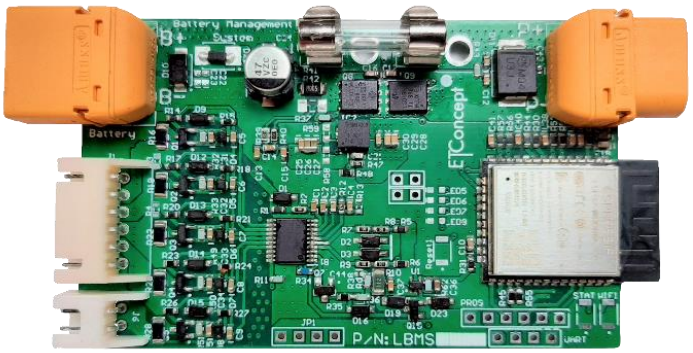
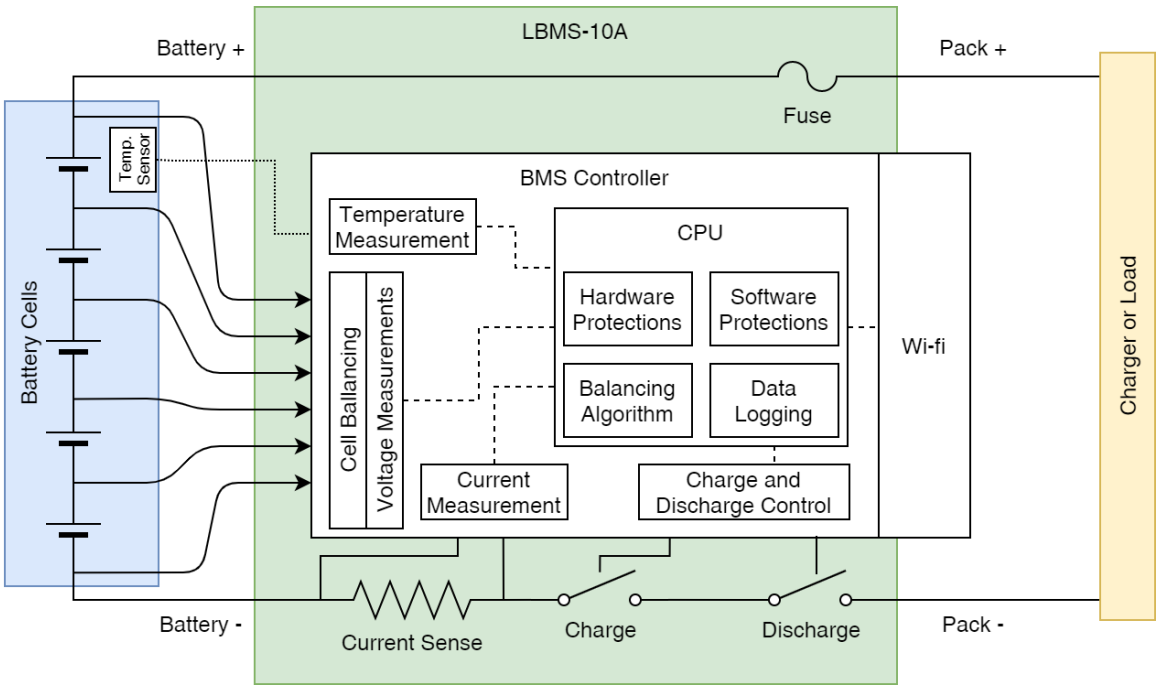


Features:

- Totally Configurable Limits of:
  - Overvoltage
  - Undervoltage
  - Short Circuit
  - Overcurrent in charge and discharge mode
  - Temperature and hysteresis for charge and discharge mode
  - Maximum voltage between cells
- Detects Automatically the Number of Cells (3 to 5 cells)
- Special balancing algorithm (continuous balancing along the charging)
- SD Card Datalogging
- Webserver dashboard with cells status (Access Point Mode Only)
- State of Charge (SOC) & State of Health (SOH), indication with 4 LEDs
- External temperature sensor input for pack temperature monitoring
- Available for LiPo/Li-Ion* batteries
- 2 years warranty
- Configurable depth of discharge

