

Instruction

Phocos CX charge controller software

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1. system requirements

Windows xp

The software runs under windows xp.

You need free memory: 4MByte

Windows 98, 2000 and Me

By Windows98, Windows2000 and Windows me you must install the Microsoft Framework. You will found it at following internet address.

<http://www.microsoft.com/downloads/details.aspx?displaylang=en&FamilyID=262D25E3-F589-4842-8157-034D1E7CF3A3>


Sometimes you need the Internet Explorer6.0. You will find it at following internet address:


<http://www.microsoft.com/downloads/details.aspx?displaylang=en&FamilyID=1E1550CB-5E5D-48F5-B02B-20B602228DE6>


2. Set up the CX charge controller menu for communication

Program the CX charge controller as you see at the following pictures.

At first press the button on the charge controller long till you see Picture 1. Then press the button repeatedly short till you see picture 8. With each press on the button, the display will change as shown on the left side.

Picture 1. 


Picture 2. 


Picture 3. 

Picture 4. 

Picture 5. 

Picture 6. 

Picture 7. 

Picture 8.  If you see this picture press the button long until you see one of the pictures 8.1,8.2 or 8.3.

Secondly press the button long until you see the picture flashing.

Then press the button repeatedly short till you see picture 8.3


Picture 8.1 

Picture 8.2 

Picture 8.3 

After this press the button long to save the setting and then press the button short and you see the picture 8 again.

After this press short again and you will see picture 9.

Picture 9. 

If you see picture 9 press the button short and you will get out of the charge controller menu.

The charge controller is now ready for communication with the software.

3. Install the driver for the Interface cable

For this you must connect the Interface cable to a USB Port of your computer. To install the interface cable you don't need to have a connection to the charge controller you only need to connect the interface cable with the computer.

To install the driver for the interface cable use the installations guide on the CD at the following folder:

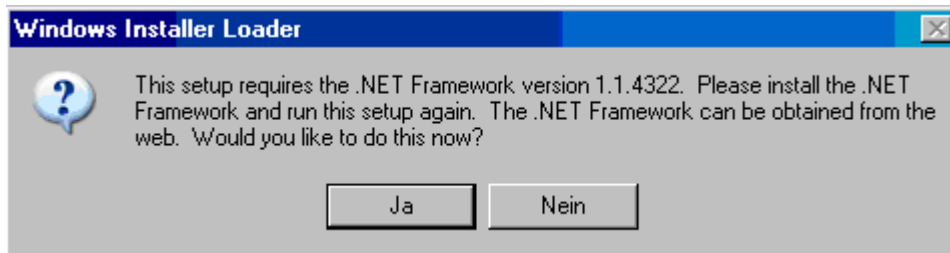
CX-I driver\InstallationsGuide.pdf

4. Install the software

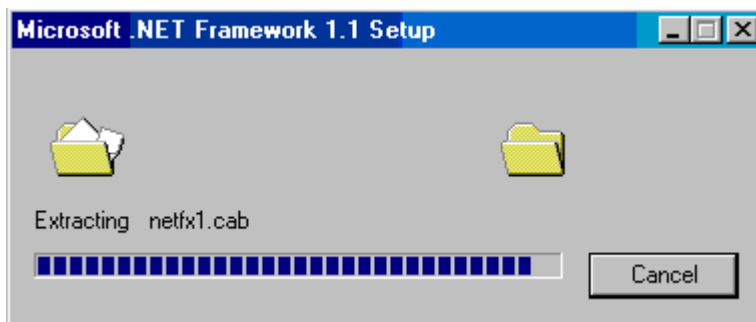
To install the software you have to start setup.exe on the CD.
Follow the instructions of the setup.

Step 1: Install the Microsoft Framework

Start setup and you will see the following picture when the Microsoft Framework isn't already installed on your computer. If it is installed look into step 2 of the installation.



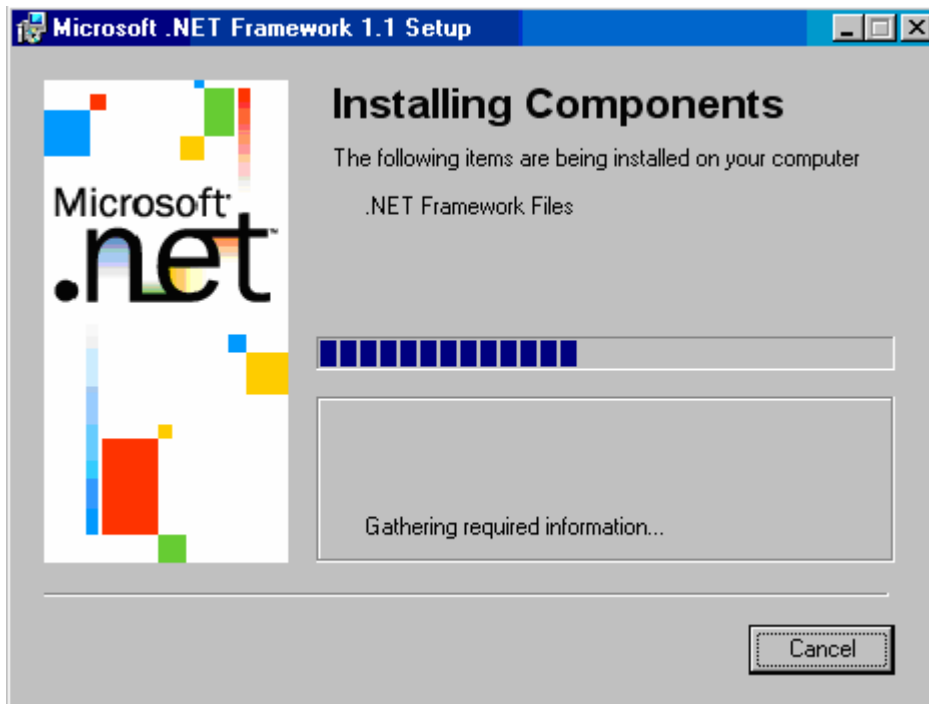
Click to "Ja" and you will get to the next window.



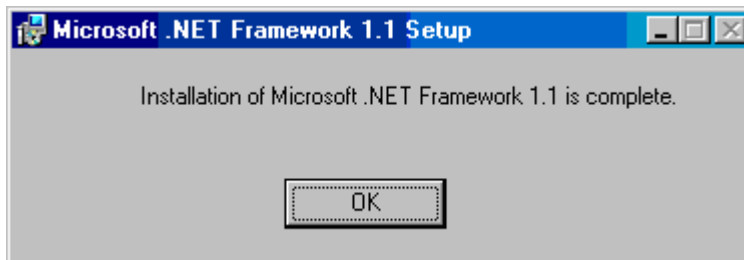
Microsoft Framework installation is executing now.



Click "I agree" if you agree with license of the Microsoft Framework.



Installation of the components now.

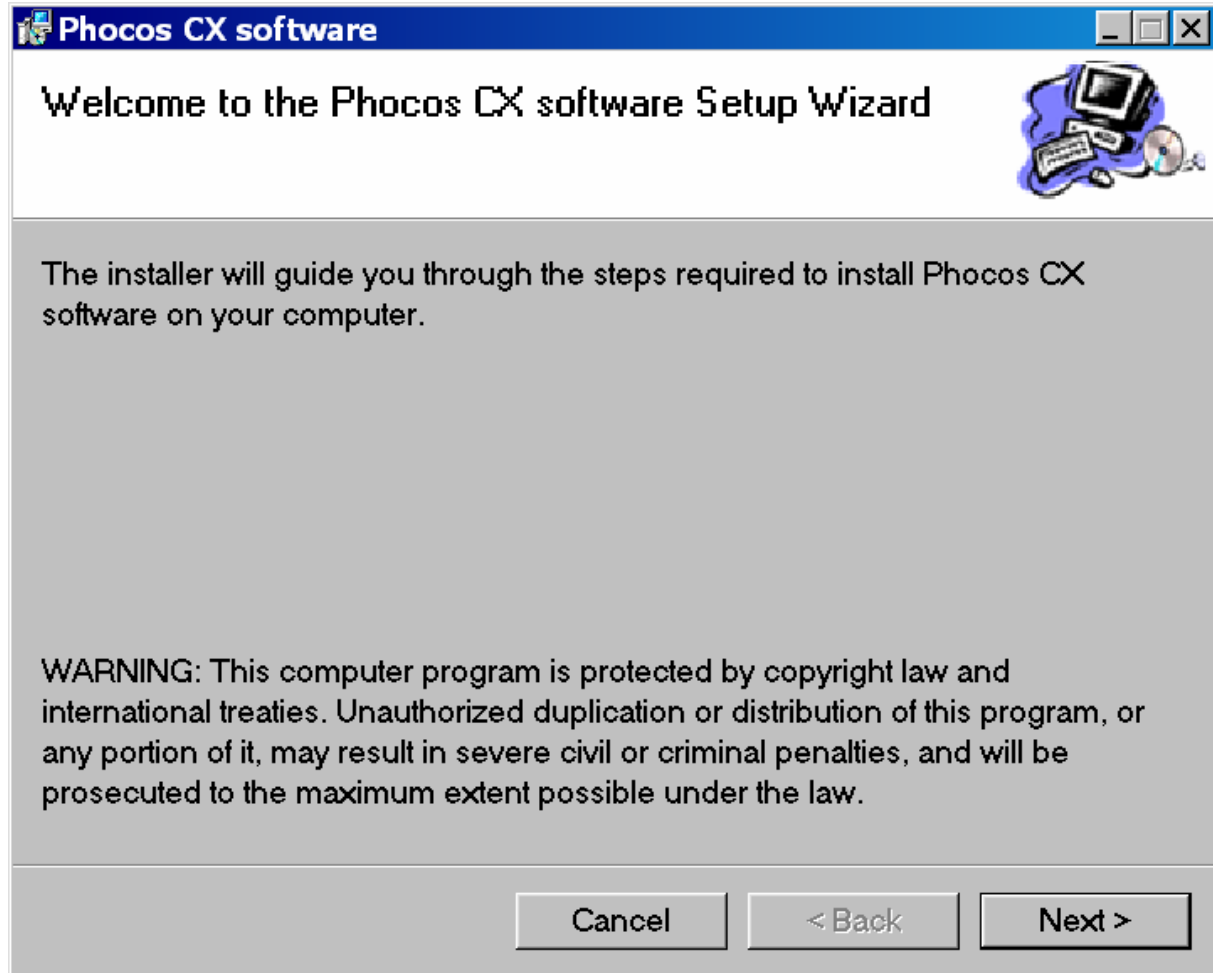


Finish of the Framework installation with a message.

