

BMS Firmware Release Notes

For obtaining latest firmware please contact sales@enepaq.com

Version	Changes
v2.3.259	<ul style="list-style-type: none"> * New feature: Reading bootloader version in application.(available with the new <i>Battery Insider</i> v2.5.4.3 version). * <i>Battery Insider</i> v2.5.4.3 or later version is required.
v2.3.258	<ul style="list-style-type: none"> * Bug fix: in a small percentage of units, in some corner cases (e.g. low temperature) BMS hardware version may be incorrectly detected when connected to power source and it will not boot. Firmware versions starting with v2.3.251 are affected. An upgrade is recommended.
v2.3.257	<ul style="list-style-type: none"> * Fixed: Regional number format(available with the new <i>Battery Insider</i> v2.5.3.3 version), OP gate open after fully charge, Fix for external current sensor min/max safety setting. * New feature: New event added for charge restart level. * New feature: wakes up from sleep less than 30ms. * <i>Battery Insider</i> v2.5.3.3 or later version is required.
v2.3.256	<ul style="list-style-type: none"> * Improved: current calculation and calibration for PCB2.2 Lowpower
v2.3.255	<ul style="list-style-type: none"> * Improved: Faster current calculation and calibration. * Fixed: Discharge over current cutoff occurs irrespective of charger connection status(Dual port mode).
v2.3.254	<ul style="list-style-type: none"> * New feature: Charge Restart Level
v2.3.252	<ul style="list-style-type: none"> * Improved: Current measurement accuracy * New feature: Low power board min and max values
v2.3.251	<ul style="list-style-type: none"> * New feature: Discharge over-current cutoff timeout. * New feature: Discharge peak current cutoff. * New feature: Charger startup delay. * New feature: Charger disable delay. * New feature: Battery maximum cycle count. * New feature: Multipoint temperature sensor power control for <i>PCB</i> v2.2. * New feature: State of Health calculation. * New feature: High power board min and max values * <i>Battery Insider</i> v2.5.1.0 or later version is required.
v2.3.250	<ul style="list-style-type: none"> * Fixed: entry to sleep mode sequence (instant wake-up) when the SOC-BAR module is connected.
v2.3.249	<ul style="list-style-type: none"> * Improved: option to select external current sensor type. * Improved: internal charger detection procedure. * Improved: fully charged state recovery procedure. * <i>Battery Insider</i> v2.5.0.9 or later version is required.
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v2.3.248	<ul style="list-style-type: none"> * New feature: option to select external current sensor type (dual range type <i>DHAB S/133</i> or cheaper single range type sensors). * <i>Battery Insider</i> v2.5.0.8 or later version is required.
v2.3.247	<ul style="list-style-type: none"> * Internal release.
v2.3.246	<ul style="list-style-type: none"> * Improved: internal self-tests safety procedures.
v2.3.245	<ul style="list-style-type: none"> * Improved: initialization procedure after <i>BMS</i> restart. * Improved: <i>SOC-BAR</i> indication when <i>BMS</i> is in the charging state.
v2.3.244	<ul style="list-style-type: none"> * Improved: current measurement.

	<ul style="list-style-type: none"> * Improved: watchdog initialization. * Fixed: <i>UART</i> communication <i>Read Battery Pack Voltage</i> command.
v2.3.243	<ul style="list-style-type: none"> * Improved: current measurement. * Improved: over-current fault detection (rejected short current peaks). * Improved: charging finish logic. * Improved: SOC calculation in sleep mode (high battery capacity). * Improved: load/charger switch diagnostics feature. * Improved: <i>Ignition</i> feature (disabled unexpected load output toggling due to load measurement. Load measurement are only made in certain cases). * Fixed: internal 5V power supply remains disabled after wakeup from sleep mode due to <i>UART</i> communication, when <i>Ignition</i> feature is activated (unexpected large negative current measurement value). * New feature: possibility to invert external current sensor direction (available with the new <i>Battery Insider</i> v2.5.0.6 version). * New feature: possibility to disable load/charger switches diagnostics (available with the new <i>Battery Insider</i> v2.5.0.6 version).
v2.3.242	<ul style="list-style-type: none"> * Improved: current and cell voltage measurement accuracy.
v2.3.241	<ul style="list-style-type: none"> * Fixed: charging not starting on <i>PCB</i> v2.1 hardware version when <i>Fully Discharged Warning</i> occurred, charger is connected, <i>Charger Switch Type</i> configured as <i>Charge FET</i> and <i>Load Switch Type</i> configured as <i>Discharge FET</i>.
v2.3.240	<ul style="list-style-type: none"> * Improved: external charger detection feature.
v2.3.239	<ul style="list-style-type: none"> * New feature: possibility to turn off automatic <i>BMS</i> fault state recovery. * Improved: charging finish logic (disabled charger switch toggling when charger voltage is too high). * Improved: <i>Charge Finished Current</i> setting maximum value (<i>Charger Switch Type</i> dependent). Fixed: external current sensor inverted current flow direction.
v2.3.238	<ul style="list-style-type: none"> * Fixed: unexpected random <i>AFE</i> driver crash bug. * Fixed: cells balancing bug, where balancing the last balanced cells is not disabled when cells disbalance becomes lower than the allowed disbalance.
v2.3.237	<ul style="list-style-type: none"> * Improved: <i>BMS</i> up time calculation in sleep mode. * Improved: <i>Battery Insider</i> events timestamp initialization after <i>BMS</i> restart. * Improved: <i>BMS</i> state detection.
v2.3.236	<ul style="list-style-type: none"> * Support for <i>Hardware</i> v2.3, v2.0 no longer supported. * Support for <i>Battery Insider</i> v2.5.0.5 or later. * Updated: <i>BMS Register Map</i> and <i>Event Message List</i>. * New feature: cells voltages measurement in sleep mode when <i>Ignition</i> feature is disabled. * New feature: temperature faults recovery in <i>BMS</i> sleep mode when <i>Ignition</i> feature is disabled. * New feature: <i>BMS</i> load and charger switches self diagnostic (<i>BMS</i> generates warning sound when <i>BMS</i> detects charging/discharging current, but switches should be closed). * New feature: <i>BMS Single Port</i> operation mode. * New feature: load relay/contactor precharge. * Improved: <i>LED</i> functionality to lower <i>BMS</i> power consumption in active state. * Improved: <i>BMS</i> up time calculation in sleep mode. * Improved <i>BMS</i> fault detection logic: <i>BMS</i> can detect more than one fault at a time. * Improved: charger detection logic: charging current is not monitored for charger detection, if external <i>Charger Detection</i> pin is used. * Improved: external current sensor detection logic. * Improved: external current sensor measurement for high current ranges.

