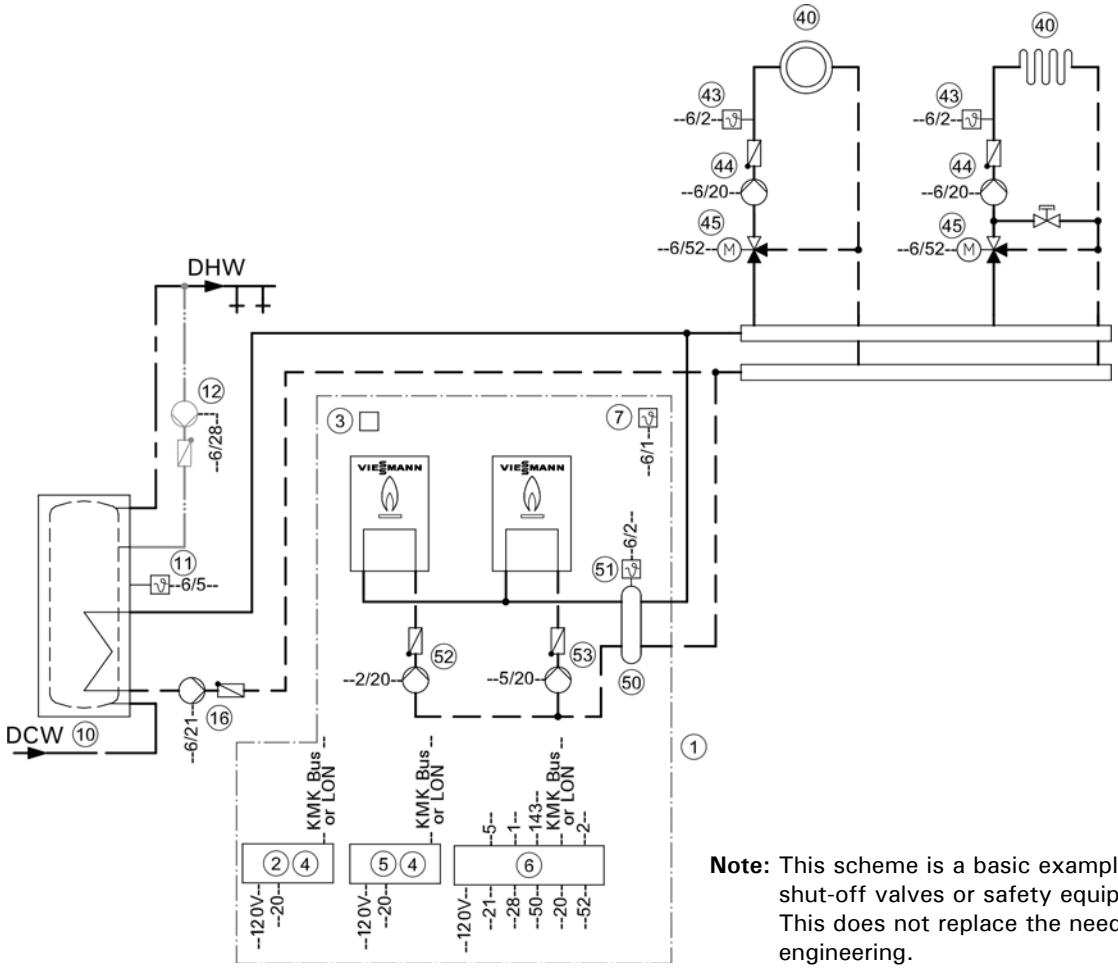
Boiler room conditions

- Do not use a room in which the air is polluted by halogenated hydro-carbons (e.g. as contained in aerosols, paints, solvents and cleaning agents)
- Do not use a room subject to high levels of dust
- Do not use a room subject to permanently high humidity
- The room should be frost-protected
- Max. ambient temperature 95°F (35°C).
- Provide good ventilation and do not close or obstruct vents (if installed).

This symbol indicates a reference to other instructions which must be observed.

System Example

Multi boiler system with several heating circuits with mixing valve and low loss header (with/without DHW heating)



Note: This scheme is a basic example without shut-off valves or safety equipment. This does not replace the need for local engineering.

Legend

① Multi boiler system with 2 to 8 Vitodens 200-W or Vitocrossal 300 CU3A hydraulic cascade with low loss header and connection accessories with
② Vitodens 200-W/Vitocrossal 300 CU3A in cascade mode
⑤ Vitodens 200-W/Vitocrossal 300 CU3A in cascade mode
③ Cascade communication module (KMK or LON)
④ Internal extension H1
⑥ Vitotronic 300-K
⑦ Outside temperature sensor ATS
⑩ Indirect DHW storage tank
⑪ DHW temperature sensor
⑫ DHW recirculation pump
⑯ DHW pump
㊵ Heating circuit with mixing valve
㊸ Supply temperature sensor, heating circuit M2/M3
㊹ Heating circuit pump, heating circuit M2/M3 and 3-way mixing valve
㊺ Mixing valve motor kit for heating circuit with mixing valve (mixing valve motor and supply temperature sensor ㊸)
㊿ Low loss header
51 Common supply temperature sensor
52 Boiler pump
53 Boiler pump

Note: Multiboiler systems can only be made up of the same boiler type and size. Mixing boiler types and sizes is not permitted.

System Example *(continued)*

Vitotronic 200 (set codes at every Vitotronic 200 - boiler control)
Switching mode from standalone/weather compensated control to constant temperature control (see page 14).

Required coding		
Group	**Code**	
General	01:2	Multi boiler system with Vitotronic 300-K **Note:** Code "00:0" is set automatically.
General	 07:1 07:2 07:3 07:4 07:...	Setting the boiler number at the Vitotronic 200 of the respective boiler Boiler 1 (factory set condition) Boiler 2 Boiler 3 Boiler 4 ... Boiler (up to 8)

Vitotronic 300-K

Required coding		
Group	**Code**	
General	00:...	System version, see table for coding address 00 in the overview on page 73.
General	7E:0	Without positive pressure flue gas cascade
Cascade	35:1 35:2 35:3 35:4 35:...	Do not adjust Multi boiler system with two boilers Multi boiler system with three boilers Multi boiler system with four boilers (factory set condition) Multi boiler system with ... boilers (up to 8)

Vitotronic 200-H (if installed)

Required coding		
Group	**Code**	
General	97:1	The outside temperature is accepted by the LON BUS

Installation Information for the Vitotronic 200

If a DHW tank is to be integrated into the system, make the connection at the Vitotronic 300-K (or if installed, at the Vitotronic 200-H).

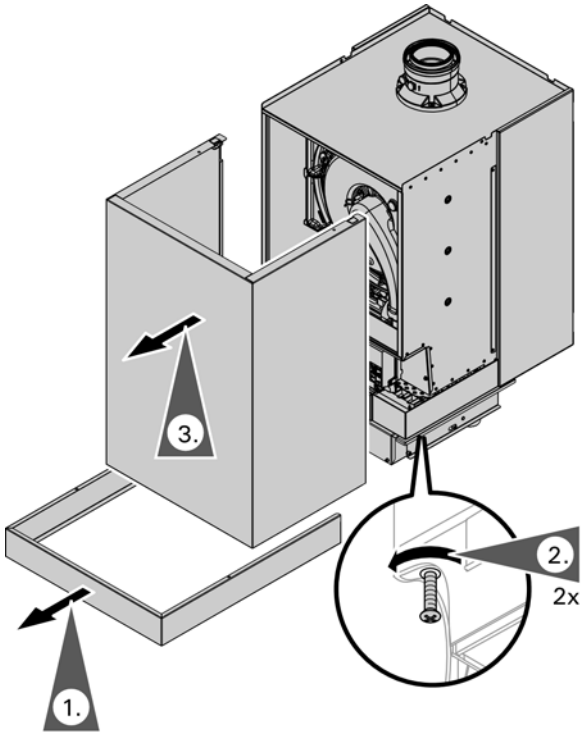
For installation, commissioning, maintenance and service of Vitodens 200-W or Vitocrossal 300 CU3A with Vitotronic 200: see the appropriate installation instructions and service instructions.

Installing a Cascade Communication Module - Vitodens 200-W

Depending on the package ordered the KMK communication module may be part of the standard delivery.

Optional LON communication is available using the LON communication module. LON communication will require LON communication cards for the Vitotronic 300-K and one card for each boiler installed in the system.

Preparing Boilers for Cascade Mode - Vitodens 200-W

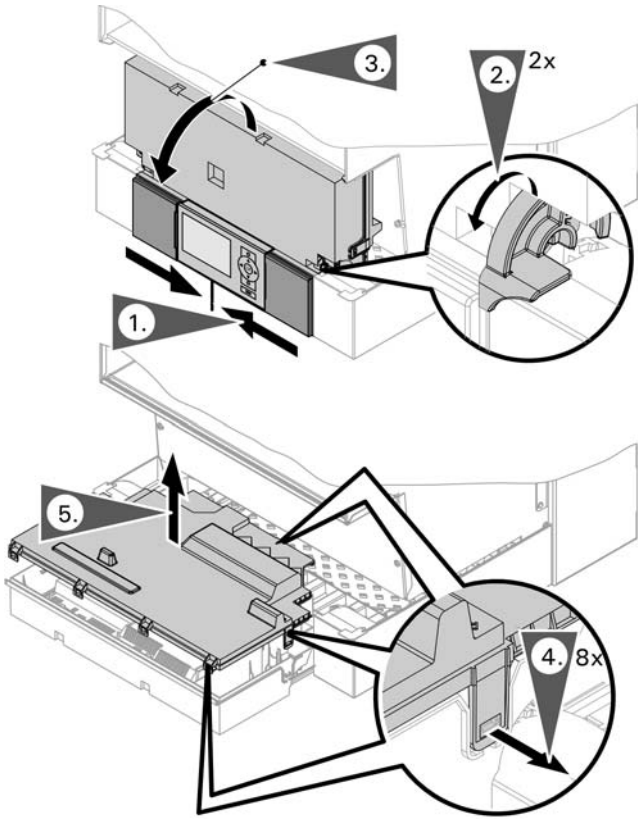


IMPORTANT

The following procedure must be done on each Vitodens 200-W boiler connected to the Vitotronic 300-K.

Removing the front enclosure panel

1. Remove the external accessories connection box cover.
2. Loosen the screws at the bottom of the boiler (do not remove completely).
3. Remove the front encloser panel (lift up and pull away from the boiler).



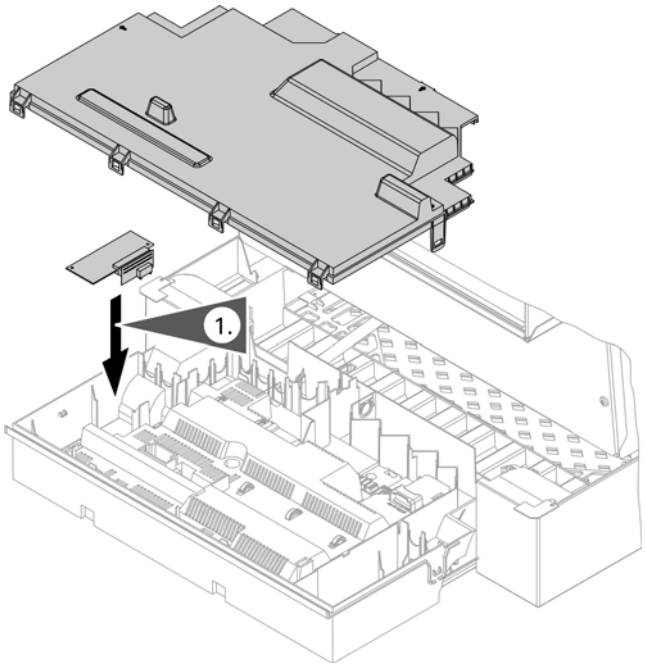
Opening the control unit cover

For installation, commissioning, maintenance and service of Vitodens 200-W with Vitotronic 200: see separate installation instructions and service instructions.

If a DHW tank is to be integrated into the system, make the connection at the Vitotronic 300-K.

1. Slide both sides of the programming unit cover closed.
2. Release the hinged hooks located on both sides of the control unit.
3. To open hinged cover, lift cover and then fold down the control unit.
4. Release locking tabs as shown.
5. Remove cover.

Preparing Boilers for Cascade Mode - Vitodens 200-W *(continued)*

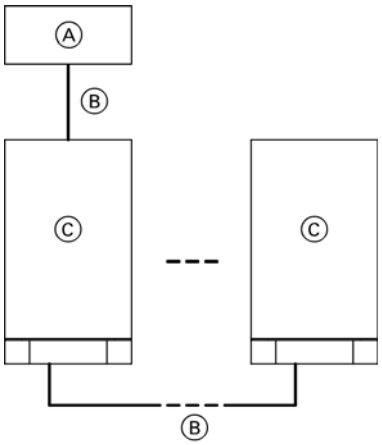


Installation of the communication module/LON communication module

The communication module is part of the standard delivery.

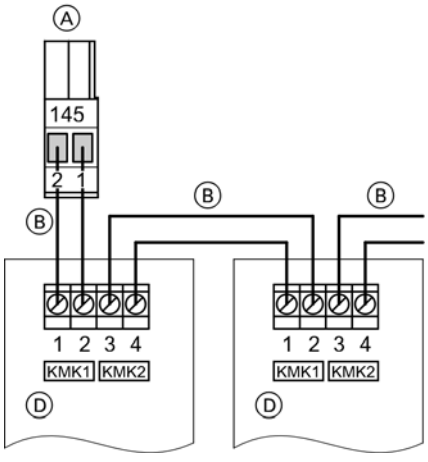
1. Installing the cascade communication module/LON communication module to the Vitotronic 200.

Note: The cascade communication module/LON communication module must be fitted into every Vitotronic 200.



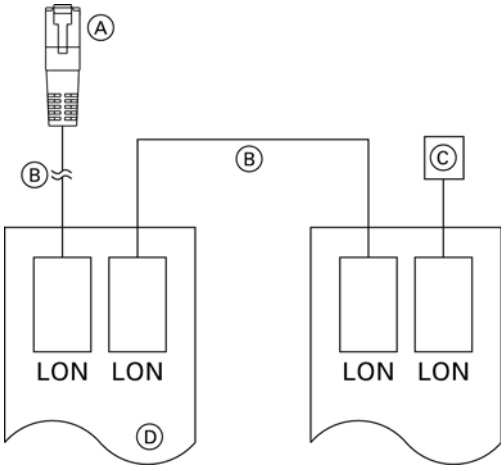
Legend

Ⓐ Vitotronic 300-K
Ⓑ 2-wire communication cable 18 AWG (when equipped with a cascade communication module) or LON cable (when equipped with LON communication module.
Ⓒ Boiler with Vitotronic 200



Legend

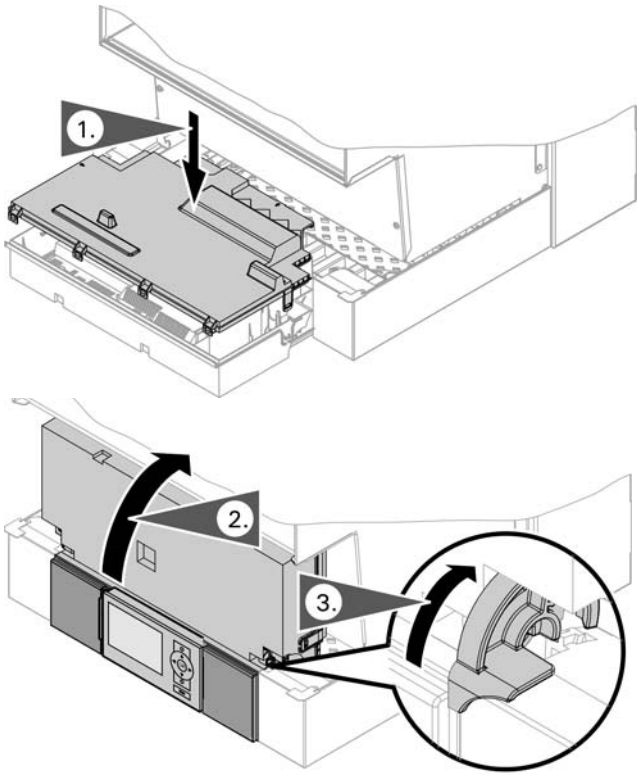
Ⓐ Plug 145 to the Vitotronic 300-K
Ⓑ 2-wire communication cable 18 AWG
Ⓓ Terminal strip on the KMK communication module in the Vitotronic 200



Legend

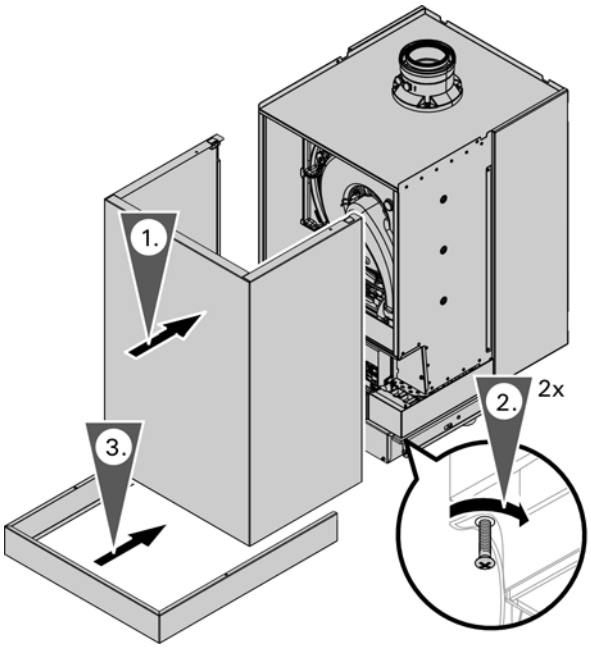
Ⓐ LON connection to Vitotronic 300-K
Ⓑ LON communication cable
Ⓒ Terminal connection on the LON communication module
Ⓓ LON communication module

Preparing Boilers for Cascade Mode - Vitodens 200-W *(continued)*



Closing the control unit cover

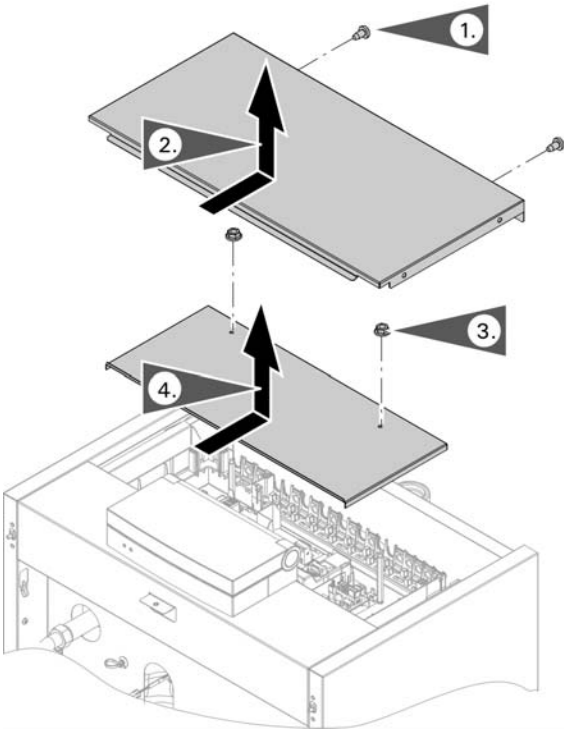
1. Install the cover onto the control board.
2. Flip the control board back into position.
3. Secure the locking tabs as shown.



Reinstalling the front enclosure panel

1. Set front enclosure panel on the guide rails and push in place.
2. Tighten screws at the bottom.
3. Insert the external accessories connection box cover in place.

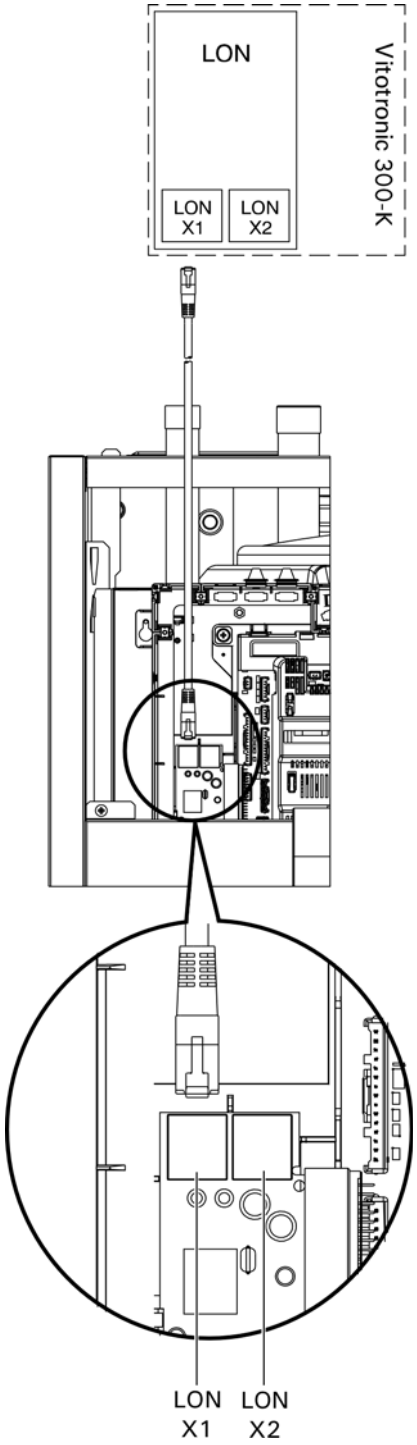
Preparing Boilers for Cascade Mode - Vitocrossal 300 CU3A



Accessing the control electrical connections box

1. Remove the screws from the top panel and set aside.
2. Slide the top panel to the rear of the boiler and lift up.
3. Remove the retaining nuts from the control connection cover and set aside.
4. Slide the control connection cover to the rear of the boiler and lift up.

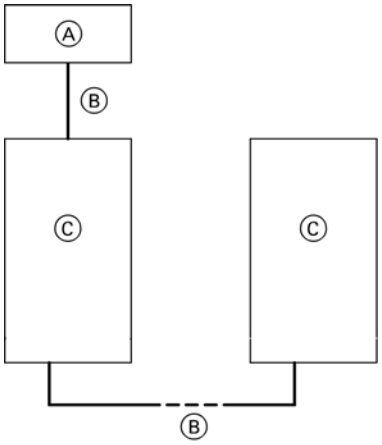
Preparing Boilers for Cascade Mode - Vitocrossal 300 CU3A *(continued)*



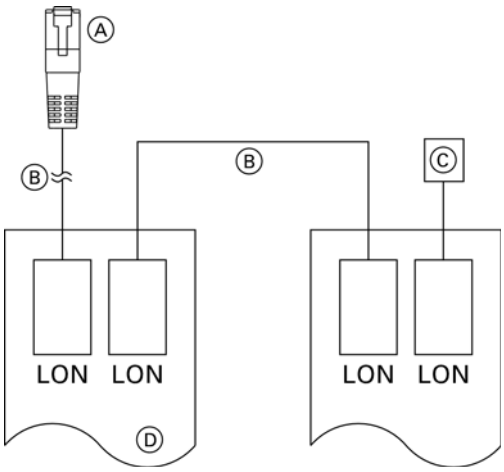
LON communication module

each Vitocrossal 300 CU3A comes with a LON communication module pre-installed.

1. Installing the cascade communication module/LON communication module to the Vitotronic 200.

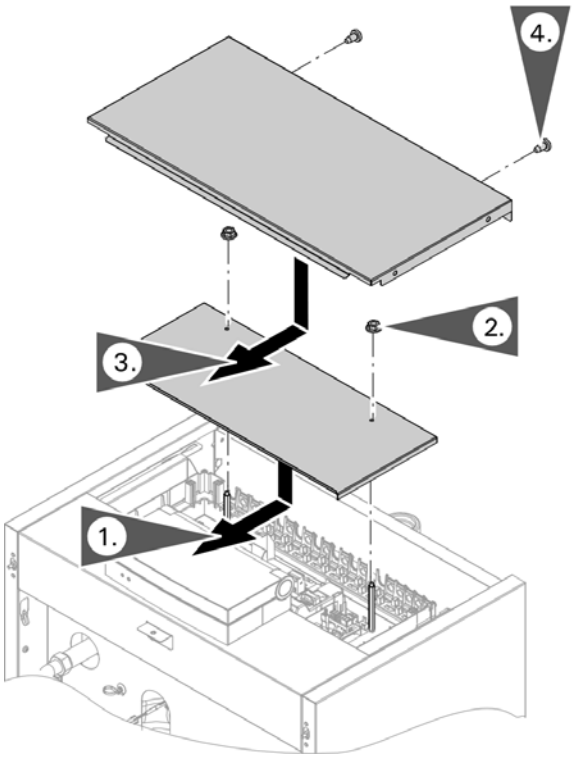


Legend
Ⓐ Vitotronic 300-K
Ⓑ LON cable
Ⓒ Vitocrossal 300 CU3A with Vitotronic 200



Legend
Ⓐ LON connection to Vitotronic 300-K
Ⓑ LON communication cable
Ⓒ Terminal connection on the LON communication module
Ⓓ LON communication module

Preparing Boilers for Cascade Mode - Vitocrossal 300 CU3A *(continued)*



Fitting the top panels

1. Place the control cover on the control connection housing and slide into place.
2. Install previously removed nuts onto the threaded studs.
3. Place the top jacket panel on the top of the boiler and slide in place.
4. Fasten the panel with the previously removed retaining screws.

Configure Boilers for Cascade Mode

IMPORTANT

The following procedure must be done to configure each boiler for constant temperature control (cascade control) mode.

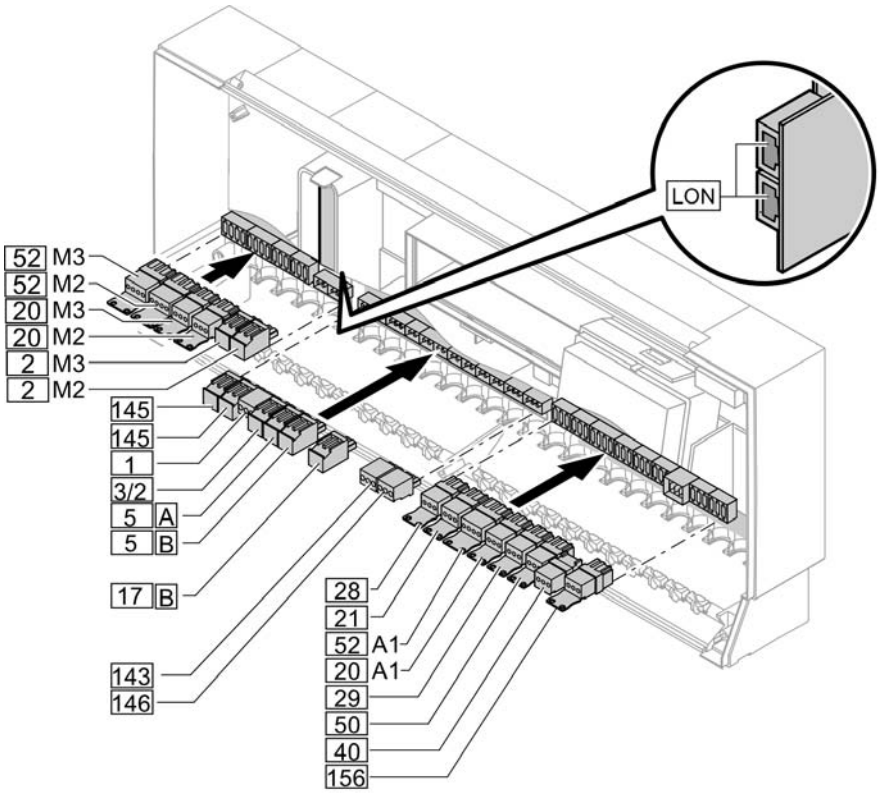
1. Turn on the boiler and set the language then press 'OK'.
2. Set the time and date and press 'OK'.

Refer to the boiler Installation Instructions.

3. Press and hold OK and ☰ until service menu comes up.
4. Scroll using ▲/▼ to the service functions, press OK.
5. Scroll using ▲/▼ to the multi-boiler system.
6. Press OK.
7. Scroll using ▲/▼ to "Yes".
8. Press OK.
   Note: The boiler will restart in cascade mode.
9. Set the language and press 'OK'.

Refer to the boiler Installation Instructions.

