



Accessory  
**SMA BLUETOOTH®** REPEATER  
Installation Guide





Copyright © 2009 SMA America, Inc. All rights reserved.

No part of this document may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photographic, magnetic or otherwise, without the prior written permission of SMA America, Inc.

SMA America makes no representations, 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 warranties are expressly disclaimed. Neither SMA America 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 SMA America reserves the right to make changes without notice and 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.

The *Bluetooth*® word mark and logos are registered trademarks owned by Bluetooth SIG, Inc. and any use of such marks by SMA Solar Technology AG is under license. Other trademarks and trade names are those of their respective owners.

SMA America, Incorporated  
4031 Alvis Court  
Rocklin, CA 95677  
Tel. +1 916 625 0870  
Fax +1 916 625 0871  
[www.SMA-America.com](http://www.SMA-America.com)

## IMPORTANT SAFETY INSTRUCTIONS

### SAVE THESE INSTRUCTIONS

This manual contains important instructions for Models SMA Bluetooth® Repeater - accessories for system monitoring unit, that shall be followed during installation and maintenance of the unit.

The SMA Bluetooth Repeater is designed and tested according to international safety requirements, but as with all electrical and electronic equipment, certain precautions must be observed when installing and/or operating the SMA Bluetooth Repeater. To reduce the risk of personal injury and to ensure the safe installation and operation of the SMA Bluetooth Repeater, you must carefully read and follow all instructions, cautions and warnings in this manual.

### Warnings

A Warning describes a hazard to equipment or personnel. It calls attention to a procedure or practice, which, if not correctly performed or adhered to, could result in damage to or destruction of part or all of the SMA equipment and/or other equipment connected to the SMA equipment or personal injury.



#### 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.

## Other Symbols

In addition to the safety and hazard symbols described on the previous pages, the following symbol is also used in this manual:



### Information

This symbol accompanies notes that call attention to supplementary information that you should know and use to ensure optimal operation of the system.

## General Warnings



### General Warnings

All electrical installations must be done in accordance with the local and National Electrical Code ANSI/NFPA 70.

Before installing or using the SMA *Bluetooth* Repeater, read all of the instructions, cautions, and warnings on the SMA *Bluetooth* Repeater and the connected devices, in this Installation Guide and the manuals of the connected devices.

Only use the plug-in power supply delivered with the SMA *Bluetooth* Repeater. Use of alternate power supplies will void the warranty.

## Warranty

The correct guarantee conditions are available at [www.SMA-America.com](http://www.SMA-America.com) and can be downloaded or are available on paper from the usual sales channels if required. For warranty coverage, or if you have questions about the Sunny SensorBox warranty, contact SMA America at the address, telephone number or Web site listed on page 3 (to send E-mail, see the Contact section of the SMA America Web site).



## Table of Contents

<b>1</b>	<b>About this Manual</b> .....	<b>9</b>
1.1	Area of Validity .....	9
1.2	Target group .....	9
1.3	Additional Information .....	9
<b>2</b>	<b>Safety</b> .....	<b>10</b>
2.1	Appropriate Usage .....	10
2.2	Safety Instructions .....	11
<b>3</b>	<b>Unpacking</b> .....	<b>12</b>
3.1	Packing List .....	12
3.2	SMA <i>Bluetooth</i> Repeater identification .....	12
<b>4</b>	<b>Mounting</b> .....	<b>13</b>
4.1	Determining the mounting- /installation location .....	13
4.2	Mounting the SMA <i>Bluetooth</i> Repeater on the wall .....	14
4.3	Mounting the SMA <i>Bluetooth</i> Repeater on the DIN rail .....	16
<b>5</b>	<b>Electrical Connection</b> .....	<b>17</b>
5.1	Overview of the Connection Area .....	17
5.2	Connecting the Power Supply .....	17
<b>6</b>	<b>Settings</b> .....	<b>19</b>
6.1	Setting the mode .....	19
6.2	Setting the NetID .....	19
6.2.1	Switching <i>Bluetooth</i> off .....	20
<b>7</b>	<b>Maintenance and Care</b> .....	<b>21</b>
7.1	Maintenance .....	21
7.2	Care .....	21

