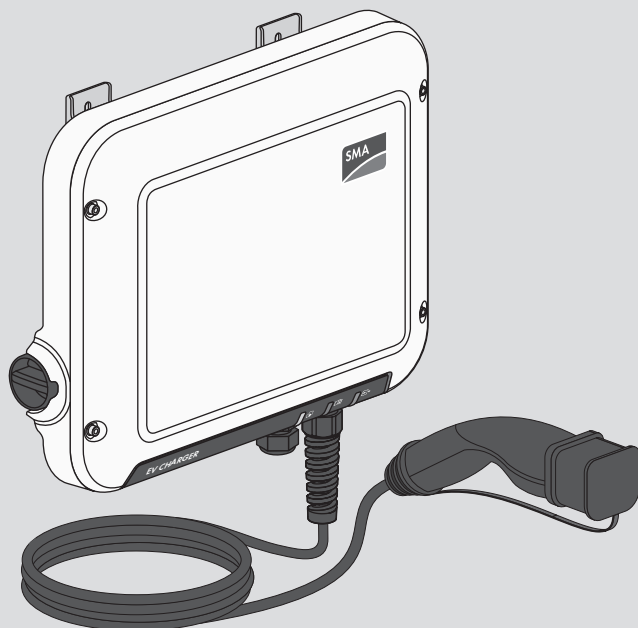


Operating manual
SMA EV CHARGER



Legal Provisions

The information contained in these documents is the property of SMA Solar Technology AG. No part of this document may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, be it electronic, mechanical, photographic, magnetic or otherwise, without the prior written permission of SMA Solar Technology AG. Internal reproduction used solely for the purpose of product evaluation or other proper use is allowed and does not require prior approval.

SMA Solar Technology AG makes no representations or warranties, express or implied, with respect to this documentation or any of the equipment and/or software it may describe, including (with no limitation) any implied warranties of utility, merchantability, or fitness for any particular purpose. All such representations or warranties are expressly disclaimed. Neither SMA Solar Technology AG nor its distributors or dealers shall be liable for any indirect, incidental, or consequential damages under any circumstances.

The exclusion of implied warranties may not apply in all cases under some statutes, and thus the above exclusion may not apply.

Specifications are subject to change without notice. Every attempt has been made to make this document complete, accurate and up-to-date. Readers are cautioned, however, that product improvements and field usage experience may cause SMA Solar Technology AG to make changes to these specifications without advance notice or per contract provisions. SMA Solar Technology AG shall not be responsible for any damages, including indirect, incidental or consequential damages, caused by reliance on the material presented, including, but not limited to, omissions, typographical errors, arithmetical errors or listing errors in the content material.

SMA Warranty

You can download the current warranty conditions from the Internet at www.SMA-Solar.com.

Software licenses

The licenses for the installed software modules (open source) can be found in the user interface of the product.

Trademarks

All trademarks are recognized, even if not explicitly identified as such. Missing designations do not mean that a product or brand is not a registered trademark.

SMA Solar Technology AG

Sonnenallee 1

34266 Niestetal

Germany

Tel. +49 561 9522-0

Fax +49 561 9522-100

www.SMA.de

Email: info@SMA.de

As of: 9/14/2020

Copyright © 2020 SMA Solar Technology AG. All rights reserved.

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	Typographical Elements in the Document	6
1.7	Designations in the Document	6
2	Safety	7
2.1	Intended Use	7
2.2	IMPORTANT SAFETY INSTRUCTIONS.....	7
3	Scope of Delivery	10
4	Product Overview	12
4.1	Product Description	12
4.2	Symbols on the Product	13
4.3	Interfaces and Functions	14
4.4	LED Signals	15
4.5	System Overview	17
4.5.1	Circuitry Overview.....	18
4.5.2	Communication Overview	19
5	Mounting.....	20
5.1	Requirements for Mounting	20
5.2	Mounting the product	22
6	Electrical Connection	25
6.1	Overview of the Connection Area	25
6.1.1	View from Below.....	25
6.1.2	Interior View	25
6.2	Mounting the Connection Cap.....	26
6.3	AC Connection.....	27
6.3.1	Connecting the Utility Grid	27
6.3.2	Connecting Additional Grounding	28
6.4	Connecting the Charging Cable	29
6.5	Connecting Signal Source to Digital Input	29
6.6	Connecting the Network Cables.....	32

7	Commissioning	34
7.1	Commissioning Procedure	34
7.2	Commissioning the Product	34
7.3	Changing the Network Configuration	36
7.4	Configuring the Product	36
8	Operation	38
8.1	Establishing a connection to the user interface	38
8.1.1	Establishing a direct connection via WLAN	38
8.1.2	Establishing a Connection via Ethernet in the local network	39
8.1.3	Establishing a Connection via WLAN in the Local Network	40
8.2	Design of the User Interface	41
8.3	Activate WPS Function	42
8.4	Changing the Password	42
8.5	Properties of Charging Modes	43
8.6	Changing the Charging Mode	43
9	Disconnecting the product from voltage sources	45
10	Clean the product	47
11	Troubleshooting	48
11.1	Resetting the Administrator Account	48
11.2	Event Messages	48
12	Decommissioning the Product	54
13	Procedure for Receiving a Replacement Device	58
14	Technical Data	59
15	Contact	61
16	EU Declaration of Conformity	64

1 Information on this Document

1.1 Validity

This document is valid for:

- EVC7.4-1AC-10 (SMA EV Charger 7.4)
- EVC22-3AC-10 (SMA EV Charger 22)

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, 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.

You will find the latest version of this document and further information on the product in PDF format and as eManual at www.SMA-Solar.com. You can also call up the eManual via the user interface of the product.

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"/>	Desired result
x	A problem that might occur
	Example
▲ QUALIFIED PERSON	Sections describing activities to be performed by qualified persons only

1.6 Typographical Elements 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"> Select Settings > Date.
[Button] [Key]	<ul style="list-style-type: none"> Button or key to be selected or pressed 	<ul style="list-style-type: none"> Select [Enter].
#	<ul style="list-style-type: none"> Placeholder for variable components (e.g., parameter names) 	<ul style="list-style-type: none"> Parameter WcHz.Hz#

1.7 Designations in the Document

Complete designation	Designation in this document
SMA EV Charger	EV Charger, charging station, product

2 Safety

2.1 Intended Use

The SMA EV Charger is a AC charging station.

The product must only be used as stationary equipment.

The product is suitable for indoor and outdoor use.

The EVC7.4-1AC-10 must not be used in industrial environments.

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.

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.

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

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

This document does not replace and is not intended to replace any local, state, provincial, federal or national laws, regulations or codes applicable 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 IMPORTANT SAFETY INSTRUCTIONS

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, there are residual risks 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 make sure 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

Danger to life due to fire or explosion

In rare cases, an explosive gas mixture can be generated inside the product under fault conditions. In this state, switching operations can cause a fire inside the product or explosion. Death or lethal injuries due to hot or flying debris can result.

- In the event of a fault, do not perform any direct actions on the product.
- Ensure that unauthorized persons have no access to the product.
- Disconnect the AC circuit breaker, or keep it disconnected in case it has already tripped, and secure it against reconnection.
- 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

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).
- Ensure that unauthorized persons have no access to the product.

⚠ CAUTION**Risk of burns due to hot enclosure parts**

Some parts of the enclosure can get hot during operation. Touching hot enclosure parts can result in burn injuries.

- Do not touch the enclosure during operation.
- Wear suitable personal protective equipment.

⚠ 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.

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

Dropping the enclosure lid during assembly or disassembly of the enclosure lid can cause injuries.

- 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**High costs due to inappropriate Internet tariff**

Depending on use, the data volume of the product transferred via the Internet may vary in size. The data volume depends, for example, on the number of devices in the system, the frequency of device updates, the frequency of data transfer to Sunny Portal or the use of FTP push. High costs for the Internet connection can be the result.

- SMA Solar Technology AG recommends using an Internet flat rate.

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.

3 Scope of Delivery

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

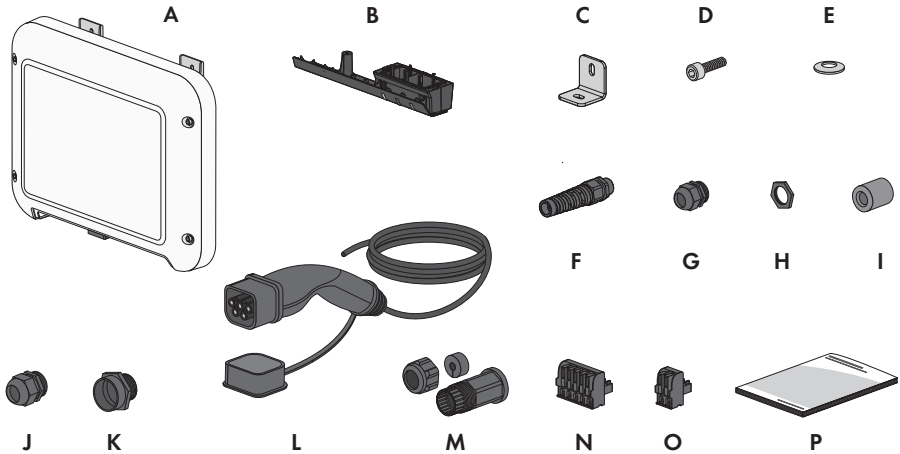


Figure 1: Components included in the scope of delivery

Position	Quantity	Designation
A	1	Charging station
B	1	Connection cap
C	1	Mounting bracket
D	1	Cylindrical screw M5 x 16
E	1	Spring washer M5
F	1	Bending protection spiral
G	1	Cable gland M25
H	1	Counter nut for cable gland M25
I	2	Ferrite
J	1	Cable gland M32
K	1	Cable gland extension from M25 to M32
L	1	Charging cable
M	1	RJ45 protective sleeve: swivel nut, cable support sleeve, threaded sleeve
N	1	2-pole terminal block for connecting a signal source to the digital input

Position	Quantity	Designation
O	1	5-pole terminal block for connecting a signal source to the digital input
P	1	Quick Reference Guide

4 Product Overview

4.1 Product Description

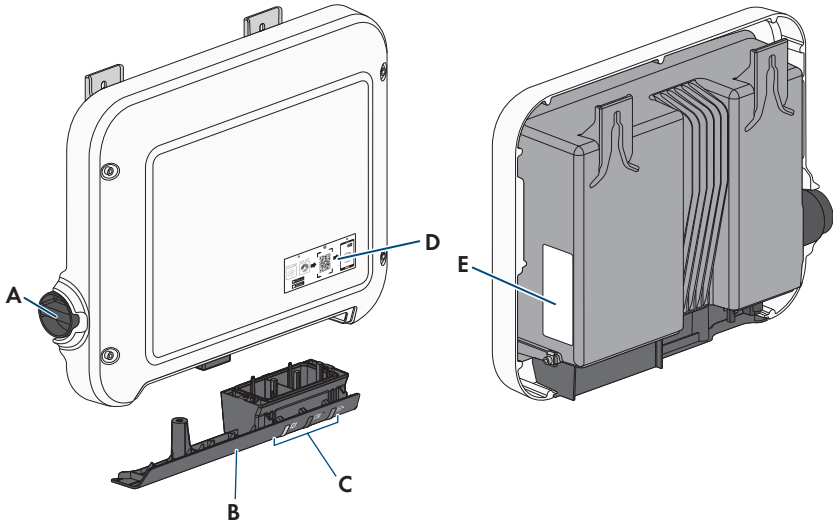















Figure 2: Design of the product

Position	Designation
A	Rotary switch to select charging mode
B	Terminal cover Cable glands for the charging cable, the AC cable, the network cable and the signal source cable for the digital input
C	LEDs The LEDs indicate the operating state of the product.

