UNITREE G1

HUMANOID AGENT AI AVATAR

www.unitree.com

FLEXIBILITY BEYOND ORDINARY PEOPLE

Extra large joint movement angle space, 23~43 joint motors.

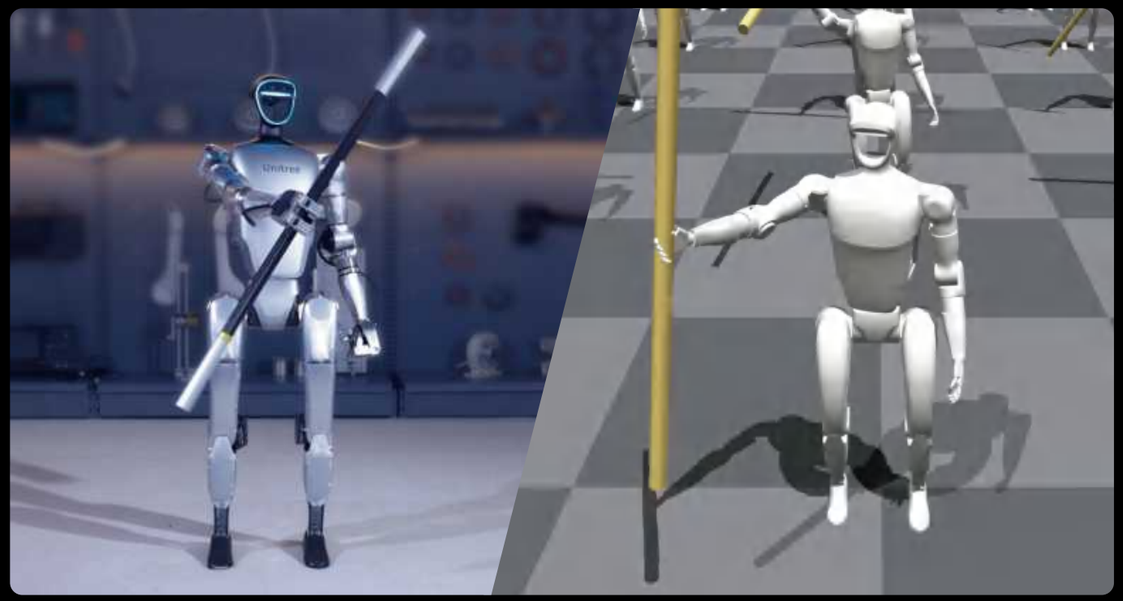
FORCE CONTROL DEXTEROUS HAND, MANIPULATION OF ALL THINGS

Combined with force-position hybrid control, it is sensitive and reliable, and can simulate human hands to achieve precise operation of objects.

*Three-fingered dexterous hand Dex3-1 Parameter: The thumb has 3 active degrees of freedom; the index finger has 2 active degrees of freedom; the middle finger has 2 active degrees of freedom.

IMITATION & REINFORCEMENT LEARNING DRIVEN

Robotics technology accelerated by AI is upgrading and evolving every day.



ROBOT WORLD MODEL, LET'S CREATE IT TOGETHER

UnifoLM (Unitree Robot Unified Large Model), create a new era of intelligence together.

*Open for everyone to co create and use in the future.

START THE AGENT NEW ERA

BODY SIZE VALUE

Weight About **35** kg

Height About **130** cm

360° DETECTION PERCEPTION

3D LIDAR +Depth Camera

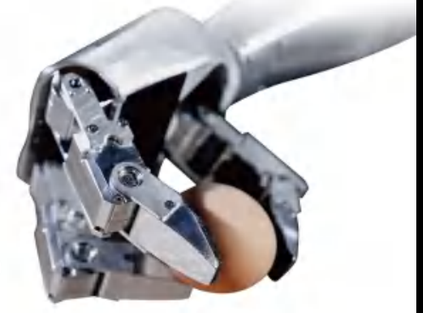
TOTAL DEGREES OF FREEDOM

≤ **43** pieces

DEX3-1 FORCE CONTROL DEXTEROUS HAND

3-Finger Force Control Dexterous Hand

(Optional installation of tactile sensor arrays)



