

EM-P1 extension

ADIO electronics module
Function extension for connecting circulation pumps

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.

Installation, commissioning, inspection, maintenance and repairs must only be carried out by an authorised, competent person (heating engineer/installation contractor).

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

When using gas as fuel, also close the main gas shut-off valve and safeguard against unintentional reopening.

Check for gas tightness after installation.










Wear suitable personal protective equipment when carrying out any work.

Repairing components that fulfil a safety function can compromise the safe operation of the system. For replacements, use only original spare parts supplied or approved by Viessmann. Install the components with new gaskets.

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.

System examples

For available system examples: See www.viessmann-schemes.com

Application information

The following circulation pumps can be connected:

- Heating circuit pump for heating circuit without mixer
- DHW circulation pump

Spare parts lists

Information about spare parts can be found at www.viessmann.com/etapp or in the Viessmann spare part app.



Wall mounting

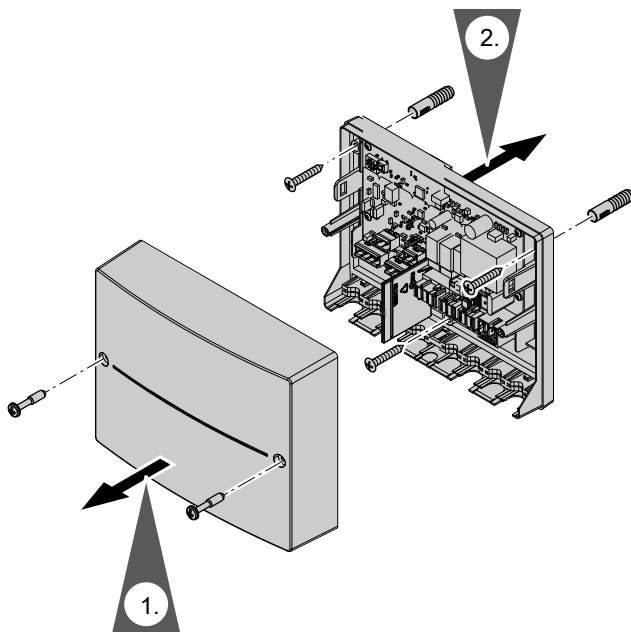


Fig. 1

Overview of electrical connections

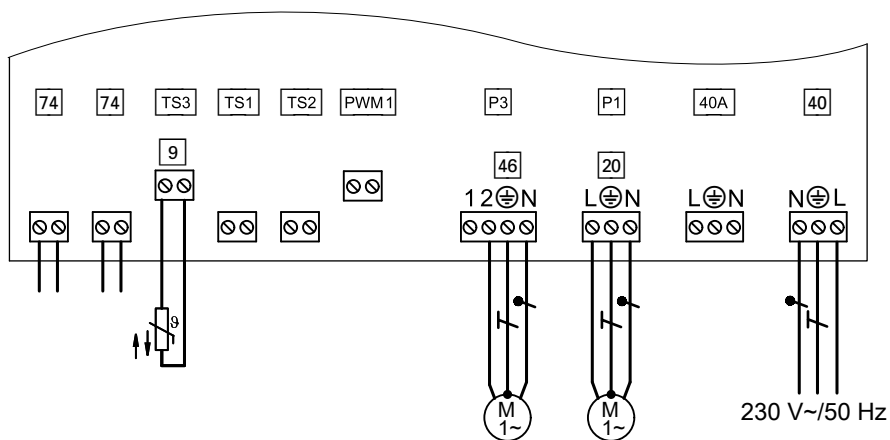


Fig. 2

Plug 230 V~

P1 20 Heating circuit pump (on site)

P3 46 DHW circulation pump (on site)

40 Power supply

40A Power supply for accessories

Overview of electrical connections (cont.)

LV connections

PWM1	No function
TS1	No function
TS2	No function
TS3	Immersion 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. Secure individual wires directly to each plug using cable ties. Seal any unnecessary apertures with cable grommets (not cut open).