Position	Designation
D	Label with QR Code for scanning via the SMA 360° App and easy connection to the inverter's user interface via WLAN
E	<p>Type label</p> <p>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:</p> <ul style="list-style-type: none"> • Device type (Model) • Serial number (Serial No. or S/N) • Date of manufacture • Identification key (PIC) for registration in Sunny Portal • Registration ID (RID) for registration in Sunny Portal • Wi-Fi password (WPA2-PSK) for the direct connection to the user interface of the product via Wi-Fi • Device-specific characteristics

4.2 Symbols on the Product

Symbol	Explanation
	<p>Beware of electrical voltage</p> <p>The product operates at high voltages.</p>
	<p>Beware of hot surface</p> <p>The product can get hot during operation.</p>
	<p>Observe the documentation</p> <p>Observe all documentation supplied with the product.</p>
	<p>Charge mode</p> <p>The symbol together with the green LED indicates that the product is in charging mode.</p>
	<p>Observe the documentation</p> <p>Together with the red LED, this symbol indicates an error.</p>
	<p>Data transmission</p> <p>Together with the blue LED, this symbol indicates the status of the network connection.</p>

Symbol	Explanation
	<p>Fast charging</p> <p>This symbol is located on the rotary switch and indicates the switch position for fast charging.</p>
	<p>Smart charging</p> <p>This symbol is located on the rotary switch and indicates the switch position for charging controlled by the energy management system.</p>
	<p>Alternating current</p>
	<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>The product is suitable for outdoor installation.</p>
IP65	<p>Degree of protection IP65</p> <p>The product is protected against the penetration of dust and water that is directed as a jet against the enclosure from all directions.</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>

4.3 Interfaces and Functions

The product is equipped with the following interfaces and functions:

User interface for configuration and monitoring

The product is equipped as standard with an integrated webserver, which provides a user interface for configuring and monitoring the product.

The product user interface can be called up via the web browser if there is an existing connection to an end device (e.g. computer, tablet PC or smartphone).

SMA Speedwire

The product is equipped with SMA Speedwire as standard. SMA Speedwire is a type of communication based on the Ethernet standard. SMA Speedwire is designed for a data transfer rate of 100 Mbps and enables optimum communication between Speedwire devices within systems.

The products supports the encrypted system communication with SMA Speedwire Encrypted Communication. In order to be able to use the Speedwire encryption in the system, all Speedwire devices, except for the SMA Energy Meter, must support the function SMA Speedwire Encrypted Communication.

Wi-Fi connection to SMA 360° app and SMA Energy app

There is a QR code on the product by default. By scanning the QR Code attached to the product via the SMA 360° app or SMA Energy app, access to the product is established via Wi-Fi and the connection to the user interface is made automatically.

WLAN

The product is equipped with a WLAN interface as standard. The inverter is delivered with the WLAN interface activated as standard. If you do not want to use WLAN, you can deactivate the WLAN interface.

In addition, the product has a WPS function. The WPS function is for automatically connecting the product to a network (e.g. via router) and establish a direct connection between the product and an end device.

Limited function in the event of frost

The integrated Wi-Fi interface of the product is only designed for temperatures down to -20°C.

- Deactivate the Wi-Fi interface at low temperatures.

SMA Smart Connected

SMA Smart Connected is the free monitoring of the product via the SMA Sunny Portal. Thanks to SMA Smart Connected, the operator and qualified person will be informed automatically and proactively about product events that occur.

SMA Smart Connected is activated during registration in Sunny Portal. In order to use SMA Smart Connected, it is necessary that the product is permanently connected to Sunny Portal and the data of the operator and qualified person is stored in Sunny Portal and up-to-date.

4.4 LED Signals

The LEDs indicate the operating state of the product.

LED signal	Explanation
The green LED is flashing slowly (2 seconds on and 2 seconds off)	Waiting for start conditions The conditions for charging operation are not yet met. As soon as the conditions are met, the EV Charger will start charging operation.
The green LED is flashing fast: 0.5 s on and 0.5 s off	Software update The product is carrying out a software update.

LED signal	Explanation
The green LED is glowing	Charge mode The EV Charger charges the vehicle at more than 90% of its nominal power.
The green LED is pulsing	Charge mode The EV Charger is equipped with a dynamic power display via the green LED. Depending on the power, the green LED pulses fast or slow.
The green LED is off	The EV Charger does not perform any charging process.
The red LED is glowing	Event occurred If an event occurs, a distinct event message and the corresponding event number will be displayed in addition on the product user interface or in the communication product (e.g. Sunny Home Manager).
Red LED flashing	Charging mode was interrupted by vehicle. If this event occurs, the vehicle has interrupted the charging process. Corrective measures: <ul style="list-style-type: none"> • Opening and closing of the vehicle by radio remote control. • Remove the charging cable from the vehicle and then reconnect the charging cable to the vehicle. • Check and if necessary adjust the settings in the vehicle's user interface.
The blue LED flashes slowly for approx. 1 minute	Communication connection is being established The product is establishing a connection to a local network or is establishing a direct connection to an end device via Ethernet (e.g. computer, tablet PC or smartphone).
The blue LED flashes quickly for approx. two minutes (0.25 s on and 0.25 s off).	WPS active The WPS function is active.
The blue LED is glowing	Communication active There is an active connection with a local network or there is a direct connection with an end device via Ethernet (e.g. computer, tablet PC or smartphone).
All 3 LEDs light up and go out after about 90 seconds	Start phase of charging operation When the LEDs are off again, the start phase is complete and charging begins.

4.5 System Overview

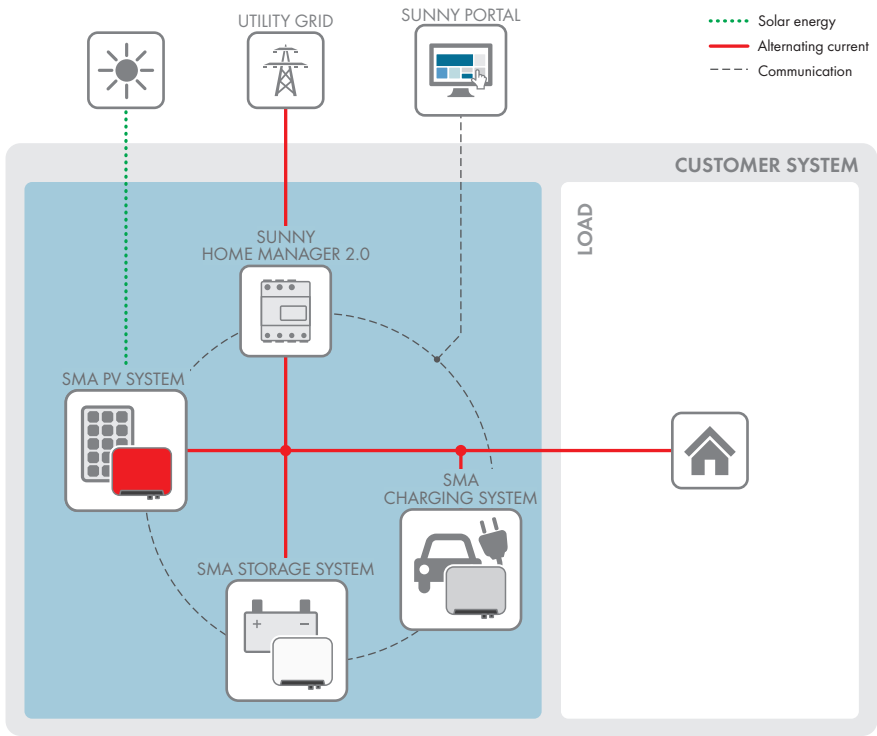


Figure 3: Design of the system

4.5.1 Circuitry Overview

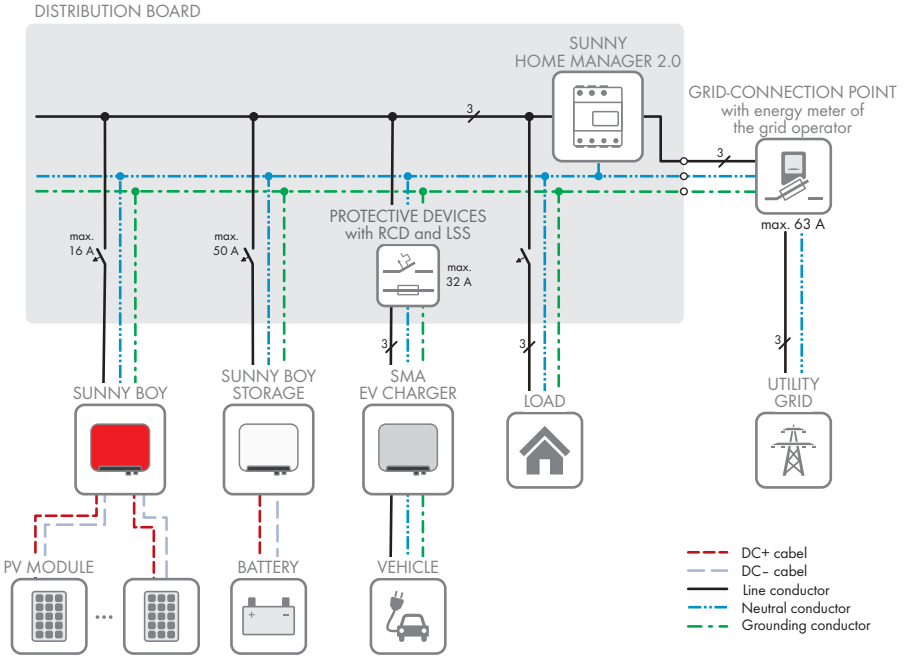


Figure 4: Circuitry overview (example with EVC22-3AC-10)

4.5.2 Communication Overview

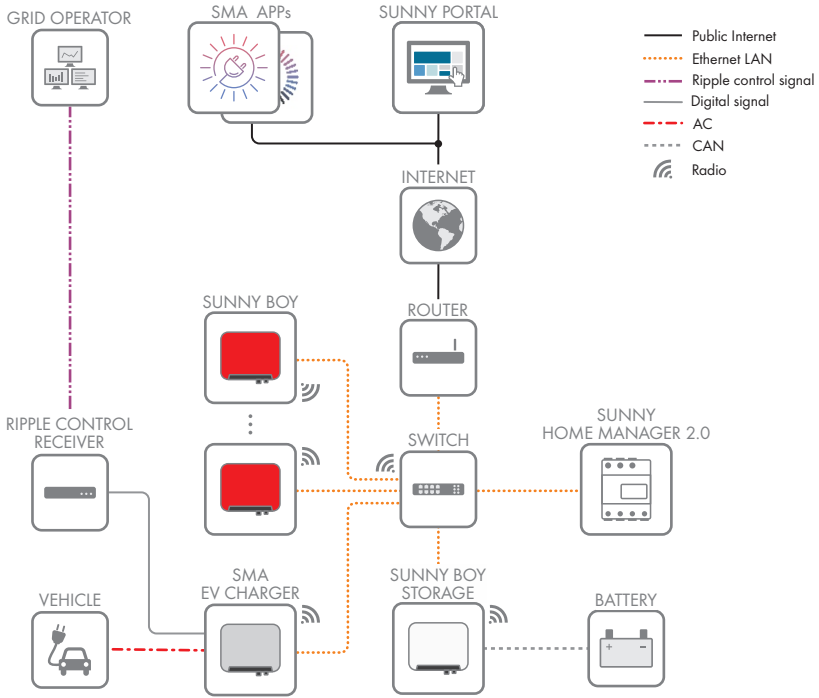


Figure 5: Design of system communication

5 Mounting

5.1 Requirements for Mounting

Requirements for mounting location:

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.

