ENGLISH

VictronConnect app

Rev 22 - 07/2026

This manual is also available in HTML5.

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1. Introduction

Welcome to the VictronConnect app Manual.

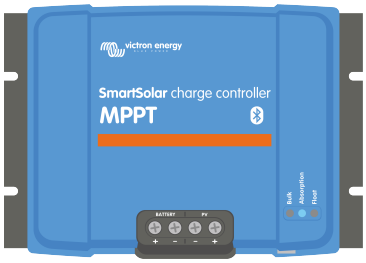
The VictronConnect App is used to to configure, monitor, update and diagnose VictronConnect compatible products.

Multiple platforms are supported, including: Android, iOS, Windows, macOS, and Linux (AppImage).

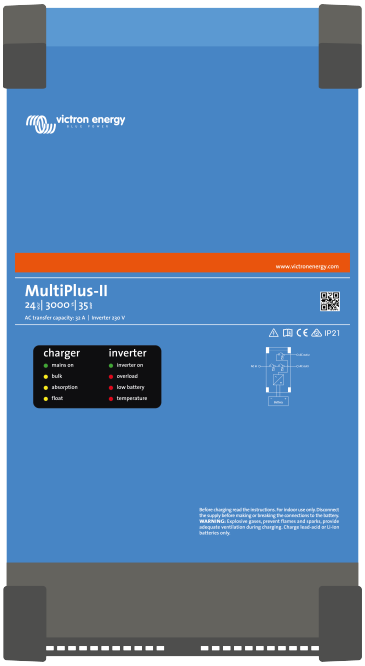
VictronConnect offers multiple connection options: Bluetooth, USB, WiFi/LAN/Internet. Availability of these features depends on the specific product range.

There are other product-specific documents:

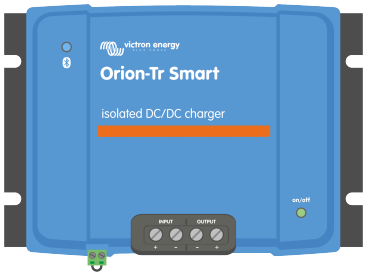
- Specific documentation for MPPT Solar Chargers located in their product manuals



- VE.Bus Configuration for MultiPlusses, Quattros, EasySolars and other inverter/chargers.



- Specific documentation for Orion Smart DC-DC Chargers located in their product manuals.



2. Download and installation

VictronConnect is available to users of Windows PCs, macOS X, iOS, Android and Linux AppImage. Use this link to download the app suitable for you.

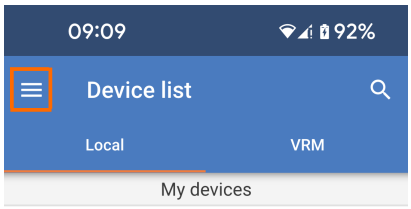
See chapter 4 [6] for details regarding compatible phones, tablets and laptops, as well as required minimum Operating System versions.

2.1. Application setup

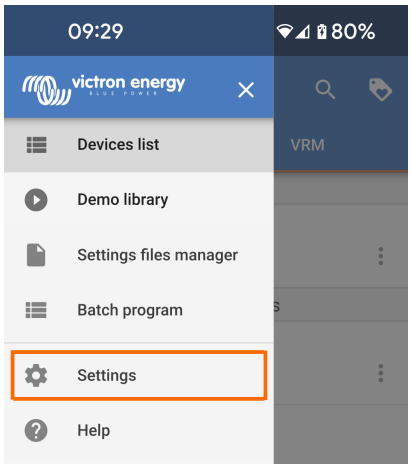
After you have installed VictronConnect, you can set up your preferences for the application.

The settings described here only affect the VictronConnect application. These are not product settings.

Tap the "hamburger" menu icon at the top left of the page.



Select "Settings" from the drop-down menu.



The VictronConnect application settings page shows the version number at the top. There is a link to the VictronConnect page on our website and links to various social media channels.

- **Service report:** Allows you to create a service report and send it out in case of problems or errors.

  See this section on how to create a service report [94].

- **VRM Account:** Log in with your VRM account in order to use VictronConnect Remote (VC-R). See here [40] for more details.

- **Language:** Select your preferred language.

- **Display temperature unit:** This changes the temperature unit shown by a connected device.

- **Theme mode:** Choose a light or dark theme. Auto will match the operating system's default theme.

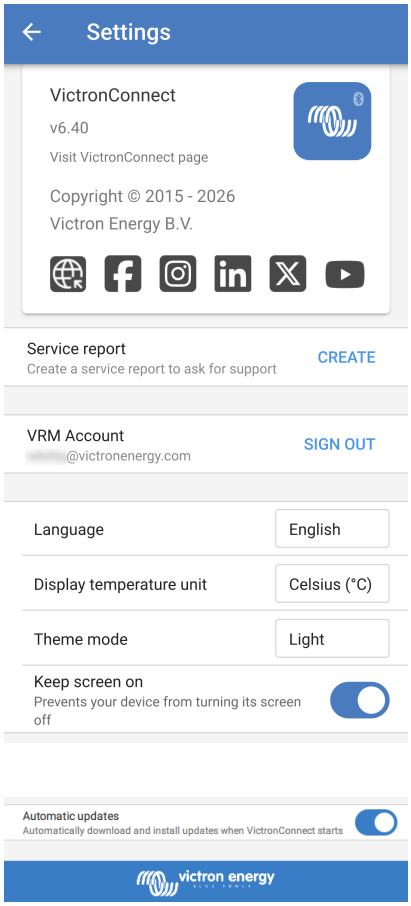
- > The following option is only available on mobile devices, it is not available on iOS and Windows devices.

  Keep screen on: When enabled, the mobile device screen will remain on when VictronConnect is open on the foreground.

  > The mobile device will not lock! Ensure your mobile device is not left unattended when VictronConnect is open in the foreground!

- For Windows devices, there is an option to enable automatic updates for the VictronConnect application.

  > This option automatically downloads and installs updates for the VictronConnect application only. It does not update connected products.



3. Connecting

There are three ways to connect to a Victron product:

Method	iOS	Android	Windows PC	macOS X
Products with built-in Bluetooth	Yes	Yes	Yes	Yes
VE.Direct Bluetooth Smart dongle	Yes	Yes	Yes	Yes
VE.Direct USB interface	No	Yes (1)	Yes	Yes

(1) Requires a USB On-The-Go cable. These cables are available in mobile phone shops, phone-repair shops, and online retailers.

Use the Compatible Victron products [96] chapter to verify that your Victron product is compatible.

3.1. Bluetooth Smart - Pairing and Connecting

When connecting to your Victron product over Bluetooth, always connect from within VictronConnect.



Do not connect from the phone's system menu. Otherwise, VictronConnect will not find your Victron product.

Here is how to connect:

1. Enable the Bluetooth on your phone.
2. Open VictronConnect, and scan:
   a. On a phone or tablet, pull down the screen, or tap the refresh button to initiate a scan.
   b. On a computer or laptop: click the “Scan or Refresh” button on the left.
3. The first time you attempt to connect, the phone will ask to pair with the Victron product. Enter the PIN code. Usually, your device already has a random PIN code printed on a sticker attached to the device. If no PIN is printed on the sticker, then the default PIN is 000000.
4. The connection is complete.

If the connection was not successful please refer to section Troubleshooting [91] below.

3.2. Bluetooth Smart - Changing the PIN code

To prevent unauthorised connections to your Victron product we recommend you change the PIN code. Avoid using obvious PIN codes such as 111111 or 123456.

To change the PIN code, first complete your connection. Then go to the **Product info** page. To access that page, click the button on the upper right. For some products, it will be the settings icon: . After opening that menu press , and click **Product info**.

For other products you'll find the button on the upper right, which takes you straight to the Product info page.

On this page, select the change PIN code button.



After changing the Bluetooth PIN code, all other devices which were previously paired will need to have their old pairing information removed and then paired again using the new PIN code. See Bluetooth Smart - Removing from the list of paired devices [5] to learn how to remove the pairing information.

3.3. Bluetooth Smart - Resetting the PIN code

If the PIN code is lost, it can be reset to 000000. This also applies to products that have already been delivered from the factory with a random PIN code. Resetting with the PUK code will reset the PIN to 000000, not to the random factory PIN.

After resetting the PIN, ensure that you change it from 000000 to prevent unauthorized access.

Follow one of the steps below, depending upon the product:

These steps apply to the following products:

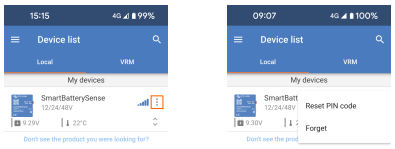
Blue Smart Charger IP22, Blue Smart Charger IP43, Blue Smart Charger IP67

Smart Solar MPPT charge controllers

SmartShunt, BMV-712 Smart, Smart Battery Sense

Lithium Battery Smart, Lithium NG Battery

On the device list: tap or click the three-dots menu on the right side of the product description. A menu will pop up offering a 'Reset PIN code' option. Click that, and enter the PUK code. The PUK code can be found on the product label, on the back of the product.



Some chargers feature a Mode button, allowing you to reset the PIN code by holding it down for ten seconds until the blue LEDs flash twice.

Blue Smart Charger IP22

Blue Smart Charger IP43

Blue Smart Charger IP65



VE.Direct Bluetooth Smart dongle

Reset the PIN code by pressing and holding the 'Clear PIN' button. After holding the button for 5 seconds, both LEDs will blink twice. This indicates that the PIN code has been reset.

3.4. Bluetooth Smart - Removing from the list of paired devices

There may be instances where you need to remove a product from your phone's Bluetooth devices list, such as when the PIN code has been changed on a different device.

To remove the pairing information you will need to go to your phone's Bluetooth settings. Watch the videos below to learn how to remove the pairing information from iOS and Android:

Remove Bluetooth pairing on iOS

(click to play, double-click to enter fullscreen mode)

https://www.victronenergy.com/live/_media/victronconnect:video_unpair_ios.mp4

Remove Bluetooth pairing on Android

(click to play, double-click to enter fullscreen mode)

https://www.victronenergy.com/live/_media/victronconnect:video_unpair_android_cropped.mp4

4. Phone, tablet and laptop compatibility

4.1. Windows PC

VictronConnect requires Windows 10 or later. For older Windows versions, XP and Vista, check our archive of previous VictronConnect versions. [8] Keep in mind that previous software releases might not include all the capabilities found in the latest versions.

Bluetooth support for Windows systems requires VictronConnect v6.40 or later.

USB Driver installation

Windows 10 ships with a compatible driver for both the VE.Direct USB cable and the MK3-USB cable: there is normally no need to install a driver for that. In case you do have issues connecting to a Victron product via USB, we recommend manually installing the VE.Direct USB driver. You can download it from our website on the Software downloads page.

For Windows 7 and Windows 8, we always recommend installing the USB driver.

These USB drivers can be installed with or without the USB cable connected to your computer. It will automatically install the files to be used once you connect the cable.

4.2. macOS

Today's version of VictronConnect runs on any Mac with Intel or Apple Silicon chip that runs macOS version from macOS 13 (Ventura) up to macOS 26 (Tahoe).

For older macOS versions, 11 / 10.11/10.10/10.9, an older version of VictronConnect is still available in the Apple Store. Do note that the older version is unsupported: if it works then great, that is why we provide that older version. If it does not work, then it's too bad, and we'll not be able to help. The solution is then to get another laptop or device, that can work with the most recent version of VictronConnect.

To connect to a Victron product with Bluetooth, the Apple computer needs to have Bluetooth 4.0 (Bluetooth Low Energy or Bluetooth Smart).

4.3. Android

Android 9.0 is the minimum version required to run VictronConnect. For older Android versions, check our archive of previous versions [8].

For devices with Android 12 or later, running VictronConnect v5.70 or later, it is not necessary to grant Access for Location Service. You are not asked for it when opening or installing the VictronConnect app. We recommend updating the mobile device to at least Android 12 whenever possible.

For older Android and/or VictronConnect versions, the following applies to Android Location Service.

An older version of VictronConnect that works for some Android 4.3 and 4.4 users is still available in the archive [8] , but it is unsupported.

The required hardware is ARMv7 and later, as well as x86 or ARM64bit.

Notes for Android 5

Android 5 devices with a 64-bit CPU will experience a crash at startup due to an issue in the libraries we use to develop VictronConnect. This is not expected to be fixed. A workaround for this issue is manually installing the VictronConnect APK, which can be downloaded in the software section.

The pairing does not work on some phones running Android 5. The PIN code pop-up does not appear or appears without a text field to enter the PIN code. If you are in this situation, your phone might report that it has been paired with the Victron product, but it has not.

Unfortunately, we have no control over this bug in Android and are, therefore, unable to fix it.

Devices where we have seen this issue are:

- Asus Zenfone 2 with 5.0 ← Android 6 is available; update the phone to solve the issue
- Motorola Moto G 2 ← Android 6 is available; update the phone to solve the issue
- Medion tablet with Android 5.0

Notes for Android 6 and later

There are no known issues when Access to Locations Services are enabled. See also the note at the beginning of the chapter.

Why is Access to Location Services required?

Android 5 and later requires access permission for VictronConnect to the (coarse) Location Services. Otherwise, it can not scan for the Bluetooth products.

In addition to permitting access to its data, the Location Services need to be enabled in many (but not all) cases.

Note that after enabling Location Services, the GPS itself can be switched off again: Android Location Services are more than GPS. Bluetooth and WiFi scan results can technically also be used to approximate the phone's location; hence, these requirements.

Despite the above, you can be sure that Victron is not interested in nor tracking your location.

Being sensitive to privacy issues at Victron ourselves, we are not happy with this requirement. But there is nothing we can do about it, unfortunately. More information about why it is needed to enable the Location Services is here.

List of known non-compatible Android devices

Manufacturer	Model	USB OTG	Bluetooth Smart
HTC	One+	?	No
HTC	One M7	?	No
Huawei	P8 Lite (2015)	No	Only if Location Services are disabled
Lenovo	Tab 3 A7	?	No
Samsung	Galaxy S3 Mini	No	No
Samsung	Galaxy S2	Yes	No
ZTE	Telstra Max	?	No

List of known compatible Android devices

We have tested the following Android devices and can confirm that they are compatible with VictronConnect*:

Google Nexus 6P; LG G4; Sony Xperia Z5; HTC One M9; HTC One S9; OnePlus 3T; Asus Zenfone 2; Samsung Galaxy S5; Samsung Galaxy S5 mini; Samsung Galaxy S7; Samsung Galaxy S8; Samsung Galaxy Tab E 9.6.

*Assumes the phone runs the latest firmware released by the manufacturer.

4.4. Apple iOS iPhones and iPads

VictronConnect works on the following iPhones and iPads running iOS 16 / iPadOS or higher:

- iPhone 8 and later
- iPhone SE from 2nd generation and later
- iPad mini 5 and later
- iPad 6 and later
- iPad Air 3 and later
- 10,5" iPad Pro 1 and later
- 112,9" iPad Pro 2 and later
- iPod Touch 7 and later

Unfortunately, Apple iPhone/iPad doesn't support USB OTG.

4.5. Linux

VictronConnect is available via Linux AppImage. It can be downloaded from here: VictronConnect Software Download

- After downloading the AppImage file, you need to make it executable. Then the AppImage can be run as a program.
- Ensure that the Bluetooth controller is activated, usually from the system menu.
- If USB dongles are used, make sure that the user is a member of the dialout group.

The AppImage for Linux is provided as-is, with no official support.

More details can be found here.

4.6. Archive of previous versions

Unfortunately, it is not possible to provide continued support for all operating system versions. A new release of VictronConnect may stop working with older operating system versions.

We always recommend updating your device to the latest operating system version that it supports. If your device still won't run the latest version of VictronConnect, then you may need to install an older version. See the table below for links to older versions of VictronConnect.

Please note that these older versions are not supported anymore. You should only use these older versions if you have no other choice.

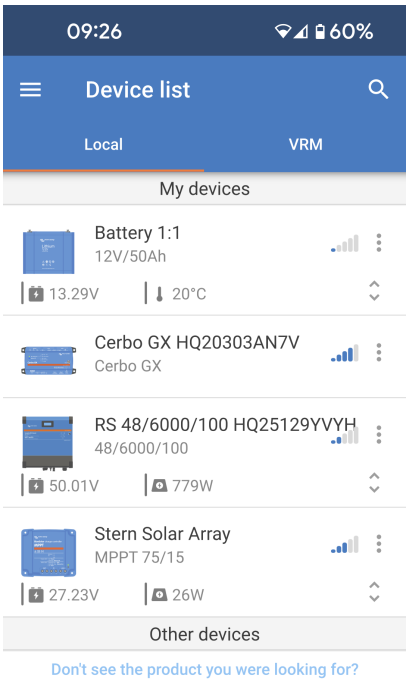
The older versions of VictronConnect will very likely have missing features or functionality.

OS Version	Download link
Windows 7 and Windows 8	VictronConnect 5.106
Windows XP and Windows Vista	VictronConnect 3.3
Android 5, 6 and 7 armv7 architecture	VictronConnect 5.106
Android 5, 6 and 7 x86 architecture	VictronConnect 5.106
Android 4.3 to 4.4.4 armv7 architecture	VictronConnect 5.8
Android 4.3 to 4.4.4 x86 architecture	VictronConnect 5.8
macOS 10.9 (OS X Mavericks)	VictronConnect 3.2
Last version for macOS Yosemite	VictronConnect 5.8
Last version for macOS Sierra	VictronConnect v5.106

5. Application overview

5.1. Screenshots (click to enlarge)

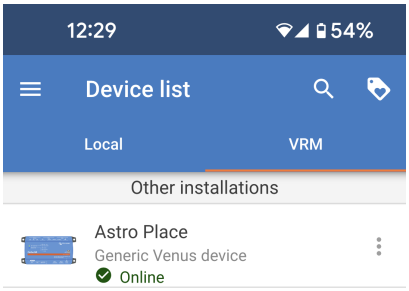
Device list



Local

The Local tab lists all Bluetooth devices that are in range or any device which is connected by USB dongle.

A GX device which is on the same network as the VictronConnect device will also be shown here, even if it is out of Bluetooth range.



VRM

If VictronConnect is signed in with your VRM account, then it will list all of your installations on the "VRM" tab,

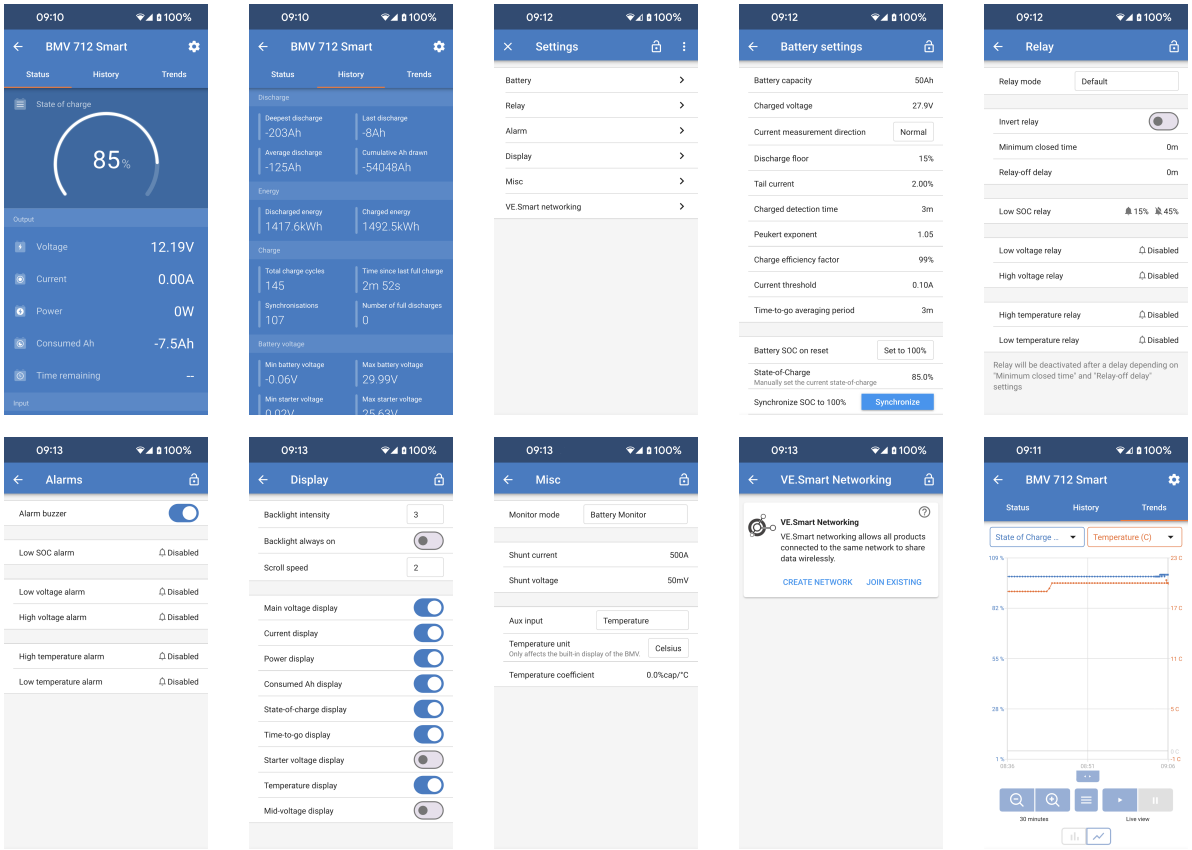
When you click on an installation, then the devices associated with that installation will be listed.

Battery Monitor pages:

Clicking on 'Battery Monitor' will show the current state of charge, and allows you to toggle between screens showing more detailed information concerning the current battery STATUS, and HISTORY data.

- To access 'Settings' click on the cog icon at the top right of the screen.

From 'Settings' you can change the data concerning your battery storage; set alarms and relays; change charging parameters; tailor the appearance and quantity of data displayed and set up or join an existing VE.Smart network.



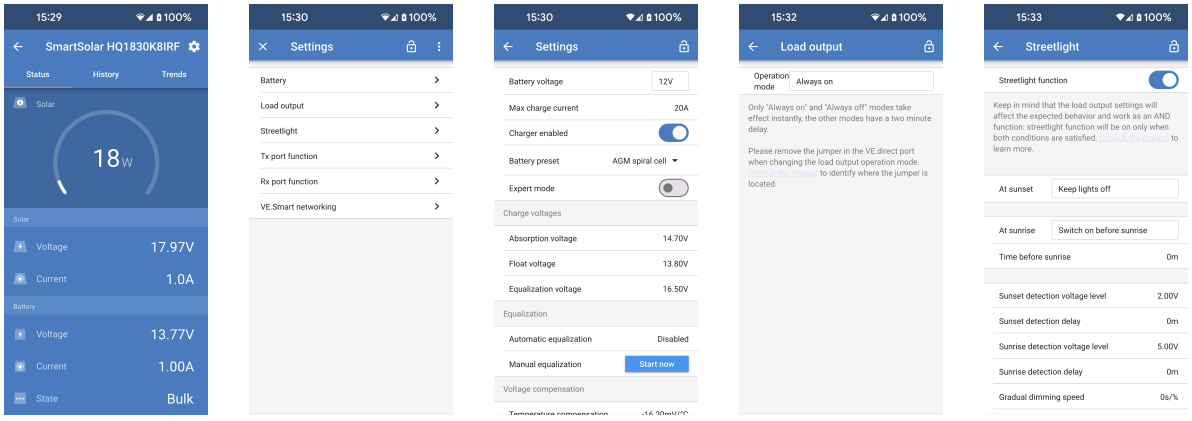
Solar Charge Controller pages

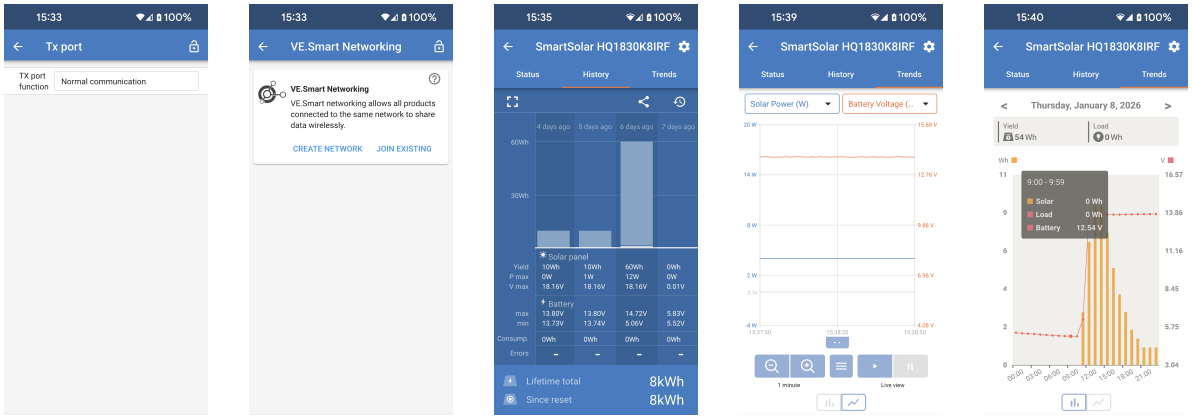
Clicking on your Solar Charge Controller product allows you to view the current charging status.

- To access 'Settings' click on the cog icon at the top right of the screen.

'Settings' will allow access to the extensive range of functions available on your solar charge controller, including programming the charge settings; initiating relays which are triggered by solar time, or by voltage parameters; together with comprehensive historical analysis.

For a full explanation of the Solar Charge Controller options follow this link.



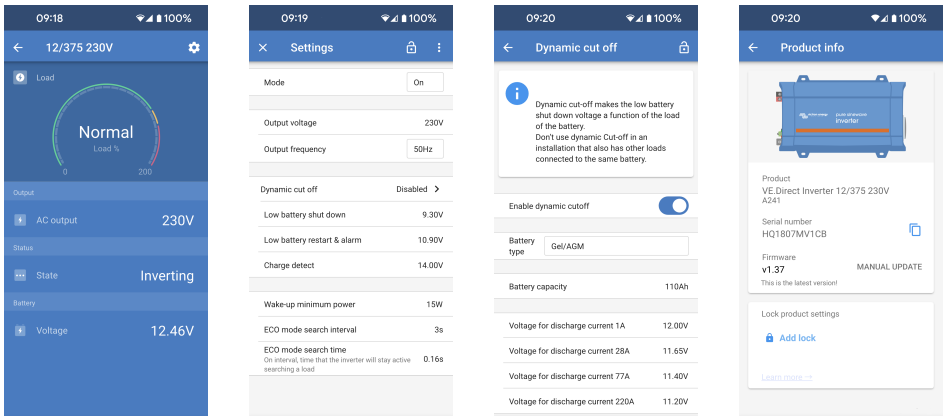


Inverter pages

Clicking on the Inverter allows you to view dynamic data such as power-draw of connected loads; a power bar will show how hard your inverter is working, and you will find information such as battery voltage, etc.

