Device for Plant Monitoring

SUNNY WEBBOX with *Bluetooth*® Wireless Technology

User Manual

SWebBox20-eng-BUS111312 | Version 1.2

US CA

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IMPORTANT SAFETY INSTRUCTIONS

SAVE THESE INSTRUCTIONS

This manual contains important instructions for Sunny WebBox with *Bluetooth*® system monitoring, that must be followed during installation and maintenance of the system monitoring.

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

Warnings in this document

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

DANGER

DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.

WARNING

WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION

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

NOTICE

NOTICE is used to address practices not related to personal injury.

Other symbols in this document

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

Information

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

General warnings

General warnings

All electrical installations must be done in accordance with the local and *National Electrical Code*® ANSI/NFPA 70 or the *Canadian Electrical Code*® CSA C22.1. This document does not and is not intended to replace any local, state, provincial, federal or national laws, regulation or codes applicable to the installation and use of the system monitoring, including without limitation applicable electrical safety codes. All installations must conform with the laws, regulations, codes and standards applicable in the jurisdiction of installation. SMA assumes no responsibility for the compliance or noncompliance with such laws or codes in connection with the installation of the system monitoring.

For all repair and maintenance, always return the unit to an authorized SMA Service Center.

Before installing or using the Sunny WebBox with *Bluetooth*®, read all of the instructions, cautions, and warnings on the Sunny WebBox with *Bluetooth*® in this user manual.

Wiring of the Sunny WebBox with *Bluetooth*® must be made by qualified personnel only.

Table of Contents

1 Information on this Manual

This manual describes how to operate the Sunny WebBox. Keep the manual in a convenient place for future reference.

1.1 Validity

This user manual is valid for Sunny WebBox with *Bluetooth*® for hardware version A1 and higher and for firmware version 1.1 and higher. This manual does not cover any details concerning equipment connected to the Sunny WebBox with *Bluetooth*®. Information concerning the connected equipment is available from the manufacturer of the equipment.

1.2 Target Group

This manual is intended for end users.

1.3 Additional Information

Additional information about SMA *Bluetooth*® Wireless Technology can be found in the download area at www.SMA-America.com.

1.4 Nomenclature

Within this document, SMA America Production, LLC and SMA Solar Technology Canada Inc. are referred to in the following as SMA.

In this document the Sunny WebBox with *Bluetooth*® is referred to in the following as Sunny WebBox.

The term photovoltaic system is abbreviated to PV system in this guide.

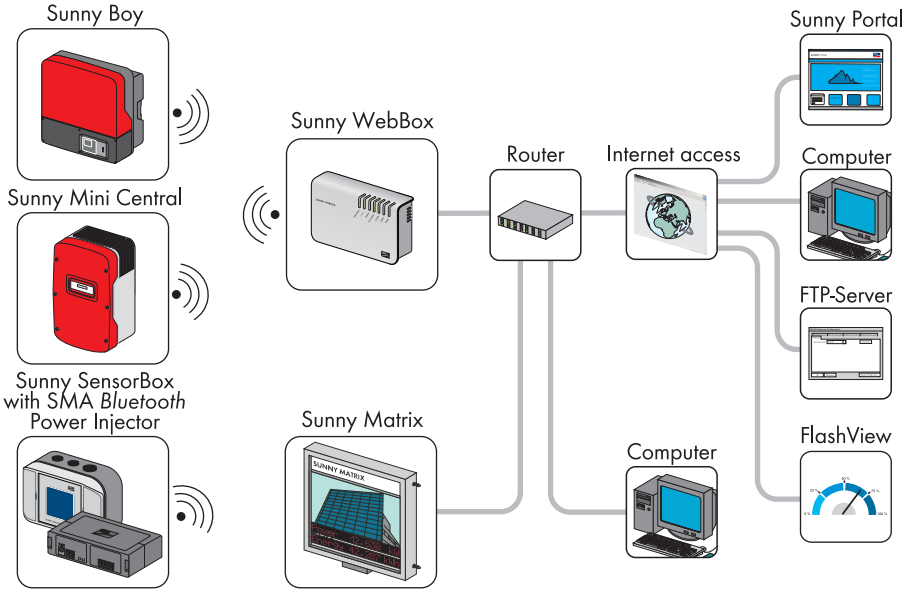
Formatting	Meaning
[Save]	Buttons are displayed in square brackets [ ].
"Menu1"	Menu items are displayed in quotation marks.
"Menu1 > Menu2"	Menu paths are displayed in quotation marks. The angle bracket > separates individual menus.
Example:	Examples are represented in italics.

2 The Sunny WebBox

As the central communication interface, the Sunny WebBox connects the PV plant and its operator. Additionally, the Sunny WebBox collects and documents all data from the connected SMA *Bluetooth* devices, thus permitting interruption-free monitoring.

Amongst other things, you can use the extensive functions of the Sunny WebBox to automatically transmit the data collected from the PV plant to the Sunny Portal Internet portal, any FTP server or other location for subsequent processing or present your plant data via the Sunny Matrix large-format display or the Flashview computer software.

For installers, the Sunny WebBox is a powerful tool for configuring individual devices or entire device classes of the PV plant and carrying out remote diagnostics. The Sunny WebBox enables early detection of disturbances, thus helping to optimize the yield of the PV plant.



2.1 Function Overview

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 System 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
- Configuration of individual devices or an entire device category
- 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

- Display plant data from the PV plant via the user interface
- Save plant data from the PV plant on an internal drive
- Save plant data from the PV plant to an optional SD card
- Automatically transmit plant data from the PV plant to the 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 via Internet or SD card
- Firmware update for devices of the PV plant via Internet or SD card (device update)
- Time synchronization via Internet
- Restoration of factory settings

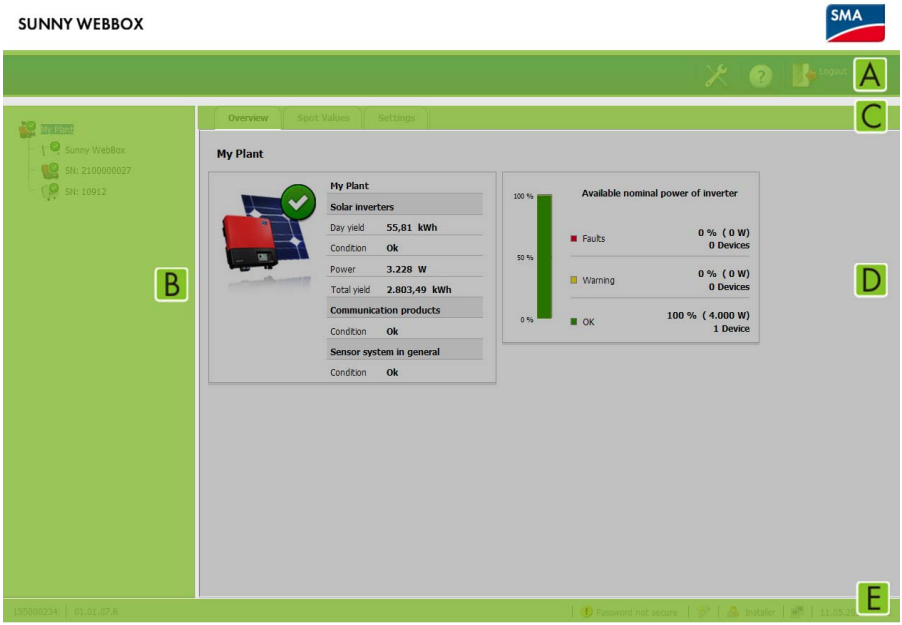
2.2 Information on the Operation of the Sunny WebBox

- The Sunny WebBox user interface needs JavaScript in order to be able to correctly configure and display the functions and content of the Sunny WebBox. Activate JavaScript in your Web browser If necessary, refer to the help section in your Web browser.
- The save procedure for parameters can take up to 30 seconds. Do not disconnect the Sunny WebBox from the electricity supply during the save procedure. Otherwise data can be lost.

3 Basic of the Sunny WebBox

3.1 User Interface

The user interface permits quick access to all important information about the PV plant and its devices.



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 in a PV system are represented in a tree structure.
C	Device Menu	The device menu enables you to retrieve information and configure devices selected in the plant tree.
D	Contents section	The contents section shows the actual contents. The contents are determined by the device menu.

Item	Description	Meaning
E	Status bar	The status bar displays the current status of the Sunny WebBox and includes the following contents: • Serial number • Software version Upon logging on to the Sunny WebBox additionally: • Information on the password status • Information on the device update • SMA Grid Guard (only installers) • Current user group • Connection status to the PV plant • Current date and time

3.1.1 Icon Bar

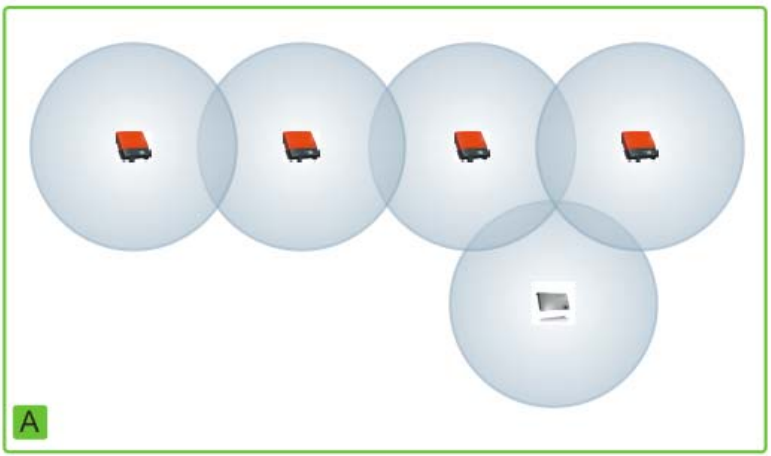
The icon bar gives you quick access to the main functions of the Sunny WebBox.

Symbol	Meaning
	The "Settings" button opens the Sunny WebBox settings. The Sunny WebBox settings can also be adjusted via the plant tree "Sunny WebBox"/"Settings".
	The "Help" button opens the Sunny WebBox help section.
	The user can log out of the Sunny WebBox user interface via the "Logout" button.