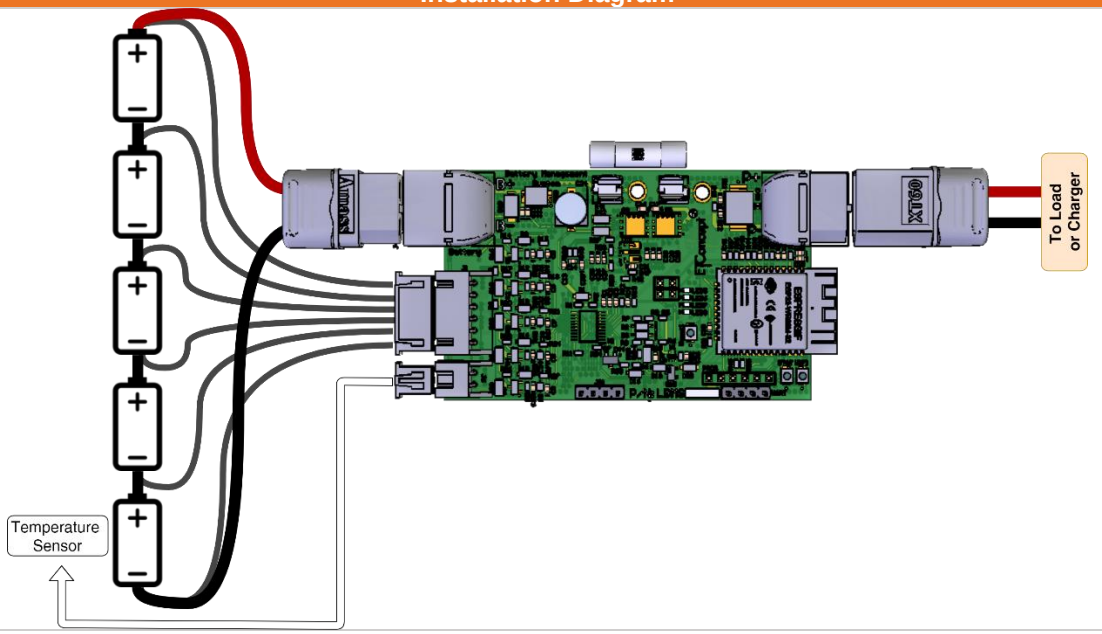
* Other battery chemistries on demand.

