Device for Plant Monitoring

SUNNY WEBBOX with *Bluetooth*® Wireless Technology

User Manual

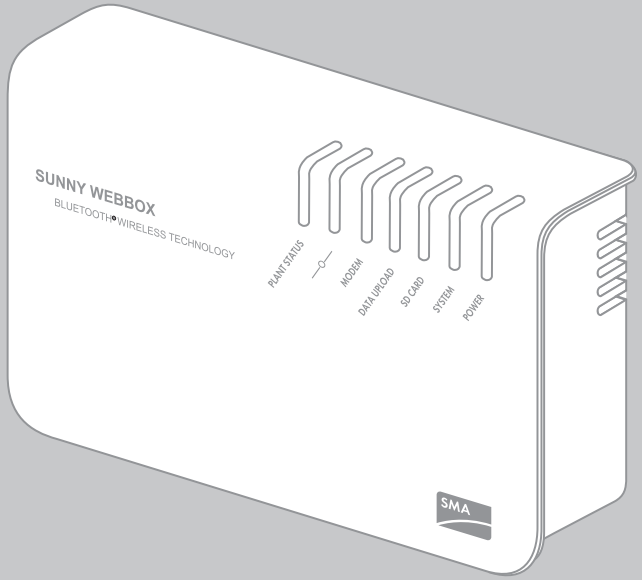


Table of Contents

1 Information on this Manual

This manual contains instructions for operating the Sunny WebBox with *Bluetooth*. 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 user manual is valid for the Sunny WebBox with *Bluetooth* for hardware version A1 and higher and for firmware version 1.04 and higher.

1.2 Additional Information

Links to additional information can be found at www.SMA-Solar.com.

Document title	Document type
SMA *Bluetooth* - SMA *Bluetooth*® Wireless Technology in Practice	Technical information
SMA Safety and Password Concept for Password-protected PV Plants with *Bluetooth*® Wireless Technology	Technical description

You can also call up the user manual of the Sunny WebBox with *Bluetooth* via the Help button  in the user interface.

1.3 Symbols Used

The following types of safety precautions and general information appear in this document:

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, can result in death or serious injury.

CAUTION

CAUTION indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

NOTICE

NOTICE indicates a situation which, if not avoided, could result in property damage.

Information

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

1.4 Terminology

The term photovoltaic plant is abbreviated to PV plant in this guide. Additionally, the product name "Sunny WebBox with *Bluetooth*® Wireless Technology" is shortened to "Sunny WebBox" in the running text.

Formatting	Meaning
[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 shown in italics.

2 Safety

2.1 Intended Use

The Sunny WebBox with *Bluetooth* is a data logger that records, logs and makes available the data of a PV plant via a user interface via the integrated web server. The Sunny WebBox also enables remote diagnostics and the configuration of connected devices in a PV plant via the computer.

The Sunny WebBox is intended for private and industrial use.

The Sunny WebBox data is not suitable for billing purposes. The data collected by the Sunny WebBox on the amount of power generated by your plant may deviate from the energy meter data. Additional costs can be incurred from the use of the Internet.

The Sunny WebBox is designed for indoor use only.

Only operate the Sunny WebBox using the supplied plug-in power supply and in the voltage range intended for this.

The Sunny WebBox must be continuously supplied with current.

- Do not use the Sunny WebBox with a timer switch.

The Sunny WebBox is only to be used with original accessories or recommended accessories approved by SMA Solar Technology AG.

Only use the Sunny WebBox for the purposes described in this manual.

For safety reasons, it is not permitted to modify the product or install components that are not explicitly recommended or distributed by SMA Solar Technology AG for this product.

The enclosed documentation is an integral part of this product.

- Read and observe the documentation.
- Keep the documentation in a convenient place for future reference.

2.1.1 Supported Products

The Sunny WebBox supports the following SMA products:

- all SMA inverters with integrated *Bluetooth*

Inverters of the type SB x000TL-20 are only supported from firmware version 2.06 onwards

- For those inverters with a firmware version lower than 2.06, perform a firmware update using an SD card (see technical description "Firmware Update with SD Card" at www.SMA-Solar.com).

- SMA inverters with upgraded SMA *Bluetooth* Piggy-Back/SMA *Bluetooth* Piggy-Back Plus from firmware version 02.00.00.R. A list of the supported inverters can be found in the SMA *Bluetooth* Piggy-Back/SMA *Bluetooth* Piggy-Back Plus manual.
- Sunny Backup with upgraded SMA *Bluetooth* Piggy-Back Off-Grid from firmware version 01.00.00.R. A list of the supported Sunny Backups can be found in the SMA *Bluetooth* Piggy-Back Off-Grid manual.
- Power Reducer Box
- Sunny Matrix from firmware version 2.10.00
- SMA *Bluetooth* Repeater
- Sunny SensorBox with SMA Power Injector with *Bluetooth*
- SMA radio-controlled socket

Updating the firmware of SMA products

To ensure that *Bluetooth* communication functions correctly in the plant, the firmware of the SMA products must be up to date.

- Before commissioning the Sunny WebBox, update the firmware of the SMA products (see manual of the SMA products).

2.1.2 Target Group

This document is intended for end users and skilled persons. When you log into the Sunny WebBox there are two user groups at your disposal: "Installer" and "User". The "Installer" user group may only be used by qualified personnel who are authorised to make changes to network parameters for the connected devices.

2.1.3 System Requirements

Recommended screen resolution:

- 1,024 x 768 pixels

Internet browser:

- Internet Explorer from version 8
- Firefox from version 3.6

2.2 Safety Precautions

General safety precautions in order to avoid physical injury

- Do not open the device or the plug-in power supply.
- Install the cabling in such a way that no one can stand on or trip over it.

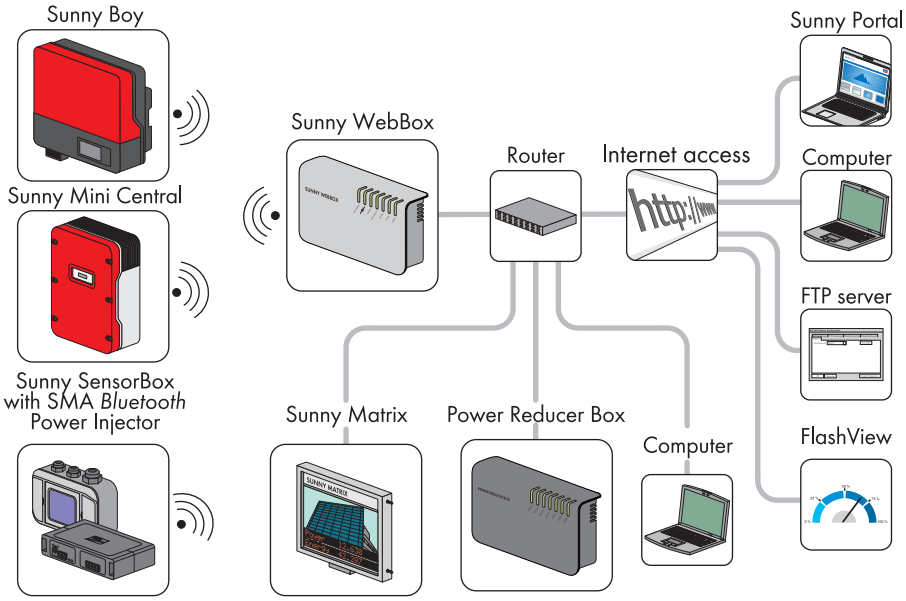
General information in order to avoid damage to the device

- By touching electronic components you can damage or destroy the device through electrostatic discharge (ESD). Avoid touching component connections and plug contacts. Earth yourself before working on the device.
- With the help of the Sunny WebBox with *Bluetooth* you can change safety-relevant parameters of the SMA inverters (e.g. SMA Grid Guard parameters). Incorrectly configured parameters can lead to yield losses. Do not alter these safety-relevant parameters without prior consultation with the electric utility company operating the electricity grid into which your plant feeds.
- The saving procedure for parameters can take up to 30 seconds. Do not disconnect the Sunny WebBox with *Bluetooth* from the voltage supply during the saving procedure. If you disconnect the Sunny WebBox from the voltage supply during the saving procedure, data can be lost.

3 Product Description

3.1 The Sunny WebBox with *Bluetooth*

The Sunny WebBox with *Bluetooth* is a communication device that records, logs and makes available the data of a PV plant via a user interface using the integrated web server. The Sunny WebBox also enables remote diagnostics and the configuration of connected devices in a PV plant via the computer.



The Sunny WebBox can continuously interrogate and evaluate the data it receives from connected devices. The interrogation interval for the data of the whole PV plant is five minutes. If you display data via the user interface of the Sunny WebBox, the currently displayed data is interrogated every 20 seconds. If the connection with the PV plant is interrupted, the Sunny WebBox restores the connection as soon as possible.

The Sunny WebBox can automatically send the collected data of the PV plant to the Sunny Portal Internet portal or to a freely selectable FTP server for subsequent processing. You can also present your plant data via the Sunny Matrix large-format display or the Flashview software.

You can use a Power Reducer Box in combination with the Sunny WebBox to incorporate the plant into the grid management. The Sunny WebBox can receive the requirements of the network operator via the Power Reducer Box and forward them to the inverters in the PV plant.

The Sunny WebBox has the function of a network-forming device (master device) in the *Bluetooth* plant. Master devices are communication products that form the structure of the *Bluetooth* PV plant and collect, evaluate and process data. Unlike other master devices, the Sunny WebBox can establish up to five uplinks, i.e. it can directly connect with five devices at the same time. It can also assume the function of a slave/root node and participate in establishing the *Bluetooth* network. In this way, the Sunny WebBox can link together several groups of inverters that would otherwise have no *Bluetooth* connection.

The number of devices which the Sunny WebBox can manage depends on the number of master devices in the *Bluetooth* network with the same NetID. If the Sunny WebBox is the only master in the *Bluetooth* network, the Sunny WebBox can manage up to 50 devices. If two masters are present in the *Bluetooth* network (e.g. Sunny Explorer or Sunny Beam with *Bluetooth*), a maximum of 25 devices can be managed by the Sunny WebBox. A maximum of one Sunny WebBox with *Bluetooth* is allowed in a *Bluetooth* network with the same NetID. Additional information about SMA *Bluetooth* Wireless Technology can be found in the download area of www.SMA-Solar.com.

3.2 Summary of Functions

The most important functions of the Sunny WebBox with *Bluetooth* Wireless Technology at a glance:

Plant communication

- Wireless control of the PV plant with *Bluetooth* Wireless Technology

External plant communication

- Ethernet network 10/100 Mbit

Integrated web server

- Quick overview of the current status of the PV plant
- Graphic display of the most important plant data
- Parameterisation of individual devices or an entire device class
- Setting of SMA Grid Guard parameters
- Simple diagnostics thanks to the display of device events
- Secure data transmission thanks to a new password concept

PV plant data management

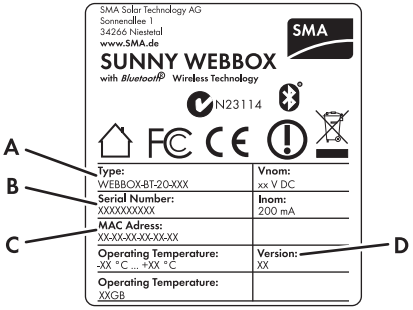
- Displaying of plant data from the PV plant via the user interface
- Saving of plant data from the PV plant on an internal drive
- Saving of plant data from the PV plant to an optional SD card
- Automatic transmission of plant data from the PV plant to Sunny Portal
- Call up plant data via the internal FTP server
- Load plant data from the PV plant to an external FTP server via the FTP Push function
- Plant data in CSV or XML format

Service functions

- Firmware update for the Sunny WebBox via Internet or SD card
- Firmware update for devices of the PV plant via Internet or SD card (device update)
- Time synchronisation via Internet
- Restoration of default settings

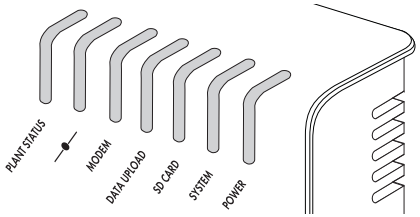
3.3 Type Label

The type label clearly identifies the Sunny WebBox. The type label can be found on the back of the enclosure.



Item	Description	Explanation
A	Type	Device type
B	Serial number	Serial number of the device
C	MAC address	MAC address of the device
D	Version	Hardware version of the device

3.4 LED Overview



LED designation	Status	Meaning
"PLANT STATUS"	Glowing green	All devices in the PV plant have the status "OK".*
	Glowing orange	At least one device in the PV plant has the status "Warning".*
	Glowing red	At least one device in the PV plant has the status "Fault".*
	Flashing orange	The Sunny WebBox is sending update files to the devices in the PV plant.*
	Off	There is no device available in the PV plant.*
—●—	Glowing green	Login for all connected devices is OK.
	Glowing orange	Login for at least one connected device is not OK.
	Glowing red	Login for all connected devices is not OK.
"MODEM"	Off	Not assigned
"DATA UPLOAD"	Glowing green	The data transmission to Sunny Portal or an external FTP server is activated. Last upload was successful.
	Flashing green	The Sunny WebBox is sending data to Sunny Portal or an external FTP server.
	Glowing red	The last data transmission to Sunny Portal or an external FTP server was unsuccessful.
	Off	Data transmission is deactivated.

LED designation	Status	Meaning
"SD CARD"	Glowing green	The SD card is inserted, writeable and the free memory capacity is more than 10% of the overall capacity.
	Flashing green	The SD card is being written to. The free memory capacity is more than 10% of the overall capacity.
	Glowing orange	The SD card is inserted, writeable and the free memory capacity is less than or equal to 10% of the overall capacity.
	Flashing orange	The SD card is being written to. The free memory capacity is less than or equal to 10% of the overall capacity.
	Glowing red	The SD card is full or write-protected, or there is an update file on the SD card.
	Off	No SD card is inserted.
"SYSTEM"	Glowing green	The Sunny WebBox is ready for operation.
	Flashing green	The Sunny WebBox is starting.
	Flashing orange	The Sunny WebBox is performing a firmware update.
	Flashing red	A system fault has occurred.
"POWER"	Glowing green	The Sunny WebBox is supplied with voltage.
	Off	The Sunny WebBox is not supplied with voltage.

