



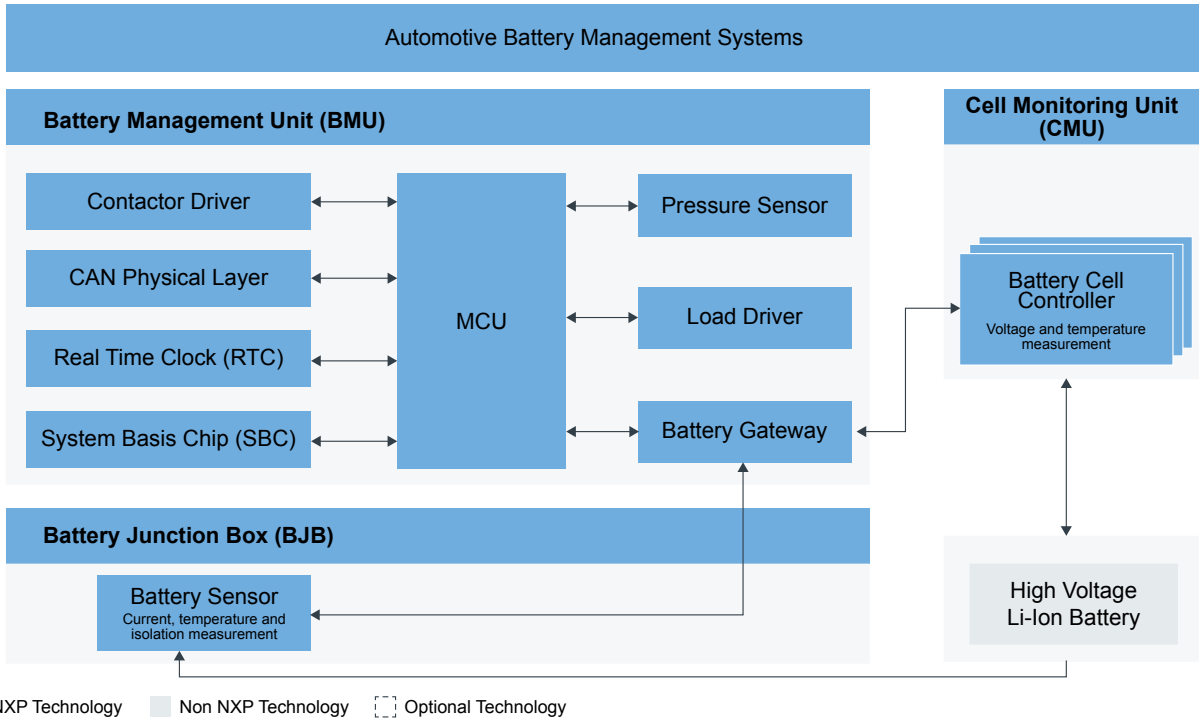
# Battery Management System (BMS)

Last Updated: Apr 18, 2024

Battery management systems (BMS) enhances the performance and ensures the safety of a battery pack composed of multiple cells. Functional safety is critical as lithium-Ion batteries pose a significant safety hazard when operated outside of their safe operating area. That's why our BMS portfolio offers high measurement accuracy after soldering and aging in additional ISO 26262 support up to ASIL D functional safety capability.

Committed to sustainable mobility and renewable power grids, we offer BMS solutions including the complete chipset, software and functional safety documentation. With our reference designs, we accelerate our customers' development and enable the latest BMS innovations for automotive and industrial applications.

