



Communication Interface for SMA Inverters

SMA BLUETOOTH® PIGGY-BACK

Installation Guide

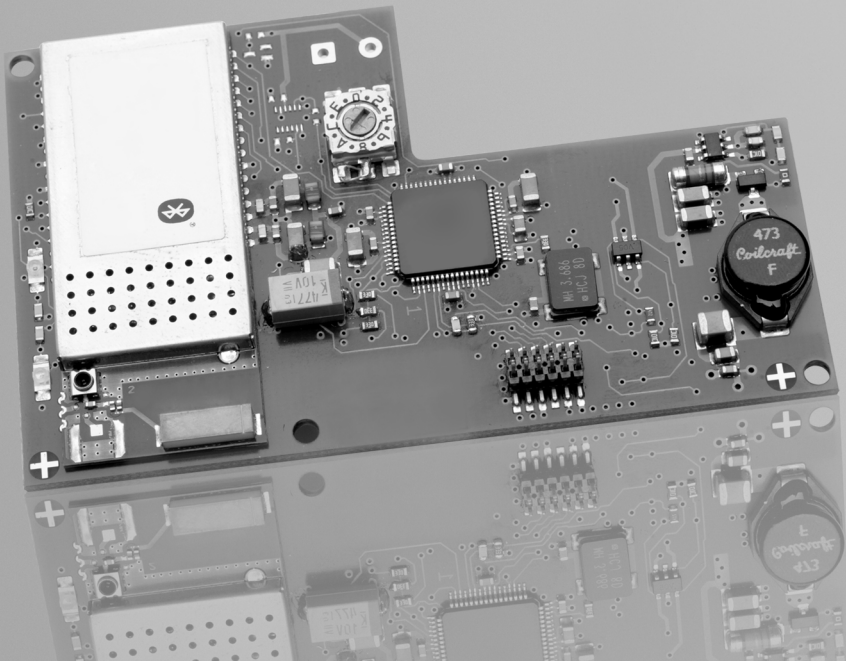


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1 Notes on this Manual

This manual describes the mounting and installation of the SMA *Bluetooth* Piggy-Back add-on kit. Store this guide where it will be accessible at all times.

1.1 Validity

This manual applies for the SMA *Bluetooth* Piggy-Back for software versions 02.00.00.R and higher.

1.2 Target Group





This guide is for qualified electrical technicians. All tasks described in this manual may only be performed by qualified personnel.

1.3 Additional Information

Further information on *Bluetooth* by SMA is available in the download area of www.SMA.de/en.

1.4 Symbols Used

The following types of safety instructions and general information appear in this document as described below:

	DANGER!
DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.	
	WARNING!
WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.	
	CAUTION!
CAUTION indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.	
	NOTICE!
NOTICE indicates a situation that can result in property damage if not avoided.	



Information

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

2 Safety

2.1 Appropriate Usage

The communication interface allows you to establish a connection via *Bluetooth* wireless technology to other SMA inverters and communication devices (e.g., Sunny Explorer).

The SMA *Bluetooth* Piggy-Back provides data of the inverter for configuring and creating daily, monthly, and annual energy values. These can be accessed and configured using a communication product (e.g., Sunny Explorer).

The SMA *Bluetooth* Piggy-Back is compatible with all SMA *Bluetooth* devices in terms of radio frequency.

The interface is provided as an add-on kit or pre-installed in the inverter. Also observe the relevant inverter manual.

The following inverters can be retrofitted with the SMA *Bluetooth* Piggy-Back:

- **All Sunny Boys of type SB** (with Piggy-Back port)
- **SWR 2500**
- **All Sunny Mini Centrals of type SMC**
- **All Windy Boys of type WB**



Information on Configuring the Installation Country

All country standards that cannot be set through the SMA *Bluetooth* Piggy-Back can be set through the USB service interface and Sunny Data Control or through RS485 and the Sunny WebBox.

The communication interface complies with the following standards:

- R&TTE 1999 / 5 / EC
 - EN 300 328-2, EN 301 489-17, EN 50371, EN 60950, EN301489-1

In addition, you will find a current overview of the standards at www.SMA.de/en. If you have any questions, contact SMA Solar Technology.

2.2 Safety Instructions

**DANGER!**

Risk of lethal electric shock when opening the inverter.

- All work on the inverter must be carried out by qualified personnel only.
- Disconnect the inverter on the AC and DC sides as described in the inverter manual.

**NOTICE!**

Electrostatic discharges can damage the communication interface.

- Avoid coming into contact with component connections and plug contacts.
- Ground yourself before touching the component by holding on to the PE or a non-coated part of the inverter enclosure.