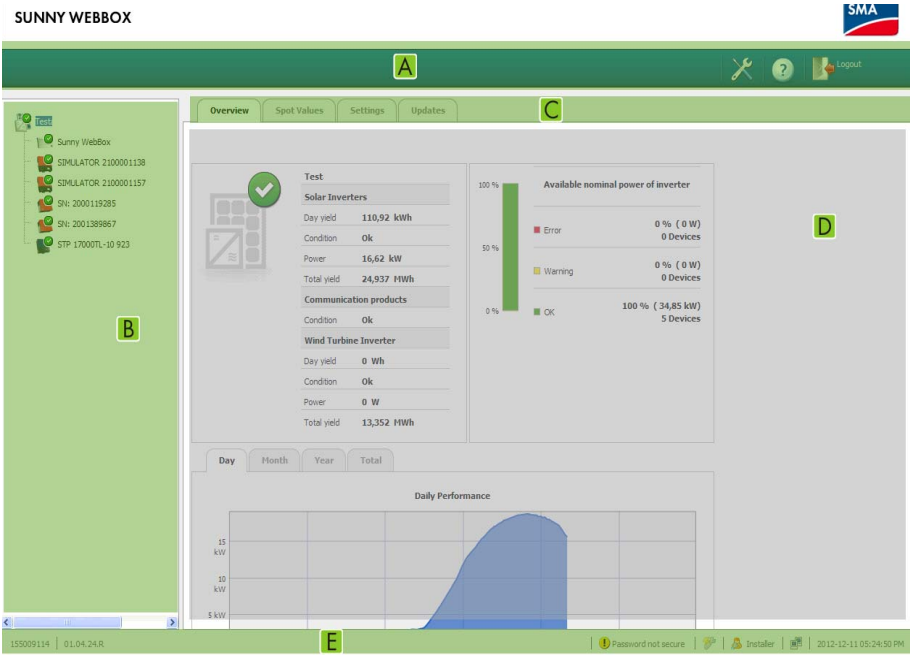
*The devices SMA radio-controlled socket, SMA *Bluetooth* Repeater and SMA *Bluetooth* Power Injector have no influence on the status of the "PLANT STATUS" LED.

3.5 Information on the Operation of the Sunny WebBox

- 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. Ensure that JavaScript is enabled in your Internet browser. If necessary, refer to the help of your Internet browser.
- The saving procedure for parameters can take up to 30 seconds. Do not disconnect the Sunny WebBox with *Bluetooth* from the voltage supply during the saving procedure. Otherwise, data can be lost.

4 Sunny WebBox with *Bluetooth*: Basics

4.1 User Interface



Item	Description	Meaning
A	Icon bar	The icon bar gives you quick access to the main functions of the Sunny WebBox.
B	Plant tree	In the plant tree, all devices of a PV plant are displayed in a tree structure.
C	Device menu	The device menu is used to call up information and configurations relating to the devices selected in the plant tree.
D	Content area	In the content area, the actual content is displayed. The content is determined by the device menu.

Item	Description	Meaning
E	Status bar	The status bar reflects the current status of the Sunny WebBox and contains the following content: • Serial number • Software version After logging into the Sunny WebBox, the status bar also contains: • Information on the password status • Information on the device update • SMA Grid Guard (only for installers) • Current user group • Connection status to the PV plant • Current date and time

4.1.1 Icon Bar

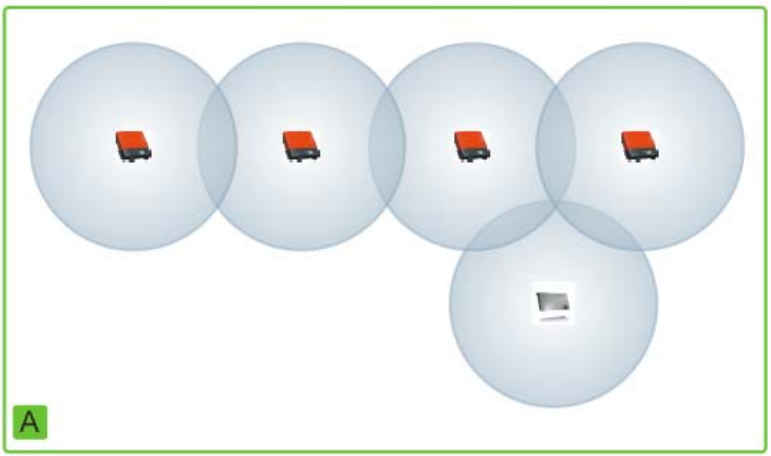
The icon bar gives you quick access to the main functions of the Sunny WebBox.

Symbol	Meaning
	The Settings button opens the Sunny WebBox settings. You can also configure the settings of the Sunny WebBox via the plant tree "Sunny WebBox" > "Settings".
	The Help button opens the Sunny WebBox help.
	The user can log out of the Sunny WebBox user interface via the "Logout" button.

4.1.2 Plant Tree

From the point of view of plant communication, a PV plant consists of several devices that are linked with one another via the same type of communication (e.g. SMA *Bluetooth*).

View of a *Bluetooth* plant

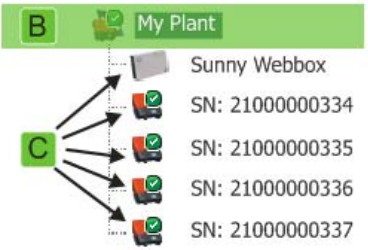


The physical plant structure (A) is mapped using the plant tree in the Sunny WebBox. For this, all devices of a plant (including the Sunny WebBox) are shown underneath the plant (B). From the point of view of plant communication, the plant is created by the Sunny WebBox.

Plant tree in the Sunny WebBox

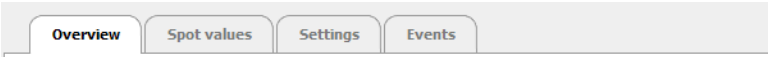
In general, a distinction is made between the plant view (B) and the device view (C).

- See Section 6.1 "Plant View" (page 37)
- See Section 6.2 "Device View" (page 38)



4.1.3 Device Menu

The device menu shows the setting options and instantaneous values of a device. The device must first be selected in the plant tree. The menu items adapt to the device accordingly.



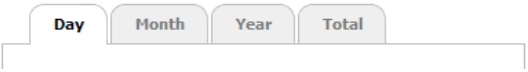
Tabs	Meaning
Overview	The overview page provides you with information on the devices or plants selected in the plant tree. In addition to the actual status display, this page also contains a brief overview of the most important data relating to the device.
Spot values	The spot values provide you with current data on the selected device, regardless of the user group.
Settings	Via the settings, you can view and configure various parameters depending on the user group.
Events	The events page shows you the events of a device. The events displayed depend on the user group.

4.1.4 Overview

The "Overview" page shows the most important information for the whole PV plant or a single device.

Device view

When a device is selected in the plant tree, the yield and power values of that device are displayed in diagrams on the overview page. There are four diagrams, which you can call up using the following tabs:



Tabs	Meaning
Day	Shows the yield of the device over the course of one day.
Month	Shows the daily yield of the device over the course of one month.
Year	Shows the monthly yield of the device over the course of one year.
Total	Shows the annual yield of the device over the course of the last 10 years.

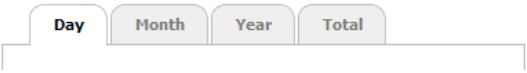
If you point or click with the mouse on a point on the curve, a display opens. The display contains the exact value of this point, the corresponding time and the date.

Using the arrows below the diagram, you can scroll to the next period. You can select a period directly using the calendar symbol.

Plant view

If the plant is selected in the plant tree, the overview page shows the following information for the whole PV plant:

- Data of all inverters in the PV plant:
  - Daily yield: yield produced so far on this day
  - Condition: current operating status of the plant (OK, fault, warning)
  - Power: power produced so far on this day
  - Total yield: total yield produced so far
- Data of the communication products of the PV plant:
  - Condition: current operating status of the communication products (OK, fault, warning)
- Available nominal power of the inverters
- If there are no more than 15 devices in the plant: yield and power values of all the inverters of the PV plant in diagrams:



Tabs	Meaning
Day	Shows the yield of all inverters over the course of one day.
Month	Shows the daily yield of all inverters over the course of one month.
Year	Shows the monthly yield of all inverters over the course of one year.
Total	Shows the annual yield of all inverters over the course of the last 10 years.

If you point or click with the mouse on a point on the curve, a display opens. The display contains the exact value of this point, the corresponding time and the date.

Using the arrows below the diagram, you can scroll to the next period. You can select a period directly using the calendar symbol.

4.1.5 Instantaneous Values

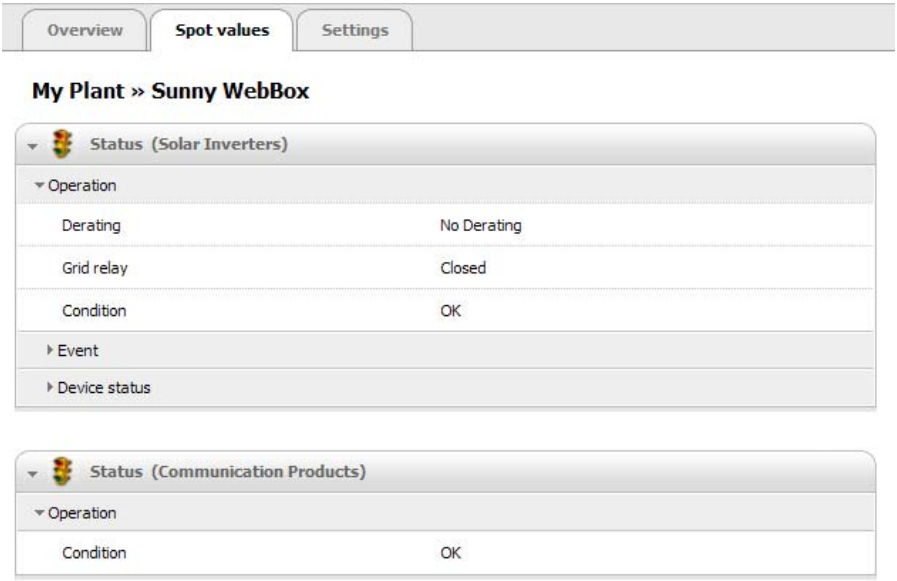
The "Spot Values" page shows all values of the device selected in the plant tree or of the selected plant. The values displayed depend on the relevant user group. All values are summarised in groups (parameter groups) and subgroups.

Device view

If a device is selected in the plant tree, the "Spot Values" page shows the values for the individual device.

Plant view

If a plant is selected in the plant tree, the "Spot Values" page shows the values for the complete device class. When you click on a parameter group, the device classes are displayed separately (e.g. solar inverters and communication products).



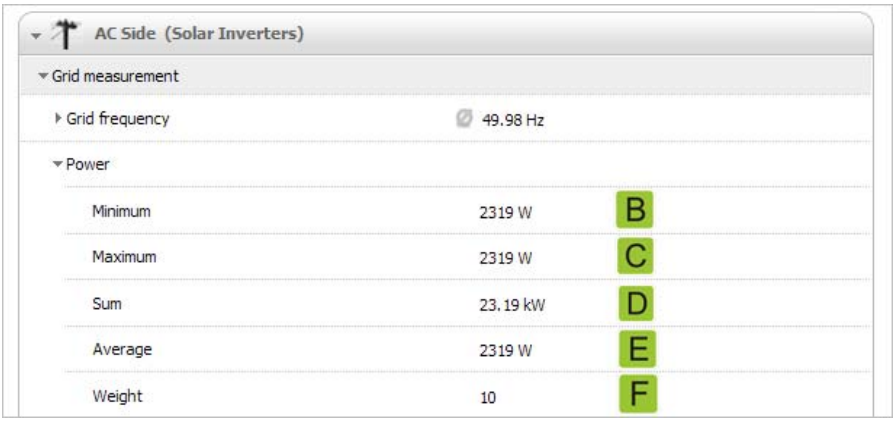
Some values are summarised from the individual devices of a device class (e.g. sum of the power (A)).

Depending on the type of value, a useful summary is displayed for the device class:

Symbol	Meaning
Σ	Sum
⌀	Average value
e.g. 20 °C ... 50 °C	Smallest and largest value

To read further information on the summarised value, click on the value.

In the following figure, the values are summarised for 10 devices as an example.



Item	Meaning
B	The smallest power value of the ten devices
C	The largest power value of the ten devices
D	Sum of the power values of the ten devices
E	Average power value based on the ten devices
F	Number of devices in the device class

4.1.6 Settings

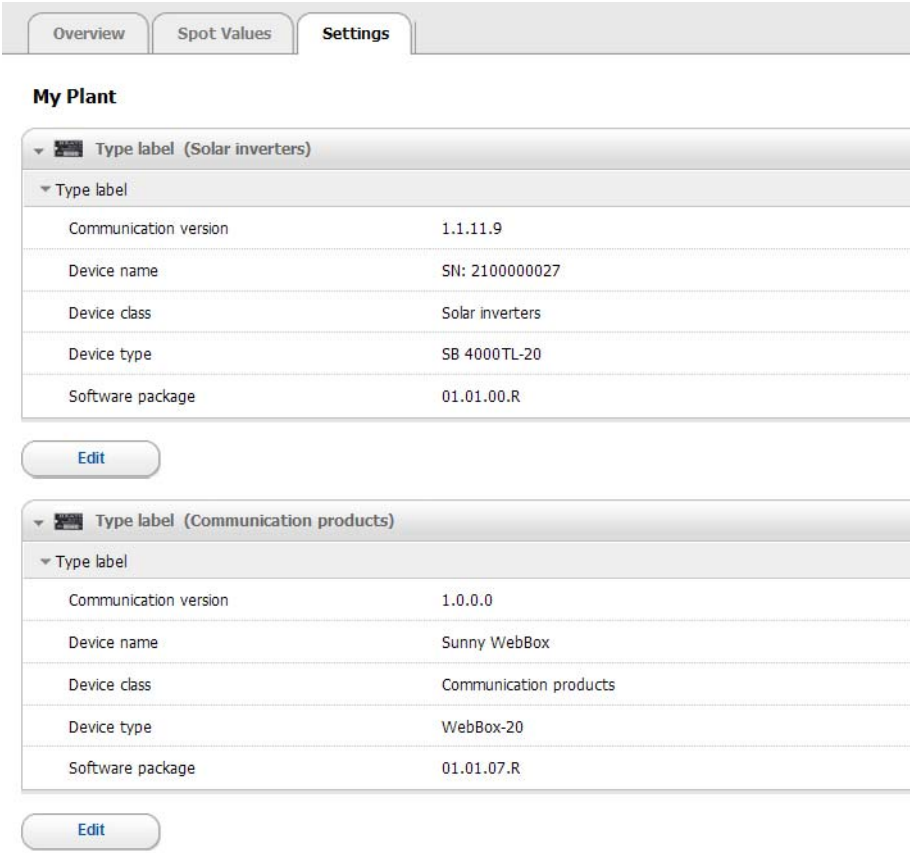
The "Settings" device menu shows all parameters of the device selected in the plant tree or of the selected plant. For numerical values, the permissible parameter limits are displayed in brackets after the value. Display of the parameters depends on the relevant user group. All parameters are summarised in groups (parameter groups) and subgroups.

