Installation and service instructions

for heating engineers

Vitotronic 300
type KW3
Weather-compensated digital boiler and heating circuit control

See applicability, page 3.

VITOTRONIC 300

5862 297 GB 12/2002

Please keep safe

Safety instructions

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

Safety regulations
Installation, initial start-up, inspection, maintenance and repairs must be carried out by a competent person (heating engineer/installation contractor).

Observe all current safety regulations as defined by DIN, EN, DVGW, TRGI, TRF and VDE or locally applicable standards.
See also the safety instructions sheet in the Vitotec Technical Guide.

Before working on the equipment/ heating system, isolate the mains electrical supply (e.g. by removing a separate mains fuse or by means of a mains electrical isolator) and safeguard against unauthorised reconnection.

When using gas as fuel, also close the mains shut-off valve and safeguard against unauthorised re-opening.

Work on gas equipment
This must only be carried out by an approved contractor.
Please observe all commissioning work specified for gas installations acc. to TRGI or TRF and all local regulations.

Repair work
It is not permitted to carry out repairs on parts that fulfil a safety function.

Initial start-up
The initial start-up must be carried out by the installer of the system or a designated commissioning engineer; all actual values should be recorded in a commissioning/service report.

Instructing the system user
The system installer must hand the operating instructions to the system user and instruct him/her in the operation of the system.

⚠ ***Safety instruction***
In this instruction manual, this heading denotes information which must be observed to prevent accidents and material losses.

⚠ *This symbol denotes information which must be observed to prevent material losses.*

5862 297 GB

Product information/applicability

Vitotronic 300, type KW3
Only for integration/installation on/in Viessmann boilers.

Valid for control units
Part no. 7450 760 to part no. 7450 763

Index

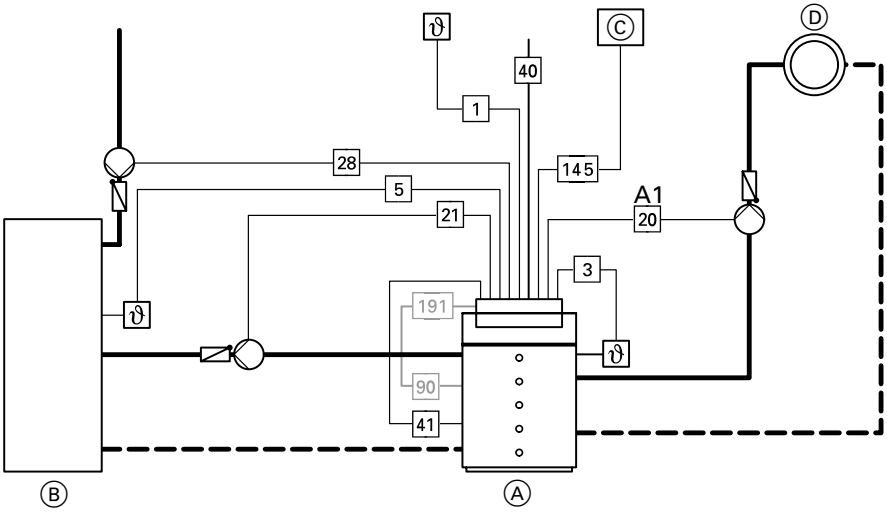
5862 297 GB

Index (cont.)

5862 297 GB

System version 1

One direct connected heating circuit without mixer



Ⓐ Boiler with control unit
Ⓑ Domestic hot water cylinder
Ⓒ Vitotrol remote control, Control module V or Vitocom 100; KM BUS distributor, **only** with several KM BUS users
Ⓓ Heating circuit without mixer A1

Plug

1		Outside temperature sensor
3		Boiler temperature sensor
5		DHW cylinder temperature sensor
20	A1	Heating circuit pump
21		Circulation pump for DHW cylinder loading (accessory)
28		DHW circulation pump (on site)
40		Mains connection (230 V~ 50 Hz)
41		Burner 1st stage*1
90		Burner 2nd stage/modulating*1
145		KM BUS user/distributor
191		Two-stage/modulating burner extension

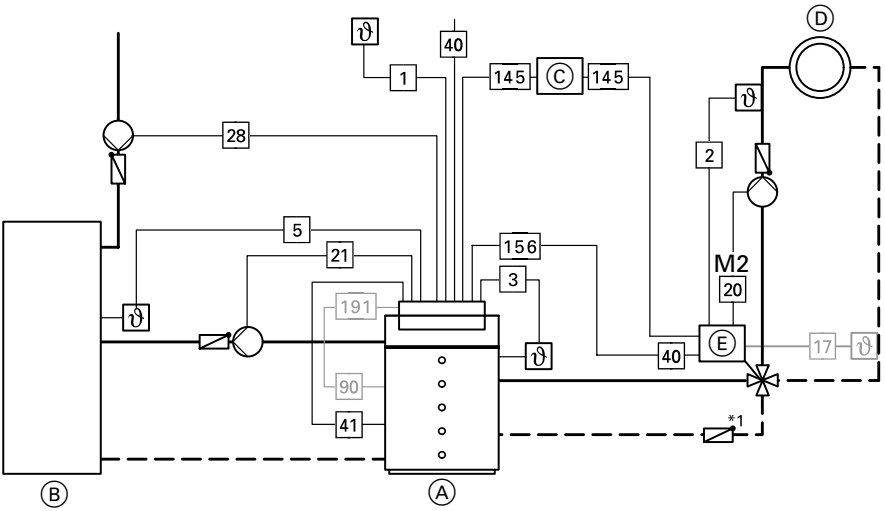
Required coding	Automatic changeover	
———	00: 2	with DHW cylinder

*1 *Standard delivery – boiler.*

5862 297 GB

System version 2

One mixer circuit



Ⓐ Boiler with control unit
Ⓑ Domestic hot water cylinder
Ⓒ KM BUS distributor, **only** for several KM BUS users, e.g. Vitotrol remote control, extension kit or Vitocom 100
Ⓓ Mixer circuit M2
Ⓔ Mixer circuit extension kit

Plug

1	Outside temperature sensor
2	Flow temperature sensor (standard delivery extension kit)
3	Boiler temperature sensor
5	DHW cylinder temp. sensor
17	Return temperature sensor (accessory)*2
20 M2	Heating circuit pump, mixer circuit
21	Circulation pump for DHW cylinder loading (accessory)
28	DHW circulation pump (on site)
40	Mains connection (230 V~ 50 Hz)
41	Burner 1st stage*3
90	Burner 2nd stage/modulating*3
145	KM BUS distributor
156	Mains connection for extension kit
191	Two-stage/modulating burner extension

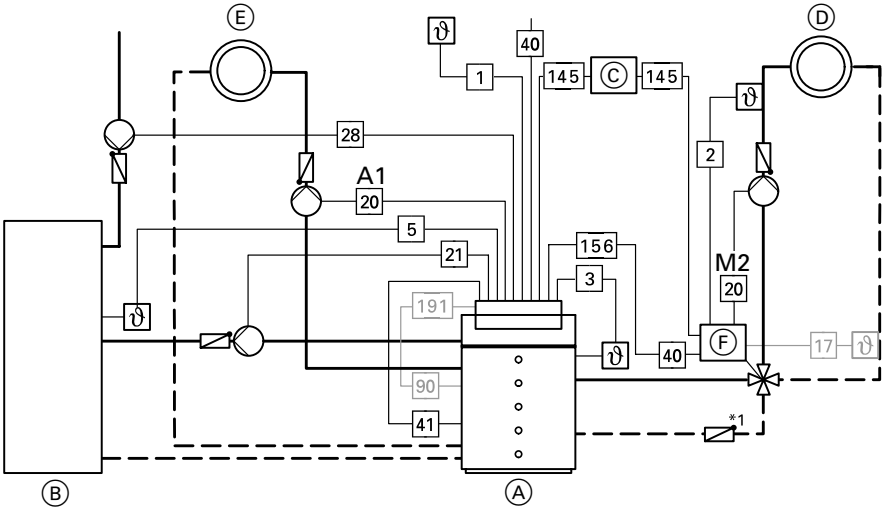
Required coding	
00: 3	System with one mixer circuit, without DHW cylinder or
00: 4	System with one mixer circuit, with DHW cylinder

*1 *Check valve; only required if joined to a connector.*
*2 *e.g. for underfloor heating control via flow and return temperature sensor.*
*3 *Standard delivery – boiler.*

5862 297 GB

System version 3

One direct connected heating circuit without mixer and one mixer circuit



Ⓐ Boiler with control unit
Ⓑ Domestic hot water cylinder
Ⓒ KM BUS distributor, **only** for several KM BUS users, e.g. Vitotrol remote control, extension kit or Vitocom 100
Ⓓ Mixer circuit M2
Ⓔ Heating circuit without mixer A1
Ⓕ Mixer circuit extension kit

Plug

1	Outside temperature sensor
2	Flow temperature sensor (standard delivery extension kit)
3	Boiler temperature sensor
5	DHW cylinder temp. sensor
17	Return temperature sensor (accessory)*2
20 A1	Heating circuit pump
20 M2	Heating circuit pump, mixer circuit
21	Circulation pump for DHW cylinder loading (accessory)
28	DHW circulation pump (on site)
40	Mains connection (230 V~ 50 Hz)
41	Burner 1st stage*3
90	Burner 2nd stage/modulating*3
145	KM BUS distributor
156	Mains connection for extension kit
191	Two-stage/modulating burner extension

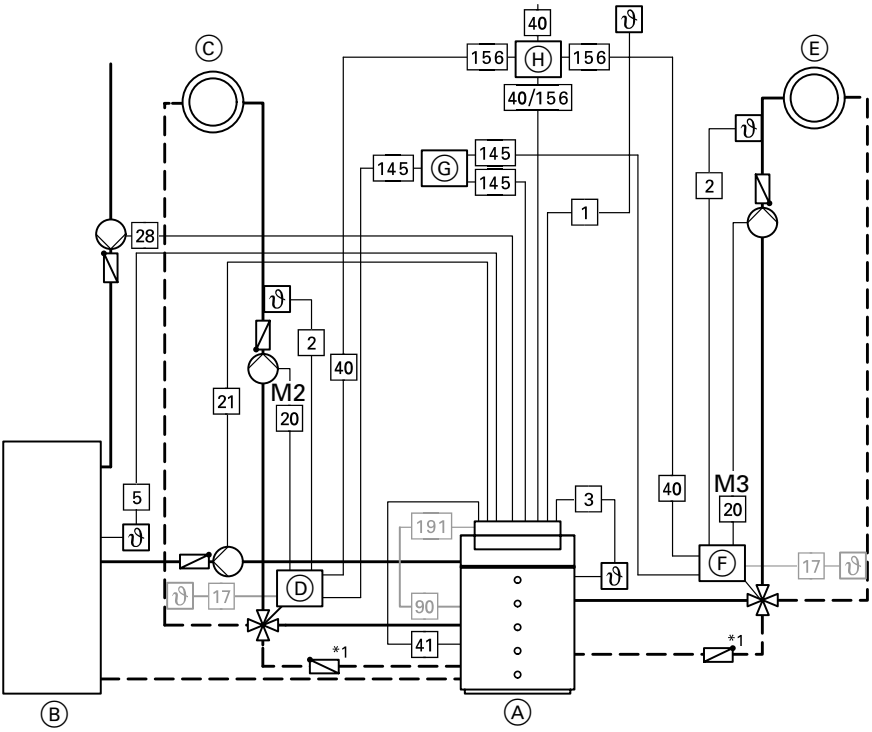
Required coding	Automatic changeover	
——	00: 6	with DHW cylinder

*1 *Check valve; only required if joined to a connector.*
*2 *e.g. for underfloor heating control via flow and return temperature sensor.*
*3 *Standard delivery – boiler.*

5862 297 GB

System version 4

Two mixer circuits



5862 297 GB

System version 4 (cont.)

Ⓐ Boiler with control unit
Ⓑ Domestic hot water cylinder
Ⓒ Mixer circuit M2
Ⓓ Extension kit for mixer circuit M2
Ⓔ Mixer circuit M3
Ⓕ Extension kit for mixer circuit M3
Ⓖ KM BUS distributor
Ⓗ Mains power distributor

Plug	
1	Outside temperature sensor
2	Flow temperature sensor
3	Boiler temperature sensor
5	DHW cylinder temperature sensor
17	Return temperature sensor*2
20 M2/M3	Heating circuit pump
21	Circulation pump for DHW cylinder loading
28	DHW circulation pump
40	Mains power connection (230 V~ 50 Hz)
41	Burner 1st stage*3
90	Burner 2nd stage/ modulating*3
145	KM BUS distributor
156	Mains connection for mains distributor
191	Two-stage/modulating burner extension

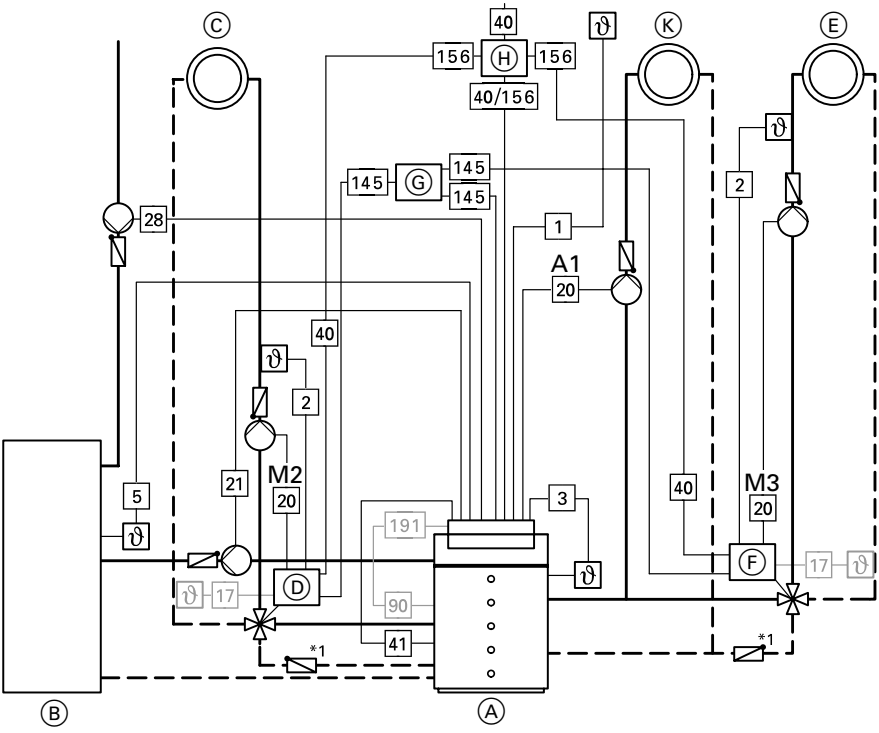
Required coding	
00: 7	System with two mixer circuits, without DHW cylinder or
00: 8	System with two mixer circuits, with DHW cylinder

*1 *Check valve; only required if joined to a connector.*
*2 *e.g. for underfloor heating control via flow and return temperature sensor.*
*3 *Standard delivery – boiler.*

5862 297 GB

System version 5

One direct connected heating circuit without mixer and two mixer circuits



5862 297 GB

System version 5 (cont.)

Ⓐ Boiler with control unit
Ⓑ Domestic hot water cylinder
Ⓒ Mixer circuit M2
Ⓓ Extension kit for mixer circuit M2
Ⓔ Mixer circuit M3
Ⓕ Extension kit for mixer circuit M3
Ⓖ KM BUS distributor
Ⓗ Mains power distributor
Ⓚ Heating circuit without mixer A1

Plug

1		Outside temperature sensor
2		Flow temperature sensor
3		Boiler temperature sensor
5		DHW cylinder temperature sensor
17		Return temp. sensor*2
20	A1	Heating circuit pump
20	M2/M3	Heating circuit pump
21		Circulation pump for DHW cylinder loading
28		DHW circulation pump
40		Mains power connection (230 V~ 50 Hz)
41		Burner 1st stage*3
90		Burner 2nd stage/ modulating*3
145		KM BUS distributor
156		Mains connection for mains distributor
191		Two-stage/modulating burner extension

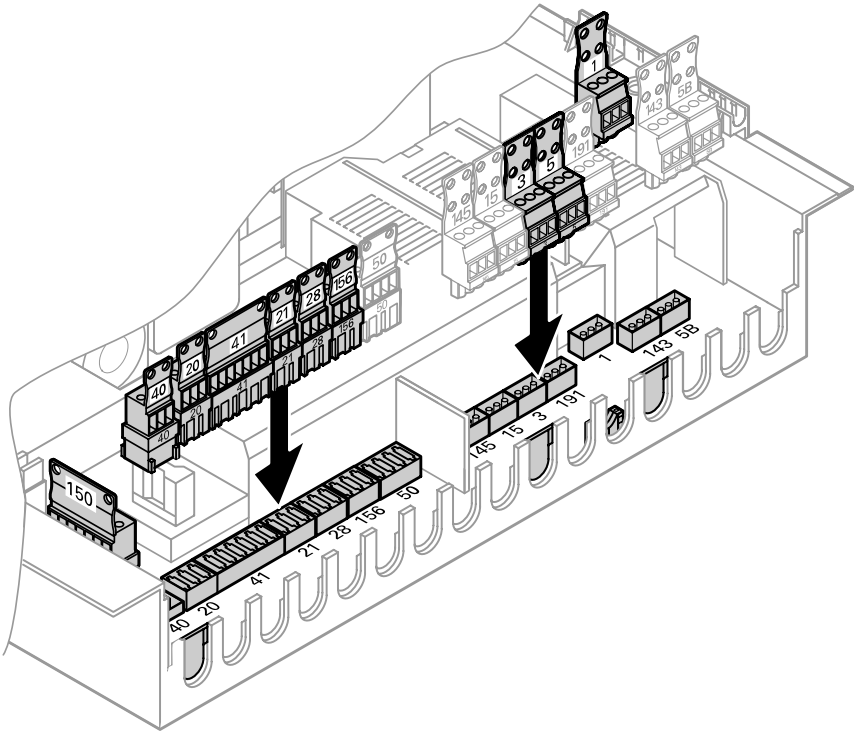
Required coding	Automatic changeover	
——	00:10	with DHW cylinder

*1Check valve; only required if joined to a connector.
*2e.g. for underfloor heating control via flow and return temperature sensor.
*3Standard delivery – boiler.

5862 297 GB

Summary of electrical connections

Illustration shows the bottom part of the control unit as viewed from the rear.



5862 297 GB

Summary of electrical connections (cont.)

Plug 230 V~

- 20 Heating circuit pump A1
- 21 Circulation pump for DHW cylinder loading (accessory)
- 28 DHW circulation pump (on site)
- 40 Mains power connection
- 41 Burner
- 50 Central fault message
- 150 External connections, e.g. supplementary safety equipment
- 156 Mains electrical connection of accessories

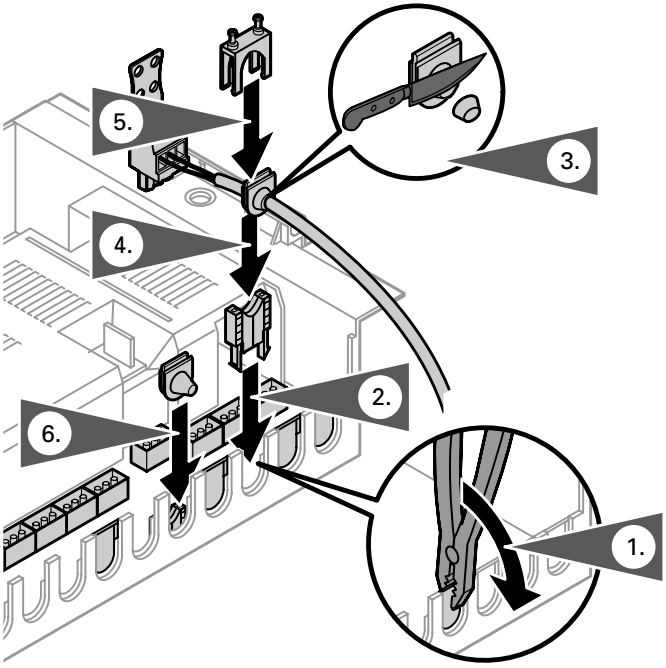
Low voltage plug

- 1 Outside temperature sensor (ATS)
- 3 Boiler temperature sensor (KTS)
- 5 DHW cylinder temperature sensor 1 (STS)
- 5 B DHW cylinder temperature sensor 2 (STS)
- 15 Flue gas temperature sensor (AGS) (accessory)
- 143 Telephone contact (external heating program changeover)
- 145 KM BUS users e.g. Vitotrol remote control (accessory)
  or
  Vitocom 100
- 191 Two-stage/modulating burner extension (part of the standard boiler delivery)

When connecting external switching contacts or components to the protective low voltage of the control unit, please observe the safety requirements of protection class II, i.e. 8.0 mm air gap/creeping distance or 2.0 mm insulation thickness from live components.
Ensure a safe electrical separation for all on-site components (incl. PC/laptops) acc. to EN 60 335 or IEC 65.

5862 297 GB

Inserting cables and applying strain relief



1. Remove knock-out tab from the control unit.

2. Click the bottom part of the fixing clamp into place.

3. Cut out cable grommet.

4. Insert the cable through the grommet and insert cable grommet into the casing.

5. Secure the top part of the cable clamp.

6. Blank off unnecessary knockouts in the part of the control unit with cable grommets (not cut out).

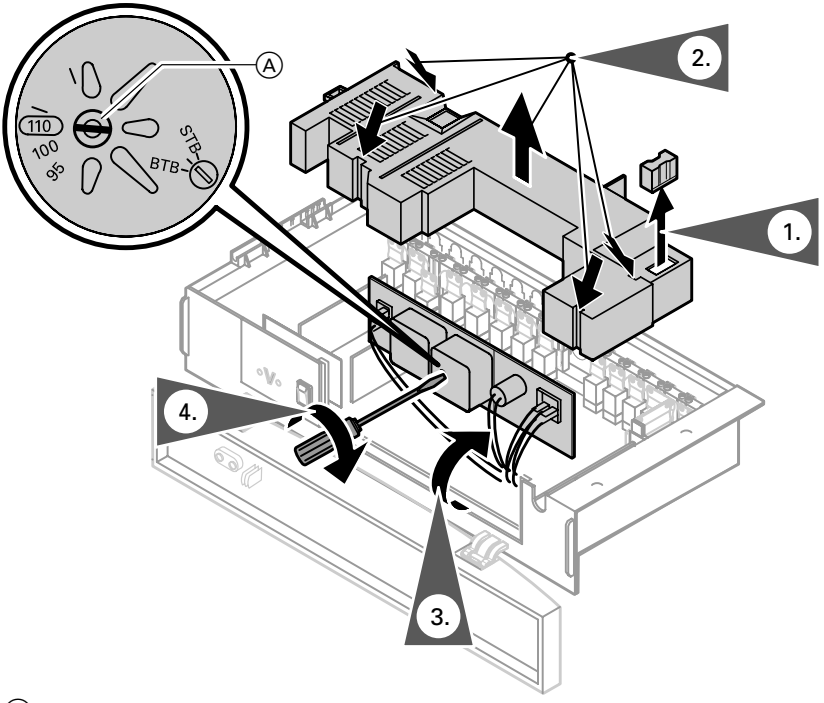
5862 297 GB

Changing the high limit safety cut-out (if required)

The high limit safety cut-out is supplied with a factory setting of 110 °C.

