

## EM-P1 extension

ADIO electronics module  
Function extension for connecting circulation pumps

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### Safety instructions



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

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

Before working on the equipment/heating system, isolate 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 unauthorised reopening.

Repairing components which fulfil a safety function can compromise the safe operation of your heating system.

For replacements, use only original spare parts supplied or approved by Viessmann.

### Application information

The following circulation pumps can be connected:

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

## Wall mounting

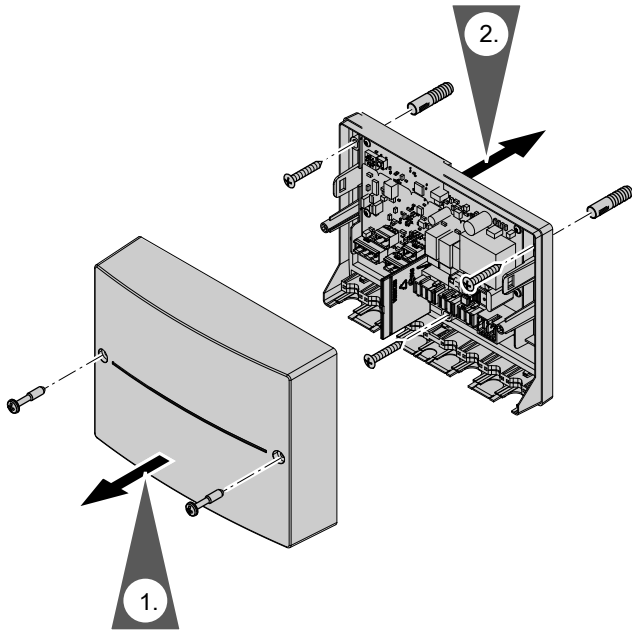


Fig. 1

## Overview of electrical connections

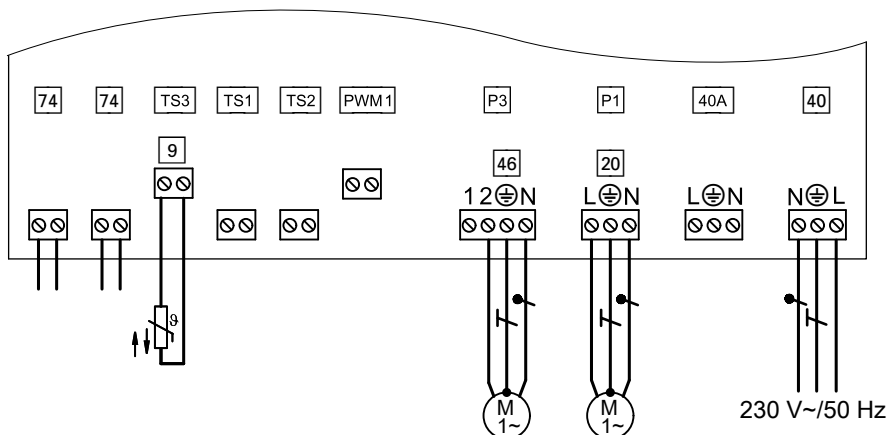


Fig. 2

### Plug 230 V~

- P1 20 Heating circuit pump (on site)
- P3 46 DHW circulation pump
- 40 Power supply
- 40A Power supply for accessories

### LV connections

- PWM1 No function
- TS1 No function
- TS2 No function
- TS3 9 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

Connect plug [9](#) to slot TS3 (see Overview of electrical connections).

### Note

If there is a mixer extension kit in the system, connect temperature sensor [9](#) to the EM-M1 or EM-MX extension.

## Connecting the DHW circulation pump

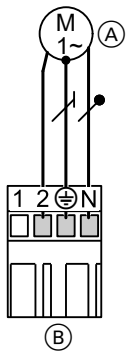


Fig. 3

- (A) DHW circulation pump
- (B) Plug P3 [46](#) to the EM-P1 extension

If there is already a plug connected to the DHW circulation pump, remove it and connect plug [46](#).