Connecting immersion temperature sensor for low loss header

Insert plug 9 of immersion temperature sensor into slot TS3.

Note

If a mixer extension kit is connected in the system, connect temperature sensor 9 to the EM-M1 or EM-MX extension.

Connecting the DHW circulation pump

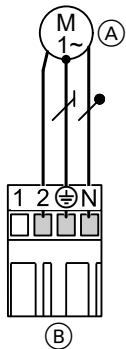


Fig. 3

- (A) DHW circulation pump
- (B) Plug 46 to slot P3

1. If there is already a plug connected to the DHW circulation pump: Remove it and connect plug 46.
2. Insert plug 46 of DHW circulation pump into slot P3.

Specification

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

Connecting a 230 V~ heating circuit pump



Fig. 4

- (A) Heating circuit pump
- (B) Plug 20 to slot P1

Specification

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

Connecting pumps with switching input

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

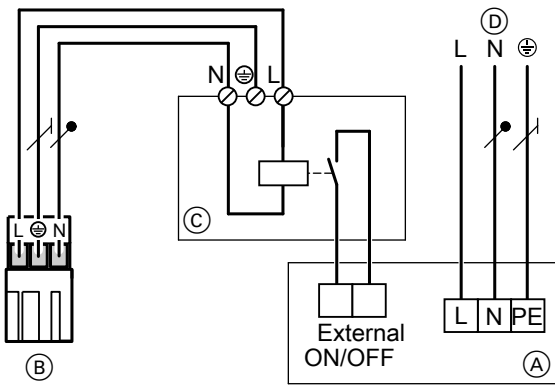


Fig. 5

- (A) Heating circuit pump
- (B) Plug 20 to slot P1
- (C) Contactor
- (D) 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 mm ² or H05RN-F3G 0.75 mm ²

Connecting pumps without switching input

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

Connecting a 230 V~ heating circuit pump (cont.)

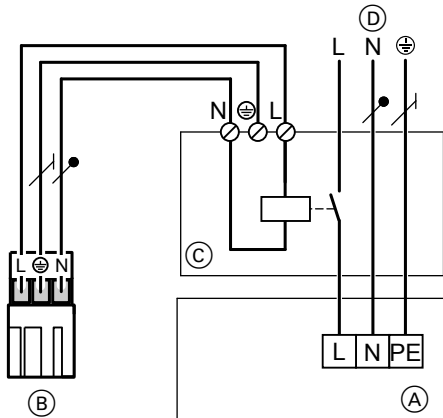


Fig. 6

- (A) Heating circuit pump
- (B) Plug 20 to EM-P1 extension
- (C) Contactor
- (D) 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 mm ² or H05RN-F3G 0.75 mm ²

Connecting a 400 V~ heating circuit pump

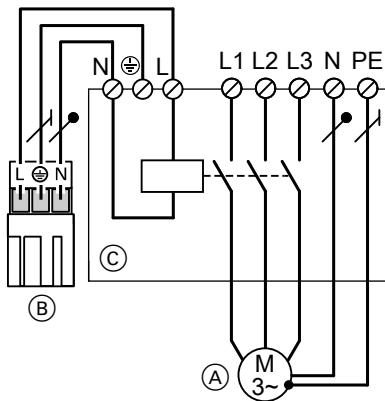


Fig. 7

- (A) Heating circuit pump
- (B) Plug 20 to EM-P1 extension
- (C) Contactor

Specification for switching the contactor:

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

Rotary switch S1

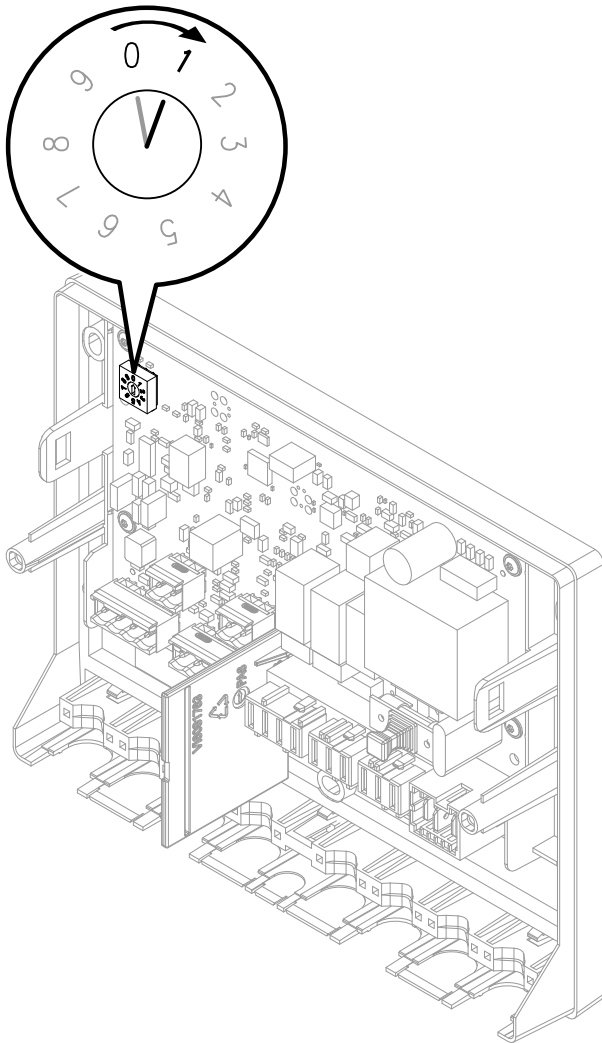


Fig. 8

Rotary switch S1 on the EM-P1 extension and rotary switch S1 on the mixer extension kit must be set according to the following table.

Heating circuit	Rotary switch S1 on EM-P1 extension Factory setting: 1	Rotary switch S1 on mixer extension kit Factory setting: 1
System with 1 heating circuit without mixer		
1	1	—
System with 1 heating circuit with mixer		
2	2	1
System with several heating circuits with mixer		
2	2	1
3	3	2
4	4	3

Connecting the PlusBus to the heat generator

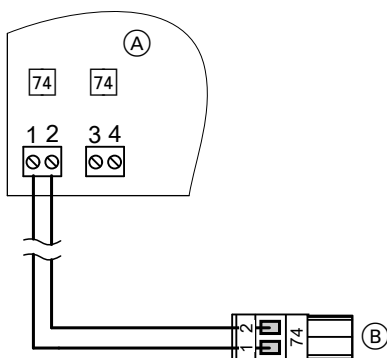


Fig. 9

- (A) Extension (electronics module)
- (B) PlusBus to heat generator

For connection to heat generators with external plug, luster terminals or spring-loaded terminals:
For the bus connection, disconnect plug 74. Connect the wires directly. The wires are interchangeable.

 Heat generator installation and service instructions

Power supply

Power supply at heat generator

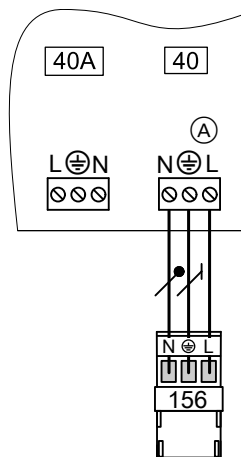


Fig. 10 Example: Power supply with plug 156

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

Connect the power cable to the extension. Route the power cable to the heat generator and connect to plug 156. Observe the fuse protection of the contact (output) on the heat generator. If the power supply is connected to another 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".

If there is no plug 156 at the heat generator:

- Use a separate power supply. See the following chapter.
- Or
-  Heat generator installation and service instructions

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
- Connection conditions of the local grid operator



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.)