- Installation may only be carried out in places with restricted access (e.g. private property, company premises). Use of the product as a public charging station is not permitted.
- Do not mount the inverter on a pillar.
- A solid, flat support surface, e.g. concrete or masonry, must be available for mounting. The difference between the outer anchoring points must not exceed 5 mm.
- The support surface for installation must be made of a non-flammable material.
- Installation must be carried out so that the plug of the charging cable is always at a height of 0.5 m to 1.5 m above floor level.
- The mounting location must be suitable for the weight and dimensions of the product (see Section 14, page 59).
- The mounting location 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.
- Mounting location 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 mounting location 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 14, page 59).

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 such that the LED signals can be read off without difficulty.

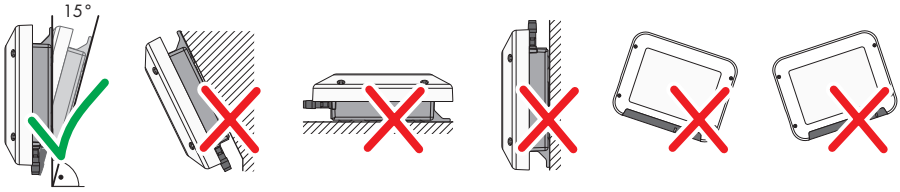


Figure 6: Permitted and prohibited mounting positions

Dimensions for mounting:

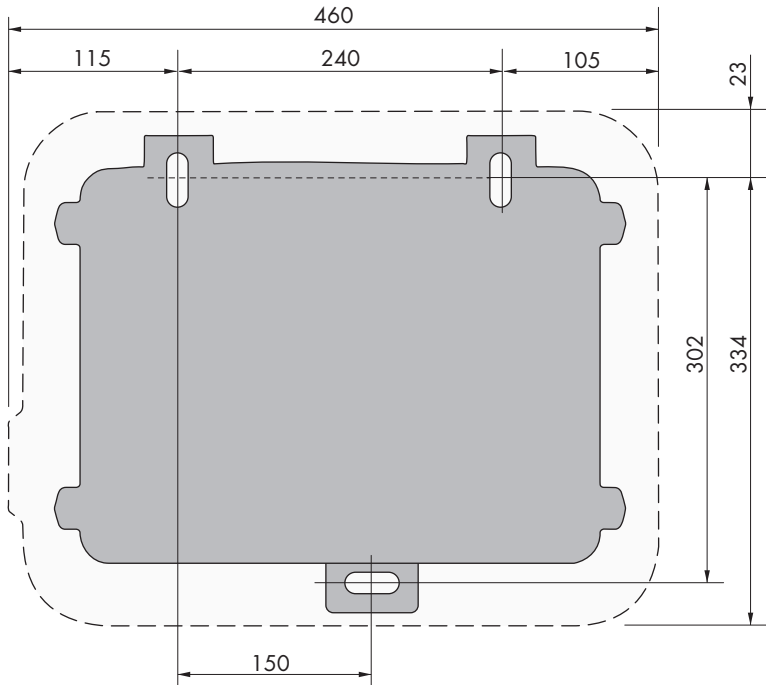


Figure 7: Position of the anchoring points(Dimensions in mm)

Recommended clearances:

If you maintain the recommended clearances, adequate heat dissipation will be ensured. Thus, you will prevent power reduction due to excessive temperature.

- 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.

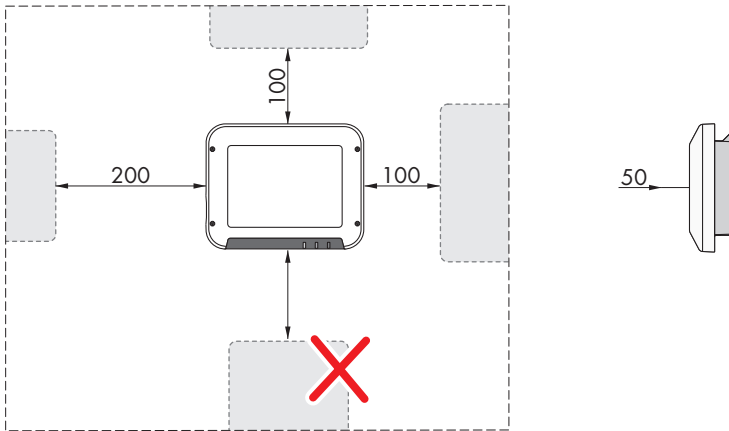


Figure 8: Recommended clearances (Dimensions in mm)

5.2 Mounting the product

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

- 3 stainless steel hexagon head wood screws (AF 10, diameter 6 mm), screw length must be suitable for the support surface and the weight of the product (fastening bracket thickness: 4 mm)
- 1 washer (diameter: 6 mm)
- Where necessary, 3 screw anchors suitable for the support surface and the screws

⚠ 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.

⚠ CAUTION

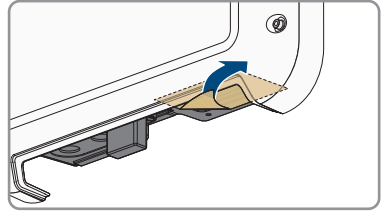
Risk of injury due to damaged cables

There may be power cables or other supply lines (e.g. gas or water) routed in the wall.

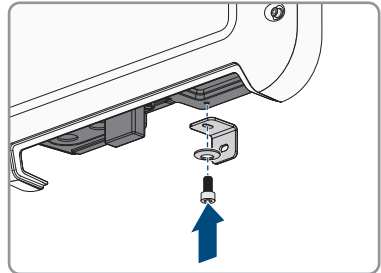
- Ensure that no lines are laid in the wall which could be damaged when drilling holes.

2. Mark the position of the drill holes. Align the markings horizontally.
3. Drill the holes.
4. Insert screw anchors into the drill holes if the support surface requires them.

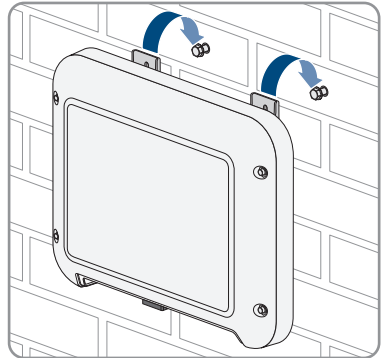
5. Insert the screws until there is at least 6 mm clearance between the screw head and the support surface.
6. Remove the brown adhesive tape from the product.



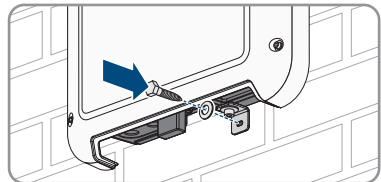
7. Attach the mounting bracket with conical spring washer and hexagon socket cap head screw to the product (torque: $6 \text{ Nm} \pm 0.3 \text{ Nm}$).



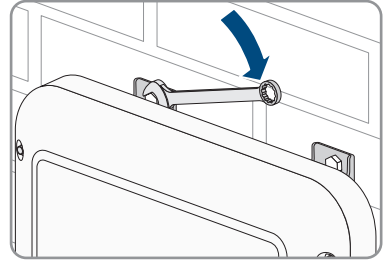
8. Hang the product onto the screws using the metal brackets.



9. Insert hexagon head screw with washer through the mounting bracket and tighten with a suitable tool (torque: $6 \text{ Nm} \pm 0.3 \text{ Nm}$).



10. Tighten the screws hand-tight using a ratchet or box wrench. When doing this you can compensate for any misalignment of the drill holes by aligning the metal brackets accordingly.



11. Ensure that the product is securely in place.

6 Electrical Connection

6.1 Overview of the Connection Area

6.1.1 View from Below

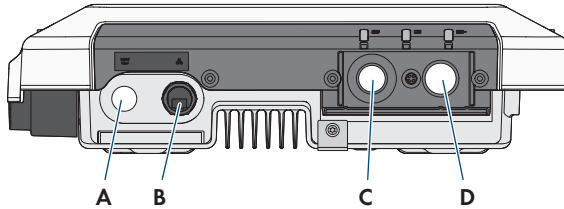


Figure 9: Bottom view of product with attached terminal cover

Position	Designation
A	Enclosure opening for cable gland M25 for the connection of a signal source to the digital input
B	Network port with protective cap
C	Opening for cable gland M25 or M32 for connecting the utility grid
D	Opening for cable gland M25 with bending protection spiral for connecting the charging cable

6.1.2 Interior View

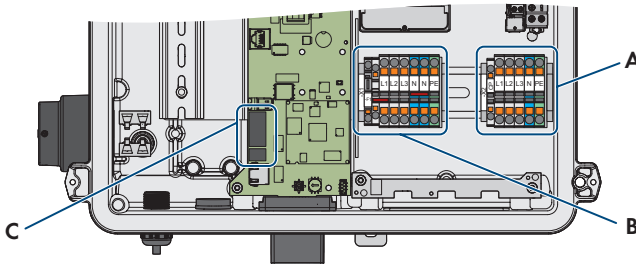


Figure 10: Connection areas in the interior of the product

Position	Designation
A	Terminal blocks for connecting the charging cable
B	Terminal blocks for connection to the utility grid
C	Terminals for connecting digital signal sources

6.2 Mounting the Connection Cap

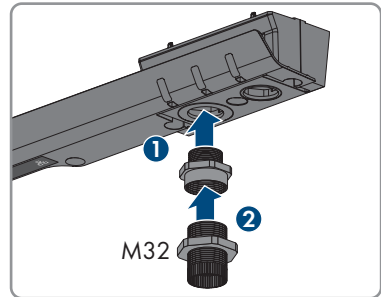
⚠ QUALIFIED PERSON

Requirements:

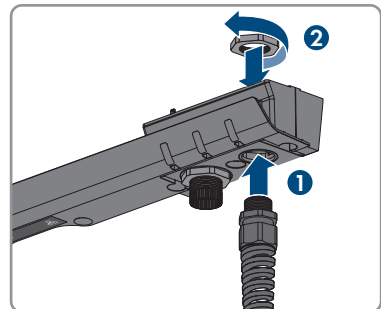
- Only use the supplied cable glands.

