# DATASHEET

LMElectronics Ltd. Rechargeable batteries and power converters

### 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	А
Battery voltage	Vbat	34	V

### **Operation conditions**

Parameter	Symbol	Value	Unit
Input voltage	Vin	10 to 34 <sup>1</sup>	V
Battery voltage	Vbat	6 32 <sup>2</sup>	V
Output current	Iout	0 to 12 <sup>3</sup>	А
Charge current	Ich	0.5 to10 <sup>2</sup>	V
Output power	Pout	Up to 230	W
Charger Efficiency	E	Above 95 <sup>4</sup>	%

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

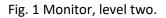
**Description:** The BMS-3-7 is a multi-chemistry battery charger and SW controlled battery protection system. The BMS on-board SW controlled charger allows controlled charging of a wide variety of batteries. Buttery protection circuit prevents the buttery over discharge, provides short circuit and overcurrent 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.



BM BMS Manufacturing	– 🗆 X
Input Voltage, V 0.0 LVD Voltage, V 0.0 Battery Voltage, V 0.0 Battery Current, A 0.00 Mode: Active	No Battery Charge: 0.00% Cells: 4
	Bat. Temp: N/A Board Temp: 22 Deg
Setup	Test Progress SelfTest Quit

### Fig. 2. Configuration window, level 1

🕅 BMS Setup — 🗆 🗙	
Battery Type Lilon Number of cells 4 Nominal Voltage 14.40 Capacitance, A*h 21.2 Max PS Current, A 10	-
Save Quit	

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# Fig. 3. Configuration window, level 2

BM BMS Parameters		– 🗆 🗙	
Battery Type Number	of cells Nomina		
Operation		Storage Time, days	
Charge Volt/Cell	<b>↓</b> 4.20 V.	Time to recharge 🗧 50	
Min Volt/Cell	<b>↓</b> 3.00 V.	Max. Stor. Time 100	
Nominal Volt/Cell	<b>▲</b> 3.60 V.		
Max Charge Current	‡ 0.50 xC	Status	
End of Charge Current	‡ 0.030 xC	Storage Time 0 Days	
Floating Voltage	<b>↓</b> 4.00 V.		
Ch. Efficiency	÷ 98 %		
DoD	÷ 80 %	Get	
Time to shutdown	‡ 10 min.	Clear Storage Time and Runaway	
Read Update Save as default Quit			

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67.6mm

### **Dimensions and connectors**

