# Firmware change log

Below you will find the change log for the Multi/Quattro firmware versions. We strongly advise you to always use the latest available version!

Please refer also to the document [VE.Bus firmware versions explained](http://www.victronenergy.com/upload/documents/manual-VE.Bus-firmware-versions-explained-EN.pdf) for an explanation of the differences between the versions.

Quick links:

[xxxx1xx change log](#_Change_log_of_2) (Virtual switch software. Advice: use for old micro only)

[xxxx2xx change log](#_Change_log_of_4) (Assistant software. Advice: use for old micro only)

[~~xxxx3xx change log~~](#_Change_log_of_1) ~~(Assistant software for new micro only)~~ Deprecated

[xxxx4xx change log](#_Change_log_of) (supports Virtual switch and Assistants, new micros only)

## Change log of xxxx4xx firmware versions

xxxx4xx Is the firmware to use for new micros.

### xxxx450 and up

|  |  |
| --- | --- |
| xxxx500 | November 17, 2022* Added “Disable Vsense” option
* Update to gridcodes Austria and UK(a default value is changed for Austria and the P(*f*) curve is changed for UK)
 |
| xxxx499 | October 24, 2022Update is only for the following models:* Quattro 48/10000/140-2x100  (update not required for serial numbers lower than HQ2214xxxxx)
* Quattro 48/8000/110-2x100 (update not required for serial numbers lower than HQ2219xxxxx)

Under certain circumstances, ESS systems build with these models did not work as intended and could a.o. generate high DC voltages in systems with lithium batteries which can cause over voltage and subsequent BMS disconnects.For these models it is highly recommended to install this update. |
| xxxx498 | August 24, 2022* Update UK gridcode (G98/1 Amendment 6, G99/1 Amendment 8)
 |
| xxxx497 | May 23, 2022* Bug fix (similar to the bug fix in xxxx492).*It proved that (in rare cases) with firmwares xxxx495 upto xxxx496 the Multi could get ‘stuck’ in the off state.It could not be switched on anymore neither locally nor remote. The low battery LED will be on when the unit is switched on even if the battery voltage is OK.*
 |
| xxxx496 | April 19, 2022* Reduced audible noise in some 12V 3K Multi models.
* Reacts a bit slower to DC overvoltage.Reason for this change is that some BMS systems disconnect the battery during charge (when a high cell voltage is detected). This resulted in DC overshoot which in its turn resulted in a switch off. By making the reaction time on DC overvoltage a bit longer most systems will continue to operate under this condition.
* Minor improvement on fan driver.(Under certain specific conditions the fan did not start even if the average current indicated that it should. This is a minor improvement since it did not impose a real problem because the fan could still start based on internal temperature sensor.)
 |
| xxxx495 | March 15, 2022* Added “gridcode” for AS/NZS 4777.2:2020 appendix M (standalone inverter)
* Max apparent power limited to 4.6kVA when VDE gridcode selected.
* Improvements:
	+ Low bat indication is generated when discharge is forbidden by BOL(BOL= Battery Operational Limits (used by DVCC on CCGX)
	+ Prevents ErrorCodes when device is switched off
	+ System behaviour on systems with CCGX and VE.Bus BMS.(Some LED flashes and relay clicks while devices switched off)
 |
| xxxx494 | January 31, 2022* Bug removed:In a Multi phase system, the option “Stop charger below ? deg C”now correctly disables the charger on all phases when temperature is low.(In previous versions only the charger in L1 was disabled.)
* When using a VE.Bus BMS, the repeated Absorption mechanism is now available.
 |
| xxxx493 | January 18, 2022* 8K and 10K Multiplus-II.The option “external current sensor connected” is made available.
* Removed support for external current sensor from Quattro-II models.
 |
| xxxx492 | January 17, 2022* Bug fix.*It proved that (in rare cases) with firmwares xxxx489 upto xxxx491 the Multi could get ‘stuck’ in the off state.It could not be switched on anymore neither locally nor remote. Even power cycling the system does not fix the issue.*

