

Manual

StecaGrid Connect-User



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1 Introduction

The software StecaGrid Connect User is supplied with the ethernet card StecaGrid Connect. You will find the software on the enclosed CD.

With the StecaGrid Connect User-software it is possible to download and store this data from several inverters in a database. The Zatabase allows the user to review downloaded data with all resolutions any point back in time. The StecaGrid Connect User software can show data of several inverters at the same time, allowing easy comparison.

The StecaGrid Connect User-software is composed of three main parts:

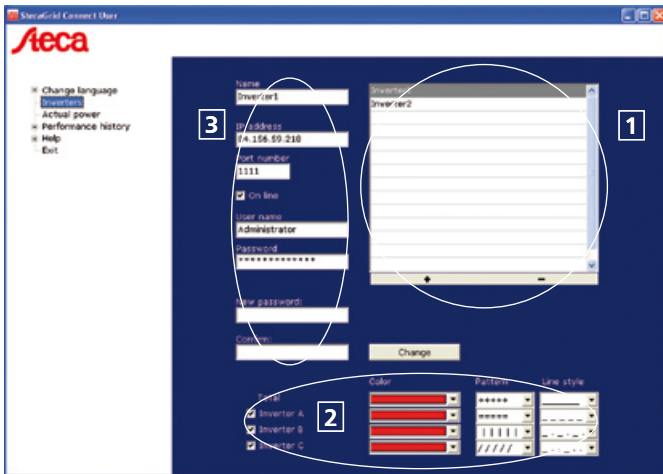
- **Inverters:** all relevant data of the inverters can be inserted here.
- **Actual power:** shows a graphic containing the actual power of selected inverters
- **Historical performance:** shows graphics of the generated energy of selected inverters. The energy can be shown in different resolutions

This manual describes these parts in more detail.

2 Inverter

In the actual power and historical performance screens, each inverter is represented by a color and a pattern. The software automatically connects to an inverter if the inverter is selected in one of these screens. The information needed for this connection as well as the color and patterns used are stored in a database. This part of the software is used to edit the connection information and display characteristics of the inverters.

The “inverters” part of the software contains three sections (listed corresponding to numbers in graphic):



- 1** ▶ A list of inverters. Clicking one of these inverters selects the inverter.
- 2** ▶ A section that defines how the selected inverter is being displayed in the graphics.
- 3** ▶ A section showing the data of the selected inverter.

2.1 Add an inverter (1)

If you want to add an inverter (consisting of at least 1 Master and at most 1 Master and 2 Slaves) to the list, press the button “+”. After pressing “+”, a question mark will appear in the list of inverters; the fields containing inverter data (marked 3 in the picture) are blanked. The data of the new inverter can now be inserted in these fields.

The following data must be inserted:

- **Name**
This is the name you want the software to use to identify the inverter.
- **IP- Address**
Insert the IP Address of the inverter. An IP address consists of four numbers, each ranging from 0 to 255. These numbers are separated by a dot. An example of a valid IP address is 192.168.0.32. An IP address is unique for each

inverter and computer that is connected to a branch of the network. The IP address can be programmed into the inverter through the Display and Key module. More information about programming the IP address in the inverter can be found in the installation manual of the StecaGrid Connect.

- **Port-number**
Insert the data Port number of the inverter. The default data port number is 4101. If you connect more inverters via a router, you probably have changed the port number of the inverter to a different number.
- **Online**
If this checkbox is used the inverter will be displayed in the selection lists from “topical power” and “performance history”. The box is usually checked. Uncheck if you want to remove the inverter from the selection lists but keep the IP address, port number etc. in the database.
- **Username**
This is the login name you require to log into the inverter. By default, there are 4 usernames programmed in the StecaGrid Connect: BasicUser, AdvancedUser, WebUser1 and ServiceUser. The ServiceUser username is meant for an installer servicing your inverter with special software. The WebUser1 username is for users that login to the inverter using a webbrowser. “StecaGrid Connect User” and AdvancedUser are the usernames for this software. The network card can process users of a webbrowser in combination with maximally 2 users of this software at the same time.
- **Password**
This is the password you require to log into the inverter. The password of the inverter is equivalent to the MAC address of the corresponding network card. This address is written on the sticker that is on top of the Ethernet port of the communication card.