3.1.2 Plant Tree

From the plant communication perspective, a PV plant is made up of several devices which are connected to each other via the same communication type (e.g. SMA *Bluetooth*).

View of a *Bluetooth* Plant

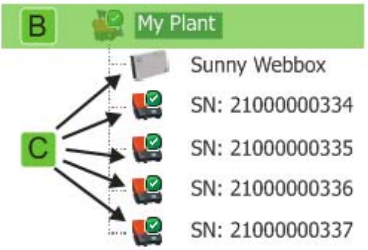


The physical structure of the plant (A) is represented by the plant tree in the Sunny WebBox. In addition, all the devices in a plant (including the Sunny WebBox) are displayed underneath the plant (B). From the plant communication perspective, the plant is generated by the Sunny WebBox.

The Plant Tree in the Sunny WebBox

In general, a distinction is made between the Plant View (B) and the Device View (C).

- See Section .5.1 "Plant View" (page 31)
- See Section .5.2 "Device View" (page 33)



3.1.3 Device Menu

The device menu shows the settings options and instantaneous values of a given device. The device must first be selected in the plant tree. The menu items change according to the device selected.

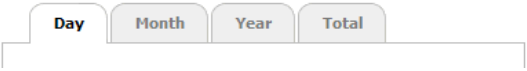
Tabs	Meaning
Overview	The overview page provides information about the devices or systems selected in the plant tree. Here you will find a short overview of the most important device data as well as the actual status display.
Spot values	The instantaneous values provide current data on the selected device depending on the particular user group.
Settings	Depending on your user group, you can use the settings option to look at and adjust various parameters.
Events	The "Events" page displays the events that have occurred in a device. The events displayed depend on your user group.

3.1.4 Overview

The page "Overview" displays the key data of the entire PV plant or of a particular device.

Device View

When a device is selected in the plant tree, the yield and output values of that device are also displayed in diagrams on the overview page. There are 4 diagrams that can be accessed via the following tabs:



Tabs	Meaning
Day	Displays the device output during the course of a day.36
Month	Displays the daily yield of the device over one month.
Year	Displays the monthly yield of the device over one year.
Total	Displays the annual yield of the device over the last 10 years.

Click the mouse on a point of the graph to call up a display. The display shows the precise value at that particular point as well as the time and date.

Scroll down to the next time period using the arrows. Use the calendar symbol to select a time period directly.

Plant View

If a plant is selected in the plant tree, the overview page displays the following data for the entire PV plant:

- Data of all inverters in the PV plant:
  - Daily yield: yield achieved so far on current day
  - Condition: current operative condition of the plant (OK, fault, warning)
  - Power: output achieved so far that day
  - Total yield: total yield achieved so far
- Data for the PV plant communication products:
  - Condition: current operative condition of the communication products (OK, fault, warning)
- Available nominal power of the inverters

3.1.5 Spot values

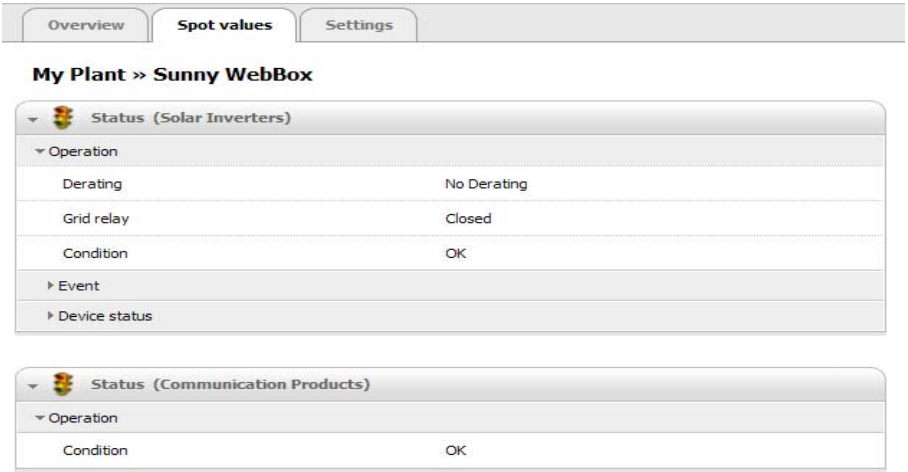
The "Spot Values" page displays all values of the device or plant selected in the plant tree. The specific user group determines which values are displayed. All values are collected into groups (parameter groups) and subgroups.

Device View

If you have selected a device in the plant tree, the "Spot Values" page displays the values for that particular device.

Plant View

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

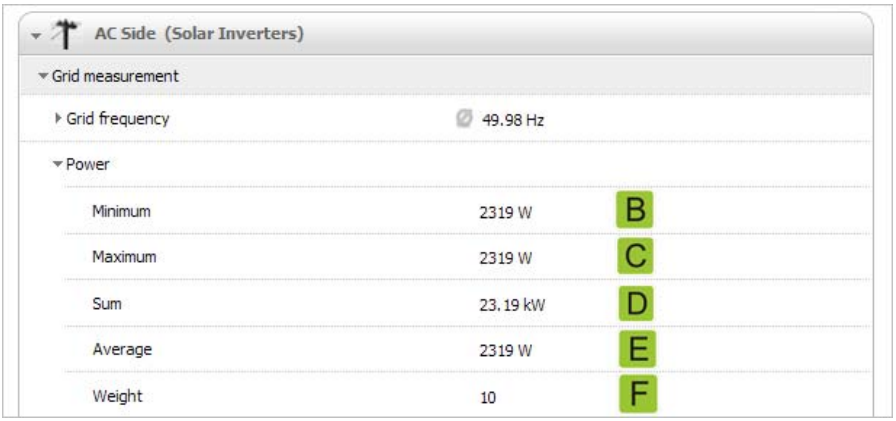


Certain values from the individual devices in a device class are combined (e.g., total power (A)).

Depending on the type of value, a meaningful aggregate for the device class is displayed:

Symbol	Meaning
Σ	Sum
∅	Average Value
e.g. 20 ... 50 °F	Smallest and greatest value

The aggregate value can be opened to reveal additional information.



Item	Meaning
B	Lowest power value of the 10 devices
C	Greatest power value of the 10 devices
D	Sum of power values of the 10 devices
E	Mean power for the 10 devices.
F	Number of devices in the device class

3.1.6 Settings

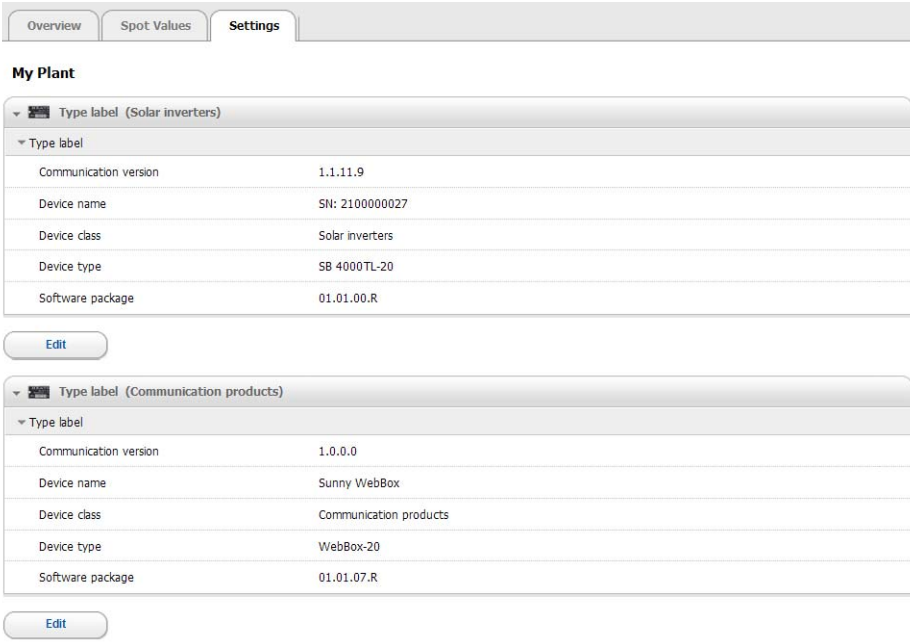
All parameters of the device or plant selected in the plant tree are displayed in the device menu "Settings". For numerical values the permissible parameter limits are displayed in brackets after the value. The display of specific parameters depends on the particular user group. All parameters are summarized in groups (parameter groups) and subgroups.

Device View

When a device is selected in the plant tree, you can modify the parameters of that device in the "Settings" page.

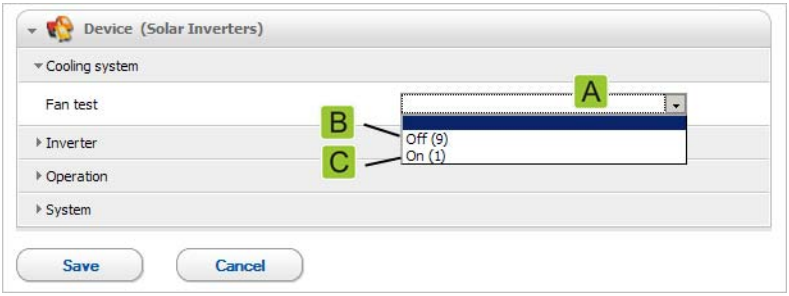
Plant View

If you have selected the plant in the plant tree, you can modify the parameters for the entire device class on the "Settings" page. All devices in the device class are then set to the new parameter value. When you click on the parameter group, the device classes are displayed separately (e.g., PV inverters and communication products).



If different values are set for devices in the same device class, this is indicated in editing mode by an empty field (A).

The different options are shown in selection menus. The number of devices set to each option is shown in brackets. See (B) and (C). Choosing an option and then saving sets all devices in this device class to this value. "*" indicates that this parameter is not available for all devices.



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

3.1.7 Events

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

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

Priority of Events

The event priorities are as follows:

Symbol	Meaning
	This type of event can only be remedied through intervention at the device by the installer. Please contact your installer with the device serial number and the event number.
	Please contact your installer with the device serial number and the event number.

