

VE.Bus firmware versions explained

v21 – November 21st, 2016

www.victronenergy.com

Selecting the right firmware for a system

Introduction to the firmware types and functionalities

There are several different types of firmware available for each VE.Bus product. For example a MultiPlus 24/3000/70 with 50A transfer switch could be loaded with firmware 2610143, 2610206, 2610302 or 2610400.

With the release of firmware version 4xx, it is no longer necessary to update firmware when a different type of firmware for a different type of installation. As soon as existing stock has been sold, our Multis and Quattros will be shipped with firmware version 400 installed and can then be used with Assistants out of the box. More information on 4xx here:

<http://www.victronenergy.com/blog/2015/08/25/ve-bus-firmware-version-400/>

Basic systems

The vast majority of systems are made with what we call the Virtual switch functionality. This can be done with the default firmware version, in the unit as shipped. This will be either version xxxx1xx or xxxx4xx. Note that 'basic systems' is a quite modest description: there are many options available on the Virtual switch tab in VEConfigure3. Two typical examples are automatic generator start/stop and forcing the inverter/charger in to Inverter mode even though good AC is available (called AC ignore). The major advantage of configuring with the Virtual switch is that it is much easier than configuring with Assistants.

- Firmware xxxx1xxx is available for both hardware with old and new type microprocessors.
- Firmware version xxxx4xxx is only available for the new type of microprocessors and is the successor of xxxx1xxx.

Energy storage (Hub-1, Hub-2, Hub-4) and other more advanced systems

For these systems you need firmware version xxxx4xx. Note that this firmware type is only available for new type microprocessors: 26xxxxx and 27xxxxx. See the next paragraph for old microprocessors.

Complex systems using hardware with old microprocessors

For these systems you use firmware version xxxx2xx. The Virtual switch tab will disappear, and the Assistants tab will appear in its place after loading this firmware. The old microprocessors can be identified by looking at the 7 digit firmware number. The first two digits will be 19 or 20 for old micros, and 26 or 27 for new micros.

Functionality and hardware compatibility matrix

	Old micro (19/20)		New micro (26/27)			
	150 – 199	200 - 299	150 - 199	200 - 299	300 - 399	400 - 499
Virtual switch	Yes	No	Yes	No	No	Yes
Assistants	No	Yes	No	Yes	Yes	Yes
Averaged watts	No	No	No	Yes	Yes	Yes
kWh counters	No	No	Yes	Yes	Yes	Yes
Wired AC Current Sensor	No	No	No	Yes	Yes	Yes
Hub-1	No	No	No	No	Yes	Yes
Hub-2 v2	No	Yes	No	Yes	No	No
Hub-2 v3	No	No	No	No	Yes	Yes
Hub-4	No	No	No	No	No	Yes

Notes:

- 3xx firmware versions should not be used in new installs. Use 4xx instead.
- Firmware versions below 150 can always be upgraded to the latest 1xx version.
- Measuring watts instead of VAs is introduced in versions 154, 205, 300 and 400.
- Averaged watts (improvement of just measuring watts instead of VAs) has been introduced in 207, 300 and 400. It is not available for 1xx.
- kWh counters are introduced in versions 154, 205, 300 and 400. And works on new micros (26/27) only.

VE.Bus Firmware numbering system

1941143

||-----> 19 is the family group number
||-----> 41 is the model: Quattro 24/3000/70-50/30
|||---> 143 is the firmware version

Family groups

18 No VE.Bus
19 VE.Bus - old microprocessor, 230VAC
20 VE.Bus - old microprocessor, 120VAC
26 VE.Bus - new microprocessor, 230VAC
27 VE.Bus - new microprocessor, 120VAC

Models

To get a list of all models, login to <https://professional.victronenergy.com>, and browse to Firmware -> VE.Bus -> VE.Bus Firmware Numbers.txt

Firmware versions

110 to 143 are firmware versions with Virtual Switch functionality for the old microprocessor.
150 to 199 are firmware versions with Virtual Switch functionality for the old and the new microprocessor.
200 to 299 are firmware versions with Assistant functionality, for old and new microprocessor.
300 to 399 are firmware versions with Assistant functionality that work only on the new microprocessor
400 to 499 are firmware versions with both Virtual Switch and Assistant functionality, only for the new microprocessor.

Notes:

- 3xx firmware version should not be used in new installs, use 400 instead.
- only reason to use 2xx firmware is when working with an old microprocessor (19/20).

