Software

SUNNY EXPLORER 1.1

User Manual

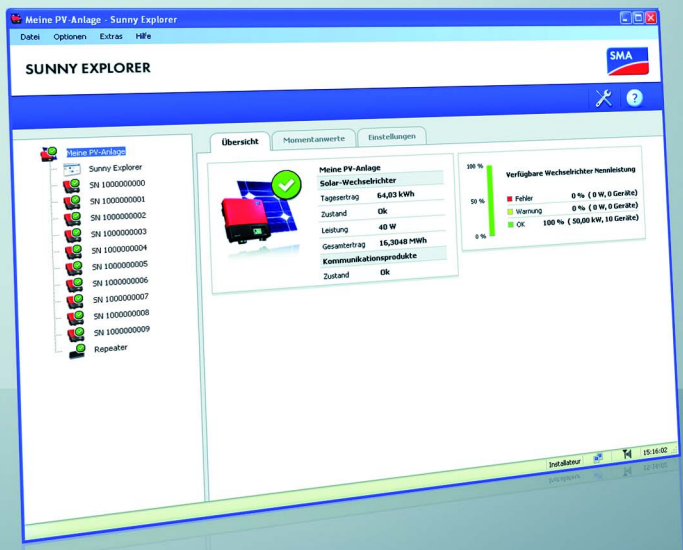


Table of Contents

1 Notes on this Manual

1.1 Validity

This manual is valid for Sunny Explorer from software version 1.1 and higher.

1.2 Target Group

This manual is aimed for users of Sunny Explorer and qualified personnel who are commissioning the PV plant with SMA *Bluetooth* devices.

1.3 Additional Information

You can download additional information about SMA *Bluetooth*® Wireless Technology from the download area at www.SMA.de/en.

1.4 Symbols Used

The types of safety instructions and general information which appear in this document are described below:

DANGER!

"DANGER!" indicates a hazardous situation which, if not avoided, is likely to result in death or serious injury.

WARNING!

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

CAUTION!

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

NOTICE!

"NOTICE!" indicates a situation which, if not avoided, can result in property damage.

Information

An information item provides useful hints for the optimum operation of your product.

1.5 Terminology

In this manual the term "photovoltaic plant" will be abbreviated to "PV plant"

Formattings	Meaning
[Save]	Buttons are displayed in square brackets [ ],
"Menu1"	Menu items are given in inverted commas.
"Menu1 > Menu2"	Menu paths are given in inverted commas. Individual menus are separated by an angle bracket >.

2 Sunny Explorer

2.1 Functions

Sunny Explorer is a software package that enables the management and visualization of your PV plant. Sunny Explorer also makes the analysis and configuration of devices within the PV plant possible.

The most important Sunny Explorer functions are:

- Wireless monitoring of the PV plant with *Bluetooth* Wireless Technology
- Support of SMA Solar Technology inverters with *Bluetooth*:
  - SMA inverters with integrated *Bluetooth* using software package 2.06 and higher
  - SMA inverters with SMA *Bluetooth* Piggy-Back upgrade. A list of supported inverters can be found in the SMA *Bluetooth* Piggy-Back manual.

Inverters with SMA *Bluetooth* Piggy-Back upgrade

At present, inverters with SMA *Bluetooth* Piggy-Back upgrade only support the export of daily file data and the graphic display of daily output.

- Support of up to 50 devices with 1 master. If 2 masters are present in the *Bluetooth* network (e.g. Sunny Explorer and Sunny Beam with *Bluetooth*), a maximum of 25 devices can be managed with Sunny Explorer.
- Quick overview of the current status of the PV plant
- Graphic display of key PV plant data
- Configuration of individual devices or of an entire class of devices
- Easy diagnosis due to display of device events
- Secure data transfer thanks to a new password concept

2.1.1 New functions

The Sunny Explorer software version 1.1 features the following new main functions:

- Data export of inverter energy values and events in CSV format
- Graphic display of daily, monthly and yearly values for each device
- Support of device updates

2.2 System requirements

Supported operating systems	• Windows XP with Service Pack 2 or higher • Windows Vista
Processor	• XP: Pentium III 800 MHz • Vista: Pentium IV 1 GHz
Main Memory (RAM):	• XP: 512 MB • Vista: 1 GB
Resolution	• 1024 pixel x 768 pixel
Recommended *Bluetooth* sticks:	• FreeTec *Bluetooth* Mini-USB adapter; *Bluetooth* 2.0; Class 1 • Longshine USB *Bluetooth* adapter (LCS-8147); *Bluetooth* 2.0; Class 1 USB *Bluetooth* sticks manufactured by AVM are not supported.
Supported *Bluetooth Stacks:*	• Microsoft with Service Pack 2 or higher • Toshiba • BlueSoleil • Broadcom
Supported langauges:	German, English, Italian, Spanish, French, Greek, Korean, Czech, Portuguese, Dutch

Installing *Bluetooth* sticks

Install the USB *Bluetooth* stick directly in Windows. Use the software provided with the USB *Bluetooth* stick only in case of need.

3 Security

3.1 Appropriate Usage

Sunny Explorer is a computer software. Sunny Explorer is designed to retrieve data from inverters made by SMA Solar Technology and to display this data on the user interface of Sunny Explorer. The connection to the inverters is established via *Bluetooth*. The computer must be equipped with *Bluetooth* (integrated *Bluetooth* or via a USB *Bluetooth* stick). Sunny Explorer supports inverters by SMA Solar Technology which are fitted with *Bluetooth*.

- SMA inverters with integrated *Bluetooth* using software package 2.06 and higher
- SMA inverters with SMA *Bluetooth* Piggy-Back upgrade. A list of supported inverters can be found in the SMA *Bluetooth* Piggy-Back manual.

Inverters with SMA *Bluetooth* Piggy-Back upgrade

At present, inverters with SMA *Bluetooth* Piggy-Back upgrade only support the export of daily file data and the graphic display of daily output.

The number of devices which Sunny Explorer can manage depends on the number of master devices in the *Bluetooth* network. In *Bluetooth* networks by SMA Solar Technology, the role of master is always assumed by the communication product and not by the inverter. Providing that Sunny Explorer is the only master in the *Bluetooth* network, it can manage up to 50 devices. If 2 masters are present in the *Bluetooth* network (e.g. Sunny Explorer and Sunny Beam with *Bluetooth*), a maximum of 25 devices can be managed with Sunny Explorer.

Do not use the collected data for billing purposes.

The data collected by Sunny Explorer may deviate from the data of the electricity meter. You should not use the data from Sunny Explorer for billing purposes.

3.2 Safety Precautions

Follow all safety precautions in this manual. Failure to follow these instructions could result in personal hazard or damage to devices.

DANGER!

Death hazard due to changes in the inverter's internal safety specifications.

Unauthorized changes to the SMA Grid Guard parameters void the operating license.

- SMA Grid Guard parameters may only be changed with the express authorization of the grid operator.

User Groups and Security

When you log in to Sunny Explorer there are 2 user groups at your disposal, "Installer" and "User".

The "Installer" user group is only available to qualified personnel. When logged in to the "Installer" user group, you can alter security-relevant parameters.

Certain parameters are protected by SMA Grid Guard and can only be altered with the appropriate authorization. For further information on SMA Grid Guard please refer to Section 6.2.2 "SMA Grid Guard" (page 29).

After the first login please change the passwords for each user group.

4 Installation

4.1 Notes

In the following sections you will find instructions on how to install Sunny Explorer in Windows XP and Windows Vista. Please read the section which is relevant to the operating system of your computer. Please note the system requirements in Section 2.2 "System requirements" (page 8).

