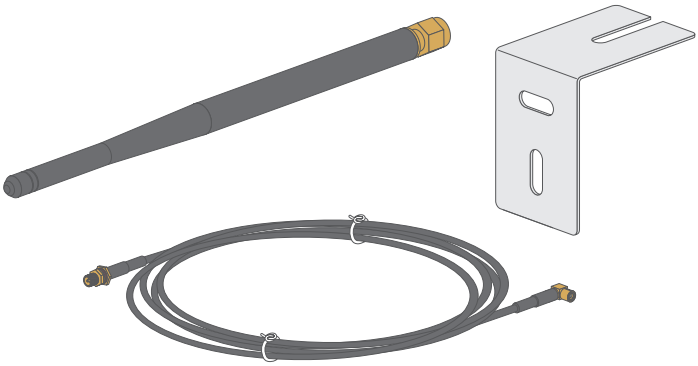
Installation Manual



ANTENNA EXTENSION KIT

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Table of Contents

1 Information on this Document

1.1 Validity

This document is valid for:

- STP 50-40 (Sunny Tripower CORE1) from firmware version ≥ 3.00.00.R to 3.11.##.R
- STP 50-41 (Sunny Tripower CORE1) from firmware version ≥ 3.14.##.R
- EXTANT-40 (Antenna Extension Kit)

1.2 Target Group

The tasks described in this document must only be performed by qualified persons. Qualified persons must have the following skills:

- Knowledge of how an inverter 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 Symbols in the Document

Icon	Explanation
	Information that is important for a specific topic or goal, but is not safety-relevant
☐	Indicates a requirement for meeting a specific goal
☑	Desired result
✖	A problem that might occur.
	Example

1.4 Typographical Elements in the Document

Typographical element	Use	Example
bold	• Messages • Terminals • Elements on a user interface • Elements to be selected • Elements to be entered	• Connect the insulated conductors to the terminals **X703:1** to **X703:6**. • Enter **10** in the field **Minutes**.

Typographical element	Use	Example
>	• Connects several elements to be selected	• Go to **Settings > Date**.
[**Button**] [**Key**]	• Button or key to be clicked on or pressed down	• Select [**Enter**].
#	• Placeholder for variable components (e.g., parameter names)	• Parameter **WCtlHz.Hz#**

1.5 Designations in the Document

Complete designation	Designation in this document
Antenna Extension Kit	Antenna, product
PV system	PV system

2 Safety

2.1 Intended Use

The Antenna Extension Kit is an accessory set for SMA inverters: By installing the Antenna Extension Kit in an SMA inverter with WLAN interface, the inverter's radio range can be optimized within the WLAN network.

The product must only be installed in the following SMA inverters:

- STP 50-40 (Sunny Tripower CORE1)
- STP 50-41 (Sunny Tripower CORE1)
- STP 50-JP-40 (Sunny Tripower CORE1-JP)

The product is suitable for indoor and outdoor use.

The inverter still complies with the standard after the product has been installed.

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 appropriate.

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 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 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 of the inverter are touched

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

- Disconnect the inverter 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 when live components or DC cables are touched

When exposed to light, the PV modules generate high DC voltage which is present in the DC cables. Touching live DC cables results in death or lethal injuries due to electric shock.

- Disconnect the inverter 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 from touching an ungrounded product in the event of an error

A product that is not grounded may be energized in the event of an error. Touching an ungrounded product results in death or serious injury due to electric shock in the event of an error.

- Ensure that the product is integrated in the existing surge protection.

⚠ CAUTION

Increased electromagnetic radiation through the antenna

During operation, the antenna produces an electromagnetic field and can interfere with other devices (e.g., pacemakers) due to electromagnetic interference.

- Persons must not remain closer than 20 cm to the antenna for long periods of time.

NOTICE

Damage to the enclosure seal in subfreezing conditions

If you open the inverter when temperatures are below freezing, the enclosure seals can be damaged. This can lead to moisture entering the inverter.

- Only open the inverter if the ambient temperature is not below -5 °C.
- If a layer of ice has formed on the enclosure seal when temperatures are below freezing, remove it prior to opening the inverter (e.g. by melting the ice with warm air).

NOTICE

Damage to the inverter or product due to electrostatic discharge

Touching electronic components can cause damage to or destroy the inverter or the product through electrostatic discharge.

- Ground yourself before touching any component.

