SIEMENS

FP120-Z1

Power supply kit A (70 W)

Technical Manual

A6V10393194_e_en_--

2019-08-28

Smart Infrastructure

Imprint

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1 About this document

Goal and purpose

This manual describes the design and functions, as well as the key work steps required for mounting and installation. Information about the function check, maintenance, and troubleshooting makes it possible to use the product as intended.

Scope

The information contained in this document is valid for FP120-Z1 power supply kit A (70 W).

Intended use

This standalone power supply is intended for decentralized supply to external devices. FP120-Z1 has an integrated operating and fault indicator, and makes it possible to forward faults via potential-free contacts.

Target groups

The information in this document is intended for the following target groups:

Target group	Activity	Qualification
Installation personnel	• Assembles and installs the product components at the place of installation. • Carries out a function check following installation.	• Has received specialist training in the area of building installation technology or electrical installations.
Maintenance personnel	• Carries out all maintenance work. • Checks that the products are in perfect working order. • Searches for and corrects malfunctions.	• Has obtained suitable specialist training for the function and for the products.

Source language and reference document

- The source/original language of this document is German (de).
- The reference version of this document is the international version in English. The international version is not localized.

Document identification

The document ID is structured as follows:

ID code	Examples
ID_ModificationIndex_Language_COUNTRY -- = multilingual or international	A6V10215123_a_de_DE A6V10215123_a_en_-- A6V10315123_a_--_--

Date format

The date format in the document corresponds to the recommendation of international standard ISO 8601 (format YYYY-MM-DD).

Conventions for text marking

Markups

Special markups are shown in this document as follows:

▷	Requirement for a behavior instruction
1. 2.	Behavior instruction with at least two operation sequences
–	Version, option, or detailed information for a behavior instruction
⇨	Intermediate result of a behavior instruction
⇨	End result of a behavior instruction
•	Numbered lists and behavior instructions with an operation sequence
[→ X]	Reference to a page number
'Text'	Quotation, reproduced identically
<Key>	Identification of keys
>	Relation sign and for identification between steps in a sequence, e.g., 'Menu bar' > 'Help' > 'Help topics'
↑ Text	Identification of a glossary entry

Supplementary information and tips

The 'i' symbol identifies supplementary information and tips for an easier way of working.

1.1 Applicable documents

Document ID	Title
A6V10393173	FP120-Z1 power supply kit A (70 W) – Mounting
A6V10416448	FP120-Z1 power supply kit A (70 W) – Data sheet
A6V10411051	FP2015-A1 power supply (70 W) – Technical manual

1.2 Download center

You can download various types of documents, such as data sheets, installation instructions, and license texts via the following Internet address:

http://siemens.com/bt/download

- Enter the document ID in the 'Find by keyword' input box.

You will also find information about search variants and links to mobile applications (apps) for various systems on the home page.

1.3 Revision history

The reference document's version applies to all languages into which the reference document is translated.

The first edition of a language version or a country variant may, for example, be version 'd' instead of 'a' if the reference document is already this version.

The table below shows this document's revision history:

Version	Edition date	Brief description
e	2019-08-28	Faults / Troubleshooting: Measures for F1 and F3 fuses revised Technical data: Mains fuse F1 updated
d	2018-11-05	Technical data revised, row 'Approvals' removed
c	2015-06-20	Technical data revised
b	2014-11-18	Technical data revised
a	2014-02-09	First edition

2 Safety

2.1 Safety instructions

The safety notices must be observed in order to protect people and property.

The safety notices in this document contain the following elements:

- Symbol for danger
- Signal word
- Nature and origin of the danger
- Consequences if the danger occurs
- Measures or prohibitions for danger avoidance

Symbol for danger

	This is the symbol for danger. It warns of **risks of injury**. Follow all measures identified by this symbol to avoid injury or death.

Additional danger symbols

These symbols indicate general dangers, the type of danger or possible consequences, measures and prohibitions, examples of which are shown in the following table:

 General danger

 Explosive atmosphere

 Voltage/electric shock

 Laser light

 Battery

 Heat

Signal word

The signal word classifies the danger as defined in the following table:

Signal word	Danger level
DANGER	'DANGER' identifies a dangerous situation, which **will result directly in death or serious injury** if you do not avoid this situation.
WARNING	'WARNING' identifies a dangerous situation, which **may result in death or serious injury** if you do not avoid this situation.
CAUTION	'CAUTION' identifies a dangerous situation, which could result in **slight to moderately serious injury** if you do not avoid this situation.
NOTICE	'*NOTICE*' identifies a possibly harmful situation or possible damage to property that may result from non-observance. '*NOTICE*' does not relate to possible bodily injury.

How risk of injury is presented

Information about the risk of injury is shown as follows:

⚠ WARNING
Nature and origin of the danger Consequences if the danger occurs • Measures / prohibitions for danger avoidance

How possible damage to property is presented

Information about possible damage to property is shown as follows:

NOTICE
Nature and origin of the danger Consequences if the danger occurs • Measures / prohibitions for danger avoidance

2.2 Safety regulations for the method of operation

National standards, regulations and legislation

Siemens products are developed and produced in compliance with the relevant European and international safety standards. Should additional national or local safety standards or legislation concerning the planning, mounting, installation, operation or disposal of the product apply at the place of operation, then these must also be taken into account together with the safety regulations in the product documentation.