4.2 Installing Sunny Explorer in Windows XP

Sunny Explorer requires ".NET Framework 2.0"

In the event that .NET Framework version 2.0 or higher is not installed on your computer, this will be installed by the Sunny Explorer Installation Assistant. You require the relevant authorization for the installation of .NET Framework onto your computer. If necessary, please contact your administrator.

Proceed as follows to install the software in Windows XP.

1. Open the "SunnyExplorerSetup.exe" file.
   ☑ The language option window opens.
2. Select the desired language for installation. The language of the Sunny Explorer user interface can be changed later, as described in Section 6.6 "Changing the language" (page 34).
3. Select [OK].
   ☑ The Sunny Explorer Installation Assistant opens.
4. Follow the "Installation Assistant" instructions.
   ☑ The installation routine runs.

☑ Sunny Explorer is now installed.

4.3 Installing Sunny Explorer in Windows Vista

Proceed as follows to install the software in Windows Vista.

1. Open the "SunnyExplorerSetup.exe“ file.
2. Confirm the Windows Vista security question.
   ☑ The language option window opens.
3. Select the desired language for installation. The language of the Sunny Explorer user interface can be changed later, as described in Section 6.6 ”Changing the language” (page 34).
4. Select [OK].
   ☑ The Sunny Explorer Installation Assistant opens.
5. Follow the "Installation Assistant" instructions.
   ☑ The installation routine runs.

☑ Sunny Explorer is now installed.

5 Commissioning (Installer)

5.1 Notes

Commissioning of a *Bluetooth* PV plant always with 1 single master

Never commission a *Bluetooth* PV plant with more than 1 master (e. g. Sunny Explorer, Sunny Beam with *Bluetooth*). As soon as the *Bluetooth* network is up and running, you can introduce further masters into the *Bluetooth* network.

5.2 *Bluetooth* PV plant

Once you have determined a free NetID for your *Bluetooth* PV plant and set this up for the devices, you can enter a new plant in Sunny Explorer, as described in Section 7.2 "Setting up a new plant in Sunny Explorer" (page 35).

If you have not yet determined a free NetID for your *Bluetooth* PV plant, please read Section 5.2.1 "Determining a Free NetID" (page 13).

5.2.1 Determining a Free NetID

The *Bluetooth* devices of your PV plant must be turned off.

In order to determine a free NetID, all the inverters and SMA *Bluetooth* repeaters in your plant must be switched off.

There is no need to determine a free NetID for *Bluetooth* PV plants with Sunny Explorer and one single inverter.

You may leave the default NetID set to 1 in your inverter if your *Bluetooth* PV plant consists of the following products:

- 1 inverter
- up to 2 computers with *Bluetooth* and Sunny Explorer software

If you are using an SMA *Bluetooth* Repeater or a Sunny Beam with *Bluetooth*, you must find a free NetID.

All devices must be set to the same NetID so that the SMA *Bluetooth* devices in a PV plant can communicate with each other. PV plants with SMA *Bluetooth* operating in close proximity to one another are distinguished by their individual NetID.

To make sure that you do not set up a NetID which is already used by another *Bluetooth* PV plant in the vicinity, you need to determine a free NetID prior to commissioning your *Bluetooth* PV plant.

You can find a free NetID with the following mobile devices:

- Laptop with *Bluetooth* and Sunny Explorer
- Sunny Beam with *Bluetooth*

  If you are using the Sunny Beam with *Bluetooth* to find a free NetID, please refer to the user manual of the Sunny Beam with *Bluetooth*.

Determining a free NetID with a Laptop and Sunny Explorer

Proceed as follows to find a free NetID using a *Bluetooth*-enabled laptop and Sunny Explorer.

1. Switch off inverters and any SMA *Bluetooth* repeaters which may be present.
2. Position the laptop near a *Bluetooth* device of your PV plant.
3. Start *Bluetooth* on your laptop.
4. Start Sunny Explorer.

   or

   In the menu bar of the Sunny Explorer select "File > New ..." and in the plant assistant choose "Enter a new plant".
5. Enter the desired name for the plant in the "Plant name:" field. This name can be freely selected and will be used as the file name for the plant data.
6. Click on the [...] button in the "Directory:" field to configure another directory in which the plant file will be saved.
7. Select [Next].

   ☑ The "Communication type" window opens.
8. Select "*Bluetooth*".
9. Select [Next].

   ☑ Plant search commences.

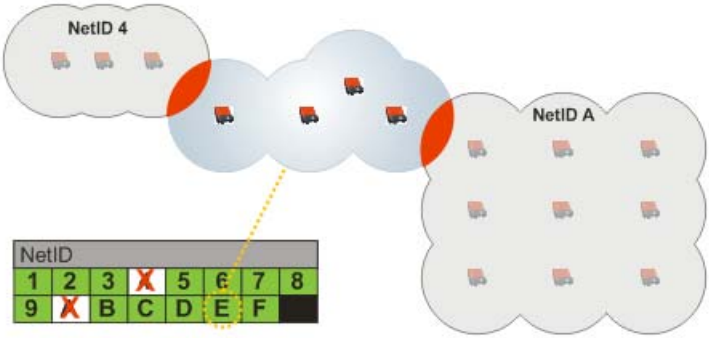
   ☑ The NetIDs of the *Bluetooth* PV plants detected within wireless range are displayed in the field "Plants found" (e.g. NetID 4 and NetID A). All the NetIDs listed here are reserved and cannot be used.

10. Repeat the plant search sequence for each *Bluetooth* device of the PV plant, and also run the sequence at the location of the computer running Sunny Explorer. In larger-scale PV plants, it is sufficient to carry out the plant search just on the devices which are located on the periphery of the plant. There is no need to run the plant search on devices which are surrounded by other devices.

    Select [Repeat search].

    Newly found *Bluetooth* PV plants are added to the list of "Plants found" and do not need to be noted.

11. When the plant search routine has been run on each device, choose a NetID which is **not yet** reserved (e.g., NetID E in the figure).



Please refer to the following table for a list of possible NetIDs and their functions:

NetID Allocation			
NetID	**Function**	**Display in Sunny Explorer**	
0	*Bluetooth* is switched off.		
1	*Bluetooth* is switched on. The device can link with a maximum of 2 SMA Solar Technology communication products with NetID set to 1.		Devices with NetID 1 are listed separately under "Plants found".
2, 3, 4, 5, 6, 7, 8, 9, A, B, C, D, E, F	*Bluetooth* is switched on. The device can link with *Bluetooth* devices with the same NetID.		All devices with identical NetID will be displayed in the "Plants found" list under the plus symbol [+] of the relevant NetID.

☑ The free NetID is now determined.

You can now install the *Bluetooth* PV plant, as described in Section 5.2.2 "Installing a Bluetooth PV plant" (page 16).

5.2.2 Installing a *Bluetooth* PV plant

1. Set the NetID on the inverters and available SMA *Bluetooth* Repeaters, as described in the respective manual.
2. Install the inverters and available SMA *Bluetooth* Repeaters, as described in the respective manual.

☑ Installation of the *Bluetooth* PV plant is complete.

Now you can connect to your *Bluetooth* PV plant with Sunny Explorer, as described in Section 5.2.3 "Connecting to your Bluetooth PV Plant" (page 16).

5.2.3 Connecting to your *Bluetooth* PV Plant

1. In Sunny Explorer select [Repeat search].

   ☑ Plant search commences.

   ☑ Sunny Explorer searches for all *Bluetooth* PV plants within wireless range and lists the NetIDs of the *Bluetooth* PV plants detected in the field "Plants found".