Change to the names and units of grid parameters to comply with the grid-connection requirements in accordance with Regulation (EU) 2016/631 (valid from April 27, 2019)

To comply with the EU grid-connection requirements (valid from April 27, 2019) the names and units of grid parameters were changed. This change is valid from firmware version ≥ 3.00.00.R if a country data set for fulfilling the EU grid-connection requirements (valid from 2019-04-27) is set. Names and units of grid parameters for inverters with firmware version ≤ 2.99.99.R are not affected by this change and remain valid. This also applies from firmware version ≥ 3.00.00.R if a country data set that is valid for countries outside the EU is set.

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.

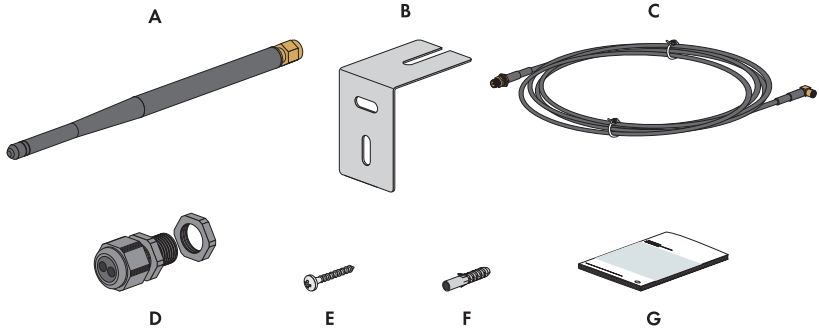


Figure 1: Components included in the scope of delivery

Position	Quantity	Designation
A	1	Antenna
B	1	Antenna bracket
C	1	Antenna cable (3 m (9.8 ft))
D	1	Cable gland with multi-hole seal
E	2	Bolt
F	2	Screw anchors
G	1	Quick reference guide for commissioning

4 Mounting

4.1 Mounting position

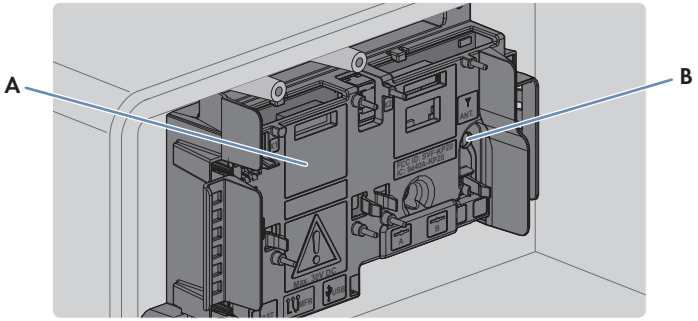


Figure 2: Communication assembly in the inverter with mounting position for the antenna

Position	Designation
A	Communication assembly
B	Pin connector **ANT.** ⅄ for connecting the antenna cable

Mounting location:

⚠ CAUTION

Increased electromagnetic radiation through the antenna

During operation, the antenna produces an electromagnetic field and can interfere with other devices (e.g., pacemakers) due to electromagnetic interference.

- Persons must not remain closer than 20 cm to the antenna for long periods of time.

The mounting location of the antenna is crucial for the quality of the wireless connection. Radio waves are emitted in circles from the longitudinal side of the antenna. A circular dead spot begins at the tip of the antenna. If you place the receiver in this dead spot, the receiver cannot receive any radio waves from the antenna.

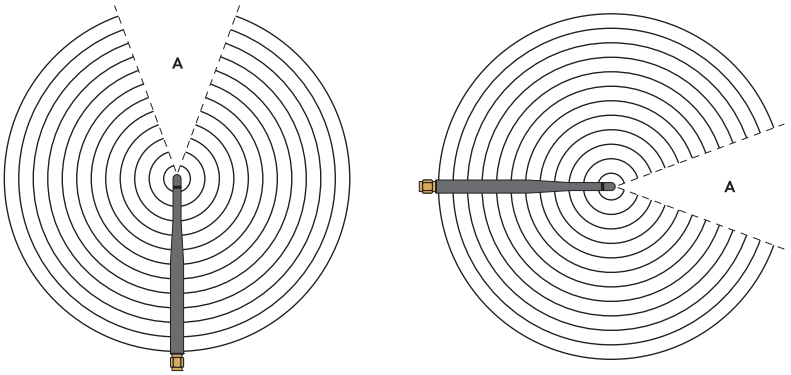


Figure 3: Radio waves emitting from the antenna

Position	Explanation
A	Dead spot

Requirements for the Mounting Location:

- ☐ An antenna cable length of 3 m (9.8 ft) must be observed. The antenna cable must not be extended.
- ☐ The antenna cable must be placed in such a way that the minimum bending radius of 35 mm (1.38 in) is maintained.
- ☐ The receiver must not be in the dead spot of the antenna.

