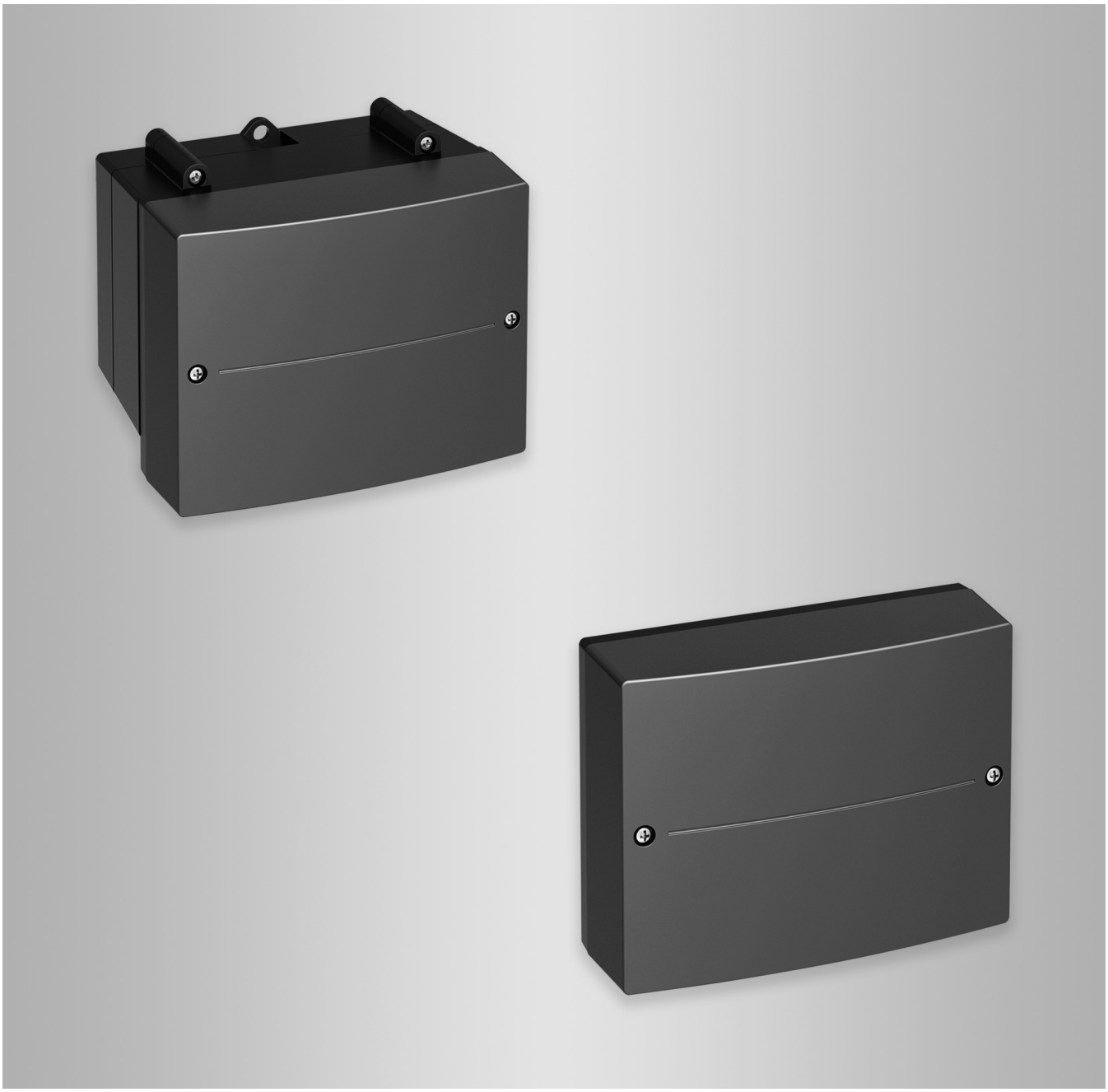
Installation and service instructions

for contractors

Mixer extension kit

ADIO electronics module
Mixer extension kit EM-M1 for one heating circuit with mixer, wall mounting
Mixer extension kit EM-MX for one heating circuit with mixer, mixer mounting
Mixer extension kit EM-MX for one heating circuit with mixer, mixer mounting, Divicon heating circuit distributor

Mixer extension kit



5838001 GB 12/2018

Please keep safe.

Safety instructions

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

Safety instructions explained

Danger
This symbol warns against the risk of injury.

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

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

Target group

These instructions are exclusively intended for qualified contractors.

- Work on gas installations may only be carried out by a registered gas fitter.
- Work on electrical equipment may only be carried out by a qualified electrician.
- The system must be commissioned by the system installer or a qualified person authorised by the installer.

Regulations to be observed

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

Safety instructions for working on the system

Working on the system

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

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

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

Repair work

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

Auxiliary components, spare and wearing parts

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

Safety instructions (cont.)

Safety instructions for operating the system

If you smell gas

Danger
Escaping gas can lead to explosions which may result in serious injury.
- Do not smoke. Prevent naked flames and sparks. Never switch lights or electrical appliances on or off.
- Close the gas shut-off valve.
- Open windows and doors.
- Evacuate any people from the danger zone.
- Notify your gas or electricity supply utility from outside the building.
- Have the power supply to the building shut off from a safe place (outside the building).

If you smell flue gas

Danger
Flue gas can lead to life threatening poisoning.
- Shut down the heating system.
- Ventilate the installation site.
- Close doors to living spaces to prevent flue gases from spreading.

What to do if water escapes from the appliance

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

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

Condensate

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

Flue systems and combustion air

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

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

Extractors

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

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

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Disposal of packaging

Please dispose of packaging waste in line with statutory regulations.

