



Manual

EN

Appendix

Blue Solar PWM Pro setup and monitoring software

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1. Region and language settings

(Control Panel > Clock, Language and Region)

Different language windows systems have a different character format, therefore the region and language settings must be set to "United States" resp. "English (United States) – US".

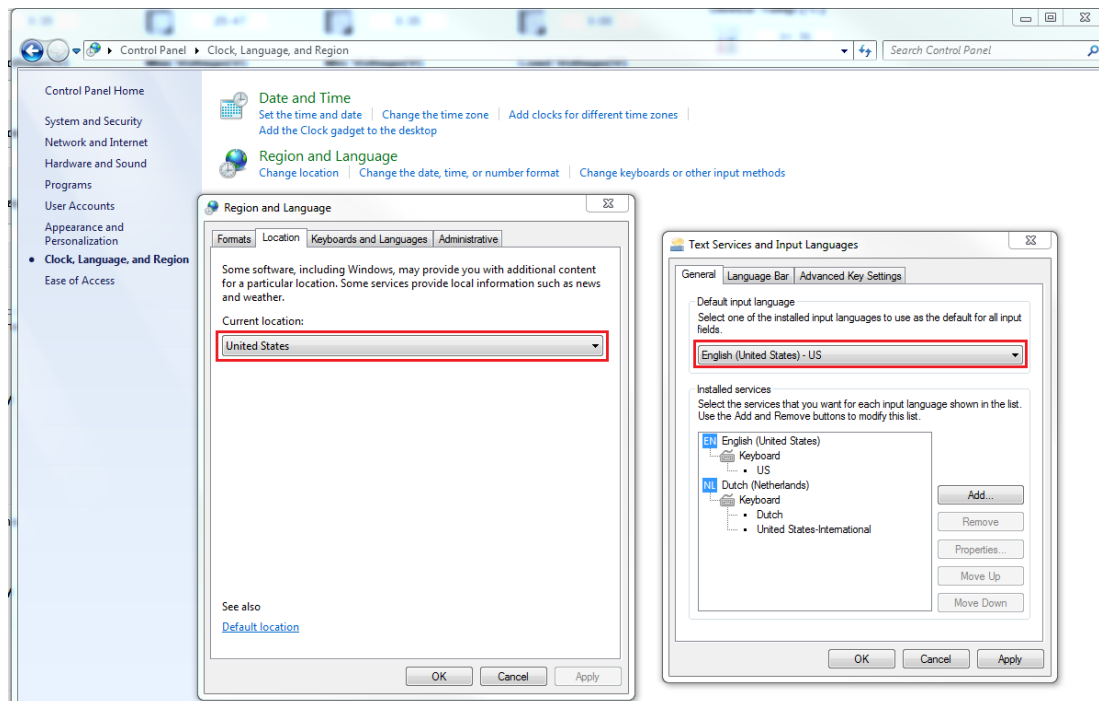
These settings can be found under "Region and Language" on the Control Panel of the computer.

2. Download the software

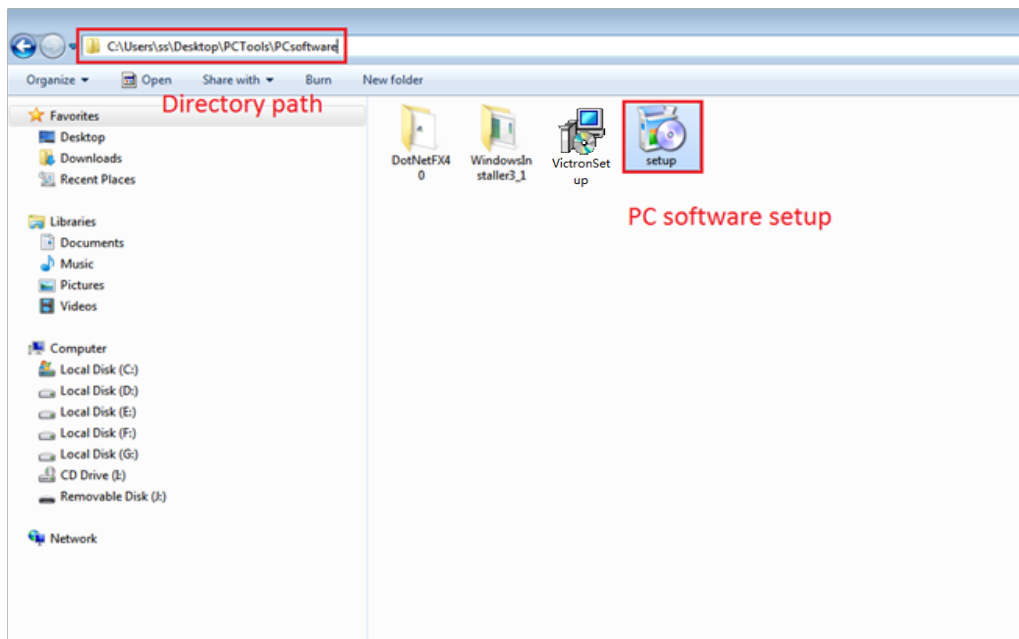
Download the software to your PC from the Victron Energy site.

3. UnRAR the software

Use WinZip or RarZilla Free Unrar.



