

MiR1000 specifications

General information

Designated use	For internal transportation of heavy loads and pallets within the industry and logistics
Type	Autonomous Mobile Robot (AMR)
Color	RAL 9005 / Jet Black
Cover material	Side covers: Steel, Powder coated. Top cover: Aluminium, anodized
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	1 350 mm 53.1 in
Width	910 mm 35.8 in
Height	322 mm 12.7 in
Weight	231 kg 509 lbs
Ground clearance	40 mm 1.6 in
Load surface	1 249 x 789 mm 49.2 in x 31 in
Wheel diameter (drive wheel)	200 mm 7.9 in
Wheel diameter (caster wheel)	100 mm 3.9 in
Dimensions for mounting top modules	Equal to robot footprint. Contact MiR if a bigger top module is required.

Payload

Maximum payload	1 000 kg 2200 lbs
Footprint of payload	Equal to robot footprint. Contact MiR if a bigger payload footprint is required.
Maximum lifting capacity with a MiR EU-/US-/Shelf-lift installed	1 000 kg 2 200 lbs

Speed and performance

Maximum speed	1.2 m/s (4.3 km/h) 3.9 ft/s (2.7 mph)
Operational corridor width	
Width for pivoting	With default setup: 2 600 mm 102.4 in With improved setup: 2 500 mm 98.4 in
Minimum distance between chargers	750 mm 29.5 in, if the robot can approach the charger in an angle of 80-100° to the wall
Active operation time with no payload	15 h
Standby time (robot is on and idle)	26 h (100–0 %)

Power

Battery type	Lithium ion
Charging time with cable charger	10%–90%: 2 h with 20 A charger 3.5 h with 12 A charger

Charging options	MiR Charge 48V, Battery Charger 48V 12A , Cable Charger Lite 48V 3A
Charger communication	The robot communicates with MiR Charge 48V through a CAN interface. Charging starts only when the robot connection is present
Charging current, MiR Charge 48V	Up to 40 A depending on battery temperature and constant voltage ramping down towards end of charge cycle. Up to 35 A depending on battery temperature and constant voltage ramping down towards end of charge cycle.
Charging current, cable charger	12 A or 3 A
Battery weight	14.3 kg 31 lbs
Battery dimensions	300 mm length × 300 mm width × 107mm height 11.8 in length × 11.8 in width × 4.2 in height
Battery voltage	48 V Nominal
Battery capacity	2 kWh (41.6 Ah at 48 V)
Charging an empty battery	Only possible with the cable charger. To dock to MiR Charge 48V, the robot requires at least 3% battery (or equal to 10 m of operating time).
Cable charger	When charging with a cable charger, the robot goes into emergency stop.

Environment

Environment	For indoor use only
Ambient temperature range, operation	5°C–40°C 41°F–104°F according to ISO3691-4 section 4.1.2

Ambient temperature range, storage	-10°C–60°C 14°F–140°F
Humidity	10-95% non-condensing
IP Class	IP21
Water on floor	Can withstand driving through small puddles of water on the floor, maximum 4 mm deep. Wet floors should be risk assessed as braking distance can be affected.

Compliance

EMC	EN61000-6-2, EN61000-6-4, (EN12895)
Safety standards for industrial vehicles	CE, EN1525, ANSI B56.5, ISO3691-4, RIA15.08, ISO13849-1

Safety

Safety functions	Five safety functions according to ISO 13849-1. MiR1000 stops if a safety function is triggered.
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
Overspeed avoidance	Prevents the robot from driving faster than the predefined safety limit
Manual control in robot interface	Token-based system for accessing the manual control. The robot issues only one token at a time.

Communication

WiFi (router)	2.4 GHz 802.11 g/n, 5 GHz 802.11 a/n/ac. Internal computer: 802.11 a/b/g/n/ac.
WiFi (internal PC)	Dual-band wireless A/B/G/N/AC
WiFi connection	WiFi adapter: 2.4 GHz and 5 GHz, two internal antennas.
I/O connections	4 digital inputs, 4 digital outputs, 1 Ethernet port
Communication protocol	REST, Modbus

Top module

Power for top modules	48 V / 20 A, 48 V SafePWR / 20 A shared, 24 V / 2A.
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Sensors

SICK safety laser scanners	2 pcs microScan3 (front and rear) 360° visual protection around robot
	2 pcs 3D camera Intel RealSense™ D435.
	FoV height: 1 700 mm 66.9 in
3D cameras	FoV distance in front of robot: 950 mm 37.4 in FoV horizontal angle: 114°
	FoV minimum distance in front of robot for ground view: 250 mm 9.8 in
Proximity sensors	8 pcs