Monitoring and Visualisation of Plant Data

Webconnect Plants in SUNNY PORTAL

User Manual

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1 Information on this Document

Validity

This document applies to plants in Sunny Portal that consist of inverters with integrated or retrofitted SMA Webconnect function.

Target Group

This document is intended for end users.

Additional Information

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

Document title	Document type
CO_2 factor	Technical information

Symbols

Symbol	Explanation
⚠ DANGER	Indicates a hazardous situation which, if not avoided, will result in death or serious injury
⚠ WARNING	Indicates a hazardous situation which, if not avoided, could result in death or serious injury
⚠ CAUTION	Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury
NOTICE	Indicates a situation which, if not avoided, could result in property damage
i	Information that is important for a specific topic or goal, but is not safety-relevant
☐	Indicates an essential requirement for achieving a specific goal
☑	Desired result
✖	A problem that might occur

Typography

Typography	Usage	Example
bold	• Display messages • Elements on a user interface • Connections • Elements to be selected • Elements to be entered	• The value can be read from the **Energy** field. • Select **Settings**. • Enter the value **10** in the **Minutes** field.
>	• Several elements that are to be selected	• Select **Settings > Date**.
[**Button/Key**]	• Button or key to be selected or pressed	• Select [**Next**].

Nomenclature

Full designation	Designation in this document
Small wind turbine system	Plant
PV plant	Plant
SMA Webconnect function	Webconnect function

The designation "My Webconnect plant" is used as a placeholder for the name that you have asssigned to your Webconnect plant in Sunny Portal.

Abbreviations

Abbreviation	Designation	Explanation
DHCP	Dynamic Host Configuration Protocol	Protocol for the dynamic assignment of IP configurations
IP	Internet Protocol	–
PIC	Product Identification Code	–
PV	Photovoltaics	Identification key for registration in Sunny Portal
RID	Registration Identifier	Registration key for registration in Sunny Portal

2 Sunny Portal

2.1 Intended Use

Sunny Portal is an Internet portal for the monitoring of plants as well as the visualisation and presentation of plant data.

In order to use Sunny Portal you need an SMA product that can record your plant data and send it to Sunny Portal (see Section 2.3 "System Requirements", page 9). Depending on which SMA product sends the data to Sunny Portal, various functions are available in Sunny Portal.

2.2 SMA Webconnect Function

The SMA Webconnect function enables data transmission between Sunny Portal and a maximum of four inverters. Data transmission takes place via a router with Internet access.

2.3 System Requirements

- ☐ A computer with Internet access must be available.
- ☐ An Internet browser must be installed on the computer.
- ☐ JavaScript must be activated in the Internet browser.

Selecting a Suitable Internet Tariff for Small Plants

When using the new Webconnect function, a constant Internet connection is required.

Depending on the quality of the Internet connection, the transmission volume for an inverter is between 150 MB and 550 MB per month. When using the plant overview in Sunny Portal with live data display, there is an additional data volume of 600 kB per hour.

- SMA Solar Technology AG recommends using an Internet flat rate.
- Since a constant Internet connection to Sunny Portal exists, time-based billing systems should be avoided. High costs could be incurred.

Required SMA Products

To use Sunny Portal for Webconnect plants, you need inverters with integrated or retrofitted Speedwire/Webconnect interface. Information on whether an inverter has an integrated Speedwire/Webconnect interface or can be retrofitted with a Speedwire/Webconnect interface can be found in the download area of the respective inverter at www.SMA-Solar.com.

Supported Internet Browsers

You can find a list of supported Internet browsers in the technical data on the Sunny Portal product page www.sma-uk.com/sunny-portal.

Recommended Screen Resolution

- At least 1,024 x 768 pixels

3 Getting Started

3.1 Registering the Inverter in Sunny Portal

Requirements:

☐ The plant must be commissioned.

☐ DHCP must be enabled for the router of the plant.

☐ The router of the plant must have a connection to the Internet.

☐ The PIC and RID of all inverters must be available (see inverter type label or sticker near the type label).

Procedure:

- Start the Plant Setup Assistant in Sunny Portal
- Register as a new user in Sunny Portal

  or

  Login as an existing user in Sunny Portal
- Create a Webconnect plant in Sunny Portal

Starting the Plant Setup Assistant in Sunny Portal

The Plant Setup Assistant guides you step-by-step through user registration and the registration of your plant in Sunny Portal.

1. Open **www.SunnyPortal.com**.
2. Select [**Plant Setup Assistant**].

   ☑ The Plant Setup Assistant opens.
3. Select [**Next**].

☑ The **User Registration** page opens.

Registering as A New User in Sunny Portal

1. Activate the **I am not yet registered** checkbox and select [**Next**].
2. Enter the data necessary for registration.
3. Select [**Next**].

   ☑ You will receive an e-mail containing a hyperlink and your access data to Sunny Portal after a few minutes.

   ✖ Have you not received an e-mail from Sunny Portal?

   The e-mail may have been automatically redirected to your spam mail folder.

   - Check whether the e-mail was redirected to the spam mail folder.

You may have stated a different e-mail address.

- Check whether the e-mail was sent to another e-mail address.
- If the other e-mail address is an unknown address, restart the Plant Setup Assistant and register as a new user again.

4. Follow the hyperlink in the confirmation e-mail within 24 hours.
   ☑ Sunny Portal will confirm in a window that registration was successful.
   - Select [**Next**].

☑ The **Select plant** page opens.

Logging In as an Existing User in Sunny Portal

An additional plant for your Webconnect plant is created for your existing plant in Sunny Portal. You can call up the plants using the **Plant Selection** menu.

Requirements:

☐ You must already be registered in Sunny Portal.

1. Enter the e-mail address and the Sunny Portal password in the **E-mail Address** and **Password** fields.
2. Select [**Next**].

☑ The **Select plant** page opens.

Creating a Webconnect Plant in Sunny Portal

1. Select the option **Create a new plant** and enter a plant name (e.g. **My Webconnect plant**) in the **Plant Name** field.
2. Enter the plant password for the user role "Installer" of your plant in the **Plant Password** field. If you have not yet changed the plant password for the user role "Installer", the default plant password **1111** is set. In such cases, you must now assign a new plant password.
3. Enter the plant password again in the **Repeat password** field.
4. Select [**Next**].
   ☑ The **Select devices** page opens.
5. Enter the PIC and RID of an inverter in your plant in the **PIC** and **RID** fields (for PIC and RID, see inverter type label or sticker near the type label).
6. Select [**Identify**].
   ☑ The Plant Setup Assistant establishes a connection to the inverters and then adopts the data entered without displaying an error message.
   ✖ Is an error message displayed?
   Rectify the error as stated in the error message.

7. To add up to three other inverters, enter the PIC and RID for each additional inverter and select [**Identify**]. A Webconnect plant can consist of up to four inverters. To add more inverters after completion of the registration, create another Webconnect plant.
8. Select [**Next**].
   ☑ The **Extended Plant Properties** page opens.
9. Enter the plant properties.
10. Select [**Next**].
    ☑ The Plant Setup Assistant shows a summary of your entered data.
11. Select [**Finish**].
    ☑ The Sunny Portal configures your Sunny Portal plant.
12. Select [**To the plant**] to change to the Sunny Portal plant.

☑ Your Webconnect plant in Sunny Portal opens.

3.2 Logging In and Out of Sunny Portal

Logging into Sunny Portal

Requirements:

☐ You must already be registered in Sunny Portal.

1. Open **www.SunnyPortal.com**.
2. Enter your e-mail address in the **E-mail** field in the **Login** area.
3. Enter the Sunny Portal password in the **Password** field.
4. Activate the **SSL** checkbox to transmit the encrypted login data.
5. Activate the **Remain logged in** checkbox to stay logged in for your next Sunny Portal visits. This means you remain logged into Sunny Portal until you actively log out.
6. Select [**Login**].

Logging Out of Sunny Portal

When you log out of the Sunny Portal user interface, you protect your plant against unauthorised access.

- Select [**Logout**] in the header.

  or

- Select **User Info/Logout > Logout** in the page and menu selection.

3.3 Setting the Language

1. In the user interface header, move the mouse pointer onto .
   ☑ A drop-down menu opens.
2. Select the desired language.

