DANA OPEN ECU™ EMBEDDED CONTROL

OpenECU™ BMU
Battery Management Master Controller

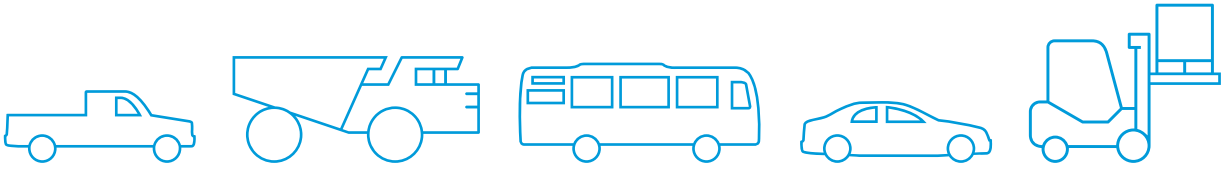
Battery Management Unit

Summary

- Provides control of the battery pack contactors and monitoring of the pack voltages and current
- Supports isoSPI cell monitoring units (CMU) selected by customer to provide a complete battery management solution
- Supports customers to develop BMS application using OpenECU Simulink or C API
- Hardware comprises of low voltage section and high voltage section.

MATLAB Enabled
MathWorks Partner

Ideal for light, commercial and off-highway vehicles.



OpenECU™ BMU
Battery Management Master Controller

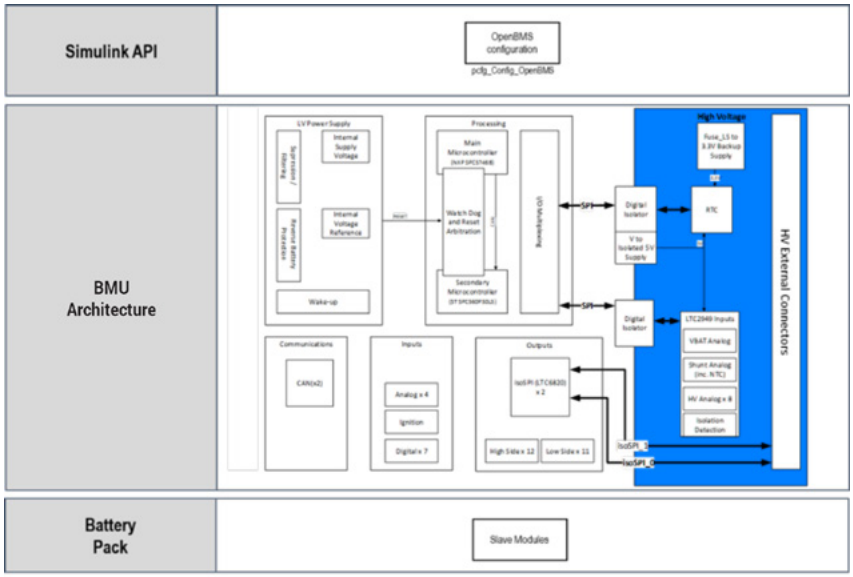
Dana's BMU is a rapid control prototyping embedded controller for Battery Management Systems. BMU adopts isoSPI for communication with cell monitoring slaves. BMU combines low voltage and high voltage in a single ECU providing cost optimized solution for our customers.

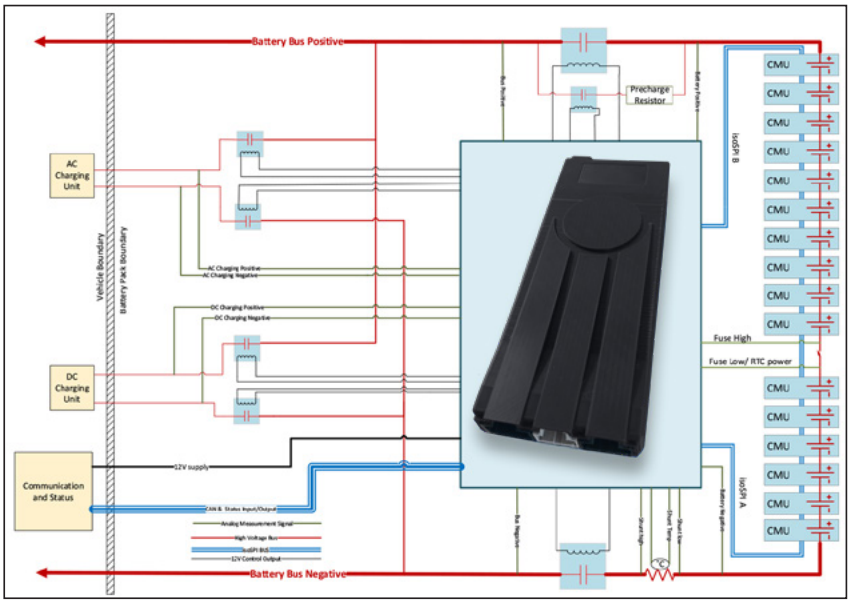
Performance

- A dual microcontroller architecture providing redundancy with a main controller for control and secondary microcontroller for safety monitoring of the operations
- Designed to measure voltages in excess of 50V up to 1000V
- Includes the LTC2949 High Voltage Pack Monitor providing 8 channels capable of measuring 1000V
- Two current shunt inputs to calculate charge, energy and power flow into and out of the pack

Capable

- OpenECU, Dana's base software (BSW) provides developers with Simulink® or C API for application development
- High-quality rugged hardware design for Battery Electric Vehicles and Hybrid Electric Vehicles
- Supports common calibration tools such as ATI Vision, ETAS INCA, and Vector CANape via CCP as well as Dana calibration tool PiSnoop





Product Specifications

Highlights	
Processor	MPC5746C
Clock Rate	160MHz
Code Space	2302KiB
RAM Space	384KiB
Calibration Space	128KiB
Low Voltage Section Inputs	
Communication	2x CAN
Analog Inputs	4x
Digital Inputs	4x
Ignition Wake-up	1x
Low Voltage Section Outputs	
High Side Outputs	12x
Low Side Outputs	13x

Low Voltage Section Internal Features	
• Wake from Ignition Signal	• Wake from real-time clock (RTC)
• Reverse battery Protection	• Voltage reference for external sensors
High Voltage Section Inputs	
Communication	2x CAN
High Voltage Pack Analog	1x (HVBAT)
High Voltage Auxiliary Analog	8x
Pack Isolation Detection Analog	1x
Current Shunt Input Pairs	2x
5V Analog Input	1x
isoSPI Channels	2x
Application	
Location	Inside Pack
Supply Voltage	12V Bus (8V to 16V)

Product Specifications

Physical	
Dimensions	36.25 x 106 x 226.25 mm
Material	Nylon
Weight	425g
Connectors	4x Molex STAC64; 1x JST TLDR
Vibration	IEC 60068-2-64
Environmental	Protection IP5K

BMU Master Control Features
▪ Battery Pack Voltage Monitoring
▪ Battery Pack Current Monitoring
▪ Cell Monitoring and Balancing
▪ CAN Communication
▪ isoSPI Communication to Cell Modules
▪ Diagnostics
▪ Contactor Control
▪ NVM Storage

OpenECU.com

Application Policy
Capacity ratings, features, and specifications vary depending upon the model and type of service. Application approvals must be obtained from Dana; contact your representative for application approval. We reserve the right to change or modify our product specifications, configurations, or dimensions at any time without notice.

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