SolarEdge Monitoring Portal User Guide

For System Owners, Version 1.1

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About This Guide

This user guide is intended for Photovoltaic (PV) system owners who use the SolarEdge Monitoring Portal.

This guide assumes that the SolarEdge system has already been setup for use in the Monitoring Portal by a system administrator.

The guide includes the following chapters:

- **Chapter 1, Introducing SolarEdge Monitoring Portal**, page 5, introduces SolarEdge Power Harvesting solution and Monitoring Portal.
- **Chapter 2, Using SolarEdge Monitoring Portal**, page 6, describes the various aspects of the portal's user interface and describes how to use it to monitor system performance and troubleshoot faults.
- **Chapter 3, Site List**, page 9, describes the Site List window, which lists the sites in which a SolarEdge installation is physically located.
- **Chapter 4, Dashboard**, page 11, describes the Dashboard window, which provides an at-a-glance view of the key information collected by SolarEdge Monitoring for a specific site.
- **Chapter 5, Layout,** page 14**,** describes the *Layout* window, which shows a schematic layout of the system, and displays near-realtime performance data for these components.

Support and Contact Information

If you have technical queries concerning our products, please contact your system installer. If further support is required, contact SolarEdge support at this link:

http://www.solaredge.com/groups/support/services

Email: support@solaredge.com

Chapter 1 - Introducing the SolarEdge Monitoring Portal

The SolarEdge Monitoring Portal enables monitoring the technical and financial performance of one or more Photovoltaic sites with SolarEdge equipment. It provides accurate information about present and past performance of each module individually and about the system as a whole, enabling you to detect, pinpoint and troubleshoot faults, efficiently manage maintenance operations and analyze site profitability.

Smart algorithms continuously track the power, voltage, and current of all modules and inverters, as well as a range of statistical and meteorological indicators to detect performance events that require intervention or maintenance.

These features enable system owners to verify site functionality and monitor its performance.

Chapter 2 - Using the SolarEdge Monitoring Portal

Getting Started

To use the SolarEdge Monitoring Portal, your system installer will create and register your system in the Portal and then add you as the system owner.

To activate your account:

When the installer initiates your registration, you will receive an e-mail with a link to a form to fill in.

1 Click the link sent to you by the installer. The registration form is displayed.

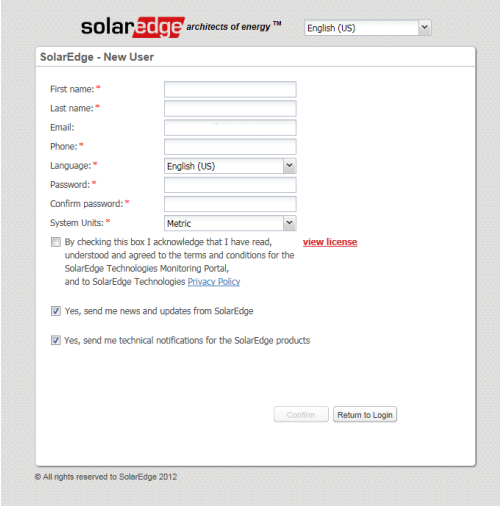


Figure 1: Registration Window

2 Enter your details and select the required check-boxes.

3 Click **Confirm**. The registration initiates.

4 When the message "User was created successfully. Please click here to login" appears, click **Login** to SolarEdge. The Login window is displayed (Figure 2).

To launch the SolarEdge Monitoring Portal:

1 Do one of the following:

- Go to www.monitoring.solaredge.com.
- From the SolarEdge website, click the **Monitoring Portal Login** link at the top of the screen.
  The Login window is displayed:

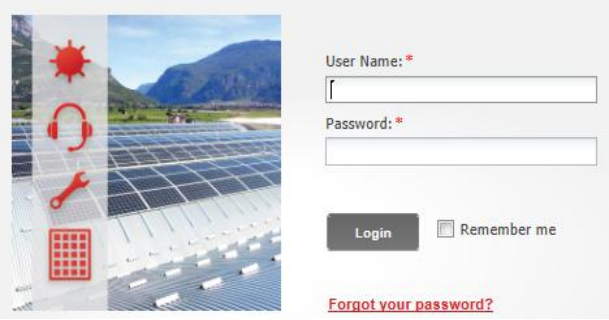


Figure 2: Login Window

2 Enter your user name (usually your e-mail) and password (as filled in the registration form) and click Login.
If more than one site is assigned to you, the list of your SolarEdge sites are displayed, as shown on the Site List. Refer to *Chapter 3 - Site List* on page 9.
If only one site is available, the site's Dashboard is automatically displayed, without going through the Site List.