<b>8</b>	<b>Decommissioning</b> .....	<b>22</b>
8.1	Dismantling the SMA <i>Bluetooth</i> Repeater. ....	22
8.2	Packing the SMA <i>Bluetooth</i> Repeater. ....	23
8.3	Disposing of the SMA <i>Bluetooth</i> Repeater .....	23
<b>9</b>	<b>Troubleshooting</b> .....	<b>24</b>
9.1	LED Overview .....	24
9.1.1	Power supply (RDY LED) .....	24
9.1.2	Connection-quality ( <i>Bluetooth</i> LEDs) .....	25
<b>10</b>	<b>Technical Data</b> .....	<b>26</b>
10.1	FCC Compliance Information .....	27
<b>11</b>	<b>Accessories</b> .....	<b>28</b>
11.1	Plug-in power supply. ....	28
<b>12</b>	<b>Contact</b> .....	<b>29</b>



# 1 About this Manual

This manual describes how to install and commission the device. Store this manual where it will be accessible at all times.

## 1.1 Area of Validity

This manual applies to firmware version 1.0. This manual does not contain any detailed information about the mentioned devices. Detailed information about the devices mentioned can be found with the devices themselves.

## 1.2 Target group

This manual is intended for qualified personnel. All tasks described in this manual may only be performed by qualified personnel. The qualified personnel possess knowledge about the device and are aware of the dangers involved in installing electrical systems.

## 1.3 Additional Information

You can download additional information about SMA *Bluetooth* Wireless Technology from the download area at [www.SMA-America.com](http://www.SMA-America.com).

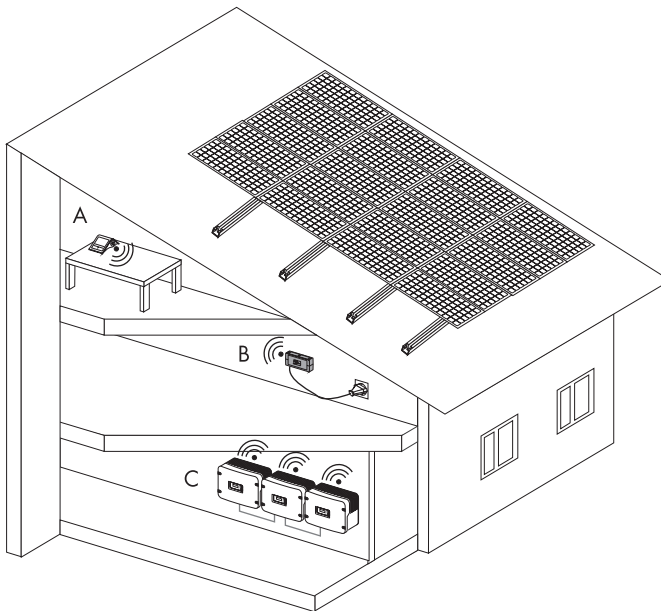
## 2 Safety

### 2.1 Appropriate Usage

The SMA *Bluetooth Repeater* comes into operation during unfavorable installation conditions between SMA devices with *Bluetooth* Wireless Technology in order to overcome radio gaps or to improve poor radio connections. The SMA *Bluetooth Repeater* uses *Bluetooth* Class 1 and has a maximum range in an open field of up to 330 ft. The SMA *Bluetooth Repeater* is compatible with all *Bluetooth* Devices made by SMA Solar Technology.

The SMA *Bluetooth Repeater* is only to be employed according to the information in this manual. Any other application can lead to personal injuries or damage to equipment.

#### Example of the application of the SMA *Bluetooth Repeater*



A	Communication device (here: Sunny Beam with <i>Bluetooth</i> )
B	SMA <i>Bluetooth Repeater</i>
C	<i>Bluetooth</i> capable inverters by SMA Solar Technology

## 2.2 Safety Instructions



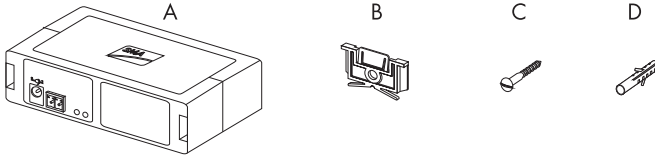
### **Possible communication faults via *Bluetooth* wireless technology.**

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

- Install the *Bluetooth* device with a clearance of at least 4 ft. to the following devices:
  - WLAN devices
  - Microwave ovens
  - Other devices that use the 2.4 GHz frequency band

### 3 Unpacking

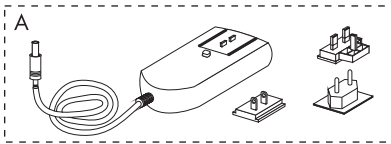
#### 3.1 Packing List



A	1	SMA <i>Bluetooth</i> Repeater
B	1	Bracket for wall- or top hat rail mounting (Can be found on the back side of the SMA <i>Bluetooth</i> Repeater on delivery)
C	1	Screw
D	1	Screw anchor

#### Optional packing list

The packing list represented here is dependent upon the order option.



