



Lilon

LiFePO<sub>4</sub>

LTO

Na-ion

### PCM for 10S Battery Pack: Programmable for multiple chemistries

## SPECIFICATIONS

Item	Specification				Remark
	MIBMS-10S50A-LNMC	MIBMS-10S50A-LFP	MIBMS-10S50A-LTO	MIBMS-10S50A-NA	
<b>1. General</b>					
Stock Code	67003-050A10	67003-050A10-LFP	67003-050A10-LTO	67003-050A10-NA	
Chemistry	Li-Ion NMC	LiFePO <sub>4</sub>	Lithium Titanate	Sodium ion	Programmed for 10S
Dimensions LxWxH	105 x 65.5 x 1.6mm				
PCB Material	FR4				
<b>2. IC &amp; Mosfet</b>					
Protection IC	BQ76952				
MosFET	LM1A013NHX8A				
Fuse	CLM3820P5045C				
Power consumption - active mode	10mA				
Power consumption - sleep mode	≤300µA				
<b>3. Voltage</b>					
Minimum battery pack voltage	25V	20V	15V	20V	
Nominal battery pack voltage	36V	32V	23V	30V	
Maximum battery pack voltage	42V	36.5V	29V	40V	
<b>4. Charge Characteristics</b>					
<b>4.1 Voltage</b>					
Cell nominal voltage	3.6V	3.2V	2.3V	3V	
Charge voltage	4.2V/cell	3.65V/cell	2.9V/cell	4V/cell	#
Charge over voltage threshold	4.25V/cell	3.7V/cell	2.95V/cell	4.05V/cell	#
Charge over voltage delay time	2s				#
Charge over voltage release	3.9V/cell	3.35V/cell	2.6V/cell	3.7V/cell	#
2nd charge over voltage	4.5V/cell	3.95V/cell	3.2V/cell	4.3V/cell	Permanent fail (blows chemfuse)
2nd charge over voltage delay time	30s				Permanent fail (blows chemfuse)
Balancing start voltage	3.9V/cell	3.35V/cell	2.6V/cell	3.7V/cell	#
Balancing start delta voltage	20mV				#
<b>4.2 Current</b>					
Charge over current threshold	15A				#
Charge over current delay time	426ms				#
Charge over current release	426ms				#
<b>4.3 Temperature</b>					
Charge over temperature threshold	50°C ± 3°C				#
Charge over temperature release	45°C ± 3°C				#
Charge under temperature threshold	0°C ± 3°C				#
Charge under temperature release	5°C ± 3°C				#
Temperature protection delay time	2s				#





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<b>5. Discharge Characteristics</b>					
<b>5.1 Voltage</b>					
Discharge under voltage threshold	2.5V/cell	2V/cell	1.5V/cell	2V/cell	#
Discharge under voltage delay time	2s				#
Discharge under voltage release	3.05V/cell	2.6V/cell	1.9V/cell	2.5V/cell	#
<b>5.2 Current</b>					
Discharge over current threshold	60A ± 2A				#
Discharge over current delay time	10s				#
Discharge over current release	0A-10s				#
<b>5.3 Temperature</b>					
Discharge over temperature threshold	60°C ± 3°C				#
Discharge over temperature release	50°C ± 3°C				#
Discharge under temperature threshold	-10°C ± 3°C				#
Discharge under temperature release	0°C ± 3°C				#
Temperature protection delay time	2s				#
<b>6. Maximum Current</b>					
Max continuous charge / discharge current	At 25°C: 50A At 45°C: 40A				
<b>7. Short Circuit</b>					
Short Circuit threshold	200A ± 1%				#
Short Circuit delay time	330µs ± 15µs				#
Short Circuit release	Load disconnect				#
<b>8. Maximum Temperature</b>					
Chemfuse max temperature	65°C				
<b>9. Polarity</b>					
Reverse polarity protection	No				