2.2 Remove an inverter (2)

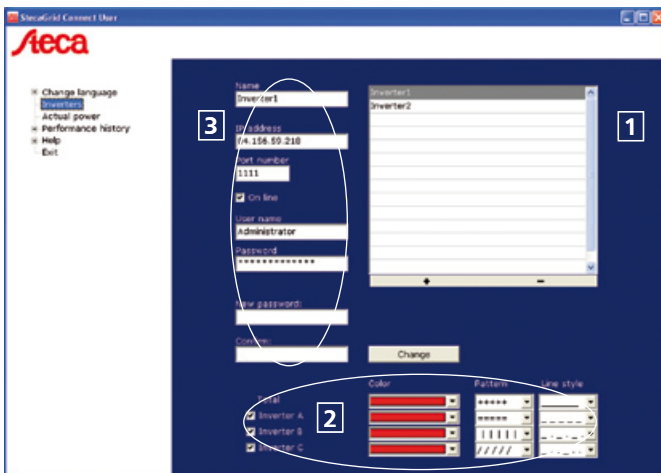
If you want to remove an inverter (consisting of at least 1 Master and at most 1 Master and 2 Slaves) from the list, press the button “-”; the software will ask you to confirm if this is the inverter you want to delete. Press “ok” to delete, press “cancel” to keep the inverter data.

2.3 Edit an inverter (3)

To edit an inverter, start by selecting it. This can be done in the list (marked 1 in the picture). The inverter data appear on the left (marked 3 in the picture). The data can simply be edited by clicking on the corresponding field. Changing the appearance of the inverter in the graphics is done in the lower part of the screen (2 in the graphic). Here you can see the system and up to three inverters. The system represents the total of both the Master and the Slaves. Color, pattern and line style are used to draw the graphics for the actual power and the historical performance. When a new inverter is being added to the software, the software will suggest a color for the monitor and inverters to distinguish this inverter from the others. Dropdown boxes can be used to change these settings for both the Master (inverter a) and the Slaves (inverter b and c). The software assumes that each added inverter consists of 1 Master and 2 Slaves. By default, it will also ask the Slaves for information about the power and performance. Of course, when no Slaves are present they will not return a value for the actual power and performance history. In that case it is useful to deselect the check boxes in front of inverter b (Slave 1) and inverter c (Slave 2). The software will not ask for the power and performance history of inverters that are deselected in this field.

After the editing is finished just continue to the actual power or performance history; all edited data is saved automatically.

It exists the possibility the change the password. Warning: Changing the password effects all software or users that are communication via the net work card StecaGrid Connect. The new password is valid for all usernames.



3 Topical power

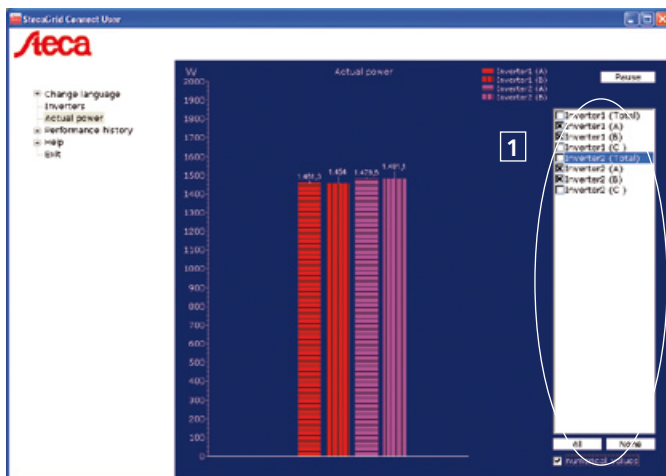
This page shows the topical power of selected inverters. The inverters can be selected from the list (marked 1 in the graphic) by checking the checkboxes.