*(note that communication with such a unit is still possible).* |
| xxxx491 | December 2, 2021* Bug fix for the **Quattro-II** and **Multiplus-II 2x120V***In very rare cases the reading of the AUX2 input could momentarily return a wrong value.Please note that AUX2 is* ***not*** *used in the firmware but CAN be used by loading assistants.*
 |
| xxxx490 | November 10, 2021* A system which raises error 17 (indicating that a “slave” misses the “master”) will now automatically recover when the master is found again.
* UPS function was accidently disabled when “Other: AC Neutral path externally joined” was selected (since the introduction of this gridcode)This is corrected so now the UPS function is disabled for all Gridcodes except “None”, “Other” and “Other: AC Neutral path externally joined”.
 |
| xxxx489 | October 29, 2021* In order to account for external chargers, state of charge now synchronizes to the configured absorption percentage when the DC voltage reaches Absorption voltage ‑ 0.1V.
* Added configuration option to stop charging at low temperature for Li-Ion systems that don’t feature that themselves.
* Fix small PLL issue introduced in xxxx483 which in some cases can cause audible noise.
* Compacts do now startup reliable on AC when DC is 0V.
* Freconnect for Chilean gridcode changed from 50.1Hz to 50.2Hz.
* Added support for VE.Bus BMS.With this firmware there is no need to use the VE.Bus BMS assistant anymore.Using this new firmware results in practically the same behaviour as previously when using the Assistant.As soon as the Multi (or Quattro) sees the VE.Bus BMS, and the (new) checkbox called “Configured for VE.Bus BMS” is not checked yet, it will automatically configure itself.The settings then auto-configured are:
	+ The (new) ”Configured for VE.Bus BMS” setting is set, meaning that it will no longer charge in case it doesn’t see the VE.Bus BMS anymore. In more detail: it will go through passthrough when AC is present, and switches off if there is no AC BMS. This is a safety feature.
	+ Battery type is set to lithium
	+ Absorption voltage is set to 14.2V, Float to 13.5
	+ Maximum absorption time to 60 minutes
	+ Charge curve fixed (but reduced float is disabled, the settings “repeated absorption time” and “repeated absorption interval” are changed but ignored)
	+ Storage mode is unchecked
	+ State of charge when bulk is finished: 95%
	+ Charge efficiency: 95%
	+ Temperature compensation is disabled.

The recommended way to commission such system is to:1. update the firmware
2. install and connect the VE.Bus BMS
3. unplug the VE.Bus BMS and wait for the Multi to switch to passthrough/switch off. This step ensures that the Multi has properly detected the VE.Bus BMS.
4. Reinsert the VE.Bus BMS.
5. Finished, or optionally connect with VictronConnect and make the rest of the configuration.

The firmware update can of course be done with VictronConnect, which will soon ship this new firmware.Related changes:- The VE.Bus BMS Assistant, when installed on this new firmware, will issue a warning, that it needs no longer to be installed. (It will be harmless if it is).- The ESS Assistant as well as some others, with integrated VE.Bus BMS functionality are updated and will work with both old firmware & new firmware. |
| xxxx488 | September 16, 2021* French gridcode:
	+ Improved acceptance of grid
	+ Added support for external IP protection
 |
| xxxx487 | August 30, 2021* For Li-Ion the re-start Bulk voltage is now Float-0.2V (12V system) without maximum.
* Improved gridcode TOR Erzeuger.
 |
| xxxx486 | July 23, 2021* Removed a bug (introduced in 485)For some older non-MultiPlus-II models, the AC out 2 relay delay was a few seconds instead of 2 minutes.
 |
| xxxx485 | July 2, 2021* Certain gridcodes can now also be selected with normal Multis and Quattros. (external IP protection required).The latest VEConfigure 3 version has to be used for this.
 |
| xxxx484 | June 11, 2021* Improvement in PWM driving during charge.
* Small change in VirtualSwitch “general failure” condition.(VE.Bus error codes do now also trigger this condition)
 |
| xxxx483 | May 27, 2021* Some major under the hood changes in preparation for the Quattro-II
* 2x120V devices can now be used in more complex VE.Bus systems.
 |
| xxxx482 | May 12, 2021* Changes to comply to new French and Austrian grid codes.
* Improved BF failure detection mechanism.
 |
| xxxx481 | February 9, 2021* False overloads proved still to be possible. A cause for this has been found and a solution is implemented to prevent this.
 |
| xxxx480 | January 29, 2021* UMains range changed for all US models to 90-140Vac (was 94-143Vac)
 |
| xxxx479 | January 14, 2021* removed a bug from P(*f*) functionality for UK, Ireland and Australia.(if while charging the P(*f*) is triggered by a changing frequency the charge power was set to 0 Watt)
 |
| xxxx478 | December 18, 2020* Prevents permanent lock on ripple error due to overload
* Improvement of acceptance of grid in “floating phase” systems icw generators.
* Solved: Spurious switch off due to overload.
 |
| xxxx477 | September 21, 2020* For MultiPlus-II the following “gridcode” is added:“Other: AC Neutral path externally joined (not compliant)”
 |
| xxxx476 | August 14, 2020* Added support for “Northern Ireland: G99/NI April 2019”
 |
| xxxx475 | July 6, 2020* Solves an issue with gridcode compliance. (ie. Feeding DC surplus to the grid will now correctly take the power limit as dictated by the gridcode into account.)
* EasySolar only: VDE gridcode P(f<) curve has now a 5% droop in an EasySolar as required.
 |
| xxxx474 | May 4, 2020* Solves the following issue:

If a DMC or similar panel is connected to the Multi and the shore current is set to zero, the Multi switches to Bypass or Invert-Only (depending on whether or not PowerAssist is disabled). This is an intended feature of the remote panel.However, when the remote panel is removed, the Multi stays in this special state and will not charge anymore until a reset is performed by the front switch.This special state is now automatically cleared when the remote panel is removed. |
| xxxx473 | April 3, 2020* Added grid code for Denmark.(based on “**Technical regulation 3-3-1 for electrical energy storage facilities**”)
* Added option to limit AC current to/from inverter for the grid codes:Europe, Belgium, Austria and Germany.
* Added Lock-in/Lock-out on AC input voltage for the Cosϕ function for the grid codes:Europe, Belgium and Austria
 |
| xxxx472 | March 27, 2020* Changed Austria gridcode to comply with TOR-Erzeuger A V1.1:2019-12
 |
| xxxx471 | February 28, 2020* Removed a bug from AS/NZS 4777 gridcode implementation.The P(f) curve was not according to the grid code standard.(Bug was introduced in f/w xxxx467)
 |
| xxxx470 | February 14, 2020* Improved PWM driving for MultiPlus-II
 |
| xxxx469 | January 22, 2020* Prevents false UPS triggers on the 500VA models
* Prepared for new ESS function to limit maximum Feed in power
* Several improvements in regulation to prevent instability
* Multiplus 1600VA max temperature improvement
 |
| xxxx468 | December 20, 2019* Added Belgian gridcode.
* repaired bug in P(U) function.(FeedIn would not start under special circumstances depending on the use of the P(U) function and the voltage during startup)
 |
| xxxx467 | December 4, 2019* For Multiplus-II only:
	+ Supports the European grid code EN50549-1:2019
* For Compacts only:
	+ Improved remote on/off switching of a Compact.
	+ On/off behavior is now more similar to the other Multis(i.e. switching the unit off resets the controller, even if AC input is available.)
 |
| xxxx466 | October 11, 2019* For Multiplus-II only:
	+ New gridcode for France (VFR 2019)
	+ Two special gridcodes added for AS/NZS4777. These should be used in systems where the Neutral In and Out are externally tied together.
 |
| xxxx465 | September 19, 2019* Added Q(U) and P(U) functionality for AS/NZS4777
 |
| xxxx464 | September 19, 2019* Changed minimum difference between **DC input low shut-down** and **DC input low restart** voltages from 1V/2V/4V to 0.25V/0.5V/1V (12/24/48V systems). This allows systems to use a lower **DC input low restart** without the need to use a lower **DC input low shut-down** then also.(n.b. Lowest allowable DC input low restart is 10.9, 20.6, 41.2V (12/24/48V systems))
* Added P(f) functionality to UK grid code.
* Solved an issue due to which Multis without AUX1 input could not use VDE Ziehl.
* Fix some ESS systems with lithium batteries not feeding back, which in certain situations happened when the system was (re)started while battery voltage was low or lithium system disconnected. In such situation, the Battery voltage was required to go above 14V / 28V / 56V for relay test to start and feedin to be re-enabled. Now, in such situation, the inverter/charger will also perform the relay test (and enable feed-in) when SOC above 20% rather than waiting for such high voltage that some batteries never reach.
 |
| xxxx463 | August 29, 2019* For MultiPlus-II only. Removed

