Installation and Service Instructions
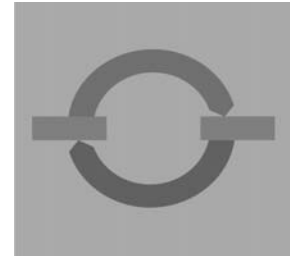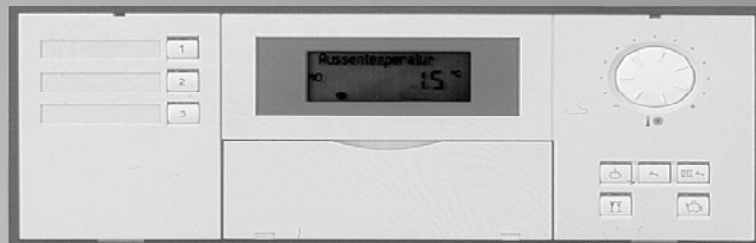
for the contractor

Vitotronic 050, Model HK1S and HK3S
Outdoor re-set mixing valve control

VIESSMANN

VITOTRONIC 050

Vitotronic 050, Typ HK1S

Vitotronic 050, Typ HK3S

Safety precautions

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

■ **Licensed professional heating contractor**
The installation, adjustment, service, and maintenance of this equipment *must be* performed by a licensed professional heating contractor.
Please see section entitled "Important Installation Requirements."

■ **Product documentation**
Read all applicable documentation before start-up. Store documentation near control in a readily accessible location for reference in the future by service personnel.
For a listing of applicable literature, please see section entitled "Important Installation Requirements."

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

■ **Advice to owner**
Once work is complete, the heating contractor must familiarize the system operator/end-user with all equipment, as well as safety precautions/requirements, shut-down procedure, and the need for professional service at least once per year.

Safety Terminology

The following terms are used throughout this manual to bring attention to the presence of potential hazards or important product information.
Please heed the advice given!

⚠ **DANGER**

Indicates an imminently hazardous situation which, if not avoided, will result in death, serious injury or substantial product / property damage.

⚠ **CAUTION**

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

⚠ **WARNING**

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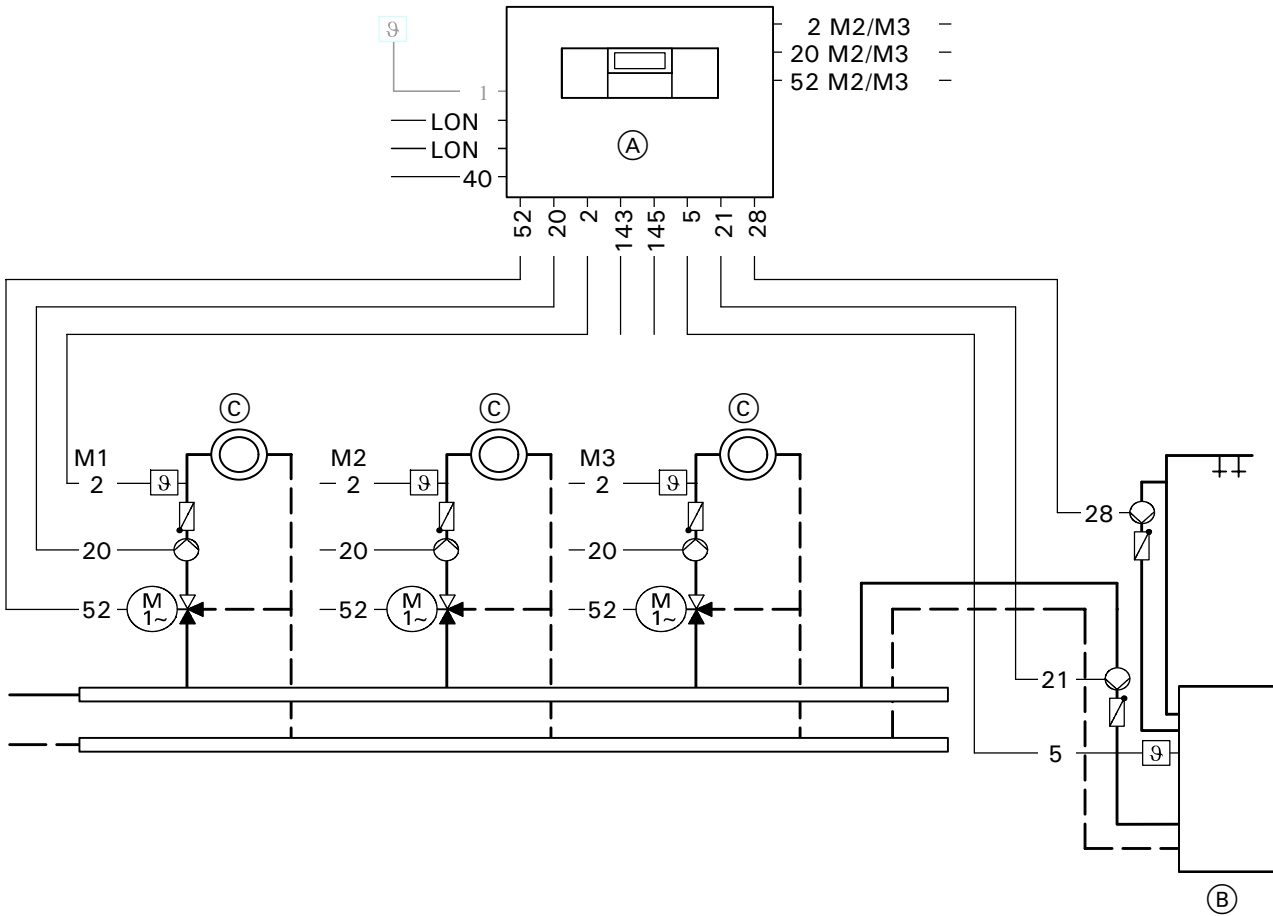
IMPORTANT

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

5581 529   v1.0   08/2006

Index

System version 1

(A) Vitocontrol-S housing Vitotronic 050
(B) DHW tank
(C) Mixing valve circuit
   (for model HK1S only one mixing valve circuit can be
   connected)

Plug

1	Outdoor temperature sensor
2	Supply temperature sensor
5	DHW tank temperature sensor
20	Heating circuit pump
21	DHW tank pump
28	DHW re-circulation pump
40	Power supply 120V/ 60 Hz
52	Mixing valve motor
143	External connections (see page 11)
145	KM-BUS-Participant

Coding

For systems with a DHW tank and for additional mixing valve circuits for model HK3S, coding addresses "00:2" to "00:10" are automatically set.

System version 2

System with underfloor heating system

The underfloor heating mixing valve circuit must be M1 if the underfloor heating system is regulated with supply and return temperature sensors (optimised control).

Ⓐ Vitotronic 050
Ⓑ DHW tank
Ⓒ Mixing valve circuit,
    only for model HK3S
Ⓓ Underfloor heating circuit

Plug

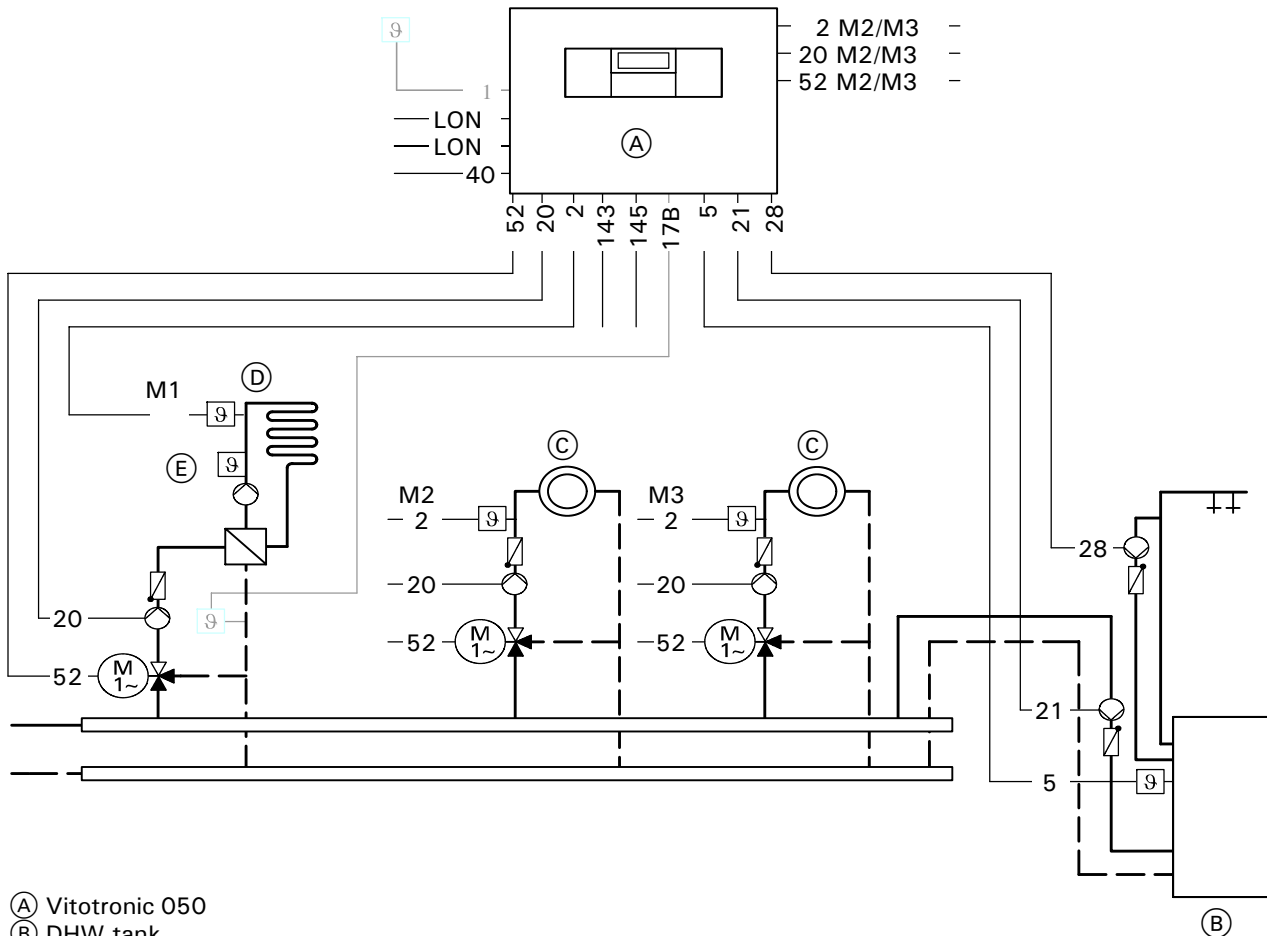|			
1	Outdoor temperature sensor	21	DHW tank pump
2	Supply temperature sensor	28	DHW re-circulation pump
5	DHW tank temperature sensor	40	Power supply 120V/ 60 Hz
17 Ⓑ	Return temperature sensor	52	Mixing valve motor
20 M2/M3	Heating circuit pump	143	External connections
	(Primary pump)	145	KM-BUS-Participant

Coding

For systems with a DHW tank and for additional mixing valve circuits for model HK3S, coding addresses "00:2" to "00:10" are automatically set.

Observe coding addresses "C7" and "C9" in conjunction with the optimised underfloor heating circuit control.

Module Installation

```
┌──────────┐   ┌──────────┐
│   A4     │   │   A3     │
│          │   │          │
└──────────┘   └──────────┘

┌──────────┐   ┌──────────┐
│   A1     │   │   A2     │
│          │   │          │
└──────────┘   └──────────┘
```
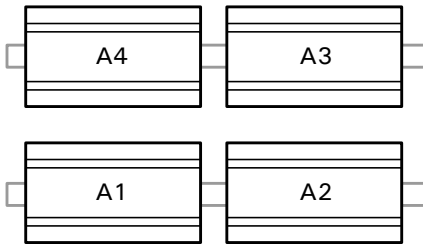
1. Modules pre-installed in Vitocontrol-C panel.

2. For connections see page 10.

A1 Power supply module
A2 Electronic module
A3 Power module
A4 Extension module

Summary of electrical connections

HK1S
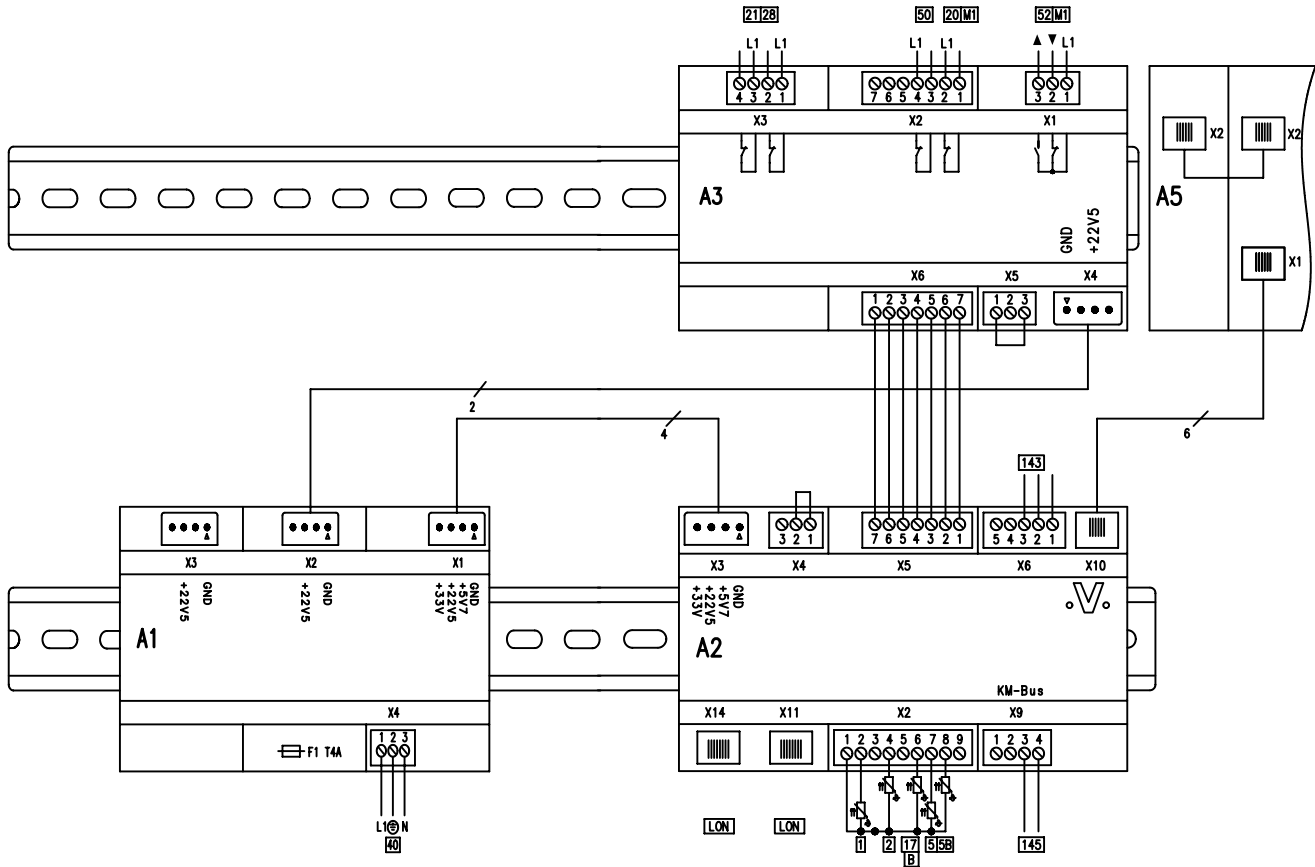
Summary of electrical connections (cont.)

