



# Battery Management Training System

## Nvis 425B1



Battery Management Systems (BMS) are used to monitor and control battery banks used in many industries and widely plays a vital role in the application of Electric Vehicle Industries. Nowadays, with a dominance of Lithium Ion (Li-Ion) batteries in most energy storage applications, BMS have become the essential device in Electrical Vehicle (EV) from both a functionality and safety perspective.

A BMS allows users to monitor individual cells within a battery pack over parameters such as battery charging and discharging rates, state of charge estimation, state of health estimation, cell voltage, temperature, current etc. As cells work together to release energy to the load, it is crucial to maintain stability throughout the whole pack or else cells may get damage. This is where a battery management system (BMS) comes into play for safe operational working of system.

Nvis 425B1 demonstrates a battery management system which is integrated with controller for actively monitors the critical parameters like voltage, charging and discharging current, temperature along with continuously monitors each cell voltage in a battery pack and performs cell balancing if voltage difference between cells exceeds the threshold value makes the system complete understanding.

### Features

- Suitable for testing of for 3 to 6 Series Lithium Ion (Li-Ion) Cells.
- LCD for measurement of Voltage, Current & Temperature
- Diagrammatic representation of BMS to understand its internal architecture
- Designed by considering all the safety standards
- Onboard thermistor for temperature measurement
- Special designed BS10 Connectors for safe operation



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### Scope of Learning

- Study of BMS and measure voltage across each battery along with packed battery voltage
- Study of Discharging Characteristic of BMS
- Study of Charging Characteristic of BMS
- Study of Cell Balancing phenomenon of BMS

### Technical Specifications

**Mains Supply** : Single Phase, 230V  $\pm 10\%$ , 50Hz

#### Battery pack

Type : Lithium Ion (Li-Ion)

No of Cell : 6 nos

Power rating : 3000 mAh

Configuration : Series type

#### Machine (for charging & discharging battery pack)

Type : BLDC

Rating : 100 Watt approx.

Voltage Rating : 24V

Current : 3 Amp. approx. (at no load)

Speed : 2500 rpm  $\pm 10\%$

**Instrumentation power supply** : 12V, 10Amp.

LCD : For Voltage, Current and Temperature measurements

#### Digital Meters used

DC Voltmeter : 300V

DC Ammeter : 10A