

TRAINING MANUAL

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COLD STORAGE AUTOMATION SYSTEMS

Polar Dynamics Robotics, Inc.

Version 3.2 | Effective Date: January 1, 2024

1. INTRODUCTION AND SCOPE

1. This Training Manual ("Manual") contains proprietary and confidential information of Polar Dynamics Robotics, Inc. ("Polar Dynamics").
2. This Manual is protected under applicable intellectual property laws and regulations.

2. DEFINITIONS

1. "Authorized Personnel" means employees or contractors who have
2. "BlueCore(TM) System" means the Company's proprietary cold-en
3. "Operating Environment" means temperature-controlled facilities m

3. SAFETY PROTOCOLS

1. Pre-Operation Requirements
 - a) Verification of BlueCore(TM) system calibration
 - b) Environmental temperature confirmation
 - c) Safety zone mapping validation
 - d) Emergency stop system testing

2. Personal Protective Equipment

- a) Insulated safety gloves rated for -30 C
- b) Anti-slip footwear with cold-resistant soles
- c) High-visibility clothing with reflective elements
- d) Cold environment protective gear

4. OPERATIONAL PROCEDURES

1. System Initialization

- a) Power-up sequence verification
- b) Navigation sensor calibration
- c) Temperature adaptation period (minimum 20 minutes)
- d) System diagnostics confirmation

2. Navigation Parameters

- a) Maximum velocity: 2.0 meters/second
- b) Minimum separation distance: 1.5 meters
- c) Corner approach speed: 1.0 meters/second
- d) Load capacity adjustments for cold conditions

3. Emergency Procedures

- a) Manual override protocols
- b) Emergency stop activation
- c) Facility evacuation coordination
- d) System shutdown sequence

5. MAINTENANCE REQUIREMENTS

1. Daily Inspections

- a) Battery charge levels
- b) Sensor cleaning and verification
- c) Mechanical component inspection
- d) Safety system validation

2. Weekly Maintenance

- a) Software update verification
- b) Navigation calibration
- c) Motor performance testing
- d) Cold-resistant component inspection

3. Monthly Service

- a) Complete system diagnostics

- b) Firmware updates
- c) Battery performance analysis
- d) Mechanical wear assessment

6. TROUBLESHOOTING PROCEDURES

1. Error Code Reference

- a) Navigation system errors (NAV-001 through NAV-099)
- b) Power system errors (PWR-001 through PWR-099)
- c) Sensor system errors (SEN-001 through SEN-099)
- d) Communication system errors (COM-001 through COM-099)

2. Resolution Protocols

- a) First-level response procedures

- b) Escalation pathways
- c) Emergency support contact information
- d) System recovery procedures

7. CERTIFICATION REQUIREMENTS

1. Training Prerequisites

- a) Minimum 2 years industrial automation experience
- b) Cold environment safety certification
- c) Basic robotics systems knowledge
- d) Emergency response training

2. Certification Process

- a) Theoretical examination (minimum 80% score)

- b) Practical skills assessment
- c) Emergency response evaluation
- d) Annual recertification requirement

8. LEGAL NOTICES

1. This Manual and all related training materials are confidential and p
2. Any violation of the procedures contained herein may result in equi
3. The Company reserves the right to modify these procedures without

9. DOCUMENT CONTROL

Version: 3.2

Release Date: January 1, 2024

Next Review: July 1, 2024

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