NAVIFLOOR AMR BATTERY MANAGEMENT SYSTEM SPECIFICATIONS

NAVIFLOOR AMR BATTERY MANAGEMEN

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Classification: CONFIDENTIAL

1. OVERVIEW AND SCOPE

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1. This Battery Management System Specification ("Specification") docume

2. This Specification applies to all NaviFloor AMR models NF-2000 through

2. DEFINITIONS

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1. "Battery Pack" means the complete power storage assembly, including cel

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2. "BMS Controller" means the primary electronic control unit responsible fo

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3. "Safety Circuit" means the integrated protection system designed to preve

3. TECHNICAL SPECIFICATIONS

1. Battery Pack Configuration

- Nominal Voltage: 48V DC
- Capacity: 100Ah
- Chemistry: Lithium Iron Phosphate (LiFePO4)
- Cell Configuration: 15S4P
- Operating Temperature Range: -10°C to 45°C
- Storage Temperature Range: -20°C to 60°C

2. BMS Controller Specifications

- Microprocessor: ARM Cortex-M4
- Communication Protocol: CAN 2.0B
- Sampling Rate: 100Hz
- Operating Voltage: 9-60V DC
- Power Consumption: <2W (active mode)

4. SAFETY FEATURES

1. Protection Mechanisms

- Overcurrent protection (charge/discharge)
- Over/under voltage protection
- Temperature monitoring and cutoff
- Cell balancing (passive)
- Short circuit protection
- Ground fault detection

2. Monitoring Parameters

- Individual cell voltage (±2mV accuracy)
- Pack current (±0.1A accuracy)
- Temperature sensors (minimum 8 points)
- State of Charge (SoC) calculation
- State of Health (SoH) monitoring

5. OPERATIONAL REQUIREMENTS

1. Charging Specifications

- Standard Charging Current: 0.5C (50A)

- Fast Charging Current: 1C (100A)

- Charging Voltage: 54.75V ±0.05V

- Charging Temperature Range: 0°C to 40°C

2. Performance Requirements

- Cycle Life: >3000 cycles (80% capacity retention)

Self-Discharge Rate: <3% per month

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Coulombic Efficiency: >99%

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Energy Density: >160Wh/kg

6. COMMUNICATION AND INTEGRATION

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1. Data Interface

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Primary Protocol: CAN bus (500kbps)

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Secondary Protocol: RS485 Modbus

Wireless Interface: BLE 5.0

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Cloud Connectivity: AWS IoT Core compatible

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2. Reporting Parameters

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Real-time voltage monitoring

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Current consumption tracking

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Temperature distribution

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Charging status and estimates

Fault codes and diagnostics

7. COMPLIANCE AND CERTIFICATION

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1. Safety Standards

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UL 1642 (cell level)

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UL 2054 (battery pack)

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UN 38.3 (transportation)

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IP67 rated enclosure

2. EMC Requirements

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EN 61000-6-2

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EN 61000-6-4

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FCC Part 15 Class A

8. WARRANTY AND LIABILITY

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1. The specifications contained herein are provided "as-is" and may be subje

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2. Any modification to the BMS or its components without written authoriza

9. PROPRIETARY INFORMATION

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10. DOCUMENT CONTROL

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