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Multi chemistry battery management system (BMS)

BMS-3-7

Features

- Supports Li-Ion, LiFe and Lead Acid batteries
- 6.. 32V battery voltage
- Up to 34V input voltage
- Up to 10A charge current
- SW configurable
- USB communication interface
- Color 320x240 display (optional)
- On-board high efficiency battery charger
- Output short circuit protection
- Output overcurrent protection
- Reverse polarity protection
- On-Off control
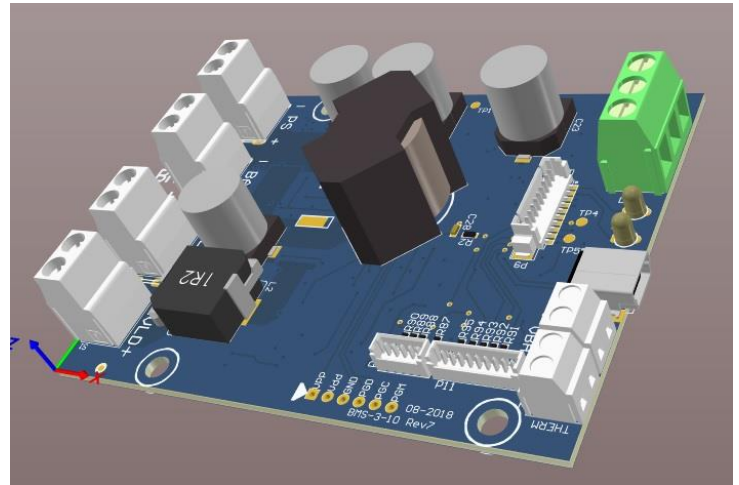
Application

- Battery management system
- Medical applications
- Industrial
- Solar power
- Back-up and UPS systems

Absolut maximum ratings

Parameter	Symbol	Value	Unit
Input voltage	Vin	-30 to 35	V
Output current	Iout	12	A
Battery voltage	Vbat	34	V

Operation conditions

Parameter	Symbol	Value	Unit
Input voltage	Vin	$10 \; to \; 34^1$	V
Battery voltage	Vbat	$6 \ldots 32^2$	V
Output current	Iout	$0 \; to \; 12^3$	A
Charge current	Ich	$0.5 \; to 10 \; ^2$	V
Output power	Pout	Up to 230	W
Charger Efficiency	E	$Above \; 95^4$	%

1. Output voltage shall be at least 1 V higher maximum battery voltage
2. SW selectable according to battery type and a number of cells
3. Short circuit and overcurrent protected
4. Charger efficiency at nominal power

Description: The BMS-3-7 is a multi-chemistry battery charger and SW controlled battery protection system. The BMS on-board SW controlled charger allows controlled charging of a wide variety of batteries. Buttery protection circuit prevents the buttery over discharge, provides short circuit and overcurrent protection. Battery temperature monitor protects the a battery from overheat and prevents buttery using at out of spec temperatures. BMS implements a coulomb counting mechanism. The mechanism provides reliable information about a battery's capacity and health. The BMS supports two types of indicators. The first one is a simple 8 LEDs indicator. The indicator shows a battery charge or charging progress as well as output status and the charger input voltage. The second type is 320x240 color LCD with a touch screen. The BMS-3-7 has USB communication interface. PC application SW supports two levels of configuration. The first level is for non-professional users requires only selection of a battery chemistry, nominal voltage and capacitance, usually printed on a battery case. The second level of configuration is designed for professional users. The configuration allows to change deep of discharge (DoD) level to improve battery life cycle, adjust floating voltage, cut-off current and a number of other parameters.

