BMS Integration Checklist: Battery and Building

This checklist covers two different systems that share the BMS abbreviation. Battery Management System (Battery BMS) sections help battery, electric vehicle (EV) and energy storage teams integrate a BMS with chargers, inverters and controllers. Building Management System (Building BMS) sections help facility and automation teams connect heating, ventilation and air conditioning (HVAC) units, meters and plant equipment to a central supervisory system.

Technically reviewed by the EmbedCrest engineering team Updated November 16, 2026

How to use this checklist

Use only the sections that match your project: Battery BMS sections for packs and storage, Building BMS sections for buildings and facilities. Fill in the answers with your integration partner before writing the interface specification. Items marked unknown become questions for the equipment vendors involved.

Battery BMS: pack and safety requirements

- [ ] Are cell chemistry, series and parallel configuration, and nominal pack voltage documented?
- [ ] Are voltage, current and temperature limits per cell defined by the cell manufacturer datasheet?
- [ ] Is the protection response defined for overvoltage, undervoltage, overcurrent and over temperature?
- [ ] Is the contactor or protection switch control sequence specified, including precharge?
- [ ] Are applicable safety standards for the target market identified with the test lab?
- [ ] Is the required balancing method, passive or active, decided?

Battery BMS: communication and integration

- [ ] Is the charger, inverter or vehicle controller interface defined: Controller Area Network (CAN), CAN FD, RS 485 or Modbus?
- [ ] Is a message specification agreed for limits, state, alarms and commands with units and scaling?
- [ ] Is behaviour defined when communication with the charger or inverter is lost?
- [ ] Are charge and discharge current limits sent dynamically based on temperature and state of charge?
- [ ] Is it agreed which system has final authority to open contactors?
- [ ] Is the interface tested with the real charger or inverter, not only a simulator?

Battery BMS: estimation, data and updates

- [ ] Is the state of charge method chosen and validated against measured capacity tests?
- [ ] Is state of health tracked with a defined method and reporting interval?
- [ ] Are event logs stored for faults, limit violations and protection actions?
- [ ] Is battery telemetry sent to a monitoring platform with timestamps and pack identity?
- [ ] Is firmware updatable with signed images and safe rollback?

Building BMS: inventory and protocols

- [ ] Is every HVAC unit, chiller, boiler, meter and controller listed with make and model?
- [ ] Is the protocol of each device recorded, such as BACnet/IP, BACnet MS/TP (Master Slave/Token Passing), Modbus RTU or Modbus TCP?
- [ ] Are BACnet object lists or Modbus register maps available for every device?
- [ ] Are proprietary controllers identified that need a vendor gateway or integration licence?
- [ ] Is the existing supervisory software, version and licence capacity known?
- [ ] Is a point naming convention agreed for all integrated equipment?

Building BMS: control, network and commissioning

- [ ] Is it defined which points are monitored only and which can be written by the BMS?
- [ ] Are alarm priorities, notification routes and acknowledgement rules defined?
- [ ] Is the building automation network separated from the corporate network?
- [ ] Is remote access provided through a secured, logged connection rather than open ports?
- [ ] Is a point to point commissioning test planned with sign off per device?
- [ ] Are trend logging intervals and retention agreed for energy and comfort analysis?
- [ ] Are as built drawings and point lists handed over to the facility team?