Below the list are two buttons, "all" and "none". Pressing the button "all" selects all inverters in the list. Similar, pressing the button "none" deselects all inverters.

The maximum value on the y-axis is the maximum power output of the largest selected inverter; 2000 W for a single Master or Slave, or 6000 W if the total of a Master/Slave combination is selected. A pause button is situated on the top right of the screen.

Pressing this button temporarily stops the communication with the inverter giving more time to study the values of the selected inverters. After pressing this button, it turns into a 'Resume' button. Pressing this button again restarts the communication with the inverters.

It is possible to show the numeric values of the selected inverters by clicking the check box in the lower right corner. Clicking the check box again hides the numeric values



4 Performance history database

With the StecaGrid Connect User software it is possible to download and store data from several inverters in an access database. The database allows the user to review the generated electricity of selected inverters with several resolutions any point back in time.

The following resolutions are stored:

- generated Wh's per 10 minutes
- generated Wh's per day
- generated kWh's per month
- generated kWh's per year

The data is automatically stored in the database the moment it is downloaded from the inverter. The software downloads the data of selected inverters after pressing the "get data" button in the performance history. Only the selected data is stored in the database: by pressing "get data" in the 10 minutes page, only the 10 minutes data of selected inverters is stored. Similarly, the data of the inverter per day is downloaded in the "per day" page, etc. The StecaGrid 2000/2000+ stores the following data of the inverters for the following periods:

- Wh per 10 minutes: 7 days
- Wh per day: 365 days
- kWh per month: 5 years
- kWh per year: 25 years

Downloading the 10 minutes data once a week therefore results in a database containing all 10 minutes data from the start; this allows you to view the data of 5 weeks ago also at the high resolution of 10 minutes. If no data is present in the database (e.g. when you didn't download the 10 minutes data last week), the data will be represented as a 0.

By default, the database is stored in the C:\Documents and Settings\All Users\Application Data\Steca\StecaGrid Connect User directory.

5 Performance history



The graphic of the performance history is divided on a number of pages (see 1 in the graphic), depending on the time span you download and the amount of time you want to view per page (see 4 in the graphic). You can scroll through the pages using the scroll bar.

If you want to view the historical performance of 1 or more inverters, you first have to specify what you want to view (the numbers correspond to the numbers in the graphic):

- 1** ▶ **select in the menu bar the resolution of the data you want to see:** 10 minutes, daily, monthly or annual data
- 2** ▶ **select the inverters you want to view in the list**
You can select or deselect an inverter by clicking on the checkbox in front of it. You can use the button "all" to select all inverters instantly. To deselect all inverters at once, press "none".
- 3** ▶ **Select the time span you want to download or view.**

All data between the start time and the end time will be downloaded or retrieved from the database. If you try to download data from the inverter that is too old to be downloaded (e.g. 10 minutes data from 2 weeks ago), the software will retrieve the data from the database. If the data is not present in the database, it will be shown as a 0. You can type the start and

end date directly into the text box. Alternatively, click on the arrow; a calendar appears:



In the calendar, select a month by clicking the arrow back or forward (< or >). A year can be selected by clicking the double arrow back or forward (<< or >>). Clicking on a day selects the day.

4 ▶ **Set the graphic options and click on the source of the data (inverter or database).**

The graphic options allow you to set the amount of data that is shown per page, decide if you want to see the numerical values as well and select the type of graphic:

- ▷ *The amount of data that is shown on the page is a number. If this number is e.g. 6, and you download 10 minutes data the graphic will show 1 hour (6 x 10 minutes) per page. Similarly, if this number is 7 and you download daily data the graphic will show a week. In general, the more inverters you want to view at the same time, the lower this number will be.*
- ▷ *If you want to view the numerical data, click on the checkbox "show values". Clicking on the checkbox again hides the numerical values.*
- ▷ *You can select the type of graphic you want to see: histogram, stacked totals (histogram showing the total of selected Master/Slave configurations), stacked inverters (histogram showing the total of selected Masters and Slaves), lines, area totals (an area showing the total of selected Master/Slave configurations) and area inverters (area showing the total of selected Masters and Slaves).*