Firmware compatibility in three- and split-phase systems

Units with old and new microprocessors can be used in parallel and three-phase installations without any problems. So for example 1942150 can be paralleled with 2642150. Combining virtual switch firmware (100 – 199) with assistant firmware (200 – 499) is not possible. It is important to always use the same, and the last, firmware in each unit.

	Bad	Good
Multi on L1	1946205	1946206
Multi on L2	2646205	2646206
Multi on L3	1946206	1946206

How to update firmware

1. Make sure your Multi/Inverter/Quattro is compatible

All VE.Bus products, including Phoenix Inverters and Compacts, can be updated to xxxx2xx firmware. Only hardware with a new microprocessor, firmware version starts with 26xxxxx or 27xxxxx instead of 19xxxxx or 20xxxxx, can be updated to xxxx4xx firmware.

2. Get all necessary files

New firmware for your Multi/Inverter/Quattro

Ask for the latest firmware via service@victronenergy.com. Make sure to mention which type you are looking for (1xx, 2xx or 4xx), and also the old firmware, which is written on the microprocessor. It is a seven digit number, starting with 19, 20, 26 or 27.

VEConfigure 3

Download: <http://www.victronenergy.com/Executables/VEConfig/VECSetup.exe>

VEFlash is included in the installation.

If you have a Global Remote or Ethernet Remote:

New firmware for the MK2.2a

Download: <http://www.victronenergy.com/Executables/Firmware/1130/1130135b.vff>

If you have a Blue Power Panel 2 or VVC

The BBP2 and VVC can be used with 1xx, 2xx and 4xx firmware. For 4xx, a new firmware version is required: vvc firmware v4.01 or higher. During September 2016, all Victron stock has been updated.

If you have a VE.Bus to NMEA2000 interface or VE.Bus to VE.Can interface

Firmware v2.10 or higher is required, ask service via service@victronenergy.com. To update, use VE Power Setup, available on <http://www.victronenergy.com/support-and-downloads/software/>. Note that there are two hardware versions of this interface, and only the version marked with rev 2 can be updated to v2.10.

3. Update the Multi/Inverter/Quattro

1. Start VEFlash, and choose "update the firmware".
2. Follow the instructions on the screen ([step-by-step guide](#))

4. Install VEConfigure3

1. Uninstall all previously installed VEConfigure tools. Use the Uninstall shortcut in your start menu.
2. Install VEConfigure3

Note: Previous versions of VEFlash (versions before v9005133, released on March 13th 2013) require another software tool to be executed after updating a unit.

A unit that needs this tool will suffer the following symptoms:

- It will either not start at all or immediately switch off when the inverter is loaded with even a small load.
- The Phoenix Multi/Quattro will indicate this error by blinking the Bulk, Absorption and Float LEDs.
A Multi Compact will blink the Inverter and Charger LEDs in opposite phase with the error LED.
NOTE: A Phoenix Inverter will switch off/ stay off with no LED lit.

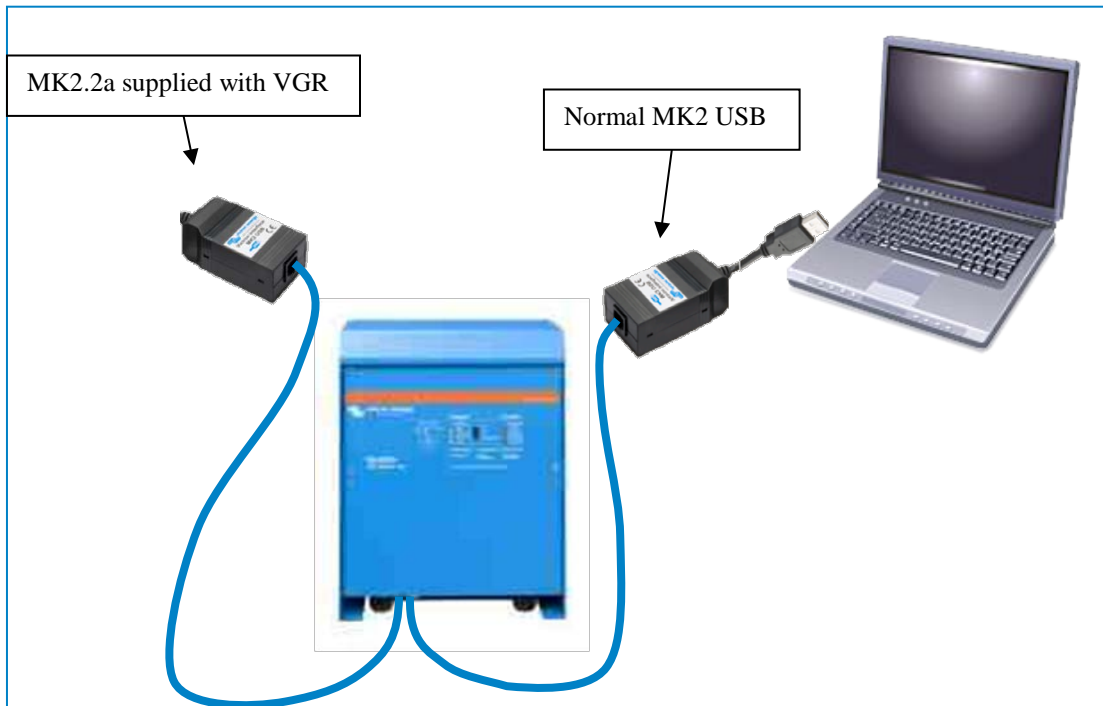
To solve this one must use the calibration tool which can be downloaded here:

http://www.victronenergy.com/Executables/Tools/Calibrate_A8-AF.exe

Note: Although the new VEFlash does this correction automatically one cannot solve this issue by running the new VEFlash after running an older one (even if the old one did not finish correctly). In that case one must use the above mentioned tool.

5. Updating the MK2.2a for the Global Remote

Connect the MK2.2a supplied with the VGR as below. Make sure the Multi/Inverter/Quattro is also connected, and switched on. It is needed to power the two MK2's.

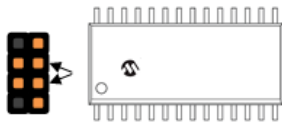


1. Start VEFash and choose update firmware.
2. Open the firmware file 1130135b.vff.
3. Select the comport to which the normal MK2-USB is connected.
4. At the "Read carefully!" screen: Disconnect the MK2.2a from the VE.Bus cable
5. At the "Connect device" screen: Connect the MK2.2a again to the VE.Bus cable
6. Continue with the on screen instructions. Attention: The Multi/Inverter/Quattro will be turned off by the software. Do not switch it off yourself!
7. Press OK when VEFash is finished
8. Disconnect the normal MK2 from the Multi/Inverter/Quattro
9. Now switch off the Multi/Inverter/Quattro and switch it on again.

Note: this procedure might not work on some MK2's, mostly older MK2's. There are two solutions:

- A. Connect the MK2.2a to the computer with an RS232/USB interface, and to the Multi. Then start the latest version of VEConfigure3. It needs to be version 151 or higher. The MK2.2a will be updated automatically. This replaces the complete procedure, step 1 to step 9, as described above.

- B. Open the MK2.2a, and look for the 8 pin male header:



At step 5 of above procedure, first connect the MK2.2a to the VE.Bus cable. Then create a short-circuit between the two pins indicated by an arrow. Touching both pins with a simple screwdriver will do the job, the short needs to be there only very briefly. Remove the short circuit before pressing "Next".

The screen of step 5:



Document revisions

v5 – 18 October 2012

Updated info on BPP and VE.Bus to NMEA2000 interface compatibility, and added VEConfigure3 and xxxx2xx firmware introductions.

v6 – 26 October 2012

Added xxxx203 firmware.

v7 – 11 February 2013

Added alternatives A and B to the procedure on updating an MK2.2a for use with VGR and VER.

v8 – 1 March 2013

Added information on firmware version 204.

v9 – 14 March 2013

Changed information on calibration tool, since this functionality is now included in VEFash and executed automatically.

v10 – 22 July 2013

Added information on Data file created warning in VEConfigure.

Added VE.Bus firmware 205

More small text updates and improvements

v11 – 2 February 2014

Added xxxx206

v12 – 3 March 2014

Updated download links of VEFash and VEConfigure3: VEFash is now included in the VEConfigure3 package

v13 – 7 March 2014

Added xxxx3xx firmware and explanations

v14 – 10 April 2014

Renamed document

Removed first paragraph (intro to VEConfigure3)

Removed confusing footnote from first page

v15 – 28 May 2014

Updated first table and added notes below

v16 – 29 July 2014

Added xxxx302 and updated Hub-2 v3 which only runs on the 3xx firmware

v17 – 27 Sept 2014

Added xxxx303, xxxx304 and xxxx207

Several small text improvements

v18 – 8 December 2014

v19 – 8 February 2015

Added xxxx305 and xxxx208

v20 – 25 August 2015

Added xxxx4xx

v21 – 21 November 2016

More focus on 4xx and added link to ve.bus firmware numbers.txt.