

Installation and service instructions

for contractors

VIESSMANN

Mixer extension kit

OpenTherm mixer extension kit

For Vitodens 100-W, 111-W and 050-W

Mixer extension kit



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.

Note

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



Please note

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

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 (cont.)

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-authorized 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).

Safety instructions (cont.)**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.

**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.

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.

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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.
	<ul style="list-style-type: none"> ■ Component must audibly click into place. or ■ Acoustic signal
	<ul style="list-style-type: none"> ■ Fit new component. or ■ In conjunction with a tool: Clean the surface.
	Dispose of component correctly.
	Dispose of component at a suitable collection point. Do not dispose of component in domestic waste.

Intended use

The appliance is intended solely for installation and operation in sealed unvented heating systems that comply with EN 12828, with due attention paid to the associated installation, service and operating instructions. It is only designed for heating up heating water that is of potable water quality.

Intended use presupposes that a fixed installation in conjunction with permissible, system-specific components has been carried out.

Commercial or industrial usage for a purpose other than heating the building or DHW shall be deemed inappropriate.

Any usage beyond this must be approved by the manufacturer in each individual case.

Incorrect usage or operation of the appliance (e.g. the appliance being opened by the system user) is prohibited and will result in an exclusion of liability. Incorrect usage also occurs if the components in the heating system are modified from their intended use (e.g. if the flue gas and ventilation air paths are sealed).

Product information

Extension kit for one heating circuit with mixer and one heating circuit without mixer. Operation via room temperature controller.

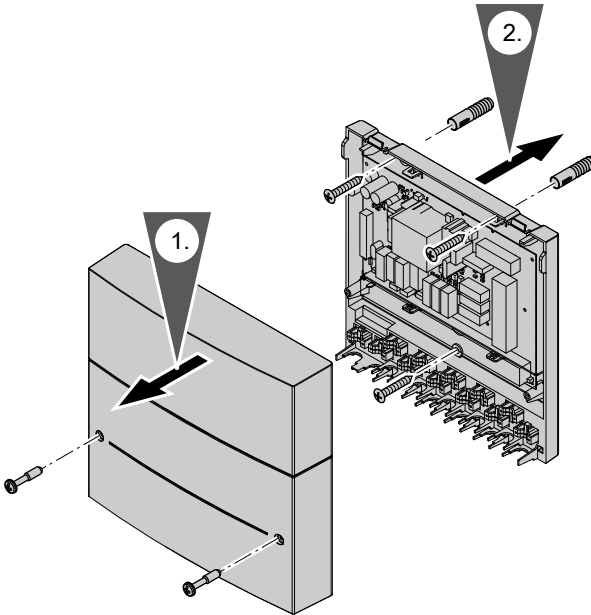
For weather-compensated operation, an outside temperature sensor (separate accessory) must be connected to the boiler control unit.