Symbols

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

System examples

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

Mounting the mixer extension kit

Mixer mounting

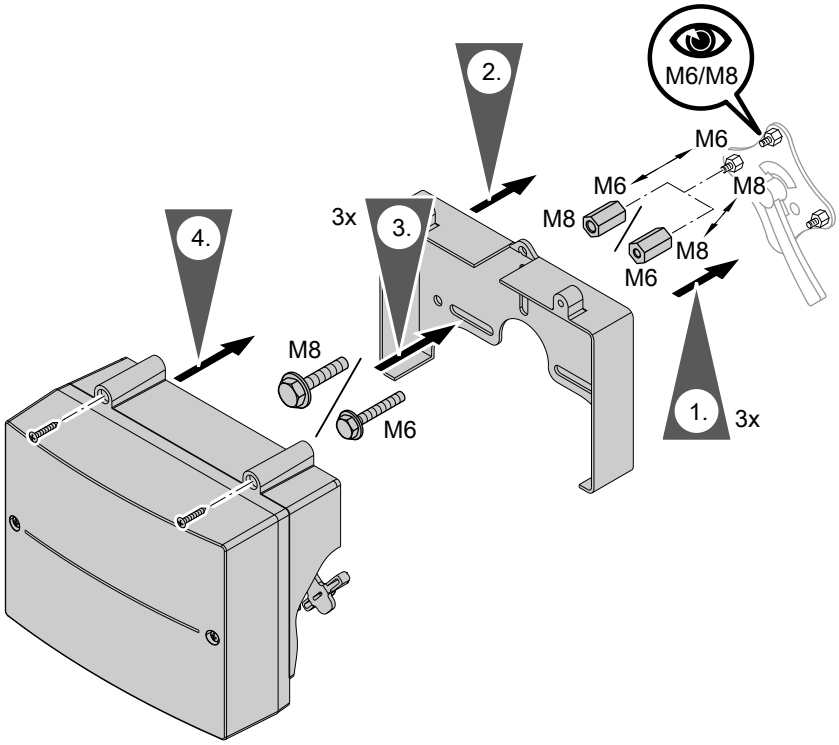

Fig. 1

Wall mounting

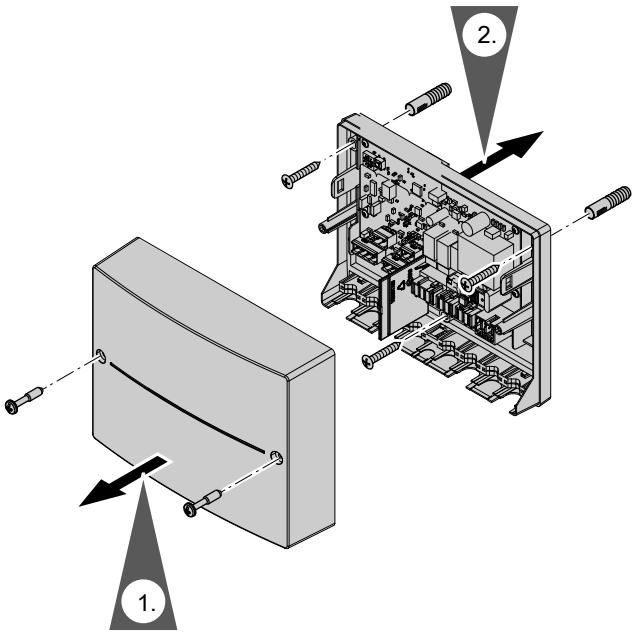

Fig. 2

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Mounting the temperature sensor

Installing the flow temperature sensor (contact temperature sensor)

- Fit the flow temperature sensor to the heating flow pipe immediately downstream of the heating circuit pump in the flow direction.
- With plastic pipes, mount the sensor against an intermediate metal pipe section.
- Clean the contact area on the pipe down to bare metal.
- Heat conducting paste is not required.
- Do not thermally insulate the temperature sensor.

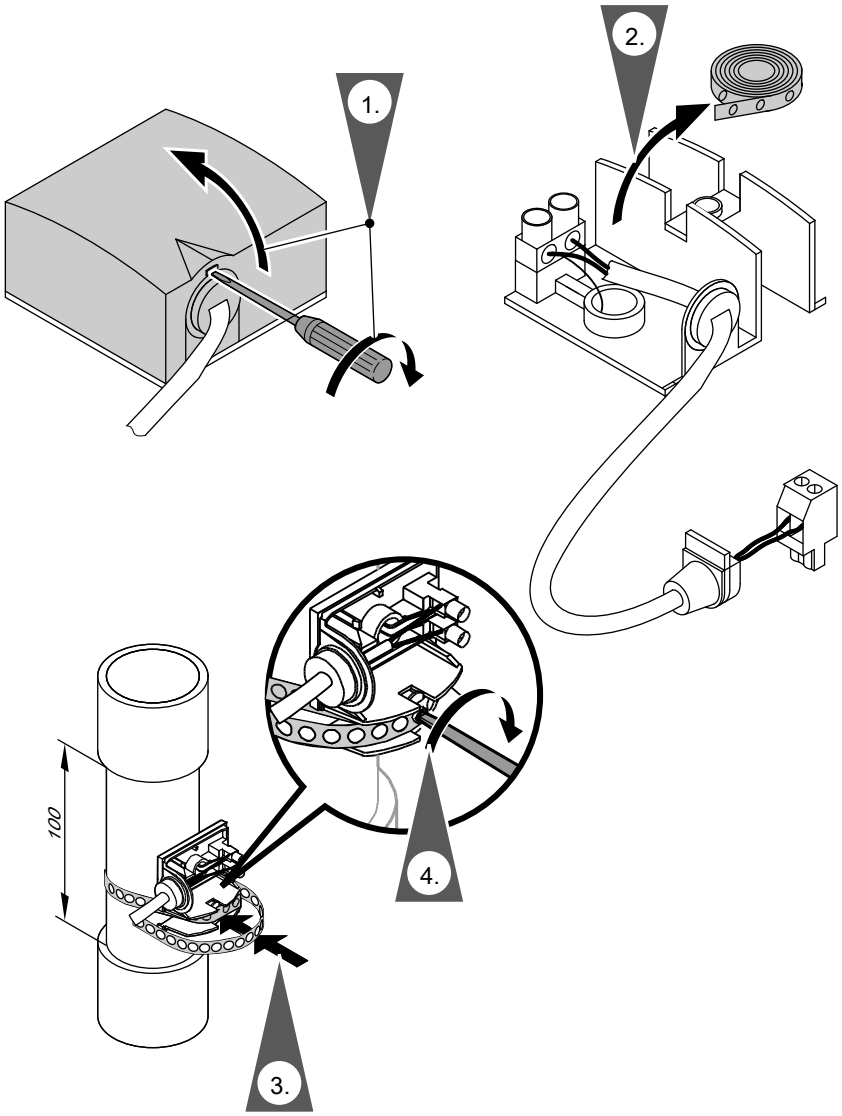

Fig. 3

Installing the flow temperature sensor on the Divicon heating circuit distributor

