



Welcome to MODCOM

-your effective PV system Analysis



MODCOM will help you
to understand
your PV system



MODCOM Manual



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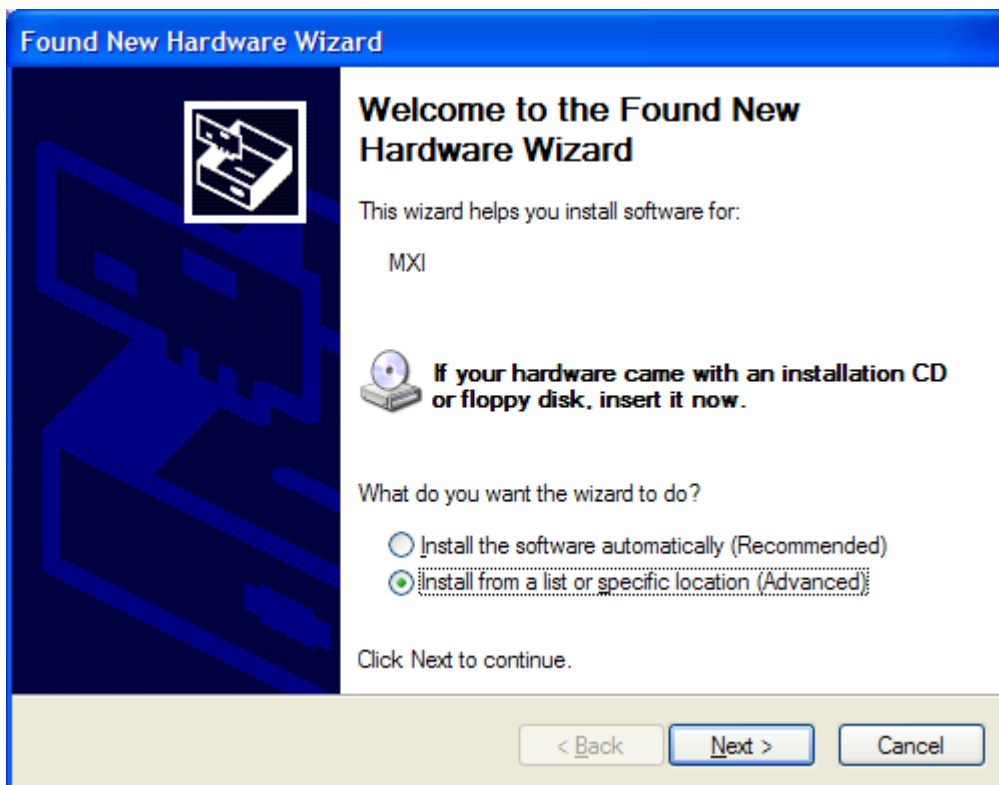
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1 MXI Installation

Virtual ComPort Installation for MXI:

Connect MXI to a vacant USB Port on your PC.

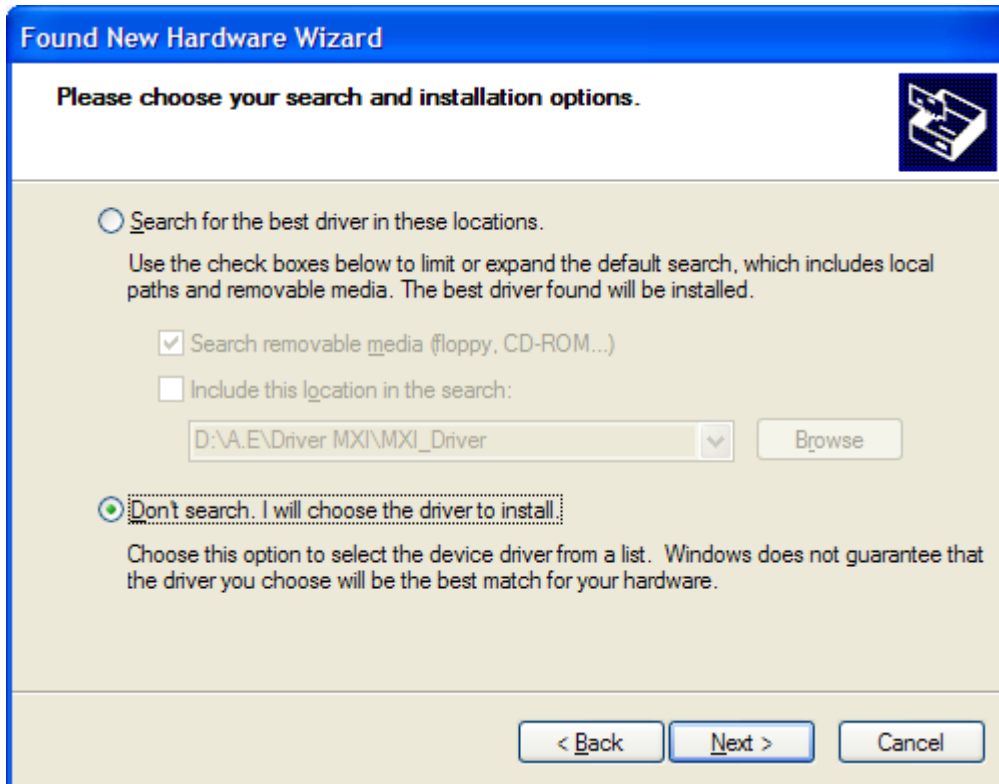
The following window should appear.



Choose „Install from a list or specific location (Advanced)“.

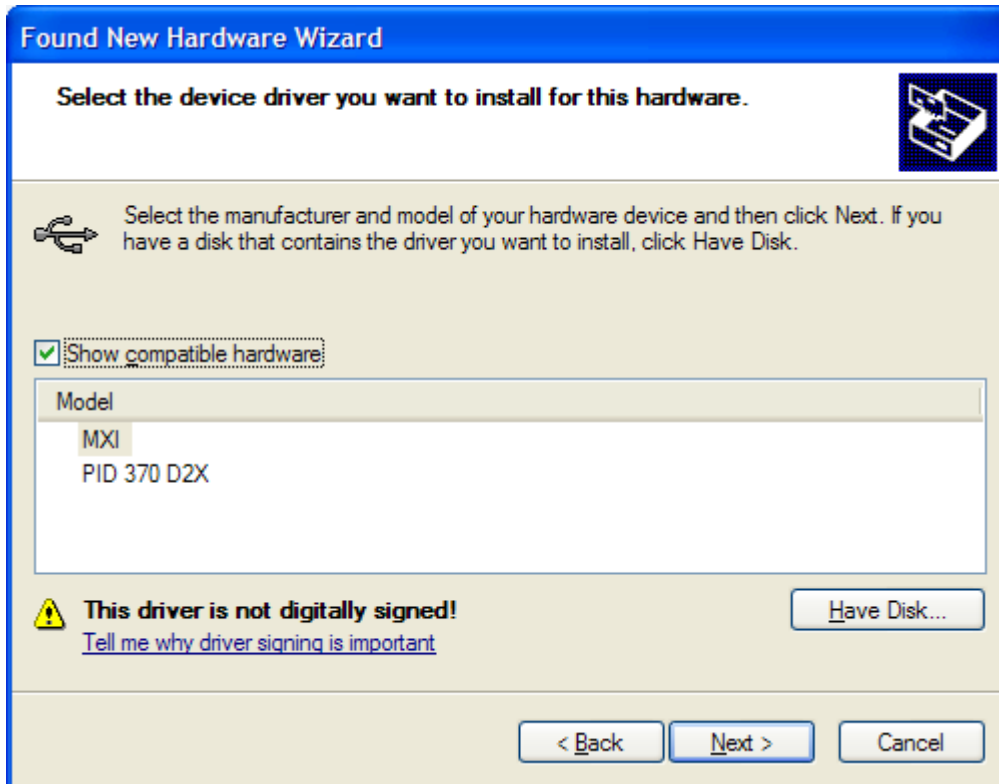
Click „Next“

In the next window press „Don't search. I will choose the driver to install“

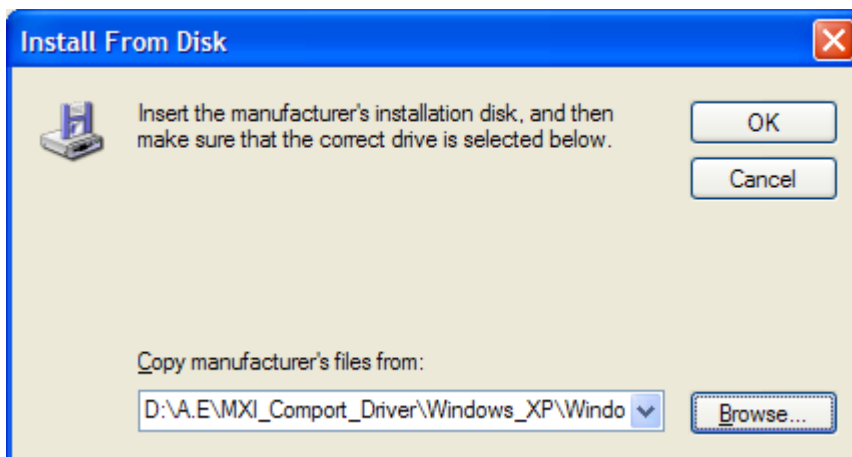


Click „Next“.

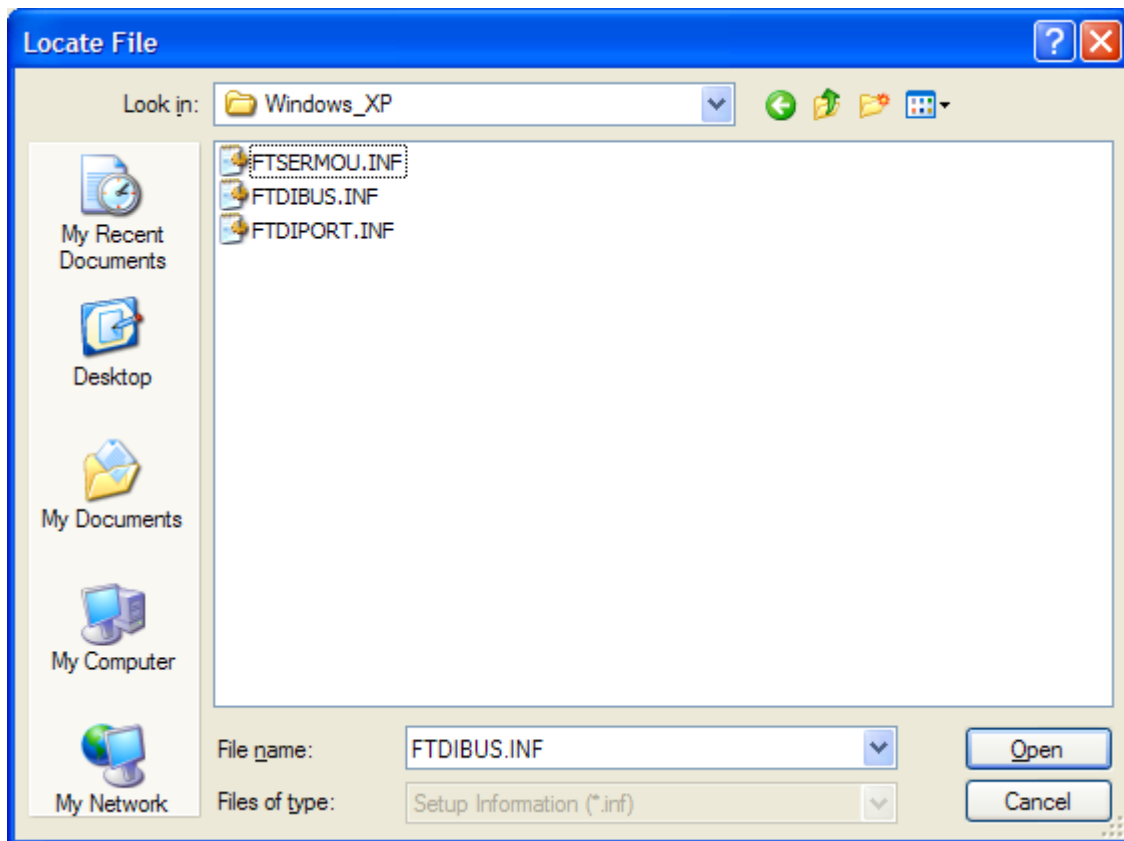
In the next window click „Have Disk ...“



Click „Browse“ in the next window.

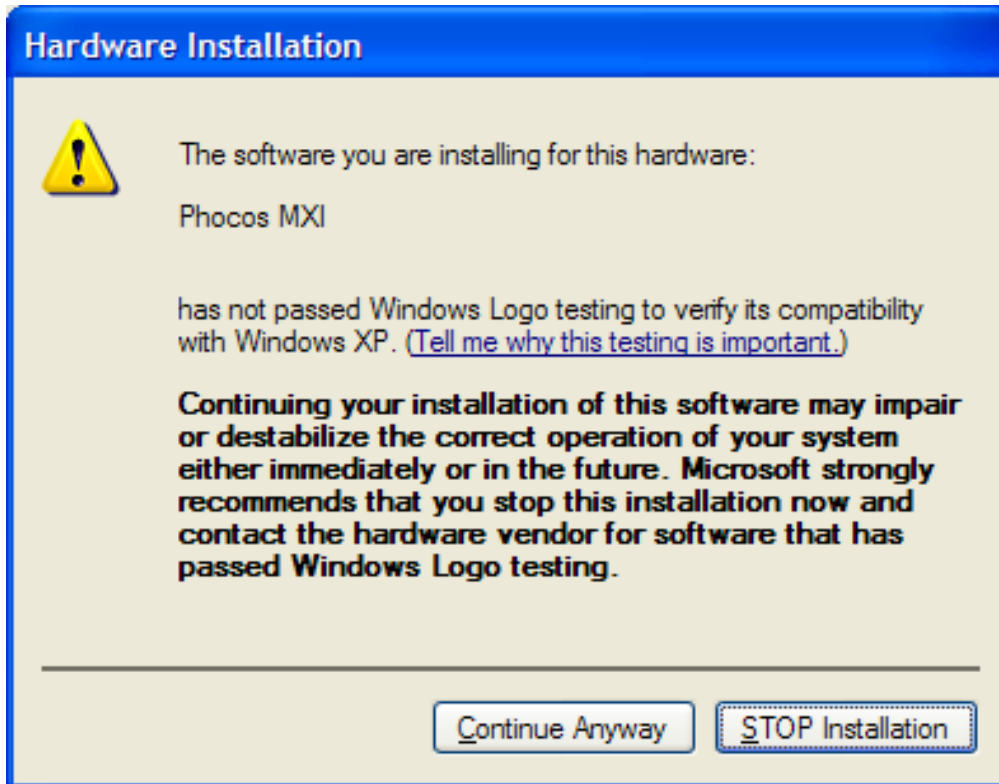


Choose in the folder „Driver MXI“ ..operating system.. the file FTIBUS.INF

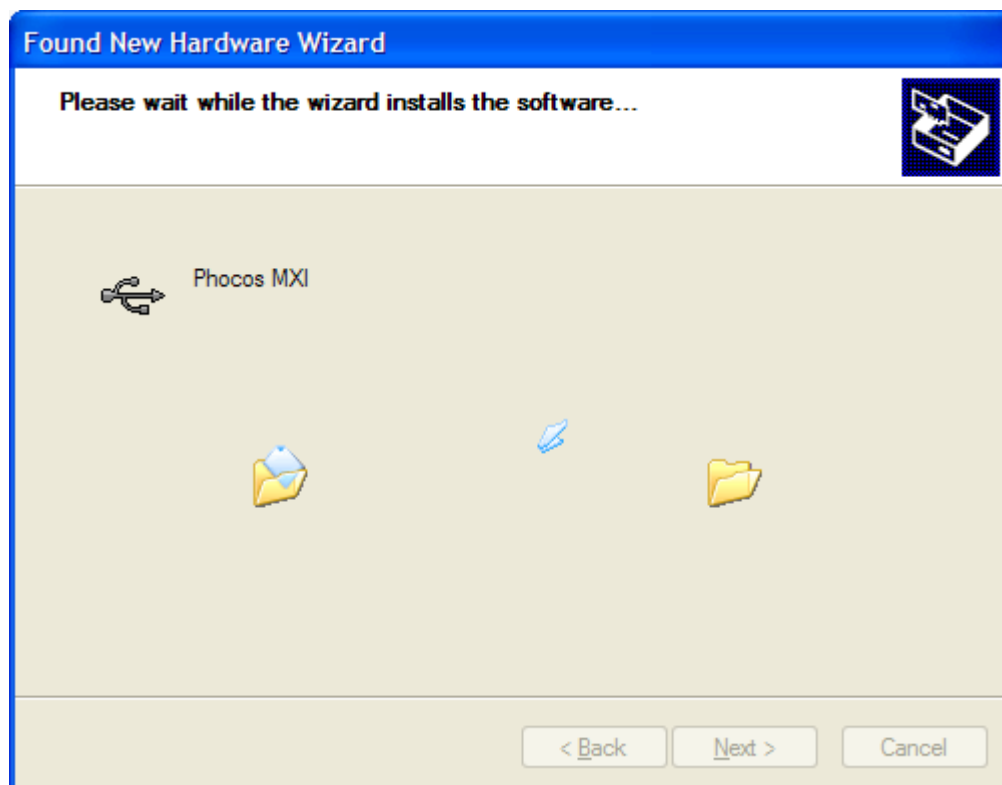


Press „Open“.