Boiler installation and service instructions

Installing the extension kit

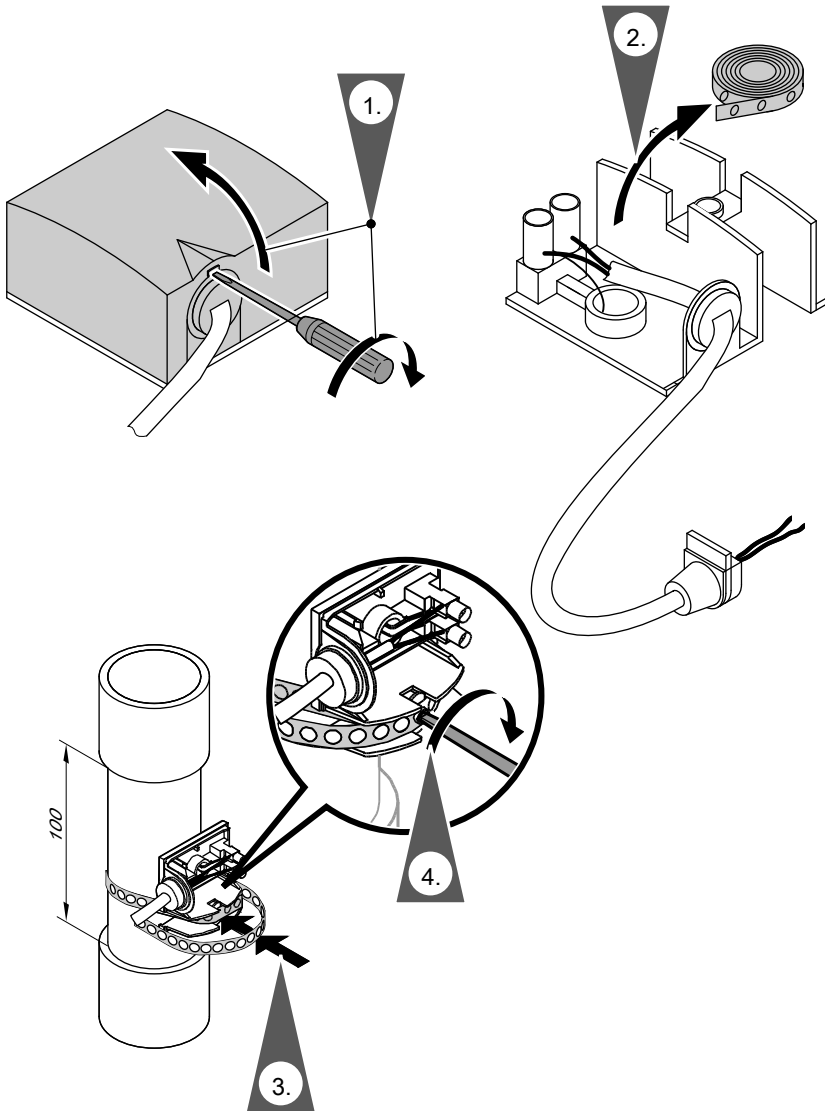
Install the device near the mixers and heating circuit pumps in the installation room.



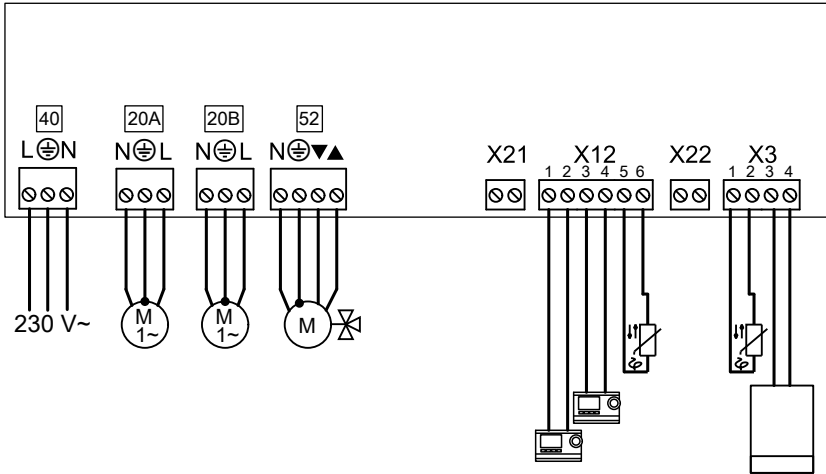
Fitting the flow temperature sensor

- Fit the flow temperature sensor to the heating flow pipe immediately downstream of the heating circuit pump in the flow direction.
- If using plastic pipes, fit the sensor to a metal intermediate pipe section.
- Clean the flow pipe down to bare metal.
- Heat conducting paste is not required.
- Never thermally insulate the sensor.

Fitting the flow temperature sensor (cont.)



Overview of electrical connections



- 20 A Heating circuit pump for heating circuit without mixer (on site)
- 20 B Heating circuit pump for heating circuit with mixer (on site)

- 40 Power supply
- 52 Mixer motor

LV connections

- X 3.1 - X 3.2 Flow temperature sensor for heating circuit without mixer (immersion temperature sensor)
- X 3.3 - X 3.4 OpenTherm connection of boiler control unit
- X 12.1 - X 12.2 OpenTherm room temperature controller for heating circuit with mixer

- X 12.3 - X 12.4 OpenTherm room temperature controller for heating circuit without mixer
- X 12.5 - X 12.6 Flow temperature sensor for heating circuit with mixer (contact temperature sensor)
- X 21 No function
- X 22 No function



Please note

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

Overview of electrical connections (cont.)

