SMA

Device for Plant Monitoring
SUNNY WEBBOX
User Manual

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IMPORTANT SAFETY INSTRUCTIONS

SAVE THESE INSTRUCTIONS

This manual contains important instructions for the following products:

- Sunny WebBox

This manual must be followed during installation and maintenance.

The product 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 product. To reduce the risk of personal injury and to ensure the safe installation and operation of the product, you must carefully read and follow all instructions, cautions and warnings in this manual.

Warnings in this document

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.

Symbol	Description
⚠ 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 is used to address practices not related to personal injury.

General Warnings

> **⚠ WARNING**
>
> General Warnings
>
> All electrical installations must be made in accordance with the local and *National Electrical Code*® ANSI/NFPA 70 or the *Canadian Electrical Code*® CSA C22.1. This document does not and is not intended to replace any local, state, provincial, federal or national laws, regulations or codes applicable to the installation and use of the product, including without limitation applicable electrical safety codes. All installations must conform with the laws, regulations, codes and standards applicable in the jurisdiction of installation. SMA assumes no responsibility for the compliance or noncompliance with such laws or codes in connection with the installation of the product.
>
> The product contains no user-serviceable parts.
> For all repair and maintenance, always return the unit to an authorized SMA Service Center.
>
> Before installing or using the product, read all of the instructions, cautions, and warnings in this manual.
>
> Wiring of the product must be made by qualified personnel only.

Table of Contents

1 Information on this Manual

This manual describes how to assemble, install, commission and operate the Sunny WebBox. Keep this manual in a convenient place for future reference.

This manual does not contain any detailed information about the connected devices. Detailed information on connected devices is provided in the device manuals.

1.1 Validity

This manual is valid for the Sunny WebBox as of hardware version E1 and firmware version 1.53.

1.2 Additional information

You will find further information on the Sunny WebBox in the download area of www.SMA-Solar.com:

- Certificates and approvals for the Sunny WebBox
- Information on setting up a local FTP server for automatic reception of plant data via the FTP push function of the Sunny WebBox (see the Technical Information "Configuring a Local FTP Server").
- Information on the Remote Procedure Call Protocol of the Sunny WebBox
- Information on the Modbus®* Protocol of the Sunny WebBox

1.3 Typographies

Formatting	Significance
[Save]	Buttons are displayed in square brackets [ ].
"Menu1"	Menu items are displayed in quotation marks.
"Menu1 > Menu2"	Menu paths are displayed in quotation marks. The angle bracket > separates individual menus.
Example:	Examples are represented in italics.

1.4 Nomenclature

Complete designation	Designation in this document
SMA America Production, LLC	SMA
SMA Solar Technology Canada Inc.	SMA
PV plant	PV plant

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* Modbus® is a registered trademark of Schneider Electric and is licensed by the Modbus Organization, Inc.

2 Sunny WebBox

As the central communication interface, the Sunny WebBox connects the PV plant and its operator. The Sunny WebBox collects and documents all data of the connected devices, thus permitting interruption-free monitoring of the PV plant. The Sunny WebBox provides the operator with all recorded data via an Internet connection.

The Flashview presentation software and the Sunny Portal website can be used to edit data or graphically display stored data. Both presentation programs are freely available on the www.SMA-Solar.com or the www.SunnyPortal.com websites.

This means that operators can see the yields from their plant both in the local network and via the Internet at any time using Flashview and the Sunny Portal.
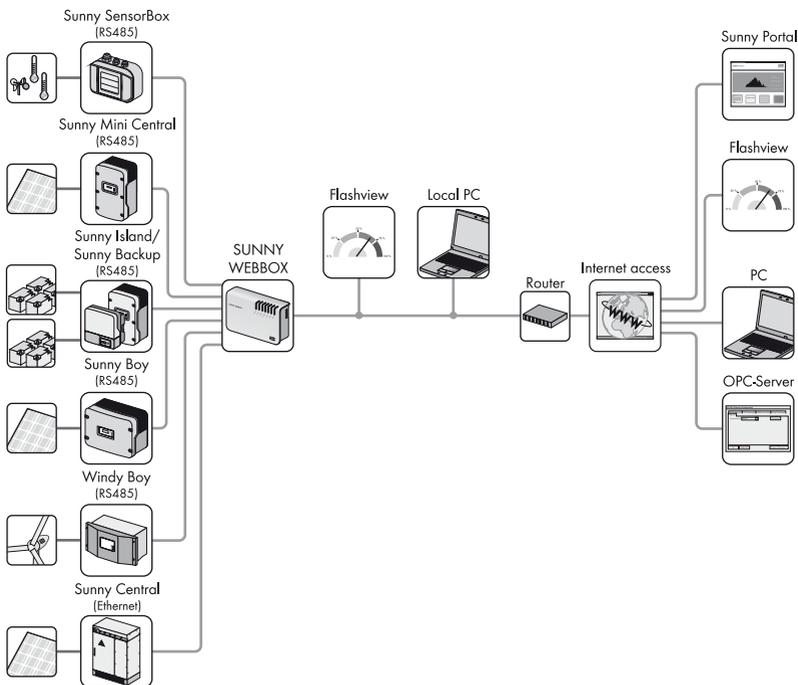
The Sunny WebBox is also a powerful tool for operators when configuring plants or performing remote diagnostics via computer. It allows continuous monitoring of the PV plant and early detection of disturbances. Thus, the Sunny WebBox helps to optimize PV plant yields.

The Sunny SensorBox allows the operator to further expand his plant via the Sunny WebBox. The Sunny SensorBox records the environmental data relevant to performance monitoring at the PV plant. For this purpose, the Sunny SensorBox has an integrated irradiation sensor as well as an external module temperature sensor. The operator can also connect an optional ambient temperature sensor and a wind sensor to the Sunny SensorBox. Further information on monitoring your PV plant and SMA products can be found on the Internet at www.SMA-Solar.com.

3 Safety

3.1 Intended Use

The Sunny WebBox is a data logger, that records, logs and makes available the data of a PV plant.
The Sunny WebBox is suitable for monitoring PV plants of any size.

*   The data collected by the Sunny WebBox may deviate from the data provided by the electricity
    meter. The Sunny WebBox data must not be used for billing purposes.

3.1.1 Supported Products

The Sunny WebBox supports the following SMA products:

Inverter	Other Products
• All inverters with the following communication interfaces:* – 485USPB-NR – 485QMUS-10-NR • Sunny Central via Ethernet	• Sunny SensorBox • SMA Meteo Station • Sunny Portal • Flashview • SMA OPC Server

* A list of these inverters can be found in the manual for the relevant communication interface.

3.1.2 Target Group

The Sunny WebBox is intended for private and industrial use. When you log in to the Sunny WebBox,
there are two user groups at your disposal, "Installer" and "User". The "Installer" user group comprises
only qualified personnel authorized to make changes to grid-relevant parameters for the connected
devices. Only the installer may commission the Sunny WebBox.

3.2 Safety Instructions

Follow all operating and safety precautions in this manual. Failure to follow these instructions could
result in damage to the device and cause personal injury.

> **⚠ WARNING**
>
> When using your telephone equipment, basic safety precautions should always be followed to
> reduce the risk of fire, electric shock and injury to persons, including the following.

> **⚠ WARNING**
>
> **Danger to life due to electric shock**
> - Never open the plug-in power supply.
> - Use the Sunny Webbox only in the interior and in a dry environment
> - Do not use this product near water for example, near a bathtub, washbowl, kitchen sink or laundry tub, in a wet basement or near a swimming pool.
> - Use only the plug-in power supply provided.
> - Avoid using a telephone (other than a cordless type) during an electrical storm. There may be a remote risk of electric shock from lightning.

> **⚠ CAUTION**
>
> **Injuries from tripping over cables**
> - Install the cabling in such a way that no one can stand on or trip over it.
>
> **Injuries due to cable fire**
> - To reduce the risk of fire, use only No. 26 AWG or larger (e.g. 24 AWG) UL listed or CSA certified telecommunication line cord.

> **NOTICE**
>
> **Damage of the device due to electrostatic discharges**
> By touching electronic components, you can cause damage to or destroy the device through electrostatic discharge (ESD).
> - Avoid coming into contact with component connections and plug contacts.
> - Ground yourself before working on the device.
>
> **Damage of the device due to incorrect connection**
> - The Sunny WebBox is only to be operated using the supplied plug-in power supply and in the voltage range intended for this.
> - Observe the technical data of the Sunny WebBox.
>
> **Property damage due to incorrectly set parameters**
> With the help of the Sunny WebBox you can change the safety-relevant parameters of SMA inverters (e.g., SMA Grid Guard parameters). Incorrectly set parameters can damage or destroy the inverter.
> - Do not alter these safety-relevant parameters without prior consultation with the electric utility company operating the grid into which your plant feeds.
>
> **Property damage due to unauthorized access to your plant**
> The Sunny WebBox can be connected to the Internet. However, connecting to the Internet entails a security risk.
> - Change the login password after the initial installation in order to protect it from unauthorized access by third parties. Select a number-letter combination with at least 8 characters for your password (see Section 10.6.1 "Strength of Passwords", page 60).

4 Scope of Delivery

Check the delivery for completeness and for any external damage. Contact your dealer if the delivery is incomplete or damaged.
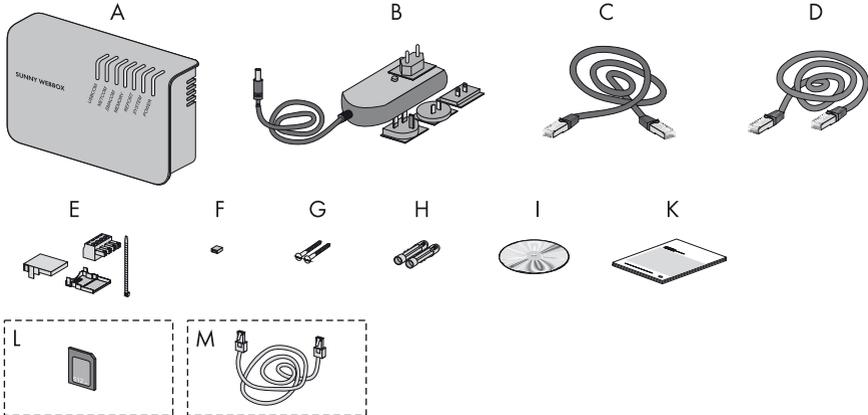
Position	Quantity	Designation
A	1	Sunny WebBox
B	1	Plug-in power supply with travel adapters
C	1	Red network cable (patch cable)
D	1	Blue network cable (crossover cable)
E	1	Plug for SMACOM (1 plug, 1 connector shell, 1 cable tie)
F	10	Jumper as replacement
G	2	Screws
H	2	Screw anchors
I	1	CD with Sunny WebBox Assistant
K	1	User manual and quick reference guide for commissioning
L	1	SD card – inserted into the SD card slot on the Sunny WebBox (only with the order option Sunny WebBox with SD card)
M	1	Modem cable with RJ11 plug (only with the order option Sunny WebBox with analog modem, can no longer be ordered).

5   Device Overview

5.1   Type Label

The type label clearly identifies the Sunny WebBox. The type label can be found on the back of the enclosure.
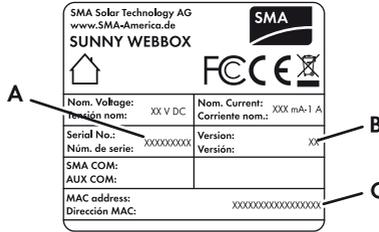
Position	Designation	Explanation
A	Serial No.	Serial number of device
B	Version	Hardware version of the device
C	MAC address	MAC address of the device

5.2   Overview of the Sunny WebBox LEDs
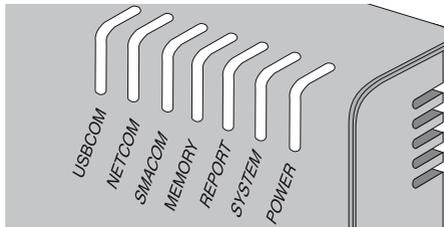
LED name	Status	Significance
USBCOM	flashing green	no function
	glowing red	no function
	off	no function

LED name	Status	Significance
NETCOM	flashing green	The Sunny WebBox will transmit data to the Sunny Portal or to the FTP server via FTP Push.
	glowing green	The most recent data transmission to Sunny Portal/ FTP push has been successful.
	glowing red	The most recent data transmission to Sunny Portal/ FTP push failed. The Sunny WebBox will attempt to transmit the data again according to its settings. The Sunny WebBox internal memory can retain the accumulated data for approximately 2 days.
	Off	Data transmission is disabled.
SMACOM	flashing green	The Sunny WebBox is communicating with a device.
	glowing green	System communication has occurred in the last 5 minutes.
	glowing red	More than one device logged into the communication bus is set as a master.
	Off	No communication has occurred on the communication bus in over 5 minutes.
MEMORY	glowing green	SD card is located in the SD card slot. The Sunny WebBox can write data to the SD card.
	flashing orange	Sunny WebBox is writing data to the SD card.
	glowing orange	The inserted SD card is writable (available space < 10%).
	glowing red	SD card is full.
	Off	No SD card in device or external backup is disabled (see page 53).
REPORT	glowing green	no function
SYSTEM	flashing red	Sunny WebBox is starting.
	glowing red	An error has occurred in the Sunny WebBox.
	glowing green	Sunny WebBox is ready for operation.
POWER	glowing green	Sunny WebBox has power.
	Off	Sunny WebBox does not have power.

5.3   Overview of the Connection Area
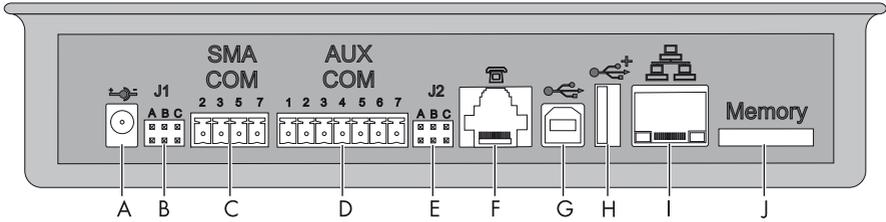
Position	Designation
A	Connection for the plug-in power supply
B	Jumper socket J1
C	SMACOM
D	AUXCOM (no function)
E	Jumper socket J2
F	Modem connection
G	USB connection client (no function)
H	USB connection host (no function)
I	Network connection
J	SD card slot

5.4   Overview of the LEDs on the Network Connection
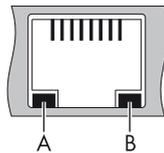
Position	LED	Status	Significance
A	Link	on	Connection established
		off	No connection established
B	Activity	on	Connection established, no data is being sent or received
		flashing	The Sunny WebBox is currently transmitting or receiving data
		off	No connection established

6   Commissioning

6.1   Commissioning Options

There are two options for commissioning the Sunny WebBox:

- Commission the Sunny WebBox using the Sunny WebBox Assistant (recommended)
- Commissioning the Sunny WebBox without the Sunny WebBox Assistant

Commissioning the Sunny WebBox using the Sunny WebBox Assistant

The Sunny WebBox Assistant is a software which assists you with the commissioning of the Sunny WebBox. The Sunny WebBox Assistant can be found on the supplied CD and in the download area at www.SMA-Solar.com.

