

BATTERY MANAGEMENT SYSTEM



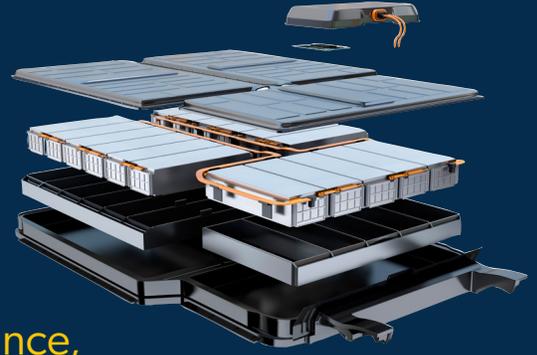


INNOVATION WITH PURPOSE

ALLEGRO
microsystems

BATTERY MANAGEMENT SYSTEM

Improved power density, maximized performance,
and safe and robust power and sensing IC solutions

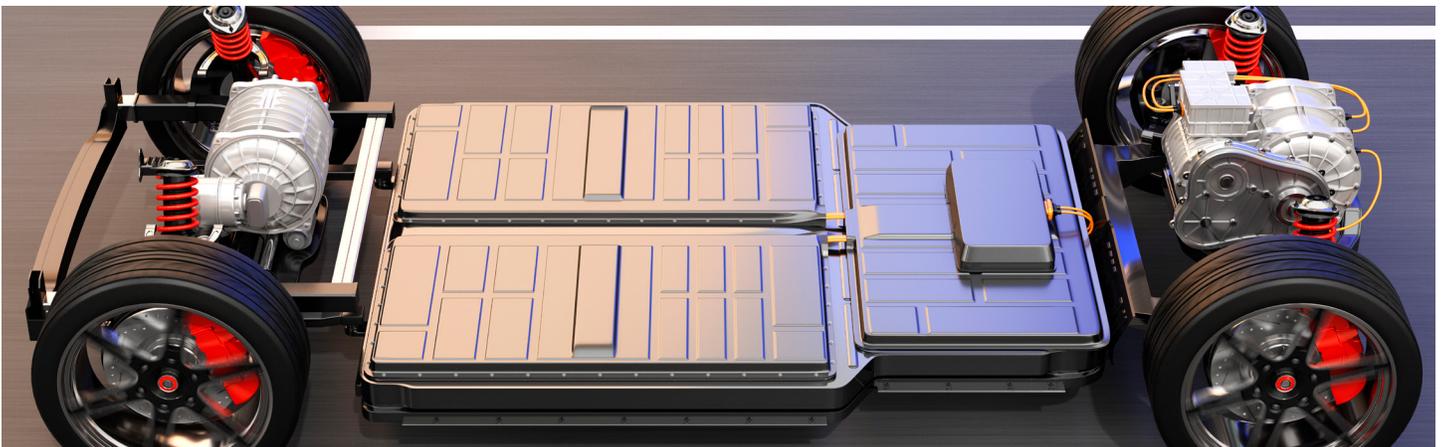


Allegro is addressing battery management system challenges by offering comprehensive solutions that integrate highly accurate and ASIL-rated current and position sensors, high-power motor drivers, and power management ICs (PMICs) into a compact package, delivering enhanced performance and safety in battery management.

Our solutions for managing batteries not only extend vehicle ranges but also minimize solution size, enhance safety, and efficiently disconnect batteries in case of a fault. This is facilitated by a fast-responding current sensor and an ASIL-rated position sensor.

