

# 1 Notes on this Guide

## 1.1 Validity

This guide describes the connection of the grounding set SMA Plug-in Grounding and the replacement of fuses in the SMA Plug-in Grounding.

The SMA Plug-in Grounding may only be used with the following SMA inverters:

- Sunny Boy 2000HF (SB 2000HF-30),
- Sunny Boy 2500HF (SB 2500HF-30),
- Sunny Boy 3000HF (SB 3000HF-30).

Keep this guide in a convenient place for future reference.

## 1.2 Target Group

This guide is meant for qualified electricians. The tasks described in this guide may be performed by qualified electricians only.


## 1.3 Additional Information


Detailed information regarding installation, commissioning, maintenance and troubleshooting of the inverter can be found in the respective installation guide.





## 1.4 Symbols Used

The following types of safety precautions and general information are used in this guide:

	<b>DANGER!</b>
DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.	

	<b>WARNING!</b>
WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.	

	<b>CAUTION!</b>
CAUTION indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.	

	<b>NOTICE!</b>
NOTICE indicates a situation that can result in property damage if not avoided.	

	<b>Information</b>
Information provides tips that are valuable for the optimal installation and operation of your product.	

- This symbol indicates the result of an action.

## 2 Safety

### 2.1 Appropriate Usage

If you use specific solar cell technology types in your PV generator, e.g. thin film or backside contacted PV modules, it may become necessary to ground either the positive or the negative terminal of the PV plant. The SMA Plug-in Grounding facilitates the grounding of the PV generator in the inverter. The 'plug-in' grounding set is suitable for inverters of the types SB 2000HF-30, SB 2500HF-30 and SB 3000HF-30. With the help of this device-internal grounding, a safe operation is achieved over the long-term with optimal EMC characteristics and minimal installation costs.

The SMA Plug-in Grounding set includes a 1A fuse as a protection against fire hazard and a circuit that adjusts the inverter's insulation monitoring to the SMA Plug-in Grounding. Via the fuse, the SMA Plug-in Grounding establishes a direct connection between the terminal to be grounded (positive or negative) and the PV module and the PE terminal of the inverter. If a ground fault occurs, the fuse in the SMA Plug-in Grounding disconnects the residual current.

Information about type and requirements for a module grounding of your PV plant will be provided by your module manufacturer.

The inverter may only be operated with PV generators (modules and cabling) that contain protective insulation (protection class II).

The SMA Plug-in Grounding is only suitable for use with SMA inverters of the types Sunny Boy 2000HF/2500HF/3000HF.

## 2.2 Safety Precautions

**DANGER!**

Danger to life due to high voltages in the inverter.

- All work on the inverter and the connection of the SMA Plug-in Grounding may be carried out only by a qualified electrician.

**DANGER!**

Electric shock caused by high voltage in the inverter!

- Disconnect the inverter from both the AC and DC sides before you connect the SMA Plug-in Grounding, as described in the inverter's installation guide.

**NOTICE!**

**A faulty connection may damage the SMA Plug-in Grounding or the inverter!**

A faulty connection of the SMA Plug-in Grounding set can lead to short circuits and can cause irreparable damage to the SMA Plug-in Grounding and the inverter. All warranty claims become void.

- Connect the SMA Plug-in Grounding as described in the following sections.

**Connection of conductive parts in the substructure of the PV generator with the grounding system**

Certain module manufacturers demand the grounding of a generator terminal in order to avoid potential differences between the ground potential of the grounding set and the surrounding of the PV generator. By grounding the substructure of the PV generator these differences in potential will be avoided. Additionally this potential equalization provides the best possible protection via the fuse integrated in the grounding set.

### 3 Scope of Delivery

Check the delivery for completeness and any visible external damage. Contact your dealer if anything is damaged or missing.

A



B



Object	Number	Description
A	1	SMA Plug-in Grounding
B	1	Installation Guide

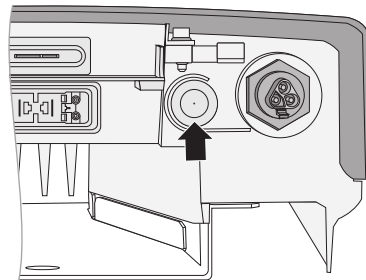
## 4 Installing the SMA Plug-in Grounding

If a ground fault occurs in the PV plant, the fuse in the SMA Plug-in Grounding interrupts the residual current.