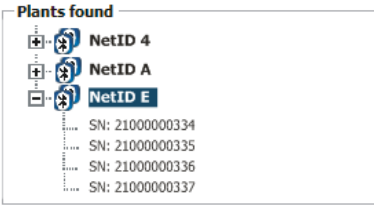
   – If Sunny Explorer does not list the NetID of your *Bluetooth* PV plant, please refer to section 11 "Troubleshooting" (page 48).

Selecting point of access

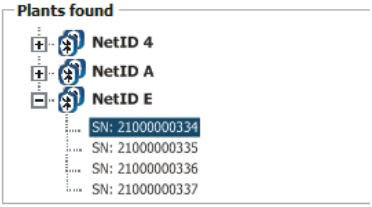
The device (access point) through which Sunny Explorer will connect to the entire *Bluetooth* PV plant can either be specified by you or selected automatically by Sunny Explorer. If you are not sure which option to choose, select the NetID of your PV plant.

2. Selecting point of access:

   – Automatic: For Sunny Explorer to select the access point automatically, select the NetID of your PV plant.



   – Specific device: If Sunny Explorer is to use a particular device as the access point, select the serial number of the device in the list under the NetID of your PV plant.



3. Select [Next].

   ☑ After connecting to your PV plant, the login window opens.

4. Select the user group in the "User group" field. The "Installer" user group can only be used by qualified personnel who are familiar with setting security-relevant parameters of PV plants.

5. In the "Plant password" field, enter the password belonging to the user group selected.
6. Select [Next].
   ☑ Sunny Explorer will now establish the connection to all devices with the selected NetID.
   ☑ The Sunny Explorer user interface opens in the screen option of the chosen user group.

☑ The connection to your *Bluetooth* PV plant is now established.

NOTICE!

Unauthorized access to your PV plant

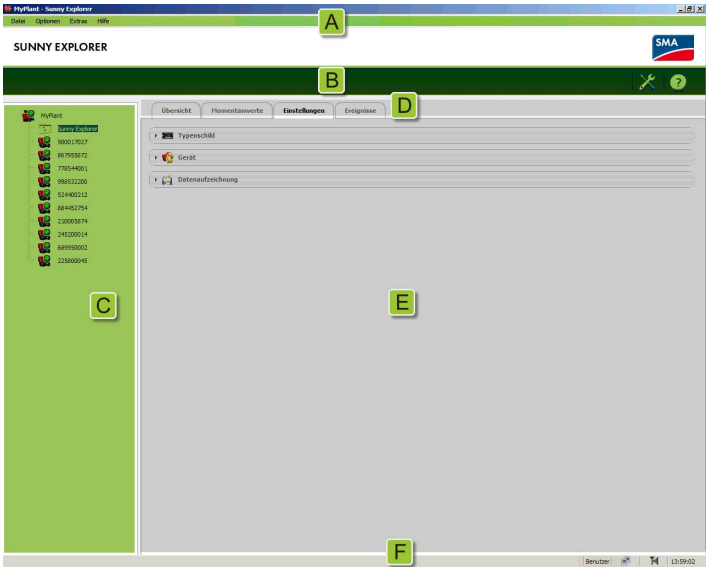
The plant password protects your PV plant from unauthorized access to your devices.

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

6 Sunny Explorer Basics

6.1 User interface

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



Marker	Designation	Meaning
A	Menu bar	With the menu bar you can control the basic functions of Sunny Explorer.
B	Icon bar	The icon bar gives you quick access to Sunny Explorer's main functions.
C	Plant tree	In the plant tree, all devices in a PV plant are represented as a tree structure.
D	Device menu	The device menu enables you to retrieve information and undertake the configuration of devices selected in the plant tree.
E	Contents section	The contents section displays actual data. The data content is determined by the device menu.
F	Status bar	The status bar displays the current status of the software. Here, you will find the user group currently logged in, the software version and the connectivity status of your plant.

6.1.1 Menu bar

The menu bar contains the following items:

Menu item	Items	Meaning
File	New...	This item enables you to enter a new plant in Sunny Explorer.
	Open ...	This item opens a file choice dialog box which allows you to load an existing plant into Sunny Explorer.
	Last used	This item opens a submenu displaying the last ' 10 plants which have been opened in Sunny Explorer.
	Exit	This item quits Sunny Explorer.
Options	Language	With this item you can set the program language.
	Change user group...	This item opens the log-in dialog with which you can change the user group.
	SMA Grid Guard® ...	This item opens the "SMA Grid Guard" dialog. You can enter your personal access code for SMA Grid Guard here. This item is visible to the "Installer" user group only.
	Set plant time...	This item opens the "Plant Time" dialog. Here you can set the plant time.
	Repeat establishment of connection	This item enables you to re-establish a lost connection to the devices of your PV plant.
Tools	Export data ...	This item opens the "Data Export" dialog. Here you can export the data of the devices.
	Device update	This item opens the "Device Update" dialog. This enables you to carry out updates on the devices of your PV plant.
Help	Contents	Here you can open the Sunny Explorer program help.
	Licensing agreements	This item opens a small dialog window with the Sunny Explorer licensing agreements.
	Info	This item opens a small dialog window which gives you information on the current software installation.

6.1.2 Icon bar

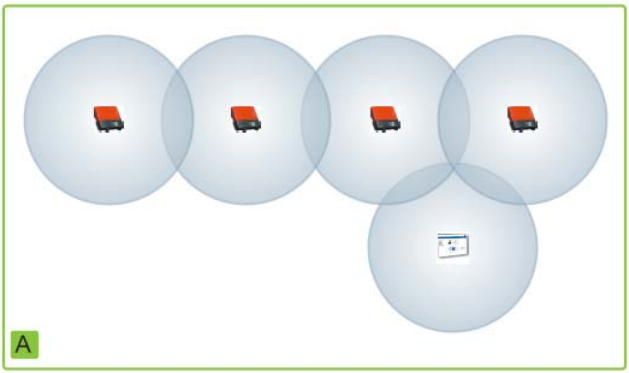
The icon bar gives you quick access to Sunny Explorer's main functions.

Symbol	Meaning
	The "Settings" button opens the Sunny Explorer configurations. The Sunny Explorer settings can also be adjusted via the plant tree "Sunny Explorer" / "Settings".
	The "Help" button opens the Sunny Explorer program help.

6.1.3 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

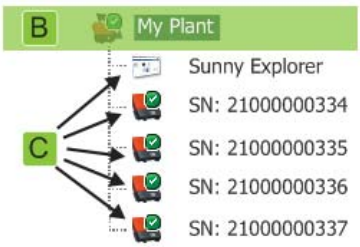


In Sunny Explorer, the physical structure of the plant (A) is represented by means of the plant tree. All the devices in a plant (including Sunny Explorer) are also displayed underneath the plant name (B). The plant is generated by Sunny Explorer from a plant communication perspective.

The Plant Tree in Sunny Explorer

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

- See Section 7 "Plant View" (page 35).
- See Section 8 "Device View" (page 40).



6.1.4 Device menu

The device menu shows the setting options and spot values for a given device. First, you need to select the device in the plant tree. The menu items vary according to the device selected.

Tabs	Meaning
Overview	The overview page provides information about the devices or plants selected in the plant tree. Here you will find a short overview of the key device data, as well as the current status display.
Spot Values	The spot values provide current data about 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.

6.1.5 Overview

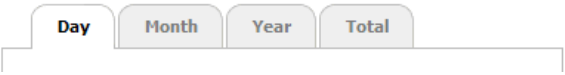
The page "Overview" displays the key data of the entire PV plant or of a particular device.

Inverters with SMA *Bluetooth* Piggy-Back upgrade

At present, inverters with SMA *Bluetooth* Piggy-Back upgrade only support the export of daily file data and the graphic display of daily output.