Common Window Features

The SolarEdge Monitoring Portal provides a variety of site-specific performance views. This section describes the features that are common to all SolarEdge Monitoring windows.

The toolbar at the top of the window provides access to these main windows, as follows:

- **Dashboard:** provides a high-level, at-a-glance view of the information collected by the SolarEdge Monitoring Portal for a specific site. Refer to *Chapter 4 - Dashboard* on page 11.
- **Layout**: shows a schematic layout that represents inverters, clusters, strings and the modules in each string. The physical layout can also be accessed through this window. Refer to *Chapter 5 - Layout* on page 15.

The toolbar at the top right of the window provides the following options:

- **Home**: returns to the Site List if you have more than one registered site. Otherwise, it returns to the site's dashboard. Refer to *Chapter 3 - Site List*, on page 9.
- Clicking **your user name** dropdown list displays the following:
  - **User Settings:** enables setting use preferences, as described below.
  - **Logout**: to exit the system

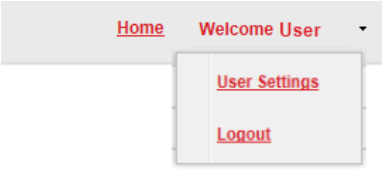


Figure 3: User Dropdown List

User Settings

To set user preferences:

1 Click the dropdown arrow next to your username and select **User Settings**. The User Settings window is displayed.

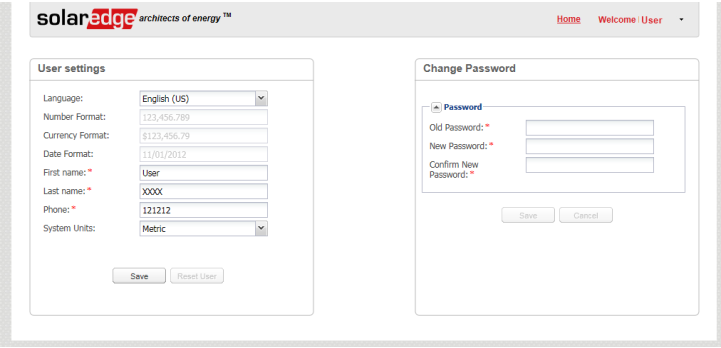


Figure 4: User Settings Window

2 Set the following:

- Language: Select the language in which the Monitoring Portal will display. When you change the language, the localized data changes automatically, including numbers, currency and date formats.
- Number Format, Currency Format and Date Format are read-only fields
- First Name
- Last Name
- Phone number
- System Units: Metric or Imperial
- Change password – Click and modify if necessary

3 Click **Save**.

Chapter 3 - Site List

The Site List window lists all the installed sites that you have permission to view. It provides an overall view of the various sites managed by the Monitoring system. If you require access to additional sites, contact your installer.

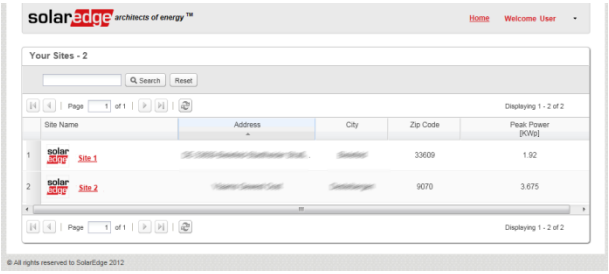


Figure 5: Site List Window

To use the Site List window:

1 Click **Home** at the top right toolbar. The site list is displayed containing the following information about each site:

Column	Description
Site Name	A link to more information about a site. Click the site name to display the dashboard (refer to *Chapter 4 - Dashboard*, on page 11).
Address, Country, Zip code	These columns contain information about a site's physical location.
Peak Power	Specifies the total DC power ratings of all the modules.

2 Do the following as required:

- To control which columns appear:
  - Hover over the column name and click the arrow to open a dropdown list.
  - Click **Columns** and select the check boxes to display.