4 User Interface

4.1 Overview of the User Interface

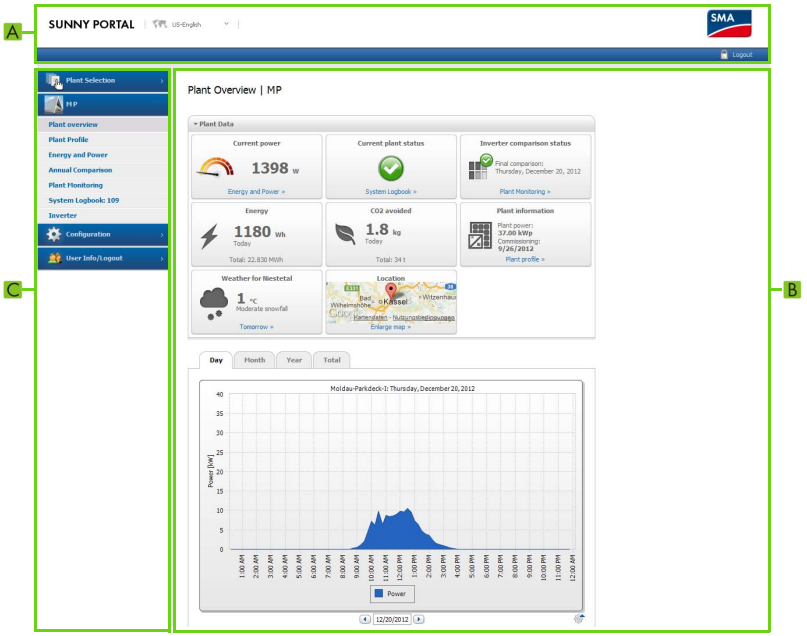


Figure 1: User interface of Sunny Portal

Item	Description	Explanation
A	Header	Contains the Sunny Portal language selection and logout option
B	Content area	Contents of the selected page
C	Page and menu selection	Access to the pages and menu items Released pages of the "**My Webconnect plant**" menu are marked with the icon (see Section 5.4.2 "Releasing Pages for Viewing in Sunny Portal", page 20).

4.2 Overview of Menus and Pages

Plant Selection Menu

Requirement for display of the menu:

☐ Your e-mail address has to be assigned to more than one plant in Sunny Portal.

You can select the desired plant in this menu. The name of the currently selected plant is used as the name of the second menu item. All other pages always refer to the currently selected plant.

Page	Explanation
Plant List	This page includes an overview of plants that are assigned to your e-mail address. By default, the plant list is always sorted in ascending order according to the specific plant yield. You can also sort the plant list by other values and in descending order (see Section 5 "Page Settings", page 18).

"My Webconnect Plant" Menu

This menu contains all pages with information, plant data and visualisations for your plant.

Page	Explanation
Plant Overview	This page provides you with an overview of the most important information about your plant. The display and range of functions of the page depend on your user role (see Section 10.1 "User Roles and User Rights in Sunny Portal", page 46). The image **Reimbursement** is only displayed if you entered the feed-in compensation (see Section 7.8 "Entering the Feed-in Compensation", page 35). The average expected yield is also displayed in the diagram in the **Year** and **Total** tabs if the **Display the monthly distribution in the yearly comparison, as well as energy and power** checkbox is activated (see Section 7.11 "Setting the Monthly Distribution of the Predicted Annual Yield", page 37).
Plant Profile	This page displays the information compiled by Sunny Portal from information that you can enter on different Sunny Portal pages (see Section 4.3 "Information in the Plant Profile", page 17).
Power and Energy	This page provides you with an overview of the energy and power curve of your plant.

Page	Explanation
Annual Comparison	This page provides you with an overview of the total yield and the specific plant yield per month in a yearly overview. The average expected yield is also displayed if the **Display the monthly distribution in the yearly comparison, as well as energy and power** checkbox is activated (see Section 7.11 "Setting the Monthly Distribution of the Predicted Annual Yield", page 37).
Plant Monitoring	On this page, the following plant monitoring functions are available: • Communication monitoring: monitoring of the communication between Sunny Portal and the inverters • Inverter comparison: plant monitoring via comparison of the inverter yields, provided that at least two inverters are present in the plant
System Logbook	This page shows messages regarding the plant status, e.g. disturbances to your plant. The number after the colon shows the number of unread messages.
Inverter	On the **Day** tab on this page, you can view the power values of all inverters for single days. On the **Month**, **Year, Total** tabs, you can view the energy values of all inverters. **You can select the display type above the diagram:** • absolute: displays the plant yield (kWh) • specific: displays the specific plant yield (kWh/kWp)

Configuration Menu

This menu contains pages on which you can carry out configurations. The menu is only displayed if you have the user role "Installer" or "Plant administrator".

Page	Explanation
Plant Properties	On this page, you can configure your Sunny Portal plant via different tabs.
System Presentation	On this page, you have the following options: • Send third parties a hyperlink to your released pages (see Section 5.4.2 "Releasing Pages for Viewing in Sunny Portal", page 20). • Incorporate the **Plant Profile** page into other websites.
Device Overview	All the devices of your plant are listed on this page. You can call up device properties, parameters and messages.
Report Configuration	On this page, you can select a setting so that Sunny Portal informs you of events and other information such as yield by e-mail (see Section 6.3 "Reports", page 24).
User Management	This page displays a list of all users to whom you have given access to the plant (see Section 10.2 "Creating a New User", page 48).

User Info/Logout menu

Page	Explanation
User Information	This page shows your user information.
Logout	Ends your session in Sunny Portal.

4.3 Information in the Plant Profile

Sunny Portal compiles the plant profile from information that you can enter on different Sunny Portal pages. The following table includes the possible information in the plant profile and the sources for changing or entering the information.

Information	Configuration
Location	See Section 7.2 "Changing Plant Data", page 30
Operator	See Section 7.6 "Changing Operator Data", page 33
Commissioning	See Section 7.2 "Changing Plant Data", page 30
Plant power	See Section 7.4 "Setting the Plant Power", page 31
Annual production	See Section 7.10 "Calculating the Predicted Annual Yield", page 36
CO2 savings	See Section 7.9 "Entering the Value of CO2 Savings", page 35
Modules	See Section 7.1 "Entering the String Properties", page 29
Azimuth angle	
Tilt angle	
Communication	No configuration necessary, this information is automatically detected.
Inverter	
Description	See Section 7.5 "Changing the Plant Description", page 32
Plant image	See Section 7.7 "Changing/Deleting the Plant Image", page 33

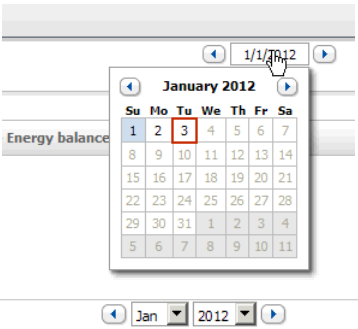
5 Page Settings

5.1 Configuring Settings on Diagrams

5.1.1 Setting the Display Period

Depending on the diagram, you can set various display periods. The control element for setting the display period can be found below each diagram.

- If there is a date and arrow icon below the diagram, set the date using the arrow icons or a calendar:
  - To set the date using the arrow icons, browse backward using ◂ and browse forward using ▸ and set the desired date.
  - To set the date using a calendar, click the date between the arrow icons and select the desired date.



- If there are drop-down lists between the arrow icons, select the desired period in the drop-down lists.

5.1.2 Saving Diagram Data

You can save diagram data as csv files.

Requirements:

☐ You must have the user role "Installer" or "Plant administrator" (see Section 10.1 "User Roles and User Rights in Sunny Portal", page 46).

1. If there is a gearwheel icon on the right below the diagram, move the mouse pointer over the gearwheel icon and select in the drop-down menu.
2. If there are two icons on the right below the diagram, select .
3. Select [**Save**].
4. Select the destination directory.
5. Select [**Save**].

5.1.3 Printing Diagram Data

1. Move the mouse pointer onto on the right under the diagram.
   ☑ A drop-down menu opens.
2. Select and then select [**Print**].
3. Select desired printer and select [**Print**].

5.1.4 Enlarging the View

- If is on the right below the diagram, move the mouse pointer onto and select .
- If there are two icons on the right below the diagram, select .

5.2 Sorting the Plant List

By default, the plant list is always sorted in ascending order according to the specific plant yield. You can also sort the plant list by other values and in descending order.

1. Select **Plant Selection > Plant List** in the page and menu selection.
2. Set the desired sorting:
   - To sort the list by another value, click on another blue value in the header of the list.
   - To sort the list in descending order, click on the blue value in the header again.

5.3 Setting Options on the Inverter Page

On the page **"My Webconnect plant" > Inverter**, you have the following setting options:

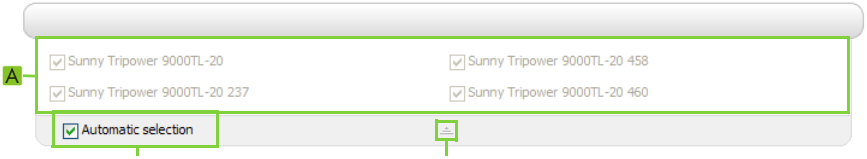


Figure 2: Structure of the settings area on the **Inverter** page

Item	Meaning
A	Area for selecting the inverter to be shown For this purpose, the **Automatic selection** checkbox must not be selected.
B	Interface for opening and closing the settings area
C	Checkbox for the automatic selection of all inverters in area (A) If you select the checkbox, all inverters in area (A) are selected automatically and manual selection is deactivated.