4. Install the software

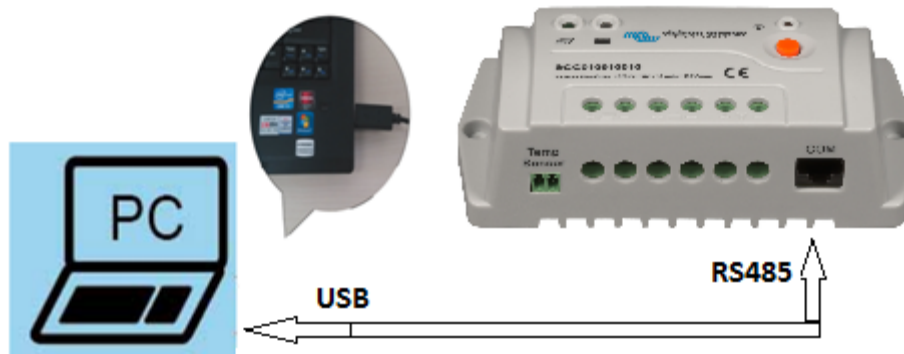


After installation a Victron icon should appear on the computer screen:

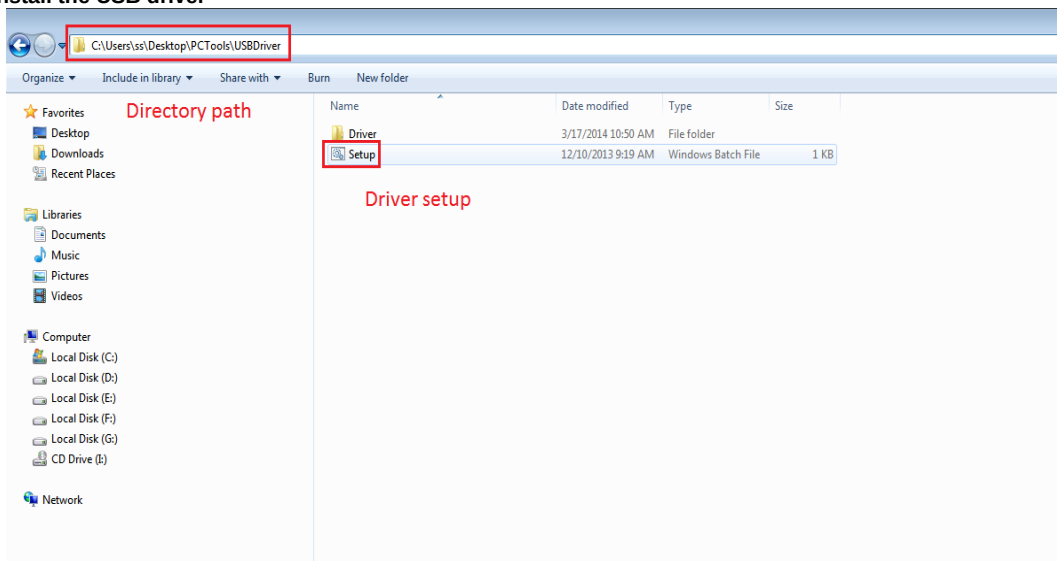


5. Install and configure the USB driver

- 5.1 **Plug the BlueSolar PWM-Pro to USB interface cable (SCC940100200) into the controller and a USB port of the computer.** Plug in one controller only. More controllers (= stations) can be plugged in after installation of the first one, see section 7)

