Requirements for selecting the MCU of battery BMS

Overview

The main requirements for a microcontroller in this role are a 12-bit ADC and enough memory for the MCU to act as a battery gauge.What is a battery management system (BMS)?

Algorithms for energy and thermal management SYSTEM MODEL C or HDL Code generated from controller model C or HDL Code generated from plant model Typical Battery Management System Architecture A BMS for a battery pack is typically composed of: 1)Battery Management Unit (BMU) Centralized control of battery pack.

What is a battery management unit (BMU)?

Battery Management Unit (BMU) BJB •Test control and electrical interfaces •Each cell emulated: up to 6V and 5A •Emulate the electrical behaviour of battery cells •Stack up to 312 of virtual battery cells (1600 V) •Include communication interfaces like isolated SPI or CAN.

How to evaluate battery management system behavior?

Evaluate Battery Management System Behavior •Simulate interaction between software modules •Design & test algorithms for different operating conditions •Calibrate software before putting into battery pack or vehicle Battery Pack Cell Monitoring Software Measurement Cell Diagnostic, Cell Balancing Battery Management System Architecture.

How many ICs are in a BMS?

The main structure of a complete BMS for low or medium voltages is commonly made up of three ICs: an analog front-end (AFE), a microcontroller (MCU), and a fuel gauge (see Figure 1). The fuel gauge can be a standalone IC, or it can be embedded in the MCU.

Why should you use an MCU as a secondary protection mechanism?

In this way, the MCU can be used as a secondary protection mechanism for a

higher level of safety and robustness. The MP279x family integrates both forms of protection control. This allows designers to select whether the fault responses and/or protections are controlled through the AFE or MCU.

What is a cell Management Unit (CMU)?

Includes state estimation (SoC, SoH, SoX). Typically uses CAN as well as proprietary protocols to interface to CMU 2)Cell Management Units (CMU) Takes care of cell balancing (active or passive) and measurement of individual cell voltages (1s) and temperatures.

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