Anion Battery Management System

About Battery Management System (BMS)

A BMS or protection board is any electronic control circuit that monitors, manages, and regulates the charging and discharging of any rechargeable battery (a cell or combination of cell is called a battery). The lithium-ion batteries can be used only in specified conditions called safe operating area. Therefore BMS is necessary to monitor the battery state, ensure the safety of its operation, and ensure long battery life. The battery characteristics to be monitored include its state of charge, safe operating area, voltage, current, temperature, individual cell voltage, battery capacity and many more. The main task of battery management systems is to ensure the optimal use of the residual energy present in a battery. To avoid loading of batteries, BMS protects the battery from:

- Deep discharge due to extremely high discharge current.
- Over-voltage due to extreme fast charge.
- Cell balancing in the case of multi-cell batteries by monitoring and regulating the charging and discharging of individual cells.
- High Temperature
- Short circuit of external load.

Protection

Anion BMS offers the below-mentioned protection of utmost importance.

- Overcharge Protection
- Over-discharge Protection
- Overcurrent Protection
- Temperature Sensor Protection
- Short Circuit Protection
- Cell Balancing Function

Electrical Parameters

Anion BMS Technical Specification		
Sr. No.	**Parameter**	**Values**
1	Charge Voltage (V)	**4.2 * N**
2	Charge Current Threshold (A)	**20**
3	Discharge Current Threshold (A) based on product model	**20 - 60**
4	Pulsed Discharge Current (A) (5 Sec)	**200**
5	Overcharge Detection Voltage per Cell (V)	**4.2 ± 0.05**
6	Overcharge Release Voltage Per Cell (V)	**4.15 ± 0.05**
7	Over-discharge Detection Voltage (V)	**2.80 ± 0.05**
8	Over-discharge Release Voltage (V)	**3.00 ± 0.05**
9	Overcharge Voltage Protection Delay Time (ms)	**600 - 1400**
10	Overdischarge Voltage Protection Delay Time (ms)	**200 - 600**
11	Overcharge Current Protection Delay Time (ms)	**100 - 600**
12	Temperature Protection (Load Cut Off) (°C)	**70**
13	Working Temperature Range (°C)	**-65 to 65**

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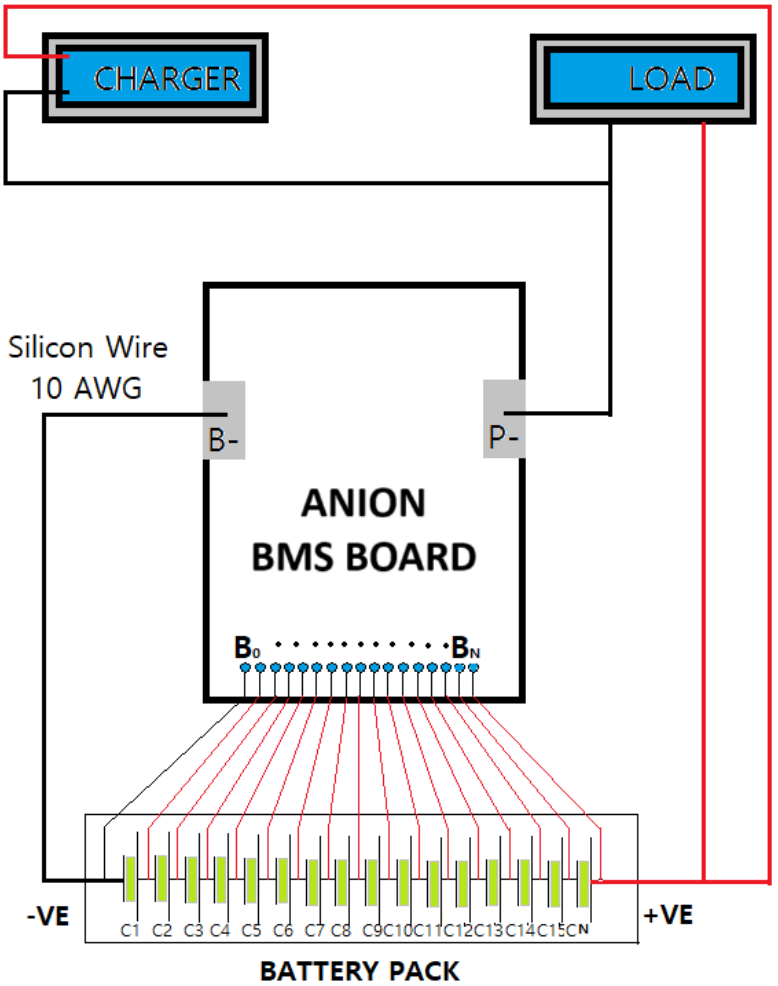
14	Storage Temperature Range (°C)	**20 - 45**
15	Sleep Current (when Over Discharged) (µA)	**<100**
16	Cell Balancing Function	**Yes**
17	Cell Balancing Method	**Passive**
18	Bleed Start Point / Cell Balance Voltage (V)	**4.100 ± 0.05**
19	Bleed Current / Balance Current (mA)	**40 - 45**
20	Load Short Circuit Protection	**Yes Load Cut Off**

Applications

This BMS is widely used in Li-ion (NMC) battery packs and offers multi-scenario applications.

- Electric tools
- E-Bicycle / E-Scooter/Bike
- Battery backup systems
- Solar/Wind energy storage systems
- Electric Vehicle
- Electric Club Car
- Digital Battery
- Solar street lamps

WIRING DIAGRAM



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