HK3S
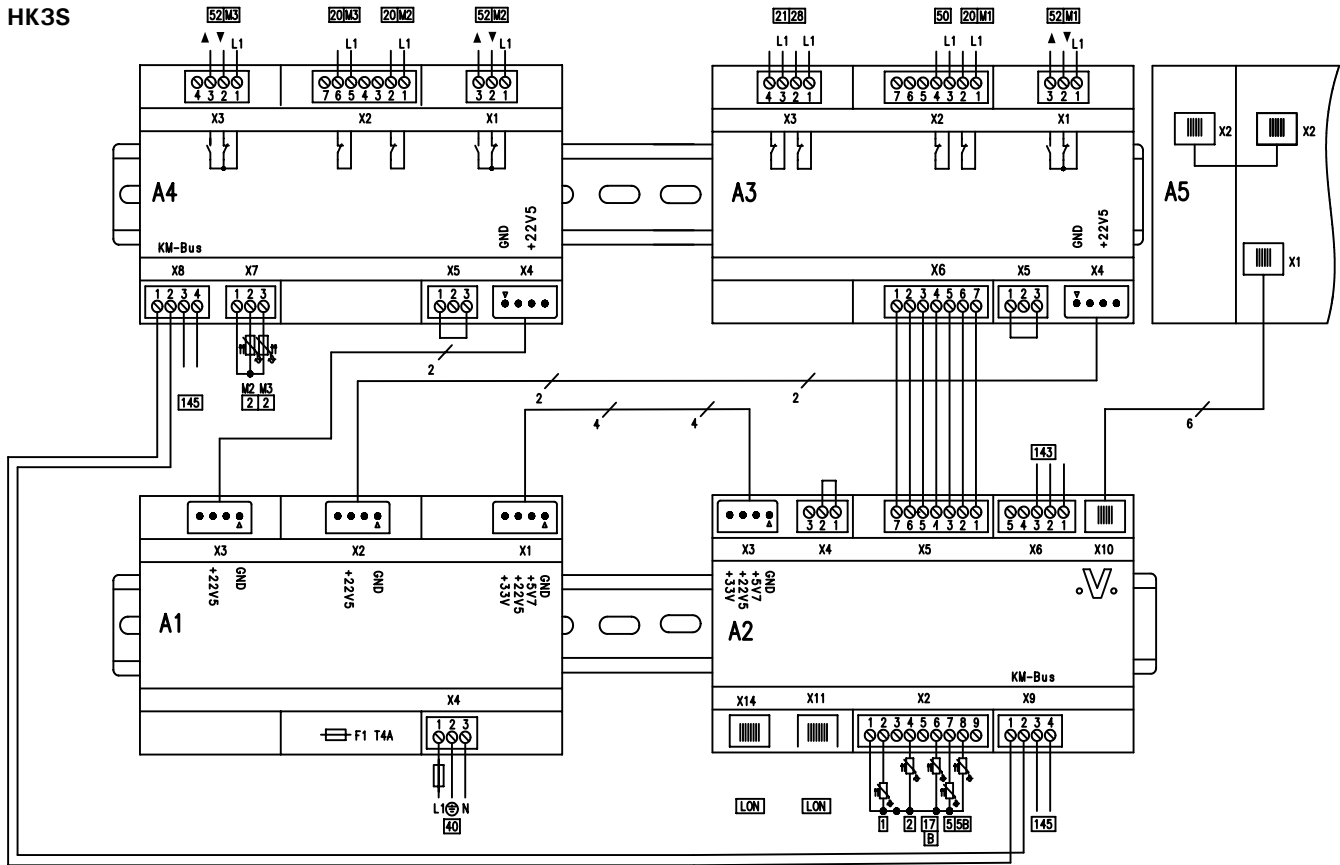
The mounting bracket and control unit back
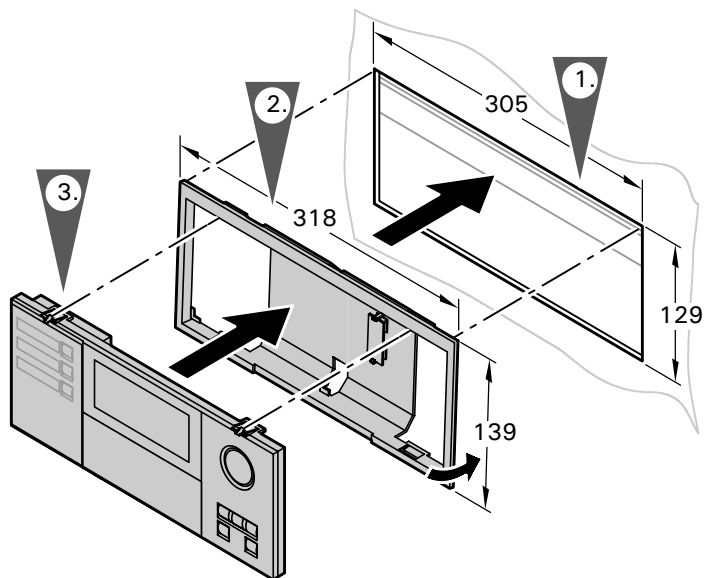
1. Opening on front of Vitocontrol-C is 305 x 129 mm (12 x 5 inches).

305

318

129

139

2. Frame and socket

3. User interface.
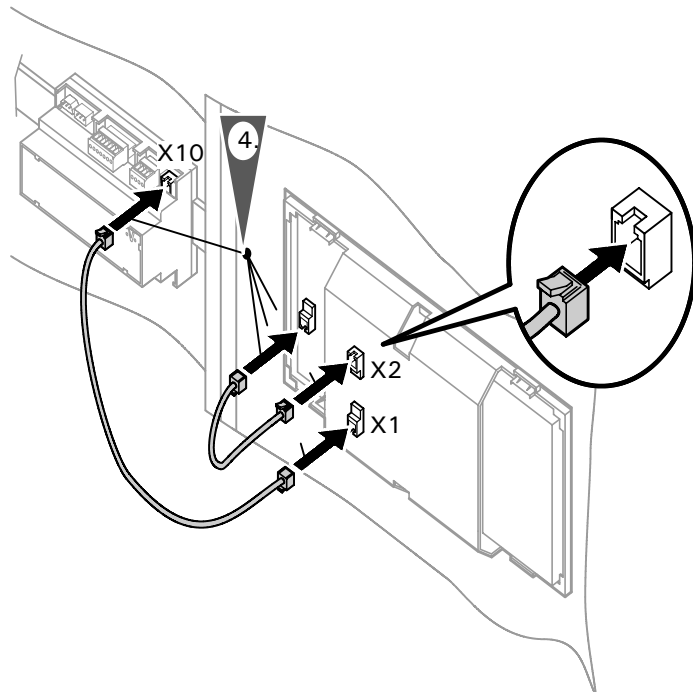
4. Connect the control to electronic module connection "X10".

X10

X2

X1

Installation

Pump connection

Available pump outputs on modules
|20|M1   Heating circuit pump mixing valve circuit M1 on module A3

|20|M2/M3 Heating circuit pump mixing valve circuit M2/M3
          (only for model HK3S) on module A4
|21| DHW tank pump
|28| DHW re-circulation pump

For pump connections see job-specific Vitocontrol-C schematic.

Mixing valve actuator connection

Used For:

■ Mixing valve actuator heating circuit M1 on Module A3
■ Mixing valve actuator heating circuit M2/M3 on module
  A4

▲ Open
▼ Closed

Application:
■ Mixing valve motor mixing valve circuits
■ Motor for 3-way mixing valve for DHW tank storage
  system

For mixing valve actuator connections see job-specific
Vitocontrol C schematic

Rated voltage: 120 VAC ~
Rated current: max. 0.2 (0.1) Amp

Run time: adjustable via coding address "C3"
               (factory setting "C3:125" for Viessmann
               mixing valve actuator)

External connections on plug $\boxed{143}$

X6

Note:
Refer to job-specific Vitocontrol-C schematic

Dry contacts (potential free)
(A) External heating program changeover/
External "Mixing valve open"
(B) External "Mixing valve closed"
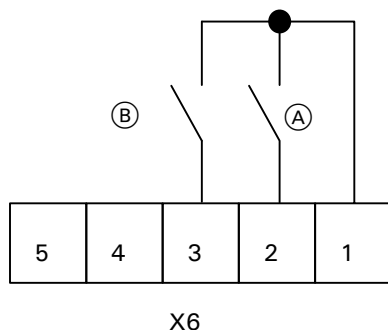
External contacts (A) and (B) are connected to $\boxed{143}$ (X6) on module A2 as shown in this diagram and, if applicable, on the job-specific Vitocontrol-C schematic.

External heating program changeover/ External "Mixing valve open"
The manually preselected heating program can be modified via this contact (see table below), and the mixing valve can be opened.

Allocation to the heating circuits via coding addresses "91" and "9A".

External "Mixing valve closed"
Closing the contact closes the mixing valve.

Allocation to the heating circuits via coding address "99". The function "mixing valve closed" has priority over "mixing valve open".

! Please note

The heating circuit is no longer protected from frost when the mixing valve closes.

Manually preselected heating program (with contact open)		Code 2		Changed heating program (with closed contact)
☉ or	Central heating OFF/DHW OFF	d5:0 (as factory default setting)	< – >	Permanent operation with reduced room temperature/DHW OFF
⌐ or	Central heating OFF/DHW ON	d5:1	< – >	Constant operation with standard room temperature/DHW in accordance with coding address "64"
Ⅲ⌐	Central heating ON/DHW ON			

Power supply

Refer to job-specific Vitocontrol-C schematic for power supply requirements.

Controls and display elements

First key 1,2 or 3
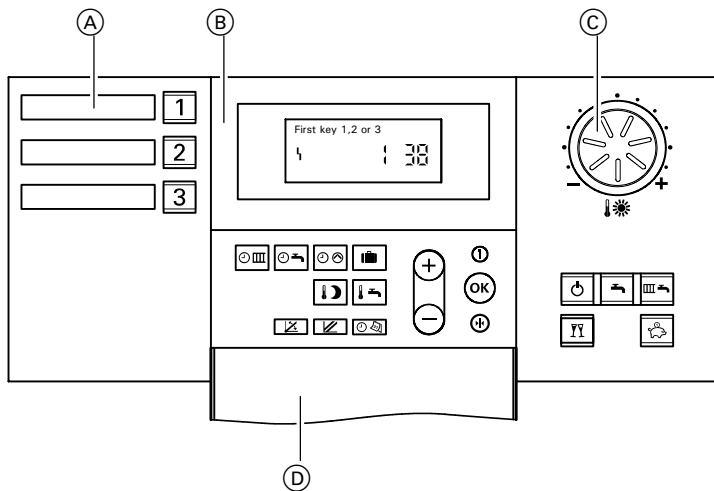
Ⓐ Heating circuit selection keys
Ⓑ User interface

Ⓒ Rotary selector "🌡☀" for "Standard room temperature"
Ⓓ Open flap

🕐▥	Space heating time program
🕐🚰	DHW heating time program
🕐⊘	DHW re-circulation pump time program
🧳	Holiday program
🌡🚰	DHW temperature
🌡︎☾	Reduced room temperature
⊠	Heating curve slope
⊿	Heating curve level
🕐🗒	Time/date
⏻	Standby mode
🚰	DHW only
▥🚰	Heating and DHW
🐷	Energy saving mode
🍴	Party mode
⊕/⊖	Adjusting values
ⓄⓀ	Confirmation
ⓘ	Information
⊣⊢	Standard setting

Checking the heating circuit allocation

■ Check whether the label for the heating circuit allocation has been affixed to the corresponding array of the programming unit.

■ Select the corresponding heating circuit before making any adjustments.

Changing the display language

1. Press (i).

2. Selected the required language with (−).

3. Confirm with (OK).

Connecting control unit to LON system

If applicable, plug in LON system cable to "LON" connection on module A2.

Note
Data transfer via the LON system can take several minutes.

Setting up LON participant numbers
In code 1 via coding address "77".
In a LON system, the same number **cannot** be allocated twice.

Updating LON participants
Only possible if all users are connected and the control unit is programmed to be fault manager (code "79:1").

1. Press ➥ and (OK) simultaneously for approx. 2 seconds
Participant check initiated (see page 15).

2. Press ⇥|⇤.
The participant list is updated after approx. 2 minutes.
Participant check completed.

Note
All saved fault codes can be deleted with "⇥|⇤".

Integrating the control unit into the LON system (cont.)

Single boiler system with Vitotronic 050 and Vitocom 300 downstream
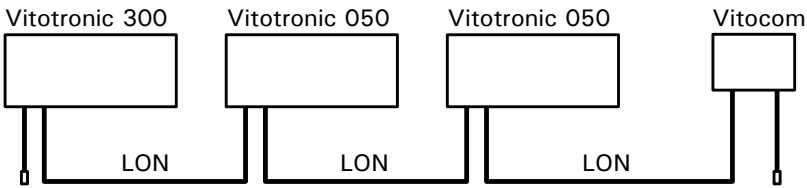
User no. 1 Code "77:1"	User no. 10 Code "77:10"	User no. 11 **Set** code "77:11"	User no. 99 (fixed)
Control unit is fault manager[1] Code "79:1"	Control unit is not fault manager[1] Code "79:0"	Control unit is not fault manager[1] Code "79:0"	Device is fault manager (fixed)
Send time via LON Code "7b:1"	Time received via LON **Set** code "81:3"	Time received via LON **Set** code "81:3"	Time received via LON (fixed)
Receive outdoor temperature via LON Code "97:2"	Outdoor temperature is received via LON **Set** code "97:1"	Outdoor temperature is received via LON **Set** code "97:1"	–––
Viessman system number coding "98:1"	Viessman system number coding "98:1"	Viessman system number coding "98:1"	–––
Fault monitoring LON participant Set code "9C:20"	Fault monitoring LON participant Set code "9C:20"	Fault monitoring LON participant Set code "9C:20"	–––

[1] In each heating system, **only one Vitotronic** may be programmed as fault manager.

Note: All saved fault codes can be deleted with "⯈◁".

Carrying out a participant check (in conjunction with LON System)

Communication with the system devices connected to the fault manager is tested with a participant check.
Preconditions:
■ The control unit **must** be programmed **as fault manager** (code ″79:1″).
■ The LON participant number must be encoded in all control units (see page 13).
■ The fault manager participant list must be up to date (see page13).

```
Participant check
01 : 01
```

Participant number

Consecutive list number
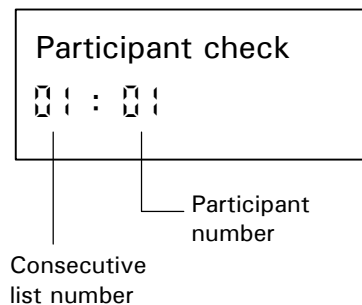
1. Press 🚰 and ⓞⓚ simultaneously for approx. 2 seconds.
   Participant check initiated.

2. Select the required user with ⊕ or ⊖ .

3. Activate check with ⓞⓚ .
   ″Check″ flashes until its completion. The display and all key illuminations of the selected user flash for approx. 60 seconds.
   ■ During communication between both devices **″Check OK″** flashes
   ■ **″Check not OK″** flashes if there is no communication between both devices. Check the LON connection and encoding (see page 14).