⚠ *If adjusted to 100 °C, do **not** set the control thermostat above 75 °C.*

Adjustment to 100 °C at EGO



Ⓐ Slotted screw

1. Pull the fuse from its holder.

2. Unhook and remove the cover from its four locking tabs.

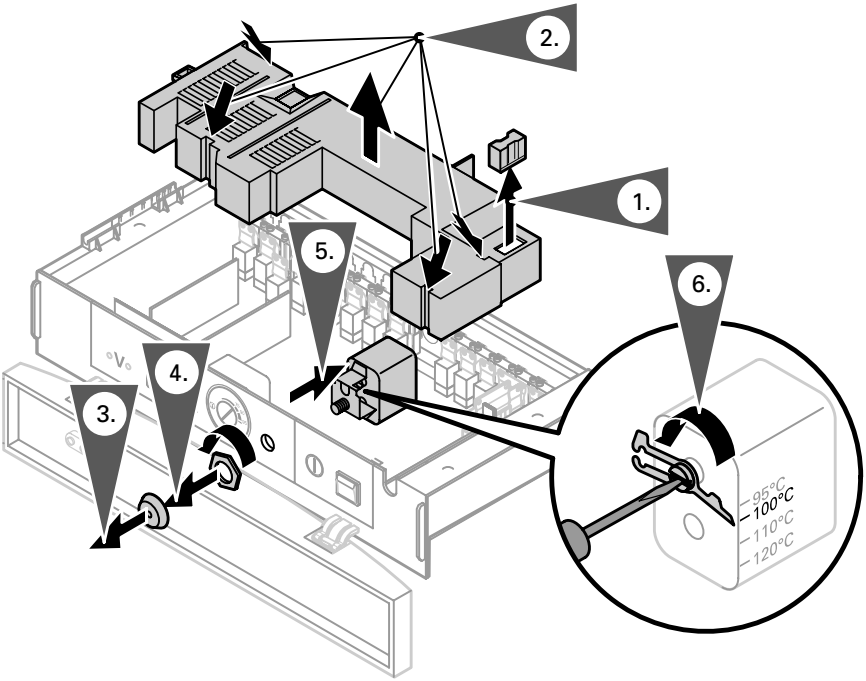
3. Pull the control unit front panel up and pivot it back.

4. Turn the slotted screw until the slot points to 100 °C (once adjusted, the high limit safety cut-out **cannot** be reset).

5862 297 GB

Changing the high limit safety cut-out setting (cont.)

Adjustment to 100 °C at Juchheim



1. Pull the fuse from its holder.

2. Unhook and remove the cover from its four locking tabs.

3. Remove reset button cover "⇫".

4. Remove the nut.

5. Remove the high limit safety cut-out.

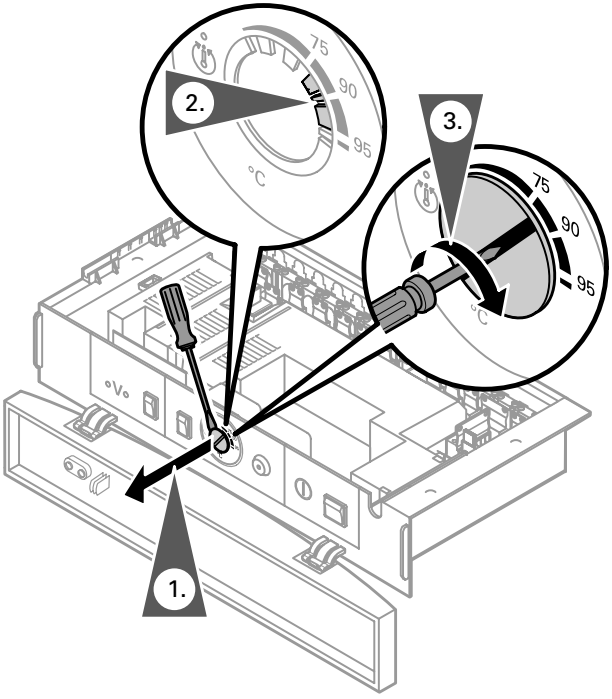
6. Turn the screw until the indicator points to 100 °C.

5862 297 GB

Changing the control thermostat (if required)

The control thermostat is supplied with a factory setting of 75 °C.
Do not set the control thermostat above 75 °C if the high limit safety cut-out has been adjusted to 100 °C.

Change to 87 °C/95 °C



1. Lever out and remove rotary selector "⏲".

2. Using a pair of pointed pliers, break off the cams between "75" and "90" or "95" from the stop dial, which are identified in the drawing.

3. Fit rotary selector "⏲" so that the marking lies between "75" and "90" or "95". Turn rotary selector "⏲" fully clockwise to the end stop.

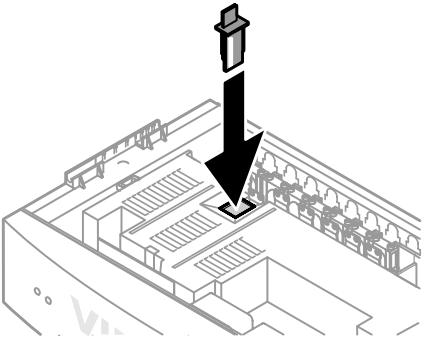
⚠ *If the system is operated in conjunction with a domestic hot water cylinder, ensure that the maximum permissible domestic hot water temperature is not exceeded. If necessary, install a suitable safety device for this purpose.*

5862 297 GB

Inserting the boiler coding card

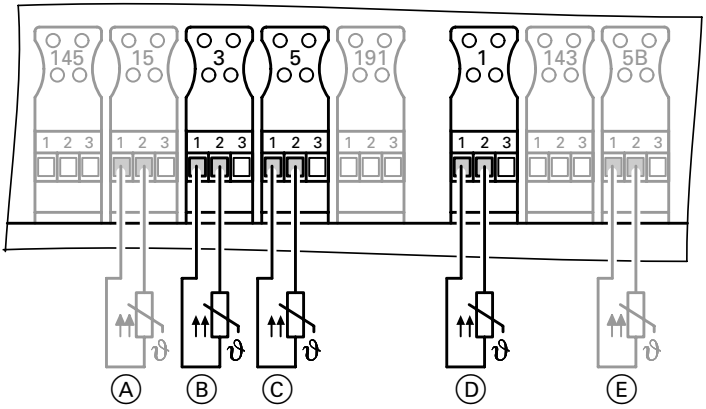
Only use the boiler coding card included with the boiler product documentation.

Boiler	Coding card	Part no.
Vitola 111	F1	7818 916
Vitola 200 Vitola 222 Vitorond 200, type VR2 Vitorond 222	E1	7818 915
Vitogas 300, type GS3 Vitocrossal 300	Cb	7818 913



Insert the boiler coding card through the cut-out in the cover into slot "X7".

Sensor connection



Ⓐ Flue gas temperature sensor
Ⓑ Boiler temperature sensor
Ⓒ DHW cylinder temperature sensor
Ⓓ Outside temperature sensor (interchange the cores)
Installation location:
- North or north-western wall, 2 to 2.5 m above ground level; in case of multi-storey buildings in the upper half of the second floor
- Not above windows, doors or ventilation outlets
- Not immediately below a balcony or gutter
- Do not render over

Connection:
2-core cable with a maximum length of 35 m and a cross-section of 1.5 mm^2 (copper)

Ⓔ 2^{nd} DHW cylinder temp. sensor

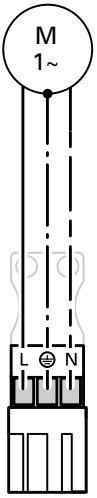
5862 297 GB

Pump connection

Available pump connections
20 Heating circuit pump A1
21 Circulation pump for DHW cylinder loading
28 DHW circulation pump

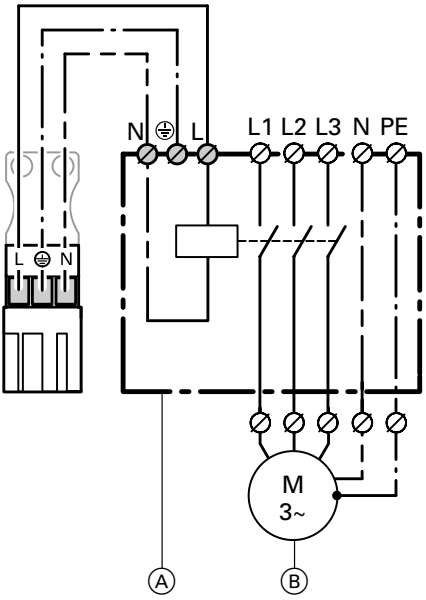
Please note:
Heating circuit pumps for mixer circuits are connected to the mixer circuit extension kit (see page 73).

Pumps 230 V~



Rated current: 4 (2) A~
Recommended connection cable: H05VV-F3G 0.75 mm^2 or H05RN-F3G 0.75 mm^2

Pumps 400 V~



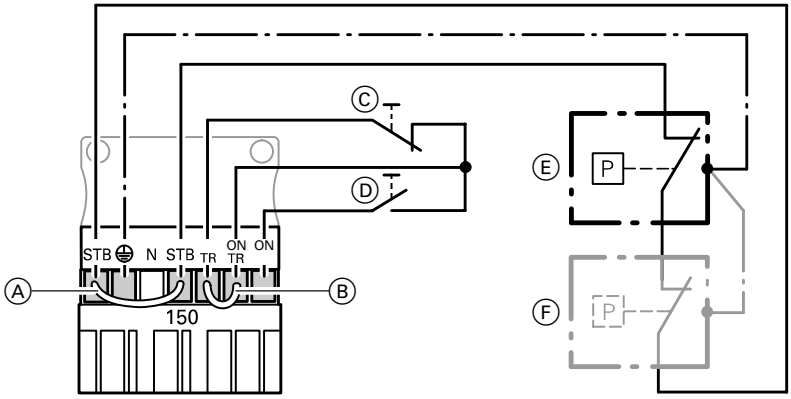
Ⓐ Contactor
Ⓑ Three-phase pump

For selecting the contactor:
Rated voltage: 230 V~
Rated current: 4 (2) A ~
Recommended connection cable: H05VV-F3G 0.75 mm^2 or H05RN-F3G 0.75 mm^2

5862 297 GB

External connections on plug 150

⚠ *The external connections **must be volt-free**. Plug 150 **must** remain plugged in, even if no connection is made.*



Ⓐ Jumper "STB" – "STB"
Ⓑ Jumper "TR" – "ON/TR"
Ⓒ External blocking (volt-free contact)
Ⓓ External start (volt-free contact)
Ⓔ Minimum pressure switch
Ⓕ Supplementary external safety equipment

External burner blocking
- Remove jumper "TR" – "TR".
- Connect the volt-free contact. Opening this contact leads to a controlled shutdown.

⚠ *Only safety shutdown equipment, e.g. high limit thermostats, may be connected to these terminals. During this shutdown, the heating system is not protected against frost and the boiler is not held at the lower boiler water temperature.*

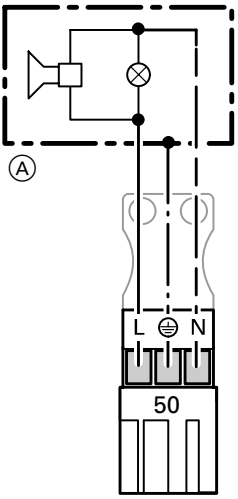
External burner start
- Do **not** remove jumper "TR" – "TR".
- Connect the volt-free contact. When the contact is closed, the first burner stage is started, and the boiler water temperature is regulated by the control thermostat.

External safety equipment
- Remove jumper "STB" – "STB".
- Connect electrical safety equipment in series.

Emergency mode
Change jumper "TR" – "ON/TR" to "TR" – "ON".

5862 297 GB

Connecting central fault messages

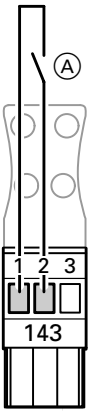


Rated voltage:	230 V~ 50 Hz
Rated current:	4 (2) A~
Recommended connection cable:	H05VV-F3G 0.75 mm^2 or H05RN-F 3G 0.75 mm^2

Ⓐ Central fault message equipment

External heating program changeover

The manually pre-selected heating program can be modified via the volt-free contact.



Code "91" enables the external heating program changeover to be allocated to the individual heating circuits.
Use control module V for the separate heating program changeover for 3 heating circuits (see page 91).

Ⓐ External heating program changeover (volt-free contact)

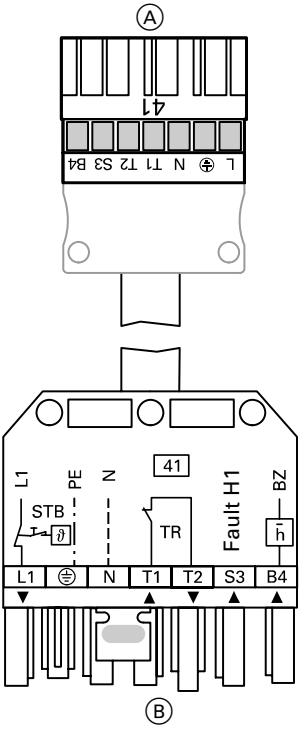
Manually pre-selected heating program (with open contact)	**Changed heating program** (with closed contact)
Heating and DHW Standard room temperature alternating with reduced room temperature **(set to 3 °C ≙ standby mode)** acc. to time program (as delivered condition)	Constant standby mode with frost protection (no DHW heating)
Heating and DHW Standard room temperature alternating with **reduced room temperature (set higher than 3 °C)** acc. to time program	Constant heating
Only DHW	Constant standby mode with frost protection
Standby mode with frost protection	Constant heating

5862 297 GB

Burner connection

Modulating oil- and gas-fired boilers

Connect the burner in accordance with DIN 4791.
The burner cables are included in the standard boiler delivery.
Max. current 4 (2) A.



Ⓐ To control unit
Ⓑ To burner

Terminal codes

L1	Phase via high limit safety cut-out to the burner
PE	Earth conductor to burner
N	Neutral conductor to the burner
T1, T2	Control chain
S3	Connection for burner fault
B4	Connection for hours run meter
▼	Signal pass direction: Control unit → burner
▲	Signal pass direction: Burner → control unit

Equipment codes

STB	High limit safety cut-out of the control unit
TR	Control thermostat
H1	Burner fault signal
BZ	Hours run meter

Burner without connector
Install the mating plug from Viessmann or from the burner manufacturer; connect the burner cable.

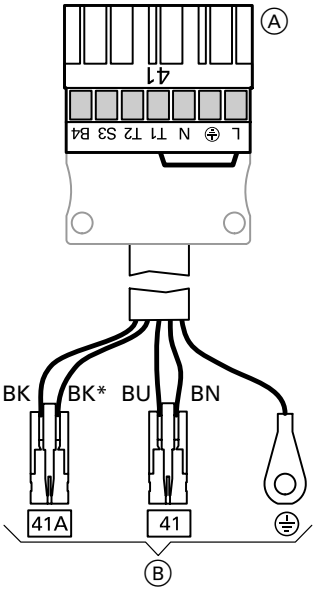
5862 297 GB

Burner connection (cont.)

Burner without fan

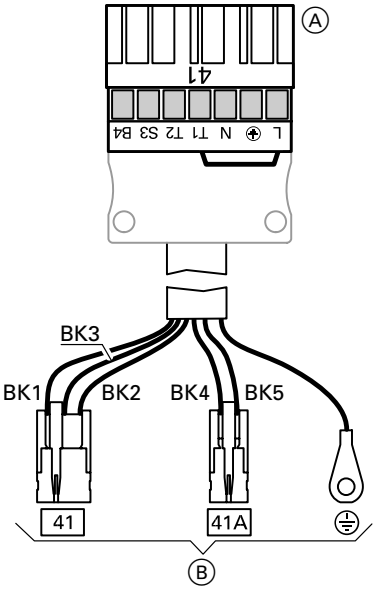
The burner cables are included in the standard boiler delivery.
Max. current 4 (2) A.

5-core burner cable



BK —> B4
BU —> N
BK* —> S3
BN —> T2

6-core burner cable



BK1 —> T1
BK2 —> N
BK3 —> T2
BK4 —> S3
BK5 —> B4

Ⓐ To control unit
Ⓑ To burner

Terminal codes

L1	Phase via high limit safety cut-out to the burner
PE	Earthing conductor to burner
N	Neutral conductor to the burner
T1, T2	Control chain
S3	Connection for burner fault
B4	Connection for hours run meter

Colour coding to DIN/IEC 757

BK	black
BK*	black with imprint
BN	brown
BU	blue

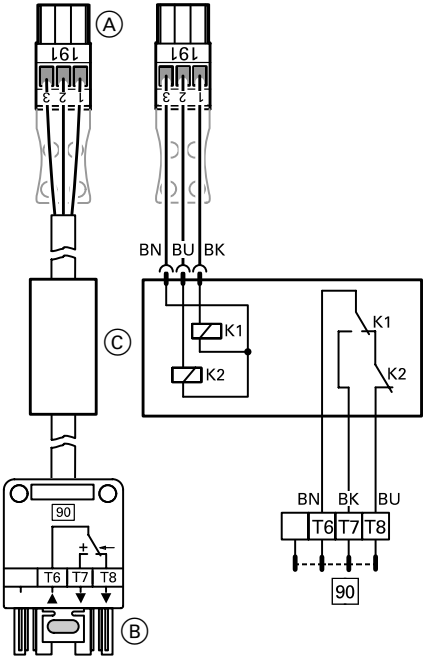
5862 297 GB

Burner connection (cont.)

Two-stage/modulating burner extension

The function extension is supplied with the boiler.
Max. power consumption
- two stage: 1 (0.5) A
- modulating: 0.1 (0.05) A

Observe coding addresses "02", "10" to "12", "15" to "18", "1A", "26" and "29" (see overview).



Terminal codes

T6, T7, T8	Control chain "2nd burner stage or modulation control" (for two-stage operation via two-point controller; for modulating mode via three-point controller)
T6	From the burner
T7	Modulating burner close
T8	Burner modulating up/ 2nd stage ON
▼	Signal pass direction: Control unit → burner
▲	Signal pass direction: Burner → control unit

Ⓐ To control unit
Ⓑ To burner
Ⓒ Junction box incl. relay K1 and K2

Colour coding to DIN/IEC 757

BK black
BN brown
BU blue

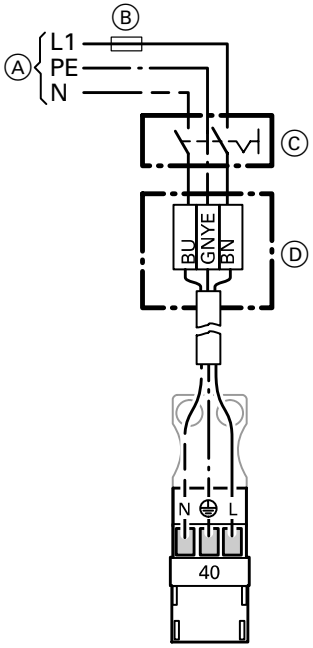
5862 297 GB

Mains electrical connection

Requirements
Carry out the mains connection and all earthing measures (e.g. fault current circuit) in accordance with IEC 364, the requirements of your local electricity supplier, VDE regulations or all local and national regulations. The power supply to the control unit should be protected by a fuse with a max. rating of 16 A.

Mains electrical isolator requirements (if necessary)
For combustion equipment acc. to DIN VDE 0116, the mains electrical isolator fitted on site must comply with DIN VDE 0116 "section 6" (or local regulations). The mains electrical isolator must be installed outside the installation area and must simultaneously isolate **all** non-earthed conductors with at least 3 mm contact separation.

Replacing the mains connection cable
3-core cable selected from the following options:
- H05VV-F3G 0.75 mm^2
- H05RN-F3G 0.75 mm^2



Ⓐ Mains voltage 230 V~ 50 Hz
Ⓑ Fuse (max. 16 A~)
Ⓒ Mains isolator, 2-pole (on site)
Ⓓ Junction box (on site)

1. Check whether the mains power cable to the control unit is fitted with a fuse with a max. rating of 16 A.

2. Terminate the enclosed mains connection cable inside the junction box (on site).

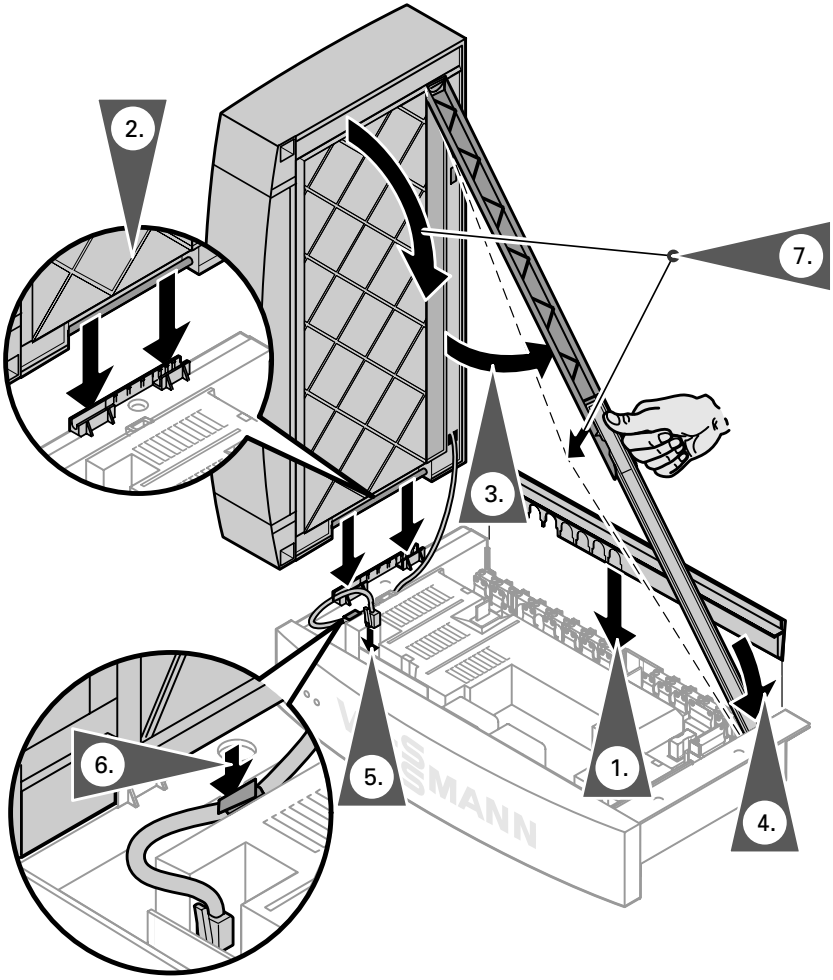
⚠ ***Safety instructions***
Do not interchange cores "L1" and "N":
L1: brown
N: blue
PE: green/yellow

3. Insert plug [40] into control unit.

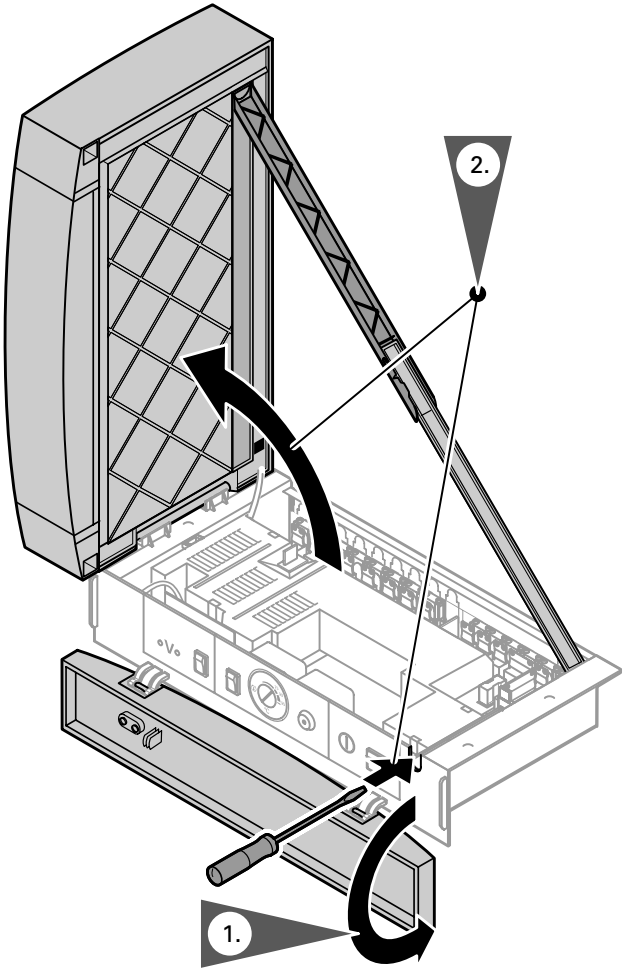
Colour coding to DIN/IEC 757
BN brown
BU blue
GNYE green/yellow

5862 297 GB

Installing the top of the control unit



Opening the control unit

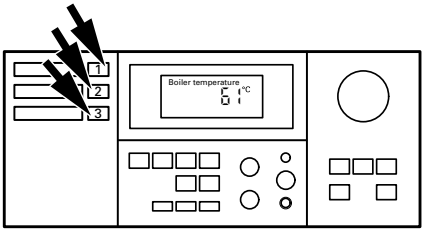


5862 297 GB

Steps

Further details regarding the individual steps

Checking the heating circuit allocation



- Check whether the label for heating circuit allocation has been affixed to the corresponding field of the programming unit.
- Press the corresponding key before commencing all adjustments.

