

MiR1350 specifications

General information

Designated use	For internal transportation of goods and automation of internal logistics
Type	Autonomous Mobile Robot (AMR)
Color	RAL 9005 / Jet Black
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 (without battery or payload)	233 kg 513.7 lbs
Ground clearance	25 - 28 mm 1.0 - 1.1 in
Load surface	1 304 x 864 mm 51.3 x 34 in
Wheel diameter (drive wheel)	200 mm 7.9 in
Wheel diameter (caster wheel)	100 mm 3.9 in

Payload

Maximum payload	1 350 kg 2 976 lbs
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
Maximum lifting capacity with a MiR EU-/US-/Shelf-lift installed	1 250 kg 2 755 lbs

Speed and performance

Maximum speed (with maximum payload on a flat surface)	1.2 m/s (4.3 km/h) 3.9 ft/s (2.7 mph)
Maximum acceleration	No payload: 0.43 m/s ²
	Maximum payload: 0.40 m/s ²
Acceleration limits with maximum payload	0.40 m/s ² . 1,3 fps ²
Operational corridor width for a 90° turn	2 400 mm 94.5 in
Operational corridor width for two robots passing	4 950 mm 194.9 in
Width for pivoting	2 750 mm 108.3 in

Positioning accuracy (in controlled conditions)	Docking to L-marker: 3 mm 0.12 in deviation on X-axis, 3 mm 0.12 in on Y-axis, 0.25° yaw.
	Docking to VL-marker: 2 mm 0.08 in deviation on X-axis, 3 mm 0.12 in on Y-axis, 0.25° yaw.
	Docking to V-marker: 20 mm 0.79 in deviation on X-axis, 20 mm 0.79 in on Y-axis, 2° yaw.
	Docking to Bar-marker: 10 mm 0.39 in deviation on X-axis, 5 mm 0.19 in on Y-axis, 0.75° yaw.
Traversable gap and sill tolerance	Gap: maximum 29 mm 1.14 in at maximum 0.5 m/s 1,64 fps ² , from all angles
	Step: maximum 10 mm 0.39 in at maximum 0.5 m/s at maximum 40° angle with no payload, not recommended with maximum payload
Minimum distance between chargers	1 100 mm 43.3 in
Active operation time with maximum payload	6 h 45 m
Active operation time with no payload	9 h 50 m
Standby time (robot is on and idle)	12 h 30 min

	Camera: 20 mm 0.79 in at 1.25 m 49.2 in
	Scanner: 30 mm 1.18 in at 1.7 m 66.9 in or 2.3 m 90.6 in
Minimum size of detectable object	40 mm 1.57 in at 2.3 m 90.6 in or 3 m 118.1 in
	50 mm 1.97 in at 3 m 118.1 in or 3.5 m 137.8 in
	70 mm 2.76 in at 4 m 157.5 in or 5.5 m 216.5 in
	Distances depend on scan cycle time (30 or 40 m/s 98.4 or 131.2 mps)

Power

Battery type	Lithium ion
Charging time with MiR Charge 48V	10%–90%: 46 min at an ambient temperature of 22°C
Charging time with cable charger	10%–90%: 1 h and 10 min
Charging current, MiR Charge 48V	Up to 35 A depending on battery temperature and constant voltage ramping down towards end of charge cycle.
Number of full charging cycles	Minimum 3 000 cycles
Battery voltage	47.7 V nominal, minimum 41 V, maximum 54 V
Battery capacity	1.63 kWh (34.2 Ah at 47.7 V)

Charging ratio and runtime for	15 min: 1:12 (3 h runtime, no payload)
	30 min: 1:12,5 (6 h 15 min runtime, no payload)
	15 min: 1:9 (2 h 15 min runtime, maximum payload)
	30 min: 1:9,6 (4 h 50 min runtime, maximum payload)

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	0°C–50°C 32°F–122°F
Humidity	10-85% non-condensing
IP Class	IP52
Floor conditions	No water, no oil, no dirt
Maximum altitude	2 000 m 6 561 ft

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

Personnel detection safety function	Triggered when obstacles or people are detected too close to the robot
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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.
Safe guarded stop	Yes
Safe load position	Triggered if the speed exceeds 0.3 m/s while the lift/carrier is being lowered or raised

Communication

WiFi (internal PC)	Router: 2.4 GHz and 5 GHz. Internal computer: WiFi adapter: 2.4 GHz and 5 GHz, 2 internal antennas.
Safety I/O connections	6 digital inputs, 6 digital outputs
Ethernet	M12 plug, 4p. 10/100 Mbit Ethernet with Modbus protocol, adapter for external antenna
Aux. power for top applications	Yes
Aux. safety functions	Yes
General purpose I/O	Yes

Sensors

SICK safety laser scanners	2 pcs microScan3 (front and rear) 360° visual protection around robot
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	2 pcs 3D camera Intel RealSense™ D435
	FoV height: 1 800 mm 70.9 in
3D cameras	FoV distance in front of robot: 1 200 mm 47.2 in
	FoV horizontal angle: 114°
	FoV minimum distance in front of robot for ground view: 250 mm 9.8 in

Proximity sensors	8 pcs
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Light conditions	Must comply with the requirements for the Intel RealSense D435 camera
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Lights and audio

Audio	Speaker
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Status lights	LED light band
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Signal lights	8 pcs, 2 on each corner
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Maintenance

Maintenance	Maintenance hatches on four sides of the robot
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Service intervals	6 months or according to user guide
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