4. For checking further participants, proceed as described under items 2 and 3.

5. Press 🚰 and ⓞⓚ simultaneously for approx. 1 seconds.
   Participant check completed.

Matching the coding addresses to the system version

In code 2 set the following coding address:
″00″ system design
″4C″ Connection 20 on module A3
″4E″ Connection 52 on module A3
″77″ LON participant number
″7F″ Detached house or apartment block
″98″ Viessmann system number

Note
Further optional adjustments are listed in code 1 and 2.

Checking outputs (actuators) and sensors

Relay test

1. Press ⏻ and 🆗 simultaneously for approx. 2 seconds.
Relay test is activated.

2. Control relay outputs
with ⊕ or ⊖.

The following relay outputs may be selected:
- Output 20 ON
- Output 52 OPEN,
  Output 52 Hold,
  Output 52 Closed
  DHW Pump ON
- DHW re-circulation pump ON
- Heating circuit pump M2 ON
- Heating circuit pump M3 ON
- Mixing valve M2 OPEN
- Mixing valve M2 CLOSED
- Mixing valve M3 OPEN
- Mixing valve M3 CLOSED
- Fault messaging ON

3. Press 🆗. Relay test is completed.

Notes
The illuminated heating circuit selector indicates the corresponding heating circuit.

Changing the rotational direction of the mixing valve motor, see page 41.

Checking sensors

1. Press ⓘ.
Scanning operating conditions is
activated, see page 23.

2. Scan the actual temperatures with ⊕ or ⊖.

3. Press ⓘ. Scanning is completed.

Adjusting heating curves

Heating curves represent the relationship between the outdoor temperature and the supply temperature. To put it simply:
The lower the outdoor temperature, the higher the supply temperature. The room temperature again depends on the supply temperature.

Settings in the factory default setting:
- Slope "⟋" = 1,4
- Shift "⟋" = 0
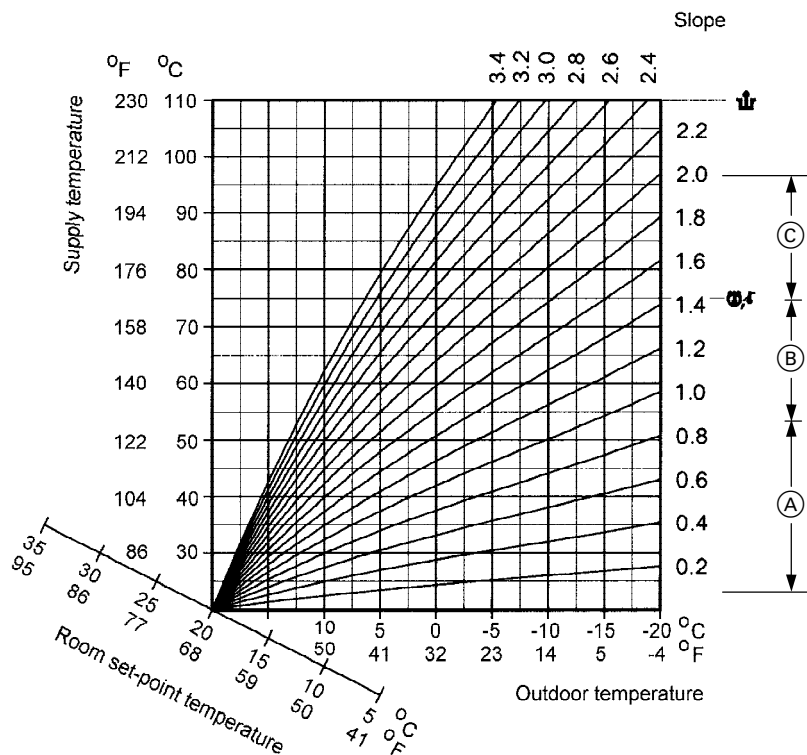
Ⓐ Underfloor heating
Ⓑ Low temperature heating systems
Ⓒ Heating system with boiler water temperatures in excess of 75 °C / 167°F

Adjusting heating curves (cont.)

Changing slope and shift (for each heating circuit separately)

1. ⊠ for slope, value adjustable from 0.2 to 3.5;
   ⧄ for shift, value adjustable from −13 to +40 K /
   8.6 to 104 °F.

2. ⊕ / ⊖ for the required value.

3. ⓄⓀ to confirm.
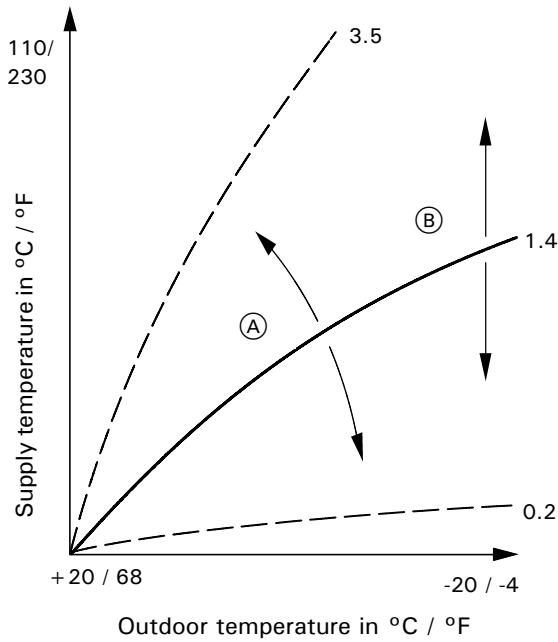
Ⓐ Change slope
Ⓑ Change level

Changing the maximum limit for the supply temperature (for each heating circuit separately)

Factory default setting 75 °C / 167 °F, change via coding address "C6".

Note
For underfloor heating circuits, you can select a maximum limit, e.g. 45 °C / 113 °F; for this, observe the system-specific maximum permissible supply temperature. The maximum limit does not replace the maximum limit temperature aquastat.

Adjusting heating curves (cont.)

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

Standard room temperature:
Adjust the set temperature with rotary selector "🌡☀".
The value will automatically be accepted after approx.
2 seconds.

Reduced room temperature:
1. 🌡☽ for "Reduced room temperature".

2. ⊕ / ⊖ for the required set temperature.

3. (OK) to confirm.
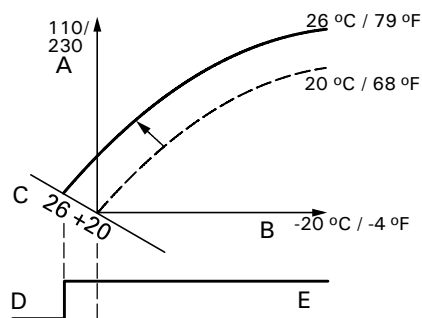
Example 1:
Adjustment of the standard room temperature from 20 °C to 26 °C / 68 °F to 79 °F.

Ⓐ Supply temperature in °C / °F
Ⓑ Outdoor temperature in °C / °F
Ⓒ Set room temperature in °C / °F
Ⓓ Heating circuit pump OFF
Ⓔ Heating circuit pump ON
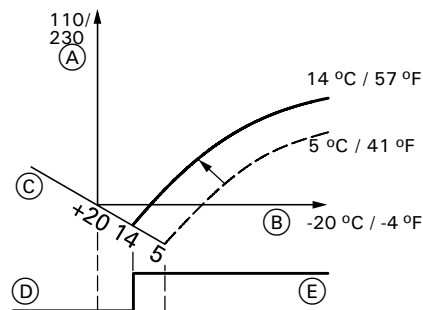
Example 2:
Adjustment of the reduced room temperature from 5 °C to 14 °C / 41 °F to 57 °F.

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

Service level summary

Function	Key combination	Exit	Page
Adjusting the display contrast	Press the "OK" and "+" buttons simultaneously; the display will darken	––	––
	Press the "OK" and "-" buttons simultaneously; the display will get lighter	––	––
Participant check (in conjunction with LON system)	Press the ⏚ and "OK" buttons simultaneously for approx. 2 seconds	Press the ⏚ and "OK" buttons simultaneously for approx. 1 second	15
Relay test	Press the ⏻ and "OK" buttons simultaneously for approx. 2 seconds	Press "OK"	16
Temperatures and quick scans	Press the ⏻ and Ⅲ⏚ buttons simultaneously for approx. 2 seconds	Press "OK"	21
Operating condition	Press ⓘ	Press ⓘ	23
Troubleshooting	Press ⓘ	Press "OK"	24
Calling up acknowledged fault messages	Press "OK" for approx. 2 seconds	Press "OK"	37
Fault history	Press the Ⅲ⏚ and "OK" buttons simultaneously for approx. 2 seconds	Press "OK"	29
Resetting codes into the factory default setting	Press the ⏚ and Ⅲ⏚ buttons simultaneously for approx. 2 seconds; press "ᐅᛁᐊ" confirm with "OK"	––	––
Code 1	Press the ⏻ and ⏚ buttons simultaneously for approx. 2 seconds	Press the ⏻ and ⏚ buttons simultaneously for approx. 1 second	50
Code 2	Press the ⏚ and Ⅲ⏚ buttons simultaneously for approx. 2 seconds; confirm with "OK"	Press the ⏻ and Ⅲ⏚ buttons simultaneously for approx. 1 second	53

Temperatures and quick scans

1. Press ⏻ and ▥🖐 simultaneously for approx. 2 seconds.   **3.** Press (OK). Scanning is completed.

2. Select the required scan with ⊕ or ⊖.

The following values can be scanned, subject to the actual equipment level:
- Slope M1/M2/M3
- Shift M1/M2/M3
- Outdoor temp. adj.   →The adjusted outdoor temperature can be reset to the
- Outdoor temp. actual   current outdoor temperature with "⊁⊀".
                                    →If a sensor is connected.

- Sensor 17 B
- Set DHW temp.   →If a DHW tank temperature sensor is connected.
- Actual DHW temp.   →If two DHW tank temperature sensors are connected.

- DHW Temp. 1. actual
- DHW temp. 2. actual
- Supply temperature, set   →If a remote control unit is connected.
- Supply temperature, actual   →See page 35.
- Room temp. set
- Room temp. actual

- Quick scan 1
  to
  Quick scan 9

Temperatures and quick scans (cont.)

Scan 8 8 8 8 8 8 8 8

Scan						
1	System design (see coding address "00")	N/A	Number of KM BUS users	N/A	Number of Viessmann 2-wire BUS users	
2	Software version Control unit	Software version Programming unit	N/A	Software version Communication module	Software version Mixing valve extension M2/M3 PCB	N/A
3	Operating mode Mixing valve circuit M1 0 w/o remote control 1 with Vitotrol 200 2 with Vitotrol 300	Software version Remote control Mixing valve circuit M1	Operating mode Mixing valve circuit M2 0 w/o remote control 1 with Vitotrol 200 2 with Vitotrol 300	Software version Remote control Mixing valve circuit M2	Operating mode Mixing valve circuit M3 0 w/o remote control 1 with Vitotrol 200 2 with Vitotrol 300	Software version Remote control Mixing valve circuit M3
4	N/A					
5	LON participant no.	Subnet address/system no.	Node address			
6	SNVT configuration 0 = Auto 1 = Tool	Software version Communication co-processor	Software version Neuron chip	Number of LON participants		
7	Device recognition see coding address "92" in code 2	N/A	N/A			
8	N/A					
9	N/A	N/A	Software version Solar control unit			

Scanning operating conditions

1. Press ⓘ.

2. Select the required operating condition scan with ⊕ or ⊖.

3. Press ⓘ. Scanning is completed.

The following operating conditions can be scanned subject to the actual equipment level:
- Participant no.   → If a LON communication module is installed.

- Holiday program with departure and return date   → If a holiday program has been entered.
- Actual outdoor temperature
- Sensor 17B (actual value)   → If a sensor is connected.
- Actual DHW temperature   → If a DHW tank temperature sensor is connected.

- Actual DHW temperature 1   → If two DHW tank temperature sensors are connected.
- Actual DHW temperature 2
- Supply temperature
- Standard room temperature (set value)
- Actual room temperature   → If a remote control unit is connected.

- Actual solar DHW temperature
- Collector temperature (actual value)
- Time
- Date
- Output 20 ON/OFF
- Output 52 OPEN/CLOSED   → Position detail in %
- DHW Tank pump ON/OFF
- DHW re-circulation pump ON/OFF
- Common supply pump ON/OFF
- Mixing valve open/closed   → Position detail in %
- Various languages   → Each language can be selected as the permanent display language with ⓞⓚ.

Faults which are displayed at the programming unit

The red fault indicator flashes for all faults.
If a fault message is issued, the display flashes "Fault".
A central fault messaging facility connected to 50 will be activated.

Troubleshooting

```
Fault

Mo              51 °C
      🚰
```

1. Press ⓘ.

2. Call up further fault codes
   with ⊕ or ⊖.

3. The fault can be acknowledged with ⓞⓚ. The fault
   message in the display will be hidden, but the red fault
   indicator continues to flash.
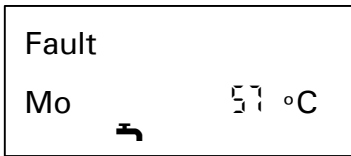
Note
*A new fault message will be shown in the display if an
acknowledged fault is not removed by 07:00 h the following
day.*

```
Outdoor sensor ────────────────────  Fault display

4        1  0 ──────────────  Fault code
                                      (for explanations, see page 30)

                              Fault number (1 to 10)

                              Fault symbol
```
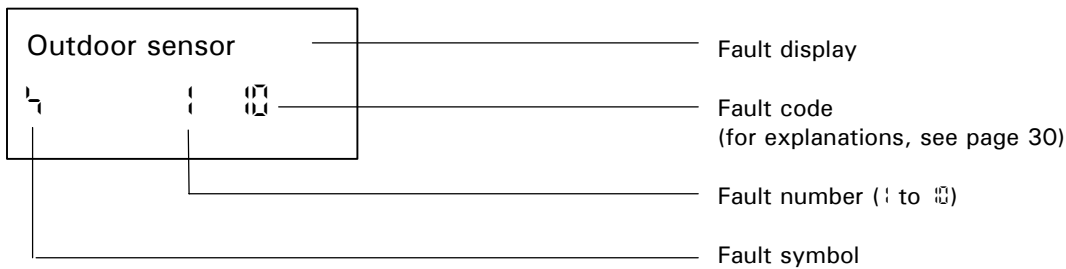
Faults which are displayed at the programming unit (cont.)

Plain text fault display
- Outdoor temperature sensor
- Supply sensor
- DHW Tank sensor 1 or 2
  Will only be displayed if a second DHW tank temperature sensor is connected.
- Sensor 17B
- Room temperature sensor
- Collector sensor
- Solar DHW sensor
- Participant number
- Fault – participant
  Display only if the control unit is programmed as fault manager.

Calling up acknowledged fault messages
1. Press ⓞⓚ for approx. 2 seconds.
   The fault will then be displayed.

2. Select an acknowledged fault with ⊕ or ⊖ .

Fault code	System characteristics	Cause	Remedy
ı0	Activates after 0 °C / 32 °F outdoor temperature	Short circuit Outdoor temperature sensor	Check outdoor temperature sensor (see page 39)
ı8		Open circuit Outdoor temperature sensor	
20	Mixing valve is "Closed"	Short circuit Supply temperature sensor Mixing valve circuit M1	Check supply temperature sensor (see page 38)
28		Open circuit Supply temperature sensor Mixing valve circuit M1	
40		Short circuit Supply temperature sensor Mixing valve circuit M2	
44		Short circuit Supply temperature sensor Mixing valve circuit M3	
48		Open circuit Supply temperature sensor Mixing valve circuit M2	
4C		Open circuit Supply temperature sensor Mixing valve circuit M3	

Faults which are displayed at the programming unit (cont.)