Device View

When a device is selected in the plant tree, the yield and output values of that device are also displayed in chart form on the overview page. There are 4 charts which you can access with the following tabs:



Tabs	Meaning
Day	Displays the device output during the course of a day.
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.

If you click with the mouse on any point of the graph, data will be displayed. The data gives the precise value at that particular point, including date and time.

Using the arrows underneath the chart you can scroll down to the next time period. Or use the calendar symbol to select a specific time period.

Plant View

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

- Data of all inverters in the PV plan:
  - Daily yield: yield achieved so far that day
  - Status: current operative status of the plant (OK, fault, warning)
  - Power output: power generated so far that day
  - Total yield: total yield achieved up to the present time
- Data from the communication products of the PV plant:
  - Status: current operative status of the communication products (OK, fault, warning)
- Available inverter nominal output

6.1.6 Spot Values

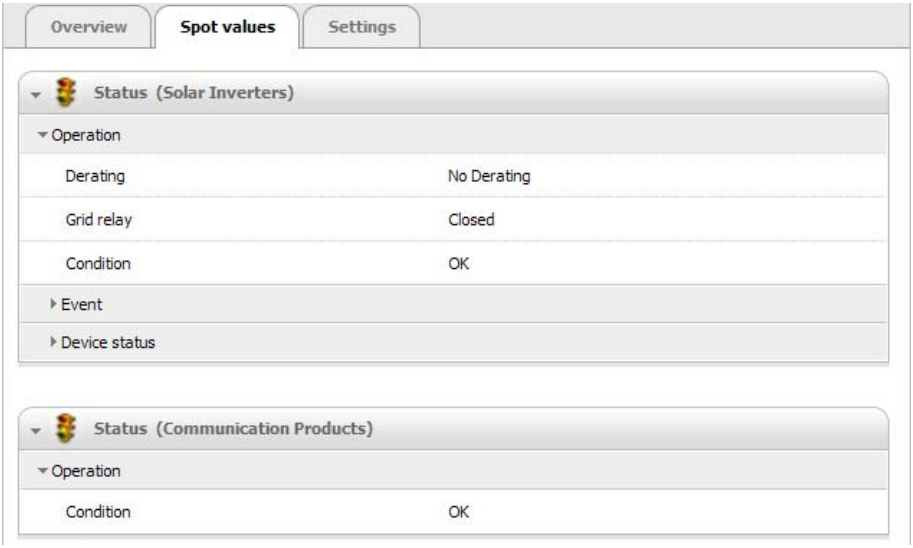
The "Spot Values" page displays all values of the device or plant selected in the plant tree. The values displayed depend on the particular user group. All values are collected into groups (parameter groups) and subgroups.

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., solar inverters and communication products).

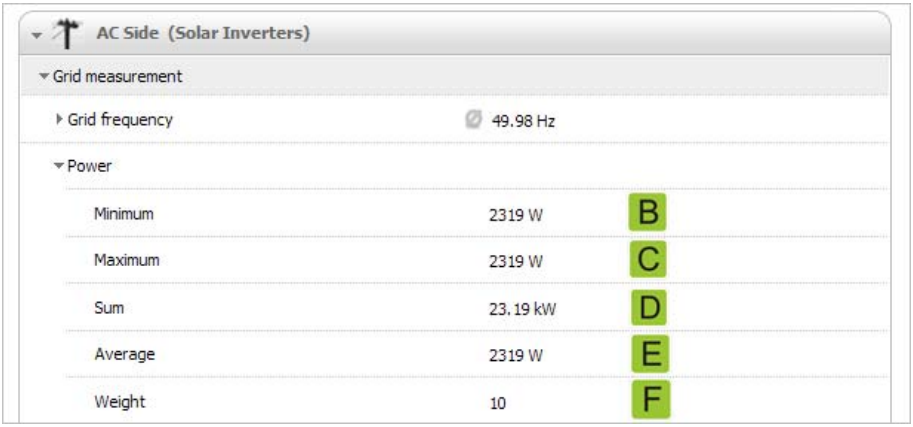


Certain values from the individual devices in a device class are combined (e.g., aggregate power (A)).

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

Symbol	Meaning
Σ	Total
Ø	Average value
e.g., 20 .. 50 °C	Smallest and greatest value

The aggregate value can be opened to reveal additional information.



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

6.1.7 Settings

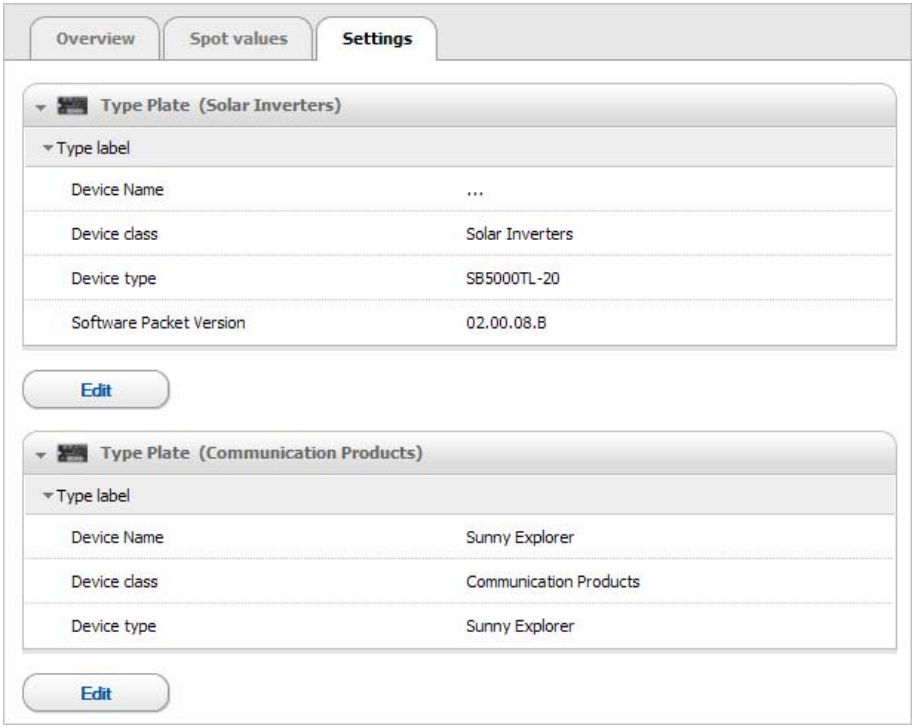
All parameters of the device or plant selected in the plant tree are displayed in the device menu "Settings". The display of specific parameters depends on the particular user group. All parameters are summarized in groups (parameter groups) and subgroups.

Device View

If you have selected a device in the plant tree, you can modify the parameters of that device on the "Settings" page.

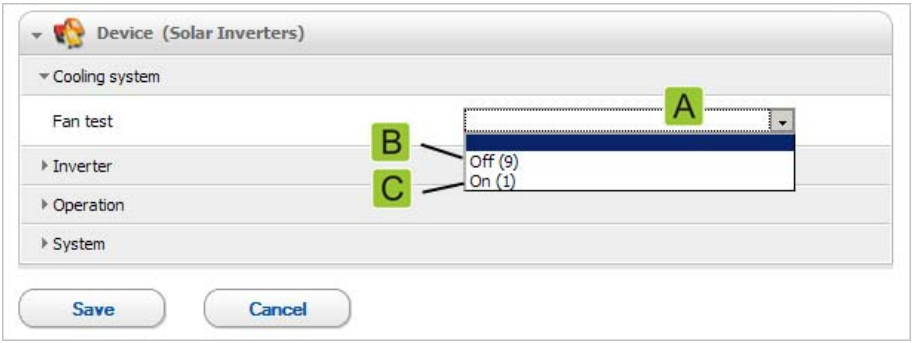
Plant View

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 will then be adjusted to the new parameter value. When you click on the parameter group, the device classes are displayed separately (e.g., solar inverters and communication products).