Electrical installations

⚠ WARNING
Electrical voltage Electric shock • Work on electrical installations may only be carried out by qualified electricians or by instructed persons working under the guidance and supervision of a qualified electrician, in accordance with the electrotechnical regulations.

- Wherever possible disconnect products from the power supply when carrying out commissioning, maintenance or repair work on them.
- Lock volt-free areas to prevent them being switched back on again by mistake.
- Label the connection terminals with external voltage using a 'DANGER External voltage' sign.
- Route mains connections to products separately and fuse them with their own, clearly marked fuse.
- Fit an easily accessible disconnecting device in accordance with IEC 60950-1 outside the installation.
- Produce earthing as stated in local safety regulations.

⚠ CAUTION

Noncompliance with the following safety regulations

Risk of injury to persons and damage to property

- Compliance with the following regulations is required.

- Specialist electrical engineering knowledge is required for installation.
- Only an expert is permitted to carry out installation work.

Incorrect installation can take safety devices out of operation unbeknown to a layperson.

Mounting, installation, commissioning and maintenance

- If you require tools such as a ladder, these must be safe and must be intended for the work in hand.
- When starting the fire control panel ensure that unstable conditions cannot arise.
- Ensure that all points listed in the 'Testing the product operability' section below are observed.
- You may only set controls to normal function when the product operability has been completely tested and the system has been handed over to the customer.

Testing the product operability

- Prevent the remote transmission from triggering erroneously.
- If testing building installations or activating devices from third-party companies, you must collaborate with the people appointed.
- The activation of fire control installations for test purposes must not cause injury to anyone or damage to the building installations. The following instructions must be observed:
  - Use the correct potential for activation; this is generally the potential of the building installation.
  - Only check controls up to the interface (relay with blocking option).
  - Make sure that only the controls to be tested are activated.
- Inform people before testing the alarm devices and allow for possible panic responses.
- Inform people about any noise or mist which may be produced.
- Before testing the remote transmission, inform the corresponding alarm and fault signal receiving stations.

Modifications to the system design and the products

Modifications to the system and to individual products may lead to faults, malfunctioning and safety risks. Written confirmation must be obtained from Siemens and the corresponding safety bodies for modifications or additions.

Modules and spare parts

- Components and spare parts must comply with the technical specifications defined by Siemens. Only use products specified or recommended by Siemens.
- Only use fuses with the specified fuse characteristics.
- Wrong battery types and improper battery changing lead to a risk of explosion. Only use the same battery type or an equivalent battery type recommended by Siemens.
- Batteries must be disposed of in an environmentally friendly manner. Observe national guidelines and regulations.

Disregard of the safety regulations

Before they are delivered, Siemens products are tested to ensure they function correctly when used properly. Siemens disclaims all liability for damage or injuries caused by the incorrect application of the instructions or the disregard of danger warnings contained in the documentation. This applies in particular to the following damage:

- Personal injuries or damage to property caused by improper use and incorrect application
- Personal injuries or damage to property caused by disregarding safety instructions in the documentation or on the product
- Personal injury or damage to property caused by poor maintenance or lack of maintenance

2.3 Standards and directives complied with

A list of the standards and directives complied with is available from your Siemens contact.

2.4 Release Notes

Limitations to the configuration or use of devices in a fire detection installation with a particular firmware version are possible.

⚠ WARNING

Limited or non-existent fire detection

Personal injury and damage to property in the event of a fire.

- Read the 'Release Notes' before you plan and/or configure a fire detection installation.
- Read the 'Release Notes' before you carry out a firmware update to a fire detection installation.

NOTICE

Incorrect planning and/or configuration

Important standards and specifications are not satisfied.

Fire detection installation is not accepted for commissioning.

Additional expense resulting from necessary new planning and/or configuration.

- Read the 'Release Notes' before you plan and/or configure a fire detection installation.
- Read the 'Release Notes' before you carry out a firmware update to a fire detection installation.