# indicates factory adjustable





# ENEPOWER

## MIBMS-10S50A series

### Protection Circuit Module (PCM)

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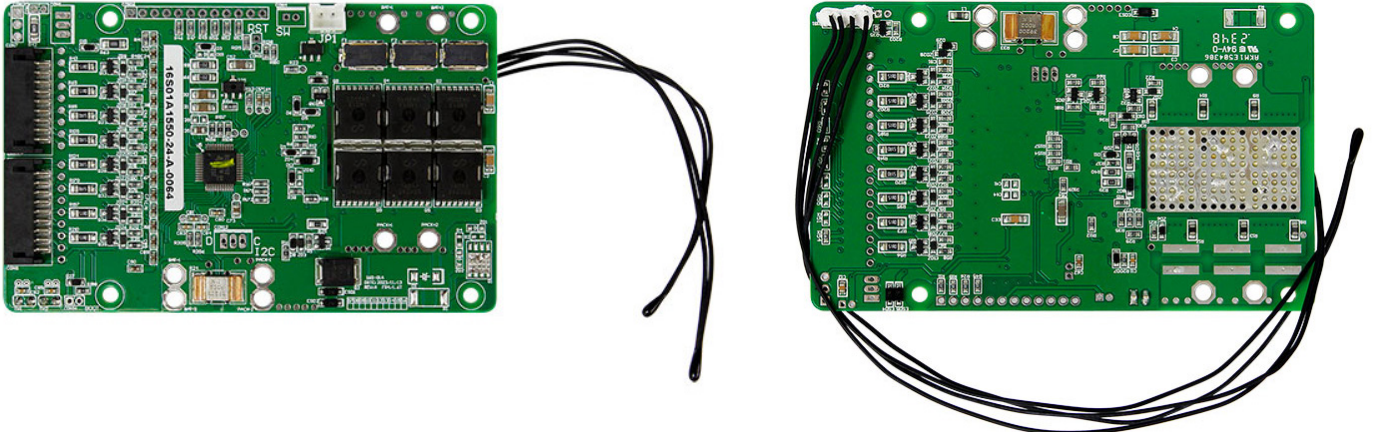
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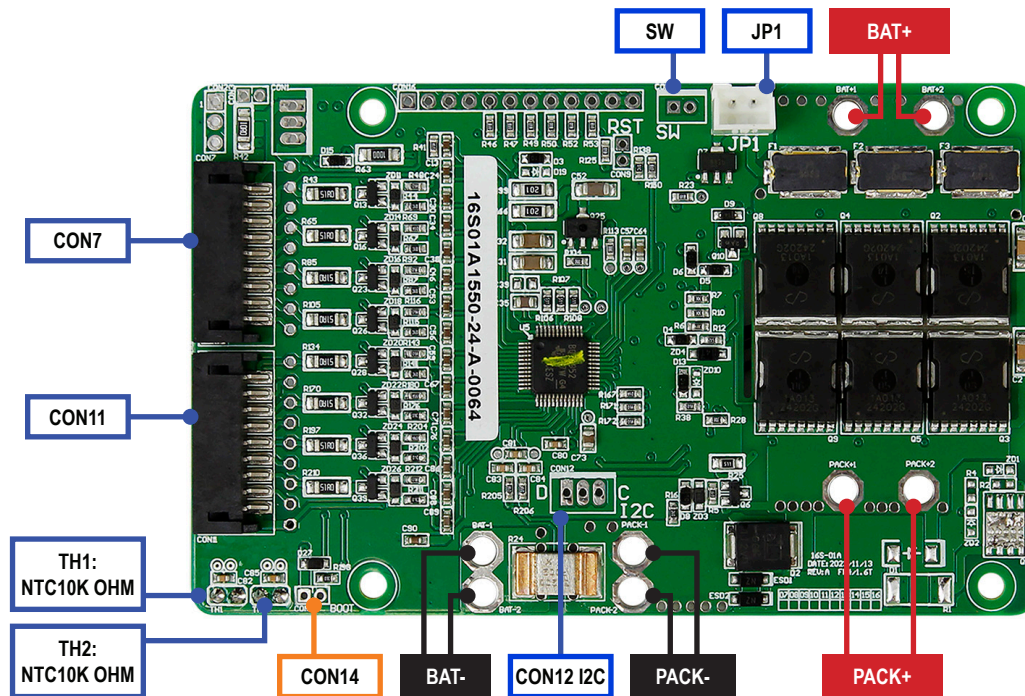
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**PCM for 10S Battery Pack:**  
*Programmable for multiple chemistries*

#### IMAGE



#### CONNECTION DIAGRAM



PACK - / PACK +	BATTERY EXTERNAL INPUT / OUTPUT
BAT - / BAT +	CONNECTION TO CELL PACK NEGATIVE AND POSITIVE
CON7	9 PIN (8 WIRE) CELL VOLTAGE SENSE / BALANCE LEADS. Refer FIG 2. CONTACT MI FOR CONNECTION
CON 11	9 PIN (9 WIRE) CELL VOLTAGE SENSE / BALANCE LEADS. Refer FIG 2. CONTACT MI FOR CONNECTION
CON 14	BOOT
JP1	2ND OVERCHARGE VOLTAGE PROTECTION. CONTACT MI
CON12	I2C. (□-DATA, ○-GND, ○-CLOCK)
SW	TO ACTIVATE SWITCH FUNCTION AFTER REMOVAL OF R157 RESISTOR AND PROGRAMMING. CONTACT MI