Overview of Electrical Connections, Vitotronic 300-K



Legend

PCB, extension for heating circuits 2 and 3

- 2 M2/M3 Supply temperature sensor
- 20 M2/M3 Heating circuit pump
- 52 M2/M3 Mixing valve motor

Main circuit board, low voltage

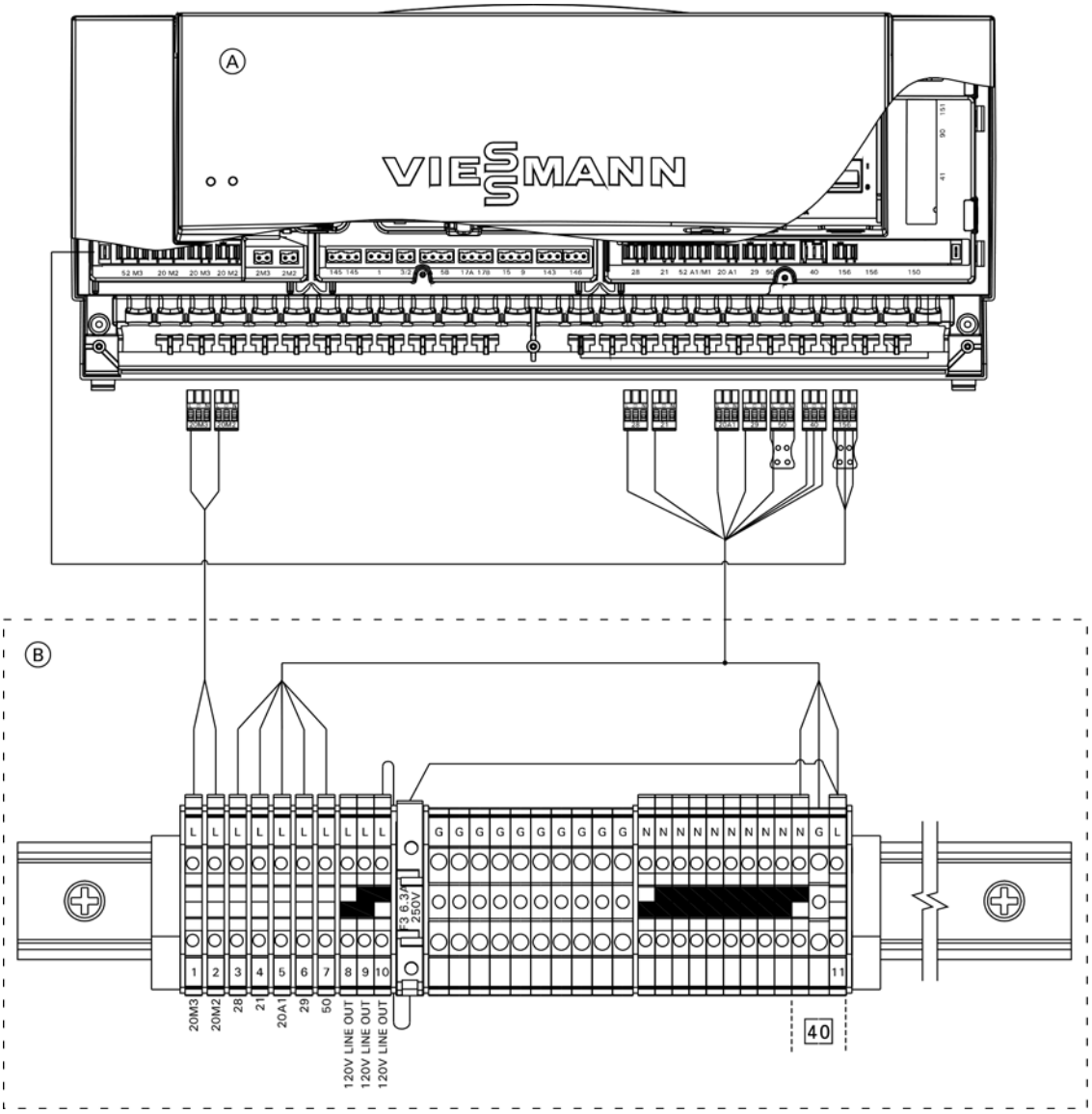
- 1 Outdoor temperature sensor
- 3/2 Supply temperature sensor, common supply /low loss header
- 5 A DHW tank temperature sensor
- 5 B DHW tank temperature sensor 2 for tank loading system (accessory)
- 17 B Temperature sensor tank loading system (accessories)
- 143 External hook-ups
- 145 KM BUS participant (Vitotronic 200 and accessories, e.g. Vitotrol remote controls)
- 146 External hook-ups
- LON LON BUS, connecting cable for data exchange with the Vitotronic 200-H and the Vitocom

Main PCB 120V~

- 20 A1 Heating circuit pump
  or
  Primary pump, tank loading system
- 21 DHW pump
- 28 DHW recirculation pump
- 29 System pump
- 40 Power supply
- 50 Central fault message
- 52 A1 Motor for 3-way mixing valve, tank loading system
- 156 Internal power supply for mixing valve extension PCB

Electrical connections on the Vitotronic 200 see installation instructions, of the relative boiler.

Overview of Electrical Connections, Vitotronic 300-K *(continued)*

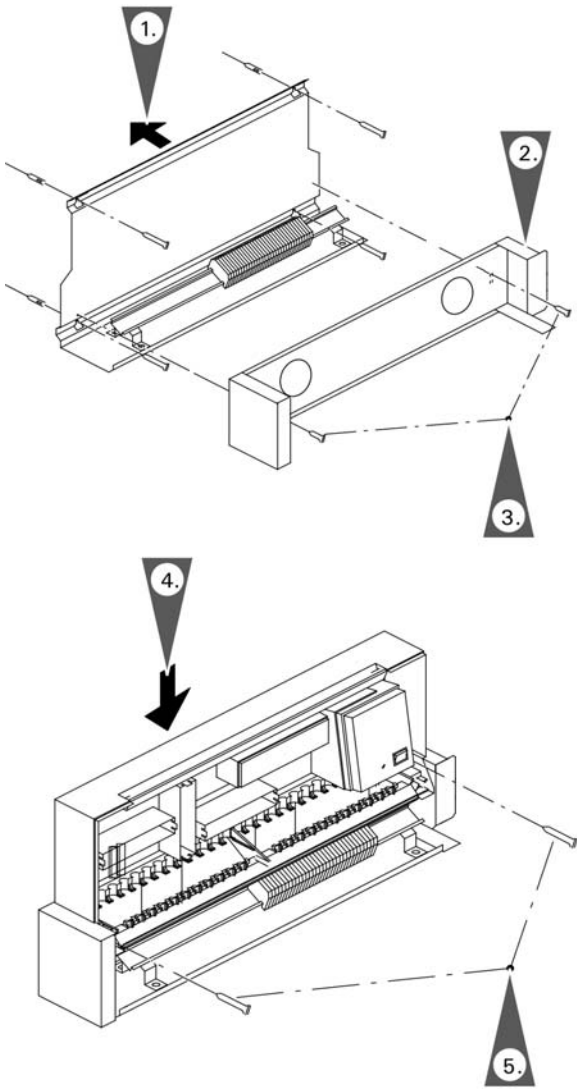


Legend

Ⓐ Vitotronic 300-K

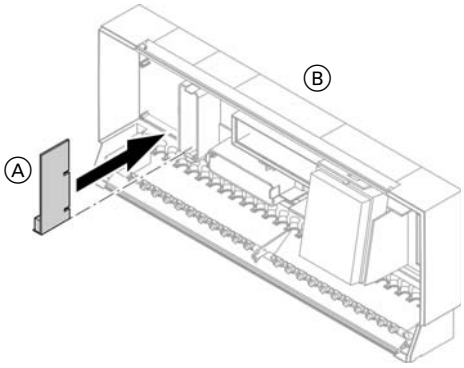
Ⓑ DIN rail (located in junction box)

Mounting the Control Unit



1. Fasten metal backplate onto mounting surface with four fasteners.
2. Install connection enclosure onto backplate.
3. Fasten connection enclosure and midplate onto backplate with four fasteners.
4. Install control rear section onto connection enclosure housing. Hook control onto backplate tabs and pivot downwards.
5. Fasten control rear section onto connection enclosure with two fasteners.

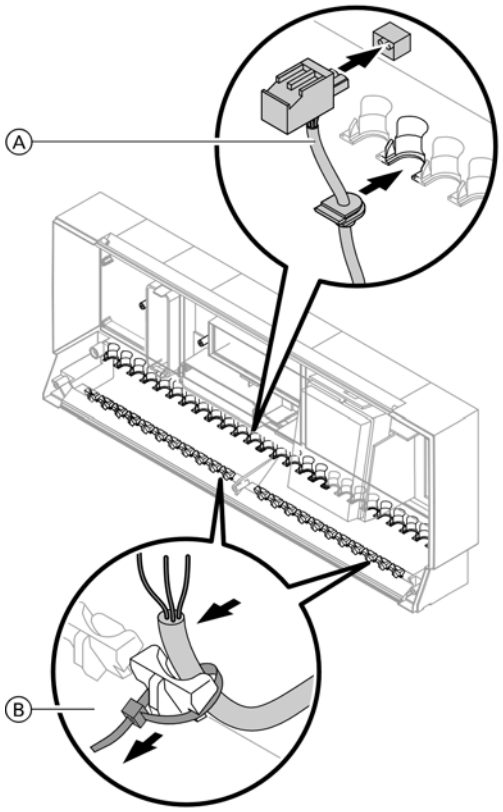
Inserting the LON Communication Module



Making the LON connection, see page 25.

Legend
Ⓐ LON communication module (accessory)
Ⓑ Vitotronic 300-K MW2C

Inserting Cables/Leads and Applying Strain Relief

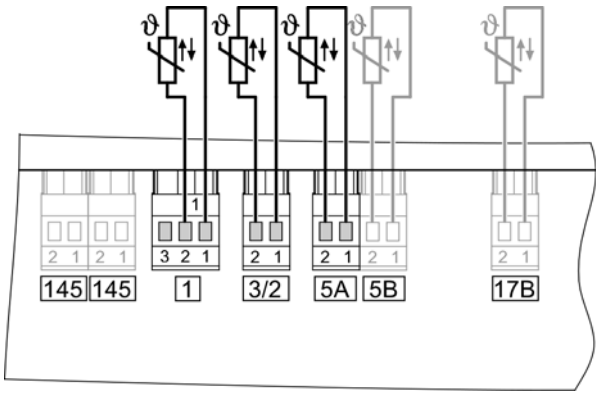


Run the cables from the connection enclosure into the control unit.
Apply strain relief to cables.

Cables with moulded strain relief clamp:
Connect cable and strain relief clamp.
or
Fasten cable to the cable lead with cable tie.

Legend
Ⓐ Cables with moulded strain relief
Ⓑ On-site cables; strip up to 4 in. (100 mm) insulation.

Connecting Sensors



Legend
[1] Outdoor temperature sensor
[3]/[2] Supply temperature sensor, common supply/ low loss header
[5][A] DHW tank temperature sensor 1
[5][B] DHW tank temperature sensor 2 for tank loading system (accessory)
[17][B] Temperature sensor tank loading system (accessory)

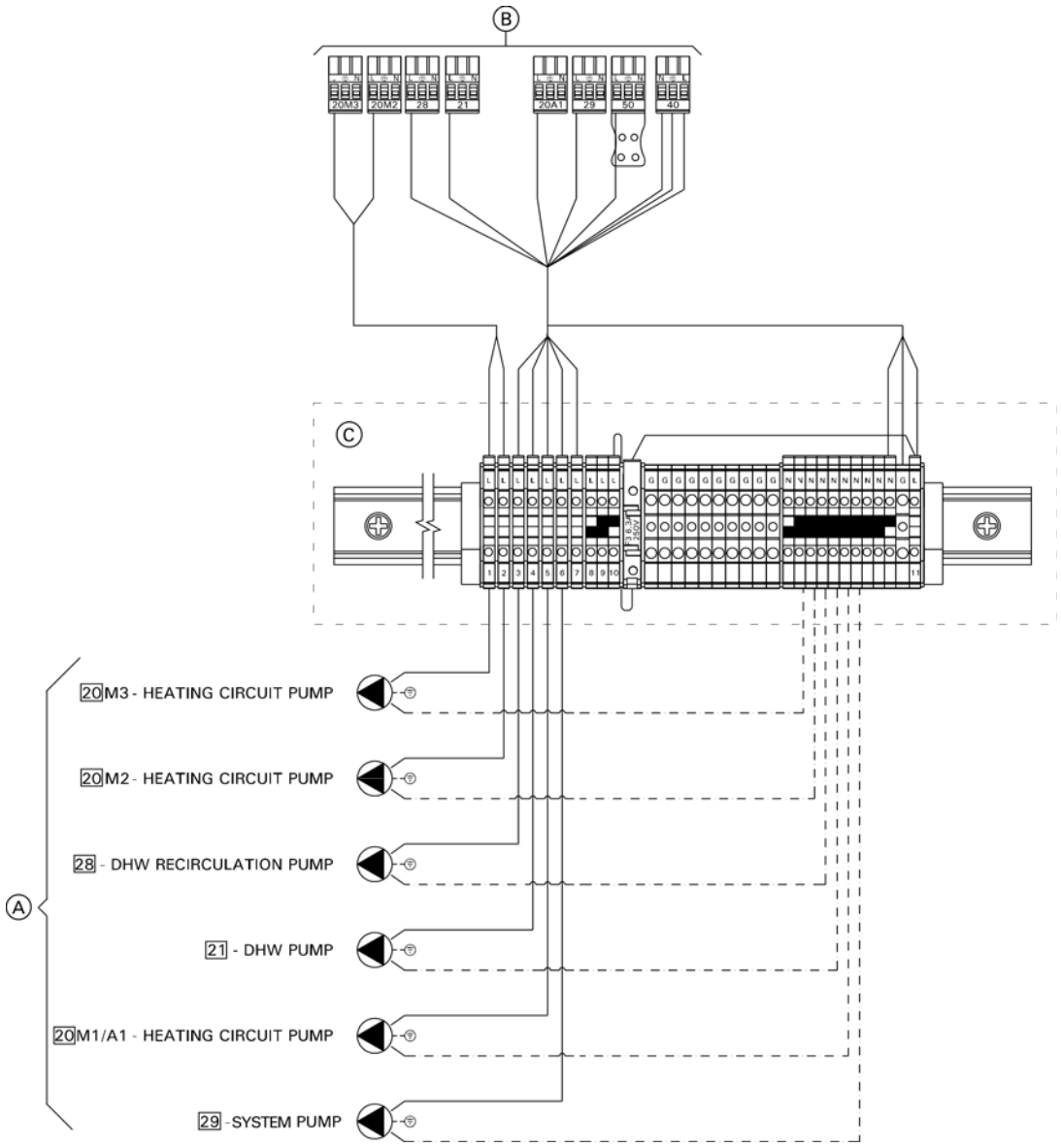
Installation point for outdoor temperature sensor

- North or north-western wall, 6 to 8 ft. (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 paint over

Outdoor temperature sensor connection

Two-wire communication cable, max. 120 ft. (36 m) length, AWG 18.

Connecting Pumps



Legend

Ⓐ 120V pump outputs
Ⓑ To the control unit
Ⓒ DIN rail in junction box

Rated current: 2 A~

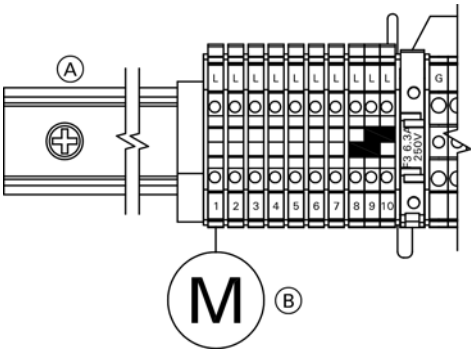
Note: Maximum pump and alarm output 6FLA shared between all 120V outputs.

Pumps 120V

Available pump connections

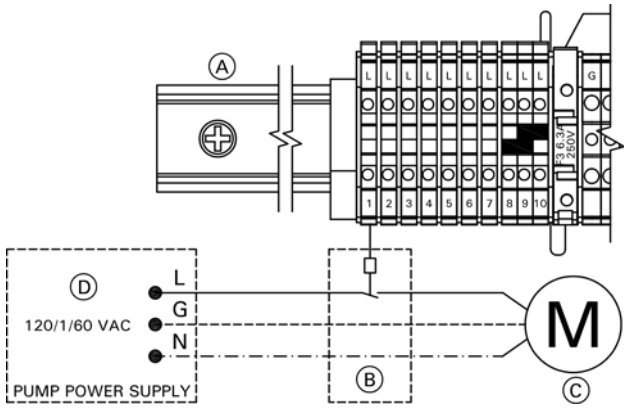
20A1	High temperature circuit pump/ tank loading primary pump
20M2	Heating circuit 2 pump
20M3	Heating circuit 3 pump
21	DHW pump
28	DHW recirculation pump
29	System pump

120V External Connection



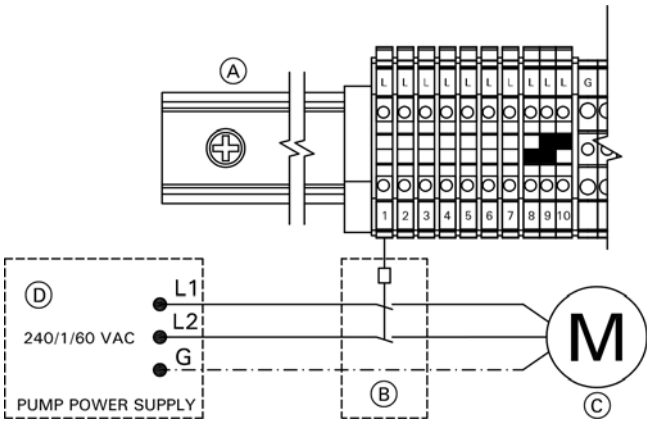
120V pumps with an amperage draw of <2FLA

Ⓐ DIN rail
Ⓑ Pump



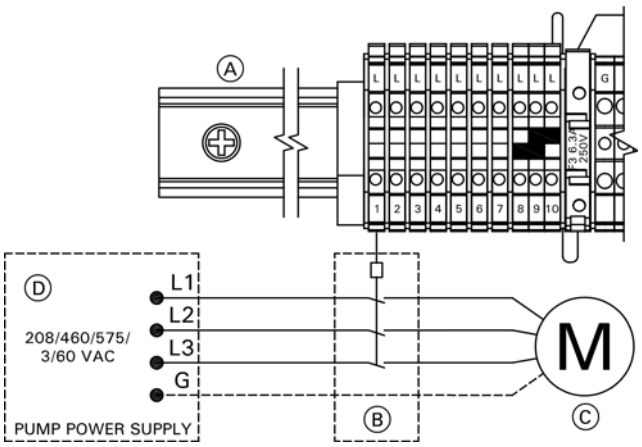
120V pumps with an amperage draw of >2FLA

Contactor specification 120VAC 1A
Ⓐ DIN rail
Ⓑ Contactor/relay (field supplied)
Ⓒ Pump
Ⓓ Power supply w/disconnect and protection



240V single phase pumps

Contactor specification 120VAC 1A
Ⓐ DIN rail
Ⓑ Contactor/relay (field supplied)
Ⓒ Pump
Ⓓ Power supply w/disconnect and protection

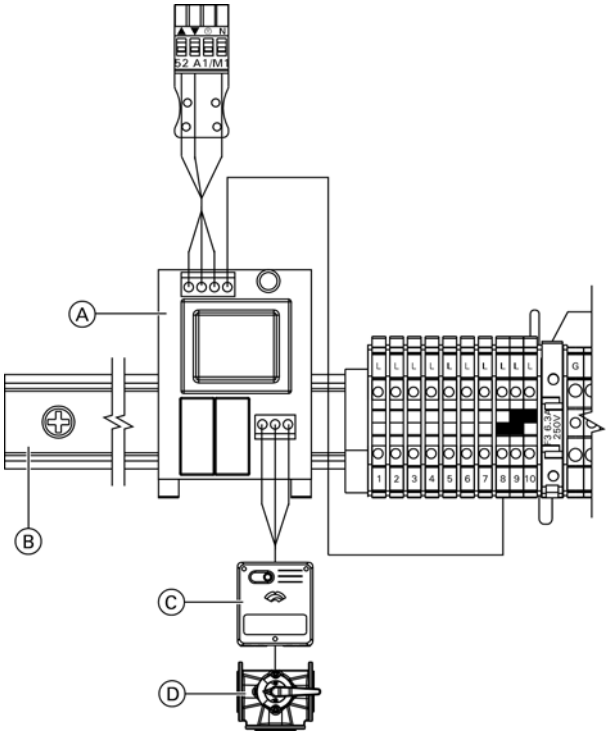


208/460/575V 3 phase pumps

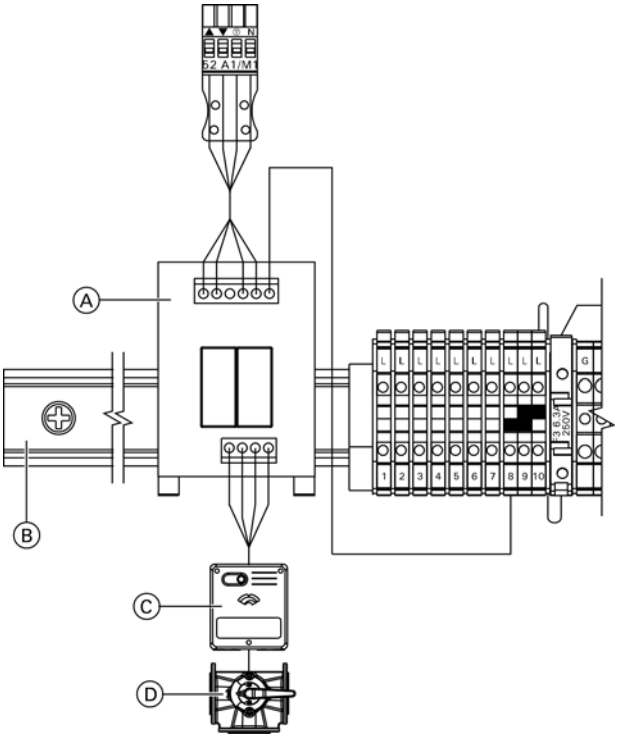
Contactor specification 120VAC 1A
Ⓐ DIN rail
Ⓑ Contactor/relay (field supplied)
Ⓒ Pump
Ⓓ Power supply w/disconnect and protection

5700 299 - 03

Connecting Actuators



Legend
Ⓐ 24V Mixing Valve Adaptor
Ⓑ DIN Rail (in junction box)
Ⓒ 24V Valve Actuator
Ⓓ Valve



Legend
Ⓐ 120V Mixing Valve Adaptor
Ⓑ DIN Rail (in junction box)
Ⓒ 120V Valve Actuator
Ⓓ Valve

120V Valve Adaptor

Rated voltage:	120VAC
Rated current:	max. 0.1 FLA

24V Valve Adaptor

Rated voltage:	24VAC
Rated current:	max. 0.15 FLA

Operating time: 5 to 199 sec.
selected via coding address “40”.
10 to 255 sec, adjustable via coding addresses “6a” in the ”DHW”group, “c3” in the HC2 group and “c3” in the HC3 group.

Available connections

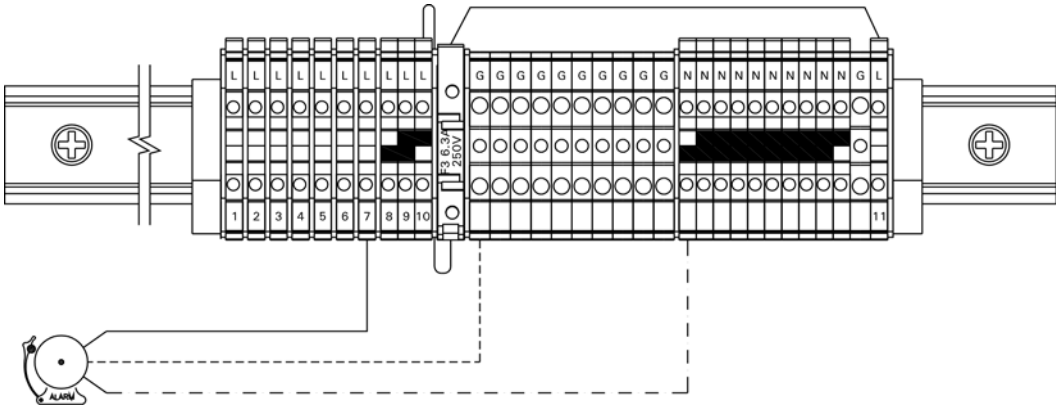
52 A1 Motor for 3-way mixing valve, tank loading system
52 M2 For heating circuit 2
52 M3 For heating circuit 3

Rated voltage: 120V ~
Rated current Max.: 0.1 A ~

1. Disconnect power to control.
2. Install 120V or 24V valve adaptor on DIN rail inside connection enclosure.
3. Insert the plug 52 into the appropriate socket 52 on the Vitotronic control.
4. Fasten cable with tie (refer to page 18).
5. Connect single black wire of the adaptor to terminals 8,9 or 10 on the DIN rail.
6. Connect valve actuator wires to the adaptor terminals

Refer to the mixing valve adaptor modules Installation Instructions.

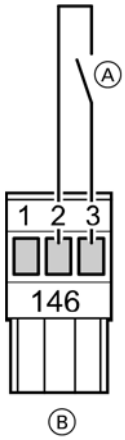
Connecting the Central Fault Message Facility



Rated voltage	120V ~
Rated current	max. 2 FLA

Note: Maximum pump and alarm output is 6 FLA shared between all 120V outputs.

External Demand via Switching Contact



Legend

Ⓐ Dry contact
Ⓑ Plug 146 of the control unit

Connection options:

- Connection at plug 146
- Extension EA1 (accessory, see page 106)

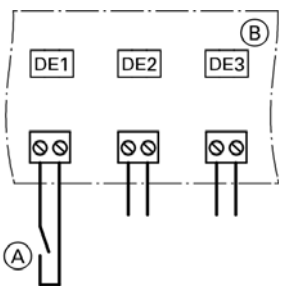
Connection

Note: 'Live' contacts lead to short circuits or phase failure. The external connection must be potential-free.

When the contact is closed, burner operation is load-dependent. The supply water is heated to the value set in the coding address "9b" in the "General" group on the Vitotronic 300-K.
The supply water temperature is limited by this set value and the electronic supply temperature maximum limit.

Codes

Plug 146	Set address 9b in General group.
Extension EA1	Set "5d", "5e" or "5f" in the "General" group to 2.



Legend

Ⓐ Dry contact
Ⓑ Extension EA1

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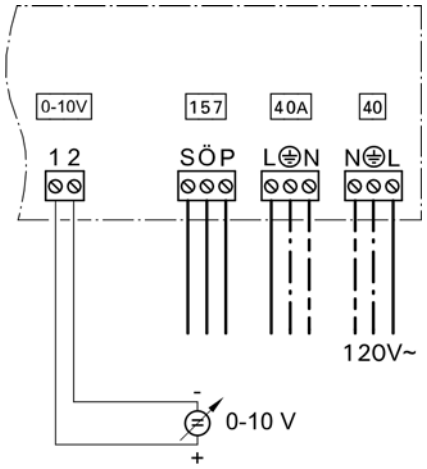
External Demand via 0 - 10V Input

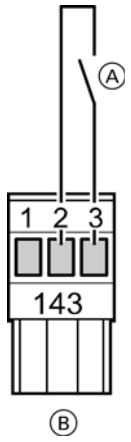


Demand for a system supply temperature set value.
Connection to input 0 -10V at extension EA1 (accessory).
See page 106.

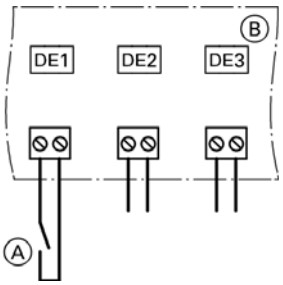
0 - 1V ≙ no default set supply temperature
1V ≙ set value 50°F (10°C)
10V ≙ set value 212°F (100°C)
Observe coding address “1e” in the “General” group.

Optional
Temperature range from 86 to 248°F
(30 to 120°C):
0 - 1V ≙ no default set supply temperature
1V ≙ set value 86°F (30°C)
10V ≙ set value 248°F (120°C)

External Blocking via Switching Contact



Ⓐ Dry contact
Ⓑ Plug 143 of the control unit



Legend
Ⓐ Dry contact
Ⓑ Extension EA1

Connection options:
- Connection at plug 143
- Extension EA1 (accessory, see page 106)

Connection

Note: ‘Live’ contacts lead to short circuits or phase failure.
The external connection must be potential-free.

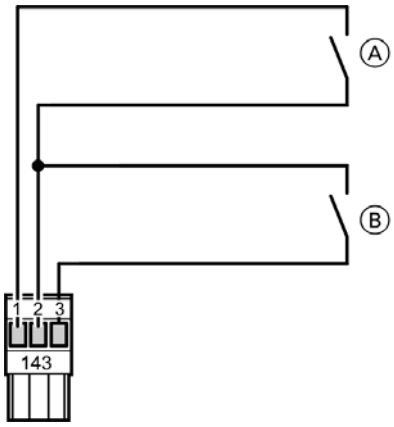
The burner is shut down when the contact is closed.
The boiler circuit pumps are switched off.

Note: The heating system has no frost protection while it is blocked.
The boiler is not held at the lower boiler water temperature.

Codes

Plug 143	Set coding address “99” in the “general” group.
Extension EA1	Set “5d”, “5e” or “5f” in the “General” group to 3 or 4.

External “Mixing Valve Close”/”Mixing Valve Open”



Legend
Ⓐ External “Mixing valve open” (Dry contact)
Ⓑ External “Mixing valve close” (Dry contact)

Connection at plug 143

The mixing valves are opened Ⓐ or closed Ⓑ when the contact is closed.

Note: ‘Live’ contacts lead to short circuits or phase failure.
The external connection must be potential-free.

Codes

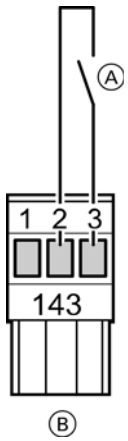
External “Mixing valve open”

Via coding address “9a” in the “General” group, this function is assigned to the heating circuits.

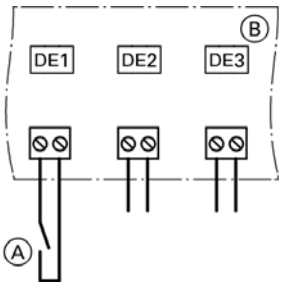
External “Mixing valve close”

Via coding address “99” in the “General” group, this function is assigned to the heating circuits.

External Heating Program Changeover



Legend
Ⓐ Dry contact
Ⓑ Plug 143 of the control unit



Legend
Ⓐ Dry contact
Ⓑ Extension EA1

The changeover can be separate for heating circuits 1 to 3.

Connection options:
- Connection at plug 143
- Extension EA1 (accessory, see page 106)

Connection

Note: ‘Live’ contacts lead to short circuits or phase failure.
The external connection must be potential-free.

Codes

Plug 143	Via coding address “91” in the “General” group, the function can be assigned to the heating circuits.
Extension EA1	Set “5d”, “5e” or “5f” in the “General” group to 1. Via coding address “d8” in the “Heating circuit...” group, the function can be assigned to the heating circuits.