Note

Apply strain relief to on-site cables.

Seal any unnecessary apertures with cable grommets (not cut open).

Connecting the flow temperature sensor

Flow temperature sensor for heating circuit with mixer

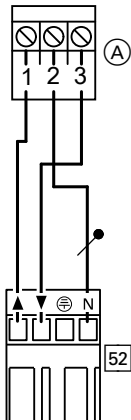
Connect the flow temperature sensor to X 12.5 and X 12.6 (see page 12).

Flow temperature sensor for heating circuit without mixer

Connect the temperature sensor to X 3.1 and X 3.2 (see page 12).

Connecting the mixer motor

Mixer motor, part no. 7450 657

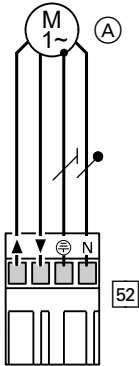


Connect the mixer motor in accordance with the diagram.
Never interchange wires.

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

Connecting the mixer motor (cont.)

Mixer motors without plug or on-site mixer motor



Connect the mixer motor in accordance with the diagram.
Never interchange wires.

- Ⓐ Mixer motor
- 52 Plug on 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	0.2 (0.1) A
Runtime for 90°<	120 s
Rotational direction	Can be changed

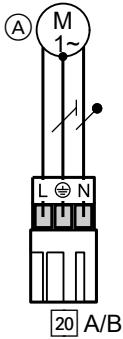
Connecting the heating circuit pump

Note

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

Connecting the heating circuit pump (cont.)

Heating circuit pump 230 V~



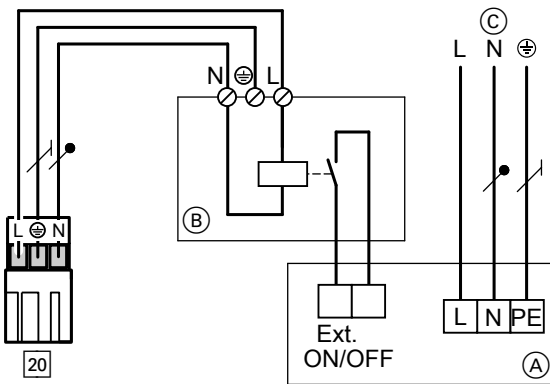
For allocation of the heating circuit pumps see page 12.

Specification

Rated current	2(1) A
Recommended connecting cable	H05VV-F3G 0.75 mm ² or H05RN-F3G 0.75 mm ²

- (A) Heating circuit pump
- (20) A/B Mains connection on extension kit

Heating circuit pump with power consumption greater than 2 A

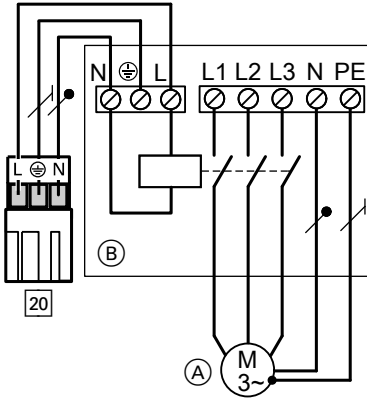


- (20) A/B Plug on extension kit
- (A) Heating circuit pump
- (B) Contactor
- (C) Separate power supply (observe manufacturer's instructions)

For allocation of the heating circuit pumps see page 12.

Connecting the heating circuit pump (cont.)

