



SMA EV CHARGER BUSINESS

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Table of contents

1	Information on this Document.....	5
1.1	Validity.....	5
1.2	Target Group.....	5
1.3	Content and Structure of this Document.....	5
1.4	Levels of Warning Messages.....	5
1.5	Symbols in the Document.....	6
1.6	Typographies in the document.....	6
1.7	Designations in the Document.....	6
2	Safety.....	7
2.1	Intended Use.....	7
2.2	Measuring accuracy notes in accordance with the type examination certificate.....	7
2.3	IMPORTANT SAFETY INFORMATION.....	9
3	Scope of Delivery.....	12
4	Scope of delivery, charging stand.....	14
5	Product overview.....	16
5.1	System Overview.....	16
5.1.1	Circuitry Overview.....	17
5.1.2	Communication Overview.....	18
5.2	Product Description.....	19
5.3	Symbols on the Product.....	19
5.4	Interfaces and Functions.....	20
5.5	LED Signals.....	20
6	Mounting.....	21
6.1	Requirements for Mounting.....	21
6.2	Wall Mounting.....	25
6.3	Mounting the charging stand.....	28
7	Electrical Connection.....	36
7.1	Overview of the Connection Area.....	36
7.1.1	View from Below.....	36
7.1.2	Interior View.....	36
7.2	Connecting the Utility Grid.....	37
7.3	Connecting the Network Cables.....	39
7.4	Connection in Accordance With EnWG §14a Requirements.....	43
8	Commissioning.....	44
8.1	Check the.....	44
8.2	Commissioning the Product.....	46
9	Operation.....	48
9.1	Establishing a connection to the user interface.....	48
9.1.1	Access addresses for the product in the local network.....	48
9.1.2	Establishing a connection via Ethernet or cellular phone in the local network.....	48
9.1.3	Establishing a connection via USB in the local network.....	49
9.2	Design of the User Interface.....	50
9.3	User Roles and User Rights.....	52

9.4	Updating Firmware with Update File via the User Interface.....	53
9.5	Setting Network.....	53
9.5.1	Setting the network via Ethernet.....	54
9.5.2	Setting the Network Via Cellular Phone.....	54
9.6	Setting the charging current.....	54
9.7	Setting the current limit.....	54
9.8	Setting Power Reduction in Accordance With the Requirements of EnWG §14a.....	55
9.9	Setting the phases and phase position.....	55
9.10	Enabling HTTPS.....	56
9.11	Setting up the backend.....	56
9.11.1	Setting up the backend via Ethernet.....	56
9.11.2	Setting up the backend for cellular phone.....	56
9.11.3	Register as a new user in the eMobility Portal.....	57
9.11.4	Log in to eMobility Portal as an existing user.....	57
9.12	Dynamic load management.....	58
9.12.1	Basic Information.....	58
9.12.2	Setting load management without external meters.....	59
9.12.3	Setting load management with an external meter.....	60
9.12.4	Setting the Subordinate Device (Slave) for Load Management.....	61
9.12.5	Prioritizing Subordinate Devices (Slave).....	61
9.12.6	Setting the Solar Charging Mode.....	61
9.12.7	Setting Time-Based Charging.....	62
9.13	RFID Administration.....	63
9.13.1	Teaching Additional RFID Cards.....	63
9.13.2	Enable the charging process in case of backend failure.....	63
9.13.3	Enable Free Charging.....	63
9.14	Changing the Password.....	64
9.15	Connecting to the System Manager.....	64
9.16	Starting and Ending the Charging Process.....	68
9.16.1	Overview of Display and Control Elements.....	68
9.16.2	Starting the Charging Process.....	68
9.16.3	Ending the Charging Process.....	69
9.17	Verifying the Charge Data.....	70
10	Disconnecting the product from voltage sources.....	73
11	Cleaning the Product.....	75
12	Troubleshooting.....	76
12.1	Event messages.....	76
13	Decommissioning the Product.....	79
14	Maintenance.....	82
15	Procedure for Receiving a Replacement Device.....	84
16	Technical Data.....	85
17	Accessories.....	87
18	Contact.....	88
19	EU Declaration of Conformity.....	89

1 Information on this Document

1.1 Validity

This document is valid for:

- EVCB-LB-3AC-10
- EVCB-LB-3AC-ECC-10
- EVCB-3AC-10
- EVCB-3AC-ECC-10

1.2 Target Group

This document is intended for qualified persons and end users. Only qualified persons are allowed to perform the activities marked in this document with a warning symbol and the caption "Qualified person". Tasks that do not require any particular qualification are not marked and can also be performed by end users. Qualified persons must have the following skills:

- Knowledge of how the product works and is operated
- Training in how to deal with the dangers and risks associated with installing, repairing and using electrical devices and installations
- Training in the installation and commissioning of electrical devices and installations
- Knowledge of all applicable laws, regulations, standards, and directives
- Knowledge of and compliance with this document and all safety information

1.3 Content and Structure of this Document

This document describes the mounting, installation, commissioning, configuration, operation, troubleshooting and decommissioning of the product as well as the operation of the product user interface.

The latest version of this document and additional information about the product can be found in PDF format and as an eManual at www.SMA-Solar.com.

Illustrations in this document are reduced to the essential information and may deviate from the real product.

1.4 Levels of Warning Messages

The following levels of warning messages may occur when handling the product.

DANGER

Indicates a hazardous situation which, if not avoided, will result in death or serious injury.

WARNING

Indicates a hazardous situation which, if not avoided, could result in death or serious injury.




CAUTION

Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

NOTICE

Indicates a situation which, if not avoided, can result in property damage.

1.5 Symbols in the Document

Symbol	Explanation
	Information that is important for a specific topic or goal, but is not safety-relevant
<input type="checkbox"/>	Indicates a requirement for meeting a specific goal
<input checked="" type="checkbox"/>	Required result
	Example
 QUALIFIED PERSON	Sections describing activities to be performed by qualified persons only

1.6 Typographies in the document

Typography	Use	Example
bold	<ul style="list-style-type: none"> • Messages • Terminals • Elements on a user interface • Elements to be selected • Elements to be entered 	<ul style="list-style-type: none"> • Connect the insulated conductors to the terminals X703:1 to X703:6. • Enter 10 in the field Minutes.
>	<ul style="list-style-type: none"> • Connects several elements to be selected 	<ul style="list-style-type: none"> • Go to Settings > Date.
[Button]	<ul style="list-style-type: none"> • Button or key to be selected or pressed 	<ul style="list-style-type: none"> • Select [Enter].
[Key]		
#	<ul style="list-style-type: none"> • Placeholder for variable components (e.g., parameter names) 	<ul style="list-style-type: none"> • Parameter WCtHz.Hz#

1.7 Designations in the Document

Complete designation	Designation in this document
EV Charger Business	Charging station, product
Charge Controller	Controller, Charge Controller

2 Safety

2.1 Intended Use

The EV Charger Business is an AC charging station designed for private, semipublic and public sectors.

The product must only be used as stationary equipment.

The product is suitable for indoor and outdoor use.

All components must remain within their permitted operating ranges and their installation requirements at all times.

The product must only be used in countries for which it is approved or released by SMA Solar Technology AG and the grid operator.

The products by SMA Solar Technology AG are not suitable for use in

- Medical devices, in particular products for supplying life-support systems and machines,
- Aircraft, the operation of aircraft, the supply of critical airport infrastructure and airport systems,
- Rail vehicles, the operation and supply of rail vehicles and their critical infrastructure.

The above list is not exhaustive. Contact us if you are unsure whether products by SMA Solar Technology AG are suitable for your application.

Use SMA products only in accordance with the information provided in the enclosed documentation and with the locally applicable laws, regulations, standards and directives. Any other application may cause personal injury or property damage.

The documentation must be strictly followed. Deviations from the described actions and the use of materials, tools, and aids other than those specified by SMA Solar Technology AG are expressly forbidden.

Alterations to the SMA products, e.g., changes or modifications, are only permitted with the express written permission of SMA Solar Technology AG. Unauthorized alterations as well as failure to observe the documentation will void guarantee and warranty claims and in most cases terminate the operating license. SMA Solar Technology AG shall not be held liable for any damage caused by such changes.

Any use of the product other than that described in the Intended Use section does not qualify as appropriate.

The documentation supplied is an integral part of SMA products. Keep the documentation in a convenient, dry place for future reference and observe all instructions contained therein.

This document does not replace any regional, state, provincial, federal or national laws, regulations or standards that apply to the installation, electrical safety and use of the product. SMA Solar Technology AG assumes no responsibility for the compliance or non-compliance with such laws or codes in connection with the installation of the product.

The type label must remain permanently attached to the product.

2.2 Measuring accuracy notes in accordance with the type examination certificate

Only applies to the products EVCB-LB-3AC-ECC-10 / EVCB-3AC-ECC-10

I Requirements for the operator of the product, who must fulfill them as a necessary condition for intended operation

In the meaning of Section 31, Measurement and Verification Act (MessEG), the operator of the charger (of the product) is the user of the measuring device.

The charger is only considered to be used as intended by and in compliance with the calibration regulations only if the ambient conditions in the meter installed in it are the same as the ambient conditions for which its type examination certificate was granted.

- When registering the charge points with the Federal Network Agency using the registration form, the user of the product must also register the port number specified for the charge points on the charger. Without this registration, operation of the charger in compliance with the calibration regulations is not possible. The required information about registration and the registration form are available under the following external link: https://www.bundesnetzagentur.de/DE/Sachgebiete/ElektrizitaetundGas/Unternehmen_Institutionen/E-Mobilitaet/Ladep_Form/StartNEU/node.html Anzeige_Ladepunkte_node.html.
A quick reference guide for the operator of public charge points is also available under this link: https://www.bundesnetzagentur.de/SharedDocs/Downloads/DE/Sachgebiete/Energie/Unternehmen_Institutionen/E-Mobilitaet/Leitfaden.pdf?__blob=publicationFile&v=6.
- The user must ensure that the calibration validity periods for the components in the charger and the charger itself are not exceeded.
- The user of the product must ensure that the chargers are decommissioned promptly if operation in compliance with the calibration regulations is no longer possible due to malfunction or error indicators in the display of the calibration-relevant human-machine interface. The catalog of malfunction and error messages in the operating manual must be observed.
- The user of the product must make the data packets signed and read out from the charger - seamlessly, corresponding to the pagination, and permanently, (also) saved on the hardware dedicated to this purpose (dedicated memory) in the possession of the user - available to authorized third parties (operating obligation of the storage system). "Permanently" means that the data are not only saved until the business transaction has been completed. Instead, they must be saved at least until the expiration of any statutory periods of appeal for the business transaction. Substitute values may not be created for non-existent data.
- The user of the product must provide the measured values from this product that they receive and use in the course of business to measured value users in an operating manual approved by the CSA in electronic form. In particular, the user of this product must point out no. II "Requirements for the user of the measured values from the charger."
- The user of the product is subject to the notification requirements pursuant to Art. 32 MessEG (excerpt): Art. 32 Notification requirement "(1) Those who use new or reconditioned measuring device must notify the authorities responsible in accordance with national law 6 weeks after commissioning at the latest..."
- Insofar as the authorized authorities consider it necessary, the measuring device user must provide the entire contents of the dedicated local memory or the memory at the CPO (charge point operator) with all data packets from the billing period.

II Requirements for the user of the measured values from the charger (e-mobility service provider (EMSP))

The user of the measured values must observe Art. 33 MessEG:

§ 33 MessEG (quote)

§ 33 Requirements for the use of measured values

(1) Values for measured variables may only be listed or used in the course of business or officially, or for measurements in the public interest, if a measuring device was used as intended to determine them and the values can be traced back to the respective measurement result insofar as the ordinance in accordance with Art. 41 (2) does not contain different stipulations. Other federal regulations adopted for similar protective purposes continue to be applicable.

(2) To the best of their ability, measured value users must make sure that the measuring device fulfills the statutory requirements and must have the person using the measuring device confirm that they fulfill their obligations.

(3) The measured value user must

- ensure that the measured values listed in bills based on measured values can be easily understood by the recipient of the bills and
- provide suitable aids for the purposes listed in no. 1 if necessary.

For users of measured values, this stipulation results in the specific following obligations of measured valued use that is in compliance with the calibration regulations:

- The contract between the EMSP (e-mobility service provider) and the customer must clearly stipulate that the supply of electrical energy is the exclusive subject of the contract: it is not the charging service duration.
- The timestamps on the measured values originate in a clock on the charger that is not certified in accordance with MessEG. For this reason, they must not be used to tariff the measured values.
- The EMSP must ensure that the sale of the e-mobility service takes place via chargers that enable the ongoing charging process to be observed, insofar as there is no corresponding local display on the charger. At the beginning and end of a charging session at least, trustworthy measured values in compliance with the calibration regulations must be available to the customer.
- After measurement is completed and at the time of billing at the latest, the EMSP must automatically provide the billing-relevant data packet, including the signature, (e.g., by storing its email address on a website) to the customer as a data file. As long as the customer did not expressly opt out, this must be done in a way that enables the data to be checked for authenticity using transparency and display software. The data can be provided via channels that have not been verified as compliant with the calibration regulations.
- The EMSP must provide the customer with the transparency and display software affiliated with the charger for verifying the authenticity of the data packets.
- The EMSP must be able to show with conclusive proof which means of identification was used to initiate the charging process affiliated with a specific measured value. In other words, the EMSP must be able to document that each business transaction and billed measured value was correctly matched to the personal identification data. The EMSP must inform the customer about this obligation in the appropriate form.
- The EMSP may only use value for purposes of billing that are present in a dedicated memory in the charger and/or the memory of the CPO. Substitute values may not be created for billing purposes.
- Through a corresponding agreement with the operator of the charger, the EMSP must ensure that the data packages used for billing purposes are saved for a period that is long enough to enable the associated business transactions to be fully completed.
- In the case of justified requirements notification for the purpose of carrying out calibration, results verification and measures for monitoring use, the EMSP must facilitate the authentication of the examples of the products used by the EMSP associated with this operating manual.
- All obligations listed above are applicable to the EMSP as the measured value user in the meaning of Art. 33 MessEG, even if the EMSP procures the measured values from the charger via a roaming service provider.
- The EMSP must ensure that the customer receives all the information necessary for the receipt of their permanent documentation. For this reason, the website, billing amount and the data of the charging process must be listed on the credit card bill or as the purpose of the account debit in the case of selective charging.
If this necessary information is missing, this is not a case of intended use of the measuring device.
- If selective charging is used, the EMSP must clearly indicate to the customer how to display the price per unit stored in the data array to the customer in plain text.

2.3 IMPORTANT SAFETY INFORMATION

Keep the manual for future reference.

This section contains safety information that must be observed at all times when working.

The product has been designed and tested in accordance with international safety requirements. As with all electrical or electronical devices, some residual risks remain despite careful construction. To prevent personal injury and property damage and to ensure long-term operation of the product, read this section carefully and observe all safety information at all times.

⚠ DANGER**Danger to life due to electric shock when live components or cables are touched**

High voltages are present in the conductive components or cables of the product. Touching live parts and cables results in death or lethal injuries due to electric shock.

- Do not touch non-insulated parts or cables.
- Disconnect the product from voltage sources and ensure it cannot be reconnected before working on the device.
- Wear suitable personal protective equipment for all work on the product.

⚠ DANGER**Danger to life due to electric shock in case of overvoltages and if surge protection is missing**

Overvoltages (e.g., in the event of a flash of lightning) can be further conducted into the building and to other connected devices in the same network via the network cables or other data cables if there is no surge protection. Touching live parts and cables results in death or lethal injuries due to electric shock.

- Ensure that all devices in the same network are integrated in the existing overvoltage protection.
- When laying the network cable outdoors, ensure that there is suitable surge protection at the network cable transition from the product outdoors to the network inside the building.
- The Ethernet interface of the product is classified as "TNV-1" and offers protection against overvoltages of up to 1.5 kV.

⚠ WARNING**Risk of injury due to toxic substances, gases and dusts**

In rare cases, damages to electronic components can result in the formation of toxic substances, gases or dusts inside the product. Touching toxic substances and inhaling toxic gases and dusts can cause skin irritation, burns or poisoning, trouble breathing and nausea.

- Only perform work on the product (e.g., troubleshooting, repair work) when wearing personal protective equipment for handling of hazardous substances (e.g., safety gloves, eye and face protection, respiratory protection).

⚠ WARNING**Danger when driving away with charging cable still attached**

This can result in serious injuries or property damage.

- Disconnect the charging cable from the vehicle before leaving.
- Do not bypass the vehicle's safety device.

⚠ WARNING**Danger due to wet or contaminated connectors**

Serious injuries or property damage can result due to burns caused by permanent exposure.

- Only mount the product vertically.
- Dry wet connectors in a de-energized state.
- Clean dirty connectors in a de-energized state.

⚠ CAUTION**Risk of injury due to weight of product**

Injuries may result if the product is lifted incorrectly or dropped while being transported or mounted.

- Wear suitable personal protective equipment for all work on the product.

NOTICE**Damage to the product due to sand, dust and moisture ingress**

Sand, dust and moisture penetration can damage the product and impair its functionality.

- Only open the product if the humidity is within the thresholds and the environment is free of sand and dust.
- Do not open the product during a dust storm or precipitation.

NOTICE**Damage to the product due to cleaning agents**

The use of cleaning agents may cause damage to the product and its components.

- Clean the product and all its components only with a cloth moistened with clear water.

i DHCP Server is recommended

The DHCP server automatically assigns the appropriate network settings to your nodes in the local network. A manual network configuration is therefore not necessary. In a local network, the Internet router is usually the DHCP server. If the IP addresses in the local network are to be assigned dynamically, DHCP must be activated in the Internet router (see the Internet router manual). In order to receive the same IP address by the internet router after a restart, set the MAC address binding.

In networks where no DHCP server is active, proper IP addresses must be assigned from the free address pool of the network segment to all network participants to be integrated during commissioning.

i IP addresses of Modbus devices

In systems with Modbus devices, static IP addresses must be assigned to all Modbus devices. Suitable IP addresses can be assigned to the Modbus devices from the free address supply of the network segment either manually or dynamically via DHCP.

If the IP addresses are to be assigned dynamically, DHCP must be activated in the router (see the router manual). Make sure that the Modbus devices do not contain variable IP addresses but always the same IP addresses (static DHCP).

This also applies to Data Managers that are used as subordinate devices.

If IP addresses of Modbus devices have been changed, all devices must be restarted.

i Communication disturbances in the local network

The IP address range 192.168.12.0 to 192.168.12.255 is occupied for communication amongst SMA products and for direct access to SMA products.

Communication problems might occur if this IP address range is used in the local network.

- Do not use the IP address range 192.168.12.0 to 192.168.12.255 in the local network.

3 Scope of Delivery

Check the scope of delivery for completeness and any externally visible damage. Contact the Service if the scope of delivery is incomplete or damaged.

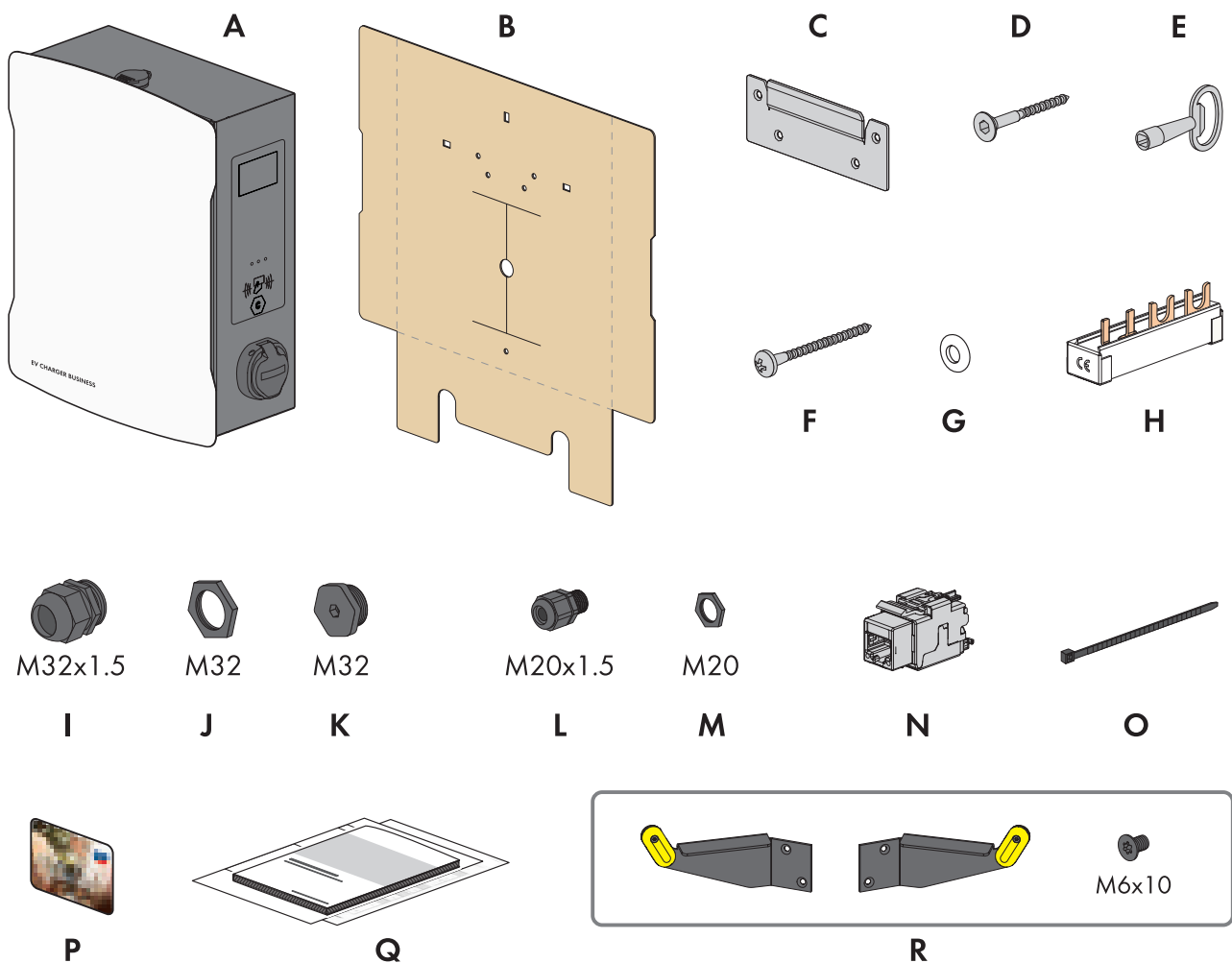


Figure 1: Components included in scope of delivery

Position	Quantity	Designation
A	1	Charging station
B	1	Drilling template
C	1	Wall mounting bracket
D	4	Countersunk screw M5x60
E	1	Product key
F	1	Button screw M5x60
G	1	Sealing washer M6
H	1	Busbar, fork 10 mm ² , 4 lugs
I	2	Cable gland M32x1.5
J	2	Counter nut for cable gland M32

Position	Quantity	Designation
K	2	Sealing cap M32
L	1	Cable gland M20x1.5
M	1	Counter nut for cable gland M20
N	1	RJ45 module
O	2	Cable tie
P	2	RFID card
Q	1	Manual
R	1	Only for products EVCB-3AC-10 / EVCB-3AC-ECC-10: Cable bracket left and right, 4 fastening screws M6x10

4 Scope of delivery, charging stand

Check the scope of delivery for completeness and any externally visible damage. Contact the Service if the scope of delivery is incomplete or damaged.

