



LITHIUM GUIDE

What a BMS Does: Protection, Balancing and Fault Recovery

The battery management system is the brain of a lithium pack. Here is what it protects against and what to do when it intervenes.

ATB Power · Battery Solutions · 5 min read

Every ATB lithium battery contains a battery management system (BMS). It monitors each cell group for voltage, current and temperature, keeps the cells balanced, and disconnects the battery before any limit is exceeded. It is the main reason a lithium pack is safe and long-lived.

— What it protects against

- **Over-charge / over-voltage:** stops charging if any cell reaches its upper limit.
- **Over-discharge / under-voltage:** disconnects the load to protect the cells.
- **Over-current and short circuit:** disconnects fast to prevent damage and fire.
- **Temperature:** limits or stops charge and discharge, and blocks charging below 0 degrees C.

— Cell balancing

Cells age at slightly different rates. The BMS balances them near the top of charge so the whole pack stays even, which protects capacity and runtime over the years.

— When the BMS cuts out

A protection event is the BMS doing its job. Remove the cause and it normally re-enables:

- **Load cut out:** reduce the load, then resume.

- Cold cut out: warm the battery above 0 degrees C to charge.
- Under-voltage sleep: apply a correct charge to wake and re-balance the pack.

DO NOT BYPASS IT

Never defeat or bypass the BMS, and do not change its parameters. If a pack will not recover after a correct charge, contact ATB.

Need help choosing or specifying?

Talk to ATB for datasheets, fitment and custom configurations.

[Request specifications](#)

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