Block Diagram

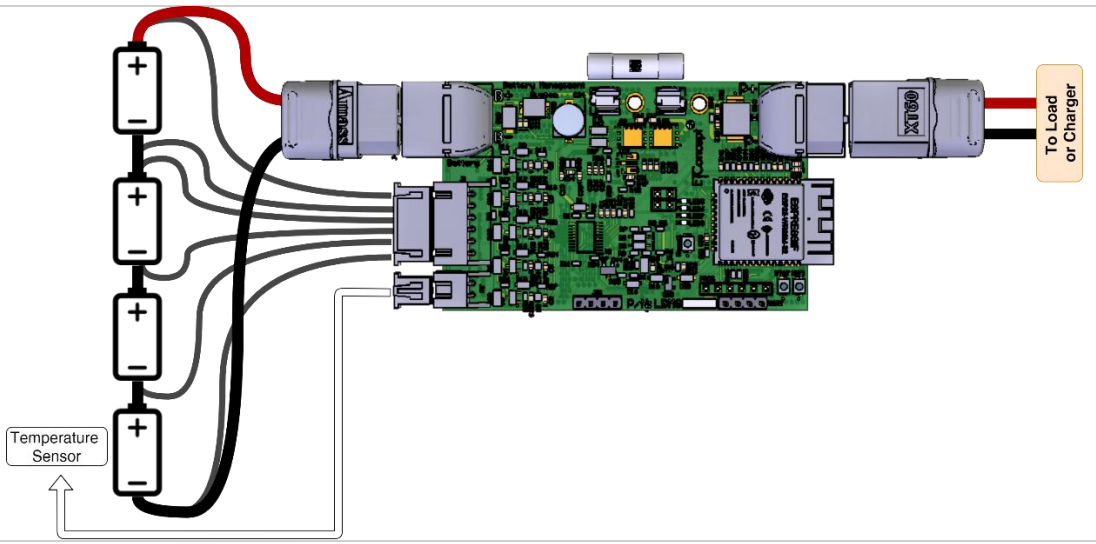


Technical Data			
Electrical	Operating voltage range		Min. 6V DC and Max. 22V DC
	Input Current		10 A max.
	Input Peak Current		100A
	Output Current		10 A max.
	Output Peak Current		100A
	Current Consumption	Deep Sleep	<300 uA Typ. (Note 1, 2)
		Standby	<7.5 mA Typ. (Note 1)
		Normal	<25 mA Typ. (Note 1)
		Wifi	<70 mA Typ. (Note 1)
	Fuse Current		10 A (Note 3)
Battery	Chemistry		Li-Ion, Li-Polymer (Note 4)
	Number of cells		3 to 5
	Balancing Current		100 mA aprox. (37 Ohm)
	Balancing Voltage Threshold		5mV/10mV/20mV
	Pack Capacity		240 Ah max.
	Battery Temperature Sensor		NTC, 10KΩ @ 25 °C, β: 3900
Measurements	Cell Voltage Accuracy		25 mV typ.
	Current Accuracy		50 mA typ.
	Temperature Accuracy		1ºC typ.
	Sample Frequency		4 Hz aprox.
Functions	Configuration		Configuration is possible pressing the config button on BMS Start(Boot) The device will stay in AP mode and a config page can be accessed from your browser.
	Data Viewer		Data Visualization is possible pressing the wi-fi button on BMS The device will stay in AP mode and you can access the dashboard from your browser.
	Debug Port		The device contains a UART Port for Debug (Non Isolated)
	Status Leds	In charge	SOC indication with last led blinking
		Charged	All leds ON
		State button	Continuous - Battery SOC (Note 5) Blink - Battery SOH (Note 5)
	Data Logging		The board contains an SDCard Slot for data logging
Protections (configurable)	Under Voltage		2.5 V - 3.5 V, with steps of 0.1 V
	Over Voltage		4.00 V - 4.20 V, with steps of 50 mV
	Over Current	Charge	1 A - 10 A, with steps of 1 A
		Discharge	1 A - 10 A, with steps of 1 A
	Short Circuit		4.4 A - 40 A (Note 6)
	Battery Under Temperature		-25°C - 0°C, with steps of 5°C
	Battery Over Temperature		40°C - 65°C, with steps of 5°C
Environment	Operating Temperature		-20 to +80°C
	Operating Humidity		0 - 95% (non-condensing)
	Storage		-40°C - 120°C and 0 - 95% (non-condensing)
Mechanical	Dimensions		93.0 x 48.5 x 12.7 mm (Board)
			125.0 x 48.5 x 12.7 mm (with connectors)
	Weight		60 g
Notes	1. Measured with 3S configuration with 7.5V input (worst case)		
	2. Deep Sleep Mode Activated automatically when a cell voltage is lower than 2.4V		
	3. Recommended fuse: LittleFuse 2302100002 or equivalent.		
	4. Other battery chemistries on demand.		
	5. SOC – State of Charge / SOH – State of Health		
	6. List of Short circuit values: 4.4 A / 6.6 A / 8.8 A / 11.2 A / 13.4 A / 15.6 A / 17.8 A / 20 A		