5.4 Publishing Sunny Portal Pages

5.4.1 Pages to be Published

You can publish the following pages of the menu "My Webconnect plant":

- Plant Overview
- Plant Profile
- Power and Energy
- Annual Comparison

5.4.2 Releasing Pages for Viewing in Sunny Portal

If you release pages for viewing in Sunny Portal, other Sunny Portal users can view the pages.

Requirements:

☐ You must have the user role "Installer" or "Plant administrator" (see Section 10.1 "User Roles and User Rights in Sunny Portal", page 46).

1. Select the desired page in the page and menu selection.
2. In the Contents area, select [**Configuration - "Name of the page"**].
3. In the **Approval** area, activate the checkbox **Also release page on www.sunnyportal.com**.
4. To send the page by e-mail, select **Send the website by e-mail**, enter the e-mail address of the recipient, select [**Send E-mail**] and select .
5. Select [**Save**].

☑ The icon is displayed in the page and menu selection next to the name of the released page.

5.4.3 Presenting Pages on the Internet

Each of your Sunny Portal pages has its own URL. By using these URLs you can place a hyperlink to your Sunny Portal page on other websites.

Requirements:

☐ You must have the user role "Installer" or "Plant administrator" (see Section 10.1 "User Roles and User Rights in Sunny Portal", page 46).

1. Select the desired page in the page and menu selection.
2. In the contents area, select [**Configuration - "Name of the page"**].
3. To view a preview of the page, select **Open page in a new window**.
4. Copy the URL from the field **URL of the Page** onto the clipboard.
5. Copy the URL from the clipboard to a program for creating websites (e.g. Microsoft Office Frontpage) or integrate it into your own website by means of a so-called inline frame.

6 Plant Monitoring

6.1 Plant Monitoring Options

Monitoring	Option in Sunny Portal	See
Events of the plant	**System Logbook** You can view messages regarding events of your plant.	Section 6.2
	Report Configuration You receive e-mails with the events of your plant.	Section 6.3
Yield, power and CO_2 savings	**Report Configuration** You receive e-mails with the data of your plant.	
Inverter yields	**Inverter comparison** You are informed by e-mail if the specific yield of an inverter is outside the average specific yield of all the inverters. This function is only possible if the plant contains at least two inverters. **Requirement for display of the inverter comparison:** ☐ Your Sunny Portal plant must contain at least two inverters.	Section 6.6
Communication between the inverters and Sunny Portal	**Communication Monitoring** You will be notified by e-mail if an inverter cannot be accessed for a period of 24 hours.	Section 6.5

6.2 System Logbook

6.2.1 Calling up and Filtering Messages

Messages help you detect disturbances of your plant, for example. Depending on your user role, you can only view the messages that are relevant for your user group.

In the system logbook, messages are entered for:

- Plant
- Inverter
- Communication device
- Sunny Portal

The following types of messages are available, in ascending order according to the importance of the event:

Message type	Meaning
Info	Displays events that serve as information.
Warning	Displays events as warnings if an unusual operating condition is present.
Failure	Displays events as failure if operation is temporarily not possible. As soon as the failure is remedied, operation is restarted automatically.
Error	Displays events as errors if operation is permanently not possible. Operation cannot be started automatically.

Requirements:

☐ You must have the user role "Standard user", "Installer" or "Plant administrator" (see Section 10.1 "User Roles and User Rights in Sunny Portal", page 46).

Calling Up Messages

- Select **"My Webconnect plant" > System Logbook** in the page and menu selection.

Filtering Messages

You can filter messages in the system logbook to only call up certain messages.

1. Select **System Logbook** in the page and menu selection.
2. To filter messages, set one or more of the following filters:

Input field or drop-down list	Explanation
Go to	• To display messages up to a certain date, enter the date. Tip: Click the calendar icon and select a date in the calendar.
Status	The status of a message indicates whether you have already confirmed the message (see Section 6.2.2). • To display all unconfirmed messages, select **Not approved**. • To display all confirmed messages, select **Approved**. • To display all confirmed and unconfirmed messages, select **All**.
Plant/Devices	• To display Sunny Portal, plant and device messages, select **All**. • To display Sunny Portal messages, select **Portal**. • To display plant messages, select **Plant**. • To display device-specific messages, select the desired device.
Number per Page	• Select the number of messages that you would like to display per page.
Type	• To display messages of a specific type, activate the desired checkbox **Info**, **Warning**, **Failure** or **Error**.

6.2.2 Confirming Messages

You can confirm messages in order to mark them as read.

Requirements:

☐ You must have the user role "Standard user", "Installer" or "Plant administrator" (see Section 10.1 "User Roles and User Rights in Sunny Portal", page 46).

1. Select **"My Webconnect plant" > System Logbook** in the page and menu selection.
2. To confirm messages individually, select ✖ in the message row and in the **Approved** column.
3. To confirm several messages, mark the desired messages:
   - To mark individual messages, activate the relevant checkboxes on the left of the messages.
   - To mark all messages, select the **Select all** checkbox.
4. Select [**Submit**].

6.3 Reports

6.3.1 Report Overview

Reports are documents containing plant data or plant events. You can set the contents to be included in the reports and have them sent to you via e-mail from Sunny Portal.

The following report types are available:

- Info reports: contain plant data and are sent to you regularly.
- Event reports: inform you if certain plant events occur.

Report	Possible content
Daily info report	• Daily yield (kWh) • Feed-in compensation today • CO_2 savings today (kg)
Monthly info report	• Monthly yield (kWh) • Monthly feed-in compensation • Monthly CO_2 savings (kg)
Event report	• Information • Warnings • Errors

6.3.2 Creating Info Reports

You can create three daily info reports and three monthly info reports with different content. Sunny Portal sends you the daily info reports when it has processed all the data of the previous day. You receive the monthly info reports as soon as Sunny Portal has processed all data of the month's last day.

Requirements:

☐ You must have the user role "Installer" or "Plant administrator" (see Section 10.1 "User Roles and User Rights in Sunny Portal", page 46).

☐ The CO_2 savings value must be entered (see Section 7.9 "Entering the Value of CO2 Savings", page 35).

1. Select **Configuration > Report Configuration** in the page and menu selection.
2. In the **Report Configuration** drop-down list, select a **Daily info report** or a **Monthly info report**.
3. Select [**Edit**].
4. In the **Activate Report** area, activate the **active** checkbox.

5. In the **E-mail Address(es)** field in the **Recipient** area, enter the e-mail addresses of the recipient(s). Separate multiple e-mail addresses using commas. The number of characters for the input field is limited. Therefore you can enter only a certain number of e-mail addresses.
6. In the **Send Report at** field in the **Interval** area, set the time from which the report is to be sent.
7. In the **Select Channel(s)** area of the **Contents** area, activate the content that is to be displayed in the e-mail.
8. In the **Send Report as** area of the **Contents** area, select the format in which Sunny Portal is to send the report.
9. To send a test report to the stated e-mail address, select [**Send Test Report**].
10. Select [**Save**].

6.3.3 Creating Event Reports

You can create three event reports with different content.

Requirements:

☐ You must have the user role "Installer" or "Plant administrator" (see Section 10.1 "User Roles and User Rights in Sunny Portal", page 46).

1. Select **Configuration > Report Configuration** in the page and menu selection.
2. In the **Report Configuration** drop-down list, select an event report.
3. Select [**Edit**].
4. In the **Activate Report** area, activate the **active** checkbox.
5. In the **E-mail Address(es)** field in the **Recipient** area, enter the e-mail addresses of the recipient(s). Separate multiple e-mail addresses using commas. The number of characters for the input field is limited. Therefore you can enter only a certain number of e-mail addresses.
6. Configure the settings in the **Interval** area:
   - To receive an hourly e-mail with the event report, activate the option **Hourly**.
   - To receive one daily e-mail with the event report, activate the option **Daily** and, in the drop-down list, select the time you would like to receive the e-mail.
7. Configure the settings in the **Contents** area:
   - Activate the checkboxes for the desired messages. In each case, you can select up to three event types from Sunny Portal and the plant: **Information**, **Warnings**, **Errors**.
   - In the **Send Report as** area, select the format in which Sunny Portal is to send the report.
   - In the **Limit messages in one report** area, use the drop-down list to select the maximum number of messages to be displayed in the e-mail.
   - If you wish to send reports even if there are no new events, activate the checkbox **Send empty reports if no new events are available**.
8. To send a test report to the stated e-mail address, select [**Send Test Report**].
9. Select [**Save**].