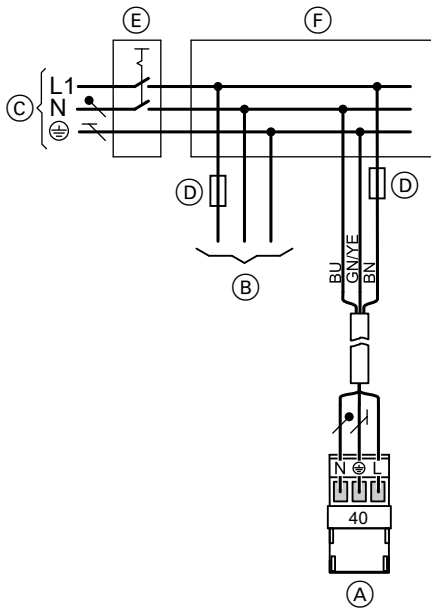


Fig. 11

- (A) Power supply for extension (electronics module)
- (B) Power supply for heat generator
- (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 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

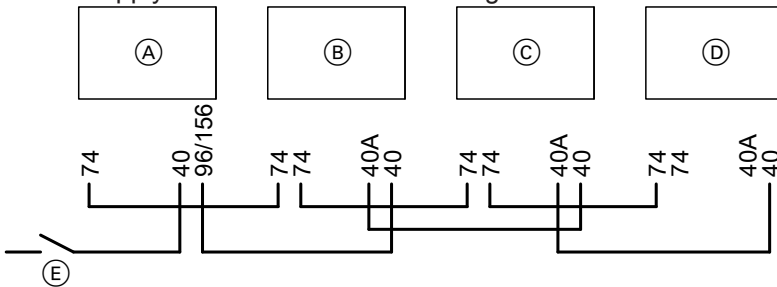


Fig. 12

Some accessories with direct power supply

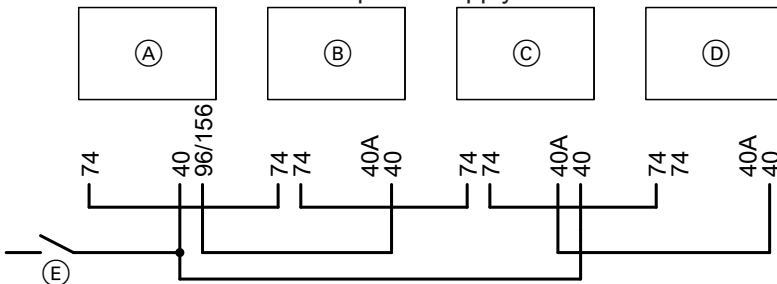


Fig. 13

Connecting several accessories (cont.)

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

- In the following circumstances, use the contact (output) of the accessories only to switch an on-site relay:
 - An actuator with a higher power demand than the fuse rating required for the accessories, e.g. a circulation pump, is connected to the contact (output) of the accessories.
- 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 heat generator control unit is exceeded.

Note

In this event, the accessories concerned **cannot** be isolated with the ON/OFF switch on the control unit.

