MiR600 specifications

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 (without battery or payload)	229 kg | 504.9 lbs
Ground clearance	25 - 28 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/s2 Maximum payload: 0.37 m/s2
Acceleration limits with maximum payload	0.37 m/s2. | 1,21 fps2
Operational corridor width for a 90° turn	2 400 mm | 94.5 in
Operational corridor width for a 180° 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. Docking to position: 100 mm | 3.94 in deviation on X-axis, 83 mm | 3.27 in on Y-axis, 3.4° yaw.
Traversable gap and sill tolerance	Gap: maximum 29 mm | 1.14 in at maximum 0.5 m/s | 1,64 fps2, 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	8 h 20 m
Active operation time with no payload	10 h 45 m
Standby time (robot is on and idle)	16 h 45 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%: 45 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 = 2 h 45 min (1:11) 30 min = 5 h 45 min (1:12)

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
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
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
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
Signal lights	8 pcs, 2 on each corner

Maintenance

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