Proceed as follows:

- Follow the quick reference guide for Sunny WebBox commissioning.

Then you can:

- Connect the Sunny WebBox to the inverter (see page 32).
- Set the PV plant communication mode (see page 56) and detect the PV plant devices (see page 44).

Commissioning the Sunny WebBox without the Sunny WebBox Assistant

Proceed as follows:

- Connect the Sunny WebBox directly to the computer (see page 22).
- Configure the network settings on the computer (see page 23).
- Configure Sunny WebBox for the local network (see page 27) and connect to the local network (see page 29) **and/or** configure the Sunny WebBox for modem operation (see page 32).
- Connect the Sunny WebBox to the inverter (see page 32).
- Set the PV plant communication mode (see page 56) and detect the PV plant devices (see page 44).

6.2   Mounting / Installation Location Requirements

Note the following information on the mounting / installation location of the Sunny WebBox:

- The Sunny WebBox is suited only for mounting indoors.
- The ambient temperature must remain between –4°F (–20°C) and +131°F (+55°C).
- The maximum cable length of the entire RS485 communication bus is 3,937 ft (1,200 m).
- The maximum permitted network cable length is 328 ft. (100 m) per segment.
- The maximum permitted telephone cable length is 656 ft. (200 m).
- The Sunny WebBox requires a socket-outlet with a grid voltage of 100 V ... 240 V (50 Hz/60 Hz).
- Protect the Sunny WebBox from dust, wet conditions, corrosive substances and vapors.

- Observe the minimum clearances to walls, other devices or objects as shown in the diagram in order to guarantee sufficient heat dissipation.

- Do not cover the Sunny WebBox.

- The distance from the Sunny WebBox to the inverters may not be greater than the maximum permitted distance of the selected communication type. Note the specifications in the respective sections.
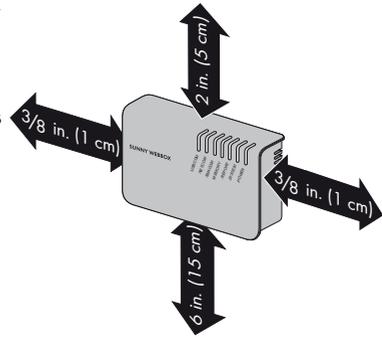
6.3 Connecting the Sunny WebBox Directly to the Computer
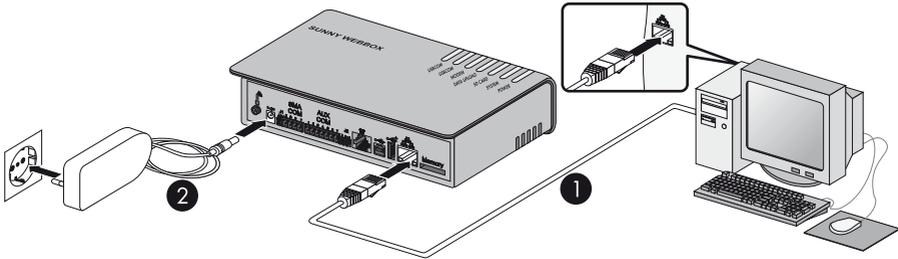
1. Connect the Sunny WebBox with the **blue** network cable (crossover cable) to the computer (see ①).

   The connection on the computer is normally indicated by the same symbol as the Sunny WebBox network connection. If necessary, refer to the computer manual.

ℹ️ **Recommendation on network cabling**

   If the supplied network cable is too short, observe the following network cable requirements:

   - You need an Ethernet crossover cable.

   - Use a cable of type Cat5 or higher.

   - Use a shielded cable.

   - For a total length of no more than 328 ft. (100 m), observe the guidelines for structured cabling in accordance with EIA/TIA-568, ISO/IEC 11801 and/ or EN 50173 (cable for fixed layout at least AWG24).

   - For a total length of no more than 164 ft. (50 m) you can use a cable with AWG26/7.

2. Connect the plug-in power supply to the Sunny WebBox and plug it into the socket-outlet (see ②).

☑ As soon as the "SYSTEM" and "POWER" LEDs glow green, the Sunny WebBox has started up and is ready for operation. The start-up procedure can take up to 90 seconds.

– IF the "SYSTEM" or "POWER" LEDs do not glow green, refer to Section 14.

6.4 Configuring the Network Settings on the Computer

6.4.1 Information on Network Settings on the Computer

If you do **not** use the Sunny WebBox Assistant for initial commissioning of the Sunny WebBox, you need to make the network settings manually on the computer. To do so, first configure your computer based on the Sunny WebBox network range on delivery. The settings are described for the following operating systems:

• Windows Vista/Windows 7

• Windows XP/Windows 2000

If you use a different operating system, refer to the manual of your operating system to find out how to set the computer IP address to 192.168.0.100 and the subnet mask to 255.255.255.0.

> **ℹ** **User rights in the operating system**
>
> You will need the appropriate user rights to change the computer's network settings. Without the necessary user rights, you will not be able to start up the Sunny WebBox. If you have any questions, contact your network administrator.

6.4.2 Windows 7, Windows Vista

1. Start the computer.

2. In Windows select "Start"

3. Enter "ncpa.cpl" in the search field and press Enter.

   ☑ The "Network connections" window opens.

4. Double-click the LAN connection used to connect the Sunny WebBox.

   – If Windows displays several LAN connections, there are probably several network connections installed on the computer. Ensure that you select the correct network connection, with which the computer is connected to the Sunny WebBox. If necessary, refer to the computer manual.

   – In the event that no LAN connection is displayed, refer to Section 14.

   ☑ The "Local Area Connection Status" window opens.

5. Select [Properties] in the "General" tab.

   ☑ The window "Local Area Connection Properties" opens.

6. Mark "Internet Protocol Version 4 (TCP/IPv4)" and select [Properties].

   ☑ The "Internet Protocol Version 4 (TCP/IPv4) Properties" window opens.

7. Note the current network settings in the "Internet Protocol Version 4 (TCP/IPv4) Properties" window. This enables you to reset the computer network settings after configuration of the Sunny WebBox.
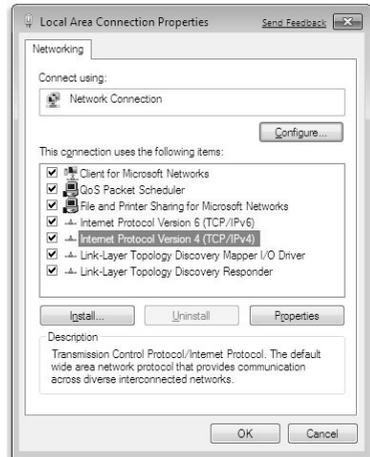
8. Enter the following static network settings for the computer in the "Internet Protocol Version 4 (TCP/IPv4) Properties" window:

   – Check the "Use the following IP address" field.

   – Enter 192.168.0.100 into the "IP address" field.

   – Enter 255.255.255.0 into the "Subnet mask" field.

   – Delete any entries in the "Default gateway", "Preferred DNS server", and "Alternative DNS server" boxes.

9. Select [OK].

10. In the "Local Area Connection Properties" window, select [OK].

☑ The computer is set to the network settings of the Sunny WebBox.

6.4.3   Windows XP, Windows 2000

1. Start the computer.

2. In Windows select "Start > Settings > Network Connections".

3. Double-click the LAN connection used to connect the Sunny WebBox.

    – If Windows displays several LAN connections, there are probably several network connections installed on the computer. Ensure that you select the correct network connection, with which the computer is connected to the Sunny WebBox. If necessary, refer to the computer manual.

    – In the event that no LAN connection is displayed, refer to Section 14.

    ☑ The "Local Area Connection Status" window opens.

4. In the "General" tab, select [Properties].

    ☑ The window "Local Area Connection Properties" opens.

5. Mark "Internet Protocol (TCP/IP)" and select [Properties].

    ☑ The "Internet Protocol (TCP/IP) Properties" window opens.

6. Note the current network settings in the "Internet Protocol (TCP/IP) Properties" window. This enables you to reset the computer network settings after configuration of the Sunny WebBox.

7. Enter the following static network settings in the "Internet Protocol (TCP/IP) Properties" window:

    – Check the "Use the following IP address" field.

    – Enter 192.168.0.100 in the "IP address" field.

    – Enter 255.255.255.0 into the "Subnet mask" field.

    – Delete any entries in the "Default gateway", "Preferred DNS server", and "Alternative DNS server" boxes.
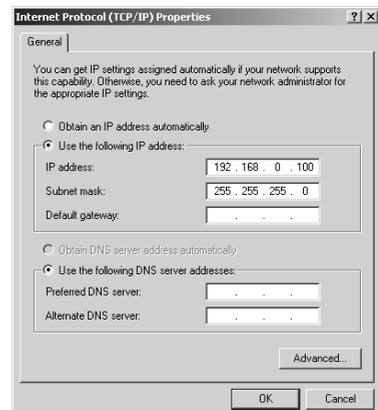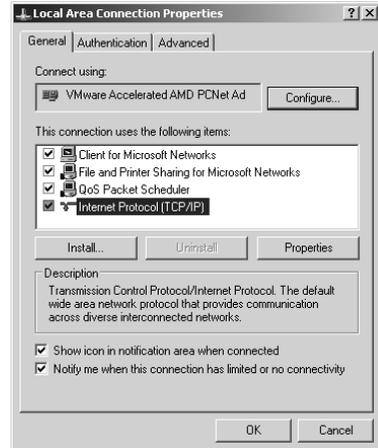
8.   Select [OK].

9.   In the "Local Area Connection Properties" window, select [OK].

☑   The computer is set to the network settings of the Sunny WebBox.

6.5 Logging in to the Sunny WebBox for the First Time

The Sunny WebBox distinguishes between 2 user groups: **user** and **installer**.

The two user groups are distinguished by two different passwords. If the password is the same for both user groups, you will be logged in as the installer.

In order to prevent two users making changes at the same time, only one user can ever be logged on to the Sunny WebBox at a time.

The user groups have the following rights:

User Group	Right
User	This user group allows the user to read all display-relevant information, such as instantaneous values and parameter settings. Settings that affect functionality cannot be modified. The user can choose any plant password for the user group "User".
Installer	In addition to the rights available to users, this user group is also allowed to set or change plant parameters that affect functionality. This user group can carry out the following tasks: • Resetting the Sunny WebBox to the factory settings. • Safely shutting down the Sunny WebBox. • Changing the user and installer user group passwords. • Changing the parameters of the inverters. • Logging into SMA Grid Guard.
Installer with SMA Grid Guard rights	The installer can change SMA Grid Guard parameters for devices.

Logging in to the Sunny WebBox

1. Start Internet browser (e.g. Internet Explorer).

    [i] **Enable JavaScript in the Internet Browser**

    The Sunny WebBox user interface needs JavaScript in order to be able to correctly display and execute the contents and functions of the Sunny WebBox. Enable JavaScript in your Internet browser. If necessary, refer to the help of your Internet browser.

2. Enter **http://192.168.0.168** into the address bar and press Enter.

    ☑ The Sunny WebBox login page opens.

    – If the page does not open, refer to Section 14.

3. Log in as "Installer". The default password for the installer is: "sma".

☑ The Sunny WebBox start page opens You can now configure the Sunny WebBox for the local network (see page 27).

[i] **Security in the local network**

• Change the user groups standard passwords in order to prevent unauthorized access. Use secure passwords (see Section 10.6.1 "Strength of Passwords", page 60).

• Use suitable measures to protect the local network, e.g. a firewall.

6.6 Configuring Sunny WebBox for the Local Network

6.6.1 Information on the Network Configuration of the Sunny WebBox

[i] **Changing network settings**

Do not change any network settings in the network devices if you are not clear about the effects of the change. Changes to values could lead to the existing network not functioning or only partially functioning. If you have any questions, contact your network administrator.

You have the following options for integrating the Sunny WebBox into the local network:

• Dynamic network settings (DHCP)
• Static network settings

6.6.2   Using Dynamic Network Settings (DHCP)

When using DHCP (Dynamic Host Configuration Protocol), the Sunny WebBox obtains its network settings (IP address, subnet mask, gateway and DNS server) via a DHCP server.

> **i** **Factory settings**
>
> DHCP is activated in the Sunny WebBox by default.

> **i** **DHCP Server Requirements**
>
> If you want to obtain the network settings for the Sunny WebBox via DHCP, check your DHCP server in advance. The DHCP server must extend the lease of the assigned IP address. If the DHCP server assigns a new IP address after the lease has expired, we do not recommend using DHCP.
>
> You can only call up the user interface via the URL **http://WebBox"serial number"** if your DHCP server has a DNS function.
>
> If your DHCP server does not have a DNS function but you want to use DHCP, you can call up the user interface via the current IP address of the Sunny WebBox. You can determine the current IP address via the SD card (see page 79). Alternatively, you can find the Sunny WebBox IP address in the DHCP server. DHCP servers can normally list all devices to which you have assigned an IP address. You can now identify the Sunny WebBox based on your MAC address. The MAC address of your Sunny WebBox is located on the type label and the "WebBox > Info" page.

1. Select "WebBox > Settings > Network" in the user interface.

2. In the "Obtain IP address" field select the "Dynamic (DHCP)".

3. Select [Save] and [Confirm].

☑ DHCP is activated in the Sunny WebBox. You can now connect the Sunny WebBox to the local network. Tip: You can find the current network settings for the Sunny WebBox on the user interface under "WebBox > Settings > Network" in the column under the selection field "Dynamic (DHCP)".

6.6.3   Configuring the Static Network Settings of the Sunny WebBox (Deactivating DHCP)

1. Select "WebBox > Settings > Network" in the Sunny WebBox user interface.

2. In the "Obtain IP address" field, select the value "Static".

3. In the "IP address" field, enter the static IP address under which the Sunny WebBox is to be accessed in the local network (see Section 15.1 "Allocating an IP Address in a Local Network", page 79).

4. Enter the subnet mask of your network in the "Subnet mask" field. Normally, you can find this information in the router manual.

5. Enter the Gateway IP address of your network into the "Gateway address" field. Usually, the IP address of the router has to be entered here.

6. In the "DNS server address" field enter the IP address of the DNS server (Domain Name System
    Server). Usually, the IP address of the router has to be entered here. You can enter the address
    of another DNS server in the "2. DNS server (optional)" field. This ensures communication if the
    1st DNS server fails.

7. Select [Save] and [Confirm].

    ☑ The Sunny WebBox saves the network settings and will no longer be accessible from your
    computer.