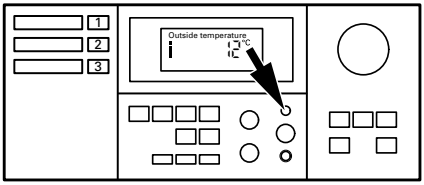
Further details regarding the individual steps (cont.)

Checking the high limit safety cut-out

The "**TÜV**" key must be held down during this test (position "☝").
The control thermostat "⏱" is now bypassed. The burner remains switched on until the boiler water temperature has reached the safety temperature and the high limit safety cut-out has switched off.

After the burner has been shut down by the high limit safety cut-out,
- release the "**TÜV**" key,
- wait until the boiler water temperature has fallen 15 to 20 K (Kelvin) below the set safety temperature, then reset the high limit safety cut-out by pressing button "⏎".

Changing the display language



1. Press ⓘ.
This displays the outside temperature.

2. Select the required language with ⊖.

3. Confirm with OK.

Matching up the coding addresses

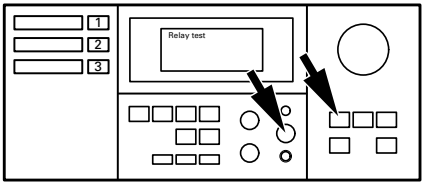
The control unit must be matched to the system design.
For coding steps see page 102 and coding summary from page 103.

5862 297 GB

Further details regarding the individual steps (cont.)

Checking outputs (actuators) and sensors

Relay test



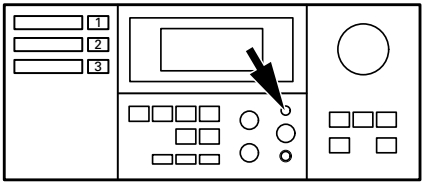
1. Press ⏻ and OK simultaneously for approx. two seconds.
   Relay test is activated.
2. Select the relay outputs with ⊕ or ⊖.
3. Press OK. Relay test is completed.

The following relay outputs can be controlled subject to the actual equipment level:

- Burner ON
  or
  Burner 1st stage ON
  or
  Burner modulating up
- Burner 1st + 2nd stage ON
  or
  Burner modulating neutral,
  Burner modulating close,
- Heating circuit pump ON
- Cylinder loading pump ON
- Circulation pump ON
- Heating circuit pump ON
- Open mixer
- Close mixer
- Central fault display ON

Please note:
The illuminated heating circuit selector button indicates the corresponding heating circuit.

Checking sensors



1. Press ⓘ.
   Scanning "operating conditions" is activated, see page 39.
2. Scan the actual temperature with ⊕ or ⊖.
3. Press ⓘ.
   Scanning is completed.

5862 297 GB

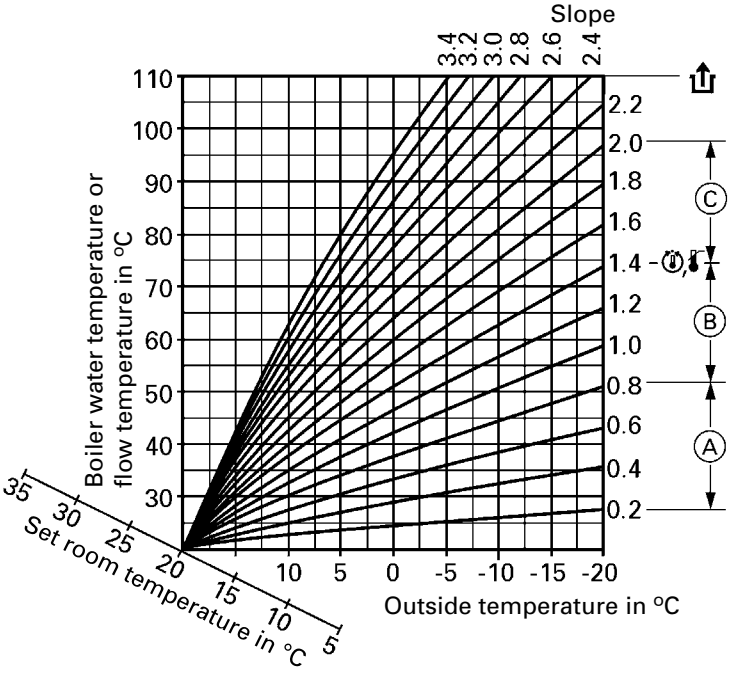
Further details regarding the individual steps (cont.)

Adjusting heating curves

The heating curves illustrate the relationship between the outside temperature and the boiler water or the flow temperature. To put it simply, the lower the outside temperature, the higher the boiler water or flow temperature. The room temperature again depends on the boiler water or the flow temperature.

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

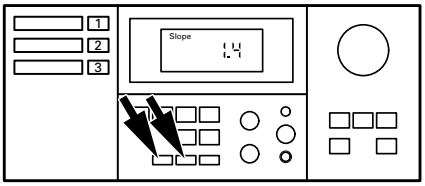
Generally, the heating curve for
- underfloor heating system lies in the Ⓐ range,
- low-temperature heating systems (according to the Energy Savings Order) lies in the Ⓑ range,
- and for heating systems with boiler water temperatures above 75 °C lies in the Ⓒ range.



5862 297 GB

Further details regarding the individual steps (cont.)

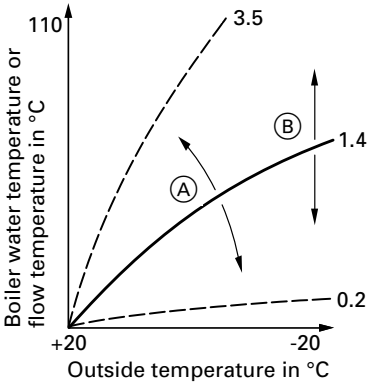
Changing slope and level (for each heating circuit separately)



1. Call up slope with ⊿, value adjustable from 0.2 to 3.5 K; call up level with ⊿; value adjustable from –13 to +40 K.

2. Change the value with ⊕ or ⊖.

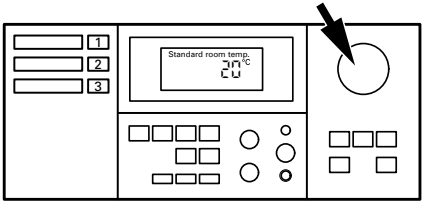
3. Confirm the set value with OK.



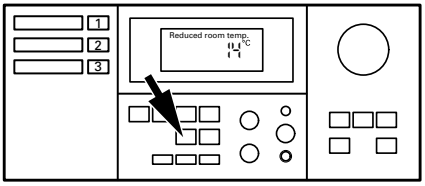
Ⓐ Changing the slope
Ⓑ Changing the level

Further details regarding the individual steps (cont.)

Adjusting the set room temperature (for each heating circuit separately)



Standard room temperature:
Select the set day temperature with the set value adjuster.
The value will be automatically adopted after approx. 2 seconds.

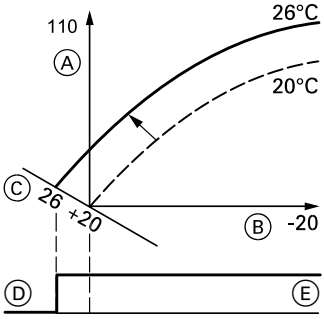


Reduced room temperature:

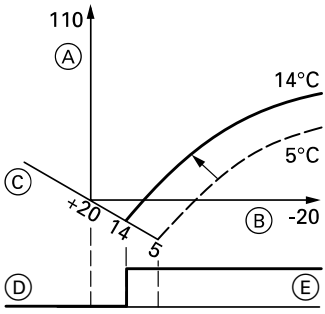
1. Call up the night temperature with [🌙].

2. Change the value with ⊕ or ⊖.

3. Confirm the set value with OK.



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



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

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

Accordingly, the heating curve is adjusted along the set room temperature axis, which results in modified start/shutdown characteristics of the heating circuit pumps, if the heating circuit pump logic is activated.

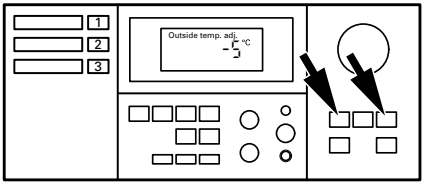
5862 297 GB

Service level summary

Function	Key combination	Exit	Page
Adjusting the display contrast	Press OK and ⊕ simultaneously; the display will darken	—	—
	Press OK and ⊖ simultaneously; the display will get lighter	—	—
Temperatures, boiler coding card and short scanning	Press ⏻ and simultaneously for approx. two seconds	Press OK	37
Relay test	Press ⏻ and OK simultaneously for approx. two seconds	Press OK	32
Operating condition	Press i	Press i	39
Maintenance scan	Press i if "Maintenance" flashes	Press OK	40
Code 1	Press ⏻ and simultaneously for approx. two seconds	Press ⏻ and simultaneously for approx. one second	98
Code 2	Press and simultaneously for approx. two seconds; confirm with OK	Press and simultaneously for approx. one second	102
Resetting codes into the "as delivered condition"	Press and simultaneously for approx. two seconds, press ✳	—	98
Error history	Press and OK simultaneously for approx. two seconds	Press OK	50
Troubleshooting	Press i	Press OK	42

5862 297 GB

Temperatures, boiler coding card and brief scans



1. Press ⏻ and 🛁 simultaneously for approx. two seconds.
2. Select the required scan with ⊕ or ⊖.
3. Press OK.

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

- Outside temp. adj.
- Outside temp. actual

→ *The adjusted outside temperature can be reset to the current outside temperature with ⊕.*

- Boiler temp. set
- Boiler temp. actual
- Flue gas temp. max.
- Flue gas temp. actual

→ *The maximum flue gas temperature can be reset to the current value with ⊕.*

- DHW temp. set
- DHW temp. actual
- Flow temp. set
- Flow temp. actual
- Return temp. actual
- Room temp. set
- Room temp. actual

→ *Display only if a remote control unit is installed.*

- Boiler coding card

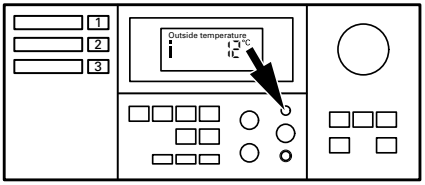
→ *Boiler coding card summary, see page 18.*

- Brief scan 1
  to
  Brief scan 4

5862 297 GB

	Brief scan 0 0 0 0 0 0					
Brief scan						
1	Display acc. to system design (see coding address "00")		Burner type 0 single stage 1 two stage 2 modulating	Number KM BUS users	Number Viessmann 2-wire BUS users	
2	Software version – control unit	Software version – programming unit	Software version – extension kit mixer circuit M2	Software version – expansion module Viessmann 2-wire BUS	Software version – extension kit mixer circuit M3	Software version – control module V
3	Operating mode boiler circuit 0 w/o remote control 1 with Vitotrol 200 2 with Vitotrol 300	Software version – remote control boiler circuit	Operating mode mixer circuit M2 0 w/o remote control 1 with Vitotrol 200 2 with Vitotrol 300	Software version – remote control mixer circuit M2	Operating mode mixer circuit M3 0 w/o remote control 1 with Vitotrol 200 2 with Vitotrol 300	Software version – remote control mixer circuit M3
4	N/A					

Scanning operating conditions



1. Press ⓘ.
2. Select the required operating condition scan with ⊕ or ⊖.
3. Press ⓘ.

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

Heating circuits A1, M2 and M3

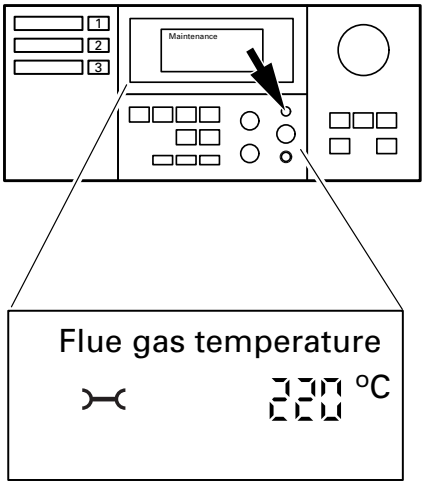
- Holiday program with departure and return date → *Display only if a holiday program has been set up.*
- Actual outside temperature
- Actual boiler temperature
- Actual flue gas temperature
- Actual DHW temperature
- Actual flow temperature (only with mixer circuits)
- Actual return temperature (only with mixer circuits) → *Display only, if a value higher than 0 has been set for coding address "C7".*
- Actual room temperature → *Display only if a remote control unit is installed.*
- Burner, hours run → *Reset hours run, burner starts and consumption after maintenance. The individual values can be reset to "0" with ⊕.*
- Burner starts
- Consumption → *Display only, if set via coding addresses "26" or "29".*
- Time
- Date
- Burner ON/OFF
- Cylinder loading pump ON/OFF
- DHW circulation pump ON/OFF
- Central heating circulation pump ON/OFF
- Mixer open/closed
- Various languages → *Each language can be selected as permanent display language with OK.*

5862 297 GB

Scanning and resetting "Maintenance" display

After limits have been reached, which were set up via coding addresses "1F", "21" and "23" (see page 105), the display indicates the flashing message "Maintenance", and the red fault lamp flashes.

Please note:
Set code "24:1" and then code "24:0", if maintenance is implemented before "Maintenance" is displayed; the set maintenance parameters for hours run and periods are reset to 0.



1. Press ⓘ.
Maintenance scan is activated.

2. Scan maintenance messages with ⊕ or ⊖.

3. Press OK;
display "Acknowledge: Yes";
confirm with OK.
"Maintenance" display extinguishes, and the red fault lamp continues to flash.

Please note:
An acknowledged maintenance message can be redisplayed by pressing OK (approx. 3 seconds).

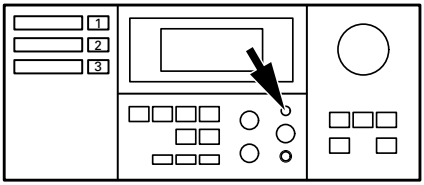
5862 297 GB

Scanning and resetting "Maintenance" display (cont.)

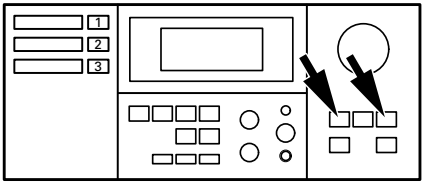
After maintenance has been carried out

1. Reset code "24:1" (see page 105) to "24:0".
The red fault lamp extinguishes.

Please note:
If the coding address "24" is not reset, a new "Maintenance" display will be shown on Monday at 07:00 hrs.

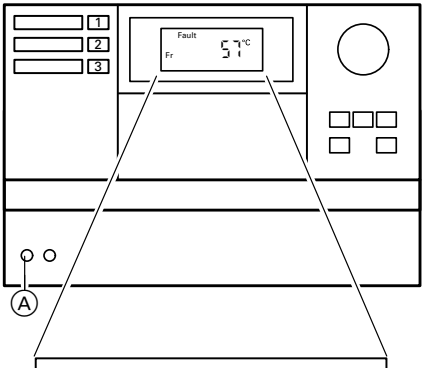


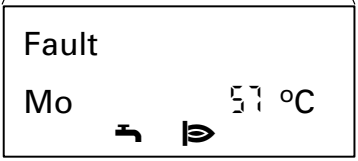
2. If required:
- Press (i).
- Reset burner hours run, burner starts and consumption (see page 39).
- Press (i).

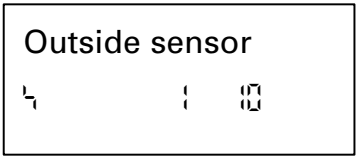


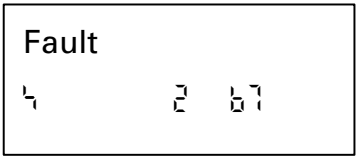
3. If required:
- Press ⏻ and 🧹 simultaneously for approx. four seconds.
- Reset "Flue gas temp. max." with ⊕ to the actual value (see page 37).
- Press OK.

Faults with fault display at the programming unit









The red fault lamp Ⓐ flashes for all faults.

"Fault" flashes in the programming unit display when a fault message is issued.

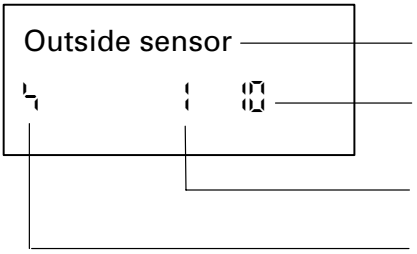
Find the fault

1. Press ⓘ.

2. Call up further fault codes with ⊕ or ⊖.
The fault can be acknowledged with OK. The fault message in the display will be hidden, but the red fault lamp Ⓐ continues to flash. A new fault message will be shown in the display, if an acknowledged fault is not removed by 07:00 hrs the following day.

5862 297 GB

Faults with fault display at the programming unit (cont.)



Fault display design
Fault display

Fault code
(for explanations see page 44)

Fault number
(1 to 8)
Fault symbol

Fault display in plain text
- Burner
- Outside temperature sensor
- Flow sensor
- DHW cylinder sensor
- Return sensor
- Room temperature sensor
- Flue gas sensor

Calling up acknowledged fault messages
Press OK for approx. three seconds. The fault will then be displayed. Select the acknowledged fault with ⊕ or ⊖.

5862 297 GB

Faults with fault display at the programming unit (cont.)

Fault code	System characteristics	Cause	Check
05	Control mode	Maintenance	Carry out maintenance ***Please note:*** *Set code "24:0" after the maintenance*
07	Activates higher than 0 °C outside temperature	Short circuit Outside temperature sensor	Check the outside temperature sensor (see page 69)
08		Cable break Outside temperature sensor	
20	Mixer closes	Short circuit Flow temperature sensor Mixer circuit M2	Check the flow temperature sensor (see page 81)
21	Control without return temperature influence	Short circuit Return temperature sensor Mixer circuit M2	Check the return temperature sensor (see page 81)
28	Mixer closes	Cable break Flow temperature sensor Mixer circuit M2	Check the flow temperature sensor (see page 81)
29	Control without return temperature influence	Cable break Return temperature sensor Mixer circuit M2	Check the return temperature sensor (see page 81)

5862 297 GB

Faults with fault display at the programming unit (cont.)

Fault code	System characteristics	Cause	Check
30	■ with DHW cylinder: Cylinder loading pump ON; the boiler will be held at the set DHW cylinder temperature ■ without DHW cylinder: the boiler is regulated by the control thermostat	Short circuit Boiler temperature sensor	Check the boiler temperature sensor (see page 68)
38		Cable break Boiler temperature sensor	
40	Mixer closes	Short circuit Flow temperature sensor Mixer circuit M3	Check the flow temperature sensor (see page 81)
41	Control without return temperature influence	Short circuit Return temperature sensor Mixer circuit M3	Check the return temperature sensor (see page 81)
48	Mixer closes	Cable break Flow temperature sensor Mixer circuit M3	Check the flow temperature sensor (see page 81)
49	Control without return temperature influence	Cable break Return temperature sensor Mixer circuit M3	Check the return temperature sensor (see page 81)
50	Cylinder loading pump ON: Set boiler temperature = set DHW cylinder temperature, priority is cancelled	Short circuit DHW cylinder temperature sensor 1	Check the DHW cylinder temperature sensor (see page 68)

5862 297 GB

Faults with fault display at the programming unit (cont.)

Fault code	System characteristics	Cause	Check
51	Control acc. to DHW cylinder temp. sensor 1	Short circuit DHW cylinder temp. sensor 2	Check DHW cylinder temperature sensor 2 (see page 68)
58	Cylinder loading pump ON: Set boiler temp. = set DHW cylinder temp., priority is cancelled	Cable break DHW cylinder temp. sensor 1	Check DHW cylinder temperature sensor (see page 68)
59	Control acc. to DHW cylinder temp. sensor 1	Cable break DHW cylinder temp. sensor 2	Check DHW cylinder temperature sensor 2 (see page 68)
60	Control mode	Short circuit Flue gas temperature sensor	Check the flue gas temperature sensor (see page 71)
61		Communication fault Programming unit	Check connections and replace the programming unit, if necessary
64	Emissions test mode	Internal electronics fault	Replace printed circuit board
65	Control mode		
66	Constant mode	Invalid hardware recognised	Check main PCB
67	The boiler is regulated by the control thermostat	Internal fault Boiler coding card	Plug in the boiler coding plug or replace, if faulty
68	Control mode	Cable break Flue gas temperature sensor	Check the flue gas temperature sensor (see page 71)
69		Internal fault	Acknowledge fault, repeat data input

5862 297 GB

Faults with fault display at the programming unit (cont.)

Fault code	System characteristics	Cause	Check
bA	Mixer (M2) continues to control	Communication fault Extension kit for mixer circuit M2	Check the extension kit connections and coding. Start the extension kit
bb	Mixer (M3) continues to control	Communication fault Extension kit for mixer circuit M3	
bC	Control mode without remote control	Communication fault Vitotrol remote control unit, Heating circuit A1	Check connections, cable and coding address "A0"
bd		Communication fault Vitotrol remote control unit, Mixer circuit M2	
bE		Communication fault Vitotrol remote control unit, Mixer circuit M3	
C1	Boiler cools down	External safety device	■ Check the plug connections 150 ■ Check all external safety equipment ■ Check the fault message module

Faults with fault display at the programming unit (cont.)

Fault code	System characteristics	Cause	Check
E5	Control mode, max. pump speed	Communication fault variable speed heating circuit pump, heating circuit A1	Check coding address "E5"; check DIP switch settings on the heating circuit pump
E6		Communication fault variable speed heating circuit pump, heating circuit M2	
E7		Communication fault variable speed heating circuit pump, heating circuit M3	
E9	Control mode	Active fault message input at control module V	Check the device connected to the fault message input
EA		Communication fault Vitocom 100	Check connections and Vitocom 100
EE		Communication fault Control module V	Check connections and control module V
EF		Communication fault Expansion module Viessmann 2-wire BUS	Check the expansion module and connection cable
01	Boiler cools down	Burner fault	Check the burner
04		The high limit safety cut-out has responded or the fault message module is not properly plugged in	Check the high limit safety cut-out or the fault message module

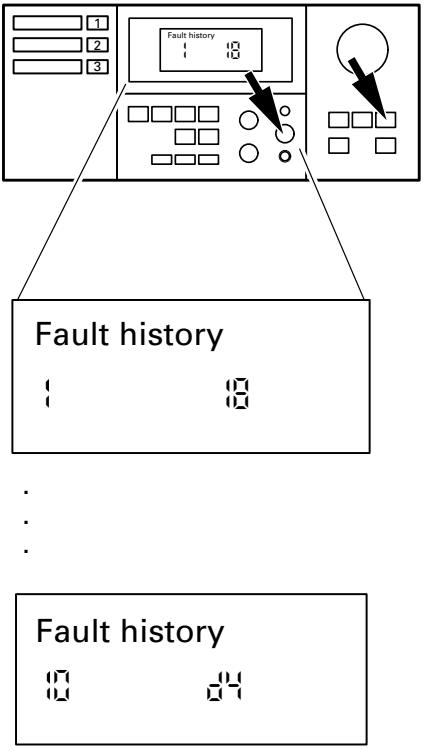
Faults with fault display at the programming unit (cont.)

Fault code	System characteristics	Cause	Check
09	Control mode without room influence	Short circuit Room temperature sensor, Heating circuit A1	Check the room temperature sensor (see page 89) and the DIP switch on Vitotrol (see page 84 and 86)
0b		Short circuit Room temperature sensor, Mixer circuit M2	
0C		Short circuit Room temperature sensor, Mixer circuit M3	
0d		Cable break Room temperature sensor, Heating circuit A1	
0E		Cable break Room temperature sensor, Mixer circuit M2	
0F		Cable break Room temperature sensor, Mixer circuit M3	
50 to 5F	Control mode	Viessmann 2 wire BUS user fault	Check the control unit with the indicated user number
70 to 7F			

5862 297 GB

Downloading fault codes from the fault memory (fault history)

All faults are saved and may be scanned.



1. Press ⌨ and OK simultaneously for approx. two seconds.

2. Call up the individual fault codes with ⊕ or ⊖.

Order of fault codes occurred	Fault code
1	Last fault code
⋮	⋮
10	10th last fault code

All saved fault codes can be deleted with ⊛.

