OPERATIONS DOCUMENT 370

STANDARD OPERATING PROCEDURES FOR AUTONOMOUS MOBILE ROBOT DEPLOYMENT AND MAINTENANCE

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1. PURPOSE AND SCOPE

1. This Operations Document ("Document") establishes binding operational procedures and protocols for the deployment, maintenance, and decommissioning of Polar Dynamics Robotics, Inc. ("Company") autonomous mobile robots ("AMRs") in temperature-controlled environments.

2. This Document applies to all Company personnel involved in AMR operations, including but not limited to field technicians, deployment specialists, maintenance engineers, and operational supervisors.

2. DEFINITIONS

1. "IceNav System" means the Company's proprietary cold-environment navigation and operation platform.

2. "Critical Operating Temperature" means any ambient temperature below -30 C (-22 F).

3. "Deployment Zone" means any customer facility where Company AMRs are installed and operational.

4. "Thermal Management Protocol" or "TMP" means the Company's standardized procedures for maintaining optimal AMR operating temperatures.

3. DEPLOYMENT PROCEDURES

1. Pre-Deployment Assessment

a) Conduct comprehensive site survey of Deployment Zone

b) Document all thermal zones and transition areas

c) Map facility layout using IceNav mapping protocols

d) Verify facility compliance with Company's Technical Specification 276-B

2. Installation Requirements

a) Calibrate thermal sensors according to Procedure Manual 458

b) Initialize IceNav System with zone-specific parameters

c) Conduct minimum 48-hour testing period

d) Obtain written customer sign-off on deployment checklist

4. MAINTENANCE PROTOCOLS

1. Scheduled Maintenance

a) Weekly diagnostic scans of thermal management systems

b) Monthly actuator performance assessments

c) Quarterly full-system calibration

d) Semi-annual IceNav System updates

2. Emergency Maintenance

a) 24-hour response time for Critical Operating Temperature failures

b) Immediate notification to Regional Technical Supervisor

c) Implementation of Backup Protocol 87-C if system downtime exceeds 4 hours

5. SAFETY AND COMPLIANCE

1. All maintenance personnel must maintain current certification in:

a) Cold Environment Safety (CES-201)

b) AMR Technical Operations (ATO-301)

c) Emergency Response Procedures (ERP-101)

2. Documentation Requirements

a) Daily operational logs

b) Maintenance records retention for 7 years

c) Incident reports filed within 24 hours

d) Quarterly compliance audits

6. QUALITY CONTROL

1. Performance Metrics

a) Monthly uptime minimum of 98%

b) Navigation accuracy within 2cm at Critical Operating Temperature

c) Thermal variance maximum of 2 C from specified parameters

2. Testing Requirements

a) Weekly cold-start testing

b) Monthly emergency stop verification

c) Quarterly full-system stress testing

7. DECOMMISSIONING PROCEDURES

1. AMR units shall be decommissioned according to Protocol 673-D when:

a) Reaching 5 years of service

b) Experiencing 3 or more critical failures

c) Customer contract termination

d) Upgrade to newer model required

8. PROPRIETARY INFORMATION

1. This Document contains confidential and proprietary information of Polar Dynamics Robotics, Inc. Unauthorized disclosure, reproduction, or use is strictly prohibited.

9. AMENDMENTS AND UPDATES

1. This Document may be amended only by written authorization from the Chief Operations Officer or Chief Technical Officer.

2. All amendments must be logged in the Company's document control system and communicated to relevant personnel within 48 hours.

APPROVAL AND EXECUTION

APPROVED AND ADOPTED this 1st day of January, 2024.

POLAR DYNAMICS ROBOTICS, INC.

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Chief Operations Officer

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