Installation instructions for Divicon heating circuit distributor

Overview of electrical connections

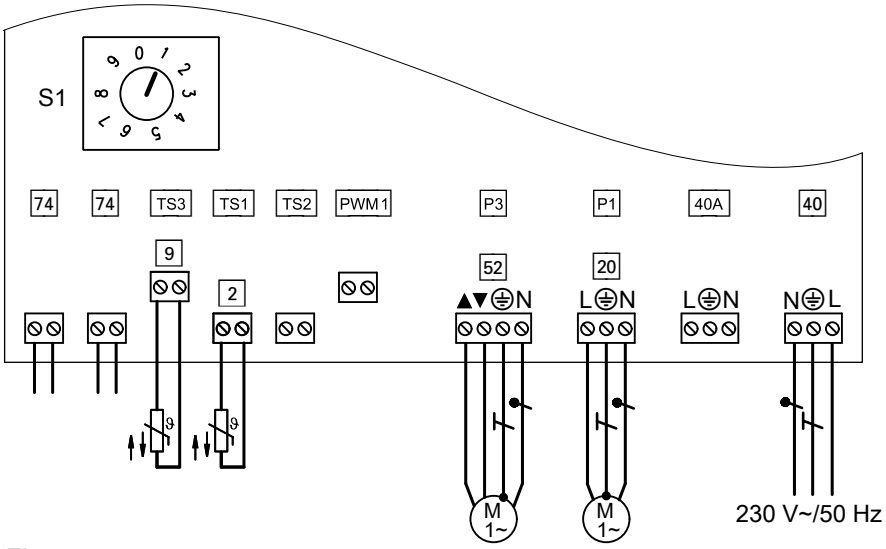

Fig. 4

Plug 230 V~
P1 [20] Heating circuit pump (on site)
P3 [52] Mixer motor
[40] Power supply
[40]A Power supply for accessories

LV connections
PWM1 No function
S1 Rotary switch for subscriber number addressing
TS1 [2] Flow temperature sensor
TS2 No function
TS3 [9] Temperature sensor, low loss header
[74] PlusBus

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

Note
Apply strain relief to on-site cables.
Seal any unnecessary apertures with cable grommets (not cut open).

Connecting the flow temperature sensor

Insert plug [2] at slot TS1 (see diagram 4).

Connecting the temperature sensor of the low loss header (if installed)

Insert plug [9] at slot TS3 (see diagram 4).

Connecting the mixer motor

Only in conjunction with extension kit for wall mounting

Connecting the mixer motor (cont.)

Mixer motor

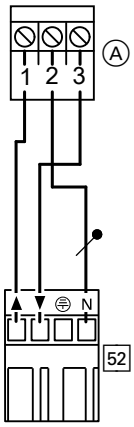

Fig. 5

Connect the mixer motor in accordance with the diagram in the wall mounting base of the extension kit. Never interchange wires.

Ⓐ Plug on mixer motor
52 Plug on mixer extension kit
▲ Mixer open
▼ Mixer close

Mixer motors without plug or on-site mixer motors

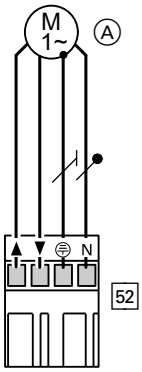

Fig. 6

Connect the mixer motor in accordance with the diagram in the wall mounting base of the extension kit. Never interchange wires.

Ⓐ Mixer motor
52 Plug on mixer extension kit
▲ Mixer open
▼ Mixer close

The mixer motor must meet the following criteria:

Rated voltage	230 V~
Rated breaking capacity of the relay output	0.1 A
Runtime for 90°∢	120 s
Rotational direction	Can be changed

Connecting the heating circuit pump

Note
In underfloor heating circuits, install a temperature limiter on site to restrict the maximum temperature of the underfloor heating system.

Heating circuit pump 230 V~

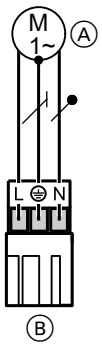

Fig. 7

Specification

Rated current	1 A
Recommended connecting cable	H05VV-F3G 0.75 mm² or H05RN-F3G 0.75 mm²

Ⓐ Heating circuit pump
Ⓑ Plug [20] on the mixer extension kit

Heating circuit pump with power consumption greater than 1 A or high efficiency circulation pumps with high starting currents

Pumps with switching input

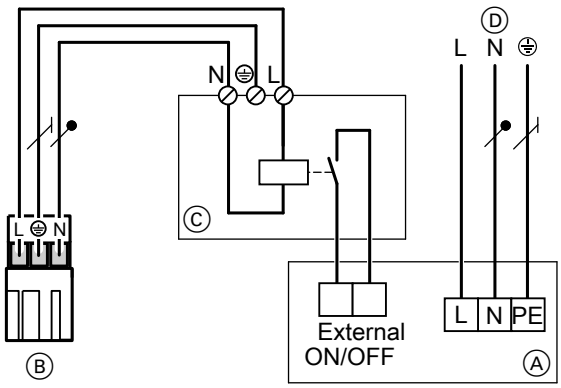

Fig. 8

Ⓐ Heating circuit pump
Ⓑ Plug [20] on the mixer extension kit
Ⓒ Contactor
Ⓓ Separate power supply (observe manufacturer's instructions)

Specification for switching the contactor:

Rated voltage	230 V~
Rated current	1 A
Recommended connecting cable	H05VV-F3G 0.75 mm² or H05RN-F3G 0.75 mm²

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Connecting the heating circuit pump (cont.)

