

smallBMS NG

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The smallBMS NG with pre-alarm is an all-in-one Battery Management System (BMS) for [Victron Lithium NG](#) batteries (not to be confused with the lithium smart batteries without NG). These batteries are Lithium Iron Phosphate (LiFePO₄) batteries and are available in 12.8V, 25.6V and 51.2V in various capacities. 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 smallBMS NG is a simple and inexpensive alternative to the VE.Bus BMS, but does not have a VE.Bus interface and is therefore not suitable for use with VE.Bus MultiPlus and Quattro inverter/chargers.

Features

- 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 smallBMS NG has two LEDs: a blue LED for Bluetooth status and a red LED for warnings and alarm errors.
- Configurable discharge floor:** Sets the minimum SoC to prevent excessive discharge while ensuring enough energy for self-discharge. A low SoC warning is triggered in VictronConnect, activating the pre-alarm output when the discharge floor is near. If the discharge floor is reached, a low SoC alarm is issued, and the BMS switches off loads after 5 minutes if no charge voltage is detected.



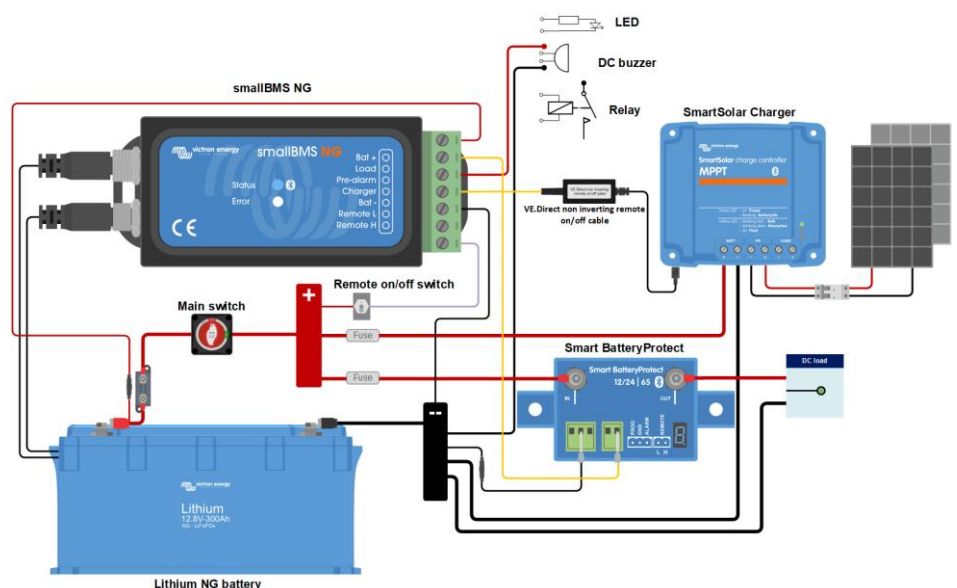
Cyrix Combiners designed for use with the smallBMS NG and the VE.Bus BMS:

Cyrix-Li-ct (120A or 230A)

Is a battery combiner with a Li-ion adapted engage/disengage profile and a control terminal to connect to the Charge Disconnect of the BMS.

Cyrix-Li-Charge (120A or 230A)

Is a unidirectional combiner to insert in between a battery charger and the LFP battery. It will engage only when charge voltage from a battery charger is present on its charge-side terminal. A control terminal connects to the Charge Disconnect of the BMS.



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Operating voltage (Vbat)	8 – 70 Vdc
Power supply cable and fuse (not supplied)	Recommended fuse size 0.3 A - 2.5 A, dependent on devices connected to Load disconnect and pre-alarm output
Current consumption, remote on	3mA (excluding Load and Charge disconnect output current)
Current consumption, low cell voltage	1.2 mA
Current consumption, remote off	1.2 mA
Load disconnect output	Normally high (Vbat – 0.1 V) Source max current: 1 A (not short circuit protected) Sink current: 0 A (output free floating)
Charge disconnect output	Normally high (Vbat – 0.1 V) Source max current: 500 mA (not short circuit protected) Sink current: 0 A (output free floating)
Pre-alarm output	Normally free-floating (low) In case of alarm: output voltage Vbat -0.1 V Maximum output current: 500 mA (not short circuit protected)
Remote on/off: Remote L and Remote H	Use modes: 1. ON when the L and H terminal are interconnected 2. ON when the L terminal is pulled to battery minus (V < 3.5 V) 3. ON when the H terminal is high (2.9V < V _H < Vbat) 4. OFF in all other conditions
GENERAL	
Operating temperature range	-20 to +50 °C (0 – 120 °F)
Humidity	Max. 95 % (non-condensing)
Protection grade	IP20
ENCLOSURE	
Material and colour	ABS, matt black
Weight	0.1 kg
Dimensions (h x w x d)	106 x 42 x 23 mm
STANDARDS	
Safety	EN 60950
Emission	EN 61000-6-3, EN 55014-1
Immunity	EN 61000-6-2, EN 61000-6-1, EN 55014-2
Automotive	Regulation UN/ECE-R10 Rev.4

