



E-Nano

Unit 56, Camberwell Business Centre
99-103 Lomond Grove
London
London, SE57HN
info@e-nano.io
<https://www.e-nano.io/>

E-Nano Robot Base – Technical Specifications

The E-Nano Robot Base is a compact, high-torque, 4-wheel Ackermann-steered robotic platform built for field and research use. It combines K5W168 brushless geared hub motors, single or dual 48 V batteries, and a fully open-source control architecture compatible with ROS 2 / OSCAR modules via Ethernet.

Mechanical Configuration

Drive Type	4-wheel Ackermann steering (front-steer, rear-drive)
Wheel / Motor Model	K5W168 brushless geared hub motor
Gear Ratio	5:1
Wheel Diameter	400 mm (16 in)
Tire Mount	4-bolt hub – interchangeable tyre types
Wheelbase	700 mm
Track Width	860 mm
Ground Clearance	150 mm
Dimensions (L×W×H)	≈1050×960×420 mm
Chassis Material	Steel / Aluminium hybrid
Turning Radius	1.5–2.0 m (inner)
Steering	Ackermann linkage driven by servo / geared actuator

Electrical System

Motor Quantity	4 (2 × rear drive + 2 × front steer)
Rated Voltage	48 V system
Rated Power (each)	600 W continuous / 800 W peak
Total Continuous Power	2.4 kW
Peak System Power	3.2 kW
Rated Torque (each)	100 N·m
No-Load Speed	220 RPM (~15 km/h)
Brake Type	Disc or electronic regenerative
Motor Protection	IP54

Power System

Battery Type	Li-ion
Quantity	1 or 2 × 48 V packs
Weight (each)	11 kg
Total Battery Weight	22 kg
Capacity	32–64 Ah (3.1–6.2 kWh total)
Runtime	4–8 h intermittent operation (depending on load and battery)
Charging	External fast charger (70% in 30 min)
Protections	Integrated BMS (OV/UV/OT/SC)

Performance

Base Weight	130 kg
Static Load / wheel	250 kg
Total Static Capacity	1000 kg
Operational Load (robot + payload)	250–300 kg
Max Payload	120–170 kg
Max Speed	~15 km/h
Working Speed	3–10 km/h
Max Slope	15–18° (27–32 %)
Ground Pressure	~30 kPa @ 250 kg GVW
Braking Distance	< 1 m @ 10 km/h (electronic + disc)

Communication & Control

CAN Bus	Motor & sensor network (250–500 kbps)
Ethernet	ROS 2 / OSCAR compatible high-speed control
RF Control	Standard 2.4 GHz remote
Control Modes	Manual (RF) / Autonomous (Ethernet) / Hybrid
Output Voltage	12V / 24V / 48V

Environmental & Safety

Operating Temp.	–10 °C to +50 °C
Ingress Protection	IP54 (system) / IP54 (motors)
Noise Level	< 55 dB (A)
Safety	Electronic braking, current, thermal & voltage protection
Safety Interface	E-Stop

Summary

Max Speed	~15 km/h
Payload (dynamic)	120–170 kg
Gross Weight	250–300 kg
Static Capacity	1000 kg total
Max Slope	15–18°
Ground Clearance	150 mm
Wheelbase / Track	700 mm / 860 mm
Base Weight	130 kg
Interfaces	CAN Bus / Ethernet / RF Remote
Software	Open-source – ROS 2 compatible

Optional Accessories & Features

Safety Bumper	Protective bumpers with collision detection capability
Light Indicators	LED signal indicators for operational and directional status
Mechanical Brake (Disc)	Mechanical disc brake for safety and parking stability
Autonomy	OSCAR navigation stack