Types of Event

There are 3 different types of event which the Sunny WebBox displays using symbols:

- Information
- Warning
- Error

Symbols and Meaning of Event Types

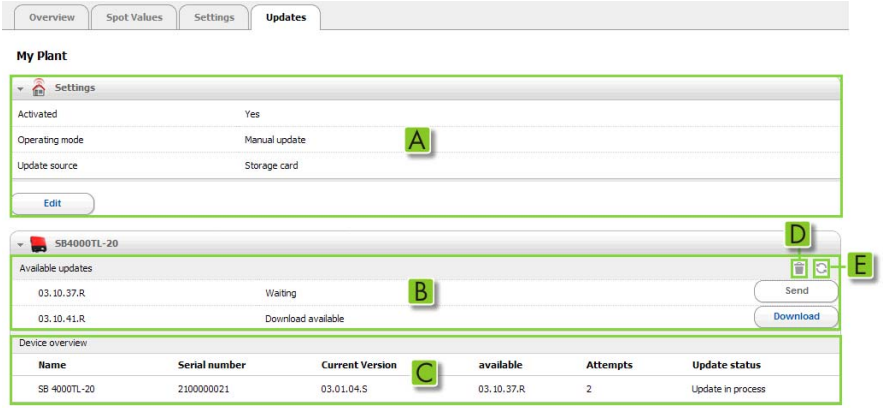
Events can have 3 different statuses:

- Incoming: the event is occurring.
- In progress: the event has existed for some time and could not yet be automatically remedied.
- Outgoing: the event has come to an end.

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

3.1.8 Updates

The "Updates" page is shown when the PV plant is selected in the plant tree. On the "Updates" page, you can configure the settings for the device updates. In addition, all the available devices for the PV plant are listed here. The devices are grouped according to device type. You can use the "Updates" page to view the current firmware status for the devices. 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 in this device group, 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 here.
D	Delete update files with the status "Ready".
E	Search for new update files and refresh the list of available update files.

3.2 Security and Password Concept

3.2.1 User Groups

As a rule, SMA distinguishes between two user groups: **user** and **installer.** Installers can also undertake additional settings on devices after entering the SMA Grid Guard code. The user groups have the following rights:

User Group	Right
User	This user group allows the user to read all display-relevant information, such as instantaneous values and parameter settings. Settings that affect functionality cannot be modified. The user can choose any plant password for the "User" user group.
Installer	In addition to the rights available to users, this user group may also set or change plant parameters that affect functionality. In addition, this user group may reset the user's plant password, and may undertake additional settings to devices after entering the SMA Grid Guard code.
Installer with SMA Grid Guard rights	The installer can change SMA Grid Guard parameters for devices.

3.2.2 Plant Password

The plant password for the respective user group is the same for all devices in a plant. After logging in with the plant password (**User/Installer**), you can simultaneously configure several devices in your plant. If the device password is not the same as the plant password, for example if there is a new device in an existing plant, the device is depicted with a padlock ( ) in the plant tree.

Unauthorized Access to your PV Plant

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

- After initial login to a new plant, the standard password for both user groups (**User/Installer**) should be changed. After changing the password a restart of the Sunny WebBox is necessary.

Plant Password at Delivery

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

3.2.3 Access Security for the Sunny WebBox

Each user group is protected by a password chosen by the plant. Passwords are transmitted in encrypted form. After 4 incorrect password entries access to the Sunny WebBox is blocked for 15 minutes. After this time you can log in again.

Protect your PV plant from unauthorized access. Take suitable protective measures, e.g.:

- Set up secure passwords (see section 3.2.4 "Strength of Passwords" (page 25)).
- Change your passwords at regular intervals.
- Use different passwords for different user groups.
- Never leave slips of paper with passwords lying around.
- Install a firewall in Ethernet networks.
- Close unnecessary ports in Ethernet networks.

3.2.4 Strength of Passwords

In order to increase the security of your password, note the following properties when selecting a password:

- Use passwords with a minimum length of 8 characters. The longer the password, the more secure it is.
- Do not use names or terms from dictionaries (for example: "Dog", "Cat", "Mouse", ...).
- Do not use data related to your person as passwords (for example names of persons or pets, personal numbers or identification numbers, car license plates ...).
- Do not repeat names or terms (for example "househouse", "carcar", ...).
- Use a combination of upper and lower case letters, special characters and numbers.
- Do not use number and letter combinations which are consecutive on a keyboard (for example "12345", "qwerty", ...).

3.2.5 SMA Grid Guard

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

3.2.6 Password Forgotten

If you have forgotten your plant password, you can unlock the devices of your PV plant by means of a Personal Unlocking Key (PUK). For every inverter and every Sunny WebBox there is one PUK for each of the two user groups ("user" and "installer").

Procedure:

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

Requesting PUKs for Inverters and Sunny WebBox

1. Download the PUK application form from the "Service" section at the download area at www.SMA-America.com.
2. Complete the application form and sign it.
3. Send the application form to the SMA Serviceline:
   - Send the application form by e-mail (see section 12 "Contact" (page 87))

   or

   - Send the application form by fax (see section 12 "Contact" (page 87))

   or

   - Send the application form by mail (see section 12 "Contact" (page 87)).

☑ The SMA Serviceline will check your application and send you the requested PUKs.

Unlocking the inverter using PUK

Unlocking several inverters using PUK

Each PUK can only be used for 1 inverter and 1 user group.

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

1. Log onto the inverter with the PUK using Sunny Explorer (see Sunny Explorer user manual).
2. Define a new plant password (see Sunny Explorer user manual).

Unlocking the Sunny WebBox using PUK

1. Start the web browser, (e.g. Internet Explorer).
2. Enter the IP address of the Sunny WebBox into the address bar and press enter.
3. In the "User" field, enter the user group for which the SMA Serviceline generated the PUK.
4. Enter the PUK in the "Password" field.
5. Change the password of the Sunny WebBox (see section 6.1 "Changing the Sunny WebBox Password" (page 38)). Use the plant password that you defined previously via the Sunny Explorer.

☑ The Sunny WebBox displays the inverters in the plant tree without the padlock symbol. You have access rights for all the inverters in the corresponding user group.

3.3 Symbols

Symbols for Access Rights

The individual devices are depicted with a symbol for the access rights in the plant tree. If no symbol is displayed after a device, you have access rights to the device corresponding to the user group which is logged in.

Updating Time in the Plant Tree

In the plant tree, updating the symbol for access rights (SMA Grid Guard symbol and padlock symbol) can take up to 2 minutes.

Symbol	Meaning
	You do not have access to the device. The device password differs from the current plant password.
	You have access to parameters which are protected by the SMA Grid Guard password. Parameters which are protected by SMA Grid Guard are also indicated by this symbol.

Device Symbols

Device symbols are displayed in the plant tree and on the device's overview page. Devices will have a specific status, which is displayed by a symbol.

Symbol	Meaning
	Plant
	Sunny WebBox
	Inverter

Symbol	Meaning
	Unknown 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 specific parameter groups.

Symbol	Meaning
	**Status** General values that describe the status of the device. The status of other components in the device (e.g., modems) is not listed here.
	**Type plate** All values that describe the device/the plant.
	**Device** Values which apply directly to the device and which do not fall into any of the special categories (e.g., DC side, AC side, plant communication, etc.).
	**User Rights** All values that affect the access protection for the device.
	**DC Side** Values affecting the DC side of the device (e.g. PV modules).
	**AC Side** Values affecting the grid side of the device.
	**Grid Monitoring** Includes parameters that affect the grid and which in part are protected by the personal SMA Grid Guard password.
	**Equipment & device control system** 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.

Symbol	Meaning
	**Plant communication** All values which define 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 relating to the components of a device. This group is a kind of "expanded type label". For example, it files the version numbers of the system components.
	**Meteorology** Includes all measured values for the connected sensors e.g. temperature, radiation and wind speed.

Other Symbols

Symbol	Meaning
	**Hourglass** The hourglass is displayed when values are being saved in a device.
	**Average Value** The average symbol refers to an average value.
	**Sum** The total symbol displays the summed values.
	**Maximum** Displays the maximum of a value.
	**Minimum** Displays the minimum of a value.
	**Update** This symbol indicates that data is being uploaded from the device.
	**Alarm Clock** The alarm clock symbol indicates that values are more than 10 minutes old.
	**Calendar Function** Opens a calendar for selecting a date, a start date, or an end date.

4 Logging in and out of the Sunny WebBox

4.1 Logging into the Sunny WebBox

Unauthorized Access to your PV Plant

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

- After initial login to a new plant, the standard password for both user groups (**User/Installer**) should be changed.

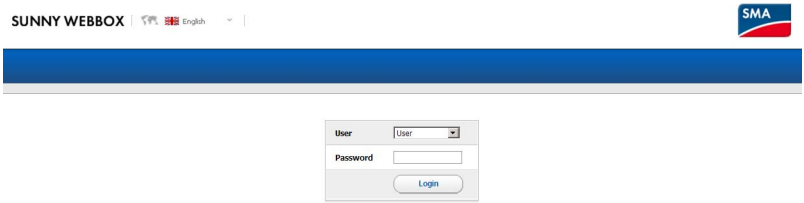
Plant Password at Delivery

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

1. Start Web browser (e.g. Internet Explorer).
2. Enter the IP address of the Sunny WebBox into the address bar and press enter.

   ☑ The Sunny WebBox login page opens.

   – If the page does not open, refer to section 9.1 "General Troubleshooting for the Sunny WebBox" (page 75).



3. Select a language.
4. In the "User" field select the user group under which you wish to log in.
5. In the "Password" field enter the password belonging to the selected user group.
6. Select [Login].

☑ The Sunny WebBox start page appears.

4.2 Logging out of the Sunny WebBox

1. Select "Logout" in the icon bar.

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

5 Operation

5.1 Plant View

5.1.1 Plant Status

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

5.1.2 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 for the entire plant are displayed.
3. Select the parameter group that contains the parameter which is to be configured.
   ☑ The individual device classes are listed. It may take a moment for all the data to be read from the devices.
4. Select [Edit] below the relevant device class.
5. Change the desired parameter for the entire device class.
6. Select [Save].
   ☑ The settings will be applied to all devices in the device class.

Saving Data when Adjusting Parameters

An hourglass displays the saving process. After the changes have been saved in the Sunny WebBox, the data is transmitted to the device. The setting process can sometimes take several hours if the device (e.g. an inverter) is in night mode. When the device is started, the data is transmitted to the main drive, and the hourglass is no longer displayed.