- To access 'Settings' click on the cog icon at the top right of the screen.

'Settings' will allow you to set output voltages/frequency; set low voltage shut-downs, and restarts - together with their alarms; set a dynamic cut-off - based on load; together with other settings about which more information can be found here.



Blue Smart IP65 charger pages

The Blue Smart IP65 battery charger comes with Bluetooth already built-in. When the Blue Smart charger is powered-up it will be discoverable using the VictronConnect app on your phone or computer.

The 'home' page shows information about the battery voltage, charge current, and where your battery is in the charging cycle.

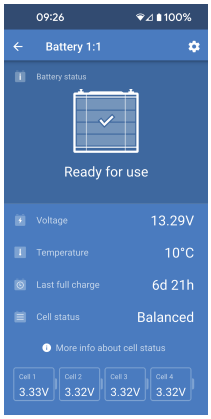
- To access 'Settings' click on the cog icon at the top right of the screen.

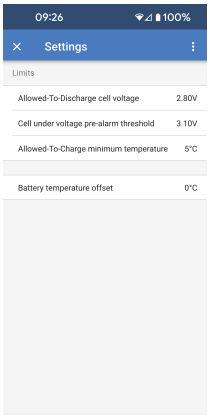
SmartLithium Battery

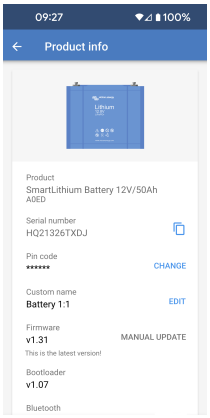
Lithium Batteries Smart have Bluetooth built-in. Clicking on the Lithium battery from the Device list will allow you to view live data about the battery status, voltage, and temperature. You will also see the voltage of each cell - which is an essential guide to battery health.

- To access 'Settings' click on the cog icon at the top right of the screen.

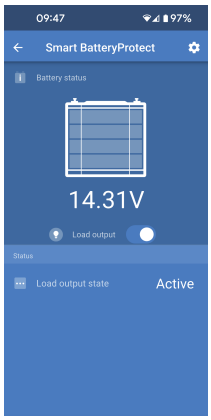
From 'Settings' you can change discharge and temperature parameters.

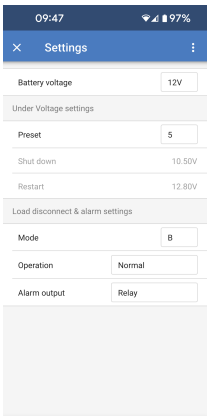


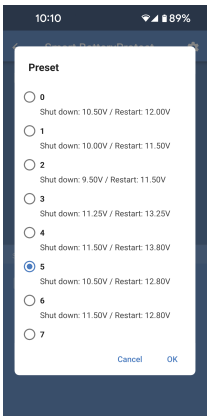




Smart BatteryProtect







Windows

Here is a VictronConnect app screenshot from a PC using a version of the Microsoft Windows operating system showing information from an MPPT.





macOS

Here is a VictronConnect app screenshot from a PC running the Mac Operating System showing information from an MPPT.



5.2. Videos

Blue Smart IP65 Charger

In this video we show how to download the VictronConnect App using a iPhone. We also show how to use the app to view information and adjust the settings of a Blue Smart IP65 charger.

https://www.youtube.com/embed/bbdLxsfMu74

BlueSolar MPPT

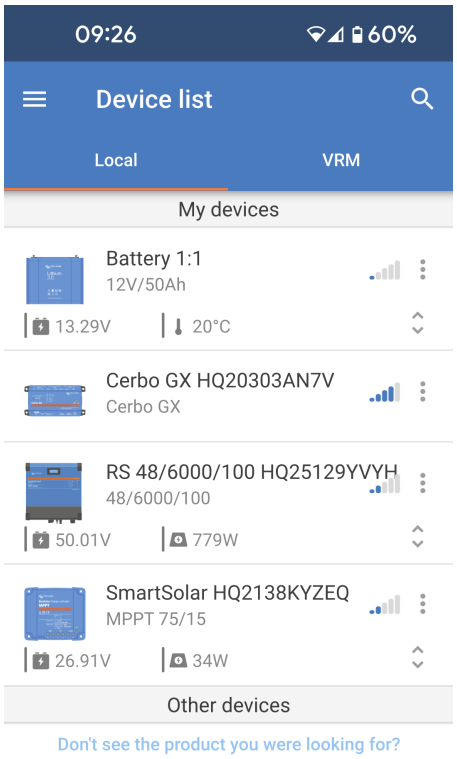
This video also shows how to download and install the VictronConnect App onto an iPhone. We also show how to use the app to view the Live Data and historical information from a Victron MPPT Solar Charge Controller

https://www.youtube.com/embed/vZJA4eTd6vw

A full description of all the settings available on our Solar Charge Controllers can be found on this page.

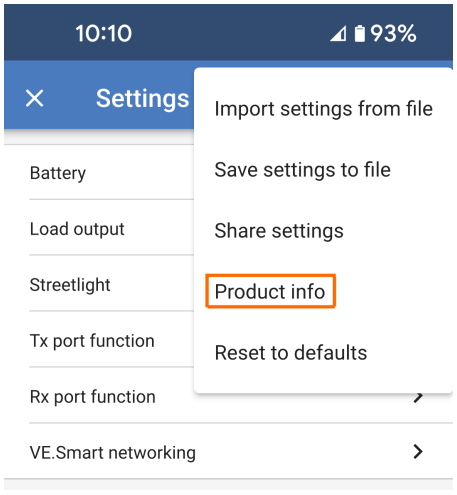
5.3. How to assign a custom name to your products

You can change the name of your Victron product to make it easier to identify. This is useful if you have multiple products of the same type, such as MPPT charge controllers.

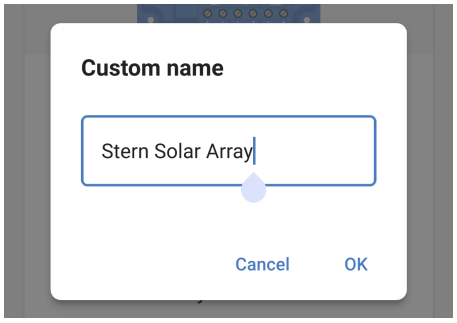


- Select your device from device list page.

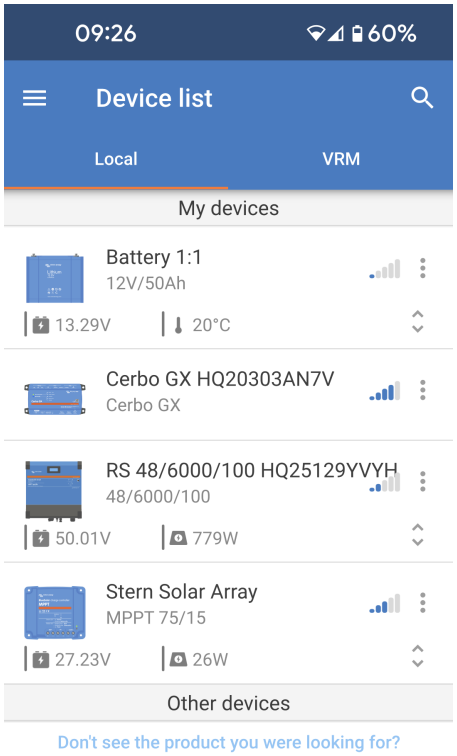
  In this example we'll choose the SmartSolar MPPT device at the bottom of this list.



- From the product main page, go into its settings by pressing the cog at the top right of the page.
- Then, tap the three dot at the top right of the settings page.
- Choose "Product info" from the popup.



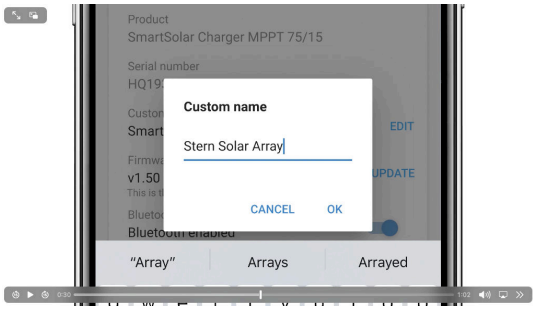
- The "Custom name" box will allow you to type in a friendly name of your choice, then press OK.



- Now your device name is updated in the device list page.

For other products you'll find the button on the upper right, which takes you straight to the Product info page.

Please also watch this video for more details:



5.4. How to disable and re-enable Bluetooth

All our products that have Bluetooth built-in, have a feature that allows disabling Bluetooth. Typically the reason for doing so is security, even though the Bluetooth connection is protected by a PIN code, there is nothing more secure than disabling it.

In most cases, it's also possible to re-enable Bluetooth after disabling. For example by using a VE.Direct cable.

There are, however, a few exceptions:

- The Blue Smart IP67 Chargers
- The Lithium Smart batteries
- The Orion Smart DC-DC Chargers

Once Bluetooth is disabled on these products, it is disabled **permanently** and is **irreversible**.

Finding the Bluetooth menu

First, complete your connection; then go to the **Product info** page by clicking the button on the upper right:

- For some products, it will be the settings icon: . After opening that menu press , and click Product info.
- For other products you'll find the button on the upper right, which takes you straight to the Product info page.

If the product has the feature that Bluetooth can be disabled, you will see the field “Bluetooth” with a switch button next to the text “Bluetooth enabled”. Toggle the switch to off, the button will turn from light-blue to grey and a dialogue will be displayed to confirm

your action. If you choose to “Cancel” the change Bluetooth will remain on and the switch button and text will return the “Bluetooth enabled” position.

For some products, a Disable button is shown instead of a toggle switch.

How to re-enable Bluetooth



Warning: For **Lithium Smart Batteries**, **Blue Smart IP67 Chargers** and **Orion Smart DC-DC Chargers**: Bluetooth cannot be re-enabled! Once Bluetooth is disabled on these products, it is disabled **permanently** and is **irreversible**.

There are a few different ways to re-enable Bluetooth depending on your product, always check the manual of your product for more detailed instructions:

Re-enable Bluetooth using VE.Direct

Connect the product with a VE.Direct to USB cable to your phone and use VictronConnect to re-enable Bluetooth in the **Product Info** page.

Re-enable Bluetooth using the MODE button on the product

Press and hold the MODE button on the product for 10 seconds will perform a Bluetooth reset. This means that the following actions will be executed:

- Bluetooth will be re-enabled
- The connected Bluetooth product will be disconnected
- The PIN code is reset to its default value [5].
- The pairing information is cleared; this requires removing the product from the list of the paired devices [5] as well.

Re-enable Bluetooth using a built-in web interface (EV Charging Station only)

Connect to the product via the built-in web interface and activate Bluetooth in the Networks menu.

Lithium Smart batteries

The product page can be found here.

Once Bluetooth is disabled, it is disabled **permanently** and is **irreversible.** This means that VictronConnect will ask for a confirmation code displayed in the dialogue; if you are sure that you want to permanently disable Bluetooth, enter the code displayed, and choose “Ok”.

Orion Smart DC-DC Chargers

The product page can be found here.

Once Bluetooth is disabled, it is disabled **permanently** and is **irreversible.** This means that VictronConnect will ask for a confirmation code displayed in the dialogue; if you are sure that you want to permanently disable Bluetooth, enter the code displayed, and choose “Ok”.

Smart IP43 Chargers

The product page can be found here.

Once Bluetooth is disabled, there are multiple ways to re-enable it again:

1. Using the MODE button.
2. Using a VE.Direct to USB cable to your phone.

Blue Smart IP22 Chargers

The product page can be found here.

Once Bluetooth is disabled, it can be re-enabled with the MODE button.

Blue Smart IP65 Chargers

The product page can be found here.

Once Bluetooth is disabled, it can be re-enabled with the MODE button.

Blue Smart IP67 Chargers

The product page can be found here.

For these chargers there are two options:

- Disable Bluetooth **permanently**. This option is **irreversible** and VictronConnect will ask for a confirmation code displayed in the dialogue; if you are sure that you want to permanently disable Bluetooth, enter the code displayed and choose “Ok”.

- Enable Bluetooth for 30 seconds at power-up. This allows you to connect to the product and to perform a firmware update or re-enable Bluetooth. If you do not connect within the first 30 seconds, Bluetooth will be disabled.

SmartSolar MPPTs

The product page can be found here.

Bluetooth can be re-enabled by connecting a VE.Direct to USB cable to your phone and following these [4] instructions.

Smart BatteryProtect

The product page can be found here.

Bluetooth can be disabled/re-enabled by connecting the PROG pin to ground and selecting **F** (enable) or **h** (disable). Check the product manual for more details.

Smart BMV-712

The product page can be found here.

The BMV-712's onboard Bluetooth module can be turned on or off through the settings menu (setting #71). Check the product manual for more details.

Smart BMS

The product page can be found here.

Bluetooth is temporarily enabled at power-up for 30 seconds. You can connect within these 30 seconds to perform a firmware update or re-enable Bluetooth. If you do not connect within the first 30 seconds Bluetooth will be disabled.

SmartShunt

The product page can be found here.

Bluetooth can be re-enabled by connecting a VE.Direct to USB cable to your phone and following these [4] instructions.

EV Charging Station incl. NS

The product page can be found here.

Bluetooth can be re-enabled via the built-in web interface in the Networks menu. For detailed instructions, please see the product manual.

Orion XS 12/12-50A DC-DC battery charger

The product can be found here.

Bluetooth can be re-enabled by connecting a VE.Direct to USB cable to your phone and following these [4] instructions. Note that this requires a device with a USB port, such as an Android phone, a PC, or an Apple computer with macOS. iOS devices such as iPhone or iPad cannot be used for this method.

VE.Bus BMS NG

The product page can be found here.

When repowered, Bluetooth is temporarily enabled for 30 seconds, which is enough time to enable it permanently again via the Product info menu.

smallBMS NG

The product page can be found here.

When repowered, Bluetooth is temporarily enabled for 30 seconds, which is enough time to enable it permanently again via the Product info menu.

Lynx Smart BMS NG

The product page can be found here.

Bluetooth can be reactivated via a GX device in the BMS settings menu (Settings > Devices > Lynx Smart BMS > Settings).

5.5. Importing and converting a GX Product Family database File

VictronConnect allows you to import and convert the .sqlite database log file (that is created by the VenusOS on the GX Product Family) to a Microsoft Excel .xlsx file.

This can be useful for remote sites without an internet connection, to upload the file to the VRM Portal, or if you do not wish to upload your data to Victron servers.

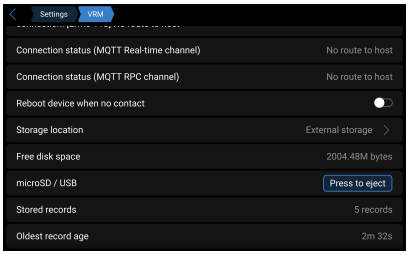
This feature is only available for the macOS and Windows version of VictronConnect. It is not available on iOS or Android devices.

The "Venus database file" will be stored on an external microSD card or USB stick which must be connected to the GX device.

Data will only be saved on the external storage device if the GX device is offline. If the GX device has a connection to VRM, then the log data will be pushed to VRM, and no data will be stored on the external storage.

It's important to eject the microSD or USB storage device before removing it from the GX device.

- Click the "Press to eject" button from the GX device menu.

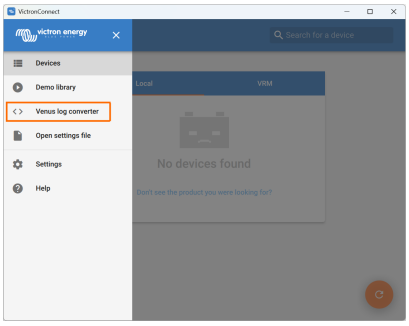


The "Press to eject" button will only be shown if an external storage device is detected.

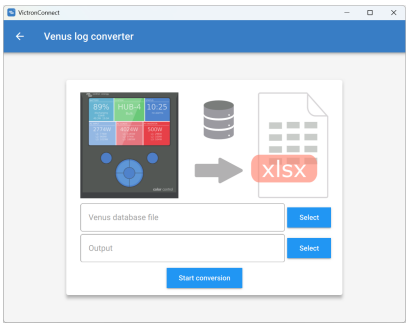
- You can now remove the external storage device from the GX device and connect it to your computer.

Copy the database file (.sqlite file located in the root directory of the memory stick) to the local hard drive of the computer.

- Open VictronConnect on your computer.
- Click the three bars menu at the top left of the VictronConnect window to open the side menu.
- Select "Venus log converter" from the side menu.



- Click the "Select" button beside the "Venus database file" box.
- Navigate to the database file (.sqlite), which you copied onto your hard drive earlier on.
- The second "Select" button will allow you to choose a location for the Output file (.xlsx).
- Click the "Start conversion" button.



There is no upper limit to the size of the database that you can import, and it can potentially be many years of data, so please be patient during the conversion process.

This process does not require an internet connection, it can be done remotely on site, and your data will never come into contact with Victron servers.

Note if you would like to use the graphical tools of VRM, it is possible to ZIP compress and upload the pre-conversion database file to VRM as well.

Here is a sample set of 1 month of data that has been converted from the .sqlite3 database to the .xlsx spreadsheet.

Sample data from VictronConnect conversion of GX device database

6. Product alarms & errors

Behind the scenes VictronConnect has a full monitoring system which checks for alarms and errors on the connected product. As soon as an alarm or error is reported by the product, the alarm/error and its description is shown on the live data page.

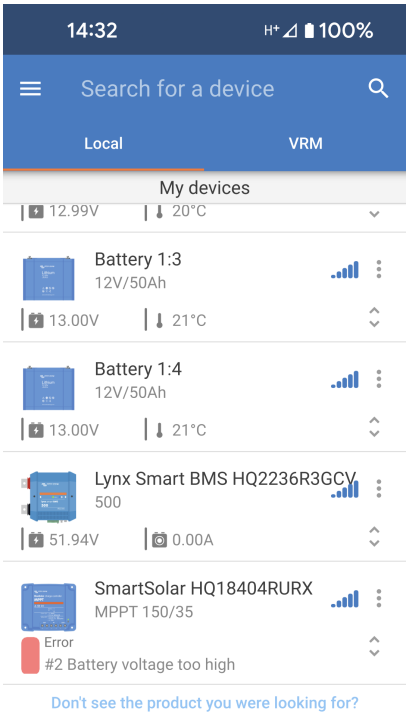
Alarms and errors are only shown when the VictronConnect app is active.

Any errors with locally connected Bluetooth devices can be displayed on the device list page.

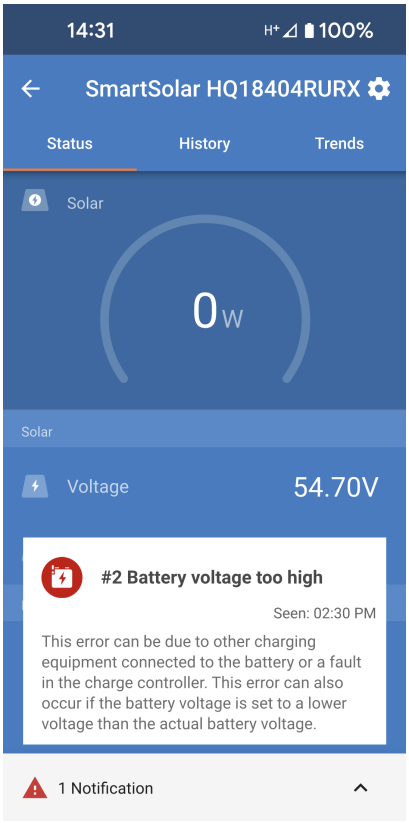
For errors to show in the device list page, "Instant readout via Bluetooth" needs to be enabled.

In this example, there is currently an error with the SmartSolar device at the bottom of the list.

Tap the device to connect to it.

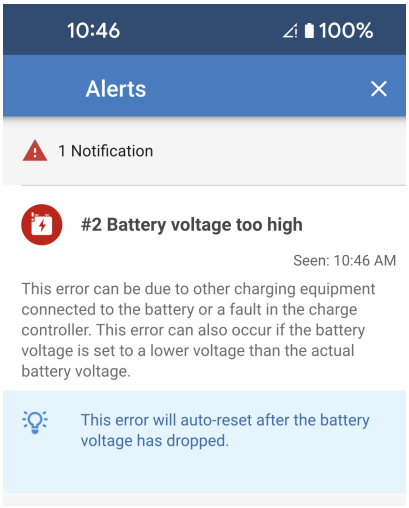


On the main page of the SmartSolar, a popup is displayed at the bottom. There is a timestamp and a description of the error.



If you tap on the error popup or the notification area, then a more detailed description and a often a tip will be displayed.

The X at the top right of this page will minimize the error to the notification area.

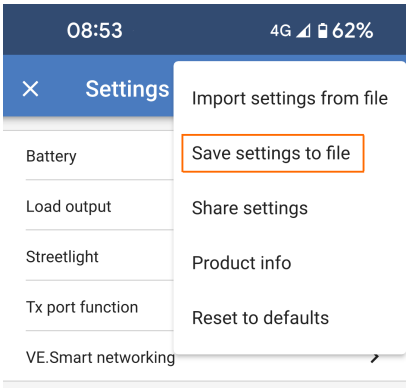


7. Settings files

7.1. Save, load, share and manage settings

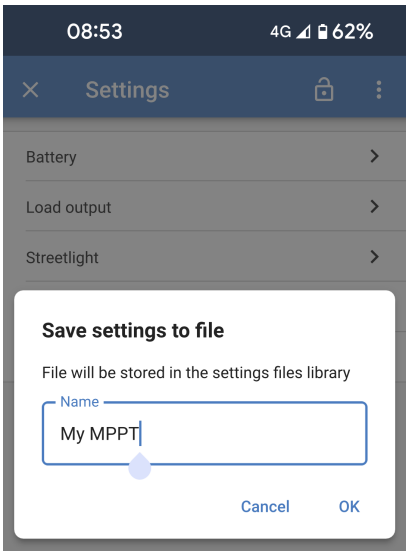
This feature allows you to save product settings to a file so that they can be loaded onto the Victron product you are connected to at a later time. You can also load the settings file in to another product of the same model.

Save settings



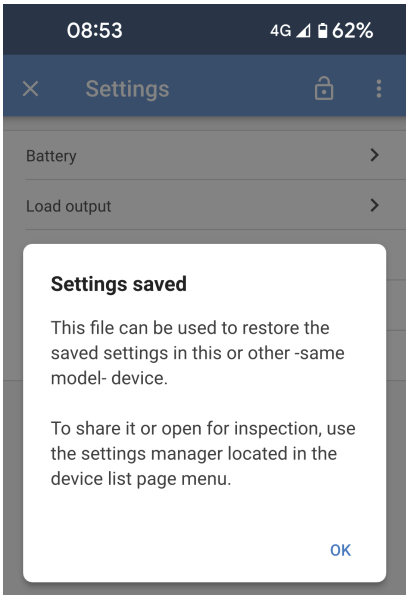
Once connected to your Victron product, go to the settings page.

- Tap the three dots menu at the top right.
- Select "Save settings to file" from the menu.



- Provide a file name for the settings file and then tap OK.

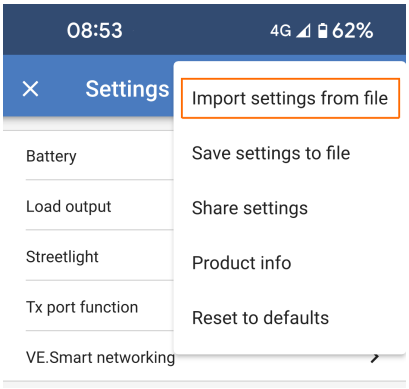
A confirmation box will appear once the settings have been saved.



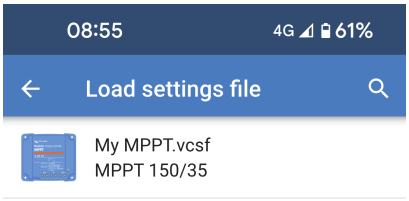
Load settings

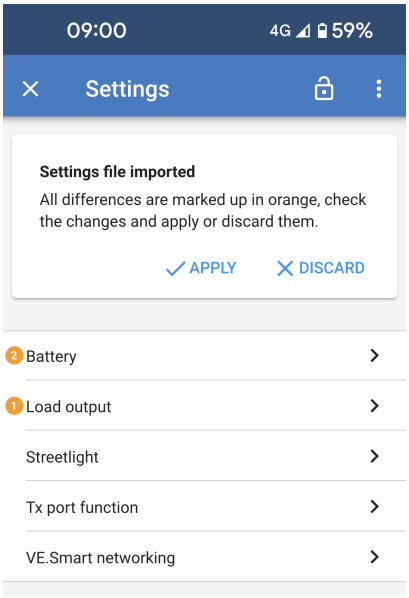
Once connected to your Victron product, go to the settings page.

- Tap the three dots menu at the top right.
- Select "Import settings from file" from the menu.



- Choose the settings file from the list.



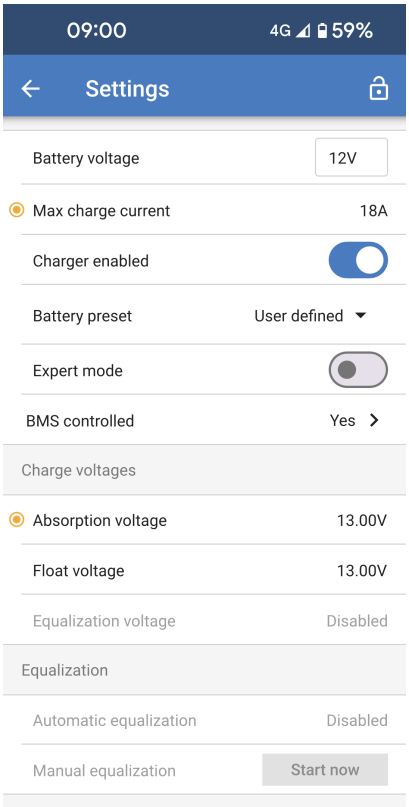


Once the settings file has been imported, any changes will be marked with an orange circle to the left of the settings category.

The number within the orange circle shows how many settings will be changed in that category.

- Tap apply if you are happy with the settings.
- You can choose to discard the changes.