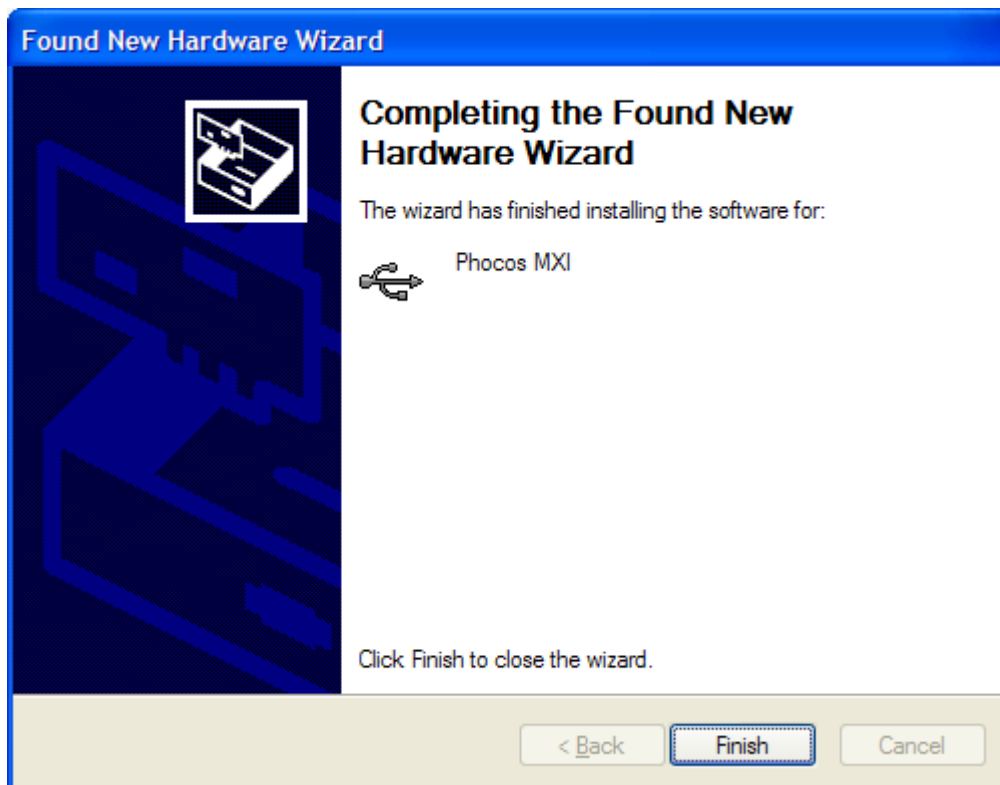
The following message you can ignore.



The installation of the driver starts, now.



The first driver is successfully installed now when the following window is shown to you.

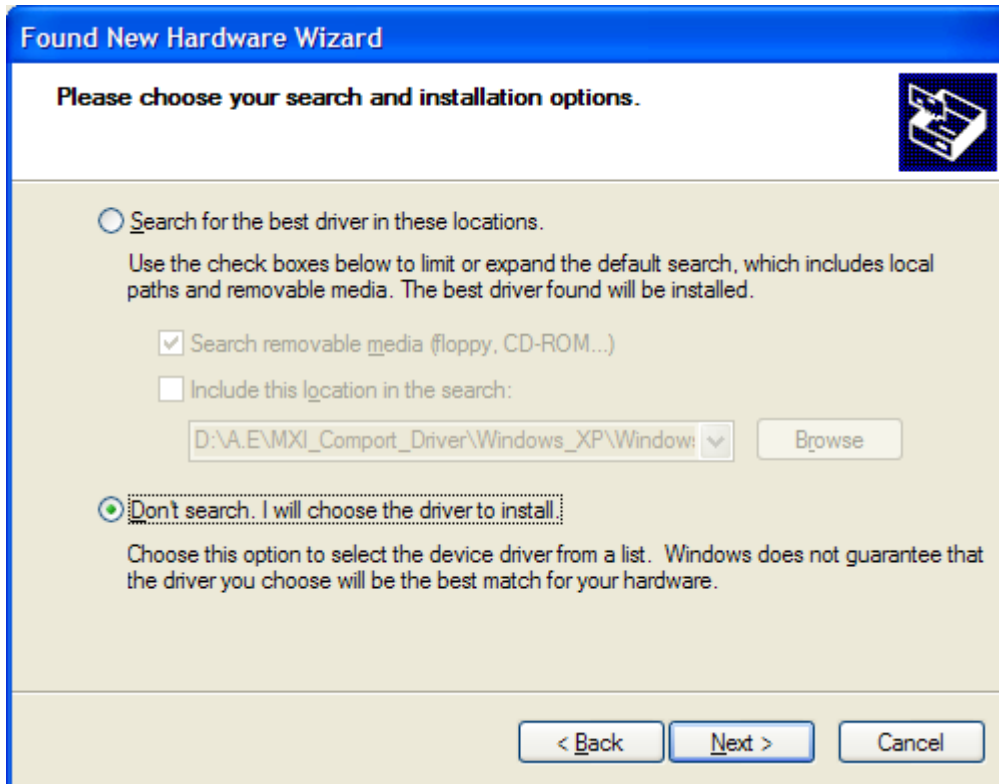


Click on „Finish“. Now the second driver must be installed which create the Virtual Comport which is used to communicate with Modcom.

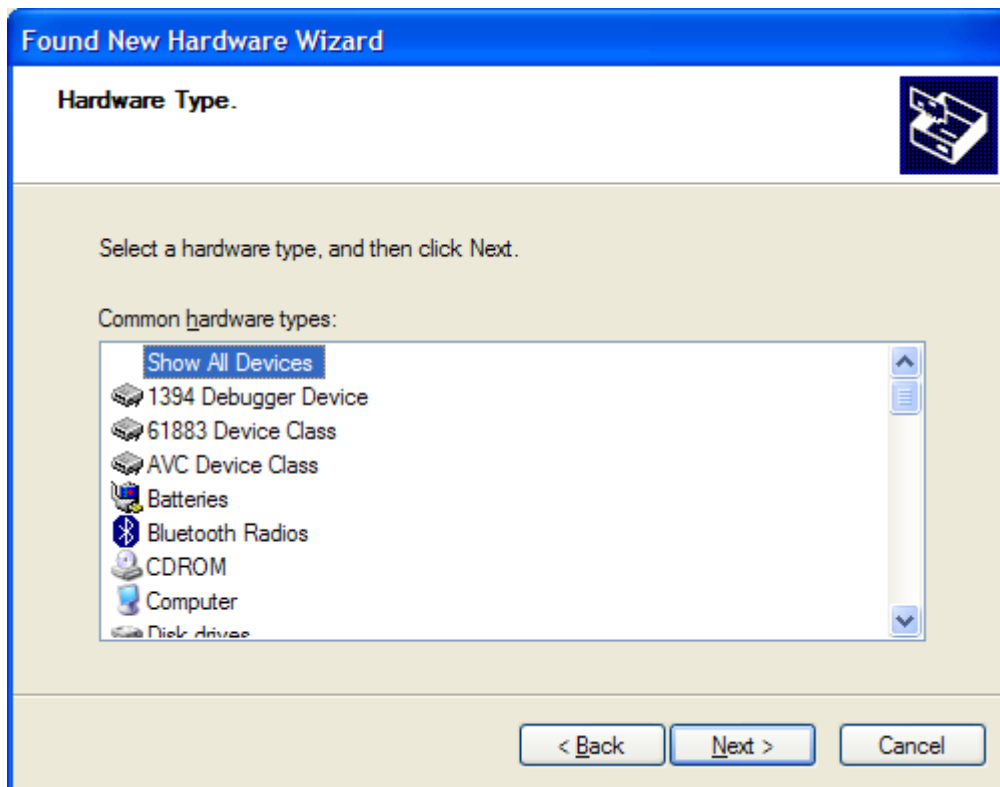
When the next window appears click on „Install from a list or specific location (Advanced)“



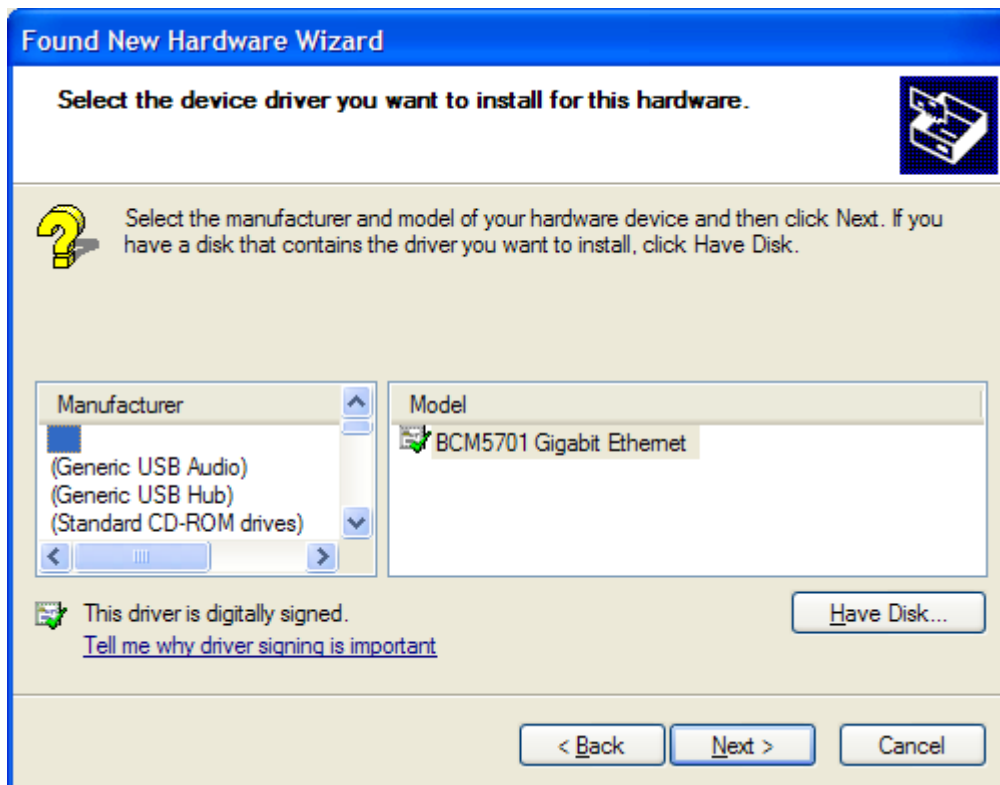
In the next window click on: „Don't search. I will choose the driver to install“



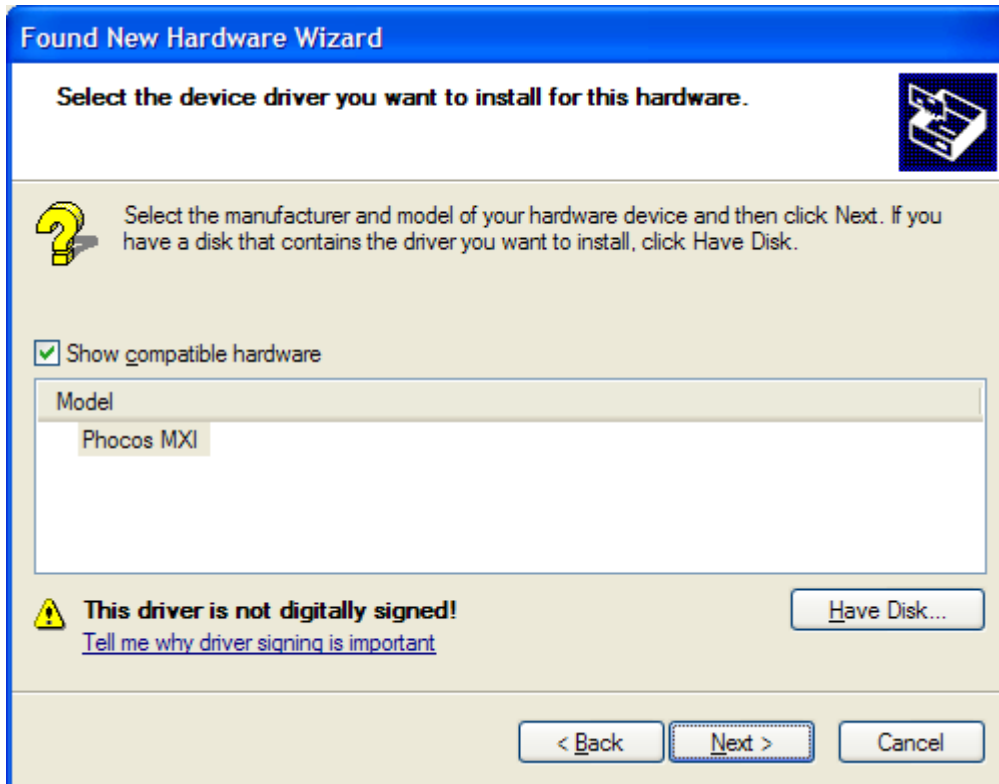
Choose „Show All Devices“.



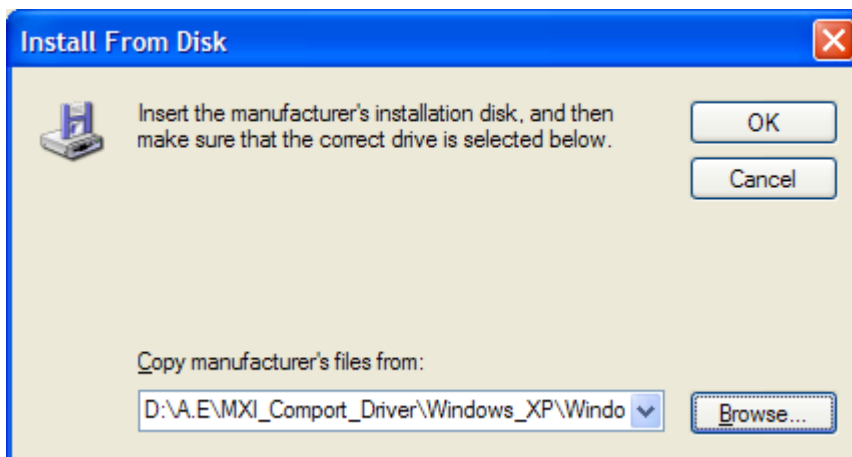
Click on „Have Disk...”



