1. MiR100 specifications

Date: 2023-06-28

The product specifications in English are the most recently updated on the Support Portal.

See the latest updates here.

General information

Designated use	For small- and medium-sized transport tasks within industry logistics and healthcare
Type	Autonomous Mobile Robot (AMR)
Color	ABS 542D / ATHLONE White (RAL9003)
Cover material	ABS sheet structure comprising of a semi-matt capping onto a High Impact ABS base
Product design life	5 years or 20 000 hours, whichever comes first
Disclaimer	Specifications may vary based on local conditions and application setup

Dimensions

Length	890 mm | 35 in
Width	580 mm | 22.8 in
Height	352 mm | 13.9 in
Ground clearance	50 mm | 2 in
Weight	76.3 kg | 168.2 lbs for robots with 24V Standard battery 79.4 kg | 175 lbs for robots with 24V Extended Capacity battery
Wheel diameter (drive wheel)	125 mm | 4.9 in
Wheel diameter (caster wheel)	125 mm | 4.9 in

Payload

Maximum payload	100 kg | 220 lbs (maximum 5% incline)
Footprint of payload	Equal to robot footprint. Contact MiR if a bigger payload footprint is required.
Payload placement	Place center of mass according to directions in the user guide.

Speed and performance

Maximum speed (with maximum payload on a flat surface)	Forwards: 1.5 m/s (5.4 km/h) | 4.9 ft/s (3.6 mph) Backwards: 0.3 m/s (1 km/h) | 1.0 ft/s (0.7 mph)
Operational corridor width	With default footprint: 1 000 mm | 39.4 in
Operational corridor width for a U-turn	With default footprint and SICK safety configuration and no payload: 1 300 mm | 52 in With default footprint and SICK safety configuration and maximum payload: 1 300 mm | 52 in With minimized footprint and SICK safety configuration and no payload: 1 100 mm | 43.3 in With minimized footprint and SICK safety configuration and maximum payload: 1 200 mm | 44 in

Positioning accuracy (in controlled conditions)	Docking to VL-marker: ± 11 mm | 0.43 in on X-axis, ± 9 mm | 0.35 in on Y-axis, ± 1° yaw Docking to L-marker: ± 8 mm | 0.31 in on X-axis, ± 5 mm | 0.2 inon Y-axis, ± 1° yaw Docking to V-marker: ± 30 mm | 1.18 in on X-axis, ± 40 mm | 1.57 in on Y-axis, ± 1° yaw Moving to Bar-marker: ± 45 mm | 1.77 in on X-axis, ± 8 mm | 0.31 in on Y-axis, ± 2° yaw Moving to position: ± 26 mm | 1.02 in on X-axis, ± 8 mm | 0.31 in on Y-axis, ± 3° yaw ⓘ The positioning accuracy is tested under the following conditions: • Using a single robot without payload • On a site that is within the environmental requirements for the robot with good localization and no or few dynamic obstacles • On a flat, clean surface
Minimum distance between chargers	100 mm | 3.94 in, if the robot can approach the charger in an angle of 80–100° to the wall
Active operation time with maximum payload	Up to 6 h 53 min (24V Standard battery), up to 10 h 30 min (24V Extended Capacity battery)

Active operation time with no payload	Up to 7 h 14 min (24V Standard battery), up to 10 h 36 min (24V Extended Capacity battery)
Standby time (robot is on and idle)	8 h 51 min (24V Standard battery), 23 h 26 min (24V Extended Capacity battery)

Power

Battery type	Lithium-ion
Charging time with MiR Charge 24V	40 min (24V Standard battery), 56 min (24V Extended Capacity battery)
Charging time with cable charger	10%–90%: 3 h 16 min 24V Standard battery, 5 h 12 min 24V Extended Capacity battery
External charger	Input: 100–230 V AC, 50–60 Hz / Output: 24 V, maximum 15 A
Charging options	MiR Charge 24V, Power first cable charger
Battery weight	Standard: 6.3 kg | 13.9 lbs 24V Extended Capacity battery: 9.4 kg | 20.72 lbs
Battery dimensions	Standard: 308 mm × 215 mm × 80 mm | 12.1 in × 8.5 in × 3.1 in 24V Extended Capacity battery: 378 mm × 228 mm × 75 mm | 14.9 in × 9 in × 2.9 in
Number of full charging cycles	Minimum 1 000 cycles ⓘ The minimum number of full charging cycles before the battery capacity drops below 80% .
Battery voltage	25.2 V nominal, 28.8 V maximum

Battery capacity	33.6 Ah (24V Standard battery), 56 Ah (24V Extended Capacity battery)

Safety

Personnel detection safety function	Triggered when obstacles or people are detected too close to the robot
Emergency stop	Triggered by pressing the Emergency stop button

Environment

Environment	For indoor use only
Noise level	60–64 dBA (depending on surface)
Ambient temperature range, operation	5–40°C | 41–104°F (the maximum ambient temperature only apply up to 1 h) ⓘ The following climatic conditions from ISO3691-4 section 4.1.2 apply to the robot: • Maximum average ambient temperature for continuous use is 25°C | 77°F • Maximum ambient temperature for short term use (up to 1 h) is 40°C | 104°F • Lowest average ambient temperature for continuous use in normal indoor conditions is 5°C | 41°F
Floor conditions	No water, no oil, no dirt
Maximum altitude	2 000 m | 6 561 ft

Compliance

EMC	EN61000-6-2 and EN61000-6-4
Cleanroom	Class 4 (ISO 14644-1)

Safety standards for industrial vehicles	CE, EN1525, ANSI B56.5, RIA15.08, ISO13849-1

Communication

Wi-Fi (router)	2.4 GHz 802.11 g/n, 5 GHz 802.11 a/n/ac
I/O connections	USB and Ethernet

Sensors

SICK safety laser scanners	2 pcs, S300 (front and rear), give 360° visual protection around the robot
3D cameras	2 pcs, 3D camera Intel RealSense™. FoV height: 50–1 800 mm | 2–70.9 in
Ultrasound sensors	4 pcs

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Designated use

Designated use	Monitoring MiR robots' operations over time
Performance metrics	Completed missions, distance driven, and uptime
Troubleshooting information	Errors, emergency stops, and battery level over time
Heatmaps	Wi-FI coverage, high robot occupancy, localization score

Requirements

Site requirements	MiR Fleet and internet connection
MiR Fleet software version	2.13.0.2 software or higher
Installation file size	300 MB
CPU	Dual core processor with minimum 2.1 GHz clock
RAM	Minimum 8 GB
Permanent storage	Minimum 128 GB SSD
Network	Stable, high-speed internet connection
Supported operating systems	Ubuntu 18.04 LTS, Ubuntu Server 18.04 LTS, Debian 9, CentOS 7, Redhat Enterprise Linux 7.4
Virtualization software	Docker CE/EE version 18.09.01 or higher