Device view

If a device is selected in the plant tree, you can edit the parameters for the selected device on the "Settings" page.

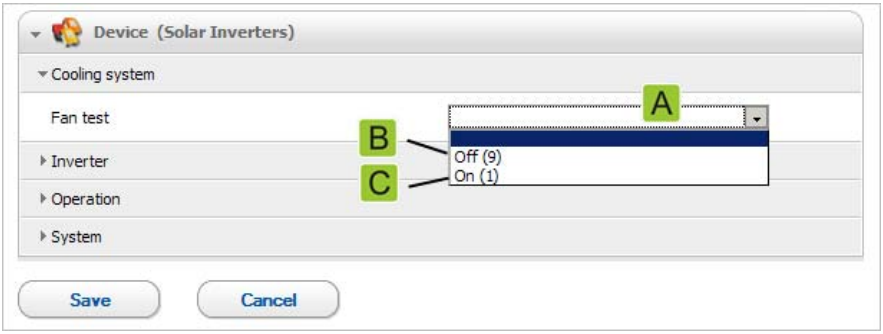
Plant view

If a plant is selected in the plant tree, you can edit the parameters for a complete device class on the "Settings" page. All devices of the device class are set to the new parameter value. When you click on a parameter group, the device classes are displayed separately (e.g. solar inverters and communication products).



If different values are set for devices of a device class, these are displayed in an empty field (A) in the editing mode.

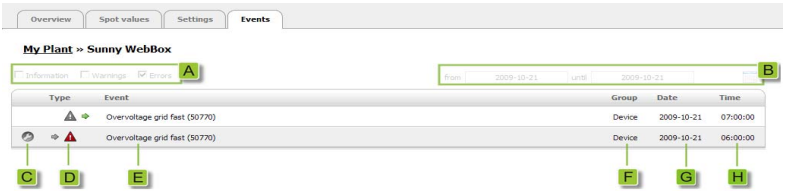
With selection menus, the different options are listed. The figure in brackets is the number of devices that are set to this option. See (B) and (C). By selecting an option and saving, all devices of this device class are set to this value. A "*" symbol means that this parameter is not available for all devices.



In text fields the common leading characters are displayed. Different characters are supplemented with "...".

4.1.7 Events

The Sunny WebBox can display its own events and the events of the individual devices.
The Sunny WebBox requests the list of events directly from the devices.



Item	Meaning
A	Filter for the event categories
B	Filter for the period of the displayed events
C	Priority of the event
D	Type of event
E	Event in plain text and the event number in brackets
F	Group of affected parameters (parameter group)
G	Date on which the event occurred
H	Time at which the event occurred

Priorities of the events

The twopriority levels for the events are as follows:

Symbol	Meaning
	This event can only be remedied by means of intervention on the device by the installer. Contact your installer quoting the serial number of the device and the event number.
	Contact your installer quoting the serial number of the device and the event number.

Types of event

There are three event types which the Sunny WebBox displays using symbols:

- Information
- Warning
- Error

Symbols and meaning of event types

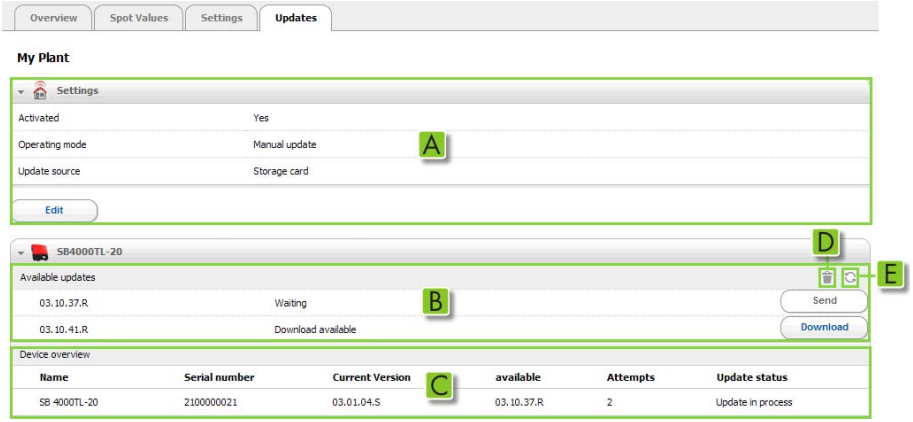
Events can have three possible statuses:

- Incoming: the event is occurring.
- In progress: the event has existed for some time and could not yet be automatically remedied.
- Outgoing: the event does not exist any longer.

Symbol	Meaning
	Error
	Incoming error
	Outgoing error
	Warning
	Incoming warning
	Outgoing warning
	Information
	Incoming information
	Outgoing information

4.1.8 Updates

The "Updates" page is displayed if the PV plant is selected in the plant tree. On the "Updates" page, you can configure the settings for the device updates. It also lists all available devices of the PV plant, with the devices grouped according to device type. Via the "Updates" page, you can view the current firmware status of the devices in your PV plant. You can also view available device updates, download them and transmit them to the devices.



Item	Meaning
A	Settings for the device update
B	Shows available device updates for this device group.
C	Shows all devices of this device group, each with display name, serial number, current firmware version and update status. If new device updates are available, the new update files and the number of update attempts per device are also shown.
D	Delete update files having the status "Ready".
E	Look for new update files and update the list of available update files.

4.2 Security and Password Concept

4.2.1 User Groups

SMA Solar Technology AG generally distinguishes between the two user groups: "User" and "Installer". After entering the SMA Grid Guard code, installers can also configure advanced settings on devices. The user groups have the following rights:

User group	Right
User	This user group enables the user to view all information relating to the display, 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 user rights, this user group can configure and change plant parameters that affect functionality. This user group also has the option of resetting the plant password of the user and – after entering the SMA Grid Guard code – configuring advanced settings on devices.
Installer with SMA Grid Guard rights	The installer can modify the SMA Grid Guard parameters of devices.

4.2.2 Plant Password

The plant password of the relevant user group is the same for all devices of a plant. After logging in with the plant password ("User"/"Installer"), you can configure several devices of your plant at the same time. If the password for the device does not match the plant password, for instance when adding a new device to an existing plant, the device is shown in the plant tree with a padlock symbol ( ).

Unauthorised access to your PV plant

The plant password protects your plant against unauthorised access.

- After initial login, you should change the default password for both user groups.

Plant password on delivery

All devices are delivered with the user password 0000 and the installer password 1111.

Plant password for an existing plant featuring Sunny Beam with *Bluetooth*

If the Sunny WebBox is retrofitted in an existing plant that has a Sunny Beam, the Sunny WebBox must have the same plant password set as the Sunny Beam.

4.2.3 Access Security for the Sunny WebBox with *Bluetooth*

Each user group is protected with a freely selectable password. Passwords are transmitted in encrypted form. If the password is entered incorrectly four times, access to the Sunny WebBox is blocked for 15 minutes. You can then log in again.

Protect your PV plant against unauthorised access by taking suitable precautionary measures, such as:

- Setting up secure passwords (see Section 4.2.4 "Strength of Passwords" (page 30)).
- Changing passwords at regular intervals.
- Using different passwords for different user groups.
- Never leaving slips of paper with passwords written on around.
- Setting up a firewall in Ethernet networks.
- Closing unnecessary network ports in Ethernet networks.

4.2.4 Strength of Passwords

To increase the security of your password, bear in mind the following advice when selecting the password:

- Select a password with at least 8 characters. The longer the password, the more secure it is.
- Do not use names or terms from dictionaries (e.g. "Dog", "Cat", "Mouse" etc.).
- Do not use data related to your person as passwords (e.g. names of persons or pets, personal numbers or identification numbers, car registration plates etc.).
- Do not repeat names or words (e.g. "househouse", "carcar" etc.).
- Use a combination of upper and lower case letters, special characters and numbers.
- Do not use combinations of numbers or letters in the same order as they appear on your keyboard (e.g. "12345", "qwerty" etc.).

4.2.5 SMA Grid Guard

SMA Grid Guard is a security concept for country-specific settings in the inverter which define the network behaviour in an electricity grid. These settings (Grid Guard parameters) are preset in the devices and can only be changed via 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 Solar Technology AG. You can find the application form for the personal access code in the download area of www.SMA-Solar.com, in the "Data sheet" section of the respective inverter.

4.2.6 Forgotten the Password

If you have forgotten the plant password, you can unlock the devices of your PV plant with a Personal Unlocking Key (PUK). There is one PUK per user group ("User" and "Installer") for each inverter and each Sunny WebBox.

Procedure:

1. Request PUKs for inverters and Sunny WebBox.
2. Unlock inverters via Sunny Explorer using the PUKs.
3. Unlock Sunny WebBox using the PUK.

Requesting PUKs for inverters and Sunny WebBox

1. Download the application form for PUKs in the "Service" area of www.SMA-Solar.com.
2. Complete the application form and sign it.
3. Send the application form to the SMA Service Line:
   - Send the application form by e-mail (see Section 12 "Contact" (page 86)).

   or

   - Send the application form by fax (see Section 12 "Contact" (page 86)).

   or

   - Send the application form by post (see Section 12 "Contact" (page 86)).

☑ The SMA Service Line will check the application and send you the requested PUKs.

Unlocking inverters using the PUK

Unlocking several inverters using the PUK

Each PUK can only be used for one inverter and one user group.

- If you requested PUKs for several inverters, you must unlock each inverter individually using the corresponding PUK.

1. Log into the inverter via Sunny Explorer using the PUK (see Sunny Explorer user manual).
2. Set a new password (see Sunny Explorer user manual).

Unlocking Sunny WebBox using the PUK

1. Start the Internet browser (e.g. Internet Explorer).
2. Enter the IP address of the Sunny WebBox in the address line and press the enter key.
3. In the "User" field, select the user group for which the SMA Service Line has generated the PUK.
4. Enter the PUK in the "Password" field.
5. Change the password of the Sunny WebBox (see Section 7.1 "Changing the Password of the Sunny WebBox" (page 42)). To do this, use the plant password that you previously set via Sunny Explorer.

☑ The Sunny WebBox shows the inverters in the plant tree without the padlock symbol. You have access rights to all inverters in the relevant user group.

4.3 Symbols

Symbols for access rights

The individual devices are shown in the plant tree with a symbol relating to the access rights. If no symbol is displayed after a device, you have access rights to the device according to the user group logged into.

Updating time in the plant tree

In the plant tree, updating the symbols for access rights (SMA Grid Guard symbol and padlock symbol) can take up to two minutes.

Symbol	Meaning
	You have no access to the device. The password for the device differs from the current plant password.
	You have access to parameters that are protected with the SMA Grid Guard password. Parameters that are protected with SMA Grid Guard are additionally marked with this symbol.

Device symbols

Device symbols are displayed in the plant tree and on the overview page of a device. Devices have a particular status, which is shown by means of a symbol.

Symbol	Meaning
	Plant
	Sunny WebBox
	Inverter
	Unknown device
	Sunny SensorBox with SMA Power Injector with *Bluetooth*
	SMA *Bluetooth* Repeater

Group symbols for instantaneous values and settings

Group symbols are used for the individual parameter groups.

Symbol	Meaning
	**Status** General values that describe the status of the device. Statuses of other components in the device (e.g. modem) are not listed here.
	**Type label** All values that describe the device/plant.
	**Device** Values that directly affect the device and cannot be classified into one of the special categories (e.g. DC side, AC side, plant communication etc.).
	**User rights** All values that influence access protection to the device.
	**DC side** Values that affect the direct current side of the device (e.g. PV modules).
	**AC side** Values that affect the grid side of the device.
	**Grid monitoring** Includes parameters that affect the electricity grid and are partially protected by the personal SMA Grid Guard password.
	**Plant and device control** Includes parameters for devices that must fulfill special requirements for feeding into the medium voltage level. The parameters are protected by the personal SMA Grid Guard password.
	**Plant communication** All values that define the communication between communication devices and the plant.
	**Data recording** All values that affect data recording for the device (storage location, storage intervals, storage format).
	**Device components** Includes parameters and measured values that affect the components of a device. This group is a kind of "extended type label". Here, version numbers of the system components are classified for example.
	**Meteorology** Includes all measured values for the connected sensors, e.g. temperature, irradiation and wind speed.

Other symbols

Symbol	Meaning
	**Hourglass** The hourglass shows the saving of values in a device.
	**Average value** The average symbol indicates an average value.
	**Sum** The sum symbol indicates totalled values.
	**Maximum** Indicates the maximum of a value.
	**Minimum** Indicates the minimum of a value.
	**Update** This symbol indicates that values are being read from the device.
	**Alarm clock** The alarm clock symbol indicates that values are more than ten minutes old.
	**Calendar function** Opens a calendar for selecting a date, a start date or an end date.

5 Logging into and out of the Sunny WebBox

5.1 Logging into the Sunny WebBox

Unauthorised access to your PV plant

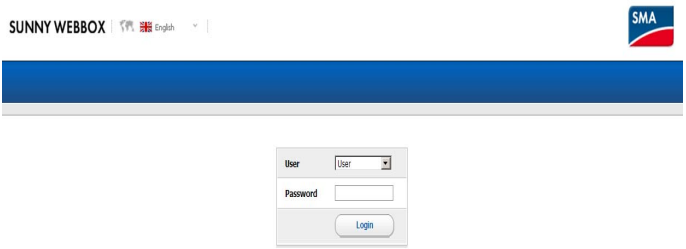
The plant password protects your plant against unauthorised access.