3 Structure and function

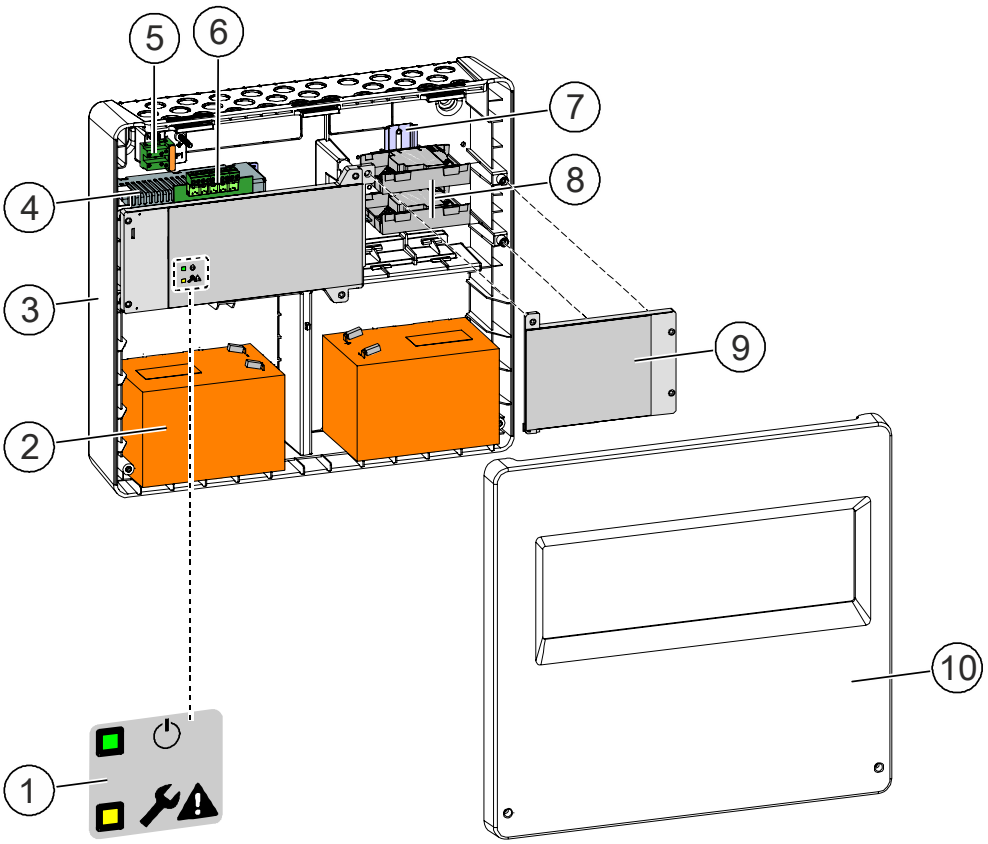


Figure 1: Installation situation FP120-Z1

1	LED function display	6	Connection card FP120-Z1 mainboard
2	Battery	7	U-rail TS35, 122 mm long
3	Housing	8	Installation positions for input/output modules and relay modules
4	Power supply (70 W)	9	Front panel
5	Mains connection terminals	10	Cover cap

Symbol	LED function display	Status LED	Description
	System: Green	ON	System operational
		OFF	System not operational
	Fault: Yellow	OFF	No fault
		ON	Mains or battery fault

3.1 'Fault' signal transfer relay

The power supply has two relays with changeover contact for the 'Fault' signal transfer.

Contact	Normal operation	Fault
MAINS	**Relay is activated.** NC contact is open. NO contact is closed.	**Relay is deactivated.** NC contact is closed. NO contact is open.
BATT	**Relay is activated.** NC contact is open. NO contact is closed.	**Relay is deactivated.** NC contact is closed. NO contact is open.

4 Mounting

Scope of delivery

The power supply kit (70 W) is supplied mounted with housing, a left-hand installation frame with integrated power supply (70 W) FP2015 and FP120-Z1 mainboard, a right-hand installation frame for optional components, and a pre-wired connection for the battery, as well as mounting instructions for wall mounting and optional components: Document ID A6V10393173.

!	*NOTICE*
	Electrostatic discharge Damage to electronics • Take protective measures against electrostatic discharges (ESD).

Observe the following order for mounting the FP120-Z1:

1. Mount the housing
2. Mount the optional components
3. Connect the signal lines
4. Disconnect the mains voltage, disconnect the mains cable, and connect the mains cable
5. Install and connect the batteries
6. Mount the cover cap
7. Switch on the mains voltage

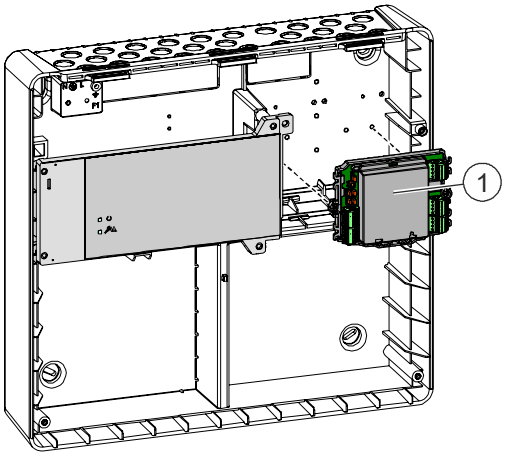
4.1 Mounting the housing

Use the mounting instructions, document ID A6V10393173, from the scope of delivery.

