MiR250

The MiR250 is a more flexible AMR that can work around the clock and is brilliantly simple to setup, for improved productivity. Its smaller footprint and increased adaptability help optimize internal logistics without changing layout.

Designated use

Autonomous Mobile Robot (AMR)	For internal transportation of goods and automation of internal logistics

Dimensions

Length	800 mm / 31.5 in
Width	580 mm / 22.8 in
Height	300 mm / 11.8 in
Ground clearance	25 - 28 mm / 1.0 - 1.1 in
Weight (without load)	83 kg / 183 lbs (MiR250 Shelf Carrier: 146 kg)

Load surface	800 x 580 mm / 31.5 x 22.8 in
Wheel diameter (drive wheel)	200 mm / 7.9 in
Wheel diameter (caster wheel)	125 mm / 4.9 in
Dimensions for mounting top modules	Robot footprint. Contact MiR if a bigger top module is required.
Top plate	Anodized aluminum, 5 mm

Color

RAL color	RAL 7011 / Iron Grey
RAL color - ESD version	RAL 9005 / Signal Black

Payload

Maximum payload	250 kg / 551 lbs
Acceleration limits with payload	0.3 m/s^2
Footprint of payload	Robot footprint. Contact MiR if a bigger payload footprint is required.
Payload placement	COM position according to User guide

Speed and performance

Active operation time with full load	13 hours
Active operation time with no load	17.4 hours
Standby time	22 hours. Robot is on and idle.
Traversable gap and sill tolerance	20 mm / 0.8 in
Space needed for U-turn around obstacle/wall	1500 mm aisle, 1550 mm at the end of aisle. 1000 mm/1000 mm with muted protective fields. (MiR Dynamic: 1250 mm aisle, 1250 mm at the end of aisle with normal setup.)
Minimum doorway width	Default footprint and SICK safety configuration 1.3 m. / 52 in. - Default footprint and SICK safety configuration with muted protective fields 0.80 m / 32 in. - Dynamic footprint and SICK safety configuration 0.95 m / 38 in.
Minimum size of detectable object (scanner)	20 mm at 1.0 m, 70 mm at 2.5 m
Product design life	Five years or 20.000 hours, whichever comes first
Maximum speed (with maximum payload on a flat surface)	2.0 m/s
Minimum corridor width, 90 degree turn	Default footprint and SICK safety configuration 1.55 m / 61 in. - Default footprint and SICK safety configuration with muted protective fields

	1.0 m / 40 in. - Dynamic footprint and SICK safety configuration 1.25 m / 50 in.
Docking types	Forward and reverse, and sideways docking to L-markers
Maximum incline/decline	+/- 5 % at 0.5 m/s
Minimum corridor width	135 cm / 53.1 in. - With dynamic footprint and SICK safety configuration 85 cm / 33.5 in
Positioning accuracy (in controlled conditions)	+/- 20 mm (0.8 in) to position, +/- 3 mm (0.15 in) to VL-marker

Power

Charging options	MiR Charge 48V, Cable Charger, Cable Charger Lite 48V 3A
Charging time with MiR Charge 48V, 10% to 90%	70 minutes
Battery capacity	1.63 kWh (34.2 Ah at 47.7V)
Battery type	Li-NMC
Battery voltage	47.7 V nominal, min 41 V, max 54 V
Charging an empty battery	Only possible with the cable charger. To dock to MiRCharge 48V, the robot requires at least 3 pct battery (or equal to 10 min operating time).
Charging current, MiR Charge 48V	Up to 35 A depending on battery temperature and constant voltage ramping down towards end of charge cycle.
Minimum number of full charging cycles	1000 cycles
Cable charger	Robot cannot drive with cable charger connected and charging.
Charging ratio and runtime for 10 min charging	1:18 (3 hours runtime with full load)
Charging ratio and runtime for 20 min charging	1:18 (6 hours runtime with full load)
Charging ratio and runtime for 30 min charging	1:17 (8.3 hours run time with full load)
Charging ratio and runtime for 60 min charging	1:10 (10.6 hours runtime with full load)

Environment

Ambient temperature (operation)	+5°C to 40°C
Ambient temperature (storage)	-10°C to 60°C (one month), -20C to +45C (three months)
Humidity	10-95% non-condensing

Compliance	Designed in accordance with present standards. Passed in accordance with CE, EN1525 & ANSI B56.5, EN12895, EN61000-6-2, EN61000-6-4:2007 + A1, ESD Approved - optional
Maximum altitude	2000 m
IP class	21
Environment	For indoor use only

Safety

Personnel detection safety function	Triggered by a human or other obstacle in the path of travel.
Emergency stop	Triggered by pressing the Emergency stop button.

Communication

I/O connections	4 digital inputs, 4 digital outputs (GPIO), 1 Ethernet port, 1 Auxiliary emergency stop
WiFi (router)	2.4 GHz and 5 GHz. Dual-band a/b/g/n/ac Internal computer: WiFi adapter: 2.4 GHz and 5 GHz, 2 internal antennas
WiFi (internal PC)	802.11 Dual-band a/b/g/n/ac
Ethernet	M12 plug, 4p. 10/100 Mbit Ethernet with Modbus protocol, adapter for external antenna.

Top module

Power for top modules	48 V (41-54 V, nom 47.7 V), 10 A combined. 24 V/2 A.

Sensors

SICK safety laser scanners (two pcs.)	nanoScan3 (front and back) 360° visual protection around robot
3D camera (two pcs.)	3D camera Intel RealSense D435. FoV: Detects objects 1800 mm high at a distance of 1200 mm in front of the robot. 114° total horizontal view. Ground view, minimum distance from robot: 250 mm
Proximity sensors	Eight pcs.

Lights and audio

Audio	Speaker
Status lights	LED light band
Signal lights	Eight pcs, two on each corner

Maintenance

Maintenance	Maintenance hatches on four sides of the robot.
Service intervals	Six months