6.3.4 Manually Regenerating Reports

You can create a report for a specific date in the past.

Requirements:

☐ You must have the user role "Installer" or "Plant administrator" (see Section 10.1 "User Roles and User Rights in Sunny Portal", page 46).

1. Select **Configuration > Report Configuration** in the page and menu selection.
2. Select the desired report in the **Report Configuration** drop-down list.
3. In the **Report Date** field in the **Regenerate Report Manually** area, enter the date for which you wish to create a report. Tip: Click the calendar icon and select a date in the calendar.
4. Select [**Generate**].

   ☑ A message that the report has been successfully sent is displayed.

6.4 Overview of the Plant Monitoring Page

The page **"My Webconnect Plant" > Plant Monitoring** consists of the **Communication Monitoring** and **Inverter comparison** areas

Communication Monitoring Area

Communication monitoring shows the current communication status between the inverters and Sunny Portal. If an inverter cannot be reached, Sunny Portal informs you by e-mail (see Section 6.5 "Setting Communication Monitoring", page 27).

The communication monitoring status is displayed in Sunny Portal with the following icons:

Symbol	Status	Explanation
	Deactivated	Communication monitoring is not set (see Section 6.5 "Setting Communication Monitoring", page 27).
	OK	The communication with the inverters is interrupted. The time of last contact is displayed.
	Error	The communication with the inverters is faultless. Use the **Details** hyperlink to access detailed information on the time of last contact. The error is displayed until it is cleared. If the error is not cleared, Sunny Portal sends another e-mail reminder up to three days after the first e-mail was sent.
	E-mail reminder is activated.	Clicking the bell icon stops the sending of reminder e-mails for the current error. If a new error occurs, the e-mail reminder is sent again.

Inverter Comparison Area

Requirement for display of the area:

☐ The plant must contain at least two inverters.

Sunny Portal can recognise possible yield losses via the inverter comparison. If the specific yield of an inverter differs significantly from the average yield of all the inverters, Sunny Portal can inform you by e-mail (see Section 6.6 "Setting the Inverter Comparison", page 28).

Symbol	Status	Explanation
	Deactivated	The inverter comparison is not activated (see Section 6.6 "Setting the Inverter Comparison", page 28).
	OK	The specific yield of each inverter is within the average yield range of all inverters. The total yield of the last day for all inverters is displayed.
	Error	The specific yield is outside the average yield range of all inverters for at least one monitored inverter. Use the **Details** hyperlink to access the following information: • The level of the specific yield of the affected inverters • The level of the average value of all monitored inverters

6.5 Setting Communication Monitoring

By means of communication monitoring, you can be informed by e-mail if an inverter cannot be reached for a period of 24 hours.

Requirements:

☐ You must have the user role "Installer" or "Plant administrator" (see Section 10.1 "User Roles and User Rights in Sunny Portal", page 46).

1. Select **"My Webconnect Plant" > Plant Monitoring** in the page and menu selection.
2. In the **Communication Monitoring** area, select [**Settings**].
   ☑ The **Configuration communication monitoring** page opens.
3. To activate the communication monitoring, activate the **active** checkbox and enter the e-mail address of the recipient(s) in the **Recipient** field. Separate multiple e-mail addresses using commas.
4. To deactivate the communication monitoring, deactivate the **active** checkbox.
5. Select [**Save**].

6.6 Setting the Inverter Comparison

Sunny Portal can recognise possible yield losses via the inverter comparison. If the specific yield of an inverter differs significantly from the mean yield of all the inverters, Sunny Portal can inform you by e-mail. The inverter comparison is only displayed if there is more than one inverter in your Sunny Portal plant.

Requirements:

☐ The plant must contain at least two inverters.

☐ The PV array capacity of the inverters must be set (see Section 8.4 "Entering the PV Array Capacity", page 40).

☐ You must have the user role "Installer" or "Plant administrator" (see Section 10.1 "User Roles and User Rights in Sunny Portal", page 46).

1. Select **"My Webconnect plant" > Plant Monitoring** in the page and menu selection.
2. In the **Inverter comparison** area, select [**Settings**].
   ☑ The **Configuration of inverter comparison** page opens.
3. To activate the inverter comparison, activate the **active** checkbox and enter the e-mail addresses of the recipient(s) in the **Recipient** field. Separate multiple e-mail addresses using commas.
4. To deactivate the inverter comparison, deactivate the **active** checkbox.
5. Select [**Save**].

7 Plant Settings

7.1 Entering the String Properties

A string describes a group of series-connected PV modules. Normally, a PV plant is made up of multiple strings. Each string has specific properties, such as deviation from south (azimuth) or the roof's tilt angle.

Requirements:

☐ You must have the user role "Installer" or "Plant administrator" (see Section 10.1 "User Roles and User Rights in Sunny Portal", page 46).

1. Call up the inverter properties (see Section 8.1 "Calling up the Device Properties", page 39).
2. Select [**Edit**].
   ☑ The menu for setting the device properties opens.
3. Select [**Add string**] to add a new string.
   ☑ The menu to set the string opens.
4. In order to copy a string that is already set, proceed as follows:
   - In the line of the string in the **Copy** column, select .
   - In the line of the copied string, select in the **Edit** column.

   ☑ The menu to set the string opens.
5. Enter the string properties:

Input field or drop-down list	Explanation
Description	Name of the string, e.g. **String 1**
Manufacturer	PV module manufacturer
Module type	Depending on the selected manufacturer, various module types are displayed in the drop-down list.
Module power	These values are entered automatically after you select the module type. You can change the values using or the keyboard's arrow keys.
Surface	
Efficiency	
Number of modules	Number of PV modules that a string contains

Input field or drop-down list	Explanation
Azimuth angle	The azimuth angle indicates, in degrees, the amount by which the module surfaces deviate from a southern orientation. • In the field, enter the number of degrees by which the module surfaces deviate from a southern orientation. Enter a negative value (e.g. – **20**) for a deviation to the east and a positive value (e.g. **20**) for a deviation to the west. • If the module surfaces track the sun automatically, activate the **Tracking** checkbox.
Tilt angle	The tilt angle indicates, in degrees, the amount by which the module surfaces deviate from the horizontal. For some plants, the module surfaces are ideally aligned according to the latitude. In Germany, the optimum orientation is 30 degrees from the horizontal. • In the field, enter the number of degrees by which the module surfaces deviate from the horizontal. • If the module surfaces are ideally aligned according to the latitude, activate the **Optimized** checkbox.
Description	• Enter any comments.

6. Select [**Submit**].
7. Select [**Save**].

7.2 Changing Plant Data

Requirements:

☐ You must have the user role "Installer" or "Plant administrator" (see Section 10.1 "User Roles and User Rights in Sunny Portal", page 46).

1. Select **Configuration > Plant Properties** in the page and menu selection.
2. Select the **Plant Data** tab.
3. Select [**Edit**].
   ☑ The setting menu for the plant data opens.
4. Make the desired changes to the plant data.
5. Select [**Save**].

7.3 Changing the Plant Name

You can change the plant name that you entered during registration of the plant.

Requirements:

☐ You must have the user role "Installer" or "Plant administrator" (see Section 10.1 "User Roles and User Rights in Sunny Portal", page 46).

Plant name requirement:

☐ The plant name may consist of a maximum of 30 characters.

1. Select **Configuration > Plant Properties** in the page and menu selection.
2. Select the **Plant Data** tab.
3. Select [**Edit**].
   ☑ The setting menu for the plant data opens.
4. In the **Name** field, enter the desired plant name.
5. Select [**Save**].

7.4 Setting the Plant Power

7.4.1 Manually Entering the Plant Power

The plant power is the sum of the maximum power of all PV modules. You can obtain the plant power specifications from your installer.

The plant power is required in order to display the following data:

- Specific plant yield
- Average expected yield

Requirements:

☐ You must have the user role "Installer" or "Plant administrator" (see Section 10.1 "User Roles and User Rights in Sunny Portal", page 46).

1. Select **Configuration > Plant Properties** in the page and menu selection.
2. Select the **Plant Data** tab.
3. Select [**Edit**].
   ☑ The setting menu for the plant data opens.
4. Enter the plant power in the **Plant power** field in the **Power** area.
5. To set the manufacturer of the PV modules, select the manufacturer in the **Manufacturer** drop-down list.
6. To set the module types, select the module types in the **Module Type** drop-down list.
7. Select [**Save**].

7.4.2 Having the Plant Power Calculated

The plant power is the sum of the power of all PV modules. It can be calculated directly from the data in the device properties.

The plant power is required in order to display the following data:

- Specific plant yield
- Average expected yield

Requirements:

☐ The PV array capacity of all inverters must be entered (see Section 8.4 "Entering the PV Array Capacity", page 40).

☐ You must have the user role "Installer" or "Plant administrator" (see Section 10.1 "User Roles and User Rights in Sunny Portal", page 46).