External Heating Program Changeover *(continued)*

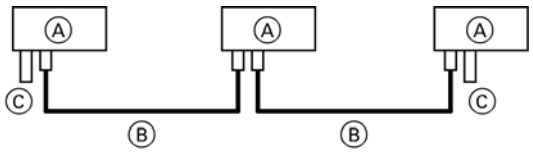
Preselected heating program (Contact open)		Coding		Changed heating program (Contact closed)
⏻	Central heating OFF/DHW OFF	d5:0 (factory set condition)	⇔	Permanent operation with reduced room temperature/ DHW OFF
 or	Central heating OFF/DHW ON	d5:1	⇔	Constant operation with standard room temperature, DHW in accordance with coding address “64”
	Central heating OFF/DHW ON			

Making the LON Connection

The Viessmann LON system is designed for the “Line” BUS topology with a terminator at both ends (accessories).

Observe the cabling requirements for the operation of the LON interface FTT 10-A (see www.echelon.com).

All Viessmann equipment is connected via RJ45 plugs. The Viessmann LON system always requires the cores “1” and “2” and the screen. The cores are interchangeable. The installation is therefore safe from pole errors.

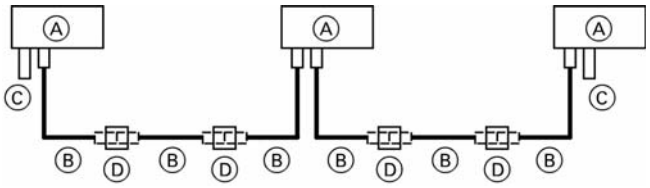


Connection with Viessmann LON cable

The line may be up to ≤ 23 ft. (7 m) long

Legend

Ⓐ Boiler, control unit or Vitocom
Ⓑ LON cable, 23 ft. (7 m) long
Ⓒ Terminal end resistor



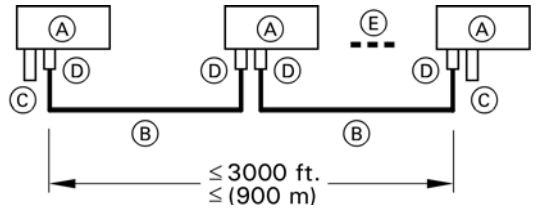
Connection with Viessmann LON cable and coupling

Installation spacing 23 to 69 ft. (7 to 21 m)

Legend

Ⓐ Boiler, control unit or Vitocom
Ⓑ LON cable, 23 ft. (7 m) long
Max. 3 cables between 2 appliances
Ⓒ Terminal end resistor
Ⓓ LON extension jack

Making the LON Connection *(continued)*



Connection with on-site cable and LON plug

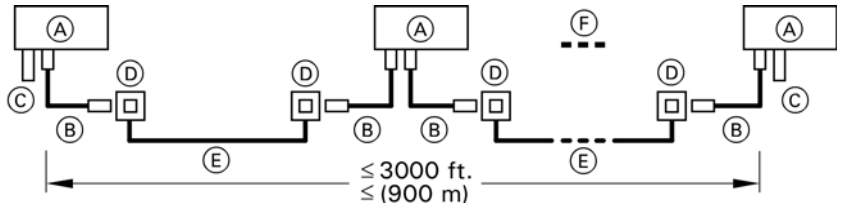
The line may be up to ≤ 3000 ft. (900 m) (with LON plug)

Legend

Ⓐ Boiler, control unit or Vitocom
Ⓑ On-site cable
Ⓒ Terminal end resistor
Ⓓ LON plug
Ⓔ Up to 99 participants

Connection with LON cable, on-site cable and LON junction box

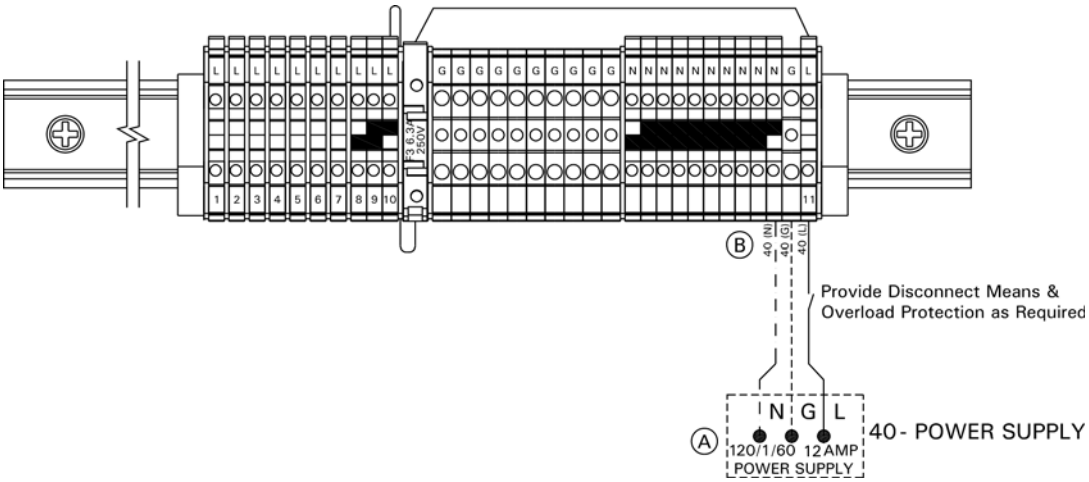
The line may be up to ≤ 3000 ft. (900 m) (with LON junction boxes)



Legend

Ⓐ Boiler, control unit or Vitocom
Ⓑ LON cable, 23 ft. (7 m) long
Ⓒ Terminal end resistor
Ⓓ LON junction boxes
Ⓔ On-site cable
Ⓕ Up to 99 participants

Power Supply



Legend
L: Line
N: Neutral
G: Ground

Ⓐ Power supply 120VAC, 1PH, 60 Hz, provide disconnect means and overcurrent protection as per local codes

Ⓑ DIN terminals N, G and 11 (in junction box)

Ⓒ Junction box

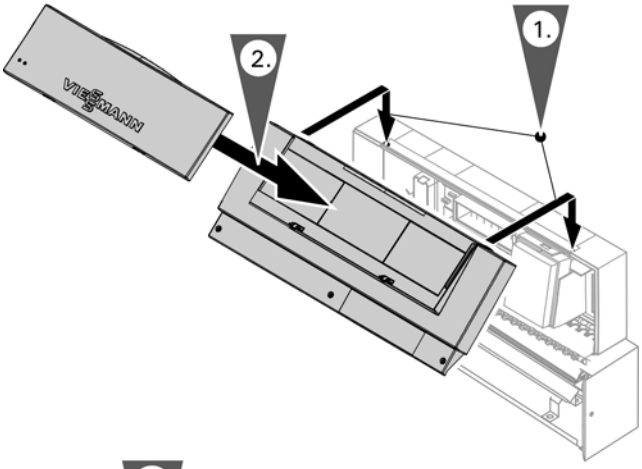
1. Ensure that the main power supply to the control contains overcurrent protection with a minimum rating of 12A and 2-pole disconnect.

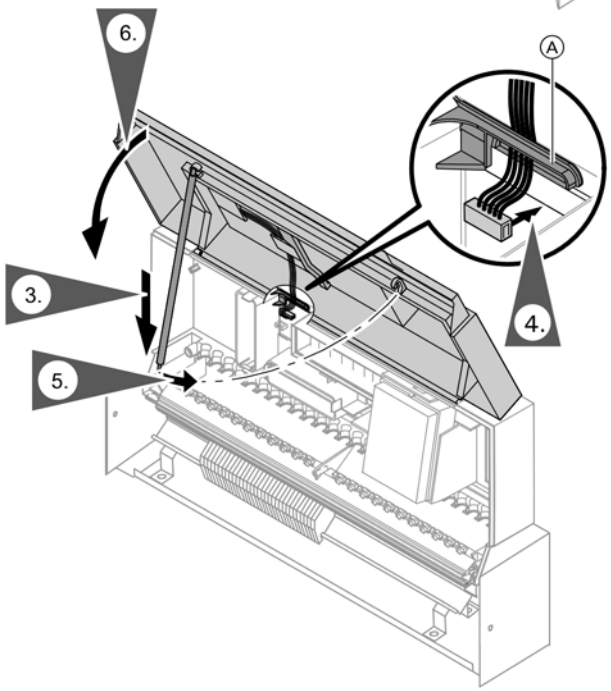
⚠ WARNING

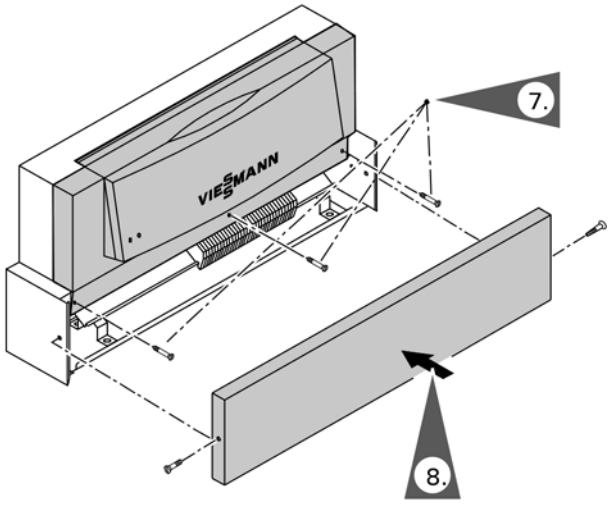
The control must be grounded.
Ensure that "L", "N" and "G" are not interchanged.

2. Connect power supply wire to the connection 40 terminals 11, N and G on the DIN rail inside the junction box.

Fitting the Control Unit Front







1. Snap on the control cover to the control housing.
2. Snap on the interface cover to the control cover.
3. Release the stay bar and lock in position.
4. Insert the plug from the programming unit to the control.
   Note: Route the ribbon cable through retainer Ⓐ.
5. Return the stay bar to the control cover and lock in position.
6. Close the control cover.
7. Secure the control cover to the front housing with supplied fasteners.
8. Install the junction box cover and support with a supplied screws.

Note: Route the ribbon cable through retainer Ⓐ.

Legend
Ⓐ Cable retaining tab

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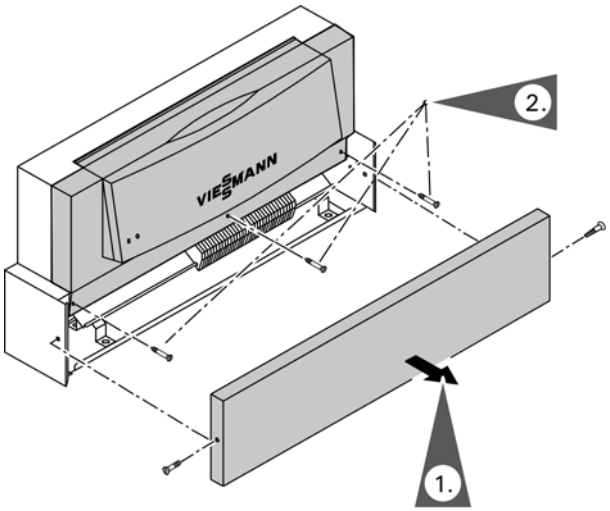
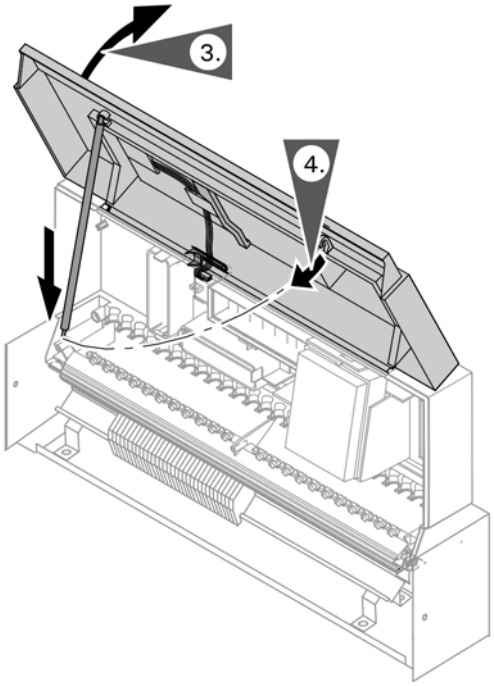
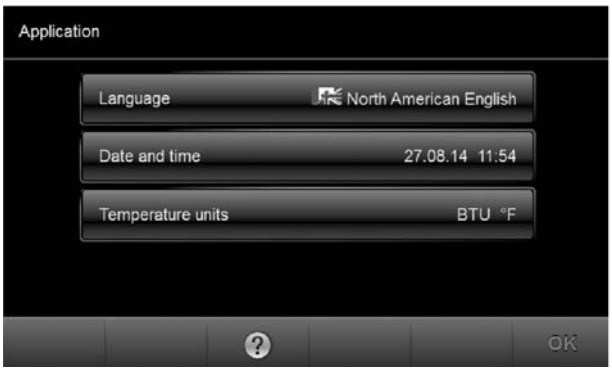
Opening the Control Unit





1. Remove the junction box cover screws and remove the cover.
2. Loosen the front housing screws.
3. Swing up the front part of the control housing.
4. Position the stay bar so that it supports the front housing.

Changing the Language



1. Turn ON the ON/OFF switch on all control units. The Vitotronic 300-K integrated commissioning assistant starts automatically.
2. Make required settings:
   - "Language"
   - "Date / Time"
   - "Temperature units"
3. Confirm with OK.
4. Call up the commissioning assistant (setup **"🔧"shown)** with "Yes". Additional coding will be displayed.

   Note: The commissioning assistant can be skipped with "No".
5. When "Yes" is selected access is granted to coding addressess;
   00: System select
   35: # of boilers connected
   77: LON participant #
   3C: Control strategy
   Select the desired address using the ▲/▼ and pressing "edit".
   Change the value as required and accept with OK.
6. Once complete the screen will display 'do you want to finish setup', select "Yes" to go to the home screen"NO" to return to the setup menu.
7. If commissioning was successful: Confirm with OK. You are automatically returned to the home screen.

Note: If commissioning was unsuccessful, the following appears in the footer ⚠. Tap and check the fault messages. For troubleshooting measures, see page 46.

Matching Coding Addresses to the Installed Heating System

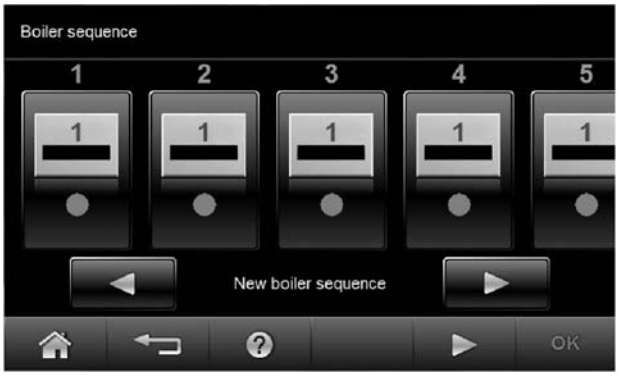
Check all addresses on Coding level 1 and set if required. Check the following coding on level 2 and set according to requirements:

Coding	Group	Function
"39"	"Cascade"	Permanent lead boiler
"3a"	"Cascade"	Permanent last boiler
"4c"	"General"	Plug [20] function
"55"	"DHW"	Tank temperature control function
"77"	"General"	LON participant no.
"7a"	"General"	Central control
"98"	"General"	Viessmann system no.
"9c"	"General"	Monitoring LON participants

Selecting the Boiler Sequence (if required)

Subject to the coding set in the "Cascade" group and internal control calculations, the control unit offers various boiler sequences. Coding that influence the boiler sequence:

"38"	Changing the lead boiler and the boiler sequence
"39"	Permanent lead boiler
"3a"	Permanent last boiler
"41" to "44"	ECO thresholds
"65", "6f"	ECO thresholds
"74", "7d"	ECO thresholds



- Via the ECO threshold, every boiler can be blocked or enabled subject to the outdoor temperature.
- The ECO threshold has no effect if a boiler is required to achieve the set supply temperature in the case of enabled boilers failing.
- At least the lead boiler remains in operation when all boilers in a system would otherwise be blocked by the ECO threshold.

From the home screen tap the following buttons:

1. Tap "Menu".
2. "Boiler sequence"
3. Select the required boiler sequence and confirm with "OK".

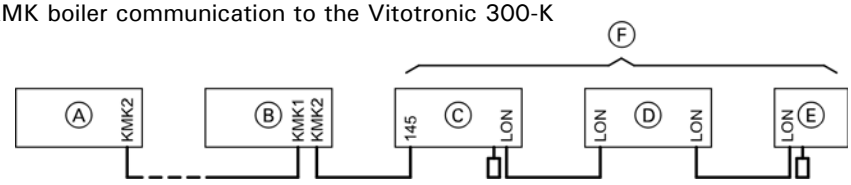
Connecting the Control Unit to the LON System

Installation and service instructions, Vitotronic 200-H

- Vitotronic 300-K and 200-H:
  The LON communication module (accessories) must be fitted.
- Within one LON, the same participant number must not be allocated twice.
- Within one LON, the system number (coding "98" in the "General" group) must always be the same.
- Only one Vitotronic may be selected as fault manager.
- The data transfer via LON can take several minutes.
- LON communication is for LON equipped accessories, communication between the Vitodens and the Vitotronic 300-K is the KMK bus.

Example of a multi boiler system

Using KMK boiler communication to the Vitotronic 300-K



Legend

Ⓐ Vitodens 200-W
Ⓑ Vitodens 200-W
Ⓒ Vitotronic 300-K
Ⓓ Vitotronic 200-H
Ⓔ Vitocom
Ⓕ LON system

Connecting the Control Unit to the LON System *(continued)*

Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ
Vitotronic 200 set to multi-boiler operating mode. Refer to page 9.	Vitotronic 200 set to multi-boiler operating mode. Refer to page 9.	--	--	--
Boiler number 1 Coding “07:1” in the “Boiler” group (factory set condition).	Boiler number 2 to … Set coding “07:2 to …” in the “Boiler” group.	--	--	--
With cascade communication module. Coding “76:2” in the “General” group is recognized automatically.	With cascade communication module. Coding “76:2” in the “General” group is recognized automatically.	With cascade communication module. Coding “76:1” in the “General” group is recognized automatically.	With cascade communication module. Coding “76:1” in the “General” group is recognized automatically.	--
--	--	Number of connected boilers. Set coding “35:1” to “35:8” in the “Cascade” group.	--	--
--	--	Participant no. 9. Coding “77:9” in the “General” group.	Participant no. 10. Coding “77:10” in the “General” group.	Participant no. 99.
--	--	Control unit is fault manager Coding “79:1” in the “General” group.	Control unit is not fault manager Coding “79:0” in the “General” group.	Device is fault manager.
--	--	Control unit transmits the time. Set coding “7b:1” in the “General” group.	Control unit receives the time. Set coding “81:3” in the “General” group.	Device receives the time.
--	--	The control unit sends the outdoor temperature. Set Coding “97:2” in the “General” group.	The control unit receives the outdoor temperature. Set coding “97:1” in the “General” group.	--
--	--	LON participant remote monitoring. Coding “9c:20” in the “General” group.	LON participant remote monitoring. Coding “9c:20” in the “General” group.	--

Carrying out a LON participant check
Communication with the system devices connected to the fault manager is tested by means of a participant check.

Preconditions:

- The control unit must be programmed as fault manager (code “79:1”).
- The LON participant number must be programmed in all control units.
- The LON participant list in the fault manager must be up to date.

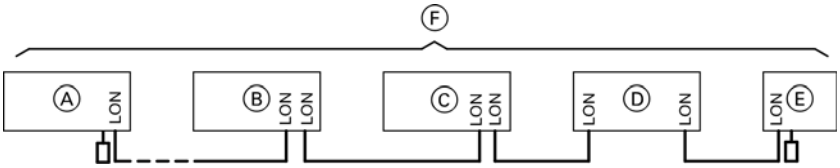
Connecting the Control Unit to the LON System *(continued)*

Installation and service instructions, Vitotronic 200-H

- Boiler equipped with Vitotronic 200, Vitotronic 300-K and 200-H:
  The LON communication module (accessories) must be fitted (depending on boiler and package selected this may be an additional accessory).
- Within one LON, the same participant number must not be allocated twice.
- Within one LON, the system number (coding "98" in the "General" group) must always be the same.
- Only one Vitotronic may be selected as fault manager.
- The data transfer via LON can take several minutes.

Example of a multi boiler system

using LON communication to the Vitotronic 300-K



Legend

Ⓐ Boiler equipped with Vitotronic 200
Ⓑ Boiler equipped with Vitotronic 200
Ⓒ Vitotronic 300-K
Ⓓ Vitotronic 200-H
Ⓔ Vitocom
Ⓕ LON system

Connecting the Control Unit to the LON System *(continued)*

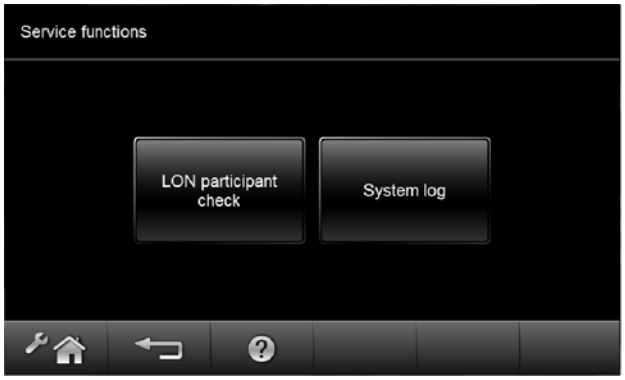
Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ
Vitotronic 200 set to multi-boiler operating mode. Refer to page 9.	Vitotronic 200 set to multi-boiler operating mode. Refer to page 9.	--	--	--
Boiler number 1 Coding “07:1” in the “Boiler” group (factory set condition).	Boiler number 2 to … Set coding “07:2 to …” in the “Boiler” group.	--	--	--
With cascade communication module. Coding “76:1” in the “General” group is recognized automatically.	With cascade communication module. Coding “76:1” in the “General” group is recognized automatically.	With cascade communication module. Coding “76:1” in the “General” group is recognized automatically.	With cascade communication module. Coding “76:1” in the “General” group is recognized automatically.	--
--	--	Number of connected boilers. Set coding “35:1” to “35:8” in the “Cascade” group.	--	--
Participant no. 1. Coding “77:1” in the “General” group.	Participant no. 2. Coding “77:2” in the “General” group.	Participant no. 9. Coding “77:9” in the “General” group.	Participant no. 10. Coding “77:10” in the “General” group.	Participant no. 99.
LON communication enabled 78:1 in the “General” group.	LON communication enabled 78:1 in the “General” group.	LON communication enabled 78:1 in the “General” group.	LON communication enabled 78:1 in the “General” group.	LON communication enabled 78:1 in the “General” group.
Control unit is not fault manager Coding “79:0” in the “General” group.	Control unit is not fault manager Coding “79:0” in the “General” group.	Control unit is fault manager Coding “79:1” in the “General” group.	Control unit is not fault manager Coding “79:0” in the “General” group.	Device is fault manager.
Control unit receives the time. Set coding “81:3” in the “General” group.	Control unit receives the time. Set coding “81:3” in the “General” group	Control unit transmits the time. Set coding “7b:1” in the “General” group.	Control unit receives the time. Set coding “81:3” in the “General” group.	Device receives the time.
--	--	Boiler communication via LON coding 89:1 in the “General” group.	--	--
--	--	The control unit sends the outdoor temperature. Set Coding “97:2” in the “General” group.	The control unit receives the outdoor temperature. Set coding “97:1” in the “General” group.	--
--	--	LON participant remote monitoring. Coding “9c:20” in the “General” group.	LON participant remote monitoring. Coding “9c:20” in the “General” group.	--

Carrying out a LON participant check
Communication with the system devices connected to the fault manager is tested by means of a participant check.

Preconditions:

- The control unit must be programmed as fault manager (code “79:1”).
- The LON participant number must be programmed in all control units.
- The LON participant list in the fault manager must be up to date.

Connecting the Control Unit to the LON System *(continued)*



Carry out participant check from the home screen:

1. Tap “Menu”.
2. Select “Service”.
3. Enter “viservice” password.
4. Select “Service functions”.
5. “LON participant check”
6. Select participant and confirm with “OK”.

The participant check for the selected participant is initiated.

- The display shows “Participant X Check running”.
- Upon completion of a successful participant check the screen will display “OK”.
- Participant check failure will result in the message ‘Subscriber ... check not OK’. Update the list with ‘new list’ and run the participant check again.

Information on the Vitotronic 200-H
During the participant check, the display for the relevant participant shows the participant no. and will “Wink” for approximately 1 min.

Testing Actuators on the Vitotronic 200

Carry out an actuator test

1. Press OK and ☰ simultaneously for approx. 4 sec.
2. Select “Actuator test”.
3. Select the required actuator (output) with ▲/▼ .
   See the following table.

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

Display		Explanation
All actuators	Off	All actuators are off.
Base load	On	Burner operated at minimum output; circulation pump [20] is started.
Full load	On	Burner operated at maximum output; circulation pump [20] is started.
Output, internal	On	Output [20].
Output [21/28]	On	Output [21].
Outp. int. exten. H1	On	Output [28/20] active.
EA1 output 1	On	Contact P - S at plug [157] of extension EA1 closed.

Scanning Operating Details at the Vitotronic 200

Calling up operating data

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

Note: "- - -" appears on the display if a sensor that has been scanned is faulty.

Resetting operating data

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

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

Testing Actuators and Sensors on the Vitotronic 300-K

Carry out an actuator test

From the home screen tap the following buttons:

1. Tap "Menu".
2. Select "Service".
3. Enter "viservice" password.
4. Select "Actuator test".

The following actuators can be switched subject to attached periphery equipment:

Display		Explanation
"All actuators"	OFF	All actuators are off
"Output 20"	On	Output 20 active
"Output 52"	Open	3-way mixing valve, tank loading system
"Output 52"	Neutr.	3-way mixing valve, tank loading system
"Output 52"	Close	3-way mixing valve, tank loading system
"Tank primary pump"	On	DHW Pump
"DHW circ pump"	On	Output DHW pump active
"Output 29"	On	Output 29 active
"Central fault mess."	On	Output 50 active
"Htg circ pump HC2"	On	Output heating circuit pump active (heating circuit with mixing valve M2)
"Mixing valve HC2"	Open	Output "Mixing valve open" active (heating circuit with mixing valve M2)
"Mixing valve HC2"	Close	Output "Mixing valve close" active (heating circuit with mixing valve M2)
"Htg circ pump HC3"	On	Output heating circuit pump active (heating circuit with mixing valve M3)
"Mixing valve HC3"	Open	Output "Mixing valve open" active (heating circuit with mixing valve M3)
"Mixing valve HC3"	Close	Output "Mixing valve close" active (heating circuit with mixing valve M3)
"EA1 output 1"	On	Contact "P - S" on plug [157] of EA1 extension closed
"AM1 output 1"	On	Output 1 active
"AM1 output 2"	On	Output 2 active
"Solar circuit pump"	On	Output solar circuit pump [24] on solar control module , type SM1 active
"Solar circ pmp min"	On	Output solar circuit pump [24] on solar control module , type SM1 switched to minimum speed
"Solar circ pmp max"	On	Output solar circuit pump [24] on solar control module , type SM1 switched to maximum speed
"SM1 output 22"	On	Output [22] on solar control module, type SM1 active

Testing Actuators and Sensors on the Vitotronic 300-K *(continued)*

Information regarding the mixing valve motor rotational direction

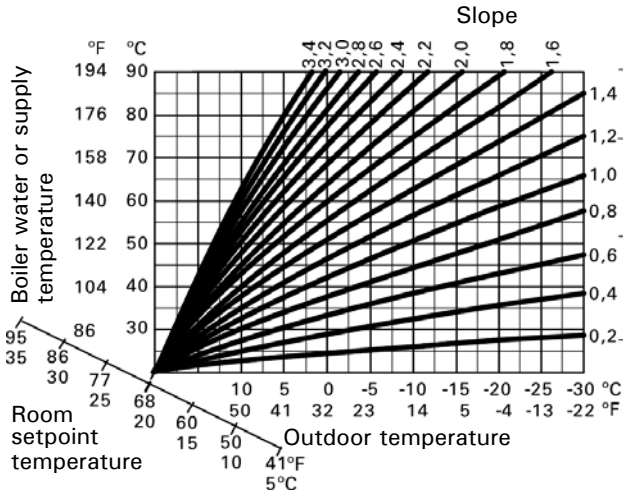
The supply temperature must rise when the mixing valve opens.
If the temperature drops, either the motor is turning in the wrong direction or the mixing valve set is incorrectly fitted (observe the mixing valve installation instructions). Verify installation and if installed correctly.

Checking sensors

From the home screen tap the following buttons:

1. Tap “Menu”.
2. Select “Service”.
3. Enter “viservice” password.
4. Select “Diagnosis”.
5. Select group.
6. Scan actual temperature of the relevant sensor.

Adjusting the Heating Curve



The heating curves illustrate the relationship between the outdoor temperature and the boiler water or supply temperature.
Simplified: The lower the outdoor temperature, the higher the boiler water or supply temperature.
The boiler water or supply temperature in turn affects the room temperature.

Settings in the factory set condition:

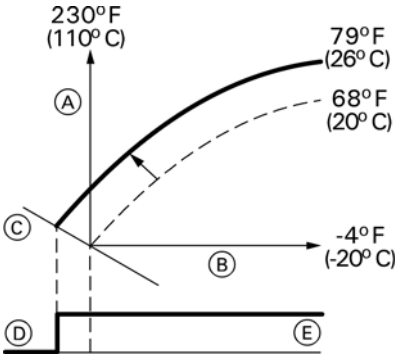
- Slope = 1.4
- Shift = 0

Note: If the heating system includes heating circuits with mixing valves, then the supply temperature of the heating circuit without mixing valve is higher by a selected differential [15°F (8 K) in the factory set condition] than the supply temperature of the heating circuits with mixing valves.
The differential temperature can be changed at coding address 9F in the “General” group.