### Specification

Rated current	1 A
Recommended connecting cable	H05VV-F3G 0.75 mm <sup>2</sup> or H05RN-F3G 0.75 mm <sup>2</sup>

## Connecting the heating circuit pump

### Heating circuit pump 230 V~

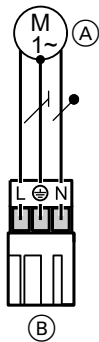


Fig. 4

- (A) Heating circuit pump
- (B) Plug P1 [20](#) to the EM-P1 extension

### Specification

Rated current	1 A
Recommended connecting cable	H05VV-F3G 0.75 mm <sup>2</sup> or H05RN-F3G 0.75 mm <sup>2</sup>

## Connecting the heating circuit pump (cont.)

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

### Pumps with switching input

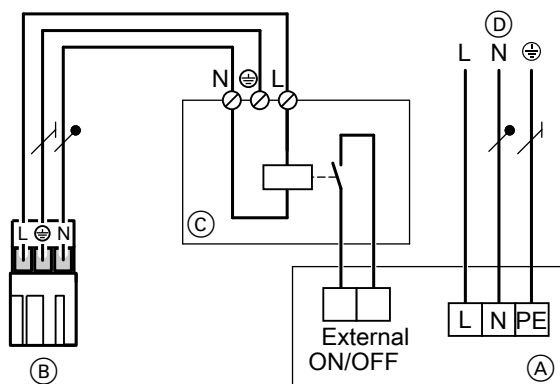


Fig. 5

- (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 <sup>2</sup> or H05RN-F3G 0.75 mm <sup>2</sup>

### Pumps without switching input

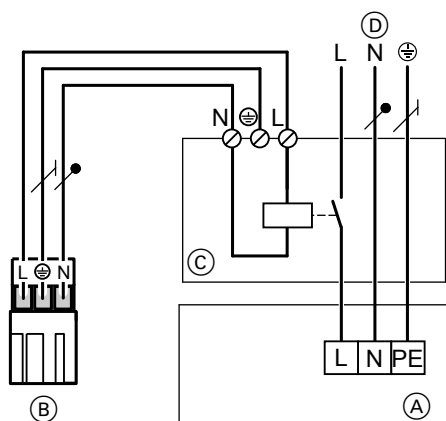


Fig. 6

- (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 <sup>2</sup> or H05RN-F3G 0.75 mm <sup>2</sup>

## Connecting the heating circuit pump (cont.)

### Heating circuit pump 400 V~

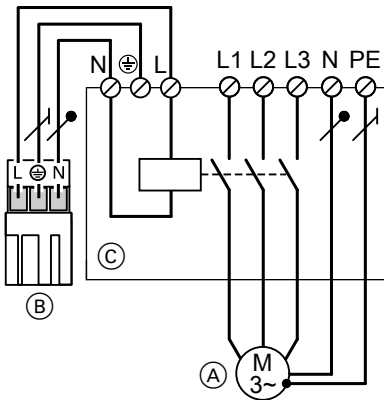


Fig. 7

- (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 <sup>2</sup> or H05RN-F3G 0.75 mm <sup>2</sup>

## Rotary switch S1

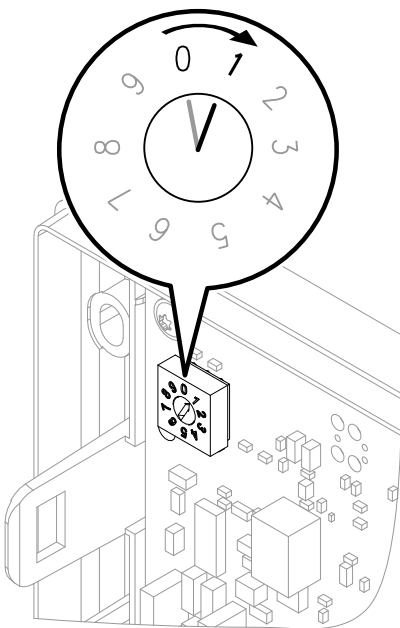


Fig. 8

- Systems with only one heating circuit without mixer: Rotary switch S1 to 1 (delivered condition)
- If there are mixer extension kits connected in the system: Set rotary switch S1 to a consecutive number, in accordance with the following examples.
  - System with one heating circuit with mixer:
    - Heating circuit 2 with mixer: Rotary switch on extension kit to 1
    - EM-P1 extension: 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: Rotary switch to 4

## Connecting the PlusBus to the heat generator

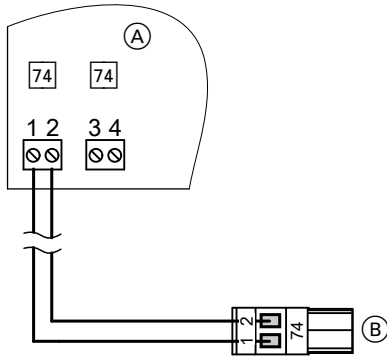


Fig. 9

- (A) Extension
- (B) 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

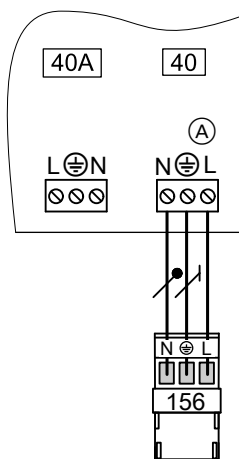


Fig. 10

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

Create the power supply connection.

