

IceNav System Integration Guidelines

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Classification: CONFIDENTIAL

1. Purpose and Scope

1. These Integration Guidelines ("Guidelines") govern the implementation, integration, and deployment of the IceNav(TM) Navigation System ("IceNav System") developed and owned by Polar Dynamics Robotics, Inc. ("Company").
2. These Guidelines apply to all authorized system integrators, licensed partners, and end-users ("Implementers") who have executed the requisite IceNav System License Agreement with the Company.

2. Definitions

1. "IceNav Core Components" means the proprietary software modules, algorithms, and thermal management protocols that comprise the IceNav System.
2. "Cold Environment Parameters" means operating conditions between -40 C and +5 C in industrial freezer and cold storage environments.
3. "Integration Interface" means the Company-approved APIs, SDKs, and hardware connection points designated for third-party system integration.

3. Technical Requirements

1. Hardware Specifications
 - a) Minimum processor requirements: Dual-core ARM Cortex-A72, 2.0GHz
 - b) RAM: 4GB LPDDR4 minimum
 - c) Storage: 64GB industrial-grade flash storage
 - d) Thermal sensors: Minimum 4 distributed temperature monitoring points
 - e) Network connectivity: Gigabit Ethernet, WiFi 6

2. Environmental Controls

- a) Thermal management system must maintain internal component temperature within 2 C of specified operating range
- b) Condensation prevention protocols must be implemented per Company specification PDR-ENV-2023-118
- c) All external connections must maintain IP67 rating in Cold Environment Parameters

4. Integration Protocols

1. System integrators must:

- a) Utilize only Company-approved Integration Interfaces
- b) Maintain separate operational logs for IceNav Core Components
- c) Implement prescribed failsafe protocols
- d) Follow Company's version control guidelines
- e) Document all customizations in the prescribed format

2. Prohibited Modifications

- a) Direct modification of IceNav Core Components
- b) Bypassing thermal management protocols
- c) Unauthorized sensor integration
- d) Custom navigation algorithm implementation without Company approval

5. Testing and Validation

1. Required Testing Procedures

- a) Full system validation in simulated cold environment
- b) 72-hour continuous operation test
- c) Emergency shutdown protocol verification
- d) Navigation accuracy validation per Company standard PDR-NAV-2023-092
- e) Thermal stress testing under maximum load conditions

2. Documentation Requirements

- a) Test results must be recorded in Company-provided validation templates
- b) Deviation reports must be submitted within 24 hours of occurrence

- c) Final integration report must include all test data and certification documents

6. Security Requirements

1. Data Protection

- a) All system data must be encrypted using AES-256 encryption
- b) Secure boot protocols must be implemented
- c) Access control systems must comply with Company standard PDR-SEC-2023-156

2. Network Security

- a) Isolated operation network configuration required
- b) Regular security audits per Company guidelines
- c) Immediate reporting of security incidents

7. Maintenance and Updates

1. Implementers must:

- a) Apply security updates within 72 hours of release
- b) Maintain system logs for minimum 90 days
- c) Perform monthly system health checks
- d) Document all maintenance activities

2. Company reserves the right to:

- a) Push critical updates without prior notice
- b) Require system recertification following major updates
- c) Audit implementation compliance

8. Intellectual Property Protection

1. All IceNav System components, including derivatives and modifications, remain the exclusive intellectual property of the Company.
2. Implementers shall not reverse engineer, decompile, or attempt to derive source code from IceNav Core Components.

9. Liability and Indemnification

1. Implementers assume all liability for implementations that deviate from these Guidelines.
2. Company disclaims all warranties for non-compliant implementations.

10. Certification and Compliance

1. Implementers must maintain current certification status through Company's partner program.
2. Annual compliance audits are required for continued authorization.

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Approved by:

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Polar Dynamics Robotics, Inc.

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