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

In a drop-down menu, the different options are listed. The number of devices set to each option is shown in brackets. See (B) and (C). Select and save one option to set all devices in the device class to this value.

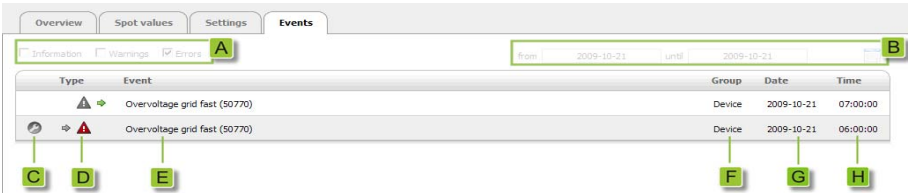


In a text field, an empty field will appear in which you should enter the new value for all devices.

6.1.8 Events

Sunny Explorer can display the events which have occurred in individual devices. Sunny Explorer retrieves the event list directly from the devices.

The event categories are as follows:



Marker	Meaning
A	Filter for event categories
B	Filter for time period of events displayed
C	Priority of event
D	Type of event
E	Event in clear text and event number in brackets
F	Group of the parameter affected (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 by direct intervention of the installer on the device. Please contact your installer and advise the device serial number and the event number.
	Please contact your installer and advise the device serial number and the event number.

Event Types

There are 3 different types of event which will be indicated in Sunny Explorer by the following symbols:

- Information
- Warning
- Error

Symbols and Explanation of Event Types

Events can have one of the following 3 statuses:

- Incoming: the event is about to occur.
- In progress: the event is ongoing.
- Outgoing: the event has come to an end.

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

6.2 User Groups and Security Concept

SMA Solar Technology offers a comprehensive security concept which protects your PV plant from unauthorized access.

- PV plant protection by means of a plant password for each user group (**User**/**Installer**).
- Controlled access via SMA Grid Guard

6.2.1 Basics

In general, SMA Solar Technology differentiates between the two user groups: **User** and **Installer**. By entering the SMA Grid Guard code, installers may carry out extended settings on the devices. The user groups have the following privileges:

User group	Privilege
User	This user group entitles the user to read out all display-relevant information, e.g., spot values and parameter settings. Function-sensitive settings can not be modified. The user has a free choice of plant password for the "User" user group.
Installer	Over and above all the "user" privileges, this group is also entitled to set or change function-sensitive parameters. Moreover, this user group is authorized to reset the plant password for users, and, after entering the SMA Grid Guard code, to modify extended settings on devices.
Installer with SMA Grid Guard privileges	The installer can change the SMA Grid Guard parameters of devices.

Plant password

The plant password for each user group is the same for all devices within a given plant. After logging in with the plant password (**User**/**Installer**), you can change the configurations of several devices in your plant simultaneously. If the password of a device does not correspond to that of the plant, such as when a new device is added to an existing plant, that device is displayed in the plant tree with a lock symbol.

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 default user password "0000" and default installer password "1111".

6.2.2 SMA Grid Guard

SMA Grid Guard is a security concept for country-specific settings in the inverter which determine its behavior in a supply grid. These settings (Grid Guard parameters) are preset in the devices and can only be configured in conjunction with the SMA Grid Guard password.

In order to change SMA Grid Guard parameters, you need a) to be logged in as an installer and b) your personal SMA Grid Guard password which can be obtained from SMA Solar Technology. To do this, please contact the SMA Serviceline.

6.2.3 Change user group

If you wish to change the user group, please proceed as follows:

1. In the menu bar, select "Options > Change user group ...".
   ☑ The log-in window opens.
2. In the "User group" field, select the user group you wish to log in to.
3. In the "Plant password" field, enter the appropriate password for the user group you have selected.
4. Select [Next].

☑ You have now changed the user groups.

6.2.4 Forgotten password?

If you have lost your password, you can unlock the device by means of a Personal Unlocking Key (PUK). You can obtain a PUK for the "**User/Installer**" user groups from the SMA Serviceline.

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 default user password "0000" and default installer password "1111".

6.2.5 Keeping passwords safe

Check the quality of your password and change it if necessary. To make your password as safe as possible, please note the following points when creating a password:

- Choose a password consisting of at least 8 characters. The longer the password, the more secure it is. A maximum of 12 characters is possible.
- Never use terms or words found in dictionaries (e.g., "dog", "cat", "house").
- Avoid names or designations which have a personal connotation (e.g., names of persons or pets, personnel or identification numbers, car number plates).
- Never repeat names or words (e.g., "househouse" or "catcat").
- Use a combination of capitals and lower-case letters, punctuation marks and numbers. The following punctuation marks are allowed: ? _ ! - .
- Never use combinations of numbers or letters in the order in which they occur on the keyboard (e.g., "12345", "qwerty").

6.3 Symbols

Symbols for access privileges

On the plant tree, the individual devices are shown with a symbol denoting the access privileges. If no symbol is shown behind a device, your access privileges correspond to those of the user group under which you are logged in.

Symbol	Meaning
	You have no access to the device. The device's password differs from that of the current plant.
	You are authorized to change SMA Grid Guard parameters.

Device symbols

Device symbols are shown on the plant tree and on the overview page of a device. Devices have a certain status which is denoted by a symbol.

Symbol	Meaning
	Plant
	Sunny Explorer
	Inverter
	Unknown device

Group Symbols for Spot Values and Settings

Group symbols are used for the individual parameter groups.

Symbol	Meaning
	**Status** General values which describe the status of a device. The status of other components within the device (e.g., modem) is not listed here.
	**Type Plate** All indicators which describe the device/the plant.
	**Device** Values which apply to the device directly and which do not fall into any of the special categories (e.g., DC side, AC side, plant communication, etc.).
	**User rights** All values influencing access protection to 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 which affect the grid, some of which are protected by use of the SMA Grid Guard personal password.
	**Plant communication** All values which define communication between communication devices and the plant.
	**Data recording** All values which affect device data recording (storage location, storage intervals, storage format).
	**Device components** Includes parameters and measurement values concerning the components of a device. This group is a kind of "extended type plate". For example, the version numbers of the plant components are filed here.

Other Symbols

Symbol	Meaning
	***Bluetooth* plant**
	***Bluetooth* device with NetID 1**
	**Hourglass** The hourglass indicates that values are currently being saved in a device.
	**Average value** The average symbol indicates an average value.
	**Total** The sum symbol indicates aggregate values.
	**Maximum** Indicates a maximum value.
	**Minimum** Indicates a minimum value.
	**Uploading** This symbol indicates that data is being uploaded from the device.
	**Alarm clock** The alarm clock symbol indicates that values are older than 30 minutes.
	**Calendar function** Opens a calendar to select a date or a start/end date.

6.4 Starting Sunny Explorer

To start Sunny Explorer, proceed as follows:

1. On the computer, open the file "SunnyExplorer.exe".
   ☑ The plant assistant opens.

☑ Sunny Explorer is now running.

If you have already entered a plant in Sunny Explorer, you can now open it, as described in Section 7.3 "Opening an existing plant" (page 37).

If you have not yet entered a plant in Sunny Explorer, you can now enter a new plant, as described in Section 7.2 "Setting up a new plant in Sunny Explorer" (page 35).

