Battery Compatibility

Victron inverter/chargers, inverters, chargers, solar chargers, and other products work with common lead-based battery technologies such as AGM, Gel, OPzS, OPzV, traction batteries and more.

For lithium and other battery chemistries we also provide some documentation and guidelines when communication is required between the power electronics and the battery management hardware.

These are mostly connected via “BMS-Can” (CANBus) on a GX device.

Specific information about batteries that have been tested by Victron

- Aquion AHI
- AXIstorage 7S/9S
- BattleBorn
- Bluenova Energy Storage
- BMZ ESS 7.0 / ESS 9.0 / ESS X and ESS Z
- BSLBATT Lithium battery
- BYD B-Box
- Cegasa eBick
- Discover AES
- Exide
- Freedom Won LiTE and eTower
- Hubble Lithium
- LG Chem Resu - (Grid Connected ESS Only)
- MG Energy Systems
- Pylontech
- Redflow ZBM2 / ZCell
- Rolls LFP
- SimpliPhi Power
- SolarMD
- Victron Lithium Batteries

General information about batteries that are not on above list

Many additional 3rd party batteries are also compatible with Victron, and are recommended by local dealers.

Using these batteries is permitted under warranty, and they will require additional information and support from a local supplier.

Victron provides our battery protocol specification to these battery manufacturers on request from a regional manager.

DIY / Self-build oriented BMSes

The information above refers to manufactured battery packs with a supplied BMS.

Besides those, there are also companies selling seperate BMS-es intended to be used with self built lithium batteries. These are typically used when manufactured batteries with integrated BMSes don't meet the requirement of the application, or to save costs.

SUPPORT WARNING: At Victron, we offer very limited support to systems running on these custom BMS batteries.

The following BMS systems are known to correctly follow the Victron battery specification (but are not tested by Victron!):

- 123\SmartBMS - Victron instructions
- REC BMS - https://www.rec-bms.com/ (various Victron documentation on their website)
- Boostech GmbH BMS - https://www.boostech.de/bms-konfigurator/

Common issues we have seen from other DIY / Self-build oriented BMSes

Batteries using a BMS that blocks charge, or discharge current, or sets CCL to 0 when full, can trigger a number of confusing or misleading inverter/charger warnings and alarms.

For example the Victron inverter/charger reports overload conditions with little load, resulting in a lot of time and effort troubleshooting the fault, only for the inverter to work perfectly when on a test bench, and then discovering the actual cause is a custom BMS with a DIY battery.

Another common problem as a battery becomes fully charged, Victron requires the BMS to change the Charge Voltage Limit (CVL) to restrict the power flowing to the battery. If, however, the BMS attempts to restrict power using the Charge Current Limit, without adjusting the Charge Voltage Limit, this can trigger Overcharge, Overvoltage or Overcurrent warnings.

SAFETY WARNING

Batteries can be dangerous. And Lithium Batteries even more so, though don't under estimate the danger of gassing lead acid batteries either. Some types of lithium cells are somewhat intrinsically safe in the way that they won't catch fire when treated wrongly. Note though that while mostly not burning, there will be an enormous mess and smell.

Other lithium technologies are less/not intrinsically safe and they will easily catch fire by overcharging them for example. To go into more detail about all this is beyond the scope of this page - but please take this seriously and also be aware that Victron does not take any responsibility for this.

Worded simply: a battery must be intrinsically safe, and include its own large disconnect mechanism such as a contactor. Only relying on digital signals telling our inverters and chargers to stop charging is not sufficient.

Same message in more words is also here in this blog post: https://www.victronenergy.com/blog/2019/09/19/msol-gmbh-a-pv-energy-storage-ups-project/, as well

as available all over the internet when reading into this issue.

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