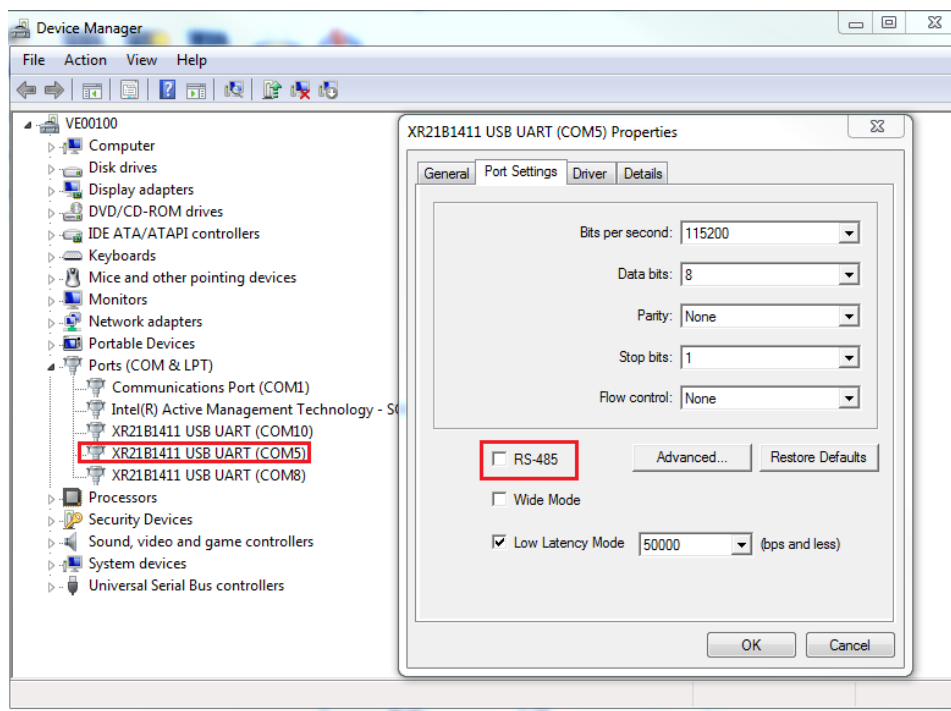


5.2 Install the USB driver

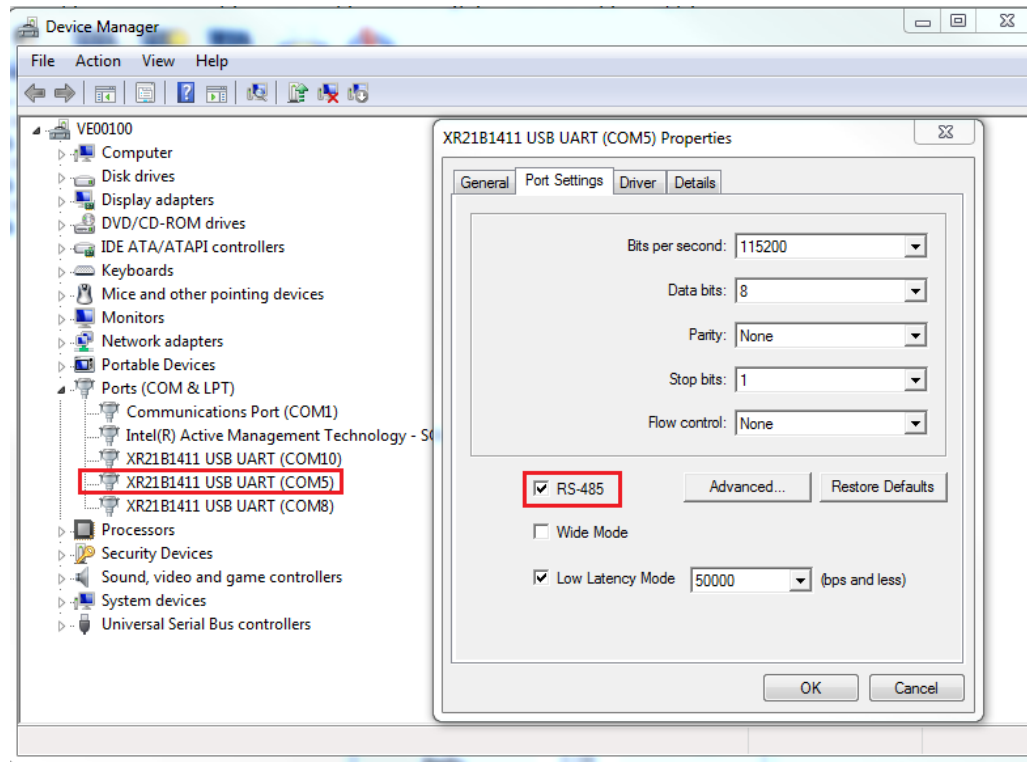


5.3 Configure (Control Panel > Device Manager > Ports (COM and LPT))

In the Device Manager, double click on the port attributed to the interface cable (XR21B1411). Remember the Port number (in this example it is COM3): it will be needed later (in section 5.1 and 5.5). The properties must be set as shown below:



5.4 Check the box RS-485



Logging in

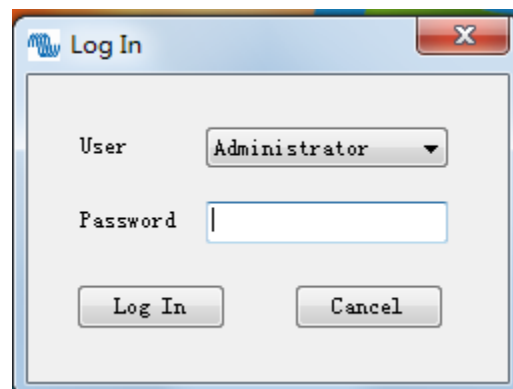
5.5 Click the “Solar Station Monitor” icon



5.6 The Log in screen will pop up

When logging in as administrator, settings of the controller can be changed and a password is needed. The default password is “111111”.

When logging in as guest, settings cannot be changed no password is needed.



victron energy

5.7 After logging in the following screen will appear:

The screenshot displays the Victron Energy Administrator web interface. The top navigation bar includes links for System(F), View(V), Communication(C), Parameter(P), Monitoring(M), Maintenance(K), and Help(H). On the left, a sidebar shows 'Station Explorer' with a tree view containing 'COMS' and '1'. The main area features a 'Start Monitor' button and two energy counters: 'Energy Generated(kWh)' and 'Energy Consumed(kWh)', both showing 0. Below these is a large table with the following columns: Station Name, ID, Device Status, Array Status, Charging Status, Load Status, Battery Status, Charge energy (kWh), and Discharge energy (kWh). The table contains one data row with the value '1' in the ID column. At the bottom left, a status log shows two entries: '12-5-2014 8:26:55 AA65CC10620110 Load is turned on manually' and '12-5-2014 11:46:00 AA65CC10620110 Station Monitor Start up'.

Station Name	ID	Device Status	Array Status	Charging Status	Load Status	Battery Status	Charge energy (kWh)	Discharge energy (kWh)
	1							

6. **Establishing communication with one controller only**

6.1 Click the menu "Communication (C)" in the menu bar of the screen shown in section 5.3.

The dialog box "Serial Port Setting" will appear.