“Ignore assistants by pushing button during startup”functionality. |
| xxxx462 | August 23, 2019* For MultiPlus-II only. Solves the issue of spontaneous E24 errors when an external current sensor is used.
 |
| xxxx461 | July 17, 2019* For MultiPlus-II only. Bug removed: Units did not switch to grid.(n.b. the 2626 model was ok but is nevertheless also updated to revision 461)
 |
| xxxx460 | July 16, 2019* Gridcodes added:
	+ VDE 2011:08 is replaced by VDE 2018:11
	+ UK **G83/2 August 2012, G59/3-1 August 2014** is replaced by **G98/1 March 2019, G99/1 May 2018**
	+ Romania
	+ Chile
* Extra Info added to make it possible for VEConfigure (and other tools) to display the remaining waiting time before connecting to grid and also to display the cause of a grid rejection.
* For Multi phase systems. The Locked state per phase is now available for VEConfigure. This simplifies detecting an installation error (phase swap).
* Temperature compensation for charging is now adjustable between 0 - 30mV/°C (12V model)
* A lot of under the hood changes.
 |
| xxxx459 | April 5, 2019* All models added. (Most of the models were still on 433)
 |
| xxxx458 | * Introduced new model Compact 1600
 |
| xxxx457 | * Transfers additional model info to VECOnfig.

(required for external current sensors with MultiPlus-II) |
| xxxx456 | * Bug fix. Some models exhibit occasionally rejection of the grid
 |
| xxxx455 | * Fix false E11 “AC0/AC1 mismatch”, “UMains error”
 |
| xxxx454 | * Added support for new MultiPlus\_II (with configurable AC-out2 relay)
* Supports extended VE.Bus systems when GrideCode=None.(New required configuration tools will soon be released)
* Supports readout of (amongst others) extended E11 info
* Improvement to prevent false detection of GND relay failure under special circumstances.
* When the gridcode imposes a certain power, this power is now imposed at the Inverter instead of at the input.
* Improved speed of Power regulation during ESS
* IPLog supported by all gridcodes. This IPLog contains info about the reason the grid is rejected. The Log stores the 5 last ‘rejections’.
 |
| xxxx453 | * MultiPlus-II only: Bug removed. When the unit is in AES it will not switch to grid when grid is connected.
 |
| xxxx452 | * Automatic power reduction due to a rising internal temperature now also works during PowerAssist.
* Minor bug removed. (Under certain circumstances (temperature related) the power up ramp was limited too much for FeedIn/Charge. The ramping up could take about 5 minutes.)
* Solved issue with Multifunctional relay. (Once closed it would never open again.)
 |
| xxxx451 | Added:* Added SOC low shut-down functionality
* During FeedIn the power is automatically reduced when the internal temperature rises.
* Furthermore, when connected to grid, the unit switches to bypass before it gets too hot. This will prevent switching off.
 |
| xxxx450 | Major overhaul. Required for grid code related reactive power regulations.At this moment it is released for MultiPlus II/Multigrid II models only.* Added support for reactive power requirements in VDE related grid codes
* Addresses an issue in 3 phase systems which resulted in E11
 |