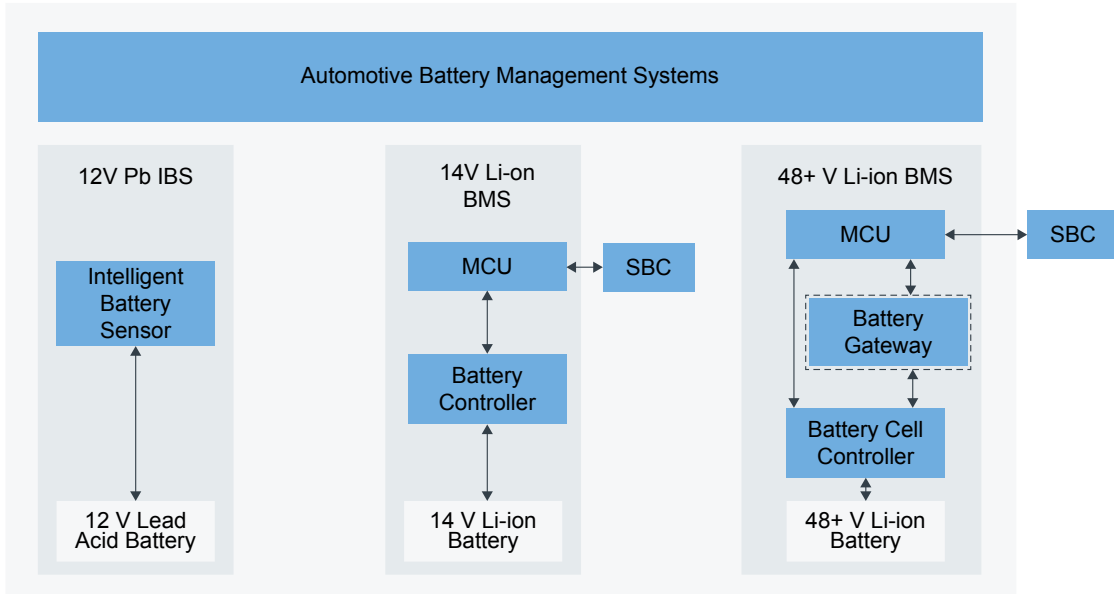
**High Voltage BMS Block Diagram**



Recommended Products for High Voltage BMS	
Automotive Battery Management Systems	<ul style="list-style-type: none"> <li>• <a href="#">High Voltage Battery Management System (HVBMS)</a>: High Voltage Battery Management System (HVBMS)</li> <li>• <a href="#">Battery Management Systems (BMS) Hardware Solutions</a>: Battery Management Systems (BMS) Hardware Solutions</li> </ul>
Contactor Driver	<ul style="list-style-type: none"> <li>• <a href="#">HB2000</a>: SPI Programmable 10 A H-Bridge Brushed DC Motor Driver</li> </ul>
CAN Physical Layer	<ul style="list-style-type: none"> <li>• <a href="#">TJA1145A</a>: High Speed CAN Transceiver with Partial Networking, CAN FD Data Rates up to 5 Mbit/s</li> </ul>