☑ The parameters for a device class have been set.

5.1.3 Changing the Plant Name

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

   or

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

☑ The plant name is now set.

5.2 Device View

5.2.1 Device status

The device is in a specific status. The status is displayed via the symbols in the plant tree and on the device's overview page.

Symbol	Status	Meaning
	Neutral	The status of the device is currently being updated.
	OK	The device is operational and is working as prescribed.
	Warning	The device is not operating properly. It may be possible to automatically remedy the failure.
	Error	The device is in failure condition. There is a problem with the device. Check the device.
	Communication error	The device cannot communicate at present. This may happen at night, for example, when the inverter is not operating.

5.2.2 Setting the Device Parameters

You can configure a device via its parameters. Setting parameters for a device is dependent on the user group.

To change device parameters, proceed as follows:

1. Select the corresponding device in the plant tree.
2. Select "Settings" in the device menu.
   ☑ The existing parameter groups for 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 desired parameter.
6. Select [Save].

Saving Data when Adjusting Parameters

An hourglass displays the saving process. After the changes have been saved in the Sunny WebBox, the data is transmitted to the device. The setting process can sometimes take several hours if the device, e.g. an inverter, happens to be in night mode. When the device is started, the data is transmitted to the main drive, and the hourglass disappears.

☑ The device parameter is now set.

5.3 Adjusting the Device Password to the Plant Password

If the password of a device is different from the plant password, the device will be displayed with a padlock in the plant tree. This may occur, for example, when a new device is added to an existing plant. To set the new device to the plant password, proceed as follows:

1. Log into the Sunny WebBox as "Installer".
   ☑ The new device is displayed with a padlock in the plant tree.
2. Select the Sunny WebBox in the plant tree and select "Settings" in the device menu
   or
   Select "Settings" on the toolbar.
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. Confirm the password in the "Confirm password" field.
7. Enter the password of the new device in the appropriate user group field .
8. Confirm the password in the "Confirm password" field.
9. Select [Save].
   ☑ The Sunny WebBox saves the password of the new device into all approved devices. All devices now have the same plant password.
10. Restart the Sunny WebBox via the user interface (see page 72).
11. Repeat the password setting process in order to transfer your previous plant password to all devices.
12. Select [Save].
13. Restart the Sunny WebBox via the user interface (see page 72).

☑ The device is displayed without a padlock in the plant tree. The new device's password is now set to the plant password.

5.4 Determining the Sunny WebBox Serial Number

You can read off the serial number from the status bar of the user interface, or alternatively via the parameter groups or the SD Card (see section 8.5 "Determining Current Settings of the Sunny WebBox via the SD Card" (page 74)).

Determining the Sunny WebBox serial number via the parameter group

1. Select the Sunny WebBox in the plant tree and select "Settings" in the device menu
   or
   Select "Settings" on the toolbar.
2. Select the "Type Label > Type Label" parameter group.

☑ Read off the Sunny WebBox serial number from the "Serial Number" field.

5.5 Determining the WAN IP address

You can determine the WAN (wide area network) IP address via the parameter group or the SD card (see section 8.5 "Determining Current Settings of the Sunny WebBox via the SD Card" (page 74)). The WAN IP address is the IP address via which the Sunny WebBox is to be reached via the Internet.

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

   or

   Select "Settings" on the toolbar.
2. Select the "External Communication > Nat" parameter group.

☑ The WAN IP address is shown in the "WAN IP" field.

5.6 Activating/Deactivating SMA Grid Guard Mode

Country-specific Settings on the Inverter

SMA Grid Guard parameters may only be changed with the express authorization of the grid operator. Any unauthorized changes made to the SMA Grid Guard parameters shall void the operating license of the respective device.

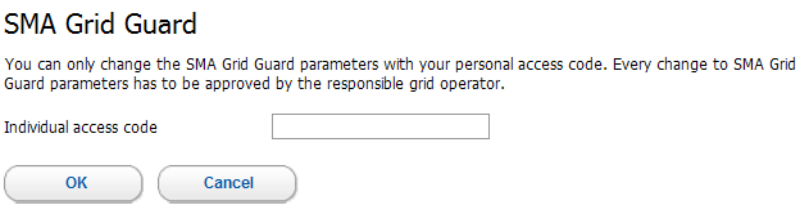
Updating Time in the Plant Tree

In the plant tree, updating the symbol for access rights (SMA Grid Guard symbol and padlock symbol) can take up to 2 minutes.

Activating SMA Grid Guard Mode

In order to change SMA Grid Guard parameters in devices you must enter your SMA Grid Guard password.

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



3. Enter your password in the "Individual access code" field. You can obtain the password from SMA (see page 25).
4. Select [OK].

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

Deactivating 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.
   ☑ This opens the SMA Grid Guard dialog.
2. Enter the blocking code "54321" in the "Individual access code" field.
3. Select [OK].

☑ The SMA Grid Guard code is deactivated. Check whether 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 remains active, log out of the Sunny WebBox user interface and log back in again after 2 minutes (see section 4 "Logging in and out of the Sunny WebBox" (page 30)). The SMA Grid Guard code is then deactivated.

6 Configuring the Sunny WebBox

6.1 Changing the Sunny WebBox Password

Additional Rights for the Installer

If you are logged in as an installer, you have the same rights as normal users, but can also set or alter parameters that affect the functionality of the plant. In addition, the "Installer" user group can reset the user's plant password and can change SMA Grid Guard parameters.

Password for the Internal FTP Server

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

Setting the Sunny WebBox password means that all devices which are displayed without a padlock in the plant tree will be set with the Sunny WebBox password. In order to successfully apply the password, you will need to restart the Sunny WebBox (see page 72).

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

   or

   Select "Settings" on the toolbar.
2. Select the "User Rights > Access Control" parameter group.
3. Select [Edit].
4. Enter a secure password in the appropriate user group field. The password can be a maximum of 12 characters. The following special characters are permitted: ?_!-. Make sure you use a high-strength password (see section 3.2.4 "Strength of Passwords" (page 25)).
5. Confirm the password in each case in the "Confirm Password" field.
6. Select [Save].

☑ All devices will be set with the Sunny WebBox password.

6.2 Plant time

6.2.1 Information on the 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 the 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 do not adopt the plant time for some time (7 hours max. later).

The plant time can be adjusted manually in the Sunny WebBox or synchronized via the Internet. With "Automatic Time Synchronization" the Sunny WebBox aligns the date and time with Sunny Portal once per day. You do not need to register in Sunny Portal to do this.

NOTICE

Possible Loss of Data through Changing the Plant Time.

Take note that a time adjustment may affect data that has already been recorded. If, for example, the time or the date is put back, the recorded data could be overwritten. Only change the plant time when it is necessary.

6.2.2 Setting Date and Time

Automatic Time Synchronization

You can also synchronize the plant time automatically via the Internet (see section 6.2.4 "Activating/Deactivating Automatic Time Synchronization" (page 41)).

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

   or

   Select "Settings" on the toolbar.
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. (status upon delivery)

   or

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

☑ The date and time are now set.

6.2.3 Manually Synchronizing the Date and Time with Sunny Portal

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

   or

   Select "Settings" on the toolbar.
2. Select the "Device > Time settings" parameter group.
3. Select [Edit].
4. In the "Synchronize time with portal" field select "Execute" in order to synchronize the date and time with Sunny Portal.

☑ The date and time will be synchronized with Sunny Portal. The synchronization was successful if the time is displayed in the "Set plant time" field and "——" is again displayed in the "Synchronize time with portal" field.

6.2.4 Activating/Deactivating Automatic Time Synchronization

Activating Automatic Time Synchronization

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

   or

   Select "Settings" on the toolbar.
2. Select the "Device > Time settings" parameter group.
3. Select [Edit].
4. In the "Automatic time synchronization" field select "Yes" in order to synchronize the date and time with Sunny Portal.

☑ The automatic time synchronization is now activated.

Deactivating Automatic Time Synchronization

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

   or

   Select "Settings" on the toolbar.
2. Select the "Device > Time settings" parameter group.
3. Select [Edit].
4. In the "Automatic time synchronization" field select "No" in order to set the date and time manually (see section 6.2.2 "Setting Date and Time" (page 40)) (status on delivery).

☑ The automatic time synchronization is deactivated.

6.3 Country settings

6.3.1 Setting the Date Format

Effect on Existing PV Plant Data.

Changes to the format have an effect on all future data exports, e.g. data on the SD card or data on the internal FTP server.

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

   or

   Select "Settings" on the toolbar.
2. Select the "Device > Country settings" parameter group.
3. Select [Edit].
4. In the "Date format" field select the desired data format ("DD" = day, "MM" = month, "YYYY" = year) (Status on delivery "DD.MM.YYYY").
5. Select [Save].

☑ The date format is set.

6.3.2 Setting the Language

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

   or

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

☑ The language is set.

6.3.3 Setting the Number Format

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

   or

   Select "Settings" on the toolbar.
2. Select the "Device > Country settings" parameter group.
3. Select [Edit].
4. In the "Number format" field, select the desired number format. (Status upon delivery: "123.456,0")
5. Select [Save].

☑ The number format is set.

6.3.4 Setting the Time format

Effect on Existing PV Plant Data.

Changes to the format have an effect on all future data exports, e.g. data on the SD card or data on the internal FTP server.

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

   or

   Select "Settings" on the toolbar.
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) (Status on delivery: "HH:mm").
5. Select [Save].

☑ The time format is set.

6.3.5 Setting the Unit of Temperature

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

   or

   Select "Settings" on the toolbar.
2. Select the "Device > Country settings" parameter group.
3. Select [Edit].
4. Select the desired unit of temperature in the "Unit of temperature" field. (Status upon delivery: "Celsius")
5. Select [Save].

☑ The unit of temperature has been set.

6.4 Changing the Sunny WebBox Device Name

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

   or

   Select "Settings" on the toolbar.
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 Sunny WebBox device name has now been changed.

6.5 Ethernet Network

6.5.1 Information on Network Settings

Changing advanced network settings

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

Sunny WebBox Assistant

It is recommended to use the Sunny WebBox Assistant for the commissioning of the Sunny WebBox and for the integration into a network. You can download the Sunny WebBox Assistant at www.SMA-America.com.