A	1	Plug-in power supply with country adapters
---	---	--

#### 3.2 SMA *Bluetooth* Repeater identification

You can identify the SMA *Bluetooth* Repeater from the type label. The type label is on the right side of the device.

# 4 Mounting

## 4.1 Determining the mounting- /installation location

### Mounting- /installation location requirements:



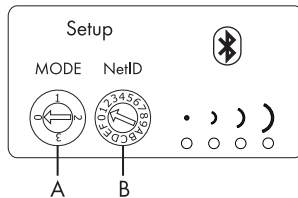
#### Possible communication faults via *Bluetooth* wireless technology.

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

- Install the *Bluetooth* device with a clearance of at least 4 ft. to the following devices:
  - WLAN devices
  - Microwave ovens
  - Other devices that use the 2.4 GHz frequency band
- The SMA *Bluetooth* Repeater is only suitable for the interior.
- The SMA *Bluetooth* Repeater requires a power supply (see chapter.5 "Electrical Connection" (page 17))
- The maximum cable length for the power supply may not exceed 33 ft.

### Procedure:

1. Turn the rotary switch "MODE" (A) to position "0", for setting the mode (see chapter 6.1 "Setting the mode" (page 19))
2. Turn the rotary switch "NetID" (B) to the NetID of the system for setting the NetID (see chapter 6.2 "Setting the NetID" (page 19)).



3. Position the SMA *Bluetooth* Repeater approximately half way between the devices with critical connection-quality.
4. Connect the power supply as described in section 5 "Electrical Connection" (page 17).

5. Check whether all devices have a connection-quality of at least "good":

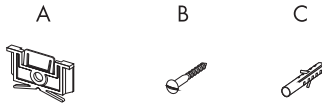
SMA *Bluetooth* Repeater: one blue and two yellow LEDs

If	Then
Connection-quality of all devices is at least good.	The SMA <i>Bluetooth</i> Repeater can be mounted or set here.
Connection-quality of all devices is not at least good.	Change the positioning or install additional SMA <i>Bluetooth</i> Repeaters.

- The mounting- /installation location is determined.

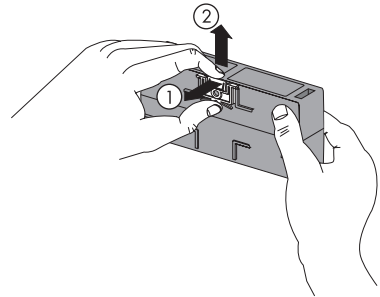
## 4.2 Mounting the SMA Bluetooth Repeater on the wall.

### Mounting accessories provided



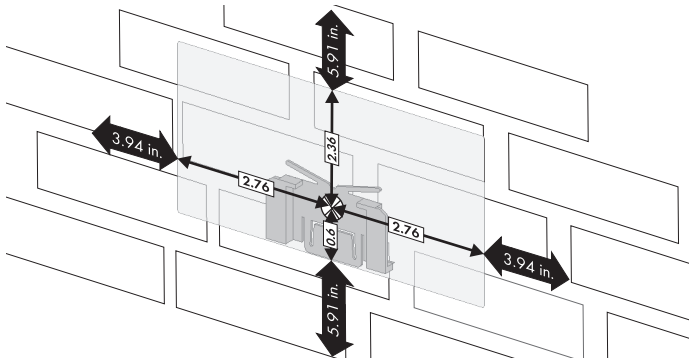
A	1	Bracket (Can be found on the back of the SMA Bluetooth Repeater when delivered)
B	1	Screw
C	1	Screw anchor