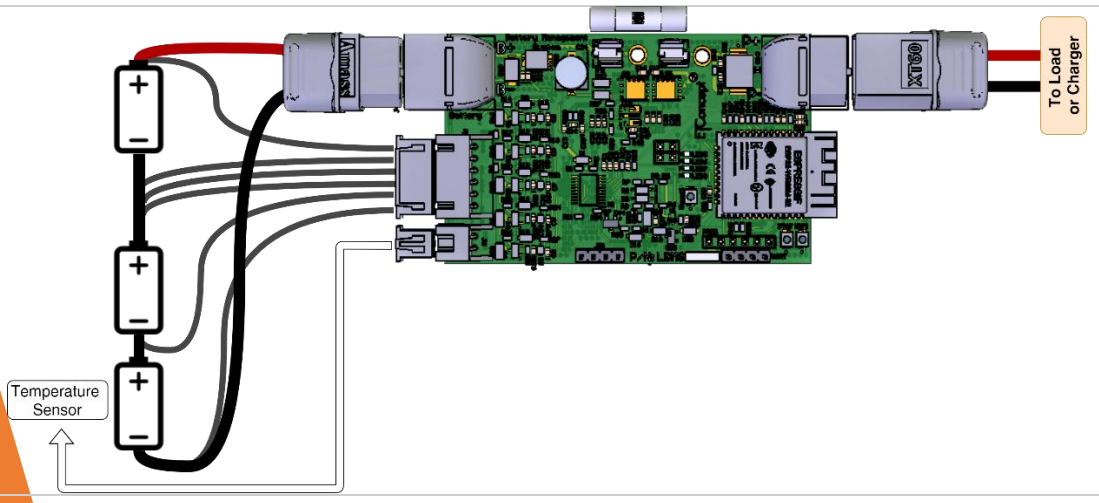
Installation Diagram



5 Cells Installation



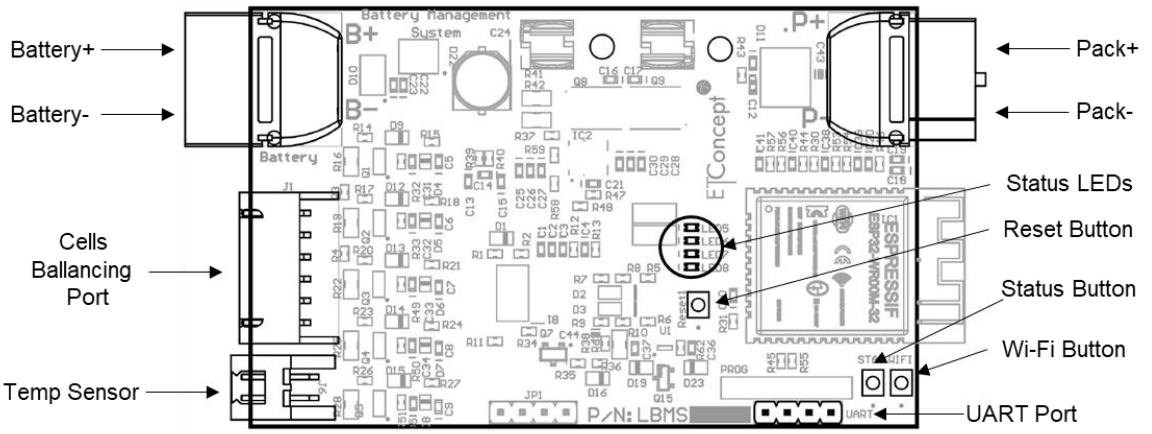
4 Cells Installation



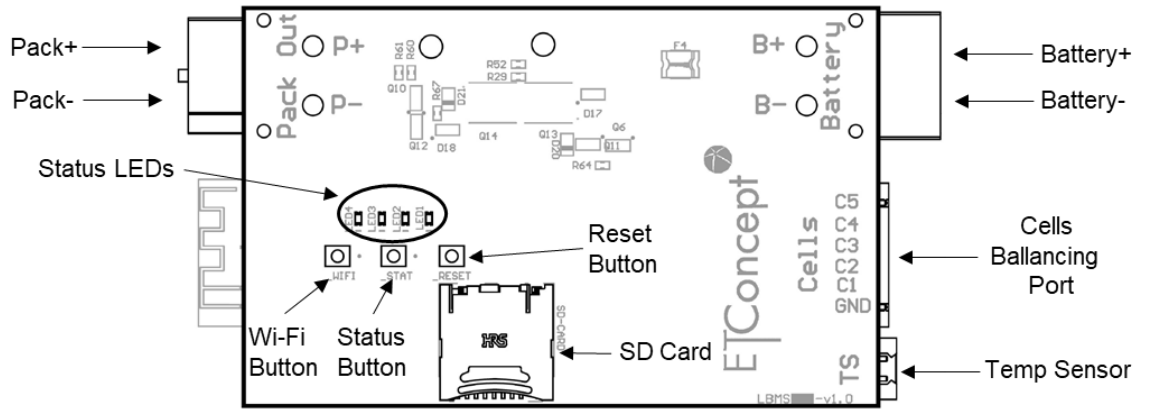
3 Cells Installation

Connections, Buttons and LEDs

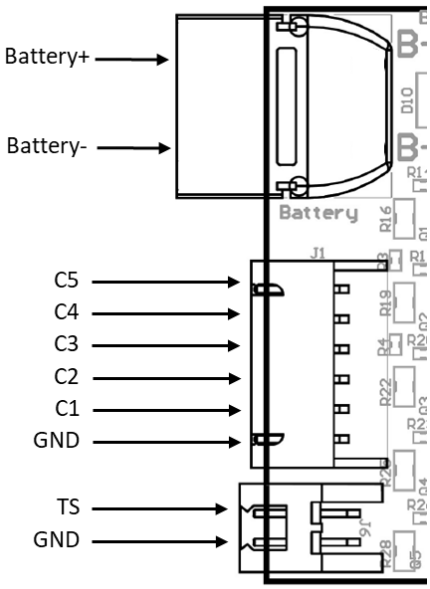
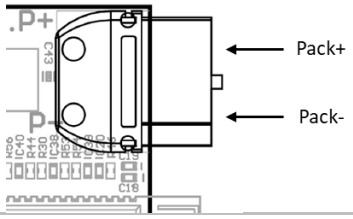
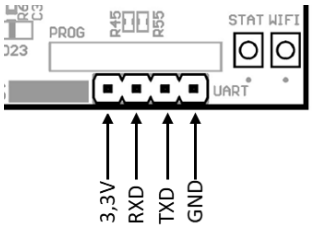
Top Side View