1. Select **Configuration > Plant Properties** in the page and menu selection.
2. Select the **Plant Data** tab.
3. Select [**Edit**].

   ☑ The setting menu for the plant data opens.
4. In the **Power** area, activate the **Calculate plant performance from device properties** checkbox.

   ☑ The calculated plant power is displayed.
5. Select [**Save**].

7.5 Changing the Plant Description

You can enter important features of the plant in the description. The text is displayed on the **Plant Profile** page.

The editor only supports text and does not support typography with HTML tags.

Requirements:

☐ You must have the user role "Installer" or "Plant administrator" (see Section 10.1 "User Roles and User Rights in Sunny Portal", page 46).

1. Select **Configuration > Plant Properties** in the page and menu selection.
2. Select the **Plant Data** tab.
3. Select [**Edit**].

   ☑ The setting menu for the plant data opens.
4. Enter a description in the **Description** area.
5. Select [**Save**].

7.6 Changing Operator Data

The operator is a private individual or legal entity who owns plants for business purposes, for example. The operator can farm out use of the plant without necessarily being the user himself.

The name of the operator is displayed on the **Plant Profile** page.

Requirements:

☐ You must have the user role "Installer" or "Plant administrator" (see Section 10.1 "User Roles and User Rights in Sunny Portal", page 46).

1. Select **Configuration > Plant Properties** in the page and menu selection.
2. Select the **Operator** tab.
3. Select [**Edit**].
   ☑ The setting menu for the operator data opens.
4. Enter the operator data.
5. Select [**Save**].

7.7 Changing/Deleting the Plant Image

The plant image is the image in the page and menu selection, next to the menu item "**My Webconnect plant**".

Figure 3: Plant image

You can replace the standard plant image with a user-defined plant image. The user-defined plant image is also displayed on the following pages:

- **Plant Profile** page
- If pages for Sunny Portal are released, it is also displayed on the list of released plants on the www.SunnyPortal.com homepage.

You can save several images in a gallery in Sunny Portal. This allows you to easily change the plant image and access your images from different computers.

Changing the Plant Image

Requirements:

☐ You must have the user role "Installer" or "Plant administrator" (see Section 10.1 "User Roles and User Rights in Sunny Portal", page 46).

Plant image requirements:

☐ Maximum image size: 500 kB

☐ Possible image formats: JPG, PNG, GIF

1. Select **Configuration > Plant Properties** in the page and menu selection.
2. Select the **Plant Data** tab.
3. Select [**Edit**].
   ☑ The setting menu for the plant data opens.
4. Select [**Load image**] in the **Plant image** area.
5. Select the desired image from one of your directories.
6. Select [**Open**].
7. To change the plant image size, move the grey squares using the mouse.
8. To move the image section, click on the image section and move it while holding the left mouse button pressed.
9. Select [**Save**].
10. To save an image in the gallery, upload the image to the gallery:
    - Select [**Select from the gallery**].
    - Select [**Upload**].
    - Select [**Browse**].
    - Select the desired image from one of your directories.
    - Select [**Upload selected file**].
    - Close the window of the gallery.

    ☑ The image is saved in the gallery.
11. To upload an image from the gallery as the plant image, select [**Select from the gallery**].
12. Double-click the desired image.
13. Select [**Save**].

Deleting the User-Defined Plant Image

If you delete the user-defined plant image, Sunny Portal displays the default plant image.

1. Select **Configuration > Plant Properties** in the page and menu selection.
2. Select the **Plant Data** tab.
3. Select [**Edit**].
   ☑ The setting menu for the plant data opens.
4. Select [**No plant image**] in the **Plant image** area.
5. Select [**Save**].

7.8 Entering the Feed-in Compensation

Requirements:

☐ You must have the user role "Installer" or "Plant administrator" (see Section 10.1 "User Roles and User Rights in Sunny Portal", page 46).

1. Select **Configuration > Plant Properties** in the page and menu selection.
2. Select the **Parameters** tab.
3. Select [**Edit**].
   ☑ The setting menu for parameters opens.
4. In the **Reimbursement** area, enter the feed-in compensation per kWh in the **Feed-in Tariff** field. Also select the desired currency in the accompanying drop-down list.
5. Select [**Save**].

7.9 Entering the Value of CO_2 Savings

The CO_2 factor indicates how much CO_2 is produced during the power generation of one kilowatt hour. The CO_2 factor can vary depending on the network operator. You can find out the level of the CO_2 factor for one kilowatt hour of current by contacting your network operator.

Sunny Portal can use the CO_2 factor value to calculate how much CO_2 was saved due to the power generation of your plant.

You can view the value of CO_2 savings on the following pages:

- **Plant Profile** page
- **Daily info report** or **Monthly info report** (see Section 6.3 "Reports", page 24).

Requirements:

☐ You must have the user role "Installer" or "Plant administrator" (see Section 10.1 "User Roles and User Rights in Sunny Portal", page 46).

1. Select **Configuration > Plant Properties** in the page and menu selection.
2. Select the **Parameters** tab.
3. Select [**Edit**].
   ☑ The setting menu for parameters opens.
4. In the **Factor** area, enter the CO_2 factor in the field or click the slide control and set the CO_2 factor holding the left mouse button pressed.
5. Select [**Save**].

7.10 Calculating the Predicted Annual Yield

Sunny Portal can display in a table how the predicted annual yield of your plant is likely to be distributed throughout the months of a year.

The predicted annual yield of the plant is calculated from the specific annual yield (kWh/kWp) at the plant location multiplied by the plant power.

You can obtain the specific annual yield for your plant location from irradiation maps. Local conditions such as shading of your plant or the plant orientation are not taken into account by Sunny Portal.

Requirements:

☐ The plant power must be set (see Section 7.4).

☐ You must have the user role "Installer" or "Plant administrator" (see Section 10.1 "User Roles and User Rights in Sunny Portal", page 46).

1. Select **Configuration > Plant Properties** in the page and menu selection.
2. Select the **Parameters** tab.
3. Select [**Edit**].

   ☑ The setting menu for parameters opens.
4. In the **Yield expectations** area, enter the specific annual yield in the **Specific Annual Yield** field.

   ☑ The predicted annual yield is displayed in the **Predicted Annual Yield** field.
5. To make it possible to configure the average expected yield on the **Energy and Power** and **Annual Comparison** pages, activate the **The monthly distribution can be configured in the diagrams** checkbox.
6. Select [**Save**].

7.11 Setting the Monthly Distribution of the Predicted Annual Yield

The monthly distribution shows how the predicted annual yield is distributed throughout the months of the year.

You have the following options:

- Having Sunny Portal suggest the monthly distribution
- Entering the monthly distribution manually

Having Sunny Portal Suggest the Monthly Distribution

Requirements:

☐ The plant location must be entered (see Section 7.2 "Changing Plant Data", page 30).

☐ Have the predicted annual yield calculated (see Section 7.10 "Calculating the Predicted Annual Yield", page 36).

☐ You must have the user role "Installer" or "Plant administrator" (see Section 10.1 "User Roles and User Rights in Sunny Portal", page 46).

1. Select **Configuration > Plant Properties** in the page and menu selection.
2. Select the **Parameters** tab.
3. Select [**Edit**].

   ☑ The setting menu for parameters opens.
4. In the **Yield expectations** area, select [**Suggest a Monthly Distribution**].

   ☑ The monthly distribution is displayed in the table with the months.
5. To display the average expected yield and the monthly distribution in the diagrams on the **Annual Comparison** and **Energy and Power** pages, activate the **Display the monthly distribution in the yearly comparison, as well as energy and power** checkbox.
6. To make it possible to configure the average expected yield on the **Annual Comparison** and **Energy and Power** pages, activate the **The monthly distribution can be configured in the diagrams** checkbox.

Entering the Monthly Distribution Manually

Requirements:

☐ You must have the user role "Installer" or "Plant administrator" (see Section 10.1 "User Roles and User Rights in Sunny Portal", page 46).

1. Select **Configuration > Plant Properties** in the page and menu selection.
2. Select the **Parameters** tab.
3. Select [**Edit**].
   ☑ The setting menu for parameters opens.
4. In the **Yield expectations** area, enter values in the **in %** fields of the table with the months.
5. To display the predicted annual yield and the monthly distribution in the diagrams on the **Annual Comparison** and **Energy and Power** pages, activate the **Display the monthly distribution in the yearly comparison, as well as energy and power** checkbox.
6. To make it possible to configure the predicted annual yield on the **Annual Comparison** and **Energy and Power** pages, activate the **The monthly distribution can be configured in the diagrams** checkbox.
7. Select [**Save**].