You can assign static network settings to the Sunny WebBox or obtain these dynamically via a DHCP server. Additionally, a proxy server can be used for the internet connection.

If you would like to make the Sunny WebBox available in the internet, for example to allow direct access to the Sunny WebBox via Sunny Portal, you must configure port redirection in your router. It may be necessary to adjust the HTTP port and the NAT port.

6.5.2 Applying Static Network Settings to the Sunny WebBox

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

   or

   Select "Settings" on the toolbar.
2. Select the "External Communication > Ethernet" parameter group.
3. Select [Edit].
4. In the "DNS server IP" field enter the IP address of the DNS server (Domain Name System Server). Usually, this is the IP address of the router.
5. Enter the Gateway IP address of your network into the "Gateway IP" field. Usually, this is the IP address of the router.
6. In the "IP Address" field enter the static IP address, under which the Sunny WebBox is to be reachable in the local network (see section 10.7 "Allocating IP Addresses in a Local Network" (page 85)).
7. In the "Subnet mask" field, enter the subnet mask of your network. Normally, you can find this information in the router manual.
8. Select [Save].

☑ The local network settings are applied to the Sunny WebBox.

6.5.3 Activating/Deactivating DHCP

The Sunny WebBox can obtain its network settings via a DHCP server (Dynamic Host Configuration Protocol server). If activated, the IP address, subnet mask, gateway and DNS server are obtained automatically from the DHCP server during the start of the Sunny WebBox. Use the Sunny WebBox Assistant to find the Sunny WebBox in your network.

Activating DHCP

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

   or

   Select "Settings" on the toolbar.
2. Select the "External Communication > Ethernet" parameter group.
3. Select [Edit].
4. Under "DHCP" select "Yes" in the "Activated" field in order to receive the network settings dynamically assigned.
5. Select [Save].

☑ The Sunny WebBox obtains the network settings automatically via the DHCP server.

Deactivating DHCP

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

   or

   Select "Settings" on the toolbar.
2. Select the "External Communication > Ethernet" parameter group.
3. Select [Edit].
4. Under "DHCP", select "No" in the "Activated" field in order to assign the network settings statically (see section 6.5.2 "Applying Static Network Settings to the Sunny WebBox" (page 44)) (Status on delivery).
5. Select [Save].
6. The network settings are assigned manually.

6.5.4 Proxy Server

If there is a proxy server in your network, enter the proxy settings here. The Proxy settings of the Sunny WebBox are used for connection to the Sunny Portal and for firmware updates to the Sunny WebBox or the devices in your PV plant.

Using the Proxy Server

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

   or

   Select "Settings" on the toolbar.
2. In the "Activated" field, select "Yes" in order to use the proxy server.
3. In the "Login" field enter the login name for the proxy server.
4. In the "Port" field, enter the network port under which the proxy server is available.
5. In the "Password" field, enter the password for the proxy server.
6. Confirm the password entered in the "Confirm the password" field.
7. In the "Server" field, enter the Proxy Server IP address.
8. Select [Save].

☑ The proxy server will be used.

Not using the proxy server

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

   or

   Select "Settings" on the toolbar.
2. In the "Activated field" select "No" if you do not want to use the proxy server.
3. Select [Save].

☑ The Proxy server will not be used.

6.5.5 Setting the HTTP Port

Adjusting the network ports

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

The HTTP port is the network port under which the Sunny WebBox user interface is available. Port 80 is the default port here. Should another port be entered, this is to be explicitly specified during call up of the user interface.

Example: The Sunny WebBox IP address is 192.168.0.168 and the HTTP port was changed to 8080; thus "http://192.168.0.168:8080" must then be entered in the address bar of the web browser.

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

   or

   Select "Settings" on the toolbar.
2. Select the "External Communication > HTTP" parameter group.
3. Select [Edit].
4. Enter the required port in the "Port" field. (Status upon delivery: Port 80)
5. Select [Save].

☑ The HTTP port is saved.

6.5.6 Setting the NAT Port

Adjusting the network ports

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

During data transfer, the Sunny WebBox sends the IP address and port at which the Sunny WebBox is available on the internet to the Sunny Portal. For this, the respective port must be released by the router. If the NAT (Network Address Translation) in the router is changed, you must specify the network port set in the router. The NAT Port is set to 80 by default.

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

   or

   Select "Settings" on the toolbar.
2. Select the "External Communication > Ethernet > Nat" parameter group.
3. Select [Edit].
4. Enter the required port in the "Port" field.
5. Select [Save].

☑ The NAT port is saved.

6.6 Data Recording

6.6.1 Information on Data Recording

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

The following data formats are possible:

- Comma Separated Value (CSV) (see section 6.6.2 "CSV Files" (page 49))
- Extensible Markup Language (XML) (see section 6.6.3 "XML files" (page 50))

All data is exported at selected recording intervals in the respective directory of the data format. Additionally you can set the description of the measured values (see section 6.6.4 "Setting Measurement Names in your Local Language" (page 51)).

Effect on Existing PV Plant Data.

Changes to the format have an effect on all future data exports, e.g. data on the SD card or data on the internal FTP server.

6.6.2 CSV Files

Information on CSV Files

The Sunny WebBox saves the collected data of the PV plant into the relevant daily CSV file every 5 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 timestamp format in the files are determined by the country settings of the Sunny WebBox (see section 6.3 "Country settings" (page 41)).

Directory Path and Structure of the Filename

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

Filename Structure	
[YYYY]-[MM]-[DD].csv	CSV File

Example: Daily report file from 1.3.2010: .../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

   or

   Select "Settings" on the toolbar.
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].

☑ Data will be exported in CSV format.

Deactivating Data Export in CSV Format

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

   or

   Select "Settings" on the toolbar.
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].

☑ Data will not be exported in CSV format.

6.6.3 XML files

Information on XML Files

The Sunny WebBox saves the collected data of the PV plant into a XML file every 5 minutes. In order to reduce the quantity and amount of data, every 15 minutes the XML files to be added are automatically compressed into a ZIP file and saved onto the integrated FTP server or the SD card. A zip file usually contains 3 XML files. The decimal separator and the timestamp format in the files are determined by the country settings of the Sunny WebBox (see section 6.3 "Country settings" (page 41)). You can find how an XML file is structured in section 10.3 "Structure of an XML Data File" (page 83).

Directory Path and Structure of the Filename

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 1.3.2010, 12:42:08 Hrs: .../XML/2010/03/2010-03-01/2010-03-01_124503.zip

The ZIP file contains the following 3 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

   or

   Select "Settings" on the toolbar.
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 will be exported 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

   or

   Select "Settings" on the toolbar.
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 will not be exported in XML format.

6.6.4 Setting Measurement Names in your Local Language

You can set the names of the measurements as follows:

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

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

   or

   Select "Settings" on the toolbar.
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 display the names as terms

   or

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

☑ The measurement name is now set.

7 Managing Plant Data

7.1 Information on the Plant Data

The Sunny WebBox can display instantaneous values and parameters for the detected devices and forward them on for further processing (e.g. via Sunny Portal, FTP Push, the integrated FTP server or an SD card).

SMA devices provide various instantaneous values and parameters depending on the device type, which can be displayed and processed via the Sunny WebBox depending on user group. Instantaneous values are measurements or calculated values for the device, such as temperature and power.

Parameters are used in the configuration of the device and can, depending on access rights, be edited.

For more information on which instantaneous values and parameters are provided by each device, see the device manual.

The Sunny WebBox saves all continually recorded values of the connected devices on the 1 GB internal hard drive. If the capacity of the internal drive is reached, then all values older than 12 months will be overwritten. Save the plant data at regular intervals using the functions provided in the Sunny WebBox to an external hard drive.

7.2 Sunny Portal

7.2.1 Information on Sunny Portal

The Sunny WebBox offers you the possibility of transmitting all of your PV plant's relevant plant data automatically to the Sunny Portal Internet portal. Sunny Portal is suitable for the individual presentation of plant data of every power class and offers comprehensive evaluation and notification functions. You will find further information on the Sunny Portal at www.SunnyPortal.com.

Before you can use Sunny Portal, you must register via the Sunny WebBox (see page 53).

If you are already registered in Sunny Portal with the PV plant, you must align the plant identifier (see page 56). This may apply if the Sunny WebBox is replaced, for example.

Possible Delays in Visualization and Notifications

Observe that the Sunny Portal may display the transmitted data of your PV plant and send you the notifications with delay.

SMS Notification to a Cell Phone

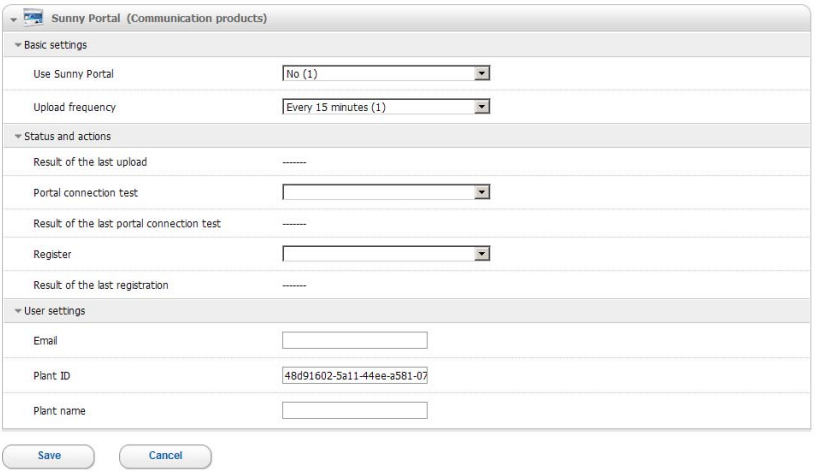
You can use Sunny Portal to generate report e-mails that are sent automatically to your cell phone by an external service provider.

7.2.2 Registering Sunny WebBox in the Sunny Portal

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

   or

   Select "Settings" on the toolbar.
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. In the "Plant name" field enter the name of your PV plant. The plant will be displayed under this name in Sunny Portal.
7. In the "Status and Actions" subgroup enter "Execute" in the "Register" field.
8. Select [Save].