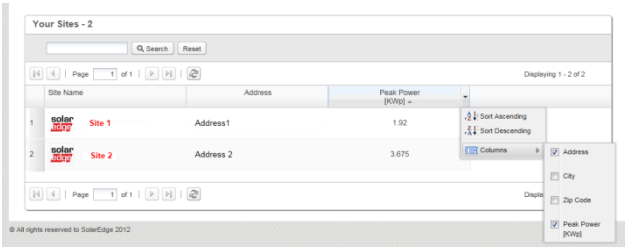


Figure 6: Displaying Columns

- To sort the site list by the values in any column, click on the column's title. This toggles the order from ascending to descending and vice versa. Alternatively, click the column's dropdown arrow and select either Sort Ascending or Sort Descending.

- Use the navigation bar above the list to navigate through the pages and refresh site information.
- Search for a specific site using the search box. The search text is remembered even if the browser is closed and re-opened.

Chapter 4 - Dashboard

The *Dashboard* provides a high-level view of the information collected by the SolarEdge Monitoring Portal for a specific site.

To view the Dashboard, click the Dashboard icon at the top-left of the screen.

The next sections describe the information displayed in each window area.

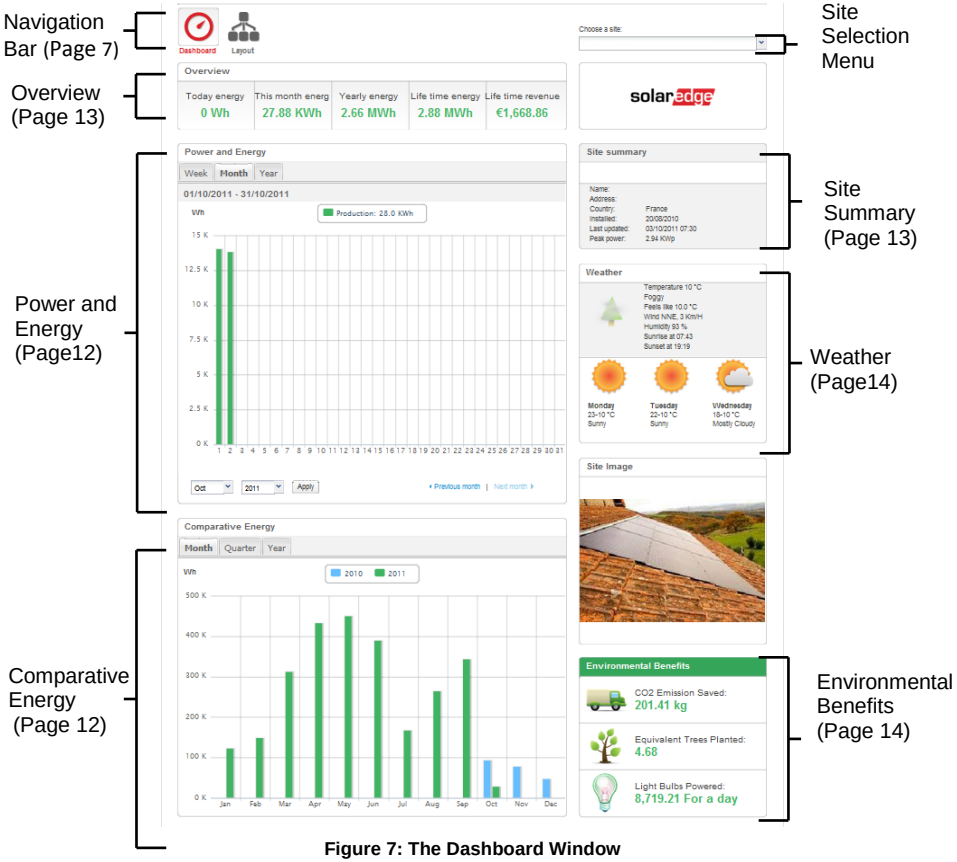


Figure 7: The Dashboard Window

Overview

The **Overview** area shows accumulated energy and revenue for this site. Each box specifies a value and its measurement unit.

The revenue is calculated by multiplying the site-specific feed-in tariff per kWh by the actual energy produced. The revenue is displayed in the currency predefined by the user.

