VE.Bus BMS NG

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VE.Bus BMS NG

VE.Bus BMS NG
left side

VE.Bus BMS NG
right side

The next generation VE.Bus BMS NG

The VE.Bus BMS NG is a battery management system (BMS) for Victron Energy Lithium NG Batteries (not to be confused with the lithium smart batteries without NG). These batteries are based on Lithium Iron Phosphate (LiFePO4) batteries and are available in 12,8V, 25,6V and 51,2V in various capacity options. They can be connected in series, parallel, or a combination of both to create battery banks for system voltages of 12V, 24V, or 48V. A maximum of 50 batteries can be used when configuring a bank with 12V or 24V batteries, while up to 25 batteries can be used with 48V batteries. This allows for a maximum energy storage capacity of 192 kWh with 12V batteries, up to 384 kWh with 24V batteries, and 128 kWh with 48V batteries. For comprehensive details about these batteries, visit the Victron Lithium NG battery product page.

The VE.Bus BMS NG is designed to interface with and protect Victron Lithium NG batteries in systems that include a Victron VE.Bus inverter/charger[1)] or VE.Bus inverter[1)]. It relies on this connection to perform key functions such as enabling/disabling charge and discharge based on battery conditions.

Based on the status of the Lithium NG battery, the BMS will:

- Generate a pre-alarm to indicate an imminent cell undervoltage condition
- Disable inverting in VE.Bus inverters or inverter/chargers via VE.Bus, and disconnect other loads via the Load Disconnect terminal in case of cell undervoltage
- Disable charging in VE.Bus inverters or inverter/chargers via VE.Bus, disable VE.Direct and VE.Can solar chargers via a GX device, and disconnect other chargers via the Charge Disconnect terminal in case of cell overvoltage, undertemperature, or overtemperature

Features

- **Bluetooth Smart**: The VE.Bus BMS NG includes Bluetooth Smart for wireless configuration, monitoring, and firmware updates via the VictronConnect App. Instant Readout shows key data such as SoC, battery temperature, warnings, and alarms directly in the device list, without needing to connect.
- **Load disconnect output**: Controls the remote on/off input of a BatteryProtect, Inverters, DC- DC converter, or other loads with remote on/off functionality. Due to its maximum output current of 1A, it can even control a high-current relay or a contactor. Note that a non-inverting or inverting on/off cable may be required, please consult the manual.
- **Charge disconnect output**: Controls the remote on/off port of chargers such as the Smart Charger IP43, a Cyrix-Li-Charge relay, a Cyrix-Li-ct Battery Combiner or a BatteryProtect. Note that the Charge disconnect output is not suitable to power an inductive load such as a relay coil.
- **Pre-alarm output**: Triggers a visible or audible warning when battery voltage is low,activating at least 30 seconds before the Load Disconnect output is disabled due to cell undervoltage. Can drive a relay, LED, or buzzer. Maximum output current: 1A (not short-circuit protected).
- **Remote on/off terminal**: Allows remote control of the Load and Charge Disconnect outputs. When off, both outputs become free-floating, turning off connected loads and chargers.
- **LED indicators**: The VE.Bus BMS NG has three LEDs: a blue LED for Bluetooth status, a red LED for warnings and alarm errors and a VE.Bus status LED.
- **Communication with VE.Bus products**: MultiPlus, Quattro or Inverters connect to the 'MultiPlus/Quattro' port with a standard RJ45 UTP cable. The BMS disables inverting in the case of a cell under voltage condition and disables charging in the case of a cell over voltage or temperature condition.
- **Communication with remote devices**: : A GX device (such as a Cerbo GX), Digital Multi Control (DMC) panel or a VE.Bus Smart dongle (including any combination) can be connected to the BMS via the 'Remote panel' port. These accessories can all be used in combination with the BMS to remotely control the VE.Bus Inverter or inverter/charger switch state (on/off/charger-only).
- **Auxiliary power input and output terminals**: The BMS has a dedicated power output terminal (GX-Power) for a GX device and an auxiliary power input terminal (Aux-In).

[1)] Inverter/chargers or inverters with the small processors labeled 19XXXXX or 20XXXXX are not supported. These can be identified by the first two digits on the