4.2 Mounting the Antenna

Procedure:

1. **⚠ DANGER**

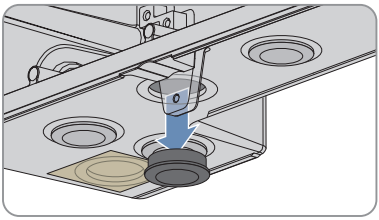
   Danger to life due to high voltages of the PV array

   When exposed to sunlight, the PV array generates dangerous DC voltage, which is present in the DC conductors and the live components of the inverter. Touching the DC conductors or the live components can lead to lethal electric shocks.

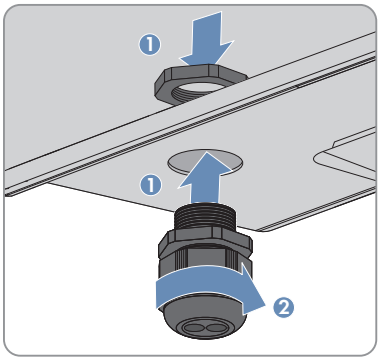
   - Prior to performing any work on the inverter, always disconnect the inverter from voltage sources on the AC and DC sides as described in the inverter manual. When doing so, note that even if the DC load-break is switched off, there will be dangerous direct voltage present in the DC conductors of the inverter.

2. If necessary, attach the cable gland to the inverter:

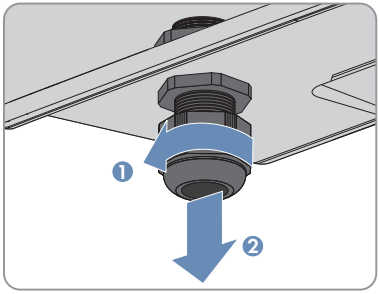
- Push the sealing plug from the inside out of the enclosure opening and retain it for later decommissioning.



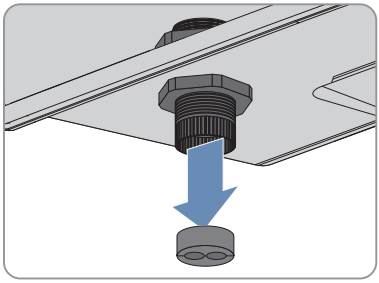
- Unscrew the counter nut from the supplied cable gland.
- Tighten the cable gland with the counter nut on the inverter enclosure opening.



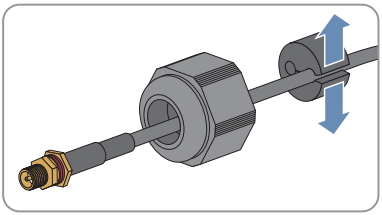
3. Connecting the antenna cable plug:
   - Unscrew the swivel nut from the cable gland.



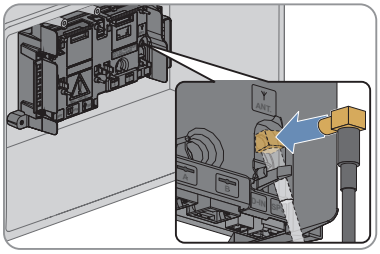
   - Remove the two-hole cable support sleeve from the cable gland.



- Route the antenna cable with the cable end with the plug through the swivel nut and the desired hole of the two-hole cable support sleeve.

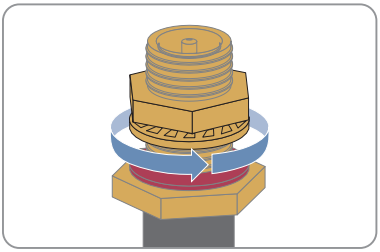


- Push the two-cable support sleeve along with the antenna cable back into the cable gland. Ensure that any unused openings of the two-hole cable support sleeve are sealed with sealing plugs.
- Screw the swivel nut of the cable gland on loosely.
- Remove the protective cover of pin connector **ANT.** ᛉ on the communication assembly (if present).
- Insert the plug of the antenna cable into the pin connector **ANT.** ᛉ on the communication assembly until it snaps into place. Observe the prescribed cable route (see Section 4.1, page 10).

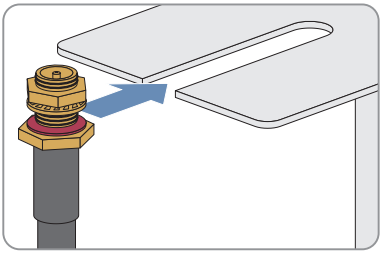


- Fasten the swivel nut on the cable gland hand-tight. This will secure the antenna cable.