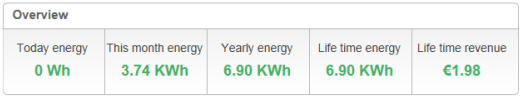


Figure 8: Overview

Power and Energy

The **Power and Energy** chart shows the power production of this site over a specified period. The default period is the past month.

The X-axis represents time and the Y-axis represents the power produced in kW (when in Week view), or the energy produced in kWh (when in Month or Year view). Use the tabs above the graph to select the desired view.

Power level is a function of variable factors, such as the irradiance level and ambient temperature. Therefore the power-curve typically rises and falls each day.

If there is a data connection between a production meter and your SolarEdge system, then the production data displayed here is taken from the meter's readings. If not, the data is taken from your site inverter or module production readings. .

If a consumption meter is installed, a separate Consumption meter bar is displayed in the graph. The Consumption meter reading represents your home use energy consumption.

You can view energy consumption, energy production or both by clicking Production and/or Consumption.

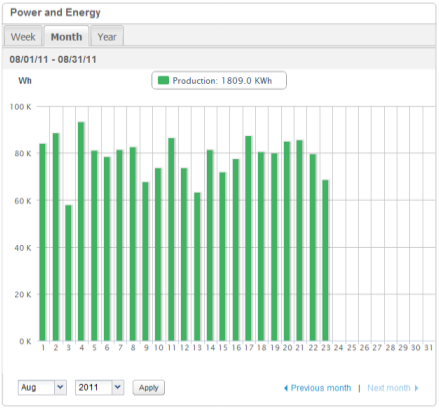


Figure 9: Power and Energy

Comparative Energy

The **Comparative Energy** chart compares the energy produced at the site during corresponding periods in previous years. You can select to compare months or quarters of different years, or even entire years' output.

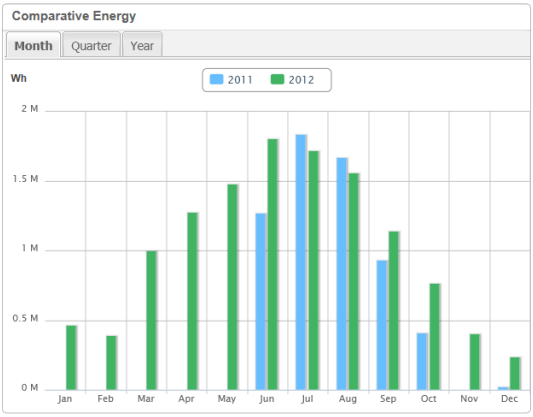


Figure 10: Comparative Energy

Site Summary

The **Site Summary** box displays general information about the site: name, location, date installed, date the information was last updated, and the site's peak power.

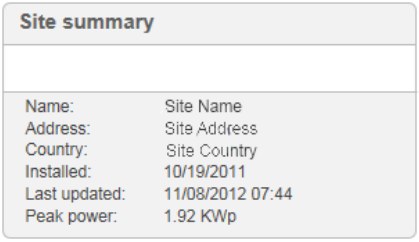


Figure 11: Site Summary

Environmental Benefits

The **Environmental Benefits** area shows the accumulated impact that non-renewable energy producing methods would have had on the environment had they have been used to produce the amount of energy generated by this site.

NOTE:

The *Light Bulbs Powered* calculation is based on a 60W light bulb operating 5.5 hrs/day. The *Equivalent Trees Planted* and CO_2 *Emission Saved* calculations are based on conversion factors from lifetime energy figures. The factors are taken from the US EPA site (http://www.epa.gov/cleanenergy/energy-resources/refs.html).

Figure 12: Envirionmental Benefits

Weather

The **Weather** area shows the current weather conditions together with other details as well as the forecast for the next few days. This information may be helpful when estimating future power production levels.

NOTE:

Weather data is gathered from a weather station near the installation site so might not reflect exact weather on the site itself.

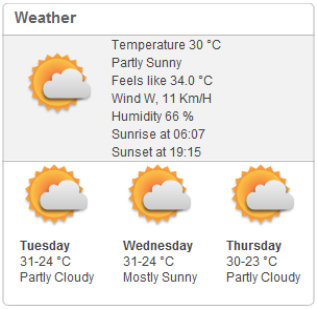


Figure 13 Weather

Chapter 5 - Layout

Overview

The Layout window shows a schematic outline that represents inverters, their strings and the modules in each string. Near-real-time performance data is displayed for these components.