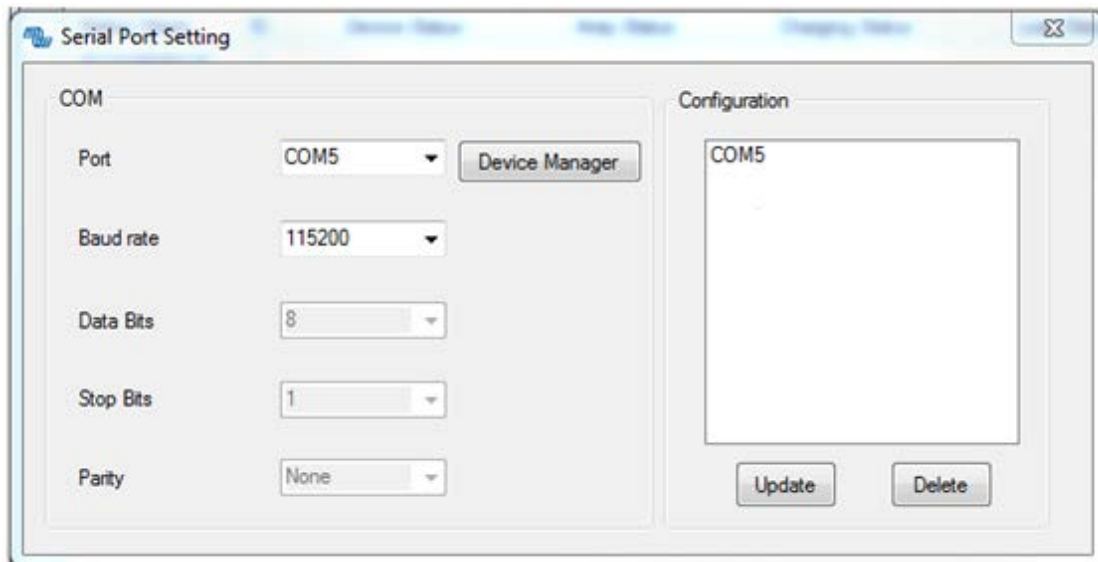
Enter the correct Port number (see section 3.3) and the correct Baud rate (115200).

The Port number must appear under "Configuration" on the right hand side of the dialog box.

If needed, click on "Device Manager" to set the correct Data Bits, Stop Bits and Parity.

Press "Add".

Press "Update" and close the dialog box.



6.2 Station information (= system data)



Click the button in the toolbar, and the dialog box "Station information" as shown below will pop-up.

All boxes marked with "*" must be completed.

The other boxes are for user information only.

Guidelines:

Station Name: any name can be entered (for example: station 1)

Device ID: always enter the number 1 (other numbers are intended for eventual future products)

District: the geographical district or province or street + number

Location: the location (for example: roof of bicycle shed)

Rated power (W): Wp power of the solar array (for example: 200)

Rated voltage (V): Voltage of the battery (for example: 12 or 24)

Battery capacity Ah): the capacity of the battery (for example: 60)

Press "Update".

Station Information

Station Name: SCC010020110 *

Device ID: 1 *

District: Drenthe *

Location: Roof *

Contacts:

Contacts:

Rated Power(W): 200 *

Installation Time: 11/14/2014 *

Rated Voltage(V): 24 *

Battery Capacity(Ah): 60

Remarks:

Click to add picture

Notice: Items with * must be filled

Update Exit



6.3 PV Arrays (= system data)

Click the tab "PV Arrays" in the "Station information" dialog box.

All boxes marked with "*" must be completed.

The other boxes are for user information only.

Guidelines:

Type: is for user information only

Peak Power: this is the peak power of each string of solar panels in W (for example: 200)

No of parallel strings: the number of parallel strings (for example: 1)

Special Instructions: is for user information only

Peak Power of the complete array (W) = ([Peak Power] x [No of parallel strings]) in Watt

Supplier name: is for user information only

Supplier contacts: is for user information only

Press "Update".

The screenshot shows a software window titled "Station Information" with a close button (X) in the top right corner. Inside the window, there are four tabs: "Station Information", "PV Arrays", "Battery", and "Controller". The "PV Arrays" tab is currently selected. The form contains several input fields and a text area:

- Type:** A text box containing "2x SPM101-12 in series".
- Peak Power:** A text box containing "200", followed by an asterisk (*) indicating it is a required field.
- Array Number:** A text box containing "1".
- No. of each Parallel Arrays:** A text box containing "1", followed by an asterisk (*) indicating it is a required field.
- Special Instructions:** An empty text box.
- Peak Power of total(W):** A text box containing "200", followed by an asterisk (*) indicating it is a required field.
- Supplier Name:** An empty text box.
- Supplier Contacts:** An empty text box.
- Remarks:** A large empty text area.

To the right of the input fields, there is a rectangular box with the text "Click to add picture".

At the bottom of the dialog, there is a notice: "Notice: Items with * must be filled". Below the notice are two buttons: "Update" and "Exit".

6.4 Battery (= system data)

Click the tab "Battery" in the "Station information" dialog box.

Guidelines:

Type: is for user information only (for example: USER, SEALED, GEL, FLOODED)

Battery capacity (Ah): already done in tab: "Station information" (section 5.2)

Specifications: is for user information only (for example: BAT412550100)

Voltage of each battery: is for user information only (for example: 12V)

Number of each parallel battery: is for user information only

Supplier name: is for user information only (for example: Victron Energy)

Supplier contacts: is for user information only

Press "Update".

Station Information

Station Information | PV Arrays | **Battery** | Controller

Type: Gel

Battery Capacity(Ah): 60

Specifications: BAT412550100

Ah of Each Battery(Ah): 60

Voltage Of Each Battery: 12

No. of each Parallel Battery: 1

Supplier Name: Victron Energy

Supplier Contacts:

Remarks: 2x 12V60Ah in series

Click to add picture

Notice: Items with * must be filled

Update Exit



6.5 Controller (= system data)

Click the tab "Controller" in the "Station information" dialog box.