Fault code	System characteristics	Cause	Remedy
50	DHW tank pump ON: Set DHW temperature = set boiler water temperature, priority is cancelled	Short circuit DHW tank temperature sensor 1	Check DHW tank temperature sensor (see page 37)
58	DHW tank pump "ON": Set DHW temperature = set boiler water temperature, priority is cancelled	Open circuit DHW tank temperature sensor 1	
70	Weather-compensated control unit without return temp. sensor or Primary circuit mixing valve closed	Short circuit Temperature sensor $\boxed{17}\boxed{B}$	Check temperature sensor (see page 38) Without temperature sensor: Set code "4B:0"
78		Open circuit Temperature sensor $\boxed{17}\boxed{B}$	
92	Control mode Only the solar control unit fault codes will be displayed	Short circuit Collector temperature sensor, connects to Vitosolic S1	Check solar control unit sensor
93		Short circuit DHW tank temperature sensor, connects to Vitosolic S2	
94		Short circuit Temperature sensor, connects to Vitosolic S3	
9A		Open circuit Collector temperature sensor, connects to Vitosolic S1	
9b		Open circuit DHW tank temperature sensor, connects to Vitosolic S2	

Faults which are displayed at the programming unit (cont.)

Fault code	System characteristics	Cause	Remedy
9C	Control mode Only the solar control unit fault codes will be displayed	Open circuit Temperature sensor, connects to Vitosolic S3	Check solar control unit sensor
9F		Fault Solar control unit; displayed if an error without fault code occurs at the solar control unit	Check solar control unit
Ab	Controlled operation, perhaps DHW tank cold	Code "55:3" has been set, but sensor 17 B is not connected and/or Code "4C:1" and code "4E:1" have not been set	Connect sensor 17 B and check coding
b1	Control mode	Communication error Programming unit	Check connections and replace programming unit, if required
b4	Undefined control characteristics	Internal electronics fault	Replace electronics module A2
b5	Control mode		
b6	Undefined control characteristics	Invalid hardware recognized	Check coding address "92" (see page 57)
bA	Mixing valve closed	Mixing valve extension module A2 communication error	Replace the extension module A4 (see parts list)
bC	Control mode without remote control	Communication error Vitotrol remote control, Mixing valve circuit M1	Check connections, cable and coding address "A0" as well as the remote control DIP switches (see page 44 and 46)
bd		Communication error Vitotrol remote control, Mixing valve circuit M2	
bE		Communication error Vitotrol remote control, Mixing valve circuit M3	
bF	Control mode	Incorrect LON communication module	Replace communication module (see parts list)
C2		Open circuit KM BUS to solar control unit	Check KM BUS cable and the solar control unit. Without solar control unit: Set code "54:0"
C4		Communication with extension input module 0-10 V faulty	Check connections, cables/leads; if required, replace the extension input module (see page 49). Without extension input module: Set code "9d:0"
CF		LON communication module fault	Replace electronic module A4 (see parts list)

Faults which are displayed at the programming unit (cont.)

Fault code	System characteristics	Cause	Remedy
dA	Control mode without room influence	Short circuit Room temperature sensor, Mixing valve circuit M1	Check room temperature sensor (see page 48) and DIP switch setting on the Vitotrol (see page 44 and 46).
db		Short circuit Room temperature sensor, Mixing valve circuit M2	
dC		Short circuit Room temperature sensor, Mixing valve circuit M3	
dd		Open circuit Room temperature sensor, Mixing valve circuit M1	
dE		Open circuit Room temperature sensor, Mixing valve circuit M2	
dF		Open circuit Room temperature sensor, Mixing valve circuit M3	
E0	Control mode	Communication break Viessmann 2-wire BUS	Check connection

Faults which are displayed at the programming unit (cont.)

LON participants fault messages

Preconditions:
The control unit **must** be encoded as **fault manager** (code ″79:1″).
When used in conjunction with the Vitotronic 333, the 333 is programmed as the fault manager.

```
Participant

  4          1          12
```
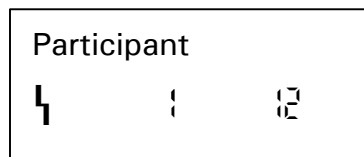
Fault code	System characteristics	Cause	Remedy
01 to 98	Control mode	A user fault has occurred e.g. 12 (Vitotronic 050)	Download fault code to user Installation and service instructions of the relevant control unit
		No connection to the user	– Check coding (see page 14) – Check connecting LON cable – Update participant list (see page 13) – Carry out a participant check (see page 15)

Faults which are displayed at the programming unit (cont.)

Fault code	System characteristics	Cause	Remedy
99	Control mode	Fault message active at Vitocom 300	Check external connections at Vitocom 300
		No connection to Vitocom 300	– Check coding (see page 14) – Check connecting LON cable – Update participant list (see page 13) – Carry out a participant check (see page 15)

Downloading fault codes from the fault memory (fault history)

The most recent 10 faults are saved and may be called up. Faults are sorted by date. The most recent fault is thus fault number 1.

```
Fault history

  1                    10
```

1. Press ▥⤸ and ⑩ simultaneously for approx. 2 seconds.

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

Note
All saved fault codes can be deleted with "⤭".

3. Press ⑩ .
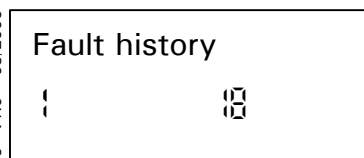
Heating circuit control unit

Brief description

The set supply temperature of every heating circuit is selected by the following parameters:
- Outdoor temperature
- Set room temperature
- Operating mode
- Heating curve

The supply temperature of the mixing valve circuits is regulated by the stepped opening or closing of the mixing valves.

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

Coding addresses which influence the heating circuit control 9F, A0 to Fb.
For a description, see the coding overview.

Functions

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

Outdoor temperature
A heating curve must be set up for matching the control unit to the building and the heating system.
The heating curve characteristics determine the set supply temperature subject to outdoor temperature. An average outdoor temperature is used for control purposes. This comprises the actual and the adjusted outdoor temperature.

Domestic hot water temperature
- With priority control:
  The set supply temperature will be set to 0 °C / 32 °F whilst the DHW tank is being heated up.
  The mixing valve closes, and the heating circuit pump is switched OFF.
- Without priority control:
  The heating circuit control unit continues to operate with the same set value.

Heating circuit control (cont.)

Room temperature
in conjunction with remote control and room temperature feed-back (observe coding address "b0").

Compared to the outdoor temperature, the room temperature has a greater influence on the set supply temperature. This influence may be changed via coding address "b2".

For control differences (actual value deviation) above 2 K room temperature, the influence can be increased again (via coding address "b6", boost heating/rapid setback).

Boost heating:
The set room temperature must be raised by a minimum of 2 K by
■ pressing the party ⛄ button
■ changing from central heating with reduced temperature to central heating with standard temperature
■ start-up optimisation
Boost heating will stop when the set room temperature has been reached.

Rapid setback:
The set room temperature must be reduced by a minimum of 2 K by
■ pressing energy saving key 🐷
■ changing from central heating with standard temperature to central heating with reduced temperature
■ Shut-down time optimisation
Rapid setback will stop when the set room temperature has been reached.

Heating circuit pump logic (energy saving mode)The heating circuit pump is switched OFF (set supply temperature set to 0 °C / 32 °F), when the outdoor temperature exceeds the value selected via coding address "A5".

Extended energy saving mode
The heating circuit pump is switched OFF and the set supply temperature is set to 0 °C / 32 °F, if:
■ the outdoor temperature exceeds the value selected via coding address "A6"
■ the set room temperature is reduced via coding address "A9"
■ the mixing valve has been closed for 12 minutes (mixing valve energy saving function, coding address "A7")
■ the actual room temperature exceeds the value selected via coding address "b5"

Slab Curing Function
(only in conjunction with mixing valve circuit)
Please note:
The slab curing function is selectable on the basis of four different temperature curves. The curves are activated via coding address "F1".

When the slab curing function is activated, the heating circuit pump of the mixing valve circuit is switched on and the supply temperature is controlled according to the selected curve. When the slab curing time (30 days) has expired, the mixing valve circuit is automatically controlled on the basis of the preset parameters.

Function description

Heating circuit control (cont.)

Underfloor heating
(only mixing valve circuit M1)
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.
The temperature differential may be changed via coding address "C7".
When changing from central heating with reduced temperature to central heating with standard temperature, the set supply temperature can be raised by 20 % for one hour via code "C9:1".

System dynamics – mixing valve circuit
You can influence the control characteristics of the mixing valve via coding address "C4".

Frost protection
When the outdoor temperature falls below +1°C / 34 °F, a supply temperature of at least 10 °C / 50 °F will be safeguarded.
For changes see coding address "A3", variable frost limit.

Supply temperature control
Differential temperature:
The differential temperature can be adjusted via coding address "9F",
Delivered condition 8 K.
The differential temperature is the minimum value by which the boiler water temperature should be higher than the current highest required supply temperature of the mixing valve circuits.
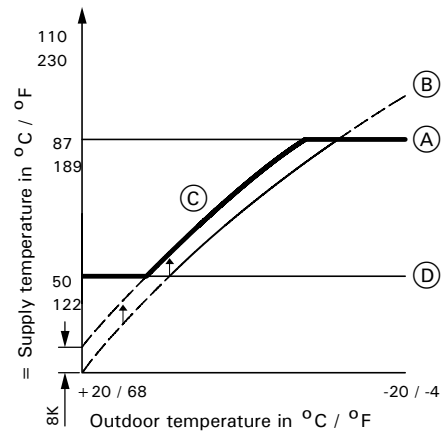
Ⓐ Max. boiler water temperature
Ⓑ Slope = 1.8   mixing valve circuit M1
Ⓒ Slope = 0.6   mixing valve circuit M2
   Shift = 10
Ⓓ Boiler water temperature
   (at a differential temperature of 8 K)
Ⓔ Lower boiler water temperature

32

Heating circuit control (cont.)

Upper control limit
Electronic maximum limit
Setting range: 10 to 127 °C / 50 to 261°F
Changes via coding address "C6"

Note
The maximum limit is no replacement for the underfloor heating system temperature aquastat (see page 42).

Temperature aquastat for underfloor heating:
The temperature aquastat switches the heating circuit pump OFF if the set value has been exceeded. In such cases, the supply temperature reduces only slowly, i.e. it may be several hours before the system restarts again automatically.

Lower control range limit
Electronic minimum limit (only active in operation with standard room temperature)
Setting range: 1 to 127 °C / 33 to 261°F
Changes via coding address "C5"

Control sequence

Mixing valve circuit
Inside the "neutral zone"
($\pm$ 1 K) the mixing valve motor will not be controlled.

Supply temperature drops
(set value -1 K)
The mixing valve motor receives the signal "Mixing valve open".
The signal duration lengthens with an increasing control differential. The duration of pauses reduces with an increasing control differential.

Supply temperature rises
(set value +1 K)
The mixing valve motor receives the signal "Mixing valve closed".
The signal duration lengthens with an increasing control differential.
The duration of pauses reduces with an increasing control differential.

33

DHW tank temperature control

Brief description

The DHW tank temperature control operates with a constant temperature. It is the result of starting and stopping the DHW tank pump.
The switching differential is ±2.5K.

During DHW tank heating, a constant upper boiler water temperature will be set (20 K higher than the set DHW tank temperature, adjustable via coding address "60") and central heating is switched OFF (optional DHW tank priority).

Coding addresses which influence the DHW tank temperature control
54, 55, 56, 58 to 62, 64, 66, 67,
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 DHW heating and the control of the DHW re-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 time phases per day to be set via the time switch to control the DHW heating and four time phases per day for the DHW re-circulation pump.
Any DHW tank heating sequence will be completed, independent of the time program.

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

"7F:0" Apartment block:
■ Automatic mode
  The heating times for the respective heating circuit will be applied to systems with two or three heating circuits.
■ Individual time program
  The switching times for DHW heating can be adjusted separately for each heating circuit.

DHW tank temperature control (cont.)

DHW priority
- With DHW priority:
  (code "A2:2"):
  The set supply temperature will be set to 0 °C / 32 °F during DHW tank heating.
  The mixing valve closes, and the heating circuit pump is switched OFF.
- Without DHW priority:
  The heating circuit control unit continues to operate with the same set value.

Frost protection
The DHW tank will be heated to 20 °C / 68 °F if the DHW temperature falls below 5 °C / 41 °F.

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

Set DHW temperature
The set DHW temperature can be adjusted between 10 and 60 °C / 50 and 140 °F. The set range can be extended to 95 °C via coding address "56".
The set default value of the programming unit and/or the Vitotrol 300 remote control (if installed) can be allocated via coding address "66".

DHW re-circulation pump
The DHW re-circulation pump delivers hot water to the draw-off points at adjustable times.
Up to four time phases can be set at the time switch.

Auxiliary circuits
DHW heating can be blocked or enabled by changing over the heating program (see coding address "b5").

Systems with Vitosolic
A third set DHW temperature can be defaulted via coding address "67". Re-heating will be suppressed above the selected temperature. The DHW tank will only be heated by the solar heating system.

DHW demand to central DHW tank
(Only in conjunction with LON communication module)
The DHW demand can optionally be applied to a central DHW tank (coding address "57"). The DHW tank temperature control of the Vitotronic 050 is inactive, i.e. no DHW temperature can be set and no DHW re-circulation pump can be controlled. However, the time phases for DHW heating remain active.

Control sequence

Pump delay
- The DHW tank pump runs on after DHW tank heating until the following criteria have been met:
  - The weather-compensated set boiler water temperature has been reached
    or
  - The set DHW temperature has been exceeded by 5 K
    or
  - The maximum run-on time (adjustable via coding address "62") has been reached
- Without the DHW tank pump running on (code "62:0")

Code "55:2":
DHW tank temperature control with 2 DHW tank temperature sensors
DHW tank temperature sensor 1 enables the DHW tank pump and is evaluated for termination conditions during the pump run-on time (see page 35). DHW tank temperature sensor 2 (inside the cold water inlet) is designed to start DHW tank heating prematurely when large volumes of DHW are drawn off as well as to stop DHW tank heating prematurely, if no DHW is drawn.
Select starting and stopping points via coding addresses "68" and "69".

Address "55:0"
DHW tank heating

DHW tank goes cold
(set value -2.5K; adjustable via coding address "59")
The set boiler water temperature is adjusted 20 K higher than the set DHW (adjustable via coding address "60").

The DHW tank is hot
(set value +2.5 K)
The set boiler water temperature is returned to the weather-compensated value.

Components from the parts list

Power supply module A1, PN: 7189 737

Electronic module A2, PN: 7820 788

Microprocessor with software

When replacing the PC board:
1. Record the codes and adjustaments made at the control unit.
2. Peplace the PC board
3. Set code "8A: 176" and coding address "92" to
   - "92 : 172" for model HK1S,
   - "92 : 173" for model HK3S.

Power module A3, PN: 7158 003

Extension module A4, PN: 7189 828 (for HK3S only)

Programming unit A5

Typ HK1S	Typ HK3S	Bedieneinheit
7143 439	7143 440	7820 171
7143 442	7143 443	7820 170

The user interface is installed into the fron of the Vitocontrol-C.
It allows the setting of:
- Operating program
- Desired values
- Switching times
- Heating curve (slope and shift)
- Date
- Time
- Energy saving and party mode

It displays:
- Temperatures
- Operating status
- Faults

Front plate, PN: 7818 630 (for HK1S only)

Front plate, PN: 7818 623 (for HK3S only)

Only for model HK3S
The PCB comprises the relays for controlling the mixing valve motor and the heating circuit pumps.