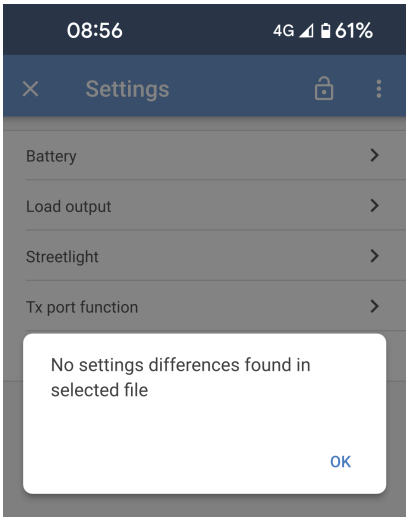
> Changes in the settings file won't take effect until after you review them (if needed) and you select 'Apply.'



If you want to confirm which settings will be applied, you can drill down into a category to see which settings will be changed.

Settings marked with an orange dot will be changed. The values shown will be the new values if you apply the settings file.

If the loaded settings file has no differences to the existing settings on the product then this notification will be shown.

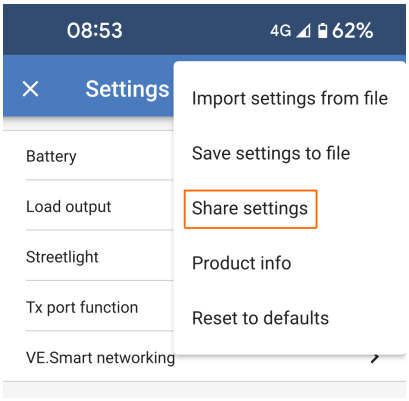


Share settings

A settings file can be shared using various platforms.

- Choose "Share settings" from the three dots menu at the top right of the settings page.

A system popup will be launched allowing you to select a platform by which to share the settings file. The platforms available will depend upon which ones you have currently got installed on your Android or iOS device.



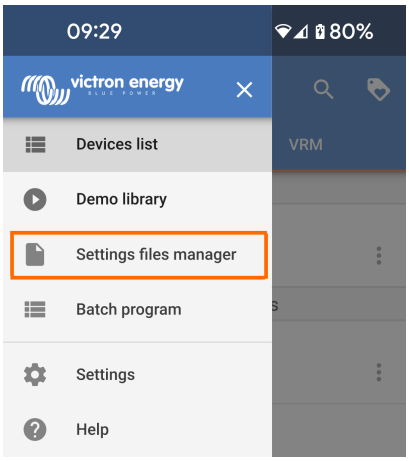
The 'Share settings' feature allows you to share the current product settings with other products, using your phone. Also, settings you have already saved using VictronConnect are stored in a settings file and can be shared with other products through the 'Settings file manager'.

Settings file manager

The Settings file manager is located in the main menu, and shows all stored settings:

The Settings files manager can be launched from the main page.

- Tap the "hamburger" menu at the top left of the main device list page in VictronConnect.
- Select "Settings files manager" from the context menu.

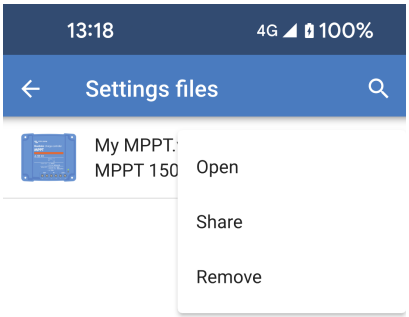


Any settings files that you have created appear in this list.

- Tap the three dots to the right of any settings file to open a menu of actions.
- "Open" will open the settings file. More details in the next screenshot.

> You can also open a settings file by tapping on it directly.

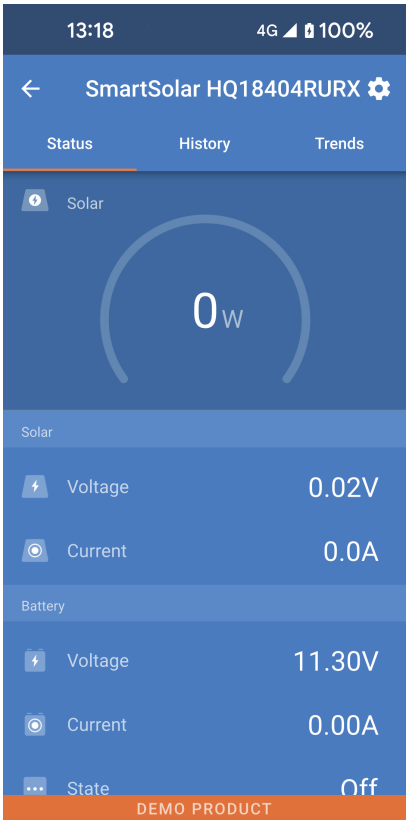
- "Share" allows you to share the file using different platforms.
- "Remove" to delete the settings file from the list. A warning dialog box will pop up first.



When a settings file is opened, it will load the file and display a demo product screen as if you were connected to a physical product.

> Note the "DEMO PRODUCT" orange bar at the bottom of the screen, as a reminder that you are not connected to a physical product.

It is possible to change settings in the open settings file and then save it again. You can save it as a different name, otherwise using the same name will overwrite the existing file.



7.2. Settings files and the demo library

The demo library's products can serve as templates for creating sets of settings files that can later be shared and applied to other users' products.

> It is not possible to load settings from within the demo library.

7.3. Limitation when opening older settings files

There are two ways to open a previously saved settings file:

1. **Via the Settings File Manager**

   As shown in the screenshot above, this option lets you view the settings without being connected to the product. A full snapshot of all settings — as well as voltage readings, history data, and other information — will be loaded and available for inspection.

2. **Via the Product Settings Pages**

   This option is only available when you are connected to the product.

The first method only works if the settings file was created with the *exact same* software version you are using now.

If the file was created with an older software version, use the second method instead: connect to the same product and then load the settings file.

8. Demo feature

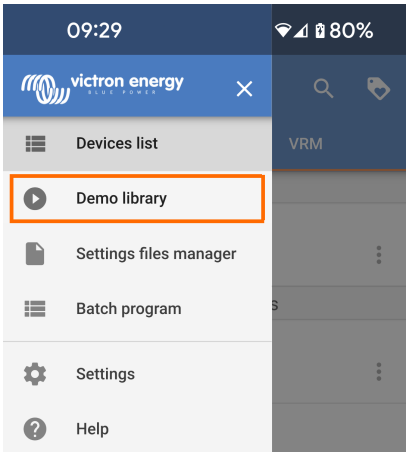
VictronConnect contains a library with demonstration settings for all the supported products.

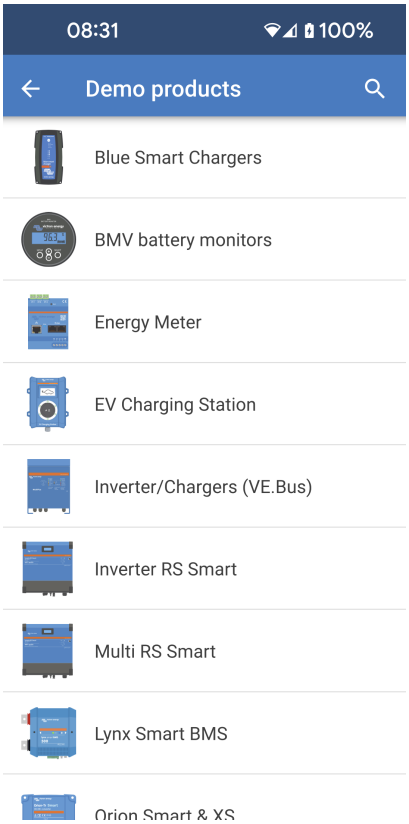
The demo feature can be used to:

- Learn about the settings which are available on your Victron product. By exploring the library's example-settings you will discover the full capability of your product.
- Create a specific product setup, save it …and then send it to a customer so that they have those settings on their phone, and can install them on their Victron product.
- Besides loading products from the standard library, it is also possible to load them from a saved file using the 'Settings file manager'.
- Review settings made to your installations, make changes, and then send them to whoever is on-site so that they can apply them.

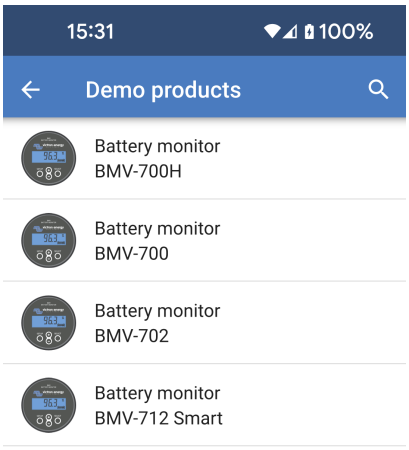
Loading demos

- Select the Demo library from the main menu.



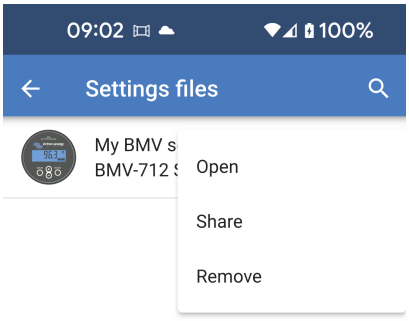


- Choose a product range from the list.
- Alternatively, tap the magnifying glass at the top right to search for a product name.



- Pick a model to proceed.

A saved settings file can be loaded as a demo.



- Go to the 'Settings file manager', click on the file's menu button, and select “Open”.

9. Firmware updates

9.1. Introduction & automatic updates

In order to perform firmware updates on VE.Bus products, such as MultiPlus and Quattro, please follow this separate Firmware guide for updating products such as MultiPlus and Quattro that use a VE.Bus connection.

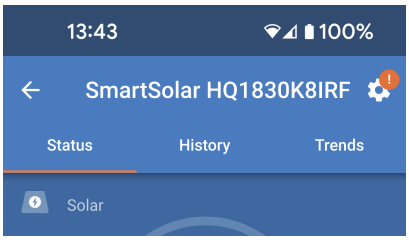
You'll need a MK3-USB adaptor to be able to connect to VE.Bus products.

Firmware updates can be done offline, an internet connection is not required. The latest version of VictronConnect includes the most recent product firmware files available at the time of its release.

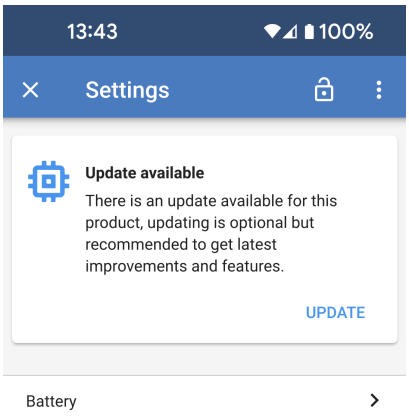
Some firmware versions are mandatory. When you connect to the product, VictronConnect will prompt to update immediately in case there is a mandatory version available.

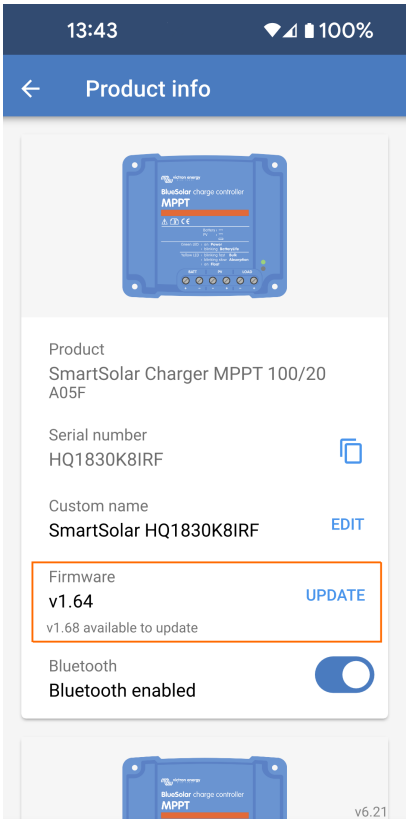
Settings and historical data, if applicable, are preserved.

If you connect to your product, and a firmware update is available, an orange exclamation may appear over the settings cog at the top right of the Status page.



- Tap the settings cog and an "Update available" banner will be shown above the settings options.
- If you would like to install the firmware update now, simply tap the UPDATE text at the bottom right of the banner.





You can also check the current firmware version of a product:

- Tap the three dots at the top right of the settings menu
- Choose "Product info".
- The Product info page will show the current firmware version. If a newer firmware version is available, then the new version number will be shown just below.

  You can choose to update now using the blue UPDATE text.

9.2. Updating to a self-supplied firmware file

In addition to automatic updates, you can manually update the firmware using a self-supplied firmware file.

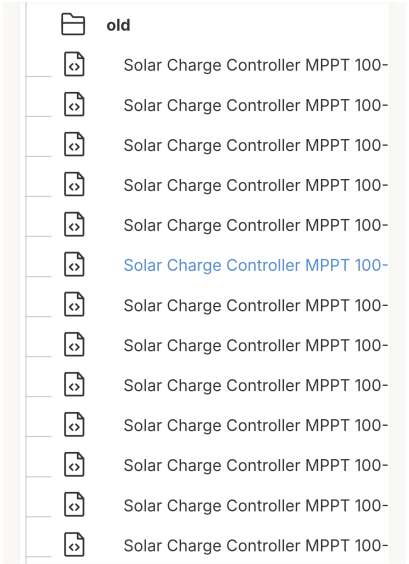
You typically don't need to perform a manual update except in the following cases:

- Update to a more recent version, that's available on Victron Professional but not shipped with the current version of VictronConnect. You only need to perform a manual update if you don't want to wait for the next release of VictronConnect.
- Update a product to a special or unreleased version.

Manual update process for mobile devices

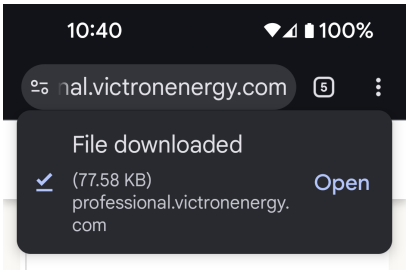
Make sure that the VictronConnect app is running. Once it is opened, you can switch to the app to download the firmware file.

This example shows downloading the firmware file from Victron Professional.



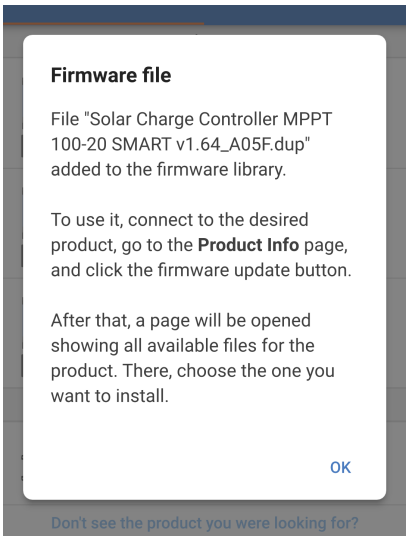
- Select the firmware file that matches your specific product model to download it.

- Once the file has downloaded, you can open it.
- If asked, choose to open with VictronConnect



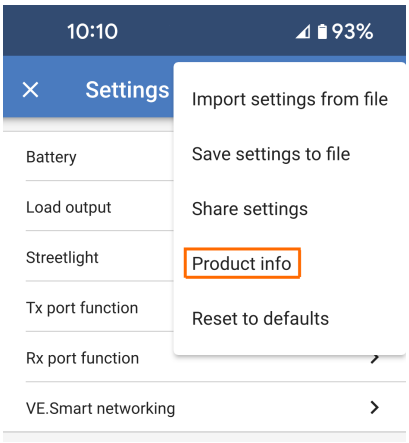
> Depending upon your device's security settings, you might not be able to open the file directly from the browser.
>
> In this case, open the file from within your device's file browser instead.

When the file opens in VictronConnect, a popup will confirm that the file has been added to the library.

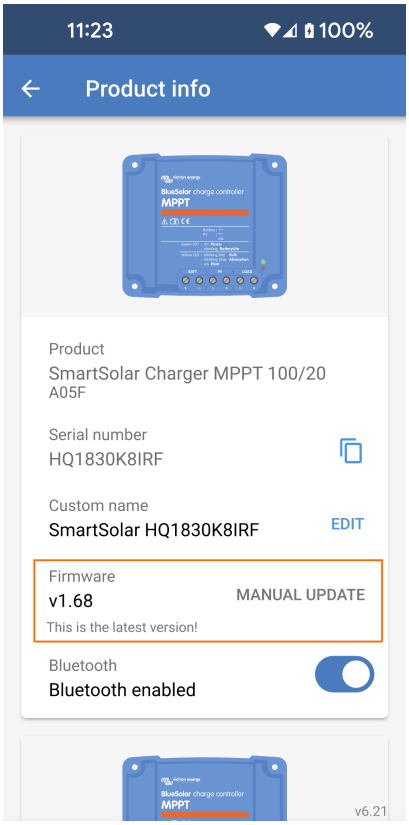


- Tap OK to close the popup box.

Now go to the product info page:

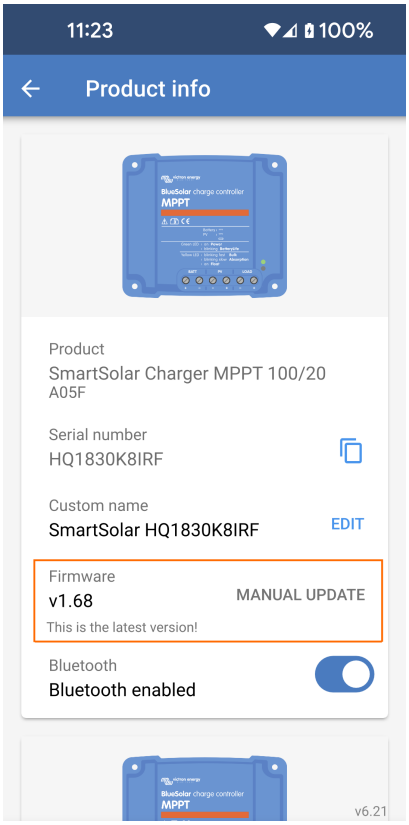


- Go to settings.
- Tap the three dots at the top right of the settings page.
- Choose Product info from the menu.



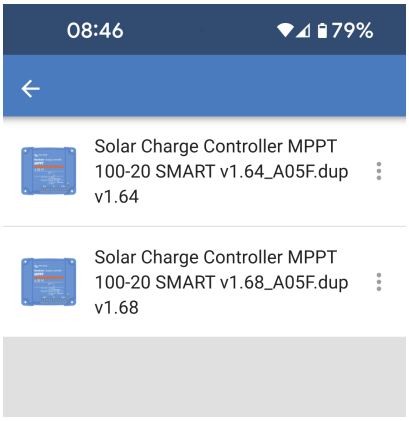
- Tap the MANUAL UPDATE button to do a manual update.

In this example, the firmware is up-to-date. If the firmware is not currently up-to-date, then you might just see an UPDATE button instead.



- Tap the MANUAL UPDATE button to do a manual update.

In this example, the firmware is up-to-date. If the firmware is not currently up-to-date, then you might just see an UPDATE button instead.



- Choose the firmware file that you want to update to.

> The file list will only display firmware files which match the product you are connected to.



The Firmware update page shows the current firmware version and the new version to be installed.

- Tap Update to begin installing the new firmware version.



Once the firmware update is complete, you will return to the Device list page.

Don't leave the app while update is in progress and stay close to the device.

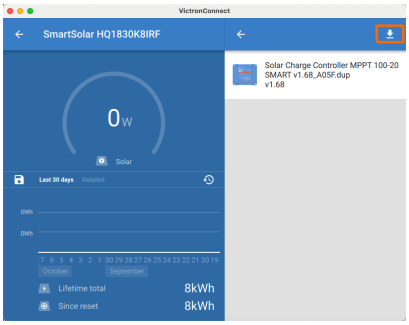
Incoming phone calls will not interrupt the firmware update but it is recommended to not answer calls during the update process.
In case the update is interrupted it's always possible to finish it later: no need to worry. Internet is not needed for this update.

Manual update for Windows and MacOS computers

You can also do firmware upgrades from Windows or MacOS computers.

The process is similar to that for mobile devices described above.

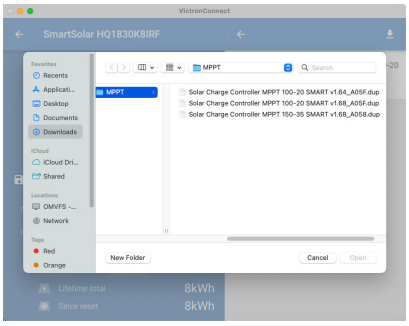
With your computer and Victron product connected to VictronConnect, go to the “Product info” page, click on “Update” and open the correct firmware file.



With your computer and Victron product connected to VictronConnect, go to the “Product info” page, click on “Update”.

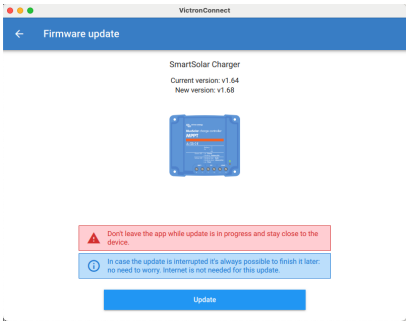
Any applicable firmware files in the VictronConnect library will be visible.

- Click the download button at the top right to update manually.



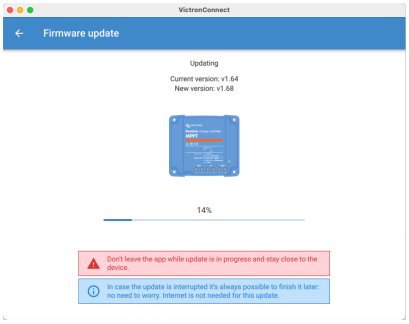
A system file browser window will open where you can choose the correct firmware file.

Be careful when choosing a firmware file from the system file browser, as all firmware files in a folder will be displayed, not only those compatible with the connected product.



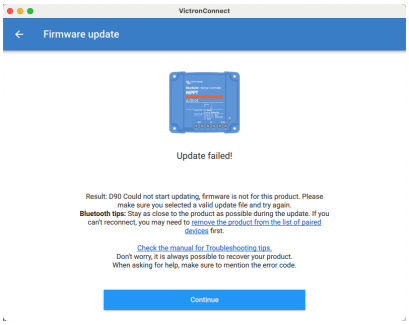
After you have selected a firmware file, the Firmware update screen will show the current version and the new version.

- Click the Update button at the bottom of the screen to begin the update process.



A progress bar will show the update's progress.

Once the firmware update is complete, you will return to the Device list page.



If you select an incompatible firmware file, an 'Update Failed' screen will display the reason.

The product will not be updated and you can start the update process again with a different firmware file.

- Click the Continue button to return to the Device list page.

9.3. Troubleshooting firmware updates

A troubleshooting guide relevant to firmware updates can be found in chapter 11.3 [92]

9.4. Error codes

Despite our best efforts, errors can sometimes occur. Don’t worry — you can always recover your product.

In most cases, errors are caused by communication problems. Always make sure to check all cable connections and, if you are using Bluetooth, stay as close to the product as possible and check that the Bluetooth function is enabled on your phone. Sometimes you may need to remove the Bluetooth pairing information from your phone [5] in order to be able to reconnect with your product.

Check chapter 10.3 [40] of this manual for Troubleshooting firmware updates. When asking for help, make sure to always mention the error code.

VE.Direct products

Error	Description
D3	No VE.Direct product(s) found.
D4	Unknown error occurred. Try again and check the product settings once updated.
D10	Error closing com port.
D20	Could not start updating, no updatable product found.
D26	Updating failed, communication lost. The product might be unusable. Check connection and power supply. Try again and check the product settings once updated.

Error	Description
D29	Could not start updating, the firmware file is corrupt.
D31	Updating failed, the product is unusable. Try again and check the product settings once updated.
D32	Could not start updating, entering boot mode failed.
D33	Could not start updating, the firmware file is not found.
D90	Could not start updating, the firmware is not for this product.
D91	Could not start updating, an unknown product was found.
D92	Updating failed, erasing firmware failed. The product might be unusable. Try again and check the product settings once updated.
D93	Error starting firmware after updating. Power cycle (off/on) your product and if that does not help, try updating again, and check the product settings once updated.
D94	Product updated successfully, but an error occurred reading the previous settings. Check the product settings.
D95	Product updated successfully, but an error occurred restoring the previous settings. Check the product settings.
D96	Updating failed due to version mismatch. Power cycle (off/on) your product and if that does not help try updating again, and check the product settings once updated.
D97	Dup executable too old.
D98	Firmware file is not a valid dup file.
D99	Product updated successfully, but an error occurred restoring the settings. Check the product settings.
D100	Cannot migrate settings because the application is not active. Manual action required.

Blue Smart Charger, Smart Lithium, and VE.Direct Bluetooth Smart dongle

Error	Description
B1	Error reading file.
B2	Victron BLE service not found. Please remove the product from the list of paired devices and retry.
B3	Dfu BLE service not found. Please remove the product from the list of paired devices and retry.
B4	The product disconnected unexpectedly. Perhaps the bond information is no longer valid? Please remove the product from the list of paired devices and retry.
B5	A write to the device failed.
B6	The product did not activate its bootloader - although it should have.
B7	The product did not disconnect - although it should.
B8	Timeout waiting for access to the Victron BLE service.
B9	Timeout waiting for access to the Dfu BLE service.
B10	Timeout waiting for a response.
B11	Timeout while writing to the product. Perhaps a pairing dialogue is shown? Please retry.
B12	Device was no longer found. Perhaps out of range? Please retry.
B13	The product did not start the new firmware. Please try again. If you are still having problems, send a service report to Victron Energy.
B14	Could not start updating, firmware is not for this product. Please make sure you selected a valid update file and try again.
B96	An internal error occurred (Opcode not supported). Please send a service report to Victron Energy.
B97	The requested encryption is not supported by the product. Please send a service report to Victron Energy.
B98	An internal error occurred (Data size exceeds limits). Please send a service report to Victron Energy.
B99	The product could not store the firmware in its memory. Please retry, and if the problem persists, please contact Victron Energy.
B100	An internal error occurred (CRC error). Please send a service report to Victron Energy.
B101	An internal error occurred (Data length error). Please send a service report to Victron Energy.
B102	An internal error occurred (Not allowed). Please send a service report to Victron Energy.

Error	Description
B103	An internal error occurred (Unexpected data length). Please try again. "If you are still having problems, send a service report to Victron Energy.
B104	An internal error occured (Unsupported data). Please try again. If you are still having problems, send a service report to Victron Energy.
B105	An internal error occured (Version mismatch). Please try again. If you are still having problems, send a service report to Victron Energy.
B106	This firmware is too old, make sure you have the latest version and try again.