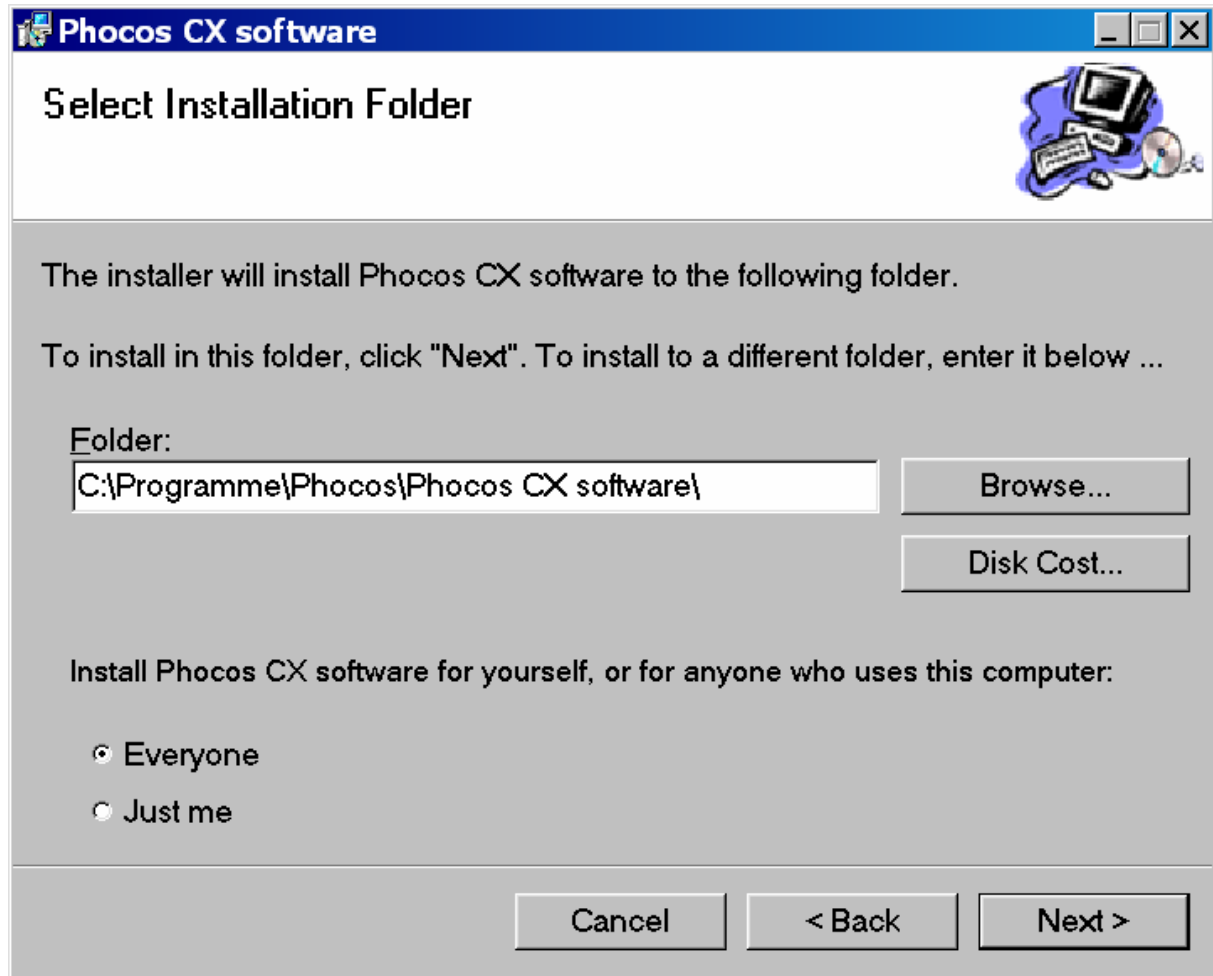
Now the Framework is installed on your computer. You must start the setup.exe again to install the CX charge controller software now.

Step 2: Start the setup.exe to install the software

Start setup and you will see the following picture. Click to “Next” and you will get to the next window.

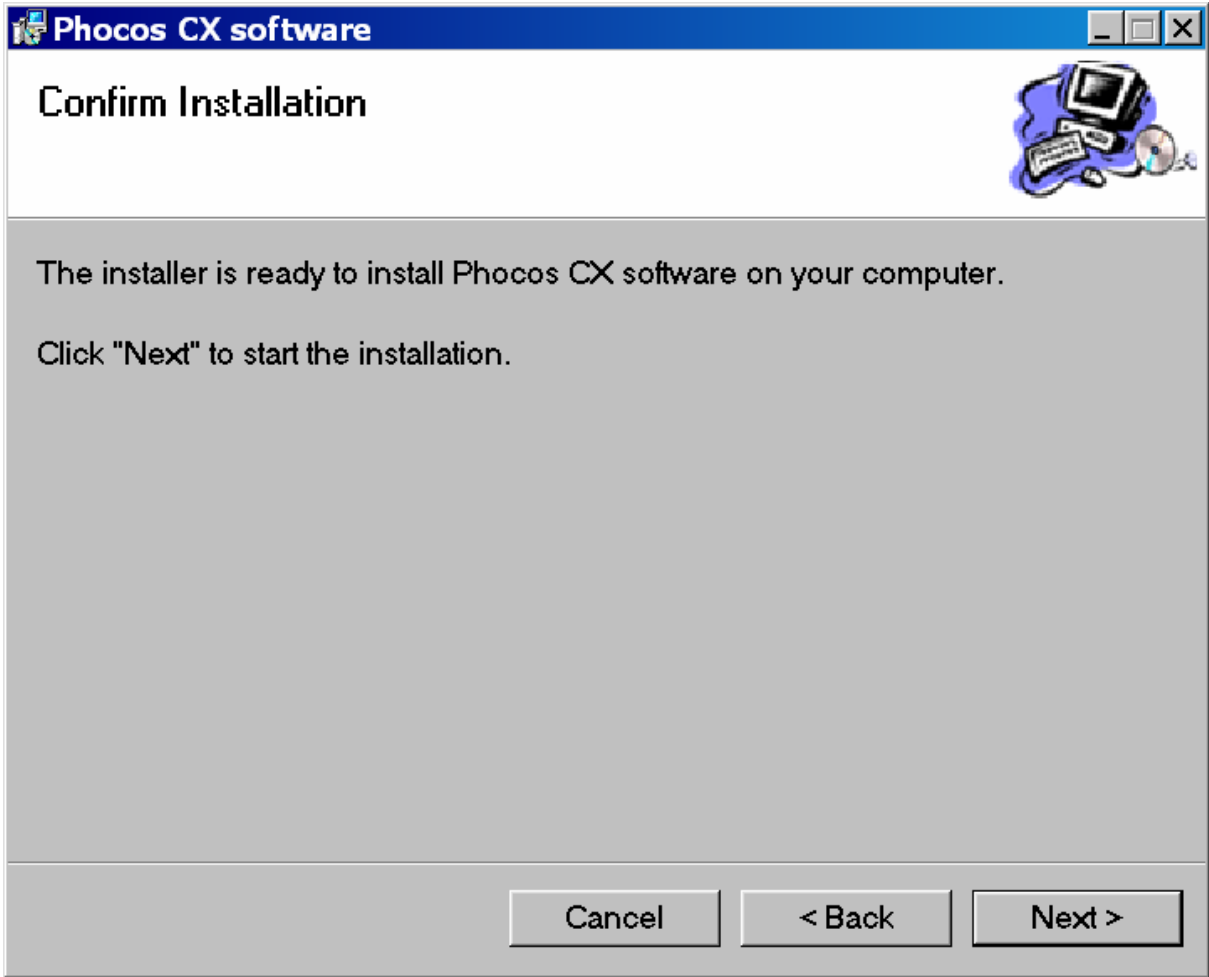


In this window you can choose the folder, the software should be installed to your computer.

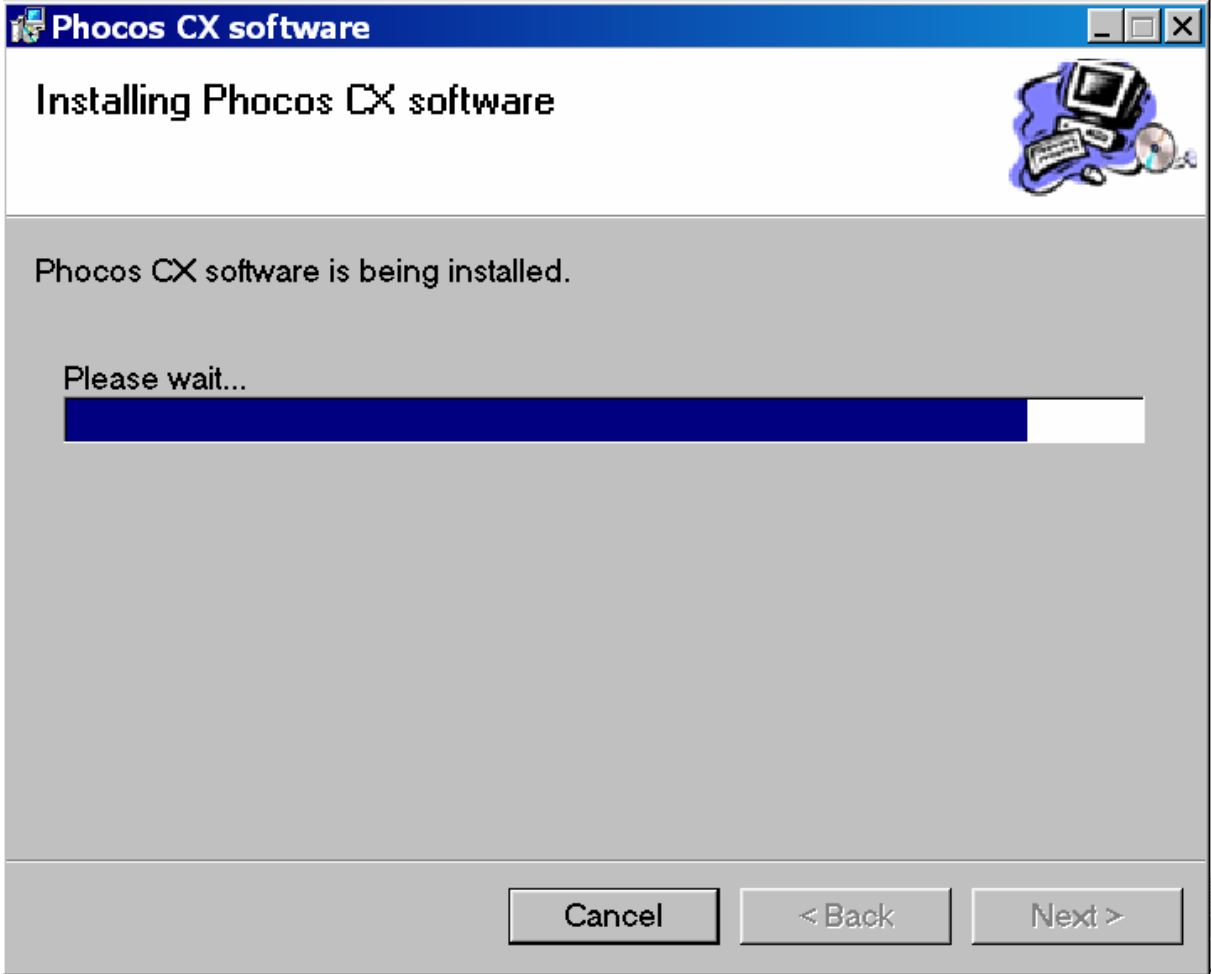


At the bottom of the window choose “everyone” that all users can start the software.

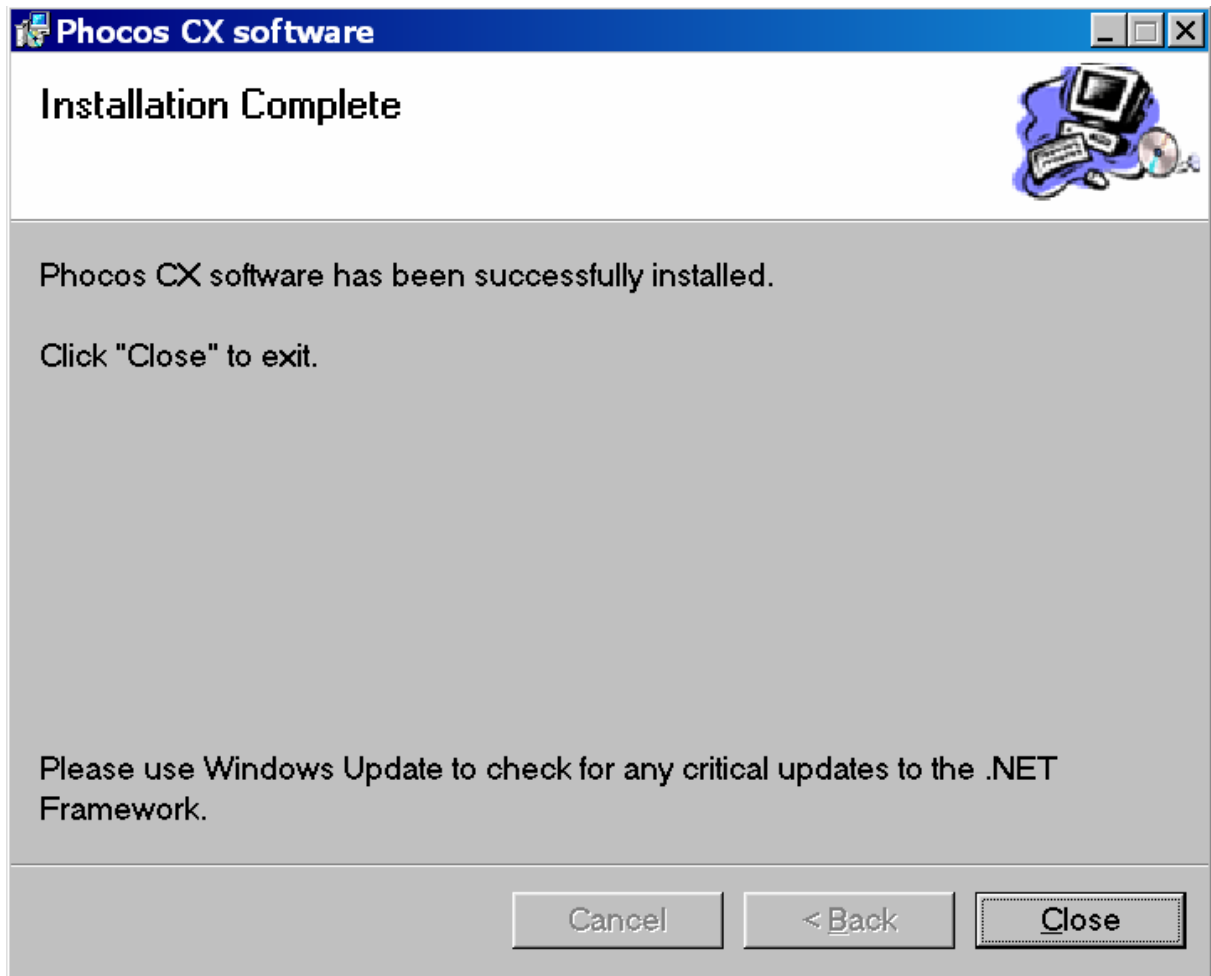
The following window shows to you, that the installation can begin now. Click “next”.