RTC	<ul style="list-style-type: none"> <li>• <a href="#">PCA2131</a>: Nano-Power Highly Accurate RTC with Integrated Quartz Crystal for Automotive Applications</li> </ul>
System Basis Chip	<ul style="list-style-type: none"> <li>• <a href="#">FS26</a>: Safety System Basis Chip with Low Power, for ASIL D Systems</li> </ul>
MCU	<ul style="list-style-type: none"> <li>• <a href="#">S32K3</a>: S32K3 Microcontrollers for Automotive General Purpose</li> </ul>
Pressure sensor	<ul style="list-style-type: none"> <li>• <a href="#">NBP8-9x</a>: Highly Integrated Battery Pressure Monitor Sensor</li> </ul>
Load Driver	<ul style="list-style-type: none"> <li>• <a href="#">MC12XS6</a>: External Automotive Lighting Multi-Channel eXtreme Switch</li> </ul>
Battery Gateway	<ul style="list-style-type: none"> <li>• <a href="#">MC33665A</a>: General Purpose BMS Communication TPL Transceiver and CAN FD Gateway</li> <li>• <a href="#">TJA1057</a>: High-Speed CAN Transceiver - Mantis Family</li> <li>• <a href="#">TJA144x</a>: Automotive CAN FD Transceiver Family</li> </ul>
Battery Cell Controller	<ul style="list-style-type: none"> <li>• <a href="#">MC33771C</a>: 14-Channel Li-Ion Battery Cell Controller IC</li> <li>• <a href="#">MC33775</a>: 14 Channel Li-Ion Battery Cell Controller IC ASIL D</li> <li>• <a href="#">MC33774</a>: 18 Channel Li-Ion Battery Cell Controller IC ASIL D</li> </ul>
Battery sensors	<ul style="list-style-type: none"> <li>• <a href="#">MC33772C</a>: 6-Channel Li-Ion Battery Cell Controller IC</li> </ul>
Battery Gateway	<ul style="list-style-type: none"> <li>• <a href="#">MC33665A</a>: General Purpose BMS Communication TPL Transceiver and CAN FD Gateway</li> <li>• <a href="#">TJA144x</a>: Automotive CAN FD Transceiver Family</li> </ul>
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NFC Reader	<ul style="list-style-type: none"> <li>• <a href="#">NCx3321</a>: NFC Forum-Compliant Frontend IC with Superior RF Performance for Automotive</li> <li>• <a href="#">NCx3320</a>: Automotive-Grade NFC Frontend IC</li> </ul>
NFC Tag	<ul style="list-style-type: none"> <li>• <a href="#">NCx3310</a>: NFC Forum-Compliant Tag IC with I<sup>2</sup>C for Automotive</li> </ul>
Temperature Sensor	<ul style="list-style-type: none"> <li>• <a href="#">P3T1755DP</a>: I3C/I<sup>2</sup>C-Bus ±0.5 °C Accurate Digital Temperature Sensor</li> <li>• <a href="#">P3T1750DP</a>: I3C/I<sup>2</sup>C-Bus, ±1 °C Accuracy, Digital Temperature Sensor</li> </ul>

## Low Voltage BMS Block Diagram



■ NXP Technology   ■ Non NXP Technology   □ Optional Technology

### Recommended Products for Low Voltage BMS

Intelligent Battery Sensor	<ul style="list-style-type: none"> <li>• <a href="#">MM9Z1_638</a>: Battery Sensor with CAN and LIN</li> </ul>
MCU	<ul style="list-style-type: none"> <li>• <a href="#">S32K1</a>: S32K1 Microcontrollers for Automotive General Purpose</li> <li>• <a href="#">S32K3</a>: S32K3 Microcontrollers for Automotive General Purpose</li> </ul>
Battery Gateway	<ul style="list-style-type: none"> <li>• <a href="#">MC33664</a>: Isolated Network High-Speed Transceiver</li> </ul>
Battery Cell Controller	<ul style="list-style-type: none"> <li>• <a href="#">MC33772C</a>: 6-Channel Li-Ion Battery Cell Controller IC</li> </ul>

Battery Cell Controller	<ul style="list-style-type: none"> <li>• <a href="#">MC33771C</a>: 14-Channel Li-Ion Battery Cell Controller IC</li> </ul>
Automotive Battery Management Systems	<ul style="list-style-type: none"> <li>• <a href="#">Battery Management Systems (BMS) Hardware Solutions</a>: Battery Management Systems (BMS) Hardware Solutions</li> <li>• <a href="#">High Voltage Battery Management System (HVBMS)</a>: High Voltage Battery Management System (HVBMS)</li> </ul>
SBC	<ul style="list-style-type: none"> <li>• <a href="#">FS23</a>: Safety System Basis Chip (SBC) Family with Power Management, CAN and LIN</li> <li>• <a href="#">FS24</a>: Safety Mini CAN FD SBC for Automotive Applications Fit for ASIL-B</li> <li>• <a href="#">FS26</a>: Safety System Basis Chip with Low Power, for ASIL D Systems</li> </ul>

View our complete solution for [Battery Management System \(BMS\)](#).

**Note:** The information on this document is subject to change without notice.

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