



Electronic Solar Switch

DC circuit breaker for SMA inverters

User manual



ESS-BEN074812
TBE-ESS

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1 Notes on this Manual

1. 1 Validity

This user manual describes the correct use of the Electronic Solar Switch for disconnecting a solar generator from an SMA inverter.

1. 2 Target Group

Only qualified electrical personnel may operate the Electronic Solar Switch and carry out work on the inverter.

1. 3 Storing the Documentation

This manual, just as all other manuals for the inverter and its installed components, must be kept in the immediate vicinity of the inverter, and must be accessible at all times.

1. 4 Symbols Used

The following three types of safety warnings and general information are used in this document:



DANGER!

"DANGER" indicates a hazardous situation which, if ignored, will result in serious injury or death!



WARNING!

"WARNING" indicates a hazardous situation which, if ignored, could result in serious injury or death!



CAUTION!

"CAUTION" indicates a situation which, if ignored, could result in damage to property!



Notice

A notice provides information which is important for the optimal operation of your product.

2 Safety



DANGER!

High voltages in inverter - danger of death!

- Work on the inverter may only be carried out by qualified electrical personnel.
 - Open and close the inverter only as indicated in the corresponding Installation Guide.
-



CAUTION!

Entry of water and foreign matter into the inverter can cause irreparable damage!

Once the handle of the Electronic Solar Switch is pulled out, the protection degree of the inverter is reduced to IP21.

- Do not operate the inverter with a pulled Electronic Solar Switch.
-

3 Electronic Solar Switch (ESS)

With the Electronic Solar Switch, disconnecting the inverter becomes a three-step process.

1. Disconnecting the AC side
2. Pulling the Electronic Solar Switch.
3. Disconnecting the DC plugs

If the Electronic Solar Switch is not pulled off, removal of the DC plug connectors can cause arcing, which may cause personal injury and may damage the inverter connectors. Section 4 „Operating the Electronic Solar Switch“ (Page 10) describes how to disconnect the DC side.

 **DANGER!**
Risk of lethal electric shock!

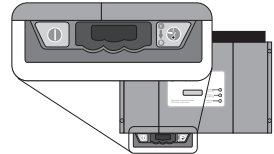
Safe disconnection from the solar generator can only be guaranteed once the Electronic Solar Switch handle and all DC plug connectors have been pulled off.

- After pulling off the Electronic Solar Switch, immediately disconnect all DC plug connectors.

3. 1 Assembly

The Electronic Solar Switch consists of a handle on the underside of the inverter, and a module inside the inverter.

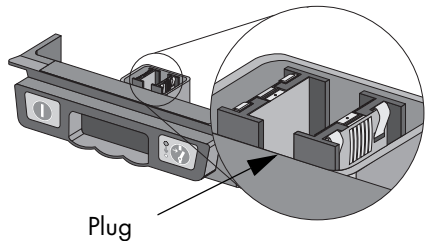
A handle, which covers the plugs on the solar generator, is mounted on the underside of the inverter.



Electronic Solar Switch handle

There is a plug inside the handle. The plug of the Electronic Solar Switch is only visible when the handle is pulled out.

The plug is fitted in the handle as a floating connector, so that the handle does not catch when pulled from the inverter.



Plug



Warning! Risk of lethal electric shock!

Faultless functioning of the Electronic Solar Switch can only be guaranteed with a floating plug inside the device.

- Do not tighten the connector's screws in order to prevent them from catching when pulling off the device.

3. 2 Installing the Inverter

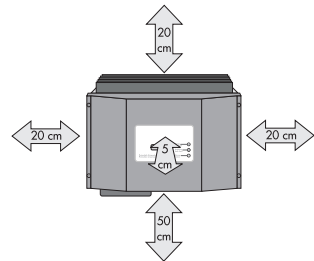


Installing the Inverter

When installing the inverter, be sure to observe all instructions in the inverter's installation guide! It describes the special features relating to the installation with an Electronic Solar Switch.

Minimum Clearance

Keep **at least 50 cm** free underneath the inverter so that you have enough space to pull out the Electronic Solar Switch.

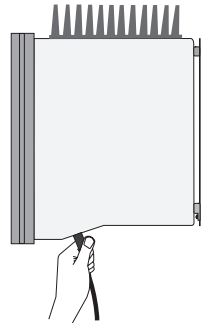


4 Operating the Electronic Solar Switch

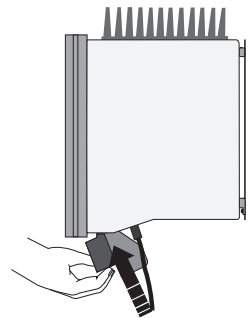
4.1 Connecting the solar generator (DC)

To connect the solar generator, proceed as follows:

1. Check the Electronic Solar Switch for wear as described in chapter 5.
2. Connect the DC plug connectors.
Make sure the polarity is correct.
3. Close all unused DC input sockets with the caps included in the delivery.