- After initial login, you should change the default password for both user groups.

Plant password on delivery

All devices are delivered with the user password 0000 and the installer password 1111.

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 line and press the enter key.
   Tip: You can read off the serial number from the type label (see Section 3.3 "Type Label" (page 15)) or determine it using an SD card (see Section 9.5 "Determining Current Network Settings of the Sunny WebBox Using the SD Card" (page 73).
   ☑ The Sunny WebBox login page opens.
   – If the page does not open, refer to Section 10.1 "General Troubleshooting for the Sunny WebBox" (page 74).
3. If you use the static network settings for the Sunny WebBox, enter the static IP address of the Sunny WebBox in the address line and press the enter key. If you do not know the IP address of the Sunny WebBox, see Section 9.5 "Determining Current Network Settings of the Sunny WebBox Using the SD Card" (page 73).
   ☑ The Sunny WebBox login page opens.
   – If the page does not open, refer to Section 10.1 "General Troubleshooting for the Sunny WebBox" (page 74).



4. Select the desired language.
5. In the "User" field, select the user group under which you would like to log in.
6. In the "Password" field, enter the password of the selected user group.

7. Select [Login].

☑ The Sunny WebBox user interface opens.

5.2 Logging out of the Sunny WebBox

1. Select [Logout] in the icon bar.

☑ The Sunny WebBox login page opens. You have successfully logged out.

6 Operation

6.1 Plant View

6.1.1 Plant Status

Symbol	Status	Meaning
	Neutral	The plant status is unknown and is currently being updated.
	OK	All devices of the plant are working correctly.
	Warning	At least one device in the plant is displaying the status "Warning". No device is displaying the status "Fault".
	Fault	At least one device in the plant is displaying the status "Fault".

6.1.2 Setting Parameters for a Device Class

A device class refers to devices of the same type. You can configure all the devices in a device class simultaneously. It is not possible to configure different device classes at the same time. Save the changes made to one device class before processing another device class.

To configure all the devices in a device class, proceed as follows:

1. Select the plant in the plant tree.
2. Select "Settings" in the device menu.
   ☑ The parameter groups of the whole plant are displayed.
3. Select the parameter group that contains the parameter to be configured.
   ☑ The individual device classes are listed. It may take a moment for all data to be read from the devices.
4. Select [Edit] below the appropriate device class.
5. Change desired parameters for the whole device class.
6. Select [Save].
   ☑ The settings are transferred to all devices of the same device class.

Saving after parameter changes

An hourglass displays the saving process. After saving the changes in the Sunny WebBox, the data is transferred to the device. The saving procedure may take several hours if the device (e.g. an inverter) is in night mode. When the device is started, the data is transferred to the main memory and the hourglass is no longer shown.

6.1.3 Changing the Plant Name

1. Select the Sunny WebBox in the plant tree and select "Settings" in the device menu

   or

   Select the "Settings" button in the icon bar.
2. Select the "Type Label > Type Label" parameter group.
3. Select [Edit].
4. Select the desired plant name in the "Plant name" field.
5. Select [Save].

6.2 Device View

6.2.1 Device Status

Devices have a particular status, which is shown by the symbols in the plant tree and on the overview page of the device.

Symbol	Status	Meaning
	Neutral	The status of the device is currently being updated.
	OK	The device is ready for operation and working correctly.
	Warning	The device is currently not operating correctly. It may be possible to automatically remedy the fault.
	Fault	The device is in a fault state. There is a problem with the device. Please check the device.
	Communication fault	The device cannot communicate at present. This may happen at night, for example, when the inverter is not operating. This symbol is also displayed if you have taken the device out of operation. To remove the device from the plant tree, select the [Remove] button.

6.2.2 Setting the Device Parameters

You can configure a device via its parameters. The setting of device parameters is dependent on the user group.

To change device parameters, proceed as follows:

1. Select the appropriate device in the plant tree.
2. Select "Settings" in the device menu.

   ☑ The parameter groups of the device are displayed.

3. Select the parameter group that contains the desired parameter.
   ☑ Reading the values may take a moment because the values are requested directly from the device.
4. Select [Edit].
5. Change the desired parameter.
6. Select [Save].

Saving after parameter changes

Saving is indicated by an hourglass. After saving the changes in the Sunny WebBox, the data is transferred to the device. The saving procedure may take several hours if the device, e.g. an inverter, is in night mode. When the device is started, the data is transferred to the main memory and the hourglass disappears.

6.3 Adjusting the Password of a Device to the Plant Password

If the password of a device differs from that of your plant, the device is shown in the plant tree with a padlock symbol. This can occur when new devices are added to an existing plant for example. To apply your plant password to the new device, proceed as follows:

1. Log into the Sunny WebBox as an "Installer".
   ☑ The new device is shown in the plant tree with a padlock symbol.
2. Select the Sunny WebBox in the plant tree and select "Settings" in the device menu

   or

   Select the "Settings" button in the icon bar.
3. Select the "User Rights > Access Control" parameter group.
4. Select [Edit].
5. Enter the password of the new device in the "Set installer password" field.
6. Enter the password again in the "Confirm the password" field.
7. Enter the password of the new device in the field of the relevant user group.
8. Enter the password again in the "Confirm the password" field.
9. Select [Save].
   ☑ The Sunny WebBox saves the password of the new device in all enabled devices. All devices have the same plant password.
10. Restart the Sunny WebBox via the user interface (see page 72).
11. Repeat the process for setting the password in order to transfer your old plant password to all devices.
12. Select [Save].
13. Restart the Sunny WebBox via the user interface (see page 72).

☑ The device is shown in the plant tree without a padlock symbol. The password of the new device is adjusted to the password the plant.

6.4 Determining the Serial Number of the Sunny WebBox

You have the following options for determining the serial number of the Sunny WebBox:

- Read off the serial number from the status line of the user interface
- Determine the serial number using the SD card (see Section 9.5 "Determining Current Network Settings of the Sunny WebBox Using the SD Card" (page 73)).
- Read off the serial number from the type label (see Section 3.3 "Type Label" (page 15))
- Determine the serial number using the parameter groups

Determining the serial number using the parameter group

1. Select the Sunny WebBox in the plant tree and select "Settings" in the device menu

   or

   Select the "Settings" button in the icon bar.
2. Select the "Type Label > Type Label" parameter group.
3. Read off the serial number of the Sunny WebBox from the "Serial number" field.

6.5 Determining the IP Address of the WAN

You can determine the IP address of the WAN (wide area network) of your Sunny WebBox using the parameter group or the SD card (see Section 9.5 "Determining Current Network Settings of the Sunny WebBox Using the SD Card" (page 73)). The IP address of the WAN is the IP address at which the Sunny WebBox is to be accessed on the Internet.

1. Select the Sunny WebBox in the plant tree and select "Settings" in the device menu

   or

   Select the "Settings" button in the icon bar.
2. Select the "External Communication > Nat" parameter group.
3. The WAN IP address is shown in the "WAN IP" field.

6.6 Activating/Deactivating SMA Grid Guard Mode

Country-specific settings on the inverter

SMA Grid Guard parameters may only be changed with the express authorisation of the network operator. Any unauthorised changes made to the SMA Grid Guard parameters shall void the operation permission for the respective device.

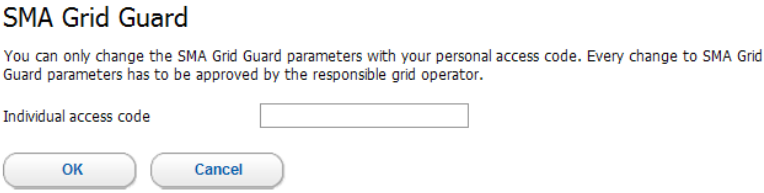
Updating time in the plant tree

In the plant tree, updating the symbols for access rights (SMA Grid Guard symbol and padlock symbol) can take up to two minutes.

Activating the SMA Grid Guard mode

You can configure SMA Grid Guard parameters of devices by first entering your SMA Grid Guard password.

1. Log in as an "Installer".
2. Select the SMA Grid Guard symbol in the status bar of the Sunny WebBox user interface.
   ☑ The SMA Grid Guard dialogue opens.



3. Enter your password in the "Individual access code" field. You receive the password from SMA Solar Technology AG (see page 30).
4. Select [OK].

☑ The SMA Grid Guard code is now set. You can now edit all devices that are marked with the SMA Grid Guard symbol.

Deactivating the SMA Grid Guard mode

To end the SMA Grid Guard mode, proceed as follows:

1. Select the SMA Grid Guard symbol in the status bar of the Sunny WebBox user interface.
   ☑ The SMA Grid Guard dialogue opens.
2. Enter the blocking code "54321" in the "Individual access code" field.
3. Select [OK].

☑ SMA Grid Guard mode is deactivated. Check if the SMA Grid Guard mode has been deactivated for all inverters. The blocking code is not supported by inverters with SMA *Bluetooth* Piggy-Back.

- If the SMA Grid Guard mode is still active, log out of the Sunny WebBox user interface and log back in after two minutes (see Section 5 "Logging into and out of the Sunny WebBox" (page 35)). The SMA Grid Guard mode is then deactivated.

7 Configuring the Sunny WebBox

7.1 Changing the Password of the Sunny WebBox

Additional rights for the installer

If you are logged in as an installer, you can configure and change plant parameters that affect functionality in addition to user rights. The "Installer" user group also has the option of resetting the plant password of the user and changing SMA Grid Guard parameters.

Password for the internal FTP server

The password set here is also valid for access to the internal FTP server.

When the password of the Sunny WebBox is set, this password is also set for all devices that are shown in the plant tree without a padlock symbol. To successfully adopt the password, the Sunny WebBox must be restarted (see page 72).

1. Select the Sunny WebBox in the plant tree and select "Settings" in the device menu

   or

   Select the "Settings" button in the icon bar.
2. Select the "User Rights > Access Control" parameter group.
3. Select [Edit].
4. Enter a secure password in the field of the relevant user group. The password can be no more than twelve characters long. The following special characters are permitted: ?_!-.
   Bear in mind the strength of your password (see Section 4.2.4 "Strength of Passwords" (page 30)).
5. Enter each password again in the "Confirm the password" field.
6. Select [Save].

☑ All devices are now set to the Sunny WebBox password.

7.2 Plant Time

7.2.1 Information on Plant Time

The date and time of a PV plant is referred to as plant time.

When operating your *Bluetooth* PV plant with the Sunny WebBox, all connected *Bluetooth* devices adopt the plant time of the Sunny WebBox.

If additional communication products (e.g. Sunny Beam with *Bluetooth* or Sunny Explorer) are added to the PV plant, the new communication products automatically adopt the existing PV plant time.

If you change the plant time, all the inverters will adapt immediately to the new plant time. Additional communication products in the plant only adopt the plant time after some time (max. 7 hours later).

The plant time can be manually adjusted in the Sunny WebBox or synchronised via the Internet. With "Automatic time synchronization", the Sunny WebBox synchronises the date and time with Sunny Portal once a day. You do not need to register in Sunny Portal to do this.

NOTICE

Possibility of data loss when changing the plant time

Please note that changing the time can have an effect on the data already recorded. If for example the time or date were put back, the recorded data could be overwritten. Only change the plant time when it is necessary.

7.2.2 Setting the Date and Time

Automatic time synchronisation

You can also synchronise the plant time automatically via the Internet (see Section 7.2.4 "Activating/Deactivating Automatic Time Synchronisation" (page 44)).

1. Select the Sunny WebBox in the plant tree and select "Settings" in the device menu

   or

   Select the "Settings" button in the icon bar.
2. Select the "Device > Time settings" parameter group.
3. Select [Edit].
4. In the "Standard/Daylight Saving Time conversion on" field, select "Yes" in order to activate automatic adjustment between Summer and Winter Time (default setting).

   or

   In the "Standard/Daylight Saving Time conversion on" field, select "No" in order to deactivate automatic adjustment between Summer and Winter Time. When the clocks change, the date and time must be manually adjusted.
5. In the "Set plant time" field, set the current date and time of the PV plant.
6. In the "Time zone" field, select the time zone in which the PV plant is located: "(UTC+01:00) Amsterdam, Berlin, Bern, Rome, Stockholm, Vienna").
7. Select [Save].

7.2.3 Synchronising the Time with Sunny Portal Manually

1. Select the Sunny WebBox in the plant tree and select "Settings" in the device menu.
2. Select the "Device > Time settings" parameter group.
3. In the "Synchronize time with portal" field, select [Execute] to synchronise the date and time with Sunny Portal.

☑ The date and time are synchronised with Sunny Portal. The synchronisation was successful if the time is displayed in the "Set plant time" field.

7.2.4 Activating/Deactivating Automatic Time Synchronisation

Activating automatic time synchronisation

1. Select the Sunny WebBox in the plant tree and select "Settings" in the device menu

   or

   Select the "Settings" button in the icon bar.
2. Select the "Device > Time settings" parameter group.
3. Select [Edit].
4. In the "Automatic time synchronization" field, select "Yes" to synchronise the date and time with Sunny Portal.

Deactivating automatic time synchronisation

1. Select the Sunny WebBox in the plant tree and select "Settings" in the device menu

   or

   Select the "Settings" button in the icon bar.
2. Select the "Device > Time settings" parameter group.
3. Select [Edit].
4. In the "Time synchronisation switched on" field, select "No" to set the date and time manually (see Section 7.2.2 "Setting the Date and Time" (page 43))(default setting).

7.3 Country Settings

7.3.1 Setting the Date Format

Effect on existing PV plant data

Changes to the format apply to all future data exports, e.g. data on the SD card and data on the internal FTP server.

1. Select the Sunny WebBox in the plant tree and select "Settings" in the device menu

   or

   Select the "Settings" button in the icon bar.
2. Select the "Device > Country settings" parameter group.
3. Select [Edit].
4. In the "Date format" field, select the desired date format ("DD"=day, "MM"=month, "YYYY"=year) (default setting: "DD.MM.YYYY").
5. Select [Save].