Fuse Replacement
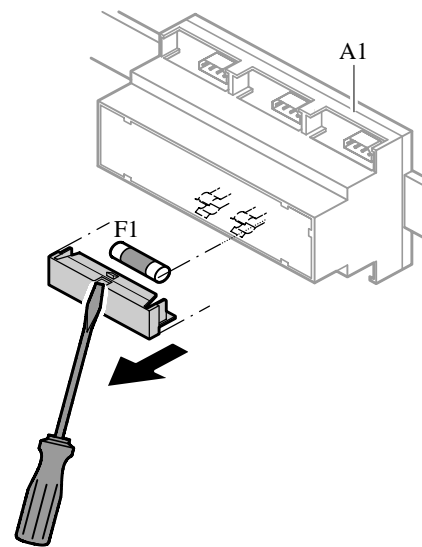
A1   Power supply module
F1   Fuse 4A time delay

Components from the parts list (cont.)

DHW tank temperature sensor

Connection
See job-specific Vitocontrol-C schematic.

Check sensor
1. Disconnect one lead of sensor cable

2. Check the sensor resistance at end of both leads.

3. Compare the measurement with the actual temperature displayed (for scanning, see page 21).
Check the installation and replace sensor, if necessary, in case of severe deviation.

Specification
Protection: IP 32
Permiss. ambient temperature
■ in operation   0 to +90 °C / 32 to + 194 °F
■ during storage
and transport: −20 to +70 °C / - 4 to + 158 °F

DHW tank temperature in °C / °F
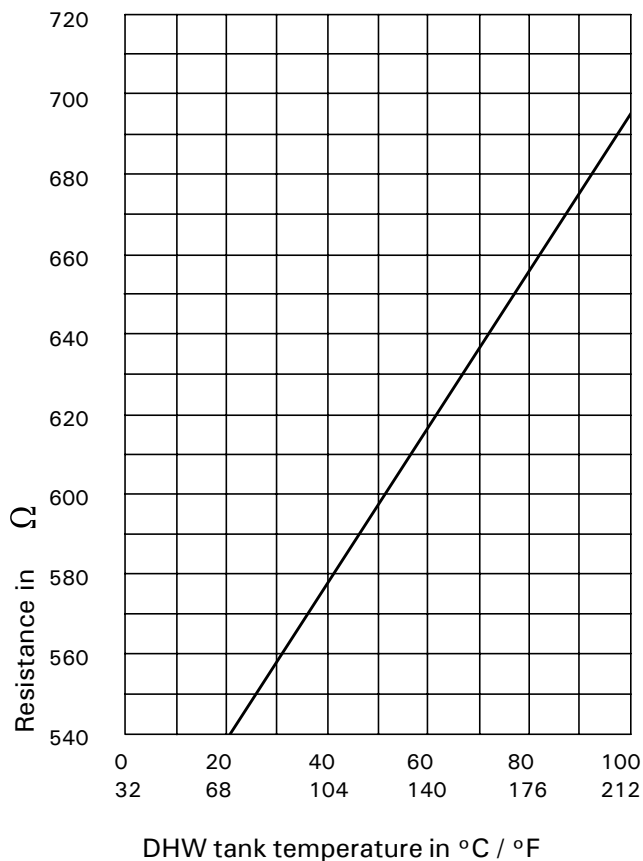
Components from the parts list (cont.)

Strap-on temperature sensor and immersion temperature sensor

For recording the supply and return temperature.

Resistance in Ω

Supply temperature/return temperature in °C / °F

Connection
See job-specific Vitocontrol-C schematic.

Check sensor
1. Disconnect one lead of sensor cable.

2. Check the sensor resistance at end of both leads.

3. Compare the test result with the actual temperature (for scanning, see page 21).
Check the installation and replace sensor, if necessary, in case of severe deviation.

Specification
Protection: IP 32
Permiss. ambient
temperature
■ in operation: 0 to +100 °C / 32 to + 212 °F
■ in storage and
  transport: −20 to + 70 °C / - 4 to + 158 °F

Components from the parts list (cont.)

Outdoor temperature sensor

Resistance in Ω vs. Outdoor temperature in °C / °F

X-axis values:
| -40 | -30 | -20 | -10 | 0 | 10 | 20 | 30 |
| -40 | -22 | -4 | 14 | 32 | 50 | 68 | 86 |

Outdoor temperature in °C / °F
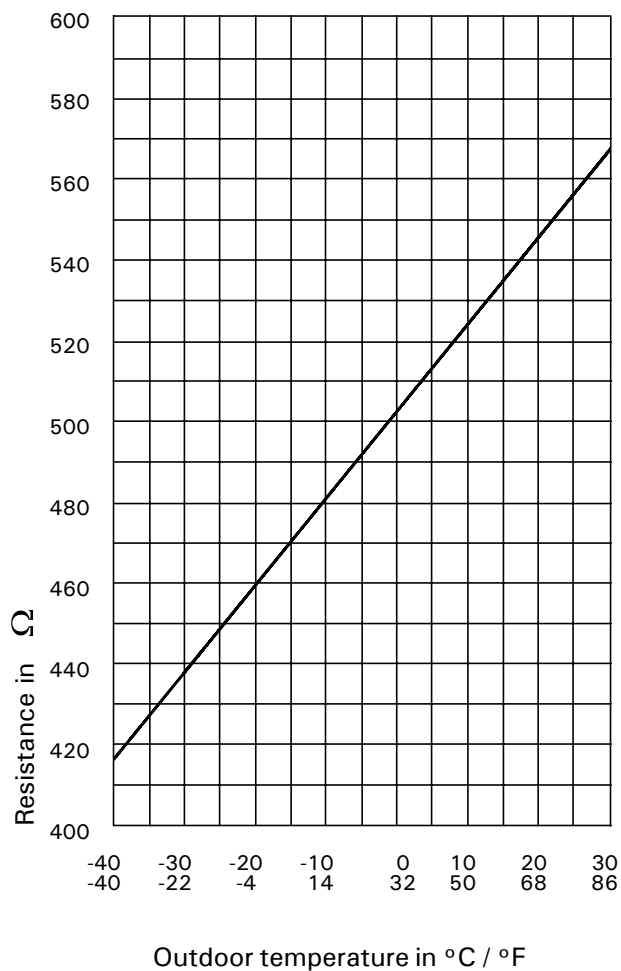
Connection
See job-specific Vitocontrol-C schematic.

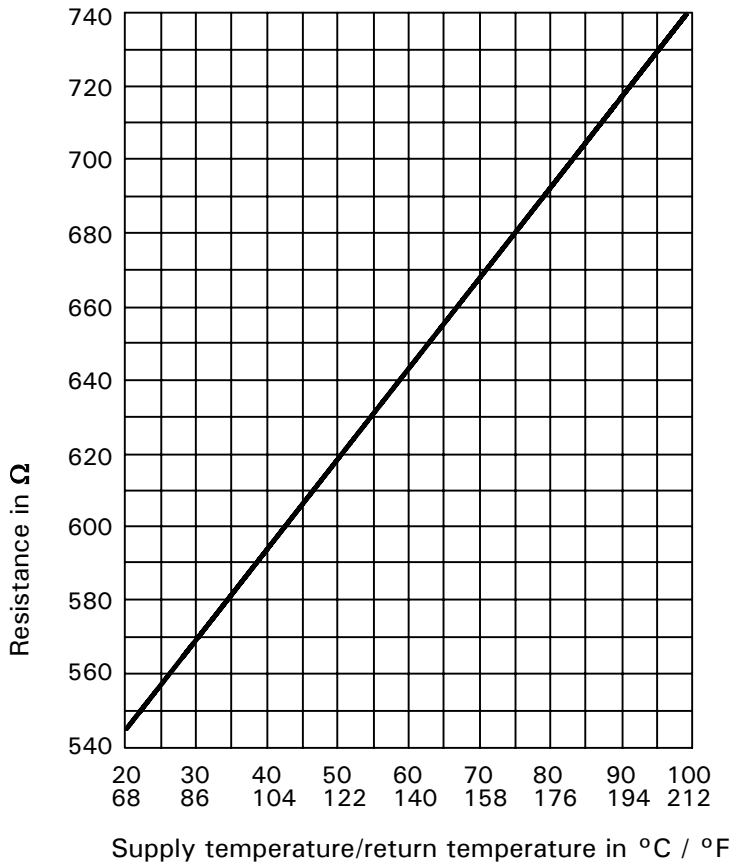**Checking the outdoor temperature sensor**
1. Disconnect one lead of sensor cable.

2. Check the sensor resistance at the end of both leads.

3. Where actual values strongly deviate from the curve values, repeat the sensor test and compare with the actual temperature (for scanning, see page 21).

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

5. Scan actual temperature (see page 21).

Specification
Protection: IP 43
Permissible ambient temperature for operation, storage and transport: -40 to $+70$ °C / -40 to 158 °F

Mixing valve circuit extension kit

Mixing valve motor

Connection from Vitocontrol-C
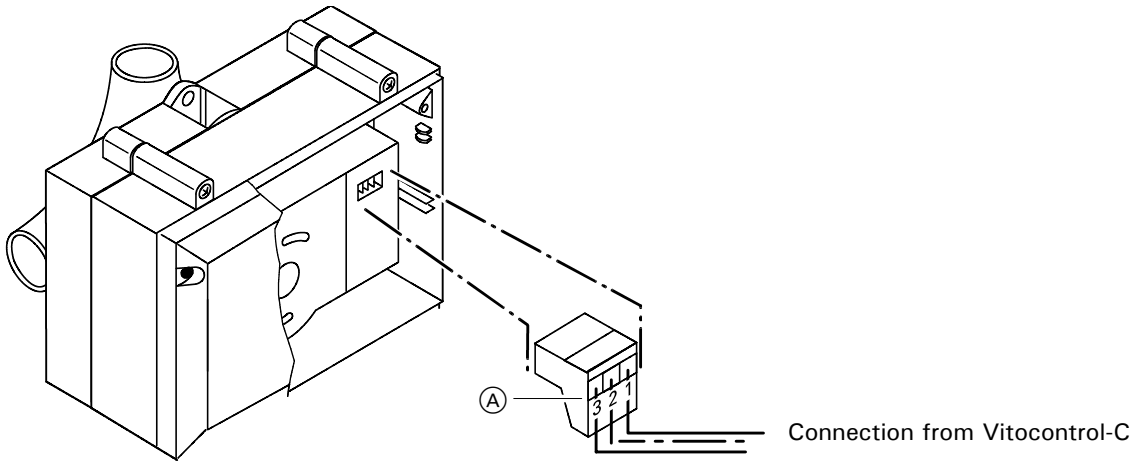
Ⓐ Plug in the mixing valve motor
▲ Mixing valve open
▼ Mixing valve closed

Changing the rotational direction
(see page 41).
Remove the cover and reinsert the 3-pole plug Ⓐ turned by 180°.

Checking the direction of rotation
The relay test of the control unit moves the mixing valve to "Open" and "Closed".

Specification
Rated voltage:	120 VAC
Rated frequency:	60 Hz
Power consumption:	4 W
Protection:	IP 42
Torque:	3 Nm
Run-time for 90° ∢:	120 s

Installation examples

Mixing valve insert conversion (if required); see mixing valve installation instructions.

Note
*For system with Modular-Divicon, **reverse** the rotational direction.*

Factory default setting of the mixing valve motor rotational direction	Change the mixing valve motor rotational direction for these installation examples

HR   Heating return
HV   Heating supply
KR   Boiler return
KV   Boiler supply

Temperature aquastat for maximum temperature limiting
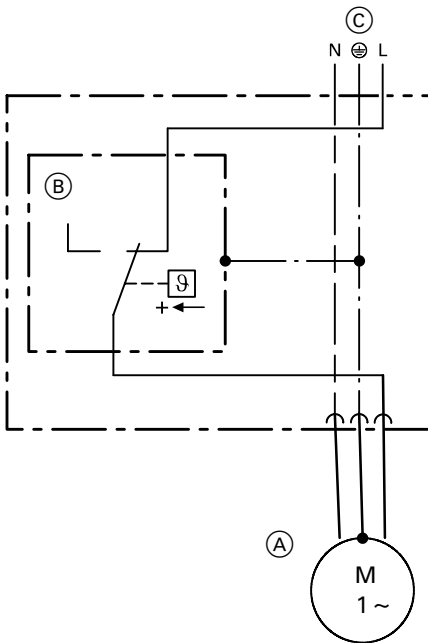
Electro-mechanical temperature aquastat according to the liquid expansion principle.

Switches the heating circuit pump OFF, when the set value has been exceeded.

In such cases, the supply temperature reduces only slowly, i.e it may be several hours before the system restarts again automatically.

Ⓐ Heating circuit pump
Ⓑ Temperature aquastat
Ⓒ Connection to the Vitocontrol-C control panel

Remote control

Vitotrol 200
(incl. integral room temperature sensor for room temperature hook-up)
Settings:
- Day temperature
- Heating program
- Energy saving and party mode

Function changes can be made via coding addresses "A0", "b0" to "b9", "C0" to "C2", "C8", "E1", "E2" and "F2" (see overview).
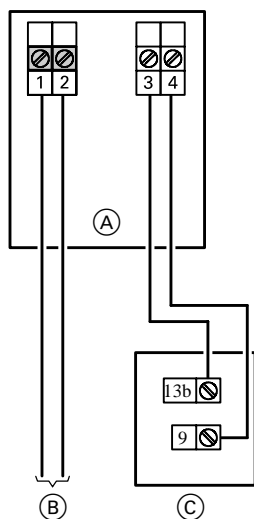
Connection
2-wires (total length max. 50 m / 164 ft).

Room temperature sensor connection
2-wires with a maximum length of 35 m / 114.5 ft and a cross-section of
16 AWG (copper).

Ⓐ Wall mounting base for
   Vitotrol 200
Ⓑ To the control unit
Ⓒ Separate room temperature sensor

Remote control (cont.)

D DIP switches on the PCB
(back of the remote control)

Remote control affects	DIP switch setting
Mixing valve circuit M1 (heating circuit selection key 1)	Delivered condition
Mixing valve circuit M2 (heating circuit selection key 2)	
Mixing valve circuit M3 (heating circuit selection key 3)	

Specification
Power supply via KM BUS.

Safety class:	III
Protection:	IP 30
Permiss. ambient temperature	
■ in operation:	0 to +40 ° C / 32 to 104 ° F
■ in storage and in transport:	−20 to +65 ° C / 4 to +149 ° F
Setting range Standard set room temp.:	10 to 30 ºC / 50 to 96 ° F; adjustable to 3 to 23 ° C / 37 to 73 ° F or 17 to 37 ° C / 63 to 99 ° F via coding address "E1"

Reduced set room temperature adjustment at the control unit.

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

Remote control (cont.)