6.7 Connecting the Sunny WebBox to the Local Network

1. Remove the plug-in power supply of the Sunny WebBox from the socket-outlet.

2. Remove the blue network cable (crossover cable).
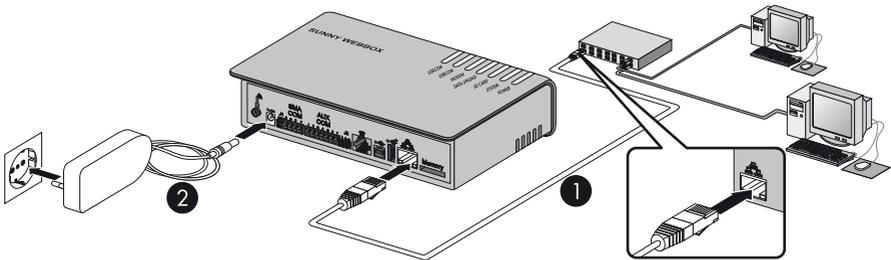
3. Connect the Sunny WebBox directly to the remote terminal (e.g. router, switch or hub) of the
    local network using the **red** network cable (patch cable) (see ①). The connection of the remote
    terminal is normally indicated by the same symbol as the Sunny WebBox network connection.
    If necessary, refer to the remote terminal manual.

> ℹ️ **Recommendation on network cabling**
>
> If the supplied network cable is too short, observe the following network cable
> requirements:
>
> • Use a cable of type Cat5 or higher.
>
> • Use a shielded cable.
>
> • For a total length of no more than 328 ft. (100 m), observe the guidelines for
>   structured cabling in accordance with EIA/TIA-568, ISO/IEC 11801 and/
>   or EN 50173 (cable for fixed layout at least AWG24).
>
> • For a total length of no more than 164 ft. (50 m) you can use a patch cable with
>   AWG26/7.

4. Connect the plug-in power supply to the Sunny WebBox and plug it into the socket-outlet (see ②).

☑ The Sunny WebBox starts. As soon as the "SYSTEM" and "POWER" LEDs glow green, the Sunny WebBox has started up and is ready for operation. The start-up procedure can take up to 90 seconds.

– If the "SYSTEM" or "POWER" LEDs do not glow green, refer to Section 14.

| i | **Resetting the computer to the network settings**

Reset your computer to its original network settings so that it can be accessed over the local network whenever necessary (see Section 23).

☑ The user interface of the Sunny WebBox is now available via the new IP address or the URL **http://WebBox"serial number"** (see Section 7.1 "Logging in to the Sunny WebBox", page 38).

6.8 Configuring the Sunny WebBox for Modem Operation

6.8.1 Information on Configuring the Sunny WebBox with an Analog Modem

| i | **The analog modem for the Sunny WebBox can no longer be ordered.**

For earlier versions of the Sunny WebBox, it was possible to optionally order the analog modem for the Sunny WebBox.

The following sections describe how to connect the Sunny WebBox to an telephone network with an analog modem and how to configure it.

Configuration entails the following steps:

• Connecting the modem cable (see page 31).

• Configuring the modem settings of the Sunny WebBox (see page 32).

6.8.2   Connecting the Sunny WebBox to the telephone network via modem cable

> ### ⚠ CAUTION
>
> To reduce the risk of fire, use only No. 26 AWG or larger (e.g. 24 AWG) UL listed or CSA certified telecommunication line cord.

ℹ **Recommendations for telephone network cabling**

If the provided telephone cable is not long enough, observe the following instructions when purchasing a new one, since the cable length and quality can adversely affect the signal quality.

- Use a standard high-quality cable. The telephone plug on both ends is an RJ11 Western plug.
- The maximum permitted cable length for analog telephones is 656 ft. (200 m).

1. Insert one plug of the supplied modem cable into the Sunny WebBox modem connection.
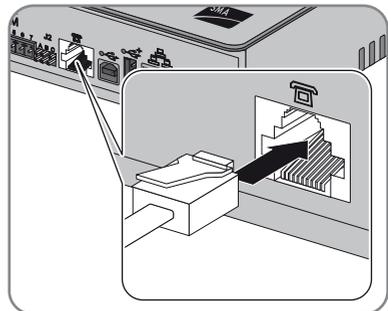
2. Connect the Sunny WebBox to the telephone connection. Insert the end of the modem cable into the RJ11 jack.
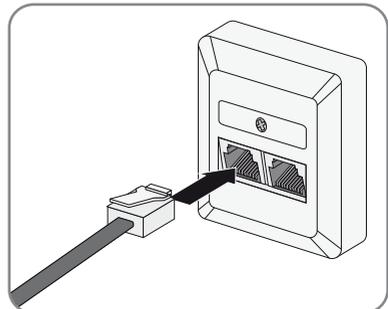
☑ Check whether the Sunny WebBox is connected to the telephone network. You can now configure the modem settings in the Sunny WebBox.

6.8.3   Configuring the Modem Settings for the Sunny WebBox

The following section provides information on how to set up your analog modem.

1. Select "WebBox > Settings > Modem" in the user interface.
2. In the "Allow modem access" field select "yes". This allows the establishment of a remote data transmission connection to the Sunny WebBox.
3. Enter the telephone number of your Internet Service Provider (ISP) in the "ISP telephone number" field. You will find this information in your service provider documentation.
4. Enter the data received from the ISP in the "ISP User Name" and "ISP Password" fields.
5. Test the connection as described in Section 10.5.2.
6. Select [Save].
☑ The modem is now configured.

6.9   Connecting the Sunny WebBox to the Inverter

This section describes the following methods for connecting the Sunny WebBox to inverters:

- Connecting the Sunny WebBox to a Sunny Central via Ethernet (maximum 50 inverters)
- Connecting the Sunny WebBox to an inverter via RS485 (maximum 50 inverters)

6.9.1   Connecting the Sunny WebBox to a Sunny Central

The Sunny WebBox is connected to the Sunny Central via Ethernet. Configure the Sunny WebBox for the local network and connect the Sunny WebBox directly to the remote terminal (e.g., router, switch or hub) of the Sunny Central via the red network cable (patch cable).
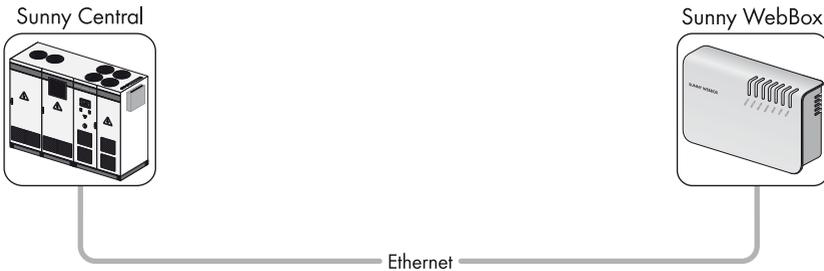
6.9.2 Connecting the Sunny WebBox to the RS485 Communication Bus

This section describes how to connect the Sunny WebBox to the RS485 communication bus. It is assumed that the Sunny WebBox is located at the end of the RS485 communication bus.
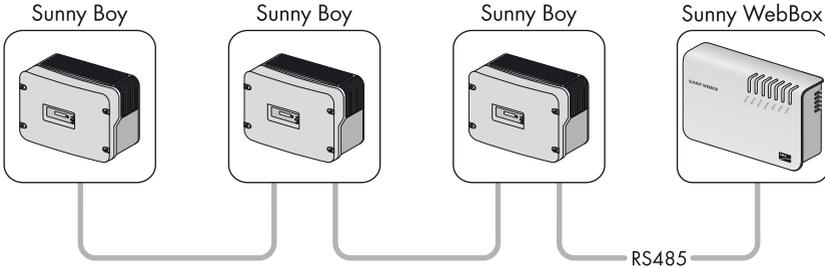
Figure 1:   RS485 communication bus (example)

⚠ DANGER

Danger to life due to electric shock when opening the inverter

Lethal voltages are present in the conductive parts of the inverter.

- All work on the inverter must be carried out by an electrically skilled person only.
- Disconnect the inverter on the AC and DC side (see inverter installation manual). Observe the waiting time to allow the capacitors to discharge.

ℹ   **RS485 cabling and pin assignment in the system**

See the RS485 cabling plan poster for the system cabling and pin assignment

1. Connect cables to the RS485 bus nodes as described in the bus node manual.
2. Shorten the cable sheath of the RS485 data cable on the side of the WebBox by 1 $\frac{1}{2}$ in. (40 mm).
3. Remove shielding until flush with cable sheath.
4. Strip the insulation of the conductors by approx. $\frac{1}{4}$ in. (6 mm).
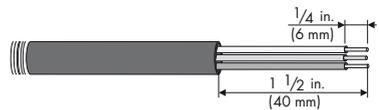
ℹ   **Connect the insulated conductors of the cable correctly to the plug connector**

Note the color of the insulated conductors of the data cable.

    2 | D+   _____
    5 | GND _____
    7 | D–   _____

5. Connect the insulated conductors to the plug connector. Observe the assignments of the insulated conductors in the RS485 communication bus.

6. Shorten unused insulated conductors flush with the cable sheath.
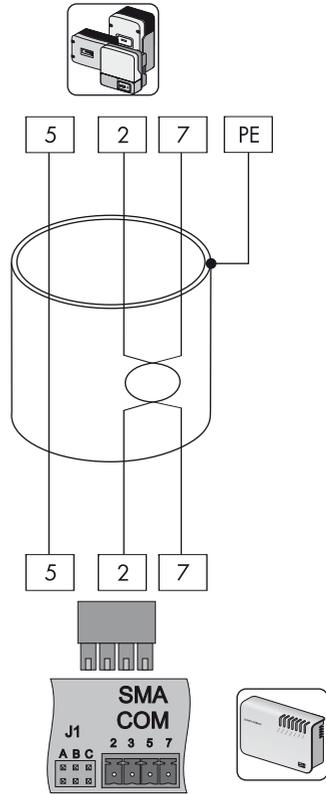
7. Place the plug on the bottom half of the cable enclosure and use the cable tie to fix the cable sheath to the bottom half of the cable enclosure.
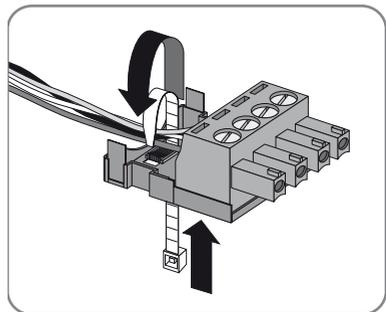
8. Press the upper half of the cable enclosure to the
    lower half of the cable enclosure and the plug until
    the terminals snap together.
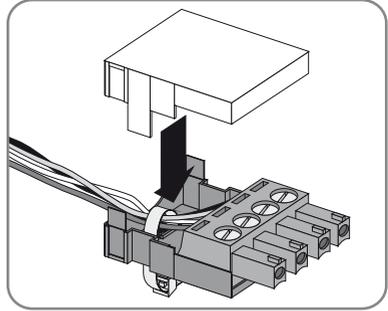
9. Insert the plug connector into the "SMA COM"
    jack of the Sunny WebBox.
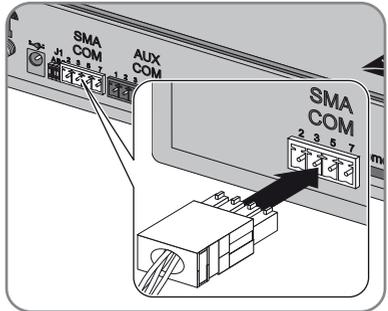
10. Check whether jumpers are connected to "J1B"
    and "J1C" on the Sunny WebBox "SMA COM"
    connector. The jumpers are mounted upon
    delivery. If the jumpers are not mounted, connect
    them. The jumpers enable signal biasing and
    ensure an adequate signal quality on the RS485
    communication bus.
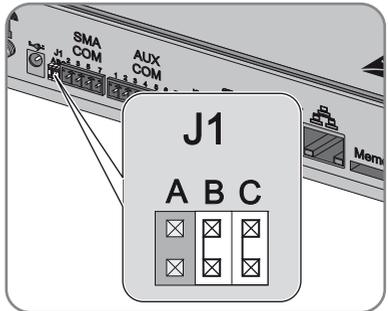
11. Whether the Sunny WebBox is located at one of
the two ends of the RS485 communication bus
determines whether or not a jumper must be
inserted in "J1A" of the "SMA COM" connection.
The jumper is mounted upon delivery.

– If the Sunny WebBox is located at one of the
two ends of the RS485 communication bus, a
jumper must be inserted in "J1A". If no jumper is
plugged, connect a jumper.

– If the Sunny WebBox is <u>not</u> located at one of
the two ends of the RS485 communication bus,
no jumper may be inserted in "J1A". Remove jumper on "J1A".
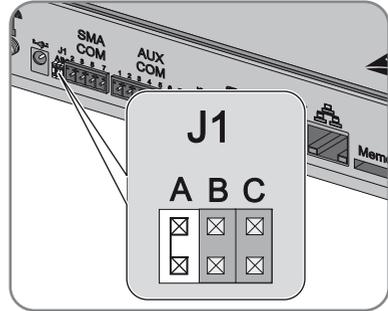
☑ The Sunny WebBox is now connected to the RS485 communication bus.

6.10 Mounting the Sunny WebBox (Wall or Top-Hat Rail)

This section describes how to mount the Sunny WebBox in the following ways:

* Mounting the Sunny WebBox on the wall
* Mounting the Sunny WebBox on a top-hat rail

ⓘ   Note the serial number

Before mounting the Sunny WebBox, note the serial number on the type label. You will
require the serial number later to call up the user interface.

Mounting the Sunny WebBox on the wall

1. Determine the mounting location taking into consideration the mounting/installation location
requirements (see Section 6.2).

2. **⚠ WARNING**

Danger to life due to electric shock or explosion if you drill into supply lines.

There may be gas pipes or electric cables behind the mounting points which could be damaged
when you drill the holes for the wall mounting bracket.

* Make sure that there are no supply lines behind the mounting points.

3. Determine the position of the drill holes on the wall. To do so mark two drill holes, one vertically above the other at a distance of 2 $\frac{15}{16}$ in. (75 mm).

4. Drill holes with $\frac{1}{4}$ in. (6 mm) diameter at the marked points and insert screw anchors.

5. Screw in the screws and leave a clearance of about $\frac{1}{4}$ in. (6 mm) between the screw head and the wall.

6. Hook the Sunny WebBox onto the screws.

☑ The Sunny WebBox is now mounted on the wall.
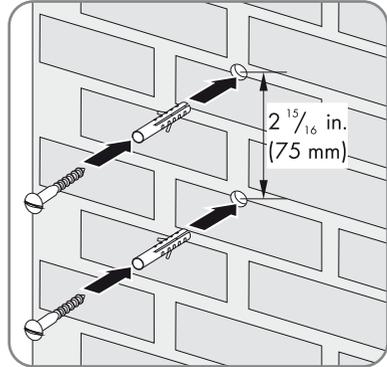
Mounting the Sunny WebBox on the top-hat rail

1. Hook the two lower brackets of the Sunny WebBox onto the lower edge of the top-hat rail.

2. Press the Sunny WebBox upwards and snap it into the upper brackets of the Sunny WebBox.

☑ The Sunny WebBox is now mounted on the top-hat rail.
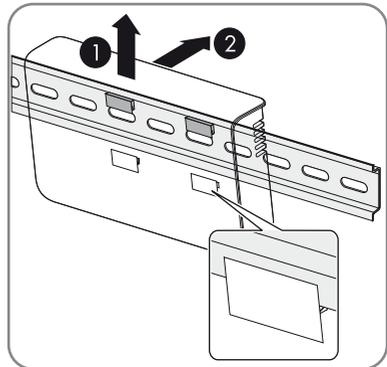
7   Logging in and out of the Sunny WebBox

7.1   Logging in to the Sunny WebBox

NOTICE

Unauthorized access to your PV plant is possible

The plant password protects your plant from unauthorized access to the plant devices.