Procedure:

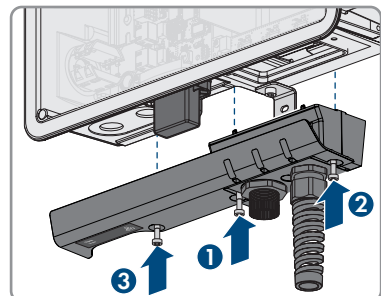
1. Attach the cable gland for connecting the utility grid to the terminal cover:
 - If the AC cable has a diameter of 11 mm to 17 mm, insert the M25 cable gland into the opening of the terminal cover and tighten.
 - If the AC cable has a diameter of 15 mm to 21 mm, insert the cable gland extension into the opening of the terminal cover and tighten. Then insert the M32 cable gland into the cable gland extension and tighten.



2. Attach the cable gland for connecting the charging cable to the terminal cover:
 - Insert the M25 cable gland with bending protection spiral into the opening of the terminal cover and fasten it from inside with the counter nut.



3. Put the terminal cover on the enclosure and tighten the 3 screws in the given order, so that the terminal cover still has some play (TX20).



6.3 AC Connection

6.3.1 Connecting the Utility Grid

⚠ QUALIFIED PERSON

AC cable requirements as follows:

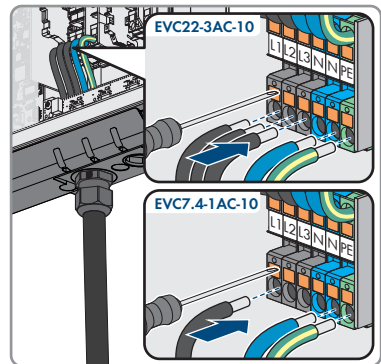
- The maximum permitted temperature of the terminal block for AC connection of 105°C must be observed.
- External diameter: 11 mm to 21 mm
- Conductor cross-section: 6 mm² (flexible/inflexible) or 10 mm² (inflexible)
- Insulation stripping length: 12 mm
- Sheath stripping length: 20 cm
- The cable must be dimensioned in accordance with the local and national directives for the dimensioning of cables. The requirements for the minimum wire size derive from these directives. Factors influencing cable dimensioning include nominal AC current, cable type, routing method, cable bundling, ambient temperature and maximum desired line losses.

Residual-current monitoring unit:

For operation, the charging station requires an external residual-current device type A, which has a rated residual current of 30 mA. Each charging station in the system must be connected to the utility grid via a separate residual-current device.

Procedure:

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. If necessary, slightly loosen the swivel nut.
5. For EVC22-3AC-10, connect the conductors L1, L2, L3, N and grounding conductor according to the labeling. For EVC7.4-1AC-10, connect the conductors L1, N and grounding conductor according to the labeling. Insert each conductor into the corresponding terminal point.



6. Ensure that the terminal points are allocated to the correct conductors.
7. Tighten the swivel nut on the cable gland hand-tight.

6.3.2 Connecting Additional Grounding

⚠ QUALIFIED PERSON

If additional grounding or equipotential bonding is required locally, you can connect additional grounding to the product. This prevents touch current if the grounding conductor at the terminal for the AC cable fails.

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

- 1 clamping bracket M5
- 1 hexagon socket cap head screw M5 x 16
- 1 washer M5
- 1 spring washer M5

Cable requirements:

i Use of fine-stranded conductors

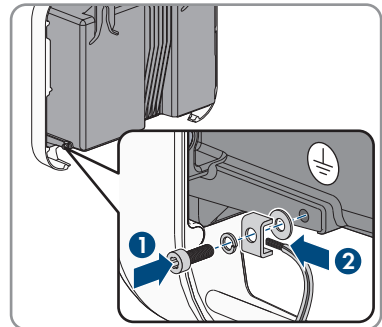
You can use an inflexible or a flexible, fine-stranded conductor.

- When using a fine-stranded conductor, it has to be double crimped by a ring terminal lug. Make sure that no insulated conductor is visible when pulling or bending. This will ensure sufficient strain relief by means of the ring terminal lug.

- Grounding cable cross-section: max. 10 mm²

Procedure:

1. Strip off 12 mm of the grounding cable insulation.
2. Insert the screw through the spring lock washer, the clamping bracket and the washer.
3. Lightly screw the screw into the thread of the connection point for the additional grounding.
4. Guide the grounding cable between the washer and clamping bracket and tighten the screw (TX25) (torque: 6 Nm).



6.4 Connecting the Charging Cable

⚠ QUALIFIED PERSON

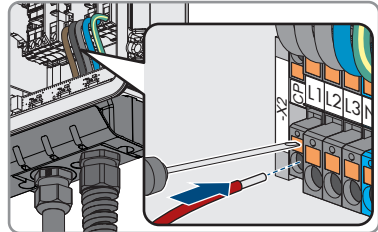
Requirements:

- Only use the supplied charging cable.
- Do not use adapters or extensions for the charging cable.

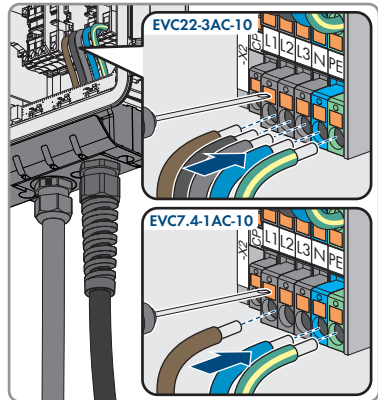
Procedure:

1. Disconnect the product from voltage sources (see Section 9, page 45).
2. Loosen the bending protection spiral from the cable gland and lead it over the charging cable.
3. Lead the charging cable through the bending protection spiral and the cable gland into the product
4. Tighten the bending protection spiral on the cable gland.

5. Connect the CP cable to the terminal block CP.
 - Open the terminal point with a screwdriver and insert the conductor into the terminal point until it stops.



6. For EVC22-3AC-10, connect the conductors L1, L2, L3, N and grounding conductor according to the labeling. For EVC7.4-1AC-10, connect the conductors L1, N and grounding conductor according to the labeling. Open the terminal point with a screwdriver and insert each conductor into the respective terminal point until it stops.



7. Ensure that the terminal points are allocated to the correct conductors.
8. Tighten the swivel nut on the cable gland hand-tight.

6.5 Connecting Signal Source to Digital Input

It is possible to connect a digital signal source (e.g. ripple control receiver or remote terminal unit) to the digital input of the product. This must be connected if it is prescribed by the grid operator.

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

- Bootlace ferrules (if necessary)

Requirements:

- The signal source must be technically suitable for connection to the digital inputs (see Section 14, page 59).
- The connected digital signal source has a safe separation to the grid potential. When connecting the digital signal source the potential-free contact or an external potential-free contact is used.

Overview:



Figure 11: Pin assignment

Pin	Pin assignment	Explanation
1	DI1	Digital input
2	DI2	Digital input
3	DI3	Digital input
4	DI4	Digital input
5	24 V	Voltage supply output
6	DI5	Fast stop
7	24 V	Voltage supply output

Circuitry overview:

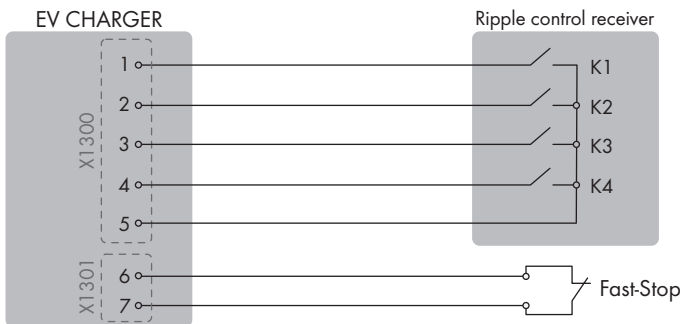
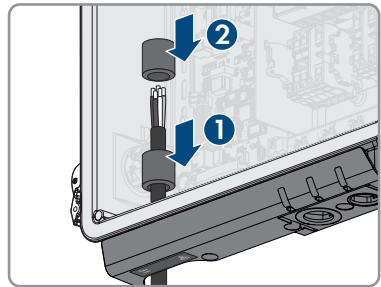


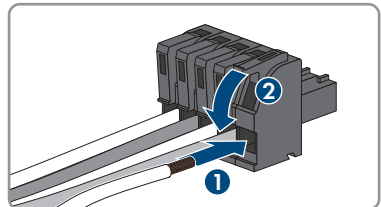
Figure 12: Connection of a Ripple Control Receiver

Procedure:

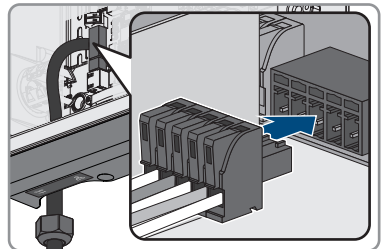
1. Disconnect the product from voltage sources (see Section 9, page 45).
2. Connect the connection cable to the digital signal source (see the manual from manufacturer).
3. Dismantle the connection cable 150 mm.
4. Strip off the insulation of required conductors by 6 mm.
5. Trim unused insulated conductors flush with the cable sheath.
6. If necessary, fit the conductors with bootlace ferrules.
7. Pass the connecting cable through the cable gland for connecting a signal source to the digital input.
8. Feed the connection cable through the enclosure opening for connecting a signal source to the digital input into the product.
9. Guide the 2 ferrites from the scope of delivery over the cable.



10. Connect the conductors to the terminal block supplied. Observe the pin assignment. If only the fast-stop function is to be used, connect the conductors only to the 2-pole terminal block. If all functions are to be used, connect the conductors to the 5-pole terminal block.



11. Plug the terminal block into the socket for connecting a digital signal source.



12. Ensure that the conductors are plugged into the terminal points tightly by pulling slightly on the conductors.
13. Tighten the cable gland hand-tight.

6.6 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.

NOTICE

Product damage due to moisture penetration

Moisture penetration can damage the product and impair its functionality of the product.

- Connect the network cable with the supplied RJ45 protective sleeve to the product.

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

- 1 network cable

Network cable requirements:

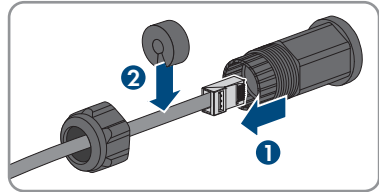
The cable length and quality affect the quality of the signal. Observe the following cable requirements.