The software will be installed now.



Setup finish the installation with the following window.



The software will be installed on the desktop and the windows start menu.

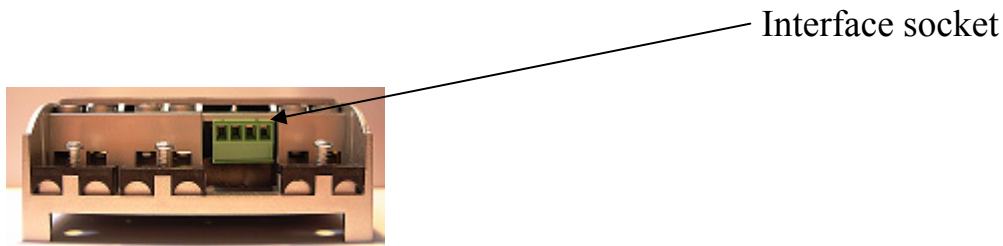


Start the CX_Software.exe and the software will run.

5. The software

5.1 Choose the Comport and connect the charge controller

Connect the charge controller cable with a USB Port of your computer and the other end with the charge controller Interface as in picture 5.1 .



Picture 5.1 Interface of the CX charge controller

In the system control under

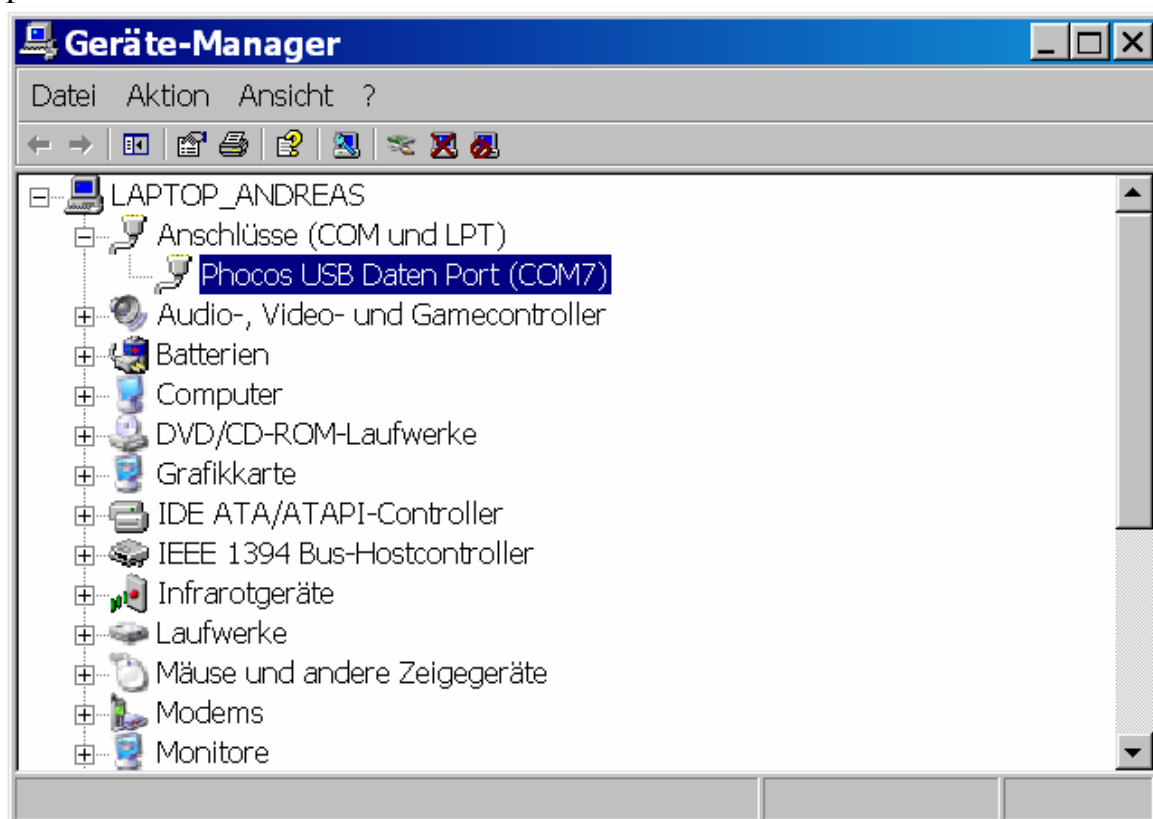
→ hardware

→ device manager

you will find a window, as in picture.2.

There you can see the Port Com connector which is installed on your computer.

You must set this Com connector in the software as shown in the next step in picture.3.



Picture.2 Check the Com Port at the devices control.

Click “Comport” on the menu bar at the top and set the correct port number or click “automatic” and the software is searching automatically for the right Com Port.

If your Com Port number is higher then 15 choose “manuell”.

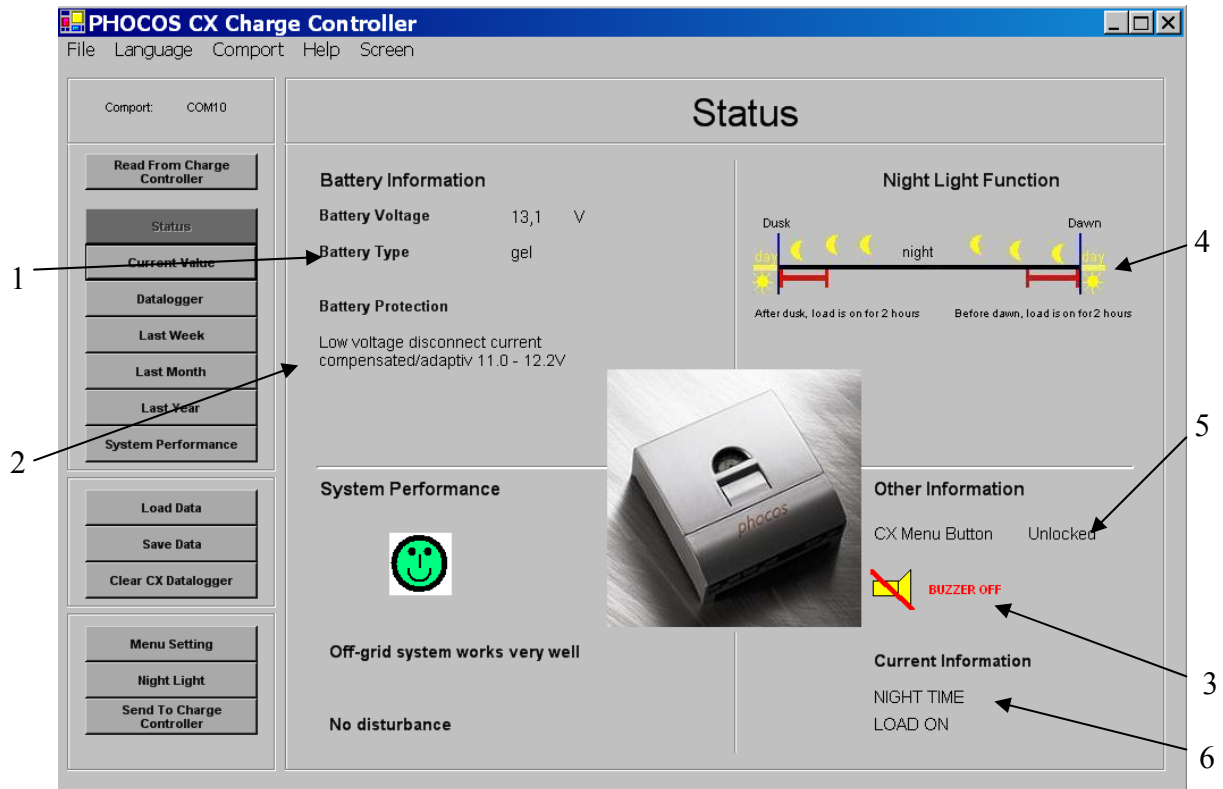


Picture.3 Setting of the comport in the CX Software

5.2 State of the charge controller and current values

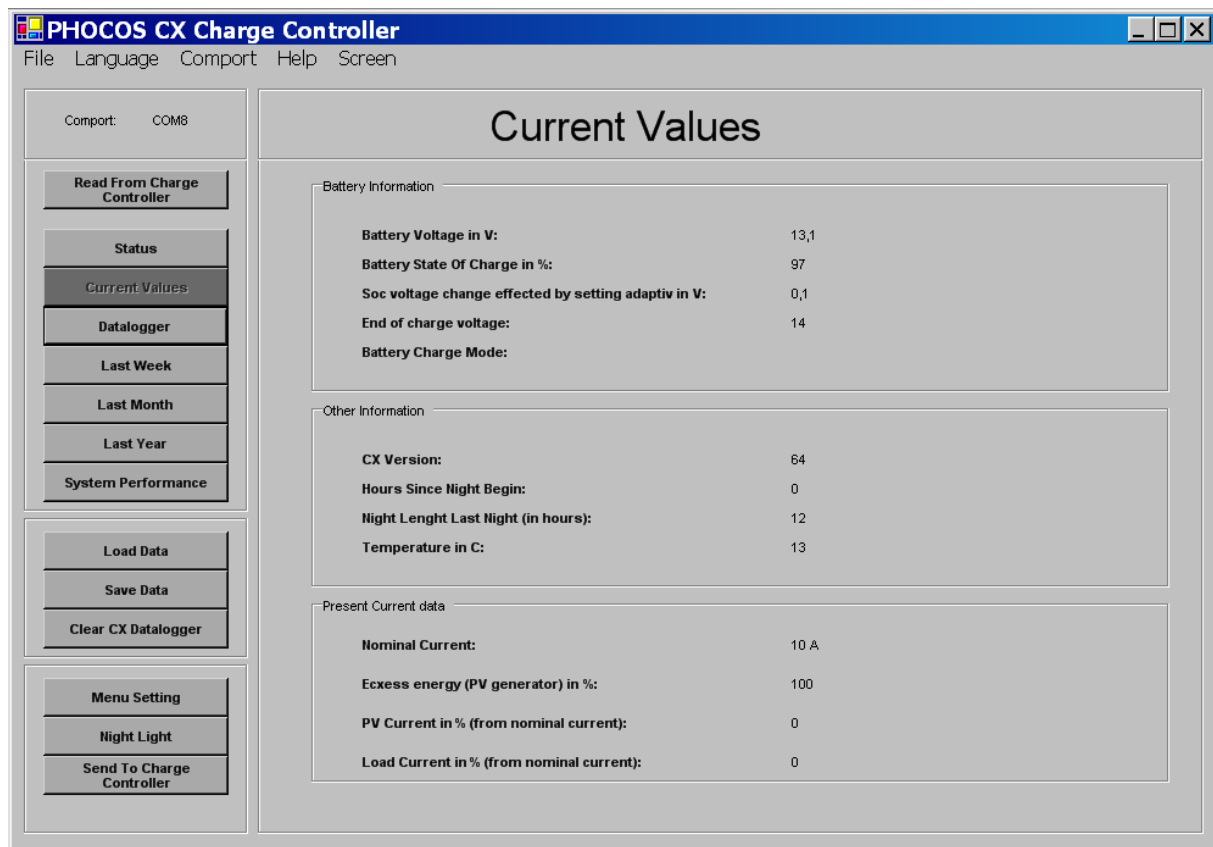
You can switch between the different windows of the program by clicking on the buttons on the left side. (“Status”, “Current Values”, ... , “CX menu”, “Night Light”).

