

VE.Bus firmware versions explained

v19 – February 8th 2015

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 or 2610302. Each one has its own type of use and advantages. Select the firmware type that best matches the system being installed.

Basic systems

The vast majority of systems are made with what we call the Virtual switch functionality, and this is with firmware version xxxx1xx. 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. All stocked products have xxxx1xx firmware.

Hub-1, Hub-2 and other system topologies with AC- and DC-coupled PV

For these systems you need firmware version xxxx3xx. The Virtual switch tab will disappear, and the Assistants tab will appear in its place after loading this firmware. Note that this firmware type is only available for new type microprocessors: 26xxxxx and 27xxxxx. There is an upgrade policy for recently purchased systems, contact your Victron representative for more information. Looking for Hub-2 on older hardware, without the 26 or 27 microprocessor? See the next paragraph.

Other systems with automatic control that can't be made with the Virtual switch

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. Firmware xxxx2xx is available for both hardware with old and new type microprocessors.

Functionality and hardware compatibility matrix

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

Notes:

- Firmware versions below 150 can always be upgraded to the latest 1xx version.
- Measuring watts instead of VAs is introduced in versions 154, 205 and 300.
- Averaged watts (improvement of just measuring watts instead of VAs) has been introduced in 207 and 300.
- kWh counters are introduced in versions 154, 205 and 300, for 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

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 micro (Hub-1 and Hub-2 only).

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 – 399) 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

Change log of xxxx3xx firmware versions (always use the latest one!)

xxxx305

- Fan regulation for compact changed to prevent unnecessary switch on.
- Fan regulation for All Multi/Quattro/Inverter (non Compact) models with new processor changed to reduce overall fan activity.

xxxx304

- Fixed a bug in the with compact firmware, which caused the SOC to be lost when the Compact is switched off with a remote panel or VE.Bus BMS
- Fixed bug in the Bulk time measurement. When IDC was 0 this was erroneously considered as Bulk time.
- Several self-consumption hubs related algorithm improvements

xxxx303

- New PowerAssist constants for the 2609 and 2622 models.

xxxx302

- Added features used by the Hub-2 assistant

xxxx301

- Fixed bug in charge state (float, absorption, bulk, etcetera) indication.

xxxx300

- Initial version

Change log of xxxx2xx firmware versions (always use the latest one!)

xxxx208

- Fan regulation for compact changed to prevent unnecessary switch on.
- Fan regulation for All Multi/Quattro/Inverter (non Compact) models with new processor changed to reduce overall fan activity.

xxxx207

- Improved switching to net in case of an overload. (Prevented the overload action to continuously interfere with switch to net)
- Fixed a bug in the with compact firmware, which caused the SOC to be lost when the Compact is switched off with a remote panel or VE.Bus BMS
- Fixed a bug which prevented forcing charge states by toggling the front switch.

xxxx206

- Added functions which are necessary for the Silence fan assistant
- Code shrunk, there is now more space for assistants
- Hub-2: improved regulation of PV energy used during charge, in systems with inductive and capacitive loads
- Bugfix: a master in a parallel system could, under special circumstances, switch on without the slaves switching on.

xxxx205

- Added GridAssist: do not shut down on overload while ignoring AC input, switch back to AC input instead
- Added kWh counters: used by the new VRM dashboard (only new microprocessors, 26xxxxx and 27xxxxx)¹
- Internal changes necessary for the new 'Self-consumption Hub-2 v2' assistant
- Improved Battery Monitor functionality: added setting for charge efficiency
- AC Input current reported to control panels is now signed: when power is fed back to grid, this is shown on the Color Control GX. The BPP2, VGR2 and VER do not support this, and will show an erroneous value which is too far too high when power is being fed back to grid.

xxxx204

- A product that is on, will no longer switch off when a MK2.2b or BPP is plugged in
- The Grid Support assistant can use temperature compensation in the charge profile.

xxxx203

- Bug fixed in the LED handling by the "Grid Converter support" assistant in a Compact.

xxxx202

- Improvements in writing and reading the assistants with VEConfigure3. The VE.Bus device will no longer switch off when reading the Assistants configuration.
- Both writing and reading speed is increased.

xxxx201

- Dipswitch configuration support removed, to create space for more assistants.

xxxx200

- Initial version that includes Assistant functionality. Note that this removes the Virtual Switch functionality.

¹ Note that this dashboard works only with the Color Control GX, not with VGR2 and VER

How to update firmware

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 xxxx3xx firmware.

Get all necessary software

New firmware for your Multi/Inverter/Quattro

Ask for the latest xxxx2xx firmware via service@victronenergy.com. Make sure to mention 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/1130/1130132b.vff>

If you have a Blue Power Panel 2 or VVC

New firmware, v4.0 or higher, is required. Available since July 2012, all BPP2s in stock have v4.0 or higher. The BPP2 and VVC can only be updated by Victron Energy.

If you have a VE.Bus to NMEA2000 interface

Firmware v0.11 or higher is required, ask service via service@victronenergy.com.

Download update tool VUP.exe: <http://www.victronenergy.com/support-and-downloads/software/>, look for VUP

Necessary hardware: a USB to Canbus interface. Vup.exe is compatible with:

- Victron CANUSB, see our pricelist and E.Order
- Kvaser USB Canbus products, www.kvaser.com, also available via Farnell / Elements14
- Actisense NGT-1, www.actisense.com
- Peak all PCAN-USB cables, www.peak-system.com

Update the Multi/Inverter/Quattro

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

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 anti phase with the error LED.
NOTE: A Phoenix Inverter will switch off/ stay off with no LED lit.

