

Aurora Communicator

Monitor tool for Aurora Inverters

User Manual

Date	version	author	note
20/12/07	1	Nocentini Lorenzo	first revision

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Important!

This manual has been written considering "English" as the default language: since "Aurora Communicator" let the user change the language, you may not find correspondance between the version you are running and the entries in this manual (unless you set the language to "English").

(i.e. the "Configuration" menu is called like this only if the selected language is "English", but it changes to "Configurazione" if the language is "Italiano" and "Konfiguration" in "Deutsch")

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1 - Setup

1.1 - Requirements

This application can run on any PC with Windows based operating systems, but for better performances we suggest a 2GHz processor and at least 512 MB of RAM.

Microsoft .NET Framework (v2.0) is installed automatically during the setup.

Aurora Communicator has been successfully tested with the following operating systems:

- Windows 2000
- Windows XP
- Windows Vista

1.2 - Installation

Just run the **setup.exe** file provided and follow the instructions until the installation is completed.

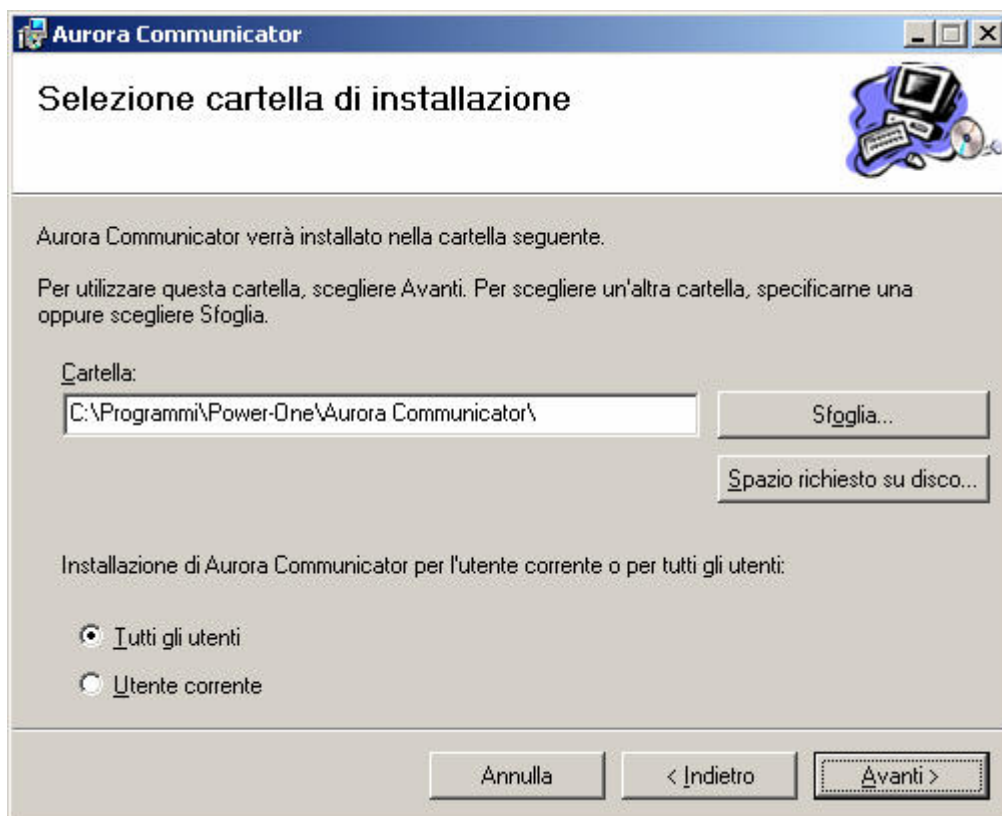


Fig. 1.1 – Installation window

During the setup, your PC may need to be restarted.

Once the program is successfully installed, it will create a launch icon in the desktop and in the start menu.

2 - Starting up

Configuring Aurora Communicator

When you run the program for the first time, these are the settings that you may need to configure:

- **Language**
- **Serial port**
- **Preferences**
- **Inverters**

2.1 - Language Selection

Aurora Communicator automatically configures the language according to the system language.

Nevertheless it is possible to change it in any moment: from the menu (on the top), select "**Language**" then pick the one you desire.



Fig. 2.1 – Language Selection

2.2 – Serial Port Selection

This application uses a serial connection to communicate with the inverters. To change these settings, from the menu on the top select "**Configuration**" then "**Select Serial Port**".

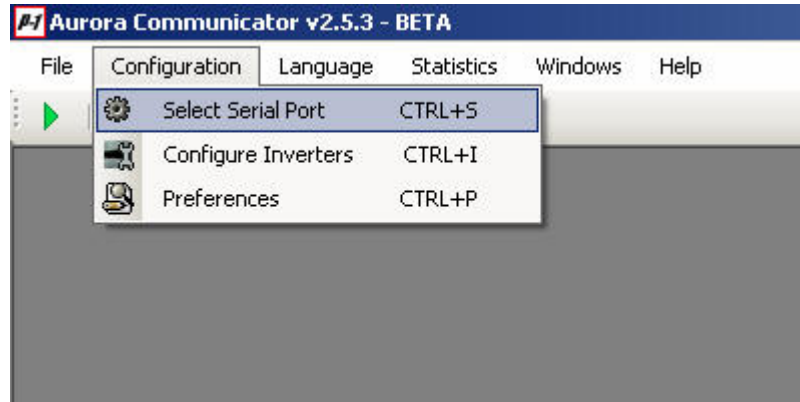


Fig. 2.2.1 – Serial port selection

This will open the serial port configuration window:

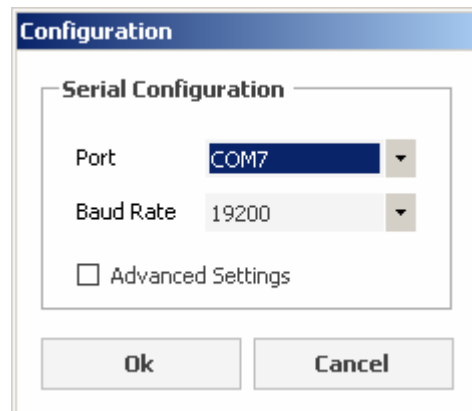


Fig. 2.2.2 – Serial port configuration window

Just select from the “**Port**” combo box the appropriate port. It is recommended to leave the other settings unchanged.