Finally choose if you want to download the data from the inverters directly or retrieve the data from the database. Click on “get data” to download the data directly from the selected inverter. During downloading, the following popup will appear:



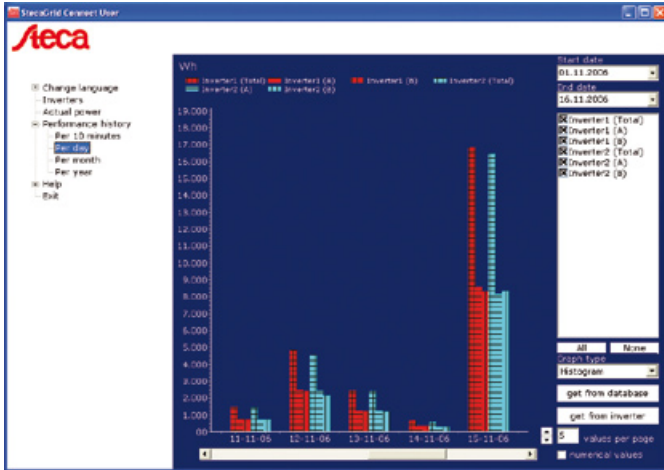
If you don't need to download the data directly from the inverter, you can click on “redraw chart” to retrieve the data from the database. This can save time if you have a slow internet connection. The computer will need time to draw the graphic depending on your computer, the resolution and the timeframe of the data you want to view. During the drawing of the chart, the following popup will appear:



5.1 Histogram

In a histogram there will be a bar for each of the items you checked in the list. If you want to, you can mix totals (the sum of all the inverters within an StecaGrid 2000/2000+), and separate inverters. The bars are drawn side- by side making it easy to compare the performance of the inverters.

The bars will be drawn in the color and with the pattern that you selected for the corresponding inverter.



5.2 Stacked totals

This histogram shows the totals (the total of a Master/Slave configuration) that you checked in the selection list only. The separate inverters that you checked are ignored. The histograms of the totals are drawn on top of each other. This is how you can see the total performance of all StecaGrid 2000/2000+ that you checked in the list, and also see how much each of the separate StecaGrid 2000/2000+ contribute to that total.

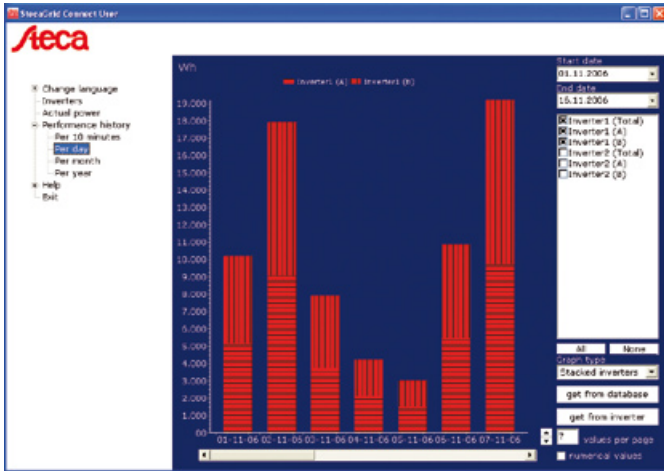
The bars will be drawn in the color and with the pattern that you selected.