☑ The Sunny WebBox performs the registration onto 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 e-mail address entered.

- If the registration is unsuccessful, refer to section 9.1 "General Troubleshooting for the Sunny WebBox" (page 75).

7.2.3 Activating/Deactivating Sunny Portal

Activating Data Transmission to the Sunny Portal

The transmission of data only takes place if you are logged out of the Sunny WebBox user interface. Logging in to the user interface of the Sunny WebBox is possible at all times.

Requirement:

You must be registered in Sunny Portal (see section 7.2.2 "Registering Sunny WebBox in the Sunny Portal" (page 53)).

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

   or

   Select "Settings" on the toolbar.
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. The Sunny WebBox transmits the PV plant data automatically to the Sunny Portal depending on the defined upload frequency.
5. Select [Save].

☑ The Sunny WebBox will transmit data to the Sunny Portal.

Deactivating Data Transmission to the Sunny Portal

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

   or

   Select "Settings" on the toolbar.
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. (status upon delivery)
5. Select [Save].

☑ The Sunny WebBox will not transmit data to the Sunny Portal.

7.2.4 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

   or

   Select "Settings" on the toolbar.
2. Select the "Sunny Portal > Status and Actions" parameter group.
3. Select [Edit].
4. In the "Portal connection test" field select "Execute".
5. Select [Save].

☑ The Sunny WebBox performs a connection test. The connection test was successful if "Ok" is displayed in the "Result of the last portal connection test" field, and "—" is again displayed in the "Portal connection test" field.

- If the connection test is unsuccessful, refer to section 9.1 "General Troubleshooting for the Sunny WebBox" (page 75).

7.2.5 Setting the Upload Frequency

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

   or

   Select "Settings" on the toolbar.
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 uploading of data can be delayed by up to 2.5 minutes, in order to avoid too great a data transmission load for the Sunny Portal at certain times.

If an upload is still in progress and a request is made for a new upload, (possibly at 15 minute intervals), then the new upload will not performed. The data will be transmitted at the next upload.

5. Select [Save].

☑ The Sunny WebBox will transmit the data to the Sunny Portal at the prescribed intervals.

7.2.6 Accessing the Sunny WebBox via Sunny Portal

During every data transmission from the Sunny WebBox to the Sunny Portal, Sunny Portal saves the current IP address of the Sunny WebBox or the current IP address of your router, with which the Internet connection is established.

Using Sunny Portal, you can directly access your Sunny WebBox via the Internet. Please note that you must set up a port rerouting in your router. Here it may be necessary to align the HTTP port and the NAT port of the Sunny WebBox (see section 6.5 "Ethernet Network" (page 44)).

7.2.7 Adjusting the Plant ID for Sunny Portal

In the following cases, you must adjust the plant ID in 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 ID set for the Sunny WebBox was reset using the Reset button.
- The Sunny WebBox has been replaced with another Sunny WebBox.

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

1. Register in Sunny Portal (www.SunnyPortal.com) with the access data available.
2. Go to "Configuration > Plant properties" on the Sunny Portal page.
3. Copy the plant ID to the clipboard.
4. Log into the Sunny WebBox as user or installer.
5. In 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].

☑ The plant ID for Sunny Portal is adjusted.

7.3 SD Card

7.3.1 Information on Saving Plant Data on an SD Card

You can save plant data onto an SD card. Once you have inserted the SD card into the SD card slot, the Sunny WebBox copies all plant data which is on the internal drive of the Sunny WebBox onto the SD card. The Sunny WebBox saves new plant data to the SD card as long as the SD card remains in the SD card slot and enough memory is available. In order to select a data format in which the data should be made available, refer to section 6.6 "Data Recording" (page 48).

7.3.2 Saving Plant Data on an SD Card

NOTICE

Loss of Data on the SD card

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 saving process can take some time.

Take note of the information on the SD card (see section 10.1 "Information on the SD Card" (page 82)).

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

☑ The Sunny WebBox saves the plant data onto the SD card.

7.4 Integrated FTP Server

7.4.1 Information on the Integrated FTP Server

The Sunny WebBox is equipped with an integrated FTP server. You can directly access the saved plant data via the FTP server. The FTP server is activated as standard. You can call up the data with any FTP program or with Internet Explorer. The FTP server is protected via the passwords of the respective user group.

Please note that for logging into the integrated FTP server, the English description (User ID) for the respective user group and the related password must be entered:

User ID	User Group
"Installer"	For the "Installer" user group
"User"	For the "User" user group

In order to select a data format in which the data should be made available, refer to section 6.6 "Data Recording" (page 48).

7.4.2 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

   or

   Select "Settings" on the toolbar.
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].

☑ The integrated FTP server is activated.

Deactivating the Integrated FTP Server

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

   or

   Select "Settings" on the toolbar.
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].

☑ The integrated FTP server is deactivated.

7.4.3 Accessing the FTP Server via Internet Explorer

1. Start Internet Explorer.
2. Enter the IP address of the Sunny WebBox with details of the User ID and the password in the address bar of the web browser in accordance with the following template:

   ftp://[UserID]:[Password]@[IP-address]

   Use the following User ID:

User ID	User Group
"Installer"	For the "Installer" user group
"User"	For the "User" user group

   Example: if you want to log onto the Sunny WebBox with the IP address 192.168.0.168 as installer with the password "1111" enter: ftp://Installer:1111@192.168.0.168

3. Press enter on the keyboard.

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

User name and password remain saved in the web browser cache

Once you have accessed the integrated FTP server via a web browser, the user name and password remain saved in the web browser cache. Delete the web browser cache in order to prevent unauthorized access to the integrated FTP server.

7.5 FTP Push

7.5.1 Information on FTP Push

The Sunny WebBox is equipped with an FTP Push function. With this function the Sunny WebBox can load 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 as standard. The collected data is uploaded to the directory given and in the desired data format every 15 minutes.

7.5.2 Activating/Deactivating FTP Push

Activating FTP Push

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

   or

   Select "Settings" on the toolbar.
2. Select the "Further Applications > FTP Push" parameter group.
3. Select [Edit].
4. In the "Activated" field select "Yes" in order to activate the FTP Push function.
5. In the "Login" field enter the login name of the external FTP server.
6. In the "Port" field enter the network port under which the FTP server is available.
7. In the "Password" field enter the password of the FTP server.
8. In the "Server path" field enter the sub directory into which the data should be saved on the FTP server.
9. In the "Server" field enter the address of the server.
10. 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.
11. 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.
12. Select [Save].

☑ The FTP push function is activated.

Deactivating FTP Push

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

   or

   Select "Settings" on the toolbar.
2. Select the "Further Applications > FTP Push" parameter group.
3. Select [Edit].
4. In the "Activated" field select "No" in order to deactivate the FTP Push function.
5. Select [Save].

☑ The FTP Push function is deactivated.

7.5.3 Testing FTP Push

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

   or

   Select "Settings" on the toolbar.
2. Select the "Further Applications > FTP Push" parameter group.
3. Select [Edit].
4. In the "Connection test" field select "Execute".
5. Select [Save].

☑ The Sunny WebBox performs a connection test. The connection test was successful if "Ok" is displayed in the "Result of the last connection test" field, and "---" is again displayed in the "Connection test" field.

- If the connection test is unsuccessful, refer to section 9.1 "General Troubleshooting for the Sunny WebBox" (page 75).

8 Service Functions

8.1 Updating the Firmware for Sunny WebBox

8.1.1 Notes

You have the option of updating the Sunny WebBox firmware. The firmware update can be performed online via the internet or locally via the SD card. Existing settings of the Sunny WebBox and data from the PV plant remain available after the update procedure. In order to ensure that the Sunny WebBox is always up to date, automatic firmware updates via the Internet are recommended.

The update procedure is indicated via the flashing orange "SYSTEM" LED and occasionally via a red running light across all LEDs. The firmware update is complete when the "SYSTEM" LED is green. An update procedure can take up to a maximum of 20 minutes.

Access to User Interface Temporarily Blocked

During the update, the Sunny WebBox restarts and you cannot access the Sunny WebBox for a brief period.

Do not disconnect the Sunny WebBox from the power supply during the update process.

8.1.2 Firmware update via the internet (recommended)

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

Activating/Deactivating Automatic Firmware Updates

When the automatic firmware update is activated, the Sunny WebBox checks for new firmware updates once per day. If a new firmware update is available, the Sunny WebBox downloads the Firmware Update from the internet and starts the update procedure. The update procedure starts automatically the following night (11:00 p.m.).

Unexpected interruption of an automatically started update procedure

If an automatic update procedure for the Sunny WebBox is interrupted, e.g. as a result of a power failure, the Sunny WebBox restarts the update procedure in the next defined time period.

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

   or

   Select "Settings" on the toolbar.
2. Select the "Device > Update" parameter group.
3. Click on the [Edit] button.
4. In the "Automatic update" field select "Yes" in order to activate the automatic firmware update (status on delivery)

   or

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

☑ The automatic firmware update is set.

Manually Updating the Firmware

NOTICE

Loss of plant data possible!

Only perform a manual firmware update when the PV plant is not in operation (e.g. during the night). Otherwise, losses during the recording of the plant data may occur.

You can also carry out manual updates when the automatic firmware update is activated.

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

   or

   Select "Settings" on the toolbar.
2. Select the "Device > Update" parameter group.
3. Select [Edit].
4. In the "Check for update and install it" field, select "Execute".
5. Select [Save].

☑ 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 procedure.

8.1.3 Firmware Update via the SD Card

NOTICE

Loss of plant data possible!

Only perform a manual firmware update when the PV plant is not in operation (e.g. during the night). Otherwise, losses during the recording of the plant data may occur.

NOTICE

Loss of data 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 saving process can take some time.

Use a separate SD card for firmware updates

Use a separate SD card for firmware updates, which contains only the update files for the Sunny WebBox. If there are update files on the external SD card, exporting XML and CSV files is deactivated.

Take note of the information on the SD card (see section 10.1 "Information on the SD Card" (page 82)).

1. Select the required update file in the downloads area of www.SMA-America.com and download it to your computer.
2. Connect the SD card to the computer and create a folder called "*UPDATE*" on the SD card.
3. Copy the update file (*.up2) into the folder created on the SD card, then remove the SD card from the computer.
4. Remove the plug-in power supply of the Sunny WebBox from the plug socket.
5. Insert the SD card into the Sunny WebBox SD card slot.
6. Insert the plug-in power supply of the Sunny WebBox into the socket.