- Change the default password for the user groups (user/installer) after you have logged into a new plant for the first time (see Section 10.6.2 "Change password", page 60).
---

i   **Enable JavaScript in the Internet Browser**

Enable JavaScript in your Internet browser. If JavaScript is not enabled, display errors may arise on the user interface.

i   **Default settings of the Sunny WebBox**

DHCP is activated in the Sunny WebBox upon delivery.

Password for installer user group: sma

1. Start Internet browser (e.g. Internet Explorer).
2. If you use DHCP for the Sunny WebBox (default setting), enter the URL **http://WebBox"serial number", e.g.,** http://WebBox895903467 in the address bar and press Enter. Tip: You can find the serial number on the type label or determine it using the SD card (see Section 15.2 "Determining the Network Settings of the Sunny WebBox", page 79).

   ☑ The Sunny WebBox login page opens.

   If the page does not open, refer to Section 14.
3. If you are using static network settings for the Sunny WebBox, enter the static IP address of the Sunny WebBox in the address bar and press Enter. If you have forgotten the IP address of the Sunny WebBox, see Section 15.2.

   ☑ The Sunny WebBox login page opens.

   – If the page does not open, refer to Section 14.
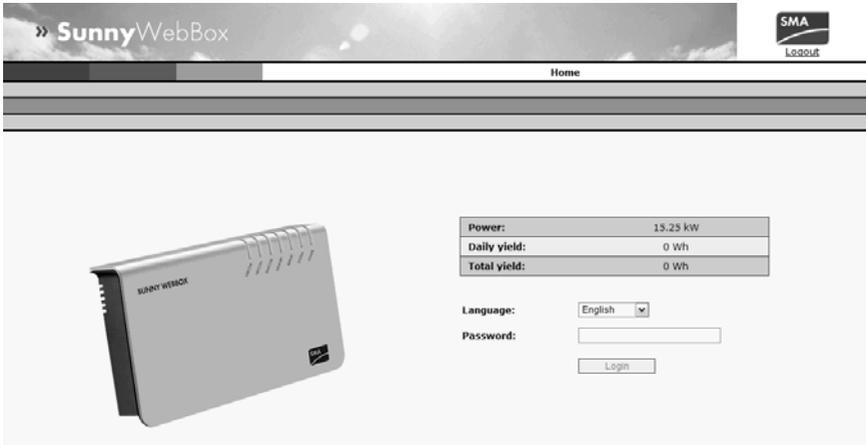
4.   Select the desired language in the "Language" field.

5.   Enter the password in the "Password" field.

6.   Select [Login].

☑   The Sunny WebBox start page opens

7.2 Logging out of the Sunny WebBox

Always log out from the Sunny WebBox when you finish work on the Sunny WebBox. To do so, select "Logout" on the user interface or at the top right, or click [Logout] in the "Home" menu. Closing your Internet browser will not log you out of the Sunny WebBox.

8 Operation

8.1 User Interface

The Sunny WebBox is operated via an integrated user interface. The figure below depicts the user interface start page.
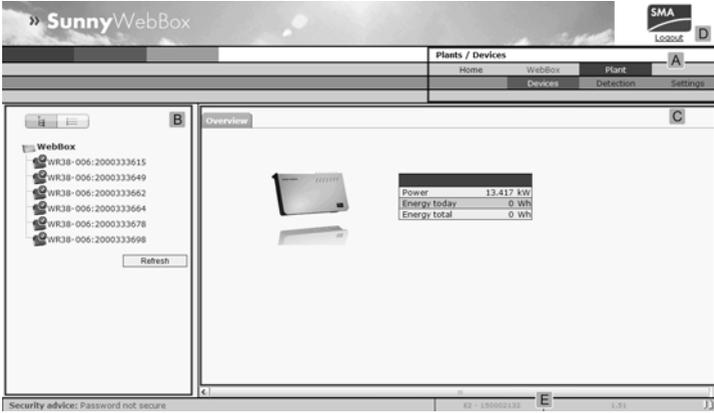
Position	Designation
A	Navigation bar
B	Structural view or device view
C	Contents area
D	Logout button
E	Hardware version and firmware version

Once you are logged into the Sunny WebBox, you can access the various pages using the navigation bar (A). For example, this area allows you to configure the network or change the inverter parameters.

Elements such as the logout button and the hardware and firmware version of the Sunny WebBox can be viewed or used on every page. The navigation bar is always available. The submenu changes depending on which main menu item is selected.

On the start page of the Sunny WebBox, there is an overview of the current output, the previous daily yield, and the previous total yield of all the connected inverters.

In general, there are two different areas in the web interface where settings can be configured:

- settings that affect the Sunny WebBox and Sunny Portal
- settings that affect the PV plant.

8.1.1   Explanation of the Status Symbols

This section explains the meanings of the various status symbols in the web interface of the Sunny WebBox. The symbol of a Sunny Boy appears in each of the following examples. The Sunny WebBox user interface shows other devices in the PV plant with corresponding symbols.

Symbol	Explanation
	This symbol indicates that the inverter is operational and communicating with the Sunny WebBox.
	This symbol indicates that communication has been established with the Sunny WebBox but that the inverter has an error.
	This symbol is displayed in the following cases: • The inverter is unable to communicate with the Sunny WebBox. • A fault has occurred in the communication with the inverter. • It is night time and the inverter is switched off.

8.1.2   Plant Status

You can read the status of the entire PV plant under "Plant" in the "Status" table. If devices in the plant have the status 'Error' or 'Warning', the number of affected devices and the serial number of one of the affected devices is shown next to the relevant symbol.

Position	Designation
A	Device with the status "Error"
B	Device with the status "Error" or "Warning"

8.1.3   Structural View and Device View

In the structural view and the device view, you can call up additional data under "Plant > Devices":

Structural View

In the structural view, the user interface shows the devices in the order in which they are connected to the data bus.

Device View

In the device view, the user interface shows all devices sorted by device type. Device types are, for example, all Sunny Boys. The number shown in parentheses indicates the number of devices of the device type.
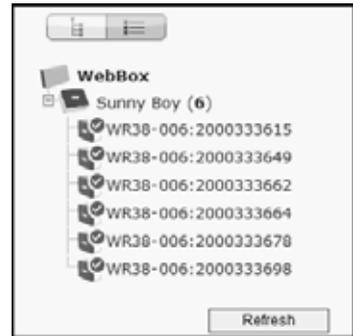
8.1.4   Overview According to Device Type

In the device view, the window on the right provides an overview of all devices in a group. To view all the devices of a specific type, select the device type in the device view.
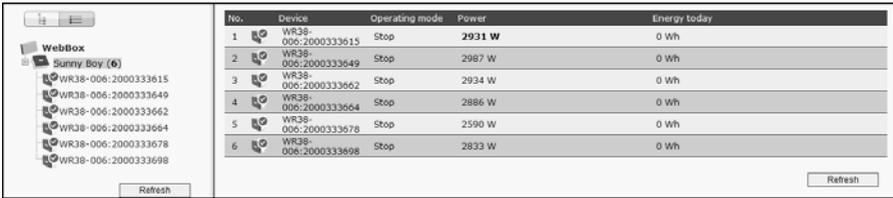
8.1.5   Overview of a Single Device

To view the data of one specific device, select the device in the device view or the structural view.

The various data pertaining to the device can be displayed and edited, if necessary, via the tabs "Overview", "Spot values" and "Parameters".

8.2   Detect devices

All devices (i.e., inverters) can be detected at once. If you later wish to add additional devices to the PV plant, you can detect them using the Sunny WebBox.

Before beginning detection, the communication mode of the PV plant has to be set (see page 56).

| **i** | **Re-detecting devices after changes to the PV plant** |

Devices will need to be re-detected if you:

- Exchange devices in your PV plant.
- Remove devices from your PV plant.
- Add devices to your PV plant.

| **i** | **Detection of a PV Plant May Take Several Minutes** |

Depending on the number of devices in your PV plant, the detection process may vary in duration. If the Sunny WebBox does not signal any progress for more than three minutes, cancel the search process. To do so, click the [Cancel] button. Check that all devices are connected properly to your plant and repeat the detection.

1. Select "Plant > Detection" in the user interface.

   ☑ The page "Plant Detection" opens.

2. In the "Total number of devices to be detected" field, you can enter the number of devices connected to the Sunny WebBox.

3. Select [Start detection].

   ☑ The Sunny WebBox starts detecting all devices and displays its progress. Once all devices have been detected, the Sunny WebBox displays "### Device detection finished ###".

4. Select [OK].

☑ The page "Plant > Devices" is displayed. The devices have been detected.

8.3   Parameterize devices

1. On the Sunny WebBox start page, log in as installer.

2. Select "Plant > Devices" in the user interface.

3. Select a device in the device view or structural view.

4. Select the "Parameters" tab.

   ☑ The Sunny WebBox lists all the parameters that can be changed on the selected device.

| **i** | **The displayed parameters depend on the selected device** |

The displayed parameters depend on the device you selected and can vary significantly between the product ranges (e.g. Sunny Boy and Sunny Central).

5. Change the value of the respective parameter via the "Value" field.

6. To adopt this value for all devices of the same type and with the same firmware version, select the "Save for all devices of this device type" option. For Sunny SensorBox devices, the units for ambient temperature, module temperature and wind speed must also coincide.

7. Select [Save].

☑ The Sunny WebBox now adjusts the required value on the device(s). Once the value has been changed, the Sunny WebBox displays "### Parameter change finished ###".

8. Select [OK].

☑ The Sunny WebBox displays the page containing the parameter list on the user interface.

To change additional parameters, proceed the same way. Repeat the instructions beginning from step 3 in order to set the parameters for further devices.

8.4 Displaying the Event Report

The event report provides a log of the various events that occur in both the Sunny WebBox and the devices connected to the Sunny WebBox. For example, information on file uploads to Sunny Portal or errors, warnings or other information regarding the connected devices can be stored in the event report by the Sunny WebBox. To display the events of connected devices, the Sunny WebBox accesses the memory of those devices.

| i | **It is possible to display the events of connected devices only for SMA inverters of the type Sunny Backup.** |

The Sunny WebBox (version 1.52 or higher) currently supports displaying the events of connected devices for SMA inverters of the type Sunny Backup.

1. If you have not configured the settings for retrieving data from the device memory, (see Section 10.9 "Retrieving or Requesting Data from the Device Memory", page 62).

2. Select "WebBox > Events" on the user interface.

☑ The Sunny WebBox displays the page containing the event report on the user interface. The Sunny WebBox can display the last 500 events in the report.

9　Managing Plant Data

9.1　Information on the Plant Data

The Sunny WebBox stores the data from all detected devices and provides that data in a variety of formats. Various conditions must be met depending on how you want the data to be displayed. The following sections specify the conditions and the settings required to display the data.

9.2　Plant Presentation in Sunny Portal

You can present data from your PV plant in Sunny Portal using the Sunny WebBox. The Sunny Portal monitors the PV plant and displays the yield and power output. In addition, Sunny Portal can send useful reports via e-mail. Depending on your Sunny WebBox version, you can transmit data to the Sunny Portal using a variety of connection types (e.g. analog, or ISDN or DSL router).

If the Sunny WebBox is unable to connect to the Sunny Portal, the Sunny WebBox will store the collected plant data in a ring buffer. The Sunny WebBox transmits the data to Sunny Portal with the next data upload. If the ring buffer is full, the Sunny WebBox will overwrite the oldest data. The time the ring buffer can bridge depends on the device type and number of detected devices.

i	**Possible Delays in the Visualization**
	Evaluating the collected data takes time. Note that it can take several minutes for Sunny Portal to display the data of your PV plant.

9.2.1   Registering Sunny WebBox in Sunny Portal

1. Log into the user interface of the Sunny WebBox.

2. Select "WebBox > Settings > Data trans." in the user interface.

3. Enter the name of your plant in the "Plant Name" field. Sunny Portal displays the name of your plant.

4. Select the transmission method in the "Interface" field. The transmission method depends on which Sunny WebBox version you have.

5. Set the upload frequency (see Section 10.7 "Setting Data Upload", page 61).

6. Select "Yes" in the "Use Sunny Portal" field.

i	**The plant identifier will be entered automatically.**

> In general, you do not have to change the preset number in the "Plant identifier" field. For Sunny Portal, the number is a unique identifier of the plant. If you have not yet registered at Sunny Portal, the Sunny WebBox will automatically enter the preset plant identifier in Sunny Portal after the first successful data upload. Sunny Portal sends the access data to the e-mail address you entered in the "Operator e-mail" field. You are now registered in Sunny Portal.
>
> In case you have already registered at Sunny Portal with the same plant (which can be for example the case when exchanging the data logger), you have to adjust the plant identifier in the "Plant identifier" field (see Section 9.2.3 "Adjusting the Plant Identifier for Sunny Portal", page 48).

7. Enter your e-mail address in the "Operator e-mail" field. Sunny Portal then sends your access data to the e-mail address entered.

8. Make a selection in the "Use Proxy server" field and, if necessary, enter the IP address and the port of the proxy server in the "Proxy server address" field.

9. Make a selection in the "Use authentication" field.

"yes"	Authentication is needed for the proxy server. Adjust further settings.
"no"	The proxy server does not require authentication. "User name" and "Password" do not have to be entered. Continue with step 10.

10. Enter the data of your proxy server in the "User name" and "Password" fields.

11. Select [Save].

12. Select "WebBox > Info".

13. Select [Register] in the "Last Sunny Portal registration" field. The Sunny Portal password will be sent to the entered e-mail address.

☑ The Sunny WebBox data transmission to Sunny Portal is configured.

On the "WebBox > Info" page, you can see when the Sunny WebBox last successfully transmitted data.

9.2.2   Activating/Deactivating Data Transmission to Sunny Portal

1. Log in to the user interface of the Sunny WebBox.
2. Select "WebBox > Settings > Data trans." in the user interface.
3. Make a selection in the "Use Sunny Portal" field.

"yes"	The Sunny WebBox will transmit data to Sunny Portal. Register the Sunny WebBox in Sunny Portal (see Section 9.2.1 "Registering Sunny WebBox in Sunny Portal", page 47).
"no"	The Sunny WebBox will not transmit data to Sunny Portal.

4. Select [Save].
☑ This setting activates or deactivates data transmission to Sunny Portal.

9.2.3   Adjusting the Plant Identifier for Sunny Portal

Sunny Portal identifies your Sunny WebBox via the plant identifier. In the following cases, you must adjust the plant identifier in the Sunny WebBox:

• Data has already been sent to Sunny Portal via another communication device.
• The plant identifier set for the Sunny WebBox was reset using the Reset button.
• The Sunny WebBox has been replaced with another Sunny WebBox.
• The WebBox is to be added to a plant that is already registered in Sunny Portal.