Pumps without switching input

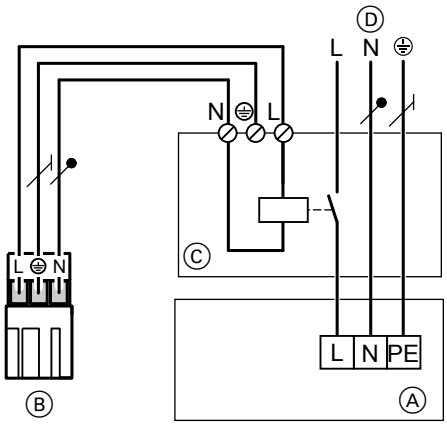

Fig. 9

Specification for switching the contactor:

Rated voltage	230 V~
Rated current	1 A
Recommended connecting cable	H05VV-F3G 0.75 mm² or H05RN-F3G 0.75 mm²

Ⓐ Heating circuit pump
Ⓑ Plug 20 on the mixer extension kit
Ⓒ Contactor
Ⓓ Separate power supply (observe manufacturer's instructions)

Heating circuit pump 400 V~

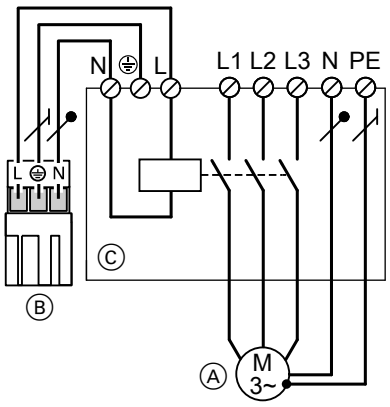

Fig. 10

Specification for switching the contactor:

Rated voltage	230 V~
Rated current	1 A
Recommended connecting cable	H05VV-F3G 0.75 mm² or H05RN-F3G 0.75 mm²

Ⓐ Heating circuit pump
Ⓑ Plug 20 on the mixer extension kit
Ⓒ Contactor

Connecting the heating circuit pump (cont.)

Pumps in the underfloor heating circuit (in case of system separation)

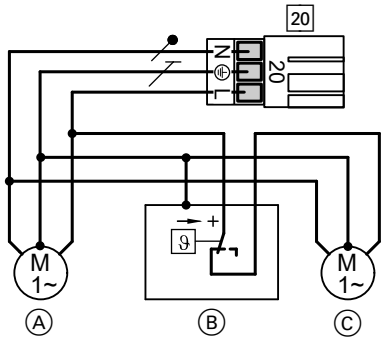

Fig. 11

The common power consumption of both pumps must **not exceed 1 A**.

20 Plug on mixer extension kit
Ⓐ Primary heating circuit pump
Ⓑ Temperature limiter
Ⓒ Secondary heating circuit pump (for system separation)

Temperature limiter for maximum temperature limiter (accessories)

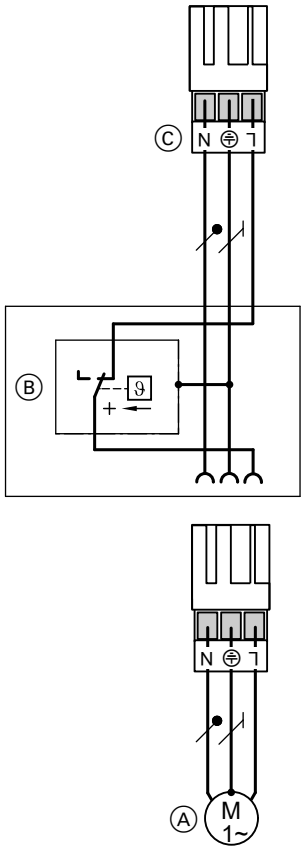

Fig. 12

Electromechanical temperature limiter using the liquid expansion principle

- Switches the heating circuit pump off when the set value has been exceeded.
- The flow temperature is only slowly reduced in this situation. It may take several hours before the system restarts again automatically.
- Connection: Screw terminals for 1.5 mm^2

Specification

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

Ⓐ Heating circuit pump
Ⓑ Temperature limiter
Ⓒ Plug 20 on the mixer extension kit

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Rotary switch S1 for subscriber number addressing

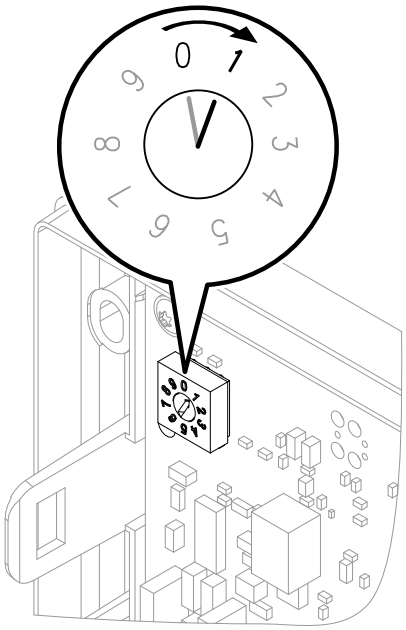

Fig. 13

Note
The rotary switch can be found on the PCB of the electronics module.

Set rotary switch S1.