**Possible communication faults via *Bluetooth* wireless technology.**

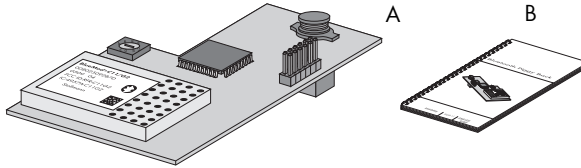
Certain ambient conditions can reduce the connection quality and data transmission speed between *Bluetooth* devices.

- Mount or install the *Bluetooth* device at a distance of at least 1 m from the following devices:
 - WLAN devices
 - Microwave ovens
 - Other devices that use the 2.4 GHz frequency band

3 Unpacking

3.1 Packing List

BTPBINV-NR

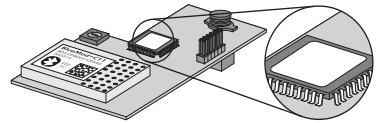


Position	Number	Designation
A	1	Piggy-Back: BTPBINV.BG1
B	1	Manual

3.2 Identifying the SMA Bluetooth Piggy-Back

Type Label

You can identify the communication interface by the type label. The type label is located on the front of the communication interface.



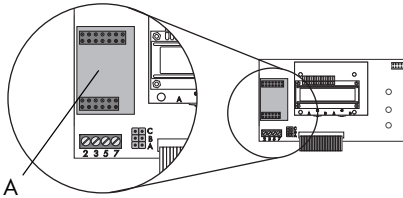
Software Version

The software version of the SMA Bluetooth Piggy-Back is displayed through the communication device, e.g., Sunny Explorer or Sunny Beam with Bluetooth. If necessary, refer to the manual of the communication device.

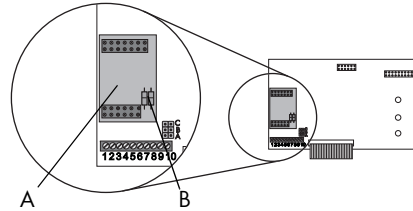
4 Electrical Connection

This section describes the installation and connection of the communication interface.

4.1 Overview of Interface Port



Inverters of type: SB, SMC, WB



Inverter of type: SWR

Position	Designation
A	Interface port
B	Resistors

4.2 Installing the Communication Interface

Determining a Free NetID before Installation of the SMA Bluetooth Piggy-Back

SMA Solar Technology recommends determining a free NetID using a mobile communication device (e.g., Sunny Beam with *Bluetooth* or a laptop with *Bluetooth* and the Sunny Explorer software) before installing the communication interface. You can find information on how to determine a free NetID in the relevant manual of the communication device.



Commissioning of a Bluetooth PV system with 1 master


Always carry out the commissioning of a *Bluetooth* PV system with only 1 master (e.g., Sunny Beam with *Bluetooth*, Sunny Explorer). As soon as the *Bluetooth* network is up and running, you can introduce further masters into the *Bluetooth* network.



Sunny Beam with Bluetooth and SMA Bluetooth Repeater


The Sunny Beam with *Bluetooth* and the SMA *Bluetooth* Repeater cannot register any *Bluetooth* devices which are set to NetID 1. Only NetIDs from 2 to 9 and from A to F are possible.

Proceed as follows to install the communication interface for the above mentioned inverters of type SB, SMC, WB, and SWR.

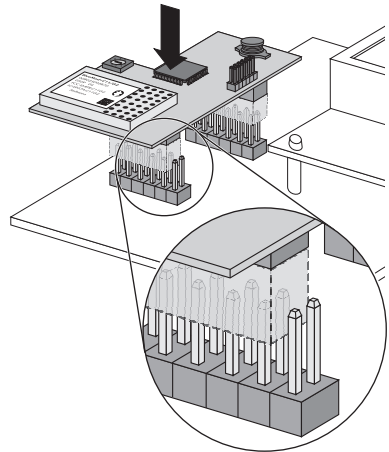


DANGER!
Risk of lethal electric shock when opening the inverter.

Open the inverter as described in the inverter manual.


 In the case of inverters of type SWR the fitted display can block the interface port. You can either install a display or a communication interface.

1. In the case of inverters of type SWR detach the existing display, if necessary.
 2. If necessary, detach the installed communication interface.
 3. Removing the resistors from inverters of the type SWR is not necessary.
 4. Plug the communication interface **to the left** of the interface port. The far right pins on the lower short row of pins remain free.
 5. Set the NetID (see section 4.3 "Setting the Bluetooth Communication" (page 10)).
 6. Close the inverter as described in the inverter manual.
- The communication interface is installed.



4.3 Setting the *Bluetooth* Communication

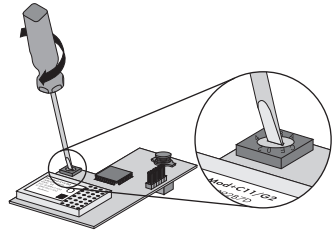
The inverter can communicate with a communication device and can be linked to other inverters via *Bluetooth*. To ensure the devices communicate with each other and are interlinked, they have to be set to the same NetID.