- Cable type: 100BaseTx
- Cable category: minimum CAT5e
- Plug type: RJ45 of Cat5, Cat5e or higher
- Shielding: SF/UTP, S/UTP, SF/FTP or S/FTP
- Number of insulated conductor pairs and insulated conductor cross-section: at least 2 x 2 x 0.22 mm²
- 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 for outdoor use.

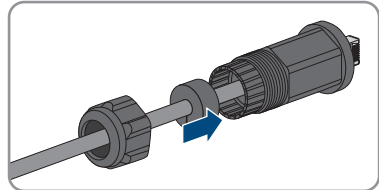
Procedure:

1. Disconnect the product from voltage sources (see Section 9, page 45).
2. Unscrew the protective cap from the network port.

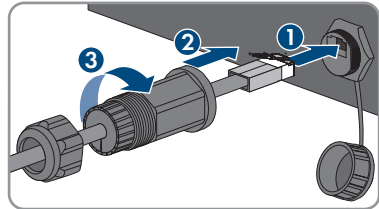
3. Press the cable support sleeve out of the threaded sleeve.
4. Feed the network cable through the swivel nut and threaded sleeve. Attach the cable support sleeve to the network cable.



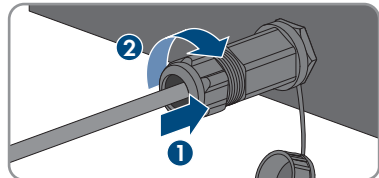
5. Press the cable support sleeve into the threaded sleeve.



6. Insert the network plug of cable into the product's network port. Ensure that the cable is correctly locked in place. Turn the threaded sleeve onto the thread of the network port on the product.



7. Screw the swivel nut onto the threaded sleeve.



8. If you would like to establish a direct connection, connect the other end of the network cable directly to the end device.
9. If you would like to integrate the product into a local network, connect the other end of the network cable to the local network (e.g. via a router).

7 Commissioning

7.1 Commissioning Procedure

⚠ QUALIFIED PERSON

This section describes the commissioning procedure and gives an overview of the steps you must perform in the prescribed order.

Procedure	See
1. Commission the product.	Section 7.2, page 34
2. Establish a connection to the user interface of the product. There are various connection options to choose from for this: <ul style="list-style-type: none"> • Direct connection via WLAN • Connection via WLAN in the local network • Connection via Ethernet in the local network 	Section 8.1, page 38
3. Change the network configuration, if necessary. The automatic network configuration recommended by SMA Solar Technology AG via DHCP server is activated by default.	Section 7.3, page 36
4. Carry out the configuration using the installation assistant.	Section 7.4, page 36
5. To monitor the system in the Sunny Portal and view the data visually, create a user account in the Sunny Portal and create a system in the Sunny Portal or add devices to an existing system.	https://www.sunnyportal.com

7.2 Commissioning the Product

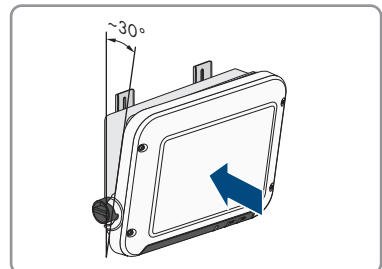
⚠ QUALIFIED PERSON

Requirements:

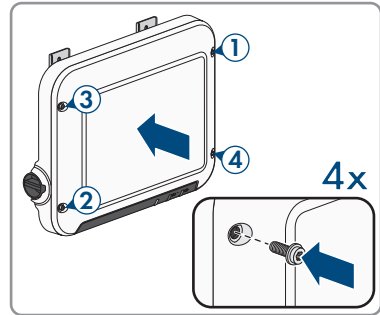
- The product must be correctly mounted.

Procedure:

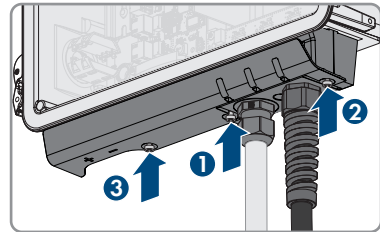
1. Place the enclosure lid slightly tilted on the terminal cover and then close it completely.



2. Tighten the screws in the order shown (TX25, torque: $6 \text{ Nm} \pm 0.3 \text{ Nm}$). Finally, retighten the first screw.

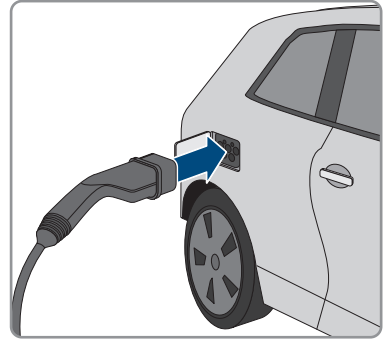


3. Tighten the 3 screws of the terminal cover in the specified sequence (TX20, torque: 3.5 Nm).



4. Wrap the charging cable around the enclosure.
5. Close unused enclosure openings with cable glands.
6. Ensure that all cable glands have seal inserts and that the seal inserts have not moved.
7. Switch on the AC circuit breaker.
8. Wait until the product is in charging mode. The procedure takes approx. 4 minutes. Meanwhile, the current operating state of the product is indicated by the LEDs (see Section 4.4, page 15).
9. In fast charging mode, perform the test of the charging station according to IEC 61851 and fill in the test report. An example of a test report can be found at www.SMA-Solar.com.
10. If necessary, rectify any defects found.

11. After successful testing, connect the charging cable to the vehicle.



- ☑ All 3 LEDs light up. The start-up phase begins.
 - ☑ All 3 LEDs go out again after approximately 90 seconds.
 - ☑ Depending on the available power, the green LED pulses or is continuously illuminated. The vehicle is charged.
12. If the green LED is still flashing, the conditions for activating charging operation are not yet met. As soon as the conditions for charging are met, the charging station starts charging the vehicle.
13. If the red LED lights up, an event has occurred. Use the event message to find out which event has occurred and, if necessary, initiate countermeasures.
14. After charging, disconnect the charging cable from the vehicle and wrap it around the product.

7.3 Changing the Network Configuration

⚠ QUALIFIED PERSON

After you connect to the user interface for the first time (see Section 8.1, page 38), the welcome page opens.

On the welcome page, you can change the network configuration. The automatic network configuration recommended by SMA Solar Technology AG via DHCP server is activated by default. Only change the network configurations if the default configuration is not suitable for your network.

Procedure:

1. Select **Change network configuration** on the welcome page.
2. Carry out network configuration and confirm with [**Save**].

7.4 Configuring the Product

⚠ QUALIFIED PERSON

After you connect to the user interface for the first time, the welcome page opens.

If you click on **[Next]**, the commissioning assistant starts. With the commissioning assistant, you can create an administrator account to access and configure the product.

Procedure:

1. Click on **[Next]** on the welcome page.
2. Enter the administrator account data and click on **[Next]**. Observe that only 1 user with administrator authorization can be created.
 - The administrator account has been created.
3. Follow the steps of the commissioning assistant and configure your system accordingly. For every setting made in a step, click on **[Next]**.
 - When all steps are completed, the information page is displayed.
4. To open the user interface home page and view product data, click on **[Next]**.

8 Operation

8.1 Establishing a connection to the user interface

8.1.1 Establishing a direct connection via WLAN

You have several options to connect the product to an end device. The procedure can be different depending on the end devices. If the procedures described do not apply to your end device, establish the direct connection via Wi-Fi as described in the manual of your end device.

The following connection options are available:

- Connection to SMA 360° App
- Connection with WPS
- Connection with Wi-Fi network search

Requirements:

- The product must be commissioned.
- An end device (e.g. computer, tablet PC or smartphone) must be available.
- The respective latest version of one of the following web browsers must be installed: Chrome, Edge, Firefox or Safari.
- JavaScript must be enabled in the web browser of the end device.

SSID, IP address and WLAN password

- SSID in WLAN: **SMA[serial number]** (e.g. SMA0123456789)
- Device-specific Wi-Fi password: see WPA2-PSK on the type label of the product
- Standard access address for a direct connection via Wi-Fi outside of a local network:
http://smalogin.net

Connection to SMA 360° App

Requirements:

- An end device with camera must be available.
- The SMA 360° App must be installed on the end device.
- An user account for Sunny Portal must already exist.

Procedure:

1. Open the SMA 360° App and login with dem Sunny Portal account details.
2. Select **QR-Code Scan** in the menu.
3. Scan the QR Code on you product via the SMA 360° App.
 - The end device automatically connects to the product. The web browser of your end device opens and the welcome or login page of the user interface is displayed.
4. If the web browser of your end device does not open automatically and the welcome or login page of the user interface is not displayed, open the web browser and enter **http://smalogin.net** in the address bar.

Connection with WPS

Requirements:

- The end device must have a WPS function.

Procedure:

1. Enable WPS function on the product. Tap on the enclosure lid of the product twice.
 - The blue LED flashes quickly for approx. two minutes. The WPS function is active during this time.
2. Enable the WPS function on your end device.
3. Open the web browser of your end device and enter **http://smalogin.net** in the address bar.

Connection with Wi-Fi network search

1. Search for Wi-Fi networks with your end device.
2. Select the SSID of the product **SMA[serial number]** in the list with the detected Wi-Fi networks.
3. Enter the device-specific Wi-Fi password (see WPA2-PSK on the type label).
4. Open the web browser of your end device and enter **http://smalogin.net** in the address bar.
 - The welcome or login page of the user interface is displayed.
5. If the login page of the user interface does not open, enter the IP address **192.168.12.3** or, if your end device supports mDNS services, **SMA[serial number].local** or **http://SMA[serial number]** in the address bar of the web browser.

8.1.2 Establishing a Connection via Ethernet in the local network

New IP address for connecting with a local network

If the product is connected to a local network (e.g. via a router), 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. Upon completion of the configuration, the product can only be reached via the following access addresses:

- 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 for Apple and Linux systems: **SMA[serial number].local** (e.g. SMA0123456789.local)
- Access address for Windows and Android systems: **https://SMA[serial number]** (e.g. https://SMA0123456789)

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. Tip: There are various methods of integrating the product into the local network with the aid of the installation assistant.
- An end device (e.g. computer, tablet PC or smartphone) must be available.
- The end 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: Chrome, Edge, Firefox or Safari.

Procedure:

1. Open the web browser of your end device. Enter the IP address of the product in the address bar of the web browser. Then press Enter key.
 2. **i** **Web browser signals a security vulnerability**
After the IP address has been entered, a message might appear indicating that the connection to the user interface of the product is not secure. SMA Solar Technology AG guarantees the security of the user interface.
 - Continue loading the user interface.
- The login page of the user interface opens.