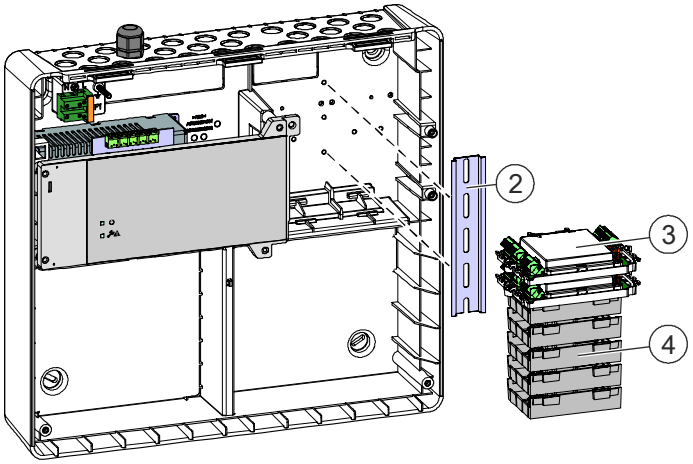
4.2 Mounting the optional components

A component can be mounted on the rear panel of the housing without a U-rail. Up to seven components can be mounted on a U-rail, depending on the size of the component.

Installation on rear panel of the housing



Installation on U-rail



1	Input/output module	3	Large component, e.g., FDCIO223
2	U-rail	4	Small component, e.g., FDCIO221

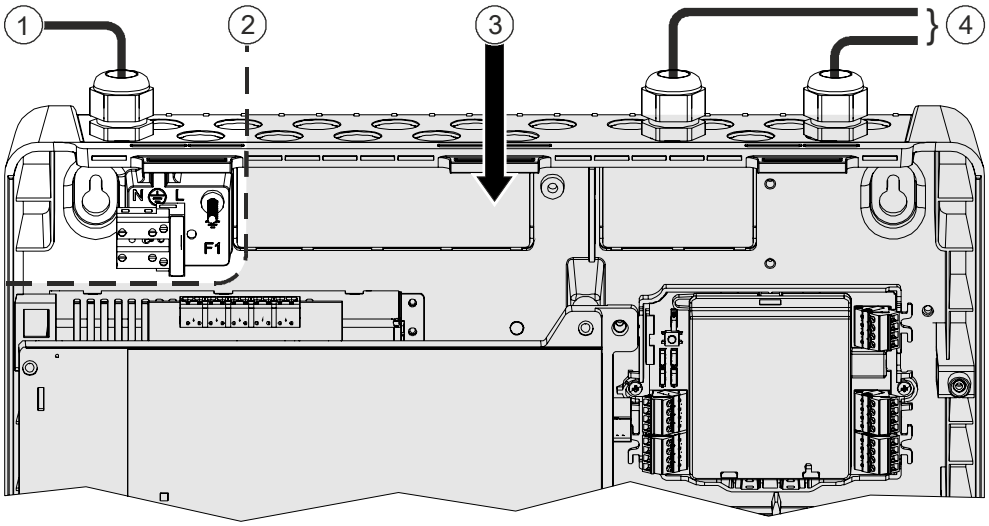
4.3 Laying the cables and connecting the batteries

Primary wiring

	**⚠ WARNING**
	Electrical voltage Electric shock • Before connecting the mains cable, make sure that the cable is current-free. • Ensure that the mains is secured against inadvertently being switched on.

Secondary wiring

	*NOTICE*
	Short-circuit Damage to hardware • Before removing or fitting the power supply, remove the jumper wire between the two batteries. ⇨ This ensures that the secondary side is current-free and that no components can be damaged due to a short circuit.



1 Mains cable

2 Boundary of mains zone: White

3 Current-limited area: Gray

4 Signal lines

The following instructions must be observed.

- The cable cross section for each of the three lines of the mains cable is 1.5…2.5 mm^2.
- The mains cable must be inserted from above on the left of the housing and must not be laid outside the boundary of the mains zone.
- The lines of the mains cable must be secured with a cable tie.
- Signal lines must only be fed into the housing on the right from above or from the rear.
- Signal lines must be secured with a cable tie.
- Cable entries must be closed completely.
- No cable entries should be made in the back box.
- Batteries must be installed so that they cannot leak.