Vitotrol 300
(incl. integral room temperature sensor for room temperature hook-up)
Settings:
■ Day and night temperature   ■ Holiday program
■ Domestic hot water temperature   ■ Switching times
■ Heating program   ■ Energy saving and party mode

Function changes can be made via coding addresses "A0", "b0" to "b9", "C0" to "C2", "C8", "E1" and "E2" and "F8" (see overview).
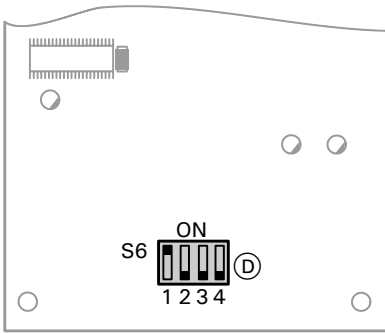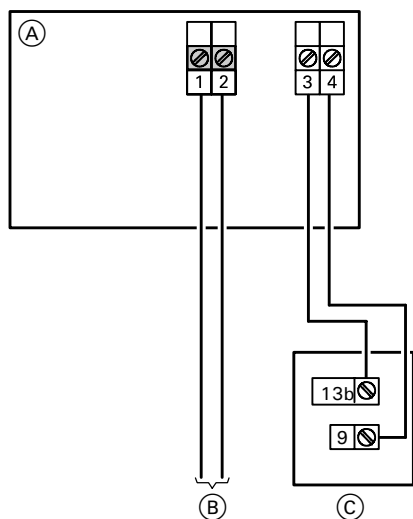
Connection
2-wires (total length max. 50 m / 164 ft).

Room temperature sensor connection
2-wires with a maximum length of 35 m / 144.5 ft and a cross-section of 16 AWG (copper).

Ⓐ Wall mounting base for
   Vitotrol 300
Ⓑ To the control unit
Ⓒ Separate room temperature sensor

Remote control (cont.)
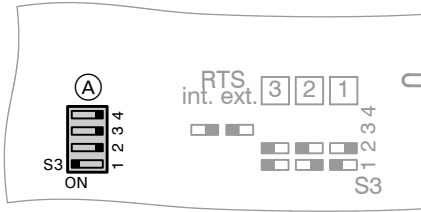
(A) PCB DIP switches (back of the top casing).

Remote control affects	DIP switch setting
Mixing valve circuit M1 (heating circuit selection key 1)	Delivered condition
Mixing valve circuit M2 (heating circuit selection key 2)	
Mixing valve circuit M3 (heating circuit selection key 3)	

When connecting a separate room temperature sensor, set DIP switch "S3.3" to ON.

Specification
Power supply via KM BUS.

Safety class:	III
Protection:	IP 30

Permiss. ambient temperature
■ in operation: 0 to +40 °C / 32 to 104 °F
■ during storage
  and transport: −20 to + 65 °C / −4 to +149 °F
Setting range for
set standard
room temp.: 10 to 30 °C / 50 to 96 °F;
adjustable from
3 to 23 °C / 37 to 73 °F
or
17 to 37 °C / 63 to 99 °F
via coding
address "E1"

Reduced room
temp.: 3 to 37 °C / 37 to 99 °F

Remote control (cont.)

Connecting several remote control units

When connecting several remote controls to the control unit, install a junction box on site.

Version 1
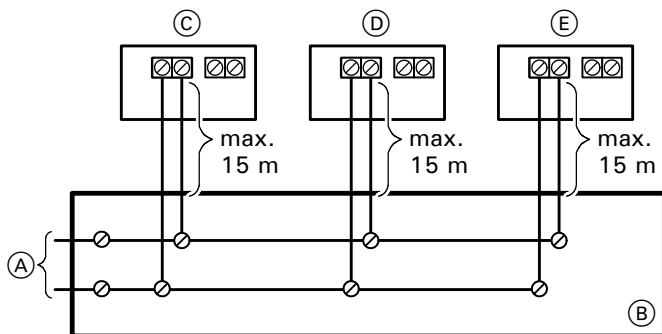
Ⓐ To control unit
Ⓑ Junction box (on site)
Ⓒ Vitotrol 1
Ⓓ Vitotrol 2
Ⓔ Vitotrol 3

■ On-site connection via junction box:
  Connect in accordance with the diagram above.
■ The total length of all KM BUS cables should be limited to 50 m / 164 ft.

Version 2
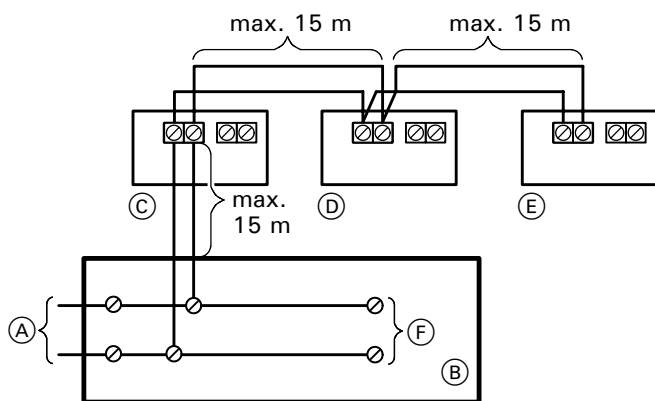
Ⓐ To control unit
Ⓑ Junction box (on site)
Ⓒ Vitotrol 1
Ⓓ Vitotrol 2
Ⓔ Vitotrol 3
Ⓕ Additional BUS users

■ If several remote control units and additional KM BUS users are connected, make the connections via a junction box (on-site) as shown in the diagram above.
■ The total length of all KM BUS cables should be limited to 50 m / 164 ft.

Room temperature sensor

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

Room temperature in °C / °F
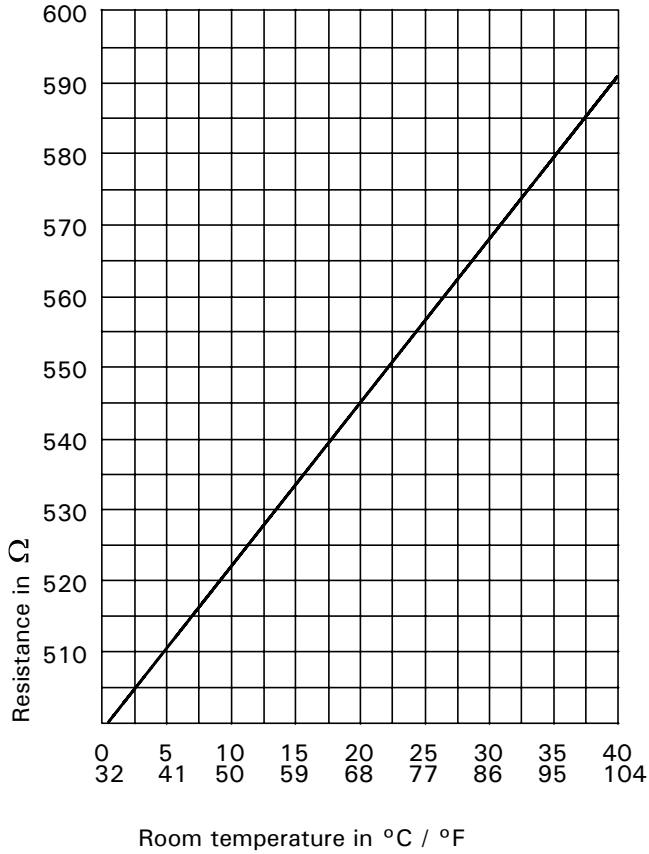
Connection
See pages 43 and 45.

Check the room temperature sensor
1. Disconnect the wires from the sensor.

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

3. Compare the measurement with the actual temperature displayed (for scanning, see page 21).
Check the installation and replace sensor, if necessary, in case of severe deviation.

Specification
Protection: IP 30
Permiss. ambient
temperature
■ in operation   0 to +40 °C / 32 to 104 °F
■ during storage
and transport: −20 to +65 °C / −4 to +149 °F

Extension input module 0 to 10 V

To control a supply pump, e.g in a distribution manifold
or
for signalling reduced mode.
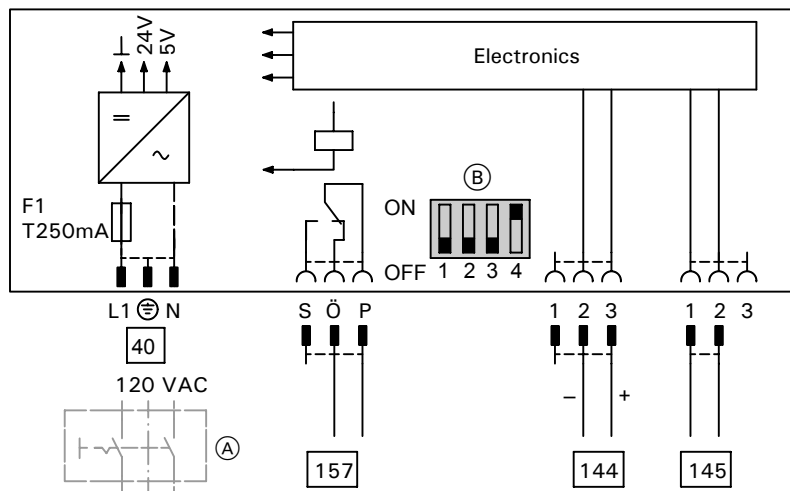
40	Power supply	Ⓐ Main disconnect (if required)
144	0-10 V input	Ⓑ DIP switch (see table)
145	KM BUS	
157	Potential free contact	

DIP switch		Function
1 to 3	OFF	Controlling the feed pump
1	ON	Mixing valve circuit reduced mode M1
2	ON	Mixing valve circuit reduced mode M2
3	ON	Mixing valve circuit reduced mode M3

Note
*Set only **one** switch to ON.*

Resetting codes to the factory default setting

1. Press 🔧 and ▥🔧 simultaneously for approx. 2 seconds.

2. Press ⊣⊢.
Confirm "Standard setting? Yes" with (OK).
With (+) or (−), "Standard setting? Yes" or "Standard setting? No" can be selected.

Coding 1

Calling up coding 1

1. Press ⏻ and 🔧 simultaneously for approx. 2 s.

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 shows "Accepted", then the address
flashes again.
Call up further addresses
with (+) or (−).

4. Press ⏻ and 🔧 simultaneously for approx. 1 second.

Coding 1 (cont.)

Summary

Coding in the factory default setting		Possible change	
System design			
00 : 1	Mixing valve circuit M1 without DHW heating	00 : 2	Mixing valve circuit M1 with DHW heating
		Only for model HK3S	
		00 : 3	Mixing valve circuit M2 without DHW heating
		00 : 4	Mixing valve circuit M2 with DHW heating
		00 : 5	Mixing valve circuit M1 and M2 without DHW heating
		00 : 6	Mixing valve circuit M1 and M2 with DHW heating
		00 : 7	Mixing valve circuit M2 and M3 without DHW heating
		00 : 8	Mixing valve circuit M2 and M3 with DHW heating
		00 : 9	Mixing valve circuit M1, M2 and M3 without DHW heating
		00 : 10	Mixing valve circuit M1, M2 and M3 with DHW heating
User no.			
77 : 10	LON participant number	77 : 1 to 77 : 99	LON participant number, adjustable from 1 to 99 *Note* *Allocate each number **only once***

Coding 1 (cont.)

Coding in the factory default setting		Possible change	
DHW priority M1/M2/M3			
A2 : 2	DHW tank priority control for heating circuit pump and mixing valve	A2 : 0	Without DHW priority for heating circuit pump
		A2 : 1	The mixing valve is closed and the heating circuit pump runs whilst the DHW tank is being loaded
		A2 : 3 to A2 : 15	No function
Summer econ. M1/M2/M3			
A5 : 5	With heating circuit pump logic function	A5 : 0	Without heating circuit pump logic function
Supply min. temp. M1/M2/M3			
C5: 20	Electronic minimum supply temperature limit 20 °C / 68 °F	C5: 1 to C5 : 127	Minimum limit adjustable from 1 to 127 °C / 34 to 261 °F (only for operation with standard room temperature)
Supply max. temp. M1/M2/M3			
C6: 75	Electronic maximum supply temperature limit set to 75 °C / 167 °F	C6: 10 to C6 : 127	Maximum limit adjustable from 10 to 127 °C / 50 to 261 °F

Coding 2

The summary from page 54 lists all possible coding addresses.

The coding addresses are grouped as follows.
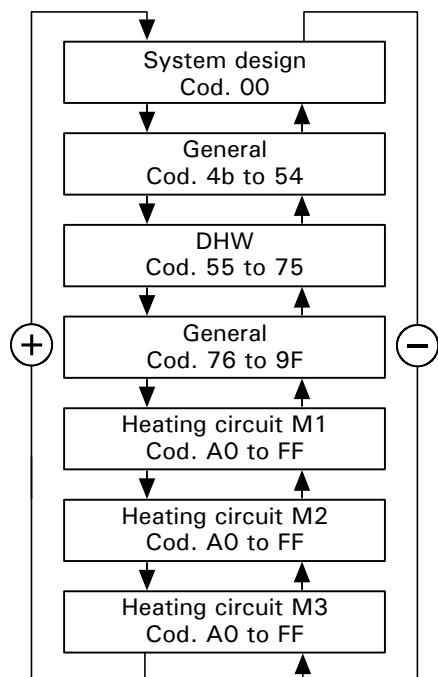
Initially the possible coding addresses "A0" to "FF" for the mixing valve circuit M1 are scanned, then those for mixing valve circuits M2 and M3, again starting with coding address "A0".

```
        ┌──────────────────────────┐
        │     System design        │
        │        Cod. 00           │
        ├──────────────────────────┤
        │        General           │
        │      Cod. 4b to 54       │
        ├──────────────────────────┤
        │         DHW              │
        │      Cod. 55 to 75       │
  (+)   │        General           │  (–)
        │      Cod. 76 to 9F       │
        ├──────────────────────────┤
        │    Heating circuit M1    │
        │      Cod. A0 to FF       │
        ├──────────────────────────┤
        │    Heating circuit M2    │
        │      Cod. A0 to FF       │
        ├──────────────────────────┤
        │    Heating circuit M3    │
        │      Cod. A0 to FF       │
        └──────────────────────────┘
```

Calling up coding 2

1. Press ⌐ and ▥⌐ simultaneously for approx. 2 seconds; confirm with ⓞⓚ.

2. Select the required coding address with ⊕ or ⊖, the address flashes; confirm with ⓞⓚ, the value flashes.

3. Change the value with ⊕ or ⊖; confirm with ⓞⓚ. The display briefly shows "Accepted", then the address flashes again. Call up further addresses with ⊕ or ⊖.

4. Press ⌐ and ▥⌐ simultaneously for approx. 1 s**econd.**

Coding 2 (cont.)

Overall summary

Coding in the factory default setting	Possible change	
System design (see page 51)		
General		
00 : 1 Mixing valve circuit M1 without DHW heating	00 : 2	Mixing valve circuit M1 with DHW heating
	Only for model HK3S	
	00 : 3	Mixing valve circuit M2 without DHW heating
	00 : 4	Mixing valve circuit M2 with DHW heating
	00 : 5	Mixing valve circuit M1 and M2 without DHW heating
	00 : 6	Mixing valve circuit M1 and M2 with DHW heating
	00 : 7	Mixing valve circuit M2 and M3 without DHW heating
	00 : 8	Mixing valve circuit M2 and M3 with DHW heating
	00 : 9	Mixing valve circuit M1, M2 and M3 without DHW heating
	00 : 10	Mixing valve circuit M1, M2 and M3 with DHW heating
4b: 0 Sensor 17 B not installed	4b: 1	Sensor 17 B installed (e.g. return temperature sensor); automatic recognition
4C: 0 Connection on plug 20 M1: Heating circuit pump	4C: 1	Primary pump – DHW tank storage system
	4C: 2 and 4C: 3	No function
4E: 2 Connection at plug 52 M1: Mixing valve motor	4E: 1	Three-way mixing valve DHW tank storage system
DHW		
55: 0 DHW tank heating, hysteresis ± 2.5 K	55: 2	DHW tank temperature control with 2 DHW tank temperature sensors
	55: 3	DHW tank temperature control DHW tank storage system
56: 0 DHW temperature setting range 10 to 60 °C / 50 to 140 °F	56: 1	DHW temperature setting range 10 to 95 °C / 50 to 203 °F **Notes** ■ *Observe the max. permissible DHW temperature* ■ *Change control thermostat "☉" on the boiler control unit (if required)*
57: 0 With LON communication module; No DHW demand to central DHW tank		
	57 : 1	DHW demand to central DHW tank

Code 2 (cont.)