 **NetID**
PV systems with SMA *Bluetooth* operating in close proximity to one another are distinguished by their individual NetID. SMA Solar Technology *Bluetooth* devices recognize your *Bluetooth* PV System via an assigned NetID. The NetID can be a number from 1 to 9 or a letter from A to F. NetID 1 is not possible for Sunny Beam with *Bluetooth*.

Setting the NetID

The NetID is set via the rotary coded switch on the SMA *Bluetooth Piggy-Back*.

1. Use a screwdriver (2.5 mm) to turn the arrow on the rotary switch to the correct position. The meanings of the switch positions are explained in the table.



Layout of the switch positions	
NetID	Function
0	<i>Bluetooth</i> is switched off.
1 (Status upon delivery)	<i>Bluetooth</i> is switched on. The SMA <i>Bluetooth Piggy-Back</i> can only connect with a maximum of 2 computers with Sunny Explorer from SMA Solar Technology. A connection to the Sunny Beam with <i>Bluetooth</i> is not possible.
2 - F	<i>Bluetooth</i> is switched on. The device can interlink with all SMA <i>Bluetooth</i> products with the same NetID.

2. Close the inverter as described in the inverter manual.
- The NetID is set. You can detect the inverter with a communication product (e.g. computer with Sunny Explorer).

5 Update

The SMA *Bluetooth Piggy-Back* is updated through the Sunny Explorer. It is not required to replace the Piggy-Back. Existing settings and data of the inverter will be saved after the update process. Only perform the update if the inverter has a sufficient power output to the grid of at least 50 W. Restart the Sunny Explorer if the update was successful.

6 Troubleshooting

Error	Cause	Corrective measure
Sunny Beam / Sunny Explorer does not establish a connection to the inverter (with SMA <i>Bluetooth Piggy-Back</i>).	The inverter (with SMA <i>Bluetooth Piggy-Back</i>) has not been commissioned.	Commission the inverter as described in the inverter manual.
	The inverter (with SMA <i>Bluetooth Piggy-Back</i>) is not in feeding operation.	Wait until the inverter switches to feeding operation.
	The SMA <i>Bluetooth Piggy-Back</i> is not correctly connected.	Check if the SMA <i>Bluetooth Piggy-Back</i> is correctly placed on the interface port (see Section 4.2)
	The NetID is set to 0.	Set the NetID of your PV system (see Section 4.3).
	The Sunny Beam with <i>Bluetooth</i> and the SMA <i>Bluetooth Repeater</i> cannot register any <i>Bluetooth</i> devices which are set to NetID 1.	Determine a free NetID, as described in the manual for Sunny Beam with <i>Bluetooth</i> . Only NetIDs from 2 to 9 and from A to F are possible. Set your PV system to the determined NetID (see section 4.3).
	The Net ID is set to a different NetID than the NetID of the PV system.	Set the NetID of your PV system (see section 4.3).
	The connection quality is unreliable or critical.	Change the position of your devices in relation to one another in order to shorten the radio link. If that is not possible install the SMA <i>Bluetooth Repeater</i> , in order to close the radio gap. For a higher range you can also use the SMA <i>Bluetooth Piggy-Back Plus</i> with antenna.
The connection between the inverter (with SMA <i>Bluetooth Piggy-Back</i>) and the communication device often breaks off.	The connection quality is unreliable or critical.	Change the position of your devices in relation to one another in order to shorten the radio link. If that is not possible install the SMA <i>Bluetooth Repeater</i> , in order to close the radio gap. For a higher range you can also use the SMA <i>Bluetooth Piggy-Back Plus</i> with antenna.
The update is not completed.	Power output to the grid is less than 50 W.	Only perform the update if the inverter has a sufficient power output to the grid of at least 50 W.

7 Technical Data

Mechanical Data

Width x Length	50 mm x 81 mm
Weight	60 g

Communication

Communication interface	<i>Bluetooth</i>
Maximum free field communication range*	50 m

* With integrated SMA *Bluetooth* Piggy-Back

Connections

Number of 10-pin socket connectors	1
Number of 14-pin socket connectors	1

Environmental Conditions during Operation

Ambient temperature	- 25 °C ... +85 °C
Relative humidity*	5 % ... 95 %
Maximum operating altitude	3 000 m above mean sea level (AMSL)

* Non-condensing

8 Contact

If you have technical problems concerning our products, contact the SMA Serviceline. We require the following information in order to provide you with the necessary assistance:

- Type and serial number of the inverter
- Serial number of the communication interface
- Type and serial number/version of the communication device (e.g., Sunny Beam, Sunny Explorer)
- Detailed description of the problem

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