4.3.1 Connecting the signal lines and DC 24 V

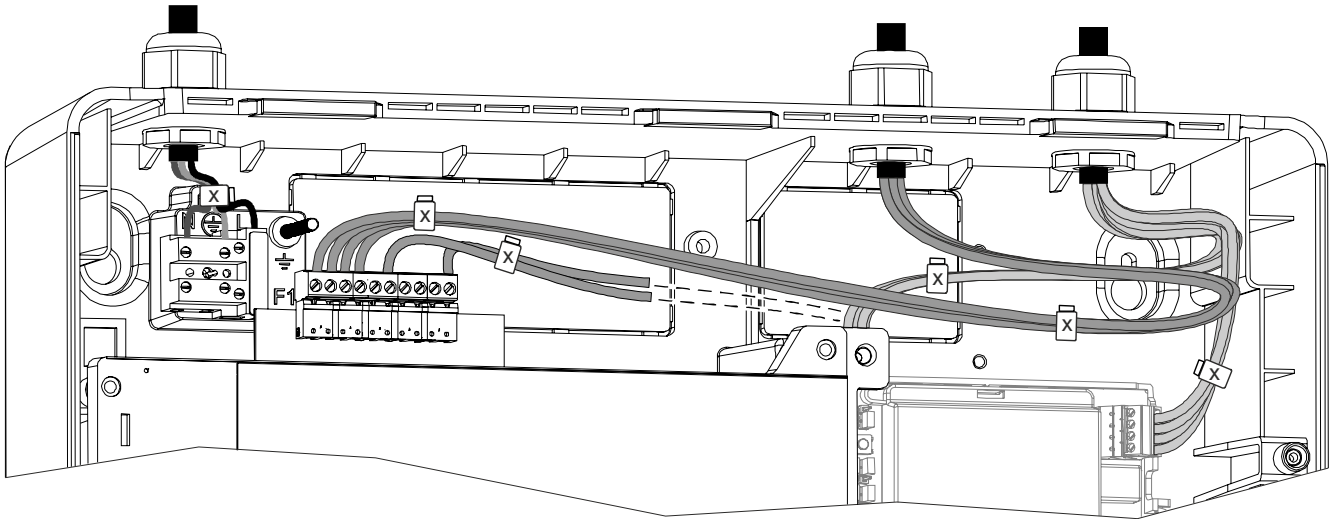


Figure 2: x = cable tie

The figure above shows the cable ties (x), which are also required for the mains lines, even though these are only connected after the signal lines.

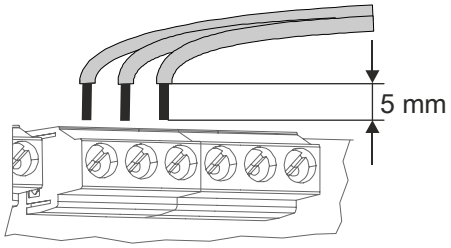


Figure 3: Stripping the cables

Max. current for AUX 1 **or** AUX 2 is 2 A.
Max. current for AUX 1 **and** AUX 2 **total** is 2 A.

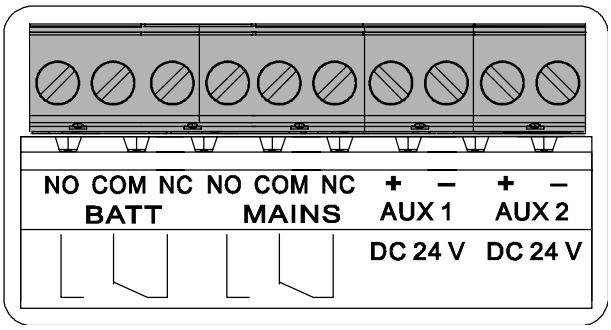
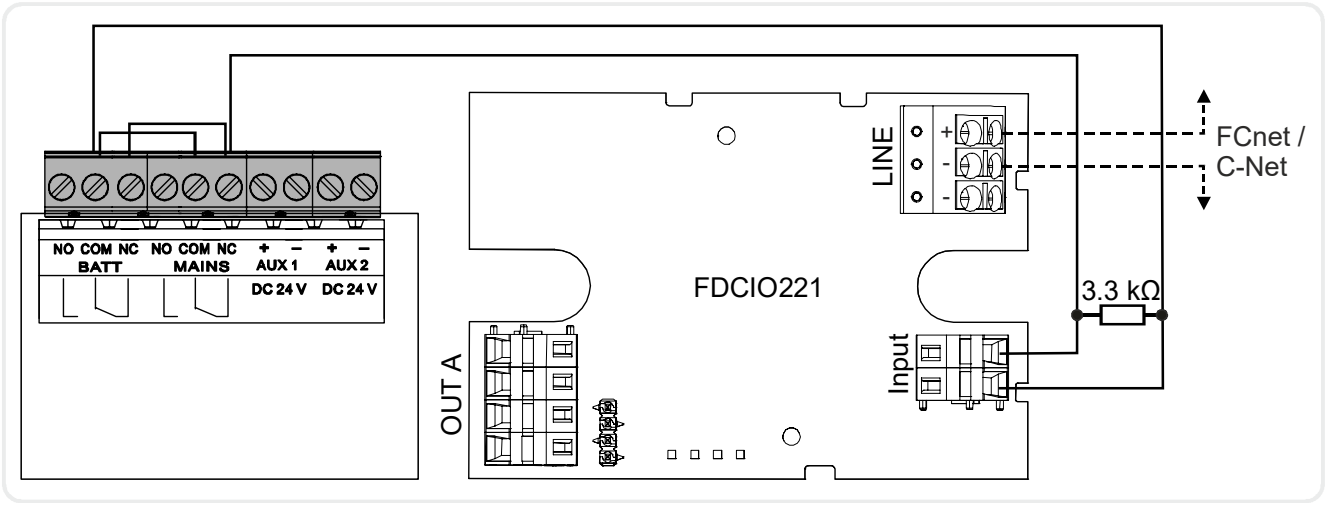


Figure 4: Terminal block

1. Strip the signal cables and lay these in the housing as shown above.
2. Connect the lines to the terminal block in accordance with the following wiring diagram.
3. Strip the DC 24 V lines and lay these in the housing as shown above.
4. Connect the DC 24 V lines to the terminal block.
5. Secure the lines with cable ties (x).