7.12 Editing your Data Releases

You can set whether you would like to provide the "www.sonnenertrag.eu" PV database with your plant data. By providing this data, you can contribute to improving this PV database. The more users that participate, the better "sonnenertrag.eu" can indicate the yields to be expected for the different locations.

Requirements:

☐ You must have the user role "Installer" or "Plant administrator" (see Section 10.1 "User Roles and User Rights in Sunny Portal", page 46).

1. Select **Configuration > Plant Properties** in the page and menu selection.
2. Select the **Data releases** tab.
3. Select [**Edit**].
   ☑ The setting menu for the data releases opens.
4. Activate or deactivate the data releases checkbox.
5. Select [**Save**].

8 Device Settings

8.1 Calling up the Device Properties

The tab with the device properties displays information on each device. Depending on the device and the device settings, various device properties can be displayed on this tab.

Requirements:

☐ You must have the user role "Installer" or "Plant administrator" (see Section 10.1 "User Roles and User Rights in Sunny Portal", page 46).

1. Select **Configuration > Device Overview** in the page and menu selection.
2. In the row for the device and the **Properties** column, select .

8.2 Calling up the Device Parameters

The parameters of a device are described in the respective device manual. You can only read the device parameters on this page, you cannot change them. If you want to change the parameters, use the Sunny Explorer software (see Sunny Explorer help). You can obtain Sunny Explorer free of charge from the download area at www.SMA-Solar.com. Inverters with Webconnect function are compatible with Sunny Explorer as of software version 1.04.

Requirements:

☐ You must have the user role "Installer" or "Plant administrator" (see Section 10.1 "User Roles and User Rights in Sunny Portal", page 46).

1. Select **Configuration > Device Overview** in the page and menu selection.
2. In the row for the device and the **Parameters** column, select .
   ☑ You can find the parameters in the parameter list.
3. To display changes to the parameters, select in the **History** column.

8.3 Entering the Line Conductor

Sunny Portal can display the line conductor to which each inverter is connected in the device properties. To display the line conductor, you must enter the line conductor.

Requirements:

☐ You must have the user role "Installer" or "Plant administrator" (see Section 10.1 "User Roles and User Rights in Sunny Portal", page 46).

1. Call up the inverter properties (see Section 8.1 "Calling up the Device Properties", page 39).
2. Select [**Edit**].
   ☑ The menu for setting the device properties opens.
3. In the **Phase** area, activate the line conductor to which the inverter is connected.
4. Select [**Save**].

8.4 Entering the PV Array Capacity

The PV array capacity is the maximum power of the PV modules that are connected to one inverter.

Procedure:

- Calculate the string properties using the PV array capacity (see Section 7.1 "Entering the String Properties", page 29).

  or

- Enter the PV array capacity manually.

SMA Solar Technology AG recommends calculating the pv array capacity using the string properties. A string describes a group of series-connected PV modules. Normally, a PV plant is made up of multiple strings. Each string has specific properties, such as the deviation from south (azimuth) or the tilt angle of the roof. If you enter the properties of the strings, Sunny Portal can determine the PV array capacity more precisely.

Entering the PV Array Capacity Manually

You can find out the connected PV array capacity present on each inverter from your installer. Using the PV array capacity, Sunny Portal can calculate the plant power of your plant (see Section 7.4.2 "Having the Plant Power Calculated", page 32).

Requirements:

☐ You must have the user role "Installer" or "Plant administrator" (see Section 10.1 "User Roles and User Rights in Sunny Portal", page 46).

1. Call up the inverter properties (see Section 8.1 "Calling up the Device Properties", page 39).
2. Select [**Edit**].

   ☑ The menu for setting the device properties opens.
3. Enter the PV array capacity in the **kWp** field in the **Generator capacity** area.
4. Select [**Save**].

8.5 Changing the Device Name

As standard, the device type and the last three numbers of the serial number are displayed as device name.

Requirements:

☐ You must have the user role "Installer" or "Plant administrator" (see Section 10.1 "User Roles and User Rights in Sunny Portal", page 46).

Device name requirement:

☐ The device name may consist of a maximum of 20 characters.

1. Call up properties of the SMA device (see Section 8.1 "Calling up the Device Properties", page 39).
2. Select [**Edit**].
   ☑ The menu for setting the device properties opens.
3. Enter a device name in the **Device Name** field.
4. Select [**Save**].

8.6 Changing a Device Description

You can enter a user-defined description for each device. The description of the device is displayed in the **Device Characteristics**.

Requirements:

☐ You must have the user role "Installer" or "Plant administrator" (see Section 10.1 "User Roles and User Rights in Sunny Portal", page 46).

1. Call up properties of the SMA device (see Section 8.1 "Calling up the Device Properties", page 39).
2. Select [**Edit**].
   ☑ The menu for setting the device properties opens.
3. Enter a description in the **Description** field.
4. Select [**Save**].

9 Plant Management

9.1 Adding an Inverter

A plant in Sunny Portal can consist of a maximum of four inverters with Webconnect function. If your Webconnect plant in Sunny Portal already consists of four inverters, you must create a new plant in Sunny Portal (see Section 3.1 "Registering the Inverter in Sunny Portal", page 10).

Requirements:

- ☐ The new inverter must be an inverter with Webconnect function.
- ☐ The new inverter must be commissioned in your plant.
- ☐ The new inverter must be connected to the router/network switch and the Internet (see installation manual of the inverter with integrated Webconnect function or the installation manual of the retrofitted Speedwire/Webconnect interface).
- ☐ The PIC and RID of all inverters must be available (see inverter type label or sticker near the type label).
- ☐ You must have the user role "Plant administrator" (see Section 10.1 "User Roles and User Rights in Sunny Portal", page 46).

1. Open **www.SunnyPortal.com**.
2. Select [**Plant Setup Assistant**].
   ☑ The Plant Setup Assistant opens.
3. Select [**Next**].
   ☑ The **User Registration** page opens.
4. Enter the e-mail address and the Sunny Portal password in the **E-mail Address** and **Password** fields.
5. Select [**Next**].
   ☑ The **Select plant** page opens.
6. Select the option **Add or replace devices**.
7. In the row for the plant and the **Option** column, select ➕ and [**Next**].
   ☑ The **Select devices** page opens.
8. Enter the PIC and RID of a new inverter in the **PIC** and **RID** fields.
9. Select [**Identify**].
10. To add other inverters, enter the PIC and RID of another inverter and select [**Identify**].
11. Select [**Next**].
    ☑ A summary is displayed.
12. Select [**Finish**].

9.2 Replacing an Inverter

Requirements:

- ☐ The new inverter must have the same device type as the inverter to be replaced and must use the Webconnect function.
- ☐ The new inverter must be commissioned in your plant.
- ☐ The new inverter must be connected to the router/network switch and the Internet (see installation manual of the inverter with integrated Webconnect function or the installation manual of the retrofitted Speedwire/Webconnect interface).
- ☐ The PIC and RID of the new inverter must be available (see inverter type label or sticker near the type label).
- ☐ You must have the user role "Plant administrator" (see Section 10.1 "User Roles and User Rights in Sunny Portal", page 46).

Device replacement: Do not delete the old inverter

If the inverter that you wish to replace is deleted from Sunny Portal, all data of the inverter is irretrievably deleted from Sunny Portal.

- To retain the data of the old inverter in Sunny Portal, do **not** delete the old inverter.

1. Open **www.SunnyPortal.com**.
2. Select [**Plant Setup Assistant**].
   ☑ The Plant Setup Assistant opens.
3. Select [**Next**].
   ☑ The **User Registration** page opens.
4. Enter the e-mail address and the Sunny Portal password in the **E-mail Address** and **Password** fields.
5. Select [**Next**].
   ☑ The **Select plant** page opens.
6. Select the option **Add or replace devices**.
7. In the row for the plant and the Option column, select and [**Next**].
   ☑ The **Select devices** page opens.
8. Enter the PIC and RID of a new inverter in the **PIC** and **RID** fields.
9. Select [**Identify**].
10. To add other inverters, enter the PIC and RID of another inverter and select [**Identify**].
11. Select [**Next**].
    ☑ The **Replace devices** page opens.
12. In the line of the old inverter, select the new inverter in the drop-down list **Replace with**.
13. Select [**Next**].
    ☑ A summary is displayed.
14. Select [**Finish**].

9.3 Deactivating/Activating an Inverter

In the following cases, you must deactivate inverters in Sunny Portal:

- You have removed an inverter with integrated or retrofitted Webconnect function from your plant.

  or

- You no longer wish to display an inverter in Sunny Portal.

The data of the deactivated inverter is retained in Sunny Portal.

Requirements:

☐ You must have the user role "Installer" or "Plant administrator" (see Section 10.1 "User Roles and User Rights in Sunny Portal", page 46).