VE.Bus Products

Error	Description
V1	No product detected. Please check all the cable connections and try again.
V2	An unexpected timeout was triggered. Please check all the cable connections and try again.
V3	Incomplete vff file. Nonce missing. Please make sure you selected a valid update file and try again.
V4	Incomplete vff file. EEPROM lines missing. Please make sure you selected a valid update file and try again.
V5	The vff file contains more EEPROM data than supported. Please make sure you selected a valid update file and try again.
V6	The calibration map in the file exceeds the device calibration map. Please make sure you selected a valid update file and try again.
V7	Device calibration data size bigger than expected. Please make sure you selected a valid update file and try again.
V8	Bootloader did not respond to bootloader setup. Please check all the cable connections and try again.
V9	Bootloader response to version request failed.
V10	Incompatible bootblock. Function version invalid.
V11	Incompatible bootblock. Version invalid.
V12	Bootloader did not start after bootblock update.
V13	Incompatible bootblock type.
V14	No or unexpected response to target id query.
V15	No or unexpected response to EEPROM read action.
V16	No or unexpected response to calibration map query.
V17	The supplied firmware contains new unsupported calibration values. The updater does not know how to handle them.
V18	No response received to EEPROM write command. Please check all the cable connections and try again.
V19	Invalid response received to EEPROM write command. Please check all the cable connections and try again.
V20	No response received to code write command. Please check all the cable connections and try again.
V21	Invalid reponse received to code write command. Please check all the cable connections and try again.
V22	The MK2/MK3 did not respond. Please check all the cable connections and try again.
V23	The connected product does not match the specified model in the file. Please make sure you selected a valid update file and try again.
V24	The hardware revision specific EEPROM defaults data is corrupt. Please make sure you selected a valid update file and try again.
V25	Updates can not be performed with a VE.BUS BMS connected.
V26	Updates can not be performed with a DMC connected.
V40	Failed to start Update. Could not allocate memory. Malloc error.
V50	Failed to start Update. File open error. Please check the file location and access permissions. Make sure you selected a valid update file and try again.
V51	Failed to start Update. File write error. Please check file location and access permissions. Make sure you selected a valid update file and try again.

Error	Description
V52	Failed to start Update. File read error. Please check file location and access permissions. Make sure you selected a valid update file and try again.
V53	Failed to start Update. File checksum error. File corrupted or not a valid VFF file. Please make sure you selected a valid update file and try again.
V54	Failed to start Update. File has an incompatible version number. Please make sure you selected a valid update file and try again.
V55	Failed to start Update. File section not found. File corrupted or not a valid VFF file. Please make sure you selected a valid update file and try again.
V56	Failed to start Update. Format error. File corrupted or not a valid VFF file. Please make sure you selected a valid update file and try again.

All other products (XUP update files)

Error	Description
X51	Invalid updater state. Please try again.
X52	File Error. No Product Id found in the update file. Please make sure you selected a valid update file and try again.
X53	File Error. No VE.Direct baudrates found in the update file. Please make sure you selected a valid update file and try again.
X54	File Error. No Xup Format Version found in the update file. Please make sure you selected a valid update file and try again.
X55	File Error. No Minimum Updater Version found in the update file. Please make sure you selected a valid update file and try again.
X56	File Error. No Firmware (product) Version found in the update file. Please make sure you selected a valid update file and try again.
X57	File Error. No Instance Blob could be found in the update file. Please make sure you selected a valid update file and try again.
X58	File Error. Invalid instance Blob attribute. Please make sure you selected a valid update file and try again.
X60	File Error. Instance Blob defined more than once. Please make sure you selected a valid update file and try again.
X61	File Error. No Firmware Version for instance found in the update file. Please make sure you selected a valid update file and try again.
X62	File Error. The update file does not match XML standard. Please make sure you selected a valid update file and try again.
X63	File Error. No/invalid Firmware data found for instance in the update file. Please make sure you selected a valid update file and try again.
X64	Update (xup) file format not supported. Please make sure you selected a valid update file and try again.
X65	Updater (version) too old.
X66	Firmware not for Product (Id). Please make sure you selected a valid update file and try again.
X67	Communication Error. No Callback handler connected. Please check the connection and try again.
X68	Communication Error. Vreg ack-ed with an unexpected error. Please check the connection and try again.
X69	Communication Error. Unexpected Vreg Ack received. Please check the connection and try again.
X70	Communication Error. The instance could not be reached. Please check the connection and try again.
X71	Fail on Minimum Firmware Version check. Please make sure you selected a valid update file and try again.
X72	Failed to Begin Update. Please check the connection and try again.
X73	Update Error. Invalid Ack on non-final Update Data. Please check the connection and try again.
X74	Update Error. Invalid sequence# in Update Data Ack. Please check the connection and try again.
X75	Update Error. Invalid instance# in Update Data Ack. Please check the connection and try again.
X76	Update Error. Invalid Ack on final Update Data. Please check the connection and try again
X77	Verification Error. Invalid Firmware Version Ack. Please check the connection and try again.
X78	Verification Error. Invalid UDF Version Ack. Please check the connection and try again.

Error	Description
X79	Verification Error. Invalid instance field in Minimum Firmware Version Ack. Please check the connection and try again.
X80	Verification Error. Invalid instance field in Firmware Version Ack. Please check the connection and try again.
X81	Verification Error. Invalid instance field in UDF Version Ack. Please check the connection and try again.
X82	Failed to verify Minimum Firmware Version. Please check the connection and try again.
X83	Failed to verify Firmware Version. Please check the connection and try again.
X84	Failed to verify UDF Version. Please check the connection and try again.
X85	Failed on Minimum Firmware Version verification. Please check the connection and try again.
X86	Failed on Firmware Version verification. Please check the connection and try again.
X87	Still in Bootloader Mode after the update. Please try again.
X88	Communication Error. Vreg Ack timeout. Please check the connection and try again.
X89	Communication Error. No product found. Please check the connection and try again.
X90	Communication Error. Comm port error. Please check the connection and try again.
X91	Update Error. Failed to set baudrate. Please check the connection and try again.
X92	Update Error. Update in progress on another interface.
X93	Update Error. Invalid instance# in Ack. Please check the connection and try again.
X94	Update Error. Vreg Ack error: Invalid instance. Please check the connection and try again.
X95	Update Error. Vreg Ack error. Please check the connection, power cycle the product and try again.
X96	Communication Error. CAN Network address error. Please check the connection, power cycle the product and try again.

10. VictronConnect-Remote (VC-R) – Configuration and monitoring via VRM

10.1. Introduction

VictronConnect-Remote functionality enables Victron products with a VE.Direct or a VE.Can-only interface to be accessed remotely through a GX product, via the VRM online portal.

This powerful feature allows full product configuration and monitoring from practically anywhere in the world using the VictronConnect app.

The user interface experience is just like the products were connected locally using Bluetooth or a wired VE.Direct to USB interface.

A video demonstrating the feature is available here:

https://www.youtube.com/embed/9P2W4FmTvbY

10.2. Compatibility

The VictronConnect-Remote feature is compatible with products connected to a GX product which use a VE.Direct, VE.Can, or VE.Bus interface.



Products connected via VE.Bus interface, such as MultiPlus/Quattro inverter/chargers and larger Inverters, can only display their overview and details pages. Their settings cannot be changed; use Remote VEConfigure to configure these products remotely.

The following devices are not supported:

- BlueSolar VE.Can MPPT 150/70 and 150/85
- Lynx Ion and Lynx Ion + Shunt
- Lynx Ion BMS 150A, 400A, 600A, 1000A

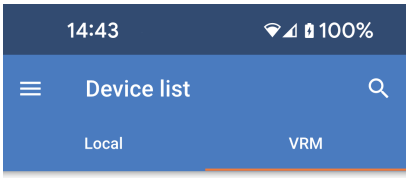
10.3. Setup

10.3.1. Minimum Requirements

- VictronConnect SW: v5.20
- GX Product- Venus OS FW: v2.40 (However v2.53 recommended for full functionality)

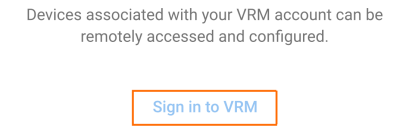
10.3.2. VictronConnect

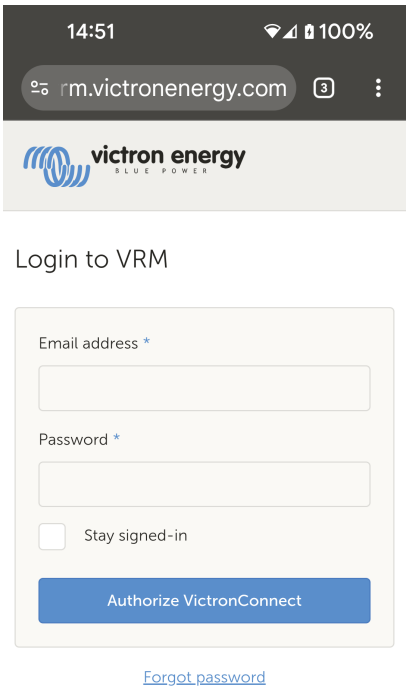
Ensure that your device has VictronConnect installed that meets the minimum version requirements. The latest version is recommended.



To authorize VictronConnect to use your VRM account:

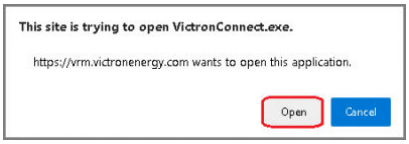
- Open the VictronConnect app.
- Tap the VRM tab on the right.
- Tap "Sign in to VRM"





A browser tab will open.

- Fill in the email address associated with your VRM account and your VRM password.
- Tick "Stay signed-in" if you wish.



If you are using a tablet or PC, your browser may request permission to open VictronConnect.

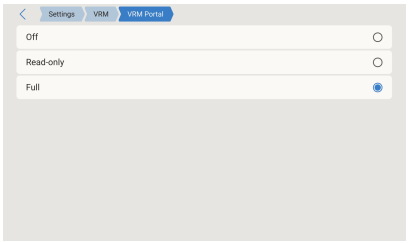
- Click open to proceed.

10.3.3. GX Product

Confirm that the GX Product is running Venus OS firmware version that meets or exceeds the minimum requirements - upgrade if necessary.

Your GX device needs to have full, two-way communication with VRM.

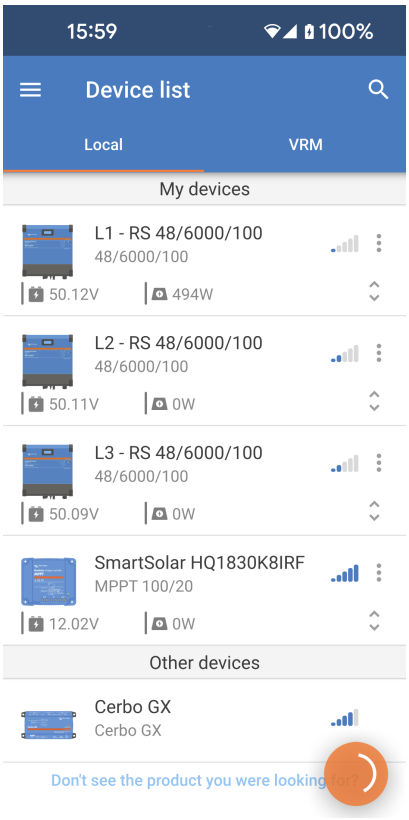
- Select "Full" in the VRM settings menu.



For the older "v1 GUI" you can find the same settings under Device List > Settings > VRM online portal > VRM Portal.

10.4. Local Tab

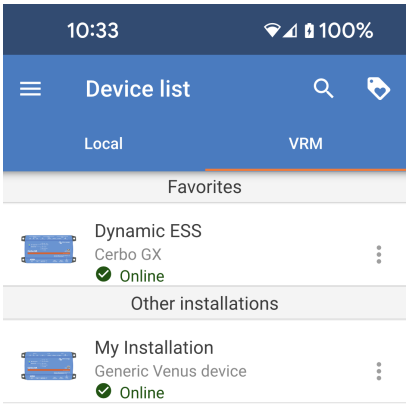
The local tab displays all products that are within local Bluetooth range, on the same LAN or physically connected to the device with VictronConnect (such as with a VE.Direct to USB or MK3 to USB interface cable).



10.5. VRM Tab

The VRM tab displays all VRM installations associated with the VRM user profile.

The VRM tab displays all installations that are associated with the logged-in VRM profile.

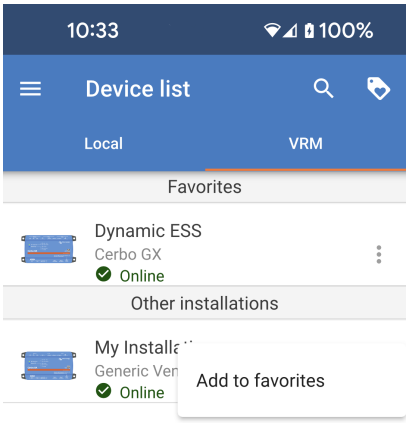


You can add installations as favorites.

Installations added to favorites here will also be marked as favorites in VRM. Similarly, installations marked as favorites in VRM will appear in the Favourites section here.

- Tap the three dots at the right of the installation and "Add to favorites".

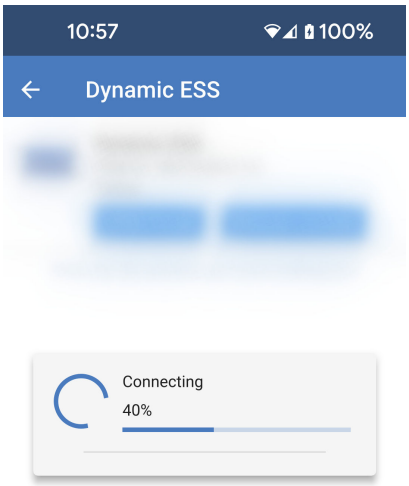
Installations already in your Favourites can be removed by tapping the three dots and selecting "Remove from Favourites".



Any installation in the list can be selected to access its VRM portal and to show a list of connected products.

- Tap on any installation to connect to it.

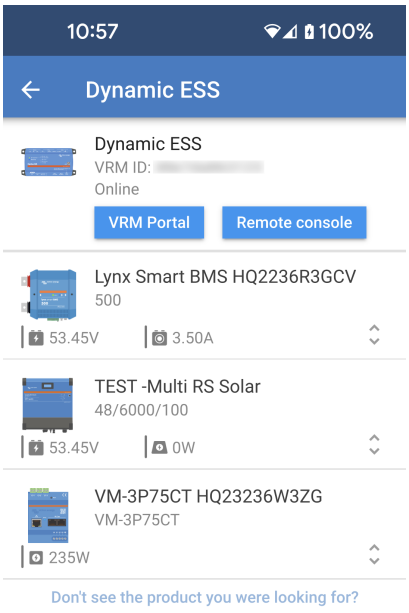
VictronConnect will then connect to the selected installation.



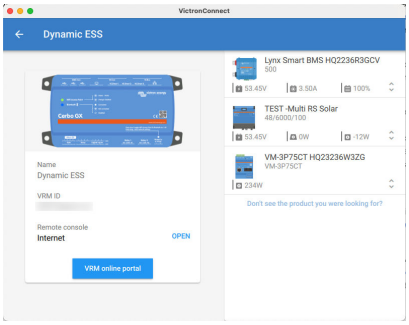
Once connected, the installation and its associated products will be listed.

At the top is the list will be the installation name, this is essentially the GX device. The blue buttons allow access to the VRM Portal or Remote console.

Any products connected to the GX device will be listed below it.

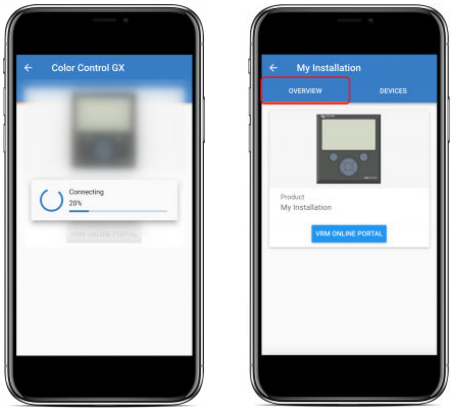


If you are using a tablet or PC, the layout will be slightly different, with the devices listed on the right.



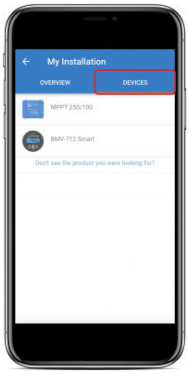
10.5.1. Overview Tab

The ‘OVERVIEW’ tab has an image of the GX product, the name of the VRM installation, and a direct link to the associated VRM Online Portal.

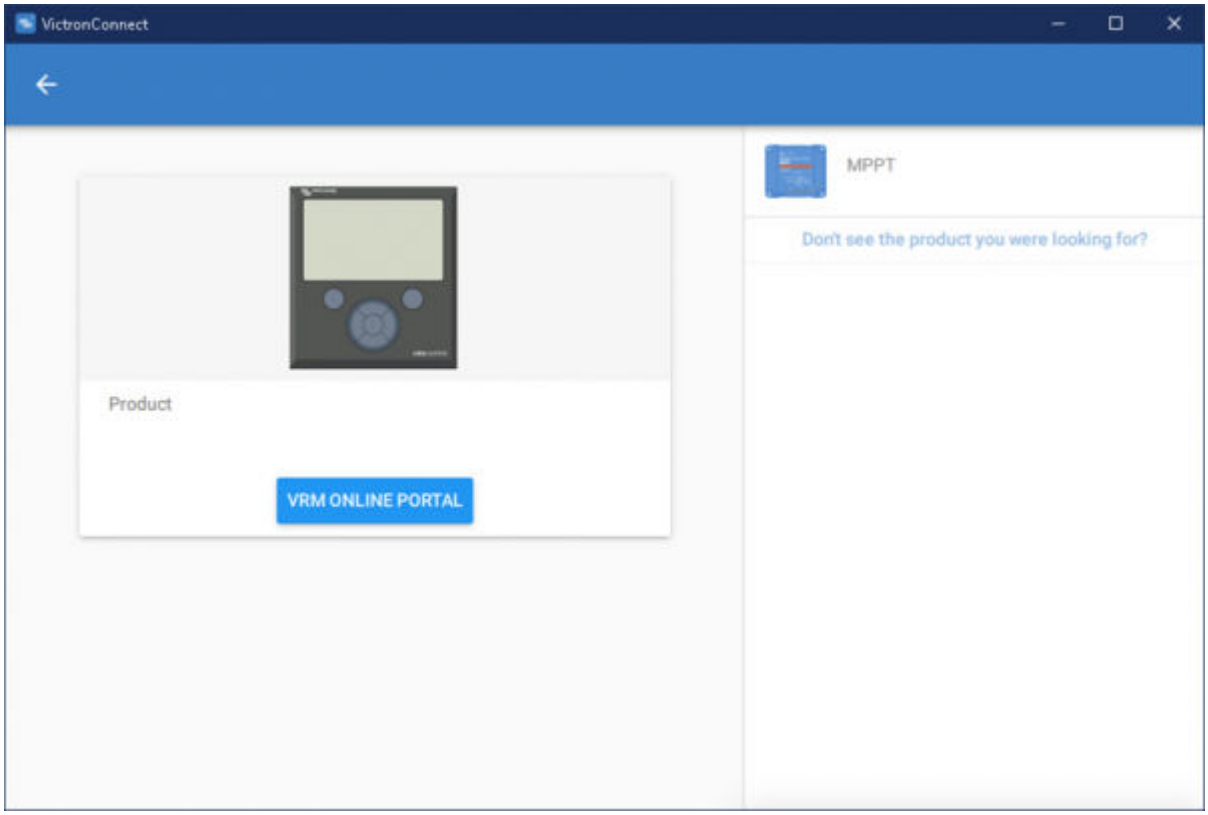


10.5.2. Devices Tab

The ‘DEVICES’ tab has a list of all compatible products that are physically connected to the GX product.



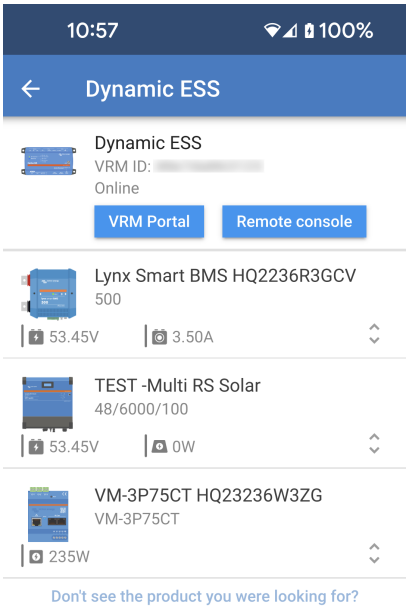
If using a tablet or PC, the ‘DEVICES’ tab is shown as a panel on the right side of the same screen.

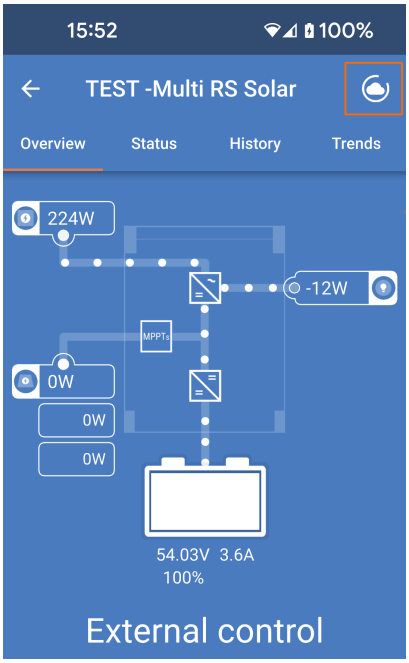


10.6. Remote product access

You can select a product from the list and access it as if it were connected locally.

- Tap on one of the products from the list.

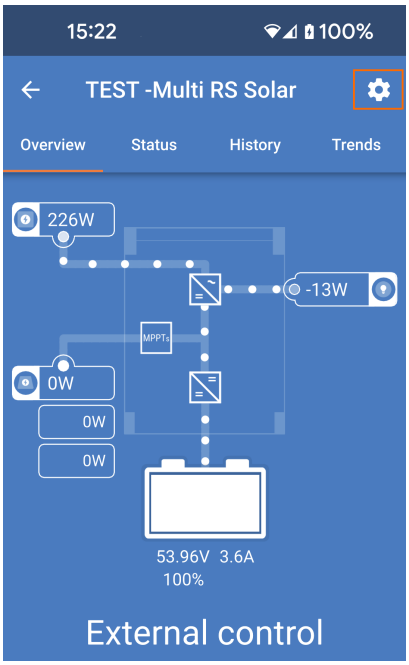




The product will begin loading, and you may notice the tabs appearing one by one.

Loading times depend on the speed of your internet connection to the installation.

The settings cog in the top-right corner will not be available until all the settings have loaded. The cloud symbol with animated circle indicates that the settings are loading.



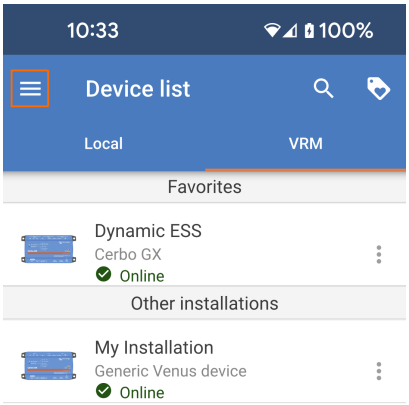
Once the product is fully loaded, the settings cog appears in the top-right corner.

- Tap the settings cog to adjust the device settings.

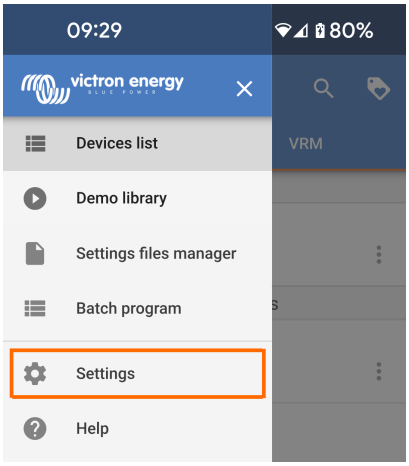
10.7. Signing out

Signing out disables the link between VictronConnect-Remote and your VRM account.

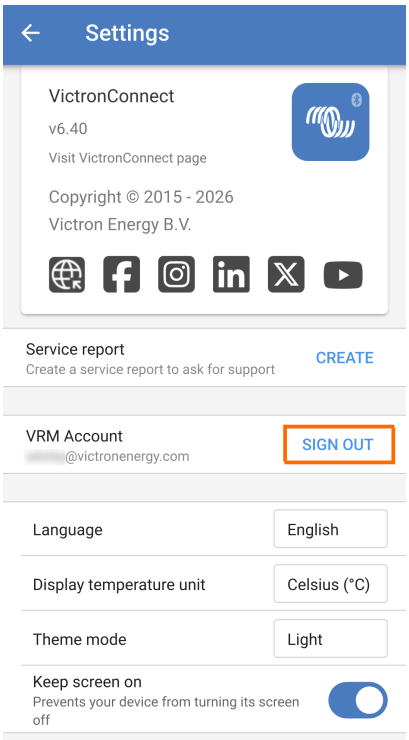
- Tap the hamburger menu in the top-left corner of the main page.

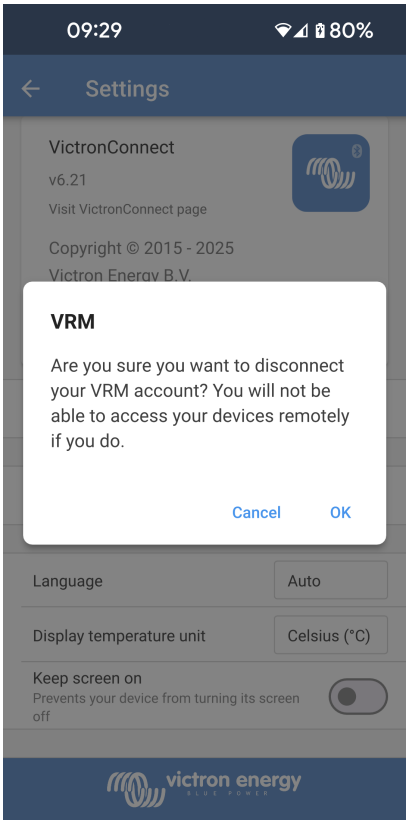


- Select Settings.



- Now tap the SIGN OUT button in the VRM Account section.





A confirmation box will appear.