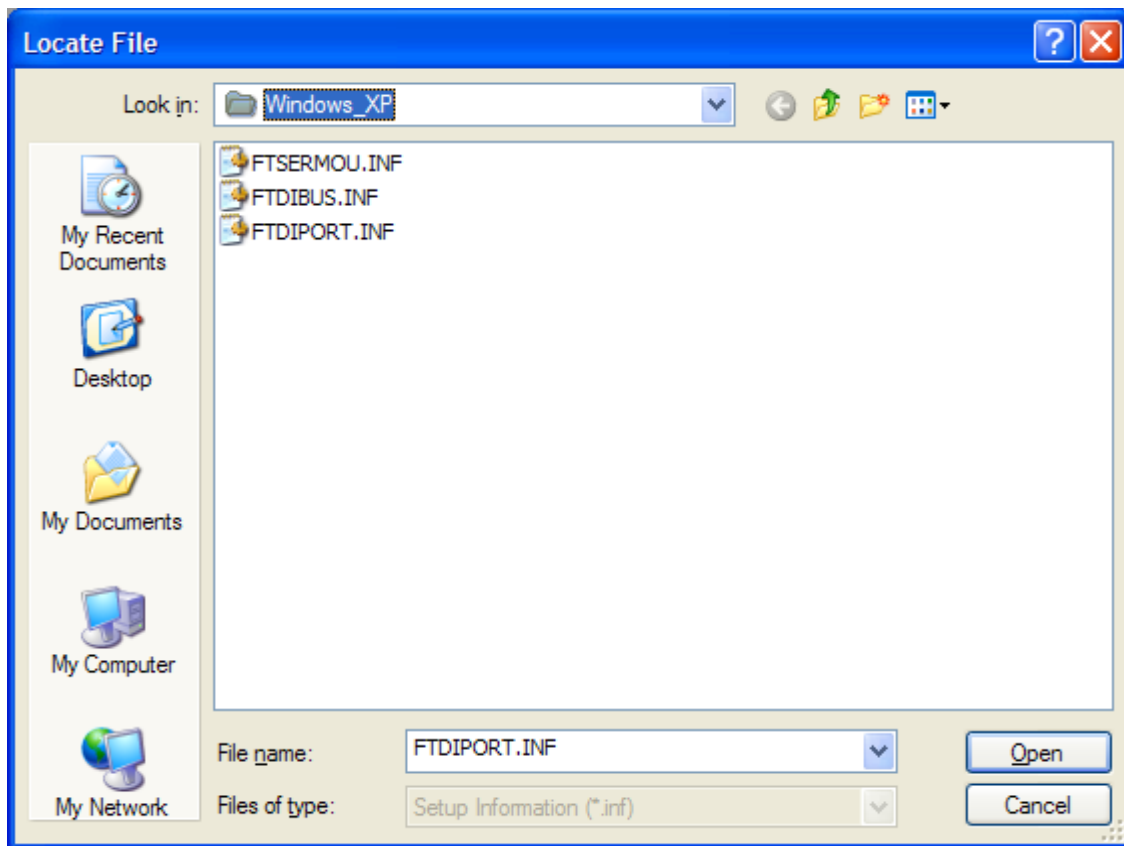
Click on „Have Disk ...“



Press „Browse“



Choose the file „FTDIPORT.INF“

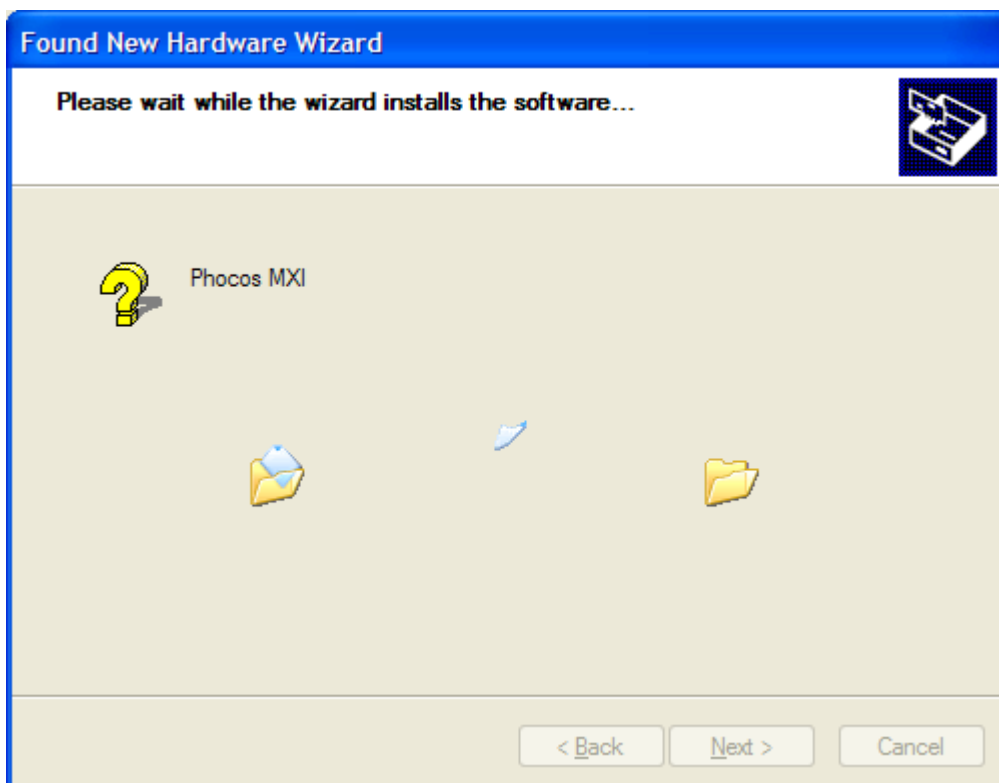


Press on „Open“

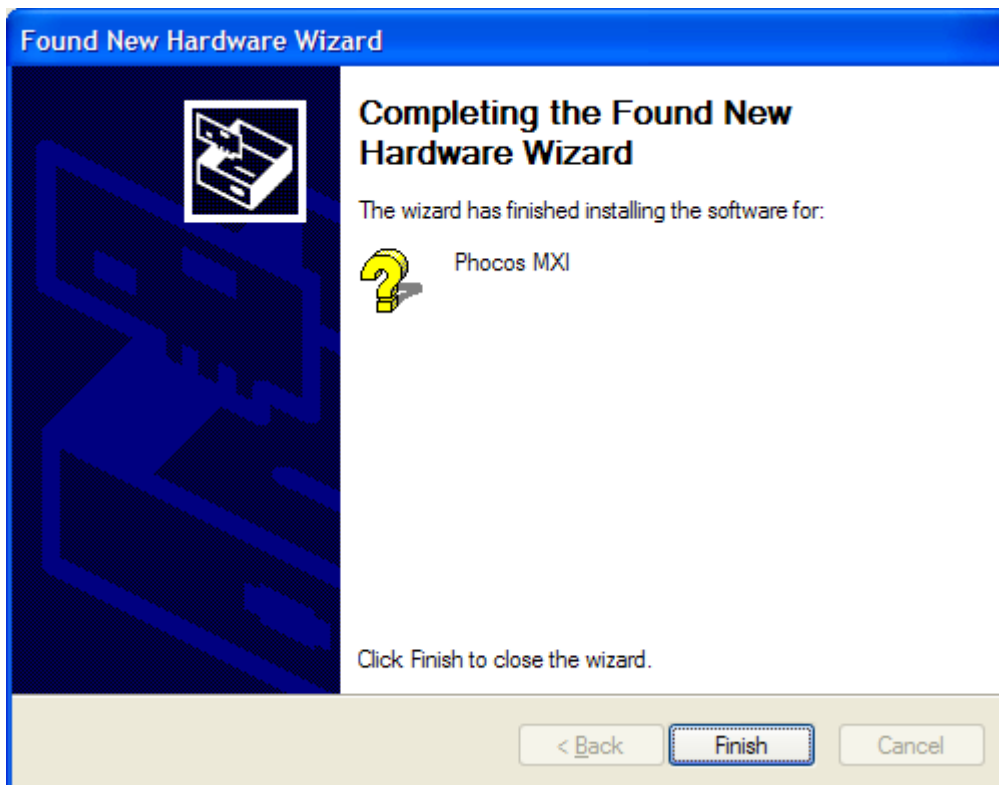
The next message you can ignore



The installation of the second driver starts, now.

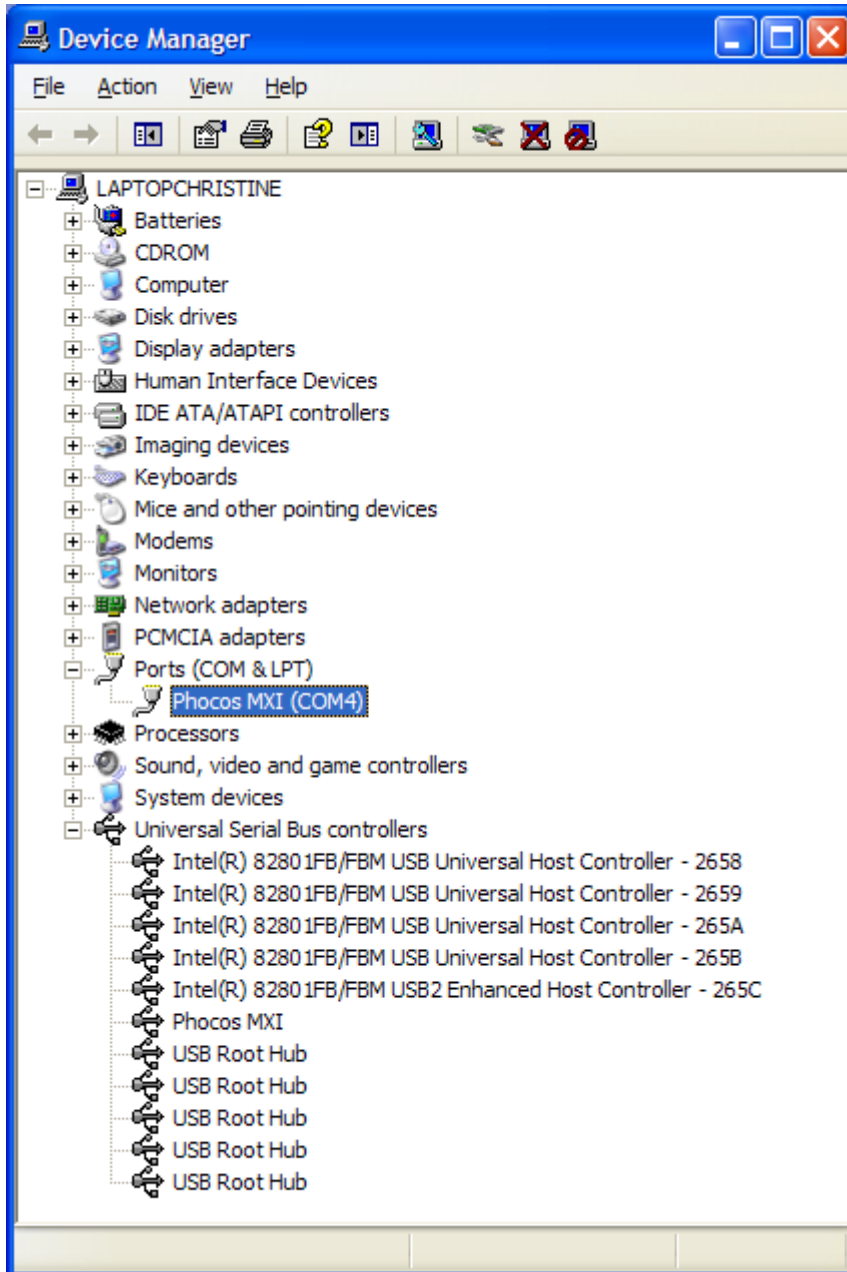


When the next window is shown to you, the MXI is successfully installed.



The MXI is successfully installed now press „Finish“.

Now you could find the MXI in the „Device Manager“. In our example it's „COM4“. Please set this Com in the Modcom for communication. How you do that you could see at capital 3.1



2 MODCOM Installation

Please start the “setup.exe”, then the MODCOM Setup would guide you through the installations steps.

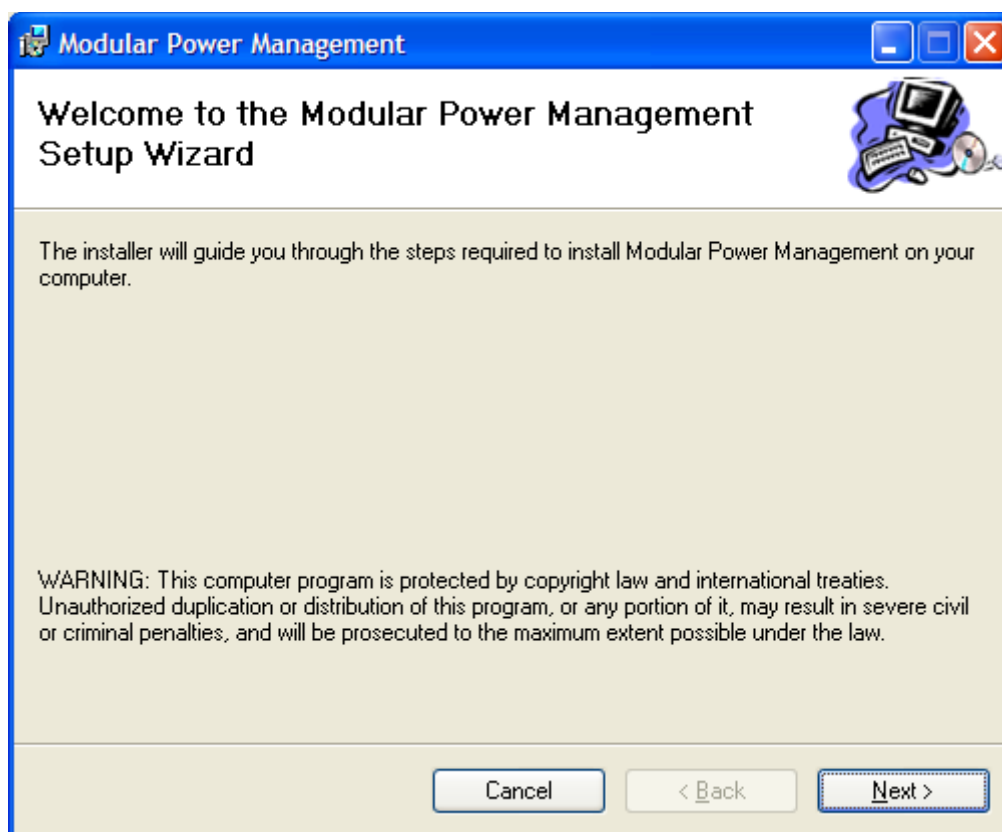
If the Microsoft framework is still installed on your PC, then please go to step2

Step 1: Install the Microsoft .NET Framework

When you click on the Modcom setup windows starts to download automatically framework 4.0 which is necessary to run the software. Please following the instructions.

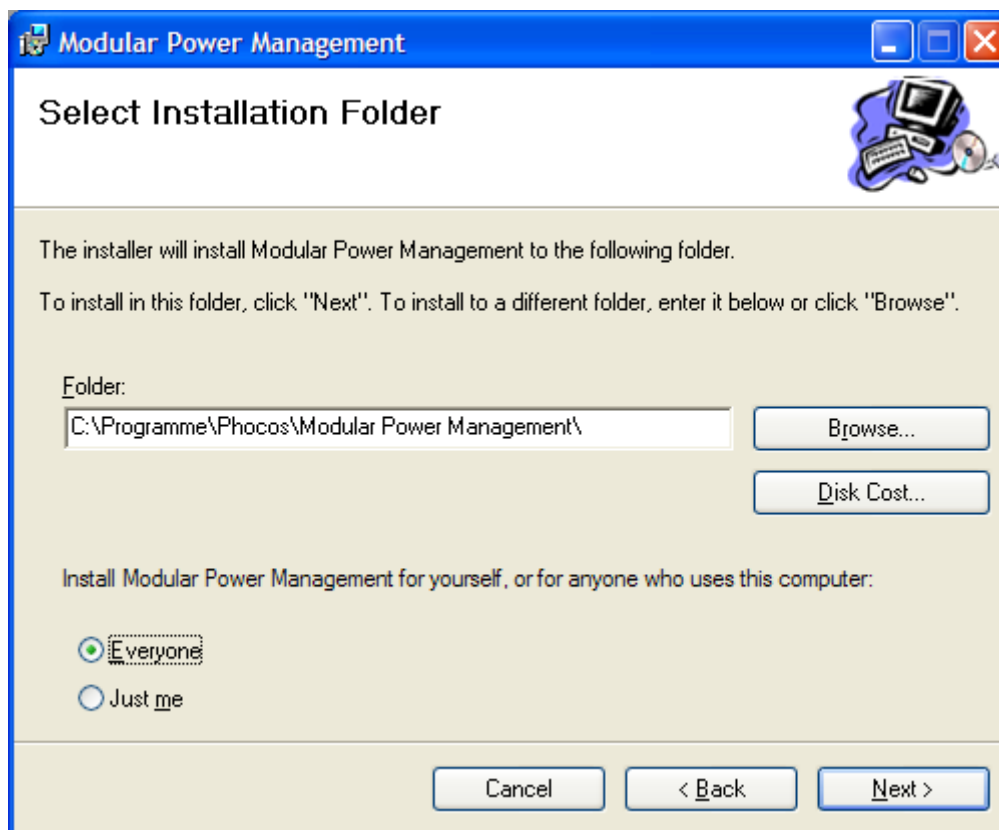
Step 2: Install the MODCOM software

Start the setup again and follow the instructions.

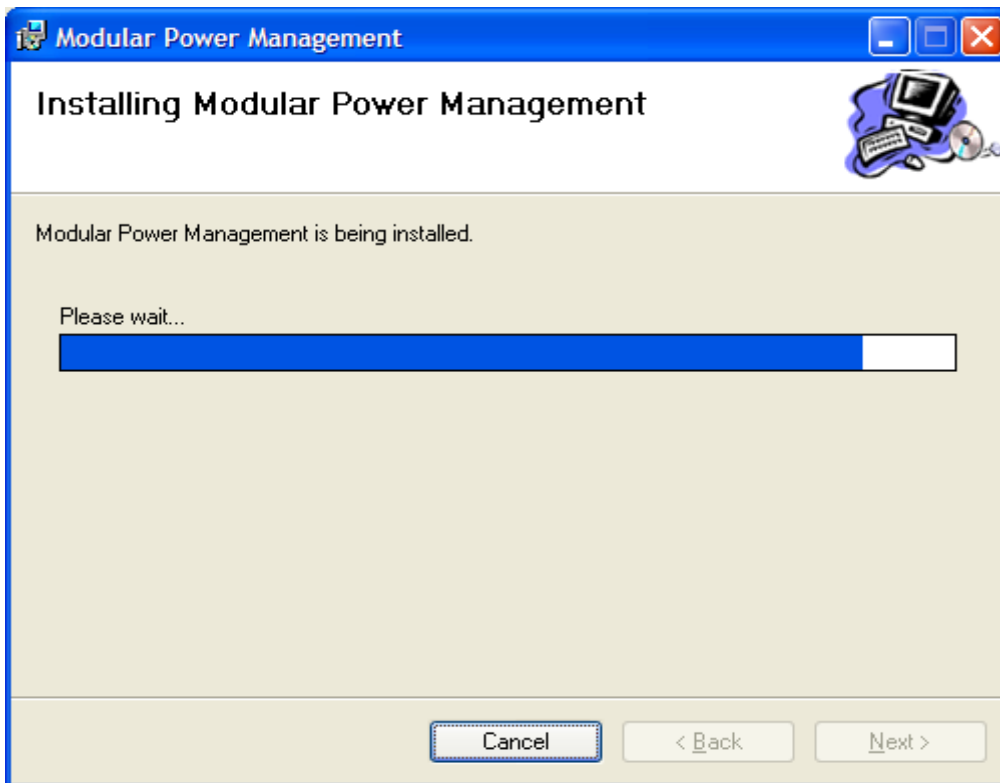
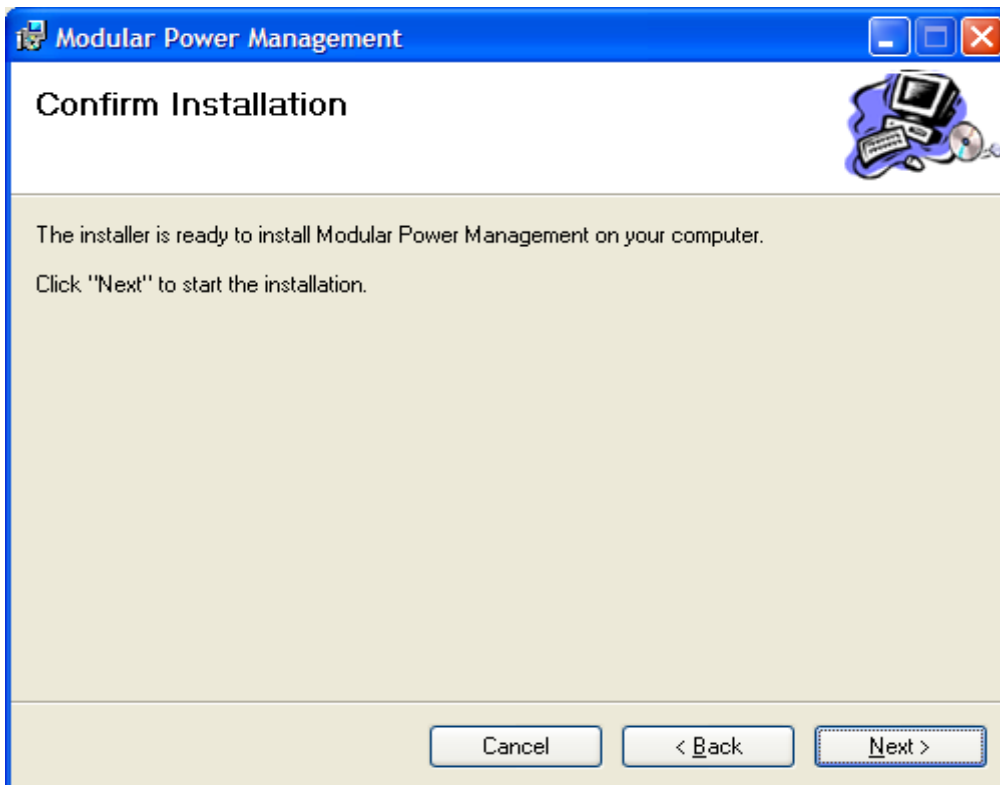