1. Release the bracket on the backside of the SMA Bluetooth Repeater
2. Push the bracket up and then pull off.



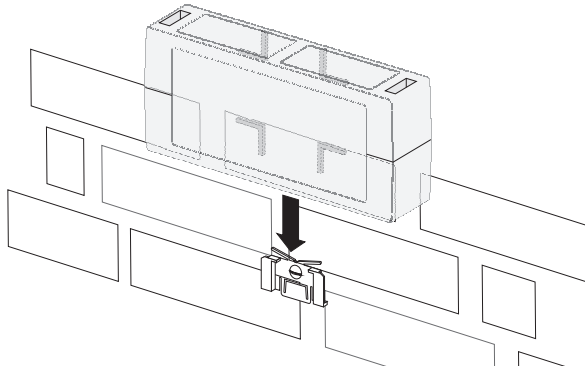
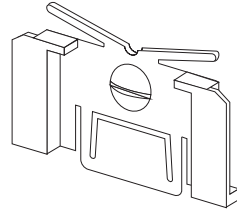
3. Check the minimum clearances and mark the position of the drill hole according to the illustration.

Assembly room underneath will be needed for the cables.



4. Drill the hole at the marked position and use screw anchor.

5. Adjust the bracket as illustrated left.
  - The clip on the bracket points backward.
  - The notch on the bracket points forward
6. Affix the bracket to the wall using the screw.
7. Turn the screw clockwise.
8. Push the SMA *Bluetooth* Repeater from the top and onto the bracket.



- The SMA *Bluetooth* Repeater has been mounted.

Detachment of the SMA *Bluetooth* Repeater from the wall is described in section 8.1 "Dismantling the SMA *Bluetooth* Repeater" (page 22).

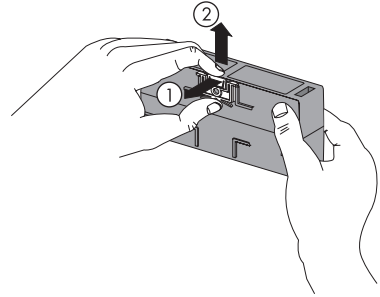
### 4.3 Mounting the SMA Bluetooth Repeater on the DIN rail.

#### Mounting accessories provided



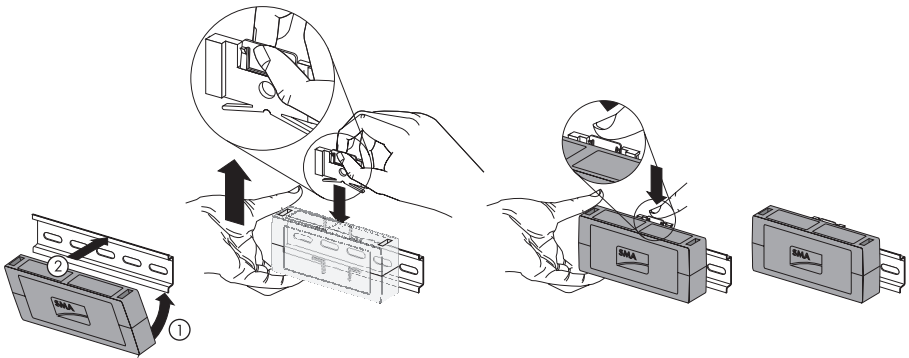
A	1	Bracket (Can be found on the back of the SMA Bluetooth Repeater when delivered)
---	---	---

1. Release the bracket from the back of the SMA Bluetooth Repeater.
2. Push the bracket up and then pull off.



#### Position of the SMA Bluetooth Repeater during mounting.

Keep upward pressure on the SMA Bluetooth Repeater during the entire mounting process.



3. Hook the lower rail of the SMA Bluetooth Repeater onto the lower edge of the DIN rail.
4. Push the SMA Bluetooth Repeater onto the DIN Rail and push up and hold.
5. Insert the bracket centrally into the guide on the SMA Bluetooth Repeater from above and push down, until you hear the bracket snap into place.

The SMA Bluetooth Repeater has been mounted.

Detachment of the SMA Bluetooth Repeater from the wall is described in section 8.1 "Dismantling the SMA Bluetooth Repeater" (page 22).



## 5 Electrical Connection



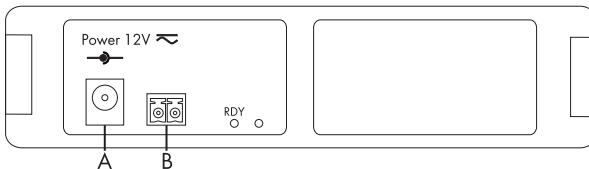
### ATTENTION!