One-sided charging stand

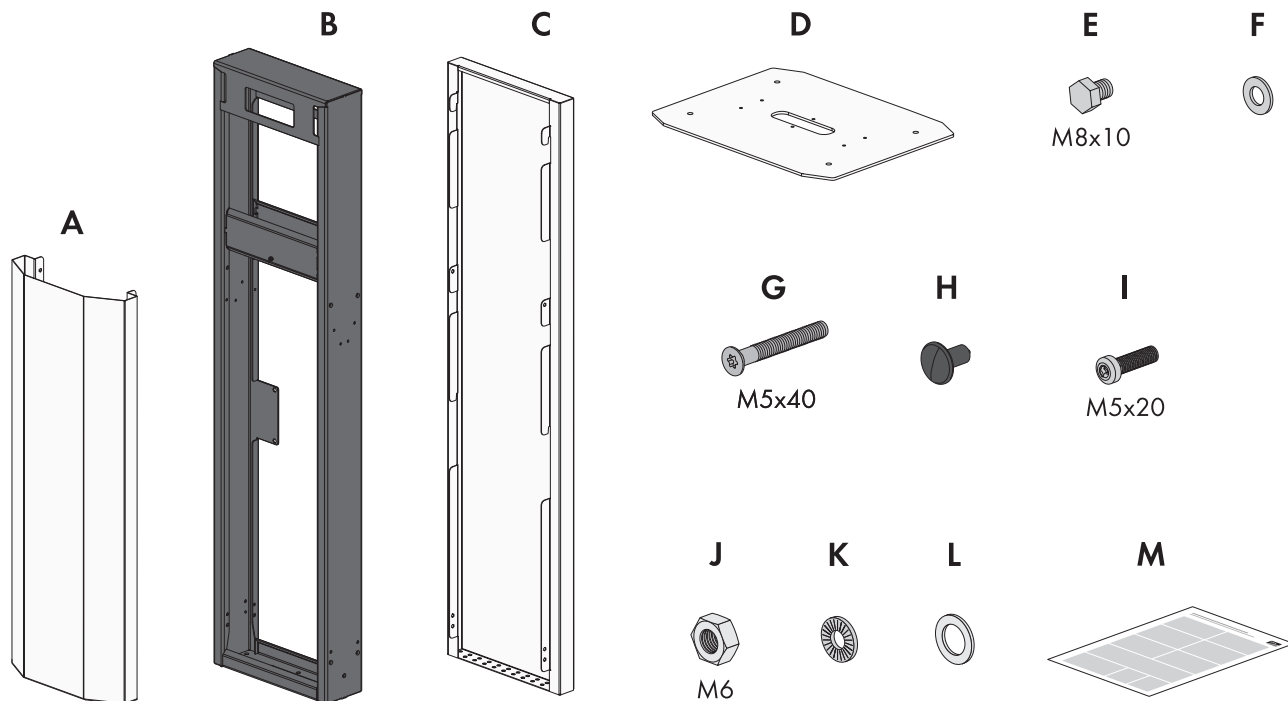


Figure 2: Components included in scope of delivery

Position	Quantity	Designation
A	1	Cover, front
B	1	Middle section
C	1	Cover, rear
D	1	Base plate
E	6	Bolt M8 x 10
F	6	Washer M8
G	8	Countersunk head screw M5x40
H	8	Fir tree clip
I	1	Flat-head bolt M5x20
J	1	Nut M6
K	1	Serrated lock washer M6
L	1	Washer M6
M	1	Manual

Double-sided charging stand

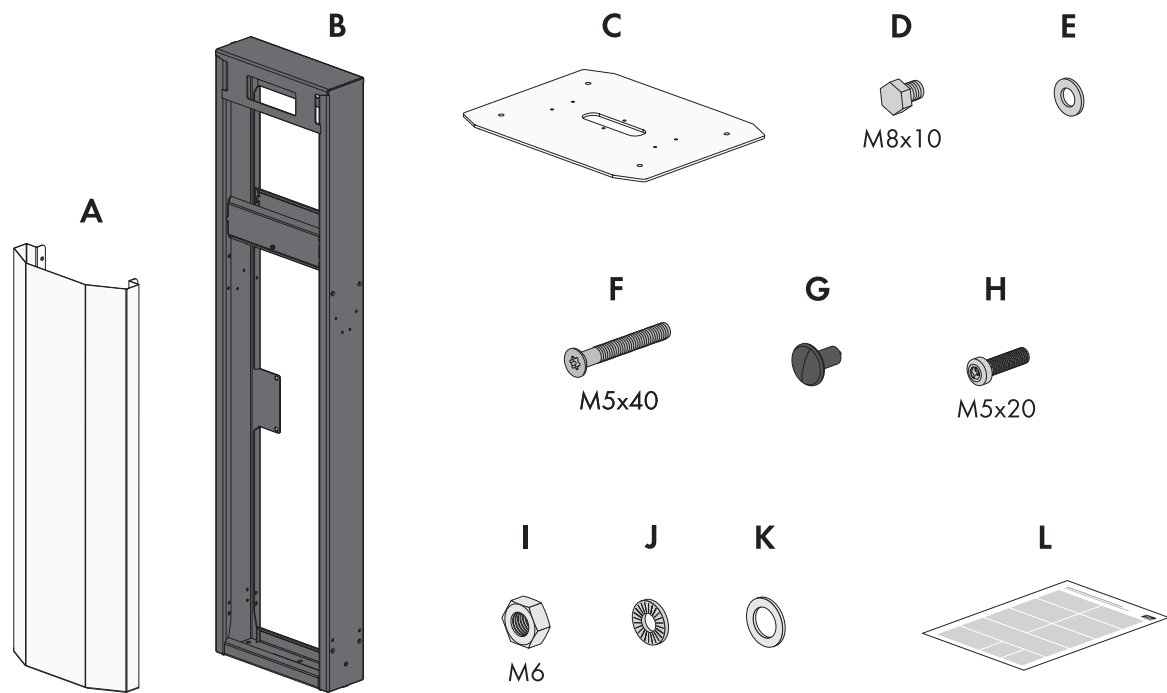


Figure 3: Components included in scope of delivery

Position	Quantity	Designation
A	2	Cover (front and rear)
B	1	Middle section
C	1	Base plate
D	6	Bolt M8 x 10
E	6	Washer M8
F	8	Countersunk head screw M5x40
G	8	Fir tree clip
H	1	Flat-head bolt M5x20
I	1	Nut M6
J	1	Serrated lock washer M6
K	1	Washer M6
L	1	Manual

5 Product overview

5.1 System Overview

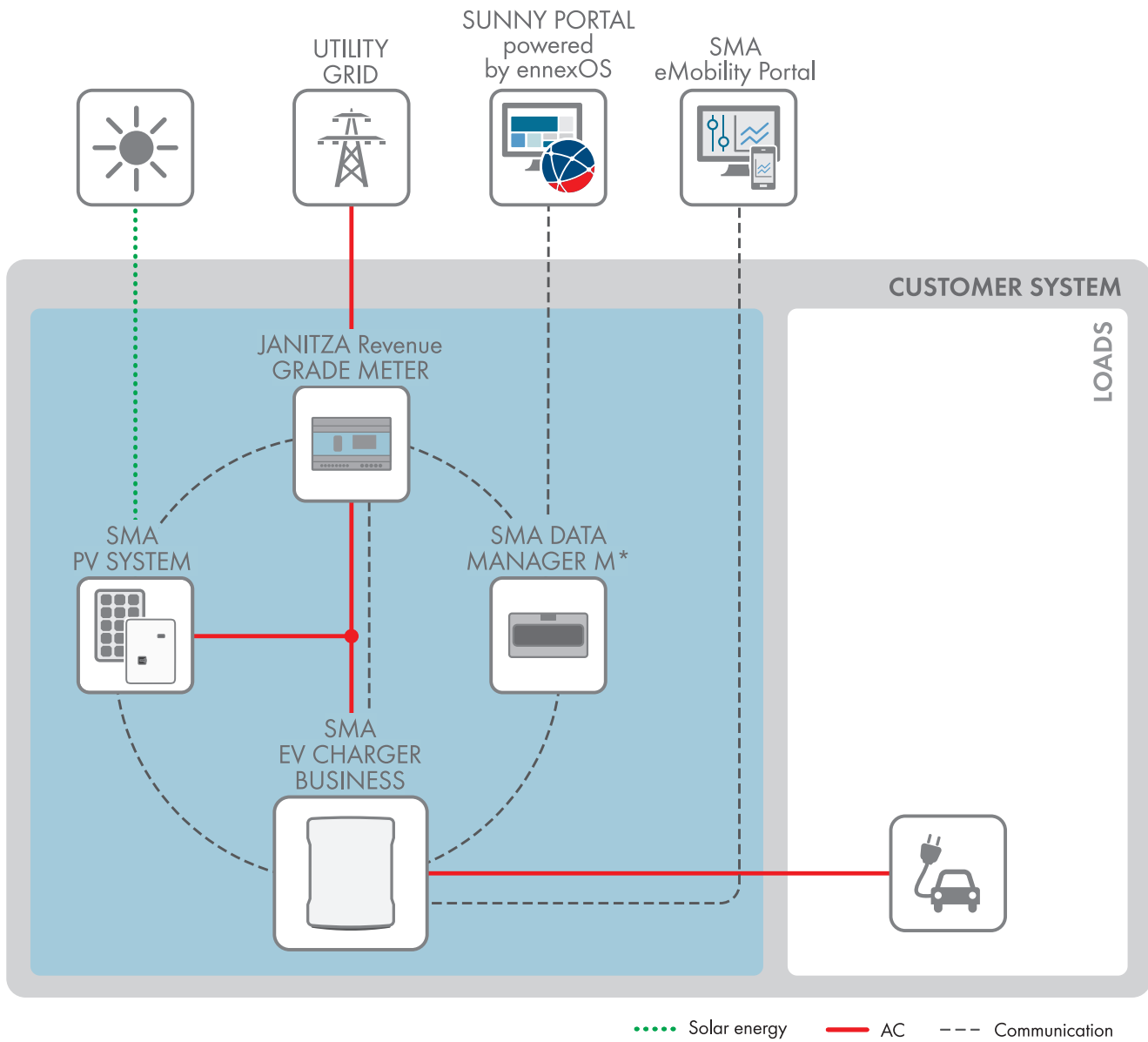


Figure 4: System design

5.1.1 Circuitry Overview

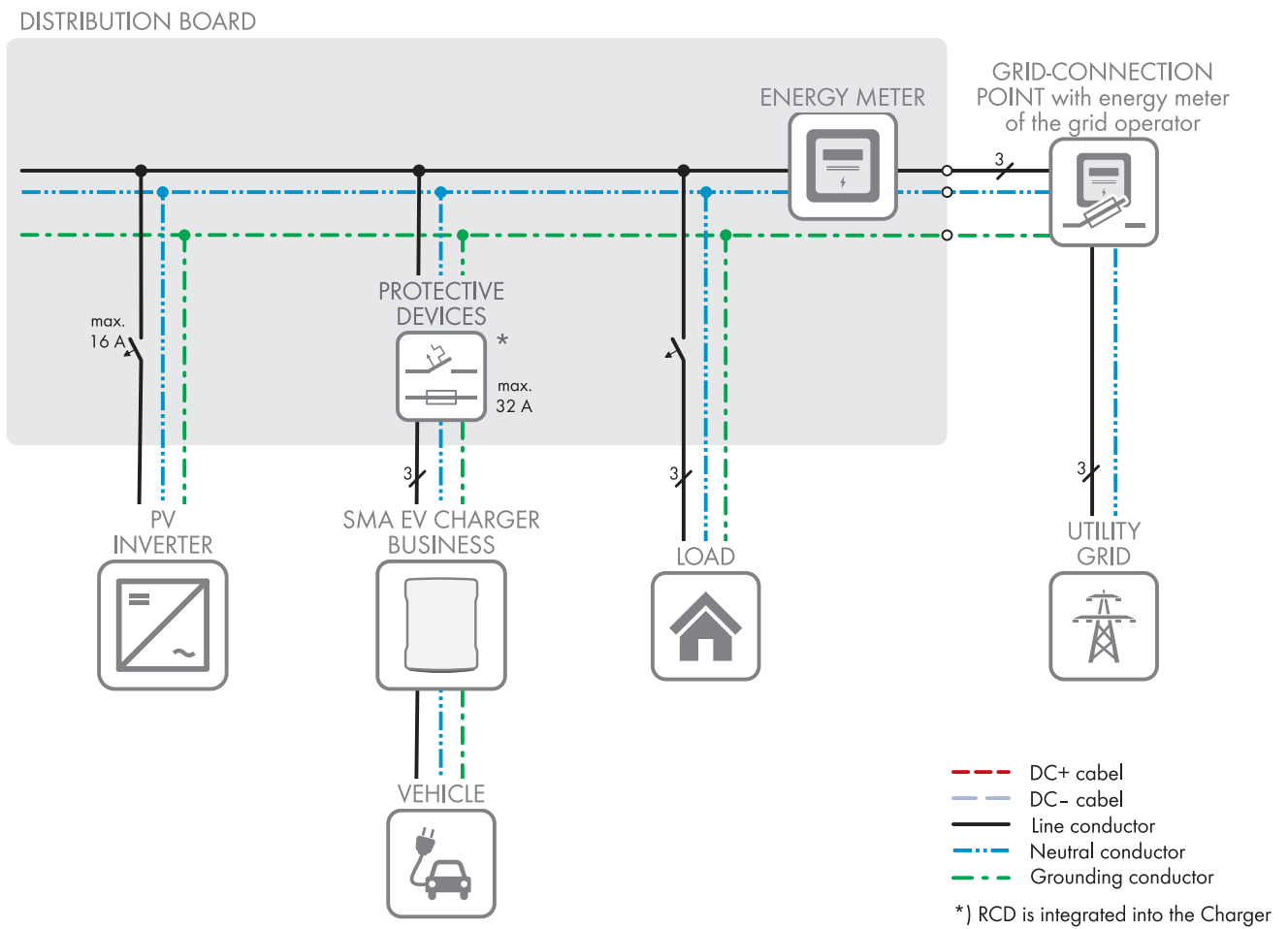


Figure 5: Circuitry overview (example)

5.1.2 Communication Overview

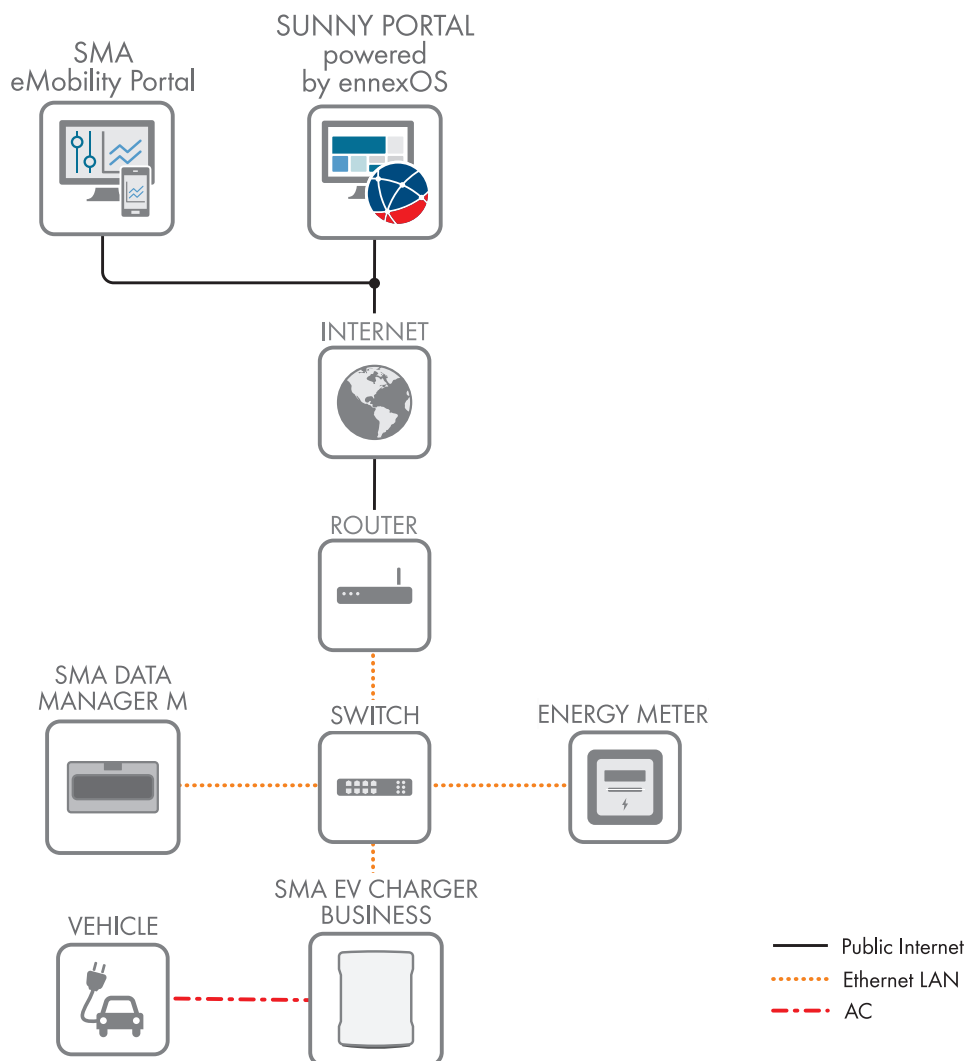


Figure 6: Design of system communication

5.2 Product Description

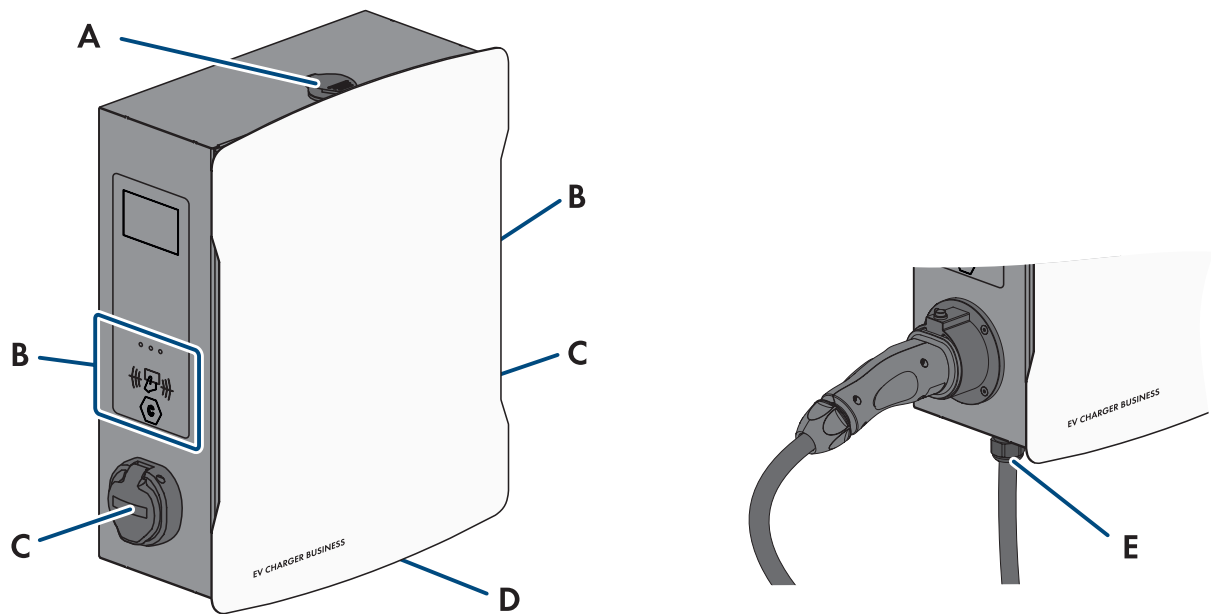









Figure 7: Design of the product

Position	Designation
A	Enclosure lock
B	RFID card reader with status LEDs
C	Charging socket
D	Type label The type label clearly identifies the product. The type label must remain permanently attached to the product. You will find the following information on the type label: <ul style="list-style-type: none"> • Device type (Model) • Serial number (Serial No. or S/N) • Date of manufacture • Device-specific characteristics
E	Charging cable

5.3 Symbols on the Product

Symbol	Explanation
	Beware of electrical voltage The product operates at high voltages.
	Charge point designation Drivers of electric vehicles can ensure whether their electric is usable with the charging unit and the connector.
	Observe the documentation

Symbol	Explanation
	<p>WEEE designation</p> <p>Do not dispose of the product together with the household waste but in accordance with the disposal regulations for electronic waste applicable at the installation site.</p>
	<p>Protection class I</p> <p>All electrical equipment is connected to the grounding conductor system of the product.</p>
	<p>CE marking</p> <p>The product complies with the requirements of the applicable EU directives.</p>
	<p>RoHS labeling</p> <p>The product complies with the requirements of the applicable EU directives.</p>

5.4 Interfaces and Functions

SMA flexibly combines all required components of the charging station into an overall system. This enables you to integrate your charging station into your charging park, building or energy management system.

Interfaces / Communication

Network interfaces	<ul style="list-style-type: none"> • LAN (RJ45), 10/100 Mbit/s • Cellular (4G LTE)
Backend connection	<ul style="list-style-type: none"> • OCPP version 1.6 JSON

5.5 LED Signals

The LEDs indicate the operating state of the product.

LED signal	Explanation
Green	<p>Glowing: charging station is free, no vehicles connected</p> <p>Slowly flashing: charging station is free, one vehicle connected</p>
Yellow	<p>Glowing: charging station is reserved, no vehicles connected</p> <p>Slowly flashing: charging station is reserved, one vehicle connected</p> <p>Rapidly flashing: charging station exchanging data with backend, waiting for authorization</p>
Blue	<p>Slowly flashing: Charging process authorized, vehicle being charged</p> <p>Rapidly flashing: Charging process authorized, vehicle not connected yet or just disconnected from the charging station</p>

6 Mounting

6.1 Requirements for Mounting

Requirements for the installation site:

⚠ WARNING

Danger to life due to fire or explosion

Despite careful construction, electrical devices can cause fires. This can result in death or serious injury.

- Do not mount the product in areas containing highly flammable materials or gases.
- Do not mount the product in potentially explosive atmospheres.

Requirements:

- A solid, flat support surface must be available for mounting.
- The support surface for installation must be made of a non-flammable material.
- Installation must be carried out so that the connector of the charging cable is always at a height of 0.5 m to 1.5 m above floor level.
- The installation site must be suitable for the weight and dimensions of the product (see Section 16, page 85).
- The installation site must not be exposed to direct solar irradiation. If the product is exposed to direct solar irradiation, the exterior plastic parts might age prematurely and overheating might occur. When becoming too hot, the product reduces its power output to avoid overheating.
- The installation site must be less than 2000 m above Mean Sea Level
- The installation site must be selected so that the EV Charger and the vehicle can be connected with the charging cable. The charging cable must not be strained, squeezed or bent.
- No other device may be installed under the product.
- The installation site should be freely and safely accessible at all times without the need for any auxiliary equipment (such as scaffolding or lifting platforms). Non-fulfillment of these criteria may restrict servicing.
- All ambient conditions must be met (see Section 16, page 85).

Permitted and prohibited mounting positions:

- The product may only be mounted in a permitted position. This will ensure that no moisture can penetrate the product.
- The product should be mounted in such way that display messages and LED signals can be read without difficulty.

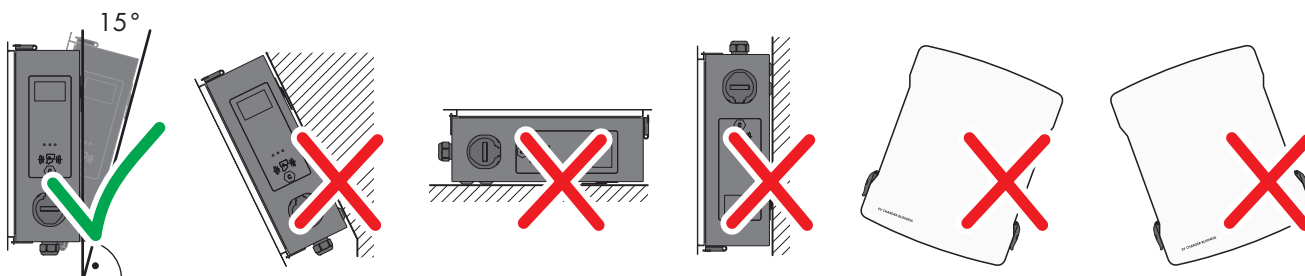


Figure 8: Permitted and prohibited mounting positions

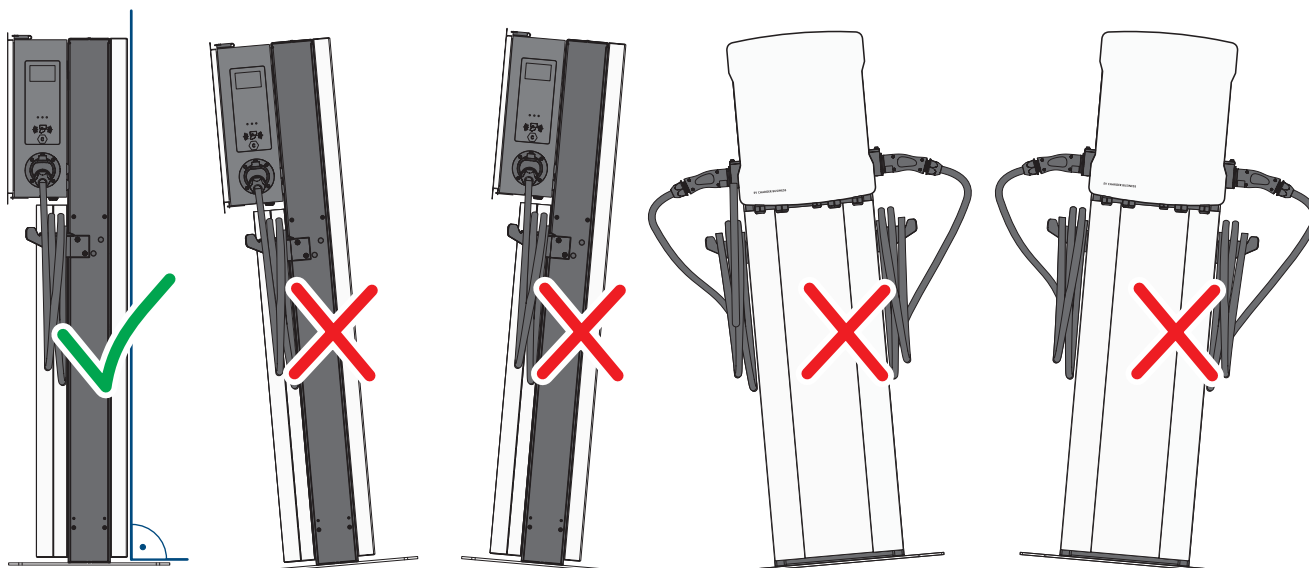


Figure 9: Permitted and prohibited mounting positions

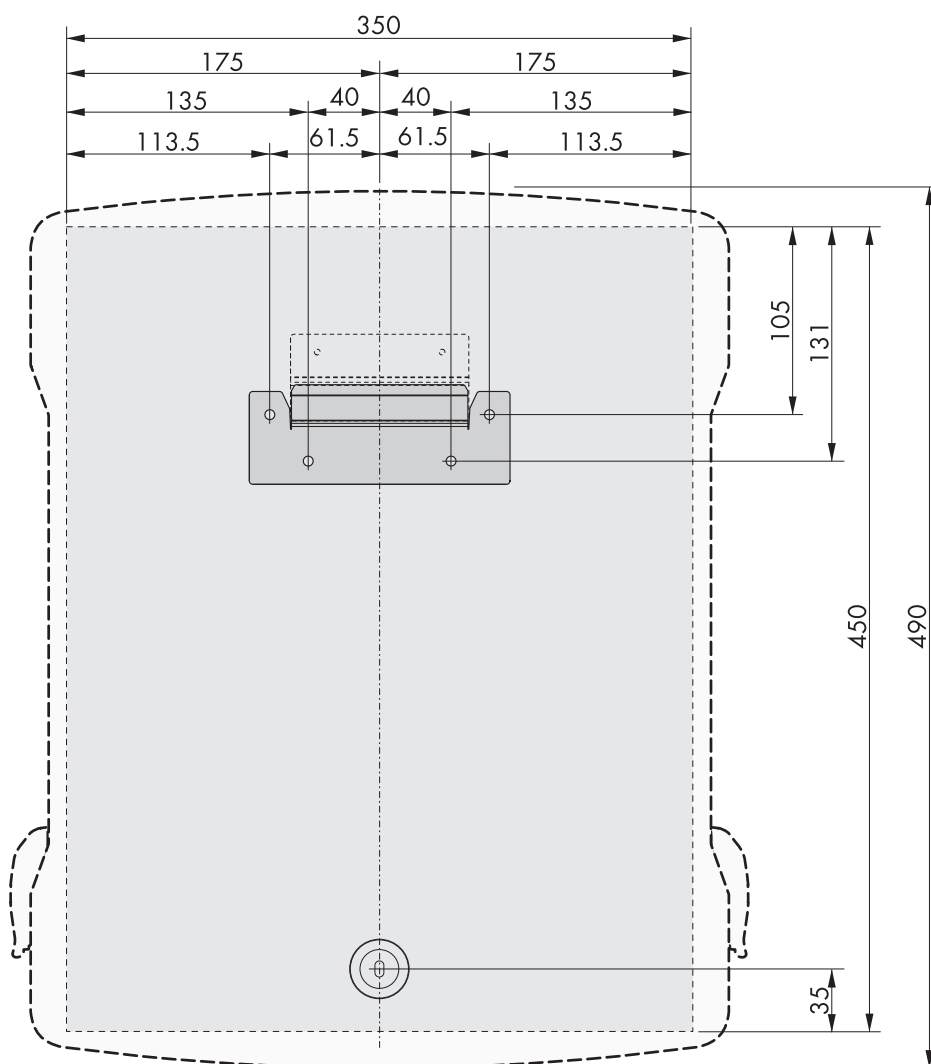
Dimensions for wall mounting:

Figure 10: Position of the anchoring points (Dimensions in mm)

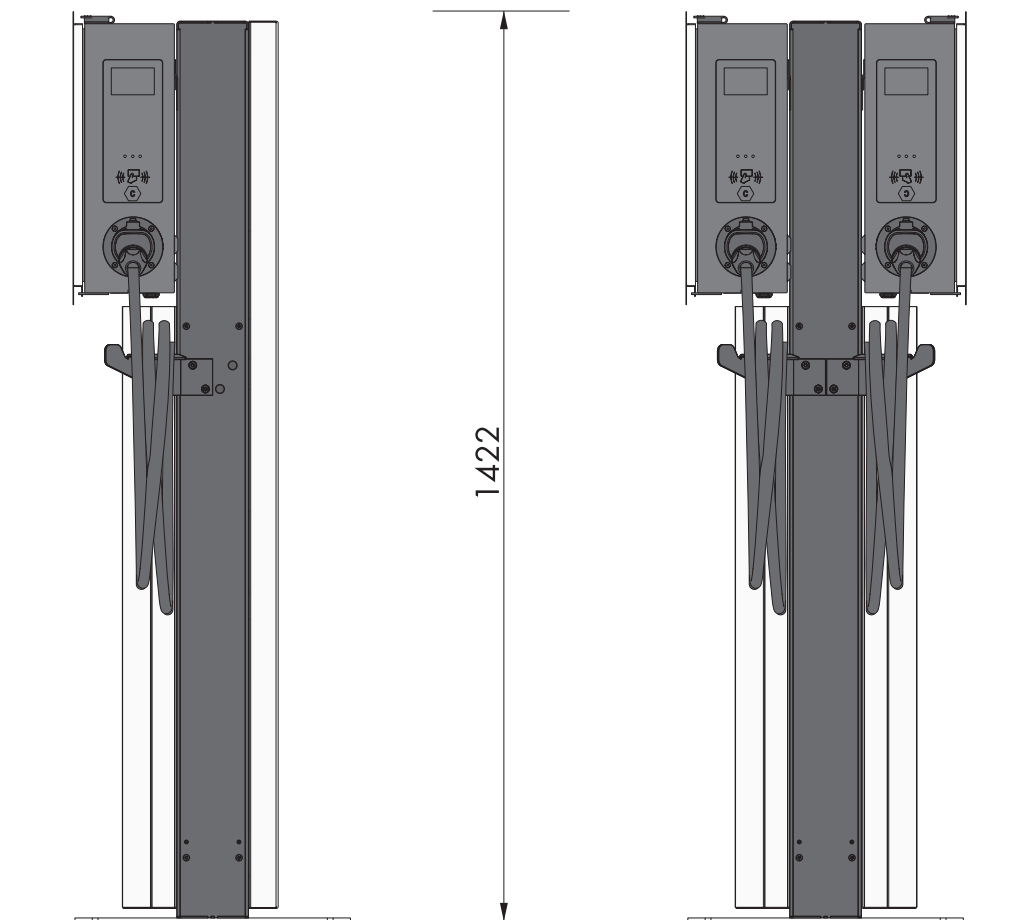
Accessories for charging stand mounting:

Figure 11: Charging stand dimensions (Dimensions in mm)

Recommended clearances for wall mounting:

- Maintain the recommended clearances to walls as well as to other charging stations, inverters or objects.
- If multiple products are mounted in areas with high ambient temperatures, increase the clearances between the products and ensure sufficient fresh-air supply.

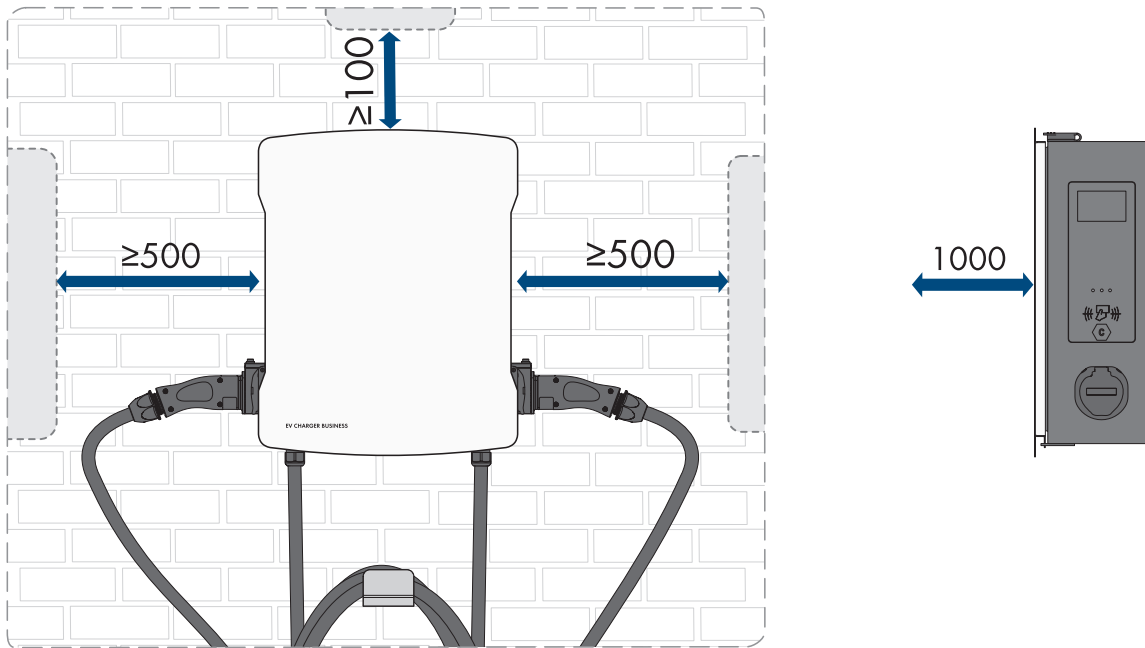


Figure 12: Recommended clearances (Dimensions in mm)

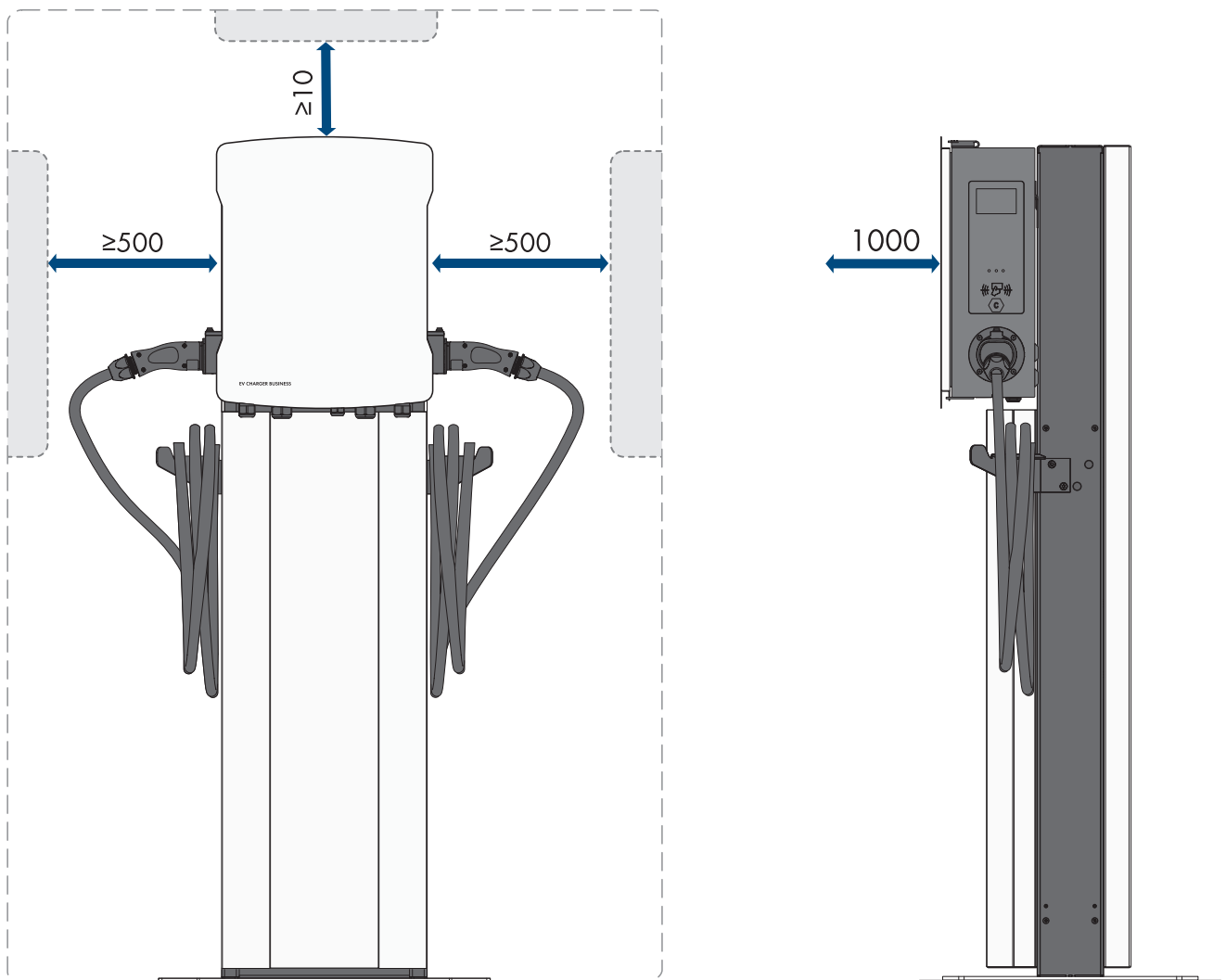
Recommended clearances for charging stand mounting:

Figure 13: Recommended clearances (Dimensions in mm)

6.2 Wall Mounting

⚠ CAUTION**Risk of injury due to weight of product**

Injuries may result if the product is lifted incorrectly or dropped while being transported or mounted.

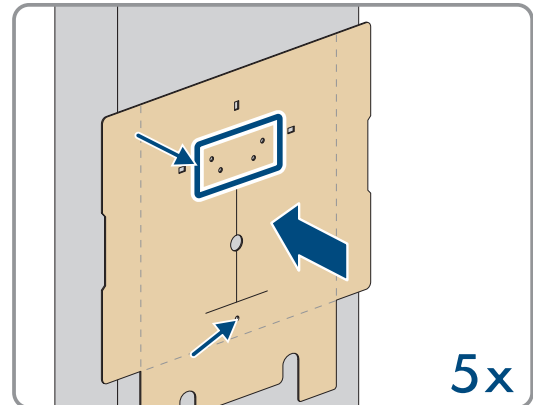
- Wear suitable personal protective equipment for all work on the product.

Additionally required mounting material (not included in the scope of delivery):

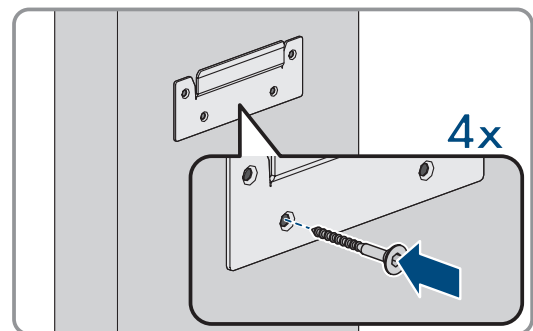
- Screw anchors for wall mounting

Procedure:

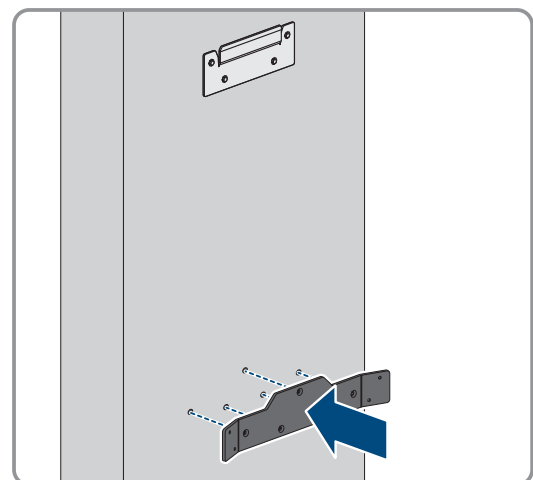
1. Mark the position of the 5 drill holes using the drilling template. Align the markings horizontally.



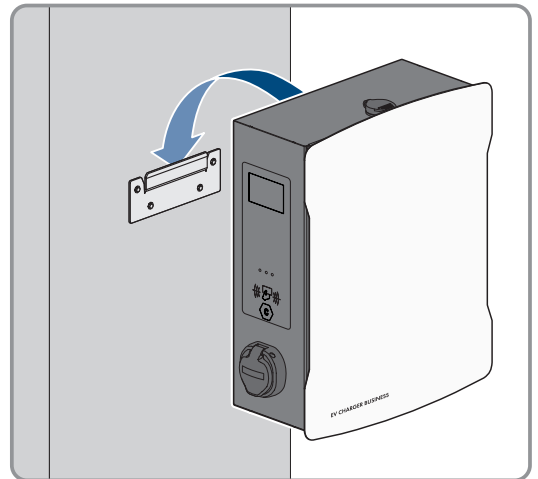
2. Drill the holes using a suitable drill bit.
3. Depending on the support surface, insert screw anchors (not included in the scope of delivery) into the drill holes.
4. Secure the wall mounting bracket using the 4 screws (M5x60) in the scope of delivery.



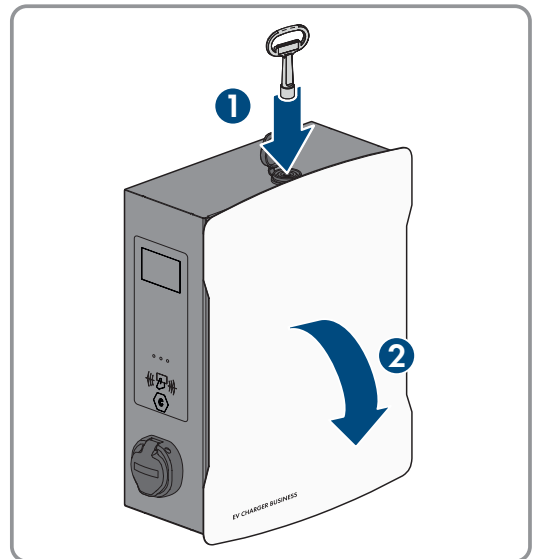
5. **Optional:** Secure the cable holder to the wall with the 5 screws (6x50) in the scope of delivery of the cable holder set (TX30).



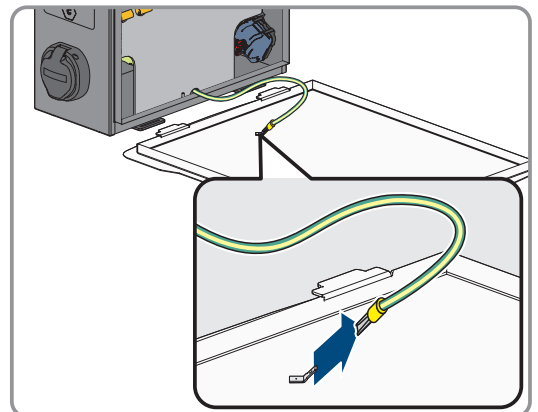
6. Hook the product onto the wall mounting bracket.



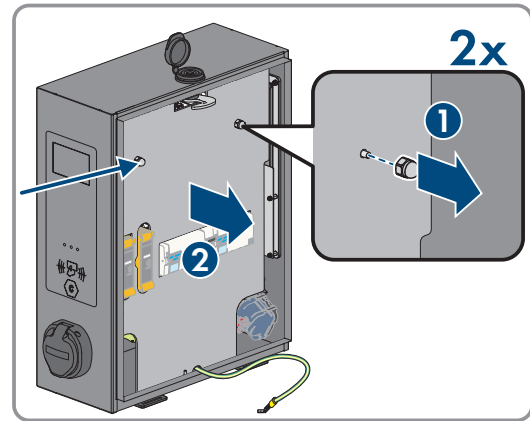
7. Open the enclosure cover with the supplied key.



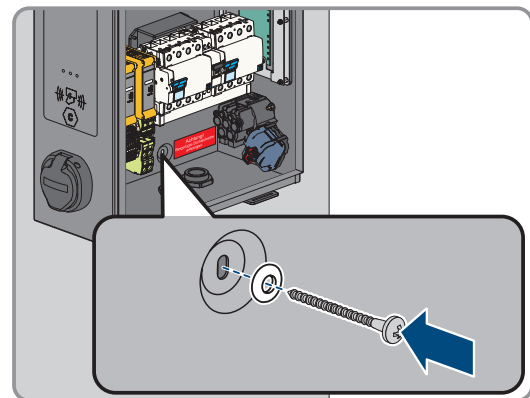
8. Pull off the grounding cable at the cover.



9. Remove the safety cover. To do so, loosen the 2 nuts. For the products EVCB-LB-3AC-ECC-10 and EVCB-3AC-ECC-10, safety seals are on the 2 nuts.



10. Secure the product with the **sealing washer and the screw** (M5x60) from the scope of delivery (PH5).



11. Ensure that the product is securely in place.

6.3 Mounting the charging stand

⚠ CAUTION

Risk of injury due to weight of product

Injuries may result if the product is lifted incorrectly or dropped while being transported or mounted.

- Wear suitable personal protective equipment for all work on the product.

- i** For a concrete foundation produced by the operator, billing, design and production are exclusively the responsibility of the operator or the company that carried out mounting on behalf of the operator.

Procedure:

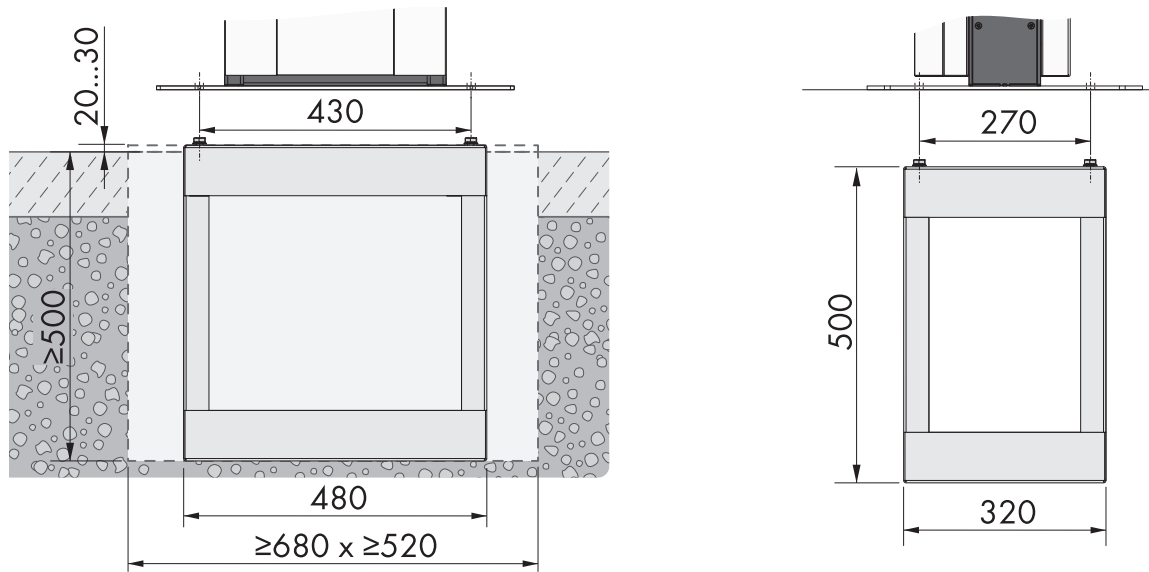
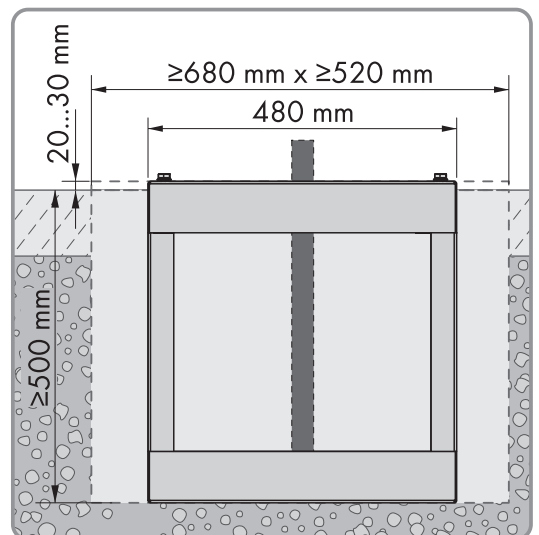
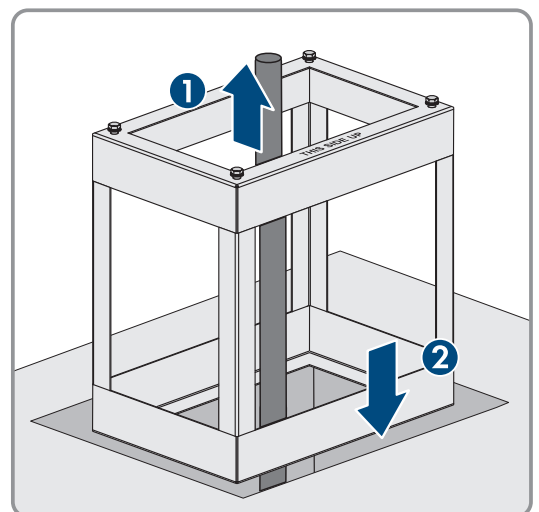


Figure 14: Dimensions of the foundation hole (Dimensions in mm)

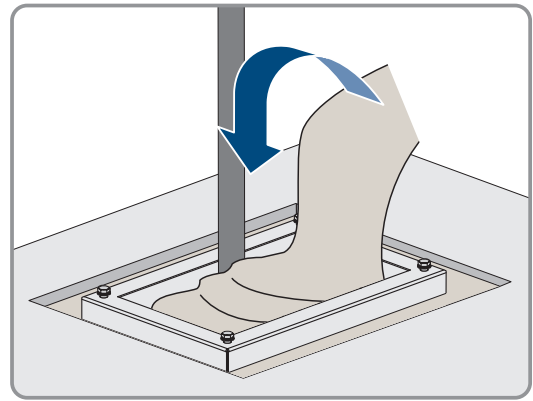
1. Ensure that the AC cable is long enough to connect to the product.
2. Excavate the foundation hole with the following dimensions: width ≥ 680 mm x height ≥ 500 mm x depth ≥ 520 mm.



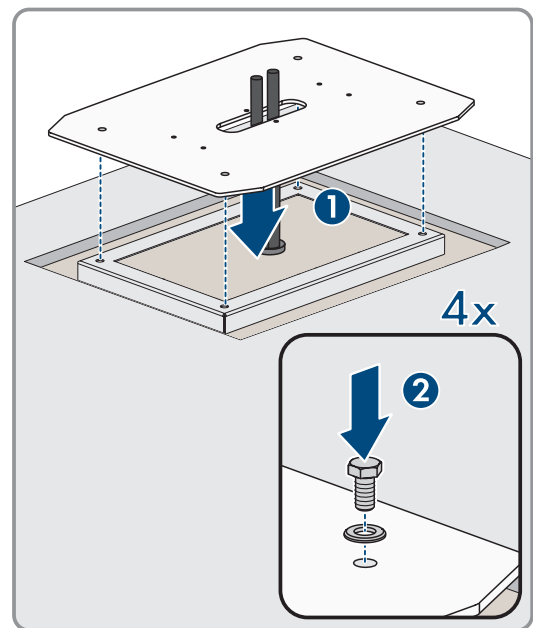
3. Insert the embedded section of the column into the hole and guide the AC cable upwards.



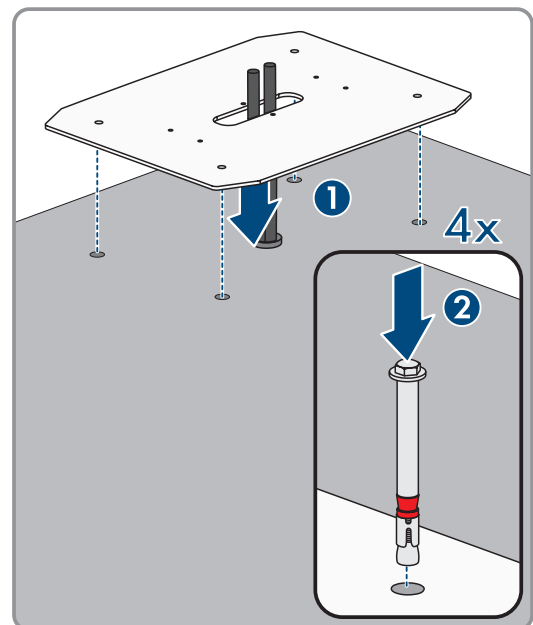
4. Stabilize the embedded section of the column using class C30/37 concrete.