System with one heating circuit with mixer:
- Heating circuit 2 with mixer: Rotary switch on extension kit to 1
- EM-P1 extension (heating circuit 1 without mixer): Rotary switch to 2

System with several heating circuits with mixer:
- Heating circuit 2 with mixer: Rotary switch on extension kit to 1
- Heating circuit 3 with mixer: Rotary switch on extension kit to 2
- Heating circuit 4 with mixer: Rotary switch on extension kit to 3
- EM-P1 extension (heating circuit 1 without mixer): Rotary switch to 4

Connecting the PlusBus to the heat generator

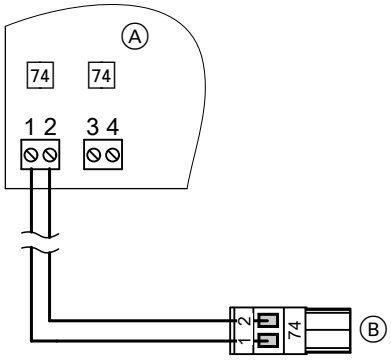

Fig. 14

Ⓐ Extension (electronics module)
Ⓑ PlusBus to heat generator

Note
If making the connection to the heat generator with an external plug for the bus connection, disconnect plug 74 and connect the wires directly.

Heat generator installation and service instructions

Power supply

Power supply at heat generator

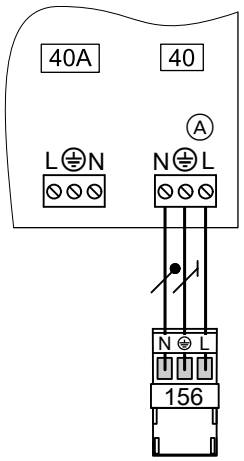

Fig. 15

Create the power supply connection.
Route the power cable to the heat generator and connect to plug 156. Observe MCB/fuse protection, output, plug 156 of the heat generator.
If power is supplied to a further accessory, use plug 40A provided

Heat generator installation and service instructions

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

Ⓐ Extension (electronics module)
40 Power supply
40A Power supply for further accessories
156 Plug for heat generator accessories power supply

Separate power supply

If the power supply for the extension is **not** made at the heat generator.

Danger
Incorrect electrical installations can lead to serious injury from electrical current and result in appliance damage.

Connect the power supply and implement all safety measures (e.g. RCD circuit) in accordance with the following regulations:
- IEC 60364-4-41
- VDE regulations
- TAR medium voltage VDE-AR-N-4110

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

Isolators for non-earthed conductors
- The mains isolator (if installed) must simultaneously isolate all non-earthed conductors from the mains with a minimum contact separation of 3 mm.
- If **no** mains isolator is installed, all non-earthed conductors must be isolated from the power supply by the upstream circuit breaker with a minimum contact separation of 3 mm.

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Power supply (cont.)

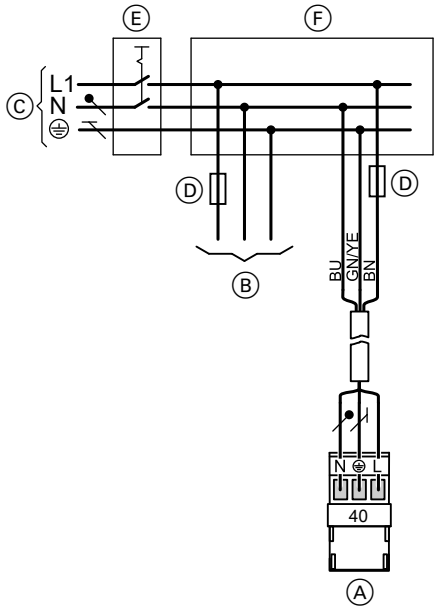

Fig. 16

Ⓐ Power supply, extension (electronics module)
Ⓑ Power supply, heat generator
Ⓒ Power supply 1/N/PE, 230 V/50 Hz
Ⓓ Fuse (max. 16 A)
Ⓔ Mains isolator, 2-pole, on site
Ⓕ Junction box (on site)

Connect the power supply in accordance with the diagram.
If the power supply to the appliance is connected with a flexible cable, ensure that the live conductors are pulled taut before the earth conductor in the event of strain relief failure. The length of the earth conductor wire will depend on the design.

⚠ **Danger**
Incorrect core assignment can result in serious injury and damage to the appliance.
Never interchange cores "L" and "N".

! Please note
Incorrect phase sequence can cause damage to the appliance.
Ensure phase equality with the heat generator power supply.

Colour coding to IEC 60757
BN Brown
BU Blue
GNYE Green/yellow

Connecting several accessories

Power supply and PlusBus connection

Power supply to all accessories via heat generator control unit

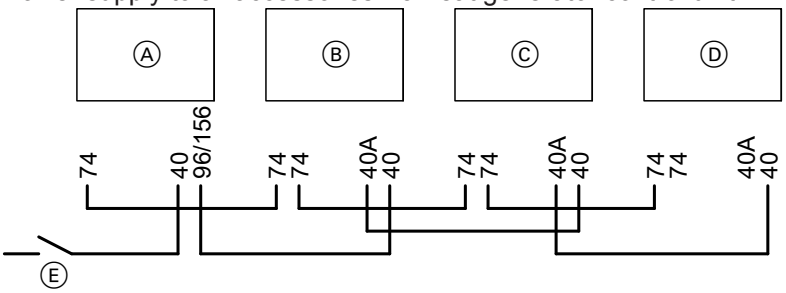

Fig. 17

Some accessories with direct power supply

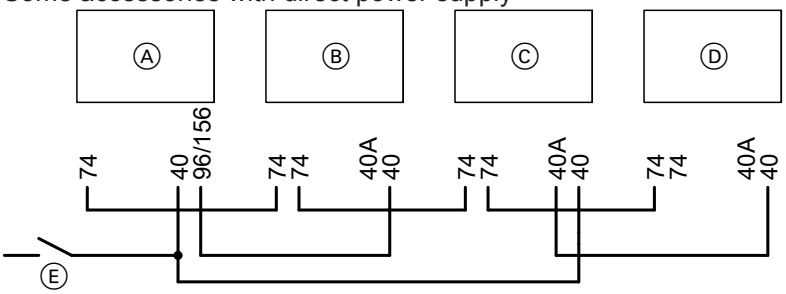

Fig. 18

Ⓐ Heat generator control unit
Ⓑ Mixer extension kit for heating circuit with mixer M2 (ADIO electronics module)
Ⓒ Mixer extension kit for heating circuit with mixer M3 (ADIO electronics module)
Ⓓ Further accessories
Ⓔ ON/OFF switch
40 (A) Power supply
74 PlusBus
96/156 Accessories power supply in the control unit of the heat generator