Coding in the factory default setting		Possible change	
DHW (cont.)			
58: 0	Without auxiliary function for DHW heating	58 : 1 to 58 : 95	Input of a second set DHW temperature; adjustable from 1 to 95 °C / 34 to 203 °F (observe coding address "56" and section "Auxiliary function" on page 35).
59: 0	DHW tank heating: Starting point -2.5 K Stopping point +2.5 K	59 : 1 to 59 : 10	Starting point adjustable from 1 to 10 K below the set value
5A: 0	No function	5A: 1	Supply temperature demand of DHW tank is maximum system value
60: 20	During DHW heating, boiler water temperature is max. 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 from 10 to 50 K
62: 10	The circulation pump will run on for a max. of 10 minutes	62: 0	Circulation pump without run-on
		62: 1 to 62: 15	Max. run-on time adjustable from 1 to 15 minutes
64: 2	During party mode and after external changeover during operation with permanently standard room temperature: Enable constant DHW heating and DHW re-circulation pump ON	64: 0	No DHW heating, DHW re-circulation pump OFF
		64: 1	DHW heating and DHW re-circulation pump according to time program
66: 4	Input of set DHW temperature: at the programming unit and all Vitotrol 300 remote control units	66: 0	at the programming unit
		66: 1	at the programming unit and the remote control – mixing valve circuit M1
		66: 2	at the programming unit and remote control unit, mixing valve circuit M2
		66: 3	at the programming unit and remote control unit, mixing valve circuit M3
		66: 5	at the remote control, mixing valve circuit M1
		66: 6	at the remote control, mixing valve circuit M2
		66: 7	at the remote control, mixing valve circuit M3
68: 8	With 2 DHW tank temperature sensors (code "55:2"): DHW tank heating switch-off point with set value × 0.8	68: 2 to 68: 10	Factor adjustable from 0.2 to 1; 1 step = 0.1
69: 7	With 2 DHW tank temperature sensors (Code "55 : 2"): DHW tank heating starting point with set value × 0.7	69: 1 to 69: 9	Factor adjustable from 0.1 to 0.9; 1 step = 0.1

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Code 2 (cont.)

Coding in the factory default setting		Possible change	
DHW (cont.)			
70: 0	DHW re-circulation pump ON according to time program when DHW heating is enabled	70: 1	DHW re-circulation pump ON according to time program
71: 0	DHW re-circulation pump: ON according to time program	71: 1	OFF during DHW heating to set value 1
		71: 2	ON during DHW heating to set value 1
72: 0		72: 1	OFF during DHW heating to set value 2
		72: 2	ON during DHW heating to set value 2
73: 0		73: 1 to 73: 6	During time program 1x/h for 5 min ON to 6 x/h for 5 min ON
		73: 7	Permanently ON
75: 0	DHW re-circulation pump during energy saving mode or standby mode: ON according to time program	75: 1	OFF
General			
76: 0	Without communication module	76: 1	With LON communication module; automatic recognition
		76: 2	With Viessmann 2-wire BUS communication module; automatic recognition
77: 10	LON participant number	77: 1 to 77: 99	LON participant number, adjustable from 1 to 99 **Note** *Allocate each number **only once**.*
78: 1	With LON communication module: LON communication enabled	78: 0	LON communication disabled
79: 0	Control unit is not fault manager	79: 1	Control unit is fault manager
7b: 0	With LON communication module: Do not transmit time via BUS	7b: 1	Transmit time via BUS
7F: 1	Detached house	7F: 0	Apartment block (see page 34)
80: 1	A fault message is displayed, providing a fault is active 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 step = 5 seconds
81: 1	Automatic summer/winter time changeover **Note** *Coding addresses "82" to "87" only possible if code "81:1" is installed.*	81: 0	Manual summer/winter time changeover
		81: 2	No function
		81: 3	Accept time via LON
82: 3	Summer starts: March	82: 1 to 82: 12	January to December

Code 2 (cont.)

Coding in the factory default setting		Possible change	
General			
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
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
88: 0	Temperature displayed in °C (Celsius)	88: 1	Temperature displayed in °F (Fahrenheit)
8A:175	Do not adjust		
8E: 4	Displaying and acknowledging faults: at the programming unit and the remote control units (if installed)	8E: 0	at the programming unit
		8E: 1	at the programming unit and the remote control – mixing valve circuit M1
		8E: 2	at the programming unit and remote control unit, mixing valve circuit M2
		8E: 3	at the programming unit and remote control unit, mixing valve circuit M3
90:128	Time constant for calculating adjusted outdoor temperature 21.3 hours	90: 0 to 90:199	Fast (low values) or slow (high values) matching of supply temperature subject to set value if the outdoor temperature changes; 1 step = 10 minutes
91: 0	Connection at terminals 1 and 2 in X6 on module A2 (external heating program) inactive		Contact affects:
		91: 1	Mixing valve circuit M1
		91 : 2	Mixing valve circuit M2
		91 : 3	Mixing valve circuit M1, M2
		91 : 4	Mixing valve circuit M3
		91 : 5	Mixing valve circuit M1,M3
		91 : 6	Mixing valve circuit M2, M3
		91 : 7	Mixing valve circuit M1, M2, M3
92: 170 (HK1S) or 92: 171 (HK3S)	Do not adjust Will only be displayed, if "8A:176" has been adjusted.		

Code 2 (cont.)

Coding in the factory default setting		Possible change	
General (cont.)			
94: 0	Without plug-in adaptor for external safety equipment	94 : 1	With plug-in adaptor, e.g. for external fault hook-ups; automatic recognition
96: 1	With extension module A4 for model HK3S	96 : 0	Without extension module A4 for model HK1S
97: 0	With communication module: Outdoor temperature from the installed sensor will be used	97 : 1	Outdoor temperature is accepted from the BUS
		97 : 2	The outdoor temperature of the sensor connected to the control unit will be used and transmitted via the LON BUS
98: 1	LON communication module Viessmann system number (in conjunction with monitoring several systems)	98 : 2 to 98 : 5	System number adjustable from 2 to 5
99: 0	Connection at terminals 1 and 3 in X6 on module A2 (External "Mixing valve closed") inactive	99: 1	Contact affects: Mixing valve circuit M1
		99: 2	Mixing valve circuit M2
		99: 3	Mixing valve circuit M1, M2
		99: 4	Mixing valve circuit M3
		99: 5	Mixing valve circuit M1,M3
		99: 6	Mixing valve circuit M2, M3
		99: 7	Mixing valve circuit M1, M2, M3
9A: 0	Connection at terminals 1 and 2 in X6 on module A2 (External mixing valve open) inactive	9A: 1	Contact affects: Mixing valve circuit M1
		9A: 2	Mixing valve circuit M2
		9A: 3	Mixing valve circuit M1, M2
		9A: 4	Mixing valve circuit M3
		9A: 5	Mixing valve circuit M1, M3
		9A: 6	Mixing valve circuit M2, M3
		9A: 7	Mixing valve circuit M1, M2, M3
9C: 20	With LON communication module: LON participant monitoring When there is no response from a user, values defaulted by the control unit continue to be used for a further 20 minutes. Only then will a fault message be triggered.	9C: 0	No monitoring
		9C: 5 to 9C: 60	Time adjustable from 5 to 60 minutes
9d: 0	Without input module extension 0-10 V	9d: 1	With input module extension; automatic recognition
9F: 8	Differential temperature 8 K, this is added to the highest supply temperature	9F: 0 to 9F: 40	Differential temperature adjustable from 0 to 40 K
Mixing valve circuit			
A0: 0	Without remote control	A0: 1	With Vitotrol 200
		A0: 2	With Vitotrol 300

Code 2 (cont.)

Coding in the factory default setting		Possible change	
Mixing valve circuit (cont.)			
A2: 2	DHW tank priority control for heating circuit pump and mixing valve	A2: 0	Without DHW tank priority control
		A2: 1	With DHW tank priority applied to mixing valve: The mixing valve will be closed while the DHW tank is being heated up; the heating circuit pump operates
		A2: 3 to A3 : 15	No function
A3: 2	Outdoor temp. below 1 °C / 34 °F: Heating circuit pump ON Outdoor temp. above 3 °C / 37.4 °F: Heating circuit pump OFF		Heating circuit pump (for °F please see back of manual)

Heating circuit pump (for °F please see back of manual)

	ON at	OFF at	ON at	OFF at
A3 : −9	−10 °C	−8 °C	14 °F	18 °F
A3 : −8	− 9 °C	−7 °C	16 °F	19 °F
A3 : −7	− 8 °C	−6 °C	18 °F	21 °F
A3 : −6	− 7 °C	−5 °C	19.°F	23 °F
A3 : −5	− 6 °C	−4 °C	21 °F	25 °F
A3 : −4	− 5 °C	−3 °C	23 °F	27 °F
A3 : −3	− 4 °C	−2 °C	25 °F	28 °F
A3 : −2	− 3 °C	−1 °C	27 °F	30 °F
A3 : −1	− 2 °C	0 °C	28 °F	32 °F
A3 : 0	− 1 °C	1 °C	30 °F	34 °F
A3 : 1	0 °C	2 °C	32 °F	36 °F
A3 : 2 to A3 : 15	1 °C to 14 °C	3 °C 16 °C	34 °F 57 °F	37 °F 61 °F

! **Please note**
■ When selecting a value below 1 °C / 34 °F, there is a risk of pipes outdoor the thermal insulation of the house freezing up. Particularly the standby mode should be taken into consideration, e.g. during holidays.

A4: 0	With frost protection	A4: 1	No frost protection, Adjustment only possible if code "A3 :−9" has been programmed. **!** **Please note:** ■ Observe the information regarding coding address "A3".

Code 2 (cont.)

Coding in the factory default setting		Possible change	
Mixing valve circuit (cont.)			
A5: 5	With heating circuit pump logic function (energy saving mode): Heating circuit pump OFF, if the outdoor 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 energy saving mode **not** active	A6: 5 to A6: 35	Extended energy saving circuit active, i.e. the burner and heating circuit pump will be switched OFF at a variable value, adjustable between 5 and 35 °C plus 1 °C / 41 and 95 °F plus 1 °F. This value is based on the adjusted outdoor temperature, comprising the actual outdoor temperature and a time constant. The time constant takes the cooling down of an average building into account.
A7: 0	Without mixing valve energy saving function	A7: 1	With mixing valve energy saving function (extended heating circuit pump logic): Heating circuit pump also OFF, if the mixing valve was closed longer than 12 min. Heating circuit pump ON ■ Mixing valve changes to control function or ■ After the DHW tank has been heated up (for 20 min) or ■ If there is a risk of frost
A9: 7	With pump idle period: heating circuit pump OFF in case of set value modification (by changing the operating mode or changing the set room temperature)	A9: 0	Without pump idle time
		A9: 1 to A9: 15	Pump idle time adjustable from 1 to 15
AA: 2	With LON communication module: With output reduction through temperature sensor [17][A] of the boiler control unit	AA: 0	Without output reduction
		AA: 1	No function

Code 2 (cont.)

Coding in the factory default setting		Possible change	
Mixing valve circuit (cont.)			
b0: 0	With remote control: Heating mode/red. mode: weather-compensated	b0: 1	Heating mode: weather-compensated Red. mode: with room temperature hook-up
		b0: 2	Heating mode: with room temperature hook-up Red. mode: weather-compensated
		b0: 3	Heating mode/ red. mode: with room temperature hook-up
b2: 8	With remote control unit and for the heating circuit, operation with room temperature hook-up must be encoded: Room influence factor 8	b2: 0	Excluding room influence
		b2: 1 to b2: 31	Room influence factor adjustable from 1 to 31
b5: 0	With remote control: Without room temperature-dependent heating circuit pump logic function		Heating circuit pump ON at $RT_{actual} < RT_{set} + \Delta T$ OFF at $RT_{actual} > RT_{set} + \Delta T$ <u>ΔT for ON</u> <u>ΔT for OFF</u>
		b5: 1	+ 4 K + 5 K
		b5: 2	+ 3 K + 4 K
		b5: 3	+ 2 K + 3 K
		b5: 4	+ 1 K + 2 K
		b5: 5	+ 0 K + 1 K
		b5: 6	− 1 K + 0 K
		b5: 7	− 2 K − 1 K
		b5: 8	− 2 K − 1 K

Code 2 (cont.)

Coding in the factory default setting		Possible change	
Mixing valve circuit (cont.)			
b6: 0	With remote control unit and for the heating circuit, operation with room temperature hook-up must be encoded: Without boost heating/rapid setback		
		b6: 1	With boost heating/rapid setback (see page 31)
b7: 0	With remote control unit and for the heating circuit, operation with room temperature hook-up must be encoded: Without start-up time optimisation		
		b7: 1	With start-up time optimisation (max. offset 2 h 30 min)
		b7: 2	With start-up time optimisation (max. offset 15 h 50 min)
b8: 10	With remote control unit and for the heating circuit, heating with room temperature hook-up must be encoded: Heat-up gradient Start-up time optimisation 10 min/K	b8: 11 to b8:255	Heat-up gradient start-up time optimisation adjustable from 11 to 255 min/K
b9: 0	With remote control unit and for the heating circuit, heating with room temperature hook-up must be encoded: Without learning start-up time optimisation		
		b9: 1	With learning start-up time optimisation

Code 2 (cont.)

Mixing valve circuit (cont.)

Coding in the factory default setting		Possible change	
C0: 0	With remote control unit and for the heating circuit, operation with room temperature hook-up must be encoded: Without shut-down time optimisation	C0: 1	With shut-down optimisation (max. offset 1 h)
		C0: 2	With shut-down optimisation (max. offset 2 h)
C1: 0	With remote control unit and for the heating circuit, heating with room temperature hook-up must be encoded: Without shut-down time optimisation	C1: 1 to C1: 12	With shut-down time optimisation (max. offset 10 to 120 minutes) 1 step = 10 minutes
C2: 0	With remote control unit and for the heating circuit, heating with room temperature hook-up must be encoded: Without learning shut-down time optimisation	C2: 1	With learning shut-down time optimisation
C3:125	Mixing valve operating time 125 seconds	C3: 10 to C3:255	Adjustable operating time from 10 to 255 seconds
C4: 1	Mixing valve algorithm Standard	C4: 0 C4: 2 and C4: 3	Controller responds too quickly (cycles between "Open" and "Closed"): Select a lower value Controller responds too slowly (temperature is not held sufficiently): Select a higher value
C5: 20	Electronic minimum supply temperature limit 20 °C / 68 °F	C5: 1 to C5:127	Minimum limit adjustable from 1 to 127 °C / 34 to 261 °F (only during operation with standard room temperature)
C6: 75	Electronic maximum supply temperature limit 75 °C / 167 °F	C6: 10 to C6:127	Maximum limit adjustable from 10 to 127 °C / 50 to 261 °F
C7: 0	With return temperature sensor: Without return temperature sensor influence	C7: 1 to C7: 31	Spread adjustable from 1 to 31 K Spread = temperature differential between the supply and return temperature at the design point −10 °C / 14 °F
C8: 31	With remote control unit and for the heating circuit, operation with room temperature hook-up must be encoded: Without limiting room influence	C8: 1 to C8: 30	Room influence limit adjustable from 1 to 30 K

Code 2 (cont.)