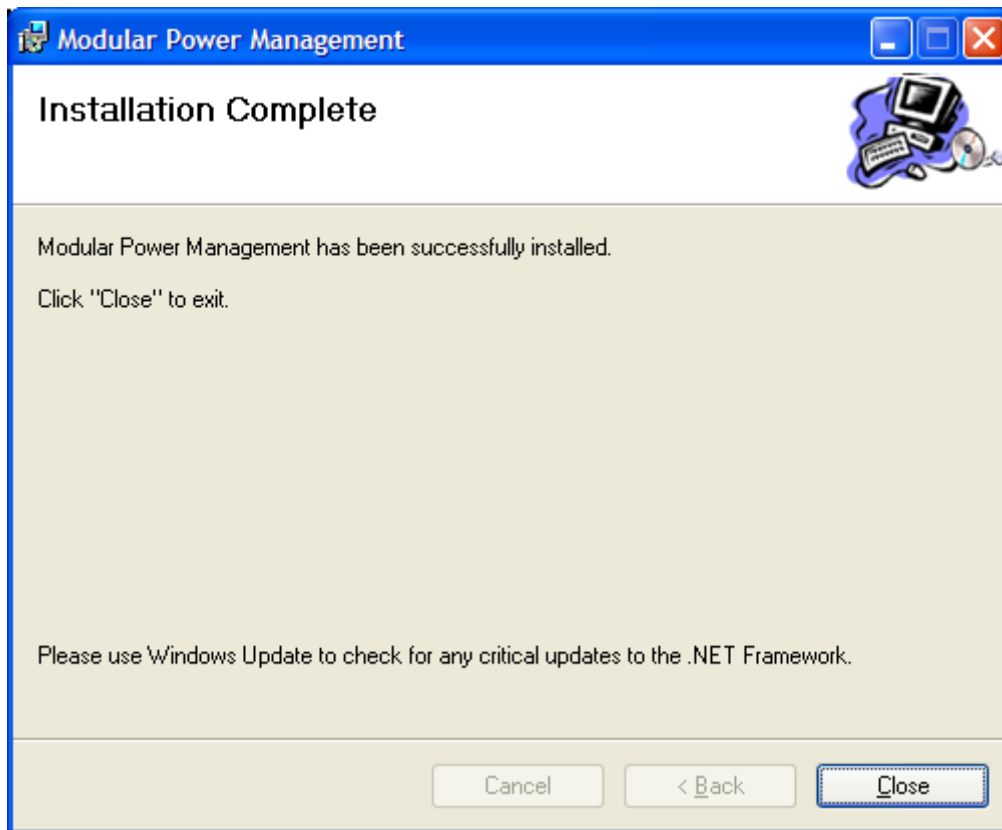
Click on “Next”.

Choose a folder where you want to install the software.




Click on "Next" and the software would installed now.





If the installation was successfully the window above will show you the success.

You will see following link on your Desktop.

 [Modular_Power_Management.exe](#)

3 The Software

After launching the software click on “START”



3.1 Interface setting

If you have connected a Modem or communicate over Comports then you can change the Port in the Modcom software. This you could do in the menu line „Interface“. Choose here the port which you want to use for communication.

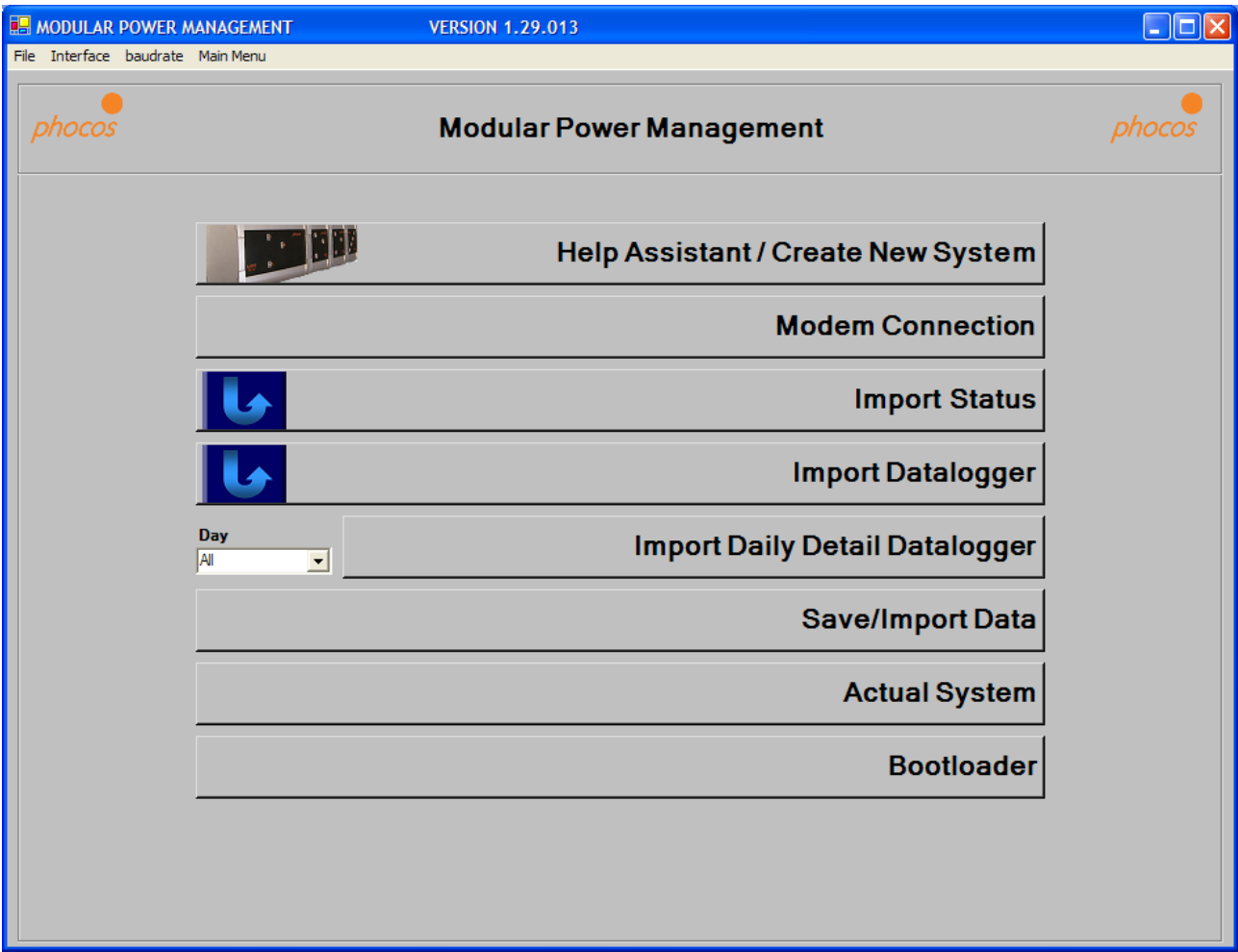




3.2 Main Menu

Following possibilities:

- **Help Assistant/Create New System**
 - Helps you to configure your individual system
 - Check the addresses of the devices
- **Modem Connection**
 - This function is for remote monitoring your system over a modem.
- **Import Status**
 - If a MXI is connected than click on this button and the software starts to download the actual data of the MCU (actual Status values and Settings)
- **Import Datalogger**
 - Import the daily datalogger (max 91 days)
 - Import the monthly datalogger (the last 10 years)
- **Import Daily Intervall**
 - Import System data which are saved every 15/30 or 60 minutes (depending of the interval setting)
- **Import Saved Data**
 - Here you can save system data or import saved saved data
- **Bootloader**
 - This function is for update the devices with the newest software.
- **Actual system**
 - Return to the overview window.



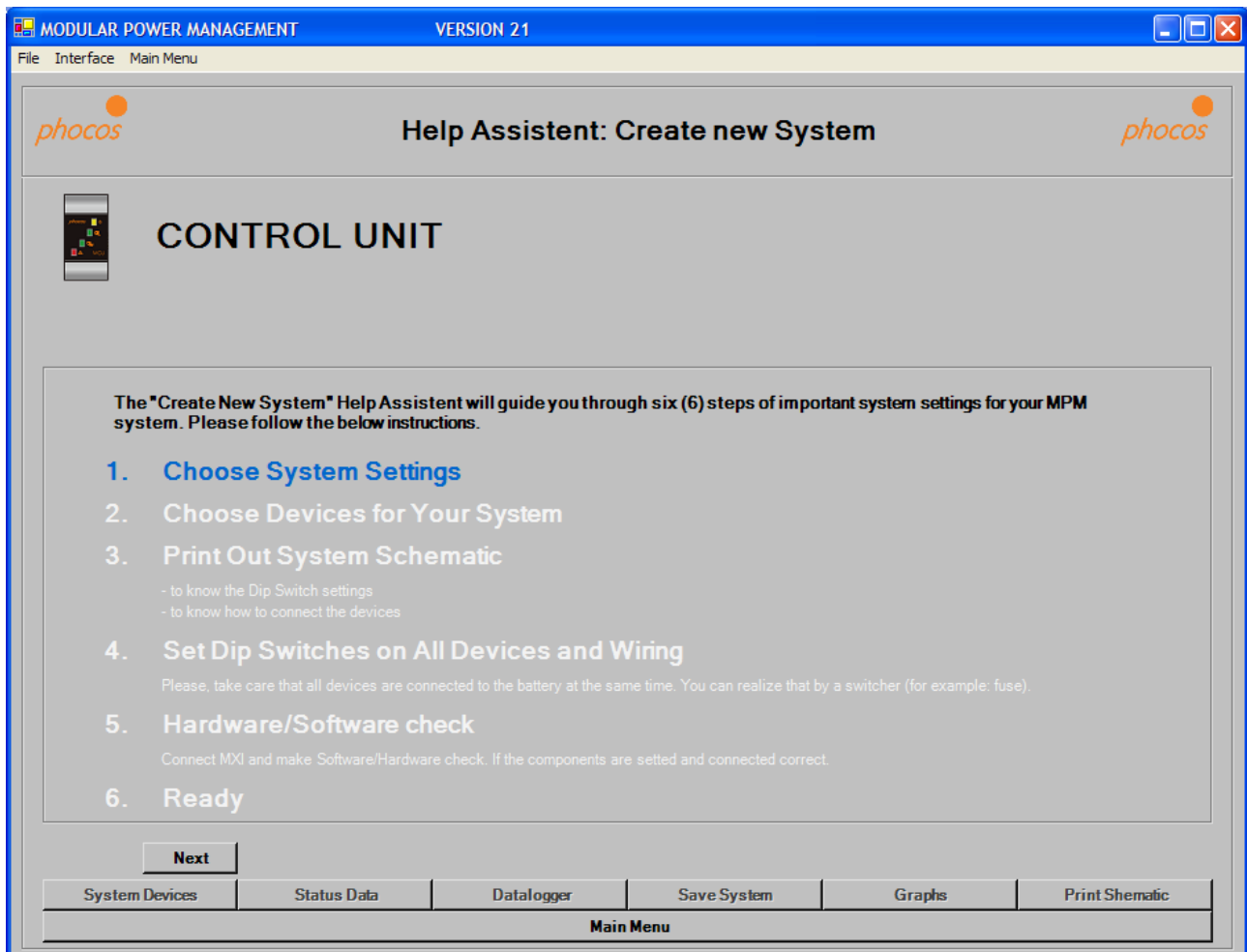


3.2.1 Help Assistant / Create a new System

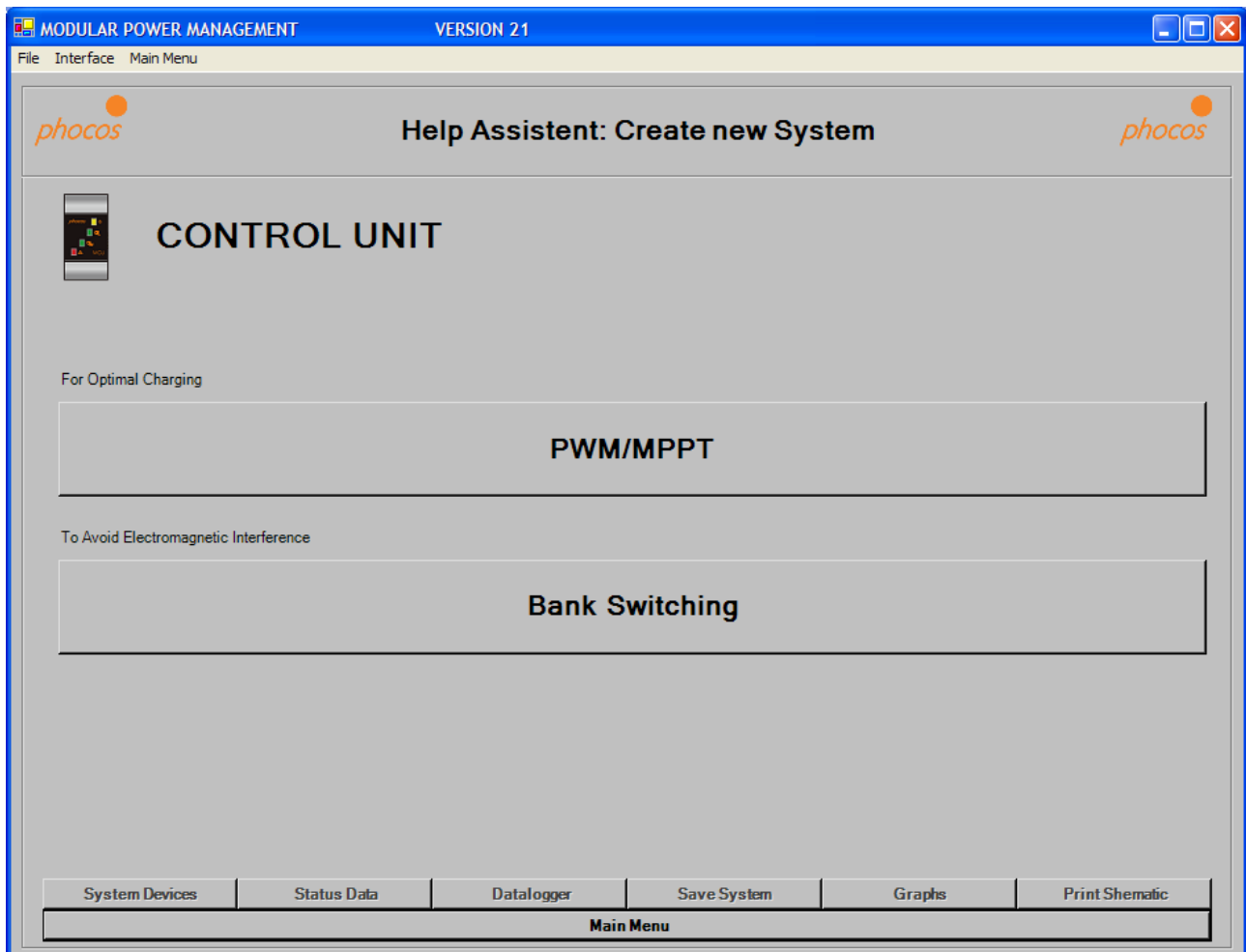
Main Menu: Help Assistant/Create New System (page 13)

If you want to configure a new system this assistant will help you to configure your devices.

The assistant will guide you in following steps to your individual system.



Please click on “Next” at the bottom of the window and the next window will appear.



Decide between “PWM/MPPT” charging or “Bank Switching”

PWM/MPPT:

It's for a optimal charging. Choose this menu item if you have no special requirements.

Bank Switching:

If you want to avoid power spikes which can causes electromagnetic interference you should choose Bank Switching. This function is not possible if you are using MPPT's.



Depending of the charging mode you have two different windows for setting the charging voltages:

Choosing: PWM/MPPT

Notice:

This settings you should only change if you are a battery specialist.

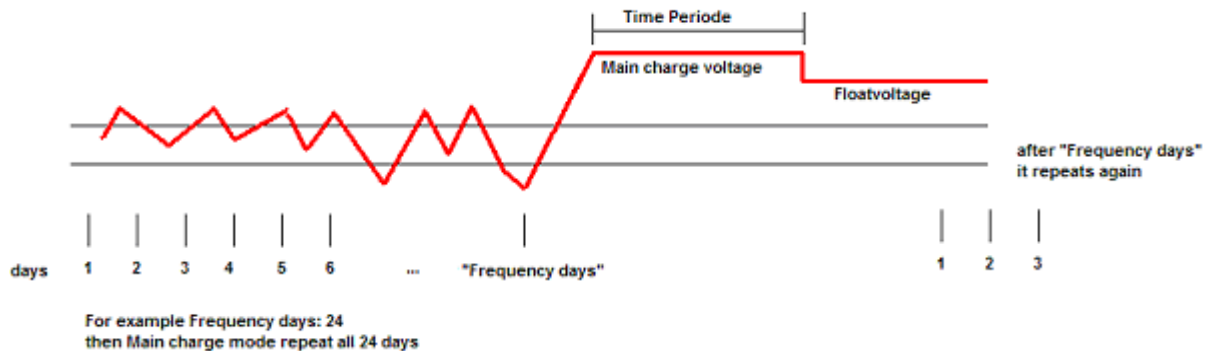
Charging Voltages:

The charging voltages have different priorities. (see next page)

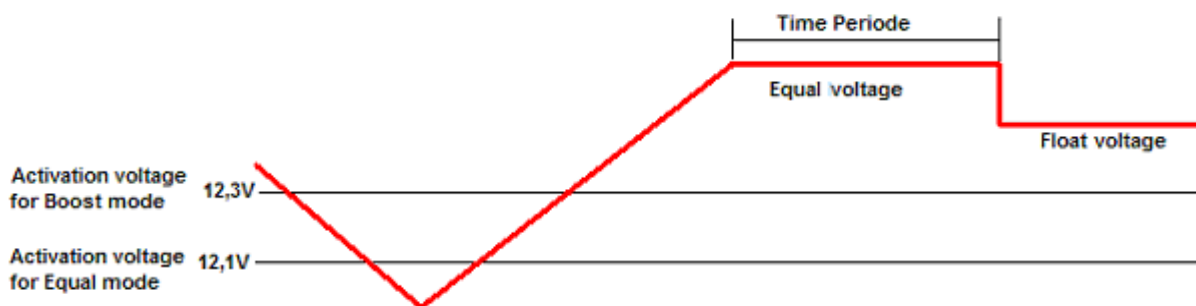
Temperature Compensation:

The Temperature Compensation value is the correction of the charging voltage depending on the temperature of 20°C. The value is the correction of the charging voltages per Kelvin.