6.5 Quitting Sunny Explorer

To quit Sunny Explorer, proceed as follows:

1. In the menu bar, select "File > Exit".

☑ This quits Sunny Explorer.

6.6 Changing the language

To change the user interface language in Sunny Explorer, proceed as follows:

1. In the menu bar, select "Options > Language".
2. Select the desired language.

☑ You have now changed the language.

7 Plant View

7.1 Plant status

Symbol	Status	Meaning
	Neutral	The plant status is unknown and is currently being updated.
	OK	All plant devices are working properly.
	Warning	At least one of the devices in the plant has a "warning" status. None of the devices have an "Error" status.
	Error	At least one of the devices in the plant has an "Error" status.

7.2 Setting up a new plant in Sunny Explorer

If you have already determined a free NetID for your *Bluetooth* PV plant and set this up for the devices, you can enter a new plant in Sunny Explorer as described in this section.

1. Select "Enter a new plant" in the plant assistant.

   or

   In the menu bar of Sunny Explorer select "File > New ..." and in the plant assistant choose "Enter a new plant".
2. Enter the desired name for the plant in the "Plant name:" field. This name can be freely selected and will be used as the file name for the plant data.
3. Click on the [...] button in the "Directory:" field to configure another directory in which the plant file will be saved.
4. Select [Next].

   ☑ The "Communication type" window opens.
5. Select "*Bluetooth*".
6. Select [Next].

   ☑ Plant search commences.

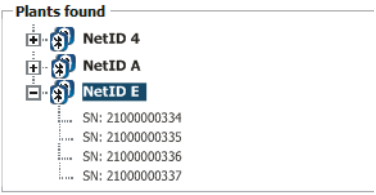
   ☑ Sunny Explorer searches for all *Bluetooth* PV plants within wireless range and lists the NetIDs of the *Bluetooth* PV plants detected in the field "Plants found".

   – If Sunny Explorer does not list the NetID of your *Bluetooth* PV plant, please refer to section 11 “Troubleshooting” (page 48).

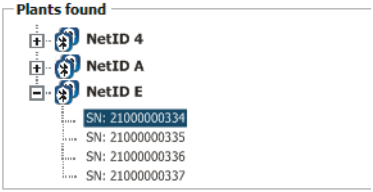
Selecting point of access

The device (access point) through which Sunny Explorer will connect to the entire *Bluetooth* PV plant can either be specified by you or selected automatically by Sunny Explorer. If you are not sure which option to choose, select the NetID of your PV plant.

7. Selecting point of access:
   - Automatic: For Sunny Explorer to select the access point automatically, select the NetID of your PV plant.



   - Specific device: If you want Sunny Explorer to use a specific device as the access point, select the serial number of the device in the list under the NetID of your PV plant.



8. Select [Next].
   ☑ After connecting to your PV plant, the login window opens.
9. Select the user group in the "User group" field. The "Installer" user group can only be used by qualified personnel who are familiar with setting security-relevant parameters of PV plants.
10. In the "Plant password" field, enter the password which has been set up for the devices.
11. Select [Next].
    ☑ Sunny Explorer will now establish the connection to all devices with the selected NetID.
    ☑ The Sunny Explorer user interface opens in the screen option of the chosen user group.

☑ The connection to your *Bluetooth* PV plant is now established. You have now set up a new plant in Sunny Explorer.

NOTICE!

Unauthorized access to your PV plant

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

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

7.3 Opening an existing plant

Your settings for a given plant will be saved in a plant file on your computer. If you have already entered a plant in Sunny Explorer and filed it on your computer you can reload this file. Proceed as follows:

1. Select "Open an existing plant" in the plant assistant.

   or

   In the menu bar select "File > Open...".
2. Select the desired plant file.

   ☑ The log-in window opens.
3. In the "User group" field, select the user group under which you wish to log in.
4. In the "Plant password" field, enter the appropriate password for the user group you have selected.
5. Select [Next].

☑ The selected plant file has now opened in the screen mode of the relevant user group.

7.4 Changing the plant name

The plant name is assigned via the Sunny Explorer settings. The plant name is identical for all user groups.

To change the name, proceed as follows:

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

   or

   Select "Settings" on the icon bar.
2. Select the parameter group "Type plate".
3. Select [Edit].
4. Enter a freely selectable name for your plant in the "Plant name" field.
5. Select [Save].

☑ The plant name has been changed and is now displayed in the plant tree.

7.5 Setting the parameters of a device class

Devices of the same type are termed a device class. You can configure all the devices of a device class simultaneously. It is not possible to configure different device classes simultaneously. Save any changes to a device class before configuring another device class.

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

1. Select the plant in the plant tree.
2. Select "Settings" in the device menu.
   ☑ The parameter groups of the entire plant will be displayed.
3. Select the parameter group in which the parameter to be configured is found.
   ☑ The individual device classes are listed separately. It can take a moment for all data to upload from the devices.
4. Select [Edit] below the relevant device class.
5. Change the desired parameter.
6. Select [Save].
   ☑ The settings are now transferred to all devices of the same device class.

Saving of data when parameters are adjusted

When data is being saved, an hourglass is displayed. Once the changes have been saved in Sunny Explorer, the data is transferred to the device. The setting process can sometimes take several hours if the device, i.e. an inverter, happens to be in night mode. Upon startup of the device, the data will be transferred into the main memory and the hourglass will disappear.

☑ You have now set the parameters of a device class.

7.6 Changing the plant password

In order to ensure full password protection, you must allocate a plant password for every user group (**User** / **Installer**). After initial commissioning you should change the standard plant password.

Permitted characters and length of password

The password may not contain more than 12 characters. The following punctuation marks are allowed: ? _ ! - .

Keeping passwords safe

You will find tips for keeping passwords safe in Section 6.2.5 "Keeping passwords safe" (page 30).

1. Select the plant in the plant tree.
2. Select "Settings" in the device menu.
3. Select the parameter group "User rights (all devices)".
4. Select [Edit].

5. Change the password.
6. Select [Save].
   ☑ The plant password will be changed for all the devices for which you have authorization.

☑ You have now changed the plant password.

7.7 Changing plant time

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

When commissioning your PV plant with a communication product (e.g., Sunny Explorer, Sunny Beam with *Bluetooth*), the devices of the PV plant automatically assume the plant time of the communication product. If subsequently new communications products are integrated into the PV plant, such new communications products automatically assume the plant time of the existing plant. This ensures that all devices of a PV plant operate with the same plant time.

You only have to change the plant time in Sunny Explorer when the plant time in Sunny Explorer is not correct.

When changing the plant time in a communication product, all inverters immediately apply the new plant time. Additional communication products in the plant apply the plant time only after some time (7 hours max. later).

Proceed as follows to change the plant time of all the devices in a PV plant:

1. In the menu bar, select "Options > Set plant time".
   ☑ The "Plant time" dialog opens.
2. Select the current date in the "Date" field.
3. Select the current time in the "Time" field.
   By activating "Daylight saving time" an hour will be added to the normal time (UTC + time zone).
4. In the "Time zone" field, select the time zone in which the plant is located.
5. Select [OK].

☑ The plant time is now set.

You can synchronize the plant time with the current time of your computer via the [Apply operating system time] button.

8 Device View

8.1 Device status

Devices always have a specific status. This status is indicated by symbols in the plant tree and on the device overview page.

Symbol	Status	Meaning
	Neutral	The status of the device is currently being updated.
	OK	The device is operational and working properly.
	Warning	The device is not working properly at present. This fault can possibly be remedied automatically.
	Error	The device is in a state of error. There is a problem with this device. You should check the device.
	Communication error	The device cannot communicate at present. This can occur, for example, during the night when the inverter is not operating.