### below xxxx450

|  |  |
| --- | --- |
| xxxx433 | * Bug removed which resulted in an error when gridcode “VDE-AR-N 4105:2011-08, external NS protection” is selected. Up till now this error has been seen on Multi Compacts only but it cannot be ruled out that other units display the same error. When a Multi/Quattro does not display this behavior, there is no need to update it.
 |
| xxxx432 | * MultiPlus-II / MultiGrid only:Bug removed. When the unit is in AES it will not switch to grid when grid is connected.
 |
| xxxx431 | * Added automatic power reduction when internal temperature rises. (Same as in 452)
* Added SOC low shut-down functionality
 |
| xxxx430 | * Added new MultiPlus-II model with option for 50A external current sensor
* Enabled parallel/3-phase for 500VA models.
 |
| ~~xxxx429~~ | * The number 429 is skipped
 |
| xxxx428 | * Changed for Multigrid / MultiPlus-II only.When selected GridCode=’None’ the dedicated relay tests required for certain grid codes are skipped and the device behaves more or less the same as an MultiPlus.
* Multigrid-II/MultiPlus-II only:fix parallel and 3-phase not working because of false E11.(This error was introduced in version xx25425)
 |
| xxxx427 | * Added TOR-D4 without reactive power regulation.
* Minor bug removed from implementation of grid codes: UTE C15-712-1, RD1699/2011 and C10/11 (France, Spain and Belgium)*(*Bug was o*nly apparent when ESS was* ***not*** *used. In that case, PowerAssist did not work.)*
 |
| xxxx426 | * Changed default LOM setting to ‘Type B’ for most model/gridcode combinations.
 |
| xxxx425 | * Adapted for MultiPlus-II model only. Changed in order to comply with AS/NZS 4777.
 |
| xxxx424 | * Added option to ‘lock’ on short circuit.
* Some Virtual Switch options disabled on inverters.
* Multigrid:
	+ added French, Spanish and Belgium gridcodes
	+ relay test will be postponed until Invert is possible
	+ Improvement in Power ramp up for AS/NZS4777
 |
| xxxx423 | * New PowerAssist method introduced in all models except the 500Va compacts. (Note that the new 1200VA Compacts did already have the new PowerAssist method)
* Some minor improvements.
 |
| xxxx422 | * Timout on remote voltage sense and temperature sense is separated from timeout on the battery operational limits.This ‘sense’ timeout is set to 60s.
* Multigrid only: A delayed relay test in a parallel system will now work correctly. (Previous versions switched off in that case)
 |
| xxxx421 | * Valid UBat Sense range limited. (UBat sense send via VE.Bus)Sense voltages which deviate more than approx ±5V from the UBat measurement on the input clamps of the Multi are ignored.
 |
| ~~xxxx420~~ | The number 420 is skipped |
| xxxx419 | * Added UBat sense and TBat sense via VE.Bus
* Improved RMS measurement of grid when inverter frequency and grid frequency differ.
* 48V models now accept DC inputs up to 66V
* Improved feedin/charge regulations. (prevents ‘low charge current’ with ESS under certain circumstances)
* For Multigrid only:
	+ An assistant can now defer the relay test.
	+ Improved startup with weak batteries
	+ AS/NZS 4777: DRM0 functionality default disabled (+ password removed)
	+ Added NRS097 (South Africa) for Multigrid
* Under the hood improvements
 |
| xxxx418 | * Bug repair (Strange error codes in remote VEConfigure)
 |
| xxxx417 | * Supports weak LOM setting
 |
| xxxx416 | * Introduction of new 1200VA Compacts
 |
| xxxx415 | * Remote on/off state is stored in EEPROM. This will prevent deadlocks which could occur in Lithium systems with low cell voltage.
* Added BOL (Battery Operational Limits)mechanism.This makes it possible to act on the battery state as reported by the battery.
* Extended temperature compensation to -20°C
* Removed password from ‘other: Not compliant to any grid code standard’
* Prevents Error code 7 which could occur during startup in Multi compacts when used with a VE.Bus BMS
* The Multifunctional, Break, K1 and K2 relays will not be driven when the device is switched off.
 |
| xxxx414 | * AS/NZS4777 compliance on a Multigrid 24V model
* Subversion mechanism added
 |
| xxxx413 | * Improved LOM detection mechanism for multi phase systems.Reduces the chance for a false LOM detection on weak grids.
 |
| xxxx412 | * Introduction of AS/NZS 4777 grid code
* A lot of ‘under the hood’ changes/improvements.
 |
| xxxx411 | * PowerAssist adjustment for Compact 12/2000/80-30
 |
| xxxx410 | * Introduction of MultiGrid models
* Added VDE-AR-N 4105:2011-08 grid code for MultiGrid models.(no external protection relay required)
 |
| xxxx409 | * Introduction of 500VA models
 |
| xxxx408 | * Removed bug which in Hub4 could result in very high charge current (and permanent switch off) when Dynamic Cut-Off is not configured correctly.(Bug is introduced in version xxxx402)
* Better performance in HUB-4 for PMains powers and set points > ±16K
 |
| xxxx407 | * Added support for “VDE-AR-N 4105:2011-08” grid code i.c.w. external protection relay. (See also declaration of conformity)
 |
| xxxx406 | * Bug removed. Charger could stay in equalization mode for an extended period of time. (This was a bug in all 3xx and 4xx firmwares)
* With the introduction of grid code compatibility, a new test on the grid stability had been implemented. This resulted in a limited acceptable RoCoF (rate of change of frequency). It proved that this limited RoCoF could be problematic on small generators. Therefore this limitation is lifted when FeedIn is disabled.
 |
| xxxx405 | * Improved stability for FeedIn regulation
 |
| xxxx404 | * Added support for CEI grid code icw Ziehl relay. (certified for the 3000VA models)
 |
| xxxx403 | * Erroneous ‘Device must be reset’ message prevented.
* Devices can still work in parallel or 3-phase when with UK Grid code is selected.
* Incidental Low bat pre-alarm i.c.w. dynamic cut-off suppressed.
 |
| xxxx402 | * Internal Changes for HUB-1
* Improvement for 48V 8K/10K. (Sine wave shape during higher loads)
 |
| xxxx401 | * Bug removed from Virtual Switch. (Ignore AC input did not function)
 |
| xxxx400 | * Version derived from 307
* Added Loss of Mains detection. (Some models already certified for UK)
* Virtual Switch re-introduced again. User can choose between using Virtual Switch or using Assistants
* Bu fix which resulted in overload errors in certain 3–phase HUb2 systems
* Some (basic) settings can be done with the dipswitches again
 |