Guidelines:

Device ID: already done in tab: "Station information"

Monitor period: is for user information only

Specifications: is for user information only (for example: 12/24V-10A)

Rated power: is for user information only (for example: 200)

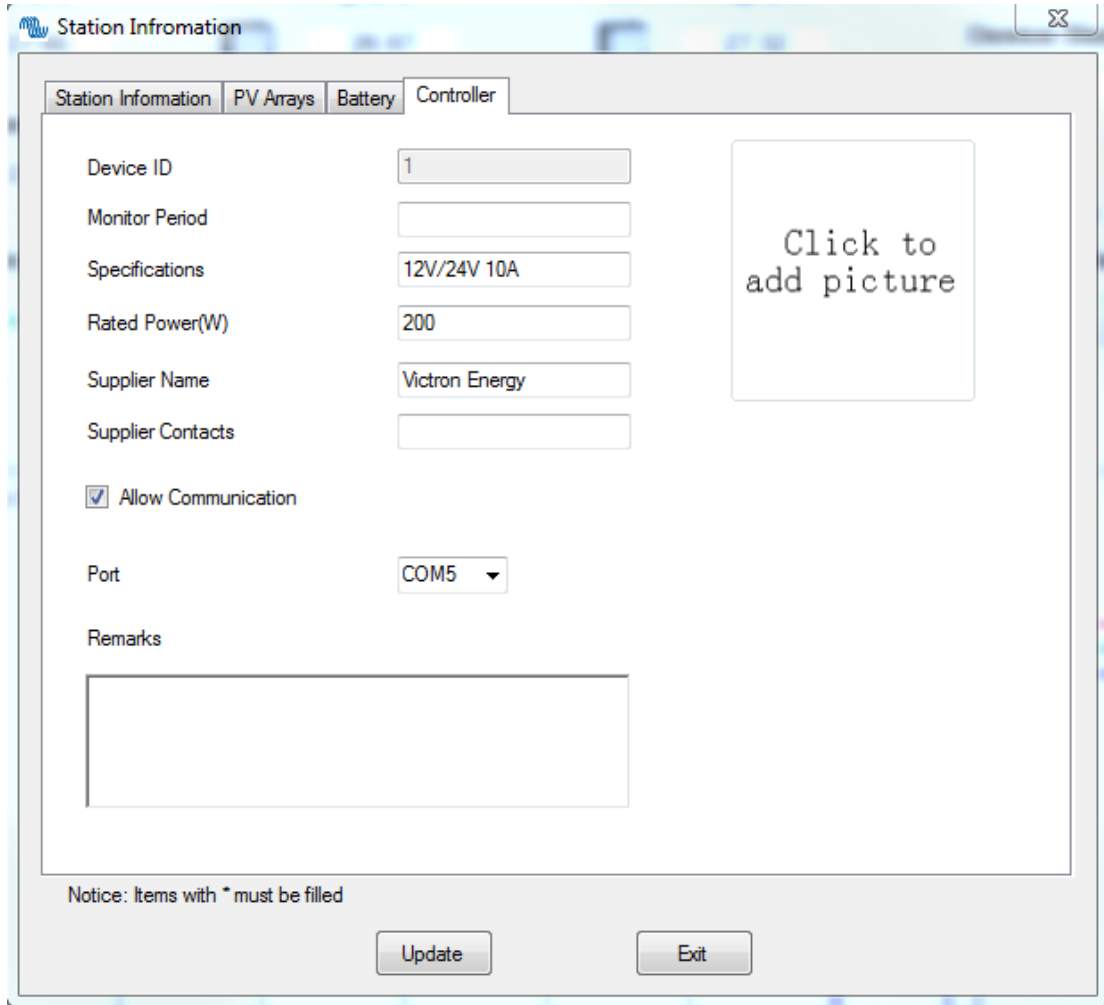
Supplier name: is for user information only (for example: Victron Energy)

Supplier Contacts: is for user information only

Allow Communication: must be on

Port: Select the COM port (for example: COM5). This COM port must be the same as selected in section 3.3 and 4.1

Press "Update" and close the dialog box.



The screenshot shows the 'Station Information' dialog box with the 'Controller' tab selected. The dialog has four tabs: 'Station Information', 'PV Arrays', 'Battery', and 'Controller'. The 'Controller' tab contains the following fields and controls:

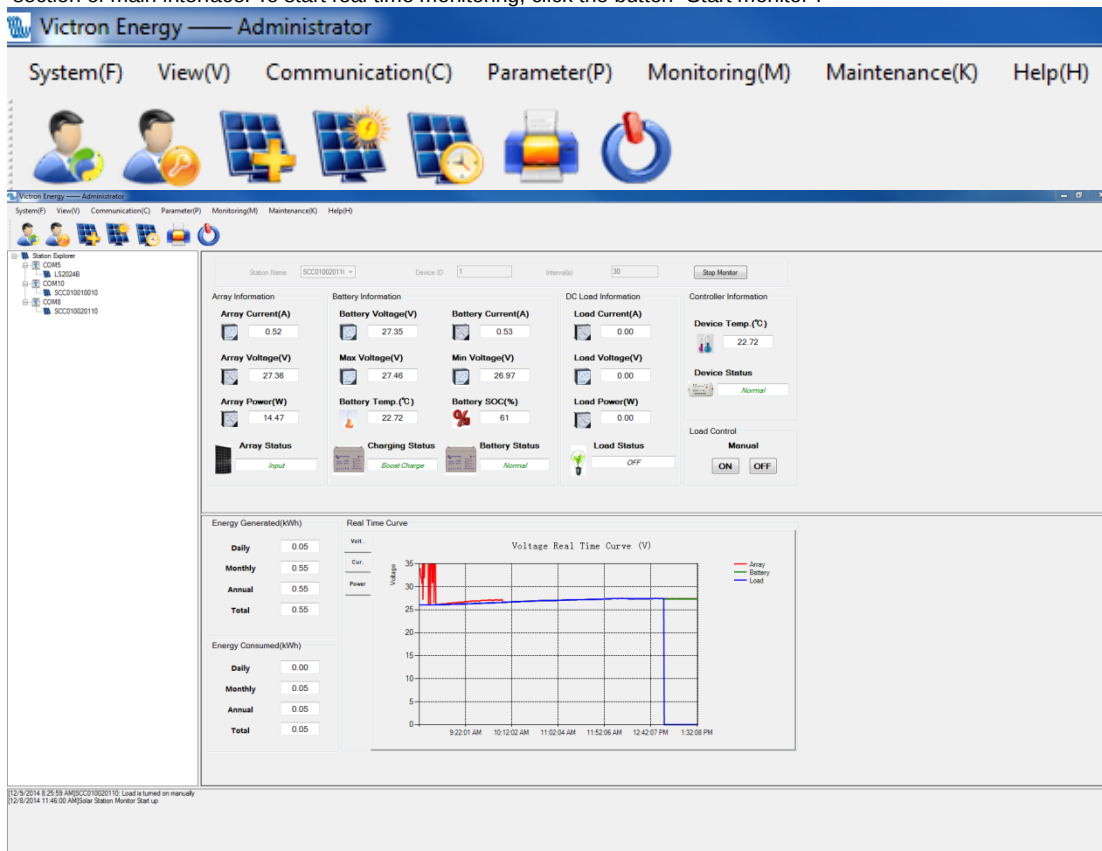
- Device ID:** A text box containing the value '1'.
- Monitor Period:** An empty text box.
- Specifications:** A text box containing the value '12V/24V 10A'.
- Rated Power(W):** A text box containing the value '200'.
- Supplier Name:** A text box containing the value 'Victron Energy'.
- Supplier Contacts:** An empty text box.
- Allow Communication:** A checkbox that is checked.
- Port:** A dropdown menu showing 'COM5'.
- Remarks:** A large empty text area.

On the right side of the dialog, there is a button labeled 'Click to add picture'. At the bottom of the dialog, there is a notice: 'Notice: Items with * must be filled'. Below the notice are two buttons: 'Update' and 'Exit'.

6.6 Monitoring (M): Real-time monitoring



Click the button in the toolbar, or Monitoring (M) and the real-time monitoring interface is displayed in the display section of main interface. To start real time monitoring, click the button “Start monitor”.



7 Other settings

7.1 System (F)

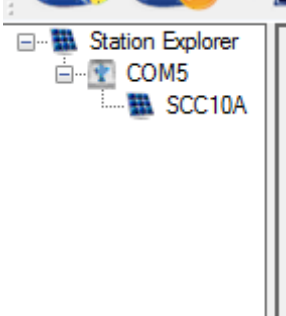
[Log Off] *To log off from the monitoring software.*
[User Switch] *To switch from Administrator to Guest or from Guest to Administrator.*
[Change Password] *Change Password for the monitoring software.*
[Add Station] *Monitor additional stations. See section 7.*
[Print Setup] *For printing the "Real Time Curve"*
[Print Preview(V)] *For previewing the print of the "Real Time Curve"*
[Exit(X)] *Exit/End the monitoring software*

7.2 View(V)

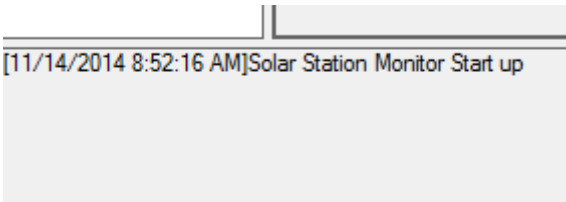
[Tool Bar(T)] *Shows or hides the toolbar*



[Station Explorer] *Shows or hides the Station Explorer on the left side of the screen*



[Messages Window] *Shows or hides the Messages Window on the bottom of the screen.*



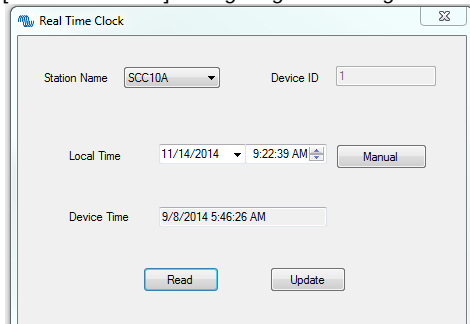
7.3 Communication (C)

[Serial port setting] *See 5.1*

7.4 Parameter (P)

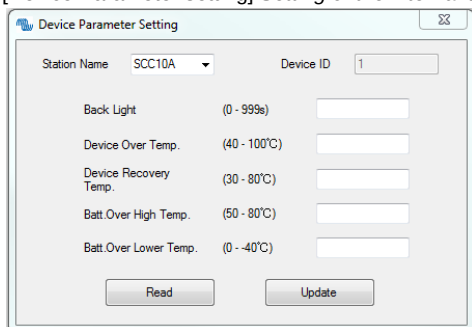
[Device Parameters]

[Real Time Clock] *Configuring and setting of the internal clock of the Solar Charge Controller*



Press "Read" to see the date and time setting of the controller.
The date and time setting can be modified by pressing "Update" after setting the correct date and time.