7.3.2 Setting the Language

- If you are not yet logged into the Sunny WebBox, set the language using the language selection at the top left of the Sunny WebBox login page.

  or

Proceed as follows:

1. Select the Sunny WebBox in the plant tree and select "Settings" in the device menu

   or

   Select the "Settings" button in the icon bar.
2. Select the "Device > Country settings" parameter group.
3. Select [Edit].
4. Select the desired language in the "Language" field.
5. Select [Save].

7.3.3 Setting the Number Format

1. Select the Sunny WebBox in the plant tree and select "Settings" in the device menu

   or

   Select the "Settings" button in the icon bar.
2. Select the "Device > Country settings" parameter group.
3. Select [Edit].
4. In the "Number format" field, select the desired number format (default setting: "123.456,0").
5. Select [Save].

7.3.4 Setting the Time Format

Effect on existing PV plant data

Changes to the format apply to all future data exports, e.g. data on the SD card and data on the internal FTP server.

1. Select the Sunny WebBox in the plant tree and select "Settings" in the device menu

   or

   Select the "Settings" button in the icon bar.
2. Select the "Device > Country settings" parameter group.
3. Select [Edit].
4. In the "Time format" field, select the desired time format ("hh"=12-hour format, "HH"=24-hour format, "mm"=minutes, "ss"=seconds)(default setting: "HH:mm").
5. Select [Save].

7.3.5 Setting the Unit of Temperature

1. Select the Sunny WebBox in the plant tree and select "Settings" in the device menu

   or

   Select the "Settings" button in the icon bar.
2. Select the "Device > Country settings" parameter group.
3. Select [Edit].
4. In the "Unit of temperature" field, select the desired unit of temperature (default setting: "Celsius").
5. Select [Save].

7.4 Changing the Device Name of the Sunny WebBox

1. Select the Sunny WebBox in the plant tree and select "Settings" in the device menu

   or

   Select the "Settings" button in the icon bar.
2. Select the "Type Label > Type Label" parameter group.
3. Select [Edit].
4. Enter the desired device name in the "Device name" field.
5. Select [Save].

☑ The device name of the Sunny WebBox is set.

7.5 Network Settings

7.5.1 Information on Network Settings

Changing advanced network settings

Do not change any network settings of devices if you are unsure of the consequences of the change. Changing values can result in the existing network not functioning or only partially functioning. If you have any questions, contact your network administrator.

Sunny WebBox Assistant

It is recommended to use the Sunny WebBox Assistant for commissioning the Sunny WebBox and integration into a network. You can obtain Sunny WebBox Assistant on the Internet at www.SMA-Solar.com.

You can assign the Sunny WebBox static network settings or have these obtained dynamically via a DHCP server. It is also possible to use a proxy server for the Internet connection.

If you would like to make the Sunny WebBox available on the Internet so that you can directly access the Sunny WebBox via Sunny Portal for example, you must set up port forwarding on your router. For this, you may need to adjust the HTTP port and the NAT port (see Section 7.5.5 "Setting the HTTP Port" (page 49) and Section 7.5.3 "Configuring Static Network Settings (Deactivating DHCP)" (page 48)).

7.5.2 Using Dynamic Network Settings (DHCP)

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

Default settings

DHCP is activated in the Sunny WebBox by default.

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.

Calling up the user interface via the URL **http://WebBox"serial number"** only works 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 73). Alternatively, you can find the Sunny WebBox IP address in the DHCP server. A DHCP server can normally list all devices that have obtained an IP address from it. You can then identify the Sunny WebBox using its MAC address. You can find the MAC address of your Sunny WebBox on the type label.

1. Log into the Sunny WebBox.
2. Select the Sunny WebBox in the plant tree and select "Settings" in the device menu.
3. Select the "External Communication > DHCP" parameter group.
4. Select [Edit].
5. Select "Yes" in the "Activated" field.
6. Select [Save].

☑ DHCP is activated in the Sunny WebBox. You can access the user interface via the URL **http://WebBox"serial number"** (see Section 5.1 "Logging into the Sunny WebBox" (page 35)).

7.5.3 Configuring Static Network Settings (Deactivating DHCP)

1. Log into the Sunny WebBox.
2. Select the Sunny WebBox in the plant tree and select "Settings" in the device menu.
3. Select the "External Communication > Ethernet" parameter group.
4. Select [Edit].
5. In the "DNS server IP" 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.
6. In the "Gateway IP" field, enter the IP address of your network's gateway. Usually, the IP address of the router has to be entered here.
7. In the "IP Address" field, enter the static IP address at which the Sunny WebBox is to be accessed in the local network (see Section 11.7 "Assigning IP Addresses in a Local Network" (page 85)).
8. Enter the subnet mask of your network in the "Subnet mask" field. Normally, you can find this information in the router manual.
9. In the "DHCP" parameter group, select "No" in the "Activated" field.
10. Select [Save].

☑ The network settings are assigned manually. You can access the user interface via the static IP address (see Section 5.1 "Logging into the Sunny WebBox" (page 35)).

7.5.4 Configuring Proxy Settings

If there is a proxy server in your network, you must make proxy settings in the Sunny WebBox. The proxy settings of the Sunny WebBox are required for connection to the Sunny Portal and for firmware updates to the Sunny WebBox or the devices in your PV plant.

Using a proxy server

1. Select the Sunny WebBox in the plant tree and select "Settings" in the device menu.
2. Select the "External Communication" > "Proxy settings" parameter group.
3. Select "Yes" in the "Activated" field in order to use a proxy server.
4. In the "Login" field, enter the login name for the proxy server.
5. In the "Port" field, enter the network port via which the proxy server can be accessed.
6. In the "Password" field, enter the password for the proxy server.
7. In the "Confirm the password" field, enter the password again.
8. In the "Server" field, enter the proxy server IP address.
9. Select [Save].

Not using a proxy server

1. Select the Sunny WebBox in the plant tree and select "Settings" in the device menu.
2. Select the "External Communication" > "Proxy settings" parameter group.
3. Select "No" in the "Activated" field in order not to use the proxy server.
4. Select [Save].

7.5.5 Setting the HTTP Port

Adjusting the network ports

Changing ports is only required in rare cases. Before adjusting the ports, contact your network administrator.

The HTTP port is the network port via which the Sunny WebBox user interface can be accessed in the local network. The default setting is port 80. If you set another HTTP port, you must enter this after the IP address when calling up the user interface.

Example: The IP address of the Sunny WebBox is 192.168.0.168 and the HTTP port has been changed to: 8080. You must then enter "http://192.168.0.168:8080" in the address line of the Internet browser.

1. Select the Sunny WebBox in the plant tree and select "Settings" in the device menu.
2. Select the "External Communication > HTTP" parameter group.
3. Select [Edit].
4. Set the desired port in the "Port" field (default setting: port 80).
5. Select [Save].

7.5.6 Setting the NAT Port

Adjusting the network ports

Changing ports is only required in rare cases. Before adjusting the ports, contact your network administrator.

During data transmission to Sunny Portal, the Sunny WebBox communicates which IP address and which port can be used to access the Sunny WebBox on the Internet. You must set up port forwarding on the router and enable the desired port (see router manual). The default setting for the NAT port is 80. If there are several Sunny WebBoxes in your local network, you must select different NAT ports. If you have selected an NAT port other than 80, you must also set the new NAT port in the Sunny WebBox.

1. Select the Sunny WebBox in the plant tree and select "Settings" in the device menu.
2. Select the "External Communication > Ethernet > Nat" parameter group.
3. Select [Edit].
4. Set the desired port in the "Port" field.
5. Select [Save].

7.6 Data Recording

7.6.1 Information on Data Recording

The Sunny WebBox can output the collected data of the PV plant in various data formats and make these available via the integrated FTP server or the SD card.

The following data formats are possible:

- Comma Separated Value (CSV) (see Section 7.6.2 "CSV Files" (page 51))
- Extensible Markup Language (XML) (see Section 7.6.3 "XML Files" (page 52))

All data is stored at the selected recording interval in the relevant directory for the data format. You can also set the name of the measured values (see Section 7.6.4 "Setting the Measurement Name to the Local Language" (page 53)).

Effect on existing PV plant data

Changes to the format apply to all future data exports, e.g. data on the SD card and data on the internal FTP server.

7.6.2 CSV Files

Information on CSV files

The Sunny WebBox saves the collected data of the PV plant in the appropriate daily CSV file every five minutes. The content of the existing data is added to this. Individual data is always separated by a semicolon in the file. The decimal separator and the time format within the files are dependent on the country-specific settings of the Sunny WebBox (see Section 7.3 "Country Settings" (page 45)).

Directory path and structure of the file name

Directory path
.../CSV/[YYYY]/[MM]/

Filename structure	
[YYYY]-[MM]-[DD].csv	CSV file

Example: Daily report file from 2010-03-01: .../CSV/2010/03/2010-03-01.csv

Activating data export in CSV format

1. Select the Sunny WebBox in the plant tree and select "Settings" in the device menu.
2. Select the "Data Recording > Export" parameter group.
3. Select [Edit].
4. In the "Data export in CSV format" field, select "Yes".
5. Select [Save].

Deactivating data export in CSV format

1. Select the Sunny WebBox in the plant tree and select "Settings" in the device menu.
2. Select the "Data Recording > Export" parameter group.
3. Select [Edit].
4. In the "Data export in CSV format" field, select "No".
5. Select [Save].

7.6.3 XML Files

Information on XML files

The Sunny WebBox saves the collected data of the PV plant in an XML file every five minutes. To reduce the number of data items and the data volume, the new XML files are automatically compressed into a zip file and saved on the integrated FTP server or the SD card every 15 minutes. In general, each compressed file contains 3 XML files. The decimal separator and the time format within the files are dependent on the country-specific settings of the Sunny WebBox (see Section 7.3 "Country Settings" (page 45)). For the structure of the XML file, see Section 11.3 "Structure of an XML Data File" (page 83).

Directory path and structure of the file name

Directory path
.../XML/[YYYY]/[MM]/[YYYY]-[MM]-[DD]/

Filename structure	
[YYYY]-[MM]-[DD]_[HHMMSS].zip	Compressed file in zip format
[YYYY]-[MM]-[DD]_[HHMMSS].xml	XML file

Example: Daily report file from 2010-03-01, 12:42:08 hrs.: .../XML/2010/03/2010-03-01/2010-03-01_124503.zip

The zip file contains the following three XML files: 2010-03-01_123159.xml, 2010-03-01_123703.xml, 2010-03-01_124208.xml.

Activating data export in XML format

1. Select the Sunny WebBox in the plant tree and select "Settings" in the device menu.
2. Select the "Data Recording > Export" parameter group.
3. Select [Edit].
4. In the "Data export in XML format" field, select "Yes".
5. Select [Save].

☑ Data is output in XML format.

Deactivating data export in XML format

1. Select the Sunny WebBox in the plant tree and select "Settings" in the device menu.
2. Select the "Data Recording > Export" parameter group.
3. Select [Edit].
4. In the "Data export in XML format" field, select "No".
5. Select [Save].

☑ Data is not output in XML format.

7.6.4 Setting the Measurement Name to the Local Language

You can also set the name of the measured values as follows:

- Technical name of the measured value. *Example: Metering.TotWhOut*
- Name of the measured value as a term. *Example: Total yield*

1. Select the Sunny WebBox in the plant tree and select "Settings" in the device menu.
2. Select the "Data Recording > Export" parameter group.
3. Select [Edit].
4. In the "Measurement name in local language" field, select "Yes" in order to the display the name as a term.

   or

   In the "Measurement name in local language" field, select "No" in order to the display the technical name.
5. Select [Save].

7.7 E-mail Alert in the Event of a Fault

7.7.1 Information on E-mail Alert in the Event of a Fault

E-mail alert in the event of a fault allow you to respond quickly to faults in your PV plant and minimise downtimes. The Sunny WebBox informs you by e-mail of the occurrence of any events of the type "Fault" and "Communication fault", and optionally also events of the type "Warning".

The Sunny WebBox must be connected to the Internet.

Delayed notification of communication faults

For plants that include inverters with upgraded SMA *Bluetooth* Piggy-Back/ Piggy-Back Plus, it is possible that notifications concerning communication faults are not sent until the following day. The reason for this is that these inverters switch off at night, during thunderstorms and when the modules are covered with snow.

Multiple alerts possible via Sunny Portal report dispatch

You can also have events of the type "Warning" and "Communication fault" e-mailed to you by means of report dispatch from Sunny Portal. The Sunny WebBox settings for alerts in the event of a fault have no effect on the event reports that can be configured in Sunny Portal.

If you activate the e-mail dispatch in Sunny Portal and in the Sunny WebBox, you may receive several e-mails about the same event.

Displaying events of the type Fault, Warning and Communication fault via the user interface

The Sunny WebBox records events of the type Fault, Warning and Communication fault in the event report and displays them via the user interface (see Section 4.1.7 "Events" (page 26)).

7.7.2 Activating E-mail Alert in the Event of a Fault

1. Log into the Sunny WebBox as an installer.
2. Select the Sunny WebBox in the plant tree and select "Settings" in the device menu.
3. Select the "External Communication > SMTP" parameter group.
4. Select [Edit].
5. Enter data of the e-mail server (SMTP):
   - Enter the user name in the "Login" field.
   - If the SMTP server requests specification of an e-mail sender address, enter the desired e-mail sender address in the "Alternative e-mail sender address (optional)" field.
   - In the "Port" field, enter the port of the SMTP server.
   - In the "Password" field and the "Confirm the password" field, enter the password of the user account.
   - In the "Server" field, enter the name of the SMTP server (e.g. mail.gmx.net).
6. Select [Save].

   ☑ The e-mail server (SMTP) is set up.
7. Select the "Further Applications > Alarm" parameter group.
8. Select [Edit].
9. In the "Email" area, select "Yes" in the "Activated" field.
10. In the "Email address(es)" field, enter recipient's e-mail address. Multiple e-mail addresses should be separated by a comma or a semicolon.
11. Make a selection in the "Alarm upon warnings" field in the "Filter settings" area:
    - If you would exclusively like to be informed of events of the type "Fault", select "No".
    - If you would like to be informed of events of the type "Fault" and events of the type "Warning", select "Yes".
12. Select [Save].

☑ E-mail alert in the event of a fault is activated.

13. To test the dispatch, send a test e-mail. To do so, select [Execute] in the "Send test e-mail" field.

☑ The Sunny WebBox sends a test e-mail to the specified e-mail address(es).