2.3 – Preferences

These are general settings. To modify them, from the menu on the top select “**Configuration**” then “**Preferences**”.

This will open the preferences window:

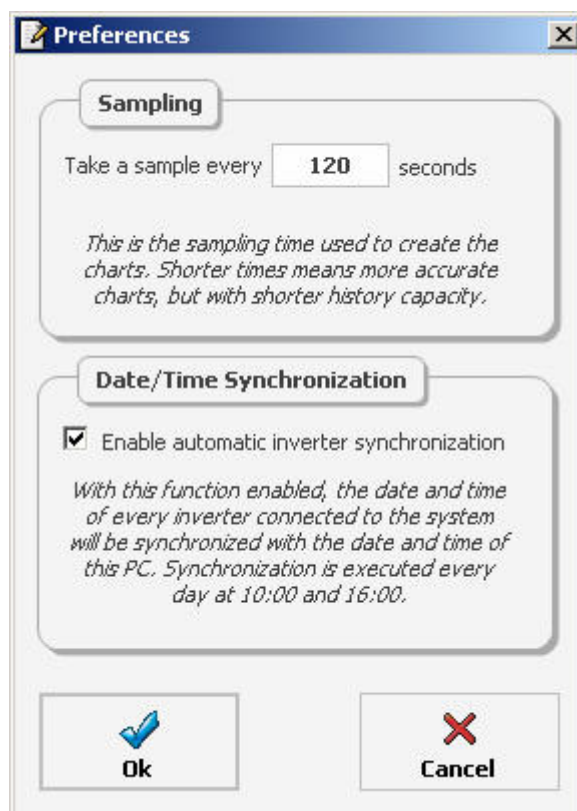


Fig. 2.3.1 – Preferences

2.3.1 – Sampling

This parameter defines the interval (in seconds) from one sample and the next.


It is recommended to enter a value of at least 60 seconds.

Using shorter times will result in more accurate charts, but more memory will be used, both in RAM and in the hard disk (to store the statistics).

2.3.2 – Date / Time Synchronization

If you enable this option, this application will update the date and time of each inverter with the system time two times in a day (at 10 AM and at 4 PM). This is to ensure that there is no time discrepancy between the PC where Aurora Communicator is running and the inverters.

2.4 – Inverters Configuration

Before using this application for the first time, you must configure the inverters you have connected to the system; to do so, open the inverter configuration window by clicking on this button  in the upper toolbar, or, from the menu on the top select "**Configuration**" then "**Configure Inverters**".

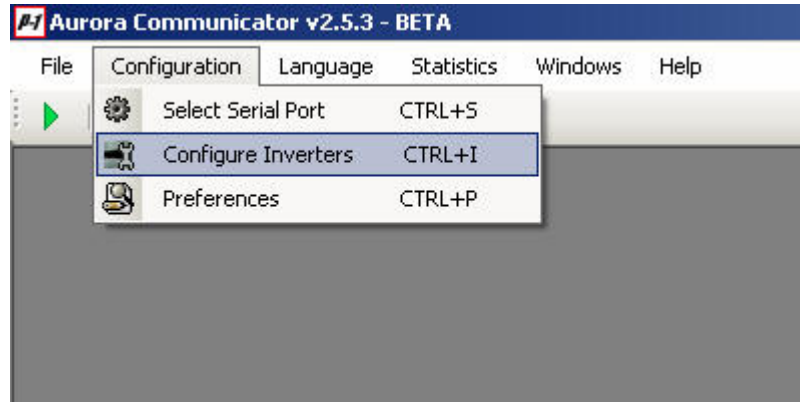


Fig. 2.4.1 – Configuring inverters

This will open the inverters configuration window:



Fig. 2.4.2 – The Inverters Configuration window

To configure the inverters, you can either add each one by entering their addresses or you can scan the system to check which inverters are currently connected.

To manually add an inverters, click on the **"Add"** button.

To search for inverters, click on the **"Auto-Scan"** button (this operation may take a few minutes).

You can modify the list with the **"Remove"** and **"Edit"** buttons, and also change the position of an inverter in the list with the up/down buttons.

Once you are done with the configuration, press **"Ok"** to exit.