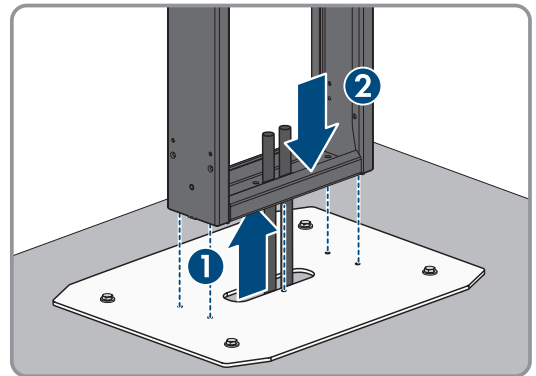
5. Let the concrete completely cure before starting to assemble the column.
6. First remove the 4 screws (M10x20) and the 4 washers (M10) from the embedded section. Then position the base plate on the 4 holes of the embedded section of the column. Secure the base plate with the 4 screws (M10x20) and the 4 (M10) washers (AF16).



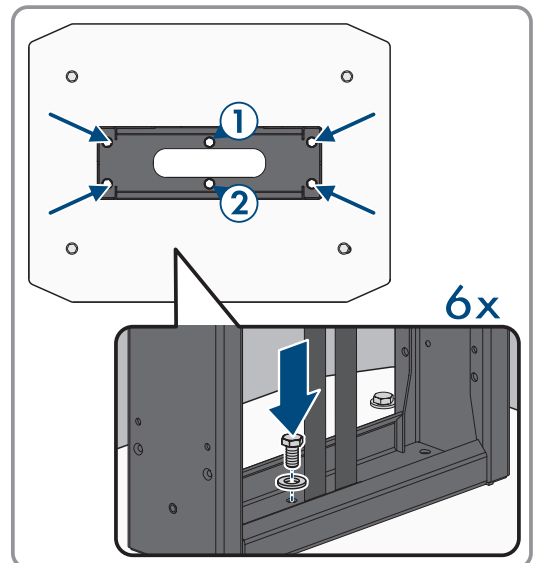
7. **Optional:** You can also directly fasten the base plate to a suitable support surface. To do so, drill 4 holes and secure the base plate using 4 heavy-duty anchors (M10x108, not in the scope of delivery) (AF16).



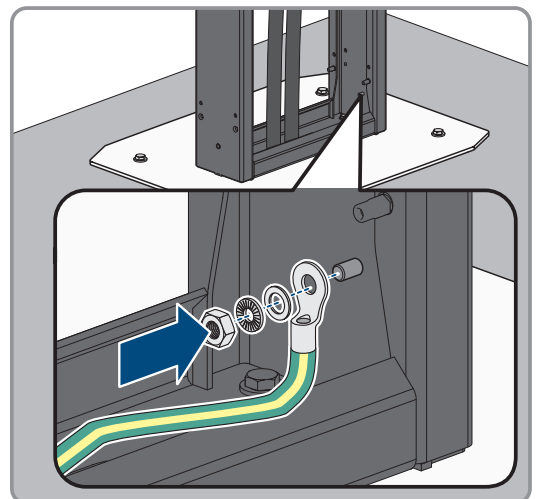
8. When putting on the middle section, guide the AC cable through the middle section of the column. Position the middle section on the 6 holes in the base plate. Pay attention to the weight.



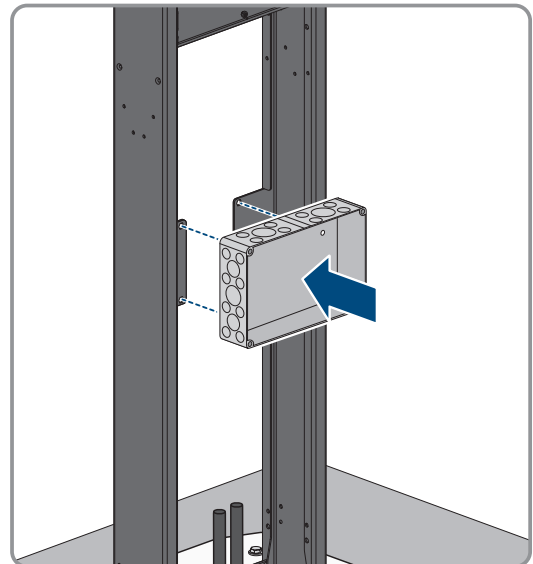
9. Use the 6 screws (M8x10) and washers to secure the middle section of the column (AF13, tightening torque: 25 Nm). First secure the two screws at the center of the middle section.



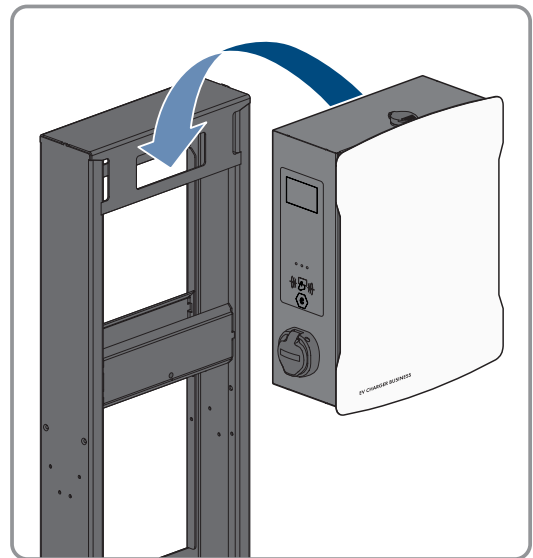
10. **Additional ground:** Connect the grounding conductor to the grounding bolts of the column. Secure the crimped terminal lug to the grounding bolts. To do so, use the washer (M6), serrated lock washer (M6) and nut (M6) in the scope of delivery of the column.



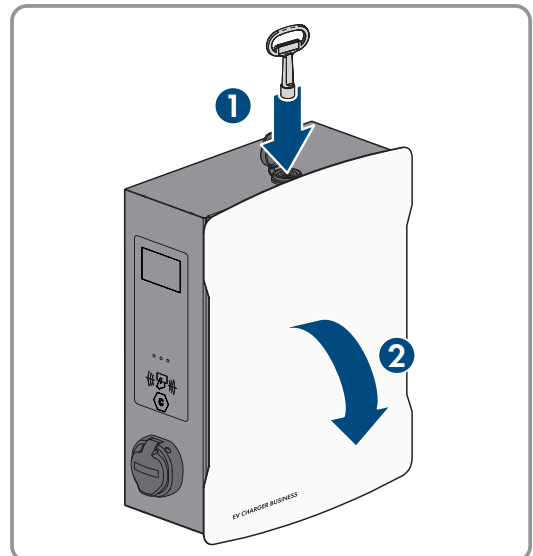
11. **Optional:** You can position an empty enclosure (not in the scope of delivery) on the middle section of the column (width 254 mm x height 180 mm x depth 84 mm).



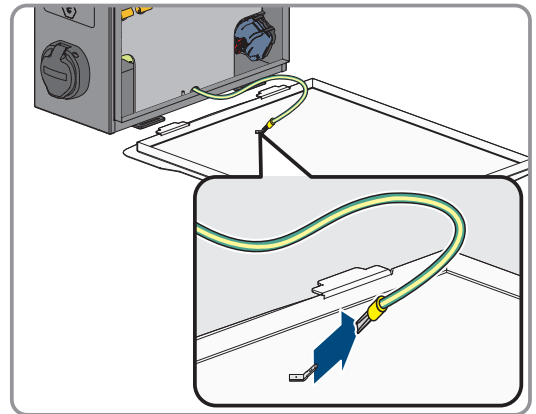
12. Hook the product onto the column.



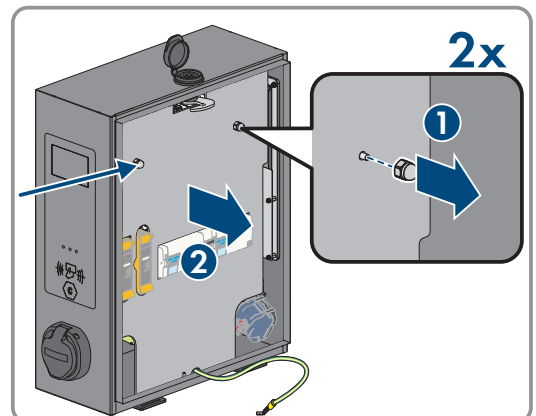
13. Use the product key to open the enclosure cover.



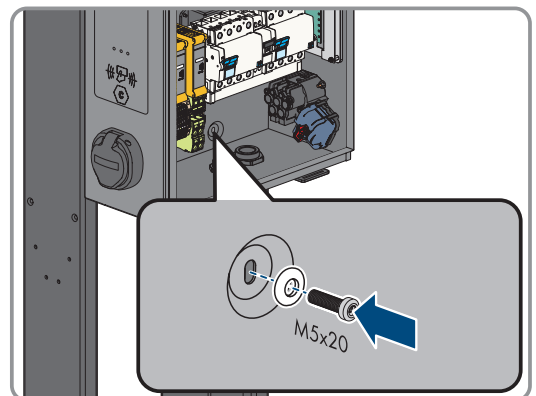
14. Pull off the grounding cable at the cover.



15. Remove the safety cover. To do so, loosen the 2 nuts. For the products EVCB-LB-3AC-ECC-10 and EVCB-3AC-ECC-10, safety seals are on the 2 nuts.



16. Secure the product using the **sealing washer (M6)** (included in the product's scope of delivery) and the **screw (M5x20)** (included in the scope of delivery of the column) (TX25, tightening torque: 5 Nm).

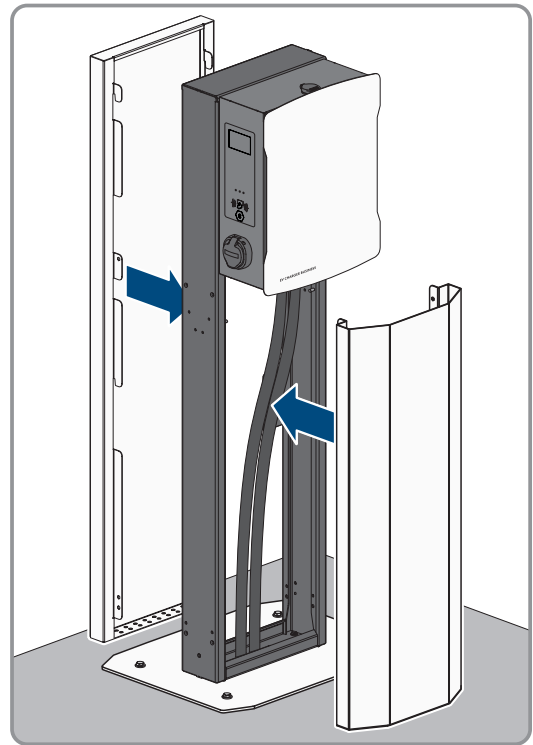


17. Ensure that the product is securely in place.

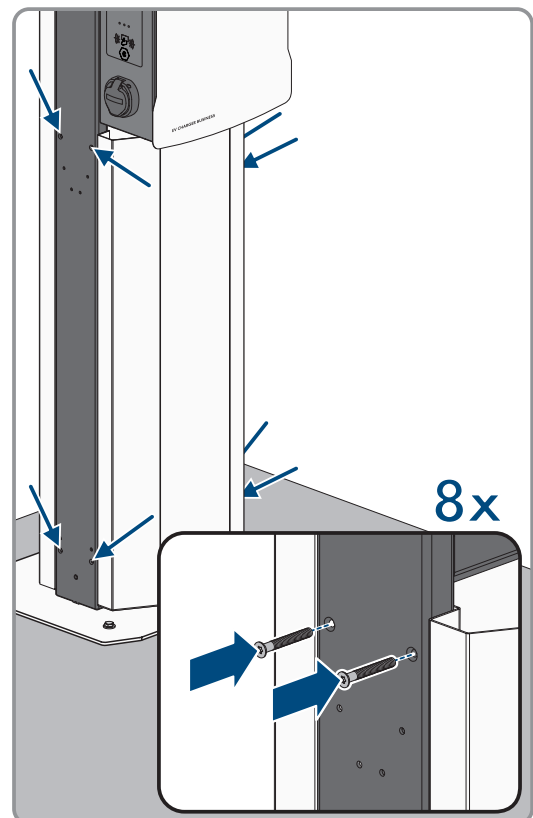
18. Connect to the utility grid (see Section 7.2, page 37).

19. Connect the network cable (see Section 7.3, page 39).

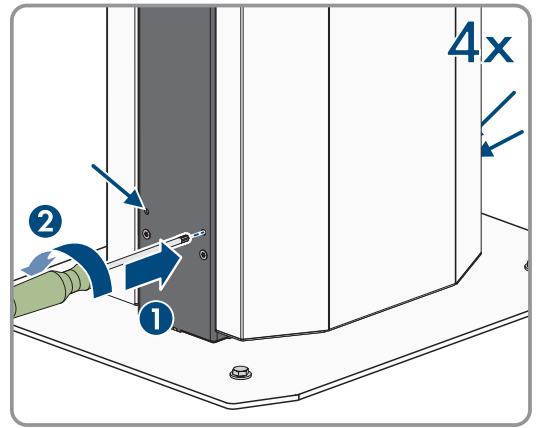
20. Hook the cover at the front and rear of the middle section of the column. In the middle section of the column, there are two carrier pins onto which the covers must be hooked.



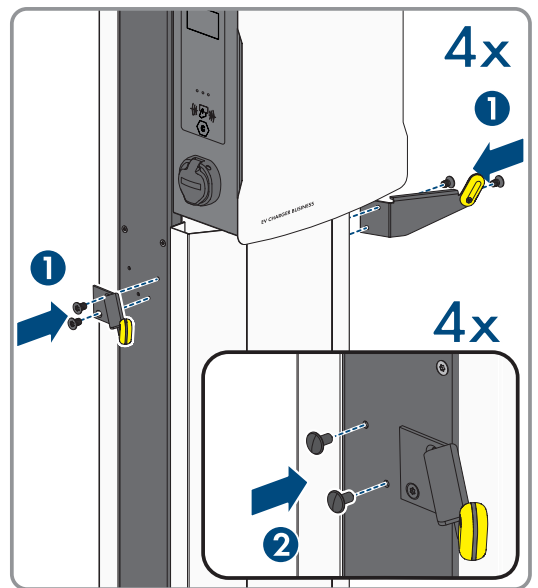
21. Secure the two covers to the front and rear with the 8 screws (M5x40) in the scope of delivery of the column (TX25, tightening torque: 5 Nm).



22. Lock the covers. To do so, insert a screwdriver through the opening and rotate the set screw counterclockwise until the stop (TX25, tightening torque: 5 Nm). Repeat the procedure at the remaining 3 positions.



23. Depending on the product version, secure the cable holder to the side of the column (M6x10). Seal all unused openings with the fire tree clips.



7 Electrical Connection

7.1 Overview of the Connection Area

7.1.1 View from Below

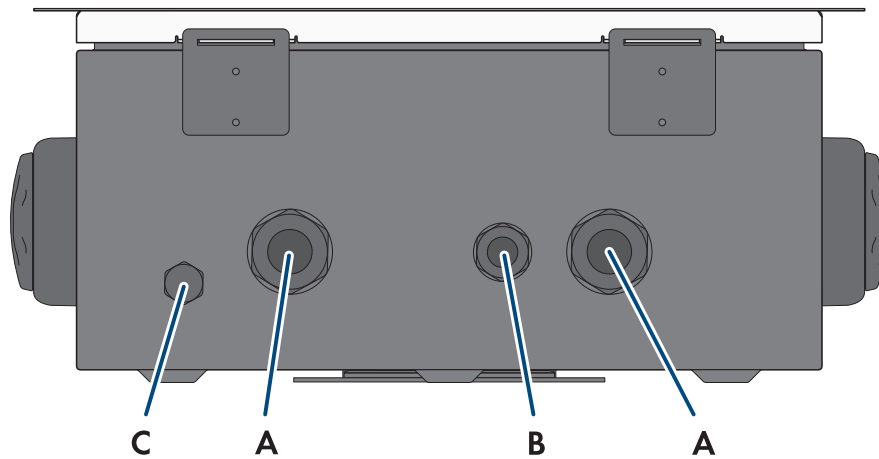


Figure 15: Bottom view of product

Position	Designation
A	Opening for cable gland M32 for connecting the utility grid
B	Opening for cable gland M20 for connecting the network cable
C	Pressure equalizing membrane

7.1.2 Interior View

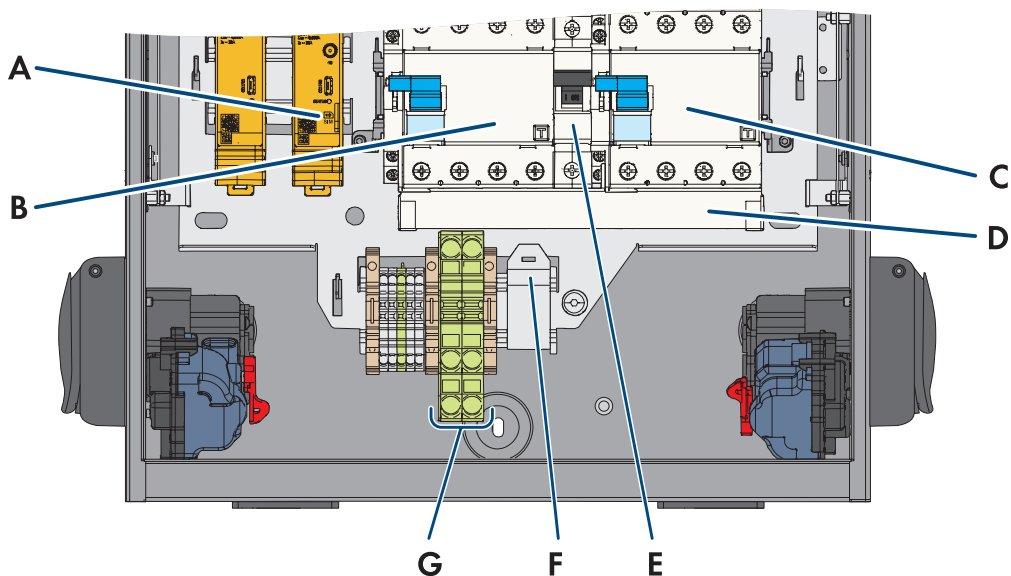


Figure 16: Connection area inside the EV Charger Business

Position	Designation
A	SIM card
B	Residual-current device

C	Residual-current device
D	Busbar
E	Miniature circuit breaker (energy self-sufficiency)
F	RJ45 module
G	Grounding conductor (PE) connection

7.2 Connecting the Utility Grid

⚠ QUALIFIED PERSON

AC cable requirements:

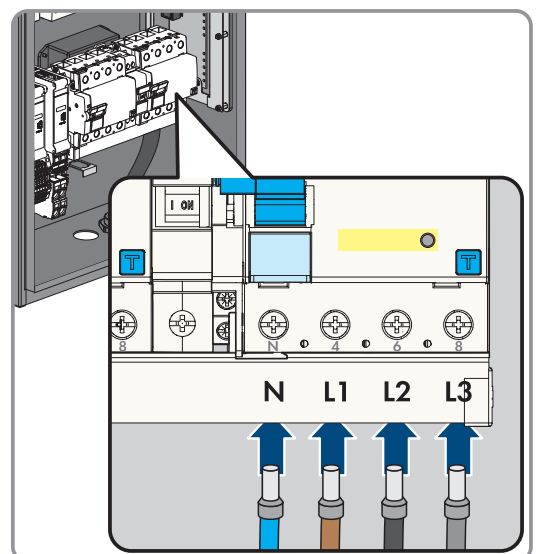
- Outer diameter: 18 mm to 25 mm
- Conductor cross-section: 6 mm² (flexible/rigid) or 10 mm² (flexible/rigid)
- Insulation stripping length: 12 mm
- Sheath stripping length: 20 cm
- The cable must be dimensioned in accordance with the local and national directives for the dimensioning of cables. The requirements for the minimum conductor cross-section derive from these directives. Influencing factors for cable dimensioning are, for example, the nominal AC current, the type of cable, the routing method, cable bundling, ambient temperature, and maximum desired line losses.

Residual-current monitoring unit:

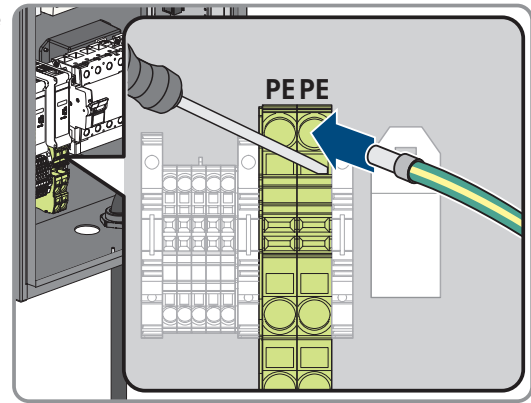
The charging station has an external residual-current device type A, which has a rated residual current of 30 mA. A DC residual-current device of 6 mA is also already integrated into the charging station. Each charging station in the system must be connected to the utility grid via a separate residual-current device and miniature circuit breaker (see Section 9.9, page 55).

Procedure for maximal charge power of 22 kW:

1. Turn off the miniature circuit breaker.
2. Dismantle the AC cable by 20 cm.
3. Strip 10 mm to 12 mm of the insulation from the insulated conductors.
4. Thread the AC cable through the cable gland into the product. To do so, slightly loosen the union nut (M32).
5. Connect conductors N, L1, L2 and L3 to the right residual-current device according to the labeling (PZ2, tightening torque: 2.5 to 3 Nm).



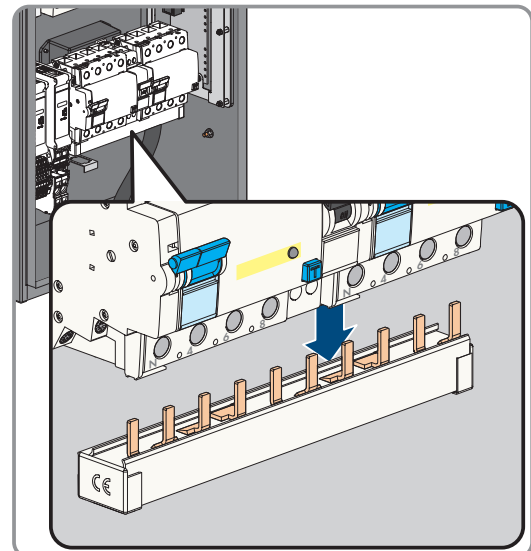
6. Connect grounding conductor to the terminal block in accordance with the labeling.



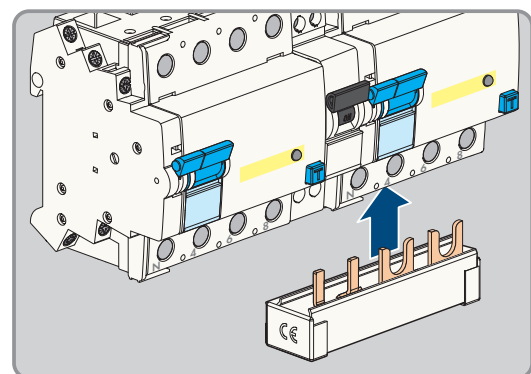
7. Ensure that all conductors are correctly connected.
8. Tighten the union nut on the cable gland hand-tight.

Procedure for maximal charge power of 2 x 22 kW:

1. Turn off the miniature circuit breaker.
2. Dismantle the AC cable by 20 cm.
3. Strip 10 mm to 12 mm of the insulation from the insulated conductors.
4. Loosen the busbars from the two residual-current devices (PZ2) and remove them.

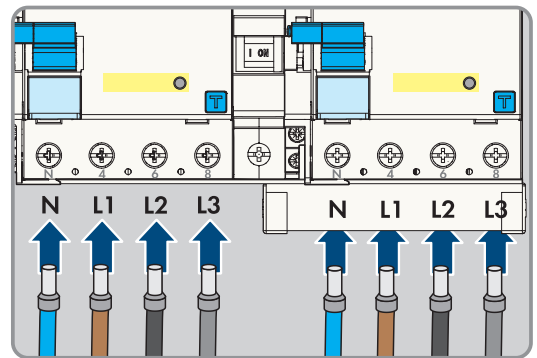


5. For energy self-sufficiency, connect the supplied busbars to the right residual-current device.

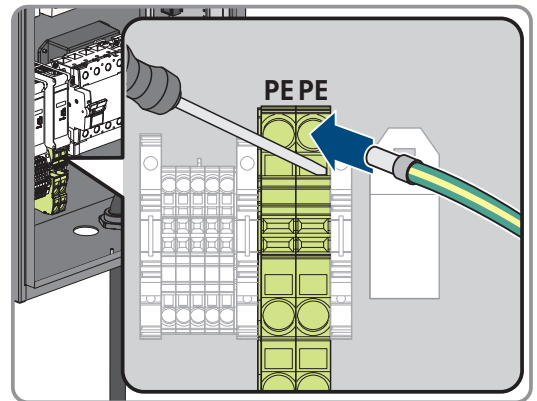


6. Guide the two AC cables through the cable glands into the product. Also loosen the two union nuts (M 32).

7. Connect conductors N, L1, L2 and L3 to each residual-current device according to the labeling (PZ2, tightening torque: 2.5 to 3 Nm).



8. Connect the respective grounding conductor to the terminal block in accordance with the labeling.



9. Ensure that all conductors are correctly connected.
10. Hand-tighten the two union nuts of the cable glands.

7.3 Connecting the Network Cables

⚠ QUALIFIED PERSON

⚠ DANGER

Danger to life due to electric shock in case of overvoltages and if surge protection is missing

Overvoltages (e.g., in the event of a flash of lightning) can be further conducted into the building and to other connected devices in the same network via the network cables or other data cables if there is no surge protection. Touching live parts and cables results in death or lethal injuries due to electric shock.

- Ensure that all devices in the same network are integrated in the existing overvoltage protection.
- When laying the network cable outdoors, ensure that there is suitable surge protection at the network cable transition from the product outdoors to the network inside the building.
- The Ethernet interface of the product is classified as "TNV-1" and offers protection against overvoltages of up to 1.5 kV.