Priority1: Main charge voltage

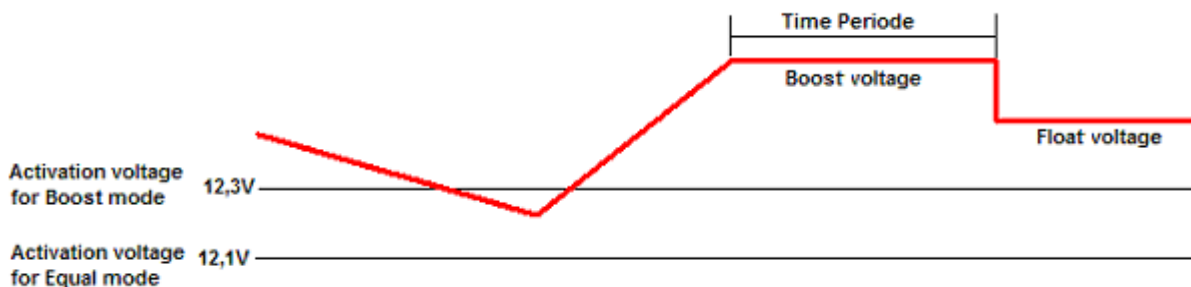


Priority2: Equal Mode:



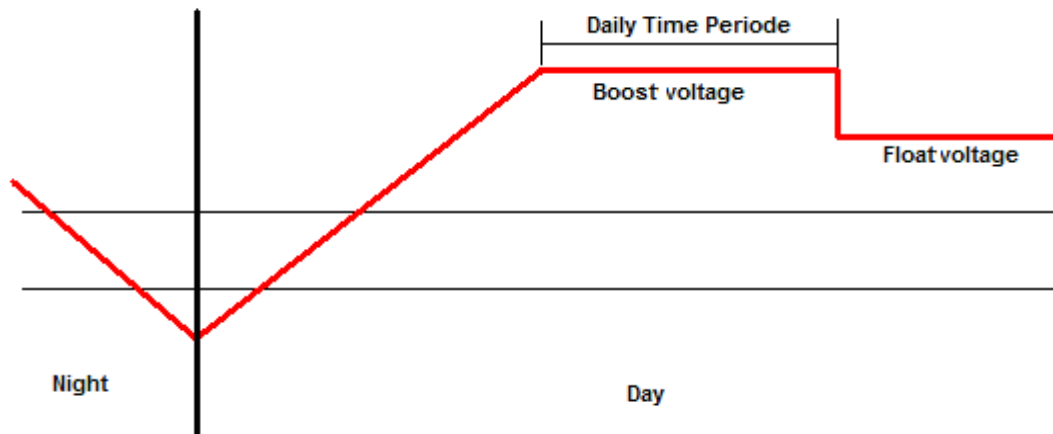
If battery voltage falls below “Activations voltage” of Equal Mode then Equal mode will be activated.

Priority3: Boost Mode:



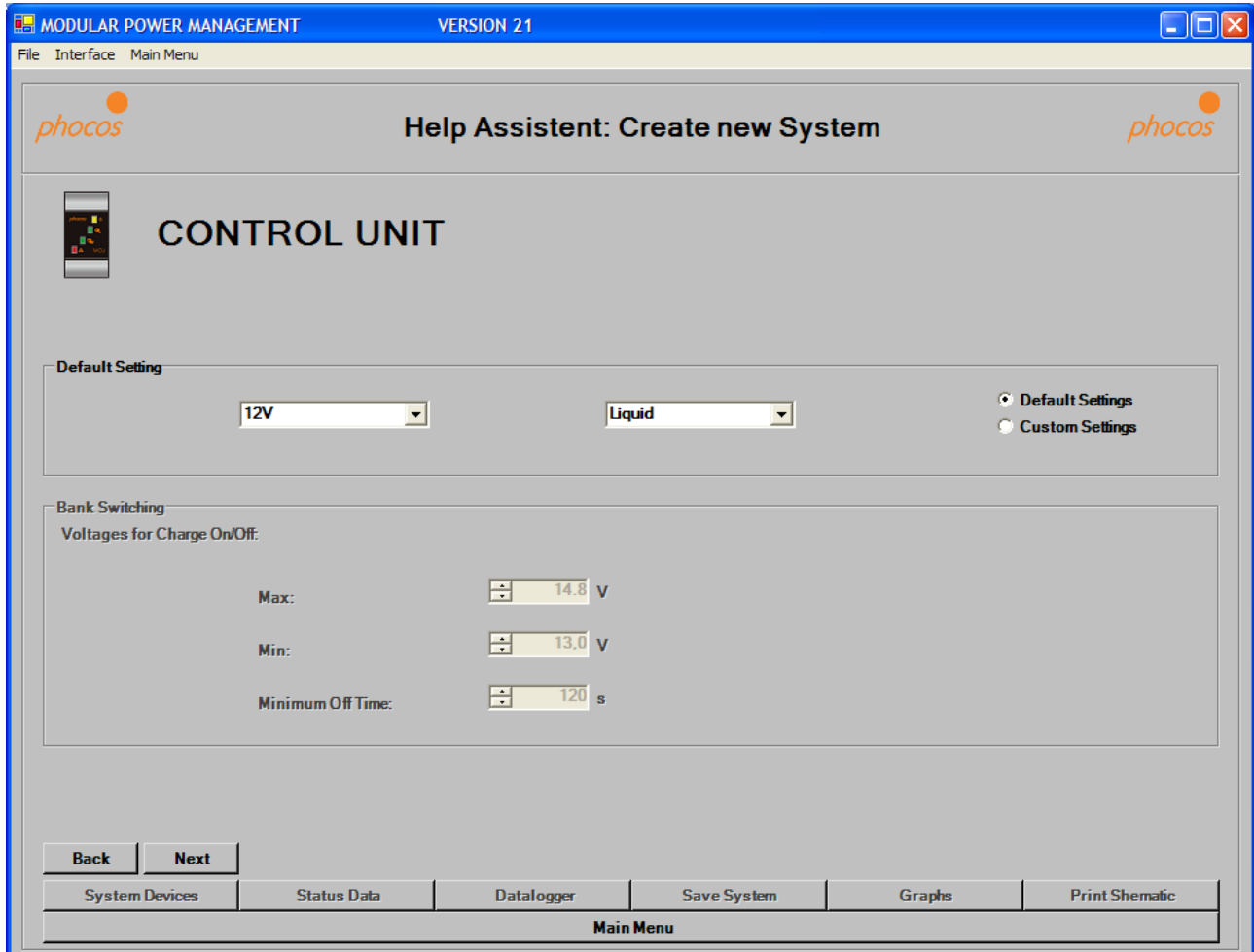
If battery voltage falling below “Activations voltage” of Equal Mode then Equal mode will be activated.

Priority4: Daily Boost Mode:



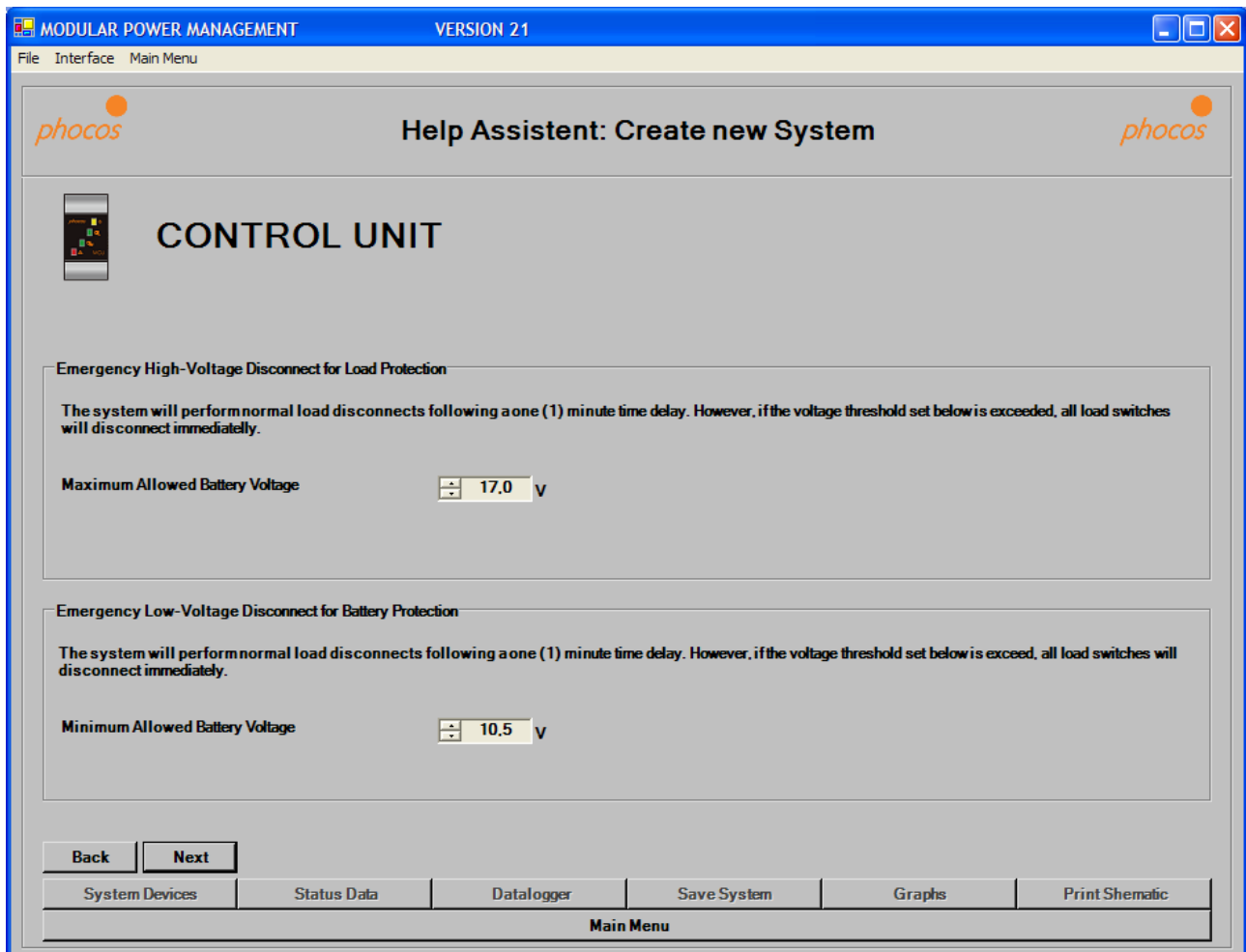
Daily Boost Mode is activated when a new day starts

Choosing: Bank Switching

**Notice:**

This settings you should only change if you are a battery specialist.

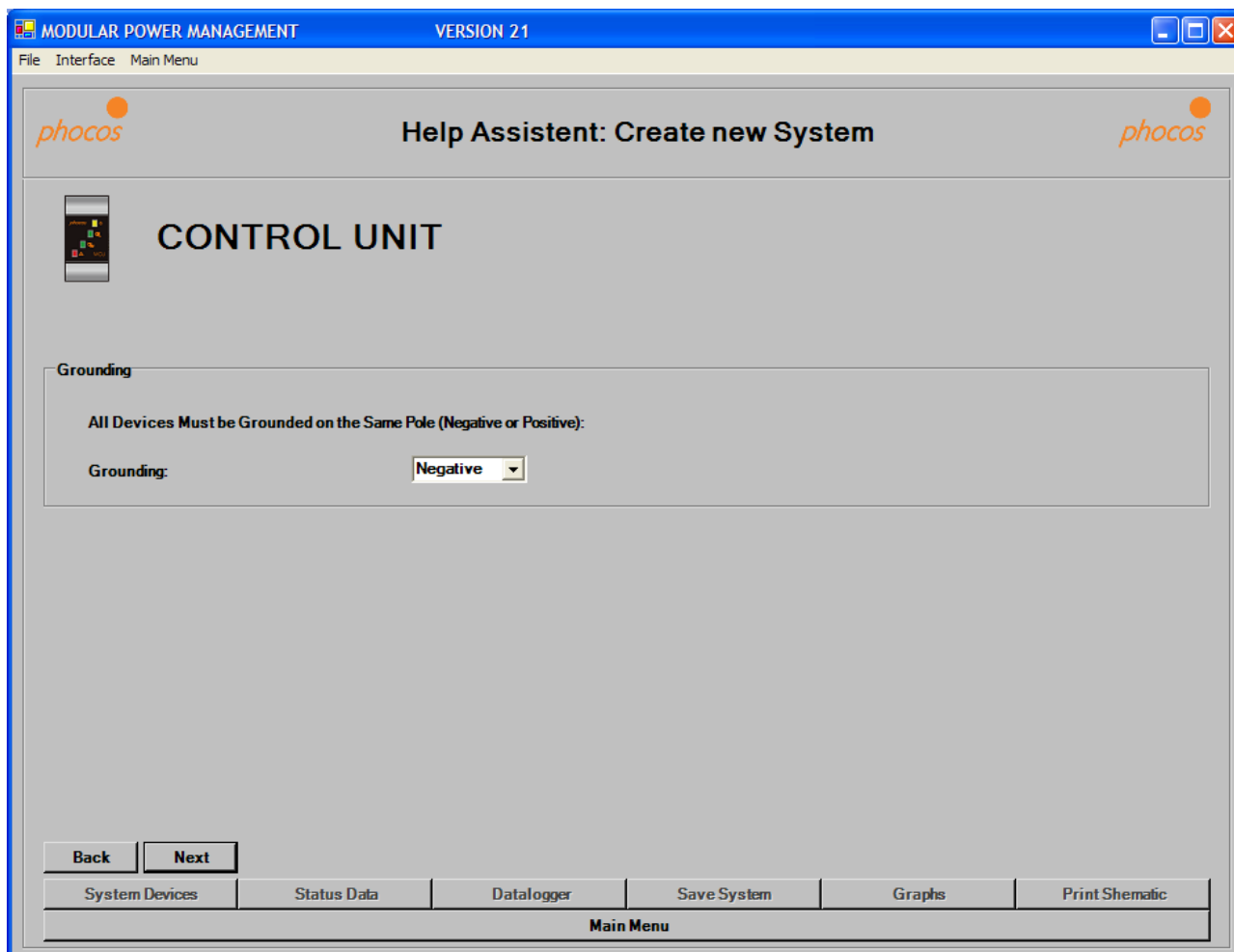
Here you can choose the threshold levels if you use a Bank Switching System.



In this window you can choose the min. and max. allowed voltage in the system.

The max. allowed Voltage to protect your loads. By reaching this voltage all load switches will disconnect the loads immediately from the battery.

The min. allowed Voltage to protect the battery. When the battery voltage falls below this setting the load switches will also disconnect the load immediately.

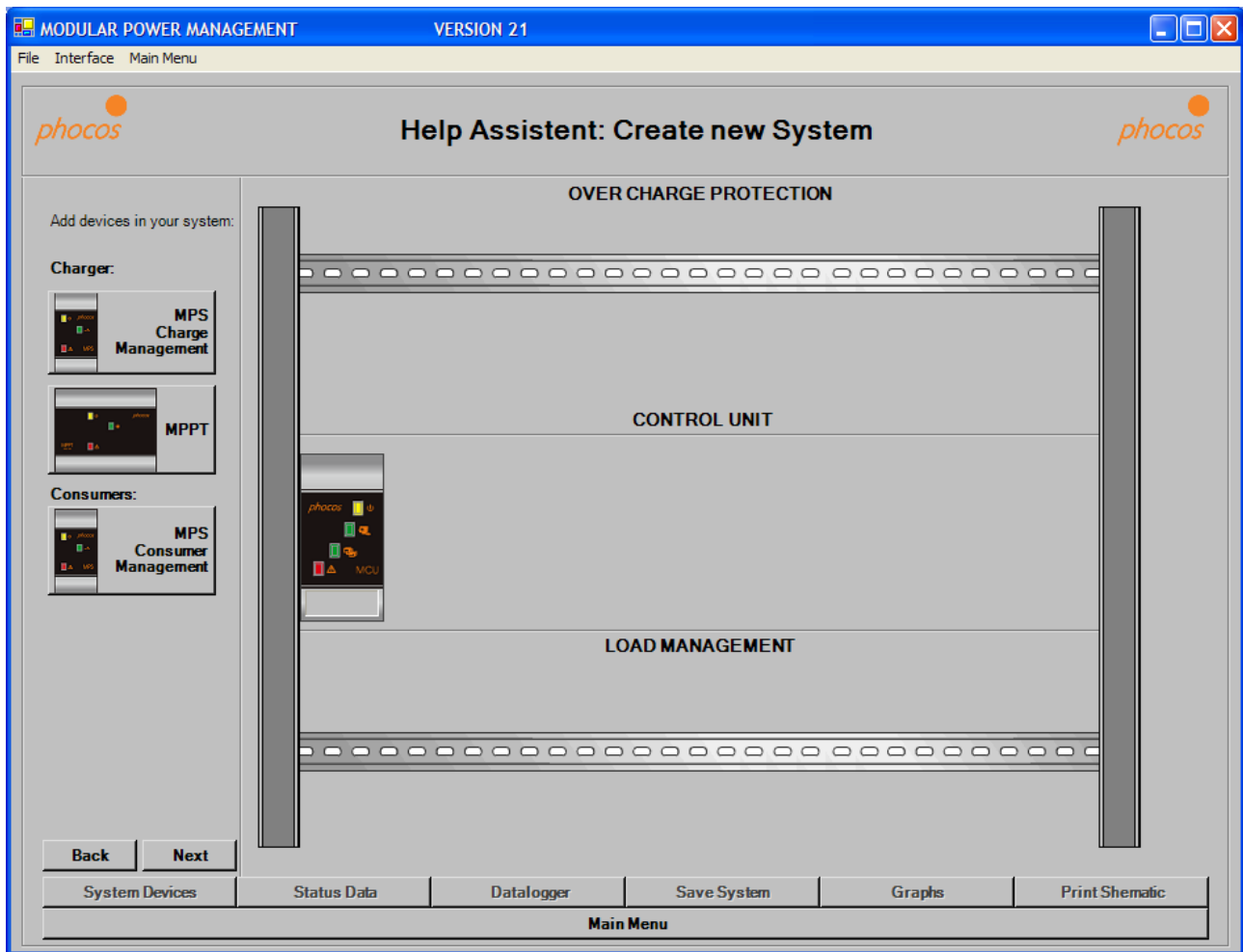


Choose the grounding of the system.

