XPAND® Battery Management System

Features

High Quality/Reliable Performance
- Proven, AEC qualified components
- Sealed enclosure (IP67/IP69)
- Modular & flexible design - components are interchangeable and auto-addressing
- Scalable 4-360 series cell groups
- Power, SOC, and SOH prediction
- Thermal system control and interface
- Charger control interface
- CAN 2.0A, CAN 2.0B, J1939 application
- Robust 2-wire communication with 1250VDC isolation working voltage
- Passive balancing up to 5W / Cell
- High Voltage Interlock Loop (HVIL) monitoring
- Redundant contactor control features to ensure safe operation
- Supports ASIL D voltage measurement and ASIL C current measurement
- Compatible with all Li chemistries

Advantages

Ideal for energy storage applications where high performance and high reliability are key to successful integration:
- Commercial bus & transportation
- ISO & sub-ISO marine
- Marine
- Industrial equipment
- Rail

Specifications

<table>
<thead>
<tr>
<th>Performance Characteristic</th>
<th>Lower</th>
<th>Upper</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>System Voltage Range</td>
<td>11</td>
<td>1250</td>
<td>V</td>
</tr>
<tr>
<td>System Current Range</td>
<td>-1200</td>
<td>1200</td>
<td>A</td>
</tr>
<tr>
<td>Cell Count (Series Connected)/String</td>
<td>4</td>
<td>360</td>
<td>Cells</td>
</tr>
<tr>
<td>String Count per System</td>
<td>1</td>
<td>24</td>
<td>Units</td>
</tr>
<tr>
<td>Vehicle Low Voltage System (12/24V)</td>
<td>9</td>
<td>36</td>
<td>V</td>
</tr>
<tr>
<td>Cell Voltage Monitor/Balance Range</td>
<td>1.8</td>
<td>5.0</td>
<td>V</td>
</tr>
<tr>
<td>Balancing</td>
<td>Passive balancing, both during operation and autonomous</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Telemetry Enabled
- XALT Battery Viewer (XBV) Telematics

The XPAND Battery System using XALT’s MCU, BDU and XMP71P is DNV-GL Type Approved (Cert # TAE00002YC).

XPAND Battery Management System Topology

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a brand of FREUDENBERG
XPAND® Battery Management System

XPAND BMS Software Features:
• Multi-string management – for large scale systems of parallel battery strings
• Battery system performance algorithms (SOC, SOHc, SOHr, power available, optimal charging)
• High voltage interlock loop monitoring and control
• Isolation resistance measurement
• Battery usage recorder
• Functional safety features protected by SafeRTOS
• Telematics – data collection

XPAND BMS Software Process:
• Automotive quality processes
  • Agile development process
  • ISO26262 / IEC61508
  • Automotive SPICE
• World class traceability
  • Linking between requirements, software work-packages, test plans, and test results
• Mature tool chain
  • Established market leaders like Wittenstein, Freescale / NXP, Mathworks MATLAB, and LDRA for creating state-of-the-art embedded software

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