BMS 2.0

Battery Management System

Properties and features

- Input Supply Voltage
  + 7- 16 [V]
- Current Measuring Range
  + 0 up to ±2000 [Apk]
  + Redundant measurement: Shunt + Hall sensing
- Voltage Measuring Range
  + ±5 to ±800 [V]
- Measurement accuracy
  + 1 [%]
- Temperature Range
  + -40 to +80 [°C]
- System Isolation: Galvanic Isolation
  + High Side is Isolated from Low Side
- CAN communication
  + Refresh rate: ~10 [ms] (current)

Description

Battery Monitoring/Management System (BMS) is any electronic system that monitors the physical variables of a battery, such as current, voltage and temperature and prevents the battery from operating outside its safe operating area. Monitored variables are used to check the battery state, to calculate secondary data (eg. state of charge), to report that data, to control its environment, or for authentication. Typical secondary calculated data are:

- Voltage: total voltage, voltages of individual cells, minimum and maximum cell voltage, or voltage of periodic taps
- Temperature: average temperature, coolant intake temperature, coolant output temperature, or temperatures of individual cells
- State of charge (SOC) or depth of discharge (DOD), to indicate the charge level of the battery
- State of health (SOH), a variously-defined measurement of the remaining capacity of the battery as % of the original capacity
- State of power (SOP), the amount of power available for a defined time interval given the current power usage, temperature and other conditions
- State of Safety (SOS)
- Coolant flow: for air or fluid cooled batteries
- Current: current in or out of the battery
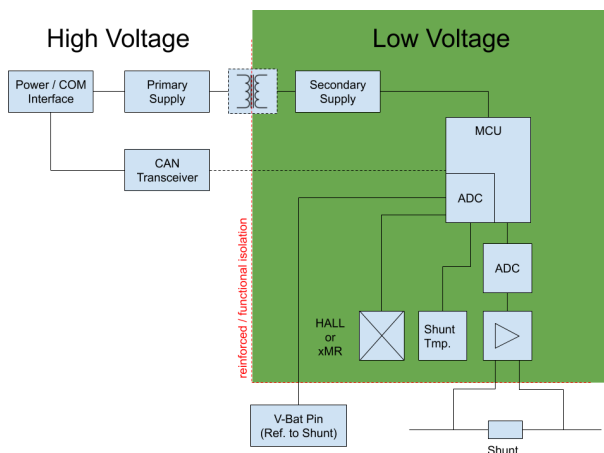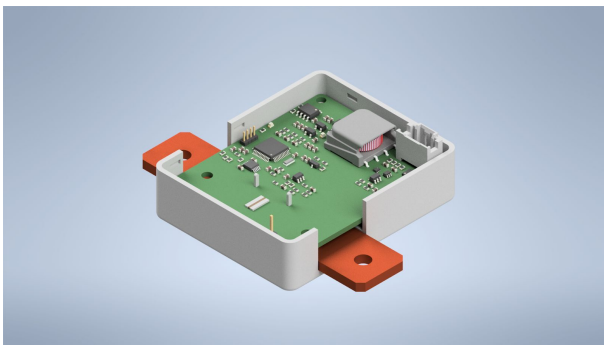
Maglab BMS is designed in order to measure current (redundant), voltage and temperature, and also internal system parameters in order to detect malfunctions of the system itself.