1. Call up the inverter properties (see Section 8.1 "Calling up the Device Properties", page 39).
2. Select [**Edit**].

   ☑ The menu for setting the device properties opens.
3. To deactivate the inverter in Sunny Portal, deactivate the **active** checkbox in the **Data Collection** area.
4. To activate the inverter in Sunny Portal, activate the **active** checkbox in the **Data Collection** area.
5. Select [**Save**].

9.4 Deleting an Inverter

Requirements:

☐ You must have the user role "Installer" or "Plant administrator" (see Section 10.1 "User Roles and User Rights in Sunny Portal", page 46).

Inverter data is irretrievably deleted

If you delete the inverter, all data of the inverter is deleted irretrievably from Sunny Portal. The data on the memory of the inverter is retained. The amount of data depends on the size of the inverter memory.

- Check whether it is sufficient to deactivate the inverter (see Section 9.3 "Deactivating/Activating an Inverter", page 44).

1. Call up the inverter properties (see Section 8.1 "Calling up the Device Properties", page 39).
2. Select [**Edit**].
3. Select [**Delete**].

   ☑ A window containing a security question opens.
4. To irretrievably delete the inverter, select [**Delete**].

9.5 Deleting a Sunny Portal Plant

If you delete your plant, the plant and its data are irretrievably deleted in Sunny Portal.

Requirements:

☐ You must have the user role "Installer" or "Plant administrator" (see Section 10.1 "User Roles and User Rights in Sunny Portal", page 46).

1. Select **Configuration > Plant Properties** in the page and menu selection.
2. Select the **Plant Data** tab.
3. Select [**Edit**].
4. In the **Plant Data** area, select [**Irretrievably delete plant**].
   ☑ A security question opens.
5. To irretrievably delete the plant, select [**Yes**].

10 User Management

10.1 User Roles and User Rights in Sunny Portal

If you have the user role **Plant Administrator**, you can create other users in Sunny Portal so that they have access to your Sunny Portal plant. You must assign every user a user role. The difference between the user roles is in the rights that the users have in your Sunny Portal plant.

The following user roles are possible:

- Guest
- Standard user
- Installer
- Plant administrator

General Rights

Rights	User role			
	Guest	Standard user	Installer	Plant administrator
View pages	✓	✓	✓	✓
Release pages for viewing in Sunny Portal and publish pages	-	-	✓	✓
Save diagram data	-	✓	✓	✓
View/change user information	✓	✓	✓	✓
Change Sunny Portal password	-	✓	✓	✓
Change the plant password	-	-	✓	✓
View device properties	-	-	✓	✓
View/change plant properties	-	-	✓	✓
Configure PV modules	-	-	✓	✓
View/change report configuration	-	-	✓	✓
Change device properties	-	-	✓	✓
Replace/delete devices	-	-	✓	✓
Delete plant	-	-	✓	✓
Set communication monitoring	-	-	✓	✓
Set inverter comparison	-	-	✓	✓
View system logbook and confirm entries	-	✓	✓	✓

Rights	User role			
	Guest	Standard user	Installer	Plant administrator
Import data	-	-	✓	✓
View user management	-	-	-	✓
Create/delete users and assign user roles	-	-	-	✓

Rights for the Plant Overview Page

Plant Data area:

Rights	User role			
	Guest	Standard user	Installer	Plant administrator
View the current inverter status	-	-	✓	✓
View the status of the inverter comparison	-	-	✓	✓
View the energy yield	✓	✓	✓	✓
View the financial yield	-	✓	✓	✓
View the value of CO_2 savings	✓	✓	✓	✓
View the plant information	✓*	✓	✓	✓
View the meteorological data	✓	✓	✓	✓
View the current plant power	-	-	✓	✓

* Also views the plant image, if available.

Yield overview area:

Rights	User role			
	Guest	Standard user	Installer	Plant administrator
View energy and power	-	✓	✓	✓

10.2 Creating a New User

Requirements:

☐ You must have the user role "Plant administrator" (see Section 10.1 "User Roles and User Rights in Sunny Portal", page 46).

1. Select **Configuration > User Management** in the page and menu selection.
2. Select [**New User**].
3. Enter the e-mail address of the new user in the **E-mail Address** field.
4. Activate the desired user role in the **Roles** area.
5. Select [**Save**].
   ☑ The new user receives an e-mail with the access data.

10.3 Deleting a User

Requirements:

☐ You must have the user role "Plant administrator" (see Section 10.1 "User Roles and User Rights in Sunny Portal", page 46).

1. Select **Configuration > User Management** in the page and menu selection.
2. In the row for the user and the **Delete** column, select .
3. Confirm the security question with [**Yes**].

10.4 Changing User Rights

Requirements:

☐ You must have the user role "Plant administrator" (see Section 10.1 "User Roles and User Rights in Sunny Portal", page 46).

1. Select **Configuration > User Management** in the page and menu selection.
2. In the row for the user and the **Edit** column, select .
   ☑ The **E-mail Address** and **Roles** areas open.
3. Activate the desired user role in the **Roles** area.
4. Select [**Save**].

10.5 Changing User Information

Each user can enter user information. User information includes the name and the address, for example.

1. Select **User Info/Logout > User Information** in the page and menu selection.
2. Select [**Edit**].
   ☑ The setting menu for user information opens.
3. Enter the user information.
4. Select [**Save**].

11 Password Information

11.1 Selecting Secure Passwords

You can increase the security of your password as follows:

- Select passwords that contain at least eight characters.
- Use combinations of upper and lowercase letters, special characters and numbers.
- Do not use names or common words (e.g. "dog", "cat", "house").
- Avoid using words that have any personal relevance to you such as the names of persons or pets, personnel numbers, identification numbers or car license plates.
- Do not repeat names or words (e.g. "househouse" or "catcat").
- Do not combine numbers or letters in the same order as they appear on your keyboard (e.g. "12345", "qwerty").

11.2 Required Passwords

11.2.1 Sunny Portal Password

The Sunny Portal password protects your Sunny Portal plant against unauthorised access. You can log into Sunny Portal using the Sunny Portal password. If you register a plant in Sunny Portal, you must specify a Sunny Portal password during registration. You can change the Sunny Portal password (see Section 11.3.1)

11.2.2 Plant Password

Plant Password Basics

The safety concept for plants from Solar Technology AG generally distinguishes between two user groups **User** and **Installer**. The user groups have different rights. The following plant passwords are configured in the devices by default: **User** = **0000**, **Installer** = **1111**. You can only access all devices of your plant with your communication product (e.g. Sunny Explorer) if the same plant password has been set for all devices. You can find more information on the plant passwords and on the user group and safety concept in the Sunny Explorer help.

Plant Password in Sunny Portal

For the registration of your plant, the Sunny Portal requires the plant password for the **Installer** user group. You entered the plant password when registering your plants in Sunny Portal.

You can use Sunny Portal to change the plant password for the **Installer** user group for all devices that are registered in your Sunny Portal plant (see Section 11.3.2). The plant password for the **User** user group cannot be changed in Sunny Portal. You can change the plant password for the **User** user group with Sunny Explorer, for example (see Sunny Explorer help).

Changing default plant passwords

Change the default plant passwords for both user groups (user/installer) promptly in order to prevent unauthorised access to your plant.

11.3 Changing Passwords

11.3.1 Changing the Sunny Portal Password

Sunny Portal password requirements

☐ The Sunny Portal password may consist of a maximum of eight characters.

☐ You must have the user role "Standard user", "Installer" or "Plant administrator" (see Section 10.1 "User Roles and User Rights in Sunny Portal", page 46).

The following special characters are permitted:

- ! $ % & / ( ) = ? + − . ; : _ < > #
- Space

1. Select **User Info/Logout > User Information** in the page and menu selection.
2. Select the **If you want to change your password, please click here** hyperlink on the **User Information** tab.
3. Enter the old and the new Sunny Portal password in the fields provided.
4. Select [**Save**].

11.3.2 Changing the Plant Password

You can use Sunny Portal to change the plant password for the **Installer** user group for all devices that are registered in your Sunny Portal plant. If you change the plant password in Sunny Portal, the plant password of the inverter registered in Sunny Portal is also changed.

Requirements:

☐ You must have the user role "Installer" or "Plant administrator" (see Section 10.1 "User Roles and User Rights in Sunny Portal", page 46).

Plant password requirement:

☐ The plant password can be a maximum of 12 characters.

The following special characters are permitted:

- ? _ ! -

1. Select **Configuration > Plant Properties**.
2. Select the **Plant Data** tab.
3. Select [**Edit**].
4. Enter the old password in the **Old plant password** field in the **Plant Data** area.
5. Enter a new password in the **New plant password** field in the **Plant Data** area.
6. Enter the new password again in the **Repeat password** field in the **Plant Data** area.
7. Select [**Save**].

☑ A message that the password has been successfully changed is displayed.

✖ Is a message displayed stating that the password has not successfully been changed?