Perform the following steps to adjust the plant identifier of the Sunny WebBox for Sunny Portal:

1. Register at Sunny Portal (www.SunnyPortal.com).
2. Go to "Configuration > Plant properties" on the Sunny Portal page.
3. Copy the plant identifier to the clipboard.
4. Log in to your Sunny WebBox as a user/installer.
5. Select "WebBox > Settings > Data trans." in the user interface.
6. Delete the content of the "Plant identifier" field.
7. Paste the plant identifier from the clipboard into the "Plant identifier" field.
8. Select [Save].
☑ The plant identifier for the Sunny WebBox is adjusted to Sunny Portal.

9.2.4   Delete the Sunny Portal Buffer

1. Log into your Sunny WebBox as an installer.
2. Select "WebBox > Info" in the user interface.
3. Select [Delete] in the "Sunny Portal Buffer Load" field.
☑ The Sunny Portal buffer is deleted.

9.2.5 Accessing the Sunny WebBox via Sunny Portal

Using Sunny Portal, you can access your Sunny WebBox via the Internet.

ℹ️ **No access to the Sunny WebBox via Sunny Portal via an analog modem**

If the Sunny WebBox transmits its data to Sunny Portal via a modem, you cannot access the Sunny WebBox via Sunny Portal.

Every time the Sunny WebBox connects with Sunny Portal, Sunny Portal saves the current address of the Sunny WebBox or the router to which the Internet connection is established. If your router is configured accordingly, you can access your Sunny WebBox via Sunny Portal.

In "Device overview > Device characteristics" in Sunny Portal, you will find the IP addresses with which the Sunny WebBox last established a connection to Sunny Portal. The IP address displayed is updated by the Sunny WebBox each time data is transmitted.

If your network is permanently connected to the Internet, your Internet provider may disconnect the connection at regular intervals. This usually happens every 24 hours. When you establish a new Internet connection, your Internet provider will assign a new IP address to your network.
The Sunny WebBox establishes connections to Sunny Portal via this new IP address. The IP address displayed by Sunny WebBox is always up-to-date.

ℹ️ **Accessing the Sunny WebBox via Sunny Portal after change of IP address**

When your Internet provider assigns a new IP address to your network, Sunny Portal cannot access the Sunny WebBox immediately. Before it can be accessed, the Sunny WebBox must first send its new IP address to the Sunny Portal.
The Sunny WebBox transmits the IP address of the network every time data is transmitted. Wait until the next data transmission is performed by the Sunny WebBox.

ℹ️ **The router must forward data requests to the Sunny WebBox.**

To access the Sunny WebBox via Sunny Portal, your router must be configured to forward all data requests from Sunny Portal to the Sunny WebBox. If you are denied access, check your router settings.

9.3 Integrated FTP Server

The Sunny WebBox is equipped with an integrated FTP server. The FTP server allows you to access CSV files or compressed XML files. In order to use the FTP server, you must first assign the respective read and write access rights for the FTP server on the Sunny WebBox.

9.3.1 Defining Read and Write Access Rights for the FTP Server

1. Select "WebBox > Settings > Security" in the user interface.
2. Make a selection in the "FTP Server" field.

"Read/write"	You have read and write access rights on the integrated FTP server.
"Read only"	You only have read access rights on the integrated FTP server.
"off"	The integrated FTP server is deactivated.

3. Select [Save].
☑ The FTP server is configured. You can access the FTP server via the Internet browser, for example.

9.3.2 Calling up the FTP Server via the Internet Browser

To access the Sunny WebBox via an Internet browser, such as Internet Explorer, execute the following steps:

1. Start Internet browser.

ℹ️ **User name for logging into the Sunny WebBox**

To log into the FTP server of the Sunny WebBox, you can choose either "user" or "installer" as the user name.

2. Specify the IP address of the Sunny WebBox indicating the user name and password according to the following example: ftp://[User name]:[Password]@[IP address].
   For example, when logging into the Sunny WebBox with the IP address 192.168.0.168 and the user name "user" and the password "1234", enter :ftp://user:1234@192.168.0.168

3. Press Enter.

☑ The Internet browser displays the directory structure of the FTP server of your Sunny WebBox. You can download and display the collected data.

ℹ️ **The user name and password remain saved in the cache of the Internet browser.**

After you access the FTP server of the Sunny WebBox with an Internet browser, the user name and passwords remain saved in the Internet browser cache. Clear the Internet browser cache to prevent unauthorized access to the FTP server of the Sunny WebBox.

9.4 FTP Push Function

The Sunny WebBox is equipped with an FTP push function. This function means that the Sunny WebBox can upload the collected data of your PV plant to an FTP server.

i	**XML Data Format**

The data that is transferred via FTP push is always stored in XML data format.

i	**Testing the FTP push function**

You can also test the FTP push function using an FTP server installed locally on your computer. To learn how to install a local FTP server and use it to test the Sunny WebBox FTP push function with a local FTP server, refer to the Technical Information "Configuring a Local FTP Server". You can find this document in the download area at www.SMA-Solar.com.

9.4.1 Activating / Deactivating FTP Push Function

1. Select "WebBox > Settings > Data trans." in the user interface.

   ☑ The "Data transmission" page opens.

2. Make a selection in the "Use FTP-Push service" field.

"yes"	The FTP push service is activated. Adjust further settings.
"no"	The FTP push service is not activated. Proceed to step 8.

3. Enter the URL and port of the FTP server in the "FTP server" field.

4. In the "Upload directory" field, specify the desired file on the FTP server to which the data should be saved.

5. Make a selection in the "Use authentication" field.

"yes"	Authentication is needed for the FTP server. Adjust further settings.
"no"	Authentication is not required. "User name" and "Password" do not have to be entered. Proceed to step 6.

6. Enter the data of your FTP server in the "User name" and "Password" fields.

7. Set the upload frequency (see Section 10.7 "Setting Data Upload", page 61).

8. Select [Save].

   ☑ The FTP push function is activated/deactivated depending on the setting.

9.4.2   Testing the FTP Push Function

1. Select "WebBox > Settings > Data trans." in the user interface.

    ☑ The "Data transmission" page opens.

2. Click the [test] button in the "Test FTP connection" field.

    ☑ The Sunny WebBox sends a test file to the FTP server.

3. Check whether the Sunny WebBox transferred the test file successfully to the FTP server.

    – FTP connection test successful: check the content of the test file (see Section 15.4 "Structure of the Info.xml File", page 81) on your FTP server. The content of the test file must match the data of your Sunny WebBox.

    – FTP connection test failed: check the configuration of your FTP server and the Sunny WebBox. If necessary, you must adjust settings of the FTP server and the Sunny WebBox. If you have any questions, ask your network administrator and repeat the connection test.

4. Select [Save].

☑ The FTP push function is set and has been tested.

9.5   HTTP Download Via the User Interface

You can download the data collected by the Sunny WebBox via HTTP download. This function makes it possible to manually download your collected plant data in CSV or XML format to your computer.

1. Select "WebBox > Recording" in the user interface.

2. Make a selection in the "Format" field.

3. Configure the CSV data format, if necessary (see Section 10.8 "Configuring the CSV Data Format", page 61).

4. Select the required month in the "Download" field. The data for the prior 12 months is available for download via the user interface.

5. Select [Download].

    ☑ A window opens.

6. Select [Save].

7. Choose the save location.

8. Select [Save].

☑ The data is being downloaded. The download can take several minutes, depending on the data volume.

9.6 Saving Recorded Data on an SD Card

In addition to the internal ring buffer, the Sunny WebBox can also save data on an SD card.

| **i** | **Compatibility of SD cards** |

To ensure trouble-free working of the SD card, use SD cards available from SMA. Compatibility with all SD cards available on the market cannot be guaranteed. The Sunny WebBox does not support SD cards with storage capacities of more than 2 GB or SDHC cards.

| **i** | **Formatting of the SD card** |

Only use SD cards which have been formatted with the FAT16 file system.

The Sunny WebBox formats the SD cards with the file system TFAT to increase data security. If you wish to clear the SD card, you must format the SD card on a computer with the FAT16 file system.

1. Select "WebBox > Settings > Security" in the user interface.
2. Make a selection in the "External memory" field.

"Enable"	Plant data is saved on the SD card.
"Disable"	No plant data is saved on the SD card.

3. Insert the SD card into the Sunny WebBox SD card slot.

☑ The SD card is configured. The Sunny WebBox will now save data to the SD card.

| **i** | **Data loss when removing the SD card** |

Do not remove the SD card while the "MEMORY" LED is flashing orange. This can damage the file system of the SD card and lead to data loss. Depending on the amount of data, the writing process can take some time.

When an SD card is inserted into the SD card slot, the Sunny WebBox copies all data from the internal memory to the external memory (SD card). The Sunny WebBox will save new data to the SD card until you remove it from the SD card slot. The "MEMORY" LED on the Sunny WebBox flashes orange to indicate that it is writing to the SD card.

The Sunny WebBox saves data to a specific file folder on the SD card. The name of the file folder is "WebBox_[SerialNumber]". "[SerialNumber]" designates the serial number of the respective Sunny WebBox. The Sunny WebBox creates a subfolder in the main folder every day. Each subfolder contains all the data collected by the Sunny WebBox on that particular day. The Sunny WebBox will not save further data onto the SD card once the SD card reaches full storage capacity ("MEMORY" LED glows red). Replace the SD card or format the SD card in your computer.

9.6.1   Setting Data Compression

The Sunny WebBox can compress all the data it receives from connected devices. To do so,
the Sunny WebBox simply averages the data over a defined time period. Averaged data takes up
less memory space in the Sunny WebBox.

1. Select "WebBox > Recording" in the user interface.
2. In the "Averaging over" field, select the time period over which the Sunny WebBox is to calculate
    the average.
3. Select [Save].
☑ Data compression is now set.

9.6.2   Displaying Available Memory Space in the Sunny WebBox

You can display the ring buffer capacity of the Sunny WebBox already in use as follows:

1. Log into the Sunny WebBox.
2. Select "WebBox > Info" in the user interface.
☑ In the "Sunny Portal buffer load" field on the user interface, the Sunny WebBox displays the
    amount of memory already used in the ring buffer.

10 Settings

10.1 System

10.1.1 Setting the Date and Time

1. Select "WebBox > Settings > System" in the user interface.
2. Select [Change] in the "Time zone (UTC offset)" field.
    ☑ The "Date / Time / Time zone settings" window opens.
3. Select the time zone in the "Time zone (UTC offset)" field.
4. Make a selection in the "Automatic change from summer time to winter time" field.

"yes"	Automatic change from daylight saving time to standard time is active.
"no"	Automatic change from daylight saving time to standard time is not active. Date and time have to be set manually.

5. Enter the current date in the "New date" field.
6. Enter the current time in the "New time" field.
7. Select [Save].
☑ The date and time are now set.

10.1.2 Setting the Language

1. Select "WebBox > Settings > System" in the user interface.
2. Select your language in the "Language" field.
3. Select [Save].
☑ The language is set.

10.1.3 Setting the Operator Name

1. Select "WebBox > Settings > System" in the user interface.
2. Enter the operator name in the "Operator name" field.
3. Select [Save].
☑ The operator name is now set.

10.2 Setting the Communication Type of the PV Plant

1. Select "Plant > Settings" in the user interface.

2. Select the device communication method in the "Interface" field.

"SMA-COM"	• All Sunny Boy devices
	• All Sunny Mini Central devices
	• All Sunny Island devices
	• All Sunny Backup devices
	• Sunny SensorBox
	• Sunny Central (US version only)
"ETHERNET"	• All Sunny Central devices (excluding US version)

3. If "SMA-COM" is selected, click [Save] and continue with Section 10.2.1.

   or

   If "ETHERNET" is selected, click [Save] and continue with Section 10.2.2.

10.2.1 Setting SMA-COM

If the devices of your PV plant are to communicate with the Sunny WebBox via SMA-COM, you must configure this communication method.

i	**Data transmission protocols**
	SMA inverters use proprietary protocols for data transmission.
	The inverters have been using the data protocol "SMA-NET" since the year 2000. Older inverters use the data protocol "SUNNY-NET". The SMA-NET and SUNNY-NET data protocols cannot be used together in a PV plant.

1. Select "Plant > Settings" in the user interface.

2. Select the data protocol of the devices in the "Transfer protocol" field. The following selections are possible for the listed inverter types:

"SMA-NET"	• Sunny Boys of type SWR, version OCP 8.22, or later
	• All Sunny Boys of type SB
	• All Sunny Mini Central devices
	• All Sunny Island devices
	• All Sunny Central devices
	• Sunny SensorBox
"SUNNY-NET"	• Sunny Boys of type SWR prior to version OCP 8.22

| i | **Default baud rate** |

If not all devices operate using the typical SMA baud rate setting of 1200 baud, communication problems may occur. Change the baud rate to 1200 baud if necessary. Only change the baud rate from 1200 baud when absolutely necessary.

3. Select the inverter baud rate in the "Baud rate" field (not if "Ethernet" is set as the communication method).

„1200"	All SMA devices
„9600"	Reserved for future developments
„19200"	Reserved for future developments

4. Select [Save].

☑ The PV plant communication has been set.

10.2.2 Setting ETHERNET

If the devices of your PV plant are to communicate with the Sunny WebBox via Ethernet, you must configure this communication method.

1. On the "PV subnet mask" of the user interface, enter the subnet mask of the communication bus of the central inverter page.

| i | **PV subnet mask** |

This subnet mask enables the separation of diverse IP address ranges on the communication bus of the central inverter side. The subnet mask is preset to 255.255.0.0 by default.

2. Select [Save].

☑ The PV plant communication has been set.

10.3 Setting up Access to the Sunny WebBox via the Internet

If you would like to make the Sunny WebBox available in the Internet, to allow, for example, direct access to the Sunny WebBox via the Sunny Portal, you must configure a port redirection in your router. Here you can adjust the network port of the Sunny WebBox, if necessary.

The Sunny WebBox uses four network ports for the various services. If these ports are reserved for other applications in your network, you can change the ports as follows: For information on Modbus configuration, see page 58.

| i | **Adjusting the Network Ports** |

Test the access to the Sunny WebBox web server before you change the "Public virtual HTTP port" setting of the Sunny WebBox. In most cases, the settings do not have to be changed manually, as the router automatically forwards the queries to the correct ports via the network. Before adjusting the ports, contact your network administrator.

1. Select "WebBox > Settings > Network" in the user interface.
2. In the field "Virtual public HTTP port", enter the port enabled in the router for HTTP access. This port allows the web server of the Sunny WebBox to be accessed via the Internet.
3. In the "Webserver port" field, enter the port via which the web server of the Sunny WebBox can be accessed.
4. In the "Webservice port" field, enter the port via which the Sunny WebBox sends data to the Sunny Portal, and executes the Sunny WebBox firmware updates.
5. Select [Save] and [Confirm].
☑ The network ports are now changed.

10.4 Modbus Configuration

10.4.1 Activating or Deactivating the Modbus Server

1. Select "WebBox > Settings > Network" in the user interface.
2. Select "yes" in the "Use Modbus" field in order to use the Modbus protocol for Sunny WebBox communication. If you activate the Modbus protocol, unauthorized access to the Sunny WebBox is possible. In this case, users without a password will be able to access the instantaneous values of supported devices and change the Sunny WebBox system time.
   or
   Select "no" in the "Use Modbus" field to deselect the Modbus protocol for Sunny WebBox communication.
3. Enter the port in the "Modbus port" field which the Sunny WebBox should use to communicate via the Modbus protocol. The default setting is port 502.
4. Select [Save] and [Confirm].