- In the following circumstances, use the output for the accessories only to switch an on-site relay:
  An actuator (e.g. circulation pump) with a higher power demand than the fuse rating required for the accessories is connected at the accessories output.
- In the following circumstances, connect one or more accessories directly to the mains supply via an ON/OFF switch:
  The max. permissible total current of the control unit for the heat generator is exceeded.
  Note
  *In this event, the accessories concerned **cannot** be isolated with the ON/OFF switch on the control unit.*

Commissioning

Heat generator installation and service instructions

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Commissioning (cont.)

Rotational direction of the mixer motor

Checking the rotational direction of the mixer motor

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

Observe the rotational direction of the mixer motor during its self-test.
Then manually set the mixer to "OPEN".

Note
The flow temperature must now rise. If the temperature drops, either the motor is turning in the wrong direction or the mixer insert is incorrectly fitted.

Mixer installation instructions

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

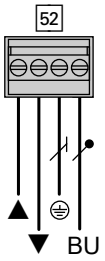


Fig. 19

1. Remove the top casing cover of the mixer extension kit.

   Danger
   An electric shock can be life threatening. Switch OFF the power supply before opening the appliance. For example, remove the fuse or switch off a mains isolator.

2. At plug 52, swap the cores at terminals "▲" and "▼".

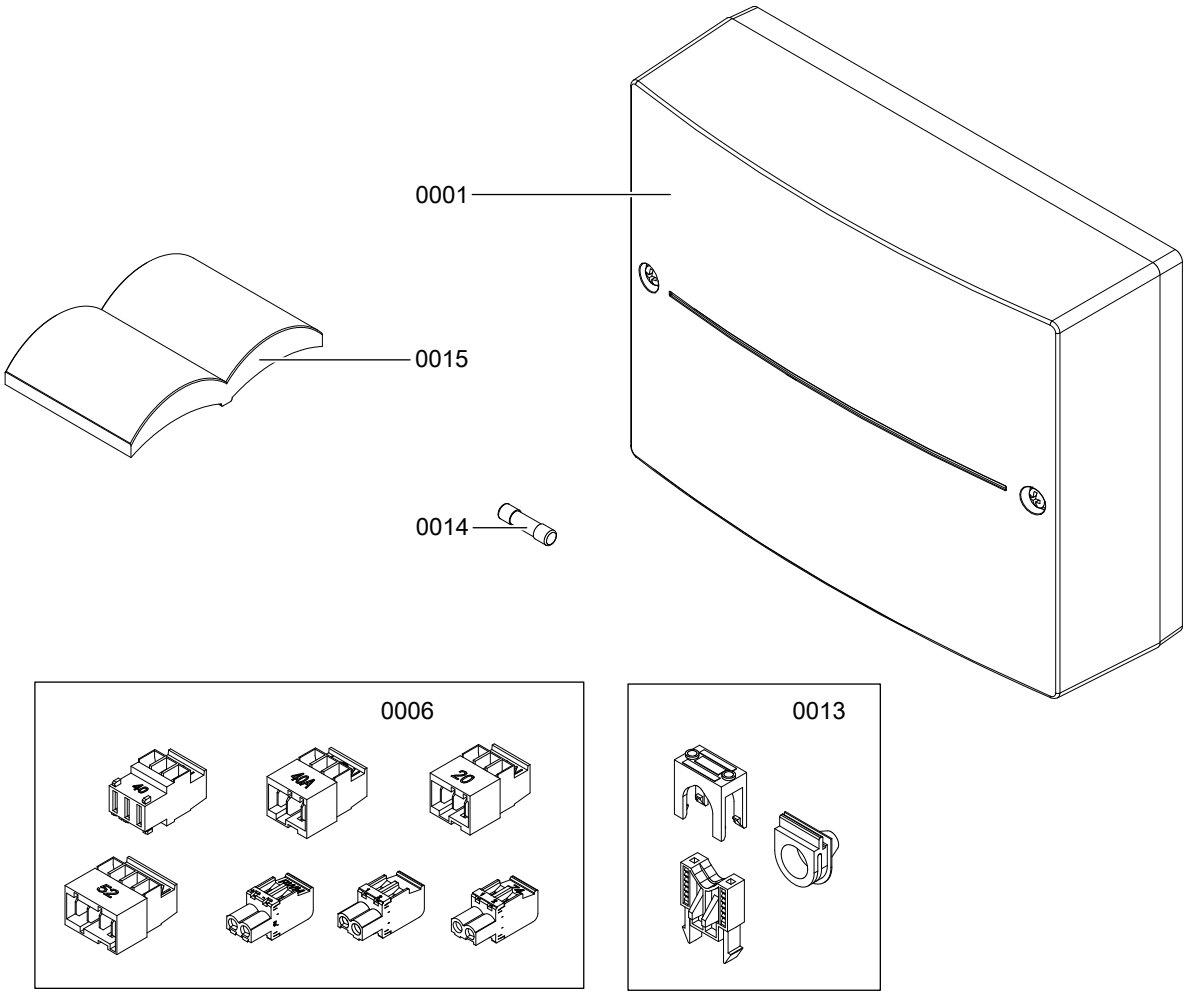
3. Refit the casing cover.

Parts list

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

Parts list (cont.)