If you click on “Status” you will see the Status window. Click on “Read From Charge Controller” and the window shows you some important details about the system as in picture 5.2.1. and some current values if you click on the button “Current Values” as in picture 5.2.2.



Picture.5.2.1 state display from the controller

- 1 battery type liquid lead acid or gel
battery voltage
- 2 the voltage when the charge controller should disconnect the load from the battery to protect it.
- 3 Buzzer which is sounds when the battery becomes empty
- 4 load settings for the night
- 5 button lock (the charge controller menu button is locked or not)
- 6 here you can see load on or off at the charge controller at the moment and if the charge controller knows it's NIGHT or DAY at the moment



Picture.5.2.2 current data of the charge controller

Explaining the data of the current values window

Battery Information:

- battery voltage in V, is the current battery voltage
- Battery state of charge in %
- Soc voltage change effected by setting adaptive in V
- End of charge voltage in V
- the battery charge mode (BOOST = 14,4V/28,8V or EQUAL= 14,8V/29,6V)

Other Information:

- versionsnumber of the the CX Controller
- the hours since begin of the night
- length of the last night in hours
- temperature in °C

Present Current data:

- Nominal current of the CX Charge Controller
- Current excess energy (energy of PV generator which the system can't use at the moment)
- photovoltaic current in percent of the nominal current
- load current in percent of the nominal current

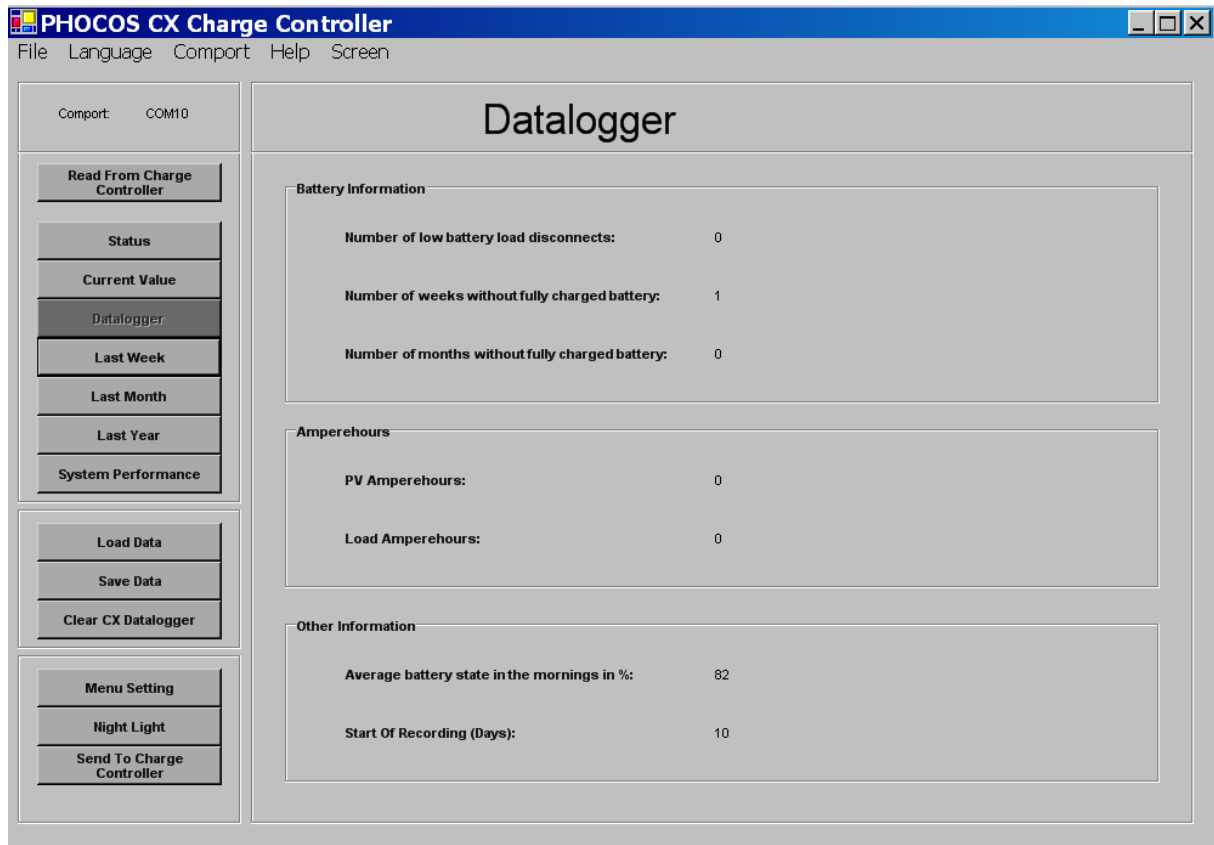
5.3 Load in datalogger data

You can see the datalogger data of the charge controller if you click on one of the following windows buttons:

- Datalogger
with general data of the datalogger
- Last Week
with data of the last seven days (week).
- Last Month
with data of the last four weeks (month).
- Last Year
with data of the last twelve months(year).

5.3.1 General datalogger values

You can see the datalogger data when you click on “Datalogger”.
If you click on “Read From Charge Controller” you can download the current saved data from the Charge Controller.



Picture 5.3.1.1 Data of the charge controller datalogger

Battery Information:

- Number of low battery load disconnects (there are the disconnects to save the battery from too deep charge state)
- weeks / months without fully charged battery

Amperehours

- Amperehours of the load and the solar generator

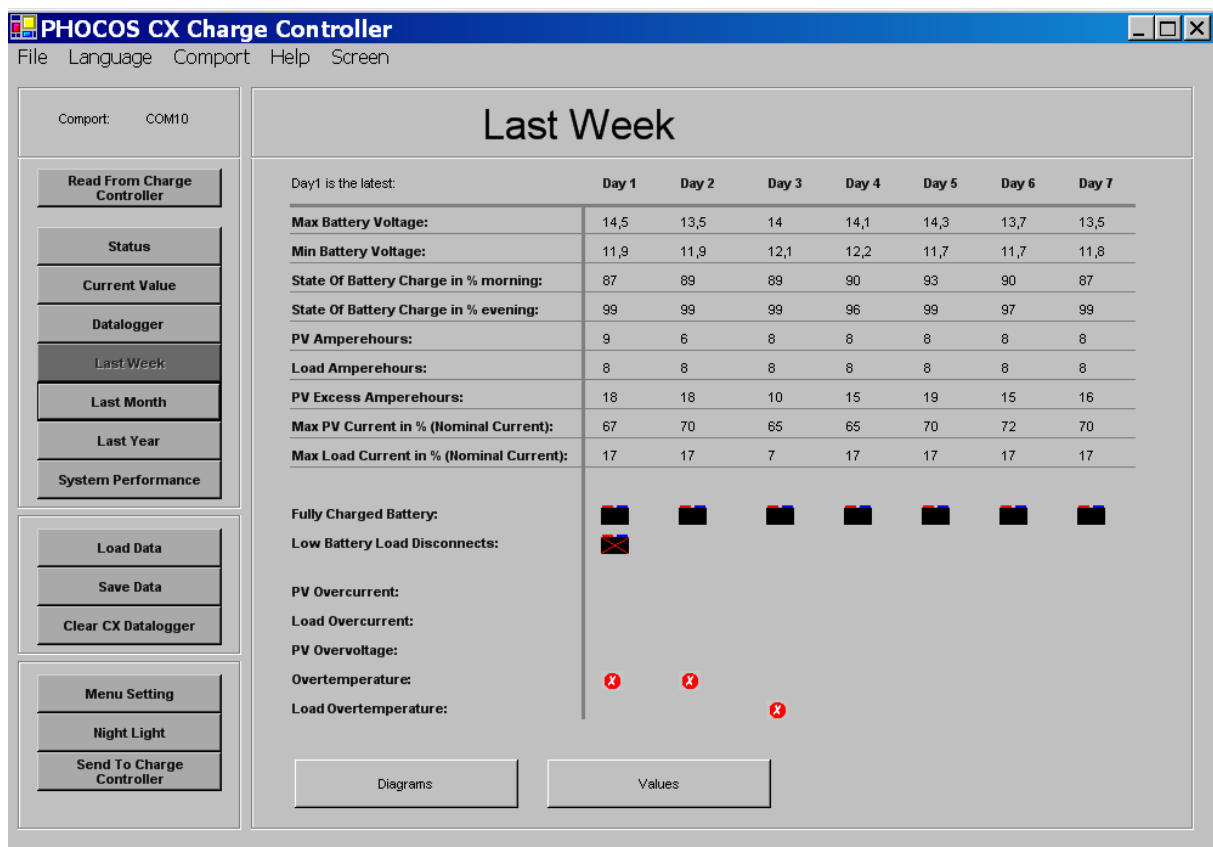
Other Information:

- average of the battery charge state in the mornings
- Number of days since the last clear of the datalogger (recording days)

5.3.2 datalogger data from last week, last month and last year

The windows “Last Week”, “Last Month” and “Last Year” are built like the same.

Explanation according to the data from last week.





picture 4 data from last week

If you look into the “Last Week” window you will see two buttons at the bottom of the window. There you can toggle between data and diagrams.

Explaining of the data:

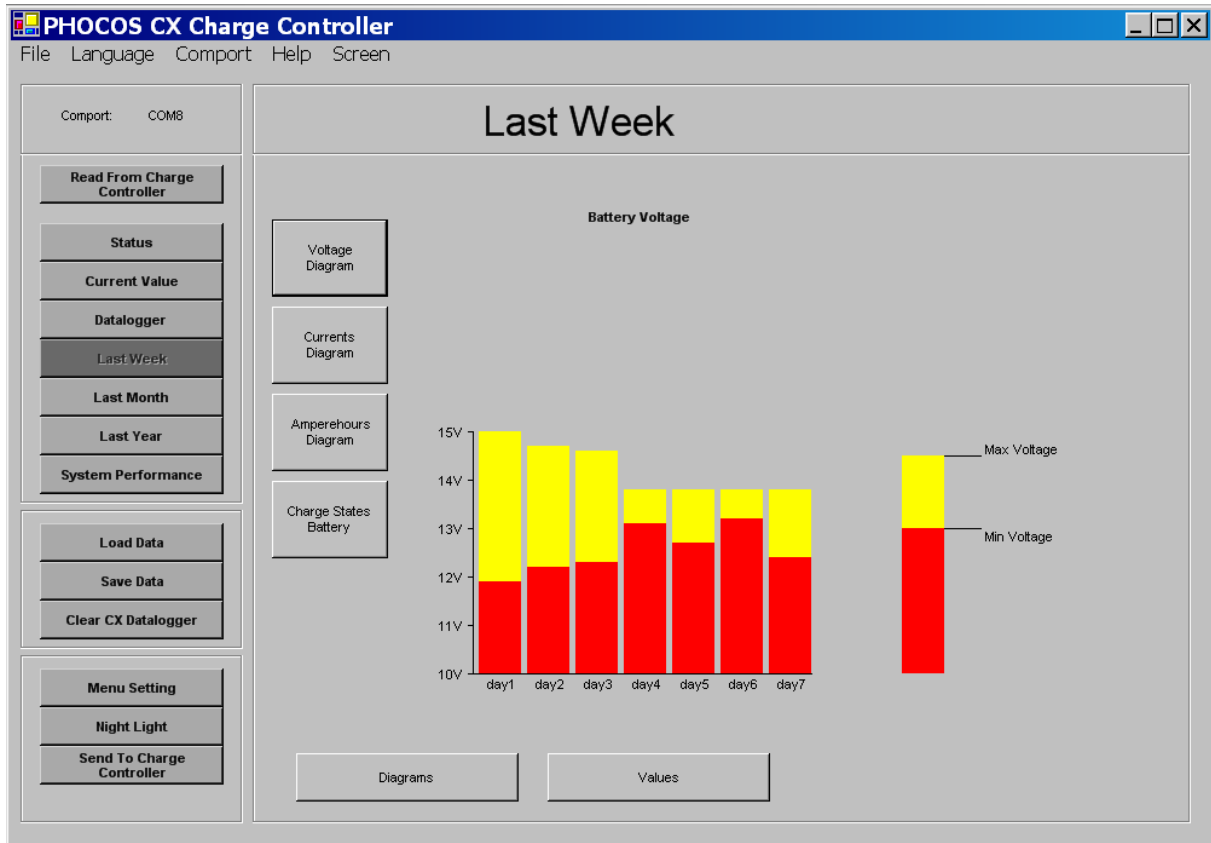
- maximum battery voltage at this day
- minimum battery voltage at this day
- state of battery charge in % of the battery in the morning
- state of battery charge in % of the battery in the evening
- PV amperehours at this day
- load amperehours at this day
- excess energy of the solar generator at this day
- maximum current of the solar generator at this day
- maximum current of the load at this day