3. Press OK.

5862 297 GB

Faults without fault display at the programming unit

Boiler cold, burner does not start

Set the emissions test switch to "✋"

■ **Pumps are not running** →
Check the supply voltage (mains isolator, mains supply cable, plug [40], ON switch, fuse F1, 6.3 A (slow).
If the F1, 6.3 A (slow) fuse has blown:
1. Disconnect all 230 V plugs (pumps, burner, mixer motors etc.).
2. Replace the F1 fuse.
3. To determine the faulty device, reconnect all 230 V in sequence, until the faulty device is located.

■ **Pumps are running** →
Is plug [41] live between L1 and N?

No	Yes	
Check plug [41], the burner connection cable and the high limit safety cut-out as well as any other limit switches (low water indicator, pressure switch, etc.).	The fault is unlikely due to the control unit, instead the burner connection area or the burner itself may be the cause: Is terminal T1 of plug [41] live when connected?	
	No	Yes
	Check any burner equipment (fuses, gas governor, etc.).	Press the TÜV key; the burner should then start in accordance with the delay time (e.g. oil pre-heating). If the burner is still not operating, repeat the previous checking steps. It may be that faulty accessories (motorised flue gas damper) prevent the burner from starting.

5862 297 GB

Faults without fault display at the programming unit (cont.)

Boiler water temperature too high or too low

Compare the actual and the set boiler water temperature

■ **Set value too high or too low →**
Check the settings of the time switch, the heating curves and the coding addresses.
Check the set value adjuster and the remote control (if installed):

1. Preselect a high day temperature and a low night temperature.
2. Set the time switch so, that in the next few minutes the system must change over between operation with standard room temperature and operation with reduced room temperature or vice-versa.
3. The changeover must affect a significant set value change for the boiler water temperature.
   – No noticeable change:
   Temporarily connect the remote control (incl. base) directly to the control unit and repeat the above test.
   – Set value now perfect:
   The fault lies with the on-site connection with the remote control.
   – Set value still too high or too low:
   Repeat the device setup and remote control checks.
   Possibly replace the remote control unit.

■ **Set value OK →**
The fault lies with temperature monitoring

1. Establish the boiler water temperature with a thermometer inside the sensor well.
2. Compare the values from the boiler temperature sensor with the resistance curve.
3. Check the switch-off point of the electro-mechanical thermostat.

Faults without fault display at the programming unit (cont.)

Boiler hot enough, but the heating circuit pumps will not run

Set the emissions test switch to "✋"

■ **Pumps are running** →
No pump control:
Check heating curves, set values and heating circuit pump logic, possibly also external hook-up (control module V, solid fuel boiler, etc.) or high DHW demand.

■ **Pumps are not running** →
Is plug [20] live between L and N?

No	Yes
Check fuse F2, 4 A (slow). If the fuse has blown: **1.** Pull the plugs off pumps and mixer motors. **2.** Replace the F2 fuse. **3.** Re-connect devices in sequence to determine which one is faulty. **4.** Repeat this test, if the fuse F2 remains intact, but the pump connections do not go "live". Possibly replace the main PCB.	**1.** Check pump connection and the pump. **2.** Check any additional control devices (e.g. maximum thermostat).

5862 297 GB

Boiler temperature control

Brief description

The boiler water temperature is regulated by starting and shutting down the burner.
In the "as delivered condition", the switching differential is ±2 K, relative to the current set value.
The set boiler water temperature is determined from the set flow temperature of the heating circuit with and without mixer and the set DHW temperature, and is subject to the installed boiler and the heating and control equipment.
When the DHW cylinder is loaded, a set boiler water temperature is applied, which lies 20 K above the set DHW cylinder value (adjustable via coding address "60"). The boiler water control is limited by control thermostat TR.
The actual boiler water temperature is required for the control of the heating circuits and the DHW cylinder.

Coding addresses that influence the boiler water temperature control
are 02. 03, 04, 05, 06, 13.
For a description, see the coding overview.

Functions

The boiler water temperature is recorded by three separate sensors, which are inserted into a multiple sensor well:
- High limit safety cut-out STB (liquid expansion)
- Control thermostat TR (liquid expansion)
- Boiler temperature sensor KTS (change in resistance PT 500)

Upper control range limits
- High limit safety cut-out STB 110/100/95 °C
- Control thermostat TR 75/87/95 °C
- Electronic maximum limit
  Setting range: 20 to 130 °C
  Changes via coding address "06".

  This limit is only effective within the control range (not for DHW cylinder loading).

Lower control range limits
- Vitocrossal:
  Frost protection control: at an outside temperature below 1 °C, the boiler water temperature will be regulated to at least 15/22 °C.
- Vitogas 100:
  Controls the boiler water temperature in standard mode and frost protection to 35/42 °C.
- Vitola, Vitorond:
  Controls the boiler water temperature in standard mode and with frost protection to 42 °C.

For changes see coding address "A3", variable frost limit.

5862 297 GB

Boiler temperature control (cont.)

Auxiliary circuits

- Two-stage/modulating burner:
  An extension can be connected for controlling a two-stage/modulating burner.
- External hooking up:
  The following external hook-ups can be implemented with the control module V:
  – Separate heating program changes for heating circuits

    Please note:
    The heating program changeover can be effected for one heating circuit or several heating circuits simultaneously via plug 143*, see coding address "91".*

  – External burner blocking
  – External burner start
  – External fault message input
  – Central fault message
  – External DHW circulation pump start (short operation)

Control sequence

Boiler goes cold
(set value –2 K)
The burner start signal is set to the set boiler water temperature –2 K, and the burner starts its own monitoring program.
The burner start may be delayed by a few minutes subject to the number of auxiliary circuits and the combustion type.

The boiler heats up (set value +2 K)
The burner shuts down.
Modulating burner:
The burner shutdown point is determined by the switch-off difference (coding address "13").

5862 297 GB

Heating circuit control

Brief description

The control unit provides control circuits for one heating circuit without mixer and two mixer circuits.
The set flow temperature of every heating circuit results from the outside temperature, the set room temperature, the operating mode and the heating curve.
The flow temperature of heating circuits without mixer is equal to the boiler water temperature.
The flow temperature of the mixer circuits is regulated by a stepped opening or closing of the mixer.

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

Coding addresses which influence the heating circuit control
7F,
A0 to F2.
For a description, see the coding overview.

Functions

The heating circuit without mixer is subject to the boiler water temperature and its control range limits.
The heating circuit pump is the only actuator. The mixer circuit flow temperature is recorded by the flow temperature sensor.

Time program
The control unit time switch changes in accordance with the times programmed in the heating program "Central heating and DHW" between the operating modes "Central heating with standard room temperature" and "Central heating with reduced room temperature". Every operating mode has its own set level.

Outside 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 the outside temperature. An average outside temperature is used for control purposes. This comprises the actual and the adjusted outside temperature.
See also "Adjusting the heating curve" page 33.

5862 297 GB

Heating circuit control (cont.)

Domestic hot water temperature

- With DHW priority:
  The set flow temperature will be set to 0 °C whilst the cylinder is being loaded.
  The mixer closes, and the heating circuit pumps are switched OFF.
- Without DHW priority:
  The heating circuit control unit continues to operate with the same set value.
- With modulating priority (only in conjunction with a mixer circuit):
  The heating circuit pump remains switched ON. The set flow temperature of the heating circuits will be reduced, for as long as the set boiler water temperature has not been reached during DHW cylinder loading. The set flow temperature is subject to the difference between the set and the actual boiler water temperature, the outside temperature, the heating curve slope and coding address "A2".

Room temperature
in conjunction with room temperature hook-up (observe coding address "b0")

Compared with the outside temperature, the room temperature has a greater influence on the set boiler water temperature. This influence may be changed via coding address "b2".
In conjunction with the mixer circuit:
In case of a control difference (actual value deviation) above 2 K room temperature, the influence can be increased again (via coding address "b6", quick heat-up/quick setback).

Quick heat-up:
The set room temperature must be raised by a minimum of 2 K by

- pressing the party key "⁋"
- changing from reduced mode to standard mode
- start-up optimisation

Quick heat-up will stop when the set room temperature has been reached.

Quick setback:
The set room temperature must be reduced by a minimum of 2 K by

- pressing the economy key "**S**"
- changing from heating mode to reduced mode
- shutdown optimisation

Quick setback will stop when the set room temperature has been reached.

Heating circuit pump logic (economy circuit)
The heating circuit pump is switched off (set flow temperature set to 0 °C), when the outside temperature exceeds the value selected via coding address "A5".

5862 297 GB

Heating circuit control (cont.)

Extended economy circuit
The heating circuit pump is switched OFF, and the set flow temperature is set to 0 °C, if

- the outside temperature exceeds the value selected via coding address "A6"
- the set room temperature is reduced via coding address "A9".
- in conjunction with the mixer circuit:
  the mixer has been closed for 12 minutes (mixer economy function, coding address "A7")

Screed drying function
(only in conjunction with a mixer circuit)

Please note:
Note DIN 4725 part 4.
Four different temperature profiles can be selected for drying the screed. These profiles are activated via coding address "F1".

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

Underfloor heating
(only in conjunction with a mixer circuit)

An additional return temperature sensor can be connected to achieve an optimum underfloor heating system. The control unit calculates a set return temperature. Changes are implemented, if the actual return temperature deviates from the set return temperature.
This temperature difference may be changed via coding address "C7".
When changing from central heating with reduced room temperature to "Central heating with standard temperature", the set flow temperature can be raised by 20 % for one hour via coding "C9:1".

System dynamics – mixer circuit
(only in conjunction with a mixer circuit)

You can influence the control characteristics of the mixer via coding address "C4".

Frost protection
When the outside temperature reaches below +1 °C, a flow temperature of 15 to 42 °C will be safeguarded (two-point control).
For changes see coding address "A3", variable frost limit.

5862 297 GB

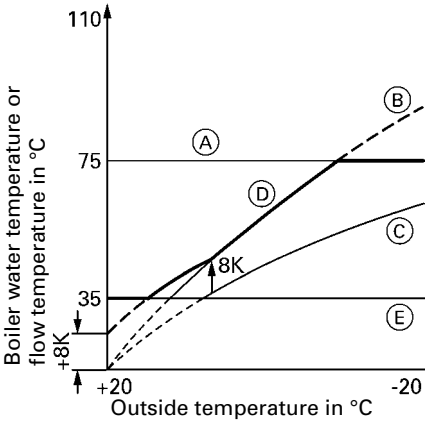
Heating circuit control (cont.)

Flow temperature control
Differential temperature:
The differential temperature may be adjusted via coding address "05"; as delivered condition: 8 K.

The differential temperature is that value by which the boiler water temperature should at least be higher than the currently required flow temperature of the mixer circuit.

- System with only one mixer circuit:
  The set boiler water temperature will be automatically controlled to 8 K above the set flow temperature.

- System with a heating circuit without mixer and with a mixer circuit:
  The set boiler water temperature operates in accordance with a special heating curve. The differential temperature of 8 K towards the set flow temperature is setup at the factory.



Ⓐ Max. boiler water temperature
Ⓑ Slope = 1.8 boiler circuit A1
Ⓒ Slope = 1.2 mixer circuit M2
Ⓓ Boiler water temperature (with a differential temp. = 8 K)
Ⓔ Lower boiler water temperature

Heating circuit control (cont.)

Upper control limit
Electronic maximum limit
Setting range: 1 to 127 °C
Changes via coding address "C6".

Please note:
The maximum limit is no replacement for the underfloor heating system high limit thermostat.

High limit thermostat for underfloor heating systems:
The high limit thermostat switches the heating circuit pump OFF, if the set value has been exceeded. In such cases, the flow temperature reduces only slowly, e.g. it may be several hours before the system restarts again automatically.

Lower control range limit
Electronic minimum limit
Setting range: 1 to 127 °C
Changes via coding address "C5".

Control sequence

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

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

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

Special conditions
After every new start of the control unit, a relay test is implemented in the extension kit:
- Mixer operates for approx. 150 s in position "Close"; heating circuit pump operates for approx. 10 s
- Mixer operates approx. 10 s in position "Open"
- Mixer operates approx. 10 s in position "Close"
- Standard control mode.

5862 297 GB

DHW cylinder temperature control

Brief description

The DHW cylinder temperature control operates at a constant temperature. It is the result of starting and stopping the circulation pump for DHW cylinder loading. The switching differential is ±2.5 K.

Whilst the cylinder is being loaded, a constant upper boiler water temperature is set, and central heating is switched off (optional DHW cylinder priority).

Coding addresses that influence the boiler water temperature control
are 55, 56, 58 to 62, 64, 66, 70 to 75, 7F, A2.
For a description, see the coding overview.

Functions

Time program
An automatic program or an individual time program may be selected for heating DHW and the control of the DHW circulation pump. Compared with the heating circuit heat-up phase, DHW heating starts 30 minutes earlier in automatic mode.
The individual time program enables up to four switching periods per day to be set via the time switch to control the DHW heating and the DHW circulation pump.
Any cylinder loading sequence will be completed, independent of the time program.

Frost protection
The DHW cylinder will be heated to 20 °C if the DHW temperature falls below 10 °C.

Auxiliary functions – DHW heating
This function is activated by providing a second set DHW temperature via coding address "58", and activating the 4th DHW phase for DHW heating.

5862 297 GB

DHW cylinder temperature control (cont.)

In conjunction with coding address "7F"
"7F:1" Detached house:
- Automatic operation
  For systems with two or three heating circuits, the heating times for heating circuit 1 are applied.
- Individual time program
  The switching times for DHW loading and the DHW circulation pump have the same effect on all heating circuits.

"7F:0" Multi-occupancy house:
- Automatic operation
  For systems with two or three heating circuits, the heating times for the respective heating circuit will be applied.
- Individual time program
  The switching times for DHW loading can be adjusted separately for each heating circuit.

Set DHW temperature
The set DHW temperature can be adjusted between 10 and 60 °C. The set range can be expanded to 95 °C via coding address "56".
You can select the set DHW temperature at the programming unit of the control unit and at the Vitotrol 300 remote control (if installed).
You can determine the allocation to individual heating circuits via coding address "66".

DHW circulation pump
This delivers hot water to the draw-off points at adjustable times. Up to four control periods can be set at the time switch.

Auxiliary circuits
DHW heating can be blocked or enabled by changing over the heating program. An external contact in conjunction with control module V can be used to briefly select the DHW circulation pump. The time may be adjusted via coding address "74".

5862 297 GB

DHW cylinder temperature control (cont.)

Control sequence

DHW cylinder goes cold
(set value –2.5 K, adjustable via coding address "59")

The set boiler water temperature is adjusted 20 K higher than the set DHW temperature (adjustable via coding address "60").

- Circulation pump start subject to boiler temperature for loading the DHW cylinder (coding "61:0"):
  The circulation pump starts, when the boiler water temperature is 7 K higher than the DHW temperature.
- Immediate start of the circulation pump for loading the DHW cylinder (coding "61:1").

DHW priority

- With DHW priority:
  (coding "A2:2"):
  The set flow temperature will be set to 0 °C whilst the cylinder is being loaded.
  The mixer closes, and the heating circuit pumps are switched OFF.
- Without DHW priority:
  The heating circuit control unit continues to operate with the same set value.
- With modulating DHW priority (only in conjunction with a mixer circuit):
  The heating circuit pump remains switched ON. The set flow temperature of the heating circuits will be reduced, for as long as the set boiler water temperature has not been reached during DHW cylinder loading. The set flow temperature is subject to the difference between the set and the actual boiler water temperature, the outside temperature, the heating curve slope and coding address "A2".

5862 297 GB

DHW cylinder temperature control (cont.)

The DHW cylinder is hot
(set value +2.5 K)

The set boiler water temperature is returned to the weather-compensated value.

Pump run-on
- The circulation pump for DHW cylinder loading runs on after cylinder loading, until
  - the difference between the boiler water and the DHW temperature is less than 7 K or
  - the weather-compensated set boiler water temperature is achieved or
  - the set DHW temperature has been exceeded by 5 K.

  The pump can run on for a max. of 15 minutes (adjustable via coding address "62").
- Without the circulation pump running on for cylinder loading (Coding "62:00")

DHW priority
(coding "A2:2"):
The set flow temperature is returned to the weather-compensated value. The heating circuit pumps are started and the mixer is set to control function.

Adaptive DHW heating
(coding "55:1"):
With adaptive cylinder loading, the speed of the temperature rise when heating DHW is taken into account.

Also taken into account is the question of whether the boiler will be required to supply heat after the cylinder has been loaded or whether residual boiler heat should be transferred to the DHW cylinder. Accordingly, the control unit determines the burner and circulation pump shutdown point to prevent the set DHW temperature being substantially exceeded after the cylinder has been loaded.

Components from the parts list

For parts list see page 124.

Main PCB

The main PCB comprises:
- Relay for selecting pumps and burner
- Connections for sensors, actuators, burner and mains connection for accessories
- Fuse F2, 4A (slow)

Printed circuit board

All data is processed and outputs (relay) are selected.

Power supply unit PCB

The power supply unit PCB comprises the low voltage supply for all electronic equipment.

Fault message module

Faults (high limit safety cut-out responded, broken safety chain) are indicated in the display, and the central fault display output on control module V (accessory) is activated.

Front panel with heating circuit selector keys

Display and selection of the heating circuit.

Optolink/emissions test switch PCB

The PCB comprises:
- Burner standby display
- Fault display
- Optolink laptop interface
- Emissions test switch

Emissions test switch for testing flue gas with briefly raised boiler water temperature.
The following functions are triggered in position "✋":
- Burner start
  (may be delayed through fuel oil pre-heating, Vitoair draught stabiliser or flue gas damper)
- Starting all pumps
- Mixer remains set to control function
- Control of the boiler water temperature by the "🌡" control thermostat

Fuses

F1: 6.3 A (slow), 250 V,
max. power loss ≦ 2.5 W,
to protect the total device, burner, pumps and electronics

F2: 4 A (slow), 250 V,
max. power loss ≦ 1.6 W,
to protect the pumps and the mixer motor

5862 297 GB

Components from the parts list (cont.)

TÜV key

For testing the high limit safety cut-out.
For a description see page 31.

Programming unit

Control unit	Programming unit
7450 760	7820 171
7450 761	7820 170
7450 762	7820 169
7450 763	7820 168

Adjusting the:
- Heating program
- Set values
- Switching times
- Heating curve (slope and level)
- Date
- Time
- Economy and party mode

Displaying:
- Temperatures
- Operating conditions
- Faults

High limit safety cut-out

- Type STB 56.10525.570, Messrs. EGO, DIN STB 10602000
  or
  EM-80-V/b7-1 60002843, Messrs. Juchheim, DIN STB 82699
- Set to 110 °C in the as delivered condition, adjustable to 100 °C (see page 15)
- Electromechanical temperature switch according to the liquid expansion principle with lockout
- Intrinsically safe; also lockout in case of capillary tube leaks or ambient temperatures below –10 °C
- Limits the boiler water temperature to the maximum permissible value by shutdown and lockout
- Central fixing M 10, capillary tube 1600 mm long, probe ∅ 3 mm, 180 mm long
- Tests:
  Electrical according to VDE 0701 or local regulations
  Effectiveness via TÜV key

5862 297 GB

Components from the parts list (cont.)

Control thermostat

- Type TR 55.18015.050, Messrs. EGO, DIN TR11032002
  or
  EM-1/b1; 60002847, Messrs. Juchheim, DIN TR 77798
- Set to 75 °C in the "as delivered condition", adjustable to 87 and 95 °C (see page 17)

⚠ ***Safety instruction***
Adjust downwards at least 20 K higher than the DHW temperature, upwards at least 15 K lower than the high limit safety cut-out.

- Electromechanical temperature switch according to the liquid expansion principle
- Controls the maximum boiler water temperature (e.g. in emission test mode)
- Setting axis flattened by 6 mm, setting button pushed onto the front of the axis
- Capillary tube 1600 mm long
  Probe ∅ 3 mm, 180 mm long
- Tests:
  Electrical according to VDE 0701 or local regulations
  Effectiveness via emissions test mode

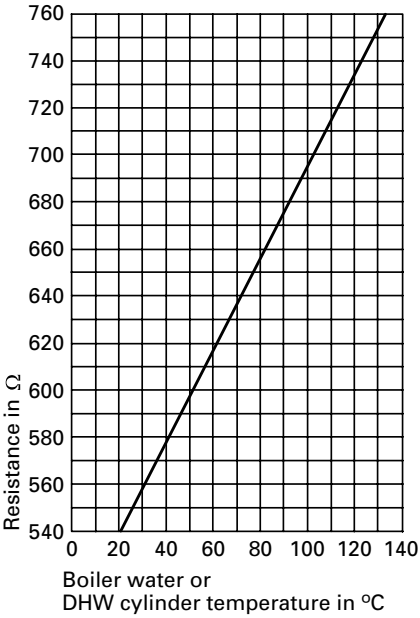
Expansion module Viessmann 2-wire BUS

PCB for data exchange with additional heating circuit control units Vitotronic 050 or solar heating controllers, as well as for connecting to overriding management systems via Vitocom 200 or 300.
Rotary selector S1 must be set to 1.

5862 297 GB

Components from the parts list (cont.)

Boiler temperature sensor and cylinder temperature sensor



Connection
See page 19.

Checking the sensor
1. Pull plug 3, 5 or 5 B off.

2. Check the sensor resistance at terminals "1" and "2" of the plug.

Boiler water or DHW cylinder temperature in °C	Resistance in Ω
40	578
50	597
60	616

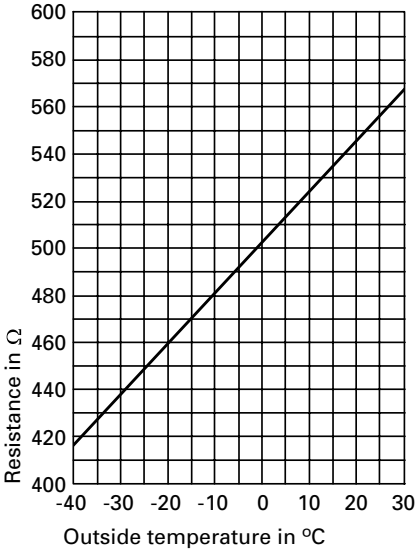
3. Compare measurement with the actual temperature displayed (for scanning, see page 37).
Check the installation and replace sensor, if necessary, in case of severe deviation.

Specification
Protection level: IP 32
Permissible ambient temperature
- during operation
  - boiler temperature sensor: 0 to + 130 °C
  - DHW cylinder temperature sensor: 0 to + 90 °C
- in storage and transport: –20 to + 70 °C

5862 297 GB

Components from the parts list (cont.)

Outside temperature sensor



Connection
See page 19.

Checking the outside temperature sensor

1. Pull plug [1] off.

2. Check the sensor resistance at terminals "1" and "2" of the plug.

Outside temperature in °C	Resistance in Ω
–10	480
0	500
20	546

3. Disconnect wires from the sensor, if actual values deviate severely from the curve. Repeat sensor measurements and compare with the actual temperature (for scanning see page 37).

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

5. Scan actual temperature (see page 37).

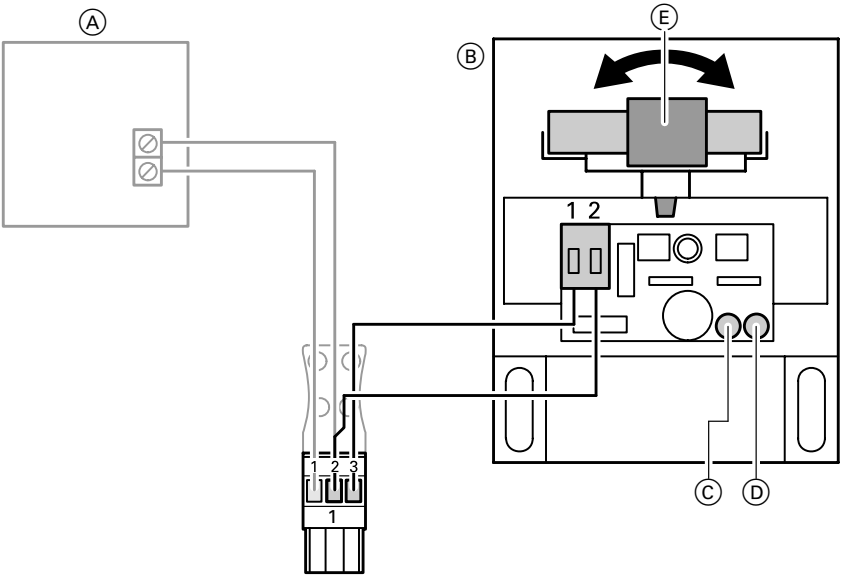
Specification

Protection:	IP 43
Permissible ambient temperature in use, during storage and transport:	–40 to +70 °C

5862 297 GB

Radio clock receiver, part no. 7450 563

The radio clock receiver provides fully automatic time setting for the control unit and remote control (if connected).