Wall mounting



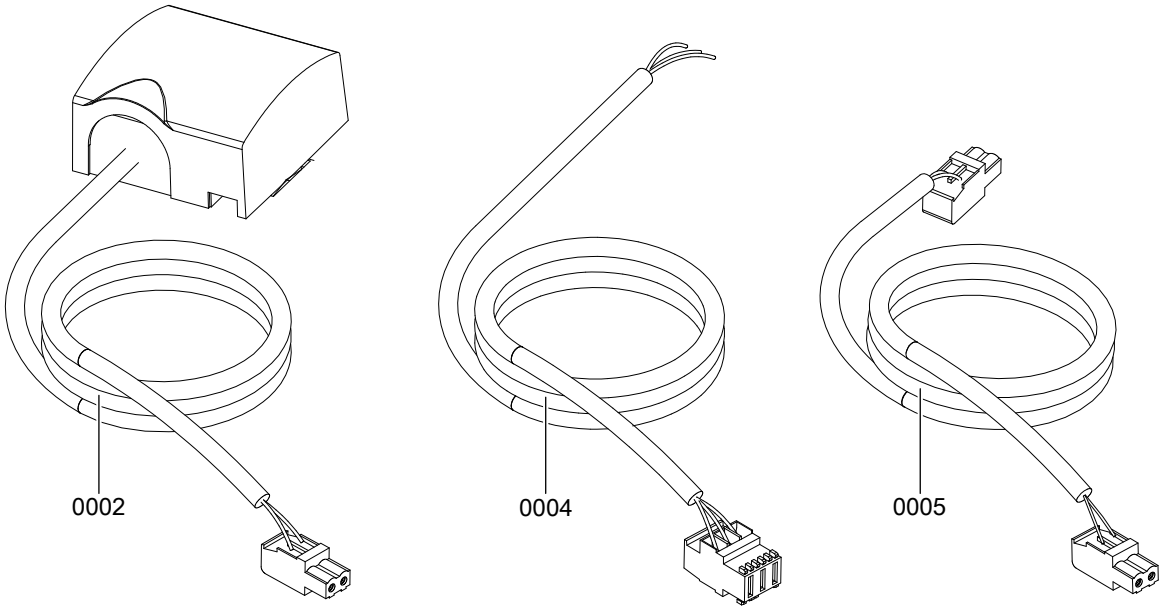


Fig. 20

Parts list (cont.)

Pos.	Part
0001	ADIO electronics module
0002	Flow temperature sensor NTC
0004	Connecting cable [40]
0005	PlusBus cable
0006	Plug set
0013	Strain relief
0014	Fuse 2.0 A (slow), 250 V~ (10 pce)
0015	Installation and service instructions

Parts list (cont.)

Mixer mounting

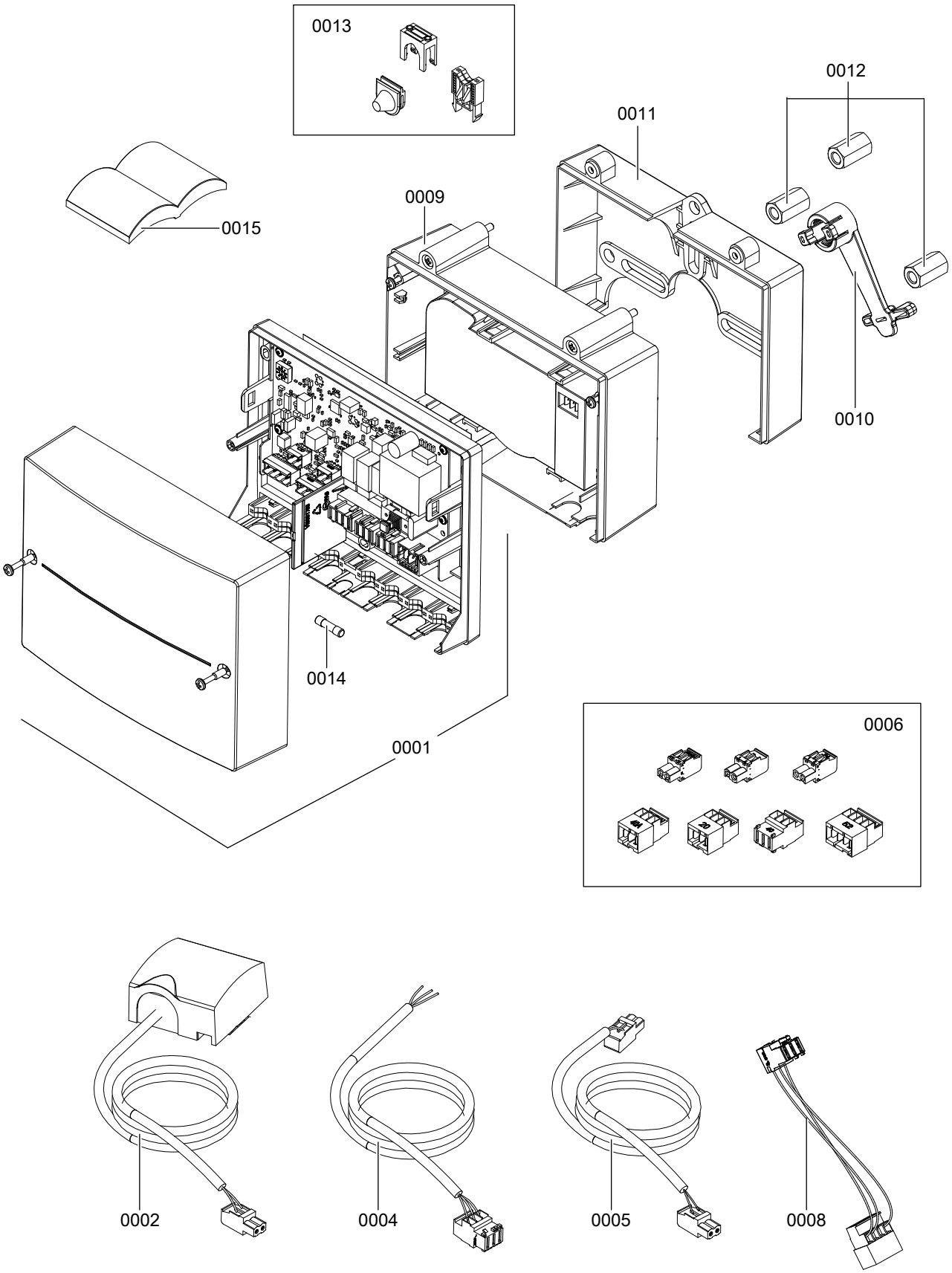


Fig. 21

Parts list (cont.)

