BMS Firmware Release Notes

Version	Changes
v2.3.249	* Improved: option to select external current sensor type. * Improved: internal charger detection procedure. * Improved: fully charged state recovery procedure. * *Battery Insider v2.5.0.9* or later version is required.
	Company rebranded to Enepaq
v2.3.248	* New feature: option to select external current sensor type (dual range type *DHAB S/133* or cheaper single range type sensors). * *Battery Insider v2.5.0.8* or later version is required.
v2.3.247	* Internal release.
v2.3.246	* Improved: internal self-tests safety procedures.
v2.3.245	* Improved: initialization procedure after *BMS* restart. * Improved: *SOC-BAR* indication when *BMS* is in the charging state.
v2.3.244	* Improved: current measurement. * Improved: watchdog initialization. * Fixed: *UART* communication *Read Battery Pack Voltage* command.
v2.3.243	* 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: *Ignition* 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 *UART* communication, when *Ignition* feature is activated (unexpected large negative current measurement value). * New feature: possibility to invert external current sensor direction (available with the new *Battery Insider v2.5.0.6* version). * New feature: possibility to disable load/charger switches diagnostics (available with the new *Battery Insider v2.5.0.6* version).
v2.3.242	* Improved: current and cell voltage measurement accuracy.
v2.3.241	* Fixed: charging not starting on *PCB v2.1* hardware version when *Fully Discharged Warning* occurred, charger is connected, *Charger Switch Type* configured as *Charge FET* and *Load Switch Type* configured as *Discharge FET*.
v2.3.240	* Improved: external charger detection feature.
v2.3.239	* New feature: possibility to turn off automatic *BMS* fault state recovery. * Improved: charging finish logic (disabled charger switch toggling when charger voltage is too high). * Improved: *Charge Finished Current* setting maximum value (*Charger Switch Type* dependent). Fixed: external current sensor inverted current flow direction.
v2.3.238	* Fixed: unexpected random *AFE* 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	* Improved: *BMS* up time calculation in sleep mode.

	* Improved: *Battery Insider* events timestamp initialization after *BMS* restart. * Improved: *BMS* state detection.
v2.3.236	* Support for *Hardware v2.3*, *v2.0* no longer supported. * Support for *Battery Insider v2.5.0.5* or later. * Updated: *BMS Register Map* and *Event Message List.* * New feature: cells voltages measurement in sleep mode when *Ignition* feature is disabled. * New feature: temperature faults recovery in *BMS* sleep mode when *Ignition* feature is disabled. * New feature: *BMS* load and charger switches self diagnostic (*BMS* generates warning sound when *BMS* detects charging/discharging current, but switches should be closed). * New feature: *BMS Single Port* operation mode. * New feature: load relay/contactor precharge. * Improved: *LED* functionality to lower *BMS* power consumption in active state. * Improved: *BMS* up time calculation in sleep mode. * Improved *BMS* fault detection logic: *BMS* can detect more than one fault at a time. * Improved: charger detection logic: charging current is not monitored for charger detection, if external *Charger Detection* 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 *BMS* when external current sensor is used.
v2.3.233	* Improved: added 20 sec. timeout to detect charger connected for slower chargers.
v2.3.232	* New feature: *DIDOx, AIHOxAL, AIHOxAH Load Switch Type* settings. * New feature: activated *AIHOxAH Charger Switch Type* settings. * Improved: removed *Charger Disconnected* event message after reset *BMS.* * Improved: cell balancing algorithm. ** Cells balancing enabled, if voltage is higher than minimum cell voltage minus allowed disbalance. ** Reduce percentage of cells balancing, if *BMS* temperature exceeds safe limit.
v2.3.231	* New feature: multipint *NTC* sensor temperature measurement. * Improved: dual *NTC* sensor temperature measurement.
v2.3.230	* New feature: *UART-CAN* converter supported. * Improved: *BMS* statistics calculation. * Improved: fully discharge exception logic (allowed to charge). * Improved: *ASCII* broadcast protocol. * Fixed: *UART MODBUS* commands errors.
v2.3.229	* New feature: *SOC* calculation in sleep mode. * New feature: *Battery Insider SOC-BAR* menu settings. * Improved: optimized energy consumption in sleep mode. * Improved: turning off *5V* internal power supply in sleep mode. * Fixed: *SOC-BAR* indicator blinking. * Improved: *Number of Series Cells* setting minimum value changed to *4* cells. * Improved: compatibility with *v2.0, v2.1* and *v2.2 PCB* versions.
v2.3.228	* New feature: charger external detection. * New feature: activated *Charger Switch Type DIDOx* and *AIHOxAL* settings. * New feature: supported hardware version *PCB v2.2.* * Improved: external inputs/outputs settings security.
v2.3.227	* Improved: low temperature cutoff logic.

	* Improved: external inputs/outputs settings security. * Fixed: unexpected *BMS* restart while writing new settings. * Fixed: unexpected *BMS* jump to bootloader while writing new settings.
v2.3.226	* New feature: *Ignition* input to enable/disable *BMS*. * Improved: power management during sleep. * Improved: fully discharged cutoff logic (charger turned off only when *Charger Switch Type – Charge FET*). * Fixed: *Battery Insider* reset *BMS* feature when *Load Swich Type – AIDOx* and Charger *Switch Type – AIDOx*. * Fixed: unexpected charger disconnection when *Ignition* pin is selected.
v2.3.225	* Improved: under-voltage cutoff exception logic. * Fixed: disabled input pullup resistors. * Fixed external current sensor detection.
v2.3.224	* New feature: cells balancing in regeneration state. * Improved: power management in sleep state when *BMS* is in fault state.
v2.3.223	* Fixed: *BMS* freeze when charging.
v2.3.222	* Improved: *SOC-BAR* functionality (disable before sleep). * Improved: *UART* communication wakeup from sleep mode using external interrupt. * Improved: added *3* sec. *UART* communication timeout. * Fixed: temperature value in *CAV3* protocol.
v2.3.221	* Improved: current limit changes when external current sensor is connected. * Improved: *Charge Finished Current* 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 (*CFET* toogle).
v2.3.220	* Improved: cells balancing algorithm. * Improved: backup data saved to *EEPROM*. * Improved: power management in sleep state. * Changed: speed value to *km/h.*