## Change log of xxxx3xx firmware versions

xxxx3xx firmware is only available for the new processor. It supports assistants only and does not support Virtual Switch.
It is advised not to use 3xx firmware anymore but use its successor xxxx4xx since that one supports both assistants and Virtual Switch. (Development on 3xx will cease)

|  |  |
| --- | --- |
| xxx307 | * Added feature for supporting Hub-4
* Added some features for assistants in general
 |
| xxxx306 | * Corrected power measurements in a slave
* Slave will indicate VE.Bus error 19 when master wants to close the BF relay and the slave does not detect AC input voltage. (This indicates an installation error)
 |
| 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 for Compact models (The bug 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

xxxx2xx firmware supports assistants only and does not support Virtual Switch.
Use only in old micros. New micros should use the xxxx4xx which supports both.

|  |  |
| --- | --- |
| xxxx209 | * Corrected power measurements in a slave
* Slave will indicate VE.Bus error 19 when master wants to close the BF relay and the slave does not detect AC input voltage. (This indicates an installation error)
 |
| 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 shrinked, 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](#Note1)
* 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.
 |

## Change log of xxxx1xx firmware versions

xxxx1xx firmware supports virtual switch only and does not support assistants.
Use only in old micros. New micros should use the xxxx4xx which supports both.

|  |  |
| --- | --- |
| xxxx161 | * For 48V 8K/10K only.Sine wave shape during higher loads now correctly improved.(erroneously, 160 was not different from 159)
 |
| xxxx160 | * Improvement for 48V 8K/10K. (Sine wave shape during higher loads)
 |
| xxxx159 | * Corrected power measurements in a slave
* Slave will indicate VE.Bus error 19 when master wants to close the BF relay and the slave does not detect AC input voltage. (This indicates an installation error)
 |
| xxxx158 | * Fan regulation for All Multi/Quattro/Inverter (non Compact) models with new processor changed to reduce overall fan activity.
 |
| xxxx157 | * For compacts: FAN regulation changed to prevent unnecessary switch on.
 |
| xxxx156 | * Fixed a bug in for Compact models (The bug caused the SOC to be lost when the Compact is switched off with a remote panel or VE.Bus BMS.)
* Improved switching to net in case of overload.
* 1959/2659 model also adapted for the change in xxxx155.
 |
| xxxx155 | * Prevent output loss when switching to net while DC low on Multis/Quattros with a special brand BF relay.
 |
| xxxx154 | * Bug removed. During Invert, the reported IMains was erroneously unequal to zero.(This bug does not have influence on the function of the Multi. Only the reported IMains was in error.)
 |
| xxxx153 | * Improved Bulk protection mechanism. (made equal to the one in the 2xx version)
* Reported IMains is made signed. (The direction of the power on AC input can now correctly be displayed)
* Power, State and SOC are reported for display on a panel.
* Added kWh counters: used by the new VRM dashboard (only new microprocessors, 26xxxxx and 27xxxxx)[1](#Note1)
* Supports changed compact hardware which results in shorter switch to mains times.
 |
| xxxx152 | * Introduction of new model
* Removed bug from PowerAssist which resulted in less accuracy
* Improved Input current regulation during charge
 |
| xxxx151 | * Code changed to prevent a Multi/Quattro to switch off the moment a remote panel or MK2 is connected.
 |
| xxxx150 | * First firmware suitable for both new and old processor.Derived from xxxx143 (the last firmware which is only suitable for the ‘old’ processor)
 |

## Notes:

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