

BALABAN

Autonomous multipurpose mobile robot for manufacturing & intralogistics

Fully electric AMR for automated driverless conveyance of heavy loads. AI-based free-space navigation, a no-code one-page graphical interface with digital twin, and a modular plug-and-play tool ecosystem let one robot serve many applications. Full deployment in less than one working day.

1 500 kg MAX. PAYLOAD	**1 200 mm** MAX. LIFT HEIGHT	**1.4 m/s** MAX. SPEED, FULL LOAD
up to 12 h OPERATION, FULL LOAD	**360°** SAFETY SCANNING	**PL d / SIL 2** SAFETY CLASS

GENERAL INFORMATION

Designated use	Automated driverless conveyance of heavy loads
Type	Autonomous Mobile Robot (AMR)
Drive / lift	Fully electric (no hydraulics)
Colour	RAL 7011 / RAL 2008
Product design life	1 year or 2 000 h of active operation, whichever comes first

DIMENSIONS & WEIGHT

Length	1 802 mm
Width	800 mm
Height	1 927 mm
Weight	864 kg
Maximum lift height	1 200 mm

PAYLOAD

Maximum payload	1 500 kg
Pallet type	Standard EUR 1 pallets
Payload placement	Centre of mass per integrator manual

PERFORMANCE

Max. speed with max. payload, flat surface	1.4 m/s (5.4 km/h)
Operational corridor width full speed / reduced speed	2 350 mm / 1 600 mm
Corridor width for 90° turn	2 000 mm
Positioning accuracy	Sub-millimetre
Deployment time	< 1 working day

POWER

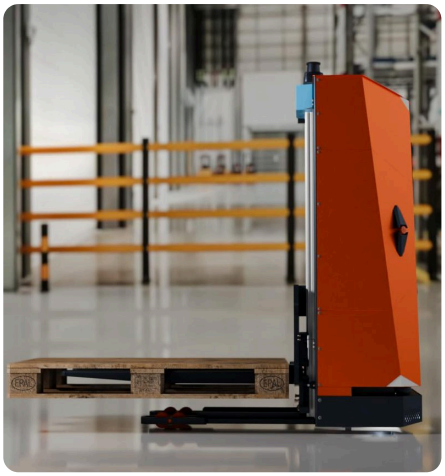
Battery type	Lithium-ion
Nominal voltage	48 V
Capacity	50 Ah
Battery weight	25 kg
Battery dimensions L × W × H	487 × 201 × 75 mm
Operating time with maximum payload	up to 12 h

LIGHTS & AUDIO

Audio	Speaker and safety buzzer
Status light	4 LED bands – robot status
Signal lights	4 pcs – driving behaviour & direction
Blue warning light	1 pc – projected 4 200 mm ahead of the robot

SENSORS & SAFETY

SICK safety laser scanners	3 pcs (front and rear), 360° protective field
3D camera	1 pc – pallet and obstacle detection
Navigation LiDAR	1 pc, top-mounted
Laser sensors	2 pcs – verify pallet is securely on the forks
Safety class	PL d / SIL 2, certified safe positioning
Load detection	Integrated weight recognition (no external load cells)



COMPLIANCE

Designed to meet safety standards for industrial vehicles	EN ISO 12100:2010 · ISO 13849-1:2023 · EN ISO 13850:2015 · EN ISO 3691-4:2023 · EN IEC 61000-6-4:2007/A1:2011 · EN IEC 61000-6-2:2005/AC:2005 · EN 12895:2015+A1:2019

OPERATING ENVIRONMENT

Environment	Indoor use only
Ambient temp., operation	+5 … +25 °C; up to +40 °C for max. 1 h
Ambient temp., storage	−10 … +60 °C (up to 3 months)
Humidity	20 – 95 % non-condensing
Ingress protection	IP52
Floor conditions	Clean and dry, even surfaces
Max. incline / decline	Intended for even surfaces

FLOOR & PERCEPTION LIMITS

Max. traversable step	10 mm
Floor-to-wheel friction coefficient	min. 0.60
Materials not reliably detected	Transparent, translucent, glossy, reflective and light-emitting
Optimal lighting	Even, steady lighting Strong directional light can cause detection of non-existent obstacles

KEY TECHNOLOGIES

AI free-space navigation
Automatic route calculation with real-time re-planning around obstacles in highly dynamic environments.

Fully electric lifting mechanism
No hydraulics – no leaks or contamination risk, lower maintenance, high energy efficiency.

Autonomous pallet recognition & selection
Onboard AI vision detects and localises pallets in varying light and selects the optimal pallet to pick.

No-code control software
One-page graphical interface with digital twin, diagnostics and real-time monitoring; modular integration with existing automation.

Collaborative operation
Collision-free operation alongside human workers with redundant safety sensing layers.

KANSEI cognitive system
Advanced perception, predictive maintenance, worker safety and adaptive environmental cleaning.

APPLICATIONS – PLUG-AND-PLAY TOOL MODULES

Pallet truck · Lifting platform · Pick & place / machine tending · Shelf / roller / conveyor · Inspection & quality check · Smart palletizing & pallet transport

DEPLOYMENT – 4 STEPS TO AUTONOMY

1 Create map
Robot maps the floor while guided manually or by joystick.

2 Set points & tasks
Operator places load/unload points on the digital map.

3 Path planning
Most efficient route computed and adapted in real time.

4 Autonomous execution
Tasks run fully autonomously alongside people.

All data are nominal values and subject to change without notice. Refer to the integrator manual for installation, payload placement and safety instructions.