7.7.3 Deactivating E-mail Alert in the Event of a Fault

1. Log into the Sunny WebBox as an installer.
2. Select the Sunny WebBox in the plant tree and select "Settings" in the device menu.
3. Select the "Further Applications > Alarm" parameter group.
4. Select [Edit].
5. Select "No" in the "Activated" field.

7.8 Activating/Deactivating Grid Management

1. Log into the Sunny WebBox as an installer.
2. Select the Sunny WebBox in the plant tree and select "Settings" in the device menu.
3. Select the "Equipment & device control system > Plant control" parameter group.
4. To activate grid management, select "Yes" in the "Activated" field.

   or

   To deactivate grid management, select "No" in the "Activated" field.

8 Managing Plant Data

8.1 Information on the Plant Data

The Sunny WebBox can display instantaneous values and parameters of the registered devices and pass them on for subsequent processing (e.g. via Sunny Portal, FTP Push, internal FTP server, SD card).

Depending on the device type, SMA devices provide different instantaneous values and parameters that can be displayed and edited via the Sunny WebBox according to user group. Instantaneous values are measured or calculated values for the device, such as temperature and power.

Parameters are used to configure the device and can be edited depending on the user's rights.

To find out which instantaneous values and parameters are provided by a device, refer to the manual of the relevant device.

The Sunny WebBox saves all continuously recorded values from the connected devices on the 1 GB internal drive. If the memory capacity of the internal drive is reached, all values that are older than twelve months are overwritten. Save the plant data on an external drive at regular intervals using the Sunny WebBox functions provided.

8.2 Sunny Portal

8.2.1 Information on Sunny Portal

The Sunny WebBox gives you the option of automatically sending all relevant plant data of your PV plant to the Sunny Portal Internet portal. Sunny Portal is suitable for the individual presentation of plant data of any power class and offers extensive evaluation and notification functions. Further information on Sunny Portal is available at www.SunnyPortal.com.

Before you can use Sunny Portal, you must register via the Sunny WebBox (see page 57).

If you are already registered with the PV plant in Sunny Portal, you must adjust the plant identifier (see page 60). This can be the case, for example, if the Sunny WebBox is replaced.

Possible delays in visualisation and notifications

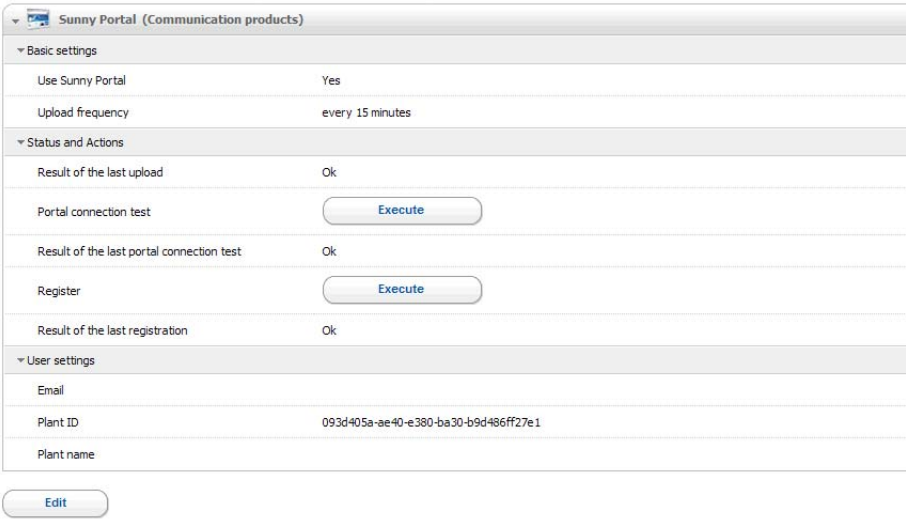
Please note that there can be delays in Sunny Portal displaying the transmitted data of the your PV plant and it may send you notifications if necessary.

Text message notification on your mobile phone

You can use Sunny Portal to generate report e-mails, which you can have automatically sent to your mobile phone via a third party supplier.

8.2.2 Registering Sunny WebBox in Sunny Portal

1. Select the Sunny WebBox in the plant tree and select "Settings" in the device menu.
2. Select the "Sunny Portal > User settings" parameter group.
3. Select [Edit].



4. In the "Email" field, enter the e-mail address to which Sunny Portal should transmit the access data.
5. The plant identifier is automatically entered in the "Plant ID" field. Together with the e-mail address and the plant name, the number is a clear identifier of the PV plant.
6. Enter the name of your PV plant in the "Plant name" field. The plant will be displayed under this name in Sunny Portal.
7. Select [Save].
8. Under the subgroup "Status and Actions", select [Execute] in the "Register" field.

☑ The Sunny WebBox registers on Sunny Portal. The registration was successful if "OK" is displayed in the "Result of the last registration" field. Sunny Portal then sends your access data to the specified e-mail address.

- If registration was unsuccessful, refer to Section 10.1 "General Troubleshooting for the Sunny WebBox" (page 74).

8.2.3 Activating/Deactivating Sunny Portal

Activating data transmission to Sunny Portal

Requirement:

You must be registered in Sunny Portal (see Section 8.2.2 "Registering Sunny WebBox in Sunny Portal" (page 57)).

1. Select the Sunny WebBox in the plant tree and select "Settings" in the device menu.
2. Select the "Sunny Portal > Basic settings" parameter group.
3. Select [Edit].
4. In the "Use Sunny Portal" field, select "Yes" in order to use Sunny Portal. Depending on the configured upload frequency, the Sunny WebBox automatically transmits the PV plant data to Sunny Portal.
5. Select [Save].

Deactivating data transmission to Sunny Portal

1. Select the Sunny WebBox in the plant tree and select "Settings" in the device menu.
2. Select the "Sunny Portal > Basic settings" parameter group.
3. Select [Edit].
4. In the "Use Sunny Portal" field, select "No" in order not to use Sunny Portal (default setting).
5. Select [Save].

8.2.4 Testing the Connection to Sunny Portal

You can test the connection to Sunny Portal. You do not need to register in Sunny Portal to do this.

1. Select the Sunny WebBox in the plant tree and select "Settings" in the device menu.
2. Select the "Sunny Portal > Status and Actions" parameter group.
3. In the "Portal connection test" field, select "Execute".

☑ The Sunny WebBox performs the connection test. The connection test was successful if "OK" is displayed in the "Result of the last portal connection test" field.

- If the connection test was unsuccessful, refer to Section .10.1 "General Troubleshooting for the Sunny WebBox" (page 74).

8.2.5 Setting the Upload Frequency

1. Select the Sunny WebBox in the plant tree and select "Settings" in the device menu.
2. Select the "Sunny Portal > Basic settings" parameter group.
3. Select [Edit].
4. In the "Upload frequency" field, select the desired value. See table:

Selection	Meaning
"every 15 minutes"	Data transmission within the next full 15 minutes.
"daily"	Data transmission within the next full 24 hours.
"hourly"	Data transmission within the next full hour.

Possible delays in data uploads

The upload of the data can be started with a delay of up to 2.5 minutes in order to reduce high data volumes at certain times for Sunny Portal.

If an upload is still running and another upload is due to start (possibly for 15-minute intervals), the new upload is not performed. The data is then transmitted during the next upload.

5. Select [Save].

☑ The Sunny WebBox transmits data to Sunny Portal at the specified intervals.

8.2.6 Accessing the Sunny WebBox via Sunny Portal

For each data transmission from the Sunny WebBox to Sunny Portal, Sunny Portal saves the current IP address of the Sunny WebBox or the current IP address of the router with which you establish the Internet connection.

You can directly access your Sunny WebBox from Sunny Portal via the Internet. Please note that you must set up port forwarding on your router. For this, you may need to adjust the HTTP port and the NAT port of the Sunny WebBox (see Section 7.5 "Network Settings" (page 47)).

8.2.7 Adjusting the Plant Identifier for Sunny Portal

In the following cases, you must adjust the plant identifier of the Sunny WebBox:

- The plant data of the PV plant in question 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. Log into Sunny Portal with the available access data (www.SunnyPortal.com).
2. On the Sunny Portal page, select "Configuration > Plant Properties".
3. Copy the plant identifier to the clipboard.
4. Log into the Sunny WebBox as a user or installer.
5. On the Sunny WebBox user interface, select the Sunny WebBox in the plant tree.
6. Select "Settings" in the device menu.
7. Select the "Sunny Portal > User settings" parameter group.
8. Select [Edit].
9. In the "Plant ID" field, delete the current content and paste in the content of the clipboard.
10. Select [Save].

8.3 SD Card

8.3.1 Information on Saving Plant Data on an SD Card

You can save your plant data onto an SD card. Once you have inserted the SD card into the SD card slot, the Sunny WebBox copies all the plant data that is stored on the internal drive of the Sunny WebBox onto the SD card. The Sunny WebBox saves new plant data onto the SD card as long as the SD card is inserted in the SD card slot and there is enough memory space available. To select a data format in which the data is to be provided, refer to Section 7.6 "Data Recording" (page 50).

8.3.2 Saving Plant Data on an SD Card

NOTICE

Data loss on the SD card possible

Do not remove the SD card while the "SD CARD" LED is flashing green or 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.

Please observe the information on the SD card (see Section 11.1 "Information on the SD Card" (page 81)).

- Insert the SD card into the SD card slot of the Sunny WebBox.

8.4 Integrated FTP Server

8.4.1 Information on the Integrated FTP Server

The Sunny WebBox is equipped with an integrated FTP server. Via the FTP server, you can access the saved plant data. The FTP server is deactivated by default. You can call up the data with any FTP program or Internet Explorer. The FTP server is protected by the passwords of the relevant user group.

Please note that for logging into the integrated FTP server, the English name (user identifier) for the corresponding user group and the associated password must be entered:

User identifier	User group
"Installer"	For the "Installer" user group
"User"	For the "User" user group

To select a data format in which the data is to be provided, refer to Section 7.6 "Data Recording" (page 50).

8.4.2 Activating/Deactivating the Integrated FTP Server

Activating the integrated FTP server

1. Select the Sunny WebBox in the plant tree and select "Settings" in the device menu.
2. Select the "Device > FTP server" parameter group.
3. Select [Edit].
4. In the "Activated" field, select "Yes" in order to activate the integrated FTP server.
5. Select [Save].

Deactivating the integrated FTP server

1. Select the Sunny WebBox in the plant tree and select "Settings" in the device menu.
2. Select the "Device > FTP server" parameter group.
3. Select [Edit].
4. In the "Activated" field, select "No" in order to deactivate the integrated FTP server.
5. Select [Save].

8.4.3 Calling up the FTP Server via Internet Explorer

1. Start Internet Explorer.
2. Enter the IP address of the Sunny WebBox, including the user identifier and the password, in the address line of the Internet browser as shown in the following example:

   ftp://[User identifier]:[Password]@[IP address]

   Use the following user identifier:

User identifier	User group
"Installer"	For the "Installer" user group
"User"	For the "User" user group

   Example: If you wish to use the password "1111" to log into the Sunny WebBox as an installer with the IP address 192.168.0.168, enter the following: ftp://Installer:1111@192.168.0.168

3. Press the enter key on the keyboard.

☑ The browser displays the directory structure of the integrated FTP server. You can now download and display the data.

The user name and password remain stored in the cache of the Internet browser

Once you have accessed the integrated FTP server using an Internet browser, the user name and password remain stored in the cache of the Internet browser. To prevent unauthorised access to the integrated FTP server, clear the cache of the Internet browser.

8.5 FTP Push

8.5.1 Information on FTP Push

The Sunny WebBox has an FTP Push function. With this function, the Sunny WebBox can upload the collected data of your PV plant to a freely selectable FTP server. FTP Push always transmits via network port 21. The FTP Push function is deactivated by default. The collected data is uploaded to the specified directory and in the desired data format every 15 minutes.

8.5.2 Activating/Deactivating FTP Push

Activating FTP Push

1. Select the Sunny WebBox in the plant tree and select "Settings" in the device menu.
2. Select the "Further Applications > FTP Push" parameter group.
3. Select [Edit].
4. In the "Login" field, enter the login name of the external FTP server.
5. In the "Port" field, enter the network port via which the FTP server can be accessed.
6. In the "Password" field, enter the password of the FTP server.
7. In the "Server path" field, enter the subdirectory where the data is to be saved on the FTP server.
8. In the "Server" field, enter the address of the server.
9. In the "Data export in CSV format" field, select "Yes" in order to receive the data in CSV format.

   or

   In the "Data export in CSV format" field, select "No" in order not to receive the data in CSV format.
10. In the "Data export in XML format" field, select "Yes" in order to receive the data in XML format.

    or

    In the "Data export in XML format" field, select "No" in order not to receive the data in XML format.
11. Select [Save].

Deactivating FTP Push

1. Select the Sunny WebBox in the plant tree and select "Settings" in the device menu.
2. Select the "Further Applications > FTP Push" parameter group.
3. Select [Edit].
4. In the "Data export in CSV format" field, select "No".
5. In the "Data export in XML format" field, select "No".
6. Select [Save].

8.5.3 Testing FTP Push

1. Select the Sunny WebBox in the plant tree and select "Settings" in the device menu.
2. Select the "Further Applications > FTP Push" parameter group.
3. In the "Connection test" field, select [Execute].

☑ The Sunny WebBox performs the connection test. The connection test was successful if "OK" is displayed in the "Result of the last connection test" field.

- If the connection test was unsuccessful, refer to Section .10.1 "General Troubleshooting for the Sunny WebBox" (page 74).

9 Service Functions

9.1 Performing Own Update of the Sunny WebBox

9.1.1 Information

You have the option of updating the Sunny WebBox firmware. You can perform the firmware update via the Internet or locally via the SD card. The existing settings of the Sunny WebBox and data from the PV plant remain available after the update procedure. In order to keep the Sunny WebBox firmware up to date at all times, automatic firmware updates via the Internet are recommended.

The update process is indicated by the orange flashing "SYSTEM" LED and occasionally by a red light chaser across all the LEDs. The firmware update is complete when the "SYSTEM" glows green. An update process can take up to 20 minutes.

Reading off the current Sunny WebBox firmware version

You can read off the current Sunny WebBox firmware version from the bottom left of the status line on the user interface.

Temporarily no access to user interface

During the update process, the Sunny WebBox restarts and you will not be able to access the Sunny WebBox user interface for a short period of time.

