

ROBOT INTEGRATION PLAN

FreezeLine Logistics Implementation Protocol

Prepared by: Polar Dynamics Robotics, Inc.

Document Reference: PDR-IP-2024-FL-001

Effective Date: January 15, 2024

1. INTRODUCTION

1 This Robot Integration Plan ("Plan") sets forth the procedures and protocols for implementing Polar Dynamics Robotics' IceNav-enabled autonomous mobile robots ("AMRs") within FreezeLine Logistics' cold storage facilities ("Facilities").

2 This Plan is governed by and incorporated into the Master Services Agreement dated December 1, 2023, between Polar Dynamics Robotics, Inc. ("PDR") and FreezeLine Logistics, LLC ("Client").

2. DEFINITIONS

- 1 "Implementation Period" means the 120-day period commencing on the Effective Date.
- 2 "IceNav System" means PDR's proprietary cold-environment navigation and operation platform.
- 3 "Integration Zone" means designated areas within the Facilities where AMRs will be deployed.
- 4 "Performance Metrics" means the quantitative standards defined in Schedule A.

3. IMPLEMENTATION PHASES

1 Phase I - Site Assessment (Days 1-15)

- a) Facility mapping and digital twin creation
- b) Temperature zone identification and validation
- c) Network infrastructure assessment
- d) Safety system evaluation
- e) Employee workflow analysis

2 Phase II - Infrastructure Preparation (Days 16-45)

- a) Installation of IceNav beacons

- b) Network enhancement implementation
- c) Charging station deployment
- d) Safety barrier installation
- e) Environmental control system integration

3 Phase III - AMR Deployment (Days 46-90)

- a) Initial deployment of 3 test units
- b) Calibration and testing period
- c) Progressive deployment of remaining units
- d) System optimization and tuning
- e) Performance validation

4 Phase IV - Training and Handover (Days 91-120)

- a) Operator training program
- b) Maintenance staff certification
- c) Emergency response protocol training
- d) Documentation handover
- e) Final acceptance testing

4. TECHNICAL SPECIFICATIONS

1 Environmental Requirements

- a) Operating temperature range: -30 C to +45 C
- b) Humidity tolerance: 10% to 95% non-condensing
- c) Floor surface conditions: As specified in Schedule B
- d) Lighting requirements: Minimum 50 lux at floor level

2 Network Requirements

- a) Dedicated 5GHz WiFi network
- b) Maximum latency: 50ms
- c) Minimum bandwidth: 100Mbps
- d) Redundant coverage: 99.99% uptime

5. SAFETY PROTOCOLS

1 Emergency Shutdown Procedures

- a) Manual override stations at 30-meter intervals
- b) Remote shutdown capability via control room
- c) Automatic shutdown triggers as defined in Schedule C

2 Safety Zones

- a) Human-only zones
- b) Robot-only zones
- c) Mixed-operation zones
- d) Charging and maintenance areas

6. PERFORMANCE VALIDATION

1 Acceptance Criteria

- a) Navigation accuracy: 5cm
- b) Task completion rate: 98%
- c) System uptime: 99.5%
- d) Safety incident rate: Zero reportable incidents

2 Testing Procedures

- a) Daily performance monitoring
- b) Weekly system audits
- c) Monthly comprehensive evaluation
- d) Quarterly compliance review

7. RISK MANAGEMENT

1 Contingency Procedures

- a) Backup manual operation protocols
- b) Emergency maintenance response
- c) Data backup and recovery procedures
- d) Environmental condition alerts

2 Issue Resolution

- a) Technical support escalation path
- b) 24/7 emergency support contact
- c) Resolution time commitments
- d) Replacement unit availability

8. COMPLIANCE AND REPORTING

1 Regulatory Compliance

- a) OSHA standards adherence
- b) FDA cold chain requirements
- c) Client-specific safety protocols
- d) Local jurisdiction requirements

2 Performance Reporting

- a) Daily operational metrics
- b) Weekly efficiency reports
- c) Monthly performance summaries
- d) Quarterly review presentations

9. AMENDMENTS AND MODIFICATIONS

1 This Plan may be modified only by written agreement signed by authorized representatives of both parties.

10. AUTHORIZATION

IN WITNESS WHEREOF, the parties have executed this Robot Integration Plan as of the Effective Date.

POLAR DYNAMICS ROBOTICS, INC.

By: _

Name: Dr. Elena Frost

Title: Chief Executive Officer

Date: _

FREEZELINE LOGISTICS, LLC

By: _

Name: [Client Authorized Representative]

Title: [Title]

Date: _