Heating circuit pump 400 V~

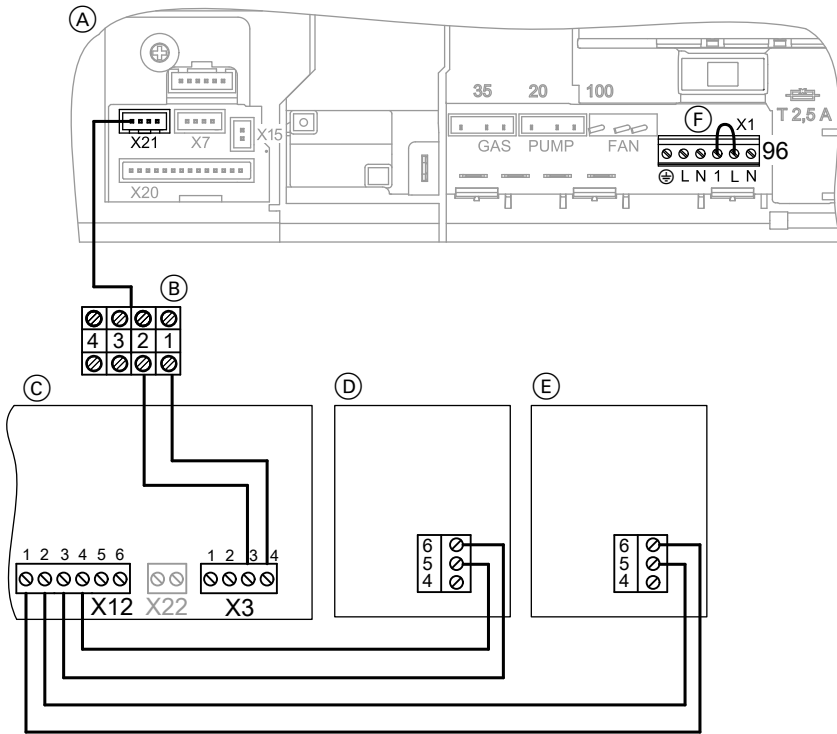


- (A) Heating circuit pump
- (B) Contactor
- 20 A/B Plug on extension kit

Specification for switching the con- tactor:

Rated voltage	230 V~
Rated current	2(1) A
Recommended connecting cable	H05VV-F3G or H05RN-F3G 0.75 mm ²

OpenTherm connections



- (A) Boiler control unit
- (B) Terminals on the control unit
- (C) Mixer extension kit
- (D) Room temperature controller for heating circuit without mixer
- (E) Room temperature controller for heating circuit with mixer
- (F) Jumper

1. Connect the heat generator control unit and the room temperature controller.
2. Remove jumper (F).

Power supply



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

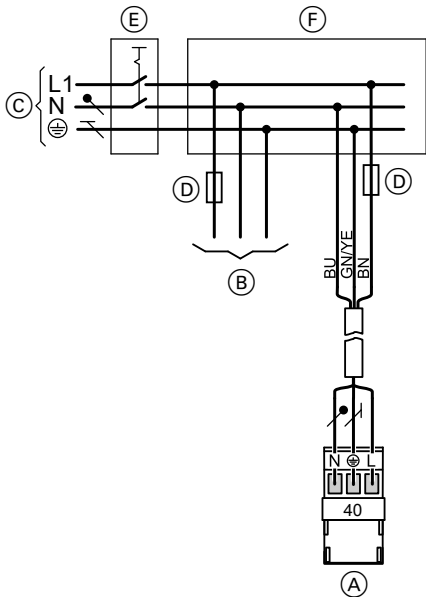
The absence of system component earthing can lead to serious injury from electric current if an electrical fault occurs.

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.

Power supply (cont.)



- (A) Power supply for extension
- (B) Power supply for heat generator control unit
- (C) Power supply 1/N/PE, 230 V/50 Hz
- (D) Fuse (max. 16 A)
- (E) Mains isolator, 2-pole, on site
- (F) 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 power supply of the heat generator control unit.

Colour coding to IEC 60757

- BN Brown
- BU Blue
- GNYE Green/yellow

Setting the mixer extension kit parameters

Calling up and changing parameters

Display and adjustments are made at the room temperature controller.

1. Press **MODE**.
2. Use <-/-> to select "**SETTINGS**".
3. **OK** to confirm
4. Use <-/-> to select "**SERVICE**".
5. **OK** to confirm
6. Use <-/-> to select "**TSP-PARAMETER**".
7. **OK** to confirm
8. Use <-/-> to select the required parameter.
See the following chapter.

Note
Parameter 9 has no function.

9. **OK** to confirm
10. Set the required value with +/-.
11. **OK** to confirm

Parameters

Function of the room temperature controller

Parameter 0

Setting	Explanations
0	Heating circuit without mixer and heating circuit with mixer Room temperature controller acts on the connected heating circuit. See pages 12 and 17.
1	Heating circuit without mixer and heating circuit with mixer A room temperature controller acts on both connected heating circuits. See pages 12 and 17.
2	Heating circuit with mixer Room temperature controller only acts on the heating circuit with mixer. See pages 12 and 17
3	Heating circuit without mixer Switching input: On-site room temperature controller or time switch acts on the heating circuit without mixer. Contact closed: Circulation pump on and flow temperature in accordance with the setting of parameter 2 Contact open: Circulation pump with run-on time off and set flow temperature 10 °C (frost protection)

Setting the mixer extension kit parameters (cont.)