Additionally required material (not included in the scope of delivery):

- 1 network cable

Network cable requirements:

The cable length and quality affect the quality of the signal. Observe the following cable requirements:

- Cable type: 100BaseTx
- Cable category: minimum Cat6
- Plug type: RJ45 of Cat6 or higher
- Shielding: S/UTP, F/UTP or higher

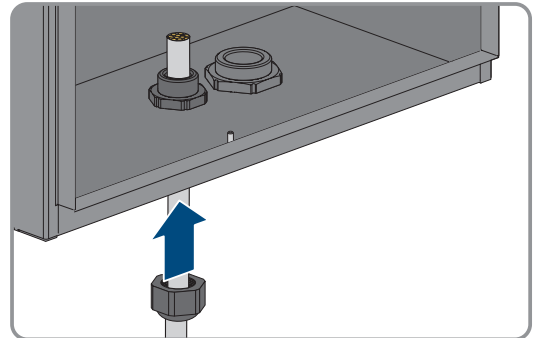
- Number of insulated conductor pairs and insulated conductor cross-section: at least $2 \times 2 \times 0.22 \text{ mm}^2$
- Maximum cable length between two nodes when using patch cables: 50 m
- Maximum cable length between two nodes when using installation cables: 100 m
- UV-resistant if installed outdoors.

Router requirements:

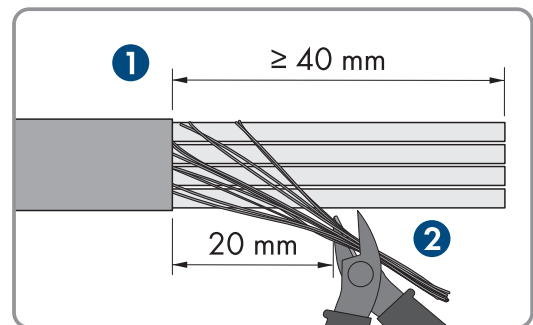
- DHCP support via the Internet router, with MAC binding is recommended. If DHCP is not supported, an IP address from the address range of the router must be assigned manually to each device.
- Fast Ethernet with 100 Mbit/s data transfer rate

Procedure:

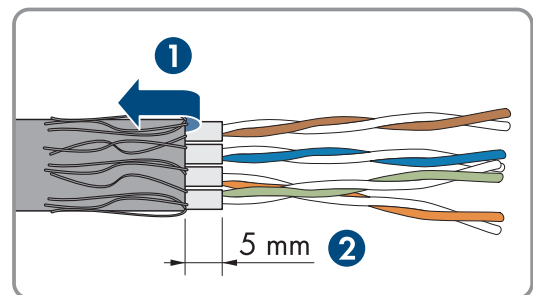
1. Disconnect the product from voltage sources (see Section 10, page 73).
2. Guide the network cable through the cable gland and into the product. To do so, slightly loosen the union nut (M20).



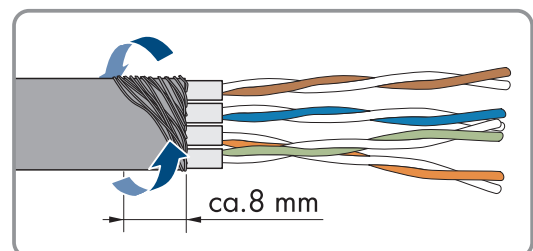
3. Strip off the insulation from the network cable (min. 40 mm) and shorten the braided shield to approx. 20 mm.



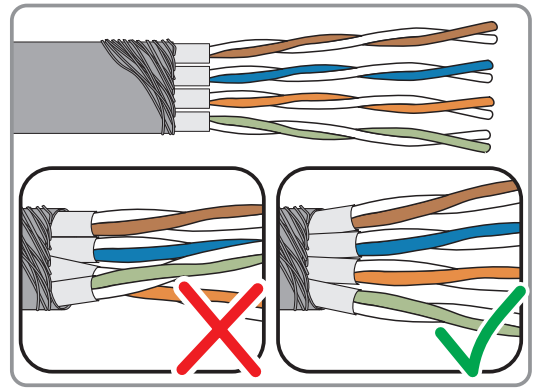
4. Fold the braided shield downward and shorten the shielding to 5 mm.



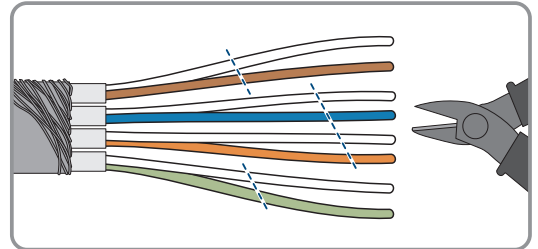
5. Evenly wrap the braided shield around the cable sheath to approx. 8 mm.



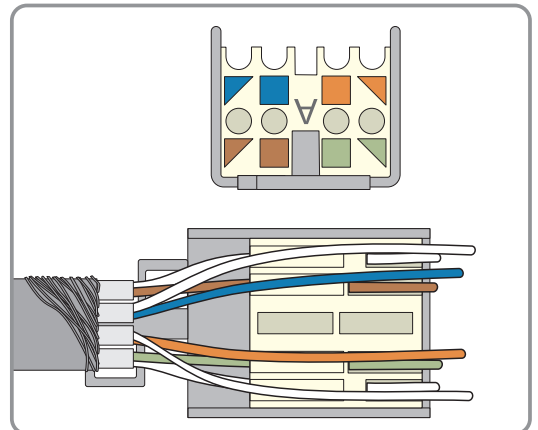
6. Sort the insulated conductors into pairs, making sure that they do not cross each other.



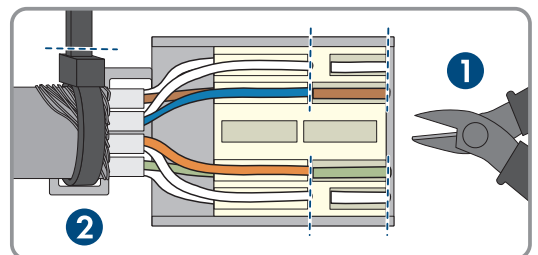
7. Trim the insulated conductor pairs at an angle.



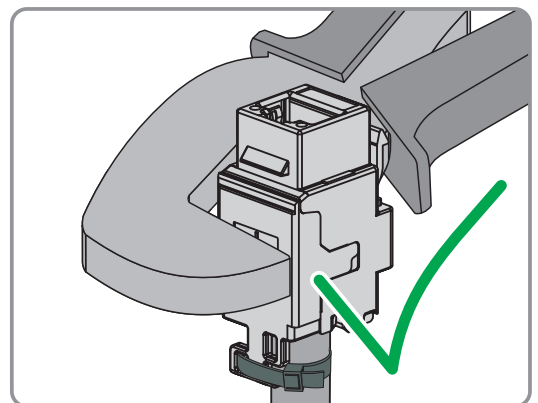
8. Place the insulated conductor pairs in the module.



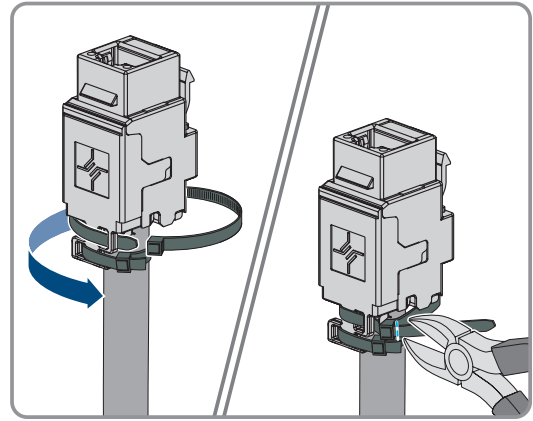
9. Make sure that the insulated conductors protrude by a maximum of 0.5 mm. Secure the supplied cable tie for strain relief and cut off the end.



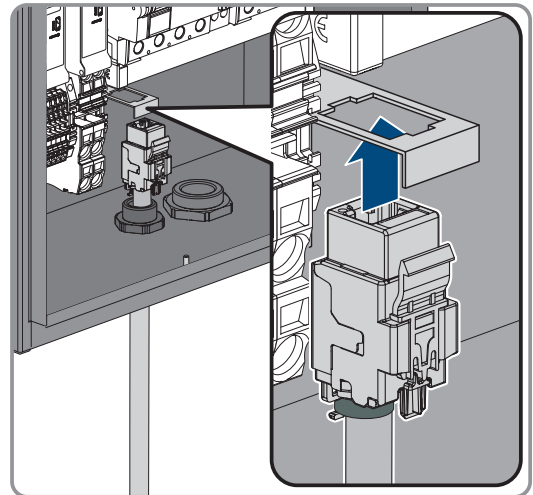
10. Press the two module pieces together with the help of pliers.



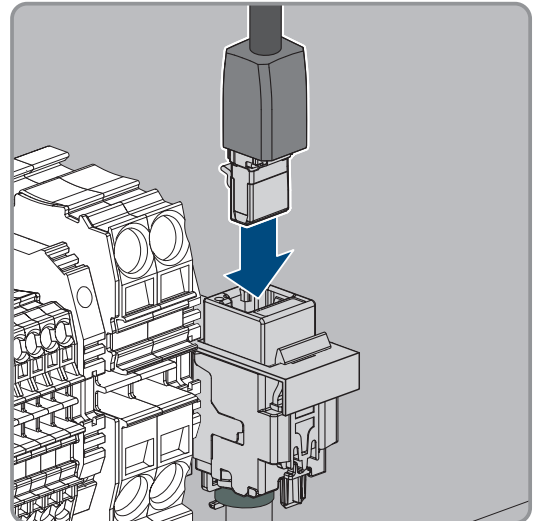
11. Secure the second supplied cable tie and cut off the end.



12. Clamp the RJ45 module in the holder.

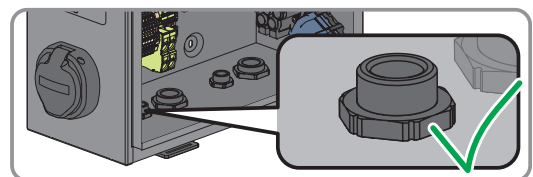


13. Connect the network cable of the charge controller to the RJ45 module.



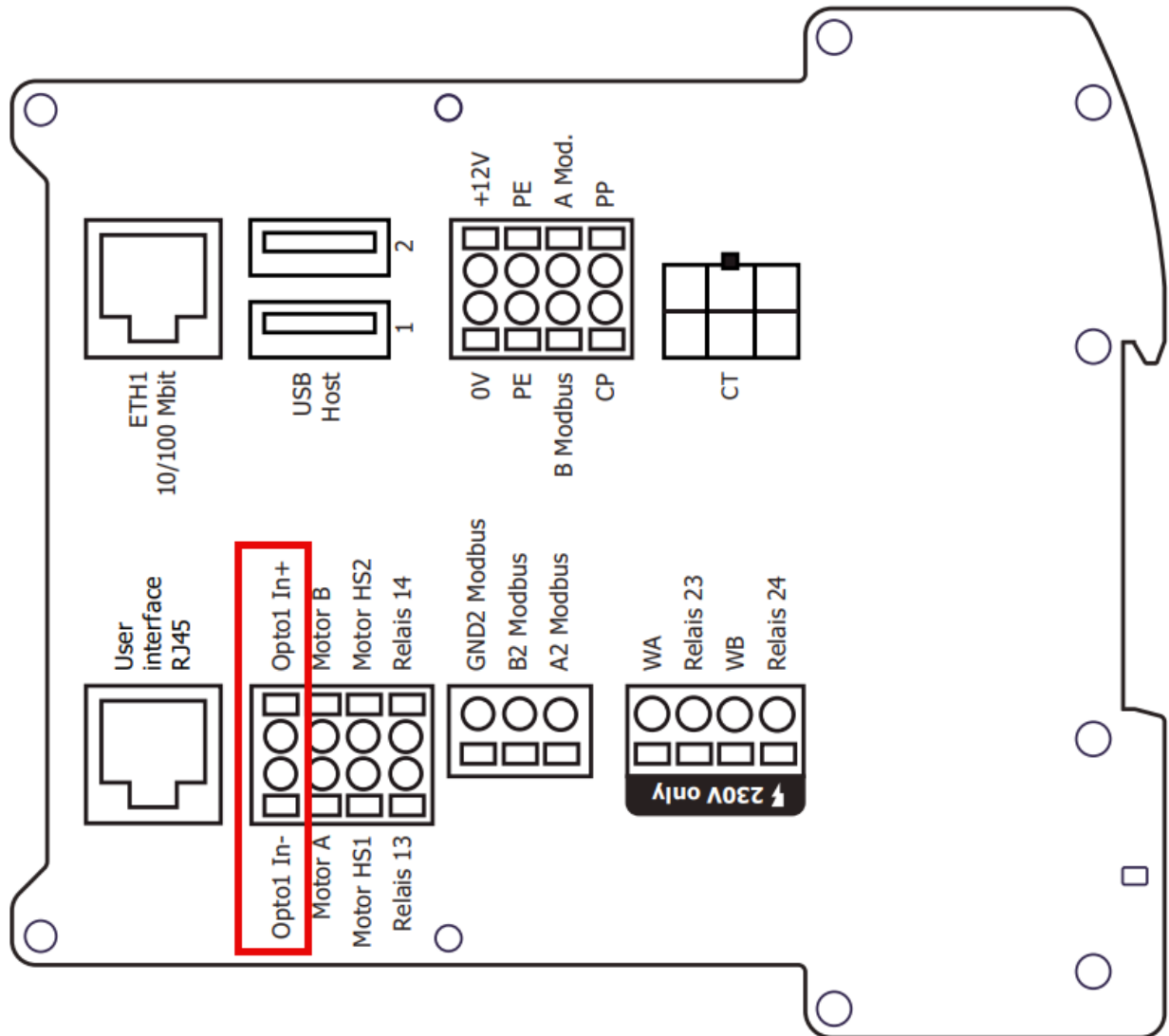
14. Tighten the union nut on the cable gland hand-tight.

15. Close unused enclosure openings and the pressure-equalizing membrane.



7.4 Connection in Accordance With EnWG §14a Requirements

The SMA EV Charger Business is equipped by default with a suitable interface for power reduction via an external control device in accordance with the requirements of EnWG §14a. The charge controller has a configurable, two-channel I/O interface consisting of an optocoupler input and a relay output.



Input	Function	Input voltage	Input current
In-	Opto 1 In: Optocoupler input 12 V negative	DC 11.4 V to 25.2 V	2.3 through 6.4 mA
In+	Opto 1 In+: Optocoupler input 12 V positive		

SMA Solar Technology AG also relies on EEBUS for control by the grid operator with the EV Charger Business. This means that from firmware version 5.33.0, the EV Charger Business will support the two grid use cases LPC (Limitation of Power Consumption) and MPC (Monitoring of Power Consumption) via EEBUS.

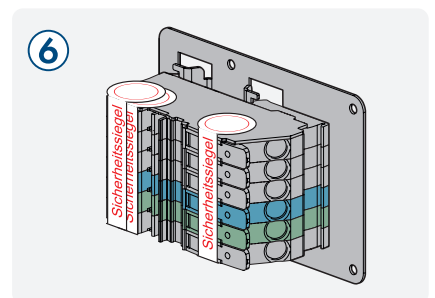
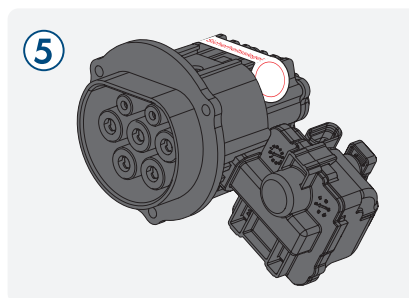
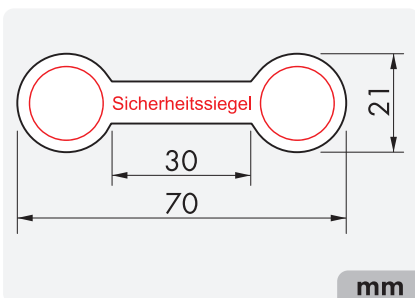
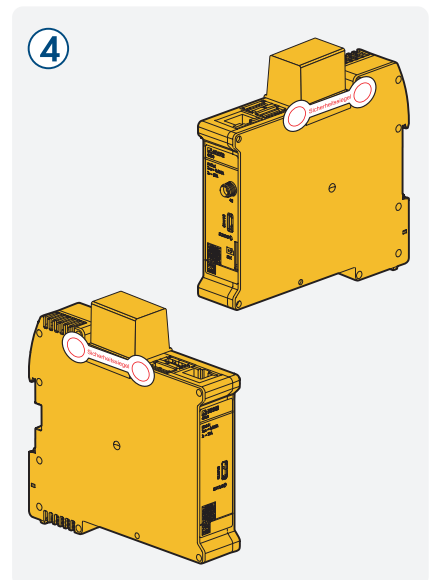
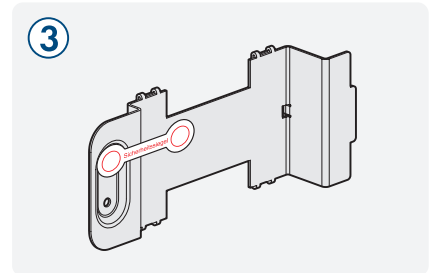
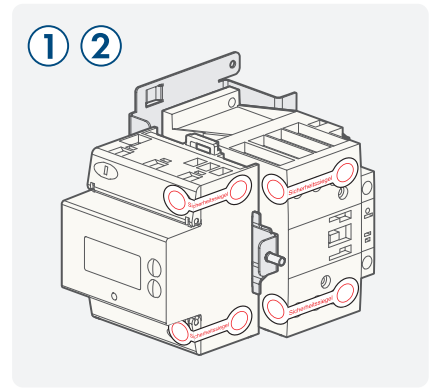
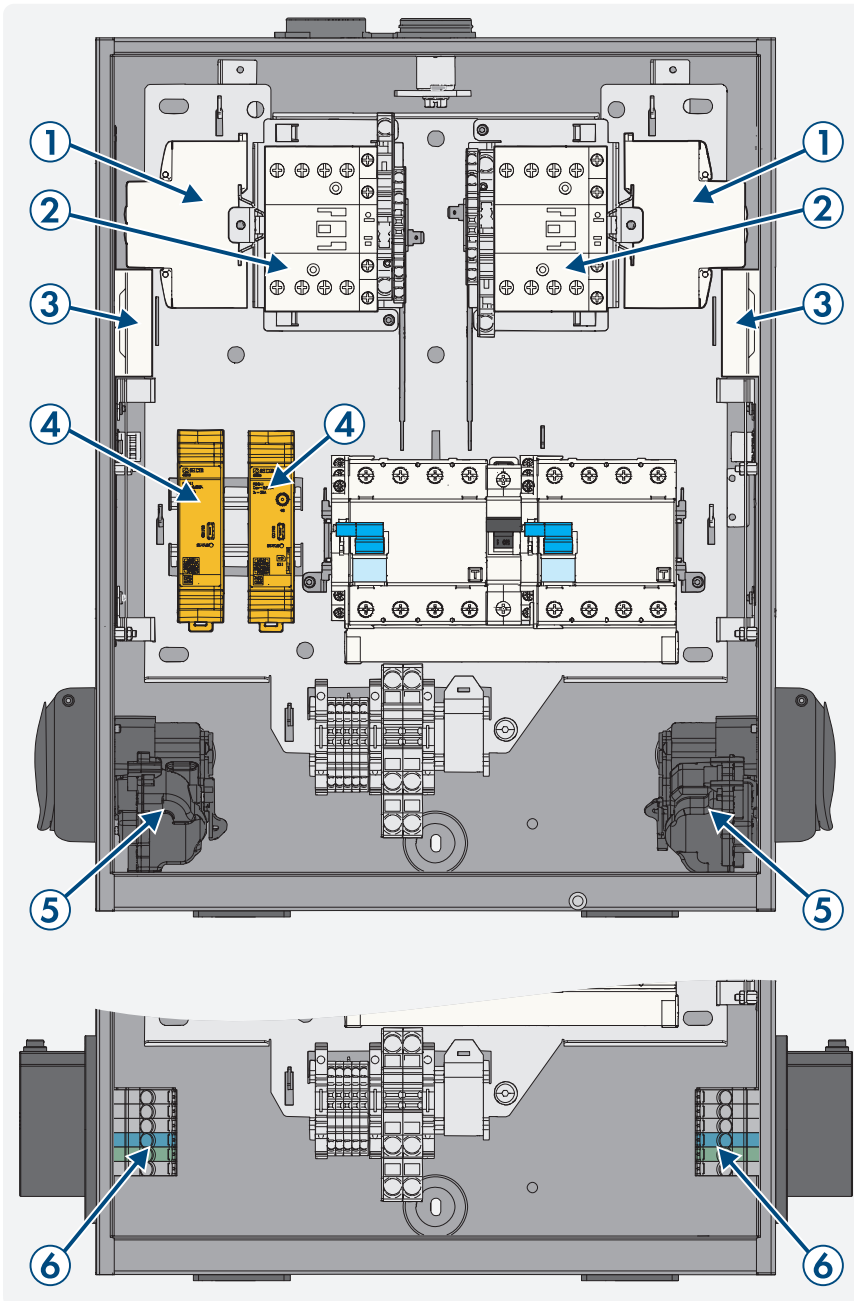
The function has already been successfully tested with the STEUERBOX PROLAN and the FNN Control Box from vivavis. These two solutions in conjunction with the control box require a smart meter gateway to be installed in the system.

8 Commissioning

8.1 Check the

Only applies to the products EVCB-LB-3AC-ECC-10 / EVCB-3AC-ECC-10

The security seal must be checked at the following points in order to ensure that the product is used in compliance with the calibration regulations.



Position	Designation
1	Meter, charge points 1 and 2
2	Power contactor, charge points 1 and 2
3	Charge controller, charge points 1 and 2

Position	Designation
4	QR code with following charge point information: Public key of log book, offset factor and the MID meter used
5	Charging socket
6	Public key of charge point

8.2 Commissioning the Product

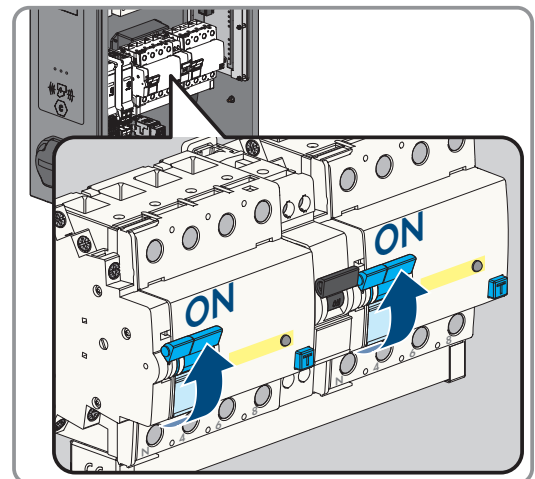
⚠ QUALIFIED PERSON

Requirements:

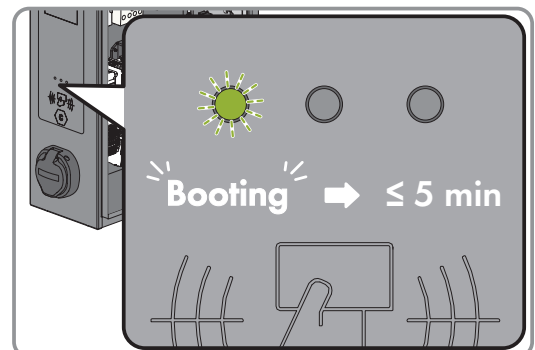
- The AC miniature circuit breaker must be correctly rated and mounted.
- The product must be correctly mounted.
- All cables must be correctly connected.

Procedure:

1. Close unused enclosure opening with filler plugs.
2. Ensure that all cable glands have seal inserts and that the seal inserts have not moved.
3. Switch on the two residual-current devices.

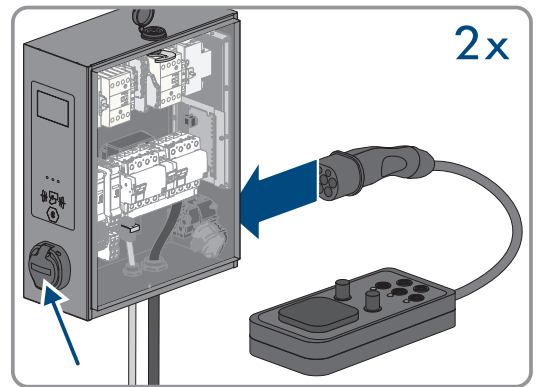


4. Switch on the internal miniature circuit breaker for energy self-sufficiency and the external AC miniature circuit breakers.
5. Wait until the product is ready for operation. The procedure takes approx. 5 minutes.

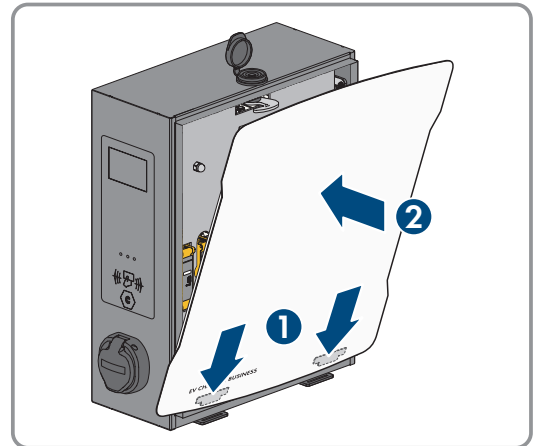


- The LED is glowing green.
6. Secure the safety cover with the 2 nuts.

7. Test the charging station in accordance with IEC 61851 and complete the test report. For an example of a test report, see the product page at www.SMA-Solar.com.



8. Close the enclosure cover.



9. Ensure that the charging station is charging properly.

Also see:

- Event messages ⇒ page 76

9 Operation

9.1 Establishing a connection to the user interface

⚠ QUALIFIED PERSON

9.1.1 Access addresses for the product in the local network

i DHCP Server is recommended

The DHCP server automatically assigns the appropriate network settings to your nodes in the local network. A manual network configuration is therefore not necessary. In a local network, the Internet router is usually the DHCP server. If the IP addresses in the local network are to be assigned dynamically, DHCP must be activated in the Internet router (see the Internet router manual). In order to receive the same IP address by the internet router after a restart, set the MAC address binding.