8.1.3 Establishing a Connection via WLAN in the Local Network**i** **New IP address for connecting with a local network**

If the product is connected to a local network (e.g. via a router), 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. Upon completion of the configuration, the product can only be reached via the following access addresses:

- 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 for Apple and Linux systems: **SMA[serial number].local** (e.g. SMA0123456789.local)
- Access address for Windows and Android systems: **https://SMA[serial number]** (e.g. https://SMA0123456789)

Requirements:

- The product must be commissioned.
- The product must be integrated into the local network. Tip: There are various methods of integrating the product into the local network with the aid of the installation assistant.
- An end device (e.g. computer, tablet PC or smartphone) must be available.
- The end 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: Chrome, Edge, Firefox or Safari.

Procedure:

- Enter the IP address of the product in the address bar of the web browser.
- ☑ The login page of the user interface opens.

8.2 Design of the User Interface

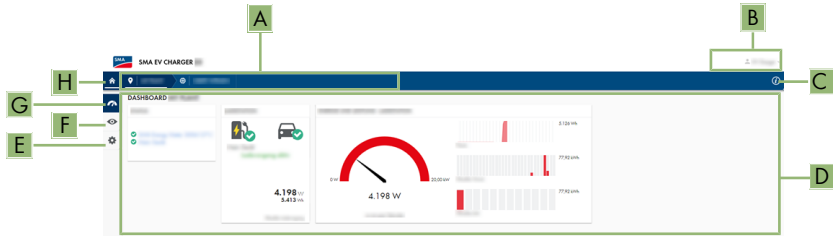


Figure 13: Design of the user interface (example)

Position	Designation	Description
A	Focus navigation	Enables the navigation between the following levels: <ul style="list-style-type: none"> • System • Device
B	User settings	Provides the following functions: <ul style="list-style-type: none"> • Configuring personal data • Log out
C	System information	Displays the following information: <ul style="list-style-type: none"> • System time • Firmware version • Serial number • Licenses • Manual (eManual)
D	Content area	Displays the dashboard or content of the selected menu
E	Configuration	Offers different configuration options, depending on the user's rights and the selected level: <ul style="list-style-type: none"> • Device properties • Parameters • Network configuration • Updates • Device configuration

Position	Designation	Description
F	Monitoring	Displays depending on the selected device the following information on the current level and the superior levels: <ul style="list-style-type: none"> • Energy and power • Instantaneous values • Status list • Event monitor
G	Dashboard	Displays instantaneous values of the device currently selected
H	Home	Opens the user interface homepage

8.3 Activate WPS Function

The WPS function can be used for different purposes:

- Automatic connection to a network (e.g. via router)
- Direct connection between the product and an end device

Depending on the intended application of the WPS function, the procedure for activation will vary.

Activating WPS function for automatic connection to a network

Requirements:

- WLAN must be activated in the product.
- WPS must be activated on the router.

Procedure:

1. Open the user interface (see Section 8.1, page 38).
 2. Log into the user interface.
 3. Select the menu item **Network configuration** in the menu **Configuration**.
 4. Click on the button **Use WPS** in the **Wi-Fi** section.
 5. Click on **Save**.
- The WPS function is activated and the automatic connection to the network can be established.

Activating the WPS function for direct connection to the end device.

- Enable WPS function on the product. To do this, tap on the enclosure lid of the product twice.
 - The blue LED flashes quickly for approx. 2 minutes. The WPS function is active during this time.

8.4 Changing the Password

The password for the currently logged in user can be changed in the user interface of the product.




Procedure:

1. Open the user interface (see Section 8.1, page 38).

2. Log into the user interface.
3. Select the menu **User settings**.
4. Select [**Personal data**].
5. Click on [**If you want to change your password, please click here**].
6. To change the password, first enter the old password and then the new password repeatedly.
7. Click on [**Save**] to save the changes.

8.5 Properties of Charging Modes

The EV Charger has 3 charging modes that can be switched between. The effect of the setting on the charging mode is described below.

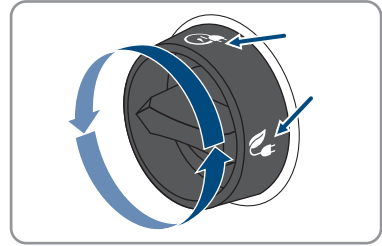
Symbol	Explanation
	<p>Fast charging</p> <p>The vehicle is charged with the maximum available power. There is no optimization here with regard to electricity costs and the use of PV energy. The charging power is limited by the maximum charging power of the vehicle, the house connection and the EV Charger.</p>
	<p>Smart charging - PV surplus charging</p> <p>The vehicle is charged with excess PV energy that would otherwise be fed into the utility grid or cut off. The Sunny Portal is used to set how high the proportion of excess PV energy must be in order for the EV Charger to charge the vehicle. The Sunny Home Manager schedules the charging by the EV Charger only as soon as it can fulfill the set optimization target. Depending on the configuration of the priority of the optional appliances, the EV Charger is taken into account by Sunny Home Manager before or after other appliances when scheduling. In this charging mode, it is not possible to ensure that the vehicle is charged in all cases. If the surplus PV energy is not sufficient for charging, no charging takes place.</p>
	<p>Smart charging - Forecast-based charging</p> <p>The EV Charger is operated as a necessary appliance with as much surplus PV energy as possible. By entering a departure time and an amount of energy to be charged in the SMA Energy App, the Sunny Home Manager intelligently plans the charging process. The Sunny Home Manager enables charging at minimum cost and with maximum utilization of PV power with sufficient charging to reach the destination at the entered departure time. After sufficient charging for the target range, the EV Charger automatically switches to Smart charging - PV surplus charging.</p>

8.6 Changing the Charging Mode

To switch between the 3 EV Charger modes, proceed as follows:

Switching between fast charging and intelligent charging

- Turn the rotary switch on the product so that the symbol of the required charging mode is visible.



Switching between smart charging - PV surplus charging and smart charging - forecast-based charging

1. Open the SMA Energy app.
2. Select [**eMobility**] in the lower bar.
 - Information on the current charging mode is displayed.
3. Select the required charging mode in the drop-down list and make settings if necessary.

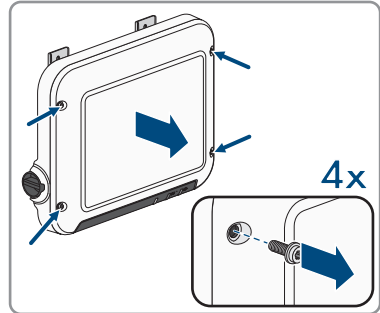
9 Disconnecting the product from voltage sources

⚠ QUALIFIED PERSON

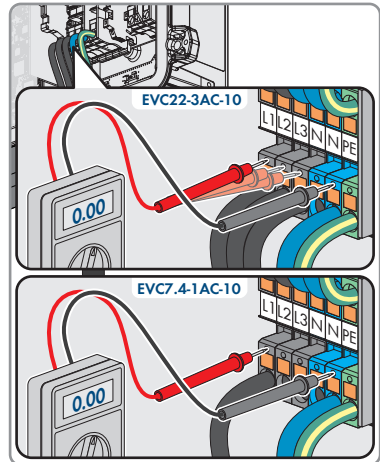
Prior to performing any work on the product, always disconnect it from all voltage sources as described in this section. Always adhere to the prescribed sequence.

Procedure:

1. Disconnect the circuit breaker and secure it against reconnection.
2. Remove charging cable from vehicle.
3. Loosen all 4 screws of the enclosure lid (TX25) and remove it.

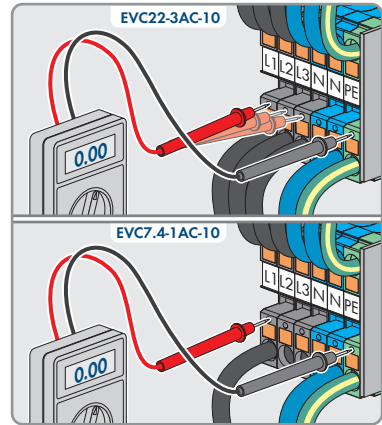


4. For EVC22-3AC-10, check that there is no voltage between L1 and N, L2 and N and L3 and N at the terminal block for connecting the utility grid. Use a suitable measuring device for this purpose.
For EVC7.4-1AC-10, check that there is no voltage between L1 and N at the terminal block for connecting the utility grid. Use a suitable measuring device for this purpose.



5. For EVC22-3AC-10, check that there is no voltage between L1 and grounding conductor, L2 and grounding conductor and L3 and grounding conductor at the terminal block for connecting the utility grid. Use a suitable measuring device for this purpose.

For EVC7.4-1AC-10, check that there is no voltage between L1 and grounding conductor at the terminal block for connecting the utility grid. Use a suitable measuring device for this purpose.



10 Clean 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, foliage and other dirt.

11 Troubleshooting

11.1 Resetting the Administrator Account

If you have forgotten the administrator password for the product, you can reset the administrator account with a device key (DEV KEY) and then assign a new password.

The device key can be used to prove the identity of the product in digital communication. It is located on the back of the quick reference guide included with the product.

Procedure:

1. Open the user interface (see Section 8.1, page 38).
2. Click on **[Delete administrator account?]**.
3. Enter device key. It is located on the back of the quick reference guide.
4. Select **Login**.
5. Click on **[Delete]**.
 - The product is restarted.
6. Establish a connection to the user interface of the product (see Section 8.1, page 38).
7. Create new administrator account.

11.2 Event Messages

Event number	Message, cause and corrective measures
3701	<p>⚠ QUALIFIED PERSON</p> <p>Residual current A DC residual current has been detected between EV Charger and vehicle.</p> <p>Corrective measures:</p> <ul style="list-style-type: none"> • Check the user interface of the vehicle for an error message. • Disconnect EV Charger and vehicle and reconnect to reset the error message.
6112	<p>⚠ QUALIFIED PERSON</p> <p>Self-diagnosis > Watchdog is triggered One task has not triggered the software watchdog.</p> <p>Corrective measures:</p> <ul style="list-style-type: none"> • Contact the service.
6202	<p>⚠ QUALIFIED PERSON</p> <p>Self-diagnosis > DI converter error The external component DI converter reports an error.</p> <p>Corrective measures:</p> <ul style="list-style-type: none"> • Contact the service.

