



SPECIFICATION SHEET

ARMOR 4+™

Connected Asset Intelligence Device

ARMOR 4+™ is a next-generation connected asset device engineered by **ARMOR Technologies Inc.** for real-time monitoring of power, runtime, and location. The device installs quickly, operates globally, and securely transmits data to **ARMOR Asset Central™**, enabling full asset visibility and control.

Model: **ARMOR 4+™ (SPI-20250311LZ-24)** | Developed by **ARMOR Technologies Inc.**, Decatur, Illinois, USA | Protected by **U.S. Patent No. 9,601,814** and additional patents pending.

Key Capabilities & Model Compliance

Key Capabilities

- Real-time asset monitoring (power, runtime, location)
- Global LTE Cat-M1 / NB-IoT connectivity
- Indoor + outdoor positioning (Wi-Fi + GNSS)
- Patented battery intelligence and health tracking
- BLE sensor expansion ecosystem
- Secure cloud integration with enterprise systems

Model & Compliance

Model	ARMOR 4+™ (SPI-20250311LZ-24)
Function	Connected asset intelligence device
Certifications	FCC, PTCRB, CE, RoHS, EN 18031-1/2 (RED 2014/53/EU)
Compliance Testing	RED Directive (EU), FCC, PTCRB
Manufacturing	ISO-certified global partners

 **Designed for Enterprise Asset Intelligence at Scale** — Visibility | Control | Automation

Communications & Power System

Cellular

- LTE Cat-M1 / NB-IoT modem
- eSIM with global band support
- Fully integrated internal high-gain LTE + GNSS antennas
Sleek, tamper-resistant footprint
- Multi-carrier: AT&T, T-Mobile, others + international
- Protocols: TCP / UDP / MQTT over TLS 1.3

Positioning

- GPS / GLONASS / BeiDou / Galileo

Fallback

- No 2G/GSM fallback - LTE-only architecture

Local Connectivity

- **Bluetooth:** BLE 5.2 (sensors + accessories)
- **Wi-Fi:** 2.4 GHz (indoor positioning + local comms)

Power System

Input Voltage	6 – 90 V DC *Fuse selection must be appropriately rated for applied system voltage.
Battery Backup	200 mAh Li-Ion (3.7 V)
Protection	Reverse polarity, surge, over-voltage
Consumption	<30 mA idle / <150 mA active at 12v

I/O, Measurement & Sensor Capabilities

I/O & Wiring Map

Harness: 5-wire configuration

- **Red wire** = +V / positive
- **Black wire** = COM / ground / negative
- **White wire** = DI 1 / Ignition
- **Orange wire** = DI 2 / General Purpose
- **Brown wire** = Digital Output

BLE Sensors: Sound, Vibration, Amperage, Fluid level, Gloss (floor shine), Temperature, Proximity, Flood detection

Digital Input Specifications

DI 1 - White Wire / Ignition

Logical 1: 5V to 90V

Logical 0: 0V to 3V or open

Max. voltage: +/- 90V

lin, max.: <1mA @ 90V

DI 2 - Orange Wire / General Purpose

Logical 1: 0.5V to 70V

Logical 0: 0V to 0.2V or open

Max. voltage: +/- 70V

lin, max.: <3.4mA @ 70V

Digital Output

Brown Wire

- 1 channel
- Open drain
- 150mA max
- 60V max
- Remote automation / lockout

Motor Monitoring

- AC: Optional amp clamp accessory
- DC: Direct sensing
- Automatic on/off detection
- Total usage hours tracking

Battery Intelligence

Patented

- Voltage stability tracking
- Discharge pattern analysis
- Battery health scoring
- Tamper detection

Typical Deployment Configurations

One Platform. Multiple Deployment Options.

ARMOR 4+™ uses a single expandable hardware platform supporting multiple deployment strategies without requiring different hardware versions.

1000 Series

2-Wire Runtime / Motion

- Simple 2-wire install
- Motion/runtime detection
- Fastest deployment method
- Ideal for mobile assets

Most Common Deployment

2000 Series

2-Wire Ignition Sense

- Simple 2-wire install
- Starter battery / alternator behavior
- Vehicle and powered equipment

Vehicle & Fleet Deployments

3000 Series

5-Wire Direct I/O

- Expanded hardwire deployment
- DI 1 / DI 2 / DO support
- Automation and signal monitoring

Advanced Integrations

4000 Series

Hybrid Runtime + I/O

- Combines 1000 + 3000 capabilities
- Advanced telemetry and automation
- Enterprise event monitoring

Enterprise Configuration

Expandable Platform Architecture

Most deployments begin as simple 2-wire installations and expand over time without replacing hardware. GPS • Cellular • BLE • Battery Intelligence • Cloud Reporting operate across all deployment types.

Expandable Intelligence Architecture

Edge Processing + Cloud Intelligence + Wireless Expansion

ARMOR 4+™ combines onboard edge processing with cloud-based algorithms, datasets, and AI-assisted analysis.

Edge Intelligence

On-Device Processing + Event Buffer

- High-frequency voltage analysis
- Runtime and motion processing
- Local event detection
- 8,000-line onboard event buffer
- Automatic upload prevents data loss during cellular outages
- Event-based reporting triggered by ignition, motion, and DI state changes

Real-Time Edge Processing

Cloud Intelligence

Enterprise Analytics

- Historical datasets
- Fleet-level analytics
- AI-assisted interpretation
- Enterprise reporting

Cloud + AI Analytics

BLE Expansion

Wireless External Sensing

- Multiple BLE sensors per device
- Vibration - Sound - Temperature
- Gloss / floor shine - Fluid level

Wireless Sensor Ecosystem

Indoor Location Intelligence

Wi-Fi Assisted Positioning

- Wi-Fi scanning
- Server-side access point mapping
- Indoor positioning

Indoor Asset Awareness

Smart Configuration Management

Device-level deployment configurations can be remotely managed through ARMOR Asset Central™ without replacing hardware. Most deployments begin simple and expand over time as operational needs evolve.

Security, Mechanical & Cloud Integration

Security Architecture

- **Encryption:** AES-256
- **Transport:** TLS 1.3
- **Firmware:** Secure OTA updates (signed)
- **Validation:** Monthly external penetration testing

Cloud & Integration

Platform: ARMOR Asset Central™

Free to See / Pay to Control

Integration Options:

- REST API
- ERP systems
- CMMS platforms
- Enterprise dashboards

Mechanical & Environmental

Enclosure	
Dimensions	94 × 53 × 24 mm
Operating Temp	-20°C to +70°C
Shock & Vibration	Engineered and tested for high-vibration, high-impact off-road and factory-floor environments.
Mounting	Adhesive, screw, or zip-tie

Certifications & Standards

- FCC
- PTCRB
- CE
- RoHS
- EN 18031-1/2 (EU RED 2014/53/EU)

Manufacturing & IP

Manufacturing

Developed under **ARMOR 4+™ Specification SPI-20250311LZ-24**. Produced through **ISO-certified global manufacturing partners**.

Intellectual Property

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