It is possible that a device cannot currently be reached.

- Try to change the plant password again later.
- If the problem persists, change the plant password of the devices with Sunny Explorer (see Sunny Explorer help) and then enter the new password in Sunny Portal. Otherwise, Sunny Portal cannot display any new data from the devices.

11.4 Forgotten Sunny Portal Password

1. Open **www.SunnyPortal.com**.
2. Select the **Forgotten Password?** hyperlink in the **Login** area.
3. Enter your e-mail address in the **E-mail** field.
4. Select [**Generate New Password**].

   ☑ You will receive an e-mail with a new password.
5. Change the assigned password (see Section 11.3.1 "Changing the Sunny Portal Password", page 50).

12 Glossary

Azimuth Angle

In the northern hemisphere, the azimuth angle indicates by how many degrees the module surface deviates from the compass point South. In the southern hemisphere, it indicates the deviation from the direction North. The azimuth angle is counted from south (0°) via west (+90°) with positive values and from south (0°) via east (-90°) with negative values.

DHCP

DHCP is short for "Dynamic Host Configuration Protocol" and is a server service with which devices are automatically integrated into a network. If no DHCP is activated in the network (e.g. on the router), devices must be integrated into the network manually. In order to do this, an IP address and subnet mask that are suitable for the network must be created manually for the device to be integrated, for example.

kWp

See "Peak Power"

Log File

A log file is an automatically run log of events on a computer system. A log file contains errors that have occurred during operation of the computer system, for example.

Nominal Power (kWp)

See "Peak Power"

Peak Power (kWp)

The peak power is the maximum output for a PV module calculated under STC (standard test conditions).

The peak power is measured in watt peak (Wp), kilowatt-peak (kWp) or megawatt-peak (MWp). Peak power is also often called nominal power.

STC: standard test conditions in the laboratory under which the electrical characteristics of a PV module are measured. This allows different PV modules to be compared with one another. The PV modules are exposed to vertical irradiation of 1,000 W/m^2, an ambient temperature of 25°C and a wind speed of 1 m/s. The electrical characteristics are then measured. The test conditions are designed to correspond to the ideal ambient conditions for operation of an installed PV module.

PIC

See "Abbreviations" (Section 1 "Information on this Document", page 7).

Plant power in kWp

The plant power in kWp (kilowatt peak) is the maximum possible plant power. The plant power in kWp is also known as the nominal power of the plant.

The peak power of a PV plant is the sum of the peak powers of all PV modules that are installed (see peak power of a PV module). The peak power of a PV plant is used to compare the plant yield and plant costs with other PV plants, for example. The peak power of a PV plant is often referred to as "plant power (kWp)".

An installed plant can rarely achieve peak power because it is not installed in laboratory conditions.

Plant Setup Assistant

The Plant Setup Assistant is an application in Sunny Portal that helps you register your plant in Sunny Portal.

Predicted Annual Yield (kWh)

The predicted annual yield of a plant is calculated using the specific annual yield (kWh/kWp) at the plant location and the plant power in kWp (also known as nominal power).

You can obtain the specific annual yield for your PV plant location from irradiation maps.

Specific annual yield (kWh/kWp) x nominal power (kWp) = predicted annual yield (kWh)

Example: calculation of the predicted annual yield

The specific annual yield at a PV plant location is approximately 900 kWh/kWp. The nominal power of the PV plant is 4.8 kWp.

Predicted annual yield = 900 kWh/kWp x 4.8 kWp = 4,320 kWh

PV Array

Technical device for the conversion of solar energy into electrical energy. All electrically connected (in series and in parallel) PV modules of a PV plant are referred to as a PV array.

For plants with micro inverters, a PV array consists of one PV module, as only one PV module can be connected to a micro inverter.

PV Array Capacity

The PV array capacity is the maximum power of the PV modules that are connected to one inverter.

PV Module

Electrical circuitry of several PV cells that are encapsulated in an enclosure to protect the sensitive cells against mechanical stresses and environmental influences.

RID

See "Abbreviations" (Section 1 "Information on this Document", page 7).

SMA Connection Assist

SMA Connection Assist helps you configure the devices for your network if they do not automatically integrate into your network and connect to Sunny Portal.

Specific Annual Yield (kWh/kWp)

The specific annual yield is a calculated average value of specific plant yield values of different PV plants for a location. You can obtain the specific annual yield for your PV plant location from irradiation maps. You can assess the efficiency of your PV plant by comparing the specific plant yield of your PV plant with the specific annual yield for your PV plant location.

Specific Plant Yield (kWh/kWp)

The specific plant yield is a key figure that describes the efficiency of a PV plant, regardless of its size. The specific plant yield is dependent on the irradiation in the location, the ambient temperature, shading, tilt and azimuth angle of the PV modules and the module and inverter power.

You can assess the efficiency of your PV plant by comparing the specific plant yield of your PV plant with the specific annual yield for your PV plant location.

The specific plant yield is calculated from the actual measured energy yield (kWh) of a PV plant for a specific period (e.g. a year or a month) divided by the peak power (kWp) of the PV plant.

Example: calculation of the specific plant yield for a year

Your PV plant consists of 40 PV modules, each with a peak power of 120 Wp (watt peak) according to the manufacturer specification. Thus, your PV plant has a peak power of 40 x 120 Wp = 4,800 Wp = 4.8 kWp.

To calculate the specific plant yield of your PV plant for the year 2011, for example, you will need the actual (measured) energy yield of your PV plant for 2011, e.g. 3,200 kWh. You can now calculate the specific plant yield of your PV plant for the year 2011:
3,200 kWh divided by 4.8 kWp = 666 kWh/kWp in 2011.

Tilt Angle

The tilt angle indicates by how many degrees the tilt of the the module surface deviates from the horizontal.

13 Contact

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

- For inverters with integrated Webconnect function:
  - Inverter type and serial number of the inverter (see type label of the inverter)
  - If possible: firmware version of the inverter (see Sunny Explorer)
- For inverters with retrofitted Webconnect function:
  - PIC of the Speedwire/Webconnect interface (see inverter type label or sticker near the type label)
  - Inverter type and serial number of the inverter (see type label of the inverter)
  - If possible: firmware version of the inverter (see Sunny Explorer)
- Number and types of all inverters
- Error description

Country	Company name	Subsidiary	SMA Service Line
Australia	SMA Australia Pty Ltd.	Sydney	Toll free for Australia: 1800 SMA AUS (1800 762 287) International: +61 2 9491 4200
Austria	See Germany		
Belgium	SMA Benelux bvba/sprl	Mechelen	+32 15 286 730
Bulgaria	See Greece		
China	SMA Beijing Commercial Company Ltd.	Beijing	+86 10 51501685-602
Czech Republic	SMA Central & Eastern Europe s.r.o.	Prague	+420 235 010 417
Denmark	See Germany		
France	SMA France S.A.S.	Lyon	**Sunny Boy / Sunny Mini Central / Sunny Tripower** Inverters: +33 472 09 04 40 Communication: +33 472 09 04 41 **Sunny Island:** +33 472 09 04 42 **Sunny Central:** +33 472 09 04 43
Germany	SMA Solar Technology AG	Niestetal	**Sunny Boy / Sunny Mini Central / Sunny Tripower** Inverters: +49 561 9522-1499 Communication: +49 561 9522-2499 SMS with "Rückruf": +49 176 888 222 44 **Sunny Island:** +49 561 9522-399 **Sunny Central:** +49 561 9522-299
Greece	SMA Hellas AE	Athens	+30 210 9856-666
Hungary	See Czech Republic		
India	SMA Solar India Pvt. Ltd.	Mumbai	+91 22 61713844

Country	Company name	Subsidiary	SMA Service Line
Italy	SMA Italia S.r.l.	Milan	+39 02 89347-299
Japan	SMA Japan K.K.	Tokyo	+81 3 3451 9530
Korea	SMA Technology Korea Co., Ltd.	Seoul	+82 2 508-8599
Luxembourg	See Belgium		
Netherlands	See Belgium		
Poland	See Czech Republic		
Portugal	SMA Solar Technology Portugal, Unipessoal Lda	Lisbon	+351 2 12 37 78 60
Romania	See Czech Republic		
Slovakia	See Czech Republic		
Spain	SMA Ibérica Tecnología Solar, S.L.U.	Barcelona	+34 900 14 22 22
Switzerland	See Germany		
Thailand	SMA Solar (Thailand) Co., Ltd.	Bangkok	+662 670 6999
United Arab Emirates	SMA Middle East LLC	Abu Dhabi	+971 2 698-5080
United Kingdom	SMA Solar UK Ltd.	Milton Keynes	+44 1908 304899
Other countries	International SMA Service Line	Niestetal	00800 SMA SERVICE (+800 762 7378423)

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