Route the power cable to the heat generator and connect to plug 156. Observe fuse protection at 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".

### 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.

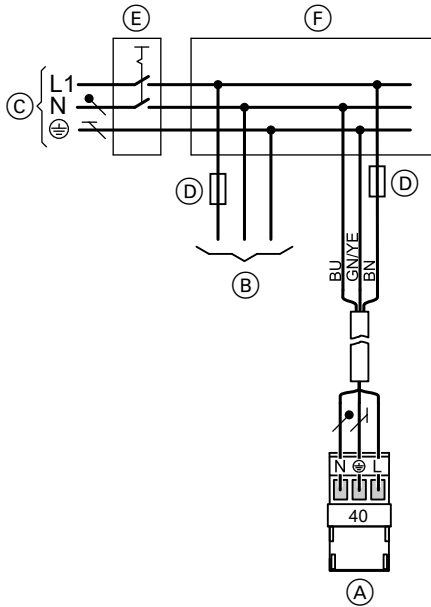


Fig. 11

- (A) Power supply for extension
- (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

## Connection and wiring diagram

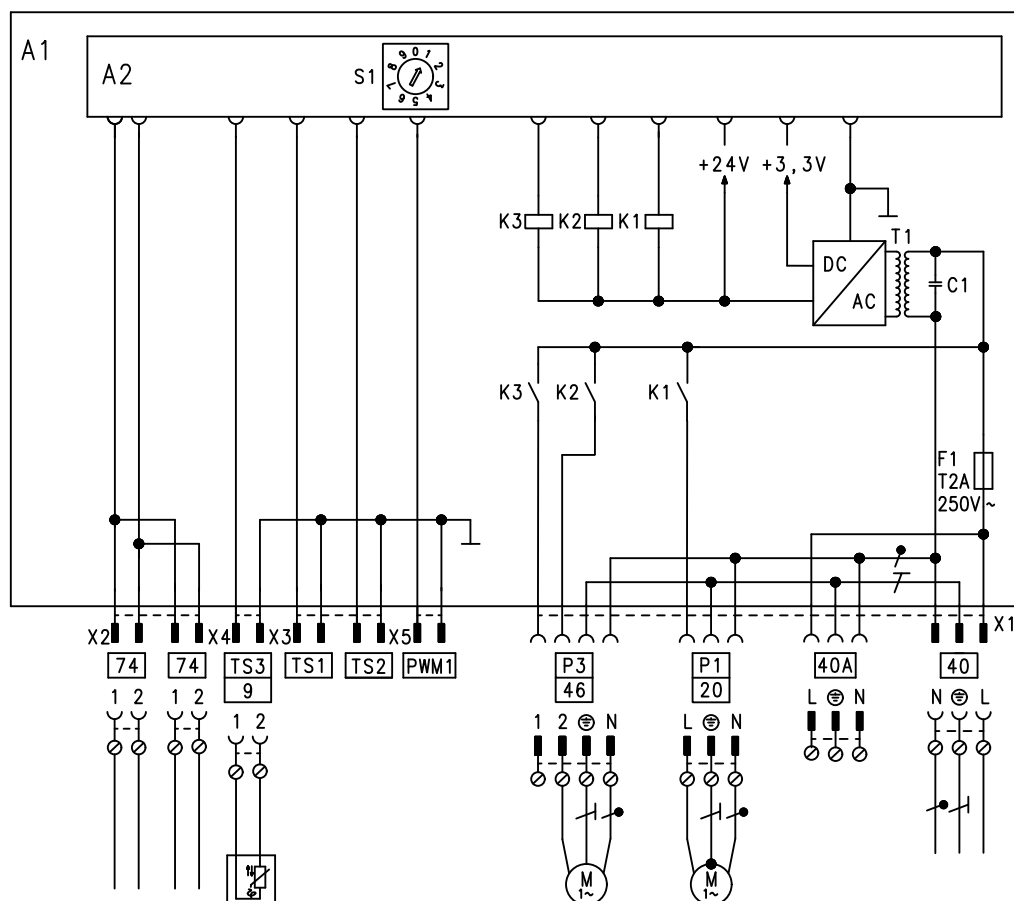


Fig. 12

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

F1 Fuse  
S1 Rotary switch

230 V~ plugs

P1 20 Heating circuit pump (on site)