Ⓐ Outside temperature sensor
Ⓑ Radio clock receiver
Ⓒ Green LED
Ⓓ Red LED
Ⓔ Aerial

Connection
2-core cable with a maximum length of 35 m and a cross-section of 1.5 mm^2 (copper).

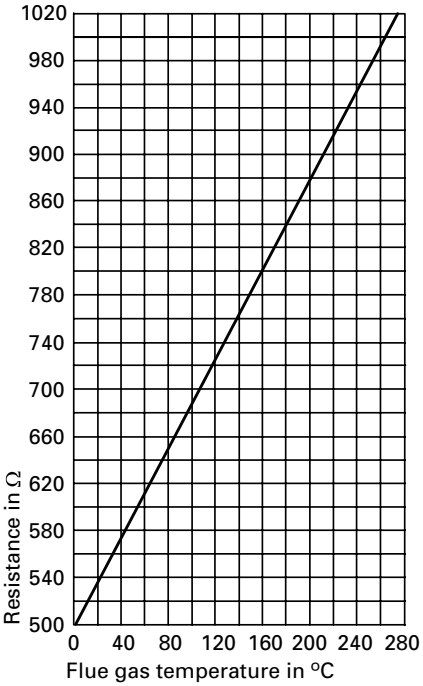
Check reception
During reception the green LED on the radio clock receiver flashes. When the red LED flashes, rotate the aerial until reception is confirmed by the flashing of the green LED.

Specification

Protection:	IP 43
Permissible ambient temperature in use, during storage and transport:	–40 to +70 °C

5862 297 GB

Flue gas temperature sensor, part no. 7450 630



Connection
The sensor is plugged into socket "15" at the control unit.

Checking the flue gas temperature sensor

1. Pull plug 15 off.

2. Check the sensor resistance at terminals "1" and "2" of the plug.

Flue gas temperature in °C	Resistance in Ω
80	650
160	800
200	880

3. Compare measurement with the actual temperature displayed (for scanning, see page 37).
In case of severe deviation, check the installation and replace sensor, if necessary.

Specification

Protection level: IP 60
Permissible ambient temperature
- in operation: 0 to + 600 °C
- in storage and transport: –20 to + 70 °C

Mixer circuit extension kit

For wall mounting, separate mixer motor, part no. 7450 059
For mixer installation, incl. mixer motor, part no. 7450 069

Flow temperature sensor

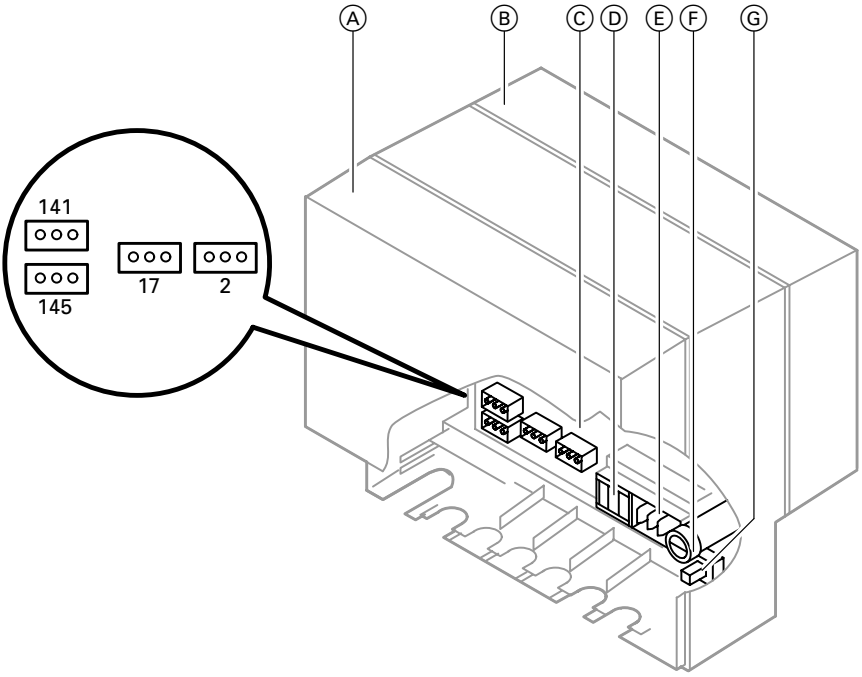
See page 81.

5862 297 GB

Mixer circuit extension kit (cont.)

Mixer extension

Electrical connections summary



Ⓐ Mixer extension
Ⓑ ■ Mixer motor for part no. 7450 069
■ Wall mounting base for part no. 7450 059
Ⓒ Main PCB
Ⓓ Socket for heating circuit pump via plug [20] 230 V~ 50 Hz
Ⓔ Socket for mains connection via plug [40] 230 V~ 50 Hz
Ⓕ Fuse F1
Ⓖ ON/OFF switch

Low voltage connections

[2] Flow temperature sensor
[17] Return temperature sensor (accessory)
[141] No function
[145] KM BUS for communication with the control unit

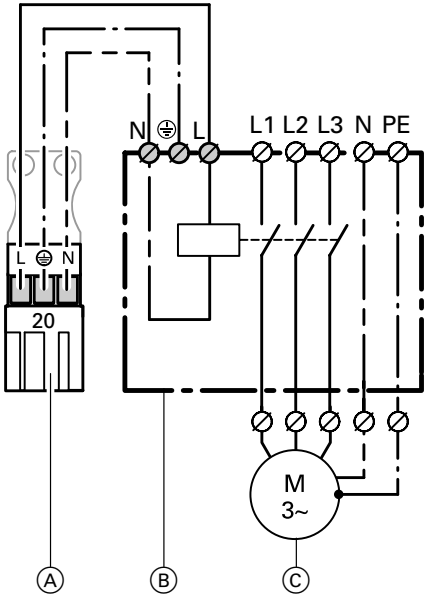
5862 297 GB

Mixer circuit extension kit (cont.)

Pump connection 230 V~

Ⓐ To the extension kit

Pump connection 400 V~



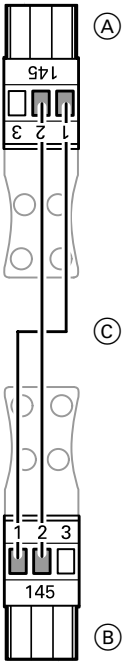
Ⓐ To the extension kit
Ⓑ Contactor
Ⓒ Three-phase pump

Specification see page 20.

5862 297 GB

Mixer circuit extension kit (cont.)

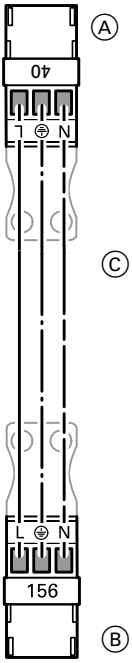
Control unit connection



Ⓐ To the extension kit
Ⓑ To the control unit or to the KM BUS distributor
Ⓒ KM BUS cable

Please note:
Use KM BUS distributor (see page 93) when connecting several BUS users.

Mains electrical connection



Ⓐ To the extension kit
Ⓑ To the control unit or the mains distributor
Ⓒ Mains cable

Please note:
Use the mains distributor when using two extension kits (see page 94).

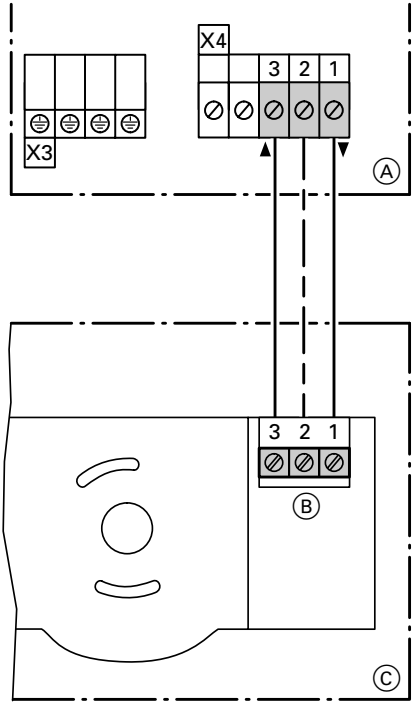
5862 297 GB

Mixer circuit extension kit (cont.)

Mixer motor, part no. 7450 657

(only when using the extension kit, part no. 7450 059)

The mixer motor is a synchronous single phase motor with reversible rotation, together with gearbox and two limit switches.



Specification

Rated voltage:	230 V~
Rated frequency:	50 Hz
Power consumption:	4 W
Protection level:	IP 42
Torque:	3 Nm
Operating time for 90º∢:	120 s

Ⓐ Wall mounting fixture – extension kit
Ⓑ Plug in mixer motor
Ⓒ Mixer motor
▲ Mixer open
▼ Mixer closed

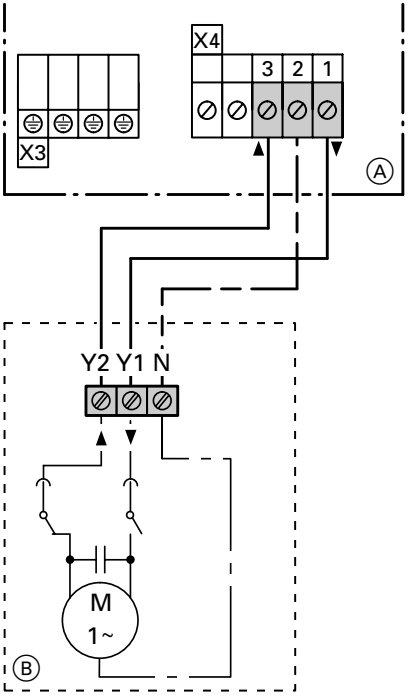
5862 297 GB

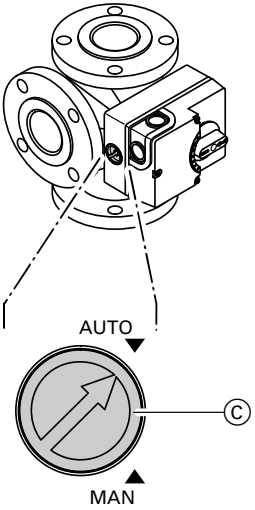
Mixer circuit extension kit (cont.)

Mixer motor, part no. 9522 487

(only when using the extension kit, part no. 7450 059)

The mixer motor is a synchronous single phase motor with reversible rotation, together with gearbox and two limit switches.





Ⓐ Wall mounting fixture – extension kit
Ⓑ Mixer motor
▲ Mixer open
▼ Mixer closed
Ⓒ Coupling switch

Specification

Rated voltage:	230 V~
Rated frequency:	50 Hz
Power consumption:	3 W
Protection level:	IP 42
Torque:	5 Nm
Operating time for 90° ⊀:	135 s

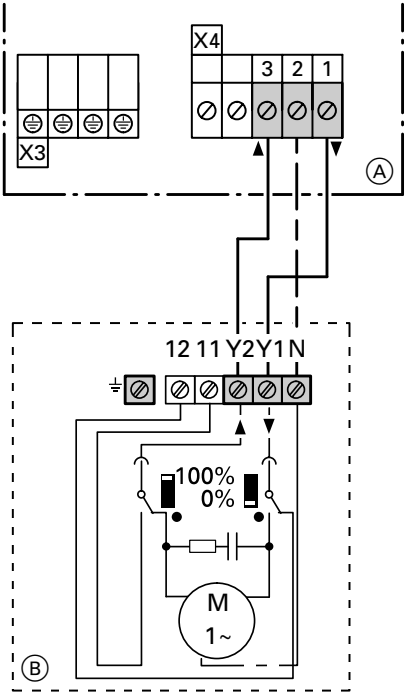
5862 297 GB

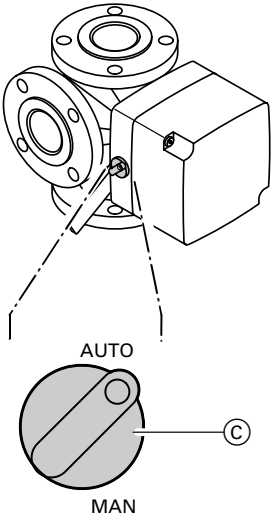
Mixer circuit extension kit (cont.)

Mixer motor, part no. 9522 488

(only when using the extension kit, part no. 7450 059)

The mixer motor is a synchronous single phase motor with reversible rotation, together with gearbox and two limit switches.





Ⓐ Wall mounting fixture – extension kit
Ⓑ Mixer motor
▲ Mixer open
▼ Mixer closed
Ⓒ Coupling switch

Specification

Rated voltage:	230 V~
Rated frequency:	50 Hz
Power consumption:	4 W
Protection level:	IP 42
Torque:	12 Nm
Operating time for 90° ∢:	125 s

5862 297 GB

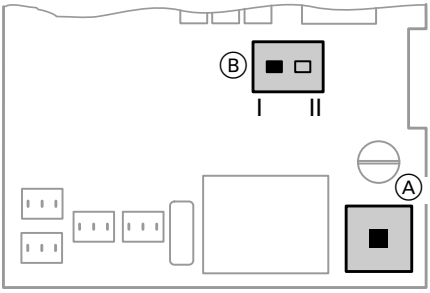
Mixer circuit extension kit (cont.)

Changing the rotational direction

- For the installation examples on page 79 and
- for systems with Modular Divicon

the rotational direction **must** be changed.

⚠ ***Safety instruction***
Switch OFF the mains power supply before opening the device.
Switching the mains switch on the mixer extension OFF is ***not safe enough****.*



Ⓐ ON/OFF switch
Ⓑ Rotational direction switch on the main PCB

1. Open mixer extension.
Rotational direction switch:
Position I:
As delivered condition
Position II:
Change the rotational direction

2. Close mixer extension.

3. Rotational direction:
Switch ON the mains power supply and the main switch; the device then implements a relay test.

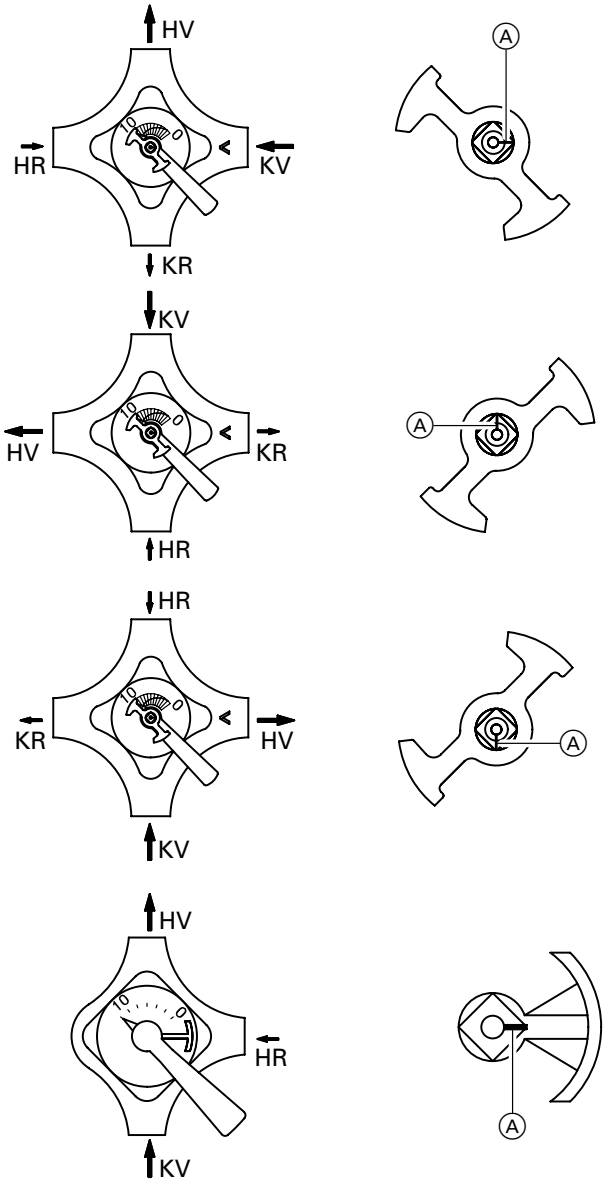
Relay test
- The mixer operates for approx. 150 s in position "Close"; the heating circuit pump operates for approx. 10 s
- The mixer operates approx. 10 s in position "Open"
- The mixer operates approx. 10 s in position "Close"
- Standard control mode

Please note:
A relay test is implemented every time the system is switched ON.

5862 297 GB

Mixer circuit extension kit (cont.)

Change the rotational direction for these installation examples (see page 78).



Ⓐ Marking notch
HR Central heating return
HV Central heating flow
KR Boiler return
KV Boiler flow

5862 297 GB

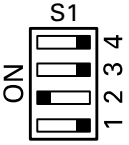
Mixer circuit extension kit (cont.)

Coding

(DIP switches on the main PCB of the mixer extension)

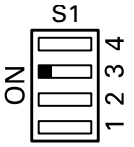
S1.4 must **always** be set to "OFF".

Affects mixer circuit M2

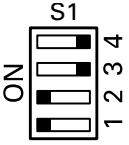


As delivered condition

When connecting a return temperature sensor
S1.3 to "ON"



Affects mixer circuit M3
S1.1 to "ON"



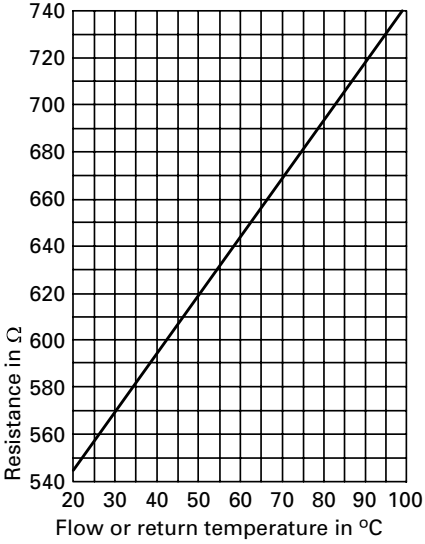
Specification

Rated voltage:	230 V~
Rated frequency:	50 Hz
Rated current:	4 A~
Power consumption:	2.5 W
Safety class:	I
Test class:	II
Protection:	IP 42
Function:	Type 1 B acc. to EN 60730-1
	Permissible ambient temperature
■ in operation:	0 to +40 °C
	Installation in living accommodation and boiler rooms (normal ambient conditions)
■ in storage and transport:	–20 to +65 °C
Rated capacity of relay outputs at 230 V~ for	
■ Heating circuit pump [20]:	4(2) A~
■ Mixer motor:	0.2(0.1) A~
■ Total :	max. 4 A~

5862 297 GB

Contact temperature sensor, part no. 7450 642

For recording the flow and return temperature.



Connection
The sensor is plugged into socket "2" or "17" of the mixer extension.

Check sensor

1. Pull plug [2] or [17] off.

2. Check the sensor resistance at terminals "1" and "2" of the plug.

Flow or return temperature in °C	Resistance in Ω
30	569
40	592
60	643

3. Compare measurement with the actual temperature displayed (for scanning, see page 37).
Check the installation and replace sensor, if necessary, in case of severe deviation.

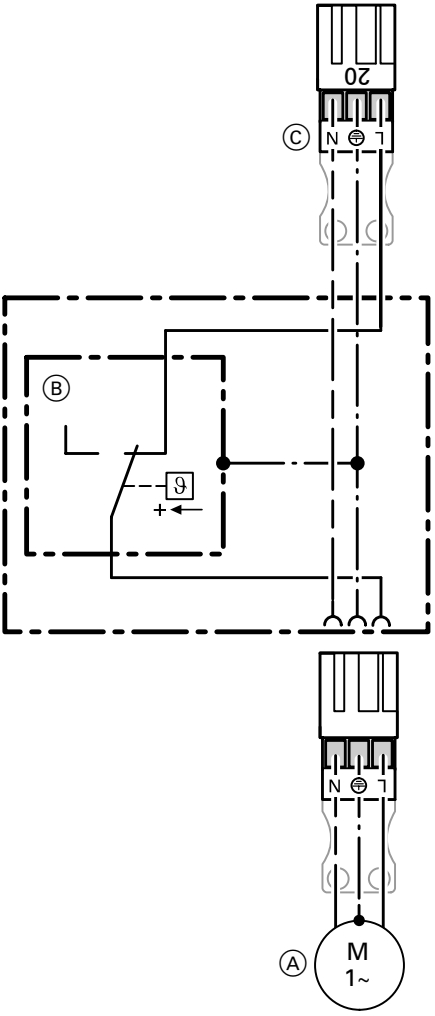
Specification

Protection level: IP 32
Permissible ambient temperature
- in operation: 0 to +100 °C
- during storage and transport: –20 to +70 °C

5862 297 GB

High limit thermostat for limiting the maximum temperature

Immersion thermostat, part no. 7151 728
Contact thermostat, part no. 7151 729



Electromechanical high limit thermostat according to the liquid expansion principle.
Switches OFF when the set heating circuit pump value is exceeded.

Specification

Setting range:	30 to 80 °C
Connection terminals:	Screw terminals for 1.5 mm^2
Switching differential	
■ Immersion thermostat:	max. 11 K
■ Immersion thermostat:	max. 14 K
DIN reg. no.:	DIN TW 779 98

Ⓐ Heating circuit pump
Ⓑ Control thermostat (high limit thermostat)
Ⓒ Plug 20 of the thermostat (high limit) to the extension kit

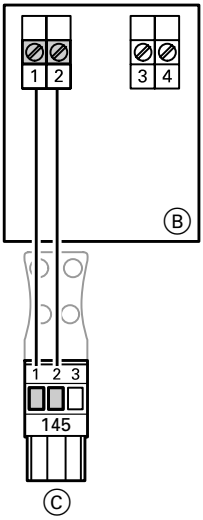
5862 297 GB

Remote control

Vitotrol 200, part no. 7450 017

(with integral room temperature sensor for hooking up room temperature in conjunction with a mixer circuit)
Setting the:
- Day temperature,
- Heating program,
- Economy and party mode.

Function changes can be effected via coding addresses "A0", "b0" to "b10", "C0" to "C2", "E1" and "E2" (see overview).

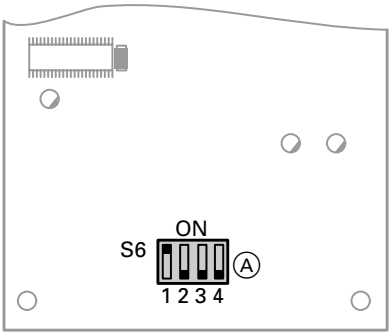


Connection
2-core cable (total cable length max. 50 m)

Ⓑ Wall mounting fixture for Vitotrol 200
Ⓒ To the control unit or to the KM BUS distributor

5862 297 GB

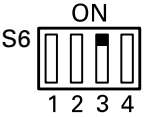
Remote control (cont.)



Ⓐ PCB DIP switches
(rear of the top of the case)

Remote control affects	**Coding switch setting**
System circuit A1 (Heating circuit selection key 1)	As delivered condition ON 1 2 3 4
Mixer circuit M2 (Heating circuit selection key 2)	ON 1 2 3 4
Mixer circuit M3 (Heating circuit selection key 3)	ON 1 2 3 4

When connecting a separate room temperature sensor, set DIP switch "S6.3" to "ON".



Specification

Power supply via KM BUS.
Safety class: III
Protection level: IP 30
Permissible ambient temperature
- in operation: 0 to +40 °C
- during storage and transport: –20 to +65 °C

Setting range for set room temp.: 10 to 30 °C; adjustable from 3 to 23 °C or 17 to 37 °C via coding address "E1"

Setting the reduced set room temperature at the control unit.

5862 297 GB

Remote control (cont.)