To view the Layout, click the 

icon at the top-left of the screen.

Use the Layout window to:

- View the latest performance of specific components.
- Compare and analyze the performance of various components, such as modules. .
- Pinpoint the location of alerted components.
- See how components are connected to each other.

The Layout window offers both *Logical Layout* and *Physical Layout* views, as follows:

- Logical Layout: Shows a schematic logical view of the components in the fields, meaning inverters, clusters, strings, modules and their electrical connectivity.
- Physical Layout: Shows a bird's eye view of the actual placement of each component in the field, including inverters, clusters, strings and modules.

Logical Layout

The *Logical Layout* window shows a schematic logical layout of the components in the fields: inverters, strings, modules and their electrical connectivity. This layout displays a logical view of the installation site, showing which modules are connected in each string, which strings are connected to each inverter, etc.

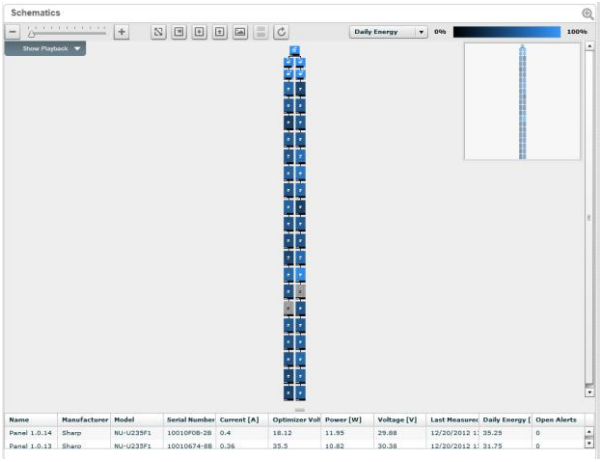


Figure 14: Logical Layout

NOTE:
The Layout Schematic automatically zooms in or out, based on the number of components displayed in the window.

When in the *Logical Layout* window, clicking the button in the toolbar displays the Physical Layout Diagram.

Physical Layout

The Physical Layout Schematic shows a layout of the components in the field: inverters, clusters, strings, modules and their physical arrangement in the installation site. This layout offers a virtual bird's eye view of the system's components and their location, which functions as a usable tool for troubleshooting maintenance problems.

The following shows the Physical Layout diagram of the installation for which Logical Layout was shown above:

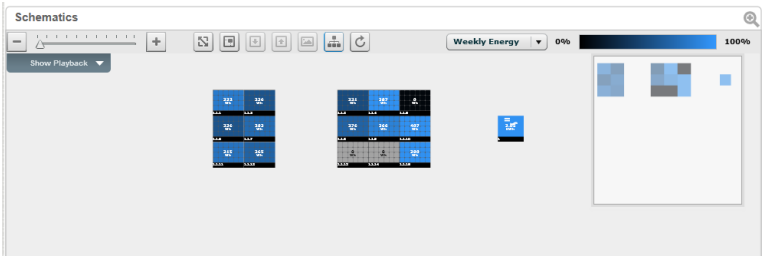


Figure 15: Physical Layout

Both windows show the inverter with associated strings and modules.

When in the *Physical Layout* window, clicking the button in the toolbar displays the Logical Layout Diagram.

Components in the Schematic

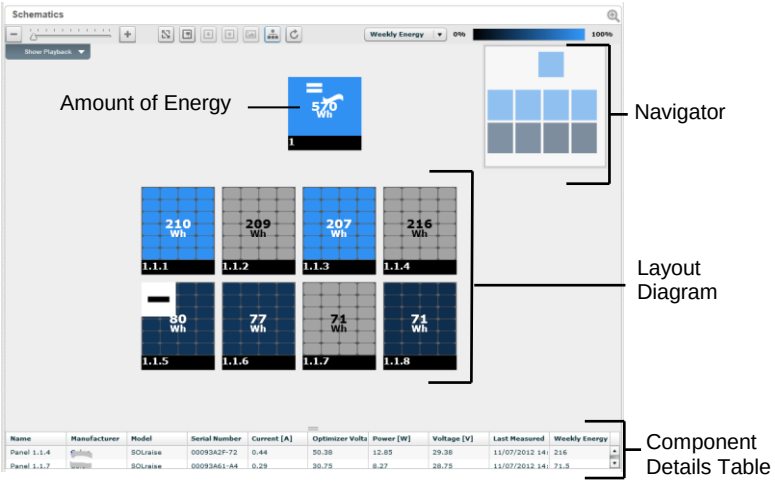
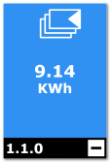