MAX JOINT TORQUE

120 N.m

BATTERY LIFE

About **2** h

Unitree G1 Parameter

Depth Camera
Intel RealSense

3D LIDAR
LIVOX-MID360

Hollow Joint Wiring of The Whole Machine
No external cables

Mobility
Moving speed of 2m/s

Core Motion Module
Max torque at joints 120 N.m

Microphone Array
Noise Cancellation, Echo Cancellation

Speaker
Stereo, 5W Power

Extra Large Quick Release Battery
Provide lasting power

Single Arm Degrees of Freedom
Shoulder 3+Elbow 2 +Wrist 2(optional)

Single Leg Degrees of Freedom
Hip 3 + Knee 1 + Ankle 2

Model	G1	G1 EDU
Size (Stand)	1320mmx450mmx200mm	1320mmx450mmx200mm
Size (Fold)	690mmx450mmx300mm	690mmx450mmx300mm
Weight (With Battery)	About 35kg	About 35kg+
Total Degrees of Freedom (Joint Freedom)	23	23~43
Single Leg Degrees of Freedom	6	6
Waist Degrees of Freedom	1	1+(Optional 2 additional waist degrees of freedom)
Single Arm Degrees of Freedom	5	5
Single Hand Degrees of Freedom	/	7 (Optional Force control of three-fingered hand) +2 (Optional 2 additional wrist degrees of freedom) *Three-fingered dexterous hand Dex3-1 Parameter: The thumb has 3 active degrees of freedom; the index finger has 2 active degrees of freedom; the middle finger has 2 active degrees of freedom. **Dex3-1 can optionally be installed with tactile sensor arrays
Joint Output Bearing	Industrial grade crossed roller bearings (high precision, high load capacity)	Industrial grade crossed roller bearings (high precision, high load capacity)
Joint Motor	Low inertia high-speed internal rotor PMSM(permanent magnet synchronous motor,better response speed and heat dissipation)	Low inertia high-speed internal rotor PMSM(permanent magnet synchronous motor,better response speed and heat dissipation)
Max Torque of Knee Joint【1】	90N.m	120N.m
Arm Max Load【2】	About 2Kg	About 3Kg
Calf + Thigh Length	0.6M	0.6M
Arm Span	About 0.45M	About 0.45M
Extra Large Joint Movement Space	Waist joint: Z±155° Knee joint: 0~165° Hip joint: P±154°、R-30~+170°、Y±158°	Waist joint: Z±155°、X±45°、Y±30° Knee joint: 0~165° Hip joint: P±154°、R-30~+170°、Y±158° Wrist joint: P±92.5°、Y±92.5°
Full Joint Hollow Electrical Routing	YES	YES
Joint Encoder	Dual Encoder	Dual Encoder
Cooling System	Local Air Cooling	Local Air Cooling
Power Supply	13 String Lithium Battery	13 String Lithium Battery
Basic Computing Power	8-Core High-Performance CPU	8-Core High-Performance CPU
Sensing Sensor	Depth Camera+3D LiDAR	Depth Camera+3D LiDAR
4 Microphone Array	YES	YES
5W Speaker	YES	YES
WiFi 6 、Bluetooth 5.2	YES	YES
High Computing Power Module	/	NVIDIA Jetson Orin
Smart Battery (Quick Release)	9000mAh(421Wh)	9000mAh(421Wh)
Charger	54V 5A	54V 5A
Manual Controller	YES	YES
Battery Life	About 2h	About 2h
Upgraded Intelligent OTA	YES	YES
Secondary Development【3】	/	YES
Warranty Period【4】	8 months	18 months

[1] The maximum torque of the joint motors of the whole machine is different. This is the maximum torque of the largest joint motor among them.
[2] The maximum load of the arm varies greatly under different arm extension postures.
[3] For more information, please read the secondary development manual.
[4] For more detailed warranty terms, please read the product warranty brochure.
[5] The above parameters may vary in different scenarios and configurations, please subject to actual situation.
[6] The humanoid robot has a complex structure and extremely powerful power. Users are asked to keep a sufficient safe distance between the humanoid robot and the humanoid robot.Please use with caution
[7] If any change in the appearance of the product, please refer to the actual product.
[8] Some sample functions on this page are still being developed and tested, and will be opened to users in the future.
※ This product is a civilian robot. We kindly request that all users refrain from making any dangerous modifications or using the robot in a hazardous manner.