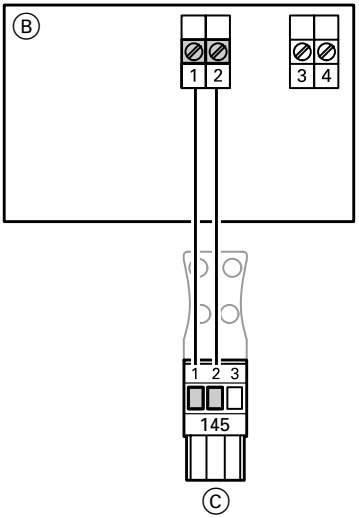
Vitotrol 300, part no. 7450 790

(with integral room temperature sensor for hooking up room temperature in conjunction with a mixer circuit)

Setting the:

- Day and night temperature,
- DHW temperature,
- Heating program,
- Holiday program,
- Switching times,
- Economy and party mode.

Function changes can be effected via coding addresses "A0", "b0" to "b10", "C0" to "C2", "E1" and "E2" (see overview) .

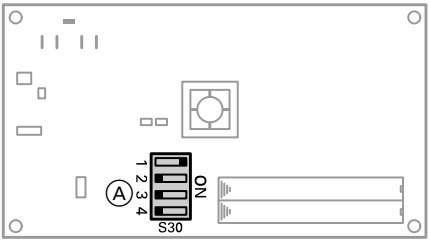


Connection
2-core cable (total cable length max. 50 m)

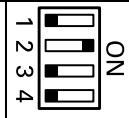
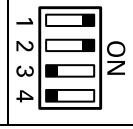
Ⓑ Wall mounting fixture for Vitotrol 300
Ⓒ To the control unit or to the KM BUS distributor

5862 297 GB

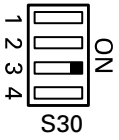
Remote control (cont.)



Ⓐ PCB DIP switches
(rear of the top casing)

Remote control affects	Coding switch setting
System circuit A1 (Heating circuit selection key [1])	As delivered condition 
Mixer circuit M2 (Heating circuit selection key [2])	
Mixer circuit M3 (Heating circuit selection key [3])	

When connecting a separate room temperature sensor, set DIP switch "S30.3" to "ON".



Specification

Power supply via KM BUS.
Safety class: III
Protection level IP 30
Permissible ambient temperature
- in operation: 0 to +40 °C
- during storage and transport: –20 to +65 °C

Setting range for
- standard set room temperature: 10 to 30 °C; adjustable from 3 to 23 °C or 17 to 37 °C via coding address "E1"
- reduced set room temperature: 3 to 37 °C

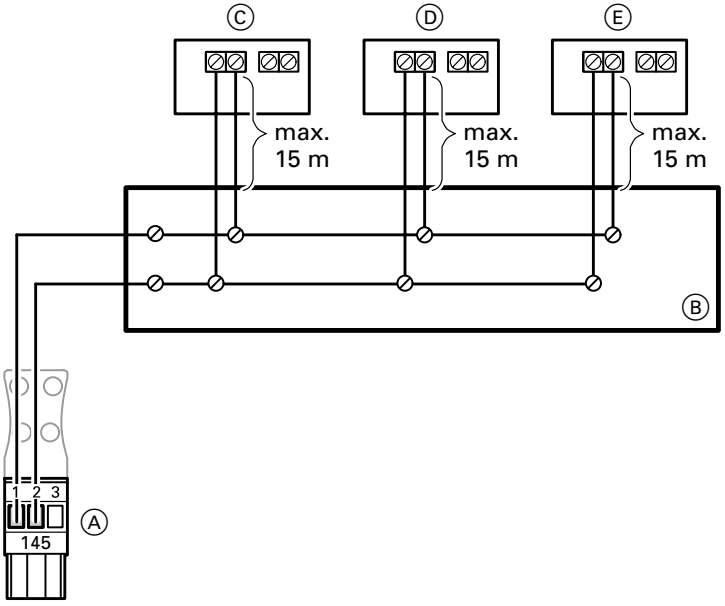
5862 297 GB

Remote control (cont.)

Connecting several remote control units

When you connect several remote control units to the control unit, use the KM BUS distributor, part no. 7415 028, which is available as accessory, or use a socket (on-site provision).

Version 1



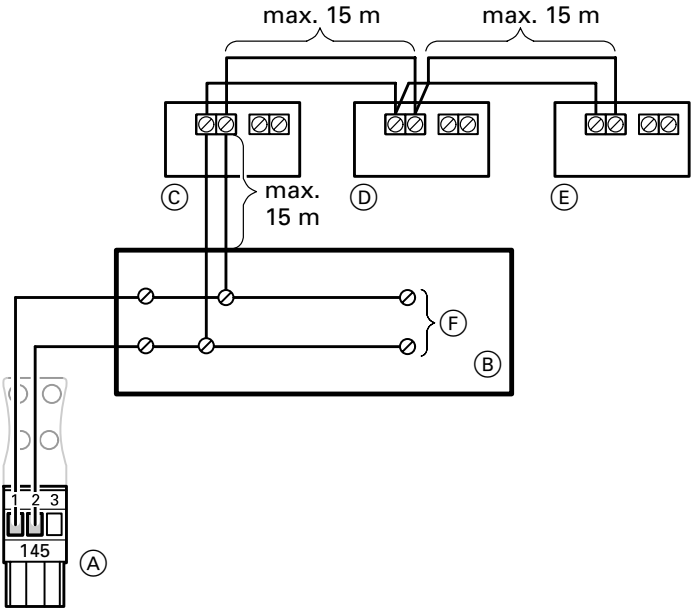
Ⓐ To the control unit or to the KM BUS distributor
Ⓑ Socket (on site)
Ⓒ Vitotrol 1
Ⓓ Vitotrol 2
Ⓔ Vitotrol 3

- If, apart from the remote control units, no further BUS users are connected, insert plug 145 of each remote control into the KM BUS distributor.
- On-site connection via socket: Connect in accordance with the diagram.
- The total length of all KM BUS cables should be limited to 50 m.

5862 297 GB

Remote control (cont.)

Version 2



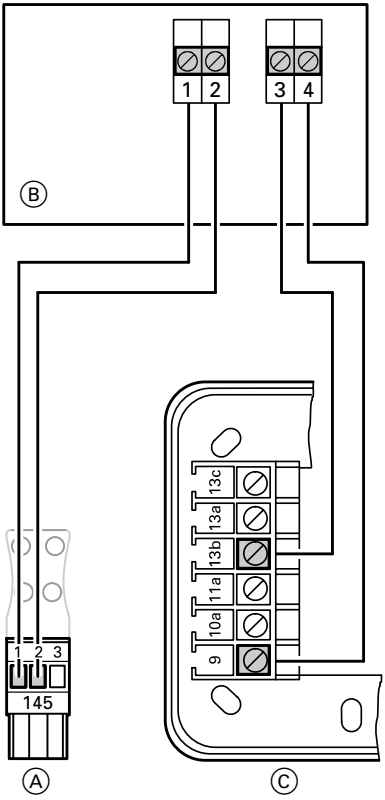
Ⓐ To the control unit or to the KM BUS distributor
Ⓑ Socket (on site)
Ⓒ Vitotrol 1
Ⓓ Vitotrol 2
Ⓔ Vitotrol 3
Ⓕ Further KM BUS users

- If several remote control units and additional KM BUS users are connected, make the connections via a socket (on-site) as shown in the diagram.
- The total length of all KM BUS cables should be limited to 50 m.

5862 297 GB

Room temperature sensor, part no. 7408 012

The room temperature sensor measures the actual room temperature, if the remote control unit cannot be installed in a suitable location.



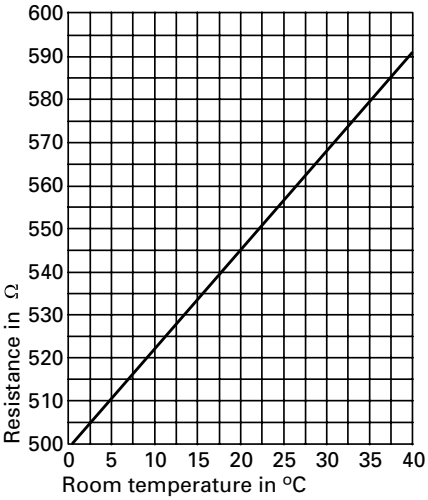
Ⓐ To the control unit
Ⓑ Remote control
Ⓒ Room temperature sensor

Connection
2-core cable with a maximum length of 35 m and a cross-section of 1.5 mm^2 (copper).

Set DIP switch 3 on the remote control unit to "ON"
(see pages 84 and 86).

5862 297 GB

Room temperature sensor, Part no. 7408 012 (cont.)



Check the room temperature sensor

1. Disconnect the wires from the sensor.

2. Check the sensor resistance at terminals "9" and "13b".

Room temperature in °C	Resistance in Ω
10	522
15	534
25	557

3. Compare measurement with the actual temperature displayed (for scanning, see page 37).
   In case of severe deviation, check the installation and replace sensor, if necessary.

Specification

Protection level: IP 30

Permissible ambient temperature

- in operation: 0 to + 40 °C
- in storage and transport: –20 to +65 °C

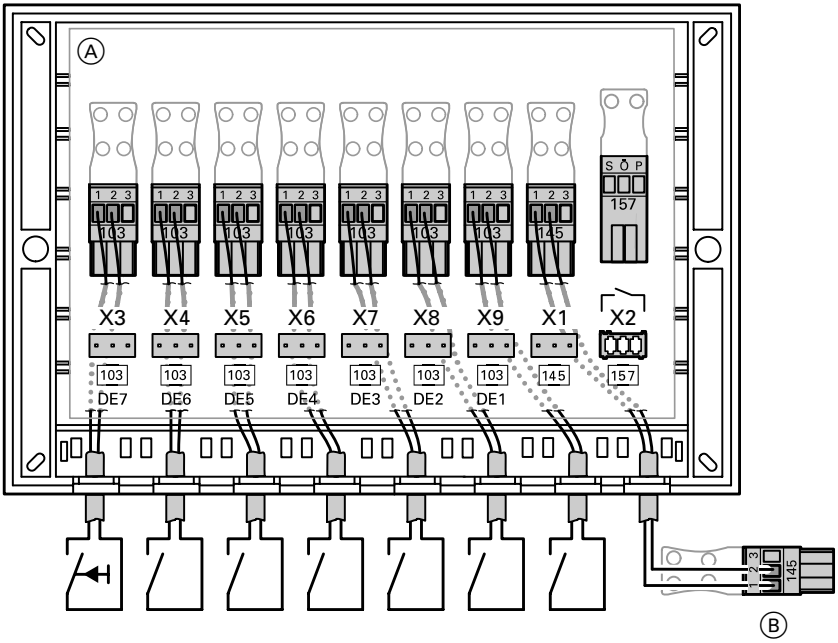
Plug 150, Part no. 7819 028

For the connection of external safety equipment, see page 21.

5862 297 GB

Control module V, part no. 7143 513

Control module V for functional expansion of the control unit.
Observe the coding addresses "32", "33" and "74" (see overview).
Control module V is recognised automatically by the control unit (coding "94:2").



Ⓐ Control module V terminal arrangement box
Ⓑ To the control unit

⚠ *Do **not** alter the allocation of connections to sockets in control module V.*

145 KM BUS
157 Central fault message
Nominal relay rating:
1(0.5) A 230 V~

5862 297 GB

Control module V, Part no. 7143 513 (cont.)

Plug 103

DE1 External heating program change for heating circuits without mixer
Closing the contact changes the boiler circuit to constantly reduced mode.

DE2 External heating program change for mixer circuit M2
Closing the contact changes mixer circuit M2 to constantly reduced mode.

DE3 External burner blocking
This function only affects the burner. Burner start is blocked, if the contact is closed. The burner will also not be started in case of "External demand" and when the actual temperature falls below the lower boiler water temperature.

⚠ *Frost protection for boiler and heating system are not safeguarded when this contact is closed.*

DE4 External burner demand (min. set boiler water temp.)
The minimum set boiler water temp. of 70 °C, which is adjusted via coding address "32", will be maintained.
The external demand with or without heating circuit priority can be set via coding address "33".
Two-stage or modulating burners are started subject to load demand.

DE5 External burner demand (2nd stage)
When an external demand is signalled, the burner starts with full load and constant boiler water temperature, which is limited by the control thermostat.

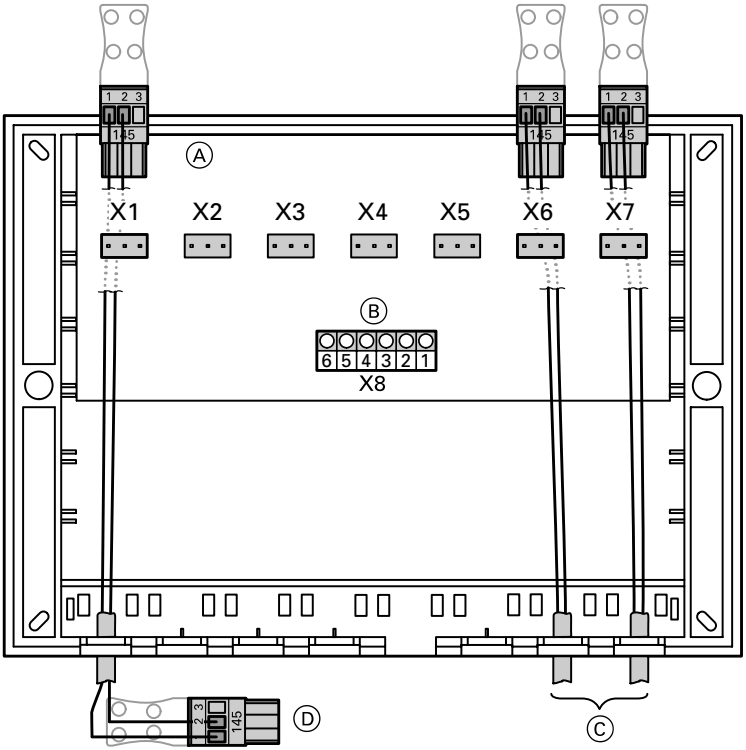
DE6 External fault message input
The control unit displays the fault code "C9", and the red fault indicator in the control unit flashes, if the fault message contact is closed. The volt-free central fault message contact 157 is switched on. Any central fault message centre connected to 50 of the control unit will also be switched ON.

DE7 Short-term operation of the circulation pump
Closing this contact starts the DHW circulation pump for an adjustable period of time. The operating time may be adjusted via coding address "74".

5862 297 GB

KM BUS distributor, part no. 7415 028

The connection between the control unit and the remote control, the remote monitoring equipment and control module V is provided by the KM BUS distributor.

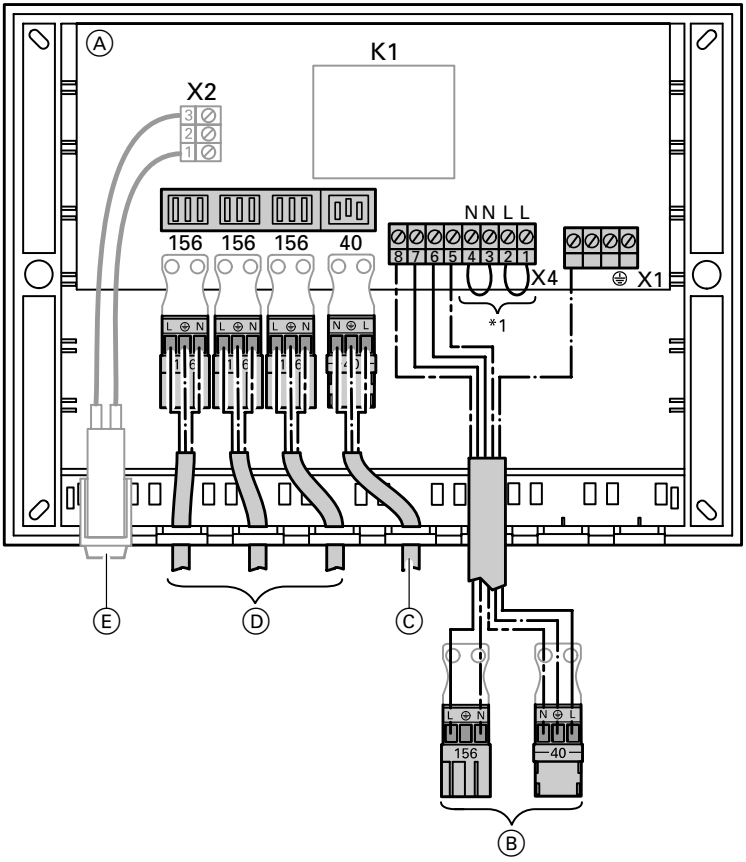


Ⓐ KM BUS distributor arrangement box
Ⓑ Terminals for the connection of additional KM BUS users (connection at terminals "X8.1" and "X8.2", "X8.3" and "X8.4" or "X8.5" and "X8.6")
Ⓒ Accessory connections (sockets "X2" to "X7")
Ⓓ To the control unit

5862 297 GB

Mains power distributor, part no. 7415 030

Mains distributor to supply electrical accessories.
The ON/OFF switch on the control unit isolates the equipment connected via the mains distributor.



Ⓐ Connection chamber – mains distributor
Ⓑ To the control unit (mains supply connection of the control unit)
Ⓒ Mains power connection for the mains distributor, 230 V ~ 50 Hz (mains cable of the control unit)
Ⓓ Accessory connections
Ⓔ Fuses

[1]Remove the jumper, if a mains isolator is connected to these terminals.

5862 297 GB

Boiler coding card

To match the control unit function to the boiler (see page 18).

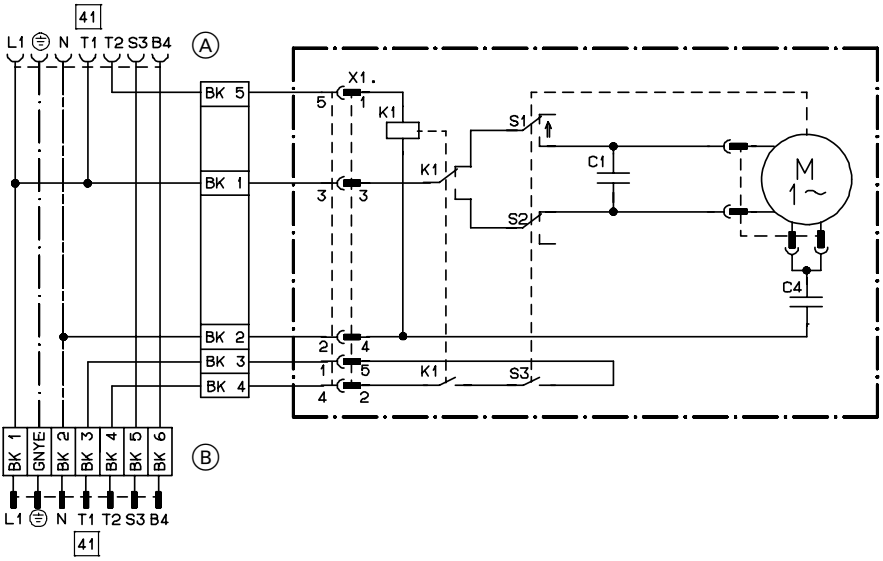
Burner connection cables

For boilers with
- oil- and gas-fired pressure jet burners,
  for connection, see page 24.
- burner without fan,
  for connection, see page 25.

For part no., see parts list.

Function extension for connection to a two-stage/modulating burner, part no. 7404 960; for connection, see page 26.

Vitoair draught stabiliser, part no. 7338 725 and 7339 703



Ⓐ To control unit
Ⓑ To burner

Colour coding to DIN/IEC 757

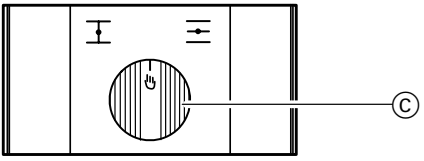
BK	black
GN/YE	green/yellow

Function check

Press rotary button Ⓒ on the motor and turn to the central position.

- Enable the burner from the control unit →
  The rotary button should move towards "☲".
  The motor enables the control disc, and the flue pipe is open.
- Burner OFF →
  The rotary button should move towards "⊤".
  The motor opens the control disc and the flue pipe is partially closed.

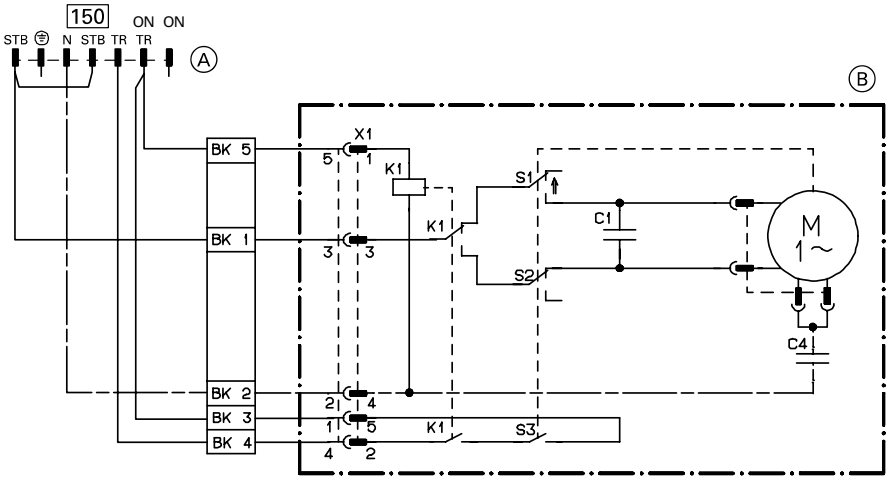
In emergency mode



Press rotary button Ⓒ on the motor and turn clockwise to the limit stop beyond position "☲".

5862 297 GB

Motorised flue gas damper, part no. 7252 819



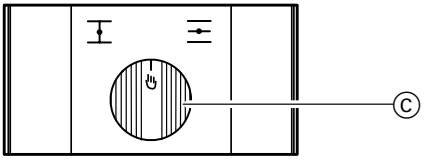
Ⓐ To control unit
Ⓑ Flue gas damper motor

Colour coding to DIN/IEC 757
BK black

Function check
Press rotary button Ⓒ on the motor and turn to the central position.

- Enable the burner from the control unit →
  The rotary button should move towards "⊼".
  The motor moves the flue gas damper into the "OPEN" position.
- Burner OFF →
  The rotary button should move towards "⊻".
  The motor moves the flue gas damper into the "CLOSED" position, which prevents air circulating through the boiler.

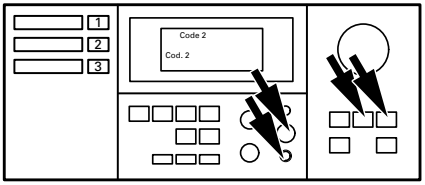
In emergency mode



Press rotary button Ⓒ on the motor and turn clockwise to the limit stop beyond position "⊼".

5862 297 GB

Resetting codes into the "as delivered condition"

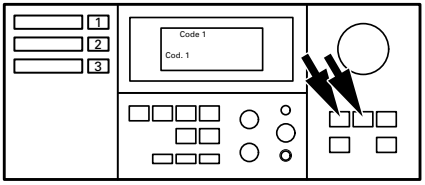


1. Press and simultaneously for approx. 2 seconds.

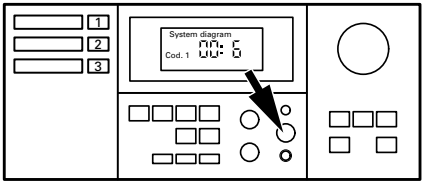
2. Press ⊕.
"Base setting? Yes", confirm with OK.
Select "Base setting? Yes" with ⊕ or "Base setting? No" with ⊖.

Code 1

Calling up code 1



1. Press and simultaneously for approx. two seconds.



2. Select the required coding address with ⊕ or ⊖;
the address flashes;
confirm with OK;
the value flashes.

3. Change the value with ⊕ or ⊖;
confirm with OK.
Display briefly indicates "Adopted", then the address flashes again.
Call up further addresses with ⊕ or ⊖.

4. Press and simultaneously for approx. one second.

5862 297 GB

Code 1 (cont.)