3 – Using Aurora Communicator

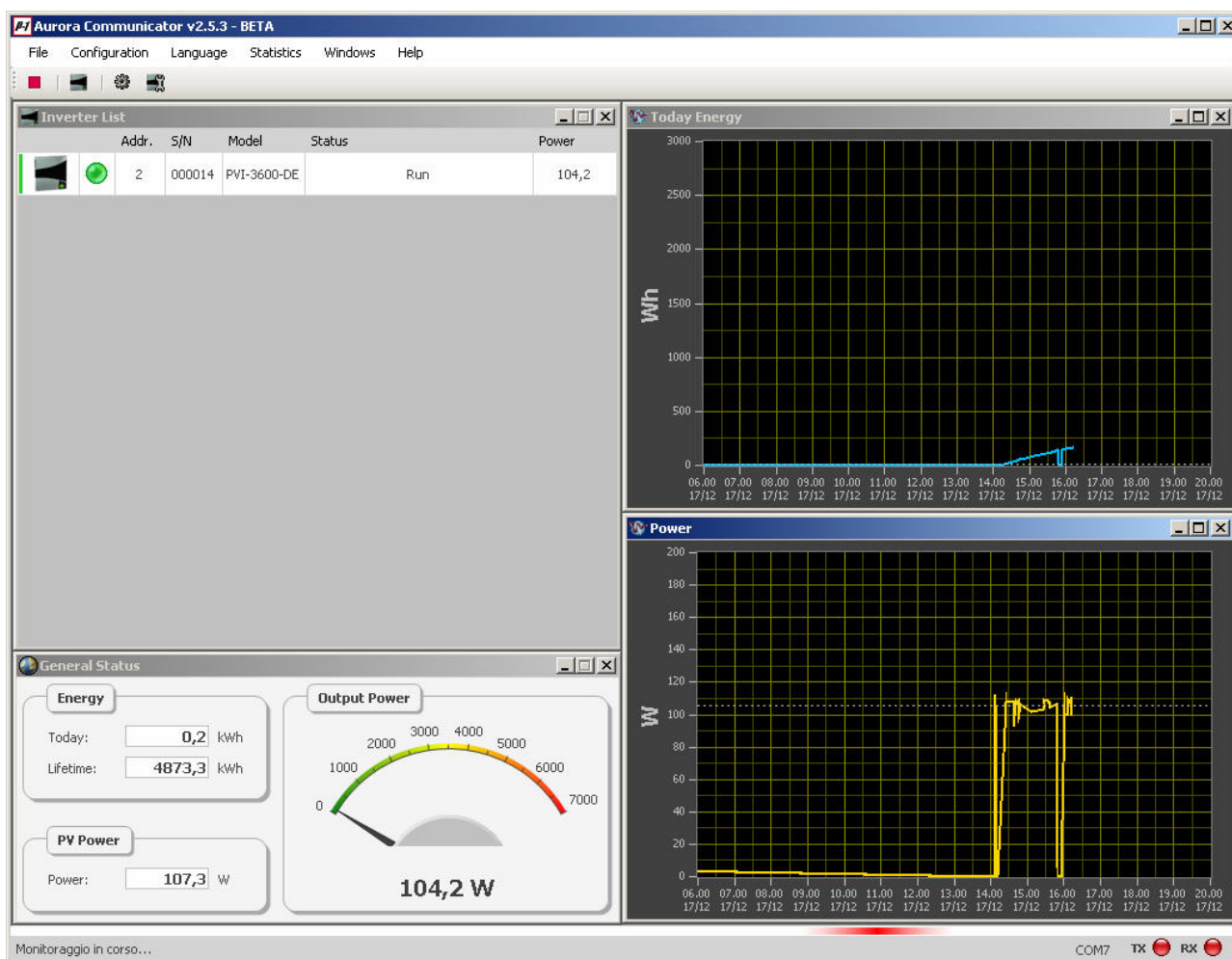


Fig. 3.1 – Aurora Communicator

Once you have configured the system you can start monitoring the inverters.

Press the "Start" button on the toolbar to begin.



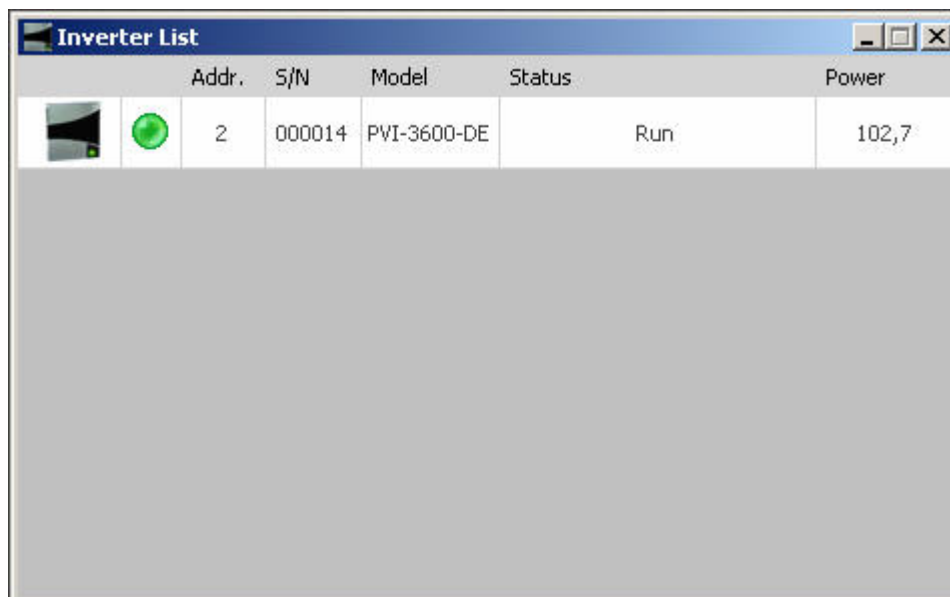
Press it again when you want to stop (the start button is replaced by the stop button when the monitoring is enabled).

The windows you see by default are:

- **Inverters List**
- **General Status**
- **Today Energy**
- **Power**

3.1 – Inverters List

This window shows the status of the inverters connected to the system. See section 2.4 to learn how to configure this list.




	Addr.	S/N	Model	Status	Power
	2	000014	PVI-3600-DE	Run	102,7

Fig. 3.1.1 – Inverters List

You can manually change the date and time of each inverter by right clicking on it, then selecting **"Edit Date/Time"**.

If you double click on a row, the control panel for the selected inverter will show up:

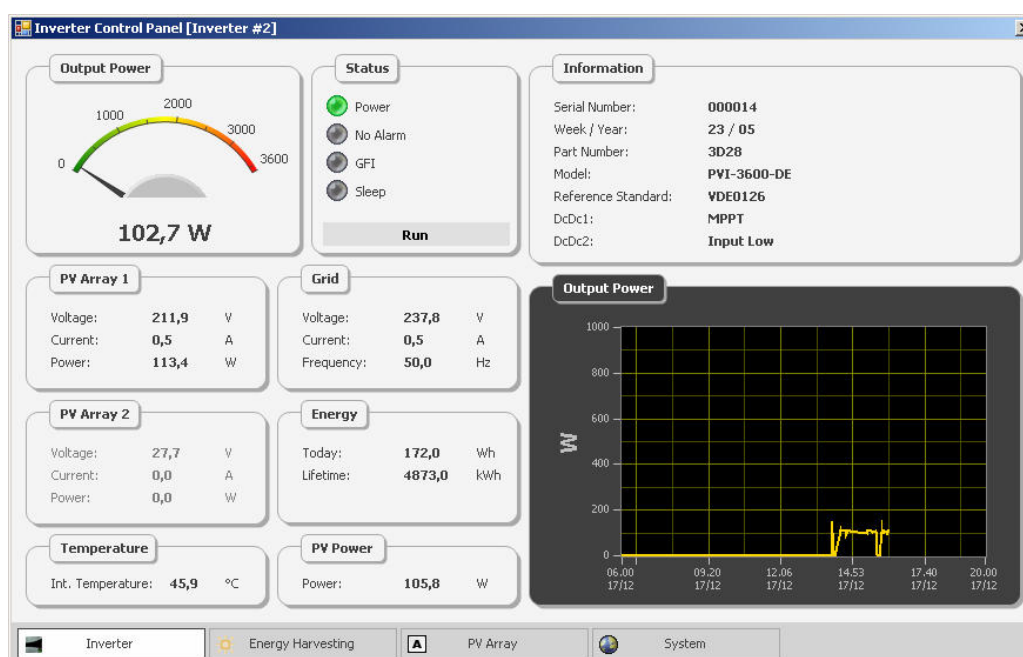


Fig. 3.1.2 – Inverter Control Panel

This panel shows the details of a single inverter.