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

8.2 Updating a Device

8.2.1 Notes

You can update the firmware of the devices in your PV plant via Sunny WebBox. The Sunny WebBox can be used to update the firmware of the following devices:

- SMA inverters with integrated *Bluetooth*:
  - From Software Package 2.06: SB 3000TL-20/SB 4000TL-20/SB 5000TL-20 (SB = Sunny Boy)
  - SB 2000HF/SB 2500HF/SB 3000HF
  - STP 10000TL-10/STP 12000TL-10/STP 15000TL-10/STP 17000TL-10 (STP = Sunny Tripower)
- SMA *Bluetooth* Piggy-Back from software version 02.00.00.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. Existing settings of the Sunny WebBox and data from the PV plant remain available after the update procedure. In order to always keep the firmware of the devices in your PV plant up to date, automatic device firmware updates via the internet are recommended.

NOTICE

Updates are not performed for devices with the padlock symbol ( )!

Devices with insufficient access rights (indicated by a lock symbol in the plant tree ( )) to connect to the Sunny WebBox are not updated.

- If the access rights are insufficient, change the password of the device in question to the plant password (see the Sunny WebBox User Manual).

Do not disconnect the Sunny WebBox from the power supply during the update process.

NOTICE

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 situation or the status of the PV modules (e.g. covered by snow or leaves).

NOTICE

Risk of Yield Loss!

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.

Update status

The respective update status for the entire PV plant, for the individual devices and update files is shown on the user interface of the Sunny WebBox.

PV plant update status

The update status for the overall PV plant is displayed in both the status bar and the "Overview" tab in the plant view.

Symbol	Update status	Meaning
	OK[a]	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."

[a]Only visible on the "Overview" tab.

Device update status

Update status	Meaning
"OK"	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

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.
"Waiting"	The update file is in the queue and will be sent to the devices in the PV plant as soon as possible.

8.2.2 Device update via the internet (recommended)

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

Activate Automatic Device Update

If automatic device updates are activated, the Sunny WebBox checks whether a new device update is available once a day, between 10 pm and 3 am. If a new device update is available, the Sunny WebBox downloads the device update from the internet. In SMA inverters with upgraded SMA *Bluetooth* Piggy-Back, the update process starts on the following day as a result of overnight shutdown (11 am). For all other supported SMA devices, the update procedure starts and 4:00 am the following morning.

Unexpected interruption of an automatically started update procedure

If an automatically started update procedure of the Sunny WebBox is interrupted (e.g. as a result of a power failure or if the update source changes), the Sunny WebBox restarts the update procedure the following 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 the [Edit] button.
4. Select "Yes" in the "Activated" field.
5. Select "Automatic update" in the "Operating mode" field.
6. Select "Update portal" in the "Update source" field.
7. Select [Save].

☑ Automatic device updates are activated.

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. SB5000TL-20, SB4000TL-20) which you want to update manually.
3. In the "Available updates" area, mark the required update file 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, your computer's internet connection may be interrupted. Reestablish Internet access. If necessary, contact your Internet Service Provider.
4. Click [Send] when the Sunny WebBox has loaded the selected update file.
   ☑ The Sunny WebBox checks the saved files and sends the update file once a day to the devices in the PV plant on up to 5 consecutive days.
   ☑ The "PLANT STATUS" LED flashes orange during the sending process

☑ When all devices in the PV plant report the version number of the update file sent, the update process has been completed successfully.
   – If an error message is displayed, refer to section 9.1 "General Troubleshooting for the Sunny WebBox" (page 75).

8.2.3 Device Update via the SD Card

Take note of the information on the SD card (see section 10.1 "Information on the SD Card" (page 82)).

NOTICE

Loss of data 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 saving 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, exporting XML and CSV files is deactivated.

Activating Automatic Device Updates 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 the [Edit] button.
4. Select "Yes" in the "Activated" field.
5. Select "Automatic update" in the "Operating mode" field to activate the automatic device update.
6. Select "Storage card" in the "Update source" field.
7. Select [Save].

☑ Automatic device updates via SD card are activated.

Performing an Automatic Device Update via SD Card

NOTICE

Devices with communication errors ( ) will not be updated!

Devices which are not connected to the Sunny WebBox due to a communication error (indicated by in the plant tree) are not updated.

- Wait until the devices in question are connected to the Sunny WebBox again before executing the automatic device update via SD card.

1. Select the required update file in the downloads area of www.SMA-America.com and download it to your computer.
2. Connect the SD card to the computer and create a folder called "*UPDATE*" on the SD card.
3. Copy the downloaded update file (*.up2) to the "*UPDATE*" folder created on the SD card, and then remove the SD card from the computer.

4. Insert the SD card into the Sunny WebBox SD card slot.
   ☑ The "SD CARD" LED flashes green.
   ☑ The Sunny WebBox copies the selected update file to the internal SD card.
5. Remove the SD card when the "SD CARD" LED stops flashing.
   ☑ The Sunny WebBox checks the saved files and sends the update file once a day to the devices in the PV plant on up to 5 consecutive days.
   ☑ The "PLANT STATUS" LED flashes orange during the sending process

☑ When all devices in the PV plant report the version number of the update file sent, the update process has been completed successfully.
   – If an error message is displayed, refer to section 9.1 "General Troubleshooting for the Sunny WebBox" (page 75).

Performing a manual device update via SD card

1. Select the required update file in the downloads area of www.SMA-America.com and download it to your computer.
2. Connect the SD card to the computer and create a folder called "*UPDATE*" on the SD card.
3. Copy the downloaded update file (*.up2) to the "*UPDATE*" folder created on the SD card, and then remove the SD card from the computer.
4. Insert the SD card into the Sunny WebBox SD card slot.
   ☑ 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. SB5000TL-20, SB4000TL-20) which you want to update manually.
   – In the "Available updates" area, mark the required update file and click [Download].
   ☑ The Sunny WebBox copies the selected update file to the internal SD card.
6. Remove the SD card when the "SD CARD" LED stops flashing.
7. Click [Send] when the Sunny WebBox has loaded the selected update file.
   ☑ The Sunny WebBox checks the saved files and sends the update file once a day to the devices in the PV plant on up to 5 consecutive days.
   ☑ The "PLANT STATUS" LED flashes orange during the sending process

☑ When all devices in the PV plant report the version number of the update file sent, the update process has been completed successfully.
   – If an error message is displayed, refer to section 9.1 "General Troubleshooting for the Sunny WebBox" (page 75).

8.3 Restarting the Sunny WebBox via the User Interface

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

   or

   Select "Settings" on the toolbar.
2. Select the "Device > System" parameter group.
3. Select [Edit].
4. In the "Initiate device restart" field, select "Execute".
5. Select [Save].

☑ The Sunny WebBox is restarted. The restart was successful if the "SYSTEM" and "POWER" LEDs light up again. The start-up sequence can take up to 90 seconds.

- If the "SYSTEM" or "POWER" LEDs do not glow green, please refer to section 9.1 "General Troubleshooting for the Sunny WebBox" (page 75).

8.4 Resetting the Sunny WebBox Using the Reset Button

You can reset the Sunny WebBox via a small hole in the rear side of the Sunny WebBox behind which the reset button is located. For this the Sunny WebBox must be supplied with electricity.

Data backup

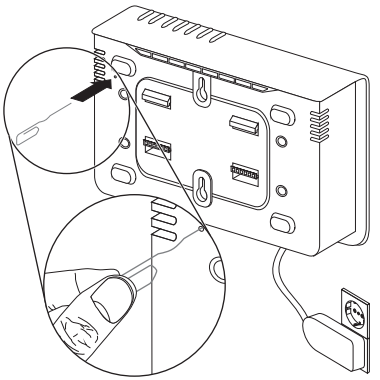
Before you reset the Sunny WebBox, take note of all settings such as network or portal settings if necessary. In addition to this, back up the PV plant data in order to avoid data losses.

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

Duration	Action
1 - 5 seconds	Reset the passwords to the factory setting. All other settings and PV plant data will be saved.
5 - 15 seconds	Reset the network settings to the factory setting. All other settings and PV plant data will be saved.
15 - 30 seconds	Resets all settings (event memory, network settings, modem settings, portal settings and passwords) of the Sunny WebBox back to the default values. PV plant data will be fully deleted.

1. Use a sharp object to activate the hidden reset button through the hole.

☑ The Sunny WebBox is now reset.



8.5 Determining Current Settings of the Sunny WebBox via the SD Card

The following steps allow you to determine the current settings and the current firmware of the Sunny WebBox if you do not have access to the user interface.

Take note of the information on the SD card (see section 10.1 "Information on the SD Card" (page 82)).

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

   ☑ The Sunny WebBox creates a folder named "WEBBOX_[serial number]" on the SD card and saves the XML file "config.xml" in this folder. The writing process is complete when the "SD CARD" LED is permanently lit. *Example: WEBBOX_0155000123\config.xml*

2. When the "SD CARD" LED is permanently lit, remove the SD card from the Sunny WebBox SD card slot.
3. Read off the SD card using a computer with an SD card reader.
4. Open the "config.xml" file in the WebBox_[serial number] folder with a text editor or a web browser.

☑ Read the values of the network settings of the Sunny WebBox (see section 10.2 "Structure of the Config.xml File" (page 82)).

9 Troubleshooting

9.1 General Troubleshooting for the Sunny WebBox

No.	Problem	Cause	Rectification
1	The Sunny WebBox is not available via the user interface **or** The Sunny WebBox cannot be found via the Sunny WebBox Assistant.	The Sunny WebBox is not connected to the network or to the power supply.	• Connect the Sunny WebBox directly to the computer or the local network using the network cable and supply the Sunny WebBox with power (see installation guide 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. Align the network settings if necessary. • Reset the Sunny WebBox (see page 73) 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, network cables or plug connections.	• Replace the defective or damaged parts in the network. • Contact your network administrator.