Bottom Side View

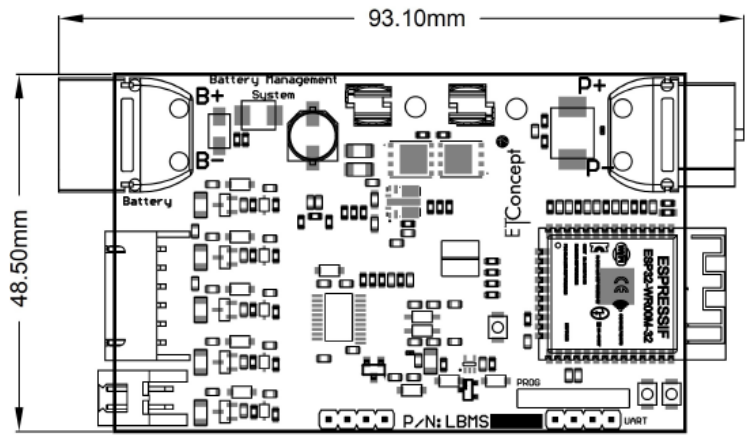


Note: The Buttons are not assembled in both sides. The side of the buttons is dependent of the part number (LBMS-xxA-Tx - buttons on top and (LBMS-xxA-Bx - buttons on bottom)

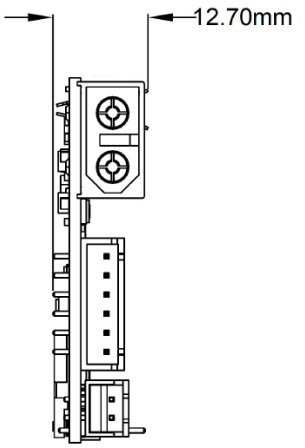
Connector	Pin #	Pin Name	Image
Battery Input		Battery -	
		Battery+	
Ballancing Ports	1	GND	
	2	C1	
	3	C2	
	4	C3	
	5	C4	
	6	C5	
Temperature Sensor	1	TS	
	2	GND	
Pack Output		Pack-	
		Pack+	
UART Port	1	3.3V	
	2	RXD	
	3	TXD	
	4	GND	

Mechanical drawings

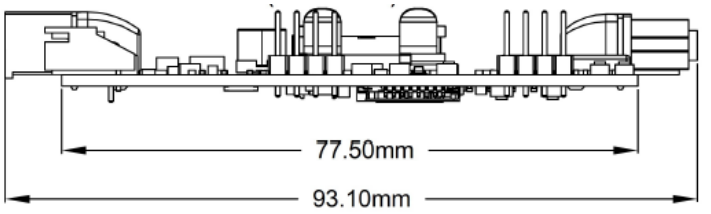
Top side view



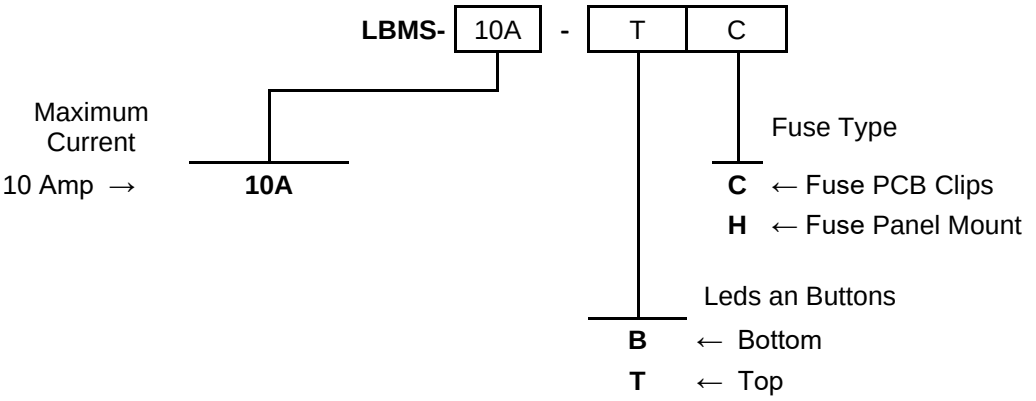
Left side View



Front side view



Part Number Description



Example:

A LBMS module for 10A maximum current with buttons and leds on top layer and fuse clips has the following part number:

LBMS-10A-TC