

PAL

# KANGAROO

ADVANCED PHYSICAL AI PLATFORM

**Emergency Stop Button**

**Computing Power**  
2x i7 CPU  
Nvidia Jetson GPU

**IMU & AHRS**

**Anthropomorphic arm**  
7 DoF

**Highly Efficient Linear Actuators**

**Lightweight Leg Design**  
6 DoF

**Mobility**  
Speed up to 2 m/s

**User Panel**  
Expansion ports available

**RGB-D Camera x 4**  
Intel Realsense D435i

**15 Ah Battery**  
3 hrs autonomy

**Torso**  
2 DoF

**Quick tool changer**

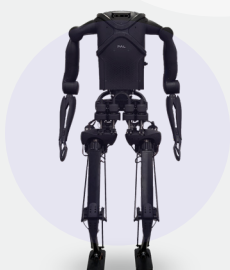
**Parallel Gripper or Humanoid Hand**  
Plug & Play

**Modular Feet**  
Interchangeable with FT Sensors

**Biped**



**4 DoF Arms**



**7 DoF Arms**



**HRI**



CHOOSE THE CONFIGURATION THAT FITS YOUR PROJECT NEEDS

# KANGAROO

## TECHNICAL SPECIFICATIONS

HARDWARE	Height	1,60 m
	Weight	50–65 kg
	Total DoF	14–40 (Platform configuration)
	Single Arm DoF	4, 5 or 7 (Platform configuration)
	Arm Tool Flange	ISO 9409–1 Interface with Quick Tool Changer
	Torso DoF	2 (Yaw and Roll)
	Single Leg DoF	6
	Real-time Performance	EtherCAT 2 kHz Control Loop
	IMU and AHRS	1 kHz Update Rate Acc. 0.25° (static) 0.5° (dynamic)
	Vision System	4x RGB-D Cameras D435i
Battery	976 Ah, 3 hours autonomy	
Emergency Stop Systems	Onboard Emergency Button Wireless Emergency Button SIL 2 based on IEC61508 PL d based on EN ISO 13849–1	

ACCESSORIES	Joystick Controller	✓
	Robot Charger	✓
	Transportation Case	✓
	VR Teleoperation Kit	Optional
	Mobile Lift	Optional

### PLATFORM CONFIGURATIONS

ARMS		Arm fully extended	Bi-manual manipulation
	4 DoF Arms	7 kg Payload	30 kg Payload
	5 DoF Arms	5 kg Payload	28 kg Payload
	7 DoF Arms	3 kg Payload	25 kg Payload

END-EFFECTORS	Parallel Gripper	2 Fingers, 1 DoF
	Seed Robotics RH8D	5 Fingers, 7 DoF Fingertips Tactile Pressure Sensors
	Inspire Robots RH56F1 - RH56E2	5 Fingers, 6 DoF Capacitive Tactile Sensors

SENSORS	Wrist	6 Axis Force/Torque Sensor
	Feet	6 Axis Force/Torque Sensor
	Leg Actuators	Integrated Force Sensor

SOFTWARE & DEVELOPMENT TOOLS	OS and Middleware	Ubuntu LTS + ROS 2 LTS + PAL OS
	Control Framework	ros2_control
	Actuator Control Modes	Current Speed Position Impedance Force/Torque (Optional)
	Kinematic and Dynamic Robot Model *	URDF and MJCF Model
	Simulation and RL Tools *	MuJoCo and mijlab
	AI Controller*	Framework for online control policies switching
	AI Development Pipelines *	Reinforcement Learning Motion Retargeting Imitation Learning
	RL Policies Library	Walking Push recovery Running Jumping Stair climbing Dance Box picking
	Visualization and Diagnostics	WebGUI - web interface Hardware Statistics History Rviz2
	Research Access Level	Access to real-time loop Custom software deployment ROS 2 API C++/Python
Kinematic Whole Body Controller	Hierarchical IK solver Teleoperation demo with VR Kit Optional	

\* Open Source

**USER PANEL**

**Expansion Ports:**  
 2x USB-3 Type A  
 4x USB 3.2 Type C  
 2x Gigabit Ethernet RJ45  
 12V/5A power out  
 7.4V/2A power out

COMPUTING	Control PC	Intel i7, 32GB RAM, 1TB SSD
	Multimedia PC	Intel i7, 32GB RAM, 1TB SSD
	Connectivity	2x WiFi6 (2.4GHz + 5GHz)
	GPU	NVIDIA Jetson GPU (Optional)

SUPPORT SERVICES	Ticketing platform access
	Bug fixing and software upgrades
	Remote diagnostics and support
	Onsite installation and training
	Hardware maintenance and replacement
	Warranty extension