Connection and wiring diagram

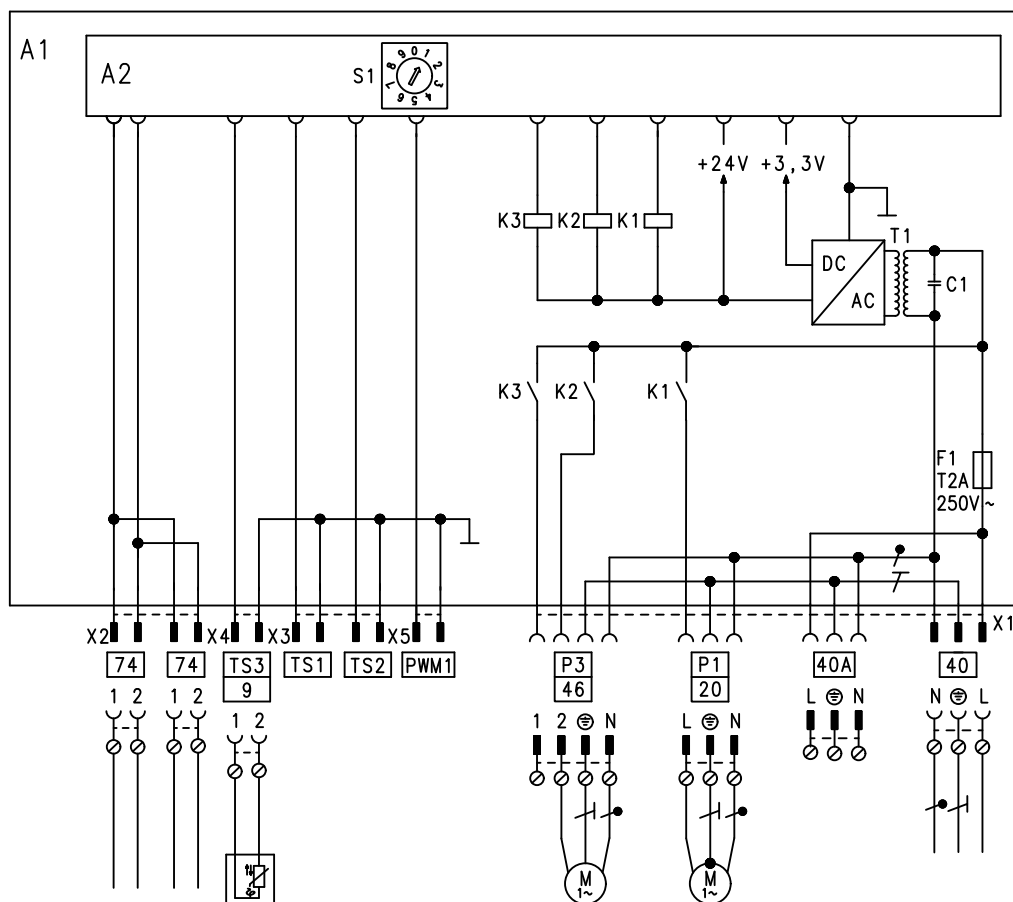


Fig. 14

A1 PCB, EM-P1 extension (ADIO electronics module)
A2 PCB

F1 Fuse
S1 Rotary switch

Connection and wiring diagram (cont.)

230 V~ plugs

P1 20 Heating circuit pump (on site)

P3 46 DHW circulation pump (on site)

40 Power supply 230 V/50 Hz

40A Power supply for accessories

TS2 No function

TS3 9 Immersion temperature sensor, low loss header

74 PlusBus for connection to the heat generator control unit and one other accessory

LV plug

PWM1 No function

TS1 No function

Specification

Rated voltage	230 V~
Rated frequency	50 Hz
Rated current	2 A
Power consumption – electronics	2 W
Power consumption	9 mA
Permissible ambient temperature	
▪ Operation	0 to +40 °C
▪ Storage and transport	-20 °C to +65 °C
Rated relay output breaking capacity	
▪ P 1 (heating circuit pump)	1 A 230 V~
▪ P 3 (DHW circulation pump)	1 A 230 V~

Immersion temperature sensor, low loss header

Sensor type	NTC 10 k Ω , 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

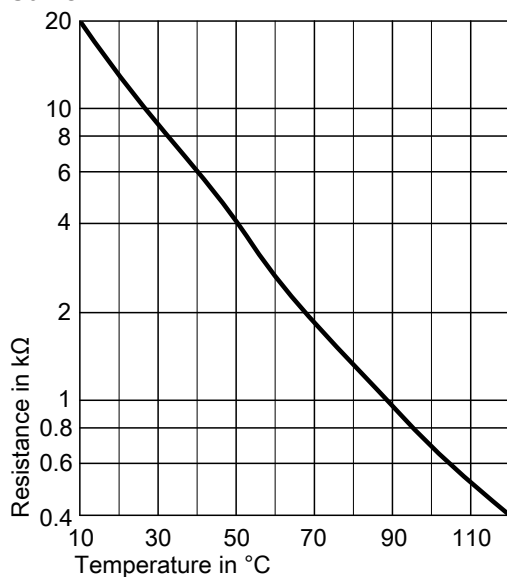


Fig. 15

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.

Using the serial number, the full Declaration of Conformity can be found on the following website:
www.viessmann.co.uk/eu-conformity

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