- Choose OK to confirm sign-out.

After signing out, VictronConnect will no longer be able to access remote installations or devices.

10.8. Troubleshooting and FAQ

Product not found

- VictronConnect-Remote is only compatible with products that use a VE.Direct or VE.Can-only interface to the GX product – see the 'compatibility' section.
- Ensure that the missing product is physically connected to the GX product, with the VE.Direct or VE.Can cable properly installed at both ends.
- Ensure that the product is running a recent firmware version.

Installation/GX product not found or offline

- Confirm that the installation is currently online and communicating with the VRM online portal.
- Ensure that the installation is linked to the VRM account used during initial VictronConnect-Remote sign in to VRM.
- Ensure that 'VRM two-way communication' is enabled – see the 'settings' section.
- Ensure that the GX product is running the minimum compatible Venus OS firmware version – see the 'settings' section.

VictronConnect has no VRM tab

- Ensure that the phone is running the minimum compatible VictronConnect software version – see the 'settings' section.

VRM account

- It is necessary to have an active VRM account linked to your installation and any others that you intend to monitor or configure using VictronConnect-Remote - creating a new account is quick and easy.
- For further information in relation to VRM (Victron Remote Management) see Getting started with VRM and the VRM online portal site.

Systems with no GX product

- VictronConnect-Remote functionality is not possible unless the system includes a GX product. A GX product can be easily added to any system and there are a range of products available.

Installations with no internet connection

- VictronConnect-Remote functionality is not possible unless the GX product at the installation site has an active internet connection.
- For remote sites without an existing internet connection or with mobile installations, a Victron GX GSM modem can be easily be added to the system in order to provide an internet connection.

Large systems

- The use of the VictronConnect-Remote feature will slightly increase the GX product CPU load.
- In some large/complex systems (with many products connected to the GX product) the CPU may already be operating at its limit and any additional CPU load could exceed its capability - this will typically be recognisable by slow user interface response and/or unexpected system reboots.
- It is important to select a GX product that has sufficient performance capability in relation to the system design, for example, a Cerbo GX has significantly more processing power than a Color Control GX and is much better suited to large/complex systems – see the performance section in the GX product range comparison table.

VictronConnect-Remote troubleshooting

VictronConnect will report errors encountered during communication attempts with VRM in a message box with an error code. The code can have one of the following value:

Error	Description
-100	Call to retrieve a list of child devices expired (60 seconds). The most common cause is a bad internet connection.
1	No link to VRM can be established. Check if the internet is present and try again.
2	VRM encountered temporary difficulties. Try again in a while.
5	The local system ran out of resources. Free some system resources and try again.
8	An error occurred with the network (e.g., the network cable was accidentally plugged out).
13	Proxy authentication error. VictronConnect does not support communication over proxy.
14	Failed to establish a secure connection to VRM.

Error	Description
65538	VRM MQTT broker is not responding. Please try again in a while.

There are also other error codes that could be reported. They are a result of internal errors in VictronConnect and/or VRM. In case these errors persist after a retry, please create a “Service Report” and submit it for examination.

VictronConnect-Remote is establishing communication with a range of services on the 'victronenergy.com' domain. Please make sure that traffic with this domain is allowed in your firewall and internet security application.

11. Stored trends & Instant readout

11.1. Stored trends

Stored trends is a feature that records and stores data in the non-volatile memory of compatible smart devices, even during a power loss or battery disconnection.

Data is recorded every 30 minutes, providing approximately 46 days of storage. The exception is the Smart Battery Sense, which has a storage period of about 181 days.



Stored trends works if you connect to the Victron product via Bluetooth. Unfortunately, this will not work if you connect via a VE.Direct USB cable.

Currently, SmartSolar chargers, BMV-712 Smart, SmartShunt and Smart Battery Sense support stored trends. More smart devices will follow.

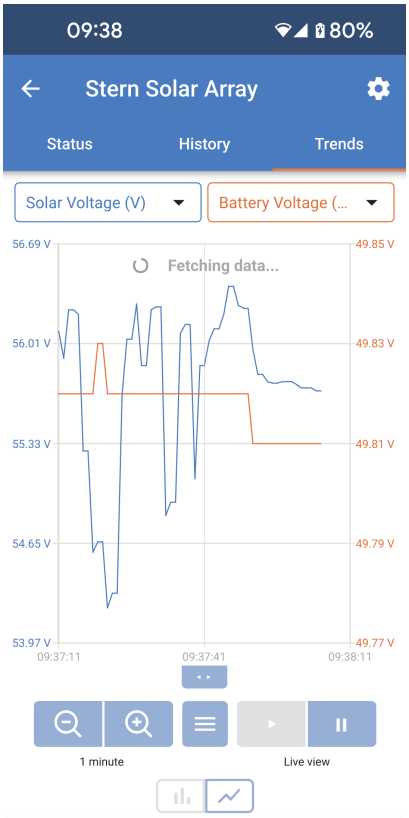


Some other products may show the Trends tab with real-time data, but the data is not stored.

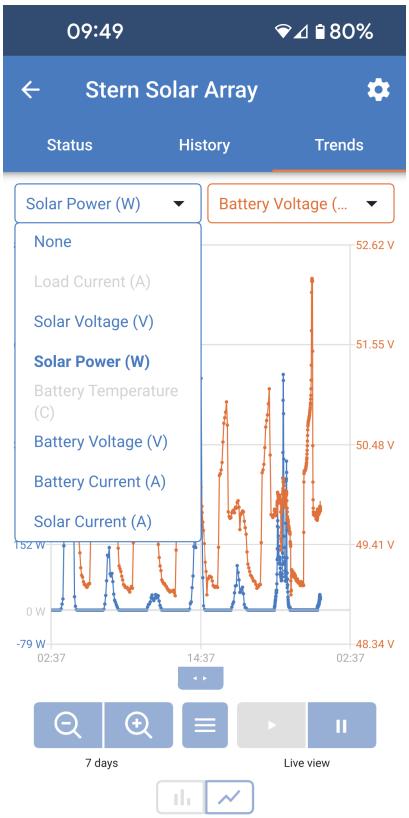
The following list of devices support stored trends, along with their parameters:

- **SmartSolar chargers:**
  - Battery voltage, current and temperature.
  - Solar voltage, current and power.
  - Load current.
- **BMV-712 Smart and SmartShunt:**
  - Battery voltage, current and State of Charge.
  - The selected Aux input parameter can be Battery temperature, midpoint voltage deviation, or starter battery voltage.
- **Smart Battery Sense:**
  - Battery voltage and temperature.

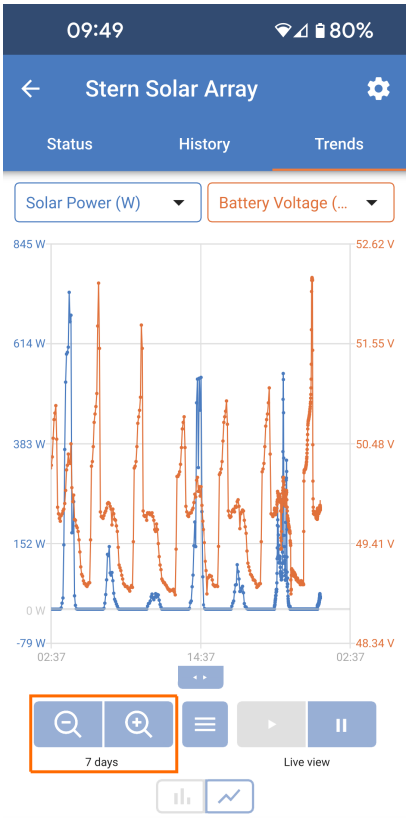
To see the stored trends, open the VictronConnect app and connect to your device.



- After your device has connected, tap the Trends tab.
  It may take a short while for the stored data to be fetched.

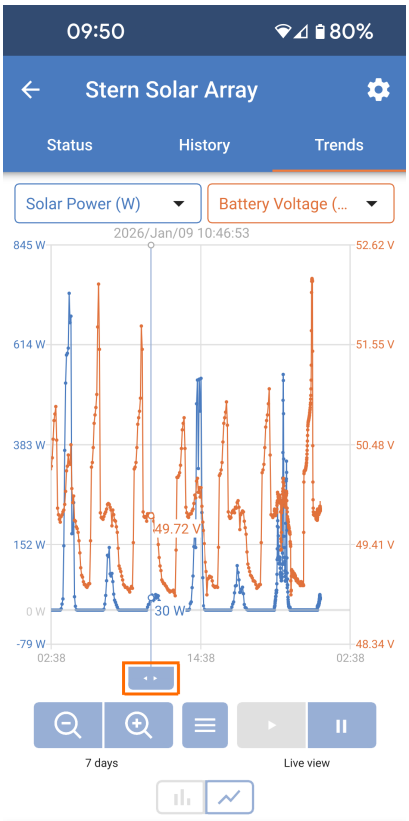


- Use the blue and orange drop down menus to select the parameters to be displayed.



- You can zoom the graph in and out using the buttons at the bottom left.

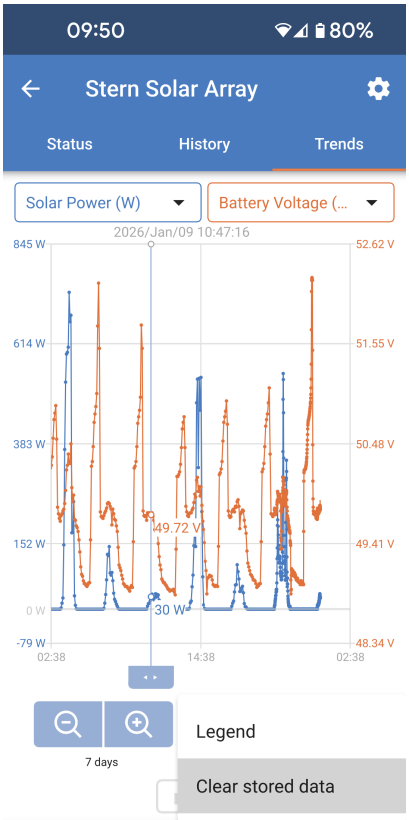
  In this example, the graph spans the last 7 days.



- Drag the slider below the graph side to side to select specific data points.

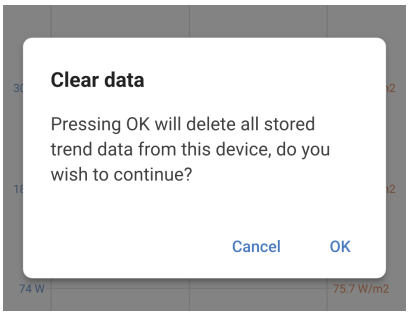
  The value of each data point is displayed beside it.

The hamburger button in the center opens a menu that allows you to view the graph's legend or clear the stored data.

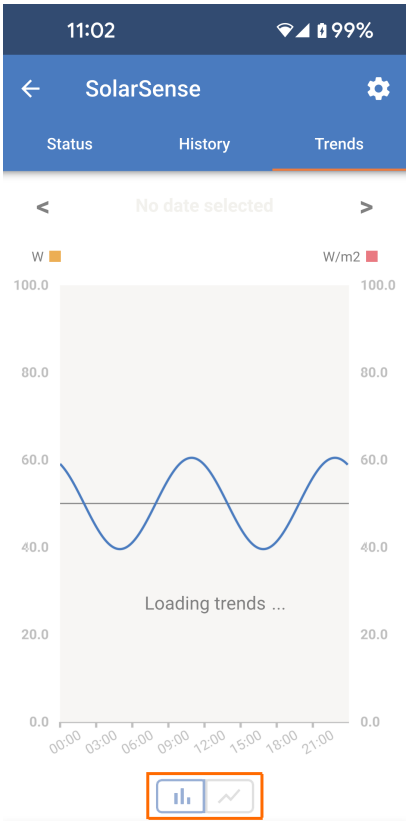


If you chose to Clear stored data, a confirmation box will appear.

- Tap OK to clear all stored data from this device.



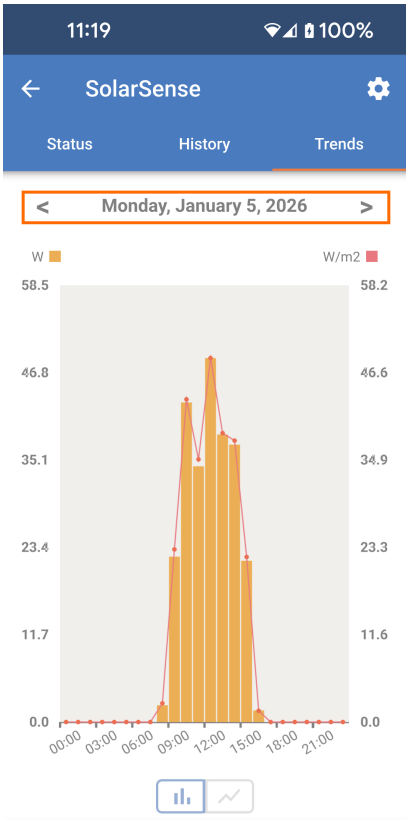
There is also an alternative view which allows stored data to be viewed over a specific day. The trends data is presented as a full day with data points for each hour.



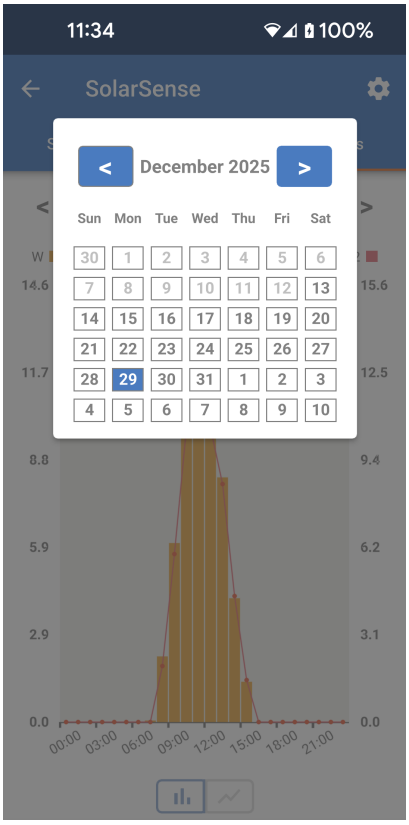
You can also view the hourly data for a specific day.

- Select this view by tapping the left button of the two at the bottom of the page.

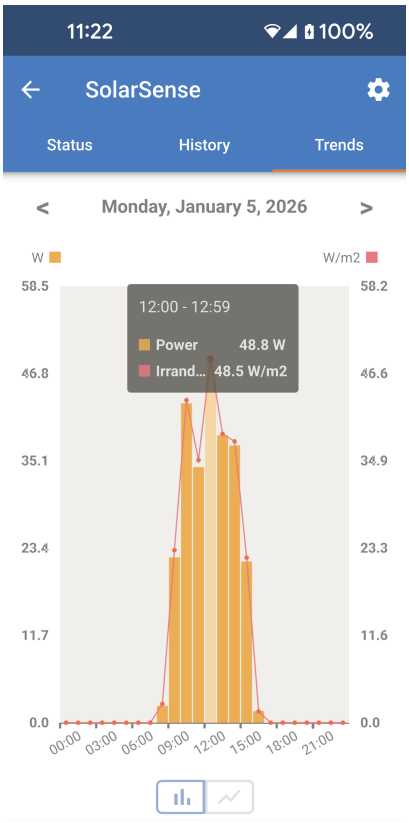
You may need to wait for the trends data to load.



- Use the arrows to the left or right of the date to view the previous or next day.



- Tap the date to open the calendar picker and select the day you want.



- A popup will appear if you touch and hold over a specific time period on the graph.

11.2. Instant Readout

VictronConnect can display key data of Smart products on the Device list page without connecting to the products. This feature provides visual notifications of warnings, alarms, and errors, enabling quick diagnostics at a glance.

There are several advantages:

- Better range than a regular Bluetooth connection.
- No need to connect to the smart product.
- Key data at a glance.
- Encrypted data.
- VE.Direct and VE.Can devices also benefit from this feature; no new firmware and no setup required. The instant readout data is automatically displayed on the VRM Devices page in VictronConnect.
- VE.Direct products also automatically display Instant readout data when using the VE.Direct to USB cable for connection to a PC or Mac.

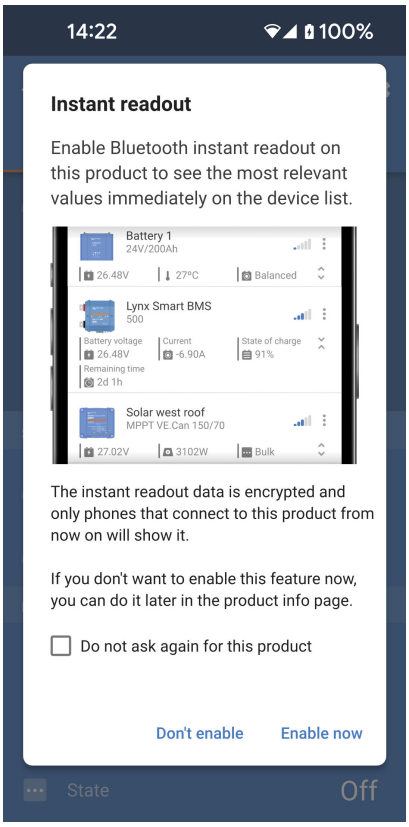
Instant readout is not enabled by default. Follow the steps below to enable it.

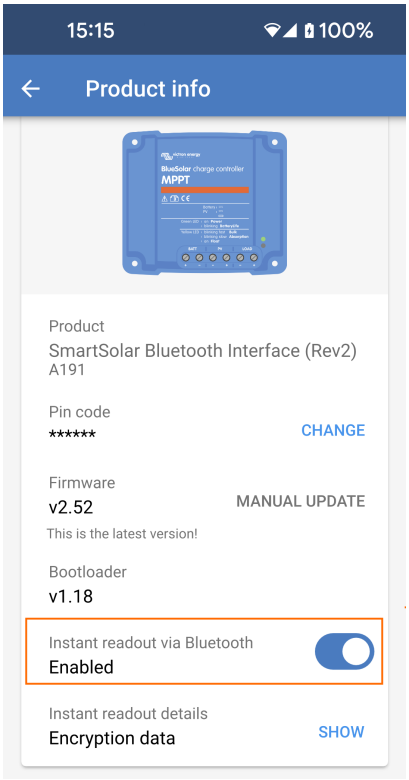
When you connect to a new product which does not have Instant readout enabled yet, then you will see a popup asking if you would like to enable it.

- Tap Enable now to enable Instant readout.
- If you don't want to enable it at this time, tap Don't enable.
- If you don't want to enable it at all, select the checkbox and then tap Don't enable.

  This will prevent the popup box showing again.

> You can still enable Instant readout later in the settings menu.

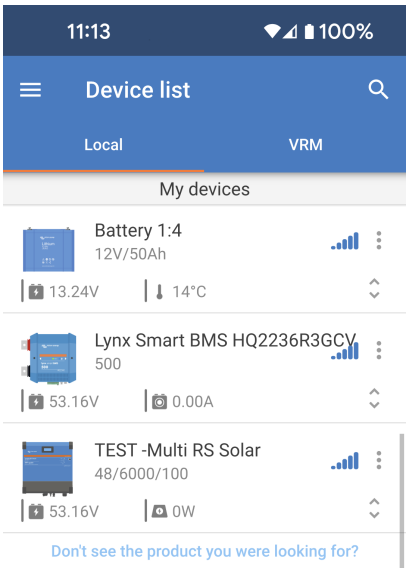




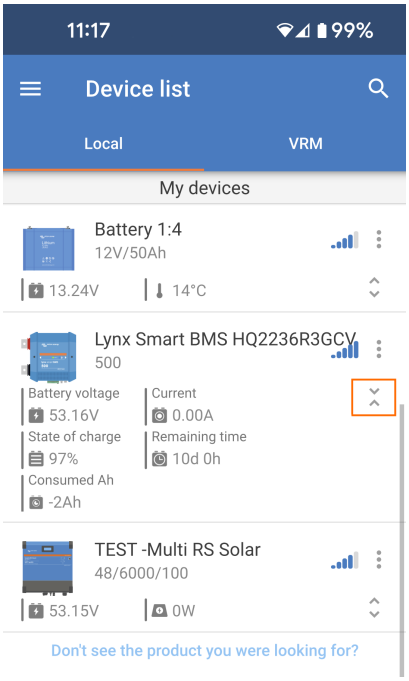
To manually enable Instant readout:

- Connect to the device and go into its settings menu
- Tap the three dots in the top right of the settings menu and choose Product info.
- Near the bottom of the Product info page, you'll find a toggle to enable Instant readout.

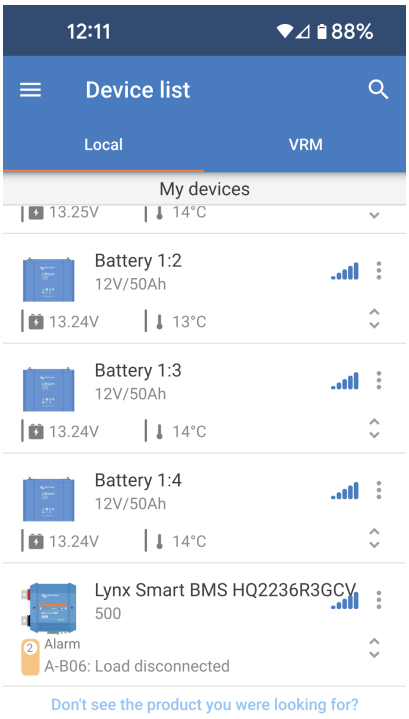
When Instant readout is enabled, additional information is displayed for each device within Bluetooth range.



Each device has some additional information displayed below it.



- In the device list, tap the expand icon on the right to see more information.



Alerts will appear below each device with an alarm or error.

The alert icon's colour will indicate its severity.

11.3. Stored trends and Instant readout compatibility

See the table below for an overview of Victron smart products and which of them support stored trends and/or instant readout. Products not listed are not supported even though they have Bluetooth.

Victron smart device	Stored trends	Instant readout
Smart Solar Charger	Yes	Yes
Inverter RS, Multi RS, MPPT RS	No	Yes
Lynx Smart BMS	No	Yes
Lithium Battery Smart	No	Yes
SmartShunt	Yes	Yes
BMV-712	Yes	Yes
Smart Battery Sense	Yes	Yes
Inverter Smart	No	Yes
Sun Inverter	No	Yes
Orion-Tr Smart DC-DC Charger	No	Yes
VE.Bus Smart dongle	No	Yes
VE.Bus Inverter/Charger	No	Yes[1)]
Smart BatteryProtect	No	Yes
Smart BMS 12-200 and CL	No	Yes
Orion XS 12/12-50A DC-DC battery charger	No	Yes
VM-3P75CT Energy Meter	No	Yes[2)]
SolarSense 750	Yes	Yes
VE.Direct Bluetooth Smart Dongle i.c.w. BlueSolar MPPT BMV-700/702 Inverter VE.Direct	No	Yes

[1)] VE.Bus Inverter/Chargers supports instant readout, either wired (via an MK3 interface) or wireless (via VE.Bus Smart dongle). Note that when wired through an MK3 interface, communication with a GX device will be blocked (and thus may result in alarm and error conditions for the VE.Bus device) as long as this cable connection exists.

[2)] Even though the VM-3P75CT does not have Bluetooth, Instant readout is supported over VictronConnect Remote via direct cable connection (VE.Can or Ethernet).

12. Settings Lock

12.1. Introduction

Settings lock allows installers to lock critical settings, preventing accidental or unintended changes to a system's operating parameters. It enhances system stability and is invaluable for engineers managing hundreds of installations.

All other controls, such as setting low-voltage alarms, initiating battery equalization, updating firmware, and setting current limits, remain available to system owners and end users. Real-time data, historical data, and graphical analysis also remain accessible.

In emergencies, end-users can always access locked product settings by using the 'Password lost' function.

If anyone has removed a password, the installer or OEM will receive a notification when they reconnect to the product.

Please also watch the introductory video for this feature, and review the slide presentation here.



12.2. Features

- **Lock product settings in one step**
  - Lock critical settings from end-users in one simple step. Click 'Lock product settings' on the product's info tab and repeat for all products in the installation.
- **Built-in password manager**
  - Inside VictronConnect, log in to VRM to store passwords automatically in your VRM account. There is no need to type the password each time, and passwords are not lost when the phone is lost.
- **Daily controls and firmware updates remain accessible**
  - End-users with locked systems can still control and update their product. The critical settings are locked and become view-only for end-users.
- **Unlocking product settings**
  - The product settings can be unlocked by using the password. When the password is entered, the settings will become editable on the device and/or VRM account that was used. The product remains locked for other devices.
- **Full settings remain accessible to the installer**
  - Passwords are saved to the phone and the VRM account that locked the products. All settings remain editable on the device or VRM account that was used to apply the lock. For other users, the critical settings remain view-only.
- **Remove settings lock**
  - The password can be permanently removed by clicking 'Remove lock' (password needed). Alternatively, click 'Password lost' to remove the lock via the PUK code or a VE.Direct cable. Thus, end-users can regain control over their installation if needed. Installers will be able to see if passwords have been removed/updated.

12.3. Supported products

The following products are currently supported:

- BMV-712
- SmartShunts (all models)
- SmartSolar MPPTs (all models)
- Multi RS (all models)
- MPPT RS (all models)

Please note that the firmware of these products will most likely require an update. To do this, use the VictronConnect app v6.00.

Products that will get Settings Lock support soon are:

- Orion XS
- Smart Inverters
- VE.Direct Smart Dongle

12.4. Instructions and explanation

12.4.1. Explanation about Locking versus Unlocking versus Removing

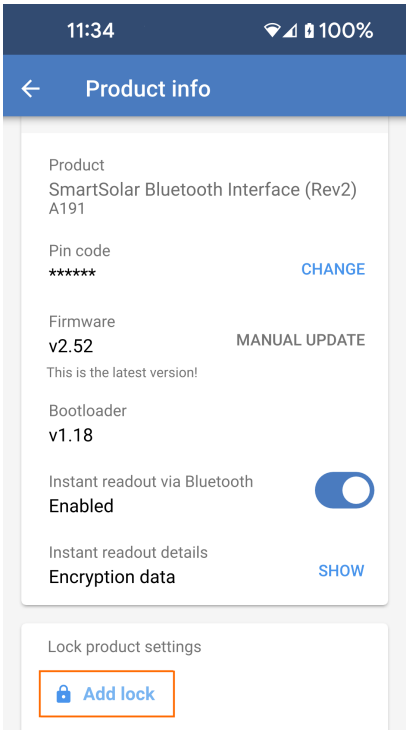
1. **Locking product settings**
   - Adds the lock to the product.
2. **Unlock product settings**
   - After entering the password, the settings can now be edited. But the lock remains in place → settings remain protected.
   - A lock icon in VictronConnect indicates that the settings are protected. A closed lock means that you have no access, while an open lock means that the settings are protected and that you have access.
3. **Removing the settings lock**
   - After removing the settings lock, the settings are accessible again. Lock items are removed.