Summary

Coding in the delivered condition		Possible change	
System diagram			
00 : 1	System version 1: One heating circuit without mixer A1, without DHW heating	00 : 2	System version 1: One heating circuit without mixer A1, with DHW heating
		00 : 3	System version 2: One mixer circuit M2, without DHW heating
		00 : 4	System version 2: One mixer circuit M2, with DHW heating
		00 : 5	System version 3: One heating circuit without mixer A1 and one mixer circuit M2, without DHW heating
		00 : 6	System version 3: One heating circuit without mixer A1, one mixer circuit M2, with DHW heating
		00 : 7	System version 4: 2 Mixer circuits
		00 : 8	System version 4: 2 Mixer circuits, with DHW heating
		00 : 9	System version 5: One heating circuit without mixer and 2 mixer circuits
		00 : 10	System version 5: One heating circuit without mixer and 2 mixer circuits, with DHW heating
Type of burner			
02 : 0	Single stage	02 : 1	Two stage
		02 : 2	Modulating

5862 297 GB

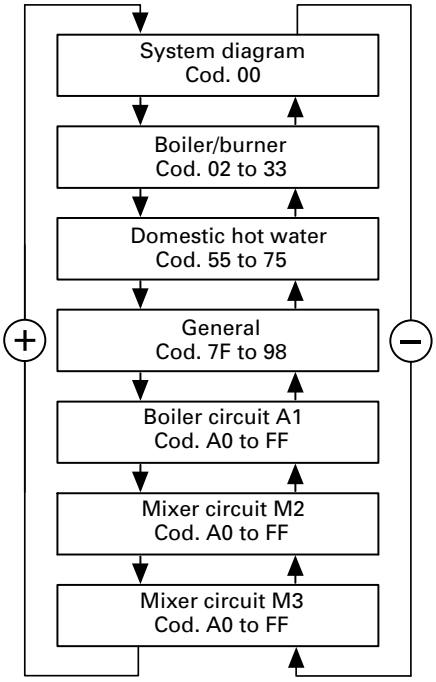
Code 1 (cont.)

Coding in the delivered condition		Possible change	
Max. boiler temp.			
06 : 85	Maximum limit of the boiler water temperature set to 85 °C	06 : 20 to 06 : 130	Maximum limit of the boiler water temperature adjustable from 20 to 130 °C
DHW priority A1			
A2 : 2	DHW priority for heating circuit pump	A2 : 0	Without DHW priority for heating circuit pump
		A2 : 1 A2 : 3 to A2 : 15	No function
Summer econ. A1			
A5 : 5	With heating circuit pump logic function	A5 : 0	Without heating circuit pump logic function
DHW-priority M2/M3			
A2 : 2	DHW cylinder priority applicable to heating circuit pump and mixer	A2 : 0	Without DHW cylinder priority applicable to heating circuit pump and mixer
		A2 : 1	DHW cylinder priority only applicable to mixer
		A2 : 3 to A2 : 15	Reduced DHW priority
Summer econ. M2/M3			
A5 : 5	With heating circuit pump logic function	A5 : 0	Without heating circuit pump logic function
Flow min. temp. M2/M3			
C5: 20	Electronic minimum flow temperature limit 20 °C	C5: 1 to C5: 127	Minimum limit adjustable from 1 to 127 °C
Flow max. temp. M2/M3			
C6: 75	Electronic maximum limit of the flow temperature set to 75 °C	C6: 1 to C6: 127	Maximum limit adjustable from 1 to 127 °C

5862 297 GB

Code 2

The summary from page 103 lists all possible coding addresses.
The control unit display only shows those coding addresses, which may be adjusted in accordance with the relevant system version and equipment level.



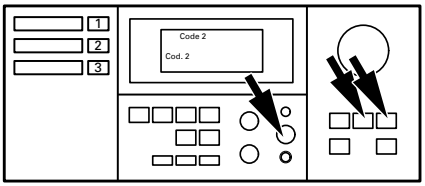
The coding addresses are grouped in accordance with the adjacent sequence.

Initially the possible coding addresses ”A0” to ”FF” for the heating circuit without mixer A1 are scanned, then those for mixer circuits M2 and M3, again starting with coding address ”A0”.

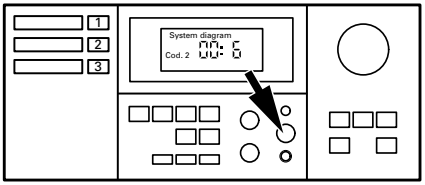
5862 297 GB

Code 2 (cont.)

Calling up code 2



1. Press and simultaneously for approx. two seconds; confirm with OK.



2. Select the required coding address with ⊕ or ⊖; the address flashes; confirm with OK; the value flashes.

3. Change the value with ⊕ or ⊖; confirm with OK. The display briefly indicates "Adopted", then the address flashes again. Call up further addresses with ⊕ or ⊖.

4. Press and simultaneously for approx. one second.

Code 2 (cont.)

Summary

Coding in the delivered condition		Possible change	
System diagram (see page 99)			
Boiler/burner			
02: 0	Operation with a single stage burner	02: 1	Operation with a two-stage burner
		02: 2	Operation with a modulating burner
03: 0	Do not adjust		
04: 0	Switching hysteresis 4 K (Kelvin) (see page 123)	04: 1	Heat demand-dependent switching hysteresis (see page 123). ERB50 function (values from 6 to 12 K)
		04: 2	ERB80 function (values from 6 to 20 K)
05: 8	Differential temperature 8 K	05: 0 to 05: 40	Differential temperature adjustable from 0 to 40 K
06: 85	Maximum limit of the boiler water temperature set to 85 °C (without effect during DHW cylinder demand)	06: 20 to 06:130	Maximum limit of the boiler water temperature adjustable from 20 to 130 °C
Boiler/burner (two-stage)			
10: 20	Hook-up delay (integral) = 2 560 Ks (Kelvin x seconds)	10: 0 to 10:199	Hook-up delay for enabling the 2nd stage (from the 1st stage) in **heating mode** adjustable from 0 to 25 472 Ks 1 setting step ≙ 128 Ks

5862 297 GB

Code 2 (cont.)

Coding in the delivered condition		Possible change	
Boiler/burner (two-stage) (cont.)			
11: 20	Hook-up delay (integral) = 2 560 Ks (Kelvin x seconds)	11: 0 to 11:199	Hook-up delay for enabling the 2nd stage (from the 1st stage) during **cylinder loading** adjustable from 0 to 25 472 Ks 1 setting step ≙ 128 Ks
12: 20	Shutdown delay (integral) = 2 560 Ks (Kelvin x seconds)	12: 0 to 12:199	Shutdown delay for blocking the 1st stage (to the 2nd stage) adjustable from 0 to 25 472 Ks 1 setting step ≙ 128 Ks
Boiler/burner			
13: 6*1	Shutdown differential 6 K The burner is switched OFF when the set boiler water temperature is exceeded	13: 0	Without shutdown differential
		13: 1 to 13: 20	Shutdown differential adjustable between 1 and 20 K
Boiler/burner (modulating)*1			
15: 15	Actuator operating time 15 seconds	15: 7 to 15:180	Operating time adjustable from 7 to 180 seconds
16: 6	Mod. burner offset 6 K	16: 0 to 16: 15	Offset in case of start-up optimisation adjustable from 0 bis 15 K
17: 12	Control amplification 12	17: 0 to 17:255	Adjustment subject to the modulating burner being matched to the respective boiler type
18:300	Integral time 300	18: 1 to 18:1000	
1A: 6	Start-up optimisation 6 minutes	1A: 0 to 1A: 60	Duration of start-up optimisation adjustable from 0 bis 60 minutes

*1 *These adjustments are matched to Vitocrossal.*

5862 297 GB

Code 2 (cont.)

Coding in the delivered condition		Possible change	
Boiler/burner			
1F: 0	With flue gas temp. sensor: The flue gas temperature is not monitored	1F: 1 to 1F:500	"MAINTENANCE" will be displayed, if the adjustable flue gas temperature limit (from 1 to 500 °C) has been exceeded
21: 0	No burner maintenance indication	21: 1 to 21:9999	The number of hours run before the burner should be serviced is adjustable from 1 to 9999 hours
23: 0	No time interval for burner maintenance	23: 1 to 23: 24	Time interval adjustable from 1 to 24 months
24: 0	No "Maintenance" display	24: 1	"Maintenance" display (the address is automatically set and must be manually reset after maintenance has been carried out)
26: 0	Burner fuel consumption (1st stage): No counting	26: 1 to 26:9999	Enter 1 to 9999; 1 setting step ≙ 0.1 litres or gallons/h
28: 0	No burner interval ignition	28: 1	The burner will be force-started for 30 seconds after 5 hours
29: 0	Burner fuel consumption (2nd stage): No counting	29: 1 to 29:9999	Enter 1 to 9999; 1 setting step ≙ 0.1 litres or gallons/h

5862 297 GB

Code 2 (cont.)

Coding in the delivered condition		Possible change	
Boiler/burner (cont.)			
32: 70	With control module V: Set boiler water temperature 70 °C for external burner demand	32: 0 to 32:127	Minimum set boiler water temperature adjustable from 0 to 127 °C; Note the adjustment of thermostat "⏲"
33: 0	With control module V: During external burner demand, pumps and mixer remain in control mode	33: 1	All pumps OFF, mixer close
Domestic hot water			
55: 0	DHW heating, hysteresis ±2.5 K	55: 1	Adaptive DHW heating active
56: 0	DHW temperature adjustable from 10 to 60 °C	56: 1	DHW temperature adjustable from 10 to 95 °C ⚠ ***Safety instruction*** ■ *Observe the max. permissible DHW temperature* ■ *Change the control thermostat setting "⏲"*
58: 0	Without auxiliary function for DHW loading	58: 1 to 58: 95	Input of a 2nd set DHW value; adjustable from 1 to 95 °C (observe coding address "56" and the section "Auxiliary function" on page 61)
59: 0	DHW cylinder loading: Starting point –2.5 K Shutdown point +2.5 K	59: 1 to 59: 10	Starting point adjustable between 1 and 10 K below the set value
60: 20	During DHW heating, the boiler water temperature is a max. of 20 K higher than the set DHW temperature	60: 10 to 60: 50	The difference between the boiler water temperature and the set DHW temperature is adjustable between 10 and 50 K

5862 297 GB

Code 2 (cont.)

Coding in the delivered condition		Possible change	
Domestic hot water (cont.)			
61: 0	The circulation pump will be started subject to the boiler temperature	61: 1	Circulation pump starts immediately
62: 10	Circulation pump with a max. of 10 minutes run-on	62: 0	Circulation pump without run-on
		62: 1 to 62: 15	Run-on time adjustable from 1 to 15 minutes
64: 2	During party mode: Enable constant DHW heating and DHW circulation pump ON	64: 0	No DHW heating, DHW circulation pump OFF
		64: 1	DHW heating and DHW circulation pump acc. to time program
66: 4	Input of the set DHW value: at the programming unit and the Vitotrol 300 remote control (if installed)	66: 0	At programming unit
		66: 1	At programming unit and remote control heating circuit A1
		66: 2	At programming unit and remote control unit Mixer circuit M2
		66: 3	At programming unit and remote control unit Mixer circuit M3
		66: 5	At remote control unit Heating circuit A1
		66: 6	At remote control unit Mixer circuit M2
		66: 7	At remote control unit Mixer circuit M3
68: 8	Do not adjust		
69: 7			

5862 297 GB

Code 2 (cont.)

Coding in the delivered condition		**Possible change**	
Domestic hot water (cont.)			
70: 0	DHW circulation pump ON acc. to time program when DHW loading is enabled	70: 1	DHW circulation pump output only subject to time program
71: 0	DHW circulation pump: ON acc. to time program	71: 1	OFF during DHW loading to the first set value
		71: 2	ON during DHW loading to the first set value
72: 0		72: 1	OFF during DHW loading to the second set value
		72: 2	ON during DHW loading to the second set value
73: 0		73: 1 to 73: 6	During the time program 1x/hr ON for five minutes to 6x/hr ON for five minutes
		73: 7	Constantly ON
74: 5	With control module V: DHW circulation pump ON for 5 minutes via volt-free contact	74: 0 to 74: 15	Start-up time adjustable from 0 to 15 minutes
75: 0	DHW circulation pump: ON during economy mode acc. to time program	75: 1	OFF during economy mode

5862 297 GB

Code 2 (cont.)

Coding in the delivered condition		Possible change	
General			
7F: 1	Detached house	7F: 0	Multi-occupancy house. Separate settings for holiday and time programs are possible for DHW loading (see page 62) for every heating circuit.
80: 1	A fault message is displayed, provided a fault persists for at least 5 seconds	80: 0	Immediate fault message
		80: 2 to 80:199	The minimum fault duration, until a message is displayed, is adjustable from 10 to 995 seconds. 1 setting step ≙ 5 sec.
81: 1	Automatic change between summer and winter ***Please note:*** *Coding address "82" to "87" only possible if code "81: 1" has been selected.*	81: 0	Manual summer/winter changeover
		81: 2	The application of the radio clock module will be recognised automatically
82: 3	Summer starts: March	82: 1 to 82: 12	January to December
83: 5	Summer starts: last week of the month	83: 1 to 83: 5	Week 1 to Week 5
84: 7	Summer starts: last day of the week (Sunday)	84: 1 to 84: 7	Monday to Sunday
85: 10	Winter starts: October	85: 1 to 85: 12	January to December

5862 297 GB

Code 2 (cont.)

Coding in the delivered condition		**Possible change**	
General (cont.)			
86: 5	Winter starts: last week of the month	86: 1 to 86: 5	Week 1 to Week 5
87: 7	Winter starts: last day of the week (Sunday)	87: 1 to 87: 7	Monday to Sunday
89: 1	Do not adjust		
8A:175	Display of those codes which can be adjusted with your system version	8A:176	Display of all codes, irrespective of system version or connected accessories
8E: 4	Displaying and acknowledging faults: at the programming unit and the remote control unit (if installed)	8E: 0	At programming unit
		8E: 1	At programming unit and remote control unit Heating circuit A1
		8E: 2	At programming unit and remote control unit Mixer circuit M2
		8E: 3	At programming unit and remote control unit Heating circuit M3
90:128	Time constant for calculating the adjusted outside temperature 21.3 hrs.	90: 0 to 90:199	Quick (low values) or slow (high values) matching of the flow temperature subject to the set value if the outside temperature changes; 1 setting step ≙ 10 min

5862 297 GB

Code 2 (cont.)

Coding in the delivered condition			Possible change	
General (cont.)				
91:	7	The heating program changeover (connection via plug 143) affects: all heating circuits	91: 0	Without heating program changeover
			91: 1	Heating circuit without mixer A1
			91: 2	Mixer circuit M2
			91: 3	Heating circuit without mixer A1 and mixer circuit M2
			91: 4	Mixer circuit M3
			91: 5	Heating circuit without mixer A1 and mixer circuit M3
			91: 6	Mixer circuits M2 and M3
92:	1	Including fault message module	92: 0	Without fault message module
93:	0	Central fault message in economy mode/service indication does not affect central fault messages	93: 1	Central fault message in economy mode/service indication does affect central fault messages
94:	0	Without control module V	94: 2	With control module V; will be recognised automatically
95:	0	Without Vitocom 100 communication interface	95: 1	With Vitocom 100 communication interface; will be recognised automatically
98:	0	Without expansion module Viessmann 2-wire BUS	98: 1	With expansion module Viessmann 2-wire BUS; will be recognised automatically

5862 297 GB

Code 2 (cont.)

Coding in the delivered condition		**Possible change**	
Boiler circuit/mixer circuit			
A0: 0	Without remote control	A0: 1	With Vitotrol 200
		A0: 2	With Vitotrol 300
A2: 2	With DHW cylinder priority applicable to heating circuit pump and mixer	A2: 0	Without DHW cylinder priority applicable to heating circuit pump and mixer
		A2: 1*1	With DHW priority applicable to mixer: The mixer is closed whilst DHW is loaded; the heating circuit pump operates
		A2: 3*1 to A2: 15	Reduced priority appl. to mixer; i.e. the heating circuit receives a reduced amount of energy
A3: 2	Outside temperature below 1 °C: Heating circuit pump ON Outside temperature above 3 °C: Heating circuit pump OFF ⚠ *When selecting a value below 1 °C there will be a risk of pipes outside the thermal insulation of the house freezing. Particularly the standby mode should be observed, e.g. during holidays.*		Heating circuit pump ON at / OFF at
		A3 : –9	–10 °C / –8 °C
		A3 : –8	– 9 °C / –7 °C
		A3 : –7	– 8 °C / –6 °C
		A3 : –6	– 7 °C / –5 °C
		A3 : –5	– 6 °C / –4 °C
		A3 : –4	– 5 °C / –3 °C
		A3 : –3	– 4 °C / –2 °C
		A3 : –2	– 3 °C / –1 °C
		A3 : –1	– 2 °C / 0 °C
		A3 : 0	– 1 °C / 1 °C
		A3 : 1	0 °C / 2 °C
		A3 : 2	1 °C / 3 °C
		to	to
		A3 : 15	14 °C / 16 °C

*1 *Only adjustable for mixer circuit.*

5862 297 GB

Code 2 (cont.)

Coding in the delivered condition		**Possible change**	
Boiler circuit/mixer circuit (cont.)			
A4: 0	With frost protection	A4: 1	No frost protection, Adjustment only possible if code "A3: –9" has been selected. ⚠ *Observe the note for coding address "A3".*
A5: 5	With heating circuit pump logic function (economy circuit): heating circuit pump OFF, if the outside temperature (AT) is 1 K higher than the set room temperature (RT_{set}) $AT > RT_{set} + 1$ K	A5: 0	Without heating circuit pump logic function
		A5: 1 A5: 2 A5: 3 A5: 4 A5: 5 A5: 6 A5: 7 to A5: 15	With heating circuit pump logic function: Heating circuit pump OFF, if $AT > RT_{set} + 5$ K $AT > RT_{set} + 4$ K $AT > RT_{set} + 3$ K $AT > RT_{set} + 2$ K $AT > RT_{set} + 1$ K $AT = RT_{set}$ $AT > RT_{set} - 1$ K to $AT > RT_{set} - 9$ K
A6: 36	Extended economy circuit **not** active	A6: 5 to A6: 35	Extended economy circuit active, i.e. the burner and heating circuit pump will be switched OFF, and the mixer will be closed at a variable value, which is adjustable between 5 and 35 °C plus 1 °C. This value is based on the adjusted outside temperature, comprising the actual outside temperature and a time constant which takes the cooling down of an average building into consideration.

5862 297 GB

Code 2 (cont.)

Coding in the delivered condition		**Possible change**	
Mixer circuit			
A7: 0	Without mixer economy function	A7: 1	With mixer economy function (extended heating circuit pump logic): Heating circuit pump also OFF, if the mixer was closed longer than 12 mins. Heating circuit pump ON, ■ if the mixer changes to control mode or ■ after DHW cylinder loading (for 20 minutes) or ■ if there is a risk of frost
Boiler circuit/mixer circuit			
A9: 0	Without pump idle period	A9: 1 to A9: 15	Incl. pump idle period: Heating circuit pump OFF during set value modification (by changing the operating mode or changes on the rotary selector "🌡☀" or key "🌡☽")

5862 297 GB

Code 2 (cont.)

Coding in the delivered condition		**Possible change**	
Boiler circuit/mixer circuit (cont.)			
b0: 0*1	Incl. remote control: Heating mode/ reduced mode: weather-compensated	b0: 1	Heating mode: weather-compensated Reduced mode: with room temperature hook-up
		b0: 2	Heating mode: with room temperature hook-up Reduced mode: weather-compensated
		b0: 3	Heating mode/reduced mode: with room temperature hook-up
b1: 0	Do not adjust		
b2: 8*1	With remote control and for the heating circuit, heating with room temperature hook-up must be encoded: Room influencing factor 8	b2: 0	Excluding room influence
		b2: 1 to b2: 31	Room influencing factor adjustable between 1 and 31
b3: 0*1	Do not adjust		

**1Change the code for the heating circuit without mixer A1 for boilers without lower temperature limit or for mixer circuit, if the remote control affects that heating circuit.*

5862 297 GB

Code 2 (cont.)

Coding in the delivered condition		**Possible change**	
Boiler circuit/mixer circuit (cont.)			
b5: 0*1	Incl. remote control: Without room temperature-dependent heating circuit pump logic function	b5: 1	■ Heating circuit pump OFF, if the actual room temperature (RT_{actual}) is 2.5 K higher than the set room temperature (RT_{set}) $RT_{actual}>RT_{set}$ +2.5 K ■ Heating circuit pump ON, if the actual room temperature (RT_{actual}) is 1.5 K higher than the set room temperature (RT_{set}) $RT_{actual}>RT_{set}$ +1.5 K
b6: 0*1	With remote control and for the heating circuit, heating with room temperature hook-up must be encoded: Without quick heat-up/ quick setback	b6: 1	With quick heat-up/ quick setback (see page 57).
b7: 0*1	With remote control and for the heating circuit, heating with room temperature hook-up must be encoded: Without start-up optimisation	b7: 1	With start-up optimisation (max. offset 2 hrs. 30 mins.)
		b7: 2	With start-up optimisation (max. offset 15 hrs. 50 mins.)

**1 Change the code for the heating circuit without mixer A1 for boilers without lower temperature limit or for mixer circuit, if the remote control affects that heating circuit.*

5862 297 GB

Code 2 (cont.)

Coding in the delivered condition		Possible change	
Boiler circuit/mixer circuit (cont.)			
b8: 10*1	With remote control and for the heating circuit, heating with room temperature hook-up must be encoded: Heat-up gradient Start-up optimisation 10 minutes/Kelvin	b8: 11 to b8:255	Heat-up gradient start-up optimisation adjustable from 11 to 255 mins/Kelvin
b9: 0*1	With remote control and for the heating circuit, heating with room temperature hook-up must be encoded: Without learning start-up optimisation	b9: 1	With learning start-up optimisation
C0: 0*1	Incl. remote control: Without shutdown optimisation	C0: 1	With shutdown optimisation (max. offset 1 hour)
		C0: 2	With shutdown optimisation (max. offset 2 hours)
C1: 0*1	Incl. remote control: Without shutdown optimisation	C1: 1 to C1: 12	With shutdown optimisation (max. offset 10 to 120 mins.) 1 setting step ≙ 10 min
C2: 0*1	Incl. remote control: Without learning shutdown optimisation	C2: 1	With learning shutdown optimisation

**1 Change the code for the heating circuit without mixer A1 for boilers without lower temperature limit or for mixer circuit, if the remote control affects that heating circuit.*

5862 297 GB

Code 2 (cont.)

Coding in the delivered condition		**Possible change**	
Mixer circuit			
C4: 1	Mixer algorithm Standard	C4: 0 C4: 2 and C4: 3	Mixer algorithm faster Mixer algorithm slower
Boiler circuit/mixer circuit			
C5: 20	Electronic minimum flow temperature limit 20 °C	C5: 1 to C5:127	Minimum limit adjustable from 1 to 127 °C
Mixer circuit			
C6: 75	Electronic maximum flow temperature limit 75 °C	C6: 1 to C6:127	Max. temperature limit adjustable between 1 and 127 °C
C7: 0	With return temperature sensor: Without return temperature sensor influence	C7: 1 to C7: 31	Spread adjustable between 1 and 31 K Spread = temperature differential between the flow and return temperature at the design point –10 °C
Boiler circuit/mixer circuit			
C8: 31*1	With remote control and for the heating circuit, heating with room temperature hook-up must be encoded: Without room influence limit	C8: 1 to C8: 30	Room influence limit adjustable between 1 and 30 K

*[*1]Change the code for the heating circuit without mixer A1 for boilers without lower temperature limit or for mixer circuit, if the remote control affects that heating circuit.*

5862 297 GB

Code 2 (cont.)

Coding in the delivered condition		Possible change	
Mixer circuit			
C9: 0	Control of an underfloor heating system by flow and return temperature sensor: Without heat-up phase	C9: 1	With optimisation during the heat-up phase (via coding address "C7")
Boiler circuit/mixer circuit			
E1: 1	With remote control: Set day value is adjustable at the remote control from 10 to 30 °C	E1: 0	Set day value adjustable from 3 to 23 °C
		E1: 2	Set day value adjustable from 17 to 37 °C
E2: 50	With remote control and for the heating circuit, heating with room temperature hook-up must be encoded: 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
E5: 0	Without variable speed heating circuit pump	E5: 1	With variable speed heating circuit pump; will be recognised automatically
E6: 100	Max. speed of the variable speed pump = 100 % of max. speed in standard mode	E6: 0 to E6: 100	Maximum speed adjustable from 0 to 100% of max. speed
E7: 20	Min. speed of the variable speed pump = 20 % of max. speed	E7: 0 to E7: 100	Minimum speed adjustable from 0 to 100% of max. speed
E8: 0	Min. speed subject to the setting in coding address "E7"	E8: 1	Speed subject to the setting in coding address "E9"

5862 297 GB

Code 2 (cont.)