Information are divided in four sections:

- **Inverter** Shows the general details of the inverter
- **Energy Harvesting** Statistics of the energy collected by the inverter (see section 3.1.1)
- **PV Array** Status of the photovoltaic array
- **System** A summary of the system status

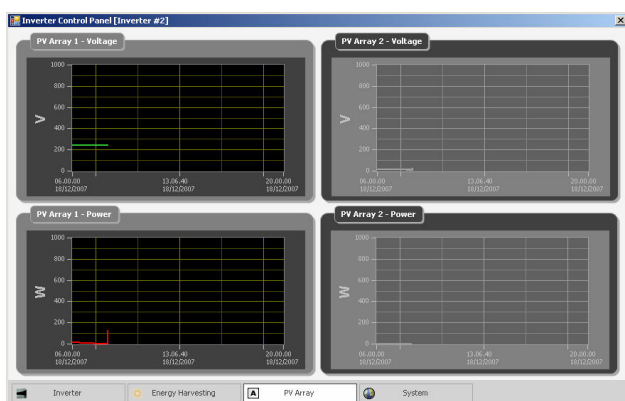


Fig. 3.1.3 – PV Array

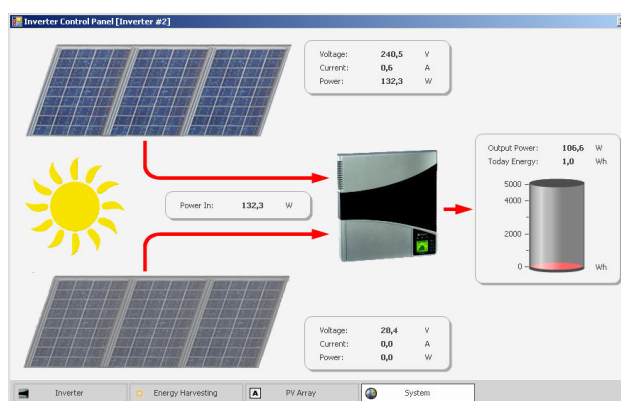


Fig. 3.1.4 – System Status

3.1.1 – Energy Harvesting

In this section of the control panel you can see how much energy has been harvested by the inverter in different time spans.

The first time you enter here, Aurora Communicator will load data from the inverter to generate the statistics; this operation may take a few moments.

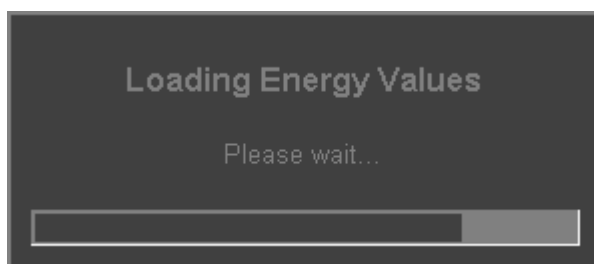


Fig. 3.1.1.1 – Loading inverter statistics

If you want to update the statistics, press the **“Reload”** button in this section.

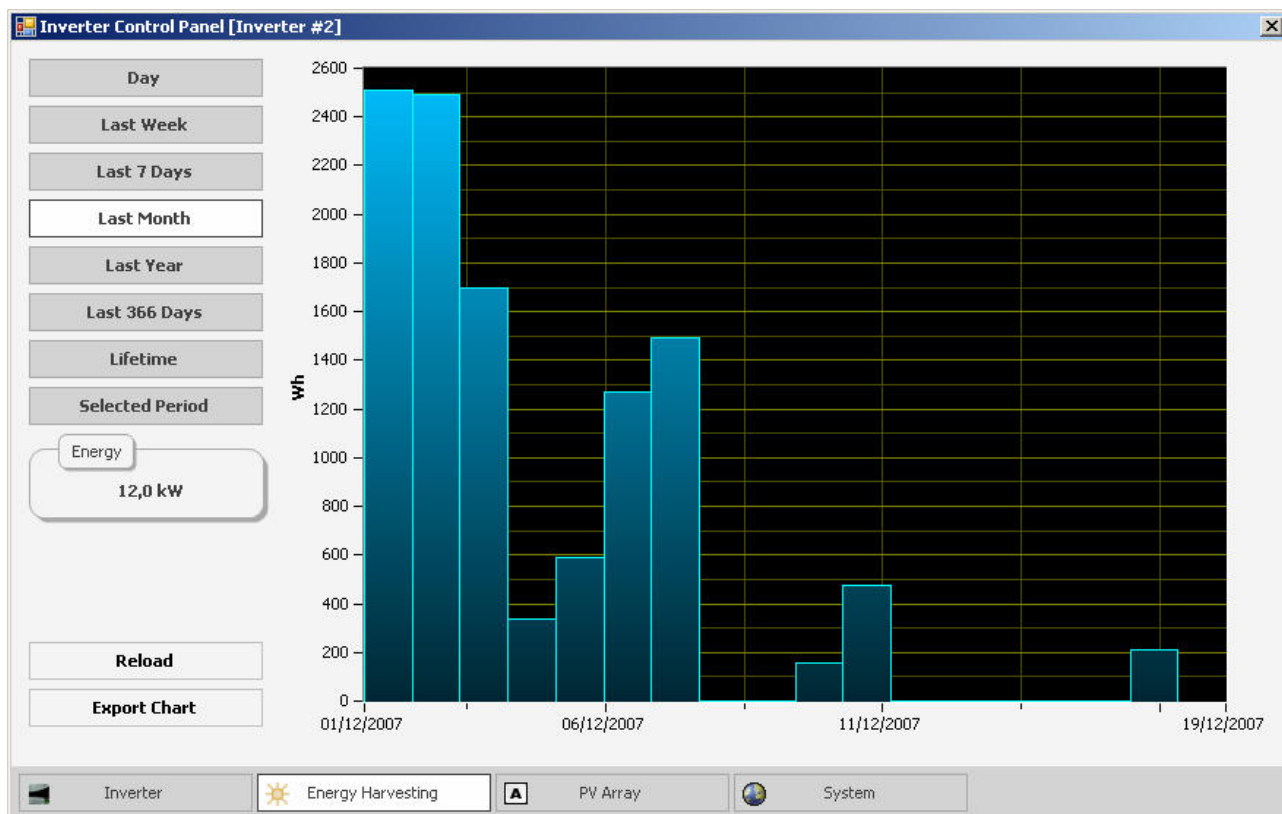


Fig. 3.1.1.2 – Energy Harvesting

On the left side of this section you can choose which time period you want to see.