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SW application: The application is a simple, user-friendly monitor and configuration interface. The SW has two levels as monitor and two levels as configuration application. Detailed description of the SW is out of scope of the document.
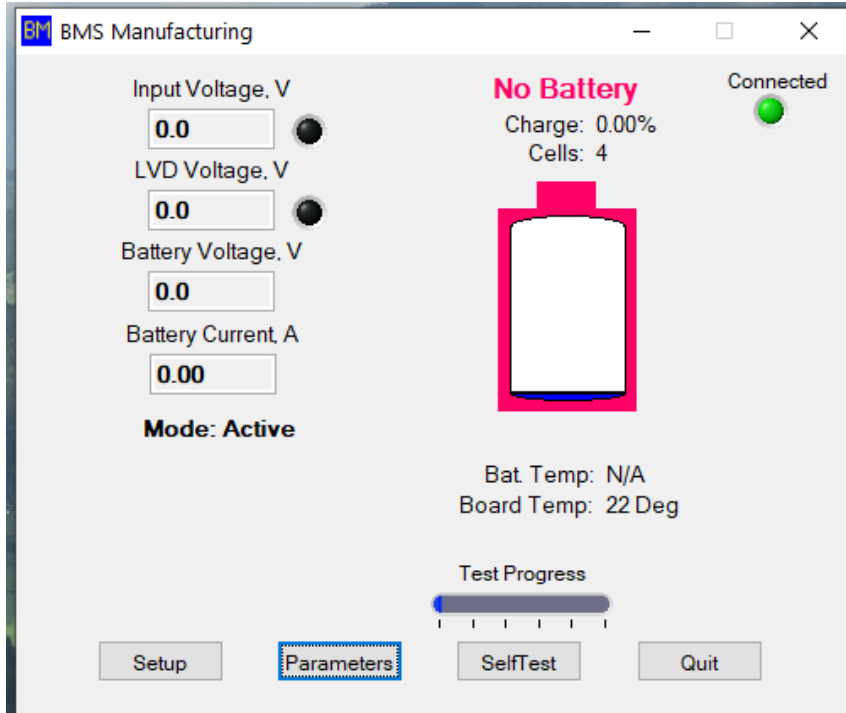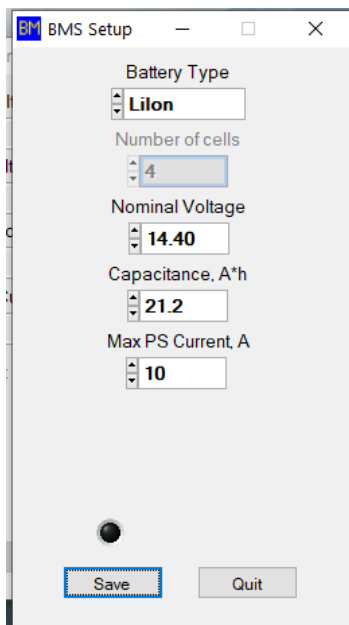
Fig. 1 Monitor, level two.

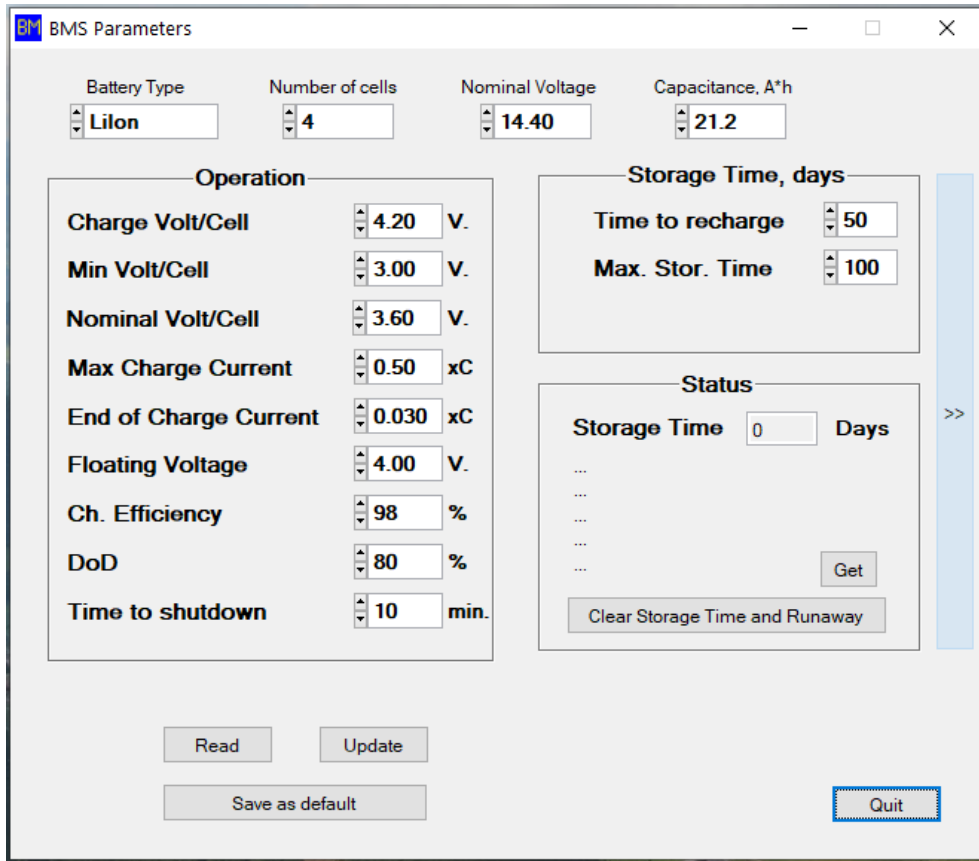Fig. 2. Configuration window, level 1

Fig. 3. Configuration window, level 2

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Dimensions and connectors