Event number	Message, cause and corrective measures
6501	<p>Self-diagnosis > The internal temperature exceeds a permissible maximum value</p> <p>The product has switched off because the internal temperature is above the maximum permissible value.</p> <p>Corrective measures:</p> <ul style="list-style-type: none"> • Wait until the product has cooled down. • If this message is displayed frequently, contact the Service.
6630	<p>⚠ QUALIFIED PERSON</p> <p>Self-diagnosis > Fast-stop triggered</p> <p>An overcurrent has been detected at the connection point. This triggered a fast stop.</p>
7001	<p>⚠ QUALIFIED PERSON</p> <p>The temperature sensor for the indoor temperature is defective.</p> <p>The measurement is permanently outside the measuring range limits.</p> <p>Corrective measures:</p> <ul style="list-style-type: none"> • Contact the service.
7312	<p>Update completed</p>
7320	<p>The device with serial number [xx] was successfully updated to firmware version [xxx].</p> <p>The firmware update was completed successfully.</p>
7321	<p>⚠ QUALIFIED PERSON</p> <p>The device could not be updated</p> <p>The firmware update was not successful.</p> <p>Corrective measures:</p> <ul style="list-style-type: none"> • Retry update. • If this message is displayed again, contact the Service.
7329	<p>Condition test successful</p> <p>The testing of the update conditions was successful. The firmware update package is suitable for this product.</p>

Event number	Message, cause and corrective measures
7330	<p data-bbox="311 183 599 220">⚠ QUALIFIED PERSON</p> <p data-bbox="288 231 498 263">Condition test failed</p> <p data-bbox="288 271 991 327">The testing of the update conditions was not successful. The firmware update package is not suitable for this product.</p> <p data-bbox="288 335 509 359">Corrective measures:</p> <ul data-bbox="311 367 901 462" style="list-style-type: none"> • Retry update. • Ensure that the selected update file is suitable for this product. • If this message is displayed again, contact the Service.
7605	<p data-bbox="311 478 599 515">⚠ QUALIFIED PERSON</p> <p data-bbox="288 526 554 558">Communication disturbed</p> <p data-bbox="288 566 744 590">The product has detected a communication error.</p> <p data-bbox="288 598 509 622">Corrective measures:</p> <ul data-bbox="311 630 520 662" style="list-style-type: none"> • Contact the service.
7619	<p data-bbox="288 670 1002 702">Communication fault with meter unit > Check communication to meter</p> <p data-bbox="288 710 845 742">The product is not receiving any data from the energy meter.</p> <p data-bbox="288 742 509 774">Corrective measures:</p> <ul data-bbox="311 782 1013 925" style="list-style-type: none"> • Ensure that the energy meter is integrated into the same network as the product (see energy meter manual). • For Wi-Fi connection: Improve the Wi-Fi connection quality (e.g., via Wi-Fi repeater) or connect the product with the DHCP server (router) via Ethernet.
7702	<p data-bbox="311 941 599 978">⚠ QUALIFIED PERSON</p> <p data-bbox="288 989 576 1021">Self-diagnosis > Relay error</p> <p data-bbox="288 1029 632 1053">Grid relay of the product is defective.</p> <p data-bbox="288 1061 509 1093">Corrective measures:</p> <ul data-bbox="311 1101 520 1125" style="list-style-type: none"> • Contact the service.
8705	<p data-bbox="288 1133 621 1165">Invalid spec. for [##] from [##]</p> <p data-bbox="288 1173 991 1228">An invalid specification for reactive or active power has been set by the analog inputs, the digital inputs or Modbus.</p> <p data-bbox="288 1236 509 1268">Corrective measures:</p> <ul data-bbox="311 1276 935 1324" style="list-style-type: none"> • Check and modify reactive and active power setpoints in the user interface of the product.
9026	<p data-bbox="288 1340 386 1372">Fast stop</p> <p data-bbox="288 1380 1013 1428">An overcurrent has been detected at the connection point. This triggered a fast stop.</p>

Event number	Message, cause and corrective measures
9801	<p>Vehicle not compatible</p> <p>The vehicle is not suited for use with the EV Charger.</p> <p>Corrective measures:</p> <ul style="list-style-type: none"> • Ensure that the vehicle is suited for use with the EV Charger. • Try action again.
9802	<p>Vehicle reports charging error</p> <p>The vehicle has detected an error during the charging mode.</p> <p>Corrective measures:</p> <ul style="list-style-type: none"> • Open and close the vehicle by radio remote control. • Remove the charging cable from the vehicle and then reconnect the charging cable to the vehicle. • Check and if necessary adjust the settings in the vehicle's user interface.
9803	<p>Communication between charging station and vehicle interrupted</p> <p>No communication can be established between EV Charger and vehicle.</p>
9804	<p>Status of the charging mode changes to [##]</p> <p>The charging mode was changed to the displayed mode.</p>
9805	<p>Charging mode was interrupted by vehicle.</p> <p>The vehicle has interrupted the charging process.</p> <p>Corrective measures:</p> <ul style="list-style-type: none"> • Opening and closing of the vehicle by radio remote control. • Remove the charging cable from the vehicle and then reconnect the charging cable to the vehicle. • Check and if necessary adjust the settings in the vehicle's user interface.
10002	<p>Restart</p> <p>The product is performing a restart.</p>
10005	<p>System start</p> <p>A system start is carried out.</p>
10100	<p>Parameter [##] set successfully. [##] to [##]</p> <p>The displayed parameter was successfully changed.</p>
10101	<p>⚠ QUALIFIED PERSON</p> <p>Setting of parameter [##] failed. [##] to [##]</p> <p>The displayed parameter was not changed.</p> <p>Corrective measures:</p> <ul style="list-style-type: none"> • Make sure thresholds of the parameters are complied with. • Change the parameter again.

Event number	Message, cause and corrective measures
10107	<p>Update failed</p> <p>The update was not carried out successfully.</p> <p>Corrective measures:</p> <ul style="list-style-type: none"> • Retry update. • If this message is displayed again, contact the Service.
10111	<p>Update successful</p> <p>The firmware update was completed successfully.</p>
10114	<p>The device has been reset to default settings.</p> <p>The configuration of the product has been reset to the default settings.</p>
10207	<p>New device [##] registered</p> <p>The displayed product was included in the system of the communication product.</p>
10270	<p>Communication with the Sunny Home Manager is interrupted</p> <p>No communication connection to the Sunny Home Manager can be established.</p> <p>Corrective measures:</p> <ul style="list-style-type: none"> • Check network connections.
10283	<p>⚠ QUALIFIED PERSON</p> <p>Wi-Fi module faulty</p> <p>The Wi-Fi module integrated in the product is defective.</p> <p>Corrective measures:</p> <ul style="list-style-type: none"> • Contact the service.
10284	<p>No Wi-Fi connection possible</p> <p>The product does not currently have a Wi-Fi connection to the selected network.</p> <p>Corrective measures:</p> <ul style="list-style-type: none"> • Ensure that the SSID, the Wi-Fi password and the encryption method have been entered correctly. The encryption method is specified by your Wi-Fi router or Wi-Fi access point and can be changed there. • Ensure that the Wi-Fi router or Wi-Fi access point is in range and is signaling correct operation. • If this message is displayed often, improve the Wi-Fi connection by using a WLAN repeater.
10285	<p>Wi-Fi connection established</p>

Event number	Message, cause and corrective measures
10286	<p>Wi-Fi connection lost</p> <p>The product has lost Wi-Fi connection to the selected network.</p> <p>Corrective measures:</p> <ul style="list-style-type: none"> • Ensure that the Wi-Fi router or WLAN access point is still active. • Ensure that the Wi-Fi router or WLAN access point is in range and is signalizing correct operation. • If this message is displayed often, improve the Wi-Fi connection by using a WLAN repeater.
10294	<p>Access point activated</p> <p>The access point is active. A Wi-Fi connection can be established.</p>
10295	<p>Access point is deactivated</p> <p>The access point is not active. No Wi-Fi connection could be established.</p>
10297	<p>Device [##] has been deleted from [##]</p> <p>The displayed product has been deleted by a user from the system of the communication product.</p>
10507	<p>New active power limitation</p> <p>The product has received a new specification for active power limitation.</p>
10612	<p>The administrator account has been reset</p>
27201	<p>Search for update completed successfully</p>
27204	<p>Download of an update started</p>
27205	<p>Update download successful</p>
27206	<p>Update download successful</p> <p>Update download failed.</p> <p>Corrective measures:</p> <ul style="list-style-type: none"> • Try downloading the update again. • For Wi-Fi connection: Improve the Wi-Fi connection quality (e.g., via Wi-Fi repeater) or establish connection with the product via Ethernet. • If this message is displayed again, contact the Service.
27208	<p>The firmware update with the version number [##] for device type [##] is being transferred. The transfer can take several minutes.</p>
27313	<p>Update started</p>

12 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.

⚠ DANGER

Danger to life due to high voltages

- Disconnect the product from voltage sources (see Section 9, page 45).

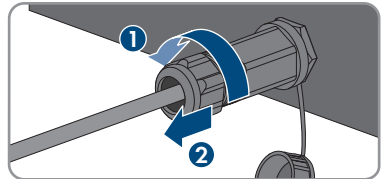
2.

⚠ CAUTION

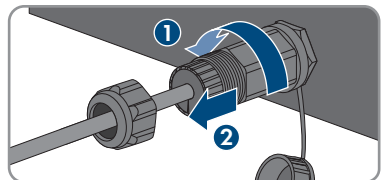
Risk of burns due to hot enclosure parts

- Wait 30 minutes for the enclosure to cool down.

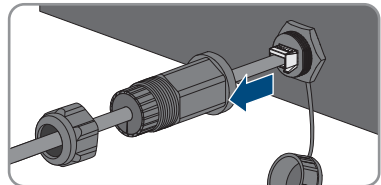
3. Unscrew the swivel nut from the threaded sleeve for the network cable.



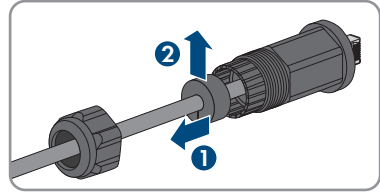
4. Remove the threaded sleeve from the thread of the network port on the product.



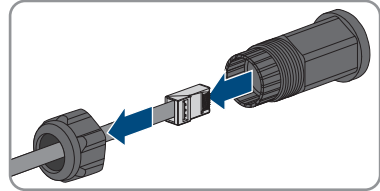
5. Release the network cable plug and pull it out of the jack on the product.



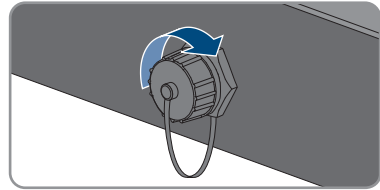
6. Take the cable support sleeve out of the threaded sleeve and remove the cable support sleeve from the network cable.



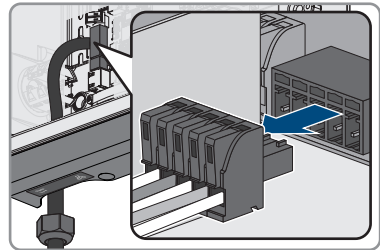
7. Lead the network cable out of the threaded sleeve and the swivel nut.



8. Screw the protective cap onto the network port.



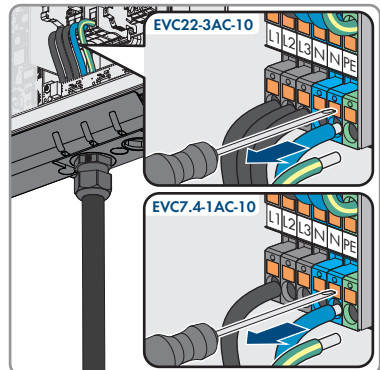
9. Remove the terminal blocks for connecting the signal source to the digital input from the port for connecting a digital signal source.