'Fault' signal transfer via input/output module

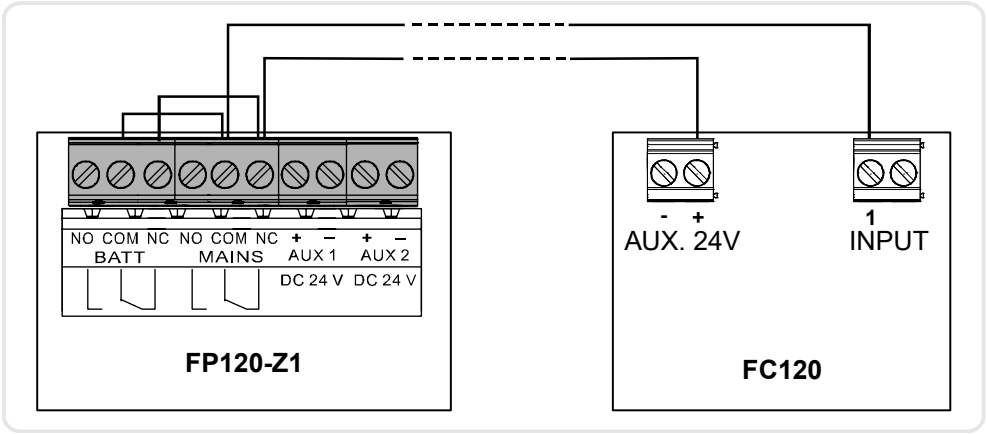
The line for the 'Fault' signal transfer of the power supply is wired to an input/output module, such as an FDCIO221, for example.



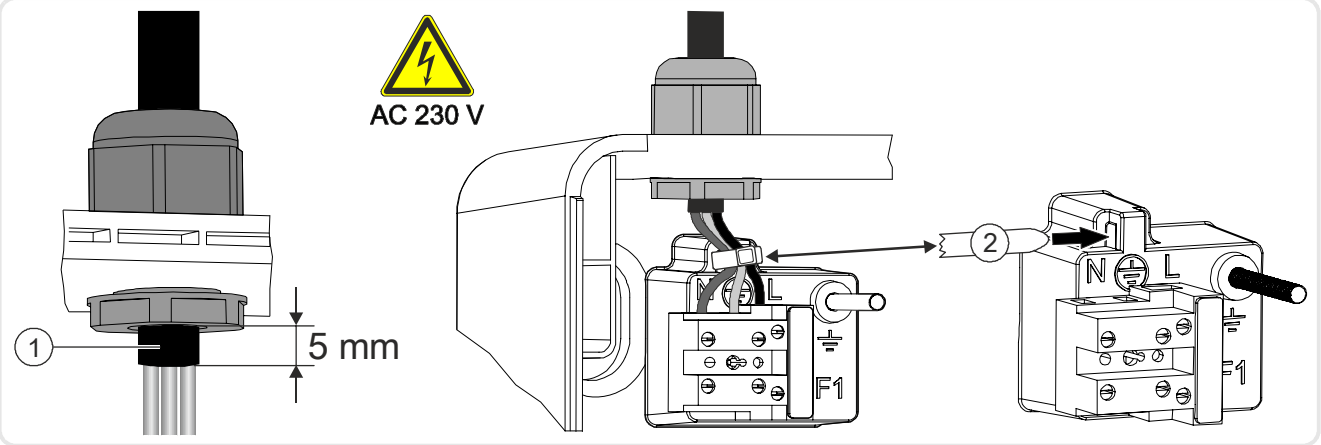
'Fault' signal transfer to a fire control panel

The line for the 'Fault' signal transfer of the power supply is wired to a fire control panel, such as an FC120, for example.

This connection is only permitted if the housings are mounted side by side. Otherwise, the connection must be monitored.



4.3.2 Connecting the mains cable



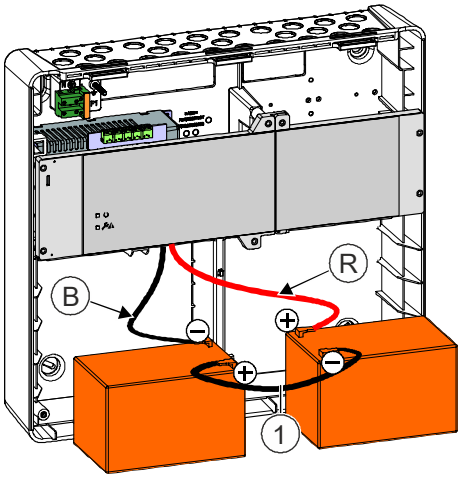
1 Outer insulation of the mains cable

2 Cable tie

▷ The mains cable is de-energized and the network is secured against inadvertently being switched on.

1. Feed the mains cable into the housing with the length required.
2. Remove the outer insulation (1) of the mains cable up to max. 5 mm before the cable gland.
3. Connect the lines.
4. Insert the cable tie (2) through the opening and secure the lines of the mains cable.

4.4 Installing and connecting the batteries



1 Cable bridge

B Cables, black (–)

R Cables, red (+)

Connect suitable [1] batteries, as shown, and connect the cable bridge (1).