Slope setting ranges:

- Underfloor heating systems: 0.2 to 0.8
- Low temperature heating systems: 0.8 to 1.6

Adjusting the Heating Curve *(continued)*

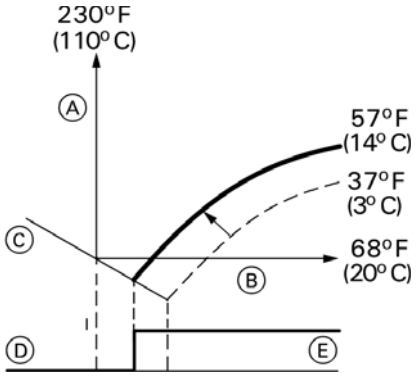


Legend
Ⓐ Boiler water temperature or supply temperature
Ⓑ Outdoor temperature
Ⓒ Set room temperature
Ⓓ Heating circuit pump "Off"
Ⓔ Heating circuit pump "On"

Selecting the set room temperature
Individually adjustable for each heating circuit.
The heating curve is offset along the axis of the set room temperature. With the heating circuit pump logic function enabled, the curve modifies the starting and stopping characteristics of the heating circuit pump.

Changing the standard set room temperature

Refer to the Operating Instructions of the Vitotronic 300-K.



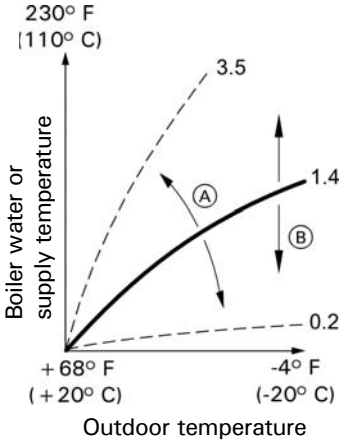
Legend
Ⓐ Boiler water temperature or supply temperature
Ⓑ Outdoor temperature
Ⓒ Set room temperature
Ⓓ Heating circuit pump "Off"
Ⓔ Heating circuit pump "On"

Reduced set room temperature

Example 2: Adjustment of the reduced set room temperature from 41 to 57°F (5 to 14°C).

Changing the standard set room temperature

Refer to the Operating Instructions of the Vitotronic 300-K.



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

Changing the slope and shift

Individually adjustable for each heating circuit.

1. Tap "Menu".
2. Select "Heating".
3. Select heating circuit.
4. "Heating curve"
5. "Slope" or "Shift"
6. Select heating curve according to the system requirements with +/–.
7. Tap OK to confirm

Refer to the Operating Instructions of the Vitotronic 300-K.

5700 299 - 03

Calling up the Service Level - Vitotronic 200

1. Press OK and ☰ simultaneously for approx. 4 sec.
2. Select the required menu range.

"Service"		
	"Diagnosis"	
		"General"
		"Brief scan"
		"Reset data"
	"Actuator test"	
	"Coding level 1"	
	"Coding level 2"	
	"History of faults"	
	"Service functions"	
		"LON participant check"
		"Service PIN LON"
		"Enter Vitocom PIN code"
		"Maintenance reset"
		"Filling"
		"Air vent valve"
		"Burner adjustment"
		"Multi boiler system"
	"Exit service"	

Leaving the Service Level - Vitotronic 200

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

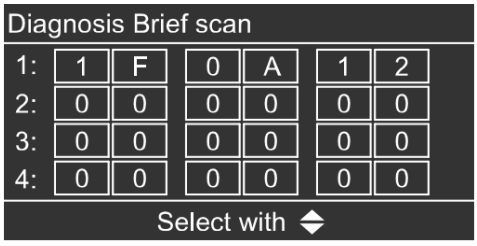
Note: The system exits the service level automatically after 30 min.

Scanning Operating Data - Vitotronic 200

Operating data can be scanned in the “Information” menu.

Refer to the Vitodens Operating Instructions

Brief Scan - Vitotronic 200



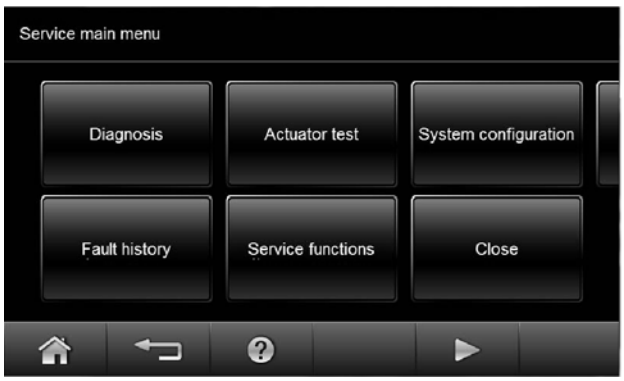
1. Press OK and ☰ simultaneously for approx. 4 sec.
2. “Diagnosis”
3. “Brief scan”
4. Press OK. The display shows 9 lines with 6 fields each.

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

Line (brief scan)	Field					
	1	**2**	**3**	**4**	**5**	**6**
1:	0	System design	Software version control unit		Software version programming unit	
2:	0	0	Appliance version		Device identification ZE-ID	
3:	0	0	Number of KM BUS participants		0	0
4:	Software version burner control unit		Type Burner control unit		Burner control unit version	
5:	Internal details for calibration			0	Software version AM1 extension	Software version EA1 extension
6:	0	0	0	* Flow rate sensor switching state operation 1: Flow rate too low or no flow	0	0
7:	LON Subnet address system number		LON Node address		0	0
8:	LON SBVT configuration	LON software version communication co-processor	LON Neuron chip software version		Number of LON participants	
9:	0	0	0	0	0	0
10:	0	0	0	0	0	0
11:	0	0	0	0	0	0

* Only for Vitodens 200-W which are equipped with internal flow sensors

Calling up the Service Menu - Vitotronic 300-K



From the home screen tap the following buttons:

1. “Menu”
2. “Service”
3. Enter “viservice” password.
4. Select the required menu range.

“Service”		
	“Diagnosis”	
		“General”
		“Cascade”
		“DHW”
		“Heating circuit 1/2/3”
		“Solar energy”
		“Brief scan”
		“Reset data”
	“Actuator test”	
	“System configuration”	
		“Coding level 1”
		“Coding level 2”
	“History of faults”	
	“Service functions”	
		“LON participant check”
		“System log”
	“Startup”	
		“The heating system is reset to the factory state”
	“Change passwords”	
		“Service level”
		“Coding level 2”
		“Reset all passwords”
	“Close”	

Note: “Coding level 2” is only displayed if this level has been enabled: Enter “viexpert” password.

Tap to return to the “Service main menu”

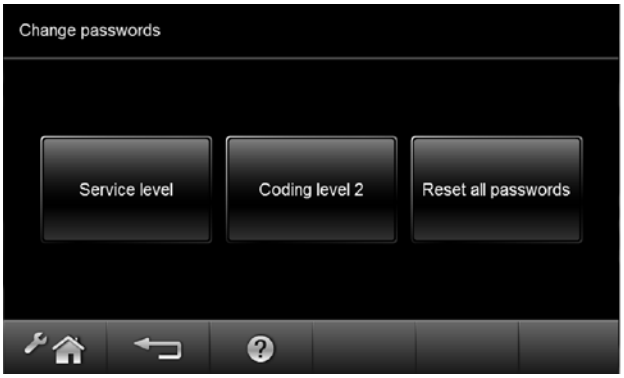
Leaving the Service Menu - Vitotronic 300-K

From the home screen tap the following buttons:

1. Select “Close”.
2. Confirm “End service?” with OK.

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

Change Passwords - Vitotronic 300-K



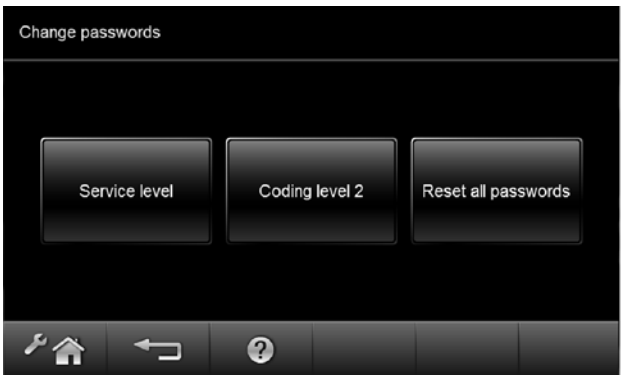
In the factory set condition, the following passwords have been assigned:

- “viservice” for access to the “Service main menu”
- “viexpert” for access to “Coding level 2”

From the home screen tap the following buttons:

1. “Menu”
2. “Service”
3. Enter “viservice” password.
4. Select “Change passwords”.
5. “Service level” or “Coding level 2”
6. Enter current password.
7. Confirm with OK.
8. Enter new password.
9. Tap OK twice

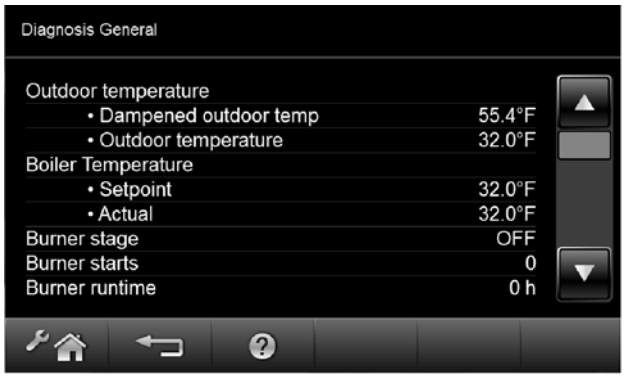
Resetting all Passwords to their Factory Set Condition - Vitotronic 300-K



From the home screen tap the following buttons:

1. Request the master password from the Technical Service at the Viessmann Group.
2. “Menu”
3. “Service”
4. Enter “viservice” password.
5. “Change passwords”
6. “Reset all passwords”
7. Enter master password.
8. Confirm twice with OK.

Scanning Operating Data - Vitotronic 300-K



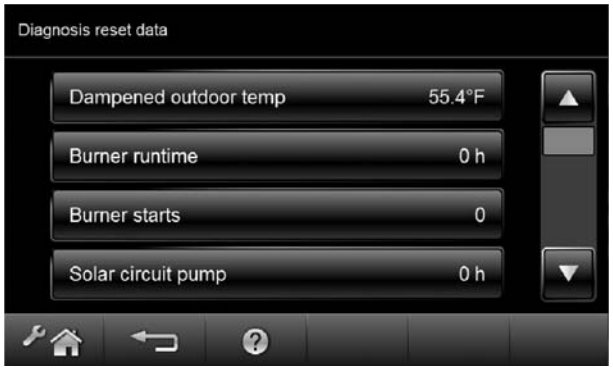
Operating data can be scanned in various areas (see “Diagnosis” on page 41).
Operating data on heating circuits with mixing valves and a solar thermal system can only be scanned if the relevant components are installed in the system.
For further information on operating data, see chapter “Brief scan”.

Note: “- - -” appears on the display if a scanned sensor is faulty.

From the home screen tap the following buttons:

1. “Menu”
2. “Service”
3. Enter “viservice” password.
4. “Diagnosis”
5. Select required group, e.g. “General”.

Resetting Operating Data - Vitotronic 300-K

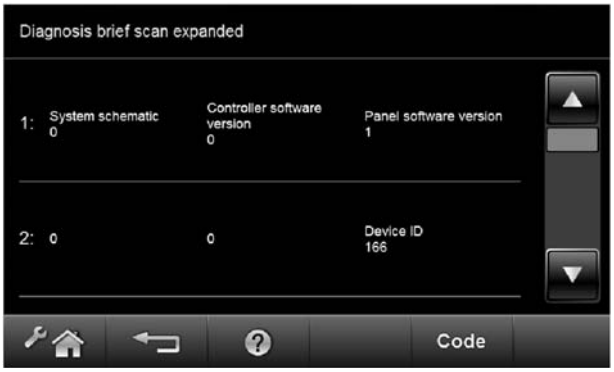


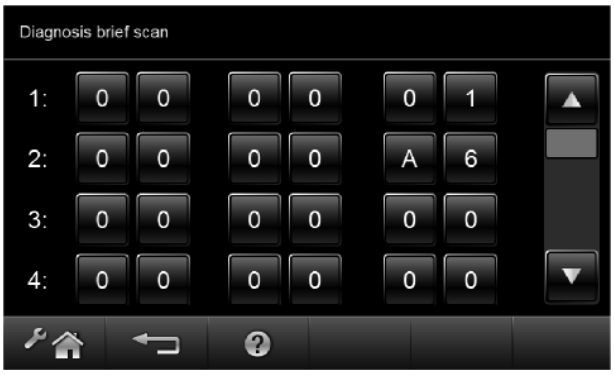
Saved operating data (e.g. hours run) can be reset to 0. The value “Dampened outdoor temp” is reset to the actual value.

From the home screen tap the following buttons:

1. “Menu”
2. “Service”
3. Enter “viservice” password.
4. “Diagnosis”
5. “Reset data”
6. Select required value or “All details”.

Brief Scan - Vitotronic 300-K





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

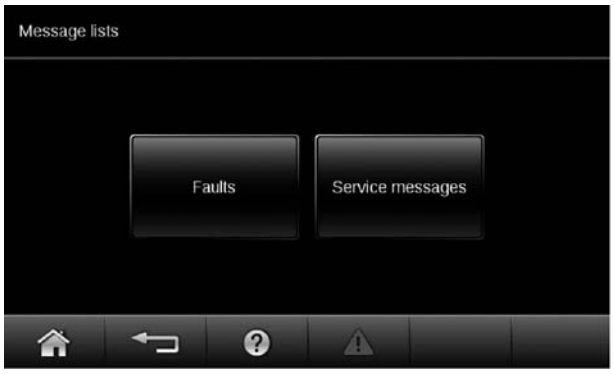
From the home screen tap the following buttons:

1. "Menu"
2. "Service"
3. Enter "viservice" password.
4. "Diagnosis"
5. "Brief scan"
6. "Code" An overview of brief scans appears with 11 lines and 6 fields. ▲/▼ for the required brief scan in line with the following tables

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

Line (brief scan)	Field					
	1	**2**	**3**	**4**	**5**	**6**
1:	System design 01 to 10		Control unit software version		Software version, programming unit	
2:	0	0	0	0	Appliance identification ZE-ID	
3:	0	0	Number of KM BUS participants		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 configuration 0: Auto 1: Tool	Software version Communic. coproc.	Software version Neuron chip SW version		Number of LON participants	
	Heating circuit HC1		Heating circuit HC2		Heating circuit HC3	
9:	Remote control 0: Without 1: Vitotrol 200A 2: Vitotrol 300A	Software version Remote control	Remote control 0: Without 1: Vitotrol 200A 2: Vitotrol 300A	Software version Remote control	Remote control 0: Without 1: Vitotrol 200A 2: Vitotrol 300A	Software version Remote control
10:	0	0	0	0	0	0
11:	0	0	Software version, extension for heating circuits 2 and 3 with mixing valve	0	Software version, extension for heating circuits 2 and 3 with mixing valve	0
			Note: The displays in fields 3 and 5 are the same.			

Maintenance Display



Service notification limits are set via coding “1f”, “21” and “23” in the “Boiler” group.

Once these values have been reached, “Service” appears on the display.

Tap the following buttons:

1. “Confirm” The footer shows ⚠.
2. ⚠

Note: After tapping ⚠ the following will be displayed if your heating system has several fault messages simultaneously:

3. “Service messages” The service messages appear yellow in a list.

After maintenance has been carried out

Note: If a service is carried out prematurely, set coding “24:1” in the “Boiler” group to “24:0”. The selected maintenance coding for hours run and time intervals restart at 0.
If coding “24” is not reset, “Service” will be displayed again on the following Monday.

From the home screen tap the following buttons:

1. “Menu”
2. “Service”
3. Enter “viservice” password.
4. “Service functions”
5. “Reset service”
   The selected service coding for hours run and interval restart at 0.

Fault Display

In the event of a fault, the red fault display flashes at the control unit. The display shows “Fault”.
For an explanation of fault codes, see chapter “Fault codes”.

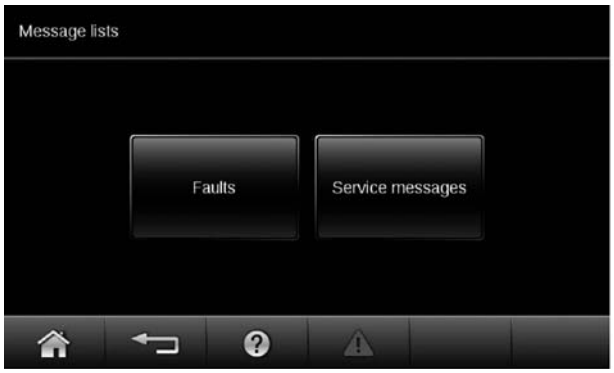
Note: If a central fault message facility is connected, this is started.

Acknowledge fault message

Tap “Close”.

The footer shows ⚠.

Note: Any connected central fault message facility stops. If an acknowledged fault is not remedied, the fault message will be re-displayed the following day at 07:00 am (07:00 h), and the fault message facility restarts.



Calling up acknowledged fault messages

Tap the following buttons:

1. ⚠

Note: After tapping ⚠ the following will be displayed if your heating system has several service messages simultaneously:

2. “Faults” The fault messages appear in red and in chronological order in a list.

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

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

From the home screen tap the following buttons:

1. “Menu”
2. “Service”
3. Enter “viservice” password.
4. “History of faults”
5. Call up further information in the relevant fault with **?**.
6. Tap “Reset” to delete the list.

Fault Codes

Fault codes

Displayed fault code	System characteristics	Cause	Measures
10	Activates at 32°F (0°C) outdoor temperature	Short circuit, outdoor temperature sensor	Check the outdoor temperature sensor (see page 105).
18	Activates at 32°F (0°C) outdoor temperature	Lead break, outdoor temperature sensor	Check outdoor temperature sensor (see page 105)
19	Activates after 32°F (0°C) outdoor temperature.	Communication fault, outdoor temperature sensor RF	Check wireless connection (place outdoor temperature sensor RF close to the wireless base station). Log off outdoor temperature sensor then log on again. Replace if necessary (see separate installation and service instructions).
20	Standalone control unit without supply temperature sensor (possibly supply temperature not high enough).	Short circuit, common supply temperature sensor/low loss header temperature sensor	Check sensor (see page 105).
28	Standalone control unit without supply temperature sensor (possibly supply temperature not high enough).	Lead break, common supply temperature sensor/low loss header temperature sensor	Check sensor (see page 105)
40	Mixing valve is being closed.	Short circuit, supply temperature sensor, heating circuit with mixing valve M2 (heating circuit 2)	Check the supply temperature sensor (see page 105).
44	Mixing valve is being closed.	Short circuit, supply temperature sensor, heating circuit with mixing valve M3 (heating circuit 3)	Check the supply temperature sensor (see page 105).
48	Mixing valve is being closed.	Lead break, supply temperature sensor, heating circuit with mixing valve M2 (heating circuit 2)	Check the supply temperature sensor (see page 105).
4C	Mixing valve is being closed.	Lead break, supply temperature sensor, heating circuit with mixing valve M3 (heating circuit 3)	Check the supply temperature sensor (see page 105).
50	DHW tank primary pump “ON”: set DHW temperature = set supply temperature Priority control is cancelled. or With tank loading system: DHW tank heating is started and stopped by DHW tank temperature sensor 2.	Short circuit, DHW tank temperature sensor 1	Check the DHW tank temperature sensor (see page 105).

Fault Codes *(continued)*

Fault codes

Displayed fault code	System characteristics	Cause	Measures
51	With tank loading system: DHW tank heating is started and stopped by DHW tank temperature sensor 1.	Short circuit, DHW tank temperature sensor 2	Check the DHW tank temperature sensor (see page 105).
54	Control mode	Service or fault on Vitotronic 200 of boiler 5	Check service display or fault code on the respective Vitotronic 200
55	Control mode	Service or fault on Vitotronic 200 of boiler 6	Check service display or fault code on the respective Vitotronic 200
56	Control mode	Service or fault on Vitotronic 200 of boiler 7	Check service display or fault code on the respective Vitotronic 200
57	Control mode	Service or fault on Vitotronic 200 of boiler 8	Check service display or fault code on the respective Vitotronic 200
58	DHW tank primary pump "ON": set DHW temperature = set supply temperature Priority control is cancelled. or With tank loading system: DHW tank heating is started and stopped by DHW tank temperature sensor 2.	Lead break, DHW tank temperature sensor 1	Check the DHW tank temperature sensor (see page 105).
59	With tank loading system: DHW tank heating is started and stopped by DHW tank temperature sensor 1.	Lead break, DHW tank temperature sensor 2	Check the DHW tank temperature sensor (see page 105).
5C	Control mode	Communication fault Vitotronic 200 of boiler 5	Check and replace cascade communication module and connecting cable if required
5d	Control mode	Communication fault Vitotronic 200 of boiler 6	Check and replace cascade communication module and connecting cable if required
5E	Control mode	Communication fault Vitotronic 200 of boiler 7	Check and replace cascade communication module and connecting cable if required
5F	Control mode	Communication fault Vitotronic 200 of boiler 8	Check and replace cascade communication module and connecting cable if required
70	With tank loading system: 3-way mixing valve "Closed"; no DHW heating	Short circuit, temperature sensor [17]B	Check temperature sensor (see page 105)

Fault Codes *(continued)*

Fault codes

Displayed fault code	System characteristics	Cause	Measures
78	With tank loading system: Mixing valve primary circuit "Closed"; no DHW heating	Lead break, temperature sensor 17B	Check temperature sensor (see page 105) Without temperature sensor: Set code "4b:0" in the "General" group.
84	Control mode	Service or fault on Vitotronic 200 of boiler 1	Check service display or fault message on the respective Vitotronic 200
85	Control mode	Service or fault on Vitotronic 200 of boiler 2	Check service display or fault message on the respective Vitotronic 200
86	Control mode	Service or fault on Vitotronic 200 of boiler 3	Check service display or fault message on the respective Vitotronic 200
87	Control mode	Service or fault on Vitotronic 200 of boiler 4	Check service display or fault message on the respective Vitotronic 200
8C	Control mode	Communication fault Vitotronic 200 of boiler 1	Check and replace cascade communication module and connecting cable if required
8d	Control mode	Communication fault Vitotronic 200 of boiler 2	Check and replace cascade communication module and connecting cable if required
8E	Control mode	Communication fault Vitotronic 200 of boiler 3	Check and replace cascade communication module and connecting cable if required
8F	Control mode	Communication fault Vitotronic 200 of boiler 4	Check and replace cascade communication module and connecting cable if required
90	Control mode	Short circuit, temperature sensor 7, connection to solar control module.	Check temperature sensor 7 (see separate installation and service instructions).
91	Control mode	Short circuit, temperature sensor 10, connection to solar control module.	Check temperature sensor 10 (see separate installation and service instructions).
92	No solar DHW heating.	Short circuit, collector temperature sensor, connection, temperature sensor 6 at solar control module 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).

Fault Codes *(continued)*

Fault codes

Displayed fault code	System characteristics	Cause	Measures
94	No solar DHW heating.	Short circuit, DHW tank 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).
98	Control mode.	Lead break, temperature sensor [7], connection to solar control module.	Check temperature sensor [7] (see separate installation and service instructions). Check coding address “20” in “Solar” group.
99	Control mode.	Lead break, temperature sensor [10], connection to solar control module.	Check temperature sensor [10] (see separate installation and service instructions). Check coding address “20” in “Solar” group.
9A	No solar DHW heating.	Lead break, collector temperature sensor, connection, temperature sensor [6] at solar control module 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, DHW tank 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 rate in solar circuit or flow rate too low, or temperature limiter has responded.	Check solar circuit. Acknowledge fault message (see separate installation and service instructions).
9F	Control mode.	Solar control module or Vitosolic faulty. 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).
Ab	Control operation, DHW tank may be cold.	Tank 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 is not set.	Insert plug [17]B and check coding.
b1	Control mode.	Communication error, programming unit	Check connections and replace the programming unit if required.

Fault Codes *(continued)*

Fault codes

Displayed fault code	System characteristics	Cause	Measures
b5	Control mode.	Internal fault	Check correct insertion of PCB (see parts list).
b6	Constant mode.	Invalid hardware recognized	Check coding address “92” in “General” group; “92:188” must be set. **Note:** Code “8a:176” must be set in order to display coding address “92”.
bA	Mixing valve “Closed”.	Communication fault, PCB extension for heating circuits 2 and 3 with mixing valve	Check insertion of PCB and ribbon cable; replace PCB if required.
bC	Control mode without remote control.	Communication error, remote control Vitotrol heating circuit without mixing valve A1 (heating circuit 1)	Check connections for 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.
bd	Control mode without remote control.	Communication error, remote control Vitotrol heating circuit with mixing valve M2 (heating circuit 2)	Check connections for 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.
bE	Control mode without remote control.	Communication error, remote control Vitotrol heating circuit with mixing valve M3 (heating circuit 3)	Check connections for 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.
bF	Control mode. No communication via LON.	Incorrect LON communication module	Replace LON communication module.
C2	Control mode.	Lead break, KM BUS to solar control module or Vitosolic	Check KM BUS cable and device. Without solar control unit: Set code “54:0” in the “General” group.
CF	Control mode. No communication via LON.	Communication fault, control unit LON communication module	Check LON communication module and replace if required. If no LON communication module is installed, set coding “76:0” in the “General” group.

Fault Codes *(continued)*

Fault codes

Displayed fault code	System characteristics	Cause	Measures
d3	Control mode.	Communication error EA1 extension	Check connections (see page 106). Without extension EA1: Set code "5b:0" in the "General" group.
d5	Boiler ramps up to 140°F (60°C).	The boiler does not "log in" at the cascade control unit.	Check communication via participant check, leads/cables to the Vitotronic 200 and codes.
d6	Control mode.	Input DE1 at EA1 extension reports a fault	Remove fault at appliance concerned.
d7	Control mode.	Input DE2 at EA1 extension reports a fault	Remove fault at appliance concerned.
d8	Control mode.	Input DE3 at EA1 extension reports a fault	Remove fault at appliance concerned.
dA	Control mode without room influence.	Short circuit, room temperature sensor, heating circuit without mixing valve A1 (heating circuit 1)	Check the room temperature sensor (see page 105).
db	Control mode without room influence.	Short circuit, room temperature sensor, heating circuit with mixing valve M2 (heating circuit 2)	Check the room temperature sensor (see page 105).
dC	Control mode without room influence.	Short circuit, room temperature sensor, heating circuit with mixing valve M3 (heating circuit 3)	Check the room temperature sensor (see page 105).
dd	Control mode without room influence.	Lead break, room temperature sensor, heating circuit without mixing valve A1 (heating circuit 1)	Check room temperature sensor (see page 105) and adjustment of the remote control (see separate installation and service instructions).
dE	Control mode without room influence.	Lead break, room temperature sensor, heating circuit with mixing valve M2 (heating circuit 2)	Check room temperature sensor (see page 105) and adjustment of the remote control (see separate installation and service instructions).
dF	Control mode without room influence.	Lead break, room temperature sensor, heating circuit with mixing valve M3 (heating circuit 3)	Check room temperature sensor (see page 105) and adjustment of the remote control (see separate installation and service instructions).

Note: If participant faults occur, "Participant fault ..." is displayed.

Boiler Water Temperature Control of the Vitotronic 200

Brief description

- The boiler water temperature is regulated by modulating burner up or down as required.
- The set boiler water temperature is defaulted by the Vitotronic 300-K.

Functions

The boiler water temperature is recorded separately:

- Temperature limiter
- Boiler water temperature sensor

Upper control range limits

Electronic maximum boiler water temperature limit:

- Setting range: 68°F (20°C) up to boiler coding card default
- Changes at coding “06” in the “Boiler” group

Control sequence

The boiler goes cold:

- The burner start signal is set for set boiler water temperature -7°F (-4 K) and the burner starts its own monitoring program.
- You can delay the burner start by several minutes.

Boiler heats up:

- The burner shutdown point is determined by the shutdown differential of 15°F (8 K).

Cascade Control of the Vitotronic 300-K

Brief description

- The supply temperature is regulated by starting or stopping the burner or by modulating the individual burners.
- The boilers will be regulated to the set boiler water temperature defaulted by the cascade control unit (standalone control).
- Subject to the system design, you may select between one condensing strategy and two conventional boiler strategies.
- The boiler sequence (see page 31) can be determined at coding level 2 and the boiler sequence selection.

For boiler sequence selection refer to the Operating Instructions of the Vitotronic 300-K.

- Coding that influence the cascade control: “Cascade” group. For a description, see coding overview.

Cascade Control of the Vitotronic 300-K *(continued)*

Set supply temperature

The set supply temperature is determined from the following coding:

- Set supply temperatures of the heating circuit without mixing valve A1 and the heating circuits with mixing valve M2 and M3 (if installed)
- Set supply temperature of other consumers (defaulted by the Vitotronic 200-H, for example)
- DHW temperature setpoint [Set DHW temperature]
- External demands (the set supply temperature defaulted by coding "9b" or via input "0 to 10V" of the EA1 extension, for example)

Upper control range limits

- Maximum system supply temperature limit (coding "37" in the "Cascade" group).

Lower control range limits

- Minimum limit of the system supply temperature (coding "36" in the "Cascade" group).