It's necessary that the software could check if each device is connected correctly.

Notice:

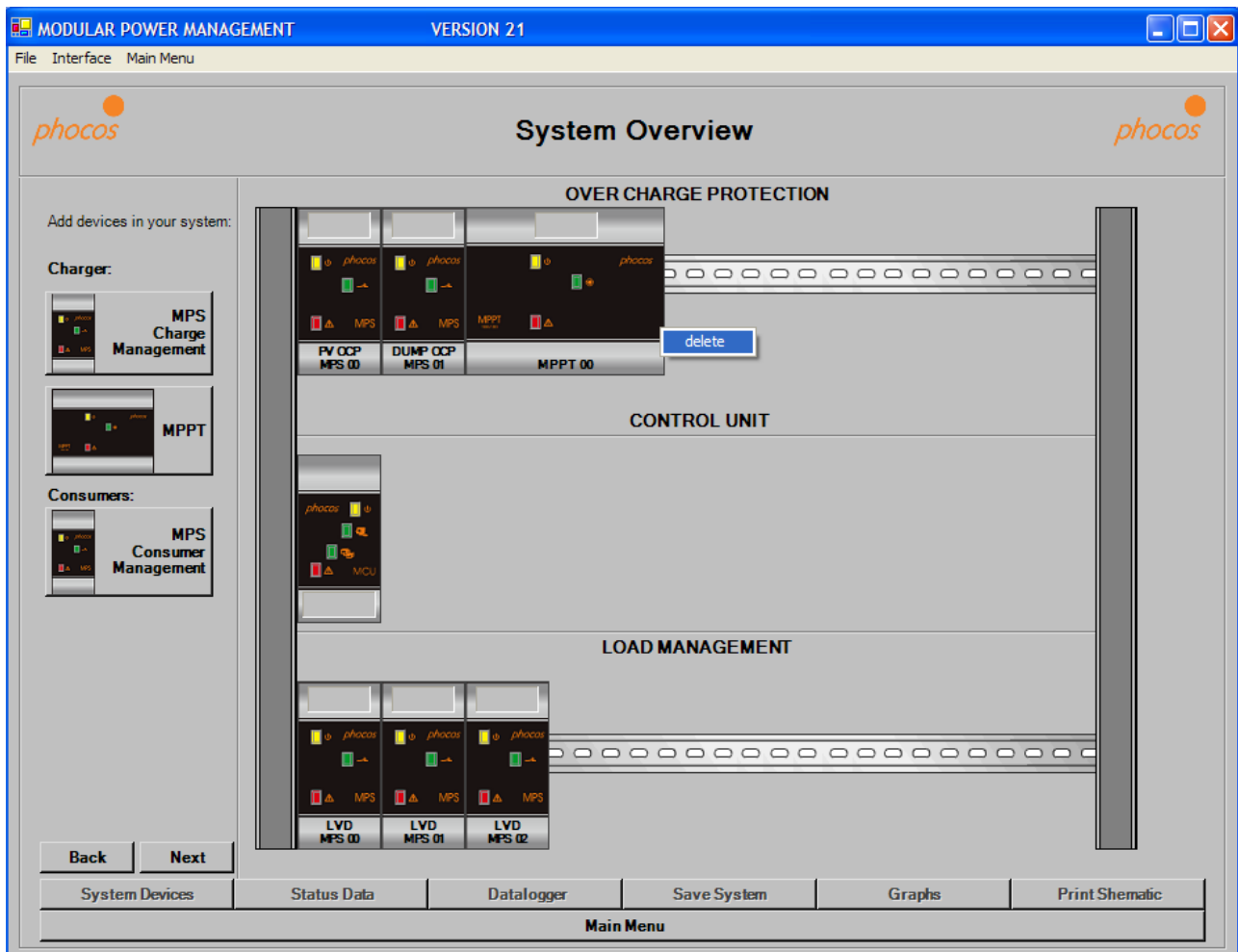
By using MPPT it's only possible to ground on the negative pole.



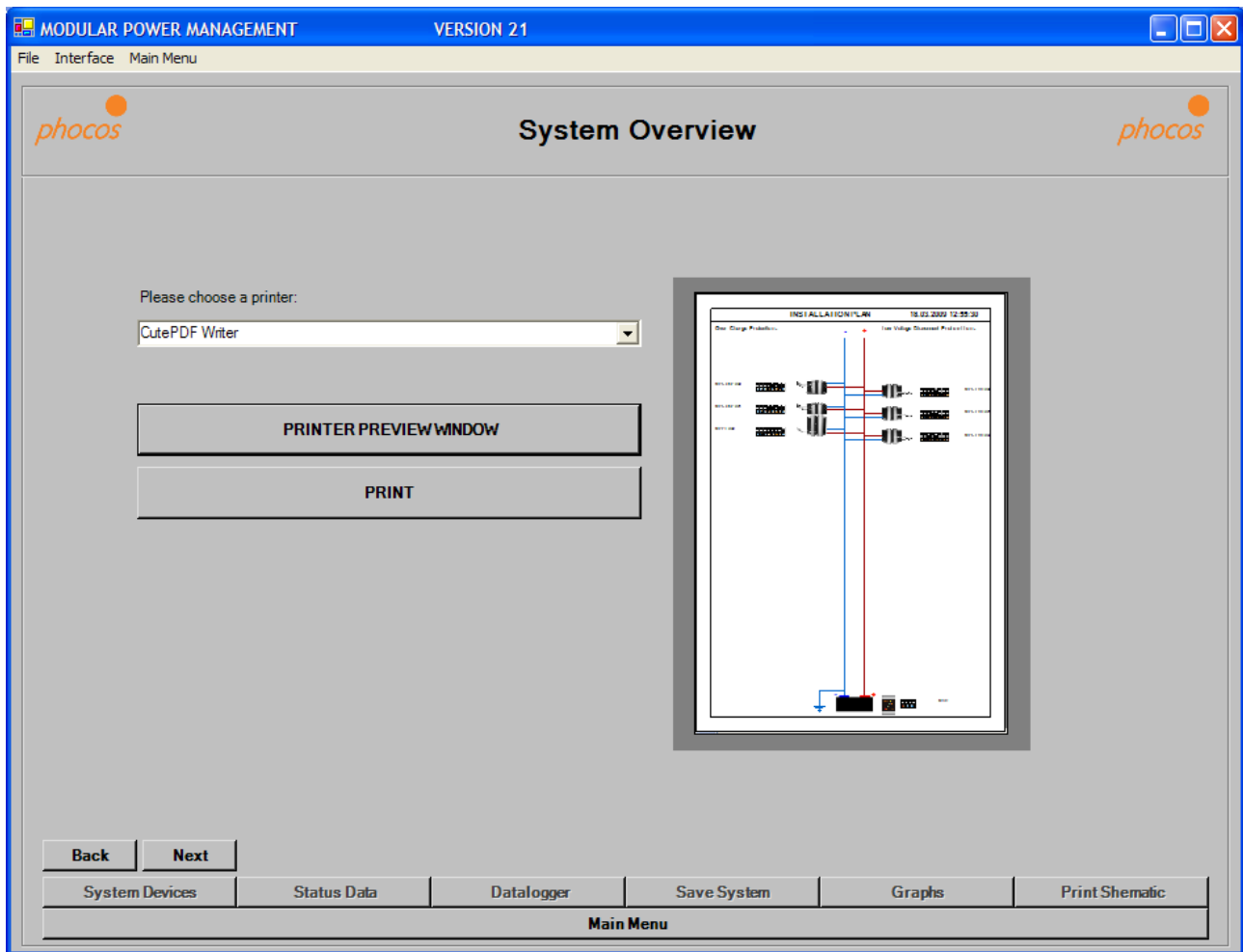
The next step is to add the devices in your system.

Please, click for this on the devices at the right side of the window above. Than you can add the devices.

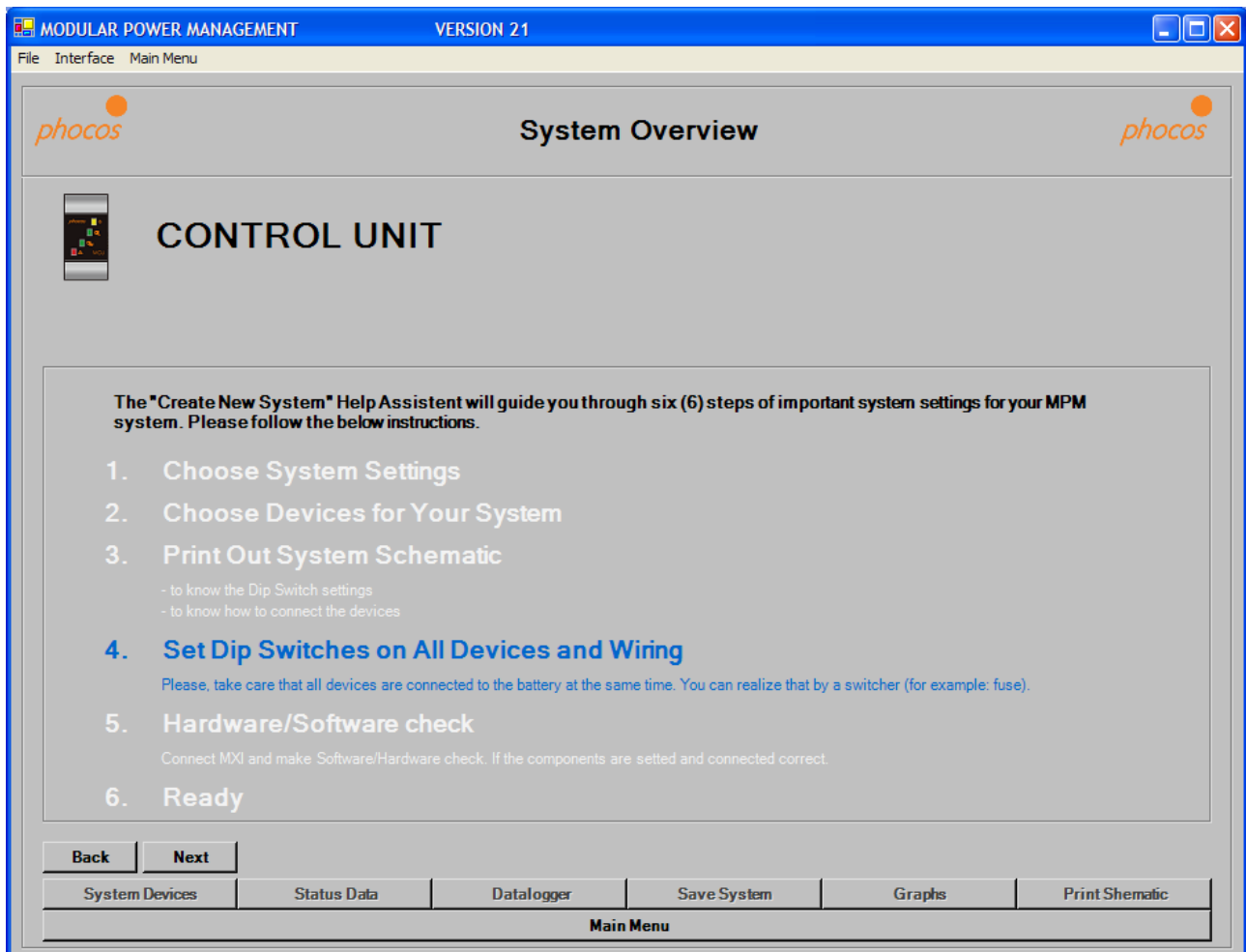
If you want to delete a device click with the right mouse button on it and then on delete at the menu which appears.



Click on “next” if you have all components in your system.



Now you can print out the schematic of your system to know also the Dip Switch settings for the devices.

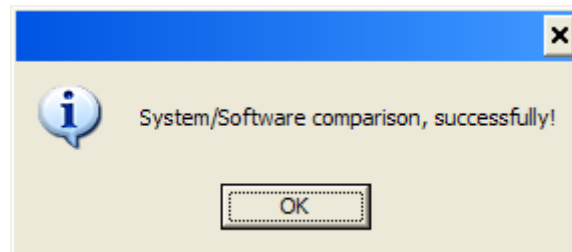


Please use a fuse in the battery wire.

Now change the dip switches to match the schematic. Then wire first the components to the battery and then to the panels and loads

After the wiring is finished you should check again if you have no circuits before you connect it to the battery.

Now the software makes a comparison of the components which are really connected.
If it's successfully the following message will shown to you.



Now the system is configured correct.

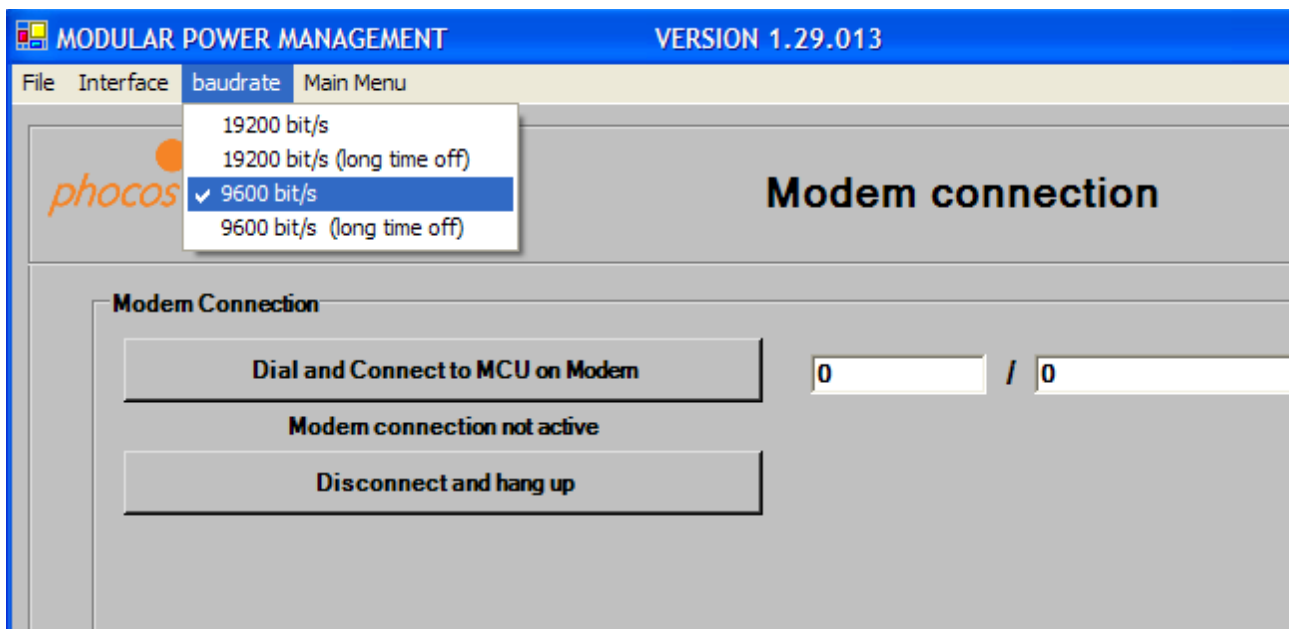
Now you could transmit the other settings.

3.2.2 Modem connection

Please get sure that your modem is configured to send a „echo“ and communicate with 9600 bit/s.

After that press „Modem connection“ in the main menu.

Set: menuline → baudrate → „9600 bit/s“

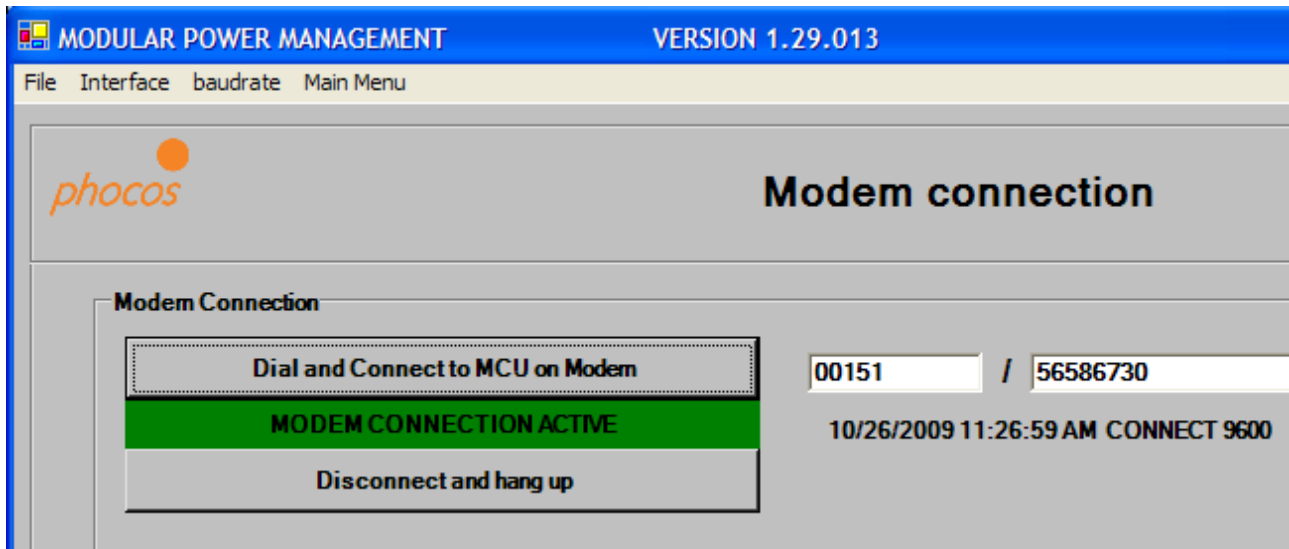


Enter the telephonenumber of the modem which you want to contact.