Minimum boiler water temperature

Parameter 1

Setting		Explanations
10 - 50	Minimum boiler water temperature adjustable from 10 to 50 °C	Delivered condition 10 °C No minimum boiler water temperature active

Max. flow temperature, low loss header (heating circuit without mixer)

Parameter 2

Setting		Explanations
20 - 90	Max. flow temperature adjustable from 20 to 90 °C	Delivered condition: 65 °C

Max. flow temperature, heating circuit with mixer

Parameter 3

Setting		Explanations
20 - 90	Max. flow temperature adjustable from 20 to 90 °C	Delivered condition: 55 °C

Setting the mixer extension kit parameters (cont.)

Switching function, DHW heating

Parameter 4

Setting		Explanations
0	Gas condensing system boiler: DHW heating enabled in accordance with the settings of the room temperature controller Gas condensing combi boiler: Comfort function switched on in accordance with the settings of the room temperature controller	Delivered condition
1	Gas condensing system boiler: DHW heating off Gas condensing combi boiler: Comfort function off	
2	Gas condensing system boiler: DHW heating on Gas condensing combi boiler: Comfort function on	

Default set DHW temperature

Parameter 5

Setting		Explanations
30 - 80	Set DHW temperature adjustable from 30 to 80 °C	Delivered condition: 50 °C If no set value is transmitted from the room temperature controller.

PWM signal, circulation pump 20A

Parameter 6

Setting		Explanations
0 - 100	Never adjust.	Delivered condition: 0

PWM signal, circulation pump 20B

Parameter 7

Setting		Explanations
0 - 100	Never adjust.	Delivered condition: 0

Setting the mixer extension kit parameters (cont.)

Mixer motor runtime

Parameter 8

Setting		Explanations
0 - 100	Mixer motor runtime adjustable in steps of 10 s	Delivered condition: 12 (corresponds to 120 s). Set the runtime in accordance with the mixer motor specification.

Time interval, temperature compensation, heating circuit without mixer

Parameter 10

Setting		Explanations
0 - 30	Interval adjustable from 0 to 30 s	Delivered condition: 30 s

Hysteresis, temperature compensation, heating circuit without mixer

Parameter 11

Setting		Explanations
1 - 3	Hysteresis adjustable from 0 to 3 K	Delivered condition: 2 K

Step, temperature compensation, heating circuit without mixer

Parameter 12

Setting		Explanations
1 - 5	Temperature compensation step adjustable from 0 to 5 K	Delivered condition: 1 K

Time interval, temperature compensation, heating circuit with mixer

Parameter 13

Setting		Explanations
0 - 30	Interval adjustable from 0 to 30 s	Delivered condition: 30 s

Setting the mixer extension kit parameters (cont.)

Temperature differential, set flow temperature, heating circuit with mixer to set boiler water temperature

Parameter 14

Setting		Explanations
0 - 10	Excess set boiler water temperature at start of compensation adjustable from 0 to 10 K	Delivered condition: 5 K

Actuator test

Parameter 15

Setting		Explanations
0	Actuators switched by controller	Delivered condition
1	Output 20A on	Circulation pump, heating circuit with mixer on
2	Output 20B on	Circulation pump, heating circuit without mixer on
3	Output 52 ▲ on	Mixer will be opened.
4	Output 52 ▼ on	Mixer will be closed.