In networks where no DHCP server is active, proper IP addresses must be assigned from the free address pool of the network segment to all network participants to be integrated during commissioning.

i Communication disturbances in the local network

The IP address range 192.168.12.0 to 192.168.12.255 is occupied for communication amongst SMA products and for direct access to SMA products.

Communication problems might occur if this IP address range is used in the local network.

- Do not use the IP address range 192.168.12.0 to 192.168.12.255 in the local network.

i The product has no Wi-Fi module.

A connection via Wi-Fi is only possible with a Wi-Fi stick.

- SMA Solar Technology AG recommends Ethernet for a stable network connection.

Requirements:

- You have administrator rights on your smart terminal device (e.g. laptop).

If the product is connected to a local network (e.g., via a router or cellular phone), the product will receive a new IP address. Depending on the type of configuration, the new IP address will be assigned automatically by the DHCP server (router) or manually by you.

Information: Upon completion of the configuration, the product can only be reached via the listed access addresses in the local network:

- Generally applicable access address: IP address manually assigned or assigned by the DHCP server (router) (identification via network scanner software or network configuration of the router).
- Access address: **https://[IP address]/login** (e.g. **https://12.345.678.910/login**)
- If this is not possible, a permanent, static second IP address is configured on the Ethernet interface. This IP address is **192.168.124.123**. To do so, you must manually configure your smart terminal device (e.g. laptop) to an IP address in the same address space and with the same subnet mask. For example, the address **192.168.124.100** and the subnet mask **255.255.255.0**.

9.1.2 Establishing a connection via Ethernet or cellular phone in the local network

i Web browser displays warning

After the access address of the product has been entered, a message might appear indicating that the connection to the user interface of the product is not secure.

- Continue loading the user interface (scroll to bottom and click proceed/advance).

Requirements:

- The product must be connected to the local network via a network cable (e.g. via a router).
- The product must be integrated into the local network.
Information: You can change the network configuration on the user interface of the product.
- A smart terminal device (e.g. laptop) must be available.
- The smart terminal device must be in the same local network as the product.
- The respective latest version of one of the following web browsers must be installed on the smart terminal device: Chrome, Edge, Firefox or Safari.

Procedure:

1. Open the web browser of your smart terminal device.
2. Enter the access address of the product in the address bar of the web browser.
 - The login page of the user interface opens if the product has already been configured.
3. Input the login data of the default setting into the login field to log in. SMA Solar Technology AG strongly recommends changing the password to a secure password during the first session Changing the Password.

Login data of default setting:

- User: **operator**
- Password: **service.kraft**

9.1.3 Establishing a connection via USB in the local network

i Web browser displays warning

After the access address of the product has been entered, a message might appear indicating that the connection to the user interface of the product is not secure.

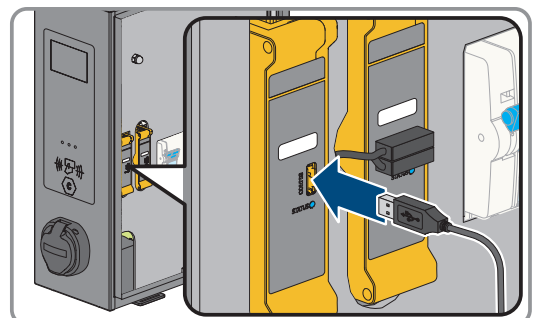
- Continue loading the user interface (scroll to bottom and click proceed/advance).

Requirements:

- The product must be commissioned.
- The cover of the product is open.
- A smart terminal device (e.g. laptop) must be available.
- The respective latest version of one of the following web browsers must be installed on the smart terminal device: Chrome, Edge, Firefox or Safari.
- USB cable Micro USB to USB type A must be present.
- Java Runtime Environment (JRE) \geq version 13 is installed on the PC.

Procedure:

1. Connect the USB cable at the CONIFG terminal with your smart terminal device (e.g. laptop).



- The RNDIS network (remote network driver interface specification) is emulated (Linux and MAC operating system automatically detect this virtual network).

2. For Windows operating systems, the RNDIS/CDC Ethernet-Gadget driver for the RNDIS network adapter must be installed on the smart terminal device (e.g. laptop). Normally, this happens automatically. At the same time, a corresponding field appears at the bottom left of the desktop. It displays the installation progress and confirms its completion.
 - After the driver has been successfully installed, the system recognizes the charging station as a network adapter.
3. Open the web browser of your smart terminal device and enter [**http://192.168.123.123/operator**] in the address bar.
 - The login page of the user interface opens if the product has already been configured.
4. Input the login data of the default setting into the login field to log in. SMA Solar Technology AG strongly recommends changing the password to a secure password during the first session Changing the Password.
5. Then you can change the network configuration on the user interface of the product.

Login data of default setting:

- User: **operator**
- Password: **service.kraft**

9.2 Design of the User Interface

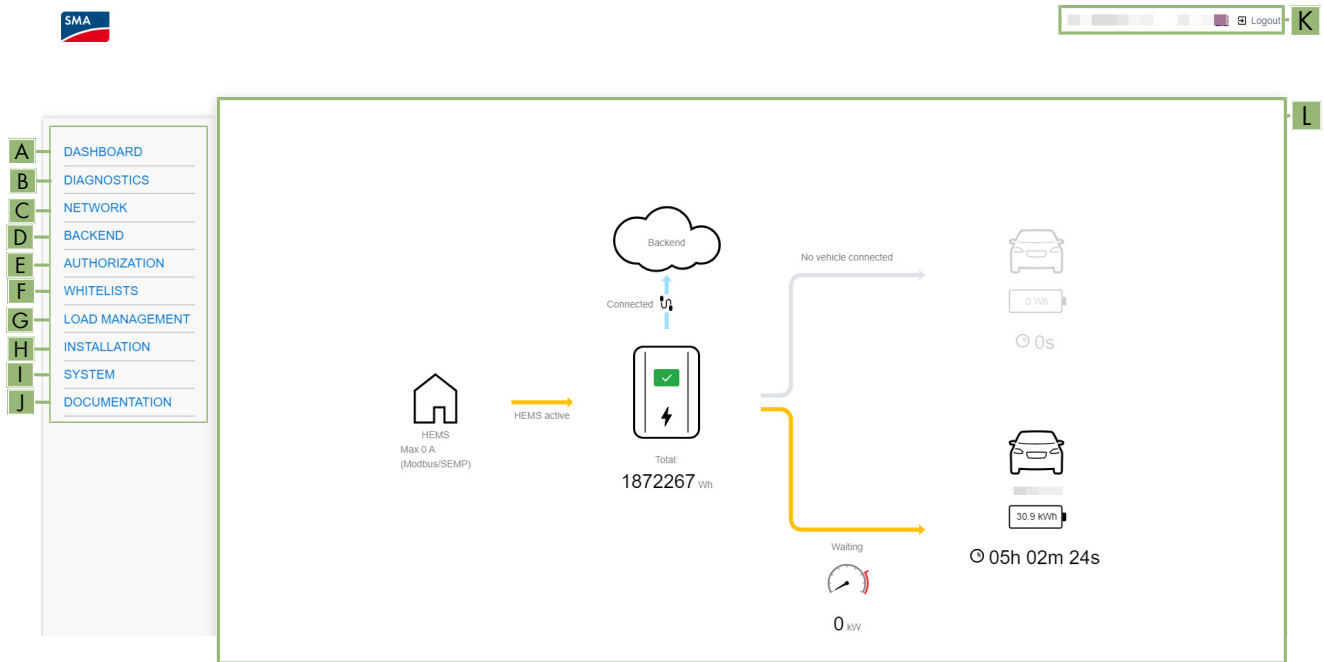


Figure 17: Design of the User Interface

Position	Designation	Description
A	Dashboard	Displays the following information: <ul style="list-style-type: none"> • Full overview of the product condition and status.

Position	Designation	Description
B	Current status	Displays the following information: <ul style="list-style-type: none"> • Protocols • System status • Energy manager • HEMS status • System information • Eichrecht • HMI • DLM status • User protocols
C	Network	Displays the following information: <ul style="list-style-type: none"> • Configuration • GSM • LAN • USB • Wi-Fi
D	Back end	Displays the following information: <ul style="list-style-type: none"> • Connection • OCPP • Other • Energy meter • Gateway for Banner parking sensors • Notifications by mail • HawkBit client
E	Authorization	Displays the following information: <ul style="list-style-type: none"> • Free charging • Overview • RFID settings • RFID whitelist • Giro-e • HLC 15118
F	Whitelists	Displays the following information: <ul style="list-style-type: none"> • Local whitelist • OCPP whitelist

Position	Designation	Description
G	Load control	Displays the following information: <ul style="list-style-type: none"> • Local • Modbus interface • SEMP interface (SMA Sunny Home Manager) • EEBus interface • Dynamic load management • Hierarchical dynamic load management • ASKI via OCPP-S
H	Installation	Displays the following information: <ul style="list-style-type: none"> • General installation • Safety & protection • TCR • Usage meter
I	System	Displays the following information: <ul style="list-style-type: none"> • Overview • USB safety • HTTPS • Password • Geographical coordinates • Maintenance of the system • Firmware update • Certificate Handling
J	Documentation	Displays the following information: <ul style="list-style-type: none"> • Errors • OCPP Keys • OCPP Keys Mapping • OCPP REST • Modbus Slave Registers • Logging Components
K	Settings	Provides the following functions: <ul style="list-style-type: none"> • Date and time • Changing the Language • Logout
L	System information	Displays the following information: <ul style="list-style-type: none"> • Device information • Connections

9.3 User Roles and User Rights

An operator is created during registration. As an operator you can assign passwords for a user and an installer.

There are the following user roles with different user rights:

- User
- Installer
- Operator

9.4 Updating Firmware with Update File via the User Interface

QUALIFIED PERSON

Requirements:

- An update file with the desired firmware of the product must be available. You can download the update file, for example, from the product page under www.SMA-Solar.com.
- You are logged in on the user interface as **Installer**.

Procedure:

1. Select **System** menu.
2. Select [**Firmware update**].
3. Click on [**Select file**] and select the update file for the product.
4. Click on **Upload & Install**.
5. Follow the instructions in the dialog.
6. Call up the user interface and check whether the current firmware version is displayed in the top right-hand corner.

9.5 Setting Network

You can choose between different modes for the network settings, which are described below:

Mode	Function
Automatic (DHCP client)	The IP address is automatically assigned to the charging point by the DHCP server in the network
Static	The IP address of the charging point must be assigned statically
DHCP server	<p>The charging point assigns an IP address to other DHCP client charging points in the network (assignment takes place gradually in a range between 172.16.23.100 - 172.16.23.254; net mask 255.255.255.0;).</p> <p>The DHCP server's own IP address is 172.16.23.1 (=standard gateway=DNS). Any statically configured IP addresses that may be required must be outside this range.</p> <p>If the DHCP client charging points are to communicate in the network via the SIM card of the DHCP server charging point to the backend, the WAN router setting must be enabled.</p>

IP addresses of Modbus devices

In systems with Modbus devices, static IP addresses must be assigned to all Modbus devices. Suitable IP addresses can be assigned to the Modbus devices from the free address supply of the network segment either manually or dynamically via DHCP.

If the IP addresses are to be assigned dynamically, DHCP must be activated in the router (see the router manual). Make sure that the Modbus devices do not contain variable IP addresses but always the same IP addresses (static DHCP).

This also applies to Data Managers that are used as subordinate devices.

If IP addresses of Modbus devices have been changed, all devices must be restarted.

9.5.1 Setting the network via Ethernet

i The settings of the network address must be coordinated with the responsible IT administration.

Requirements:

- The user interface must be open and you must be logged in.

Procedure:

1. In the navigation area, select **[Network]**.
2. Under **[LAN] > Mode for Ethernet configuration**, different modes can be selected.
3. Make sure that all charging stations share the same network and have the same firmware version.
4. Make sure that each charging station has its own IP address. An IP address must not be assigned more than once.
5. Click on **[Save]** to save the changes and **[Restart]**.

9.5.2 Setting the Network Via Cellular Phone

Requirements:

- The user interface must be open and you must be logged in.

Procedure:

1. In the navigation area, select **[Network]**.
2. Under **[GSM] > Access point name (APN)** make sure that the value **[m2m.services]** is entered.
3. Under **Network provider selection through modem** make sure that **[Auto]** is selected.
4. Under **Mobile phone technology** make sure that **[Auto]** is selected.
5. Click on **[Save]** to save the changes and **[Restart]**.

9.6 Setting the charging current

Requirements:

- The user interface must be open and you must be logged in.

Procedure:

1. In the navigation area, select **[Load management]**.
2. Under **[Local] > Operator Current Limit [A]**, set the charging current to be provided for the respective charging point.
3. Under **[Local] > Operator Current Limit [A] (Connector 2)**, set the charging current to be provided for the respective charging point.
4. Click on **[Save]** to save the changes and **[Restart]**.

9.7 Setting the current limit

Requirements:

- The user interface must be open and you must be logged in.

Procedure:

1. In the navigation area, select **[Installation]**.
2. Under **[General installation] > Ampacity of the supply line [A]** and **Installation current limit [A] (Connector 2)** set the current limit.

3. Make sure that the maximum electrical current is not higher than the rated current for the charging point, depending on the AC wiring and the miniature circuit breaker.
4. Under **Number of phases connected to the charging point** and **Number of phases connected to the charging point (Connector 2)** set whether the charging point is connected as a single-phase or three-phase connection. To do so, select **[Single-phase system]** or **[Three-phase system]**.
5. Click on **[Save]** to save the changes and **[Restart]**.

9.8 Setting Power Reduction in Accordance With the Requirements of EnWG §14a

Requirements:

- The user interface must be open and you must be logged in.

Procedure:

1. In the navigation area, select **[Load management]**.
2. Under **[DLM External measurement and control] > Status of external input 1**, change the value to **['Use Opto 1 In']**.
 - The parameters **Polarity of external input 1** and **Current offset (L1/L2/L3) [A] of external input 1** become visible.
3. Select **[High-active]** under **Polarity of external input 1**.
4. Under **Current offset (L1/L2/L3) [A] of external input 1**, ensure that all values are set to **[0]**.
5. Click on **[Save]** to save the changes and **[Restart]**.

9.9 Setting the phases and phase position

Normally, charging points are designed as single-phase or three-phase. A vehicle can be charged via line conductor L1 (single-phase), line conductors L1 and L2 (two-phase) or line conductors L1, L2 and L3 (three-phase). The phase position to each other is always 120°.

To enable load management to optimally distribute the charging current and avoid an unbalanced load, the phase position or phase rotation information must be set for each charging point. To improve the distribution of single- or two-phase loads from the point of view of unbalanced load limitation, the phases are rotated in the sub-distribution.

Example:

Charging point 1		Charging point 2		Charging point 3	
Charging point	Grid	Charging point	Grid	Charging point	Grid
L1	L1	L1	L2	L1	L3
L2	L2	L2	L3	L2	L1
L3	L3	L3	L1	L3	L2

Requirements:

- The user interface must be open and you must be logged in.

Procedure:

1. In the navigation area, select **[Installation]**.
2. Under **[General installation] > Phase rotation of the charging point** and **Phase rotation of the charging point (Connector 2)** set the number of phases and the phase position.

3. Make sure that the number of phases and the phase position of the charging station are correctly set before charging for the first time.
4. Click on **[Save]** to save the changes and **[Restart]**.

9.10 Enabling HTTPS

i Web browser displays warning

After the access address of the product has been entered, a message might appear indicating that the connection to the user interface of the product is not secure.

- Continue loading the user interface (scroll to bottom and click proceed/advance).

Requirements:

- The user interface must be open and you must be logged in.

Procedure:

1. In the navigation area, select **[System]**.
2. Select **[On]** under **[HTTPS] > Use HTTPS**.
3. Click on **[Save]** to save the changes and **[Restart]**.

9.11 Setting up the backend

9.11.1 Setting up the backend via Ethernet

Each charging point is connected to a router via LAN/Ethernet and through it, to the backend.

Requirements:

- The charging point is connected to the local network.
- The network is configured (see Section 9.5.1, page 54).
- The user interface must be open and you must be logged in.

Procedure:

1. In the navigation area, select **[Backend]**.
2. Under **[Connection] > Connection type** select **[Ethernet]**.
3. Under **[OCPP] > OCPP ChargeBoxIdentity (ChargePointID)**, check the ChargePointID (**DE*342*EXXXXXXXX**).
4. Under **[OCPP mode]** select the value **[OCPP-J 1.6]**.
5. Under **WebSockets JSON OCPP URL of the backend** enter the value **[ws://ocpp.e-flux.nl/1.6/sma]**.
6. Click on **[Save]** to save the changes and **[Restart]**.
 - In the dashboard overview, the connection status to the backend is displayed.
7. You can sign up as a new user in the SMA eMobility Portal and manage the charging station (see Section 9.11.3, page 57).
8. If you already have an account in the SMA eMobility Portal, log in to the eMobility Portal to manage the charging station (see Section 9.11.4, page 57).

9.11.2 Setting up the backend for cellular phone

Each charging point is connected to the backend via the cellular phone network (4G LTE).

Requirements:

- The charging point is connected to the local network.
- The network is configured (see Section 9.5.2, page 54).

- The SIM card from the backend operator or cellular phone provider is present and activated.
- Insert the SIM card into the SIM slot of the charge controller (see Section 7.1.2, page 36).
- The user interface must be open and you must be logged in.

Procedure:

1. In the navigation area, select **[Backend]**.
2. Under **[Connection] > Connection type** select **[GSM]**.
3. Under **[OCPP] > OCPP ChargeBoxIdentity (ChargePointID)**, check the ChargePointID (**DE*342*XXXXXXXX**).
4. Under **[OCPP mode]** select the value **[OCPP-J 1.6]**.
5. Under **[WebSockets JSON OCPP URL of the backend]** enter the value **[ws://ocpp.e-flux.nl/1.6/sma]**.
6. Click on **[Save]** to save the changes and **[Restart]**.
 - In the dashboard overview, the connection status to the backend is displayed.
7. You can sign up as a new user in the SMA eMobility Portal and manage the charging station (see Section 9.11.3, page 57).
8. If you already have an account in the SMA eMobility Portal, log in to the eMobility Portal to manage the charging station (see Section 9.11.4, page 57).

9.11.3 Register as a new user in the eMobility Portal

i You cannot log in with an existing Sunny Portal or Sunny Design user account.

You have two options for creating a user account in the eMobility portal. A user account can be assigned to several charging stations.

- Via the home page of the eMobility Portal under **[Registration]**. Upon successful registration, you will be authorized as an **Account Admin** User Roles and User Rights.
- Via the web form (as described below).

Requirements:

- A smart end device (e.g. laptop or tablet PC) must be available.
- An active Internet connection must be established.

Procedure:

1. Call up the product page of the SMA Commercial eMobility Solution in the web browser at www.SMA-Solar.com.
2. Fill out the web form and send it to **onboarding-emobility@sma.de**.
 - After activation by SMA Service, you will receive confirmation by e-mail within 48 to 72 hours.
3. If you have not received an e-mail from eMobility Portal, check whether the e-mail has been redirected to a folder for junk mail or whether an incorrect e-mail address has been entered.
4. Follow the confirmation link in the e-mail within 48 hours.
 - eMobility Portal opens a separate window to confirm successful registration.
5. Call up the Internet address www.emobility.sma.de in the web browser.
6. Enter the e-mail address and the eMobility Portal password in the fields **User** and **Password**.
7. Select **[Log in]**.

9.11.4 Log in to eMobility Portal as an existing user

i You cannot log in with an existing Sunny Portal, Sunny Design or Sunny Places user account.

i **Forgot password**

To reset your password, click **Forgot password** on the login screen. After providing your registered e-mail address, you will receive a link to reset your password.

Requirements:

- You must have access to a user account in the eMobility Portal.
- An active Internet connection must be established.

Procedure:

1. Call up the Internet address www.emobility.sma.de in the web browser.
2. Enter the e-mail address and the eMobility Portal password in the fields **User** and **Password**.
3. **Select [Log in]**.

9.12 Dynamic load management

9.12.1 Basic Information

Dynamic load management (DLM) adapts the charging currents to the available electricity and is designed as local load management. Charging points are connected via a network connection and can be configured via the user interface.

Technical Requirements

The house connection, supply line or sub-distribution can determine the upper limit of the charging current. Dynamic load management enables the distribution of reserves of unused charging points to other charging points.

Operating modes

- **Load management without external measurement:** Fixed upper limit of the electricity to be distributed.
- **Load management with external measurement:** Dynamic adjustment of electricity based on total consumption.

Phase-individual load management

Takes into account whether a vehicle is charging single-phase or three-phase in order to distribute the load optimally.

Avoids asymmetric loads

Prevents uneven loading of the phases to meet grid requirements.

Load management operating modes

The load management system has various operating modes and options for optimizing the load on the basis of availability and consumption. Depending on how a system is structured, alongside the charging points there are sometimes loads that cannot be controlled (e.g., loads in a property or building/commercial establishment) and of course have an influence on the total amount of available current.

For this reason, the most common configurations are:

- Load management without additional loads (and therefore without external measurement)
- Load management with additional, partially unknown loads and external measurement

Both cases are there to distribute charging current optimally and to avoid overstepping a definable load limit in order to prevent overload.

i Observe the minimum charge current

Certain vehicles only start charging when a certain amount of energy is available. The value is 1.38 kW for single-phase systems and 4.14 kW for three-phase systems. The minimum available charging power must be available for the vehicle to start charging. If not, the vehicle may “fall asleep”, i.e. even if more charging power is then available again, the vehicle will not start charging. In most cases, the charging process must then be stopped and restarted on the vehicle.

Connection example of load management without external power measurement

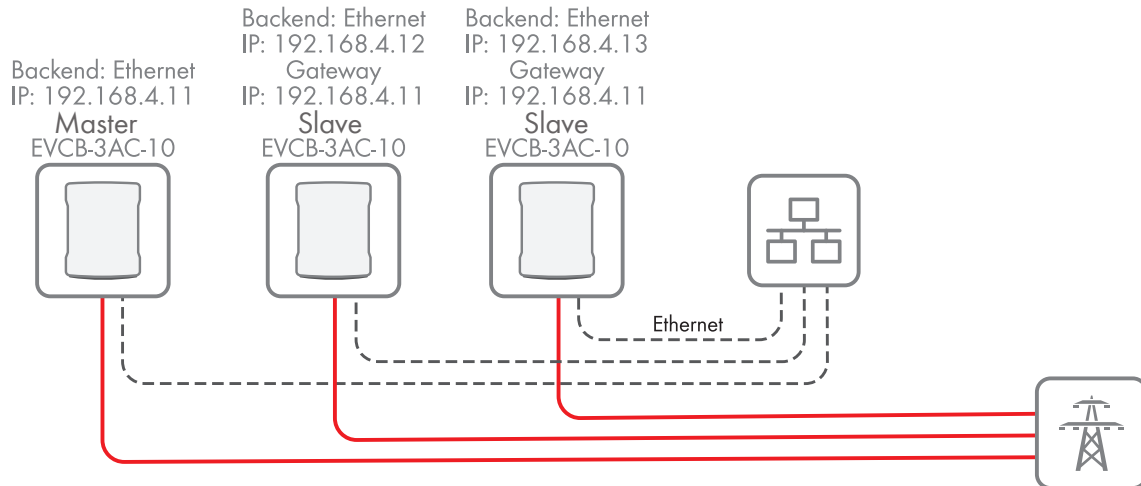


Figure 18: Connection example of 3 charging stations without external power measurement

Connection example of load management with external power measurement

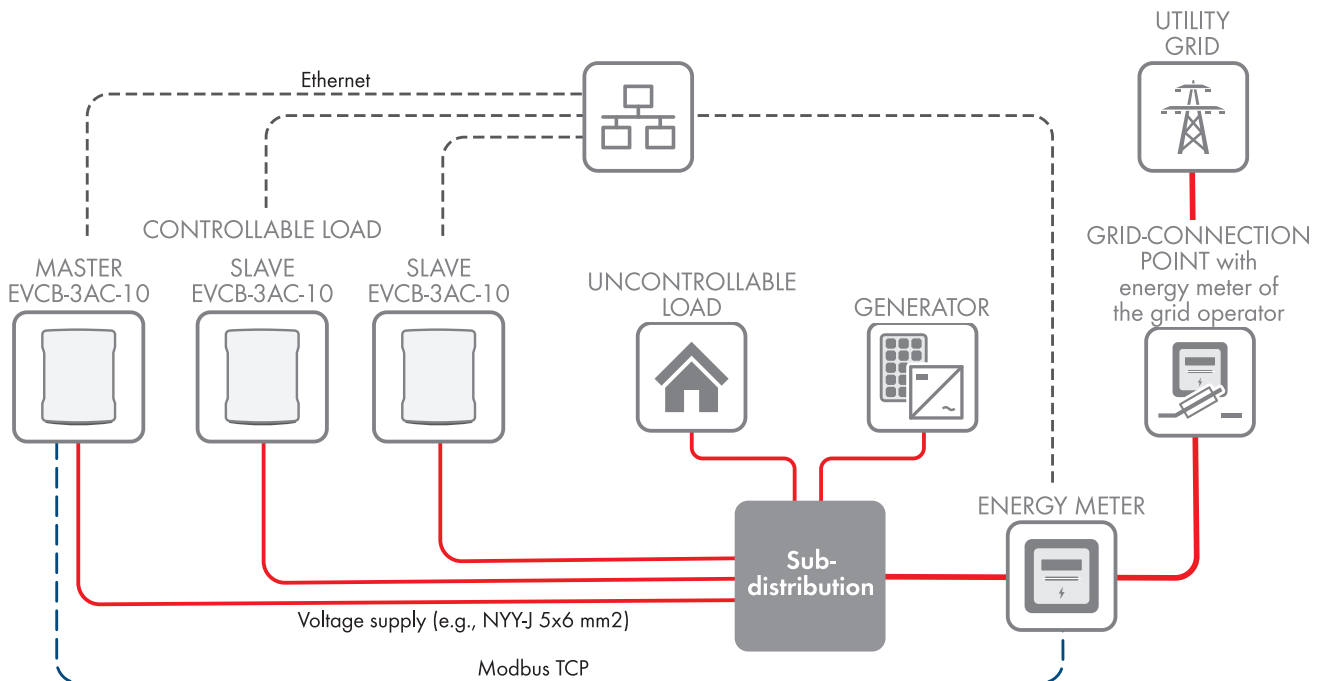


Figure 19: Connection example of 3 charging stations with external power measurement

9.12.2 Setting load management without external meters

Requirements:

- The user interface must be open and you must be logged in.