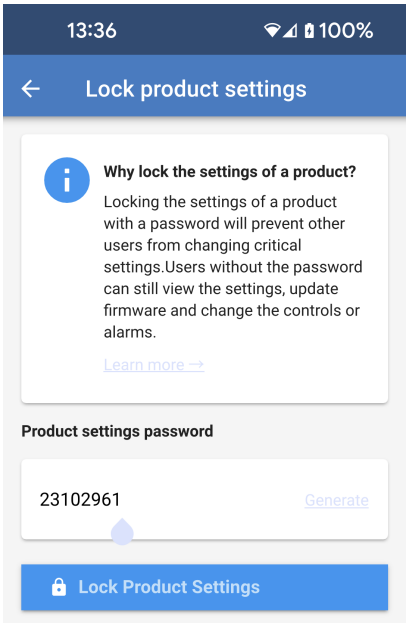
12.4.2. How to lock

Before you start, make sure the VictronConnect app and product firmware are up to date.

The product lock feature can be found on the "Product info" page.

- Scroll to the bottom of the page.
- Tap "Add lock".





Choose a settings lock password.

- Type in a password of at least 8 numbers.

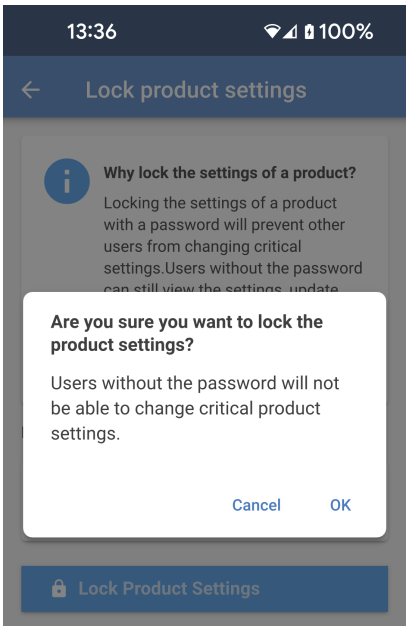
If you tap the "Generate" button, a random password will be created.

Touch and hold the password if you want to copy it for use on other products in the system.

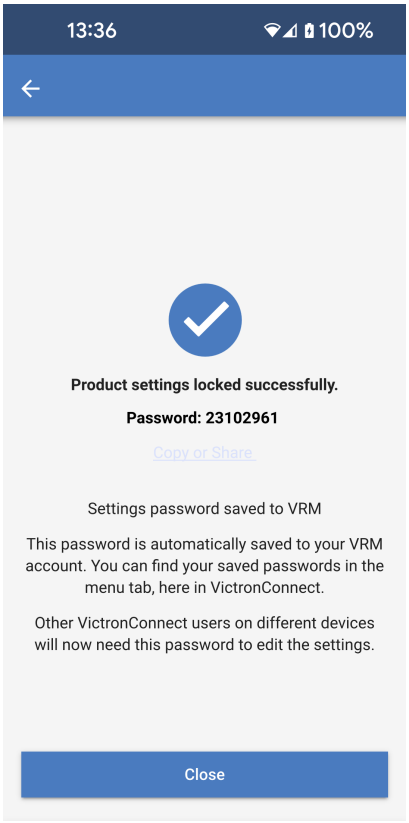
Don't use the same password across different installations.

The password is automatically stored on the phone and in your VRM user account, so there's no need to worry about losing the phone or tablet.

- Tap the Lock Product Settings button to proceed.



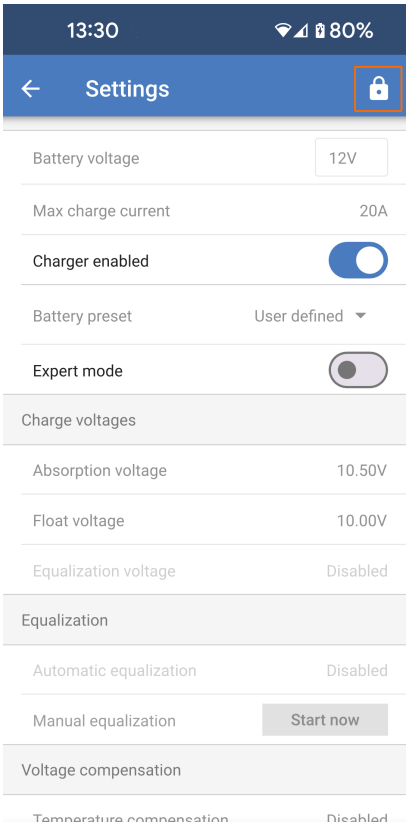
- Choose OK on the confirmation popup.



Now the product lock has been applied.

The password is shown for you to make a note of it.

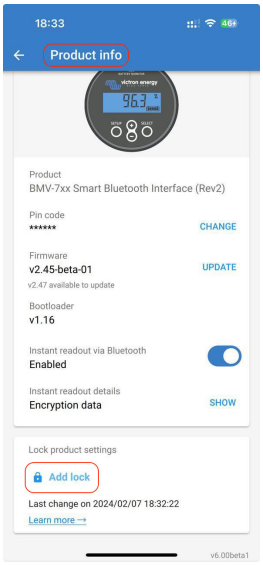
- Tap "Copy or Share" just below the password to email it to someone, for example.
- The Close button will take you back to the Product info page.



A lock icon in the top right of any settings page indicates that some settings are locked and cannot be changed.

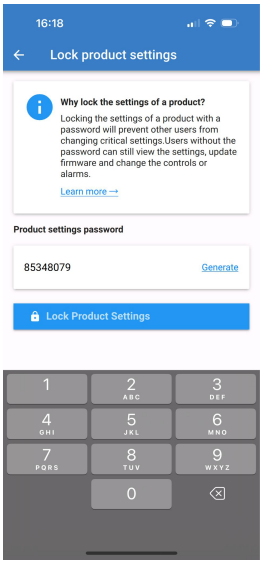
The greyed-out settings are locked and cannot be changed.

Step 1 - Go to the lock feature



- Go to the 'Product info' tab of the Victron product
- Click on 'Add lock' to start setting the product settings lock

Step 2 - Choose the password



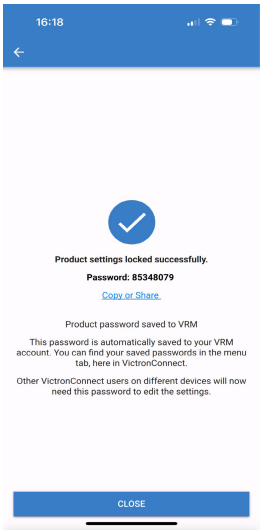
When you click 'Generate', VictronConnect will suggest a random password. Alternatively, you can enter your own code.

Tips:

- You can use the copy button to copy the password and use it for other Victron products in the same system that you might want to lock with the same password.
- Do not use the same password for all installations.
- The password is automatically stored on the phone and in your VRM user account, so there is no need to worry about losing the phone or tablet.

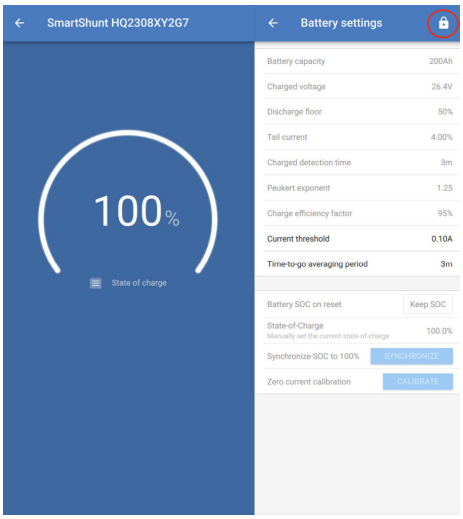
Step 3 - Confirmation screen

- The product's settings are now locked for other users
- Clicking on 'Close' takes you back to the product



Step 4 - Seeing the settings menu

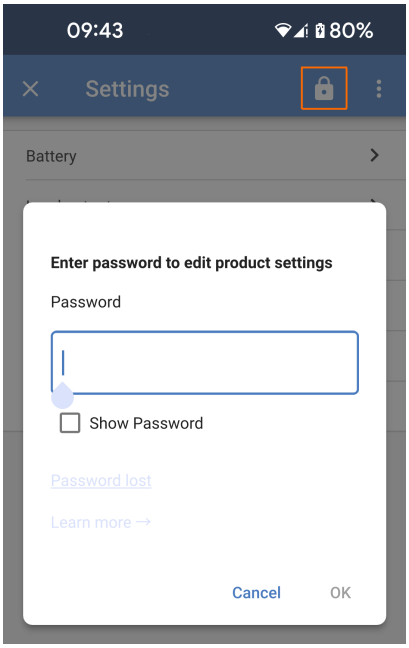
- Now that the product settings are locked, a lock icon is presented in the top-right corner of the product settings screen.
- Press the lock icon to enter the password and unlock the settings. For more information, see the next section.
- Settings are not editable as long as the product settings are locked.
- Some settings will remain editable by the user. This applies to mostly harmless settings and/or relate to user preference.



12.4.3. How to unlock

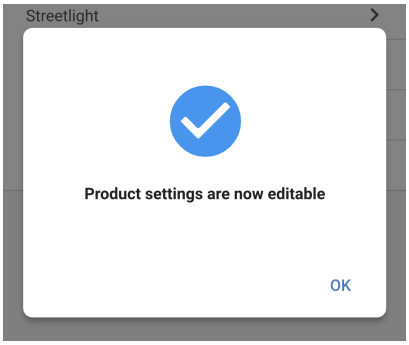
You can gain access to the product settings by using the specific password for it.

Once the password is entered in VictronConnect, it is stored on the phone and VRM, and it does not need to be entered again on any device that is logged into the VRM account. The product remains locked for users attempting to make changes from other devices.



When attempting to access all settings on a locked product, you'll see a locked icon in the top right of the settings pages.

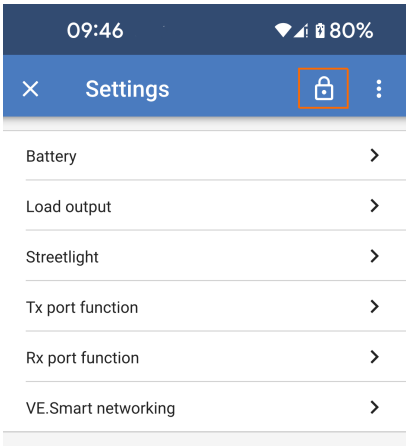
- Tap the lock icon.
- Type the password in the popup box.



A pop will confirm that the settings can now be edited.

- Tap OK to proceed.

> Although access has been granted to change settings on the connected product, the settings lock is still in place.

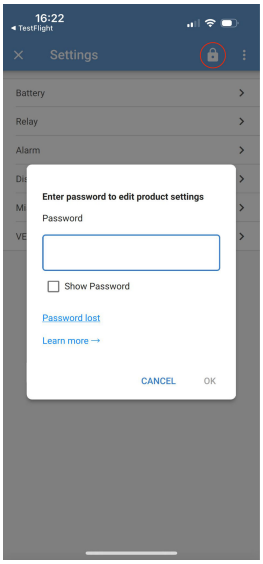


The lock icon is now unlocked, indicating that the settings can be changed.

Step 1 - Obtaining access

•

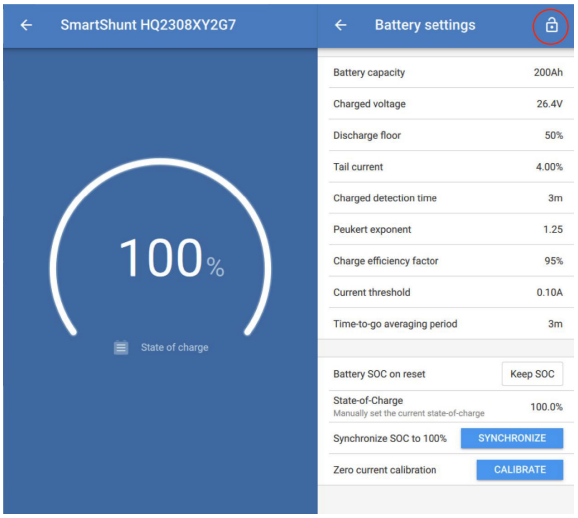
- After connecting to a locked product, there is the lock icon on the upper right. Click that icon to unlock.



- Enter the 8-digit password to unlock the settings.
- Clicking on the 'Password lost' link will start the password loss process. VictronConnect first prompts the user to contact the installer. Upon further clicking, the user can remove the password by entering the PUK code or connecting via a VE.Direct cable.
- The 'Lean More' link opens this section in the VictronConnect manual.

Step 2 - Access granted

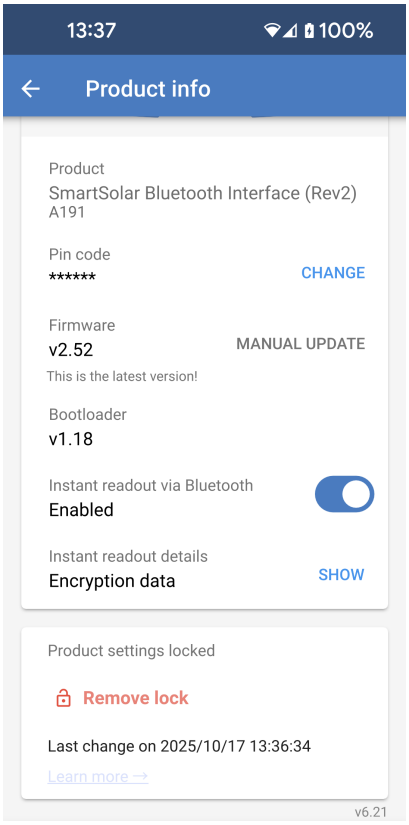
- The lock icon is now open, indicating the settings can be edited.



12.4.4. How to remove the settings lock

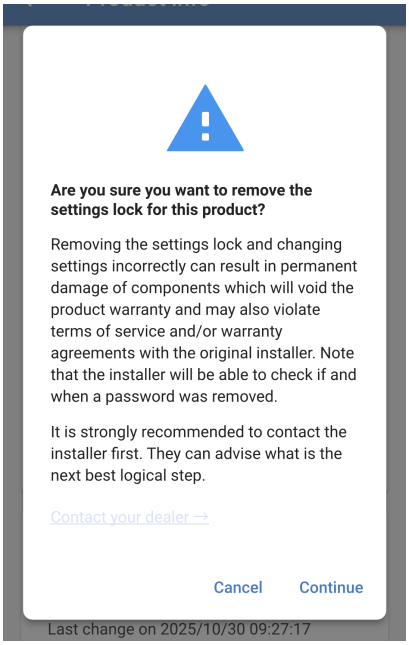
The product settings lock can be removed from a product if no longer needed by the installer, or via the password lost flow by the end user.

The password can be removed using the product PUK code or via a VE.Direct cable.



The settings lock can be removed from the product from the product info page.

- Scroll to the bottom of the page.
- Tap "Remove lock".

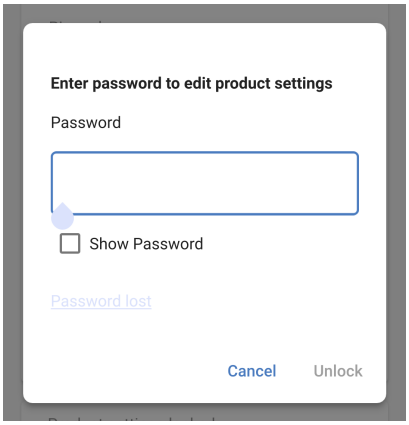


A warning message will pop up with reasons not to remove the settings lock and advice to contact the installer first.

There is a link at the bottom of the popup providing steps to contact your installer.

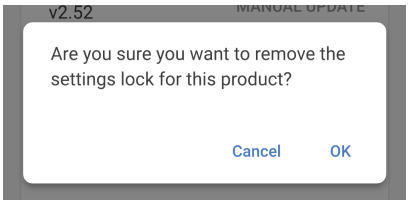
- Tap "Continue" to proceed.

- Type the password in the popup box, and tap "Unlock".



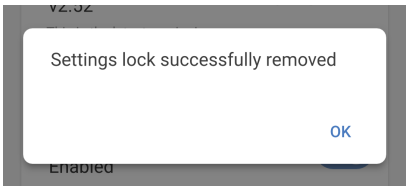
> You can use the "Password lost" link to follow the steps for unlocking using a VE.Direct cable or PUK.

- Select "OK" in the next popup confirmation box.



Now the settings lock has been removed.

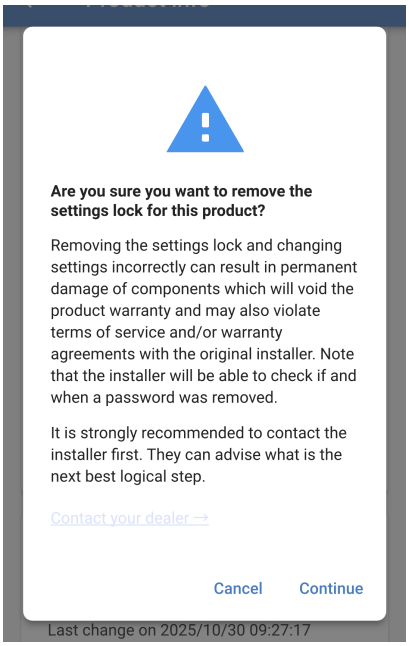
- Select "OK" in the popup box.



The next time the installer reconnects to the product, they'll receive a notification that the product lock status has been changed.

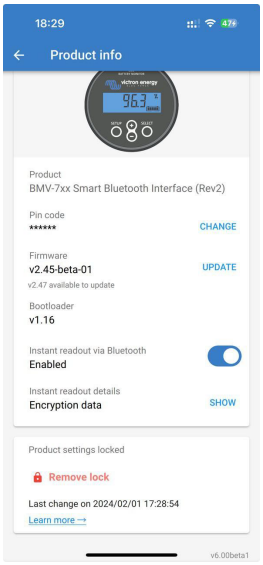
The popup warns the installer that the settings lock status has changed along with a timestamp.

- Tick the checkbox to forget the saved password for this product.
- Tap "OK" to clear the warning popup.



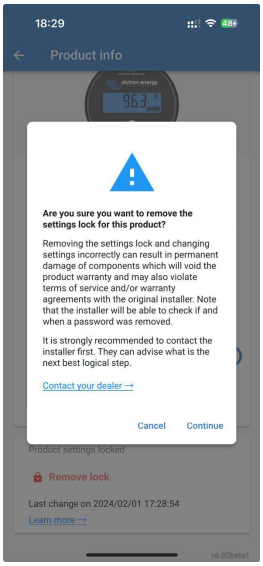
Step 1 - Go to the Product info page

- Remove the product settings lock by clicking on 'Remove lock' at the bottom of the page.



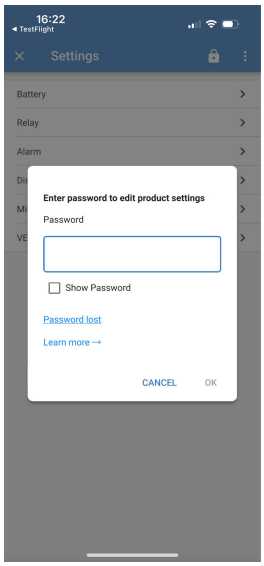
Step 2 - Acknowledge the warning

- The user first sees a warning explaining why they should contact the system installer and not remove the lock.
- The warning also states that removing the lock will be noticed by the installer, like removing a tamper seal.
- Find the contact details of your dealer via your product serial number on the Victron Support web pages by clicking on the 'Contact your dealer' link.
- Click on 'Continue' to continue the lock removal process.



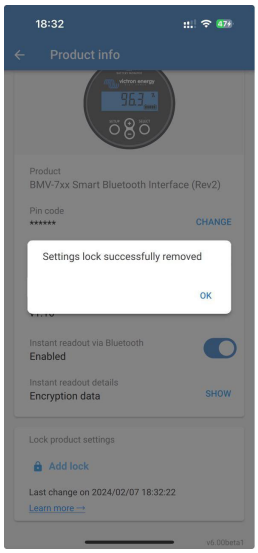
Step 3 - Enter the password

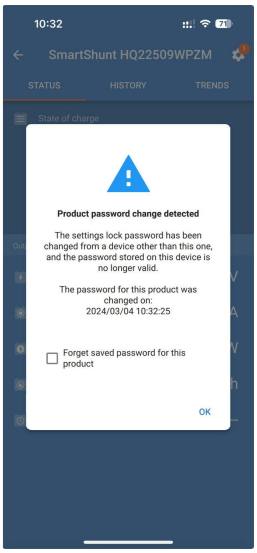
- The PIN can be used to remove the lock.
- If the password is already known on this device, this step is skipped and the lock is removed directly.
- Alternatively, the user can use the password lost flow to remove the lock via the product PUK code or VE.Direct cable



Step 4 - Confirmation

- The lock is now removed.
- The time and date of when the lock was removed is stored and visible to the user.
- When reconnecting for the first time, the installer will get a warning.





12.4.5. Built-in password manager

In the main VictronConnect menu, there is a new entry called 'Saved product passwords'.

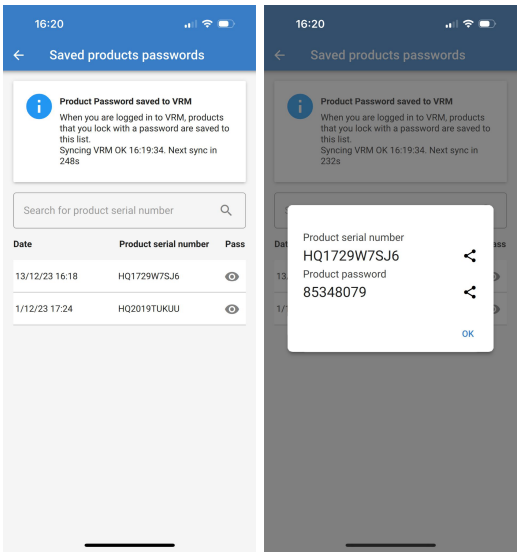
It shows all serial number/password combinations stored on the phone.

When VictronConnect is logged into VRM, then these are automatically backed up to the VRM user account and synchronised with your other phones or tablets in case logged into the same VRM user account.

Not connected to the internet while setting up a system? No problem - VictronConnect automatically stores them in the background and will regularly check if there is a connection. The sync status is displayed at the top of the page.

View or search all saved passwords for your VRM account in one list.

Easily see and copy the product password to send to colleagues or end-users. Only visible when logged into the installing VRM account.



12.5. Q&A

Q: Can other installers receive passwords or edit rights on installations from the original installer?

A: Passwords or edit rights cannot be shared via the VRM account. Passwords can be viewed by the original installer in the ‘Saved product passwords’ section.

13. Batch programming

The batch programming feature can be used to update the firmware and apply settings to several units in one operation.

This applies to products with a VE.Direct port and/or Smart (Bluetooth enabled) products.

This feature is aimed at installers who want to save time updating firmware and applying a standard range of settings to multiple units without having to go though each unit one by one. A settings file can be used as the template to apply settings to all of the units being programmed.

One of two connectivity methods can be used:

- **Wired:** Use VE.Direct - USB cables and a standard USB hub to connect multiple devices to the VictronConnect instance.

  This method can be faster especially for large batches.

  A Victron VE.Direct to USB interface cable is needed per device in the batch.

- **Bluetooth:** Scan the product QR code of each device and then let the VictronConnect Batch programming process the devices as a batch.

13.1. Wired batch programming

Connected products are automatically discovered and grouped by model.

Firmware or settings files are applied to all products in the group simultaneously.

Limitations:

iOS devices cannot be used for this method.

For some products, the separate Bluetooth microcontroller will not be updated using this method. You'll need to use the Bluetooth batch programming [79] method for this.

This includes these product ranges: SmartSolar (except MPPT RS), Smart BMV-712 and SmartShunt, VE.Direct Smart Inverters.

Prerequisites:

- A VE.Direct to USB interface cable for each of the devices in the batch.
- A USB port to connect each of the VE.Direct to USB interface cables. Use a powered USB hub when using a phone, tablet or if your computer doesn't have enough USB ports.

  Make sure the USB hub is compatible with your device and operating system.

- If required, have the settings file to apply to matching devices in the batch. Follow the steps here [21] to save a settings file beforehand.

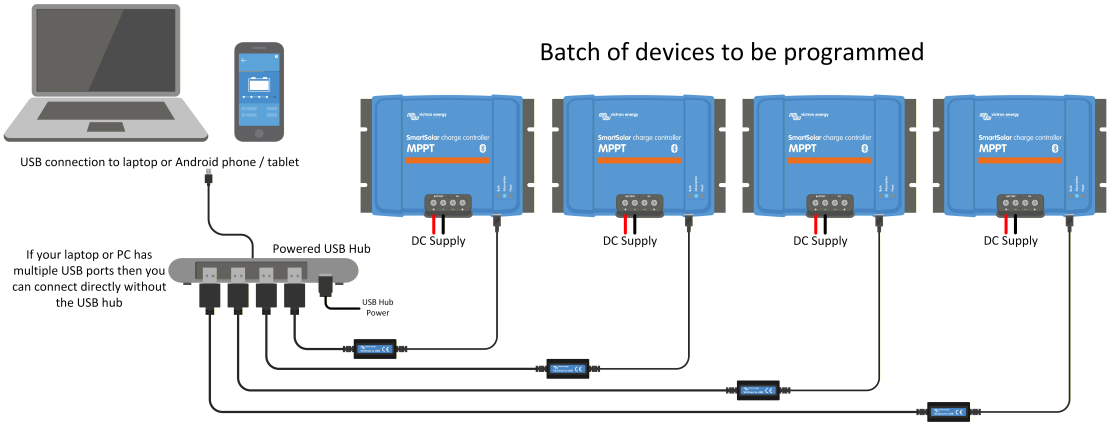
  The saved settings file must match the model of the devices you want to load it onto.

Setup:

Connect each device to a power source first.