Coding in the delivered condition		Possible change	
Boiler circuit/mixer circuit			
E9: 20	Speed of the variable speed pump = 20 % of max. speed in reduced mode	E9: 0 to E9:100	Speed adjustable from 0 to 100 % of max. speed
F0: 0	Do not adjust		
Mixer circuit			
F1: 0	Screed drying function inactive	F1: 1 to F1: 4	Screed drying function adjustable in accordance with four temperature-time profiles (see page 122). ***Please note:*** *Observe the screed supplier's instructions.* Observe DIN 4725-2. The report to be provided by the heating contractor must contain the following heat-up details: ■ Heat-up data with their respective flow temperatures ■ Max. flow temperature achieved ■ Operating condition and outside temperature during handover The function continues after power failure or after the control unit has been switched off. Heating program "III" will be started, after the screed-drying function has been completed or if the address is manually set to "0".

5862 297 GB

Code 2 (cont.)

Coding in the delivered condition		**Possible change**	
Boiler circuit/mixer circuit			
F2: 0	No time limit for party mode[*1]	F2: 1 to F2: 12	Time limit for party mode adjustable between 1 and 12 hours[*1]

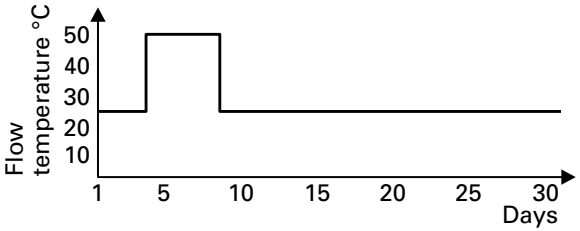
[*1] *The party mode ends **automatically** in heating program "", when the system changes over to operation with standard room temperature.*

5862 297 GB

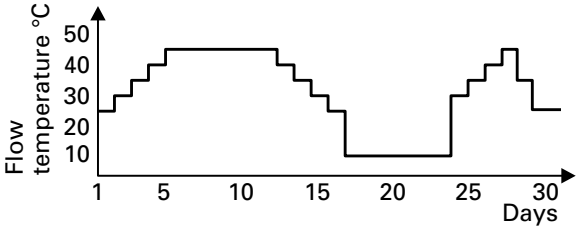
Screed drying function diagram

Coding see page 120.

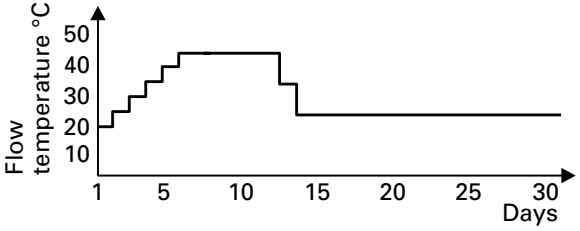
Temperature-time profile 1 (code "F1:1")



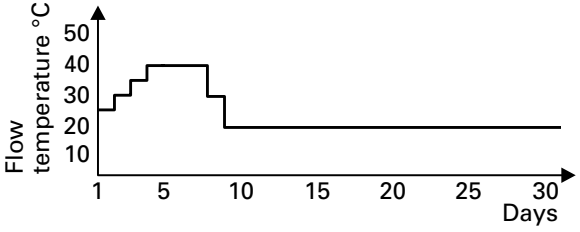
Temperature-time profile 2 (code "F1:2")



Temperature-time profile 3 (code "F1:3")



Temperature-time profile 4 (code "F1:4")

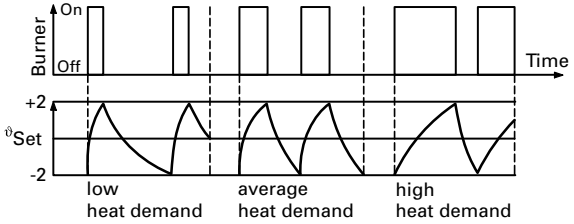


5862 297 GB

Burner switching hysteresis

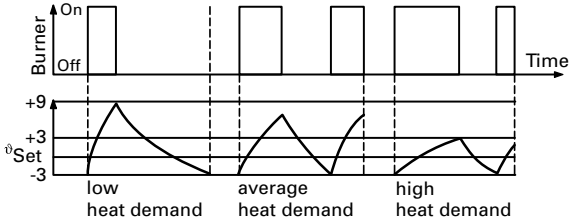
Coding see page 103.

Switching hysteresis 4 K (code "04:0")

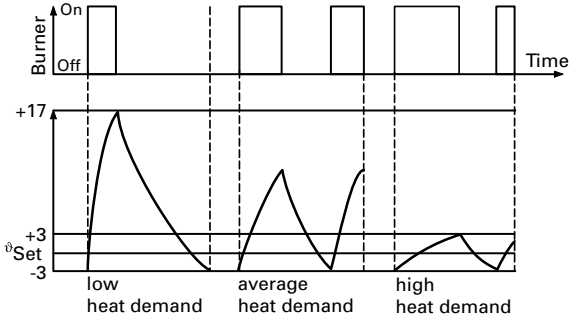


Heat demand-dependent switching hysteresis

ERB50 function (code "04:1")
Subject to heat demand, values between 6 and 12 K result.



ERB80 function (code "04:2")
Subject to heat demand, values between 6 and 20 K result.



The heat demand-dependent switching hysteresis, therefore, takes the boiler load into account.
The switching hysteresis, i.e. the burner operating time is varied, subject to current heat demand.

5862 297 GB

Parts list

When ordering spare parts:
Quote the type and serial no. (see type plate) and the item no. of the required part (as per parts list). Obtain common parts from your local supplier.

Parts

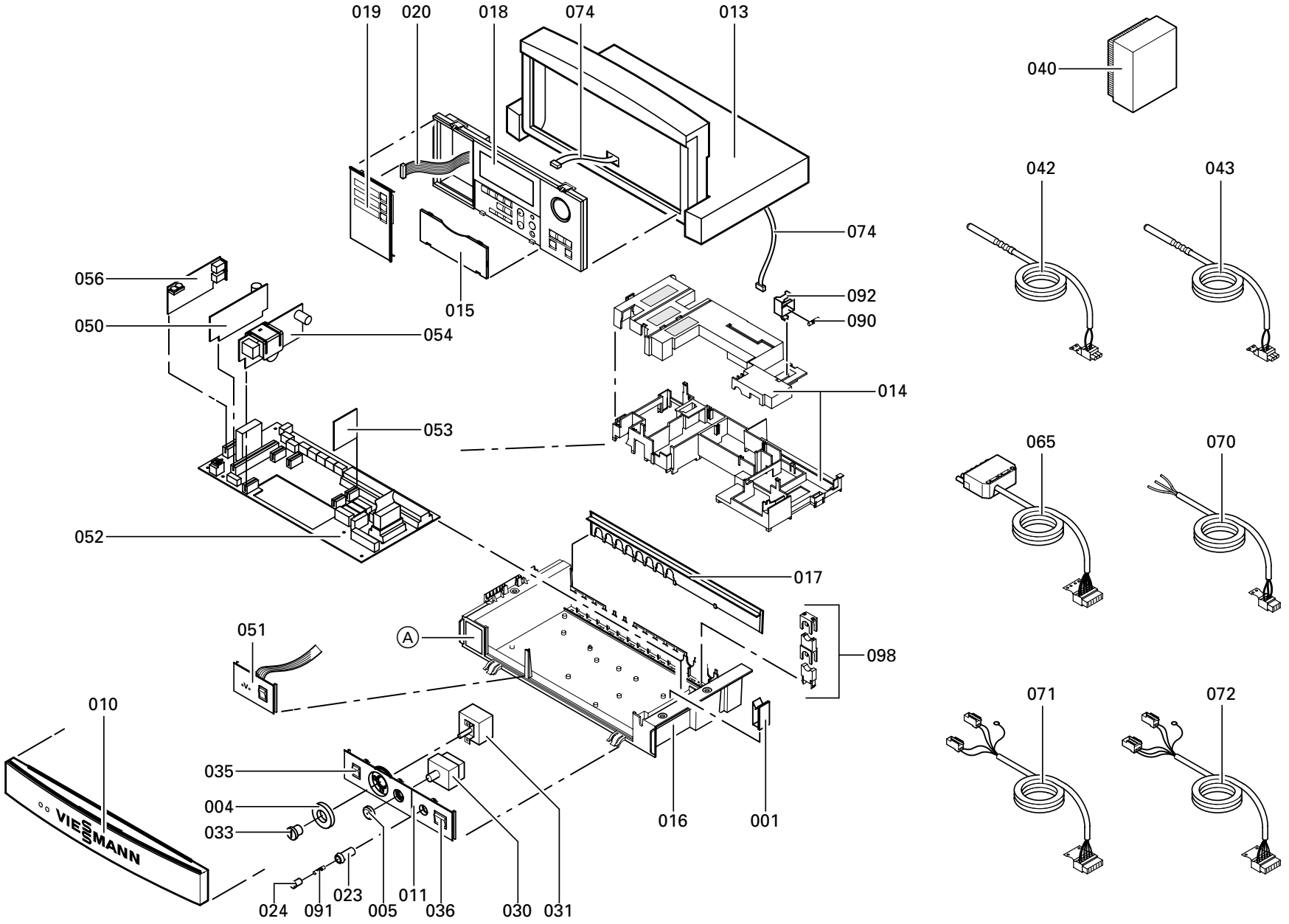
001 Cable clamp
004 Stop dial for control thermostat "⏲"
005 Cover plug for high limit safety cut-out "⏚"
010 Fascia cover
011 Control panel lower r.h. side
013 Upper casing body (drawer)
014 PCB cover, comp.
015 Programming unit flap
016 Lower casing body
017 Rear cover
018 Programming unit
019 Front panel with heating circuit selector keys
020 Ribbon cable, 14 PIN
023 Fuse holder for control fuse
024 Fuse holder cap for control fuse
030 High limit safety cut-out "⏚"
031 Control thermostat "⏲"
033 Control thermostat rotary button "⏲"
035 Push buttons, 1-pole (test button "**TÜV**")
036 Switch, 2-pole (mains switch "⏻")
040 Outside temperature sensor [1]
042 Boiler temperature sensor with plug [3]
043 DHW cylinder temperature sensor with plug [5]
050 Printed circuit board
051 Optolink circuit board
052 Main PCB
053 Fault message module
054 Power supply unit PCB
056 Expansion module Viessmann 2-wire BUS
065 Burner connection cable with plug [41] (for boilers with oil-/gas-fired pressure jet burners)
070 Mains power cable with plug [40]
071 5-core burner connection cable with plug [41] (for boilers with intermittent ignition system)
072 6-core burner connection cable with plug [41] (for boilers with intermittent ignition system)
074 Connection cable
090 Fuse 4 amp (slow)/250 V~
091 Fuse 6.3 amp (slow)/250 V~
092 Fuse holder
098 Strain relief pack

Parts not shown

080 Installation and service instructions
081 Operating instructions
099 Fixing pack
100 Plug for sensors (3 pieces)
101 Plug for pumps (3 pieces)
102 Plug [52] (3 pieces)
103 Plug [156] (3 pieces)
104 Mains connection plug [40] (3 pieces)
105 Plug [150]
108 Plug [143], plug [145] and plug [146]
109 Burner plug [41], [90], [151] and [191]

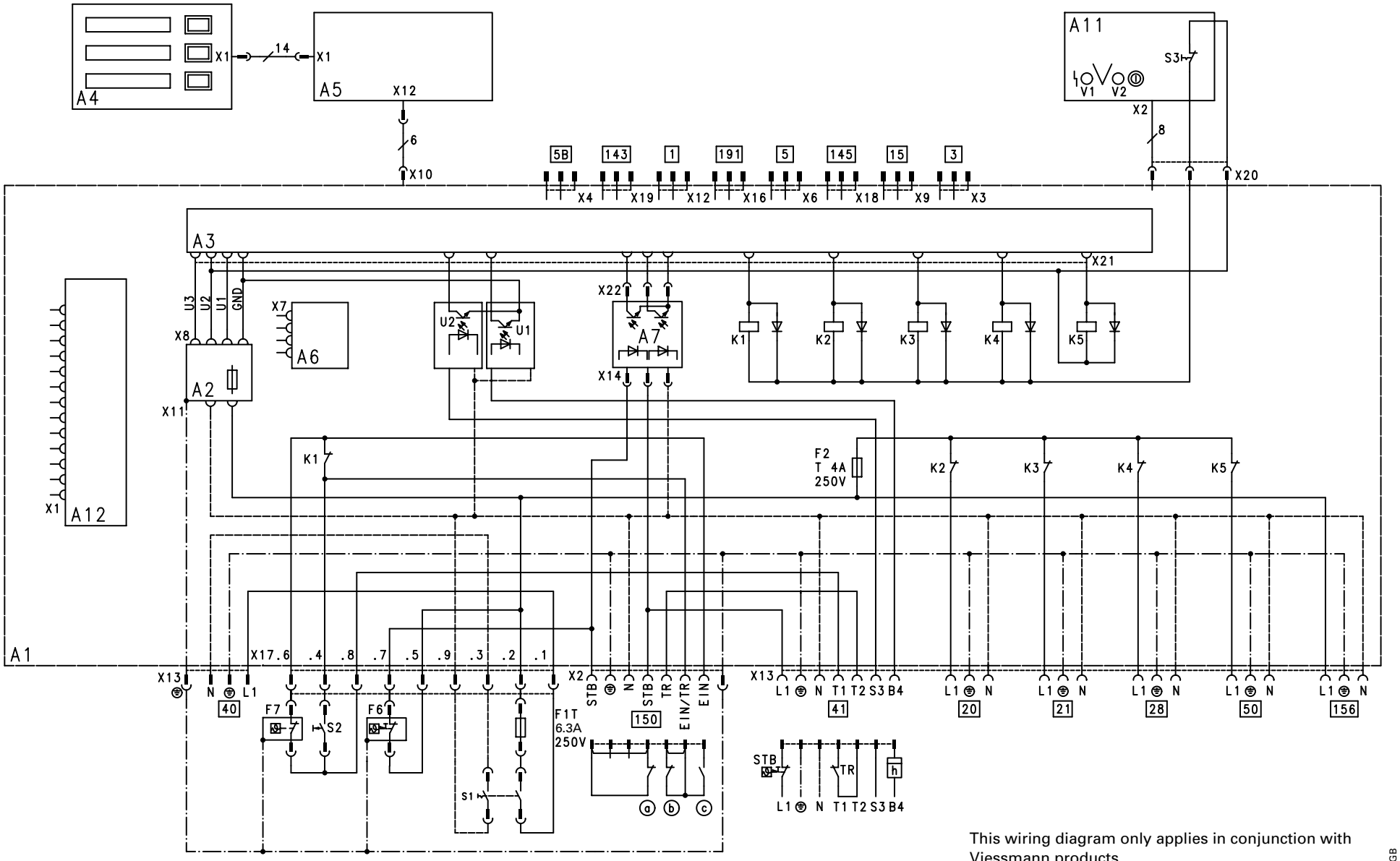
5862 297 GB

Parts list (cont.)



5862 297 GB

Connection and wiring diagram



This wiring diagram only applies in conjunction with Viessmann products.

Subject to technical modifications.

5862 297 GB

Connection and wiring diagram (cont.)

A1 Main PCB
A2 Power supply unit PCB
A3 Printed circuit board
A4 PCB heating circuit selection keys
A5 Programming unit
A6 Boiler coding card
A7 Fault message module
A11 PCB Optolink/emissions test switch
A12 Expansion module Viessmann 2-wire BUS
F1, F2 Fuses
F6 High limit safety cut-out "⇑" 110 °C (100 °C)
F7 Control thermostat „⇑" 75 °C (87 °C, 95 °C)
K1-K5 Relay
S1 Mains ON/OFF switch "⏻"
S2 TÜV test button
S3 Emissions test switch "🔧"
V1 Fault lamp (red)
V2 ON/OFF lamp (green)

Plug 230 V~

[20] Heating circuit pump A1 (accessory)
[21] Circulation pump for DHW cylinder loading (accessory)
[28] DHW circulation pump (on site)
[40] Mains connection, 50 Hz
[41] Oil-/gas-fired burner (connection acc. to DIN 4791)
[50] Central fault message
[150] External connections
ⓐ External safety equipment (remove jumper when connecting)
ⓑ External blocking (remove jumper when connecting)
ⓒ External burner start (1st stage)
[156] Mains output for accessories

Low voltage plug

[1] Outside temperature sensor
[3] Boiler temperature sensor
[5] DHW cylinder temperature sensor
[5] [B] 2nd DHW cylinder temperature sensor
[15] Flue gas temperature sensor (accessory)
[143] Telephone contact
[145] KM BUS user, e.g. Vitotrol remote control
[191] Two-stage/mod. burner extension

The fitted control thermostat and high limit safety cut-out comply with the requirements of DIN 3440

	Type and make	DIN Reg. no.	Time constant
Control thermostat	TR 55.18015.050, Messrs. EGO or EM-1/b1; 60002847, Messrs. Juchheim	DIN TR 11032002 or DIN TR 77798	t<45 sec
High limit safety cut-out	STB 56.10525.570, Messrs. EGO or EM-80-V/b7-1; 60002843, Messrs. Juchheim	DIN STB 10602000 or DIN STB 82699	t<45 sec

5862 297 GB

Specification

Rated voltage:	230 V~
Rated frequency:	50 Hz
Rated current:	6 amp ~
Power consumption:	5 W
Safety class:	I
Protection:	IP 20 D acc. to EN 60529, safeguard through appropriate design and installation
Function:	Type 1 B acc. to EN 60730-1
Permissible ambient temperature	
■ in operation:	0 to 40 °C Installation in living accommodation and boiler rooms (normal ambient conditions)
■ in storage and transport:	–20 to 65 °C

Rated capacity of relay outputs at 230 V~ for

■ Heating circuit pump [20]:	4 (2) A~*1
■ Circulation pump for DHW cylinder loading [21]:	4 (2) A~*1
■ DHW circulation pump [28]:	4 (2) A~*1
■ Burner	
Plug [41]:	4 (2) A~
Plug [90]:	
– two stage:	1 (0.5) A~
– modulating:	0.1 (0.05) A~
■ Central fault message [50]:	4 (2) A~*1
■ Total:	max. 6 A~

*1 *Total max. 4 A~*

5862 297 GB

Settings and equipment

Tick off the adjusted function.

Function in as delivered condition	Modified function
High limit safety cut-out "⇧" set to 110 °C	☐ Changed to ..... °C
Control thermostat "⏱" set to 75 °C	☐ Changed to ..... °C
Remote control Control unit without remote control	**With remote control** ☐ Vitotrol 200 to heating circuit A1 ☐ Vitotrol 200 to mixer circuit M2 ☐ Vitotrol 200 to mixer circuit M3 ☐ Vitotrol 300 to heating circuit A1 ☐ Vitotrol 300 to mixer circuit M2 ☐ Vitotrol 300 to mixer circuit M3
Electronic maximal limit ■ **Heating circuit A1** without mixer 85 °C ■ **Mixer circuit M2** 75 °C ■ **Mixer circuit M3** 75 °C	 ☐ Changed to ..... °C ☐ Changed to ..... °C ☐ Changed to ..... °C
Electronic minimum limit ■ **Heating circuit A1** without mixer 20 °C ■ **Mixer circuit M2** 20 °C ■ **Mixer circuit M3** 20 °C	 ☐ Changed to ..... °C ☐ Changed to ..... °C ☐ Changed to ..... °C
Heating curves ■ Slope=1.4 ■ Level=0	**Heating curves for:** ☐ **Heating circuit A1** without mixer: Changed to – Slope ..... – Level ..... ☐ **Mixer circuit M2**: Changed to – Slope ..... – Level ..... ☐ **Mixer circuit M3**: Changed to – Slope ..... – Level .....
■ Differential temperature 8 K	☐ Changed to ..... K

5862 297 GB

Settings and equipment (cont.)

Function in as delivered condition	Modified function
Heating circuit pumps In heating program "🏢🚿", the heating circuit pumps are switched OFF, when the outside temperature exceeds the set room temperature by more than 1 K. In heating program "🚿" – the heating circuit pumps are only started when there is a risk of frost, – any connected mixer stays closed (when there is a risk of frost, it changes to control mode).	☐ The heating circuit pump A1 remains ON ☐ The heating circuit pump mixer circuit M2 remains ON ☐ The heating circuit pump mixer circuit M3 remains ON ☐ The heating circuit pump heating circuit A1 or mixer circuit M2 or mixer circuit M3 will be switched OFF, when the actual room temperature exceeds the set room temperature by more than 3 K ☐ The heating circuit pump mixer circuit M2 will be switched OFF, if the "Mixer close" impulse has been received for 12 minutes ☐ The heating circuit pump mixer circuit M3 will be switched OFF, if the "Mixer closed" impulse has been received for 12 minutes
Heating circuit A1 without mixer Heating mode/reduced mode weather-compensated	☐ Heating mode: weather-compensated, Red. mode: with room temperature hook-up ☐ Heating mode: with room temperature hook-up, Red. mode: weather-compensated ☐ Heating mode/ Red. mode: with room temperature hook-up

5862 297 GB

Settings and equipment (cont.)

Function in as delivered condition	Modified function
Mixer circuit M2 Heating mode/reduced mode weather-compensated	☐ Heating mode: weather-compensated, Red. mode: with room temperature hook-up ☐ Heating mode: with room temperature hook-up, Red. mode: weather-compensated ☐ Heating mode/ Red. mode: with room temperature hook-up
Mixer circuit M3 Heating mode/reduced mode weather-compensated	☐ Heating mode: weather-compensated, Red. mode: with room temperature hook-up ☐ Heating mode: with room temperature hook-up, Red. mode: weather-compensated ☐ Heating mode/ Red. mode: with room temperature hook-up
Frost protection Frost protection active from 1 °C	☐ Frost protection for heating circuit A1 cancelled ☐ Frost protection for mixer circuit M2 cancelled ☐ Frost protection for mixer circuit M3 cancelled ☐ Frost protection for heating circuit A1 changed to ..... °C ☐ Frost protection for mixer circuit M2 changed to ..... °C ☐ Frost protection for mixer circuit M3 changed to ..... °C
Switching hysteresis Burner switching hysteresis is 4 K	☐ **ERB50 function** ☐ **ERB80 function**

5862 297 GB

Settings and equipment (cont.)

Function in as delivered condition	Modified function
Heating system with DHW heating:	
■ DHW is loaded from the times when DHW heating is enabled	
■ With DHW priority	☐ Without DHW priority
Heating system with DHW heating (cont.):	
■ Setting range for DHW temperature 10 to 60 °C	☐ Setting range for DHW temperature 10 to 95 °C
■ The circulation pump starts when the boiler water temperature is 7 K higher than the actual DHW temperature	☐ Circulation pump starts immediately
■ The circulation pump for DHW cylinder loading runs on for a max. of 10 minutes after loading	☐ Changed to ..... minutes
■ Without adaptive DHW cylinder control	☐ With adaptive DHW cylinder control
■ Circulation pump ON only during active DHW cylinder loading	☐ DHW circulation pump ON acc. to its individual time program
■ Without auxiliary function for DHW loading	☐ With auxiliary function for DHW loading, input of a 2nd set value of ..... °C

5862 297 GB

Settings and equipment (cont.)

	Connected accessories ☐ Mixer circuit M1 extension kit ☐ Mixer circuit M2 extension kit ☐ Control module V ☐ KM BUS distributor ☐ Radio clock receiver ☐ Return temperature sensor ☐ Flue gas temperature sensor ☐ High limit thermostat for underfloor heating ☐ Expansion module Viessmann 2-wire BUS ☐ Vitocom 100 ☐ Vitocom 200 ☐ Vitocom 300, type FA2 ☐ Two-stage/modulating burner extension ☐ Vitoair ☐ Motorised flue gas damper

5862 297 GB

Keyword index

5862 297 GB

Keyword index (cont.)

5862 297 GB

Keyword index (cont.)

Viessmann Werke GmbH&Co
D-35107 Allendorf
Tel: +49 6452 70-0
Fax: +49 6452 70-2780
www.viessmann.de

Viessmann Limited
Hortonwood 30, Telford
Shropshire, TF1 7YP, GB
Tel: +44 1952 675000
Fax: +44 1952 675040
email: info-uk@viessmann.com

5862 297 GB Subject to technical modifications.