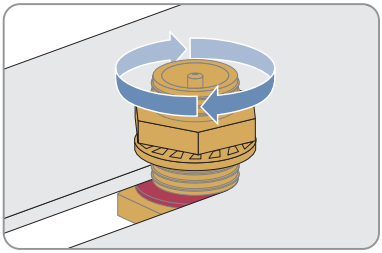
4. Installing the antenna bracket:
   - Considering the dead spot of the antenna, move the antenna bracket to the desired position on the wall and hold it firmly.
   - Mark positions of drill holes if necessary and drill two holes with 6 mm (0.24 in) diameter each at the marked points and insert screw anchors.
   - Attach the antenna bracket to the wall with the screws.
5. Attaching the antenna cable and the antenna to the antenna bracket:
   - On the antenna cable, unscrew the counter nut approx. 5 mm (0.2 in) from the plug.



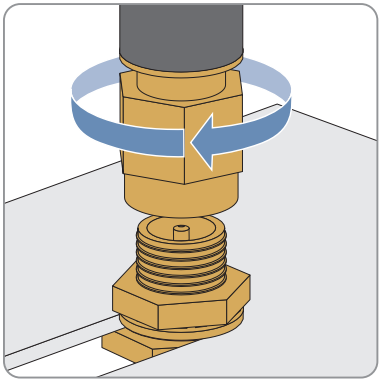
- Lead the antenna cable plug from the antenna bracket's slot. In doing so, make sure that the washer and the counter nut are on the outside of the antenna bracket and that the antenna cable is not kinked or twisted.



- Tighten the counter nut.



- Hand-tighten the antenna on the antenna extension cable plug.



6.

⚠ DANGER

Danger to life due to electric shock from touching an ungrounded product

Touching an ungrounded product can cause a lethal electric shock.

- Ensure that the product is integrated in the existing surge protection.

7. Close the inverter and recommission it (see inverter manual).

☑ The antenna is automatically recognized and activated by the inverter.

5 Troubleshooting

Problem	Cause and corrective measures
The radio range has not improved despite the antenna.	The problem can be caused by one of the following: • The inverter has not recognized the antenna automatically. • The antenna is not installed correctly or an unapproved antenna has been used. • The receiver is placed in the dead spot. **Corrective measures:** • Ensure that the antenna has been recognized by the inverter: – Log in to the user interface of the inverter as **Installer** (see the inverter manual). – **Instantaneous values > Plant communication > WLAN**. – Check whether the parameter **Antenna Type**is set on **External Antenna**. If the value **External Antenna** is not set, set the antenna type (see inverter manual). • Ensure that the antenna of type "EXTANT-40" is installed correctly and that only the supplied antenna cable was used. • Ensure that the receiver is not placed in the dead spot.

6 Decommissioning

6.1 Removing the Antenna

Required tools:

☐ Long-nosed pliers

Procedure:

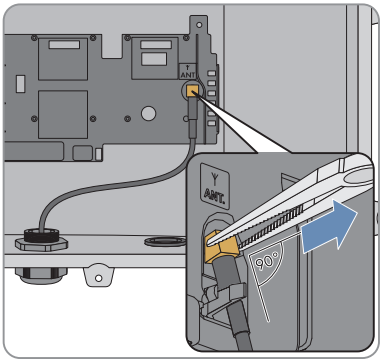
1. **⚠ DANGER**

   Danger to life due to high voltages of the PV array

   When exposed to sunlight, the PV array generates dangerous DC voltage, which is present in the DC conductors and the live components of the inverter. Touching the DC conductors or the live components can lead to lethal electric shocks.

   - Prior to performing any work on the inverter, always disconnect the inverter from voltage sources on the AC and DC sides as described in the inverter manual. When doing so, note that even if the DC load-break is switched off, there will be dangerous direct voltage present in the DC conductors of the inverter.

2. Pull the antenna cable plug out of pin connector **ANT.** using long-nosed pliers. Y of the communication assembly using long-nosed pliers. Ensure that the antenna cable is pulled out at 90° to the communication assembly so that the plug does not get caught.



3. Unscrew the swivel nut from the cable gland.
4. Unscrew and remove the counter nut of the cable gland.
5. If necessary, remove the cable gland and antenna cable from the inverter.
6. If necessary, seal the enclosure opening of the inverter with the corresponding sealing plug.
7. Close the inverter and recommission it (see inverter manual).
8. At the antenna bracket, unscrew the antenna from the antenna cable plug.
9. Unscrew the counter nut from the plug of the antenna cable.
10. Remove the antenna cable from the antenna bracket.
11. Remove the screws of the antenna bracket.
12. Unscrew and remove the antenna bracket.

6.2 Disposing of the Product

- Dispose of the product in accordance with the locally applicable disposal regulations for electronic waste.

7 Contact

You can find your country's contact information at:

https://go.sma.de/service

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