Coding in the factory default setting		Possible change	
Mixing valve circuit (cont.)			
C9: 0	Control of an underfloor heating system by supply and return temperature sensor: Without heat-up phase	C9: 1	With optimisation during the heat-up phase (operates with coding address "C7")
d5: 0	The heating program changes to "Constant operation with reduced room temperature"	d5: 1	The heating program changes to "Constant central heating with standard room temperature"
E1: 1	With remote control: Set day temperature adjustable at the remote control from 10 to 30 °C / 50 to 86 °F	E1: 0	Set day temperature adjustable from 3 to 23 °C / 37 to 73 °F
		E1: 2	Set day temperature adjustable from 17 to 37 °C
E2: 50	With remote control: No display correction of the actual room temperature	E2: 0 to E2: 49	Display correction − 5 K to Display correction − 0.1 K
		E2: 51 to E2: 99	Display correction + 0.1 K to Display correction + 4.9 K
F1: 0	Slab curing function inactive	F1: 1 to F1: 4	Slab curing function adjustable in accordance with four optional temperature time profiles (see page 67) **Note** *Observe the slab supplier's instructions.* Observe DIN 4725-2 (or local regulations). The report to be provided by the heating contractor must contain the following heat-up details: ■ Heat-up data with respective supply temperatures ■ Actual max. supply temperature achieved ■ Operating condition and outdoor temperature during handover The function continues after power failure or after the control unit has been switched OFF. Heating program "Heating and DHW" will be started, after the slab curing function has been terminated or if the address is manually set to 0.
F2: 8	Time limit for party mode 8 h [1]	F2: 0	No time limit [1]
		F2: 1 to F2: 12	Time limit adjustable from 1 to 12 h [1]

[1]
*Party mode ends **automatically** in program "Heating and DHW" when the system changes over to operation with standard room temperature.*

Code 2 (cont.)

Coding in the factory default setting		Possible change	
Mixing valve circuit (cont.)			
F8: −5	For operation in reduced room temperature mode, the set room temperature will be raised (up to the temperature limit set by coding address "F9") to a value subject to the outdoor temperature, if the outdoor temperature falls below −5 °C / 23 °F. See example 1 on page 66. Observe the setting of coding address "A3".	F8: +10 to F8:−60	Temperature limit for cancelling reduced mode, adjustable from +10 to −60 °C / 50 to - 76 °F
		F8:−61	Function is not active
F9:−14	If the outdoor temperature is under −14 °C / 7 °F, the set reduced room temperature will be raised to the value of the set standard room temperature. See example 1 on page 66.	F9: +10 to F9:−60	Temperature limit for raising set reduced room temperature, adjustable from +10 to −60 °C / 50 to -76 °F
FA: 20	Raising the set boiler water temperature when changing from operation with reduced temperature to operation with standard room temperature by about 20 %. See example 2 on page 66.	FA: 0 to F9: 50	Temperature increase adjustable from 0 to 50 %
Fb: 30	Duration for the increase of the set supply temperature (see coding address "FA") 60 minutes. See example 2 on page 66	Fb: 0 to Fb:150	Duration adjustable from 0 to 300 minutes; 1 step = 2 minutes

Code 2 (cont.)

Example 1 (″F8:−5″, ″F9:−14″) (for °F please see back of manual)
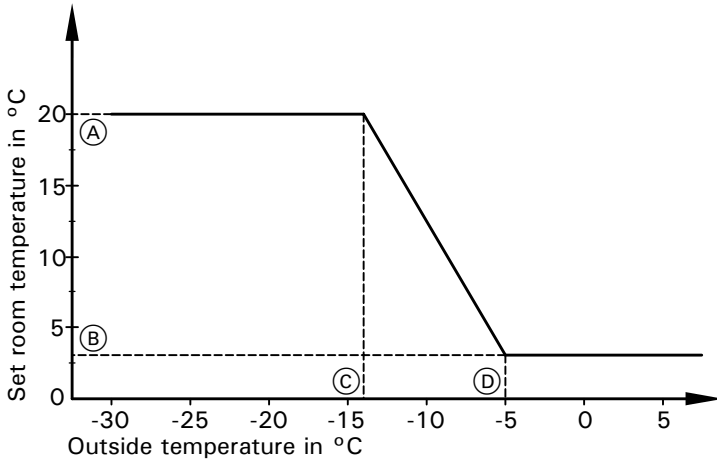
Ⓐ Set standard room temperature 20 °C / 68 °F
Ⓑ Set reduced room temperature 3 °C / 37 °F
Ⓒ Temperature limit −14 °C / 7 °F in accordance with coding address ″F9″
Ⓓ Temperature limit −5 °C / 23 °F in accordance with coding address ″F8″

Example 2 (″FA:20″, ″Fb:30″)
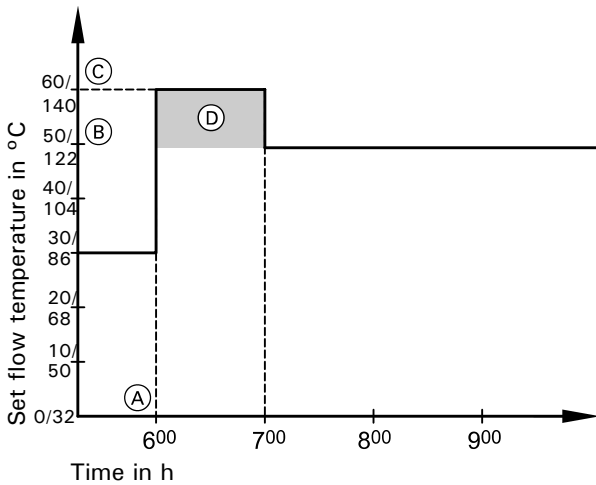
Ⓐ Start of operation with standard room temperature
Ⓑ Set supply temperature in accordance with the set heating curve
Ⓒ Raised set supply temperature in accordance with coding address ″FA″:
    50 °C + 20 % = 60 °C / 122 °F + 20 % = 146.4 °F
Ⓓ Duration of operation with raised set supply temperature in accordance with coding address ″Fb″: 60 minutes

Slab curing function diagrams

Coding, see page 64. (for ºF please see back of manual)

Temperature time profile 1 ("F1:1")
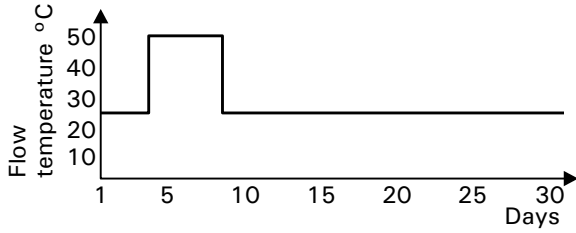
Temperature time profile 2 ("F1:2")
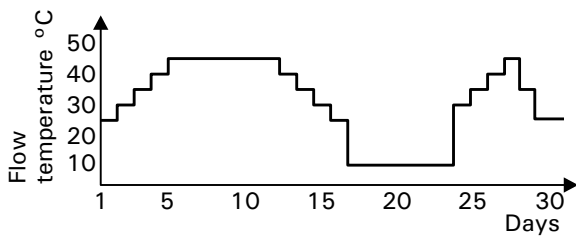
Temperature time profile 3 ("F1:3")
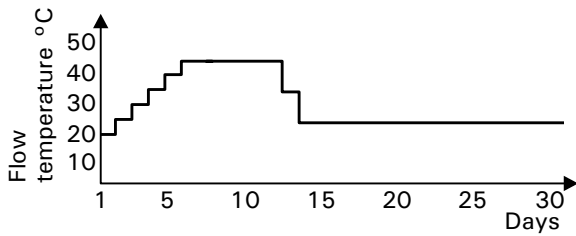
Temperature time profile 4 ("F1:4")

Coding
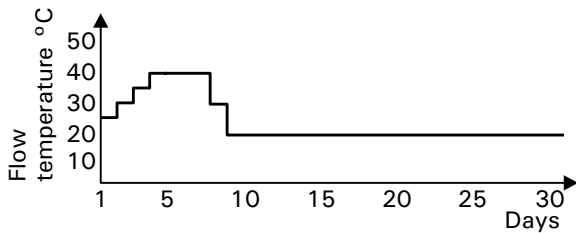
Parts list model HK1S and HK3S

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

Parts
001 Hinge
008 Support stay
011 Programming unit ON/OFF switch
013 Housing front with frame
     (with item 001)
014 PCB cover
015 Front flap
016 Casing back
017 Mounting panel
018 Programming unit
019 Programming unit flap
020 Fascia cover
021 Ribbon cable, 14-pole,
     only for model HK3S
024 Fuse holder cap for control fuse
025 Fuse holder for control fuse
038 Switch, 2-pole
     (ON/OFF switch "Ⓞ")
040 Outdoor temperature sensor ⬚1
043 DHW tank temperature sensor with plug ⬚5
047 LON communication module

048 Electronics PCB mixing valve extension, only for model
     HK3S

049 Main PCB low voltage
050 Electronics PCB
051 Optolink
052 Main PCB 230 V ~
054 Power supply unit PCB
055 Mixing valve extension PCB, only for model HK3S
056 Viessman 2-wire BUS communication module
067 Immersion temperature sensor
068 Contact temperature sensor
074 Connecting cable
092 Fuse 6.3 A/250 V ~ (slow)

Parts not shown
081 Operating instructions
084 Installation and service instructions
093 LON connecting cable
094 Terminator (2 pieces)
100 Plugs for sensors (3 pieces)
101 Plugs for pumps (3 pieces)
102 Plugs ⬚52 (3 pieces)
103 Plugs ⬚156 (3 pieces)
104 Mains supply plugs ⬚40
     (3 pieces)
106 Plugs ⬚50 (3 pieces)
108 Plug ⬚143, plug ⬚145 and plug ⬚146

Ⓐ Type plate

Parts list model HK1S and HK3S
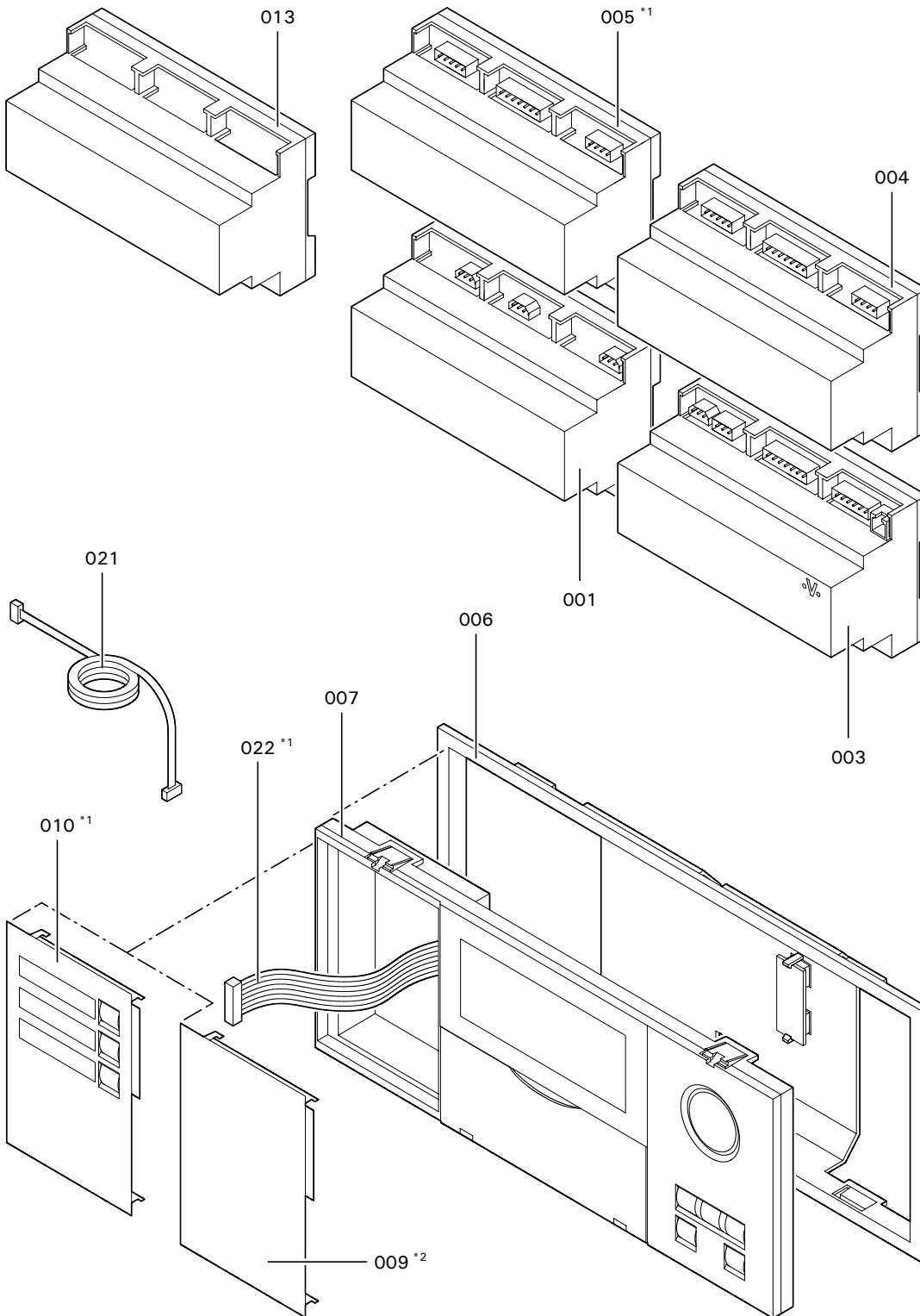
Specification

Rated voltage: 120VAC
Rated frequency: 60 Hz
Rated current: 4 A ~
Power
consumption: 10 W
Safety class: I
Protection level: IP 20

Permissible
ambient
temperature
■ in operation: 0 to 40 °C
                    Use in living space and boiler rooms
                    (standard ambient conditions)
■ during storage
  and transport: −20 to 65 °C
  Rated relay output breaking capacity at 120VAC:
■ Heating circuit
  pump 20

or
Primary pump
DHW tank storage
system: 4 (2) A[*1]
■ DHW tank primary
  pump 21:   4 (2) A[*1]
■ DHW circulation
  pump 28:   4 (2) A[*1]
■ Central fault
  message 50:   4 (2) A[*1]
■ Mixing valve motors
  or
  Motor three-way
  mixing valve
  DHW tank storage
  system 52:   0.2 (0.1) A[*1]
[*1] Total max. 6 A.

Keyword index

Keyword index (contd.)

Applicability

Valid for control units
Vitotronic 050, model HK1S
Part no. 7187 105

Vitotronic 050, model HK3S
Part no. 7187 109

Quick Reference

°C	°F
-40	-40
-35	-31
-25	-13
-20	-4
-18	0
-16	+3
-14	+7
-12	+10
-10	+14
-9	+16
-8	+18
-7	+19
-6	+21
-5	+23
-4	+25
-3	+27
-2	+28
-1	+30
0	+32
+1	+34
+2	+36
+3	+37
+4	+39
+5	+41
+6	+43
+7	+45
+8	+46
+9	+48
+10	+50
+12	+54
+14	+57
+16	+61
+18	+64
+20	+68
+25	+77
+30	+86
+35	+95
+40	+104
+50	+122
+60	+140
+70	+158
+80	+176
+90	+194
+100	+212
+110	+230

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Technical information subject to change without notice.