What's New?

Key Features

- Significantly improved cell voltage measurement accuracy & resolution (0.1mV resolution)
- Significantly improved voltage measurement resolution (0.1mV) and accuracy (+/-5mV)
- Expanded diagnostic capabilities
- Cell voltage taps are now split between cells 8 and 9 (previously was between cells 12 and 13).
- Current sensor is now a Hall Effect style which provides superior accuracy and ease of installation.

Input / Output Changes

- Thermistor inputs on the base unit now have programmable B-values (additional thermistors can be added by using thermistor expansion modules)
- Current sensor accuracy improved (now Hall Effect style)
- Total pack voltage sensor removed (pack voltage calculated from cell voltages)
- Charge enable, discharge enable, and charger safety outputs can now turn back on after an over-current event

Improved Thermistor Module Support

- Thermistor Expansion Modules can now be programmed directly through the BMS utility
- Thermistor Expansion Module now connects to BMS via CANBUS (previously used analog wires)
- Additional thermistor expansion module information displayed directly on the live text data screen
- Streamlined setup procedure

CANBUS Improvements

- Increased to 15 programmable CANBUS messages (previously 10)
- Increased to 8 programmable custom flags (previously 4)
- Expanded J1939 compatibility
- Battery cell broadcast enhancements (extended IDs and programmable intervals)

Improved Battery Management Algorithms

- Tracks capacity degradation and adjusts state of charge accordingly (compensated and uncompensated values available)
- Improved state of charge calculation – more options and ability to specify speed at which SOC corrections happen
- Improved open circuit voltage calculation method for certain cell chemistries
- More refined control over charge and discharge current temperature limits, allowing non-linear rules (user defined table vs. calculated values)
- Over-current limiting now allows for a constant offset rather than a simple percentage, which may become very small at low limits

The Orion Jr. 2 is a product of Ewert Energy Systems, Inc.

Ewert Energy Systems is a research and development company focused on developing solutions for plug-in hybrid and electric vehicles and other energy storage applications.

Improved Fault Detection & Reporting

- "Pack Too Hot" fault code
- New faults for cells over & under voltage for 10 continuous seconds
- Internal self-test to check balancing circuits each power up
- Detection for backwards current sensor or current sensor channels
- Additional monitoring and fault codes for internal hardware faults
- Up to 3 sub-codes for each freeze frame, giving more data in the event of a fault
- Improved open wire detection capabilities
- Utility translates most sub-code data to more human readable form.
- Weak cell faults now indicate out of balance cells vs. low capacity cells, and if the fault is due to high resistance or mismatched cells.
- Weak cell fault thresholds are now programmable via a user specified table for better accuracy at low temperatures.
- Fault freeze frame data now persists across power loss and clearing the fault codes.
- Maximum amount of freeze frame data that the unit can store has been increased.

Other Improvements

- Improved password protection to allow for more complex passwords with characters
- Improved memory integrity verification
- Dozens of other minor improvements and tweaks to optimize performance and reliability

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