Figure 16 Components in the Schematic

Each component shown in the Layout Diagram also displays the following information:

- **Amount of Energy:** Indicates energy produced by this component and its underlying components in the period chosen in the drop down menu above the diagram.
- **Color Code**: as detailed in *Color Coding*, on page 21.
- **Plus ⊞ or Minus ⊟ Icons:** Indicate that the component can be expanded or collapsed to open or close its underlying hierarchy.

Component Types

Component	Description
	**Site**: Represent the site level. Displays the energy produced by the site for the selected period.
	**Meter:** Represent a production meter connected to the site and measures the energy supplied to the grid. Displays the energy read by the meter.
	**Inverter**: Represents an installed inverter. Displays the energy sum produced by the strings or modules connected to it.
	**SMI**: Represents an installed Safety and Monitoring Interface unit. An SMI unit is installed in sites where the SolarEdge modules are connected to non-SolarEdge inverters. The SMI unit connects the module to the inverter and to the monitoring portal.
	**String:** Represents strings of module. Displays the energy sum produced by the modules comprising the string.
	**Module:** Represents a single module. Displays the energy produced by the module.

Toolbar

The schematic site map may be quite large and therefore you can use the following tools to adjust the display or to display the information of interest:

Figure 17: Schematic Toolbar

Icon	Description	Comment
	Zoom In/Out Slider: Makes the diagram smaller or larger. Use the slider to zoom in or out or click on icons on either side of the slider.	You can also zoom in and out of the diagram using the mouse wheel
	**Fit Content:** Resizes the display of the diagram to fit in the window	
	**Show/Hide Navigator:** Shows or hides the *Navigator* tool, as described in the *Navigator* section on page 20	
	**Expand/Collapse:** Expands or collapses the selected components in the Logical Layout Diagram, thus hiding or showing its underlying component hierarchy.	Large-scale sites installations may contain thousands of modules. To enable simple site navigation, the SolarEdge Monitoring Portal enables the user to expand or collapse each hierarchical group of elements, one at a time. For example, expanding the inverter level shows all its connected strings. Expanding a selected string shows its modules.
	**Portrait/Landscape:** Displays the Layout Diagram in either a portrait or landscape orientation.	
	**Physical / Logical Layout:** Displays the Physical or Logical Layout Schematic for the entire site. Selected components remain selected when moving between the different layouts.	For more details refer to *Logical Layout*(page 15) or *Physical Layout*(page 16).
	**Refresh:** To refresh the Layout Schematic and Component Detail table, click this icon.	
	**Full Screen:** Displays the diagram in full screen mode	
	**Timeframe Selector:** Using the drop-down menu, select a timeframe in which to display the energy production by each component in the layout.	

Navigator

The **Navigator** tool at the top right-hand side of the window enables you to draw and drag a small box that indicates the area to be displayed in the diagram.

Figure 18: Schematic Navigator

Component Details

The **Component Details** area shows up-to-date details and performance data, such as the last power output measured, of selected components.

To view component details:

1 Click one or more components of the same type in the diagram (for example only modules or only strings). You can use **Ctrl** – **Click** to perform multiple selections. Modules from different strings can be selected, as well as strings from different inverters.
Alternatively, you can use the mouse to draw and drag a selection box around the components whose details you want to display.
The latest information about selected components is automatically shown in the component details table at the bottom of the screen.

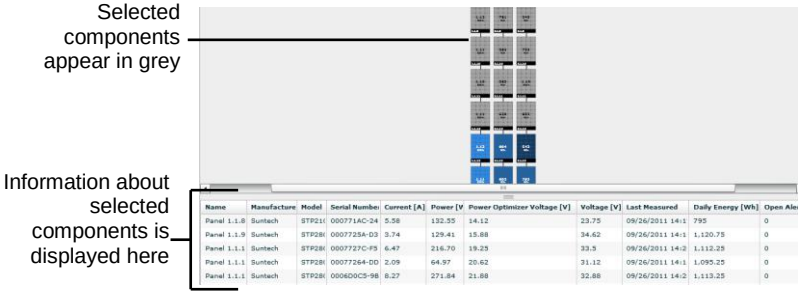


Figure 19: Component Details

2 Use the table information for near-real-time comparison of component performance, in order to troubleshoot faults and find their root cause. For example, checking which strings are producing less energy and locating the individual modules in those strings that may cause this situation.