Procedure:

1. In the navigation area, select **[Load management]**.
2. Under **[Dynamic load management] > Dynamic load management - DLM Master/Slave** select **[DLM Master (with internal DLM slave)]**.
3. Under **Support for external meters** select **[Off]**.
4. Set the available current on the mains connection under **Current limit of the mains connection (L1/L2/L3) [A]**.
5. Set the safety distance to the maximum value under **Safety margin for external load (L1/L2/L3) [A]**.
6. Set the assumed load in case of failure under **Fallback value of the external load (L1/L2/L3) [A]**. If the value **9999** is input, all charging points will be switched off in case of failure.
7. Set the type of dynamic load management under **Topology of the external meter**.
8. Click on **[Save]** to save the changes and **[Restart]**.

9.12.3 Setting load management with an external meter

For external metering, the following meters can be used via Modbus TCP:

Manufacturer	Model	Information
SMA	SMA COM-EMETER-A-20 / SMA COM-EMETER-B-20	Select TQ EM300-LR / EM410 or EM420
Janitza	UMG 512/96 PRO	Port 502
Janitza	UMG 604 PRO	Port 502, as of firmware 5.32, Modbus TCP can also be used for EDMM-10
Janitza	UMG 605 PRO	Port 502
Phoenix Contact	EEM-MB371/MB370	Port 502
Siemens	7KM2200	Port 502, Modbus TCP can also be used for EDMM-10
TQ	EM300-LR	Port 502
TQ	EM410 / EM420	Port 502

Requirements:

- The user interface must be open and you must be logged in.

Procedure:

1. In the navigation area, select **[Load management]**.
2. Under **[Dynamic load management] > Dynamic load management - DLM Master/Slave** select **[DLM Master (with internal DLM slave)]**.
Information: The main device (DLM master) may only be configured once. All other charging stations must be configured as a subordinate device (DLM slave)(see Section 9.12.4, page 61).
3. Under **Support for external meters** select **[On]**.
4. Set the available current on the mains connection under **Current limit of the mains connection (L1/L2/L3) [A]**.
5. Set the safety distance to the maximum value under **Safety margin for external load (L1/L2/L3) [A]**.

6. Set the assumed load in case of failure under **Fallback value of the external load (L1/L2/L3) [A]**. If the value **9999** is input, all charging points will be switched off in case of failure.
7. Set the type of dynamic load management under **Topology of the external meter**.
8. Under **Meter configuration (external meter)**, select the meter for the external measurement.
9. Under **IP address of the external meter**, set the IP address of the energy meter.
10. Under **Port number of the external meter**, set the port number.
11. Click on **[Save]** to save the changes and **[Restart]**.
 - Under **[Current status] > [Energy manager] > [External meter]** the external meter can be checked.

9.12.4 Setting the Subordinate Device (Slave) for Load Management

Requirements:

- The user interface must be open and you must be logged in.

Procedure:

1. In the navigation area, select **[Load management]**.
2. Under **[Dynamic load management] > Dynamic load management - DLM Master/Slave**, select the value **[DLM-Slave (Master-Auto-Discovery)]** if you are using dynamic IP addresses, or **[DLM-Slave (Master-Fixed-IP)]** if you are using fixed IP addresses.
3. To establish a connection between the main device (master) and the subordinate device (slave), the devices must have an identical network ID. Enter the value under **DLM network ID**.
4. If you are using fixed IP addresses, enter the IP address and port of the main device (master) under **IP address and port of the DLM master**.
5. Under **Minimum current limit value [A]**, enter the value that must not be undercut so that the vehicle can be charged (depending on the vehicle type).
6. Under **Current limitation [A] in case of connection failure**, enter the value that should continue to be available to charge the vehicle in the event of a connection failure between the higher-level device (master) and lower-level device (slave).
7. Click on **[Save]** to save the changes and **[Restart]**.

9.12.5 Prioritizing Subordinate Devices (Slave)

Requirements:

- The user interface of the main device (**DLM master**) must be open and you must be logged in.

Procedure:

1. In the navigation area, select **[Load management]**.
2. Under **Slave prioritization**, you have the option of upgrading or downgrading individual charging points in dynamic load management.
3. Click on **[Save]** to save the changes and **[Restart]**.

9.12.6 Setting the Solar Charging Mode

You can choose between three different charging modes:

Charging mode	Function
DLM standard	All subordinate charging points (slaves) are charged with the maximum available current.

Charging mode	Function
Surplus PV energy	The vehicle is charged when there is enough excess power to charge with the specified minimum current. Vehicles then charge largely without energy from the grid.
Surplus PV energy + Grid-supplied power	If there is little PV energy available, a fixed amount of electricity is drawn from the grid. The vehicle can then be charged mainly with self-generated energy.

If you use an external meter, you can specify the connection point of the external meter under **Load management > DLM External measurement and control > Installation site of the external meter**.

Topology	Definition
Utility grid	Meter is installed at the point of interconnection
External load	Meter is installed on an external load
Renewable energy	Meter is installed on a PV system

Requirements:

- The user interface of the main device (**DLM master**) must be open and you must be logged in.

Procedure:

- In the navigation area, select **[Load management]**.
- You can select one of the three charging modes under **DLM Solar charging**.
Information: If the **Surplus PV energy + grid-supplied power** charging mode is selected, the **Maximum extra current due to grid supply [A]** must be entered to support the PV surplus power. If the two charging points of the charging station are to charge simultaneously at three-phase with 6 A even without surplus PV energy, the value **36 A** must be entered.
- Under **Use solar mode on this charging station**, select whether the charging station should work in the selected solar mode.
- Click on **[Save]** to save the changes and **[Restart]**.

9.12.7 Setting Time-Based Charging

If you activate time-based charging, dynamic load management will not exceed the limit value configured in the schedules. Each entry specifies the maximum permitted current for each phase from the time entered. Each entry is valid until it is replaced by another suitable entry.

Information: All time information uses the UTC time zone.

Example: In the first entry, enter hour 5. Enter 10 A for each of L1, L2 and L3. Then add another entry. Enter 10 under hour. Enter 20 A for each of L1, L2 and L3. In the example, the two entries would use 10 A as the maximum value from 5:00 a.m. UTC to 9:59:59 a.m. UTC. At 10:00 UTC, the maximum would be set to 20 A and would be valid until 4:59:59 UTC the next day.

Requirements:

- The user interface must be open and you must be logged in.

Procedure:

- In the navigation area, select **[Load management]**.
- Under **DLM Charging current schedule > Schedule for maximum charging current**, change the value to **[On]**.
 A section opens below to add entries.
- Select **[Add entry]** and enter values.
- Click on **[Save]** to save the changes and **[Restart]**.

9.13 RFID Administration

9.13.1 Teaching Additional RFID Cards

The SMA EV Charger Business supports all Mifare variants currently available in the market. SMA Solar Technology AG recommends using cards in the Mifare DESFire series: for example, EV1 or EV3.

Local Whitelist

The Local Whitelist is a backend-independent list that is only saved on the charge controller. The UIDs on the list are always authorized to charge. They do not require a query to the backend.

OCPP Whitelist

The OCPP Whitelist is a local buffer of the backend on the charging point. All the RFIDs from charging card that have been approved by the backend are regularly transferred to the charging point here.

This ensures that a charging process can also be authorized if the charging point has not established a connection to the backend. In addition, this helps to speed up the authorization.

If this option is disabled, a query is always sent to the backend for every query to the charging point (i.e., always when an RFID is presented to the RFID reader). The charging process is not authorized until the query is accepted.

i **Disable the OCPP Whitelist if you do not have a backend connection.**

Requirements:

- The user interface must be open and you must be logged in.

Procedure:

1. In the navigation area, select **[Authorization]**.
2. Under **[RFID whitelists]** > **Enable local whitelist** select **[On]**.
3. If there is a backend connection, under **Enable OCPP whitelist** select **[On]**.
4. In the navigation area, select **[Whitelists]**.
5. Under **[Local whitelist]** > **[Add entry]** you can add individual RFID cards.
 - The **[Add entry]** window opens.
6. When the LED of the RFID card reader glows green, hold the RFID card up to the **right** card reader (card icon) Product Description.
 - The LED of the RFID card reader glows blue. The RFID card has been imported. In the **[Add entry]** window, the relevant RFID number has been input.
7. Select **[Add entry]** to confirm the RFID number.
8. Repeat the process for additional RFID cards.
9. Click on **[Save]** to save the changes and **[Restart]**.

9.13.2 Enable the charging process in case of backend failure

Procedure:

1. In the navigation area, select **[Authorization]**.
2. Under **[RFID whitelists]** > **Local preauthorization** select **[Off]**.
3. Under **Local offline authorization** select **[On]**.
4. Click on **[Save]** to save the changes and **[Restart]**.

9.13.3 Enable Free Charging

With this function, basically anyone can charge at a charging point. The user group is not limited. Charging is free.

Requirements:

- The user interface must be open and you must be logged in.

Procedure:

1. In the navigation area, select **[Authorization]**.
2. Under **[Free charging]** > **Free charging** select **[On]**.
3. Under **'Free charging' mode** select **[With OCPP status notifications with authentication]**.
4. Click on **[Save]** to save the changes and **[Restart]**.

9.14 Changing the Password

i Never lose this password, as you cannot access the user interface of the charging station without it.

Procedure:

1. In the navigation area, select **[System]**.
2. Under **[Password]** you have the option of changing the **User password**, **Installer password** or the **Operator password**.
 - The respective window opens.
3. Change the password.
4. Click on **[Save]**.
 - The password has been changed.
5. Input the access data on the provided configuration sheet of the charging station.

9.15 Connecting to the System Manager

- You are registered in Sunny Portal.
- The product must be in operation and connected to the Data Manager.
- The SMA Data Manager M has firmware version ≥ 1.15

Procedure:

1. Log into the user interface of the EV Charger Business.
2. In the navigation area, select **[Load management]**.
3. Under **[Modbus interface]** > **Modbus TCP Server for energy management systems** select **[On]**. Ensure that **Port 502** is selected.
4. Under **Modbus TCP Server register set** > select **[Open Modbus Charge Control Interface (OMCCI)]**.

Delete all Smart Charging profiles Delete all		
Modbus interface		
Modbus TCP Server for energy management systems	<input type="checkbox"/>	On
Modbus TCP Server Base Port	<input type="checkbox"/>	502
Modbus TCP Server Register Address Set	<input type="checkbox"/>	Open Modbus Charge Control Interface (OMCCI)
Modbus TCP Server Allow Start/Stop Transaction	<input type="checkbox"/>	Off
Modbus TCP Server Allow UID Disclose	<input type="checkbox"/>	Off
SEMP interface (SMA Sunny Home Manager)		
SEMP interface	<input type="checkbox"/>	On
Charging Mode	<input type="checkbox"/>	Surplus charging
Current in case of connection failure [A]	<input type="checkbox"/>	6
Time to connection failure [s]	<input type="checkbox"/>	600
Maximum energy demand [kWh]	<input type="checkbox"/>	50
FFRus		

5. Click on **[Save]** to save the changes and **[Restart]**.

6. Log into the user interface of the System Manager.
7. Select the menu item **Device administration** in the **Configuration** menu.
8. Select the **+** button.
9. Select **Modbus devices** and confirm with **[Next]**.

SMA DATA MANAGER M

SMA eMobility Select Device

Dashboard Monitoring Configuration

1. STEP 2. STEP 3. STEP

Modbus devices ⓘ

Here you can search Modbus devices according to certain criteria and add them to your system.

Interface*
Ethernet Modbus TCP

Managing Modbus profiles

Port*
[502-503]

Device name*
Modbus

Cancel Previous Continue

10. Select **SMA EV Charger Business** under Modbus profile.

SMA DATA MANAGER M

SMA eMobility Select Device

Dashboard Monitoring Configuration

1. STEP 2. STEP 3. STEP

Modbus devices ⓘ

Here you can search Modbus devices according to certain criteria and add them to your system.

Interface*
Ethernet Modbus TCP

Modbus profile*
SMA EV Charger Business

Managing Modbus profiles

IP address*
[1-254]

Unit ID*
1

Port*
[502-503]

Device name*
EV Charger

Cancel Previous Continue

11. Under **Port** enter **[502-503]**, specify the device name and confirm with **[Next]**.

The two charging points of the charging station are displayed.

The screenshot shows the 'Select Device' step in the SMA DATA MANAGER M interface. The interface is in '2. STEP' and displays a table of detected devices. The table has columns for 'Product', 'Manufacturer', 'Serial number', and 'Device name'. Two devices are selected, and their serial numbers and device names are highlighted with red boxes. The device names are 'EV Charger-1-R' and 'EV Charger-1-L'. The interface also shows a progress bar at the top with '1. STEP', '2. STEP', and '3. STEP' labels. A sidebar on the left contains navigation options: Dashboard, Monitoring, and Configuration. At the bottom, there are 'Cancel', 'Previous', and 'Save' buttons.

Product	Manufacturer	Serial number	Device name
<input checked="" type="checkbox"/>	SMA EV Charger		
<input checked="" type="checkbox"/>	Business	[Redacted]	EV Charger-1-R
<input checked="" type="checkbox"/>	SMA EV Charger	[Redacted]	EV Charger-1-L

You have added 3 out of 50 devices to the system.

12. Enter the serial number (see type label or home page of the user interface) of the product. Make sure that the serial number is identical to the one on the type label. **Port 503** is always the left charging point. **Port 502** is always the right charging point. Label them with **"L"** and **"R"** to easier identify the charging points. Specify the device name and then confirm with **[Save]**.

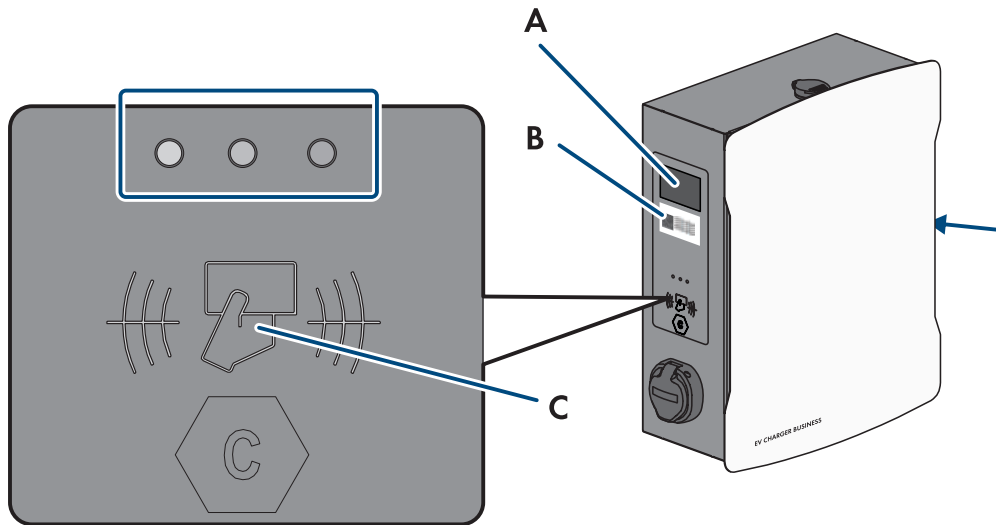
The screenshot displays the SMA DATA MANAGER M interface for an EV Charger-1-L. The interface includes a navigation menu on the left with options for Dashboard, Monitoring, and Configuration. The main content area is titled "Dashboard EV Charger-1-L" and is divided into several sections:

- INFORMATION:** Displays "SMA EV Charger Business" with a charging icon and a "Serial number" field.
- STATUS:** Shows "Device state" with a green checkmark icon.
- CHARGING STATION:** Features icons for a charging station and a car, both with green checkmarks. Below these icons, it reads "EV Charger-1-L" and "Active charging process". At the bottom of this section, it displays "2,473 W" and "384 Wh €" with the label "Current charging process".
- ENERGY AND POWER - CHARGING STATION:** Contains a gauge showing power levels from 0 W to 3,000 W. The gauge needle is positioned at approximately 2,473 W. To the right of the gauge, it states "No data available" for both "Today" and "Current month".

The charging station with the two charging points is displayed in the device management menu.

9.16 Starting and Ending the Charging Process

9.16.1 Overview of Display and Control Elements



Position	Description
A	<p>Viewing area for the meter (with red status LED)</p> <p>Charging process:</p> <ul style="list-style-type: none"> • Display start • Display date • Time • Rep • Charging time (date alternates with charging time) • Display stop <p>After charging process:</p> <ul style="list-style-type: none"> • Display date • Time • Rep (last charging process) • Charging time (last charging process)
B	<p>Public key (only for EVCB-LB-3AC-ECC-10 and EVCB-3AC-ECC-10)</p> <ul style="list-style-type: none"> • QR code public key ("public key") • Public key
C	<p>Viewing area for charge controller with status indicator (LEDs) and reading field for RFID authorization</p>

9.16.2 Starting the Charging Process

i An LED indicator that is rapidly flashing at the selected charge point (green, yellow and blue) indicates that a disturbance is present.

It is not possible to charge at this charge point.

- Troubleshooting (see Section 12, page 76).
- Contact the installer.

i The charging station is not charging at full capacity at high operating temperatures

If the operating temperature of 60°C is exceeded, the charging station at the respective charge point regulates the power to a maximum of 11 kW.

If the operating temperature of 70°C is exceeded, the charging process is paused until the temperature drops to 65°C.

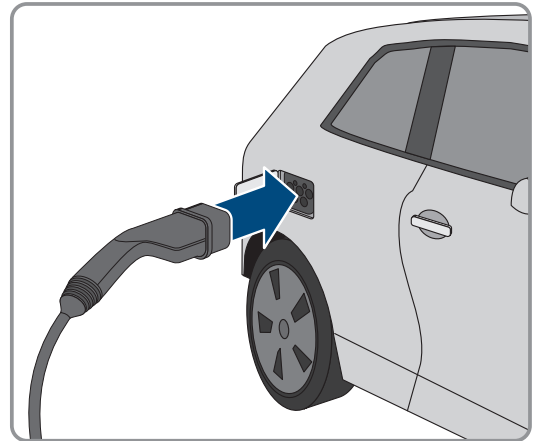
- Wait until the operating temperature drops.

Requirement:

- The charging station is ready for operation and the green LED indicator is flashing.

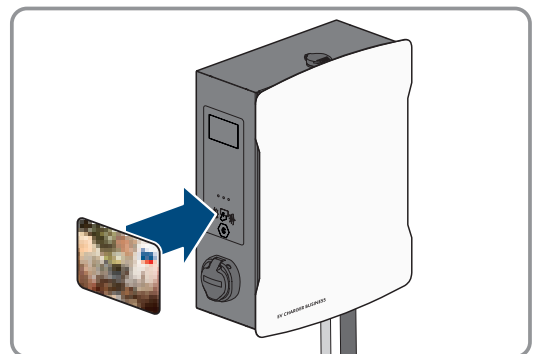
Procedure:

1. Connect the charging cable to the vehicle.

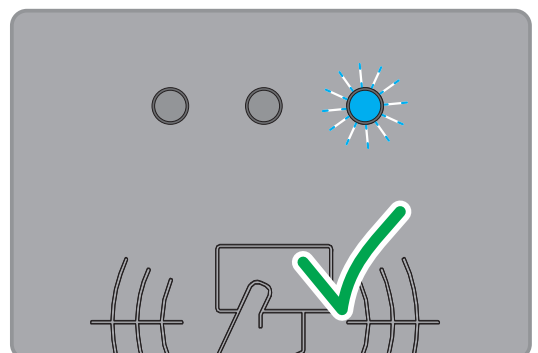


2. Depending on the product design, connect the charging cable to the charging station.

3. Hold the RFID card up to the RFID card reader.



- The charging cable is locked.
- The LED indicator is slowly flashing blue.



- The charging process begins.

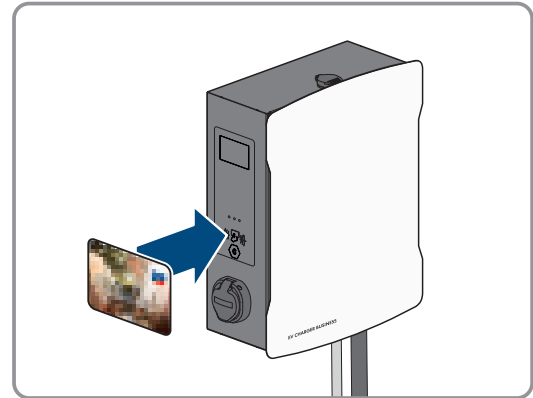
9.16.3 Ending the Charging Process

i The charging process can only be ended with the same RFID card that it was started with.

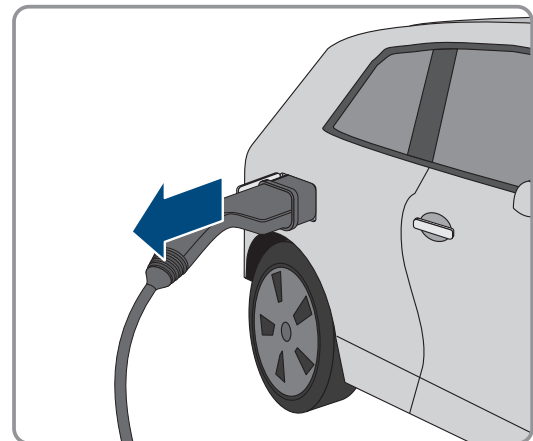
- i** In case of grid failure, the mechanical lock on the charging cable at the charging station (SMA EV Charger Business with charging socket) automatically opens.
- i** Alternatively, the charging process can also be ended at the vehicle (see the manufacturer's manual).

Procedure:

1. To end the charging process, hold the RFID card in front of the RFID card reader.



- The charging process is stopped and the charging cable lock is opened.
 - The LED indicator is slowly flashing green.
2. Unlock and disconnect the charging cable at the vehicle.



3. Depending on the product design, remove the charging cable from the charging station.

Information for EVCB-3AC-10 / EVCB-3AC-ECC-10: After the charging process has been completed, hang the charging cables in the designated connector location on the product. This will ensure that no water can penetrate the connectors.

Also see:

- [Event messages](#) ⇒ [page 76](#)

9.17 Verifying the Charge Data

The products EVCB-LB-3AC-ECC-10 and EVCB-3AC-ECC-10 are in compliance with the calibration regulations.

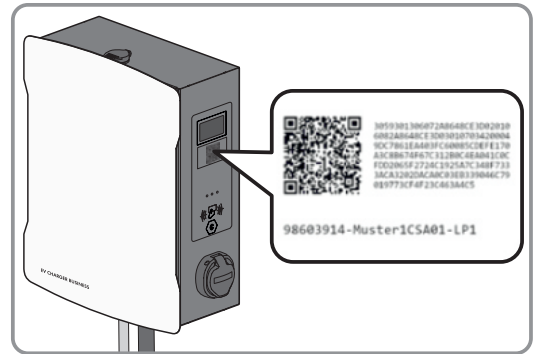
With transparency software, users have the option to verify validity of the digitally signed measured values of charging processes. This ensures that the billed values are the same as the actual measured values and have not been manipulated by third parties.

Requirements:

- Digitally signed record in a format supported by the transparency software.
- Public key of the charger.

Procedure:

1. At each of the charging sockets of the charging station, there is an RFID display with a public key that is valid for it. The public key is required for verification of the measured data after the completed charging process.



2. Write down the public key on the display at the side of the charger, or photograph or import it via QR code.
3. Authenticate it at the charger and start the charging process.
 - ☑ The starting time of the charging process and the starting value of the meter status are displayed via the RFID display at the beginning of the charging process.
4. End the charging process.
 - ☑ The starting and ending values of the meter and the current time are displayed. The charger generates a digitally signed record from the starting and ending values. It is digitally signed with a private key of the charger. The correctness of the signature can subsequently be verified via the public key at the charger.

Invoice and test data

- i** Make sure that the public key of the charger can be verified and the source of the key is trustworthy. This can be the key that is physically applied to the charger or the digitally saved value at the Federal Network Agency. A public key that is printed on the invoice can possibly be incorrect and lead to incorrect test results.
- i** The data packages of completed charging process may get lost if the data transmission of the signed OCMF data packages to the backend system fails in the longer term. The charger saves the signed OCMF data package only in an internal ring buffer with a fixed size. This ring buffer is not directly accessible to customers. Contact the operator of the charger.

Account creates and transmits an XML file as part of the invoice. It can be opened and verified with a transparency software.

Download transparency software and run an invoice check

- i** The transparency software is subject to continuous adaptations and changes such that the listed steps may deviate from the current version of the software.

Procedure:

1. Download the current version of the transparency software (<https://www.safe-ev.de>) to the computer and unpack it to any folder.
2. Make sure that the JAVA framework is installed in the current version.
3. Install the JAVA framework via the JAVA web installer.
4. Open the transparency software with a double click.
5. Select the measured values provided to you via **[File]** and **[Open]** and input the public key into the charging station.
 - ☑ Subsequently, the file and signature formats will be automatically detected.
6. If the file and signature formats are not automatically detected, manually enter them in the text field.

7. Make sure that the displayed measured values match the data that are printed on the invoice.
8. Make sure that the public key is correct and matches the public key of the charger.
9. If verification of the measured values is incorrect, the transparency software indicates that the check was not successfully completed.
 - The reason for the error or unsuccessful check is displayed.

