Low Temperature Heater Function, V3 BMS, Models LB12xxxD-LT

Basic function
Charging any Li-ion battery with frozen cells can cause permanent damage. All models of LiFeBlue Battery are low temperature protected. Our unique microprocessor BMS will automatically warm the battery when necessary. No user action is required. It is important to understand that the heater function does not use any stored energy from the battery.

Heater Operation
When certain conditions are met, charge current is inhibited by the BMS and the battery will not charge. When the release threshold temperature is reached, about 40°F, the BMS returns to normal charge function. The heater controller determines if sufficient charger current is available to power the heaters.

If charge current is above 0.07C, the BMS triggers the heater controller to pass charge current to the heaters while blocking current to the cells. When the release temperature is reached, the BMS will disable the heater controller and pass all current to the cells. If the current drops below 0.07C, the battery will enter standby mode and a 5 minute timer will start. The BMS will begin heating again after the timer ends and sufficient current for the heaters is available. Timer process repeats as needed

10°F to 32°F Operation
If the cell temperature is between 10°F and 32°F *and* charge current is less than 0.07C, the BMS will allow low current charging. This mode will charge the battery slowly until either the cell temperature rises above the release threshold *or* the current rises above 0.07C. This function was designed to capture the charge power from a PV solar system, before current exceeds 0.07C. Example: 200AH X .07 = 14 Amps. Up to 14 Amps of current will pass to the cells.

Below 10°F Operation
If the cell temperature is below 10°F, all charge current is blocked. The battery must be warmed above 40F to begin charging.

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