Dismounting of the SMA *Bluetooth* Repeater from the wall bracket due to careless pulling on the cable.

Damage to the SMA *Bluetooth* Repeater or the wall bracket.

- Hold the SMA *Bluetooth* Repeater in place when inserting or removing cables or plugs.

### 5.1 Overview of the Connection Area



A	Plug-in power supply connection
B	Do not use this socket. Connection of other power supplies (DC or other AC source).

### 5.2 Connecting the Power Supply

You can connect the plug-in power supply as described in this section.



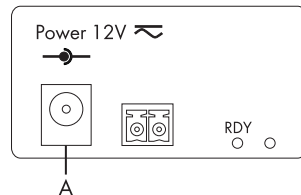
### ATTENTION!

Surge voltage due to incorrect plug in power supply.

Damage to the SMA *Bluetooth* Repeater.

- Use only the plug-in power supply intended as an accessory for the SMA *Bluetooth* Repeater. See section 11 "Accessories" (page 28).

1. Insert the plug of the plug-in power supply into the "Power 12V" terminal (A) of the SMA *Bluetooth* Repeater.
2. The plug in power supply adapter is included with delivery. Choose the correct adapter for your socket.
3. Place the adapter on the plug in power supply and push down. The plug audibly snaps into place.



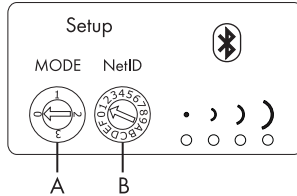
4. Check that the adapter is securely in place.
5. Insert the plug-in power supply plug into a wall plug.

If	Then
The "RDY" LED is permanently on (green).	Supply voltage is ok. The device is in operation.
The LED "RDY" is out or is blinking.	See section 9.1.1 "Power supply (RDY LED)" (page 24).

- The SMA *Bluetooth* Repeater is connected to the power supply.

## 6 Settings

### Overview of the rotary switch



A	"MODE" rotary switch
B	"NetID" rotary switch

### 6.1 Setting the mode

The "MODE" rotary switch serves for the setting of various modes. The rotary switch must always be set to "0" position (preset ex works). Other positions are not permitted and are intended for the SMA Service only.

1. Use a screwdriver (2.5 mm) to screw the arrow of the rotary switch "MODE" to position "0".
- The mode is set.

### 6.2 Setting the NetID

1. Turn the arrow of the "NetID" rotary switch to the desired position using a screwdriver (2.5 mm).  
For a layout of the switch positions, see table.
- The NetID is set.

Layout of the switch positions	
NetID	Function
0	<i>Bluetooth</i> is switched off. The last three <i>Bluetooth</i> LEDs are blinking (yellow). The position of the LED is covered in chapter 9.1 "LED Overview" (page 24).
1 (Condition upon delivery)	<i>Bluetooth</i> is switched on. The SMA <i>Bluetooth</i> Repeater 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. The last three <i>Bluetooth</i> LEDs are blinking (yellow). The position of the LED is covered in chapter 9.1 "LED Overview" (page 24).
2 - F	<i>Bluetooth</i> is switched on. The SMA <i>Bluetooth</i> Repeater can interlink with all SMA <i>Bluetooth</i> products with the same NetID.

## 6.2.1 Switching *Bluetooth* off

If you would like to switch *Bluetooth* off for test purposes, proceed as follows:

1. Turn the arrow of the "NetID" rotary switch to position "0" using a screwdriver (2.5 mm).
- The last three *Bluetooth* LEDs are blinking (yellow). *Bluetooth* is switched off on this device. The position of the LED is covered in chapter 9.1 "LED Overview" (page 24).

## 7 Maintenance and Care

### 7.1 Maintenance

Conduct regular visual inspections of the SMA *Bluetooth Repeater* to check for visible external damage or dirt.

### 7.2 Care



#### **ATTENTION!**

Penetration of water during cleaning of the SMA *Bluetooth Repeater*.

Damage to the SMA *Bluetooth Repeater*.