10. Remove the conductors from the terminal blocks.

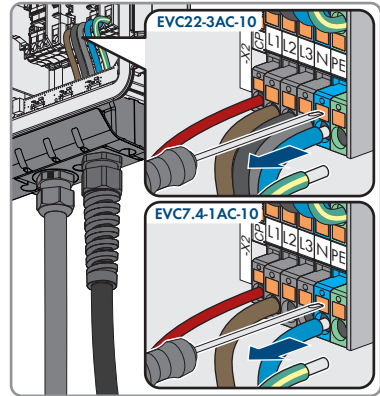
11. Lead the connection cable out of the product. If necessary, loosen the cable gland.

12. For EVC22-3AC-10, remove conductors L1, L2, L3, N and grounding conductor from the terminal block for connecting the utility grid. For EVC7.4-1AC-10, remove conductors L1, N and grounding conductor from the terminal block for connecting the utility grid. Stick a flat-blade screwdriver (blade width: 3 mm) as far as it can go into the rectangular opening via the terminal and remove the conductors from the terminals.



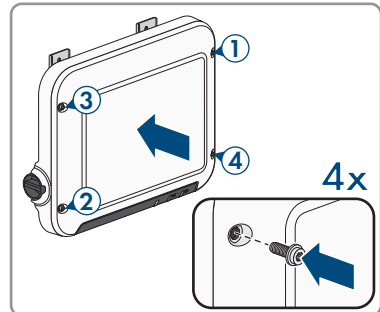
13. Lead the AC cable out of the product through the cable gland. If necessary, loosen the swivel nut of the cable gland.

14. With EVC22-3AC-10, remove the conductors L1, L2, L3, N, grounding conductor and CP cable from the terminal block for connecting of the charging cable. With EVC7.4-1AC-10, remove the conductors L1, N, grounding conductor and CP cable from the terminal block for connecting of the charging cable. Stick a flat-blade screwdriver (blade width: 3 mm) as far as it can go into the rectangular opening via the terminal and remove the conductors from the terminals.



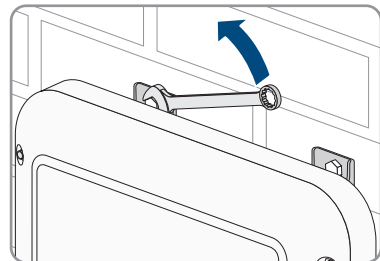
15. Lead the charging cable through the bending protection spiral and the cable gland out of the product. If necessary, loosen the bending protection spiral.

16. Replace the enclosure lid and tighten the screws in the sequence shown (TX25, torque: $6 \text{ Nm} \pm 0.3 \text{ Nm}$). Finally, retighten the first screw.

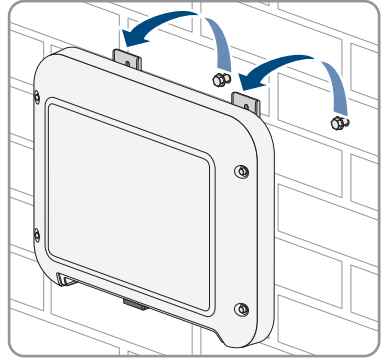


17. Loosen the hexagon head screw with which the mounting bracket is attached to the support surface.

18. Slightly loosen the 2 screws for fixing the metal brackets at the top of the product.



19. Remove the product with the metal brackets from the screws.



20. 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.
21. If the product is to be disposed of, dispose of the product in accordance with the locally applicable disposal regulations for electronic waste.

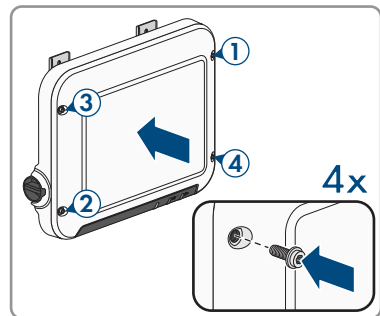
13 Procedure for Receiving a Replacement Device

⚠ QUALIFIED PERSON

Under fault conditions, 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 12, page 54).
2. Mount the replacement device and make the electrical connections as described in this document.
3. If the enclosure lid of the replacement device is a transport lid (see information on the enclosure lid), replace the transport lid of the replacement device with the enclosure lid of the defective product:
 - Loosen all screws of the upper enclosure lid (TX25) and remove it.
 - Replace the enclosure lid and tighten the screws in the sequence shown (TX25, torque: $6 \text{ Nm} \pm 0.3 \text{ Nm}$). Finally, retighten the first screw.



4. Commission the replacement device (see Section 7.2, page 34).
5. Establish a connection to the user interface (see Section 8.1, page 38).
6. Configure the product using the commission assistant (see Section 7.4, page 36).
7. 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).
8. Pack the defective product in the packaging of the replacement device and arrange with SMA Solar Technology AG for it to be picked up.

14 Technical Data

Inputs and outputs (AC)

	EVC7.4-1AC-10	EVC22-3AC-10
Charging capacity, freely adjustable (Mode 3)	1300 W to 7400 W	1300 W to 22000 W
Nominal voltage	230 V	400 V
Rated frequency	50 Hz	50 Hz
Nominal current, single-phase	32 A	32 A
Minimum input voltage	50 V	50 V
Conductor cross-section, rigid or flexible	3 x 6 mm ²	5 x 6 mm ²
Conductor cross-section, rigid	3 x 10 mm ²	5 x 10 mm ²
Vehicle connection (plug)	Type 2	Type 2
Charging cable length	5 m	5 m

Protective Devices

Integrated direct current failure monitoring 6 mA	Available
Power outage protection	Available

General Data

Width x height x depth	460 mm x 357 mm x 122 mm
Weight	8.0 kg
Length x width x height of the packaging	597 mm x 399 mm x 238 mm
Weight including packaging	11.5 kg
Operating temperature range	-25 °C to +40 °C
Operating temperature range with integrated derating function	-25 °C to +60 °C
Storage temperature range	-25 °C to +70 °C
Maximum permissible value for relative humidity (condensing)	100 %
Maximum operating altitude above mean sea level (MSL)	2000 m
Standby self-consumption	< 6.5 W

Maximum data volume per charging station with Speedwire	550 MB/month
Wi-Fi range in free-field conditions	100 m
Quantity maximum detectable Wi-Fi networks	32
Cooling method	Convection
Degree of protection in accordance with IEC 60529	IP65
Impact resistance	IK08
Protection class in accordance with IEC 61140	I
Overvoltage category	III
Grid configurations for EVC22-3AC-10	TN, TT
Grid configurations for EVC7.4-1AC-10	TN, TT, IT

Equipment

AC terminal	Spring-cage terminal
Speedwire interface	As standard
Wi-Fi	As standard

Torques

Screws wall mounting	Hand-tight
Screws of mounting bracket	6 Nm \pm 0.3 Nm
Screws of terminal cover	3.5 Nm
Enclosure lid screws	6 Nm \pm 0.3 Nm

Data Storage Capacity

1-minute values	7 days
5-minute values	7 days
15-minute values	30 days
60-minute values	3 years
Event messages	1024 events

15 Contact

If you have technical problems with our products, please contact the SMA Service Line. The following data is required in order to provide you with the necessary assistance:

- Device type
- Serial number
- Firmware version
- Event message
- Mounting location and mounting height
- Optional equipment, e.g. communication products
- Use the name of the system in Sunny Portal (if available)
- Access data for Sunny Portal (if available)
- Special country-specific settings (if available)
- Information on the ripple control receiver
- Detailed description of the problem

Deutschland	SMA Solar Technology AG	Belgien	SMA Benelux BVBA/SPRL
Österreich	Niestetal	Belgique	Mechelen
Schweiz	Sunny Boy, Sunny Mini Central, Sunny Tripower, Sunny High- power: +49 561 9522-1499 Monitoring Systems, SMA EV Charger: +49 561 9522-2499 Hybrid Controller: +49 561 9522-3199 Sunny Island, Sunny Boy Stor- age, Sunny Backup: +49 561 9522-399 Sunny Central, Sunny Cen- tral Storage: +49 561 9522-299 SMA Online Service Center: www.SMA-Service.com	België	+32 15 286 730
		Luxemburg	for Netherlands: +31 30 2492 000
		Luxembourg	SMA Online Service Center: www.SMA-Service.com
		Nederland	
		Česko	SMA Service Partner TERMS a.s +420 387 6 85 111
		Magyarország	SMA Online Service Center: www.SMA-Service.com
		Slovensko	
		Türkiye	SMA Service Partner DEKOM Telekomünikasyon A. Ş +90 24 22430605 SMA Online Service Center: www.SMA-Service.com
France	SMA France S.A.S. Lyon +33 472 22 97 00 SMA Online Service Center: www.SMA-Service.com	Ελλάδα	SMA Service Partner AKTOR FM. Αθήνα +30 210 8184550 SMA Online Service Center: www.SMA-Service.com
		Κύπρος	

España Portugal	SMA Ibérica Tecnología Solar, S.L.U. Barcelona +34 935 63 50 99 SMA Online Service Center: www.SMA-Service.com	United King- dom	SMA Solar UK Ltd. Milton Keynes +44 1908 304899 SMA Online Service Center: www.SMA-Service.com
Italia	SMA Italia S.r.l. Milano +39 02 8934-7299 SMA Online Service Center: www.SMA-Service.com	Australia	SMA Australia Pty Ltd. Sydney Toll free for Australia: 1800 SMA AUS (1800 762 287) International: +61 2 9491 4200
United Arab Emirates	SMA Middle East LLC Abu Dhabi +971 2234 6177 SMA Online Service Center: www.SMA-Service.com	India	SMA Solar India Pvt. Ltd. Mumbai +91 22 61713888

ไทย	Service Partner for String inverter: 대한민국 Solar Power Engineering Co., Ltd. 333/7,8,9 United Tower Building 4th floor. Soi Sukhumvit 55 (Thonglor 17), Klongton Nua, Wattana, 10110 Bangkok, Thailand +66 20598220 smaservice@spe.co.th Service Partner for Utility: Tirathai E & S Co., Ltd 516/1 Moo 4, Bangpoo Industrial Estate Sukhumvit Road, T. Praksa, A. Muang 10280 Samutprakarn, Thailand +63 1799866 servicepartner.sma@tirathai.co.th	Enerone Technology Co., Ltd 4th Fl, Jungbu Bldg, 329, Yeongdong-daero, Gangnam-gu, Seoul, 06188, Korea +82-2-520-2666
	Argentina Brasil Chile Perú	<hr/> SMA South America SPA Santiago de Chile +562 2820 2101
	South Africa	<hr/> SMA Solar Technology South Africa Pty Ltd. Cape Town 08600SUNNY (08600 78669) International: +27 (0)21 826 0699 SMA Online Service Center: www.SMA-Service.com
Other countries	International SMA Service Line Niestetal 00800 SMA SERVICE (00800 762 7378423) SMA Online Service Center: www.SMA-Service.com	

16 EU Declaration of Conformity

within the scope of the EU directives

- 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 above-mentioned directives. The entire EU Declaration of Conformity can be found at www.SMA-Solar.com.