By using the “**Export Chart**” function you can also save a copy of the statistics in **xls** or **csv** format.

4 - Charts

Aurora Communicator generates several charts while monitoring the system, in order to collect data for the statistics.

By default, you can see in the main application window the charts of the daily energy ("Today Energy") and power. These two are updated automatically from time to time (see section 2.3.1, "**Sampling Time**").

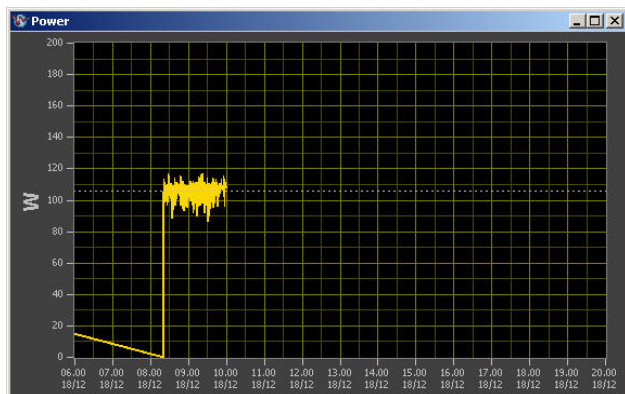


Fig. 4.1 – Power

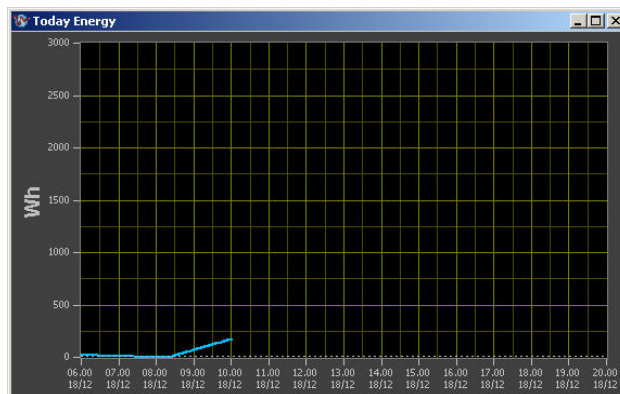


Fig. 4.2 – Daily Energy

4.1 – Charts Interaction

It is possible to interact with the charts by using a combination of keyboard and mouse.

There is an help inside Aurora Communicator that can show you how to operate: to open it, from the menu on the top, select "**Help**" then "**Charts Information**".

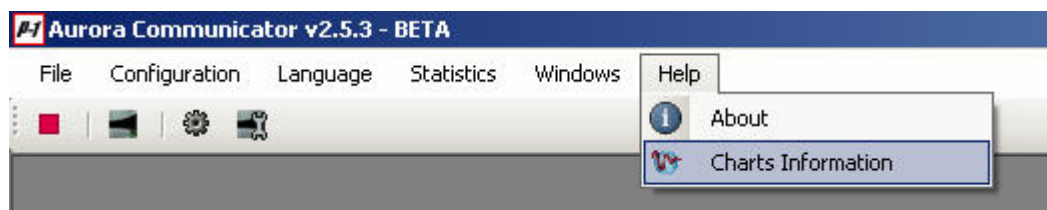


Fig. 4.1.1 – Charts Help

In any case, here is a summary of the most important operations:

Zoom In	Shift + Left Mouse Click
Zoom Area	Shift + Drag Mouse with the Left Button Pressed
Reset Zoom	Shift + Backspace
Undo Zoom	Shift + Right Mouse Click
Zoom In / Out	Shift + Mouse Wheel
Move Chart	Ctrl + Drag Mouse with the Left Button Pressed

Move Left	Ctrl + Left Arrow
Move Right	Ctrl + Right Arrow
Move Up	Ctrl + Up Arrow
Move Down	Ctrl + Down Arrow
Reset Move	Ctrl + Backspace
Undo Move	Ctrl + Mouse Right Click

4.2 – Charts Options

Right click on a chart to open this contextual menu:

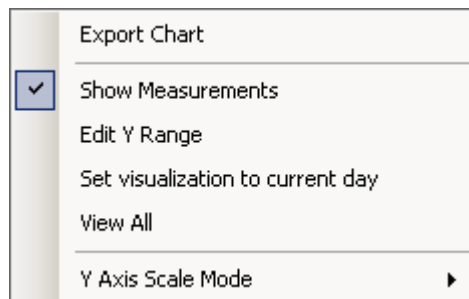


Fig. 4.2.1 – Chart Menu

4.2.1 – Export Chart

With this feature you can export a chart in different formats:

- **.cht** This is the default format used in this application: you can only open these files inside Aurora Communicator.
- **.xls** These are TAB separated files that can be opened with any version of Excel.
- **.csv** These files contain data of each point in the chart; they can be opened with various applications.
NOTE: you can save these files in 2 ways: european or american. The first one uses the character “,” as separator for decimal digits, while the second one uses the character “.”.

4.2.2 – Show Measurements

This option shows/hides the small panel in the upper right area of a chart that reports various measurements (values, times and intervals).

Drag the two cursors (those dotted lines you see in the chart) to change their position.