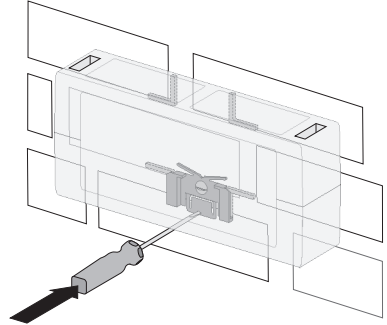
- The SMA *Bluetooth Repeater* is not waterproof, liquids should not be allowed to penetrate.
- To clean the device, use only a lightly dampened cloth so as to prevent the penetration of liquids. If there is a considerable amount of dirt, you can also use a mild, non-abrasive and non-corrosive cleaning agent.

## 8 Decommissioning

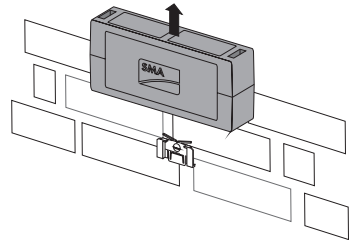
### 8.1 Dismantling the SMA Bluetooth Repeater

#### Wall bracket

1. To release, use a screwdriver to press towards the wall on the clip on the bracket under the SMA Bluetooth Repeater.

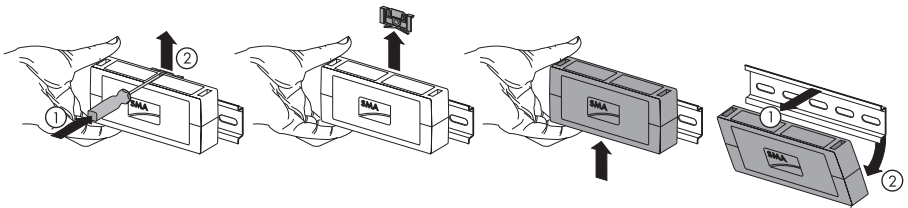


2. Slide SMA Bluetooth Repeater up away from the bracket.
3. Loosen the screw in a counter-clockwise direction and remove.
4. Remove the wall mounting bracket.
5. Remove the plug for power supply from the SMA Bluetooth Repeater and remove the power plug from the wall plug.



- The SMA Bluetooth Repeater is not working.

#### Top hat rail



1. To release, use a screwdriver to press towards the wall on the clip on the bracket under the SMA Bluetooth Repeater.
2. Push the bracket upward with the screwdriver.
3. Pull up on bracket and remove.
4. Push up and then pull forward on the SMA Bluetooth Repeater.
5. Push down and then pull forward on the SMA Bluetooth Repeater.

6. Detach the SMA *Bluetooth* Repeater from the DIN rail.
  7. Remove the plug for power supply from the SMA *Bluetooth* Repeater and remove the power plug from the wall plug.
- The SMA *Bluetooth* Repeater is not working.

## 8.2 Packing the SMA *Bluetooth* Repeater

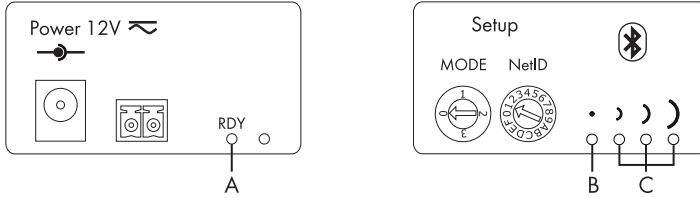
For reshipment, use a transport-secure packaging - if possible the original packaging.

## 8.3 Disposing of the SMA *Bluetooth* Repeater

Dispose of the SMA *Bluetooth* Repeater at the end of its service life in accordance with current disposal regulations for electronic waste that apply at the installation site, or alternatively, send it back to SMA Solar Technology with shipping paid by sender and labeled "FOR DISPOSAL".

# 9 Troubleshooting

## 9.1 LED Overview



A	RDY LED (green)	Power supply status
B	Bluetooth LED (blue)	Connection-quality
C	Bluetooth LED (yellow)	









### 9.1.1 Power supply (RDY LED)

RDY LED (green)		
Status	Meaning	Measure
permanently on	Supply voltage is ok. The device is in operation.	none
blinking	Supply voltage is borderline. The device is in operation.	Use only the plug-in power supply intended as an accessory for the SMA Bluetooth Repeater (12 V, min. 100 mA).
off	No supply voltage available or the supply voltage is too low. The device is not in operation.	Check that the socket has power (e.g. plug a functioning device into the socket) <ul style="list-style-type: none"> <li>If the socket is providing electricity, then either the plug-in power supply or the SMA Bluetooth Repeater is defective. Contact SMA America.</li> </ul>



### 9.1.2 Connection-quality (*Bluetooth* LEDs)

The SMA *Bluetooth* Repeater can only display the connection quality, if it is integrated into an existing *Bluetooth* network. The *Bluetooth* network is only established by master devices (communication product).

