

Assignment

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① What is BMS? Types of BMS & Differentiate the types of BMS.

A:- Battery management system (BMS) technology dedicated to the oversight of a battery pack, which is an assembly of battery cells, electrically organised in a row x column matrix configuration to enable delivery of targeted range of voltage & current for a duration of time against expected load scenarios.

Types of BMS

① Hardware BMS :-

To keep the Battery as healthy as possible, features are

- ① Over voltage cutoff
- ② Under voltage cutoff
- ③ Continuous current
- ④ Over current detection
- ⑤ Over temperature cut off.

By these features BMS Hardware BMS keeps the Battery safe.

② Smart/Software BMS :-

It includes all the features in the Hardware BMS, along with that collect data, stores data and transmit data, Bluetooth connection etc...

② What are technical parameters to keep in mind while procuring a BMS for assembling a Battery pack?

Ans: ① State of charge :- It is measurement of the amount of energy available in a battery at a specific point in time. expressed in percentage (%).

② State of Health (SoH) :- Describes the difference b/w a battery being studied and a fresh battery & considers cell aging. It is the ratio of max battery charge to its rated capacity.

$$SoH = \frac{\text{Present Battery Capacity}}{\text{New battery Capacity}} \times 100$$

③ Temperature :-

When the Battery Heats up's from the BMS due to over temperature cut off function.

③ What is the purpose of BMS with Communication? What are the various protocols of Communication used in BMS?

Ans- The main purpose of ^{BMS with} communication technology BMS uses the collected data points like temperature, voltage and current to estimate the state of charge (SOC) and state of Health (SOH) of battery pack. & temperature with the help of communication techniques BMS is responsible for communicating with other ECU's in vehicle.

Types of BMS Communication in EV

① CAN (Controlled Area network) :- It is the robust vehicle bus standard design to allow microcontrollers & devices to -

Communicate with each other applications without a host computer, & also communicate with between charger & Bms.

② UART with Bluetooth :- Universal Asynchronous Receiver Transmitter and It works with Bluetooth interface, which sends data to end user on their cell phone, application

③ IoT cloud connectivity :- It requires wireless internet and can transmit data to the cloud and It can remotely access by anybody with an internet access.