Allegro solutions provide:

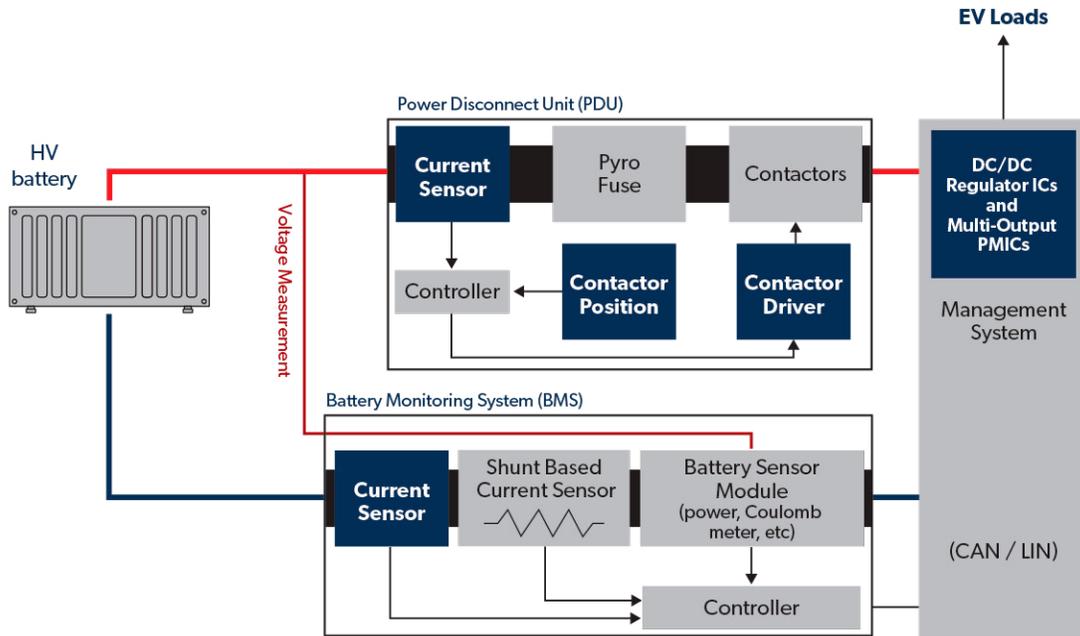
- High accuracy ASIL C **Core-based Current Sensors** for State of Charge (SOC) and State of Health (SOH) functions.
- **Coreless Current Sensors** that enable nonintrusive, fast current measurement for overcurrent protection.
- **Contactors Drivers** with high power integration, ASIL rated, signifying superior safety in performance and reliability.
- **Position Sensors** that include internal diagnostics and a fault state to support functional safety.
- ASIL rated, **Power Management Integrated Circuits (PMICs)** providing a superior level of safety, decreased component count, board space, and cost.



To learn more about the Allegro family of products and to explore available design resources, visit [allegromicro.com](https://www.allegromicro.com)

Market-Leading Portfolios That Sense, Regulate, and Drive

Block Diagram



Key Products and Features for Battery Management Applications

Subsystem	Component	Allegro Part	Key Differentiator
Battery Pack Current Sensing	Current Sense: High Current (>1500A)	ACS37610/2	High Precision, Hall-based Coreless Current Sensor
		ACS70311	High Accuracy Core-based Hall Current Sensor
		ACS37601	Core-based High Accuracy Current Sensing with ASIL C
		CT455/6*	1 MHz Bandwidth Contactless TMR Current Sensor Optimized with High dV/dt Immunity
Battery Disconnect Unit	Current Sense: High Current (>400A)	ACS37610/2	High Precision, Hall-based Coreless Current Sensor
		ACS772/3	200kHz Bandwidth Current Sensor IC in CB package
		ACS37002	400kHz Hall-effect Current Sensor with 5kV Isolation
	Contactor Position Sense	ATS16351	Contactless GMR Magnetic Position Sensor
		APS11450	Three-Wire Hall-effect Switch with Advanced Diagnostics, ASIL-B
	Contactor Driver	A3922	Full-Bridge High Current MOSFET Driver, ASIL-D
A89500		100V Half Bridge, Fast Switching Bootstrap Gate Driver	
A4950		Full-Bridge DMOS PWM Motor Driver with OCP	
Battery Control Unit & Communication	12V Regulator	ARG81800	0.5A/1A, Low EMI DC/DC Regulator
		APM81911	40V, 3A, Synchronous Buck Regulator Module, Low EMI

*Not Released, In Development



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