P3 46 DHW circulation pump

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 connection for connecting to the heat generator control unit and another accessory

LV plug

PWM1 No function

TS1 No function

## Parts list

The following details are required when ordering parts:

- Serial no. (see type plate)
- Position number of the part



## Parts list (cont.)

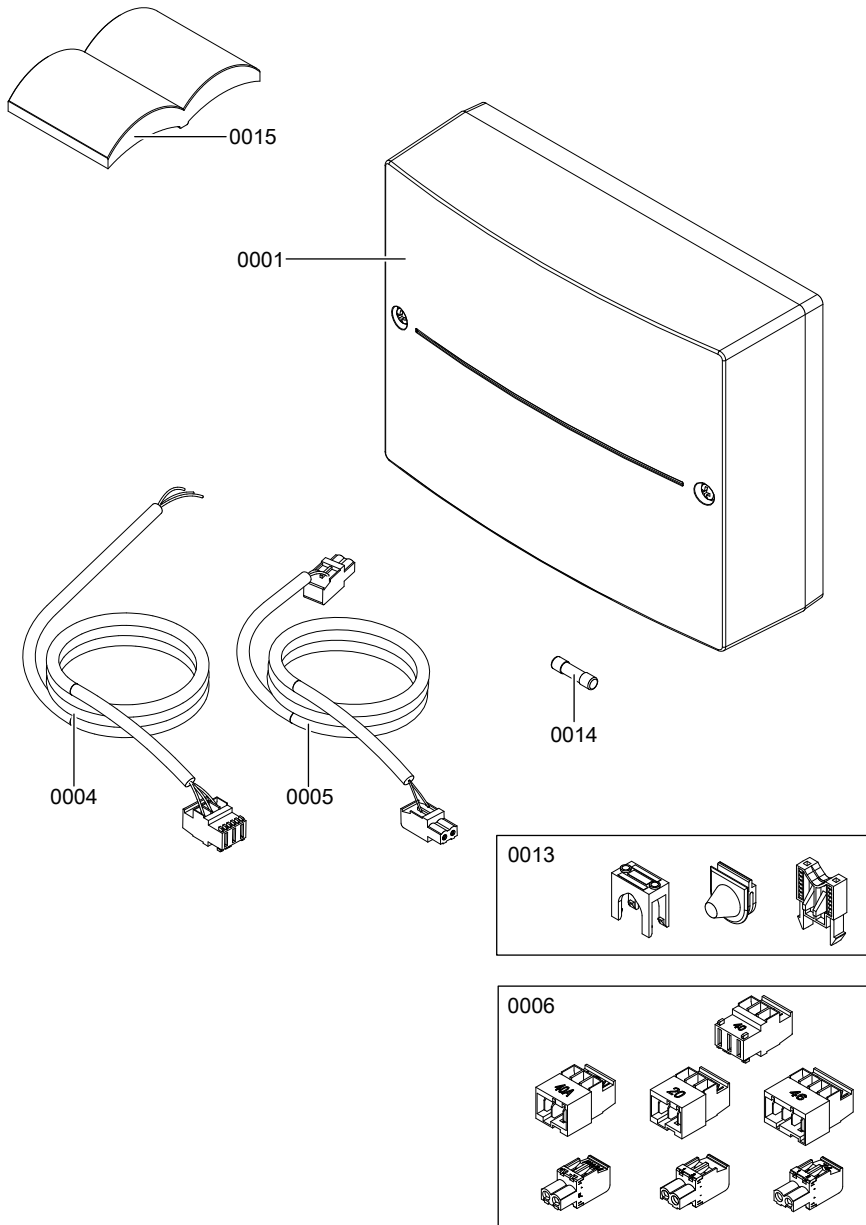


Fig. 13

Pos.	Part
0001	Extension
0004	Connecting cable 40
0005	PlusBus cable with plug 74
0006	ADIO/M2IO plug set
0013	Strain relief fittings
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	1.5 W
Power consumption	7 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 $\Omega$ , 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

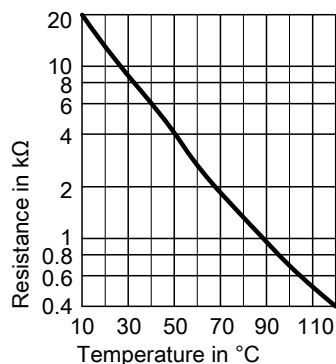


Fig. 14

## 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](http://www.viessmann.co.uk/eu-conformity)





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