

CE MARKING TECHNICAL DOCUMENTATION

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NaviFloor Robotics, Inc.

Document Reference: CE-TD-2024-001

Last Updated: January 11, 2024

1. GENERAL PRODUCT INFORMATION

1.1 Product Identification

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Product Name: NaviFloor AMR-X Series

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Model Numbers: AMR-X1000, AMR-X2000, AMR-X3000

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Product Classification: Autonomous Mobile Robot (AMR)

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Year of CE Marking: 2024

1.2 Manufacturer Details

NaviFloor Robotics, Inc.

1250 Innovation Drive

Wilmington, DE 19801, USA

Registration Number: US-DE-83729461

2. ESSENTIAL REQUIREMENTS AND HARMONIZE

2.1 Applicable Directives

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Machinery Directive 2006/42/EC

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Electromagnetic Compatibility Directive 2014/30/EU

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Radio Equipment Directive 2014/53/EU

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RoHS Directive 2011/65/EU

2.2 Harmonized Standards Applied

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EN ISO 12100:2010 Safety of machinery - General principles for design

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EN 61000-6-2:2019 EMC immunity for industrial environments

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EN 61000-6-4:2019 EMC emissions for industrial environments

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EN ISO 13849-1:2015 Safety of machinery - Safety-related parts of control systems

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EN 1525:1997 Safety of industrial trucks - Driverless trucks

3. TECHNICAL SPECIFICATIONS

3.1 Core System Components

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LiDAR Navigation System (Model: NF-LIDAR-4X)

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Terrain Mapping Processor (Model: TMP-2000)

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Safety Control Unit (Model: SCU-X1)

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Emergency Stop System (Model: ESS-3000)

3.2 Performance Specifications

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Maximum Speed: 2.0 m/s

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Payload Capacity: 1500 kg

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Operating Temperature: 0°C to 45°C

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Battery Life: 12 hours continuous operation

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Charging Time: 2.5 hours

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Navigation Accuracy: $\pm 15\text{mm}$

4. RISK ASSESSMENT AND SAFETY MEASURES

4.1 Risk Analysis

Comprehensive risk assessment conducted according to EN ISO 12100:2010 including:

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Mechanical hazards

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Electrical hazards

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Software-related risks

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Environmental conditions

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Human interaction risks

4.2 Safety Features

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360° obstacle detection

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Multi-layer safety scanning

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Automatic speed reduction in high-risk zones

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Redundant emergency stop circuits

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Fail-safe brake system

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Visual and audible warning systems

5. TEST REPORTS AND CERTIFICATION

5.1 EMC Testing

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Test Report Number: EMC-2023-456

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Testing Laboratory: TechCert Labs GmbH

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Test Date: November 15, 2023

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Standards: EN 61000-6-2:2019, EN 61000-6-4:2019

5.2 Safety Testing

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Test Report Number: SAF-2023-789

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Testing Laboratory: RoboSafe Certification Inc.

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Test Date: December 1, 2023

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Standards: EN ISO 13849-1:2015

6. TECHNICAL DOCUMENTATION MAINTENANCE

6.1 Document Control

This technical documentation shall be maintained for a minimum of 10 years

the last unit is manufactured. All updates must be logged and approved by NaviFloor Robotics' Quality Assurance Department.

6.2 Change Management

Changes to product design or specifications requiring updates to this documentation must follow NaviFloor Robotics' Engineering Change Order process (Document: QMS-ECO-001).

7. DECLARATION OF CONFORMITY

NaviFloor Robotics, Inc. hereby declares that the AMR-X Series products conform with all relevant requirements of the applicable EU directives listed in Section 2.1. The complete EU Declaration of Conformity is available upon request.

8. AUTHORIZED REPRESENTATIVE

European Representative:

RoboTech Compliance Services GmbH

Industriestraße 45

D-60318 Frankfurt, Germany

Authorization Number: EU-REP-28574

CERTIFICATION

This technical documentation is certified as complete and accurate by:

/s/ Dr. Elena Kovacs

Chief Research Officer

NaviFloor Robotics, Inc.

Date: January 11, 2024

/s/ Marcus Depth

Chief Technology Officer

NaviFloor Robotics, Inc.

Date: January 11, 2024