10.4.2 Changing the Modbus Unit ID

If you use the Modbus protocol, you can change the unit ID of the connected Modbus-capable devices via the user interface of the Sunny WebBox.

1. Log into the Sunny WebBox as an installer.
2. Select "Plant > Devices > Modbus" in the user interface.
3. Select the required unit ID in the "Unit ID" field.
4. Select [Save].

10.5 Modem Configuration

10.5.1 Enable Modem Dialup

With this function, you can enable modem dialup via a dial-up connection to the Sunny WebBox. This setting does not affect how data is transferred to Sunny Portal via a modem. You can configure transmission to Sunny Portal in the user interface via "WebBox > Settings > Data trans." on the web interface in the "Interface" field.

1. Select "WebBox > Settings > Modem" in the user interface.
2. Make a selection in the "Allow modem access" field.

"yes"	The Sunny WebBox can be accessed via a dial-up connection. Adjust further settings.
"no"	The Sunny WebBox cannot be accessed via a dial-up connection.

3. Enter the IP address at which the Sunny WebBox can be accessed via a dial-up connection in the "IP address" field.
4. Select [Save].
☑ Whether the Sunny WebBox can or cannot be accessed via a dial-up connection will depend on the settings.

10.5.2 Testing the Connection

1. Select "WebBox > Settings > Modem" in the user interface.
2. Select [Connection test].
☑ A successful connection test means that all settings are correct.

If the connection test was not successful, check the modem settings (see Section 6.8 "Configuring the Sunny WebBox for Modem Operation", page 30). Perform the connection test once again.

10.6 Ensuring Access Security

[i]   **Network security**

Protect your Ethernet from unauthorized access. Take suitable protective measures:

- Set up secure passwords (see Section 10.6.1 "Strength of Passwords", page 60).
- Change your passwords at regular intervals.
- Use different passwords for different user groups.
- Set up a firewall.
- Close unnecessary network ports.
- Never leave slips of paper with passwords lying around.

Check the quality of your password. Choose a more secure password if necessary. On initial installation of the Sunny WebBox (no devices have been detected yet), the user interface prompts you to change the default password.

10.6.1 Strength of Passwords

To increase the security of your password, note the following when selecting a password:

- Use passwords with a minimum length of 8 characters. The longer the password, the more secure it is.
- Do not use names or common words (e.g. dog, cat or house).
- Do not use data related to your person as passwords (for example names of persons or pets, personal numbers or identification numbers, car license plates ...).
- Do not repeat names or words (e.g. househouse, catcat).
- Use a combination of upper and lower case letters, special characters and numbers.
- Do not use number and letter combinations which are consecutive on a keyboard (for example "12345", "qwerty", ...).

10.6.2 Change password

ⓘ **Identical Passwords for the User Groups**

If your user password is the same as your installer password, you will automatically be logged in as an installer.

1. Log into the Sunny WebBox in the appropriate user group.
2. Select "WebBox > Settings > Security"

   ☑ The page for security settings opens.
3. Enter a secure password in the "User password" field and confirm it in the second field (see Section 10.6.1 "Strength of Passwords", page 60).
4. Enter a secure password in the "Installer password" field and confirm it in the second field (see Section 10.6.1 "Strength of Passwords", page 60).

ⓘ **Changing the "installer" user group password**

The "installer" user group password can only be changed within the "installer" user group.

ⓘ **Information on password security**

While you enter your password, the user interface of the Sunny WebBox displays information on the security level of the password entered. The Sunny WebBox categorizes passwords as "very unsafe", "unsafe", "adequate", "safe" and "very safe". Only select passwords with a security quality level that is at least "safe".

5. Select [Save].

   ☑ The new password will be active the next time you log into the Sunny WebBox.

10.6.3 SMA Grid Guard

SMA Grid Guard is a security concept for country-specific settings in the inverter, determining the grid behavior within a power distribution grid. These settings (Grid Guard parameters) are pre-installed in the devices and can only be changed with the SMA Grid Guard password. In order to change SMA Grid Guard parameters, you will need to be logged in as an installer and you will need your personal SMA Grid Guard password, which you can obtain from SMA. The application form for the personal access code is available in the download area at www.SMA-Solar.com, in the "Certificate" category of the respective inverter.

10.7 Setting Data Upload

The upload frequency setting is used to define how frequently the Sunny WebBox connects to the Sunny Portal or the external FTP server each day. You can also define the time when the Sunny WebBox connects to the Sunny Portal or the external FTP server. All data upload settings are related to both data upload to the Sunny Portal as well as to data upload to an external FTP server.

1. Select "WebBox > Settings > Data trans." in the user interface.
2. Select the upload frequency in the "Upload frequency per time window" field.

> **ℹ** **Maximum number of upload attempts**
>
> If the data transmission from the Sunny WebBox to the Sunny Portal or external FTP server fails, the Sunny WebBox will make further attempts to transmit the data.
> The "Maximum number of upload attempts per time window" value specifies the number of data transmission attempts the Sunny WebBox makes within the defined time window.

3. Select the maximum number of upload attempts in each time window in the "Maximum number of upload attempts per time window" field.
4. Select [Save].
☑ The data upload is set.

10.8 Configuring the CSV Data Format

1. Select "WebBox > Recording" in the user interface.
2. In the "Format" field, select "CSV".
3. Select [Configure].
    ☑ The page for configuring the CSV data format opens.
4. Select the desired format of the file name in the "Filename format" field.
5. Make a selection in the "Create column headers" field.

"yes"	A header is added to the CSV file.
"no"	A header is not added to the CSV file.

6. In the "End-of-line character" field, make a selection determining which control character separates the lines of the CSV file.

> **ℹ️ CSV data format for Excel import**
>
> Microsoft Excel can automatically import CSV file data into tables if the separator and the number format are properly configured. If you want to import the CSV data into Microsoft Excel for evaluation, set the separator to "Comma" and "#.##" as the number format.

7. In the "Separator character" field, select the separator that is used to separate the content in the CSV file.

8. In the "Number format" field, select the desired number format.

9. In the "Timestamp format" field, select the desired time format.

10. Select [Save].

☑ The CSV data format settings have been saved. Any changes you make will only apply to future files.

10.9 Retrieving or Requesting Data from the Device Memory

> **ℹ️** Retrieving data from the device memory is only possible for SMA inverters of the type Sunny Backup.
>
> The Sunny WebBox (version 1.52 or higher) currently supports the retrieval of data from the device memory for SMA inverters of the type Sunny Backup.

The Sunny WebBox allows you to retrieve data from the memory of devices that are supported and have been detected by the Sunny WebBox. This data can either be retrieved automatically or requested manually. The device memory contains both the error memory and the event memory of the connected devices. Data from the event memory can only be requested manually. Data from the error memory can either be requested manually or retrieved automatically by the Sunny WebBox. If you have enabled automatic retrieval of data from the error memory, the Sunny WebBox will monitor the error memory of the connected device and automatically request error data whenever changes are made.

Regardless of which transmission method (automatic or manual) is being used, device memory data is organized chronologically in the event report of the Sunny WebBox. You can view the event report on the Sunny WebBox user interface (see Section 8.4 "Displaying the Event Report", page 45).

10.9.1 Activating/Deactivating Automatic Data Retrieval from Error Memory

1. Select "WebBox > Recording > Device hard drive" in the user interface.

2. To enable automatic retrieval of data from the error memory, select "yes" from the "Collect automatically fault logs" field.

   or

   To disable automatic retrieval of data from the error memory (delivery state) select "no".

3. Select [Save].

☑ The error memory settings are now saved.

10.9.2 Manually Requesting Data from the Error or Event Memory

| i | It is not possible to request data from the event memory and the error memory at the same time. Wait until the status of Sunny WebBox is "Idle" before requesting data from the device memory. |

1. Select "WebBox > Recording > Device hard drive" in the user interface.

2. To start manual retrieval of data from the error memory, select [request] from the "Manually requesting fault memory" field.

3. To start manual retrieval of data from the event memory, select [request] from the "Manually requesting event memory" field.

☑ The Sunny WebBox is now configured to retrieve data from the selected device memory.

10.10 Active Notification in Case of Error

10.10.1 Information on Notification in Case of Error

The Sunny WebBox can notify you by e-mail when an error event occurs. An Internet connection is required for this feature. This allows you to react rapidly to failures in your PV plant and minimize downtime.

| i | **Sunny WebBox reports an error event after two intervals of data compression** |

If you have activated the error alarms, the Sunny WebBox will send error events via e-mail. The Sunny WebBox reports error type events, which persist twice as long as the time set for forming averages for data compression (see Section 9.6.1 "Setting Data Compression", page 54). For example, if you have set that the Sunny WebBox always forms averages after 15 minutes, Sunny WebBox reports error type events which persist for more than 30 minutes. The Sunny WebBox does not send warning and disturbance type events by e-mail.

| i | **Additional costs for notification in case of error** |

Depending on the selected communication type, additional costs may be incurred to you for notification in case of error. Ask your service provider about possible additional costs.

| i | **Warning or fault event reports from the Sunny Portal** |

You can configure the Sunny Portal to send you reports on warning or fault events via e-mail. Sunny WebBox settings regarding enabled notification in the event of errors do not affect the event reports you can configure in Sunny Portal.

| i | **Displaying Error, Warning and Disturbance Type Events via the user interface** |

The Sunny WebBox enters error, warning and disturbance type events in the event report, and displays them via the user interface (see Section 8.4 "Displaying the Event Report", page 45).

10.10.2 Enabling/Disabling Active Notification in Case of Error

1. Integrate the Sunny WebBox in your network (see page 27).

2. Select "WebBox > Settings > Data trans." in the user interface.

3. Make a selection in the "Notification active" field.

"yes"	Notification is active. Adjust further settings.
"no"	Notification is not active. Select [Save].

4. Make a selection in the "Multiple Notices (24h/48h)" field:

"yes"	The Sunny WebBox will send you an SMS when an error event occurs. If the error persists after 24 hours and after 48 hours, the Sunny WebBox will notify you in each case.
"no"	The Sunny WebBox will notify you once an error event occurs.

5. Make a selection in the "Send error as e-mail message" field:

"yes"	The Sunny WebBox informs you via e-mail when an error type event occurs. The input field for the e-mail address appears. Continue with step 6.
"no"	Notification by e-mail is deactivated. Continue with step 8.

6. Enter your e-mail address. If the Sunny WebBox is to send notification to multiple e-mail addresses, enter the e-mail addresses with commas as separators.

7. If you want to use your own e-mail server, select "Yes" in the "Use own mail server" field. Then enter the following data:
   – URL of the mail server (e.g. mail.gmx.net) or IP address of the mail server
   – Mail server port (SMTP)
   – Desired sender e-mail address for the alert e-mail
   – User name and password for your e-mail account

8. Click [test].
   ☑ The Sunny WebBox sends a test e-mail to the specified e-mail address. If you do not receive the test e-mail, check the spam folder of your e-mail inbox and the local network settings (see page 27).

9. Select [Save].

☑ Notification in case of error is activated.

11 Service Functions

11.1 Firmware Update for the Sunny WebBox

11.1.1 Information on the Firmware Update for the Sunny WebBox

You have the option of updating the Sunny WebBox firmware. The firmware can be updated with or without access to the Internet. When the Sunny WebBox firmware is updated, all the settings and data will be saved.

You can update the Sunny WebBox firmware in the following ways:

- Updating the firmware via the Internet
- Updating firmware via an SD Card
- Updating the firmware via the user interface of the Sunny WebBox

| **i** | **Reading off the current firmware version of the Sunny WebBox** |

You can find the current firmware version of the Sunny WebBox in the bottom right-hand corner of the user interface.

| **i** | **The user interface is temporarily unavailable.** |

During the update, the Sunny WebBox restarts and you cannot access the Sunny WebBox user interface for a short period of time.

| **i** | **Do not disconnect the Sunny WebBox from the power distribution grid during the update process.** |

11.1.2 Updating the Firmware via the Internet

If the Sunny WebBox has Internet access, you can either update the Sunny WebBox firmware automatically or manually. The Sunny WebBox checks once a day to see if new firmware is available. If a new firmware update is available, the Sunny WebBox will download and install the firmware update between 10:00 p.m. and 4:00 a.m. The automatic firmware update function is activated on delivery.

Enabling Automatic Firmware Update (recommended)

1. Select "WebBox > Settings > Data trans." in the user interface.
   - ☑ The "Data transmission" page opens.
2. Make a selection in the "Automatic firmware updates" field:

"yes"	Automatic firmware update is activated.
"no"	Automatic firmware update is deactivated.

3. Select [Save].
- ☑ Automatic firmware update is activated or deactivated depending on the setting.

Manually Updating the Firmware

1. Select "WebBox > Info" in the user interface.

   ☑ The "System information" page opens. If a new firmware version is available, the new version is displayed.

2. If a new version is available, select [Refresh].

☑ The Sunny WebBox downloads and installs the new firmware.

11.1.3 Updating Firmware via an SD Card

ℹ️ Formatting of the SD card

Only use SD cards which have been formatted with the FAT16 file system.
The Sunny WebBox formats the SD cards with the file system TFAT to increase data security. If you wish to clear the SD card, you must format the SD card on a computer with the FAT16 file system.

1. Select the required update file in the download area at www.SMA-Solar.com and download it to your computer.

2. Connect the SD card to the computer and create a folder called "Update" on the SD card.

3. Copy the downloaded update file to the "Update" folder created on the SD card and then remove the SD card from the computer.

ℹ️ Only save one update file in the "Update" folder

The "Update" folder may contain a maximum of one update file. If there is more than one update file in the "Update" folder, the firmware will not be updated.

4. Insert the SD card into the Sunny WebBox SD card slot.

   ☑ The update starts automatically. The Sunny WebBox will be accessible again via the user interface after a successful update procedure.

5. Check whether the Sunny WebBox is accessible via the user interface.

6. If the Sunny WebBox can be accessed via the user interface, you can remove the SD card.

   If the Sunny WebBox cannot be accessed via the user interface, do not remove the SD card.

☑ The firmware is now updated.

11.1.4 Updating the firmware via the user interface of the Sunny WebBox

You need an SD card. If other update data is already stored on the SD card, this will be deleted.

1. Ensure that an SD card is inserted into the SD card slot of the Sunny WebBox.
2. Log into the Sunny WebBox as an installer.
3. Select the required update file in the download area at www.SMA-Solar.com and download it to your computer.
4. Click the [Browse...] button under "WebBox > Info" in the "Manual update" field in the user interface.
5. Select the desired update file and click [Open].
6. Click [Upload] in the "Manual Update" field.

☑ The Sunny WebBox uploads the file and saves it to the inserted SD card. The Sunny WebBox then restarts automatically and installs the firmware update. If the firmware update was successful, you can find the new firmware version under "WebBox > Info" in the "Version Firmware" field.