Do not disconnect the Sunny WebBox from the electricity grid during the update process.

9.1.2 Firmware Update via the Internet (Recommended)

If the Sunny WebBox has Internet access, you can update the Sunny WebBox automatically or manually via the Internet.

Activating/deactivating automatic firmware update

If the automatic firmware update is activated, the Sunny WebBox checks once a day whether a new firmware update is available. If a new firmware update is available, the Sunny WebBox downloads the firmware update from the Internet and starts the update process. The update process starts automatically at night between 11 p.m. and 11:30 p.m.

Unexpected termination of an automatically performed update process

If an automatically performed Sunny WebBox update process is interrupted, e.g. by a power outage, the Sunny WebBox restarts the update process at the next specified time interval.

1. Select the Sunny WebBox in the plant tree and select "Settings" in the device menu.
2. Select the "Device > Update" parameter group.
3. Click on [Edit].
4. In the "Automatic update" field, select "Yes" in order to activate the automatic firmware update (default setting).

   or

   In the "Automatic update" field, select "No" in order to deactivate the automatic firmware update.
5. Select [Save].

Performing a manual firmware update

NOTICE

Loss of plant data possible!

Only perform a manual firmware update when the PV plant is not in operation (e.g. at night). Otherwise, this can lead to gaps in the recording of plant data.

You can also perform the manual firmware update if the automatic firmware update is activated.

1. Select the Sunny WebBox in the plant tree and select "Settings" in the device menu.
2. Select the "Device > Update" parameter group.
3. In the "Check for update and install it" field, select [Execute].

☑ The Sunny WebBox checks whether a new firmware update is available. If a new firmware update is available, the Sunny WebBox downloads the firmware update from the Internet and starts the update process.

9.1.3 Firmware Update via SD Card

NOTICE

Loss of plant data possible!

Only perform a manual firmware update when the PV plant is not in operation (e.g. at night). Otherwise, this can lead to gaps in the recording of plant data.

NOTICE

Data loss on the SD card possible!

Do not remove the SD card while the "SD CARD" LED is flashing green or 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.

Use a separate SD card for firmware updates

For firmware updates, use a separate SD card that contains only the update files for the Sunny WebBox. If there are update files on the external SD card, the export of XML and CSV files is deactivated.

Please observe the information on the SD card (see Section 11.1 "Information on the SD Card" (page 81)).

1. Select the desired update file in the download area of www.SMA-Solar.com and download it to your computer.
2. Connect the SD card to the computer and create a file directory with the name "UPDATE" on the SD card.
3. Copy the downloaded update file (*.up2) to the directory you created on the SD card and then remove the SD card from the computer.

Only save one update file in the "UPDATE" directory.

There should only ever be one update file in the "UPDATE" directory. If there is more than one update file in the "UPDATE" directory, the firmware update will not take place.

4. Remove the plug-in power supply of the Sunny WebBox from the socket-outlet.
5. Insert the SD card into the SD card slot of the Sunny WebBox.
6. Insert the plug-in power supply of the Sunny WebBox into the socket-outlet.

☑ After approx. 90 seconds, the Sunny WebBox is ready for operation and the update process starts.

9.2 Performing a Subdevice Update

9.2.1 Information

You can update the firmware on the devices of your PV plant via the Sunny WebBox. For the following devices, updating the firmware via the Sunny WebBox is possible:

- all SMA inverters with integrated *Bluetooth*

Firmware updates for inverters of the type SB x000TL-20 with a firmware version older than 2.06 are only possible using an SD card

- Perform firmware updates of these inverters using an SD card (see technical description "Firmware Update with SD Card" at www.SMA-Solar.com).

- SMA *Bluetooth* Piggy-Back/SMA *Bluetooth* Piggy-Back Plus from firmware version 02.00.00.R.
- SMA *Bluetooth* Piggy-Back Off-Grid from firmware version 01.00.00.R
- SMA *Bluetooth* Repeater
- SMA Power Injector with *Bluetooth*

The device update can be performed online via the Internet or locally via the SD card. Settings already present for the Sunny WebBox and data for the PV plant are retained following the update process. To ensure that the devices of your PV plant always have the latest firmware installed, the automatic device update via the Internet is recommended.

NOTICE

Yield losses possible!

For some inverters, device updates are only possible from a specific DC input voltage. The inverters in question do not feed energy during a device update. This can result in temporary yield losses.

Do not change the update source during the update process

If you change between the update sources "Storage card" and "Update portal" during the update, the firmware update will not take place.

No update is performed for devices with a padlock symbol ( )!

Devices that have no connection to the Sunny WebBox due to a lack of access rights (marked with a padlock symbol ( ) in the plant tree) receive no update.

If you do not have the necessary access rights, change the password of the device concerned to the password of the plant (see Sunny WebBox user manual).

Sufficient DC input voltage is required to update the devices!

In some inverters, a device update is only possible from a certain DC input voltage. The DC input voltage can be too low for a device update, depending on the time of the day, weather or the condition of the PV modules (e.g. covered with snow or leaves).

Do not disconnect the Sunny WebBox from the electricity grid during the update process.

Update status

The relevant update statuses for the whole PV plant, the individual devices and the update files are shown on the Sunny WebBox user interface.

Reading off the update status of the PV plant

1. Log into the Sunny WebBox.
2. Select the Sunny WebBox in the plant tree.
3. Select "Overview" in the device menu.

   or

   Select the "Plant Communication" > "Device update" parameter group in the "Spot Values" device menu.

If the update status "Information" or "Warning" appears, this is also displayed in the status bar.

Symbol	Update status	Meaning
	OK	No update files are available, or the update function is not activated.
	Information	"There is information on the device update"
	Warning	"There are warnings regarding the device update"

Update status of the device

- To read off the update status of the individual devices, select "Name of your plant" in the plant tree and select the "Updates" tab (see Section 4.1.8 "Updates" (page 28)).

Update status	Meaning
"OK"	No update files are available for this device, or the update function is not activated.
"Update available"	The update file is ready for sending to the devices in the PV plant.
"Update in process"	The update process is underway.
"Update failed"	The update process was unsuccessful. The update file was not sent to all devices in the PV plant.

Status of the update file

- To read off the status of the update file, select "Name of your plant" in the plant tree and select the "Updates" tab (see Section 4.1.8 "Updates" (page 28)).

Status	Meaning
"Download available"	The update file is available for downloading.
"Ready"	The update file was downloaded and can be sent to the devices in the PV plant.
"Sending"	The update file is being sent to the devices in the PV plant. This can take approx. 20 minutes.
"Waiting"	The update file is in the queue and will be sent to the devices in the PV plant as soon as possible.

9.2.2 Device Update via the Internet (Recommended)

If the Sunny WebBox has Internet access, you can update the firmware of your PV plant devices automatically or manually via the Internet.

Activating automatic device update

If the automatic device update is activated, the Sunny WebBox checks once a day between 10 p.m. and 3 a.m. whether a new device update is available. If a new device update is available, the Sunny WebBox downloads the device update from the Internet. For SMA inverters with upgraded SMA *Bluetooth* Piggy-Back, the update process is started on the following day (11 a.m.) due to the overnight shutdown. For all other supported SMA devices, the update process starts the following night (4 a.m.).

Unexpected termination of an automatically performed update process

If an automatically performed Sunny WebBox update process is interrupted (e.g. by a power outage or a change of update source), the Sunny WebBox restarts the update process the next day.

1. Select "Name of your PV plant" in the plant tree and select "Updates" in the device menu.
2. Select the "Settings" parameter group.
3. Click on [Edit].
4. Select "Yes" in the "Activated" field.
5. Select "Operating mode" in the "Automatic update" field.
6. Select "Update portal" in the "Update source" field.
7. Select [Save].

Performing a manual device update

1. Select "Name of your plant" in the plant tree and select "Updates" in the device menu.
2. Select the device type (e.g. SB 5000TL-20, SB 4000TL-20) for which you would like to perform a manual update.
3. Select the required update file in the "Available updates" area and click [Download].
   - ☑ The Sunny WebBox downloads the update file from the Internet and indicates when the process is complete by marking the update file as "Ready" in the "Available updates" area.
   - – If the update file cannot be downloaded, the Internet connection of your computer may have been interrupted. Restore Internet access. If necessary, contact your Internet service provider.
4. If the Sunny WebBox has loaded the selected update file, click on [Send].
   - ☑ The Sunny WebBox checks the stored files and sends the update file to the devices in the PV plant once a day on up to 5 consecutive days.
   - ☑ During the sending process, the "PLANT STATUS" LED flashes orange.

☑ The update process was successful if all devices of the PV plant report back the version number of the sent update file.

- – If you receive an error message, refer to Section 10.1 "General Troubleshooting for the Sunny WebBox" (page 74).

9.2.3 Device Update via SD Card

Please observe the information on the SD card (see Section 11.1 "Information on the SD Card" (page 81)).

NOTICE

Data loss on the SD card possible!

Do not remove the SD card while the "SD CARD" LED is flashing green or 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.

Use a separate SD card for device updates.

Use a separate SD card for device updates. If there are update files on the external SD card, the export of XML and CSV files is deactivated.

Activating automatic device update via SD card

1. Select "Name of your PV plant" in the plant tree and select "Updates" in the device menu.
2. Select the "Settings" parameter group.
3. Click on [Edit].
4. Select "Yes" in the "Activated" field.
5. In the "Operating mode" field, select "Automatic update" in order to activate the automatic device update.
6. In the "Update source" field, select "Storage card".
7. Select [Save].

Performing automatic device update via SD card

No update is performed for devices with a padlock symbol ( )!

Devices that have no connection to the Sunny WebBox due to a lack of access rights (marked with a padlock symbol ( ) in the plant tree) receive no update.

If you do not have the necessary access rights, change the password of the device concerned to the password of the plant (see Sunny WebBox user manual).

1. Select the desired update file in the download area of www.SMA-Solar.com and download it to your computer.
2. Connect the SD card to the computer and create a file directory with the name "UPDATE" on the SD card.
3. Copy the downloaded update file (*.up2) to the "UPDATE" directory you created on the SD card and then remove the SD card from the computer.
4. Insert the SD card into the SD card slot of the Sunny WebBox.
   ☑ The "SD CARD" LED flashes green.
   ☑ The Sunny WebBox copies the selected update file to the internal SD card.

5. When the "SD CARD" LED stops flashing, remove the SD card.
   ☑ The Sunny WebBox checks the stored files and sends the update file to the devices in the PV plant once a day on up to 5 consecutive days.
   ☑ During the sending process, the "PLANT STATUS" LED flashes orange.

☑ The update process was successful if all devices of the PV plant report back the version number of the sent update file.

– If you receive an error message, refer to Section 10.1 "General Troubleshooting for the Sunny WebBox" (page 74).

Performing a manual device update via SD card

1. Select the desired update file in the download area of www.SMA-Solar.com and download it to your computer.
2. Connect the SD card to the computer and create a file directory with the name "UPDATE" on the SD card.
3. Copy the downloaded update file (*.up2) to the "UPDATE" directory you created on the SD card and then remove the SD card from the computer.
4. Insert the SD card into the SD card slot of the Sunny WebBox.
   ☑ The "SD CARD" LED flashes green.
5. Start the update process:
   – Select "Name of your plant" in the plant tree and select "Updates" in the device menu.
   – Select the device type (e.g. SB 5000TL-20, SB 4000TL-20) for which you would like to perform a manual update.
   – Select the required update file in the "Available updates" area and click [Download].
   ☑ The Sunny WebBox copies the selected update file to the internal SD card.
6. When the "SD CARD" LED stops flashing, remove the SD card.
7. If the Sunny WebBox has loaded the selected update file, click on [Send].
   ☑ The Sunny WebBox checks the stored files and sends the update file to the devices in the PV plant once a day on up to 5 consecutive days.
   ☑ During the sending process, the "PLANT STATUS" LED flashes orange.

☑ The update process was successful if all devices of the PV plant report back the version number of the sent update file.

– If you receive an error message, refer to Section 10.1 "General Troubleshooting for the Sunny WebBox" (page 74).

9.3 Restarting the Sunny WebBox via the User Interface

1. Select the Sunny WebBox in the plant tree and select "Settings" in the device menu.
2. Select the "Device > System" parameter group.
3. In the "Initiate device restart" field, select "Execute".
4. Select [OK].

☑ The Sunny WebBox is restarted. The restart was successful if the "SYSTEM" LED and the "POWER" LED are glowing green again. The start-up process can take up to 90 seconds.

- If the "SYSTEM" LED or the "POWER" LED does not glow green, refer to Section 10.1 "General Troubleshooting for the Sunny WebBox" (page 74).

9.4 Resetting the Sunny WebBox with the Reset Button

You can reset the Sunny WebBox using the Reset button, which is concealed inside a small hole in the back of the Sunny WebBox. For this to be done, the Sunny WebBox must be supplied with current.

Data backup

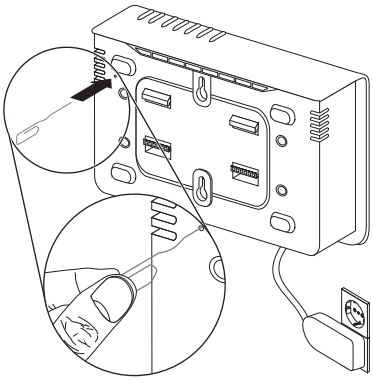
Before you reset the Sunny WebBox, make a note of all settings, such as network and portal settings if necessary. Also back up the data of your PV plant to prevent data loss.

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

Duration	Action
1 ... 5 seconds	Sets passwords to the default setting. All other settings and PV plant data are retained.
5 ... 15 seconds	Sets network settings to the default. All other settings and PV plant data are retained.
15 ... 60 seconds	Sets all Sunny WebBox settings (event memory, network settings, portal settings and passwords) back to the default. PV plant data is fully deleted.
Over 60 seconds	The Sunny WebBox is not reset. All settings are retained.

- Press the concealed Reset button inside the hole using a pointed object.

☑ The Sunny WebBox is reset.



9.5 Determining Current Network Settings of the Sunny WebBox Using the SD Card

The following steps can be used to determine the current settings and the current firmware of the Sunny WebBox if you cannot access the user interface.

Please observe the information on the SD card (see Section 11.1 "Information on the SD Card" (page 81)).