[1] You will find suitable batteries in the 'Components / accessories / spare parts [→ 28]' chapter.

4.5 Mounting the cover cap

Use the mounting instructions, document ID A6V10393173, from the scope of delivery.

5 Switching the mains voltage to AC 115 V

The mains voltage set in the factory is AC 230 V.

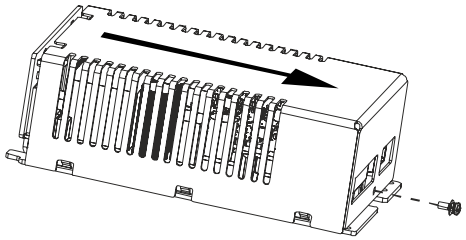
Observe the safety instructions in the 'Laying the cables and connecting the batteries [→ 17]' chapter.

▷ The mains cable is de-energized and the network is secured against inadvertently being switched on.

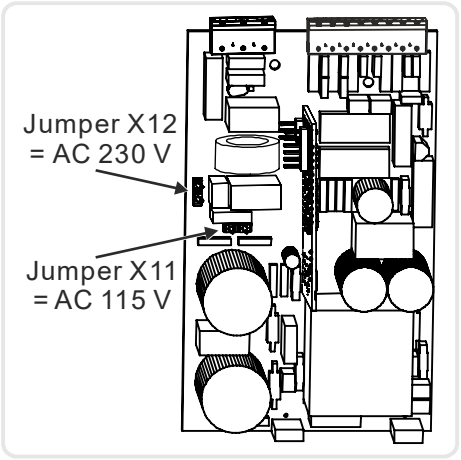
▷ The wire jumper between both batteries is removed.

- Remove the power supply.

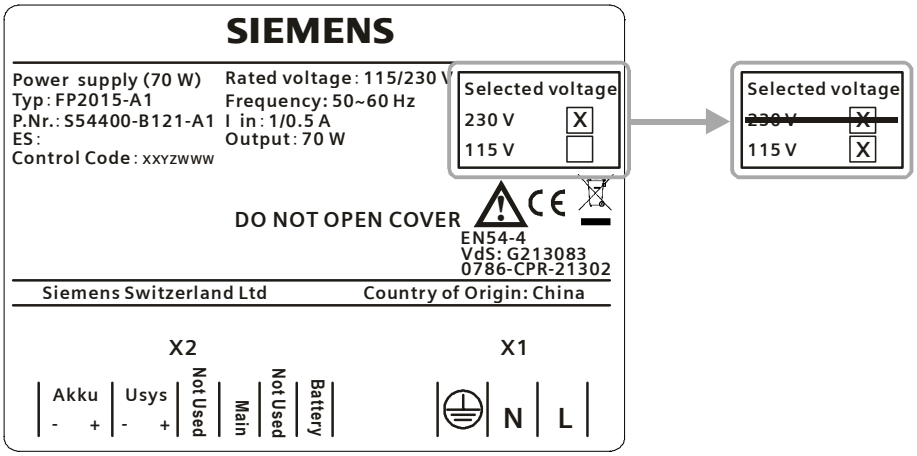
1. Open the power supply housing.



2. Switch the jumper from position X12 = AC 230 V to position X11 = AC 115 V.



3. Mark the change from AC 230 V to AC 115 V on the product label as shown below.



6 Battery capacity

The required battery capacity depends on the required standby and alarm time, the aging factor, and the total current in the relevant mode.

Observe the country-specific or EN regulations.

The required battery capacity can be identified using the following table and the calculation formula.

Consumer	Standby [mA]	Alarm [mA]
Internal use by PSU	24	24
AUX 1 (e.g., sounders)		
AUX 2(e.g., sounders)		
Total current [mA]		

Total current [mA] = standby [mA] + alarm [mA] = **max. 2000 mA**

[(Standby time * standby current) + (alarm time * sum alarm current)] * aging factor = capacity

Standby time [h]	24, 30 or 72
Alarm time [h]	0.5
Aging factor	1.25
Standby current [A]	Total current in standby mode
Alarm current [A]	Total current in alarm mode
Capacity [Ah]	Max. 17 Ah depending on type, see the 'Components / accessories / spare parts [→ 28]' chapter

- Choose the appropriate battery based on calculated capacity.

See also

Components / accessories / spare parts [→ 28]

7 Checking functions

The functions must be checked after installation and in accordance with the maintenance regulations.

!	*NOTICE*
	Open line of the power supply for external devices Unwanted automatic service provider notification. • For both function checks, ensure that the alternative power supply is active respectively.

- Check the following functions:

1. Display and transmission of a mains fault
2. Display and transmission of a battery fault

Mains fault

1. Disconnect the mains voltage.
2. Check the LED function display on the housing.
3. Check the 'Fault' signal transfer on the fire control panel.

⇨ The 'Fault' LED function display lights up.

⇨ The event 'Fault' is displayed on the fire control panel.

Battery fault

1. Disconnect the batteries.
2. Check the LED function display on the housing.
3. Check the 'Fault' signal transfer on the fire control panel.

⇨ The 'Fault' LED function display lights up.