The positive or negative grounding of the inverter is coded in the SMA Plug-in Grounding. You must only start up the inverter, if the SMA Plug-in Grounding is installed according to the grounding of your PV plant.

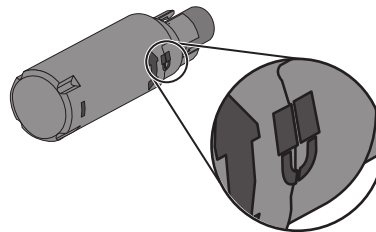
### Connection area

The connection area in the SMA Plug-in Grounding can be found at the underside of the inverter.

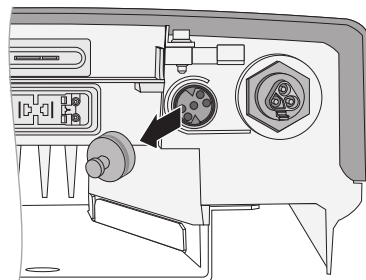


### Procedure

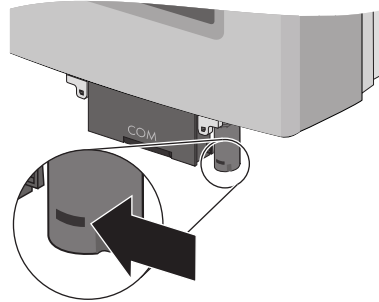
1. Disconnect the inverter on the AC and DC sides as described in the inverter's installation guide.
2. Check whether the SMA Plug-in Grounding has been tightened properly:  
Hold the connecting part of the SMA Plug-in Grounding tightly and tighten the cap by hand.
  - The SMA Plug-in Grounding has been tightened properly, if the symbols on the connecting part and the cap together form a lock.



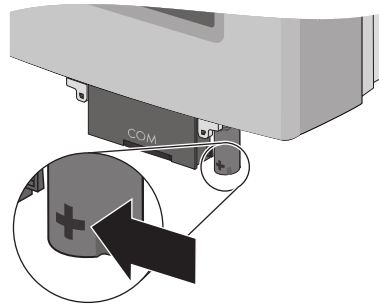
3. Remove the protective cap from the plug-in position on the inverter.



4. If the **negative terminal of the PV plant** is to be grounded:
- Connect the SMA Plug-in Grounding to the terminal socket in such a way that the symbol "–" of the cap is at the front of the cap.
  - Push the SMA Plug-in Grounding upwards until it clicks into place.



5. If the **positive terminal of the PV plant** is to be grounded:
- Connect the SMA Plug-in Grounding to the terminal socket in such a way that the symbol "+" of the cap is at the front of the cap.
  - Push the SMA Plug-in Grounding upwards until it clicks into place.



- The SMA Plug-in Grounding is installed.

## 5 Inspecting and Replacing the fuse of the SMA Plug-in Grounding

If a ground fault in the PV plant occurs, the SMA Plug-in Grounding reacts in accordance with the residual current:

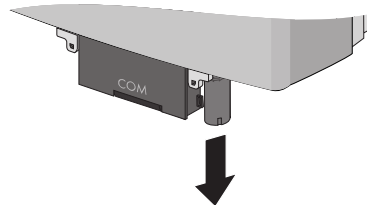
- The fuse of the SMA Plug-in Grounding interrupts a suddenly occurring intense residual current. This action destroys the fuse.
- The inverter detects lingering residual currents (see section 6.2 "Error Messages" (page 35)). If you eliminate the ground fault in time, you can avoid the destruction of the fuse.

After having eliminated the ground fault (see the inverter's installation guide), you will need to inspect the fuse of the SMA Plug-in Grounding and replace it if necessary. You can order a new fuse from SMA Solar Technology AG (Order No. KLKD-1).

	<p><b>WARNING!</b>  <b>Fire hazard caused by the use of inappropriate fuses!</b></p> <ul style="list-style-type: none"> <li>• Only use fuses of the type Littelfuse KLKD-1 to avoid fire hazards.</li> </ul>
---	--

### Procedure

1. Disconnect the inverter on the AC and DC sides as described in the inverter's installation guide.
2. Before you replace the fuse, make a note of the generator's grounding type ("–" or "+").
3. Remove the SMA Plug-in Grounding by pulling it downwards.



4. Hold the connecting part of the SMA Plug-in Grounding tightly, loosen the cap and pull it off.