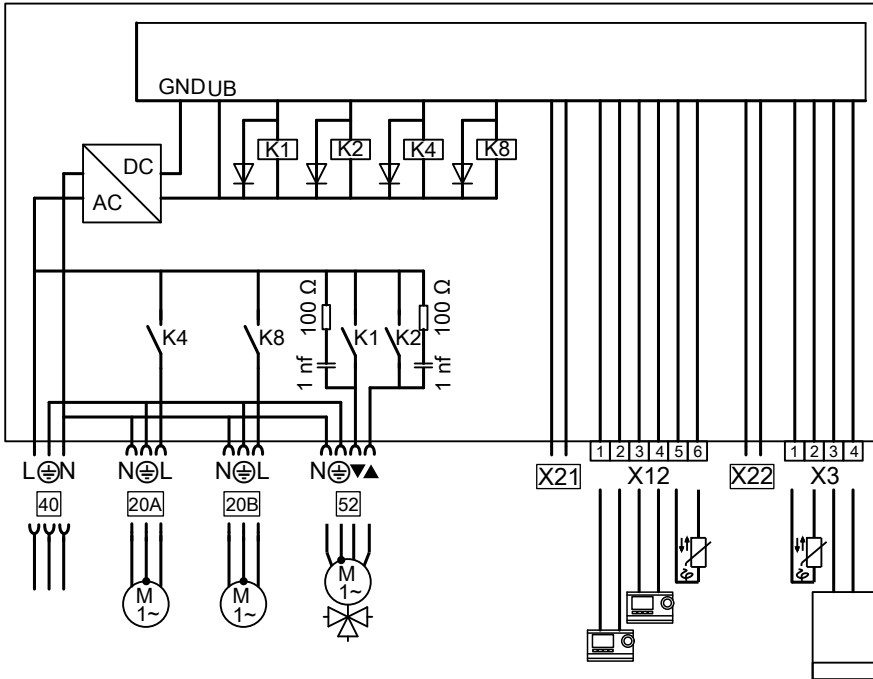
Fault messages

If there is a fault, "**Error**" is shown on the display of the room temperature controller.

Press **INFO**; the fault message appears.

Fault message	Meaning
"Error D0"	Lead break, flow temperature sensor for low loss header
"Error D1"	Short circuit, flow temperature sensor for low loss header
"Error D2"	Lead break, flow temperature sensor in heating circuit with mixer
"Error D3"	Short circuit, flow temperature sensor in heating circuit with mixer
"Error D5"	OpenTherm connection between heat generator control unit and mixer extension kit not connected or faulty

Connection and wiring diagram



Plug 230 V~

- 20 A Heating circuit pump for heating circuit without mixer (on site)
- 20 B Heating circuit pump for heating circuit with mixer (on site)
- 40 Power supply 230 V~
- 52 Mixer motor

LV connections

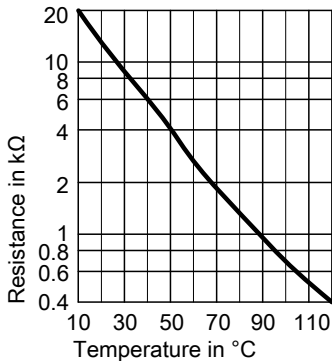
- X 3.1 - X 3.2 Flow temperature sensor for heating circuit without mixer (immersion temperature sensor)
- X 3.3 - X 3.4 OpenTherm connection, heat generator

- X 12.1 - X 12.2 OpenTherm room temperature controller for heating circuit with mixer
- X 12.3 - X 12.4 OpenTherm room temperature controller for heating circuit without mixer
- X 12.5 - X 12.6 Flow temperature sensor for heating circuit with mixer (contact temperature sensor)
- X 21 No function
- X 22 No function

Specification

Rated voltage	230 V~
Rated frequency	50 Hz
Rated current	4 A
Power consumption (without consumers)	1.5 W
Protection class	I
IP rating	IP 20 D to EN 60 529; ensure through design/installation.
Permissible ambient temperature <ul style="list-style-type: none"> ■ During operation ■ During storage and transport 	0 to +40 °C -20 to +65 °C
Rated relay output breaking capacity <ul style="list-style-type: none"> ■ Heating circuit pump [20] ■ Mixer motor 	2 (1) A 230 V~ 0.2 (0.1) A 230 V~
Flux temperature sensor and temperature sensor for low loss header <ul style="list-style-type: none"> ■ Sensor type ■ IP rating ■ Permissible ambient temperature during operation ■ Permissible ambient temperature during storage and transport 	NTC 10 kΩ, at 25 °C IP 53 to EN 60 529; ensure through design/installation. 0 to +120 °C -20 to +70 °C

Temperature sensor curve





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