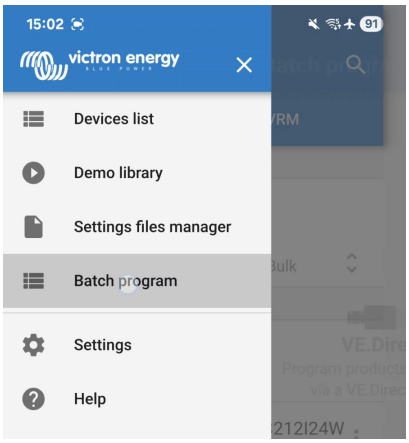
Connect the VE.Direct to USB interface cables.

To avoid compatibility problems, always use genuine VE.Direct to USB interface cables.

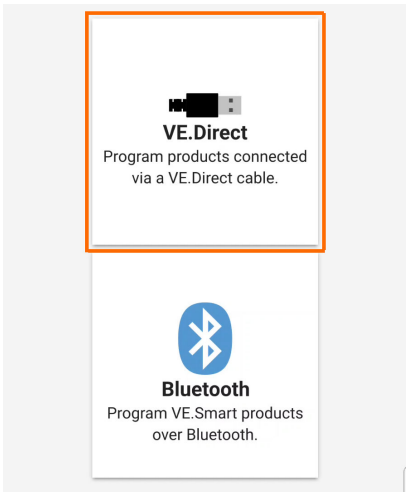


Once all the devices you want to program are connected and powered on, open the app on your phone or laptop.

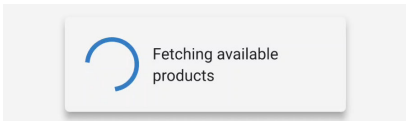
- From the main menu, select Batch program.



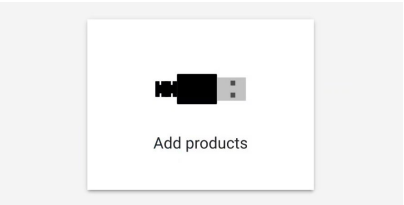
- Choose VE.Direct.



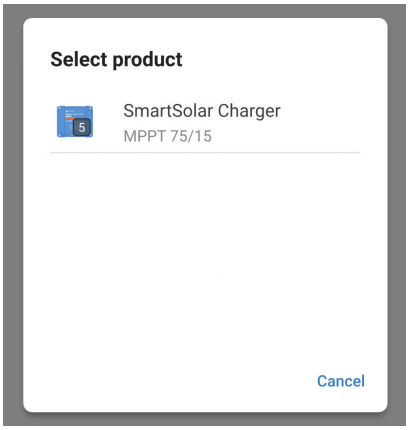
- Allow some time for the connected products to be fetched. It may take a while depending on how many products are connected.



- After all products have been fetched, tap the Add products button.



- Products of the same model will be grouped together, along with the number of products in the group.



> You can only program one group at a time.

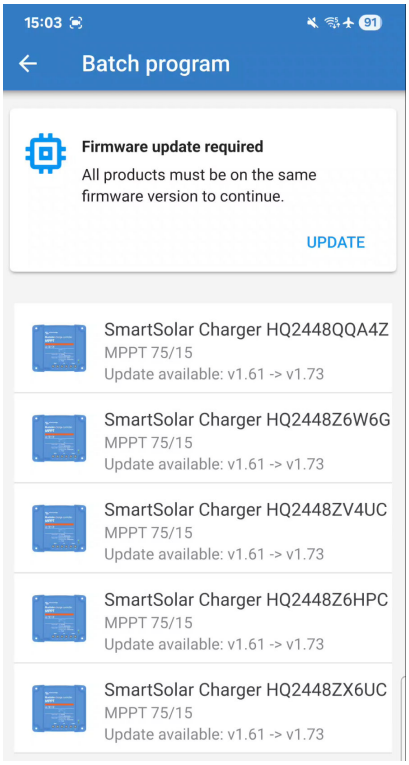
- Tap the product group to proceed with programming that group.

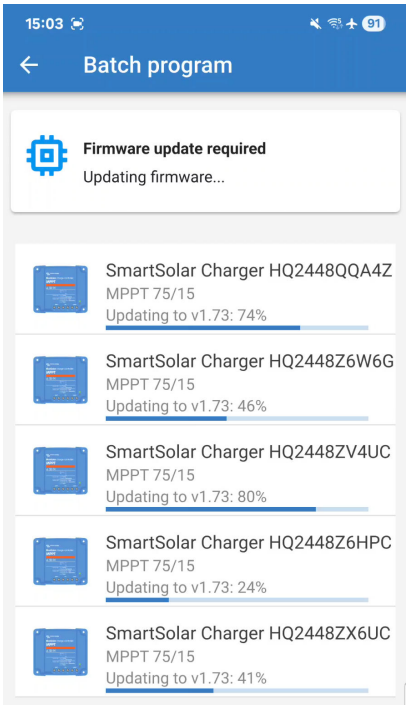
All of the products in the group will be loaded.

A firmware update may be required. The firmware details of each product will be shown.

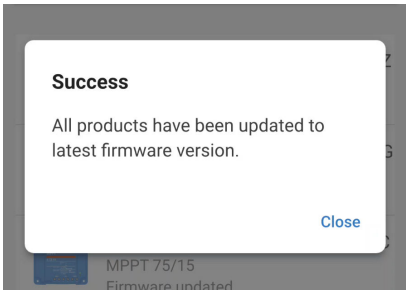
The latest firmware version available for this product will be applied from the firmware library.

- Tap the Update button to update the firmware on all devices that need it.



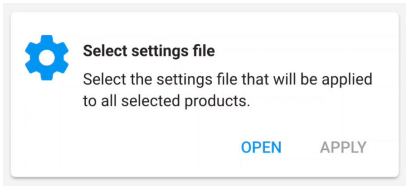


The firmware will be updated on all devices in parallel. You can track the progress for each device with its progress bar.



A popup box will be shown once all of the products have been updated to the latest firmware.

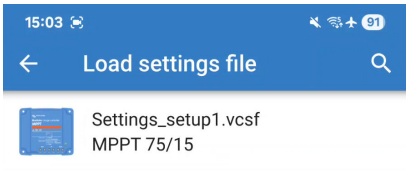
- Tap Close to continue.



After the firmware updates are complete, you can apply a settings file to all products in the group.

- Select Open to choose your settings file.

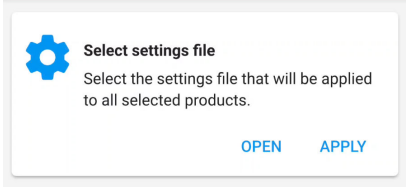
If you don't want to apply a settings file, you can exit the process by using the back button at the top left.



Your settings file library will open, allowing you to load a suitable settings file from the list.

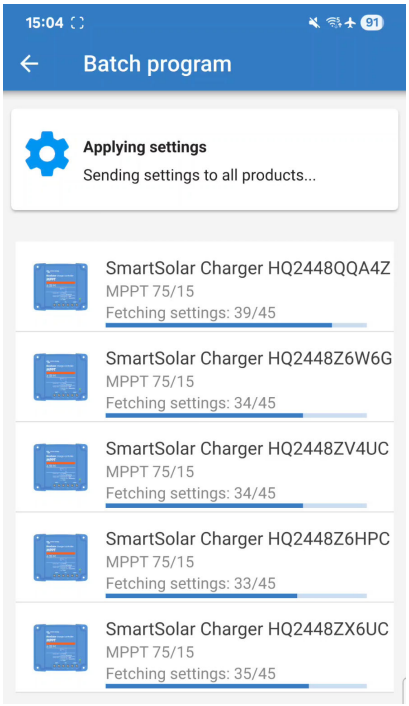
- Choose the settings file to suit the products in the group.

> Make sure the settings file matches the products you are applying it to.

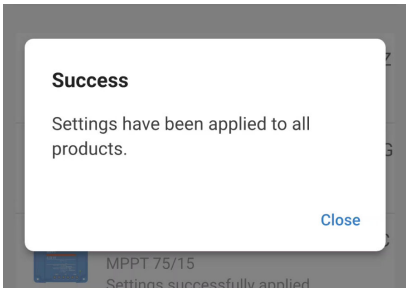


- Tap Apply to proceed.

The settings file will now be sent to all products in the group at the same time. Each product has its own progress bar to show the status.



A popup will show after the settings file has been successfully applied to all products.



13.2. Bluetooth batch programming

This method uses Bluetooth to apply firmware updates and settings files. You don't need USB cables or a USB hub.

You do not need to pair the devices first, the batch programming process handles this.

Firmware updates for the main microcontroller are done as well as the Bluetooth microcontroller if necessary.

An Android or iOS device can be used for this method. The device's camera is used to scan the product QR codes.

Limitations:

macOS and Windows devices cannot be used for this method.

This batch programming procedure is intended for new products that have not yet had any changes applied. Attempting to batch program devices that have already been modified may cause issues.

For example, if the product name has been changed, the batch programming feature may not identify the device correctly.

Devices in the batch are processed one device at a time. This means that the batch can take longer to process than when using the wired method.

Prerequisites:

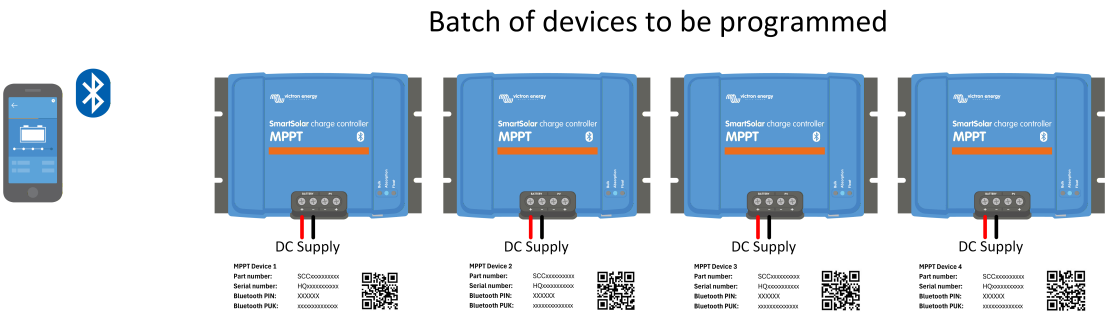
Have each QR code label ready to scan for each product in the batch. Products are added to the system by scanning each label for each product.

Keep each product label with its corresponding product. Take care not to mix up or confuse the labels.

Your phone or tablet needs to have an active internet connection.

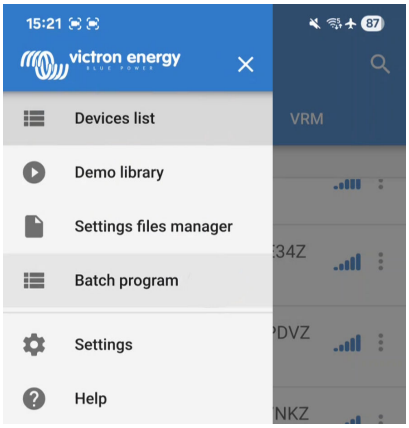
Setup:

Connect each device to a power source first.

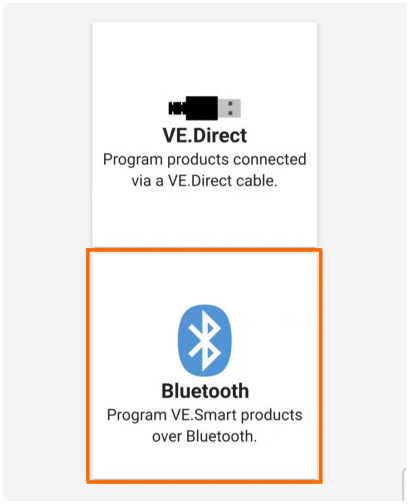


Once all the devices you want to program are connected and powered on, open the app on your phone or laptop.

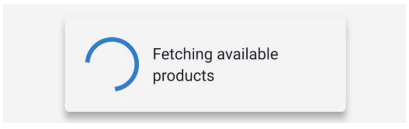
- From the main menu, select "Batch program".



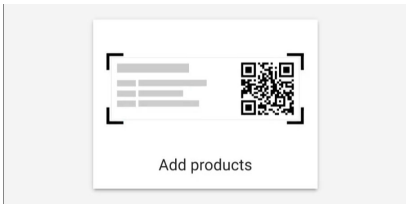
- Choose Bluetooth.



- Wait for this process to complete.



- When all your product labels are ready to be scanned, tap "Add products".



You should expect your phone camera to open up to allow you to scan the QR codes on your product labels.

A window at the bottom of the screen replicates the details of the label as scanned.

- Wait to the bonding process to complete.



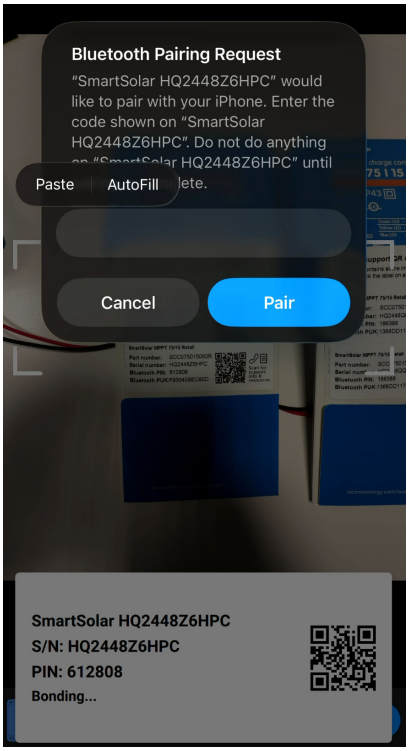
This step only applies when using an iOS device!

Although the Bluetooth PIN can be read from the QR code, it cannot be applied automatically.

A pairing request will pop up where you need to enter the PIN for the product you are currently scanning.

- Enter the PIN for the product currently being scanned and then tap the pair button.
- Wait for the bonding process to complete.

Upon scanning, the PIN is copied to your clipboard. Paste it into the pairing box.





A tick will appear once the product has been successfully added.

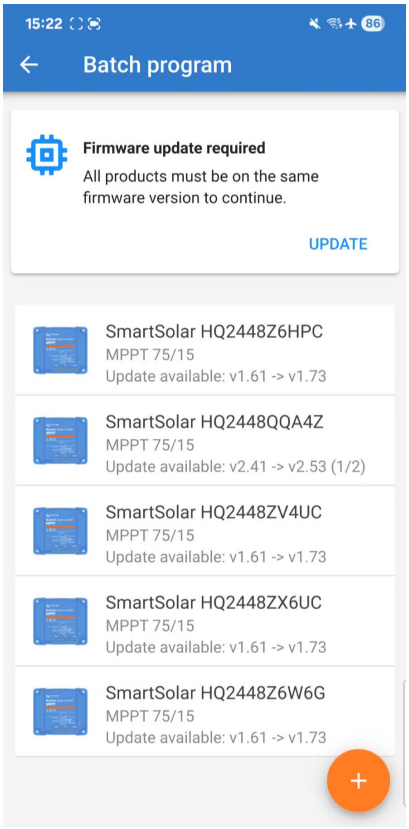
- Now scan the next product label.
- Repeat the scanning process for the rest of the labels.

Do not tap the Done button until you have scanned all the labels.



- Tap the "Done" button after you have scanned the final label.

The small number in the black box over the product icon in the bottom-left corner will increase with each successfully added product.



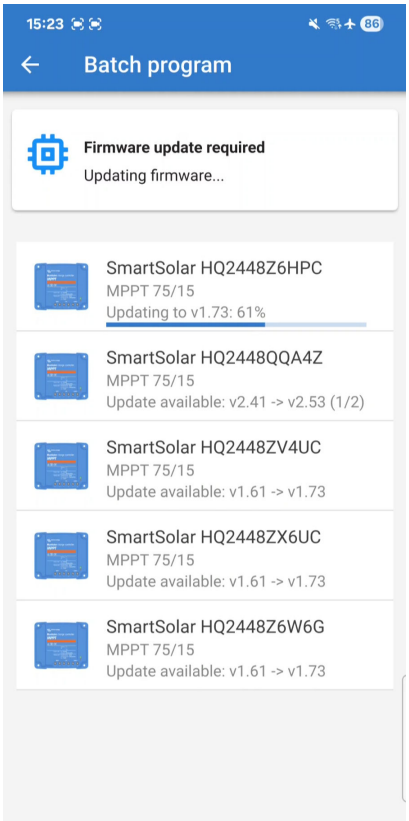
All of the scanned products will be listed.

To add more products, tap the orange + button in the bottom-right corner to scan additional QR codes.

A firmware update may be required. The firmware details of each product will be shown.

The latest firmware version available for this product will be applied from the firmware library.

- Tap the "Update" button to update the firmware on all devices that need it.

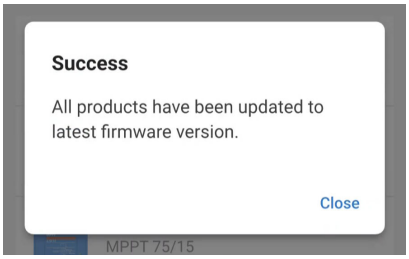


- The firmware will be updated on each device one at a time. You can track the progress for each device with its progress bar.
- Wait for the firmware update process to complete.

Some products may have two firmware updates, one is for the main CPU and one for the Bluetooth CPU.

A popup box will be shown once all of the products have been updated to the latest firmware.

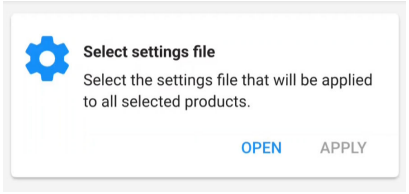
- Tap Close to continue.



After the firmware updates are complete, you can apply a settings file to all products in the group.

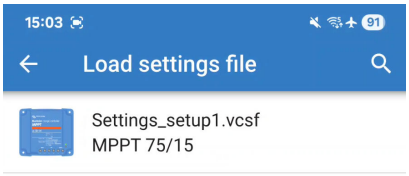
- Select "Open" to choose your settings file.

If you don't want to apply a settings file, you can exit the process by using the back button at the top left.



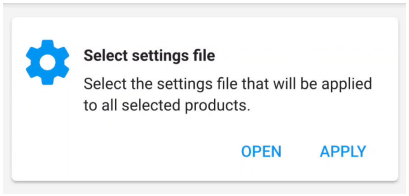
Your settings file library will open, allowing you to load a suitable settings file from the list.

- Choose the settings file to suit the products in the group.

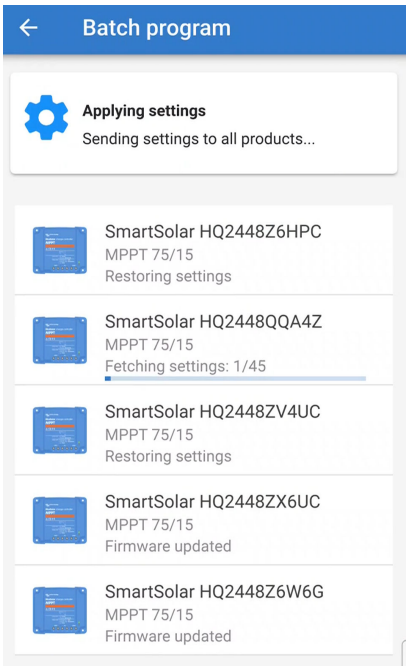


> Make sure the settings file matches the products you are applying it to.

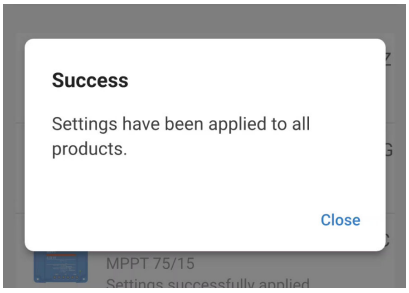
- After choosing your settings file, tap "Apply" to program it to the batch.



- The settings file will now be sent to all products in the group at the same time. Each product has its own progress bar to show the status.



- A popup will show after the settings file has been successfully applied to all products.

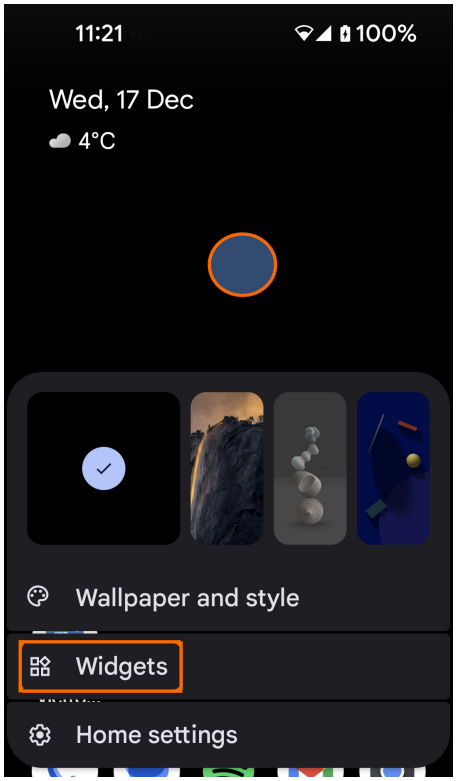


14. Android widgets

With an Android phone or tablet, create home screen widgets to see key info from your Victron Bluetooth Smart devices at a glance.

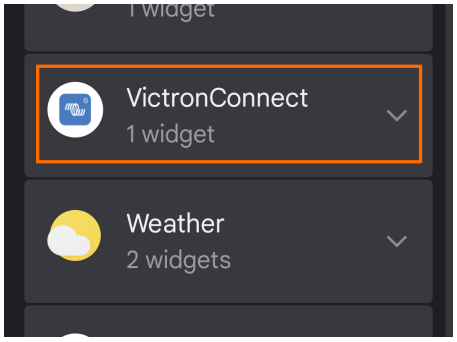
The widgets described here are VictronConnect widgets, which are not the same as the VRM widgets.

14.1. Setup



Follow these steps to create a widget for your home screen:

- Touch and hold an empty area of the home screen until the customization menu pops up.
- Select "Widgets"



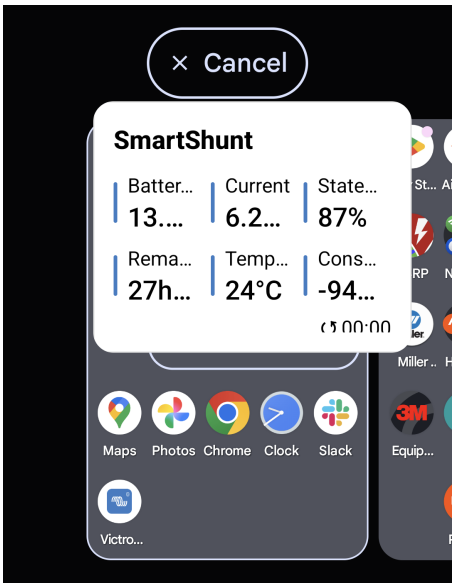
A list of apps will appear.

- Choose "VictronConnect" from the list to expand the dropdown menu.

A list of available widget templates will be presented.

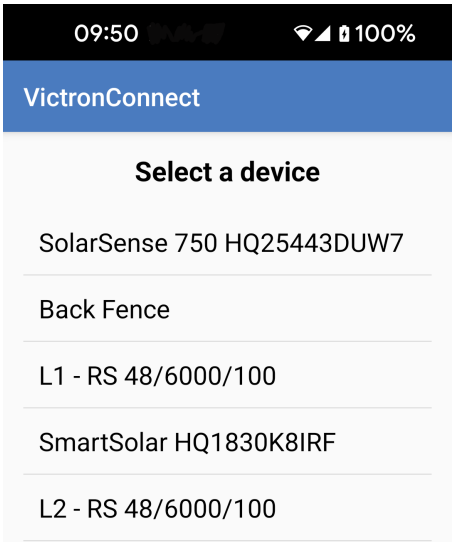


- Touch and hold the widget template to drag into your desired position.
- Release the widget one it's in position.

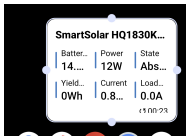


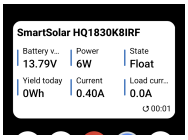
When you release the widget, you can select a device to display its data.

- Choose a product from the list.



You can resize the widget by dragging its handles.





15. Android Auto

VictronConnect can be used with Android Auto to display key information on your car's display.

Any Victron devices which are connected under "My devices" in your VictronConnect device list will be shown on your Android Auto device.

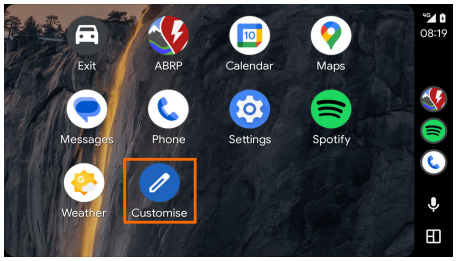
Devices will only appear in Android Auto if they are paired and connected to your phone. Unknown or unpaired devices (shown under “Other devices” in your phone's Device list) will not be displayed.

Apple CarPlay is not currently supported.

Device configuration is not possible from the Android Auto unit.

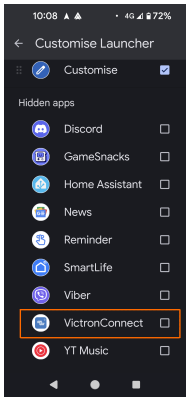
15.1. Setup

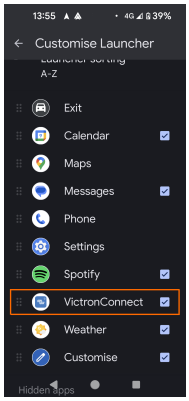
The following instructions presume that you have already connected your phone to your vehicle's Android Auto system and VictronConnect is already installed on your phone.



- From the app launcher screen, tap "Customise".

This will open the "Customise Launcher" app on your phone.

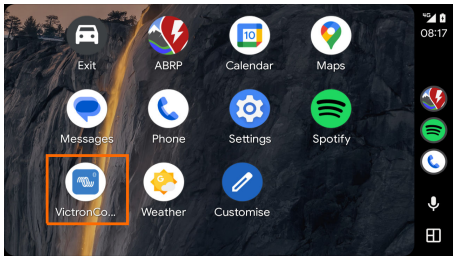




- Scroll to the bottom of the list to find VictronConnect.
- Tap the empty checkbox to the right of the field to select VictronConnect.

VictronConnect will now appear near the top of the list. The checkmark indicates that it will be available on your Android Auto app launcher screen.

Drag the VictronConnect entry up or down in the list to reorder it on your Android Auto app launcher screen.

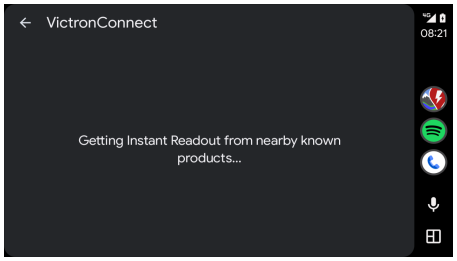


The VictronConnect shortcut will now appear on your app launcher screen.