Standalone control

Boilers connected in parallel

- Without and with supply temperature sensor.
  - With supply temperature sensor: Set coding "3b:1" in the "Cascade" group.
    The control deviation is calculated from the set supply temperature and the actual supply temperature to determine the start and shutdown criteria.
  - Without supply temperature sensor: Set coding "3b:0" in the "Cascade" group.
    To determine the start and stop 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.
- The cascade control 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 55)
- Conventional boiler strategy 1 (see page 56)
- Conventional boiler strategy 2 (see page 57)

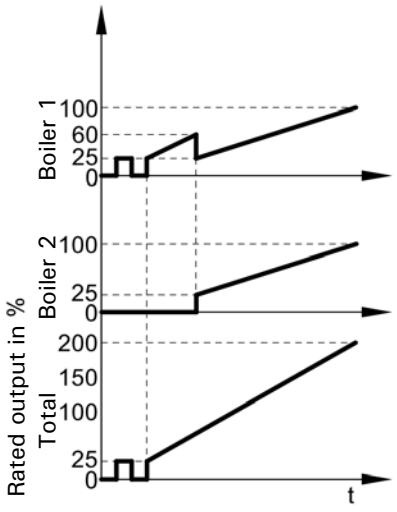
Operation with positive pressure flue gas cascade

Coding "7e:1" in the "General" group.
When each additional boiler starts, all currently active burners are briefly ramped up higher than 80%.

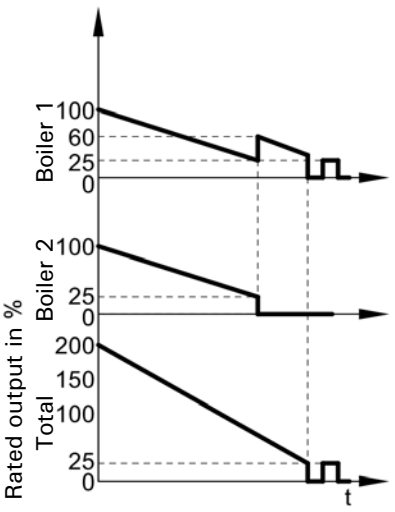
Cascade Control of the Vitotronic 300-K *(continued)*

Examples of the various control strategies

Starting



Shutdown



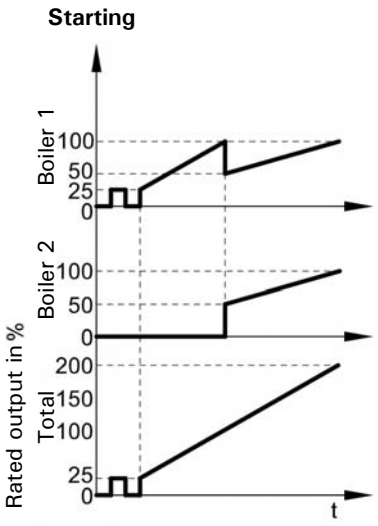
Examples of system with 2 condensing boilers. Condensing strategy (coding “3c:0” in the “Cascade” group)

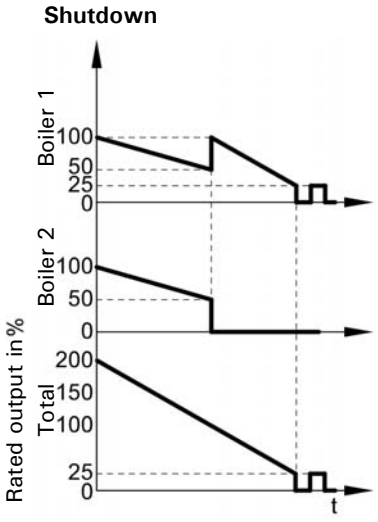
Control strategies
Condensing strategy

Benefit:
Optimum utilization of the condensing effect and long burner runtimes. Set coding “3c:0” in the “Cascade” group.
It is the aim of the condensing strategy to operate as many boilers as possible at the lowest output level.

- Starting criterion:
  An output statement causes the boilers to be started (coding “3d:1” in the “Cascade” group). An additional boiler will start if the currently required output can also be achieved by the currently active boilers plus the next boiler in the boiler sequence (see page 31).
- Shutdown criterion:
  The boilers are shut down via a shutdown integral. The shutdown criterion is met when the shutdown integral exceeds a limit set at coding “46” in the “Cascade” group and the boiler started last will be shut down.

Cascade Control of the Vitotronic 300-K *(continued)*





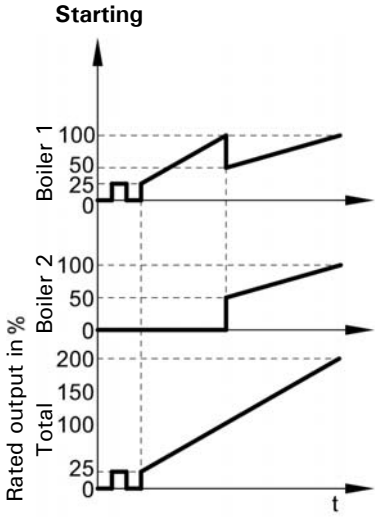
Examples of conventional boiler strategy 1 (coding “3c:1” in the “Cascade” group)

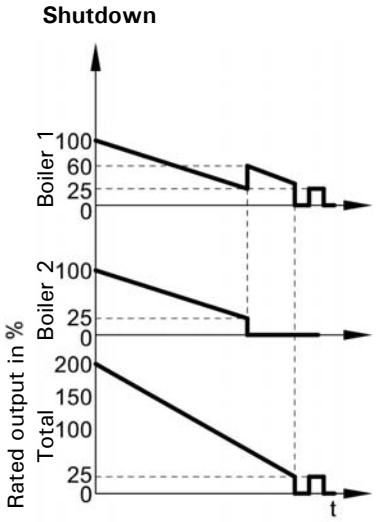
Conventional boiler strategy 1

Benefit:
As few boilers as possible are active. Set coding “3c:1” in the “Cascade” group.
With this strategy, an additional boiler will only be started if the maximum output of all currently active burners is insufficient to achieve the set supply temperature.
A boiler will be shut down when the remaining boilers can achieve the required output on their own.

- Starting criterion:
  The boilers are started via a starting integral. The next boiler in the boiler sequence will be started if the value set in coding “45” in the “Cascade” group is exceeded (see page 76).
- Shutdown criterion:
  An output statement causes the boilers to be shut down (coding “3d:1” in the “Cascade” group).
  A boiler is shut down when the currently required output can be achieved without the boiler that was started last.

Cascade Control of the Vitotronic 300-K *(continued)*





Examples of conventional boiler strategy 2 (coding "3C:2" in the "Cascade" group)

Conventional boiler strategy 2

Benefit:
Long burner runtimes. Coding "3c:2" in the "Cascade" group (factory set condition). An additional boiler will only be started if the maximum output of all currently active burners is insufficient to achieve the set supply temperature. A boiler will be shut down if the burners were returned to their minimum output because of a large negative control deviation and the output is still too high.

- Starting criterion:
  The boilers are started via a starting integral. The next boiler in the boiler sequence will be started if the value set in coding "45" in the "Cascade" group is exceeded (see page 76).
- Shutdown criterion:
  The boilers are shut down via a shutdown integral. The shutdown criterion is met when the shutdown integral exceeds a limit set at coding "46" in the "Cascade" group and the boiler started last will be shut down.

Heating Circuit Control Unit of the Vitotronic 300-K

Brief description

- The control unit has control circuits for one heating circuit without mixing valve A1 (heating circuit 1) and two heating circuits with mixing valve M2 (heating circuit 2) and M3 (heating circuit 3).
- The set supply temperature of every heating circuit is determined from the following coding:
  – Outdoor temp
  – Set room temperature
  – Operating mode
  – Heating curve slope and shift
- The supply temperature of the heating circuit without mixing valve corresponds to the common system supply temperature.
- The supply temperature of the heating circuits with mixing valve is regulated by the stepped opening or closing of the mixing valves.

The mixing valve motor control changes the actuating and pause times subject to the control differential (control deviation).

Functions

The heating circuit without mixing valve is subject to the common supply temperature and its control range limits.
The heating circuit pump is the only actuator.
The supply temperature of the heating circuits with mixing valve is captured by the supply temperature sensor of the relevant heating circuit.

- Upper control limit:
  Electronic maximum supply temperature limit
  Coding “c6” in the “Heating circuit...” group.
- Lower control range limit:
  Electronic minimum supply temperature limit
  Coding “c5” in the “Heating circuit...” group.

Time program

In accordance with 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. 4 time phases per day can be selected.

Outdoor temperature

A heating curve must be set up for matching the control unit to the building and the heating system.
The heating curve characteristics determine the set boiler water temperature subject to outdoor temperature. The control unit uses an average outdoor temperature.
This comprises the actual and the adjusted outdoor temperature.

Heating Circuit Control Unit of the Vitotronic 300-K *(continued)*

Room temperature

In conjunction with a remote control and room temperature hook-up (coding “b0” in the “Heating circuit...”) group:
Compared with the outdoor temperature, the room temperature has a greater influence on the set supply temperature (changed at coding “b2” in the “Heating circuit...” group).
In conjunction with heating circuits with mixing valve:
For control differentials (actual value deviation) above 4°F (2 K) room temperature, the influence can be increased further (coding “b6” in the “Heating circuit...” group):

- Quick heat-up
  The set room temperature must be raised by at least 4°F (2 K) by the following measures:
  – Enabling comfort mode
  – Changing from central heating with reduced temperature to central heating with standard temperature
  – Start optimization (coding “b7” in the “Heating circuit...” group)
    Quick heat-up will stop when the set room temperature has been reached.
- Quick setback
  The set room temperature must be reduced by at least 4°F (2 K) by the following measures:
  – Activating economy mode
  – Changing from central heating with standard temperature to central heating with reduced temperature
  – Shutdown time optimization (coding “c1” in the “Heating circuit...” group).
    Quick setback ends when the set room temperature has been reached.

DHW temperature
Priority control

- With priority control: (coding “a2:2” in the “Heating circuit...” group):
  During tank heating, the set supply temperature is set to 32°F (0°C).
  The mixing valve closes and the heating circuit pump is switched off.
- Without priority control:
  The heating circuit control unit continues to operate with the same set value.

Heating circuit pump logic (economy mode)

The heating circuit pump is switched off (set supply temperature set to 32°F (0°C) if the outdoor temperature exceeds the value selected at coding “a5” in the “Heating circuit...” group.

Heating Circuit Control Unit of the Vitotronic 300-K *(continued)*

Extended economy mode

The heating circuit pump is switched off (set supply temperature set to 32°F (0°C) if one of the following criteria is met:

- The adjusted outdoor temperature exceeds the value set in coding “a6” in the “Heating circuit...” group.
- The heating circuit pump can be switched off for a time calculated by the control unit when changing over from heating mode to reduced mode.

Requirements:

– There is no risk of frost.

– Coding “b0” in the “Heating circuit...” group must be set to 0.

The duration of the idle time can be adjusted individually in coding “a9” in the “Heating circuit...” group.

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 is switched ON, even if the time has not yet elapsed.

- The actual room temperature exceeds the value set in coding “b5” in the “Heating circuit...” group.
- The mixing valve has been closing for 12 min. (mixing valve economy function, coding “a7” in the “Heating circuit...” group).

System dynamics

The mixing valve control characteristics can be influenced at coding “a4” in the “Heating circuit...” group.

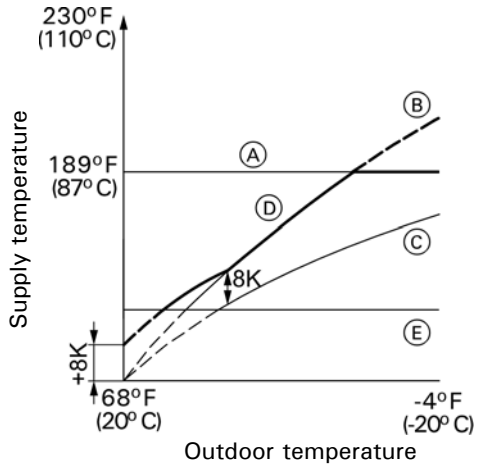
Central control

Central operation can be set for one heating circuits at coding “7a” in the “General” group.
The operating and holiday program then applies to all additional heating circuits of the system.
For these heating circuits, when the operating and holiday program is enabled, “Central control” is displayed.
Any holiday programs that may have been set will be deleted.
Comfort and economy modes cannot be enabled on all control units.

Frost protection

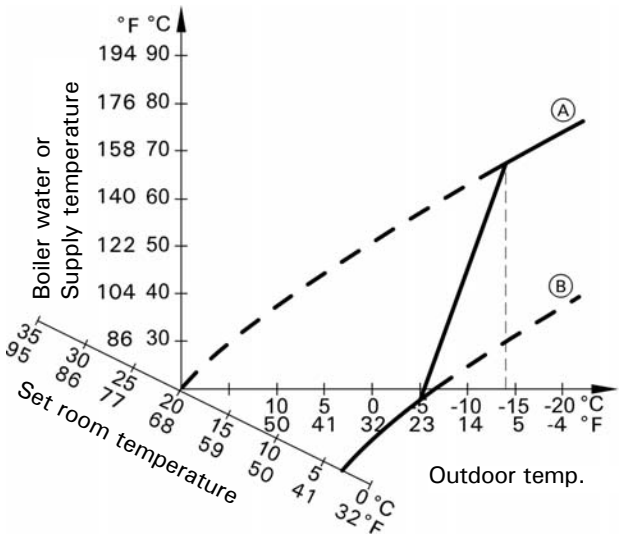
The supply temperature is held in accordance with the heating curve for the reduced set room temperature, but at least at 32°F (0°C).
A variable frost limit can be set in line with coding ”a3” in the “Heating circuit...” group.

Heating Circuit Control Unit of the Vitotronic 300-K *(continued)*



Legend

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



Example using the settings in the factory set condition

Legend

Ⓐ Heating curve for operation with standard room temperature
Ⓑ Heating curve for operation with reduced room temperature

Supply temperature control

Differential temperature:
The differential temperature can be set at coding "9f" in the "General" group, factory set condition 15°F (8 K).
The differential temperature is the value by which the common supply temperature should be higher than the highest currently required supply temperature of the heating circuit with mixing valve.

- System with only one heating circuit with mixing valve:
  The common set supply temperature is regulated automatically to 15°F (8 K) above the set supply temperature of the heating circuit with mixing valve.
- System with heating circuit without mixing valve and heating circuits with mixing valve:
  The common set supply temperature operates in accordance with its own heating curve. The differential temperature of 15°F (8 K) towards the set supply temperature of the heating circuits with mixing valve is set at the factory.

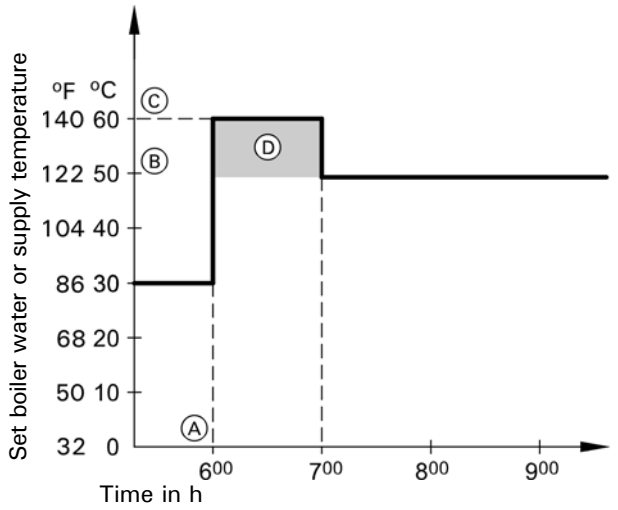
Raising the reduced room temperature

During operation with reduced room temperature, the reduced set room temperature can be automatically raised subject to the outdoor temperature.
The temperature is raised in accordance with the selected heating curve, but no higher than the set standard room temperature.
The outdoor temperature limits for the start and end of temperature raising can be adjusted at coding "f8" and "f9".

Reducing the heat-up time

During the transition from operation with reduced room temperature to operation with standard room temperature, the boiler water or supply temperature will be raised in accordance with the selected heating curve. The boiler water or supply temperature increase can be automatically raised.
The value and duration of the additional increase of the set boiler water or supply temperature can be adjusted in codings "fa" and "fb".

Heating Circuit Control Unit of the Vitotronic 300-K *(continued)*



Example using the settings in the factory set condition

Legend

Ⓐ Start of operation with standard room temperature
Ⓑ Set boiler water or supply temperature in accordance with the selected heating curve
Ⓒ Set boiler water or supply temperature in accordance with the selected coding address “fa”: 122°F + 20% = 146°F (50°C + 20% = 60°C)
Ⓓ Duration of operation with raised set boiler water or supply temperature in accordance with coding address “fb”: 60 min.

Control sequence
Mixing valve circuit

The mixing valve motor will not be controlled within the “neutral zone” ±2°F (±1 K).

Supply temperature drops
[Set value -2°F (-1 K)]

The mixing valve motor receives the signal “Mixing valve open”.
The signal duration lengthens with an increasing control differential.
The duration of pauses reduces with an increasing control differential.

Supply temperature rises
[Set value +2°F (+1 K)]

The mixing valve motor receives the signal “Mixing valve closed”.
The signal duration lengthens with an increasing control differential. The duration of pauses reduces with an increasing control differential.

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DHW Tank Temperature Control

Brief description

- The tank temperature control is a constant temperature control function. This is achieved by starting and stopping the circulation pump for tank heating. The switching differential is 5°F (±2.5 K).
- When the DHW tank is heated, a set supply temperature is specified that is 36°F (20 K) higher than the set DHW temperature (adjustable at coding "60" in the "DHW" group).

Functions

Time program

An automatic or an individual time program may be selected for DHW heating and the DHW recirculation 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 recirculation pump for every day of the week.
All tank heating sequences will be completed independently of the time program.

In conjunction with coding "7f" in the "General" group

- Detached house
  Coding "7f:1":
  – Automatic operation
    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 recirculation pump have the same effect on all heating circuits.
- Apartment building
  Coding "7f:0":
  – Automatic mode
    For systems with two or three heating circuits, the heating times for the respective heating circuit will be applied.
  – Individual time program
    The time phases for DHW heating and the DHW recirculation pump can be adjusted individually for each heating circuit.

Priority control

- With priority control: (coding "a2:2" in the "Heating circuit..." group):
  During tank heating, the set supply temperature is set to 32°F (0°C).
  The mixing valve closes and the heating circuit pump is switched off.
- Without priority control:
  The heating circuit control unit continues to operate with the same set value.

Frost protection

The DHW tank will be heated to 68°F (20°C) if the DHW temperature sinks below 41°F (5°C).

Auxiliary function for DHW heating

This function is activated by providing a second set DHW temperature at coding "58" in the "DHW" group and activating the fourth DHW phase for DHW heating.

Set DHW temperature

The set DHW temperature can be set between 50 and 140°F (10 and 60°C).
The set value range can be extended to 203°F (95°C) at coding "56" in the "DHW" group.
The default set value can be assigned to the programming unit and/or Vitotronic 300A remote control at coding "66" in the "DHW" group.

DHW recirculation 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 "d5" in the "Heating circuit..." group).

DHW Tank Temperature Control *(continued)*

System with tank loading system

The above functions also apply in conjunction with tank loading systems.
Set the following coding: "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 assigned at coding "67" in the "DHW" group.
The DHW tank is only reheated by the boiler if the temperature falls below this value.

Control sequence
Coding "55:0" in the "DHW" group;
tank heating

The DHW tank goes cold (set value -5°F (-2.5 K); change at coding "59"):

- The common set supply temperature is set 36°F (20 K) higher than the set DHW temperature (change at coding "60").

The DHW tank is hot [set value +5°F (+2.5 K)]:

- The common set supply temperature is returned to the set weather-compensated value.
- DHW pump delay off:
  The DHW pump continues to run on after tank heating until one of the following criteria is met:
  - The weather-compensated set supply temperature has been reached.
  - The set DHW temperature is exceeded by 9°F (5 K).
  - The set max. delay off time is reached (coding "62").
- Without pump delay off (coding "62:0")

Coding "55:1" in the "DHW" group;
adaptive tank heating

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

The DHW tank goes cold [set value -5°F (-2.5 K); change at coding "59"]:

- The common set supply temperature is set 36°F (20 K) higher than the set DHW temperature (change at coding "60").

The DHW tank is hot:

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

**Coding "55:2" in the "DHW" group;
tank temperature control with 2 tank temperature sensors**

Tank temperature sensor 1 enables the DHW pump for tank heating and is evaluated for stop conditions during the pump delay off time.

Tank temperature sensor 2:
Tank heating will start early if a lot of hot water is drawn off. Tank heating will terminate early if no hot water is drawn off.

DHW tank goes cold:

- Set value -5°F (-2.5 K), change at coding "59"
  or
- Actual DHW temperature at sensor 2 < set DHW temperature x factor for start time (adjustment at coding "69")

The DHW tank is hot:

- set value +5°F (+2.5 K)
  and
- Actual DHW temperature at sensor 2 > set DHW temperature x factor for stop time (adjustment at coding "68")

**Coding "55:3" in the "DHW" group;
tank temperature control tank loading system**

The DHW tank goes cold [set value -5°F (-2.5 K); change at coding "59"]:

- The common set supply temperature is set 36°F (20 K) higher than the set DHW temperature (change at coding "60").
- The primary pump in the tank loading system starts.
- The 3-way mixing valve opens and then regulates to the specified set value.
- The circulation pump for tank heating cycles (briefly switches on and off) until the set supply temperature has been reached [set DHW temperature +9°F (+5 K)]. Then it runs constantly. If, during heating, the actual value falls below the required set temperature, the circulation pump for tank heating will temporarily cycle again.

The DHW tank is hot:

- (Tank temperature sensor 1:
  Actual value ≥ set value
  and
  Tank temperature sensor 2:
  Actual value > set value -3°F (-1.5 K):
- The common set supply temperature is returned to the set weather-compensated value.
- The DHW pump stops immediately when the 3-way mixing valve is fully opened.
  or
- The DHW pump stops after expiry of the delay off time that is selected at coding "62".

Calling up Coding Level 1

Prior to coding the Vitotronic 200, ensure the boiler is in cascade mode. See below.

For the Vitotronic 200, see boiler Service Instructions

1. Press ☰ and **OK** for approximately 4 seconds.
2. Use ▲/▼ to scroll to service and select with **OK**.
3. Use ▲/▼ to scroll to service functions and select with **OK**.
4. Use ▲/▼ to scroll to multi-boiler system and select with **OK**.
5. When complete to exit press ⮌.

Note: Codes are displayed as plain text.

Codes that have no function due to the heating system equipment level or the setting of other codes are not displayed.

1. Press **OK** and ☰ for approximately 4 seconds.
2. "Coding level 1"
3. Select group of required coding address:
   - "General"
   - "Boiler"
   - "All codes std device"

   In this group, all coding addresses from coding level 1
4. Select coding address.
5. Select value according to the following tables and confirm with **OK**.
6. If you want to reset all codes to their factory setting: Select "Standard setting" in "Coding level 1".
   Note: This also resets codes from coding level 2.

"General" Group

Coding			
Coding in the factory setting		**Possible change**	
System design (boiler connected to cascade)			
00:0	--	00:1 to 00:10	Do Not Adjust
Participant no.			
77:1	LON participant number	77:2 to 77:99	LON participant number, adjustable from 1 to 99: 1 - 8 = Boiler 9 = Cascade 10 - 96 = Vitotronic 200-H 97 = Vitogate 300 98 = Vitogate 99 = Vitocom
Lock out controls			
8F:0	Operation in the standard menu and extended menu enabled. **Note:** The respective code is only activated when you exit the service menu.	8F:1	Operation in standard menu and extended menu blocked. Emissions test mode can be enabled.
		8F:2	Operation enabled in the standard menu and blocked in the extended menu. Emissions test mode can be enabled.
Set supply temperature for external demand			
9B:70	Set supply temperature for external demand 158°F (70°C)	9B:0 to 9B:127	Set supply temperature for external demand adjustable from 32 to 260°F (0 to 127°C) (limited by boiler-specific coding).

"Boiler" Group

Coding			
Coding in the factory setting		**Possible change**	
Single/multi boiler system			
01:2	Do Not Adjust	--	--
Boiler number			
07:1	Boiler number in multi boiler systems	07:2 to 07:8	Boiler number 2 to 8 in multi-boiler systems.
Burner service in 100 hours			
21:0	No service interval (hours run) selected	21:1 to 21:100	Number of hours run before the burner should be serviced is adjustable from 100 to 10,000 h One adjusting step ≙ 100 h.
Service interval in months			
23:0	No time interval for burner service	23:1 to 23:24	Interval adjustable from 1 to 24 months.
Service status			
24:0	No "Service" display	24:1	"Service" display (the address is automatically set and must be manually reset after a service has been carried out).
Filling/Venting			
2F:0 Vitodens 200-W only	Venting (bleeding) program/fill program disabled	2F:1	Venting (bleeding) program enabled.
		2F:2	Fill program enabled.

Calling up Coding Level 2

Prior to coding the Vitotronic 200, ensure the boiler is in cascade mode. See below.

For the Vitotronic 200, see boiler Service Instructions

1. Press ☰ and **OK** for approximately 4 seconds.
2. Use ▲/▼ to scroll to service and select with **OK**.
3. Use ▲/▼ to scroll to service functions and select with **OK**.
4. Use ▲/▼ to scroll to multi-boiler system and select with **OK**.
5. When complete to exit press ⮌.

Note: At coding level 2, all codes are accessible, including the codes at coding level 1.

Codes that have not been assigned due to the heating system equipment level or the setting of other codes are not displayed.

1. Press **OK** and ☰ simultaneously for approximately 4 seconds.
2. Press **OK** and ⮌ simultaneously for approximately 4 seconds.
3. "Coding level 2"
4. Select group of required coding address:
   - "General"
   - "Boiler"
   - "All codes standard device"
5. Select coding address.
6. Select value according to the following tables and confirm with "**OK**".
7. If you want to reset all codes to their factory setting: Select "Standard setting" in "Coding level 2".

   Note: This also resets codes at coding level 1.

"General" Group

Select "General"

Coding

Coding in the factory setting		**Possible change**	
00:0	--	00:1 to 00:10	Do Not Adjust
11:≠ 9	No access to the coding addresses for the combustion controller coding	11:9	Access open to the coding addresses for the combustion controller coding.
2A:0	Without wireless outdoor temperature sensor	2A:1	With wireless outdoor temperature sensor (automatic recognition).
		2A:2	Wireless outdoor temperature sensor not used.
2D:0	Do not adjust!	--	--

"General" Group

Select "General"

Coding

Coding in the factory setting		**Possible change**	
32:0	Without extension AM1	32:1	With extension AM1 (automatic recognition).
35:1	With extension EA1 (automatic recognition)	35:0	Without extension EA1.
36:0	Function, output 157 at extension EA1: Fault message	36:1	Function output 157: Accessories pump.
		36:2	Function output 157: DHW recirculation pump.
37:1 (only for Vitocrossal 300 CU3A)	When changing from a single boiler to a multiboiler operation, the coding address may automatically reset to 37:1. To activate output 20 function, adjust the coding address for each boiler to 37:0.	37:0	Coding address should be set to 37:0, if not adjust to 37:0
39:2	Function output 21: DHW pump for DHW tank heating	39:0	Function output 21: DHW recirculation pump.
		39:1	Function output 21: Heating circuit pump.
3A:0	Function input DE1 at extension EA1: Not assigned	3A:1	Function input DE1: Heating program - changeover.
		3A:2	Function input DE1: External demand with set supply temperature. Supply temperature setting: Coding address 9B. Internal circulation pump function: Coding address 3F.
		3A:3	Function input DE1: External blocking. Internal circulation pump function: Coding address 3E.
		3A:4	Function input DE1: External blocking with fault message input Internal circulation pump function: Coding address 3E.
		3A:5	Function input DE1: Fault message input.
		3A:6	Function input DE1: Brief operation, DHW recirculation pump (pushbutton function DHW recirculation pump runtime adjustment: Coding address 3D.
3B:0	Function input DE2 at extension EA1: Not assigned	3B:1	Function input DE2: Heating program - changeover.
		3B:2	Function input DE2: External demand with set supply temperature. Supply temperature setting: Coding address 9B. Internal circulation pump function: Coding address 3F.
		3B:3	Function input DE2: External blocking. Internal circulation pump function: Coding address 3E.
		3B:4	Function input DE2: External blocking with fault message input Internal circulation pump function: Coding address 3E.
		3B:5	Function input DE2: Fault message input.
		3B:6	Function input DE2: Brief operation, DHW recirculation pump (pushbutton function). DHW recirculation pump runtime adjustment: Coding address 3D.

"General" Group *(continued)*

Coding

Coding in the factory setting		Possible change	
3C:0	Function input DE3 at extension EA1: Not assigned	3C:1	Function input DE3: Heating program - changeover.
		3C:2	Function input DE3: External demand with set supply temperature. Supply temperature setting: Coding address 9B. Internal circulation pump function: Coding address 3F.
		3C:3	Function input DE3: External blocking. Internal circulation pump function: Coding address 3E.
		3C:4	Function input DE3: External blocking with fault message input Internal circulation pump function: Coding address 3E.
		3C:5	Function input DE3: Fault message input.
		3C:6	Function input DE3: Brief operation, DHW recirculation pump (pushbutton function). DHW recirculation pump runtime adjustment: Coding address 3D.
3D:5	DHW recirculation pump runtime for brief operation: 5 minutes	3D:1 to 3D:60	DHW recirculation pump off delay adjustable from 1 to 60 minutes.
4B:0	Function input 96: Room thermostat (Vitotrol 100) for constant temperature control	4B:1	External demand.
		4B:2	External blocking.
53:1	Function connection 28 of the internal extension: DHW recirculation pump	53:0	Function connection 28: Central fault message.
		53:2	Function connection 28: External heating circuit pump (heating circuit 1).
		53:3	Function connection 28: External circulation pump for DHW tank heating.
76:2	With cascade communication module (recognized automatically; only for constant temperature control units). Vitodens only equipped with KMK.	76:1	With LON communication module (recognized automatically).
		76:0	Without communication module
77:1	LON participant number	77:2 to 77:99	LON participant number, adjustable from 1 to 99: 1 - 8 = Boiler 9 = Cascade 10 - 96 = Vitotronic 200-H 97 = Vitogate 300 98 = Vitogate 99 = Vitocom
79:0	Control unit is not fault manager	79:1	With LON communication module: Control unit is fault manager.
7B:1	With LON communication module: Control unit transmits the time	7B:0	Does not transmit time.
80:6	A fault message is displayed if a fault is active for at least 30 seconds	80:0	Immediate fault message.
		80:2 to 80:199	Minimum fault duration until fault message occurs, adjustable from 10 sec to 995 sec; 1 step ≙ 5 sec.