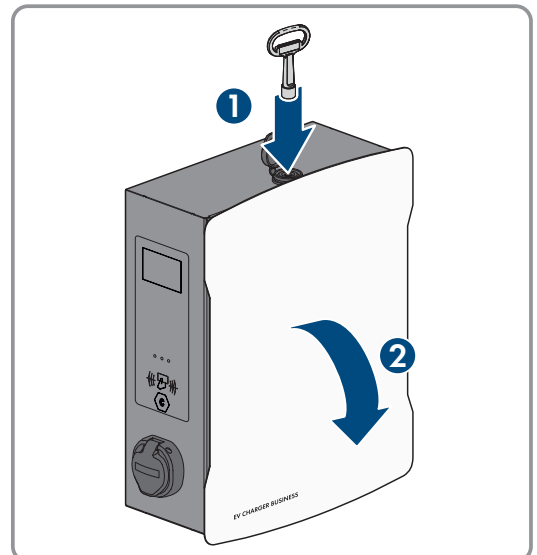
10 Disconnecting the product from voltage sources

⚠ QUALIFIED PERSON

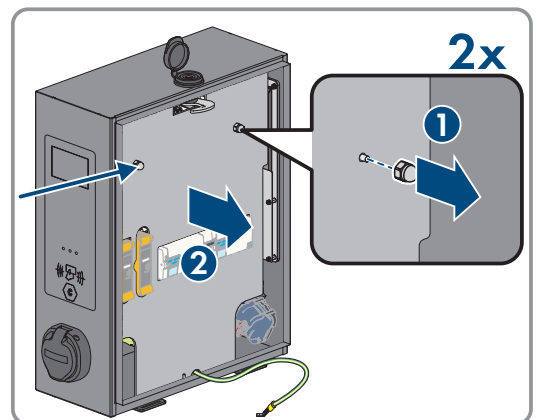
Prior to performing any work on the product, always disconnect it from all voltage sources as described in this section. Always adhere to the prescribed sequence.

Procedure:

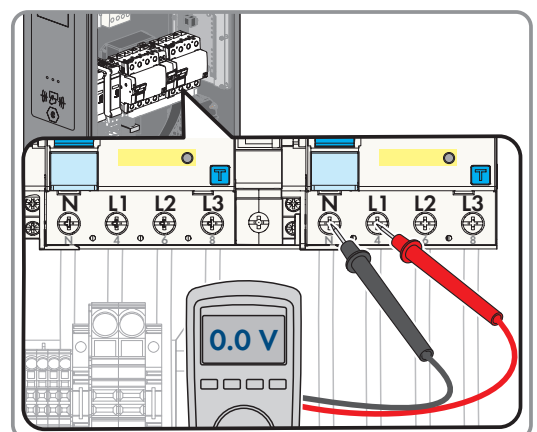
1. Disconnect the external miniature circuit breaker and secure it against reconnection.
2. Disconnect the charging cable from the vehicle and if necessary, from the charging station.
3. Open the product and remove the enclosure cover.



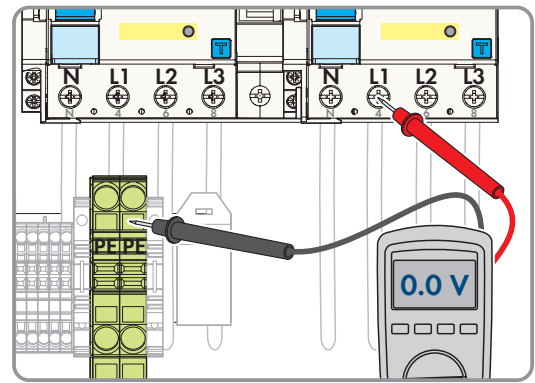
4. Loosen and remove the 2 nuts of the safety cover.



5. Use an appropriate measuring device to ensure that no voltage is present (de-energized state) at the residual-current devices between L1 and N, L2 and N, and L3 and N.



6. Use an appropriate measuring device to ensure that no voltage is present (de-energized state) at the terminal block and the residual-current devices in sequence between L1 and PE, L2 and PE, and L3 and PE.



11 Cleaning the Product

NOTICE

Damage to the product due to cleaning agents

The use of cleaning agents may cause damage to the product and its components.

- Clean the product and all its components only with a cloth moistened with clear water.

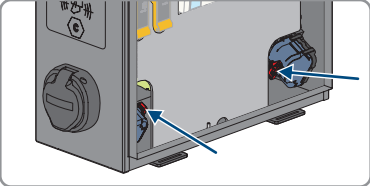
Procedure:

- Ensure that the product is free of dust, leaves and other dirt.

12 Troubleshooting

12.1 Event messages

Disturbance	Cause and corrective measures
LED flashing rapidly (green, yellow and blue).	<p>⚠ QUALIFIED PERSON</p> <p>Cause</p> <p>Authorization was rejected. Error in charging system. Backend not available.</p> <p>Corrective measures:</p> <ul style="list-style-type: none"> • Check the RFID card and re-import if necessary. • Inspect the charging system for errors. • Establish a connection to the backend system.
LED display is off.	<p>⚠ QUALIFIED PERSON</p> <p>Cause</p> <p>No supply voltage. Overcurrent protective device off/defective. Control fuse off. Charge controller defective.</p> <p>Corrective measures:</p> <ul style="list-style-type: none"> • Check the supply voltage at the input terminal. Check the overcurrent protective device. Switch on the control fuse. Check the charge controller.
Residual-current device trips.	<p>⚠ QUALIFIED PERSON</p> <p>Cause</p> <p>Error in downstream load or in the supply line.</p> <p>Corrective measures:</p> <ul style="list-style-type: none"> • Check loads. • Switch on residual-current device again. When doing so, ensure that the residual-current device is first pressed all the way down. Then all the way up. • Observe the procedure during commissioning.
Charging sockets have no current.	<p>⚠ QUALIFIED PERSON</p> <p>Cause</p> <p>External and/or internal miniature circuit breakers and/or residual-current devices are not switched on. Charging station not connected.</p> <p>Corrective measures:</p> <ul style="list-style-type: none"> • Switch on the external and/or internal miniature circuit breakers and/or residual-current devices.

Disturbance	Cause and corrective measures
<p>The charging station is not charging at full capacity.</p>	<p>⚠ QUALIFIED PERSON</p> <p>Cause</p> <p>The charging station is not charging at full capacity at high operating temperatures</p> <p>If the operating temperature of 60°C is exceeded, the charging station at the respective charge point regulates the power to a maximum of 11kW.</p> <p>If the operating temperature of 70°C is exceeded, the charging process is paused until the temperature drops to 65°C.</p> <p>Corrective measures:</p> <ul style="list-style-type: none"> • Wait until the operating temperature drops.
<p>Charging plug remains locked.</p>	<p>⚠ QUALIFIED PERSON</p> <p>Cause</p> <p>Locking mechanism defective.</p> <p>Corrective measures:</p> <ul style="list-style-type: none"> • Manual operation on the charging socket with an open-end wrench (AF4) or on the red flag (see graphic). • Switch off control fuse. Locking mechanism opens. 
<p>RFID identification does not work.</p>	<p>⚠ QUALIFIED PERSON</p> <p>Cause</p> <p>RFID card is unknown, has incorrect data format or was not imported.</p> <p>The connection cable of the card reader is loose.</p> <p>Power supply unit for the RFID card reader is defective.</p> <p>Charging station is offline. No connection to backend system.</p> <p>Corrective measures:</p> <ul style="list-style-type: none"> • Separate importing of the card with a computer and LAN interface is possible (see Section 9.13, page 63). • Check whether the RFID card reader is connected to the power supply unit. • Establish a connection to the backend system.

Disturbance	Cause and corrective measures
Electric vehicle requests fan.	<p data-bbox="659 241 962 280">⚠ QUALIFIED PERSON</p> <p data-bbox="659 302 738 336">Cause</p> <p data-bbox="659 347 1289 380">The charging infrastructure does not support this request.</p> <p data-bbox="659 392 922 425">Corrective measures:</p> <ul data-bbox="675 436 962 470" style="list-style-type: none"> • Charging not possible.
No LAN access.	<p data-bbox="659 492 962 530">⚠ QUALIFIED PERSON</p> <p data-bbox="659 553 738 586">Cause</p> <p data-bbox="659 598 997 631">Network connection defective.</p> <p data-bbox="659 642 922 676">Corrective measures:</p> <ul data-bbox="675 687 1369 761" style="list-style-type: none"> • Check status indicator, check network cable, check transfer connector (RJ45).
LAN/Ethernet access not possible.	<p data-bbox="659 784 962 822">⚠ QUALIFIED PERSON</p> <p data-bbox="659 844 738 878">Cause</p> <p data-bbox="659 889 946 922">No LAN/Ethernet access.</p> <p data-bbox="659 934 922 967">Corrective measures:</p> <ul data-bbox="675 978 1042 1012" style="list-style-type: none"> • (see Section 9.1.3, page 49).
Meter values are not displayed correctly.	<p data-bbox="659 1030 962 1068">⚠ QUALIFIED PERSON</p> <p data-bbox="659 1090 738 1124">Cause</p> <p data-bbox="659 1135 837 1169">Meter defective.</p> <p data-bbox="659 1180 991 1214">Modbus connection incorrect.</p> <p data-bbox="659 1225 922 1258">Corrective measures:</p> <ul data-bbox="675 1270 906 1303" style="list-style-type: none"> • Check the wiring.
Moisture inside the product.	<p data-bbox="659 1332 962 1370">⚠ QUALIFIED PERSON</p> <p data-bbox="659 1393 738 1426">Cause</p> <p data-bbox="659 1438 952 1471">Condensation has formed.</p> <p data-bbox="659 1482 1074 1516">Aeration and ventilation do not work.</p> <p data-bbox="659 1527 922 1561">Corrective measures:</p> <ul data-bbox="675 1572 1433 1680" style="list-style-type: none"> • Avoid disproportionately strong solar irradiation (with integrated temperature monitoring in the charge controller, the power is reduced if necessary to prevent overheating).
The enclosure is damaged.	<p data-bbox="659 1702 962 1740">⚠ QUALIFIED PERSON</p> <p data-bbox="659 1762 738 1796">Cause</p> <p data-bbox="659 1807 869 1841">Transport damage.</p> <p data-bbox="659 1852 922 1886">Corrective measures:</p> <ul data-bbox="675 1897 1396 1971" style="list-style-type: none"> • Immediately after damage is found, submit a complaint to the transport company.

13 Decommissioning the Product

To decommission the product completely upon completion of its service life, proceed as described in this Section.

⚠ CAUTION

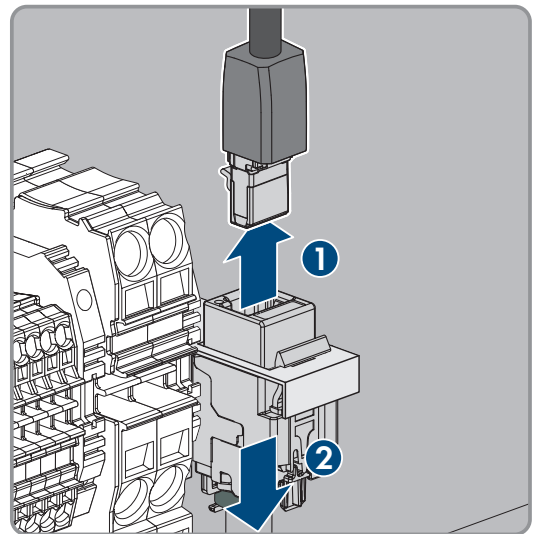
Risk of injury due to weight of product

Injuries may result if the product is lifted incorrectly or dropped while being transported or mounted.

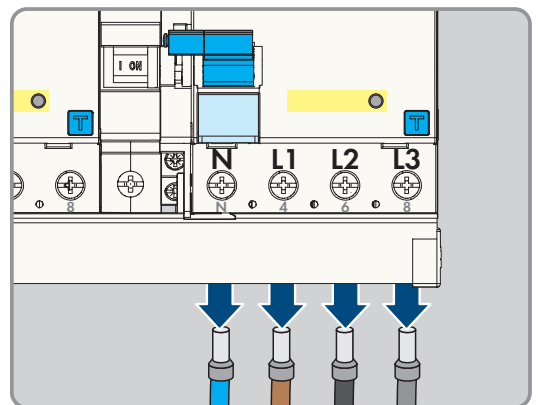
- Wear suitable personal protective equipment for all work on the product.

Procedure:

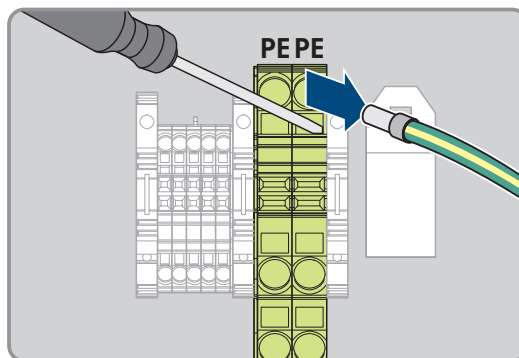
1. Disconnect the product from voltage sources (see Section 10, page 73).
2. If a network cable is present, unscrew the cable gland for the network cable and loosen the union nut.
3. Pull the network cable out of the network socket and remove the network socket from the product.



4. Guide the network cable through the cable gland and out of the product.
5. Depending on the design, unscrew the cable gland for the AC cable and loosen the union nut.
6. Depending on the design, loosen conductors L1, L2, L3 and N from the residual-current device (PZ2) and remove them.



7. Disconnect the grounding conductor from the terminal block.

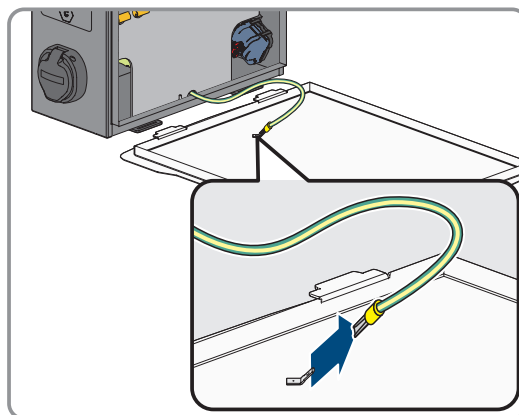


8. Depending on the design, guide the AC cable out of the product through the cable gland.

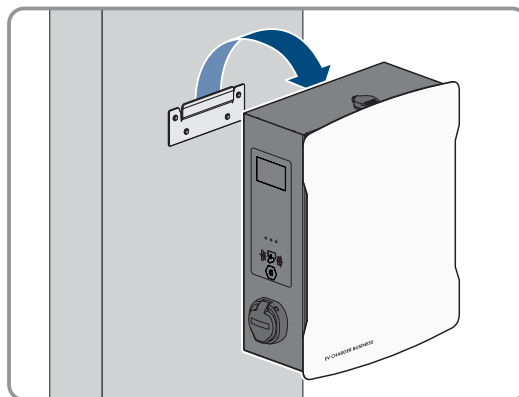
9. Remove the security screw.

10. Securely screw on the 2 nuts of the safety cover.

11. Connect the grounding cable to the cover.

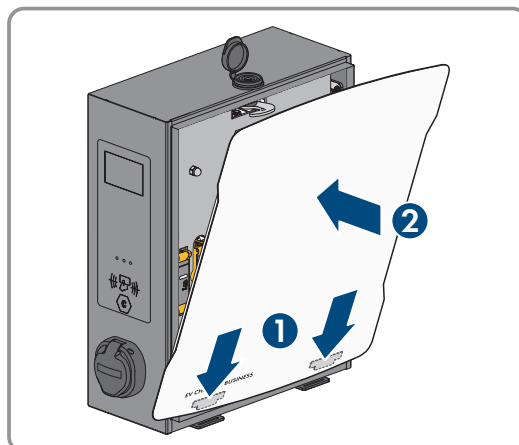


12. Carefully remove the product from the wall or charging stand.



13. Remove the bracket from the wall or charging stand. To do so, loosen the four screws using a suitable tool.

14. Put on the enclosure cover and close it.



15. If the product is to be stored or shipped, pack the product. Use the original packaging or packaging that is suitable for the weight and size of the product.
16. If the product is to be disposed of, dispose of the product in accordance with the locally applicable disposal regulations for electronic waste.

14 Maintenance

⚠ QUALIFIED PERSON

⚠ DANGER

Danger to life due to electric shock when live components or cables are touched

High voltages are present in the conductive components or cables of the product. Touching live parts and cables results in death or lethal injuries due to electric shock.

- Do not touch non-insulated parts or cables.
- Disconnect the product from voltage sources and ensure it cannot be reconnected before working on the device.
- Wear suitable personal protective equipment for all work on the product.

i Damage to the product

SMA Solar Technology AG recommends a daily visual inspection by the charging station user. The product and the associated components must not display any damage.

- In the case of damage to the product, contact the installer.

i Moisture inside the enclosure

In rare cases, due to fluctuations in the ambient temperature and moisture and depending on the setup and installation site, moisture can form and condense inside the enclosure. This is particularly evident in the form of condensation on the inside of the lid, which may also run down to the bottom of the enclosure and collect there. This condensation does not affect the function of the product and presents no danger to the proper operation. In case of a large accumulation of condensation at the bottom of the enclosure, observe the following steps:

- Disconnect the product from voltage sources (see Section 10, page 73).
- Unscrew the pressure-equalizing membrane so that the water can fully drain (see Section 7.1.1, page 36).
- Screw the pressure-equalizing membrane back on.
- Wipe up the condensation with a dry cloth.
- Put the product into operation again (see Section 8.2, page 46).

i Correct performance of maintenance work

All maintenance work must be performed as described in this document. Deviations from procedures or failure to comply with the maintenance intervals will lead to any guarantee- or warranty claims becoming null and void.

Observance of the maintenance intervals ensures trouble-free operation.

The general maintenance work must be performed on all components of the product according to the required intervals.

Semi-annual inspection (every 6 months):

Procedure:

1. Inspect the residual-current device.
2. Inspect the charging cable in accordance with VDE 0701/702.

Annual inspection of the overall system (every 12 months) in accordance with Deutsche Gesetzliche Unfallversicherung (DGUV) V3:

Procedure:

1. Ensure that the residual current operated circuit-breaker with integral overcurrent protection (RCBO) is working.

2. Ensure that the tripping time and operating current of the individual, active conductors are correct.
3. Ensure that the protection devices at the network input of the charging station are working.

15 Procedure for Receiving a Replacement Device

QUALIFIED PERSON

In case of failure, the product may need to be replaced. If this is the case, you will receive a replacement device from SMA Solar Technology AG. If you received a replacement device, replace the defective product with the replacement device as described below.

Procedure:

1. Decommission the defective product (see Section 13, page 79).
2. Mount the replacement device and make the electrical connections as described in this document.
3. Commission the replacement device (see Section 8.2, page 46).
4. Configure the product Configuring the product.
5. If the defective product had been registered by a communication product, replace it with the new product in the communication product (see operating manual of communication product).
6. If the defective product was registered in the SMA eMobility Portal, replace the defective product with the new product in the SMA eMobility Portal (see user manual of the product).
7. Pack the defective product in the packaging of the replacement device and arrange with SMA Solar Technology AG for it to be picked up.

16 Technical Data

Inputs and outputs (AC)

SMA EV Charger Business		
Product types	SMA EV Charger Business with charging socket	SMA EV Charger Business with charging cable
Number and type of charge points	2 x charging socket type 2	2 x charging cable type 2
Nominal voltage	230 V AC / 400 V AC	
Nominal frequency	50 Hz	
Maximum connected load	For 1 connection cable 22 kW For 2 connection cables 2 x 22 kW	
Rated current	For 1 connection cable 32 A For 2 connection cables 2 x 32 A	
Rated surge voltage	4 kV	
Rated insulation voltage	500 V	
Relative rated short-circuit current	6 kA	

Communication

Interface	Ethernet RJ-45 (LAN)
OCPP	OCPP 1.6 JSON
PLC (ISO 15118)	Available
EEBUS	Available
4G modem	Present for EVCB-LB-3AC-ECC-10 / EVCB-3AC-ECC-10

Protective devices

DC residual current detection per charge point	6 mA
Residual-current device per charge point	4-pole 40 / 0.03 A type A
Miniature circuit breaker	Ext. necessary, per cable max. C 32 A, 3-pole

Ambient conditions and operation

Operating temperature range	-25 °C to +40 °C (-13 °F to +104 °F)
Operating temperature range with integrated derating function	-25 °C to +75 °C
Storage temperature range	-30 °C to +70 °C
Degree of protection (in accordance with IEC 60529) / impact resistance	IP54 / IK08

Protection class (in accordance with IEC 62103) / Over-voltage category I / III

Maximum permissible value for relative humidity 5% to 90%

Altitude above MSL 0 m to 2000 m

General data

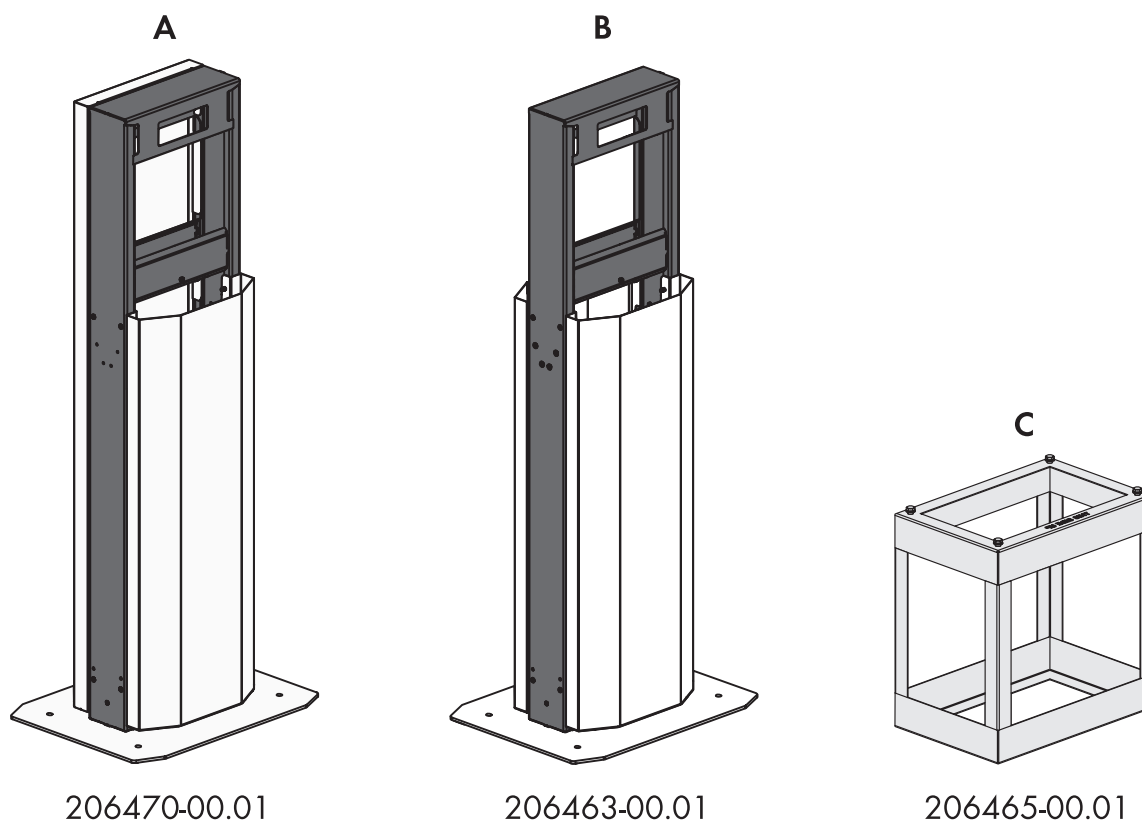
Product types	SMA EV Charger Business with charging socket	SMA EV Charger Business with charging cable
Dimensions (W / H / D)	409 mm / 490 mm / 176 mm	430 mm / 490 mm / 176 mm
Weight	13.5 kg	21 kg
Connection cross-section	For NYY-J, max. 5 x 10 mm ²	
Grid configurations	TN, TN-S, TT	
Display per charge point	LED, LCD display (meter)	

Features / accessories

Product types	SMA EV Charger Business with charging socket	SMA EV Charger Business with charging cable
Integrated charging cable	Not present	7.5 m (EVCB-3AC-10) 6.0 m (EVCB-3AC-ECC-10)
Integrated energy meter	MID-compliant (EVCB-LB-3AC-10 / EVCB-3AC-10) In compliance with the calibration regulations (EVCB-LB-3AC-ECC-10 / EVCB-3AC-ECC-10)	
Dynamic load management	Available	
Authorization	RFID	
Warranty	2 years	
Certificates and approvals	IEC 61851-1:2019	
System compatibility	SMA eMobility Portal SMA Data Manager M (firmware version \geq 1.15)	
Charging stand	optional	
Foundation	optional	
RFID cards (MIFARE DESFire)	Available	
Type designation / Material number	EVCB-LB-3AC-10 / 202576-00.01 EVCB-LB-3AC-ECC-10 / 204842-00.01	EVCB-3AC-10 / 202559-00.01 EVCB-3AC-ECC-10 / 204844-00.01

17 Accessories

You will find the accessories for your product in the following overview. If required, you can order them from SMA Solar Technology AG.



Designation	Brief description
A	Charging stand for EV Charger Business (one-sided) SMA material number: 206470-00.01
B	Charging stand for EV Charger Business (two-sided) SMA material number: 206463-00.01
C	Embedded section for charging stand installation SMA material number: 206465-00.01

18 Contact

- Device type
- Serial number
- Installation site and mounting height
- Detailed description of the problem

You can find your country's contact information at:



<https://go.sma.de/service>

19 EU Declaration of Conformity

within the scope of the EU directives



- Electromagnetic compatibility 2014/30/EU (29.3.2014 L 96/79-106) (EMC)
- Low Voltage Directive 2014/35/EU (29.3.2014 L 96/357-374) (LVD)
- Radio Equipment Directive 2014/53/EU (22.5.2014 L 153/62) (RED)
- Restriction of the use of certain hazardous substances 2011/65/EU (L 174/88, June 8, 2011) and 2015/863/EU (L 137/10, March 31, 2015) (RoHS)

SMA Solar Technology AG confirms herewith that the products described in this document are in compliance with the fundamental requirements and other relevant provisions of the aforementioned directives. More information on the availability of the entire Declaration of Conformity can be found at <https://www.sma.de/en/ce-ukca>.

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