11.2 Updating the Device Profiles and Modbus Profiles

11.2.1 Information on Updating the Device Profiles and Modbus Profiles

The device profiles contain information on the device types which are supported by Sunny WebBox. The device profiles also contain the Modbus profiles for Modbus-compatible SMA devices.

You can find the device profile version on the user interface under "WebBox > Info" in the "Device profile version" field.

You can update the device profiles in the following ways:

- Updating via the Internet
- Updating via an SD Card
- Updating via the user interface of the Sunny WebBox

11.2.2 Updating via the Internet

- Click the [Refresh] button under "WebBox > Info" in the "Device profile version" field on the user interface of the Sunny WebBox.

☑ The update starts automatically. If the update was successful, you can find the new device profile version under "WebBox > Info" in the "Device profile version" field.

11.2.3 Updating via an SD Card

1. Select the required update file in the download area at www.SMA-Solar.com and download it to your computer.
2. Connect the SD card to the computer and create a folder called "Update" on the SD card.
3. Copy the downloaded update file to the "Update" folder created on the SD card and then remove the SD card from the computer.

> ℹ️   **Only save one update file in the "Update" folder**
>
> The "Update" folder may contain a maximum of one update file. If there is more than one update file in the "Update" folder, the device profile will not be updated.

4. Insert the SD card into the Sunny WebBox SD card slot.
    ☑ The update starts automatically. If the update was successful, you can find the new device profile version under "WebBox > Info" in the "Device profile version" field.

11.2.4 Updating via the user interface of the Sunny WebBox

You need an SD card. If other update data is already stored on the SD card, this will be deleted.

1. Ensure that an SD card is inserted into the SD card slot of the Sunny WebBox.
2. Log into the Sunny WebBox as an installer.
3. Select the required update file in the download area at www.SMA-Solar.com and download it to your computer.
4. Click the [Browse...] button under "WebBox > Info" in the "Manual update" field in the user interface.
5. Select the desired update file and click [Open].
6. Click [Upload] in the "Manual Update" field.

☑ The Sunny WebBox uploads the file and saves it to the inserted SD card. The Sunny WebBox then installs the update. If the update was successful, you can find the new version of the device profiles under "WebBox > Info" in the "Device profile version" field.

11.3 Stopping the Sunny WebBox

You can stop the Sunny WebBox in one of the following ways:

- Stopping the Sunny WebBox via the user interface
- Stopping the Sunny WebBox by removing the plug-in power supply from the socket-outlet

Stopping the Sunny WebBox via the user interface

1. Log into the Sunny WebBox as an installer.
2. Select "WebBox > Info" in the user interface.
3. Select [Stop System].
   ☑ A window containing a security question opens.
4. Select [Confirm].
   ☑ The Sunny WebBox quits all programs and switches off the web server.
5. If the "POWER" LED is green and all other LEDs are red, disconnect the plug-in power supply from the power outlet.
☑ The Sunny WebBox has been stopped.

Stopping the Sunny WebBox by removing the plug-in power supply from the socket-outlet

i	**Loss of data when disconnecting the Sunny WebBox from the power supply**
	Do not remove the Sunny WebBox plug-in power supply from the socket-outlet when the "MEMORY" LED light is flashing orange.

1. Remove the plug-in power supply from the socket-outlet.
☑ The Sunny WebBox has been stopped.

11.4 Resetting the Sunny WebBox

During resetting, specific Sunny WebBox settings are reset to the factory setting. If you only wish to restart the Sunny WebBox without resetting the settings, see Section 11.3.

i	**Data backup**
	Before you reset the Sunny WebBox, take note of all settings such as network or portal settings, as necessary. In addition, back up the PV plant data in order to avoid data losses.

You can reset the Sunny WebBox in different ways and to various degrees:

- Resetting the Sunny WebBox via the user interface
- Resetting the Sunny WebBox using the reset button

Via user interface	Via reset button
All settings will be reset. The Sunny WebBox is now reset to the delivery status.	The following settings will be reset: • Passwords or • Network settings or • All settings The Sunny WebBox is now reset to the delivery status.

i   **After resetting, adjust the plant identifier for Sunny Portal**

If you reset all the Sunny WebBox settings, the Sunny WebBox will delete all login settings for Sunny Portal. If you start the Sunny WebBox without making further settings, the Sunny WebBox creates a new plant with a new plant identifier in Sunny Portal.

If the Sunny WebBox is to send the data to the existing plant in Sunny Portal, take the following steps after the reset:

- Assign the plant identifier of the old system to the replacement device (see Section 9.2.3).
- In the replacement device, enter the e-mail address of a user with administrator rights for the plant in Sunny Portal.

Resetting the Sunny WebBox via the user interface

1. Log into the Sunny WebBox as an installer.
2. Select "WebBox > Info" in the user interface.
3. Select "Default settings".
   ☑ A window containing a security question opens.
4. Select [Confirm].
   ☑ The Sunny WebBox is now reset to its factory settings and switches off the web server.
5. If the "POWER" LED is green and all other LEDs are red, disconnect the plug-in power supply from the power outlet.
6. Wait 15 seconds.
7. Reconnect the plug-in power supply to the socket-outlet.
☑ The Sunny WebBox will now start with the factory settings.

Resetting the Sunny WebBox using the reset button

Starting from Sunny WebBox version E1, the hole for the Reset button is found on the rear panel of the Sunny WebBox under the upper left foot.

Only press the reset button when the Sunny WebBox is switched on.

1. If the Sunny WebBox is mounted on a top-hat rail, remove it from the top-hat rail.

If the Sunny WebBox is mounted directly on a wall, push the Sunny WebBox upwards slightly and remove it from the wall.

| i | **Resetting specific Sunny WebBox settings**

Depending on how long you press the Reset button, the Sunny WebBox performs the actions listed in the following table.

Time	Action
1 to 5 seconds	Resetting the passwords to the factory setting. All other settings (event memory, network settings, and portal settings) will remain intact.
5 to15 seconds	Resetting the network settings to the factory setting. All other settings (event memory, portal settings and passwords) will remain intact.
15 to 30 seconds	Resets all settings (event memory, network settings, Sunny Portal settings and passwords) of the Sunny WebBox to the default values. The Sunny WebBox deletes the plant data and plant settings completely.
Over 30 seconds	The Sunny WebBox is not reset. All settings remain saved.

2. Insert a pointed object (such as a paper clip) into the hole and press the reset button.

☑ The Sunny WebBox is reset.
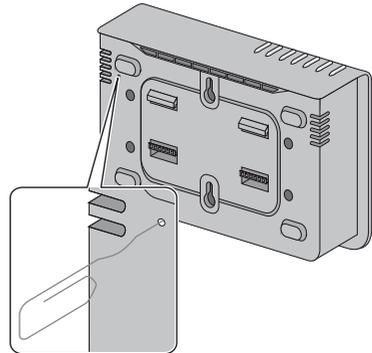
11.5 Deleting Device Descriptions

1. Log into the Sunny WebBox as an installer.

2. Select "WebBox > Info" in the user interface.

3. Select [Delete device descriptions].

☑ The unit descriptions of all devices will be erased. When the Sunny WebBox is restarted, all unit descriptions will be detected again automatically.

12 Maintenance and Care

12.1 Maintenance

Conduct regular visual inspections of the Sunny WebBox to check for external damage or dirt.

12.2 Care

NOTICE

Damage or destruction of the Sunny WebBox due to ingress of liquids

The Sunny WebBox is not waterproof.

- Protect the Sunny WebBox from wet conditions.
- To clean the Sunny WebBox, only use a lightly dampened cloth to prevent the penetration of moisture. If there is a considerable amount of dirt, you can also use a mild, non-abrasive, non-corrosive cleaning agent.

---

13 Decommissioning

13.1 Disassembling the Sunny WebBox

1. Stop the Sunny WebBox (see Section 11.3 "Stopping the Sunny WebBox", page 69).

2. If an SD card is in the SD card slot of the Sunny WebBox, remove it.

3. Disconnect the DC plug connector of the plug-in power supply from the Sunny WebBox.

4. If the Sunny WebBox is connected directly to a computer or a local network via the Ethernet connection, disconnect the Ethernet cable from the Sunny WebBox.

5. Remove the RS485 plug from the Sunny WebBox.

6. If the Sunny WebBox is mounted on a top-hat rail, push the enclosure of the device slightly upwards and remove the Sunny WebBox from the rail.

7. If the Sunny WebBox is mounted directly to a wall, push the Sunny WebBox slightly upwards and remove it from the wall.

☑ The Sunny WebBox has been dismounted.

13.2 Packaging the Sunny WebBox

For return shipment, use packaging appropriate for transport - if possible the original packaging.

13.3 Disposing of the Sunny WebBox

Dispose of the Sunny WebBox at the end of its service life in accordance with the disposal regulations for electronic waste which apply at the installation site at that time. Alternatively, send it back to SMA with shipping paid by sender, and labeled "ZUR ENTSORGUNG" ("FOR DISPOSAL").

14 Troubleshooting

Problem	Cause	Rectification
The Sunny WebBox is not available via the user interface. **or** You cannot find the Sunny WebBox via the Sunny WebBox Assistant.	The Sunny WebBox is not connected to the network or to the power supply.	Ensure that the Sunny WebBox is connected to the same network as the computer. Check the network cable and all the connections of the Sunny WebBox and the computer.
	Incorrect network settings of the network components.	Use the Sunny WebBox Assistant for commissioning.
		Determine the network settings of the Sunny WebBox (see page 79). Configure your computer based on the Sunny WebBox network settings (see page 23).
		Reset the Sunny WebBox (see page 69) and repeat the commissioning.
		Check the network settings for the individual network components (e.g., router, proxy server, etc.). Adjust the network settings if necessary.
		Contact your network administrator.
	A firewall is blocking the connection.	Deactivate the computer firewall or enable the necessary connection.
	There is no Internet connection.	Reestablish Internet access. If necessary, contact your Internet service provider.
	The Proxy server does not support IPv6.	Use a Proxy server that supports IPv6.
	Defective or damaged network components, network cables or plug connections.	Replace the defective or damaged parts of the network.
		Contact your network administrator.

Problem	Cause	Rectification
	The Internet browser is incorrectly configured.	If there is a proxy server in your network, you must enter an exception for the proxy server in your Internet browser (see Section 15.6 "Information on Your Internet Browser", page 83).
	The Sunny WebBox has not been started correctly.	Remove the Sunny WebBox plug-in power supply from the socket-outlet and plug it back in after a short time in order to restart the Sunny WebBox. Note that this can lead to loss of collected plant data.
The user interface cannot be called up via the URL **http:// WebBox"serial number"**.	The Sunny WebBox could not obtain network settings from the DHCP server.	Make sure that DHCP is activated in the Sunny WebBox (see page 28).
		Make sure that there is an active DHCP server in the network.
		Make sure that the router supports DHCP and DHCP is activated on the router.
	The DHCP server does not have a DNS function.	Use static network settings.
		Call up the user interface via the current IP address of the Sunny WebBox. Determine the current IP address of the Sunny WebBox as obtained from the DHCP server. You can determine the IP address via an SD card (see page 79). Alternatively, you can identify the IP address in the list of DHCP servers using the MAC address of the Sunny WebBox (see the manual for the DHCP server). The MAC address is located on the type label of the Sunny WebBox.
		Call up the user interface via Sunny Portal.
		Call up the user interface using the Sunny WebBox Assistant.
Windows does not display the LAN connection.	The network card device driver (Ethernet card) is not installed.	Check the installation of the network adaptor in the Windows device manager and re-install the device driver.
	The network card is defective.	Replace the faulty network card with a new one.

Problem	Cause	Rectification
Sunny WebBox is unable to connect via DSL router.	The DSL routers of some manufacturers can be disconnected when the DSL router switches to energy saving mode.	Disable the energy saving mode of the DSL router.
		Use the "LAN 1" port of the DSL router since the energy saving mode for this port is usually disabled by default.
Sunny WebBox is unable to detect devices connected to the RS485 bus.	The data transmission protocol and the baud rate are not configured properly.	Check whether the data transmission protocol and the baud rate for the connected devices are configured properly (see Section 10.2.1 "Setting SMA-COM", page 56).
		Check the cabling of the devices on the RS485 communication bus. Refer to the RS485 cabling diagram for information on how the cables should be connected to the RS485 communication bus.
		Make sure the RS485 cable is properly connected to the Sunny WebBox. Check all connections (see Section 6.9.2 "Connecting the Sunny WebBox to the RS485 Communication Bus", page 33).
		Check the termination and signal biasing of the RS485 communication bus (see Section 6.9.2 "Connecting the Sunny WebBox to the RS485 Communication Bus", page 33).
The Sunny WebBox will not transmit data to Sunny Portal.	Data transmission is disabled.	Configure data transmission to the Sunny Portal (see Section 9.2.1 "Registering Sunny WebBox in Sunny Portal", page 47).
		Check the specified plant name and e-mail address. You may need to register an account on the Sunny Portal again.
		Contact the SMA Service Line.
The data upload to Sunny Portal via the analog modem fails repeatedly.	Incorrect Internet Service Provider data.	Check the entered data of your Internet Service Provider.

Problem	Cause	Rectification
Sunny WebBox does not transmit data via FTP push. **and/or** The "NETCOM" LED glows red.	The FTP push function is deactivated.	Activate the FTP push function of the Sunny WebBox (see Section 9.4 "FTP Push Function", page 51).
	You are not connected to the Internet.	Reestablish Internet access. If necessary, contact your Internet service provider.
	The Sunny WebBox FTP push function is not set correctly.	Check that the server address, the user name and the password are set correctly in the FTP push settings (see Section 9.4 "FTP Push Function", page 51).
		Check whether the user has write authorizations to the upload directory of the server (see Section 9.4 "FTP Push Function", page 51).
		Check whether the server port is set to the correct value (see Section 9.4 "FTP Push Function", page 51).
		Test the Sunny WebBox FTP push function (see Section 9.4 "FTP Push Function", page 51).
After an FTP download, the Internet Explorer shows old Sunny WebBox data.	Given the way Microsoft Internet Explorer handles cache, the Sunny WebBox may load outdated data.	Use an FTP client such as FileZilla to load data from the internal FTP server of the Sunny WebBox.
The events in the event report do not appear in the usual positions under Time.	The time settings of the Sunny WebBox and the connected device do not match.	Synchronize the time settings of the Sunny WebBox and the connected device (see respective manuals).
Events in the event report do not appear in the language you selected.	The text messages for events in the connected device are not in the language you selected.	None

Problem	Cause	Rectification
After a Sunny WebBox is replaced, Sunny Portal contains two plants with the same name.	A Sunny WebBox that is supplied as a replacement device logs into Sunny Portal with a new plant identifier. Sunny Portal creates a new plant for this plant identifier, even if you gave the plant the same name.	Assign the plant identifier of the old system to the replacement device (see Section 9.2.3 "Adjusting the Plant Identifier for Sunny Portal", page 48).
		In the replacement device, enter the e-mail address of a user who has Sunny Portal administrator rights to the plant.
		In Sunny Portal, delete the new plant the replacement device created.
Sunny WebBox unable to detect an inserted SD card.	External backup is disabled in the Sunny WebBox settings.	Enable external backup in the Sunny WebBox settings (see Section 9.6 "Saving Recorded Data on an SD Card", page 53).
	The SD card is not formatted with the FAT16 file system.	Format the SD card with the FAT16 file system.
	The Sunny WebBox does not support SD cards with storage capacities of more than 2 GB or SDHC cards.	Use SD cards with a maximum of 2 GB of storage capacity.
	The SD card is not compatible with the Sunny WebBox.	Use one of the SD cards supplied by SMA. Compatibility with all SD cards available on the market cannot be guaranteed.
The "SMACOM" LED glows red.	More than one master is connected on the RS485 communication bus. On a communication bus, a master can access the shared communication bus at any time. It does not have to take other devices into consideration. If more than one master is connected to the communication bus, the devices will block each other.	Make sure that no more than one master is connected to the RS485 communication bus. SMA devices which can be connected to a communication bus as a master include the Sunny WebBox and Sunny Boy Control.
The "SYSTEM" LED glows red.	The operating system of the Sunny WebBox is damaged.	Contact the SMA Service Line.