5.3 Stecked Inverters

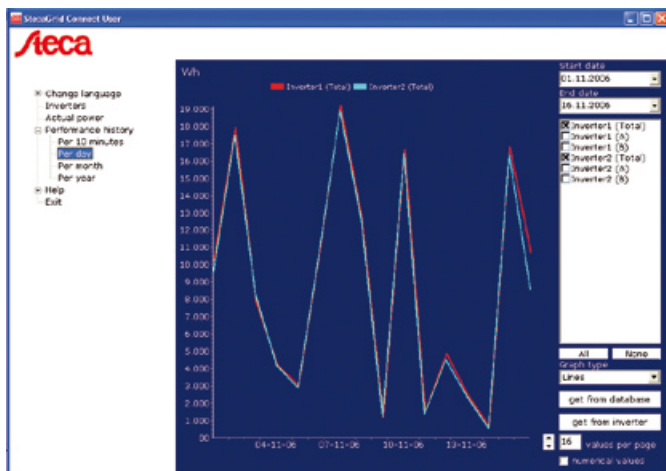
This histogram shows the separate inverters (inverters a, b and c) that you checked in the selection list only. The totals (total of a Master/Slave configuration) that you checked are ignored. The histograms of the inverters are drawn on top of each other. This way, you can see the total performance of all StecaGrid 2000/2000+ that you checked in the list, and also see how much each of the separate StecaGrid 2000/2000+ contribute to that total.

The bars will be drawn in the color and with the pattern that you selected for the monitor.



5.4 Lines

In a line diagram there will be a line for each of the items you checked in the list. If you want to, you can mix totals total of a Master/Slave configuration), and separate inverters. The lines will be drawn in the color and with the line type (you can select the line type in the inverter menu) that you selected for the inverter or monitor. This selection is especially useful if you want to view many inverters at the same time.



5.5 Area totals

This diagram shows the totals (the total of a Master/Slave configuration) that you checked in the selection list only. The separate inverters that you checked are ignored. The data is drawn as an area, the areas of the totals on top of each other. This is how you can see the total performance of all StecaGrid 2000/2000+ that you checked in the list, and also see how much each of the separate StecaGrid 2000/2000+ contribute to that total.

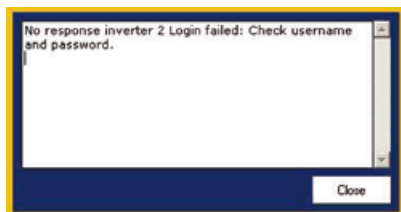
The bars will be drawn in the color you selected (you can select the color in the inverter menu).



6 Troubleshoot

6.1 Connections

No response inverter X check the connection



The message shown in the graphic above is displayed if the software cannot get a connection with (one of) the inverters. This can have several causes:

- **Check if your IP settings and your port settings are the correct port settings.**
- **Check the settings of your router (if applicable);** the router should have the correct NAT (Network Address Translation) settings. Make sure that the inverter is given a fixed IP address by your router.
- **The cable between the computer and the inverter is disconnected or broken.** Check if the inverter can be reached with a browser. In order to do so, open your web browser and type the IP address in the URL address bar.
- **The internet connection is lost** (only applicable if you use the software through the internet). Check the internet connection by using another internet application.
- **The network card is not responding.** Check if the inverter can be reached with a browser. In order to do so, open your web browser and type the IP address in the URL address bar. If you don't have a connection with the web browser either, the communication card might be not responding. Check if the inverter is connected to the mains voltage.
- **Wrong username and password:** This message is shown if the user has a correct connection with the inverter(s). The communication card doesn't recognize the combination of the username and the password. Check the username and the password (usernames and passwords are case sensitive).

6.2 Troubleshooting: Actual power

No data is shown in the graphic

This can have two causes:

- There are no inverters selected. Make sure you have selected an inverter. If the connection with an inverter is lost, a popup will be displayed and the selected inverter that has no connection is deselected automatically. Select the inverter again to try and reconnect
- If you are working offline, it is not possible to show any actual power.

6.3 Troubleshooting the performance history

The troubleshooting is the same for the data per 10 minutes, day, month and year.

No data is shown in the graphics

This can have three causes:

- There are no inverters selected. Make sure you have selected an inverter. If the connection with an inverter is lost, a popup will be displayed and the selected inverter that has no connection is deselected automatically. Select the inverter again to try and reconnect
- All downloaded data is zero. Check if your inverter is switched on.
- All retrieved data in the database is zero. Check if you have downloaded the data before. For example: if you try to download 10 minutes data from 2 weeks ago until 1 week ago, only zeros are returned. The inverter stores the data at 10 minutes resolution for the last 7 days only.

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