

UNITREE G1 Basic



Model: 077284

Manufacturer: UNITREE

EAN: 5907085525600

Product Code: 1596709

R794,025

Unitree G1 Basic

Unitree G1 Basic is a state-of-the-art humanoid robot that can be used for research on motion, control systems, 3D perception and human-machine interaction. At the same time, its extensive movement capabilities make it an attractive demonstration tool. Measuring about 130 cm and weighing 35 kg, it impresses with its motor capabilities despite its compact size. With 23 degrees of freedom and speeds of up to 2 m/s, it easily performs complex sequences - it can dance, jump, run and react to its surroundings in real time.

Natural and expressive movement

One of the main features of the G1 Basic is its exceptional freedom of movement, far exceeding the capabilities of classic industrial machines. This humanoid effortlessly runs, jumps, climbs stairs, performs dynamic movements inspired by dance and martial arts, and can instantly change position without losing balance. With 23 degrees of freedom and a wide range of motion, its actions are smooth, natural and perfectly synchronized. This opens up new possibilities in tests, demonstrations and research projects that require realistic dynamics and precise motion control.

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Balance in all conditions

The Unitree G1 Basic robot is designed to remain stable not only on smooth surfaces, but also on more challenging terrain. Each of its legs has six degrees of freedom, allowing for precise weight transfer and instant adaptation to changing ground. The design allows it to move smoothly over uneven surfaces such as stones - without losing control of balance or direction. As a result, the device works well both indoors and outdoors, well illustrating the practical capabilities of humanoid designs.

Refined drive mechanics

The robot's motion system is based on PMSM motors with a low-inertia internal rotor, which are responsible for fast responses and stable torque control. The maximum knee torque of 90 N-m allows the implementation of dynamic movements such as squats, jumps and rapid changes in body position. The arms offer five degrees of freedom each and a lifting capacity of up to about 2 kg, enabling precise manipulation of objects and complex gestures. Industrial cross bearings and dual encoders in the joints ensure high accuracy of operation and repeatability of movement.

Advanced perception of the environment

The G1 Basic's vision system is based on a combination of the Intel RealSense D435i depth camera and Livox-MID360 3D LiDAR sensor to provide detailed information about the surrounding space. The wide range of vision and high data accuracy enable autonomous navigation and precise motion planning. As a result, the robot effectively reacts to obstacles, interprets changes in the environment and performs tasks that require spatial awareness.

Natural communication with the user

A powerful audio system is responsible for the exchange of voice information, which enables free and intuitive interaction with users. Four microphones with active noise cancellation and echo cancellation effectively capture voice commands even in demanding acoustic conditions, while a 5 W stereo speaker provides clear feedback. This form of interaction makes the robot a full participant in the human-machine dialogue.

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AI operating in the real world

The G1 Basic is more than a robot that performs pre-programmed sequences of movements. It is designed as a platform ready to work with artificial intelligence algorithms. It supports both imitation learning and reinforcement learning, so it can develop its skills based on observation and experience gained. Combined with the UnifoLM concept - Unitree's proprietary large-scale model - the device becomes a carrier of AI that functions directly in the physical environment. This is a solid foundation for the development of future generations of intelligent robots and autonomous assistants.

Energy that keeps pace

The 9,000 mAh smart battery is designed for intense, dynamic operation. A single charge provides up to about 2 hours of operation, allowing you to freely test the robot's capabilities or present them at demonstrations. A well-thought-out quick-assembly system enables efficient component replacement, keeping interruptions to an absolute minimum.

Mobility without compromise

The robot's structure is designed to facilitate not only work, but also transportation and storage. When folded, the dimensions of the device are only 69 × 45 × 30 cm. Such a small size significantly simplifies moving the robot between workstations, laboratories or presentation spaces, as well as its safe storage.

General

Manufacturer	Unitree
Model	G1 Basic
Dimensions in standing position	1320 × 450 × 200 mm
Dimensions in folded position	690 × 450 × 300 mm
Weight (including battery)	approximately 35 kg
Basic computing power	8-core high-performance processor
Sensors and communications	Depth camera + 3D LIDAR

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Directional microphones	yes
5W stereo speaker	yes
WiFi 6, Bluetooth 5.2	yes
High computing power module	no
Manual controller	yes
OTA updates	yes

Degrees of freedom

Total number of degrees of freedom	23
Single leg	6
Waist	1
Single arm	5
Single hand	none
Joint bearings	Industrial cross roller bearings (high precision, high load capacity)
Joint motors	Synchronous motors with permanent magnets and low-inertia internal rotor (better response speed and heat dissipation)
Knee joint torque	90 N-m
Maximum load on the arm	approximately 2 kg
Calf + thigh length	0,6 m
Arm span	approximately 0.45 m

Joint range of motion

Waist	Z $\pm 155^\circ$
Knee	0~165°
Hip	P $\pm 154^\circ$, R -30~+170°, Y $\pm 158^\circ$

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Full internal wiring routing Yes

Joint encoder Dual encoder

Cooling system Local air cooling

Power supply

Battery type Lithium (13 cells)

Quick exchange capability Yes

Capacity 9000 mAh

Charger 54V 5A

Operating time approximately 2 hours

Gross weight: 72500, Net weight: 35000, Box length: 98,50, Box width: 55,50, Box height: 55,50,
GPSR Link: https://psr-assets.innpro.pl/robots/robots_humanoid_robots.pdf, Information about data
generation: <https://dataact.innpro.pl/unitree/5907085525600>