TIP:
Comparing component performance is most valuable when the measurements are made at the same time. Comparing measurements taken at different times may not be valid, as irradiance or temperature levels may have changed between measurements.

3 Click the arrow ▼ in the title bar of a column to sort its rows according to the values in that column. ▼ sorts the rows in descending order and ▲ sorts in ascending order.
You can also change the order of the columns by moving a column, or several columns, just by dragging and dropping the column title.
The following describes information in the columns when selecting a module:

Column	Description
Name, Manufacturer, and Model	Identifying information assigned to this module.
Serial Number	A unique identifier of this module's power optimizer.
Current [A]	Module output current, measured in Amps.
Voltage [V]	Module output voltage, measured in Volts.
Power [W]	Module output power, measured in Watts.
Optimizer Voltage [V]	Power optimizer output voltage, measured in Volts.
Last Measured	Specifies the last time Current, Voltage and Power were measured for this module. Typically, measurements are taken every 10 minutes.

When you select inverters, clusters or strings, the information shown in this window is relevant to that type of component.

Color Coding

In the layout schematic, all elements of the diagram are color coded according to the amount of energy they have produced in the timeframe specified in the timeframe selector on the toolbar (see *Toolbar* on page 18).

Figure 20: Timeframe Selector

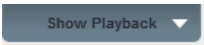
The color coding is comparative, that is, a module which has produced the most energy over the selected timeframe is light blue, while a module which has produced less energy is darker, according to the scale shown at the top right corner of the window:

Figure 21: Color Bar

The color coding is also normalized, so the modules' color is relative to their full capacity. For example, a module that can produce 100 Watts is the same color as a module that can produce 200 Watts, assuming they are both producing at the same percentage of their full capacity. Normalization is also in accordance with the number of power optimizers connected to each string.

Playback

The SolarEdge Monitoring Portal includes a *Playback* feature which dynamically visualizes the power of a site during a selected time fragment (either a day or a week).

To open the playback viewer click Show Playback 

at the to-left corner of the window. The playback toolbar is displayed.

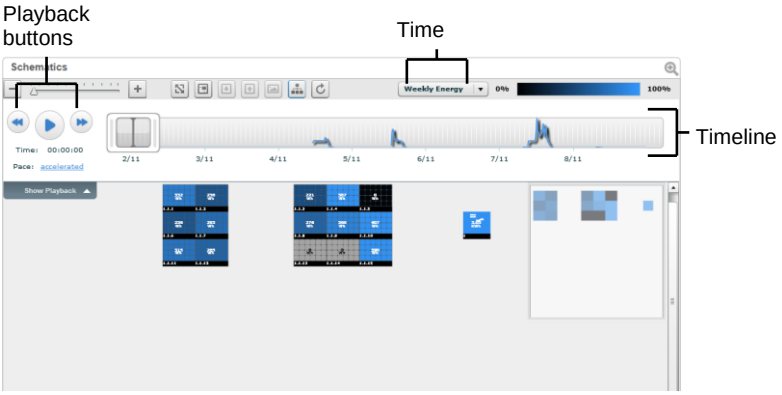


Figure 22: Playback

- Click  to show how the modules' energy production changes in time, represented by the color code detailed above. Additionally, the total amount of energy produced at that time is shown on the blue chart on the timeline.
- Drag the slider along the timeline to focus on a chosen time fragment.

  The resolution of the playback data is 15 minutes.

If you have technical queries concerning our products, please contact our support through SolarEdge service portal:
http://www.solaredge.com/groups/support/services

North America	(Toll free) 1877 360 529 2
Australia	(Toll free) 1800 149 229
Germany	089 454 597 30
France	(Toll free) 0800 917 410
Italy	(Toll free) 0800 784 824
United Kingdom	(Toll free) 0800 206 105 8
Belgium	(Toll free) 0800 730 41
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