"General" Group *(continued)*

Coding

Coding in the factory setting		Possible change	
81:1	Automatic summer/wintertime changeover	81:0	Manual summer/wintertime changeover.
		81:2	Use of the radio clock receiver (automatic recognition).
		81:3	With LON communication module: The control unit receives the time.
88:0	Temperature display in °C (Celsius)	88:1	Temperature display in °F (Fahrenheit).
8A:175	Do not adjust!	--	--
8F:0	Operation in the standard menu and extended menu enabled **Note:** The respective code is only activated when you exit the service menu	8F:1	Operation in the standard menu and extended menu blocked. Emissions test mode can be enabled
		8F:2	Operation enabled in the standard menu; blocked in the extended menu. Emissions test mode can be enabled
94:0	Without Open Therm extension	94:1	With Open Therm extension (automatic recognition).
95:0	Without Vitocom 100 communication interface	95:1	With Vitocom 100 communication interface (automatic recognition).
97:0	With LON communication module: The outside temperature of the sensor connected to the control unit is utilized internally	97:1	Control unit receives outside temperature.
		97:2	Control unit transmits the outside temperature to the Vitotronic 200-H.
98:1	Viessmann system number (in conjunction with monitoring several systems via Vitocom 300)	98:1 to 98:5	System number adjustable from 1 to 5.
99:0	Do not adjust!	--	--
9A:0	Do not adjust!	--	--
9B:70	Set supply temperature for external demand 158°F (70°C)	9B:0 to 9B:127	Set supply temperature for external demand adjustable from 32 to 260°F (0 to 127°C) (limited by boiler-specific coding).
9C:20	Monitoring LON participants. If a participant fails to respond, the values specified inside the control unit will be used after 20 minutes. Only then will a fault message be issued.	9C:0	No monitoring
		9C:5 to 9C:60	Time adjustable from 5 to 60 minutes.

"Boiler" Group

Coding

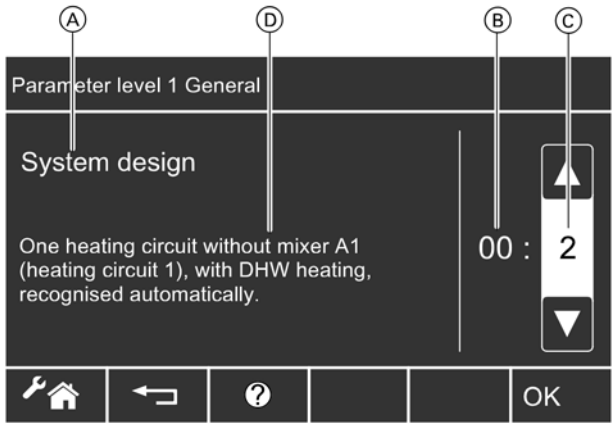
Coding in the factory setting		Possible change	
01:2	Do not adjust!	--	--
04:1	Minimum burner pause subject to the boiler load (specified by boiler coding card)	04:0	Minimum burner pause set permanently (specified by boiler coding card).
06:...	Maximum limit of the boiler water temperature, specified in °C by the boiler coding card	06:20 to 06:127	Maximum limit of the boiler water temperature within the ranges specified by the boiler.
07:1	Boiler number in multi boiler systems	07:2 to 07:8	Boiler number 2 to 8 in multi-boiler systems.
08:...	Maximum burner heating output in kW in the case of a multi boiler system	08:0 to 08:199	Maximum burner heating output adjustable from 0 to 199 kW (limited by boiler specific parameters) in steps of 1 kW.

"Boiler" Group *(continued)*

Coding

Coding in the factory setting		**Possible change**	
0D:0	Do not adjust!	--	--
0E:0	Do not adjust!	--	--
13:1	Do not adjust!	--	--
14:1	Do not adjust!	--	--
15:1	Do not adjust!	--	--
21:0	No service interval (hours run) selected	21:1 to 21:100	Number of hours run before the burner should be serviced is adjustable from 100 to 10,000 h One adjusting step ≙ 100 h.
23:0	No time interval for burner service	23:1 to 23:24	Interval adjustable from 1 to 24 months.
24:0	No "Service" display	24:1	"Service" display (the address is automatically set and must be manually reset after a service has been carried out).
28:0	No burner interval ignition	28:1 to 28:24	Interval adjustable from 1 hour to 24 hours. The burner is force started once every 30 seconds (only when operating with LPG).
2E:0	Do not adjust!	--	--
2F:0 (only for Vitodens 200-W)	Venting program/fill program disabled	2F:1	Venting program enabled.
		2F:2	Fill program enabled.
30:3 Vitodens 200-W only	When changing from a single boiler to a multiboiler operation, the coding address may automatically reset to 30:3. To prevent continuous boiler pump operation, adjust the coding address for each boiler to 30:0.	30:0	Coding address should be set to 30:0, if not adjust to 30:0
30:1 Vitocrossal 300 CU3A only	When changing from a single boiler to a multiboiler operation, the coding address may automatically reset to 30:1. To activate boiler pump operation, adjust the coding address for each boiler to 30:0.		
31:... NOT USED	Set speed in % of the internal circulation pump when operated as boiler circuit pump, specified by the boiler coding card	31:0 to 31:100	Set speed adjustable from 0 to 100%.
38:0	Status burner control unit: Operational (no fault)	38:≠0	Status burner control unit: Fault.

Calling up Coding Levels



Legend
Ⓐ Coding
Ⓑ Number of coding
Ⓒ Value of coding
Ⓓ Coding description

Display for coding levels

- The coding display is defaulted by the heating system configuration (see page 30).
- Coding are split into the following groups:
  – "General"
  – "Cascade"
  – "DHW"
  – "Solar"
  – "Heating circuit 1/2/3"
  – "All coding"
  In this group, all coding are listed in ascending order (except the coding in the "Solar" group).
- Heating systems with one heating circuit without mixing valve and one or two heating circuits with mixing valve:
  In the following, the heating circuit without mixing valve is designated "Heating circuit 1" and the heating circuits with mixing valve as "Heating circuit 2" or "Heating circuit 3".
- The selected designation appears if the heating circuits have been designated individually.

From the home screen tap the following buttons:

1. "Menu"
2. "Service"
3. Enter "viservice" password.
4. "System coding"
5. "Coding level 1" or "Coding level 2":
   Enter "viexpert" password.
6. Select group.
7. Select coding.
8. "Edit"
9. ▲/▼ for the required value in line with the following tables.

Resetting Coding to their Factory Set Condition

From the home screen tap the following buttons:

1. "Menu"
2. "Service"
3. Enter "viservice" password.
4. "System coding"
5. "Coding level 1" or "Coding level 2":
   Enter "viexpert" password.
6. "Reset coding"

"General" Group

Coding

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

Coding in the factory set condition		Possible change	
"Servomotor runtime"			
40:...	Servomotor runtime at plug 52 A1	40:5 to 40:199	Servomotor runtime adjustable from 5 to 199 sec:
"LON participant number"			
77:9	LON participant number.	77:1 to 77:99	LON participant number, adjustable from 1 to 99: 1 - 8 = Boiler 9 = Cascade 10 - 96 = Vitotronic 200-H 97 = Vitogate 300 98 = Vitogate 99 = Vitocom
"Detached house/apartment building"			
7f:1	Detached house	7f:0	Apartment building Separate adjustment of holiday program and time program for DHW heating possible.

"General" Group *(continued)*

Coding

Coding in the factory set condition		Possible change	
"Automatic summer/wintertime changeover"			
81:1	Automatic summer/wintertime changeover.	81:0	Manual summer/wintertime changeover.
		81:2	Do not adjust!
		81:3	With LON communication module: The control unit receives the time.
"Summer time starts: Month"			
82:3	Summer time starts: March	82:1 to 82:12	January to December.
"Summer time starts: Week of the selected month"			
83:2	Summer time starts: Week 2 of the selected month.	83:1 to 83:5	Week 1 to week 5 of the selected month.
		83:6	Last week – 1 week
		83:7	Last week – 2 weeks
		83:8	Last week – 3 weeks
		83:9	Last week – 4 weeks
		83:10 to 83:14	Special function
"Summer time starts: Day of the selected month"			
84:7	Summer time starts: Last Sunday of the selected month.	84:1 to 84:7	Monday to Sunday.
"Wintertime starts: Month"			
85:11	Wintertime starts: November	85:1 to 85:12	January to December.
"Wintertime starts: Week of the selected month"			
86:1	Wintertime starts: Week 1 of the selected month.	86:1 to 86:5	Week 1 to week 5 of the selected month.
"Wintertime starts: Day of the selected month"			
87:7	Wintertime starts: Last Sunday of the selected month.	87:1 to 87:7	Monday to Sunday.
"Operation enabled/blocked"			
8f:0	Do Not Adjust	--	--
"Set supply temperature for external demand"			
9b:70	Set supply temperature for external demand 158°F (70°C).	9b:0 to 9b:127	Set supply temperature for external demand adjustable from 32 to 260°F (0 to 127°C) (limited by boiler-specific coding).

"Cascade" Group

Coding

Coding in the factory set condition		Possible change	
"Number of boilers connected to the cascade"			
35:8	8 boilers connected to the Vitotronic 300-K.	35:1 to 35:8	1 to 8 boilers connected to the Vitotronic 300-K.
"Minimum system supply temperature limit"			
36:0	Electronic minimum system supply temperature limit set to 32°F (0°C).	36:1 to 36:127	Minimum limit adjustable from 32 to 260°F (0 to 127°C).
"Maximum system supply temperature limit"			
37:80	Electronic maximum system supply temperature limit set to 175°F (80°C). **Note:** Value must not be greater than the lowest value of coding "06" in group 1 of every Vitotronic 200.	37:20 to 37:127	Maximum limit adjustable from 68 to 260°F (20 to 127°C).
"Lead boiler or boiler sequence changeover"			
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.
		38:2 to 38:200	Lead boiler changeover after 200 to 20,000 hours run; 1 step ≙ 100 hours run.
"Permanent lead boiler"			
39:0	No permanent lead boiler.	39:1 to 39:8	Permanent lead boiler is boiler ...
"Permanent last boiler"			
3a:0	No permanent last boiler.	3a:1 to 3a:8	Permanent last boiler is boiler ...
"Type of control"			
3b:1	Standalone parallel boiler circuit: With supply temperature sensor (see page 54).	3b:0	Standalone parallel boiler circuit: Without supply temperature sensor (see page 54).
		3b:2	Standalone parallel boiler circuit: Without supply temperature sensor (see page 54).
		3b:3	Standalone parallel boiler circuit: With supply temperature sensor (see page 54).
		3b:4	Sequential control With supply temperature sensor (see page 54).
"Control strategy"			
3c:0	Condensing strategy (see page 55).	3c:1	Conventional boiler strategy 1 (see page 56).
		3c:2	Conventional boiler strategy 2 (see page 57).
"Output statement"			
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.
"ECO threshold boiler 1"			
41:31	No ECO threshold boiler 1 (see page 31).	41:−30 to 41:+30	ECO threshold boiler 1 adjustable from -22 to 86°F (−30 to +30°C).
"ECO threshold boiler 2"			
42:31	No ECO threshold boiler 2 (see page 31).	42:−30 to 42:+30	ECO threshold boiler 2 adjustable from -22 to 86°F (−30 to +30°C).

"Cascade" Group *(continued)*

Coding

Coding in the factory set condition		Possible change	
"ECO threshold boiler 3"			
43:31	No ECO threshold boiler 3 (see page 31).	43: – 30 to 43: + 30	ECO threshold boiler 3 adjustable from -22 to 86°F (– 30 to + 30°C).
"ECO threshold boiler 4"			
44:31	No ECO threshold boiler 4 (see page 31).	44: – 30 to 44: + 30	ECO threshold boiler 4 adjustable from -22 to 86°F (– 30 to + 30°C).
"Start integral threshold"			
45:60	Start integral threshold set to 60 K x min.	45:1 to 45:255	Start integral threshold adjustable from 1 to 255 K x min. **Note:** If the threshold is exceeded, one boiler or one burner stage is switched on.
"Stop integral threshold"			
46:40	Stop integral threshold set to 40 K x min.	46:1 to 46:255	Stop integral threshold adjustable from 1 to 255 K x min. **Note:** If the threshold is exceeded, one boiler or one burner stage is switched off.
"Stop differential"			
47:15	Stop differential set to 15 K.	47:2 to 47:30	Stop differential adjustable from 2 to 30 K. **Note:** One boiler will be switched off if the actual supply temperature exceeds the set supply temperature by this value.
"ECO threshold boiler 5"			
65:31	No ECO threshold boiler 5 (see page 31).	65: – 30 to 65: + 30	ECO threshold boiler 5 adjustable from -22 to 86°F (– 30 to + 30°C).
"ECO threshold boiler 6"			
6f:31	No ECO threshold boiler 6 (see page 31).	6f: – 30 to 6f: + 30	ECO threshold boiler 6 adjustable from -22 to 86°F (– 30 to + 30°C).
"ECO threshold boiler 7"			
74:31	No ECO threshold boiler 7 (see page 31).	74: – 30 to 74: + 30	ECO threshold boiler 7 adjustable from -22 to 86°F (– 30 to + 30°C).
"ECO threshold boiler 8"			
7d:31	No ECO threshold boiler 8 (see page 31).	7d: – 30 to 7d: + 30	ECO threshold boiler 8 adjustable from -22 to 86°F (– 30 to + 30°C).

"DHW" Group

Coding

Coding in the factory set condition		Possible change	
"Storage tank heating, hysteresis"			
55:0	Tank heating hysteresis ± 2.5 K.	55:1	Adaptive storage tank heating enabled (see page 64).
		55:2	Storage tank temperature control with 2 temperature sensors (see page 64).
		55:3	Storage tank temperature control, storage tank loading system (see page 64).
"For solar DHW heating: DHW temperature target"			
67:40	For solar DHW heating: DHW set point temperature 104°F (40°C). Reheating is suppressed above the selected set temperature (DHW heating blocked by the boiler).	67:0 to 67:95	DHW set point temperature adjustable from 32 to 203°F 0 to 95°C). (limited by boiler-specific coding).
"DHW recirculation pump"			
73:0	DHW recirculation pump: "ON" according to time program.	73:1 to 73:6	"ON" from once per hour for 5 min up to 6 times per hour for 5 min during the time program.
		73:7	Permanently ON.

"Solar" Group

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

Coding

Coding in the factory set condition		Possible change	
"Solar circuit pump speed control"			
02:0	Solar circuit pump is not speed-controlled.	02:1	Solar circuit pump is speed-controlled with wave packet control.
		02:2	Solar circuit pump is speed-controlled with PWM control.
"Maximum storage tank temperature"			
08:60	DHW set point temperature (maximum tank temperature) 140°F (60°C).	08:10 to 08:90	DHW set point temperature adjustable from 68 to 194°F (10 to 90°C).
"Stagnation time reduction"			
0a:5	Temperature differential for stagnation time reduction (reduction in the speed of the solar circuit pump to protect system components and heat transfer medium) 5 K.	0a:0	Stagnation time reduction is disabled.
		0a:1 to 0a:40	Temperature differential adjustable from 1 to 40 K.
"Solar circuit flow rate"			
0f:70	Solar circuit flow rate at the maximum pump speed 1.8 USG/min (7 L/min).	0f:1 to 0f:255	Flow rate adjustable from 0.02 to 6.7 USG/min (0.1 to 25.5 L/min); 1 step ≙ 0.02 USG/min (0.1 L/min).
"Extended control function"			
20:0	No extended control function enabled.	20:1	Additional function for DHW heating.
		20:2	Differential temperature control 2.
		20:3	Differential temperature control 2 and auxiliary function.
		20:4	Differential temperature control 2 for central heating backup.
		20:5	Thermostat function.
		20:6	Thermostat function and auxiliary function.
		20:7	Solar heating via external heat exchanger without additional temperature sensor.
		20:8	Solar heating via external heat exchanger with additional temperature sensor.
		20:9	Solar heating of two DHW storage tanks [Solar heating of two DHW tanks].

"Heating Circuit 1, Heating Circuit 2, Heating Circuit 3" Group

Coding

Coding in the factory set condition		Possible change	
"Storage tank priority"			
a2:2	Storage tank priority control for heating circuit pump and mixing valve.	a2:0	Without DHW tank priority applicable to heating circuit pump and mixing valve
		a2:1	DHW tank priority only applicable to mixing valve
		a2:3 to a2:15	No function
"Heating circuit pump logic function (economy control)"			
a5:5	With heating circuit pump logic function (economy control): Heating circuit pump "OFF" when the outdoor 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

Coding 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 factory set condition		Possible change	
"Extended economy mode"			
a6:36	Extended economy mode disabled.	a6:5 to a6:35	Extended economy mode enabled, i.e. the burner and heating circuit pump will stop and the mixing valve will be closed at a variable value, adjustable between 41 and 95°F (5 and 35°C) plus 2°F (1°C). The base value is the adjusted outdoor temperature. This value is based on the actual outdoor temperature and a time constant, which takes the cooling down of an average building into consideration.
"Mixing valve economy function"			
a7:0	Without mixing valve economy function	a7:1	With mixing valve economy function (extended heating circuit pump logic): Heating circuit pump also "OFF": - If the mixing valve has been attempting to close for longer than 20 min. Heating circuit pump "ON": - If the mixing valve changes to control function - If there is a risk of frost

"Heating Circuit 1, Heating Circuit 2, Heating Circuit 3" Group *(continued)*

Coding in the factory set condition		Possible change	
"Pump idle time"			
a9:0	Without pump idle time (see function description, page 60).	a9:1 to a9:15	With pump idle time, adjustable from 1 to 15: 1: Short idle time 15: Long idle time Max. idle time 10 h.
"Room temperature hook-up"			
b0:0	With remote control:*1 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
"Room temperature-dependent heating circuit pump logic function"			
b5:0	With remote control:*1 No room temperature-dependent heating circuit pump logic function.	b5:1 to b5:8	Heating circuit pump logic function, see the following table.

Coding 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

*1 Change coding only for the heating circuits with mixing valve.

Coding in the factory set condition		Possible change	
"Minimum supply temperature limit"			
c5:20	Electronic minimum supply temperature limit 68°F (20°C) (only in operation with standard room temperature).	c5:1 to c5:127	Minimum limit adjustable from 34 to 261°F (1 to 127°C) (limited by boiler-specific coding).
"Maximum supply temperature limit"			
c6:75	Electronic maximum supply temperature limit set to 167°F (75°C)	C6:10 to C6:127	Maximum limit adjustable from 50 to 261°F (10 to 127°C) (limited by boiler-specific coding)
"External operating program changeover"			
d5:0	With external heating program changeover (observe setting for coding addresses "5d", "5e" and "5f" and 91 in the "General" group): Operating program switches to "Constant central heating with reduced room temperature" or "Standby mode" (subject to the setting of the set reduced room temperature).	d5:1	The operating program changes to "Constant operation with standard room temperature".

"Heating Circuit 1, Heating Circuit 2, Heating Circuit 3" Group *(continued)*

Coding in the factory set condition		Possible change	
"EA1 extension: Operating program changeover"			
d8:0	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
"Slab curing"			
f1:0	Slab curing function disabled.	f1:1 to f1:6	Do Not Adjust
		f1:15	Do Not Adjust
"Time limit for comfort mode"			
f2:8	Time limit for comfort mode or external operating program changeover via pushbutton: 8 h *2 **Note:** Observe settings of coding "5d", "5e", "5f" in the "General" group, as well as "d5" and "d8" in the "Heating circuit..." group.	f2:0	No time limit for comfort mode. *2
		f2:1 to f2:12	Time limit adjustable from 1 to 12 h. *2

*2 In the "Heating and DHW" operating program, comfort mode ends automatically when the system changes over to operation with standard room temperature.

Coding in the factory set condition		Possible change	
"Temperature limit for terminating reduced mode"			
f8:-5	Temperature limit for terminating reduced mode 23°F (-5°C), see example on page 61. Observe the setting of coding address "A3" in the "Heating circuit..." group.	f8:+10 to f8:-60	Time limit adjustable from +50 to -76°F (+10 to -60°C)
		f8:-61	Function disabled
"Temperature limit for raising the reduced room temperature target"			
f9:-14	Temperature limit for raising the reduced set room temperature 7°F (-14°C), see example on page 61.	f9:+10 to f9:-60	Temperature limit for raising the set room temperature to the value selected for standard mode adjustable from +50 to -76°F (+10 to -60°C)
"Raising the set boiler water or supply temperature when changing from operation with reduced room temperature to operation with standard room temperature"			
fA:20	Raising the set boiler water temperature or set supply temperature by 20% when changing from operation with reduced room temperature to operation with standard room temperature. See example on page 61.	fA:0 to FA:50	Temperature increase adjustable from 0 to 50%.
"Duration for raising the set boiler water or supply temperature"			
fb:60	Duration for raising the set boiler water temperature or the set supply temperature (see coding address "fa" in the "Heating circuit..." group) 60 min. See example on page 61.	fb:0 to fb:300	Duration adjustable from 0 to 300 min.

"General" Group

Coding

Coding in the factory set condition		Possible change	
00:1	System version 1: One heating circuit without mixing valve 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 mixing valve A1 (heating circuit 1), with DHW heating (automatic recognition)
3	One heating circuit with mixing valve M2 (heating circuit 2), without DHW heating
4	One heating circuit with mixing valve (heating circuit 2), with DHW heating
5	One heating circuit without mixing valve A1 (heating circuit 1) and one heating circuit with mixing valve M2 (heating circuit 2), without DHW heating (automatic recognition)
6	One heating circuit without mixing valve A1 (heating circuit 1) and one heating circuit with mixing valve M2 (heating circuit 2), with DHW heating (automatic recognition)
7	Two heating circuits with mixing valve M2 (heating circuit 2) and M3 (heating circuit 3), without DHW heating.
8	Two heating circuits with mixing valve M2 (heating circuit 2) and M3 (heating circuit 3), with DHW heating.
9	One heating circuit without mixing valve A1 (heating circuit 1), two heating circuits with mixing valve M2 (heating circuit 2) and M3 (heating circuit 3) without DHW heating (automatic recognition)
10	One heating circuit without mixing valve A1 (heating circuit 1), two heating circuits with mixing valve M2 (heating circuit 2) and M3 (heating circuit 3) with DHW heating (automatic recognition)

Coding in the factory set condition		Possible change	
"With EA1 extension: DHW recirculation pump runtime for brief operation"			
12:5	With extension EA1: DHW recirculation pump runtime for brief operation: 5 min.	12:1 to 12:60	Runtime adjustable from 1 to 60 min.
"With EA1 extension: Temperature demand"			
1e:0	With extension EA1 (analog input 0-10V): Temperature demand from 32 to 212°F (0 to 100°C): 1V ≙ 50°F (10°C) 10V ≙ 212°F (100°C)	1e:1	Temperature demand from 86 to 248°F (30 to 120°C): 1V ≙ 86°F (30°C) 10V ≙ 248°F (120°C)
"Wireless outdoor temperature sensor"			
2e:0	Without outdoor temperature sensor RF	2e:1	With outdoor temperature sensor; (automatic recognition)
		2e:2	Outdoor temperature sensor RF is not used.
2f:0	Do not adjust!	--	--
"Servomotor runtime"			
40:...	Servomotor runtime at plug [52]A1	40:5 to 40:199	Servomotor runtime adjustable from 5 to 199 sec:
"Sensor [17]A"			
4a:0	Do not adjust!	--	--
"Sensor [17]B"			
4b:0	Sensor [17]B not installed.	4b:1	Sensor [17]B installed (e.g. temperature sensor T2); automatic recognition.

"General" Group *(continued)*

Coding in the factory set condition		Possible change	
"Connection at plug 20A1"			
4c:0	Connection at plug 20A1: heating circuit pump.	4c:1	Primary pump, primary store system.
"Delay off time, shunt or distribution pump"			
4f:5	Distribution pump delay off time 5 min.	4f:0	No pump delay off.
		4f:1 to 4f:60	Delay off time adjustable from 1 to 60 min.
"ON integral threshold value of external heat"			
50:10	On integral threshold value of external heat set to 10 K x min.	50:1 to 50:255	On integral threshold value of external heat adjustable from 1 to 255 K x min.
"OFF integral threshold value of external heat"			
51:255	OFF integral threshold value of external heat set to 255 K x min.	51:1 to 51:255	OFF integral threshold value of external heat adjustable from 1 to 255 K x min.
"Solar thermal system"			
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 SM1 without auxiliary function (automatic recognition)
		54:4	With solar control module SM1 with auxiliary function, e.g. central heating backup (automatic recognition)
"EA1 extension"			
5b:0	Without extension EA1.	5b:1	With extension EA1; automatic recognition.
"Function output 157 at EA1 extension"			
5c:0	Function output 157 at extension EA1: central fault message.	5c:1	Accessories 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).
"Function input DE1 at EA1 extension"			
5d:0	Function input DE1 at extension EA1: No function.	5d:1	Operating program changeover.
		5d:2	External demand with minimum set supply temperature. Setting of the set value in coding address "9b"in the "General" group.
		5d:3	External blocking.
		5d:4	External blocking with fault message.
		5d:5	Fault message input.
		5d:6	Brief operation, DHW recirculation pump (pushbutton function). Setting of runtime for DHW recirculation pump in coding address "12" in the "General" group.

"General" Group *(continued)*

Coding in the factory set condition		Possible change	
"Function input DE2 at EA1 extension"			
5e:0	Function input DE2 at extension EA1: No function.	5e:1	Operating program changeover.
		5e:2	External demand with minimum set supply temperature. Setting of the set value in coding address "9b".
		5e:3	External blocking.
		5e:4	External blocking with fault message.
		5e:5	Fault message input.
		5e:6	Brief operation, DHW recirculation pump (pushbutton function). Setting of runtime for DHW recirculation pump in coding address "12" in the "General" group.
"Function input DE3 at EA1 extension"			
5f:0	Function input DE3 at extension EA1: No function.	5f:1	Operating program changeover.
		5f:2	External demand with minimum set supply temperature. Setting of the set value in coding address "9b".
		5f:3	External blocking.
		5f:4	External blocking with fault message.
		5f:5	Fault message input.
		5f:6	Brief operation, DHW recirculation pump (pushbutton function). Setting of runtime for DHW recirculation pump in coding address "12" in the "General" group.
"Display correction for outdoor temperature"			
6e:50	No display correction for outdoor 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
"LON communication module"			
76:0	Without communication module	76:1	With LON communication module (automatic recognition) If no LON communication module is installed, set coding "76:0" in the "General" group.
"LON participant number"			
77:9	LON participant number	77:1 to 77:99	LON participant number, adjustable from 1 to 99: 1 - 8 = Boiler 9 = Cascade 10 - 96 = Vitotronic 200-H 97 = Vitogate 300 98 = Vitogate 99 = Vitocom
"LON communication"			
78:1	LON communication enabled.	78:0	LON communication disabled.
"With LON communication module"			
79:1	With LON communication module: Control unit is fault manager.	79:0	Control unit is not fault manager

"General" Group *(continued)*

Coding in the factory set condition		Possible change	
"Central control of heating circuits"			
7a:0	Without central control of heating circuits	7a:1	With central control (see page 76) Heating circuit without mixing valve A1 (heating circuit 1).
		7a:2	Heating circuit with mixing valve M2 (heating circuit M2).
		7a:3	Heating circuit with mixing valve M3 (heating circuit M3).
"LON communication module: Time"			
7b:1	With LON communication module: Control unit transmits the time.	7b:0	No time transmission.
"Detached house/apartment building"			
7f:1	Detached house	7f:0	Apartment building Separate adjustment of holiday program and time program for DHW heating possible
"Fault message"			
80:6	A fault message is displayed if a fault is active for at least 30 sec	80:0	Immediate fault message
		80:1 to 80:199	The minimum fault duration before a fault message is issued is adjustable from 10 to 995 sec; 1 step ≙ 5 sec
"Automatic summer/wintertime changeover"			
81:1	Automatic summer/wintertime changeover	81:0	Manual summer/wintertime changeover
		81:2	Do not adjust!
		81:3	With LON communication module: The control unit receives the time
"Summer time starts: Month"			
82:3	Summer time starts: March	82:1 to 82:12	January to December
"Summer time starts: Week of the selected month"			
83:2	Summer time starts: Week 2 of the selected month	83:1 to 83:5	Week 1 to week 5 of the selected month
		83:6	Last week – 1 week
		83:7	Last week – 2 weeks
		83:8	Last week – 3 weeks
		83:9	Last week – 4 weeks
		83:10 to 83:14	Special function
"Summer time starts: Day of the selected week"			
84:7	Summer time starts: Last Sunday of the selected month.	84:1 to 84:7	Monday to Sunday.
"Wintertime starts: Month"			
85:11	Wintertime starts: November	85:1 to 85:12	January to December.
"Wintertime starts: Week of the selected month"			
86:1	Wintertime starts: Week 1 of the selected month.	86:1 to 86:5	Week 1 to week 5 of the selected month.

