OPERATING PARAMETERS - LOW TEMPERATURE ROBOTICS

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Polar Dynamics Robotics, Inc.

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Effective Date: January 15, 2024

1. SCOPE AND APPLICATION

1 This Operating Parameters document ("Parameters") establishes th

2 These Parameters apply to all Series LT-2000 and LT-3000 AMR un

2. DEFINITIONS

- 1 "Operating Temperature Range" means the environmental tempera
- 2 "Critical Systems" includes, but is not limited to, the BlueCore(TM) r
- 3 "Standard Operating Cycle" refers to a continuous operational perio

3. ENVIRONMENTAL SPECIFICATIONS

1 Temperature Parameters

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Minimum Operating Temperature: -40 C (-40 F)

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Maximum Operating Temperature: +10 C (+50 F)

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Optimal Performance Range: -30 C to +5 C (-22 F to +41 F)

2 Humidity Parameters

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Relative Humidity Range: 15% to 90% non-condensing

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Maximum Condensation Exposure: 30 minutes per 24-hour period

3 Environmental Transitions

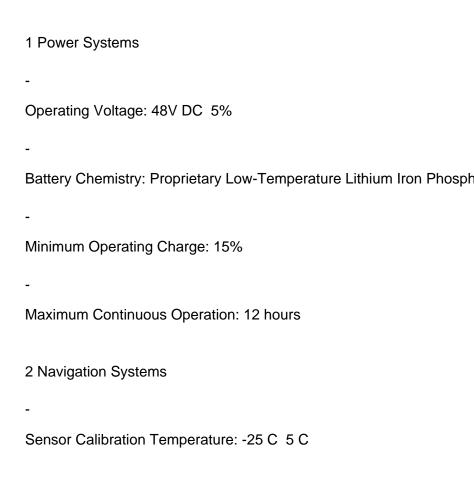
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Maximum Temperature Change Rate: 15 C per hour

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Minimum Acclimation Period: 45 minutes when transitioning >20 C

4. OPÉRATIONAL PARAMETERS



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Maximum Navigation Speed: 2.0 m/s in temperatures above -30 C

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Reduced Speed Operation: 1.2 m/s in temperatures below -30 C

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Minimum Lighting Requirement: 50 lux at floor level

3 Load Specifications

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Maximum Payload: 1,500 kg at -30 C

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Reduced Payload: 1,200 kg below -30 C

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Maximum Incline: 5% at full load

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Surface₅Friction Coefficient: 0.3

5. SAFETY PROTOCOLS

1 Emergency Shutdown Parameters

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Battery Temperature: <-45 C or >60 C

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Motor Temperature: >80 C

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System Voltage: <42V or >52V

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Impact Detection: >2.0G

2 Automatic Safety Features

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Thermal Management Override

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Emergency Stop Protocol

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Anti-Slip Control System

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Collision Avoidance System

6. MAINTENANCE REQUIREMENTS

1 Scheduled Maintenance Intervals

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Level 1 Inspection: Every 500 operating hours

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Level 2 Service: Every 2,000 operating hours

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Full System Evaluation: Annually or 5,000 operating hours

2 Component Replacement Schedule

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Battery Pack: Every 18 months or 3,000 cycles

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Drive Train Components: Every 4,000 operating hours

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Sensor Array: Every 24 months

7. COMPLIANCE AND CERTIFICATION

1 The AMR units operating under these parameters maintain complia

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ISO/TS 15066:2016

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ANSI/RIA R15.08-1-2020

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CE Marking Requirements

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UL 3300 First Edition

8. DISCLAIMER AND LIMITATIONS

- 1 These Operating Parameters are proprietary to Polar Dynamics Rol
- 2 Operation outside specified parameters voids all warranties and ma
- 3 The Company reserves the right to modify these parameters with 30

9. AUTHORIZATION

IN WITNESS WHEREOF, these Operating Parameters have been duapproved by Polar Dynamics Robotics, Inc.

By:

Dr. James Barrett

Chief Robotics Officer

Polar Dynamics Robotics, Inc.

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