4. Plug the Electronic Solar Switch into the socket on the underside of the inverter.



CAUTION!

Incorrect plugging of the Electronic Solar Switch could cause high voltage and may damage the device!

- Plug the handle tightly into the socket on the inverter so that it fits closely with the case.
 - Make sure that it is positioned securely.
-

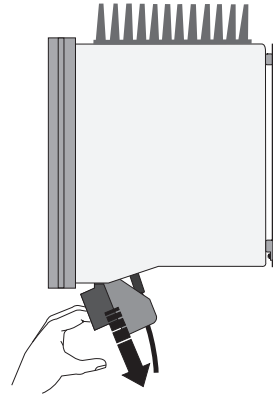
5. Switch on the circuit breaker.
The inverter LEDs will glow if the solar generator is ready for operation.

4. 2 Disconnecting the Inverter

Disconnecting the inverter is a three-step process. Proceed as follows:

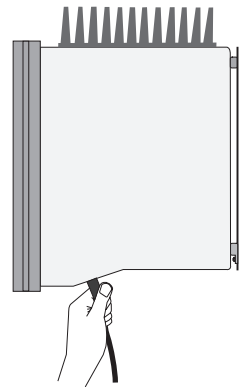
1. Switch off the circuit breaker.
2. Pull off the Electronic Solar Switch.

Be sure to pull the handle downwards and slightly towards the wall. There is a contact in the middle which automatically triggers the switching process when the handle is pulled.



3. Then immediately disconnect the solar generator from the inverter by removing all DC plug connectors.

Be aware that the inverter is not voltage-free beforehand.



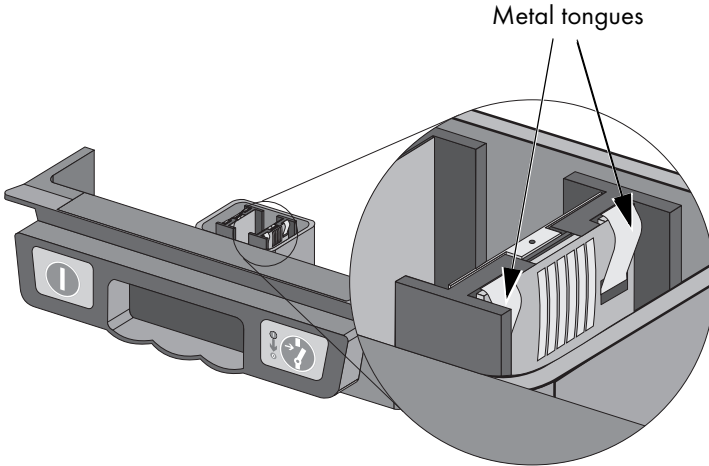
DANGER!

High voltages in the inverter - danger of death!

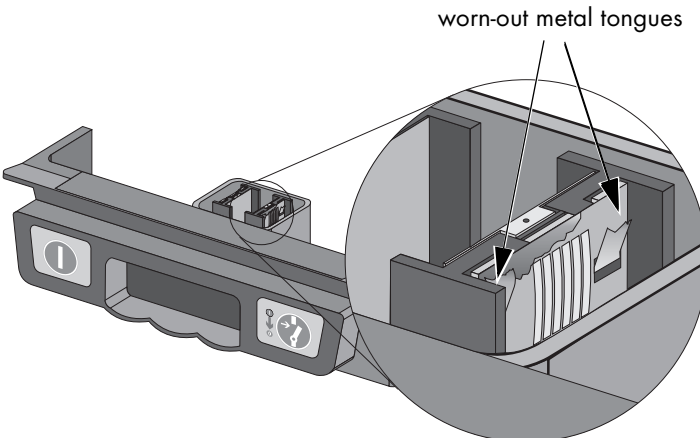
- Make sure that the inverter is voltage-free before working on it.

5 Inspection

Check the Electronic Solar Switch for wear before plugging it in.
Check if the metal tongues inside the plug show brown discolorations.



The Electronic Solar Switch can no longer safely disconnect the DC side if one of the metal tongues is completely worn out (see figure below). Replacements for damaged Electronic Solar Switch handles are available from SMA.



6 Technical Data

Electrical lifetime (in case of a short circuit, with a nominal current of 35 A):	min. 50 switching processes
Max. switching current	35 A
Max. switching voltage	800 V
Max. PV power	approx. 12 kW
Protection degree when plugged in	IP65
Protection degree when unplugged	IP21

7 Contact

If you have any questions or technical problems concerning the Electronic Solar Switch, please contact our hotline. Please have the following information ready when you contact SMA:

- Inverter type
- Type and number of modules connected
- Communication type
- Inverter's serial number
- Inverter's blink code or display



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