A empty battery on this day will shown you which: 

A fullload battery on this day will shown you which: 

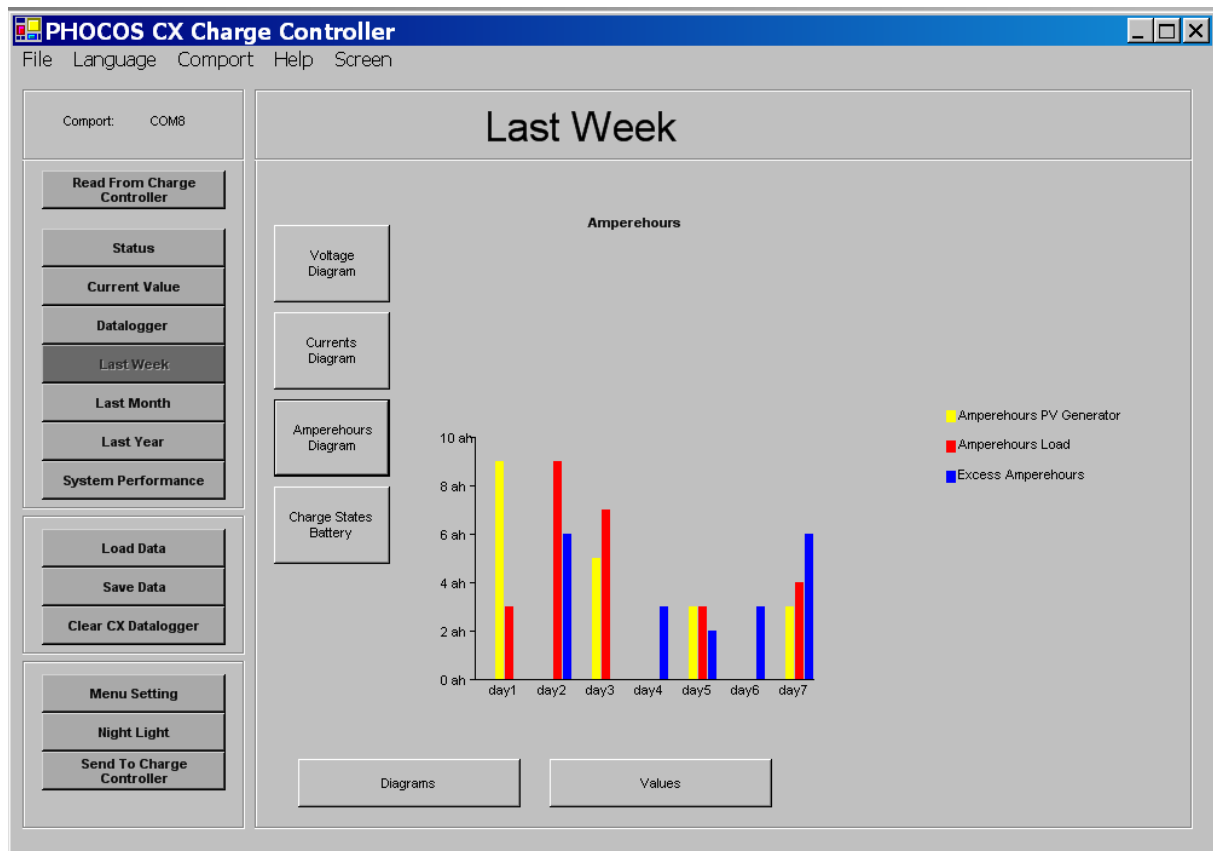
Furthermore, failures like overtemperature, overcurrent etc. are shown here. 

Using the button diagram you can look at four different diagrams from the datalogger. At picture 5.3.2.2. and picture 5.3.2.3. you see some examples.



Picture 5.3.2.2 diagram of the minimal and maximal battery voltage

In picture 5.3.2.3 you can see a diagram about the amperehours. The blue bars are the excess energy. The load energy bars are red and the used solar generator energy bars are yellow.



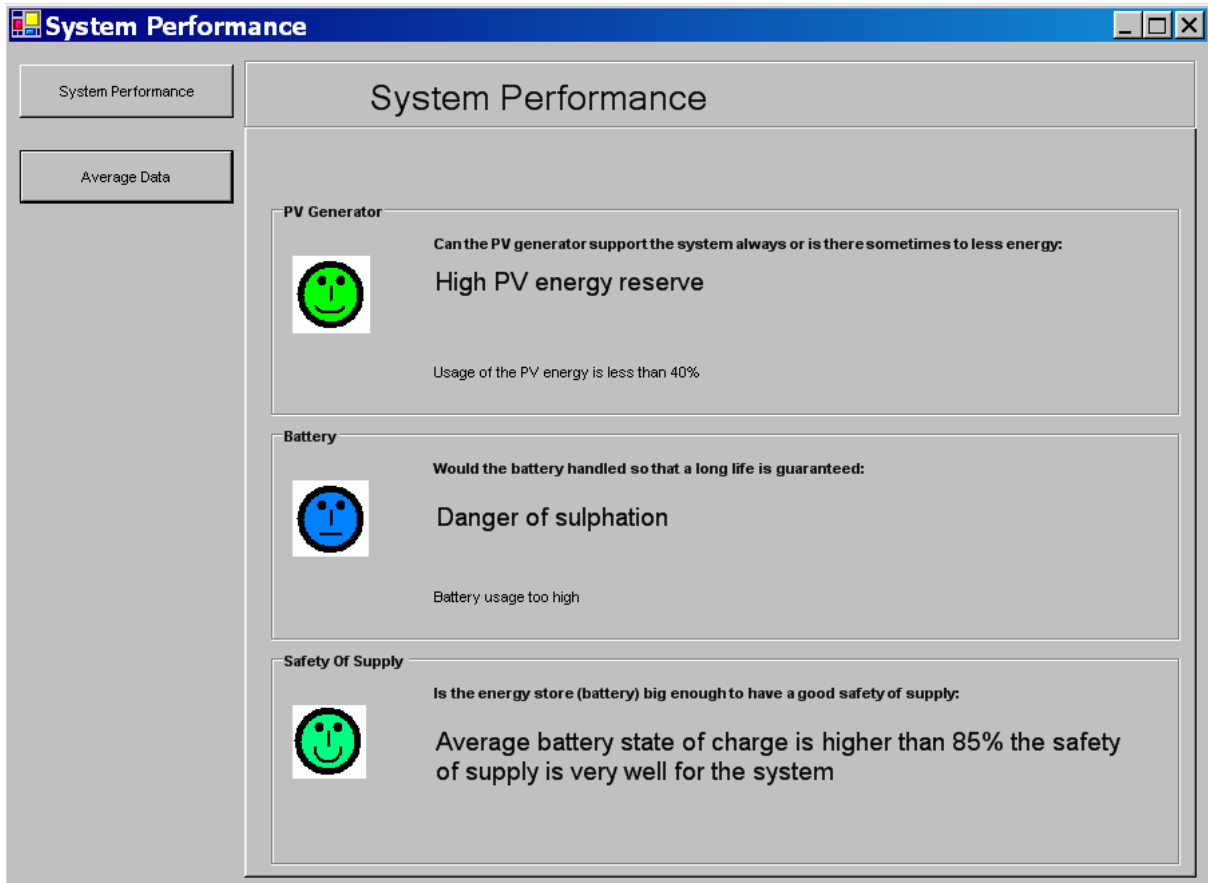
picture 5.3.2.3 amperehours solar generator, load, excess

The data of “Last Month” and “Last Year” can also be looked up. But this data are average data about each week respectively each month.

The min and max battery voltage and min and max currents are the min and max values for each week respectively each month.

5.4 Check your system

Click on “System Performance” and you will see a window like picture 5.4.1.



5.4.1 System Performance

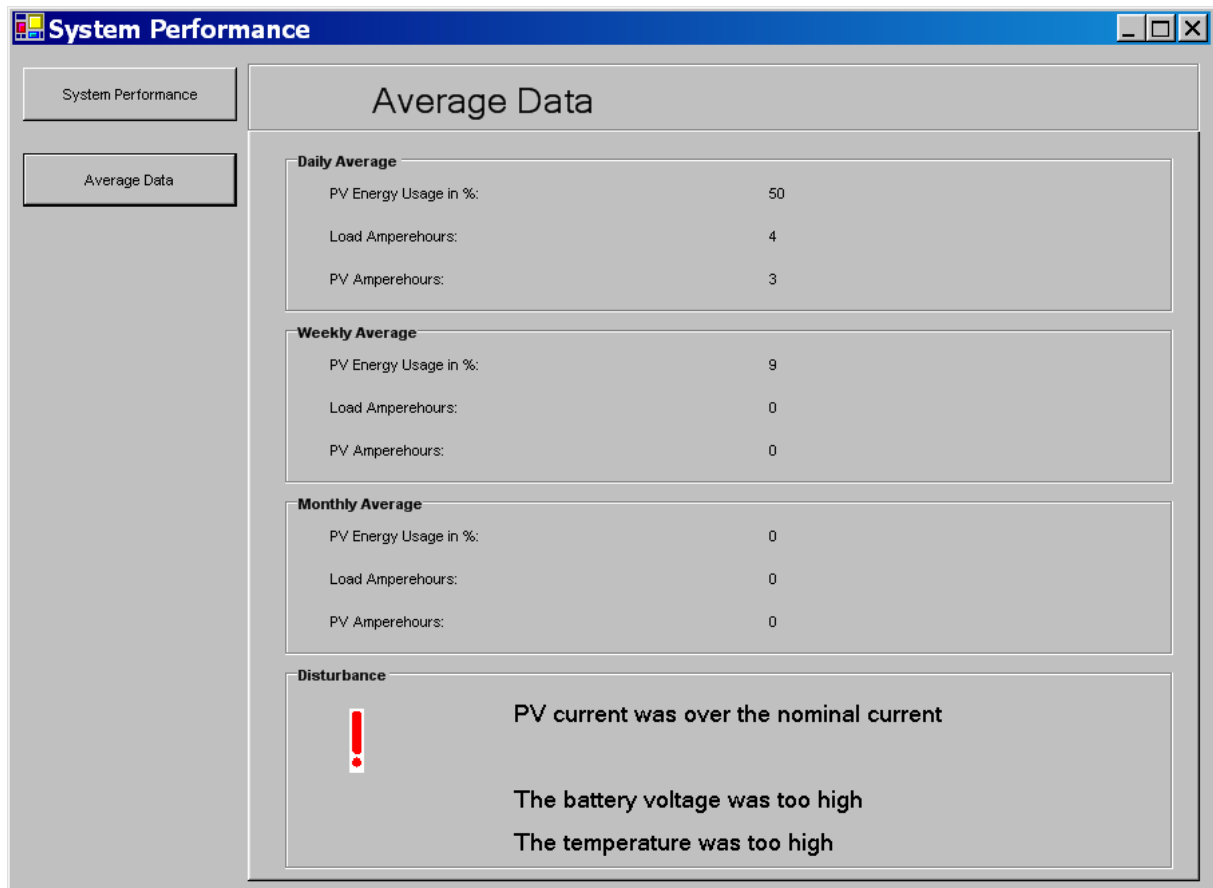
The System Performance shows you how good was the load supported with energy.


Following questions should be answered:

- Can the PV generator support the system always or is there sometimes to less energy?
- Would the battery handled so that a long life is guaranteed?
- Is the energy store (battery) big enough to have a good safety of supply?

Average data about the system:

If you click on “Average Data” in the System Performance window. You can look about average data and disturbances in the System.