"General" Group *(continued)*

Coding in the factory set condition		Possible change	
"Wintertime starts: Day of the selected month"			
87:7	Wintertime starts: Last Sunday of the selected month	87:1 to 87:7	Monday to Sunday
"Temperature displayed"			
88:0	Temperature unit °C (Celsius)	88:1	Temperature unit °F (Fahrenheit)
"Boiler connection"			
89:0	Boiler communication KMK	89:1	Boiler communication LON
"Test display conditions"			
8a:175	Do not adjust!	--	--
"Operation enabled/blocked"			
8f:0	Cannot be adjusted	8f:1	Cannot be adjusted
		8f:2	Cannot be adjusted
"Time constant for calculating adjusted outdoor temperature"			
90:36	Time constant for calculating the adjusted outdoor temperature 6 h	90:1 to 90:199	Fast (low values) or slow (high values) matching of the supply temperature, subject to the set value when the outdoor temperature changes; 1 step ≙ 10 min
"Connection at terminals 1 and 2 in plug 143"			
91:0	Connection at terminals 1 and 2 in plug 143 disabled (external heating program changeover) (see page 24)	91:1	Contact affects the following heating circuits: Heating circuit without mixing valve A1 (heating circuit 1).
		91:2	Heating circuit with mixing valve M2 (heating circuit 2).
		91:3	Heating circuit without mixing valve A1 (heating circuit 1) and heating circuit with mixing valve M2 (heating circuit 2).
		91:4	Heating circuit with mixing valve M3 (heating circuit 3).
		91:5	Heating circuit without mixing valve A1 (heating circuit 1) and heating circuit with mixing valve M3 (heating circuit 3).
		91:6	Heating circuits with mixing valve M2 (heating circuit 2) and M3 (heating circuit 3).
		91:7	Heating circuit without mixing valve A1 (heating circuit 1) and heating circuits with mixing valve M2 (heating circuit 2) and M3 (heating circuit 3).
"Communication interface"			
95:0	Without Vitocom 100, type GSM2 communication interface	95:1	With Vitocom 100, type GSM2 communication interface; automatic recognition.
"Extension for heating circuits 2 and 3 with mixing valve"			
96:1	With extension PCB for heating circuits 2 and 3; automatic recognition.	96:0	Without extension PCB for heating circuits 2 and 3.
"With LON communication module: Outdoor temp"			
97:0	The outdoor temperature of the sensor connected to the control unit is only utilized internally.	97:1	The control unit receives the outdoor temperature from the Vitotronic 200-H.
		97:2	With LON communication module: The control unit sends the outdoor temperature to the Vitotronic 200-H.
"Viessmann system number"			
98:1	Viessmann system number (in conjunction with monitoring several systems within one LON system with Vitocom 300)	98:1 to 98:5	System number adjustable from 1 to 5

"General" Group *(continued)*

Coding in the factory set condition		Possible change	
"Connection at terminals 2 and 3 in plug 143"			
99:0	Connection at terminals 2 and 3 in plug 143 disabled (external blocking/ external "Mixing valve close") (see page 24)	99:1	No function
		99:2	External "mixing valve close" Heating circuit with mixing valve M2 (heating circuit 2).
		99:3	No function
		99:4	External "mixing valve close" Heating circuit with mixing valve M3 (heating circuit 3).
		99:5	No function
		99:6	External "mixing valve close" Heating circuits with mixing valve M2 (heating circuit 2) and M3 (heating circuit 3).
		99:7	No function
		99:8	External blocking
		99:9	No function
		99:10	External blocking/external "mixing valve close" Heating circuits with mixing valve M2 (heating circuit 2).
		99:11	No function
		99:12	External blocking/external "mixing valve close" Heating circuit with mixing valve M3 (heating circuit 3).
		99:13	No function
		99:14	External blocking/external "mixing valve close" Heating circuits with mixing valve M2 (heating circuit 2) and M3 (heating circuit 3).
		99:15	No function
"Connection at terminals 1 and 2 in plug 143"			
9a:0	Connection at terminals 1 and 2 in plug 143 disabled (external "Mixing valve open") (see page 24)	9a:1	No function
		9a:2	External "mixing valve open" Heating circuit with mixing valve M2 (heating circuit 2).
		9a:3	No function
		9a:4	External "mixing valve open" Heating circuit with mixing valve M3 (heating circuit 3).
		9a:5	No function
		9a:6	External "mixing valve open" Heating circuits with mixing valve M2 (heating circuit 2) and M3 (heating circuit 3).
		9a:7	No function
"Set supply temperature for external demand"			
9b:70	Set supply temperature for external demand 158°F (70°C)	9b:0 to 9b:127	Set supply temperature for external demand adjustable from 32 to 260°F (0 to 127°C) (limited by boiler-specific coding).
"With LON communication module: Monitoring LON participants"			
9c:20	With LON communication module: Monitoring LON participants If there is no response from a participant after 20 min, the values specified inside 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.
"Differential temperature"			
9f:8	Differential temperature 8 K, only in connection with heating circuit with mixing valve M2 (heating circuit 2) and M3 (heating circuit 3).	9f:0 to 9f:40	Differential temperature adjustable from 0 to 40 K

"Cascade" Group

Coding

Coding in the factory set condition		Possible change	
"Number of boilers connected to the cascade"			
35:8	8 boilers connected to the Vitotronic 300-K	35:1 to 35:8	1 to 8 boilers connected to the Vitotronic 300-K
"Minimum system supply temperature limit"			
36:0	Electronic minimum system supply temperature limit set to 32°F (0°C)	36:1 to 36:127	Minimum limit adjustable from 32 to 260°F (0 to 127°C)
"Maximum system supply temperature limit"			
37:80	Electronic maximum system supply temperature limit set to 176°F (80°C)	37:20 to 37:127	Maximum limit adjustable from 68 to 260°F (20 to 127°C) **Note:** Value must not be greater than the lowest value of coding "06" in the "Boiler" of every Vitotronic 200.
"Lead boiler or boiler sequence changeover"			
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 burner that has operated for the shortest number of hours becomes lead boiler
		38:2 to 38:200	Lead boiler changeover after 200 to 20,000 hours run; 1 step ≙ 100 hours run
"Permanent lead boiler"			
39:0	No permanent lead boiler	39:1 to 39:8	Permanent lead boiler is boiler ...
"Permanent last boiler"			
3a:0	No permanent last boiler	3a:1 to 3a:8	Permanent last boiler is boiler ...
"Type of control"			
3b:1	Stand-alone parallel boiler circuit: with supply temperature sensor (see page 54)	3b:0	Standalone parallel boiler circuit: Without supply temperature sensor (see page 54).
		3b:2	Standalone serial boiler circuit: Without supply temperature sensor (see page 54).
		3b:3	Standalone serial boiler circuit: With supply temperature sensor (see page 54).
		3b:4	Sequential control With supply temperature sensor (see page 54).
"Control strategy"			
3c:0	Condensing strategy (see page 55)	3c:1	Conventional boiler strategy 1 (see page 56)
		3c:2	Conventional boiler strategy 2 (see page 57)
"Output statement"			
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.
"System pump"			
3e:0	System pump will only run if there is a heat demand.	3e:1	System pump always runs; shutdown through "External blocking" signal.

"Cascade" Group *(continued)*

Coding in the factory set condition		Possible change	
"Tank priority control for system pump"			
3f:0	Without DHW tank priority control for system pump	3f:1	With DHW tank priority control for system pump
"ECO threshold boiler 1"			
41:31	No ECO threshold boiler 1 (see page 31)	41:–30 to 41:+30	ECO threshold boiler 1 adjustable from -22 to +86°F (–30 to +30°C)
"ECO threshold boiler 2"			
42:31	No ECO threshold boiler 2 (see page 31).	42:–30 to 42:+30	ECO threshold boiler 2 adjustable from -22 to +86°F (–30 to +30°C)
"ECO threshold boiler 3"			
43:31	No ECO threshold boiler 3 (see page 31).	43:–30 to 43:+30	ECO threshold boiler 3 adjustable from -22 to +86°F (–30 to +30°C)
"ECO threshold boiler 4"			
44:31	No ECO threshold boiler 4 (see page 31).	44:–30 to 44:+30	ECO threshold boiler 4 adjustable from -22 to +86°F (–30 to +30°C)
"Start integral threshold"			
45:60	Start integral threshold set to 60 K x min.	45:1 to 45:255	Start integral threshold adjustable from 1 to 255 K x min. **Note:** If the threshold is exceeded, one boiler or one burner stage is switched on.
"Stop integral threshold"			
46:40	Stop integral threshold set to 40 K x min.	46:1 to 46:255	Stop integral threshold adjustable from 1 to 255 K x min **Note:** If the threshold is exceeded, one boiler or one burner stage is switched off.
"Stop differential"			
47:15	Shutdown differential temperature set to 15 K	47:2 to 47:30	Shutdown differential adjustable from 2 to 30 K **Note:** One boiler will be switched off if the actual supply temperature exceeds the set supply temperature by this value.
"Controller amplification VT controller"			
48:35	Do not adjust!	--	--
"Controller integral time VT controller TN"			
49:40	Do not adjust!	--	--
"ECO threshold boiler 5"			
65:31	No ECO threshold boiler 5 (see page 31).	65:–30 to 65:+30	ECO threshold boiler 5 adjustable from -22 to +86°F (–30 to +30°C)
"ECO threshold boiler 6"			
6f:31	No ECO threshold boiler 6 (see page 31).	6f:–30 to 6f:+30	ECO threshold boiler 6 adjustable from -22 to +86°F (–30 to +30°C)
"ECO threshold boiler 7"			
74:31	No ECO threshold boiler 7 (see page 31).	74:–30 to 74:+30	ECO threshold boiler 7 adjustable from -22 to +86°F (–30 to +30°C)
"ECO threshold boiler 8"			
7d:31	No ECO threshold boiler 8 (see page 31).	7d:–30 to 7d:+30	ECO threshold boiler 8 adjustable from -22 to +86°F (–30 to +30°C)

"DHW" Group

Coding

Coding in the factory set condition		Possible change	
"Storage tank heating, hysteresis"			
55:0	DHW tank heating, hysteresis ± 2.5 K	55:1	Adaptive storage tank heating enabled (see page 64).
		55:2	Storage tank temperature control with 2 temperature sensors (see page 64).
		55:3	Storage tank temperature control, storage tank loading system (see page 64).
"DHW temperature target"			
56:0	DHW temperature setpoint adjustable from 50 to 140°F (10 to 60°C)	56:1	DHW temperature setpoint adjustable from 50 to above 140°F (10 to above 60°C) **Note:** Observe the max. permissible DHW temperature.
"Additional function for DHW heating"			
58:0	Without auxiliary function for DHW heating	58:10 to 58:60	Input of a second set DHW temperature, adjustable from 50 to 203°F (10 to 95°C) (observe coding address "56")
"Tank heating: Set start point"			
59:0	DHW tank heating: Set start point -2.5 K Set stop point +2.5 K	59:1 to 59:10	Start point adjustable from 1 to 10 K below set value
"For DHW heating"			
5a:0	For DHW heating: The set supply temperature is determined by the highest system supply temperature demand. Scan of the temperature in the "Diagnosis" menu, "General" ("Common demand temp.").	5a:1	For DHW heating: The supply temperature target is determined by the DHW tank supply temperature demand. Scan of the temperature in the "Diagnosis" menu, "General" ("Common demand temp.").
"Boiler temperature during DHW heating"			
60:20	During DHW heating, the boiler water temperature is max. 20 K higher than the set DHW temperature	60:10 to 60:50	The differential between the common supply temperature and the set DHW temperature is adjustable from 10 to 50 K
"DHW pump delay off"			
62:10	DHW pump with a delay off time of up to 10 min after tank heating.	62:0	No DHW pump delay off
		62:1 to 62:15	Delay off time adjustable from 1 to 15 min.
"In comfort mode and after external changeover to constant operation with the standard room temperature"			
64:2	In comfort mode and after external changeover to constant operation with the standard room temperature: Enable constant DHW heating and DHW recirculation pump "ON".	64:0	No DHW heating, DHW recirculation pump "OFF"
		64:1	DHW heating and DHW recirculation pump according to time program
"Input of the set DHW temperature"			
66:4	Input of the set DHW temperature: At the programming unit of the control unit and all installed Vitotrol 300A remote controls.	66:0	At the programming unit of the control unit.
		66:1	At the programming unit of the control unit and remote control unit of the heating circuit without mixing valve A1 (heating circuit 1).
		66:2	At the programming unit of the control unit and remote control unit of the heating circuit with mixing valve M2 (heating circuit 2).
		66:3	At the programming unit of the control unit and remote control unit of the heating circuit with mixing valve M3 (heating circuit 3).
		66:5	At the remote control of the heating circuit without mixing valve A1 (heating circuit 1).
		66:6	At the remote control of the heating circuit with mixing valve M2 (heating circuit 2).
		66:7	At the remote control of the heating circuit with mixing valve M3 (heating circuit 3).

"DHW" Group *(continued)*

Coding in the factory set condition		Possible change	
"For solar DHW heating: DHW temperature target"			
67:40	For solar DHW heating: DHW temperature setpoint 104°F (40°C). Reheating is suppressed above the selected set temperature (DHW heating by the boiler only if solar energy is not sufficient).	67:0	No set value 3.
		67:1 to 67:95	DHW temperature setpoint adjustable from 50 to 203°F (10 to 95°C) (limited by boiler-specific coding). Observe setting of coding "56".
"With 2 tank temperature sensors: Tank heating stop point"			
68:8	With 2 DHW tank temperature sensors (code "55:2"): DHW tank heating stop point at set value x 0.8	68:2 to 68:10	Factor adjustable from 0.2 to 1; 1 step ≙ 0.1
"With 2 tank temperature sensors: Tank heating start point"			
69:7	With 2 DHW tank temperature sensors (code "55:2"): DHW tank 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
"Runtime, actuator, mixing valve, heat exchanger set, Vitotrans 222"			
6a:75	Runtime, servomotor, mixing valve, heat exchanger set, Vitotrans 222, (80 and 120 kW): 75 sec.	6a:10 to 6a:255	For heat exchanger set Vitotrans 222, 240 kW: set 113 sec. Runtime adjustable from 10 to 255 sec.
"DHW recirculation pump"			
70:0	DHW recirculation pump "ON" according to time program when DHW heating is enabled	70:1	DHW recirculation pump "ON" according to time program
71:0	DHW recirculation 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 recirculation 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 recirculation pump: "ON" according to time program	73:1 to 73:6	"ON" from once per hour for 5 min up to 6 times per hour for 5 min during the time program.
		73:7	Constantly "ON"
75:0	DHW recirculation pump "ON" during economy mode according to time program	75:1	DHW recirculation pump "OFF" during economy mode

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"Solar" Group

Only in conjunction with solar control module, type SM1.

Coding

Coding in the factory set condition		Possible change	
"Differential between the actual DHW temperature and the start point for the solar circuit pump"			
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.
"Differential between the actual DHW temperature and the stop point of the solar circuit pump"			
01:4	Stop temperature differential for solar circuit pump 4 K	01:1 to 01:29	Stop temperature differential adjustable from 1 to 29 K.
"Solar circuit pump speed control"			
02:0	Solar circuit pump is not speed-controlled	02:1	Variable speed solar circuit pump with wave pack control
		02:2	Solar circuit pump is speed-controlled with PWM control.
"Temperature differential between the collector temperature and actual DHW temperature"			
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.
"Controller amplification of the speed control"			
04:4	Controller amplification of the speed control 4%/K.	04:1 to 04:10	Controller amplification adjustable from 1 to 10%/K.
"Minimum speed of the solar circuit pump"			
05:10	Minimum speed of the solar circuit pump 10% of the maximum speed.	05:2 to 05:100	Minimum speed of the solar circuit pump is adjustable from 2 to 100%.
"Maximum speed of the solar circuit pump"			
06:75	Maximum speed of the solar circuit pump 75% of the maximum possible speed.	06:1 to 06:100	Maximum speed of the solar circuit pump is adjustable from 1 to 100%.
"Interval function of the solar circuit pump"			
07:0	Interval function of the solar circuit pump switched off.	07:1	Interval function of the solar circuit pump switched on. To capture the collector temperature more accurately, the solar circuit pump starts for short cycles.
"Maximum storage tank temperature"			
08:60	DHW setpoint temperature (maximum tank temperature) 140°F (60°C).	08:10 to 08:90	DHW setpoint temperature adjustable from 50 to 194°F (10 to 90°C).
"Maximum collector temperature"			
09:130	Maximum collector temperature (to protect system components) 194°F (130°C)	09:20 to 09:200	The temperature adjustable from 68 to 392°F (20 to 200°C).

"Solar" Group *(continued)*

Coding in the factory set condition		Possible change	
"Stagnation time reduction"			
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.
"Frost protection function for solar circuit"			
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).
"Delta T monitoring"			
0c:1	Delta T monitoring switched on No flow rate captured in the solar circuit, or flow rate too low.	0c:0	Delta T monitoring switched off.
"Night circulation monitoring"			
0d:1	Night circulation monitoring switched on. Unintentional flow in the solar circuit (e.g. at night).	0d:0	Night circulation monitoring switched off.
"Calculation of solar yield"			
0e:1	Heat statement in conjunction with Viessmann heat transfer medium	0e:2	Do not adjust!
		0e:0	No heat statement
"Solar circuit flow rate"			
0f:70	Solar circuit flow rate at maximum pump speed 1.8 USG/min (7L/min).	0f:1 to 0f:255	Flow rate adjustable from 0.02 to 6.7 USG/min (0.1 to 25.5 L/min). 1 step ≙ 0.02 USG/min (0.1 L/min).
"Target temperature control"			
10:0	Target temperature control switched off (see coding address "11").	10:1	Target temperature control switched on.
"Set solar DHW temperature"			
11:50	Set solar DHW temperature 122°F (50°C). - Target temperature control switched on (code "10:1"): Temperature at which the water in the DHW tank heated by solar energy is to be stratified. - Code "20:9" (heating of two DHW tanks) selected: When one DHW tank reaches its set DHW temperature, the second DHW tank is heated.	11:10 to 11:90	Set solar DHW temperature adjustable from 50 to 144°F (10 to 90°C).

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"Solar" Group *(continued)*

Coding in the factory set condition		Possible change	
"Minimum collector temperature"			
12:20	Minimum collector temperature (minimum start temperature for the solar circuit pump) 68°F (20°C)	12:0	No minimum limit enabled
		12:1 to 12:90	Minimum collector temperature adjustable from 34 to 194°F (1 to 90°C).
"Extended control function"			
20:0	No extended control function enabled.	20:1	Additional function for DHW heating.
		20:2	Differential temperature control 2.
		20:3	Differential temperature control 2 and auxiliary function.
		20:4	Differential temperature control 2 for central heating backup.
		20:5	Thermostat function.
		20:6	Thermostat function and auxiliary function.
		20:7	Solar heating via external heat exchanger without additional temperature sensor.
		20:8	Solar heating via external heat exchanger with additional temperature sensor.
		20:9	Solar heating of two DHW storage tanks.
"Start temperature differential for central heating backup"			
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.
"Stop temperature differential for central heating backup"			
23:4	Stop temperature differential for central heating backup: 4 K. (code "20:4" must be set)	23:2 to 23:30	Stop temperature differential adjustable from 1 to 29 K.
"Start temperature for thermostat function"			
24:40	Start temperature for thermostat function 104°F (40°C). (code "20:5" or "20:6" must be set)	24:0 to 24:100	Start temperature for thermostat function is adjustable from 0 to 100 K.
"Stop temperature for thermostat function"			
25:50	Stop temperature for thermostat function 122°F (50°C). (code "20:5" or "20:6" must be set)	25:0 to 25:100	Stop temperature for thermostat function is adjustable from 0 to 100 K.

"Solar" Group *(continued)*

Coding in the factory set condition		Possible change	
"Priority for DHW storage tank 1"			
26:1	Priority for DHW storage tank 1 with cyclical heating (code "20:9" must be set)	26:0	Priority for DHW storage tank 1 without cyclical heating
		26:2	Priority for DHW storage tank 2 without cyclical heating
		26:3	Priority for DHW storage tank 2 with cyclical heating
		26:4	Alternate heating without priority for one of the DHW storage tanks
"Alternate heating time"			
27:15	Alternate heating time 15 min. The DHW tank without priority is heated at most for the duration of the set cyclical heating duration if the DHW tank with priority is already heated up.	27:5 to 27:60	The cyclical heating duration is adjustable from 5 to 60 min.
"Alternate pause time"			
28:3	Alternate pause time 3 min. After the selected cyclical heating duration for the DHW tank without priority has expired, the rise in collector temperature is captured during the cyclical pause time.	28:1 to 28:60	Cyclical pause time is adjustable from 1 to 60 min.

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"Heating Circuit 1, Heating Circuit 2, Heating Circuit 3" Group

Coding

Coding in the factory set condition		Possible change	
"Remote control"			
a0:0	Without remote control	a0:1	With Vitotrol 200A recognized automatically.
		a0:2	With Vitotrol 300A or Vitohome 300 recognized automatically.
"Only with Vitotrol 200"			
a1:0	All possible settings at the remote control can be accessed	a1:1	Only comfort mode can be set at the remote control.
"Storage tank priority"			
a2:2	Tank priority for heating circuit pump and mixing valve.	a2:0	Without storage tank priority applicable to heating circuit pump and mixing valve.
		a2:1	Storage tank priority only applicable to mixing valve.
		a2:3 to a2:15	Modulating priority applies to mixing valves, i.e. the heating circuit receives a reduced amount of heat.
"Outdoor temp.: Heating circ pump"			
a3:2	Outdoor temperature below 34°F (1°C): Heating circuit pump on Outdoor temperature above 37°F (3°C): Heating circuit pump off	a3:-9 to a3:15	Heating circuit pump "ON/ OFF" (see the following table)

Note: If a value below 34°F (1°C) is selected, there is a risk that pipes outside the thermal insulation of the building could freeze up.
The standby mode in particular should be taken into consideration, e.g. during holidays.

Coding address a3:...	Heating circuit pump	
	Heating circuit pump "ON"	**Heating circuit pump "OFF"**
-9	14°F (–10°C)	18°F (–8°C)
-8	16°F (–9°C)	19.5°F (–7°C)
-7	18°F (–8°C)	21°F (–6°C)
-6	19.5°F (–7°C)	23°F (–5°C)
-5	21°F (–6°C)	25°F (–4°C)
-4	23°F (–5°C)	27°F (–3°C)
-3	25°F (–4°C)	28.5°F (–2°C)
-2	27°F (–3°C)	30°F (–1°C)
-1	28.5°F (–2°C)	32°F (0°C)
0	30°F (–1°C)	34°F (+1°C)
1	32°F (0°C)	36°F (+2°C)
2 to 15	34°F (+1°C) to 57°F (+14°C)	27°F (+3°C) to 61°F (+16°C)

"Heating Circuit 1, Heating Circuit 2, Heating Circuit 3" Group *(continued)*

Coding in the factory set condition		Possible change	
"Frost protection"			
a4:0	With frost protection	a4:1	No frost protection; this setting is only possible if coding "a3:–9" has been set. **Note:** Information regarding Observe coding "a3".
"Heating circuit pump logic function (economy control)"			
a5:5	With heating circuit pump logic function (economy circuit): Heating circuit pump OFF when the outdoor 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

Coding 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_{actual} > RT_{set} - 1 K OT_{actual} > RT_{set} - 9 K

Coding in the factory set condition		Possible change	
"Extended economy mode"			
a6:36	Extended economy mode disabled	a6:5 to a6:35	Extended economy control enabled, i.e. the burner and heating circuit pump will stop and the mixing valve will be closed at a variable value, adjustable between 41 and 95°F (5 and 35°C) plus 2°F (1°C). The base value is the adjusted outdoor temperature. This value is based on the actual outdoor temperature and a time constant which takes the cooling down of an average building into consideration.
"Mixing valve economy function"			
a7:0	Only for heating circuits with mixing valve: Without mixing valve economy function	a7:1	With mixing valve economy function: Heating circuit pump also switched off, if: - Mixing valve tries closing for more than 20 min Heating circuit pump switched on, if: - Mixing valve in control mode - Frost danger
"Pump idle time"			
a9:0	Without pump idle time	a9:1 to a9:15	Pump idle time adjustable from 1 to 15. 1: Short idle time 15: Long idle time **Note:** The maximum idle time is 10 h. See page 60.

"Heating Circuit 1, Heating Circuit 2, Heating Circuit 3" Group *(continued)*

Coding in the factory set condition		Possible change	
"Room temperature hook-up"			
b0:0	With remote control:*1 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
"Room influence factor"			
b2:8	With remote control and for the heating circuit, operation with room temperature hook-up must be programmed: *1 Room influence factor 8	b2:0	Without room influence
		b2:1 to b2:31	Room influence factor adjustable from 1 to 31
"Room control base value"			
b3:0	127°F (53°C)	b3:1	100°F (38°C)
"Room temperature-dependent heating circuit pump logic function"			
b5:0	With remote control:*1 No room temperature-dependent heating circuit pump logic function	b5:1 to b5:8	For heating circuit pump logic function, see the following table

Coding 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 factory set condition		Possible change	
"Quick heat-up/quick setback"			
b6:0	With remote control:*1 Without quick heat-up/ quick setback	b6:1	With quick heat-up/quick setback (see function description on page 59)
"Start optimization"			
b7:0	With remote control and for the heating circuit, operation with room temperature hook-up must be programmed:*1 Without start optimization	b7:1	With start optimization (max. heat-up time offset 2 h 30 min.)
		b7:2	With start optimization (max. heat-up time offset 15 h 50 min.)
"Heat-up gradient start optimization"			
b8:10	With remote control unit and for the heating circuit, operation with room temperature hook-up must be programmed:*1 Heat-up gradient start optimization 10 min/K	b8:11 to b8:255	Heat-up gradient adjustable from 11 to 255 min/K

*1 Change coding only for the heating circuits with mixing valve.

"Heating Circuit 1, Heating Circuit 2, Heating Circuit 3" Group *(continued)*

Coding in the factory set condition		Possible change	
"Learning start optimization"			
b9:0	With remote control and for the heating circuit, operation with room temperature hook-up must be programmed:*1 Without learning start optimization b9:1 With learning start optimization	b9:1	With learning start optimization
"Shutdown time optimization"			
c0:0	With remote control:*1 Without shutdown time optimization	c0:1	With stop optimization, max. setback time offset 1 h
		c0:2	With stop optimization, max. setback time offset 2 h
"Stop optimization of setback time offset"			
c1:0	With remote control:*1 Without shutdown time optimization	c1:1 to c1:12	With stop optimization of setback time offset adjustable from 10 to 120 min. 1 step ≙ 10 min.
"Learning shut-down time optimization"			
c2:0	With remote control:*1 Without learning shutdown time optimization	c2:1	With learning shutdown time optimization
"Mixing valve runtime"			
c3:125	Only for heating circuits with mixing valve: Mixing valve runtime 125 sec.	c3:10 to c3:255	Runtime adjustable from 10 to 255 sec.
"System dynamics mixing valve"			
c4:1	System dynamics Mixing valve control characteristics	c4:0 to c4:3	Controller responds too quickly (cycles between "Open" and "Closed"): Select a lower value Controller responds too slowly (temperature is not held sufficiently): Select a higher value
"Minimum supply temperature limit"			
c5:20	Electronic supply temperature minimum limit 68°F (20°C) (only for operation with standard room temperature)	c5:1 to c5:127	Minimum limit adjustable from 34 to 261°F (1 to 127°C) (limited by boiler-specific coding)
"Maximum supply temperature limit"			
c6:75	Electronic maximum supply temperature limit set to 167°F (75°C)	c6:10 to c6:127	Maximum limit adjustable from 50 to 261°F (10 to 127°C) (limited by boiler-specific coding)
"Room influence limit"			
c8:31	With remote control and for the heating circuit, operation with room temperature hook-up must be programmed:*1 No room influence limit	c8:1 to c8:30	Room influence limit adjustable from 1 to 30 K

*1 Change coding only for the heating circuits with mixing valve.