Pos.	Part
0001	Extension
0002	Flow temperature sensor NTC
0004	Connecting cable [40]
0005	PlusBus cable
0006	Plug set
0008	Mixer connecting cable [52]
0009	Motor module
0010	Motor lever
0011	Base plate
0012	Fixing kit
0013	Strain relief
0014	Fuse 2.0 A (slow), 250 V~ (10 pce)
0015	Installation and service instructions

Specification

Rated voltage	230 V~
Rated frequency	50 Hz
Rated current	2 A
Power consumption – electronics	
▪ Wall mounting	1.5 W
▪ Mixer mounting	5.5 W
Power consumption	
▪ Wall mounting	7 mA
▪ Mixer mounting	25 mA
IP rating	IP 20D to EN 60529, ensure through design/ installation
Permissible ambient temperature	
▪ Operation	0 to +40 °C
▪ Storage and transport	–20 °C to +65 °C
Rated relay output breaking capacity	
▪ Heating circuit pump [20]	1 A 230 V~
▪ Mixer motor [52]	0.1 A 230 V~

Flow temperature sensor/temperature sensor for low loss header

Sensor type	NTC 10 kΩ, at 25 °C
IP rating	IP 53 to EN 60529; ensure through design/installation
Permissible ambient temperature	
▪ Operation	0 to +120 °C
▪ Storage and transport	−20 °C to +70 °C

Curve

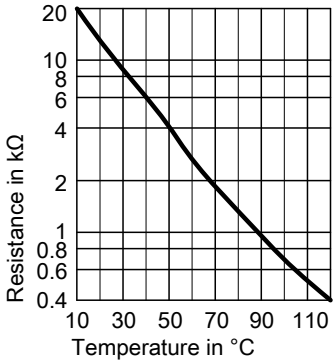


Fig. 22

Connection and wiring diagram

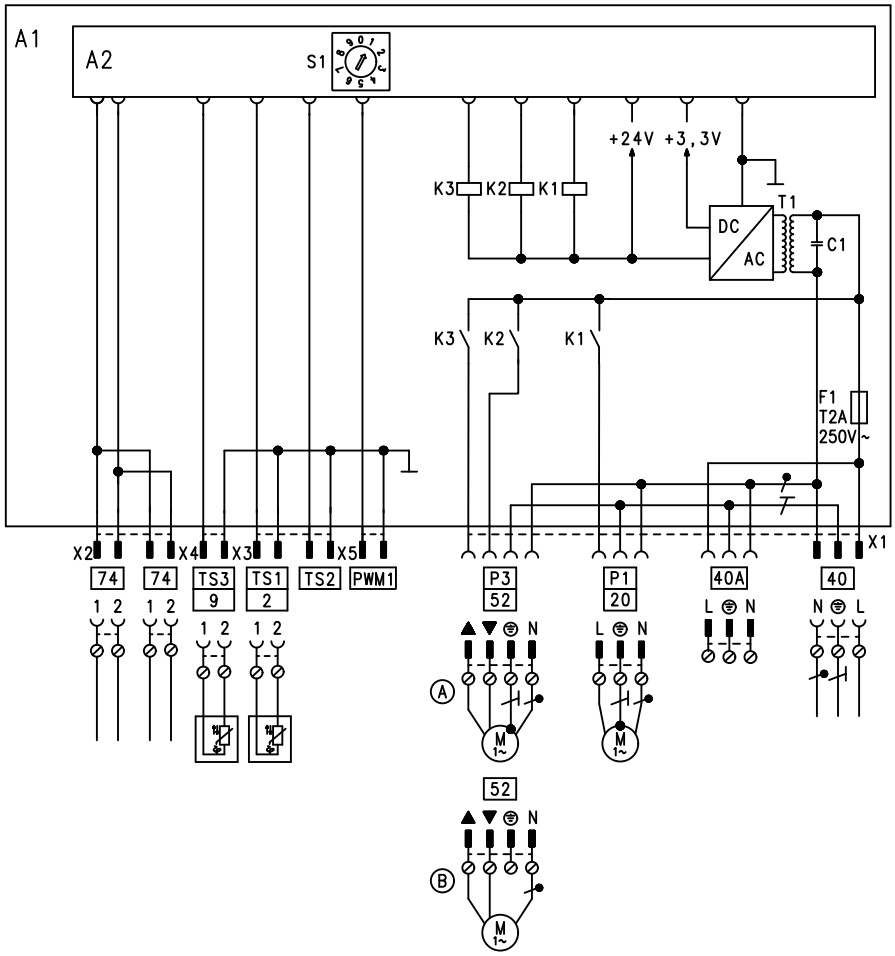


Fig. 23

A1 Mixer extension kit PCB
A2 PCB
F1 Fuse

230 V~ plugs
P1 [20] Heating circuit pump (on site)
P3 [52] Mixer motor
[40] Power supply 230 V/50 Hz
[40]A Power supply for accessories

LV plugs
PWM1 No function
TS1 [2] Flow temperature sensor

S1 Rotary switch for subscriber number addressing
Ⓐ Mixer motor if wall mounted
Ⓑ Mixer motor if mixer mounted

TS2 No function
TS3 [9] Temperature sensor, low loss header
[74] PlusBus connection for connecting to the heat generator and another accessory

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Declaration of conformity

Declaration of Conformity

We, Viessmann Werke GmbH & Co. KG, D-35107 Allendorf, declare as sole responsible body that the named product complies with the European directives and supplementary national requirements in terms of its design and operational characteristics.
Conformity has been verified with the CE designation.
Using the serial number, the full Declaration of Conformity can be found on the following website:

www.viessmann.co.uk/eu-conformity

Keyword index

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