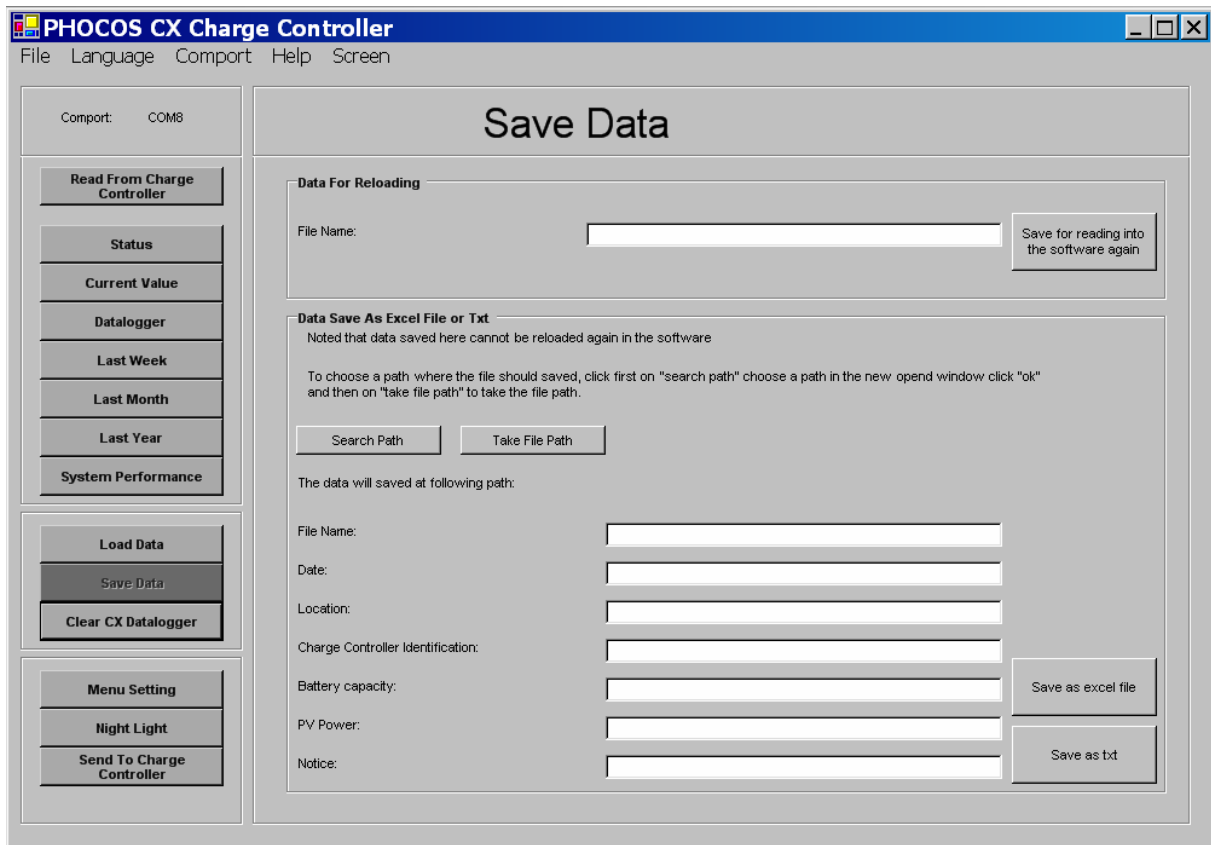
Average Data	
Daily Average	
PV Energy Usage in %:	50
Load Amperehours:	4
PV Amperehours:	3
Weekly Average	
PV Energy Usage in %:	9
Load Amperehours:	0
PV Amperehours:	0
Monthly Average	
PV Energy Usage in %:	0
Load Amperehours:	0
PV Amperehours:	0
Disturbance	
	PV current was over the nominal current
	The battery voltage was too high
	The temperature was too high

5.4.1 Average Data

5.5 Save data

You have the possibility to save data from the datalogger in a excel file or text file. For this click to “save as excelfile” or “save as txt”.

Further you can save the data so that you can reload it into the software again at a later time. For this click “save for reading into the software again”

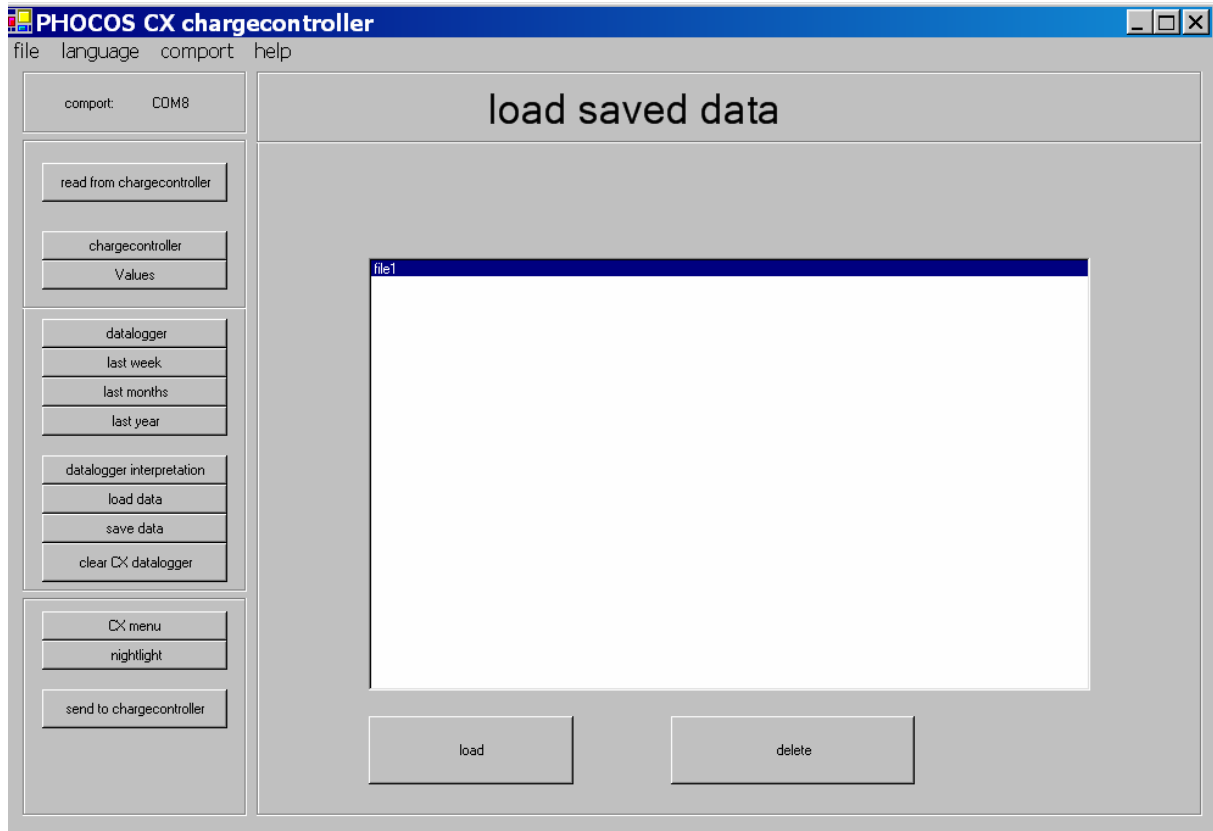


Picture 5.5.1 save data

To save as excel or txt file click first “search path” and choose a path in the open window. After this click ok and “Take File Path”. The path will be shown to you. Now you must give the file a name and you can save more details like battery capacity or power of solar generator.

5.6 Load data

You have the possibility to reload data which you have saved before. To do this you must click on “load” at the “Load data” window. When you have chosen the charge controller file which you want to load click on “load”.

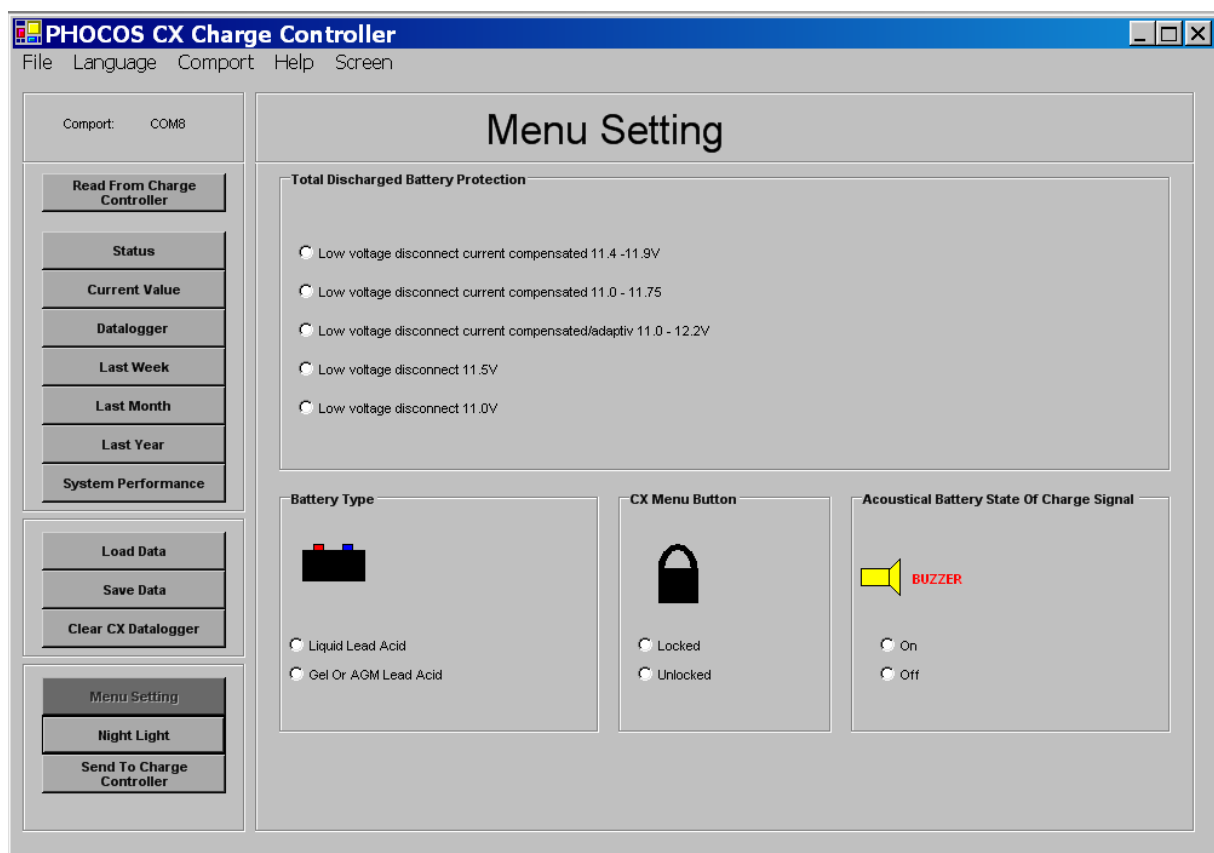


Picture 5.6.1 load data

5.7 The charge controller settings menu

The menu settings:

- Set the battery voltage when the charge controller should disconnect the load to protect the battery.
- State of battery charge buzzer (when this function is on a buzzer beep by the different charge states of the battery)
- Lock the menu (Then you can't use the menu button on the charge controller)
- Set the battery type (gel / liquid)



picture 5.7.1 menu settings

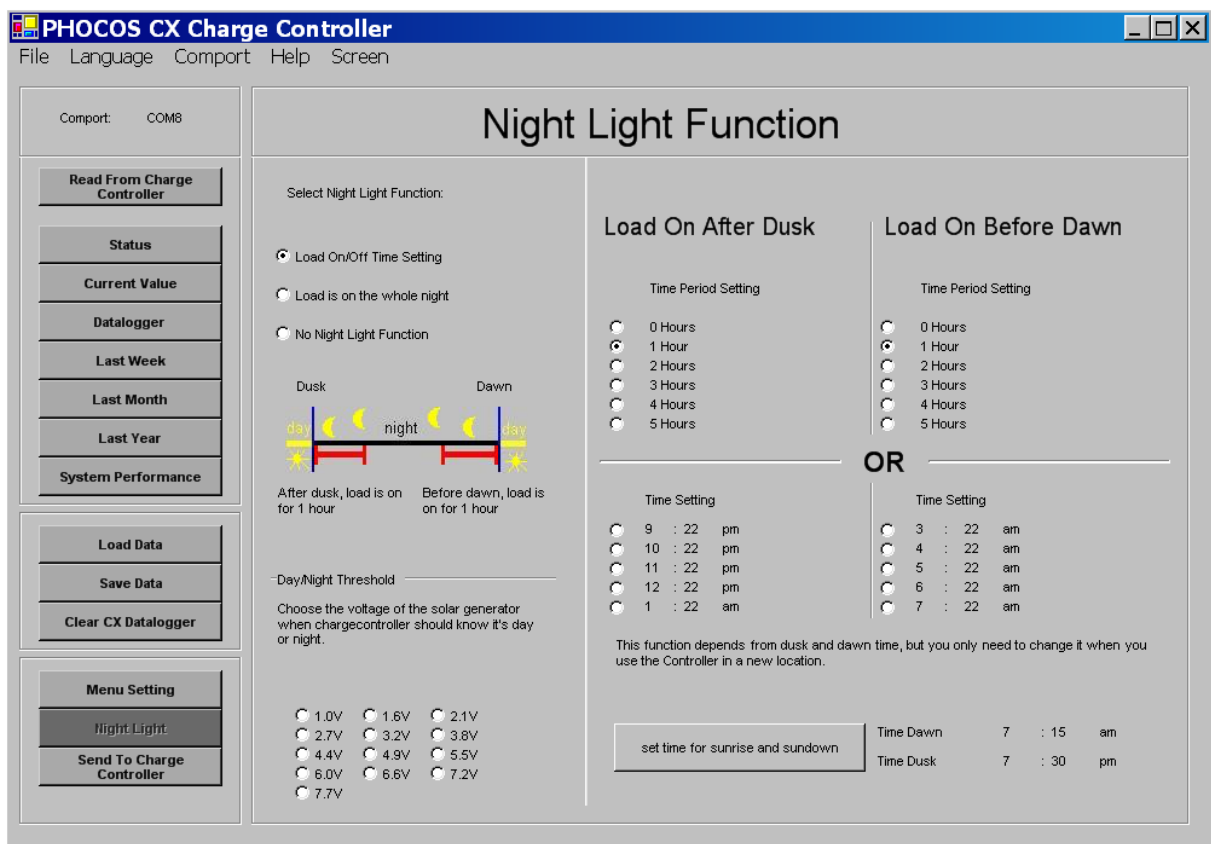
5.8 Set night light functions

You have three possibilities to set the nightlight function. This is a function where you can switch on the load at definite times at night. The load will be switched off during the day.

- load on/off hours before sunrise / hours after sundown or set a time for load on/off
- Load on the whole night
- No night light function (then you can set load on and off manually with the charge controller button)

Load on hours before sunrise / hours after sundown

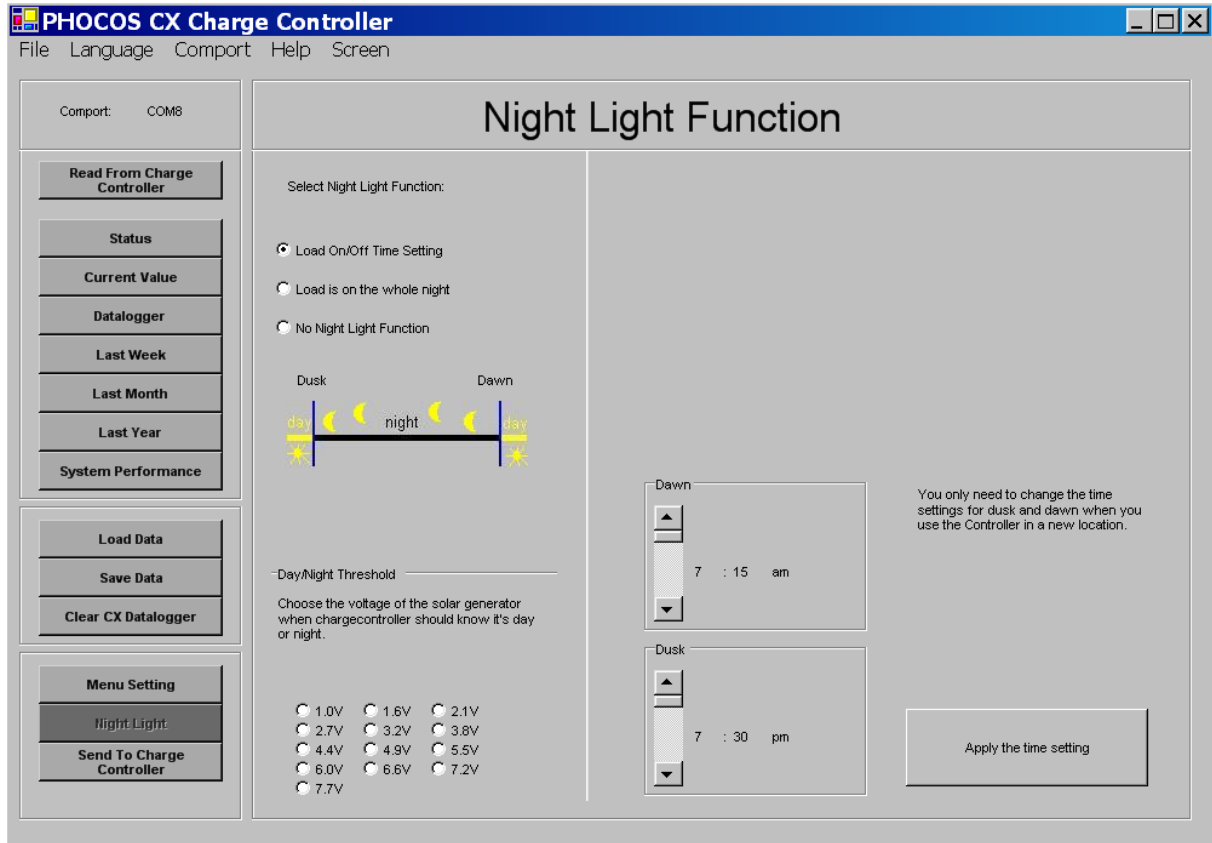
In this function you must set the hours before sunrise and hours after sundown when the load should be on. After this click to “Send To Charge Controller”. If you click to “read from charge controller” you can check the current setting of the charge controller.



Picture.5.8.1 set nightlight by hours before sunrise and hours after sundown

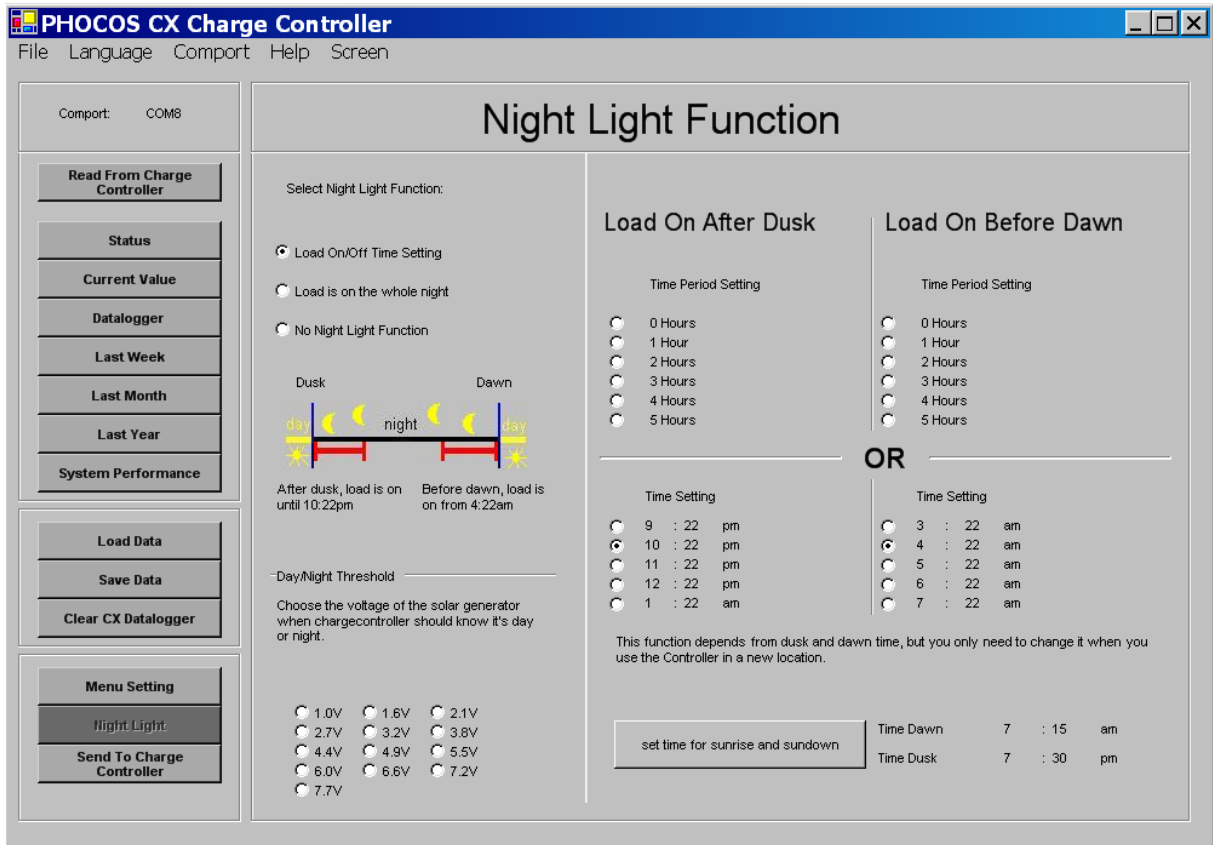
Set the time of sunrise and sundown, and then the time of load on

For this function you must first set the time of sunrise and sundown.
Then choose the time when you want the load on.



Picture.9 set time for sunrise/sundown

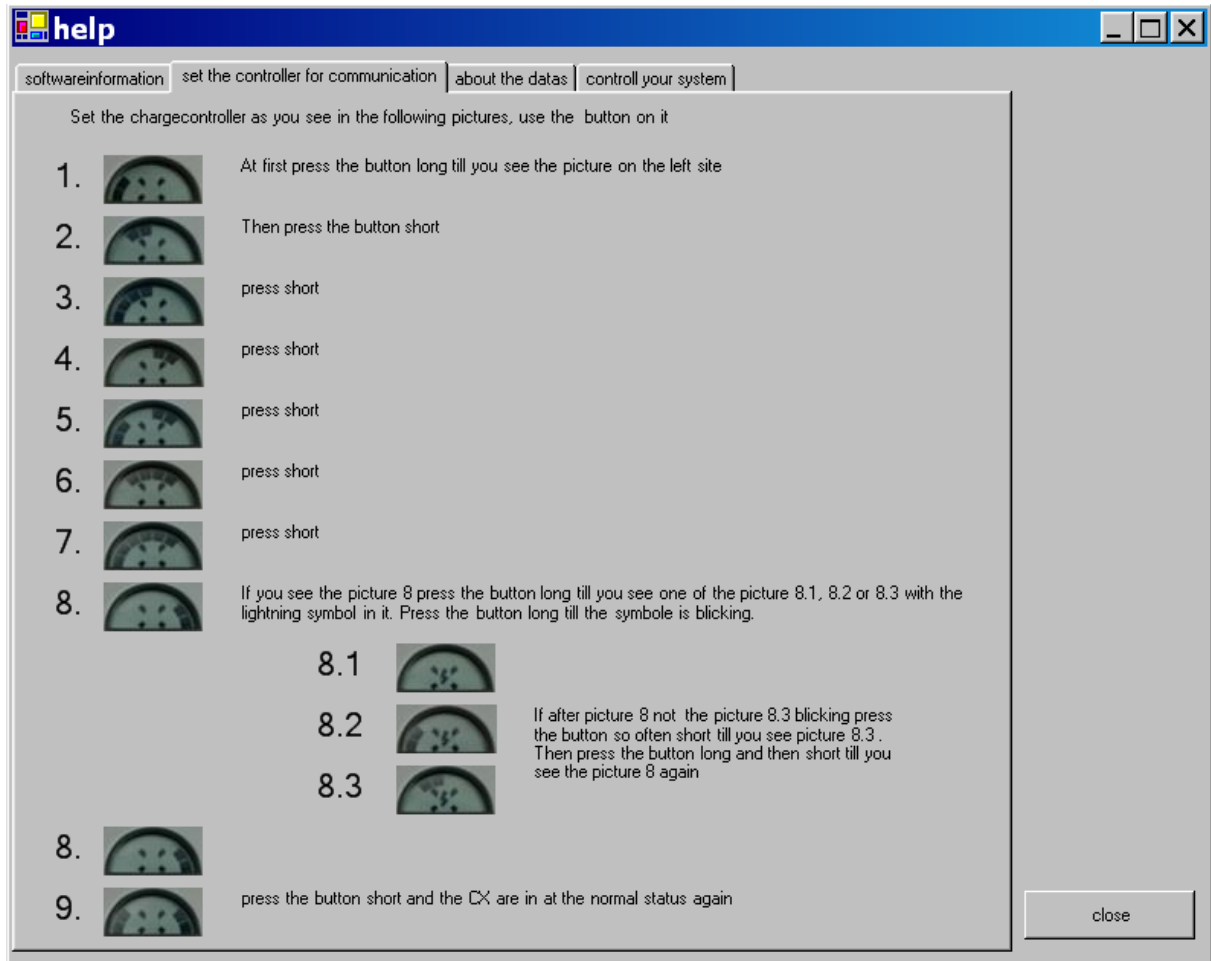
Set the times for load on at morning or evening:



Picture.10 set the time for load on and off

5.9 Use the help

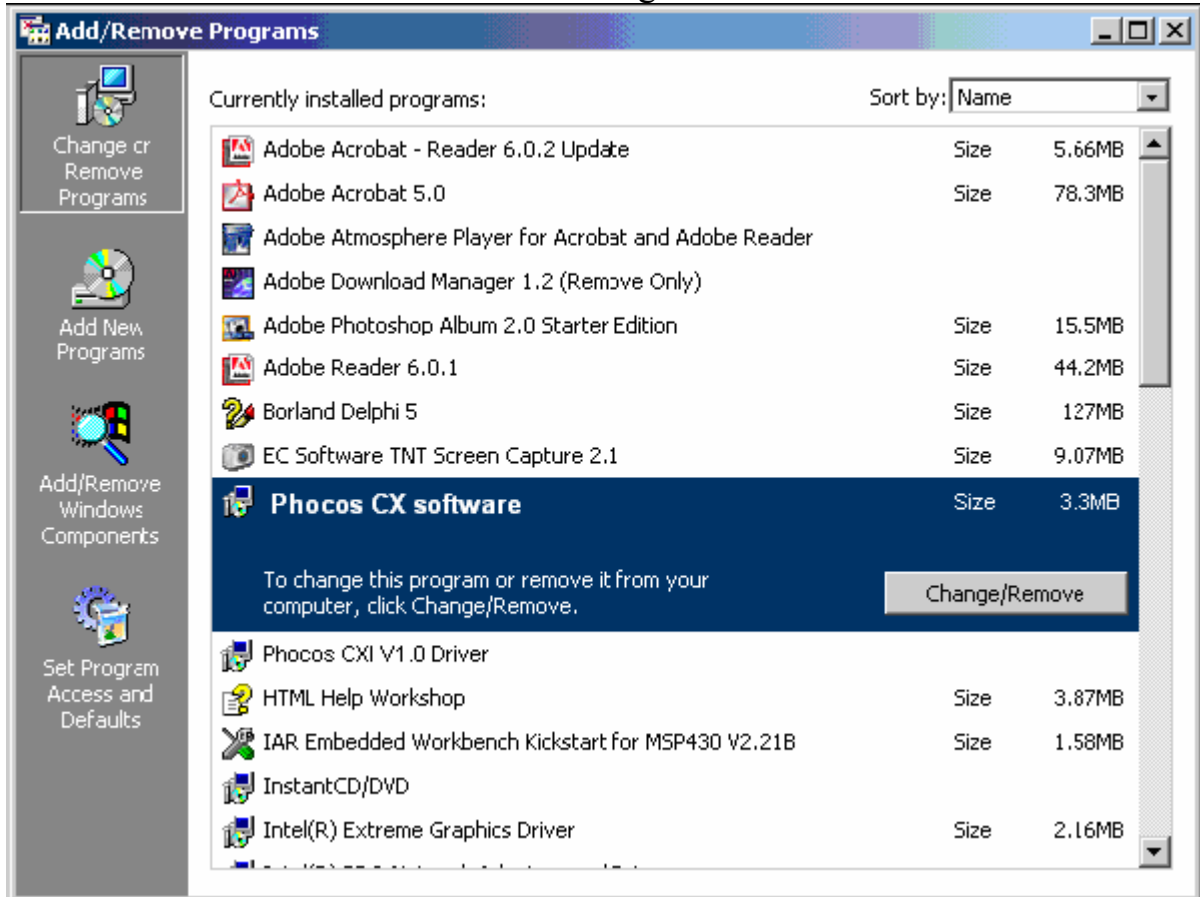
If you have problems, use the help function at the menu bar.



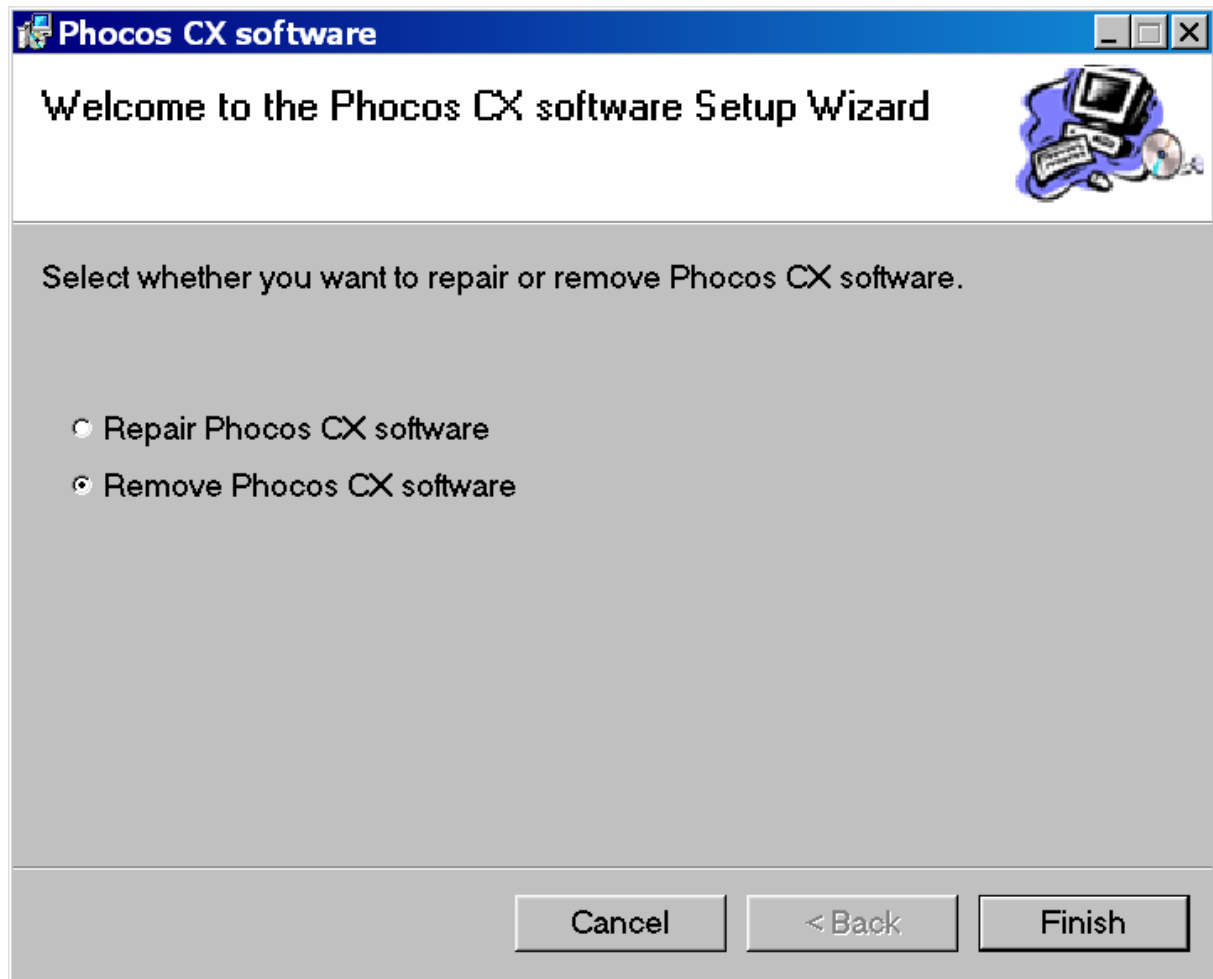
Picture 5.9 example of help

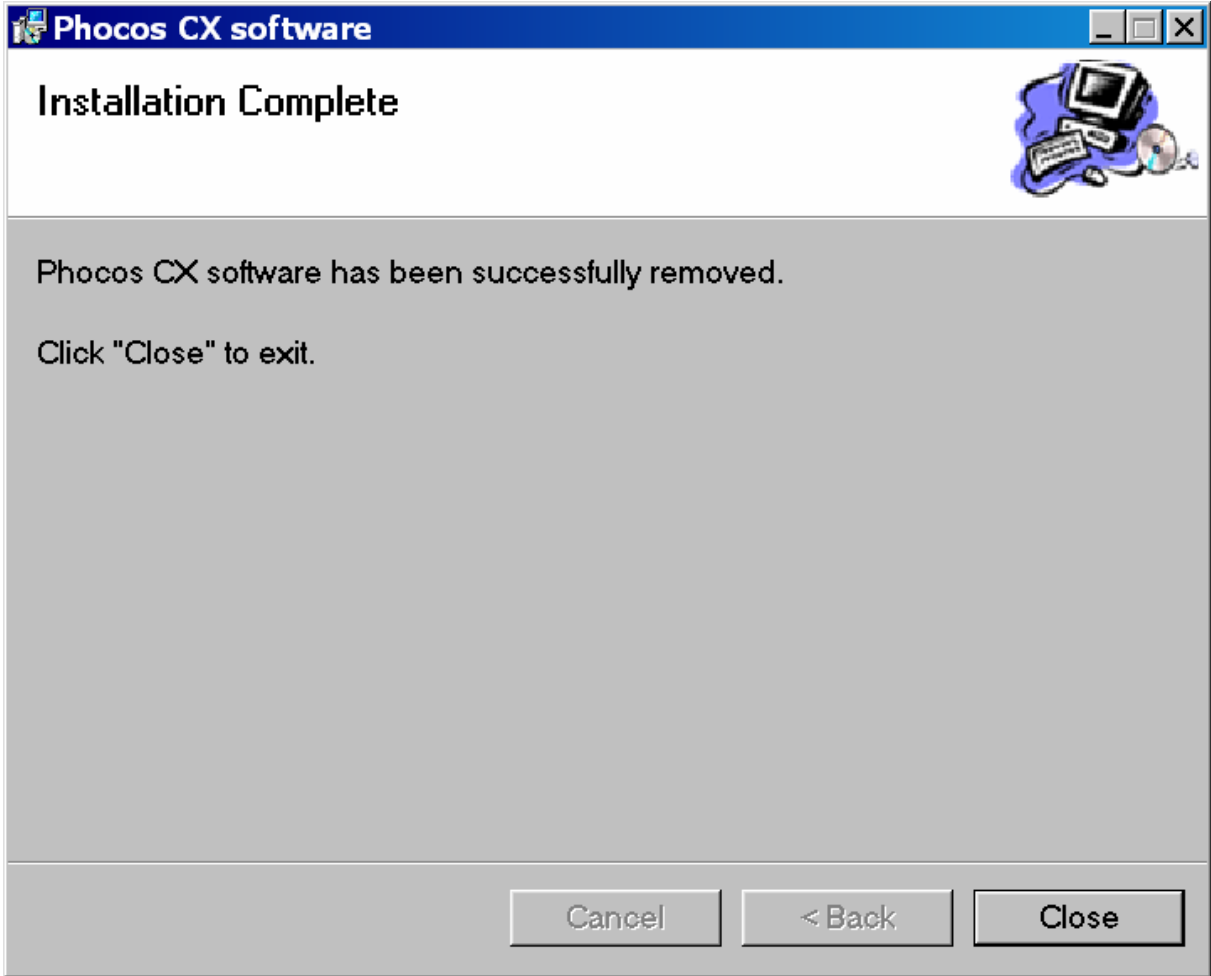
6. Remove the software from your computer

To remove the software from your computer click the “Change/Remove” button in the control center on “Add/Remove Programs”



Picture 6.1





7. Technical support by questions

If you have questions about the software you can write an e-Mail on:

info@phocos.com

address of phocos:

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Eberhard-Finckh-Strasse 10
D-89075 Ulm
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homepage: www.phocos.com