	* Improved: external inputs/outputs settings security.
v2.3.235	* Internal release.
v2.3.234	* Fixed: over-current cutoff settings values changing to default values after reset <i>BMS</i> when external current sensor is used.
v2.3.233	* Improved: added 20 sec. timeout to detect charger connected for slower chargers.
v2.3.232	<ul style="list-style-type: none"> * New feature: <i>DIDOx</i>, <i>AIHOxAL</i>, <i>AIHOxAH Load Switch Type</i> settings. * New feature: activated <i>AIHOxAH Charger Switch Type</i> settings. * Improved: removed <i>Charger Disconnected</i> event message after reset <i>BMS</i>. * Improved: cell balancing algorithm. ** Cells balancing enabled, if voltage is higher than minimum cell voltage minus allowed disbalance. ** Reduce percentage of cells balancing, if <i>BMS</i> temperature exceeds safe limit.
v2.3.231	<ul style="list-style-type: none"> * New feature: multipint <i>NTC</i> sensor temperature measurement. * Improved: dual <i>NTC</i> sensor temperature measurement.
v2.3.230	<ul style="list-style-type: none"> * New feature: <i>UART-CAN</i> converter supported. * Improved: <i>BMS</i> statistics calculation. * Improved: fully discharge exception logic (allowed to charge). * Improved: <i>ASCII</i> broadcast protocol. * Fixed: <i>UART MODBUS</i> commands errors.
v2.3.229	<ul style="list-style-type: none"> * New feature: <i>SOC</i> calculation in sleep mode. * New feature: <i>Battery Insider SOC-BAR</i> menu settings. * Improved: optimized energy consumption in sleep mode. * Improved: turning off 5V internal power supply in sleep mode. * Fixed: <i>SOC-BAR</i> indicator blinking. * Improved: <i>Number of Series Cells</i> setting minimum value changed to 4 cells. * Improved: compatibility with v2.0, v2.1 and v2.2 <i>PCB</i> versions.
v2.3.228	<ul style="list-style-type: none"> * New feature: charger external detection. * New feature: activated <i>Charger Switch Type DIDOx</i> and <i>AIHOxAL</i> settings. * New feature: supported hardware version <i>PCB</i> v2.2. * Improved: external inputs/outputs settings security.
v2.3.227	<ul style="list-style-type: none"> * Improved: low temperature cutoff logic. * Improved: external inputs/outputs settings security. * Fixed: unexpected <i>BMS</i> restart while writing new settings. * Fixed: unexpected <i>BMS</i> jump to bootloader while writing new settings.
v2.3.226	<ul style="list-style-type: none"> * New feature: <i>Ignition</i> input to enable/disable <i>BMS</i>. * Improved: power management during sleep. * Improved: fully discharged cutoff logic (charger turned off only when <i>Charger Switch Type – Charge FET</i>). * Fixed: <i>Battery Insider</i> reset <i>BMS</i> feature when <i>Load Swich Type – AIDOx</i> and <i>Charger Switch Type – AIDOx</i>. * Fixed: unexpected charger disconnection when <i>Ignition</i> pin is selected.
v2.3.225	<ul style="list-style-type: none"> * Improved: under-voltage cutoff exception logic. * Fixed: disabled input pullup resistors. * Fixed external current sensor detection.
v2.3.224	<ul style="list-style-type: none"> * New feature: cells balancing in regeneration state. * Improved: power management in sleep state when <i>BMS</i> is in fault state.
v2.3.223	* Fixed: <i>BMS</i> freeze when charging.
v2.3.222	<ul style="list-style-type: none"> * Improved: <i>SOC-BAR</i> functionality (disable before sleep). * Improved: <i>UART</i> communication wakeup from sleep mode using external interrupt.

	<ul style="list-style-type: none"> * Improved: added 3 sec. <i>UART</i> communication timeout. * Fixed: temperature value in <i>CAV3</i> protocol.
v2.3.221	<ul style="list-style-type: none"> * Improved: current limit changes when external current sensor is connected. * Improved: <i>Charge Finished Current</i> and charger disconnection thresholds. * Improved: external temperature sensor measurement. * Improved: sleep management. * Fixed: pack voltage measurement. * Fixed: charger detection (connection and disconnection). * Fixed: charging algorithm (<i>CFET</i> toggle).
v2.3.220	<ul style="list-style-type: none"> * Improved: cells balancing algorithm. * Improved: backup data saved to <i>EEPROM</i>. * Improved: power management in sleep state. * Changed: speed value to <i>km/h</i>.