Press „Dial and Connect to MCU on Modem“



By a successfully connection you would see a label with green colour:



The connection is now active. When go back to the main menu you could click on „Import status“ and could download the actual status of the system which you want to monitoring over the modem connection.

When you want to disconnect the connection click on „Disconnect and hang up“ than the modem disconnects the telephone conneciton.

The Modcom understands following Modem answers:

NO CARRIER

BUSY

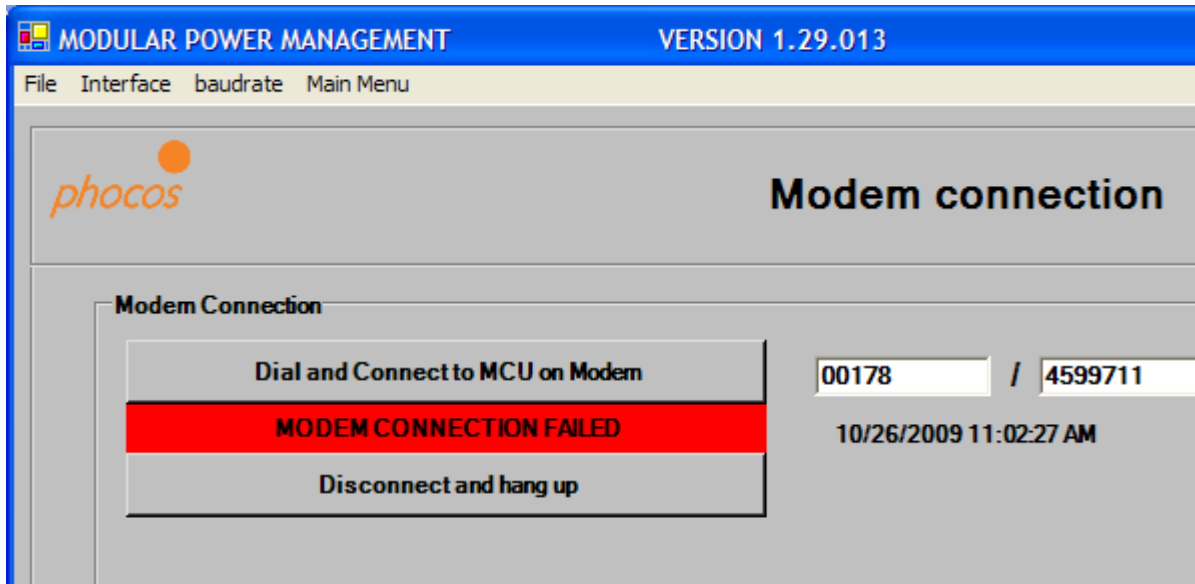
NO ANSWER

ERROR

NO DIALTONE

CONNECT 9600 (successfully connection)

If the connection failed it would shown to you by a red color.



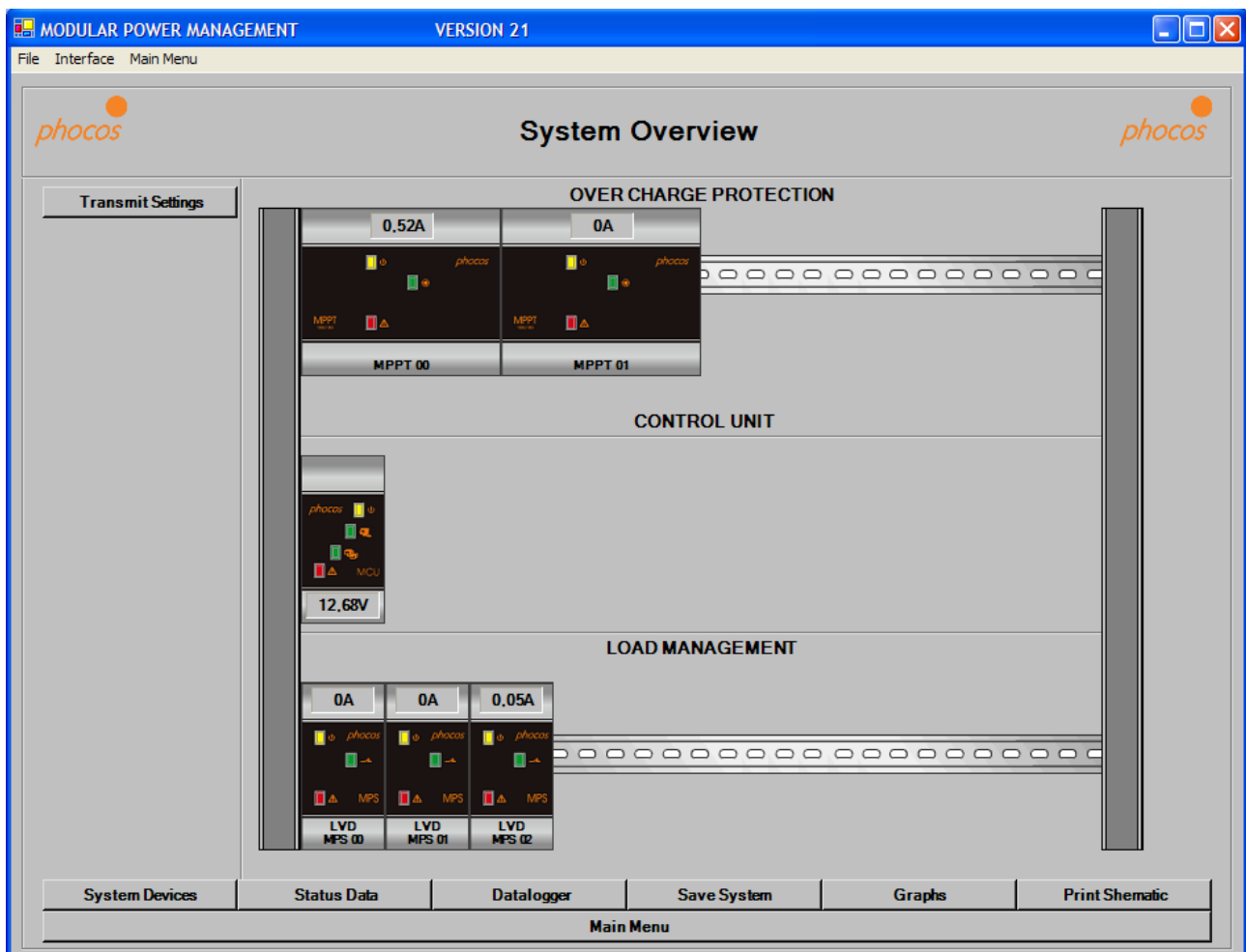
When the connection failed, please restart your modem by disconnecting it from power and connect it again. Make also sure that the SIM card is insert in the modem.

After that try it again.

3.2.3 Import Status

If you click on import the status then the Modcom will import the current status and settings values of the MCU.

Click on “Import Status” and the MODCOM will retrieve the current data from the MCU.



If you click on the devices you can see the most current status values and settings of the devices



3.2.4 Datalogger

Structure of the datalogger:

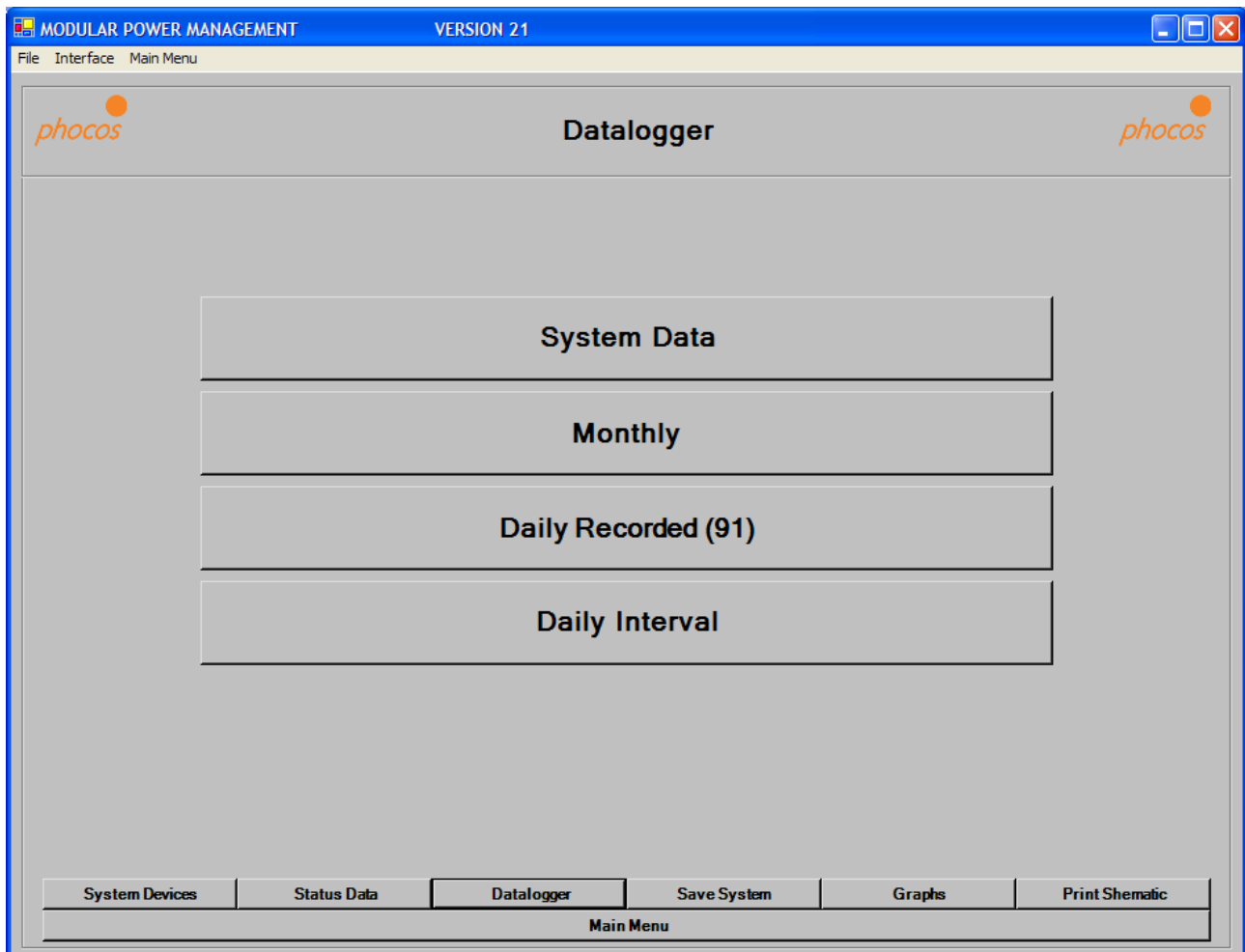
The datalogger is divided in three parts:

- data of the system saved in 15min interval (Time periode 90 days)
- data of the system saved in daily periode (Time periode 90 days)
- data of the system saved in monthly periode (Time periode 5 years)

The datalogger save data and record also the time, for this it's necessary to adjust the time.

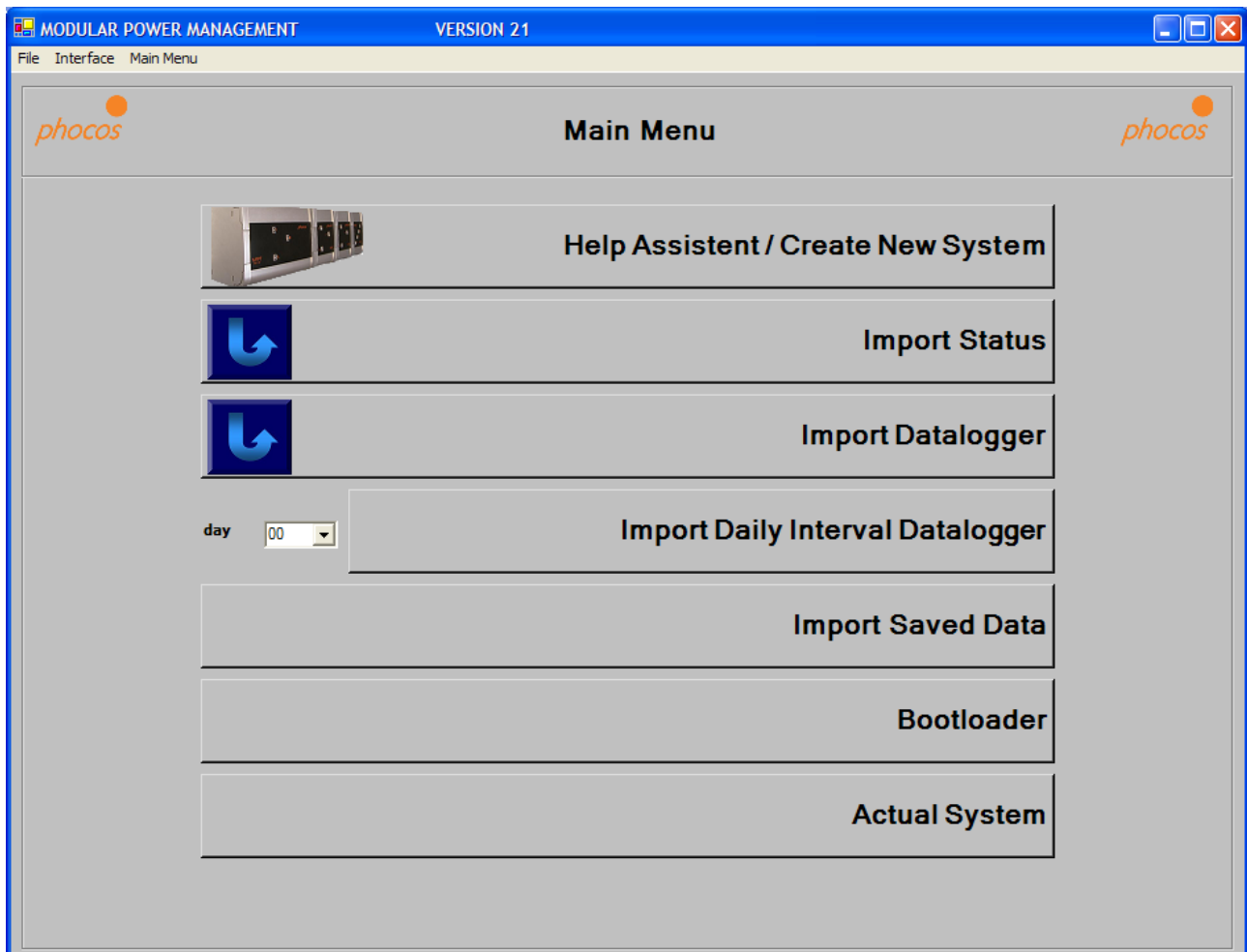
3.2.5 Import Datalogger

If you click on „Import Datalogger“ you will get the monthly and daily saved data of the system.



After data import click on „Datalogger“ at the buttons of the bottom. Then you have the choice between „System Data“, „Monthly“, „Daily Recorded(91)“ and „Daily Interval“

3.2.6 Import Daily Interval Datalogger

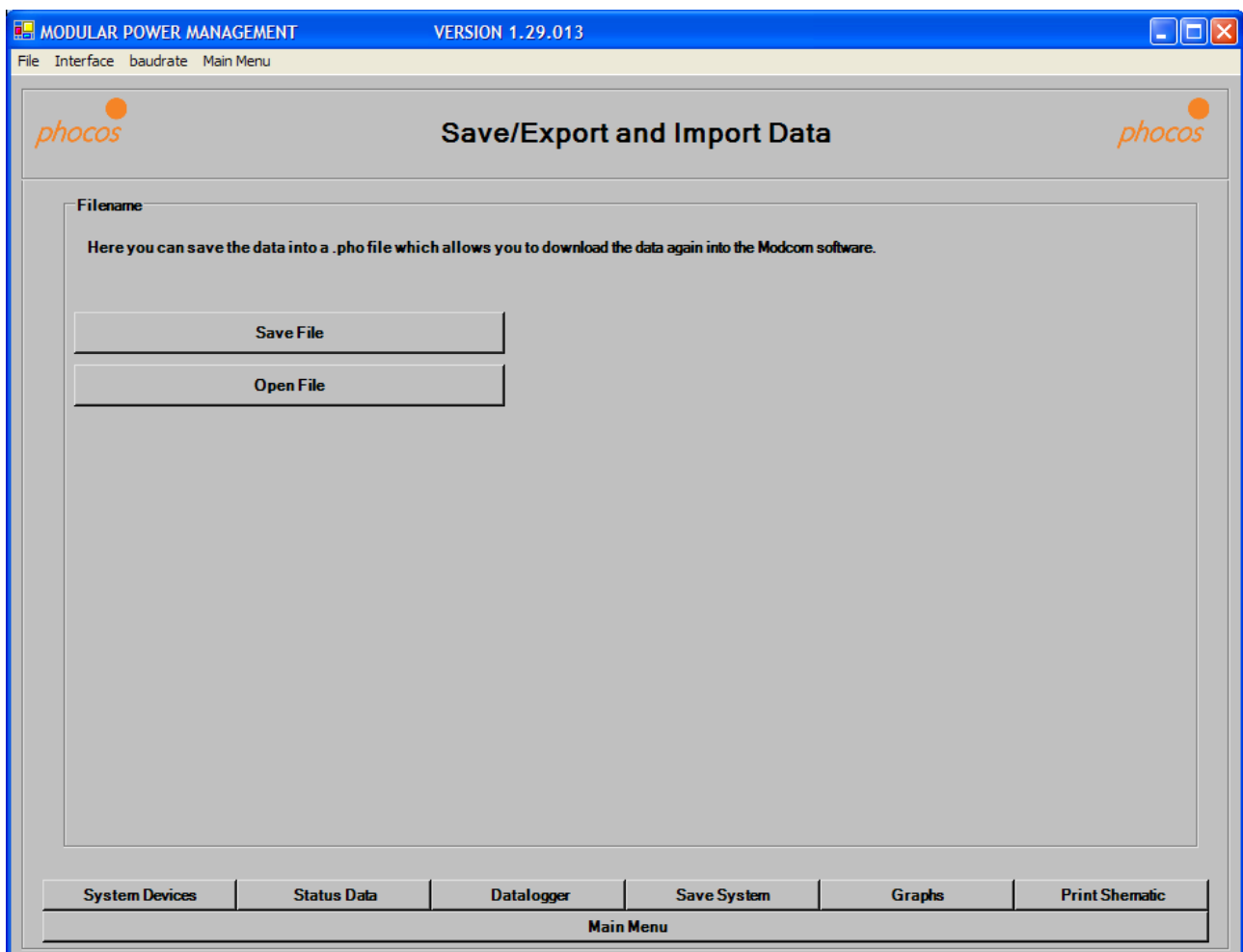


The Daily Interval Datalogger save data all 15, 30 or 60 minutes (depending of the setting) of the last 91 days.