"Heating Circuit 1, Heating Circuit 2, Heating Circuit 3" Group *(continued)*

Coding in the factory set condition		Possible change	
"External operating program changeover"			
d5:0	With external operating program changeover (observe setting of coding "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"
"EA1 extension: Heating program changeover"			
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
"Day temperature target"			
e1:1	With remote control: Day temperature target adjustable at the remote control unit from 50 to 86°F (10 to 30°C).	e1:0	Day temperature target adjustable from 37 to 73°F (3 to 23°C).
		e1:2	Day temperature target adjustable from 63 to 99°F (17 to 37°C).
"Display correction of the actual room temperature"			
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
"Slab curing"			
f1:0	Slab curing disabled. Do not adjust!	--	--

"Heating Circuit 1, Heating Circuit 2, Heating Circuit 3" Group *(continued)*

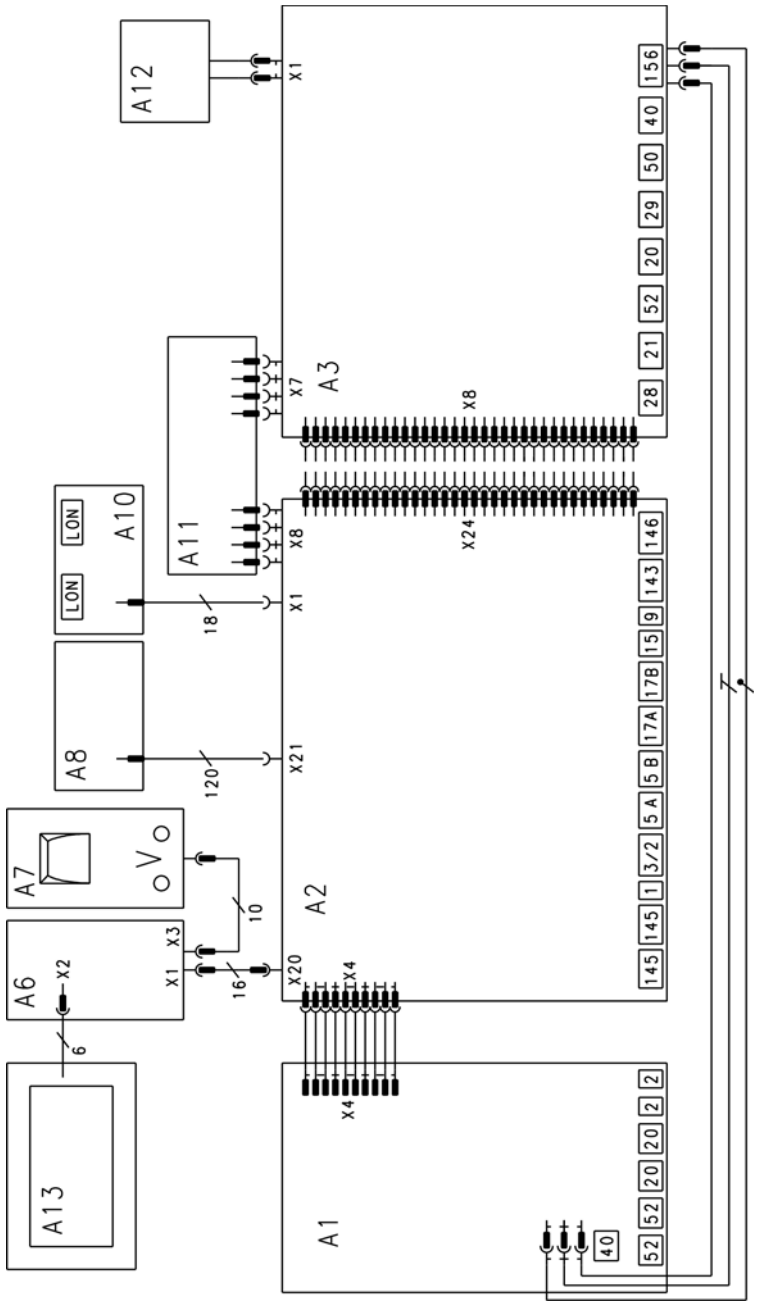
Coding in the factory set condition		Possible change	
"Time limit for comfort mode"			
f2:8	Time limit for comfort mode or external operating program changeover via pushbutton: 8 h*2 **Note:** Observe settings of coding addresses "5d", "5e", "5f" in the "General" group, as well as "d5" and "d8" in the "Heating circuit..." group.	f2:0	No time limit *2
		f2:1 to f2:12	Time limit adjustable from 1 to 12 h *2
"Temperature limit for terminating reduced mode"			
f8:-5	Temperature limit for terminating reduced mode 23°F (-5°C), see example on page 61. Observe coding address "a3".	f8:+10 to f8:-60	Temperature limit adjustable from +50 to -76°F (+10 to -60°C)
		f8:-61	Function disabled
"Temperature limit for raising the reduced room temperature target"			
f9:-14	Temperature limit for raising the reduced room temperature target 7°F (-14°C), see example on page 61.	f9:+10 to f9:-60	Limit for raising the set room temperature to the value selected for standard mode, adjustable from +50 to -76°F (+10 to -60°C)
"Raising the set boiler water or supply temperature when changing from operation with reduced room temperature to operation with standard room temperature"			
fa:20	Raising the set boiler water temperature or supply temperature when changing from operation with reduced room temperature to operation with standard room temperature, by 20%. See example on page 61.	fa:0 to fa:50	Temperature rise adjustable from 0 to 50%
"Duration for raising the set boiler water or supply temperature"			
fb:60	Duration for raising the set supply temperature (see coding address "fa") 60 min. See example on page 61.	fb:0 to fb:300	Duration adjustable from 0 to 300 min.

*2 In the "Heating and DHW" operating program, comfort mode ends automatically when the system changes over to operation with standard room temperature.

Connection and Wiring Diagrams

For the Vitotronic 200, refer to the boiler Service Instructions.

Overview

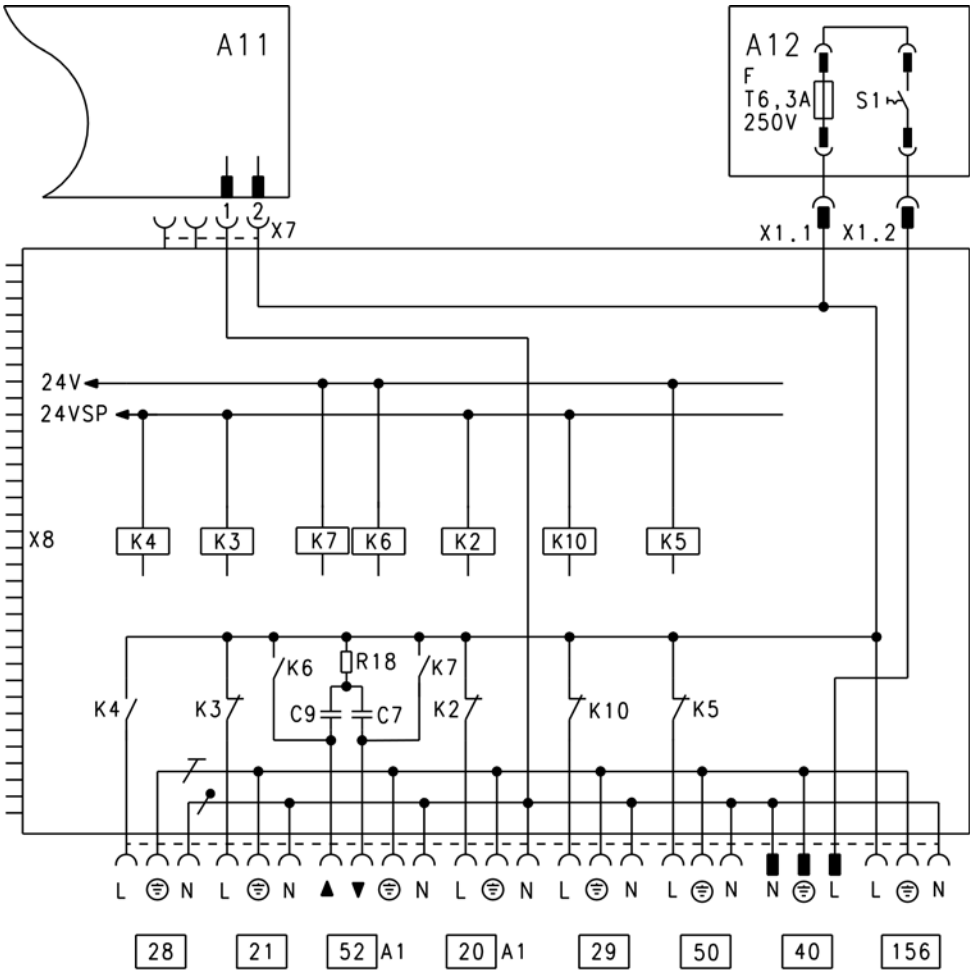


Legend

A1 Extension PCB heating circuits 2 and 3
A2 PCB, low voltage
A3 PCB 120V~
A6 Programming unit connection PCB
A7 Optolink PCB/emissions test switch
A8 PCB
A10 LON communication module (accessories)
A11 Power supply unit PCB
A12 Programming unit ON/OFF switch
A13 Programming unit
X... Electrical interfaces

Connection and Wiring Diagrams *(continued)*

PCB 120V~



Legend

20 A1	Heating circulation pump or Primary pump, tank loading system
21	DHW pump (accessory)
28	DHW recirculation pump (accessories)
29	Distribution pump
40	Power supply 120V/60 Hz
50	Output for central fault message
52 A1	Motor for 3-way mixing valve, tank loading system
156	Power supply for accessories
F	MCB/fuse
K2-K10	Relay
S1	ON/OFF switch
X...	Electrical interfaces

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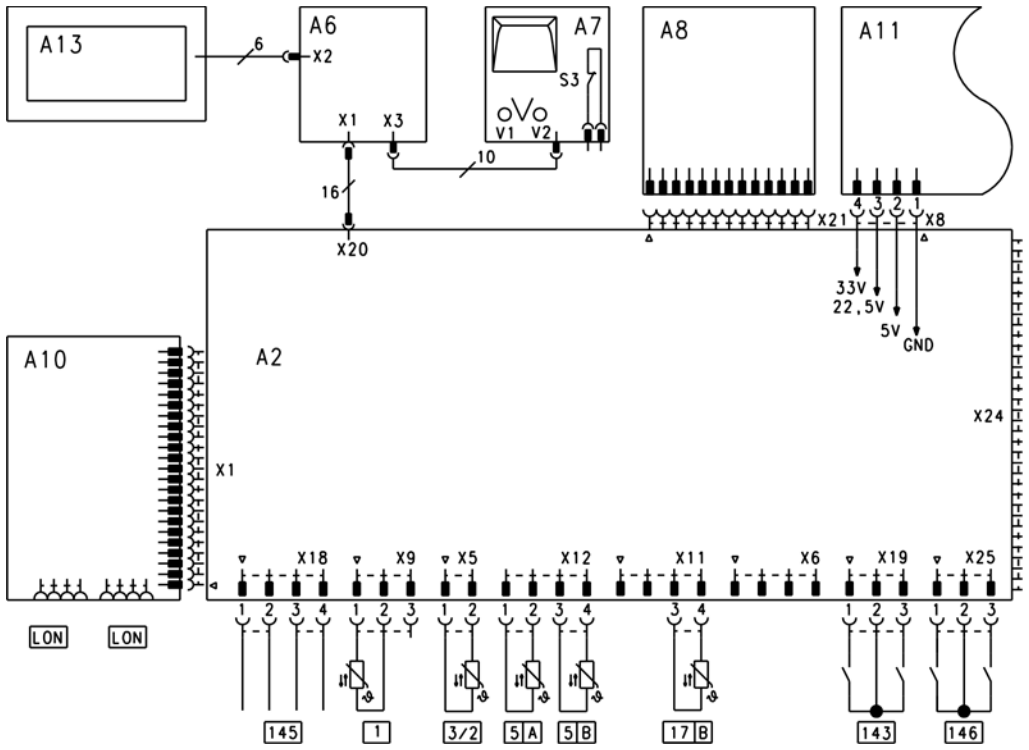
Connection and Wiring Diagrams *(continued)*

LV PCB

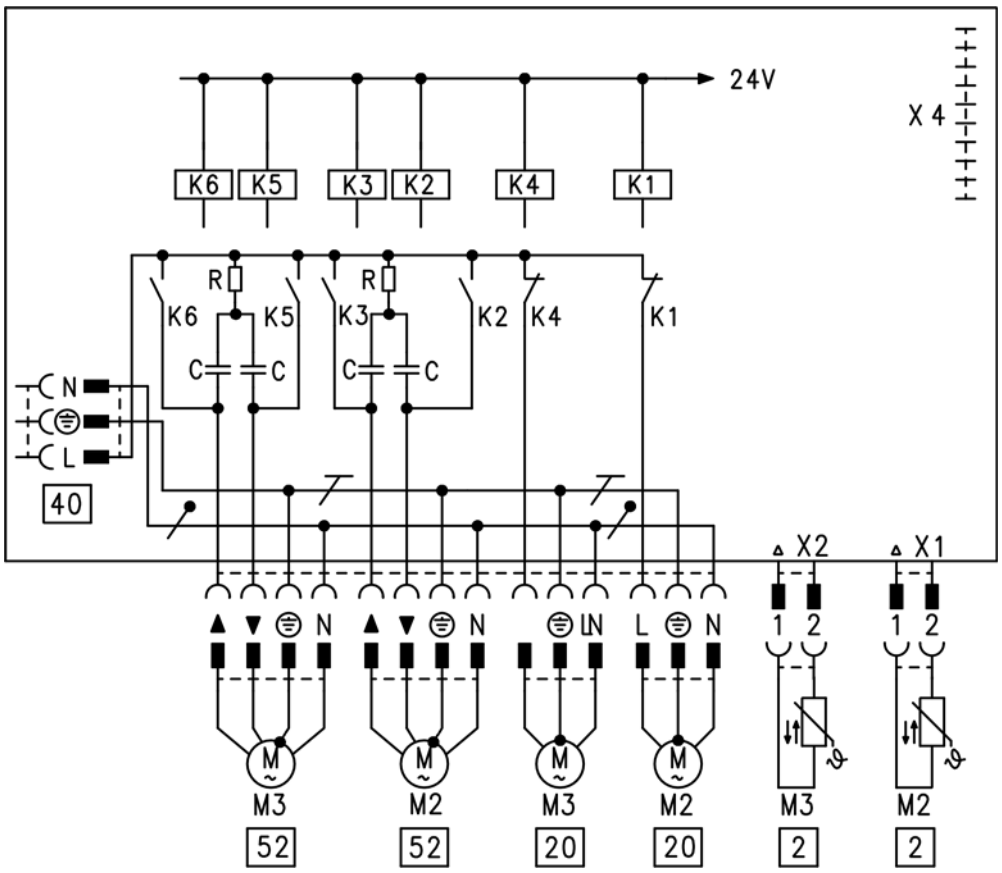


Legend

1	Outdoor temp. sensor
3/2	Common supply temperature sensor
5 A	Tank temperature sensor
5 B	Tank temperature sensor 2 (accessory)
17 B	Temperature sensor tank loading system
143	External hook-up
145	KM BUS participant (accessory)
146	External hook-up
LON	Cable for data exchange between control units (accessory)
S3	Emissions test switch
V1	Fault indicator (red)
V2	ON indicator (green)
X...	Electrical interfaces

Connection and Wiring Diagrams *(continued)*

PCB, extension for heating circuits 2 and 3 with mixing valve



Legend

2	M2/M3	Supply temperature sensors
20	M2/M3	Heating circuit pumps
40		Power supply
52	M2/M3	Mixing valve motors
K1-K6		Relay
X		Electrical interfaces

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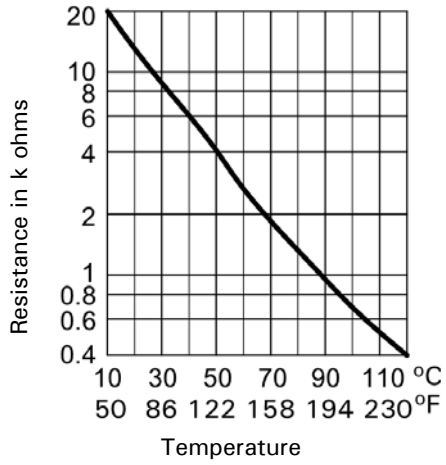
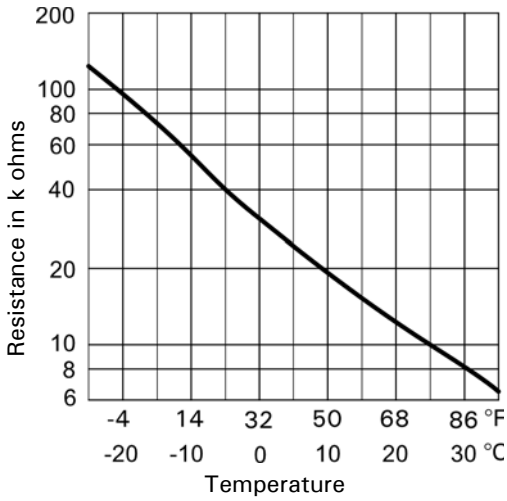
Sensors



Viessmann NTC 10 kΩ



DHW tank, supply and room temperature sensor

Note: - The supply temperature sensor can be used as a contact or immersion temperature sensor.
- The room temperature sensor is connected at terminals 3 and 4 in the Vitotrol 300A.

Installation and Service Instructions for Vitotrol 300A

Viessmann NTC 10 kΩ (blue identification)

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

Outdoor temperature sensor

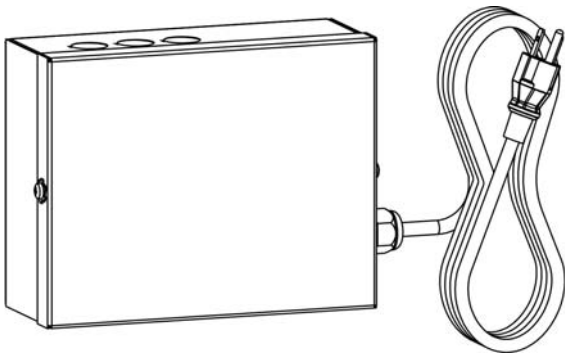
Viessmann NTC 10 kΩ (blue identification)

1. Pull 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 result, replace the lead or the outdoor temperature sensor.

Boiler temperature sensor

For boiler temperature sensors, refer to the relevant boiler Service Instructions

Extension EA1 Accessory



Digital data inputs DE1 to DE3

Functions:

- External heating program changeover, separate for heating circuits 1 to 3
- External blocking
- External blocking with fault message input
- External demand with minimum boiler water temperature
- Fault message input
- Brief operation of the DHW recirculation pump

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 heating program changeover function to the heating circuits

The allocation of the heating program changeover to the relevant heating circuit is selected via 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

The effect of the heating program changeover is selected via coding address "d5" in the "Heating circuit..." group.

Duration of the heating program changeover

- Contact constantly closed:
  The changeover is active 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.

DHW recirculation pump runtime for brief operation

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

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

Analogue input 0–10V

The 0–10V hook-up provides an additional set boiler water temperature:

0–1V Is taken as "no default for set boiler water temperature".

Note: Ensure DC separation between the LV output and the earth conductor of the onsite voltage source.

Coding address "1e" in the "General" group:

- "1e:0" ≙ temperature demand adjustable in the range from 32 to 212°F (0 to 100°C) 1V ≙ 50°F (10°C) set value change 10V ≙ 212°F (100°C) set value change
- "1e:1" ≙ temperature demand adjustable in the range from 86 to 248°F (30 to 120°C) 1V ≙ 86°F (30°C) set value change 10V ≙ 248°F (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 via coding address "5c" in the "General" group.

Refer to the EA1 module Installation Instructions

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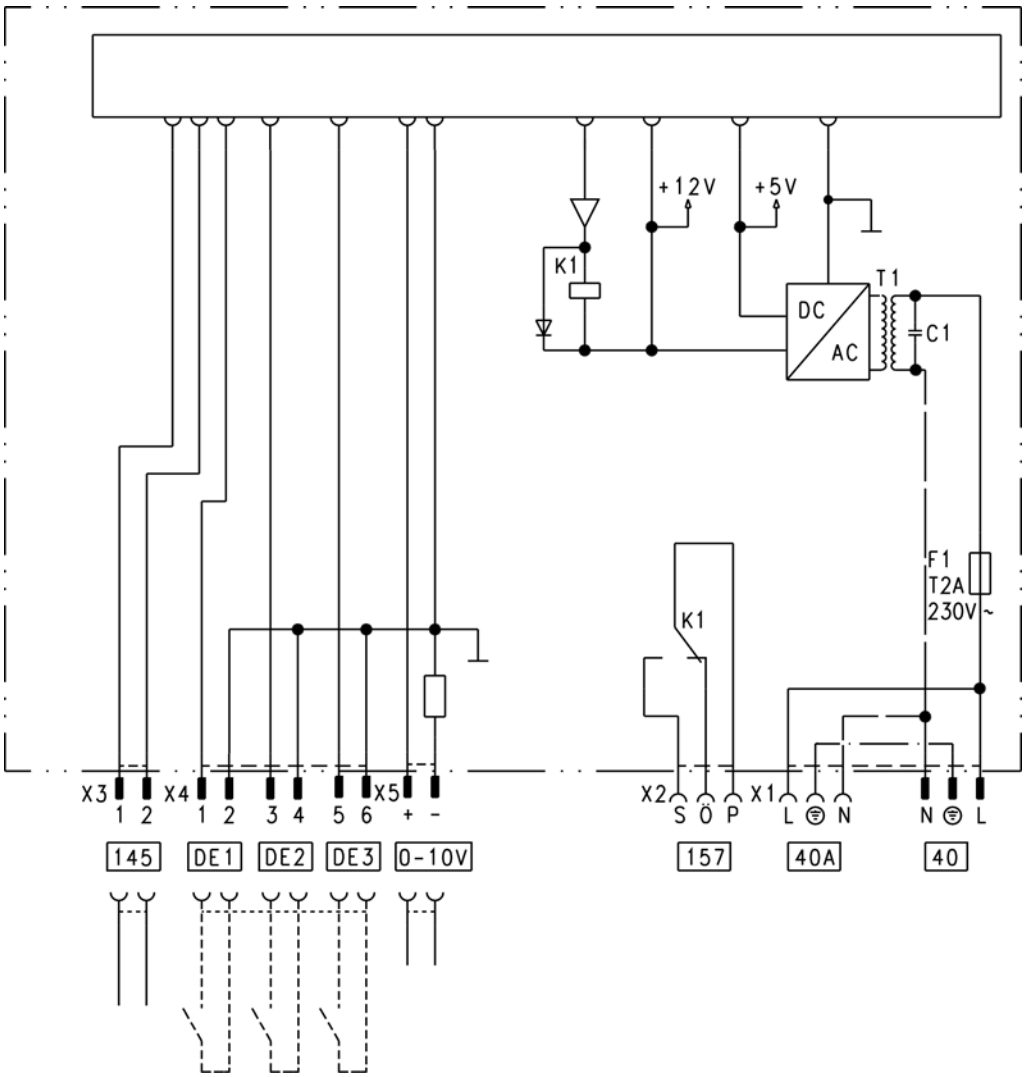
Extension EA1 Accessory *(continued)*

EA1 extension



Legend

DE1	Digital input 1
DE2	Digital input 2
DE3	Digital input 3
0 - 10V	0 - 10V input
40	Power supply
40 A	Power supply for additional accessories
157	Switching output (floating)
145	KM BUS

Parts List - Vitotronic 300-K

For the Vitotronic 200,
see boiler Service Instructions

Part No. 7776084
Serial No. 7554896□□□□□□□□□

Ordering Parts:
Please provide Serial Number Ⓐ when ordering replacement parts. Order replacement components from your Viessmann distributor.

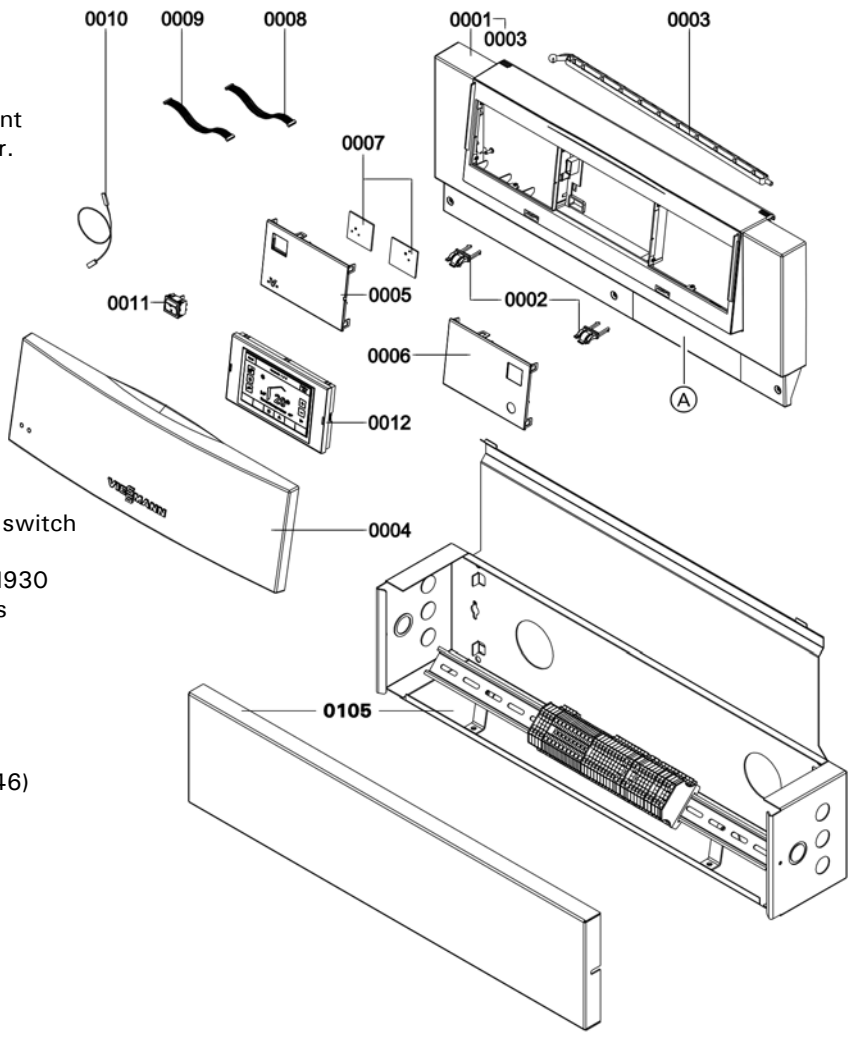
Parts for Operating Enclosure Assembly

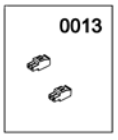
0001 Housing, front with support arm
0002 Hinges for control housing (set of 2)
0003 Support arm
0004 Flip-down cover
0005 Cover panel, left
0006 Cover, right with fuse
0007 Circuit boards, SA142/143
0008 Flat cable, 10-pole
0009 Flat cable, 16-pole
0010 Connecting cable for emissions test switch
0011 Emissions test switch, 1-pole
0012 Programming unit, Vitotronic 200 HI930
0013 Accessory pack of low voltage plugs
0014 3-Pole plug, male, #20 (set of 3)
0015 4-Pole plug, #52 (set of 3)
0016 3-Pole plug, #156 (set of 3)
0017 3-Pole plug, #40 (set of 3)
0019 3-Pole plug, #50 (set of 3)
0020 Accessory pack (plugs #143,145,146)
0105 Electrical box

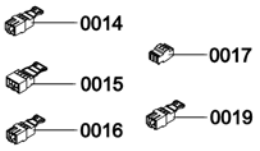
Other Parts (not illustrated)

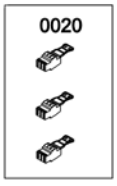
0100 Technical Literature Set
0101 Installation Instructions
0102 Operating Instructions
0103 Parts List
0104 Wiring Diagram

Ⓐ Rating plate with serial number







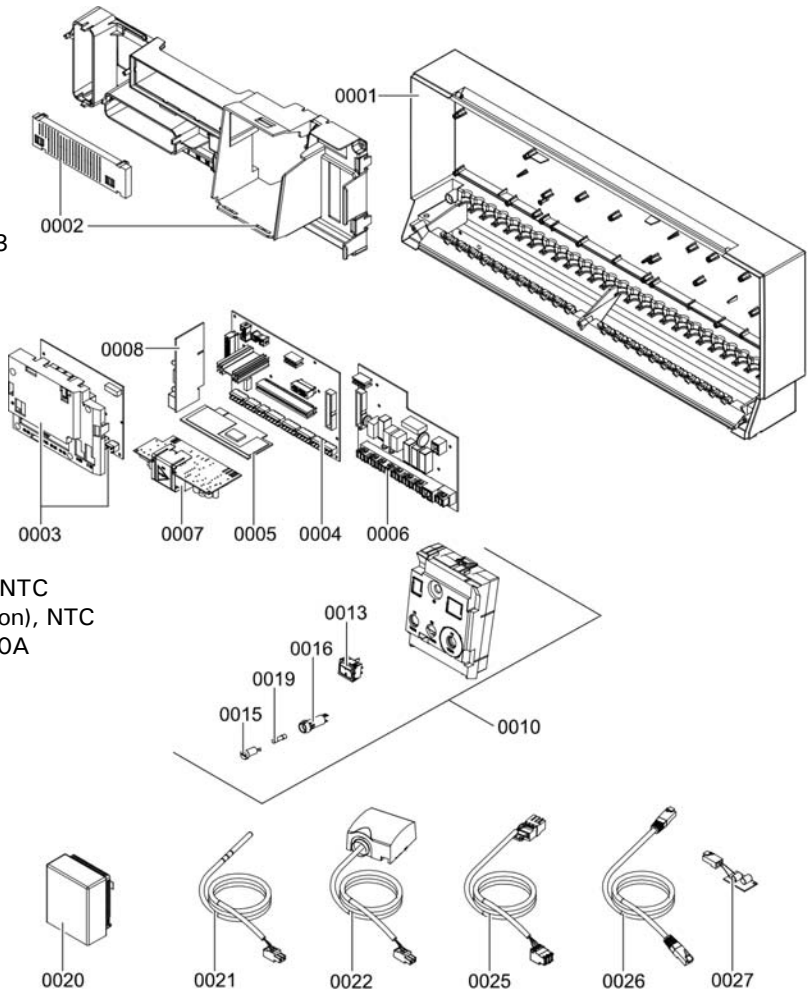


Parts List - Vitotronic 300-K

Part No. **Serial No.**
7776084 7554896□□□□□□□□□

Parts for Connection Enclosure Assembly

0001	Housing, back
0002	Cover, motherboard
0003	Extension module for mixing valve 2 + 3
0004	Motherboard (low voltage, MB200)
0005	Circuit board (touch, CU102-A60)
0006	Motherboard (line voltage, MB202)
0007	Circuit board (power supply, SP102)
0008	Circuit board (LON, IU100-B10)
0010	Control panel (wired, 120/1/60)
0013	On/off switch, 2-pole
0015	Fuse holder cover
0016	Fuse holder
0019	Fuse, T6.3A/250V (set of 10)
0020	Outdoor temperature sensor, NTC
0021	DHW temperature sensor (immersion), NTC
0022	Supply/return temperature sensor (strap-on), NTC
0025	Connecting cable, HC-extension 156/40A
0026	LON connecting cable (7m), RJ45
0027	LON terminal end resistor (set of 2)



Specification Vitotronic 300-K

For the Vitotronic 200,
see boiler Service Instructions

Rated voltage	120V~
Rated frequency	60 Hz
Rated current	6A~
Power consumption	10 W

Permiss. ambient temperature

■ during operation	32 to 104°F (0 to 40°C) Installation in living spaces or boiler rooms (standard ambient conditions)
■ during storage and transport	-4 to +149°F (-20 to +65°C)

Rated relay output breaking capacity at 120V~

20 A1	Heating circuit pump or Primary pump, tank loading system	2 A~ *1
21	DHW pump	2A~ *1
28	DHW recirculation pump	2A~ *1
29	Distribution pump	2A~ *1
50	Central fault message	2A~ *1
52 A1	Mixing valve motor or Motor, 3-way mixing valve, tank loading system	0.1A~ *1
20 M2	Heating circuit M2 pump	2A~ *1
20 M3	Heating circuit M3 pump	2A~ *1
52 M2	Heating circuit M2 pump, Mixing valve motor	0.1A~ *1
52 M3	Heating circuit M3 pump, Mixing valve motor	0.1A~ *1

*1 Total max. 6A~ (shared between all 120V outputs)

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