- Tap the shortcut to launch VictronConnect.

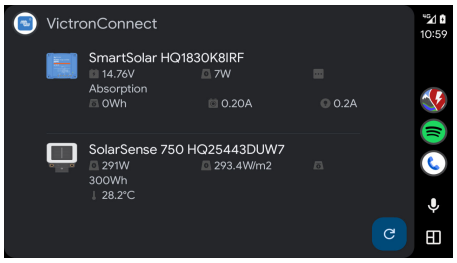
15.2. Using VictronConnect in Android Auto

After launching VictronConnect from the app launcher screen, you may need to wait a short while for known products to be shown.



Any known products which are currently connected to your phone will be displayed.

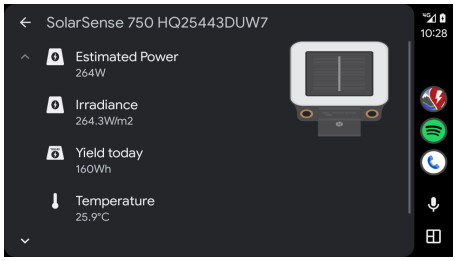
Instant readout information for each connected device will be shown.



> Only devices that are already paired with your phone and appear under “My devices” in your VictronConnect device list will show up here.
>
> New or unpaired devices will not appear here. Pair them with your phone first.

You can select a specific device to view only its data.

- Tap a device in the list to view its details.
- Drag the list up or down to scroll. You can also use the up/down arrows on the left.



16. Troubleshooting

16.1. Troubleshooting Bluetooth connection issues

First step: restart the phone

The #1 first step before attempting any of the specific troubleshooting advice below is to restart your phone. Make sure to really restart it, just locking and then unlocking is not sufficient. Please check Google to learn how to restart your specific phone, or tablet.

I cannot find my product listed

1. Make sure that you have a “Smart” Victron product. It needs to have a Bluetooth symbol.
2. Make sure your product is in range.
3. Only one phone can be connected to a product at the same time. Make sure that no other phone is already connected.
4. Make sure you are attempting to connect from *within* VictronConnect - not from the system menu of your phone. If you have connected from the system menu: close VictronConnect, remove the pairing information from your phone, and then open and connect to your product from *within* VictronConnect.
5. If a firmware update failed, the product *Custom Name* might have reverted to its original name and serial number, check if that is the case. Once the update is completed, the *Custom Name* will be back. See more tips about troubleshooting firmware updates on section 11.3 [35].

I can see but cannot connect to my product

1. Make sure you are trying to connect to the right product. See section 5.3 [14] to learn how you can give your product a *Custom Name*.
2. Make sure your product is in range. It can be that you are close enough to see the product but not close enough to connect to it.
3. Make sure that Bluetooth is still enabled on your phone. If Bluetooth was disabled after scanning, you may be able to see your product listed but you won't be able to connect to it.
4. Bluetooth bonding information may be outdated. This happens when the PIN code has been changed in the product, or if your Victron product has been connected to too many phones. The product will only remember the last 10 phones connected to it. To solve this, remove the pairing completely from your phone system menu. Then open VictronConnect and re-pair the product and your phone. Watch these instructional videos to learn how to remove the pairing on Android or iOS.
5. If you are using an Android phone, check section 11.2 [92] below for issues particular to Android as well.

Connection fails around 20%

1. Make sure you are up to date with the latest version of VictronConnect.
2. Remove the product from the paired devices list in the phone's Bluetooth settings. This section [5] explains how.
3. Then Reset the PIN code.
4. Force close the VictronConnect App. Instructions: how to for iPhone and iPad, how to for Android. If you are unsure how to do this, then uninstalling and re-installing the app works as well)
5. Reconnecting in VictronConnect using the default PIN 000000.
6. Then change the PIN code [4].

Connection fails after filling in the PIN code (PIN code is not accepted)

1. Reset the PIN code to the default value of “000000” using the procedure described in section 3.3 [5]
2. Connect to the product and when asked for the PIN code, use “000000”
3. It is advised to immediately change the PIN code to a new value
4. Remove the pairing on other phones/tablets. The procedure is described in section 3.4 [5]

Restart the Victron product

In case any of the above steps didn't solve the issue. And in case of an Android device the steps in the next chapter also didn't help, then power cycle the Victron product. For example, with a Solar Charger, you must isolate the MPPT from both the battery and solar voltage so that no lights appear, before reconnecting it again.

16.2. Bluetooth connection issues on Android

Before starting this chapter, first complete all steps in chapter 11.1

Also note that steps 3 and 4 are not necessary when running Android 12 or later and VictronConnect v5.70 or later. See the note in the beginning of chapter 4.3. Android [6].

Step 1: Check that your Android device is supported

See section 4.3 Compatibility for Android [6]

Step 2: Check the Android version

- Android 4.2 or earlier: this Android version is not supported. The earliest Android version which can be used with Bluetooth is 4.3.
- Android 5: check for known Android PIN code pop-up bug. [6]
- Android 6 or later: no known issues.

Step 3: Check that VictronConnect has access to the location services

On Android 5 and later VictronConnect needs access to the phone's location services to be able to scan nearby Bluetooth products. Unless you checked “Don't show again”, VictronConnect will warn on each discovery attempt when permissions are not granted or location services are disabled.

Permission to access location services is requested each time the app starts …but if you checked the “Don't show again” option while denying, the request won't appear again.. You can grant permission by going to the Android settings → Applications → VictronConnect → Permissions, and then enable the “Location” permission. Another way is to uninstall and then reinstall VictronConnect.

Why this access is required is explained in the "Why is Access to Location Service required" section, part of the Android chapter [6].

Step 4. Enable Location (or GPS) functionality in the system settings

For Bluetooth scanning to work, the Location (or GPS) functionality on the phone needs to be enabled.

Why this access is required is explained in the "Why is Access to Location Service required" section, part of the Android chapter [6].

Step 5. Search & connect from within VictronConnect, and NOT from the system Bluetooth menu

Make sure you are attempting to connect from *within* VictronConnect - not from the system menu of your phone. If you have connected from the system menu: close VictronConnect, remove the pairing information from your phone, and then open and connect to your product from *within* VictronConnect.

Step 6. PIN code pop-up never shows

On some Android phones, the PIN code pop-up dialog doesn't show. It is hidden into the notifications bar.

Try to connect and when the connection is stuck at 80%, open the notifications bar and check if the PIN code/Pair request is there, if this is the case open it and enter the PIN code.

On Android, it is also possible that other apps prevent the PIN code pop-up from showing or showing only briefly, even when pairing in the Android Bluetooth settings menu. One such an app is “FrSky Free Link”, which even blocks pairing with Bluetooth headsets. Another one is the app used for the Topdon TopScan OBD2 scanner. When this happens, the thing to do is remove the problematic app. This can be done by uninstalling apps one by one (starting with apps that use or connect to Bluetooth devices), removing all apps or even resetting the phone to factory defaults. When the Victron products are paired to the phone/tablet, the problematic app can be re-installed.

The serial number label of each product has a unique PIN code printed on it. If you cannot find the PIN code, the default value is 000000 (six zeros).

Step 7. Try another phone at first

If you are still experiencing difficulties, having tried the steps above, try connecting using another phone; preferably an Apple phone or tablet as they work without any issues.

When successfully connected using another phone, VictronConnect will automatically update the firmware in the Victron Bluetooth product. After the firmware has been updated you may find that you can use the Android phone with which you were experiencing difficulties.

16.3. Problems during firmware updating

First of all, it's good to know that you can always restart the firmware update procedure. The update process will be restarted each time you connect to the product.

Keep your phone as close to the product as possible. If the update fails due to Bluetooth connectivity problems, and if your phone is already paired to a product, try and remove the pairing completely from your phone's system menu. Then open VictronConnect and re-pair the product and your phone. Watch these instructional videos to learn how to remove the pairing on Android or iOs .

If the firmware update stops at a random percentage during each retry, just keep trying - it will succeed eventually. If the update fails even after many attempts, try using another phone or tablet, if possible an Apple iOS phone - they usually work without any issues. After the update, you may find that you can use the phone with which you were having difficulty.

Update stops at 4% or earlier

When the firmware update fails at 4% or less, VictronConnect cannot make the product switch to the update mode.

Solution for Blue Smart IP65 Chargers

- If you are in the firmware update screen, first force close VictronConnect.
- Unplug the mains cable from the charger and wait for 30 seconds.
- Press and hold the MODE button on the charger and plug in the mains cable again until the yellow and blue LEDs are blinking alternately to force the charger into update mode.
- Release the MODE button. You now have 30 seconds to connect to the product, after 30 seconds the charger will automatically leave the update mode.
- Start VictronConnect and click on the product in the device list.
- The firmware update screen will appear again. You should now be able to update your charger to the latest firmware version.

Solution for VE.Direct Smart dongle

- If you are in the firmware update screen, first force close VictronConnect.
- Unplug the dongle from the VE.Direct port.
- Press and hold the 'Clear PIN' button on the dongle and connect it to the VE.Direct port again, the red and blue LEDs will blink alternately; indicating that the dongle is in update mode.
- Release the 'Clear PIN' button. You now have 30 seconds to connect to the product, after 30 seconds the dongle will automatically leave the update mode.
- Start VictronConnect and click on the product in the device list.
- The firmware update screen will appear again. You should now be able to update the dongle to the latest firmware version.

16.4. VE.Direct USB driver problem on macOS X 10.9 (Mavericks)

The driver included in macOS X 10.9 “Mavericks” doesn't work properly with the VE.Direct USB cable. To fix this issue we recommend updating to a later version of macOS.

If updating the operating system is not possible, there is a workaround which disables the Apple FTDI (Future Technology Devices International) driver and installs a compatible driver. Follow these steps:

cd /System/Library/Extensions/IOUSBFamily.kext/Contents/PlugIns

sudo mv AppleUSBFTDI.kext AppleUSBFTDI.disabled

Step 2. Restart the computer

Step 3. Download and install the compatible FTDI driver

http://www.ftdichip.com/Drivers/VCP.htm

Step 4. Restart the computer

VictronConnect should now show the connected products.

16.5. VictronConnect on Windows doesn't find VE.Direct USB connected products

Check chapter 4.1 [6], and follow its instructions to install the driver.

16.6. VictronConnect on Android doesn't show files opened from email or file manager apps

VictronConnect needs to be running before opening files.

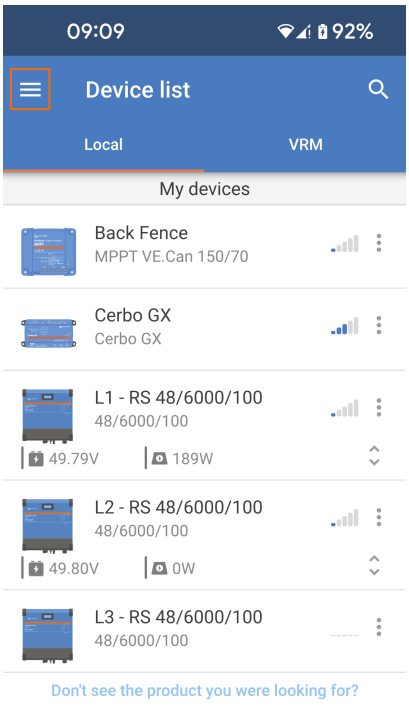
Open VictronConnect and without closing it switch to the app containing the file, select it and choose to open it with VictronConnect.

16.7. How to create a VictronConnect Service Report

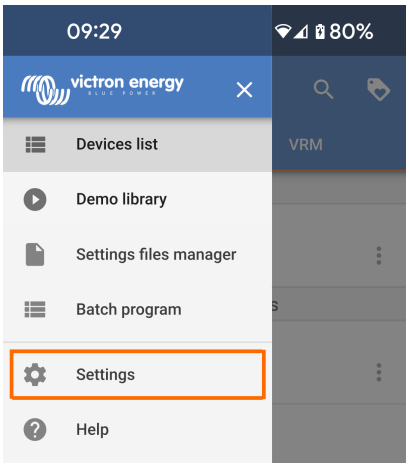
If you are experiencing issues with VictronConnect or your Victron product, you may be asked to create a “VictronConnect Service Report”. Please note that this service report is for Victron internal use and is not able to be read or used for any other purpose than developer troubleshooting.

To create a service report:

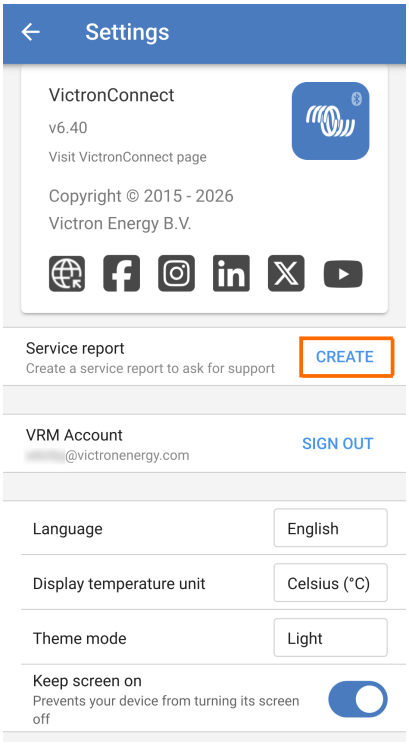
- Open VictronConnect.
- Perform the action that creates the bug or issue you want to report.
- Tap the hamburger menu at the top left of the main menu.



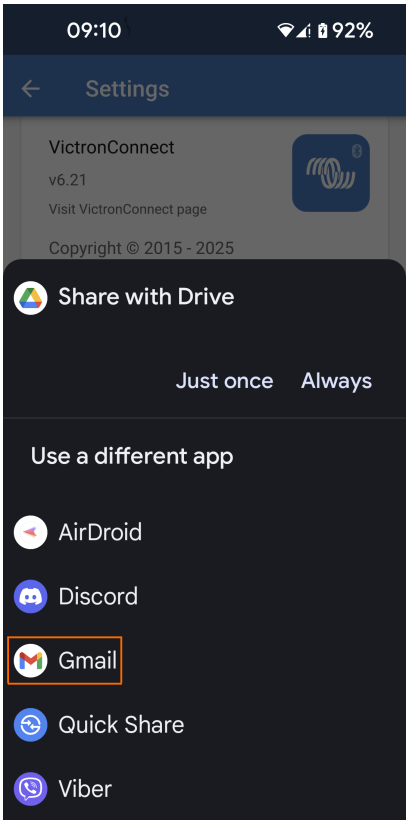
- Select Settings from the menu.



- Tap the "CREATE" button in the "Service report" section.



- Once created, the service report file can be shared or saved via various media.



If you require more detailed power system diagnostic information, for example, detailed monitoring of battery voltage and state of charge readings over time, this may require connecting a GX product.

17. Compatible Victron products

17.1. Solar Chargers

17.1.1. SmartSolar MPPT Charge Controllers

	USB via VE.Direct port	Wireless Via Bluetooth
MPPT 75/10	VE.Direct to USB accessory required	Yes - Built in
MPPT 75/15	VE.Direct to USB accessory required	Yes - Built in
MPPT 100/15	VE.Direct to USB accessory required	Yes - Built in
MPPT 100/20	VE.Direct to USB accessory required	Yes - Built in
MPPT 100/30	VE.Direct to USB accessory required	Yes - Built in
MPPT 100/50	VE.Direct to USB accessory required	Yes - Built in
MPPT 150/35	VE.Direct to USB accessory required	Yes - Built in
MPPT 150/45 Tr and MC4	VE.Direct to USB accessory required	Yes - Built in
MPPT 150/60 Tr and MC4	VE.Direct to USB accessory required	Yes - Built in
MPPT 150/70 Tr and MC4	VE.Direct to USB accessory required	Yes - Built in
MPPT 150/85 Tr and MC4	VE.Direct to USB accessory required (*)	Yes - Built in (*)
MPPT 150/100 Tr and MC4	VE.Direct to USB accessory required (*)	Yes - Built in (*)
MPPT 250/60 Tr and MC4	VE.Direct to USB accessory required	Yes - Built in
MPPT 250/70 Tr and MC4	VE.Direct to USB accessory required	Yes - Built in
MPPT 250/85 Tr and MC4	VE.Direct to USB accessory required	Yes - Built in
MPPT 250/100 Tr and MC4	VE.Direct to USB accessory required	Yes - Built in

(*) Note for early versions of SmartSolar MPPT 150/85 and 150/100: it is not possible to use both the VE.Direct port and the built-in Bluetooth Smart function at the same time. When connecting to VE.Direct, the built-in Bluetooth Smart function will not be available. These early versions can be recognized by their part number:

- SmartSolar MPPT 150/85 Tr. Early version: SCC010085210.
- SmartSolar MPPT 150/85 MC4. Early version: SCC010085310.
- SmartSolar MPPT 150/100 Tr. Early version: SCC010100210.
- SmartSolar MPPT 150/100 MC4. Early version: SCC010100310.

The same models, but then with a different part number do support using both the VE.Direct port and the built-in Bluetooth Smart function at the same time. As do all other SmartSolar MPPT models.

17.1.2. BlueSolar MPPT Charge Controllers

	USB via VE.Direct port	Wireless Via Bluetooth
MPPT 70/15	Not compatible	
MPPT 75/10	VE.Direct to USB accessory required	VE.Direct to Bluetooth accessory required
MPPT 75/15	VE.Direct to USB accessory required	VE.Direct to Bluetooth accessory required
MPPT 75/50	VE.Direct to USB accessory required	VE.Direct to Bluetooth accessory required
MPPT 100/15	VE.Direct to USB accessory required	VE.Direct to Bluetooth accessory required
MPPT 100/30	VE.Direct to USB accessory required	VE.Direct to Bluetooth accessory required
MPPT 100/50	VE.Direct to USB accessory required	VE.Direct to Bluetooth accessory required
MPPT 150/35	VE.Direct to USB accessory required	VE.Direct to Bluetooth accessory required
MPPT 150/45 Tr and MC4	VE.Direct to USB accessory required	VE.Direct to Bluetooth accessory required

	USB via VE.Direct port	Wireless Via Bluetooth
MPPT 150/60 Tr and MC4	VE.Direct to USB accessory required	VE.Direct to Bluetooth accessory required
MPPT 150/70 Tr and MC4 VE.Direct (*)	VE.Direct to USB accessory required	VE.Direct to Bluetooth accessory required
MPPT 150/85 Tr and MC4 VE.Direct (*)	VE.Direct to USB accessory required	VE.Direct to Bluetooth accessory required
MPPT 150/70 CAN-bus	Not compatible	
MPPT 150/85 CAN-bus	Not compatible	
MPPT 150/100 Tr and MC4	VE.Direct to USB accessory required	VE.Direct to Bluetooth accessory required

17.2. Battery Chargers

	USB via VE.Direct port	Wireless Via Bluetooth	Bluetooth on/off	Charge cycle history	Advanced settings
Blue Smart IP22					
All Blue Smart IP22 Chargers	No	Yes - Built in	Yes - Since firmware v3.12	No	No
Blue Smart IP65					
Blue Smart IP65 12/25 Charger	No	Yes - Built in	Yes	Yes	Yes
Blue Smart IP65 24/13 Charger	No	Yes - Built in	Yes	Yes	Yes
Other Blue Smart IP65 Chargers	No	Yes - Built in	Yes - Since firmware v3.12	No	No
Blue Smart IP67					
All Blue Smart IP67 Chargers	No	Yes - Built in	Yes - Since firmware v3.12	No	No
Smart IP43 Charger					
All Smart IP43 Chargers	Yes	Yes - Built in	Yes	No	No
IMPULSE-II Smart					
All IMPULSE-II Smart Chargers	No	Yes - Built in	Yes - Since firmware v3.09	Yes - Since firmware v3.09	No

17.3. Orion-Tr Smart DC-DC Charger Isolated

	USB via VE.Direct port	Wireless Via Bluetooth
All Orion-Tr Smart DC-DC Chargers Isolated	No	Yes - Built in

17.4. Battery Monitors

	USB via VE.Direct port	Wireless Via Bluetooth
BMV-700	VE.Direct to USB accessory required	VE.Direct to Bluetooth accessory required
BMV-702	VE.Direct to USB accessory required	VE.Direct to Bluetooth accessory required
BMV-700H	VE.Direct to USB accessory required	VE.Direct to Bluetooth accessory required
BMV-712	VE.Direct to USB accessory required	Yes - Built in

17.5. Inverters VE.Direct

	USB via VE.Direct port	Wireless Via Bluetooth
Inverter 12V 250VA	VE.Direct to USB accessory required	VE.Direct to Bluetooth accessory required
Inverter 12V 375VA	VE.Direct to USB accessory required	VE.Direct to Bluetooth accessory required
Inverter 12V 500VA	VE.Direct to USB accessory required	VE.Direct to Bluetooth accessory required
Inverter 12V 800VA	VE.Direct to USB accessory required	VE.Direct to Bluetooth accessory required
Inverter 12V 1200VA	VE.Direct to USB accessory required	VE.Direct to Bluetooth accessory required
Inverter 24V 250VA	VE.Direct to USB accessory required	VE.Direct to Bluetooth accessory required
Inverter 24V 375VA	VE.Direct to USB accessory required	VE.Direct to Bluetooth accessory required
Inverter 24V 500VA	VE.Direct to USB accessory required	VE.Direct to Bluetooth accessory required
Inverter 24V 800VA	VE.Direct to USB accessory required	VE.Direct to Bluetooth accessory required
Inverter 24V 1200VA	VE.Direct to USB accessory required	VE.Direct to Bluetooth accessory required
Inverter 48V 250VA	VE.Direct to USB accessory required	VE.Direct to Bluetooth accessory required
Inverter 48V 375VA	VE.Direct to USB accessory required	VE.Direct to Bluetooth accessory required
Inverter 48V 500VA	VE.Direct to USB accessory required	VE.Direct to Bluetooth accessory required
Inverter 48V 800VA	VE.Direct to USB accessory required	VE.Direct to Bluetooth accessory required
Inverter 48V 1200VA	VE.Direct to USB accessory required	VE.Direct to Bluetooth accessory required

17.6. Peak Power Pack

	USB via VE.Direct port	Wireless Via Bluetooth
Peak Power Pack 12.8 8Ah	VE.Direct to USB accessory required	VE.Direct to Bluetooth accessory required
Peak Power Pack 12.8 20Ah	VE.Direct to USB accessory required	VE.Direct to Bluetooth accessory required
Peak Power Pack 12.8 30Ah	VE.Direct to USB accessory required	VE.Direct to Bluetooth accessory required
Peak Power Pack 12.8 10Ah	VE.Direct to USB accessory required	VE.Direct to Bluetooth accessory required

17.7. Smart LiFePO4 Lithium Batteries

Battery model	USB via VE.Direct port	Wireless Via Bluetooth
LiFePO4 battery 12,8V/50Ah	No VE.Direct port	Yes - Built-in
LiFePO4 battery 12,8V/60Ah		
LiFePO4 battery 12,8V/90Ah		
LiFePO4 battery 12,8V/100Ah		
LiFePO4 battery 12,8V/150Ah		
LiFePO4 battery 12,8V/160Ah		
LiFePO4 battery 12,8V/180Ah		
LiFePO4 Battery 12,8V/200Ah		
LiFePO4 Battery 12,8V/300Ah		
LiFePO4 Battery 12,8V/330Ah		
LiFePO4 Battery 25,6V/100Ah		
LiFePO4 Battery 25,6V/200Ah		

17.8. Smart Battery Sense

	USB via VE.Direct port	Wireless Via Bluetooth
Smart Battery Sense	No VE.Direct port	Yes - Built in

17.9. MultiPlus, EasySolar, Quattro, Inverter with VE.Bus, and similar products

This section applies to MultiPlus, MultiPlus-II, MultiCompact, Multi (the models introduced in 2018), Quattro, Quattro-II, EasySolar, EasySolar-II, MultiGrid, and ECOMultis.

In order to keep this section short, all these products are referred to as VE.Bus products.

For full functionality (data readout, changing settings, updating firmware), firmware version 415 or higher is required, which is only available for VE.Bus products with a new microcontroller - recognisable by the 7-digit software number on a sticker on the unit, the first two digits must start with 26 or 27.

For VE.Bus products with the old microcontroller (first two digits start with 19 or 20 only), the minimum supported firmware version is 19xx200 for European units and 20xx200 for 120V models and is limited to data readout. Changes to the settings or firmware updates via VictronConnect are not possible.

Even older products, where the microcontroller's first two digits are 18, are not supported.

Mixed systems (1954208 in parallel to 2654208) are not supported by VictronConnect, neither for readout nor for settings; use VEConfigure instead.

Inverter/chargers can be connected to in two ways:

1. Using USB, this requires the MK3-USB, full details here.
2. Wirelessly, over Bluetooth. Requires the VE.Bus Smart dongle accessory. The available functionality is monitoring as well as operation of the product: switching between on/off/charger-only and setting the input current limit. Changing the configuration, as well as firmware updating a VE.Bus product, is not supported.

Note that switching between on/off/charger-only as well as setting the input current limit is not possible when there is a DMC or VE.Bus BMS installed.

For systems with a GX product installed, and running firmware version 415 or newer, switching between on/off/charger-only and setting the input current limit IS possible.

17.10. RS Product line

	USB via VE.Direct port	Wireless Via Bluetooth
SmartSolar MPPT RS 450/100-Tr	VE.Direct to USB accessory required	Yes - Built in
SmartSolar MPPT RS 450/200-Tr	VE.Direct to USB accessory required	Yes - Built in
Inverter RS 48/6000 230V Smart	VE.Direct to USB accessory required	Yes - Built in
Inverter RS 48/6000 230V Smart Solar	VE.Direct to USB accessory required	Yes - Built in
Multi RS Solar 48/6000/100-450/100	VE.Direct to USB accessory required	Yes - Built in

17.11. EV Charging Station

	USB via VE.Direct port	Wireless Via Bluetooth
EV Charging Station*	No VE.Direct port	Yes - Built in
EV Charging Station NS	No VE.Direct port	Yes - Built in

* Requires firmware v1.24 or later

17.12. VM-3P75CT Energy Meter

	USB via VE.Direct port	Wireless Via Bluetooth
VM-3P75CT Energy Meter	No	No*
*The VM-3P75CT uses a direct Ethernet or VE.Can connection; see the VM-3P75CT manual for details.		

17.13. Orion XS 12/12-50A DC-DC battery charger

	USB via VE.Direct port	Wireless Via Bluetooth
Orion XS 12/12-50A DC-DC battery charger	VE.Direct to USB accessory required	Yes - Built-in