8.2 Setting the parameters of a device

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

To change device parameters, proceed as follows:

1. Select the relevant device in the plant tree.
2. Select "Settings" in the device menu.
   ☑ The parameter groups available to the device are now displayed.
3. Select the parameter group in which the desired parameter is located.
   ☑ Upload of the values can take a moment since the values are retrieved directly from the device.
4. Select [Edit].
5. Change the desired parameter.
6. Select [Save].

☑ The parameter is now set.

Saving of data when parameters are adjusted

When data is being saved, an hourglass is displayed. Once the changes have been saved in Sunny Explorer, the data is transferred to the device. The setting process can sometimes take several hours if the device, i.e. an inverter, happens to be in night mode. Upon startup of the device, the data will be transferred into the main memory and the hourglass will disappear.

8.3 Entering the SMA Grid Guard Code

DANGER!

Death hazard due to changes in the inverter's internal safety specifications.

Unauthorized changes to the SMA Grid Guard parameters void the operating license.

- SMA Grid Guard parameters may only be changed with the express authorization of the grid operator.

You can configure the SMA Grid Guard parameters of individual devices. To do this, proceed as follows:

1. In the menu bar select "Options > SMA Grid Guard® ...".
   ☑ The SMA Grid Guard dialog opens.
2. Enter your password in the "Individual access code" field. You can obtain this password from SMA Solar Technology.
3. Select [Next].

☑ The SMA Grid Guard code is now set.

The devices which can be edited in the SMA Grid Guard mode are marked with the Grid Guard symbol ( ).

Quitting the SMA Grid Guard mode

In order to quit the SMA Grid Guard mode you must exit Sunny Explorer. Proceed as follows:

1. Select "File > Exit".

☑ Sunny Explorer ends the SMA Grid Guard mode.

8.4 Changing the Device Name

24 characters allowed for device name

A maximum of 24 characters are allowed for the device name.

You can change the name of a device. Proceed as follows:

1. Select the device in the plant tree.
2. Select "Settings" in the device menu.
3. Select the parameter group "Type plate".
4. Select [Edit].
5. Enter the desired name in the "Device name" field.
6. Select [Save].

☑ The new name is transferred to the device.

8.5 Adding a device

If you wish to add a new device to your *Bluetooth* PV plant, please proceed as follows:

1. Set the NetID of your *Bluetooth* PV plant in the new device, as described in the device manual.
2. Put the new device into operation, as described in the device manual.
3. Depending on whether the new device has the same plant password as your *Bluetooth* PV plant or not, please proceed as follows:

If	Then
The new device has a different plant password to that of your *Bluetooth* PV plant.	• In the new device set the plant password of your *Bluetooth* PV plant, as described in Section 8.7 "Adjusting the device password to the plant password" (page 42).
The new device has the same plant password as that of your *Bluetooth* PV plant.	• Open your plant in Sunny Explorer and log in as usual with the plant password of your *Bluetooth* PV plant.

☑ The device is displayed in the plant tree without the lock symbol. The device has now been added to your plant.

8.6 Removing a device

In order to ensure that a device is no longer displayed in Sunny Explorer, for plant communication purposes you must delete it from the PV plant. Proceed as follows:

1. Set the *Bluetooth* device to another NetID, as described in the manual of the given device.
2. In Sunny Explorer select "Options > Change user group ..." and log on again.

☑ The device is no longer listed in the plant tree.

8.7 Adjusting the device password to the plant password

If a device password differs from the plant password, the device will be displayed in the plant tree with a lock symbol. This can occur, for instance, when new devices are added to an existing plant. To adjust the device password to the plant password, please proceed as follows:

1. Enter a new plant in Sunny Explorer, as described in Section 7.2 "Setting up a new plant in Sunny Explorer" (page 35), and log in with the plant password of the new device.

   Later, you can delete the new plant and use your original plant in Sunny Explorer.
2. Select the plant in the plant tree.
3. Select "Settings" in the device menu.
4. Select the parameter group "User rights (all devices)".

   ☑ The parameter group opens.

5. Enter the plant password of your existing plant for your user group. If you are logged on as "Installer" you can change the password for the "User" user group at the same time, providing that you know this password.
6. Select [Save].
   ☑ The settings have been transferred to the new devices.
7. Open your original plant in Sunny Explorer and log in with the plant password of your *Bluetooth* PV plant.

☑ The device is displayed in the plant tree without the lock symbol. The device password is now adjusted to the plant password.

8.8 Performing device updates

Sunny Explorer will help you to carry out updates on the devices of your PV plant. You can download the update file from the download area of www.SMA.de/en.

1. Download the update file from the download area of www.SMA.de/en, and save it on the computer.
2. In the main menu of Sunny Explorer select "Tools > Device update...".
   ☑ This opens the "Device update" dialog.
3. In the "Update file" field click on the [...] button.
   ☑ The window for file selection opens on the computer.
4. Select update file.
5. Select [Open].
   ☑ Sunny Explorer indicates that the update file has successfully loaded and displays update file information.
6. Select [Next].
   ☑ The update dialog opens. The update is initiated.

☑ The update is now complete.

9 Data export

9.1 Saving plant data on the computer

With Sunny Explorer you can save the yields and events of your PV plant to the computer. The data will be saved in CSV files.

Existing files with plant data will be overwritten.

If there are any files with plant data already in the directory, Sunny Explorer will overwrite these. This ensures that the data in the files is always complete and up-to-date.

Inverters with SMA *Bluetooth* Piggy-Back upgrade

At present, inverters with SMA *Bluetooth* Piggy-Back upgrade only support the export of daily file data and the graphic display of daily output.

To save the plant data to the computer, proceed as follows:

1. In the menu bar of Sunny Explorer select "Tools > Export data...".
   ☑ This item opens the "Data export" dialog.
2. Select the data to be saved. You can choose from the following options:

Option	File created	Meaning
Daily files	Daily file with the total yield of the PV plant	One file is saved for each day in the selected time period. This file includes the aggregate yield of the PV plant which is recorded every 5 minutes from the inverters.
Monthly files	Monthly file with the daily yields of the PV plant	One file is saved for each month in the selected time period. The file records the daily yields of the PV plant.
Events	File recording the events of the PV plant	The events occurring in the PV plant on each day in a given time period are saved in a file.

3. In the field "from:" and "to:" select the time period for which the data is to be recorded.
4. In the field "Directory:" click on the [...] button.
5. Choose a directory in which to save the files.
6. Select [Next].
   ☑ Sunny Explorer uploads the data from the devices and creates the files.

7. Select [Next].

☑ The plant data is now saved to the computer.

Monthly files

When you set the time period for monthly files, Sunny Explorer will automatically round the time period up to whole months (beginning of the month to end of the month).

9.1.1 CSV File

The CSV files can be opened in Microsoft Excel and, for instance, be used to create charts.

File names

The name of the file is always made up of the plant name and the date on which the data was generated by the inverters.

In addition, the data name of the event files includes the user group. Sunny Explorer only stores such events in the event file which can be seen by the respective user group.

File	Structure of file name	Example
Day file	*Plantname*-*YYYYMMDD*.csv	Myplant-20091017.csv
Month file	*Plantname*-*YYYYMM*.csv	Myplant-200910.csv
Event file	For "Installer" user group: *Plantname*-Installer-Events-*YYYYMMDD*-*YYYYMMDD*.csv For "User" user group: *Plantname*-User-Events-*YYYYMMDD*-*YYYYMMDD*.csv	 Myplant-Installer-Events-20091017-20091018.csv Myplant-User-Events-20091017-20091018.csv

Structure of CSV files

The following table explains the columns of the CSV file in the program Microsoft Excel.