In the drop down menu you can choose the day what you like to import.

3.2.7 Import Saved Data

If you want to save data click on the button „Import Saved Data“ and the following window will open.



You can save the data as .csv file, then you have the possibility to import the data again into a spreadsheet.

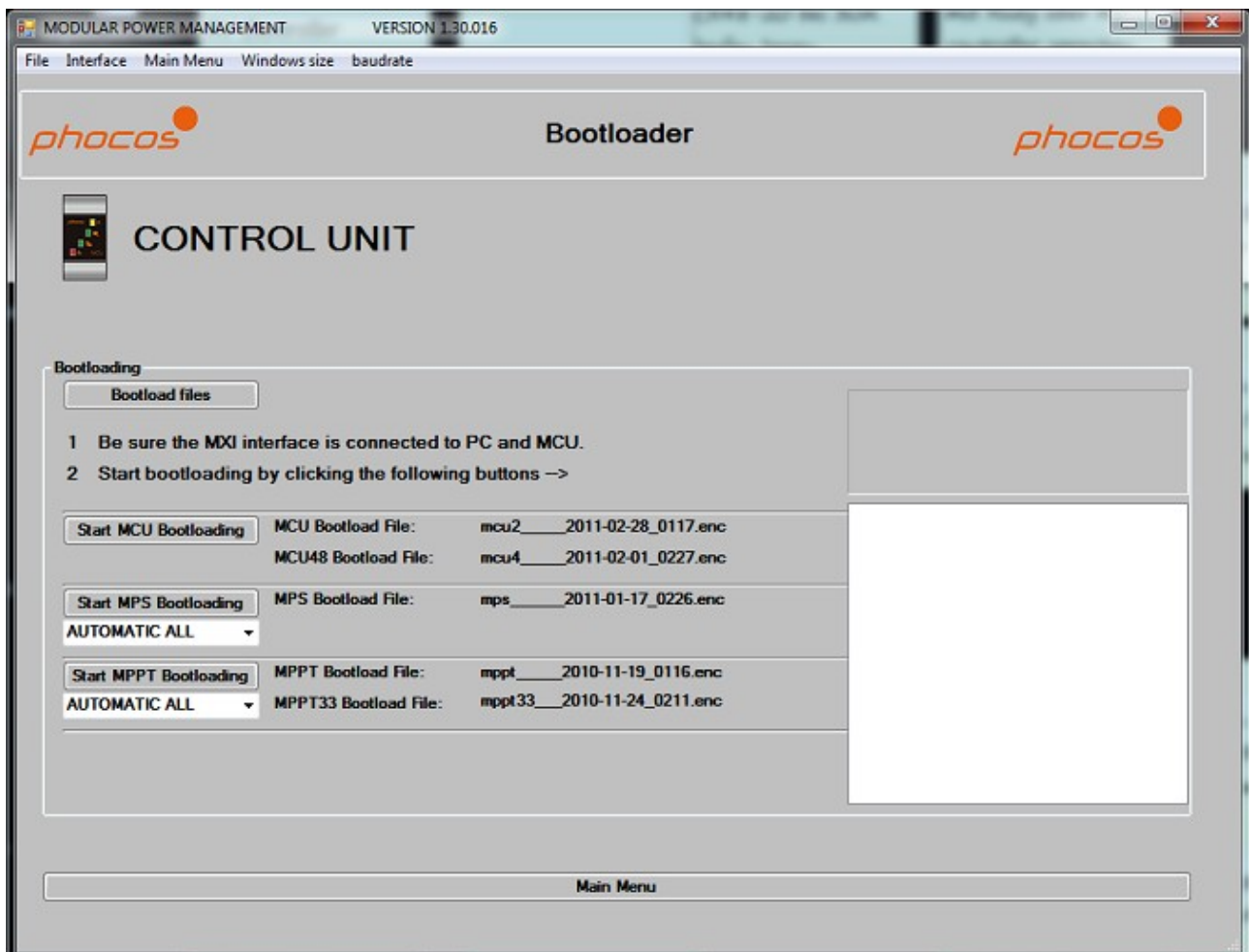
Or you can save it as .pho file. Than you have the possibility to import the data again into the software.

3.2.8 Bootloader

If you want to get sure that your devices have the latest firmware you could download the actual Modcom software which actual firmware for the MPS, MPPT devices at following internet page:

<http://www.phocos.com>

Click in the main menu on „Bootloader“ then the following window will appear:





Please get sure that the MXI is installed correct and connected. The Interface (menuline → Interface → Com..) should also adjusted correct.

1. Disconnect all devices from PV Panels, Dump Loads and Consumer Loads.
2. Please get sure that Dip Switch 1 of the MCU is off (Dip 2,3 and 4 depends on your system, please look at the MCU manual)
3. At first start bootloading the MCU with new firmware, for this click on „**Start MCU Bootloading**“
4. When bootloading is successfully finished disconnect the MCU from power and connect it again for a restart.
5. When the green LED of the MCU is on again, the next device is ready for bootloading.
6. If you want to bootload only MPS please go on with step 10
7. To bootload MPPT next, click on „**Start MPPT Bootloading**“
8. Wait until bootloading is finished, and disconnect the whole system from the battery and connect it again for a restart.
9. When the green LED of the MCU is on, the next devices could bootloaded. If you want to bootload also MPS go on with step10 otherwise with step 12.
10. To bootload the MPS click on „**Start MPS Bootloading**“.
11. When bootloading is finished please disconnect the whole system from the battery and connect it again for a restart.
12. Bootloading is now successfully finished.
13. When the green LED of the MCU is on now, go back to „main menu“ and click on „Import status“ to get the actual information of the devices.
14. Connect the PV Panels, Dump Loads and Consumer Loads again.
15. The system should work normally now.



If the bootloading process stops no matter what reason, please restart the system by disconnecting it from battery power and connect again. Start the Modcom also new.

After that go again into the Bootloader menu and set the adress of the device which you want to bootload:

Instead of „Automatic all“ set:

MPS addresses:

LVD: Low Voltage Disconnect (Dip8 off)

















MPS LVD 00		MPS LVD 08	
MPS LVD 01		MPS LVD 09	
MPS LVD 02		MPS LVD 10	
MPS LVD 03		MPS LVD 11	
MPS LVD 04		MPS LVD 12	
MPS LVD 05		MPS LVD 13	
MPS LVD 06		MPS LVD 14	
MPS LVD 07		MPS LVD 15	

OVP: Over Charge Protection (Dip8 on)

Dip6 and Dip7 doesn't matter at bootloading processes

MPS OVP 00		MPS OVP 08	
MPS OVP 01		MPS OVP 09	
MPS OVP 02		MPS OVP 10	
MPS OVP 03		MPS OVP 11	
MPS OVP 04		MPS OVP 12	
MPS OVP 05		MPS OVP 13	
MPS OVP 06		MPS OVP 14	
MPS OVP 07		MPS OVP 15	

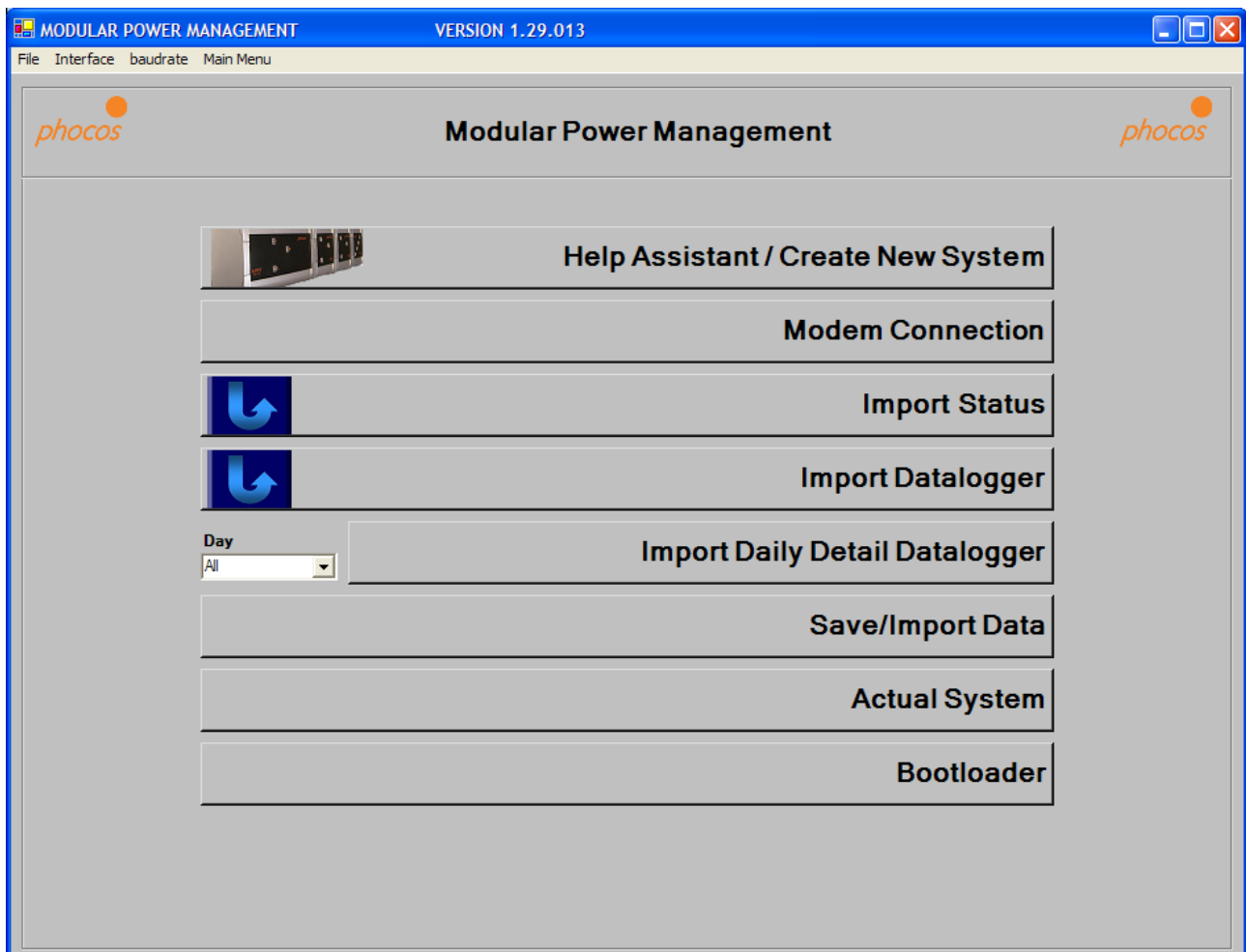
MPPT addresses:

MPPT 00		MPPT 08	
MPPT 01		MPPT 09	
MPPT 02		MPPT 10	
MPPT 03		MPPT 11	
MPPT 04		MPPT 12	
MPPT 05		MPPT 13	
MPPT 06		MPPT 14	
MPPT 07		MPPT 15	

After you have set this click again on „**Start MPS Bootloading**“ respectively „**Start MPPT Bootloading**“. After bootloading is finished successfully restart the whole system by disconnecting and connect the system again to the battery.

3.2.9 Actual System

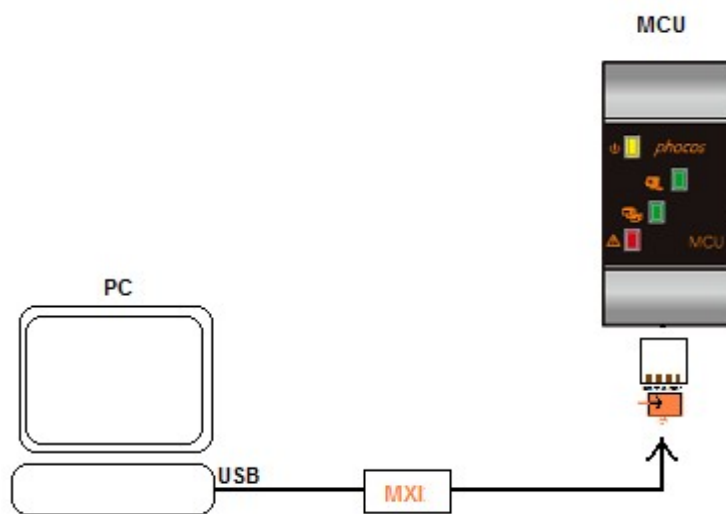
If you have imported already data then you can return to the most current overview window when you click on „Actual System“.



4 MCU Interface connections

4.1 Connection MCU with PC over MXI Interface

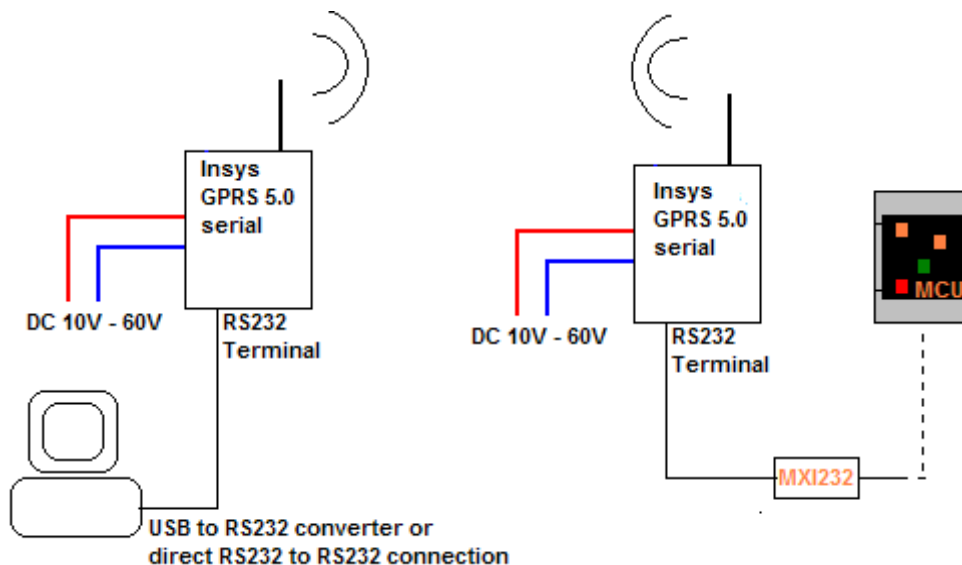
Direct connection MCU to PC over the MXI



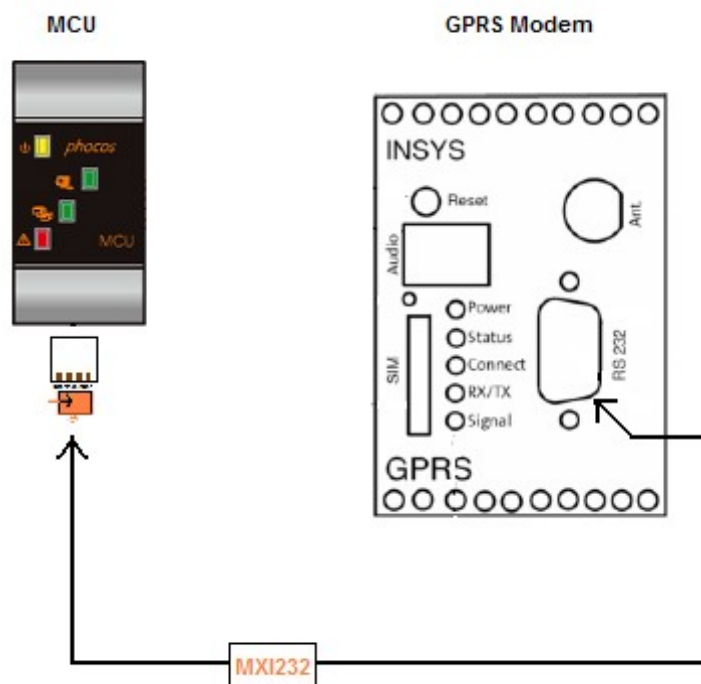
4.2 Connection MCU over MXI232 to GPRS modem INSYS

Phocos recommends to make remote monitoring systems only with the following Modem
Insys: GPRS Modem 5.0 serial.

After you made the necessary settings in the INSYS GPRS Modem (see manual „Manual_setting_Modem_for_GPRS.pdf“) you could connect the MCU over the MXI232 to the INSYS GPRS Modem.



Connecting the MCU to the INSYS GPRS Modem:





5 Technical Support

If you have any questions about the software, please contact:

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