15 Appendix

15.1 Allocating an IP Address in a Local Network

You select a static IP address (Internet Protocol). Use the address range which is available to your router. In most cases the address range of the router is between 192.168.0.1. and 192.168.255.254. If necessary refer to the manual of your router.

Note during the allocation of the IP address that the first three address parts of the IP address must be identical for all nodes of the same network. You may not allocate the same IP address twice.

Example:

Router:	***192.168.0.**1*
Computer 1	***192.168.0.**2*
Computer 2	***192.168.0.**3*
Sunny WebBox	***192.168.0.**168*

15.2 Determining the Network Settings of the Sunny WebBox

With the following steps you can determine the current network settings of the Sunny WebBox. You can then configure your computer to allow you to access the Sunny WebBox again (see Section 6.4 "Configuring the Network Settings on the Computer", page 23).

1. If necessary, remove the write protection of the SD card.
2. Insert the SD card into the Sunny WebBox SD card slot.
   - ☑ "MEMORY" LED flashes orange. The Sunny WebBox saves data to a specific file folder on the SD card. The name of the data file is "WebBox_[SerialNumber]", whereby [SerialNumber] designates the serial number of the respective Sunny WebBox.
3. Wait until the "MEMORY" LED glows continuously green.
4. Remove the SD card from the SD card slot of the Sunny WebBox.
5. Connect the SD card to a computer.
6. Open the directory on the SD card ("WebBox_SerialNumber").
   This directory contains a file named "config.xml".
7. Open the "config.xml" with a text editor or Internet Explorer.
   - ☑ Open the configuration file of the Sunny WebBox. See the configuration file for the required information (see Section 15.3 "Structure of the Config.xml File", page 80).

15.3 Structure of the Config.xml File

```
<?xml version="1.0" encoding="utf-8"?>
<WebBox>
  <Settings>
    <add key="Version" value="1.5" />
    <add key="Plant-ID" value=" " />
    <add key="User-ID" value="Max.Mustermann@sma.de" />
<add key="DHCP" value="false" />
    <add key="IP-Address" value="192.168.0.168" />
    <add key="SubNetMask" value="255.255.255.0" />
    <add key="Gateway" value="192.168.0.100" />
    <add key="DNS-Server" value="192.168.0.100" />
       <add key="NAT-Port" value="80" />
    <add key="Webserver-Port" value="80" />
    <add key="Webservice-Port" value="80" />
  </Settings>
  <Export>
    (...)
  </Export>
</WebBox>
```

Setting	Significance
Version	Sunny WebBox firmware version
Plant ID	Plant Identifier for Sunny Portal
User ID	User ID for Sunny Portal
DHCP	Displays "true" when DHCP use is enabled and "false" when DHCP use is disabled.
IP Address	The IP address of the Sunny WebBox as configured by the user or obtained from the DHCP server.
SubNetMask	The subnet mask of the Sunny WebBox as configured by the user or obtained from the DHCP server.
Gateway	The gateway address of the Sunny WebBox as configured by the user or obtained from the DHCP server.
DNS Server	The DNS server address of the Sunny WebBox as configured by the user or obtained from the DHCP server.

15.4 Structure of the Info.xml File

```
<?xml version="1.0" encoding="utf-8" standalone="yes"?>

<Info xmlns="http://www.w3.org/2001/XMLSchema.xsd">

 <SerialNumber>150002132</SerialNumber>

 <MacAddress>00-40-AD-1E-08-54</MacAddress>

 <Created>2009-07-21T15:43:20</Created>

 <Version>1.50</Version>

 <OSVersion>1.26</OSVersion>
</Info>
```

Description of the XML tags

Setting	Significance
SerialNumber	Sunny WebBox serial number.
MacAddress	Hardware address of the Sunny WebBox.
Created	Time of the FTP push connection test
Version	The current firmware version of the Sunny WebBox
OSVersion	Version of the Sunny WebBox operating system

15.5 Structure of an XML Data File

```
<?xml version="1.0" encoding="utf-8"?>
<WebBox>
 <Info>
   <Created>2010-02-10T01:37:04</Created>
   <Culture>de</Culture>
 </Info>
  <MeanPublic>
 <Key>WR38-006:2000333615:Ipv</Key>
 <First>10.360</First>
 <Last>20.225</Last>
 <Min>10.360</Min>
 <Max>20.225</Max>
 <Mean>14.425071</Mean>
 <Base>14</Base>
 <Period>900</Period>
 <TimeStamp>2010-06-23T16:30:38</TimeStamp>
  <MeanPublic>
    (...)
  </MeanPublic>
</WebBox>
```

Description of the XML tags

Setting	Significance
Info	Information
Created	Date of generation
Culture	Language
MeanPublic	Data of the mean values
Key	Name of the element made up of device name, serial number of the device and the channel. Individual values are separated by a colon. Example: WR38-006:2000333615:Ipv
First	The first value prior to the query
Load	The last value of the query
Min	Smallest value of the measurement interval
Max	Largest value of the measurement interval
Mean	Average value of the measurement interval

Base	Number of measured values in the interval
Period	Length of the measurement interval in seconds
TimeStamp	Time stamp, at which the average was calculated

15.6 Information on Your Internet Browser

In order to be able to call up the Sunny WebBox user interface, you need a current Internet browser. You can use the standard settings of your Internet browser.

- Ensure that JavaScript is activated in the Internet browser.
- If a proxy server is active in your network, you must set up a proxy exception rule in your Internet browser (see page 83).

15.7 Setting up a Proxy Exception Rule in Internet Explorer

1. Start Internet Explorer.
2. In Internet Explorer, select "Tools > Internet Options".
3. The "Internet Options" window opens.
4. Select the "Connections" tab, then click [Settings].
5. Select [Advanced].
6. In the "Do not use proxy server for addresses beginning with:" field, enter the address *192.168. **.
7. Confirm the entry with [OK] and close each further window each with [OK].
☑ The proxy exception rule has now been set up.

15.8 Activating IPv6 in Windows XP SP2

In order to be able to locate the Sunny WebBox with the Sunny WebBox Assistant, IPv6 is required.

IPv6 stands for Internet Protocol Version 6 and specifies the procedures that are necessary for data transmission via a package-switching data network.

IPv6 is the successor to IPv4, which is still predominantly found in use on the Internet. IPv6 is already activated in Windows Vista, Windows 7, MacOS and Linux. In Windows XP SP2, you must activate IPv6

In order to activate IPv6, proceed as follows:

1. In Windows select "Start > Settings > Network Connections".
2. Double click on the LAN connection via which the Sunny WebBox is connected.
    – If Windows displays several LAN connections, there are probably several network connections installed in the computer. Ensure that you select the correct network connection with which the computer is connected to the Sunny WebBox. If necessary, refer to the manual of your computer.
    – In the event that no LAN connection is displayed, (see Section 14 "Troubleshooting", page 74).
    ☑ The "Local Area Connection Status" window opens.
3. Select [Properties] in the "General" tab.

☑ The window "Local Area Connection Properties" **opens.**

4.   Activate "Microsoft TCP/IP version 6".

5.   Select [OK].

☑   IPv6 is activated.

15.8.1 Accessing Sunny WebBox via Integrated Analog Modem

This section describes how to access your Sunny WebBox from any computer with a modem via the integrated modem.

The computer must be equipped with an analog modem or an ISDN modem with CAPI driver.

i	**IP addresses assigned to Sunny WebBox and modem**

The Sunny WebBox is assigned the IP address 192.168.0.168 in your network. The modem on the remote terminal is assigned the IP address 192.168.0.169 in your network. These IP addresses may not be assigned to other devices in your computer's network.

1.   Install and connect the computer modem to the telephone network as described in the user manual of the modem.

2.   Start Internet Explorer on the computer.

3.   In Internet Explorer, select "Tools > Internet Options".

☑ The "Internet Options" **window opens.**

4.   Select the "Connections" **tab.**

5.   Select [LAN Settings].

6.   If there is no checkmark in the "Use a proxy server for LAN" **box, continue to Section** "Configure dial-up connection".

7.   If there is a checkmark in the "Use a proxy server for LAN" **box, click** "Advanced...".

8.   Add "192.168.*" at the end of the entry in the "Do not use proxy server for addresses beginning with" **field. Use semicolons to separate multiple entries.**

9.   Select [OK] in the "Proxy Settings" **window.**

10.   Select [OK] in the "LAN settings" **window.**

11.   Select [OK] in the "Internet Options" **window.**

☑   Internet Explorer is now set up.

Establishing a Dial-Up Connection Using Windows XP as an Example

1. In Windows, select "Start > Settings > Network connections > Assistant for new connection".

   ☑ The "New Connection Assistant" window opens.

2. Select [Next].

   ☑ A window for selecting the network connection type opens.

3. Select the "Establish connection to the Internet" option and choose [Next].

4. Select the option "Establish connection manually" and choose [Next].

   ☑ A window for selecting the Internet connection opens.

5. Select the option "Establish connection through dial-up modem" and click [Next]. Make the same selection when connecting via ISDN.

   ☑ A window for entering the connection name opens.

6. Enter a connection name and select [Next].

   ☑ The "Phone number to dial" window opens.

7. Enter the number of your Sunny WebBox and select [Continue].

   Enter 0 before the telephone number if your computer is connected to a telephone system which requires you to first press 0 before connecting to outside lines.

   ☑ The window "Connection Availability" opens.

8. Select the access rights for the connection.

   If you are not certain, select "All users".

9. Select [Next].

   ☑ The "Internet account information" window opens.

10. Enter "User name" (either "User" or "Installer").

    The user group selection does not affect the access rights to the Sunny WebBox.

11. Enter the password.

12. Select [Next].

    ☑ A summary of the selections you have made appears.

13. Select "Finish".

☑ The dial-up connection set up has been completed. The computer establishes a connection.

16 Accessories

16.1 SD cards

In addition to the internal ring buffer, you can also store data collected by the the Sunny WebBox on an SD card.

Order number for SD card with 1 GB of memory: SD-Card 1 GB

Order number for SD card with 2 GB of memory: SD-Card 2 GB

16.2 RS485 Data Cable

With the RS485 data cable, you can connect the Sunny WebBox to the RS485 communication bus.

Order number for SMA data cable (outdoor): COMCAB-OUTxxxx*

Order number for SMA data cable (indoor): COMCAB-INxxxx**

---

  *   available in the following lengths xxx = (328 ft.)100 m / (656 ft.) 200 m / (1,640 ft.) 500 m / (3,280 ft.) 1,000 m

 ** available in the following lengths xxx = (328 ft.) 100 m / (656 ft.) 200 m / (1,640 ft.) 500 m / (3,280 ft.) 1,000 m

17 Technical Data

17.1 Sunny WebBox

Mechanical Data

Width x height x depth	8 $^{14}/_{16}$ in. x 5 $^1/_8$ in. x 2 $^1/_4$ in. (226 mm x 130 mm x 57 mm)
Weight	26 $^1/_2$ oz. (750 g)

Voltage Supply

Typical power consumption	4 W
Maximum power consumption	10 W

Ambient Conditions

Ambient Temperature	−4°F to +131°F (−20°C to +55°C)
Relative humidity	5% to 95%, non-condensing
Degree of protection	NEMA 1 (IP20*)
Mounting Location	indoors

*Degree of protection (according to EN IEC 60529)

Communication

Inverters other than Sunny Central	RS485, maximum 50 inverters
Sunny Central	RS485, 10/100 Mbit Ethernet, maximum 50 inverters
Computer	10/100 Mbit Ethernet
Modem*	Analog
RS485 radio range	3,937 ft. (1,200 m)
Ethernet radio range	328 ft. (100 m)

*For earlier versions of the Sunny WebBox, it was possible to optionally order an analog modem.

Other

Languages for the software user interface	German, English, French, Italian, Spanish, Greek, Korean, Portuguese, Czech, Dutch
Internal ring buffer	8 MB
Additional memory via SD memory cards*	1 GB / 2 GB

*optional

17.2 Plug-in Power Supplies

CINCON, TRG30R 120, TRG30R 120V
Mechanical Data

Width x height x depth	4 $\frac{1}{4}$ in. x 2 $\frac{1}{4}$ in. x 1 $\frac{5}{16}$ in. (107.8 mm x 57.5 mm x 33.5 mm)
Weight	10 $\frac{32}{55}$ oz. (300 g)

Voltage Supply

Voltage	100 V to 240 V AC, 50 / 60 Hz
Nominal current	0.8 A

TaiyTech, TYT251200200UV/3000
Mechanical Data

Width x height x depth	3 $\frac{5}{8}$ in. x 2 $\frac{1}{4}$ in. x 1 $\frac{5}{8}$ in. (92.0 mm x 58.0 mm x 41.4 mm)
Weight	8 $\frac{37}{61}$ oz. (244 g)

Voltage Supply

Voltage	100 V to 240 V AC, 50 / 60 Hz
Nominal current	0.75 A

TaiyTech, TYT251200200EU/3000
Mechanical Data

Width x height x depth	3 $\frac{5}{8}$ in. x 3 $\frac{9}{16}$ in. x 1 $\frac{2}{5}$ in. (92.0 mm x 90.6 mm x 36.0 mm)
Weight	4 $\frac{17}{33}$ oz. (128 g)

Voltage Supply

Voltage	100 V to 240 V AC, 50 / 60 Hz
Nominal current	0.75 A

18 Compliance Information

FCC Compliance

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 distance 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, LLC could void the user's authority to operate this equipment.

IC Compliance

This Class B digital device complies with Canadian ICES-003.

The Ringer Equivalence Number (REN) is an indication of the maximum number of devices allowed to be connected to a telephone interface. The termination of an interface may consist of any combination of devices, subject only to the requirement that the sum of the RENs of all the devices does not exceed five.

You will find the REN on the type label of the Sunny WebBox if the WebBox has been ordered with analog modem.

19 Contact

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

- Operating system of your computer
- Sunny WebBox software version
- Serial number and hardware version of the Sunny WebBox
- Type of communication interface between Sunny WebBox and the inverters
- Type and serial numbers of the inverters connected to the plant

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