[Device Parameter setting] *Setting of the internal and external temperature limits.*



Device Parameter Setting

Station Name: SCC10A Device ID: 1

Back Light (0 - 999s)

Device Over Temp. (40 - 100°C)

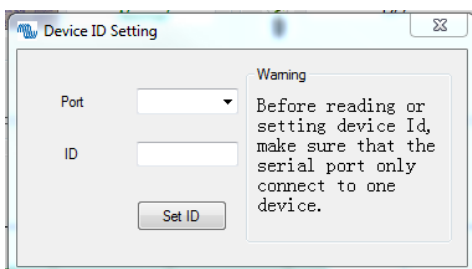
Device Recovery Temp. (30 - 80°C)

Batt. Over High Temp. (50 - 80°C)

Batt. Over Lower Temp. (0 - -40°C)

Read Update

[Device ID Setting]



Device ID Setting

Port

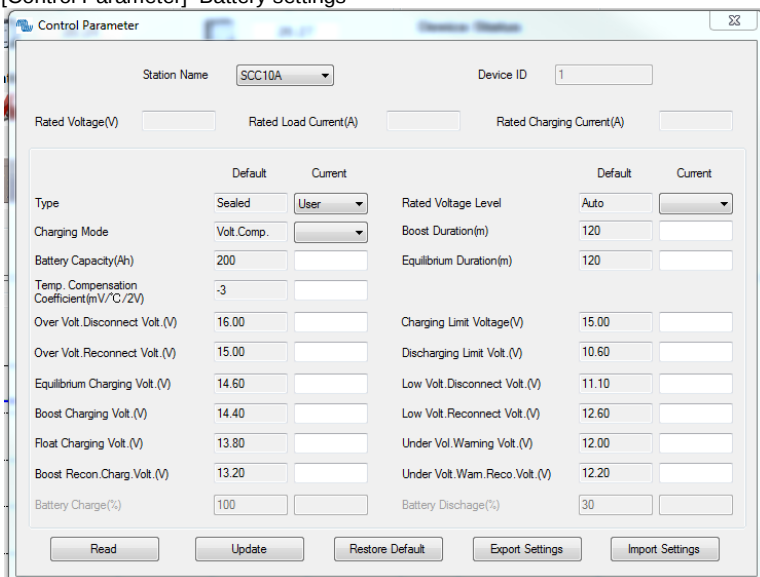
ID

Set ID

Warning
Before reading or setting device Id, make sure that the serial port only connect to one device.

The ID must be set to "1"

[Control Parameter] Battery settings



Control Parameter

Station Name: SCC10A Device ID: 1

Rated Voltage(V) Rated Load Current(A) Rated Charging Current(A)

	Default	Current		Default	Current
Type	Sealed	User	Rated Voltage Level	Auto	
Charging Mode	Volt Comp.		Boost Duration(m)	120	
Battery Capacity(Ah)	200		Equilibrium Duration(m)	120	
Temp. Compensation Coefficient(mV/°C/2V)	-3				
Over Volt. Disconnect Volt. (V)	16.00		Charging Limit Voltage(V)	15.00	
Over Volt. Reconnect Volt. (V)	15.00		Discharging Limit Volt. (V)	10.60	
Equilibrium Charging Volt. (V)	14.60		Low Volt. Disconnect Volt. (V)	11.10	
Boost Charging Volt. (V)	14.40		Low Volt. Reconnect Volt. (V)	12.60	
Float Charging Volt. (V)	13.80		Under Vol. Warning Volt. (V)	12.00	
Boost Recon.Charg. Volt. (V)	13.20		Under Volt. Warn. Reco. Volt. (V)	12.20	
Battery Charge(%)	100		Battery Discharge(%)	30	

Read Update Restore Default Export Settings Import Settings



The table below shows the list of battery related parameters that can be modified.

Parameter		Default setting		
Battery type	Gel	Sealed (AGM)	Flooded	User defined
Battery capacity (Ah)	200Ah			1~9999
Temperature compensation coefficient	-3mV/°C per 2V cell			0~9
Rated voltage (system voltage)	Auto			12V/24V
Over voltage load disconnect	16.0V			9~17V
Charge limit (highest charge voltage including temp. compensation)	15.0V			9~17V
Over voltage load reconnect	15.0V			9~17V
Equalize charge	—	14.6V	14.8V	9~17V
Boost charge (absorption charge)	14.2V	14.4V	14.6V	9~17V
Float charge	13.8V	13.8V	13.8V	9~17V
Boost trigger voltage (starts new charge cycle)	13.2V			9~17V
Low voltage load reconnect	12.6V			9~17V
Under voltage warning reset	12.2V			9~17V
Under voltage warning	12.0V			9~17V
Low voltage load disconnect (nominal value at 25°C)	11.1V			9~17V
Discharge limit (lowest low voltage load disconnect including temp. compensation)	10.6V			9~17V
Equalize duration	—	2 hrs.	2 hrs.	0~3 hrs.
Boost/absorption duration	2 hrs.	2 hrs.	2 hrs.	0~3 hrs.