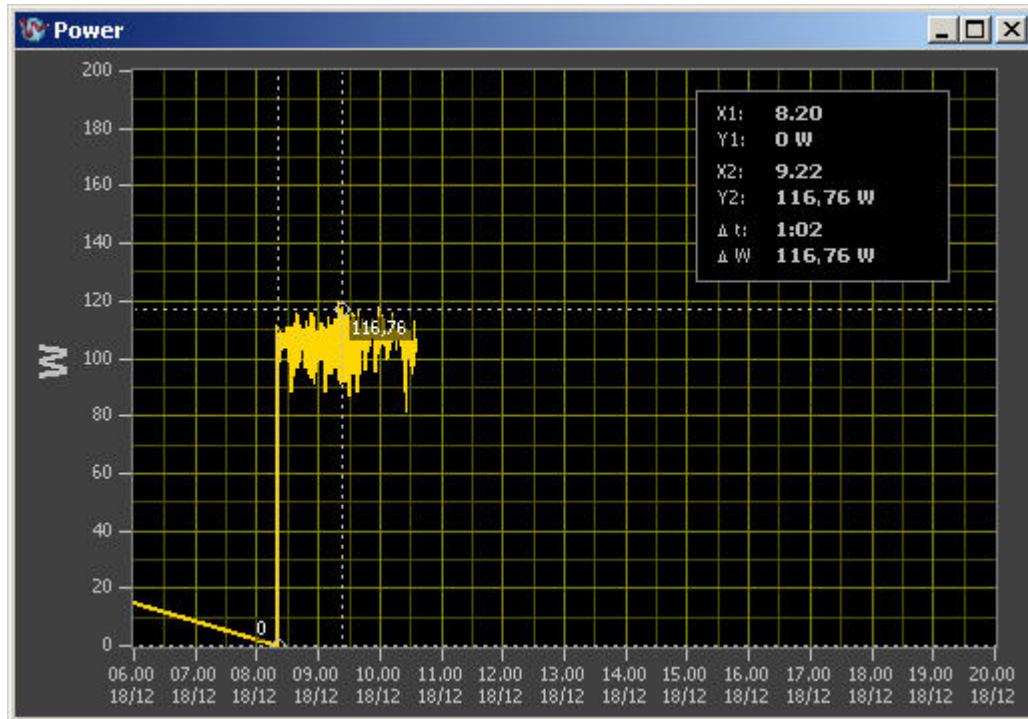


Fig. 4.2.2.1 – A chart with measurements shown

4.2.3 – Edit Y Range

Select this option to change the chart's default Y range in order to better adjust it (if needed).

You will be asked for a new interval:

Fig. 4.2.3.1 – Edit Y Range

4.2.4 – Set visualization to current day

This function shows the current day in the X axys of the chart (from 6:00 AM to 8:00 PM).

Use it to quickly reset the visualization to the default one if you manually scrolled/zoomed into the chart.

4.2.5 – View All

This function automatically changes the X and Y axes of the chart in order to perfectly fit the waveform on it.

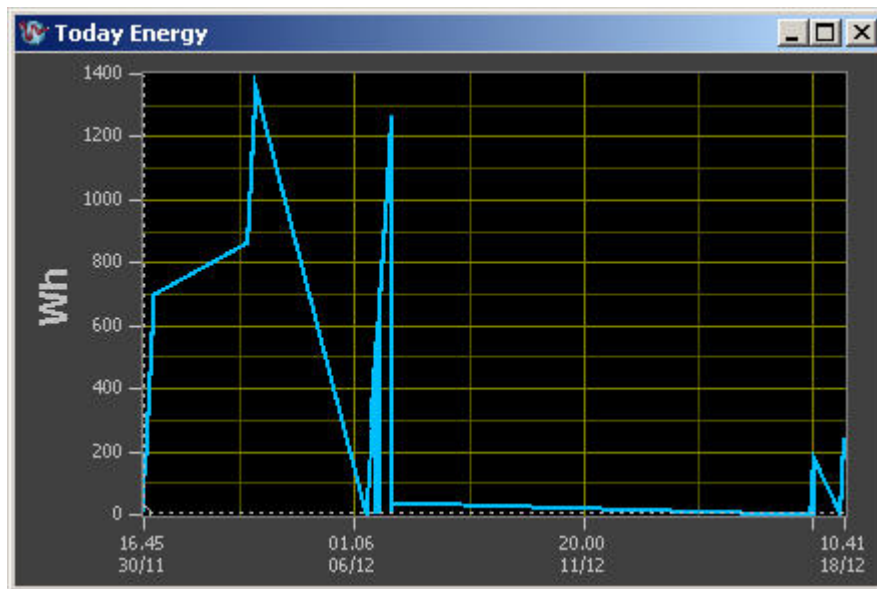


Fig. 4.2.5.1 – Example of “View All” function

4.2.6 – Y Axis Scale Mode

Here you can choose how the Y axis works:

- **Fixed** The Y axis range is fixed, and depends by the one you defined yourself (see section 4.2.3)
- **Auto-Scale Loose** The Y axis range is determined by the minimum and maximum values, with a small gap on top and bottom.
- **Auto-Scale Exact** The Y axis range is determined by the minimum and maximum values, with no gap on top and bottom.
- **Scope Chart** The Y axis range follows the waveform. A small gap is left on top or bottom.
- **Strip Chart** The Y axis range follows the waveform. No gap is left on top or bottom.

5 - Statistics

From the menu on the top, select **"Statistics"** to open this section:



Fig. 5.1 – Statistics Menu

"Today Energy" and **"Power"** are the charts that you can see in the main application window (see section 4); if you close them, you can open them again by clicking on these entries.

5.1 – Alarms / Warnings

This is a list of past alarms and warnings reported by a single inverter.

From the combo box on the bottom, select the inverter you want to analyze and the program will start loading data from it:



Fig. 5.1.1 – Loading alarms and warnings

This operation may take a few seconds, according to the total number of events occurrent in the inverter. Once this operation is completed (you can abort it any time you want by pressing the **"Stop"** button), you will be shown the list of alarms and warnings:

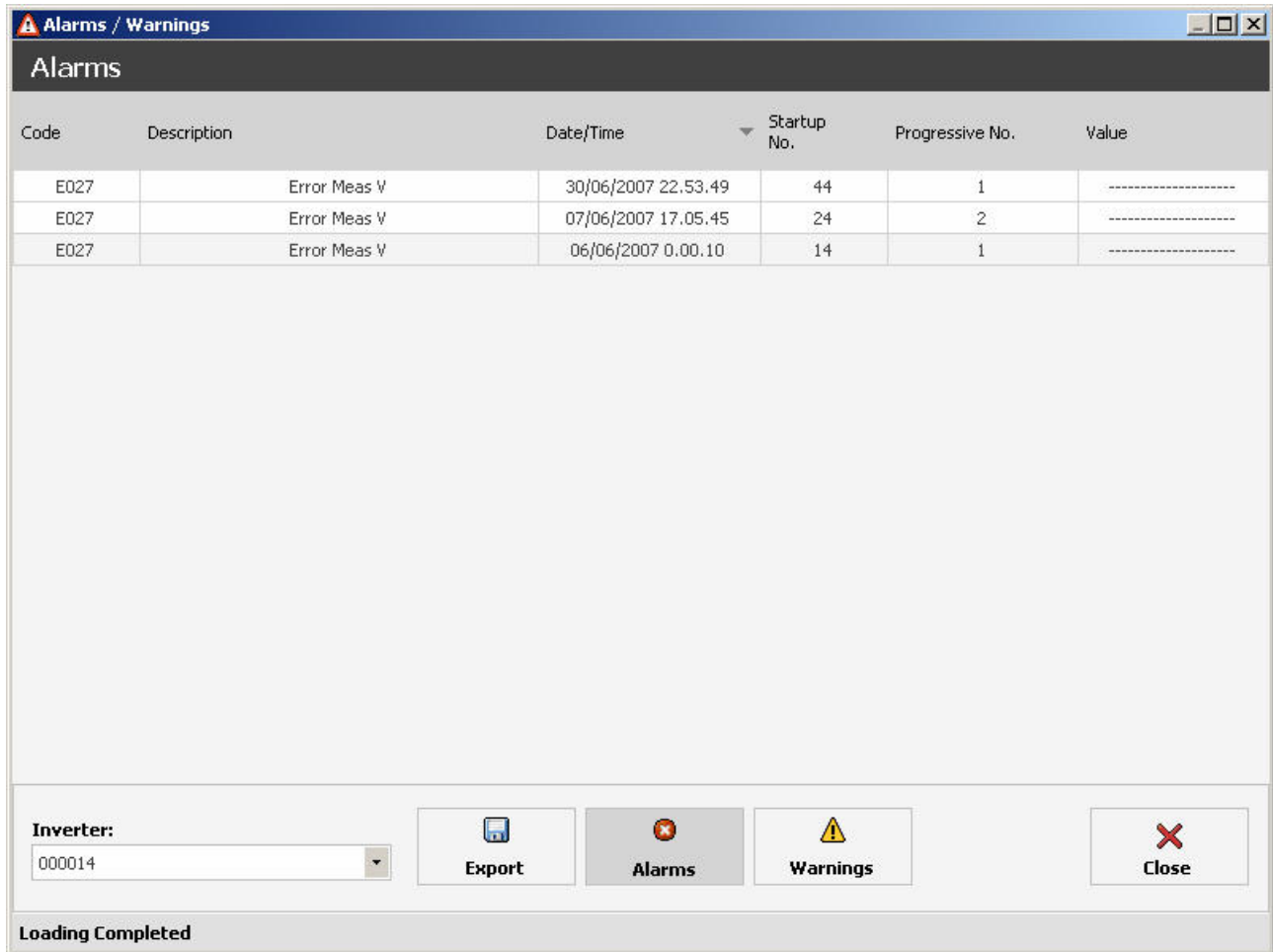


Fig. 5.1.2 – Alarms / Warnings

Use the "**Alarms**" and "**Warnings**" buttons (located on the bottom) to switch between the two tables. You can sort these lists by clicking on the column titles in the table's header.

By using the "**Export**" button you can also save these lists in different formats:

- **.txt** A simple text file that can be opened with any editor.
 - **.xls** A TAB separated file that can be opened with any version of Excel.
 - **.csv** Another type of file that can be opened with various applications (Excel included).
- NOTE:** you can save these files in 2 ways: european or american. The first one uses the character "," as separator for decimal digits, while the second one uses the character ".".

5.2 – System Statistics

This function generates a chart with the system statistics.

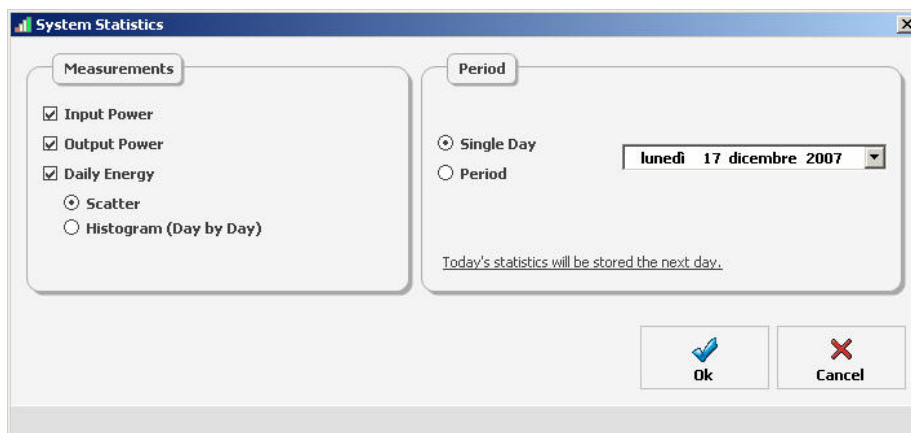


Fig. 5.2.1 – System Statistics

Select, on the left side, the measurements you want to appear on the chart; daily energy can be shown either with a scatter or an histogram chart.

Then, select the time period on the right: either select a single day or look for a particular interval.

Press “**Ok**”, and the program will search for the required information, then a chart will be shown.

5.2.1 – Statistics Results

The chart generated by the statistics functions can contain more waveform:

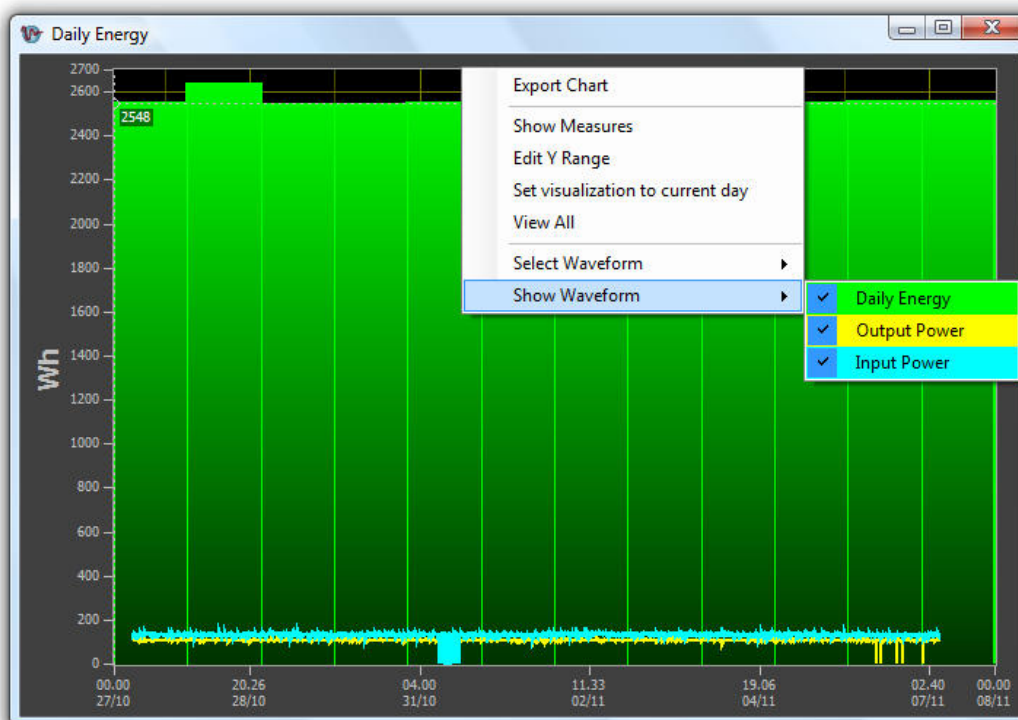


Fig. 5.2.1.1 – Example of System Statistics

If you right click on the chart, you will see two new menus: **"Select Waveform"** and **"Show Waveform"**.

"Select Waveform" let you choose which one of the waveforms is currently selected. It is necessary to select a waveform to make measurements (using the cursors, see section 4.2.2), change the units in the Y axys and the title of the chart, and finally to export it (only the selected waveform can be exported when you choose the "Export Chart" function, see section 4.2.1).

"Show Waveform" let you hide and show the single waveforms shown in the chart.

NOTE: you will not find any data from the current day in these statistics because they are stored the next day.

5.3 – Inverter Statistics

This feature is similar to "System Statistics" (section 5.2), but only shows data of a single inverter.

Fig. 5.3.1 – Inverter Statistics

First, select an inverter from the combo box on the top.

Then, select on the left side the measurements you want to appear on the chart; daily energy can be shown either with a scatter or an histogram chart.

Finally, select the time period on the right: either select a single day or look for a particular interval. Press **"Ok"**, and the program will search for the required information, then a chart will be shown:

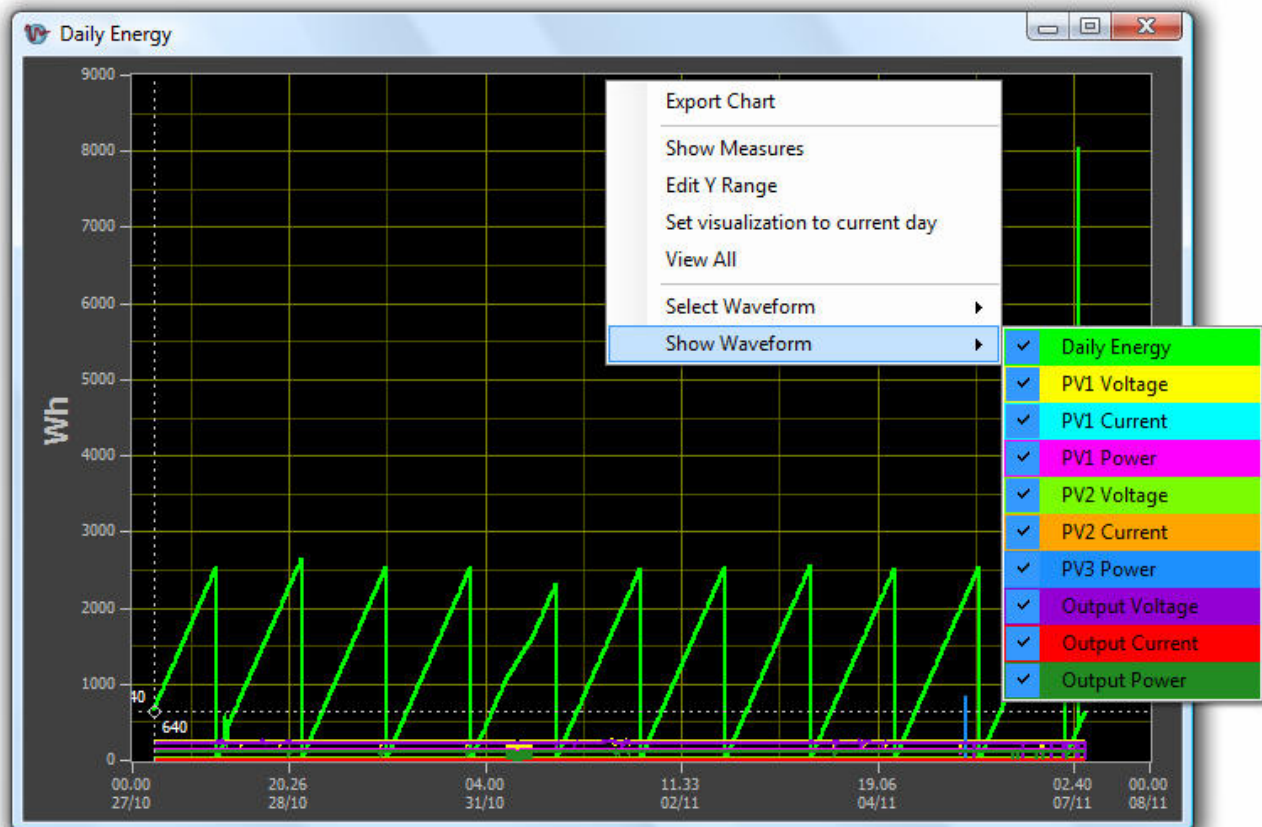


Fig. 5.3.2 – Example of Inverter Statistics

This chart works exactly like the one generated by "System Statistics": see section 5.2.1 ("**Statistics Results**") for more information.

5.4 – Store Statistics

Aurora Communicator automatically stores daily statistics to files each day at midnight, then clears the charts.

This is done to save memory (only information for the current day is shown) and to organize data for the statistics.

You can also manually store these files by using **"Save and Reset"** and **"Save Statistics"** in the **"Statistics"** menu.

"Save and Reset" saves the current charts to files, then clears all of them (it's the same thing that is automatically done each day at midnight).

"Save Statistics" works the same way, but does not reset the charts.

5.5 – Opening Chart Files

It is possible to load chart files that you previously exported by using the **"Open Chart File"** function.

You can load charts in these formats:

- **.cht**
- **.xls**
- **.csv**

Please note that if you have modified charts files with other applications (for example, you opened an .xls file with Excel and saved it again) you most likely will not be able to open them again with Aurora Communicator!