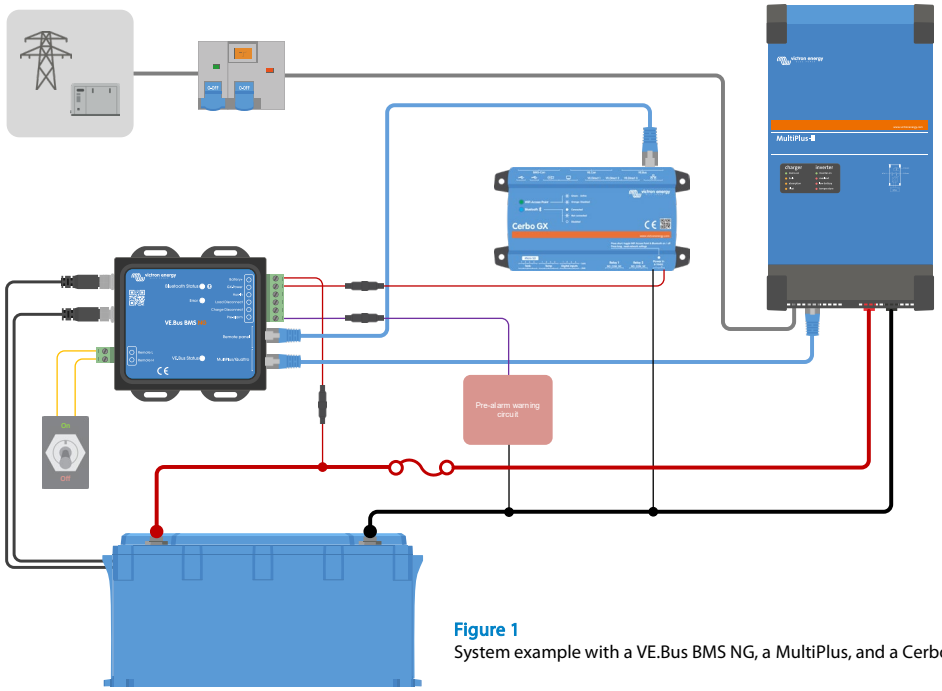

Figure 1
System example with a VE.Bus BMS NG, a MultiPlus, and a Cerbo GX

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VE.Bus BMS NG	
Input voltage range	9 – 70 VDC
Current draw - regular operation	10 mA (excluding Load disconnect current)
Current draw - low cell voltage	2 mA
Current draw - switched off via remote on/off terminal	1,50 mA
GX-pow output	1 A
Aux-in input	1 A
Load disconnect output	Normally high (output voltage ≈ supply voltage – 1 V) Floating when the load needs to be disconnected Source current limit: 1 A Sink current: 0 A
Charge disconnect output	Normally high, (output voltage ≈ supply voltage – 1 V) Floating when charger should be disconnected Source current limit: 10 mA Sink current: 0 A
Pre-alarm output current rating	1 A, not short circuit protected
Remote on/off: Remote L and Remote H	Use modes to turn the system on or off: 1. ON when the L and H terminal are interconnected (switch or relay contact) 2. ON when the L terminal is pulled to battery minus (V<3,5 V) 3. ON when the H terminal is high (2,9 V < VH < Vbat) 4. OFF in all other conditions
VE.Bus communication port	2 x RJ45 sockets to connect to all VE.Bus products
GENERAL	
Operating temperature	-20 to +50 °C 0 – 120 °F
Humidity	Max. 95 % (non-condensing)
Protection grade	IP20
ENCLOSURE	
Material	ABS
Colour	Matt black with a blue sticker
Weight	120 gr
Dimensions (h x w x d)	23,2 mm x 95,0 mm x 105,8 mm
STANDARDS	
Standards: Safety Emission Immunity Automotive	EN 60950 EN 61000-6-3, EN 55014-1 EN 61000-6-2, EN 61000-6-1, EN 55014-2 EN 50498
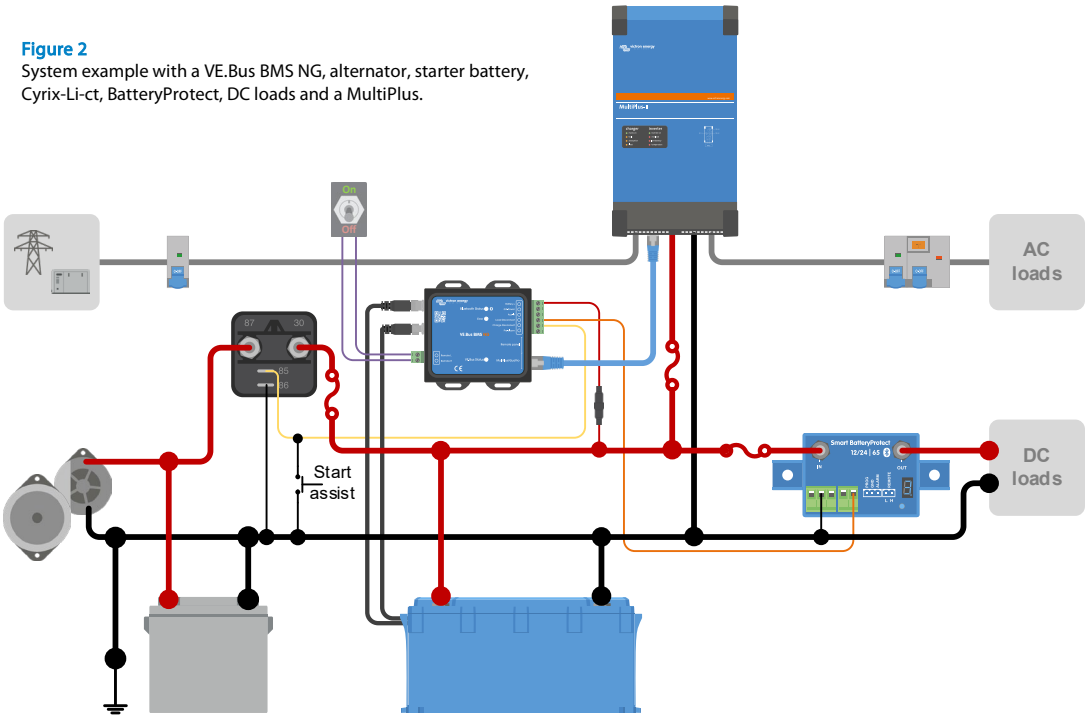
Figure 2
System example with a VE.Bus BMS NG, alternator, starter battery, Cyrix-Li-ct, BatteryProtect, DC loads and a MultiPlus.