<i>Bluetooth</i> LEDs		Connection-quality	Measure
blue LED	yellow LEDs		
 permanently on	 3 LEDs on	very good	No action necessary.  If necessary, the distance of this radio link can be enlarged, as an example to place the Repeater closer to a device with poor connection. A "good" connection should, however, still exist.
	 2 LEDs on	good	
	 1 LED on	unreliable	
	 no LEDs on	critical	
 off	 no LEDs on	none	The SMA <i>Bluetooth</i> Repeater is not connected to the <i>Bluetooth</i> network: <ul style="list-style-type: none"> <li>• There is no device with the same NetID within the radio range.                             <ul style="list-style-type: none"> <li>- Check NetID.</li> <li>- Change the positioning or install additional SMA <i>Bluetooth</i> Repeaters.</li> </ul> </li> <li>• The <i>Bluetooth</i> network has not been established. Only masters initiate network establishment.</li> </ul>
	 3 LEDs flashing	(Special function)	



You can download additional information about SMA *Bluetooth* Wireless Technology from the download area at [www.SMA-America.com](http://www.SMA-America.com).

# 10 Technical Data

Communication	
Communication interface	Bluetooth
Connections	
Power supply	jack plug
Max. number of devices	
Bluetooth	100
Max. communication range	
Bluetooth outdoors	up to 330 ft.
Power supply	
Power supply	Plug-in power supply (AC)
Input voltage	typically 12 - 24 V AC $\pm$ 10 %, 50 / 60 Hz
Power consumption	typically 0.8 W / max. 1.2 W
Environmental conditions for operation	
Ambient temperature	-4° F to +149° F
Relative humidity	5 % to 95 %, non-condensing
Protection rating	NEMA 1
Elevation	0 ft to 9.850 ft. above mean sea level (AMSL)
Ambient conditions during storage/ transport	
Ambient temperature	-40 °F to +158 °F
Relative humidity	10 % to 95 %, non-condensing
Elevation	0 ft to 9.850 ft. above mean sea level (AMSL)
General data	
Dimensions (W/H/D) in inches	5.59/1.57/2.99
Weight	5.1 oz
Mounting location	indoors
Applicability	Top hat rail, wall bracket
Status display	LEDs
Features	
Warranty	5 years
Certificates and approvals	<a href="http://www.SMA-America.com">www.SMA-America.com</a>

## 10.1 FCC Compliance Information

### FCC Compliance Information

SMA system monitoring unit, Model SMA *Bluetooth* Repeater (BTREP-IN.GR2)

This device complies with Part 15 of the FCC Rules. Operation is subject to the following conditions:

- 1) This device may not cause harmful interference, and
- (2) this device must accept any interference received, including interference that may cause undesired operation.

**NOTE:** This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.
- The user is cautioned that changes or modifications not expressly approved by SMA America, Inc. could void the user's authority to operate this equipment.

Contact SMA America for more information.

Contact SMA America for more information.

### RF-exposure Statement

The SMA *Bluetooth* Piggy-Back (BTPBINV.BG1) contains a modular transmitter. Thus it must have a separation of at least 8 in. between the antenna and the body of the user or nearby persons, excluding hands, wrists, feet, and ankles.

# 11 Accessories

## 11.1 Plug-in power supply

Order number: PWRSUPPLY

The plug-in power supply with country adaptors serves as power supply to the SMA *Bluetooth Repeater* via a wall plug.

## 12 Contact

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

- Inverter serial number and type
- Serial number and firmware version of the communication device
- Series number and firmware version of the SMA *Bluetooth* Repeater
- Exact error description

### **SMA America, Incorporated**

4031 Alvis Court

Rocklin, CA 95677

Tel. +1 916 625 0870

Fax +1 916 625 0871

[service@sma-america.com](mailto:service@sma-america.com)

[www.SMA-America.com](http://www.SMA-America.com)





**SMA America, Incorporated**

**www.sma-america.com**

**4031 Alvis Court**

**Rocklin, CA 95677-4011**