TECHNOLOGY DRIVES WORLD PROGRESS

Unitree Robotics

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Please visit Unitree Robotics Website for more related terms and policies,
and comply with local laws and regulations.

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UNITREE R1

Ultra-lightweight, Fully Customizable

Unitree R1 Parameters

Humanoid Binocular Camera
Ultra-Wide-Angle Visual Perception

Microphone Array
4 Mic Array

Single Arm Degrees of Freedom
Shoulder Joint*3 + Elbow Joint*2

Huge Power

Computing Module
8-core CPU+GPU

Smart Battery
(Quick Release)
Quick Replacement

Speaker
Stereo,Dual Speakers（3W×2）

Waist Degrees of Freedom
2 DOF

Sigle Leg Degrees of Freedom
6 DOF

	Model	R1	R1 EDU
Mechanical Dimensions	Height, Width and Thickness（Stand)	1230×357×190mm	1230×357×190mm
	Weight (With Battery)	About 29kg	About 29kg
	Degree of Freedom (Total Joints)	26	26-40
	Single Leg Degrees of Freedom	6	6
	Single Arm Degrees of Freedom	5	5
	Waist Degrees of Freedom	2	2
	Head Degrees of Freedom	2	2
	Dexterous Hand	/	Optional
	Joint output bearing	Crossed roller bearings, Double Hook Ball Bearings	
	Joint motor	Low inertia high-speed internal rotor PMSM(permanent magnet synchronous motor, better response speed and heatdissipation)	
	Max Torque of Arm Joint [1]	About 2kg	About 2kg
	Calf + Thigh Length	600	600
	Forearm + Upper Arm Length	420	420
	Joint Movement Space	Waist Joint：：Y±150° R:±30° Knee Joint：-10° ~+148° Hip Joint：Y:±157° P:-168° ~+146° R:-60° ~+100°	
Electrical Characteristics	**Electrical Routing**	Hollow + Internal Routing	Hollow + Internal Routing
	Joint Encoder	Dual + single encoder	Dual + single encoder
	Cooling System	Local air cooling	Local air cooling
	Power Supply	Lithium battery	Lithium battery
	Basic Computing Power	8-core CPU	8-core CPU
	Microphone Array	4-Mic Array	4-Mic Array
	Speaker	YES	YES
	Wifi6、Bluetooth 5.2	YES	YES
	Humanoid Binocular Camera	YES	YES
Accessories	**High-Power Computing Module**	/	NVIDIA Jetson Orin Optional (40-100Tops)
	Smart Battery (Quick Release)	YES	YES
	Charger	YES	YES
	Manual Remote Control	YES	YES
Other	Battery Life	About 1h	About 1h
	Upgraded Intelligent OTA	YES	YES
	Secondary Development[2]	/	YES
	Warranty Period [3]	8 Months	12 Months

[1] The maximum load of the arm varies greatly under different arm extension postures.
[2] For more information, please read the secondary development manual.
[3] For more detailed warranty terms, please read the product warranty brochure.
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[5] The humanoid robot has a complex structure and extremely powerful power. Users are asked to keep a sufficient safe distance between the humanoid robot and people.Please use with caution.
[6] If any change in the appearance of the product, please refer to the actual product.
[7] Some sample functions on this page are still being developed and tested, and will be opened to users in the future.
[8] Currently, the global humanoid robot industry is in the early stages of exploration. Individual users are strongly advised to thoroughly understand the limitations of humanoid robots before making a purchase.
[9] This product is a civilian robot. We kindly request that all users refrain from making any dangerous modifications or using the robot in a hazardous manner.