⇨ The event 'Fault' is displayed on the fire control panel.

8 Maintenance

Comply with all local maintenance regulations and use the following maintenance recommendation.

Depending on national regulations, the maintenance intervals can be set differently from the following maintenance recommendation.

Maintenance recommendation	Interval/year
Check the display and transmission of a mains fault and a battery fault in the overall connected system.	1x
Perform a visual of the batteries	1x
Check the ground conductor	1x
Remove dust	1x

9 Faults / Troubleshooting

If a fault cannot be eliminated with the help of the following information, please contact the service engineer.

Symbol	Status LED	Description	Possible cause	Measures
	OFF	System not operational	• With a voltage <DC 20.5 V, batteries are switched off automatically	• Check the mains voltage. • Check fuse F1 in FP120-Z1 power supply kit. • Check fuse F1 in FP2015-A1 power supply, see document A6V10411051.
	ON	Mains or battery fault	• Mains voltage disconnected • Battery voltage too low • Batteries disconnected	• Check the mains voltage. • Check the battery voltage. • Check the cabling. • Check fuse F3 in FP2015-A1 power supply, see document A6V10411051.

Status	Possible cause	Measures
No voltage at AUX 1 or AUX 2	The electronic fuse for overload and short-circuit has switched.	Check the installation and cabling.

The electronic fuse resets automatically after the cause of the switch has been eliminated.

10 Components / accessories / spare parts

Component

Type	Designation	Order no.	Weight
FP120-Z1	Power supply kit (70 W)	S54400-S122-A1	3,920 kg

Scope of delivery

The power supply kit (70 W) is supplied mounted with housing, a left-hand installation frame with integrated power supply (70 W) FP2015 and FP120-Z1 mainboard, a right-hand installation frame for optional components, and a pre-wired connection for the battery, as well as mounting instructions for wall mounting and optional components: Document ID A6V10393173.

Accessories

The following accessories are not included in the scope of delivery and must be ordered separately.

Type	Designation	Order no.	Weight
TS35/122	U-rail TS35/7.5/122	BPZ:5644780001	0.041 kg
FA2003-A1	Battery (12 V, 7 Ah, VDS)	A5Q00019353	2.450 kg
FA2004-A1	Battery (12 V, 12 Ah, VDS)	A5Q00019354	3.930 kg
FA2005-A1	Battery (12 V, 17 Ah, VDS)	A5Q00019677	5.640 kg

Spare part

Type	Designation	Order no.	Weight
FP2015-A1	Power supply (70 W)	S54400-B121-A1	0.576 kg

11 Technical data

Mains supply	Voltage	AC 97…127 V, AC 196…253 V, 50 / 60 Hz
	Current	0.5…1 A
	Power consumption	Max. 90 VA
	Mains fuse F1	2.5 A/T AC 250 V
System supply output	Designation	'AUX 1', 'AUX 2'
	Voltage	2x DC 20.2…28.6 V, depending on charge and temperature
	Current (sum of both outputs)	
	• Maximum output current with battery charge ($I_{max\ a}$)	0.9 A
	• Maximum output current without battery charge ($I_{max\ b}$)	2.0 A
	• Minimum output current (I_{min})	0.05 A
	Output power	70 W
	Ripple	Max. 5 %
Battery supply output	Designation	'Accu'
	Voltage	DC 20.5…28.6 V, depending on charge and temperature
	Charging current	Max. 1.6 A, the charging current is reduced at full load
	Connectable batteries	2x 12 V / 7…17 Ah Battery types recommended by Siemens in accordance with 'Components / accessories / spare parts' chapter
	Battery internal resistance (R_{imax})	Max. 1 Ω, batteries incl. line
	Batteries are monitored for	• Short-circuit • Open line • Presence
	Low discharge protection	Battery voltage DC 20.5…21.0 V
Mains fault monitoring signal	Designation	'MAINS'
	Active in event of	• No mains voltage, signaling within 10 s
	Design	Potential-free changeover contact DC 30 V/1 A
Battery fault monitoring signal	Designation	'BATT'
	Active in event of	• Battery fault • Battery voltage <DC 21.0 V
	Design	Potential-free changeover contact DC 30 V/1 A
Connections	Mains supply, battery supply and monitoring signals	Plug-type connection and terminals 0.2…2.5 mm^2

Mechanical data	Dimensions (W x H x D)	430 x 399 x 124 mm
	Weight	3,920 kg, without batteries
	Housing color	~ RAL 9010 pure white
	Protection category (IEC 60529)	IP 30

12 Disposal

This equipment is manufactured using materials and procedures which comply with current environmental protection standards as best as possible. More specifically, the following measures have been undertaken:

- Use of reusable materials
- Use of halogen-free plastics
- Electronic parts and synthetic materials can be separated

Larger plastic parts are labeled according to ISO 11469 and ISO 1043. The plastics can be separated and recycled on this basis.

Electronic parts and batteries must not be disposed of with domestic waste.

- Take electronic parts and batteries to local collection points or recycling centers.
- Contact local authorities for more information.
- Observe national requirements for disposing of electronic parts and batteries.

Issued by
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