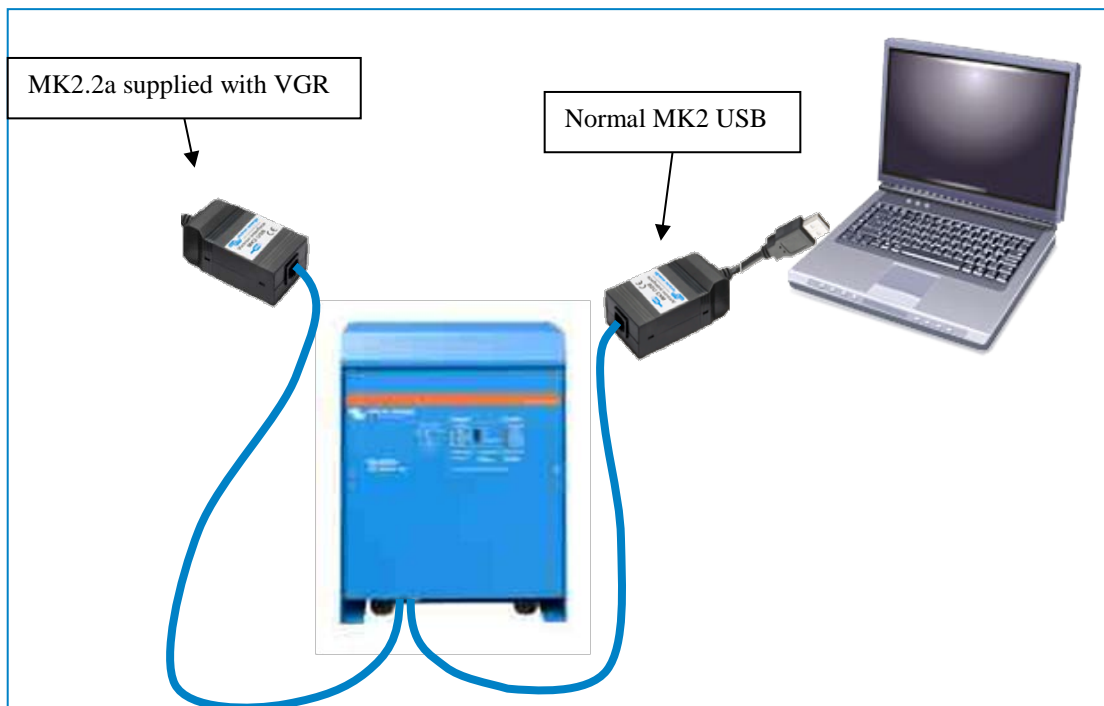
To solve this one must use the calibration tool which can be downloaded here:

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.

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.

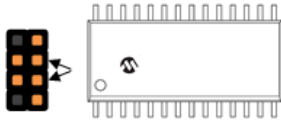


1. Start VFlash and choose update firmware.
2. Open the firmware file 1130132b.vff.
3. Select the comport to which the normal MK2-USB is connected.
4. At the "Read carefully!" screen: Disconnect the MK2.2a from the VE.Bus cable
5. At the "Connect device" screen: Connect the MK2.2a again to the VE.Bus 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 VFlash 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:

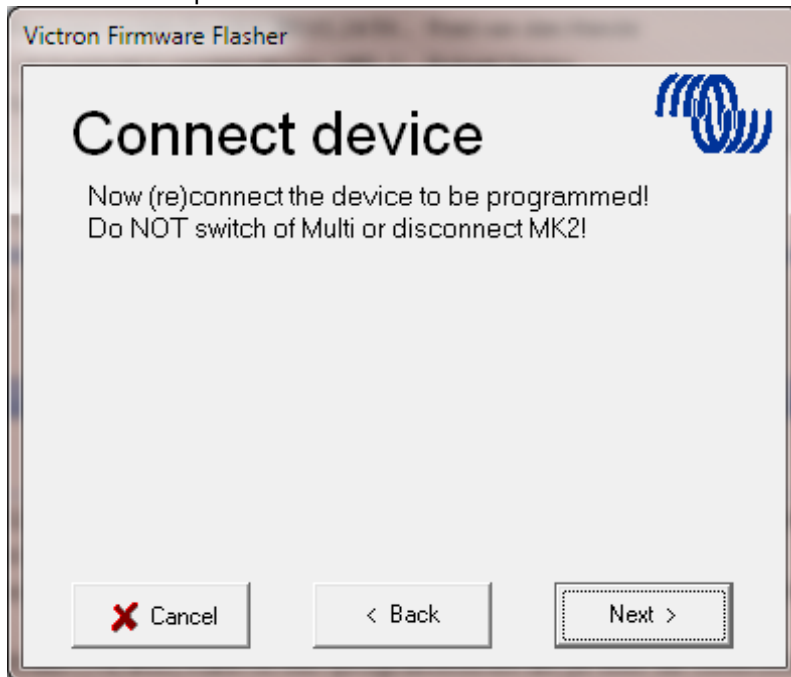
- A. Connect the MK2.2a to the computer with an RS232/USB interface, and to the Multi. Then start the latest version of VEConfigure3. It needs to be version 151 or higher. The MK2.2a will be updated automatically. This replaces the complete procedure, step 1 to step 9, as described above.

- 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