1	Information on the CSV file for the programs		
2	Blank line		
3		Name of device 1 (serial number or changed name)	Name of device 2 (serial number or changed name)
4		Model device 1	Model device 2
5		Serial number device 1	Serial number device 2
6		Name of value	Name of value
7	Date and time format	Unit of value	Unit of value
8	Moment (date and time) at which the device generated the value.	Value device 1	Value device 2
9	...	...	...

10 Uninstalling Sunny Explorer

10.1 Notes

In the following sections you will find instructions on how to uninstall Sunny Explorer in Windows XP and Windows Vista. Please read the section which is relevant to the operating system of your computer.

10.1.1 Uninstalling Sunny Explorer in Windows XP

1. In Windows, select "Start > Settings > Control Panel > Software".
2. Select "Sunny Explorer" from the list, and click [Delete].
   ☑ Sunny Explorer will be deleted from your computer.

☑ Sunny Explorer is now uninstalled.

10.1.2 Uninstalling Sunny Explorer in Windows Vista

1. In Windows, select "Start > Computer".
   ☑ "My Computer/Computer" opens.
2. Select "Uninstall or change program".
   ☑ The "Uninstall or change program" window opens.
3. Select "Sunny Explorer" from the list, and click [uninstall/change].
   ☑ Sunny Explorer will be deleted from your computer.

☑ Sunny Explorer is now uninstalled.

11 Troubleshooting

Bluetooth Connection

No.	Problem	Cause and solution
1	**Plant search** Connection to the *Bluetooth* plant failed.	• The connection to the *Bluetooth* plant is too weak. – Reduce the distance to the devices and try to reconnect. • There are already 4 masters connected to the *Bluetooth* plant. – Remove a master and try to reconnect. • There are already 2 participators connected to the device through which you want to connect to the *Bluetooth* plant. – Select another device or remove one of the other communication devices and try to reconnect.
2	**Plant search** The device names and NetIDs indicated are out of date.	• Depending on the *Bluetooth* stack currently in use, it is possible that changes to the NetID or the device name have not been properly recognized by an inverter. – Proceed as follows: 1. Quit the *Bluetooth* stick software, if present. 2. Briefly remove and reinsert the *Bluetooth* stick. 3. If necessary, start the *Bluetooth* stick software. 4. Carry out plant search in Sunny Explorer once again.
3	**Plant search** The device address is displayed, but not the device name.	• Sunny Explorer has not fully uploaded the device name from the device. – Select "Repeat search" so that Sunny Explorer updates the device name.
4	**Inverter cannot be accessed** After setting the parameters for communication via *Bluetooth,* the inverter remains inaccessible for a long time.	• When setting parameters to regulate the *Bluetooth* connection (e.g. parameters for power transmission and country parameters), *Bluetooth* communication is interrupted for some time while the inverter reboots the communication interface. – Please wait until the inverter has rebooted. After rebooting, the inverter will be accessible again.

Display of the user interface

Sunny Explorer uploads the data directly from the devices in the network so that the data displayed on the user interface are always up to date. Therefore, depending on the size of the PV plant, the upload of data to the display can take some time.

No.	Problem	Cause and solution
5	**User interface** The user interface is displayed incorrectly.	• Occasional display errors can occur in the software interface (e.g. defective layout, white screen). – Press the F5 key to prompt Sunny Explorer to update the user interface.
6	**Power chart** There are gaps in the power output chart.	• The transmission of device data is not yet fully complete. – Wait until the transmission of device data is complete.
7	**Power chart** The power chart does not update.	• Updating the power chart can take up to 30 seconds. Device data is directly uploaded from the connected devices. Depending on the communication hierarchy, uploading the data can take some time. – Wait until the data is fully uploaded.

General

No.	Problem	Cause and solution
8	**Sunny Explorer will not boot**	• It can happen that Sunny Explorer does not boot when the computer was previously in standby mode and Sunny Explorer was therefore not properly terminated. – In this case, quit Sunny Explorer "manually" using Windows Task Manager. You can then restart Sunny Explorer.
9	**Unknown device in plant tree**  A strange inverter is displayed in the plant tree.	• In the plant tree all devices sharing the same NetID are displayed. If there is a PV plant with SMA *Bluetooth* installed in the vicinity and using the same NetID, the devices of this plant will also be displayed in Sunny Explorer as part of your plant. – Identify a free NetID and set this up for your devices, as described in the respective manual.
10	**Your inverter appears as unknown device in plant tree**  One of your inverters with integrated *Bluetooth* is displayed as an unknown device.	• An old version of the software package is installed on this inverter with integrated *Bluetooth*. – Update the software package version of the inverter to version 2.0 or higher, or use Sunny Data Control to read the data of the inverter.
11	**Your inverter appears as unknown device in plant tree**  The plant password was entered correctly, yet some of your devices are still being displayed as unknown in the plant tree.	• Certain packages have been lost during data transfer with the result that Sunny Explorer was not able to log in to the devices properly. – Log in again by selecting "Options > Change user group" and logging in again under your user group.
12	**New inverter not shown in plant tree**	• Sunny Explorer constantly updates the plant tree. – Check the items below: – The inverter has not been set to and put into operation under the same NetID as your plant. Set the inverter to your plant's NetID, as described in the inverter's manual. – Maybe the connection was interrupted. Try reconnecting. Select "Options > Repeat establishment of connection".

No.	Problem	Cause and solution
13	**Lost plant password**	– If you have lost your plant password, you can unlock the device using a Personal Unlocking Key (PUK). You can obtain a PUK for the User/ Installer user groups from the SMA Serviceline.
14	**Grid Guard rights inactive**  Grid Guard rights are deactivated although the Grid Guard symbol is displayed.	• The inverters have not automatically revoked the Grid Guard rights after 10 hours. Grid Guard rights are deactived although the Grid Guard symbol is still erroneously displayed. – Please enter the Grid Guard code, as described in Section 8.3 "Entering the SMA Grid Guard Code" (page 41).
15	**Grid Guard mode**  The symbol for the Grid Guard mode is no longer displayed.	• If an installer has logged into Sunny Explorer in the Grid Guard mode, the inverters automatically reset the Grid Guard mode after 10 hours to prevent unauthorized access. You can also exit Grid Guard mode by closing Sunny Explorer.
16	**Changed parameters have only been transferred to 1 device class.**	• Each device class has its own button for adjusting and storing settings. Sunny Explorer will only safe the changes to the device class to the which the button applies. Changes to other device classes which are still open for editing will not be executed. – Save any changes to a device class before configuring another device class.
17	**Entering parameters in a smaller unit**	• Sunny Explorer takes over an input value in the unit which is displayed next to the input field. – If you wish to enter values in a smaller or larger unit, you must convert the value to the unit displayed. Sunny Explorer will automatically adjust the unit. Example: If you want to change a parameter from 20 MWh to 900 kWh, you must enter the value 0.9. Sunny Explorer will automatically adjust the unit and store the parameter at the value 900 kWh.
18	**Events are logged in the wrong order** Events have not been sorted into chronological order.	• Sunny Explorer sorts events according to a consecutive number allocated by the device itself when logging the event. This has the advantage that events are always listed in the order in which they occur. The events can only appear in the wrong order if the time or date of the plant has been altered (e.g., when changing the clocks to summer or winter time).

No.	Problem	Cause and solution
19	**Values are marked as obsolete, although they are up to date.** **Values are marked as up to date, although they are obsolete.**	• This phenomenon may occur if the computer time is altered while Sunny Explorer is running. – Restart Sunny Explorer.

12 Contact

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

- The software version of Sunny Explorer
- Communication type of your PV plant

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