Multiply voltages by 2 for a 24V system

Press “Read” to see the current settings

Press “Update” to save the (modified) settings

Press “Export Settings” to save settings in a file for later use in another controller

Press “Import Settings” to restore the saved settings or import saved settings into another controller

[Load Configuration]

Configuration of the Load output

The screenshot shows the 'Load Configuration' window for Station Name 'SCC10A' and Device ID '1'. The 'Load Control Mode' is set to 'Manual Control'. Under 'Manual Control', 'ON By Default' is selected. The 'Light ON/OFF' section shows 'Light ON Volt (V)' at 5.00 and 'Light OFF Volt (V)' at 6.00, both with a 'Delay (m)' of 10. The 'Light ON + Time' section shows 'Working Time 1' from 02:00 to 02:00 and 'Working Time 2' from 02:00 to 02:00. A graphical representation shows 'Light ON' during 'working time 1' and 'working time 2', and 'Light OFF' during 'Night Time'. The 'Time Control' section shows 'Turn-On Time 1' at 09:35:27 and 'Turn-Off Time 1' at 09:35:27. At the bottom, there are buttons for 'Read', 'Update', 'Export Settings', and 'Import Settings'.

Option 1: Manual Control

When the load output is set on Manual Control (default setting), the output can be switched ON or OFF with the orange button on the Charge Controller. The low voltage cut-off is also operational.

Option 2: Light ON/OFF

This is a simple load output ON/OFF option, based on the input voltage of the controller (= output voltage of the solar array).

- When, at dusk, the input voltage of the Controller becomes lower than the light ON voltage (default 0.50 V), the load output is switched on.
- When, at dawn, the input voltage of the Controller becomes higher than the light OFF voltage (default 0.40 V), the load output is switched off.
- In order to prevent unwanted switching a confirmation time (Delay (m)) can be set: default 10 minutes, range 0 – 99 minutes.

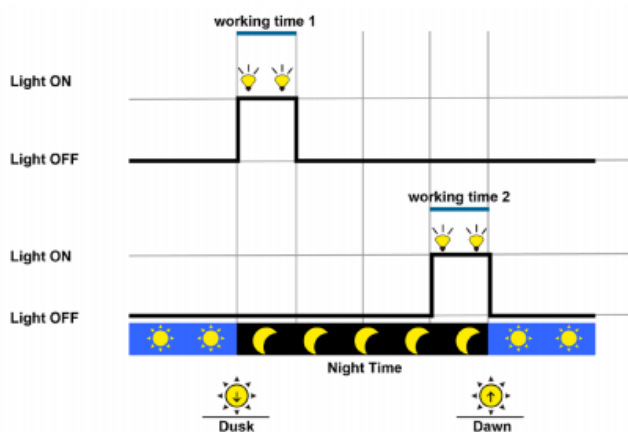
Option 3: Light ON+Timer

This option allows for a pre-set ON-time after dusk and a pre-set OFF-time before dawn.

The dusk and dawn switching moments and confirmation time are set as under option 2.

The remaining parameters are set as follows:

- Night Time: initial setting of the night duration, the controller will subsequently adjust Night Time to the actual duration of the night.
- On Time 1: ON period after dusk.
- On Time 2: ON period before dawn.



Option 4: Time control

This option uses the internal clock (see section 6.5) to set one or two ON-time periods.

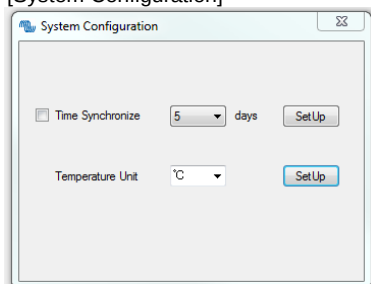
Press "Read" to see the current settings

Press "Update" to save the (modified) settings

Press "Export Settings" to save settings in a file for later use in another controller

Press "Import Settings" to restore the saved settings or import saved settings into another controller

[System Configuration]



To regularly synchronize the time setting of the charge controller with the PC: choose "not", every "5" or "10" days and press "SetUp"

Temperature unit setting: choose "°C" or "°F" and press "SetUp"

[Device Information]

Press "Read" to display the station name, model, version and serial number

[Factory Operation]

Press Load Test "ON" or "OFF" to test the load output

Press "Restore Default" to reset to factory settings

Press "Clear Data" to clear all collected data

7.5 Monitoring (M)

[Real time Monitoring] See 5.6

[Global Monitoring] Displays a list and status of all connected stations.

Station Name	ID	Device Status	Array Status	Charging Status	Load Status	Battery Status	Char.energy (kWh)	Dischar.energy (kWh)
LS2024B	1	Normal	Cut Out	Not Charging	ON	Undervoltage	23.23	2.20
SCC010010010	1	Normal	Cut Out	Not Charging	ON	Undervoltage	0.00	0.50
SCC010020110	1	Normal	Input	Boost Charge	ON	Normal	0.41	0.05

7.6 Maintenance (K)

[Export Data] "Export Data" Saves all data to file.

[Import Data] "Import Data" Restores all data from file.

[Maintenance Record] Text file to record maintenance events.

7.7 Help (H)

[About] There is no online help. See this manual for help

8 Monitoring more than one controller

In order to keep track of each controller we strongly recommend connecting one controller at a time (by plugging in the interface cable), establish communication and configure it.

After completion, proceed with the next controller.

Each time, follow the procedure as outlined in section 3.1, 3.3, 5 and 6.



Victron Energy Blue Power

Distributor:

Serial number:

Version : 01
Date : 12 January 2015

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