No.	Problem	Cause	Rectification
1	The Sunny WebBox is not available via the user interface **or** The Sunny WebBox cannot be found via the Sunny WebBox Assistant.	The web browser is incorrectly configured.	• If there is a proxy server in your network, you must enter an exception for the proxy server in your web browser (see section 10.4 "Information on your Web Browser" (page 84)).
		There is no internet connection.	• Reestablish 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 plug socket and plug it back in after a short time in order to restart the Sunny WebBox. Note that this can lead to loss of collected plant data.
		The proxy server does not support IPv6.	• Use a proxy server that supports IPv6.
2	The "SYSTEM" LED is flashing red.	A system error has occurred.	• Remove the Sunny WebBox plug-in power supply from the plug socket 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 Serviceline.
3	The "POWER" LED is off.	The Sunny WebBox is not supplied with electricity.	• Check the power supply of the plug socket and rectify any faults.

No.	Problem	Cause	Rectification
4	Sunny WebBox does not send any data to the Sunny Portal or the external FTP server (the "DATA UPLOAD" LED is red) **or** The connection test to Sunny Portal or to the external FTP server was not successful.	The data transfer is incorrectly configured.	• Check the settings for Sunny Portal or FTP Push (see page 52). • Perform a connection test. • You must be registered for data transfer to Sunny Portal. Register your Sunny WebBox in the Sunny Portal (see page 53).
		There is a fault in the network.	• Check the network settings of the individual network components (e.g., router, Sunny WebBox, Computer) and adjust if necessary. • Check the network components for defects or damage. Replace defective or damaged parts in the network. • Perform a connection test.
5	Sunny Portal registration was not successful.	Invalid data	• Perform a connection test (see page 55).
6	After an FTP download, the Internet Explorer shows old Sunny WebBox data.	The cache properties of Internet Explorer contain old data.	• Use an FTP client to load the plant data from the internal FTP server of the Sunny WebBox.
7	The firmware update for connected devices failed.	You are not connected to the Internet.	• Reestablish Internet access. If necessary, contact your Internet Service Provider. ☑ If you have set automatic device update, the automatic device update starts again the following day. • If you want to start the device update straight away, perform a manual device update (see "Performing a Manual Device Update" (page 69)).
		The SD card was removed during the update process.	• Insert the SD card into the Sunny WebBox SD card slot again and perform a manual device update (see "Performing a manual device update via SD card" (page 71)).

No.	Problem	Cause	Rectification
7	The firmware update for connected devices failed.	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 in your PV plant Please note that the *Bluetooth* connection can also be interrupted by a lack of DC input voltage. The DC input voltage can vary depending on the time of day, weather or the condition of PV modules (e.g. covered with snow or leaves). – If necessary, improve the quality of the connection. – If you wish to start the device update straight away, perform a manual update (see "Performing a Manual Device Update" (page 69) and "Performing a manual device update via SD card" (page 71)).
8	The "SD CARD" LED glows red.	The SD card is full.	• Replace the SD card or format the SD card in FAT 32 format.
		The SD card is write-protected.	• Remove the write protection of the SD card.
9	After a Sunny WebBox is replaced, Sunny Portal contains two plants with the same name.	Double Sunny Portal registration	The Sunny WebBox supplied as a replacement device logs into the Sunny Portal with a new plant ID. Sunny Portal creates a new plant for this plant ID, even if you gave the plant the same name. • Assign the plant ID of the old plant to the replacement device (see page 56). • In the replacement device, enter the e-mail address of a user who has administrator rights in Sunny Portal for the plant. • In Sunny Portal, delete the new plant the replacement device created.

No.	Problem	Cause	Rectification
10	Parameters cannot be processed.	You do not possess the necessary rights for the parameter.	• Change the user group.
		You have an inverter with retrofitted SMA *Bluetooth* Piggy-Back with a software version lower than 02.00.00.R.	The configuration of parameters and the graphical presentation of monthly and annual energy values are not supported. • Update the *Bluetooth* Piggy-Back using Sunny Explorer.
11	LAN connection cannot be displayed in Windows.	No network card driver (Ethernet card) is installed or the network card is defective.	• Check the installation of the network adaptor in the device manager and reinstall the driver if necessary or replace the faulty network card with a new one.
12	Fault in the user interface display.	JavaScript is not activated.	• Activate JavaScript in your Web browser

9.2 *Bluetooth* Connection

No.	Problem	Cause	Rectification
1	No *Bluetooth* devices are displayed in the Sunny WebBox.	An incorrect NetID is set.	• Set the NetID of the PV plant (see installation guide for the Sunny WebBox with *Bluetooth*) and repeat commissioning. • Contact your installer.
		The connection to the *Bluetooth* plant is too weak.	• Shorten the distance to the devices or use an SMA *Bluetooth* Repeater in order to extend the radio range. Repeat commissioning (see installation guide for the Sunny WebBox with *Bluetooth*).
		There are already 4 masters connected to the *Bluetooth* plant.	• Remove a master and repeat commissioning (see installation guide for the Sunny WebBox with *Bluetooth*).
		There are already 2 participators connected to the device through which you want to connect to the *Bluetooth* plant.	• Change the position of the Sunny WebBox in order to create a connection via another device in the plant or remove one master from the plant. Further information on SMA *Bluetooth* can be found in the download section at www.SMA-America.com
2	Inverter is not accessible.	The *Bluetooth* connection was interrupted.	• Wait until the Sunny WebBox has automatically re-established the connection.

No.	Problem	Cause	Rectification
2	Inverter is not accessible.	Parameters for the *Bluetooth* communication were changed.	When setting parameters that regulate the *Bluetooth* connection (e.g. parameters for the transmitting power and country parameters), the communication via *Bluetooth* is interrupted for some time because the inverters are carrying out a reboot of the communication interface. This does not affect inverters with upgraded SMA *Bluetooth* Piggy-Backs. • Wait until the inverter has completed a restart. The inverter is then accessible again.
		Inverter with upgraded SMA *Bluetooth* Piggy-Back is in night mode.	• Wait until the inverter is again working in normal operation. The inverter is then accessible again.
		The inverter has not been set to the same NetID and commissioned.	• The inverter must be set to the NetID of your PV plant and commissioned. Contact your installer.
3	An unknown inverter is displayed.	The set NetID is already assigned via an unknown *Bluetooth* PV plant.	• You must assign the PV plant with a free NetID. Contact your installer.
4	An inverter is displayed as unknown device in the plant tree.	The inverter with integrated *Bluetooth* has an old software package (only for inverters SB 3000TL-20, SB 4000TL-20, SB 5000TL-20).	• Update the software package version of your inverter to a version higher than 2.0. • Contact your installer.

10 Appendix

10.1 Information on the SD Card

To ensure that the SD card is functioning properly, 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 over 2 GB or SDHC cards.

Only use SD cards which have been formatted with the FAT32 file system. If necessary reformat the SD card using the computer.

The Sunny WebBox converts the SD card's file system to TFAT in order to increase data security. If you wish to delete the SD card, you must format the SD card on the computer with the FAT32 file system.

10.2 Structure of the Config.xml File

The "config.xml" configuration file contains information on the Sunny WebBox network settings, the firmware version and further 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>
  <Export>
    (...)
  </Export>
</WebBox>
```

Setting	Meaning
Version	The current firmware version of the Sunny WebBox
Plant ID	Plant ID for Sunny Portal
User ID	User ID for Sunny Portal
DHCP	Displays whether the network settings are acquired via DHCP.
IP address	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
Web server port	The currently set port of the web server
Web service port	The set port of the web service

10.3 Structure of an XML Data File

Example:

```
<?xml version="1.0" encoding="utf-8"?>
<WebBox>
  <Info>
    <Created>2010-02-10T01:37:04</Created>
    <Culture>de</Culture>
  </Info>
   <MeanPublic>
    <Key>Meine Sunny WebBox:155000234:Metering.TotWhOut</Key>
    <Mean>761.858</Mean>
    <Base>1</Base>
    <Period>300</Period>
    <Timestamp>2010-02-09T10:55:52</Timestamp>
   </MeanPublic>
   <MeanPublic>
   (...)
   </MeanPublic>
<WebBox>
```

Setting	Meaning
Info	Information
Create	Date of generation
Culture	Language
UtcOffset	Offset in minutes to UTC
MeanPublic	Data of the mean values
CurrentPublic	Data of the spot 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

10.4 Information on your Web Browser

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

Ensure that

- JavaScript is activated.
- If a proxy server is active in your network, you must set up a proxy exception rule in your browser (see page 10.5 "Setting up a Proxy Exception Rule in Internet Explorer" (page 84)).

10.5 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 "For addresses that start as follows, do not use a Proxy server:" field, enter the address *192.168.**.
7. Confirm entry with [OK] and close all further windows by selecting [OK] in each.

☑ The proxy exception has now been set up.

10.6 Activating IPv6 in Windows XP SP2

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

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

IPv6 is the successor to IPv4, which is still predominantly found in use in the internet. IPv6 is already activated in Windows Vista, Windows 7, MacOS and Linux. IPv6 has to be activated in Windows XP SP2.

In order to activate IPv6 manually, proceed as follows:

1. In Windows, select "Start > Settings > Network Connections".
2. Double click on the LAN connection via which the Sunny WebBox is connected.
   - If Windows displays several LAN connections, there are probably several network connections installed in the computer. Ensure that you select the correct network connection, with which the computer is connected to the Sunny WebBox. If necessary, refer to the manual of your computer.
   - In the event that no LAN connection is displayed, please refer to section 9.1 "General Troubleshooting for the Sunny WebBox" (page 75).

   ☑ The "LAN connection status" window opens.
3. Click [Properties] from the "General" tab.

   ☑ The window "LAN connection properties" opens.
4. Activate "Microsoft TCP/IP Version 6"
5. Select [OK].

☑ IPv6 is activated.

10.7 Allocating IP Addresses in a Local Network

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

Please note during the allocation of the IP address that the first three address 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*

11 FCC Compliance Information

SMA system monitoring, model Sunny WebBox with *Bluetooth*

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

(1) This device may not cause harmful interference, and

(2) this device must accept any interference received, including interference that may cause undesired operation.

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

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

12 Contact

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

- The current firmware version of the Sunny WebBox
- Serial number and hardware version of the Sunny WebBox.
- Type and serial numbers of the inverters connected to the PV plant.

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