1. MiR600 - specifications

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

See the latest updates her.

General information

Designated use	For internal transportation of goods and automation of internal logistics
Type	Autonomous Mobile Robot (AMR)
Color	RAL 7011 / Iron Gray
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	243 kg | 535.7 lbs
Ground clearance	25–27 mm | 1.0–1.1 in
Wheel diameter (drive wheel)	200 mm | 7.9 in
Wheel diameter (caster wheel)	100 mm | 3.9 in

Payload

Maximum payload	600 kg | 1 322.8 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	500 kg | 1 100 lbs

Speed and performance

Maximum speed (with maximum payload on a flat surface)	2.0 m/s (7.2 km/h) | 6.6 ft/s (4.4 mph)
Maximum acceleration	No payload: 0.41 m/s^2 | 1.34 ft/s^2 Maximum payload: 0.37 m/s^2 | 1.34 ft/s^2 | 1.41 ft/s^2
Acceleration limits with maximum payload	0.37 m/s^2 | 1,21 ft/s^2
Operational corridor width for a 90° turn	in total length With default setup: 2 200 mm | 86.6 in With minimized footprint and muted Protective fields: 1 550 mm | 61 in
Operational corridor width for a U-turn	2 400 mm | 94.5 in

Operational corridor width for two robots passing	With default setup: 4 250 mm | 167.3 in With minimized footprint and muted Protective fields: 2 700 mm | in 106.3 in
Operational width for pivoting	With default setup: 2 850 mm | 112.2 in With minimized footprint and muted Protective fields: 1 850 mm | 72.8 in
Positioning accuracy (in controlled conditions)	Docking to L-marker: ± 3 mm | 0.12 in on X-axis, ± 3 mm | 0.12 in on Y-axis, ± 0.25° yaw Docking to VL-marker: ± 2 mm | 0.08 in on X-axis, ± 3 mm | 0.12 in on Y-axis, ± 0.25° yaw Docking to V-marker: ± 20 mm | 0.79 in on X-axis, ± 20 mm | 0.79 in on Y-axis, ± 2° yaw Docking to Bar-marker: ± 10 mm | 0.39 in on X-axis, ± 5 mm | 0.19 in on Y-axis, ± 0.75° yaw Moving to position: ± 100 mm | 3.94 in on X-axis, ± 83 mm | 3.27 in on Y-axis, ± 3.4° 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

Traversable gap and step tolerance	Gap: maximum 29 mm | 1.14 in at maximum 0.5 m/s | 1,64 ft/s^2, from all angles Step: maximum 10 mm | 0.39 in at maximum 0.5 m/s | 1,64 ft/s^2 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	8 h 20 m
Active operation time with no payload	10 h 45 min
Standby time (robot is on and idle)	16 h 45 min

Power

Battery type	Lithium-ion
Charging time with MiR Charge 48V	10%–90%: 45 min | 72°F at an ambient temperature of 22°C | 72°F
Charging time with cable charger	10%–90%: 1 h 10 min
Charging options	MiR Charge 48V, Battery Charger 48V 12A, Cable Charger Lite 48V 3A
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 ⓘ The minimum number of full charging cycles before the battery capacity drops below 80% .
Battery voltage	47.7 V nominal, minimum 42 V, maximum 54 V
Battery capacity	1.63 kWh (34.2 Ah at 47.7 V)
Charging ratio and runtime for	15 min charging = 2 h 45 min runtime (1:11 charging to runtime ratio) 30 min charging = 5 h 45 min runtime (1:12 charging to runtime ratio)

Environment

Environment	For indoor use only
Ambient temperature range, operation	5–40°C | 41–104°F ⓘ 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
Humidity	10–95% non-condensing
IP rating	IP 52

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
Emergency stop	Four emergency stop buttons, one in each corner. Emergency stop connector in top interface and joystick interface.
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 1 | ft/s while the lift/carrier is being lowered or raised

Communication

WiFi (internal PC)	Internal computer: 2.4 GHz and 5 GHz, 2 external 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

Top module

Power for top modules	Yes

Sensors

SICK safety laser scanners	2 pcs, microScan3 (front and rear), give 360° visual protection around the robot
3D cameras	2 pcs, 3D camera Intel RealSense™ D435 FoV height: 1 800 mm | 70.9 in 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
Light conditions	Must comply with the requirements for the Intel RealSense D435 camera

Lights and audio

Audio	Speaker

Maintenance

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