1. Insert the SD card into the SD card slot of the Sunny WebBox.

   ☑ The Sunny WebBox creates a directory with the name "WEBBOX_[Serial number]" on the SD card and uses it to store the XML file "config.xml". The writing process is complete when the "SD CARD" LED glows continuously.
   Example: \WEBBOX_0155000123\config.xml

2. If the "SD CARD" LED glows continuously, remove the SD card from the SD card slot of the Sunny WebBox.
3. Read out the SD card using a computer with an SD card reader.
4. In the WebBox_[Serial number] directory, open the "config.xml" file with a text editor or an Internet browser.

☑ Read off the network settings of the Sunny WebBox (see Section 11.2 "Structure of the Config.xml File" (page 81)).

10 Troubleshooting

10.1 General Troubleshooting for the Sunny WebBox

No.	Problem	Cause	Remedy
1	The Sunny WebBox cannot be accessed 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 voltage supply.	• Connect the Sunny WebBox directly to the computer or the local network using the patch cable and provide the Sunny WebBox with voltage (see installation manual of the Sunny WebBox with *Bluetooth*).
		Incorrect network settings of the network components.	• Use the Sunny WebBox Assistant for commissioning. • Check the network settings of the computer with which you wish to access the Sunny WebBox. Adjust the network settings if necessary. • Reset the Sunny WebBox (see page 72) 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.
		Defective or damaged network components, patch cables or plug connections.	• Replace the defective or damaged parts of the network. • Contact your network administrator.

No.	Problem	Cause	Remedy
1	The Sunny WebBox cannot be accessed via the user interface. **or** You cannot find the Sunny WebBox via the Sunny WebBox Assistant.	The Internet browser is configured incorrectly.	• If there is a proxy server in your network, you must enter an exception rule for the proxy server in your Internet browser (see Section 11.4 "Information on Your Internet Browser" (page 84)).
		There is no Internet connection.	• Restore Internet access. If necessary, contact your Internet service provider.
		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.
		IPv6 is not supported by the proxy server.	• Use a proxy server that supports IPv6.
2	The "SYSTEM" LED is continuously flashing red.	A system fault has occurred.	• 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. • Contact the SMA Service Line.
3	The "POWER" LED is off.	The Sunny WebBox is not supplied with voltage.	• Check the voltage supply of the socket-outlet and remedy any possible faults.

No.	Problem	Cause	Remedy
4	Sunny WebBox does not send any data to Sunny Portal or the external FTP server (the "DATA UPLOAD" LED is glowing red) **or** The connection test to Sunny Portal or to the external FTP server was unsuccessful.	The data transmission is incorrectly configured.	• Check the settings of Sunny Portal or FTP Push (see page 56). • Perform a connection test. • In order to transmit data to Sunny Portal, you must be registered. Register your Sunny WebBox in Sunny Portal (see page 57).
		There is a fault in the network.	• Check the network settings for the individual network components (e.g. router, Sunny WebBox, computer) and adjust these if necessary. • Check the network components for defects or damage. Replace any defective or damaged parts of the network. • Perform a connection test.
5	The Sunny Portal registration was unsuccessful.	Invalid data	• Perform a connection test (see page 58).
6	After an FTP download, the Internet Explorer shows old Sunny WebBox data.	The cache behaviour of the Internet Explorer shows old data.	• Use an FTP client to load the plant data from the internal FTP server of the Sunny WebBox.

No.	Problem	Cause	Remedy
7	The firmware update for connected devices was unsuccessful.	You are not connected to the Internet.	• Restore Internet access. If necessary, contact your Internet service provider. ☑ If you have activated the automatic device update, the automatic device update restarts on the next day. • If you would like to start the device update immediately, perform a manual device update (see "Performing a manual device update" (page 69)).
		The SD card has been removed during the update process.	• Reinsert the SD card into the SD card slot of the Sunny WebBox and perform a manual device update (see "Performing a manual device update via SD card" (page 71)).
		After five attempts, the system was unable to transmit the update file to the PV plant devices.	• Check the status of the *Bluetooth* connection for the devices of your PV plant. Please note that the *Bluetooth* connection can also be interrupted by a lack of DC input voltage at the inverters. The DC input voltage can vary depending on the time of day, weather or the condition of the PV modules (e.g. covered with snow or leaves). – If necessary, improve the connection quality. – If you would then like to start the device update immediately, perform a manual device update (see "Performing a manual device update" (page 69) or "Performing a manual device update via SD card" (page 71)).

No.	Problem	Cause	Remedy
8	The "SD CARD" LED glows red.	The SD card is full.	• Replace the SD card or format the SD card in the FAT16 format.
		The SD card is write-protected.	• Remove the write-protection from the SD card.
		There is an update file in the "UPDATE" directory on the SD card.	• Delete the update file or perform the update.
9	After replacing a Sunny WebBox, two plants with the same name appear in Sunny Portal.	Double registration in Sunny Portal.	The Sunny WebBox that was supplied as the replacement device is logging 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 plant to the replacement device (see page 60). • In the replacement device, enter the e-mail address of a user who has administrator rights for the plant in Sunny Portal. • In Sunny Portal, delete the new plant that the replacement device created.
10	Parameters cannot be edited.	You do not have the necessary rights for the parameters.	• Change the user group.
		You have an inverter with upgraded SMA *Bluetooth* Piggy-Back and a firmware version lower than 02.00.00.R.	Configuration of parameters and graphical display of the monthly and annual energy values are not supported. • Perform a firmware update for the *Bluetooth* Piggy-Back using Sunny Explorer.
11	The Sunny WebBox does not implement any requirements relating to grid management of the Power Reducer Box.	Grid management is deactivated in the Sunny WebBox and/or in the inverter.	• Activate grid management in the Sunny WebBox (see Section 7.8 “Activating/Deactivating Grid Management” (page 55)). • Depending on the inverter type, activate grid management in the inverter (see inverter manual)

No.	Problem	Cause	Remedy
12	Windows does not display the LAN connection.	The driver of the network card (Ethernet card) is not installed.	• Check the installation of the network adapter in the device manager and reinstall the driver.
		The network card is faulty.	• Replace the faulty network card with a new one.
13	Fault in the display of the user interface.	JavaScript is not enabled.	• Enable JavaScript in your Internet browser.

10.2 Troubleshooting for the *Bluetooth* Connection

No.	Problem	Cause	Remedy
1	The Sunny WebBox displays no *Bluetooth* devices.	An incorrect NetID has been set.	• Set the NetID of the PV plant (see installation manual of the Sunny WebBox with *Bluetooth*) and repeat the commissioning. • Contact your installer.
		The connection quality to the *Bluetooth* plant is too poor.	• Reduce the distance to the devices or use an SMA *Bluetooth* repeater to extend the radio coverage. Repeat the commissioning (see installation manual of the Sunny WebBox with *Bluetooth*).
		Four masters are already connected to the *Bluetooth* plant.	• Remove a master and repeat the commissioning (see installation manual of the Sunny WebBox with *Bluetooth*).
		Two participants are already connected to the device via which you wish to establish connection to the *Bluetooth* plant.	• Change the position of the Sunny WebBox to establish a connection to the plant via another device, or remove a master from the plant. Further information on SMA *Bluetooth* can be found in the download area of www.SMA-Solar.com
2	Inverter cannot be accessed.	The *Bluetooth* connection has been interrupted.	• Wait until the Sunny WebBox automatically restores the connection.

No.	Problem	Cause	Remedy
2	Inverter cannot be accessed.	Parameters for the *Bluetooth* communication have been changed.	When setting the parameters that regulate the *Bluetooth* connection (e.g. parameters for transmission power and country parameters), communication via *Bluetooth* is interrupted for a time, as the inverters perform a restart of the communication interface. This does not affect inverters with upgraded SMA *Bluetooth* Piggy-Back. • Wait until the inverter has performed a restart. The inverter can then be accessed again.
		Inverter with upgraded SMA *Bluetooth* Piggy-Back is in night mode.	• Wait until the inverter has returned to normal operation. It can then be accessed again.
		Inverter is not set to the NetID of the PV plant and commissioned.	• The inverter must be set to the NetID of your PV plant and commissioned. Contact your installer.
3	The Sunny WebBox shows other inverters.	The NetID that is set has already been assigned by another *Bluetooth* PV plant.	• You must assign the PV plant a NetID that is not already in use. Contact your installer.
4	An inverter is shown in the plant tree as an unknown device.	The inverter with integrated *Bluetooth* has an old firmware version (only for inverters SB 3000TL-20, SB 4000TL-20, SB 5000TL-20).	• Ensure that the inverter with integrated *Bluetooth* has the latest firmware version (see technical description "Firmware Update with SD Card" at www.SMA-Solar.com). • Contact your installer.
		The new inverter type is not recognised by the Sunny WebBox.	• Perform a self-update of the Sunny WebBox (see page 64).

11 Appendix

11.1 Information on the SD Card

To ensure that the SD card works correctly, 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.

Only use SD cards which have been formatted with the FAT16 file system. If necessary, reformat the SD card using the computer.

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

11.2 Structure of the Config.xml File

The configuration file "config.xml" contains information concerning network settings, the firmware version and other Sunny WebBox settings.

Example:

```
<?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>
</WebBox>
```

Setting	Meaning
Version	The current firmware version of the Sunny WebBox
Plant-ID	The plant ID for Sunny Portal
User-ID	The user identifier for Sunny Portal
DHCP	Indicates whether the network settings are obtained via DHCP.

Setting	Meaning
IP-Adress	The current IP address of the Sunny WebBox
SubNetMask	The current subnet mask of the Sunny WebBox
Gateway	The currently set gateway IP address
DNS-Server	The currently set DNS server IP address
NAT-Port	The currently set NAT port
Webserver-Port	The currently set port of the web server
Webservice-Port	The currently set port of the web service

11.3 Structure of an XML Data File

Example:

```
<?xml version="1.0" encoding="utf-8"?>
<WebBox>
 <Info>
  <Created>2012-11-22T11:10:00</Created>
  <Culture>de</Culture>
  <UtcOffset>60</UtcOffset>
 </Info>
 <CurrentPublic>
  <Key>My Sunny WebBox:155001390:Metering.TotWhOut</Key>
  <Mean>34698.724</Mean>
  <Unit>kWh</Unit>
  <Base>1</Base>
  <Period>300</Period>
  <Timestamp>2012-11-22T11:10:00</Timestamp>
 </CurrentPublic>
  <MeanPublic>
  <Key>My Sunny WebBox:155001390:GridMs.TotW</Key>
  <Min>405</Min>
  <Max>3719</Max>
  <Mean>9019</Mean>
  <Unit>W</Unit>
  <Base>1</Base>
  <Period>300</Period>
  <Timestamp>2012-11-22T11:10:00</Timestamp>
  </MeanPublic>
  <MeanPublic>
 (...)
  </MeanPublic>
</WebBox>
```

Setting	Meaning
Info	Information
Create	Date of generation

Setting	Meaning
Culture	Language
UtcOffset	Offset in minutes to UTC (Universal Time Coordinated)
MeanPublic	Data of the mean values
CurrentPublic	Data of the instantaneous values
Key	Name of the element made up of device name, serial number of the device and the parameter name. Individual values are separated by a colon. *Example: D <Key>SENS0700:5141:TmpMdul C</Key>*
Min	Smallest value in measurement interval/merging
Max	Largest value in measurement interval/merging
Mean	Average value in measurement interval/merging
Base	Number of measured values in the interval/number of merged values
Period	Length of the measurement interval in seconds
TimeStamp	Time stamp, at which the average was calculated

11.4 Information on Your Internet Browser

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

Ensure that

- JavaScript is enabled.
- If a proxy server is active in your network, you must set up a proxy exception rule in your browser (see page 11.5 "Setting up a Proxy Exception Rule in Internet Explorer" (page 84)).

11.5 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 entries by clicking [OK] and close all other windows by clicking [OK].

11.6 Activating IPv6 in Windows XP SP2

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 packet-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 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 network connection that the computer is using to connect to the Sunny WebBox. If necessary, refer to the manual of your computer.
   - If no LAN connection is displayed, refer to Section 10.1 "General Troubleshooting for the Sunny WebBox" (page 74).

   ☑ The "Local Area Connection Status" window opens.
3. Select [Properties] in the "General" tab.

   ☑ The "Local Area Connection Properties" window opens.
4. Activate "Microsoft TCP/IP Version 6"
5. Select [OK].

11.7 Assigning IP Addresses in a Local Network

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

Please note that when assigning the IP address, the first three parts of the IP address must be identical for all participants 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*

12 Contact

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

- Sunny WebBox firmware version
- Serial number and hardware version of the Sunny WebBox
- Type of communication interface between the Sunny WebBox and the inverters
- Type and serial number of inverters connected to the PV plant

SMA Solar Technology AG

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www.SMA.de

SMA Service Line

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Communication: +49 561 9522 2499

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E-Mail: ServiceLine@SMA.de

Legal Provisions

Declaration of Conformity

SMA Solar Technology AG hereby declares that this equipment is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC. You can find the entire CE declaration of conformity at www.SMA-Solar.com.

SMA Factory Warranty

The current warranty conditions come enclosed with your device. These are also available online at www.SMA-Solar.com and can be downloaded and are available on paper from the usual sales channels if required.

Trademarks

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SMA Australia Pty. Ltd.
www.SMA-Australia.com.au

SMA Benelux bvba/sprl
www.SMA-Benelux.com

SMA Beijing Commercial Company Ltd.
www.SMA-China.com.cn

SMA Central & Eastern Europe s.r.o.
www.SMA-Czech.com

SMA France S.A.S.
www.SMA-France.com

SMA Hellas AE
www.SMA-Hellas.com

SMA Ibérica Tecnología Solar, S.L.U.
www.SMA-Iberica.com

SMA Solar India Pvt. Ltd.
www.SMA-India.com

SMA Italia S.r.l.
www.SMA-Italia.com

SMA Japan K.K.
www.SMA-Japan.com

SMA Technology Korea Co., Ltd.
www.SMA-Korea.com

SMA Middle East LLC
www.SMA-Me.com

SMA Portugal - Niestetal Services Unipessoal Lda
www.SMA-Portugal.com

SMA Solar (Thailand) Co., Ltd.
www.SMA-Thailand.com

SMA Solar UK Ltd.
www.SMA-UK.com

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